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CLEVELAND. OHIO

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OF THE

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JANUARY 2 TO JUNE 26, INCLUSIVE,

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ERRATA.

On page 13, No. **185,848,** in title, for "or" read *and.*
On page 71, (trade-mark,) No. **4,270,** inventor's name, for "Gillett" read *Gillet.*
On page 93, No. **186,333,** in title, for "or" read *and.*
On page 97, No. **186,369,** first claim, sixth line, for "closed" read *locked.*
On page 106, first column, twenty-first line, for "402" read 472; twenty-second line, after patents, insert *Trade-Marks and Labels;* and twenty-eighth line, after patents, insert *Trade-Marks and Labels;* and thirty-second line, after patents, insert *&c.*
On page 133, No. **186,540,** inventor's name, for "Canty" read *Cauty.*
On page 136, No. **186,556,** first claim, third line, for "arms" read *arm.*
On page 137, No. **186,571,** inventor's name, for "W" read *M.*
On page 145, No. **186,626,** for No. of Drg. "186,618" read 186,626.
On page 170, No. **186,747,** in claim, fourth line, for "adopted" read *adapted.*
On pages 171 and 172, Nos. **186,756** and **186,757,** transpose figure of drawing.
On page 189, No. **186,890,** first claim, second line, for "filling" read *fitting.*
On page 245, second column, strike out fifty-fifth line and part of fifty sixth line to "according."
On page 298, No. **187,479,** inventor's name, for "Palmaleer" read *Polmateer.*
On page 354, No. **187,825,** first claim, third line, after engine strike out hyphen and insert comma.
On page 356, No. **187,841,** first claim, first line, after "pump" insert *a valve.*
On page 357, No. **187,851,** first claim, second line, for "C" read *c.*
On page 361, No. **187,881,** inventor's name, for "Maubre" read *Manbre.*
On page 421, (trade-mark,) No. **4,437,** inventor's name, for "Furland" read *Furlaud.*
On page 443, No. **188,377,** in title, for "Photography" read *Photographic.*
On page 449, No. **188,423,** second claim, fourth line, for "*h*" read L.
On page 523, No. **188,822,** in heading, for "Jan. 29, 1877," read *Nov.* 15, 1876.
On page 594, No. **7,585,** (reissue,) second claim, third line, for "2" read *r.*
On page 617, No. **189,388,** second claim, first line, for "and" read *the;* and third claim, fifth line, for "frame" read *groove.*
On page 626, No. **189,469,** assignee's name, for "Cooke" read *Cocke.*
On page 666, No. **189,696,** in title, for "cleaner" read *clearer.*
On page 667, No. **189,701,** add the following claim:
3. *The roller D bearing in the rods or bars d d, in combination with, and engaged by, a spring, f, substantially as and for the purpose described.*
On page 683, No. **7,609,** (reissue,) in heading, for "Ang. 3" read *Aug.* 30.
On page 685, No. **7,614,** (reissue,) in heading, after "filed Dec. 27, 1876," add *antedated Dec.* 7, 1869.
On page 698, No. **189,859,** in claim, fifth line, after "bead," insert *or other projection on the barrel, or by a;* and sixth line, after "other" insert *metallic form,* and strike out "suitable projection."
On page 729, No. **190,086,** in heading, strike out all after "Quebec" and before "Canada."
On page 773, No. **190,326,** in title, for "Brushing" read *Crushing.*
On page 783, No. **190,394,** in heading, after "assignors" insert *of one-third their right.*
On page 784, No. **7,646,** (reissue,) in heading, for "July 7" read *July* 11.
On page 790, No. **9,970,** (design,) in heading, for "7" read 14.
On page 816, No. **190,571,** in heading, assignee's name, for "Fitzgerald" read *Fitzgerell.*
On page 829, No. **7,662,** (reissue,) in heading, after "1870" insert DIVISION B.
On page 867, No. **190,901,** inventor's name, for "Branch" read *Brauch.*
On page 870, No. **190,915,** third claim, first line, for "In a" read *A.*
On page 873, No. **190,940,** in heading, assignee's names, for "Runyan" read *Runyon.*
On page 876, No. **7,687,** (reissue,) in heading, after "1868" insert *Patented in England, Dec.* 7, 1867.
On page 880, No. **4,677,** (trade-mark,) in title, before "Yarn" insert *Woolen.*
On page 904, No. **191,100,** inventor's name, for "Brankman" read *Braukman.*
On page 920, No. **7,691,** (reissue,) in heading, after "Mass." insert *assignor to James W. Corey, of Newark, N. J.*
On page 921, No. **7,691,** (reissue,) number the present claim 2 and insert the following claim:
1. *In a self-closing faucet, the combination, with the valve-stem, of an actuating crank-pin, the construction and arrangement of these parts being such that the throw of the crank-pin is limited by the valve-stem, for the purpose set forth.*

On page 953, No. **191,412,** inventor's name, for "England" read *Englund.*
On page 957, No. **191,411,** in heading, assignee's name, for "F" read *L.*
On page 978, No. **191,524,** fourth claim, third line, for "D" read *G.*
On page 986, No. **191,590,** in heading, assignee's name, for "Tracy" read *Lacy.*
On page 994, No. **191,650,** in heading, assignee's name, for "Lawyer" read *Sawyer.*
On page 1,068, No. **192,054,** in heading, after "assignor" insert *of one-half his right.*
On page 1,121, No. **192,347,** inventor's name, for "Plant" read *Plaut.*
On page 1,126, No. **192,383,** in heading, for "Himbles" read *Kimble.*
On page 1,139, No. **192,491,** in first claim strike out the No. "1" and all of the second claim.
On page 1,146, No. **192,539,** in heading, assignee's name, for "Eglan" read *Eglau.*

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OFFICIAL GAZETTE

OF THE

UNITED STATES PATENT OFFICE.

JANUARY—JUNE, 1877.

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OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS

IN THE MATTER OF

PATENTS, TRADE-MARKS, &c.

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DIGEST OF DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS

IN THE MATTER OF

PATENTS, TRADE-MARKS, &c.

OFFICIAL GAZETTE—January—June, 1877.

DIGEST OF DECISIONS.

[The names of court cases are designated by an asterisk, (*).]

ABANDONED APPLICATIONS.

1. The provisions of section 35 of the act of 1870, that upon the hearing of the renewed applications therein referred to, abandonment should be considered as a question of fact, does not render delay of itself conclusive evidence of abandonment, but makes the decision of such cases depend upon the peculiar circumstances as a question of fact and not of law.

[*The United States Rifle and Cartridge Company *et al. vs.* The Whitney Arms Company *et al.*, 373.

2. Cochran's application was filed January 11, 1859, withdrawn February 20, 1860, and not renewed until after a period of eight years had elapsed. He, in the meantime, made numerous other inventions of a kindred nature and obtained twenty-two patents thereon, constantly engaged in their development, and though poor, not thereby deterred from prosecuting his other inventions, and could have obtained a patent on this, or at least kept the application alive, had he so desired. Meanwhile the invention was patented by others, and finally introduced in 1867, a year before Cochran filed his second application. *Held:* that while the new petition did not of itself sever the second application from the first, his acts and conduct show that the proceeding had been abandoned, and there was no continuity in the two applications.

[*The United States Rifle and Cartridge Company *et al. vs.* The Whitney Arms Company *et al.*, 373.

3. The case distinguished from Smith *vs.* Dental Vulcanite Company, where the first application had never been withdrawn, and the inventor was unremitting in his endeavors to obtain a patent.

[*Ibid., 373.

ABANDONED EXPERIMENT.

1. The presumption that an invention which had been put into form several years before the filing of the application was an abandoned experiment is overcome by proof of an intention on the part of the inventor to obtain a patent.

[Freund *vs.* King, 2.

2. When a person, in his endeavors to devise a machine for performing certain operations, constructs a mechanism incapable of producing the results aimed at, and afterward branches off in another direction, and attempts to create a new and different machine for performing the same operation, his first attempt must be regarded as an abandoned experiment.

[Wicks *vs.* Du Bois, 244.

3. The cast tin base held, in view of its defects, to have been an abandoned experiment, although several sets had been made.

[*Smith *vs.* The Goodyear Dental Vulcanite Company *et al.*, 246.

ABANDONED INVENTION.

1. Cummings applied for a patent on April 12, 1855. His application was rejected twice, and on February 3, 1856, a third rejection followed a reconsideration. From that time until the patent was finally granted the applicant was in ill health and poor. He did not withdraw his application, nor acquiesce in the action of the Patent Office. He made frequent applications to his friends for advances to enable him to prosecute his application. In February, 1859, an attempt was made for an appeal to the Board, but the Commissioner refused to allow it. On March 1, 1864, he presented a petition for the grant of a patent for the same invention. The patent was granted on June 7, 1864. The invention went into public use in 1859. *Held:* (Justices Bradley, Miller, and Field dissenting,) that the proceeding to obtain a patent was a continuous one from 1855 until it was granted; that the application of 1855 not being severable from that of 1864 there was no foundation for the allegation that the invention was abandoned to the public, and that it was in public use or on sale for more than two years prior to the inventor's application. There was no abandonment, actual or constructive.

[*Smith *vs.* Goodyear Dental Vulcanite Co. *et al.*, 246.

2. Forfeiture or abandonment may be inferred from the acts of an inventor who, without substantial reason or excuse, neglects the use of his invention and sleeps upon his rights for a number of years, while others in the meantime produce the same thing and give the public the benefit thereof; and the same is true whether the device be patented or had gone into use without a patent.

[*The United States Rifle and Cartridge Company *et al. vs.* The Whitney Arms Company *et al.*, 373.

(See Evidence, 4, 8, 9; Pleadings and Practice, 2.)

AGGREGATION.

(See Invention, 4.)

ARTICLES OF MANUFACTURE.

(See Construction of Specifications and Patents, 8; Invention, 10; Patentability, 6, 15.)

ASSIGNMENTS AND LICENSES.

Inventions may be assigned before they are patented.

[*Cammeyer and Lewis *vs.* Newton *et al.*, 227.

CASES COMMENTED UPON.

1. The case of Klein *vs.* Russell, reported in the 19th of Wallace, stated and qualified.

[*Russell *vs.* Dodge *et al.*, 152.

2. The case of Smith *vs.* Perry *et al.*, (9 OFFICIAL GAZETTE, 688,) considered and approved.

[Miller *vs.* Miles, 197.

(See Construction of Specifications and Patents, 8; Damages, 3.)

CLAIMS.

1. Claims which recite definitely the article invented, and contain in addition matter descriptive of the functions of certain parts, are not objectionable.

[J. J. Gray, 329.

2. The claim in a patent must be for something described in the specification, so that any person of ordinary mechanical skill, or skill in the art covered by the patent, can, from the specification, make a mechanism which will contain the claim

[*Vogler *vs.* Semple, 923.

3. The claims in a patent are to be considered as distinct from the description contained in the specification, and as representing what part of the matter described the patentee *claims* as his invention, and for which he asks protection.

[*Merrill *vs.* Yeomans *et al.*, 970.

4. The interests of the public demand that the claims in a patent should clearly and distinctly define and limit the actual invention claimed by and secured to the patentee.

[*Merrill *vs.* Yeomans *et al.*, 970.

5. The faultiness of claims which, for the purpose of securing an interference with an adverse party, enumerate important elements of a combination only in the most general language, commented upon and deemed a sufficient warrant to dismiss an appeal.

[Sargent *vs.* Burge, 1,055.

(See Construction of Claims; Patentability, 6, 8; Practice in Patent Office, 16, 17; Reissue, 12.)

COMBINATIONS.

Combinations consisting of old elements are not the same when none of the devices employed in one can be substituted for those in the other, so as to render the apparatus operative to effect the described result without reconstruction and invention.

[*Fuller and Barnum *vs.* Yentzer and Scates, 551.

(See Infringement, 18, 19; Invention, 2, 9.)

CONSTRUCTION OF CLAIMS.

1. Prior to the invention of Pearl unsuccessful attempts had been made to reduce the weight of the ring-spindle and bobbin in general use, and thus diminish the amount of power required to run them. The patentee effected this desideratum by making the blade shorter than the bobbin, which was provided with a bearing therefor in the center. The bobbin was made light, and a plug or bushing inserted in the upper end to strengthen it. The upper bushing forms no function in the combination of the bobbin and spindle, and the words "the described bobbin," occurring in the claims, must be construed not solely with reference to the words in the specification, but with reference also to the limitations in the context of the claims.

[*Pearl *et al. vs.* The Ocean Mills *et al.*, 2.

2. Claims should be so construed, if possible, as to embrace the invention actually made and described.

[*Clark *vs.* The Kennedy Manufacturing Company, 67.

3. Claims which would be void as being functional should be so construed as to embrace the described means for effecting the result.

[*The Swain Turbine and Manufacturing Company *vs.* Ladd, 153.

4. The claims in a reissued patent are to be construed so as not to embrace any invention broader in its scope than the invention described, or substantially suggested or indicated in the original.

[*Ibid., 153.

5. A claim to a scroll-saw having a U-shaped frame, A, the arms of which are adapted to be lengthened or shortened in such manner as to increase or diminish the distance between the bend or cross-bar 1 of the frame and the saw-blade B as set forth, is not a claim to a function, but to a saw, the arms of which are adjustable to suit different material.

[J. J. Gray, 329.

6. Where the claim immediately follows the description of the invention, it may be construed in connection with the explanations given in the description, and if the claim contains words referring back to the specification it cannot properly be construed in any other way.

[*Fuller and Barnum *vs.* Yentzer and Scates, 551.

7. It being understood that a result is not patentable, claims which read "forming one, two, or more creases in cloth, by means of, &c.," and "marking a line on the surface of cloth or other material sewed in a sewing-machine, by means of, &c.," construed to be for the described apparatus for producing the results named.

[*Ibid., 551.

8. A result is not patentable, and claims nominally for results will, if possible, be construed to be for the apparatus or certain portions thereof, as described in the specification of the patent.

[*Fuller and Barnum *vs.* Yentzer *et al.*, 597.

9. Claims are to be construed in connection with the specification, and in view of the actual invention, and of the state of the art.

[*Bruff *vs.* Ives, 924.

10. In a claim to "the above-described new manufacture of the deodorized heavy hydrocarbon oils suitable for lubricating and other purposes, free from the characteristic odors of hydrocarbon oils, and having a slight smell like fatty oil, from hydrocarbon oils, by treating them substantially as is hereinbefore described," the word "manufacture" may be used to express the process or the product thereof, but when taken in connection with the words "by treating them substantially as is hereinbefore described," it renders the claim in effect to the *new mode of manufacturing hydrocarbon oils by treating them as hereinbefore described.*

[*Merrill *vs.* Yeomans *et al.*, 970.

(See Construction of Specifications and Patents, 4, 5.)

CONSTRUCTION OF SPECIFICATIONS AND PATENTS.

1. The invention described in the original patent to William J. Clark consists in the manner in which he applied lateral compression to the manufacture of an angular neck and in the manner in which he permitted the shaping mechanism to become anvil ends upon which the header could operate to form a head upon the bolt.

[*Clark *vs.* The Kennedy Manufacturing Company *et al.*, 67.

2. He did not discover that swaging round iron would form an angular neck, and that upsetting would form a head, and that both operations would form a bolt; but he did invent what was before unknown—the mechanical means by which swaging would form an angular neck from round iron, which mechanism could be used in connection with upsetting.

[*Ibid., 67.

3. The thing invented and patented was not any mode of swaging combined with upsetting; but it was the employment of specified means, or their equivalents, for the accomplishment of a desired end.

[*Ibid., 67.

4. The claims for the process of forming the angular neck and protuberant head, as contained in the reissue, construed to be to use substantially of the dies described in the specification, or their equivalents.

[*Ibid., 67.

5. The claim in the reissued patent does not include any machine for making bolts from round iron, in which machine the two operations of forming the angular neck by dies which will swage, and forming the head by upsetting, are combined.

[*Ibid., 67.

6. The patent of John Dalton for "a head or hair net composed of a main set of meshes fabricated of coarse thread, combined with an auxiliary set or sets of meshes fabricated of fine thread" is void, because there is no invention in it, and because various fabrics had been made and were in public use for a long time before his application, which are precisely and accurately described by Dalton in the specification and claim of his patent.

[*Dalton *vs* Jennings, 111.

7. The claim of the Cummings patent, reissue No. 1,904—"the plate of hard rubber, or vulcanite, or its equivalent, for holding artificial teeth, or teeth and gums, substantially as described," is for a set of artificial teeth, as a new article of manufacture, consisting of a plate of hard rubber with teeth, or teeth and gums, secured thereto in the manner described in the specification, by embedding the teeth and pins in a vulcanizable compound, so that it shall surround them while it is in a soft state, before it is vulcanized, and so that when it has been vulcanized the teeth are firmly and inseparably secured in the vulcanite, and a tight joint is effected between them, the whole constituting but one piece.

[*Smith *vs.* The Goodyear Dental Vulcanite Company *et al.*, 246.

8. It is for a new product, differing from all that had preceded it not merely in degree of usefulness and excellence, but differing in kind, having new uses and properties. It was different in kind or species from all other devices. Devising and forming such a manufacture by such a process and of such materials was invention, although sets of artificial teeth had been previously mounted upon bases of other materials. The case of Hotchkiss *vs.* Greenwood (11 How., 248) considered. That case does decide that employing one known material in place of another is not invention if the result be only greater cheapness and durability of the product. But this is all. It does not decide that no use of one material in lieu of another in the formation of a manufacture can, in any case, amount to invention, or be the subject of a patent. If such a substitution involves a new mode of construction, or develops new uses and properties of the article formed, it may amount to invention. The substitution may be something more than formal. It may require contrivance, in which case the mode of making it would be patentable; or the result may be the production of an analogous, but substantially different, manufacture.

[*Ibid., 246.

9. The invention claimed in the reissued patents of Lacy and Cornell for improvements in bushes and wrenches for their insertion in beer-barrels, held to be patentable.

[Ibid., 331.

10. Where a new combination of old elements, producing new and useful results, is patented, it is the established rule that the invention, if any, within the meaning of the patent act, consists in the means or apparatus by which the result is obtained, and not merely in the mode of operation independent of the mechanical devices employed.

[*Fuller and Barnum *vs.* Yentzer and Scates, 551.

11. Charles Seidler's reissued patent of October 24, 1876, construed to embrace the impressment of a hard or metallic label upon either the inner or outer face of a plug of tobacco.

[*Lorillard & Co. *vs.* McDowell & Co., 640.

12. An inventor is supposed to describe in his patent the best mode of practicing his invention, but is not necessarily limited to the precise construction shown, so as to exclude a method differing from it only in a single detail, but producing the same result.

[*Ibid., 640.

13. In the language of the patent law a process is an art.

[*Cochrane *et al. vs.* Deener *et al.*, 687.

14. The inventor entered a disclaimer to that portion of his specification referring to the omission of the tar-paper and the formation of the blocks without interposing anything between their joints and further disclaimed "the forming of blocks from plastic material without interposing anything between the joints while in the process of formation:" *Held*, that this disclaimer

left the patent for a pavement wherein the blocks were formed by the interposition of some separating material between the joints, and in the specification the patentee has described tar-paper or its equivalent.

[Schillinger *vs.* Gunther, 831.

15. A liberal construction is to be given to the language of all patents and specifications, so as not to limit the actual invention of the patentee.

[*Ibid., 831.

16. The patent granted to Eli W. Blake for a stone-breaker, June 15, 1858, reissued January 9, 1866, and extended June 15, 1872, is not anticipated by the earlier patent to Hobbs and Brown for "improvements in the application of well-known mechanical means for the purpose of crushing ice," and to Hamilton for "crushing and grinding quartz or other substances," they not containing any of the essential elements of Blake's invention.

[*Robertson *et al. vs.* Blake, 877.

17. The invention patented to Wm. Beschke, August 14, 1866, includes as a necessary ingredient wire-gauze or perforated thin plate in the form of scrolls or of layers like the leaves of a book.

[*Ashcroft *vs.* Hollings, 879.

18. The invention secured to James Swan in his reissued patent of October 21, 1873, consisting of the method and means for forming auger-lips thus described is not anticipated by the patent to Ransom Cook, inasmuch as the former bends and swages or draws out the lips, while the latter merely twists or bends them.

[*Bruff *vs.* Ives, 924.

19. Swan's invention consists, generally, in the combination of the two sets of dies holding and forming, so that the action of the rotating forming dies upon the lips clamped by the griping-dies may upset and form the lips.

[*Ibid., 924.

20. The developed and improved condition of the patent law, and of the principles which govern the exclusive rights conferred by it, leaves no excuse for ambiguous language or vague descriptions. The public should not be deprived of rights supposed to belong to it without being told what it is that limits these rights.

[*Merrill *vs.* Yeomans *et al.*, 970.

21. The courts are inclined to give a patentee the benefit of a liberal construction of the patent, and when it appears that a valuable invention has really been made, to uphold that which was invented, and which comes within any fair interpretation of the claim; but when there are three inventions described, and but two claims made, each of which is valid and for the invention described therein, the court cannot give effect to the third invention, which the patentee has failed to claim.

[*Ibid., 970.

22. Letters Patent No. 82,606, reissued March 7, 1871, to George Crouch, for a particular construction of strap to "confine a shawl or similar article in a bundle" declared to be void, in consequence of prior knowledge and public use.

[*Crouch *vs.* Roemer, 1112.

(See Disclaimer, 2, 3; Infringement, 2, 9, 18, 21, 22, 29, 30; Patents, 1.)

CONSTRUCTION OF STATUTES.

(See Abandoned Application, 1; Construction of Specifications and Patents, 13; Jurisdiction, 3, 4, 5; Patents, 3, 4; Pleadings and Practice, 12.)

DAMAGES.

1. The amount of profits on a manufactured article is not always the rule of damages for an infringement. The court should endeavor to ascertain the damages which resulted to the plaintiff by the unauthorized use of his invention.

[Magic Ruffle Company *vs.* Elm City Company, 501.

2. The infringement being of a patent for an improved chain composed of alternate closed links and open spiral links formed of one or more coils of gold tubing, the distinctive feature of the invention consisting in the construction of the open spiral links from a specified material—viz., gold tubing—the damage sustained is not the advantage derived from the use of open links or open spiral links of gold tubing over what would have ensued from the use of closed links or tubing or open spiral links of solid gold as the two elements of utility and novelty which the new article possesses do not exist in a soldered chain of tubing, or in a chain made of split gold rings of solid wire.

[*Mulford *et al. vs.* Pearce *et al.*, 741.

3. The patented and unpatented articles are entirely distinct from each other, and the result which is found in the former cannot be obtained from the latter; therefore the principle decided in Mowry *vs.* Whitney is not applicable.

[*Ibid., 741.

4. The complainant was found entitled to nominal damages only, the burden of proof being upon him, and it appearing that the proof was meager and indefinite, but four machines made, no established license fee, the profits made being due in part to inventions covered by other patents, and no distinction made between profits accruing from the use of complainant's invention, and that from the other inventions and manufacturers' profits.

[*Robertson *et al. vs.* Blake, 877.

(See Jurisdiction, 4; Pleadings and Practice, 5.)

DECREE.

1. A decree for infringement was entered against Wright and a co-defendant, and, pending the report of the master, the former associated another party with him as partner, and engaged in the manufacture of the patented article in another district: *Held*, that Wright's present partner is so far in privity with the former case by his partnership relation to Wright that he is bound by the decree.

[*Dayton *vs.* Wright & Herring, 197.

2. The purchaser of a patent stands in full privity to a decree obtained by the former owner in a suit for infringement.

[*Ibid., 197.

3. If a patent is surrendered for reissue after final decree or judgment, the surrender has no effect upon a right passed previously into judgment. The right of the patentee then rests on his judgment or decree, and not on his patent.

[*Mevs *vs.* Conover, 1111.

(See Infringement, 4.)

DILIGENCE.

1. It is a well-settled principle of law that diligence on the part of the party first to conceive the invention constitutes an essential element of the title of first and original inventor.

[Gross *vs.* Sargent, 787.

2. The theory of the patent law requires that an inventor should be diligent in giving his efforts to the public, and a private corporation cannot be substituted for the public as the recipient of the inventor's efforts.

[Ibid., 787.

3. The diligence required of the one first to conceive, in order to make out a superior title to the invention as against one first to reduce the same to practice, is an absolute and not a relative matter, and must be shown to be reasonable under the circumstances.

[Millward *vs.* Barnes and Barnes, 1060.

(See Laches.)

DISCLAIMER.

1. A disclaimer properly made, attested, and recorded, becomes a part of the specification to the extent of the interest of those who make it, but will not affect any action pending at the time of its being filed, except as to unseasonable neglect or delay in filing it.

[*Dunbar and Hopper *vs.* Myers, Ex., *et al.*, 35.

2. The disclaimer must be taken into account in construing the patent, except when its effect is to enlarge the nature of the invention and prejudice the rights of the respondent.

[*Ibid., 35.

3. Matters properly disclaimed cease to be part of the invention, and render the patent the same as if such matters had never been included.

[*Ibid., 35.

4. A disclaimer limiting the actual invention of the patentee, the result of an error or mistake on the part of the Office, may be omitted in a reissue.

[*The American Shoe Tip Company *vs.* The National Shoe Toe Protector Company, 740.

(See Construction of Specifications and Patents, 14.)

DIVISION OF APPLICATIONS.

1. A separate oath is required when a new application is filed as a division of an original application made and sworn to by joint inventors.

[Tieman, Simpson, and Collins, 1.

2. The requirement of a division of an application presupposes the existence of matters which might become the subjects of separate patents.

[R. Pintsch, 597.

(See Joinder of Invention.)

EQUIVALENTS.

(See Construction of Specifications and Patents, 8; Infringement, 1, 2, 13, 14, 18, 19, 24, 33, 34; Interference, 9; Invention, 5, 8, 11, 12.)

EVIDENCE.

1. Full credit must be accorded to the testimony of an unimpeached witness.

[Freund *vs.* King, 2.

2. The unsuccessful embodiment of preconceived ideas of an invention, afterward reduced to practice, and completed in substantially the form first attempted, although not constituting proof of invention, may be considered as evidence of the conception.

[Warner *vs.* Anders, 109.

3. Fraud is never to be presumed, but must be strictly proved, and particularly is this the case when record evidence is sought to be impeached.

[Merrill and Merrill *vs.* Glidden, 196.

4. Obtaining a patent for an invention is presumptive evidence that the party has not abandoned the same.

[Ibid., 196.

5. *Ex parte* affidavits cannot be received to establish the statutory bar of two years' public use.

[Wicks and Wyman *vs.* Knowles, 196.

6. Testimony in a cause must be confined to the point in issue, and all not bearing directly or indirectly thereon is subject to being stricken out.

[Miller *vs.* Miles, 197.

7. Testimony as to public use taken in an interference in no manner connected with or ancillary to the matter at issue, but relating to the acts of parties not in interest, is not competent evidence, and cannot be received.

[*Ibid., 197.

8. The granting of a patent is *prima facie* but not conclusive evidence that the right to the invention has not been surrendered to the public, and the same is true in regard to abandonment upon renewed applications which were made under the 35th section of the act of 1870.

[*The United States Rifle and Cartridge Company *et al. vs.* The Whitney Arms Company *et al.*, 370.

9. The filing of an application is conclusive evidence that at its date the inventor did not intend to give his invention to the public, but it is not conclusive evidence that he did not subsequently do so.

[*Ibid., 373.

10. Sketches, drawings, models, oral and written descriptions, and experiments, all constitute evidence to be considered in determining the question of priority of invention.

[Withington *vs.* Locke, 417.

(See Abandoned Invention; Infringement, 3, 31; Injunction, 4; Interference, 10.)

FOREIGN INVENTION.

An invention is not patented in England, so as to anticipate an invention patented in this country, until the completed specification has been filed. The date of filing the provisional specification is not to be considered.

[*Smith *vs.* The Goodyear Dental Vulcanite Company *et al.*, 246.

(See Foreign Patents; Joinder of Invention, 4; Joint Invention.)

FOREIGN PATENT.

A foreign patent in order to invalidate an American patent must antedate the invention patented.

[Cochrane *et al. vs.* Deener *et al.*, 687.

(See Foreign Invention.)

FUNCTIONAL CLAIMS.

(See Construction of Claims, 3; Construction of Specifications and Patents, 10.)

IMPROVEMENT.

An improvement of an existing device rendering its parts more adjustable in a manner well known, and by the exercise of mechanical skill and judgment alone, is not patentable.

[H. Gross, 739.

(See Invention, 4, 8; Patentability, 9.)

INFRINGEMENT.

1. A patented combination is not infringed by a machine in which one of the ingredients is omitted.

[*Dunbar & Hopper *vs.* Myers, Ex., *et al.*, 35.

2. The patent covers dies constructed with the round and square portions of similar area, whereby the lateral swaging is effected before the header operates; and it is not infringed by the use of dies the square portion of which is of greater area than the round, and the swaging and upsetting operations are simultaneously performed.

[*Clark *vs.* The Kennedy Manufactoring Co. *et al.*, 67.

3. Patented articles are presumed to be patentably different from those covered by other patents.

[*Buerk *vs.* Imbaueser *et al.*, 112.

4. The sale of articles made under the sanction of a patent not considered at the trial of the case, cannot be regarded as covered by a decree in such suit, unless a strong and obvious case of infringement beyond all question or mere colorable difference is made out.

[*Ibid., 112.

5. It does not constitute a new infringement to sell part of a patented device necessary to its operation, but not covered by the patent, when they have already been charged in the accountings for the sale of the patented portion.

[Ibid., 112.

6. Public employment is no defense to the employé for having converted the private property of another to the public use without his consent, and without just compensation.

[*Cammeyer and Lewis *vs.* Newton *et al.*, 287.

7. Private property, the constitution provides, shall not be taken for public use without just compensation, and it is clear that that provision is as applicable to the Government as to individuals, except in cases of extreme necessity in time of war, and of imminent and impending public danger.

[Ibid., 287.

8. Where there is a slight change in a machine, by which a new result is brought about, and which might be the subject of a patent, courts do not feel inclined to extend the invention beyond the mere change, although they may be inclined to sustain the patent; but where something elementary has been discovered and constitutes fairly a part of the invention of the patentee, no other inventor or manufacturer ought to be permitted to use that elementary part without paying tribute to the first inventor or originator.

[Cornell *vs.* The Downer and Bemis Brewing Co. *et al.*, 331.

9. Birdsell's invention, construed to be for the combination of a pure thrashing-cylinder with a pure hulling cylinder, and defendant's present machine, a combination of two hulling-cylinders, and although the first cylinder may separate the straw from the heads by a rubbing action, it is not a pure thrashing-cylinder, and therefore not an infringement of Birdsell's claim.

[*Birdsell *vs.* The Hagerstown Agricultural Implement Company, 420.

10. Where the invention is embodied in a machine, the question of infringement is best determined by a comparison of the machine or apparatus constructed or used by the respondent with the mechanism described in the specification of complainant's patent.

[Fuller and Barnum *vs.* Yentzer and Scates, 551.

11. A patent may be granted for a new combination of old elements or ingredients if it produces a new and useful result; but in such case the invention consists merely in the new combination, and the patent therefor is not infringed by a substantially different combination, even though it includes the exact same elements or ingredients.

[*Ibid., 551.

12. The rights of a patentee for a mere combination of old ingredients are not infringed unless it appears that the alleged infringer made, used, or sold the entire combination.

[Ibid., 551.

13. The substitution of a known equivalent for one of the ingredients of a patented invention is not a good defense for an infringer; but if the ingredient was a new one or performed a substantially different function, or was not known at the date of the patent as a proper substitute for the one omitted, there is no infringement.

[*Ibid., 551.

14. The infringement of a patent is not avoided by the substitution for one member of the combination of an old ingredient performing the same function, and well known at the date of the patent as a proper substitute for the one omitted. But the rule is otherwise if the ingredient substituted is a new one, or performs a substantially different function, or was not known at the date of the patent as a proper substitute for the one omitted.

[*Fuller and Barnum *vs.* Yentzer *et al.*, 597.

15. The burden of proof is upon complainant to show that the defendant has infringed the patent under which he claims.

[*Ibid., 597.

16. A claim for "a tuck-creasing mechanism, such as described, having its upper and lower parts connected, and together adjustable as to its relations with the needle of a sewing-machine, and operated by the sewing-machine, as set forth," is not infringed by every form of mechanism by which a creaser is attached or adjusted to a sewing-machine by which unity of adjustment is accomplished.

[*Ibid., 597.

17. The patents granted to David C. Price for improvements in portable show and circus seats are not infringed by the use of chair-seats placed upon every alternate board of the ordinary circus-seats.

[Price *vs.* Kelley, 659.

18. One device may be the equivalent of another in the general combination with other elements, and yet, when taken by themselves as separate pieces of machinery, they may not be the same, and the use of one not the infringement of a patent for the other.

[*Cochrane *et al. vs.* Deener *et al.*, 687.

19. While the parts of machinery which go to make up a combination could not, when separately considered, be regarded as identical or conflicting with those described in a patent, yet having the same purpose in the combination, and effecting that purpose in substantially the same manner, they are the equivalents of each other in that regard.

[*Ibid., 687.

20. Notice of an adverse claim is to be presumed where one of two rival companies, engaged in the same line of business, having manufactured and introduced a valuable invention, the other suddenly commences to perfect and manufacture the same article which it had previously been solicited to take hold of, but had shown no desire or intention of so doing, until after the other parties had been some time manufacturing.

[Gross *vs.* Sargent, 787.

21. The construction of a concrete pavement in sections by forming each section against the adjoining one, and while the material is still soft inserting a trowel to make a joint between them, is an infringement of the patent granted to J. J. Schillinger, May 2, 1871, for an improved concrete pavement.

[*Schillinger *vs.* Gunther, 831.

22. The patentee forms his joints by the permanent interposition of some material between the blocks, which material also serves in some degree to make a tight joint, while the defendant forms a joint by the insertion of a cutting-instrument between the blocks, and then removing the instrument, leaving the joint an open one for the time.

[*Ibid., 831.

23. The improvement effected by the patentee consisted in dividing the pavement into blocks, so that one block might be removed and repaired without injury to the rest of the pavement.

[*Ibid., 831.

24. The substitution for one part of the operating mechanism of a combination the equivalent of that omitted, does not avoid an infringement.

[*Robertson *et al. vs.* Blake, 877.

25. When an original machine and an improvement upon it are both patented, neither patentee can use what does not belong to him without the requisite authority from the owner.

[*Ibid., 877.

26. The patent for a lamp, can, or barrel, packed in part with an absorbent or finely-granulated material, and over them a body of wire-gauze or perforated thin plate, either rolled up like paper scrolls or put flat together like book-leaves, is not infringed by the use of a lamp containing cotton covered with a layer of asbestus or porous fire-proof cement, and covered with one thickness of wire-gauze.

[*Ashcroft *vs.* Hollings, 879.

27. Any device which secures substantially the same results as the patentees, by the same or equivalent mechanism, is an infringement.

[*Vogler *vs.* Semple, 923.

28. Although the patented dies might be used in connection with a previous machine, that fact does not permit their unauthorized use, the dies being new in themselves.

[*Bruff *vs.* Ives, 924.

29. A patent for a process is not infringed by the sale of an article similar to that produced.

[*Merrill *vs.* Yeomans *et al.*, 970.

30. The patent of A. H. Wonson for an improved paint to prevent the fouling of ships' bottoms by the adhesion of barnacles, sea-weeds, &c., is for a paint composed of a soluble vehicle or medium, oxide of copper, (of which the other salts of copper are not considered the equivalents,) and such earthy or mineral matters as separate the particles of the oxide and retard its solution, and such patent is not infringed by the use of a paint containing in place of the oxide of copper arsenite of copper.

[*Wonson *vs.* Gilman *et al.*, 1011.

31. In suits for infringement "the patent is *prima facie* evidence that the patentee was the original and first inventor, and any one who controverts this assumes the burden of proof and undertakes to show affirmatively that there was a prior knowledge and use of the invention under such circumstances as to give to the public the right of its continued use against the patentee." (Crouch *vs.* Spear *et al*; VI OFFICIAL GAZETTE, 187.)

[*Crouch *vs.* Roemer, 1112.

32. A patent for a machine for forming heads on cartridge-shells, in which the shells are carried through a die on the mandrel, and both mandrel and die are moved forward together, forcing the closed end of the shell against a stationary header and squeezing it down to form the flanges, is infringed by the use of a machine in which the die is stationary and the header advanced after the mandrel has carried the shell into position.

[*The Union Metallic Cartridge Company *vs.* The United States Cartridge Company, 1113.

33. The fact that there is an advantage in having the die stationary while the header moves toward it is not alone sufficient to show that the machine is not the equivalent of that patented, all the elements of combination existing alike in both, and operating the same in combination.

[*Ibid., 1113.

34. An inventor, without describing equivalents in his patent, is entitled to be protected in their use and to treat their use by others as an infringement.

[*Ibid., 1113.

35. Purchasers of patented machines are entitled to repair and perfect them and use the same during the extended term of the patent.

[*Ibid., 1113.

(See Combination, 1; Decree, 1, 2; Disclaimer, 1; Injunction, 4; Jurisdiction, 4, 5; Laches, 2; Patentability, 10; Profits; Reissue, 7.)

INJUNCTIONS.

1. It is not the established practice in the second and third circuits to stay injunctions upon application of the defendant until the coming in of the master's report. On the contrary, the ordinary practice is for an injunction, as a matter of course, to follow a decree in favor of the complainant on the merits, unless the defendant is able to show that the equities between the parties demand the withholding of the injunction until after an accounting has been had.

[*The Rumford Chemical Works *vs.* Hecker, 330.

2. A party whose patent is about to expire, seeking a preliminary injunction against infringers, is not chargeable with laches, where, being obliged to maintain his rights in the courts, he had but recently obtained an adjudication in their favor.

[*The Rumford Chemical Works *vs.* Vice and Fifty-Six Defendants, 600.

3. The suggestion, in defense, that the grant of a preliminary injunction will work injury in an indirect way to third parties, affords no ground for denying the plaintiff that which he has been adjudged entitled to.

[*Ibid., 600.

4. Long public acquiescence in the complainant's patent, together with the adjudications in favor of its validity, are *prima facie* sufficient reasons for the grant of a preliminary injunction when the infringement is palpable.

[*The American Shoe Tip Company *vs.* The National Shoe Toe Protector Company, 740.

(See Jurisdiction, 4; Pleadings and Practice, 3, 4.)

INTERFERENCES.

1. If, in the course of the interference proceeding, either party in taking testimony relating to the history of his invention should introduce proof relevant to the issue of priority, and which, at the same time, shows a statutory bar as against either party, such testimony will be taken notice of and considered in the manner prescribed in Rule 59.

[Wicks and Wyman *vs.* Knowles, 196.

2. Priority awarded the party who made and applied the invention before his opponent entered the field as a competitor.

[Miller *vs.* Miles, 197.

3. The issue in an interference is priority of invention, to which the question of originality is sometimes germane.

[Ibid., 197.

4. In an interference all questions affecting the patentability of the subject-matter, the propriety of the interference, and the form

of the declaration must be disposed of before the expiration of the time for filing preliminary statements, and all such matters are within the jurisdiction of the Primary Examiner.

[Anson *vs.* Woodbury, 243

5. Failure to make objections before the expiration of the time for filing preliminary statements will be considered as a waiver thereof and consent to the interference.

[Ibid., 243.

6. During an interference the Primary Examiner may request its suspension for the purpose of considering new references.

[Ibid., 243.

7. The Examiner of Interferences may, in his decision upon the merits, notice any matters affecting the patentability of the subject in dispute, and the Primary Examiner is authorized to consider the same after the interference has been finally disposed of.

[Ibid., 243.

8. It being intimated at the hearing of the motion that there were other patents showing the subject-matter at issue, the case was suspended and returned to the Primary Examiner for report upon that point.

[Ibid., 243.

9. It is not necessary to an interference that the combination of each party should consist of elements identically the same in form so long as the combinations as entireties are the equivalents in arrangement and mode of operation.

[Withington *vs.* Locke, 417.

10. Although an interference is not the same in nature as an action for infringement, or a suit in equity to uphold or defeat a patent, the character of proof required to show the fact of invention is the same.

[Ibid., 417.

11. An applicant as against an interfering patentee must show that his invention was complete, not simply for experimental but for successful practical use, prior to the invention of his adversary.

[Sargent *vs.* Burge, 1055.

12. Where devices in interference differ from each other in important particulars of construction, the successful use of one cannot be inferred from that of the other, which is established.

[Ibid., 1055.

13. Such successful use involves not only the successful mechanical operation of the invention in the single instance, or in a number of instances, but its actual utility in every other respect.

[Ibid.,1055.

14. In order to defeat a patent, a prior machine must have some commercial value, be worth manufacturing for public sale, and worth buying for practical use.

[Ibid., 1055.

15. A machine which is abandoned by its inventor, tested only experimentally by his assignee, and declined by the public, is conclusively of no value.

[Ibid., 1055.

(See Abandoned Experiment, 1; Claims, 5; Diligence; Evidence, 1, 2, 5, 6, 7; New Trial; Practice in Patent Office, 2, 5, 6, 8; Reduction to Practice, 3; Reissue, 8; Trade-Mark, 7.)

INVENTION.

1. Mere change of form or location in a mechanical structure is not the subject of a patent without showing that some new or materially-improved result is obtained.

[*Pearl *et al.* vs. The Ocean Mills *et al*, 2.

2. The greatly-improved result attending a change in the form or location of parts, when viewed in connection with the failure of the many experiments previously made to accomplish similar results by mere structural changes, has a great tendency to prove that they involve some functional difference beyond mere mechanical perfection and adjustment.

[*Ibid., 2.

3. The degree of skill and ingenuity required in making or applying an alleged improvement must be more than are possessed by an ordinary mechanic acquainted with the business in order to constitute invention.

[*Dunbar & Hopper *vs.* Myers, Ex., *et al.*, 35.

4. It appearing that one deflecting-plate, in combination with a circular saw, was old, and that it required only mechanical skill to apply one to the opposite side: *Held*, that the claim of the improvement described as the employment or use of two deflecting-plates, one placed on each side of the circular saw, for the purposes set forth in the specification, is void, because it does not constitute a patentable invention.

[Ibid.

5. The substitution in a can-opener of one form of cutting-edge for another, without thereby producing a new combination or result as proof of invention, is not patentable.

[Cutting, L., 110.

6. A person does not assume the role of an inventor until he has devised the means whereby his ideas are to be made available to the public.

[Wicks *vs.* Du Bois, 244.

7. The mere knowledge that certain things might be done and would be valuable, without being accompanied with a knowledge of the means or method whereby useful results could be produced, does not amount to the conception of an invention.

[Ibid.

8. The use of one material instead of another in constructing a known machine is, in most cases, so obviously a matter of mere mechanical judgment, and not of invention, that it cannot be called an invention unless some new and useful result, as increase of efficiency, or a decided saving in the operation, be obtained. But where there is some such new and useful result, where a machine has acquired new functions and useful properties, it may be patentable as an invention, though the only change made in the machine has been supplanting one of its materials by another. This is true of all combinations, whether they be of materials or processes.

[*Smith *vs.* The Goodyear Dental Vulcanite Company *et al.*, 246.

9. The change of location of an element in a combination, where that change produces in substance no new combination nor a new operation, is not patentable.

[H. Gross, 739.

10. The inventor of an article is entitled to protection therefor, however produced, and there is no reason why an applicant for a patent, if he had in his mind a claim for the article produced, should limit his claim by a description of the process.

[*Merrill *vs.* Yeomans *et al*, 970.

11. Both rotating and vibrating folding-blades being old, and it being common to combine them, as well as successive sets of vibrating folding-blades in one machine, held to be a mere duplication of parts, and without invention, to provide a series of rotating folding-blades in their stead.

[Chambers and Mendham *vs.* Tucker, 1009.

12. Notches or "cutaways" being common in plain-edged paper bags to facilitate the opening of the mouth, it is mere double use to provide "jagged-edge" bags with the same feature.

[J. Arkell, 1111.

(See Construction of Specifications and Patents, 6, 8, 10, 16; Patentability.)

JOINDER OF INVENTION.

1. The mere fact that an article can be made upon an improved machine capable of general use, and not specially adapted for the production of this particular article, is not sufficient to establish such unity of invention as to warrant their being included in the same application.

[Junker and Wolf, 110.

2. Separate and distinct inventions that do not co-operate or depend upon each other for their operation cannot be included in one application.

[C. F. Dieterich, 195.

3. The retort-charging mechanism, the coke-removing mechanism, and the coke transporting hopper, although capable of being employed together in the manufacture of gas, cannot for that reason alone, there being no patentable combination between them, be included in the same application.

[Ibid., 195.

4. A domestic application made up from a number of foreign patents will be divided for the purpose of restricting the term if the subjects-matter separated are not properly in combination.

[C. W. Siemens, 969.

(See Division of Applications, 1.)

JOINT INVENTION.

1. While in an application by a sole inventor, the oath referring to separate and distinct inventions there included may suffice to cover a division consisting of the part eliminated from the original, it is not so with joint applicants, whose oath goes to the invention considered as a whole and not to separate parts.

[Fieman, Simpson, and Collins, 1.

2. A joint patent having been granted in England: *Held*, that the oath of single inventorship accompanying an application was sufficient to warrant the issue of a sole patent, in view of the different qualifications in that country and this with relation to joint patents.

[C. W. Siemens, 1107.

JURISDICTION.

1. Where the relief to be ultimately rendered is the payment of damages, and the aid of a court of equity is needed for discovery in a case not of trusteeship or agency, but where the ascertainment of damages is complicated and intricate, and the action at law cannot be adequately tried without great difficulty, a court of equity assumes jurisdiction of the whole case and proceeds to a final decree upon the merits.

[*Magic Ruffle Co. *vs.* Elm City Co., 501.

2. The powers of the supreme court of the District of Columbia, in patent cases, are the same as those of the circuit courts of the United States.

[*Cochrane *et al. vs.* Deener *et al*, 687.

3. The jurisdiction of the circuit courts in cases arising under the patent and copyright laws is not changed by the Revised Statutes, and consequently the original cognizance of the circuit courts sitting as courts of equity in patent cases is retained.

[*Ibid., 687.

4. Since the Revised Statutes a bill in equity will not lie solely to recover damages for the infringement of a patent, but if it pray for an injunction, or for a discovery and account of profits, it will be maintained.

[*Vaughn *vs.* The East Tennessee, Virginia, and Georgia Railroad Company, 789.

5. Notwithstanding the repeal of the limitation clause in section 55 of the act of 1870, an action will lie upon a patent expiring before the adoption of the Revised Statutes, if brought within six years after the expiration of the patent.

[*Ibid., 789.

(See Pleadings and Practice, 8, 14; Practice in Patent Office, 7, 8, 18; Reissue, 6.)

LACHES.

1. The same degree of diligence is not required of an inventor who has completed his invention as of one whose invention has not been reduced to practice.

[Freund *vs.* King, 2.

2. Parties may forfeit their claim to receive the aid of a court of equity to the extent of its powers by their laches in restraining known violations of their rights and acquiescence in the assertion of adverse rights.

[*Magic Ruffle Company *vs.* Elm City Company, 501.

3. A delay of eight years in reducing the invention to practice and giving it to the public, unaccompanied by extenuating circumstances, but resulting from indifference to and the invention, is not sufficient to defeat the claim of one who, in the meantime, had independently perfected his invention and created a demand for it in the market.

[Gross *vs.* Sargent, 787.

4. The case under consideration distinguished from that of White *vs.* Allen, the reasons alleged in excuse of the delay not being analogous.

[Ibid., 787.

5. The law does not look with favor upon a party who withholds the knowledge of his invention from the public by a negligent postponement of his claim until after others have made and introduced the same.

[Ibid., 787.

(See Diligence; Injunction, 2.)

NEW MATTER.

Great care is to be exercised in not allowing new matter to be incorporated into a reissue application in cases where there is neither model nor drawing; but where the ambiguity in the patent is explained in a manner not inconsistent with the original invention, and the patent is clearly inoperative by reason of such ambiguity, the discretion reposed by law in the Commissioner should be exercised in favor of the patentee upon the production of satisfactory evidence that the matter to be introduced was part of the original invention.

[P. R. Gottstein, 1061.

(See Reissue, 1, 3, 4, 5, 6, 11.)

NEW TRIAL.

An application for the reopening of an interference on the ground of newly-discovered evidence cannot be allowed where it appears that the testimony was not newly discovered, but was within the possession of the party from the beginning of the proceedings.

[W. S. Gillen, 419.

NOVELTY.

1. Casting sets of teeth on a tin base by a process similar to the process described in the complainants' patent was not an anticipation of the invention, it being shown that vulcanite may be used by dentists as a base for artificial teeth in many ways that could not be accomplished by tin and that, therefore, the cast tin base was not substantially the same product as the Cummings manufacture.

[*Smith *vs.* The Goodyear Dental Vulcanite Company *et al.* 246.

2. The novelty of a patented invention is not impeached by a prior patent which did not originally describe the invention, but has since been enlarged by reissue so as to include it.

[*Vogler *vs.* Semple, 923.

(See Construction of Specifications and Patents, 16; Patentability, 5.)

PATENTABILITY.

1. Invention or discovery constitutes the foundation of the right to obtain a patent, and nothing short of this will support it.

[*Dunbar & Hopper *vs.* Myers, Ex., *et al.*, 35.

2. When changes of form involve functional differences, producing new or better results, they are patentable.

[*The Swain Turbine and Manufacturing Company *vs.* Ladd, 153.

3. The useful result claimed for the invention was economy of material; but, it not appearing that such was the natural result of its use, nor that any improvement had been effected in the art, a patent was refused.

[J. Gerson, 244.

4. New arrangements of printed matter on tickets, cards, &c., the result of fancy or simple mechanical skill, are not proper subjects for patents, however convenient such arrangements may be.

[Ibid., 244.

5. A patent is invalid if the invention claimed is found to be patented or described in a printed publication prior to the patentee's invention or discovery thereof; and it is enough if the thing patented is described, and not the steps necessarily antecedent to its production.

[*M. Cohn *vs.* The United States Corset Company *et al.*, 457.

6. Thus, when the invention claimed is an article, it is not necessary, in order to render the patent void, that the prior publication should also contain a description of the process by which such article was made.

[*Ibid., 457.

7. Unless the earlier printed and published description does exhibit the later-patented invention in such a full and intelligible manner as to enable persons skilled in the art to which the invention is related to comprehend it without assistance from the patent, or to make it, or repeat the process claimed it is insufficient to invalidate the patent.

[*Ibid., 457.

8. A patent will not be sustained if the claim is for a result, a principle, an idea, or any other mere abstraction.

[*Fuller & Barnum *vs.* Yentzer and Scates, 551.

9. A patent for improvements in an apparatus may be valid, if they are new, and accomplish a new and useful result, even though all the elements of the same are old, provided the combination or arrangement of such elements is new and of such a character that it involved invention to construct the same.

[*Fuller and Barnum *vs.* Yentzer *et al.*, 597.

10. It does not detract from the validity of a patent that the inventions of others are made use of in carrying out the patented invention. One invention may include within it many others, and patents for each and all be valid at the same time, but in such case each inventor would be precluded from using the inventions made and patented prior to his own, except by license from the owners thereof.

[*Cochrane *et al. vs.* Deener *et al.*, 687.

11. A process is a mode of treatment of certain materials to produce a given result an act or a series of acts, performed upon the subject-matter to be transformed and reduced to a different state or thing, and if new and useful it is patentable.

[*Ibid., 687.

12. The patentability of a process is entirely independent of the instrumentalities employed, and it is immaterial whether or not the machinery pointed out as suitable to perform the process be either new or patentable.

[*Ibid., 687.

13. The process requires that certain things should be done with certain substances and in a certain order; but the tools to be used in doing this may be of secondary consequence.

[*Ibid., 687.

14. The mere fact that devices cited as references have little commercial value is of no significance in determining their pertinency.

[Sargent *vs.* Burge, 1055.

15. Combining with an old form of ticket a scheme of making one or more of the tickets redeemable, it being old to make all of them redeemable, does not constitute a new article, or amount to a patentable invention.

[W. W. Bierce, 1108.

16. Doubted, whether a plan or method of transacting business is patentable, under the statute.

[Ibid., 1108.

17. The process of manufacture is of no moment in considering the patentability of the article itself.

[J. Arkell, 1111.

(See Construction of Specifications and Patents, 21; Foreign Invention; Foreign Patents; Improvement; Invention.)

PATENTS.

1. Where a useful result is produced in any art, manufacture, or composition of matter by the use of certain means for which the inventor or discoverer obtains a patent, the means described must be the essential and absolutely necessary means, and not mere adjuncts, which may be used or abandoned at pleasure.

[*Russell *vs.* Dodge *et al*, 152.

2. A patent is private property, and the Government cannot, after it is issued, make use of the improvement any more than a private individual without license of the inventor, or making him compensation.

[*Cammeyer and Lewis, *vs.* Newton *et al.*, 287.

3. Section 4887, Revised Statutes, construed as an exception to section 4884, with respect to the term of patent grants, and the language of the section, "so limited as to expire," held to require that the limitation shall appear upon the face of the patent.

[C. W. Siemens, 969.

4. Section 16 of the act of 1861 does not repeal section 6 of the act of 1839, but so modifies it as to extend the life of a patent granted thereunder to seventeen instead of fourteen years.

[C. W. Siemens, 1107.

(See Decree, 3; Infringement, 6, 7, 11; Pleadings and Practice, 15; Reissue, 6.)

PLEADINGS AND PRACTICE.

1. The question whether or not an alleged improvement is or is not patentable is, in an equity suit, a question for the court.

[*Dunbar & Hopper *vs.* Myers, Ex., *et al.*, 35.

2. All the defenses which the statute authorizes may be made as well in respect to patents granted upon applications renewed under the 35th section of the act of 1870 as in respect to those issued upon original applications. Lapse of time, *per se*, does not constitute abandonment.

[*The United States Rifle and Cartridge Company *et al. vs.* The Whitney Arms Company *et al.*, 373.

3. In a motion for commitment for contempt for violating an injunction issued upon a patent the question as to whether the new machine is the same as the old is a question of fact to be determined on the evidence.

[*Birdsell *vs.* The Hagerstown Agricultural Implement Company, 420.

4. The rule is that courts of equity will never attach unless the violation of the injunction is plain and clearly proven to the court.

[*Ibid., 420.

5. Where a bill is brought for a discovery and for other equitable relief within the appropriate jurisdiction of a court of equity, and the ultimate object of the plaintiff is to obtain damages in such case the court, having granted a discovery, will proceed and give the proper relief in damages.

[*Magic Ruffle Company *vs.* Elm City Company, 501.

6. Where a bill is brought for discovery in a case which is not the proper subject of an action or bill for account, the fact that the plaintiff is entitled to a discovery does not necessarily entitle him also to an account.

[*Ibid., 501.

7. Interlocutory orders and decrees are subject to revision until a final decree is made, and if, after an interlocutory decree, the master's report discloses facts properly heard by him upon the order of reference, which, in the opinion of the court, should be further investigated, it is competent for the court to direct such an investigation.

[*Ibid., 501.

8. It is generally true that a court of equity ought not to sustain a bill which, although it may contain matter which can give the court jurisdiction, is merely for the assessment of damages for a breach of contract.

[*Magic Ruffle Co. *vs.* Elm City Co., 501.

9. Upon a bill in equity for the infringement of a patent it is a matter of discretion, and not of jurisdiction, whether a case shall be first tried at law; and in this matter, the courts of the United States, sitting as courts of equity in patent cases, are much less disposed than the English courts are to send parties to a jury before assuming to decide upon the merits.

[*Cochrane *et al. vs.* Deener *et al.*, 687.

10. Where it is discretionary with a court of equity whether it will first send a case to be tried at law, and it exercises its discretion to decide the case upon its merits without the aid of a jury of any sort, such action is not a ground of appeal.

[*Ibid., 687.

11. But if the appellate court were convinced that the case was not properly decided, and could not be properly decided without such a reference, it might, in the exercise of its own discretion, remand it to the court below for that purpose.

[*Ibid., 687.

12. Acts of limitation will be construed prospectively only, unless a contrary intention clearly appears.

[*Vaughn *vs.* The East Tennessee, Virginia, and Georgia Railroad Company, 789.

13. A bill of discovery may be maintained against a corporation although, in order to compel a discovery on oath, the officers of the corporation must be made parties.

[*Ibid., 789

14. As a general rule a bill in equity will not lie to settle an account on one side only, except when a discovery is prayed, or when the nature of the account is such it cannot be readily investigated in a court of law.

[*Ibid, 789.

15. The surrender of a patent extinguishes it, and after its surrender pending suits founded upon it fall with its extinguishment.

[Mevs *vs.* Conover, 1111.

(See Decree, 3; Disclaimer, 1; Injunctions, 1; Jurisdiction, 1, 4, 5.)

PRACTICE IN PATENT OFFICE.

1. The rejection of an application upon the ground that it does not constitute the proper subject-matter for a design patent, has reference to the merits, and is appealable to the Board.

[O. Pressprich, 195.

2. The rule confining the parties in their proofs to the dates set up in the preliminary statement is specially applicable where the departure is made under suspicious circumstances.

[Merrill and Merrill *vs.* Glidden, 196.

3. In computing the thirty days in which an appeal may be taken from the decision of the Board, the date of the notice of the decision is to be included.

[Wright and Bryant *vs.* Reese, 329.

4. Parties should take notice of delays in the arrival of mails when the same are of public notoriety, and not by negligence in acting subject themselves to such ordinary risks.

[Ibid., 329.

5. When the final fee has been paid by the successful party in an interference, and nothing remains to be done but to issue the patent, it will not be withheld for the purpose of declaring another interference with an application filed subsequent to the rendition of the judgment.

[Ibid., 329.

6. The same principle is applicable to a motion to reopen an interference after the the limit of appeal has expired and the case gone to issue, and everything been done except the delivery of the patent.

7. The decision of the Commissioner in regard to the questions which have been committed to his exclusive jurisdiction is final—such as the sufficiency and competency of the formal acts and proofs which the statute provides shall be a prerequisite to the issuing of a patent; the existence of those facts upon which a reissue is to be granted or an extension made; and the sufficiency of the reasons for delay exceeding two years in prosecuting an application made since the act of 1870.

[*The United States Rifle and Cartridge Company *et al. vs.* The Whitney Arms Company *et al.*, 373.

8. After a patent has been issued the Office has no power to investigate or determine whether or not the patentee has made false suggestions in his oath; nor is it a proper subject of investigation in an interference proceeding.

[W. S. Gillen, 419.

9. The rejection of an application on the ground that there is no legitimate combination between the devices represented, or that they are deficient in novelty or invention, is appealable to the Board of Examiners-in-Chief.

[R. Pintsch, 597.

10. The domestic application for an invention already patented abroad, need not be restricted to precisely the same subject-matter as the foreign grant.

[C. W. Siemens, 969.

11. It must, however, be divided if found to conflict with the rule respecting duplex applications.

[Ibid., 969.

12. If the domestic application is for the same subject-matter as the foreign patent, with immaterial variations, the requirement that the patent granted shall be "limited to expire at the same time with the foreign patent" will be strictly followed, and the limitation be made directly upon the face of the instrument.

[Ibid., 969.

13. Where new features are introduced, and are in combination with those contained in the foreign patent, such limitation cannot be made; but in event separate claim is laid to matter set forth in the foreign patent, specific mention by date and number of such patent must be entered in the domestic specification.

[Ibid., 969.

14. Inventions or discoveries are usually improvements upon some existing article, process, or machine, and are only useful in connection with it. It is necessary, therefore, for an applicant to describe that upon which he ingrafts his invention, as well as the invention itself.

[*Merrill *vs.* Yeomans *et al.*, 970.

15. When the invention is of a new combination of old devices, it is necessary to describe with particularity all the old devices, and then the new mode of combining them.

[*Ibid., 970.

16. While it is essential that the specification should describe such matters, both old and new, as are necessary to an understanding of the invention, the claim must contain a distinct and specific statement of what the applicant claims to be new and of his invention.

[*Ibid., 970.

17. One who proposes to secure a monopoly of certain inventions at the expense of the public should set forth with clearness and precision the thing which no one but himself can use or enjoy without paying him for the privilege of doing so.

[*Ibid., 970.

18. The jurisdiction of the Board of Examiners-in-Chief is limited in *ex parte* cases to the adverse decisions of the Primary Examiners. If there appear reasons for refusing the patent other than those alleged by the Examiner, a statement should be made to that effect to the Commissioner.

[W. S. Smoot, 1010.

19. The objection made to the application was want of novelty, and upon appeal to the Board it reversed the decision of the Examiner as to three of the four claims, but one member of the Board giving it as his opinion that new matter was included, remanded the case to the Examiner for his further consideration: *Held*, that his remanding the case to the Primary Examiner for reconsideration on that point was entirely unauthorized, and without the additional approval of the Commissioner, the reconsideration by the Primary Examiner was also unauthorized.

[Ibid., 1010.

20. The rules of the Office have the force of law so long as they remain unrepealed, and are as binding upon its officials as they are upon the general public.

[Ibid., 1010.

21. The Commissioner is bound to take notice of an objection to the patentability of a case whenever and however his attention may be called to the subject.

[Ibid., 1010.

22. Where, however, the matter is properly cognizable by a lower appellate tribunal, the Commissioner will not interfere except in extraordinary cases, to prevent fraud or remedy an action clearly opposed to some requirement of the law.

[Ibid., 1010.

23. An expression of opinion by one member of the Board does not constitute a decision of that tribunal.

[Ibid., 1010.

24. Examiners are admonished to be careful in making a thorough examination of all questions affecting an application before final rejection.

[Ibid., 1010.

25. If an applicant seeks to claim in a subsequent application subject-matter which has been rejected by the Examiner in a prior one already passed to issue, the Examiner would be justified in refusing to consider the renewed claim on its merits, on the ground that it was "*res judicata*."

[J. Arkell, 1111.

26. In such case, if the applicant desires to contest its novelty, he should reissue the prior patent and include the claim therein.

[Ibid., 1111.

(See Construction of Specifications and Patents, 20; Division of Application, 1, 2; Evidence, 1, 4, 5, 6; Interference, 1, 4, 5, 6, 7, 8; Joinder of Invention; Joint Invention; New Trial; Patents, 3, 4; Patentability, 14, 17; Priority of Invention, 3; Public Use, 1; Reissue, 9, 12.)

PRIORITY OF INVENTION.

1. The first to conceive of an invention must, in order to establish his right to a patent as against one who was first to reduce it to practice, use reasonable diligence in developing and perfecting the same.

[Warner *vs.* Anders, 109.

2. An applicant for a patent is the prior inventor, as against a patentee, if he was the first to clearly originate the invention and diligent in reducing it to practice.

[Withington *vs.* Locke, 417.

3. In determining the matter of priority of invention the Office observes the same rules as are followed by the courts in investigating the same subject.

[Millward *vs.* Barnes and Barnes, 1060.

4. The rule reiterated that he is the prior inventor who first reduces the invention to practice, unless another who was first to conceive of the invention used reasonable diligence in perfecting the same.

[Ibid., 1060.

(See Interference, 1, 2; Invention, 6, 7; Patentability, 7; Reduction to Practice, 1.)

PROFITS.

1. A party who has earned profits by the infringement of a patent is chargeable as trustee for the use of the real owner.

[*Vaughn *vs.* The East Tennessee, Virginia, and Georgia R. R. Co., 789.

2. The profits are not all that an infringer made in the business in which he used the patented invention, but they are the worth of the advantage he obtained by such use—or, in other words, they are the fruits of that advantage. (Mowry *vs.* Whitney, 14 Wall., 651.)

[*Mevs *vs.* Conover, 1111.

3. Thus where no profits actually resulted from the use by reason of the defective mechanism in combination with which the infringed device was employed; yet, as the loss was less than it would have been with the infringed device omitted, this benefit is equivalent to an equal gain, and was rightly estimated as a part of the profits for which the infringer was responsible.

[*Ibid., 1111.

PUBLIC USE.

1. When public use is brought home to the parties in the development of the history of the invention, it may be taken notice of, and form the basis of future action.

[Miller *vs.* Miles, 197.

2. A use for the mere purpose of competitive examination, experiment, and test, is not a public use.

[*The United States Rifle and Cartridge Company *et al vs.* The Whitney Arms Company *et al.*, 373.

(See Abandoned Invention, 1.)

REDUCTION TO PRACTICE.

1. A machine differing radically from one which was previously made and abandoned, involving new operations and mechanisms, although designed to accomplish the same end, cannot be regarded as a continuance of such experiments, so as to entitle the party to go back to his first endeavors to establish the date of conception of his invention.

[Wicks *vs.* Du Bois, 244.

2. An applicant whose machine was tested experimentally only, then laid aside and not revived until after the successful introduction of that of his contestant, is concluded as to its lack of perfection and reduction to a useful practicable form.

[Sargent *vs.* Burge, 1055.

3. Neither a model nor a drawing can be regarded as a reduction to practice or complete invention.

[Millward *vs.* Barnes and Barnes, 1060.

(See Abandoned Experiment, 3; Evidence, 2; Invention, 6.)

REISSUE.

1. When, in the specification of the original patent, the inventor describes a new and useful combination of a number of ingre-

dients, performing, in combination, certain functions less than he has claimed, he may, in the reissue, claim such combination of the less number which he has described, suggested, or substantially indicated as his invention, but failed to include in his claims.

[*Pearl *et al. vs.* The Ocean Mills *et al.*, 2.

2. A reissue need not describe the invention in the exact language of the original, but may contain a more full and exact description of what was there imperfectly described.

[*Ibid., 2.

3. A patentee cannot, by obtaining a reissue for a process, enlarge his right to a monopoly beyond the actual invention.

[*Clark *vs.* The Kennedy Manufacturing Company, 67.

4. Where a reissued patent is granted upon a surrender of the original, for its alleged defective or insufficient specification, such specification cannot be substantially changed in the reissued patent, either by the addition of new matter or the omission of important particulars, so as to enlarge the scope of the invention as originally claimed. A defective specification can be rendered more definite and certain so as to embrace the claim made, or the claim can be so modified as to correspond with the specification; but, except under special circumstances, this is the extent to which the operation of the original patent can be changed by the reissue.

[*Russell *vs.* Dodge *et al.*, 152.

5. Where the patent was for a process of treating bark-tanned lamb or sheep skin by means of a compound, in which heated fat liquor was an essential ingredient, and a change was made in the original specification by eliminating the necessity of using the fat liquor in a heated condition, and making in the new specification its use in that condition a mere matter of convenience, and by inserting an independent claim for the use of fat liquor in the treatment of leather generally, the character and scope of the invention as originally claimed were held to be so enlarged as to constitute a different invention.

[*Ibid., 152.

6. The action of the Commissioner of Patents in granting a reissue within the limits of his authority is not open to collateral impeachment, but his authority being limited to a reissue for the same invention, the two patents may be compared to determine the identity of the invention. If the reissued patent, when thus compared, appears on its face to be for a different invention, it is void, the Commissioner having exceeded his authority in issuing it.

[*Ibid., 152.

7. To sustain the position that a reissued patent is not a patent for the same invention which was described in the specification of the original patent, and, therefore, that the reissue is unauthorized and void, the defendant must overcome the presumption against him arising from the decision of the Commissioner of Patents in granting the reissue, and this he can do only by showing, from a comparison of the original specification with that of the reissue, that the former does not substantially describe what is described and claimed in the latter. This must plainly appear before the court can be justified in pronouncing the reissued patent void.

[*Smith *vs.* The Goodyear Dental Vulcanite Company *et al.*, 246.

8. A patent having been issued to the unsuccessful party to an interference after his withdrawal of the interfering claim, he cannot introduce the same matter in a reissue application, his right to it being *res judicata*.

[W. S. Gillen, 419.

9. The reason and necessity of the rule requiring an abstract of title to accompany an application for reissue explained, and the practice approved.

[N. B. Fassett, 420.

10. A reissued patent is not void simply because it contains an expanded claim. The inadvertence on the part of the inventor in not making such claim in his original patent is conclusively determined by the Commissioner of Patents in granting the reissue.

[*Lorillard & Co., *vs.* McDowell & Co., 640.

11. The purpose of a reissue is to enable one to secure what he was entitled to in his original patent, but, through inadvertence or mistake, did not obtain; but it cannot be made the means of covering anything which was not in the original invention.

[*Vogler *vs.* Semple, 923.

12. An inventor will not be permitted to claim in a reissue application matter for which his original patent has expired by limitation from the date of a foreign patent granted to him.

[C. W. Siemens, 1107.

(See Construction of Claims, 4; Decree, 3; Disclaimer, 4; New Matter, 1; Novelty, 2; Practice in Patent Office, 26.)

RESULTS—CLAIMS TO.

(See Construction of Claims, 7, 8.)

SUBSTITUTION OF MATERIALS.)

(See Construction of Specifications and Patents, 8; Invention, 8.)

TRADE-MARKS.

1. A trade-mark consisting of words which are merely descriptive of the quality of the goods to which the mark is to be applied will not be registered.

[The Goodyear Rubber Company, 1062.

2. "Crack-proof" as a trade-mark for rubber goods, held to be descriptive of quality and not entitled to registration.

[Ibid., 1062.

3. Registration denied a trade-mark which, although not absolutely identical with, was so close in its resemblance to another in long use as to readily mislead the public.

[Coggin, Kidder & Co., 1109.

4. The addition of an arbitrary symbol to an old trade-mark may not amount to a sufficient difference to warrant registration.

[Ibid., 1109.

5. The law is complied with if but one *fac-simile* mode of using a trade-mark is illustrated.

[W. S. Kimball, 1109.

6. To multiply illustrations that simply show various modes of applying the mark, different arrangements of non-essential, arbitrary matter, &c., is not only unnecessary, but encumbers the office records and tends to confuse the public as to the scope of the registration.

[Ibid., 1109.

7. A trade-mark interference, unlike those for patentable matters, has nothing to do with the question as to who was the first to conceive or suggest the mark, but who was the first to put it into actual practice.

[Swift *vs.* Peters, 1110.

8. A contestant who acted in the capacity of an agent, and as such received and shipped the goods to which the trade-mark was attached, cannot be said to have put the mark into actual practice.

[Ibid., 1110.

9. The title of the registrant of a trade-mark is for the courts, not for the Office to determine.

[Ibid., 1110.

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COMMISSIONER'S DECISIONS.

TIEMAN, SIMPSON, AND COLLINS.—*Design.*

[*Appeal from the decision of the Primary Examiner in the matter of the application of Jno. W. Tieman, Wm. Simpson, and John Collins, for a Design Patent for* "ORNAMENTING HARDWARE."—*Decided November 24, 1876.*]

A separate oath is required when a new application is filed as a division of an original application made and sworn to by joint inventors.

While in an application by a sole inventor, the oath referring to separate and distinct inventions there included may suffice to cover a division consisting of the part eliminated from the original, it is not so with joint applicants, whose oath goes to the invention considered as a whole and not to separate parts.

DOOLITTLE, *Assistant Commissioner:*

This application, as originally filed, contained two claims which the Examiner asserted embraced two distinct inventions or separate designs, and he, therefore, suggested that applicants "make one claim broad and generic to include both forms, and then claim one species definitely." The applicants concluded to divide their case and make the subjects of two patents what they had formerly included in one application. Accordingly, they amended their first application striking out a portion of the subject-matter thereof, and filed a new application therefor. This second application was not sworn to, although the other formalities attendant on an original application were observed. So far the second application has not been allowed to go forward for examination, on the ground that the additional oath should be furnished. This action is based upon the doctrine laid down in the decision of the Commissioner in the case of *Heginbotham*, (8 OFFICIAL GAZETTE 237.) There the subject was a division in the case of a reissue applied for. It was held that there was no substantial difference between reissue applications in which a division was called for and that of original applications, and that, in both cases, each division constituting a separate and distinct invention being the subject of a separate and distinct patent should possess all the characteristics of an independent application in matters of form, as well as in matters of substance. Especially was it held to be vital in cases where the original patent was for a combination of elements and the division made the separate features the subject of separate applications, for an inventor might properly take oath that he was the inventor of the combination when he could not make oath to the invention of any of the features of the combination regarded separately.

Admitting, as counsel contends in this case, that the sole purpose of the oath required is to satisfy the Commissioner that the applicant was the first inventor in such a case as we have mentioned, the original oath to the combination would not be satisfactory evidence as to the invention by the applicants of the separate features of that combination.

Now, in this case, three inventors join in an application for a patent for a design, which, in their petition, they represent as "our design," "our invention," and make their claims and their arguments in support of the idea that the invention is substantially a unit.

In view of the proposition that the oath is required by law to satisfy the Commissioner that the applicant is the first inventor, the oath of joint applicants to an invention, regarded as an entirety, does not satisfy my mind as to the originality, by the *joint* inventors, of the separate portions of that invention. In short, the presumption is entirely the other way. Joint invention rarely consists in the joint conception of each particular device, but of the combination of devices separately conceived by the individual inventors.

The oath of the joint inventors in this case goes to the invention considered as a whole.

If this were a case wherein a single inventor had embraced two separate and distinct inventions, admitted on all hands to be entirely independent in one application, and had then, when required, simply incorporated into a new application the description of one of those inventions, after eliminating the same from his first application, and having made no additional description or subtraction, it might, perhaps, be proper to consider the second application without requiring an additional oath. But here the question is not yet settled whether the original application filed by these joint inventors included more than one invention. In fact, it is contended by counsel that the view of the Examiner on this subject is erroneous; and it is in my

opinion certainly inconsistent with the original intention of the parties, as expressed in their petition, their specification, and their oath. This, however, is a matter that can be determined by an interlocutory appeal from the action of the Examiner.

As the case now stands, the joint oath made to the entire invention cannot be regarded as satisfactory when applied to but part of that invention.

FREUND *vs.* KING.—*Interference.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the interference between the applications of Frank W. Freund, filed December* 3, 1875, *and Nelson King, filed October* 2, 1875, *for* "IMPROVEMENT IN BREECH-LOADING FIRE-ARMS."—*Decided December* 27, 1876.]

Full credit must be accorded to the testimony of an unimpeached witness.

The presumption that an invention which had been put into form several years before the filing of the application was an abandoned experiment is overcome by proof of an intention on the part of the inventor to obtain a patent.

The same degree of diligence is not required of an inventor who has completed his invention as of one whose invention has not been reduced to practice.

[*Edgar Simonds*, attorney for King.
Mason, Fenwick & Lawrence, attorneys for Freund.]

DOOLITTLE, *Assistant Commissioner:*

The subject-matter involved consists of—

The combination of hammer, breech of gun, and firing-pin, for half-cocking the gun in the act of opening and closing the breech when the hammer is down.

The Examiner of Interferences held that Freund, the later applicant, was the first to conceive the invention in controversy, but that his efforts in its completion amounted to nothing more than abandoned experiments.

It appears from his testimony that Freund conceived this invention in December, 1869, and applied it to Sharps' carbine in January, 1870, that he has since tried it on several of Sharps' guns, and that it fitted on every one he tried. His brother corroborates these statements.

F. A. Dammann testifies that at Denver, two years before the date of his deposition, which would carry it back to 1874, Freund showed him this invention applied to, and operated upon, a Sharps' rifle. He thinks the hammer and firing-pin shown him at the time of the examination were the same hammer and firing-pin which were used at the time mentioned.

Freund also testifies that he commenced to make a wooden model of the invention in 1870, which was thrown aside, and that, in a visit to Washington in the spring of 1875, he made a hasty examination of the models in the Patent Office, but found nothing like his invention.

King alleges that he conceived this invention in 1872, but the evidence shows that he did not apply it to a gun until the spring of 1875.

The Examiner of Interferences held that from 1870 to December, 1875, was "a longer period of slumber upon an invention than is consistent with the use of due diligence." This may be true, but I am of the opinion that the Examiner did not give sufficient weight to the fact that the evidence in behalf of Freund does not show that his experiments were confined to the efforts made in 1869 and 1870. Freund's own testimony and that of Dammann show that he had in operation the invention subsequent to that time; and that in the spring of 1875, while his opponent was for the first time applying the invention to a Sharps' rifle, Freund was examining the models in the Patent Office to see if the invention had been anticipated.

Freund's testimony was poorly taken, is meager and unsatisfactory in detail, but at the same time, as it is unimpeached, it must receive full credit as far as it goes, and it goes to the extent of showing that this invention was completed by him prior to the conception of it by King, that the matter was not wholly abandoned, but that the intention to obtain a patent was kept alive up to the time the application was filed, and that the application itself was filed but two or three months subsequent to the filing of the application of King. The knowledge of the invention, from the time of King's conception and completion of the same until the filing of the application, had not been made public, nor the manufacture of it commenced.

King delayed the completion of his invention for more than three years after its conception, and the filing of his application was still longer delayed. If Freund's invention was experimental King's was also.

The lack of diligence on the part of Freund, in view of the early completed state of the invention by him, was not such as showed merely an abandoned experiment, or the abandonment of a completed invention to the public. The delay consisted merely of a forbearance in applying for a patent.

The following doctrine is applicable to the circumstances of this case:

Lapse of time does not, *per se*, constitute abandonment. It may be a circumstance to be considered. The circumstances of the case, other than mere lapse of time, almost always give complexion to delay, and either excuse it or give it conclusive effect. The statute has made contemporaneous public use, with the knowledge and allowance of the inventor, a bar when it exceeds two years; but in the absence of that, and of any other colorable circumstances, we know of no mere period of time which ought, *per se*, to deprive an inventor of his patent. *Russell and Erwin vs. Mallory*, (5 Fish., Pat. Cas., 641;) *Andrews vs. Carman*, (9 OFFICIAL GAZETTE, p. 1011.)

The decision of the Board of Examiners-in-Chief is affirmed.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—DISTRICT OF MASSACHUSETTS.

OLIVER PEARL *et al vs.* THE OCEAN MILLS *et al.*

[*In Equity.—Before* SHEPLEY, *J.:—Decided January* 2, 1877.]

Prior to the invention of Pearl unsuccessful attempts had been made to reduce the weight of the ring-spindle and bobbin in general use, and thus diminish the amount of power required to run them. The patentee effected this desideratum by making the blade shorter than the bobbin, which was provided with a bearing therefor in the center. The bobbin was made light, and a plug or bushing inserted in the upper end to strengthen it. The upper bushing forms no function in the combination of the bobbin and spindle, and the words "the described bobbin," occurring in the claims, must be construed not solely with reference to the words in the specification, but with reference also to the limitations in the context of the claims.

When, in the specification of the original patent, the inventor describes a new and useful combination of a number of ingredients, performing, in combination, certain functions less than he has claimed, he may, in the reissue, claim such combination of the less number which he has described, suggested, or substantially indicated as his invention, but failed to include in his claims.

A reissue need not describe the invention in the exact language of the original, but may contain a more full and exact description of what was there imperfectly described.

Mere change of form or location in a mechanical structure is not the subject of a patent without showing that some new or materially-improved result is obtained.

The greatly-improved result attending a change in the form or location of parts, when viewed in connection with the failure of the many experiments previously made to accomplish similar results by mere structural changes, has a great tendency to prove that they involve some functional difference beyond mere mechanical perfection and adjustment.

[*Benjamin F. Thurston, D. Hall Rice, and Chas. E. Pratt*, for complainants.
Chauncey Smith, Jas. J. Storrow, and Wm. W. Swan, for defendants.]

OPINION OF THE COURT.

SHEPLEY, *J.:*

Reissued Letters Patent, No. 6,036, were granted to the complainants September 1, 1874, for an "Improvement in Bobbins and Spindles for Spinning Machines."

The bill in this case is brought for an alleged infringement of the reissued letters patent.

The answer of the defendants denies infringement, and alleges that the patent is void on its face, for the reason that the difference between what the specification describes as old and that which it describes as new is not a difference which constitutes an invention patentable under the law; that the patent is void for want of novelty, because, in view of the state of the art existing at the date of the alleged invention, the device described in the specification is not new in the sense of the patent law, nor substantially different from what was previously known and in public use; that the reissue is void because not for the invention disclosed, and intended to be covered by the original patent.

Before the improvement of Pearl, the ring-spindle and bobbin made by the leading spindle-makers, and as used and understood by manufacturers generally, had an established and approved form, size, and weight, as represented by the Fig. 2 in the drawing of the original patent. The spindle was constructed to rest and revolve at its lower end in a step in the lower rail of the frame. It was supported by the bolster in the upper rail of the spinning-frame. Between the step on the lower, and the bolster on the upper, rail was attached to the spindle the whirl, by means of which and its connections motion was communicated to the spindle. Above the bolster the blade of the spindle projected about six inches, receiving and extending through the bobbin. The usual weight of the spindle was about twelve ounces, the proportion of the weight of the blade above, and the butt below, the top of the bolster being about two and one-quarter ounces for the weight of the blade, and nine and three-quarters ounces for the weight of the butt. The wooden bobbin which was used in combination with this spindle was chambered or reamed out, so as to leave a bore or central chamber of greater diameter than the spindle, except at the top and foot of the bobbin, where there were frictional adhesive bushings adjusted to keep the bobbin in the same relation to the spindle, and to enable the spindle to carry the bobbin with it in its rotation. This rotation, in practical use in spinning, was at the rate of five or six thousand revolutions per minute. Nearly one-half of the whole power utilized in running the machinery of a cotton-mill was expended in driving the spindles for spinning. Experiments had been made of removing a portion of the metal from the butt end of the spindles below the bolster, in the expectation that by thus reducing the weight of the spindles much less power would be required to drive them. These experiments failed. Tested by the dynamometer, the spindles thus rendered lighter by the removal of some portion of the weight of that part of them below the bolster required more power to drive them than the old and heavier spindles. To overcome the tendency to gyratory motion in the comparatively unsupported blade of the spindle, it appeared requisite that a certain fixed proportional relation should be maintained between the respective weights of the blade and the butt of the spindle, and, as one of the conditions of economical spinning, involved, necessarily, the use of a bobbin of or about the length of six inches. Before the invention of Pearl no substantial advance had been made in the efforts to modify the form of the spindle in common use, so as to effect a material saving of the power requisite to drive it with the required velocity of rotation.

The device of Pearl consists in a combination of a modified form of the ring-spindles with a modified form of the bobbins, having frictional or adhesive bearings, uniting them to the spindles, and carried with it. This modified or improved spindle was shortened in the blade, and, instead of extending as before substantially to the upper end of the bobbin, was only made of sufficient length above the bolster to enable an adhesive bearing, which he provided in the center of the bobbin, to hold the bobbin firmly on the spindle. He correspondingly lightened the lower part of the spindle and whirl below the bolster, without destroying the proper proportional relation of the parts of the spindle to each other, necessary to insure steadiness of rotation. He also modified the form of the bobbin, making it of a light or thin shell, retaining the lower frictional bushing or adhesive bearing at the bottom, and adding a frictional adhesive bushing in the center of the bobbin, the lower and the central bushings sustaining the bobbin on the spindle, in place of the former mode of sustaining it by adhesive bearings at the top and bottom of the bobbin. He added a plug, re-enforce, or bushing also at the top of his bobbin, not having apparently any function in combination with the spindle, with which it did not come in contact, but only as one mode of strengthening the bobbin itself.

He describes his invention thus:

My invention relates, first, to certain improvements in the construction of bobbins having frictional or adhesive bearings uniting them to the spindle and carried by it, the object of this part of my invention being to make a very light bobbin, and strengthen its various parts so that it will not easily be crushed or broken; second, to an improved construction and combination of both the bobbin and ring spindle, so that they can be successfully used with greater advantages of length of traverse, speed, and steadiness of rotation than heretofore attained, and at the same time be much lighter, the object of this part of my invention being to greatly diminish the amount of power required to drive the spindle at any given speed, and increase its efficient operation at the same time.

After describing the spindles and bobbins in common

use, and reciting the difficulties which had attended the attempts theretofore made to reduce the weight of the entire spindle below a certain standard, he proceeds first to describe the bobbin of his improved construction.

This bobbin is made with a thin and light shell or band of wood, and has a lower adhesive or frictional bearing, *k*, and a middle one, *i*, and is also bushed at the upper end by a plug, re-enforce or bushing, *l*, and the bearings *k i* and bushing *l* are united to, and combined with, the shell of the bobbin, and strengthen it in all directions from being broken. The adhesive or frictional bearings *k i* are made to sustain the bobbin on the spindle in one position with relation to the latter, and so as to enable the spindle to carry the bobbin with it in its rotation.

He then describes his improved ring-spindle.

My improved ring-spindle, instead of extending substantially to the upper end of the bobbin, as heretofore, is only made long enough above the upper bolster D, to enable the adhesive bearing *i* at the center of the bobbin to hold the latter firmly upon it, as shown. I am thus enabled to remove a large portion of the upper part of the blade of the spindle above the bolster, and the tube of the bobbin projecting beyond the shortened blade of the spindle, resting, by its adhesive central bearing, upon the latter, and being both light and rigid, retains its length and the position which it had before the spindle-blade was shortened, while the traverse of the spinning-frame and the length of the bobbin remain as before.

By thus dispensing with the length and weight at the top of the spindle above the bolster, while the length of the bobbin and traverse of the frame remain as before, relatively, I am enabled to lighten the lower part of the spindle and whirl below the bolster, many times the weight taken from its blade above, without destroying the proper balance of the spindle and its consequent steadiness of rotation, and by these means I accomplish the ultimate effect, which is the purpose of this improvement, of enabling the spindle to be run steadily at high speed with much less power than heretofore, thus diminishing the expense and increasing the production at the same time.

The claims of the patent are for—

1. The described ring-spindle, having its blade from the bolster D upward shorter than the bobbin and combined with the bobbin, constructed substantially as described, by means of the adhesive bearings, as and for the purpose set forth.
2. The combination of the bobbin, the intermediate adhesive bearing *i*, and the blade of the spindle made shorter than the bobbin from the bolster D upward, substantially as described.
3. The described bobbin, provided with the central adhesive bearing *i*, the chambers *g h*, and the adhesive foot-bearing *k*, substantially as described.
4. The described bobbin, provided with the central adhesive bearing *i*, the two chambers *g h*, and the upper and lower end bushings or heads, substantially as described.

The spindle and bobbin used by the defendants is substantially like the spindle and bobbin described in the Pearl patent, omitting from the bobbin the bushing *l*, at the upper end of the bobbin, being the upper bushing referred to in the fourth claim of the reissued patent. It clearly embraces the combinations covered by the first, second, and third claims, and as clearly does not embrace the combination in the fourth claim. The construction of the claims contended for by the defendants, which makes the described bobbin in all the claims necessarily require a bobbin which has the lower, central, and upper bushings described in the specification, cannot be sustained, in view of the evident intention to describe, in the first claim, a combination of the shortened ring-spindle with a bobbin having the central and lower adhesive bearings described; in the second claim, to describe the combination of the shortened ring-spindle with a bobbin having the central intermediate adhesive bearing; in the third claim, to describe a bobbin having the elements of the central adhesive bearing, the adhesive foot-bearing and the two chambers above and below the central bushing; and, in the fourth claim, the bobbin having the central adhesive bearings, both the upper and the lower end bushings, and the two chambers. There is no difficulty in understanding the elements of the combination claimed in each one of these claims, and the words "the described bobbin" must be construed not solely with reference to the words in the specification, but with reference also to the limitations in the context of the claims.

A careful comparison of the reissued patent in this case with the original fails to show that the reissued patent embraces in its description or claims anything which was not suggested and substantially indicated in the original. Nor is any combination claimed in the claims of the reissue of fewer elements than in the original, where such combination is not clearly described, as the invention of the patentee in his original specification. The upper bushing *l* is not described in the original patent as an essential element in the combination, but only as a re-enforce to strengthen the bobbin, to avoid the danger of breaking or crushing it in the operation of putting it on or taking it off the spindle, and its connection with the other elements which go to make up the combination (either of the elements of the improved bobbin or the combined improved bobbin and improved spindle) may be regarded rather as an aggregation than a combination, as the re-enforce *l* has no part in the combined function of those other elements, the combination of which constitutes the invention described alike in the original and the reissue. When in the specification of the original patent the inventor describes a new and useful combination of a number of ingredients, performing in combination certain functions less than he has claimed, he may in the reissue claim such combination of the less number which he has described, suggested, or substantially indicated as his invention, but failed to include in his claims, and the reissue need not describe it in the exact language of the original, but may contain a more full and exact description of the same invention, imperfectly described in the original. There is nothing in the decision in *Wells* vs. *Gill* in conflict with this statement of the principle of patent law.

The positions taken by the defendants in this case that the difference between what is described in the specification as old and what is described as new is not a difference which constitutes a patentable invention, and that the device set forth in the specification, in view of the state of the art, is not new in the sense of the patent law, have been very elaborately and ably presented to the Court in arguments embodying a very careful analysis of all the elements and ingredients of the old and the new devices and combinations.

Considering first the difference between what is described as old and what is described as new in the specification, it is contended that these differences consist only in changing the location of the upper adhesive bearing from the top to the central portion of the bobbin, and that when this change of location is made the shortening of the spindle by cutting off the superfluous part above the bearing, which performs no function, is one of mere mechanical skill, obvious to any mechanic, and not requiring invention. Mere change of the form of a machine is the work of a constructor, not an inventor; such a change cannot be deemed an invention. *Winans* vs. *Denmead*, (15 Howard, 340.)

Mere changes of form or location in a mechanical structure are not the subject of a patent without showing that some new or materially-improved result is obtained. (*Sargent et al.* vs. *Larned et al.*, 2 Curtis, 340.)

No more difficult task is imposed upon the court in patent causes than that of determining what constitutes invention, and of drawing the line of distinction between the work of the inventor and the constructor. The change from the old structure to the new may be one which one inventor would devise with the expenditure of but little thought and labor, and another would fail to accomplish after long and patient effort. It may be one, which one whose mind is fertile in invention will suggest almost instantaneously, when the skilled hand of the constructor will fail to reach the apparently-simple result by the long and toilsome process of experiment. It may be one which, viewed in the light of the accomplished result, may seem so simple as to be obvious almost to an unskilled operative, and yet the proof may show that this apparently-simple and obvious change has produced a result which has for years baffled the skill of the mechanical expert, eluded the search of the discoverer, and set at defiance the speculations of inventive genius. The change described in the specification of Pearl is a change in the form of the spindle and a change in the form of the bobbin. It involves in the case of the bobbin a change of the location of the upper adhesive bearing from the top to about the center of the bobbin. Without a knowledge of the results accomplished by these changes they might, at first glance, appear to be merely structural changes. Nothing has a greater tendency to prove that these changes involve some functional difference beyond mere mechanical perfection and adjustment than the greatly-improved result attending the change when viewed in connection with the failure of the many experiments previously made to accomplish similar results by mere structural changes like those, for example, of diminishing the weight of the spindle in all its parts. It does seem impossible to reconcile the greatly-improved results attained by the invention of Pearl with the theory that no functional, but only a mere structural, change was effected. Even if Pearl fails to describe accurately the precise law which governs the proper relations and proportions of the parts of the spindle as affected by the elements of leverage, gravity, friction, centrifugal force, and the transverse strain in one direction upon the spindle, yet if he has obtained the practical result, and taught others how to accomplish it, he has made a patentable invention, however imperfectly he may understand the philosophy of it. And the defendants have none the less availed themselves of his invention, although by adding another change (whether structural merely or functional) by bringing the upper bolster nearer to the bobbin, they have still further improved upon the old device.

Whether in view of the state of the art as developed by the evidence, as distinguished from the devices described as old in the specification, there was anything patentable in the device described as new by the patentee, will now be considered in connection with the evidence introduced to prove anticipation.

Defendants set up prior knowledge and use by Richard Garsed, at Frankford, Pennsylvania; H. N. Gambrill & Sons, at Melvak, Maryland; J. & W. Slater, at Jewett, Connecticut; William P. Green & Sons, at Norwich, Connecticut; Russell Chace, at Washington Village, Rhode Island; and Hugh Bone, of Ellicott City, Maryland. All of these six different devices, admitting for them all that is claimed, were bobbins without any of the adhesive bearings described in the patent of complainants, but rested loosely on the spindle-blade, being driven with it by means of pins projecting from a button or collar attached to the spindle. Neither one of these devices embraced the combination described or claimed in either claim of the reissued patent. There is a mass of testimony on both sides in relation to a bobbin assumed to have been used by Amasa Houghton, at the Attawaugan Mill, in Killingly, Connecticut, and at Wauregan, Connecticut. Within the reasonable compass of an opinion, it would not be possible, without great prolixity, to give an analysis of all the conflicting testimony in relation to the Houghton bobbin. All that can be conveniently stated are the conclusions to which, upon such analysis, the court has arrived. They are, first, that no such bobbins as are described by Houghton were used otherwise than experimentally at the Attawaugan Mill, and that whatever use there was at the Wauregan Mill of the Houghton bobbin, was subsequent to June, 1868, the date when Pearl is proved to have perfected his invention. These conclusions render unnecessary any discussion as to the question of their effect if they had antedated the invention of Pearl.

There remains to be noticed only the Winchendon spindle and bobbin, in which I do not find either separately or in combination any of the elements of the Pearl invention. The spindle was not shortened, neither was any central adhesive bearing provided in the working part of the Winchendon bobbin. The Winchendon bobbin had a bulb or head added above the top of the old Whitin spindle to the old Whitin bobbin above the old upper adhesive bearing, which bulb or head was not made to receive and did not receive the yarn or constitute a working-part of the bobbin. No yarn was laid upon this head, and the proof is clear that this addition of a chambered head above the top of the spindle and above the upper adhesive bearing did not diminish but increased the quantum of power requisite to drive the spindle. It is claimed that the same relation of the spindle to the bobbin is attained in the Winchendon device by adding to the length of the bobbin, as in the Pearl device, by shortening the spindle. But the fact that in one case there is involved an increased and the other a diminished expenditure of requisite power, and that this difference grows out of a greater or less tendency to gyratory motion in one case or the other, proves that in one case the change from the old Whitin spindle was functional, and in the other merely structural, and, as before remarked, the relation of the operative parts of the Winchendon spindle and bobbin remained the same substantially as in the old Whitin spindle and bobbin in common use.

The conclusion is that the defendants have infringed the first, second, and third claims of the complainants' patent, and a decree is to be entered in favor of the complainants for an injunction and account, as prayed for in the bill.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date January 2, 1877.]

9,686.—Salvers.—AUGUSTUS CONRADT, Middletown, Conn., assignor to MIDDLETOWN PLATE COMPANY, same place. Application filed December 20, 1876. Term of patent 7 years.

9,687.—Traveling Bags and Satchels.—WILLIAM HELLER, New York, N. Y. Application filed December 2, 1876. Term of patent 7 years.

9,688.—Font of Printing-Types.—ANDREW LITTLE, New York, N. Y. Application filed December 1, 1876. Term of patent 7 years.

9,689.—Paper Box.—ELISHA MORGAN, Springfield, Mass. Application filed July 28, 1876. Term of patent 3½ years.

9,690.—Carriage-Top Joint.—GEORGE F. SMITH, Plantsville, Conn., assignor to H. D. SMITH & Co., same place. Application filed September 23, 1876. Term of patent 14 years.

9,691.—Box-Stoves.—NICHOLAS S. VEDDER, Troy, and TOBIAS S. HEISTER, Lansingburg, assignors to NICHOLAS S. VEDDER, Troy, N. Y. Application filed November 28, 1876. Term of patent 3½ years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date January 2, 1877.]

4,247.—Baking-Powder.—J. B. ANTHONY & Co., Troy, N. Y. Application filed November 18, 1876.
"The word-symbol 'IMPERIAL.'"

4,248.—Illuminating-Oil.—PORTER C. ATWOOD, Philadelphia, Pa. Application filed December 11, 1876.
"The word-symbol 'PARLOR.'"

4,249.—Plug-Tobacco.—BUCHANAN & LYALL, New York, N. Y. Application filed October 10, 1876.
"The word-symbol 'PLANET.'"

4,250.—Sumac.—WILLIAM T. KING, Richmond, Va. Application filed September 8, 1876.
"The words 'Wm. T. King' and the figure representing a crown."

4,251.—Artificial Stone and Artificial-Stone Pavements.—THE FIRM OF WILLIAM KRAUSE, Philadelphia, Pa. Application filed December 11, 1876.
"The fanciful words 'Old Lithogen.'"

4,252.—Medical Compound.—SARAH C. LA BAU, Brooklyn, N. Y. Application filed October 24, 1876.
"The fac-simile of my signature."

4,253.—Grape-Juice.—MARSHALL E. OGBORN, Cincinnati, Ohio. Application filed October 30, 1876.
"The words 'M. E. Ogborn' inscribed upon a band traversing a shield which is encircled by the representation of a grape-vine, and having below the words 'In Qualitate Nihil Melius.'"

4,254.—Articles of Plated Ware.—REED & BARTON, Taunton, Mass. Application filed December 26, 1876.
"The words 'REED AND BARTON.'"

4,255.—Sewing-Machines.—WILSON SEWING MACHINE COMPANY, Chicago, Ill. Application filed December 11, 1876.
"The signature and portrait of W. G. Wilson.

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date January 2, 1877.]

937.—Title: **"Horsford's Self-Raising Bread Preparation."**—RUMFORD CHEMICAL WORKS, Providence, R. I. Application filed December 27, 1876.

938.—Title: **"Rumford Yeast Powder."**—RUMFORD CHEMICAL WORKS, Providence, R. I. Application filed December 27, 1876.

939.—Title: **"Dr. Hunter's Instant Pain Exterminator."**—GEORGE S. WYMAN, Boston, Mass. Application filed November 16, 1876.

DISCLAIMER FILED.

88,971.—Improvement in Seed Sowers and Planters.—E. G. MATTHEWS, Newton, assignor to F. F. HOLBROOK, Dorchester, Mass. Patented April 13, 1869. Disclaimer filed January 2, 1877, by FREDERICK HOLBROOK, trustee, (by E. E. LUMMUS,) ROCKWOOD PUFFER, and E. E. LUMMUS. Disclaim that part of the claim which is in the following words, to wit:

The metal frame for supporting the wheel B, hopper or seed box D, and hand-bars C, substantially as and for the purposes set forth.

NOTICE TO MANUFACTURERS AND OTHERS.

U. S. PATENT OFFICE,
WASHINGTON, D. C., *September* 5, 1876.

The COMMISSIONER OF PATENTS respectfully requests manufacturers of and dealers in engines, machines, apparatus, tools, and appliances of whatever kind, to send to this Office duplicate copies of all catalogues and circulars which they have issued or may issue from time to time.

Where such catalogues or circulars have a permanent value, other than as a mere advertisement, their receipt will be acknowledged in the columns of the OFFICIAL GAZETTE.

R. H. DUELL, *Commissioner.*

All letters to the Patent Office must be addressed to the Commissioner of Patents.

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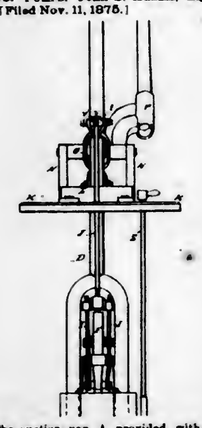
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Granger, A. M., Chemical fire extinguisher for vessels, &c	185 913
Greenough, J. J., Flexible motor for horse brushes	185,859
Greenough, J. J., Apparatus for actuating boring, cutting, and polishing tools	185,860
Gregg, M., Corn planter	185,915
Gregg, W. H., Artificial worm bait for fishing	185,914
Hancock, J. T., Inspirator	185,861
Harris, C. C., Windmill	185,826
Hartnoll, J., Hammer for dressing stone	185,999
Hauschildt, J. D., Sofa bed	185,918
Hayward, C. D., and J. I. Howard, Pantaloon protector	185,923
Higgins, I. H., and A. T. Gifford, Construction of boats	185,919
Hill, B. B., Hand stamp	185,862
Hix, A. E., Stencil pen	185,827
Holmes, C. E. L., Curry comb	185,920
Hooper, W., Tossing tub for separating ores	185,921
Houdaille, G., Machinery for raising from mines	185,922
Howard, J. I., and C. D. Hayward, Pantaloon protector	185,923
Howland, E., and J. B. Sweetland, Wind wheel	185,924
Huber, E., Road scraper	185,925
Hunerwadel, A., Mechanical movement	185,926
Hurd, I. N., Clothes drier	185,927
Hyatt, I. S. and J. W., Boring machine	185,928
Jacobi, R., Loose rim wheel	185,929
Jacobi, R., Car brake	185,930
Johnson, O. D., and J. F. Bracket, Rotary stalk cutter	185,931
Jones, J. H., Cultivator	185,932
Karr, F. M., Washing machine	185,933
Kearney, G. F., Game device	185,934
Knowles, I. W., Sagger pin machine	185 928
Kretsinger, W. H., Cradle scath band	185,935
Krueger, H., and B. F. Eveleth, Device for cutting butter in tubs	185,822
Lamb, P. W., Steam boiler furnace	185,829
Landfear, E. P., Nut lock	185,936
Lesson, A. S., Pump handle	185,937
Longden, C. E., Process and apparatus for forming rubber articles	185,939
Maris, T. C., Harness breast collar	185,944
Marks, G., Leather punching machine	185,938
Marshall, J. C., Square	185,830
Martin, A., Saw filing machine	185,863
Maynard, J. W., Tobacco safe	185,831
McClanahan, W. H., Earth pulverizer	185,940
McGeorge, H. D., Wagon jack	185,941
McMillan, J., Thread spool	185,864
Medbury, G. W. D., Carpet sweeper	185,865
Meggimson, R., Seed marker	185,942
Meyer, J., Beer faucet	185,943
Mills, K. L., Water motor	185,846
Mills, S. W., Fly fan	185,945
More, H., Portable milk strainer	185,866
Morris, H. G., Gas retort lid fastening, (reissue)	7,456
Mortimer, C. G., Can opener	185,947
Moseley, C. S., Plate for stem winding watches	185,867
Murdock, F., Churn	185,948
Neville, M., Plaiting machine	185,949
Neumann, R., Burglar proof safe	185,832
Nicolls, W. H., Registering ballot box	185,950
Odell, J., Heater for oil wells	185,951
Oliver, J., Plow	185,833
Oram, H., Sewing machine for quilting	185,952
Overstreet, J. C., Blower	185,953
Pabst, H. G. O., Feather renovator	185,868
Palmer, F. L., Sewing machine for quilting	185,954
Parkhurst, W. B., Cop builder	185,834
Park, L., Scaffold	185,956
Parmer, D., Tallow cup	185 955
Peacock, J. C., and C. W. Bradley, Carbureter	185,957
Peterson, C., and A. Dunnebake, Pipe wrench	185,958
Petty, J. W., Bale tie	185,959
Peirce, E., and S. Eggers, Cartridge	185,835
Powers, J. H., Crib	185,760
Pratt, B. F., Scoop	185,961
Pratt, G. M., Sewing machine	185,962
Quin, E. C., Inkstand	185,963
Ramey, A. B., Device for watering stock	185,869
Reynoso, A. F. C., Apparatus for manufacturing sulphurous acid	185,964
Rhodes, J. H., Water distributer	185,965
Richards, G. A., Vehicle spring	185,966
Richardson, J., Portable engine	185,966
Richardson, W. H., Umbrella	185,967
Rivers, D. R., Peanut cleaner	185,969
Robinson, J. R., Lever pawl and ratchet for operating wagon brakes, &c	185,970
Robison, C. H., Machine for making hexagonal nut blank bars	185,836
Roe, H. H. and D. H., Pail and can	185,837
Roemer, W., Traveling bag, satchel, &c	185,870
Romadka, A. V., Combined corner clamp, guard, and bolt for trunks	185,971
Saladee, C. W., Side spar road wagon	185,871
Saunders, A., Chuck for metal lathes	185,838
Schimelser, H. J., Sulky plow	185,972
Schneider, B. B., assignee of administrators of W. Fullagar, deceased, Shade for gas lights, (reissue)	7,457
Schuyler, I. C., Metal punching machine	185,973
Schweikert, J. P., Wash stand	185,974
Sellers, C., Relief valve for hydraulic machines	185,975
Shur, M. M., Button lock and fastener	185,976
Sloan, P. E., Car coupling	185,839
Smith, E. W., Scholar's companion	185,977
Smith, W. A., D. Boles, D. F. Stambaugh, and D. Steeples, Meat mangler	185,981
Solomon, I., Spring motor	185,872
Spaulding, G. H., Harvester	185,873
Stambaugh, D. F., D. Steepies, W. A. Smith, and D. Boles, Meat mangler	185,981
Staples, E., Dough kneader	185,978
Steele, E. J., Snap hook	185,980
Steeples, D., W. A. Smith, D. Boles, and D. T. Stambaugh, Meat mangler	185,981
Sterne, L., Nut lock	185 979
Stewart, F. L., Car coupling	185,874
Stichbury, F., Heating box irons	185,984
Stiveson, A. O., Harrow	185,982
Stockwell, E., Time lock	185,983
Stone, J. M., Hanger for shafting	185,840
Strachan, J., Boat launching apparatus	185,986
Straus, J., Bridle and halter	185,985
Striedinger, J. H., and A. Doerflinger, Multiple circuit closer for electric circuits	185,841
Subera, H. W., Pattern chart	185,842
Sutherland, W., Process of ornamenting wood, &c	185,843
Sweetland, J. B., and E. Howland, Wind wheel	185,924
Taylor, J., Hay press	185,875
Thacher, W. F., Stop valve	185,987
Toepfer, P. G., Card rack	185,844
Trombly, E., Wool burring machine	185,988
Tucker, T. M., Fluting machine	185,876
Tunstill, W., Nut lock	185,877
Upson, T. C., Key fastener	185,989
Vassie, W., Lamp bracket for sewing machine tables	185,878
Vaughan, L., Vehicle device for checking horses	185,990
Wade, J., Thill coupling	185,845
Ward, D., Process and apparatus for treating rendering tank gases	185,846
Waterman, J. W., Die for the manufacture of thrashing machine teeth	185,880
Watkins, A., Metal punching machine	185,991
Watson, J. M., Machinery for making shank pieces for boots and shoes	185,879
Weller, E. D., Running gear for vehicles	185,992
Weller, E. D., Running gear for vehicles	185,993
Wells, F. B., Sewer trap	185,994
White, J. H., Fastening for traveling bags	185,995
Whitmore, A. E., Revolving fire arm	185,881
Williams, A. C., Cooking stove or range	185,997
Williams, W. H., Heel stiffener	185,996
Wilson, W. A. and G. A., and G. Duncan, Rotary paper folding machine	185,898
Wrede, T. H., Process for leaching coal ashes	185,998

TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED JANUARY 2, 1877.

185,813. PUMPS. John S. Adams, Elgin, Ill. [Filed Nov. 11, 1875.]



1. The suction-pan A, provided with the flange *a*", in combination with the induction-tube of a force-pump, substantially as and for the purposes specified.

2. The beveled annular block or center-piece I, provided with the uprights or bearings N N, in combination with the beveled centering-blocks M M, screws *s s*, floor K, discharge tube, and rocking-beam, substantially as and for the purposes specified.

3. The combination of the expansible ring-packing on the pistons, with the corrugated springs *q q*, substantially as and for the purposes specified.

4. The valve-box B, consisting of an upper chamber divided into two compartments by means of the vertical wall *d*, each compartment having therein a valve-opening, and also of the lower chamber *o'*, separated from the upper chamber by means of the horizontal floor *e*, having two valve-openings arranged therein in a line at right angles, or nearly so, to the line in which the upper valve-openings lie, in combination with the part C, having therein the air-chamber *e o*, and the piston-cylinders *o' o'*, the said chambers and cylinders lying in the same plane with each other, all the said parts arranged substantially as shown and described, with relation to each other, for operation together in a pump, for the purposes set forth.

5. The part C, having therein the air-chamber *e o*, and the piston-cylinders *o' o'*, all lying in the same plane with each other, in combination, in a pump, with the forked discharge-pipe D, the forked ends thereof entering the chamber *e o*, and extending nearly to the bottom thereof, substantially as and for the purposes specified.

6. The walking-beam O provided with the lever-socket P, and having an elongated opening surrounding the discharge-pipe, and also having one or more forked ends, in combination with the uprights or standards N N, forming supports for the bearings or trunnions on which the beam rocks, substantially as and for the purposes specified.

7. In combination, the beam O having forked ends, the rocker-boxes *l l* having bearings on the removable screw-trunnions *f f* entering female screws in the said forked ends, and the tension-rods J J passing through the said boxes, and retained therein by means of the nuts *v v*, substantially as and for the purposes specified.

8. In a pump having double piston-cylinders, the combination of the upper walking-beam O provided with the socket P, actuating-lever P', racks or cogged piston-stems F F, standards or bearing G, spur-wheel or pinion H, clasps or lugs *r r*, pivoted links I I, and tension-rods J J, all arranged substantially as shown and described, with relation to each other, and for operation together, as and for the purposes specified.

185,814. BOOTS AND SHOES. L. R. Blake, Boston, Mass. [Filed Nov. 27, 1876.]



1. As an improved article of manufacture, an inner sole composed of an upper and an under layer of leather, and an interposed layer of metal, substantially as described.

2. In a boot or shoe, an outer sole, a welt, an upper, and an inner sole, provided with a layer of metal, and a series of tacks to unite them together, the tacks being covered by the welt, and being clinched into the under layer of the inner sole, substantially as described.

185,815. BOOTS AND SHOES. L. R. Blake, Boston, Mass. [Filed Oct. 16, 1876.]



1. As an improved article of manufacture a sole in which a lip is formed from the substance of the sole, and studded with tacks, and which is then refastened to the sole outside the row of tacks, substantially as described.

2. The combination, with an upper, and an inner sole, of an outer sole, having a lip formed by cutting into the sole, the lip being studded with tacks and then sewed outside the row of tacks to the thicker portion of the sole under it, substantially as described.

185,816. MANUFACTURE OF BOOTS AND SHOES. Lyman R. Blake, Boston, Mass. [Filed Oct. 16, 1876.]



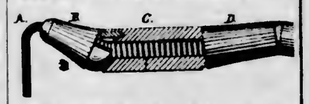
1. A boot or shoe having its outer sole, inner sole, and upper united by an intermediate welt secured to the outer sole, the welt being set or studded with tacks or metallic fastenings, the outer ends or heads of which, when driven, will be concealed between the outer and inner soles, all substantially as described.

2. As an improved article of manufacture, a fibrous welt, set or studded with tacks or metallic fastenings, substantially as and for the purpose described.

3. In the manufacture of boots and shoes, the method herein described of uniting the upper and inner sole to the outer sole, consisting in stitching the welt to the outer sole, and nailing the upper and inner sole to the welt by a series of tacks or nails, sustained by the welt, substantially as described.

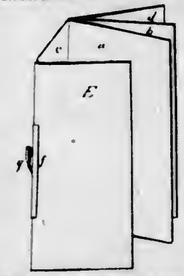
185,817. CIGAR-MACHINES. R. A. Bright, Jr., Providence, R. I. [Filed Oct. 24, 1876.]

Brief.—The rolls conform to the configuration of a cigar, so that when surrounding one they roll it into form and finish the tip.



The within-described roll for wrapping cigars, constructed with an irregular core, A, and having thereon a series of collars, B C D, of different diameters, connected together by knuckle-joints and with the operating gear-wheel by collars F G, substantially as and for the purposes specified.

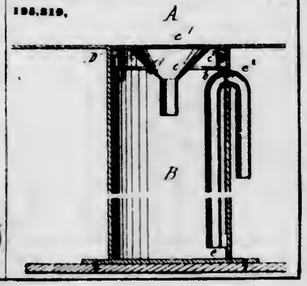
185,818. SKETCHING-ALBUMS. Laura E. Montgomery Burr, Lansing, Mich. [Filed Sept. 14, 1876.]



1. The sketching-album, composed essentially of the covers *c d*, the glass reflector E, and the sketching surfaces *a b*, combined and arranged in book form, substantially as described, and for the purpose set forth.

2. In combination with the sketching-album, constructed as described, the double-hinge attachment *g*, substantially as and for the purpose set forth.

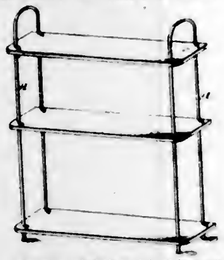
185,819.



185,819. KITCHEN-SINKS. Jno. M. Carson, Louisville, Ky. [Filed Oct. 6, 1876.]

The kitchen-sink A, having a removable strainer, C, in combination with a hollow grease-retaining reservoir, B, which serves as the supporting pedestal or standard, and is provided with a siphon-drain or waste-pipe, E, substantially in the manner and for the purpose described.

185,820. PORTABLE SHELVES. G. A. Colby, New York, N. Y. [Filed Mar. 12, 1876.]

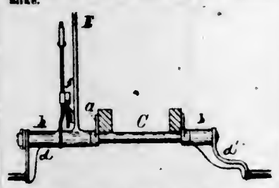


1. A number of shelves joined in a set by two or more rods of wood or iron, bowed and notched, and acting in combination with the toothed and bracketed key, substantially as described.

2. The set of pigeon-holes A, with the staples *g*, in combination with the shelves and rods A, substantially as described.

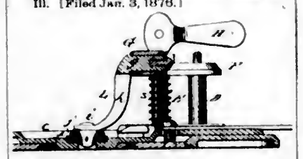
185,821. WHEEL-PLOWS. F. S. Davenport, Jerseyville, Ill. [Filed Oct. 28, 1876.]

Brief.—The lever rigid to the axle turns it, so as to let down the plow-frame. One spindle-crank turns upon the axle, and adjusts the wheel to any height by a supplemental lever, where it is held by a ratchet affixed to the main lever, which then turns both cranks alike.



The axle arm *d*, pivoted upon the suspension-bar C, so as to admit of angular adjustment with reference to the opposite axle, and secured in position relative thereto by the locking device described, or its equivalent, so that both axles may be simultaneously actuated for either raising or lowering the plow by the single hand-lever E, the combination and operation of said parts being substantially as and for the purpose herein set forth.

185,822. BUTTON-HOLE ATTACHMENTS FOR SEWING-MACHINES. A. Farrar, Chicago, Ill. [Filed Jan. 3, 1876.]

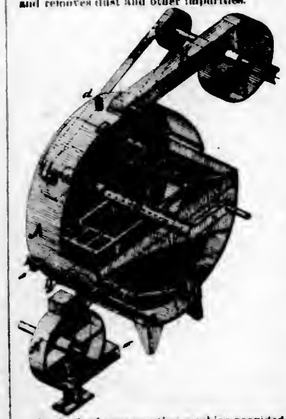


1. The plate C, having its central portion depressed, in combination with the rotating plate B and clamping mechanism D, E, F, G, H, *h*, and *i*, constructed and arranged as shown, whereby the button-hole is brought close down on the work-plate during the process of stitching, as and for the purpose set forth.

2. The plate C, having its center portion depressed, extending through the rotating plate B, in combination with the clamp I, having part *i*, arms *h*, posts E D, cam H, and bar F, substantially as and for the purpose set forth.

185,823. FEATHER-RENOVATING MACHINES. Isaac L. Fisher, Hamilton, Ohio. [Filed Aug. 18, 1876.]

Brief.—Air driven through the machine by using either of the blowers dries the feathers, and removes dust and other impurities.



In the feather-renovating machine provided with the drying-chamber P, air-division H, and partition E, the combination of the steam and air conduits *b*, *c*, D, *d*, and J, substantially as and for the purpose described.

185,824. METHODS AND APPARATUS FOR COOLING AND SPREADING GLUE. Chas. O. Garrison, New York, N. Y. [Filed Dec. 13, 1876.]

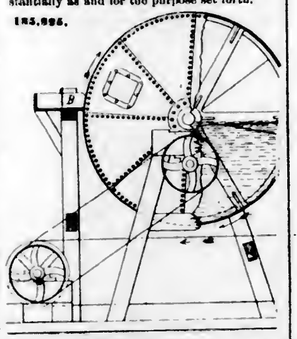
Brief.—A hollow metallic cylinder containing a refrigerant mixture, in revolving, takes up glue from a box or feeding device fitted tightly to its periphery, and delivers the glue in a continuous sheet upon an endless belt carrying nets below

1. In an apparatus for the manufacture of glue, the combination, with a cooling cylinder or drum, of a feeding box or receptacle, fitted tightly to the periphery of the wheel, whereby air is excluded from the liquid glue in the feed-box, substantially as and for the purpose set forth.

2. In apparatus for the manufacture of glue, the combination, with a cooling-cylinder having a feed-receptacle tightly fitted to the periphery of said cylinder, of an endless belt or carrier, located beneath the cylinder, whereby the sheet of glue is automatically deposited on the drying-nets placed on the endless carrier, substantially as and for the purpose set forth.

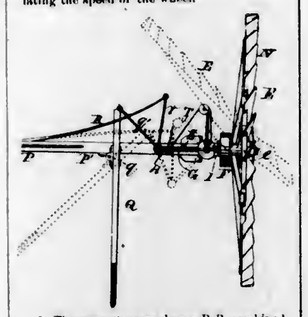
3. The method herein described of cooling and spreading glue, the same consisting in feeding the desired quantity of liquid glue upon a revolving cooling-surface, from which it is automatically deposited on the drying-nets in sheets of any desired thickness, substantially as and for the purpose set forth.

185,825.



185,826. WINDMILLS. Charles C. Harris, Kewanee, Ill. [Filed Sept. 9, 1876.]

Brief.—Separate open boxes are arranged to operate with the spindles and collar. The side vane is pivoted to the stem of the main vane, and has an extended end connected by an arm, for regulating the velocity of the wheel. There is also a spring arranged to operate with the arm and side vane, for regulating the speed of the wheel.



1. The separate open boxes B B, combined with the spindles C C', and collar *c'*, substantially as and for the purpose specified.

2. The side vane Q, pivoted to the stem of the vane P, and having an extended end connected by an arm, *q'*, to the end of the arm H, for regulating the velocity of the wheel E, substantially as described, and for the purpose specified.

3. The spring R, arranged to operate with the arm H, and wheel E for regulating the wheel with varying intensity, substantially as described, and for the purpose specified.

4. The spring R, arranged to operate with the arm H and side vane Q, for regulating the speed of the wheel E with varying intensity, substantially as described, and for the purpose specified.

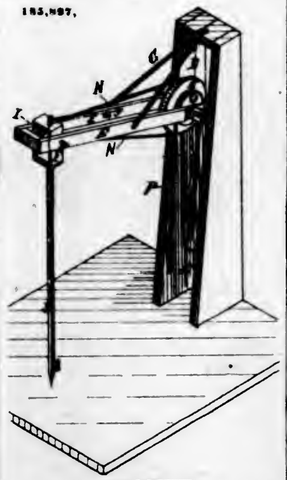
185,827. STENCIL-PENS. Albert E. Hix, Sycamore, Ill. [Filed July 29, 1876.]

Brief.—A vertically and horizontally adjustable frame, supported and turning upon a swivel at its rear end, carries at its forward free end the needle-bar, which is pivoted in the frame, and carries on its upper end a pulley and eccentric, whereby the needle is operated through band passing over pulley at the rear of the frame.

1. The combination of the swivel-pin D, swinging frame E, pivoted thereto, and needle-tube F, pivoted to said frame, substantially as described.

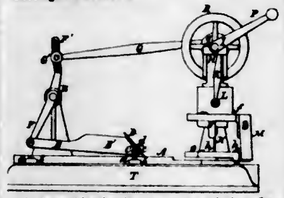
2. The combination of the pulleys H and O, bands N and P, pulley I, eccentric or cam K, pitman L, and needle M, substantially as and for the purpose set forth.

185,827.



185,828. SAGGER-PIN MACHINES. I. W. Knowles, East Liverpool, Ohio. [Filed Nov. 25, 1876.]

Brief.—The clay, squeezed into lengths, is laid in a groove, wherein it is fed, by a toothed plate on a reciprocating arm, to beneath descending knives on a sliding block, which cut the pin into the necessary form, all operated by cranks on two parallel shafts, with a connecting-rod between.



1. A machine having one or more knives for cutting and shaping sagger-pins from a clay length or its equivalent, for the object set forth.

2. A sagger-pin, when cut from a clay length, in manner as described.

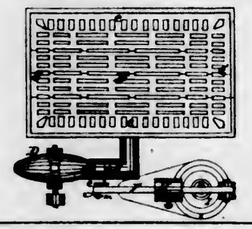
3. The feed-bar B, having the head B', roller C, plate D, and yoke *d*, all combined and operating as described, for the object set forth.

4. In a sagger-pin machine, the guides A A, in combination with one or more knives, as described, and for the object set forth.

5. In a sagger-pin machine, the compound knife-guide and resisting-plate O, as described, and in combination with knives M and N, for the object specified.

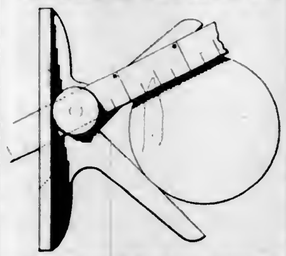
6. The combination of the elements A A, B, C, D, E, F F', G, H, I, K, L, M, N, O, P, R, S, T, U, X, *e*, and G', all constructed and operating as described, and for the object set forth.

185,829. STEAM-BOILER FURNACES. Patrick W. Lamb, Albany, N. Y. [Filed Oct. 16, 1876.]



The combination, with the furnace A, provided with grate B and blower D, provided with a conduit leading to the ash-pit beneath the said grate, of the damper *c*, weighted lever F, steam-cylinder I, and piston *e*, operating substantially as and for the purpose set forth.

185,830. SQUARES. Joseph C. Marshall, Springfield, Mass. [Filed Aug. 28, 1876.]



The head having arms at an equal angle with its base, and provided with the projection D and shoulder E, in combination with the slotted beaded bolt and movable blade, substantially as described.

185,831. TOBACCO-SAFES. J. W. Maynard, Chicago, Ill. [Filed June 29, 1876.]

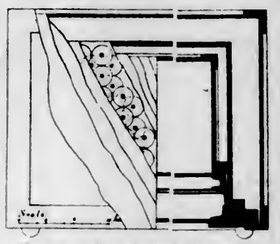
Brief.—The case incloses a tobacco-tab, and has a removable top and hinged lid.



1. The combination, with the bottomless case A, of the removable rim E, and hinged cover D, substantially as and for the purpose specified.

2. The combination, with the case A, provided with a bottom, of the removable rim E, and hinged cover D, substantially as and for the purpose specified.

185,832. BURGLAR-PROOF SAFES. Robert Neumann, Konigsberg, i. P., Prussia. [Filed Jan. 4, 1876.]



The outer and inner casing of fire and burglar proof safes, constructed of single compound plates, composed of two iron sheets and one middle steel sheet of alternately hardened and tempered strips, united by countersunk rivets, in the manner and for the purposes as specified.

185,833. PLOWS. Jas. Oliver, South Bend, Ind. [Filed Nov. 29, 1876.]

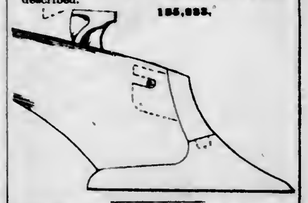
Brief.—A removable colter or breast-piece formed with a thin plate or rear extension, and secured by being bolted between the mold-board and standard.

1. The combination, with the detachable mold-board, standard, and point of a plow, of a detachable colter formed with a thin rear flange, which latter is secured between the standard and mold-board, thereby preserving an unbroken working face on the land-side of the plow, substantially as and for the purpose described.

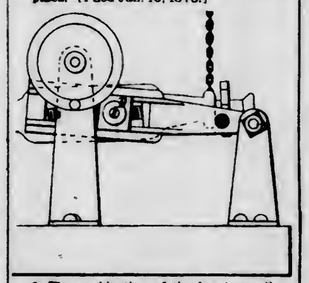
2. The combination, with the mold-board, standard, and point of a plow, all formed in independent parts, of a detachable colter constructed with a thin flange extending rearward between the mold-board and standard, and provided with one or more open slots for adjustable bolt engagement therewith, substantially as and for the purpose described.

3. The combination, with the mold-board, standard, and point of a plow, all formed in independent parts, of the detachable colter, the latter provided with the flange secured between the standard and mold-board, and also constructed with the lower leg projection seating into the mortise formed in the point, substantially as and for the purpose described.

185,833.



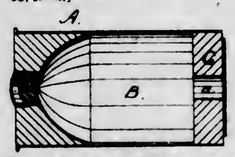
185,834. COP-BUILDERS. W. B. Parkhurst, North Andover, Mass., assignor to G. L. Davis, J. A. Wiley, J. M. Stone, G. G. Davis, J. H. Stone, and J. H. Davis, same place. [Filed Jan. 10, 1876.]



1. The combination of the heart-cam, the primary lever, the secondary lever, with the chain attached thereto in a fixed position, and the sliding connection of the two levers, substantially as described.

2. The secondary lever having the chain or other equivalent means for imparting motion to the copping-rail or device for guiding the yarn onto the bobbin, attached to said lever in a fixed position, and a wrist-pin sliding radially therein for imparting a variable motion to said lever, co-operating substantially as described.

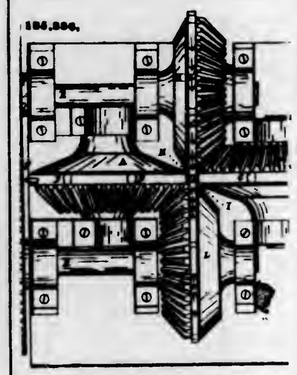
185,835. CARTRIDGES. E. Peirce and S. Eggers, New Bedford, Mass. [Filed Oct. 13, 1876.]



The metallic cartridge A, having the powder-chamber B, in combination with the wad or head C, closing the outer end of the chamber, and constructed with an aperture closed by a suitable material which will readily be consumed by the ignition of the powder in the cartridge, as and for the purpose described.

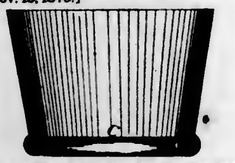
185,836. MACHINES FOR MAKING HEXAGONAL NUT-BLANK BARS. Chas. H. Robison, Cleveland, Ohio. [Filed Sept. 25, 1876.]

186,836.



The rollers A B and rollers L K, operating conjointly, and so arranged in respect to each other that the axial lines of said rollers shall be in the same plane, and the rollers A B set at right angles to the rollers L K, with approximated peripheries, in combination with the serrulures O O′ and punches H I, for forming nut-blank bars and punching the same by one continuous operation, in the manner substantially as described, and for the purpose set forth.

186,837. PAILS AND CANS. Henry H. Roe and Daniel H. Roe, Madison, Ohio. [Filed Nov. 13, 1876.]

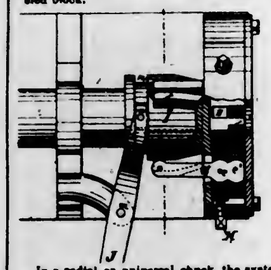


1. A pail or can having the lower portion of its body formed with an annular shoulder or ledge, against the under side of which, and above the lower edge of the body of the pail or can, the bottom is secured by means of an independent fastening-piece secured to the inside of the body below its shoulder, substantially as and for the purpose specified.

2. A pail or can having the lower portion of its body formed with an annular shoulder or ledge, against the under side of which the bottom is firmly secured by a wire, D, laid in place by the lower edge of the can, or the edges of the can and bottom rolled partially or entirely around it, substantially as and for the purpose specified.

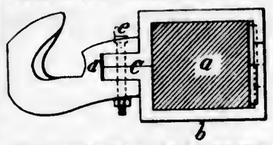
186,838. CHUCKS FOR METAL-LATHES. A. Saunders, Yonkers, N. Y., assignor to D. Saunders' Sons, same place. [Filed Nov. 23, 1876.]

Brief.—The levers for actuating the gripping-jaws are pivoted near their forward ends in radially-adjustable blocks, and are connected at their rear ends with a sliding beveled block.



In a radial or universal chuck the system of levers G fulcrumed in the sliding blocks E, which are made adjustable by screws H, in combination with the system of griping-jaws F, the sliding actuating-block I, and the operating-lever J, the whole constructed, combined, and arranged for use and operation substantially as and for the purpose herein set forth.

186,839. CAR-COUPLINGS. P. H. Sloan, Syracuse, N. Y. [Filed Sept. 18, 1876.]



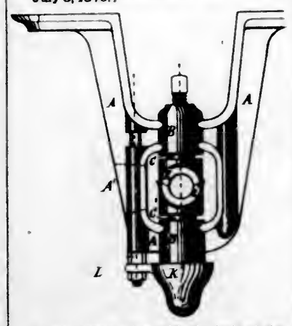
1. The combination of a band, *b*, surrounding the timber *a*, with a draw-head, substantially as and for the purpose specified.

2. The band *b*, composed of two parts, locked together, and constituting the attachment for a draw-head, as above described.

3. A band surrounding the timber *a*, for the purpose of strengthening it while forming an attachment from which to draw.

4. The lateral interlocking hooks *h*, in combination with the two parts of a band, *b*, which, when locked together, and also connected by the bolts *s* at *c*, cannot be unlocked without fracture.

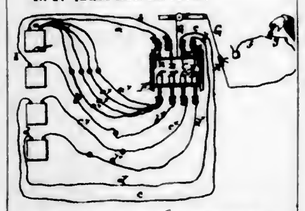
186,840. HANGERS FOR SHAFTING. Joseph M. Stone, North Andover, Mass. [Filed July 3, 1876.]



1. The combination, with the body of the hanger, of the filling-piece A′ and stay-bolt H, co-operating substantially as described.

2. The drip-pan having a supporting-ear, L, in combination with the stay-bolt H, substantially as described.

186,841. MULTIPLEX CIRCUIT-CLOSERS FOR ELECTRIC CIRCUITS. J. H. Striedinger, New York, and A. Doerflinger, Brooklyn, N. Y. [Filed Nov. 24, 1876.]

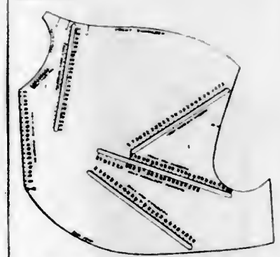


1. In a circuit-closer, the combination of a series of conductors, *a*, *b*, and *c*, terminating in metallic points A, B, and C, with a movable plate, E, and with the caps A* B*, &c., and conductors *a** *b**, &c., all arranged to effect a simultaneous closing of a series of circuits, substantially as specified.

2. The combination of the independent actuating-circuit *f g* with the suspending device H, and circuit-closing plate E, all arranged so that by closing the actuating-circuit *f g* the main circuit or circuits will also be closed, substantially as specified.

186,842. PATTERN-CHESTS. H. W. Subera, Lyons City, Iowa. [Filed July 8, 1876.]

186,843.

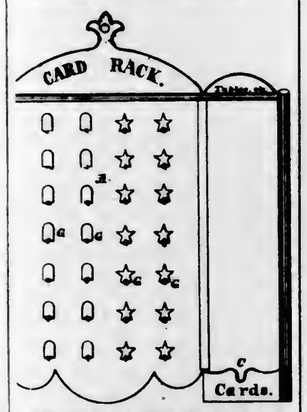


The chart, constructed as described, and provided with the lines, curves, and scales, substantially as and for the purposes set forth.

186,843. PROCESSES OF ORNAMENTING WOOD, &c. Wm. Sutherland, Manchester, England. [Filed Sept. 26, 1876.]

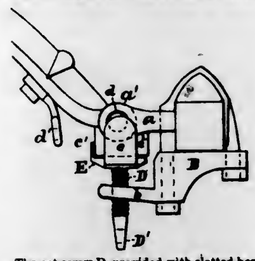
The described method of ornamenting wood surfaces, the same consisting in first preparing the surface of the wood, as set forth, then transferring to it a printed pattern, painting in the colors or dies mentioned, removing the ink of the engraving and the varnish, and then polishing, substantially as set forth.

186,844. CARD-RACKS. Peter G. Toepfer, Milwaukee, Wis. [Filed Oct. 5, 1876.]



The herein-described card-rack, made of sheet metal with rolled edges B, card-boxes C, and lips G, substantially as and for the purpose specified.

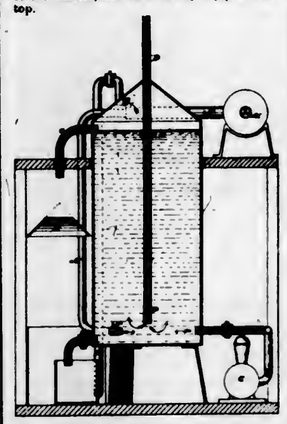
186,845. TRUSS-COUPLINGS. John Wade, Beaver Dam, Wis. [Filed June 19, 1876.]



The set-screw D, provided with slotted head D′, and having its bearing in the projection *b* of the clip-bar B, in combination with the plate E, having lugs *e e′*, coupling-eyes *d′*, and bolt *d*, substantially as and for the purposes described.

186,846. PROCESSES AND APPARATUS FOR TREATING RENDERING-TANK GASES. D. Ward, Chicago, Ill. [Filed Nov. 13, 1876.]

Brief.—Gases and vapors are passed from the rendering-tank into the bottom of a column of running water in a separate tank, where the steam and vapors are condensed, which, with the stench, are conveyed away by the stream of outflowing water. The gas rising through the water is conveyed into a receiver or carbureter, from which it is conducted to the fire-box of the furnace and burned. By means of a pump, pipe, and hood, gases are collected from the rendering-room, forced into the washer, and treated as described above. Water is forced by a pump into the bottom of the washer, and flows off by a pipe at the top.



1. The method herein described of treating the gases generated in steam rendering-tanks by passing the vapors directly from the tanks into the lower part of a column of running water, through which they then rise, thereby condensing all the watery vapors, taking up all the stench therefrom into the running water, and washing the gas, and conducting the gas thus obtained to a receiver or carbureter, whence it may be distributed for heating or illuminating purposes, substantially as set forth.

2. The method herein described of treating the gases arising outside of the tanks by collecting the vapors by means of suction and forcing them into the bottom of a tank of running water, through which they pass to separate the steam from the gas, which is then utilized for heating and illuminating, substantially as set forth.

3. The tank E, filled with water and provided with the overflow-pipe *s*, in combination with a force-pump, G, for producing a current through the tank, and the conducting-pipe D, connecting with the interior of the rendering-tanks and extending down within the water-tank nearly to the bottom thereof, substantially as and for the purpose set forth.

4. The rendering-tank A, in combination with the branching-pipe C, provided with the stop-cock *c* and check-valve *c′*, and main conducting-pipe D, substantially as and for the purpose set forth.

5. The pipe L, having a hood, K, attached to its open end, in combination with the exhaust and force pump M, pipe N, and water-tank E, substantially as and for the purpose set forth.

6. The rendering-tank A, in combination with an exhaust and force pump, M, connected directly therewith by a suitable pipe, and a pipe, E, connecting said pump with the bottom of the water-tank E, substantially as and for the purpose set forth.

186,847. FASTENINGS FOR BOLSTERS, &c. A. Aldrich, Pascoag, R. I. [Filed Dec. 15, 1876.]

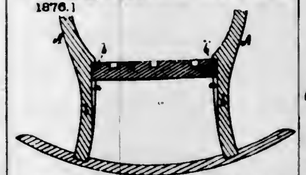
Brief.—The bolster, collar, &c., are fastened to a rail or spindle by circumferential groove in said bolster, collar, &c., interlocking with a pin which projects from inside of rail, collar, or flier. The parts are held in place by a key which fits in a groove at right angles to said circumferential groove.

186,847.



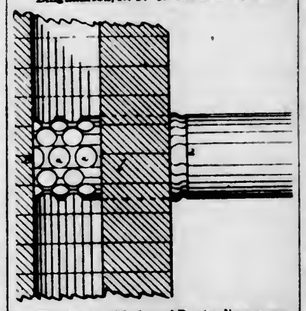
The method of fastening or uniting bolsters, collars, steps, or fliers, herein described, to the rail or spindle, by a circumferential groove in said bolster, collar, step, or spindle, interlocking with a pin which projects from the inside of the rail, collar, or flier, and then securing said parts in place by means of a key inserted in a longitudinal groove formed in the rail or spindle, as set forth.

186,848. CRADLES OR CRIBS. L. Atwood, Rutland, Vt., assignor to himself and W. C. French, Boston, Mass. [Filed Nov. 13, 1876.]



The crib or cradle head, substantially as described, having the legs of its flask-pieces A A provided with dovetailed grooves *a a*, arranged in them, as specified, and their connection-bar C, provided with dovetailed tenons *b′ b′*, to enter and fit to said grooves, all being essentially as set forth.

186,849. STOVE-PIPES. George Buchanan, Binghamton, N. Y. [Filed Oct. 24, 1876.]

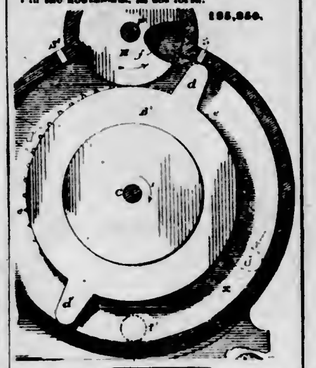


The pipe A, with the end B extending across the interior, and in contact with the face of the rear wall of the chimney, having holes *a* at different points in the pipe to allow of the required draft, constructed and arranged as herein described, for the purpose set forth.

186,850. ROTARY ENGINES. S. R. Cleveland, Winnecomac, Wis. [Filed Sept. 9, 1876.]

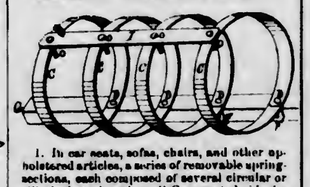
1. The combination of the casing A, its two independent chambers, outlet and inlet ports *s t*, arranged as set forth, the disks B B′, each carrying two pistons arranged equidistant from each other, those on one disk being midway between those of the other, and the rotating abutments B B′ secured to the same shaft, having recesses *f* diametrically opposite each other, and rotated positively in unison with the disks, but at double the speed of the latter, as described.

186,851.



2. The combination of the disks and abutments, having plain peripheries in steam-tight contact, and pins *s* upon the disks, in alternating series, and corresponding recesses *i* in the abutments, as set forth.

186,851. SPRING-SEATS. H. B. Cobb, Wilmington, Del. [Filed Feb. 5, 1876.]



1. In car seats, sofas, chairs, and other upholstered articles, a series of removable spring-sections, each composed of several circular or elliptical steel springs, C C, mounted side by side upon a cross-bar, G, and connected at the top by an elastic metal connecting-strip, I, substantially as described.

2. In car-seats and other upholstered articles, the circular or elliptical springs C C, adapted, substantially as described, to be separately applied to and removed from the cross-bar G and seat-frame without disturbing the upholstering.

3. In car-seats and other upholstered articles, the circular or elliptical springs C C, adapted, substantially as described, to be separately applied to and removed from the top-connecting strip I without disturbing the upholstering.

4. The combination of the beaded pins *e* with the connecting-strip I and springs C, substantially as described.

5. A series of springs of graduated sizes, supported upon the bottom cross-bar H, and connected by a top strip, I, combined with a seat for the purpose of imparting a convex form to the upper surface of the upholstering, substantially as described.

6. A section of springs held within the seat-frame by the pressure of the springs against the upholstering, and a resisting-ledge upon the frame, substantially as described.

7. The combination of the springs and their supporting-bar with the sockets attached to the seat-frame, for the purpose of holding the springs in a vertical position, substantially as described.

8. The metal sockets J, having the check-pieces *b b*, the tang M, and one or more pins or studs, *n*, substantially as described.

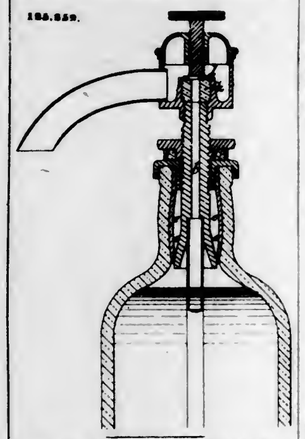
9. The clasps F, constructed as described, to attach the springs in an upright position upon the cross-bars G.

186,852. COMBINED SIPHON-TAP AND STOPPER FOR AERATED-LIQUID BOTTLES. H. J. Cole, Wandsworth Road, England. [Filed Nov. 2, 1876.]

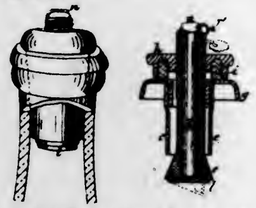
1. The tube *b*, provided with a valve, *l*, and the cone *c*, in combination with the rubber or elastic packing *e*, and the siphon-tube *a*, all constructed to operate substantially as described.

2. The combination, in a bottle-stopper, of an elastic packing and a cone for expanding the same, with a siphon-tube and a valve, substantially as described, whereby the apparatus, as a whole, may be attached to or detached from the bottle at will.

185,852.



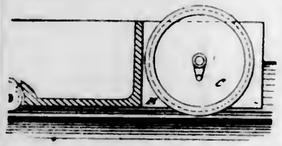
185,853. SIPHON-TAP AND STOPPER FOR AERATED-LIQUID BOTTLES. Henry J. Cole, Wandsworth Road, England. [Filed Nov. 3, 1876.]



1. A bottle stopper, provided with an elastic packing, *c*, and a tube, *b*, having a cone, *s*, for expanding the packing, in combination with a valve, *l*, having a wire or rod, *n*, for operating the same, all substantially as shown and described.

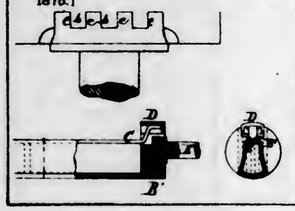
2. The tube *b*, having the cone *s* on its lower end, in combination with the elastic packing *c* and a screw-cap, *h*, for tightening the same, all constructed and arranged to operate substantially as set forth.

185,854. TOWING CANAL-BOATS. D. W. Cooke, Franklin, Tenn. [Filed Mar. 21, 1876.]



A tug for propelling canal-boats, having a square stern, *a*, ballast-holds I, chamber K, and traction-wheel C, as and for the purposes described.

185,855. VALVE-CONNECTIONS. Geo. H. Corliss, Providence, R. I. [Filed Nov. 27, 1876.]



1. The valve B, bearing shoes D D, and single longitudinal spring C, operating on each, as and for the purposes specified.

2. The valve B, provided with parallel grooves *b* in combination with the independently-mounted stem E, provided with a series of parallel ridges, *c*, which fit into the grooves at the end of the valve, as and for the purposes specified.

185,856. TRACTION-WHEELS. Emmanuel Joseph Albo de Bernales, Brooklyn, N. Y. [Filed Nov. 17, 1876.]

Brief.—The bearing-surfaces are spiral threads running around the rollers in opposite directions.

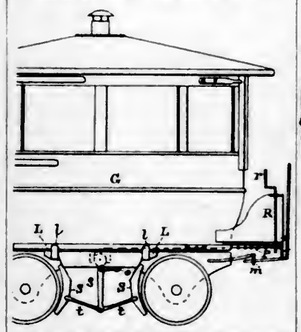


1. A traction-engine provided with wheels or rollers having bearings, each extending spirally completely round the axis, as set forth.

2. The combination, in a traction-engine, of two or more wheels or rollers having spiral treads winding in different directions, as and for the purpose set forth.

3. The combination of the frame A, rollers B B', having spiral treads, the platform A', hinged to the frame A, and the vertical swiveling shaft carrying a pilot-wheel, C, all as set forth.

185,857. STREET-CARS. David A. Foster, Richmond, Ind. [Filed Nov. 6, 1876.]



1. In the car-body, the bottom provided with the center piece B and cleats *c*, radiating therefrom, and band *b*, as and for the purposes described.

2. The bottom of the car, provided with the center piece B and ways C and D, in combination with the truck frame, provided with the socket K and guards *l*, as and for the purposes set forth.

3. The upright pieces *c*, curved braces *d*, and pieces *g*, forming the frame of the car-seat, and the coiled covering of same, as shown, in combination with the base-timber E and side posts *f*, as and for the purposes specified.

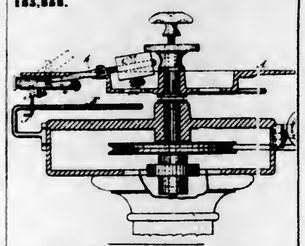
4. The car-roof supported by radial bars connecting with the hollow center piece *h*, and supported by side posts *f*, as shown, for the purposes set forth.

185,858. CARTRIDGE-WEIGHING MACHINES. Jabez H. Gill, Philadelphia, Pa. [Filed Nov. 3, 1876.]

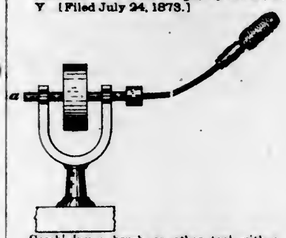
1. The combination of the horizontally-rotating disk A with the weighing-scales N, the guiding-tracks *s*, *s'*, and *s*, and the tripping mechanism for tilting the tray and throwing the shell from the scales, substantially as described.

2. In a cartridge-weighing machine, the combination of the balancing-beam *b*, the counterpoise O, made adjustable thereon, and the pivoted balanced tray *o*, substantially as set forth.

185,859.

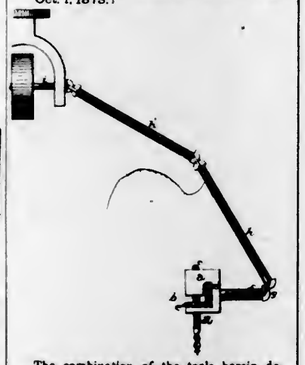


185,859. FLEXIBLE MOTORS FOR HORSE-BRUSHES. J. J. Greenough, Syracuse, N. Y. [Filed July 24, 1873.]



Combining a brush or other tool with a driving-shaft, by means of the torsion of a metallic rope, the strands of which are coiled in opposite directions, substantially as and for the purposes described.

185,860. APPARATUS FOR ACTUATING BORING, CUTTING, AND POLISHING TOOLS. J. J. Greenough, Syracuse, N. Y. [Filed Oct. 1, 1873.]



The combination of the tools herein described with the driving-power by means of a tooth-geared universal-joint sectional line-shaft, constructed and operating in manner substantially as shown and described.

185,861. INSPIRATORS. John T. Hancock, Boston, Mass. [Filed Aug. 25, 1876.]

Brief.—Two sets of apparatus are each in separate chambers, one being employed in lifting water from a well or other source of supply, and conveying the same to the other chamber, whence it is conducted to the boiler.

1. The combination of the steam-chamber D, the jet-tube *c*, the interval *g*, the combining-tube *b b'*, and valve *m*, the whole composing a lifting apparatus, substantially as set forth.

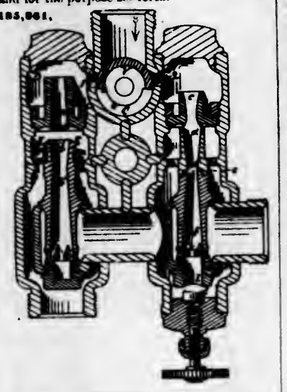
2. The combination of the steam-chamber E, the jet-tube *e*, the annular space *e'*, and the combining-tube *d d'*, the whole composing a transmitting apparatus, substantially as described.

3. The combination of an injector for forcing water into a boiler, and a second injector communicating with the well, and communicating with and supplying water to the first, substantially as described.

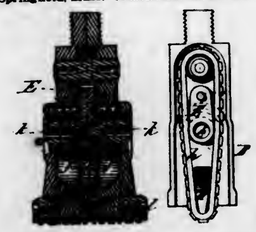
4. The combination of two communicating injectors, one communicating with the well and the other with the boiler, and a valve, whereby steam may be directed to either or both, as specified.

5. The groove *s*, in combination with the tube *d* and delivery-tube *f*, substantially as and for the purpose set forth.

185,862.



185,862. HAND-STAMPS. Benjn. B. Hill, Springfield, Mass. [Filed Feb. 23, 1876.]

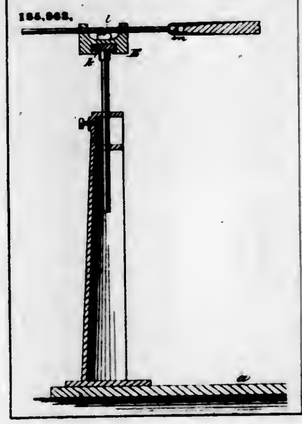


1. The combination of a series of endless rubber printing-bands, a corresponding series of revolving rolls, and a bearing, H, to support the type when being moved and used to print, all substantially as and for the purpose described.

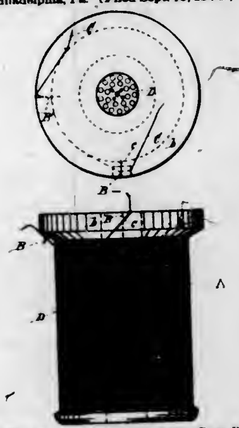
2. In a stamp, the combination of the roller *k*, the hanging pieces E, and the two parts B B, substantially as set forth.

3. A hand-stamp, made in two parts, B B, in combination with a series of rubber printing-bands, arranged inside, substantially as described.

185,863.



185,864. THREAD-SPOOLS. Jas. McMillan, Philadelphia, Pa. [Filed Sept. 10, 1874.]



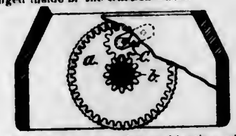
1. The combination of the cutter B or B' with the flange *b* of the spool, for cutting off the free end of the thread, substantially as described.

2. The spool A, having a flange, *b*, provided with a slit, *c*, for holding the unwound end of the thread, substantially as set forth.

3. A combined spool, thread-cutter, and pin-cushion, the cutter being fast to the flange on one end of the spool, and the cushion confined to either end of the spool by means of the metallic plate E, substantially as set forth.

185,865. CARPET-SWEEPERS. Geo. W. D. Medbury, Providence, R. I. [Filed June 13, 1876.]

Brief.—The traction-wheel has a roughened edge and inside cogs, that connect with gearing to operate the brush. All the gearing is arranged inside of the traction-wheel.

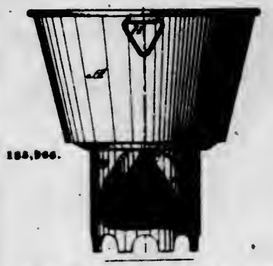


In a carpet-sweeper, the combination, with the revolving brush B, of the traction wheel or disk *a*, loose on the shaft of the brush, and provided with the internal cogged gear, the pinion *b*, secured to the brush, and the intermediate pinion *c*, arranged to impart rotative motion to the brush, substantially as and for the purpose specified.

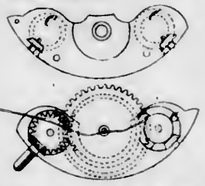
185,866. PORTABLE MILK-STRAINERS. H. More, Chicago, Ill. [Filed Nov. 28, 1876.]

A portable receptacle, A, adapted to stand upon its own feet, or to rest in the mouth of an ordinary milk-can, and provided with a conical strainer, B, and suitable supporting-frame F, substantially as set forth.

185,866.



185,867. PLATES FOR STEM-WINDING WATCHES. Chas. S. Moseley, Elgin, Ill. [Filed Dec. 6, 1876.]

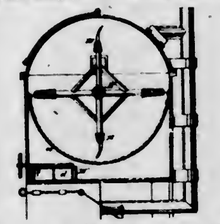


1. A watch-movement having the barrel placed midway between the figures denoting twelve and three o'clock on the dial, with a bridge projecting from the barrel on either side, to and beyond the two figures, respectively, for the purpose herein set forth.

2. In a watch-movement, two sets of cavities and holes, counterparts one of the other, arranged on each side of the barrel, for the purposes herein stated.

3. In a watch-movement, a barrel and main winding-wheel, combined with a bridge having openings on each side of the barrel and winding-wheel, with a single operative intermediate wheel, as described.

185,868. FEATHER-RENOVATORS. H. G. O. Pabst, Chicago, Ill. [Filed July 27, 1876.]



The case A, provided with a valve, *w*, hot-air chamber H', having valves *d d*, in combination with a heating apparatus, substantially as specified.

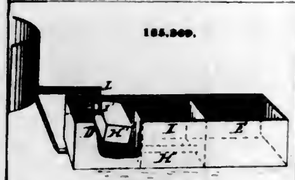
185,869. DEVICES FOR WATERING STOCK. A. B. Ramey, La Belle, Mo. [Filed Dec. 8, 1876.]

Brief.—The pipe enters the reservoir below its upper surface at low tide, and may extend any desired distance from the same, its end being provided with an elbow, and in the rear of which is hinged the arm, passing forward, and rigidly secured to the float. Upon the arm, beneath the mouth of the elbow, there is a packing to prevent waste of water from the tube when the valve is closed. The float consists of a hollow rectangular or other suitably-configured body, capable of rising and falling as the surface of the water in the tank rises or falls.

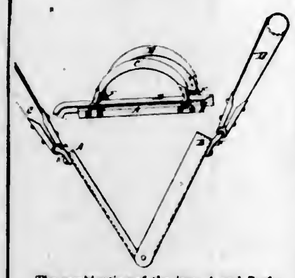
1. In a device for watering stock, the float H', provided with the arm F and packing I', and hinged in the rear of the inlet-pipe, so that an automatic valve is formed, substantially as and for the purpose set forth.

2. In a device for watering stock, the pipe D, provided with the elbow I, in combination with the packing I', float H', and tanks D and E, substantially as expressed.

185,269.

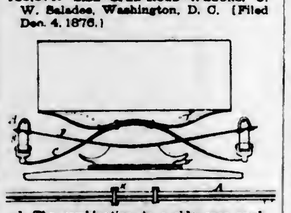


185,270. TRAVELING-BAGS, SATCHELS, &c. Wm. Roemer, Newark, N. J. [Filed Mar. 13, 1876.]



The combination of the jaws A and B of a traveling-bag, and the handles C D, with staples E E F F, said staples projecting above the upper faces of said jaws, and being bent outward, substantially as herein shown, and for the purpose described.

185,271. SIDE-SPAR ROAD-WAGONS. C. W. Salades, Washington, D. C. [Filed Dec. 4, 1876.]



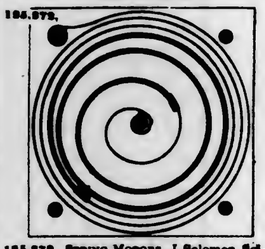
1. The combination, in a side-spar road-wagon, of the body and a spring-platform consisting of a pair of side springs and a pair of cross springs or bars, the latter being connected to the outer ends of the former, and the whole suspended from and below the side spars of the wagon, and operating centrally between the front and rear axles, substantially as and for the purpose set forth.

2. The combination of the body side spars A A, from and below which are suspended the springs B C, with springs D resting on the axles and supporting the bars, substantially as set forth.

3. The side spar A, combined with and strengthened by the inserted metallic strip, substantially as set forth.

4. The combination of the side spar A and inserted strip A', notched, as and for the purpose specified.

185,272.

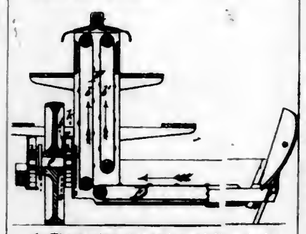


185,273. SPRING-MOTORS. I. Solomon, Solomon's Island, Md. [Filed Nov. 17, 1876.]

Brief.—Coiled with the spring, along a portion of it, is an auxiliary one, fastened to the other by lips on its ends, but adapted to slide thereon for the purpose of adjustment.

The use, in connection with a coiled spring, such as is used for driving sewing-machines and other mechanism, of a compensating auxiliary spring placed upon such coiled spring in such a manner that it may be moved lengthwise thereon, and thus made to compensate for the difference in the amount of force applied to drive the mechanism by the coiled or main spring, substantially as described.

185,274. HARVESTERS. G. H. Spaulding, Rockford, Ill., assignor of one-half his right to Wm. A. Knowlton, same place. [Filed May 13, 1876.]



1. The combination, substantially as before set forth, of the duplex elevator and two grain-receivers, arranged at opposite sides of the elevator, and sufficiently below the level of its upper end to receive the grain in a downward direction from the opposite sides of the elevator, and to hold a gavel of grain upon each.

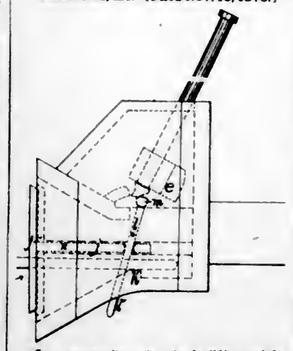
2. The combination, substantially as before set forth, of the duplex elevator and the gavel-divider, arranged at the upper end thereof.

3. The combination, substantially as before set forth, of the duplex elevator, the gavel-divider, and two grain-receivers, arranged at opposite sides of the elevator, and below the level of its upper end.

4. The combination, substantially as before set forth, of the duplex elevator, the gavel-divider, the grain-receivers, arranged at opposite sides of the elevator below its upper end, and the binder-supports arranged at opposite sides of the elevator and below the level of the grain-receivers.

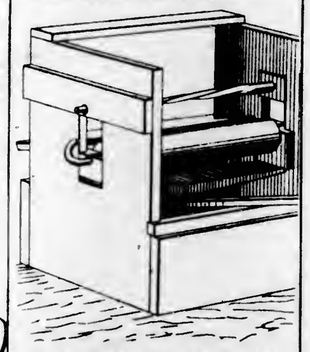
5. The combination, substantially as before set forth, of the main frame, the stubble-wheel, the mechanism for raising the main frame by the turning of the stubble-wheel, the grain-wheel, and the connection between the arbors of the said two wheels, whereby both sides of the machine are raised simultaneously by the turning of the stubble-wheel.

185,276. CAR-COUPLINGS. F. L. Stewart, Charleston, Mo. [Filed Nov. 16, 1876.]



In a car coupling, the pin *d*, sliding weight *e* thereon, and cross-bar *m*, provided with operating levers *l l'*, in combination with rods *h* attached to said levers and operating in combination with them to trip the pin automatically by the concussion of the car-bunters, all of said parts being arranged and operating in the manner and for the purposes herein specified.

185,275. HAY-PRESSES. J. Taylor, Alden, Minn. [Filed Dec. 26, 1876.]



1. As an article of manufacture, a roll of hay or like material, formed by rolling and compression on a spindle, and bound, as set forth.

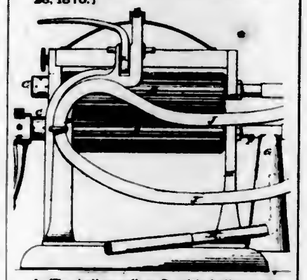
2. A machine for rolling hay into bundles, consisting of a spindle, adapted to revolve in bearings, and a roller, adapted to press the hay as it winds on the spindle, as set forth.

3. The combination of the roller revolving in movable bearings, the lever for pressing it against the hay, and the spindle, as set forth.

4. The combination of the hook fixed on the end of the roller on the outside of the box, as set forth.

5. In the described machine the twisted spindle, as set forth.

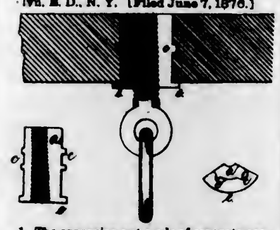
185,276. FLUTING-MACHINES. Theodore M. Tucker, Newark, N. J. [Filed Mar. 28, 1876.]



1. The hollow rollers B, with hollow journals having perforations C, substantially as and for the purpose set forth.

2. The flexible or yielding loop or pipe J, in combination with the rollers B and hollow cone G, as and for the purpose specified and shown.

185,277. NUT-LOCKS. W. Tunstill, Brooklyn, E. D., N. Y. [Filed June 7, 1876.]

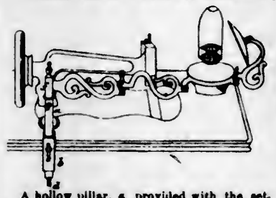


1. The expansion-nut made of separate sections of a cylinder, with the inner ends the thickest, and with screw-threaded corrugations, substantially as set forth.

2. The ribs *c*, in combination with the expansion-nut, made of separate sections of a cylinder, with the inner end the thickest, for the purposes and as set forth.

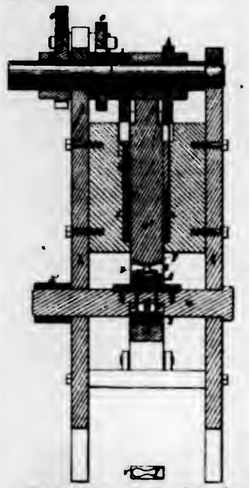
3. The combination, with the cylindrical expansion-nut sections, of the flanges *e*, substantially as set forth.

185,278. LAMP-BRACKETS FOR SEWING-MACHINE TABLES. W. Vassie, Hamilton, Ontario, Canada. [Filed Feb. 24, 1876.]



A hollow pillar, *a*, provided with the set-screw *c*, for holding and adjusting the pin *f* of the lamp-bracket, in combination with clamps *b*, provided with the adjusting-screw *e* and clamping-screw *d*, substantially as described.

185,279. MACHINERY FOR MAKING SHANK-PIECES FOR BOOTS AND SHOES. Jere. M. Watson, Sharon, Mass. [Filed Dec. 11, 1876.]



1. The combination of the reciprocating rotary bed A and the two knives B C, arranged and provided with mechanisms for supporting and operating them, substantially as set forth.

2. The combination of the reciprocating rotary bed A, the two knives B C, and the pressers D D, arranged and provided with mechanisms for supporting and operating them, substantially as set forth.

3. The combination of the reciprocating rotary bed A, the two knives B C, and the pressers D D, and the retainer E, arranged and provided with mechanisms for supporting and operating them, substantially as set forth.

4. The combination of the reciprocating rotary bed A, the two knives B C, the two pressers D D, the retainer E, and the mold or die F, arranged and provided with mechanisms for supporting and operating them, substantially as set forth.

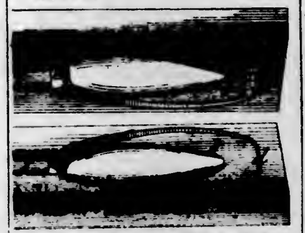
5. The combination of the reciprocating rotary bed A, the two knives B C, and the retainer E, arranged and provided with mechanisms for supporting and operating them, substantially as set forth.

6. The combination of the reciprocating rotary bed A, the two knives B C, the retainer E, and the mold or die F, arranged and provided with mechanisms for supporting and operating them, substantially as set forth.

7. The combination of the reciprocating rotary bed A, the two knives B C, and the mold or die F, arranged and provided with mechanisms for supporting and operating them, substantially as set forth.

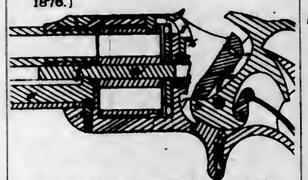
8. The combination of the reciprocating rotary bed A, the two knives B C, the pressers D D, and the mold or die F, arranged and provided with mechanisms for supporting and operating them, substantially as set forth.

185,280. DIES FOR THE MANUFACTURE OF THRASHING-MACHINE TEETH. Jonathan W. Waterman, Rutland, Wis. [Filed Oct. 25, 1876.]



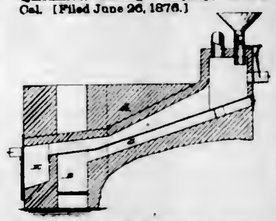
Dies having depressed wedge-shaped portions *b*, extending from shoulder *c* to the concave edge *d*, raised frogs *b*, rectangular shoulders *e*, and channels *f*, substantially as described, and for the purpose set forth.

185,281. REVOLVING FIRE-ARMS. Andrew B. Whitmore, Ilion, N. Y. [Filed Oct. 11, 1876.]



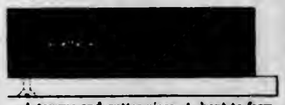
The lifting-lever *r*, provided with a spring, 20, and pivoted to the hammer, in combination with the stop-lever *q*, having a shoulder, 16, operating substantially as and for the purpose described.

185,282. ORE-ROASTING FURNACES. Wm. K. Aldersley, Colusa, assignor to Abbott Quicksilver Mining Company, Colusa, Cal. [Filed June 26, 1876.]



A quicksilver-furnace consisting, essentially, of an inclined roasting-chamber, divided by longitudinal partition C, oppositely-located fire-places B B, auxiliary flue passage beneath the roasting-sole, and the slag-pit E, all constructed and arranged substantially as and for the purpose specified.

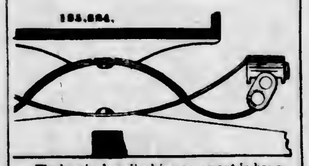
185,283. BATTENING FOR ROOFS. Joseph J. Bartlett, New York, N. Y. [Filed July 3, 1876.]



A tongue and gutter piece, A, bent to form a central gutter, *a*, and corrugated tongues *b*, extending from the edges of the central gutter in horizontal planes to catch in grooves *c d* in the adjacent boards, substantially as shown and described.

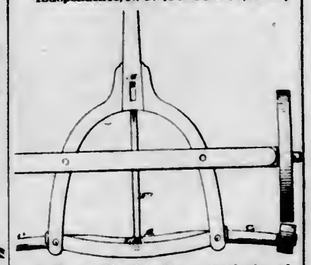
185,284. VEHICLE-SPRINGS. S. N. Beecher, Milford, Conn. [Filed Nov. 22, 1876.]

185,284.



The herein-described improvement in hanging carriage bodies, consisting of the spring-bar with its projecting ends, combined with the transverse springs hung to the said projecting ends, substantially as described.

185,285. WAGON-BRAKES. E. Bennett, Independence, N. Y. [Filed Nov. 7, 1876.]



1. The combination, in a wagon-brake, of an endwise-moving brake-operating rod underneath the wagon-tongue, brake-levers, joined to each other, and connected with the rear end of said rod by means of a bolt passing vertically through said rod and levers, and brake-blocks slotted obliquely or tangentially to their concave or bearing surfaces, and pivoted to the outer ends of said levers, substantially as shown and described.

2. The combination of the brake-operating rod F, moving endwise underneath the wagon-tongue, and brake-levers C C, joined to each other, and connected with the rear end of said rod by means of the bolt G, as shown and described.

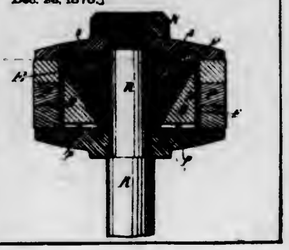
3. The endwise-moving brake-operating rod F, slotted at its forward end to receive the holdback of a wagon-tongue, hinged at its rear, and having an opening, L, for the admission of a whiffletree-bolt, in combination with the brake-levers C C, connected therewith, and pivoted to the rear ends of the wagon-bounds, and brake-blocks slotted obliquely or tangentially to their concave or bearing surfaces, and pivoted to the outer ends of said levers, substantially as shown and described.

185,286. LUBRICATING AND ANTI-INCRUSTATING COMPOUNDS. I. Bernhard, Paris, France. [Filed Dec. 16, 1876.]

Brief.—The compound is prepared by melting one hundred parts of soap with five parts of gall, and making a paste of one hundred parts of starch and ninety-five parts of gall, and then thoroughly mixing the two substances.

The within-described compound, consisting of a mixture of soap, potato or other starch, or farinaceous substance, and gall, in about equal proportions, as set forth.

185,287. PISTONS. Geo. F. Blake, Boston, Mass., assignor to George F. Blake Manufacturing Company, same place. [Filed Dec. 28, 1876.]

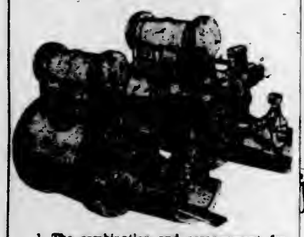


1. The combination, with the threaded hub H, of the threaded cone C, segments S, expansion-ring E, and packing P, all constructed and arranged substantially as and for the purpose specified.

2. In combination with the hub H and ring E, the segments S, one being attached to the ring, and all provided with notches for the reception of the guide-pins p, as and for the purpose set forth.

3. The combination of the threaded hub H, cone C, springs s s, follower F, and nut N, in the manner and for the purpose described.

185,888. DUPLEX PUMPING-ENGINES. G. F. Blake, Boston, Mass., assignor to George F. Blake Manufacturing Company, same place. [Filed May 17, 1876.]



1. The combination and arrangement for joint or separate action of two pumping-engines, each being capable, by means substantially as shown, of working as an independent engine, and, when coupled, either engine being capable of operating its own valves and those of the engine to which it is joined, substantially in the manner and for the purpose described.

2. In combination with two pumping-engines, each capable of independent action, the coupling mechanism consisting of the pins p p', levers O O', rocker-shafts S S', arms d d', links L L', and valve-rods b b', all constructed, arranged, and operating substantially in the manner specified.

3. In combination with the movable valve-seat F, the side valves J and K, and the system of ports controlled by them, to operate the piston D of the auxiliary engine, all constructed and arranged substantially as set forth.

185,889. GEOMETRIC BLOCKS FOR MAPPING. J. M. Boorman, New York, N. Y. [Filed July 26, 1876.]



1. The solid herein called and described as the quindecahedron, the same consisting of a geometric solid figure having fifteen plane faces and twenty solid angles, as and for the purposes herein set forth and described.

2. The solid herein called the dococahedron, the same consisting of a figure having twenty-two plane faces and forty solid angles, as and for the purposes set forth and described.

3. The solid herein called the duo-icosahedron, of twenty-two plane faces and forty solid angles, as and for the purposes herein set forth and described.

4. The solid herein called the triocahedron, of twenty-three plane faces and forty-two solid angles, as and for the purposes herein set forth and described.

5. The solid herein called the tetracosahedron, of twenty-four plane faces and forty-four solid angles, as and for the purposes herein set forth and described.

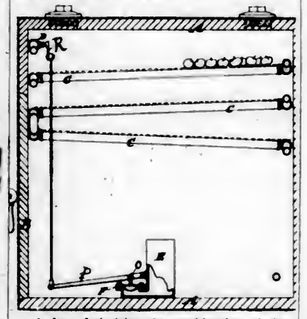
6. The solid herein called the heptriacontahedron, of thirty-seven plane faces and seventy solid angles, as and for the purposes set forth and described.

7. A group or class of solids, each of more than twelve plane faces, no more than three of which shall meet in any one and the same point, and each of its faces accurately, or substantially so, inscriptible in equal circles, the whole inscriptible, or substantially so, in a sphere, as and for the purposes herein set forth and described.

8. The system or set of solids herein specifically described, as and for the purposes set forth.

185,890. FRUIT-DRIERS. John H. Brown, Brooklyn, assignor to Royal Ball, New York, N. Y., and Charles S. Bradford, Jr., Westchester, Pa. [Filed Nov. 25, 1876.]

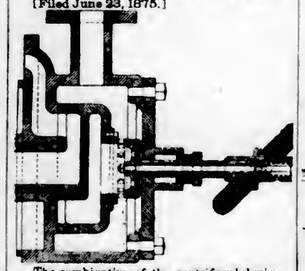
Brief.—Air is pumped from a close heated drying-chamber. The admission of heat is automatically regulated.



1. In a fruit-drier, the combination of the air-tight chamber, pump, and automatic regulating device, as set forth.

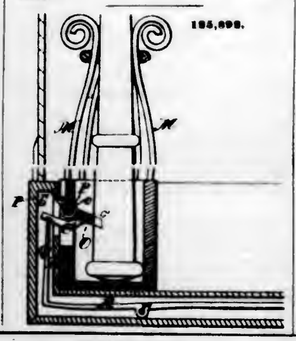
2. In a fruit-drier, the mercury-chamber E, diaphragm F, levers P and R, and valve D, arranged and combined as set forth.

185,891. GOVERNORS FOR STEAM-ENGINES. P. Brotherhood, Notting Hill, England. [Filed June 23, 1875.]



The combination of the centrifugal device, the valve-rod, operating the regulating valve, located in the distributing-valve, and exposed to the pressure of steam in the passage leading to the cylinder, and the interposed spring, the steam and the spring acting in the same direction, in opposition to the centrifugal device, substantially as and for the purpose set forth.

185,892.

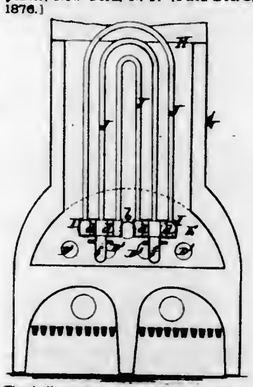


185,893. WHIP-SOCKETS. Wm. Callaway, Elwood, Ind. [Filed Sept. 30, 1876.]

1. The combination of socket L, having spring clasping-arms M, with pivoted clamping-block O, and spring P, substantially as set forth.

2. The combination of vertically-operating treadle S with lever R, vertical rod Q, curved arm O', and block O, substantially as set forth.

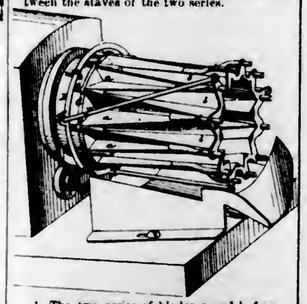
185,894. FEED-WATER HEATERS. A. Carpenter, New York, N. Y. [Filed Dec. 8, 1876.]



The hollow water-base composed of independent boxes I I, divided by a space or passage, b, and provided with tubes or ducts d, arranged to pass up through said boxes, in combination with the arched or bent water-tubes J, the inlet and outlet pipes f f, the steam-dome G, the smoke-box E, and smoke-stack H, the whole being arranged substantially as described.

185,895. MACHINES FOR ASSORTING NAILS. Harvey B. Chess, Pittsburg, Pa. [Filed Dec. 8, 1876.]

Brief.—An inclined revolving cylinder, in which the nails are to be placed, has attached to it at one end a somewhat conical skeleton cylinder, composed of two series of V-shaped and trough-like staves, the two series being arranged heads and points, and one of them made capable of sliding endwise, and thus to graduate the breadth of the spaces between the staves of the two series.



1. The two series of blades a and b, forming a series of troughs, and secured to the rings C and D, so as to admit of adjustment, substantially as and for the purpose set forth.

2. The angular sectioned sifting device constructed with a contracted mouth, substantially as and for the purpose set forth.

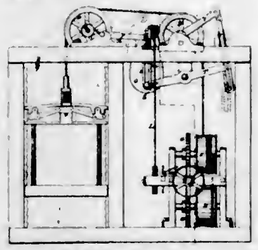
3. A nail separating and sifting device capable of being simultaneously adjusted in all its slots while the apparatus is in motion, substantially as and for the purpose set forth.

4. The traveler E and rods F, in combination with the rings C and D, provided with the blades a b, substantially as set forth.

185,896. ELEVATORS. S. E. Chubbuck, Boston, Mass., assignor to himself, I. Y. and S. E. Chubbuck, Jr., same place. [Filed Nov. 9, 1876.]

Brief.—In the event of the parting of the hoisting-rope, or overweighting the platform, or its being forcibly impeded in ascending or descending, the hoisting apparatus proper is thrown out of gear, or the driving-belt shifted, to prevent injury from further winding or unwinding the hoisting-rope. The gears on the drum-shafts are in a vertical plane, and are operated by a single worm-shaft horizontally placed between them.

185,895.



1. In an elevator, the combination, with a rising and falling platform and hoisting-rope and suitable hoisting apparatus, of a wheel or pulley having adjustable bearings, and supported upon a weighted lever, or its equivalent, whereby it is adapted to fall or shift its position to throw the hoisting apparatus out of gear and arrest the platform, substantially as shown and described.

2. In an elevator, the combination of the levers P, weight O, link R, arm S, hand-rope L, and pulley D, adapted to shift vertically, with the hoisting-rope, platform, and belt-shifting mechanism, substantially as shown and described.

3. In an elevator, the combination, with a rising and falling platform, a hoisting apparatus, and rope connecting the same, of a wheel or pulley, D', mounted on a shaft having eccentric journals, and mechanism for connecting the said wheel with the hoisting apparatus, substantially as shown and described, whereby the latter may be thrown out of gear simultaneously with the parting of the hoisting-rope, or the arrest of the platform in its descent, as set forth.

4. In an elevator, the combination of the bar or lever T, carrying the arm S, the slotted links R W, the shifting pulleys D D', arms or levers P V, the hoisting-rope, the platform, and belt-shifting mechanism, substantially as shown and described.

5. The combination of the shifting-bar K, provided with the slotted yoke a, having one side curved, as shown, the crank-shaft and pulley, the hand-rope, and the fast and loose pulleys of the hoisting apparatus, substantially as shown and described, to operate as specified.

6. The gears G G, arranged in the same vertical plane and in different horizontal planes, the worm-shaft placed between them, and the drums E E', all combined as shown and described.

185,896. HOSE-COUPLINGS. M. S. Curtis, Ansonia, Conn., assignor to R. R. Colburn, same place. [Filed Dec. 6, 1876.]

Brief.—The zigzag corrugations shown are supposed not to weaken the hose so much as the ordinary cylindrical projections or threads.

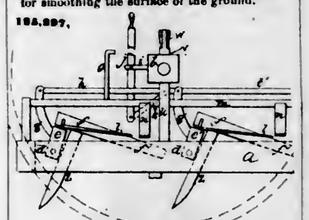


The herein-described improvement in hose-couplings, consisting in the construction of the shank with a rib or ribs of zigzag form around the exterior surface, substantially as described.

185,897. HARROWS. Wm. S. Davis, Pittsfield, Me., assignor of one-half his right to W. L. Parks, same place. [Filed Oct. 24, 1876.]

Brief.—A rectangular frame is mounted upon wheels, depending below the axle-tree. The lower side beams have cross-pivoted beams, that are provided with rearwardly-extending arms hinged to their upper edges. These arms carry the harrow-teeth. The cross-pivoted beams are partially rotated by means of a connecting bar and lever, operating a fine set of pivoted teeth at the rear of the frame, for smoothing the surface of the ground.

185,897.



1. In a harrow, the combination of a frame, a, one or more eccentrically-pivoted bars, e e', having finger-bars f hinged thereto, and operative mechanism, to wit: arms g g', rods h i, and lever j, by which said bars e may be turned on their pivots, raising or lowering the finger-bars, as and for the purposes specified.

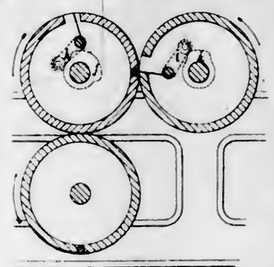
2. In combination with said frame a, bars e e', and finger-bars f, the vertical levers g g', rod h, lever j, and link k, arranged and operating as herein set forth, for the purposes specified.

3. In combination with frame a, and hinged tooth-carrying finger-bars f, the brake-rods l i, and rod m, having fingers n n, and lever o, arranged and operating as set forth.

4. The combination of the pivoted finger-bar f with the tooth s attached near the pivoted end thereof, said finger-bar projecting beyond said tooth, as at f', for the purposes set forth.

185,898. ROTARY PAPER-FOLDING MACHINES. Geo. Duncan, Wm. A. Wilson, and Geo. A. Wilson, Liverpool, England. [Filed Aug. 14, 1876.]

Brief.—The sheet passes over one of two cylinders revolving together, and a blade or a pair of oppositely-revolving rollers in the other cylinder wipe up and crease a fold in the sheet. The wiping devices may be spring seated, or act against an elastic surface on the carrying-cylinder. A third cylinder similarly makes a second fold.



1. In a paper-folding machine, the combination of two folding-cylinders, one of said cylinders having gathering or lifting mechanism, substantially as described, for gathering or lifting the material from the periphery of the other cylinder, substantially as and for the purpose specified.

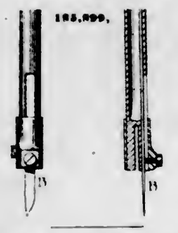
2. The combination of two folding-cylinders, one of said cylinders having gathering or lifting mechanism, substantially as described, for gathering or lifting the material, and the other cylinder provided with an elastic or yielding surface, substantially as and for the purpose specified.

185,899. NEEDLE-BARS AND TRIMMING-KNIVES FOR SEWING-MACHINES. Edw. F. Dwyer, Lynn, Mass. [Filed July 26, 1876.]

1. A needle-bar, A, cut longitudinally for the reception of the knife-blank B, substantially as shown, and for the purpose described.

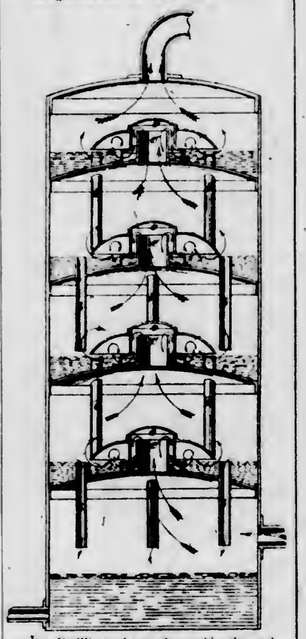
2. The combination of the needle-bar A and the knife-blank B, substantially as shown, and for the purpose described.

185,899.



185,900. STILLS. J. G. Ellerhorst, Bellevue, Ky. [Filed Sept. 25, 1876.]

Brief.—The ascending vapors are better condensed, and the grosser parts separated from them by means of a downwardly-projecting flange secured to the bonnet of the vapor-pipe. This flange causes the escaping vapors to eddy backward through the condensed liquor, causing a supercondensation of the grosser qualities of the vapor.



In a distilling-column, the combination, substantially as specified, of the vapor-escape pipe, the bonnet thereof, the shelf upon which the condensed vapors are deposited, the overflow-pipes thereof, and the deflecting-flange around the bonnet.

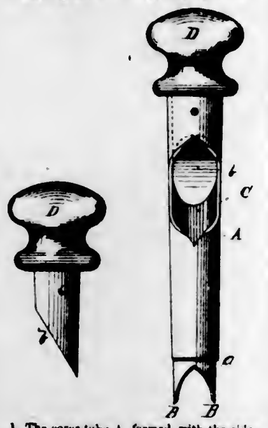
185,901. RAILROAD-RAIL JOINTS. Jos. A. Eno, Council Bluffs, Iowa, assignor of one-eighth of his right to Alex. McKirgan, Newark, N. J. [Filed June 13, 1876.]

Brief.—The fish-plates are angular in section, and an elastic function is given to them by having the hooked portions of the chair confine the rounded lower edges of the plates, and react against the traction of the bolts and nuts. The plates can be removed by detaching the bolts and revolving them outward. The rail-base rests upon the chair.



The combination of the plate B, having enlarged curved upturned side edges C C, forming hooks, and the fish-plates D D, having rounded heads a along their outer edges, with the bolt E and nuts G, substantially as and for the purposes herein set forth.

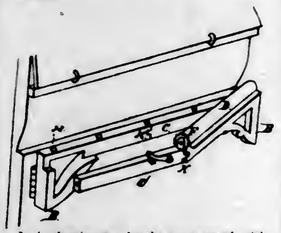
185,902. APPLE-CORERS. James Fallows, Philadelphia, Pa. [Filed Dec. 13, 1876.]



1. The corer-tube A, formed with the side-opening C, and end cutters B B, and provided with the offset a near its lower end, for the purposes herein set forth.

2. The wood handle D, formed with the stem or shank G, having incline b, as described, in combination with the corer-tube A, having side opening C, substantially as and for the purposes herein set forth.

185,903. SLEEPING-CAR BERTHS. William Fette, Milwaukee, Wis. [Filed Nov. 21, 1876.]

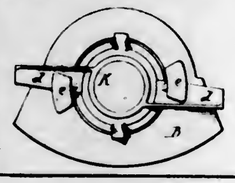


1. A sleeping-car berth, constructed with hinges B and frame C, attached to the side of a car, all in combination, substantially as described.

2. Hinges B, frame C, canvas bottom D, roller and ratchet F, pawl G, and pin I, all in combination, substantially as specified.

185,904. FLASKS FOR CASTING. Hiram H. Fisher, Allentown, Pa. [Filed June 26, 1876.]

Brief.—The lower end of the flask is provided with a plate having depending lugs or catches, for the alternate attachment and detachment of rings having bars extending from them, for supporting the pattern while forming the mold, and the core while casting the pipe.



1. The combination, with a two-part pipe flask, of a plate, B, having an opening for the reception of either of the rings D or K, and provisions, substantially as described, for locking the said rings to and detaching them from the said plate, as set forth.

2. The combination of the inclined projections c on the plate B with the arms d on the rings D and K.

185,905. REMOVING CORES FROM MOLDS. H. H. Fisher, Allentown, Pa. [Filed June 26, 1876.]

Brief.—The core is suspended vertically, and, with the pipe, is raised out of the mold and flask. The pipe is then permitted to slip off of the core by its own weight. Grapnel-hooks are attached to lower end of core-barrel, to scratch and rupture the baked adhering sand on the inside of the pipe.



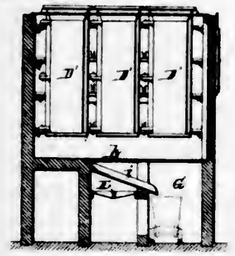
1. The mode herein described of extracting a core-barrel from a newly-cast pipe—that is to say, by causing the pipe to fall by its own weight from the suspended barrel, as set forth.

2. The mode described of internally cleansing the interior of newly-cast pipes—that is, by severing the internal lining of baked loam while the pipe is falling from the suspended barrel by its own weight.

3. The combination, substantially as described, of a core-barrel with an instrument, substantially as set forth, for cutting the baked lining of loam in the interior of the pipe while the latter is falling from the barrel, or the barrel is being pulled from the pipe.

185,906. MOLDING PIPES. H. H. Fisher, Allentown, Pa. [Filed June 3, 1876.]

Brief.—Two molding pits, for two rows of flasks each, with an intervening core-drying oven. Two-part flasks, which may be hinged together, are supported in vertical position by niches in the walls, and props, which extend horizontally from flask to flask. A combustion-chamber is placed under each mold-pit and drying-oven. Over each mold fire-chamber is placed a removable screen, through which sand passes, on removal of casting, to a wheeled vehicle by means of a chute. Products of combustion pass into covered molding-pit, thence into bottoms of and out from tops of suspended flasks. Such products may be diverted into core-oven.



1. The mode herein described of drying pipe-molds—that is to say, suspending the molds vertically in a pit, subjecting the outsides of the flasks to the action of heated products of combustion, and at the same time permitting heated products to enter the interiors of the molds at the bottom, pass through the same, and escape at the top into the space above the closed top of the molding-pit, as set forth.

2. The combination of the two-part pipe-flask D D', with the recessed plates b and top d of the pit, whereby the flask is retained in a suspended position, as set forth.

3. The combination, in a molding pit, of two part pipe flasks arranged opposite each other, with intervening stays e, by which the two parts of opposite flasks are maintained in contact with each other, as described.

4. The combination of a molding-pit with any desired number of two-part pipe flasks suspended within the same, one part of each flask being attached to the wall of the pit.

5. The combination, in one structure, of a molding-pit with a core-drying oven, substantially as set forth.

6. The combination of the core-drying oven with one or more molding-pits, and a passage or passages provided with dampers, whereby communication between the pits and oven may be opened or closed at pleasure.

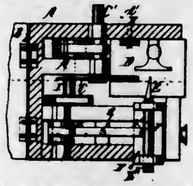
7. The combination of a molding-pit with a removable screen at the bottom of the same.

8. The combination of the molding pit, the screen, and the chute, by which the sifted sand may be directed to any desired point.

9. The combination of a molding-pit and a fire-place, K, beneath the same with a longitudinal passage, G, at one side, through which access may be had to said fire-place, as set forth.

185,907. SASH-RELISHING MACHINES. W. H. Fisher, Selin's Grove, Pa., assignor of three-fourths his right to C. K. Fisher, same place, and H. U. Kistner and P. Moyer, Jr. [Filed June 21, 1876.]

Brief.—The operation of relishing sash-rails is performed with only once handling the stuff, by means of a vertically-adjustable table, an automatically-moving chisel, and suitable operating mechanism.

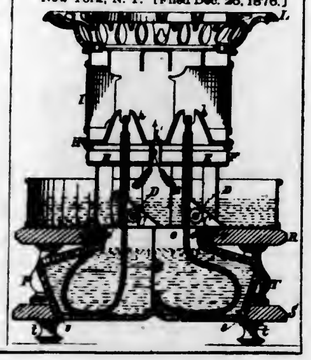


1. The saw C, with the tables B and D, the chisel E, with its operating-lever G, and cam H, all arranged upon a common frame, A, and the operative parts driven by a common driving-shaft, I, as and for the purpose set forth.

2. The chisel E and its operating-arbor E', united together by the screw e and jam-nut e', as and for the purpose set forth.

3. The bed-plate F, with its adjusting-screws f and f', arranged in combination with the chisel-arbor E' and the frame A, as and for the purpose set forth.

185,908. COAL-OIL STOVES. Jno. A. Frey, New York, N. Y. [Filed Dec. 26, 1876.]



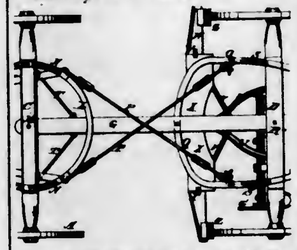
1. An oil-stove in which are combined the following-named elements, to wit: a body for containing heated air and supporting cooking utensils, one or more burners for consuming oil, an oil-reservoir constructed of or from glass and made detachable from said body, and a frame for sustaining, inclosing, or protecting said reservoir, substantially as specified.

2. In combination with the glass reservoir O, for containing oil, the protecting-frame composed of the upper and lower recessed wooden plates E and S, respectively, combined by means of the posts T, and arranged to embrace the upper and lower ends of said reservoir, substantially as and for the purpose set forth.

3. In combination with two separate and independent burners of an oil-stove, an auxiliary air guide or passage, located between the cones of said burners, and arranged to convey air into the heating-chamber of said stove, substantially as and for the purpose shown and described.

4. In an oil-stove provided with a water-pan below its burners, and a detachable oil-reservoir below said water-pan, the pipe or passage N, for supplying oil to said reservoir, arranged within said water-pan, and partly or wholly surrounded by water, substantially as and for the purpose specified.

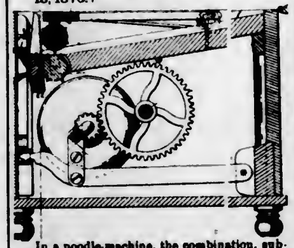
185,909. WAGON-GEARINGS. L. W. Frederick, Hall, Ind. [Filed Apr. 10, 1876.]



1. The combination of the forked and slotted brace V, the hooks Y, and the plate X with the reach G, the rear king-bolt R, the brake-bar W, and the rear hounds Q, substantially as herein shown and described.

2. The combination of the rod A', the crank-arm B', the rock-shaft C', the short lever D', the lever and hook E' F', and the catch-bar G' with the rear bolster F and the brake-bar W, substantially as herein shown and described.

185,910. NOODLE-MACHINES. G. Fritz, Cincinnati, Ohio, assignor of one-half his right to M. Buta, same place. [Filed Oct. 13, 1876.]

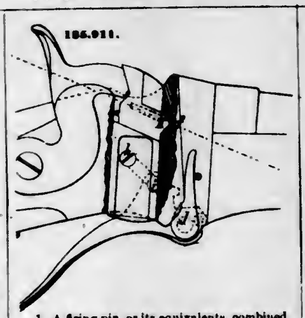


In a noodle-machine, the combination, substantially as specified, with the feed-rolls, of the lantern-wheel G, mounted upon the vertical shaft g, said feed-rolls being provided with teeth, which are formed directly in the body of said rolls and parallel with the axis thereof.

185,911. BREECH-LOADING FIRE-ARMS. F. W. Freund, Cheyenne City, Wyo. [Filed Dec. 3, 1875.]

Brief.—In opening the breech, the firing-pin is forced backward by an incline on the frame, and this backward movement of the firing-pin causes it to bear against the nose of the hammer, and raises the latter far enough to allow the sear to fall into the half-cock notch.

185,911.



1. A firing-pin, or its equivalents, combined with the breech-block, hammer, and breech of the gun, whereby either an up or down movement of the breech-block half-cocks the hammer, substantially as described.

2. A firing-pin, in combination with a breech-block closed in a direct line behind the pin proper, substantially as and for the purpose set forth.

3. The combination of hammer, breech of gun, and firing-pin, or its equivalent, to bring the hammer to half-cock, substantially as set forth.

4. The breech-block closed in a direct line at the rear of a firing-pin proper, substantially as and for the purpose described.

5. The gas-cup T around the firing-pin C, substantially as described.

185,912. BREECH-LOADING FIRE-ARMS. H. Goodman, St. Louis, Mo., assignor of one-half his right to L. Lockwood, same place. [Filed July 22, 1876.]



1. The combination, with the breech-block I and hammer F, turning on a pin common to both, of mainspring G, attached to the block and connected to the hammer, substantially as set forth.

2. The combination, with the pivoted breech-block I, of the hammer F, external to the breech-block, turning on the same pivot, and placed in the course of the breech-block, so that the gun will be cocked by the act of opening the breech, in the manner explained.

3. The combination of sliding shell-extractor L, lever N, and cam F² with the breech-block I and hammer F, substantially as set forth.

4. The combination of the breech-block I, mainspring G, hammer F, having rib or projection f², and lever N, with notch n', substantially as and for the purpose set forth.

5. The combination of the turn pin K, thumb piece or lug k, and projection k' with the firing-pin f, substantially as set forth.

185,913.



CHEMICAL FIRE-EXTINGUISHERS FOR VESSELS, &c. A. M. Granger, New Orleans, La. [Filed Dec. 19, 1876.]

Brief.—The main acid-reservoir, supplying the acid-chargers above the generators, is placed below the generators and below deck-line. The acid is forced up by the air-pump, or the gas pressure of the generators can be used for that purpose. The generators can be used singly or together. The water-supply is so arranged that the apparatus can be cleansed thereby.

1. An apparatus for generating dry carbonic acid gas for the extinguishment of fires on shipboard, consisting of a set of generators and acid-chargers having intermediate communication, controlled by cocks or valves, and combined with an acid-reservoir having communication with both the chargers and the generators, whereby a part of the series may be employed to charge the rest, substantially as described.

2. An apparatus for generating and utilizing dry carbonic-acid gas for the extinguishment of fire, consisting of the combination of a series of generators for containing the bicarbonate of soda, a set of superposed acid-chargers connected with the generators by pipes and valves, and a subjacent acid-reservoir connected with the acid-chargers by means of a pipe opening in the bottom of the reservoir, and having an independent pipe for the application of pressure, either through a pump or its equivalent, substantially as described.

3. The horizontal generator B, having at one end an upright dome, through which the chemicals are delivered to the said generator, in combination with a revolving shaft in the generator, carrying spirally-arranged agitators, substantially as and for the purpose described.

4. The combination, with the acid-reservoir and the pressure-pump G, connected therewith by pipe i, of an intermediate liquid seal, m, to prevent the corrosive action of the acid fumes upon the pump, as described.

5. The combination, with the generators B, having domes C, of the pipe H, connected with each of the domes through separate valves, and the pipe H', located below the generators, having valve f', and connected with each of the same through separate valves, and both communicating with the single supply-pipe X, for the purpose of admitting water to the top of the generator, for the preparation of the bicarbonate of soda, or for the admission of water to the bottom of the same, to cleanse the generators and wash out their contents, substantially as described.

6. The combination, with the generators and their conducting-pipes for the gas, of a purifying gas-holder, D, having a perforated partition, J, with a plain or imperforate surface at the points upon which the gas impinges in issuing from the pipes, substantially as and for the purpose described.

7. The acid-reservoir made of a closed case of lead, and combined with an outer re-enforcing shell of iron, made in the form of a cylinder open at the ends, to adapt it to be slid longitudinally over the lead case, and fastened with flanged end cap, as described.

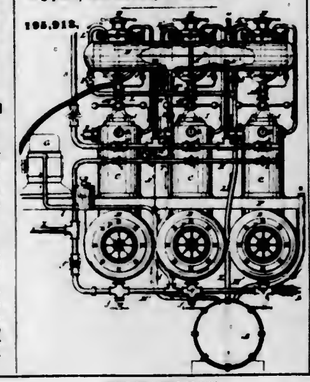
8. The acid-chargers K, provided each with a glass level-gage, and combined, through branch pipes L', with the single pipe L and acid-reservoir, for the purpose of indicating the quantity of acid for each generator.

9. The pipe T, having valve t, in combination with the purifying-holder D and discharge-pipe H', for the purpose described.

10. The combination, with the pipe i, communicating with the acid-reservoir, and the pipe N, communicating with the generators, and having separate valves for each, of the pipe N', having valve n, substantially as described, and for the application of the gas-pressure for filling the acid-chargers.

11. The combination, with the pipe I, and acid-reservoir A, of the pipe N', communicating with the acid-reservoir, and provided with valve n and escape-valve w', for the restoration of the acid-level in pipe I, substantially as described.

12. The combination of the generators B, having domes C, the superposed acid-chargers K, the subjacent acid-reservoir A, and the purifying gas-holder D, substantially as and for the purpose set forth.



13. The purifying holder D, having a safety-valve, *r*, arranged to blow off at a lower pressure than the safety-valves of the generators, and discharge its gas into the atmosphere through a pipe, substantially as described.

14. A pipe-nozzle for the discharge of carbonic-acid gas into a confined compartment, having a tapering external screw-thread, for the purpose described.

15. A pipe-nozzle for the discharge of carbonic-acid gas into a confined compartment, having a tapering externally-threaded sleeve provided with handles, substantially as and for the purpose described.

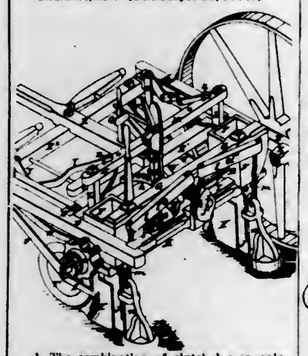
185,915. ARTIFICIAL WORM-BAIT FOR FISHING. William H. Gregg, St. Louis, Mo. [Filed Jan. 21, 1876.]

Brief.—A rubber tube tapered, stamped, and colored to represent an angle worm, and to be used for fishing.



An imitation earth worm made of india-rubber or other flexible material, as herein set forth.

185,916. CORN-PLANTERS. Marshall Gregg, Chamois, Mo. [Filed Apr. 28, 1876.]



1. The combination of clutch *b* s on axle B, and adjustable tappet or slider *f*, substantially as and for the purpose set forth.

2. The combination of the seed-slide I, curved plate I', adjustable tappet *f*, and cam *s*, substantially as and for the purpose set forth.

3. In combination with the curved plate I' and adjustable tappet *f*, the bearing-head *g* of the latter adapted to oscillate on the axle, and operated by a lever, g^1, with catch g^2, substantially as and for the purpose set forth.

4. The combination of the seed-slide I, rack *i*, sectors *f* f^1, chains *k*, levers *l* l^1, chains *m* m^1, and stamps *n* n^1, substantially as set forth.

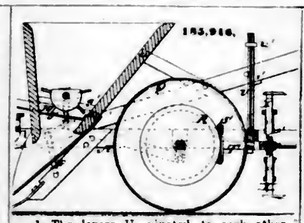
5. The combination of stamp *n* and spring-dropper J J^1, substantially as set forth.

6. The vertical standards J, shares K, rotary openers T, and lever Q, in combination with the link P, lever O, bars N M L, frame S, draw-bar U, levers V Y, bar W, link X, and staple Z, substantially as and for the purpose set forth.

7. The combination, with the shares K and devices for raising and lowering the same, of the pin N^1 and levers, connected with the chain *h*, to raise the stamps *n n* simultaneously with the shares when the latter are lifted above the surface of the ground, substantially as set forth.

185,916. COTTON-CHOPPERS. J. H. Gilleland, Peak's Hill, Ala. [Filed Oct. 14, 1876.]

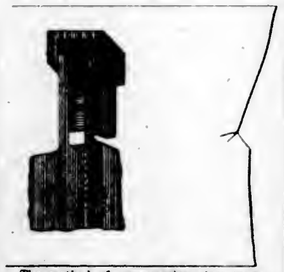
Brief.—The bearing for the axle of the chopper is formed by two pivoted levers.



1. The levers U, pivoted to each other near their lower ends, and together forming a bearing for the chopper-shaft, as shown and described.

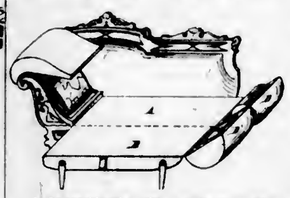
2. The combination of levers U, link *w*, and notched cross-bars *v'* with the wheel S, as and for the purpose set forth.

185,917. PROCESSES OF ORNAMENTING GLASS. H. A. Goetz, New Albany, Ind. [Filed Sept. 22, 1876.]



The method of ornamenting glass by applying gold or silver leaf to one side thereof; on this impressing a design with hard drying-ink and an elastic type; next brushing off the surplus leaf, then shading with an elastic type, and finally backing in the usual way, all substantially as described.

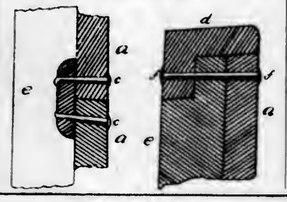
185,918. SOFA-BEDS. John D. Hauschildt, Chicago, Ill. [Filed Oct. 28, 1876.]



1. In combination with a stationary section, A, and a folding section, B, of an ordinary bed-lounge, the head-rest C, so arranged with a lid *n* to form a receptacle for blankets, substantially as described and shown.

2. In combination with a stationary section, A, and a folding section, B, of an ordinary bed-lounge, a cylindrical bolster, consisting of two semi-cylindrical shells, D and D', each containing a semi-cylindrical revolving cushion, *d* and *d'*, substantially as and for the purpose described and shown.

185,919. CONSTRUCTION OF BOATS. I. H. Higgins and A. T. Gifford, Gloucester, Mass. [Filed Nov. 20, 1876.]

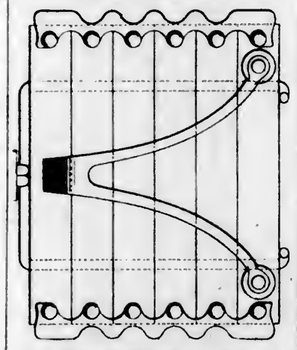


1. A dory having its sides built "set-work," and having its seams protected by seams of battens, for the purpose of preventing leakage.

2. In a dory a gunwale, made in a single piece, and of substantially the shape shown in Fig. 4, for the purpose specified.

3. In combination with the gunwale *d* and side or strake *a*, the timber or knee *e*, mortised into said gunwale, and held in place by means of the rivet *f*, substantially as and for the purpose hereinbefore set forth.

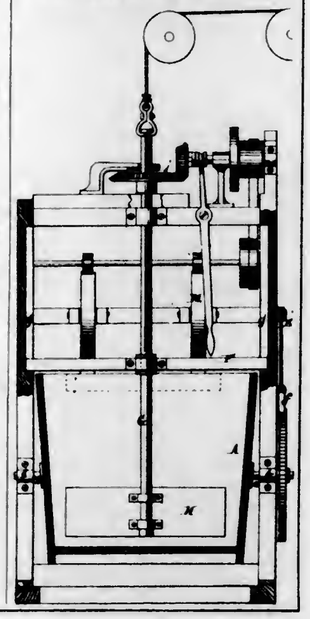
185,920. CURRY-COMBS. C. E. L. Holmes, New York, N. Y. [Filed Nov. 8, 1875.]



1. The independent bifurcated handle *c*, at the back of the comb, attached at its two front ends to the comb, and forming also a rest, substantially as set forth.

2. In combination with a comb, having a side handle, a second independent grasping device at the back of the comb, the parts of which diverge from near the shank of the side handle, substantially as specified.

185,921. TOSSING-TUBS FOR SEPARATING ORES. Wm. Hooper, Ticonderoga, N. Y., assignor to New York Ore Separator Company. [Filed Apr. 27, 1876.]

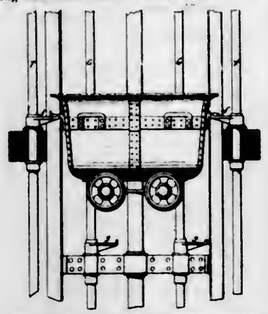


1. The combination, with a tub, A, which is hung on journals, of an agitator, H, mounted on a shaft, which, together with its support, can be raised clear of the tub, for the purpose of permitting the tub to be turned on its journals, substantially as shown and described.

2. The combination of the tub A, hung on journals, the agitator H, vertical shaft G, cross-bar F, guide-grooves *g*, in which the cross-bar slides, and a mechanism for raising the cross-bar and agitator, for permitting the turning of the tub on its journal, substantially as described.

185,922. MACHINERY FOR RAISING FROM MINES. Georges Houdaille, Paris, France. [Filed Apr. 13, 1876.]

Brief.—Power on the upper surface vertically reciprocates side rods in the mine, with the effect of raising and lowering carriages by successive stages, at each of which they are received on hooks on other rods, made to intermittently rotate for the purpose of bringing such hooks into and out of action.



In a hoisting apparatus, the combination of the rotating vertical shafts F, carrying hooks or arms *f*, with vertical reciprocating and rotating shafts G G, carrying similar hooks or arms *g*, the said arms *g* lifting the weight one stage, the said arms *f* receiving and holding the said weight until a second set of arms, *g*, engage the weight and take it therefrom, substantially as described.

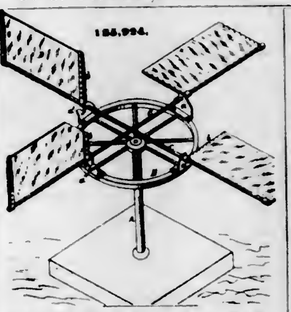
185,923. ROAD-SCRAPERS. Edw. Huber, Marion, Ohio. [Filed Nov. 10, 1876.]



1. A scraper having its sides extended, and wrapped around the handles for the purpose of securing the same, substantially as described.

2. The lugs *d*, riveted to the sides of the scraper, and having their ends cut away, as described, in combination with the washer *g*, staple *f*, and the bail, substantially as and for the purpose described.

185,924. MECHANICAL MOVEMENTS. Adolf Hunerwadel, Washington, D. C. [Filed Aug. 8, 1876.]



The crown-wheel A, having fixed teeth, curved as shown and described, in combination with the worm B, to operate as specified.

185,925. BOOTS-PANTALOON-PROTECTORS. J. L. Howard and C. D. Hayward, New York, N. Y. [Filed Mar. 11, 1876.]



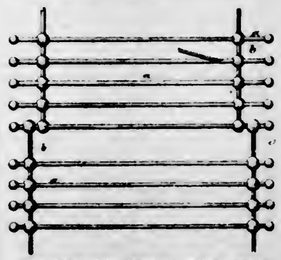
A pantaloon-protector, consisting of a longitudinally-open body portion, A, having an attached hollow heel seat, B, and fastening-straps C and D, substantially as specified.

185,926. WIND-WHEELS. E. Howland, White Lake, and J. B. Sweetland, Pontiac, Mich. [Filed Nov. 16, 1876.]

Brief.—The combination, in a windmill, of the upright shouldered post, the horizontal wheel with boxes having projections, and the shafts provided at each end with arms and sails.

The combination, in a windmill, of the upright shouldered post or standard A, the horizontal wheel B, with boxes *e*, having projections *e'*, and the shafts C C, provided at each end with arms *b b* and sails D, all constructed substantially as and for the purposes herein set forth.

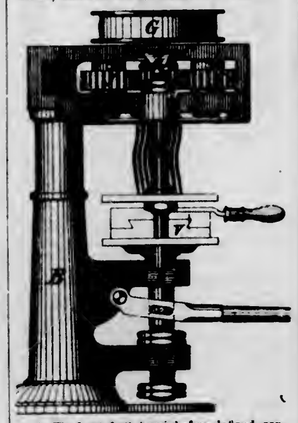
185,927. CLOTHES-DRIERS. Ira N. Hurd, Warsaw, N. Y., assignor of two-thirds his right to A. B. Lawrence and C. T. Watkins, same place. [Filed Nov. 11, 1876.]



The clothes-drier herein described, consisting of the sectallic bars *a b*, secured together by the ball coupling or joint *c*, substantially as described.

185,928. BORING-MACHINES. I. S. Hyatt and J. W. Hyatt, Newark, N. J.; said J. W. Hyatt assignor to I. S. Hyatt. [Filed Feb. 19, 1876.]

Brief.—A series of "undercut," holes, of gradually-increasing diameter from top to bottom, are simultaneously bored by means of a series of bent drills or bits attached to a crank-plate, for giving a positive rotary motion to them; a vertically-adjustable feed-plate, provided with a recessed clamp, in which the work is held, fed to the drills, and maintained in position to be bored; a vertically-adjustable perforated fulcrum-plate having a removable part, which determines the pattern in which they are to be reproduced in the drilled material; a perforated removable journal-plate for uniformly actuating the drills; and suitable operating mechanism.



1. The bent drill, hereinbefore defined, constructed substantially as and for the purposes described.

2. The fulcrum-plate, hereinbefore defined, constructed substantially as described, with a removable part, *q*, for the purpose set forth.

3. The combination of the drill, the crank-plate, the journal-plate, and the fulcrum-plate, substantially as described.

4. The combination, with the feed-plate, of the clamp V, or its equivalent, for holding the work, substantially as described.

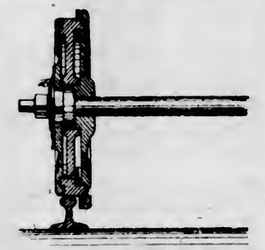
5. The combination of the drill, the crank-plate, the journal-plate, the fulcrum-plate, and the feed-plate, substantially as described.

6. The adjusting and supporting rods Y Y, in combination with the fulcrum-plate.

7. The adjusting and supporting rods Y Y, in combination with the fulcrum-plate and the feed-plate.

185,929. LOOSE-RIM WHEELS. R. Jacobi, Puebla, Mexico. [Filed Oct. 26, 1876.]

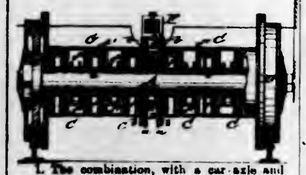
Brief.—The webs are rigidly attached to the axle. The rim, being loose, may revolve independently.



The outer web-sections fixed to the axle, and the intermediate movable tire-section, guided and turning between the web-sections, which are extended to the circumference of the tire-section, in combination with a friction-regulating spring-disk and set-screw of axle, substantially as specified.

185,930. CAR-BRAKES. Rodolfo Jacobi, Puebla, Mexico. [Filed Oct. 26, 1876.]





1. The combination, with a car-axle and wheels, of a series of springs that are arranged symmetrically to and thrown successively in operation by a central stop-disk and interlocking hook-arms of longitudinally-sliding rods of the car-frame, substantially in the manner described, and for the purpose specified.

2. The combination of longitudinally-sliding actuating rod or rods F, having rigid hook-arms E, with a compound spring-acted stop-disk, B, of the axle, substantially as specified.

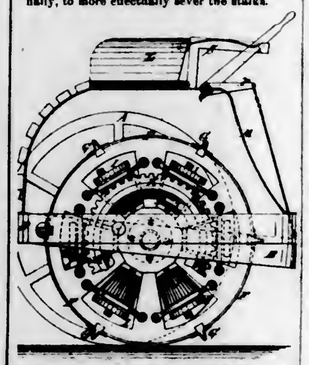
3. The combination of the hook-arms E, stop plates and pins *a a'*, slotted inclosing-plates *b*, and spring-acted interlocking-pins *f'* of spring-casing C, substantially as herein specified.

4. The spring-casing C, having symmetrical and concentric slots *e'*, with springs *f*, and end pins *f'* seated and guided therein, substantially as herein shown and described.

5. The spring-casings of the car-brake, connected alternately at diametrically opposite points by the projecting and interlocking end pins, substantially as and for the purpose specified.

185,931. ROTARY STALK-CUTTERS. O. D. Johnson and J. F. Bracket, Mount Pulaski, Ill., assignors to themselves and C. C. Mason, same place. [Filed July 15, 1876.]

Brief.—The cutters are vibrated longitudinally, to more effectually sever the stalks.



The combination of the pivoted frame E, the drum F, the vibrating knives G, the connecting-bars H, the cranks or crank-wheels I, the bevel-gear wheels J, and the large stationary bevel-gear wheel K, with each other and with the frame B, and the wheels A, substantially as herein shown and described.

185,932. CULTIVATORS. J. H. Jones, Rockford, Ill., assignor to R. Emerson and W. A. Talcott, same place. [Filed Oct. 5, 1876.]

Brief.—Evener with double hooks and pivot-post. Devices for attaching the plow-beams to the hangers without bolts. A broad hook working in a slot to hold the beam true. An elbow-lever carrying a horizontal sliding bar, connected by oblique links or chains, to lift the plow-beam. The standard-fastening, a pendent open-slotted beam-bracket, and a standard-plate grooved and serrated.

1. The combination of the evener, provided with double draft-hooks, the pivot-pin connecting it to the machine, the elongated broad-based tubular sleeve enveloping the pivot-pin and bearing upon the upper surface of the evener, and the strap-iron or brace, these members being constructed and operating as set forth, for the purpose specified.

2. A down-hanger for the attachment of the shovel-beam, constructed as described, adapted to be secured at its upper end to the frame of the machine, slotted at its lower end, provided with V-shaped ribs or centrally-raised projections upon the opposite sides or inner walls of its slot, and a cross-piece or pin spanning the slot at its lower end, for the purpose specified.

3. The broad-hooked plate, adapted to be secured to the shovel-beam, constructed, as described, with a hook at its under front edge, and having its upper edge curved from the front backward, for the purpose specified.

4. The combination, substantially as hereinbefore set forth, of the slotted internally-ribbed down-hanger, its cross-pin, and the broad-hooked plate secured to the shovel-beam, fitting in the slot in the down-hanger, between the vertical centrally-projecting ribs thereof, and resting upon the cross-pin, whereby, while allowed to swing sidewise and rock vertically, the beam is prevented from wabbling, as set forth.

5. The combination of the shovel-beam, hinged at its front end to the machine, a lever for raising and lowering said beam, located upon the machine in rear of the point at which the shovel-beam is hinged, and the lifting-connection secured at its lower end to the beam, remote from its front end, and at its opposite end attached at a point substantially in the vertical plane of the said hinged connection between the beam and frame, to a support operated by the lever, these members being constructed and operating substantially as hereinbefore set forth, whereby the beam, in swinging sidewise, moves substantially in a horizontal plane, and the depth at which the shovels are working at the beginning of said movement sidewise remains unchanged.

6. The combination of the down-hanger, the shovel-beam hinged thereto, the lifting-connection, the thrust-bar, and the lifting-lever, these members being constructed and operating substantially as hereinbefore set forth.

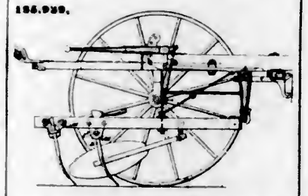
7. The combination of the hinged shovel-beams, the lifting-levers, their supporting detent-brackets, the thrust-bars, the lifting-connections between the thrust-bars and the shovel-beams, the yoke connecting said beams and the curved rods passing around the thrust-bars, secured at their upper ends to the lever-supporting brackets, and at their lower ends jointed to the yoke, these members being constructed and operating substantially as hereinbefore set forth, whereby the levers and the yoke are both supported by the detent-brackets without interfering with the movements of the yoke, levers, or thrust-bars.

8. The combination, as hereinbefore set forth, of the shovel-beam, the bracket, pivotingly attached, by its upper portion, to said beam, and having a serrated face upon its lower pendent portion, which projects below the beam, the grooved and serrated plate, the short shovel-standard, and the eyebolt and nut by which the standard is secured in the groove of said plate and the serrated face of the plate secured to the corresponding face of the pendent portion of the bracket beneath the beam, whereby a high-swung beam may be employed, a saving is effected by reducing both the length and size of the standard, and the range of adjustment of the standard is increased, as set forth.

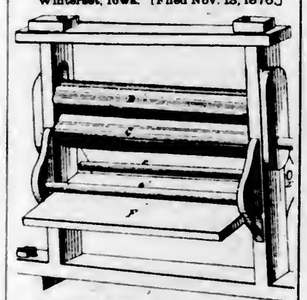
9. The slip-casting or bracket M, constructed as described, centrally perforated for the passage of the shovel-standard eyebolt, and provided with two inclined arms of corresponding length, radiating from its center and slotted at their outer ends, whereby the casting is adapted to be secured to the beam upon either side, with either arm in advance, in the manner and for the purpose described.

10. The combination of the shovel-beams, the slip-castings, their inclined slotted arms, the bolts passing through the slots and beam, their nuts, and the shovel-standards connected with the castings, these members being constructed and operating as set forth, whereby the castings are rendered reversible and interchangeable, adjustment of the inclination of the standards independently of the castings admitted, and injury to the machine avoided.

185,933.



185,935. WASHING-MACHINES. F. M. Karr, Winterset, Iowa. [Filed Nov. 13, 1876.]



A washing-machine, provided with the corrugated rollers C D, supplemental rollers *c c'*, and guard-board F, all constructed to operate substantially as and for the purpose described.

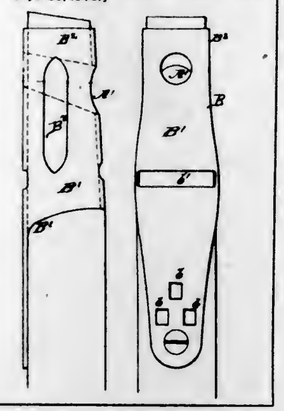
185,934. GAME DEVICES. G. F. Kearney, Gorham, N. Y. [Filed Oct. 14, 1876.]

Brief.—A many-sided block has its several faces distinguishable, and is used to carrom upon on billiard-tables, the numbered or colored side which remains uppermost when turned in play counting toward game.



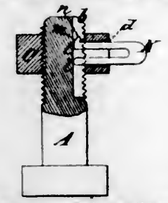
A block for games, said block being provided with eight square faces and ten six-sided faces variously colored or otherwise adapted to be distinguished, substantially as set forth.

185,936. CRADLE-SNATH BANDS. Wm. H. Kretsinger, Fort Madison, Iowa. [Filed Sept. 23, 1876.]



The ferrule B for snaths, consisting of the inner portion B', having the usual perforations *b b'*, and the outer portion B², with perforations *d*, to register with the perforations A' in the heel end of the snath, constructed substantially as described.

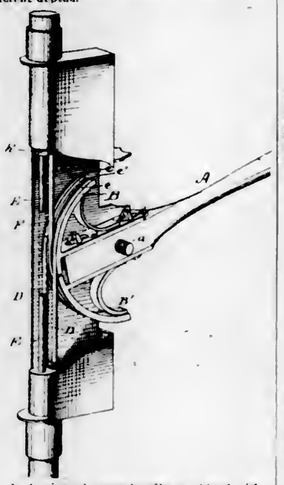
185,936. NUT-LOCKS. Edw. P. Landfear, Jersey City, N. J. [Filed Nov. 23, 1876.]



The combination of the nut C, having the radial slot or mortise *d*, the bifurcated spring-key K, having the ends *l l* of its bifurcations engaging the groove *b* to lock the nut, the bit *n* on said key engaging the interior of the nut to lock the key, and the bolt A, having the longitudinal groove *b* in its threaded part, substantially as and for the purpose specified.

185,937. PUMP-HANDLES. A. S. Leason, Hingham, Wis. [Filed Nov. 1, 1876.]

Brief.—The segment is rendered adjustable upon the handle, to lengthen or shorten the short arm of the lever, and thereby adapt the power of the pump-handle to wells of different depths.



1. A pivoted pump-handle, combined with a segment adjustable on said handle, so as to increase or decrease the length of the shorter arm thereof, as set forth.

2. The pivoted handle A, with the segment-plates B B' independently adjustable on said handle, as set forth.

3. The pivoted pump-handle A and its segment-plate, constructed with three parallel grooves, *c c c'*, combined with flexible straps D D F, arranged, as shown, to draw uniformly on each side of the central plane, as set forth.

4. The pivoted lever A, with a segment-plate at the inner or short end thereof, combined with the straps D D F and the straining-nut b on the pump-rod.

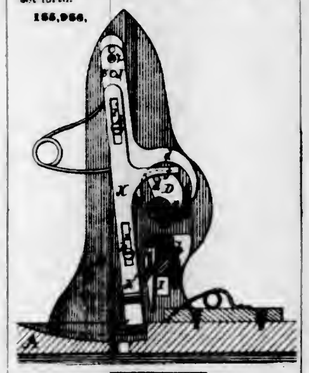
185,938. LEATHER-PUNCHING MACHINES. Geo. Marks, Ackley, Iowa. [Filed Nov. 27, 1876.]

1. The gate G, with projections and punches, the gate held up by means of springs, in combination with the gages R R and foot-bars J K, substantially as and for the purposes herein set forth.

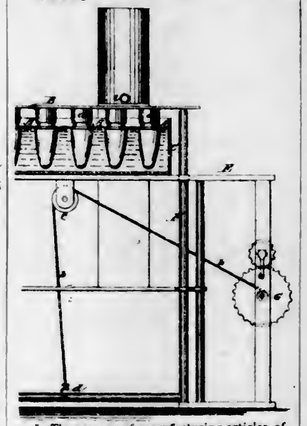
2. The combination of the adjustably-pivoted foot-bar J with curved arm *d*, the sliding foot-bar K with arm *f*, the spring L, and the pin *a*, projecting from the rotating cam D, substantially as and for the purposes herein set forth.

3. The grooved adjustable gages R R and spring P, in combination with the foot-bars J K and punches I I, for the purposes herein set forth.

185,939.



185,939. PROCESSES AND APPARATUS FOR FORMING RUBBER ARTICLES. Charles E. Longden, Naugatuck, Conn. [Filed Oct. 7, 1876.]

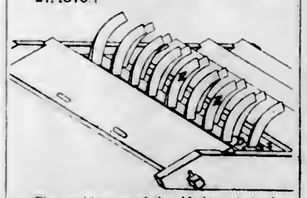


1. The process of manufacturing articles of rubber, which consists in first dipping a glass former into the gum or rubber solution, and then vulcanizing them while still on the glass, as and for the purpose specified.

2. The combination of the table E, vat C, sliding frame F, support B, molds A, and reservoir D, substantially as shown and described.

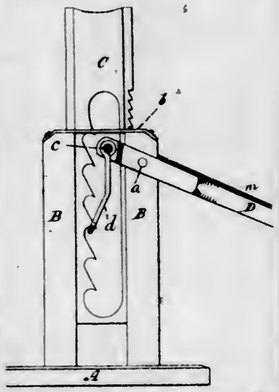
3. The combination of the windlass G, pulley C, table E, frame F, support B, molds A, and vat C, substantially as shown and described.

185,940. EARTH-PULVERIZERS. Wm. H. McClanahan, Franklin, Ind. [Filed June 27, 1876.]



The combination of the side bars A A, the inclined cross-bar H, the colter-bar D, formed of the three slotted strips *x y z*, and carrying the curved knives E E, and the series of angularly-arranged pulverizing-bars C C C, all constructed substantially as and for the purposes herein set forth.

185,941. WAGON-JACKS. H. D. McGeorge, Morgantown, W. Va., assignor to N. H. McGeorge, same place. [Filed Nov. 27, 1876.]

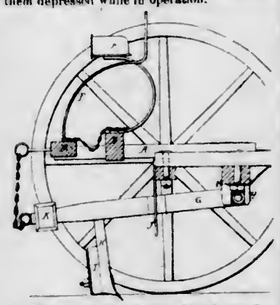


1. The improved lifting-jack, consisting of the base A, standards B B, lever D, supporting-link *d*, gravity-pawl *f*, and slotted sliding standard C, having internal and external racks for the engagement, respectively, of the link and pawl, substantially as described and shown.

2. The combination of the lever D, link *d*, gravity-pawl *f*, ratchet upright C, and cord or wire *m*, substantially as described.

185,942. SEED-MARKERS. R. Megginson, New Castle, Del. [Filed Apr. 29, 1876.]

Brief.—To ears attached to the cross-beam of the frame are pivoted bars, to which are secured standards having opening-plows for furrowing the ground. These bars have attached to their rear ends weights for holding them depressed while in operation.



1. The combination of the pivoted bars G, carrying the plow-beams, and having weights K, with the arm P and devices, substantially as described, by which the said bars can be raised during the operation of the machine, as set forth.

2. The combination of the bars G and their weights with the plow-standards H and their bars I, as and for the purpose set forth.

3. The bearing *g*, constructed substantially as described, and having ears, to which the bar G is pivoted, in combination with the bar embraced on opposite sides by the lugs *t t* of the said bearing, all as set forth.

185,943. BEER-FAUCETS. J. Meyer, Washington Court-House, Ohio. [Filed Dec. 19, 1876.]

1. The combination of the stem *c*, hole *e*, pipe *d*, plate *e*, packing *g*, catch *i*, screw *o*, and a self-closing valve, substantially as set forth.

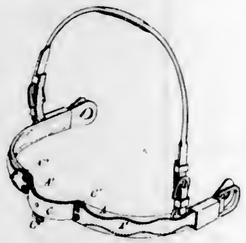
2. The collar *n*, having the lever *l* pivoted between its ends, and adapted to turn partially around on the stem, as specified.

3. The combination of a spring lever, a partially-revolving collar placed on the stem, a self-closing valve, a plate, *s*, having a hole through it, and secured to the pipe that ventilates the barrel, substantially as shown.

195,943.



195,944. HARNESS BREAST-COLLARS. T. O. Marts, Marietta, Ohio, assignor of one-half his right to S. M. Hart, same place. [Filed Nov. 4, 1876.]

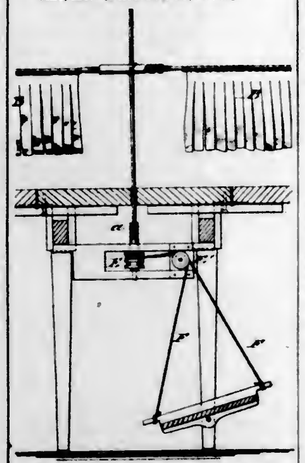


1. A breast-collar formed with a bowed portion, C, and a correspondingly shaped stiffening-plate outside of said bow, substantially as and for the purpose set forth.

2. A breast-collar, A, provided with a leather front bow, A^1, a curved stiffening plate, C, having extensions or flanges C^1 C^1, and outer leather strips A^2 A^2, between which strips and said collar the said extensions or flanges are secured, substantially as set forth.

3. As an article of manufacture, a curved metal plate, C, provided with flat extensions or flanges C^1 C^1, and slotted strap-attaching-plate C^2, substantially as set forth.

195,945. FLY-FANS. S. W. Mills, Kingsville, Mo. [Filed Oct. 30, 1876.]

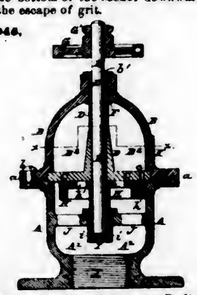


A table-fan operated by a centrally-pivoted shaft connected with a centrally-pivoted treadle, the said treadle being made to rotate the shaft through two double pulleys, E E, arranged in different planes, and a cord, F, whose two ends are attached to the opposite ends of treadle, as shown and described.

195,946. WATER-MOTORS. Kelsey L. Mills, Kansas City, Mo. [Filed Oct. 19, 1876.]

Brief.—The water does not come in contact with any part of the wheel-shaft above the discharge-chamber, so that the shaft does not require to pass through a stuffing-box or packing to prevent the escape of water, and thus much friction is avoided. The wheel has orifices to allow the escape of water from the upper side, so that there is no tendency in the water to pass up and around the shaft. The wheel-shaft is stepped in a cup or socket supported in a cross-bar, and holes extend from the bottom of the socket downward, to allow the escape of grit.

195,946.



1. The combination of the case B, disk C, tube D, and packing-ring F, substantially as and for the purpose set forth.

2. In combination with the parts B, C, D, and F, the shaft E, extending upward from the lower chamber A^1, and out through the top of the case, substantially as and for the purpose set forth.

3. In combination with the parts B, C, D, and F, and the lower portion A of the case, (A B,) and the shaft E, the bucket-wheel H, having openings *h'*, to allow the escape of water from the upper side of the wheel, as set forth.

4. The step-cup I, provided with holes *i*, substantially as and for the purpose set forth.

195,947. CAN-OPENERS. C. G. Mortimer, New York, N. Y., assignor of one-half his right to J. W. Meyer, same place. [Filed Nov. 14, 1876.]

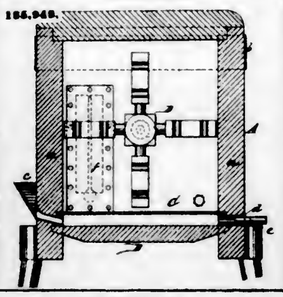
Brief.—A suitable handle is provided with a stirrup, carrying above a pivoted eccentric lever, and below a detachable and adjustable cutter, by means of which round holes of greater or less size may be readily cut. There is also combined with the same handle a removable prong or point, and a removable and adjustable angular cutter, which, when the stirrup and its attachments have been removed, will cut straight or right-angular lines, the construction serving in one instrument for either the ordinary round cans, or for sardine-boxes and the like.



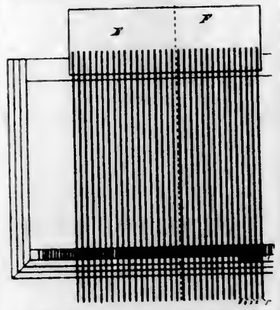
1. The combination of the stirrup D, removable cutter *d*, and eccentric lever E, with the handle A B, substantially as and for the purposes herein set forth.

2. The combination, with the handle A B, having screw-openings *a* for receiving the removable and adjustable angular cutter G, of the removable point C, substantially as and for the purposes herein set forth.

195,948.



195,949. PLAITING-MACHINES. M. Neville, Boston, Mass. [Filed May 10, 1876.]

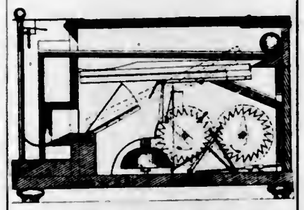


1. The board A, having at one side shoulder C and groove D, and at opposite side rack B, in combination with comb E, as set forth.

2. In a plaiting machine, the rack B, having the slits 1 2 3 4 5, terminating in holes 0 0, forming shoulders at their intersection, for the purpose of preventing the needles from slipping up, as specified.

3. The comb E, composed of a series of plaiting-needles connected to a removable stem or bar, whereby all the needles may be withdrawn from the bed-plate or board A at once, as in the specification set forth and described.

195,950. REGISTERING BALLOT-BOXES. W. H. Nicolls, Barton Township, Wentworth County, Ontario, Canada. [Filed Oct. 2, 1876.]



1. The combination, in a balloting apparatus, of a tilting way connected by suitable mechanism to a registering device, and adapted to be tipped by the weight of a balloting-ball, substantially as described.

2. In combination with the tilting way of a balloting-box, the ways below the front ends of the same leading to a cage in front of the casing, and the stationary way leading to the rear of the casing, for the purpose of permitting the ball to be returned to position for the succeeding vote after a ballot has been cast, substantially as described.

3. In a balloting apparatus, the tilting ways provided with openings at their rear ends slightly larger than the opening through which the finger is inserted to cast the ball, but smaller than the balloting-ball, to prevent the ways from being fraudulently operated by means of small balls, substantially as described.

4. In combination with the tilting ways, the lever pivoted to the front of the casing, and having its lower end extending into the cage and forming a seat for the ball, for the purpose of returning the ways to their normal position after being tipped, substantially as described.

5. In combination with the tilting ways and the registering device of an alarm-bell and hammer, the latter being operated at each operation of either tilting way, as herein described, for the purpose of indicating each ballot cast, substantially as set forth.

195,951. HEATERS FOR OIL-WELLS. J. Odell, Franklin, Pa. [Filed Dec. 9, 1876.]

Brief.—Adapted to be lowered into oil-wells to promote flow of oil.

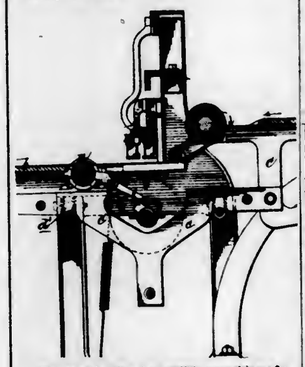


1. The casing A, closed at its lower end, and provided at its upper end with a removable plug, said plug being provided with a valve, in combination with a heating device, substantially as described, and for the purpose set forth.

2. The casing A, having closed end *a* and removable plug B, which plug is recessed, so as to receive valve C, said valve being provided with screw-threaded rod *c*, nut *c'*, and eye *d*, in combination with heating-rod D, which is provided with staple *e*, substantially as described, and for the purpose set forth.

195,952. SEWING-MACHINES FOR QUILTING. Henry Oram, Bury, Great Britain. [Filed Dec. 4, 1875.]

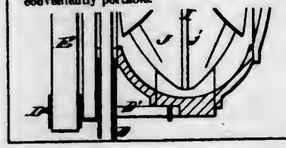
Brief.—The frames carrying the fabric are moved in a direction transverse to the feed, and the irregular gear-wheels, which form part of the combination claimed, cause the speed of this movement to vary, thus producing wavy lines.



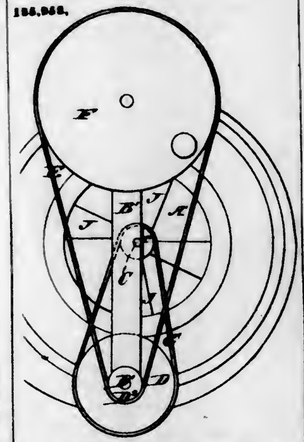
The combination, in a quilting-machine, of a reciprocating needle-bar having two rows of needles, arranged substantially as described, with the frame C carrying the fabric as it is fed, and with the wheel A, the gear-wheels A^1 E^1, and the ratchet-wheel *g*, operated from the driving-shaft, as set forth.

195,953. BLOWERS. Jos. C. Overstreet, Pleasant Plains, Ark. [Filed Oct. 21, 1876.]

Brief.—The V-shaped form of vanes gives a large discharge of air through a small outlet. The arrangement of driving-wheel and pulleys, being compact, renders the machine conveniently portable.



195,955.

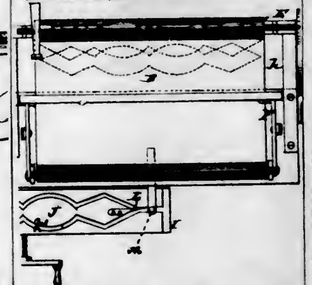


1. A blade or vane, J, for a rotary blower, consisting of truncated inverted V-shaped base *j*, brace-rods I I, passing through the axle, and side flanges *j' j'*, substantially as set forth.

2. The combination of casing A, shaft C, provided with blades or vanes J, constructed as described, and gearing *c* C', D D^1, E and F, all connected with the bridge B^1, substantially as and for the purpose set forth.

195,954. SEWING-MACHINES FOR QUILTING. Frank L. Palmer, Montville, Conn. [Filed June 2, 1876.]

Brief.—The configuration of the seam is governed by a double pattern-groove, in which moves a pin on the frame, which carries the sewing mechanism, and the improvement is making these pattern-grooves continuous or connected, so that the pin may be changed from one to the other at will. Switches or other automatic devices may be employed to effect the changes.



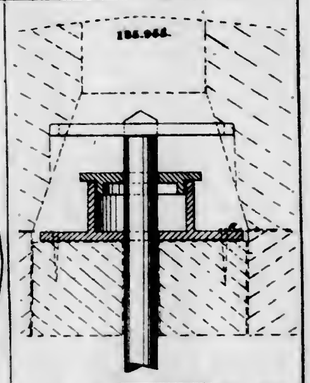
1. In a quilting-machine, the combination of a work-carriage, a pattern, guide, or finger, and a double pattern composed of two independent, but connected, guide-slots or tracks, the whole arranged substantially as herein described, whereby the said pattern, guide, or finger may pass from one slot or track to the other, for the purpose herein set forth.

2. The combination of the pattern J, provided with one or more switches, L, the guide or finger M, the carriages C and D, arranged to reciprocate in transverse relation with each other, and the cloth-beam E, arranged in proper relation to the needle of an attached sewing-machine, substantially as shown and described.

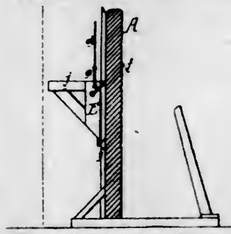
195,956. TALLOW-CUPS. D. Farmer, Fort Madison, Iowa, assignor to H. McCoun, same place. [Filed Oct. 30, 1876.]

The combination of a perpendicular shaft or spindle and a centrally-apertured tallow-box, the former being made to pass through and in contact with the solid grease, as and for the purpose specified.

195,956.



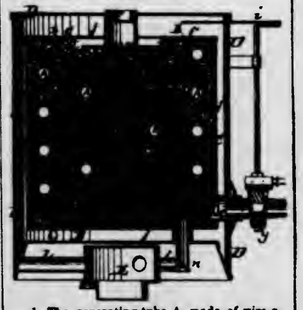
195,956. SCAFFOLDS. Levi Park, Rome City, Ind., assignor of one-half of his right to A. P. Gerber, same place. [Filed Dec. 7, 1876.]



The combination of the post A, the pulley *b*, and hoisting-rope *d* with the frame E, having a strap for embracing the post, and a rib adapted to a recess, *i*, in the same, as set forth.

195,957. CARBURETERS. John C. Peacock and Chas. W. Bradley, London, England. [Filed June 9, 1876.]

Brief.—The air-passage, embedded in the porous absorbent material within the carbureter, is formed of a coil of wire covered with wire-gauze. The absorbent material is composed of bamboo or light-wood pulp. The carbureter is surrounded with a jacket, providing a space through which hot air or products of combustion are passed to the carbureting chamber. The carbureted air falls to the burners by its gravity.



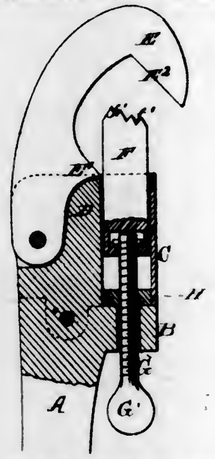
1. The generating-tube A, made of wire *a*, and covered with thin gauze *b*, substantially as herein shown and described.

2. The combination of the generating-tube A, wire-netting B, and case C, substantially as specified.

3. In combination with the case C, which contains the hydrocarbon and the generating-tube A, and with the outer case D, forming the intervening air-space *j*, the branch pipes *l*, and chimney E, said chimney and pipes being arranged below the case D, substantially as specified.

185,958. PIPE-WRENCHES. Charles Peterson and Anton Duanebake, Detroit, Mich. [Filed Oct. 28, 1876.]

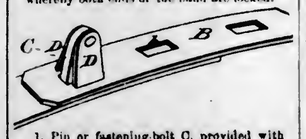
Brief.—The casing has slots bearing on the upper side of the nut. To replace a worn nut, screw up the movable jaw until pin in the screw is outside of casing, remove pin, unscrew the screw, remove nut through slots in the case, substitute new nut, and put together.



The bent casing C, provided with recesses c' c', for the reception of the nut H, and the perforated projections a, in combination with handle A, having side extension B, straight jaw F, slotted and perforated at its lower end, screw-bolt G, provided at its upper end with pin g, and the pivoted jaw E, substantially as described, and for the purpose set forth.

185,959. BALE-TIES. Jos. W. Petty, New Orleans, La. [Filed Dec. 16, 1876.]

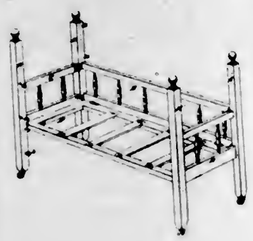
Brief.—The pin, having spring-plates on each side, is placed in one of the holes in one end of the band. The other end, having perforations, is strained over the said pin until the spring-plates expand above said end, whereby both ends of the band are locked.



1. Pin or fastening-bolt C, provided with head C', and spring plates or barbs D D, constructed and arranged substantially as set forth.

2. Pin C, provided with spring plates or barbs D D, in combination with perforated ends A and B, of a bale-hoop, substantially as set forth.

185,960.

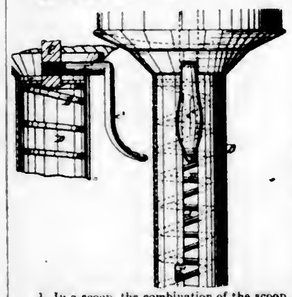


185,960. CRIBS. John H. Powers, Cincinnati, Ohio. [Filed Dec. 8, 1876.]

1. A crib having its ends and bottom hinged to a permanent side, and one of its sides detachable or folding, substantially as and for the purpose specified.

2. The combination of side A A' B, ends C D E E', bottom F, eyes h k, and detachable side G g, whereby the structure may be converted from a crib into a settee, substantially as described.

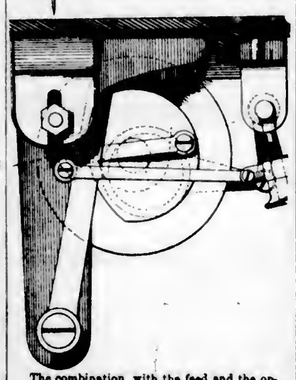
185,961. SCOOPS. B. F. Pratt, Greenup, Ky. [Filed July 7, 1876.]



1. In a scoop, the combination of the scoop A and the disk B, the latter, by means of suitable mechanism, operating to permit the filling and cause the entire discharge of the former, as described, and for the purpose specified.

2. The combination of the scoop A, disk B, plunger C, with its transverse stud c' and the collar c, the hollow handle D, and contained coil-spring E, together with the slot d and lock-notch d', arranged to operate as described, and for the purpose specified.

185,962. SEWING-MACHINES. G. M. Pratt, Middletown, Conn. [Filed Nov. 11, 1875.]



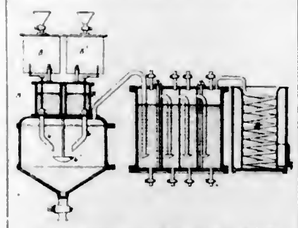
The combination, with the feed and the operating-lever D', pivoted to the hanger E' of a sewing-machine, of the link M, connected to the said operating-lever and feed-bar, substantially as described, whereby the four motions are imparted to the feed-bar in a positive manner, as and for the purpose set forth.

185,963. INKSTANDS. Edw. C. Quin, Philadelphia, Pa. [Filed Nov. 2, 1876.]

The combination, in an inkstand, of the cap B, with self-closing slide or slides D D', adapted to guides on the top of the cap, and constructed to be opened by a pen, all as set forth.

185,964. APPARATUS FOR MANUFACTURING SULPHUROUS ACID. Alvaro F. C. Reynoso, Paris, France. [Filed Sept. 27, 1876.]

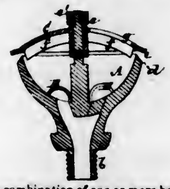
Brief.—The acids and solutions of salts from which the sulphurous acid is generated are brought from the supply-tanks, and the chemical reaction takes place in the cup.



1. The combination of the vessel A and cup b' with the supply-tanks B B and the tubes b b, substantially as described.

2. The combination of the generating-vessel A with the supply-tanks B B and their adjustable regulating-valves, and with tanks B' B' and the automatic valves L L, as and for the purpose set forth.

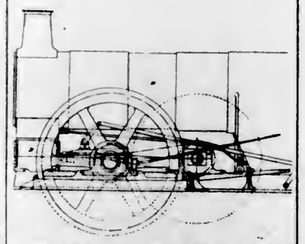
185,965. WATER-DISTRIBUTERS. John H. Rhodes, Brooklyn, N. Y. [Filed Sept. 19, 1876.]



1. The combination of one or more helicoidal ducts, B, in the cup A with the rotating cap C, provided with interior ribs or flanges f and apertures g, substantially as specified.

2. The combination of the adjustable rotating distributing-cap C with the cup or body A of the distributer, whereby the capacity of the discharge-opening between the margins c and d of the cup and cap may be varied, essentially as described.

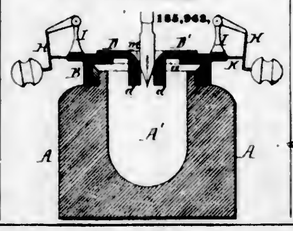
185,966. PORTABLE ENGINES. John Richardson, Lincoln, England. [Filed Sept. 5, 1876.]



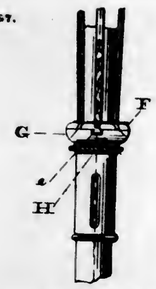
In a steam engine, the combination of the cylinder or cylinders B B and boiler D, the boiler being arranged to rest at one end upon the cylinders, and at the other end, by friction-wheels, upon the base or foundation of the engine, substantially as and for the purpose herein specified.

185,967. UMBRELLAS. W. H. Richardson, Philadelphia, Pa. [Filed Mar. 25, 1876.]

185,968.

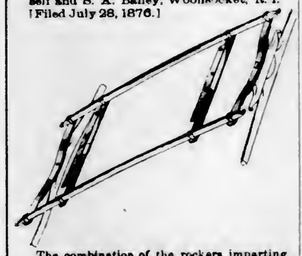


185,967.



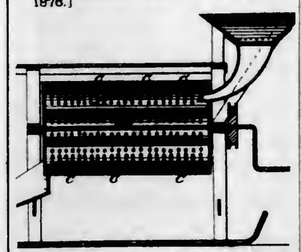
The slotted collar F, fixed to the upper end of the runner, in combination with the rotating band G, having the slot e therein, and the head H, all constructed and arranged substantially as shown and described.

185,968. VEHICLE-SPRINGS. Geo. A. Richards, New London, Conn., assignor to himself and S. A. Bailey, Woonsocket, R. I. [Filed July 28, 1876.]



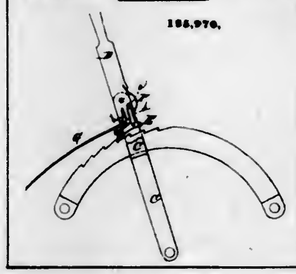
The combination of the rockers imparting a lateral rolling motion to the vehicle-body, the side bars, the springs supporting the latter, and the cross-bars attached to the side bars and supporting the rockers, substantially as described.

185,969. PEA-NUT CLEANERS. D. R. Rivers, Centreville, Tenn. [Filed Apr. 18, 1876.]



A pea-nut scourer, consisting of cylinder A, having rows of large holes C distributed longitudinally throughout the reticulated surface thereof, substantially as and for the purpose specified.

185,970.

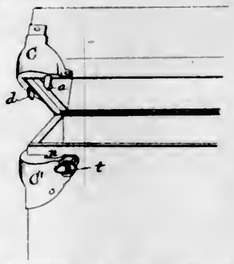


185,970. LEVER-PAWL AND RATCHET FOR OPERATING WAGON-BRAKES, &c. Jas. R. Robinson, Shawnee Mound, Mo. [Filed Aug. 21, 1876.]

Brief.—When pressure is applied to force the lever forward, the pawl slides over the teeth of the ratchet-bar. The pawl is released when the handle is pressed backward. The vibratory movement of the handle is limited by pins.

The combination, with the ratchet-bar, of the lever composed of the forked portion C, the handle portion D, pivoted thereto, and constructed with a shoulder and finger, as described, the T-shaped spring-pawl E, and the brake-strap G, pivoted at e, as shown and described, to operate as specified.

185,971. COMBINED CORNER-CLAMP, GUARD, AND BOLT FOR TRUNKS. A. V. Romadka, Milwaukee, Wis. [Filed Oct. 27, 1876.]



The angular and boxed corner-clamp C, provided with the lugs a d, in combination with the similar clamp C', having mortises s, and the locking-bolt t, the whole adapted to be applied to the corners of a trunk, in the manner and for the purposes described.

185,972. SULKY-PLOWS. H. J. Schmeiser, Burlington, assignor of one-half his right to J. Schmeiser, Des Moines County, Iowa. [Filed Oct. 20, 1876.]

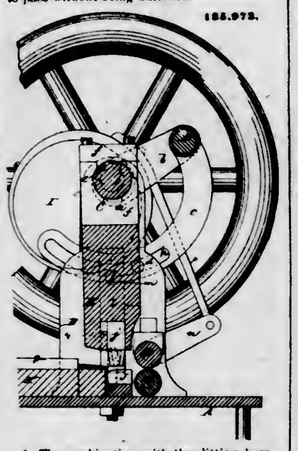
Brief.—Double action of the lever. By the same movement the depth of the plow and the height of the land-wheel are regulated. Combination of the several frames, by which the driver's weight assists to raise the plow. Device for leveling the plow.

The combination of the frames a b c c and the adjustable plate d, substantially as described.

185,973. METAL-PUNCHING MACHINES. I. C. Schuyler, Central City, Colo., assignor to himself and C. W. Ladd, same place. [Filed Sept. 22, 1876.]

Brief.—The crank-shaft of the punch carrier is journaled in eccentric boxes, by the adjustment of which the throw of the said carrier can be regulated, and the tapering slitting-punches caused to enter the metal to the desired depth. The eccentric boxes are secured, when turned to the desired extent, by set-screws, which pass through curved slotted braces attached to arms projecting from said boxes. The lower of the rollers, for intermittingly drawing the sheet metal through the machine, is cut away in the center, to allow the burrs formed by the punches to pass without being flattened.

185,973.

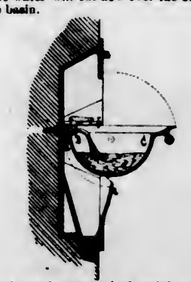


1. The combination, with the slitting burring punches and dies, of the drawing-rolls G H, the former cut away in the middle, substantially as and for the purpose set forth.

2. The adjustable eccentric journal-boxes a, the arms b, connected by bar D, and the slotted, adjustable, curved braces c, in combination with the follower E, for the purpose of regulating the throw of the punches, in the manner specified.

185,974. WASH-STANDS. J. P. Schweikart, New York, N. Y. [Filed Oct. 24, 1876.]

Brief.—On the face-plate, below the basin, is secured a segmental flange, so that when the basin is turned up, and the contents thereof are emptied into the sink, the water is prevented from splashing out. The inner edge of the basin is provided with a spout and a projecting flange, so that when the basin is emptied the water will not flow over the bottom of the basin.



1. A wash-stand composed of a sink with a vertical face-plate, and of a basin supported by trunnions which have their bearings in lugs projecting from said face-plate, substantially as herein shown and described.

2. The combination of the vertical face-plate B, sink A, swinging basin C, and segmental flange c, substantially as and for the purpose set forth.

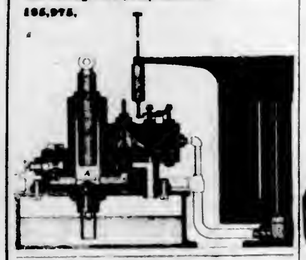
3. The combination of the shelves f f with the swinging basin C, vertical face-plate B, and sink A, said shelves forming stops for the basin, substantially as shown and described.

4. The basin C, provided with a spout, d, and flange e on its inner edge, substantially as and for the purpose set forth.

185,975. RELIEF-VALVES FOR HYDRAULIC MACHINES. C. Sellers, Philadelphia, Pa., assignor to W. Sellers, same place. [Filed May 31, 1876.]

Brief.—Valves are so arranged that the decided movements of the mechanism determine the duration of the pressure upon the pump, while the pump, though relieved from pressure, shall maintain a continuous water-circulation through the pump-chamber.

185,975.

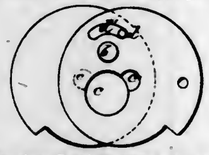


1. The combination of a pump, operating continuously, hydraulic mechanism through which the power is intermittently applied, and a relief-valve, the combination being and operating substantially as described, and for the purposes set forth.

2. The combination, with the reflex-valve G, or its equivalent, of the cylinder J, and piston H, the combination being and operating substantially as described.

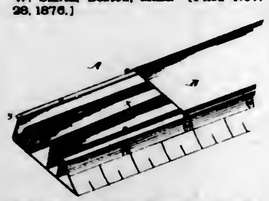
185,976. BUTTON LOCKS AND FASTENERS. M. M. Shur, Denver, Colo. [Filed Oct. 27, 1876.]

Brief.—The button is attached or released by a rotary movement of the upper plate.



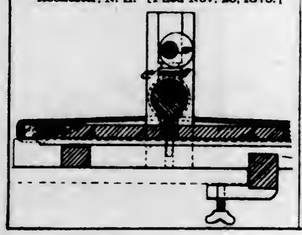
The plates B and C, eccentrically pivoted by means of pin *b*, and said plates having elongated slots *c c'*, stud *d*, and eccentric slot *d'*, substantially as and for the purpose set forth.

185,977. SCHOLARS' COMPANIONS. Emery W. Smith, Boston, Mass. [Filed Nov. 28, 1876.]



The scholar's companion, consisting of the metallic case A, having a carved and graduated face, *a*, at one edge, a rib, *y*, on the opposite edge at the top, and a receptacle, X, open toward the narrow face of the case, and provided with pockets for the reception of writing or drawing instruments, all as set forth.

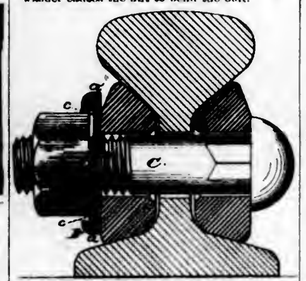
185,978. DOUGH-KNEADERS. E. Staples, Rochester, N. H. [Filed Nov. 26, 1876.]



The combination of the revolving pressure-roller and reciprocating molding-board, operated jointly therewith, with a pressure-regulating cam device, substantially as set forth.

185,979. NUT-LOCKS. Louis Sterne, London, England. [Filed June 30, 1876.]

Brief.—The flanges of the washer cause it to turn with the nut; the inclined face of the washer causes the nut to bend the bolt.



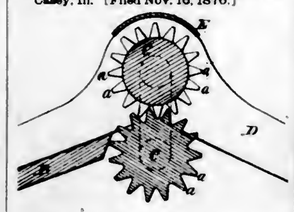
The combination, in a nut and bolt fastening, of the bolt C, the nut A, and the washer D, having an inclined face, *e*, and flanges *a a* at its edge, so that it will turn with the nut when screwed home, substantially as described.

185,980. SNAP-HOOKS. E. J. Steele, New Britain, assignor to O. B. North & Co., New Haven, Conn. [Filed Dec. 6, 1876.]



In a snap-hook, the body terminating at one end in a hook, and at the other end in a loop, and constructed with a recess in the back of the body, and opening forward to the hook, combined with a tongue hung in the said recess, one end extending to the rear of the thumb-piece, the other forward, to close the mouth of the hook, and constructed with a recess around the pivot, extending forward to form a longitudinal cavity in the tongue, and a spring coiled around the pivot in the said recess, one end turned to the rear to bear upon the body of the hook, the other end forward into the cavity of the tongue, all substantially as described.

185,981. MEAT-MANGLERS. D. Steeples, W. A. Smith, D. Boles, and D. F. Stambaugh, Casey, Ill. [Filed Nov. 16, 1876.]



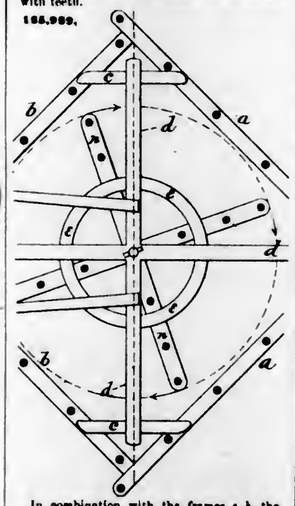
1. In combination with the bottom frame A B, provided with mangling-roller C, the top frame D E, hinged at one end to the bottom frame, provided with the mangling-roller G, and adjustably held at the other end to the lower frame, substantially as and for the purposes herein set forth.

2. The curved rack-bar J and pivoted latches *d*, in combination with the frames A B and D E and the mangling-rollers C G, substantially as and for the purposes herein set forth.

185,982. HARROWS. Anthony O. Stivason, Apollo, assignor of one-half of his right to Joshua Cooper, Spring Church, Pa. [Filed Nov. 27, 1876.]

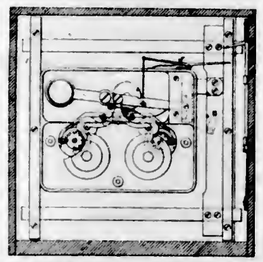
Brief.—The main frame is square, and strengthened by diagonal bars, one of which is provided with a clevis for draft purposes. A rotary frame is pivoted, by means of a nearly perpendicular shaft or axle, at the intersection of the diagonal bars. Both the stationary and rotary frames are furnished with teeth.

185,982.



In combination with the frames *a b*, the corner-braces *c* and diagonal beams *d*, meeting at their center, the end of one of the beams *d* constituting the draft-bar of the whole, substantially as described.

185,983. TIME-LOCKS. Emory Stockwell, Stamford, Conn., assignor to the Yale Lock Manufacturing Company, same place. [Filed Oct. 20, 1876.]



1. In combination with a time-lock, a locking attachment, substantially as described, whereby the time-lock can be instantly locked from any convenient point outside of a safe or vault within which the lock is attached.

2. A time-lock, provided with mechanism substantially as described, whereby it can be instantly locked from the outside of a safe or vault to which it is applied, at a distance therefrom, and also with supplementary unlocking mechanism by which it will always be automatically unlocked before the three movements have fully run down.

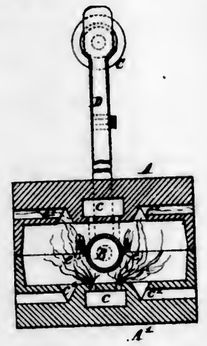
3. The lever J, or its equivalent, pivoted on the time-lock case, and suitably connected with the interior of the same, in combination with devices, substantially as described, whereby its manipulation from the outside of a safe or vault can be effected to lock the time-lock.

4. The spring-barrel, or its equivalent, provided with the pins or studs X, Y, and Z, for the purpose specified.

5. The combination of the spring-barrel, the carved lifting spring, and the counter-balance lever, substantially as described.

6. The combination of the spring-barrel, having the projections X, Y, and Z, the triggers, and the winding-indicators, substantially as described.

185,984. HEATING BOX-IRONS. F. Stichbury, Leyton, assignor to McBryde & Orr, Jewin Crescent, London, England. [Filed Sept. 19, 1876.]



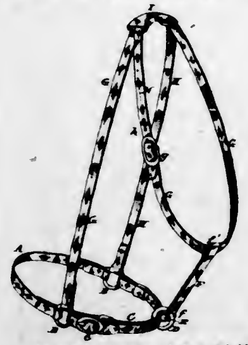
1. In a box-iron containing two acting-faces, and formed with gas-passages *c c*, the hollow axle B, provided with a mixing-chamber, B', and with apertures *e e* for sustaining the flame as the passages *c c* are alternately brought into communication with the interior of the axle B, substantially as set forth.

2. The divided double-faced box-iron A A', formed with longitudinal gas passages *c c*, which are alternately brought into communication with the interior of the axle B, for the purpose of receiving a supply of mixed air and gas therefrom for heating the iron.

3. In a box-iron with double-acting faces, the combination of the longitudinal passages *c c*, communicating with the interior of the axle B, and the grooves and lateral passages *c'* for supplying air to support combustion and serve as an exit for the products of combustion, substantially as set forth.

4. In combination with the handle C and the double-faced box-iron, mounted on a hollow axle, B, and provided with passages *c c*, arranged to communicate alternately with the interior of said hollow axle, the spring-bar D, connected at its lower end to a bolt, *d*, working in the handle, and adapted to engage in a recess in the iron, in order to lock the iron in proper position relatively to the hollow axle, substantially as herein set forth.

185,985. BRIDLES AND HALTERS. J. Straus, St. Louis, Mo. [Filed Nov. 25, 1876.]

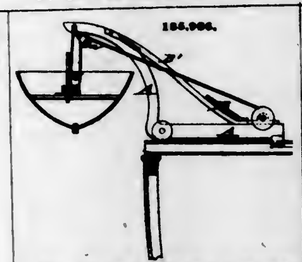


1. The combination, in a halter or bridle, of the straps G H, each of which forms one of the cheek-straps, and also part of the throat-latch, substantially as set forth.

2. In combination with the straps G and H, the loop or pad I, protecting the poll from the rubbing of said straps and holding them in proper relative position, as set forth.

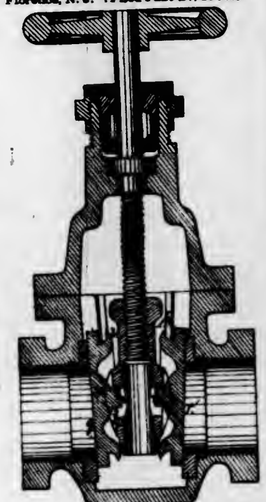
185,986. BOAT-LAUNCHING APPARATUS. J. Strachan, Goderich, Ontario, Canada. [Filed Oct. 23, 1876.]

185,986.



The combination, with davits A A, provided with rollers traveling on suitable ways, of the diagonal braces B B', constructed and arranged as shown and described.

185,987. STOP-VALVES. Wm. F. Thacher, Florence, N. J. [Filed June 27, 1876.]

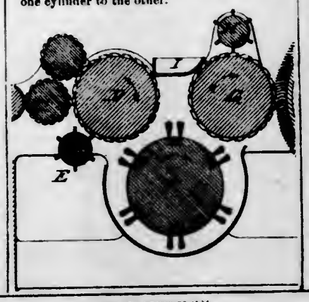


1. The disk valve or plate described, having a central convex projection at its back, and a boss or journal extending from such projection, and adapted to enter an opening in the spreader, for the purposes set forth.

2. A spreader, as described, provided with elongated slots, concaved inclined recesses, and a prolongation or tip at its lower end, as and for the purposes set forth.

185,988. WOOL-BURRING MACHINES. B. Trombly, Maynard, assignor to C. G. Sargent & Son, Graniteville, Mass. [Filed July 19, 1876.]

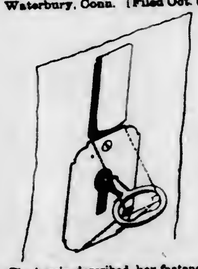
Brief.—A rotary transfer-brush is arranged intermediately beneath two oppositely-revolving burring-cylinders, whereby the fiber is brushed, turned over, and transferred from one cylinder to the other.



1. In a burring-machine, the combination, with two burring-cylinders and mechanism for rotating them in opposite directions, of an intermediate rotary transfer-brush, arranged substantially as shown, whereby the material operated on is transferred from one of said cylinders to the other by said brush, and thoroughly burred and opened.

3. The combination, in a burring-machine, of the two burring cylinders D and G, arranged to rotate in opposite directions, the guard-cylinders E and H, arranged to operate in connection with the respective burring-cylinders, and the rotary transfer-brush F, arranged between the burring-cylinders, as shown and described, whereby the brush is caused to open and brush the fiber and transfer the same from the first to the second burring-cylinder in a light loose condition.

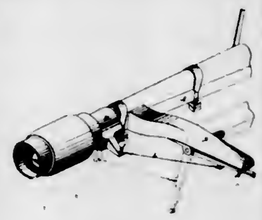
185,989. KEY-FASTENERS. T. C. Upson, Waterbury, Conn. [Filed Oct. 9, 1876.]



The herein described key-fastener, consisting of three or more parts, *a b c*, hinged together, secured to the door by one of the parts, the third part connected to the first by the hinged second part, and so that the third part will pass through the bow of the key, substantially as described.

185,990. VEHICLE DEVICES FOR CHECKING HORSES. L. Vaughan, Boston, Mass. [Filed Nov. 24, 1876.]

Brief.—The forward movement of the horse causes the rein to be tightened up to a certain point, where it is held until such movement ceases.

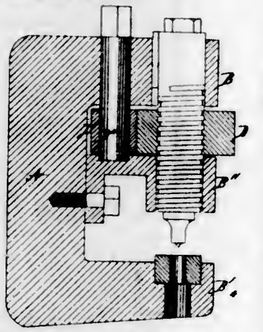


1. In combination with the collar D, capable of partial rotation around the axle A, the sleeve C, provided with the groove *c*, and arranged to move lengthwise of said axle within said collar, the toothed ring I, secured upon the inner end of the hub, and the pawl K, fitted within a groove, *d*, in said collar, provided with a stud, *k'*, which fits into the said groove *c* of said sleeve, and capable of engagement with said toothed ring, substantially as and for the purpose shown.

2. The combination of the sleeve C, provided exteriorly with the rearward-curving circumferential groove *c*, the collar D, having the longitudinal groove *d* within its inner surface, and the pawl K, fitted within said groove *d*, and provided with a stud, *k'*, which engages with said curved groove *c*, substantially as and for the purpose set forth.

3. In combination with the arm *d'* of the rotating collar D, the bar M, hinged to or upon the shaft N, and held in place by spring-pressure, the cord L, connecting said arm and bar and the rein O, passing between the latter and the bit of the horse, substantially as and for the purpose shown and described.

185,991. METAL-PUNCHING MACHINES. A. Watkins, Pittsburg, Pa., assignor to himself and Thos. G. Ainscough, same place. [Filed Apr. 28, 1874.]



The combination, with the frame A, brackets B B', and intermediate bracket B'', of the splined screw-punch, the die, the cogged nut, and the pinion, all arranged and operating substantially as described.

185,992. RUNNING-GEARS FOR VEHICLES. Eugene D. Weller, Lima, N. Y. [Filed June 6, 1876.]



1. The blocks F and plates G, formed separately and connected by bolts *b b*, passing bodily through the blocks, and having heads countersunk into the blocks flush with the outer surface, as shown and described, and for the purpose specified.

2. The plate G, constructed with the extended bearing *d*, to receive the ends of the half-perches, and with two or more sets of holes, *e e*, as described, whereby the plate may be inverted for changing the adjustment of the bearing, as and for the purpose specified.

3. The combination, with the bearing *d*, provided with the conical or tapering portion *e*, and straight portion *j*, of the two half-perches, E E, resting thereon and connected by a rule-joint, as shown and described, and for the purpose specified.

4. The combination, with the countersunk shackle I and spring-eye C', of the half-links K K, constructed with the hollow case-hardened bearing-cones *l l*, at opposite ends, entering the countersinks of the shackle and spring-eye, and secured by the bolts *m m* and nuts *n n*, the whole forming a double-jointed shackle-coupling, as shown and described, and for the purpose specified.

5. The combination, with the side bar D and spring C, of the adjusting-plate L, fitted at one end between the side bar and spring, and attached at the other end to the under side of the side bar, as shown and described, and for the purpose specified.

6. The adjusting-plate L, constructed with the lug *p* at one end, for bolting the same to the inside of the side bar, and with two or more holes, *r r*, at the other end, for bolting to the bottom of the spring-bar, as shown and described, and for the purpose specified.

185,993. RUNNING-GEARS FOR VEHICLES. Eugene D. Weller, Lima, N. Y. [Filed June 6, 1876.]

1. The irons F and plates G, formed separately and connected by rivets *b b*, the said plates being provided with bearings for the connecting of the ends of the half-perches, as shown and described, and for the purpose specified.

2. The plates G, constructed with the series of outstanding case-hardened bearings *e e*, arranged in sets one above another, to allow adjustment of the half-perches higher or lower thereon, those on each side being concentric, or approximately so, with the axle and bolster, as shown and described, and for the purpose specified.

3. The combination, with the bearings *e* and half-perches E, fitting thereon, of the springs *s*, resting in sockets of the perches, the slotted follower-plates H, resting against the springs, and the bolts *g*, securing the parts together, as and for the purpose specified.

4. The combination, with the shackle I, provided with the inclosed slots *l l*, of the hollow case-hardened slides K K, constructed with cones which fit in the countersunk sockets of the spring-eye, and with square solid heads *m*, which rest and have a free movement in the slots *l l*, the whole secured by the bolt L and nut *s*, as shown and described, and for the purpose specified.

5. The solid spring-eye C', formed by bending the thin end of the steel around a solid iron center piece and welding it in place, then boring and countersinking the iron center to receive the bolt and cones, as shown and described, and for the purpose specified.

6. In a side-spring carriage, the combination, with the carriage-body, and with the running-gear connected with the side springs, of the check-strap M, attached at the upper end to the body, and at the lower end to the running-gear, and at a point more or less remote from the cross-center of the springs, whereby said check-strap serves as a stay between parts that have simultaneous vibrations in the same direction, as shown and described, and for the purpose specified.

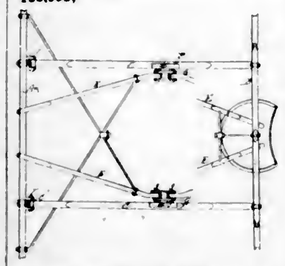
7. The check-strap consisting of the strap M, swiveled eyebolt *q*, and double-eyed nut N, capable of adjustment up and down upon the screw *o* without twisting the strap, as and for the purpose specified.

8. The adjustable bearing, consisting of the fixed shank I'', attached to the side bar, and the follower I'', moving up and down within the shank, as herein shown and described, and for the purpose specified.

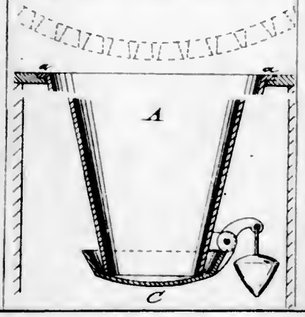
9. The combination, with the side bar D and spring C, of the adjustable bearing P, constructed with a packing at the bottom, for the purpose of extending the bearing of the side bar upon the spring at any desired degree of depression, as herein described.

10. The combination, with the adjustable bearing P, of the packings *y z*, one attached at the lower end of the adjusting portion to break the shock upon the spring, and the other attached in its side, resting within the hollow shank of the bearing, as and for the purpose specified.

185,995.



185,994. SEWER-TRAPS. F. B. Wells, Montreal, Quebec, Canada. [Filed Oct. 30, 1876.]



A sewer gas trap, consisting of tapered tube A, having flange *a*, rabbeted ring plate B, and automatic seal-valve C, all constructed and arranged substantially as shown and described.

185,995. FASTENINGS FOR TRAVELING-BAGS. Jas. H. White, New York, N. Y., assignor to Manhattan Brass Company, same place. [Filed June 19, 1876.]



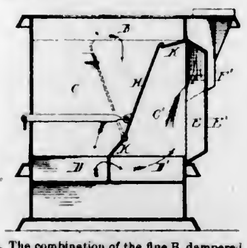
The bag-fastening composed of the hook r, circular axis *o*, circular stop-flange *s* at the end of the axis, the stops *u*, and plate *e*, provided with a slot for the reception of the stop-flange *s*, substantially as set forth.

185,996. HEEL-STIFFENERS. Wm. H. Williams, Brandon, Vt. [Filed Nov. 9, 1876.]



A heel-stiffener consisting of the metallic plate A, having roughened interior surface *d*, spur *a*, and screw-hole *b*, substantially as and for the purposes herein set forth.

185,997. COOKING STOVES OR RANGES. A. C. Williams, Albany, N. Y., assignor to J. S. Perry, trustee and executor, N. B. Perry, and A. Dickey, same place. [Filed Apr. 29, 1876.]



1. The combination of the flue B, dampered opening and damper H, and flue C'.

2. The combination of the flues C and C' with the inclined partition K and its damper H.

3. The combination of the flue C' with the flues E and F, inclosing the rear plate of the oven, as and for the purpose described.

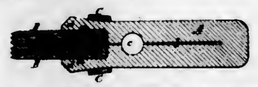
4. The combination of the flue C, dampered opening and damper H, and flues E and F.

185,998. PROCESSES FOR LEACHING COAL-ASHES. T. H. Wrede, Covington, Ky. [Filed Nov. 24, 1875.]

An alkaline compound composed of the salts of soda combined with the salts of coal-ashes, substantially as herein set forth.

185,999. HAMMERS FOR DRESSING STONE. J. Hartnoll, Mason, N. H., assignor to A. McDonald, Belmont, Mass. [Filed Dec. 28, 1876.]

Brief.—The collar is driven upon the tapering portion of the jaws, to compress and hold the chisels, which are distended at their rear ends by means of the wedge.



1. The stone-dressing hammer-head A, provided with the slit *b*, and the tapering recess *c*, and jaws *d d*, as set forth.

2. The stone-dressing hammer-head A, provided with the slit *b*, the tapering recess *c*, and jaws *d d*, and the collar C, applied to such head, as set forth.

3. The stone-dressing hammer-head, provided with the slit *b*, and the tapering recess *c*, the wedge D, and the series of chisels B, arranged as set forth.

4. The stone-dressing hammer-head A, provided with the slit *b*, the tapering recess *c*, and jaws *d d*, the series of chisels B, and the wedge D, arranged as set forth.

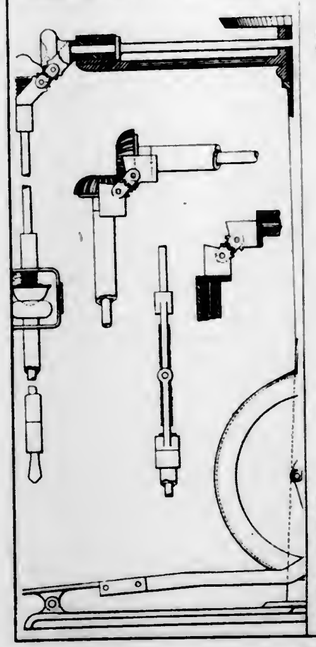
5. The stone-dressing hammer-head A, provided with the slit *b*, the tapering recess *c*, and jaws *d d*, the series of chisels B, the wedge D, and the collar C, arranged as set forth.

6. The stone-dressing hammer-head, recessed and slotted as described, and provided with the wedge, chisels, and bridge-piece, all being substantially as specified.

REISSUES.

7,469. DENTAL DRILLS. G. V. Black, Jacksonville, Ill., assignor, by mesne assignments, to S. S. White, Philadelphia, Pa. Patent No. 117,782, dated Aug. 8, 1871. [Filed Nov. 22, 1876.]

Brief.—The power is conveyed from one length of shaft to another by means of two oppositely-twisted coils of wire. The ends of the shaft-sections have their bearings in a jointed yoke, which is in the same plane.



7,482.



1. A driving-spring, constructed substantially as hereinbefore set forth, with its coils wound in opposite directions.

2. The combination, substantially as hereinbefore set forth, of the driving-shaft composed of rigid sections united by a coiled spring, and the jointed yokes in which the shaft-sections have their bearings, the joints of the yokes being in the same plane as the spring, to allow both spring and yoke to flex without varying the length of the shaft.

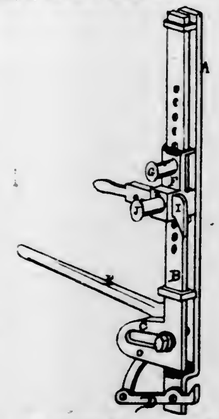
3. The combination, substantially as hereinbefore set forth, of the hollow post, the belt-connections passing therethrough, and a line-shaft mounted upon said post.

4. A tool-tray or table, mounted on the upright post of a dental engine, for the purposes set forth.

5. The dental engine hereinbefore described, consisting of the combination of a base, a treadle, a hollow post mounted on said base, belt-connections passing through said post, a turning cap on said post, a shaft mounted on an arm projecting from said cap, and a universal-jointed driving-shaft connected with said arm.

7,483. SAW-MILL DOGS. T. Craney, Bay City, Mich. Patent No. 150,634, dated May 5, 1874. [Filed Aug. 18, 1875.]

Brief.—The upper dog is adjustable, and both dogs are driven into the log simultaneously by the action of the lever.



1. The combination, with the standard A, of the vertically-moving dog-bar B, the head F, sliding vertically upon the said dog-bar, and the dog I, adjusted horizontally in the said head, substantially as described and shown.

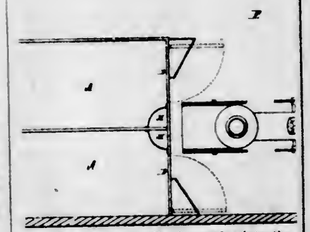
2. The combination, with the standard A, of the vertically-moving dog-bar B, the adjustable dog I, the lower dog D, and the lever E, pivoted to the standard, and operating both the said dog-bar and lower dog, substantially as described and shown.

3. The combination of the dog-bar B, sliding head F, and spring-bolts G J with the adjustable dog I, substantially as set forth.

4. The combination of the dog-bar B, head F, dog I, and spring-bolts G J with the lever E, connecting bar *d*, and dog D, substantially as and for the purposes set forth.

7,484. HORSE-STALLS FOR STEAM FIRE-ENGINE HOUSES. Wm. C. Davol, Jr., Fall River, Mass. Patent No. 144,068, dated Oct. 28, 1873. [Filed Nov. 13, 1876.]

Brief.—The stalls have mangers and doors in front, so that the horses can go to the engine without being backed out of the stalls.



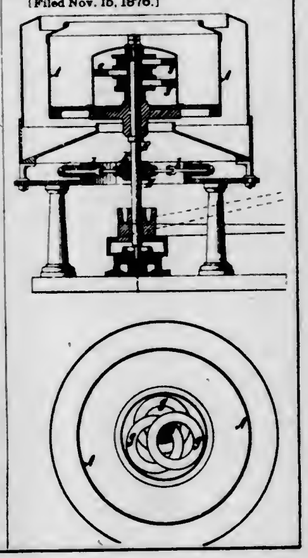
1. One or more stalls, A, opening into the carriage or engine room or space E, and having the manger M of each stall at the end thereof which is next the said room or space E.

2. One or more stalls, A, opening into the carriage or engine room E, and into a passage, B, in rear of such stall or stalls, and having the manger M of each or either stall arranged at that end of the stall which is next to such carriage or engine room.

3. One or more stalls, A, opening into the carriage-space or engine-room E, and provided with a door, D, to the opening *d*, and a manger, M, arranged at the door end of the stall, all substantially as set forth.

4. One or more stalls, A, open in rear into a passage, B, and in front into a carriage or engine room, E, and provided, at or near the front opening, with a door or a manger, or both, all being substantially as and for the purpose set forth.

7,485. CENTRIFUGAL MACHINES FOR DRAINING SUGAR, &c. A. Fesca, Berlin, Prussia. Patent No. 125,036, dated Mar. 26, 1872. [Filed Nov. 15, 1876.]

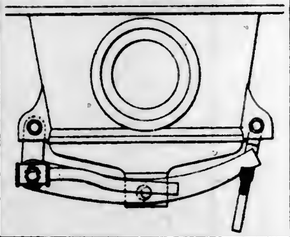


1. The combination of one or more loose rings, *g g*, with a spindle, B, of a centrifugal machine, substantially as shown and described.

2. A series of two or more rings, *g g*, hung upon the spindle B of a centrifugal machine, substantially as shown, in combination with devices for affording independent support, and separately administering a certain amount of friction to each one of the rings composing the said series.

7,456. GAS-RETORT-LID FASTENINGS. H. G. Morris, Philadelphia, Pa., assignor to H. Morris. Patent No. 178,320, dated June 6, 1876. [Filed Sept. 14, 1876.]

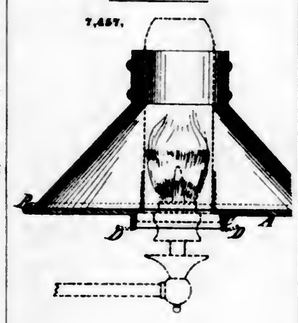
Brief.—The cross-bar, with its eccentric pin, and lever, pivoted to a hinge-piece, are reversible, so that they may be secured to and operated upon opposite sides of the mouth-piece of the retort. The swinging latch is also reversible. A flanged bushing is adapted to either eye of the forked cross-bar, to receive the eccentric pin on either side of the retort.



1. The combination of a fork-ended cross-bar, a pin provided with a clamping-lever and an eccentric, and a flanged bushing for the eccentric pin, substantially as set forth.

2. The combination of a retort mouth-piece, a hinge-piece, and a swinging catch, respectively pivoted thereto, a cross-bar pivoted to the retort-cover, and an eccentric pin and clamping-lever connecting the cover and hinge-piece, substantially as set forth.

7,457.



7,457. SHADES FOR GAS-LIGHTS. B. B. Bohnsidar, New York, N. Y., assignee, by mesne assignments, of J. McGlenney and E. Fullagar, administrators of W. Fullagar, deceased. Patent No. 103,865, dated June 7, 1870. [Filed Dec. 21, 1876.]

1. In a base for burners, composed of material allowing the passage of light, the tubular body to fit around the burner, and the laterally and outwardly projecting flange or base constructed in one piece, for the purpose set forth.

2. In a base for burners, composed of material allowing the passage of light, the tubular body C and outwardly-projecting flange or base A, constructed in one piece, in combination with a suitable support, D, substantially as and for the purpose set forth.

3. The bottom or base A, and the rim or flange B, formed in one piece, and of material allowing the passage of light, as and for the purpose specified.

4. In a shade-holder, formed of material allowing the passage of light, formed in one piece, and having the bottom or base A provided on the inside with neck or flange C, and on the outside with flange B, substantially as and for the purpose set forth.

5. In a base or shade holder for burners, composed of material allowing the passage of light, and formed in one piece, the neck C, base or bottom A, and rim or flange B, in combination with a burner and suitable support D, substantially as and for the purpose set forth.

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DECISIONS OF THE COURTS.

SUPREME COURT OF THE UNITED STATES.

JOHN DUNBAR AND JEREMIAH HOPPER, APPELLANTS, *vs.* MARGARET MYERS, EXECUTRIX, &C., AND EUGENE S. EUNSON.

Appeal from the Circuit Court of the United States for the Southern District of New York.—Decided October Term, 1876.]

A disclaimer properly made, attested, and recorded, becomes a part of the specification to the extent of the interest of those who make it, but will not affect any action pending at the time of its being filed, except as to unreasonable neglect or delay in filing it.

The disclaimer must be taken into account in construing the patent, except when its effect is to enlarge the nature of the invention and prejudice the rights of the respondent.

Matters properly disclaimed cease to be part of the invention, and render the patent the same as if such matters had never been included.

The question whether or not an alleged improvement is or is not patentable is, in an equity suit, a question for the court.

Invention or discovery constitutes the foundation of the right to obtain a patent, and nothing short of this will support it.

The degree of skill and ingenuity required in making or applying an alleged improvement must be more than are possessed by an ordinary mechanic acquainted with the business in order to constitute invention.

It appearing that one deflecting-plate, in combination with a circular saw, was old, and that it required only mechanical skill to apply one to the opposite side: *Held*, that the claim of the improvement described as the employment or use of two deflecting-plates, one placed on each side of the circular saw, for the purposes set forth in the specification, is void, because it does not constitute a patentable invention.

A patented combination is not infringed by a machine in which one of the ingredients is omitted.

Mr. Justice CLIFFORD delivered the opinion of the court.

Inventions, in order that the inventors may be entitled to patents for the same, must be new and useful, and the better opinion is that the improvement must be of such a character that it involved invention to make it, as the patent act confers no right to obtain a patent except to a person who has invented or discovered some new and useful art, machine, manufacture, or composition of matter, or some new and useful improvement in one or the other of those described subject-matters.

Sufficient appears to show that a patent in due form was granted to John Myers and Robert G. Eunson, on the 23d of May, 1854, for an alleged invention described in the specification as relating to certain new and useful improvements in machines for sawing lumber into thin stuff for the backs of mirrors and picture-frames, and other purposes for which thin stuff is used. Due application was subsequently made for an extension, and the record shows that the patent was regularly extended for the further term of seven years from the expiration of the first term.

Subsequent to the extension of the patent, one of the patentees, to wit, Robert G. Eunson, sold and assigned all his right, title, and interest in the same and the extension thereof to Eugene S. Eunson, one of the complainants who instituted the present suit in the court below. Pending the suit the other complainant departed this life, and Margaret Myers, his sole executrix, was duly admitted in his stead to prosecute the suit as co-complainant with the assignee of the other half-interest in the extended patent. Infringement is charged, and that the respondents have made large gains and profits by the unlawful use of the patented invention, and the complainants pray for an account and for an injunction.

Process having been issued and service made, the respondents appeared and filed an answer, in which they set up in substance and effect the following defenses: 1. That the invention is of no utility or value. 2. That the patentees are not the original and first inventors of the alleged improvement. 3. That the alleged improvement was well known and had been in public use long prior to the supposed invention by the patentees. 4. That knowledge of such prior public use was possessed by the several persons whose names and places of residences are set forth in the answer. 5. That the patented improvement, years before the application for the patent was executed, was fully described in the respective printed publications mentioned in the answer filed by the respondents.

Minute and accurate description of the patented machine is given in the drawings, and the specification divides the invention into four separate features, as follows: 1. That it consists in the employment or use of deflecting plates, (one or two,) placed at the sides of a circular saw for the purpose of enlarging or expanding

the saw-kerf to prevent the sawed stuff from coming in contact with the sides of the saw and binding the edge of the same near the teeth. Deflecting-plates of the kind also allow the saw to be stiffened by a proper plate, so that a thin veneer-saw may be employed, which will cause but a small waste of stuff in sawing. 2. That the invention consists in the employment or use of elastic clamps attached to the ordinary adjustable and elastic beds, between which the stuff is fed to the saw. Clamps of the kind have an elasticity independent of the beds, and compensate for the varying thickness of the different pieces of stuff to be sawed, by holding firmly the extreme end of the stuff and keeping it in proper position to the saw, however much the elastic bed may be expanded by a succeeding piece of stuff of greater thickness. 3. That the invention also consists in the employment or use of knives or cutters secured to the adjustable beds, and so arranged as to cut or smooth off the rough and projecting sides of the stuff at the ends, making it of uniform thickness. 4. That it also consists in the combination of an adjustable bed and circular saw, arranged as shown in the specification.

Such a machine necessarily requires a frame, and the patentees state that the frame of the machine described in the specification may be constructed in any proper manner, and that the circular saw is placed on a shaft which runs transversely across the front of the frame.

They employ a circular saw, made of thin steel plate, such as is used for sawing veneers, on one side of which is a circular plate secured by rivets or screws, the plate being less in diameter than the saw, which has the effect to stiffen the plate of the saw and to enable the operator to use a thinner saw than he would otherwise be able to do.

Two deflecting-plates are also employed by the patentees, one on each side of the saw—the one on the same side of the saw with the stiffening-plate covers the upper part of that plate, the outer end of which projects farther from the saw than the inner end, the deflecting-plate on the other side of the saw being of the same description, except that it is rather smaller in diameter and that it projects from the saw at about an equal distance at both ends. They are arranged one on each side of the saw, and are attached to the frame by means of bolts, rivets, or screws.

Two feed-roller beds are placed vertically in the back part of the frame parallel with each other, both of which are made adjustable by screw-rods which bear against the sides of the beds, the screw-rods of each bed being operated simultaneously by means of chains passing round small toothed wheels at the ends of the screw-rods.

Two cranks are also employed, one of which is attached to one of the toothed wheels of each bed. Lateral elasticity is given to the beds by means of india-rubber or other springs attached to them in a proper manner.

Four feed-rollers are employed, two of which are placed in each bed, and the specification states that the feed rollers project some distance beyond the inner edges of the beds. Clamps, two in number, are attached to the inner ends of the beds, and at the back part of each clamp there are two journals, one at the top and one at the bottom, fitted in boxes which work or slide in recesses in the top and bottom pieces of the beds.

Set-screws are also provided, which pass transversely through the top and bottom pieces of each bed, the inner ends of which bear against india-rubber springs placed directly back of the boxes.

There are two of these rubber springs at the top of the clamps, one to each clamp, and it appears that they are placed between the clamps and the set-screws passing transversely through the top pieces of the beds. Hence it follows that the clamps may be made to vibrate laterally; but it also appears that two stops are provided, which pass through the top pieces of the beds, one through each top piece, for the purpose of limiting and regulating the extent of such lateral vibration.

Knives or cutters are also provided, which are placed vertically, one in each bed, but it is unnecessary to enter in those details, as it is not pretended that the respondents have infringed the third claim of the patent.

Motion is given to the feed-rollers by gearing, which is shown in the drawings at the lower part of the rollers.

Means are also provided for adjusting the beds relatively to the saw, so that the boards or other lumber may be sawed into the desired thickness. Either side of the saw may be made the line side in the operation of sawing by the adjustment of the proper roller-bed so as to prevent expansion or contraction.

Stuff to be sawed, whatever it may be, is placed between the feed-rollers in the beds, and motion being communicated to the saw and rollers, the stuff is fed forward toward the saw and is cut by it, the two pieces being prevented from bearing against the sides of the saw by means of deflecting-plates. When the outer end of the material to be sawed has passed the inner feed-roller, the clamps bear against the board and hold it in a proper relative position to the saw, so that if another board to be sawed is placed between the feed-rollers it will advance and press forward the board first placed between the rollers, and if the last board is thicker than the preceding one the only effect is that it acts upon the beds and forces the elastic one farther from the permanent one without affecting the clamps, which, owing to the springs, have an independent elasticity.

Tested by the example given in the specification, as illustrating the mode of operation, it is plain that either side of the saw may be made the line side in the practical working of the machine. In the example put by the patentees, they assume that the roller-bed in line with the deflecting-plate, which is on the same side of the saw as the stiffening-plate, is permanently fixed at one-quarter of an inch from the side of the saw, and that, the opposite bed being elastic, the side of the saw on which the thin strip passes is the line side during the operation of sawing, but the patentees state that the opposite side of the saw may be made the line side by permanently fixing the opposite roller-bed, and by allowing the other one to remain elastic, and that by these improvements they are enabled to use a thin veneer saw, and to keep the stuff to be sawed in a proper relation to the saw, even when varying in thickness.

Three of the claims of the patent, it is charged, are infringed by the respondents, to wit, the first, second, and fourth. They are as follows:

1. The employment or use of the deflecting-plates, one or both placed at the sides of the saw, as shown, for the purpose of preventing the sawed stuff from bearing against the sides of the saw and expanding the saw-kerf, and also for the purpose of allowing a thin veneer-saw to be stiffened by plates, one or two, as desired.

They claim—

2. The employment or use of the clamps arranged as shown, or in any equivalent way, so that they may have a lateral elastic movement independent of the roller-beds, to which the clamps are attached, for the purpose of compensating for the varying thickness of different pieces of stuff, and to keep the same in a proper relative position to the saw.

They also claim—

4. The employment of an adjustable bed with clamps, as described, in combination with the saw when the saw has a stiffening-plate in line with the adjustable bed, by which the stiffened or rounded side of the saw is made the line side of the same for practical operation.

Prior to the hearing the complainants filed a petition in the Patent Office, in which they state that the patentees, through inadvertence, accident, and mistake, and without any fraudulent or deceptive intention, claimed more in their specification than that of which they were the original inventors. Pursuant to that petition they were permitted to enter a disclaimer in two respects: (1.) To amend the first claim by striking out the words "one or" before the word both, so that the claim includes *only* the employment and use of the saw with both of the deflecting-plates when both of the plates are used at one and the same time, in the manner and for the purposes described. (2.) They also made a corresponding amendment in the specification, limiting the description of the invention to the employment of the two deflecting-plates placed at the sides of the circular saw, disclaiming the use of one plate *only* for the purposes set forth in the specification.

Proofs were taken, and, both parties having been heard, the court entered a decretal order in favor of the complainants and referred the cause to a master. One report was made by the master, to which both parties excepted, but the court overruled the exceptions, and having confirmed the report, entered a final decree in favor of the complainants for the sum of nine thousand one hundred and twenty dollars and ninety-four cents, being the gains and profits made by the respondents, as ascertained by the master. Both parties appealed to this court.

Eight errors are assigned by the respondents, two of which only will be examined: (1.) That the court erred in holding that there was invention in using two deflecting-plates when the use of one was well known. (2.) That the court erred in holding that the respondents infringed the letters patent granted to the complainants.

Viewed in the light of the disclaimer it is clear that the first claim of the patent is for the employment or use of two deflecting-plates, one being placed on each side of the saw, for the purpose of preventing the sawed stuff from bearing against the sides of the saw and to allow a thin veneer-saw to be stiffened by the plate employed or used for that purpose; and it is equally clear that the employment or use of one deflecting-plate for the purpose was well known and in public use long before the original patentees in this case applied for a patent.

Conclusive evidence to support that proposition is found in the disclaimer filed by the complainants pending the suit, in addition to the other evidence in the case, which is abundantly sufficient to establish the proposition, even without the disclaimer. Authority to make such a disclaimer is beyond question, if it be made in writing, and is duly attested and recorded in the Patent Office. When so made, attested, and recorded, it becomes a part of the original specification to the extent of the interest of those who make it; but the provision is that it shall not affect any action pending at the time of its being filed, except so far as may relate to the question of unreasonable neglect or delay in filing it. (16 Stat. at Large, 206; Rev. Stat., sec. 4917.)

Pending suits may proceed, but the disclaimer, when recorded, becomes a part of the original specification, and must be taken into account in construing the patent, and in ascertaining the rights of the parties to the suit, unless it appears that the effect of the disclaimer is to enlarge the nature of the invention and prejudice the rights of the respondents. (*Perry* vs. *Skinner*, 1 Webster, P. C., 253; *Ralston* vs. *Smith*, 9 C. B., N. S., 145; same case, 11 C. B., N. S., 474; *Smith* vs. *Nichols*, 21 Wall., 117.)

Where the effect of the disclaimer is to diminish the claims of the patent without prejudicing the rights of the respondent, the suit may proceed, notwithstanding the disclaimer, it being held that the disclaimer under such circumstances does not affect the pending suit, except to limit and qualify the claims of the patent, and in respect to the question of unreasonable neglect or delay in filing the same. Unreasonable delay not having been suggested, the only effect of the disclaimer in such a case is to limit the nature of the invention secured by the patent, and to diminish the claims of the patent as set forth in the specification. *Guyon* vs. *Serrell*, (1 Blatch., 245.) *Hall* vs. *Wiles*, (2 Blatch., 198.)

Matters properly disclaimed cease to be a part of the invention, and it follows that the construction of the patent must be the same as it would be if such matters had never been included in the description of the invention or the claims of the specification. (16 Stat. at Large, 206.) *Seed* vs. *Higgins*, (8 Ell. & Bl., 767.) *Higgins* vs. *Seed*, (8 Id., 763.) *O'Reilly* vs. *Morse*, (15 How., 121.) *Taylor* vs. *Archer*, (8 Blatch., 317.)

Tested by these considerations it is clear that the first claim of the patent is for the employment or use of two deflecting-plates, one placed on each side of the saw, for the purposes therein set forth and described. Circular plates attached to circular saws, secured by rivets or screws, for the purpose of strengthening the central portion of the saw-plate, and sometimes called stiffening-plates, are old devices, which have been known to the operators of the circular saw ever since the circular saw came into general use for sawing shingles, laths, and clapboards. Nor is any argument necessary to show that the employment of one deflecting-plate covering the upper part of the stiffening-plate on the same side of the circular saw is old, as that is proved by the evidence, conceded in argument, and alleged in the disclaimer filed by the complainants.

Concede that, and still it is insisted by the complainants that they employ or use two deflecting-plates, one placed on each side of the saw, and that the employment or use of the additional deflecting-plate on the opposite side of the saw is a new and useful improvement in the operation of the machine, for which the patentees whom they represent were justly entitled to the patent set forth in the bill of complaint.

Operators of machines for sawing lumber, whether

with circular or vertical saws, have long known that some means were useful if not absolutely necessary to spread the two parts of the lumber behind the saw, so as to prevent the lumber as sawed from binding against the two faces of the saw to such an extent as to endanger the saw and impede the progress of the work without an increase of the motive power. Wedges in early times were used by the operator to accomplish the object, and various other devices were employed before the deflecting-plate came into use, which it seems has had the effect to supersede all other devices previously known to effect the described function. Such machines for sawing lumber, constructed with one deflecting plate, were well known and in general use years before the patentees in this case made their application for a patent, and the evidence satisfies the court that for most purposes the machine will operate as well and as successfully with one deflecting-plate as with two. Two deflecting-plates may be better than one where it is desired to split thin stuff into two parts of equal thickness, as in that case the saw kerf may be enlarged by deflecting the stuff on each side of the saw.

Grant that two such plates are in certain cases better than one used alone, still the question arises whether it involves any invention to add the second plate to a machine already constructed with one plate. Beyond doubt, every operator who had used a machine having one deflecting-plate knew full well what the function was that the deflecting-plate was designed to accomplish, and the reasons for placing it at the side of the saw are obvious to the understanding of every one who ever witnessed the operation of a circular saw. Ordinary mechanics know how to use bolts, rivets, and screws, and it is obvious that any one knowing how to use such devices would know how to arrange a deflecting-plate at one side of a circular saw which had such a device properly arranged on the other side, it being conceded that both deflecting plates are constructed and arranged precisely alike, except that one is placed on one side of the saw and the other on the opposite side. Both are attached to the frame in the same manner; nor is it shown, either in the specification or drawings, that there is anything peculiar in the means employed for arranging the deflecting-plates at the sides of the saw, or in attaching the same to the frame. Both are alike, except that the outer end of the one on the same side as the strengthening-plate projects farther from the saw than the inner end, and that the other is rather smaller in diameter, and that the ends project about an equal distance from the saw.

Expert witnesses were examined upon the point whether it required invention to attach a second deflecting-plate to such a machine, and one of the most intelligent and learned of his class testified to the effect that the deflecting-plate, on one side of the complainants' machine, performs precisely the same duty as the plate upon the other side of the saw, and that it required no invention to apply a second plate in such a case to perform exactly the same duty as the one previously applied on the opposite side of the saw; that such second application is a mere duplication of the first; and he supports his conclusion by apt examples, which are both persuasive and convincing.

Persons seeking redress for the unlawful use of letters patent must allege and prove that they, or those under whom they claim, are the original and first inventors of the alleged improvement, and that the letters patent have been infringed by the party against whom the suit is brought. *Prima facie* support to the first requirement is derived from the patent, if it is introduced in evidence and is in due form, provided the alleged improvement is one which in its nature is patentable. Evidence to overcome that presumption, however, is always admissible, if due notice is given by the opposite party, as required by law, and the question is now well settled that the question whether the alleged improvement is or is not patentable is, in an equity suit, a question for the court.

Applicants for a patent are required to file in the Patent Office a written description of their invention and of the manner and process of making, constructing, and using the same, in such full, clear, concise, and exact terms as to enable any person skilled in the art or science to make, construct, and use the patented improvement. Rights of the kind are given *only* to inventors or discoverers of some new and useful art, machine, manufacture, or composition of matter, or some new and useful improvement thereof, and the law is well settled that nothing short of invention or discovery will support a patent for any such alleged new and useful improvement.

Certain other important conditions are also annexed to the exercise of the right to obtain such a muniment of title for such an invention or discovery; as, for example, the improvement must not only be new and useful, but it must be one not known or used by others in this country, and not patented or described before the invention or discovery in any printed publication in this or any foreign country, and must not have been in public use or on sale for more than two years prior to the application for the patent. (16 Stats. at Large, 201.) *Collar Co.* vs. *Van Dusen*, (23 Wall., 563.)

Invention or discovery is the requirement which constitutes the foundation of the right to obtain a patent, and it was decided by this court, more than a quarter of a century ago, that unless more ingenuity and skill were required in making or applying the said improvement than are possessed by an ordinary mechanic acquainted with the business, there is an absence of that degree of skill and ingenuity which constitute the essential elements of every invention. *Hotchkiss* vs. *Greenwood*, (11 How., 267.)

Ten years later a case came before this court in which the plaintiff claimed certain improvements in the construction of a machine for sawing lumber with the circular saw, including the manner of affixing and guiding the saw by allowing end play to its shaft, in combination with the means of guiding the devices by friction-rollers and other appliances. Mills for sawing logs with a circular saw had been well known long before the supposed invention, and in construing the claim of the patent this court said that the claim is for the precise organization of the old machine, namely, the manner of affixing and guiding the circular saw by allowing end play to its shaft, in combination with the means of guiding it by friction-rollers, so as to leave the center entirely unchecked, adding that there is nothing new in the combination, and assigning as the reason for the conclusion that the improvement had long been known and used in the circular saw for sawing timber of smaller dimensions than ordinary sawlogs.

Enough appears to show that the machine in that case was larger than those of the kind which had preceded it, but the court remarked that that circumstance did not afford any ground in the sense of the patent law for a patent, for the reason that the ordinary mechanic was doing the same thing every day in making a working machine from the patent model.

In order to reach invention, say the court in that case, the patentee must carry his improvement further; he must contrive the means of adapting the enlarged old organization to the new use, namely, the sawing of saw-logs, and claim, not the old parts, but the new devices by which he has produced the new results *Phillips* vs. *Page*, (24 How., 167.)

Decisions by this court of later date have been made to the same effect; as, for example, the court decided that the claim of the patentee for making the cases of door-locks and latches double-faced or so finished that either side of the case may be used for the outside, in order that the same lock or cased fastening may answer for a right or left hand door, was void, because the patentee did not show that he was the original and first inventor of the improvement, and intimated very strongly that the making of such a case, with two faces just alike and so finished off in point of style that either side was fit to be presented outward, was not a matter which could be patented, even if no locks with such cases had ever before been made. *Jones* vs. *Morehead*, (1 Wall., 162.)

Patented improvements which are not new and useful, or which did not require any invention or discovery to make the same as compared with what existed or was in use before, may be declared invalid by the court in an equity suit. *Stimpson* vs. *Woodman*, (10 Id., 121.)

Mere change in a machine of one material for another, as wood or wood strengthened with iron for iron alone, is not invention in the sense of the patent act, and therefore is not the subject of a patent. *Hicks* vs. *Kelsey*, (18 Id., 670.)

Old processes are sometimes applied to new subjects, and where that was so, in a case which did not require the exercise of the inventive faculty and without the development of any idea which could be deemed new or original in the sense of the patent law, it was held that the supposed improvement was not the subject of a patent, and that courts of justice may take judicial notice of a thing in the common knowledge and use of the people throughout the country. *Brown* vs. *Piper*, (1 Otto, 38.)

Proof of the state of the art is admissible in equity cases without any averment in the answer touching the subject, and in actions at law without giving the notice required when evidence is offered to invalidate the patent. It consists of proof of what was old and in general use at the time of the alleged invention; and may be admitted to show what was then old, or to distinguish what is new, or to aid the court in the construction of the patent.

Meritorious inventors are entitled to protection, but it is settled law that a mere carrying forward of an original patented conception involving only change of form, proportions, or degree, or the substitution of equivalents, doing the same thing as the original invention by substantially the same means, is not such an invention as will sustain a patent, even though the changes of the kind may produce better results. *Smith* vs. *Nichols*, (21 Wall., 115.)

Effective support to the proposition that nothing but invention or discovery will entitle an applicant to a patent is also found in the reported decisions of the circuit courts, as appears from the following citations. Judge Story held, many years ago, that the mere application of an old process, machine, or device to a new use was not patentable; that there must be some new process or some new machinery to produce the result in order that the supposed inventor may properly have a patent for the alleged improvement. (*Howe* vs. *Abbot*, (2 Story, 194;) *Bean* vs. *Smallwood*, (2 Id., 411;) *Glue Co.* vs. *Upton*, (6 OFFICIAL GAZETTE, 842; 7 Id., 648.)

Conclusive support to the proposition that an applicant for a patent is not entitled to the public protection unless the supposed improvement involves actual invention or discovery is found in the oft-repeated decisions of all the English courts having jurisdiction in such cases, and it is safe to remark that the courts of that country apply the rule more readily, and with a much closer scrutiny, than do the courts of this country exercising the like jurisdiction. (*Ralston* vs. *Smith*, 11 Cl. & Fin. 255; *Harwood* vs *Railway Co.*, 11 Id., 667; *Jordan* vs. *Moore*, Law Rep., 1 C. P., 635; *Kay* vs. *Marshall*, 8 Cl. & Fin., 261; *Rush* vs. *Fox* 5 Cl. & Fin. 715; *Tetley* vs. *Easton*, 2 C. V., N. S., 739; *Horton* vs. *Mason*, 12 C. B., N. S., 450; *Ormson* vs. *Clark*, 14 Id., 490; *Parker* vs. *Stevens*, Law Rep., 8 Equity, 367; same case, Law Rep., 5 Chan. Apps., 39; *Envelope Co* vs. *Seymer*, 5 C. B., N. S., 173; *White* vs. *Toms*, 17 Law Times, N. S., 319; *Ralston* vs. *Smith*, 11 C. B., N. S., 474; *Ormson* vs. *Clarke*, 13 C. B., N. S., 339; *Ralston* vs. *Smith*, 9 Id., 144; *Saunders* vs. *Aston*, 3 Barn. & Ad., 885; *Seed* vs. *Higgins*, 8 Ell. & Bl. 755.)

For these reasons we are all of the opinion that the claim of the improvement described as the employment or use of two deflecting plates, one placed on each side of the circular saw, for the purposes set forth in this specification, is void, because it does not constitute a patentable invention.

Suppose that is so, still it is insisted by the complainants that the decree of the circuit court should be affirmed in respect to the second and fourth claims of the patent.

Clamps are employed or used by the complainants, arranged as shown, so as to have a lateral elastic movement, independent of the roller-beds to which the clamps are attached, for the purposes set forth in the second claim. Admit that the claim is a valid one, still it is insisted by the respondents that they do not infringe that part of the patented invention, and consequently that the decree of the circuit court should be reversed.

Four adjustable feed-rollers are shown in the machine of the respondents, and in front of them there is a pair of clamps, of peculiar construction, the object and only practical effect of which, it seems, is to hold the upper edge of the stuff to be sawed in proper position while it is in contact with the saw. Evidently they differ in form, method of attachment, purpose, and use from those described in the specification of the complainants. Instead of that the clamps described in the complainants' patent are attached to the inner ends of the roller-beds, so that there are two journals at the back part of each clamp, which fit in boxes and work or slide in recesses in the top and bottom pieces of the roller-beds.

To that it may be added that the action of the clamps in the complainants' machine is governed by the set-screws, which bear against rubber springs back of the boxes, the distance of the lateral vibration of the clamps being regulated by the stops, which are arranged to pass through the top pieces, the object of the arrangement being to give the clamps the ability to have a lateral elasticity and vibratory movement independent of the roller-beds, for the purpose, as stated in the claim, of compensating for the varying thickness of the different pieces of stuff, and to keep the stuff to be sawed in a proper relative position to the saw.

Competent experts testify that the clamps in the machine used by the respondents have no lateral elastic or vibratory motion independent of the roller-beds, and that they cannot perform the functions of the clamps described and claimed in the patent set forth in the bill of complaint, and the court is of the opinion, from an examination of the models exhibited, that the testimony of the expert is correct.

Keeping in view what has already been remarked, a few additional observations will be sufficient to dispose of the questions arising under the fourth claim of the specification, in which the complainants claim the employment of an adjustable bed, with clamps as described, in combination with the saw, when the saw has a stiffening-plate in line with the adjustable bed, by which the stiffened or rounded side of the saw is made the line side.

Taken as it reads, the fourth claim does not include a deflecting-plate, and only a stiffening-plate on one side of the saw, and, if not, it is difficult to see how the devices claimed in the combination will permit the stiffened or rounded side of the saw to be made the line side unless the deflecting-plate is added to the claimed combination. Add the deflecting-plate to the combination, and it is quite clear that the claim may include parts sufficient to be operative; but when such stiffened side is thus made the line side, and the clamps embrace the saw, as described, it is quite essential that the clamp on the line side should have a lateral elasticity with respect to the bed, and also the described swinging motion. Neither the clamp on the line side or the one on the opposite side in the respondents' machine have any lateral elasticity with respect to the roller-bed, or a swinging motion, and the one on the line side of the saw has no lateral motion whatever when the machine is in operation.

Differences of opinion may possibly exist upon that topic, but all must agree that the claimed combination includes the clamps, and that infringement is not proved unless it appears that the respondents use the entire combination. Having already decided that the respondents do not use the clamps of the complainants, it is unnecessary to pursue the inquiry, except to say that it is settled law that where the respondent in constructing his machine omits one of the ingredients of the complainant's combination he does not infringe the complainant's patent. (*Gould* vs. *Rees*, 15 Wall., 194; *Prouty* vs. *Ruggles*, 16 Pet., 341; *Vance* vs. *Campbell*, 1 Black, 427; *Gill* vs. *Wells*, 22 Wall. 28.)

Suffice it to remark that, in view of these conclusions,

it becomes unnecessary to examine the errors assigned in respect to the rule of damages.

Decree reversed, and the cause remanded with directions to enter a decree dismissing the bill of complaint.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date January 9, 1877.]

9,692.—Fan.—WILLIAM C. MACBRAIR, Cincinnati, Ohio. Application filed June 23, 1876. Term of patent 3½ years.

9,693 to 9,698, inclusive.—Oil-Cloth.—CHARLES T. MEYER and VICTOR E. MEYER, Bergen, N. J., assignors to EDWARD C. SAMPSON, New York, N. Y. Applications filed December 22, 1876. Term of patents 3½ years.

9,699.—Carpets.—THOMAS J. STEARNS, Boston, Mass., assignor to ROXBURY CARPET COMPANY, same place. Application filed December 15, 1876. Term of patent 3½ years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date January 9, 1877.]

4,256.—Medical Preparation.—E. F. BRUSH & Co., Paterson, N. J., and New York, N. Y. Application filed November 29, 1876.

"The word-symbol 'KUMYSS,' and the representation of the animal."

4,257.—Medical Compound.—ALFRED G. CATRON, Chattanooga, Tenn. Application filed December 4, 1876.

"The words 'THE EUREKA,' and the representation of the sun and its rays, and the words which appear within the representation of the sun's rays."

4,258.—Bale-Ties and Materials.—LAUGHLAND & Co., New York, N. Y. Application filed December 14, 1876.

"The symbol 'S X.'"

4,259.—Pins.—OAKVILLE COMPANY, Waterbury, Conn. Application filed December 20, 1876.

"The representation of an oak tree."

4,260.—Medical Compound.—JOHN D. PARK, Covington, Ky. Application filed December 28, 1876.

"The words 'Dr. Guysott's,' and a pictorial illustration representing a standing Indian presenting a seated white man with a handful of herbs."

4,261.—Medical Compound.—JOHN D. PARK, Covington, Ky. Application filed December 28, 1876.

"The words 'Dr. Wistar's,' and a pictorial illustration, representing a wild-cherry tree, with a male figure seated at the foot thereof, and a male and a female figure standing under the branches."

4,262.—Aluminous Compounds.—C. W. ROGERS & Co., Philadelphia, Pa. Application filed November 25, 1876.

"The word-symbol 'ELEPHANT.'"

4,263.—Dentifrices.—STEELE & PRICE, Chicago, Ill., Cincinnati, Ohio, and St. Louis, Mo. Application filed December 16, 1876.

"The word-symbol 'TOOTHENE.'"

4,264.—Canned and Preserved Fruits and Vegetables.—STEVENS & GROOM, San José, Cal. Application filed October 16, 1876.

"The Golden Gate, the words 'The Golden Gate Packing Co.,' and the name of the firm of 'Stevens & Groom.'"

4,265.—Brushes.—JOHN L. WHITING, Boston, Mass. Application filed October 26, 1876.

"The word-symbol 'KING.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date January 9, 1877.]

940.—Title: **"Gaff, Fleischmann & Co.'s Compressed Yeast."**—GAFF, FLEISCHMANN & Co., Cincinnati, Ohio. Application filed January 2, 1877.

941.—Title: **"Sweet Tar Drops."**—HENRY GOSLING, San Francisco, Cal. Application filed December 15, 1876.

942.—Title: **"By Appointment."**—JOHN D. PARK, Covington, Ky. Application filed December 28, 1876.

943.—Title: **"John D. Park is the sole Manufacturer of this Delightful and Palatable Gin, &c."**—JOHN D. PARK, Covington, Ky. Application filed December 28, 1876.

944.—Title: **"Improved Extract of Yellow Dock and Sarsaparilla."**—JOHN D. PARK, Covington, Ky. Application filed December 28, 1876.

944.—Title: **"Balsam of Wild Cherry."**—JOHN D. PARK, Covington, Ky. Application filed December 28, 1876.

DISCLAIMER FILED.

5,894.—Improvement in Stoves.—JOSEPHINE M. FROST and WILLIAM A. HUNT, executors of CHAS. H. FROST, deceased, assignors, by mesne assignments, to JOHN S. PERRY, Albany, N. Y. Patented July 30, 1867. Reissued June 2, 1874. Disclaimer filed January 15, 1877, by JOHN S. PERRY, trustee and executor, NATHAN B. PERRY, and ANDREW DICKEY. Disclaim, first, the 2d, 3d, and 9th clauses of claim, which are in words as follows:

2. A grate or fire-bed, with or without its outer walls flaring upward, placed in a plane below the base of the fire-pot or combustion-chamber proper, so as to form an open free space between the two, within the draft-chamber base-section, and isolated from the walls of the same, substantially as shown and described.

3. A grate or fire-bed, with or without its outer walls flaring upward, of larger diameter or area than the inside diameter or area of the base of the fire-pot or combustion-chamber proper, placed in a plane below the said base, and within the exterior walls of the draft-chamber base-section, and isolated from the same, substantially as shown and described.

9. A draft and flame space between the top surface of a grate or fire-bed and the base of a fire-pot or combustion-chamber proper within the draft-chamber base-section, substantially as shown and described.

Second, the corresponding parts of the statement of invention, as contained in the body of the specification, which are in terms as follows:

Second, a grate or fire-bed, placed in a plane below the base of the fire-pot or combustion-chamber proper, so as to form an open free space between the two, within the draft-chamber base-section, and isolated from the walls of the same.

Third, a grate or fire-bed of larger diameter or area than the inside diameter or area of the fire-pot or combustion-chamber proper, placed in a plane below the said base, and within the exterior walls of the draft-chamber base-section, and isolated from the same.

Thirteenth, an open free space all around, beneath, and above a grate or fire-bed within the draft-chamber base-section.

Fourteenth a draft and flame space between the top surface of a grate or fire-bed and the base of a fire-pot or combustion-chamber proper, within the draft-chamber base-section.

Fifteenth, the combination of a fire-pot or combustion-chamber proper, a grate or fire-bed, and a draft-chamber base-section, whereby the air which promotes combustion circulates freely beneath the said grate or fire-bed, around its periphery, and over its top within the said draft-chamber base-section, thereby increasing the facility for producing combustion, protecting the grate or fire-bed against the action of the fire, and thus insuring its greater durability.

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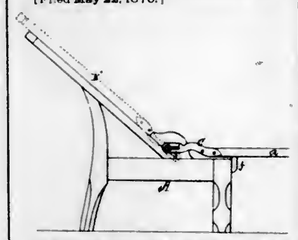
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TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED JANUARY 9, 1877.

186,000. FOLDING FOOT-RESTS FOR CHAIRS. Michael Brennan, East Cambridge, Mass. [Filed May 22, 1876.]



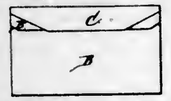
1. In combination with a chair frame, A, the leg-rest B applied to such frame, so as to be capable of being turned from or about a horizontal position up against the back of the said frame or the chair, all as specified.

2. In combination with the chair-frame A and the leg-rest B applied to such frame, so as to be capable of being turned from or about a horizontal position up against the back of the chair or frame, as explained, one or more standards or stops, *f*, projecting up from, or so arranged with, the frame as to support, when it may be down the leg-rest, at an altitude to keep it out of contact with, and from wearing, the cushion-seat or the upholstered part thereof of the chair.

3. In combination with the chair-frame A, the leg-rest B applied thereto, so as not only to be capable of being turned upward against the back, but of being, when down, capable of being moved more or less outward or inward, so as to adjust its cross-bar nearer to, or farther from, the chair-frame, all being essentially as specified.

186,001. POSTAL CIRCULARS. J. Chapman, Dubuque, Iowa. [Filed Nov. 23, 1876.]

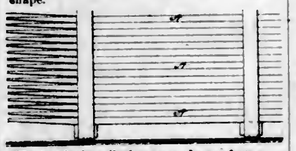
Brief.—The blank is provided with a tuck-pocket, into which its tongue is folded. The printed matter is protected from exposure, and official inspection facilitated.



A postal circular, consisting of the parts A, B, and C, the back B being provided with a supplementary fold, B′, which is turned back and pasted down at its ends, and the flap C having a fastening-tongue, C′, substantially as and for the purposes described.

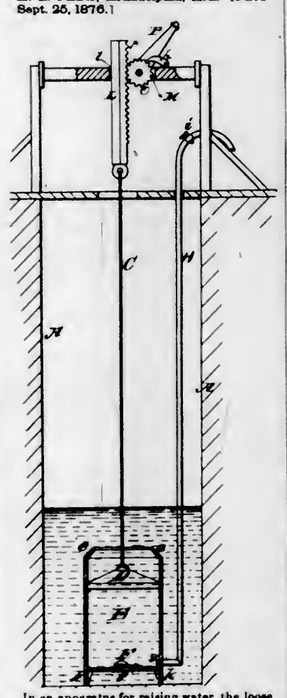
186,002. METHODS OF MAKING HOOPS FOR CHEESE-BOXES. C. T. Fairchild, Salisbury, N. Y., assignor to Burrell, Ives & Co. [Filed Jan. 24, 1876.]

Brief.—Cheese-box hoops of any desired length and width, and beveled or rounded on the flat side at their ends, and marked so as to designate the proper length of the lap, are cut from previously-prepared sheets of wood, and then formed up into a box of the desired shape.



The herein-described process of manufacturing cheese-box hoops by cutting the lumber to the proper thickness in a rotary cutting-machine, dividing the sheets by a reciprocating knife, and passing the hoops laterally through a pointing and dubbing machine, also marking and drying them, substantially as described.

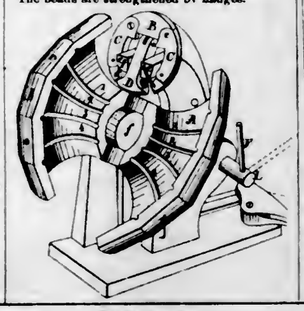
186,003. APPARATUS FOR RAISING WATER. M. L. Fisher, Arkadelphia, Ark. [Filed Sept. 25, 1876.]



In an apparatus for raising water, the loose movable cylinder E, with its cylinder-head D, valve F, valve-screen *f*, feet *k k*, discharge-pipe H, stop-cock *i*, and attachment C, in combination with the racked bar L, pinion-wheel O, and crank P, all substantially as set forth and described.

186,004. STOVE-PIPE-ELBOW MACHINES. F. A. Gleason, Brooklyn, N. Y. [Filed Apr. 17, 1876.]

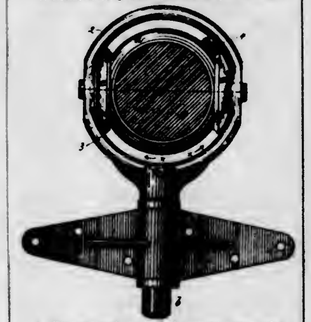
Brief.—The overlapping elbow-sections are clamped within the mold, which is moved over the dies to the first groove or angle. One die is stationary; the other three are expanded by the hand-levers, and the seam and bead formed. The dies are then contracted, and the mold or form passed over to the next angle or seam, when the operation is repeated. The beads are strengthened by flanges.



1. The form or mold A A, of two portions, hinged together, each portion having sections and angles adapted to the work required, and having a groove, 1 2 3, &c., in each angle, the mold being mounted on a rotating axis at a right angle to its longitudinal axis, in combination with beading-dies B C C D, substantially as and for the purpose described.

2. The beading-dies B, C, C, and D, adapted to contract and expand in circumference, guide-bar *s*, and wedges *s s*, with the connections and levers, all constructed and operating substantially as shown and described.

186,005. ROWLOCKS. N. S. Graves, Boston, Mass., assignor to himself and F. F. Woods, same place. [Filed May 16, 1876.]

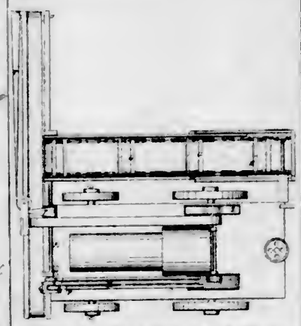


1. The pivoted rowlock, in combination with the globular sleeve and concaved holders, adapted to fit the sleeve, substantially as described.

2. The oar and its globular sleeve and set-screw 4, in combination with the rowlock and concaved holders, to operate in connection with the oar and holders, substantially as described.

186,006. DITCHING-MACHINES. D. Hess, Greenville, Miss. [Filed June 24, 1876.]

Brief.—The ditcher is worked forward, as the machine cuts, by pawls and ratchets on driving-wheel, actuated by three eccentrics or cams on the elevator-shaft. The scrapers are made of a bent piece of metal, the inturned ends of which enter each a link of the elevator-chain, by which means they are attached and held fast.

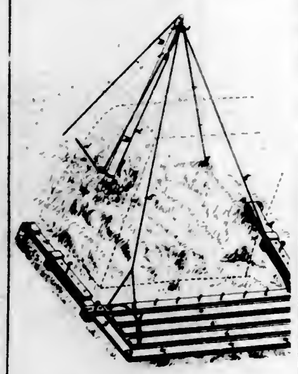


1. In a ditching-machine, the combination, with the elevator and the ratchet-wheel mounted on the front axle, of the three pivoted pawls R, vibrating bars P′, the eccentrics Q, and shaft E, all arranged as shown and described, to operate as specified.

2. In a ditching-machine, the cutters, having

their ends bent inward and inserted in and attached to the links of the elevator-chains, as shown and described.

186,007. RICKING APPARATUS FOR HAY AND STRAW. John R. Hill, Bloomfield, Iowa. [Filed Aug. 7, 1876.]



In a hay-ricking apparatus, the swinging platform 4 5 6, having the bridge-board *a*, the fenders *b b*, loops *c c*, and the pivoted adjustable posts B B, in combination with the hinged posts A A, the fixed post D, and the ropes *d* and *g*, and pulleys 1 2 3, substantially as and for the purposes shown and described.

186,008. ROTARY ENGINES. N. W. Holt, Dayton, Ohio. [Filed Sept. 11, 1876.]



1. In a double rotary engine, the pistons F F', provided with the geared shafts G, arranged to revolve in the double cylinder A around the concentric recessed stationary shafts E, that have their ends recessed in the shafts G, in combination with the escape-ports *a b c d*, arranged in positions diametrically opposite to the induction-ports *w* and *s*, substantially as and for the purpose specified.

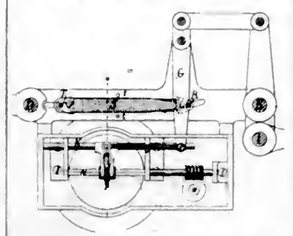
2. In a double rotary engine, the arrangement of the escape-ports *a b c d* in positions diametrically opposite to the induction-ports *w* and *s*, substantially as and for the purpose specified.

186,009. PAPER BAGS. Wm. T. Jordan, Chagrin Falls, and P. Mequille, Cleveland, assignors to Adams & Co., Chagrin Falls, Ohio. [Filed Nov. 15, 1876.]



As a new article of manufacture, a paper bag, the top of which is partly plain or smooth and partly serrated or scalloped, for the purposes set forth.

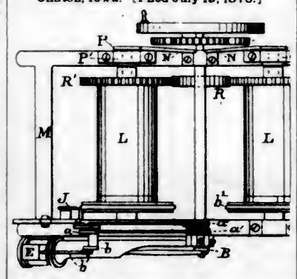
186,010. DYNAMOMETERS. H. Killiches, Lemberg, Austria-Hungary. [Filed Aug. 7, 1876.]



1. The levers F and f^1, the spring S, the stays Y Y, in combination with the wheel or pulley Y and the intermediate working mechanism, all substantially as herein described, when used for a dynamometer in the manner and for the purpose specified.

2. The spring S, with its two pins R and T, in combination with the stays Y Y, when arranged relatively to the lever G at the place Q, as and for the purpose specified.

186,011. NIGGER-ENGINES. Chancy Lamb, Clinton, Iowa. [Filed July 19, 1876.]

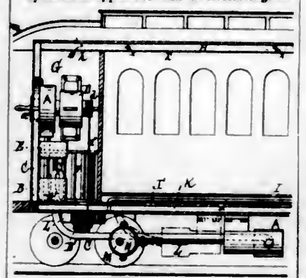


1. A nigger-engine, provided with two spools, L, adjusted to be turned in the same direction, and to be placed in and out of gear with their driving-pinion by mechanism, substantially as and for the purposes described.

2. The spools L, provided with the gear-wheels R^1 R^2, adjusted to be placed separately in and out of gear with their driving-pinion R, in combination with brakes b^3, levers J, and eccentric boxes P, provided with levers N, substantially as and for the purposes described.

186,012. VENTILATING, WARMING, AND COOLING RAILROAD-CARS. J. S. Linsley, New York, N. Y. [Filed Sept. 5, 1876.]

Brief.—A pneumatic supply pump or pumps, which may be rotary blowers or piston pumps, communicating with a tempering-chamber in each and every car, and connected by suitable apparatus with an electro-engine.

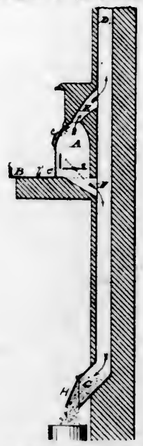


1. In a car ventilator, heater, and cooler, a rotary blower or air-pump, A, and exhaust blower or pump I, operated by means of an electric engine, D, or other independent motor, substantially as herein described.

2. In a car ventilator, heater, and cooler, the tempering apparatus, consisting of the air-pump or rotary blower A, air-tube C, whose serrated end a enters the water in the tank B, contained within the chamber G, electric engine D, and tank B, the whole constructed and arranged to operate substantially as described.

3. In a railroad-car, the tempering-chamber G, constructed as described, distributing-chamber H, provided with perforations *h'*, foul-air chamber K, and exhaust-pump L, the whole constructed and arranged to operate substantially as described.

186,013. FIRE-PLACES. John S. Linsley, New York, N. Y. [Filed Feb. 25, 1876.]



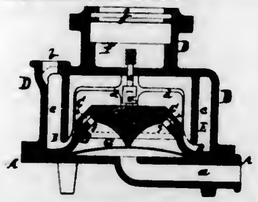
1. In a fire-place, the vertical chimney-flue D, fire-place A, shaking-grate *c*, ash-flue F, and valve or gate H, the whole constructed, combined, and arranged to operate substantially as and for the purposes specified.

2. The combination of the fire-place A, ash-flue F, grate *c*, flat fender B, and blower C, the whole constructed and arranged to operate substantially as described.

3. The blower C, having upper and lower dampers *d' d''*, when constructed and arranged to operate substantially as described, as and for the purpose specified.

186,014. LIQUID-METERS. Edw. Marsland, Sing Sing, N. Y. [Filed Mar. 31, 1876.]

Brief.—The seat upon which the floating disk rests is so formed as to constitute a lower bearing. An interior flange or cylinder envelope the working parts, and at the bottom of the meter leaves passage into an external annular chamber, connected with the outlet, so protecting the revolving disk from any cross currents toward the outlet.



1. In a liquid-meter, the revolving disk C, in combination with a rim, E, surrounding and enveloping it, substantially as and for the purpose shown and described.

2. In a liquid-meter, the combination of the three parts, A, B, and D, cast or formed substantially as and for the purpose shown and described.

3. A liquid-meter having a middle piece, B, cast or formed in the manner shown, so as to form the seat for the floating disk C, substantially as shown and described.

4. A liquid-meter having an annular chamber, *c*, in which the liquid is collected before passing to the outlet-pipe *b*, substantially as shown and described.

186,015. REVOLVING SCRAPERS. Wm. T. Nichols, Maywood, Ill. [Filed Sept. 15, 1876.]

1. The revolving scoop A, provided with a single set of handles, B, rigidly attached thereto, in combination with the pointed stops D, and the draft-bail F, pivoted to the scoop at

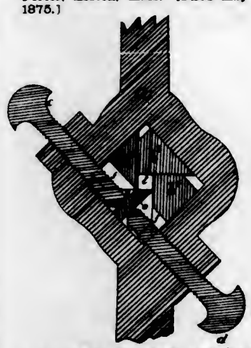


its outside lower edge, substantially as set forth.

2. The supporting-stops E, attached to the sides of the scoops, at the front end thereof, whereby the forward end of the latter is elevated when in an inverted position, substantially as and for the purpose set forth.

3. In a revolving scraper, the combination of the scoop A, stops D, supporting-pieces E, and draft-bail F, all constructed and operating substantially as described.

186,016. MECHANICAL MOVEMENTS. H. K. Porter, Boston, Mass. [Filed May 31, 1876.]

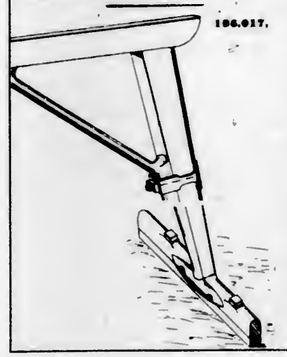


1. A mechanical movement consisting of a series of triangular slides, the sum of whose central angles is equal to three hundred and sixty degrees, arranged to move together tangentially within solid boundaries, and having always a common and unvarying center, whereby a variable central aperture of corresponding sides may be had, substantially as described and shown.

2. The seat *s* formed in the dies by cutting therein the space *f*, whereby the length of the die is retained, yet it is not obstructed by the actuating-screws, substantially as described and shown.

3. A tap-wrench embodying the described mechanical movement, and provided with the handles *i i*, projecting from the encircling wall of the dies, substantially as described and shown.

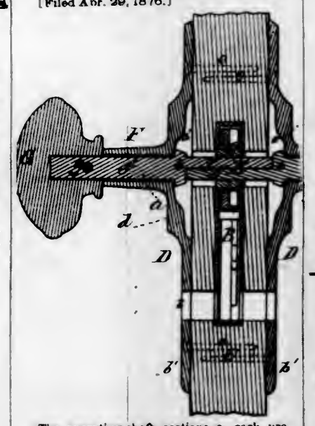
186,017.



186,017. ATTACHING BRACES TO SLEIGH-KNEES. George M. Procter, Gorham, Me. [Filed May 17, 1876.]

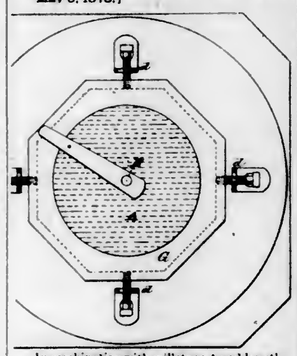
An improvement in sleighs, consisting of the stud, the brace extending down along the stud, and the clip, embracing both at the point of juncture of brace and stud, and held in place by a set-screw, as shown and described.

186,018. ATTACHING KNOBS TO DOORS. N. A. Ransom, Chicago, Ill., assignor of one-half his right to A. N. Beard, same place. [Filed Apr. 29, 1876.]



The operating-shaft sections *a*, each provided with a smooth rabbeted end, *g'*, and an enlarged collar, *e*, in combination with the escutcheon-plates D, having each a raised arched part, *d*, and a tubular projecting carrier, F, the collar on the sections being of greater diameter than the bore of the carriers, substantially as specified.

186,019. MILLSTONE ADJUSTMENTS. Abraham Rants, Fort Recovery, Ohio. [Filed May 6, 1873.]



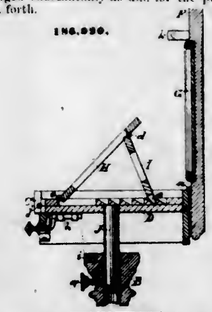
In combination with millstone A and lengthened drive-shaft D, with or without frame G, the separate brackets *d*, having set-screws *e*, adapted to be attached to and adjusted separately at any required position on a floor or platform, substantially as and for the purposes described.

186,020. COMBINED TOILET-TABLE AND MUSIC-STAND. P. Ryan, New York, N. Y. [Filed July 17, 1876.]

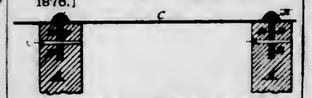
1. A shaving-stand, consisting of bottom piece D, the unbroken top F hinged thereto, and having a mirror attached to its under surface, and the elevating-standard J, sliding in a suitable base, the part D being also provided with a folding rack, H, whereby it may be used as a music-support, in the manner described.

2. In a table provided with a vertically-adjustable top, the device for preventing the spindle J from rotating in the tubular leg, said device consisting of the bolt *h* on the bottom piece D, adapted to engage with the socket *i* in the leg B, constructed and arranged substantially as and for the purpose set forth.

186,020.

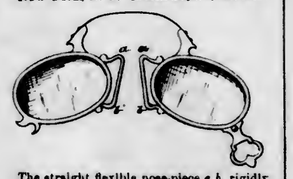


186,021. SHEET-METAL ROOFS. Morrill A. Shepard, Lebanon, Ill. [Filed May 26, 1876.]



The wooden pieces A, grooved as at B, in combination with the sheet-metal plates C C, having flanges D D, inserted into said grooves, substantially as specified.

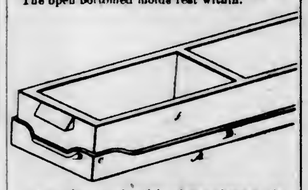
186,022. EYEGLASSES. John S. Spencer, New York, N. Y. [Filed Sept. 1, 1876.]



The straight flexible nose-piece *a b*, rigidly secured at both ends to the lens-frame, substantially as and for the purpose set forth.

186,023. BOTTOM BOARDS FOR BRICK-MOLDS. Edwin Sprague, Pittsburg, Pa. [Filed Sept. 4, 1876.]

Brief.—The ends and corners of the bottom board are of greater depth than the sides. The open bottomed molds rest within.



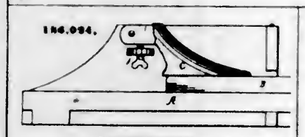
As an improved article of manufacture, the bottom board A, provided with a flange, B, projecting a short distance upward on each end and side, and having lifts or handles D, in combination with the brick-mold *f*, substantially as and for the purpose specified.

186,024. CUTTERS FOR BRICK-MACHINES. Edwin Sprague, Pittsburg, Pa. [Filed Oct. 7, 1876.]

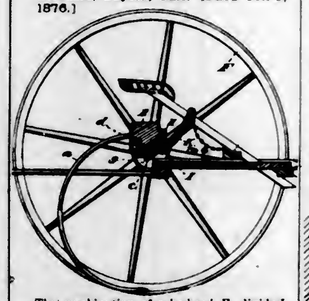
Brief.—The cutter is adjustable by means of a spring and thumb-screw.

The cutter C, adjustable through the medium of the thumb-screw *f*, and provided with a cutting-knife, *g*, and adapted for operation by spring *e*, in combination with the mold-way A and brick-mold B, substantially as and for the purpose specified.

186,024.



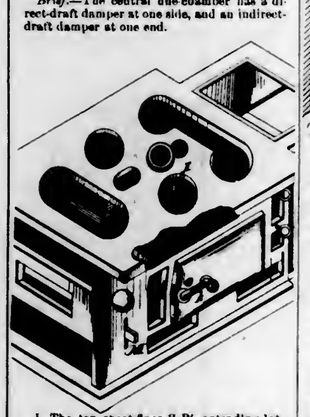
186,025. HORSE HAY-RAKES. E. Fowler Stoddard, Dayton, Ohio. [Filed Oct. 9, 1876.]



The combination of rake-head E, divided rocking rod I I', journaled to said head, and provided at its adjacent ends with detents *e*, and at its outer ends with dogs *i*, adapted to engage internal hub gearing *f* and arm K, and spring *d* for keeping the dogs disengaged, substantially as and for the purpose specified.

186,026. RESERVOIR COOKING-STOVES. Geo. Wallhouse and J. L. Taplin, Akron, Ohio. [Filed Aug. 16, 1876.]

Brief.—The central flue-chamber has a direct-draft damper at one side, and an indirect-draft damper at one end.



1. The top sheet-flues B B', extending laterally over a stove-oven, from the fire-box to the rear diving-flues, and separated by the central exit-flue F, whereby the draft-currents are forced to pass under the pot-holes, substantially as described.

2. The combination of rear diving-flues C C', bottom sheet flue D, ascending flue E, exit-flue F, and top sheet-flues B B', substantially as and for the purpose described.

3. The exit-flue F of a cook-stove, extending centrally and longitudinally over the oven, between the top plate of the latter and the top plate of the stove, substantially as described.

4. In a stove, the exit-flue F, placed centrally and longitudinally over the oven, in combination with the reservoir return-flue H', substantially as and for the purpose described.

5. In a stove, the exit-flue F, placed centrally and longitudinally over the oven and provided with damper I, substantially as and for the purpose described.

6. In a stove, the exit-flue F, placed centrally and longitudinally over the oven, and provided with damper J, substantially as and for the purpose described.

7. The combination of reservoir inlet-flues H H, reservoir return-flue H', and dampers *a a' b*, substantially as and for the purpose described.

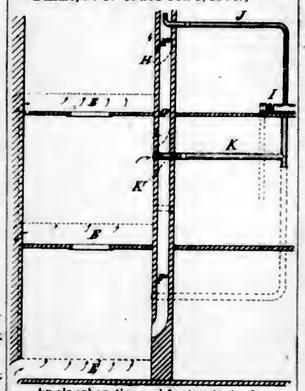
8. The combination of diving-flues C C', reservoir inlet and return flues H H H', with exit-flue F and dampers *a a' b*, substantially as described.

9. The combination of the flues B B', placed as described, with the diving-flues C C', reservoir inlet and return flues H H H', exit-flue F, and dampers *a a' b*, substantially as described.

10. The combination of top sheet-flue B, placed as described, with damper I, situated at the side, between said flue and exit-flue F, for the purpose of opening and closing communication at the side, between said flues, substantially as described.

11. The combination of top sheet-flues B B', placed as described, with damper J and exit-flue F, substantially as and for the purpose described.

186,027. GRAIN-DRYING KILNS. J. White, Buffalo, N. Y. [Filed Oct. 9, 1876.]

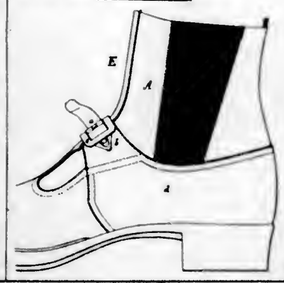


An air exhausting and forcing device I, provided with a pipe, K, for exhausting the air from the kiln, in combination with a pipe, J, arranged within a natural-draft flue near the top or outlet, as specified, through which the air and gases exhausted from the kiln are forced for the purpose of increasing the draft of said flue, substantially as described.

186,028. MANUFACTURE OF GAS. Miles Williams, Wigan, England. [Filed Dec. 4, 1873.]

Brief.—In one set of retorts distills coal or bituminous matter, and simultaneously in another set injects steam and oleaginous matters upon heated coke, charcoal, &c. Mixes the gases thus produced, while hot, in the hydraulic main.

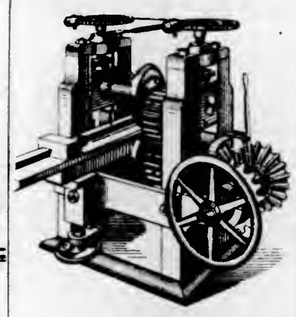
The within-described process of manufacturing gas for illuminating and heating purposes by distilling coal or bituminous matter in one set of retorts simultaneously with the injection of steam and oleaginous matter into another set of red-hot retorts containing coke, &c., and by causing the gases thus produced to be intimately mixed within the same hydraulic main and purified together.



186,029. BOOTS AND SHOES. J. Voamus, Brockton, Mass. [Filed Nov. 13, 1876.]

As a new or improved manufacture, a shoe, substantially as described, having the closed instep, the leg part A, the stay E, and its elastic gores *a*, and also having the straps *b c* extending from the quarters *d d* over the instep, and provided with a buckle, *e*, all being essentially as specified.

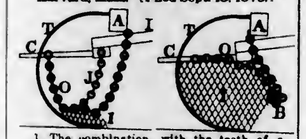
186,030. MACHINES FOR SLITTING METALLIC PLATES. J. S. Atkinson, Pittsburg, assignor to B. F. Jones, Allegheny, Pa. [Filed Sept. 29, 1876.]



1. A pair of bevel-edged revolving cutters, arranged to operate in the same plane on a bar or plate passing between, in combination with a reciprocable bed, which, when reciprocated, shall hold and guide the bar or plate in its motion between the cutters, substantially as set forth.

2. A reciprocable feed-table, constructed and arranged to hold and guide a bar or plate secured thereto in other than a line parallel with its edge, in combination with a pair of bevel-edged cutting disks, working in the same plane and on opposite sides of the bar or plate, substantially as set forth.

186,031. HORSE HAY-RAKES. G. E. Burt, Harvard, Mass. [Filed Sept. 18, 1876.]



1. The combination, with the teeth of a horse hay-rake, of the flexible yielding binder O, for the purpose of steadying and holding the material gathered, substantially as described.

2. The combination of the binder O, the clearer C, and the rake-teeth T, in a horse-rake, substantially as described, and for the purpose set forth.

3. The combination, with the teeth of a horse hay-rake, of a yielding weighted binder, substantially as described, and for the purpose set forth.

4. The combination of the binder O with the main frame of the rake in front and with the coil E on the rake-tooth, substantially as described.

5. The binders O O, when connected together or held at an angle across the face of the teeth, substantially as described, and for the purpose set forth.

186,032. OBTAINING COLORING MATTERS SUITABLE FOR DYEING AND PRINTING. H. Caro, Mannheim, Germany. [Filed Oct. 2, 1876.]

1. Converting pure or commercial alizarine into alizarine-orange by the action of nitrogen acids, substantially in the manner herein set forth.

2. The production of alizarine-orange by the action of either nitrous or of hyponitric acids or mixtures of the same upon either pure or upon commercial alizarine, the same being obtained either from natural sources or produced artificially, and such alizarine or alizarines being employed either in their dried condition or mixed with, or dissolved in, a suitable solvent not easily acted upon by the nitrogen and other acids employed.

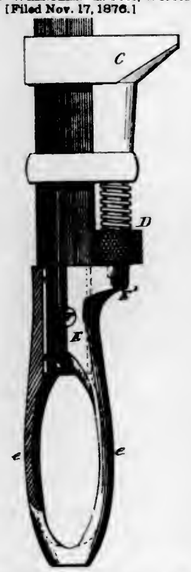
3. The production of alizarine-orange by means of nitric acid acting in presence of a suitable solvent upon pure or upon commercial alizarine in the manner hereinbefore described.

4. In the production of an alizarine-orange from either pure or from commercial alizarine by first dissolving the same in concentrated sulphuric acid, and then heating the solution with either nitrous hyponitric or nitric acids, or with mixtures of the same, in the manner hereinbefore described.

5. In the production of a coloring matter possessing the properties of purpurine by dissolving alizarine-orange obtained by the process described in the foregoing claims of this specification in concentrated sulphuric acid, and then gradually raising the temperature of such solution in the manner hereinbefore described.

6. In the production of a coloring matter possessing the properties of purpurine by heating either pure or commercial alizarine dissolved in concentrated sulphuric acid, and then submitting such solution to the action of either nitrous hyponitric or nitric acids or mixtures of the same, so as to produce alizarine-orange, and subsequently raising the temperature of such solution, so as to produce the desired coloring matter, in the manner hereinbefore described.

186,033. WRENCHES. L. Coes, Worcester, Mass. [Filed Nov. 17, 1876.]



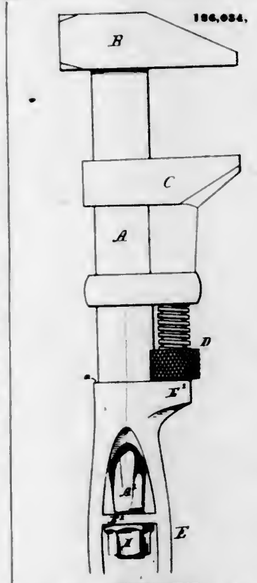
The within-described screw-wrench, consisting of the headed bar A, made with a short smooth shank, A', of uniform diameter, the sliding jaw C, operated by the rosette-screw D at the front of the bar, the handle E, cast from metal, with side ribs *a a*, step projection E' and body in a single piece, and the pin or rivet F, passing through said handle and bar-shank, for securing the parts together and sustaining the backward strain of the jaw C, all as shown and described.

186,034. WRENCHES. L. Coes, Worcester, Mass. [Filed Nov. 17, 1876.]

1. The metal handle E, having the step E' and nut-seat or cross-place E', in combination with the bar A A', rosette-screw D, and nut H, substantially as shown and described.

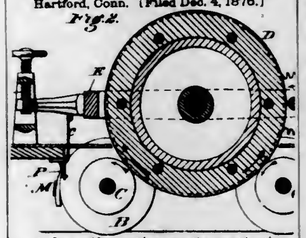
2. In combination with the bar A, having a short shank, A', and shoulders *a a*, the metal handle E, made with thin shell or ribs *a a*, and secured to said bar by a separate nut, H, screwed on the end of said shank A', within the central part or interior of said handle, substantially as set forth.

186,034.



186,035. CAR-PROPELLERS. I. B. Davis, Hartford, Conn. [Filed Dec. 4, 1876.]

Fig. 2.



1. In a self-propelling car, the combination of the friction-pulley C, secured upon the car-axle, the driving-shaft F, mounted in stationary bearings, and provided with the pinion K, and the swinging frame E, journaled upon the shaft F, and driven by the pinion, as shown and described, and for the purposes set forth.

2. In combination with a friction-pulley, C, mounted on the car-axle, the driving-drum D, hinged frame E, and screw C, substantially as shown.

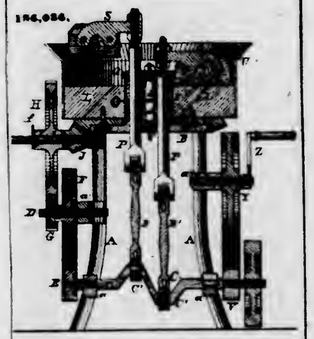
3. In a self-propelling car, the combination of the pulley C on the car-axle, the driving-drum D, the brake-shoes M, and mechanism substantially such as shown, for releasing the brakes as the drum is thrown into action on the pulleys, and vice versa.

186,036. MEAT-CHOPPING MACHINES. Ferdinand Doebert, Buffalo, N. Y. [Filed July 8, 1876.]

1. A meat-cutter, having its driving mechanism and a double crank-shaft, C, located below the chopping-block L, and the two connecting-rods R R' actuating the cutter-bars P P from said double crank-shaft in opposite directions, said cutter-bars being of a quadrangular transverse section, and guided by correspondingly-shaped bearings situated in a central stationary part concentric with the revolving chopping-block, and provided with radially-projecting cutters on their upper extremity, the whole constructed and arranged to operate substantially in the manner and for the use and purpose set forth and described.

2. The combination, with the plate B, of the projection O, serving as a guide for the chopping-block L, and provided with the boxes *b*, and the wedges *d*, substantially in the manner and for the use and purpose described.

186,036.



186,037. SCREW-CUTTING DIES. R. C. Fay, Pawtucket, R. I. [Filed Nov. 23, 1876.]



1. A circular screw-cutting disk, provided with parallel grooves, and arranged in the die-stock at an angle with its axis, substantially as described.

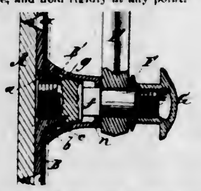
2. The combination, with a screw-cutting disk provided with parallel grooves, and secured to a die-stock at an angle with its axis to form the desired pitch, of a screw-thread, with the pin *c*, substantially as and for the purpose set forth.

186,038. IRONING-TABLES. E. E. Gore, Atchison, Kans. [Filed Aug. 22, 1876.]

The above-described paraffine pad C, consisting of board A and pad D, with a layer of paraffine spread between, substantially as set forth.

186,039. CARRIAGE-TOP PROPS. Jas. Ives, Mount Carmel, Conn. [Filed Dec. 16, 1876.]

Brief.—Prop-bolt adjustable in the socket-plate, and held rigidly at any point.



1. The covering-washer D, constructed with the separated scallops at its inner end and on its inner surface, substantially as described.

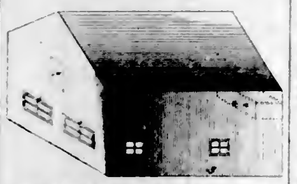
2. The covering-washer D, constructed with the flange at its outer end, which inclosed the square opening in which the adjustable screw-bolt fits, substantially as described.

3. The combination of the washer D, constructed with the flange at one end and scallops at the other, the screw-bolt, the socket-plate, and the pawl or stop-pin, substantially as described.

THE GRAPHIC CO. N.Y.

4. The double-convex solid metal washer, in combination with the joint end, binding-nut, and prop-bolt, as described.

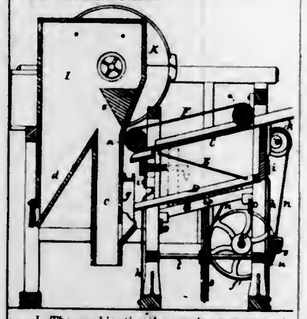
186,040. HOG-PENS. P. M. Katring, Napoleon, Ohio. [Filed Apr. 13, 1876.]



The feeding and sheltering apparatus, or house for hogs, consisting of the sleeping-apartment *a*, Fig. 2, the apartment *f*, subdivided into the bath-box *b* and the feeding-box *e*, (the remainder being the privy,) provided with the outlets *b'* and *r*, and the vents for overflow, *d* and *g*, also the swinging door *k*, as set forth and described in the above specification.

186,041. MACHINES FOR SEPARATING AND CLEANING WHEAT. G. Montague, Geneva, Wis. [Filed July 17, 1876.]

Brief.—The endless belt holds the "tail ings" down to the slowly-reciprocating screen, which admits of the passage of the grain and smaller impurities. The lower screen of the longitudinally-reciprocating shoe is provided underneath with a horizontally-reciprocating scraper, which passes along the under face, to lift up and dislodge any kernels accidentally fixed within its meshes.



1. The combination, in a grain-separator, of a reciprocating inclined screen and a continuously-moving apron, arranged to pass over the surface of the screen toward its tail, substantially as shown and described.

2. In a grain-separating machine, the combination of a reciprocating screen adapted to separate wheat from smaller grains and impurities, and a scraper arranged to travel upon the under surface of said screen, for the purpose of forcing upward and keeping on the surface of the screen the small grain which may chance to lodge in its meshes or openings.

3. The combination, in a grain-separating machine, of a reciprocating shoe, B, containing the coarse screen C, the fine screen D, and the inclined board E, with the endless apron F and the scraper G, arranged to operate as described, whereby the grain is separated successively from the coarse and the fine impurities, and delivered in a pure state.

186,042. GRAIN-REGISTERS. Milton W. Nesmith, Metamora, Ill. [Filed Oct. 24, 1876.]

1. In a grain-register, the combination of a central rigid supporting-standard, B, and a metal sleeve or thimble, C, mounted thereon, and provided with a flange, *d*, sustaining the rotary table D, as shown.

2. The combination of the cast-metal case H, provided with the grooves *v w*, the slotted

4. The double-convex solid metal washer, in combination with the joint end, binding-nut, and prop-bolt, as described.

3. In combination, with the concentric dials I K L, seated loosely in the case H, the rigid bar O, extending across the upper face of the dials, and provided on its ends with the two sets of spring-arms *a'*, bearing on the faces of the dials, and serving both to hold them to their seats, and to prevent them from being turned accidentally.

4. The combination of the stationary case H, having the fixed cam, the dial-plate I, provided with depending teeth, and the rotary plate E, provided with the pivoted dogs F.

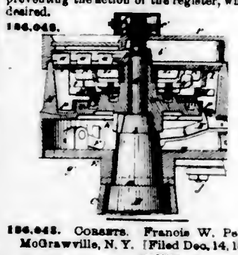
5. The combination of the fixed standard B, having the screw neck or bolt *c*, with the sleeve C, plate E, body H, bar O, and nut *b'*, as shown, whereby the nut is caused to hold the other parts in position, as shown.

6. In combination with the nut *b'*, the cover P, provided with a flange bearing thereon, as shown, whereby the nut is prevented from working loose.

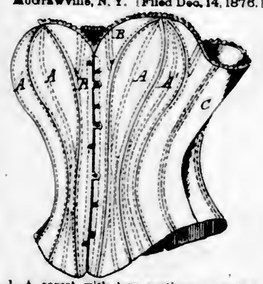
7. In a grain-register, the combination of a rigid central post or standard, B, and a stationary metal case, H, sustaining and inclosing the actuating mechanism, the horizontal rotary dials I K L, the sleeve C, and the rotary grain-table D, all mounted concentrically upon and sustained by the post, as shown.

8. In combination with the ribs *h'*, in the case or body H, the screw *g'*, mounted in the rotary operating plate E, for the purpose of preventing the action of the register, when so desired.

186,043.



186,044. CORSETS. Francis W. Perrott, McGrawville, N. Y. [Filed Dec. 14, 1876.]



1. A corset with two continuous central breast-sections, A A', constructed and shaped substantially as described and shown, extending from the upper to the lower edges, as and for the purpose set forth.

2. A corset with front sections B B, central breast-sections A A', and under-arm sections C, all constructed and combined, substantially as and for the purposes described.

186,045. HORSE-COLLARS. Jas. K. Pumpelly and Enos Collins, Fond du Lac, Wis. [Filed July 8, 1876.]

Brief.—The nuts, screws, and corresponding sockets, at the junction of the two parts of the collar, are, by the adjusting of the nuts upon the screws, intended to effect the enlarging or decreasing of the size of the collar.

1. The parts or sections A A' of a horse-collar, provided, one with screws *b b* and nuts *b' b'*, and the other with sockets *c c'*, substantially as and for the purpose set forth.

2. A horse-collar, having sockets *d' d'*, over which are hinged plates B B, having orifices *d d*, in combination with the tug-plates E E, having balls *e e*, substantially as and for the purpose set forth.

3. The tug-plates E E, constructed as described, and provided with balls *e e*, in combination with the horse-collar, having the sockets *d' d'*, and hinged perforated plates B B, substantially as and for the purpose set forth.

186,044.

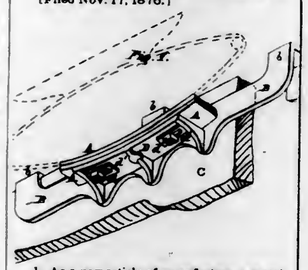


186,045. METHODS OF WINDING, UNITING, AND GROUPING BOBBINS. I. L. G. Rice, Cambridge, Mass., assignor of one-half his right to W. T. Bent, same place. [Filed Apr. 20, 1876.]

Brief.—The inner end of yarn is left exposed at the bottom of the bobbins. The outer end of one bobbin is united to the exposed inner end of the next adjacent bobbin, and the bobbins are all grouped in order upon a stand, their axes converging toward an eye in the top of the frame.

The method herein described of winding and uniting the yarn on two or more bobbins, and grouping these bobbins so as to form a single continuous thread, which may be drawn off without interruption, whereby the process of spooling may be dispensed with.

186,046. SPRING-SEAT RISERS. W. H. H. Snellbaker, St. Louis, Mo., assignor to Moline Malleable Iron Works, Moline, Ill. [Filed Nov. 17, 1876.]

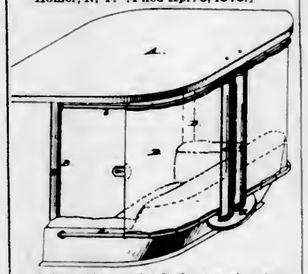


1. As a new article of manufacture, a metal riser for elliptic seat-springs, made complete in one piece, with a body, A, having terminal hooked arms *b*, on one side, and a central flange or shelf, D, on the opposite side, substantially as shown.

2. The body B, provided with the hooked arms *b*, and the flange D, provided with the longitudinal slots *d*, as and for the purpose described and shown.

3. In combination with the spring A, provided with the rivet *a*, the metal riser provided with the flange or shelf D, having a recess to receive the rivet, and slots *d*, to receive the fastening-bolts *d'*, as described and shown.

186,047. CARRIAGE-TOPS. W. E. Tallman, Homer, N. Y. [Filed Apr. 5, 1876.]



1. The side curtains D, for a carriage-top, fastened at the back standard, in combination with the bent rods *a* and *b*, upon which they are mounted, with curtain rings or loops, both at the top and bottom, so as to slide backward and forward, made substantially as and for the purposes above described.

2. The combination of the perpendicular curtain rollers or springs *c c*, attached to the curtains with cords, made substantially as and for the purposes above described.

186,048. CAR-COUPLINGS. Thos. J. West, Pleasantville, Iowa, assignor of one-half his right to Orman Bane, same place. [Filed June 12, 1876.]

In a car-coupling, the slotted draw-head A, the pivoted arms B B, carrying pins *a a*, the buffer-rod C, having square head *f* and cam *h*, the buffer-spring *g*, the pin-latch *k*, the spring *l l*, and the eccentric D, all arranged and combined substantially as and for the purposes shown and described.

186,049. PRESSES FOR COMPRESSING TOBACCO AND OTHER ARTICLES. Wm. H. Malone, Farmington, Ky. [Filed Nov. 4, 1876.]

Brief.—The supplementary lever gives additional power in pressing. In releasing the bale the ratchet and pawls are disengaged, and the downward pressure of the supplementary lever, through the upright bar attached to the other end, elevates the main lever.

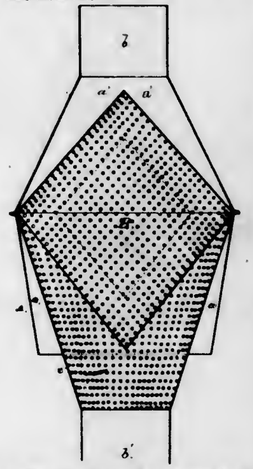


1. In a press, the combination of the levers D and E, ratchet-bar F, pin *k*, ratchet-racks *c*, and pawls *e*, substantially as shown and described.

2. The combination of the levers D and E, and the bar G, provided with the pin *k*, substantially as shown and described.

3. The posts A B, timbers C, lever D, ratchet-racks *c*, pawls *e*, lever E, ratchet-bar F, pin *k*, cord *f*, and bar G, having the pin *k*, substantially as shown and described.

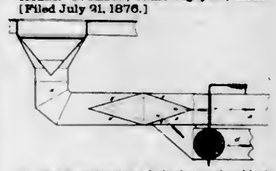
186,050. AIR-HEATERS FOR LAMP-STOVES. P. Mihan, Cambridgeport, Mass. [Filed July 21, 1876.]



1. The combination of the hollow case A, one or more perforated diaphragms, B, the perforated frustum *c*, and cylinder *b'*, substantially as described.

2. The combination of the perforated foraminous frustums constituting the chamber B, and arranged as described, with the case A, composed of the two frustums, disposed as set forth.

186,051. ATTACHMENTS FOR HOT-AIR REGISTERS. P. Mihan, Cambridgeport, Mass. [Filed July 21, 1876.]



1. The combination of the hot and cold air supply pipes A A' C, the dampers *a a*, and chamber *f*, all being arranged substantially as and for the purpose set forth.

2. The combination of one or more foraminous diaphragms, *g g'*, with the hot and cold air supply pipes A A' C, dampers *a a*, and chamber *f*, all being essentially as shown and described.

186,052. VENTILATORS. P. Mihan, Cambridgeport, Mass. [Filed Mar. 28, 1876.]

Brief.—This ventilator or exhaust-pipe is fixed to the top of the building, and has two hollow truncated cones or conic frusta, which are disposed around the pipe, and united at their larger bases, in combination with a perforated top or annular plate and a guard, the plate serving to hold the top frustum in firm connection with the pipe, thereby rendering the parts more firm and stable, so as to withstand the action of the wind.

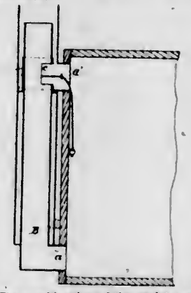
1. The combination, with the pipe A, of the frustum B', provided with the perforated top or annular plate C, as and for the purpose set forth.

2. In a ventilator, substantially as described, the combination, with the pipe A and the frustum B, of the frustum B' provided with an annular perforated top or plate C, and the guard D, the whole being constructed, combined, and arranged as and for the purpose set forth.

3. The improved ventilator, as described, consisting of the pipe A, the frusta B B', the guard D, and dome E, constructed, combined, and arranged substantially as set forth.

186,053. VENTILATING HALLS, &c. Patrick Mihan, Cambridgeport, Mass. [Filed Mar. 28, 1876.]

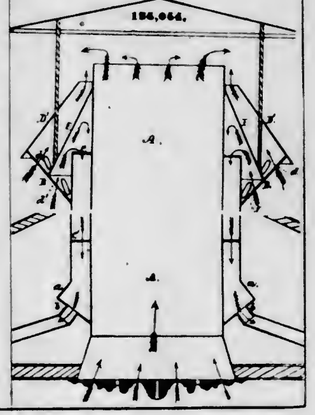
Brief.—For summer use this regulator is managed by opening the door in the pipe to its fullest extent, which allows the air from the upper register to rush in, thereby cutting off the exhaust from the lower register. In case the apparatus is used in winter, the door in the pipe should be closed, whereby all the exhaust is effected through the lower register or opening, a small amount of heated air passing through the upper register or opening, and into the air-pipe.



1. The combination of the register or opening *a* and its flue or pipe B with the register or opening *a'* and its pipe C, substantially as shown and described.

2. The combination, with the pipe B, of the door or slide *d*, arranged with respect to the register or opening *a'*, as shown and described, and for the purpose set forth.

186,054.



186,056. VENTILATORS. P. Mihan, Cambridgeport, Mass. [Filed Mar. 28, 1876.]

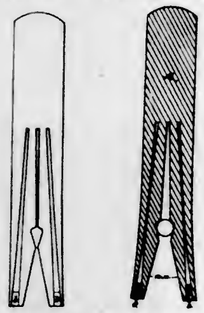
Brief.—A duplex ventilator involving the principle of exhaust and supply, one portion serving to eject the foul or impure air, and the other to inject or supply fresh or pure air to the building or apartment to be ventilated.

1. In a duplex ventilator, the combination of the pipes A and C, frusta D, D', and E, constructed and arranged substantially as shown and described.

2. The annular perforated diaphragm or stays *c c'*, in combination with the pipes A and C, as and for the purpose set forth.

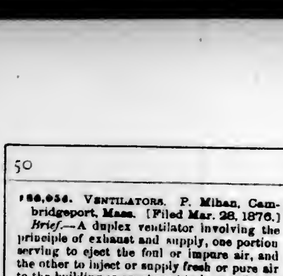
3. In a duplex ventilator, as described, a circumscribing air-induction chamber *o*, closed at bottom, and provided with one or more pipe-connectors, *b*, as and for the purpose set forth.

186,055. CLOTHES-PINS. P. Mihan, Cambridgeport, Mass. [Filed Mar. 28, 1876.]



The combination, with a clothes-pin having a plurality of independent prongs, as described, of one or more abutments, *b*, arranged in manner as shown, and for the purpose set forth.

186,058. GRAIN-BINDERS. Samuel Miller, Lamoille, Iowa. [Filed July 19, 1876.]



1. The combination of a rotary receiver, C, a hinged support, D, and a vertically-moving compressor, E, substantially as shown.

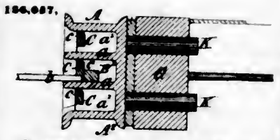
2. In a grain-binding machine, the combination of a fixed knotting or twisting device, I, a vertically-reciprocating wire or cord carrier, G, and a rotary-armed receiver, C, constructed and arranged to divide the grain and deliver the same against the wire in position to be bound.

3. In a grain-binding machine, the combination of the rotary receiver and carrier C, hinged support D, and incline J', with the crate or receiver K, the lever for tilting the same, and the wheel L', provided with the pin for actuating the lever, as described and shown, whereby the bound bundles are delivered automatically from the machine at regular intervals.

4. The combination of the rotary receiver C, provided with the wheel M, having the studs *b*, the beveled locking-arm *e*, and the rotary arm *c*, arranged to release the locking-arm and turn the receiver, as described and shown.

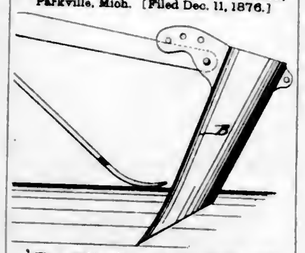
186,057. CAR-COUPLINGS. J. C. Mitchell, Lancaster, N. H., assignor of one-half his right to C. W. Roby, same place. [Filed July 3, 1876.]

186,057.



In combination with the draw-bar A, secured to the car by bolts L L' and key M, the guides or pins K, secured to the back plate A^2, working in the cross-head, as herein set forth.

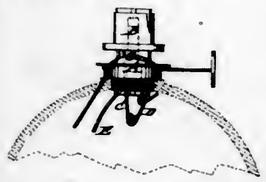
186,056. GRAIN-DRILLS. Geo. W. Osborn, Parkville, Mich. [Filed Dec. 11, 1876.]



The combination, with the slotted draft-bar, of an inclined bar or gage, with shoe or foot at lower end, attached by fastening-bolt and set-screw, substantially as specified.

186,059. LAMP-EXTINGUISHERS. Leonard H. Pilger, Philadelphia, Pa. [Filed Dec. 11, 1876.]

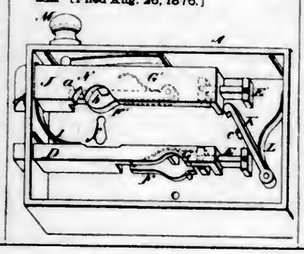
Brief.—When the burner is unscrewed the free end of the fulcrumed lever strikes the under side of the lamp-collar, whereby the slide-rod and extinguisher-tube are operated. The guard-piece insures the engagement of the lever with the lamp-collar.



1. The combination, with a sliding and weighted extinguisher-tube of a lamp-burner, of a slide-rod and fulcrumed lever at the under side of the burner, said lever extending under the collar of the bowl, to work automatically the extinguishing-tube on detaching the burner from the bowl for filling, substantially as specified.

2. The combination, in a lamp-burner, of the fulcrumed lever D, extending under the collar of the bowl and actuating the extinguishing device, with a guard-piece, E, secured to the burner at a diametrically-opposite point, to produce reliable action of the same, substantially as described.

186,060. LOCKS FOR PRISON-DOORS. J. A. Quesnel, Arthabaskaville, Quebec, Canada. [Filed Aug. 26, 1876.]



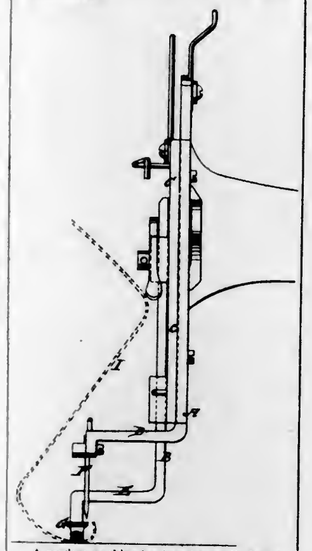
1. In a cell-lock, the combination of a spring-bolt, J, having its key-hole on the outside of the lock, an outside detent, M, to hold said bolt back, and a dead-bolt, D, having its key-hole on the inside of the lock, substantially as shown.

2. In a cell-lock, the combination of the upper spring-bolt J, having the notch *d*, the outside detent M, and the lower dead-bolt D, provided with a device, I, to enter the notch *d*, substantially as and for the purposes described.

3. In a cell-lock, the combination of the spring-bolt J, having the two notches *a b* to receive the bit of the key, and the automatic detent M, serving to lock the bolt back, and thereby prevent the removal of the key.

186,061. SEWING-MACHINES. L. Robinson, Matteawan, N. Y. [Filed May 1, 1876.]

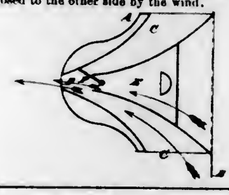
Brief.—The needle-bar and presser bar are projected or bent laterally near the cloth-plate, out of the vertical plane of the face-plate, to facilitate the binding of curved-brim stiff hats, by allowing the crowns of the hats to be moved inward over said lateral projections.



A sewing-machine having the needle F and the presser G, projected laterally from the plane of the head by horizontal extensions or projections of the needle and presser bars, substantially as herein shown and described.

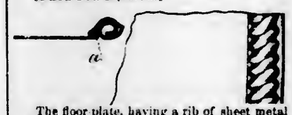
186,062. VENTILATORS. John Sandall, Jr., St. John, New Brunswick, Canada. [Filed May 16, 1876.]

Brief.—A case projecting laterally from the side of the car, and it may project vertically from the top, with an opening on two sides near the base into a passage which curves from the side to the outer end or top, the two passages uniting with each other a short distance from the outlet, where there is also an exit-passage from the car, in which draft is made by the air rushing through one of the side passages, and making a vacuum in the middle passage from the car; and at the junction of the passage is a valve, which is opened automatically to the advancing side, and closed to the other side by the wind.



The passages C for exterior air, entering opposite sides of the ventilator, near the base, and discharging at the end or top D, in combination with the middle passage E, entering from the car and terminating at the junction of the passage C, below or inside of the discharge D, substantially as specified.

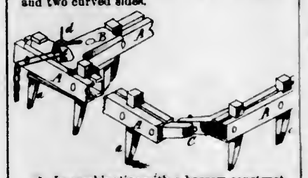
186,063. FLOOR-PROTECTORS FOR STOVES. Fredk. J. Seymour, Wolcottville, Conn. [Filed Oct. 31, 1876.]



The floor plate, having a rib of sheet metal around its edge and a double fold at *a* in the metal, for the purposes and substantially as set forth.

186,064. HARROWS. N. Starr, Homer, N. Y. [Filed Jan. 2, 1677.]

Brief.—The teeth are clamped between two bars of grooved or channel iron bolted together, and having transverse notches in their contiguous edges, to receive said teeth. The tooth-bars, four of which, when joined together, form a hollow square, are connected by two rigid adjustable locking-joints at opposite angles, and two flexible joints at the other angles. The teeth have two straight and two curved sides.



1. In combination with a harrow constructed with four teeth-bars, A A, united so as to form a hollow square, the rigid adjustable joint B B, locking the bars or sides of the harrow in pairs, substantially as described.

2. In combination with a harrow, the adjustable locking or rigid joint B B, substantially as described.

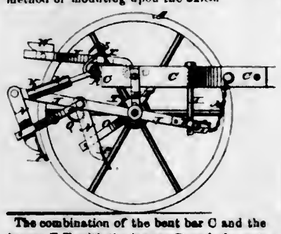
3. In a harrow, the teeth-bars A A, made of grooved or channel iron or steel, with notches to hold the teeth in semi-sections, bolted or riveted together, substantially as described.

4. In combination with a harrow, the rectangular teeth *a a*, having two straight sides and two adjacent curved sides, with the peculiar formation, substantially as described.

5. In a harrow composed of four teeth-bars joined at right angles, forming a hollow square the adjustable rigid locking-joints B B at opposite angles, in combination with the flexible joints C C at the other angles.

186,065. CULTIVATORS. Philip Studer, Mechanicsville, Iowa. [Filed Oct. 14, 1876.]

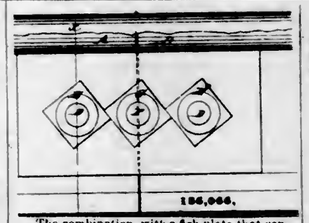
Brief.—The construction of the frame and method of mounting upon the axles.



The combination of the bent bar C and the braces E F with the tongue D and the axles B, substantially as herein shown and described.

186,066. NUT-LOCKS. Frederick Swingly, Bucyrus, Ohio. [Filed Sept. 16, 1876.]

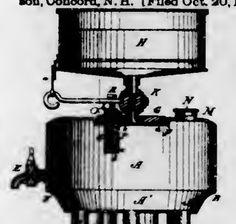
Brief.—Screw on one nut, leaving its sides as shown in dotted lines; screw on other nut; screw back first nut against second nut. The intermediate bolt (through fish-plates only) is the one of the three to be turned back.



186,066.

The combination, with a fish-plate that connects the ends of two railroad-rails, of the bolts and the angular nuts, the latter coming in contact only when their corners reach, or nearly reach, the plane that passes through all the bolts, whereby all the touching nuts are locked, as shown and described.

186,067. DOMESTIC BOILERS. H. Thompson, Concord, N. H. [Filed Oct. 20, 1876.]

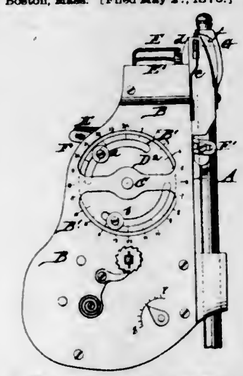


1. The boiler-body A, constructed as shown and described, in combination with the bottom A', provided with the pendent heating-tubes *c* and curved circulating-tubes *d*, substantially as and for the purpose specified.

2. The boiler A, constructed as described, in combination with the three-way cock K and tank H, as set forth.

3. The three-way cock connected with the flange, or cover G, in combination with the safety-valve O, constructed as described, and the boiler A, as and for the purpose set forth.

186,068. GAS-LIGHTERS. E. T. Thomas, Boston, Mass. [Filed May 27, 1876.]



1. The combination of the cams D D', spring-acted presser-rods F F', and diametrical arms of stop-cock, substantially as specified.

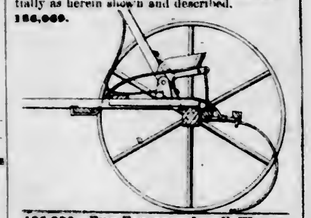
2. The combination of presser-rod, fulcrumed rod F', and slide-piece F with the match-receptacle, feeding and friction devices, near burner, substantially as specified.

186,069. HORSE HAY-RAKES. J. L. Wager, Deposit, N. Y. [Filed Aug. 14, 1876.]

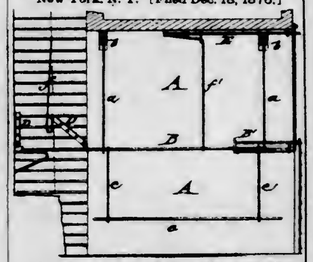
1. The combination of the hooks D, the pins, screws, or bolts F, the rod E, and the straps H, with the shafts A and the rake-head G, for connecting said rake-head with said shafts, substantially as herein shown and described.

2. The combination of the bent loops M with the teeth I, the rod E, and the rake-head G, for limiting the play of said teeth, substantially as herein shown and described.

186,069.



186,070. FIRE-ESCAPES. Jno. F. Werner, New York, N. Y. [Filed Dec. 18, 1876.]



1. A fire-escape for theaters, &c., consisting of a movable floor suspended at the ceiling of the entrances and supported on projecting bearings of the side walls at suitable distance from the floor, when lowered in case of danger, substantially in the manner and for the purpose set forth.

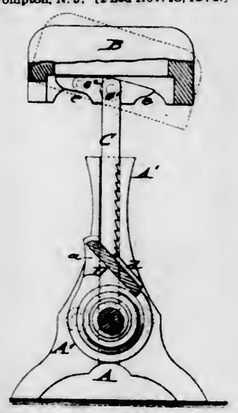
2. A movable suspension-floor, supported on projecting bearings of the side walls of the entrance of a theater, &c., to divide the same, when lowered, into two exit-passages, substantially as set forth.

3. The combination of the movable floor, with swinging and suspended bridge-sections, connecting with the staircases of the galleries, substantially as described.

4. The combination of the movable floor, with a sliding front extension and swinging and folding side stairs, for the purpose described.

5. The combination of the sliding extension B', of movable floor B with outer supporting-chains or cords *g*, guard-railing *g'*, and sliding top-rod or rods E of the entrance, substantially as specified.

186,071. MUSIC-STOOLS. Geo. P. White, Pompton, N. J. [Filed Nov. 18, 1876.]



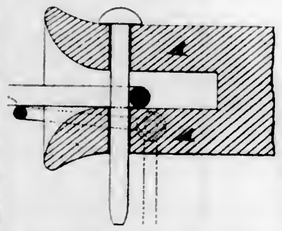
1. As an improvement in music-stools, the combination of the supporting base part A, having pivoted transverse foot-piece with end dogs or catches, with the vertically-sliding

and seat-carrying rack-posts C, substantially in the manner and for the purpose set forth.

2. The base part A of a music-stool, constructed of side standards A^1, and of a transverse brace-piece, A^2, with recessed extensions and a pivoted foot-piece, substantially as specified.

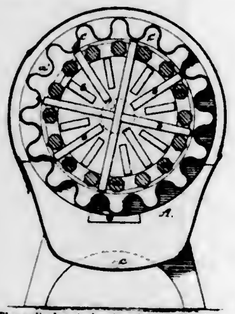
3. The combination of the T-shaped top pieces of rack-posts C, being horizontal at the rear and inclined at the front part, with the centrally screw-pivoted seat B and the fastening-screws a^1, to secure seat in horizontal or inclined position, substantially as described.

186,073. CAR-COUPLINGS. H. Wittmann, Manitowoc, Wis. [Filed July 22, 1876.]



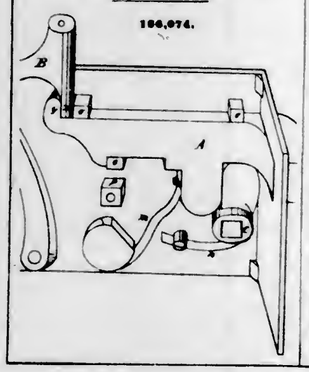
The link-guide consisting of the horizontal bar B, the side extensions B', and the rearwardly-extending attaching-arms D, formed of one piece of metal, in combination with the draw-head A, having the removable pivot pins or studs C, all constructed and relatively arranged as herein set forth, for the purpose specified.

186,075. WASHING-MACHINES. Joseph O. Beauperland, Fall River, Mass. [Filed Nov. 18, 1876.]



The cylinder A, having longitudinal corrugations, in combination with rollers a, substantially as shown and described.

186,074.

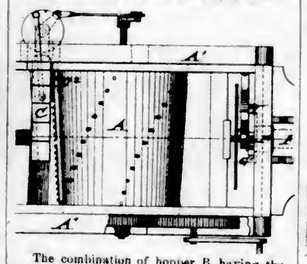


186,074. LATCHES FOR CARRIAGE-DOORS. C. W. Blackman, New Haven, Conn., assignor of one-half his right to W. Schollhorn, same place. [Filed Oct. 18, 1876.]

The curved lever B, pivoted to the case at its lower end, provided with the projection x_1, and extended through an opening in the upper edge of the case, in combination with the latch A, having the projection y, and the spring w, substantially as shown and described.

186,075. CORN-SHELLERS. Z. T. Blackwell, Carrington, Mo. [Filed Aug. 7, 1876.]

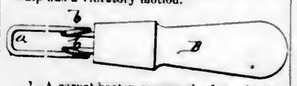
Brief.—Measuring device receives and delivers the shelled corn to a vessel which stands on the spring-platform. The removal of the full weighted vessel causes the platform to rise and close the chute by a valve.



The combination of hopper B, having the stepped movable slide, the tapering cylinder, having oblique rows of teeth, and the spring-presser D D^1, all arranged to operate as and for the purpose specified.

186,076. CARPET-BEATERS. Ezra Buss, Springfield, Ohio. [Filed Apr. 17, 1876.]

Brief.—An elastic wire inserted in a suitable handle. The handle is made with slots having rubber facings, in which slots the wire whip has a vibratory motion.



1. A carpet-beater composed of an elastic wire, A, and handle B, substantially as and for the purpose herein specified.

2. In a carpet-beater, a double-armed elastic wire, bent around at the free end, and pivoted at its other end to a handle, B, substantially as herein specified.

3. In a carpet-beater, a handle, B, provided with slots *f f*, in which the wire whip has a limited vibratory or swinging movement, substantially as and for the purpose herein specified.

4. In a carpet-beater, a handle, B, provided with india-rubber blocks *g g*, against which the whip strikes in its vibratory movements, substantially as and for the purpose herein specified.

5. In a carpet-beater, an elastic-wire whip, provided with bends *c c*, substantially as and for the purpose herein specified.

186,077. BROOM-MAKING MACHINES. W. Cady, Philadelphia, Pa. [Filed June 28, 1876.]

Brief.—The broom-corn is sized in the machine, and carried under a spotter, and presented automatically to the broom-maker, when it is laid on the handle, which is rotated by the mandrel.

1. In a machine for making broom-corn brooms, the table B, having stationary holders *d* and *f*, and an adjustable holder, *f'*, in combination with the knife E, operated by suitable mechanism, substantially as and for the purpose set forth.

2. In a machine for making broom-corn brooms, the combination of the knife E, operated by suitable mechanism, and the adjustable gage F, with the table B, having stationary holders *d* and *f*, and an adjustable holder, *f'*, substantially in the manner and for the purpose set forth.

3. In a machine for making broom-corn brooms, the shaft D, having a knife, E, lever H, and arm *i*, in combination with the spring h and table B, having holders *d*, *f*, and *f'*, the several parts being constructed and arranged for joint operation, substantially in the manner and for the purpose set forth.

4. The combination of the arm *s* with the knife-shaft D and holders *d*, *f*, and *f'*, for breaking the broom-corn during the downward movement of the knife, substantially as set forth.

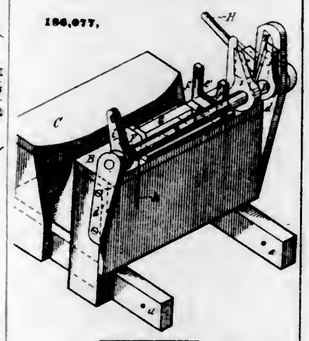
5. The carrying-wheel K, having pairs of clasps I and I' and J J', in combination with the stationary cam-plate Y, substantially as and for the purpose set forth.

6. The endless apron L, having cleats *n* and straps *o*, constructed and arranged substantially in the manner and for the purpose set forth.

7. The combination of the knife P with the frame N and endless apron L, for spotting or cutting the covers or wrappers, substantially as set forth.

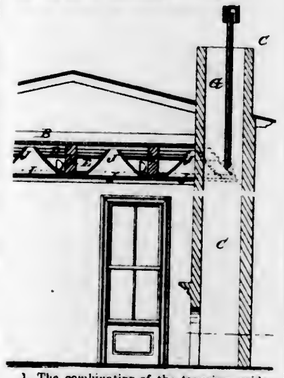
8. The strips *p p* and springs *r r*, connected together as described, and arranged to operate in relation to the endless apron L, substantially as and for the purpose set forth.

186,077.



186,078. VENTILATING BUILDINGS. J. F. Cameron, South Brooklyn, assignor to Elizabeth W. M. Cameron, Brooklyn, N. Y. [Filed Dec. 11, 1876.]

Brief.—The combination of the tapering guide-spouts with the perforated plates that cover the cavities of the hollow ventilating-cornices; also, in the combination of the pipes with the hollow ventilating-cornices, and with the chimney-flue, and in the combination of the cross-bars, the perforated plates, and the hopper-shaped spouts with the ceiling, and with the hollow ventilating-cornices.

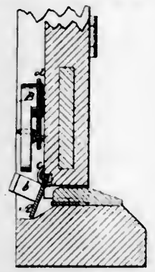


1. The combination of the tapering guide-spouts F with the perforated plates E, that cover the cavities of the hollow ventilating-cornices D, substantially as herein shown and described.

2. The combination of the pipes G with the hollow ventilating-cornices D E F, and with the chimney-flue C, substantially as herein shown and described.

3. The combination of the cross-bars H, the perforated plates I, and the hopper-shaped spouts J with the ceiling B, and with the hollow ventilating-cornice D E F, substantially as herein shown and described.

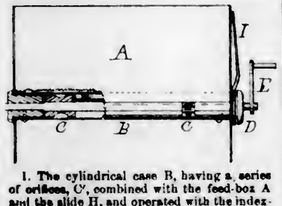
186,079. WEATHER-STRIPS. J. Chandler, Warsaw, Ill. [Filed Sept. 22, 1876.]



The combination, with the movable strip A, having a hook, *b*, at one end, of the hook B, having a hub with the spring *d*, constructed and arranged substantially as shown and described.

186,080. FEEDING DEVICES FOR GRAIN-DRILLS. H. Clayton, Dayton, Ohio, assignor of one-half his right to J. S. Turner and B. Pickering, same place. [Filed June 15, 1876.]

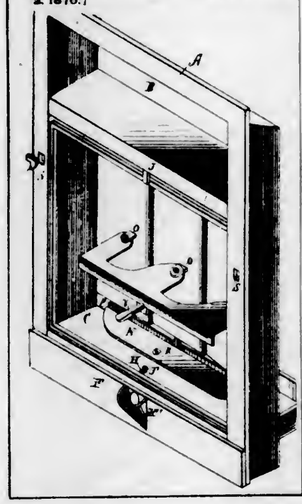
Brief.—Within an adjustable cylindrical case, provided with discharging orifices, revolve seed-feeding wheels. The amount sown is graduated by adjusting the cylindrical case.



1. The cylindrical case B, having a series of orifices, C', combined with the feed-box A and the slide H, and operated with the index-arm I, for the purpose of regulating the discharge of the grain from the feed-box, substantially as set forth.

2. The combination of the seed-rollers C, the bearings D, and dividing-arms m, to support the said seed-rollers in proper position laterally, substantially as set forth.

186,081. HOT-AIR REGISTERS. John W. Collins, Washington, D. C. [Filed Dec. 2, 1876.]



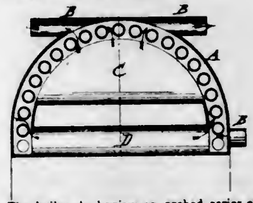
The combination, in a hot-air register, A, of hand-hole B, movable slat-frame C, and evaporator F, provided with a lip, F', as shown and described, and for the purposes set forth.

186,082. PROCESSES OF PREPARING GAS-FUEL. Martin N. Diall, Terre Haute, Ind. [Filed May 22, 1876.]

Brief.—The wood, after being saturated with oil, is immersed in water, to give it a wet surface, so that it may be charged into hot retorts without being inflamed while charging.

A process of preparing wood for gas-fuel, by first soaking it in hydrocarbon, and then immersing in water to give a wet surface previous to its introduction into the retort, as and for the purpose set forth.

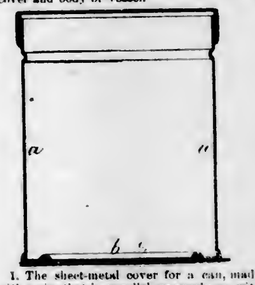
186,083. BOILERS. R. Excell, Chicago, Ill. [Filed Nov. 11, 1876.]



The boiler A, having an arched series of fire-places at the top and sides, the circulator C and generator D near the middle, and pipes B B' connecting with heater, all substantially as shown and described.

186,084. SHEET-METAL CANS. J. S. Field, Brooklyn, N. Y. [Filed Dec. 11, 1876.]

Brief.—Rim of lid has slits, whose edges, joined by solder, run outside of body, and soldered thereto at its inturned edge, the latter joint broken by a ring below rim of cover and body of vessel.



1. The sheet-metal cover for a can, made with a rim that is parallel, or nearly so, with the body of the can, with the edge of the rim turned inwardly, and with one or more incisions in the rim, the incisions being closed and the rim soldered to the can, as set forth.

2. The separate band *e*, introduced between the soldered rim *c* of the can cover and the body of the can, and extending from the soldered joint to cover *d*, or nearly so, for the purposes and substantially as set forth.

186,085. WEATHER-STRIPS. D. O. Rink, Maryville, Mo. [Filed Oct. 30, 1876.]

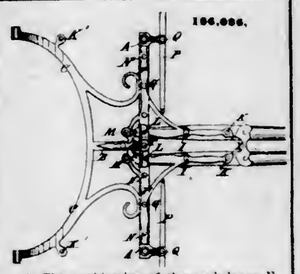


A weather-strip, provided with an extension-slide, clamped between the drop and spring, substantially as and for the purpose specified.

186,086. COMBINED POLE AND SHAFTS. William H. Hiteshew, Peru, Ind. [Filed Aug. 14, 1876.]

Brief.—A pair of shafts may be united to form a pole.

186,086.



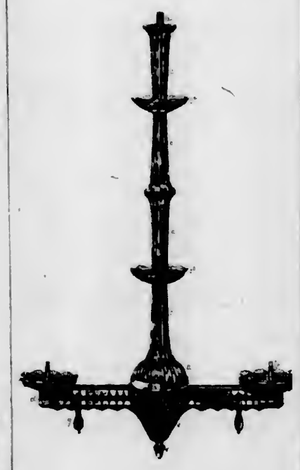
1. The combination of the angle-brace F, cross-bar E, shaft J, and bonnds C, substantially as specified.

2. The evener A, cross-bar E, angle-braces F, and shaft J, combined and arranged substantially as specified.

3. The angle-braces pivoted to the cross-bar at G and to the tongue at I, and arranged for bolting to the tongue, cross-bar, and the bonnds, substantially as specified.

4. The combination of the point U and clamp V with the shaft J, substantially as specified.

186,087. CHANDELIERS. John H. Hobbs, Wheeling, W. Va. [Filed Sept. 28, 1876.]



1. In the construction of chandeliers and pillar-lights, the pressed-glass tubular cases c^1 c^1, having each a considerable length as compared with its diameter, in combination with the vertical stem *a* of the light, substantially as set forth.

2. The pressed-glass tubular sections c^1 c^1 and ornamental pieces c^2, arranged on the vertical stem *a*, substantially as set forth.

186,088. PLOWS. S. Huber, Danville, Pa. [Filed Dec. 4, 1876.]

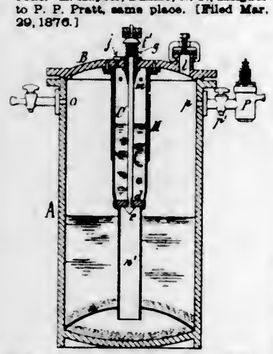
Brief.—The point locks with the land-side, and has a lug formed upon its share end, which engages with the mold-board, by which it is secured without a bolt.



1. The plow-share D, having formed upon it the finger i for engaging with the aperture h, in the mold-board, and a dovetail recess, e, and projections g g, for engaging with the beam and land-side, substantially as shown and described.

2. The combination of a share, D, made substantially as described, the mold-board B, having the aperture i, the land-side C, provided with the dovetail projection d, and lug-pin b, and the beam A, having the recess f and slot e, substantially as shown and described.

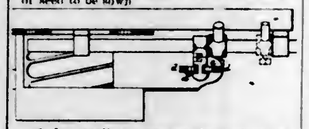
186,089. CARBONIC-ACID-GAS GENERATORS. A. Kayser, Buffalo, N. Y., assignor to P. P. Pratt, same place. [Filed Mar. 29, 1876.]



The combination, with the generating-vessel A B, and acid-reservoir C, of the valve and stem e f, spring g tending to close the valve, and weight or weights f' tending to open the valve, all arranged substantially as and for the purpose hereinbefore set forth.

186,090. GRAIN-DRILLS. E. Kuhns, Logansport, Ind., assignor of one-half his right to B. Kuhns, Dayton, Ohio. [Filed June 22, 1876.]

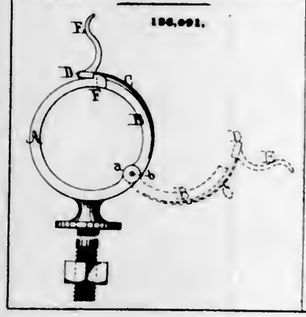
Brief.—A portion of the seed-cup is made adjustable, and is attached to a longitudinal rod having dogs, for gradnating the quantity of seed to be sown



1. In a seeding apparatus for grain-drills, the combination of a seed-cup having a portion of its case made to move horizontally over the discharge-aperture for the purpose of regulating the amount of grain sown, and a horizontally-arranged seed-wheel, the parts being constructed and arranged as and for the purpose specified.

2. The combination of a seed-cup having a portion of its surface adjustable, the dogs for moving the adjustable parts, a rod for connecting the series of sliding parts, and a handle or stop for moving the sliding portion of the cups, substantially as and for the purpose set forth.

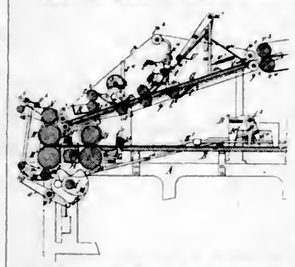
186,091.



186,092. CHECK-REIN HOOKS. W. Liddell, Sandy Hill, N. Y. [Filed July 28, 1876.]

The check-rein hook A, provided with the hinged guard-piece B, secured by the spring-catch D, and the means herein described for securing the hook to the harness, in the manner and for the purpose specified.

186,093. PAPER-BAG MACHINES. W. Liddell, Sandy Hill, N. Y., assignor of one-half of his right to Howland & Co., same place. [Filed Sept. 7, 1876.]



1. The combination, with the movable bar B¹ and expanding-springs *b b*, attached thereto, of the stationary guide-bar and tube B², for supporting and confining the springs and movable bar, substantially as hereinbefore set forth.

2. The combination, with the stationary knife H², of the guard-plate H³, arranged to slide vertically on the face of the stationary knife, so as to act upon the paper with its whole weight, and depress the same below the edge of the knife H² after the paper is severed, substantially as hereinbefore set forth.

3. The combination, with the rotating cutter H, provided with cam *h'*, of the stationary blade H², provided with the vertically-movable plate H³, substantially as and for the purpose hereinbefore set forth.

4. The combination, with the main cutting mechanism H H², having a space for the passage of the expanding-springs and bar, of the auxiliary cutter L, for completing the cut, substantially as hereinbefore set forth.

5. The combination, with the feed-rollers E E', of the endless belts m m, both supported in movable frames in such manner that they may be brought in contact with the faces of the feed-rollers and cover a greater or less arc thereof, substantially as hereinbefore set forth.

6. The combination, with the feed-rollers E E', of the two endless belts m m', adapted to be brought in contact with the faces thereof by mechanism, substantially as described, and driven at a speed exceeding that of the feed-rollers, for drawing the mouth of the paper tube out into a diamond shape, and stretching the paper at the same time, substantially as hereinbefore set forth.

7. The combination, with the feed-rollers E E', of the expanding-springs *b b*, for distending the mouth of the tube, and moving endless belts m m', for seizing the mouth of the tube after it is distended, and drawing it out into a diamond shape, substantially as hereinbefore set forth.

8. The combination, with the lower feed-roller E', of the endless belt m', rollers m² m³, swinging frame M, and actuating-cam M', substantially as and for the purpose hereinbefore set forth.

9. The combination, with the lower feed-roller E', endless belt m', and swinging frame M, carrying the roller m², of the shaft m⁴, carrying the roller m³, and driven from the roller E', substantially as and for the purpose hereinbefore set forth.

10. The combination, with the upper feed-roller E, of the pressure-roller N, endless belt m, and guide-roller n³, and supporting-arms, substantially as and for the purpose hereinbefore set forth.

11. The combination, with the rollers E N, of the endless belt m, roller n², cross-bar n⁴, arms n³, rods o, arms o', rock-shaft o², and actuating-cam o³, substantially as and for the purpose hereinbefore set forth.

12. The combination, with the endless belt m, and means for supporting the same, of the actuating-cam o², provided with adjustable portion o⁴, for regulating the time during which the belt is held against the feed-roller, substantially as hereinbefore set forth.

13. The combination, with the feed-rollers E E', of the distending-springs *b b*, endless driven belts m m', and pressure-roller N, substantially as and for the purpose hereinbefore set forth.

14. The combination, with the rotating creasing-knives T T and table G, of the roller f⁴, having a longitudinal groove, in which said knives engage, and provided with a spring, f', substantially as and for the purpose hereinbefore set forth.

15. The combination, with the creasing-knives T T and shaft t, supported in vertically-adjustable bearings, of the arms t', secured adjustably to hubs t², substantially as and for the purpose hereinbefore set forth.

16. The combination, with the movable creasing-knives T T, of the slotted arms t', springs t⁴, and stationary cams or inclines t⁵, substantially as and for the purpose hereinbefore set forth.

17. The combination, with the pivoted folder U, of the arm u² and cam or guide u⁴, constructed as shown and described, substantially as and for the purpose hereinbefore set forth.

18. The combination, with the folder V, of the arm e and actuating-rod e⁴, provided with projection e⁵, substantially as and for the purpose hereinbefore set forth.

186,095. PROCESSES OF TREATING FISH. Charles Alden, Newburg, N. Y. [Filed June 5, 1876.]

The within-described process of treating fish by first steaming the same, then exposing it to friction, and then curing it in a humid atmosphere, substantially as set forth.

186,096. DEVICES FOR WATERING STOCK. Isaac Allen, La Belle, Mo. [Filed June 16, 1876.]



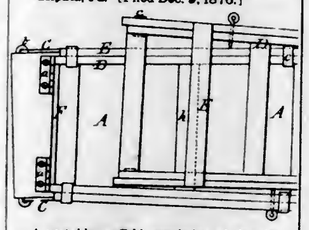
1. In a device for watering stock, the float E, provided with the arms *d* and cross-bar *e*, in combination with the lever *b*, substantially as set forth.

2. In a device for watering stock, the tanks A and D, connected by the pipe *a*, the former being embedded in the earth and containing the valve mechanism, and the latter serving as a drinking-vessel or reservoir, when arranged substantially as and for the purpose shown and described.

3. The combination of the float E, cross-bar *e*, and lever *b*, substantially as set forth.

4. The rod *i*, mounted in the standard *f*, and provided with the packing *l*, in combination with the lever *b* and pipe B, for the purpose set forth.

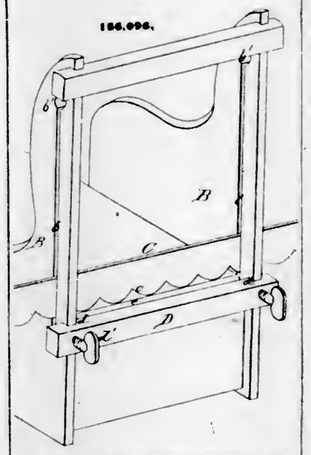
186,098. SCAFFOLDS. Jas. T. Allen, Philadelphia, Pa. [Filed Dec. 9, 1876.]



A portable scaffold, consisting of the platform A, pivoted braces C, and obliquely-folding end supports or ladders B B', substantially as specified.

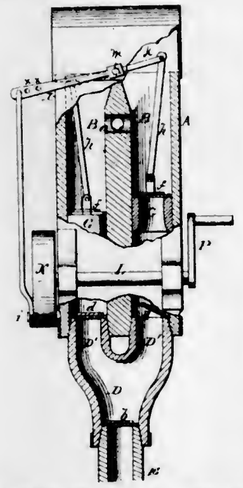
186,099. BREAD-CUTTERS. Alexander Anderson, London, Ontario, Canada. [Filed Aug. 21, 1876.]

186,096.



The improved bread-cutting apparatus, consisting, essentially, of the box A, having the sides B B, one of which may be lower than the other, the guides *b b*, terminating in eyes *b'*, the adjustable gage D, having set-screws *d'*, the serrated knife C, having pin *c'*, and the inclined way *c*, all combined substantially as shown and described, and for the purpose set forth.

186,097. PUMPS. Wm. Ault, Bremen, Ind. [Filed June 13, 1876.]



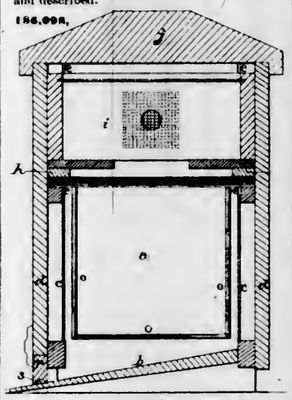
1. The combination of the two-chambered case A, with passage *a* and spout C, the chamber D, with branches D' D', having valves *d d*, the pump-stock E, with valve *b*, and the plungers G G, provided with valves *f f*, and connected by rods *h h* with the arms *k k* on the rocking shaft *m*, all substantially as herein set forth.

2. The combination, with the plungers G, connecting-rods *h*, arms *k*, and the rocking shaft *m*, of the lever I, having a series of perforations, *x*, the pitman J adjustable thereon, the adjustable wrist-pin *i*, disk K, with perforations *y*, shaft L, and crank P, all substantially as and for the purposes herein set forth.

186,098. BEE-HIVES. J. H. Baker, Broadway, and I. P. Baldwin, Manassas, Va. [Filed Dec. 2, 1876.]

The combination of the frame a, having grooves e, that extend its entire length, and panes c, adapted to be raised and lowered in said grooves, with the honey-frames g, end pieces h, honey-box i, cap j, and doors d, that are adapted to serve as supports for the honey-frames when the frames are taken from the hive for inspection, substantially as shown and described.

186,098.



186,099. PIPE TONGS AND CUTTERS. E. F. Barnes, New Haven, Conn. [Filed Dec. 20, 1876.]



1. The combination, in pipe-tongs, of the fixed jaw and its handle, constructed with a recess in the body, between the two, and a sliding piece arranged therein to form the second or opposing jaw or cutter, and a lever hung to the body of the principal jaw in rear of the said sliding piece, and engaging with the said sliding piece, to move the said piece to or from the stationary jaw, substantially as described.

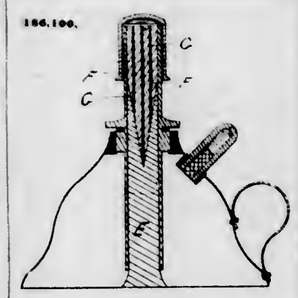
2. The combination, in pipe-tongs, of the fixed jaw and its handle, constructed with a recess in the body, between the two, and a sliding piece arranged therein, and constructed one end as a jaw, and the other as a cutter, and made reversible in the said recess, and a lever hung to the body of the principal jaw in rear of the said sliding piece, and engaging with the said sliding piece to move the said piece to or from the stationary jaw, substantially as described.

186,100. VAPOR-LAMPS. Joseph Benson, Boston, Mass. [Filed Aug. 6, 1876.]

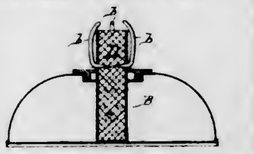
Brief.—The cotton carries the fluid to the asbestus and mica partitions, the latter conveying heat downward to vaporize it.

In a naphtha-lamp, the combination wick herein described, the same consisting of an asbestus filling, F, mica partitions G, and cotton wick E, applied within a wick-tube or casing, all substantially as described, for the purpose specified.

186,100.

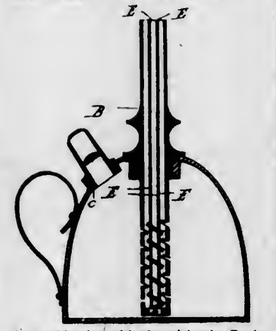


186,101. VAPOR-BURNERS. Jos. Benson, Boston, Mass. [Filed Nov. 11, 1875.]



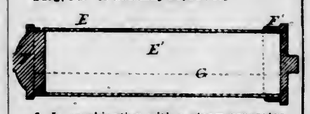
The projections *b*, overlaying the burning end of and also entering the wick-tube B, substantially as described, for the purpose set forth.

186,102. VAPOR-LAMPS. Joseph Benson, Boston, Mass. [Filed July 1, 1876.]



In combination with the wick-tube B, the wick D, composed of a sheet or sheets of mica, E, dividing the interior of the wick-tube vertically into two or more partitions, which are filled with asbestos or other absorbent mineral substance, substantially as described.

186,103. HOT-WATER RESERVOIRS. Geo. W. Bollman, Pittsburg, assignor to Eclipse Steam Manufacturing Company, Sharpsburg, Pa. [Filed May 16, 1876.]



1. In combination with a steam-generator, the hot-water reservoir E', made of wrought metal, and having a seamless shell, the joint being welded, for the object set forth.

2. A hot-water reservoir having a seamless shell, the joint being welded with a lap or butt weld, for the object specified.

3. In combination with a hot water reservoir having a seamless shell, the heads F and F', for the object set forth.

186,104. AUTOMATIC ELECTRIC TELEGRAPHS. R. K. Boyle, New York, N. Y. [Filed June 15, 1876.]

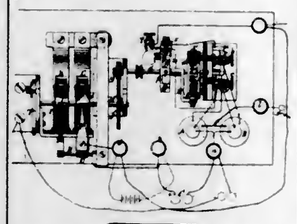
1. The combination, with a local battery, of two induction-coils, which are alternately charged, whereby a series of waves of electricity of the same kind are sent over the line-wire, substantially as shown and described.

2. The combination, with the transmitting-drum I and its brush M, of circuit-breakers D S, induction-coils A B—two or more—local battery C, recording-drum J, and pen or stilus P, substantially as and for the purpose set forth.

3. The combination, with the transmitting-drum and its brush M, the induction-coils A B, and with the circuit-breakers D S, of a multiplying-gear, *f g*, whereby the number of electric waves sent over the line-wire is multiplied each time the brush M passes over a perforation in the transmitting-strip, substantially as set forth.

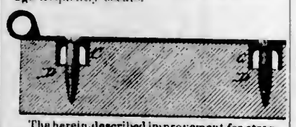
4. The combination, with the shaft H, which carries the drums I J, and with their presser-rollers K L, of a lever, D, for relieving said drums from the pressure of their presser-rollers, substantially as shown and described.

186,104.



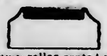
186,105. STRAP-HINGES. Chas. B. Bristol, New Haven, Conn. [Filed Oct. 27, 1876.]

Brief.—The ordinary strap-hinge is formed or provided with two hollow studs or bosses on the rear side, surrounding the screw-holes, which bosses, fitting in suitable recesses, relieve the screws of the main portion of the vertical strain, and at the same time strength on the strap at its weakest point, where breakage frequently occurs.



The herein-described improvement for strap-hinges, consisting in constructing the strap with one or more hollow studs or bosses formed on its rear surface and around the screw perforations, substantially as described.

186,106. COLLARS FOR LAMPS. John G. Brothwell, Wolcottville, Conn., assignor to Turner & Seymour Manufacturing Company, same place. [Filed Nov. 20, 1876.]



The zinc lamp-collar coated with brass, as a new article of manufacture.

186,107. METHODS OF MAKING LIFT-SPRINGS FOR WATCHES. A. S. Buckelew, Jersey City, N. J. [Filed May 22, 1876.]

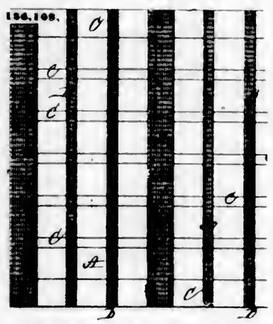


The method of forming a watch-case spring by cutting from a sheet of metal a blank, as shown in Fig. 2, having the segment *a*, arm *b*, and studs *c' c*, then twisting said arm at *d*, and curving it to coincide with the segment, and finally bending the studs *c c'*, substantially as described and shown.

186,108. HORSE-BLANKETS, CARRIAGE-ROBES, &c. L. C. Chase, Boston, Mass. [Filed Dec. 8, 1876.]

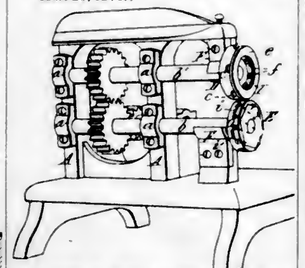
Brief.—The blanket is composed of a shoddy filling and two distinct series of warps, one series of which is spaced and the other close; and the filling is so interwoven as to be alternately exposed and covered, thus producing stripes.

186,108.



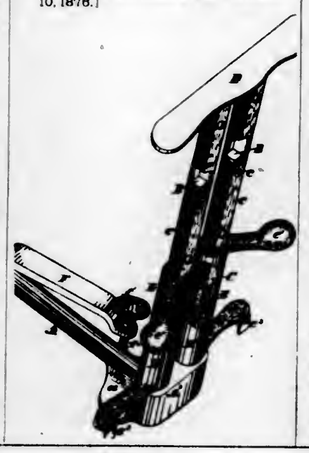
As a new article of manufacture, a horse-blanket, carriage-robe, or other analogous article, composed of a woolen or shoddy filling and two separate and independent series of warps of cotton, linen, or jute, one series of warps being spaced and the other close and interwoven with the filling, whereby the weft or filling is alternately exposed and covered, thus producing stripes B C, substantially as and for the purpose set forth.

186,109. MACHINES FOR PUNCHING METALLIC LATH. J. G. Clark, Springfield, Mass., assignor to G. Dwight, Jr., & Co. [Filed Mar. 28, 1876.]



A series of punches operating in a rotary manner, arranged to be adjusted to the desired length by the screws *f* turned through the rim of the rotating disk or wheel, and held in place by means of the clamping-plates *s* secured against the side of the said disk, substantially as set forth.

186,110. PIANO-PEDAL ATTACHMENTS. G. C. A. Claes, Philadelphia, Pa. [Filed June 10, 1876.]



1. The base A, for a piano-pedal attachment, having lateral extensions *a a*, and the head-block A', substantially as shown and described.

2. In a piano-pedal attachment, and in combination with a base, A, a hinged block or bar, F, adjustable by means of a screw, *f'*, so as to fasten the device beneath the lyre of a piano, substantially as described.

3. In combination with the double standards B B the extensible tubes C C, sustaining the foot-rest D, and adjustable by means of the set set-screw *c*, substantially as set forth.

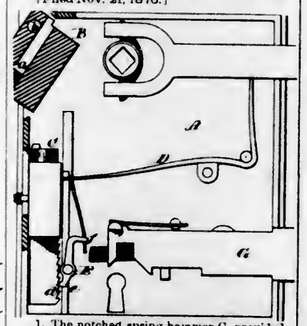
4. The sliding tube E, having lateral arms *e e'*, substantially as and for the purposes described.

5. In combination with the arms *e* of the tubes E E, the legs *e'*, substantially as shown and set forth.

6. The combination of base A, standards B B, tubes C C E E, foot-rest D, and hinged adjustable block F, the several parts being constructed and arranged for operation substantially as shown and described.

7. In combination with the arms *e e* of the tubes E E, the connecting-rod E', substantially as and for the purpose described.

186,111. ALARM-LOCKS. W. H. Cline, Indianapolis, Ind., assignor of one-half of his right to G. S. Clements and M. H. Mette. [Filed Nov. 21, 1876.]



1. The notched spring-hammer C, provided with a knob, *c*, in combination with the spring-dog E, having nose *e* and tail-piece *f*, and case A, all arranged and operating to catch and hold the hammer in any one of the notches, substantially as shown.

2. In an alarm-lock the pivoted block B, substantially as described, adapted to be swung outward for the purpose of receiving a cartridge, as set forth.

3. In an alarm-lock the combination of the pivoted block B, notched spring-hammer C, spring-dog E, provided with nose *e*, and tail-piece *f*, the bolt G, and case A, substantially as shown and described.

186,112. MANUFACTURE OF ORNAMENTAL GLAZED BRICKS. Wm. D. Cliff and Walter Cliff, Wortley, near Leeds, England. [Filed Mar. 27, 1876.]

Brief.—Patterns or designs printed upon paper with enamel colors are transferred to the glazed surfaces of the bricks, when the paper is washed or drawn off, leaving the coloring material on said surfaces. The coloring material is fixed by refiring in a kiln.

The method herein described for producing ornamental bricks, by coating them, before baking, with opaque glaze, then firing to an intense heat, then applying to the glazed surface suitable designs in enamel colors, and re-firing the bricks to fix the designs, substantially as set forth.

186,113. DREDGING-MACHINES. T. Z. Cole, Newark, Del., assignor of one-fourth his right to J. E. Walton, same place. [Filed July 10, 1876.]

Brief.—The scrapers and endless bucket-chain are operated by gear-wheels of variable radius, to allow time for the scrapers to clean out the buckets. The end of the scow is inclined, and is provided with a groove and guides for the chain by which the bucket-chain is elevated. The elevator-frame is divided in two parts, pivoted on the pulley-shaft, and supported on its rear side by a friction-roller.

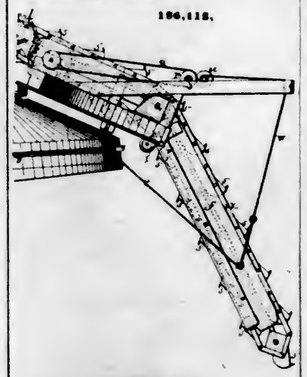
1. The combination of the two variable wheels *w n*, constructed, as shown, with the scrapers or cleaners *p* and endless chain of buckets, substantially as set forth.

2. In combination with a dredging-machine, a scow having its end inclined, as described.

3. The scow *a*, having the groove *g* around its front end, in combination with the guides *h* and chain *s*, substantially as set forth.

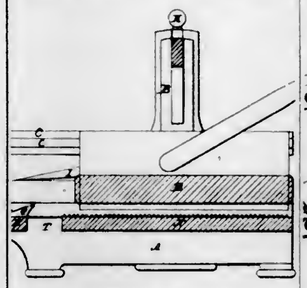
4. The combination of the frame *f*, divided into two parts, and pivoted together by the shaft *y*, on which are placed the two wheels *z*, with the chain *x* and supporting-rollers 1, substantially as shown.

186,114.



186,114. MACHINES FOR MAKING CARAMELS AND OTHER CANDIES. G. S. Collum, Hartford, Conn., assignor of one-half his right to W. A. Bryant, same place. [Filed Aug. 29, 1876.]

Brief.—The rolling plate, having longitudinal knives, is pushed to the back end of the machine, when a roll of dough or paste is laid transversely upon the table having notched ridges. The plate is then brought forward, rising and sliding upon pivoted rocking bars, from the front end of which it falls upon the table, cutting the roll of dough into caramels, which are rolled into form by reciprocating the plate, and finally discharged at the back end of the machine. The knives and intervening spaces of the plate are cleaned upon its backward stroke. The knives extend from the rolling-plate midway between the notched ridges of the table.



1. The combination of the rolling-plate D with the movable frame C and the inclined rocking bars 1, for giving the proper motion to the plate, substantially as herein described.

2. The combination of the adjustable springs G with the frame C, and rolling-plate D, to regulate the pressure and assist in supporting the weight of the frame, substantially as herein described.

3. The rolling-plate D, having knives O, in combination with the table N, having the indented ridges P, substantially as herein described.

186,115. MATCH-BOXES. Wm. B. Coulter, Burlington, Conn. [Filed June 12, 1876.]

1. In a match-safe, the combination, with a double serrated jaw, of a single serrated jaw or holder, the same constructed and arranged to oscillate on their bearings, substantially as and for the purpose set forth.

2. In a match-safe, the combination, with the double and single serrated jaws, of springs attached to the bearings to impart the necessary tension, substantially as and for the purpose described.

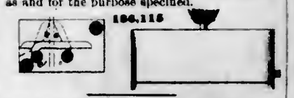
3. In a match-safe, the match-chamber A, formed with independent feeding-troughs F F', and match-receptacle G, substantially as and for the purpose set forth.

4. In a match-safe, the combination, with the independent feeding-troughs F F', of an intermediate revolving trough, and a plunger constructed to reciprocate therein, substantially as and for the purpose specified.

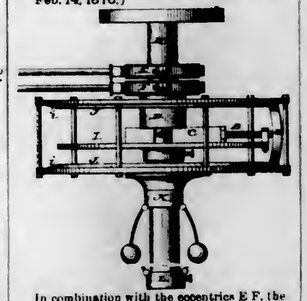
5. In a match-safe, the combination, with the revolving feeding-trough, of a semi-cylindrical plunger, substantially as and for the purpose specified.

6. In a match-safe, the combination, with the revolving trough H, of the notched ring or disk J, pawl K, and spring L, substantially as and for the purpose specified.

186,116.

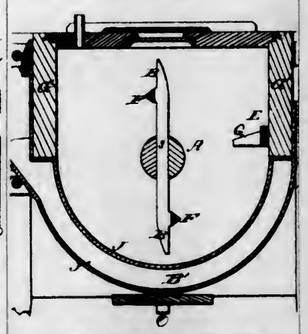


186,116. GOVERNORS. Wm. N. Cosgrove and Thos. Mee, Faribault, Minn. [Filed Feb. 14, 1876.]



In combination with the eccentrics E F, the latter being movable on main shaft H of the parallel beveled flanges J, the angular rack C, the screw-shaft B, carrying the beveled friction-wheel A, the segment gear-wheel D, and a governor mechanism, substantially as specified.

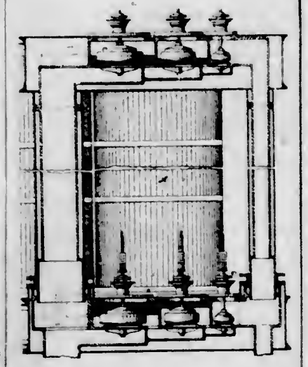
186,117. CHURNS. B. T. Daniels, Utica, N. Y. [Filed Nov. 18, 1876.]



1. The dasher-shaft A, made in two or more parts, *a' a'*, detachably connected together, and provided with recesses *r* to receive the paddle-shanks *s*, substantially as described, and for the purpose set forth.

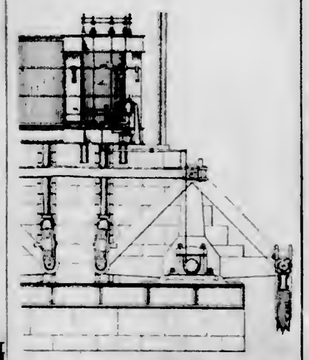
2. The recessed dasher-shaft A, made in two or more parts, *a' a'*, in combination with the paddles B, having shanks *s*, and connecting-rods F, substantially as described, and for the purpose set forth.

186,118. PUMPING-ENGINES. H. Davey, Leeds, England. [Filed Sept. 14, 1876.]



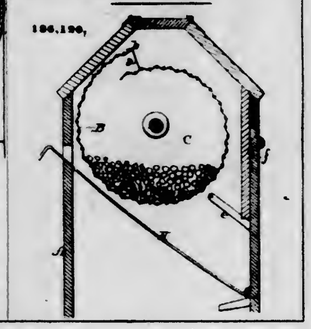
The combination, in a compound engine, of the three double-beat valves, of increasing size, at each end of the high-pressure cylinder, arranged to operate substantially as described.

186,119. ENGINES FOR PUMPING AND COMPRESSING AIR, &c. H. Davey, Leeds, England. [Filed Sept. 14, 1876.]



In combination with the piston-rods of a compound engine, the two bell-crank levers, secured together at the upper ends by means of a link, and attached at their inner ends to said piston-rods and at their outer ends to the piston-rods of the pump-cylinders, substantially as described.

186,120.



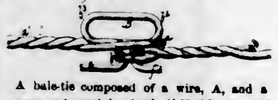
186,120. ASH-SIFTERS. Isaac Davis and S. S. Davis, Springfield, Mass. [Filed Aug. 2, 1876.]

Brief.—By shoving the pivoted chute with the pivoted handle, it is reversed and becomes a door.

1. The door or chute G, suspended by means of pivoted arms or swinging hinges *e e*, and operated by means of the rod H to form either a door or chute, substantially as herein set forth.

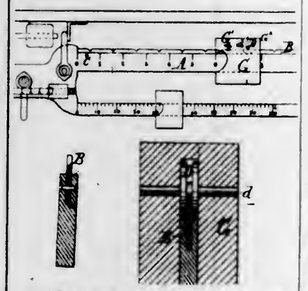
2. The combination of the box or case A, having lid I and door J, the rotating cylinder B, with lips *b b* and opening *a*, and the combined swinging door and chute G, substantially as and for the purposes herein set forth.

186,121. BALE-TIES. L. E. Evans, New York, N. Y. [Filed Dec. 18, 1876.]



A bale-tie composed of a wire, A, and a compound retaining-hook b^1 b^2 b^3 b^4, one end of the wire A being provided with a loop, *a*, while its opposite end is carried once or more times round the neck of the compound retaining-hook, substantially as and for the purpose shown and described.

186,122. SCALE-BEAMS. F. Fairbanks, St. Johnsbury, Vt., assignor to E. and T. Fairbanks & Co., same place. [Filed June 20, 1876.]



1. The scale-beam A B, having the steel blade B let into the main body A, of softer metal, along its whole length, and secured, substantially as herein specified.

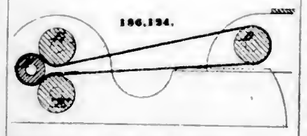
2. The beam formed, as specified, with a brass body, A, and a steel notched blade set therein, in combination with a tilting poise, G, carrying wheels D, axis *d*, and pin *m*, as herein set forth.

186,123. WATER-PROOF HOSE. Dennis C. Gately, Newton, Conn. [Filed Nov. 27, 1876.]



A water, gas, or steam proof hose composed of two or more concentric pieces of woven hose, having interposed between them vulcanized India rubber, and provided with a vulcanized sheet-rubber lining, or an external vulcanized sheet-rubber coating combined with such internal lining, the whole being made up substantially as herein set forth.

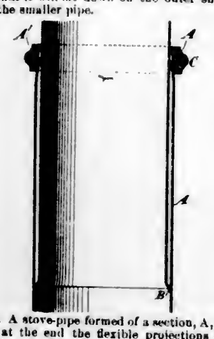
186,124. MACHINES FOR FORMING SHEET-METAL TUBES. A. C. Goodell, Salem, Mass., assignor to M. M. Camp and J. E. Searles, Jr., New Haven, Conn. [Filed Aug. 28, 1876.]



A machine for forming sheet-metal tubes consisting of an endless belt stretched on a movable driving-roller at one end, and on a pair of guide-rollers at the other end, in connection with a loose interchangeable mandrel, on which the tube is formed by the belt, substantially in the manner and for the purpose specified.

186,125. EXTENSION STOVE-PIPES. M. G. Graham, Hornellsville, N. Y., assignor of two-thirds his right to A. W. Hunt and J. O. Adsit, same place. [Filed Dec. 14, 1876.]

Brief.—The end of the larger pipe is slit, so that it will sit down on the outer surface of the smaller pipe.



1. A stove-pipe formed of a section, A, having at the end the flexible projections A′, a section, B, sliding into section A, and a slip-ring, C, for completing the joint, substantially as set forth.

2. In combination with an exterior section, A, with flexible projections A′, and slip-ring C, for forming an exterior joint, the interior section B, having a flaring end at B′, for forming an interior joint, substantially as set forth.

186,126. BOOT AND SHOE SOLES. Solomon J. Gordon, New York, N. Y. [Filed Nov. 13, 1876.]

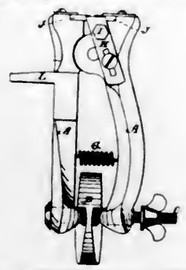
Brief.—Interposes between layers of leather a compound of vulcanizable gum, sulphur, plumbago, white or red lead, and brass filings.



In a boot or shoe sole, the combination, with one or more thicknesses of leather, of a layer of the compound described, all substantially as set forth, for the purpose stated.

186,127. SAW-SETS. G. S. Grier, Milford, Del. [Filed Dec. 5, 1876.]

Brief.—The jaws are thrust together by the handle of the compound cam, and separated by the springs.

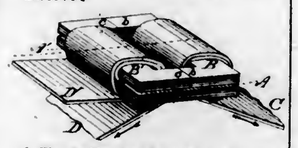


1. The combination of the hinged jaws A A, the compound cam B, lever D, and the flange-plate L, substantially as shown and described.

2. The combination of the hinged jaws A A, the cam B, the check-bolt C, and die-plates J J, substantially as shown and described.

3. The combination of the hinged jaws A A, the die-plates J J, the cam B, lever D, the springs F and G, and spring-gage H, substantially as shown and described.

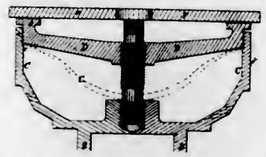
186,128. BELT-COUPLINGS. Enrique Guerrero, Havana, Island of Cuba. [Filed Dec. 26, 1876.]



1. The combination of the frame A A′ and key-piece or key-pieces B B′, adapted to receive and hold the belt C D, substantially in the manner and for the purpose herein set forth.

2. The combination of the belt C D with the frame A A′ and key-piece or key-pieces B B′, substantially in the manner and for the purpose herein set forth.

186,129. BALANCE SLIDE-VALVES. L. H. Hall, Erie, Pa. [Filed Oct. 21, 1876.]

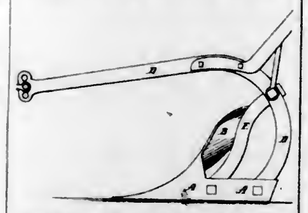


1. A balance slide-valve, B, having a shell, C, built on its back, and a faced balance-plate, D, set in said shell, in combination with a right-and-left screw, E, for sustaining and adjusting said plate D, substantially as shown and described.

2. A cylindrical shell, C, cast upon the back of the valve and bored out, in the bore of which fits the plate D, turned up so as to fit said bore, and form the joint *c*, without the use of packing-rings, in combination with an adjusting stud, E, the whole being arranged and operating substantially as and for the purpose set forth.

186,130. PLOWS. J. W. Hendley, Cedar Hill, N. C., assignor to D. N. Bennett and S. T. Wright, same place. [Filed Nov. 25, 1876.]

Brief.—Curved beam connected to land-side by brace. Clearing-space above mold-board.

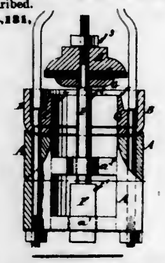


The improved plow herein described, consisting of the land-side A and mold-board B, welded together, the curved beam D attached to the land-side only, and the brace E bolted to the middle of land-side and the curved portion of the beam, a clear space being left between the mold-board and brace, as shown and described, for the purpose specified.

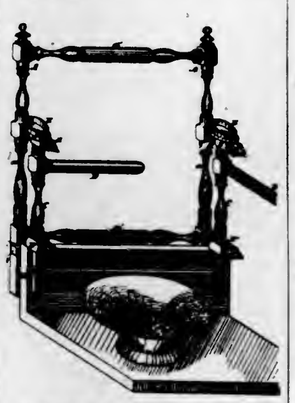
186,131. PUMP-VALVES. G. D. Hopper and W. H. Laufkotter, Sacramento, Cal. [Filed July 1, 1876.]

The valve-stem F, made rectangular in its lower part, round in its upper part, and with the two shoulders f^1 f^2, and the two cross-bars a^1 a^2, in combination with the valve-box A and the valve G I H, substantially as herein shown and described.

186,131.



186,132. COMBINED WALL-PROTECTOR AND TOWEL-RACK. H. M. Hutchinson and M. V. Lunger, Philadelphia, Pa. [Filed June 30, 1876.]



1. The towel-arms D D, rigidly secured to posts C C swiveled in arms B B′ projecting from the frame A, substantially as shown and described.

2. In combination with the posts C a and arms B′ B′, the hangers F, said hangers being arranged to depend in front of the cornice G while said posts pass back of said cornice, the latter being made fast between said hangers and posts by a key or screw, substantially as set forth.

3. The combined wall-protector and towel-rack for wash-stands, herein shown and described, consisting of the frame A, rigid arms B B′, swiveled posts C C, and hangers F F, substantially as set forth.

186,133. MACHINES FOR CUTTING PAPER AND OTHER MATERIAL. Gustav L. Jaeger, New York, N. Y. [Filed Dec. 2, 1876.]

Brief.—Intermitting feed rolls convey the web end of the paper beneath the intermittingly-revolving knife, to the griper-cylinder, where it is caught and held till cut off, after which the cut piece is carried around by the cylinder and deposited beneath it. By a mutilated and graduated gear upon the cylinder-shaft, the different lengths of paper to be cut are determined, and their width by knives mounted above the web. The frame mounted upon the table can be swung around at right angles to the cylinder, so that paper can be fed to the latter by hand.

1. The combination, in a machine for feeding and cutting paper, of a griper-cylinder, two intermittent feed-rollers, and a knife which has an intermittent revolving motion, all constructed and operating substantially in the manner and for the purpose shown and described.

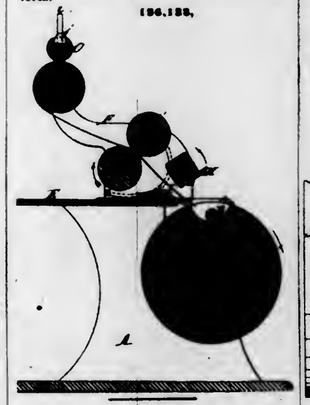
2. The combination, with the griper-cylinder, and with the feed-rollers, of a segmental gear mounted firmly on the shaft of the griper-cylinder, and serving to transmit motion to the feed-rollers, substantially as set forth.

3. The combination, with the griper-cylinder, the feed-rollers, and the revolving knife, of a segmental gear, which is adjustably mounted on the shaft of the griper-cylinder, for imparting an intermittent revolving motion to the knife, and for adjusting this motion to sheets of different length, substantially as shown and described.

4. The combination, with the feed-rollers and the griper-cylinder, of slitting-knives *j j*, secured in a bar, O, substantially as and for the purpose set forth.

5. The combination, with the main frame A, griper-cylinder C, and table E, of a secondary frame, F, forming the bearings for the feeding and cutting mechanism, so that, by removing said secondary frame out of the way, the paper or other material can be fed to the griper-cylinder by hand, substantially as set forth.

186,133.



186,134. FISHING-LINE LEADERS. Welmer T. Jahne and Anthony Moore, Jersey City, N. J. [Filed May 26, 1876.]

Brief.—The swivel is arranged horizontally upon the spreader, and has an eye attached.



The fishing-line leader, herein described, consisting of the V-shaped spring-frame A and the horizontal swivel *b*, having an eye, B, thereon, fitted to the spring-frame at the bend thereof, as and for the purpose set forth.

186,135. VALVE-GEARS. W. Johnson, Camden, N. J. [Filed Nov. 3, 1876.]

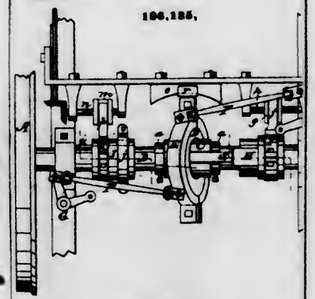
1. The sleeve C, encompassing and geared with the drive-shaft, in combination with a diametrically-pivoted collar, a sliding peripheral rim connected with the valves, and an adjustable connection for regulating the obliquity of the said collar and rim, substantially as and for the purpose described.

2. The sleeve C, the diametrically-pivoted collar, and the oscillating sliding peripheral rim connected with the valves, in combination with an adjusting device, *j* and *i*, for regulating the obliquity of the collar and peripheral rim, and a longitudinal rotary connection, H, for adjusting the collar axially for controlling the "lead," substantially as and for the purpose described.

3. The combination, with the drive-shaft, of the loose sleeve C, diametrically-pivoted collar D, the sliding peripheral rim E, connected with the valves by pitmen F, the sleeve H, connected with the shaft by a spiral feather, and to the sleeve C by a sliding tongue, and adjusted longitudinally by a loose collar and a set-screw, the sleeve I, connected to the shaft by a feather and groove, the loose collar *j*, connected with collar D by a pitman, *i*, and the loose collar *k*, provided with a set-screw, substantially as and for the purpose described.

4. The rim E, sliding upon the periphery of a rotating obliquely-adjustable collar, combined with valves by connecting-rods, and having an extension moving in curved guide O, substantially as and for the purpose described.

186,135.



186,136. VELOCIPEDES. Walter Katon and Paul Bonfils, North Attleborough, Mass. [Filed Nov. 8, 1876.]



1. The combination of the segmental gear-treadles M N′, ratchet-disks I, disks H, axle G, frame A, and wheels C F F, substantially as and for the purpose specified.

2. In combination with the frame A, the segmental gear-treadles M N′, springs O, and stops P P′, substantially as and for the purpose specified.

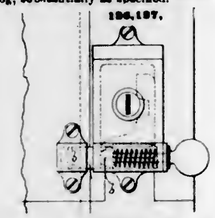
186,137. SASH-FASTENERS. T. F. Keating and W. H. Taylor, Stamford, Conn., assignors to the Yale Lock Manufacturing Company, same place. [Filed Sept. 8, 1876.]

Brief.—A spring fastening-bolt, with notches or circular groove near its outer end, in combined with a suitable dog or guard, independent of the bolt, and adapted to be operated by means of a key from the inside of the window; the construction permitting the fastening-bolt to be readily secured, either in advanced or retracted position, thus serving, when unlocked, as an ordinary spring-fastener, or, otherwise, as a secure locking device.

1. In combination with the spring-fastening-bolt B, provided with notches *b b*, the guard or dog C, adapted to engage therewith and be operated by a key from within, substantially as and for the purposes set forth.

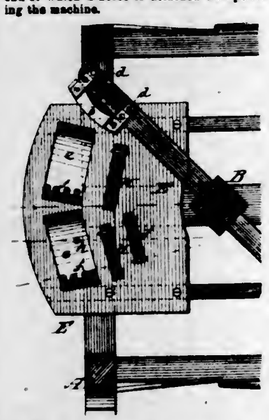
2. The sash-fast hereinbefore described, constructed to be operated wholly from the inside of a window to which it is applied, consisting of the combination of the case, the bolt, the locking-dog moving transversely thereto, and the key operating directly on the dog, substantially as specified.

186,137.



186,138. MACHINES FOR SHAVING SHINGLES. J. R. Kidder, Albion, Pa. [Filed Nov. 11, 1876.]

Brief.—The shingles are firmly held in inclined recesses in the upper surface of the table, by teeth mounted upon a spring at the shallow end of each recess, while being shaved to a uniform size by means of planing-knives and yielding gages attached to the opposite ends of a horizontally-swinging beam passing through the lower part of a vertical roller mounted in the center of the main frame, and having a sweep secured to its top, to the outer end of which a horse is attached for operating the machine.

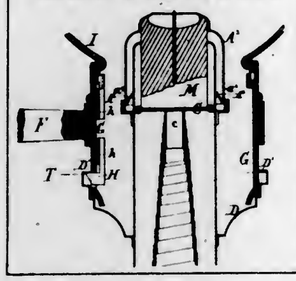


1. The yielding gages *b b*, arranged in front of the knives *a a*, in combination with roller B and beam D, as herein set forth.

2. The combination of the table E, having sinks or recesses *e e*, the stops *f f*, spring-bars G G, and shoes H H, as and for the purposes herein set forth.

3. The pin *h*, spring-bar I, and shoe J, arranged in the table E, as and for the purposes herein set forth.

186,139. CANDLE-LAMPS. Charles Klenle, New York, N. Y. [Filed Oct. 18, 1876.]



1. The combination, with the box A, of the hinged frame C, movable rubber G G^1, with posts H, and the pivoted hooks I, all substantially as and for the purposes herein set forth.

2. The curved metal plate *k*, in combination with the box A and hinged frame C, for the purposes herein set forth.

3. The pivoted latch-plate J, provided with slots *x x* and *x x*, in combination with the box A, having pins *y y*, and the hinged frame C, having pins *i i*, for the purposes herein set forth.

1. The self-clearing spring B, formed of sheet metal, close coiled, as represented, in combination with a candle-seat and inclosing-case, adapted to serve as herein specified.

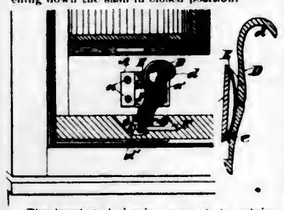
2. The casing A, having a contracted top adapted to lead away any melted grease, and keep an air-space between it and the candle, in combination with a cap, A^1, having a properly contracted top and an enlarged bottom, with provisions, a^2, for discharging the grease, as herein specified.

3. In a lamp having detachable parts, as specified, the engaging spurs H and springs h on the one part, in combination with the flange or rim D^1 and cams D^2 on the other part, adapted to engage by a direct thrust, and to separate by a turning motion, as herein specified.

4. The turning ring L, having internal cams L^2, and turning upon the fixed part O of the lamp, in combination with the beveled catcher or spurs P, acting springs *p*, with the beaded neck J^1 *j* of the lamp shade, as herein specified.

186,140. COMBINED SASH LIFT AND FASTENER. C. Levis, Philadelphia, Pa. [Filed Dec. 19, 1876.]

Brief.—A catch on one end of the sash-lift is utilized, in connection with a suitable spring and catch-plate, for automatically fastening down the sash in closed position.

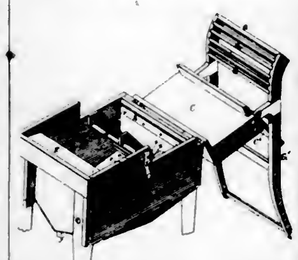


The bracket A, having ears *a' a'*, sustaining the pivoted lever D, having its upper end made to form a sash-lift, *d*, and its lower end to form a latch or fastener, *d'*, and spring E, said parts being combined and arranged to operate automatically, substantially as shown and described.

186,141. REMEDY FOR FEVERS. Judie D. Lipscomb, Andrews, Va. [Filed June 16, 1876.]

The above-described compound, consisting of tulip-tree bark, (*Liriodendron,*) willow bark, (*Salix,*) blue gentian, (*Gentiana catesbei,*) wild-cherry bark, (*Prunus Virginiana,*) dogwood bark, (*Cornus Florida,*) sassafras, (*Sassafras,*) flowering almond, (*Prunus amygdalus,*) whisky, common salt, sulphate of quinia, and Fowler's solution of arsenic, (*Liquor potassæ arsenitis,*) in or about the proportions specified.

186,142. WASHING-MACHINES. M. C. Longacre, Morris, Ill. [Filed Oct. 12, 1876.]



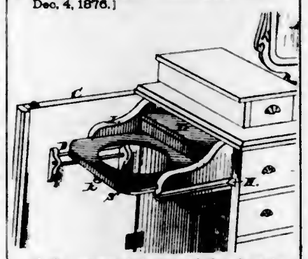
1. The self-clearing spring B, formed of sheet metal, close coiled, as represented, in combination with a candle-seat and inclosing-case, adapted to serve as herein specified.

2. The casing A, having a contracted top adapted to lead away any melted grease, and keep an air-space between it and the candle, in combination with a cap, A^1, having a properly contracted top and an enlarged bottom, with provisions, a^2, for discharging the grease, as herein specified.

3. In a lamp having detachable parts, as specified, the engaging spurs H and springs h on the one part, in combination with the flange or rim D^1 and cams D^2 on the other part, adapted to engage by a direct thrust, and to separate by a turning motion, as herein specified.

4. The turning ring L, having internal cams L^2, and turning upon the fixed part O of the lamp, in combination with the beveled catcher or spurs P, acting springs *p*, with the beaded neck J^1 *j* of the lamp shade, as herein specified.

186,143. COMBINED WASH-STAND AND BUREAU. Helen Mar, Boston, Mass. [Filed Dec. 4, 1876.]



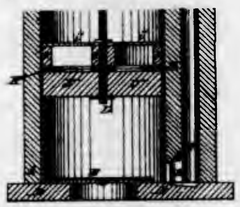
1. In a commode-bureau of the character herein specified, the combination, with the sliding wash-bowl shelf mounted upon, and movable within, the sliding side pieces I I, of a door, C, adapted to close the commode-section to conceal the contents thereof, and provided with a towel-rack located beneath the level of said shelf, substantially as and for the purposes set forth.

2. The slides I I, grooved to receive the wash-bowl shelf S, and provided with the secondary bracing-shelf L, in combination with the horizontal cleats located upon the interior of the commode-section, substantially as shown and described.

3. The herein-described combined wash-stand and bureau, composed of the two sections A and B, the former containing the sliding wash-bowl shelf movable within the sliding side pieces I I, and provided with a door, C, bearing a towel-rack, and the latter containing a row of drawers, the whole operating as shown and described.

186,144. FORCE-PUMPS. C. C. Mason and J. F. Bracket, Mount Pulaski, Ill., assignors to themselves and P. Baldwin. [Filed July 22, 1876.]

Brief.—When a single-acting pump is to be formed, the bottom cap is detached, and the solid lower part of the plunger is replaced by a frame, but without valves, which are necessary for the double-acting pump.



In a pump, the combination of the cylinder A, provided with the four valves C E H H, with the piston I J, made in two parts, and provided with a valve, *i'*, whereby the pump can be changed from a double-acting to a single-acting one, and vice versa, substantially as shown and described.

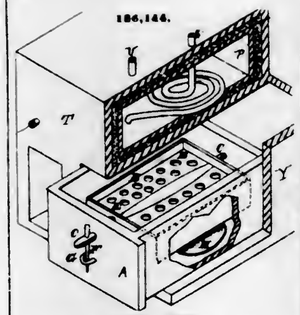
186,145. INCUBATORS. Walter Masterton, Stockton, Cal. [Filed Sept. 4, 1876.]

1. The wooden containing-box T, with its water-vessel P and heating-coil R in the upper part, having ventilating-apertures X through the top, in combination with the movable frame A, with its rotating egg-box B, having the perforated or open shelves K and the soft packing-strips D, substantially as and for the purpose herein described.

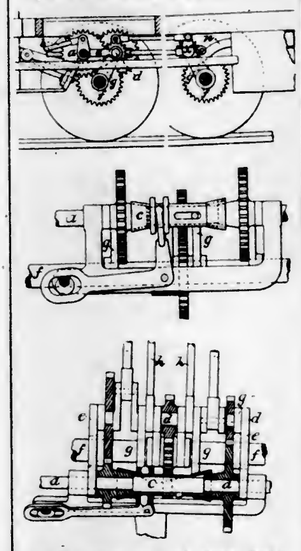
2. The sliding removable frame A, with its rotating egg-box B, having the journal C, extending through one side of the frame, and holding-pin F and staple G, the frame A being perforated below the box B at opposite ends, for the purpose of ventilating, substantially as herein described.

3. In combination with the frame A, with its rotary egg-box B, and heating and ventilating devices, as shown, the shallow water-vessel H, to supply moisture, substantially as herein described.

186,146.



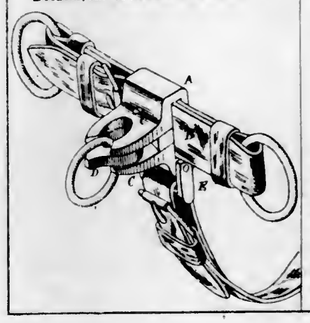
186,146. STEAM-CARS. H. Merrill, Brooklyn, N. Y. [Filed Dec. 20, 1876.]



1. The combination of the engine-shaft *a*, the clutch *c* and its speed-gears, the counter-shaft *d*, and the radius-bars *e*, substantially as described.

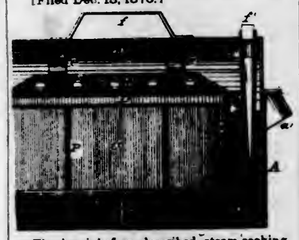
2. The radius-bars *g* and the connecting-frame *h*, by which the counter-shafts are carried on the axles, in the manner and for the purpose described.

186,147. SAFETY-HOOKS AND BREAST-STRAPS FOR HARNESS. Wm. J. Metcalf, Decatur, Ill. [Filed Nov. 16, 1876.]



The combination of the loop A, provided with the forked lips or projections C C, the pivoted hook D, and hinged loop E, substantially as and for the purposes herein set forth.

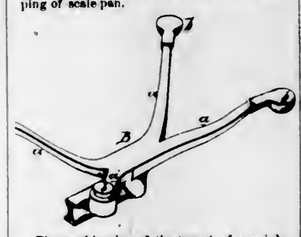
186,148. COOKING APPARATUS. Emma Miller, Randolph, N. Y., assignor of one-half her right to A. Alonso Miller, same place. [Filed Dec. 13, 1876.]



The herein-before-described steam-cooking apparatus, consisting of the reservoir-vessel A, provided with the perforated false bottom B and a cover, E, of the cooking-vessel C, having the double cover D D^1, provided with perforations *d*, said cover E being fitted with the filling-tube F, and the whole constructed and arranged to operate substantially in the manner as and for the use and purpose set forth and described.

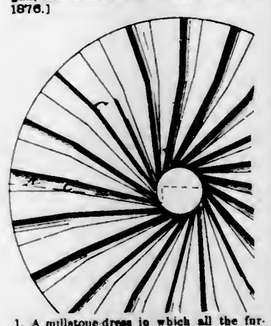
186,149. SPIDERS FOR SCALE-BEAMS. A. Montgomery, Philadelphia, Pa. [Filed May 17, 1876.]

Brief.—Pads on arms of tray prevent slipping of scale-pan.



The combination of the tray A of a weighing-scale with the spider B, having arms *a* with enlarged ends, for the reception and retention of pads *b*, as set forth.

186,150. MILLSTONE-DRESSES. E. J. Morgan, Milwaukee, Wis. [Filed Nov. 27, 1876.]

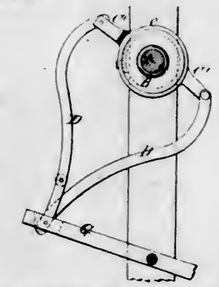


1. A millstone-dress in which all the furrows extend from the eye to the skirt of the stone, the furrows made wide and shallow from the skirt, and then gradually increasing in depth and decreasing in width to the eye of the stone, substantially as herein shown and described.

2. A millstone-dress in which the furrows are made wide and shallow at the skirt, increasing in depth and decreasing in width to the eye of the stone, and having the bends or crooks, substantially as herein shown and described.

186,151. MECHANICAL MOVEMENTS. John W. Mulline, Big Raccoon, Ky. [Filed Dec. 13, 1876.]

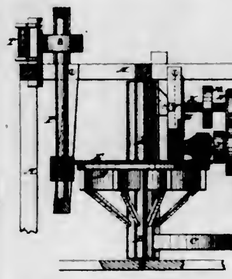
Brief.—To rotate a shaft there is on it a fixed drum, with two loose rings around it, with an arm between them, pivoted to the drum, the arm being pushed forward, and from side to side alternately, by ratchet teeth on the rings, which are reciprocated by a treadle.



The combination of the spindle A, the cylinder B, with arm *b*, having teeth *i i*, the loose ratchet-collars C C, with levers C^1 C^1, the arms D D, and treadle G, all constructed substantially as and for the purposes herein set forth.

186,152. HORSE-POWERS. J. E. Muldrow, Lynchburg, S. C. [Filed July 20, 1876.]

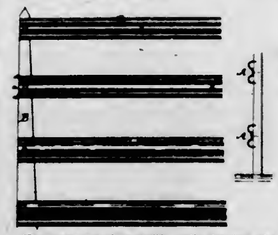
Brief.—Motion is imparted by the main wheel to the shafts and gearing by frictional contact with their respective drums.



1. In a horse-power, the combination of the vertical shaft or roller B, with horizontal wheel D, having rubber band E, the shaft F, hung in adjustable hangers V V, drum I, circumferential flange J, shaft K, pulleys H M N, and fly-wheels G L, all arranged substantially as and for the purposes herein set forth.

2. In a horse-power, the horizontal wheel D E, horizontal shaft F, drum I, vertical shaft P, and drum K, all constructed and arranged substantially as and for the purpose specified.

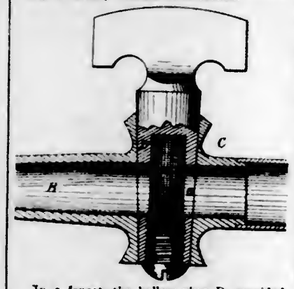
186,153. FENCES. A. J. Nellis, Pittsburg, Pa. [Filed Dec. 5, 1876.]



The corrugated metallic rails, having the bearing-edges a^1 a^1, in combination with the posts B, constructed substantially in the manner and for the purpose described.

186,154. STRAINERS FOR FAUCETS. S. S. Newton, Binghamton, N. Y. [Filed Oct. 18, 1876.]

Brief.—By removing the screw the strainer may be readily withdrawn or turned.



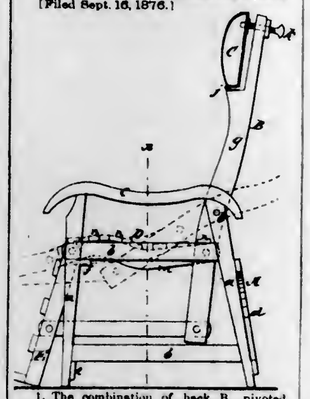
In a faucet, the hollow plug D, provided with the passage *a*, the cylindrical removable metallic strainer *b*, and screw *d*, in combination with the barrel or body C, substantially as and for the purposes herein set forth.

186,155. WRENCHES. O. B. North, New Haven, Conn., assignor to O. B. North & Co., same place. [Filed June 14, 1876.]



In a wrench in which the bar, head, and handle are formed in one and the same piece, the combination therewith of the movable jaw D, the screw-seat G, surrounding the bar at the base of the handle, and the adjusting-screw E, the handle being enlarged after the said movable jaw and screw-seat have been placed upon the bar, substantially as described.

186,156. EASY-CHAIRS. H. Parker, Osawatomie, Kans., assignor to himself, A. A. Brown, and F. A. Lauter, same place. [Filed Sept. 16, 1876.]



1. The combination of back B, pivoted to the seat and upper ends of the rear legs, the foot-piece E, connected with the back by pivoted bars C, and the seat D, having slide-bars *m* pivoted to foot-piece E, substantially as and for the purpose described.

2. The head-cushion C, pivoted at *j*, in a front recess of back B, and made adjustable, substantially as and for the purpose specified.

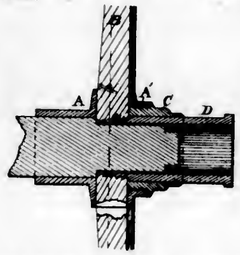
186,157. CIGARETTES. A. Pearl, Brooklyn, N. Y. [Filed Nov. 2, 1876.]

Brief.—The thin slices of which the cigarette is composed are cut longitudinally of the plug, and with the fiber of the leaf, and made without a binder.

186,158.

A cigar or cigarette having its filler made from plug-tobacco, cut in the plug lengthwise of the grain of the leaf, and held together and covered by a tobacco-leaf wrapper, substantially as and for the purpose specified.

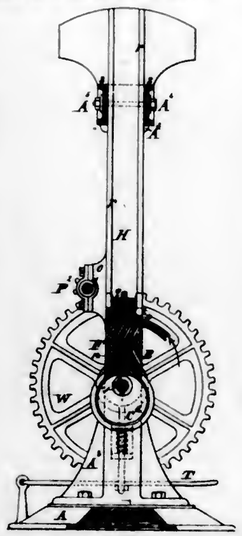
186,159. VEHICLE-WHEELS. A. A. Philbrick, Coldwater, Mich. [Filed Nov. 6, 1876.]



The combination of the hub A with enlargement A' and spokes B B, the screw ring or collar C and the tubular thimble D, having tapering screw end *a* for screwing under and forcing outward the spokes, all substantially as and for the purposes herein set forth.

186,160. MACHINES FOR SETTING ELLIPTIC SPRINGS. J. S. Passenger, Birmingham, Conn. [Filed Oct. 6, 1876.]

Brief.—Improvement on machine described in Letters Patent No. 186,918. An integral convex former, mounted on a bed movable vertically by cams, is perforated to admit water to the concave side of the spring-leaf, and is provided with fixed low flanges, between which the heated leaf is straightened while being set by the hammers or weights.



1. A positive former, for use, in combination with a flexible upper die, to fit or set a given size and shape of plate or leaf for elliptic springs, and to simultaneously straighten the same edgewise, said former being constructed with fixed low flanges *a a* at its respective upper longitudinal edges, a fixed center-pin, *c*, between the flanges, and a tongs-space, *t*, in the front flange, as herein illustrated and described.

2. A former constructed with a convex fitting or setting surface, and with passages for air or water, substantially as herein shown and described, and thus adapted to chill each fitted plate or leaf upon its concave side, so that the incident contraction of the metal shall tend to preserve the set of the plate or leaf, and not to straighten it, as herein set forth.

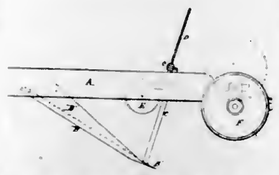
3. The sliding bed B, adapted to receive interchangeable positive formers F, substantially as herein shown and described, in combination with the flexible upper die composed of independent sliding weights or hammers H, two or more of which can be supported in elevated position to adapt the series to short formers.

4. The combination of the driving-pulley P, shaft S, pinion P^2, spur-wheel W, a clutch, C, the shaft S^2, and cams C^2 with a sliding bed, B, carrying a convex former, F, and the flexible upper die composed of weights or hammers H, substantially as herein shown and described, for fitting or setting spring plates and leaves by means of distinct blows in rapid succession, operating to displace the hot metal outward in the act of bending it, as in hand-pinching.

5. The sliding clutch-sleeve *j*, projected by springs and retracted by the action of a cam-flange and spring-bolt, under control of a treadle, substantially as herein specified, in combination with the inner keyed sleeve *k*, spur-wheel W, shaft S^2, and cam C^2 for stopping the sliding bed in its elevated or lowered position, at will, in the manner set forth.

186,162. DITCHING-MACHINES. A. Peterson, La Fayette, Ind. [Filed June 30, 1876.]

Brief.—A hinged plow or scoop tapering in width from point to heel, having vertical side cutting-flanges extending both above and below. The central cutter has an arm that travels upon a vertical screw, to regulate the depth. The truck reverses to carry the ditcher above or below its axle.



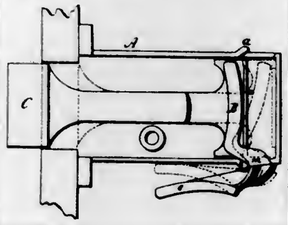
1. The adjustable inclined plane B, furnished with side cutters B″ that increase in width from point to heel, arranged and operating substantially as and for the purpose set forth.

2. The vertical cutter-bar C, having a collar, *e*, on its upper end, in combination with the hinged inclined plow B, the adjusting-screw D, pivoted in the guide-piece *a*, and the frame A, arranged to operate substantially as and for the purpose set forth.

3. In combination with the adjustable inclined plane B, with the side cutters B″ and the frame A, as described, the rotating disk-cutters E, arranged as and for the purpose set forth.

4. In combination with the frame A and adjustable inclined plane B the reversible trucks E, arranged and operating substantially as and for the purpose set forth.

186,161. REVERSIBLE LATCHES. Hiram S. Pomeroy, New Haven, Conn. [Filed Nov. 16, 1876.]

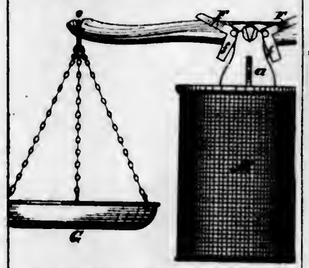


1. The like fulcrums *a* and *b*, projecting from opposite sides of a latch-case, immediately in front of the openings through which the lever B passes, substantially as shown and described.

2. In a reversible latch, the detachable lever B, consisting of the curved part *c*, the part *m*, making an acute angle with the curved part *c*, and the part *n*, running nearly at right angles to the curved part, adapted to turn at the angle *x* on either fulcrum *a* or *b*, as required, and held in the latch-case by the mechanism of the latch, substantially as shown and described.

3. In combination with the latch-bolt C, the detachable lever B, made as described, and adapted to turn at the angle *x* on either fulcrum *a* or *b*, projecting from opposite sides of a latch-case, as required, substantially as and for the purpose set forth.

186,163. FRUIT AND JELLY PRESSES. Jay W. Powers, Chicago, Ill., assignor of one-half his right to F. M. Melick, same place. [Filed July 7, 1876.]



1. In a fruit or jelly press the lever E, provided with pins or pivots *d*, formed substantially as described, and adapted to be used both as a lever and also as a scale-beam, substantially as and for the purposes specified.

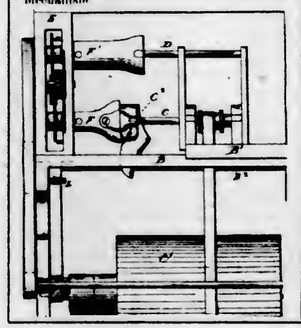
2. The receptacle A, plunger B, ratchet-bar C, cover D, and standards *a*, in combination with an operating-lever and pawls F, substantially as specified.

186,164. COMPOSITION PATTERNS FOR TAKING MULTIPLE IMPRESSIONS. Carl H. O. Badde, Hamburg, Germany. [Filed Aug. 7, 1876.]

The composition described, consisting of mutton-fat, bees-wax, Venetian turpentine, linseed-oil, and poppy-oil, in substantially the proportions above named, and for the purpose set forth.

186,165. WOODEN-SHOE MACHINES. Daniel P. Ramadell, New Haven, Conn. [Filed Mar. 27, 1876.]

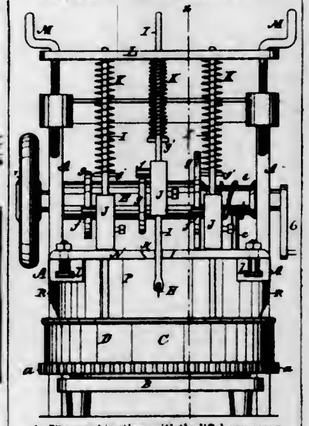
Brief.—The inside of wooden shoes can be automatically worked out by means of two universally-adjustable jaws for holding the shoe-blank during the operation, and a former provided with a cavity corresponding to the cavity to be made in the shoe, both attached to a transversely-swinging frame, in connection with a stationary guide-mandrel and a cutter-mandrel, mounted in a longitudinally-reciprocating frame, and suitable operating mechanism.



1. In a machine for making wood shoes, the holder, consisting of the universal jaws *b b*, arranged in the body F and combined with the clamping-screw H, substantially as specified.

2. In a machine for making wood shoes, the combination of the shoe-holder and the former, constructed with a cavity corresponding to the cavity to be made in the shoe, a former-mandrel, D, and a cutter-mandrel, C, the former and shoe holder simultaneously guided in the same path, substantially as described.

186,165. MEAT-CHOPPERS. H. P. Rankin, Allegheny, Pa. [Filed June 16, 1876.]



1. The combination, with the lift-bars, carrying the knives and adjustable shoulders J, of a stop-bar, N, arranged to support the shoulders, and limit the downward movement of the chopping-knives, as and for the purpose described.

2. The combination of the lift-bars I carrying knives H, with the adjustable bar L, having crank-screws M, and the stop-bar N, having a removable portion, N′, substantially as and for the purpose described.

186,166. TRANSOM-LIFTERS. F. A. Reiher, Chicago, Ill., assignor of one-half his right to C. F. Bollman, same place. [Filed Aug. 16, 1876.]

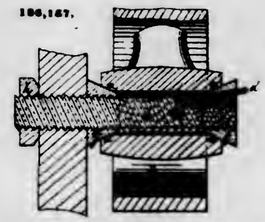


1. The arms or arm O′ O′, with rails *a a*, fastened to the transom-sash, in combination with the gear-segment and rack-rod.

2. The double-armed lever G, in connection with the rack-rod F with slot *f*.

186,167. COMPENSATING-JOURNALS. Peter Rieseck, Allegheny, Pa. [Filed Sept. 26, 1876.]

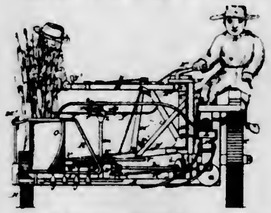
186,167.



1. In a bearing, the combination of the threaded cone with interposed ratchet notches and pawl, substantially as and for the purpose specified.

2. In a bearing, the combination of the threaded journal or shaft, two threaded cone-followers, and jam-nut and ratchet mechanism for locking the conical bearing-nuts, substantially as specified.

186,168. CORN-HARVESTERS. R. B. Robbins, Adrian, Mich. [Filed May 29, 1876.]



1. The stationary pocket P, as shown and described, arranged at the side of the platform of a corn-harvester, in the described relation to the cutters, for holding the hills of corn as cut while the shock is being formed.

2. The guard R, constructed substantially as shown and described, in combination with the pocket P, for the purposes herein set forth.

3. In a corn-harvester, a revolving reel composed of a series of radial flexible or yielding arms V, operated immediately above and in conjunction with the cutter-bars, substantially as and for the purposes herein set forth.

4. The combination of the wheel S and disk T on the shaft *m*, the hinged or pivoted arms V, springs *p*, and stops *n*, as and for the purposes herein set forth.

5. The flexible arms V, in combination with the pocket P and guard R, substantially as and for the purposes herein set forth.

6. The revolving reel W, for carrying the base of the stalks into the pocket, as herein set forth.

7. The combination of the pocket P and revolving reel W, for the purposes herein set forth.

8. The rocking arms Y, mounted upon a revolving shaft, substantially as shown and described.

9. The combination of the curved rocking arms Y, with pins *s*, and the arm *t*, and crank *v*, with lugs *z*, substantially as and for the purposes herein set forth.

10. The combination of the pocket P, guard R, flexible arms V, reel W, and rocking arms Y, substantially as and for the purposes herein set forth.

11. The central bar or arm D′, forming part of the derrick, substantially as and for the purposes herein set forth.

12. The hinged arm H′ and spring *a′*, in combination with the derrick and chain, for the purposes set forth.

13. The combination of the windlass L′ with pawl and ratchet, the chain *h′*, hinged arm H′, arms G′ G′, with their respective pulleys, and the pin *w′*, substantially as and for the purposes herein set forth.

14. The springs *f′*, in combination with horizontal arm E′ and hinged arms G′ G′, substantially as shown and described.

15. The combination, with the derrick, of the spring-bolt *i′*, notched casting B′, lever *v′*, and roller *m′*, on one of the hinged arms G′, for the purposes described.

16. The combination, with the hinged arms G′, of the rod *w′*, pawl *y′*, cam *x′*, and trigger *y′*, as and for the purposes herein set forth.

17. The combination, with the swinging derrick, of the hand-lever N' with cogged segment r', and the cogged base of the windlass l', for the purposes herein set forth.

18. The foot-lever O' and rod g', in combination with the derrick, for the purposes set forth.

19. The curved rail J', pivoted, as described, and provided with the flange b', in combination with the roller b' on the derrick-arm D', for the purposes set forth.

20. The combination of the serrated surfaces and bolts for adjustment of the derrick, to suit the varying height of cora.

186,169. "SNAPPER SOUNDERS" OR TOYS. John S. Rowbotham, Wilmington, Del. [Filed Nov. 1, 1876.]

Brief.—The improvement consists, mainly, in the method of securing the snapping-spring to the base.



As a new article of manufacture, a toy consisting of a frame, A B, made in one piece, provided with parallel inwardly-projecting flanges *b b* and hole *a*, in combination with the spring C, having depression *x*, constructed and arranged to produce a sound in imitation of the chirp of a cricket, as herein set forth.

186,170. METALLIC SEALS. C. G. Schneider, Washington, D. C. [Filed Aug. 28, 1876.]



1. In a sealing device, the bow or shackle thereof, provided with knots, and a loop or eye, *b*, and locked within a sealing-disk, substantially as described.

2. In a metallic seal, the combination of a loop or eye, *b*, a knotted bow or shackle, and a sealing-disk, substantially as desired.

3. The combination, in a seal, of a bow or loop, having a cross-bar and eye, and one or more knots, with a sealing-disk, substantially as described.

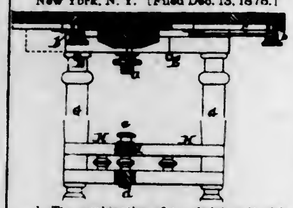
4. In a baggage or other seal, the sealing-disk, made with a tapering threading hole or orifice, substantially as described.

5. In a baggage or other sealing device, the shackle or bow, constructed with a cross bar terminating in an eye, substantially as and for the purpose described.

6. A shackle wire or bow, having one limb passed through the other within a sealing-disk, and the two locked together by means of a knot or knots, and an eye thereupon, substantially as described.

7. The combination of a shackle wire or loop, a knot or knots thereupon, a cross-bar, an eye on said shackle, and a soft-metal sealing-disk, substantially as described.

186,171. TABLE-LEAF SUPPORTS. H. Schier, New York, N. Y. [Filed Dec. 13, 1876.]



1. The combination of toggle-joints D with the supporting-arms C and leaves B of a folding table, the said supporting-arms being arranged in pairs with respect to each of said leaves, and the whole being adapted to operate substantially as described.

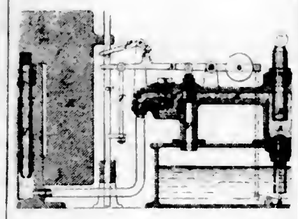
2. The combination of the table B, having guide-grooves *c*, with the studs *b* of the toggle-joints D, substantially as described.

3. The combination of springs E with the supporting-arms C and the toggle-joints D, substantially as and for the purpose described.

4. The combination of the pivoted rails H and the central rail I with the table-legs G and supporting-arms C, substantially as described.

186,172. HYDRAULIC-POWER REGULATORS. William Sellers, Philadelphia, Pa. [Filed May 31, 1876.]

Brief.—By the devices claimed the pump is in continuous operation, and ready to meet the demands upon it from the mechanism, but is relieved from work at all other times, though a circulation of water is maintained in the pump chamber.



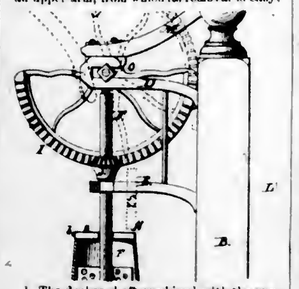
1. In combination, a lever having a constant weight at one end, and a counter-weight and a latching-lever at the other, and hydraulic mechanism operating the counter-weight and latching-lever, the combination being and operating substantially as and for the purposes set forth.

2. The combination of a system of automatic relief levers and weights, substantially as described, with the inlet-valve, for the purposes set forth.

3. The combination of the pump, a supplemental valve, and a system of automatic relief levers and weights, the combination being and operating substantially as and for the purposes set forth.

186,173. CHURNS. James S. Smith, Beebe Station, Ark. [Filed July 22, 1876.]

Brief.—A rotary churn with vertical shaft; the cover bisected, hinged at its edge, and held together by an elastic band on the upper side; the dash-rod let into the side of a lower guide-arm, on which a bevel-wheel receives motion from a bevel-sector, the axis of which is in a bearing in the head or return of an upper arm, from which its removal is easy.

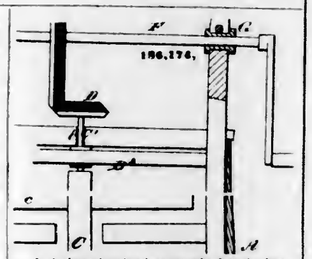


1. The dasher-shaft combined with the arm D, having the recessed bearing for journal of gear I, and the socket in its under side, and the lower arm E, having a notched bearing, and the pivot bar or button G, as shown and described, for the purpose specified.

2. In combination with the bracket D, having a recessed bearing, the gear I, wrist-pin L, clamp-nut O, dasher-shaft F, and pinion J, as shown and described, for the purpose specified.

3. The two-part tub-cover N, hinged at *b*, and having the elastic strap *c*, applied as shown and described.

186,174. ROTARY CHURNS. Edw. F. Snead and Henry C. Stinnett, Buchanan, Va. [Filed Sept. 9, 1876.]



1. A churn-box having opposite interior longitudinal grooves adapted to receive a dasher-supporting frame, which extends entirely across the interior of the churn-body, substantially as and for the purpose set forth.

2. The churn-box A, having opposite interior vertical grooves A' A', in combination with the removable frame B B' B', provided with arms *b b*, and shaft F, having bevel gear E, and the dasher-shaft C, provided with arms *a* and bevel gear D, substantially as and for the purpose set forth.

186,175. DEVICES FOR DECANTING LIQUOR. Eugene Snyder, Harrisburg, Pa. [Filed Dec. 16, 1876.]

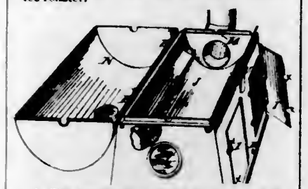
Brief.—The thread of the main screw is completed by the internal needle, said needle being withdrawn to allow the flow of liquid when desired.



In a device for decanting liquor, a tubular shaft provided upon its exterior with a thread, which is completed by a removable gimlet-point, substantially as set forth.

186,176. COMBINED FLAT-IRON HEATER AND COFFEE-ROASTER. M. Stein, Ypsilanti, Mich. [Filed Feb. 16, 1876.]

Brief.—The doors are notched to receive the handles of the irons. The hinged cover is notched to fit over the journals of the coffee-roaster.



1. The combination of the fire-chamber T, with inclined walls G G, outer shell C', with notched doors I, cold air chambers Z, hinged pan J, hinged cover N, and the coffee-cylinder D', all substantially as and for the purposes herein set forth.

2. The combination of the cast-iron semi-cylindrical box A, having flanges D D and inclined ledges B B, the inclined side walls G G, shell C', with notched doors I, and the hinged pan J, and hinged cover N, all constructed substantially as and for the purposes herein set forth.

186,177. TIME-LOCKS. Emory Stockwell, Stamford, Conn., assignor to the Yale Lock Manufacturing Company, same place. [Filed Nov. 16, 1875.]

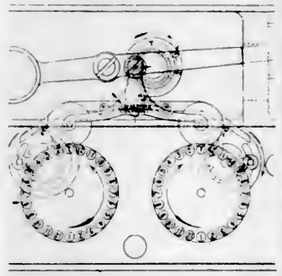
1. In a chronometric lock, the combination, with each of the time-movements thereof, of two automatic unlocking devices, constructed for the purposes specified.

2. In a chronometric lock provided with devices for determining the time of locking or of unlocking, an independent and supplemental unlocking device, which is reserved and inoperative so long as the winding of the time-movements is regularly performed, but which effects the unlocking of the lock whenever the time-movement nearly approaches the point of running down.

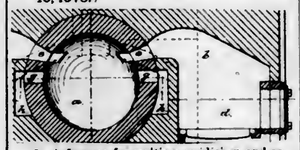
3. In a chronometric lock, an unlocking device consisting of a spring-barrel or its equivalent, a detent to retain the same, and a releasing-trigger, in combination, substantially as described.

4. In a chronometric lock, the combination of the spring-barrel Y, detent Y', and one or more triggers, V X, or the operative equivalents thereof, with one or more releasing devices, U U, operated by the time mechanism.

5. In a chronometric lock, the lever F and dog-block J, in combination with the reserved supplemental unlocking device, consisting of the studs U U, triggers V X, and spring-barrel Y, when constructed substantially as and for the purposes specified.



186,178. METALLURGIC FURNACES. M. A. Sutherland, New York, N. Y. [Filed July 10, 1876.]

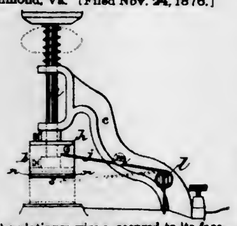


1. A furnace for melting, oxidizing, and reducing, composed of a chamber in the form of a hollow sphere, with two or more downwardly-projecting gas-flues, located to opposingly impinge one flame against another within the chamber, and two or more draw-off flues to carry off the smoke, substantially as set forth.

2. In a furnace for oxidizing, melting, and reducing, the combination of a fire box or boxes, a reducing-chamber with induction-orifices above, located to opposingly impinge one flame against another within the chamber, and eduction-orifices below, and a smoke-escape, substantially as set forth.

3. In a furnace for oxidizing, melting, and reducing, the combination of a fire box or boxes, a reducing chamber with flame-inlets above and smoke-exits below, a condensing-chamber, and smoke-escape, substantially as set forth.

186,179. BRANDING-STAMPS. T. F. Taylor, Richmond, Va. [Filed Nov. 24, 1876.]



1. The platinum wire *a*, secured to its face-plate by means of the loops 1, which have their ends come in contact with the rods *s*, as shown.

2. In a canceling device, a fixed face or bed-plate, placed on a plane with the face of the stamp or plunger, a platinum wire, *a*, attachments to a battery, and a circuit-closer that completes the circuit, so as to heat the wire before it comes in contact with the paper, as specified.

3. A plate of mica, *s*, attached to the lower side of the plunger, in combination with a platinum wire, *a*, substantially as specified.

4. The combination of a plate of ivory, bone, or other non-conductor, *s*, with a plate of mica, *s*, and a platinum wire, as shown.

5. The combination of the base *b*, rods *s*, tips *g h*, and wires *i j*, the wire *j* being made to act as a circuit-closer, substantially as specified.

186,180. PROCESSES OF INLAYING WOOD. Jas. Thornton, Crowndale Road, Camden Town, and Jas. Thallon, Longford Street, Regent's Park, assignors to Geo. Howard, Berner's Street, Oxford Street, Middlesex County, England. [Filed Dec. 30, 1876.]



The process of inlaying wood, consisting essentially of displacing, by compression, a wooden backing at points in the surface of the latter according to the design to be produced, by pressing into such wood backing one or more veneers by means of a die or roller having the design in elevation corresponding to the thickness of the overlying veneer or veneers, and then removing the superfluous veneer or veneers not embedded in the wood, substantially as described.

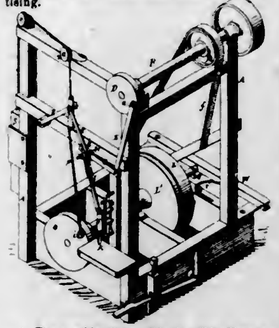
186,181. GAME APPARATUS. B. F. Underwood, Brooklyn, N. Y. [Filed May 5, 1876.]



The game apparatus herein described, consisting of the rectangular board having seventy-two squares, the cavalry, infantry, and ordnance pieces, all constructed and arranged substantially as described.

186,182. MORTISING-MACHINES. Clinton A. Weed, Racine, Wis. [Filed Oct. 11, 1876.]

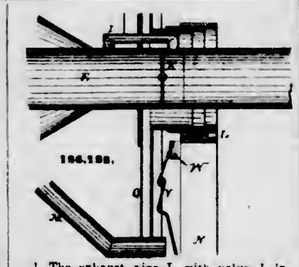
Brief.—The chisel is given a continuous vertically-reciprocating movement as it is fed downward. The machine can, by a slight change, be adapted for boring instead of mortising.



1. The combination, with the slide H upon the lever G, of the toggle-levers R R, cord *m*, with weight S, the pitman P, disk O, with wrist-pin *i*, shafts N N', and friction pulleys or clutch L L', all substantially as and for the purposes herein set forth.

2. The combination, with the pulley L' on the shaft N', of the laterally-movable shaft N, with pulley L, the lever W, with plate *r* and spring *t*, the connecting-rod *p*, and pivoted L-shaped foot-lever V, substantially as and for the purposes herein set forth.

186,183. FEATHER-RENOVATORS. R. B. Wightman, Herkimer, N. Y. [Filed Aug. 18, 1876.]

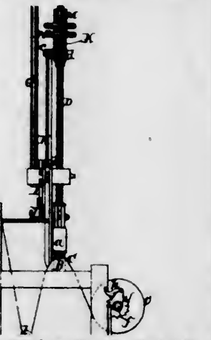


1. The exhaust-pipe I, with valve J, in combination with central pipe E', provided with valve K and escape-pipe P, substantially as and for the purpose set forth.

2. In a feather-renovator, the combination of central perforated shaft E', casing F, valve K, exhaust-pipe I, and valve J, substantially as and for the purpose set forth.

186,184. MACHINES FOR POLISHING PAPER. Max Weiner, Stapleton, N. Y., assignor to Louis Dejonge & Co., New York city. [Filed Nov. 10, 1876.]

Brief.—The polishing-tool is attached to a rod passing through a swivel-bolt, and is arranged above a supporting bed or table, and receives lateral reciprocating motion in a straight line, and thereby polishes the surface of the paper or other material passing over the bed, in a continuous sheet, from a roller on a shaft in front of the bed to a take-up roller in the rear.



1. In a polishing machine, the shaft *f*, for carrying the roll of material, and the shaft *i*, for taking up said material as polished, in combination with the bed B and the reciprocating polishing tool C, the whole arranged to operate as and for the purpose described.

2. The standard G, provided at or near its upper end with the swivel eyebolt E, in combination with the rod D, arranged at its upper end in said swivel-eyebolt, the polishing-tool secured to the other end of said rod D and to the standard H, the bed B, and shafts *f* and *i*—one for holding the roll of material, and the other for taking up the material as polished—substantially as described.

3. The combination of the tube K, having the screw-cap M and pivot *c*, the spring L arranged therein, the rod D, the swivel-eyebolt E on the standard G, the link H, pivoted on the pivot *c*, and on the pivot *b* the adjustable slide I, all substantially as and for the purpose described.

186,185. BARREL-REESTS. C. B. Wilder, Worcester, Mass. [Filed June 17, 1876.]



The combination, in a barrel rest or trig, substantially as described, of a block and metallic spurs.

186,186. GRAIN-BINDERS. C. B. Withington, Janesville, Wis., assignor to C. H. and L. J. McCormick, Chicago, Ill. [Filed Nov. 11, 1876.]

1. The combination, substantially as hereinbefore set forth, of a stationary grain-receptacle, a carriage reciprocating upon ways, and a binding or wire-carrying arm mounted upon said carriage, whereby the binding arm moves up to the grain in the receptacle, encircles it with wire, removes it from the receptacle, and releases it after being bound.

2. The combination, substantially as hereinbefore set forth, of a stationary grain-receptacle, a reciprocating carriage, and a binding or wire carrying arm, and binding head or twisting mechanism, mounted upon, and actuated by, the movements of said carriage.

3. The combination, substantially as hereinbefore set forth, of a reciprocating binding-carriage, a continuously-traversing endless chain, and a stirrup-lever, connecting the chain with the binding-arm, and having an intermittent semi-rotative movement at each end of its traverse, to reciprocate the binding mechanism.

4. The combination, substantially as hereinbefore set forth, of a continuously-traversing endless chain, a stirrup-link carried thereby, having an intermittent semi-rotative movement at each end of the traverse of the chain, a rotating crank-shaft actuated by the stirrup lever, a pitman connecting said crank-shaft with a rock-shaft having a crank of longer radius than the crank of the crank-shaft, and a binding-arm mounted upon said rock-shaft, to vibrate the binding-arm at suitable intervals.

5. The combination, substantially as hereinbefore set forth, of a reciprocating binding-carriage, a rotating crank-shaft, a binding-arm vibrated, through link-connections, by the crank-shaft, a guide-cam on the crank-shaft, and fixed stops on the frame, to lock the binding mechanism at each end of its movement while the binding-arm is opening and closing.

6. The combination, substantially as hereinbefore set forth, of the binding-carriage, a continuously-traversing endless chain, a stirrup-link pivoted thereon, having a semi-rotative movement at each end of the traverse of the chain, a crank-shaft mounted upon the binding-carriage rotated by the link, a binding-arm vibrated from the crank-shaft through suitable link-connections, and a binding-head or twister-wheel mounted on the binding-carriage, for the purposes specified.

7. The combination, substantially as herebefore set forth, of a reciprocating carriage, a binding-head or wire twisting and cutting mechanism, and sector-rack, operating said mechanism intermittently by the motion of the binding-carriage.

8. The combination, substantially as hereinbefore set forth, of a reciprocating binding-carriage, wire cutting and twisting mechanism carried thereby, a vibrating sector-rack pivoted thereon, and mechanism, substantially such as described, which automatically throws the wire cutting and twisting mechanism out of gear, for the purpose set forth.

9. The combination, substantially as hereinbefore set forth, of a reciprocating binding-carriage carrying wire cutting and twisting mechanism, a vibrating sector-rack mounted upon the carriage and actuating said cutting and twisting mechanism, and a pitman pivoted to the rack, sliding upon a fixed portion of the frame, and controlled by an adjustable stop, whereby the operation of the binding-head may be correctly timed.

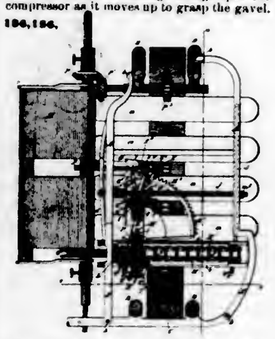
10. The combination, substantially as hereinbefore set forth, of a sectional twister and cutter, consisting of two independently-revolving concentric pinions, a pawl pivoted upon the binding-head and acting upon one pinion, and a spring-detent acting upon both pinions, whereby one pinion can be held stationary while the other is cutting and the coincidence of the teeth of both pinions is secured for the proper entrance of the binding-wire before being cut or twisted.

11. The combination, substantially as hereinbefore set forth, of the sectional wire twister and cutter, consisting of two independently-revolving concentric pinions, its spring-detent and pawl, a vibrating sector rack, having on one portion of its periphery a full set of teeth to act on both pinions, and on another a partial set to act on one pinion only, and a cam to act on the pawl, whereby one pinion is held fast while the other is moving to sever the wire.

12. The combination, substantially as hereinbefore set forth, of a reciprocating carriage, a vibrating sector-rack, and a binding-head mounted on a sliding frame, controlled by an eccentric slot and pin, whereby the twisting-pinion is automatically thrown into and out of gear at proper intervals, to regulate the placing, twisting, and cutting of the wire.

13. The combination, substantially as hereinbefore set forth, of a reciprocating binder with a compressor vibrating on a fixed portion of the frame, but actuated by the movement of the binder, whereby the gavel is compressed by the action of the binding carriage upon the compressor as it moves up to grasp the gavel.

186,186.



186,187. BUNG-SEALS. A. Wood, Brooklyn, N. Y. [Filed Dec. 6, 1876.]

Brief.—A glass bung-seal supported on a leather washer.

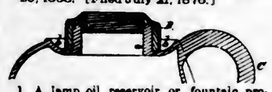


1. The combination of a seal made of fragile material with a bung having a recess in its face, said bung being secured in position by means of nails or equivalent fastenings, which are covered by the seal, substantially as and for the purpose shown and described.

2. The combination, with a bung, of a seal composed of a disk of vitreous material and a supporting-piece of leather or other equivalent material, substantially as set forth.

REISSUES.

7,438. LAMPS. M. B. Dyott, Philadelphia, Pa., assignor to G. H. Lomax, Somerville, Mass. Patent No. 40,094, dated Sept. 29, 1863. [Filed July 21, 1876.]



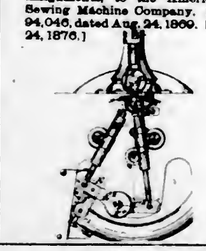
1. A lamp oil reservoir or fountain provided with a neck for reception of a cover or screw-cap collar, as shown, and with a waste-oil-receiving channel or space encompassing such neck, all being substantially as set forth.

2. A lamp having a handle-depression, *c*, formed in its side, and a handle, C, affixed therein, substantially as shown and described.

3. A lamp having around its neck or filling-orifice a drip-trough or waste-oil-receiving channel or space, in one piece of material with the oil-reservoir and its neck, all being essentially as set forth.

4. A lamp reservoir or fountain having a neck, and provided with a waste-oil-receiving channel or space circumscribing such neck.

7,439. SEWING-MACHINES. S. S. Turner, Westborough, Mass., assignor, by mesne assignments, to the American Straw Sewing Machine Company. Patent No. 94,046, dated Aug. 24, 1869. [Filed June 24, 1876.]



1. The combination, substantially as before set forth, of the table-plate, the reciprocating eye-pointed needle, and the reciprocating perforating-hook.

2. The combination, substantially as before set forth, of the table-plate, the reciprocating eye-pointed needle, the reciprocating perforating hook, and the adjustable needle-guide.

3. The combination, substantially as before set forth, of the table-plate, the reciprocating eye-pointed needle, the reciprocating perforating-hook, and the adjustable hook-guide.

4. The combination, substantially as before set forth, of the table-plate, the reciprocating eye-pointed needle, the perforating-hook, the thread-tension, and the means, substantially as described, for relaxing that tension intermittently.

5. The combination, substantially as before set forth, of the table-plate, the reciprocating eye-pointed needle, the perforating-hook, and the foot or rest.

6. The combination, substantially as before set forth, of the table-plate, the reciprocating eye-pointed needle, the perforating-hook, and the loop-holder.

7. The combination, substantially as before set forth, of the table-plate, the reciprocating eye-pointed needle, reciprocating perforating-hook, and the gage to determine the position of the material.

8. The combination, substantially as before set forth, of the table-plate, the reciprocating eye-pointed needle, the perforating-hook, the gage, and projecting rim of the presser-wheel.

9. The combination, substantially as before set forth, of the table-plate, the reciprocating eye-pointed needle, the perforating hook, and the looper at the side of the table-plate opposite that from which the needle and perforating-hook move forward.

10. The method of connecting two pieces of fabric by means of a thread looped substantially as represented and described.

7,440. CORN-POPPERS. C. F. Wickwire, Cortland, N. Y. Patent No. 170,976, dated Dec. 14, 1876. [Filed Dec. 28, 1876.]



1. In a wire-cloth domestic utensil, the wire-cloth body A, formed with a ridge, *c*, projecting down below the bottom *b*, and made by bending or crimping the wire body, as set forth.

2. The combination, with the body A and its rim *a*, of a sheet-metal strip, *b*, folded and clamped upon the rim *a*, as set forth.

3. The strap C, bent at the lower end, provided with a tongue or tongues, *d*, and combined with and applied to the body A, substantially as specified.

4. The combination of the plate C, bent to form a tongue, *e*, a wooden handle slotted to receive the tongue, and enlarged at its inner end, and a ferrule, *g*, as and for the purpose set forth.

7,461. DIES FOR TRIMMING THE POINTS OF HORSESHOE-NAILS. J. H. Zottman, Vergennes, Vt., assignor of one-half interest to Wm. S. Hopkins. Patent No. 182,509, dated Sept. 19, 1876. [Filed Dec. 13, 1876.]



An improved device for trimming the edges of horseshoe-nails, consisting of a metallic block with a slot extending across one side, the walls of which slot converge and intersect one another along a line following a rectilinear and an undercut or inclined direction in relation to the path of the punch, and of a punch corresponding in shape transversely to the angular slot in the plane of its cutting angles, substantially as described.

7,462. CORN-PLANTERS. A. J. Going, Clinton, La. Patent No. 77,811, dated May 12, 1868. [Filed Sept. 9, 1876.]



The arrangement of the colter D, furrow-opener E, and standard F with the beam B, as herein described, for the purpose specified.

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UNITED STATES PATENT ASSOCIATION.

At the annual meeting of the United States Patent Association, at Philadelphia, September 7, 1876, the following resolutions were adopted:

Resolved, That, in the opinion of this association, the best interests of the public and the Patent Office demand that the law be amended to provide as follows:

First, That the Patent Office be separated from the Interior Department and organized as a separate bureau, on a basis similar to the Agricultural Bureau.

Second, That the tenure of the Patent Office officials, from the Commissioner to and including the Principal Examiners, should be for life, or during competency and good behavior; and that their appointments be made with especial reference to their qualifications for the duties to be performed, regardless of politics, under a proper civil service reform.

Third, That the entire receipts of the Patent Office, under proper safeguards, should be used for securing increased facilities for the transaction of its business with promptness and efficiency.

Fourth, That before any one shall be permitted to practice as a patent solicitor he must first have passed such an examination before a board, approved by the Commissioner, as shall satisfy him that he is of proper character, and has sufficient capacity and education to properly conduct applications before the Patent Office.

Fifth, That all transfers of any rights under a patent, of whatsoever kind or nature, including licenses, should be recorded in the Patent Office within sixty days from their execution, so that the record shall show how, and in whom, the title stands.

Sixth, That the law should be so amended that when a patent is reissued the owner thereof shall not be deprived of his right of recovery for infringements that occurred prior to the reissue; but that such right shall be preserved notwithstanding the reissue, and so that machines or articles made prior to such reissue shall not be held liable for infringement of any new claim made in such reissue.

Seventh, That in the case of an application for the reissue of any patent the application and oath may be made, and the corrected specification signed by the assignee or assignees of the entire interest.

Eighth, That the examination system of the United States Patent Office, although it may be in some particulars defective, and may admit of improvements, is based on just principles, and is to the best interests of inventors and the public.

Ninth, That whereas, in a recent decision by the Circuit Court of the United States the donbt has been expressed whether there is any authority in law for direct proceedings in the name of the United States, or of any officer of the United States, for the repeal of letters patent for inventions; therefore

Resolved, That an amendment to the existing statutes to provide for such direct proceedings for the vacation of letters patent for inventions, on the ground of fraud or improvidence in the grant thereof, is desirable.

At the same meeting the following officers, for the ensuing year, were elected:

President.—William Adamson, Philadelphia.

Treasurer.—Charles F. Stansbury, Washington, D. C.

Secretary.—William C. Dodge, Washington, D. C.

Directors.—Hon. J. S. Perry, Albany, New York; Hon. J. M. Thacher, Chicago; C. S. Whitman, Washington, D. C.; Thomas Shaw, Philadelphia; B. S. Hedrick, United States Patent Office; George Draper, Massachusetts; Charles H. Deere, Illinois; Henry Howson, Philadelphia.

Committee on Legislation.—Draper, Stansbury, Perry, Thacher, Howson.

Committee on Publication.—Dodge, Whitman, Shaw.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—DISTRICT OF CONNECTICUT.

WILLIAM J. CLARK *vs.* THE KENNEDY MANUFACTURING COMPANY AND EDWIN HILLS.

[*In Equity.—Before* SHIPMAN, *J.—Decided January* 1, 1877.]

The invention described in the original patent to Wm. J. Clark consists in the manner in which he applied lateral compression to the manufacture of an angular neck, and in the manner in which he permitted the shaping mechanism to become anvil ends, upon which the header could operate to form a head upon the bolt.

He did not discover that swaging round iron would form an angular neck, and that upsetting would form a head, and that both operations would form a bolt; but he did invent what was before unknown—the mechanical means by which swaging would form an angular neck from round iron, which mechanism could be used in connection with upsetting.

The thing invented and patented was not any mode of swaging combined with upsetting; but it was the employment of specified means, or their equivalents, for the accomplishment of a desired end.

A patentee cannot, by obtaining a reissue for a process, enlarge his right to a monopoly beyond the actual invention.

The claims for the process of forming the angular neck and protuberant head, as contained in the reissue, construed to be to the use substantially of the dies described in the specification, or their equivalents.

The patent covers dies constructed with the round and square portions of similar area, whereby the lateral swaging is effected before the header operates; and it is not infringed by the use of dies, the square portion of which is of greater area than the round, and the swaging and upsetting operations are simultaneously performed.

The claim in the reissued patent does not include any machine for making bolts from round iron, in which machine the two operations of forming the angular neck by dies which will swage, and forming the head by upsetting, are combined.

Claims should be so construed, if possible, as to embrace the invention actually made and described.

[*Chas. E. Mitchell* and *Benj. F. Thurston* for plaintiff.
Chas. R. Ingersoll for defendants.]

SHIPMAN, *J.*:

This is a bill in equity to restrain the defendants from an alleged infringement of reissued Letters Patent of the United States, No. 6,291, granted to the plaintiff, and dated February 16, 1875, for an improvement in the manufacture of bolts from round rods. The original patent was antedated February 2, 1864, and the first reissue was dated March 28, 1865. The answer alleges that the second reissue was not for the invention which was described in the original patent, and denies that the defendants have infringed the patent, and denies that the plaintiff was the first inventor of the patented improvement.

The main question in the case is in regard to infringement; and this question involves the precise character and extent of the plaintiff's invention, and the proper construction of the letters patent.

It is necessary to ascertain, in the first place, from the testimony as to the state of the art, and from the original and reissued patents, what was the invention of the patentee.

Prior to the date of the plaintiff's invention angular-necked, round-stemmed, and headed bolt-blanks had been made from iron, whose cross-section was square. The round stem, which was to receive the screw-thread, was made cylindrical by rolling or hammering, which required expensive machinery and much labor. Angular-necked bolt-blanks were also made from the round iron of commerce. These blanks were formed in dies, a portion of which was round, and a portion was squared; but the neck of the bolt was formed wholly by the operation of upsetting or driving the metal into the square fixed matrix of the dies. It was practically impossible, by the upsetting process, to form a neck whose length would exceed the diameter of the bolt. The average length of the necks of bolts made by "staving up" was somewhat less than the diameter of the bolt. The head was formed by the same upsetting operation. It is necessary that the neck should be of considerable length in order to prevent the bolt from turning around after it is driven into the wood, and the nut is screwed upon the shank. The necks of staved-up bolts were too short, and the bolts revolved in the wood. It is also desirable that the corners of the neck should be full and angular, so that the bolt may remain firmly embedded in its place. The plaintiff's invention resulted in making from round iron an angular-necked, round-stemmed, and headed bolt-blank, having a neck of sufficient length to meet these mechanical requirements. He succeeded in making a cheap bolt, which has gone into general use; and the validity of his patent has been substantially acknowledged by the manufacturers of the country. His mechanism is described in the original specification, as follows:

I construct a pair of dies of cast-iron or other metal, making the grooves therein for a portion of their lengths of a semi-cylindrical form, and the remaining portion of an angular form. Each die, being provided with a groove of this character, will permit the two, when placed together, to present at one end a cylindrical opening corresponding in diameter to that of the cylindrical bolt-blank, while the opening at the opposite end, instead of being cylindrical, will be square or angular, but of similar sectional area to the cylindrical end, so that when the two dies are forced together upon the bolt-blank (which is heated to a proper degree before being placed therein) that part of the blank lying within the angular portion of the grooves will be swaged out and forced to take the angular form corresponding to that of the angular portion of the groove, while the part lying within the cylindrical portion of the groove will retain its orignal shape; and while the bolt-blank is held in the dies, they form an anvil upon which a portion of the blank projecting from the dies at the end containing the angular groove is upset, and formed into a head by any proper machinery.

It will be understood that the process of molding or shaping hot iron by swaging had long been understood at the date of the original patent, and that the manufacture of bolt-blanks by swaging a lateral compression was also then known. Round-necked bolts from square iron had been made by swaging, and square-headed bolts had been made by the same process; but square-necked bolts had not been made from round iron by lateral compression prior to the plaintiff's invention.

The plaintiff, in the first place, insists that his invention consisted in constructing the angular neck mainly by the operation of swaging supplemented by the operation of staving up, so that the neck of his bolt had all the advantages of swaging in point of length, and was completed by the necessary result of the action of the header in forming the head by pressing and forcing the metal into the mold, and that the invention resides in the combination of these two separate operations, which co-operate with each other in forming the bolt.

The defendants, while conceding the importance of the invention, insist that it consists in the peculiar character of the dies which are described in the patent.

The main object of the patentee was to construct an angular-necked bolt-blank from round iron. The blank was, of course, to be headed, for a head is a necessary part of a bolt, and it was to be headed by some kind of upsetting machinery theretofore in use; but his inventive skill was directed to the construction of an angular-necked bolt, which was to be headed by old mechanism of some sort.

If the patentee had supposed that the assistance which the upsetting operation furnished to the swaging operation in the formation of the neck was a part of his invention, the second reissue would naturally have distinctly pointed out this feature. The important part of the specification is as follows:

According to my invention, I make an angular-necked, round-stemmed, headed bolt-blank from a round piece of iron, by first forming the neck into an angular shape in cross-section by lateral pressure at all sides simultaneously; and then, while the said piece is firmly held in proper position, forming its projecting end into a protuberant head of the desired contour by upsetting against the dies, as an anvil, by suitable machinery, that acts to upset the metal against the anvil ends of the closed dies, and form the head by a motion in the line of the axis of the bolt-blank." * * *

The operation of the dies is as follows: A round piece or rod of metal, suitably heated, is placed between the open swaging-dies, with a sufficient portion protruding at the anvil ends thereof to form the head. A lateral pressure is then brought against the dies, and they are forced together, giving to the metal substantially the angular shape of the matrix formed by the dies. While the metal remains thus held, the upsetting machinery drives the protuberant end of the rod or piece longitudinally against the anvil ends of the closed dies, thereby forming the bolt-head by upsetting the metal against the anvil ends of the dies, which only shape its under surface.

It is true that the patentee says that the lateral pressure gives to the metal "substantially the angular shape of the matrix formed by the dies;" but he does not say that the shape is perfected by the upsetting operation, or give any further suggestion that the upsetting machinery performs any other office than that of shaping the head. Neither was there any testimony to the effect that, after the metal had been swaged, the angular shape of the neck was made more perfect and complete by the upsetting operation. It is undoubtedly true that the portion of the neck under the head is made more full by the upsetting process, but the angularity of the neck is not increased thereby; and in neither of the patents is this fullness claimed as an improvement, or that the formation of the neck by the aid of upsetting is a part of the invention. On the contrary, the patentee says in his first reissue that the fullness is not intentional, but is incident to the operation of making the head. Again, the first two claims of the patent, which are the process claims, are as follows:

1. The process, substantially as hereinbefore set forth, of forming from a round piece of metal a headed bolt-blank, having an angular neck and a round stem, which process consists in subjecting a portion of the length of the round piece of metal to lateral swaging or compression on all sides simultaneously to form the angular neck, and while the piece is firmly held with the neck portion inclosed at all sides, upsetting the projecting end of the swaged piece of metal to form the head of the bolt-blank.

2. The process, substantially as hereinbefore set forth, of forming the angular neck and protuberant head of a bolt, which consists in subjecting a round piece of metal to lateral swaging between angular-grooved dies, the end surfaces of which dies, when closed, form the anvil, against which the projecting end of the swaged piece of metal is upset and formed into a head by proper machinery.

From the language of each of these claims it appears to be manifest that the formation of the neck is claimed to be effected by the swaging-dies before the heading machinery commences the formation of the head; and all that is claimed for the heading machinery is the compression of the head against the anvil ends of the dies.

It is next contended that the invention consisted in the making a new and useful bolt by a process composed of two operations: the first, that of lateral swaging by dies capable of swaging, and the second, that of upsetting to form the head; and also consists of a process to produce the result by means of certain described mechanism.

It is true that the bolt is formed by both swaging the neck and upsetting the head, and that the patentee is entitled to claim the upsetting in combination with the swaging operation, because these operations in combination had not existed in the formation of an angular-necked and headed bolt from round iron. The gist of the invention and the inventive skill, however, consisted in making an angular-necked blank from round iron, and irrespective of the claims of the patent; and regarding the state of the art in connection with what was actually done by the patentee, I am of opinion that his invention, or the new and useful method by which he manufactured bolts, consisted in the manner in which he applied lateral compression to the manufacture of an angular neck, and in the manner in which he permitted the shaping mechanism to become anvil ends, upon which the header could operate to form a head upon the bolt. The patentee did not discover that swaging round iron would form an angular neck, and that upsetting would form a head, and that both operations would form a bolt; but he did invent, what was previously unknown, the mechanical means by which swaging would form an angular neck from round iron, which mechanism could be used in connection with upsetting. This opinion is confirmed by the description which the patentee gives of his invention in the specification of his reissued patent, which has been quoted, and in which the mode of operation is clearly described.

Such being the character and extent of the invention, the next question is as to the construction which shall be given to the reissued patent.

The first two claims, upon which the controversy mainly turns, have been quoted. The defendants contend that these claims can only be sustained by a construction which shall limit the process to the use of the specified dies, and that if the claims are broadly for a process irrespective of the peculiar mechanism, the reissued patent is for an invention which was not indicated in any part of the original patent, or on the drawings attached thereto.

The claim in the original patent is as follows:

The combination and use of metallic dies for the purpose of giving angular shape to a portion of a cylindrical bolt by compression laterally, leaving the remaining portion of the bolt in its original form, and which dies, at the same time, serve the purpose of an anvil, upon which the head of a bolt is formed by upsetting a projecting portion thereof, substantially as set forth.

And the plaintiff insists that inasmuch as the patentee's process involved both the swaging and upsetting operations, and possessed the advantages of each, the reissue was properly allowed.

I am of opinion that the reissue was properly granted, and that the patentee had a right either to claim his invention as a process within certain limitations, or as a part of a machine. But the patentee cannot, by obtaining a reissue for a process, enlarge his right to a monopoly beyond the actual invention, and, when it is insisted that he invented a new process of using his improved dies, or any other dies, "which process consisted in the combination of the operation of swaging the blank laterally with the operation of upsetting the end of the bolt to form the head," such a proposition is broader than the invention will justify. All that can properly be claimed in behalf of the patentee is that he had invented a new way of manufacturing bolt-blanks by the described swaging-dies, to be used in connection with upsetting machinery, and his invention may properly be claimed as a method or process, which process consisted in the combination of the operation of swaging the blank laterally by the described dies, or their equivalent, operating in substantially the same way, with the operation of upsetting the end of the bolt upon the anvil ends of the dies to form the head. The thing invented and patented was not any mode of swaging combined with upsetting, but it was "the employment of specified means, or their equivalents, for the accomplishment of a desired end." *Roberts* vs. *Dickey*, (4 Fisher's Patent Cases, 582.) By limiting the first and second claims of the reissued patent to the use substantially of the dies described in the specification,

or their equivalents, the patent will not be broader than the invention, and no question can be made that it is not for the same matter which is contained in the original patent.

But the plaintiff is not limited to the exact form of the dies which is mentioned in the third claim. That form is not particularly relied upon in the specification, and is not a material part of the mechanism.

The remaining question is in regard to infringement.

The round portion and the square portion of the plaintiff's dies are of similar area, and by means of this similarity the swaging operation is performed. The form of the defendants' dies is substantially like that of the dies which were previously used to form bolts by the upsetting operation alone. One of the defendants' dies is solid, the upper part being V-shaped, and the lower part cylindrical. The other die is in two separate parts, each portion being the same as the corre sponding portion of the solid die. The area of the squaring-dies is larger than the area of the round dies, so that there can be no lateral compression by the angular dies until after the intervention of some operation other than the grasping of the iron by the dies. If the ordinary round rod of commerce is placed within the dies, and the two parts of the divided die are placed upon a line with each other, and the dies are brought together, there will be no swaging. Swaging in this machine takes place only after the header has begun to operate.

Although the fact that swaging does take place was denied by the defendants, the sharp and well defined corners of the neck portion of the blank, and the result of the operation, proves that the bolts have been swaged. The swaging must have been effected in one of two ways. Sometimes the separate square part of the necking-die is not set in a line with the round or griping portion, and the griping-dies come in position and are locked before the squaring-dies are locked. Meanwhile the header has partially filled the matrix with hot iron, and, while the header is within a very short distance from the ends of the dies, the angular dies come completely together upon the iron which has been pressed into the matrix, and complete the square by lateral compression. Again, when the separate portions of the die are on a line, the separate angular die is held in its place much less firmly than the round die. The round die is held in place by the whole strength of the frame of the machine, while the angular die is so weakly held that it yields or "gives" a little as the iron is being upset by the header. Then, and before the header has completed its movement by about one-eighth of an inch, a second cam comes into action behind the angular die, for the purpose of locking it, and forces the die laterally, whereby the swaging operation is performed.

Is the swaging operation in the two machines effected in substantially the same way? In one the iron is swaged in dies which are constructed to swage, in which the different parts of the dies are of similar sectional area. In the other the angular neck is substantially made by upsetting the iron into a matrix, and is completed by swaging. In the plaintiff's machine the necks are swaged, and the head is formed by upsetting. In the defendants' the necks are formed by upsetting and by swaging; but the material difference is that the swaging is produced by dies of a construction radically different from the plaintiff's dies, and unless swaging by suitable dies, combined with upsetting to form a head, is secured by the plaintiff's patent it will not be contended that the defendants' machine is an infringement.

The vital point in the case is in regard to the extent of the plaintiff's invention, and the construction to be therefore given to his patent. In order to constitute infringement a broad construction must be placed upon the patent, so as to include any machine for making bolts from round iron, in which machine the two operations of forming the angular neck by dies which will swage and forming the head by upsetting are combined. Such a construction I have already said is, in my opinion, broader than the actual invention.

The general terms, and sometimes special words, in the claims must receive such a construction as may enlarge or contract the scope of the claim, so as to uphold that invention, and only that invention, which the patentee has actually made and described, when such construction is not absolutely inconsistent with the language of the claim. *Estabrook* vs. *Dunbar*, (OFFICIAL GAZETTE, vol. 10, p. 909)

The bill is dismissed with costs.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date January 16, 1877.]

9,700 and **9,701.—Ornamental Chains.**—DANIEL A. BEAM, Newark, N. J., assignor to WHEELER, PARSONS & HAYES, New York, N. Y. Applications filed December 12, 1876. Term of patents 3½ years.

9,702.—Flower-Pot Brackets.—OTTO F. FOGELSTRAND, Kensington, Conn., assignor to HART, BLIVEN & MEAD MANUFACTURING COMPANY, same place. Application filed October 25, 1876. Term of patent 7 years.

9,703.—Bottle.—AUGUSTUS T. FRANCIS, Paterson, N. J., and CHARLES H. ROYCE, Monticello, N. Y. Application filed December 30, 1876. Term of patent 7 years.

9,704 and **9,705.—Carpets.**—ALFRED HEALD, Philadelphia, Pa., assignor to HUGH MCCALLUM, ORLANDO CREASE, and ANDREW J. SLOAN, same place. Applications filed January 5, 1877. Term of patents 3½ years.

9,706.—Carpets.—DAVID MCNAIR, Boston, Mass., assignor to ROXBURY CARPET COMPANY, same place. Application filed January 2, 1877. Term of patent 3½ years.

9,707 and **9,708.—Carpets.**—THOMAS J. STEARNS, Boston, Mass., assignor to ROXBURY CARPET COMPANY, same place. Applications filed January 2, 1877. Term of patents 3½ years.

9,709.—Ornamenting Bronze.—JOHN W. TIEMANN, WILLIAM SIMPSON, Jr., and JOHN COLLINS, Darlington, N. J., assignors to HOPKINS & DICKINSON MANUFACTURING COMPANY, New York. Application filed June 23, 1876. Term of patent 7 years.

9,710.—Shirt-Front.—SOLOMON WEILL, New York, N. Y. Application filed December 30, 1876. Term of patent 3½ years.

9,711.—Advertising-Desk.—JOHN H. FRINK, Detroit, Mich. Application filed January 3, 1877. Term of patent 7 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date January 16, 1877.]

4,266.—Roasted and Ground Coffee.—BARKLEY & HASSON, Baltimore, Md. Application filed November 27, 1876.

"The word-symbol 'ATLAS' and the pictorial representation of Atlas."

4,267.—Lard.—CAZADE, CROOKS & REYNAUD, New York, N. Y. Application filed December 1, 1876.

"The initial letters 'C. C. R.' of our firm-name, which are arranged by placing the letters C. C. sidewise of each other, in diamond-shaped borders, connected at the adjoining corners, and the letter R. below the connection or intersection of the diamond-shaped borders."

4,268.—Gentlemen's Furnishing-Goods.—FECHHEIMER, GOODKIND & Co., New York, N. Y. Application filed January 8, 1877.

"The representation of a flying dragon, with wings extended, resting on a triangular pedestal or tablet, and with one talon grasping a shield bearing the monogram 'F., G. & Co.,' the jaws of the dragon being wide open, and apparently emitting flames."

4,269.—Fire-Brick and Tile, and Furnace-Blocks made of Fire-Clay.—GARDNER, STUART & Co., Pittsburg, Pa. Application filed August 24, 1876.

"The fanciful words 'STANDARD SAVAGE.'"

4,270.—Teas.—MARTIN GILLETT & Co., Baltimore, Md. Application filed December 21, 1876.

"The picture of a Chinese junk or ship."

4,271.—Piano-Fortes.—JOSEPH P. HALE, New York, N. Y. Application filed September 5, 1876.

"The arbitrarily-selected words 'UNITED STATES.'"

4,272.—Bird-Cages.—HENDRYX & BARTHOLOMEW, Ansonia, Conn. Application filed December 30, 1876.

"A symbol consisting of a variety of bird-cages, arranged in pyramidal form."

4,273.—Gin.—IVES, BEECHER & Co., New York, N. Y. Application filed August 26, 1876.

"The word-symbol 'CABINET.'"

4,274.—Eau-de-Cologne.—GEORGE JAQUES, Boston, Mass. Application filed December 30, 1876.

"The words 'Rival of Farina,' and the two crossed fencing-foils."

4,275.—Sugar-Cured Hams.—T. ROBERT JENKINS & SON, Baltimore, Md. Application filed December 27, 1876.

"The arbitrarily-selected words 'NONE SUCH.'"

4,276.—Plaster.—V. C. & C. V. KING, New York, N. Y. Application filed December 33, 1876.

"The figure of a Knickerbocker, as shown."

4,277.—Starch.—MUZZY & SAGE BROTHERS, Elkhart, Ind. Application filed November 25, 1876.

"The fancy title 'SUN-GLOSS.'"

4,278.—Medical Compound.—R. E. SELLERS & Co., Pittsburg, Pa. Application filed December 11, 1876.

"The words 'BLOOD SEARCHER.'"

4,279.—Cigars and Tobacco.—PATRICK J. SULLIVAN, Brooklyn, N. Y. Application filed December 22, 1876.

"The word-symbol 'SHAUGHRAUN,' used in connection with the pictorial representation of a boy and a dog."

4,280.—Waters for Medicinal Purposes.—THE CONGRESS AND EMPIRE SPRING COMPANY, Saratoga Springs, N. Y. (Re-registration.) Application filed June 10, 1871.

"The letter 'C.'"

4,281.—Waters for Medicinal Purposes.—THE CONGRESS AND EMPIRE SPRING COMPANY, Saratoga Springs, N. Y. Application filed January 9, 1877.

"The word-symbol 'CONGRESS.'"

4,282.—Waters for Medicinal Purposes.—THE CONGRESS AND EMPIRE SPRING COMPANY, Saratoga Springs, N. Y. Application filed January 9, 1877.

"The word-symbol 'EMPIRE.'"

4,283.—Waters for Medicinal Purposes.—THE CONGRESS AND EMPIRE SPRING COMPANY, Saratoga Springs, N. Y. Application filed January 9, 1877.

"The letter 'E.'"

4,284.—Tanks, Cans, and other Receptacles for Oils, &c.—THE PARGETIZED CAN COMPANY, Keene, N. H. Application filed December 14, 1876.

"The fanciful word 'PARGETIZED.'"

4,285.—Buttons.—THE SAUGATUCK MANUFACTURING COMPANY, Saugatuck, Conn. Application filed December 6, 1876.

"The representation of a butterfly."

4,286.—Cigarette Boxes and Packages.—P. THOURAULT & Co., New York, N. Y. Application filed October 23, 1876.

"The monogram composed of the letters 'T. T. H.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date January 16, 1877.]

946.—Title: **"Clark's Harness-Oil Blacking."**—CLARK, SELL & Co., Liberty, Ind. Application filed December 1, 1876.

947.—Title: **"Painted Window-Screen Cloth."**—CLINTON WIRE CLOTH COMPANY, Clinton, Mass. Application filed January 4, 1877.

948.—Title: **"The Andes Shirt."**—FECHHEIMER, GOODKIND & Co., New York, N. Y. Application filed January 8, 1877.

949.—Title: **"One Package of Yeast is Sufficient for one Baking of Three and one-half Pounds of Flour."**—GAFF, FLEISCHMANN & Co., Cincinnati, Ohio. Application filed January 8, 1877.

950.—Title: **"Eau-de-Cologne of George Jaques."**—GEORGE JAQUES, Boston, Mass. Application filed December 22, 1876.

951.—Title: **"Professor Lilley's Embrocation for Rheumatism or Lumbago, &c."**—Professor LILLEY, New York, N. Y. Application filed November 18, 1876.

952.—Title: **"Hop Syrup."**—BENJAMIN E. PILLEY, Philadelphia, Pa. Application filed January 8, 1877.

953.—Title: **"Commercial Collar Co."**—ISAACS and LEVY, Philadelphia, Pa. Application filed October 20, 1876.

CATALOGUES AND CIRCULARS RECEIVED.

[Inventors, manufacturers, and dealers in engines, machines, tools, and manufactured articles are respectfully requested to send duplicate copies of catalogues and circulars issued by them to the Commissioner of Patents, Washington, D. C. Where such publications have a permanent value, other than as mere advertisements, their receipt will be acknowledged in the OFFICIAL GAZETTE.]

Dental Materials.—S. S. WHITE, Chestnut and Twelfth streets, Philadelphia, Pa.

Feed-Water Heater.—STILLWELL & BIERCE, Dayton, Ohio.

Grinding-Mills.—BARNARD & LEAS, Moline, Ill.

Grinding-Mills.—HALTMAN & Co., St. Louis, Mo.

Rock-Drills.—BURLEIGH ROCK DRILL COMPANY, Fitchburg, Mass.

Rolls for Rolling Metals.—EDWARDS & ROGERS, Cleveland, Ohio.

Shoe-Heeling Machines.—MCKAY & BIGELOW, Boston, Mass.

Soda-Water Apparatus.—OTTO ZWEITUSCH, Milwaukee, Wis.

Steam Fire-Engines.—AMOSKEAG MANUFACTURING COMPANY, Amoskeag, N. H.

Steam-Gages, &c.—E. H. ASHCROFT, 55 Sudbury street, Boston, Mass.

Telegraph Machinery.—TILLOTSON & Co., No. 8 Dey street, New York, N. Y.

Turbine Water-Wheels.—STILLWELL & BIERCE, Dayton, Ohio.

Wood-Working Machinery.—BENTEL, MARGEDANT & Co., Hamilton, Ohio.

Wood-Working Machinery.—C. B. ROGERS & Co., Norwich, Conn.

SALE OF SPECIFICATIONS AND DRAWINGS.

Photolithographic copies of the drawings of all patents issued since November 26, 1867, have been produced, and will be sold to the public at 25 cents per patent, or, where twenty or more copies are ordered at one time, at 10 cents per patent.

Coupon-books, to the amount of $2 or more, can be purchased from the Chief Clerk of the Patent Office; the coupons, for 10 cents each, may be filled out at any time, and, on presentation, will entitle the holder to a photolithographic copy of *any* drawing which has been reproduced.

The specifications of all patents issued since July 1, 1871, are in print, and will be furnished with the drawing without extra charge. In some cases the specifications of patents issued prior to July 1, 1871, are in print, and where such is the case the Office will furnish them with the drawings, but the Office will not undertake to reprint copies of patents which have been exhausted.

In addition to the above, the Office has reproduced, and offers for sale at the price mentioned above, all drawings in the following classes, embracing patents granted from 1790 to date. The classes are those of the Examiners.

Apparel.	Paper manufactures.
Boats.	Printing.
Bookbinding.	Projectiles.
Bridges.	Railways, (Cars and Interior Fittings.)
Carding.	Railways, Exterior Mountings and Fittings.
Carriages and Wagons.	Sewing-machines.
Cloth.	Ships, construction.
Cordage.	Ships, propulsion.
Crinoline and Corsets.	Signals.
Driers and Kilns.	Silk.
Electricity.	Spinning.
Felting and Hats.	Stationery.
Fire-arms.	Stoves and Furnaces.
Harvesters.	Thrashing.
Knitting and Netting.	Umbrellas and Fans.
Lamps and Gas-fitting.	Weaving.
Mills.	
Ordnance.	
Paper-making.	

And the subdivisions of—

Bench-planes.	Buttons and Machines.
Bale-ties.	Combs, &c.

About sixty other classes are in progress, and it is hoped that all the drawings remaining, some forty thousand in number, may be completed during the fiscal year.

The total number of patents of which drawings are complete and offered for sale as above will approximate one hundred and fifty thousand.

As 12 o'clock on Friday is the latest hour that a final fee can be received in order to get a patent into the "issue" of the following Tuesday, applicants are earnestly requested to make the final payment before Friday, if possible, so that the proper entries may be made on the books of the Office before closing the "issue."

The Patent Office prefers that applicants should furnish their own drawings. Where drawings are defective, or cannot be otherwise obtained, the Office will cause a formal drawing to be made from the model at the actual cost of making it.

When a patent has been allowed, and the application has not been forfeited by delay of six months, if the final fee of twenty dollars is paid before 12 o'clock on Friday, the patent will issue and bear date the following Tuesday.

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Indicator for drawing liquid from bottles, I. Levi	1	186,400
Insect destroying composition, J. B. Margarit	63	186,260
Iron fence, Nellis and Guttridge	52	186,362
Key board musical instruments, attachment for, B. Bishop	102	186,298
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Lamp burner, H. H. Doty	90	186,201
Lamp chimney, S. W. Fowler, (reissue)	90	7,463
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Leather covered nut, L. T. Smith	31	186,375
Letter scales, J. V. H. Nott	132	186,267
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Lifting jack, F. M. Lottridge	79	186,402
Lifting jack, D. M. Ross	79	186,368
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Paper dish, S. E. Harlow	109	186,247
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Pasting machine, T. Goodall	142	186,339
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Pipes from bursting, device for preventing, A. Bujac	167	186,305
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Railway car, S. R. and O. V. Wallace	122	186,387
Rake, self cleaning, V. W. Blanchard	77	186,300
Refrigerating car, J. M. Ayer, (reissue)	58	7,467
Refrigerator, G. H. Crisfield	58	186,200
Refrigerator, J. W. Stewart	58	186,376
Registering fare box, J. C. Strong	42	186,380
Reversing valve for steam engines, Bevins, Weis, and Phillips	152	186,297
Riding saddle, J. C. Miller	72	186,359
Rotary engine, D. R. Harder	150	186,342
Sad iron, Baker and Asbury	91	186,291
Sample garment, L. E. Warner	38	186,282
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Sheet metal can, J. S. Field	136	186,239
Shirt stud, C. H. Field	23	186,202
Shot cartridge, J. P. White	32	186,391
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Spark arrester, W. S. Hudson	94	186,345
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Variable cut off valve for steam engines, J. Fish	152	186,240
Vehicle wheel, H. Mounts	31	186,360
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Velocipede, Stineman and Holloway	31	186,379
Vent clearer for wash bowls, &c., J. S. Hawley	8	186,206
Ventilator, J. B. Hill	166	186,251
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Wagon end gate, T. L. Black	31	186,226
Water closet trunk, E. A. Leland	8	186,352
Weaning bit for animals, J. P. Israel	72	186,347
Weather strip, E. C. Underwood	30	186,286
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TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED JANUARY 16, 1877.

186,188. CAR-ROOFS. H. Aldridge, St. Louis, Mo., assignor of one-half his right to M. Hillard, same place, and C. W. Keiser, Jacksonville, Ill. [Filed Dec. 9, 1876.]



1. The sectional metal covering, formed of plates or sheets, which extend up from the eaves to, or near to, the ridge and lap upon one another in the line of the rafters, in combination with the ridge cap and the sectional wood covering, all in such manner that the respective sections of metal covering can be removed on each side of the ridge, substantially as set forth.

2. The combination of the laterally-adjoined sections of metal covering, the sectional wood covering, the ridge-joint clamp, ridge-piece, and the metal ridge cap, substantially as and for the purpose described.

3. The sectional metal covering formed of a series of sheets, which extend up from the eaves to, or nearly to, the ridge, and arranged upon the top of the rafters and under the sectional wood covering, and the sections thereof having their ridge ends under a joint-clamp, and made removable on either side of the ridge, substantially as and for the purpose set forth.

186,189. CAR-ROOFS. H. Aldridge, St. Louis, Mo., assignor of one-half his right to M. Hillard, same place, and C. W. Keiser, Jacksonville, Ill. [Filed Dec. 9, 1876.]

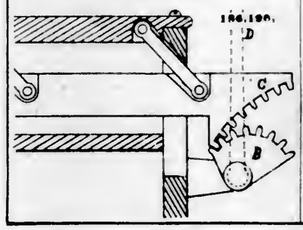


1. The sectional metal portion D D of the car roof, arranged to slide in and out between the rafters on opposite sides of the roof, and made to abut against shoulders of the ridge-piece, and held against vertical movement, in combination with the sectional wood portion F F of the roof, by which the metal portion is covered, and, by the fastenings thereof, held in place, substantially as and for the purpose described.

2. The sectional metal joint-strips J, placed on top of the rafters, beneath the wood portion of the roof, and above the metal portion, and arranged to be removable on each side of the roof, substantially as and for the purpose set forth.

3. Metal ridge-joint cap, made in form of, and covering, the ridge of the roof, in combination with the sectional metal portion and the sectional wood portion of the roof, and with the ridge-piece and ridge-joint clamp, substantially as and for the purpose described.

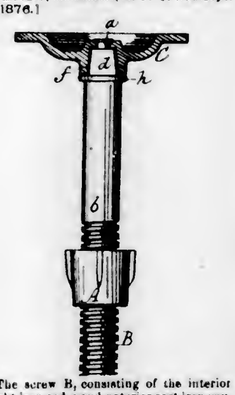
4. A combined wood and metal roof, constructed substantially as described, whereby any one section of the sectional metal portion on the respective sides of the ridge is removable by simply taking off a part of the sectional wood portion, substantially as described.



186,190. MACHINES FOR CUTTING PAPER, CLOTH, &c. B. Allen, Norwich, Conn., assignor to Wm. G. Ely, same place. [Filed Apr. 19, 1876.]

The combination, in a hand-lever cutting-machine, of the curved rack C, made solid upon the knife-bar, swinging by the links *a a*, with the eccentric gear B, operated by the hand-lever D, substantially as herein described.

186,191. SCREWS FOR PIANO-STOOLS. G. W. Archer, Rochester, N. Y. [Filed Sept. 15, 1876.]



1. The screw B, consisting of the interior wrought-iron rod *a* and exterior cast-iron covering *b*, the wrought-iron rod projecting at one end beyond the screw, and forming the rivet end to secure the bearing C, as shown and described, and for the purpose specified.

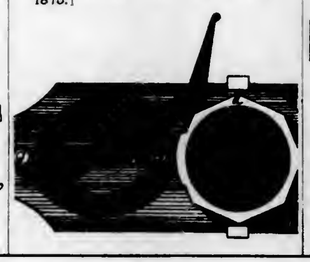
2. In combination with the screw B and bearing C, the square tenon *d* of the screw, resting in the socket *f* of the bearing, and the square shoulder *h*, receiving the bearing, as and for the purpose specified.

186,192. LOCKS FOR DRAWERS, &c. Geo. W. Baker, Cleveland, Ohio, assignor to White Sewing Machine Company, same place. [Filed Dec. 19, 1876.]



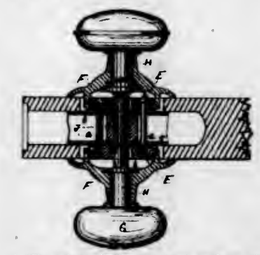
A mortise lock adapted to lock two adjacent drawers, consisting of the combination, with a bed-plate, A, of two pivoted bolts, B B', and central key-hole disk C, provided with studs *c c'*, projecting into corresponding notches *b b'* of the bolts, substantially as and for the purposes described.

186,193. MOLASSES-GATES. Silas Barker, Hartford, assignor to T. D. Hotchkiss, West Meriden, Conn. [Filed Dec. 11, 1875.]



The combination of the double-acting cam *f*, the sliding gate *e*, and the connecting pin *g*, moving in the slot *h* of the frame *b*, substantially as and for the purpose herein described.

186,194. ATTACHING KNOB-ROSES TO DOORS. William A. Barlow, Chicago, Ill. [Filed Mar. 4, 1876.]

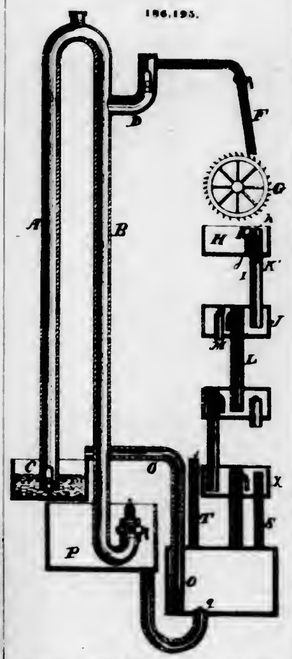


1. The plates E E, connected each to the other by the screw-bolts *a a*, in combination with the rosettes F F, one or both connected to one or both of said plates, substantially as and for the purpose specified.

2. The combination, with the plates E E, bolts *a a*, and rosettes F F, of the shanks H H and loose spindle J, substantially as and for the purpose specified.

3. The combination, with the rosettes F F, connected each to the other by the plates E E and bolts *a a*, of the shanks H H, and the spindle J made of two parts and disconnected from each other, substantially as and for the purpose specified.

186,195.



186,195. HYDRAULIC MOTORS. J. M. Bois, Salamanca, N. Y. [Filed June 17, 1876.]

THE GRAPHIC CO. N.Y.

Brief.—Water falls from the exit-pipe attached to the long leg of siphon upon a wheel, and then flows into air-tight receptacles, where, by the action of air compressed by the fall, this water, and a portion of that discharged from the lower end of siphon, is forced back to the source of supply.

1. The combination, with a siphon and an exit-pipe attached to the long leg of the same, of a water-wheel and one or more air-tight receptacles, constructed substantially as set forth, to receive the water from the water-wheel and force the same back to the short leg of the siphon, substantially as and for the purpose set forth.

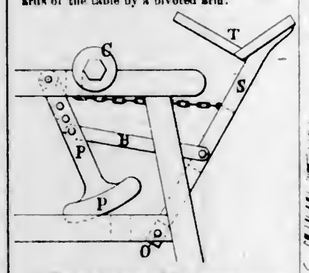
2. The combination, with the siphon A B and pipes D F, of the water-wheel G and lower vessels H, air-tight receptacles J, reservoir N, with connecting-pipes, all constructed and arranged substantially as and for the purpose specified.

3. The combination, with the vessel H and air-tight receptacle J, of the pipe I and small siphon K, substantially as and for the purpose specified.

4. The combination, with the air-tight receptacles, siphons, and connecting-pipes, of the reservoir N, pipe O, and vessel C, substantially as and for the purpose specified.

186,196. SAW-TABLES. George E. Burt, Harvard, Mass. [Filed June 26, 1875.]

Brief.—The table, upon which the wood is supported during the operation of sawing, is moved to and from the saw by a swinging pendulum-balance, connected to the standards of the table by a pivoted arm.



1. The combination of the moving saw-table, the swinging pendulum, and a connection from the pendulum to the table to assist in operating the table, substantially as described.

2. The combination of the table T, supporting-arms S, pivot O, pendulum P, and connecting-arm B, substantially as described, and for the purpose set forth.

186,197. WRENCHES. P. Chapin, Sr., Pine Meadow, Conn. [Filed Dec. 8, 1876.]

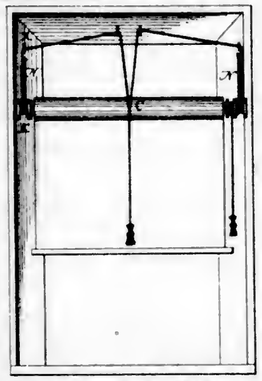


1. The wrench-bar *a*, provided with screw-serrations *b*, the sliding jaw *c*, having arms *c' c'*, and carrying the screw *d* and the cam *e*, all combined and arranged substantially as described, and for the purposes set forth.

2. The wrench-bar *a*, provided with screw-serrations *b*, the sliding jaw *c*, having arms *c' c'*, and carrying the screw *d*, cam *e*, and spring *f*, all substantially as described.

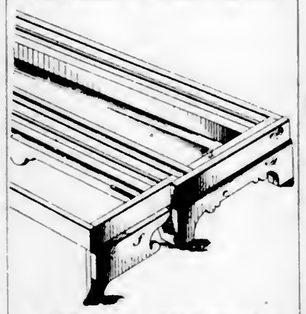
186,198. CURTAIN-FIXTURES. J. Collins and J. D. Saltegaver, Fairview, Ohio. [Filed Sept. 29, 1876.]

Brief.—The roller is grooved at one end to receive its operating-cord, and is connected at each end with an independent pulley, around which cords pass that raise and lower the curtain-roller.



The single-grooved pulleys K K and the cords N N, substantially as described, when operated in combination with the grooved curtain-roller.

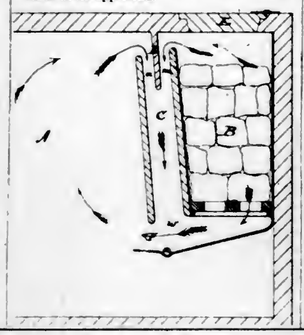
186,199. SOFA-BEDSTEADS. H. Compes, San Francisco, Cal. [Filed Oct. 29, 1876.]



The combination, in the settee and sofa bed, of the frame or base A, movable seat-frame B, and back-frame C, hinged in the seat-frame by the bolts *c* and *e*, and the arms *f f* on the seat-frame connected to the back by the pins or hooks *l*, as herein described.

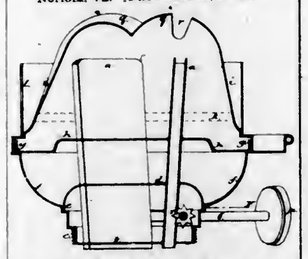
186,200. REFRIGERATORS. G. H. Crisfield, Yonkers, N. Y. [Filed Mar. 25, 1876.]

Brief.—The flue which separates the preserving-chamber from the ice-chamber is divided at its upper end.



The flue C between the refrigerator A and ice-chamber B, provided with a partition-plate, L, dividing its upper part, one part, *m*, communicating with the top of the ice-chamber B, and the other part, *n*, with the top of the refrigerator A, in the manner and for the purpose substantially as described.

186,201. LAMP-BURNERS. Henry H. Doty, Norfolk, Va. [Filed June 21, 1876.]



1. A detachable burner, adapted to be screwed or applied as shown to a hand-lamp, and composed of three wicks, arranged at their upper or burning ends in the shape of a triangle, passing through wick-tubes *a a a*, substantially as shown and described.

2. The described construction of the burner with its three wick-tubes *a a a*, triangularly arranged, as shown, and diverging from below upward, substantially as shown and set forth.

3. The cap *i*, constructed as shown and described, with the raised hemispheres *q q q*, converging together to form one cap, and each slotted at *r*, for the passage of the flames, as and for the purposes set forth.

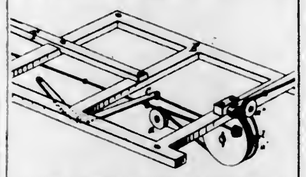
186,202. SHIRT-STUDS. Charles H. Field, Providence, R. I. [Filed July 5, 1876.]



A shirt-stud provided with an adjustable shoe, constructed as described, and adapted to be expanded and contracted by operating a screw-threaded post attached to the outer disk of the stud, substantially as described.

186,203. CORN-PLANTERS. Wm. Gilman, Chicago, Ill. [Filed June 17, 1876.]

Brief.—The pivoted carrier receives the rope, and passes it to a sheave journaled to a downwardly-curved arm. This sheave is composed of a loose pulley running between two flanged disks having lugs that turn as the knotted rope strikes them, imparting motion to the seed-slide through crank-arm and connecting-rod secured to a pin on one of the disks. The rope passes from the large sheave to a small one journaled on the curved arm, and out beneath the tongue.



1. The pulleys or guides *a a'*, for taking up the operating-rope H from the ground forward between the horses, and centrally beneath the tongue F of the planter, to serve as a guide for driving, in combination with the reversible carrier B, located in the rear of the machine, substantially as shown and described.

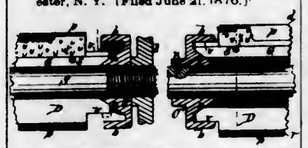
2. The combination of the two disks A, rigidly connected, and having lugs *d*, with loose pulley *a'*, knotted cord, and connecting devices, for imparting motion to the grain-dropping mechanism, substantially as set forth.

3. The reversible carrier B, located in the rear of the machine, to transfer the rope to one side of it, in combination with the pulley *a'*, located centrally under the frame, as and for the purpose described.

186,204. PROCESSES OF TREATING FISH-SCRAP. S. L. Goodale, Saco, Me. [Filed July 24, 1876.]

The process of washing fish or fish-scrap with water subsequent to its being cooked and before it is finally pressed, whereby gelatine is removed, the yield of oil increased, and subsequent drying of the scrap facilitated.

186,205. BUFFING-ROLLS FOR THE SOLES OF BOOTS AND SHOES. L. S. Graves, Rochester, N. Y. [Filed June 21, 1876.]



1. A buffing-roller composed of a series of staves made diametrically expansive by means of conical collars forced under their ends, one collar being fixed, and the other adjustable upon the shaft, in the manner and for the purposes set forth.

2. The shaft S and collars C C', in combination with cylindrically-expansive staves D G, elastic cushion *r*, and buffer-band *p*, all operating conjointly in the manner and for the purposes set forth.

3. The combination, with the staves D, of buffing-rollers, the collars C C', provided with a flange or rim, *b*, and conical center *a*, substantially as and for the purposes set forth.

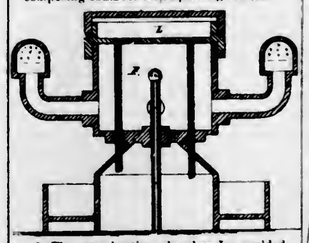
186,206. VENT-CLEARERS FOR WASH-BOWLS, &c. J. S. Hawley, Stapleton, N. Y. [Filed June 6, 1876.]



The bead or thickened rim *b'*, formed around the edge of the cap B of the vent-clearer A B, substantially as herein shown and described.

186,207. APPARATUS FOR MANUFACTURING GAS. J. G. Hunt, New York, N. Y. [Filed Apr. 22, 1876.]

Brief.—The walls of the decomposing-chamber are corrugated, to furnish an increased heating surface; and the steam pipes or passages conveying steam to the superheating-chamber are within the walls of the decomposing-chamber, which prevents said walls from burning out, and better superheats the steam. Electricity is conducted into the decomposing-chamber for improving the gas.



1. The superheating-chamber L, provided with openings in the partition that separates it from the mixing-chamber, in combination with the mixing-chamber having a corrugated case, the lateral burners, the petroleum-supply pipe E, and the steam-pipe passing through the mixing-chamber, substantially as specified

2. In combination with the hydrocarbon-burner, having superheating and mixing chambers, and lateral burners, the conducting-wires and generator of electricity, whereby an electric circuit is established, substantially as specified.

186,208. ATOMISERS. Wm. Kennish, New Brunswick, N. J., assignor to C. B. Dickinson, Brooklyn, N. Y. [Filed Nov. 14, 1876.]

Brief.—The air-bulb and liquid-receptacle form one continuous chamber. The liquid-tube connects directly with a valve-seat in the rubber, and the valve is a rubber disk with a single perforation, located just over the exit end of the tube, and serves to give egress to the liquid and ingress to the air.



1. The combination, in an atomiser, of a liquid-receptacle with an elastic bulb by expanding the elastic collar of the bulb over the neck of the bottle or other vessel, as described, thus forming a continuous chamber.

2. The combination, in an atomizer, of a liquid-pipe rising in the bulb, with a perforated disk in the side of the bulb, as described.

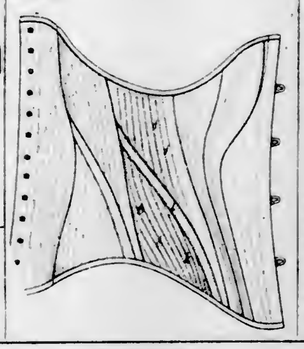
3. The valvular disk, centrally perforated by the minute hole, which serves, upon compression of the bulb, as an outlet for vapor, and upon expansion of the bulb as an inlet for air in an atomiser, substantially as described.

186,209. ADVERTISING-CARDS. H. Mahler, Raleigh, N. C. [Filed Oct. 27, 1876.]



A business-card having a series of holes punched out of the body of said card, substantially in the manner and for the purpose herein described.

186,210.

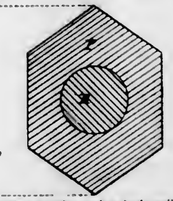


186,210. CORSETS. J. Mayer, Brooklyn, assignor to Waterman & Mayer, New York, N. Y. [Filed Oct. 31, 1876.]

1. The corset made with the bones *f*, extending from near the top edge of the corset past the waist, and the bones *g*, extending from near the bottom edge past the waist, substantially as set forth.

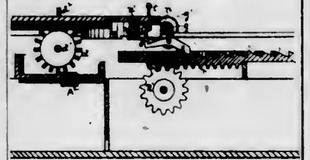
2. The diagonal bones *i*, secured to the corset by the strip of woven material sewed to the surface of the corset, in combination with the triangular sections of ranges of bones at each side of the diagonal bone, as set forth.

186,211. COMPENSATING-POWDER. A. E. Millimore, Janesville, Wis., and C. A. L. Totten, New London, Conn. [Filed Jan. 18, 1875.]



A compensating-powder, as herein described, the grains of which are made up of layers of explosive substances, said substances being respectively of varying force and expansive intensity, substantially as and for the purpose described.

186,212. FEED APPARATUS FOR PUNCHING AND OTHER METAL MACHINES. J. Morgan, Pittsburg, Pa. [Filed Nov. 24, 1876.]



1. A jointed frame, A A', as a carrier and guide for a reciprocating feed-table, and in combination therewith, substantially as set forth.

2. The combination of jointed frame A A', feed-table D, and rack and pinion D' *d*, substantially as set forth.

3. The combination of jointed frame A A', table D, and graduated sector B, substantially as set forth.

4. The curved ribs *c* and table D, in combination with rails *e a'*, substantially as and for the purposes set forth.

5. The pawl-frame *n*, connected to the table by pin *n'* and curved flange *m*, in combination with rack and table, substantially as and for the purposes set forth.

6. The rack-bar R, having ratchet-teeth extending across its face, not parallel with each other, but at uniform distances apart along each line of feed, substantially as described.

7. The combination of rack bar R, pawl *h*, and feed-table receiving its motion directly from the pawl without any intervening carriage, substantially as set forth.

8. The rack-bar R, having a system of ratchet-teeth, substantially as described, in combination with a pawl adjustable transversely across its face, a feed-table connected with the pawl, and a rack and pinion for operating the table, substantially as set forth.

186,213. VAPOR-BURNERS. W. C. North, Cleveland, Ohio, assignor to Joshua E. Hall and Anna M. North, same place. [Filed Nov. 20, 1876.]

1. The combination with the T-coupling, having a screw-threaded valve-stem guide attached thereto, of the screw-threaded valve-stem, and packing-cup or gland D, the latter filled with soap or glue, substantially as and for the purpose set forth.

2. The combination, with the burner A constructed with a depending collar, of the thimble B', formed with an annular flange, whereby it is adapted to be supported and firmly secured beneath the burner, substantially as and for the purpose specified.

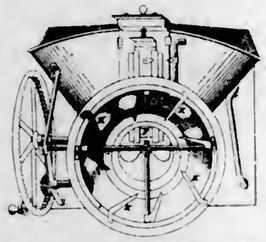
3. In a vapor-burner, provided with means for injecting a current of gas into a receptacle wherein the gas is commingled with oxygen, the burner A, formed of two or more perforated cylinders, decreasing in size toward the end of the burner, the lower cylinder provided with perforations in its base portion, to allow air to be drawn in and mixed with the gas as it is broken up by the angular ledges formed by the inner surface of the burner, substantially as and for the purpose specified.

186,213.



186,214. SEED-SOWERS. J. Pearce, Shelby County, Ky. [Filed Oct. 23, 1876.]

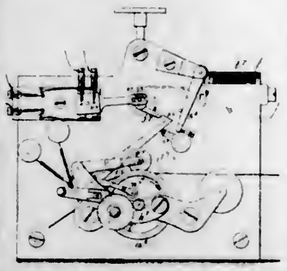
Brief.—The inner bowl is provided with adjustable ribs.



The adjustable ribs K K K K in a centrifugal seed sower, as above described, arranged, constructed, and operated substantially as and for the purpose set forth.

186,215. PRINTING-TELEGRAPH TRANSMITTERS. George M. Phelps, Brooklyn, N. Y. [Filed Oct. 26, 1876.]

Brief.—A transmitter to be used in the printing telegraph system, in which the type-printer is controlled by a fillet of paper perforated with holes at distances apart corresponding to the distances between the characters on the type wheel required to be printed



1. The combination, with the rollers a^4 and d^3 and lever c^3, of the hook 85, revolving finger f^3, crank 87, circuit-rocker e^4, and connections to the distant printing-telegraph instrument, substantially as set forth.

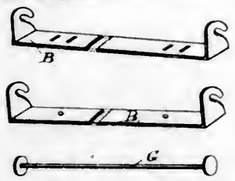
2. The signal wheel i^3 and roller s^1, in combination with the rollers a^4 and d^3, lever c^3, hook 85, revolving finger f^3, and circuit-rocker e^4, substantially as and for the purposes set forth.

3. The combination, with the rollers a^4 and d^3, lever c^3, hook 85, and revolving finger f^3, of the tumbler o^3, armature-lever s^3, electro-magnet t^3, and connections to the distant receiving-instrument, for the purposes set forth.

4. The combination, in a printing-telegraph, of a transmitting-roller and circuit-closing mechanism, operated by perforated paper, and an electro-magnet controlled from the receiving station, and acting to lock the transmitting mechanism, substantially as described.

186,216. METALLIC BOOK-BACKS. I. Reynolde, Dayton, Ohio, assignor to Reynolds & Reynolds, same place. [Filed Nov. 18, 1876.]

Brief.—The leaves are secured to the cover by a loose bar, which takes into the hooked ends of a metallic strip, which is secured to a strip of cloth attached to the book-cover, through a second metallic plate resting under the cloth-strip, the two plates being clamped or riveted together.



1. The combination of the linen or other fabric F with the two metallic pieces between which it is fastened, and whereby such metal back is adapted to be permanently secured to the two leaves of the cover, substantially as shown and set forth.

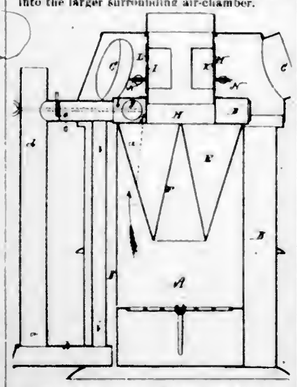
2. The wire rod G, in combination with the upturned metal plate B, the plate A, and the fabric secured between such plates, substantially as shown and set forth.

3. In combination, the loose rod, the inside metal plate provided with two hooks to receive such rod, the plate A, and the linen or fabric secured between these two plates of the metal back.

4. In combination, the plate A, the plate B, having two hooks to receive the removable wire rod or fastener, and the fabric between such plates, when these plates and fabric are secured together by means of rivets, which project above the inner plate, and are adapted to enter holes in the back of the book.

186,217. HOT-AIR FURNACES. J. C. Sanborn, Manchester, N. H., assignor to V. Corliss, Methuen, Mass. [Filed July 24, 1876.]

Brief.—The air within the central chamber may pass directly upward, or, by means of the side doors, a portion may be discharged into the larger surrounding air-chamber.



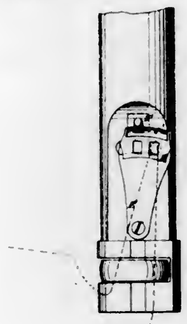
1. The combination of the chamber of combustion A, air-heating chamber B, circular flue D, pipes c, d, i, and k, and the dampers s and g, all arranged and applied substantially as set forth.

2. The combination of the doors L M, toggles N N, and pitman O, with the auxiliary air-heating chamber E, its educt H, the chamber of combustion A, and the main air-heating chamber B, all being essentially as shown and described.

3. The combination of the hollow cone or radiator F, auxiliary air-heating chamber E, induct m, chamber of combustion A, and main air-heating chamber B, all arranged substantially as set forth.

4. The combination of the hollow cone or radiator F, the auxiliary air-heating chamber E, and its induct m, with a septum, G, extending from the outer surface of the cone F to and across the next adjacent mouth of the said induct, all being as set forth.

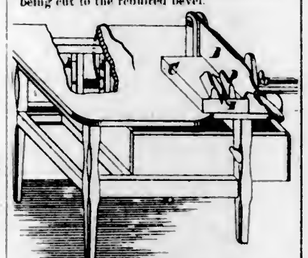
186,218. SOCKETS FOR SCYTHE-SHANKS. Miles Smith, Springfield, Vt. [Filed Oct. 30, 1876.]



The combination of the pivoted vibrating plate E, having the rib e' at its free end, and the hooked retaining-bolt F, with the snath, scythe, and ordinary clamping device at the end of the snath, as and for the purpose set forth.

186,219. GRAFTING-MACHINES. E. Walters, Bowensburg, Ill. [Filed Feb. 1, 1876.]

Brief.—A pivoted knife is mounted upon a table, and alongside of the knife is a beveled support, against which the scion rests while being cut to the required bevel.



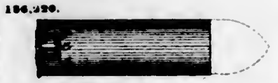
1. The pivoted blade or cutter B, operating in combination with the inclined guard or guide D, to cut the sloping sides of the stocks and scions, substantially as and for the purpose specified.

2. The V-shaped cutter E and guide-block c, arranged relatively as described, to split stocks and scions of different sizes, substantially as set forth.

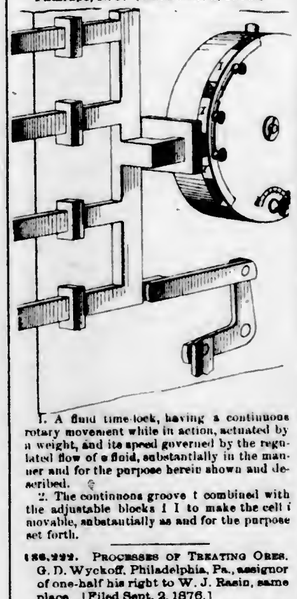
186,220. CARTRIDGES. Joseph P White, Savannah, Ga. [Filed Sept. 20, 1875.]

A cartridge-case having a perforated recess in the head thereof, of sufficient diameter for the largest size of caps, provided with a nipple to receive the smallest size of caps on it, in combination with a hollow perforated cover of elastic metal, adapted to fit into said recess, to retain the cap in place and form a gas-tight joint to the recess, substantially as and for the purpose described.

186,220.



186,221. TIME-LOCKS. Edw. J. Woolley, Pamrapo, N. J. [Filed Nov. 6, 1876.]



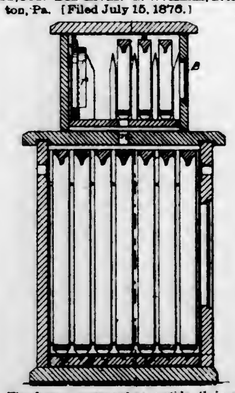
1. A fluid time-lock, having a continuous rotary movement while in action, actuated by a weight, and its speed governed by the regulated flow of a fluid, substantially in the manner and for the purpose herein shown and described.

2. The continuous groove t combined with the adjustable blocks I I to make the cell i movable, substantially as and for the purpose set forth.

186,222. PROCESSES OF TREATING ORES. G. D. Wyckoff, Philadelphia, Pa., assignor of one-half his right to W. J. Rasin, same place. [Filed Sept. 2, 1876.]

The process of treating refractory ores, which consists in subjecting the mixed ore and coal, both suitably pulverized, to the direct action of flame on a reverberatory-furnace hearth, the treatment being continuous until the coal is entirely consumed, substantially as and for the purpose described.

186,223. BEE-HIVES. G. W. Akins, Bridgeton, Pa. [Filed July 15, 1876.]

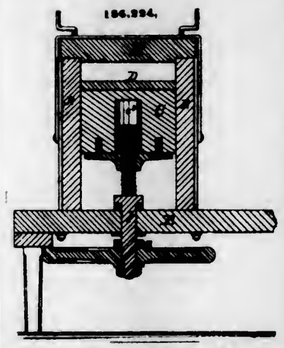


The form r, arranged on a slide, S, in compartment B, as and for the purpose specified.

186,224. BUTTER-PRESSES. Winfield S. Alexander, Marysville, Ohio. [Filed Apr. 5, 1876.]

The combination of the frame A B, plunger C, detachable board D, and printing-board E, with suitable devices for detachably holding the said board E in place, all constructed to operate as and for the purpose described.

186,224.



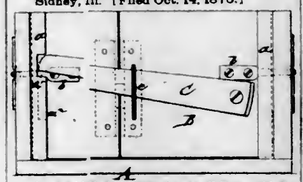
186,225. CLAMPS FOR HOLDING RATCHET-DRILLS FOR DRILLING RAILROAD-RAILS. L. Beland, North Springfield, Mo. [Filed Nov. 18, 1876.]

Brief.—The flanged nut in which the feed-screw works is movable in a slot formed in the frame, to adjust the drill to different sections of the rail without removing the device from the track.



A drilling-clamp, consisting of the bars A and hooks B, bolted together and combined with the flanged movable nut C and screw D, as shown and described.

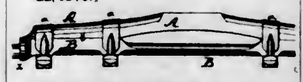
186,226. WAGON END-GATES. T. L. Blook, Sidney, Ill. [Filed Oct. 14, 1876.]



1. A middle-hinged end-gate, B B, provided with the curved rigid hooks b b, that pass through holes in the sides of body, as shown and described, to prevent any upward jolting or rising of gate.

2. The combination, with a middle-hinged end-gate, of the bar C, pivoted at the rear on one section, B, passing over the other, and locking in guide-strip a by means of the recesses a^1 a^1, as shown and described.

186,227. TRUSSED AXLE-TREES. Jas. B. Brewster, New York, N. Y. [Filed Aug. 22, 1876.]



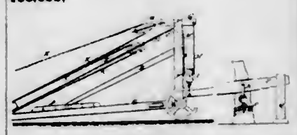
The within-described trussed axle consisting of the straight metallic portion B, having journals at the ends, and provided with shoulders x x and bearing faces y y, and the arched portion A, having long flat bearing ends, confined to the axle-bearings by clips a a, and terminating inside the shoulders x x, as set forth.

186,228. GRUBBING-MACHINES. I. Burley, Red Wing, Minn. [Filed Nov. 4, 1876.]

Brief.—A vertical frame on a mounted axle with a tongue. A rope from the power leads through blocks on the frame and tongue to the top of the former, thence down to a lever.

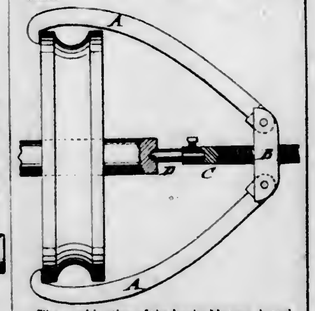
The combination of the wheels and axle A B, the tongue C, the adjusting-bar D, the adjustable brace E, the uprights F, the cross-bar G, the two ropes H K, the pulley f', and the four pulley-blocks I J L M with each other, substantially as herein shown and described.

186,228.



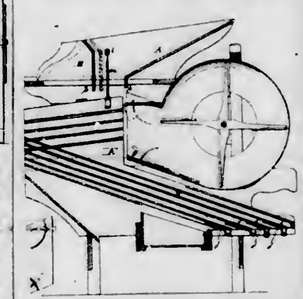
186,229. DEVICES FOR DRAWING PULLEYS FROM SHAFTING. H. F. Casterline, Grand Detour, Ill. [Filed Sept. 16, 1876.]

Brief.—A nut, to which are pivoted a pair of hooks, is drawn along a screw-threaded bolt, revolved in a line with and against the shaft.



The combination of the hooked levers A and traveling head or nut B with the screw C and detachable set or center pin D, as and for the purpose set forth.

186,230. GRAIN-SEPARATORS. O. J. Chubbuck, Towanda, Pa. [Filed June 1, 1876.]



1. The extension hopper constructed of two parts, A B, adjustable in their distance asunder, and having parallel descending walls, forming a vertical or nearly vertical delivery-throat of variable capacity.

2. A series of adjustable screens arranged with their upper edges to act as dividers in separating the grain into various grades by the action of the blast and gravity, as described, in combination with chutes j j to conduct the grain to the appropriate places of delivery while permitting the adjustment of the screens, as set forth.

3. The combination of the hopper A B, parallel delivery-walls p p, shoe E, and rake l m, substantially as and for the purpose set forth.

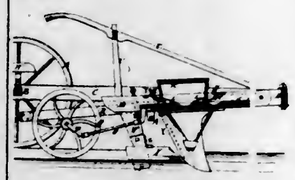
186,231. SEED-PLANTERS. D. J. Davis, Red Boiling Springs, Tenn. [Filed Sept. 2, 1876.]

1. The combination of the opening-plow G, the covering-plow V W, the double-winged plow X, its long bolts Y and spring Z, and the covering-wheel Q and draw-bars K with each other, and with the plow-beam D and the carriage A B C E F for opening the furrow and covering the seed, substantially as herein shown and described.

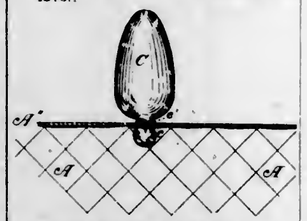
2. The combination of the inclined plates L, the cut-off plates M, and the adjusting-screws N, with the hopper K, dropping-plate J, and

the platform 1 for regulating the quantity of seed dropped at a time, substantially as herein shown and described.

186,231.



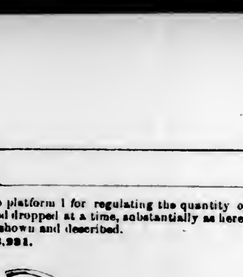
186,232. GILL-NETS. D. W. Davis and S. H. Davis, Detroit, Mich. [Filed Dec. 19, 1876.]



The glass floats C, in combination with a gill-net, A, arranged to operate as and for the purposes substantially as described.

186,233. LIMEKILNS. J. W. Devling, Flemington, assignor to G. W. Batcheler and J. B. Furst, Lock Haven, Pa. [Filed Oct. 3, 1876.]

Brief.—The part C is of masonry, like the walls of the kiln.



A limekiln or ore-roaster, having the pointed inwardly-projecting wall C for the purpose of directing the flame and current of heat to the bottom center of the chamber B, substantially in the manner and for the purposes set forth

186,234. ELECTRO-MAGNETIC DENTAL PLUGGERS. J. E. Dexter, New York, N. Y. [Filed Oct. 23, 1876.]

Brief.—Relates to the construction of the magnet and core, the attachment and operation of the vibrating piece that makes and breaks the electric circuit, and to the circuit closing in the handle of the instrument.

1. An electro-magnet, having a longitudinal split-iron core, and a longitudinal split-iron shell, connected by a flange projecting from the core, and inclosing a magnetic coil between the said core and shell, substantially as herein shown and described.

2. The combination of the spring-yoke J, vibrator *k*, and spring contact-piece *m*, substantially as herein shown and described.

3. The armature I, provided with the tappet *s*, and the vibrator *k*, having the spring *m*, in combination with the magnet A, substantially as shown and described.

4. The combination of the rubber stud *s*, armature I, and vibrator *k*, substantially as shown and described.

5. The combination, in an electro-magnetic plugger, of the key N, having a non-conducting exterior spring, *c'*, contact-spring Q, and screw O, substantially as shown and described.

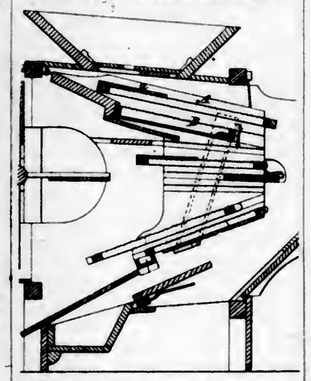
6. The combination of the frame H, insulated yoke J, vibrator *k*, armature I, and magnet A, substantially as shown and described.

186,234.



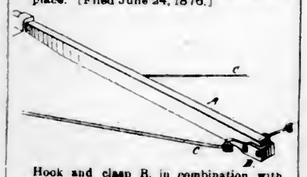
186,235. GRAIN-SEPARATORS. T. J. Doyle, Rheatown, Tenn. [Filed Nov. 21, 1876.]

Brief.—The prongs on the lower ends of the supporting and adjusting screws prevent the fanning-mill from dancing on the floor, and the screws themselves from "backing out" when set to the desired adjustment.



The forked or pronged screen adjusting screw G, substantially as described.

186,236. HOOKS FOR DRAW-RODS FOR HORSE-POWERS. M. B. Erskine, Racine, Wis., assignor to J. I. Case & Co., same place. [Filed June 24, 1876.]



Hook and clasp B, in combination with sweep A and rod C, substantially as described.

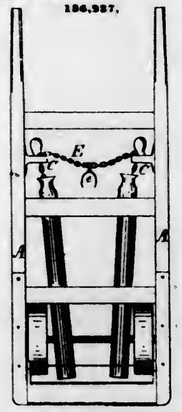
186,237. HAND-TRUCKS. Hiram R. Ferris, Cleveland, Ohio. [Filed Nov. 15, 1876.]

1. The combination of the chain E, with its hook *s* and the latches C C, with the hand-truck A, substantially as shown, and for the purpose set forth.

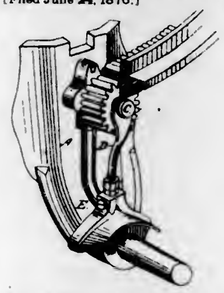
2. The pipes or cylinders B B, in combination with the truck A, as receptacle for the chain E, as shown.

3. The bar D, having arms D' and sharp points on its outer edge, pivoted to the frame of the truck A, to be turned down when desired, for catching into the package, for the purpose set forth.

186,237.



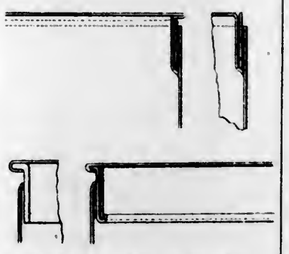
186,238. TRAVERSE-PINIONS FOR HORSE-POWERS. J. A. Field, Racine, Wis., assignor to J. I. Case & Co., same place. [Filed June 24, 1876.]



Support D, in combination with clasp E, bracket A, and shaft C, substantially as described.

186,239. SHEET-METAL CANS. J. S. Field, Brooklyn, N. Y. [Filed Dec. 18, 1876.]

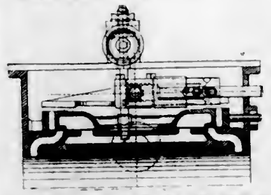
Brief.—A separate rim, preferably of untinned sheet-iron, to aid in breaking the frangible joints, the rim of cover being inside of the body of can.



1. A can having a cover with the rim pressing inside the body, and with the solder applied to the bent edge of the sheet metal, substantially as specified.

2. The combination, with a can and cover, of a separate strip of sheet metal outside the rim of the cover, and within the body of the can, substantially as specified.

186,240. VARIABLE CUT-OFF VALVES FOR STEAM-ENGINES. J. Fish, Summit, N. J. [Filed Oct. 20, 1876.]



1. A vibrating cut-off valve with parts so arranged as to close the ports of a slide-valve, when the bearings are attached to the cylinder or steam-chest, substantially as specified, and as herein set forth.

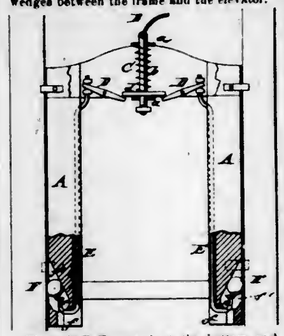
2. The combination of the sliding bars and stops on rock-shaft lever with the loose gear-wheel on rock-shaft, the loose gear-wheel being connected to the governor, by means of which the position of the adjustable stops is regulated by the governor, substantially as specified, and as herein set forth.

3. The sliding bar with its tripping-toes, in combination with the adjustable stops in the rock-shaft lever, to give motion to the vibrating cut-off valve, substantially as specified, and for the purpose as herein set forth.

4. The combination of a vibrating cut-off valve, having a rock-shaft and rock-shaft lever, with a sliding bar and its tripping-toes, to move it, together with the sliding rack-bars and stops on the rock-shaft lever, connected to a loose gear-wheel on rock-shaft, the motion of the loose gear-wheel being regulated by the governor, substantially as specified, and for the purpose as herein set forth.

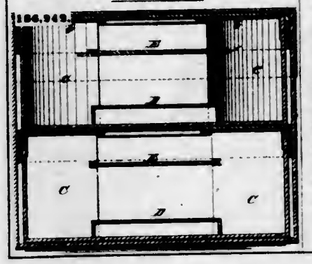
186,241. SAFETY-CHECKS FOR ELEVATORS. Nathan H. Fogg, Boston, Mass. [Filed Dec. 4, 1876.]

Brief.—The suspension-eyebolt (on the elevator) to which the hauling-rope is fastened will, on the breaking of the latter, be forced by a spring onto the ends of levers, which, at their opposite ends, sustain rods passing down the sides, and at bottom turned into recesses, wherein they carry elastic balls, to act as wedges between the frame and the elevator.



The rods E E, curved at the bottom, and there provided with rubber balls F, in combination with an elevator, having pockets *f*, levers D, and spring-bolt C, arranged substantially as and for the purpose specified.

186,242.

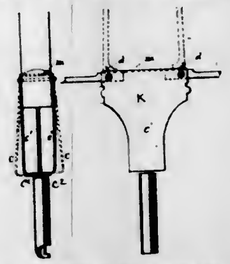


186,243. PAPER BOXES. Richard H. Foster, Gloversville, N. Y. [Filed Dec. 11, 1876.]

Brief.—Interior projecting corner-pieces, leaving spaces between them for the gauntlet or cuff of the gloves, and a central table or stand for the hand of the gloves.

A packing-box for gauntlets, consisting of a box having internally-projecting corner-pieces C, table D, and retaining-card E, substantially as herein shown and described.

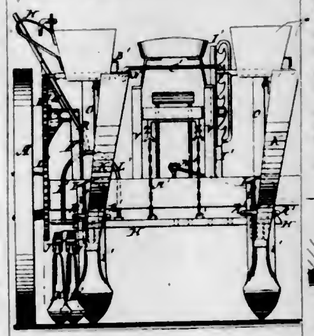
186,244. FLY-FANS. W. R. Fowler, Baltimore, Md., assignor to S. W. Lambeth, Philadelphia, Pa., and W. R. Lafourcade, Beverly, N. J. [Filed June 13, 1876.]



1. In an automatic fan, the staff-head K, having the perforated top *m*, the perforated ears c^2 c^2, and the apriog-jaws c^1 c^1, in combination with the fan-staff *e*, substantially as and for the purpose set forth.

2. The stops *d d*, constructed as described, in combination with the fan-arms H H, substantially as and for the purpose set forth.

186,244. COMBINED CORN-PLANTER AND CULTIVATOR. E. C. Gage, Witoka, Minn. [Filed Oct. 23, 1876.]



1. The gear-wheel D, mounted on the hub of one of the driving-wheels A, and the gear-wheel C', having inclines or cams *a'*, and mounted on bar F', in combination with spring-bar, seed-slide, and elevated hopper, all substantially as shown and described, for the purpose specified.

2. The bent rod L', provided with a cross-head upon its free end, in combination with the cross-bar H and the side plows J' K', substantially as herein shown and described.

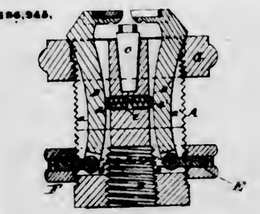
186,245. CHUCKS FOR METAL-TURNING LATHES. J. H. Harris, Sacramento, Cal. [Filed Nov. 11, 1876.]

Brief.—This invention consists in so arranging the jaws of a chuck with relation to the body or hub that the upper and lower nuts, when engaged with the threads of said hub, have the effect, respectively, the one to open or close the jaws, and the other to extend them more or less beyond the end of said hub.

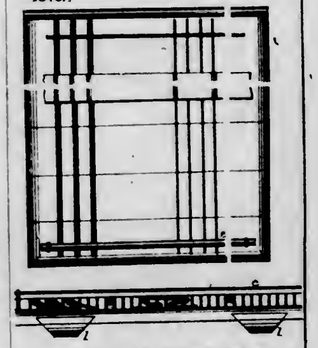
1. The combination of the hub A, curved jaws D D', ring E, nuts F and G, spring *c*, and center C, substantially as herein shown and described.

2. The combination of the dogs *e e'* and jaws D D', substantially as and for the purpose herein shown and described.

186,246.



186,246. PLAITING-MACHINES. Eduard S. Harding, Baltimore, Md. [Filed May 27, 1876.]



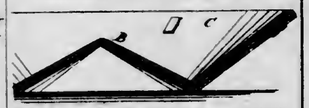
1. A plaiting-board provided with rows of pins *a a*, and a removable bar connected with one of the rows, substantially as shown and described.

2. The detachable grooved bar *c* and fastening devices, in combination with the row of pins, substantially as specified.

3. A plaiting-board made in sections, which are detachable one from the other, substantially as shown and described.

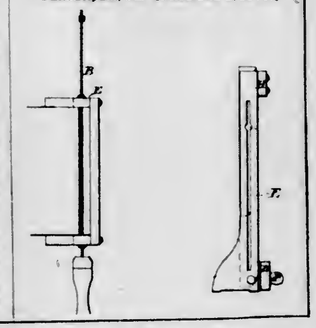
4. The dovetail bars *l*, and removable sections, one of which latter is provided with a row of pins, in combination with the main section of the board, as shown and described.

186,247. PAPER DISHES. S. E. Harlow, Fairbury, Ill. [Filed Oct. 14, 1876.]



A dish formed of a paper disk, cut radially from the center, crimped to produce a conical bottom, B, as well as an outwardly-flaring rim, C, and having its overlapped edges *a b* secured, as shown and described

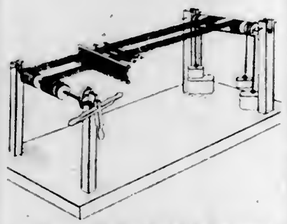
186,248. BREAD-CUTTERS. Geo. B. Heath, Philadelphia, Pa. [Filed Oct. 2, 1876.]



1. The combination of the board A, hinged to the slotted uprights E, as and for the purpose herein described.
2. The combination of the board A, hinged to the slotted uprights E, and the knife B, as and for the purpose herein described.
3. The combination of the board A, hinged to the slotted uprights E, and the adjustable guide D, as and for the purpose described.

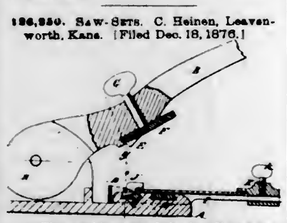
186,249. PROCESSES OF PREPARING WARPS FOR LOOMS. W. Heaton, Providence, R. I., assignor to E. P. Chapin and F. Condit, same place. [Filed Aug. 25, 1875.]

Brief.—Instead of "picking" in the warping and at the rear of the loom, several distinct warps are "beamed," first upon a long beam, thence upon as many short beams turned by one shaft, and the picking is done between the long and short beams.



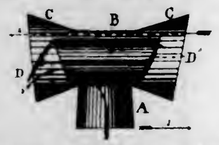
The process herein described of preparing the threads and the warp-beams for the loom, consisting of winding the warp from the warping mill upon a long beam, and thence simultaneously upon two or more short beams, and picking or clearing the same in its passage from the long beam to the interposed skillet or lease rods.

186,250. SAW-SETS. C. Heinen, Leavenworth, Kans. [Filed Dec. 18, 1876.]



1. The combination of the key F with the upper die E, the lever B, and the screw G, substantially as herein shown and described.
2. The combination of the sliding bar H, the two bars I, having hooks J formed upon their forward ends, and the adjustable clamps K *k'*, with the grooved forward end of the bed-plate A of the machine, substantially as herein shown and described.

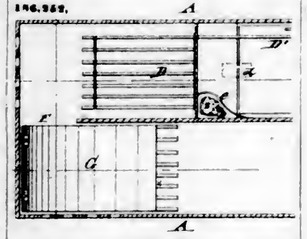
186,251. VENTILATORS. J. B. Hill, Jersey City, N. J. [Filed Aug. 5, 1876.]



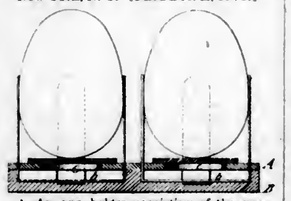
The combination of the pipe or conduit A, the cylinders B and C, and the connected automatically-moving valves D D', the parts being arranged to operate, substantially as and for the purpose set forth.

186,252. ANIMAL-TRAPS. T. N. Hughes, Muddy Creek, Tenn. [Filed Sept. 2, 1876.]

In an animal-trap, the chamber A, having the drop-door B, the balanced treadle C, having upright *b*, the lever E, and the pivoted wire door D, having arm D', in combination with the side chamber H, having an aperture, F, and a pivoted wire frame, G, all constructed and arranged substantially as and for the purpose specified.



186,253. EGG-CARRIERS. Lewis Inglee, New York, N. Y. [Filed Dec. 11, 1876.]



1. An egg-holder consisting of the apertured board A, the recessed board B, the elastic disks, and the vertical springs, substantially as shown and described.
2. In an egg-holder, the combination, with the board B, having the recesses shown, of the springs *b b*, each bent twice at right angles, to fit and be held within said recesses, as specified.

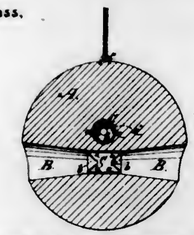
186,254. BROOMS. W. M. Jackson, Providence, R. I., assignor of one-half of his right to C. H. Jackson, same place. [Filed Dec. 6, 1876.]



1. The sleeve B, secured upon the handle of a broom, substantially as described, whereby it is left free to turn loosely on the handle, as and for the purpose set forth.
2. The loosely-rotating sleeve B, constructed to be adjusted vertically on the handle, substantially as described.

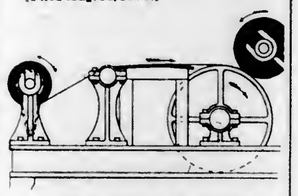
186,255. WHIRLING TOYS. J. H. Jenkins, New York, N. Y. [Filed Nov. 23, 1876.]

Brief.—Of the kind that whistles while being whirled in the hand.



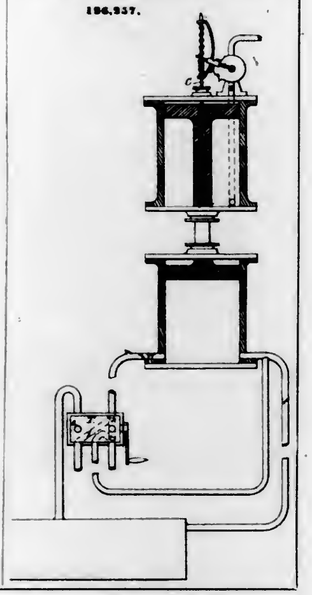
1. The herein-described whirling toy, constructed with one or more bores, B, funnel-shaped or tapering to a diminished diameter at the center of the block A, arranged at right angles to the radius of rotation, and provided with a whistle, substantially as and for the purpose set forth.
2. In a whirling toy, two or more funnel-shaped or oppositely-tapering bores, B, arranged at an angle to each other, and each provided with a whistle, substantially as and for the purpose herein set forth.
3. In the block A, the whistle C, constructed with the funnel-shaped ends *b*, converging to the mouths *a'*, the said whistle being placed midway in a bore or orifice extending through the block A, substantially as and for the purpose herein set forth.

186,256. MACHINES FOR WINDING UP FABRICS. Gilbert E. Jones, New York, N. Y. [Filed Aug. 14, 1876.]



A winding machine having a delivering-roll and a winding up roll, held in arms, guides, or ways, which are provided with frictional bores or slides, combined with a power roll.

186,257.



186,257. RAILWAY-BRAKE APPARATUS. H. F. Knapp, New York, N. Y. [Filed July 2, 1875.]

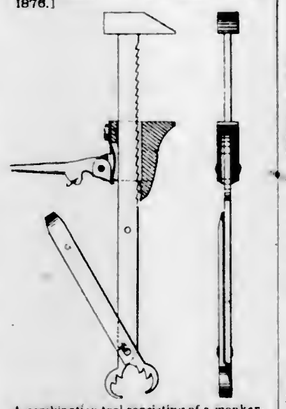
1. The valve D', in combination with lever H, lock G, and stem C, working in the hollow piston-rod.
2. The valves Y and W, when placed in the induction-pipe of a pump, in combination with the valve T, for the purpose specified.

186,258. ABDOMINAL CORSETS. C. Lascell, Newark, N. J. [Filed May 22, 1876.]



1. The combination of the sleeve-shaped shoulder-straps B, having interior band with buckles, and elastic straps attached to the front of the corset, substantially as specified.
2. An abdominal corset opening at the side by lacings at the upper part, and a buttoning-band with elastic gore or straps at the lower part, substantially as specified.
3. The combination of the front stay with a pocket at the under side of the corset, constructed and arranged as described, to admit adjustment of the stay, substantially as described.
4. An abdominal corset provided with a central front slot, with elastic lace-strings arranged above the stomach part, substantially as specified.
5. The combination of the lower extension of the corset, having laced side slots by elastic side straps with the hip parts of the corset, substantially for the purpose specified.
6. The combination of the lower extension of the corset with a hernial band attached by elastic back straps to hip-buckles of the corset, substantially as and for the purpose set forth.

186,259. COMBINATION-TOOLS. I. U. Malphurs, Gainesville, Fla. [Filed Dec. 4, 1876.]



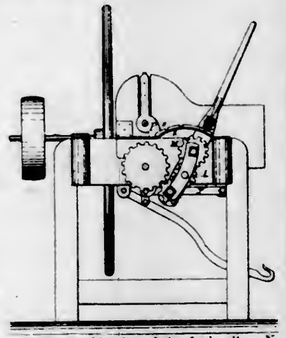
A combination tool consisting of a monkey-wrench, gimlet, pipe-tongs, nippers, and screw-driver, combined and arranged substantially as herein shown and described.

186,260. COMPOSITIONS FOR DESTROYING INSECTS. J. B. Margarit, New York, N. Y. [Filed Oct. 9, 1876.]

The composition herein described, consisting of garlic, walnut-peel, parsley-root, rue-leaves, aloes, protosulphate of iron, and arsenious acid, substantially as and for the purpose herein described.

186,261. STRAW-CUTTERS. D. Maxwell, Paris, Ontario, Canada. [Filed May 8, 1876.]

Brief.—The worm-wheel on the main shaft revolves the sprocket-wheel of the lower roller in one direction, and of the upper roller in the opposite, the latter at varying elevations, a regulating-spring serving to press down the upper roller.

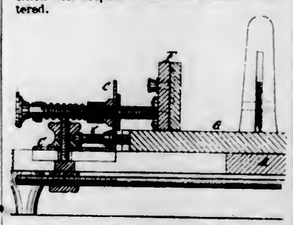


1. The combination of the feed-rollers N and N', arranged on different shafts, one of said shafts being held adjustable, substantially as and for the purpose specified.
2. The combination, with the gear wheels O' and L, intermediate gear-wheels M, M', and *m*, quadrant K, lever J, and shaft H, of the spring K', substantially as and for the purpose specified

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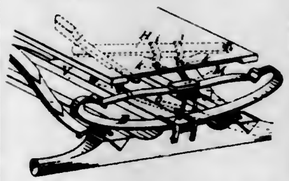
186,262. PAPER-CUTTING MACHINES. P. McAleer, Washington, D. C. [Filed June 5, 1876.]

Brief.—The paper to be cut is piled upon a block moving independently of the bed of the machine, and adjustable upon the latter by screws passing through the gage. The block, after each pile of paper has been cut, is so shifted by means of the screws that the kerf of the knife will intersect those previously made, thereby avoiding the large furrow usually made in the block or bed when their position with respect to the knife remains unaltered.



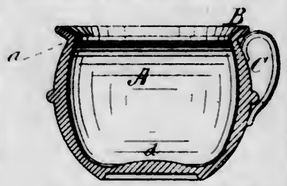
In a paper-cutting machine, the combination, with the gage O and straight edge F the set-screws i and independent table or block G, substantially as and for the purpose hereinbefore set forth.

186,263. AUXILIARY SPRINGS FOR WAGONS. A. W. McKown, Honesdale, Pa. [Filed Oct. 26, 1876.]



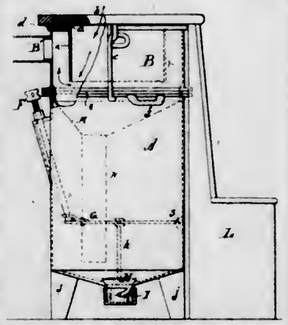
1. In combination with an auxiliary spring of a wagon or vehicle, the rubber-packed eye-bolt and the eye or hook N, these eyes being adapted to receive the link or yoke O, substantially as and for the purpose set forth.
2. The combination, with the auxiliary spring, of the block M, the cross-bar having cavity *l*, straps *i i*, and pins or bolts *k k*, substantially as and for the purpose set forth.
3. The pivoted bar H, provided with devices for locking the spring, as set forth, and arranged to be swung out of operative position and free from the spring, and to be swung into operative position for connection with the spring, substantially as and for the purpose described.
4. In combination with the auxiliary spring and with its eye *x*, the eye *w*, these eyes being adapted to receive the spring-compressing tool preparatory to locking the spring out of action.

186,264. CHAMBER-VESSELS. J. C. Moore, Philadelphia, Pa. [Filed May 20, 1876.]



1. A self-righting chamber-pot, having a deep rim, B, and a body, A, bulged outward from the neck *a*, where it joins the rim, to the central portion *c*, where it is of largest diameter, and then reduced in spherical form to the base, substantially as specified.
2. A self-righting chamber-pot, consisting of the rim B, body A bulging outward under the same, and the handle C, substantially as specified.

186,265. ODORLESS RECEPTACLES. George R. Moore, Philadelphia, Pa. [Filed Nov. 10, 1876.]



1. The receptacle A B, provided with the air-pipe B', for the passage of an air-current in the direction shown by the arrows, and with the discharge-valve H, having a closely-fitted pull-rod, F, substantially as and for the purpose herein set forth.
2. The receptacle A B, provided with an air-pipe, B', and having a vertical throat, C, with an air-space around it, as shown, and having below this the diaphragm-hopper M, either with or without the conducting-pipe N, substantially as shown.
3. In combination, the receptacle having a diaphragm-hopper, M, and valve O, substantially as shown.
4. In combination, the receptacle A B, provided with the pipe B' and throat C, the sliding valve K, and close cover E, substantially as shown.
5. In combination, the receptacle A B, provided with an air-pipe, B', the removable seat D, provided with flange *d* and clamps *c*, as shown, and steps L, as and for the purpose herein set forth.
6. In combination, the two sections A and B, comprising the receptacle A B, as shown, connected by the separable and flexibly-packed joint *s*, substantially as and for the purpose herein set forth.
7. In combination with the receptacle A B, provided with valve H, the pipe J, substantially as and for the purpose herein set forth.

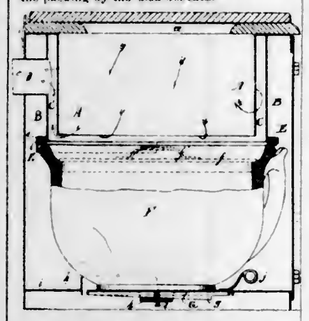
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8. In combination, the receptacle A B, provided with air-pipe B′ and throat C, and the removable seat D, provided with clamping devices, substantially as shown.

9. In combination, the receptacle A B, valve H, closing-cap I, and pipe J, substantially as shown.

186,266. ODORLESS-AIR CLOSETS. George R. Moore, Philadelphia, Pa. [Filed Dec. 8, 1876.]

Brief.—The commode is lifted up against the packing by the disk beneath.



1. The closet-frame and casing *i k* I, provided with the adjustable disk G, upon inclined planes *g*, for raising and lowering the vessel F, substantially as and for the purpose herein set forth.

2. In combination, the adjustable disk G, the vessel F, or its equivalent, and conducting-pipe E, either with or without the elastic packing E, substantially as and for the purpose set forth.

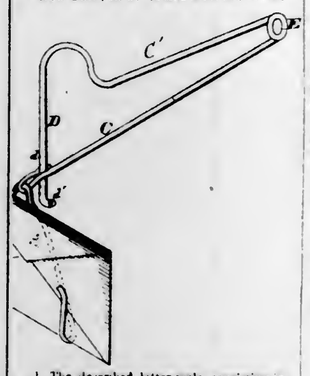
3. In combination, the adjustable disk G and frictionless plate G′, substantially as shown.

4. In combination, the vessel F and conducting-pipe B, provided with the guide *s*, substantially as shown.

5. In combination, the throat A and the vessel F below it, provided with a cover-seat smaller than the smallest diameter of the said throat A, whereby the cover *f* may be placed upon its seat in the said vessel F by carrying it directly down through the said throat A, substantially as and for the purpose herein set forth.

6. In combination, the casing I, the removable vessel F, and the fixed conducting pipe B, provided with the air-pipe D, substantially as and for the purpose herein set forth.

186,267. LETTER-SCALES. J. V. H. Nott, New York, N. Y. [Filed Nov. 28, 1876.]

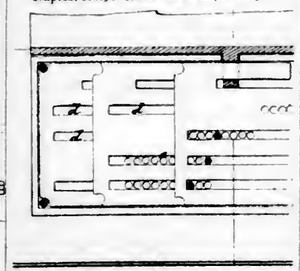


1. The described letter-scale, consisting in the combination, with the double suspension-hook A, of the spring-balance made from a single wire, bent at E, to form the two horizontal arms C C′, the latter arm, C′, forming at its free extremity the handle F and vertical index-register D, substantially as set forth.

2. The letter-weighing scale, consisting in the combination, with the bifurcated suspension-hook A, provided with the central guard-loop R, of the spring-balance having the horizontal arms C C′, made from a single wire, the free extremities of said arms bent at right angles, and constituting, respectively, the registering-index and pointer of the scale, substantially as set forth.

3. The combination, with the horizontal arm C, having the return-bend *c*, of the arm C′ located above the former, and bent as described, to form the handle F and registering-index D, the latter being perpendicular to the arm C, and provided at its extreme end with the guard-stop *d*′, substantially as set forth.

186,268. COMBINATION-LOCKS. A. Parise, Naples, Italy. [Filed Dec. 23, 1876.]



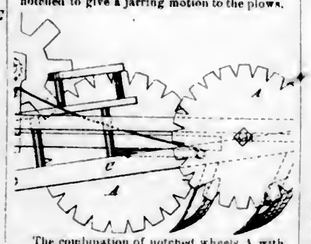
1. A combination-lock consisting of a number of recessed tumbler-plates with longitudinal slots and a series of perforations, and of graduated face side-pieces set to face guide-pieces by screw set-pins passing through the slots and one of the perforations of each tumbler, to be operated and adjusted substantially as and for the purpose set forth.

2. In a combination-lock, the sliding or turning tumbler-plates, having as many slots, less one, as the number of tumblers in the lock, and a series of perforations arranged in each tumbler symmetrically to a central perforation, substantially as and for the purpose described.

3. In a combination-lock, a sliding or turning tumbler having as many parallel slots, less one, as the number of tumblers in the lock, and a series of perforations for the passage of the screw set-pins, said perforations registering with the slots of the adjoining tumbler, and having a different relative position to the slots in each tumbler, substantially as and for the purpose set forth.

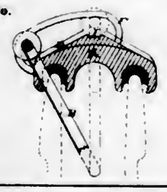
186,269. GANG-PLOWS. Ezra Peak, Montana, Kans. [Filed July 11, 1876.]

Brief.—The bearing wheels are set diagonally upon the frame, and their peripheries are notched to give a jarring motion to the plows.



The combination of notched wheels A with the frame C of a gang-plow, substantially as herein shown and described.

186,270.



186,270. BOTTLE-STOPPERS. E. B. Requa, Jersey City Heights, N. J. [Filed Oct. 26, 1876.]

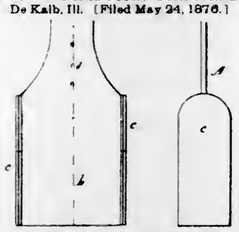
1. The combination, with a stopper-cap for bottles and other vessels, of a packing-gasket held by a screw-threaded rim formed on or affixed to the under side of the cap.

2. A stopper-cap, having two screw-threaded rims, with the packing-gasket, held by the corrugations of the screw-threads on adjacent sides of the rims.

3. In a metallic stopper-cap, the holding-recess l in the center of the cap, in combination with the cam-surface, and the bail and roller.

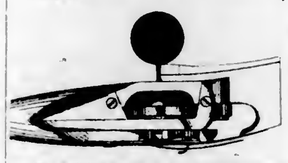
4. A stopper-cap having a cam-surface, for use in connection with a pressing mechanism, and one or more screw-threaded rims on the under side for receiving and holding a packing gasket.

186,271. FENCE-POSTS. Peter J. Rickard, De Kalb, Ill. [Filed May 24, 1876.]



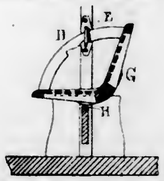
The metal fence-post A, having its lower portion *b* broad and flat, and provided with the perforations *d* and the flanges *c*, as shown, extending full width to the bottom of the post, substantially as and for the purpose set forth.

186,272. GRAIN-BINDERS. John M. Rosebrooks, Hoosick Falls, N. Y. [Filed Oct. 12, 1876.]



The yielding spring H, in combination with an oscillating jammer for holding the wire, substantially as described.

186,273. REVERSIBLE SEATS. J. E. Rugg, Boston, Mass. [Filed Aug. 28, 1876.]



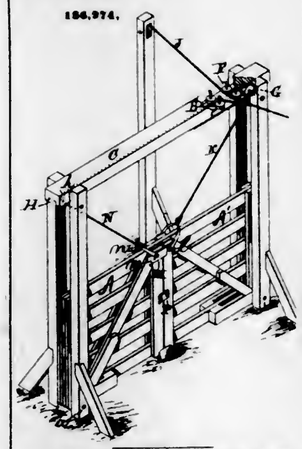
In a reversible car seat, having the notched locking-pieces G and the anti-friction support H, the arm-piece C, attached at one end to the top of the back, and at the other to the front of the seat, and provided with slots or notches D, adapted to engage with the loop or bolt E, in the manner and for the purpose set forth.

186,274. GATES. Daniel Scherar, Maquon, Ill. [Filed Aug. 29, 1876.]

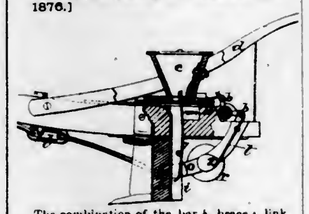
1. In combination with the pivoted gates A A′ and posts I, the cords J, K, and N, attached to each other, as described, and arranged to operate with the pulleys E, F, G, and *h*, as described, and for the purpose specified.

2. In combination with the cords J, K, and N, pulleys E, F, G, and *h*, and pivoted gates A A′, the hinged gravitating latch M, substantially as described, and for the purpose specified.

186,274.



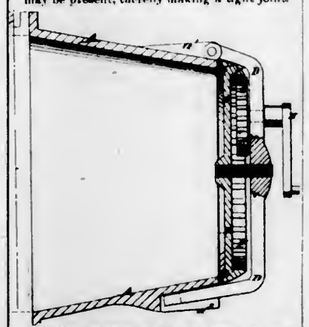
186,275. CORN-PLANTERS. John L. G. Schmidt, Petersburg, Ill. [Filed Nov. 18, 1876.]



The combination of the bar *h*, brace *j*, link *l*, and draft *s*, with the plates *o* and wheel *r*, whereby the draft of the team and the backward pressure of the wheel are made to counteract each other to a certain extent, as described.

186,276. GAS-RETORT COVERS. August Schwars, New York, N. Y. [Filed June 26, 1876.]

Brief.—The center screw is fixed firmly to the retort-cover, and turns in a screw-threaded opening in the locking-bar. By rotating the lid it is forced to its seat on the face of the mouth-piece, and, at the same time, by its sharp ribs, scrapes and cuts through any tar that may be present, thereby making a tight joint.

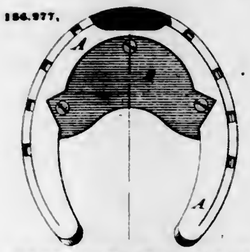


1. The combination of the screw C, the gear-wheels F G, and the crank H with the lid B and locking-bar D of a gas-retort cover, substantially as herein shown and described.

2. The lid B, having a circumferential rib, *b*′, and the radial ribs or scrapers *b*″, as and for the purpose set forth.

186,277. WEIGHTED HORSESHOES. E. E. Seixas, Galveston, Tex. [Filed Dec. 11, 1876.]

186,277.



The combination of the detachable weight B with the flanged or rabbeted forward part of the shoe A, substantially as herein shown and described.

186,278. EGG-BEATERS. Geo. P. Sisson, Northampton, Mass., assignor of one-half his right to O. O. Roberts, same place. [Filed Dec. 11, 1876.]



1. An egg-beater, the beaters or floats of which are hung substantially as described, and having imparted to them a reciprocating motion in opposite directions by a slotted frame suitably connected to said beaters or floats, and vibrated by the rotation of an eccentric, substantially as set forth.

2. The combination, with the floats or beaters A B, hung upon the frame C, and carrying pinions *a*, of the vibrating frame E, with teeth *d*, eccentric F, pinion *a*, and driving-wheel G, substantially as and for the purpose set forth.

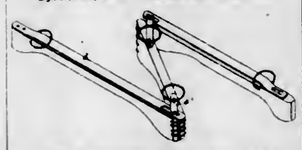
186,279. CORN-POPPERS. Geo. P. Sisson, Northampton, Mass., assignor of one-half his right to O. O. Roberts, same place. [Filed Dec. 11, 1876.]



1. A corn-popper in which the hopper thereof has a reciprocating rotary motion imparted to it by a complete rotation of the operating shaft or lever, substantially as and for the purpose described.

2. The hopper A, with rod *b* and gear-wheel *d*, in combination with pivoted plate C, having slot A and teeth *s*, and the eccentric D, constructed to operate substantially as set forth.

186,280. NEWSPAPER-FILES. P. E. Sloan, Syracuse, N. Y. [Filed Aug. 2, 1876.]



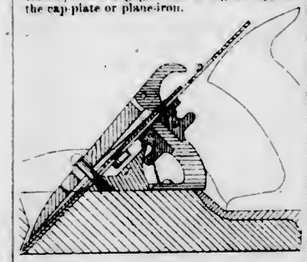
1. The double-acting joint, composed of the button *c* and pieces *b b*′, constructed and arranged substantially as and for the purposes specified.

2. The sectional rod G, in combination with the jointed file, as and for the purposes described.

3. The clamp and guard-piece *d*, in combination with the bar *a*′, substantially as and for the purposes set forth.

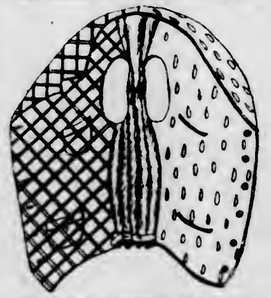
186,281. DEVICES FOR ADJUSTING PLANE-IRONS. J. A. Traut, New Britain, Conn. [Filed Jan. 24, 1876.]

Brief.—The plane-arm is longitudinally adjustable by means of a revolving handle, mounted upon an arm secured to the body of the stock, and provided upon its face with a scroll-thread, which engages with a lug or lugs in the cap-plate or plane-iron.



In a plane-stock, the revolving handle *b*, provided with a scroll-thread, *c*, upon its face, constructed and operating substantially as described, and for the purposes set forth.

186,282. SAMPLE-GARMENTS. L. B. Warner, Buffalo, N. Y. [Filed Sept. 23, 1876.]



The method of exhibiting stock-samples of clothing by means of a garment composed of various kinds or patterns of material, and fashioned to exhibit different styles of cut, substantially as shown and described.

186,283. DIAL-TELEGRAPHS. John H. C. Watts, Baltimore, Md. [Filed Dec. 1, 1876.]

Brief.—Relates to the construction of the case for holding the operative parts of a dial telegraph instrument.

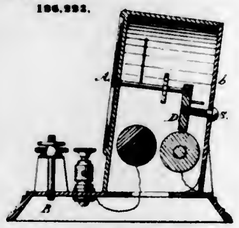
1. The case for containing the operative parts of a dial-telegraph, having its front, sides, and top made in one piece, and having the recessed space upon its front for the dial.

and the bridge D, for supporting the parts, substantially as set forth.

2. The base for dial-telegraphs, consisting of the parts B *b*, made as described, and adapted to receive and hold the case A, as set forth.

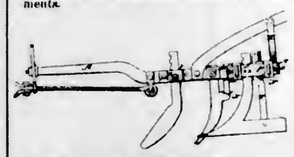
3. The dial-telegraph, consisting of the case A containing all of the operative parts, and the base B, having the key, the two being constructed as shown and set forth, and united by a single fastening, S, substantially as set forth.

186,282.



186,284. PLOW-STOCKS. Robert Weber, New Ulm, Tex. [Filed Oct. 14, 1876.]

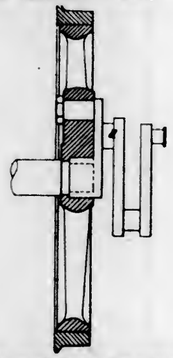
Brief.—The form of the sockets for securing the standards, and devices for changing, to adapt the frame to various cultivating implements.



1. The keeper L, provided with a square socket in its forward part, and a round socket in its rear part, in combination with the beam A, for securing a standard to said beam, substantially as herein shown and described.

2. The combination, with the beam A, of the U-bars N and keepers P, the latter provided with square forward and round rear sockets, as shown and described, so that standards may be fastened thereto by screws and wedges, in the manner specified.

186,285. LOCOMOTIVE-ENGINES. Wallace Wells, Brooklyn, N. Y., assignor to Wells' Balance Engine Company, Stamford, Conn. [Filed June 22, 1876.]



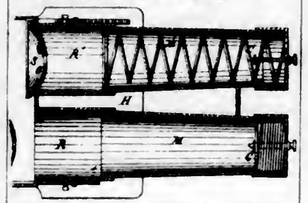
1. The combination of two cylinders, each provided with two pistons, and three piston-rods, and three connecting-rods, with two driving-wheels and their axle, by means of two three-throw cranks, arranged outside of the drivers, and in such relation to each other as herein described, the combination being and acting substantially as herein set forth.

2. In combination with a short slide-valve and two pistons in one cylinder, the construction of passages and ports, as described, whereby an ordinary short slide-valve acts to admit and exhaust steam properly in a double-piston engine.

3. The construction, substantially as herein described, whereby a three-throw crank is attached to the face of a driving-wheel, the distinguishing peculiarity of said construction being that the crank-pin nearest the wheel is secured to a plate which is secured at both ends to the driving-wheel, substantially as herein set forth.

186,286. STOVES. M. L. Wood, Valley Springs, Dak. [Filed Jan. 6, 1877.]

Brief.—Adapted to feed hay, straw, or shavings into the rear of the fire-box of a cooking-stove. The fuel is pushed forward by a spring, which is released by revolving the retaining-bolt passing through the spring-cap. The stop regulates the distance to which the fuel can be forced into the fire-box.



1. The horizontal magazine M, located beneath the griddle-holes, and connected with the rear of the fire-box, substantially as described, and for the purposes specified.

2. The receptacle R and the spring-cap C, containing spring and bolt D, with magazine M, all arranged and combined substantially as described, and for the purpose set forth.

3. The stop S, having the stop-bar G operated by means of the ratchet-crank A or its equivalent, substantially as described, and for the purpose specified.

4. The hearth H, located in the rear of the fire-box and underneath the receptacle, substantially as described, and for the purposes set forth.

5. In a stove or furnace, the combination of the magazine M, receptacle R, stop S, and spring-cap C, arranged and combined substantially as described, and for the purposes set forth.

186,287. TOOTH-BRUSHES. S. Woolverton, Trenton, N. J. [Filed Aug. 15, 1876.]

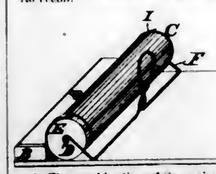


1. In a brush-holder, the brush-receptacle B, having the screw-thread C upon an extension of one end, and the raised semicircular projection c upon the other, thumb-screw D, and adjusting-clamp G, in combination with the handle A and brush E, substantially as specified.

2. A brush-holder consisting of the receptacle B, screw-thread C, thumb-screw D, clamp G, and raised semicircular projection c, substantially as shown and described.

186,288. COMBINED BLOTTER AND PAPER-CLIP. C. B. Farrington, Philadelphia, Pa. [Filed Nov. 14, 1876.]

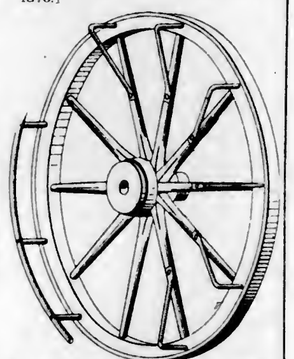
Brief.—The letter-sheets are held upon the base-board by the spring clip-handle F while being written upon, and blotted by the roller, around which blotting-paper is wound, the roller being caused to traverse the face of the manuscript by raising and drawing the clip-handle. The guards I register the roll upon its recoil.



1. The combination of the spring-controlled snap-handle F, with the blotting-roller C, the back board A, and blotting-paper H, so as to form a letter-clip and blotter, as described.

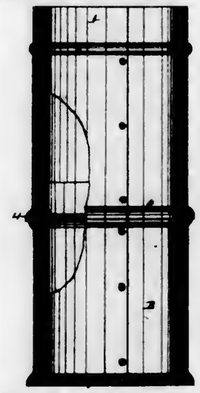
2. As a combined blotting-pad and letter-clip, the following parts in combination, viz: back board A, guards I I, strip B, blotting-paper H, roller C, spring G, bar D, and snap-handle F.

186,289. VEHICLE-WHEELS. G. F. Almy, Delphos, assignor to himself and H. M. Clark, Toledo, Ohio. [Filed Sept. 23, 1876.]



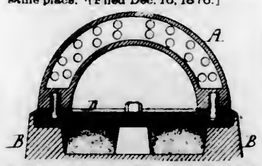
A wheel for vehicles, provided with one or more removable metallic guards, connected to the tire or felly, and projecting on one or both sides at suitable distance from the face of the wheel, to prevent the wheel from running into ruts or openings in the ground or pavement, substantially as set forth.

186,290. STOVE-PIPES. Aaron B. Allen, Barry, Ill. [Filed Apr. 28, 1876.]



The stove-pipe joint as described, consisting of the combination of the part A, provided with the bead or flaring mouth 4, and the part B, having the beaded crease or rim 3, substantially as herein set forth.

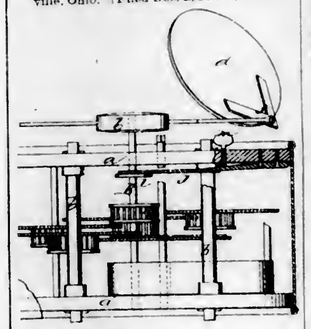
186,291. SAD-IRONS. J. G. Baker and T. H. Asbury, Philadelphia, Pa., assignors to the Enterprise Manufacturing Company, same place. [Filed Dec. 16, 1876.]



1. The combination of the base B, packed with non-conducting material, with the handle A, and the intermediate plate D, connected to the said base, so as to be readily detached therefrom, as described.

2. The combination of the perforated hollow handle, the pins *a a* cast to the closed ends of the same, and the plate D.

186,292. FLY-FANS. H. B. Baker, Nelsonville, Ohio. [Filed Dec. 2, 1876.]



1. In combination with the main shaft of a rotary fan and a collar-disk secured thereon, a friction-spring, and a set-screw for depressing the free end of the said spring upon the collar disk, substantially as specified.

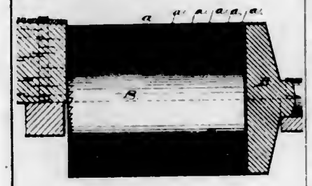
2. A fly-fan consisting of a hub, *b*, having spaced perforations *i*, the double-branched arms *c*, and the blades *d*, pivoted to the end of the arms, and vibrating in their length edgewise, substantially as specified.

3. The combination, with the spaced plates *a a'* and a clock mechanism of a fly-fan, of the removable hoop, substantially as specified.

4. The fan-blades *d*, having a universal-joint connection with the arms of the hub, substantially as specified.

186,293. TUBULAR GANG-SAWS. James A. Balch, East Portland, Oreg. [Filed Mar. 6, 1876.]

Brief.—Logs are sawed into boards of concavo-convex form in cross-section, to serve as material for the construction of cylindrical vessels, by means of a gang of concentric cylindrical saws attached to a single head, and arranged with their axis in a horizontal line, and suitable operating mechanism, in connection with a carriage for supporting the log while being sawed.



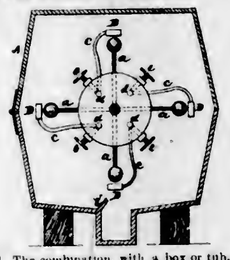
In a machine for sawing boards of various lengths and diameters, but concavo-convex in cross-section and straight lengthwise from logs of timber, the saw S, consisting of a multiplicity of cylindrical saws, *a a*, &c., attached to a common head and rotating upon a horizontal axis, substantially as shown and described.

186,294. COMBUSTIBLE COMPOUNDS. Jean Baptiste David Caseinelli, Paris, France. [Filed Sept. 8, 1876.]

A combustible compound consisting of tan-bark, charcoal, and nitrate of lead, in the proportions described, cemented together by means of starch-paste, and formed into cakes, substantially as and for the purposes set forth.

186,295. MACHINES FOR WASHING HAT-BODIES. Thos. C. Beatty, Newark, N. J. [Filed Dec. 1, 1876.]

Brief.—The bodies to be washed are placed upon the bolt-end of arms *a* of the reel, and secured thereon by screw clamp-bars *c c*. In the bottom of the box a trough is constructed, which is provided with a flange, *i*, to prevent the flow of currents of water from the trough, and the carrying out of sediment, &c., while the reel is being rotated.



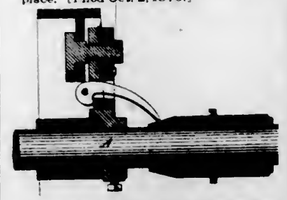
1. The combination, with a box or tub, A, of the shaft or drum C, provided with the arms *a*, terminating in balls *b*, as and for the purpose set forth.

2. The combination of the shaft C, arms *a*, and adjustable retainer-bars D, as set forth.

3. The combination, with the shaft or drum C, having the arms *a*, of the flanges E, bars D, arms *c*, shafts *d*, and set-screws *e*, substantially as specified.

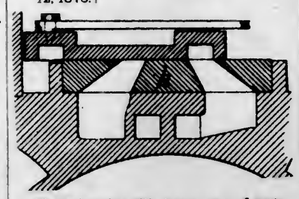
4. The combination of a box or tub, A, revolving arms, trough B, and flange *i*, substantially as specified.

186,296. CLUTCHES. A. B. Bean, New Haven, Conn., assignor to D. Frisbie, same place. [Filed Oct. 2, 1876.]



In a machinery-clutch, the combination of the following elements: first, a pulley loose upon the shaft, provided with a concentric clutch-flange; second, an arm rigid on the shaft, and projecting outward to form one of the bearing-surfaces to gripe the said clutch; third, a second adjustable bearing surface to act upon the clutch-flange, in connection with the said rigid arm; fourth, a lever having its fulcrum on the said arm, and connected to the said second adjustable bearing-piece, and a second lever hung to the said rigid arm, forming with the said first lever a compound lever; and, fifth, a sleeve or slide movable on the shaft, for actuating the said compound lever, substantially as specified.

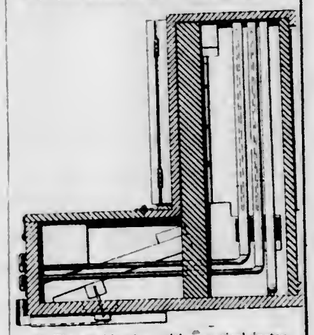
186,297. REVERSING-VALVES FOR STEAM-ENGINES. S. H. Bevins, New York, N. Y., J. Wels, Jersey City, N. J., and W. H. Phillips, New York, N. Y. [Filed Dec 12, 1876.]



The main valve with two ranges of ports, and the valve-seat with two ranges of ports, one direct and the other crossed or reversed, in combination with the secondary valve, having the D exhaust-passages, substantially as set forth.

186,298. ATTACHMENTS FOR KEY-BOARD MUSICAL INSTRUMENTS. B. Bishop, New Russia, N. Y. [Filed June 7, 1876.]

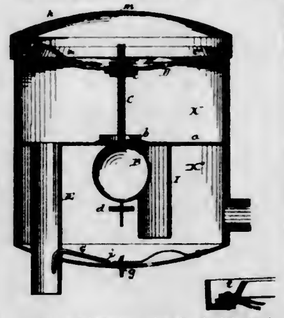
Brief.—An organ with an apparatus for displaying a scale of colors when played.



1. The combination, with a musical instrument, of a device arranged to exhibit a series of colors corresponding with the notes played, substantially as specified.

2. An instrument having a series of movable colored plates combined with apparatus for producing musical sounds, and provided with a movable colored screen or screens, as set forth.

186,299. GAS-GOVERNORS. J. R. Blossom, Brooklyn, N. Y. [Filed Dec. 1, 1876.]



1. The combination, with the flexible horizontal diaphragm, of a tubular stem and a hollow valve, guided by a cross-piece, *f*, below the valve, whereby the load may be introduced into the guided valve from above the diaphragm, as set forth.

2. The chamber X, communicating with the inlet E, and having an outlet, *x*, above the valve, flanged or elevated above the bottom of the chamber, as set forth.

3. The combination of the valve, valve-stem, and two flexible diaphragms, clamped together at the edges, and to the stem which passes through both diaphragms at the center, as and for the purpose set forth.

4. The combination of the valve, valve-stem, and two non-metallic flexible diaphragms of different materials, clamped together at the edges and to the stem, as and for the purpose set forth.

5. The combination of the flange or ring *a*, horizontal diaphragms, and flanged clamping-ring *c'*, forming an annular oil-receptacle at the edge of the diaphragm clamped between the two, as set forth.

6. A regulator provided with a continuous open passage, arranged to permit the continuous escape of drip from the bottom of the casing to the inlet-pipe, as described.

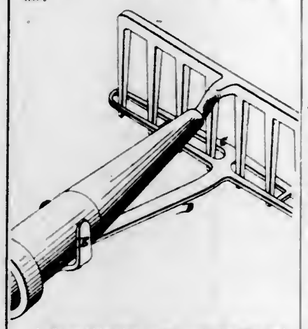
7. The U-shaped pipe *p*, communicating with the bottom of the chamber and with the inlet-pipe, and forming a trap, as specified.

8. The valve *s*, arranged at the bottom of the regulator, and closing an outlet communicating with the atmosphere, for the purpose set forth.

9. The apron I, arranged between the valve and outlet, for the purpose specified.

186,200. SELF-CLEANING RAKES. V. W. Blanchard, Weybridge, Vt. [Filed Sept. 23, 1876.]

Brief.—The cleaning plate is formed with a shank, having near its upper or outer end two side ears or guides, between which is a knife-edge or fulcrum, fitting in a notch in the handle.



1. In combination with a rake-handle and a cleaning device, a joint between them, composed of the ears or guides E E, fulcrum-edge *a*, and screw or rivet *b*, substantially as set forth.

2. A rake-cleaning device, formed of a single piece of cast metal, and consisting of the cleaning-plate C, shank D, with perforation, ears or guides E E, fulcrum-edge *a*, and stem G, substantially as and for the purposes set forth.

186,201. FEED-BAGS FOR HORSES. Geo. C. Booth, New York, N. Y., assignor to himself and Robt. Gibson, same place. [Filed Sept. 2, 1876.]



1. A feed-bag consisting of a bag of canvas attached to a hoop of wood or iron, to which is hinged a cover having a hook for engaging with a portion of the harness, and a support of cords for attachment to the collar or saddle of a harness, substantially as herein shown and described.

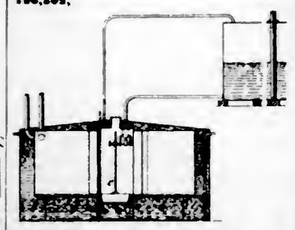
2. A feed-bag for horses, supported by the brace C, adapted for rigid attachment to the collar, breast-strap, or hames of the harness, as herein set forth.

186,202. GAS AND AIR CARBURETERS. O. F. Boomer and H. R. Randall, New York, N. Y. [Filed June 19, 1876.]

1. In a gas and air carbureter, the herein-described combination of the central oil-distributing chamber O, the automatic longitudinally operating valve-plug, the surrounding zigzag carbureting-passage, the interposed annular condensing-chamber, and the inlet and outlet pipes, the whole constructed and arranged in relation with each other substantially as and for the purpose herein set forth.

2. In a gas and air carbureter, the combination, with the water-jacket surrounding the carbureting-passage B, of the water-inlet pipe, entering the said jacket at the top thereof, and a water-outlet pipe, leading from or near the bottom of said jacket, whereby the refrigerated water is continuously drawn from the bottom of said jacket, in order to secure a uniform temperature, substantially as set forth.

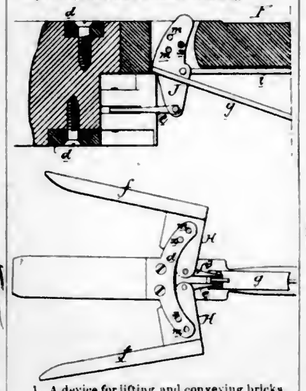
186,203.



In combination with a water pipe, A, having two openings in its side, a rubber tube, B, with both of its ends passed through said openings and fastened water-tight, substantially as and for the purposes set forth.

186,204. BRICK AND TILE LIFTERS. John Braislin and Jas. A. Wood, Crosswicks, N. J. [Filed Aug. 16, 1876.]

Brief.—Bricks or tiles passing from the delivery-die are embraced by the arms, and held in contact with the central bar, for lifting and depositing the same without breaking.



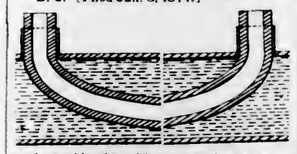
1. A device for lifting and conveying bricks or tiles, in which are combined a central bar, G, and its handle F, and vibrating side arms *f*, as set forth.

2. The combination of the arms *f* and pivoted blocks H with the pivoted lever J.

3. The combination of the pivoted lever J and its finger *g* with the rod *i*, as set forth.

4. The combination of pivoting-pins *x* with the arms *d*, blocks H, lever J, and handle F, each having a series of openings for the reception of said pins, as and for the purpose set forth

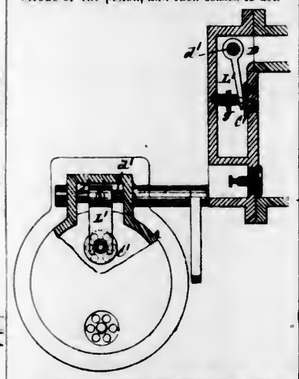
186,205. DEVICES FOR PREVENTING PIPES FROM BURSTING. A. Bujac, Washington, D. C. [Filed Jan. 8, 1877.]



In combination with a water pipe, A, having two openings in its side, a rubber tube, B, with both of its ends passed through said openings and fastened water-tight, substantially as and for the purposes set forth.

186,206. AIR-COMPRESSORS. J. Clayton, Brooklyn, N. Y. [Filed July 1, 1876.]

Brief.—The valve-opening mechanism, consisting of a rock-shaft with an arm, tripping-toe, and collar, commences the opening of the valve at a given point in the compressing stroke of the piston, and then ceases to act.

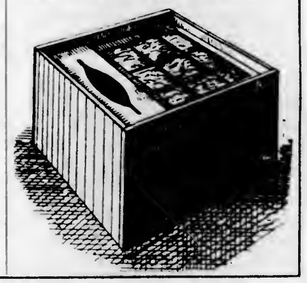


1. The combination, with the delivery-valve of an air compressing pump, which, after being removed from its seat, is free to act by the pulsation of the pump, of a positively operated valve-opening mechanism or device, constructed to break the joint or commence the opening of the valve at a given point in the compressing stroke of the piston, and afterward to be relieved from further action on the valve, substantially as and for the purposes herein set forth.

2. The combination, with the delivery-valve C of the air-compressor, provided with a collar or shoulder, *g*, of the rock-shaft *d*, with its arm V, and sliding or tripping toe L, acting upon the said collar or shoulder while moving in a direction to open the valve, but passing over the said collar or shoulder while moving in the opposite direction, substantially as herein described.

186,207. COTTON-HOLDERS FOR DENTAL USE. T. Cogswell, Boston, Mass., assignor to Godman & Shurtleff, same place. [Filed Aug. 26, 1876.]

Brief.—A detacher, with an underlying receptacle for the cotton after it is used, is attached to and forms a part of the holder.

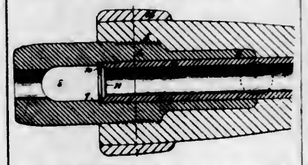


1. A detacher, substantially as described, for dental use, in combination with a receptacle for the detached refuse, or waste particles of cotton or other fiber, substantially as described.

2. The combination, with the cotton or fiber holder, of the detacher and receptacle for the detached cotton or fiber, all arranged with relation to each other, substantially as described.

3. A cotton or fiber holder, provided with a grating to detain the cotton or fiber, in combination with the detacher, all substantially as described.

186,208. ORDNANCE. Silas Crispin, New York, N. Y. [Filed Dec. 1, 1876.]



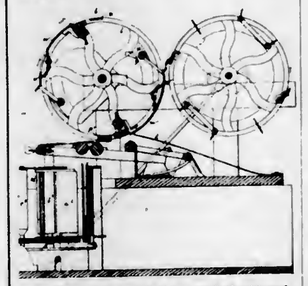
1. A cannon, bored through and through, in the rear end of which is secured a breech-piece which strengthens the charge-chamber and extends from the breech to form the receiver and support for the fermeture or breech-block, substantially as described.

2. A cannon provided with a breech-piece inserted into its rear end and extending therefrom as a support for the fermeture or breech-block, and with a bore-tube or lining, substantially as described.

3. The method of converting cast metal muzzle loading ordnance into breech-loaders—that is to say, by extending the bore of the gun axially through its breech, and enlarging the rear portion of the same and inserting therein a breech-piece, which protrudes from the gun-body as a support for the fermeture, substantially as described.

186,209. PAPER-FOLDING MACHINES. Luther C. Crowell, Boston, Mass. [Filed June 6, 1876.]

Brief.—From the web the sheet is severed between two horizontal cylinders, and a blade on one cylinder folds it into gripers on the other, which latter carries a blade making the second fold, by pressing the sheet into the bite of rollers below. Thence the sheet drops into vertical guides before a rocking blade, which makes the first cross fold into gripers on a vertical cylinder, carrying a blade making the second cross fold between two vertical rollers, which pass the sheet to receiving-boxes. When one fold only is made, a fly pivoted on the griper-cylinder presses the free ends of the sheet under a spring-holder on the delivery-table. Blades in the gripers may cut a once-doubled sheet of supplements into two parts.



1. The rotating cylinder *b*, and the hinged blade or fly pivoted thereto, and adapted to operate, substantially as described, in combination with a holding mechanism, substantially as described, to hold the free ends of the newspaper discharged from the jaws of the cylinder, substantially as herein set forth.

2. The hinged blade or fly, its spring *y*, arms a^3 and a^1, in combination with the cylinder, the cam f^3, and stop b^1, substantially as described.

3. The combination, with the cylinder and nipping mechanism for holding the folded paper, of a spring-support, *t*, to hold up or retain the free ends of the paper, substantially as described.

4. The cylinder and pivoted or hinged folding-blade, in combination with a pair of rollers, and a stop or deflector to turn the folding blade out from the cylinder, and press the fold made in the paper into and between the rollers, substantially as described.

5. The roller-carrying frame and the rollers, in combination with the cylinder, hinged or pivoted folding blade, and guide to receive the folded papers delivered from the rollers, substantially as described.

6. The roller-carrying frame and locking devices adapted to retain the pinion of one roller into or out of engagement with the cylinder-teeth, in combination with the vertical folding cylinder and with mechanism, substantially as described, to engage or disengage the shaft of the vertical folding cylinder and its operating mechanism, substantially as set forth.

7. The cylinder and fold-nipping mechanism, in combination with a supplement-cutter, substantially as described, to sever the folded portion of the paper held by the nipping mechanism, substantially as described.

8. The guide to hold the paper, a pivoted folding blade, p^3, adapted to be projected through the guide, and the connected finger, in combination with a vertical folding-cylinder and nipping mechanism, substantially as described, and a projection to operate the pivoted folding-blade, substantially as described.

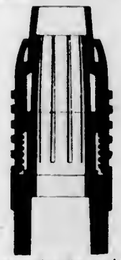
9. The cylinder, and the pivoted folding-blade carried by it, the roller-carrying frame and rollers, and deflector to operate the blade to form a second fold in a paper, in combination with the vertical folding blade, vertical folding-cylinder, provided with fold-nipping mechanism and folding-blade, and with a pair of vertical rollers, substantially as described.

10. A movable nipping-jaw and its operating shaft, in combination with a supplement-cutting blade, carried by the jaw, and a spring to connect the arms of the jaw, and the arms to which the cutting-blade is attached, whereby the cutting-blade is adapted to move after the jaw comes to rest, substantially as described.

11. The horizontally-rotating folding-cylinders, provided with blades and nipping mechanism, substantially as described, adapted to fold the web of paper at right angles to its length, in combination with a vertically-placed folding-cylinder, provided with jaws a^3 b^3, and a pair of rollers, and a folding-blade, p^3, arranged between the cylinders to remove the folded newspaper from the cylinder *b* to the vertical cylinder, to be folded at right angles to the direction of the length of the first fold in the newspaper, substantially as described.

186,210. HOSE-NOZZLES. M. S. Curtis, Ansonia, Conn., assignor to R. R. Colburn, same place. [Filed Nov. 11, 1876.]

Brief.—The staves of one series cover the joint in the next.



1. In hose-nozzles, the combination of two or more cylindrical series of staves, with a thimble around said staves, and for the purpose of contracting or expanding the area within the said staves, substantially as specified.

2. In hose-nozzles, the combination of two or more cylindrical series of staves, with a thimble around said staves, and a sleeve internally threaded to correspond to an external thread on said thimble, for the purpose of adjusting said thimble, substantially as described.

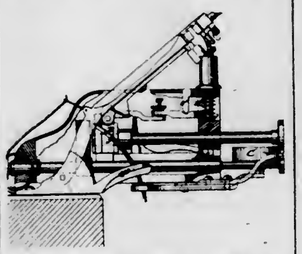
186,211. COMBINED BOTTLE AND BASKET. E. Cusenier, Sr., Paris, France. [Filed Dec. 8, 1876.]



A combined bottle and basket, the basket receiving and supporting the bottom of the bottle, and having attached to it a bail, C, passing up on opposite sides and over the mouth of the bottle, and attached to the neck of the bottle by a ring, D, substantially as and for the purpose specified.

186,212. WIRING AND BINDING HATS. M. A. Cuming and J. Knight, New York, N. Y. [Filed Nov. 16, 1876.]

Brief.—Gage C is provided upon its periphery with grooves, which admit of "binding in" large or small wires. The knives for severing the wire and the binding tape are arranged with relation to each other to cut the wire shorter than the binding, thus leaving sufficient of the latter to cover the end of the wire, and to lap over onto the applied binding beyond the point of commencement. As the knives are caused to descend, the binding-guide automatically swings out from the pressure-rolls. The upper roll is raised out of contact with its fellow by a cam-lever interposed between the shafts.



1. The front and rear bearings D D, combined with levers *e f*, fulcrumed on knife-edges e^2 f^2, and connected by screw e^3, to insure the movement of upper roll with respect to the lower one, as shown and described.

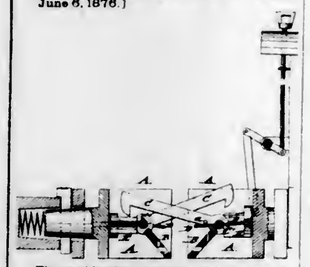
2. The gage C, grooved and made adjustable, substantially as and for the purpose specified.

3. The combination of the cutter-lever G and slide-piece G^2, each having a knife arranged on opposite sides, and in advance of each other, to cut the wire and binding at different lengths, as described.

4. The swinging spring-lever G, having fixed cutters, combined with the slide G^2, having cutters at one end, and inclined projection at the other, for the purpose set forth.

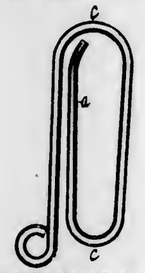
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186,313. CAR-COUPLINGS. Oliver Crum and Milton Crum, Monsey, N. Y. [Filed June 6, 1876.]



The combination of open-topped draw-head A, the lateral, inclined, slotted, and perforated gate B, the coupling-hook C pivoted above said gate, and having lug *a*, the shaft C', the rod D, and the bridge E fulcrumed to rear end of draw-head, all substantially as and for the purpose specified.

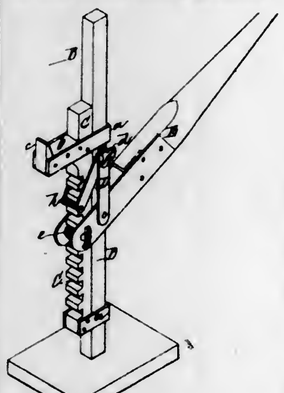
186,314. CLOTHES-PINS. Wm. S. Davis, Pittsfield, Me., assignor of one-half his right to Warren L. Parks, same place. [Filed Dec. 7, 1876.]



As a new article of manufacture the within-described clothes-pin made from a single wire, forming the tangs *a b*, curves *c c*, and loop *d*, substantially as shown and described.

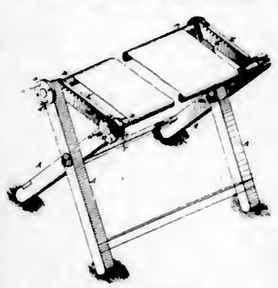
186,315. LIFTING-JACKS. Chas. F. Davis, Waltham, Mass. [Filed Dec. 23, 1876.]

Brief.—A rack-bar sliding on the front of a standard is operated by a lever, bifurcated and swung on links pivoted to the standard.



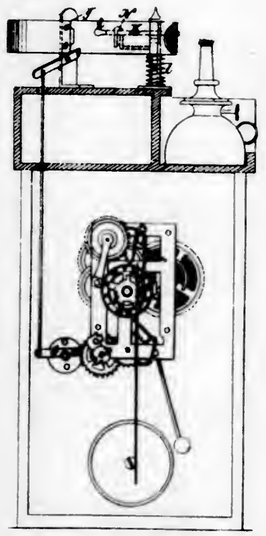
The combination and arrangement of the sliding rack-bar C, standard B, swinging bifurcated lever E, pivoted to and supported by the links D D, lifting-bolt *e*, and the retaining-pawl A, constructed and operating substantially in the manner and for the purpose set forth.

186,316. QUILTING-FRAMES. H. T. Davis, Sherman, Tex. [Filed Mar. 7, 1876.]



The combination of standards A A A A, rollers B B, stays E E, and crank-disks D, having locking-pins *d*', arranged to operate substantially as set forth.

186,317. LIGHTING ATTACHMENTS FOR ALARM-CLOCKS. Henry J. Davies and Walter D. Davies, Brooklyn, N. Y. [Filed Aug. 25, 1876.]



1. The looped spring friction-lighter I *f*, constructed for operation in connection with the guide *g g*, and with a catch for holding said lighter when extended, essentially as specified.

2. The combination, with the spring friction-lighter I *f*, of the rotating match-holder J and its spring *l*, substantially as described.

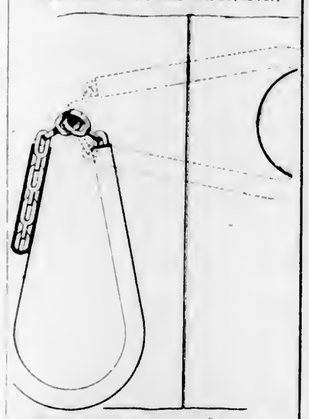
3. The combination, with the rotating spring match-holder J, of the guard N, arranged to support the match on its back near its forward end when said match is in contact with the friction lighter, essentially as specified

186,318. BELT-SHIPPING ATTACHMENTS FOR PULLEYS. R. Denmark, Washington Corners, Cal. [Filed June 21, 1876.]

Brief.—A cleft pin is clamped onto the periphery of the drum, set at a right angle to its edge, in the same plane. The hand, being thrown over it, will be worked into gear by the drum's revolution.

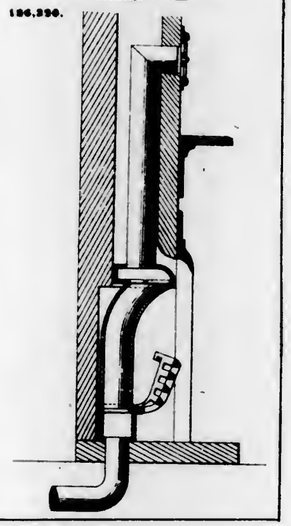
A device for shipping belts, consisting of the bar A, having the arms *b* and *c* to clasp the rim of the wheel, and the pin *d* fitting into the slot *e*, so as to retain the arm in place until the belt is shipped, and then allow it to fall off, substantially as herein described.

186,319. DOOR-RETAINERS. Robt. E. Dietz, New York, N. Y. [Filed Dec. 20, 1876.]



The within-described door-retainer, consisting of a looped chain covered with rubber or other soft material, and attached to a door-frame, the loop being adapted for application to the knob of the door, as set forth.

186,320.

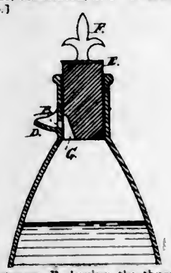


186,320. FIRE-PLACE HEATERS. J. K. Dimmick, Cincinnati, Ohio, assignor to himself and F. A. Stine, same place. [Filed Dec. 18, 1875.]

1. The combination, substantially as specified, of the grate, the cold-air receiver, the upright pipes forming the grate-backing, and curved to arch over to about the front line of the grate, and the hot-air receiver forming the roof of the fire-place.

2. The combination, substantially as specified, of the flanged air-receivers, the flanged pipes, and the binding-rods.

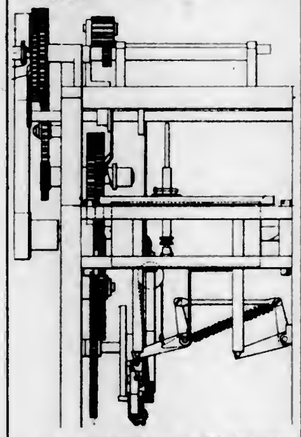
186,321. BOTTLES FOR HAIR-DYE. Thos. Divine, Charleston, S. C. [Filed Nov. 18, 1876.]



The stopper E, having the thumb-piece F at the top, and provided with the slot or groove G at the bottom, in combination with the outlet B and hanging lip D, substantially as and for the purpose described.

186,322. RING-SPINNING FRAMES. Wm. F. Draper, Hopedale, Mass. [Filed Oct. 2, 1876.]

Brief.—The spinning frame is provided with a traverse motion adapted to wind bobbins with the filling-wind; and the invention consists in providing means for equalizing the size, twist, and strength of the yarn on the bobbin as the winding progresses, from the outside of the yarn-load to the empty bobbin, and vice versa. The result referred to is accomplished by a combination of mechanism adapted to automatically change the speed of all the rollers with relation to the spindles, or to automatically change the speed of the front rollers, or of the back rollers, with relation to the other rolls and to the spindles, during each complete rise and each complete fall of the traverse or ring-rail or lever of the filling traverse motion, whereby, as the rail rises, there will be more stock or twist, or both, put in the yarn at the roll, and when it falls there will be less.



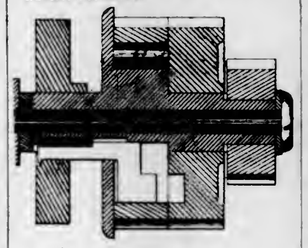
1. In a ring-spinning frame, provided with a traverse mechanism to wind the yarn in cone-shaped layers from the outside of the yarn-load to the empty bobbin or spindle, the combination of spindles and drawing rollers with mechanism adapted to automatically vary the speed of part of the rollers of the set with relation to the others and the spindles, or of all the rollers with relation to the spindles, during each complete rise and each complete fall of the traverse rail, the whole being constructed to operate substantially as and for the purpose described.

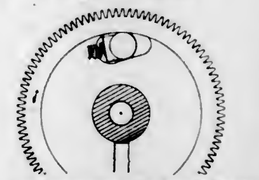
2. The improvement herein described in the art or method of spinning on ring-spinning frames, consisting in automatically varying the speeds of the rollers with relation to each other and the spindles during each complete rising and falling movement of the traverse-rail, to equalize the size of and twist in the yarn, substantially as set forth.

3. In a ring-spinning frame, the combination, with speed-changing mechanism adapted to automatically vary the speed of the rollers with relation to each other and to the spindles, to equalize the size of and twist in the yarn, as described, at each rise and fall of the ring rail or traverse, of a cam to move the ring-rail or traverse faster in one direction than in the other, to bind the yarn, substantially as described.

186,323. SPINNING-MACHINES. G. Draper, Hopedale, Mass. [Filed Sept. 22, 1876.]

Brief.—The front and back rollers are connected positively, to insure their starting together. The speed of the front rolls may be increased relatively to that of the back rolls, to decrease the size and twist of the yarn, or the speed of the back rolls may be decreased relatively to that of the front rolls, to decrease the size of the yarn. Fast and slow speed pinions are combined with the roller-shafts, and with mechanism for locating the one or the other to the shaft, as the speed is to be increased or decreased. The shifting-lever is automatically operated by the cop building or traverse mechanism.



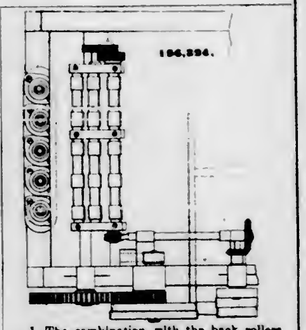


1. The combination, with the spindles and front and back rolls, or either, of speed-changing or fast and slow speed pinions and gearing connected or geared positively with the front and back rollers, or either, and adapted to automatically impart to such rollers variable speeds with relation to each other to regulate the size of the yarn being spun, or its size and twist, substantially as described.

2. The combination, with the front and back rollers, of the set of drawing rollers of fast and slow speed pinions, having different numbers of teeth, and a mechanism adapted to automatically connect either of them with or to disconnect either of them from the drawing-rollers, to vary the speed of the said rollers, substantially as described.

186,324. RING-SPINNING FRAMES. George Draper, Hopedale, Mass. [Filed Sept. 22, 1876.]

Brief.—The speed of the back rolls is automatically decreased with reference to that of the front rolls and spindles, in order to reduce the size of the yarn, to compensate for the decrease of draft as the yarn-load increases. The speed changing mechanism is connected by a lever to the cop-builder, and this is so constructed that the traverse mechanism cannot be reset without restoring the speed-changing mechanism to its initial position.



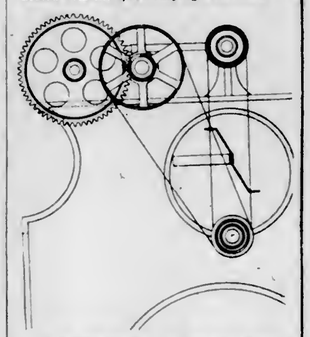
1. The combination, with the back rollers and spindles, adapted to be run at uniform relative speeds, as described, of front or delivering rollers, adapted to be varied, independently and automatically, in speed relatively to the speed of the back rollers and spindles, while the bobbins are being filled, substantially as and for the purpose set forth.

2. The combination, with the drawing rollers, spindles, and traverse mechanism, of speed-changing mechanism applied to the front rolls of the set of drawing-rollers, and adapted to be connected with, and operated through, the traverse mechanism, to effect the increase of the motion of the front rolls while the bobbins are being filled, and to reset the speed-changing mechanism to its initial position when the traverse is turned back, substantially as and for the purposes described.

3. The traverse-lever, its screw, and variable device, to govern the extent or extremes of motion of the ring-rail, in combination with a lever or member of the speed-changing mechanism, and with means to automatically operate such lever to change the speed of the front rolls to their initial speed, preparatory to commencing a new set of bobbins, through the movement of the variable device that governs the throw of the ring-rail, substantially as described.

186,325. SPINNING-FRAMES. G. Draper, Hopedale, Mass. [Filed Sept. 22, 1876.]

Brief.—The speed of the front rolls is, by suitable gearing, automatically and independently varied relatively to the speed of the back rollers and spindles while the bobbins are being filled, in order to vary the twist of the yarn, and also to regulate the size of the same. The object of this variation of twist and size is to compensate for the variation in draft as the yarn-load increases. The automatic mechanism consists of a combination with the cop-building devices, of a lever connected with the speed-varying mechanism.



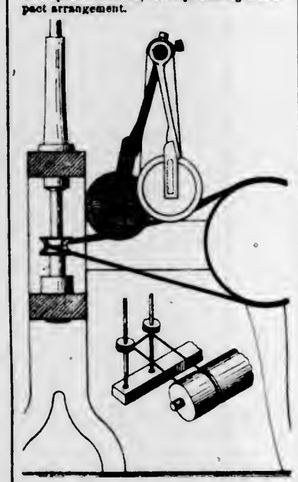
1. The combination, with the drawing-rollers, spindles, and traverse mechanism, of speed-changing mechanism applied to the back rolls of the set of drawing-rollers, and adapted to be connected with and operated through the traverse mechanism, to effect the decrease of the motion of the back rolls while the bobbins are being filled, and to reset the speed-changing mechanism to its initial position when the traverse is turned back, substantially as described.

2. The traverse-lever, its screw and variable device, to govern the extent or extremes of motion of the ring-rail, in combination with a lever or member of the speed-changing mechanism, and with means to automatically operate such lever, to change the speed of the rolls to their initial speed preparatory to commencing a new set of bobbins through the movement of the variable device that governs the throw of the ring-rail, substantially as described.

3. The traverse-lever 16 and its lock, in combination with the rack and its pin and cam, and with the lever controlled by the cam and lock, to change the speed-varying mechanism of the back rollers when the bobbins are being filled, and when the bobbins are to be refilled, substantially as described.

186,326. TENSION-REGULATORS FOR SPINDLE-DRIVING BANDS. Geo. Draper, Hopedale, Mass. [Filed Oct. 2, 1876.]

Brief.—The pulleys are free to rise and fall in the slotted stands. The stands are adjustably secured to an overhanging shaft. When the pulleys are made in pairs, they can be so combined with the stands that one pair shall ride upon two bands, thereby securing a compact arrangement.

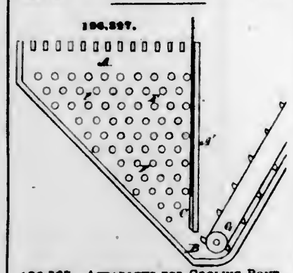


1. In a spinning-frame provided with separate bands, as described, to connect one or two spindles and the spindle-driving drum, the combination, with the bands, of independent rotating loosely-held tension regulators or adjusters, adapted to bear against and turn with the bands, substantially as and for the purpose described.

2. The adjustable stands or guides, each slotted on two faces, as set forth, in combination with the tension regulators or adjusters, adapted to operate upon the bands, substantially as described.

3. The combination, with two independent bands, of a single tension-regulator adapted to ride upon both bands, substantially as described.

186,327.

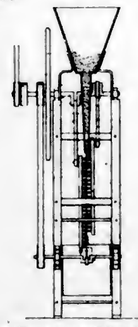


186,327. APPARATUS FOR COOLING BONE-BLACK. C. Doscher, Hastings-upon-Hudson, N. Y. [Filed Sept. 30, 1876.]

Brief.—The bone-black to be cooled is distributed by a grating upon serpentine series of cold-water pipes, and upon falling through the pipes to the bottom of the hopper it is passed out by a gate, and conveyed away by an elevating-carrier.

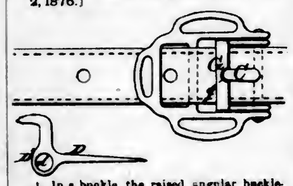
The combination of the hopper A, provided with the pipes F, the opening B, and its gate C, with the chamber H and the elevator G, substantially as herein set forth.

186,328. APPARATUS FOR SEPARATING BURGHONS OR GERMS FROM GRAIN. Chas. A. Dupres, Reims, France. [Filed Nov. 4, 1876.]



The combination, in machines for separating from grain germs or sprouts, or other foreign bodies which adhere, or may adhere, to it, of brushes arranged in pairs, and actuated to have a reciprocating movement relatively to each other, with conduit or conduits to convey the grain to be cleansed between said brushes, all substantially as herein set forth.

186,329. BUCKLE. G. F. Eberhard, Pittsburg, Pa., assignor to Eberhard Manufacturing Company, same place. [Filed Dec. 2, 1876.]

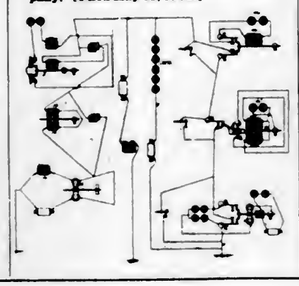


1. In a buckle, the raised angular buckle-tongue C, provided with a lever-shank or tail, D, substantially as and for the purpose set forth.

2. The combination, with the raised angular buckle-tongue C, of the bail G, recessed at *g*, for the purpose of bracing the tongue, and relieving it from strain, substantially as described.

3. The combination of a buckle-frame, a raised angular tapering tongue, and a ball for bracing said tongue, substantially as set forth.

186,330. ACOUSTIC ELECTRIC TELEGRAPHS. T. A. Edison, Menlo Park, N. J., assignor to the Western Union Telegraph Company. [Filed May 16, 1876.]



1. The main battery M B, and short-circuiting connection *x*, both between the line and the earth, in combination with a series of reeds or vibrating transmitting-instruments and contact-points opened and closed by the reeds, substantially as set forth.

2. The magnets m^1 m^2, vibrating reed B, circuit-closers *g* and *h*, local battery *n'*, and connections, arranged substantially as set forth, whereby the circuits, through the respective magnets, are entirely broken alternately by the vibration of the reed, as specified.

3. The combination, with a polarized vibrating reed, of an electro-magnet and circuits, substantially as set forth, whereby currents of alternating polarity are passed through the electro-magnet by the circuit-closers that are operated by the reed, substantially as set forth.

4. The combination, with the main battery and shunt between the line and earth, reeds, and contact-points, operated by such reeds, of finger-keys placed in short circuits around the circuit-closing points, substantially as set forth.

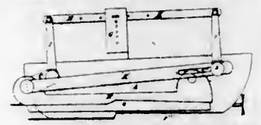
5. In an acoustic telegraph receiving-instrument, the combination, with the receiving-magnet, of a condenser, in a shunt around such magnet, substantially as set forth.

6. The combination, with the reel 9, of the levers 10 and 11, contact-points, local circuit, and receiving magnet or sounder 8, substantially as set forth.

7. The magnets 12 and 13, at opposite sides of the vibrating reed, and in the main-line circuit, with tubes around the cores of one of the magnets, for the purposes set forth.

8. The magnet 15, with its cores in branches of the main line, in combination with the polarized reed induction-magnet 14, and resistance R^3, substantially as set forth.

186,331. MECHANISMS FOR LESSENING DRAFT OF VESSELS. Edward Allison, San Francisco, Cal. [Filed July 14, 1876.]

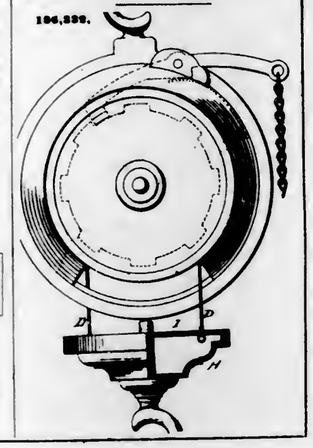


1. In combination with a vessel, the inclined plates F and F', substantially as described, for the purpose specified.

2. In a vessel, in combination with the hull A, upright or frame G, horizontal bar H, and connecting-rods I I', the shafts B B', bars C C', shafts D D', slotted brace K, bolt and nut *b*, vertical plates E E', and inclined plates F F', all constructed and arranged, substantially as shown and described, for the purposes set forth.

3. In a vessel, the combination of the vertical plates *e e* with the vertical plates E E', bars C C', shafts B B', and hull A, substantially as shown and described, for the purpose specified.

186,332.



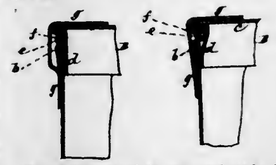
186,333. DROP-LIGHT ATTACHMENTS FOR CHANDELIERS. J. A. Evarts, West Meriden, Conn., assignor to the Bradley & Hubbard Manufacturing Company, same place. [Filed Feb. 21, 1876.]

1. The combination of the two oppositely-acting spring-barrels B C, each provided with ratchet-teeth, an independent strap from each barrel united at their free ends, and a pawl common to both barrels, substantially as described.

2. The combination of the shell H, slotted plate I, and the straps D connected to the said plate through said slots, substantially as described.

186,333. FRUIT OR PAINT CANS. Wm. H. Fowler, Auburn, N. Y. [Filed Dec. 16, 1876.]

Brief.—A cemented ripping and packing cord, disposed as shown, with metal clips soldered to body, and cemented to cover. Cement of resin, mutton-tallow, bees-wax, and red lead.



The combination of the cemented cord *e f* with the annular flange *d* and bead *c* of the lid B, the mouth *b* of the body A of the can, and the clips *g*, substantially as specified.

186,334. TOY CARD-SHOOTERS. Chas. W. Frost, Philadelphia, Pa. [Filed Dec. 20, 1876.]

Brief.—A spring-lever is pivoted in a pistol or other handle, and, being flattened and provided with a fastening-pin, supports and holds the bit of card-board until dislodged by the sudden arrest of its recoil.

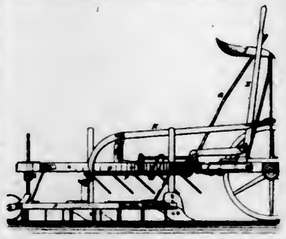


1. The within-described toy, consisting of a handle, A, and a spring-lever, B, constructed for the reception of a card and the retention of the same in a position parallel with the plane of movement of the lever, substantially as and for the purpose set forth.

2. The combination of the handle A with the spring-lever B and the abutment *d*, when constructed and arranged substantially as and for the purpose described.

186,335. GANG-PLOWS. Wm. Fruhling, San Jose, Cal. [Filed Dec. 6, 1876.]

Brief.—Combination of the rake and harrow, and their lifting-levers, with the plow-frame, composed of two hinged sections.

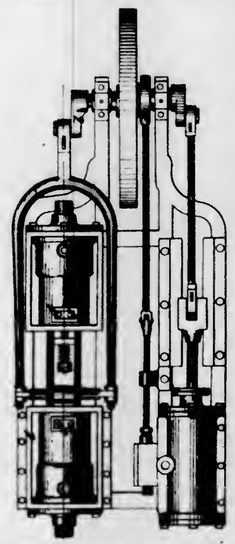


1. The forward frame *a*, provided with the wheels A A, seat B, and lever E, in combination with the plow-frame C, pivoted as described, and provided with the rake F and lever G, all constructed to operate substantially as and for the purpose set forth.

2. The plow consisting of the parts *a* and C, constructed as described, in combination with the swinging harrow H and lever K, all constructed to operate substantially as and for the purpose set forth.

186,336. AIR-COMPRESSORS. William F. Garrison, Williamsburg, Brooklyn, N. Y. [Filed Sept. 7, 1876.]

Brief.—The enlarged ends of cylinders have seats for valves. The valves being large allows of a free discharge of the compressed air. By removing the cylinder-heads access can be had to the outlet-valves. These valves and the pistons come into close contact at the end of the stroke, entirely excluding the air. The piston-rod is hollow, and is connected to double connecting-rods with yoke attached to engine-crank.



1. The enlarged chamber H, at the closed end of either cylinder A, formed by an extension of the cylinder and constructed to form a seat for the outlet-valve G of the compressor, also provided with an outlet, *d*, for the compressed air, in combination with the detachable cylinder lid or cover at the outer end of the enlarged chamber, and the piston B, constructed and arranged to work within the reduced portion of the cylinder and in relation with the overlapping outlet-valve G, substantially as shown and described.

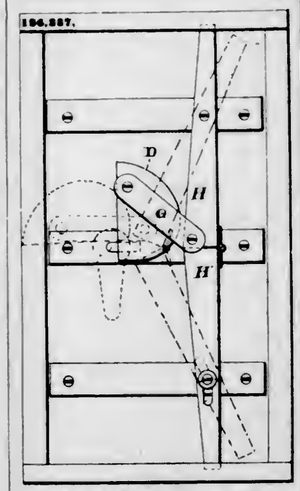
2. The combination, with the air-inlet valve I in the piston B of one or more free air-inlets, *f*, in the cylinder A, near its air-receiving end, but within the range of the piston, so that said inlets are uncovered by the piston after the latter in its back stroke has passed them, essentially as and for the purpose herein set forth.

3. The combination of the connection J, between the pistons, with its intermediately-arranged box or elongated bearing *g*, the rocking cross-head K, supported by and turning within said box, the forked connecting-rod L, the adjusting-nuts *h h*, the pistons B B, and the cylinders A A, essentially as described.

186,337. DOOR AND GATE FASTENERS. J. Gibbs, Clyde, Ohio. [Filed Dec. 15, 1876.]

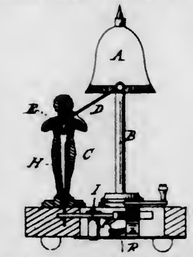
Brief.—A pair of toggle-levers, one arm of which is pivoted, and the other working loosely, is provided with a segmental lever button or cam, held in place by a suitable connecting-link, and a horizontal arm is preferably attached to the levers, to aid in locking or unlocking the same from the opposite side.

186,337.



The fastener for doors, gates, &c., consisting in the combination, with the segmental lever button or cam D, and horizontal connecting-link G, of the toggle-levers H H', one arm of which is pivoted, and the other loosely working upon the face of the door or gate, substantially as described.

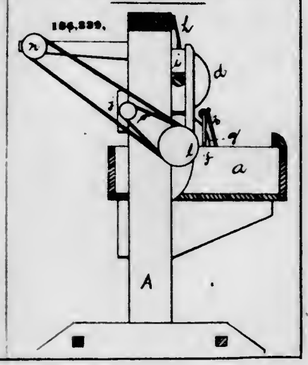
186,338. CALL-BELLS. Arthur C. Gould, Brookline, Mass. [Filed Oct. 23, 1876.]



1. The combination of the bell A, hammer D, figure or standard C, holding the hammer-rod E, lever H, connected to the same and contained in the figure, and mechanism for causing the oscillation of said lever, substantially as and for the purpose set forth.

2. The combination of the bell A, the hammer D, the rod E, lever H, horizontal lever I, spring R, toothed wheel K, and crank, substantially as and for the purpose set forth.

186,339.

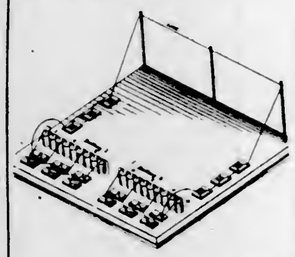


186,339. PASTING-MACHINES. T. Goodall, Sanford, Me. [Filed Sept. 8, 1876.]

Brief.—Springs applied to the bearings of the pressure-roller render it self-adjusting to the thickness of the cloth. A stirrer actuated by a pin in the upper roller and a spring prevent the paste settling.

The pasting-machine herein described, made up of the combination of the receptacle *a*, pasting-roll *g*, roll *d*, spring *h*, caps *i*, stirrer *b*, pin *c*, spring *s*, supports *f*, rolls *j* and *k*, as herein set forth.

186,340. ELECTRO-HARMONIC TELEGRAPHS. Elisha Gray, of Chicago, Ill., assignor, by mesne assignments, to the Harmonic Telegraph Company, New York city. [Filed Jan. 27, 1876.]



1. The improvement in the art of telegraphically transmitting composite tones, hereinbefore set forth, which consists in working a closed circuit with a continuous current from a main battery, portions of the whole of which current are thrown into vibration at will by the transmitters.

2. The improvement in the art of telegraphically transmitting and analyzing composite tones, hereinbefore set forth, which consists in working a closed circuit with a continuous current from a main battery, portions of the whole of which current are thrown into vibration at will by the transmitters, each set of vibrations being audibly reproduced by a corresponding receiver.

3. The combination, substantially as hereinbefore set forth, of a series of transmitters, each operated by a local battery, a main battery, an electric circuit, through which a continuous current flows from said battery, and shunt or short circuits between the main battery and transmitters.

4. The combination, substantially as hereinbefore set forth, of a series of transmitters, a main battery connected therewith by short or shunt circuits, a closed electric circuit, through which a current continuously passes from the main battery, and a series of analyzing-receivers, included in the circuit.

186,341. SPRING BOLTS OR CATCHES FOR SLIDING DOORS, &c. Arch. Hance, New York, N. Y. [Filed Dec. 26, 1876.]

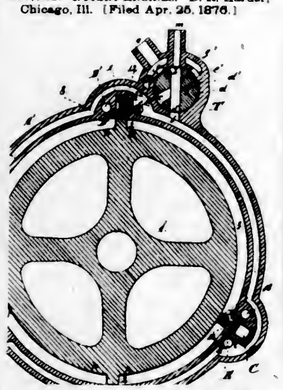
Brief.—A spring bolt or catch, the head of which is formed with double inclines, automatically engages with one or more V-shaped recesses of the catch-plate. There is also an independent locking device, which may be readily manipulated to secure the head of the bolt or catch in locked position; the construction being such that the door is held normally by the catch, but yields, unless the locking device is applied, to a quick pull or moderate pressure.



1. The metallic catch-rail E, formed with the V-shaped cavity or recess *c*, in combination with the metallic casing B, having the flanges *a* and *b* for securing it to the edge of a door or window, and the spring bolt or catch A, provided with the beveled head and a shank, said head fitting within said casing, which forms a guide for the headed bolt or catch and its shank, substantially as and for the purpose described.

2. The combination, with the spring bolt or catch A, casing B, and catch-rail E, of a locking device, F, for retaining the bolt or catch after the same has dropped into the V-shaped recess of the catch-plate, substantially as set forth.

186,342. ROTARY ENGINES. D. R. Harder, Chicago, Ill. [Filed Apr. 26, 1876.]



1. In a rotary engine the revolving piston 1, having a hollow axle, 7, and face-plates 10, substantially as and for the purpose specified.

2. In a rotary engine, the cylindrical cover A, valve-chests A^1, having the ports D E, extending their whole length, and two chambers, B B^1, for induction and eduction, substantially as set forth.

3. The combination of the pin *g*, the die 14, the spring 16, and the groove 4, constructed and operating substantially as set forth.

4. The valve-seat T, having ports *m e'* and *f f'*, and the valve or core T', having two three-way channels, U U^1, constructed and operating substantially as set forth.

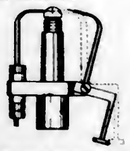
5. The combination of the chamber *f* and outlet *e* with the valve shell or seat T and the valve or core T', substantially as and for the purpose described.

6. In the cover A, provided with chambers B B^1, the ports D E, extending across the whole breadth of the piston 1, and the channels D^1 E^1, substantially as set forth.

7. In a rotary engine, the combination of the valve-chest A^1, ports D E, and the valve 8, having depressed ports 11 12, and a steam-passage, B^2, all constructed and arranged to supply, exhaust, cut off steam, and balance the valve, substantially as set forth.

8. The combination of the valves 8, 18, 28, having side ports, the passages B B^1, and the channels D^1 E^1, the piston 1, having cam-grooves 4, abutments 2, and eccentric surfaces *p*, all constructed and arranged to secure an uninterrupted supply of live steam to both abutments, and also to secure an uninterrupted passage for the exhaust steam, substantially as set forth.

186,343. ELECTRIC GAS-LIGHTING ATTACHMENTS. C. H. Hinds, New York, N. Y. [Filed May 22, 1876.]

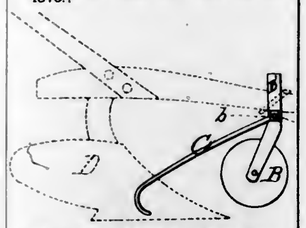


1. The combination, in an electrical gas-lighting attachment, of a carrying-yoke, a fixed adjustable electrode, and a pivoted electrode, normally falling away from the fixed electrode by gravity, and adapted to be swung into contact therewith by the hand, to produce the spark or sparks for lighting the gas, substantially as set forth.

2. The combination, in an electric gas-lighting apparatus, of a yoke, a movable balanced electrode, and a vertically-adjustable insulated electrode, substantially as described.

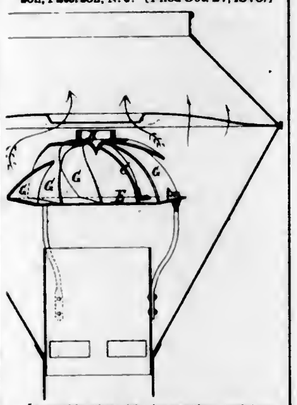
3. In an electric gas-lighting apparatus, an electrode so attached to the burner as to be made vertically adjustable to the flame of the gas, substantially as described.

186,344. PLOW ATTACHMENTS. David W. Hughes, St. Louis, Mo. [Filed Jan. 16, 1876.]



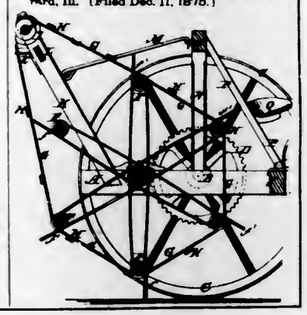
The colter-wheel B, journaled in the adjustable shank B', in combination with the metallic hook C, curved to conform to the mold-board D, and pivoted to the shank B', so as to admit of an adjustment up and down with the colter-wheel, and also capable of a separate circular adjustment in a vertical plane on the bolt *a*, substantially as described, and for the purpose set forth.

186,345. SPARK-ARRESTERS. W. S. Hudson, Paterson, N. J. [Filed Oct. 27, 1876.]



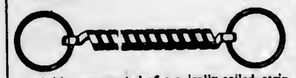
In combination with a locomotive stack having an inside and outside chimney and suitable strainer, as specified, the series of stationary curved blades G, arranged to form a dome-like deflecting-screw, as and for the purposes herein specified.

186,346. COMBINED HAY-TEDDER AND SIDE RAKE. J. Huber and H. Snell, Girard, Ill. [Filed Dec. 11, 1875.]



The combination of the carrier G H, the pulleys and shaft I J, the detachable standards K, the hook braces M, and the inclined trough O, with the toothed reel F *f'* and the frame A, substantially as herein shown and described.

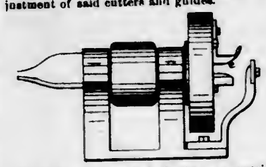
186,347. WEANING-BITS FOR ANIMALS. J. P. Israel, Stillesville, Mo. [Filed June 26, 1876.]



A bit constructed of a spirally-coiled strip of flat metal, substantially as set forth.

186,348. MACHINES FOR CUTTING PINS, DOWELS, &c. F. H. Kane, Syracuse, N. Y. [Filed Oct. 26, 1874.]

Brief.—The face of a hollow mandrel running in boxes is provided with radial grooves, for retaining adjustable guides and cutters, and concentric rings, for determining the adjustment of said cutters and guides.

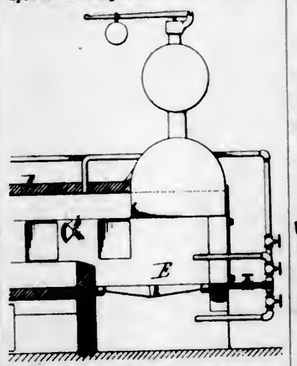


1. A hollow mandrel, having concentric rings, for the purpose of determining the adjustment of the cutter and guides, as described.

2. The cutter *c* and adjacent beveled guide *a*, in combination with a hollow mandrel, all having concentric lines upon their faces, as and for the purpose set forth.

186,349. FURNACES FOR EVAPORATING ALKALINE SOLUTIONS. Jno. Kitchen, Manayunk, Pa., assignor to himself and Uriah C. Allen, Sandy Hill, N. Y. [Filed Aug. 30, 1876.]

Brief.—The alkaline solutions are introduced alternately, in the form of jets or spray, through the distributing-nozzles at opposite ends of the evaporating-chamber of the furnace, and by means of the heat evolved from the products of combustion, with which the spray comes into direct contact, partial evaporation ensues, the alkali falling in flakes upon the calcining-bed.

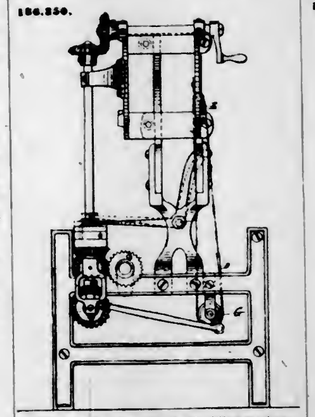


The combination of an evaporating-furnace, having a bed, A, fire-place B, and chimney C with the distributing-nozzles *b* and *b'*, arranged above opposite ends of the bed, as described, whereby the evaporating and calcining processes may both be carried on at the same time at said opposite ends alternately.

186,350. LOOMS. L. J. Knowles, Worcester, Mass. [Filed June 19, 1876.]

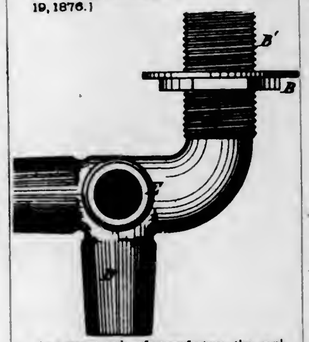
Brief.—Mechanism for disconnecting harness-motion from the "going" parts of the loom is applied to the selvage-harness, which is independent of the body heddle mechanism.

186,350.



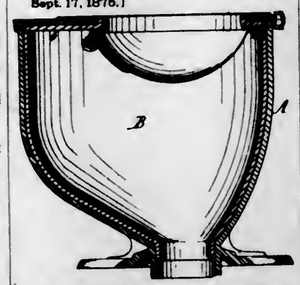
The combination, with the shedding mechanism of a loom, of the independently-operating selvage-heddle mechanism consisting of the rock-shaft G and connecting-straps D E, and detaching mechanism, substantially as and for the purposes set forth.

186,351. MULTIFOLD PIPE-COUPLINGS. E. A. Leland, New York, assignor to L. Richardson, Brooklyn, N. Y. [Filed June 19, 1876.]



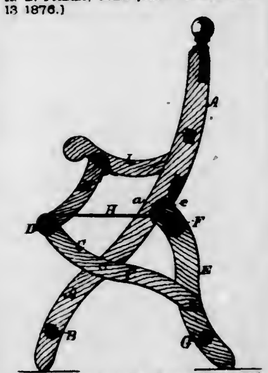
As a new article of manufacture, the multifold coupling for pipes, constructed with the screw-threaded end B', and the tapering tinned or galvanized coupling-necks C D E, projecting in different directions, substantially as and for the purpose herein set forth.

186,352. TRUNKS FOR WATER-CLOSETS. E. A. Leland, Pittsfield, Mass., assignor to L. Richardson, Brooklyn, N. Y. [Filed Sept. 17, 1876.]



As a new article of manufacture, the trunk for water-closets constructed with the separate inner shell B, of porcelain or earthenware, and the metallic outer shell or frame A, substantially as and for the purpose set forth.

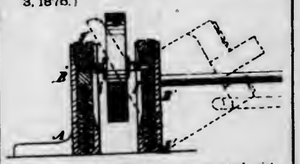
186,353. FOLDING CHAIRS. B. F. Little, Norwich, N. Y., assignor to himself and R. B. Prindle, same place. [Filed Dec. 13 1876.]



1. The hereinbefore-described chair, in which the rails A, provided with recesses *a*, bars C and E, the latter having pins *e*, rungs D and F, and seat H, are combined in the manner and for the purpose substantially as specified.

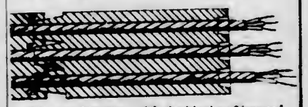
2. The hereinbefore-described chair, in which the rails A, provided with recesses *a*, cross-bars B, rails C and E, the latter having pins *e*, rungs D, F, and G, seat H, and arm bars L and M, are combined to operate in the manner and for the purpose substantially as shown.

186,354. CAR-AXLE LUBRICATORS. Ranald Macdonald, Brooklyn, N. Y. [Filed Apr. 3, 1876.]



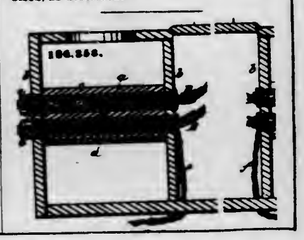
The supporting-frame A, constructed with the solid tubular standards B' and supporting spurs or arms *b*, provided with the adjusting-ball B, in combination with the spiral springs arranged within the standards B', the feeding wheel or disk D, and the sliding blocks or bearings C, supporting the ends of the pivot *r* of the disk D, and resting upon the spiral springs, the whole constructed, combined, and arranged for use and operation substantially as and for the purpose herein set forth.

186,355. UNDER-GROUND TELEGRAPH-LINES. W. Mackintosh, New York, N. Y. [Filed Feb. 17, 1874.]



The combination, with the blocks of incased conduits, of the split and lapped cement coupling-tubes D, also made solid in a cement block, to take the place of a removed conduit-block, as described.

186,356.



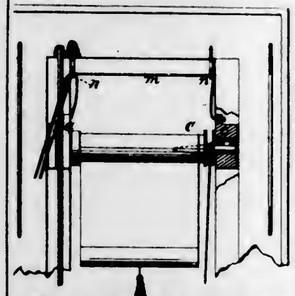
186,256. UNDER-GROUND TELEGRAPH-LINES. W. Mackintosh, New York, N. Y. [Filed Feb. 17, 1874.]

1. The combination, in an under-ground cable, of the separately-embedded conduits *a*, couplings *c*, cables B, troughs *d*, supported in frames *b*, with the vaults and ground-wires *f*, connected to the ends of the embedded pipes *a*, all arranged as shown, and for the purpose specified.

2. For the purpose of looping a continuous cable in branch offices, the embedded conduit *a*, severed at two points, and looping pipes, combined with the disjoined ends thereof, in the manner shown and described.

186,257. CURTAIN-FIXTURES. J. B. Marshall, Barnesville, Ohio, assignor of one-half his right to J. B. McPherson, same place. [Filed Nov. 22, 1876.]

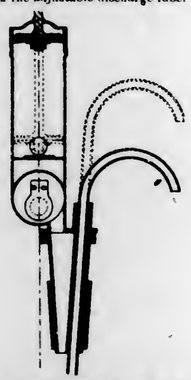
Brief.—The roller has its bearings in blocks that slide on guides attached to the window-frame.



The combination of the blocks G G, each provided with the vertical grooves *e e*, hole *h*, and slot *i*, the curtain-roller C, provided at each end with the pivot *a*, having disk *b*, the cord *m*, and screw-eyes *n n*, all constructed substantially as and for the purposes herein set forth.

186,258. PUMPS. G. R. McOrum, Chicago, Ill. [Filed Dec. 12, 1876.]

Brief.—Air is drawn into the chamber. The piston-valve is closed on the down-stroke, then being forced through the tube into the air-chamber, the valves therein being held firmly against their seats. From this chamber the air is forced through the air-duct into the vessel, causing its contents to flow out through the adjustable discharge-tube.

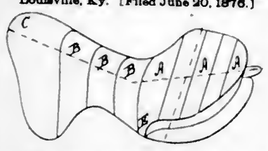


1. An air-pump provided with a base or bung, adapted for insertion into the bung-hole, bush, or opening of a vessel for containing liquids, and for closing the same, the said base having therein an air-port communicating with the air-chamber of the pump, and for communication with the interior of the vessel, to which the pump may be applied, in combination with the vertically-adjustable discharge-pipe O passing through the said base, substantially as and for the purposes specified.

2. The combination of the hollow plug P, the vertically-adjustable discharge-pipe O, and an air-pump attached to and communicating with the said plug, substantially as and for the purposes specified.

3. The combination, in connection with an air-pump, of the vent or valve J, and the hollow plug communicating with the said vent, substantially as and for the purposes specified.

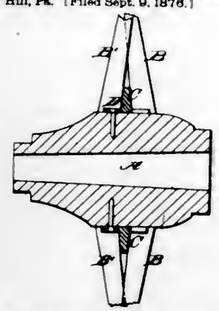
186,259. RIDING-SADDLES. Jno. C. Miller, Louisville, Ky. [Filed June 20, 1876.]



1. The seat of a saddle made as part of the tree by means of a convenient number of curved, arched, and beveled cross sections, in a manner substantially as described, and for the purposes set forth.

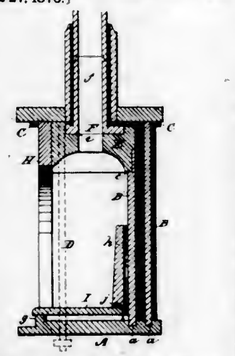
2. The combination of the bars O, the pommel C, curved, arched, and beveled cross-sections A B, and thigh-rests E E, all made part of the tree substantially as herein set forth.

186,260. VEHICLE-WHEELS. H. Mounts, Hill, Pa. [Filed Sept. 9, 1876.]



The tapering annular bracing-flange C and plates D, in combination with the hub A and staggered spokes B B′, substantially as described, and for the purpose set forth.

186,261. PORTABLE FIRE-PLACES. Theo. C. Nativel, San Francisco, Cal. [Filed June 27, 1876.]



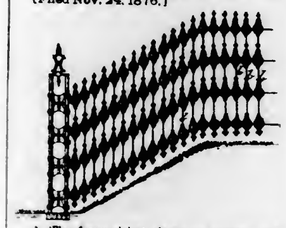
1. The base-plate A, made of earthenware, and having channels *a a′*, in combination with the two casings B B′, the front plate H, the top plate C, the cap-piece E, and the tie-rods D, as and for the purpose described.

2. The cap-piece E, fluted or channeled upon its upper surface, and having a central smoke-pipe, in combination with the casings B B′ and the exterior flue-pipe, as and for the purpose described.

3. The cap piece E, fluted or channeled upon its upper surface, perforated centrally and provided with a depression, *e*, in combination with the exterior flue-pipe and the flue-connection F, consisting of a pipe, *f*, and a plate fitting in said depression, as and for the purpose described.

4. The combination, with the back B′ and the base-plate A, having a raised edge, *g*, of the false bottom I, having opening *i*, and the tile-plate J, located inside the fire-chamber, and having due *h*, forming communication between the fire-chamber and the space beneath the false bottom, substantially as and for the purpose described.

186,262. IRON FENCES. Aaron J. Nellis and David C. Guttridge, Pittsburg, Pa. [Filed Nov. 24, 1876.]



1. The fence-picket clamp or rosette composed of the swiveling sections, substantially as and for the purpose specified.

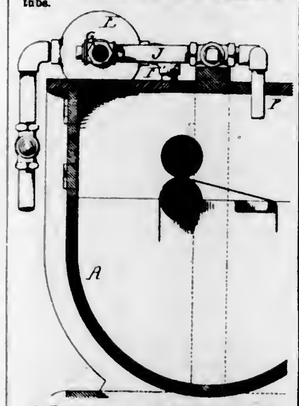
2. In combination with the sections of a metallic fence, and the post for supporting the same, the section-clamps, one of which is countersunk or provided with lugs, as at *s*, and the eye or slotted bolt, substantially as and for the purpose specified.

3. In combination with the sections of a metallic fence, the section-clamps *k k′*, the plate *k′* being connected to the swivel-piece *c′*, and a clamp-bolt for securing the whole, all substantially as and for the purpose specified.

4. The fence-picket clamp or rosette, composed of the swiveling sections, in combination with a fence-picket and stringer, substantially as specified.

186,263. MACHINES FOR FULLING AND SCOURING CLOTH. R. D. Nesmith, Johnstown, Pa. [Filed Dec. 18, 1876.]

Brief.—Nozzles are arranged to discharge scouring solution or water upon the cloth continuously passing under them. The nozzles are supplied with the liquid under pressure by an injector. By a system of distributing-pipes, one injector can supply any number of tubs.

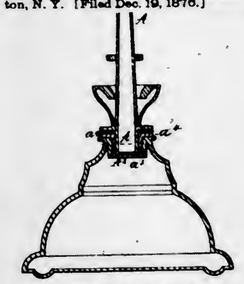


1. The combination of a fulling or scouring tub with a nozzle or nozzles, P, and devices, substantially as described, whereby a steady and even flow of the fulling or scouring solution through said nozzle or nozzles is insured, as set forth.

2. The combination of the injector E, its nozzle *h*, and inlets *d* and *d′*, and the fulling or scouring tube A with connecting-pipes, substantially as described.

3. The combination of the fulling or scouring tube A and injector E with the distributing pipe G, valved branches J, and their nozzles P, as set forth.

186,264. OILERS. S. S. Newton, Binghamton, N. Y. [Filed Dec. 19, 1876.]

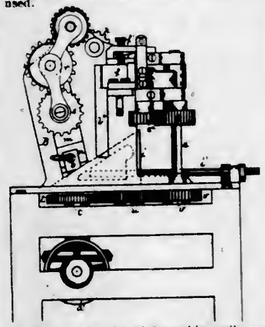


1. An oil can nozzle or tip, having its lower end closed, except an eccentric port, which rotates with the tip, in combination with a stationary plate or cylinder, provided with a corresponding eccentric port, substantially as set forth.

2. The delivery-tube A, provided with stud a^2 and eccentric port *a*, in combination with cylinder A^3, flanges or shoulders a^1, and port a^2, substantially as and for the purposes set forth.

186,265. MACHINES FOR RACKING HOOPS. S. Parker, Altoona, Pa., assignor to himself, J. Dysart, J. C. Dysart, and G. L. Myers, same place. [Filed Aug 7, 1876.]

Brief.—The hoop-blank is gaged and partially dressed before it reaches the racking-rolls, so that no obstruction to the operation of the rolls can occur. The machine can be regulated to operate upon blanks of different widths without changing the bend or curve given to the wood, and by said curve may be changed from time to time, as desired, to adapt it to the class or character of the wood used.



1. The combination of the racking-rolls and the adjustable feed bed or bar *h*, substantially as and for the purpose specified.

2. In a machine for racking hoop-billets, the combination of the adjustable feed-bed and independently-adjustable lower racking-roll with the upper racking-roll, substantially as and for the purpose specified.

3. The combination of the lateral knives *f f* with the racking-rolls, substantially as and for the purpose specified.

4. The combination of the equalising-knife *g* with the racking-rolls, substantially as and for the purpose specified.

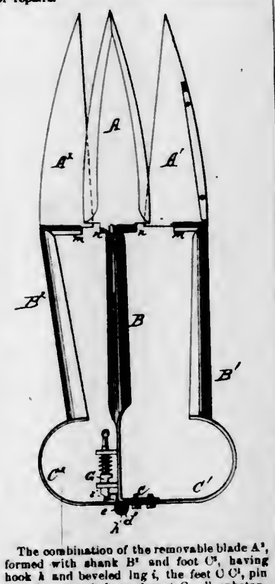
5. In combination with the feed bed or bar *h* of a racking-machine, the movable incline *i* for adjusting the same, substantially as and for the purpose specified.

6. In combination with the roll *k′* of a racking-machine, the adjustable bearing and movable incline *s*, substantially as and for the purpose specified.

7. In a racking-machine, the combination of the adjustable bed *h*, the incline *i*, the roll *k′*, with its adjustable bearing, and incline *s*, and the adjustable bed-block *s*, substantially as and for the purpose specified.

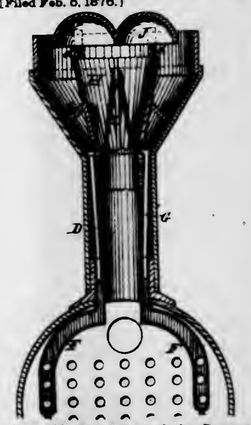
186,266. SHEEP-SHEARS. Wm. H. Porterfield and Howard C. Malin, Belmont, Ohio. [Filed Nov. 27, 1876.]

Brief.—A third blade is detachably connected to a pair of sheep shears by means of a detent-hook engaging with a suitable pin, a beveled lug, and a spring-bolt or detent; the construction permitting the shears to be used doubly or singly, and, if any part is broken, the ready substitution of parts or facilitating of repairs.



The combination of the removable blade A^3, formed with shank B^3 and foot C^3, having hook *h* and beveled lug *i*, the feet C C′, pin *d*, and spring bolt or detent G, all substantially as and for the purposes herein set forth.

186,267. SPARK ARRESTERS AND CONSUMERS. Thomas B. Roberts, Ionia, Mich. [Filed Feb. 5, 1876.]

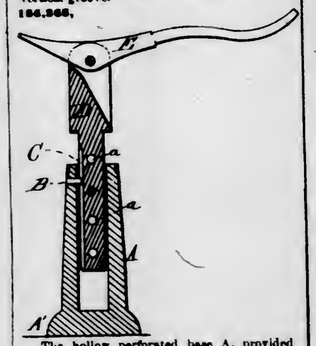


The combination of the smoke-box B, curved flues F F, flues G G in the smoke-stack D, the oval funnel-shaped ring H, provided with inclined guides I and auxiliary guides *e*, and the deflector J, with ears *b*, adjustably connected to the top of the smoke-stack by the vertical screws *d* and nuts *e*, all substantially as and for the purposes herein set forth.

186,268. LIFTING-JACKS. David M. Ross, Teegarden, Ind. [Filed Nov. 18, 1876.]

Brief.—In a hollow upwardly-tapering post is a sliding standard, with a lever pivoted at the top. The post has two pins, adjusting the standard by a series of holes therein, and a vertical groove.

186,269,



The hollow perforated base A, provided with the lug B, in combination with the standard D, provided with groove C, perforations *a*, and the lever E, pivoted to the upper end of said standard, substantially as described, and for the purpose set forth.

186,269. TIME ATTACHMENTS FOR LOCKS. James Sargent, Rochester, N. Y. [Filed Jan. 9, 1877.]



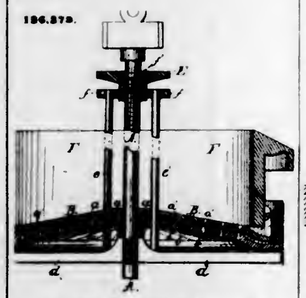
1. The combination, substantially as hereinbefore set forth, of a time mechanism and a combination-lock with the bolt-work of a safe or vault door, the time mechanism being constructed to set in conjunction with and render inoperative the combination-lock when closed, said lock having its bolt or bearing constructed to receive the pressure of the series of bolts constituting the bolt-work of the door when locked, and prevent the unlocking of said bolt-work until the arrival of a certain predeterminate hour.

2. The combination, substantially as hereinbefore set forth, of a combination-lock, and the series of bolts constituting the bolt-work of a safe or vault door, with a time-movement and a yoke or lever connection, said lever being constructed and located to render the bolt or bearing of the combination-lock inoperative when locked, the tumblers of the combination-lock and its spindle being free to rotate, while the bolt-work is held in its locked position by the bolt or bearing of the combination-lock.

186,270. ORE AND COAL JIGGERS. George Schmauch, Mauch Chunk, Pa. [Filed Dec. 4, 1876.]

Brief.—The lighter materials pass over the top of the inner dam during the jigging, while the heavier work into the circumferential pocket, and out over the adjustable rim. The perforations of the sieve-bottom are made conical, both from above and below, for the purpose of arresting impurities, and giving direction to the entering water. The intervening screen stops the passage of small particles of impurities.

186,370.



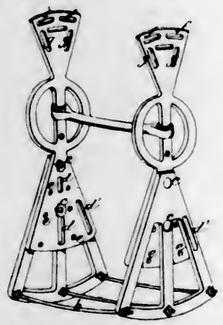
1. A jigger-box, consisting essentially of a sloping sieve-bed, B, having a depressed circumferential well or pocket, C, with a vertically-adjustable rim, D, and an inner overflow-dam, F, the several parts being arranged relatively as described, whereby the proper depth of material is maintained on the sieve-bottom, and the separation rendered more complete, substantially as herein set forth.

2. In a jigger, the conical perforated bottom B, consisting of two parts, *a b*, having openings *a' b'*, and the wire screen *c*, substantially as described and shown.

3. In a jigger, the combination, with the perforated bottoms and the rod A, of the adjustable ring D, cross-pieces *d d*, rods *e e*, yoke *f*, and screw-wheel E, constructed and arranged substantially as described and shown.

4. The combination, in a jigger, of the rod A, perforated conical bottoms D, provided with the circumferential reservoir C, adjustable ring D, and dam F, constructed and arranged substantially as described and shown.

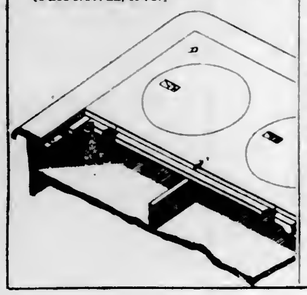
186,371. MUZZLE-BITS FOR HORSES. A. J. Short, Gypsum, N. Y. [Filed Nov. 16, 1876.]



1. The combination, with a bit, of a detachable muzzle.

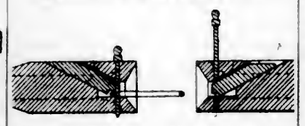
2. The combination, with a bit, of an adjustable and detachable muzzle.

186,372. PLATES FOR RANGES AND STOVES. Nathaniel M. Simonds, St. Louis, Mo. [Filed Nov. 22, 1876.]



The combination of central support F and plates D, extending across the range or stove, the ends of said plates being secured to the body of the range or stove, in the manner described, to prevent the warping of the plates.

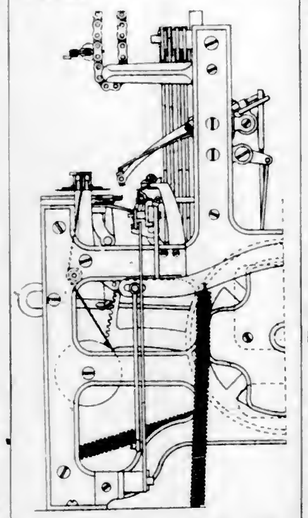
186,373. CAR-COUPLINGS. J. W. Skeele, Syracuse, N. Y. [Filed Sept. 4, 1876.]



The draw-head having the straight inclined opening *d* and vertically-sliding pin, in combination with the oblong block *c* adapted to said opening, as set forth.

186,374. LOOMS. A. Smith and H. Skinner, Yonkers, N. Y.; said Skinner assignor to said Smith. [Filed Dec. 27, 1875.]

Brief.—Improvements upon the devices covered by Patents No. 16,037, November 4, 1856, No. 39,759, September 1, 1863, and English Patent No. 1,840, for 1862. The spool-frame is taken from the chains with the tufting-tubes in a vertical position, and carried to a position adjacent to the tufting-warps, where the frame is rocked, thereby bringing the tubes into a horizontal position, preparatory to a second rocking of the frame into a vertical position, which sweeps the tufting material down between the warps. The comb carries the lower ends of the tufts back, and then up through the warps, when the cutting mechanism severs the tufting-yarns, and the frame is restored to the chain.



1. The combination, substantially as before set forth, of the movable weft-holders at the two sides of the loom, and the weft-carrier, constructed with a head which is both forked and hooked, whereby the fillings selected at the opposite sides of the loom are both introduced into the sheds by the same weft-carrier.

2. The combination, substantially as before set forth, of the weft-carrier and the yielding spring weft-finger, whereby the loop of filling is introduced into the shed, is engaged at the side thereof, and is held in the shed during the reversed movement of the weft-carrier.

3. The combination, substantially as before set forth, of the weft carrier, constructed with a head which is both forked and hooked, and two yielding spring weft-fingers, one at each side of the loom, whereby loops of filling selected at either side of the loom are engaged at the opposite side thereof, and are held in the shed.

4. The combination, substantially as before set forth, of the disk-cutter and the fixed cutter-blade with the cam, whereby they are moved toward and from the intermediate position at which the tufting material is cut.

5. The combination, substantially as before set forth, of the disk-cutter, the fixed cutter-blade, the cam for causing the said two cutters to move to and from the intermediate position at which cutting is effected, the cam for moving the disk-cutter crosswise of the loom, and the means for causing the disk-cutter to revolve during its crosswise movement.

6. The combination, substantially as before set forth, of the transferring-arms and the rocking-clutches for rocking the spool-frames.

7. The combination, substantially as before set forth, of the carrying-chains, the transferring-arms, and the rocking-clutches.

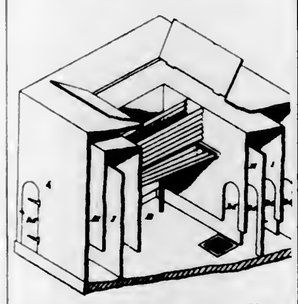
8. The combination, substantially as before set forth, of the comb and the cam-grades for causing the comb to move horizontally and vertically.

186,375. LEATHER-COVERED NUTS. L. T. Smith, New Haven, Conn. [Filed Aug. 4, 1876.]



The binder *a*, secured to the back of the cover, as described, in combination with the cover and the headed nut *b d* of a carriage-top-setting frame, substantially as and for the purpose herein set forth.

186,376. REFRIGERATORS. J. W. Stewart, San Francisco, Cal. [Filed June 21, 1876.]

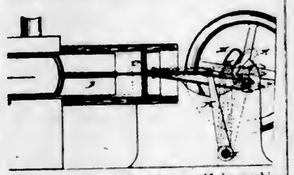


1. The refrigerating-chamber B, having the ice-chamber above it, and surrounded by two or more concentric parallel passages, H I S, which connect with each other alternately above and below, and the extreme outer one of which connects with the ice-chamber and central compartment by an overhead passage, whereby I am able to establish an automatic and natural circulation of atmosphere, and provide separate compartments and passages, each of which has a separate and distinct temperature, substantially as and for the purpose described.

2. A refrigerator provided with an ice-chamber, separated from the refrigerating-chamber by a partition made of alternate concavo and convex plates, arranged to overlap each other and form air-passages between their overlapped edges, and having the ice-chamber separated into two or more compartments by flexible walls E, which are constructed of slats placed angularly one above another, so as to admit air into and through the body of ice, and thence through the floor in the refrigerating-chamber below, substantially as and for the purpose described.

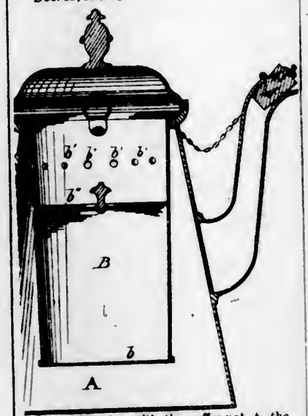
3. In a refrigerator constructed as described, the compartments or passages H I S, parallel and concentric with each other, and provided with the doors M in each partition, substantially as and for the purpose set forth.

186,377. HIGH-PRESSURE HOT-AIR ENGINES. O. Stenberg, Zerbst, assignor of one-half his right to G. Sachsenberg and F. Sachsenberg, Rosslau, Germany. [Filed Aug. 16, 1876.]



The curved slot M' in the arm M, in combination with the rock-shaft I, lever K, isolator B, piston C, crank-shaft F, and crank-pin N, all arranged to operate substantially as set forth.

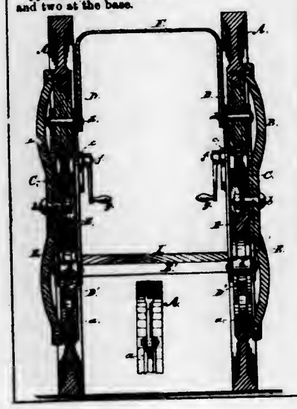
186,378. COFFEE-POTS. Wm. W. Stevens, Portland, Me., assignor to Westbrook Britannia Company, same place. [Filed Dec. 19, 1876.]



In combination with the coffee-pot A, the inner detachable coffee receptacle B, tapering from the top downward, and having a fixed perforated bottom, *b*, detachable diaphragm *b'*, and apertures, at *b'*, in its upper end, and adapted to fit air tight, at or near its top, into the said pot, substantially in the manner and for the purposes herein set forth.

186,379. VELOCIPEDES. Wm. H. H. Stineman and C. T. Holloway, Baltimore, Md. [Filed Oct. 27, 1876.]

Brief.—The velocipede consists of exterior wheels, which revolve about an interior frame supported on three sheaves—one at the apex and two at the base.



1. The wheels A A and sheaves D D' in combination with pendent double frames E, sprocket-wheels C G, and chains or belts H, substantially as shown and specified.

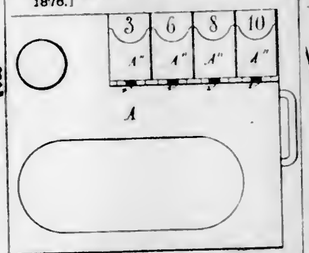
2. The wheels A A, sheaves D D', pendent double frames E, with brace F and seat I, arranged on the axles E', all substantially as shown and specified.

3. The wheels A A, having flange *a a*, and curved arms B, in combination with the sheaves D D', pendent frames E, and sprocket-wheels C G, operated by chains or belts H, when all are constructed substantially as shown, and for the purpose described.

4. The velocipede herein described, consisting of the wheels A A, sheaves D D', frames E E, sprocket-wheels C G, chains or belts H, axles E', seat I, brace F, and cranks *g g*, all constructed and arranged substantially as shown, and for the purpose herein specified.

5. A velocipede, having wheels A, with flanges *a* revolving on sheaves or grooved wheels D, arranged in pendent frames E, with one sheave in the center above and two below the axle, substantially as specified.

186,380. REGISTERING FARE-BOXES. Jas. C. Strong, Buffalo, N. Y. [Filed Nov. 22, 1876.]



1. In combination with a ticket-box, a revolving hollow wheel, in which a ticket is received, and by means of which ticket, as the wheel is revolved, a bell is sounded and a number registered.

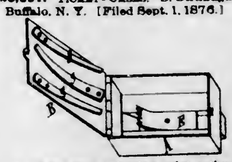
2. In a ticket-box, a rotary hollow wheel, into which the ticket is placed, combined with a revolving hollow disk, P, by turning which disk the ticket is deposited into the ticket-receptacle of the box, a bell sounded, and a number registered, substantially as set forth.

3. A wheel containing a cavity into which a ticket can be placed, in combination with a ticket-box, and also in combination with the cog *e*, pawls *g* and *e*, pin *f*, ratchet-wheel H, and bell-crank *i*, or their equivalents, for the purposes described.

4. In combination with a ticket-box, a revolving hollow wheel, and also in combination with the notched spring-wheel P, pawl *r*, and spring *p*, crank S, ratchet H, operating registering-wheels H^1 H^2 H^3, and bell-crank *i*, or their equivalents, for the uses and purposes described.

5. In combination with a ticket-box, substantially as described, ticket-compartments or pockets A', each provided with a spring door or cover, A'' *s*, substantially as described.

186,381. TICKET-CASES. S. Strandgaard, Buffalo, N. Y. [Filed Sept. 1, 1876.]



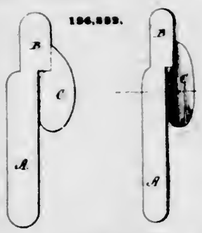
In a ticket-box, A, having a slot, *c*, the combination of the toothed spring E, movable by means of thumb-piece *d*, and the slotted and detachable plate F, with cover B, provided with springs *g*, substantially as and for the purposes set forth.

186,382. INDEXERS. J. Suter, New York, N. Y. [Filed Sept. 6, 1876.]

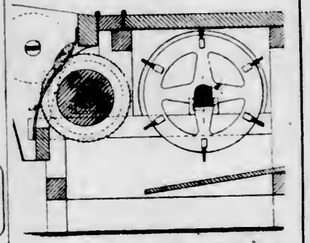
Brief.—A device for making a place for reference in books, and also capable of being used as a paper-cutter.

The device consisting of the blade A, its extension B, and the wing or clamp C, substantially as shown and described.

186,383.



186,383. COTTON-GINS. Jos. W. Thorn, Iuka, Miss., assignor to himself and M. W. Beardsley, same place. [Filed Aug. 28, 1876.]



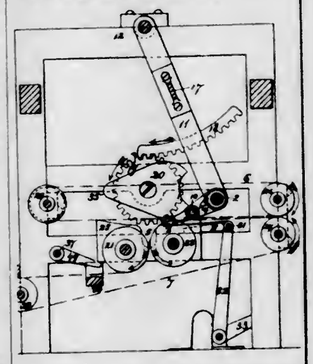
1. The brush-drum having cylinder-heads with slotted openings *a* and removable brush-wings, as and for the purpose described.

2. The cotton gin-rib N, having strip P, with central groove on its top or face, as and for the purpose set forth.

3. A gin-hopper provided with a blade or shaft, twisted right and left in opposite directions from the center, for the purpose specified.

186,384. PAPER-FOLDING MACHINES. S. D. Tucker, New York, N. Y. [Filed Apr. 20, 1876.]

Brief.—A frame moving to and fro over a pair of folding-rollers carries a blade, which is partially rotated to press the fold of the sheet fed in on tapes into the bite of the rollers. The motion is given to the blade by a flying cam and a stationary cam.



1. A folding-blade moved over the coacting folding devices, and partially rotated to enter between the same by mechanism, substantially as described.

2. A folding-blade partially rotated, combined with, and moved to and fro over folding-rollers, so as to co-operate therewith, substantially as described.

3. A folding-blade partially rotated and moved to and fro over folding-rollers, so as to co-operate therewith, in combination with sheet-feeding devices, substantially as described.

4. The combination of a folding-blade carrier having a to-and-fro movement over the coacting folding devices, a partially-rotating folding-blade carried thereby, and sheet-receiving devices, substantially as described.

5. The combination of a folding-blade carrier having a to-and-fro movement, a partially-rotating folding-blade carried thereby, and folding-rollers, substantially as described.

6. The combination of a folding-blade carrier having a to-and-fro movement with a crank or cam-actuating motion, a partially-rotating folding-blade, flying-cam, and stationary cam, substantially as described.

7. A folding-blade partially rotated and moved to and fro over coacting folding devices, in combination with a flying-cam and stationary cam, substantially as described.

8. The combination of a folding-blade carrier having a to-and-fro movement, a partially-rotating folding-blade carried thereby, a flying-cam, and stationary cam, all substantially as described.

9. The combination of a folding-blade carrier having a to-and-fro movement, toothed segment, toothed wheel, and flying-cam, substantially as described.

10. The combination of a folding-blade carrier having a to-and-fro movement, toothed segment, toothed wheel, flying-cam, stationary cam, and partially-rotating folding-blade, substantially as described.

11. The combination of a folding-blade carrier having a to-and-fro movement, toothed segment, toothed wheel, flying-cam, stationary cam, partially-rotating folding-blade, and folding-rollers, substantially as described.

12. The combination of toothed wheel 15, lever 14, toothed segment 18, toothed wheel 19, and flying-cam, substantially as described.

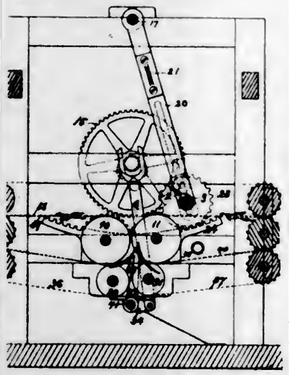
13. The combination of toothed wheel 15, lever 14, toothed segment 18, toothed wheel 19, flying-cam, and stationary cam, substantially as described.

14. The combination of toothed wheel 15, lever 14, toothed segment 18, toothed wheel 19, flying-cam, stationary cam, and folding-roller, substantially as described.

15. The combination of the folding-blade and the crank 15, or a cam with the slotted lever 12, for giving a slow forward motion and a quicker return to the folding-blade, for the purpose described.

186,385. PAPER-FOLDING MACHINES. S. D. Tucker, New York, N. Y. [Filed Apr. 20, 1876.]

Brief.—A frame moving to and fro over a pair of folding-rollers carries a blade, which is partially rotated to press the fold of the sheet fed in on tapes into the bite of the rollers. A pinion on the blade-shaft, gearing into a fixed rack, gives the blade its rocking motion.



1. A folding-blade moved to and fro over the folding devices, and partially rotated by a rack and wheel to operate therewith, substantially as described.

2. A partially-rotating folding-blade, the rotating movement of which is imparted by a rack and wheel, substantially as described.

3. The combination of a folding-blade carrier having a to-and-fro movement, a partially-rotating folding-blade, toothed wheel and rack, substantially as described.

4. The combination of a folding-blade carrier having a to-and-fro movement, a partially-rotating folding-blade, toothed wheel, rack, and sheet-feeding devices, substantially as described.

5. The combination of a folding-blade carrier having a to-and-fro movement, a partially-rotating folding-blade, toothed wheel, rack, and folding-rollers, substantially as described.

6. The combination of a folding-blade carrier having a to-and-fro movement, a partially-rotating folding-blade, toothed wheel, rack, and driving-wheel 15, substantially as described.

7. The combination of a folding-blade carrier having a to-and-fro movement, toothed wheel 23, segment-rack, with external teeth 24, and folding-rollers, substantially as described.

8. The combination of a folding-blade carrier having a to-and-fro movement, toothed wheel 23, and segment-rack with external teeth 24, substantially as described.

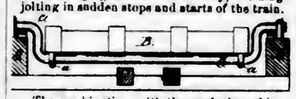
186,386. WEATHER-STRIPS. E. C. Underwood, Boston, Mass. [Filed Jan. 7, 1876.]



The improved weather-strip described, consisting of the molding A, having the rabbet or shoulder D inclined to the base a at an angle of about forty-five degrees, and provided with the elastic rubber strip B, coincident with the surface of inclined shoulder D, and extending below the base and secured to the shoulder by the tacks C, all substantially as set forth and specified.

186,387. RAILWAY-CARS. Samuel R. Wallace and Oliver V. Wallace, San Francisco, Cal. [Filed Nov. 2, 1876.]

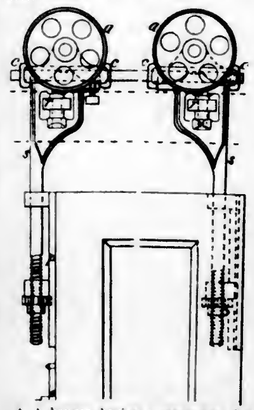
Brief.—The car-body is hung in a bottom frame by means of crank-shafts, so as to permit a swinging motion of the body, avoiding jolting in sudden stops and starts of the train.



The combination, with the car-body and its supporting-frame, of pendent freely-swinging crank-shafts C, which permit the car to oscillate freely in the arc of a circle, substantially as and for the purpose described.

186,388. DOOR-HANGERS. W. E. Warner, Syracuse, N. Y. [Filed Oct. 9, 1876.]

Brief.—The pairs of rollers are adjustably connected, and have pendent rods for attachment to the edges instead of the sides of a door.

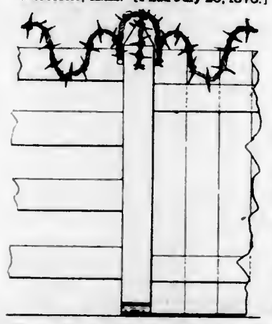


1. A hanger, having a suspension device for suspending the door by the edges, attached substantially in the manner and for the purposes specified.

2. The adjustable hanger, consisting of the compound roller-carriages, connected by a rod, d, substantially as herein described, and for the purposes described.

3. The suspending-rods s, attached to roller-frame, provided with the friction-roller r, and an adjustable device, substantially as herein set forth, and for the purposes specified.

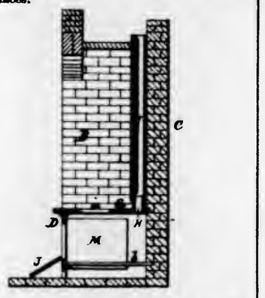
186,389. BARBED FENCES. C. F. Washburn, Worcester, Mass. [Filed July 20, 1876.]



The combination, with the top or edges of a fence or wall, of a barbed-wire guard arranged and secured in regular or irregular curves or beads, substantially as and for the purposes set forth.

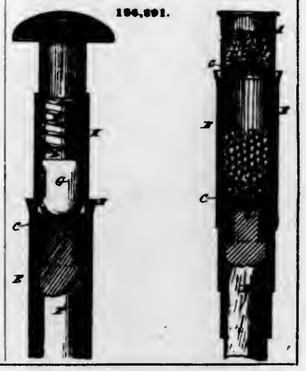
186,390. FIRE-PLACES. Henry F. Watson, Philadelphia, Pa. [Filed June 27, 1876.]

Brief.—Plates inserted in an ordinary fire-place, to utilize heat and to form cooking-surfaces.



In combination with a fire-place, A B C, the top plate G, provided with pipe-collar H and stove-holes a, and the front plate D, provided with the doors J K L and oven M, all substantially as and for the purposes herein set forth.

186,391.



186,391. SHOT-CARTRIDGES. J. P. White, Savannah, Ga. [Filed Apr. 29, 1876.]

Brief.—Concavo-convex wads are made between the two plungers of the "former," and inserted in the shell by one of the plungers, the shell being held in the sleeve of the former.

1. In a shot-cartridge, the combination of the shell A and the two concavo-convex wads C C, facing each other, and between which the shot is compressed and confined in the shell, substantially as described.

2. The combination of the tube E, plunger F, with concave end and former G, and sleeve H, for forming the concavo-convex wads, substantially as described.

186,392. BUTTONS. Dutee Wilcox, Providence, R. I. [Filed Nov. 20, 1876.]



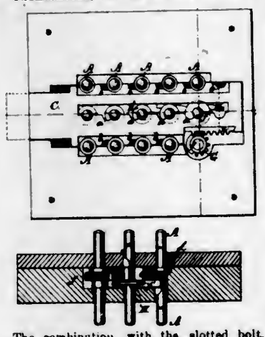
1. The combination, with a button front and a back, of a shank rigidly connected thereto, located near the periphery of the back, and a lateral spring-plate hinged to the shank, substantially as described.

2. The combination, with the eccentrically coiled shank, of a spring-plate, substantially as described.

3. The combination, with the shank of a button, of a hinged plate slitted to form springs, substantially as described.

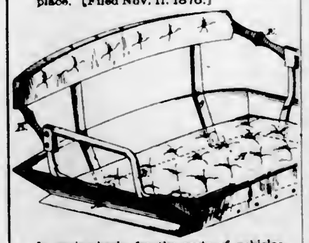
4. The combination, with a front and a back, of a cylindrical shank, which rigidly unites them, and is located at one side of the back plate, substantially as described.

186,393. COMBINATION-LOCKS. G. Winter, Jacksonville, Va. [Filed Nov. 16, 1876.]



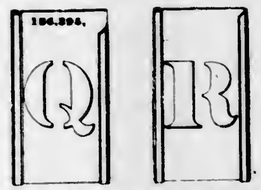
The combination, with the slotted bolt, provided with notches *a b*, of the pins A, the sliding pin *f'*, and spring H, substantially as and for the purpose specified.

186,394. SPRING-BACKS FOR WAGON-SEATS. J. W. Wood, Owatonna, Minn., assignor to himself and C. Schoen, same place. [Filed Nov. 11, 1876.]



In spring-backs for the seats of vehicles, the rubber connection or tension-spring E, having flattened ends clamped between plates to the arms and back, as shown and described.

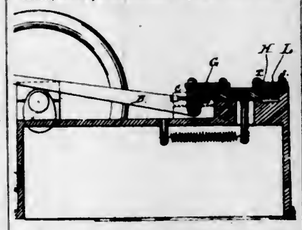
186,395. STENCIL-PLATES. J. T. Wright and Oliver G. Bryant, Chicago, Ill.; said Wright assignor to said Bryant. [Filed Mar. 22, 1876.]



A stencil-plate having the corner of its side edge cut away to facilitate connection with an adjoining plate, substantially as specified.

186,396. MACHINES FOR MANUFACTURING CARDS FOR CARDING FIBERS. Thomas E. Yates, Henry Yates, William H. Kellett, and Simon Kellett, Cleckheaton, England. [Filed Nov. 11, 1876.]

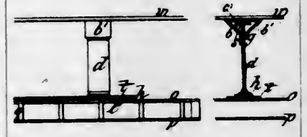
Brief.—The wire is fed between the stationary and oscillating dies, and flattened at intervals, to form the working part of the card-tooth, or the portion from the point to the bend.



The combination of the stationary die L, and guides at each side of the same, with the die H, slide K, adjustable shoe G on the actuating-lever B, and means substantially such as described for imparting to the said lever a vibratory movement, and substantially as specified.

186,397. PIANO-FORTE ATTACHMENTS. E. Zachariae, Vienna, Austria. [Filed Sept 26, 1876.]

Brief.—The sound-board is double, and the two portions are connected by numerous partitions, making it cellular. The cells are arranged, as to size or tonal capacity, opposite a proportionate length of string in the scale, and the resonance is increased or diminished by a pedal connecting with adjustable sounding-posts put into and out of contact with the sound-boards.



1. A sound-board for piano-fortes, consisting of a series of sounding cells or boxes, arranged substantially as described, for the purpose specified.

2. The arrangement of two or more sounding-boxes in a piano-forte, when these sounding-boxes are constructed so that each will give a determined resonant tone.

3. A sound-board for piano-fortes, consisting of a series of resonant cells, having each a determined tone, connected to the ordinary sound-board by means of movable induction-bars, in the manner and for the purpose specified.

4. In piano-fortes, a cellular sounding-box, arranged to be connected with and disconnected from the ordinary sounding-board by means of movable induction-wings, essentially as described.

5. The combination of the lower cellular sounding-box with the modulating flaps, essentially as described.

6. The combination of sounding-cells or boxes a with movable induction-wings *b*, *b'*, or *b²*, essentially as described, and for the purpose described.

7. In piano-fortes, the combination of wings *b*, or *b'*, or *b²*, with springs *c*, *c'*, or *c²*.

8. The combination of wings *b*, prop *d*, bar *e*, and spring *c*, essentially as described.

9. The combination of the ledge *h*, bar *f*, post *d*, wings *b'*, stop S', and spring *c'*, essentially as described.

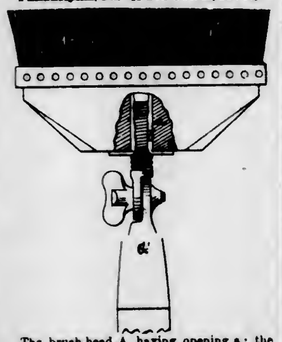
10. The combination of the wing or flap *b²* with the spring *c²*.

186,398. SOCKS AND STOCKINGS. John L. Krauser, Tylersburg, Pa. [Filed Mar. 11, 1876.]



As a new article of manufacture, the sock or stocking herein described, having the leg L and the principal part of the foot F knit of woolen or cotton yarn, and the toe T and heel H, or both the toe and heel, knit of linen or hemp, and united with the woolen or cotton portions by being knit or otherwise connected thereto, as and for the purpose specified.

186,399. BRUSH-HANDLES. I. L. Landis, Philadelphia, Pa. [Filed Oct. 11, 1876.]

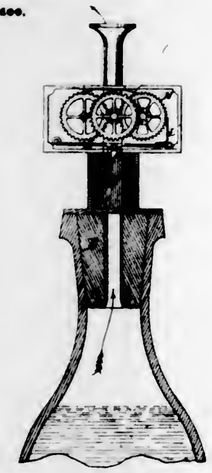


The brush-head A, having opening *a*; the strips *b* of leather or similar material, tegether forming an incomplete annulus; the tapering screw C, having disk D with lug *d*; the metallic socket G, with disk G', having depressions *e*; and the thumb-screw I, all constructed substantially as and for the purposes herein set forth.

186,400. INDICATORS FOR DRAWING LIQUIDS FROM BOTTLES. Isidor Levi, Cincinnati, Ohio. [Filed May 13, 1876.]

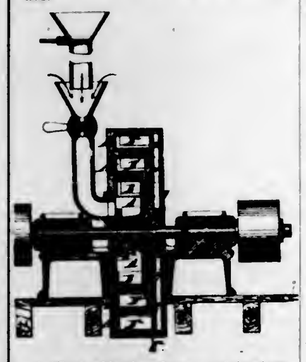
The combination, substantially as specified, of the gravitating body K, the ratchet-engaging-lever I *i*, ratchet-wheel H, and pawl-and-index wheels, the whole being suitably inclosed, as described, so as to be wholly separated from the channel through which the liquor flows.

186,460.



186,461. PULVERIZING-MACHINES. A. B. Lipsey, West Hoboken, N. J., assignor, by mesne assignments, to Lipsey Pulverizing and Manufacturing Company. [Filed Dec. 15, 1876.]

Brief.—A series of chambers of successively larger diameters are arranged concentrically outside of and around each other, having a series of beaters attached to the same shaft, revolving synchronously. This revolution produces a partial vacuum or drawing action from each smaller chamber toward each larger. The divisional partitions between the chambers are provided with overlapping lips or flanges, to secure a partial vacuum union, except at the outlets for the passage of the material. The outlet spout is axially adjustable, has a compensating-slide to "take up" for adjustment, and is provided with openings beneath, to suit the different grades of separation.



1. The combination of a series of chambers of successively larger diameters, arranged one outside or beyond the periphery of another, and series of beaters for revolving therein, substantially as set forth, whereby a very simple, exceedingly compact, and serviceable pulverising-machine is produced.

2. The combination, with a chamber provided with a series of beaters for revolving therein, of a chamber of larger diameter, communicating with the former, and provided with a series of beaters for revolving in the same length of time as those in the smaller chamber, and consequently moving at a greater speed, and producing a partial vacuum at the exit of each smaller chamber, substantially as set forth.

3. The combination, with a chamber provided with a series of beaters for revolving therein, of a chamber of larger diameter, communicating directly with the smaller chamber, and provided with a series of beaters supported on the same shaft as those of said smaller chamber, and revolving in the same length of time as the latter, substantially as set forth.

4. The combination of two or more chambers, communicating one with another, and provided each with a series of beaters for revolving therein, and also provided with lips, overlapping the beaters of each chamber which communicates with another chamber, whereby the material to be pulverized therein is prevented from passing out, except at the proper place, substantially as set forth.

5. The combination, with a pulverizing-machine, of an outlet provided (preferably at the lower part) with an opening or openings, and capable of being adjusted axially by swinging at different angles, substantially as and for the purpose set forth.

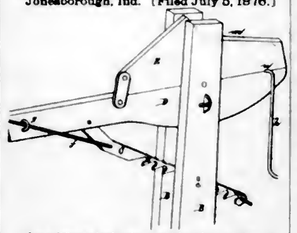
6. The combination, with a pulverizing-machine and an outlet capable of being adjusted at different angles, of an adjustable top portion, substantially as and for the purpose set forth.

7. The combination, with a pulverizing-machine and an outlet therefor, capable of being adjusted axially by swinging at different angles, of a clamping device for securing it in different positions.

8. The combination, with a beater extending longitudinally outward from the axe of a disk or spider, of a renewable shoe, lapping over the face, inner edge, and outer end of such beater, a dowel or projection on the outer end of said beater fitting a cavity in the shoe, and a rivet or bolt at the inner end of the shoe securing it to the said disk, substantially as set forth.

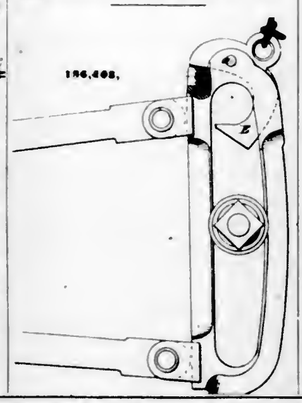
9. The combination of the series of chambers A A^1 A^2, series of beaters B B^1 B^2, spiders S S^1 S^2, supporting the latter, shaft F, an inlet, and an outlet, substantially as set forth, whereby an improved pulverizing-machine is produced.

186,462. LIFTING-JACKS. F. M. Lottridge, Jonesborough, Ind. [Filed July 5, 1876.]



In a lifting jack, the combination of the adjustable lever D, the standards B, and the slit A with the elbowed ratchet-bar C, provided with the retrorse teeth *b*, the transverse bolt or pawl *c*, and the pull-rod *f*, guided by the loop *g*, and also with the hinged block E, provided with the notches *m* and *n* and the hanger *h*, substantially as and for the purposes specified.

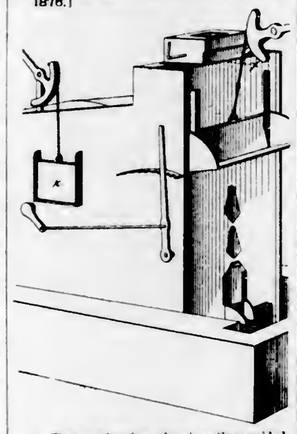
186,463.



186,463. LINKS FOR VALVE-GEARS OF STEAM-ENGINES. Jas. H. Luther, Karn's City, Pa. [Filed Dec. 21, 1876.]

The combination, with the reversing-link of a steam-engine, of the spring-hook E, having the form, and pivoted, as shown, located in a slot in the top of the link, and operated by a spiral spring inclosed in a recess, as shown, and catching directly under the wrist-pin of the valve-crank, all substantially as and for the purposes specified.

186,464. ANNEALING-FURNACES. Harvey B. Chess, Pittsburg, Pa. [Filed Dec. 8, 1876.]



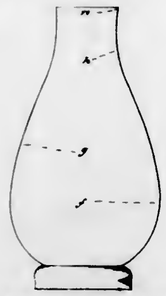
1. The combustion-chamber G, provided with a sloping bottom, and the valve G, in combination with the cooling-chamber I, substantially as and for the purpose set forth.

2. The cooling-chamber I, provided on its bottom with the perforated plate J, in combination with the combustion-chamber C, valve G, and a pit for receiving the dust and scales, substantially as and for the purpose set forth.

3. An annealing-furnace, provided with a sloping bottom, F, sloping from the charge opening downward toward the bridge wall, the valve G, and the discharge opening K in the side of the furnace opposite the valve, substantially as and for the purpose set forth.

REISSUES.

7,463. LAMP-CHIMNEYS. Saml. W. Fowler, Brooklyn, N. Y., assignor to F. H. Lovell and O. D. Lovell, same place. Patent No. 96,484, dated Jan. 4, 1870. [Filed Nov. 27, 1876.]

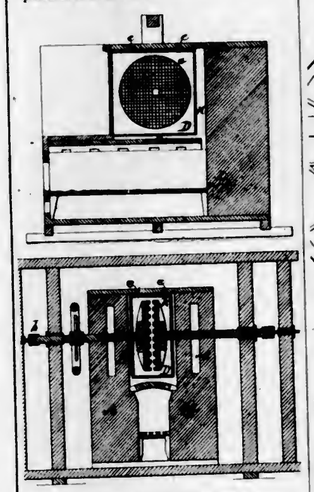


1. A lamp chimney made broad in one and narrow in a transverse direction, the broad sides being depressed at the opposite points *a*, as and for the purpose specified.

2. In a lamp-chimney, the several curves *a b c d f g h a*, arranged as and for the purpose set forth.

7,464. TEMPERING AND FORMING ARTICLES OF STEEL. Geo. F. Simonds, Fitchburg, Mass., assignor to the Simonds Manufacturing Company, same place. Patent No. 169,736, dated Nov. 9, 1876. [Filed Dec. 12, 1876.]

Brief.—The article, having been hardened, is clamped in the closed oven, and subjected to uniform heat under pressure, until tempered and set in form.



1. Formers *c c*, constructed with a cross-grooved face, substantially as described, and for the purpose set forth.

2. The combination of formers for holding articles to any required position with an air-tight oven, D, substantially as and for the purpose set forth.

3. The combination of formers for holding articles to any required position with an air-tight oven, D, inclosed in a heating-furnace, substantially as and for the purpose set forth.

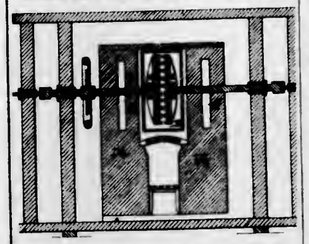
4. The combination of formers *c c*, revolving-shafts *b b'* with oven D inclosed in a heating-furnace, substantially as and for the purpose set forth.

5. The combination of formers *c c*, revolving shafts *b b'*, and screws *f f* with oven D inclosed in a heating-furnace, substantially as and for the purpose set forth.

6. In combination with a tempering-oven, revolving vertical formers, substantially as and for the purpose set forth.

7,465. TEMPERING AND FORMING ARTICLES OF STEEL. Geo. F. Simonds, Fitchburg, Mass., assignor to the Simonds Manufacturing Company, same place. Patent No. 164,736, dated Nov. 9, 1875. [Filed Dec. 12, 1876.]

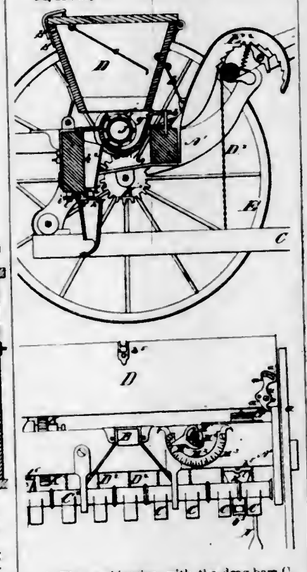
Brief.—The saw is hardened and clamped in the closed oven, and subjected therein to uniform heat, till tempered and set in form.



1. The improved process, herein described, of tempering and straightening saws by means of heat and pressure, and without hammering, the saw being protected from atmospheric currents, substantially as and for the purpose set forth.

2. As a new article of manufacture, saws tempered and left by the tempering-heat in ultimate form, and in a condition free from the irregular strain or buckle of hammered saws.

7,466. SEEDERS AND CULTIVATORS. W. A. Van Brunt, Horicon, Wis. Patent No. 158,152, dated Dec. 22, 1874. [Filed Sept. 14, 1876.]



1. The combination, with the drag-bars C, and an eccentrically-journaled shaft, from which the former are suspended, of the lifting and supporting devices, consisting essentially of a rigid support and a lever attached to said shaft, and provided with means for engagement with and disengagement from said support, substantially as and for the purpose set forth.

2. The combination, with the eccentrically-journaled shaft D supporting the drag-bars C, of the chain *s*, weighted lever L^2, gear-wheel K, and intermediate connection between said lever and wheel, whereby the drag-bars and seeding devices may be adjusted simultaneously, as and for the purpose set forth.

3. The combination of the tube A^1 and plate A^2, said tube being hinged or swung upon said plate, and fastened to it in front by a yielding connection, for the purpose set forth.

4. The cylinder-box, having a converging channel or cavity in its lower interior surface, in combination with an adjustable cylinder, substantially as described.

5. The combination, with the toggles *e e'*, drag-bars C, and shovel-standards N, of the pins or screws *p'*, substantially as and for the purpose set forth.

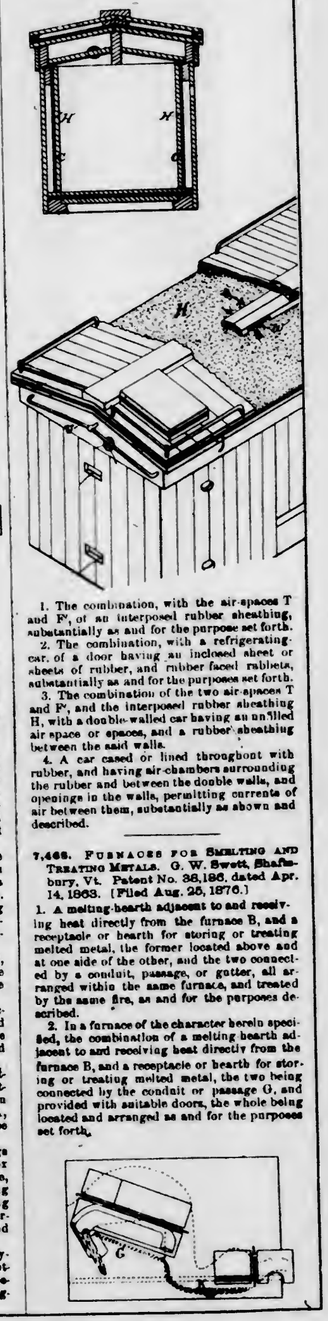
6. The collars C^3, formed with the projections C^4, to enter the drag-bars in front, and the rearwardly-projecting plate C^5, to receive a fastening-bolt, substantially as shown and described.

7. The pivoted adjustable hinges, consisting of the plates *e*, having the curved lateral projections e^4 and transverse slots e^5, in combination with the hopper D and frame A, substantially as shown, and for the purpose specified.

8. The combination, with the side castings A^1, having the annular flanges or journal-box F^w, of the wheel E, mounted upon spindle, from which it is detachable without removing the latter, and having an inwardly-projecting bearing fitting the spindle, and having its bearings in said box P, substantially as shown and described.

9. The combination, with the eccentrically-arranged shaft D, for supporting and adjusting the drag-bars, of a support located between the ends of said shaft, to prevent sagging.

7,467. REFRIGERATING-CARS. J. M. Ayer, Chicago, Ill. Patent No. 181,391, dated Aug. 22, 1876. [Filed Oct. 16, 1876.]



1. The combination, with the air-spaces T and F^1, of an interposed rubber sheathing, substantially as and for the purpose set forth.

2. The combination, with a refrigerating-car, of a door having an inclosed sheet or sheets of rubber, and rubber faced rabbets, substantially as and for the purposes set forth.

3. The combination of the two air-spaces T and F^1, and the interposed rubber sheathing H, with a double-walled car having an unfilled air space or spaces, and a rubber sheathing between the said walls.

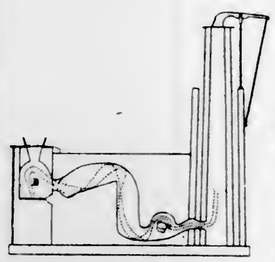
4. A car cased or lined throughout with rubber, and having air-chambers surrounding the rubber and between the double walls, and openings in the walls, permitting currents of air between them, substantially as shown and described.

7,468. FURNACES FOR SMELTING AND TREATING METALS. G. W. Swett, Shaftsbury, Vt. Patent No. 36,186, dated Apr. 14, 1863. [Filed Aug. 25, 1876.]

1. A melting-hearth adjacent to and receiving heat directly from the furnace B, and a receptacle or hearth for storing or treating melted metal, the former located above and at one side of the other, and the two connected by a conduit, passage, or gutter, all arranged within the same furnace, and treated by the same fire, as and for the purposes described.

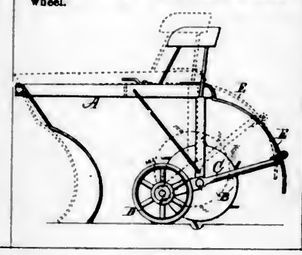
2. In a furnace of the character herein specified, the combination of a melting hearth adjacent to and receiving heat directly from the furnace B, and a receptacle or hearth for storing or treating melted metal, the two being connected by the conduit or passage G, and provided with suitable doors, the whole being located and arranged as and for the purposes set forth.

7,468.



7,469. STALK-CUTTING MACHINES. James M. Goff, North Henderson, assignor, by mesne assignments, to Cyrus M. Avery, Galesburg, Ill., and Robt. H. Avery, Peace, Kans. Patent No. 57,893, dated Sept. 11, 1866. [Filed Aug. 9, 1875.]

Brief.—Devices for adjusting the cutter-wheel.



1. In a stalk-cutting machine, the combination of the following instrumentalities, viz: a cylinder of cutters, B, and two wheels, D D, said wheels being connected with, and pivoted to, the frame which carries the cutter-cylinder, by means of levers C C, so that the relative height or position of the wheels and cylinders may be regulated by the levers operating directly on the wheels, substantially as and for the purpose specified.

2. In a stalk-cutting machine, the combination of the following instrumentalities, viz: a cylinder of cutters, B, two wheels, D D, levers C, and perforated segment-bar E, by means of which and a pin, *f*, the relative position of the cutter-cylinder and wheels may be fixed and maintained after adjustment, substantially as set forth.

3. The knife or cutter cylinder B, connected to the draft-pole A, substantially as shown and described, in combination with the pivoted frame G, provided with the wheels D D, all being arranged to operate substantially as and for the purpose set forth.

THE GRAPHIC CO N.Y.

OFFICIAL GAZETTE

OF THE

United States Patent Office.

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DEPARTMENT OF THE INTERIOR,
U. S. PATENT OFFICE,
WASHINGTON, D. C., *January* 30, 1877.

By reason of fraud and deception amounting to gross misconduct in the prosecution of their business before this Office, Messrs. JOHN INGLIS, Jr., & Co., of 39 Park Row, New York city, have been debarred from practicing before this Office, as provided in section 487 Revised Statutes.

W. H. DOOLITTLE,
Acting Commissioner of Patents.

As 12 o'clock on Friday is the latest hour that a final fee can be received in order to get a patent into the "issue" of the following Tuesday, applicants are earnestly requested to make the final payment before Friday, if possible, so that the proper entries may be made on the books of the Office before closing the "issue."

The Patent Office prefers that applicants should furnish their own drawings. Where drawings are defective, or cannot be otherwise obtained, the Office will cause a formal drawing to be made from the model at the actual cost of making it.

When a patent has been allowed, and the application has not been forfeited by delay of six months, if the final fee of twenty dollars is paid before 12 o'clock on Friday, the patent will issue and bear date the following Tuesday.

ANNUAL REPORT

OF

THE COMMISSIONER OF PATENTS

FOR THE YEAR 1876.

To the Senate and House of Representatives of the United States of America in Congress assembled:

In compliance with section 494 Revised Statutes, I submit the following report for the year ending December, 31, 1876.

1. *Statement of moneys received.*

Amount received on applications for patents, reissues, designs, extensions, caveats, disclaimers, appeals, and trade-marks	$673,675 00
Amount received for copies of specifications, drawings, and other papers	53,621 10
Amount received for recording assignments	19,353 62
Amount received for subscriptions to the Official Gazette	7,717 93
Amount received for registration of labels	3,690 00
Total	$757,987 65

2. *Statement of moneys expended.*

Amount paid for salaries		$425,930 02
Amount paid for photolithographing current issues		27,777 95
Amount paid for photolithographing back issues		73,054 33
Amount paid for illustrations for Gazette		35,619 46
Amount paid for tracings of drawings		31,978 77
Amount paid for contingent and miscellaneous expenses, viz:		
Stationery	$9,166 37	
Painting, glazing, varnishing, upholstering, &c	690 05	
Furniture, carpets, &c	3,214 34	
Fitting up cases in model-rooms, carpenter's work, and repairing furniture	8,166 11	
Plumbing and gas-fitting	113 30	
English patents and foreign periodicals	1,359 15	
Hardware	428 60	
Pay of temporary clerks	26,141 96	
Miscellaneous items, viz: Books for library, ice, subscriptions to journals, freight, washing towels, withdrawals, money refunded paid by mistake, repairing carriage and harness, keeping horse, advertising, printer's material, rubber stamps, drawing instruments, cleaning carpets, paste, &c	8,901 99	
		58,189 07
Total		$652,542 60

3. *Statement of the balance in the Treasury of the United States on account of the patent fund.*

Amount to the credit of the patent fund January 1, 1876	$886,909 62
Amount of receipts during the year 1876	757,987 65
Total	1,644,897 27
From which deduct expenditures for the year 1876	652,542 60
Balance January 1, 1877	$992,354 67

4. *Statement of the business of the Office for the year* 1876.

Number of applications for patents during the year 1876	21,425
Number of patents issued, including reissues and designs	15,595
Number of applications for extension of patents	2
Number of patents extended	3
Number of caveats filed during the year	2,697
Number of patents expired during the year	814
Number of patents allowed but not issued for want of final fee	3,353
Number of applications for registering of trade-marks	1,081
Number of trade-marks registered	959
Number of applications for registering of labels	650
Number of labels registered	402

Of the patents granted there were to—

Citizens of the United States	16,239
Subjects of Great Britain	511
Subjects of France	104
Subjects of other foreign governments	172
Total	17,026

5. *Number of patents issued by the United States Patent Office to residents of the different States, Territories, and foreign countries, from January* 1, 1876, *to December* 31, 1876.

[The proportion of patents to population is shown in last column.]

States, &c.	No. of patents.	One to every—
Alabama	46	21,673
Arizona Territory	2	20,855
Arkansas	23	21,664
California	423	1,376
Colorado	21	2,246
Connecticut	736	730
Dakota Territory	10	4,050
Delaware	35	3,572
District of Columbia	197	668
Florida	22	8,556
Georgia	63	18,795
Idaho Territory	5	4,116
Illinois	1,298	1,957
Indiana	425	3,954
Iowa	425	2,810
Kansas	83	4,498
Kentucky	163	8,104
Louisiana	107	6,793
Maine	178	3,522
Maryland	273	2,860
Massachusetts	1,587	918
Michigan	426	2,787
Minnesota	164	2,720
Mississippi	42	19,712
Missouri	423	4,069
Montana Territory	3	13,298
Nebraska	40	3,233
Nevada	21	2,796
New Hampshire	106	3,003
New Jersey	685	1,323
New Mexico Territory	1	111,303
New York	3,914	1,121
North Carolina	51	21,007
Ohio	1,195	2,230
Oregon	24	4,245
Pennsylvania	1,895	1,859
Rhode Island	231	941
South Carolina	31	22,761
Tennessee	107	11,762
Texas	108	7,582
Utah Territory	14	7,113
Vermont	111	2,978
Virginia	145	8,449
Washington Territory	5	7,486
West Virginia	54	8,185
Wisconsin	303	3,515
Wyoming Territory	10	1,151
U. S. Army	7	.....
U. S. Navy	1	.....
United States in general	16,239	2,398

6. *Comparative statement of the business of the Office from* 1837 *to* 1876, *inclusive.*

Year.	Applications.	Caveats filed.	Patents issued.	Cash received.	Cash expended.	Surplus.
1837	.....	.....	435	$29,289 08	$33,506 98	.....
1838	.....	.....	520	42,123 54	37,402 10	$4,721 44
1839	.....	.....	425	37,260 00	34,543 51	2,716 49
1840	735	228	473	38,056 51	39,020 67	.....
1841	847	312	495	40,413 01	52,666 87	.....
1842	761	391	517	36,505 68	31,241 48	5,264 20
1843	819	315	531	35,315 81	30,776 96	4,538 85
1844	1,045	380	502	42,509 26	36,244 73	6,264 53
1845	1,246	452	502	51,076 14	39,395 65	11,680 49
1846	1,272	448	619	50,264 16	46,158 71	4,105 45
1847	1,531	553	572	63,111 19	41,878 35	21,232 84
1848	1,628	607	660	67,576 69	58,905 84	8,670 85
1849	1,955	595	1,070	80,752 98	77,716 44	3,036 54
1850	2,193	602	995	86,927 05	80,100 95	6,816 10
1851	2,258	760	869	95,738 61	86,916 93	8,821 68
1852	2,639	996	1,020	112,656 34	95,916 91	16,739 43
1853	2,673	901	958	121,527 45	132,869 83	.....
1854	3,324	868	1,902	163,789 84	167,146 32	.....
1855	4,435	906	2,024	216,459 35	179,540 33	36,919 02
1856	4,960	1,024	2,502	192,588 02	199,931 02	.....
1857	4,771	1,010	2,910	196,132 01	211,582 09	.....
1858	5,364	934	3,710	203,716 16	193,193 74	10,522 42
1859	6,225	1,097	4,538	245,942 15	210,278 41	35,663 74
1860	7,653	1,084	4,819	256,352 59	252,820 80	3,531 79
1861	4,643	700	3,340	137,354 44	221,491 91	.....
1862	5,038	824	3,521	215,754 99	182,810 39	32,944 60
1863	6,014	787	4,170	195,593 29	189,414 14	6,179 15
1864	6,932	1,063	5,020	240,919 98	229,868 00	11,051 98
1865	10,664	1,937	6,616	348,791 84	274,199 34	74,592 50
1866	15,269	2,723	9,450	495,665 38	361,724 28	133,941 10
1867	21,276	3,597	13,015	646,581 92	639,263 32	7,318 60
1868	20,420	3,705	13,378	681,565 86	628,679 77	52,886 09
1869	19,271	3,624	13,986	693,145 81	486,430 78	206,715 03
1870	19,171	3,273	13,321	669,456 76	557,149 19	112,307 57
1871	19,472	3,366	13,033	678,716 46	560,595 08	118,121 38
1872	18,246	3,090	13,590	699,736 39	665,591 36	34,135 03
1873	20,414	3,248	12,864	703,191 77	691,178 98	12,012 79
1874	21,602	3,181	13,599	738,278 17	679,288 41	58,989 76
1875	21,638	3,094	16,288	743,453 36	721,657 71	21,795 65
1876	21,425	2,697	17,026	757,987 65	652,542 60	105,445 05

RECEIPTS AND EXPENDITURES.

The above tables show a slight decrease in the number of applications for patents from the previous year, but an increase in the receipts of the Office. This small decrease in the number of applications for patents is easily accounted for by the financial depression of the country, the interruption of business caused by the intense and long-continued heat of the past summer, the attention paid by inventors to the Centennial Exhibition, and the occurrence of the presidential campaign.

The increase in receipts over the past year, to the amount of more than $14,000, is due to other sources than the fees received with the original applications for patents—principally to amounts received for copies of specifications, drawings, and other papers, for recording assignments, for subscriptions to the OFFICIAL GAZETTE, and the fees for registration of trade-marks and labels.

The amount of receipts of the Office over all its expenditures was $105,445 05. This large surplus is gratifying evidence of the more than self-sustaining power of this Office; but I cannot refrain from adding that the fact is not entirely satisfactory to the great majority of inventors and owners of patents, the work in whose behalf would have been more thoroughly and promptly performed if a part of the above-named sum could have been used for the employment of a larger force of skilled and efficient examiners and clerks. For instance, the receipts for copies and recording of assignments amounted to $72,974 72. The clerk-hire for these two items amounted to $41,280. Excess of receipts on these two items $31,694 72. Yet at times the Office, owing to the inadequate amount of help, has been weeks behind

in furnishing copies of records needed immediately in pending suits and elsewhere, and in recording assignments which the law requires to be recorded in the Office within three months from the date thereof, or else holds void as to subsequent purchasers without notice.

To such an extent has work been thus delayed that attorneys in most urgent cases have been allowed to employ their own clerks at this work, the Office at the same time charging them the legal fees for the work which itself was unable to perform. So, too, in the Examining Corps, 21,425 applications for patents have been distributed among ninety-five Examiners (reduced at the beginning of the present fiscal year to eighty-eight.) This is an average of over two hundred applications a year to each Examiner.

Assigning to the Principal Examiners, as it should be, the sole duty of supervising and revising the work of their subordinates, and the average number of applications to each Examiner engaged in making searches becomes still greater. The consequence has been that most of the work has been hurriedly dispatched, and in some of the most important classes, comprising inventions most in demand in the manufactures and arts, been greatly delayed, and the clerical force largely drawn upon to aid the Examining Corps.

Since the 1st instant work has greatly revived, and the indications are that it will be far heavier for the last six months of the present fiscal year than it was for the first six months. If so, the Office will be more embarrassed than ever in meeting the demands upon its clerical force. To prevent this I would recommend that an act be passed this session allowing the Commissioner, out of the receipts from these two sources, for the balance of the fiscal year, to employ the temporary help necessary to fill the current orders for copies, &c., such temporary employees to be paid by the piece. A similar measure of relief has been recently proposed, I am informed, by the Land Office. I respectfully submit that it would be a wise policy to pay for copying of all records in this way. More than half of all appropriations for clerical help has been exhausted, and owing to the depleted condition of the contingent fund quite a number of temporary clerks have been dropped, and more will have to be.

The work of producing copies of drawings of back issues of patents, when completed, so that each Examiner's room is supplied with a classified set of drawings of American patents, will, in addition to similar sets of foreign patents, enable the present force of Examiners to perform their work better and with dispatch; but until that time arrives the force should be maintained at its former number, at least. I therefore earnestly recommend that the seven Examinerships dropped upon the first of last July be restored from the beginning of the next fiscal year. At the date mentioned, the salaries, which had lapsed by reason of said vacancies, were being used to pay clerks of a low grade, whose services were actually necessary for the performance of current work.

PRINTING OF SPECIFICATIONS AND PHOTOLITHOGRAPHIC REPRODUCTION OF DRAWINGS.

In June, 1871, the printing of specifications and drawings of the current issues of patents for use of patentees, the Office, and for sale, was commenced under the act of January 11th, of that year. One hundred and fifty copies of each of the seventy-five thousand patents issued since that time have been printed, amounting in all to more than eleven million copies.

In the meantime fifteen million copies of drawings of patents issued prior to 1871 have been reproduced by the photolithographic process, and six millions more are under way. $240,000 has thus far been appropriated for this work of reproduction, and it is estimated that $40,000 more will cover the entire cost of completely finishing both the tracing and photolithographing work. If this amount should be appropriated I think the whole work will be certainly finished by next January.

The receipts from sales of these copies of specifications and drawings now approximate $20,000 a year, and the demand is increasing. The original outlay at this rate will eventually be more than repaid. This work should be complemented by the printing of the specifications of sixty thousand patents, of which only the original and one manuscript copy of each are in existence. It costs more than $10,000 a year to fill orders for copies of these manuscripts, and this amount is small compared to the value in time lost by the delay necessary in making the copies.

I estimate the cost of printing the specifications of these old patents to be about $200,000, and I earnestly recommend an appropriation of $50,000 to begin the work. The sale of copies at a little more than cost will certainly at last more than equal the original outlay.

The completion of these two great works, the printing of the drawings, and the specifications of all the back issues of patents, will be of incalculable benefit to the Office, inventors, manufacturers, and the public generally. Then, with a proper subdivision of classes of inventions, will the office be enabled to make its searches with certainty and dispatch, and inventors and others will, it is estimated, at the very small average cost of eight dollars (under a recent arrangement of subdivisions of classes) be enabled to obtain printed copies of all the patents relating to any one branch of the arts or sciences.

OFFICIAL GAZETTE.

The contents of this weekly publication, consisting of the latest decisions of the United States courts and the Patent Office on the great variety of questions constantly arising relating to patent matters, the names of patentees, and trade-mark and label registrants, the description of the inventions patented and trade marks registered, and all similar announcements, are constantly attracting fresh attention and increasing the demand for the work. It affords a ready and expeditious means of communication to the world of the large and important transactions of the Patent Office. Some sixteen hundred copies of the GAZETTE are mailed weekly to public libraries under the provision of law, which authorizes each member of Congress to designate eight public libraries in his State or district to receive it. This supply will have to be discontinued to a smaller or greater extent, as the present amount now annually appropriated ($40,000) for this work is decreased. With this amount the expenses connected with the publication of the GAZETTE are only comfortably met.

The paying circulation of the GAZETTE at the minimum price of $5 00 is about one thousand two hundred copies. I have no doubt a larger popular demand would be had for it if the subscription-price was reduced, and I recommend that it be reduced to $2 00. Even at this rate the paper and press-work would be more than paid for. The expense of preparation of the GAZETTE is the same, whether a large or a small edition be printed.

A larger edition of the earlier volumes of the GAZETTE was printed than was required to supply the demand. These volumes (unbound) occupy considerable space in the Office, and the call for them at the present high price has practically ceased. Could they be offered at $1 00 per year I think nearly the whole number might be sold.

TRADE-MARKS AND LABELS.

One thousand eighty-one trade-marks and six hundred and fifty labels were received for registration during the year. Of these, nine hundred and fifty-nine trade-marks and four hundred and two labels were registered. The fees from this source amounted to $30,855. The yearly expenditure for the examining and clerical work of this division was $4,570, or about one-seventh of the amount of receipts. The excess of the receipts above the expenditures of this class for the past year thus amounted to more than the surplus of receipts covered into the Treasury from the entire Office in 1875, which was $21,795 65.

The fee required to accompany the petition for the registration of a trade-mark is $25 00. This is not returned if the registration is refused after due examination. If it was the intention of Congress in prescribing this fee that it should be simply sufficient to meet the expense attendant upon examination and registration, it will be clearly seen by the above statement of receipts and expenditures that the fee required is excessively large; but this matter I am informed has already been made the subject of a proposed bill by a committee of the House of Representatives.

The fee for recording the title of any printed label is six dollars. All the provisions of law relating to the recording in this Office of prints or labels are embodied in a section of the copyright law of June 18, 1874. A distinction between trade-marks and "prints and labels for articles of manufacture" is there made, but not defined. But as a difference is made both in the protection of law afforded to the proprietors thereof, and the fees required from them, the Office is compelled to make a technical distinction. This distinction, especially between trade-marks and prints, is very often without a difference.

Neither is there any express provision of law authorizing the declaration of an interference to determine the priority of title between contesting parties to trade-marks, as in applications for patents. But as the law directs the Commissioner not to register a trade-mark identical with another "appropriated to the same class of merchandise, and belonging to a different owner," the Office has assumed the power to decide this question between opposing parties. It is highly desirable that legislation be had to clear up the difficulties above alluded to.

The law provides that citizens of foreign countries can register their trade-marks in this Office when a similar privilege is afforded by those countries by "treaty or convention" to citizens of this country.

For some years, and until quite recently, it was the practice to record the trade-marks of citizens of Great Britain, it being supposed that the commercial treaty of 1790 between that country and this extended this privilege to citizens of both countries. But, upon being lately informed of this error by the State Department, registration of such trade-marks has been refused. Great Britain, by act of Parliament, gives the privilege of recording trade-marks there to aliens as well as citizens. I am informed that a bill has been proposed amending our statute in the respect mentioned, and extending the privilege to all aliens whose countries, by treaty or *otherwise*, afford citizens of our country a similar privilege.

I earnestly recommend the adoption of the measure as an act of justice and reciprocity.

The salary of the Examiner of Trade-Marks was reduced last year to below that of other Principal Examiners in this Office. In view of the many nice questions of law continually arising upon the rights of registrants requiring legal qualifications and sound judgment to determine, the increasing work of this class, and the extent of its receipts, I think it would be unjust to longer continue this discrimination.

SCIENTIFIC LIBRARY.

Sec. 486, R. S., provides that "there shall be purchased for the use of the Patent Office a library of such scientific works and periodicals, both foreign and American, as may aid the officers in the discharge of their duties, not exceeding the amount annually appropriated for that purpose." This provision has been on the statute books since 1870, but no appropriation for the purpose has been made during that time, and the accumulation of these very necessary books has been solely due to the small amounts that could be spared out of the contingent and miscellaneous fund. It is unnecessary to dilate upon the importance of having a full supply of scientific works to aid officers who are compelled daily to make searches into every art and every branch of science. Yet there are only about 23,000 volumes of such works upon our shelves.

The Medical Library of the Surgeon General's Office in one-tenth of the number of years which the library of this Office has been in existence has acquired ten thousand more volumes than we possess. Besides, a very large number of the works we already have are practicably inaccessible from the want of a catalogue, owing to the lack of means to employ clerks to make the same, and have it printed. I renew the urgent recommendation of my predecessors for an appropriation of a few thousand dollars out of the surplus receipts of Office fees for the purpose mentioned.

MODELS.

About 175,000 models of inventions are contained in the model room. This supply is increasing at the rate of 13,000 or 14,000 a year.

A model is not only desirable to aid in the explanation of an invention upon the filing of an application for a patent, but is very valuable after the patent is granted in enabling the courts and the Office to clearly interpret the terms of the patent when the same at times after may become the subject of litigation, or is sought to be reissued to correct inadvertent errors in the original description and claims. Hence the necessity of preserving the models and keeping them *intact*. This is almost an impossibility at present, owing to the lack of accommodation; 362 glass cases, each containing from 450 to 1,600 models, according to the size of the latter, with numerous shelves, are at present in use, into and upon which the models are crowded and piled upon each other. Immediate relief is necessary, and it is contemplated putting a number of them in the cases lately used at the Centennial upon tables placed in the halls. But the number of these is not sufficient to afford much assistance.

Two tiers of cases are ranged on either side of three of the halls—the upper tiers in galleries. In the fourth hall a gallery extends upon but one side. By completing the gallery upon the other side of this hall twenty-four additional cases could be added. This would meet the immediate demands of the Office, by making some other disposition of models belonging to rejected applications, which the law permits the Commissioner to do after the applications have been rejected for a certain length of time. The estimated cost of the above additional gallery and cases is $12,000.

I recommend an immediate appropriation of that amount to commence and complete part of the work this year.

INCREASED ACCOMMODATION.

Additional room is needed in every part of the Office. This would be necessary should the work of the Office be decreased one-third. But in view of the constant increase of work additional room becomes an imperative necessity. Already the halls and alcoves of the building are used for shelves and cases, and a large number of clerks and employees are crowded into dark, damp, unwholesome rooms never designed for the purpose. A simple inspection of the building is all that is necessary to confirm this statement.

THE CENTENNIAL.

The display made at the Exposition by the Patent Office was creditable in every respect, and excited general attention. About 5,000 models of inventions, representing the leading branches of the arts and manufactures were exhibited in suitable cases, and properly labeled, the various publications of the Office were displayed, its practice fully explained to all inquirers, and copies of the Patent Laws and the Office regulations and forms freely distributed. The knowledge of our patent system thus imparted to foreigners and all others unable to visit Washington has more than repaid the small cost attendant upon the representation. The exhibits were sent from and returned to the Office with scarcely any damage being suffered.

But the array of models, &c., made by the Patent Office at the Exposition was not needed to illustrate the value of our patent practice. The wisdom of that system was demonstrated in the most practical and triumphant manner in nearly every branch of that munificent enterprise. Not only in the grand display of labor-saving machinery, but in the vast collection of manufactured articles, and even in the department of fine arts, were seen the fruits of that provision in our Constitution giving to Congress the power "to promote the progress of science and the useful arts by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries."

Whatever persons may do in a "perfect state of society" in sharing, without price, the fruits of their labors with others, it must be apparent to the dullest observer that the wonderful growth of the useful arts in this country is due, thus far, to the protection given by our Government to property in inventions—a property as sacred as any other class of property, and whose value is determined by the same general law of supply and demand.

CONCLUSION.

It may be safely said that two-thirds of the manufacturing interests of the country are based upon patents, and the welfare of all such interests are intimately connected with the welfare of the patent system. During the past seven years a larger number of applications for patents were filed and patents granted than during the entire seventy-eight preceding years, reaching back to the enactment of the first patent law. The needs of the Office have advanced in proportion to this sudden and vast increase of work, but have been but partly supplied. Nay, in fact, its already scanty force and accommodations have been actually reduced at a time when most required. If these vast interests, and the future promotion of science and the useful arts are to be encouraged, a liberal recognition must be made of the wants of this Office.

The Examining Corps, the duties of which are most arduous and exacting, comprises gentlemen of legal, as well as scientific, attainments. It should be re-enforced by more of the same character. They should be relieved by legislation of continual embarrassment by reason of meager salaries and fears of removal incident to merely political changes. The Office would then be spared the continual loss of its most experienced and efficient men.

In conclusion, I would state that several of the recommendations herein made are repetitions in another form of the recommendations of my predecessors, and grow more and more urgent as time advances.

Respectfully submitted.

WM. H. DOOLITTLE,
Acting Commissioner of Patents.

January 29, 1877.

COMMISSIONER'S DECISIONS.

WARNER *vs.* ANDERS.—*Interference.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the interference between the applications of Ernest P. Warner, filed August 28, 1874, and George L. Anders, filed June 1, 1874, for* "IMPROVEMENT IN PRINTING-TELEGRAPHS."—*Decided January 15, 1877.*]

The unsuccessful embodiment of preconceived ideas of an invention, afterward reduced to practice, and completed in substantially the form first attempted, although not constituting proof of invention, may be considered as evidence of the conception.

The first to conceive of an invention must, in order to establish his right to a patent as against one who was first to reduce it to practice, use reasonable diligence in developing and perfecting the same.

[*Alex. L. Hayes* and *Hill, Ellsworth & Spear*, for Anders. *Munday & Evarts* and *M. S. Hopkins*, for Warner.]

DOOLITTLE, *Acting Commissioner:*

The subject-matter at issue in this case, as defined by the Primary Examiner, and accepted by the parties, consists—

In printing-telegraphs having a step-by-step movement caused or controlled by an electro-magnetic escapement controlled by currents alternating in polarity, the combination of a type-wheel shaft, carrying a contact finger or arm, a series of finger-keys or circuit-breakers, and a segmental disk having a segment for and connected to each key and line and battery connection, substantially as described, so that the reversal of the current is automatically affected by the rotation of the finger or arm carried by the type-wheel shaft over the segmental disk.

The Examiner of Interferences awarded priority to Warner, and the Board to Anders. The findings of both of these tribunals have been substantially the same, with but one exception, the Board excusing Anders' delay in completing his invention, so that the only real matter of difference between them is that of diligence.

It appears that Warner had some conceptions of the present invention in May, 1873, and made some sketches about this time, which are introduced in evidence; in January, 1874, filed a caveat, and completed and operated the device on the 10th of March, 1874. This model was somewhat reconstructed; but it does not appear to have been changed in any material degree, and completed in the form filed with the application August 24, 1874.

Anders, on the other hand, conceived of the invention in 1868, and at some time prior to June 22, 1869, embodied his ideas in the form of a device, which is introduced as Exhibit C. This, he admits, was not a success, from which, together with the fact that his then associate in business constructed two others upon the same plan, but which would not operate, it is fair to presume that he abandoned the same as a fruitless unsuccessful attempt to complete and adapt to use his ideas. Although this Exhibit cannot be regarded as a reduction to practice of the invention, still it is evidence of conception.

In the latter part of 1873, or early in 1874, he again took up the matter, and reproduced his former ideas in a somewhat changed or modified form. This was accomplished by the making of an instrument on the 16th of March, 1874, and practically testing the same on the 31st of the same month.

Upon this state of facts it is necessary to determine whether Anders was diligent in reducing his invention to practice; otherwise Warner, though second to conceive of the same, being the first to actually perfect it, is entitled to the judgment of priority, under the rule of law that he who first reduces an invention to practice is entitled to a patent, unless another, who is first to conceive, was at the time using reasonable diligence in perfecting and adapting his invention.

A careful reading of the testimony fails to disclose any reasonable ground for excusing the delay of nearly five years, which occurred in this case. It is not sufficient that the applicant was engaged in perfecting other inventions, unless it appear that it were impossible for him to devote at least part of his time to the development of the invention in dispute. But it does not appear that any endeavors were made, until after Warner had entered the field, to overcome or develop the defects found in the instrument, (Exhibit C,) which, it would seem, were indifferently known or understood by Anders himself. During the interval he obtained several patents, and, it is fair to presume, was in a situation to develop the present invention if he had been so inclined. His delay was at his own risk. Up to the time that Warner had completed his invention Anders' invention rested as an experiment.

Under the circumstances I am convinced that Anders was not using that due diligence which the law requires of one who was first to conceive, and is contending against another who has completed the invention.

The decision of the Board is reversed.

LEWIS CUTTING.—*Appeal.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the application of Lewis Cutting, filed June* 25, 1875, *for an* "IMPROVEMENT IN CAN-OPENERS."—*Decided January* 15, 1877.]

The substitution in a can-opener of one form of cutting-edge for another, without thereby producing a new combination or result as proof of invention, is not patentable.

[*C. W. M. Smith* and *Geo. W. Dyer & Co.*, attorneys.]

DOOLITTLE, *Acting Commissioner:*

Applicant's invention consists in an implement for opening cans composed of a cast-iron handle having two laterally-projecting shoulders forming a fulcrum, all cast upon what the applicant terms a "sickle-shaped" blade, said blade having one side beveled and the other straight.

His claim is—

As a new article of manufacture, a can-opener composed of a cast-iron handle with bolsters, and a steel sickle-shaped blade, all cast together, the sickle-shaped blade being beveled wholly on the right-hand side of its curved edge, as described and shown.

The purpose of this beveling on one side only is said to be to enable it to cut a smooth circle around the top of the can. None of the parts, separately considered, are claimed to be new, *per se*.

In the patent to John Willard, August 21, 1866, is described an instrument similar to Cutting's, with two exceptions: the handle and blade are made in one piece, and the latter is beveled on both edges, instead of one only.

In the patent to G. C. Humphries, November 19, 1868, is shown a can-opener, the blade of which is beveled on one edge only.

It is admitted on the part of the applicant, and shown in the references, that there is no novelty in attaching a blade to a handle by casting one upon the other. All that it appears applicant has done is to substitute one old form of cutting-edge for another without thereby producing a new combination or result as proof of invention, and, as in the case of *Stimpson* vs. *Woodman*, (10 Wall., 117,) "the change with the existing knowledge of the art involves simply mechanical skill, which is not patentable."

The decision of the Board is accordingly affirmed.

A. JUNKER AND F. W. WOLF.—*Interlocutory Appeal.*

[*Appeal from the decision of the Primary Examiner in the matter of the application of Anton Junker and Frederick W. Wolf, filed November* 9, 1876, *for* "IMPROVEMENT IN APPARATUS FOR DRYING DISTILLERY-SLOPS."—*Decided January* 16, 1877.]

The mere fact that an article can be made upon an improved machine capable of general use, and not specially adapted for the production of this particular article, is not sufficient to establish such unity of invention as to warrant their being included in the same application.

[*A. A. Evans & Co.*, attorneys.]

DOOLITTLE, *Acting Commissioner:*

This is an appeal from the action of the Primary Examiner requiring a division of the application. The alleged inventions consist of an apparatus for drying distillery-slops, &c., and the material produced as an article. It is evident from an inspection of the device that it is capable of being used for drying various materials, and is not specially adapted for producing the article named; at least there is nothing in the specification to indicate that it is, and, from its similarity to other machines of the same general construction, the contrary is presumed. In other words, the article is not necessarily the result or product of the action of the machine. The two inventions are entirely dissimilar, the one being an improvement in drying-machines, and the other an improved article, which may be made in numerous ways.

The case is clearly distingnishable from that of a die and its product, for in such case the one is necessarily produced by the other, and follows as the result of its operation. Where an improvement has been effected in one of a class of machines adapted for general use it cannot be included in the same application with an article simply because it may be made by the use of such devices. For instance, a person making an improvement in planing-machines or steam-hammers would not be entitled to come in with an application describing and claiming all articles that might be fashioned or made therewith. No unity of invention exists in such a case. Each thought is independent. The machine is merely the agent employed in constructing or giving shape to the article. The machine might be patentable, and the article not, and vice versa The classification of the Office recognizes a difference in this matter, which is another consideration why a division should be insisted upon.

The decision of the Examiner is affirmed.

DECISIONS OF THE COURTS.

SUPREME COURT OF THE UNITED STATES.

JOSEPH DALTON, PLAINTIFF IN ERROR *vs.* ABRAHAM G. JENNINGS.

[*In error to the Circuit Court of the United States for the Southern District of New York.—Decided October term*, 1876.]

The patent of John Dalton for "a head or hair net composed of a main set of meshes fabricated of coarse thread, combined with an auxiliary set or sets of meshes fabricated of fine thread," is void, because there is no invention in it, and because various fabrics had been made and were in public use for a long time before his application, which are precisely and accurately described by Dalton in the specification and claim of his patent.

[*J. Van Santvoord*, for complainant.
A. V. Briesen, for defendant.]

Mr. Justice MILLER delivered the opinion of the court.

On the 5th day of March, 1872, there was issued to the plaintiff and appellant, John Dalton, a patent for a new and useful improvement in ladies' hair-nets, in which he claims as new "a head or hair net composed of a main set of meshes fabricated of coarse thread combined with an auxiliary set or sets of meshes fabricated of fine thread, substantially as described." In his specification he says that the nets in use before his invention were composed of coarse threads so far apart that the meshes or interstices were too large and permitted the hair to protrude through them, and that his invention consists in combining with these coarse threads and larger spaces a finer thread crossing these spaces as often as is necessary to confine the hair, which thread, from its fineness, is mainly invisible. He gives directions for the use of this finer thread in making the meshes, in which there is nothing he claims to be new. His claim is not for the process of making the net, but for the new product made in the manner prescribed.

The defendant relies on want of novelty, produces some fifteen or sixteen specimens of fabrics and designs which he alleges to be anticipations of plaintiff's production, and refers to as many persons who were making or selling fabrics which are identical with that patented by plaintiff.

If the netting patented by plaintiff had been produced by him for the first time, it would be difficult to find in it or in the process by which it is made anything deserving the name of invention within the meaning of the patent law. If the spaces between the threads of the netting were too large, thereby permitting the escape of the hair, there is nothing new in the idea that making them smaller would remedy the evil. If the size of the threads then in use was too large for beauty, neither discovery nor invention were necessary to reduce it. There is nothing new in the number of these threads, in their size, nor in the manner in which they are crossed and connected. Where, then, is the invention? Is it in the fact that some of the threads are coarser and some of finer size? This can hardly be invention, since gauze and netting have been made with threads or cords of unequal size time out of mind, and with varying and equal or unequal spaces between them.

Turning from this view of the subject, the evidence and the exhibits produced by defendant show a number of fabrics long in use, in which the meshes are made by larger cords or threads crossing each other at various angles, with smaller threads filling up the space and making the interstices smaller.

Defendant's exhibit No. 16 is a piece of lace with spaces separated and bounded by a larger thread or cord, which are subdivided into much smaller spaces by a smaller thread, that is proved to be fifteen years old, and may have been fifty.

Exhibit No. 12 is a tidy with very large cords like floss with spaces between each, and across these spaces diagonally are four threads dividing that space into four smaller ones. It is proved that from this Mr. Dalton tried to get a workman to get up a pattern for his hair-nets.

Exhibit No. 11 is a mosquito-bar long in use, with large cords crossing each other about an inch or more apart, and smaller threads crossing this space each way, so as to make the interstices too small for the mosquito to get through, just as Mr. Dalton's net prevents the hair from escaping. It is the same device to remedy the same defect, only one is for mosquitoes and the other for hair.

Exhibit 6 is a hair-net consisting of larger cords crossing each other at equal distances, with finer threads passing over or around them, and filling up the space so as to reduce the size of the interstices. This was used and sold openly in New York in 1871.

Exhibit No. 2 is a hair-net made twenty years ago, in which the larger cords are knotted together at their

crossing at regular intervals, and smaller threads between, so as to make the meshes smaller. We can see in this case no difference between this and exhibit of plaintiff, unless it be in the shape of the spaces large and small, and the manner in which the threads are connected. Neither of these is claimed by plaintiff as any part of his invention or as new, for, he says, this is a matter well known to lace-makers.

In the lace, in the mosquito-bar, in the tidy, the fabric presents in each case the precise arrangement described in the plaintiff's patent. These have long been in use and are well known.

In exhibits two and six we have the same fabric as plaintiff's applied to the same use. It is impossible to call the hair-net or netting for which plaintiff claims a patent, a new invention, or any invention of his, and the decree of the circuit court dismissing his bill is affirmed.

U. S. CIRCUIT COURT—DISTRICT OF MASSACHUSETTS.

SILAS E. JACKSON *et al. vs.* CHARLES H. B. BRECK *et al.*

[*In equity.—Before* SHEPLEY, *J.—Decided November* 29, 1876.]

DECREE.

SHEPLEY, *J.:*

This cause came on to be heard at the October term of this court, A. D. 1875, upon the pleadings and proofs, and was argued by counsel for the respective parties, and was continued under advisement from term to term to this present term, and now, upon consideration thereof, to wit, November 29, 1876, it is ordered, adjudged, and decreed as follows, viz., that the letters patent referred to in the complainants' bill, being reissued Letters Patent of the United States, No. 3,460, granted unto Silas E. and Morgan P. Jackson, May 25, 1869, for "Improvement in Mowing-Machines," and extended seven years from December 29, 1871, is a good and valid patent; and that the said Silas E. and Morgan P. Jackson were the original and first inventors of the improvement described and claimed therein; and that the said defendants have infringed the second and fourth claims of the said patent, and upon the exclusive rights of the complainants under the same.

And it is further ordered, adjudged, and decreed that the complainants recover of the defendants the profits which they have received or made, or which have accrued to them from said infringement by the manufacture, use, or sale of the improvement described, and secured by said letters patent, at any and all times since May 25, 1869, and also, in addition thereto, the damages which the complainants have sustained thereby.

And it is further ordered, adjudged, and decreed that it be referred to John G. Stetson, a master of this court, to take and report to the court an account of the profits which the said defendants have received, or which have arisen or accrued to them from the manufacture, use, or sale of said improvement, or from said infringement, and to ascertain and report the damages which the complainants have sustained thereby since the said 25th day of May, 1869.

And it is further ordered, adjudged, and decreed that a perpetual injunction be issued against the defendants according to the prayer of the bill.

And it is further ordered, adjudged, and decreed that the complainants recover of the defendants their costs of suit.

[Two suits brought in the Rhode Island district by same complainant, one against Sprague Mowing Machine Co. *et al.*, the other against William E. Barrett *et al.*, were decided in the same way as the above case.]

U. S. CIRCUIT COURT—SOUTHERN DISTRICT OF NEW YORK.

JACOB E. BUERK *vs.* WM. IMHAUESER, *et al.*

[*Before* JOHNSON, *Cir. J.—Decided November* 11, 1876.]

The sale of articles made under the sanction of a patent not considered at the trial of the case, cannot be regarded as covered by a decree in such suit, unless a strong and obvious case of infringement beyond all question or mere colorable difference is made out.

Patented articles are presumed to be patentably different from those covered by other patents.

It does not constitute a new infringement to sell part of a patented device necessary to its operation, but not covered by the patent, when they have already been charged in the accountings for the sale of the patented portion.

[*J. Van Santvoord*, for plaintiff.
A. V. Briesen, for defendants.]

JOHNSON, *Cir. J.:*

The watchman's time-detecter bought by Gould in May, 1875, from Imhaneser & Co., was not the same kind of instrument which was adjudged in this suit to be an infringement of the plaintiff's patent. It was made under the sanction of letters patent of the United States dated October 20, 1874, and numbered 156,098. It must be presumed to be patentably different from the detecters covered by other patents, and a strong and obvious case of infringement beyond all question, or mere colorable difference would be necessary to make it proper for the court to consider the instruments as covered by a decree in another suit, in which its structure had not been in issue nor the subject of examination. *Liddle* vs. *Cory*, (7 Blatchf., 1.) The motion cannot be granted, so far as that branch of it is concerned.

In regard to the six detecters sent to the Milwaukee Railroad, there was undoubtedly a technical breach of the injunction, but the defendant, Imhaneser, as soon as he was advised by his counsel took steps to have them returned.

This was before his examination under the decree, and, of course, before any proceeding by the plaintiff, who was ignorant of the fact until it was disclosed on Imhaneser's examination.

These watches are reported by the master as among those on hand at the time of the accounting, and it appears that they have been actually returned, and the sale rescinded.

The defendant will be sufficiently punished by the infliction of a fine of fifty dollars to cover the costs and expenses incurred by the plaintiff in his proceedings for the contempt.

In regard to the paper dial which the defendants appear to have furnished for the detecters which they had sold before the accounting, and for which clocks they are charged in the accountings, I think no new infringement has taken place.

The dials are not patented, any one can print and sell them, and the sale of them can only be injurious to the rights of the plaintiff, as making out, coupled with the sale of the rest of the instruments, an act of infringement.

It was in this view that *Wallace* vs. *Holmes*, (9 Blatchf., 66,) was decided, in which it was held that a patent for a combination could not be evaded by different persons selling each a different part of the combination with the view of their being used together by the purchaser.

In this case the whole sale of detecters and dial made one infringement, not two, and for this the defendant is charged in the accounting.

These charges of contempt are all that are relied on in the plaintiff's brief, and nothing is made out except as to the six detecters sent to the Milwaukee Railroad.

The motion in that regard must be granted, unless the defendant pays to the plaintiff's solicitors the fine above mentioned; but upon the payment of that fine within ten days from notice of this order, the order for attachment is discharged.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date January 23, 1877.]

9,712 and **9,713.—Corset.**—MAX ADLER, New Haven, Conn., assignor to JACOB STROUSE & CO., same place. Applications filed December 20, 1876. Term of patents 7 years.

9,714.—Stoves.—WALTER A. KING, Dayton, Ohio, assignor to GREER & KING, same place. Application filed December 26, 1876. Term of patent 7 years.

9,715.—Stove.—WATSON SANFORD, Brooklyn, and GEORGE D. SANFORD, Peekskill, N. Y. Application filed October 14, 1876. Term of patent 7 years.

9,716.—Skirt-Protector.—ROBERT WERNER, Hoboken, N. J. Application filed January 13, 1877. Term of patent 3½ years.

9,717.—Cake of Soap.—THOMAS WORSLEY, Philadelphia, Pa. Application filed January 10, 1877. Term of patent 3½ years.

9,718.—Inkstands.—ELIJAH G. CATE, Bridgeport, Ohio, assignor to LA BELLE GLASS COMPANY, same place. Application filed November 11, 1876. Term of patent 7 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date January 25, 1877.]

4,287.—Canned Apples.—ERIE PRESERVING COMPANY, Brant, N. Y. Application filed October 11, 1876.

"The words 'YORK STATE,' accompanied by a circular landscape, as shown."

4,288.—Cod-Liver Oil.—HYLAND & CHARLES ROTTON, New Dorp and Brooklyn, N. Y. Application filed November 22, 1876.

"The arbitrary word 'Vitalized.'"

4,289.—Lamp-Burners.—F. H. LOVELL & CO., New York, N. Y. Application filed November 4, 1876.

"The word-symbol 'DRUMMOND.'"

4,290.—Cigars, Cigarettes, Tobacco, and Snuff.—PINCUS POHALSKI, New York, N. Y. Application filed December 20, 1876.

"The fanciful words 'MONTE CRISTO.'"

4,291.—Cigars and Tobacco.—STRAITON & STORM, New York, N. Y. Application filed January 6, 1877.

"The word-symbol 'OLD DIMES.'"

4,292.—Smoking-Tobacco.—HENRY WILKENS & CO., Baltimore, Md. Application filed November 13, 1876.

"The words 'Erin go bragh' in a ribbon or scroll below the figure of a harp placed over a shamrock."

4,293.—Toilet-Soap.—BENJAMIN T. BABBITT, New York, N. Y. Application filed December 8, 1876.

"A representation of the interior of a nursery, in the left-hand portion of which is seated a woman with a child in her lap, in the right-hand portion of which is another child seated in a bath, and in the center of which is a stool, having upon it a cake of soap."

4,294.—Bitters.—GEORGE CLARK, New York, N. Y. Application filed November 18, 1876.

"The fanciful and arbitrary word 'FLORIDA.'"

4,295.—Fertilizers.—GUSTAV DAMEMANN, Baltimore, Md. Application filed January 4, 1877.

"The word-symbol 'Arlington,' and the device of the two triangles with the letters 'G. D.' in the center thereof."

4,296.—Plug-Tobacco.—JOSEPH G. DILL, Richmond, Va. Application filed December 13, 1876.

"The peculiar-shaped label shown in the accompanying drawings, having the word 'Maddux' upon the same."

4,297.—Compressed Yeast, and Bread and Cake.—MAXIMILIAN FLEISCHMANN, Green Point, N. Y. Application filed November 25, 1876.

"The fanciful word 'VIENNA.'"

4,298.—Leaf-Tobacco.—WILLIAM R. FORTIER, Brooklyn, N. Y. Application filed January 5, 1877.

"The word-symbol 'LUIS-LAZO.'"

4,299.—Lamp-Chimneys.—F. H. LOVELL & CO, New York, N. Y. Application filed November 4, 1876.

"The word-symbol 'DRUMMOND.'"

4,300.—Canned Oysters.—MOORE & BRADY, Baltimore, Md. Application filed December 26, 1876.

"The fanciful words 'DEEP SEA.'"

4,301.—Medicines.—JAMES R. NELSON, Well's River, Vt. Application filed November 11, 1876.

"A figure representing Æsculapius standing upon a pedestal, upon the base of which is seen the word 'Æsculapius.'"

4,302.—Gunpowder.—ORIENTAL POWDER MILLS, Boston, Mass. Application filed December 30, 1876.

"The word-symbol 'FALCON.'"

4,303.—Gunpowder.—ORIENTAL POWDER MILLS, Boston, Mass. Application filed December 30, 1876.

"The word-symbol 'WESTERN.'"

4,304.—Plows.—J. LANE REED & CO., Dayton, Ohio. Application filed January 2, 1877.

"The word-symbol 'MONARCH.'"

4,305.—Plated Ware.—REED & BARTON, Taunton, Mass. Application filed January 6, 1877.

"A symbol consisting of a globe, in the rear of which is arranged a 'Caduceus' or Mercury's wand.

4,306.—Medical Compound.—JOSEPH ROBERTS, Baltimore, Md. Application filed January 17, 1877.

"The word 'Robert's' and the pictorial representation of the head of an ox or a bull."

4,307.—Toilet-Soap and other Toilet Articles.—STEELE & PRICE, Chicago, Ill., Cincinnati, Ohio, and St. Louis, Mo. Application filed December 16, 1876.

"The word-symbol 'Alista.'"

4,308.—Yeast and Yeast-Powder.—STEELE & PRICE, Chicago, Ill., Cincinnati, Ohio, and St. Louis, Mo. Application filed January 5, 1877.

"The word-symbol 'LUPULIN.'"

4,309.—Cutlery.—FREDERICK WIEBUSCH, New York, N. Y. Application filed December 30, 1876.

"The word-symbol 'CHALLENGE.'"

LABELS REGISTERED DURING THE WEEK.

954.—Title: **"Babcock's Best Wearing Body Varnish."**—JOHN BABCOCK & CO., Boston, Mass. Application filed January 17, 1877.

955.—Title: **"Boston Yeast Powder."**—K. and S. A. FREEMAN, Boston, Mass. Application filed January 16, 1877.

956.—Title: **"The Brightest and Best Stove Polish."**—CHARLES HUMPHREVILLE and ALEXANDER C. KILLHEFFER, Lancaster, Pa. Application filed October 17, 1876.

957.—Title: **"Milwaukee Cement."**—MILWAUKEE CEMENT COMPANY, Milwaukee, Wis. Application filed January 13, 1877.

958.—Title: **"Dress Stays."**—RENFREW MANUFACTURING COMPANY, South Adams, Mass. Application filed January 13, 1877.

959.—Title: "**Model Varnish Brushes.**"—JOHN S. WHITE, Portland, Me. Application filed January 16, 1877.

960.—Title: "**Wedge Paint Brushes.**"—JOHN S. WHITE, Portland, Me. Application filed January 16, 1877.

961.—Title: "**Brined.**"—ALBERT C. PETTINGELL, Salem, Mass. Application filed January 15, 1877.

DISCLAIMER FILED.

1,606.—Improved Bottle-Stopper Fastening.—HENRY W. PUTNAM, New York, N. Y., formerly of Cleveland, Ohio. Patented March 15, 1859. Reissued January 19, 1864. Extended seven years from March 15, 1873. Disclaimer filed January 19, 1877. Disclaims the 2d, 3d, and 4th claims, which are in the following words, to wit:

2. I claim a wire-fastener, for a cork or stopper, in which the ends of the wire are bent nearly at right angles, to form the joint or hinge on which the fastener is turned, substantially as specified.

3. I claim forming the eyes for the reception of the fastener by means of a wire bent as set forth.

4. I claim a wire-fastener, for the stoppers of bottles, fitted so that it can be pressed aside from over the stopper, as set forth, in combination with a band or fastening, attaching the same to the neck of the bottle, as specified.

INDEX OF INVENTIONS PATENTED JANUARY 23, 1877.

	Class No.	No. of Patent.
Alarm and registering punch, W. H. Barr	42	186,523
Aniline dyes, preparing, L. Leigh	11	186,485
Animal trap, T. Belknap	143	186,448
Animal trap, A. Reed	143	186,624
Axle for sulky and gang plows, B. C. Bradley	114	186,409
Bale tie, B. Hempstead	7	186,560
Bale tie, W. B. Hayden, (reissue)	7	7,471
Bale tie, I. A. Kilmer	7	186,579
Bather's appliance, Hackett and Coats	143	186,422
Bee hive, J. A. Barker	9	186,525
Bee hive, A. G. Hill	9	186,562
Blow gun and arrow, L. C. White	143	186,651
Bolster and step for spinning machines, W. S. Lucomb	142	186,486
Bolting reel, M. Buck	57	186,537
Boom and sail attachment, F. Norwood	138	186,603
Boot and gaiter strap, S. Hodgins	16	186,563
Bottle protector, W. C. Stokes	169	186,635
Bottle stopper, J. M. Hoyt	1	186,476
Broadcast sower, Buist and Alden	133	186,410
Building block, M. Nolan	4	186,604
Bureau bedstead, C. H. Smith	62	186,632
Burial case, J. Askins	39	186,516
Button gaiter boot, J. A. Batchelder	16	186,526
Calendar, F. Ratcliff	146	186,622
Caloric engine, F. Brown	2	186,535
Car coupling, A. Allen	122	186,514
Car coupling, G. W. Hudson	122	186,568
Car coupling, W. W. McCollum	122	186,591
Car wheels, manufacture of, J. K. Sax	122	186,500
Carpet beater and sweeper, combined, C. Esasser	62	186,550
Carpet sweeper, E. K. Breckenridge	62	186,456
Carriage, J. W. Post	31	186,615
Carriage clip, G. F. Smith	31	186,502
Carriage top, support for, A. Goodyear	31	186,555
Cartridge, H. Buffington	32	186,460
Cartridge capping and uncapping implement, G. L. Bailey	55	186,406
Caster, J. L. Bond	88	186,534
Casting valve seats, apparatus for, J. Berry	33	186,449
Churn, W. F. Gray	45	186,420
Churn, J. W. Smith	45	186,501
Churn, J. Tull	45	186,641
Cider and wine press, B. B. Bollinger	19	186,452
Cigar, J. Schalscha	160	186,628
Cloth cutting machine, A. Warth	37	186,643
Clothes drier, A. A. Peterson	91	186,612
Clothes line reel, J. H. Le Row	91	186,586
Clothes pounder, E. R. Hampton	91	186,474
Coal scuttle, C. S. Irwin	154	186,481
Copy holder, F. H. Joyner	117	186,480
Corn harvester, C. D. Reed	75	186,497
Corn harvester, A. Wilson	75	186,653
Cotton press, J. T. Burr	7	186,538
Cotton stalk cutter, Johnston, Cairns, and Johnston	73	186,479
Countersink, D. J. Adams	100	186,513
Cultivator, E. H. and S. D. Perkins	43	186 611
Cultivator and cotton chopper, J. N. Gardner	43	186,571
Curry comb, U. G. White	144	186 652
Damper, automatic, M. W. Baily	154	186 518
Dental engines, angle attachment for, E. T. Starr	46	186 504
Dental plates, stamping, C. F. Barnard	46	186,522
Dental plugger, C. King	146	186,580
Derrick, portable, B. Jackson	79	186,574
Die for forging hammers, D. Maydole	60	186,590
Door bell, J. P. Connell	24	186,416
Draft equalizer, G. W. Harrington	31	186,557
Draftsman's compasses, J. B. Fricke	97	186,419
Drill jar, F. E. Quinn	124	186,617
Dumping scow, Bird and Boggs	13	186,530
Dyeing silks, process for, J. Rau	11	186 620
Earth closet, L. Altemus	8	186,446
Eaves trough, J. F. Biegelaar	126	186,529
Electric motor, D. Ward	50	186,642
Electric railroad signal, J. D. Hughson	120	186,572
Electric thermostat, E. J. Frost	101	186,553
Electric train signal, L. L. Ferris	120	186,467
Electro magnetic telegraph apparatus, R. K. Boyle	50	186 453
Elevator for buildings, M. Bragaldi	79	186,455
Evaporating apparatus, D. Watson	155	186,645
Evaporator, open pan juice, D. Watson	155	186 646
Eyeglass, F. P. Iannarone	157	186,573
Fan, automatic, S. F. Gray, administrator of J. M. Gray, deceased	165	186,473
Feathering paddle wheel, W. C. Thompson	139	186 639
Fence, O. Cleaveland	52	186,543
Fence, O. H. Smith	52	186 631
Fire alarm telegraph bell striker, W. Donaldson	50	186,545
Fire kindler, J. McFarland	154	186,593
Fire shield, W. T. Vose	30	186,444
Flooring, O. S. Dickinson	30	186 463
Folding bier, W. White	39	186,650
Force pump, H. T. Drain	118	186,464
Force pump, C. H. McKeehan	118	186 594
Fruit jar, J. T. Schaffer	58	186,629
Gas burner, B. Donohue, (reissue)	64	7,470
Gas stove, W. M. Jackson, (reissue)	65	7,474
Gate, automatic, E. J. Coler	52	186,415
Grain and seed separator, A. W. and C. T. Kendrick	159	186 578
Grain drill, J. C. Baker	133	186,407
Grain elevator, J. L. McLaughlin	79	186 596
Grain register, L. Poole	42	186 614
Grate bar for furnaces, L. P. Rider	149	186,436
Grinding mill, A. W. Straub	57	186 440
Hame and trimming, G. F. Eberhard	72	186,547
Hammers, manufacture of, D. Maydole	60	186 588
Hand rest, J. Ridge	146	186 625
Hanger for garments, L. Hellmann	38	186 559
Harness buckle, M. Huerta	21	186 569
Harness saddle tree, W. H. Bustin	72	186 461
Harrow and land roller combined, W. M. Stehley	74	186 506
Harvester rake, O. Cooley	74	186,413
Hat holder, P. H. Miner	62	186,488
Hat rack and seat, combined, C. Whittaker	62	186 648
Head rest, W. L. Mintz	62	186,487
Hook eyes, manufacture of J. Robson	60	186 437
Horse collar, A. Rutherford	72	186,627
Horse hay fork, H. Figher	77	186,468
Horse hay fork, J. Orr	77	186,607
Horses, hampering device for, W. H. Means	72	186,597
Horseshoe, Cornish and Hunt	60	186,544
Horseshoe, T. Thistlewood, (reissue)	60	7,476
Ice cream freezer, J. F. Rote	58	186 438
Ice houses, method of preserving ice in, T. Krausch	58	186,581
Ice machine, R. H. Lucas	83	186,589
Index for books, Snider and Wolf	15	186,633
Ingots while casting, process for compressing, W. R. Jones	33	186 576
Injector, W. Randall	118	186,619
Jug, &c., T. C. Hargrave	1	186,557
Keys, machine for making machinery, A. Shogren	93	186,439
Knob latch, reversible, Griscom and Grossman	93	186,566
Lamp black, process and apparatus for making, J. Rogers	107	186,498
Lamp chimney cleaner, C. P. Palmer	90	186,609
Lamp flame extinguisher, C. T. Colby	90	186,414
Lantern, J. Hughes, (reissue)	90	7 472
Leech, artificial, F. F. McDonald	156	186,592
Letter box, E. T. Marsh	146	186 429
Lightning rod connecting clip, A. Snook	50	186,503
Lips and strainers, mode of attaching, F. G. and W. F. Niedringhaus	136	186 433
Lock for pianos, &c., A. S Blake	93	186,450
Locomotive exhaust apparatus, E. Longstreth	94	186,587
Locomotive exhaust pipe, J. C. Farmer	94	186 417
Lubricating compound, C. Toppan	87	186,640
Malt crushers, attachment to, C. Stoll	59	186 636
Mariner's compass, W. Thomson	50	186 638
Meat cutter, C. B. Andrews	15	186 515
Meat, process of preparing extract of, H. Naumann	58	186,605
Milk cooler, Kinyon and Brown	45	186 422
Millstone dressing tool, M. L. Mowrer	57	186,491
Mosquito net frame, Lathrop and Salvaterre	62	186 583
Moth trap, R. McIntirff	9	186,430
Neck yoke, metal, W. H. Johnson	144	186,425
Nut lock, W. C. Gould	14	186,421
Ore for roasting, process of preparing telluride, Z. A. Willard	3	186,655
Ores, process and apparatus for treating, Z. A. Willard	99	186,654
Paneled chair seat, J. M. Waters	62	186,644
Paper box, J. P. Buckingham	109	186,459
Paper collar, Averill and Ginn	109	186,517
Pessary, C. N. Fowler	156	186,469

	Class No.	No. of Patent.
Piano fortes, device for stringing and tuning, G. Morgan	112	186,490
Pipe tongs, S. N. Jessop	100	186 575
Pipes, joining, J. F. Parsons	167	186 435
Plow, T. M. Moore	114	186 601
Plug tobacco machine, T. W. Prather	169	186,496
Pocket book lock, F. F. Weiss	146	186,510
Pottery ware in kilns, thimble pin for supporting, E. Leak	115	186,585
Poultice, H. E. Canty	156	186,540
Power hammer, T. Shaw, (reissue)	60	7,475
Pump, deep well, W. S. Blunt	118	186 408
Pumping engine, Carr and Arthur	118	186,539
Quicksilver furnace, S. Charles	99	186,542
Railroad joint, S. Forman	120	186 552
Railroad rail joint, S. Ray	120	186 623
Railroad signal, A. M. Bodley	120	186,531
Railroad switch, D. Rousseau	120	186 626
Railroad ticket, B. C. Pole	146	186,613
Railway car heater, J. O. Osborne	154	186,495
Reciprocating churn, N. J. Miller	45	186,599
Reed organ stop action, W. D. Parker	106	186,610
Refrigerator, W. P. Whitson	58	186 649
Registering device for bottles, E. Zahringer	42	186,512
Revolving chair, C. C. Clay	62	186 462
Revolving cultivator, G. Stevenson	43	186 634
Revolving fire arm, H. L. Gardner	123	186 470
Revolving fire arm, D. B. Wesson	123	186 509
Revolving fire arm, S. W. Wood	123	186,445
Rock drill, S. Ingersoll, (reissue)	124	7,473
Rolling hoop iron, machine for, F. Hickman	125	186 561
Running gear for wagons, M. D. Bennett	30	186 528
Sash balance, Eichenlaub and Gabriel	24	186 549
Sawing steel railroad rails, machine for, C. R. Jacoby	130	186 423
Saws, guide for circular, C. I. Chaffee	130	186,541
Scaffolding, A. Blondin	30	186,451
Scaffolding, B. J. Potts	30	186,616
Scoop, E. A. Barnes	141	186,520
Scoop, E. A. Barnes	141	186,521
Screw driver and band for fire arms, combined, B. B. Hotchkiss	55	186,566
Screw machine, metal, N. C Hubbell	14	186 477
Seat, reversible, L. T. Stanley	62	186,505
Seine boats, lookout pole for, O. Jones	13	186 424
Sewing machine, C. R. True	134	186 441
Sewing machine shuttle, D. W. Brown	134	186,536
Sewing straw braid, machine for, J. O'Neil	134	186,434
Shaft coupling, J. H. Beiser	87	186 527
Shoe case, H. Houghton	54	186,567
Signaling by means of reflected light, apparatus for, H. C. Mance	158	186 427
Skelping die, H. C. Evans	125	186 551
Slate, C. F. Rapp	146	186 624
Slate, reversible hinge, Van Kannel and Rapp	146	186 443
Sled tongue, J. P. Lawson	31	186 484
Snap hook, A. B. Tanner	23	186 637
Sofa bedstead, W. Ott	62	186 608
Spike puller, J. Douglass	29	186,546
Spouts and strainers, mode of attaching, F. G. and W. F. Niedringhaus	136	186 432
Spring whittletree, A. Asaman	31	186 405
Squirt can, J. W. Talmadge	87	186,442
Steam, apparatus for superheating, C. J. Eames	148	186,465
Steam boilers, circulating device for, W. Ord	148	186,493
Steam generator, A. Winton	148	186,511
Steam pump valve gear, B. S. Lawson	118	186 584
Stench trap, T. Boldemann	8	186 532
Stone compound, artificial, C. Weiland	153	186 647
Stoneware jar, D. S. Chesebro	88	186,412
Stool, spring supported, W. C. Huffman	62	186,570
Stove board, J. S. Brooks	154	186 458
Stove platform C. E. L. Holmes	154	186 475
Tape loom, R. Mueller	95	186,602
Tea steeping device, Woodward and Jeffords	136	186 656
Telegraphic alarm and signal apparatus, T. A. Edison	50	186 548
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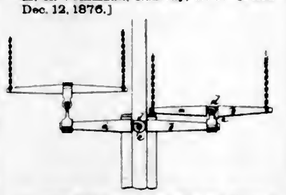
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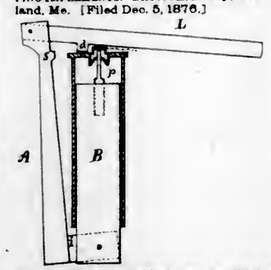
PATENTS GRANTED JANUARY 23, 1877.

186,405. SPRING-WHIFFLETREES. Albert Assman, Linden, assignor to himself and M. H. Volkmann, Rahway, N. J. [Filed Dec. 12, 1876.]



A whiffletree composed of the end pieces *a* *b* and middle piece *c*, the piece *c* being a spring by which the two end pieces *a* and *b* are connected, substantially as herein shown and described.

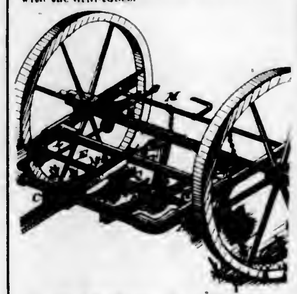
186,406. CARTRIDGE CAPPING AND UNCAPPING IMPLEMENTS. Gilbert L. Bailey, Portland, Me. [Filed Dec. 5, 1876.]



Cylinder B, with its pin *p*, post A, with its shoulder S and lever L, combined and operating as and for the purpose herein set forth.

186,407. GRAIN-DRILLS. J. C. Baker, Mechanicsburg, Ohio. [Filed Nov. 8, 1876.]

Brief.—The spring presser bars, for holding the drills depressed, are, by means of pitman and connecting-rod, elevated simultaneously with the drill-tubes.



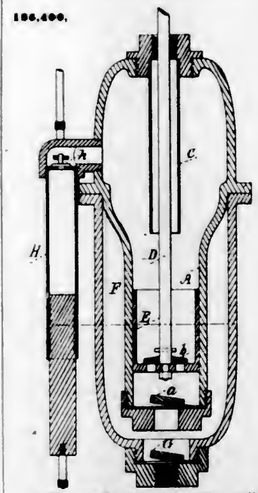
1. The combination, with the main frame of a grain drill, pivoted so as to be adjustable in a vertical plane, of spring pressed hoes, the latter operated by the rear bell crank lever, intermediate connecting-link, and rear presser-bar, substantially as described.

2. In a grain drill, the combination of drag-bars C and spring-bar E, provided with springs H and arm G, with the pitman L, bell crank lever K, and lifting bar M, substantially as and for the purpose described.

186,408. DEEP-WELL PUMPS. William S. Blunt, Bay Ridge, N. Y., assignor to Kate S. Blunt, same place. [Filed Feb. 19, 1876.]

Brief.—The vacuum-chamber is provided with a check-valve and a suction cylinder, to which is combined an air-pump, to insure the full efficiency of the air-chamber.

186,409.

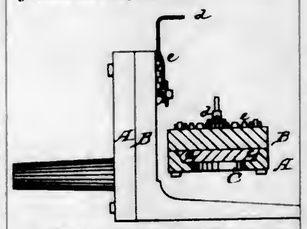


1. The combination of a suction-cylinder, A, pipe C, piston-rod D, piston E, puppet-valve *b*, surrounded by a vacuum-chamber, F, provided with a valve, G, constructed and operating substantially as and for the purposes set forth.

2. The suction-cylinder A, pipe C, piston-rod D, piston E, and puppet-valve *b*, surrounded by a vacuum-chamber, F, provided with a valve, G, in combination with an air-pump, H, provided with a valve, *h*, constructed and operating substantially as and for the purposes set forth.

186,409. AXLES FOR SULKY AND GANG PLOWS. Byron C. Bradley, Chicago, Ill. [Filed Sept. 7, 1876.]

Brief.—The axle-bearings are moved up and down by a wrist-pin working in a horizontal groove in the axle-plate.



1. The grooved plate A and plate C, provided with a journal upon its outer side to receive a wheel, and with a groove or grooves upon its inner side to receive the pin *b*, in combination with the angle-plate B, substantially as and for the purpose specified.

2. The combination of the plates A B C with the groove *a*, pin *b*, crank *d*, and ratchet *c*, substantially as set forth.

186,410. BROADCAST-SOWERS. David Bulst and Charles H. Alden, Philadelphia, Pa. [Filed June 21, 1876.]

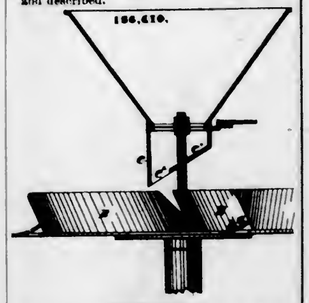
Brief.—The distributing-wheel is provided with curved ribs, braced by pieces "struck up." The nozzle of the distributing-hopper is adjustable, and has an inclined bottom.

1. The distributing-wheel composed of the disk A, having the lift C and sloping curved ribs B, substantially as shown and described.

2. The delivery-nozzle composed of the cylinder *a*, having inclined bottom *a'* and slot *a''*, substantially as shown and described.

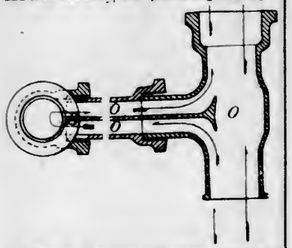
3. In combination with a distributing-wheel or scatterer of a sowing-machine, a rotary hopper-nozzle, adjustable, so as to bring its feed-opening across a line drawn transversely through the middle of said wheel, and thus cause the latter to scatter wholly on one side of the track of the machine, or more on one side than on the other, substantially as shown and described.

186,410.



186,411. LATERAL WATER-PIPES. William Lee Church, Havana, assignor to Ludlow Valve Manufacturing Company, Troy, N. Y. [Filed Apr. 20, 1876.]

Brief.—The septum or partition dividing the branch pipe of the hydrant causes the water to keep up a constant circulation to and from the main, thus preventing freezing.



1. The division-plate or septum O, applied to a lateral water-pipe, so as to divide in part its inclosed area in two circulating-chambers or connected spaces, with the division-plate or septum O extended into the current-force of the water-main to which the lateral is attached, and so as to divert and direct the current-force of the main in part into the lateral, substantially as shown and described.

2. In combination, and applied to the inside area of a water lateral pipe, the septum or partition O, the circulating-chambers *y* and *y''*, with the connecting-space B, arranged within the lateral and connected with a water-main, as and for the purposed described and shown.

3. The entry and delivery ports *x'* and *x''*, formed upon the end of the septum or partition which divides the area of a water lateral in two connecting chambers or spaces, and when the before named partition is intruded into the current-force of the main supply-pipe to which the lateral is attached, as and for the purposes described.

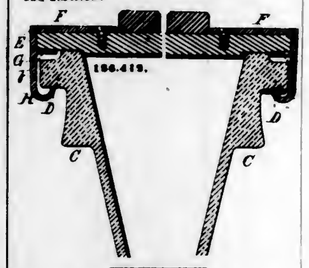
186,412. STONEWARE JARS. D. S. Chesebro, Geddes, N. Y. [Filed Aug. 9, 1876.]

1. A stoneware jar of a shape or outline of a truncated cone, having a shoulder, C, formed upon and around its outer surface, near its upper extremity, wedge-shaped lugs D formed upon its outer surface at its upper extremity, and a rim, K, upon the periphery of the bottom of the jar, substantially as shown and described, and for the purposes set forth.

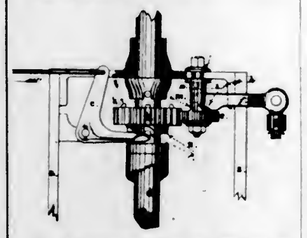
2. In combination with the cover B and jar A, angular metallic cover attachments E, having one arm, F, terminating at a point on the

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cover between the center of the cover and the periphery of the same, and the other arm, G, provided with a projection, *b*, and bent at its lower extremity into the hook H, which cover attachment is secured to the cover by having the arm G and projection *b* set into the edge and bottom of the cover, and a screw, I, passed through the arm F, substantially as shown and described



186,413. HARVESTER-RAKES. O. Cooley, Brockport, N. Y., assignor to Johnston Harvester Company, same place. [Filed Dec. 18, 1876.]



1. The combination, with the cam-gate of a harvester, the latch *f*, slotted stud J, and wheel *e e'*, or *e''*, having an incline or lifting-cam on its upper face, substantially as and for the purposes set forth.

2. In combination with the lifting-wheel *e*, the driving-wheel *b*, mounted loosely on the rake-shaft, and driven by a ratchet or clutch, substantially as described.

3. The forked lever *c*, in combination with the rake-shaft *d* and driving wheel *b*, clutch and gear *e*, operating the latch of a harvester-rake, substantially as described.

4. The stud J, adjustable toward and from the rock-shaft *d*, in combination with the driving gear-wheel *b*, and adapted to receive any one of the series of different sized driven wheels *e e' e''*, &c., for the purposes herein set forth.

5. In combination with the cam-gate of a harvester, held open by a spring, and the cam-plate to which it is applied, and rake-arms moving over it, a gate-latch and tripping mechanism, wholly under the control of the driver and independent of the rake-arms, substantially as described.

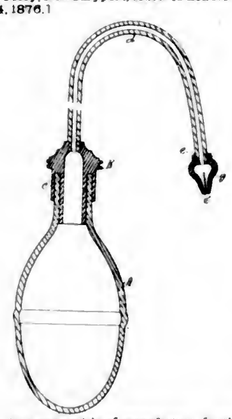
6. In combination with a spring-gate, cam-plate, and rake-arms, a gate-lever, gate-latch, and adjustable tripping mechanism, the said tripping mechanism being under the control of the driver and independent of the rake-arms, substantially as described.

7. The combination of spring-gate, cam-plate, rake-arms, gate-lever, gate-latch, and tripping mechanism for automatic operation, and the clutch and rod for operation at will by the driver.

8. In a harvester, the combination of a cam-plate, rake track, a gate, operated by a spring and lever for the purpose of guiding the proper reel-arm into position for raking off, a latch normally holding the lever and gate in position for reeling, but unlatching for the purpose of raking off, said latch being capable of adjustment to any one of a set of wheels, which are provided with a cam for unlatching the gate-lever, and which receive motion from the rake or reel shaft, whereby, by putting the latch in connection with different wheels of the differential series, the gate will be opened at greater or less intervals during the revolution of the rake-shaft, and the raking-off be effected at variable intervals.

9. In a self raking harvester, the combination of the rake arms, cam-track, gate, and gate-lever, with a latch, which positively locks the gate, and is capable of being disengaged both by the rotation of gear-wheels driven from the rake-shaft and independently thereof, substantially as described.

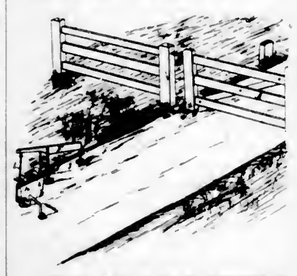
186,414. LAMP-FLAME EXTINGUISHERS. C. T. Colby, Newburyport, Mass. [Filed Nov. 24, 1876.]



1. As a new article of manufacture for the purpose described, the lamp-flame extinguisher, as composed of the elastic bulb A, the metallic duplex tubular connection or head B, the tube C, and the ajutage D, all constructed and arranged substantially as set forth.

2. The ajutage, as provided with the central orifice *e'* and the crossed slits *f g*, arranged and for use with the tube and bulb, as specified.

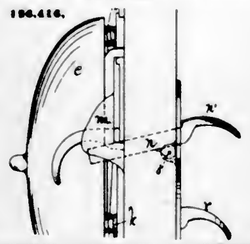
186,415. AUTOMATIC GATES. E. J. Coler, Dayton, Ohio. [Filed Sept. 8, 1876.]



1. The rod *f*, having its rear end slotted or provided with shoulders or stops *j*, in combination with the connecting looped rod *i*, crank *h*, and rod *l*, whereby, after opening or closing the gate, the bar F may return the trip-lever to a vertical position, substantially as and for the purpose specified.

2. The combination and arrangement of the trip-lever D, crank *h*, rod *l*, bar F, rods *i* and *f*, lever *c*, and gate A, the whole constructed substantially as and for the purpose specified.

186,416.

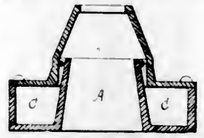


186,416. DOOR-BELLS. J. P. Connell, Kensington, Conn. [Filed Nov. 29, 1873.]

1. The bell-operating attachment, composed of the escutcheon *a*, bearing the finger-hold *r*, and the ears *a'*, in which is pivoted the lever *s*, extending to the bell mechanism, all substantially as described.

2. The combination of the escutcheon, constructed as described, with a thumb-lever and a bell-operating mechanism.

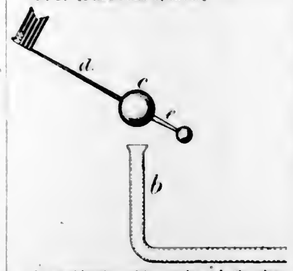
186,417. EXHAUST-PIPES FOR LOCOMOTIVES. James C. Farmer, Providence, R. I., assignor of one-half his right to J. W. White, Dedham, Mass. [Filed Nov. 16, 1876.]



1. In a double exhaust-pipe, the two pipes A and B, each surrounded by the annular space D, in combination with the common relief-chamber C.

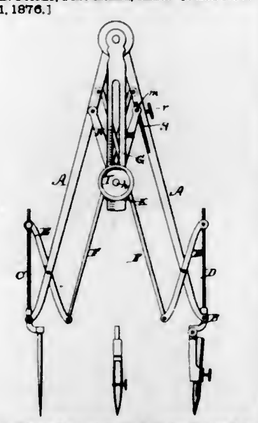
2. In a double exhaust-pipe, the relief-chamber C, communicating with and receiving the exhaust steam deflected by back pressure from each exhaust-pipe.

186,418. TOYS. Alex. Fritz, New York, N. Y. [Filed June 6, 1876.]



In combination with a tube, *a b*, the glass globe *c*, having spears *d e*, substantially as described.

186,419. DRAFTSMEN'S COMPASSES. John B. Fricke, Pine Island, Minn. [Filed Nov. 1, 1876.]



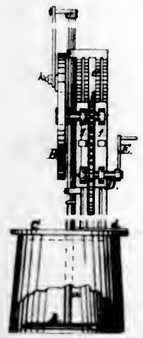
1. The compass-legs A A, jointed together at their upper ends, combined with levers E E, braces F F, and rods C D, mounted in swivel-heads, substantially as and for the purpose set forth.

2. The compass-legs A A, combined with the scale plate G, index slide K, and arms H H, jointed to said legs A A, and secured by the clamp-screw I, for the purpose set forth.

3. The compass-legs A A, parallel braces F F, and levers E E, combined with the center-point J, eccentric to its rod C, for the purpose of adjustment of points to scale, as set forth.

4. The compass-legs A A, jointed together at their upper ends, and the cross-levers E E jointed to said legs near their lower ends, combined with the braces F F jointed to the inner ends of said levers and directly to the opposite legs A, respectively, as set forth.

186,420. CHURNS. Whiteley F. Gray, Sherman, Tex. [Filed May 19, 1876.]



1. A metal dasher constructed with two annular arches, both being connected with two or more radial arms, that are also arched.

2. The dash-stem *a*, when split and provided with an iron bar, *i*, secured as shown and specified.

3. In a churn, the driving mechanism herein specified, consisting of crank E, shaft D, gear c, pinion *c*, and balance-wheel B, supported by notched uprights *c c* and *c' c'*, as herein shown, and for the purpose set forth.

186,421. NUT-LOCKS. William C. Gould, New York, N. Y. [Filed Oct. 16, 1876.]

Brief.—Locking-piece is fastened to the washer by rivet, screw, or solder, helped or not by the clasps shown, is seated in a depression in the washer, and its spring locking point or points recede downward into a still deeper depression of the washer, when the nut passes over it or them. Washer, instead of prongs, may have a straight side, to rest against projection on the surface, or may catch the nearest corner of such surface.

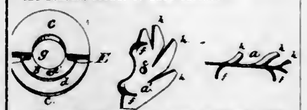
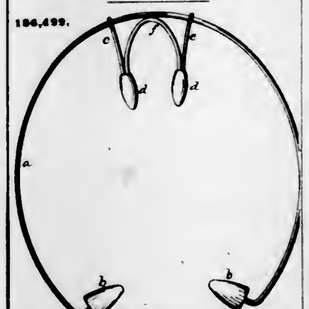


Plate *a*, with one or more points, *h*, with hole *e* and clasps *f f*, in combination with washer C, having depression B and *d*, with holes E E and *e*, and with points *i i*, as set forth.

186,422.



186,423. BATHERS' APPLIANCES. Almerin Hackett and Joseph H. Coats, Sparta, Wis. [Filed Oct. 24, 1876.]

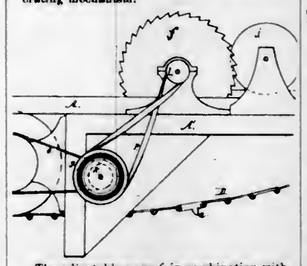
Brief.—A light wire frame to stop the ears and nostrils while bathing, and prevent the water entering the head.

1. The metallic-wire or other spring-frame *a a*, provided with the ear-stoppers *b b*, substantially as and for the purposes described.

2. The spring-frame *a a*, provided with ear-stoppers *b b* and the spring attachment *c e f*, substantially as set forth.

186,424. MACHINES FOR SAWING STEEL RAILROAD-RAILS. Christopher R. Jacoby, Pittsburg, Pa. [Filed Oct. 20, 1876.]

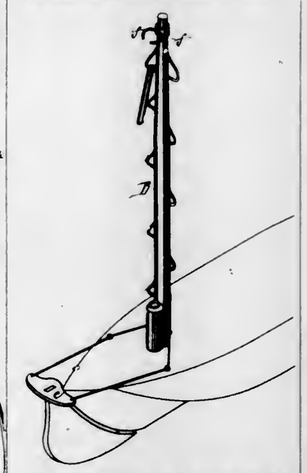
Brief.—Worn-out steel railroad-rails are reduced to merchantable steel by cutting them longitudinally by means of two circular saws, laterally adjustable upon the same arbor; suitable ways, upon which the rails are held by a pulley-wheel, while being carried forward to the saws by an endless chain provided with carrying-links; and suitable operating mechanism.



The adjustable saws *f*, in combination with the wheel *j*, way A, and endless chain D, arranged and operating with relation to each other substantially as herein described, and for the purpose set forth.

186,424. LOOKOUT-POLES FOR SEINE-BOATS. Owen Jones, Gloucester, Mass. [Filed Dec. 2, 1876.]

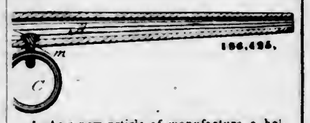
Brief.—The foot-rests on the pole are to assist the person in mounting to the top. The supporting-arms at the top of the pole surround the body, and give a support without the necessity of holding on with the hands.



1. The combination of a lookout-pole, B, provided with a series of steps or footholds, with a seine-boat, substantially as and for the purpose set forth.

2. The combination of the support *f f* with the lookout pole B, substantially as and for purpose set forth.

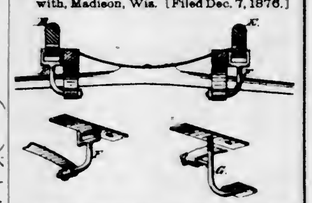
186,425. METAL NECK-YOKES. Wm. H. Johnson, Delhi, N. Y., assignor of one-half of his right to George Edward Marvins, same place. [Filed Nov. 27, 1876.]



1. As a new article of manufacture, a hollow malleable-iron neck-yoke constructed substantially as shown and described.

2. In combination with the metal neck-yoke A, the central ring C attached thereto by means of the swivel-eye B.

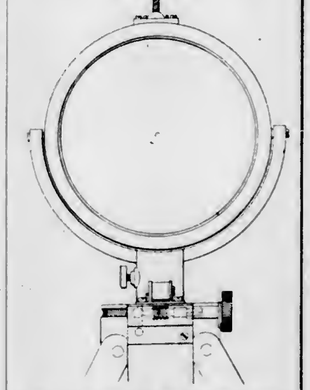
186,426. SIDE-SPRING WAGONS. Jas. Ledwith, Madison, Wis. [Filed Dec. 7, 1876.]



1. The combination, with the side springs H H, of hinged rear hangers F F and rigidly-connected front hangers G G, substantially as and for the purpose herein set forth.

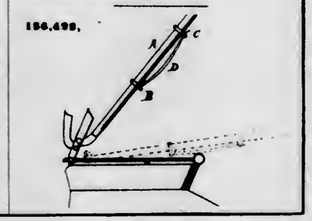
2. The fixed and hinged hangers F G, having inwardly-curved bearing-arms for the springs, in combination with the side bars E E, and the bolsters I I, whereby the latter are brought between the side bars to support the body low, as described.

186,427. APPARATUS FOR SIGNALING BY MEANS OF REFLECTED LIGHT. Henry C. Mance, Kurrachee, Bombay, assignor of one-half his right to Samuel Goods, London, England. [Filed Feb. 25, 1876.]



The combination of a mirror with a finger-key or its equivalent, and with apparatus by which the mirror can be rotated and inclined, the whole being mounted on a suitable stand, and arranged in such a manner that, by the action of the finger-key or its equivalent, light can be flashed with precision to a distant station, substantially as described.

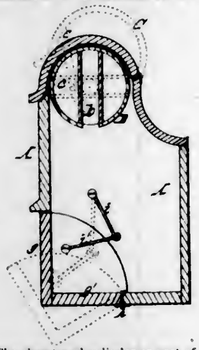
186,428.



196,426. VEHICLE-TOP SUPPORTS. Hezekiah R. Marlatt and Albert W. Wright, Winchester, Ind. [Filed Apr. 21, 1876.]

The straps B C, applied to the bow A, with their ears *a* outward, in combination with the spring D, hung to the pin F′ of one strap, and passing between parallel pins F F of the other strap, as and for the purpose set forth.

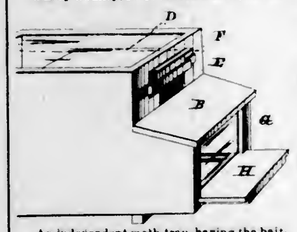
196,429. LETTER-BOXES. Edwin T. Marsh, Rochester, N. Y. [Filed May 25, 1876.]



1. The chambered cylinder or part of a cylinder, B, eccentrically connected to the cover C by the rod *c*, and hung in the box A, substantially as and for the purpose set forth.

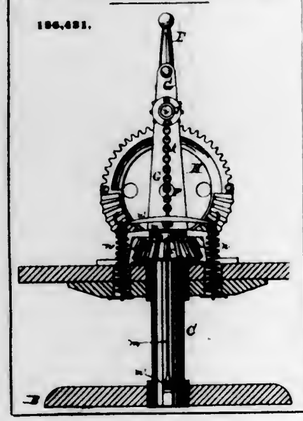
2. The box A, having the door *g g*′, formed partly of the bottom, and partly of the front portion thereof, and hinged thereto, substantially as and for the purpose set forth.

196,430. MOTH-TRAPS. Robert McInturff, Yancy County, N. C. [Filed Dec. 7, 1876.]



An independent moth-trap, having the bait-compartment provided with the glass cover D, opaque cover G, slide F, perforation L, and entrance-tube E, having a slot or opening, K, in combination with the decoy-compartment, having the illuminated front G and slide H, substantially as and for the purpose specified.

196,431.



196,431. WASHING-MACHINES. J. Myers, Nora, Ill. [Filed May 31, 1876.]

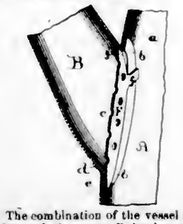
1. The combination of the lever E, shaft F, bevel part of wheel H, pinion *c*, slotted shaft C, and follower B, whereby circular motion is imparted to said follower, substantially as set forth.

2. The combination of the lever E, shaft F, spur part of wheel H, pinion I, shaft J, chain *k*, rod *m*, cross-piece *m*′, and follower B, substantially as specified, whereby the follower is raised.

3. The combination of the springs, cover, and cross-bar, with the rod *m*, cross-piece *m*′, and follower B, substantially as set forth.

4. The combination of the lever E, shaft F, compound gear-wheel H, pinion *c*, slotted shaft C, pinion I, shaft J, chain *k*, rod *m*, cross-piece *m*′, coiled springs *n*, and cross-bar *n*′, with the follower, B, whereby the variety of motions described are imparted to said follower.

196,433. MODES OF ATTACHING SPOUTS AND STRAINERS. Frederick G. Niedringhaus and Wm. F. Niedringhaus, St. Louis, Mo. [Filed Dec. 12, 1876.]



1. The combination of the vessel A, having the flange *d*, the spout B, having the flange *b*, and the rivet *e*, substantially as described.

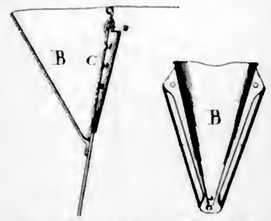
2. The combination of the vessel A, spout B, flanges *b d*, rivet *e*, and the strainer F, having the lugs *f f*, substantially as described.

3. The combination of the vessel A, spout B, flange *b*, rivet *e*, strainer F, and lugs *f f*, substantially as described.

4. The combination of the vessel A, having the flange *d*, and the spout B, having the flange *b*, to resist lateral strains, substantially as described.

5. The combination of the rivet *e*, vessel A, and spout B, the latter being inclined, as described, and bearing against the upper end of the opening *c*, and provided with the flange *b*, to resist vertical strains, substantially as described.

196,432. MODES OF ATTACHING LIPS AND STRAINERS. Frederick G. Niedringhaus and Wm. F. Niedringhaus, St. Louis Mo. [Filed Dec. 12, 1876.]



The combination of the vessel A, lip B, and strainer C, substantially as described.

196,434. MACHINES FOR SEWING STRAW BRAID. John O'Neil, New York, N. Y. [Filed Apr. 15, 1876.]

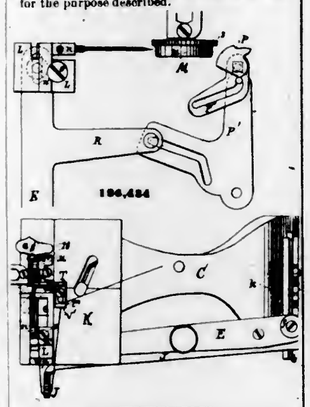
Brief.—The peculiar construction of feed-wheel and presser set forth in the first clause of claims is intended to properly guide and hold the two braids while being sewed together. Improvements in needle and braid guides, tension devices, and means for operating the needle, take-up, and looper, are also set forth, their construction and modes of operation being too complicated to brief.

1. The combination, in a sewing-machine, of the feed-wheel M, one part, s, of which has a smooth peripheral surface, and is of less diameter than the other (rough-surfaced) part, 3, and the pressure-roller *d*, formed in two parts, 1 and 2, the part 1 being of less diameter than the part 2, the whole constructed to operate as and for the purpose described.

2. The combination, in a sewing-machine, of the feed-wheel M, provided with two faces, 3 and s, and pressure-roller *d*, formed of the two parts 1 and 2, with the guide T, guide-plate S, and face-plate K, all constructed to operate as and for the purpose described.

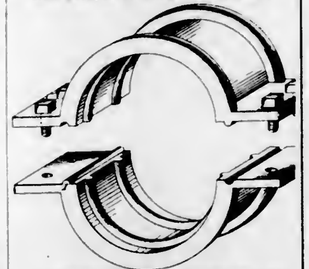
3. The tension device composed of the disk 10 and disk 9, the latter being provided with a broad convex-surfaced head, 11, fitting into a concave depression in the plate 13, the spring-plate 14, and adjusting-screw 21, all combined and arranged to operate substantially as described.

4. The combination, in a sewing-machine, of the hook P, the levers P′ and P″, the needle-bar E, provided with the arm R, the cams F and F′, the stud *i*, roller *j*, sliding plate G, and bar H, all constructed to operate as and for the purpose described.



196,434

196,435. JOINING PIPES. John F. Parsons, New York, N. Y. [Filed Dec. 6, 1876.]



1. The combination of the clamps, provided with internal beads, with suitable packing, and the cylindrical ends of the pipes to be joined, substantially as shown and described.

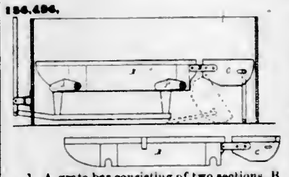
2. The combination of the clamps, provided with internal beads, and projections and recesses on their ears, with suitable packing and the cylindrical ends of the pipes to be joined, substantially as shown and described.

3. The combination of the clamps, provided with internal beads, and with or without the projections and recesses on their ears, and with an internal recess of suitable packing, with the cylindrical ends of the pipes to be joined, provided with beads, substantially as shown and described.

196,436. GRATE-BARS FOR FURNACES. L. P. Rider, Pittsburg, Pa. [Filed Sept. 23, 1876.]

Brief.—The front and rear sections of the bars are linked together, the rear section forming a dumping-grate, the front section having a vertical and horizontal movement of each alternate bar without being affected by the rear section. When the rear ends of the front bars rise and fall at their intersection with the rear bars, an opening is made, by which the coal is crushed and a supply of air admitted.

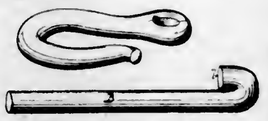
196,426.



1. A grate-bar consisting of two sections, B C, the latter being hinged to the former, and capable of being turned downward without affecting the horizontal position of the section B, substantially as set forth.

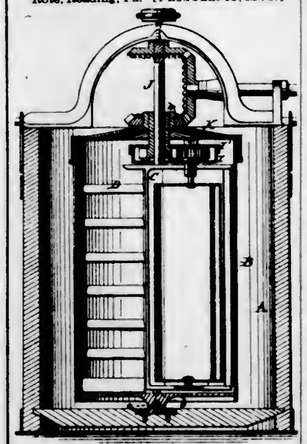
2. The combination of the sections B C, connected by links D and the crank-shafts *j j*′, supporting them, and arranged with relation to the walls of the furnace, and operating the section B, as specified.

196,427. MANUFACTURE OF HOOK-EYES. John Robson, Pittsburg, Pa. [Filed Apr. 25, 1876.]



An improvement in the mode of making metallic eyes by folding over the end of the blank, flattening down the folded part, and forging the eye through the flattened part transverse to the plane of the flattened end, substantially as set forth.

196,428. ICE-CREAM FREEZERS. John F. Rote, Reading, Pa. [Filed June 13, 1876.]



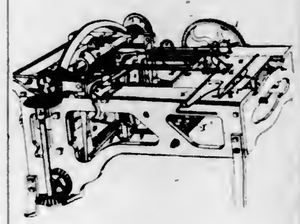
1. The combination, in an ice cream freezer, of the upright shaft C, having inclined arms or beaters D D, and connected to the horizontal arms H H, and the small beater G G′, all constructed substantially as and for the purposes herein set forth.

2. The combination of the large beater-shaft J, pinion *f*, with hub L, idle pinion A, and pinion *h*, on the journal of the smaller beater, the said pinions being inclosed within a box, I I′, within the can, substantially as and for the purposes herein set forth.

196,429. MACHINES FOR MAKING MACHINE-KEYS. A. Shogren, Sandwich, Ill. [Filed June 19, 1876.]

Brief.—A horizontal beating-cylinder in a pivoted frame, adjustable vertically to taper the rod as it is swaged. The adjustment is effected through a lever provided with inclined guideway. This lever is actuated by the feed-plate as it reciprocates, and it is jointed, so that the degree of taper may be determined.

196,439.



1. The combination of the pivoted frame B and horizontal forging-cylinder mounted thereon, substantially as and for the purpose set forth.

2. The combination of a pivoted cylinder-frame, B, and a pivoted lever, F, connected to said frame, so that the vibration of the lever will also vibrate the frame, substantially as described.

3. The combination of the pivoted cylinder-frame B, cross-bar F¹, connecting-arms *f*′, pivoted lever F, substantially as described.

4. The lever F, provided with an inclined slot, *f*′, in combination with a pin moving back and forth in the slot horisontally, and the pivoted cylinder-frame B, substantially as described.

5. The lever F, constructed of two sections, one of which sections, F², is slotted and adjustably connected to the other, substantially as and for the purpose set forth.

6. The combination of the two sections of the lever F, the clasp or loop *f*³, and set-screws *f*⁴ and *f*⁵, substantially as described.

7. The combination of a sliding feed-table, stud or pin connected thereto, and pivoted lever F, provided with an inclined slot, substantially as described.

8. The combination of the sliding feed-table G, slotted pendant *g*, adjustable stud *g*′, and lever F, provided with an inclined slot, substantially as described.

9. The combination of the cross-bar F¹, connected to the pivoted cylinder-frame, lever F, connecting-rod *f*, and eccentric M, substantially as described.

10. The combination of the cylinder-frame B, cross-bar F¹, connecting-rod *f*, eccentric M, spring stop-lever N, lever F, rod M′, and sliding feed-table G, substantially as described.

11. The combination of the free pivoted frames *e*′, carrying the rollers *e*¹ and disks E′, substantially as described.

12. The combination of the disks E′, pivoted frames *e*′, rollers *e*¹, and set-screws *e*², substantially as described.

13. The combination of the disks E′, adjustable roller-frames *e*′, horizontal forging-cylinder *e*, and stationary anvil *a*′, substantially as described.

14. The feed-table G, provided with a rack, *g*⁴, shaft *i*, having a pinion, *i*³, wheel I, clutch *i*³, lever J, and sliding rod *j*, substantially as and for the purpose set forth.

15. The combination of the rock-shaft O, provided with rod *o*′, gage-arm O′, and bent rocking lever K′, substantially as described.

16. The combination of the rock-shaft O, gage-arm O′, mounted thereon, bent rocking lever K′, and holding-cam *k*, substantially as described.

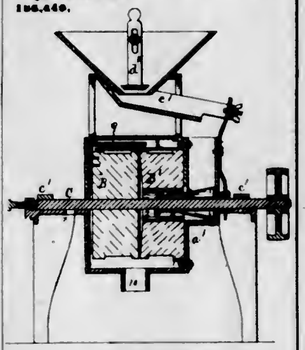
196,440. GRINDING-MILLS. A. W. Straub, Philadelphia, Pa. [Filed Aug. 5, 1876.]

1. In a portable grinding-mill, the bed-plate A, consisting of the flat horizontal portion, having the concave *a*′ for receiving the lower halves of the two vertically-arranged burr-stones S and B′, the pillow-blocks or bearings for the shaft O, the spout or outlet-opening 10, and the dirt-escape holes *x x*, all cast in one piece, substantially as set forth and described.

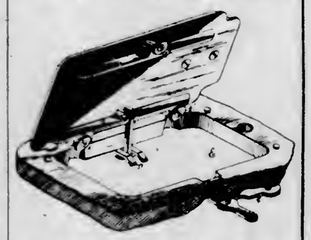
2. The scrapers 8 and 9, in combination with the perimeters of the respective stones B and B′, and arranged to operate simultaneously, as and for the purposes set forth and described.

3. In a portable grinding-mill, the combination, substantially as described, of the journal-bearings *c*′ *c*′ and their removable caps, the dirt-escape holes *s s*, and the vertically-arranged stones B B′.

196,440.



196,441. SEWING-MACHINES. C. B. True, Providence, R. I. [Filed Sept. 19, 1876.]



1. The combination of the head of a sewing-machine, provided with projecting ear-pieces, a table-top provided with sockets for receiving said ear-pieces when the head is tilted, and a check-link for counteracting the tendency of the head to fall backward, by its gravity, beyond a fixed angle of inclination, substantially as described.

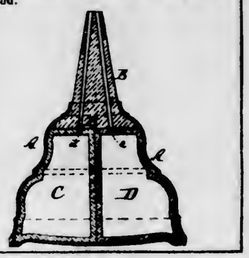
2. In combination with projecting ear-pieces, and a table-top provided with sockets, as described, a check-link whose stop-plate D is formed inclined on its under surface, substantially as described, for the purpose specified.

3. The means for securing a machine-head to its table, which consists in a dovetail-connection formed by the blocks *e e*′ *e*², having inclined surfaces, in combination with a table-top having recesses, which have correspondingly-inclined surfaces, and the turn-buckle and bar G H, for applying pressure to hold the surfaces of the blocks and recesses in contact, substantially as described.

4. In combination with a machine-head and its supporting-table, elastic cushions *e*³ *e*³, applied substantially as described, so as to yield to the lateral vibration incident to the machine when in operation, and thereby render it less noisy.

196,442. SQUIRT-CANS. J. W. Tallmadge, New York, N. Y. [Filed Dec. 15, 1876.]

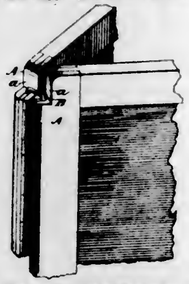
Brief.—Two elastic bags, with one elastic nozzle above them, having two outlet-ducts, both inclosed in a metallic shell, the elastic bottom of which is operated by pressure of the hand.



1. The combination of the elastic receptacles or bags C D and perforated discharge-nozzle B with the incasing shell A, substantially as herein shown and described.

2. A can composed of two or more elastin receptacles, having apertures *d* and *s* for filling it, with a doubly-perforated nozzle, which is placed over said apertures and secured to the receptacles after they are filled, substantially as specified.

186,442. REVERSIBLE-HINGE SLATES. T. Van Kannel and Christian F. Rapp, Cincinnati, Ohio; said Van Kannel assignor to said Rapp. [Filed Nov. 11, 1876.]

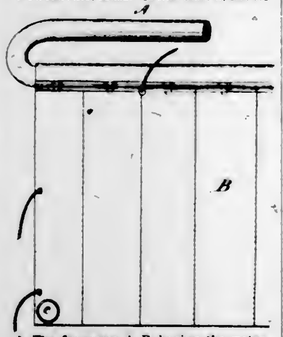


1. The combination of the slates A A with the hinge-link B, substantially as and for the purpose described.

2. The slates A A, having the grooves *a' a'*, in combination with the link B and the filling-piece, closing the opening into the grooves, substantially as described.

3. The slates A A, cut away at *a a* to form a recess for the projecting parts of the link B, as described.

186,443. FIRE-SHIELDS. William T. Voss, Newtonville, Mass. [Filed Jan. 6, 1877.]

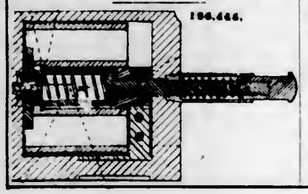


1. The fire-screen A B, having the water-pipe combined with the flexible double blanket, and with suitable devices for supporting and adjusting it, substantially as described.

2. A flexible-fire screen, consisting of two blankets, the rear one practically water-proof and the front one porous, combined with a water-supply, A, and with suitable devices for supporting and adjusting, substantially as described.

3. The flexible fire-screen A B, the body of which is composed of two blankets attached together at or near their edges, and having the interior chamber between them divided into several compartments, communicating or not communicating, substantially as described.

186,444.

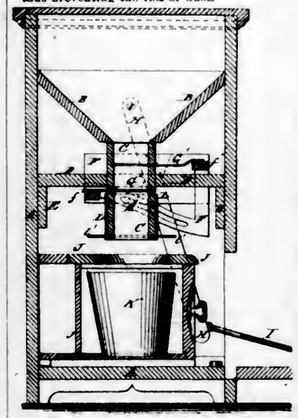


186,445. REVOLVING FIRE-ARMS. Stephen W. Wood, Cornwall, N. Y. [Filed Aug. 26, 1876.]

In revolving fire-arms, the combination of a fixed or stationary base-pin or stud, a ratchet secured to the cylinder, and a tubular ejecting device, constructed substantially as herein set forth.

186,446. EARTH-CLOSETS. Lemuel Altemus, Olney, Philadelphia, Pa. [Filed Dec. 23, 1876.]

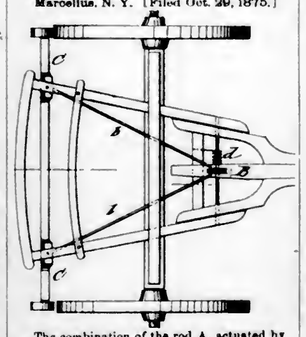
Brief.—The two valves in the chute are operated by the sliding frame and lever mechanism. When the lower valve opens to admit earth to the commode, the top valve closes, thus preventing the rise of dust.



1. The combination of the sliding frames *F f' f²*, the two plates or valves G^1 G^2, the levers H, and the rods I, with the discharge-spout C of the hopper B, and with the door a^4 of the case A, substantially as herein shown and described.

2. The combination of the flanged sleeve L *F*, provided with the pins M, with the discharge-spout C of the hopper B, the slotted inclined bars of the frames F, and the seat or top of the drawer J, substantially as herein shown and described.

186,447. WAGON-BRAKES. Robt. M. Baker, Marcellus, N. Y. [Filed Oct. 29, 1875.]

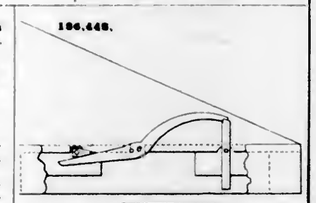


The combination of the rod A, actuated by the neck-yoke, the jointed rod *a*, lever B, and spring connected therewith, as described, the bifurcated rod *b b*, bar C, hinged to the bounds, and cam-brake D, constructed and arranged as and for the purposes specified.

186,448. ANIMAL-TRAPS. Thad. Belknap, Austinburg, Ohio. [Filed Nov. 11, 1876.]

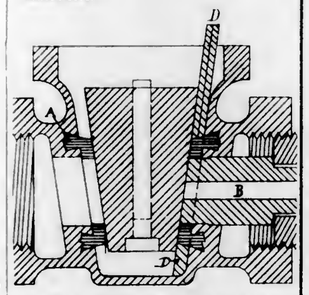
The combination, in an animal-trap, of two tilting platforms constructed and arranged relatively to each other, substantially as described, so that when pressure or weight is applied to the outer platform it will remain stationary, and both platforms become tilting when the pressure or weight is applied to the inner platform, as specified.

186,449.



186,450. APPARATUS FOR CASTING VALVE-SEATS. J. Berry, Springfield, Mass. [Filed Nov. 20, 1876.]

Brief.—In an oval body for a sliding valve casts the valve-seat of Babbitt metal into cut grooves of the body, by vented blocks and a vented core.

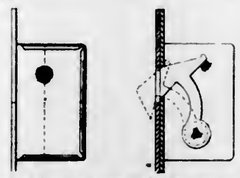


1. The hollow plug B, conforming on the end next to the gate *a* to the taper of said gate, and having filed or other otherwise cut on its said inner end vent-grooves running from the outer edge or periphery of said plug to the ventilating-hole through it, substantially as described, and for the purpose set forth.

2. The ventilating and forming plate D, having an opening through it the same as the outside diameter of the soft metal packing, and having vent-grooves on its face next to the gate, which radiate from said opening to the outside edges of said plate, substantially as and for the purpose set forth.

3. The gate *a*, plate D, plug B, with its lock-nut *a* combined within the valve-body, and forming, with the recess A, a mold, to give the valve or gate seat the requisite form, substantially as and for the purpose set forth.

186,450. LOCKS FOR PIANOS, &c. Amos S. Blake, Waterbury, Conn. [Filed Sept. 26, 1876.]



The combination, with the main plate of the lock-case and the bolt, of the spring cover-plate B, provided with hooked ends and bearing upon the bolt to hold it in position, substantially as shown and described.

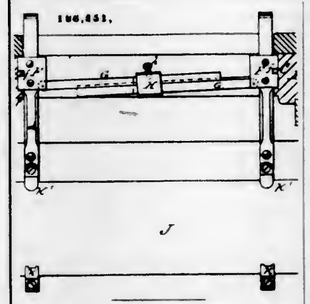
186,451. SCAFFOLDING. A. Blondin, Chicago, Ill. [Filed Oct. 20, 1876.]

1. The combination, in a window-scaffolding, of the brackets, hooked at their inner inner ends, the notched blocks F, the folding braces G and clamp, and the plank J and detents K K', substantially as specified.

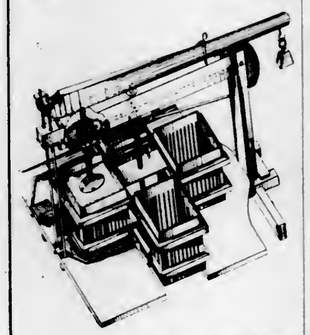
2. The scaffold for windows, consisting of a pair of brackets provided with hooks at their inner ends, and braces G, and having the plank J secured at their outer ends, substantially as specified.

3. The brackets provided with the toothed retaining-pieces K and the pivoted retaining-pieces K', and having the inclined gain or cavity L, in combination with the plank J, substantially as specified.

186,451.



186,452. CIDER AND WINE PRESSES. B. B. Bollinger, Louisville, Ohio. [Filed Dec. 2, 1876.]



1. In a cider-press, a vat or press-crib having a hinged bottom, substantially as set forth.

2. In a cider-press, two or more vats moving around a common center and rigidly connected together by a single frame-work, in combination with a fixed platform, substantially as set forth.

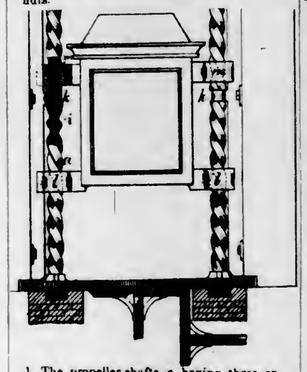
3. In a cider-press, two or more revolving vats, with the mechanism for elevating them above obstructions upon a fixed platform, substantially as set forth.

4. In a cider-press, a weighted cross-beam swinging vertically upon a hinge, in combination with a press-screw shaft working against said beam, with mechanism for rotating the shaft, substantially as set forth.

5. In a cider-press, a hinged cross-beam swinging vertically, and a press-screw shaft provided with mechanism for rotating it against said beam, in combination with a weighted lever bearing upon said beam, substantially as set forth.

186,453. ELEVATORS FOR BUILDINGS. Mario Bragaldi, New York, N. Y. [Filed June 7, 1876.]

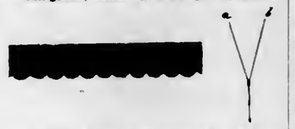
Brief.—The polygonal coupling-bars fit into correspondingly-shaped recesses in the ends of the propeller-sections. The shoulders on the lower part of the sections are supported upon brackets projecting through the open nuts.



1. The propeller-shafts *a*, having three or more threads, and coupled together and supported, as shown, in combination with the open nuts *l* and car or platform, substantially as set forth.

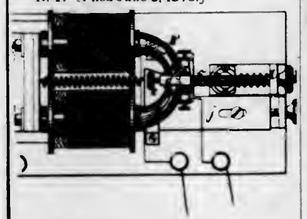
2. The propeller-sections *a*, coupled together by the polygonal bars *i*, and sustained independently of each other by the bracket-bearings *k*, as set forth.

186,454. TRIMMINGS. Morris P. Bray, Birmingham, Conn. [Filed Sept. 15, 1876.]



As a new article of manufacture, an edging or binding consisting of a strip of fabric having the double edge *a b* and single embroidered edge *c*, the same being woven all in one, substantially as described.

186,455. ELECTRO-MAGNETIC TELEGRAPH APPARATUS. Robert K. Boyle, New York, N. Y. [Filed June 6, 1876.]



1. The combination, with an electro-magnet, and with a permanent magnet, of a soft-iron armature, which oscillates between the poles of the two magnets, substantially in the manner and for the purpose herein shown and described.

2. An electro-magnet, A A', the cores B B' of which are curved so as to bring their poles close together and opposite to each other, substantially as set forth.

186,456. CARPET-SWEEPERS. E. K. Breckenridge, West Meriden, Conn. [Filed Nov. 11, 1876.]



1. In a carpet-sweeper, substantially such as described, the ends constructed with internal flanges, with notches *a b d* formed therein, and the edges of the sheet-metal surface turned within the said notches as a means of securing the same, substantially as described.

2. In a carpet-sweeper, the levers B, constructed with a concentric boss, C, for a bearing, in the end, combined with the eccentric stud *h*, to form the bearing upon which the brush revolves, substantially as and for the purpose described.

3. In a carpet-sweeper, the levers B, constructed with a concentric boss, C, for a bearing, in the end, combined with the eccentric stud *h*, to form the bearing upon which the brush revolves, and connected pinions *i*, for simultaneously adjusting the said levers, substantially as described.

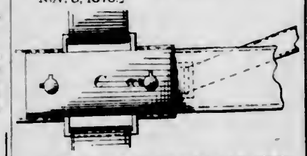
4. In a carpet-sweeper, the levers B, constructed with a concentric boss, C, for a bearing, in the end of the case, and with a lug, *x*, combined with a corresponding notch, *w*, in the bearing in the case, substantially as and for the purpose described.

5. In a carpet-sweeper, the driving end of the sweeper, constructed with an external recess, l, to inclose the driving-belt, substantially as described.

6. In a carpet-sweeper, the combination of the narrow roll P, arranged midway of the length of the sweeper, so as to act as a pivot on which to turn the sweeper, substantially as described.

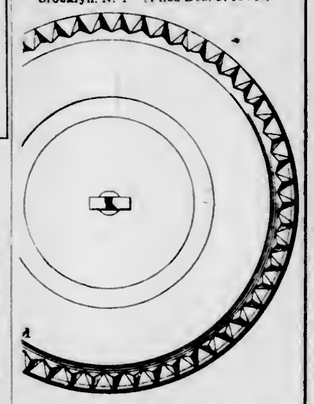
7. In a carpet-sweeper, the handle hung directly to the shaft, and combined with a spring-latch, S, hung in said handle, and the notched stationary link T, substantially as and for the purpose specified.

186,457. TUG ATTACHMENTS FOR HARNESS. David W. Brodnax, Rockdale, Tex. [Filed Nov. 3, 1876.]



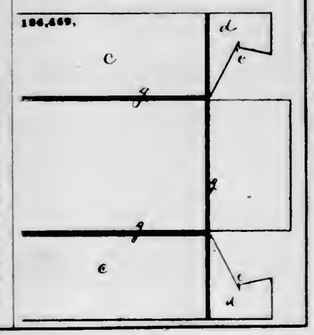
A tug attachment, consisting of the draft-plate A, provided with projecting studs, and a locking-plate, C, adapted to unite and securely hold the hame-tug and trace in position, all substantially as and for the purpose stated.

186,458. STOVE-BOARDS. John S. Brooks, Brooklyn, N. Y. [Filed Dec. 9, 1876.]



A support to the beaded edge of a stove-board, consisting of a corrugated hem, A, located on the under side of such beaded edge, substantially as shown and described.

186,459.



186,460. PAPER BOXES. Joseph P. Buckingham, Chicopee, Mass. [Filed Apr. 3, 1876.]

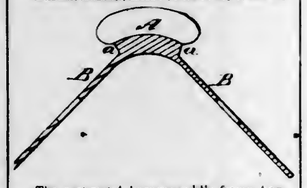
In a knock down box of the class described, the peculiar shape of the flaps *d*—to wit, having the edge which, when set up, is at the top on a line with the top of the long sides, the end edge at right angles thereto for about half the depth of the sides, the lower edge then turning inward to the slit *a*, and from thence diagonally to just outside the bottom corner, and the fourth side straight and joining the side flaps *c*, substantially as herein shown and described, and for the purpose set forth.

186,462. CARTRIDGES. Herbert Buffington, Jacksonville, Fla. [Filed Nov. 11, 1876.]



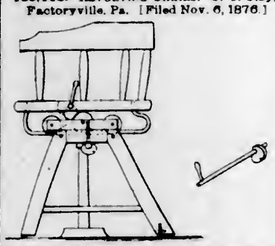
A movable anvil for cartridges, consisting of a tubular main part, conical head, and end collar or shoulder at inner end, substantially as specified

186,461. HARNESS-SADDLE TREES. W. H. Bustin, Boston, Mass. [Filed July 1, 1876.]



The cast metal harness-saddle frame, having its saddle portion or set A raised above the tree-frame B, with an under-beveled shoulder, *a*, giving the saddle a dovetail form in cross-section, in combination with the molded leather saddle-covering, consisting of the raised portion A', jockeys B', and crimped to conform to the saddle frame, substantially as described.

186,463. REVOLVING CHAIRS. C. C. Clay, Factoryville, Pa. [Filed Nov. 6, 1876.]

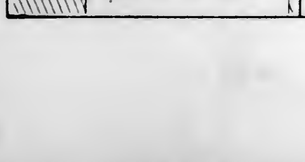


1. The combination, substantially as hereinbefore set forth, of the chair-base, its rollers, the sliding seat, and the guideways connected therewith.

2. The combination, substantially as hereinbefore set forth, of the base, the seat, its guideways, and the locking-cam, interposed between the seat and base, to lock the chair in its adjusted position.

3. The turning sliding chair hereinbefore described, consisting of the central support, the base revolving thereon, the legs secured to and turning with the base, the sliding seat, its guideways, and friction-rollers, these members being constructed and operating substantially as described.

186,464.



186,465. FLOORING. Otis S. Dickinson, Granville, Mass. [Filed Dec. 18, 1876.]

The blocks C, secured to the floor B by T-stripe nailed to floor, and fitting grooves of the blocks, as shown and described.

186,464. FORCE-PUMPS. Henry T. Drain, Tama City, Iowa. [Filed June 30, 1876.]

Brief.—Independent cylinders of unequal diameter are provided with a hollow piston-rod, having a piston at each end, fitting within each cylinder. The upper end of the piston-rod has a discharge-valve attached thereto.



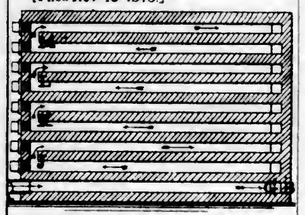
1. In a double-acting force-pump, the combination, with independent cylinders, of a hollow piston-rod, carrying pistons at its ends to fit said cylinders, and suitable mechanism for reciprocating said piston rod, substantially as and for the purpose set forth.

2. The combination, with the lower cylinder, having an inlet-valve, of a hollow piston-rod provided with pistons at each end, and an exit-valve at its upper end, substantially as and for the purpose set forth.

3. In a double-acting force-pump, the combination, with the upper cylinder and hollow double piston-rod, of the superposed tube, provided with a discharge between its top and bottom, whereby an upper air-chamber is formed, substantially as and for the purpose described.

4. The combination, with cylinders A C and hollow piston rod D, of the hand-lever K and rod L, substantially as and for the purpose specified.

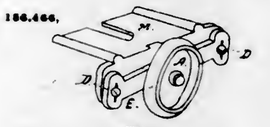
186,465. APPARATUS FOR SUPERHEATING STEAM. C. J. Eames, New York, N. Y. [Filed Nov 16 1876.]



A superheater for steam, cast in one piece, forming two or more sides of the box to hold the fire, and perforated with channels formed by cores having branches connecting contiguous ends alternately, in combination with stoppers, as shown, so as to form one continuous channel between the induct and educt openings.

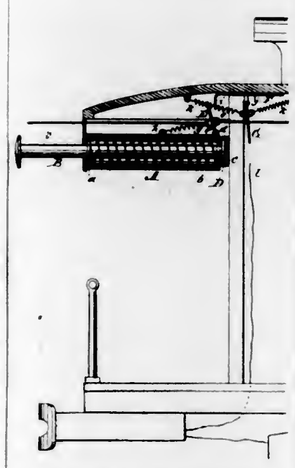
186,466. ADJUSTABLE TIGHTENING-ROLLERS AND REMOVABLE GIRTS. M. B. Erskine and Clinton A. Weed, Racine, Wis., assignors to J. I. Case & Co., same place. [Filed June 26, 1876.]

Brief.—On a peripheral flange of the master-wheel there runs a friction-roller, adjustable by means of a slotted arm on the frame.



Adjustable roller A, metal piece E, bolts D D, and metal frame M, in combination with removable girt I, girt L, and cross-bar K, substantially as described.

186,467. ELECTRIC TRAIN-SIGNALS. L. L. Ferris, New York, N. Y. [Filed Dec. 23, 1876.]



1. In electric train-signaling apparatus, a spring-buffer, attached to the car, and a key and conducting-wire, arranged to make an electric connection by the springing out of the buffer when the cars are separated, substantially as herein shown and described.

2. The combination of the cylinder A, rod B, having heads C D, and the collar *a*, spring *b*, key G, and wires *f* and *l*, substantially as shown and described.

3. The head D, having a non-conducting surface, *c*, in combination with the key G, for permitting the buffer-rod to move inward without making a connection, as herein shown and described.

4. The combination of the key E, cylinder A, wire *f*, and plate F, substantially as herein shown and described.

186,468. HORSE HAY-FORKS. H. Fisher, Canton, Ohio. [Filed Oct. 17, 1876.]

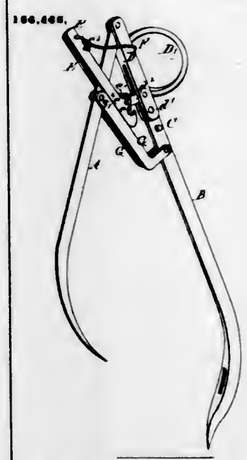
1. A hay-fork having its tines hinged together by means of stiff cross-bars, each of which is pivoted to both tines in a line not parallel to the line upon which the other bar is pivoted, substantially as and for the purpose set forth.

2. The combination of bars D and locking-levers E with slotted tine B and tine A, passing through tine B, substantially as and for the purposes set forth.

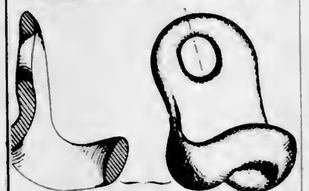
3. The combination of cross-bars D, tines A and B, pivoted thereto, guide-bars G, and projection d^3, substantially as and for the purposes set forth.

4. Tine A, tine B, cross-bars D, loop D', and arm d^3, in combination with guide-bars G, locking-levers E, studs C, and cord F, substantially as forth.

186,469.

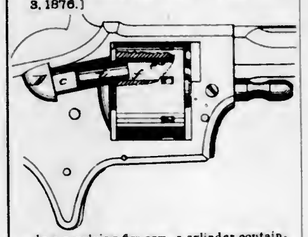


186,469. PESSARIES. Charles N. Fowler, Youngstown, Ohio. [Filed Jan. 6, 1876.]



The modification of the Hodge pessary herein described, the pessary being filled out and rounded to conform to the parts, broader at the posterior portion than at the anterior portion, and having a swell at the posterior part, substantially as and for the purpose set forth.

186,470. REVOLVING FIRE-ARMS. H. L. Gardner, Springfield, Mass. [Filed Nov. 3, 1876.]



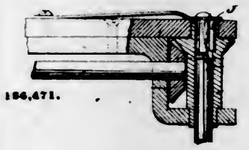
In a revolving fire-arm, a cylinder containing two or more chambers, *f*, into each of which is made an orifice, *e*, through which the gas is forced from the explosion of each cartridge, and enters each chamber at a point in the rear of the conical part of the projectile, substantially as and for the purpose described.

186,471. TOOL-CARRIERS FOR DENTAL ENGINES. J. W. Gilbert, Philadelphia, Pa., assignor to S. S. White, same place. [Filed Dec. 11, 1875.]

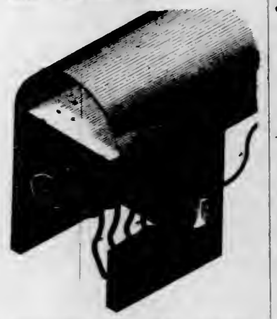
Brief.—A rotating clutch, with a feather upon a sliding wedge, is used to retain a tool with flattened and grooved end in an angular attachment to a dental rotating shaft.

The combination in a right-angle attachment, substantially as hereinbefore set forth, of the tool-holder, the pin inserted in the bore thereof, the grooved tool-shank having a flattened end, and the sliding plug and feather J interlocking with the tool shank and holder, whereby accidental withdrawal of the tool is prevented.

186,471.



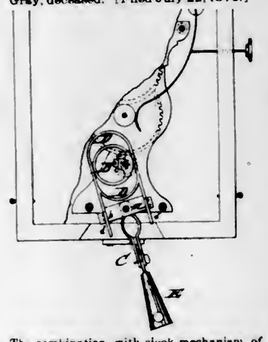
186,472. WATER-TUBE AND CIRCULATING STEAM-BOILERS. W. B. Glover, Boston, Mass. [Filed Nov. 20, 1876.]



1. The combination of the heater C, arranged within a fire-place of a steam-generator, below the flues, its inlets *b*, the pipes *c*, communicating with the heater, and with the forward end of the boiler, and the series of bent pipes *d*, extending from the heater to the crown-sheet, as set forth.

2. The arrangement of two series of S-shaped pipes, *e e'*, intermediately and transversely within the fire-place, crossing each other, and each communicating with the side water-leg on one side, and the crown-sheet on the opposite side, whereby the heating surface is increased, and a circulation of the water from the hottest to the coolest part of the fire-place is effected, all as set forth.

186,473. AUTOMATIC FANS. S. F. Gray, Valdosta, Ga., administrator of James M. Gray, deceased. [Filed July 22, 1876.]



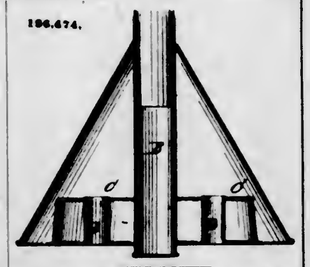
The combination, with clock mechanism, of the drive-shaft, having pinion and eccentric, the sliding yoke D, the shaft having cross-bar *b*, and the vibrator C, in order to operate the socket E, in the manner specified.

186,474. CLOTHES-POUNDERS. E. R. Hampton, Asheville, N. C. [Filed Jan. 13, 1877.]

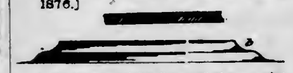
1. In a clothes pounder and washer, having an exterior conical shell, the inner shell C, connected to the outer by the pieces *a* and the central tube E, as and for the purpose set forth.

2. In a clothes pounder and washer, the combination, with an outer case, of an inner shell, C, connected thereto by pieces *a*, and having tubes *b b b b* opening into the space above, all as and for the purpose set forth.

186,474.



186,475. STOVE-PLATFORMS. Chas. E. L. Holmes, New York, N. Y. [Filed Dec. 21, 1876.]

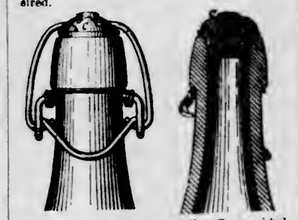


1. As a new article of manufacture, a platform consisting of a compound metal of block-tin, or tin compound and zinc, the tin constituting the upper face, and being united throughout its whole extent to the zinc base or backing, as set forth.

2. A stove-platform having a tin surface and a backing of hard metal united permanently face to face to the tin, as specified.

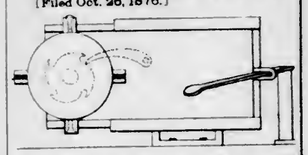
186,476. BOTTLE-STOPPERS. J. M. Hoyt, Lynn, Mass. [Filed Jan. 9, 1877.]

Brief.—The metallic stopper-cap has grooves in the top, of different depths, in order that the bail may compress the elastic portion of the stopper more or less, as desired.



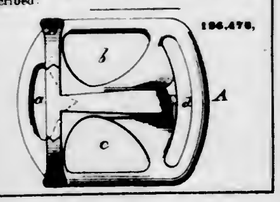
The metal sleeve or collar C, provided with two or more notches or grooves cut in its upper face, with their bottoms at different levels, when used in combination with an elastic stopple and a U-shaped yoke, for holding the stopple in place on the bottle, substantially as described.

186,477. METAL-SCREW MACHINES. N. C. Hubbell, New York, N. Y., assignor to Hubbell Screw Company, same place. [Filed Oct. 26, 1876.]



The combination of a blank-holder interposed between the screw-cutting dies on a revolving and sliding head, with a revolving blank-holding mandrel, substantially as described.

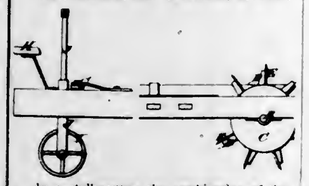
186,478.



186,478. TUG-CARRIER. G. Jenkle, Napoleon, Ohio. [Filed Nov. 11, 1876.]

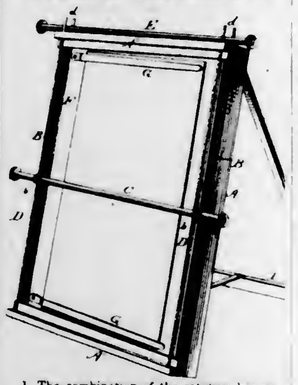
The improved trace or tug carrier, consisting essentially of plate A, provided with slots *a b c d*, and prongs B B′, in combination with the T-shaped spring pressed arm, substantially as and for the purpose set forth.

186,479. COTTON-STALK CUTTERS. Geo. Johnston, John Cairns, and M. K. Johnston, Caldwell, Tex. [Filed July 9, 1874.]



In a stalk-cutter, the combination of the disks C, mounted on the shafts B, with the slotted radial arms D, carrying the cutters E, and the bolts *f*, whereby said blades can be adjusted nearer to, or farther from, the shafts, substantially as described, for the purpose specified.

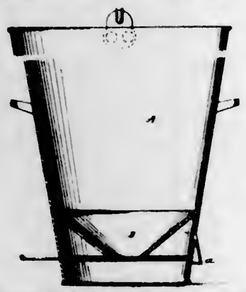
186,480. COPY-HOLDERS. F. H. Joyner, Branchville, Md. [Filed Dec. 15, 1876.]



1. The combination of the rotating bar or rod C with its pinions *b b*, the racks B B, rods D D, and frame A, with the yielding back or support F, and spring-fingers G G, substantially in the manner herein described, for the purposes set forth.

2. The combination of the rod E, forks *d d*, and frame A′, for holding the sheets of a manuscript turned back when required, substantially as herein set forth.

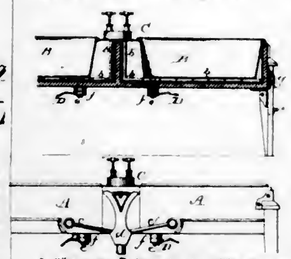
186,481. COAL-SCUTTLES. Chas. S. Irwin, St. Joseph, Mo. [Filed Dec. 4, 1876.]



A new article of manufacture, consisting of the conical body A, with knees *a*, and the concave bottom B, with median slide, as shown and described, to form a coal scuttle adapted to be used with magazine-stoves, as specified.

186,482. MILK-COOLERS. C. W. Kinyon and A. T. Brown, Scott, N. Y. [Filed Dec. 8, 1876.]

Brief.—Four pans in four vats in one frame; space around and beneath the pans; a central influx of water, with four cocks, each governing a perforated tube, spraying the bottoms and sides of the pans; an eduction-tube to each pan, and adjusted to varying altitudes; base discharges for the milk, and horizontal vents for air circulation around the pans when the water is shut off.



1. The pans B in vats A, with common cylinder C, and stop-cocks controlling perforated distributing-tubes, arranged as shown and described.

2. The pans B and vats A, with movable discharging-pipes e and conduent tunnel *d*, substantially as arranged and described.

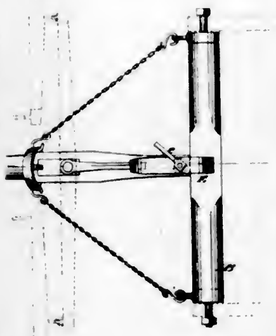
3. The pans B vats A, distributing perforated pipes *b*, and discharge-nozzles *f* and *e*, and tightening-cams D, arranged as described.

4. A cooler with pans B, held in vats A by a half headed button, *i*, and with ventilators *g*, as arranged and described.

186,483. COMPOSITION OF MATTER FOR VENEERS. C. H. Land, Detroit, Mich. [Filed May 27, 1876.]

A composition of matter consisting of whiting, linseed-oil, rubber, turpentine, and sulphur, in the proportions and for the purpose specified.

186,484. SLED-TONGUES. J. P. Lawson, Chandler's Valley, Pa. [Filed Sept. 22, 1876.]



The combination of the strap E, and the screw-bolt and nuts, with the pole A and roller B, as and for the purpose set forth.

186,485. PREPARING ANILINE DYES. L. Leigh, Pittsfield, Mass. [Filed Oct. 23, 1876.]

Brief.—Forms the composition into small cakes of any convenient size and shape. In using the dye, the quantity desired is shaved from the cake into a vessel of boiling water.

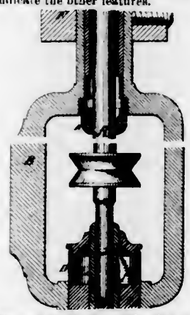
As a new article of manufacture, a solid block or cake consisting of soap, gelatine, and an aniline dye, the whole soluble in water, and capable of imparting a fixed color to fabrics, as set forth.

186,485.



186,486. SOLSTERS AND STEPS FOR SPINNING-MACHINES. W. S. Luscomb, Providence, R. I. [Filed May 11, 1876.]

Brief.—The bolster and step are provided with an oil receptacle, and a sleeve having a hole for the reception of the end of a flexible oil conductor, which extends from within said receptacle, and by its motion supplies oil to the spindle-bearings. The claims and drawing indicate the other features.

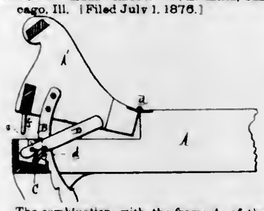


1. The spindle A, in combination with the spindle-bolster C, the receiver B, the spindle-step D, the receiver step or support E, and the rails F F, substantially as described.

2. The receiver B, in combination with receiver-step E and rails F F, substantially as described.

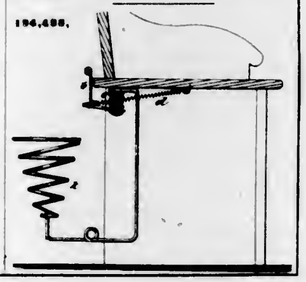
3. In combination with a rotating spindle and a bolster or step, provided with an oil-receptacle and an interior sleeve having a perforation, as described, a flexible oil-conductor extending from within the oil-receptacle through the perforation to and bearing against the spindle, whereby, when the latter is in motion, the said conductor will be caused to vibrate, and thus feed oil to the spindle-bearings, as set forth.

186,487. HEAD-RESTS. W. L. Miltz, Chicago, Ill. [Filed July 1, 1876.]



The combination, with the frame A, of the head-piece A′ hinged thereto, and the ratchets B B, rock-shaft C, pawls *c c*, toe *d*, notched lever D, and stud *f*, all arranged to operate substantially as described, for the purpose specified.

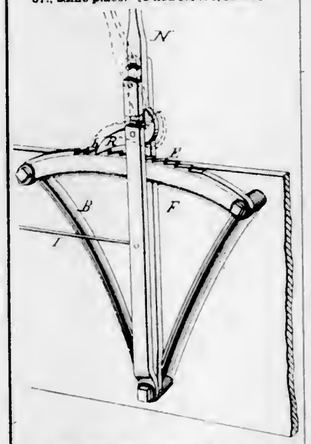
186,488.



186,488. HAT-HOLDERS. Payson H. Miner, Rome, N. Y. [Filed Dec. 18, 1876.]

A hat hook or support, consisting of a rod bent into a spiral, *k*, for supporting the hat, and bent upward, and formed into a coil, *e*, for receiving a screw for attaching it to the seat, and provided with an arm, *b*, for moving it, and a spring, *d*, for returning it to its normal position, substantially as herein shown and described.

186,489. WAGON-BRAKE LEVERS. J. G. Morton, Canton, Mo., assignor of one-half his right to T. J. Morton and J. Heither, Jr., same place. [Filed Nov. 1, 1876.]

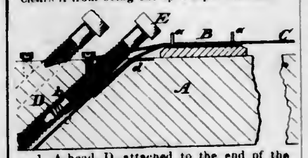


1. The double tension lever F, having the pawl R loosely pivoted between its parts, in combination with the lever N and ratchet E, substantially as set forth.

2. The double tension lever F, having the tilting lever N and pawl R pivoted between its parts, in combination with the ratchet E and draw-rod I, substantially as specified.

186,490. DEVICES FOR STRINGING AND TUNING PIANO-FORTES. G. Morgan, Andover, N. H. [Filed Oct. 16, 1876.]

Brief.—The wrest-pin plate is provided with slanting pin-holes, in which a head or knob secured to the end of the string fits loosely. The wrest-pin works directly against the head. A slot or groove in the side of the pin-hole forms a guide for the string to lie in, and clears it from being cut by the pin threads.



1. A head, D, attached to the end of the string, unconnected with the tuning-screw, but arranged to be operated upon by said screw, substantially as herein set forth.

2. The female screw or hole *b*, in which the head D plays, threaded on its inner surface, and provided with a string-groove, *c*, as set forth.

3. The piano-frame A, provided with internally-threaded holes *b*, arranged obliquely, as set forth, and provided with string grooves *c*, all as and for the purposes specified.

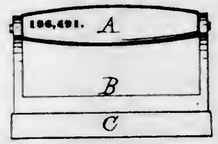
4. The head D, provided with string holes *a e*, and a neck or reduced central part, in combination with a string, C, and screw E, all arranged substantially as set forth.

186,491. TOOLS FOR DRESSING MILLSTONES. M. L. Mowrer, Dayton, Ohio. [Filed June 29, 1876.]

Brief.—Corundum mixed with an adhesive substance is compressed into a frame having ears to support the rod of the wooden handle.

The frame B, handle A, and corundum C, combined to form a hand-tool for dressing millstones, substantially as set forth.

186,491.



186,492. MANUFACTURE OF RIVETED WATER-PROOF HOSE. J. Murphy, New York, N. Y. [Filed Aug. 14, 1876.]

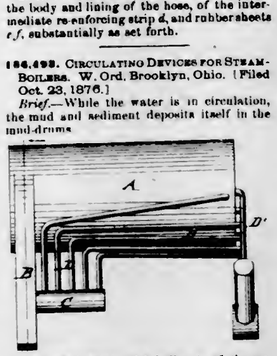


1. In a riveted hose, the intermediate re-enforcing-strip *d*, interposed between the lining and body of the hose, and opposite either the rivets or inner lap of the hose, or both, substantially as set forth.

2. In a riveted hose, the combination, with the body and lining of the hose, of the intermediate re-enforcing strip *d*, and rubber sheets *e f*, substantially as set forth.

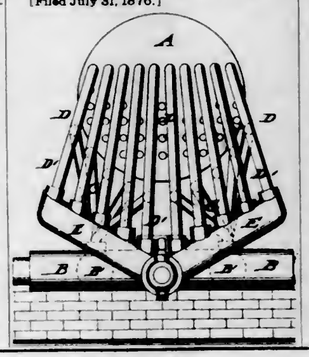
186,493. CIRCULATING DEVICES FOR STEAM-BOILERS. W. Ord, Brooklyn, Ohio. [Filed Oct. 23, 1876.]

Brief.—While the water is in circulation, the mud and sediment deposits itself in the mud-drums.



The combination, with boiler A, of the water legs B B, below and out of contact with the fire-box, but connected with the front of boiler by holes *a*, and with the rear thereof by tubes C D D′, as shown and described, whereby that portion of legs B below the tubes C is made to serve the purpose of mud-drums, while a constant current is forced longitudinally through the boiler.

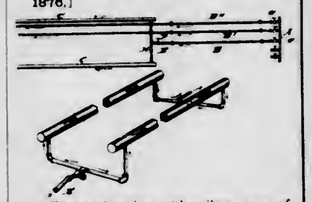
186,494. WATER-TUBE AND CIRCULATING STEAM-BOILERS. W. Ord, Brooklyn, Ohio. [Filed July 31, 1876.]



1. The combination, with a tubular or other steam-boiler, A, and side extensions B′, of the mud-drum E, of steam-generating tubes C that extend back to the rear part of the boiler and enter the same separately at a point below the water-line, substantially in the manner and for the purpose set forth.

2. The combination of the steam generating tubes C D, that connect mud-drum extensions B′ and boiler, with downward-extending drop-tubes D′, and a sediment-collecting receptacle, E, at the lower end of the drop-tubes, substantially as and for the purpose described.

186,495. RAILWAY-CAR HEATERS. Jno. O. Osborne, Chicago, Ill. [Filed Mar. 15, 1876.]



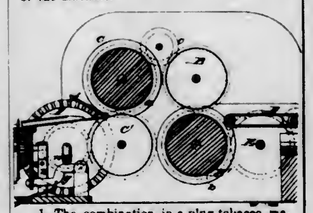
1. The combination, with railway-cars, of the steam-pipes C, arranged to heat the cars, and the pipes D D′ D″, &c., one for each car, to convey steam from the pipe A to the pipes C, and constructed as described, so as to be coupled between the cars, substantially as specified and shown.

2. The combination of pipes C and independent pipes D D′ D″ with the pipes H and suitable coupling devices, whereby the cars are adapted to be attached to the steam-supply pipes at either end, substantially as set forth.

3. The combination of the receiving and distributing pipe A, the steam-generator, the independent pipes D D′, &c., attached thereto, the stop-cocks G, and the pipes E, with stop-cocks F, substantially as and for the purpose set forth.

186,496. PLUG-TOBACCO MACHINES. T. W. Prather, Union Depot, Tenn. [Filed Nov. 4, 1876.]

Brief.—The rolls are arranged to press the plug on its upper and lower sides alternately, and an automatically-operating knife severs the plug, while a guide directs it to the rear of the machine.



1. The combination, in a plug-tobacco machine, of the front lower flanged roll B′, upper plain roll B, and the rear upper flanged roll C, and lower plain roll C′, as and for the purpose set forth.

2. The combination of the rolls B B′ C C′, swinging rectangular tube F, and circular knife I, substantially as shown and described.

3. The combination of the crank H, lever *g*, rod *h*, tube F, and spring *j*, substantially as shown and described.

4. The combination of the rolls B B′ C C′, apron D, tube F, circular knife I, and endless apron J, substantially as shown and described.

186,497. CORN-HARVESTERS. O. D. Reed, Polo, Ill. [Filed July 17, 1876.]

1. The gathering and lifting belts *d d*′, inclined backwardly and upwardly, and provided with the teeth or projecting arms, adapted to operate in advance of the points of the shoes or runners for picking up the stalks, substantially as and for the purpose set forth.

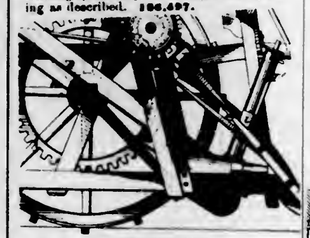
2. The upright toothed rollers or reels I I′, in combination with the inclined gathering-belts *d d*′, arranged and operating substantially as described.

3. The combination of the toothed gathering belts *d d*′ and the rotating spiral or screw *j*, arranged and operating as described.

4. The combination, with the upright reels I I', of the spiral *j*, acting on the butts of the stalks, as described.

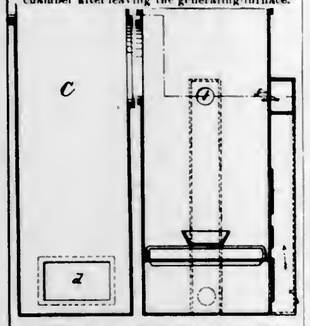
5. The combination, in a corn-harvester, of the gathering-belts *d d'*, upright reels I I', and rotating spiral rod *j*, all arranged and operating as described.

186,497.



186,498. PROCESSES AND APPARATUS FOR MAKING LAMP-BLACK. John Rogers, Brooklyn, N. Y. [Filed May 19, 1876.]

Brief.—The lamp-black is made of a finer quality by a secondary combustion, induced by currents of air mixed with the primary products of combustion on their entrance to a chamber after leaving the generating-furnace.

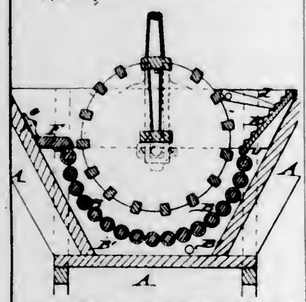


1. The process of treating lamp-black, which consists in conducting the products of combustion directly from the furnace into a chamber, and in combining them within said chamber with a current of fresh air to cause additional combustion, substantially as specified.

2. The lamp-black furnace, combined with the shaft C, which has the air-opening *d*, substantially as herein shown and described.

3. A lamp-black furnace made with an air-opening beneath the place of combustion, and with a horizontal air-opening, *f*, above the place of combustion, and on a level with the horizontal discharge-pipe *e*, substantially as and for the purpose herein shown and described.

186,499. WASHING-MACHINES. Charles K. Rogers, Oswego Falls, N. Y. [Filed Dec. 11, 1876.]

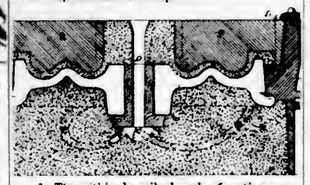


1. The combination of wash-board E, with stay boards and tub, by groove and tongue joint and retaining pivot-braces, substantially as specified.

2. The combination, with tub A, having pivot stop *e* and stay-boards B', of a horizontal wringer-support, F, substantially as set forth.

186,500. MANUFACTURE OF CAR-WHEELS. John K. Sax, Pittston, Pa. [Filed Dec. 19, 1876.]

Brief.—Chill and cope are secured together and inverted, the main pattern inserted, the central pattern-block placed on the main pattern, and the arc-shaped sprue-rods inserted at one end in recesses in the central pattern-block, and rested at their other ends against the rim of the pattern. Drag is tamped; reverse flask, tamp copes, draw main pattern, draw sprue rods by grasping their outer ends, draw center pattern-block, insert hollow core, and replace chill and cope.



1. The within-described mode of casting car-wheels—that is, by introducing the metal from below, near the periphery of the mold, in several streams flowing spirally from the center, and issuing upward nearly parallel to the periphery, substantially as set forth.

2. The mode of casting car-wheels by introducing the entire body of metal at the periphery in a series of streams at regular intervals each at such an angle as will impart a rotary motion to the entire body of metal until the mold is filled, as specified.

3. The regularly-curved sprue-rods C, constructed to form curved channels leading spirally from the center sprue to the rim of the mold, as set forth.

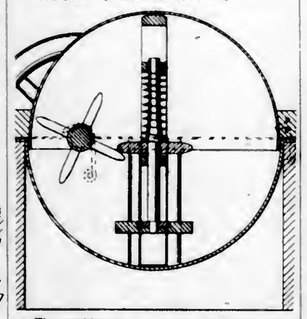
4. The pattern-block E, adapted to form below the sprue D an enlarged central receiving-basin communicating with the sprue-channels *e*, as set forth.

5. The combination of the central hollow core having an enlarged bottom portion with a mold having the basin *i* below the core and the sprue-holes O radiating spirally from the basin to the lowest part of the rim, substantially as and for the purpose set forth.

6. A chill, provided with a vertical re-enforcing-flange, *a*, permanently attached to, and forming part of, the chill, and extending upward to inclose the cope, substantially as described.

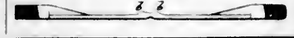
7. The combination of the said flanged chill and the cope L inclosed by the flange, substantially as specified.

186,501. CHURNS. J. W. Smith, Humansville, Mo. [Filed Oct. 7, 1876.]

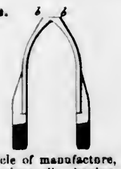


The combination, in a churn, of rotary and reciprocating dashers, the former operating the latter, substantially as shown and described.

186,502. CARRIAGE-CLIPS. Geo. F. Smith, Plantsville, Conn., assignor to H. D. Smith & Co., same place. [Filed Oct. 9, 1876.]

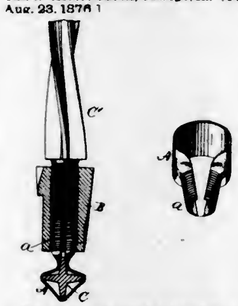


186,502.



As an article of manufacture, the herein-described carriage-clip, having the projections *b b* upon the upper side equidistant from the center, and with a depressed space between, substantially as specified.

186,503. LIGHTNING-ROD-CONNECTING CLIPS. Albert Snook, Oswego, Ill. [Filed Aug. 23, 1876.]

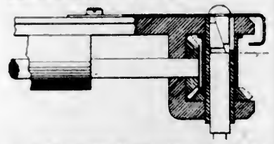


1. The clip A, constructed as described, with threaded ends *a a*, and combined with the nut B and rods C C', substantially as and for the purpose specified.

2. As a new article of manufacture, the clip A, constructed of thin plate metal, and its ends pressed into segments of screw-threads, substantially as and for the purpose specified.

186,504. ANGLE ATTACHMENTS FOR DENTAL ENGINES. E. T. Starr, Philadelphia, Pa., assignor to S. S. White, same place. [Filed Dec. 5, 1876.]

Brief.—The tubular portion has a forked arm, in which the tool retaining mechanism is journaled. A sliding wedge attached to a spring-arm retains the tool, which is wedge-shaped at its inner end, and has a groove which receives the head of a fixed pin.



1. The combination, substantially as hereinbefore set forth, in a right-angled attachment for dental engines, of the tubular portion, its forked arm, and tool-retaining mechanism turning in bearings in said arm.

2. The combination, substantially as hereinbefore set forth, of the tubular portion, its forked arm, tool-retaining mechanism, having its bearings in said arm, and the driving-gear on the said tool-retaining mechanism, whereby space is economized, and a steady movement and firm bearing of the tool secured.

3. The tool-retaining mechanism, substantially as set forth, consisting of the combination of the turning socket, its transverse pin *c*, and the wedge, whereby a tool inserted into said mechanism is securely locked against accidental displacement and pulling strain.

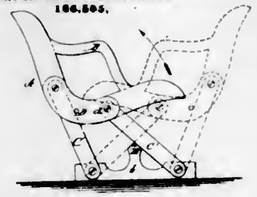
4. The combination, substantially as hereinbefore set forth, of the tool-socket, the spring-arm mounted on the socket-support, and the locking-wedge revolving in said spring with the operating-tool.

186,505. REVERSIBLE SEATS. Lucius T. Stanley, Indianapolis, Ind. [Filed Dec. 11, 1876.]

1. A reversible seat, supported by two pairs of swinging bars, whose upper ends are pivoted nearer together than their lower ends, so that the seat is reversed by swinging it on the bars, substantially as herein shown and described.

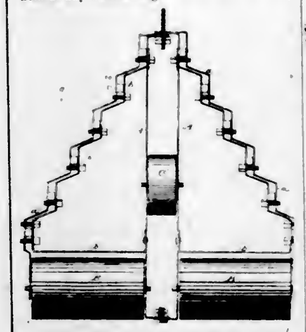
2. The end pieces A A', having the stop-lug D, in combination with the swinging bars C C', the part *b*, and stop-lug E, substantially as herein shown and described.

186,505.



186,506. HARROW AND LAND-ROLLER COMBINED. Wm. M. Stebley, King William Court-House, Va. [Filed Aug. 17, 1876.]

Brief.—A flexible harrow-frame with a central and two rear rollers. The metal side bars are bent into the form shown, each inner bar being bent to form a scraper for one of the rear rollers. The teeth are clamped between the side frames, whereby they may be held at any desired angle.

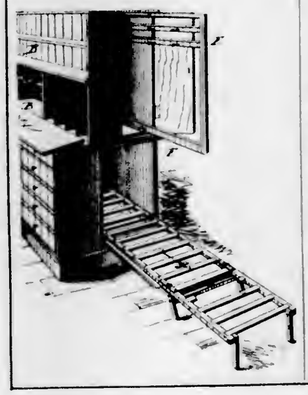


1. The hinged harrow *a b a' b'* A, constructed with zigzag or shearing sides *a b*, made with lateral offsets in clamp form, in which are supported the bar-teeth C, in erect or inclined position, by the bolts *n*, to form the adjustable cutting or smoothing harrow, substantially as set forth.

2. The scraper or roller cleaner *b'*, in combination with the roller B, and with the parts A and *a b* of the harrow-frame constructed and arranged substantially as set forth.

3. The hinged side frames *a b a' b'* A, in combination with the rolls B at rear end, and with roll C' in interior of harrow, all arranged substantially as set forth.

186,507. WARDROBE-BEDSTEADS. Wilson Sutcliffe, Weatherford, Tex. [Filed July 11, 1876.]



1. An office-desk, having a lateral compartment in rear of the front drawers, containing a sliding drawer, D, carrying a wash-basin, D', and provided with a combined mirror and hinged lid, D², as and for the purpose set forth.

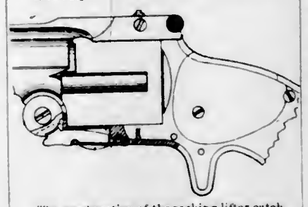
2. The sliding hat-rack F, arranged in a space formed in the back of the book-stand B, above the desk, as herein shown and described.

186,508. WEATHER-STRIPS. E. C. Underwood, Boston, Mass. [Filed Oct. 19, 1876.]



The weather-strip described, the same consisting of a molding, A, provided with a rabbet, *a*, saw-kerf *b*, and recess *c*, and a doubled strip, B, having one edge fastened in the saw-kerf and the other fastened in the recess *c*, substantially as and for the purpose described.

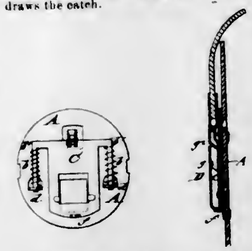
186,509. REVOLVING FIRE-ARMS. Daniel B. Wesson, Springfield, Mass. [Filed Dec. 1, 1876.]



The combination of the rocking lifter-catch, spring, and lifter, all constructed and operating substantially as herein described.

186,510. POCKET-BOOK LOCKS. Franz F. Weiss, Jersey City Heights, N. J. [Filed Oct. 7, 1876.]

Brief.—Upon a recessed base-plate is a sliding spring plate having the securing catch, which takes into a socket on the upper flap; said socket projecting into the recess in the base-plate, where it is held by the catch on spring-plate. The catch is withdrawn by pressing upon a sliding plate, the upper end of which moves upon an incline, thereby causing backward movement, which withdraws the catch.



1. A pocket-book lock, composed of base-plate, sliding spring plate and catch, guiding top plate, central slide-plate, and socket fastening of flap, constructed and operated substantially in the manner and for the purpose set forth.

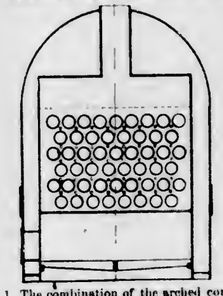
2. The combination of the socket-shaped flap attachment with the sliding spring-catch and recess of the base-plate, substantially as described.

3. The combination of the sliding spring-plate C, having rear lug *f*, with the slide plate D, to withdraw catch from socket of flap, substantially as set forth.

4. The combination of top plate E, having recessed sides *g'* and inclined flange *g²*, with the central slide-plate D, having side projections *g*, to carry slide backward by pressure thereon, substantially as specified.

5. The combination of guided spring-plate C, having side arms *b'*, with spiral springs *b* and perforated guide-lugs *d* of base-plate A, to secure steady motion of spring-plate, substantially as described.

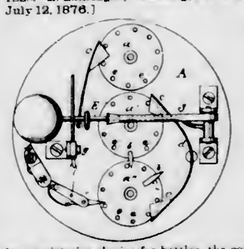
186,511. STEAM-GENERATORS. A. Winton, Hagerstown, Md. [Filed Nov. 28, 1876.]



1. The combination of the arched compartments B' B², having outlet-passages for the heated gases passing through the steam-space of the generator, and the centrally-located circulating-chamber B², forming a division of the fire-box into chambers B' B², and by which it is separated transversely; the parts being arranged to operate substantially as and for the purpose set forth.

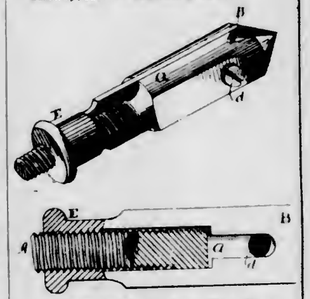
2. The combination of the double arched fire-box, arranged transversely across the generator, two series of inclined water-circulating tubes, and a central water-circulating space, the parts being constructed and arranged as shown and described.

186,512. REGISTERING DEVICES FOR BOTTLES. E. Zahringer, Pittsburg, Pa. [Filed July 12, 1876.]



In a registering device for bottles, the combination, with the base-plate A, perforated, as shown, and fitted with the disks *a a' a''*, numbered upon their outer faces, and provided with the pins *c c*, fingers *b*, and stop-cams *e*, of the weighted actuating-lever E, with its spring S, and the bell-crank lever *f* and pawl *i*, with their connecting-link k, the whole constructed and operating substantially as described, and for the purpose set forth.

186,513. COUNTERSINKS. D. J. Adams, Kittery, Me. [Filed Jan. 5, 1877.]



1. A countersink provided with a slit conical head, a, and a slit bit, B, longitudinally adjustable in said head, and a transverse binding screw, *d*, substantially as set forth.

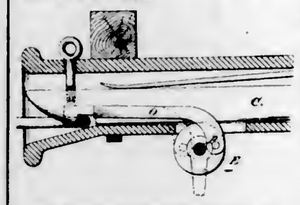
2. A shaft, A, with an external screw-thread and nut, E, and provided with a slit conical head, combined with a slit movable bit, B, adjustable longitudinally by the operation of said nut E, substantially as set forth.

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3. A countersink having a shaft, A, adapted to be attached to an ordinary bit stock, lathe-chuck, or other suitable driving apparatus, an external screw, and a nut, E, thereon, a slit conical head, *a*, with clearance-ways *c*, a slit movable bit, B, and a transverse binding screw, *d*, as set forth.

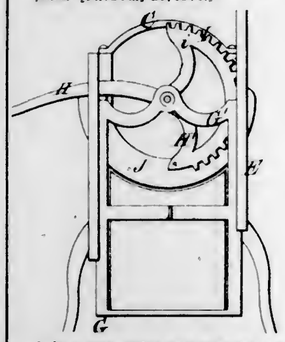
186,514. CAR-COUPLINGS. A. Allen, Mariette, Ohio. [Filed Nov. 28, 1876.]

Brief.—To the eccentric for raising the catch are fastened rods, which rise over the link and hold it down.



The combination of the catch bar C, eccentric E, sliding bars O, and link L, all substantially as described.

186,515. MEAT-CUTTERS. C. B. Andrews, Lebanon, Pa., assignor of part of his right to S. Hauck, Jr., and A. B. Hauck, same place. [Filed July 29, 1876.]



1. In a meat-cutting apparatus, the combination of a fixed rack and guides with a vertically-sliding sash, a lever pivoted thereon, and carrying a segmental gear engaging with said rack, and a knife operated by said lever, substantially as and for the purpose set forth.

2. The combination of a lever, H, segmental gear I, semicircular knife J, and rack F, substantially as and for the purpose set forth.

3. The combination of an operating-lever, having a vertically-movable pivot, a segmental gear attached to said lever, a knife operated thereby, and a fixed rack, substantially as and for the purpose set forth.

4. The combination of fine-slotted plate E, having rack F and channel *c*, with segmental gear I, sash G, and semicircular knife J, substantially as and for the purpose set forth.

5. The combination of plates having vertical guide-grooves *d* and *e* with sash C, rack F, pivoted lever H, segment I, and knife J, substantially as and for the purpose set forth.

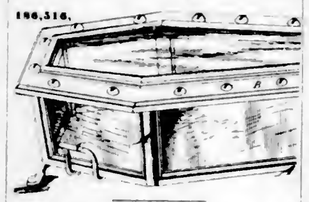
186,516. BURIAL-CASES. J. Askins, Elida, Ohio, assignor to Askins & Brother, same place. [Filed Oct. 17, 1876.]

Brief.—The metallic bottom and its upright frame-posts for glass panels are cast in one and the same piece. Over the upper edges of the glass panels is placed a horizontal frame-piece, which is screwed down to the posts, and upon this frame-piece rests the frame of the glass lid.

1. A coffin, composed of a metallic bottom and sash frame, A A', cast in one piece, the horizontal frame-piece A', the covering sash B, and the glass plates secured in the sides, ends, and top, substantially as set forth.

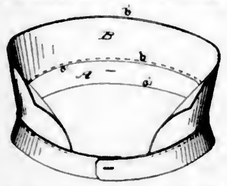
2. In combination with a coffin composed of a metallic sash and glass plates, substantially as described, the handles C in one piece and extending across the bottom, forming hand-holds on each side, as set forth.

186,516.



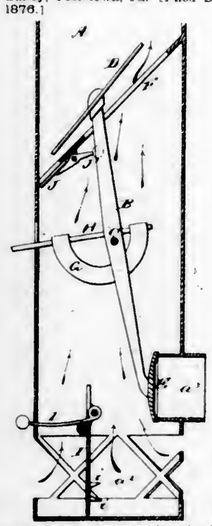
186,517. PAPER COLLARS. H. Averill and F. B. Ginn, Boston, Mass. [Filed Dec. 28, 1876.]

Brief.—The band and the cheek-piece, each being curved longitudinally, are united at their shorter or inner curved edges, to produce a flaring out in opposite directions from their point of union, whereby an easy-fitting and an accommodating collar is produced.



The improved standing collar, composed of two pieces—to wit, the collar band A, having both edges *a a'* curved longitudinally and to give a curvature to the entire band, and a cheek-piece, B, the edges *b b'* of which are longitudinally curved the entire length, the lower edge *b* of the cheek-piece and the upper edge *a* of the collar band secured by sewing, substantially as and for the purpose set forth.

186,518. AUTOMATIC DAMPERS. Mifflin W. Bailey, Pottstown, Pa. [Filed Dec. 30, 1876.]



1. The combination of a pivoted valve-rod, B, with cold-air valve D and a draft-valve, E, arranged within pipe A, substantially as and for the purpose set forth.

2. The combination of an inclined valve-seat, F, with an inclined valve, D, pivoted valve-rod B, and draft-valve E, substantially as set forth.

3. Valve-rod B, provided with expanded pieces B' B'', in combination with pivot-rod or bar C and valves D E, substantially as and for the purpose set forth.

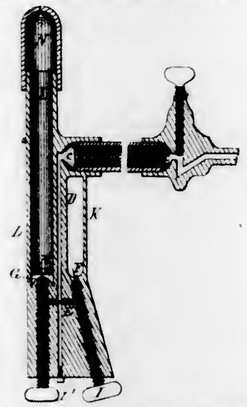
4. The combination of weighted adjusting-rod H with valve-rod B, carrying valves D E, and arranged substantially as and for the purposes set forth.

5. The combination of weighted adjusting-rod H with valve-rod B and rigid piece H', having eye *h*, substantially as and for the purpose set forth.

6. Inclined valve-seat F, in combination with a flap or trap-door, J, having weighted tail J', substantially as and for the purpose set forth.

7. Damper I, provided with lugs *i i*, in combination with valve E, substantially as set forth.

186,519. VAPOR-BURNERS. M. L. Ballard, Canton, Ohio. [Filed Dec. 2, 1876.]



1. In a vapor-burner, a tube filled with emery, through which the hydrocarbon is conducted to the jets, as and for the purposes set forth.

2. In a vapor-burner, a retort formed of a horizontal tube, a vertical tube beneath the horizontal tube, and a burner-tube contiguous to the vertical tube, in combination with a jet-orifice, which heats all of said tubes, substantially as and for the purposes set forth.

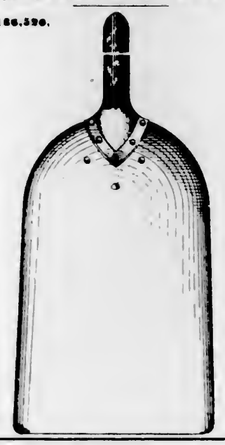
3. In a vapor-burner, a heating-jet orifice and an illuminating-jet orifice, arranged as described, so that the gas-jets can be regulated independently of each other, substantially as set forth.

4. In a vapor-burner, a horizontal tube, from which a vertical tube and a vertical shield extend downward, in combination with a heating-orifice between said vertical tube and shield, substantially as set forth.

5. Tube C and tube D, in combination with orifices F and G, substantially as set forth.

6. Tube C, shield K, tube D, and orifice F, in combination with tube L, orifice G, and air-passages M, substantially as set forth.

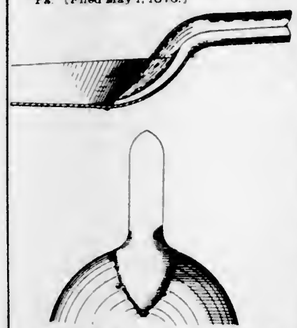
186,520.



186,520. SCOOPS. E. A. Barnes, Pittsburg, Pa. [Filed May 1, 1876.]

A scoop, having front and back straps forming a socket for the handle, the back strap of a separate piece from the body or bowl of the scoop, said back strap being riveted on the curve of the bowl, and back of the line of wear, substantially as and for the purpose specified.

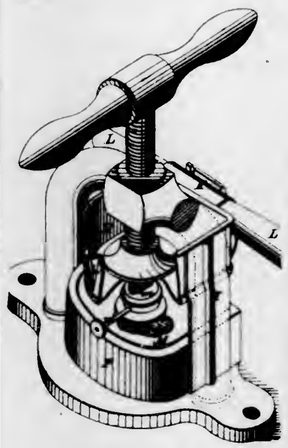
186,521. SCOOPS. E. A. Barnes, Pittsburg, Pa. [Filed May 1, 1876.]



A scoop having a deep bowl struck up, and straps forming a socket for the handle, one strap being continuous with the bowl and the other riveted thereto, substantially as and for the purpose specified.

186,522. STAMPING DENTAL PLATES. C. F. Barnard, Victoria, British Columbia. [Filed Aug. 8, 1876.]

Brief.—The plaster cast of the mouth is suspended by the screw of a screw-press within a flask, provided with an adjustable dam or partition, and molten metal poured in, which, when cool, constitutes the female die, in which the sheet-metal blank is formed by a counterpart or male die. Uses soft metal, and has a melting apparatus attached. First figure shows apparatus packed for transportation.



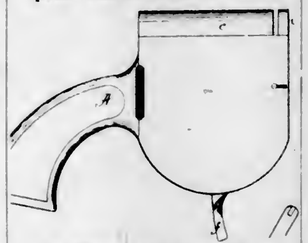
1. As an improvement in the art of mechanical dentistry, the method of forming metallic dental mouth-plates, which consists in shaping the same between dies by constantly-increasing pressure, in contradistinction to percussive force, for the purpose specified.

2. The screw-press, platen, flask, dam, and cast perforator or point, constructed and combined to operate in the manner and for the purpose substantially as shown.

3. The melting-vessel H, *h*, I, and J, lamp M, and operating lever or bar L, combined with each other in the manner and for the purpose substantially as set forth.

4. The combination of the dies, screw-press, platen, and flask, substantially as and for the purpose shown and described.

186,523. ALARM AND REGISTERING PUNCHES. Wm. H. Barr, Pittsburg, Pa., assignor to himself and H. P. Pears, same place. [Filed Nov. 24, 1876.]



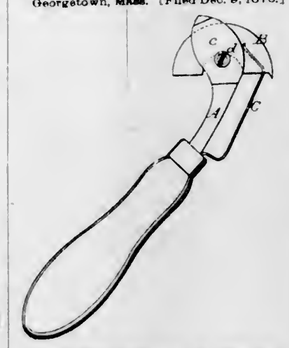
1. In combination with case A, the horizontal sliding bolt *d*, moving in case *c*, the pivoted lever *e*, for actuating the bolt, alarm, and registering mechanism, the whole adapted to be operated by the trigger *f*, substantially as described.

2. The combination of the sliding bolt-punch, the pivoted lever for actuating the bolt, the alarm, and the interposed lever, pivoted on the case, for actuating the alarm from the bolt lever, substantially as specified.

3. The combination of the sliding bolt-punch, the pivoted lever for actuating the bolt, the registering mechanism, and the interposed lever, pivoted on the case, for actuating the registering wheels from the bolt-lever, substantially as specified.

4. The combination of the bolt-punch, the pivoted lever for actuating the bolt, the alarm and registering devices, and the interposed levers, pivoted on the case, for operating the alarm and registering devices simultaneously from the bolt-lever, substantially as specified.

186,524. WELT-TRIMMERS. W. R. Barton, Georgetown, Mass. [Filed Dec. 9, 1876.]



1. The combination, with the semicircular arc-shaped blade, having a radial end edge of the shank A, having its broad end transversely recessed to form a slideway for the blade, the cap *c*, and clamp-screw *d*, substantially as specified.

2. The combination, with the shank A, and adjustable blade B, of the welt-holding spring C, extending by the cutting-edge of said blade, substantially as specified.

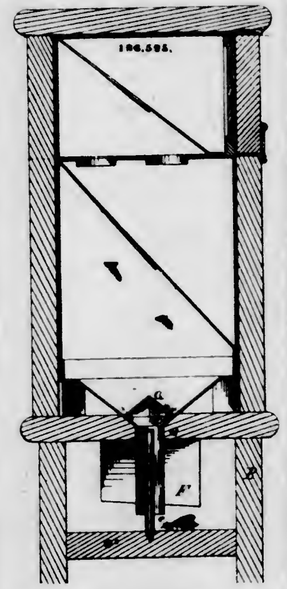
3. The semicircular arc-shaped blade B, having a radial cutting-edge at its end, and a guide-crease, *e*, parallel to its outer margin, to facilitate sharpening said edge, substantially as specified.

186,525. BEE-HIVES. J. A. Barker, Wilmington, N. C. [Filed Oct. 3, 1876.]

1. In combination with the lower metallic chamber, the downwardly-extending passage-way, and vertical standard projecting within the same, substantially as described.

2. In combination with the downwardly-extending passage-way, the guards F and G, for protecting the entrance of the hive, substantially as described.

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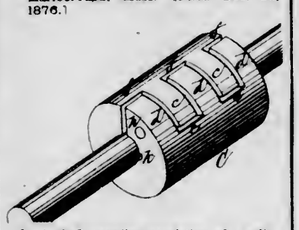


186,526. BUTTON GAITER-BOOTS. John A. Batchelder, Salem, Mass. [Filed Sept. 20, 1876.]



A button gaiter-boot, provided with separate re-enforcing pieces of leather on the outside around the button-holes, and secured to the upper, substantially as described.

186,527. SHAFT-COUPLINGS. J. H. Belser, Marlborough, Mass. [Filed Dec. 23, 1876.]

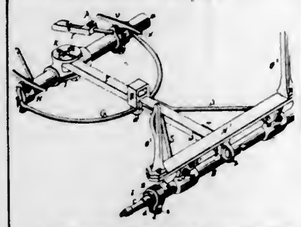


1. A shaft coupling consisting of a split metal sleeve, C, provided with tongues or projections *c d*, fitting into recesses or notches *e f*, so as to encircle the entire circumference of the shaft to which it is applied, substantially as and for the purpose set forth.

2. In combination with the split sleeve C, with its tongues and recesses, a pin or bolt, k, or other suitable device for clamping or confining the sleeve in place upon the shafting, substantially as described.

186,328. RUNNING-GEARS FOR WAGONS. M. D. Bennett, Horseheads, N. Y. [Filed Oct. 11, 1876.]

Brief.—A tubular axle having the spindle secured by clamps, bounds of a single piece of metal, bolsters of T-iron, and the various parts attached together by clamps which embrace the axle. The axle-spindle can be lubricated without removing the wheel.



1. The combination of the tubular axle, with longitudinal slot *a* at each end, the spindle-arm D, made slightly tapering, and the clip or band E, fastened by one or more bolts, substantially as set forth.

2. The spindle C, provided with the oil-passage *i*, in combination with the wheel-retaining nut *k*, for closing the upper outer end of said passage, as herein set forth.

3. The bounds G, formed of a single rod, bent as shown, forming braces at *x x*, and fastened to the axle by the clips or bands H, substantially as shown and described.

4. The bar I, provided with socket *m* and one or more pairs of jaws, *n*, in combination with the bounds G and one or more bolts, *p*, as and for the purposes set forth.

5. In combination with the tubular axle A, the clamp J, surrounding the same and having elevated disk K, provided with oil-recesses *y*, and the top disk L, having downwardly-projecting circumferential flanges *z*, as herein shown and described.

6. The combination of the disk L, with bars M M, formed of one piece, and the T-bolster N, secured together by bolts *z z*, as shown and described.

7. The combination of the holder K, with eye or loop *a'*, the bounds G, and reach I', substantially as herein set forth.

8. The combination of the hind axle B, bands or clips T, with flanges *b'*, bolster N', reach I', and braces S S, with nuts *m' m'*, substantially as herein set forth.

9. The casting Y, with flanges *w w*, in combination with the hind axle, bolster, and reach, substantially as herein set forth.

10. The combination of the bar V, castings W, with tips *d'*, the springs *e'*, plates *h'*, and rods or pins *f'*, substantially as herein set forth.

186,329. EAVES-TROUGHS. J. F. Biegelaar, St. Louis, Mo. [Filed Oct. 27, 1876.]



The slip-joint for eaves-troughs herein described, formed by lapping round the outside of the end A the strip of metal B, soldered to the inner edge of A at *b*, thus forming a double or pocket-shaped end, within which the single end A' of the next section fits, and forms a water-tight joint capable of endwise extension and contraction on change of temperature, substantially as set forth.

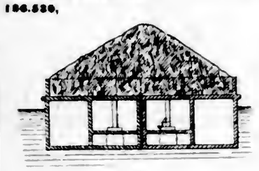
186,330. DUMPING-SCOWS. T. S. Bird and W. Boggs, Green Point, Brooklyn, N. Y. [Filed July 20, 1876.]

1. A divided dumping scow, composed of independent floats hinged together, and organized to admit of the same being turned over on their sides, for the purpose of dumping the load, but presenting a single or continuous deck or loading surface when said floats are adjusted to close the scow, substantially as specified.

2. A divided dumping-scow, composed of duplicate or independent floats hinged together at their outer sides by means of transverse bridges, braces, or connections, and organized to admit of said floats being turned over on their sides to dump the load from off and between them, essentially as described.

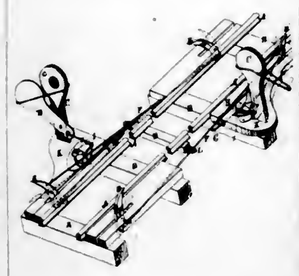
3. A dumping-scow having combined with it one or more laterally-arranged water-weighting chambers or compartments, and a valve or valves controlling the latter, the whole being organized to provide for the dumping of the load by the partial turning over of the scow or floats composing the same on water being admitted to said chambers or compartments, essentially as described.

186,330,



186,331. RAILROAD-SIGNALS. Abram M. Bodley, Newport, Ky. [Filed Jan. 10, 1877.]

Brief.—A passing train acts upon a vertical lever, and uncovers a target or signal in advance. After passing the signal, the train strikes another lever, and returns the apparatus to its normal position. The levers are made in two sections, hinged together, to prevent injury when the train moves in the opposite direction.

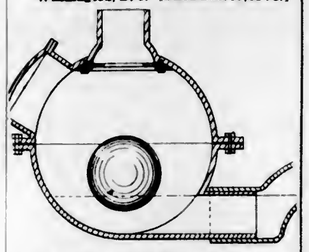


1. In combination with the target-shield D, pivoted upon the target C, and arranged to move before or away from its face *c*, the levers E and E', pivoted at the side of the track, so as to be moved by passing trains, connected together by the rod F, and connected with said shield by means of the rod G, bar H, bell-crank lever I, and bar K, substantially as and for the purpose specified.

2. The operating-lever E, divided transversely and hinged at the point of division, and provided with the spring *e*, which is secured at one end to the forward face of one section, and has its opposite end confined loosely against the corresponding face of the remaining section, substantially as and for the purpose shown.

3. As a means for sustaining the rod F, and confining the same in position, the staple L, provided with a long and a short arm, I and I', respectively, and driven horizontally into a tie or other suitable support, and the grooved roller M, journaled upon said arm I', and furnishing a rolling bearing for said rod, said parts being combined to operate in the manner substantially as set forth.

186,332. STENCH-TRAPS. T. Boldemann, Washington, D. C. [Filed Dec. 18, 1876.]

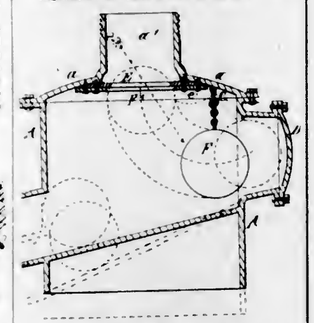


1. A stench-trap consisting, essentially, of the ordinary goose-neck trap and a valve-casing, the inlet-orifice of which forms the seat for a free spherical float-valve, substantially as described.

2. The combination, with a valve-casing and a free spherical float-valve, having its seat in the inlet-orifice of said casing, of an ordinary goose-neck stench-trap, the two being connected together, so as to maintain a sufficient water-level within the casing to float the valve at all times, substantially as described, for the purpose specified.

3. The spherical casing consisting of two hemispheres having broad flanges, an inlet-nozzle forming the seat for a valve, and an outlet-nozzle and a hand-hole, in combination with a float-valve, substantially as described, for the purpose specified.

186,333. VALVES. T. Boldemann, Washington, D. C. [Filed Oct. 3, 1876.]



1. A valve especially adapted as a back-pressure valve, consisting essentially of a casing the inlet-orifice of which forms the seat, and a spherical float-valve suspended within said casing, substantially as described, for the purpose specified.

2. A ball-valve suspended in its casing, in such a manner that the arc of a circle described by the periphery of said ball at right angles to its line of suspension will intersect the plane of the seat for such valve, substantially as described, for the purpose specified.

3. A ball-valve incased in a flexible covering of rubber or its equivalent, in combination with a flexible seat for such valve, substantially as described, for the purpose specified.

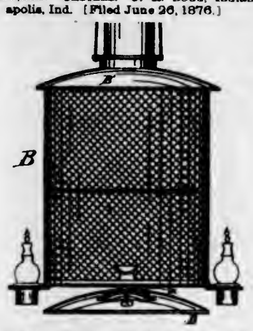
4. The casing A, having an inclined bottom on a line with the line of the discharge-orifice, and a cylindrical recess below such bottom, substantially as described, for the purpose specified.

5. The casing A, provided with a recess or hand-hole, D, in combination with the suspended float-valve, substantially as described, for the purpose specified.

6. The casing A, the neck *a'* of which is of curvilinear form at the point of junction of such neck with the dome-shaped head *a*, in combination with the flexible seat E and a ball-valve, substantially as described, for the purpose specified.

7. The flexible seat E, having an extensive superficial area sufficient to serve the purposes of a spring to eject the valve from such seat as soon as relieved from pressure, in combination with a ball-valve, substantially as described, for the purpose specified.

186,334. CASTERS. J. L. Bond, Indianapolis, Ind. [Filed June 26, 1876.]

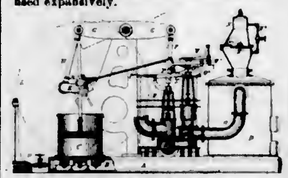


1. The combination and arrangement of the screen B B', the cord *b*, the weight *d*, pulleys *c* and *e*, the guides *i* and *i*, and the plates G, *f*, and *g*, substantially as and for the purposes set forth and described.

2. A caster device, consisting of a butter-dish holder, covered with an adjustable screen, B, and provided with call-bells *m m*, all arranged to operate in the manner and for the purposes set forth and described.

186,335. CALORIC-ENGINES. Felix Brown, New York, N. Y. [Filed Dec. 20, 1876.]

Brief.—When starting, the working-cylinder takes air for the whole stroke; but gradually the valve-gear is adjusted so that the cut-off will take place near the beginning of the stroke. This causes a gradual increase of pressure in the heating-chamber, which allows the air at a high initial pressure to be used expansively.



1. In a caloric-engine, a cut-off mechanism, whereby an increase of pressure is produced in the fire-box greater than is due to the initial expansion of the air.

2. The combination, in a caloric-engine, of two eccentrics, and valve-gear, with the inlet and exhaust valves, whereby the pressure in the working-cylinder is increased beyond the initial pressure of the air-pump.

3. The combination, in a caloric-engine, of the two eccentrics, with the valve-gear, inlet and exhaust valves, and graduating-screw, or its equivalent, as described, for the purposes set forth.

4. The combination of the relief tube and valve with the fuel-chamber and heater of a caloric-engine, substantially as described, and for the purposes set forth.

5. The cold-air channel B, connecting the supply-pump with the heater, when provided with a gate at one end for opening the channel, substantially as described.

6. The combination of an auxiliary pump with the cold-air channel and heater of a caloric-engine, to assist in starting the engine, as described.

7. The cylinder mounted on studs between it and the bed-plate, to permit of the expansion of the parts without injury to the same, substantially as described.

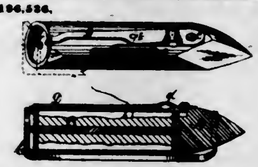
186,336. SEWING-MACHINE SHUTTLES. D. W. Brown, Providence, R. I., assignor to the Providence Tool Company, same place. [Filed July 26, 1875.]

1. A sewing-machine shuttle having an open rear end, and a bobbin fitted at the front end, to bear against the interior of the head of the shuttle, and fitted at the rear end for taking bearing against the heel of the shuttle-carrier, in combination with a spring-bar, which serves as a tension device and a bobbin-retainer, substantially as described.

2. The combination, with the body of a sewing-machine shuttle, of a spring tension-bar provided with a friction-pin, and a space, *d*, which is located in front of said pin, substantially as described, whereby a free passage is afforded for the thread in adjusting it with relation to the spring and the pin, as set forth.

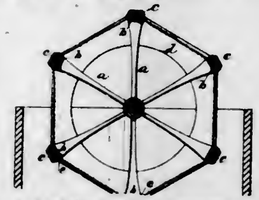
3. The combination, with a shuttle-carrier, of a shuttle having a rear open end, and a bobbin abuts at its rear end with the heel of the shuttle-carrier, substantially as described.

186,336,



186,337. BOLTING-REELS. Martin Buck, Hillsborough, Ohio. [Filed Oct. 12, 1876.]

Brief.—Applying and stretching the bolting-cloth upon a rotary reel.



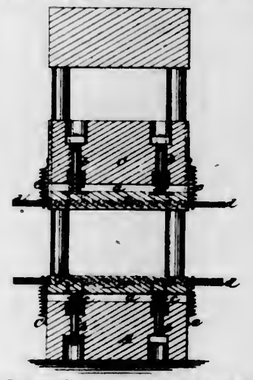
1. In a bolting-reel, the combination of an inner rib having a convex outer surface of the cloth stretched thereupon, and of an outer cap extending substantially the entire length of the inner rib, and of slightly greater width than the said inner rib, so that when applied it brings the cloth down flush with the inner surface, as set forth.

2. The inner rib *b* formed with a convex outer surface of smaller radius than that of the reel, in combination with an outer cap made to fit the inner, and draw down and stretch the cloth, as set forth.

3. The combination of the ribs *b* and *c*, with the cloth and the interposed strips *e*, as set forth.

186,338. COTTON-PRESSES. John T. Burr, Memphis, Tenn. [Filed Sept. 22, 1876.]

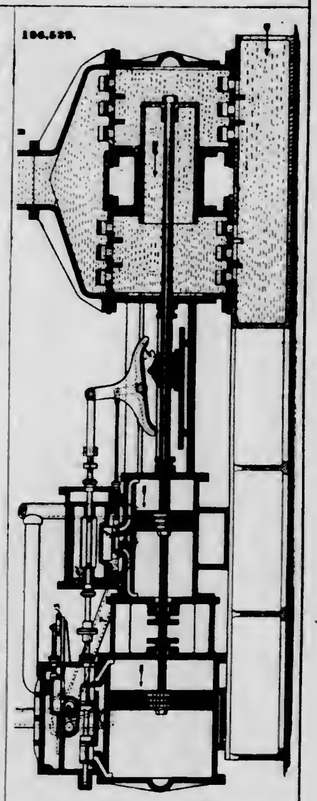
Brief.—The opposing surfaces of the platen and bed-plate have lateral ribs, yielding on spiral springs until they reach intermediate and alternate fixed ribs, on which lie the bands held by springs.



The combination, in a cotton-press, of the ribs *a*, movable blocks B, guide-rods *b*, springs *c*, and spring-hooks *c*, arranged substantially as shown and described.

186,339. PUMPING-ENGINES. Adam Carr, Paterson, and J. Arthur, Jersey City, N. J., assignors to said Carr. [Filed Jan. 17, 1876.]

186,339.



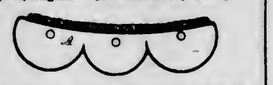
1. The guard rocker A, connected to the the valve-moving piston, in combination with the small auxiliary valve *s*, substantially as set forth.

2. The combination, with the small auxiliary valve and its rod and rocker, of a guard rocker or lever connected with a second valve in the engine, substantially as set forth.

3. The combination, with a compound engine and pump in which the piston-rods are in line with each other, of a rocking-lever valve and valve-rod receiving motion directly from the piston-rod of such engine, substantially as set forth.

4. The pump and high and low pressure steam-cylinders arranged in line with each other, in combination with the arm *d*, feed-water pump *e'*, and air-pump *w*, at opposite ends of the piston-rod *v*, substantially as specified.

186,340. POULTICES. H. E. Canty, Liverpool, England. [Filed Dec. 19, 1876.]

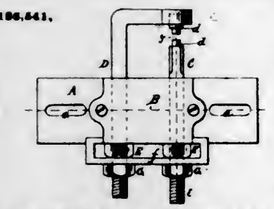


A water-bag, faced with spongeopiline or similar absorbent material, to serve as a poultice, substantially as described.

186,341. GUIDES FOR CIRCULAR SAWS. C. I. Chaffee, Allegan, Mich. [Filed Feb. 16, 1876.]

Brief.—The sawyer can at any time adjust the saw to a closely, and without any danger to himself, by means of arms provided at their inner ends with screw-threads, adjusting and jam nuts working upon said ends. A longitudinally-slotted bed-plate and a slotted box secured to the top of the bed-plate, and forming bearings for the screw-arms.

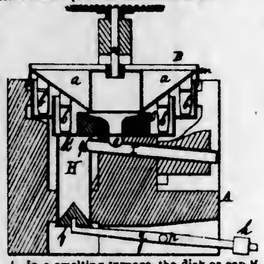
186,541.



The combination of the adjustable bed A with box B, the screw-arms C D with points *d d*, the adjusting-nuts E E, and jam-nuts G G, substantially as and for the purposes herein set forth.

186,542. QUICKSILVER-FURNACES. S. Charles, Healdsburg, Cal. [Filed July 19, 1876.]

Brief.—Ore is fed through a hopper into the ore-chamber, where it is roasted. The top of the chamber is formed of a revolving disk, carrying teeth, which project downward into channels within the chamber, to stir and disintegrate the ore. The roasted ore ultimately passes into a refuse-chamber, from which it is automatically discharged at proper intervals. The disk has a flange about its periphery, extending above and below, the lower part resting in a groove; and it has also radial depressions. The teeth are secured to the bottoms of these depressions. The disk is flooded with water, which keeps it and the teeth comparatively cool, and which, overflowing, forms a water seal with the flange in the groove. The disk has an internal covering, forming with it an air-space, whereby the ore-chamber is not cooled too much by the water. A blast of air through the hopper drives the vapors off into the condenser.



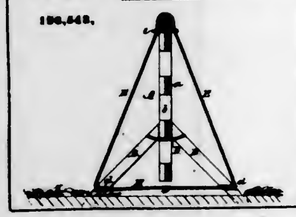
1. In a smelting-furnace, the disk or cap B, provided with the depressions or recesses *a a* and the flange *m*, substantially as described, and for the purposes set forth.

2. The disk B, provided with the lining *c*, and thus forming the air-chamber *e*, and also provided with the teeth *b b*, screwed to the under side of the floor of the recesses *a a*, of the disk B, substantially as described, and for the purposes set forth.

3. The ore-chamber C, provided with the annular grooves *i* and *l*, the openings *k k'*, and a raised circular disk, depressed in the center to form a concave basin, in the center of which is the exit *o*, substantially as described, and for the purposes set forth.

4. The disk B, provided with the shaft *a*, depressions *a a*, beneath the floor of which are screwed the teeth *b b*, and the flange *m*, in combination with the ore-chamber C, provided with the grooves *i* and *l*, openings *k* and *k'*, and the refuse chamber H, exit *p*, and weighted lever *g*, provided with the discharging cone *f*, substantially as described, and for the purposes set forth.

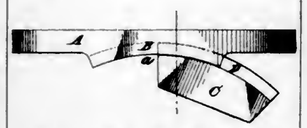
186,543.



186,543. FENCES. O. Cleaveland, Middlesex, N. Y. [Filed Nov. 4, 1876.]

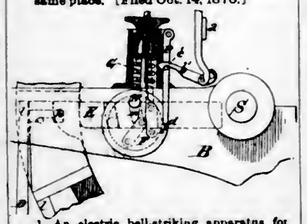
In combination with the panels A, the inclined stakes B, support D, and the wire brace or binder E, substantially as shown and described.

186,544. HORSESHOES. H. B. Cornish and C. P. Hunt, River Falls, Wis. [Filed Nov. 11, 1876.]



The combination of the calks, having arc-shaped dovetail tapering tongues, with the arc-shaped dovetail tapering grooves in the horse-shoe, substantially as herein shown and described.

186,545. FIRE-ALARM-TELEGRAPH BELL-STRIKERS. Wm. Donaldson, Cincinnati, Ohio, assignor to F. Millward, Trustee, same place. [Filed Oct. 14, 1876.]



1. An electric bell-striking apparatus for giving alarms or signals, having in combination, first, a striking escapement-wheel rotated by a falling weight or spring, and held, when not giving an alarm, by a localized detent, and, second, a swinging arm carrying an electric detent or bolt, whose operation, in transmitting motion and an alarm from the electro-magnet, first releases the localized detent from the escapement-wheel, and then transfers the pressure of the stop-wheel to said arm, whereby the latter is swung, so as to actuate the bell-hammer connected thereto.

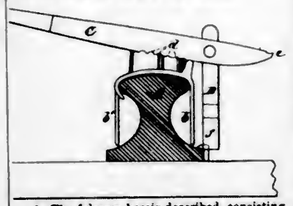
2. The escape-wheel C, having steel faces *s* to meet the surfaces of the interior and exterior detents D E, substantially as and for the purpose specified.

3. The combination of swinging bell-striking arm B, tumbler F *d*, pawl P *e'*, hook *b'*, and electric armature *a*, operating not only to release the mechanism of bolt E on time, but to prevent an alarm being given out of time.

4. The combination of swinging bell-striking arm B, rope V, and hammer-helve H I, the latter having cam-guide Y, by which the hammer is given the increasing velocity due to a falling weight.

186,546. SPIKE-PULLERS. Jos. Douglass, McConnellstown, Pa. [Filed Nov. 23, 1876.]

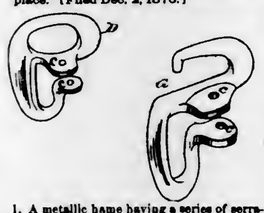
Brief.—Railroad-spikes can be extracted without bending, by means of a lever having a loosely-pivoted grapnel and a sliding fulcrum-plate, provided with graduated steps of increasing elevation, partly upon one side and partly upon the other of the fulcrum.



1. The fulcrum herein described, consisting of a plate provided with supporting-legs, and the graduated steps *a' a² a³ a⁴*, arranged to operate in connection with the lever and grapnel, substantially as described.

2. The combination, with the lever having a loosely-pivoted grapnel, of a sliding fulcrum, having its graduated steps of increasing elevation, partly upon one side and partly upon the other of the fulcrum, all constructed to operate substantially as and for the purpose described.

186,547. HAMES AND TRIMMINGS. Geo. F. Eberhard, Pittsburg, Pa., assignor to Eberhard Manufacturing Company, same place. [Filed Dec. 2, 1876.]



1. A metallic hame having a series of serrations or notches, *f*, near its upper end, in its outer side, cast therewith, and not projecting beyond the outer surface of the hame, substantially as shown and described.

2. In combination with the lug B of a hame, the hame-trimming D or G, substantially as and for the purpose set forth.

3. As an improved article of manufacture, a metallic harness-hame having a series of notches, *f*, near its upper end, the holding-lug B, and the trimming D, substantially as and for the purpose set forth.

186,548. TELEGRAPHIC ALARM AND SIGNAL APPARATUS. T. A. Edison, Menlo Park, N. J., assignor to the Domestic Telegraph Company, of New York. [Filed May 18, 1876.]

1. The segment *b*, with points upon its edge, in combination with the circuit-closing spring *e* and switch *f*, operated by the movement of the segment, as set forth.

2. The receiving-instrument, provided with a trip for the actuating-gearing, in combination with the electro-magnet to move the trip and the roller 2 and stylus 3, substantially as set forth.

3. The local circuit electro-magnets 2 and 15, in combination with the call-bell 21, trembler 16, and chemical recording-instrument, substantially as set forth.

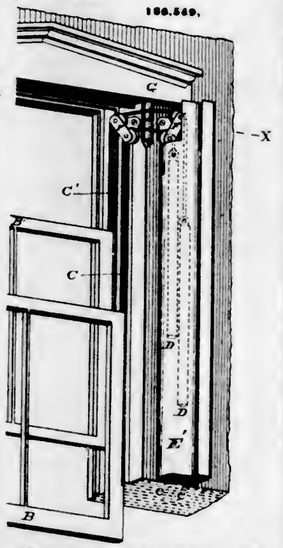
4. The transmitting-instrument, provided with a revolving shaft and circuit-closing wheels corresponding to the signals of the various signaling-instruments, and a movable contact-spring, arranged and operating substantially as set forth.

5. The bell signaling-instrument, constructed with a revolving cam to operate the hammer, a spring-stop upon the escapement, and an electro-magnet to operate the escapement, substantially as set forth.

186,549. SASH-BALANCES. F. Hobenlamb and J. Gabriel, Lawrenceburg, Ind. [Filed Nov. 6, 1876.]

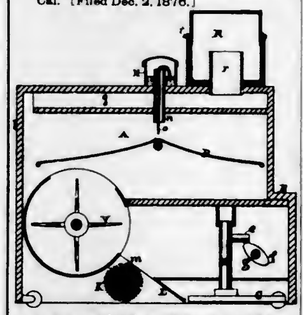
Brief.—An ordinary window-frame, not arranged for sash-weights, is provided with auxiliary pilasters, each of which has two vertical channels for sash-weights to run in, the cords being attached to the sashes in the customary manner, and then led over a double sheave or bracket obliquely placed near the upper corner, in such manner as to pass around the jamb-corners—the construction furnishing a ready means of converting the ordinary solid-frame window into one with balanced sashes.

186,549.



The combination of channeled pilasters E *e* E' *e* with sheaves or rollers F, or their equivalents, for the purpose set forth.

186,550. COMBINED CARPET BEATER AND SWEEPER. C. Eliasser, San Francisco, Cal. [Filed Dec. 2, 1876.]



1. A carpet beating and cleaning machine, having the beaters C, rotary brush K, shield or partition L, with its opening *m*, incased suction-fan V, and dust-chamber, all inclosed in a box or case, and operated by hand-power applied to the crank-wheel 6, substantially as above specified.

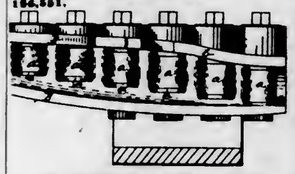
2. The tent or hood P over the blast-opening, in combination with the dripping device, consisting of the water-vessel N, with its pipe *s* and wick O, substantially as and for the purpose described.

3. The box A, having the air-escape passage *q*, arranged to connect at one end with the dust-chamber, and at the opposite end with a collecting-vessel, R, which is lined with an absorbent material, said vessel having a loosely-fitting cover, S, through which the air escapes, and which is covered by a pendent fringe of absorbent material, substantially as and for the purpose described.

186,551. SKELPING-DIES. Henry C. Evans, Pittsburg, Pa., assignor to A. F. Dalzell, Trustee for Evans, Dalzell & Co., same place. [Filed Dec. 12, 1876.]

Brief.—Each roll is provided with an offset, by means of which the skelp is to a certain extent held out of contact with the frame, and the friction thereby reduced.

186,551.

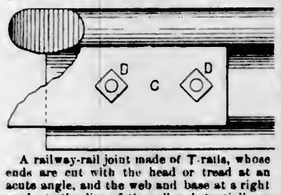


1. In combination with the frame, a series of rolls arranged within the same, substantially as and for the purpose specified.

2. In combination with the frame, the series of rolls arranged therein, the rolls of one side exceeding in height those of the other side, substantially as and for the purpose specified.

3. In combination with the frame, a series of grooved rolls arranged therein, the grooves being of such shape as to form an offset next the bottom of the die and support the skelp, substantially as and for the purpose specified.

186,552. RAILROAD-JOINTS. S. Forman, Jersey City, N. J. [Filed Oct. 26, 1876.]



A railway-rail joint made of T-rails, whose ends are cut with the head or tread at an acute angle, and the web and base at a right angle, to the line of the rail, substantially as described, and for the purposes set forth.

186,553. ELECTRIC THERMOSTATS. E. J. Frost, Philadelphia, Pa. [Filed Dec. 22, 1876.]



1. The combination, with a metallic inclosing case or cap, of the thermostatic strip, in metallic connection therewith, substantially as and for the purposes set forth.

2. The combination, with an insulating-base, of the cap or case and thermostatic strip, metallically connected, the binding-posts 1 2, the contact-point C, and pin *b*, substantially as and for the purpose set forth.

3. The combination, with the base of a thermostat, of an attaching-screw secured thereto, substantially as and for the purposes set forth.

4. As a new article of manufacture, a metallic thermostat, having a base provided with an attaching device, binding-screws, and protecting cap or case, substantially as set forth.

186,554. WINDLASS HOISTING-MACHINES. J. Fulmer and H. Fulmer, Dubuque, Iowa. [Filed Nov. 25, 1876.]

Brief.—The machine is especially designed for raising water from a well or mineral from a shaft, with the same efficiency under the various changes of the temperature. The main standard is stepped in a suitable base, to allow the device to be turned as desired for use. The weighted lever causes the sliding pulley to act in tightening the endless rope.

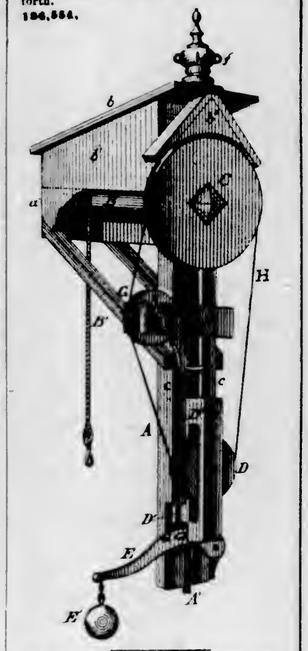
1. In a hoisting-machine adapted for the uses set forth, the combination of the grooved pulley C, sliding weighted pulley D, endless rope H, and the driving-pulley G, provided with a crank, G', constructed and arranged substantially as described and shown.

2. In a hoisting machine, substantially as described, the combination, with the standard A and sliding frame D', carrying the pulley D, of the lever E, having the slot *d*, the pin *d'* on said sliding frame, the weight B', and the endless rope, constructed and arranged substantially as described and shown.

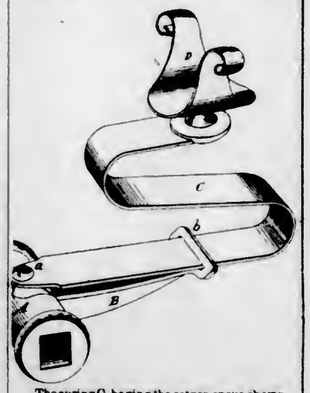
3. In a hoisting-machine, the combination, with the endless rope H, of the driving-pulley G, around which the said rope is wound, with its spindle mounted in oblique slots and held therein by the tension of the rope, substantially as described and shown.

4. In a hoisting-machine, and in combination the standard A, mounted so as to adapt the machine for turning to either side, the gudgeon B, upon which the hoisting-rope is wound, the pulleys C D, and the endless rope H, substantially as and for the purposes set forth.

186,554.

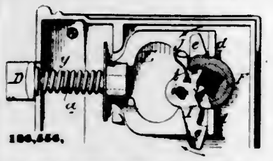


186,555. SUPPORTS FOR CARRIAGE-TOPS. A. Goodyear, Albion, Mich. [Filed Dec. 18, 1876.]



The spring C, having the return curve shown, and the rest D, in combination with the sleeve A, provided with the looped brace B *b*, substantially as specified.

186,556. REVERSIBLE KNOB-LATCHES. W. M. Griscom and F. Grossman, Reading, Pa., assignors to said W. M. Griscom. [Filed Jan. 5, 1877.]



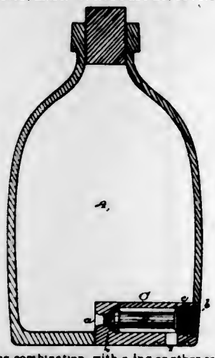
No. 186,556.

1. The combination, in a reversible latch-lock, of the yoke E and its lugs *d* with the slotted hub F, its arms *e*, and pivoted lever I, as set forth.

2. The combination of the slotted hub F and its pivoted lever I, having a finger, *z*, with a spring, J, as described.

3. The combination of the slotted hub F and its pivoted lever I with the bent spring J, bearing at one end against the lug *t* on the lever, and hooked at the other end, for adaptation to a shoulder, *x*, on the hub, as set forth.

186,557. JUGS, &c. Thomas C. Hargrave, Boston, Mass. [Filed June 23, 1876.]

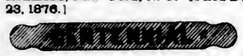


The combination, with a jug or other receptacle for containing a volatile fluid or liquid charged with gas, of a closed case, C, provided with induction and eduction openings, a valve, *s*, and means for operating the latter, the whole being substantially as and for the purpose set forth.

No. 186,558.

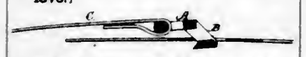


186,559. HANGERS FOR GARMENTS. Louis Hellmann, New York, N. Y. [Filed Dec. 23, 1876.]



A hanger for garments, composed of a main layer, *a*, an illuminating layer, *b*, and a perforated outer layer, *c*, substantially as shown and described.

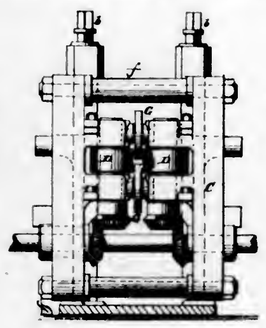
186,560. BALE-TIES. Beall Hempstead, Pulaski County, Ark. [Filed Oct. 26, 1876.]



The bale-tie, composed of the open rectangular frame A, and shoulder B, having a hook extended laterally to the band, and formed of one and the same piece of metal, substantially as and for the purpose described.

186,561. MACHINES FOR ROLLING HOOP-IRON. F. Hickman, Reading, Pa., assignor of seven-ninths of his right to C. R. Heisman, B. F. Morret, and L. Miller, same place. [Filed Nov. 23, 1876.]

Brief.—A train of rolls in which is interposed a pair of rolls turning on vertical axes, designed to reduce the band or hoop breadthwise, and another pair of rolls turning on horizontal axes, and whose line of bite is coincident with that of the edging-rolls, to prevent buckling of the hoop while under the action of the edging-rolls.



1. In a machine for rolling band and hoop iron, the auxiliary horizontal rollers G G, in combination with the alternating series of pairs of vertical rollers D D and horizontal rollers B B, substantially as and for the purposes herein set forth.

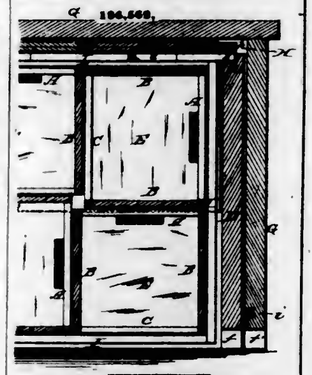
2. The combination of the frames A A with grooved bars E E, the intermediate adjustable frame or housing C, carrying the rollers D D and G G, the rods *d*, bolts *m*, and nuts *s s*, all substantially as and for the purposes herein set forth.

186,562. BEE-HIVES. A. G. Hill, Kendallville, Ind. [Filed Oct. 27, 1876.]

1. The bee-hive consisting of the body D, cap G, comb frames I, honey-boxes E, and the short cleats *h'*, all constructed and arranged whereby it forms a summer and winter hive, and the entire parts can be inclosed within the case G, as represented in Fig. 4, for transportation, substantially as and for the purpose set forth.

2. A honey-box for bee-hives having its top and sides provided on the outside with transverse grooves, for the purposes herein set forth.

No. 186,563.



186,564. TREADLES. C. Hopkins, Waltham, Mass. [Filed Jan. 27, 1876.]



The combination of the treadle-bar *s c*, terminated in the stirrup C at its lower end, and having the arm D near its top, with the pillar A, having the arm B at its top, the connecting-bar E, and the wheel F, substantially as described.

186,565. WHEEL-BRAKES. B. B. Hotchkiss, New York, N. Y. [Filed Sept 29, 1876.]

Brief.—Inner end of the hub is conical, and embraced by a collar, a part of which is screw-threaded, to engage with a screw-threaded part of the axle. By a turn of a lever the collar is brought in contact with the hub, when the friction of the parts causes it to clutch the hub and prevent further motion.

1. The brake-ring E and screw-thread A^4, in combination with a carriage axle and wheel, as herein specified.

2. The conical boss D on the wheel, in combination with the brake-ring E, having an interior corresponding surface, E', and with the screw-thread A^3 on the axle, as herein specified.

3. The brake-lever G, in combination with the threaded brake-ring E, and with the threaded axle, and with a wheel mounted as herein specified.

186,566. BOOT AND GAITER STRAPS. Saml. Hodgins, St. Louis Mo., assignor of one-half his right to M. V. Barney, same place. [Filed Sept. 19, 1876.]



The boot-strap A, constructed of webbing, and having on the inner portion of the loop the re-enforcing piece B, substantially as set forth.

186,564. TREADLES. C. Hopkins, Waltham, Mass. [Filed Jan. 27, 1876.]

The combination of the treadle-bar *s c*, terminated in the stirrup C at its lower end, and having the arm D near its top, with the pillar A, having the arm B at its top, the connecting-bar E, and the wheel F, substantially as described.

186,565. WHEEL-BRAKES. B. B. Hotchkiss, New York, N. Y. [Filed Sept 29, 1876.]

Brief.—Inner end of the hub is conical, and embraced by a collar, a part of which is screw-threaded, to engage with a screw-threaded part of the axle. By a turn of a lever the collar is brought in contact with the hub, when the friction of the parts causes it to clutch the hub and prevent further motion.

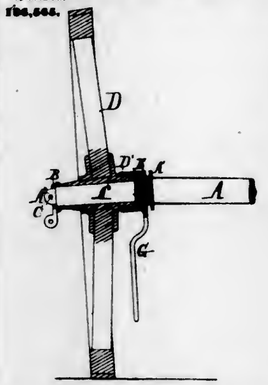
1. The brake-ring E and screw-thread A^4, in combination with a carriage axle and wheel, as herein specified.

2. The conical boss D on the wheel, in combination with the brake-ring E, having an interior corresponding surface, E', and with the screw-thread A^3 on the axle, as herein specified.

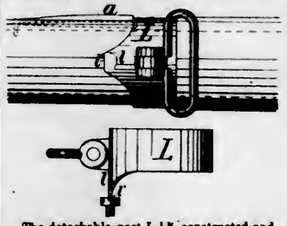
3. The brake-lever G, in combination with the threaded brake-ring E, and with the threaded axle, and with a wheel mounted as herein specified.

4. The collar A^1, in combination with the screw-thread A^2 on the axle, and with a brake-ring mounted thereon, so as to limit the motion of the brake-ring and to hold it firmly in the "off" condition when required, as herein specified.

No. 186,568.

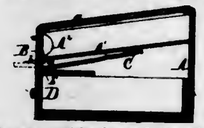


186,568. COMBINED SCREW-DRIVER AND BAND FOR FIRE-ARMS. B. B. Hotchkiss, New York, N. Y. [Filed Dec. 7, 1876.]



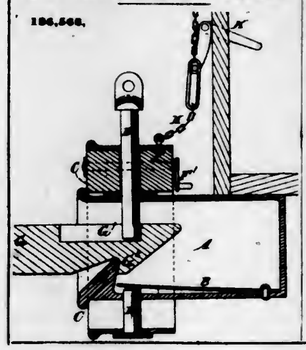
The detachable part *L l F*, constructed and adapted to serve as a screw-driver, substantially as for the purposes herein specified.

186,567. SHOW-CASES. Henry Houghton, New York, N. Y., assignor to J. Thornton & Co., same place. [Filed July 1, 1876.]



As a new article of manufacture, the within-described show-case, having the inclined transparent top *a*, the corresponding inclined board A^1, the falling door B, and actuating-springs C, all constructed and arranged to serve as and for the purposes herein set forth.

No. 186,569.



186,569. CAR-COUPLINGS. G. W. Hudson, Pewee Valley, Ky. [Filed Oct. 17, 1876.]

1. The combination of the draw-head A A', gravitation-frame C, pin D, and hook-headed and recessed link G G^1 G^2, substantially as set forth.

2. In combination with the draw-head A A' and hook-headed coupling, the plate B and pin E, attached to the gravitation-frame carrying pin D, substantially as set forth.

3. In combination with the gravitation-frame C, the pin D, adjustably attached thereto by the shaft F, so as to adapt it to operate with different couplings, substantially as set forth.

4. In combination with the draw-head, the gravitation-frame C, pins D and E, coupling G, jaw A', and plate B, and link and chain, substantially as set forth.

186,570. HARNESS-BUCKLES. M. Huerta, The Dalles, assignor of two-thirds his right to N. W. Chapman, same place, and V. Trevett, Portland, Oreg. [Filed Apr. 18, 1876.]



A harness attachment consisting of the disk A, having internally-threaded stem *a'* and loop a^2, and the disk B, having screw-stem *b'*, in combination with the intermediate plate C, provided with loops *c'*, all arranged as shown and described, for the purpose specified.

186,570. SPRING-SUPPORTED STOOLS. W. C. Huffman, Toledo, Ohio. [Filed June 19, 1876.]

1. In combination with the platform E, arranged to move vertically, the semi-elliptic springs F and F, arranged in pairs, which have relative right angles, substantially as and for the purpose shown.

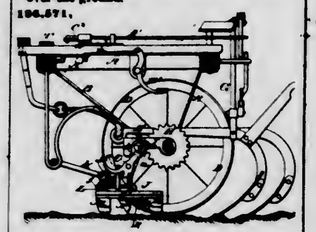
2. In combination with the standard B and sleeve C, the rollers G and G, journaled within the latter and bearing upon the former, substantially as and for the purpose set forth.

3. The standard B, the sleeve C, provided with the rollers G and G, the seat D, the platform E, and the semi-elliptic springs F and F, combined with each other in the manner and for the purposes substantially as shown and described.

186,571. CULTIVATOR AND COTTON-CHOPPERS. J. N. Gardner, Silver Springs, Tenn., assignor to himself and Andrew McClain. [Filed June 10, 1876.]

Brief.—The axle-tree is made in sections, and supports an elevated frame having two sets of cultivator-teeth. A scraper-frame is suspended by suitable devices, and the scraper is adjustable. The chopper-hoe is actuated by means of a spring, which is retracted by a cam-movement, and let off with the sudden expansion of the spring, thus making a quick stroke. The hoe then remains at rest till the spring is again retracted, when another blow is given, and so on, as the machine is drawn over the ground.

186,571.



1. The combination of the levers A', arm D, ratchet-wheel *a*, pawl *p*, arm C^4, and tongue S, as and for the purpose set forth.

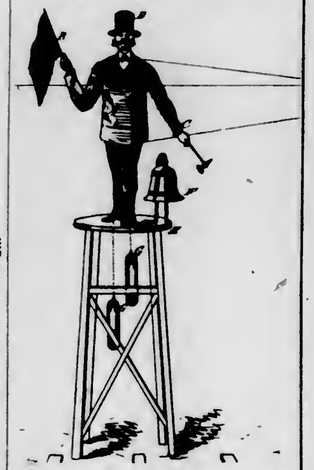
2. The combination of short driving-axles C^1 C^1, provided with radial pins *e e*, with central axle C, which carries the cotton chopping and scraping devices, and is provided with sliding spring-clutches C^2 C^2, substantially as described.

3. The combination of the frame I, spur-wheel H, pinion *a*, frame J, the adjustably-hinged bars L, carrying the adjustable blocks M, and adjustable scrapers N, and coupling K, substantially as set forth.

4. The combination of the lever O, springs *d*, chopper R, and dog P, operating, as described, by means of the eccentric pins *e e*, as and for the purpose set forth.

5. The chopper operated by spring-pressure, and provided with dogs for retaining the chopper until the springs have been drawn to their full tension, as herein set forth.

186,572. ELECTRIC RAILROAD-SIGNALS. J. D. Hugheon, Prairie City, Ill., assignor to himself and G. W. Hamilton, same place. [Filed July 11, 1876.]



1. The combination of impelling-train I J K L, mutilated pinion M, segment N, lever O, and the escapement B S T, substantially as specified.

2. The stop-pawls V and W, or X, or both, notched disk U, wheel *a*, tooth *b*, armature *p*, lever *q*, and helix *a*, combined with one or more impelling-trains and rocking levers O, substantially as specified.

3. The revolving disks O in the lantern-case D, having colored lights *d*, shaft *o'*, with arms *b'* and *f'*, and arms *f* and *d'* of the stop-disk shaft, combined and arranged substantially as specified.

4. The main line *l*, signal-line *m*, switch *j*, lever *e*, and connecting devices *g h i*, combined and arranged, with the rail *f* and the signal, substantially as specified.

186,573. EYEGLASSES. F. P. Iannarone, Washington, D. C. [Filed Dec. 6, 1876.]

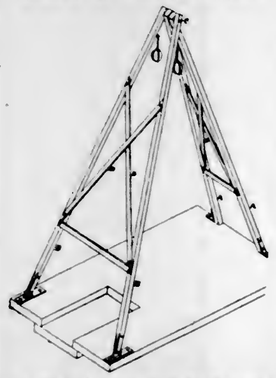


1. Eyeglasses provided with nose-clamps having two adjustments, each independent of the other—one produced by the vibration of the metal hinge, and the other by the rotation of the pad and vertical pin, substantially as hereinbefore set forth.

2. The combination of hinged portions *d b*, rubber cushion *f*, and removable pin *c*, substantially as and for the purpose set forth.

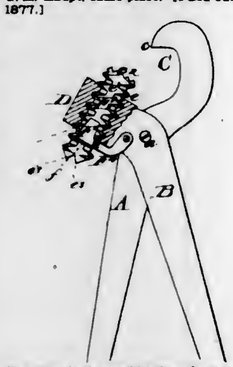
3. A nose cushion or pad for eyeglasses, having one side adapted to lie against the nose, and the opposite side formed with a rib having a central bore to receive a securing-pin, substantially as herein set forth.

186,574. PORTABLE DERRICKS. B. Jackson, Woodland, Cal. [Filed Sept. 19, 1876.]



A derrick for thrashing-machines, consisting of the two pairs of uprights A B secured at the top by a bolt, C, and having the bottom of one pair secured with a narrower base than the other pair, so that they may be folded together, substantially as herein described.

186,575. PIPE-TONGS. S. N. Jessop, Erie, Pa., assignor of one-third his right to R. G. M. Haupt, same place. [Filed Jan. 6, 1877.]

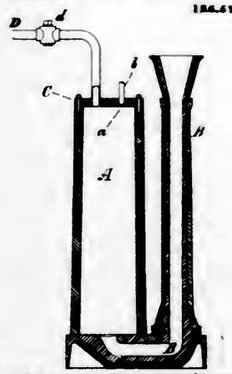


In a wrench, the combination of tubular internally screw-threaded block D, having recess *d'*, with screw-threaded bit E, flattened at *e'*, and wedge F, substantially as set forth.

186,576. PROCESSES FOR COMPRESSING INGOTS WHILE CASTING. William R. Jones, Braddock's, Pa. [Filed Oct. 16, 1876.]

Brief.—Fills mold with air-vent open; covers sprue and stops vent; admits steam, (superheated or not.)

186,576.



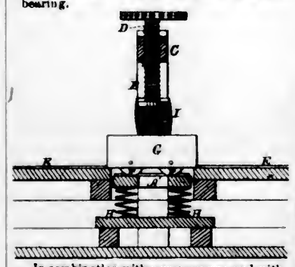
1. The herein-described process of compressing ingots while casting, consisting in admitting direct steam-pressure to the surface of the otherwise confined molten metal, substantially as set forth.

2. In the process, as herein described, of compressing ingots while casting, the method of utilizing the expansive force of steam, consisting in first admitting live steam to the surface of the otherwise confined metal, then closing the steam-inlet and allowing the steam to superheat, substantially as and for the purpose specified.

3. In an apparatus for compressing ingots while casting, the sprue B, provided with an adjustable cover, and the steam-supply pipe D, having a cock, *d*, in combination with the flask A, or group of flasks, having an outlet or outlets for the escape of air, and constructed substantially as described, so that the same may be opened and closed at will, as and for the purpose specified.

186,577. TOBACCO-PRESSES. N. B. Jones, Guthrie, Ky. [Filed Nov. 20, 1876.]

Brief.—A wheel-truck, on ways, is passed, with the tobacco, onto a platform under the screw, which platform, supported on springs, yields under the pressure, to relieve the wheels and permit the body of the truck to be the bearing.



In combination with a screw-press, and with a wheeled truck, for use beneath the same, a vertically-movable platform, which is capable of dropping until the ends of said truck rest upon stationary supports and its wheels are relieved from increase of pressure, substantially as and for the purpose specified.

186,578. GRAIN AND SEED SEPARATORS. A. W. Kendrick and C. T. Kendrick, Brooklyn, N. Y. [Filed Jan. 9, 1877.]

Brief.—Devices for creating, regulating, and equalising the blast, and for shaking and jarring the screens and leveling the mill.

1. The wheel Q and pins R, in combination with the cam-guide Z and lever T, when constructed and applied as shown, for giving motion to the screens of grain and seed separators, in the manner substantially as herein set forth and described.

2. The combination of the wheel Q, provided with projections R, the lever provided at one end with the cam-track Z, and having the length of its lower limb adjustable, and the screens *s* and *s'*, substantially as and for the purpose set forth.

3. The flexible hanger made of three pieces of strap or sheet metal connected rigidly together in Y form, and having the upper end of the Y rigidly secured to the casing of the mill and the lower end to the shoe, substantially as and for the purpose set forth.

4. The adjustable and removable supporting-block *s*, formed with grooves to receive and support the screens, and a slotted extension for the reception of a fastening-bolt provided with a thumb-nut, substantially as set forth.

5. The combination, with the screen-frames, of the horizontally-vibrating lever W, having the U-formed clevis X rigidly attached to its under side, and having its upper part fitting over the screen-frame to confine it from vertical motion, the parts being pivotally connected by bolt Y, substantially as set forth.

6. The combination, with the projecting screen-supports *d*, of an adjustable inclined screen or screens, *s* and *s'*, having an offset or shoulder at each side adapted to strike said blocks in the motion of the screens, substantially as set forth.

7. The combination of the projecting screen-supports *d*, the screen or screens having the shoulders or offsets at the sides, the horizontally-vibrating lever W, provided with the rigid clevis, and the pivot-bolt, substantially as and for the purpose set forth.

8. The adjustable and reversible screening-box L, provided with the pivoted cleats P at its sides, and a smooth imperforate bottom adapted for use as a chess-board, substantially as set forth.

9. The adjustable chess-board and deflector M, provided with guard or fender M' and pivoted cleats P', substantially as and for the purpose set forth.

10. The fan-doors or valves *r*, constructed in sections hinged together, one section being supported upon the other, and adapted to open laterally, substantially as and for the purpose set forth.

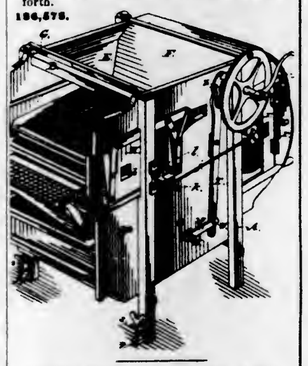
11. The partition-disk *o* of the fan, arranged to fit accurately within the drum and divide it into two air-compartments, while allowing the free rotation of the fan, substantially as set forth.

12. The combination, with the partition-disk *o*, slotted to receive and carry the fan-wings, of the fan-wings A', convex in cross-section in the direction of rotation, substantially as set forth.

13. The detachable doubly-inclined spout N', covered with coarse-wire net-work, and provided with arms B', secured to the spout above the net-work, and serving both as a means of attachment to the nest of screens and as fenders for guiding off the coarse impurities, substantially as and for the purpose set forth.

14. The adjustable supporting-screws *s*, for steadying and leveling the mill, formed with a conical point and annular shoulder or offset, substantially as and for the purposes set forth.

186,578.

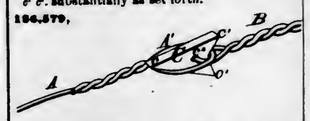


186,579. BALE-TIES. I. A. Kilmer, Howe's Cave, N. Y., assignor of one-half his right to A. Kilmer. [Filed Dec. 23, 1876.]

1. A bale-tie having a loop at one end, and a pivoted arrow-head-shaped fastening-piece at the other end, substantially as described, and for the purpose set forth.

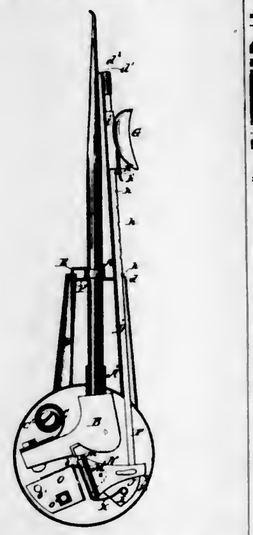
2. In a bale-tie, the combination of loop A' on end A with pivoted arrow-head-shaped fastening-piece C on end B, said fastening-piece being provided with two rearward barbs, *c' c'*, substantially as set forth.

186,579.



186,580. DENTAL PLUGGERS. C. King, Pittsburg, Pa. [Filed July 24, 1876.]

Brief.—In a dental plugger operated by a forward motion of a finger-hold, the said hold adjusts by a slide and spring-tooth, which takes in slots arranged upon the rod, which conveys motion to the hammer.



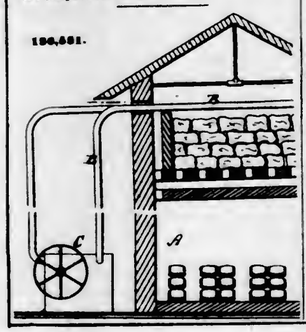
1. The adjustable finger-hold G, provided with the slide *i* and spring-catch H for securing the hold G in firm position on the rod F, substantially as described and shown.

2. In a dental plugger the combination of the finger-hold G, slide *i*, spring-catch H, and teeth *h'*, and rod F, substantially as described and set forth.

3. The rod F, having the notches *h h* for the purpose of adjusting the finger-hold G, substantially as described and shown, and for the purpose set forth.

4. The combination of the disk P, grooved brace or disk *d'*, and the instrument A, substantially as described and shown, and for the purpose set forth.

186,581.

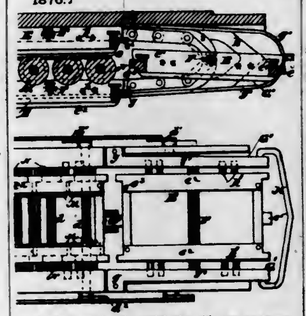


186,581. METHODS OF PRESERVING ICE IN ICE-HOUSES. T. Kranoch, New York, N. Y. [Filed Nov. 22, 1876.]

Brief.—The air is cooled by coming in contact with the pipe before passing through the ice.

The within-described mode of preserving ice in ice-houses—that is, by subjecting the air in contact with the body of the ice to the action of cooling appliances, as set forth.

186,582. TRACTION-ENGINES. J. S. Lake, Smith's Landing, N. J. [Filed May 22, 1876.]



1. In combination with the sides or runners having grooves *i*, the endless chains C C', located in said grooves, substantially as shown and set forth.

2. In combination with the endless chains C C', arranged and operated substantially as shown and described, the shoes E, connected to said chains by shafts F, and carried above and below the shafts *e* without being inverted in their passage, as set forth.

3. The supplemental runners G G', pivoted to the sides A A', substantially as described, to facilitate turning.

4. In combination with the chains C C' and shoes E, the latter having anti-friction rollers *k'*, the grooves *i* and *k*, and cleats or grooves *l*, for guiding said shoes, as set forth.

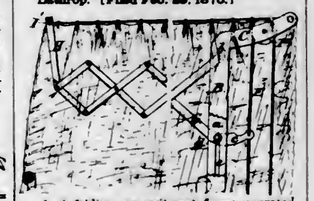
5. The shoes E, formed of end rails *e*, side rails *e'*, and bars *e''*, loosely jointed together, substantially as and for the purpose set forth.

6. In combination with the shoes E, the anti-friction rollers M N, of different diameters, mounted on the same shaft, substantially as shown and set forth.

7. In combination with the shoes E, the guide-blocks *e' e'*, for keeping said shoes in line, substantially as shown and set forth.

8. In combination with the shoes E and rollers M N, the mud-guards O, substantially as shown and described.

186,583. MOSQUITO-NET FRAMES. B. S. Lathrop and L. Salvaterre, Savannah, Ga.; said Salvaterre assignor to said Lathrop. [Filed Feb. 20, 1876.]



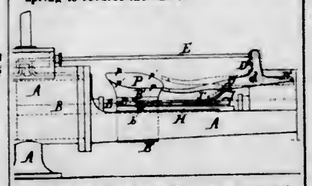
1. A folding mosquito-net frame operated by a pair of lazy-tongs, substantially as and for the purpose described.

2. The extensible mosquito-netting frame consisting of the standards B, provided with a slotted partition-plate, *a*, in combination with the lazy-tongs D, having one of the end levers pivoted to said partition and the other extended at *c* and connected with the partition-plate through a stud moving in the slot, as and for the purpose described.

3. The standards B, having a slotted partition, *a*, the supports C, connected by rods, and the pulleys P contained in the supports, in combination with the cords E and the lazy-tongs D, carrying offsets H, connected by a rod, the said lazy tongs having one end lever pivoted to the partition and the other free to move with a sliding connection in the slot, and extended so as to be operated by the cord passing around the pulley, as and for the purpose described.

186,584. STEAM-PUMP VALVE-GEARS. B. S. Lawson, New York, N. Y. [Filed Dec. 23, 1876.]

Brief.—The spring is carried by the piston-rod, so that it acts alternately on opposite ends of the rocking lever. At the end of the stroke the long arm of the rocker is disengaged from the cam, and is moved by the spring to reverse the valve.



The spring I and cam P p, each traversed as specified, in combination with a rocking lever traversed and operated by the joint action of the spring and cam, and with the lever J' J², connected valve-rod E, and the cylinders and pistons of a steam-pump, as and for the purposes herein specified.

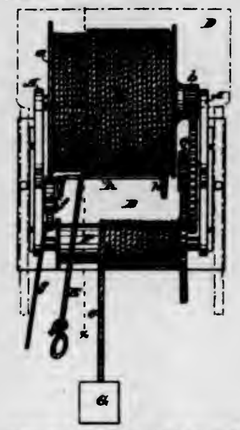
186,585. THIMBLE-PINS FOR SUPPORTING POTTERY-WARE IN KILNS. Silas Leak, Trenton, N. J. [Filed July 13, 1876.]



1. The angular tapering thimble-pin B, provided with the arm C, having a pointed spur, *b*, on its top at the outer end, substantially as and for the purposes herein set forth.

2. The combination of the bed E, with die G and stop H, the fixed bar N, mandrel L, guide-pins I I, and bar J, with die K, all substantially as and for the purposes herein set forth.

186,586. CLOTHES-LINE REELS. J. H. Le Row, Chicago, assignor of one-half his right to Geo. W. Brown, Oak Park, Ill. [Filed Dec. 2, 1876.]

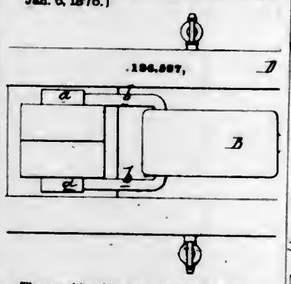


The combination of the reel C, having ratchet *a* and gear-wheel *b*, and the follower *h*, with the shaft F, gear-wheels *b c*, and weight Q, all constructed in the manner herein described, for the purpose specified.

186,587. EXHAUST APPARATUS FOR LOCOMOTIVES. Edw. Longstreth, Philadelphia.

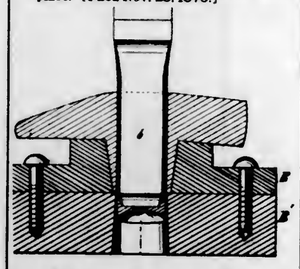
Pa., assignor to himself, G. Burnham, C. T. Parry, R. H. Williams, W. P. Hennessy, and J. H. Converse, same place. [Filed Jan. 6, 1876.]

186,587.



The combination, in a locomotive engine, of the two exhaust-pipes and a vessel or vessels, B, each having a contracted outlet, with the pipes D and D', and connecting-branches, substantially as and for the purpose set forth.

186,588. MANUFACTURE OF HAMMERS. D. Maydole, Norwich, N. Y., assignor of one-fourth of his right to C. H. Merritt, same place. [Filed Nov. 23, 1876.]



1. The method of forging the adz-eye, consisting in the preliminary punching of a taper hole in a bar of proper size, followed by the cutting down and setting down of the metal from each side of the smaller end of such hole, followed by the final drawing down and completing of the eye with punch and female die, substantially as described.

2. The gouges O O, secured adjustably in the die D, and employed to separate the metal on either side of the eye, as described.

3. The die B B', consisting of a cutting-base, B', and a forming upper part, B, secured thereon, and employed in combination with a punch, b, substantially as and for the purposes set forth.

4. The dies L L, for thinning the back and indenting the pene of the hammer at I I, in the manner described.

5. The centering-jaws Y Y, connected by teeth y', and pressed together by a spring, y'', as and for the purposes set forth.

6. The concave bed-die A, for bringing out the back of the hammer, thereby counteracting the tendency of the punch to make the hammer hollow-backed.

186,589. ICE-MACHINES. R. H. Lucas, San Francisco, Cal. [Filed Nov. 6, 1876.]

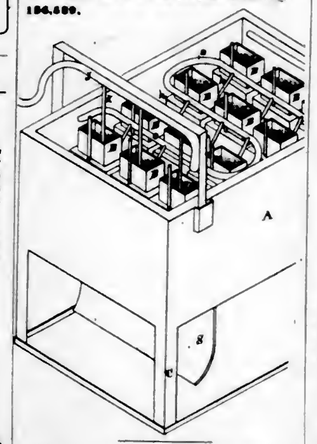
Brief.—The water to be frozen is thrown in the molds through sprinklers, and is frozen in layers. The molds are made conical, and pass through the bottom of the tank. They are surrounded with a jacket closed at the top, and provided with an air-pipe. During the refrigeration the brine circulates in the jackets. Air is then forced in the jackets and hot water let in, which loosens the ice; the bottom of the mold is opened, the ice falls out on the inclined way and is carried off.

1. The elevated tank A, provided with upright molds or tubes B B, the lower ends of which pass through the bottom of the tank, water-pipes J K, and sprinkler i, refrigerant-pipes I, and hot-water pipe Q, substantially as and for the purpose described.

2. The upright open-ended ice-molds B B, placed in an elevated tank, A, and surrounded by jackets A, said jacket having openings m, which connect the interior of the jackets with the interior of the tank, in combination with the air-pipe O and exhaust-pipes t t, substantially as and for the purpose described.

3. The elevated tank A, provided with two bottoms, D E, and having the upright open-ended molds or tubes B, their lower ends passing through the double bottom, the hinged spring-door F, and inclines or deflectors S, in combination with a series or coil of pipes, I, water-pipes J K and sprinkler i, air-pipes O p, exhaust-pipes t t, and hot-water pipes Q, all combined and arranged to operate substantially as and for the purpose described.

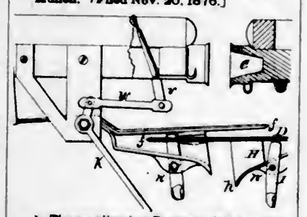
186,590.



186,590. DIES FOR FORGING HAMMERS. D. Maydole, Norwich, N. Y. [Filed Jan. 5, 1877.]

The dies A A', constructed substantially as described, with projections B B for thinning the blank at b b', in the act of pressing the bar flatwise to correct the bulging produced in the punching of the preliminary taper hole.

186,591. CAR-COUPLINGS. William W. McCollum, Selma, Ala., assignor to H. F. Mullen. [Filed Nov. 20, 1876.]



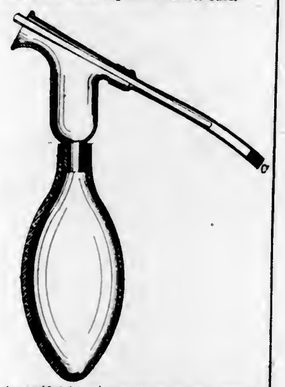
1. The coupling-bar D, suspended in a stirrup, E, provided with the receiving-jaw H, and balanced by means of the adjustable weight G, substantially as and for the purposes herein set forth.

2. The combination of the pivoted and balanced coupling-bar D, having slots a a and beveled end f, the adjustable weight G, receiving-jaw H, and tumbling-bar I, substantially as and for the purposes herein set forth.

3. The combination of the shaft t, with levers J J, and arm v, link w, elbow-lever K, and finger x, substantially as and for the purposes herein set forth.

186,592. ARTIFICIAL LEECHES. Floyd F. McDonald, Blacksburg, Va. [Filed Nov. 29, 1876.]

Brief.—A scarificator works through the upper part of a T-shaped tube, which is inserted by its lever-leg into a rubber bulb.



An artificial leech, consisting of an elastic bulb open at upper end, a T-tube open at its three ends, a small tube open at one end, and a knife, all connected, constructed, and arranged substantially as shown and described.

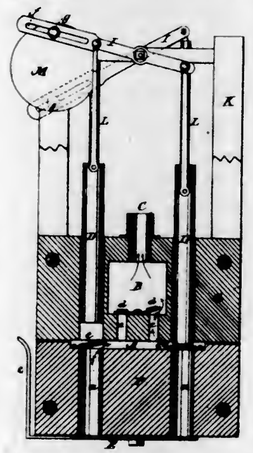
186,593. FIRE-KINDLERS. J. McFarland, Columbus, Ohio. [Filed Sept. 23, 1876.]

Brief.—For use with gasoline or benzine.



The combination of the condensing-cylinder B, the tube or burner C, the heater d, and the nozzle D, substantially as and for the purposes set forth.

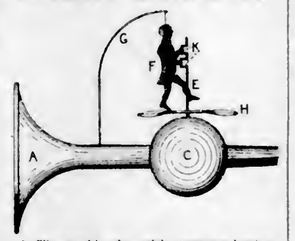
186,594. FORCE-PUMPS. C. H. McKeehan, Texarkana, Ark., assignor to himself and V. T. Hannon, same place. [Filed Nov. 20, 1876.]



1. The combination of block G, containing the exhaust-chamber B and passages, as described, the block F, having the recess or receiving chamber A and ports a, the valves d and e, and plungers D D, as shown and described.

2. The centrally-pivoted four-armed valve E, having the bent lever-arm e for operating it, in combination with the induction-ports a, as shown and described.

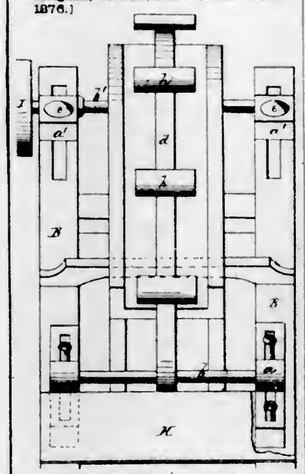
186,596. TOY TRUMPETS. F. McLaughlin, New York, N. Y. [Filed Nov. 18, 1876.]



1. The combination, with a trumpet having a whistle or reed in it, a turbine or vane, to which motion shall be given by the air blown into the trumpet, and a plate or arm connected with said vane, of a jointed figure suspended above the plate or arm, as and for the purpose described.

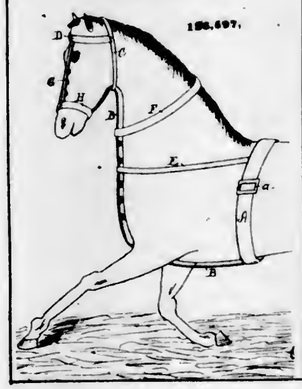
2. In connection with a trumpet having a whistle or reed and a turbine wheel, a jointed figure set in motion by said wheel, substantially as described.

186,595. GRAIN-ELEVATORS. John L. McLaughlin, Oelwein, Iowa. [Filed June 2, 1876.]



The combination, in a portable grain-elevator, of the slotted inclined beams B, adjustable boxes a a', shafts b b', pulleys D D', and adjustable endless belt d, with buckets A, all as and for the purposes set forth.

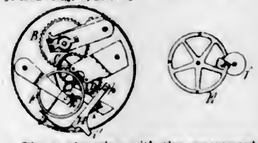
186,597.



186,597. HAMPERING DEVICES FOR HORSES. W. H. Means, Simsport, La. [Filed Aug. 14, 1876.]

The hampering device for animals herein described, consisting of the girt A, collars F and C, nose-band H, and straps E, G, and B, the latter two provided with backing c and gags d, as described, and for the purpose set forth.

186,598. WATCH-ESCAPEMENTS. N. Meyers, Buffalo, N. Y., assignor of one-half his right to J. P. Braner, same place. [Filed Aug. 9, 1876.]



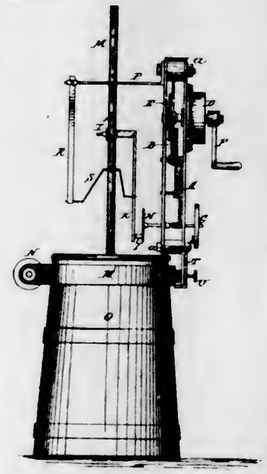
1. The combination, with the escapement-wheel E, provided with four laterally-projecting pins, of the balance-wheel F, provided with disk f, having a single notch, f', for indicating quarter seconds, substantially as hereinbefore set forth.

2. The combination, with the escapement wheel E, provided with four projecting pins, of the balance-wheel F, provided with disk f, having a notch, f', and slop-lever H arranged to swing against the rim of the balance-wheel, so that the movement can be arrested intermediate of the quarter seconds, substantially as hereinbefore set forth.

3. The combination, with the balance-wheel F, of the flat spring g, provided with a loop, in which engages a projection formed with the balance-wheel, substantially as and for the purpose hereinbefore set forth.

4. The combination, with the mainspring-wheel B, of the second-wheel C, carrying the second-hand k, multiplier D, escapement-wheel E, carrying the quarter-second hand l, and provided with four projecting pins, and balance-wheel F, provided with disk f, having a notch, f', substantially as and for the purpose hereinbefore set forth.

186,599. RECIPROCATING CHURNS. Noah J. Miller, Ladonia, Tex. [Filed Dec. 5, 1876.]

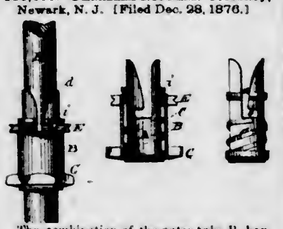


1. The upright frame A, composed of two standards connected at their upper and lower ends, the train of gearing arranged between said standards, the barrel D, attached to one of the standards, and the convolute spring C, arranged therein, for driving the gearing, in combination with the horizontal arm P, the dasher-rod having the pin P', the pitman K, and crank-wheel H, substantially as described.

2. The combination, with the upright frame A, the train of gearing, and the convolute spring C, arranged in the barrel D, for driving said gearing, of the horizontal arm P, the depending flat spring R, the bent lever S, the pitman K, connected with the dasher-rod, and the crank-wheel H, connected with the pitman, substantially as described.

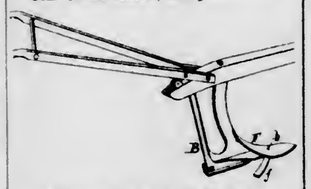
3. In combination with the frame, its gearing and horizontal rod, the flat spring attached to said rod, and the bent lever connected to the lower end of said spring, and passing through the dash-rod and encircling the pitman, substantially as described.

186,600. UMBRELLA-RUNNERS. P. Molloy, Newark, N. J. [Filed Dec. 28, 1876.]



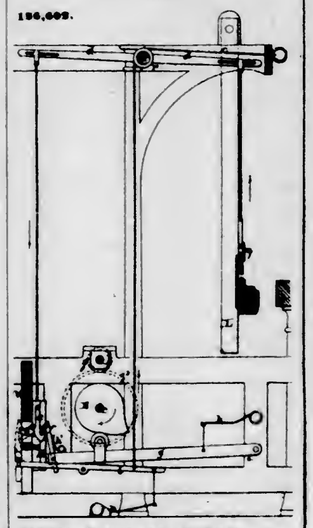
The combination of the outer tube B, having the notched ring E, with the inner tube A, extended above the outer tube, and provided with the slot a b, open ring i, and flanged ring G, and the interposed spring C, all constructed as and for the purposes set forth.

186,601. PLOWS. Thos. M. Moore, Tyler, Tex. [Filed June 16, 1876.]



The combination of foot A, having standards B C and shoulders e, the curved blade f, the shovel F, fitting the curve of standard C, and clasping-blade f, and the securing-bolts d d, as and for the purpose set forth.

186,602.



186,602. TAPE-LOOMS. R. Mueller, College Point, N. Y. [Filed Oct. 16, 1876.]

Brief.—The shuttle is dovetailed to the carrier, and is provided with a friction device. The ejector is constructed to push a full shuttle from the stationary box into the carrier

containing the empty shuttle before the carrier re-enters the shed. The empty shuttle is forced out by the full shuttle. The ejector is connected, by cords, pulleys, and levers, with a vertical slide. The slide is provided with a pivoted hook, that is thrown into engagement with the vibrating depressor at the will of the operative.

1. The combination, in a loom, of a shuttle-box, *x*, situated above the shuttle-race, with the shuttle-race, and with a shuttle made in two sections, the rear section fitting the shuttle-race, while the front section can be inserted either in the shuttle-box *x*, or in the rear section of the shuttle, substantially as set forth.

2. The combination, with the batten L, of a slide, W, which receives motion from the main shaft of the loom, a slide-bar, *z*, and ejectors *v'*, for the purpose of changing the shuttles in the batten, substantially as described.

3. The combination, with the slide W and its latch *s*, of a cam, *n*, ratchet *t*, and levers I *F*, the lever *F* receiving its motion from the slide W, and serving to throw the latch *s* out of action, substantially as herein set forth.

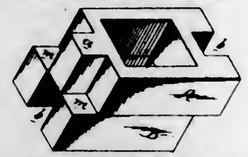
4. The combination, in a loom, of a slide, W, with its latch *s*, cam *n'*, ratchet *t*, levers I *F*, slide-bar *z*, ejectors *v*, shuttle-boxes *x*, and sectional shuttles *a a*°, all constructed and operating substantially as shown and described.

186,605. BOOM AND SAIL ATTACHMENTS. F. Norwood, Gloucester, Mass. [Filed Dec. 18, 1876.]



The furcated screw-bolt D, its connection-pin E, and the perforated plates B C, arranged and combined together, and with the boom A, substantially as and for the purpose as set forth.

186,606. BUILDING-BLOCKS. Mary Nolan, St. Louis, Mo. [Filed Dec. 20, 1876.]



1. A wall composed of building-blocks, each having a flat top and bottom, a mortise having parallel sides at one end, and a tenon having parallel sides at the opposite end, when the blocks of adjoining courses are arranged in opposite directions, so as to break joints, in the manner described and illustrated in Fig. 3.

2. The within described building-block, made with a mortise at one end, and at the other with a tenon, having formed on it a recess, *x*, and projection *y*, as set forth, for the purpose specified.

186,607. PROCESSES OF PREPARING EXTRACT OF MEAT. Henry Naumann, Basle, Switzerland. [Filed May 27, 1876.]

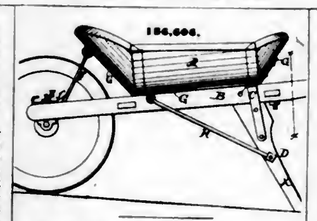
The process herein described of preparing extract of meat by first taking the lean portion of meat and treating with distilled or soft water, then adding a suitable acid, after which the liquor is boiled under high pressure, bicarbonate of soda added, and the product evaporated or thickened, substantially as set forth.

186,608. COMBINED WHEELBARROW AND GARDEN-CULTIVATOR. J. D. O'Callaghan, Chattanooga, Tenn. [Filed Nov. 13, 1876.]

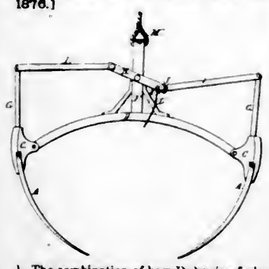
Brief.—The legs of the barrow are hinged to the tray, and, when in place as a barrow, bind the side pieces between the ends of the legs and tray, which is further secured by side braces bolted to the legs, making these parts easily removable, in order to adapt the frame to receive the cultivating device.

The combination of the hinged legs X and connecting-rod D with the removable tray A and wheeled frame B, as shown and described, for the purpose of adapting the frame for attachment of and use with a cultivating device, as set forth.

186,609.



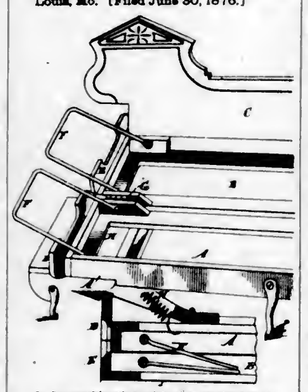
186,607. HORSE HAY-FORKS. James Orr, Leavenworth, Kans. [Filed May 10, 1876.]



1. The combination of bow D, having forks pivoted to its opposite ends, and a central arm, F, with the lever H pivoted thereto, and provided with connecting-rods and with handles J J, whereby the forks may be transported to any desired point, opened and closed, and forced into the material to be raised, substantially as described.

2. The combination of the bow D, having pivoted forks at its opposite ends, with the arms G G, levers I I, and central lever H, provided with locking projections on its back face, substantially as described, and for the purpose set forth.

186,608. SOFA-BEDSTEADS. Wm. Ott, St. Louis, Mo. [Filed June 30, 1876.]



1. In combination with the stationary section B of a sofa-bed and fixed head-board E, the folding section A, head-piece A', and adjustable head-board D, hinged to the latter, substantially as set forth.

2. In combination with the sections A and B, the folding rods F, and head-boards D and E, supporting the latter when extended to sustain the bolster, substantially as set forth.

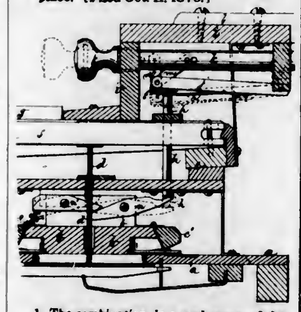
186,609. LAMP-CHIMNEY CLEANERS. Chas. P. Palmer, Concord, Vt. [Filed July 1, 1876.]

The implement herein described, consisting of rod G, having, at its upper end, the clamp A, and at its lower end a screw-thread, engaging with the nut D, tube C, having clamp B, and handle E, all combined and operating substantially in the manner and for the purpose herein shown and specified.

186,609.



186,610. REED-ORGAN STOP-ACTIONS. W. D. Parker, Worcester, Mass., assignor of one-half his right to A. C. Emmons, same place. [Filed Oct. 11, 1876.]



1. The combination, in a reed-organ, of the connecting-lever *m* with the stop-head spindle *k* and the hinged or pivoted actuating-lever *j* of the action-pitman, substantially as and for the purpose set forth.

2. The combination, in a reed-organ, of the spring *r* with the action-pitman *h* and its actuating-lever *j*, substantially as and for the purpose set forth.

3. The combination of the lever *m*, stop-head spindle *k*, and actuating-lever *j* with the action-pitman *h* of a reed-organ, when arranged and operated in the manner substantially as and for the purpose set forth.

4. The combination of the stop-head spindle *k*, lever *m*, actuating-lever *j*, and spring *r* with the action-pitman *h* of a reed-organ, substantially as set forth.

5. The combination of the cushion *s* with the actuating-lever *j* and spring *r*, substantially as and for the purpose set forth.

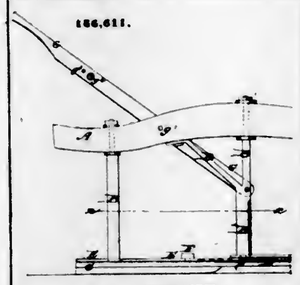
186,611. CULTIVATORS. B. H. Perkins, and S. D. Perkins, Visalia, Cal. [Filed June 6, 1876.]

Brief.—The beam is supported upon two standards, to the lower end of which is secured a slotted sole-piece, forming also a point. The forward section of this is horizontally slotted, and in which are pivoted two thin steel plates or blades, which overlap at their forward ends. A sliding brace moves fore and aft between the wings upon the sole, and is secured by a set-screw. By this means the wings are adjusted.

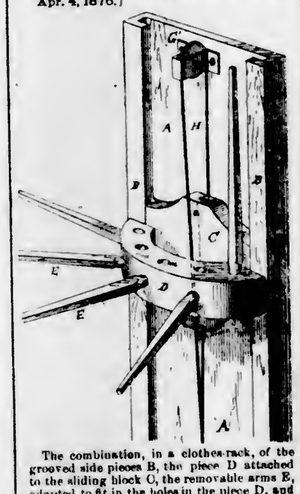
1. A pair of cutter-wings, D D, made to overlap each other within a slot of foot C, as and for the purpose set forth.

2. The slotted adjustable bar E, having cross-head *e'*, in combination with wings D, having notches *d'*, as and for the purpose specified.

186,611.

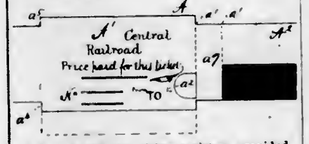


186,612. CLOTHES-DRIERS. A. A. Peterson, Chicago, Ill., assignor of one-half his right to N. J. Nelson, same place. [Filed Apr. 4, 1876.]



The combination, in a clothes-rack, of the grooved side pieces B, the piece D attached to the sliding block C, the removable arms E, adapted to fit in the holes in the piece D, and the cord H attached to the sliding piece C, and connected with suitable pulleys for raising and lowering the same, substantially as specified.

186,613. RAILROAD-TICKETS. B. C. Pole, Washington, D. C. [Filed Oct. 9, 1876.]



1. A sealed-up ticket-register, provided upon its interior surface with a coating of transfer composition or its equivalent, in combination with a ticket-receipt inclosed therein, having upon it a coating of transfer-composition of a different color, for recording the action of stamping, writing, or marking, substantially for the purposes set forth.

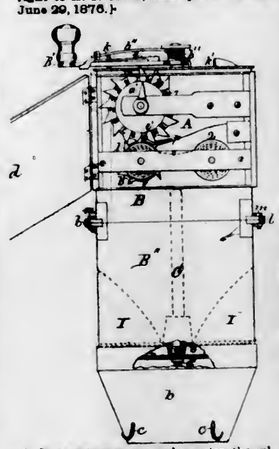
2. A built-up cover, case, or sheath, D, folded to form a pocket, prepared with transferring-composition, in colors and stripes, secured to a back, G, and provided with a ticket-receipt, F, which has a drawing tag or string, I, to draw, turn over, injure, or remove a color-check, substantially as and for the purpose set forth.

3. A writing ticket-register, provided with manifold paper or transfer composition, for recording the action of writing, marking, or stamping, divided into divisions A^1 A^2 A^3, or more, having perforations a^1, with gaps a^2 and a^3, overlapping paper a^4 and a^5, folded and sealed, forming a tearing-piece, a^1, and ticket-receipt A^3, with color check or checks, substantially as and for the purposes set forth.

4. A writing ticket-register, provided with a double seal, d^1 and d^2, double transfer composition D^1 D^2, single or double ticket-register F, with color-changing drawing-strip I, eyelet G^1 or equivalent, and hard back G, substantially as and for the purposes set forth.

5. A writing ticket-register holder, provided with tearing-edges c^4, gaps c^3, openings C^1 and C^2, as and for the purposes herein set forth.

186,614. GRAIN-REGISTERS. Lemon Poole, Springfield, Ohio, assignor of one-half his right to H. C. Trout, same place. [Filed June 29, 1876.]



1. In a grain measure and register, the cylinder B, with its conical cap *b*, shaft C, valves G, cut-offs H I, bridge-tree D, adjustable screw *d'*, crank-lever B', with its coiled spring *b''*, and the stops *k* and *k'*, as and for the purpose hereinbefore set forth.

2. The registering device A, consisting of dial-wheel *a'*, pawl *p*, wheel *b'*, spools 1 and 2, tape *c'*, and wire *c''*, arranged as shown and described, substantially as and for the purpose set forth.

3. In combination with the measuring-cylinder B and its parts specified, the grain-register A, and the intermediate spring *s*, which operates the latter by the movement of the crank-lever B' in measuring the grain, substantially as shown and specified, for the purpose hereinbefore set forth.

186,615. CARRIAGES. John W. Post, New York, N. Y. [Filed Oct. 4, 1876.]

Brief.—Top, seat, and body frames, wheels, axles, &c., made of tubular metal.



1. The body of the vehicle, constructed of the top and bottom metallic-tube frames A A', the latter having the archway R, and supporting the top tubing, with its tubular frame seat or seats, substantially in the manner and for the purposes herein set forth.

2. The combination, with the removable auxiliary seat E and the body A A', of the detachable hinged spring-brace C C', for supporting the additional weight directly upon the axle and bracing said seat.

3. The combination, with the removable auxiliary seat E, the body, and the hinged spring-braces, of the clamp-screw *c*, arranged between the spring-connection with the axle and the bracing-connections with the seat, whereby said seat and spring-brace are removably secured.

4. The combination, with the removable auxiliary seat E, the body, and the hinged spring-brace clamped to said body, of the rocking coupling *b*, having a detachable socket-connection with said spring, whereby both the spring and brace points of attachment are made detachable.

5. The fifth-wheel having a socket-section, *k'*, in combination with a shouldered bearing-seat section, I', inclosed and covered by said socket, and the fastening pins or screws *k*, arranged beneath said bearing-seat, substantially as herein set forth.

6. The combination, with the couplings F, of the body-springs G and the braces H, the connections of the springs and the braces being upon opposite sides of the axle k^2, for the purpose stated.

186,616. SCAFFOLDING. Benj. J. Potts, Williamsport, Ohio. [Filed Sept. 23, 1876.]



1. The scaffold having a jack-piece, by which it is supported and adjusted, in combination with a vise fixed to the eaves, and having a hinged lock yoke or dog, whereby the jack-piece is supported and clamped to the vise, and is free to be raised for work over the roof with the scaffold, and the dog take its hold with the jack.

2. The jack-piece B, detachably secured to the scaffold by the socket C and the staple D, as and for the purpose stated.

3. The jack-piece B, having notches *a* or projections, spaced as described, and combined for use with the yoke-dog E through which it passes, and the vise F, against which it is clamped by the weight of the scaffold.

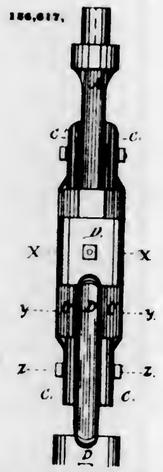
4. The combination, with the jack-piece B, having notches *a* inclined at one side, of the yoke-dog E *e*, the clamp-screw and its bar G H, and the vise F, the yoke-dog being hinged to the clamp-screw, and the several parts constructed as herein set forth.

186,617. DRILL-JARS. F. E. Quinn, Erie, Pa. [Filed Sept. 20, 1876.]

Brief.—The ends of the links are bolted or riveted together, instead of being welded, and their sides form guides, to prevent twisting and facilitate their sliding upon each other.

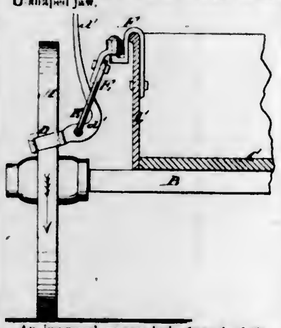
Drilling jars the links of which are made of parts C C and D D, bolted or riveted together, and operating substantially as and for the purposes mentioned.

186,617.



186,618. WAGON-LOCKS. Frank Rakes, Greenup, Ky., assignor to himself and W. Bryson, same place. [Filed Dec. 4, 1876.]

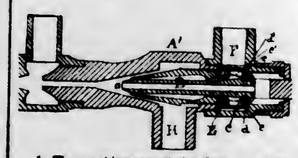
Brief.—Rim of the wheel clamped in the U shaped jaw.



An improved wagon-lock, formed of the U-shaped block or jaw D, provided with the bent shank d^6, the swiveled or pivoted link E, and the strap F, constructed and combined with each other, substantially as herein shown and described, to adapt them to be applied to a wagon, as set forth.

186,619. INJECTORS. Wm. Randall, Salem, Mass. [Filed June 19, 1876.]

Brief.—The flaring mouth-piece, with the cone-shaped tube, which moves to and from the mouth-piece by the action of the pinion-spindle, geared into the rack to graduate the supply of water.



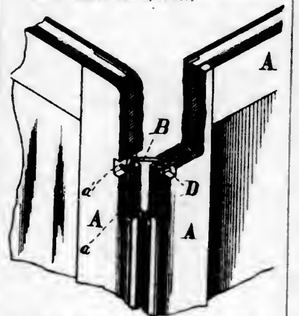
1. The combination of the flaring mouth K with the cone-shaped tube I, having a movement to and from the same, substantially as and for the purpose described.

2. The combination of the flaring mouth K with the cone-ended tubular stem I, mounted on legs A, rack L, and cog *j* on the end of spindle M, substantially as described.

186,620. PROCESSES FOR DYEING SILKS. Julius Rau, Stuttgart, Germany. [Filed Aug. 4, 1876.]

The process of dyeing silks and half-silks without the use of water or steam, consisting in first soaking the same in a bath of benzine with aniline dissolved therein, and afterward soaking the material in a bath of pure benzine, substantially as described.

186,621. SLATES. O. F. Rapp, Cincinnati, Ohio. [Filed Jan. 8, 1877.]

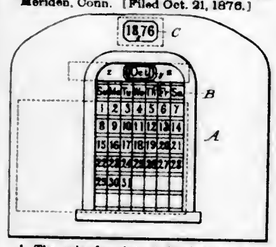


1. In combination with the links B or B', the frames A A, having a portion overhanging the recess *a'*, as described.

2. In combination with the frames A A, the links B or B' and the barbed or other staples D, as described.

3. In combination with the frame A, having the overhanging portion, the links B or B' and the staples D, as described.

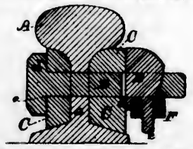
186,622. CALENDARS. F. Ratcliff, West Meriden, Conn. [Filed Oct. 21, 1876.]



1. The calendar-plate A, having the sight-openings B C, the horizontal ribs *a' c' e'*, the transverse flange *b*, guide-arms E, and back plate F, substantially as specified.

2. The combination, with the plate A, having the opening B, ribs *a'*, *c*, and *e'*, of the month-strip *m*, the sliding card *f*, carrying the days of the month, and the glass G, having the transverse week-strip *d*, substantially as specified.

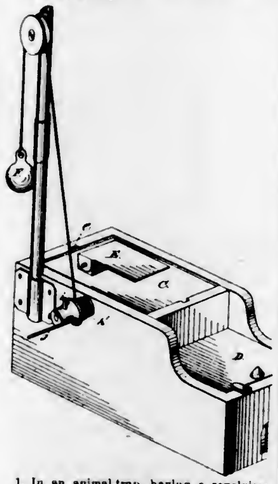
186,623. RAILROAD-RAIL JOINTS. S. Ray, Alliance, Ohio, assignor to himself, W. A. Nixon, same place, and Prindle & Co., Washington, D. C. [Filed May 19, 1876.]



1. In combination with each key D, which passes transversely through the rails A and A, and splice-bars C and C, and is provided at one end with a head, *d*, and near its opposite end with a vertical opening, *d'*, the key E, fitted within said opening, and provided with a screw-shank, *e*, bearing-lug *e'*, and nut F, substantially as and for the purpose shown.

2. In combination with the rails A and A, provided with the openings *a'* and *a''*, the splice-bars C and C, having the transverse slots *c* and *c*, the keys D, *d*, and *d'*, the keys E, *e*, and *e'*, and the nuts F and F, said parts being constructed and arranged in the manner and for the purpose substantially as set forth.

186,624. ANIMAL-TRAPS. A. Reed, Ottawa, Kans., assignor of one-half his right to W. G. Grabendike, same place. [Filed Dec. 13, 1876.]



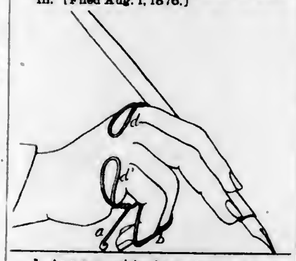
1. In an animal-trap, having a revolving platform, substantially as described, the combination, with such platform, of a tilting bait-holding supplemental shelf or platform, supported and carried thereby, and a spring-catch, as and for the purpose described.

2. The tilting shelf E for the bait, arranged upon the platform C, and connected by rod *b* to the catch *c*, the shelf and platform turning together, to reset the same bait-shelf, as described.

3. The trap, consisting of the stepped platforms D and C, the tilting shelf E, its connected catch *c*, and the compartments A B, said tilting shelf serving as the bait-holder, substantially as herein set forth.

4. In an animal-trap, having a revolving platform, the combination, with such platform, its tilting bait-carrier, spring-catch, and weight, of the cranked winding-spool, and the removable key, as and for the purpose described.

186,625. HAND-RESTS. J. Ridge, Chicago, Ill. [Filed Aug. 1, 1876.]



1. As a new article of manufacture, a hand-guide for penmen, constructed with the parts *d d'* and loop *b*, substantially as described.

2. As a new article of manufacture, a hand-guide for penmen, constructed with the parts *d d'*, loop *b*, and post *a*, substantially as and for the purpose set forth.

3. As a new article of manufacture, a hand-guide for penmen, constructed with the parts *d d'*, loop *b*, and nib *c*, substantially as and for the purpose specified.

186,626. RAILROAD-SWITCHES. D. Rousseau, New York, N. Y., assignor to himself and W. C. Smith, same place. [Filed Dec. 26, 1876.]

1. The combination of the lever B, slide C, and locking-lever E, all arranged to operate substantially as specified.

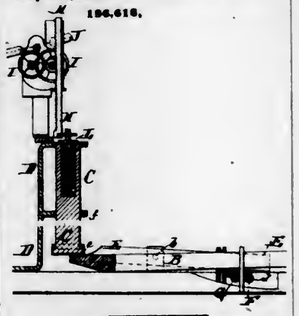
2. The combination of the locking-lever E, which is operated by the deflection of the rail A, with the switch locking or moving mechanism F G, having the stop or shoulder *d*, substantially as described.

3. In combination with the switch-locking lever E and its actuating-weight C, the retarding mechanism H I J, substantially as and for the purpose herein shown and described.

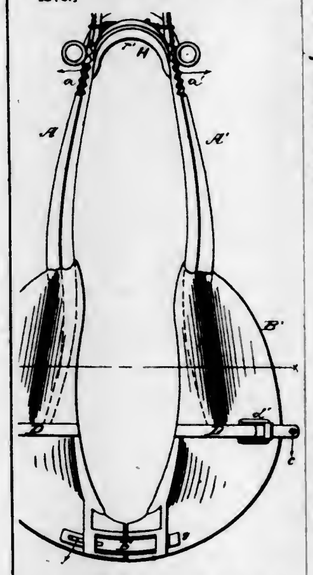
4. The spring-plunger L, combined with the retarding-blade H, and with the sliding weight C of the switch-locking mechanism, substantially as specified.

5. The combination of the deflecting switch-rail A with the lever B, and with mechanism for locking the switch-locking lever, substantially as specified

186,616.



186,627. HORSE-COLLARS. A. Rutherford, Walla Walla, Wash. [Filed Nov. 26, 1876.]



1. The sectional horse-collar A B A' B', having the transverse grooves *f f'*, in combination with the removable serrated bar E made in two parts, and provided with a head at one end and a spring, A, at its opposite end, substantially as described, and for the purpose set forth.

2. In a horse-collar the cam-shaped draft-plates D, in combination with the collar-sections A B, and the adjusting and coupling devices E and K, constructed and arranged substantially as described.

3. In horse-collars the serrated blocks *a a'*, in combination with the sections provided with the serrations *a a'*, and the terrets R R, having threaded shanks, substantially as specified.

186,628. CIGARS. J. Schalacha, Memphis, Tenn. [Filed Nov. 2, 1876.]



A cigar, constructed as described, with a longitudinal opening, H, in its drawing end and the end of the wrapper A, secured permanently within the said aperture, as and for the purpose set forth.

186,629. FRUIT-JARS. John T. Schaffer, Rochester, N. Y., assignor of one-third his right to F. G. Zugelder, same place. [Filed Dec. 6, 1876.]

Brief.—Between the clamp and cover insert a ring with inclines for the clamp to work on.

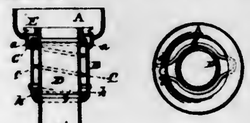


1. In a fruit-jar fastening, a double-inclined separate ring, *r*, provided with notches *s*, substantially as shown and described, in combination with a clamp, B, and pivoting-pin *p*, for the purpose set forth.

2. A cover, C, provided centrally, at its outside surface, with the conical depression *e*, for the purpose of receiving the foot of the centering-pin *p*, in combination with said pin, separate ring *r*, and clamp B, substantially as shown and described.

3. The lugs *a*, in combination with the jar A, clamp B, and double-inclined notched separate ring *r*, substantially as and for the purpose set forth.

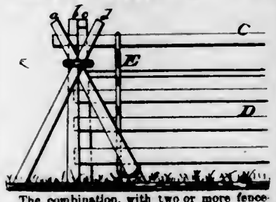
186,630. UMBRELLA RUNNERS AND TIP-CUPS. O. M. Smith, Frankford, Philadelphia, Pa., assignor to S. W. Evans and S. W. Evans, Jr., same place. [Filed Dec. 13, 1876.]



1. In combination with the tip-cup A, having extension B, spring C, and tube D, a removable spring-holder arranged in the bottom of the cup, for the purposes herein set forth.

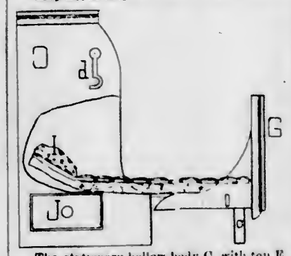
2. The combination of the tube D, formed with the bead *i*, the washer *h*, and spring C, all constructed as and for the purposes herein set forth.

186,631. FENCES. O. H. Smith, Ellicottville, N. Y. [Filed Nov. 15, 1876.]



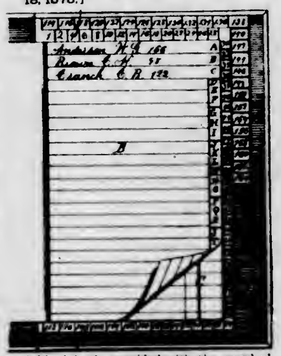
The combination, with two or more fence-posts, each consisting of four braces or supports secured by an oblong loop, of a rider, C, having rails secured thereto, substantially as and for the purpose set forth.

186,632. BUREAU-BEDSTEADS. C. H. Smith, Philadelphia, Pa., assignor of one-half his right to B. B. Miles, same place. [Filed May 26, 1874.]



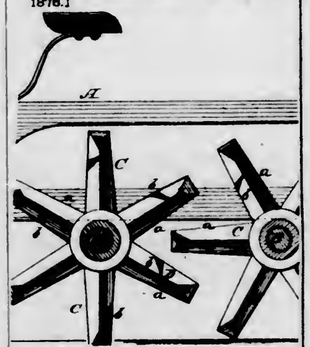
The stationary hollow body C, with top E, in combination with the folding front B, with the part F, forming both a foot-board of the bedstead and the continuation of the top E of the bureau, all connected, arranged, and operating as set forth.

186,633. INDEXES FOR BOOKS. A. J. Snider and D. C. Wolf, Keota, Iowa. [Filed Oct. 18, 1876.]



A blank book, provided with the usual alphabetical index-strips, and the remaining leaves of the book provided each with a projecting strip having the number of the page on the said projection, substantially as and for the purposes herein set forth.

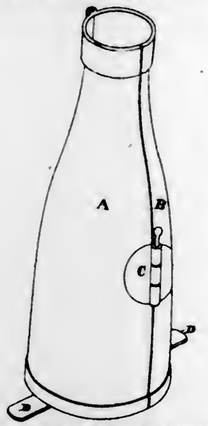
186,634. REVOLVING CULTIVATORS. Geo. Stevenson, Zionsville, Ind. [Filed Dec. 11, 1876.]



In a revolving cultivator or earth-pulverizer the star-wheel C, having each of its arms provided with straight cutting-edge *a*, and inclined side cutters D D, set at an angle of about forty-five degrees, and in circular form, substantially as and for the purposes herein set forth

186,633. BOTTLE-PROTECTORS. Wm. C. Stokes, Grass Valley, Cal. [Filed Oct. 14, 1876.]

Brief.—A device for protecting the person against the bursting of bottles, &c.



A protecting-case for bottles, constructed as described, and consisting of the parts A B, hinged together at one edge, and provided with the clasp C and lugs D, substantially as and for the purpose set forth.

186,636. ATTACHMENTS TO MALT-CRUSHERS. C. Stoll, Brooklyn, N. Y. [Filed Nov. 10, 1876.]

Brief.—By means of detachable hood and sliding spout, feeds the malt to the rolls from an upper compartment of the same bin which receives the reduced material.



The detachable hood D, having a hole, *b*, in its top, in combination with the sliding spout F, as described, for conveying the malt to the crushing-rolls, substantially as set forth.

186,637. SNAP-HOOKS. A. B. Tanner, New Haven, Conn., assignor to Sargent & Co., same place. [Filed Dec. 6, 1876.]



1. The combination, in a snap-hook, of the hook B, tongue *a*, and lever *d*, the meeting or bearing surfaces between the tongue and lever constructed with recess and projection, so that the turning of the one in either direction for opening or closing correspondingly turns the other, substantially as described.

2. The combination, in a snap-hook, of the hook B, tongue *a*, and lever *d*, the meeting or bearing surfaces between the tongue and lever constructed with recess and projection, so as to positively engage the two in both opening and closing, with a bearing-point on the tongue and a corresponding bearing-point on the lever, the said point arranged relatively to the pivot of the said tongue and lever, so that the bearing of the tongue upon the lever is substantially in a direct line with the pivot, substantially as and for the purpose described.

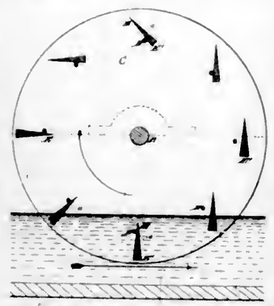
3. The combination, in a snap-hook, of the hook B, tongue *a*, and lever *d*, the meeting or bearing surfaces between the tongue and lever constructed with recess and projection, so as to positively engage the two in both opening and closing, and a spring arranged to act upon one of the said parts, to force the two into their normal or closed condition, substantially as described.

186,638. MARINERS' COMPASSES. Sir Wm. Thomson, Kt., Glasgow, North Britain. [Filed Dec. 8, 1876.]



The compass-card composed of an aluminium rim, *f*, and boss *e*, connected together by fine threads or wires, to which and to the rim the compass-card is secured, in combination with the small needles or magnets *d*, substantially as and for the purposes set forth.

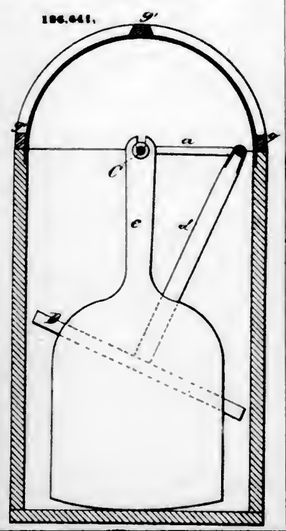
186,639. FEATHERING PADDLE-WHEELS. W. C. Thompson, Tipton, Tenn. [Filed Dec. 2, 1876.]



1. A paddle-wheel provided with pivoted paddles, wedge-shaped in cross-section, which extend across the wheel, and are reversible by the action of gravity, substantially as and for the purpose set forth.

2. The combination of disks C C with paddle E, horizontally pivoted directly thereto, and stop-rod D, substantially as set forth.

186,641.



186,641. CHURNS. Jas. Tull, La Fayette, Ind. [Filed May 27, 1876.]

1. The partition E, provided with the handle *e*, notched at its upper end for the reception of the crank-shaft C, and detachable, so as to be used as a butter-worker, substantially as described.

2. A churn-cover, in which the semicircular grooved sides *g g* are secured together by transverse pieces *g' g'*, and arched sheet-metal lining, substantially as described, and for the purpose set forth.

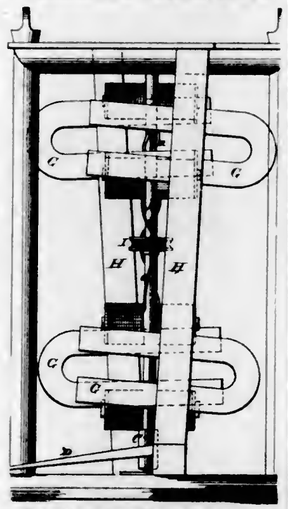
3. The combination of metal tip *h*, having extensions *i i* and cross-pieces *j j*, with crank *a* and recessed dasher-rod *d*, provided with pivoted button *d'*, substantially as set forth.

186,640. LUBRICATING COMPOUNDS. Chas. Toppan, Wakefield, Mass. [Filed Oct. 30, 1876.]

Brief.—The compound is specially applicable to cotton, woolen, and other machinery in the manufacture of textile fabrics. The stain of the fabric therefrom is readily removed by washing with soap.

A new composition of matter, consisting of a mixture of the expressed oil of mustard-seed with petroleum, or other mineral oils.

186,642. ELECTRIC MOTORS. D. Ward, Binghamton, N. Y. [Filed July 13, 1876.]



The combination of the shaft A, provided with two or more series of electro-magnets, B, the wires *s s*, divided sleeve or cylinder C, and springs D D, connecting with the binding-posts E E, substantially as and for the purposes herein set forth.

186,643. CLOTH-CUTTING MACHINES. A. Warth, Stapleton, N. Y. [Filed Nov. 16, 1876.]

Brief.—The ordinary circular-disk knife is employed, and the grinding-disks are controlled in the usual manner, except in a device to hold them entirely out of contact with the edge of the knife. A stop device for preventing the cutting mechanism from being jerked round is operated by a lever pivoted on the top of the handle, and the lifter for raising the cloth is operated by a lever on the rear of the guard and under the handle, so that they both can be operated at the same time.

1. The combination of a stop mechanism, substantially such as herein described, with the handle which serves to govern the direction of the cutting apparatus, and with the driving-gear of the rotating disk-knife, for the purpose of preventing the cutting mechanism from being jerked round, substantially as set forth.

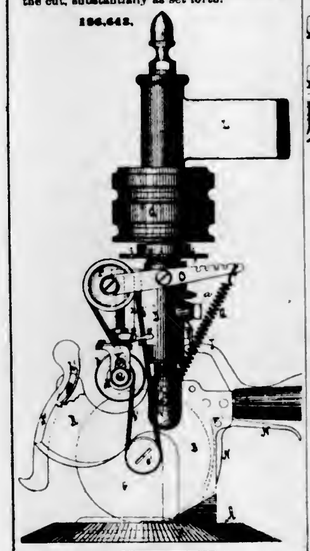
2. The combination, with the foot-plate and with the rotating disk-knife, of a lifter connected to a hand-lever, for the purpose of lifting the pile and cutting the lowest layer in the pile to the same point to which the uppermost layer is cut, substantially as described.

3. The combination, with the swivel-bracket which forms the bearings of the shaft of the grinding-disks, and with the belt which imparts motion to said grinding-disks, of a tension mechanism and of a latch, for the purpose of controlling the action of the grinding-disks, substantially as set forth.

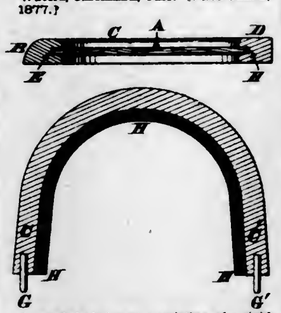
4. The combination, with the pulley which imparts motion to the rotating disk-knife, and with the foot-plate which supports the cutting mechanism, of two shafts which are geared together by pinions, for the purpose of raising the pulley above the surface of the foot-plate, substantially as described.

5. The combination, with the foot-plate, with the disk-knife, and with the protector, of a foot which can be adjusted in the protector according to the thickness of the pile to be cut, and which serves to hold down the top layer of said pile, and to indicate the direction of the cut, substantially as set forth.

186,644.



186,645. PANELED CHAIR-SEATS. J. M. Waters, Cincinnati, Ohio. [Filed Jan. 5, 1877.]

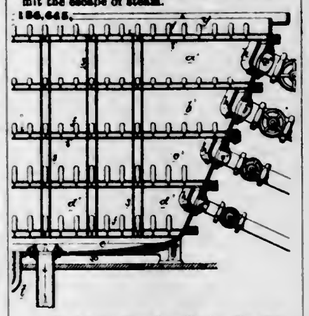


A paneled chair-seat consisting of a rigid or non-elastic bottom, A, whose margin is completely surrounded and secured in the continuous groove E H of an inclosing frame or rim, which latter is composed of two or more sections united together, substantially as herein described and set forth.

186,648. EVAPORATING APPARATUS. D. Watson, Havana, Cuba. [Filed July 10, 1876.]

Brief.—The evaporating-pans, placed in a vertical series within a case, are separated by double-walled horizontal partitions, forming steam-spaces, and each pan is heated by steam, the first or bottom one by steam admitted from without, and each of the remaining pans by steam from the pan below. Each steam-space is connected by a pipe with the condenser. The pans increase in area from below upward, thus increasing the heating-surface, to compensate for decrease in the intensity of heat. The supports between the pans are tubular having longitudinal slots, so that they may fit over the heating-shells and permit the escape of steam.

186,645.



1. In an apparatus for effecting the evaporation of liquids, the combination, within a casing, of a series of vacuum-chambers, connected as described, whereby the juice enters the bottom chamber of the series, and is caused by the vacuum to pass up into and across the heated bottom plates of all the chambers before being discharged from the uppermost, as set forth.

2. The combination of the casing A with the partitions *a b c*, &c., the heating-surfaces of which increase in area from the bottom of the casing upward, as set forth.

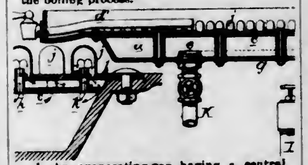
3. The combination of the casing A, its chambers *a' b' c'*, &c., and the condenser B, with the pipes *a² b² c²*, &c., differing in area, as described, and serving to establish communication between said chambers and the condenser, as set forth.

4. The combination of the condenser B and its connecting pipes with the casing A, its double partitions *a b c*, &c., and the pockets k.

5. The combination of the casing A and its partitions with split tubes *s*, forming stays, as set forth.

186,646. OPEN-PAN JUICE-EVAPORATORS. David Watson, Havana, Cuba. [Filed June 16, 1876.]

Brief.—Steam is passed into the chamber below the bottom of the pan, and from thence, through tubes secured to the false bottom, into the dome-shaped shells, forming the heating-surface of the pan. The central heating-surface of the pan is surrounded by a cooling border, for collecting the scum and causing the circulation of the juice. The open end of the eduction-pipe is placed at the hottest part of the pan, for drawing off the clearest liquor during the boiling process.



1. An evaporating-pan having a central heating-surface, *b*, and flat cooling-surface *d*, entirely surrounding and communicating directly with the heating-surface, so as to be adapted for the collection and removal of scum without waste of juice, as set forth.

2. The combination of an evaporating-pan having a cooling-border, *d*, with a discharge-passage, *d' d'*, having its inlet at or near the point of fiercest ebullition, as set forth.

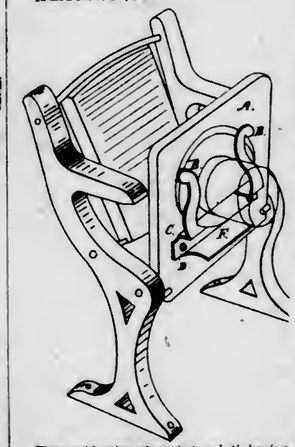
3. The combination, in an open shallow pan, of the cooling-border *d*, around the edge, with a central heating-surface, formed chiefly of small shells *f*, as described.

186,647. ARTIFICIAL-STONE COMPOUNDS. C. Wetland, Chicago, Ill. [Filed Dec. 30, 1876.]

Brief.—The silicate of soda and cement are mixed with water, and then the other ingredients are added.

The composition of matter consisting of silicate of soda, coal-ashes, sand, broken bricks oyster-shells, plasterer's rubbish, broken stone, cement, and slag, all as set forth.

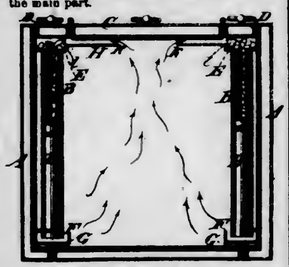
186,648. HAT-RACKS AND SEATS COMBINED. C. Whittaker, Milwaukee, Wis. [Filed Nov. 27, 1876.]



The combination of the hat-rack C, having arms B, and guard F, with the chair-seat A, substantially as described.

186,649. REFRIGERATORS. W. P. Whitson, Brooklyn, N. Y. [Filed Dec. 16, 1876.]

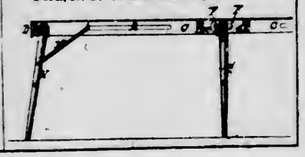
Brief.—The main cover is provided with air-conductors, connecting the main chamber with chambers above the series of tubes, so that access may be had with the latter chambers by secondary covers, without exposure of the main part.



1. The combination, with a refrigerator-body, A, of the cover C, horizontal passage H, opening at the inner end into the chamber of the refrigerator, the chamber E at right angles to the said passage, and the series of upright tubes B, having their upper ends opening into the chamber E, substantially as and for the purpose described.

2. The combination of the series of upright tubes B, secured near the opposite walls of the refrigerator-casing, the longitudinal chambers E E above the same, and into which the upper ends of the tubes open, and the lateral passages H H, extending from the passages E and opening at their inner widened ends *b* into the chamber of the refrigerator, substantially as described.

186,650. FOLDING BEDS. W. White, New York, N. Y. [Filed June 22, 1876.]

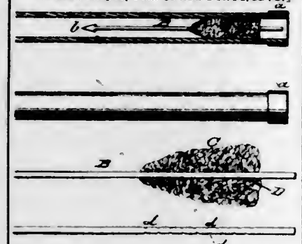


186,630.



The slotted or grooved hinged sections A B, each provided at or near its ends with a pivoted cross-bar carrying supporting-legs, in combination with the locking arms K, the central transverse bar G, and its supporting-legs, the open ends of said sections A B being hinged to the central bar to form a folding bier, all constructed and arranged to operate substantially as described.

186,631. BLOW-GUNS AND ARROWS. L. O. White, Jasper, Tex. [Filed Oct. 14, 1876.]



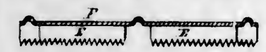
1. A blow-gun having a bore which tapers from the mouth end outward at the ratio of one-sixteenth of an inch to each foot, substantially as and for the purpose set forth.

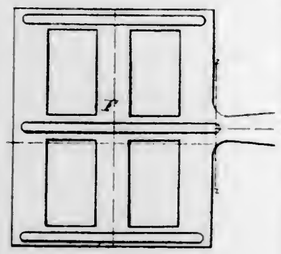
2. An arrow or dart, B, for a blow-gun, provided with a floss of cotton or its equivalent, secured to said dart by a helically-wound cord or thread, substantially as set forth.

3. An arrow or dart, B, provided with helical grooves or indentations, substantially as and for the purpose set forth.

4. The process of constructing a dart for a blow-gun, consisting, first, of separating cotton or its equivalents into filaments or small divisions, then securing a cord to a shank and winding it about the same toward the rear end thereof, then winding said cord back again over successive layers of the cotton, and finally securing said cord to the shank again, and carding said cotton backward, substantially as set forth.

186,639. CURRY-COMBS. U. G. White, Washington, D. C. [Filed Jan. 19, 1877.]

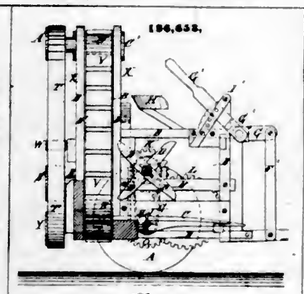




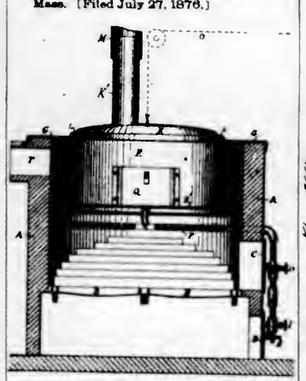
As an article of manufacture, a sheet-metal curry-comb, the body, tooth bars, and handle of which are made of one piece of sheet metal, substantially as shown and described.

186,668. CORN-HARVESTERS. A. Wilson, Tekama, Nebr., assignor of one-half his right to C. B. Telyea. [Filed July 11, 1876.]

The combination, in a corn-harvester, of stripping-fingers C, that are stationary, breaker-arms D, that rotate directly over fingers, and stalk-pullers J, that rotate at the rear end of, between, and on an axis under the fingers, as shown and described, for the purpose specified.



186,633. PROCESSES AND APPARATUS FOR TREATING ORES. Z. A. Willard, Boston, Mass. [Filed July 27, 1876.]



1. The combination, with such vertical retort as is herein described, of the blast-conveyer pipe, formed in flat coil beneath the retort, whereby the bottom of the retort is shielded from the direct furnace-flame, substantially as described.

2. The herein-described process of desulphurizing ores, which consists in moistening a mixture of the pulverized ore and sawdust with salt-water, and then subjecting the mass to the action of a heated current of air and steam, the current being disseminated throughout the material, and its flow continued until desulphurization is completed, all substantially as herein shown and described.

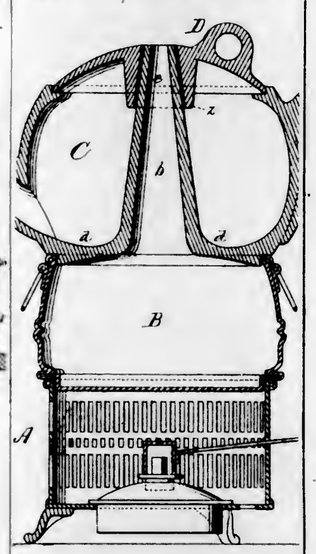
3. The method herein described of preparing pulverized sulphuret ore or other mineral for treatment, by intimately incorporating therewith a suitable proportion of sawdust, or other similar combustible substance, and moistening the whole with salt-water, substantially as described.

4. The process of treating a mass of pulverized sulphuret ore, which consists in intimately incorporating with it sawdust, or similar carbonaceous matter, then passing through this mass a current of air and steam, the quantity of steam being regulated by the operator, whereby combustion is maintained within the retort, and by the presence of the steam the slagging of the sulphuret is prevented, substantially as described.

186,632. PROCESSES OF PREPARING TELLURIDE ORES FOR ROASTING. Z. A. Willard, Boston, Mass. [Filed July 27, 1876.]

The method or process of preparing telluride ores for subsequent treatment, by mixing with the same a proportion of ore containing sulphuret of iron or other sulphuret, and treating the same together, substantially as described.

186,636. TEA-STEEPING DEVICES. G. W. Woodward, New York, N. Y., and Jno. E. Jeffords, Philadelphia, Pa. [Filed Dec. 2, 1876.]

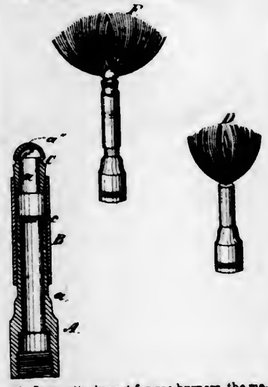


1. The tea-steeping apparatus herein described, consisting of a tea-pot having a perforated lid, and an open conical flue extending from its base through the perforation in said lid, a heater, and an intermediate metallic boiler, substantially as specified.

2. A tea-pot having an open conical flue or pipe, *b*, extending upward from its base, and, in connection therewith, the cover, having an aperture, *c*, surrounded by an annular lug, *x*, designed to engage with the upper end of said flue or pipe, substantially as specified.

REISSUES.

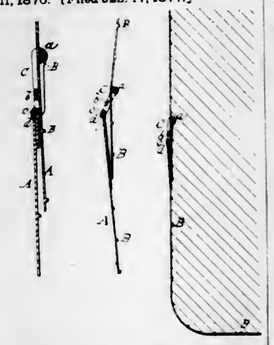
7,470. GAS-BURNERS. Bernard Donohue, Yonkers, N. Y. Patent No. 157,278, dated Dec. 1, 1874. [Filed Jan. 4, 1877.]



1. In an attachment for gas-burners, the metallic shell drawn to shape, having sides substantially straight and open at bottom for attachment to the burner, in combination with a tip, substantially as and for the purpose set forth.

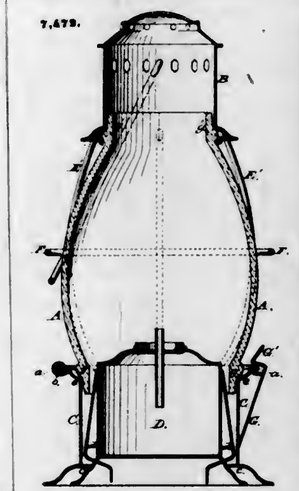
2. The sheet-metal tube B, constructed with a plain exterior surface, in combination with the burner-tip C, having excavation *f* and opening *a''*, said parts being constructed and adapted to be applied by a slip-joint to the stem of an ordinary gas-burner, substantially in the manner herein shown and described.

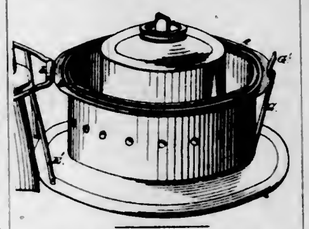
7,471. BALE-TIES. W. B. Hayden, Columbus, Ohio. Patent No. 179,654, dated July 11, 1876. [Filed Jan. 17, 1877.]



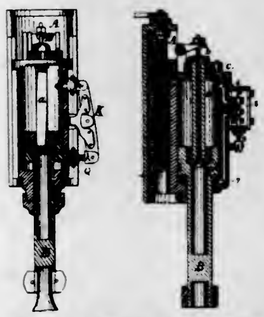
The combination of a clasp or loop, containing a pawl, with a metallic hoop or band containing teeth, into which teeth the said pawl locks in baling any elastic or non-elastic substances, substantially as described.

7,472.





7,473. ROCK-DRILLS. S. Ingersoll, Brooklyn, N. Y., assignor, by mesne assignments, to the Ingersoll Rock Drill Company. Patent No. 115,478, dated May 30, 1871; reissue No. 6,293, dated Feb. 16, 1875. [Filed Aug. 25, 1876.]



The valve-operating tappets, extending laterally into the cylinder, which are combined with and operated by a piston having a reciprocating and a rotative movement imparted to it, said piston being constructed substantially as described, the above-named parts being combined with a piston-rod arranged to carry a drill-bar, and to operate substantially as and for the purpose set forth.

7,474. GAS-STOVES. Walter M. Jackson, Providence, R. I., assignor of one-half interest to H. N. Smith. Patent No. 171,814, dated Jan. 4, 1876. [Filed Dec. 9, 1875.]

1. In a gas-stove, the combination, with the burner, having an air-passage leading thereto, of a closed retort, arranged, relatively to the burner, to be in direct contact with the flame, said retort provided with inlet and outlet pipes, located within the air-passage to the burner, substantially as and for the purpose set forth.

2. The combination, in a gas-burner, with the retort *g*, of an inlet and outlet aperture below its top, a gas and air mixing chamber, and flame-orifices, arranged as shown and described, so that the flame will heat the retort, as and for the purpose specified.

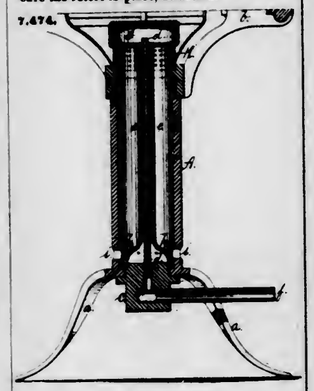
3. The combination, with a gas-burner and a closed retort, arranged relatively to the burner, to be in direct contact with the flame, of a perforated pipe leading from the retort, and a perforated pipe connected to the burner, whereby the heated gas and air are mixed before reaching the burner, substantially as and for the purpose set forth.

4. In a gas-stove, the combination, with a closed retort, surrounded with flame-orifices, of the inlet-pipe *d* and outlet-pipe *e*, and cylinder A, provided with openings at or near its bottom, the whole arranged as shown and described, so that the gas will be delivered to the retort, and from the same will pass down the pipe *e*, and again ascend, while mixing with the air, to the flame-orifices, as and for the purpose described.

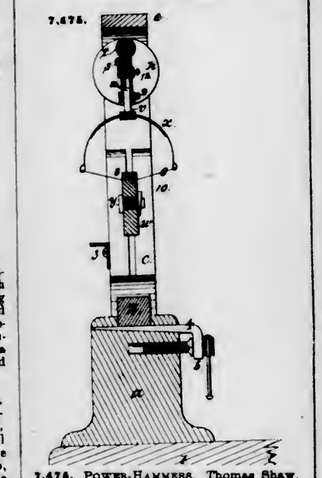
5. The gas-stove consisting of the body A, the concentric tubes *d* and *e*, the latter provided with the openings *h h*, the retort *g*, and the gauze *k*, combined and arranged as shown.

6. In combination with the retort *g*, supported on the gauze *k*, seated on the body A, the tube *e*, arranged as shown, serving both to conduct the gas from the retort, and to secure the retort in place, as shown.

7,474.



7,475.



7,476. POWER-HAMMERS. Thomas Shaw, Philadelphia, Pa., assignor, by mesne assignments, to P. S. Justice, same place.

Patent No. 62,894, dated Feb. 27, 1866; reissue No. 2,308, dated Nov. 27, 1866. [Filed Aug. 6, 1876.]

Brief.—The hammer is connected to a belt that unites the two pendent extremities of a bow-spring, and the spring is connected at the middle of the bow to a short vertical stem inserted and fastened adjustably by a screw in a socket pendent from the crank-pin.

1. The combination of a plate-spring, *x*, of flexible material, with the hammer *w* and crank-pin, for the purpose of forcibly vibrating the hammer, by the rotating crank-pin, without the danger of destroying the intervening spring, substantially as set forth.

2. The belt 6, in combination with hammer *w* and spring *x*, for the purpose set forth.

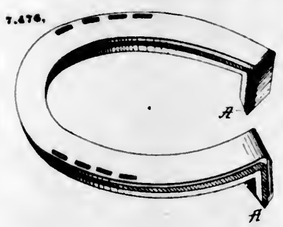
3. The adjustable sleeve *u*, in combination with hammer *w*, spring *x*, and the crank-pin, for the purpose described.

4. The crank-shaft *f*, in combination with hammer *w*, spring *x*, and connecting-rod *u*, all for the purpose substantially as set forth.

7,476. HORSESHOES. Thos. Thistlewood, Sparta, Wis., assignor of one-half interest to L. M. Newbury, same place. Patent No. 173,517, dated Feb. 15, 1876. [Filed June 24, 1876.]

A horseshoe formed of continuous layer of steel welded between two layers of iron, for the purpose of increasing its stiffness, strengthening it around the nail-holes, and furnishing self-sharpening steel-pointed calks, substantially as specified.

7,476.



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DECISIONS OF THE COURTS.

SUPREME COURT OF THE UNITED STATES.

NATHAN C. RUSSELL, APPELLANT, *vs.* SAMUEL DODGE, SR., AND SAMUEL DODGE, JR.

[*Appeal from the Circuit Court of the United States for the Northern District of New York.—Decided October Term*, 1876.]

Where a useful result is produced in any art, manufacture, or composition of matter by the use of certain means for which the inventor or discoverer obtains a patent, the means described must be the essential and absolutely necessary means, and not mere adjuncts, which may be used or abandoned at pleasure.

Where a reissued patent is granted upon a surrender of the original, for its alleged defective or insufficient specification, such specification cannot be substantially changed in the reissued patent, either by the addition of new matter or the omission of important particulars, so as to enlarge the scope of the invention as originally claimed. A defective specification can be rendered more definite and certain so as to embrace the claim made, or the claim can be so modified as to correspond with the specification; but, except under special circumstances, this is the extent to which the operation of the original patent can be changed by the reissue.

Where the patent was for a process of treating bark-tanned lamb or sheep skin by means of a compound, in which heated fat liquor was an essential ingredient, and a change was made in the original specification by eliminating the necessity of using the fat liquor in a heated condition, and making in the new specification its use in that condition a mere matter of convenience, and by inserting an independent claim for the use of fat liquor in the treatment of leather generally, the character and scope of the invention as originally claimed were held to be so enlarged as to constitute a different invention.

The action of the Commissioner of Patents in granting a reissue within the limits of his authority is not open to collateral impeachment, but his authority being limited to a reissue for the same invention, the two patents may be compared to determine the identity of the invention. If the reissued patent, when thus compared, appears on its face to be for a different invention, it is void, the commissioner having exceeded his authority in issuing it.

The case of Klein *vs.* Russell, reported in the 19th of Wallace, stated and qualified.

Mr. Justice FIELD delivered the opinion of the court:

This is a suit for an infringement of a patent obtained by the complainant for an alleged new and useful improvement in the preparation of leather, with a prayer that the defendants be decreed to account for and pay to him the gains and profits derived by them from making, using, and vending the improvement, and be enjoined from further infringement. The patent bears date in February, 1870, and was issued upon a surrender and cancellation of a previous patent obtained by the complainant in August, 1869, upon the allegation that the original patent was inoperative and invalid by reason of an insufficient and defective specification of the improvement. The validity of the reissued patent is assailed on the ground that it describes a different invention from that claimed in the original patent, and for want of novelty in the invention. Other grounds of invalidity are also stated, but in the view we take of the case they will not require consideration.

In the schedule accompanying the patent, giving a description of the alleged invention and constituting a part of the instrument, the complainant declares that he has "invented a new and useful improvement in the preparation of leather;" that "the invention consists in a novel preparation of what is known as bark-tanned lamb or sheep skin," by which the article is rendered soft and free and adapted, among other uses, for the manufacture of what are termed "dog-skin gloves;" and that "the principal feature of the invention consists in the employment of what is known among tanners and others as 'fat liquor,' which is ordinarily obtained by scouring deer-skin after tanning in oil," but which may be produced by the cutting of oil with a suitable alkali. The schedule then proceeds to state that in treating the leather with fat liquor "it is *desirable* to heat the liquor to or near the boiling-point; and that it is *preferred* to use the same in connection with other ingredients," such as soda, common salt, and soap in specified quantities for each ten gallons of the heated liquor; and that "to effect the treatment" the skin should be well dipped in or saturated with the fat liquor or compound, of which fat liquor is the base. The schedule closes by a declaration that what the

patentee claimed and desired to be secured by letters patent was:

1. The employment of fat liquor in the treatment of leather, substantially as specified.
2. The process, substantially as herein described, of treating bark-tanned lamb or sheep skin by means of a compound composed and applied essentially as specified.

It is clear from this statement that the patent is for the use of fat liquor in any condition, hot or cold, in the treatment of leather, and for a process of treating bark-tanned lamb or sheep skin by means of a compound in which fat liquor is the principle ingredient. The state of the liquor is not mentioned as essential to the treatment, or to accomplish any of the results sought. It is only stated as a thing to be *desired* that the liquor should be heated, and that it would be *preferable* that other ingredients were mixed with the heated liquor to make the compound mentioned. In other words, the specification declares that by heating the liquor the effect desired will be more readily produced—that is, more speedily or with less trouble and expense; not that the heating is in any respect essential to the treatment. Where an useful result is produced in any art, manufacture, or composition of matter by the use of certain means for which the inventor or discoverer obtains a patent, it is, as justly observed by the presiding justice of the circuit court, too plain for argument that the means described must be the essential and absolutely necessary means, and not mere adjuncts which may be used or abandoned at pleasure.

The original patent was less extensive in its claim than the reissue. That patent was for a process of treating bark-tanned lamb or sheep skin by means of a compound, in which heated fat liquor was an essential ingredient. The specification was explicit in this particular, and left no doubt on the subject. The reissued patent covers the use of the fat liquor in any condition, hot or cold, and when used alone or in a compound with other ingredients, and thus has a more extended operation, bringing under it manufactures not originally contemplated by the patentee. Is such a reissue valid?

The statute of 1836, (2 Statutes at Large, 122,) under which the reissue was granted, provided that whenever any patent was inoperative or invalid by reason of a defective or insufficient description or specification, or by reason of the patentee claiming as his own invention more than he had a right to claim as new, if the error arose from inadvertence, accident, or mistake, and without any fraudulent or deceptive intention, it should be lawful for the commissioner, upon the surrender of such patent and the payment of a prescribed duty, to cause a new patent to be issued to the inventor for the *same invention*, for the residue of the period then unexpired, in accordance with the corrected description and specification.

According to these provisions a reissue could only be had where the original patent was inoperative or invalid, by reason of a defective or insufficient description or specification, or where the claim of the patentee exceeded his right, and then only in case the error committed had arisen from the causes stated. And as a reissue could only be granted for the same invention embraced by the original patent, the specification could not be substantially changed, either by the addition of new matter or the omission of important particulars, so as to enlarge the scope of the invention as originally claimed. A defective specification could be rendered more definite and certain so as to embrace the claim made, or the claim could be so modified as to correspond with the specification; but except under special circumstances, such as occurred in the case of *Lockwood & Morey*, (8 Wall., 230,) where the inventor was induced to limit his claim by the mistake of the Commissioner of Patents, this was the extent to which the operation of the original patent could be changed by the reissue. The object of the law was to enable patentees to remedy accidental mistakes, and the law was perverted when any other end was secured by the reissue.

Judged by that law, and the provisions of the act of 1870 on this subject are substantially the same, there can be no doubt the invalidity of the reissue. The original patent was not inoperative nor invalid from any defective or insufficient specification. The description given of the process claimed was, as stated by the patentee, full, clear, and exact, and the claim covered the specification—the one corresponded with the other. The change made in the old specification by eliminating the necessity of using the fat liquor in a heated condition, and making in the new specification its use in that condition a mere matter of convenience, and the insertion of an independent claim for the use of fat liquor in the treatment of leather generally, operated to enlarge the character and scope of the invention. The evident object of the patentee in seeking a reissue was not to correct any defects in specification or claim, but to change both, and thus obtain, in fact, a patent for a different invention. This result the law, as we have seen, does not permit.

The decision of the Commissioner in granting the reissue is, it is true, so far conclusive as to preclude in the present suit for infringement any inquiry into its correctness outside of the patents themselves. His action in any case, within the limits of his authority, is not open to collateral impeachment. But that authority being limited to a reissue for the same invention as that embraced in the original patent, a reissue for anything more is necessarily inoperative and void. To determine the identity of the invention the two patents may be compared. Thus compared the reissue here appears on its face to be for a different invention, and the Commissioner, therefore, exceeded his authority in issuing it. (*Seymour* vs. *Osborne*, 11 Wall., 544; *Wicks* vs. *Stevens*, 2 Wood's C. C. Reports, 312.)

In the case of *Klein* vs. *Russell*, (19 Wall., 463,) the question was not before the court whether the reissued patent was invalid because not for the same invention. The point was not made in that case in the court below, and for that reason, it was stated, the point could not be made here. It was to be presumed, said this court, until the contrary was made to appear, that the commissioner did his duty correctly in granting the reissue. What was subsequently said of the character of the first claim, so far as it conflicts with the construction here given, does not meet our approval after the extended consideration the subject has since received.

But assuming that the reissue is not void for the reasons stated, the patent is still invalid for want of novelty in the alleged invention. The use of fat liquor in the treatment of bark-tanned skins was general with manufacturers for many years previous to the alleged invention. Testimony to this effect is given by numerous witnesses. It would subserve no useful purpose to state this testimony. It is set forth with ample fullness in the opinion of the circuit court. It is sufficient for us to say that it is entirely satisfactory to our minds.

The decree is affirmed.

U. S. CIRCUIT COURT—DISTRICT OF MASSACHUSETTS.

THE SWAIN TURBINE AND MANUFACTURING COMPANY *vs.* JAMES E. LADD.

[*In equity.—Before* SHEPLEY, *J.:—Decided January* 2, 1877.]

Claims which would be void as being functional should be so construed as to embrace the described means for effecting the result.

When changes of form involve functional differences, producing new or better results, they are patentable.

The claims in a reissued patent are to be construed so as not to embrace any invention broader in its scope than the invention described, or substantially suggested or indicated in the original.

[*J. S. Abbott* and *H. W. Boardman*, for complainants.
Browne & Holmes and *C. E. Mitchell*, for defendant.]

OPINION OF THE COURT.

SHEPLEY, *J.:*

The invention of Swain, the assignor to the complainants, relates to a new and improved form of that class of water-wheels known as "turbines," which operate by means of extracting power from the unbalanced pressure of water, which, as it passes through the wheel, has its direction changed by the curved surfaces of the floats, which take and transmit the power of the water impinging upon and passing over their curved surfaces. In all wheels of this class, form is material, substantial, and functional, and very slight changes of form and proportion involve functional changes of great importance. Slight modifications and deviations from any prescribed operative forms and proportions may destroy the usefulness or put an end to the identity of the device, or on the other hand may effect new and different and better results.

Before the invention of Swain, the turbine wheels in common use were generally classed under two heads, the Fourneyron and the Jonval wheels. The wheels of the Fourneyron type received and discharged the water horizontally. The wheels of the Jonval type received the water vertically from the top and discharged it downwardly. Various modifications had been made and many patented of both of these forms of the turbine wheel. That Swain made a great improvement upon any of the turbine water-wheels which preceded his is very evident, and no testimony in the record, in the opinion of the court, has any tendency to show that he was not the first and original inventor of that which he claimed in his original patent. Valuable and meritorious as that invention was, it entitles him only to a monopoly of that which he really invented, and no inventor has any right to gradually widen the scope of his claims to keep pace with the progress of invention. Especially in cases where mere changes of form become patentable by reason of involving functional differences should it be left open to subsequent inventors to devise other changes of form involving other functional changes, where the same result is not attained in substantially the same way.

In order properly to construe and limit the claims of the reissued patent in this case, so as to give to the patentee the entire monopoly of the invention actually made by him, and at the same time so limit it as not to cover a field of invention into which the patentee had not entered, it becomes necessary to examine the original patent and endeavor to determine from that what was the scope of the invention which was described, indicated, or suggested in the specifications of the original patent. The original patent granted to A. M. Swain, May 15, 1860, for a new and improved wheel, No. 28,314, describes the object of the invention "to obtain a simple and efficient horizontal water-wheel, one that will have all its parts accessible for repairs, *and which will give the maximum power of varying heads* with an economical use of the water." After describing the devices for raising and lowering the wheel, as desired, without removing the wheel from its proper working position, and without being troubled with the influence or action of the water, the description of the wheel and its floats is as follows:

The wheel has its floats cast or constructed each of a single piece of metal. The face sides of the floats, where the water impinges, are of paraboloidal form, whose axes are tangent to a circle, to which the guides, hereinafter described, are also tangents, and also to the curve at or near the circumference of the wheel. The bottoms of the floats are formed by revolving the curves on their axes.

A description is then given of the annular chamber, termed the hydrostatic chamber, around the wheel, with a series of guides, which, in connection with the top of the chamber and the cylinder connecting the guides at the bottom, form chutes, which direct the water properly to the buckets of the wheel, and an arrangement is provided by means of raising and lowering them to increase or diminish at will the volume of water admitted to the wheel, thereby regulating the capacity of the wheel as occasion may require.

When J (the ring or cylinder to which the guides are attached and cast) is lowered, the water strikes the floats with all the force and velocity due to its head, directly under the rim of the wheel, which is so curved as to force the water down rapidly in the lower curved parts or bottoms of the floats, the water not leaving the wheel until its force has been properly expended on it.

When we examine this specification in connection with the drawings to which it refers, (leaving out of view, for the purpose of this examination, the annular chamber with the guides and chutes, and the devices for raising and lowering the wheel,) we find the essential elements of the wheel to be, first, floats whose face sides where the water impinges are of paraboloidal form, whose axes are tangent to a circle, to which the guides are also tangents, and also to the curve at the outer circumference of the wheel. We find the upper edge of the floats not to be horizontal to the axes of the wheel, but curving downward inwardly diagonally, so as to conform to the rim of the wheel to which the floats are attached, which is so curved inwardly and downwardly. We find these floats with a discharge-line curving over their inner edges from the curved crown to the lower outer edge of the wheel, the float thus narrowing almost to a point at the lower band or rim of the wheel. This form of float, acting in combination with the curved part of the crown, and the hub inside of the inner edges of the floats, discharges the water neither

horizontally or vertically with reference to the axis of the wheel, but in diagonally-curved lines; secondly, we find, as one of the elements of this wheel, a rim or crown, "which is so curved as to force the water down rapidly in the lower curved parts or bottoms of the floats." This downward and inward curvature of the crown is not described as an alternative or preferable construction, but as one having an important function in combination with the floats. As correctly stated by Mr. Renwick, one of the experts examined by the defendant, if there had been any intention of discharging the water in nearly horizontal lines, the lower side of the rim or crown would not have been bent downward, so as to force the water down, and the space in the center of the wheel, into which the horizontally-flowing water would escape, and which would be necessary for its escape, would not have been stopped up by the hub and the downward prolongation of the crown after it extends inward beyond the inner edges of the buckets. And if it had been intended that any considerable portion of the discharge should have been downward vertical, as in the Jonval wheel, then the delivery-edges of the buckets would not have been curved, as before described. This view of the office and function of the downward curved crown is further confirmed by the arrangement of the chutes in the Swain device in such a manner as that the water at part-gate is admitted directly under the curved rim of the wheel.

The reissued patent No. 28,314, dated November 19, 1872, has its first, second, third and fifth claims so worded as in their broad and literal construction, without any limitation to the invention described in the specifications of the original and the reissued patent, to claim any form of "water-wheel having an effective inward flow and discharge of part of the water, and an effective downward flow and discharge of part of the water simultaneously in one wheel, whereby the effective area of discharge is increased without increasing the diameter of the wheel." This is the exact language of the fifth claim, which would be void as a claim merely functional, unless this claim be construed as must also the first, second, and third claims, as including the described means of effecting the result. To uphold these claims they must not only be construed in connection with the described means in the reissue, but so construed as not to embrace any invention broader in its scope than the invention described, or substantially suggested or indicated in the original. However meritorious and original the invention of Swain was, (and of its originality and merit as an advance in the state of the art at the date of Swain's invention the court does not entertain any doubt,) nevertheless, its great merit and utility will not justify such broad claims in a reissue as shall effectually interpose a barrier in the path of subsequent inventors, and arrest the progress of invention. The broad language of these claims, liberally construed, eliminates from the combination in the reissue, the downward and inward curvature of the crown which forms an essential functional element of the combination in the original. Such a literal construction of these claims, with the scope contended for by the complainants, would render the reissue void, according to the decisions in *Wells* vs. *Gill*, and many other cases decided by the Supreme Court of the United States, including *Seymour* vs. *Osborne*. In this connection the court can only repeat the language of the opinion in *Forsyth* vs. *Clapp*, (1 Holmes.)

The court will look beyond the mere form of words in the claim of a reissued patent into the specifications in both the original and reissued patents; and, even if on the face of the reissued patent it does not embrace anything not described or suggested in the original, nevertheless the court will ascertain whether there is any substantive invention adequate to support a claim ingeniously worded, not so much for the purpose of describing what the patentee really invented, as of grasping within its terms some contrivance not within the knowledge or contemplation of the patentee, and for that reason, not by inadvertence or mistake, not embraced in the claims of the original patent.

Giving to these claims the construction which we have indicated, the word crown in the first three claims will refer to and include in the combination such a crown as is described in the original patent and represented in the drawings of the original and the reissue, and the fifth claim will be limited in its scope to water-wheels possessing such elements as we have hereinbefore recited as the described essential component parts of the turbine-wheel described in the specifications and drawings of the original patent. Giving this construction to the claims, the defendant does not infringe, and the bill must be dismissed.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date January 30, 1877.]

9,719.—Corset.—MAX ADLER, New Haven, Conn., assignor to MAYER, STROUSE & CO., same place. Application filed January 16, 1877. Term of patent 7 years.

9,720 to **9,722**, inclusive.—**Carpet.**—WILLIAM DE HART, Amsterdam, N. Y., assignor to STEPHEN SANFORD, same place. Applications filed December 22, 1876. Term of patents 3½ years.

9,723.—Carpets.—JUDSON E. HILL and WILLIAM H. DEACON, Philadelphia, Pa., assignors to JAMES H. GAY, same place. Application filed January 9, 1877. Term of patent 3½ years.

9,724.—Lamp-Holders.—PETER KINTZ, West Meriden, Conn., assignor to BRADLEY & HUBBARD MANUFACTURING COMPANY, same place. Application filed December 20, 1876. Term of patent 3½ years.

9,725.—Match-Boxes.—PETER ROSENBACH, Brooklyn, N. Y. Application filed January 13, 1877. Term of patent 7 years.

9,726 to **9,728**, inclusive.—**Carpet.**—CORNELIUS USTER, Amsterdam, N. Y., assignor to STEPHEN SANFORD, same place. Applications filed December 22, 1876. Term of patents 3½ years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date January 30, 1877.]

4,310.—Cotton-Thread.—JULIUS EINSTEIN, New York, N. Y. Application filed December 29, 1876.
"The word-symbol 'Gladiator' and letters 'J. E.'"

4,311.—Rug-Patterns.—E. S. FROST & CO., Biddeford, Me. Application filed December 11, 1876.
"The shield A, having the crescent *z* and star *f* on its face, as shown."

4,312.—Soap.—THOMAS GILL, Jersey City, N. J. Application filed September 29, 1876.
"The octagonal figure and the cross, used in connection with the words 'Borax' and 'Soap,' and the name 'Thomas Gill's.'"

4,313.—Medicinal Troches.—B. E. HUTCHINSON, Worcester, Mass. Application filed January 13, 1877.
"The letters 'B. E. H's,' and the word-symbol 'Triumphant.'"

4,314.—Cotton Batting.—LE VAN, LA ROCHE & GRITMAN, Lockport, N. Y. Application filed January 18, 1877.
"The star, with the word-symbol 'BATT" in the center thereof, the same being understood to mean 'star-batt.'"

4,315.—Cigars, Cigarettes and Tobacco.—LICHTENSTEIN BROTHERS & Co., New York, N. Y. Application filed January 13, 1877.
"The word-symbol 'Verbenas.'"

4,316.—Medicated Electric Plasters.—BELL MANN & Co., Chicago, Ill. Application filed January 18, 1877.
"A heart-shaped figure, used in conjunction with the words 'Galvano-Electric.'"

4,317.—Brandy.—MARTELL & Co., Cognac, France. Application filed January 17, 1877.
"The coat of arms shown."

4,318.—Brandy.—MARTELL & Co., Cognac, France. Application filed December 2, 1876.
"The words and letters 'J. & F. MARTELL.'"

4,319.—Brandy.—MARTELL & Co., Cognac, France. Application filed January 17, 1877.
"Three scrolls of blue, bearing white characters.

4,320.—Smoking-Tobacco.—A. MEYER & Co, Chicago, Ill. Application filed January 13, 1877.
"The word-symbol 'Irish.'"

4,321.—Dress-Goods.—PASSAVANT & Co., New York, N. Y. Application filed December 16, 1876.
"The word-symbol 'LOUVRE.'"

4,322.—Fertilizers.—POPPLEIN SILICATED PHOSPHATE FERTILIZER COMPANY, Baltimore, Md. Application filed January 15, 1877.
"A representation of a diatomaceæ, as seen under the microscope, as shown."

4,323.—Soap.—ROBINSON BROS. & Co., Boston, Mass. Application filed January 8, 1877.
"The word symbol 'INFANT.'"

4,324.—Whisky.—SCHMIDLAPP & Co., Cincinnati, O. Application filed December 21, 1876.
"The word-symbol 'CERES.'"

4,325.—Tobacco.—SEIDENBERG & Co., Key West, Fla., and New York, N. Y. Application filed January 13, 1877.
"The fanciful words, letters, and character, 'LA ROSA ESPAÑOLA; S. & Co.'"

4,326.—Baking-Powder.—THE AMERICAN LYE COMPANY, Philadelphia, Pa. Application filed March 16, 1876.
"The word 'Best' and the figure of an eagle.'"

4,327.—Pictures or Representations of Devices Printed in Colors.—The firm of OTTO RADDE, Hamburg, Germany. Application filed January 9, 1877.
"The monogram composed of the letters 'O. R.' and the word-symbol 'Stenochrome.'"

4,328.—A Medical Compound.—EBENEZER K. THOMPSON, Titusville, Pa. Application filed December 11, 1876.
"The word-symbol 'Barosma.'"

4,329.—Boxes for Collars.—TIFFT & HOWARD, New York, N. Y. Application filed January 12, 1877.
"The symbol of a chess or checker board."

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date January 30, 1877.]

962.—Title: **"Eau-de-Cologne of George Jaques."**—GEORGE JAQUES, Boston, Mass. Application filed January 22, 1877.

963.—Title: **"Peck's Cod-Liver Oil and Wild Cherry Bark."**—HENRY T. PECK, Philadelphia, Pa. Application filed January 23, 1877.

SALE OF SPECIFICATIONS AND DRAWINGS.

Photolithographic copies of the drawings of all patents issued since November 26, 1867, have been produced, and will be sold to the public at 25 cents per patent, or, where twenty or more copies are ordered at one time, at 10 cents per patent.

Coupon-books, to the amount of $2 or more, can be purchased from the Chief Clerk of the Patent Office; the coupons, for 10 cents each, may be filled out at any time, and, on presentation, will entitle the holder to a photolithographic copy of *any* drawing which has been reproduced.

The specifications of all patents issued since July 1, 1871, are in print, and will be furnished with the drawing without extra charge. In some cases the specifications of patents issued prior to July 1, 1871, are in print, and where such is the case the Office will furnish them with the drawings, but the Office will not undertake to reprint copies of patents which have been exhausted.

In addition to the above, the Office has reproduced, and offers for sale at the price mentioned above, all drawings in the following classes, embracing patents granted from 1790 to date. The classes are those of the Examiners.

Apparel.	Paper manufactures.
Boats.	Printing.
Bookbinding.	Projectiles.
Bridges.	Railways, (Cars and Interior Fittings.)
Carding.	Railways, Exterior
Carriages and Wagons.	Mountings and Fittings.
Cloth.	Sewing-machines.
Cordage.	Ships, construction.
Crinoline and Corsets.	Ships, propulsion.
Driers and Kilns.	Signals.
Electricity.	Silk.
Felting and Hats.	Spinning.
Fire-arms.	Stationery.
Harvesters.	Stoves and Furnaces.
Knitting and Netting.	Thrashing.
Lamps and Gas fitting.	Umbrellas and Fans.
Mills.	Weaving.
Ordnance.	
Paper-making.	

And the subdivisions of—

Bench-planes.	Buttons and Machines.
Bale-ties.	Combs, &c.

About sixty other classes are in progress, and it is hoped that all the drawings remaining, some forty thousand in number, may be completed during the fiscal year.

The total number of patents of which drawings are complete and offered for sale as above will approximate one hundred and fifty thousand.

The Government fee on making application for a patent is fifteen dollars. The final fee is twenty dollars. Usually there are no other Government fees unless the application is appealed.

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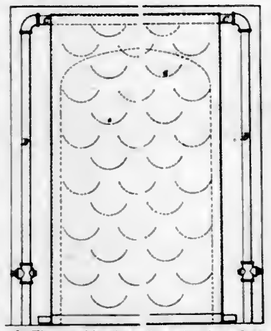
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Ross, A. Q., Toy horse and carriage	186,880
Ryckman, W. J., Composition for fireproofing	186,881
Ryno, E. H., Truss	186,760
Sawyer, P. C., Cotton gin	186,882
Sayers, W. W., Vehicle spring	186,883
Scheibel, H., Nutmeg grater	186,884
Schindler, F., and F. Sondermeyer, Combined sack holder and sack filler	186,892
Schnelke, W., and C. F. W. Maas, Clothes sprinkler	186,741
Schrag, P., Combined eraser and pencil	186,885
Scott, E. A., Coin wrapper	186,886
Seelye, N. M., Sand paper roll and shank wheel for the soles of boots and shoes	186,761
Selden, C., Fire and police alarm signal apparatus	186,887
Selden, G., and T. M. Nagle, Boiler	186,762
Sharp, L. R., Combined undershirt and drawers	186,693
Shepard, A., Coffee mill	186,889
Sherer, W. T., Grocer's scoop	186,888
Sherman, A. R., Gate operating mechanism	186,763
Sibley, E. R., Apparatus for drawing still waters	186,764
Smart, A. J., Screw cutting die	186,890
Smith, J., and F. Brown, Rail joint and fish plate	186,794
Snell, G., and D. J. McDermott, Washing machine	186,891
Sondermeyer, F., and F. Schindler, Combined sack holder and sack filler	186,892
Spanner, W., Invalid bedstead	186,694
Spencer, E. E., and R. L. Galer, Combined fertilizer and seed sower	186,823
Springer, J., Method of sawing lumber	186,893
Staehlen, W., Lamp	186,765
Stearnes, G. N., Hollow auger, (reissue)	7,484
Stewart, A. W., Carpet sweeper	186,894
Stewart, A. W., Carpet sweeper	186,895
Stieneker, R. W., Clay picking machine	186,896
Stokesbary, J. G. and J. H., Corn planter	186,766
Stone, J. R., Pad skirt loop for harness	186,695
Stout, S. T., Animal trap	186,898
Syme, C. J., Churn dasher	186,897
Taber, J. D., Ice cream receiver	186,899
Taft, A. H., Stanchion	186,767
Tasker, S. P. M., Machine for welding metal tubes	186,768
Tasker, S. P. M., Machine for welding metal tubes	186,769
Tennant, H. N., Honey box	186,900
Thayer, O. D., Test gage	186,770
Thomas, J. C., Rotary engine	186,771
Tompkins, S. E., Harness saddle	186,772
Townsend, E. C., and A. Washburne, Egg poaching utensil	186,901
Tschantz, A. J., Carriage jack	186,696
Tucker, H. N., Washing machine	186,902
Underwood, J. W., Coal oil stove	186,903
Valentine, A. A., and H. A. Morrison, Umbrella rib tip	186,907
Vanstone, S., Machine for making screw blanks	186,905
Vanstone, S., Machine for making screw threaded stock	186,906
Vanstone, S., and J. W. Hoard, Manufacture of screw threaded rods	186,904
Van Wicklen, D., Apparatus for bunching brooms	186,773
Van Winkle, E., and F. Coons, Cotton gin feeder	186,804
Vollum, S. S., Car starter	186,908
Vornbrock, F., Advertising desk	186,699
Wainwright, J. T., Circulating device in steam boilers	186,774
Walker, J. H., Press for molding soles of boots and shoes	186,909
Warner, L. C., Suspenders	186,775
Warren, C. T., Automatic wagon brake	186,776
Washburne, A., and E. C. Townsend, Egg poaching utensil	186,901
Waterbury, M., Portable heater	186,911
Watrous, J., Combined pencil sharpener and point protector	186,777
Watson, W. O., Cotton gin	186,910
Webb, T. M., Wash board	186,912
Weidenmann, J., Silt basin	186,913
Westphal, C. H., Sad iron	186,697
Wickwire, C. F., Flour sifter	186,778
Williams, C. J. and H. W., Machine for setting plants	186,698
Williams, R. S., Machine for folding gold foil for dental purposes	186,914
Winter, H., Wood bending machine	186,779
Wolfe, A. K., Wheel plow carriage	186,780
Wood, G. T., Book clamp	186,915
Young, S. W., Eyelet	186,916
Zistel, L., Ice elevator	186,781

TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED JANUARY 30, 1877.

186,647. FIRE-PROOF CURTAINS. Wm. D. Baker, Rockland, Mass. [Filed Dec. 28, 1876.]



1. The combination of an absorbent drop-curtain with a perforated pipe arranged with it for discharge of water into or upon its upper parts, as and for the purpose described.

2. The drop-curtain composed of the water-proof layer *c* and the absorbent layer *d*, connected at intervals, so as to form pockets between such layers, substantially as and for the purpose specified.

186,648. OILERS. J. H. Bertram, Lawrence, Mass. [Filed Dec. 23, 1876.]



Brief.—In a self-closing oiler, the plug *d*, located in the extreme point of the nozzle *c* on the rod *e*, surrounded by a coiled spring, *i*, resting on the shoulder *s*, in combination with bell-crank *g*, post *h*, and push-pin *m*, all constructed, arranged, and operated as set forth.

186,649.

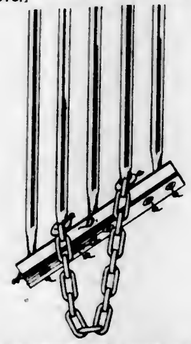


186,650. DUPLEX PUMPING-ENGINES. G. F. Blake, Boston, Mass. [Filed Dec. 28, 1876.]

Brief.—Each engine can operate its own valve-gear; or, by connecting the adjustable arm to the cross-head of one engine, and one of the detachable links to the valve of the other engine, either engine may be made to operate its own valve and that of the other engine.

In combination with two pumping-engines, arranged as described and shown, the rock-shaft R, carrying the adjustable lever L, arms E E', and detachable links *l l'*, all constructed, arranged, and operating substantially in the manner and for the purpose described.

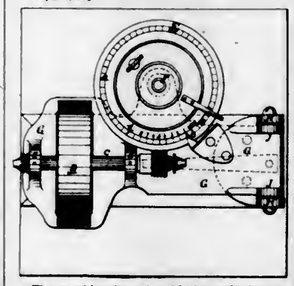
186,660. ROAD-SCRAPERS. Wm. Brown, 2d, Winchendon, Mass. [Filed Sept. 1, 1876.]



1. An angular road scraper and leveler, provided with a series of long guiding bars, poles, or brush, rigidly attached to the rear side of the scraper, in such a manner that the scraper will retain its angle with the line of draft, when constructed as shown, and for the purpose herein set forth.

2. The removable timber D, from the scraper-timber A, constructed as shown, so that the scraper may be inverted to form a drag to smooth the road-surface, as and for the purpose herein set forth.

186,661. CLOTH-MEASURING-MACHINES. Adna Brown, Springfield, Vt. [Filed Nov. 18, 1876.]

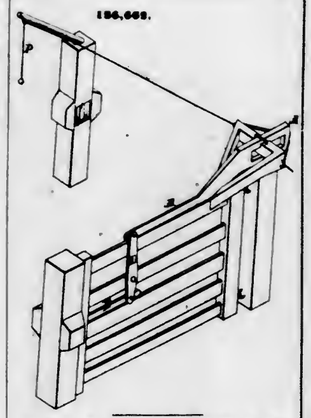


The combination of a friction cylinder or wheel, substantially as described, revolving upon the upper surface of the cloth K as it is drawn underneath and over the surface of any table, counter, or other proper support, and the frame G, supporting the said friction cylinder or wheel A to the base or platform H by means of joints or hinges J, substantially as and for the purposes set forth.

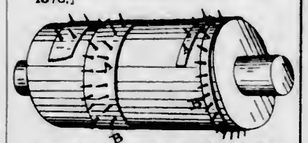
186,662. GATES. J. Coffin, Central City, Iowa. [Filed Sept. 22, 1876.]

The combination, in a gate, substantially as described, of a slide-bar, A, spring-bolt a E, pivoted lever D, and slot, with ropes P, for opening and closing.

186,663.



186,663. TACK STRIPS AND REELS. G. W. Copeland, Malden, Mass. [Filed Aug. 11, 1876.]

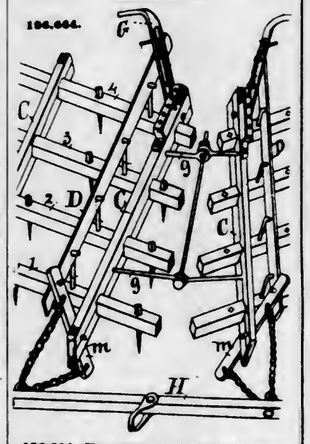


1. The flexible carrier A, with tacks B inserted therein, adapted to be used upon a suitable reel, substantially as shown and described.

2. A tack-feeding strip, substantially as described, wound spirally round a delivering-reel, and arranged to feed tacks with their points in one direction, substantially as described.

3. The continuous flexible tack-strip, provided with tacks, substantially as shown and described, and adapted for use, as herein set forth.

186,664.



186,664. HARROWS. A. F. Davis, Lincomb, Iowa. [Filed Oct. 10, 1876.]

Brief.—Diagonal frames, having rock-bars, are coupled together by rods of unequal length.

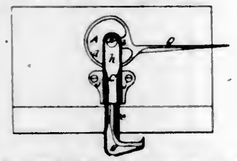
THE GRAPHIC CO. N.Y.

Vertical bars, pivoted to the inside cross-bars and to the vibrating bars of the harrow-frame, are connected by chains to the draft-bar.

1. The independent diagonal frames and harrow-wings A and B, composed of the cross-bars C C, and series of rock-bars 1 2 3 4, each wing carrying coupling-rods *g* of unequal length, substantially as and for the purposes shown and described.

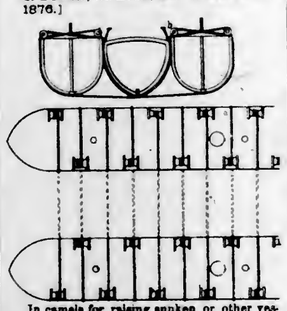
2. The pivoted vertical bars *m*, in combination with the fixed frame-bars C and vibrating bars D, chains *k* and drag-bar H, substantially as and for the purposes set forth.

186,665. WAGON-SEAT FASTENINGS. L. A. Davis and A. L. Davis, Binghamton, N. Y. [Filed Sept. 16, 1876.]



The cam A, having two open parts, *a*, interior faces *d*, inside projections *b*, and lever D, in combination with clamping-hook B and stem *e*, made in one piece, groove *f*, shoulders *g*, guide-socket C, projection *h* for axle *i*, all constructed substantially as herein described, for the purpose set forth.

186,666. CAMELS FOR RAISING VESSELS. J. S. Dowdle, St. Louis, Mo. [Filed Oct. 2, 1876.]



In camels for raising sunken or other vessels a series of windlasses on each side of the camels in combination with the slings and cables for hoisting, arranged to draw opposite to each other, substantially as and for the purpose described.

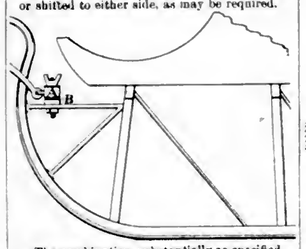
186,667. LIME-FASTENERS. D. S. Coonrad, Rockford, Ill., assignor to himself and J. H. Davis, Marshalltown, Iowa. [Filed Aug. 28, 1876.]



The herein-described clothes-line fastening consisting of the bearing-plate A, having the studs *a*, in combination with the forked lever B and the handle B', arranged and operating substantially as described, and for the purpose set forth.

186,668. ATTACHING SLEIGH-THILLS. W. Fairweather, Sussex, New Brunswick, Canada. [Filed Aug. 26, 1876.]

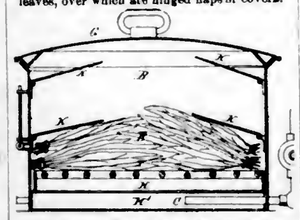
Brief.—The shafts may be fixed centrally or shifted to either side, as may be required.



The combination, substantially as specified, of the slotted bars A and B with the bolts D D and thumb-screws E E.

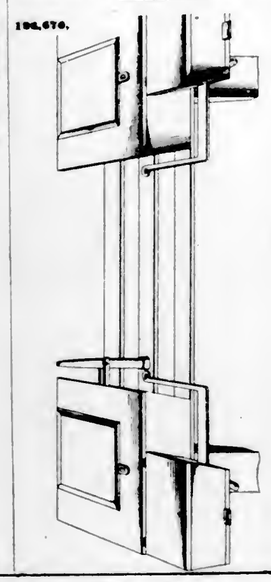
186,669. APPARATUS FOR CURING TOBACCO. August Fenn, New York, N. Y. [Filed July 22, 1876.]

Brief.—The steam enters the curing-chamber from below, and circulates among the piled leaves, over which are hinged flaps or covers.

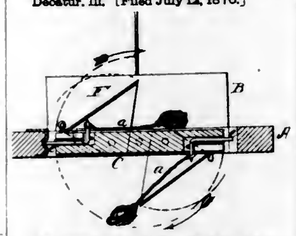


The receiver B, with the cover G, the bottom H, the chamber H', the grate I, and flaps K K, combined and arranged substantially as and for the purpose herein mentioned.

186,670.

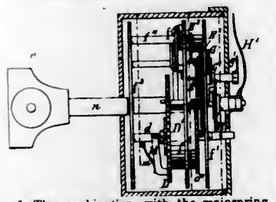


186,671. ANIMAL-TRAPS. Samuel Friend, Decatur, Ill. [Filed July 12, 1876.]



The combination of the platform A, provided with side walls B B, the centrally-pivoted door C, with an L-shaped spring-bolt, *c*, at each end, the cords *a a*, and the bonnets F F, all constructed substantially as and for the purposes herein set forth.

186,672. AUTOMATIC EXTINGUISHERS FOR GAS-BURNERS. T. T. Fryer, Buffalo, N. Y. [Filed Sept. 7, 1876.]



1. The combination, with the mainspring and case D D', and train of gear-wheels and escapement E E' *f*, of the gear-wheel L, connected with the shaft *d*, and segment or oscillating gear-wheel N, connecting with the plug of the stop-cock, so that the wheel N is given about a quarter-turn upon winding the mainspring, thereby opening the cock, and returned to its former position automatically after a certain length of time, thereby closing the cock, substantially as hereinbefore set forth.

2. The combination, with the spring D and shaft *d*, of the wheel L, provided with stops *m'*, arm M, secured to shaft *d*, and wheel N, substantially as and for the purpose hereinbefore set forth.

3. The combination, with the spring D and wheel L, of the wheel N, provided with pin *o* and fixed stops o^1 o^2, substantially as and for the purpose hereinbefore set forth.

4. The combination, with the spring D and wheel L, of the oscillating wheel N, provided with stud *o*, stops o^1 o^2, secured to the frame and spring-pawl *p* so that the oscillations of the wheel N are limited by the fixed stops, and said wheel locked in position by the pawl, when the cock is open, substantially as and for the purpose hereinbefore set forth.

5. The combination, with the oscillating wheel N, pawls *p* p^2, and rock-shaft p^1, of the rotating disk H, provided with projecting stud *r*, for releasing the pawl *p*, substantially as hereinbefore set forth.

6. The combination, with the cock B, mainspring D, and time mechanism, of the wheel G^2, provided with tooth *k* and the registering-wheel K, substantially as and for the purpose hereinbefore set forth.

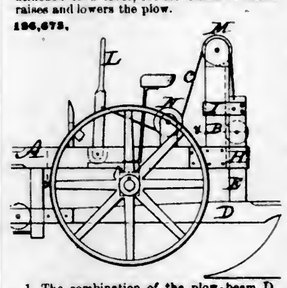
7. The combination, with the cock B and time mechanism, of the wheel G^2, driven thereby and turning loosely on the fixed arbor A, with the disk H, to which the hand H' is secured, substantially as and for the purpose hereinbefore set forth.

186,673. SULKY-PLOWS. H. Fuller and T. L. Boyd, Franklin, Ohio. [Filed May 12, 1876.]

Brief.—The forward end of the plow-beam is supported, by means of a friction-roller, against a hanger from the tongue of the frame.

A rigid post rises from the beam nearly above the plowshare. The tongue extends rearwardly of the axle-tree, and has a corresponding post, with a clasp that encircles the post in the beam. A wheel in the top of the tongue-post carries a cord or chain attached to the top of the plow-post, the opposite end being attached to a lever, the movement of which raises and lowers the plow.

186,675.



1. The combination of the plow-beam D, provided with the standard E and friction-wheels *a b*, and the frame A, provided with the standard B and draft-stud F, substantially as and for the purpose herein specified.

2. The combination and arrangement of the plow-standard E, upright B, loops H I, and suspending and elevating mechanism *c* L M N, substantially in the manner and for the purposes described.

186,674. LOOM-SHUTTLES. A. Hallowell, Lowell, Mass. [Filed May 1, 1876.]

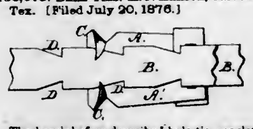
Brief.—The slot for threading is closed by a tapering plug, which closes itself by spring-power, and is opened by pressure of the finger.

1. A loom-shuttle provided with a threading-slot capable of being opened and closed, as and for the purpose described.

2. A loom-shuttle provided with an automatically-closing threading-slot, as and for the purpose described.

3. The combination of the plug B, provided with the wedge G and the spring F, as and for the purpose described.

186,675. BALE-TIES. A. J. Hanson, Calvert, Tex. [Filed July 20, 1876.]



The hereinbefore-described bale-tie, consisting of the angular plates A A', having slots *a* at the rear end, for attachment to band B, and provided at the front with V-shaped jaws C, to grasp the notches D in the loose end of the band B, substantially as and for the purpose described.

186,676. CARRIAGE-PAINTERS' HANGERS. J. G. Hohenstein, Gowanda, N. Y. [Filed July 5, 1876.]

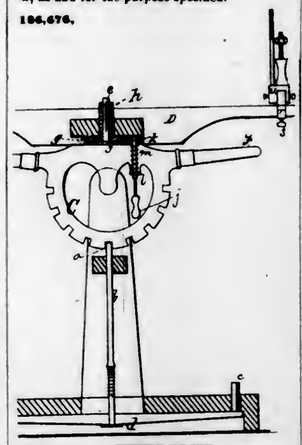
1. The sector-wheel C, constructed with and combining the axle-arms F F, and the central pin *s*, and shoulder *f*, all substantially as and for the purpose specified.

2. In combination with the frame D and sector C *s f*, the sleeve *h*, and plate *g*, with the pin-openings *i i* therein, the pin *k*, and spring *m*, all substantially as specified.

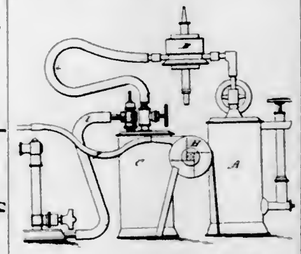
3. The carriage-body frame D, consisting of the side and end pieces *n n q q*, the central cross-piece *p*, the plate *g*, and sleeve *h*, the sliding clamps E E, and straps *r r*, all constructed and arranged to operate substantially as specified.

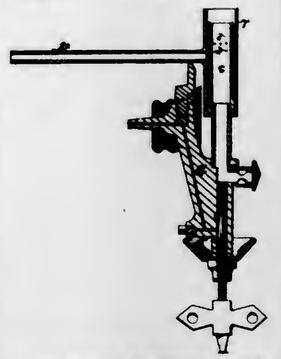
4. The clamps E E, constructed with the extra socket *e*, and with the extra standard *w*, as and for the purpose specified.

186,676.



186,677. HEATING DEVICES FOR SOLDERING-IRONS, &c. John S. Hull, Cincinnati, Ohio. [Filed Nov. 12, 1876.]





1. In an apparatus for vaporising and burning hydrocarbon liquids, the combination of a compressed-air chamber A, a vaporising vessel or chamber, C, and an air-blast device, H, substantially as and for the purposes herein specified.

2. In combination with the compressed-air reservoir A and vaporising vessel or chamber C, an automatic regulator, B, provided with a sliding valve, *f*, diaphragm *g*, and spring *h*, all operating substantially as and for the purpose herein specified.

3. In combination with an air-carbureting device, A C, and an air-blast device, H, a burner, G, provided with an outer air-tube, *r*, and a perforated inner burner-tube, *s*, substantially as and for the purpose herein specified

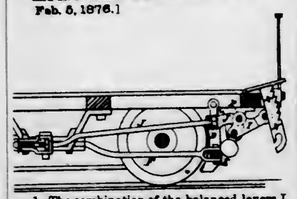
186,678. BROOMS. A. C. Jaques, Leavenworth, Kans. [Filed Dec. 7, 1876.]

Brief.—The handle is held between two lateral pieces, and the brush material is held between these pieces by wire, which surrounds it.



The broom, consisting of the handle A, cleats B B, secured to the flattened sides of said handle, the binding-wire *c*, and the brush D, all constructed as and for the purposes set forth.

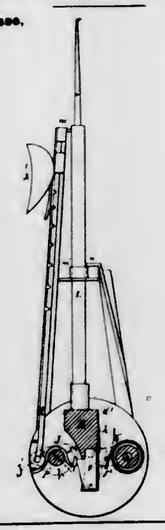
186,679. STREET-CAR BRAKES. L. Kimpel and B. Ferchland, Brooklyn, N. Y. [Filed Feb. 5, 1876.]



1. The combination of the balanced levers I I, with provision for attaching removable treadles H H, the expansible brake-rods J, with the ordinary horizontally-moving brake-lever, the shoes, and brake-bars, substantially as and for the purpose herein set forth.

2. The brake-lever C, brake-bars E, rods F, and shoes D, in combination with the treadles H, the levers I, and the rods J, provided with means of adjusting them in length, substantially as and for the purpose herein set forth.

186,680.



186,680. DENTAL PLUGGERS. C. King, Pittsburg, Pa. [Filed Aug. 21, 1876.]

Brief.—A spring-pawl is operated by a finger-piece attached to one of the supporting-tubes of the plugger. This pawl or "click" raises the hammer to a certain distance and automatically drops it.

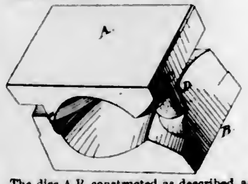
1. In a dental plugger, the pawl g', click J^3, and spring k, as and for the purposes described and shown.

2. The hammer D, having the groove for retaining the pawl, and the arm d^3 for hinging the hammer, substantially as described, and for the purposes set forth.

3. The spiral spring f, in combination with the post b, arm d^3, and hammer D, substantially as described, and for the purposes set forth.

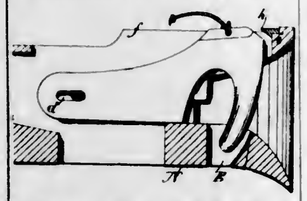
4. In a dental plugger, the combination of the hammer D, arm d^3, post b, spring f, adjusting-lever O, pawl g', lever J, click J^3, and spring l, all combined and arranged substantially as described.

186,681. DIES FOR MAKING GRUBBING-HOES. J. C. Klein, Pittsburg, Pa. [Filed May 1, 1876.]



The dies A B, constructed as described, and adapted to be used in oscillating rolls for drawing down the metal of the eye of a grub-hoe or frow, substantially at set forth.

186,682. CAR-COUPLINGS. C. H. Knowlton, Rockland, Me. [Filed Nov. 10, 1876.]



The car-coupling described, consisting of the draw-head having the slots above and below, the hole E, the bearing for the hook-fingers above and below, the bearing N for the support of the hook, in combination with the hook, slotted at d, formed to fit under the shoulder h, and adapted to operate with respect to the link, all as and for the purposes set forth.

186,683. HYDRAULIC MOTORS FOR DRIVING LIGHT MACHINERY. Wm. J. Lane, Millbrook, N. Y., assignor of one-half of his right to J. G. Lane, same place. [Filed Oct. 25, 1876.]

Brief.—This wheel is suspended within a case, so that it may rotate free from the influence of proximity of the latter, and constructed with one or both the bearings of its shaft within the air space or chamber between the compartment in which the wheel revolves and the exterior of the case, for the purpose of preventing injury to the bearings of its shaft within the air space or chamber between the compartment in which the wheel revolves and the exterior of the case, for the purpose of preventing injury to the bearings by sand and other foreign matters from the water.

1. A water-wheel, s, provided with concave buckets, arranged thereon in the manner shown, and in the described relation to a nozzle, for the introduction of the water to the buckets, the said wheel being also suspended within a case, with free space between the wheel and the walls of the said case, whereby the water falls away from the wheel, as and for the purpose set forth.

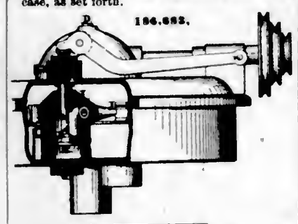
2. In combination with the passage leading to the nozzle, the valve formed with a hemispherical projection made to fit within the orifice opening to the said nozzle, as and for the purpose set forth.

3. The combination of a water-wheel suspended in a closed chamber, and acted upon by water from a nozzle, with a partition separating the said chamber from the outer bearing of the shaft of the said wheel, as set forth.

4. The combination of the spindle of the valve, the lever by which said valve is operated, and the lever-connections, whereby the lever may be rotated around the spindle, as set forth.

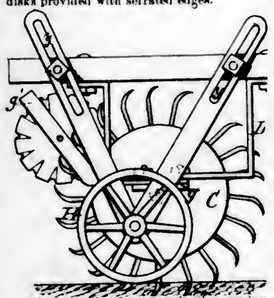
5. The adjustable sleeve E, in combination with the shaft of the water-wheel and the case, as set forth.

186,684.



186,684. MACHINES FOR EXTERMINATING NOXIOUS GRASSES. L. Martin, Lyons, N. Y. [Filed Nov. 3, 1876.]

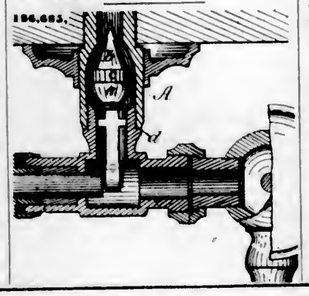
Brief.—A pair of cylinders, placed slightly in an oblique position to each other, are mounted in a frame, to which the draft is applied. The cylinders are provided with numerous curved teeth, which penetrate the soil and lift the roots of grass therefrom. The points of the teeth curve backward, and as they rise by the rotation of the cylinders, the teeth are cleared from the grass by a series of revolving disks provided with serrated edges.



1. In a machine for exterminating noxious grasses, the combination of the toothed rollers C C and notched clearers E E, connected by the gears o s m, and attached to swinging boxes, so as to be adjusted bodily to different positions, as herein shown and described, and for the purpose specified.

2. The combination, with the toothed rollers C C and notched clearers E E, connected by the gears o n m, of the swinging boxes b and g, capable of adjustment to different angles, carrying the said rollers and clearers bodily, and secured at any position by clamping bolts, as shown and described, and for the purpose specified.

186,685.

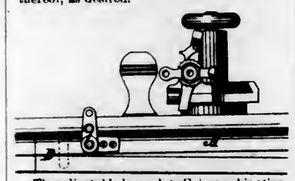


186,685. DOUBLE FAUCETS FOR BATHS, &c. H. C. Meyer, New York, N. Y. [Filed Jan. 9, 1877.]

A compound faucet, consisting of the two faucets A, each having a joint, d, in front of their point of support or attachment, in combination with a central connecting section, united thereto by the couplings E, or their equivalents, substantially as described, whereby the valves and their operating parts can be removed without disconnecting the faucets from the pipes or their supports, as set forth.

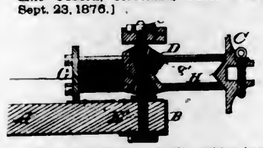
186,686. MILLSTONE-DRESSING MACHINES. L. Moore, Cole's Creek, assignor to S. E. Griscom, Pottsville, Pa. [Filed July 10, 1876.]

Brief.—The base-plate is adjustable by means of screws, to provide for dressing the stone more deeply toward the eye or skirt thereof, as desired.



The adjustable base-plate C, in combination with the bed-plate A and the screws D, substantially as and for the purpose specified.

186,687. DRAW-BARS FOR STREET-CARS. Milo Osborn, Cleveland, Ohio. [Filed Sept. 23, 1876.]



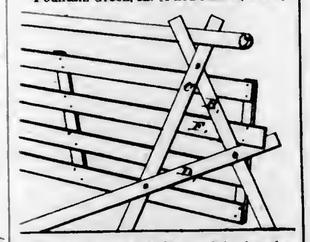
1. The combination, with the rocking bearing D, pivoted to the floor or frame of the car, of the draw-head C, the retaining-plate G, guide-rods H, and spring J, substantially as and for the purpose set forth.

2. The combination, with a yielding draw-head, of a rocking bearing, D, adapted to have both vertical and lateral movement, substantially as and for the purpose set forth.

3. The combination, with a yielding draw-head, of a rocking bearing, D, formed with cut-away portions g g', substantially as and for the purpose set forth.

4. The combination, with the draw-head C, having guide-rods H secured thereto, the retaining-plate G, and spring J, of the rocking bearing D, perforated for the reception of the guide-rods, substantially as and for the purpose set forth.

186,688. FENCES. David R. Ostrander, Fountain Green, Ill. [Filed June 3, 1876.]

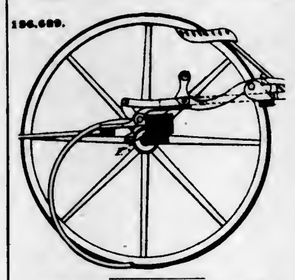


The combination of the panel, having the extended board or rail F, with the post or support B C D, substantially as and for the purpose set forth.

186,689. HORSE HAY-RAKES. Benj. Owen, Dayton, Ohio. [Filed Apr. 4, 1876.]

The combination, with the rake-head grooved at each end, of the spindle-plates F with their inner faces fluted to fit the grooves in the head, and slotted transversely for the passage of the fastening-bolts e, substantially as and for the purpose specified.

186,689.

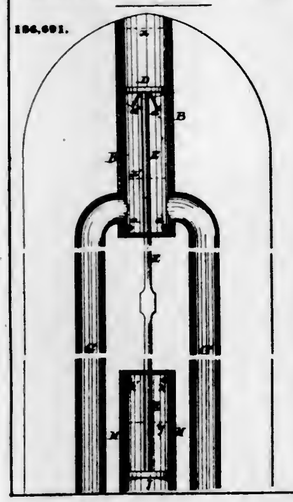


186,690. COVERS FOR BOTTLE-TOPS. F. M. Piper, Westborough, Mass. [Filed July 1, 1876.]



The lever A, having the cover E, spring B, and hinge or clevis C, in combination with the stopper-tube D, substantially as and for the purpose set forth.

186,691.

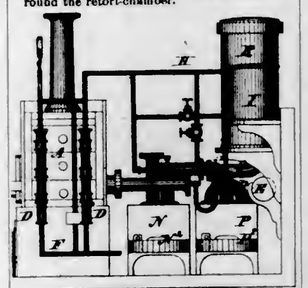


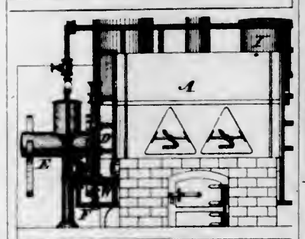
186,691. MEANS FOR PROPELLING VESSELS. T. H. Rawlins, Ingersoll, Ontario, Canada. [Filed May 15, 1876.]

As a new mode of propelling vessels through water, the main tubes B H, side tubes G G', valve D, plunger J, and rod E, all constructed and operating substantially as and for the purpose set forth.

186,692. APPARATUS FOR MANUFACTURING GAS FROM PETROLEUM, &c. James Rigby, Montreal, Quebec, Canada. [Filed July 28, 1876.]

Brief.—Oil is fed in regulated quantity upon the convex bottom of the retort, where gas is generated and passed into a washer, from which it is exhausted by a steam-jet, which also induces a current of air to mingle with the gas for diluting it. The gas is then passed through a second washer or purifier, from which it passes to the coke scrubber, receiving on its way a jet of superheated steam and a further supply of air, if required. Tar is injected by a steam-jet to the fire-box of the furnace, where it is burned. Water-backs surround the retort-chamber.





1. In a gas-furnace, the combination, with the gas-outlet pipe from the retort, of the inlet-pipe for hydrocarbon, arranged centrally in the outlet-pipe, and extending from its junction with the retort to or near the center of the retort, as herein described.

2. In combination with a gas-furnace, water-backs arranged on either side of the retort-chamber, divided up horizontally into compartments, connected by stand-pipes, and having their inner faces extending upward and inward, to throw the products of combustion against the retorts, as herein set forth.

3. In the furnace A, the combination therewith of the water-backs connected by water-bridge, and communicating with the water-tank by pipe H, inlet-pipe P, and stand-pipes D, for the purpose of securing perfect equilibrium, as herein set forth.

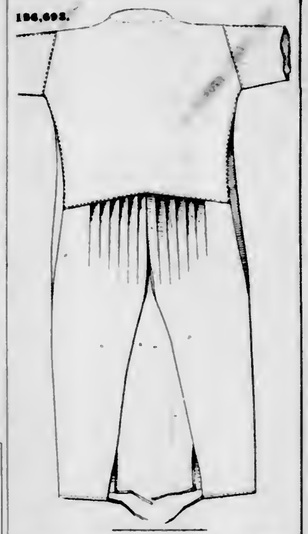
4. The combination of the furnace A with retorts B, washer N, second washer or purifier P, scrubber E, oil-tank I, and water-tank E, all constructed, arranged, connected together, and operating substantially in the manner and for the purpose set forth.

186,693. COMBINED UNDERSHIRT AND DRAWERS. L. R. Sharp, New York, N. Y. [Filed Nov. 17, 1876.]

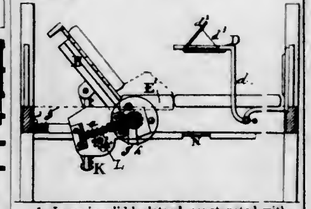
1. As a new article of manufacture, a garment consisting of a combined shirt and drawers, open from the neck in front to the crotch, and having an oblique waist-seam behind, forming an obtuse angle, which terminates the opening from the crotch, as and for the purpose set forth.

2. The combined garment having the oblique waist-seam, in combination with the plaited seat, as and for the purpose set forth.

186,694.



186,694. INVALID-BEDSTEADS. W. Spanner, Toronto, Ontario, Canada, assignor to B. Morton, same place. [Filed Aug. 19, 1876.]



1. In an invalid-bedstead, constructed with an adjustably-movable extension-bolster, B', and bottom C, as shown and described, the fold-over table B, with book-rest d^3, arranged in relation to such bolster, as specified and described.

2. In an invalid-bedstead, constructed with an adjustably-movable extension-bolster board B', the combination of the links b^2 b^2 b^4, bottom C, hinged racks K K, axle L, pinions l' l', wheel f, endless screw s, bevel-wheels g h, and axle m, and handle M, as and for the purposes set forth.

3. The combination of the block t, pan F, and pan holder e', key x, lever N, and slide-ways w w, as and for the purpose described.

4. The combination of the catch k^2, axle k^3, and arms k^4, with the bed-bottom and the racks K, as and for the purpose described.

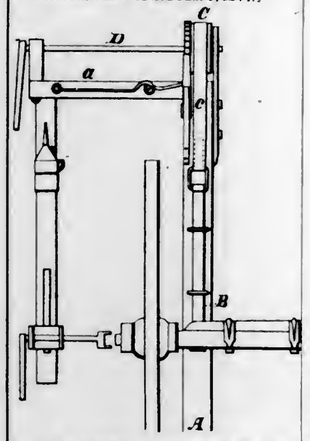
186,695.



186,696. PAD SKIRT-LOOPS FOR HARNESS. J. R. Stone, Graham, Mo. [Filed Nov. 25, 1876.]

The adjustable pad skirt-loop described, adapted to receive the harness tug or trace, the same being made of leather, and consisting of a short strap, *b*, and its buckle-loop *d* and pad *c*, all substantially as and for the purpose described.

186,696. CARRIAGE-JACKS. A. J. Tschantz, Orrville, Ohio. [Filed Jan. 9, 1877.]

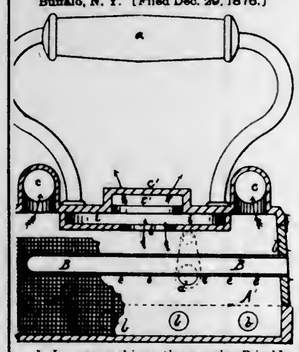


1. The standard A, lifter B, strap *c*, arranged substantially as shown, and a winding-drum, ratchet-wheel, pawl, and crank, all operating together for the purpose described.

2. A carriage-jack consisting of a standard, A, extended arm *a*, lifter B, strap *c*, drum C, shaft D, and a crank, ratchet-wheel, and pawl, substantially as shown and described, by which an operator is enabled to stand on the outer side of wheel while raising, removing, replacing, and lowering the same.

3. In a carriage-jack having an arm extending over the wheel, the strip or rod I, pivoted to the arm, and suspending to outer side of wheel, with a combined wrench and crank adjustable vertically, for the purpose of removing the nut that retains the wheel.

186,697. SAD-IRONS. Chas. H. Westphal, Buffalo, N. Y. [Filed Dec. 29, 1876.]



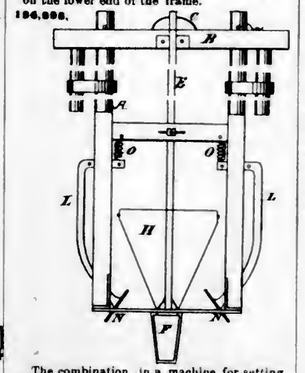
1. In a gas sad-iron, the gas-pipe B inside the heating-chamber A', provided on the under side with a series of jet-openings, *e e e*, and outside ending in a worm or series of convolutions, *g g*, and a regulating-cock, *s*, substantially as and for the purpose specified.

2. The sad-iron case A, constructed with the air-openings *c c c*, chamber *i*, with openings *i' i'*, as and for the purpose specified.

186,698. MACHINES FOR SETTING PLANTS. Calvin J. Williams and H. W. Williams, Caverna, Ky. [Filed Aug. 8, 1876.]

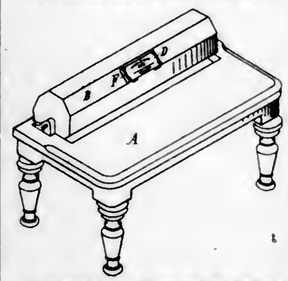
Brief.—A vertical lever with spade-shaped lower end, forming one of the earth-opening jaws, has its upper end bent downward, forming an angular extension, which passes through a mortise in the sliding bar, by which means it is operated, thus causing the jaw to open. Said sliding bar also operates two curved levers with spades, for compressing the soil around the plants. The hopper is hinged together at the top—one side being riveted to the vertical lever, the other hinged to the plate on the lower end of the frame.

186,698.



The combination, in a machine for setting plants, of the frame A A with its slide B, operating-lever E with its point F, hopper H H, and plate I with its point J, and adjusting-screw K, also the levers L L with their blades N N, and springs O O, arranged, constructed, and operated substantially as and for the purpose hereinbefore set forth.

186,699. ADVERTISING-DESKS. F. Vornbrock, Boston, Mass. [Filed Jan. 12, 1877.]

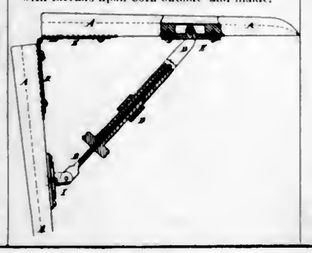


1. The card-holder F, provided with the bed H, stop K, spring J, and projections G, constructed and arranged to operate substantially as set forth and specified.

2. The desk A, provided with the cylinder B and holders F, constructed and arranged to operate substantially as set forth and specified.

186,700. HINGED SPLINTS. G. S. Adams, Philadelphia, Pa. [Filed Jan. 13, 1877.]

Brief.—The hinge permits lateral motion of one part of the splint upon the other. The two parts are adjusted by a long screw-nut with threads upon both outside and inside.

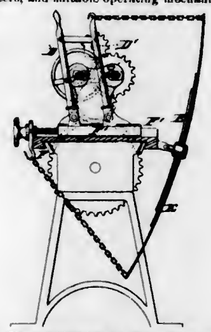


1. The combination of the screw C, having a right-hand screw-thread formed upon its outer surface, and a left-hand screw-thread formed upon its inner surface, with the left-hand screw B, pivoted to one part of the hinged splint A, and with the long nut D, pivoted to the other part of said splint, substantially as herein shown and described.

2. The combination of the slotted hinge H, the swiveled stud I, and the slotted plate E with the arms of the splint A, the screws B and C, and the long nut D, substantially as herein shown and described.

186,701. LATHES FOR TURNING IRREGULAR BODIES. F. Arbey, Paris, France. [Filed Nov. 25, 1876.]

Brief.—Bodies of irregular shape may be turned or carved in a reliable and automatic manner by means of a V-shaped cutter secured to a laterally-adjustable pivoted lever, jointed to a second laterally-adjustable parallel lever, actuated by a balanced spring, and carrying a blunt guiding tool, both levers mounted in a longitudinally-traveling carriage, while the blank and pattern are held, respectively, between jointly-revolving mandrels and fixed centers, and suitable operating mechanism.

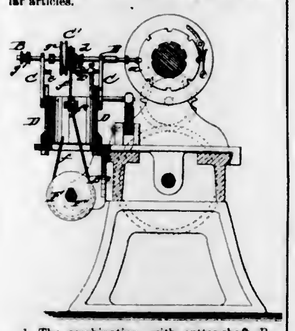


1. The combination of the parallel swinging and jointed pivot levers D D', carrying, respectively, a cutting and guiding tool, with a balanced leaf-spring, E, of the cutter-carriage, substantially as and for the purpose described.

2. The combination of the longitudinally-traveling and laterally-adjustable carriage F with the parallel, swinging, jointed, and spring-acted pivot-levers D D', carrying the cutting and guiding tools, substantially as and for the purpose specified.

186,702. CARVING ATTACHMENTS FOR LATHES. F. Arbey, Paris, France. [Filed Nov. 25, 1876.]

Brief.—A wood-working lathe is provided with a carving attachment placed in a traveling carriage, and supported on an adjustable cylindrical standard, to which the balanced arms of the cutter-shaft are pivoted, for the purpose of grooving, channeling, pearling, and ornamenting balusters, table-legs, and similar articles.



1. The combination, with cutter-shaft B, movable in arms C and sleeve *d*, of the pulley C', held by a fork seated in the collar of sleeve *d*, as and for the purpose described.

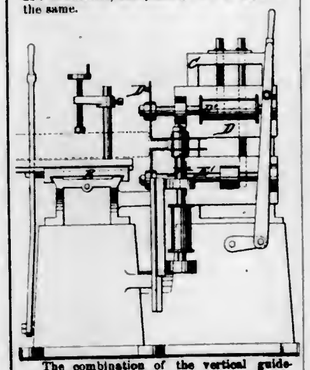
2. The combination of a sliding and revolving cutter-shaft, turning in bearings upon balanced swinging arms and intermediate guide-pulleys, of cylindrical standard D, and a revolving pulley traversing on an actuating-shaft, substantially as and for the purpose described.

3. The combination of the revolving cutter-shaft B, having an end collar and a forked lever-handle, of the balanced and swinging arms C, substantially as set forth.

4. The combination of the swinging and balanced cutter-carrying arms, provided with cross-rod *e*, of the downward-extending arm and friction-roller, for raising or lowering the tool by means of a profiled pattern or guide of the lathe, substantially as specified.

186,703. TENONING AND MORTISING MACHINES. F. Arbey, Paris, France. [Filed Nov. 25, 1876.]

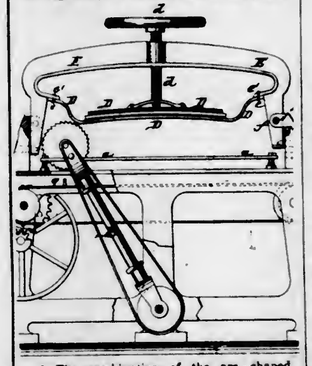
Brief.—The machine can, by interchanging the tools upon a vertically and horizontally adjustable arbor, be adapted for sawing tenons and cutting mortises of any desired size and inclination, and planing off the edges of the same.



The combination of the vertical guide-frame C, the vertically-adjustable carriage D, the horizontally-sliding part D', carrying revolving shaft D', and the operating-lever D', to apply shaft D', by change of tools, to mortising and planing operations, substantially as specified.

186,704. MACHINES FOR JOINTING STAVES. F. Arbey, Paris, France. [Filed Nov. 25, 1876.]

Brief.—The stave-blanks are firmly held between clamping-pieces bent according to the curvature of the stave, and mounted in a longitudinal arc-shaped frame, swinging in vertically-adjustable pointed pivots of fixed side standards, provided with adjusting-screws, and rigidly attached to the supporting-table while being jointed by a circular saw mounted at the end of a swinging arm attached to the driving shaft, and moving in a vertical plane.



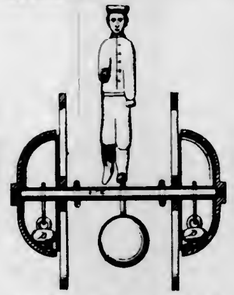
1. The combination of the arc-shaped frame E with the detachable clamping-pieces D, bent to the curvature of the barrel, and with one or more clamping-screws, *d*, to hold the stave securely to the action of the saw, substantially as specified.

2. The combination of swinging frame E, having side seats *e'*, with the curved lower clamping-piece D, and with fastening-screws *z*, substantially as described.

3. The combination of the clamping-frame E with the vertically-adjustable center-pivots *b*, and with the perforated standards E', to adjust the clamping-frame to different diameters of the barrel, substantially as set forth.

4. The combination of the pivoted clamping-frame E, with adjusting set-screws *f*, of the standards E', to adjust the motion of the frame to the width of the stave to be cut, substantially as shown and described.

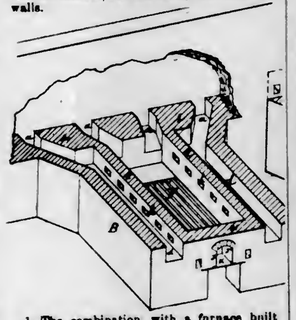
186,705. BELL TOYS. H. C. Barton, East Hampton, Mass., assignor to Gong Bell Manufacturing Company, same place. [Filed Aug. 12, 1876.]



The combination, in a tractable bell toy, with a pair of wheels, B B, connected by an axle, A, or its equivalent, of one or more bells arranged upon the outside of one or both of said wheels, substantially as herein specified.

186,706. BRICK-KILNS. R. W. Bingham, Philadelphia, Pa. [Filed Dec. 11, 1876.]

Brief.—The observation-ports do not open into the furnace, but into the space outside its walls.



1. The combination, with a furnace built against the exterior face of the kiln-wall, and communicating with several independent kiln-arches, through the bent kiln-wall eyes *a* of the straight peep-holes N, arranged substantially as shown and described.

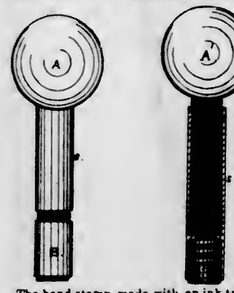
2. The combination of the furnace-chamber F and flue *d*, having communicating passages with the furnace-chamber, and communicating with two or more separate kiln-arches through the bent kiln-wall eyes *a*, substantially as shown and described.

3. The combination, with a furnace built against the exterior face of the kiln-wall, and having the side flues *d d* and lateral passages communicating therewith, of the bent eyes *a a*, whereby said furnace communicates with more than two separate kiln-arches, substantially as shown and described.

4. The combination, in the furnace B, of the flues *d d* abutting against the kiln-wall pier and the bent kiln-wall eyes *a a*, substantially as shown and described.

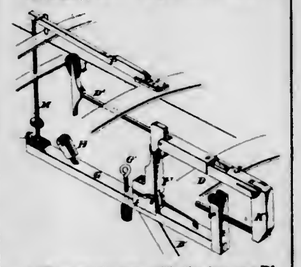
5. In a kiln having passages or eyes passing through its walls toward a furnace built against the exterior side of said kiln-wall, the peep-holes N N, adapted to looking through the furnace and kiln walls into the kiln-arches set of green brick, substantially as shown and described.

186,707. HAND-STAMPS. Hiram S. Blunt, New York, N. Y. [Filed Jan. 16, 1877.]



The hand-stamp made with an ink-tube, *s*, a head or handle, A, and a filling of sponge or similar porous material at the lower end of the ink-tube, substantially as set forth.

186,708. PIANO-ACTIONS. H. V. Boehme, Sandusky, Ohio. [Filed Oct. 17, 1876.]



1. The combination, with the hammer D', double split lever-arm J, and angular support K, of the fly-check lever G, the latter provided with the right-angular arm *k*, fly-check F, adjusting-screw G', back-check H, and cushioned head *g*, substantially as set forth.

2. The damper P, with its lifter M, in combination with the hammer D' and fly-check G, the whole actuated by the fly-check lever G and key D', substantially as set forth.

186,709. BOBBIN-WINDERS FOR SEWING-MACHINES. A. C. Carey, Malden, Mass. [Filed Jan. 10, 1877.]

Brief.—The pressure-pad is rounded at its front and ends, to admit of the free passage of the thread under it; is grooved diagonally on its lower surface to prevent overriding of adjacent coils; is so mounted on its pivot as to allow it to rock and have a slight movement in the direction the coils of thread are traveling, and has the thread-guide rod attached to it, so that it will rise and fall with it.



1. The combination, with a rotating shaft, of a pressure-pad grooved or corrugated diagonally upon its under surface to press upon the surface of the thread of the bobbin, being wound to operate as and for the purpose set forth.

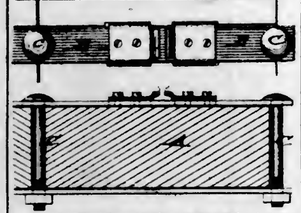
2. A pressure-pad, in combination with the thread-controlling guide-wire attached to it, and adapted to rise and fall with the pad, substantially as described.

3. The combination, with the grooved pressure-pad of the thread-controlling guide-wire, substantially as described.

4. A rotating shaft, in combination with a pressure pad pivoted as described, rounded at its front and ends, and adapted to move at its forward end in the direction of the length of the bobbin, and to rock to adapt itself to the new and old layers of thread on the bobbin-surface, substantially as set forth.

196,710. RAILROAD-TIES. G. W. Chandler, Moingona, Iowa. [Filed Dec. 30, 1876.]

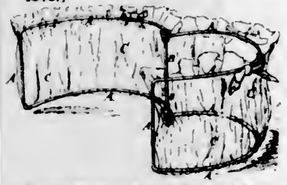
Brief.—Clay or stone blocks are connected by longitudinal iron straps bolted together. The straps are provided with lugs for holding the rails in position.



1. A railroad cross-tie constructed of clay or stone blocks, connected by longitudinal iron straps and fastening-bolts, substantially in the manner and for the purpose set forth.

2. The combination of the longitudinally-grooved clay or stone pieces with iron fastening straps, seated in the grooves, and with end and intermediate screw-bolts, substantially as specified.

196,711. BIRD-CAGE SCREENS. Gilbert W. Chapin, Brooklyn, N. Y. [Filed Dec. 11, 1876.]



A bird-cage screen formed of the frame A, made in two or more parts, connected together by rods B, and the gauze C, to adapt it to be applied to a bird-cage, substantially as herein shown and described.

196,712. FLAVORING-POWDERS. Wm. F. Clotworthy, Baltimore, Md., assignor to Smith, Hanway & Co. [Filed Dec. 26, 1876.]

As a new article of food, flavoring-powders, compounded of fluid extracts or essential oils, used for flavoring food and table luxuries, and starch, meal, flour, or other dry absorbent, substantially as and for the purpose specified.

196,713. WHEEL-CULTIVATORS. S. Dahlbom, Carpenterville, Ill. [Filed June 12, 1876.]

Brief.—The draft-bars, to which the cultivator-shares are attached, extend both in front and rear of the axle-tree, the forward ends being supported upon hangers depending from the frame of the machine. The double-tree is adjustable to positions both above and below the frame, to give a high and low draft for different height of plants. The beams are raised and lowered by means of levers, pulleys, and ropes.

1. In a wheeled cultivator, the draft-bars of which extend in front of the axle, the combination of the draft-bars D, cross-bar F, constructed as described, and connected to both draft-bars, and evener E, attached to and supported by the cross-bar on the forward ends of the draft-bars, substantially as and for the purpose set forth.

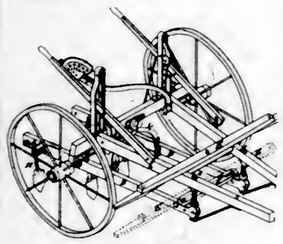
2. In a wheeled cultivator, the draft-bars D, arranged between the wheels, and extending in front of the axle, in combination with a draft-supporting bar, connected to their forward ends, and an upper draft-frame, provided also with a draft-supporting bar arranged above the former, whereby the machine is adapted to high or low draft by changing the evener from one support to the other, substantially as described.

3. The bent arms L, constructed as described, pivoted together, and adjustably connected together at their upper ends, in combination with the draft-bars D, connected thereto by swivel-joints, substantially as and for the purpose set forth.

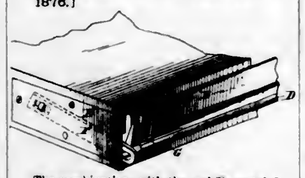
4. The combination of the clamping-piece I, constructed with a projecting bearing-flange, *i*, eyebolt *h'*, standard H, and draft-bar D, substantially as described.

5. The combination of the standard H, holding-clamp I, and pivoted stop K, substantially as and for the purpose set forth.

196,713.

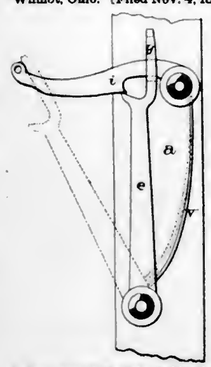


196,714. WEATHER-STRIPS. Frank Davis, North Adams, Mass. [Filed Nov. 11, 1876.]



The combination, with the rod D, metal C, rubber cloth B, tongue G, slotted slide F, slotted shoe H, plates E, connected and acting automatically, as and for the purposes set forth.

196,715. GATE-LATCHES. Josiah J. Deal, Wilmot, Ohio. [Filed Nov. 4, 1876.]



1. In a gate-latch, the combination of the plate *e*, pivoted at its lower end, and having the eye *g* through its upper for the passage of the latch *i*, whereby the two parts are connected together, substantially as shown and described.

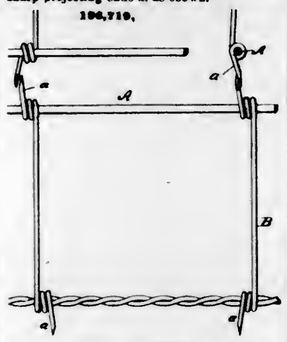
2. The combination of the plate *e*, pivoted at its lower end, and provided with the eye *g*, with the latch *i*, and spring *e*, substantially as set forth.

196,716. BARBED FENCE-WIRES. A. C. Decker, Bushnell, assignor of one-half of his right to J. McNeill, Chicago, Ill. [Filed June 13, 1876.]

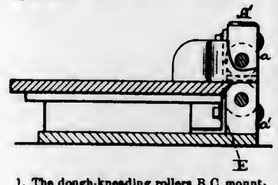
1. A wire-mesh fence having the ends of the wires which form its body sharpened, and arranged to serve as repelling points or spurs, substantially as described and shown.

2. The herein-described fence, consisting of two or more horizontal wires, A, and vertical wires B, coiled thereon, and provided with sharp projecting ends *a*, as shown.

196,719.



196,717. DOUGH-KNEADING MACHINES. E. L. Edwards, Vineland, N. J. [Filed Apr. 6, 1876.]



1. The dough-kneading rollers B C, mounted on separated sections *a a'* of uprights A A', in combination with the slotted plates E, substantially as and for the purpose set forth.

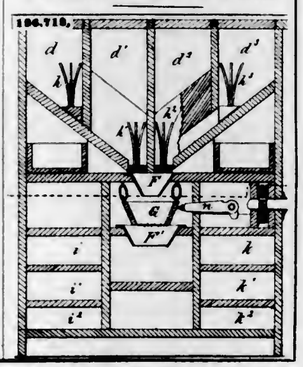
2. The combination, with dough-kneading rollers B C and support A', of the extended support A for the gear-wheel D' and crank D'', substantially as and for the purpose set forth.

196,718. STEAM-WHISTLES. John Binig, Jacksonville, Fla. [Filed Nov. 25, 1876.]



A steam-whistle, the bell or tube of which is divided into longitudinal compartments having different lengths, substantially as and for the purpose herein shown and described.

196,718.



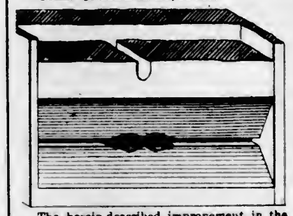
196,719. MEAL-CABINETS. JNO. M. EVANS, Waukegan, Ill. [Filed Dec. 22, 1876.]

1. In a meal-cabinet, the compartments *d*, *d'*, *d''*, and *d'''*, the two inner compartments, *d'* and *d''*, having inclined bottoms leading directly to the sieve G, and the two outer compartments, *d* and *d'''*, being also provided with inclined bottoms, and inclined covered passages through the rear of the two inner compartments, and all of said compartments being arranged relatively to each other, substantially as described, and for the purposes set forth.

2. The sliding bottoms *s*, *s'*, *s''*, and *s'''*, provided with the tri-prongs *h*, *h'*, *h''*, and *h'''*, in combination, with the compartments *d*, *d'*, *d''*, and *d'''*, the guiding-spout F, oscillating sieve G, and the doors E and D', substantially as described, and for the purposes set forth.

3. A meal and flour cabinet, composed of the compartments *d*, *d'*, *d''*, and *d'''*; the sliding bottoms, provided with the upwardly-diverging prongs *h*, *h'*, *h''*, and *h'''*, the hopper F, sieve G, pitman-shaft *n*, crank *m* geared to the shaft H, the drawers B B', the closets D, D', and D'', the doors C, C', and E, substantially as described, and for the purposes set forth.

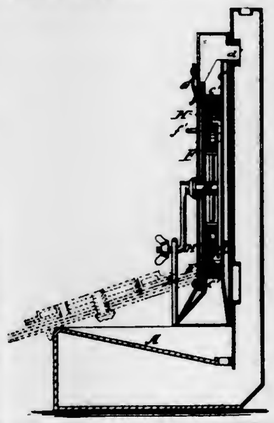
196,720. ART OF MANUFACTURING HORSE-SHOE-NAILS. Heber P. Fowler, Seymour, Conn. [Filed Dec. 20, 1876.]



The herein-described improvement in the art of manufacturing horseshoe-nails, consisting, substantially, in cutting iron into pieces forming two blanks, attached by the metal composing the heads, the blades extending from metal forming the heads in opposite directions, in straightening the pieces and forming the heads by dies at one and the same operation, in finishing up the blades and points of the nails while the blanks are attached, the line of attachment being the ends of the heads when separated, and then in separating the heads, all the aforesaid several operations in the order and manner substantially as set forth.

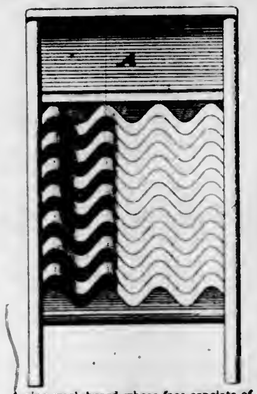
196,721. TIRE-HEATING DEVICES. Chas. O. Games, Hesper, Kans. [Filed Nov. 4, 1876.]

Brief.—The door is hinged at its lower edge to the wall of the heating-chamber, and to it, on the inner surface, is pivoted a wheel or hub, on which to hang the tires.



The front or cover F of the tire-heater hinged at its lower side, and the wheel H pivoted thereto, in combination with the forge A, as shown and described, to operate as specified.

196,722. WASH-BOARDS. Saml. A. Gould, Osgood, Ind. [Filed July 27, 1876.]



A zinc wash-board whose face consists of a series of serpentine ridges in a common plane, substantially as set forth.

196,723. FOUNTAIN-PENS. P. Goehring, Richwood, Ohio. [Filed Dec. 30, 1876.]



An improved fountain-pen, formed by the combination of the tube or feeder C with the holder B, the inner tube or hollow piston D, provided with packing upon its upper end, and the outer tube E, provided with the screw-cap F, the air-hole *e'*, and the ring-cap G, substantially as herein shown and described.

196,724. STREET-SWEEPERS. W. H. Gunnell, Washington, D. C. [Filed Jan. 2, 1877.]

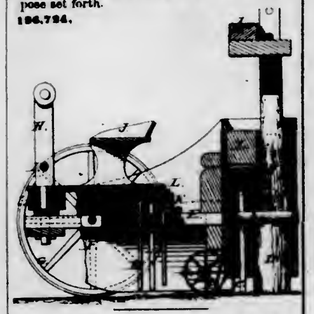
1. The combination of rakes B and C, scraper A, and brooms D, arranged and operating as and for the purpose set forth.

2. The adjustable brooms D, in combination with the rake C and box K, as and for the purpose set forth.

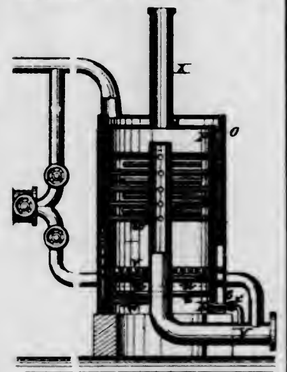
3. The weight M, arranged to balance the machine, in combination with the rakes B and C, scraper A, and brooms D, as and for the purpose set forth and described.

4. A street-sweeper having a system of rakes, B and C, scraper A, adjustable brooms D, broom-box K, weights M and L, arranged in the order shown, for the purpose of raking, scraping, and brushing at one and the same operation, substantially as and for the purpose set forth.

196,724.



196,725. HEATERS. J. Guardiola, Chocola, Guatemala. [Filed Jan. 8, 1877.]

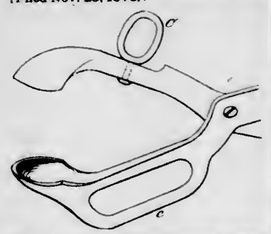


1. A heater, N, consisting of an inner and an outer cylindrical shell, inclosing an annular air-space, and a central air-pipe and radial pipes, that connect the latter with the annular air-space, and a fire-grate and fire-place arranged within the inner shell, substantially as herein shown and described.

2. The combination, in an air-heater, of the perforated pipes T, the double-walled heater-shell O P, and the air-supply tube V, substantially as and for the purpose set forth.

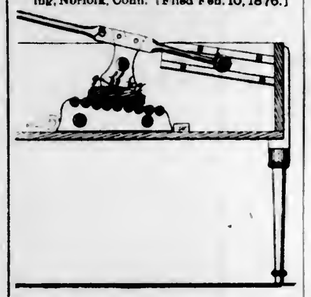
3. A perforated curved pipe, Z, placed under the grate *e*, and the air-supply pipe X', provided with the valve *s'*, for supplying a blast of air to the fire in the heater, substantially as herein shown and described.

196,726. VETERINARY SURGICAL INSTRUMENTS. L. W. Hamilton, Pendleton, Oreg. [Filed Nov. 25, 1876.]



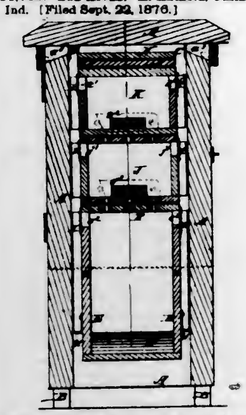
The improved veterinary surgical instrument, formed of nippers having cup-shaped jaws, the cutters or shears B B, the guard *c* and a loop, C, combined and arranged in the manner shown and described.

186,727. WASHING-MACHINES. A. S. Hart, Hoboken, N. J., assignor to A. A. Spaulding, Norfolk, Conn. [Filed Feb. 10, 1876.]



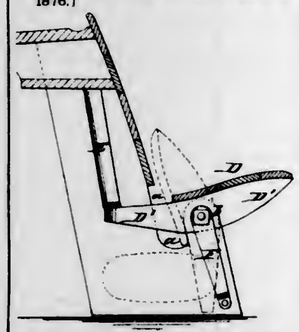
The frame D, its hangers *f*, having curved shoulders *g*, in combination with the rubber-board E, pivoted to the hangers, and having curved faces *x* bearing on the shoulders *g*, as specified.

186,728. BEE-HIVES. H. Hatfield, Oasian, Ind. [Filed Sept. 22, 1876.]



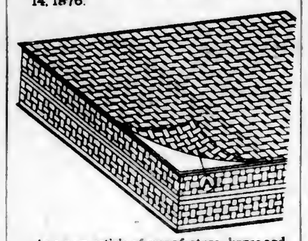
The combination of the perforated flanges H with the bee-chamber E and the case A, to guard the lower ends of the air-passages between the case A and the bee-chamber and honey-boxes E J K, substantially as herein shown and described.

186,729. SCHOOL-DESK SEATS. E. Haynes, Kirk's Cross Roads, Ind. [Filed Aug. 28, 1876.]



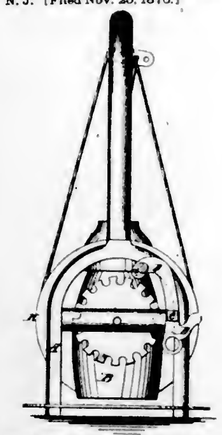
The guide stays or brackets F, in combination with the seat-supports D', substantially as and for the purpose specified.

186,730. PAPER BOXES. Lorenzo P. Heath, Springfield, Mass., assignor to the Powers Paper Company, same place. [Filed Dec. 14, 1876.



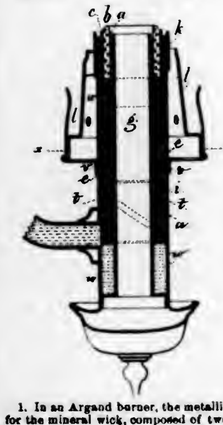
As a new article of manufacture, boxes and other analogous articles made from the combined materials of paper card-board and woven wicker-work cemented together, substantially as set forth.

186,731. CHURNS. J. Higgins, Westfield, N. J. [Filed Nov. 25, 1876.]



The frame A and churn B, having trunnions *b b'*, the notched wheel C, and the detent-lever D, combined and arranged substantially as herein shown and described.

186,732. LAMPS. C. F. A. Hinrichs and C. Reistle, Brooklyn, N. Y., assignors to said Hinrichs. [Filed Nov. 16, 1876.]



1. In an Argand burner, the metallic holder for the mineral wick, composed of two tubes, the outer one of which is perforated, in combination with the mineral wick at the upper end, and the filling of fibrous material between the tubes, substantially as set forth.

2. In an Argand burner, a permanent mineral wick, in combination with the metallic wick-holder, and the screw for raising and lowering the wick, substantially as set forth.

3. The non-combustible lamp-wick made of mineral wool, with plaster, asbestus, and sugar, or their equivalents, substantially as set forth.

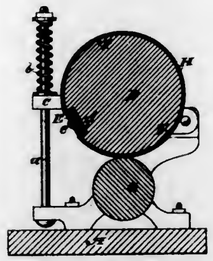
4. An Argand lamp-wick formed of the non-combustible porous ring *b* between the metallic tubes *a* and *c*, in combination with the fibrous packing, also between said tubes *a* and *c*, substantially as set forth.

5. The combination, with the Argand lamp-wick, wick-tube *w*, and air-tube *g*, of the packing *t*, surrounding the wick-tube *a*, for the purposes and substantially as set forth.

6. The combination, with an Argand burner having a cylindrical wick-tube, *w*, of the chimney-holder provided with a short sleeve, *k*, at the upper end, connecting with the tube *c* of the Argand wick, and the perforated ring-guide *e* at the lower end of the chimney-holder, around the wick-tube *w*, to steady the chimney-holder, substantially as set forth.

186,733. STENCIL COPYING-PRESSES. A. E. Hix, Sycamore, Ill. [Filed Sept. 30, 1876.]

Brief.—Over an inked fabric secured to the surface of a cylinder is clamped a paper stencil-sheet. The cylinder is journaled in pivoted arms, on which act spiral springs adjustable on vertical rods, holding the cylinder in contact with a supporting-cylinder placed below, over which the paper to be printed is passed.



1. A cylinder, D, in combination with the ink-holder F and paper stencil H, arranged on the cylinder, as described, and secured thereto, substantially as and for the purpose set forth.

2. The cylinder D, provided with a longitudinal groove *d*, in combination with the inked fabric F, paper stencil H, and binding-strip E, substantially as described.

3. The combination of the cylinder D, ink-holder F, and paper stencil H, arranged upon and fastened to the cylinder, and roller G, substantially as and for the purpose set forth.

4. The combination of the standards B, pivoted pieces C, cylinder D, bolts *a*, and springs *b*, substantially as and for the purpose set forth

186,734. SMOKE AND GAS CONSUMING FURNACES. K. M. Jarvis, Peabody, Mass., assignor to himself and A. F. Upton, same place. [Filed Oct. 30, 1876.]

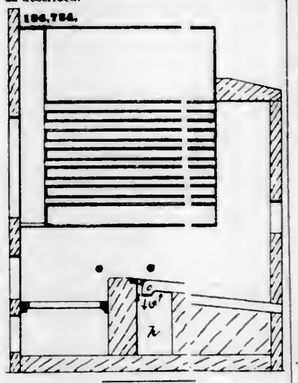
1. The combination, with the chamber *h*, of the tapering pipes *o*, arranged in the flame-bed, and adapted to heat and permit the expansion of the air passing through the pipes into the chamber, substantially as described.

2. The flues in the wall of the fire-chamber and the flues *l* in the side walls of the combustion-chamber, both adapted to discharge hot air at or near the bridge-wall, in combination with the downwardly and backwardly inclined flame-bed, substantially as described.

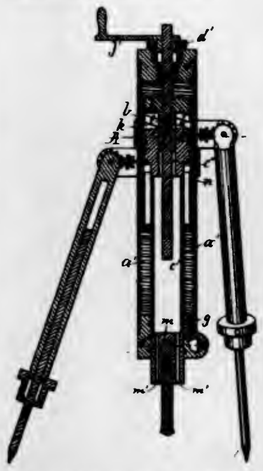
3. The combination, with the fire-chamber and its encompassing-wall, of flues communicating with the atmosphere, and increasing in area at their air-delivering ends, all arranged in the side walls in position to be heated, and to discharge a volume of heated and expanded air containing oxygen into the gases liberated from the incandescent material in the combustion-chamber, substantially as and for the purpose described.

4. The downwardly and backwardly inclined flame-bed, in combination with tapering pipes *o*, arranged in the flame-bed to be heated, as described, and to permit the introduction of heated air into the combustion-chamber and the combustion of the gases in the gradually-enlarged combustion-chamber *s*, substantially as described.

186,734.



186,735. ROCK-DRILLS. Jas. B. Johnson, Boston, Mass. [Filed July 24, 1876.]



1. A rock-drill provided with a smooth exterior cylinder, for the purpose of attaching the clamps or weights at any desirable place, substantially as set forth and described.

2. In combination with the internal screw-thread of the outer cylinder *a* in a rock-drill, the inner cylinder *b*, working in equilibrium therein, substantially as set forth and described.

3. In combination with the cylinder *b*, its steam-grooves *k k*, and exhaust-pin *i*, the piston-head *c'*, provided with its grooves *l l*, and open piston *c*, as shown, for the purpose set forth and described.

4. In combination with the cylinder *b* and its grooves *k k*, the piston-head *c'*, with its grooves *o o*, for the purpose of automatically feeding and rotating the drill, substantially as set forth and described.

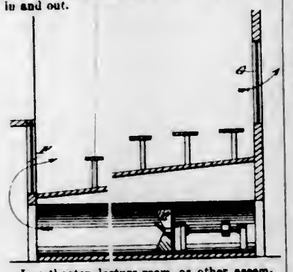
5. In combination with the cylinder *b*, exhaust-pin *i*, and the piston *c*, and piston-head *c'*, the feed-bar *j*, as and for the purpose set forth and described.

6. A rock-drill in which all the working parts are inclosed and protected in an outside plain cylinder, *a*, substantially as and for the purpose set forth and described.

7. A rock-drill cylinder, *a*, in which a reciprocating motion is produced by the movement of the piston *c* in a cylinder, *b*, having ports or grooves *k k* around its periphery, and extending a part of its length, in combination with the exhaust-pin *i*, the whole being so constructed as to produce reciprocation of the piston *c* without the use of valves or ports the whole working in equilibrium, as set forth and described.

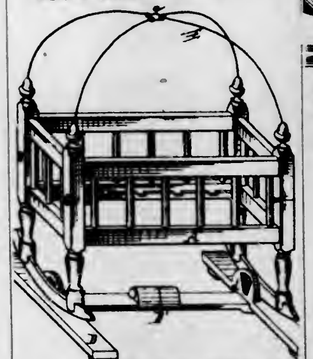
186,736. VENTILATING BUILDINGS. L. A. Johnson, New York, N. Y. [Filed May 16, 1876.]

Brief.—This ventilator is contrived for public assembly-rooms, the front elevation of the stage or lecturer's platform having inlet-openings, and the rear partitions having outlets in the plane of the audience, in combination with a fan or other means of forcing the air in and out.



In a theater, lecture-room, or other assembly-room, the front elevation of the stage or lecturer's platform having inlet-openings F, and the rear partitions having outlets G in the plane of the audience, or thereabout, in combination with a fan or other means of forcing the air in at F and out at G, substantially as specified.

186,737. CRADLES. John A. Kirchner, Chicago, Ill. [Filed Mar. 6, 1876.]



1. A spindle frame cradle, substantially as described, having its sides doweled to the corner-posts, and secured by a single wood-screw passing through each post into the nearest spindle, substantially as shown and set forth.

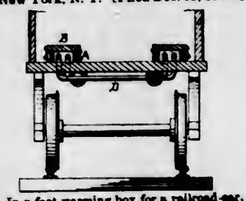
2. The side stripe D D, connected by the jointed girt D', substantially as described, for the purpose specified.

3. The canopy-frame for cradles described, consisting of the four curved wires E, having their upper ends hooked into a central ring, *e*, when the said wires are adapted to be readily detached from the cradle and folded up together, substantially as described and shown.

186,738. PROCESSES OF MAKING A PIGMENT BASE. Henry Knight, Liverpool, England. [Filed Nov. 27, 1876.]

The process of making a pigment base, which consists in adding to a solution of zinc sulphate a solution of calcic sulphide, to the filtrate a solution of sodic sulphide, and to the filtrate of this latter reaction a solution of calcic chloride, the several resulting precipitates being collected together, substantially in the manner and for the purpose set forth.

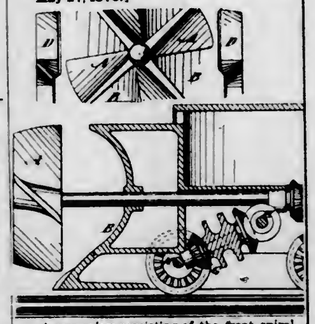
186,739. CAR-HEATERS. John S. Linsley, New York, N. Y. [Filed Dec. 13, 1876.]



1. In a foot-warming box for a railroad-car, the frame A, pavement B, constructed as described, and coils D, the whole combined and arranged to operate substantially as and for the purpose specified.

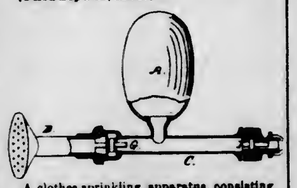
2. In a foot-warming box for a railroad-car, the frame A, pavement B, coil D, and zinc bottom, or other non-radiant lining, C, the whole combined and arranged to operate substantially as described.

186,740. SNOW-PLOWS. Robert G. Little, Halifax, Nova Scotia, Canada. [Filed May 27, 1876.]



A snow-plow consisting of the front spiral fan A, the plow B, and the side-projecting spiral fans D D, all constructed and arranged substantially as and for the purpose specified.

186,741. CLOTHES-SPRINKLERS. C. F. W. Maas and W. Schnalke, Milwaukee, Wis. [Filed Sept. 12, 1876.]



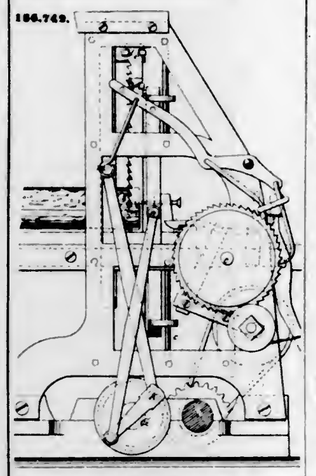
A clothes sprinkling apparatus, consisting of the tube B, having the funnel-shaped tube E on its end, protected by wire-gauze *g*, the valve-chamber C, elastic chamber or bulb A, and the funnel-shaped tube or nozzle D, having minute openings *x*, substantially as and for the purpose specified.

186,742. GANG-SAW MILLS. D. J. Marston, Amesbury, Mass. [Filed Dec. 11, 1876.]

Brief.—Two series of gang-saws, having teeth set in opposite directions, are arranged in reversely-reciprocating gates for cutting simultaneously, but in different directions. Long and slender logs may be sawed without difficulty, as the force is exerted equally above and below. The saw-gates, having oppositely-arranged cranks, counterbalance each other, so that jarring is avoided and the speed increased, and the strain on the frame lessened, so that it may be lighter than frames in ordinary mills.

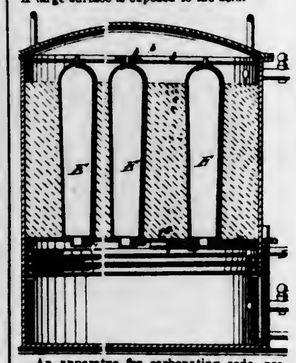
The combination of two sets of gang-saws running and having teeth in opposite directions, arranged in reversely-reciprocating gates, and cutting simultaneously, but in different directions, as and for the purpose specified.

186,742.



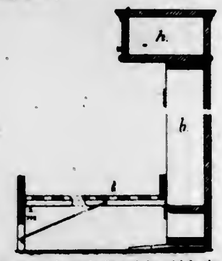
186,743. SODA-CARBONATING APPARATUS. J. McCloskey, East Cambridge, Mass. [Filed Dec. 4, 1876.]

Brief.—After the carbonate of soda is packed around the pins E they are removed. Carbonic acid passes up through the perforations A large surface is exposed to the acid.



An apparatus for carbonating soda, provided with the perforated horizontal partition C, tapering shouldered pins E, and perforated bars b, the latter having steadying-pins, all substantially as shown and described

186,744. WARDROBE-BEDSTEADS. William McNaughton, Brooklyn, N. Y. [Filed Dec. 14, 1876.]



1. A wardrobe-bedstead in which the case is divided in a vertical plane parallel or nearly so with the front, and united by hinges at one of the sides, and the bed-bottoms are attached to the two halves of the case and fold downwardly, as set forth.

2. The combination, in a wardrobe-bedstead, of the case divided vertically, the two parts of the bed-bottom hinged to the case, the folding leaves *i*, and hinged leg *m*, substantially as set forth.

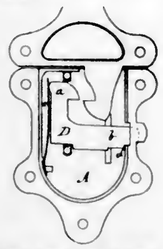
3. In a wardrobe-bedstead, the hollow projection head-piece *h*, forming a receptacle for bedding, in combination with the case divided vertically, the movable front portion *a b c* of which folds beneath the head-piece *h*, substantially as specified.

186,745. TOBACCO-PLUG LABELS AND FASTENERS. Chas. C. Mengel, Jr., and C. R. Mengel, Louisville, Ky. [Filed May 3, 1876.]



In combination with a tobacco-plug provided with a wrapper of leaf-tobacco, a metallic fastening device, B, constructed with or without the label-surface, and applied to hold the wrapper, substantially as shown.

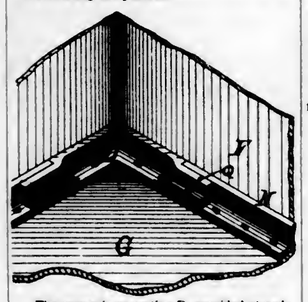
186,746. TRUNK-FASTENERS. F. W. Mix, Terryville, Conn., assignor to the Eagle Lock Company, same place. [Filed Dec. 30, 1876.]



In a trunk-fastener the shoulder *d*, formed on the lower edge of the compound sliding and rocking bolt D *a b*, in combination with the case A and spring *c*, all operating together substantially as described, and for the purpose set forth

186,747. GAS-PURIFIERS. P. Munsinger, Philadelphia, Pa., assignor to Morris, Tasker & Co., (limited,) same place. [Filed Oct. 10, 1876.]

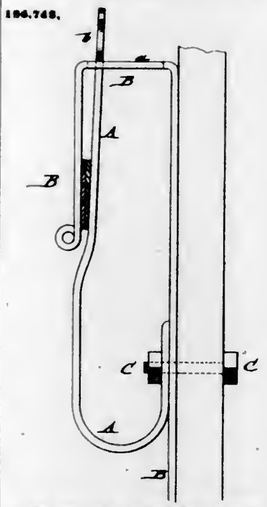
Brief.—The corner knee-section is riveted to the walls of the purifier, and by overlapping tongues to the angle-irons abutting against it. It is provided for convenience in handling in constructing the purifier.



The corner knee-section D, provided at each extremity with a shoulder and tongue, Q, for abutting against and overlapping adjoining bottom corner-sections M N, and adopted to be secured thereto, as shown and described, and for the purpose specified.

186,748. REIN-HOLDERS. R. P. Murray, Ashtabula, Ohio. [Filed Dec. 18, 1876.]

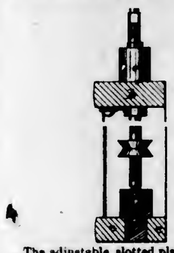
186,748.



The combination of the spring-sections A and B, arranged in opposite direction, and attached by bolt C, the upper spring end of section A passing along the opening end of section B, and through a guide slot, *a*, above the same, forming a thumb-piece, *b*, substantially as specified.

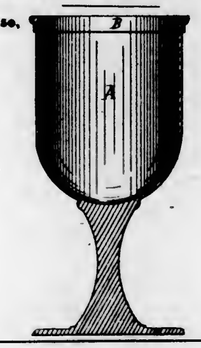
186,749. BOLSTERS AND STEPS. Martin J. Nealon, T. Higgins, and W. Knott, Chester, Pa. (Filed Sept. 22, 1876.)

Brief.—A long plate is used to secure in place one or more bolsters, and this is done by pressing the plate into grooves in said bolsters, and holding it there by means of screws and slots in the plate; and to have the pressure equal there are holes in said plate for the insertion of small screws or nails.



The adjustable slotted plate *h*, in combination with the rail and the notched bolsters *d*, as a means of holding the bolsters in position, substantially as shown.

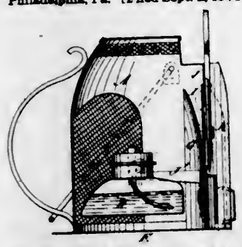
186,750.



186,752. CUPS. S. S. Newton, Binghamton, N. Y. [Filed Dec. 22, 1876.]

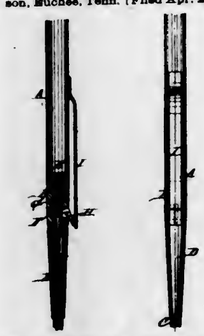
A glass or earthen ware vessel provided with a metallic band at or near its edge to prevent fracture, substantially as set forth.

186,751. HELMET-LIGHTS. E. K. Nutse, Philadelphia, Pa. [Filed Sept. 2, 1876.]



The improved helmet-light, consisting of the case A, with concave back plate J, bottom plate E, with concave back plate I, hinged together, and contrived to be fastened, as described, and having the reflectors G and the pivoted lamp H, arranged as described.

186,752. MARKING-BRUSHES. J. M. Patterson, Euchee, Tenn. [Filed Apr. 25, 1876.]



The combination, in a marking-brush with hollow handle A and the hair-holding ferrule D, of the centrally-perforated block B, containing valve E, and spring G, operated by elbow-lever H, and outside thumb-piece I, as shown and described.

186,753. COVERS FOR SPRING BED-BOTTOMS. E. K. Peck, Faribault, Minn. [Filed Nov. 25, 1876.]

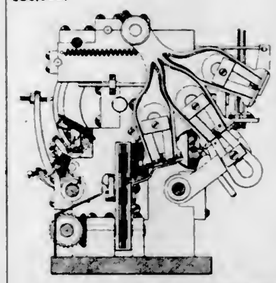


An improved cover for spring bed-bottoms, made in two parts or halves, hinged to each other, and each half being formed of the side pieces a^1, the end pieces a^2, and the cross-slats a^3, constructed and arranged substantially as herein shown and described.

186,754. MACHINES FOR MAKING WOOD-SCREWS. Edw. E. Quimby, Orange, N. J., assignor to American Screw Company, Providence, R. I. [Filed Nov. 21, 1876.]

Brief.—At the bottom of the inclined feed-ways is a horizontally-fixed horseshoe-magnet, that holds the blank horizontally, with head outward. An arm hung to the end of a horizontal shaft terminates in three fingers, each of which is armed with a horseshoe-magnet, the three magnets being in the same vertical plane, and parallel to the plane occupied by three pairs of griping-jaws. The shaft to which the finger-arm is hung has imparted to it intermittingly a slight reciprocating oscillatory movement, and a slight endwise movement, in virtue of which, when the machine is in operation, the three finger-magnets act simultaneously to carry the blanks from the stationary magnet to the first pair of jaws, and from one pair of jaws to another, the several tools being brought into action simultaneously so soon as the fingers have retreated.

186,754.



1. The combination of mechanism for shaving, nicking, and threading screw-blanks, acting synchronously, with devices for synchronously transferring the blanks from one of the several sets of mechanism named to the other, substantially as set forth.

2. Griping-jaws for holding a screw-blank during the performance upon it of the cutting operation, in combination with a discharging device operating to withdraw the blank from the griping-jaws at the conclusion of the cutting operation, and deposit it in prescribed position in another receptacle, substantially as described.

3. A revolving screw-driver, having an intermittent reciprocating sliding motion, and a holder, composed of the fixed jaw F, and the vibrating jaw *k*, in combination with a transferring and delivering device for inserting the shank of a screw-blank into the holder when the vibrating jaw has closed against the fixed jaw, substantially as described.

4. A magnet-holder, composed of some non-magnetic material, provided with clamps for holding one or more detachable magnets, and provided with iron or steel shoes for affording bearings to the opposite poles of such magnet or magnets, substantially as set forth.

5. The combination of a magnet or magnets having prescribed compound motions, with a receptacle or receptacles for holding small objects in prescribed position, and operating to withdraw such objects from such receptacle or receptacles, and transfer and deliver such objects in prescribed position to another receptacle or receptacles.

6. The combination of a stationary magnet for holding and insuring the correct presentation of a small object of iron or steel, with a movable magnet operating to withdraw such object from the stationary magnet.

7. A magnetic feeding device, substantially such as described, so arranged with reference to a receptacle, in which it is required to insert a small object of iron or steel, that it will detach itself from said object, after such insertion, by a sliding motion, substantially as and for the purposes set forth.

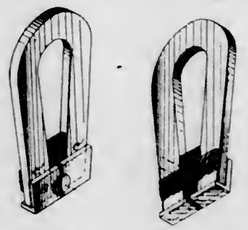
8. A magnet having prescribed motions and arranged with relation to mechanism for performing cutting operations upon iron or steel objects, to act as a feeding or transferring device, in combination with armature suspended in suitable position to be attracted to the poles of the magnet when the magnet is stationary during period while the cutting operations are going on.

9. A magnet, having prescribed motions, and arranged with relation to mechanism for performing cutting operations upon iron or steel objects, to act as a feeding or transferring device, in combination with a movable armature operating to move against and connect the poles of the magnet when the magnet is stationary during the performance of the cutting operation.

10. The combination of a magnet or magnets contained in a holder, having prescribed motions, and arranged with relation to mechanism for performing cutting operations upon iron or steel objects, substantially in the manner described, with an auxiliary magnet or magnets, as and for the purpose set forth.

11. A magnet or magnets contained in a holder, having prescribed motions, and arranged, substantially as described, with reference to jaws for holding small objects of iron or steel during their subjection to cutting operations, in combination with a shield interposed between the magnet or magnets and the cutting mechanism, for the purpose of preventing any flying metallic cuttings from coming in contact with the magnet or magnets, or with the shoes applied to the poles of the magnet or magnets.

186,755. MAGNETIC HOLDERS FOR FEEDING SCREW AND OTHER BLANKS. E. E. Quimby, Orange, N. J., assignor to American Screw Company, Providence, R. I. [Filed Oct. 20, 1876.]

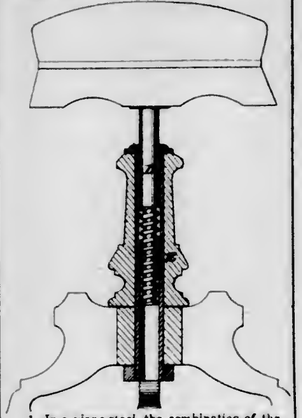


1. A magnetic carrier consisting of a magnet provided at its poles with two pieces of soft iron of prescribed dimensions and shapes, such pieces of soft iron presenting, in suitable proximity, two surfaces or points conforming to particular parts of an object which the carrier is required to hold in prescribed position by magnetic adhesion.

2. A divided armature, composed of two pieces of soft iron of prescribed dimensions and shape, secured to a non-magnetic material, in such relation as to present two surfaces for adhesion to the opposite poles of a magnet, and two surfaces or points corresponding in position and shape to the position and shape of two parts of an object intended to be held in prescribed position by magnetic force.

3. The combination of a magnet, and a divided armature, with a detachable clamp, for the purpose of mechanically maintaining the contact of the poles of the magnet with the soft-iron pieces composing the divided armature.

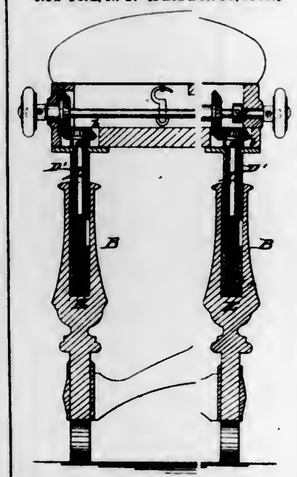
186,756. PIANO-STOOLS. G. A. Ramseyer, New York, N. Y. [Filed Dec. 30, 1876.]



1. In a piano-stool, the combination of the fixed guide-sleeves or pistons, and of the revolving screw-posts of the seat with the hollow side pillars or standards having screw-nuts placed at a depth equal to the length of the pistons, to jointly screw up or down the screw-posts, and guide the same in the pillars, substantially as and for the purpose set forth.

2. The combination of the side buttons secured to the ends of a connecting-shaft of the seat, and of suitable gearing arranged at the interior of the seat with the revolving screw-posts, fixed guide-sleeves, hollow pillars or standards, and bottom screw-nuts, to raise or lower the seat, substantially in the manner and for the purpose specified.

186,757. PIANO-STOOLS. G. A. Ramseyer, New York, N. Y. [Filed Dec. 30, 1876.]

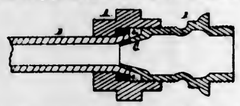


1. As an improvement in piano-stools, the combination of the strengthening sleeve or lining D', of the center post or pillar B of the stool, said sleeve having a screw-nut, E, at suitable depth below its upper end, with the center screw-post D of the seat having a threaded lower part and a smooth upper guide part or piston, substantially in the manner and for the purpose set forth.

2. The combination of the hollow center post or pillar of a piano-stool, with an interior strengthening sleeve or lining extending below the post and through the base to form the connection therewith, substantially as specified.

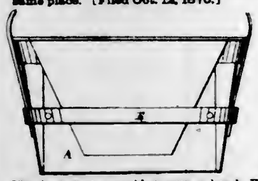
186,758. COUPLINGS AND JOINTS FOR LEAD PIPES. H. Reineke, Allegheny, Pa. [Filed Feb. 29, 1876.]

Brief.—The inner ring is so shaped as not to cut the pipe when the clamp-nut is in place.



As an improvement in joints and couplings for lead pipes, the combination and arrangement of the ring c, having a tapering bore, and periphery and bottom at right angles, the female part A, the interior sides and bottom of which are parallel to the sides and bottom of the ring c, furnishing a secure seat for the same, the male part B, having conform point C, and the lead pipe D, substantially as hereinbefore described and set forth.

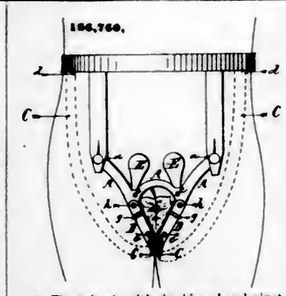
186,759. FRUIT-BASKETS. C. C. Roberts, Cleveland, Ohio, assignor to Myron Dow, same place. [Filed Oct. 12, 1876.]



The basket A, provided with a band, E, and having tapering sides and ends, the rim or edge of said ends being formed in straight lines, in combination with the tucked cover F, substantially as and for the purpose set forth.

186,760. TAUSSIG. B. H. Ryno, Wayland, Mich. [Filed Sept. 13, 1876.]

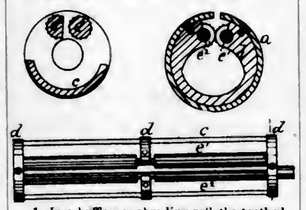
186,760.



1. The yoke A, with the hinged and pivoted parts D D, the lifting-spring hernia-pads E E, and the flexible perineal pads F F, in combination with the body-band B and the retaining-straps C C, substantially as described, and for the purpose set forth.

2. The yoke A, with the hinged or pivoted parts D D, and the flexible perineal pads F F, in combination with the body-band B and the retaining-straps C C, substantially as described, and for the purpose set forth.

186,761. SAND-PAPER ROLLS AND SHANK-WHEELS FOR THE SOLES OF BOOTS AND SHOES. N. M. Seelye, Cambridge, Mass. [Filed July 17, 1876.]



1. In a buffing or abrading roll, the toothed or fluted tension-rolls e^1 e^2, substantially as and for the purposes specified.

2. In a buffing or abrading roll, an interior roll or rolls, having a section or arc, of the area of the transverse section, cut away longitudinally, substantially as and for the purposes specified.

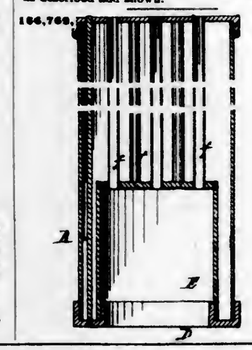
3. In a buffing or abrading roll, the metallic clamps or hooks, when constructed to be secured to the felt and to engage with the slotted shell, substantially in manner as and for the purposes specified.

4. A metallic shank-wheel, formed and provided with the back plate 1, the interior and exterior rings 2 3, the removable face-plate 4, and the radial slot b', all substantially as described and shown.

5. In a shank-wheel, the toothed rolls t t, arranged upon opposite sides of the radial slot, substantially as and for the purposes specified.

6. In combination with rolls t, the toothed pawl w and spring a, when constructed and arranged to operate substantially in manner as described and shown.

186,762.



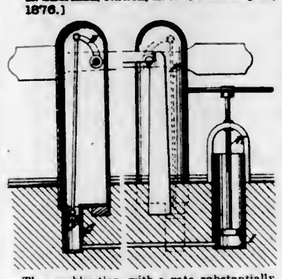
186,763. BOILERS. G. Selden and T. M. Nagle, Erie, Pa.; said Nagle assignor to said Selden. [Filed Feb. 28, 1876.]

1. The flanged boiler-head, united to the boiler-cylinder by being shrunk thereon, substantially as and for the purpose set forth.

2. The double-flanged ring D, for uniting the ends of the boiler and the inclosed or fire-pot cylinder E applied thereto, substantially as described.

3. The disk or head F, provided on its periphery with the screw-thread matching the screw-thread formed on the inner face of the inclosed cylinder E, substantially as described.

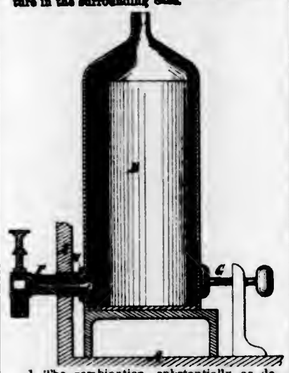
186,764. GATE-OPERATING MECHANISMS. A. B. Sherman, Natick, R. I. [Filed May 16, 1876.]



The combination, with a gate, substantially as described, of a piston, a cylinder, open at one end, a pump, and a pipe for connecting said cylinder and pump, the piston being suitably connected to the gate to operate it by a reciprocating movement, as set forth.

186,765. APPARATUS FOR DRAWING STILL WATERS. B. Ripley Sibley, St. Louis, Mo. [Filed Mar. 20, 1875.]

Brief.—An adjustable receiver, provided with a discharging-aperture at its lower end, and a faucet fixed in a corresponding aperture in the surrounding case.



1. The combination, substantially as described, of an adjustable receiver, B, provided with a discharging-aperture at its lower end and a faucet fixed in a corresponding aperture in the surrounding case, for the purpose set forth.

2. The combination, substantially as described, of the case A, provided with a faucet, F, the movable receiver B, having a discharge-orifice at its lower end, and an adjusting device, G, for the purpose set forth.

3. The combination, substantially as described, of the movable receiver B, fixed faucet F, and washer H, for the purpose set forth.

186,766. LAMPS. W. Staehlen, Brooklyn, N. Y., assignor to C. F. A. Hinrichs, same place. [Filed Nov. 1, 1876.]

1. The annular perforated register plate M, in combination with the chimney-holder G, having openings through its annular base to regulate the air passing between the chimney and burner-tube J, substantially as and for the purpose herein stated.

2. The combination of the deflector L, the air-passages a and b, the chimney I, burner-tube J, and wick-tube B, substantially as and for the purpose herein described.

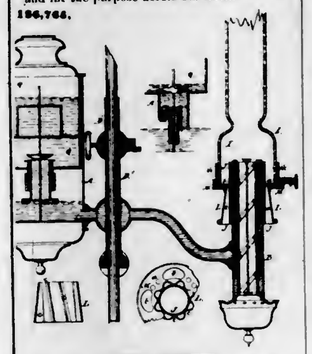
3. The combination of the deflector L, spiral partitions c c, and wick-tube B with the chimney I, the chimney-holder G, and burner-tube J, substantially as and for the purpose herein shown and described.

4. The reservoir A and oil-holder Q, in combination with the variable outlet R, for changing the level of oil in the lamp, substantially as and for the purpose herein mentioned.

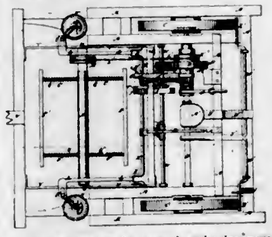
5. The combination of the register-plate M, chimney I, holder G, burner-tube J, wick-tube B, reservoir A, and oil-holder Q, and variable outlet R, substantially as and for the purpose herein described.

6. The combination of the sleeve D', shade-holder X, and lamp-standard, substantially as and for the purpose herein set forth.

186,765.



186,766. CORN-PLANTERS. J. G. Stokesbary and J. H. Stokesbary, Millersburg, Iowa. [Filed Oct. 30, 1876.]



1. In mechanism for operating the droppers of a planter, the combination of spur-wheels D E, the former having each section of its teeth equal to those of the latter in number, while the wheel E is cut away on one side, and has a finger, e', that strikes a pin of wheel D, as and for the purpose described.

2. The strip d^1, arranged in the grooved face and across the alternate cogged sections of wheel D, as and for the purpose set forth.

3. The combination of chain-wheels K' M', endless chain L', shaft N', sliding cross-arms O', marking-bars P', and spiral springs Q', with the axle, frame, and levers V, substantially as and for the purpose specified.

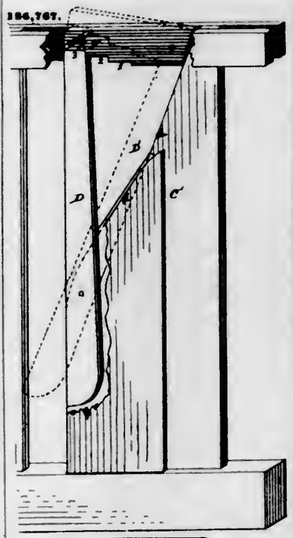
4. The combination, with the shaft N', of the slides O', bars P', and coiled springs Q', as and for the purpose specified.

186,767. STANCHIONS. A. H. Taft, Franklin, N. Y. [Filed Dec. 19, 1876.]

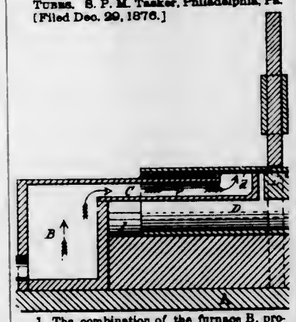
1. The combination, with the bar C, of a movable stanchion-bar, D, pivoted to the bar C' at a point on said stanchion that may nearly balance the same, and the inclined face-edge a of bar C', substantially as and for the purpose set forth.

2. The combination, with a frame composed of the bar C, top rail A, and bar C', having the inclined face-edge a, of the stanchion-bar D, pivoted at near its balancing-point upon bar C', or pieces d, secured to said bar, and notched latch F, substantially as and for the purpose set forth.

186,767.



186,768. MACHINES FOR WELDING METAL TUBES. S. P. M. Tasker, Philadelphia, Pa. [Filed Dec. 29, 1876.]



1. The combination of the furnace B, provided with a laterally-projecting heat-conducting pipe, C, having a discharge-opening, d, through any part of its circumference, or through its end, the shaft G, and anvil F, substantially as described.

2. The shaft G, provided with the anvil E, in combination with the heat-conducting pipe C and hammer J, substantially as and for the purpose set forth.

3. The shaft G, having an anvil, E, at one end, and pivoted to a support at the other end by means of a bolt, f, or hinged by any suitable device, to admit of its being swung out of line with the heat-conducting pipe C, for the reception and removal of the tubes, substantially as set forth.

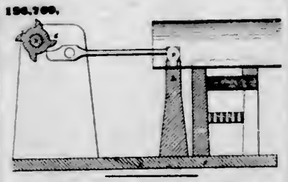
4. The concave bed I, arranged in relation to the heat-conducting pipe C and anvil E, substantially in the manner and for the purpose set forth.

186,769. MACHINES FOR WELDING METAL TUBES. S. P. M. Tasker, Philadelphia, Pa. [Filed Dec. 9, 1876.]

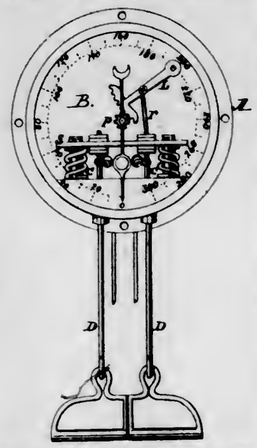
1. The furnace J, having a narrow opening, d, at its top for the passage of the heat to the seam of the tube, in combination with the anvil-block A and the hammer D, the latter arranged in line with said opening and anvil, in a manner to permit the hammer to operate within the tube, substantially as described.

2. The hammer D, to be operated within the tube by means of the tripping-wheel G, in combination with the anvil A and furnace J, having an opening, d, in line with the anvil, substantially as and for the purpose set forth.

186,770.

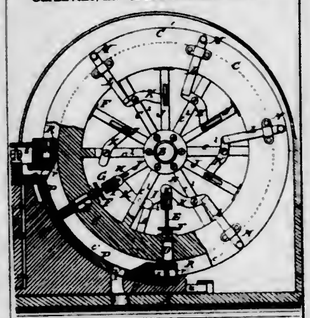


186,770. TEST-GAGES. Orlando D. Thayer, Buffalo, N. Y. [Filed Nov. 8, 1876.]



The rods D D, plate S, springs C C, segmental lever L, pinion p, in combination with the case A, as herein described, and set forth.

186,771. ROTARY ENGINES. J. C. Thomas, Carlinville, Ill. [Filed Dec. 11, 1876.]



1. The combination of the movable pistons D, the rods E, the boxes G, the bars H, the springs I, the slotted guides J, the levers K, and the slides L, provided with the pin M, with the flanged wheel C and the grooved case A, substantially as herein shown and described.

2. The combination of the steam-chest O, the segmental packing P, provided with the abutments Q, the inlet-port o' and the outlet port Y, and the adjustable block U, with each other, and with the flanged wheel C and the case A, substantially as herein shown and described.

186,772. HARNESS-SADDLES. S. E. Tompkins, Sing Sing, N. Y. [Filed Dec. 4, 1876.]

1. The saddle-tree formed of the arched bars A, connected by the cross-bars a^1, and the plates a^2, provided with ears or lugs P, to which are attached the tarret-bar shanks.

2. The bearing-plates I, provided with the strengthening ribs i^1, the recesses i^2, and the holes i^3, and secured detachably to the plates a^2 of the saddle-tree A by the screws J, substantially as herein shown and described.

3. The arched bars A, containing flanged edges, to give strength and solidity, while enabling the bars A to be cast or made lighter.

4. The arched bars A, extending across the saddle on each side, from terret-bar to terret-bar, in combination with detachable under pieces and elevated terret-bars, substantially as described.

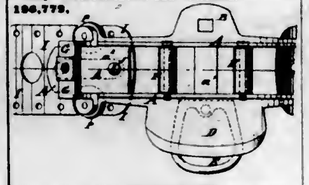
5. The arched bars A, substantially as described, containing the front cantle B and the back cantle D, substantially as described.

6. The extension-plates a^2, having ears or lugs to receive the fastenings of the terret-bars G, and holes to receive the screws J J, that secure the under plates I to the frame A, substantially as described.

7. The detachable under pieces I, having no connection with the terrets or terret-bars, removed or secured by means of screws J, or their equivalents, independent of the terrets or terret-bars.

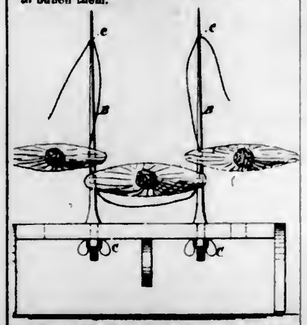
8. The combination of the arched bars A, the front cantle B, to secure the hook C, the back cantle D, crupper-loop E, the cross-bars a^1, the plates a^2, the ears or lugs P, the terret-bars G, the terrets H, the under pieces I, the friction-rollers F, and the screws J, substantially as herein shown and described.

186,772.



186,773. APPARATUS FOR BUNCHING BROOMS. D. Van Winkelen, Green Bay, Wis., assignor to himself, F. Lenz, and A. Brauns, same place. [Filed Nov. 11, 1876.]

Brief.—The needles are threaded with twine, and held adjustably in the support, and the brooms are crowded down upon the needles to bunch them.



The combination, with bed-piece slotted at a, of the needles B, shouldered, threaded at one end, having V-shaped eye near the point, and provided with nuts C, as and for the purpose specified.

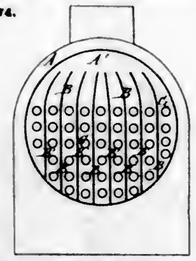
186,774. CIRCULATING DEVICES IN STEAM-BOILERS. J. T. Wainwright, Philadelphia, Pa. [Filed Nov. 4, 1876.]

Brief.—Partitions are arranged between each series of tubes, and smoke-boxes at the ends of the boiler, outside of the tube-sheet, so that while the water is circulating around each partition the products of combustion are made to take an opposite course through each set of smoke-tubes.

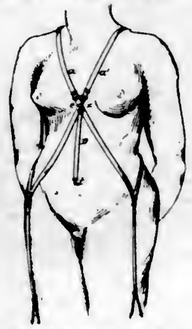
1. The partitions or deflecting-plates B B', in combination with the boiler-shell A and tubes C, substantially as and for the purpose herein shown and described.

2. The smoke-boxes J and C', having vertical partitions, in combination with a boiler, A, having vertical partitions B B' and tubes C, substantially as shown and described.

186,774.



186,775. SUSPENDERS. L. C. Warner, New York, N. Y. [Filed Dec. 18, 1876.]

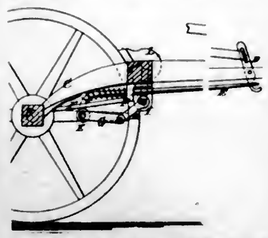


1. A supporter consisting of straps a a', arranged to cross the shoulders, united at the back and front, and extending to the sides, and there provided with attachments for the stocking-bands, substantially as set forth.

2. A stocking-supporter consisting of straps bearing upon the shoulders, and extending to the sides, crossing the chest and back, as specified, whereby each stocking is supported by the strap bearing on the opposite shoulder, as set forth.

3. The combination, with a stocking-supporter bearing upon the shoulders, of central straps D D', for the purpose specified.

186,776. AUTOMATIC WAGON-BRAKES. C. T. Warren, Atlanta, Ga. [Filed Oct. 14, 1876.]



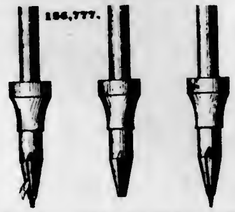
1. A brake-shoe holder, L, connected with the crank end of a rock-shaft, I, by the internal coil-spring M, arranged as and for the purpose set forth.

2. The combination of the holdback-lever D, rod E connected therewith at the front end, and bent, as shown, at the rear end, the connecting-rod G and the shaft I, having crank H, with the brake-shoes attached to the cranked ends of shaft I, as and for the purpose specified.

186,777. COMBINED PENCIL-SHARPENER AND POINT-PROTECTOR. J. Watrous, Groton, Conn. [Filed July 14, 1876.]

Brief.—The upper end of the sharpener is slotted, so that a portion of its surface can be bent inward, and serve as a spring to retain the pencil in the desired position.

186,777.



As a new article of manufacture, a pencil-sharpener and point-protector combined, provided with an inwardly-projecting spring, C, integral therewith, for the purpose specified.

186,778. FLOUR-SIFTERS. C. F. Wickwire, Cortland, N. Y. [Filed Sept. 27, 1876.]

Brief.—Stamps body from a flat piece of wire-cloth, and with a V at the circumference of the bottom; crimps sheet-metal band onto the V. One tine of the fork at the end of each radial arm passes down outside, and the other inside, of the banded V, whereupon both tines are clamped together.

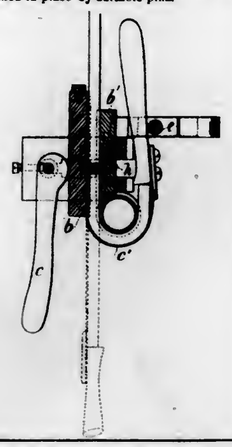


1. The body of the sifter, K, provided with the wire-cloth rim H, in combination with the base or hub B and arms A, provided with the points m m', substantially as and for the purpose set forth.

2. The body of the sifter, K, provided with the wire-cloth rim H, in combination with base B, having sockets S and arms A, with points m m', and with detachable handle F, substantially as and for the purpose set forth.

186,779. WOOD-BENDING MACHINES. H. Winter, Jersey City, N. J. [Filed Nov. 11, 1876.]

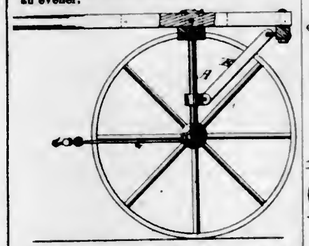
Brief.—Round wooden umbrella-handles can be bent and held, while drying, by means of a pipe having peripheral grooves, and a frame of bars projecting from the same, and connected by cross-bars and clamps upon movable plates, that hook into said bars, and retained in place by suitable pins.



The tube a, bars b projecting from the same, and the cross-bars A, in combination with the movable plates i, clamps b, levers c, and straps c', substantially as and for the purposes set forth.

186,780. WHEEL-PLOW CARRIAGES. A. K. Wolfe, Prairie City, Mo. [Filed July 1, 1876.]

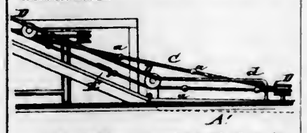
Brief.—Independent forward and back movement of each crank-axle, in connection with an evener.



The independent cranked axles A, arranged to swing freely upon the tongue B, in combination with the evener F, arms E, and draft-rods G, substantially as shown and described.

186,781. ICE-ELEVATORS. L. Zistel, Sandusky, Ohio. [Filed Dec. 16, 1876.]

Brief.—An inclined way up to the ice-house has a floating portion hinged at its foot. An endless rope along its upper surface and the side thereof has knots along it, which carry detachable hooks.

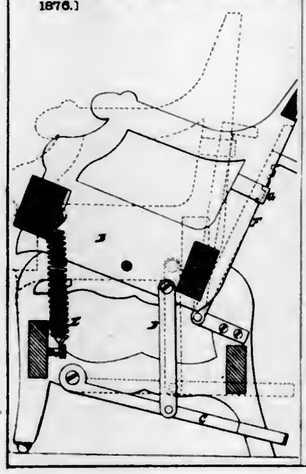


1. An ice-elevator constructed of an inclined way, A, float-extension A^1, and chutes A^2, in connection with a follower, E, and an endless traveling rope, C, with knots or balls stretched over fixed pulleys D, substantially in the manner and for the purpose described.

2. The inclined way A and extension A^1, having knots or balls a and side guard rail or rails d, for the ice blocks, and an inclined part or way for return of follower, substantially as specified.

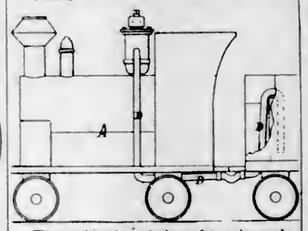
3. For ice-elevators, an endless traveling rope having knots or balls for carrying the follower, substantially as described.

186,782. BARBERS' AND DENTISTS' CHAIRS. L. M. Angle, Chicago, Ill. [Filed Nov. 21, 1876.]



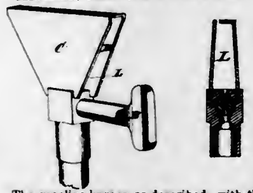
In a barber's or dentist's chair, the combination of the pivoted seat B with spring E, treadle C, link D, and pivoted retaining-bar F, provided with a rack, and the catch G, all constructed to operate substantially as and for the purpose set forth.

186,783. SAFETY-VALVE ATTACHMENTS TO UTILIZE THE ESCAPE-STEAM. Henry G. Ashton, Boston, Mass. [Filed Nov. 29, 1875.]



The combination of the safety-valve and feed-water tank, as described, in order that the steam which escapes through the valve shall be conducted into the feed-water, as and for the purposes specified.

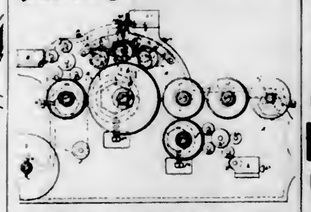
186,784. GASOLINE-BURNERS. J. H. Bean, Cincinnati, Ohio. [Filed Dec. 2, 1876.]



The gasoline burner as described, with the lips C and D, body A, chamber L, needle-pointed opening e, enlarged top opening s, and key B, constructed in the manner and for the purpose set forth.

186,785. PRINTING-PRESSES. Elijah Beech, Manchester, Great Britain. [Filed Apr. 4, 1876.]

Brief.—A set of numbering-disks is mounted eccentrically in a revolving drum, and projects from its periphery at one point. The surface of the drum acts as a distributer for the inking-roller in contact therewith, and its end is cam-shaped to form a bearing for a spring-pawl acting on the disk-ratchet. The disks print against one of two impression-cylinders, against which two type-cylinders print tickets on both sides of a continuous web, which passes thence, between two perforating-cylinders, to a winding-up roller. Several of the cylinder-shafts are mounted in eccentric adjustable bearings.



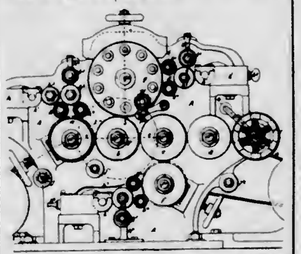
1. The combination, with the drum i, of a set of numerical disks or rings, mounted in the said drum eccentric to its axis, and projecting through one side of the same, substantially as described and shown.

2. In a machine for printing, numbering, and perforating webs or rolls of paper, the combination, with the impression-drum b, of the drums i, the disks g^1 in the said drums, and the drums a, c, d, e, and f, all constructed and arranged substantially as described and shown.

3. The combination, with the drum i, having its outer edge cam-shaped, of a set of numerical disks or rings, g^1, mounted eccentrically in said drum, and projecting through one side of the same, the ratchet g^2, and the pawl m, substantially as described and shown.

186,786. PRINTING-PRESSES. Elijah Beech, Manchester, Great Britain. [Filed Apr. 4, 1876.]

Brief.—Two type and two impression cylinders print tickets on both sides of a continuous web, which passes thence, between two perforating-cylinders, to a winding-up roller. Two or more sets of numbering-disks are mounted on the face of a plate revolving them in contact with one of the impression-cylinders, the axes of the sets of disks being parallel to the axis of the plate.



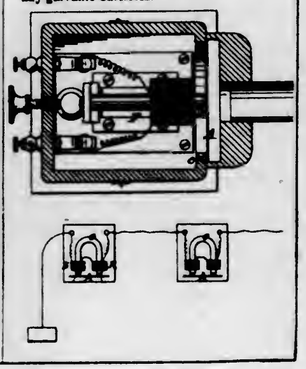
1. The combination of a face-plate, and two or more sets of numerical disks or rings mounted upon such face-plate, with the axis of each set parallel to that of the face-plate, substantially as and for the purposes set forth.

2. In a machine for printing, numbering, and perforating webs or rolls of paper or other material, the combination of the drums a b e d c f, and face-plate g, (carrying two or more sets of numerical disks or rings, arranged as described,) all geared together, and constructed and arranged to operate substantially as described and shown.

3. In a machine for printing, numbering, and perforating webs or rolls of paper or other material, the combination of the type-drums a f and the face-plate g, mounted on sliding bearings, (the said face-plate carrying two or more sets of numerical disks or rings, arranged as described,) the perforating-drum e, the impression-drums b c, and the drum d, constructed and arranged substantially as described and shown.

186,787. ELECTRIC TELEGRAPHY. A. G. Bell, Boston, Mass. [Filed Jan. 15, 1877.]

Brief.—A plate, A, forms the diaphragm to be thrown into vibration, and the armature for the permanent magnet F, which, with the coils G, forms, substantially, a magneto-electric apparatus. A being thrown into vibration, currents are caused to circulate on the line, corresponding, in number of vibrations and intensity, with the number and intensity of vibrations of A. These currents cause the like apparatus at other stations to be similarly affected, so that vocal sounds and speech are accurately reproduced without the use of any galvanic batteries.



1. The union upon, and by means of, an electric circuit of two or more instruments, constructed for operation substantially as herein shown and described, so that, if motion of any kind or form be produced in any way in the armature of any one of the said instruments, the armatures of all the other instruments upon the same circuit will be moved in like manner and form; and if such motion be produced in the former by sound, like sound will be produced by the motion of the latter.

2. In a system of electric telegraphy or telephony, consisting of transmitting and receiving instruments united upon an electric circuit, the production, in the armature of each receiving-instrument, of any given motion, by subjecting said armature to an attraction varying in intensity, however such variation may be produced in the magnet, and hence I claim the production of any given sound or sounds from the armature of the receiving-instrument, by subjecting said armature to an attraction varying in intensity, in such manner as to throw the armature into that form of vibration that characterizes the given sound or sounds.

3. The combination, with an electro-magnet, of a plate of iron, or steel, or other material capable of inductive action, which can be thrown into vibration by the movement of surrounding air, or by the attraction of a magnet.

4. In combination with a plate and electro-magnet, as before claimed, the means herein described, or their mechanical equivalents, of adjusting the relative position of the two, so that, without touching, they may be set as closely together as possible.

5. The formation, in an electric telephone, such as herein shown and described, of a magnet with a coil upon the end or ends of the magnet nearest the plate.

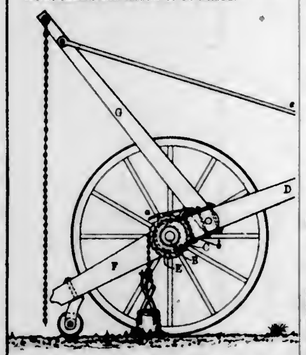
6. The combination, with an electric telephone, such as described, of a sounding-box, substantially as herein shown and set forth.

7. In combination with an electric telephone, as herein described, the employment of a speaking or hearing tube, for conveying sounds to or from the telephone, substantially as set forth.

8. In a system of electric telephony, the combination of a permanent magnet with a plate of iron or steel, or other material capable of inductive action, with coils upon the end or ends of said magnet nearest the plate, substantially as set forth.

186,788. STUMP-EXTRACTORS. W. BERRY, Jr., Fond du Lac, Wis., assignor to Wm. Berry, same place. [Filed Nov. 29, 1876.]

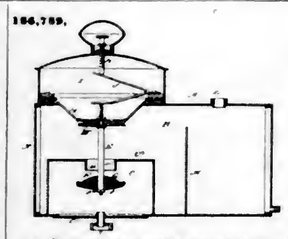
Brief.—The axle-tree is operated as a windlass by two levers, converging to and connected at the front, working ratchets and pawls. Similar levers, attached at right angles to the others, and having a chain depending therefrom, enable the former to be raised.



1. The bifurcated levers D and G, rod e, and wheeled bars F, combined with the axle of the machine, windlass B, ratchet-wheels C, and pawls a and d, substantially as and for the purposes specified.

2. The draft-chain and the ring H, combined and operating in the manner and for the purpose described.

186,789. GAS-REGULATORS. G. B. Bingham, Chicago, Ill. [Filed June 17, 1876.]



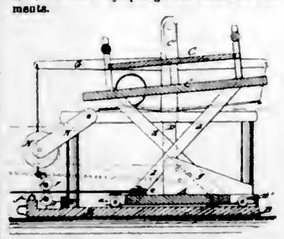
1. The combination, with a gas regulator, of a valve having a flexible convex face, and stuffed with horse-hair or similar material, substantially as set forth.

2. The combination, with a gas-regulator, of valve F, constructed with flexible face G and perforated back F', substantially as and for the purpose set forth.

3. The combination of valve-rod E with bent spring J and adjusting-screw K, substantially as and for the purpose set forth.

186,790. CROSSCUT-SAWING MACHINES. H. M. Blohm, New York, N. Y., assignor to himself and J. Erlenvein, same place. [Filed Jan. 6, 1877.]

Brief.—The machine may be worked with facility by one person, so as to be applied for cutting off trees and sawing the trunks, as desired, by means of a suitable saw attached to a reciprocating carriage, to which motion is imparted by a rocking seat, the saw being guided in horizontal or vertical position, and fed to the work by spring-acted roller attachments.



1. A crosscut-sawing machine constructed of a vertically or horizontally guiding and advancing saw, a reciprocating saw-carriage, and a rocking seat, operated substantially in the manner and for the purpose described.

2. The combination of supporting-frame B, having lateral cushioning-bands and guide-rollers, with the reciprocating saw-carriage, substantially as set forth.

3. The combination of the reciprocating saw-carriage A, pivoted cross-levers d, rocking seat C, and uprights B, substantially as specified.

4. The combination of the horizontally-swinging saw with horizontally-sliding guide-rollers and a spring-acted feed-roller, substantially as shown and described.

5. The combination of the vertically swinging and guided saw with a suspended and spring-acted feed-roller, substantially as set forth.

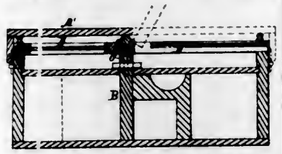
186,791.



186,791. BLANK-BOOKS. Frank Bowman, New York, N. Y. [Filed Dec. 13, 1876.]

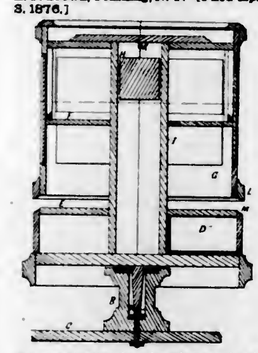
In the manufacture of books, the combination of the single stiff back A, sections B B, the wire staples C C, passed from the front through the sections and back, and clinched on the back thereof, and the cover D, with rounded back G, substantially as herein set forth.

186,792. CIGAR SHOW-BOXES. F. A. Braymer, Jr., Chicago, Ill., assignor of one-half his right to O. A. Peck. [Filed June 2, 1876.]



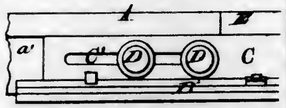
As a new article of manufacture, the box A, provided with the transverse partition B and longitudinal partitions E E and F F, the transparent covers D D, and removable cover A', all arranged substantially as and for the purpose specified.

186,793. CASES FOR DENTAL INSTRUMENTS. E. P. Brown, Flushing, N. Y. [Filed Apr. 3, 1876.]



The combination, in a dental case, of a single weight playing up and down inside a hollow central shaft, balanced by means of three cords, arranged to play over pulleys or equivalent supports, with a movable outer shell, which is capable of being raised and lowered at will, all arranged substantially as and for the purposes described.

186,794. RAIL-JOINTS AND FISH-PLATES. F. Brown and J. Smith, Como Station, Wyo. [Filed Nov. 4, 1876.]

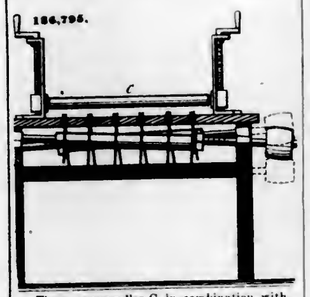


The perforated rail-sections A, provided with base a^2 and attaching-bolts D, in combination with the slotted and perforated fish-plates C, having projections B E', sub-plate b, and recessed clamping-plates b^1 b^1, all constructed and arranged in the manner as described, and for the purpose set forth.

186,795. MACHINES FOR SAWING LATHS. J. W. Calkins, Avoca, N. Y. [Filed Nov. 18, 1876.]

Brief.—Longitudinal dovetailed grooves are cut in boards, to be used in place of ordinary laths for securing the wall-plaster, by means of two gangs of circular saws of different diameters, mounted upon oppositely-inclined arbors, and a vertically-adjustable pressure-roller, placed immediately over a slotted horizontal table, between the gangs of saws, and suitable operating mechanism.

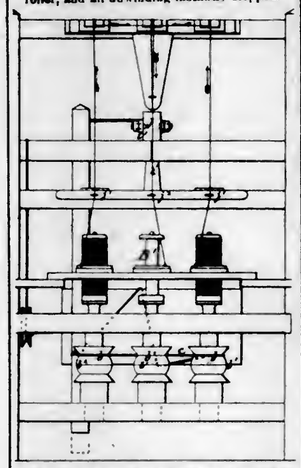
186,795.



The pressure-roller C, in combination with the graded saws of different diameters, journaled on oppositely-inclined axes, as above described, said pressure-roller being placed immediately over the horizontal table, and between the two gangs of saws, and raised and lowered by hand-screws, or suitable mechanism, substantially as described

186,796. SPINNING, DOUBLING, AND TWISTING MACHINES. H. A. Chapin, Springfield, Mass., assignor of one-half his right to C. C. Moulton, same place. [Filed Mar. 14, 1876.]

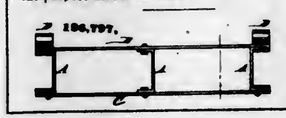
Brief.—The spindles are grouped by threes, and so banded that two revolve to unwind the thread from the bobbins placed thereon, while the center spindle revolves in the opposite direction, to receive on its bobbin the doubled and twisted thread formed from the two threads just named, which doubled thread passes over the feed-roller and under the pressure-roller, (which rollers unwind the thread from the extreme bobbins,) and so to the bobbin on the center spindle. The arm of the pressure-roller is connected to the shipper-rod, so that when the band is shipped from the tight pulleys onto loose pulleys just below them the pressure-roller is lifted off the feed-roller, and all unwinding instantly stopped.



1. The combination of a ring and traveler and the three spindles grouped together, as specified, with the drop-roller, feed-shaft, and shipper-rod, substantially as and for the purpose set forth.

2. A spindle-step surrounded with an oil-reservoir, around which a loose pulley revolves, with its long hub projecting down into the oil, substantially in the manner and for the purpose herein described.

186,797.

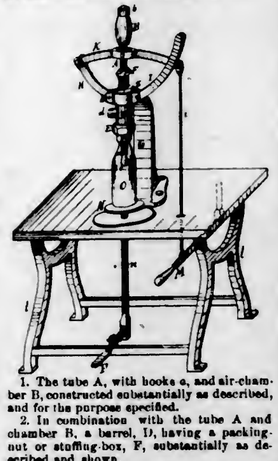


186,797. HEAT-FENDERS FOR FURNACES. J. B. Chandler, Clinton, Iowa, assignor to F. L. Tupper and M. A. Chandler, same place. [Filed Sept. 22, 1876.]

A heat-fender for furnaces, consisting of a sheet of iron and a sheet of zinc, separated by strips of metal, to which they are attached, forming air-spaces, and provided with hooks for attaching it to the front of a furnace, substantially as herein shown and described.

186,798. BOTTLING-MACHINES. A. Christin, Chicago, Ill. [Filed Jan. 8, 1877.]

Brief.—The tube is provided at the bottom with hooks for grasping the stopper, and at the top it ends in an air-chamber of adjustable capacity, to receive the air or gas displaced in the bottle while being filled.



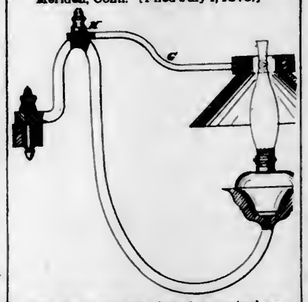
1. The tube A, with hooks c, and air-chamber B, constructed substantially as described, and for the purpose specified.

2. In combination with the tube A and chamber B, a barrel, D, having a packing-nut or stuffing-box, F, substantially as described and shown.

3. In combination with the tube A, hooks c, and air-chamber B, the barrel D, rubber ring e, packing-nut F, and branch d, substantially as described and shown.

4. The tube A, in combination with the barrel D, standard G, link H, lever K, rod i, and lever M, to operate substantially as described and specified.

186,799. SHADE-HOLDERS FOR KEROSENE-FIXTURES. P. J. Clark and J. Kintz, West Meriden, Conn. [Filed July 1, 1876.]

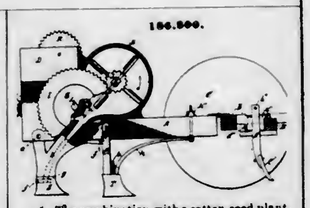


The shade-holder G, pivoted to a raised portion of the bracket at H, thereby allowing a lateral horizontal movement, substantially as and for the purpose specified.

186,800. COTTON-SEED PLANTERS. John Clarridge, Mount Sterling, Ohio. [Filed Dec. 16, 1876.]

Brief.—A pair of wheels supports the forward end of the furrowing and seeding device. The seeds are agitated in the seed-box by means of a double crank and stirrers, and the seeds are carried out upon short teeth upon an endless belt, and forced into the seed-spout by a blast from a fan-wheel situated just above the seed-spout.

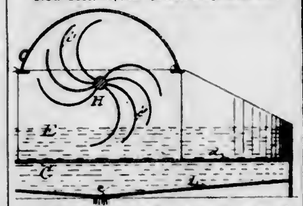
186,800.



1. The combination, with a cotton-seed planter, of a blast-fan, E, arranged in the manner and for the purpose specified.

2. The adjustable swinging standard A' in its bearing c'', pivoted and arranged upon the forward beam B'', in connection with a break-pin, all as and for the purpose specified.

186,801. WASHING-MACHINES. C. S. Clark, New Orleans, La. [Filed Aug. 4, 1876.]

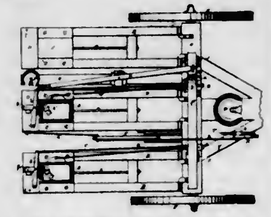


1. In a fiber-cleaning machine, the curved beaters i i', arranged upon shafts to revolve in opposite directions, substantially as described, and for the purpose set forth.

2. In combination with the tank A, provided with rounded corners b, sloping bottom L, false bottom C, and partition E, the shafts G and H, provided with curved beaters i, substantially as described, and for the purpose specified.

186,802. CORN-PLANTERS. J. Clarridge, Mount Sterling, Ohio. [Filed Dec. 16, 1876.]

Brief.—The opener is a double undercutting plow having curved sides. Hinged to the axle, and extending rearwardly, is a frame, upon which a swiveled seat and foot-rest are secured. Upon a raised part of the frame is pivoted a lever, that extends forward and is connected to a transverse slide, which gives motion to toggles and rods for actuating the seed-slide.



1. The double under-cutting steel plow G, whose rear flanging-edges, describing a curve, as shown, come to sharp points, whereby the earth is allowed to fall gradually and cover the deposited grain, in the manner specified.

2. The combination and arrangement of the lever O, slide-bar C, and slides b, the latter being operated by the toggle-levers a, a', and c, in the manner set forth.

3. The combination and arrangement of the swiveled seat P, beam N, axle A, and plow-frame B, whereby the operator is placed in line with the sight-rod i, and is enabled to overlook the hoppers, as and for the purpose specified.

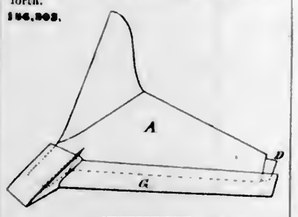
186,803. PLOW-POINTS. W. A. Conaway, Caledonia, Ohio. [Filed Sept. 23, 1876.]

Brief.—A slip point and share, to go upon an old one, and secured by a key.

In combination with a plowshare, A, having point B and wing J, the adjustable point G, constructed, as described, with groove a along its inner edge to fit over the point and

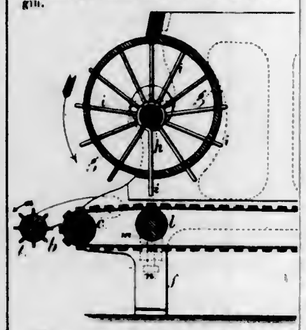
wing, and form an upper and under lay for the share, and the key D, for fastening the adjustable point, substantially as herein set forth.

186,805.



186,806. COTTON-GIN FEEDERS. F. Coons, Hudson, N. Y., and E. Van Winkle, Atlanta, Ga. [Filed Apr. 17, 1876.]

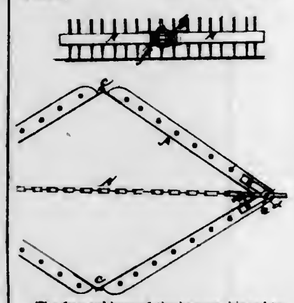
Brief.—Beneath the toothed cylinder, and between the parallels of the belt, is placed a vertically-adjustable roller, for regulating the size of the space between the belt and cylinder, through which the cotton is fed to the gin.



The combination, with the cylinder *g*, teeth *i*, eccentric shaft *k*, and feeding-belt *b*, of the roller *l*, beneath the belt *b* and cylinder *g*, and the adjustable bearings for said roller *l*, substantially as set forth.

186,805. HARROWS. D. Couch, Noblestown, Pa. [Filed July 14, 1876.]

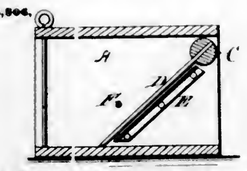
Brief.—The frame consists of four beams. The forward ends of the forward beams are hinged for horizontal expansion, and the rear ends of the rear beams are hinged in like manner. The middle ends are coupled for both vertical and horizontal movement. A chain runs longitudinally fore and aft through the center, and can be lengthened or shortened at pleasure, thus contracting or expanding the harrow.



The forward bars of the harrow, hinged together on a vertical pin, and the hinder bars hinged in like manner, said pairs of bars having lateral expansion and contraction, in combination with the adjusting-chain N and link-joints C C, as and for the purpose specified.

186,806. ANIMAL-TRAPS. Wm. P. Cox, Academy, N. Y. [Filed Dec. 23, 1876.]

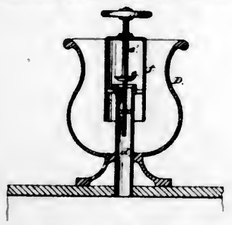
186,807.



1. The combination of rock-shaft C, inclined guard plates E, rigidly secured to the casing A, and inclined door-bars D, substantially as set forth.

2. The combination of rock-shaft C, inclined door-bars D, guard-plates E, and stop-bar F, substantially as set forth.

186,807. STEAM-RADIATORS. A. W. Cram, Haverhill, Mass. [Filed Sept. 6, 1876.]

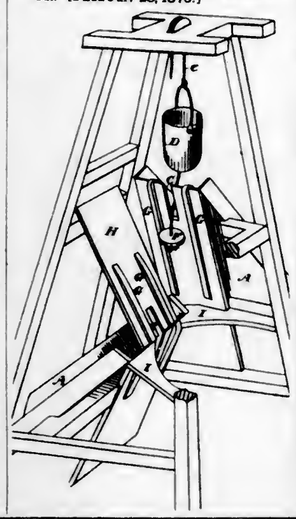


1. A radiator having a steam-chamber, A, in combination with an upper part, B, having its sides C C united by ties or stays *c c*, substantially as shown, and for the purpose specified.

2. As an improvement, the radiator herein described, consisting of the steam-chamber A, with the upper part B, having the sides C C united by ties or stays *c c*, cast thereon, and provided with slats or projections *b b* on its outer surfaces, constructed and arranged substantially as shown and specified.

3. The radiator herein described, consisting of the steam-chamber A, with the upper part B cast thereon, having its sides C C united by cast ties or stays *c c*, and provided with slats or projections *b b* on its outer surfaces, in combination with the urn D, provided with pipe *d*, valve *e*, and inverted cup *f*, all constructed and arranged substantially as shown, and for the purpose set forth.

186,808. SELF-ACTING TRIPS FOR MINING-BUCKETS. H. S. Craven, San Francisco, Cal. [Filed July 28, 1876.]



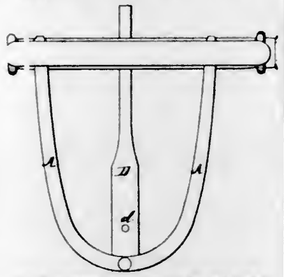
1. The automatic trip for buckets, consisting of the weight F, suspended from the bottom of the bucket, in combination with the discharge-chute A, extending beyond the line of travel of the rope, and slotted at *c*, substantially as herein described.

2. The device for allowing the bucket to pass up and down by a chute, the same consisting of the reverse incline H, extending upward from the edge of the chute A, substantially as herein described.

3. The guiding rails or tracks G upon the inclined surfaces A and H, to prevent the turning of the bucket, substantially as described.

4. The curved bracing-arms I, extending from the slot *c* outward, so as to return the rope *s* to the slot when it is displaced, substantially as herein described.

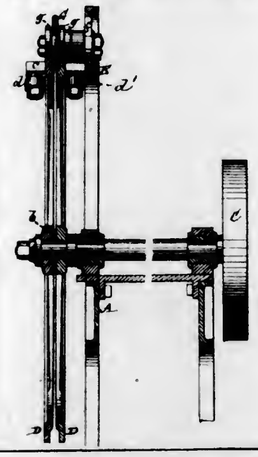
186,809. WAGON-HOUNDS. Andrew B. Cushman, Memphis, Mo. [Filed Jan. 29, 1876.]



Hind hounds or futchells A, formed from a single piece and recessed at E, in combination with perforated reach D set into said recess, coupling-pin F, and bracing-straps G G, which are secured to the upper and under sides of said curved hind hounds or futchells, substantially as and for the purpose set forth.

186,810. MACHINES FOR MAKING METAL FELLIES. R. W. Davis, Elmira, N. Y., assignor to Edwin Eldridge, same place. [Filed Aug. 16, 1876.]

Brief.—A revolving wheel-former composed of two annular sections, (counterparts of each other,) arranged face to face, and of a shape on their perimeters corresponding with the form, in cross-section, of the felly to be produced. A plate or packing separates the sections at their hubs. Adjustable guide-rollers, arranged on the upper side of the axis of the wheel-former, press the sections thereof together while the felly is being formed. Adjustable forming-rollers cause the metallic strip to be pressed into the U-shaped groove of the wheel. The annular sections are free to spring apart below their axis and release the felly.

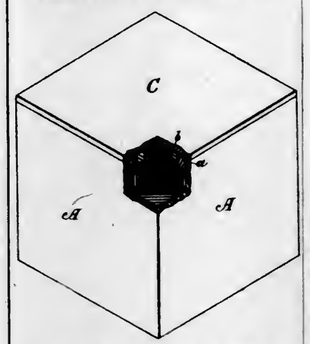


1. The combination of the rotating annular wheel-sections D D, with their central separating piece or plate *b*, the guides or guide-rollers *d' d'* on one side of the axis of said wheel-sections or divided wheel-former, and one or more forming rollers, G, on the same side of said axis, substantially as specified.

2. The combination of the adjustable forming-rollers G with the rotating annular wheel-sections D D, essentially as described.

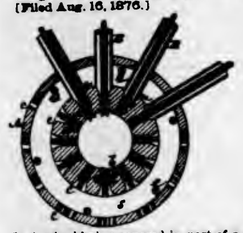
3. The combination of the adjustable guide-rollers *d d'* with the rotating annular wheel-sections D D, substantially as shown and described.

186,811. PAPER BOXES. R. B. Davis, New York, N. Y. [Filed Nov. 11, 1876.]



A box the sides A of which have stiffening-strips *a* at their inner top edges, and the lid or cover C, having stiffening strips or pieces *b* attached to its under side to fit within the strips *a*, substantially as and for the purposes described.

186,812. VEHICLE-WHEELS. Daniel Davis, Brooklyn, and A. W. Davis, Flushing, assignors to E. Eldridge, Elmira, N. Y. [Filed Aug. 16, 1876.]



1. A wheel-hub composed in part of a metallic center-piece, A, having an open eye, *b*, and radial tapering mortises *c*, of a cross shape in their transverse section, in combination with the spokes B of a similar transverse configuration, and having tapering tenons *d* riveted to their places within the eye of the center-piece, substantially as described.

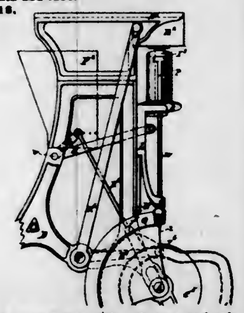
2. The combination, with the metallic center-piece A of the hub in which the spokes are secured, of the metallic shells D D, formed with flanges *m m*, arranged to enter and rest within recesses *f f* in the opposite faces of the center-piece A, the bolts or rivets *s s*, and the wooden fillings E E, essentially as shown and described.

3. The combination, with the hollow metal felly F and its tire H, of the filling-blocks G, having mortises through them, and the spokes B formed with tenons *g* made to pass through said mortises, and riveted down on the blocks, also formed with shoulders *h*, which hug the felly, substantially as shown and described.

186,813. SOLDERING-MACHINES. P. Dillon and J. Cleary, Sherbrooke, Quebec, Canada, assignors of one-third of their right to G. H. Bradford, same place. [Filed Sept. 16, 1876.]

Brief.—The can-blank is folded about a reciprocating mandrel by two pivoted folding-arms, which are made to span the mandrel, one a little in advance of the other, so that the edges overlap. Done by link-connections, with separate cams on a common driving-shaft, so that a solder-bath, with melted solder and a soldering tube, passes over and solders the side seam before the backward movement of the mandrel. This being done, the can-cylinder is left free to be removed to an inclined holder containing a properly-formed head-blank, to be soldered by a second similar bath and tube.

186,813.



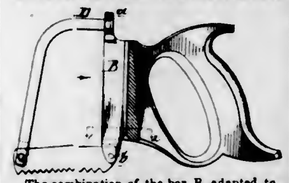
1. In combination with a furnace and solder bath, B^1, the vertically-placed soldering-bolt I^1, having an intermittent reciprocating movement, together with the bath in a horizontal direction, and consisting of centrally-perforated copper point *e'*, the connected tube *i*, and the valve *e* with arm *l*, and the leg *a*, substantially as shown and described, for the purpose specified.

2. The combination of the rising and falling and intermittently-rotated holder A, set at an inclination, as described, the traveling bath B^2, and the hollow bevel-pointed soldering-tube I^2, substantially as shown and described.

3. In combination with the soldering apparatus B^1 I^1, the sliding mold M, dog *e e*, and clips K^1 K^1, with their operating mechanism, substantially as and for the purpose specified.

186,814. HANDSAWS. C. Disston, Philadelphia, Pa. [Filed Dec. 7, 1876.]

Brief.—The saw is secured to the handle by means of a T-shaped and ribbed metallic bar, to which the saw and rod are attached, and which is fitted in a suitable slot in the handle.



The combination of the bar B, adapted to the handle, with the rod D, and blade, all substantially as set forth.

186,815. METALLIC SELF-BINDERS FOR BOOKS. Henry H. Edwards, Minneapolis, Minn. [Filed June 23, 1876.]



1. The upset and lapped binder-lips *c c*, whereby to form clamps for the muslin fastenings for the covers at the sides of the binder.

2. The upset and lapped binder-lips *c c*, as clamps for the muslin fastenings for the covers, in combination with the removable tablet, whereby to form seizing and biting edges on both sides of the tablet, to hold it in place.

3. The metallic binder having upset and lapped clamp-edge lips *c c*, and having its sides approaching each other obliquely, for the purpose stated.

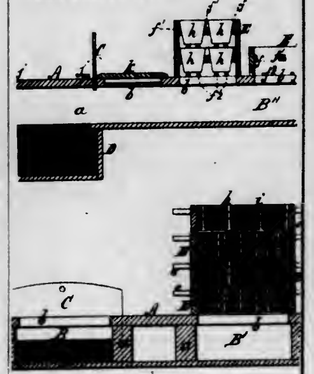
4. The metallic binder having upset and lapped-edge lips *c c*, and having its sides approaching each other obliquely, and tapering toward each other from one end to the other, for the purpose stated.

5. The combination of the metallic binder, having the clamp-lips *c c* for the muslin fastenings, with the bow-spring *e*, as and for the purpose stated.

6. As a new article of manufacture, the within-described tablet or book cover, composed of the back, the metallic binder, and the muslin joint-strips, clamped to the metallic back as fastenings for said cover.

186,816. APPARATUS FOR DRYING HARD SUGAR. W. R. Minnehorst, Jersey City, N. J., assignor to F. O. Matthiessen and Wiechers's Sugar Refining Company, same place. [Filed Dec. 11, 1876.]

Brief.—The cakes of sugar depend from the shoulders of the barrows. These are placed over the openings communicating with the air-supply, one above another, and constitute a chimney or exit-flue.



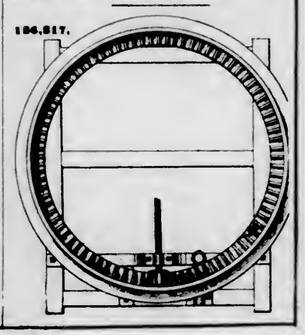
1. The portable frame or hand-barrow E, provided with the shoulders *f* and *f'*, and with the projecting handles *e*, as and for the purpose set forth.

2. In a frame or hand-barrow, substantially such as described, the parallel guard-bars *f'*, as and for the purpose set forth.

3. The air-chamber B, situated upon or beneath the floor of the drying-room, provided with one or more outlets, *b*, and with valves C C, for opening and closing communication between the air-chamber and the air-supply passages D D'.

4. A drying-room for drying hard sugar, having tramways arranged upon its floor in convenient proximity to a series of openings in its floor, communicating with an air chamber or chambers beneath the floor, such chambers being connected with an air-supply conduit or conduits, provided with valves for regulating the admission into the air-chambers of hot or cold air, substantially as described.

186,817.



196,817. MASTER-WHEELS AND ADJUSTABLE TRAVERSE-PINIONS, &c. Massena B. Erskine, Racine, Wis., assignor to J. I. Case & Co., same place. [Filed June 24, 1876.]

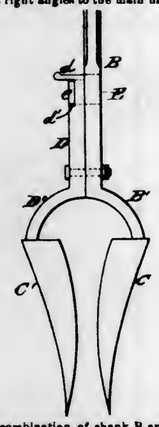
Brief.—The periphery of the wheel is equally divided, concentrically, by a vertical flange extending above and below the horizontal portion, which latter is, outside the flange, a plain surface above and below, and inside thereof it is toothed above and below. Gearing therewith is a pinion on each side.

1. A master-wheel that can be used either side up, with flange C on the outside of same, substantially as described.

2. Traverse-pinion M, with adjustable bearing D, journal E, and screw I, all in combination, substantially as described.

196,818. EARTH-AUGERS. Geo. Fletcher, Fillmore, assignor of one-half his right to Wm. Foote, Hume, N. Y. [Filed Oct. 7, 1876.]

Brief.—One blade is stationary upon the handle; the other is pivoted close to the top of the blade, with a stem extending upward, and held in place by a clip attached to the side of the main handle. When the blades of the auger are full of earth it is discharged by turning the pivoted blade upon its pivot to a position at right angles to the main handle.

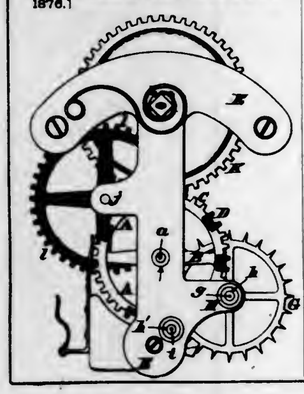


1. The combination of shank B and blade C with blade C' and short pivoted shank D, having lug *d* at the top thereof.

2. Shank B, provided with stop-plate or stop-block E, in combination with pivoted shank D, arranged substantially as above set forth.

3. Shank B, provided with stop-plate E, having flange *e*, in combination with pivoted blade C', provided with lug or foot-rest *d*, substantially as set forth.

196,819. FIRE-ALARM SIGNAL-BOXES. G. Floyd, Cincinnati, Ohio. [Filed Sept. 23, 1876.]



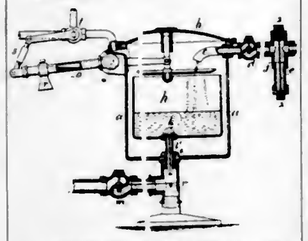
1. The rotatable device A, armed at its periphery with conducting-teeth C and insulating-teeth D, which teeth C D are of uniform size and pitch, and have the customary fingers R in contact with them, so as to perform the functions of the circuit-wheel of a fire-alarm signal-box, and at the same time gear with the clock-work or train of said box, substantially as herein described and set forth.

2. In combination with the rotatable device A C D, capable of performing the twofold purposes of a circuit-wheel and one of the gear-wheels of a fire-alarm signal-box, the wheel J, insulated either at its periphery or hub, and located between said circuit-wheel A and the driver K, substantially as herein described and set forth.

3. A fire-alarm signal-box, whose shafts are mounted in insulated journal-bearings, substantially as herein described and set forth.

4. In combination with the shafts and insulated bearings of a fire-alarm signal-box, the metallic bushings, interposed between said shafts and their bearings, substantially as herein described and set forth.

196,820. STEAM-TRAPS AND BOILER-FEEDERS. H. Fox, Brooklyn, N. Y. [Filed Dec. 26, 1876.]

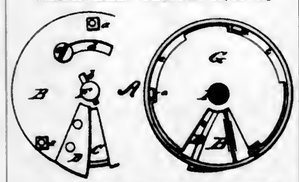


1. The combination of the open float *h*, vessel *a*, and valve *k*, within the float, closing upon the seat at the bottom of such float, and the discharge-pipe *l*, and counterpoise-lever *o*, substantially as set forth.

2. The combination of the lever *o*, shifting-weight *r*, relief-cock *t*, float *h*, valve *k*, vessel *a*, and delivery-pipe *l*, substantially as set forth.

3. The inlet-pipe *c* of the steam trap or feeder, and the cross-pipe *f*, in combination with the flat or nearly flat strainer *e*, inserted lengthwise within the pipe *f*, and the cap or plug 2, substantially as and for the purposes set forth.

196,821. EARTH-AUGERS. G. B. Franklin, Jackson, Minn. [Filed Nov. 18, 1876.]



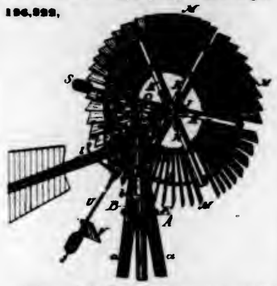
1. The cylinder A, having the bottom B, provided with the opening C, stop-bolts *a*, curved slot *d*, and cutter D, in combination with the cut-off plate G, provided with the opening *c*, circumferential recesses *e*, and stop-pin *s*, substantially as and for the purpose set forth.

2. The shaft F, having its lower end pointed, and extending below the cylinder A, the bottom B of which is constructed as above described, in combination with the cut-off plate G, provided with circumferential recesses *e*, and stop-pin *s*, substantially as described, and for the purpose set forth.

196,822. WINDMILLS. A. B. Funk and S. Miller, Urbana, Ohio. [Filed Nov. 25, 1876.]

Brief.—Upon the side of the top of the stock is a wing supporting a tubular bearing, in which the main shaft of the wind-wheel rotates. Upon the outer end of this shaft is secured a spider, to which the arms of the wind-wheel are secured, the face sides of which arms are beveled to conform to the angular position of the blades in the wind-wheel. To these arms are secured annular metallic holders—one near the periphery of the wind-wheel, and the other nearer to its center—which holders are preferably made of thin iron plate, with edges flanged outwardly or inwardly to give greater strength.

196,823.



1. In a windmill, the combination, with the spider-hub J and arms K, of the annular metallic holders L L', and the blades M, substantially as described and shown.

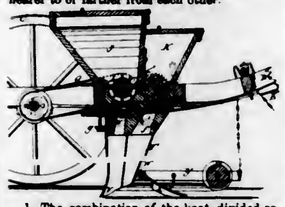
2. In a windmill, the combination with the supports *a* of the derrick-frame and the hub B, of the tube C and set-screws E, for adjusting the vertical position of such tube, substantially as described and shown.

3. In a windmill, and in combination, the main driving-shaft, secured to one side of the stock, the weighted bell-crank lever U, and the fan V, substantially as described.

4. In a windmill, and in combination, the wind-wheel and its shaft, mounted upon one side of the stock, the tail-vane, pivoted to the said stock, and the weighted lever, whereby the wind-wheel is thrown out of the wind by its eccentric position, and is restored by the weight of the said lever, substantially as and for the purposes set forth.

196,824. COMBINED FERTILIZER AND SEED SOWER. R. L. Galer, Dunham, and E. E. Spencer, of Pariah of St. Armand East, Quebec, Canada. [Filed May 22, 1876.]

Brief.—The boot is divided into two sections. Through the forward division the fertilizing matter is conveyed to the ground, and the seed is conveyed by the rear division. The flukes are formed with a lateral obliquity and made interchangeable, so as to plant the rows nearer to or farther from each other.



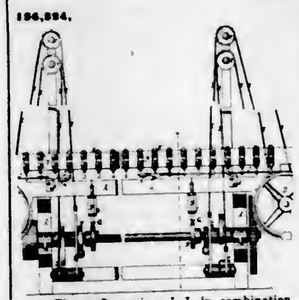
1. The combination of the boot, divided so as to distribute the fertiliser in front and the seed behind it, with the coverer X and presser Z, both pivoted in a frame, Y, which is itself pivoted to the boot, as and for the purpose specified.

2. The boots T, constructed in laterally-curved shape, and connected detachably to the machine for adapting the machine to rows of different widths by interchangeable boots, substantially as specified.

196,824. LOOMS. Anton Gartenmann, New York, N. Y. [Filed June 15, 1876.]

Brief.—The weft-carriers are secured to flexible steel straps, which wind upon the disks or wheels, one at each side of the loom, and are guided or supported by adjustable guides. The carrier is forked, and each branch of the fork has a small hook on the under side. The weft-thread is held by these hooks across the opening in the fork. A weighted guard closes the fork, and prevents it catching in the ways. The guard is forced open, when the weft is to be inserted, by a stop at each end of the lay. A vertically-reciprocating needle detains the weft-loop. This needle is hinged or pivoted on an axis parallel to the lay, whereby it is adapted to yield when it strikes the fell of the cloth.

196,824.



1. The weft-carriers I J, in combination with guides K, between which they are projected in laying in the weft-thread, substantially as described.

2. The rotating disks C, operated as described, and the weft-carriers I J mounted thereon, in combination with the lay B and the guides K, substantially as set forth.

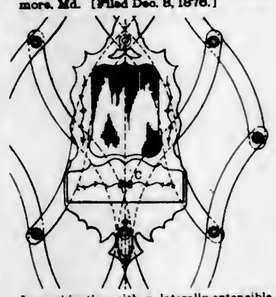
3. The weighted guard-lever N, in combination with the weft-carrier I, substantially as described, the same being adapted to close the mouth of the carrier automatically by the fall of its weighted end, and to open the same by abutting against the projections *d*, substantially as herein set forth.

4. The combination of the disk C, spring weft-carrier I J, and guard-lever N, substantially as described.

5. The hinged needle S, operated through the medium of the lever Q and slide P by the cam R, in combination with the weft-carrier I J, substantially as described.

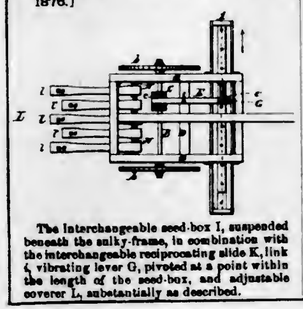
6. The weft-carrier I, provided with weft-hooks *a*, for catching hold of the weft-thread, substantially as described.

196,825. HAT-RACKS. L. F. Gehr, Baltimore, Md. [Filed Dec. 8, 1876.]



In combination with a laterally-extensible and folding hat-rack, a frame for a mirror and comb-and-brush box, the said frame being attached to the hat-rack by means of a stationary pivot-pin and a pin sliding in a slot in said frame, substantially as described.

196,826. COMBINED SEED-PLANTER, SULKY-HARROW, AND CULTIVATOR. S. R. Gilliland, Salisbury, Mo. [Filed June 10, 1876.]



The interchangeable seed-box I, suspended beneath the sulky-frame, in combination with the interchangeable reciprocating slide K, link *i*, vibrating lever G, pivoted at a point within the length of the seed-box, and adjustable coverer L, substantially as described.

196,827. MAIL-BAGS. Edward W. Glover, Malden, Mass. [Filed Jan. 19, 1877.]



1. A mail bag or pouch composed of fabric of vegetable or mineral nature, such as cotton, flax, hemp, or asbestus, chemically treated to resist fire, substantially as described.

2. A mail-bag composed of two or more thicknesses of chemically-prepared fabric, leaving an air-tight space between the two for the protection of the contents against fire, substantially as described.

3. The mail-bag herein described, composed of a fabric or fiber chemically treated, to render it fire-proof, and constructed substantially as described, and adapted to receive and hold an interior bag to create an intervening space between the two, substantially as specified.

196,828. FIRE-PROOF EXPRESS-CHESTS. E. W. Glover, Malden, and Edw. C. Morris, Boston, Mass. [Filed Jan. 15, 1877.]

Brief.—A removable fire-proof box is arranged within a metallic chest, so as to leave an air-space on every side.

1. A fire-proof box or chest, the body of which, together with its cover, is made up of a layer of wood board chemically treated and rendered fire-proof, and a layer of asbestus or clay board, with or without an inner layer of wood board, covered with chemically-treated canvas or other material, said box being specially constructed and adapted to fit within a metallic chest or casing, and be transported thereto and removed therefrom at will, substantially as set forth.

2. A box or chest for valuables, composed of layers of material chemically treated to render it fire-proof, and constructed so as to be placed within a metallic casing or safe and transported therein, in such manner as to leave an intervening air-space to protect said box or chest and its contents from injury by heat in case of fire, substantially as described.

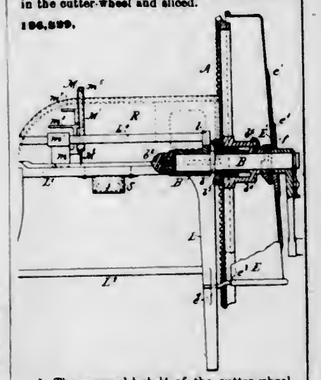
3. In combination with the outer casing or safe, the angle-plates secured in the corners of said casing or safe and adapted to support the inner chest out of contact with the sides of the said casing, substantially as described.

4. A fire-proof chest, the body of which, together with its cover, is made up of one or more layers of wood board, one or more layers of clay or asbestus board, and one or more intervening layers of canvas chemically treated to render it fire-proof, combined substantially as described.

196,829. MEAT AND VEGETABLE CUTTERS. W. H. Goodchild, New York, N. Y., and Saml. F. Hay, Metuchen, N. J.; said Hay assignor to said Goodchild. [Filed May 11, 1876.]

Brief.—A meat-hasher, vegetable-slicer, and apple parer and slicer combined. The cutter-wheel has a gear around its periphery, in contact with which the pinion on the paring-machine is held during the paring operation. While the apple remains upon the fork the pinion is swung out of contact with the gear, and the pared apple brought up to the knives in the cutter-wheel and sliced.

196,829.



1. The recessed hub b^4 of the cutter-wheel A, in combination with the shaft B, adjustable gage-plate C, adjusting-nut *b*, and rim X, all constructed and arranged to operate relatively with each other, substantially as and for the purposes herein set forth.

2. The gage-plate C, constructed of the hub c^1, radial and circumferential arms and supports c^2, c^3, and c^5, and facings C', all substantially as and for the purposes specified.

3. The laterally-removable portions of the face of the cutter-wheel A, constructed of the sheet-metal faces D', and radial knives D, arranged to operate relatively with each other, the same being supported by the rim X, bars d^1, and hub b^4, all substantially as and for the purposes herein specified.

4. In combination with a vertically-revolving cutter-wheel of a rotary cutter, the case E, with central support E^1, and flange E^2, supported by the shaft B, and independently thereof in the bearing c^4, all substantially as and for the purposes herein set forth.

5. The combination of the central support E^1, screw f', and grooved handle F, to connect the latter with the case E, substantially as and for the purpose specified.

6. The combination of the slitting-knives *d* with the radial slicing-knives D, and adjustable gage-plate C, the said knives *d* being secured to cutter-wheel A in bearings x^2 b^1, independently of the said gage-plate, substantially as and for the purposes herein set forth.

7. The combination of the slitting-knives *d*, with their supporting-bars d^3 and c^6, cross-bars d^4 d^5 d^6, levers d^7, and locking-slots x^3 x^4, all substantially as and for the purposes specified.

8. The double coverings T T' c^7, in combination with the slitting-knives *d* and cutter-wheel A, all substantially as and for the purpose set forth.

9. The feeder M, with face M^1, teeth M^2, and stripper-bar m^2, constructed and arranged to operate relatively with each other and with the table L^2, and cutter-wheel A, all substantially as and for the purposes herein specified.

10. The fender R, with sheet-metal face R^2, backing R^3, and pins R^1, and r^1, constructed and arranged to operate relatively with the table L^2 and cutter-wheel A, substantially as and for the purposes set forth.

11. The combination of the standard 2, carrying the operating parts of an apple-paring machine, with a rotary cutter, so that the operating parts of the said parer may be driven by a drive-gear, *x*, formed upon the cutter-wheel of said cutter, and to admit of slicing the apple by the said cutter-wheel, all substantially as herein specified.

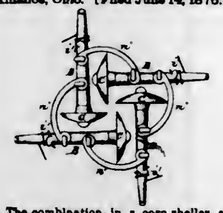
12. The pusher for discharging the apple from the fork 4, consisting of the handle 11, rod 9, and head-piece 10, in combination with the said fork, substantially as herein set forth.

13. In combination, the hold-fast 8, pawl 14, head-piece 10, rod 9, handle 11, and fork 4, substantially as and for the purposes herein specified.

14. The combination of hold-fast 8, pawl 14, spring 15, stop 16, and fork 4, substantially as and for the purposes herein set forth.

15. The combination of the gear *z*, pinion 7, slide-bar 17 17', pawl 19, hold-fast 28, and toothed driver 21, to simultaneously actuate the fork 4, and knife 22, all substantially as herein specified.

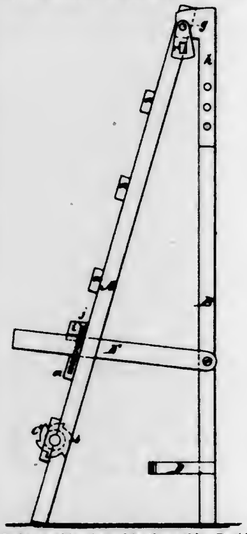
186,830. CORN-SHELLERS. C. Goddard, Alliance, Ohio. [Filed June 14, 1876.]



1. The combination, in a corn-sheller, substantially as described, of the vibrating arms B B B B, with the pivoted ties or braces *n' n' n' n'*, and the edged or toothed wheels C C C C.

2. The combination of the vibrating arms A A A A and the pivoted braces or ties *n n n n*, substantially as described, and for the purposes set forth.

186,831. PILE-DRIVERS. J. Gregg, Riverton, Iowa, assignor to himself and J. Miller, same place. [Filed Aug. 14, 1876.]



1. In combination with the guides B, side pieces A, and lower cross-bar *a*, the braces E, clamping-bar *i*, and screws *j*, substantially as specified.

2. The combination of the lever, consisting of the handle *c*, plates *d*, and pin *e*, with the ratchet-wheels *b*, substantially as shown and described.

186,832. SEWER-TRAPS. Geo. W. Greenwood, Columbus, Ohio. [Filed Nov. 1, 1876.]

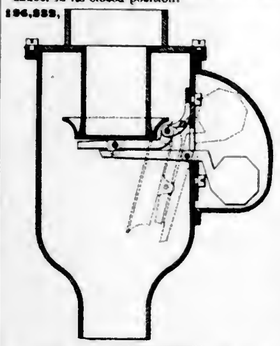
Brief.—The pan-valve opens widely and suddenly, and closes quickly.

1. The combination, substantially as hereinbefore set forth, of the water-pipe, the scanner or door, adapted to abut against the end of the pipe, a hinged vertically-swinging lever, upon which the scanner or door is pivoted, and an independent weighted lever, which tends to hold the scanner in its elevated position.

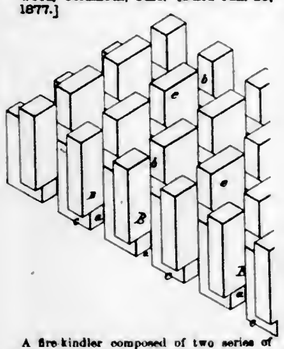
2. The combination, substantially as hereinbefore set forth, of the waste-pipe, the scanner, the vertically-swinging hinged lever, upon which the scanner is pivoted, the independent weighted lever, swinging on a longer radius than the scanner-lever, and a look which holds the trap closed until the lock is released and then opens suddenly and widely to insure the entire discharge of its contents, as described.

3. The improved sewer-trap, hereinbefore described, consisting of the combination of the casing, a waste-pipe of smaller diameter projecting therein, a rocking saucer or cup abutting against the end of said pipe, and pivoted on a vertically-swinging lever, an independent swinging weighted lever of longer radius than the saucer-lever, and a lock to hold the saucer in its closed position.

186,833.



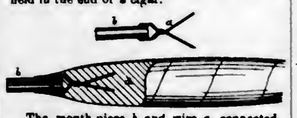
186,835. FIRE-KINDLERS. Geo. W. Greenwood, Columbus, Ohio. [Filed Jan. 23, 1877.]



A fire-kindler composed of two series of toothed or notched interlocking strips, arranged longitudinally and transversely, and coated with an inflammable substance, substantially as described, whereby longitudinal and transverse intersecting draft-passages are formed, both in the lower and upper portions of the kindler, with vertical openings between them.

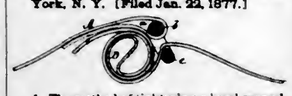
186,834. MOUTH-PIECES FOR CIGARS. J. L. Gross, Akron, Ohio. [Filed July 7, 1876.]

Brief.—A wire passes through the end of a tabular mouth-piece, by means of which it is held in the end of a cigar.



The mouth-piece *b* and wire *a*, connected with each other, and adapted to be applied to a cigar, substantially as described.

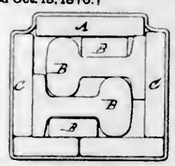
186,836. BALE-TIES. Peter Hayden, New York, N. Y. [Filed Jan. 22, 1877.]



1. The method of tightening a band around a bale by inserting the free end thereof through a buckle, and coiling the same by means of a suitable instrument, in the manner shown and described.

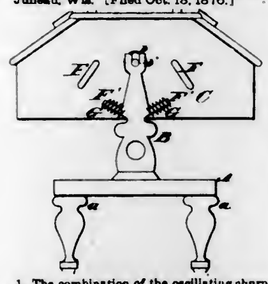
2. In combination with the buckle and looped end *a* of the band, the coil *D*, formed of the free end of said band on the under side of the buckle, as shown and described.

186,838. MODES OF PILING BESSEMER-STEEL SCRAP. P. Hayden, New York, N. Y., and Wm. B. Hayden, Columbus, Ohio. [Filed Oct. 13, 1876.]



As an improvement in the mode of utilizing old and worn Bessemer-steel rails and fag ends, or other scrap of Bessemer steel, preparing said scrap for the furnace and the rolls by inclosing it within a case composed of four plates of mock-iron so joined to each other at the edges that one of them shall follow down close on the scrap, as the bulk of the latter contracts in softening during the operation of heating, substantially as described.

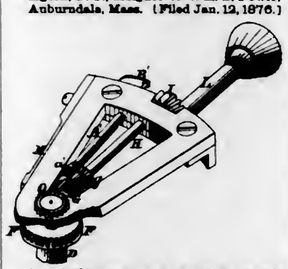
186,837. CHURNS. John F. Hennessy, Juneau, Wis. [Filed Oct. 18, 1876.]



1. The combination of the oscillating churn C, having the blocks F projecting from one side, with the supporting-standards B B', arms F' F', and spiral springs G, substantially as described.

2. The combination of the oscillating churn C, blocks F F on the side thereof, and springs G, substantially as described.

186,839. WATCHES. J. R. Hopkins, Washington, D. C., assignor to Wm. B. Fowle, Auburndale, Mass. [Filed Jan. 12, 1876.]



1. A main-wheel arbor, provided at each end with pivotal bearings, and having an opening through its axial center, in combination with an arbor that fits loosely into said opening, and operates to move the dial-wheels whenever the hands are set, substantially as and for the purpose shown.

2. The arbor H, extending radially between the periphery of the movement and the winding-arbor D, provided upon its inner end with the pinion G, that engages with the contrate-pinion F, attached to said winding-arbor, and having its outer end connected to or with the stem L, said parts being combined to operate in the manner and for the purpose set forth.

3. In combination with the arbor H, provided with the longitudinal movable pinion

G, and capable of rotation by means of the stem L, and with the hands arbor P, having the gear-wheel Q attached to its lower end, the shaft or rod A', arranged to move longitudinally, and provided with a recess, *e'*, which engages with a disk, *g*, upon the hub of said pinion, substantially as and for the purpose shown and described.

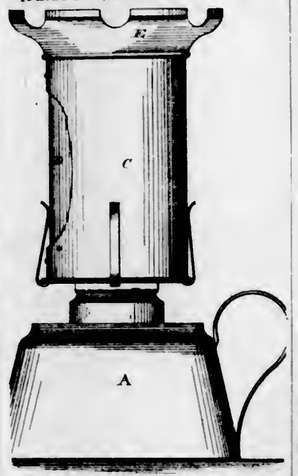
4. In combination with the shaft A', arranged to move longitudinally within its bearings, the spring B', attached at one end to or upon the periphery of the movement, and at its opposite end caused to engage with the projecting outer end of said shaft, substantially as and for the purpose specified.

5. A watch in which the dial-wheels are driven directly by the arbor of the main wheel, substantially as and for the purpose shown.

6. In combination with the minute-wheel U, the supplemental driving-wheel T, connected therewith by means of a friction-bearing, substantially as and for the purpose set forth.

7. The main-wheel arbor C, gear-wheels S, T, and U, pinion V, cannon-pinions W and Y, and arbor P, all combined to operate in the manner and for the purpose shown.

186,839. HEATER ATTACHMENTS FOR LAMPS. Chas. A. Howard, Pontiac, Mich. [Filed Nov. 4, 1876.]



In combination with an ordinary lamp, the removable sheet-metal cylinder C, provided with the notched rim E, and diaphragm G having elongated opening *a* and perforations *b*, substantially as and for the purposes herein set forth.

186,840. TIN CANS. J. C. Howard, Chicago, Ill. [Filed Dec. 30, 1876.]

Brief.—Lowest disk presses down contents of can; middle disk forms chamber for gases about the vent; then uppermost disk is put on and secured. When gases have been expelled, vent may be covered with wet sponge till vent is plugged.

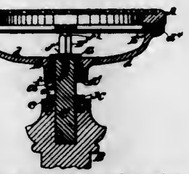


1. A meat-can in the shape of the frustum of a regular pyramid.

2. A vent-guard for a meat-can, consisting of flat disk or plate C and bowl-shaped piece, scalloped in its edge at *d d*, substantially as set forth.

3. The combination of vent-guard C D, flanged cap E, and can-cover B, provided with a central opening and concentric groove and rim, substantially as set forth.

186,841. SPRING-SEAT STOOLS. Henry M. Hutchinson and M. V. Lunger, Philadelphia, Pa. [Filed May 22, 1876.]



1. A revolving seat-stool, having springs E E placed between the spider and seat, substantially as shown and described, for giving to said seat a yielding or spring motion.

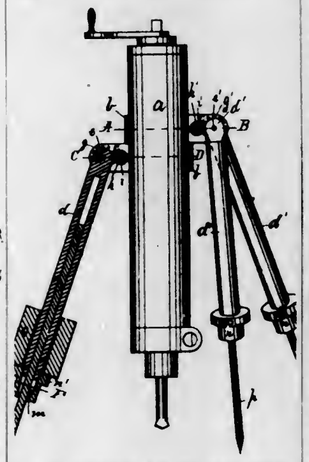
2. The spider D, having a central packing of wood, or other equivalent material, for the purpose set forth, substantially as shown and described.

3. The stationary spindle F, in combination with the springs E E, gudgeon C, revolving seat A, and spider D, of a revolving spring-seat stool, said spindle being secured to the gudgeon.

4. The combination of the springs E E, carved blocks E', &c., and spider D, substantially as shown and described.

5. In a revolving seat-stool, the combination of the spider D, gudgeon C, spindle F, and washer G.

186,842. TRIPODS FOR ROCK-DRILLS. J. B. Johnson, Boston, Mass. [Filed July 24, 1876.]

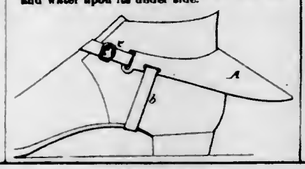


1. In combination with the plain cylinder *a*, one or more clamps *b b*, provided with one or more tapering pinions, *h h' h'*, tightening-bolts *i i'*, and hollow legs *d d' d'*, with their upper segments *g g' g'* and hinge-pins *e e'*, as and for the purpose set forth.

2. In combination with the hollow leg *d d' d'* and its lower taper, of the flanged nuts and its inner taper, and the central adjustable bar *p*, substantially as and for the purpose set forth.

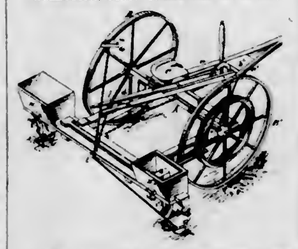
186,843. ATTACHMENTS FOR BOOTS AND SHOES. Jas. H. Johnson, Newark, N. J., assignor of one-half his right to Lewis A. Osborn, same place. [Filed Nov. 3, 1876.]

Brief.—Device to be attached to the back part of a boot or shoe, occupying a position within the leg of the pants, holding the latter away from the heel, and receiving the mud and water upon its under side.



The plate A, arranged upon and combined with a boot or shoe above the heel, in a position to be concealed by and to hold back the pants-leg, as and for the purpose set forth.

186,844. CORN-PLANTERS. Henry Jones, Coshocton, Ohio. [Filed Oct. 31, 1876.]



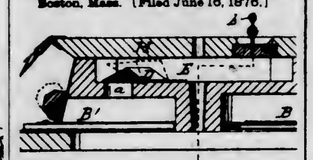
1. In a corn-planter, the combination, with the pivoted frame F, supported below the axle, and carrying the seed-boxes, of the lever G', chain G, and chain K', for elevating each frame and operating the cut-off simultaneously, substantially as described and shown.

2. In a corn-planter, the combination, with the pivoted frame F, chain S, and lever G', of the cut-off slides *i i*, rock-shaft K, and chain K', constructed and arranged substantially as described and shown.

3. In a corn-planter, the combination of the triangular furrow-openers and seed-spouts L L', the cutters L' L', and leveling-shovels M M, constructed and arranged substantially as described and shown.

4. In a corn-planter, the marking-arms Q Q', rigidly secured together, and pivoted to the frame of the machine, constructed and arranged substantially as described and shown.

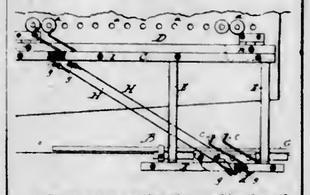
186,845. REED-ORGANS. George B. Kelly, Boston, Mass. [Filed June 16, 1876.]



1. The combination, with the ordinary stop of a set of reeds, of an additional stop, D, located within the chamber E, substantially as described.

2. The valve F, arranged to open inwardly to the chamber E, in which is a register, D, of a set of reeds, in combination with the ordinary reed register or stop, all arranged to operate substantially as herein shown and described.

186,846. REED-ORGAN COUPLERS. Geo. B. Kelly, Boston, and Oliver H. Arno, Cambridge, Mass. [Filed July 1, 1876.

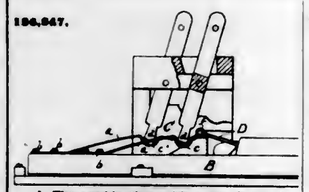


1. In an organ-coupler, the combination of the angular levers *b b'* and connecting-rods H, for operating the reed-valve, all constructed substantially as described.

2. In combination with the levers *b b'* and connecting-rods H, the rail C, constructed in two parts, *l m*, secured together as described, for the purpose set forth.

186,847. REED-ORGAN STOP-ACTIONS. G. B. Kelly, Boston, Mass. [Filed Aug. 17, 1876.]

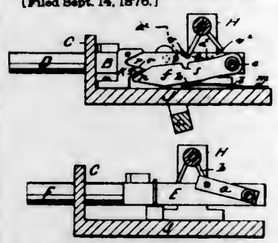
196,847.



1. The combination, with a stop lever, A, and slide-bar B, of an elastic connection, C, constructed and arranged to operate substantially as described.

2. The frictional roll *f* on register-arm D, in combination with slide-bar B, as and for the purpose specified.

196,848. REED-ORGAN STOP-ACTIONS. G. B. Kelly and Edw. L. Rand, Boston, Mass. [Filed Sept. 14, 1876.]



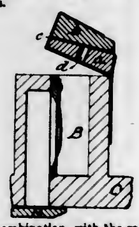
1. The combination, with the draw-stop of an organ, of the pivoted spring-arm *f* and the post E, having a rest, *g*, the whole constructed and arranged substantially as and for the object specified.

2. The combination of the shaft G, having one or more pairs of levers, *u u'*, the pivoted arms *f*, and the fixed rest *g*, the whole being constructed and arranged and interposed between the stops of an organ, as and for the object specified.

3. The combination, with an organ-stop, of the rest *b* and the pivoted spring arm *f*, the whole constructed and arranged as and for the purpose set forth.

196,849. REED-ORGANS. G. B. Kelly and E. L. Rand, Boston, Mass. [Filed Sept. 6, 1876.]

Brief.—The reed stop-valve is in two parts, hinged so as to fold upon itself. The under part, being perforated, can be used for softer effects by raising the upper half only. Novelty in the action of the valve-connections also exists.



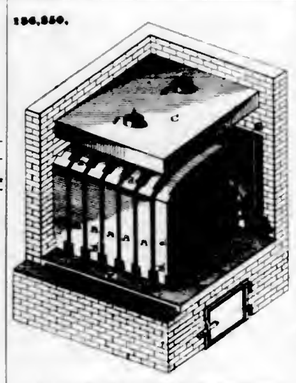
1. The combination, with the reed-block of a reed-organ, of a register hinged to the said block, and constructed in two parts, *a b*, hinged together at one edge, and the former part, *a*, having openings *d*, substantially as and for the purpose described.

2. The combination, with the board C, having the adjustable bearing *l*, and with the pallets L M of the reeds, of the horizontal lever N, centrally pivoted on said bearing *l*, and resting at its ends on the pallets, substantially as and for the purpose described.

3. The coupling-lever N, fulcrum *l*, and bent spring *m*, in the combination herein shown and described, for the purpose specified.

196,850. HOT-WATER HEATING APPARATUS. E. W. Kemplu, St. Louis, Mo., assignor to Jos. W. Branch, same place. [Filed Dec. 2, 1876.]

196,850.



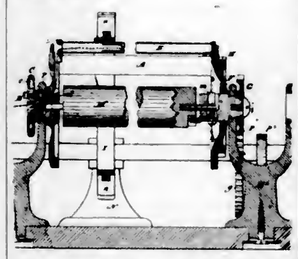
1. A sectional hot-water heating apparatus, consisting of the sections A A A A A A A, and the flues *d d d d d*, constructed, arranged, and operating substantially as described.

2. The combination of the sections A A A A A A A, the flues *d d d d d*, and the deflector C, arranged above the sections, substantially as described

3. The combination of the fire-place D, the series of flues *d d d d d*, and the detached deflector C, substantially as described.

196,851. ROVING-TWISTERS. J. S. Kirks, Chester, Pa., assignor of one-half of his right to E. Birtwell, same place. [Filed Sept. 9, 1876.]

Brief.—The roving is taken direct from draw-rollers, twisted and wound upon the bobbin by the twister-frame and rotating ring-carrier, said bobbin revolving within the twister-frame positively and independently thereof. The twister-frame and bobbin are mounted in bearings in the forks of standards, the gearing and gear-shafts being mounted in arms of same.



1. The combination, as hereinbefore set forth, of the twister-frame, the guide-ring or carrier revolving therewith, the bobbin adapted to revolve within said frame, the supporting-standard, the guideway in which said supporting-standard is reciprocated, and mechanism for imparting to the bobbin a positive rotary motion independently of said twister-frame, as and for the purposes specified.

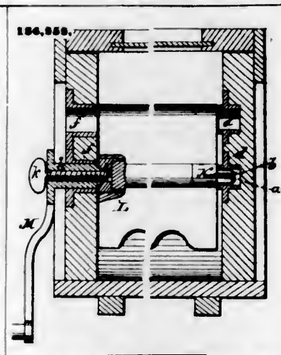
2. The combination of the forked and armed standards, the independently-revolving twister-frame and bobbin, supported in bearings in the forks of the standards, the gearing, and the gear-shafts, mounted in the arms of the standards, substantially as set forth.

196,852. BUTTER-WORKERS. E. D. Kitchen and E. W. Kitchen, Buckingham Township, Bucks County, Pa. [Filed June 20, 1876.]

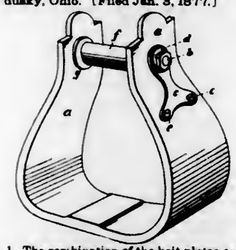
1. The butter-worker herein described, consisting of the straight paddle I and the corrugated or creased paddle J on the opposite sides of the center shaft H, as and for the purposes herein set forth.

2. The combination, with the butter-worker H I J, of the cap K, with hollow gudgeon *b*, fastened by the screw *a*, the boxes *d f*, cap L, with nut *e*, crank M, with hollow journal *k*, and swiveled thumb-screw *k*, substantially as and for the purposes herein set forth.

196,853.



196,853. STIRRUPS. Henry H. Knight, Sandusky, Ohio. [Filed Jan. 3, 1877.]

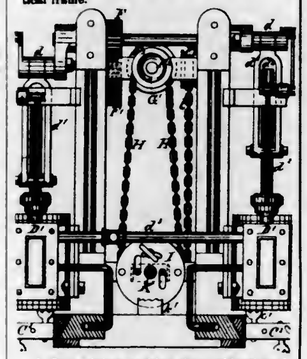


1. The combination of the bolt-plates *c*, constructed substantially as described; with the bolt *b* and stirrup *a*, substantially as and for the purposes set forth.

2. The combination of the sheave *f*, constructed with the flanges *g*, with the bolt *b* and stirrup *a*, substantially as and for the purposes set forth.

196,854. MINING-MACHINES. F. M. Lechner, Waynesburg, Ohio. [Filed Jan. 6, 1877.]

Brief.—An oblong frame slides longitudinally within another by the rotation of a nut or a central and longitudinal screw on the latter frame, the nut being driven by an endless chain and gearing on a vertical frame affixed to the sliding one. This latter has laterally placed on its front end a rotating head, with chisel and saw teeth along it. It is worked by an endless chain extending from the vertical frame.



1. In a mining-machine, the combination of the straight or chisel-edged cutters *d'* with the notched cutters *c'*, substantially as and for the purpose set forth.

2. In a mining-machine, the combination of a stationary screw and a detachable nut mounted in the sliding cutter-carrier, substantially as set forth.

3. In a mining-machine, the combination, with the sliding cutter-frame and a stationary

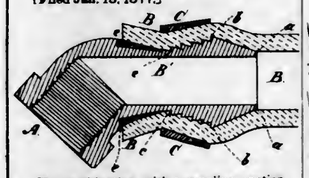
screw, of the sprocket-wheel G' and the divided nut, adapted to engage with the screw, substantially as set forth.

4. In a mining-machine, the combination, with the sliding frame which carries the cutter, of a screw and nut for advancing the cutter, and a shaft and rope for withdrawing the same, with the mechanism which drives the cutter, substantially as set forth.

5. In a mining-machine, the shaft L and rope F, in combination with the main frame, for withdrawing the cutters, substantially as set forth.

6. In a mining-machine, a cutter-frame, made hollow to conduct air from the driving-engine and deliver it near the cutter, substantially as set forth.

196,855. ATTACHING HOSE TO HOSE-COUPLINGS. Edwin A. Leland, Brooklyn, N. Y., assignor to L. Richardson, same place. [Filed Jan. 13, 1877.]



The combination, with a coupling-section, A, constructed with the tapering portions *a b*, *b c*, and *c e*, as described, of the tapering binding-ring C and the hose B, the whole co-operating substantially as and for the purpose herein set forth.

196,856. SHEET-METAL CANS. Edwin A. Leland, Brooklyn, N. Y., assignor to L. Richardson, same place. [Filed Dec. 26, 1876.]

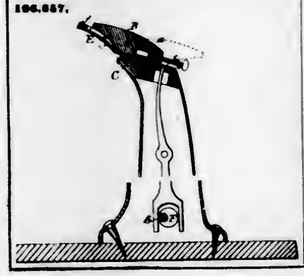
Brief.—Uses a strip of black or oxidized metal, (untinned iron,) having recently-cut, and therefore bright and unoxidized, edges, for a closing and ripping strip. Its sides refuse, and its edges accept, the solder; hence solder will not run alongside strip to unite (undesirably) cover directly to body.



1. The black sheet-metal strip C, having bright or unoxidized edges, soldered, respectively, to the circumference of the body A and that of the cover B of a sheet-metal can, substantially as set forth, for the purpose specified.

2. The black sheet-metal strip, having bright or unoxidized edges, soldered at its lower edge to the rib *a* on the body of the can, with an annular space, *f*, between itself and the said body, and with its upper edge at an appreciable distance below the upper edge of the body, the whole combined and arranged substantially as and for the purpose herein set forth.

196,857.

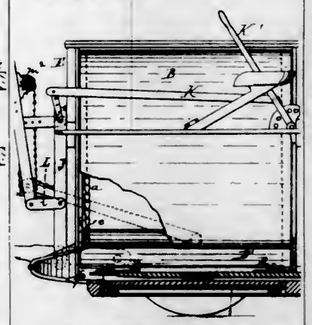


196,857. PEG-FLOATS. T. F. Lippengood, Gardner, Ill. [Filed Dec 5, 1876.]

1. In a peg-cutting machine, a reversible float or rasp provided with a device for locking it in either position, substantially as shown and described.

2. In a peg-cutting machine, the combination of the spring-bar *c* and the spring-stop *d* with the float or cutter, the stud, the reciprocating plate C, vibrating lever D, the rotating eccentric, and hollow standard, substantially as shown and described.

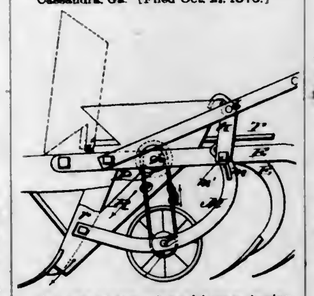
196,858. HARVESTERS. F. T. Lomont and J. O. Brown, Massillon, Ohio, assignors, by mesne assignments, of part of their right to E. Bayliss, same place. [Filed Oct. 14, 1875.]



1. The combination, with the tongue-pivot, of the adjusting wedge-piece *g' g'*, substantially as and for the purpose described.

2. The reel-posts supported by the pivoted links *i* and arms *k'*, in combination with the rock-shaft *k* and adjusting-lever K', substantially as and for the purpose set forth.

196,859. CORN-PLANTERS. Saml. P. Loyd, Cassandra, Ga. [Filed Oct. 21, 1876.]



In a corn-planter, a hinged hopper, having a regulating and cut-off slide, T, in combination with a dropping-wheel arranged below said hopper, substantially as and for the purpose set forth.

196,860. APPARATUS FOR THE HYDRATION OF CHLORINE GAS. W. Maynard, Philadelphia, Pa. [Filed May 16, 1876.]

Brief.—Gas is passed up through the tubes of the water-percolating plates, while water is showered down in the opposite direction, the tubes being cut away on one side, which permits the water to flow through on that side, while the gas is passed up on the opposite side. The water, saturated with gas, flows into a chamber below through a water-sealed tube. A chamber above the hydrating-chamber is filled with soda, potash, or lime, for absorbing escaping gas, and indicating when the hydrating-chamber is filled with gas. A central tube, having lateral openings, is for the admission of wash-water for cleaning the apparatus.

1. In an apparatus for hydrating gases, a case having an inlet for the water above, an inlet for the gas below, and provided with an intermediate water-percolating medium, combined with a reservoir located below the level of the water-percolating case, and having a water-sealed communication therewith, for the purpose described.

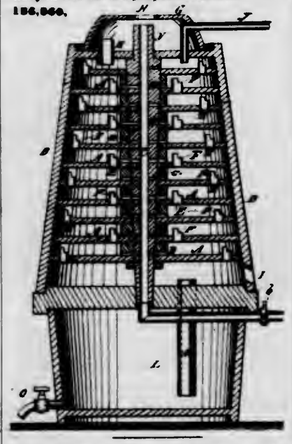
2. In an apparatus for hydrating gases of a greater specific gravity than the air, the combination of a conical circular case, B, a series of perforated plates, A, of constantly-diminishing diameters from bottom to top, a water-pipe, J, arranged at the top, and an inlet, I, for the gas arranged at the bottom, substantially as and for the purpose described.

3. The combination, with the plates A, of a continuous pipe, having lateral openings upon a level with the upper surface of said plates, as and for the purpose described.

4. In a machine for hydrating gases, the combination, with the absorption-chamber and a subjacent air-tight receiver, L, of a straight pendent pipe, M, forming communication between the said absorption-chamber and the receiver, and opening near the bottom of the latter, so as to permit the down-flow of the chlorine water, but seal the said receiver against the escape of free chlorine gas.

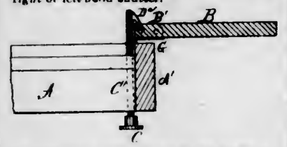
5. The dome G, having opening H, in combination with the absorption-chamber and the pipe K, forming a communication between the said absorption-chamber and dome, substantially as and for the purpose described.

196,860.



196,861. SHUTTER-WORKERS. W. C. McGill, Washington, D. C. [Filed Dec. 1, 1876.]

Brief.—A suitable operating-rod and slotted arm or connecting-link are so combined with an angle-plate and attaching pin or pins, placed in a recess formed in the under edge of the shutter, that the rod, sliding outward and inward by a continuous movement, opens and closes the shutter from the inside, and locks it in closed position, the device being likewise reversible, adapted for either the right or left hand shutter.

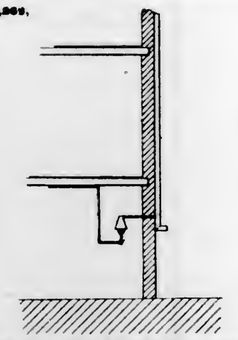


The improved shutter worker and fastener, consisting of plate G, provided with attaching-pin F, placed in recess B', operating-rod C, running crosswise through the sill A, arm D, slotted at E, and the shutter B, the whole arranged to open and close the shutter by a single continuous movement, substantially as herein shown and described, for the purpose set forth.

196,862. PREVENTING THE FREEZING OF WASTE-WATER PIPES. J. S. McMurtrie, Philadelphia, Pa. [Filed Jan. 10, 1877.]

Brief.—To prevent the accumulation of ice in, and the bursting of, wash-water pipes of dwellings and other buildings, heated air or the products of combustion, or both, are caused to pass through said pipes.

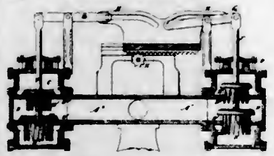
186,863.



The mode herein described of preventing the accumulation of ice in the waste-water pipes of dwellings and other buildings—that is to say, by directing heated air or the heated products of combustion, or both, to and through the pipes, as herein set forth.

186,863. VALVES FOR HYDRAULIC ELEVATORS. T. Meikle, Louisville, Ky. [Filed Aug. 7, 1876.]

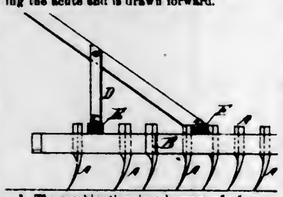
Brief.—The valves are connected to levers by stems running through stuffing-boxes, and are operated by means of slotted reciprocating arms moved by a rack and pinion.



In combination with the valves for induction and exit, attached to stems F F, the levers G G and slotted reciprocating arms H, for alternately actuating the valves, substantially as set forth.

186,864. COMBINED HARROW AND CULTIVATOR. Henry H. Miller, Newville, Pa. [Filed July 8, 1876.]

Brief.—The harrow-frame is formed with one end presenting an obtuse, and the other an acute, angle. The teeth are curved toward the obtuse end. The handles are made reversible. In cultivating the obtuse end is drawn forward, and in smoothing or harrowing the acute end is drawn forward.



1. The combination, in a harrow, of a frame pointed at both ends, but with one end sharper than the other, provided with reversible handles, and teeth curved toward the blunt end, as herein set forth.

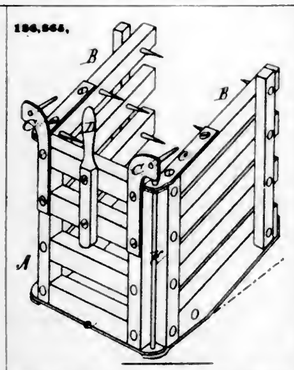
2. The teeth A, each having a square stock, *e*, and a triangular curved blade, *f*, with the concave face w flat, and the convex face bevsled to a sharp edge, *s*, as specified.

186,866. HARROWS. W. C. Moore, Cairo, Pa. [Filed Dec. 2, 1876.]

Brief.—The harrow consists of three sections hinged together. A curved iron bar extends rearwardly from each joist, and carries a tooth which covers the space occupied by the hinge-joint.

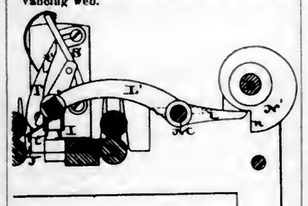
The rearwardly-extending curved or bent arms C, in combination with a folding harrow adapted to bear teeth in rear of the hinge-space between the sections, substantially as specified.

186,865.



186,866. BAG-MACHINES. M. Murphy and R. W. Murphy, St. Louis, Mo., said R. W. Murphy assignor to M. F. Murphy, same place. [Filed Dec. 23, 1876.]

Brief.—Paper-bag blanks are cut from the traveling web by means of a falling blade having a peculiar reciprocating movement, said blade starting from a position at, or nearly at, right angles to a fixed horizontal knife, striking downward in front of said fixed blade and then turning to nearly a horisontal position, so as to keep out of the way of the advancing web.



1. The combination of the blade J, head K, crank Q, stud *q*, guide S, stop T, having the projection *t'*, spring *t*, and extension *a*, substantially as described.

2. The combination of the arms L L', head K, blade J, crank P, studs *p* and *p'*, and band R, substantially as described.

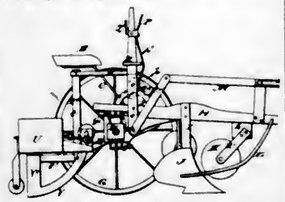
3. The combination of the arms L L', head K, blade J, crank P, studs *p* and *p'*, stud *q*, crank Q, guide S, stop T, having the projection *t'*, spring *t*, extension *a*, and band R, substantially as described.

4. The combination of the shaft D, cams N N', arms L L', shaft M, blade J, head K', arm *o*, and spring O, substantially as described.

5. The combination of the shaft M, arm *o*, spring O, arms L L', head K', and blade J, substantially as described.

186,867. SULKY-PLOWS. W. B. Newman, Pittsville, Mo. [Filed Sept. 2, 1876.]

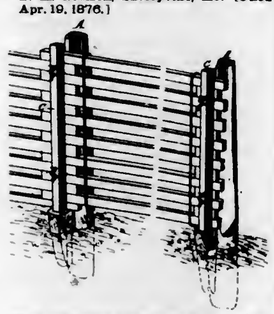
Brief.—The frame which supports the plow is mounted on two wheels. The plow-beam is secured to the frame by a ball-and-socket joint. The tongue is pivoted to the frame so as to have vertical motion. A compound lever is connected both to the plow-beam and rear end of the tongue, by which the various motions of the plow are governed.



1. The combination of adjusting-lever O with the draft-tongue, the pivoted plow-beam, and the bars *o'*, whereby said lever is adapted to adjust the draft-tongue vertically, and the plow-beam and plow laterally, substantially as set forth.

2. The combination of lever O with pivoted plate Q and loop R, having rack *r*, and with plates *o o*, rod *p*, and segmental rack O^2, substantially as and for the purpose set forth.

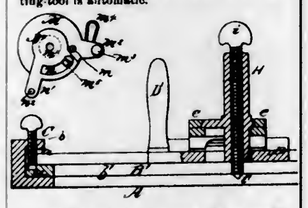
186,868. FARM-FENCES. H. C. Ogle and D. M. Robison, Shelbyville, Mo. [Filed Apr. 19, 1876.]



The combination of the posts A, secured in the ground, and having apertures, as described, the short stakes B, secured at the side of the post A, the vertical rails C, resting at their lower ends upon the short stakes B, the horizontal rails arranged between the posts A and vertical rails C, and the wires or cords D passing through the openings in the posts A, and secured around the vertical rails, as and for the object specified.

186,869. MILLSTONE-DRESSING MACHINES. J. Orff, J. C. Cookson, and L. Rastetter, Fort Wayne, Ind. [Filed July 15, 1876.]

Brief.—Devices for vertical and lateral adjustment of the cutting-tool are provided, whereby the various inclinations of the furrows are made. The lateral movement of the cutting-tool is automatic.



1. The combination of frame B, vertically adjustable at one end thereof, and grooved as shown, with longitudinally-sliding carriage D and hinged cross-frame E, vertically adjustable at one end thereof, substantially as and for the purpose set forth.

2. In a millstone-dresser, the combination, with a bed-plate, A, of the adjustable frame B, and the vertically-adjustable cross-frame E, causing a tool-frame, substantially as and for the purpose set forth.

3. The combination of screw-threaded adjusting-rod J, and flanged disk or drum K, with loose binding-piece L, spring *l*, pin F, face-plate M, rod m^2, and tripping-piece rod or lever O, substantially as and for the purpose set forth.

4. The combination of plate N, having curved slot *n*, with binding-piece L, connecting devices, drum K, adjusting-rod J, and actuating rods and levers, substantially as and for the purpose set forth.

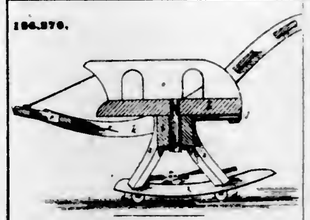
186,870. CHAIRS. F. L. Patch, Florence, Mass. [Filed July 10, 1876.]

1. The combination of the pivoted cranked levers *c*, connecting-rods *e*, and transverse cranked shaft *f* with the legs and seat of a chair, substantially as described, and for the purpose set forth.

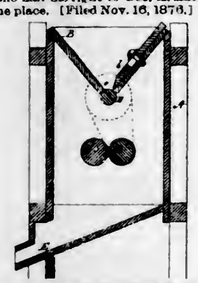
2. In combination, the seat and arms *h c*, the extension-frame *k*, the foot-rest *p*, sliding in the extension-frame, and the connecting-rods *i*, all substantially as described, and for the purpose set forth.

3. In combination, seat *h*, pintle *g*, hub *i*, legs *c*, and slide *j*, substantially as described, and for the purpose set forth.

186,870.

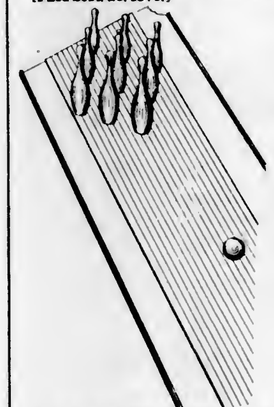


186,871. PROCESSES OF TREATING BRAN. E. O. Pease, Minneapolis, Minn., assignor of one-half his right to Geo. H. Eastman, same place. [Filed Nov. 16, 1876.]



The process herein described for treating bran, the same consisting of compressing and solidifying it between rollers preparatory to regrinding it, substantially as and for the purpose set forth.

186,872. GAME APPARATUS. W. Pitman and C. F. Jacobson, New York, N. Y. [Filed Sept. 26, 1876.]



A game apparatus, consisting of a set of toss-pins made of solid rubber or other soft and elastic material, and balls made of similar material, substantially as described, whereby the noise in bowling is avoided, and the wear of the bowling-alley, the pins, and balls reduced, as specified.

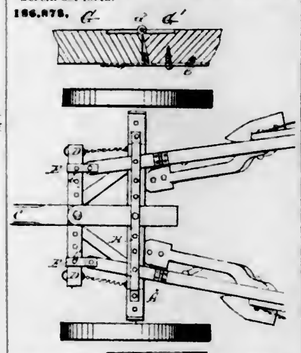
186,873. COMBINED CULTIVATOR AND CORN-PLANTER. Jos. F. Poole, Monroe, Wis., assignor of one-half his right to E. C. Gillett, same place. [Filed Dec. 21, 1876.]

Brief.—The hinged cultivator-beams are attached to the double-tree by means of stirrups, and are confined between the axle and guard. The depth to which the plows enter the ground is graduated by adjustable flanged plates on the under side of the beams.

1. The cultivator-beam herein described, made of two parts, G G', hinged together, and provided with the adjustable flanged plate *e*, for regulating the depth at which the plow is to work, as set forth.

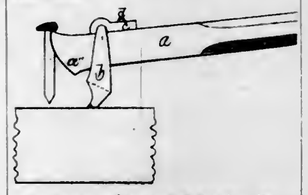
2. The combination of the tongue C, double-tree D, with adjustable stirrups E E, jointed cultivator-beams G G', axle-tree A, and guard H, all substantially as and for the purposes herein set forth.

186,874.



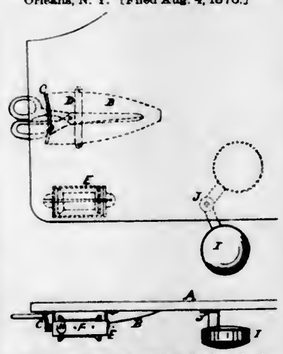
186,874. SPIKE-PULLERS. M. S. Prentice, Rockford, Ill., assignor to himself and T. Hennessey, same place. [Filed Aug. 17, 1876.]

Brief.—Spikes can be drawn without bending by means of a claw-bar having a split toe and a rounded heel-fulcrum, and a rectangular link having its lower forward edge serrated, serving as a swinging fulcrum, and secured upon the face of the bar by a grooved cap and screw-bolt.



A spike-puller composed of the claw-bar lever *a*, with the claw *a'* at the toe, a rounded heel-fulcrum, a'', and the swinging-link fulcrum *b*, having its bearing-edge *c* toothed or serrated, as and for the purposes described.

186,875. LAP-BOARDS. George L. Price, Orleans, N. Y. [Filed Aug. 4, 1876.]



1. In combination with a lap-board, the shears-pocket B, with its metallic mouth C and retainer D.

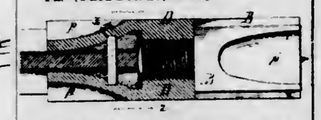
2. In combination with a lap-board, the spool-holder E, when constructed with its tension-holes F and cutter-B, substantially as shown.

3. The combination of the shears-pocket B and spool-holder E, when constructed and arranged in connection with the lap-board A, substantially as herein set forth and described.

186,876. COMPOSITION ALLOYS. F. Raymond, Greenville, S. C., assignor of one-half his right to M. J. Calnan, same place. [Filed Aug. 29, 1876.]

A composition consisting of metals or metallic alloys, in combination with nitre and duxes, substantially as described.

186,877. LIGHTNING-ROD COUPLINGS. W. S. Reyburn and F. J. Martin, Philadelphia, Pa. [Filed Dec. 20, 1876.]

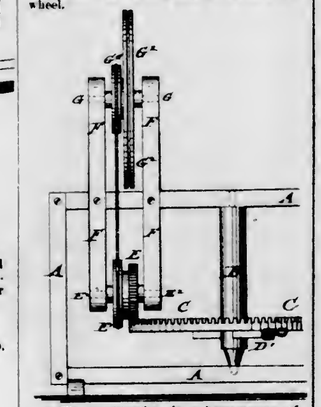


1. The mode described of connecting each portion of the coupling to the rod—that is to say, by indenting opposite sides of the said socket, and forcing them against pins or projections on the rod, as set forth.

2. The combination of two rods each having near the end a pin or projection, *x*, with the two parts B and D of the coupling constructed to be screwed together, and having sockets adapted to and compressed to the rods and pins, all substantially as set forth.

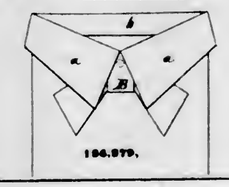
186,878. HORSE-POWERS. R. C. Rhodes and Wm. F. Holden, Crawfordsville, Ga. [Filed Jan. 6, 1877.]

Brief.—Centrally in a vertical rectangular frame is a horizontal wheel, gearing with a pinion which drives a drum, the belting from which works another overhead drum and a fly wheel.



1. The combination, in a horse-power, of main frame A, supporting king-post, and main drive-wheel, with an upright frame, F, extending above and below the main frame, and carrying connected pinion and band-wheel at the lower end, and the jointly-revolving band-wheel and fly-wheel at the upper end, substantially in the manner and for the purpose set forth.

2. In a horse-power for cotton-gins, the combination of main cog-wheel C with pinion E and band-wheel E^1, attached to each other, and revolving in bearings at lower end of upright frame F, and with a transmitting-belt, band-wheel, and weighted fly-wheel at the upper end of frame F, the band and fly wheels being also keyed to each other, to revolve jointly with the lower wheels, substantially in the manner and for the purpose set forth.

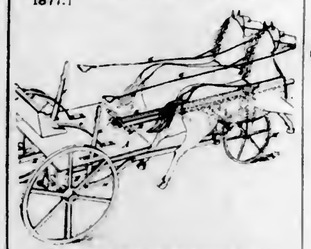


186,879.

196,879. SAMPLE-CARDS FOR NECK-TIES. D. Richter, New York, N. Y. [Filed Jan. 11, 1877.]

A sample-card for bows or neck-ties, one end of which is cut with flaps *a a*, and with a band, *b*, which, when folded in the proper manner, produce the shape of a shirt-collar, substantially as herein shown and described.

196,880. TOY HORSE AND CARRIAGE. A. Q. Ross, Cincinnati, Ohio. [Filed Jan. 11, 1877.]



1. The combination, substantially as specified, of a toy galloping horse, mounted upon a carriage, and intermediate means between the horse and the propelling devices of the carriage, whereby the galloping of the horse will cause the propulsion of the carriage, or vice versa.

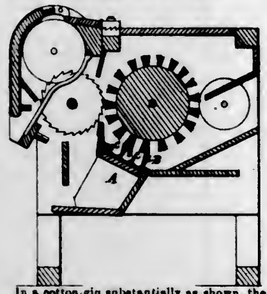
2. The combination, substantially as specified, of the galloping horse, the wheels of the carriage, mechanism for transmitting the motion from one to the other, and propelling means under the control of the rider.

3. The combination, substantially as specified, of the galloping horse, the reins for actuating it, the wheels of the carriage, and intermediate mechanism for transmitting motion from the horse to the wheels.

196,881. COMPOSITIONS FOR FIRE-PROOFING. W. J. Ryokman, Brooklyn, assignor to himself and F. B. Burt, New York, N. Y. [Filed Dec. 18, 1876.]

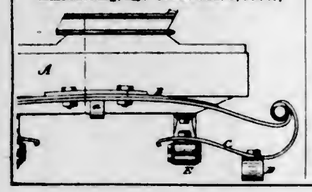
A sizing compound for fire-proofing fabrics and bringing out the subsequently-applied paint, consisting of equal parts of borax, alum, and muriate of ammonia, as described.

196,882. COTTON-GINS. Peter C. Sawyer, Macon, Ga. [Filed June 20, 1876.]



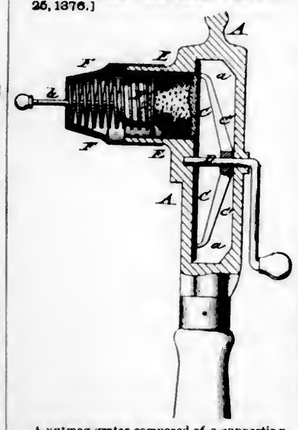
In a cotton-gin substantially as shown, the whipping-bed A, provided with a series of alternating rows of upright brushes, B, and metallic bars or blades C, constructed and arranged to operate substantially as and for the purposes herein set forth.

196,883. VEHICLE-SPRINGS. W. W. Sayers, Harrodsburg, Ky. [Filed Jan. 6, 1877.]



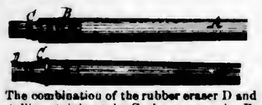
In combination with the vehicle-body and scroll and side springs, the cross-springs E, attached to the body and scroll-springs, as shown and described.

196,884. NUTMEG-GRATERS. H. Scheibel, Bridgeport, Conn., assignor to himself and J. Schneider, same place. [Filed Nov. 25, 1876.]



A nutmeg-grater composed of a supporting main frame, A, with socket or receptacle E, a revolving grating-disk, C, and a spring-acted follower, F', for pressing the nutmeg on the disk, substantially as and for the purpose set forth.

196,885. COMBINED ERASER AND PENCIL-P. Schrag, New York, N. Y. [Filed Aug. 26, 1876.]



The combination of the rubber eraser D and metallic retaining-tube C, the paper tube B, and pencil A, the said paper tube serving to secure the metallic tube C with its eraser to the pencil, substantially as described.

196,886. COIN-WRAPPERS. E. A. Scott, San Francisco, Cal. [Filed May 17, 1876.]



A coin-wrapper consisting of an envelope perforated with holes B B', and so arranged in alternate rows as to expose the contents of the whole package without unrolling it, substantially as specified.

196,887. FIRE AND POLICE ALARM SIGNAL APPARATUS. C. Selden, Cincinnati, Ohio, assignor to himself and S. P. Peabody, same place. [Filed May 26, 1876.]

1. In a fire and police alarm signal circuit, the combination of the loop B C, connected by split to single main battery through differential relay, ground-connection at battery, and ground-connection at signal-box A, suitably controlled, to at times break connection with the loop, the whole connected to operate for the purpose specified.

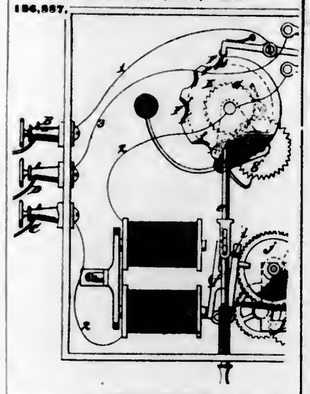
2. In a fire-alarm-signal circuit, the combination, with the loop B C and ground D, of operating-wheel E F *f f'* and lever H, connected to operate for the purpose specified.

3. In a fire-alarm-signal circuit, the combination, with wheel E *e'* and spring-stop *s*, of a relay, I, in main circuit, having armature I', connected with movement J *j* and the said stop *s*, the whole connected to operate for the purpose specified.

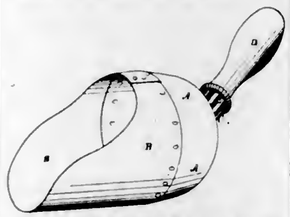
4. In combination with loop-circuit B C, the secondary battery 7, resistance 6, and bell-relay 8, the whole connected and operating substantially as and for the purpose specified.

5. In combination with loop B C, connected through differential relay by split to common end of main battery, and having ground-connections, as described, the adjustable rheostats 9 and 10, connected and operating substantially as and for the purpose specified.

196,887.

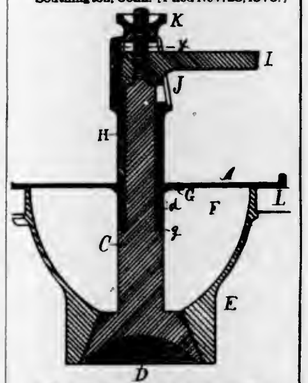


196,888. GROCERS' SCOOPS. W. T. Sherer, Chicago, Ill. [Filed Dec. 26, 1876.]



As a new article of manufacture, a grocer's scoop, in which the blade is constructed of or from sheet-steel, substantially as and for the purpose specified.

196,889. COFFEE-MILLS. Amos Shepard, Southington, Conn. [Filed Nov. 23, 1876.]



1. The swinging cover A, provided with a pivot-bearing and a curved slot made concentric with said bearing, substantially as described, and for the purpose set forth.

2. The cover A, provided with a pivot-bearing, and a curved slot made concentric with said bearing, in combination with a correspondingly curved portion of the cross-bar G, substantially as described.

3. In a grinding-mill, the slotted and chambered collar J, receiving and covering the head of the crank, and allowing it to move up and down within said chamber, substantially as described.

4. The slotted and chambered collar J, crank I, passing through the slot of the collar, and having its head within the chamber of said collar, in combination with the grinding-nut, shank, and screw D O A, loose collar H, and adjusting-nut K, surmounting the whole, substantially as described.

196,890. SCREW-CUTTING DIES. Albert J. Smart, Greenfield, Mass. [Filed May 10, 1876.]

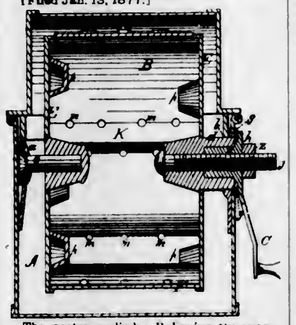
Brief.—The screws are inserted at the line of parting of the two sections of the die, and, consequently, the one holds the two parts together and to the bottom plate, while the other, by its conical head, adjusts them by forcing them more or less apart within the adjustable stock.



1. A jointed fastening for the parts of the die consisting of a cup-headed screw filling, within corresponding recesses cut in the parts of the die, as and for the purposes described.

2. The combination of the interposed cup-headed screw, the interposed taper-headed screw, and the parts of the die, as and for the purposes described.

196,891. WASHING-MACHINES. Geo. Snell and Dennis J. McDermott, Theresa, N. Y. [Filed Jan. 13, 1877.]



The washing-cylinder B, having the re entering ribs *k*, perforated at their junction with the cylinder-wall, and, in connection therewith, the heads E, having the turning-knobs *p*, arranged alternately at opposite ends of successive recesses between said ribs, substantially as specified.

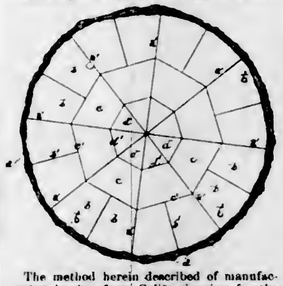
196,892. COMBINED SACK-HOLDER AND SACK-FILLER. F. Sondermeyer and F. Schindler, Perryville, Mo. [Filed Nov. 4, 1876.]

1. The combination, with hopper I, having arms M, and the U-bar J, having pins K, of the slides E I, connected by cords with shaft C, as and for the purpose described.

2. The combination, with an incased elevator, of a wheeled base, open in front, and there provided with outwardly-inclined plates D', as shown and described, for the purpose specified.

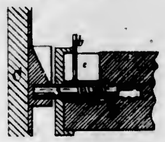
196,893. METHODS OF SAWING LUMBER. J. Springer, San Francisco, Cal. [Filed Aug. 29, 1876.]

Brief.—Good merchantable doors, which do not shrink and swell, warp and twist, and which hold the paint under all atmospheric exposures, are produced from California pine.



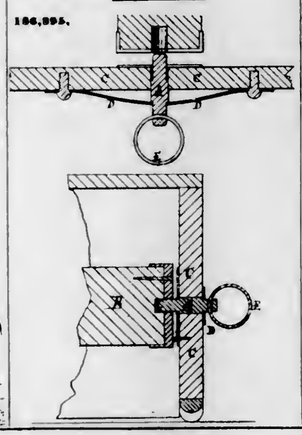
The method herein described of manufacturing lumber from California pine, for the purposes set forth, consisting in splitting the logs radially into sections, then subdividing them crosswise along the line of the layers into smaller pieces, and then sawing such smaller pieces into boards across the line of the layers, substantially as described.

196,894. CARPET-SWEEPERS. A. W. Stewart, Boston, assignor to J. J. Haley, Newton, and Henry C. Morse, Boston, Mass. [Filed June 27, 1876.]

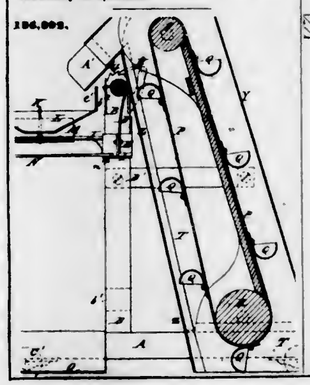


In combination with the frame of a carpet-sweeper and the brush-shaft, the spindle A, adapted to move longitudinally in an axial perforation of the brush-shaft, and operated by the spring *a* or the pin *b*, substantially as and for the purpose set forth.

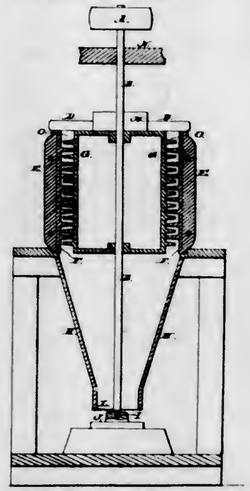
196,895.



196,895.



196,895. CLAY-PICKING MACHINES. R. W. Stieneker, Evansville, Ind., assignor of one-half his right to C. E. Marsh, same place, and W. B. Brown, Washington, D. C. [Filed Dec. 14, 1876.]



1. In a clay-picker for preparing clay for dry-pressed brick, the vertically-placed cylinder G, provided with rows of teeth on its convex surface, and the cylinder F, provided with like rows of teeth on its concave surface, when said cylinders are parallel to each other, and so arranged with reference to each other that by the revolutions of one or both, their respective different rows of teeth pass between each other, as and for the purposes specified.

2. The outer hollow vertically-placed cylinder, provided with teeth on its inner or concave surface, and constructed in two sections, so that said outer cylinder may be taken apart by separating the sections, for the purpose of cleaning or repairing the picker, as described.

3. The arrangement of the hopper C directly over the space between the cylinders F and G, so that the clay passes directly downward into said space, and is fed to the picker in one spot, and discharged freely throughout the entire space at the bottom of the cylinders, thereby insuring uniformity in the pulverization of the clay, as and for the purposes specified.

4. The combination of the hopper C, the cylinders F and G, provided with teeth on their respective concave and convex surfaces, the said cylinders open throughout the entire space at their bottom, all arranged in the manner as and for the purposes specified.

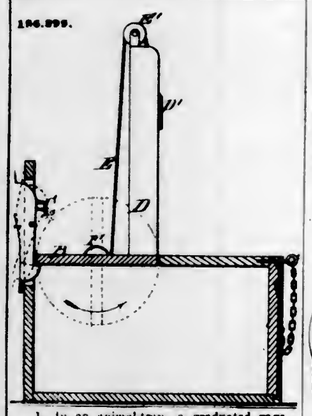
196,897. CHURN-DASHERS. C. J. Syme, Petersburg, Va., assignor to himself and P. T. Young, same place. [Filed Aug. 3, 1876.]

Drawing Omitted.

The conical dasher A, having socket *b*, partition *a*, and rod *c*, in combination with the perforated plate B, located upon the outside of the dasher A, near the apex, and the perforated plate C, detachably mounted upon the rod *c*, inside the dasher A, substantially as and for the purpose described.

196,898. ANIMAL-TRAPS. S. T. Stout, Cedar Grove, Ga., assignor of one-third his right to Wm. C. Kilgore, same place. [Filed Nov. 18, 1876.]

186,899.

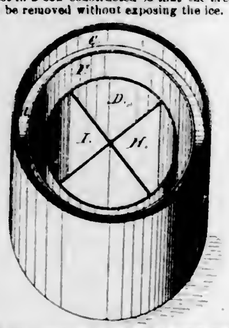


1. In an animal-trap, a graduated gage, by means of which the number of animals entrapped is indicated, substantially as described.

2. In an animal-trap, the graduated standard D, in combination with the weight D', cord E, pulley E', trigger B', and tilting platform B, as and for the purpose set forth.

186,899. ICE-CREAM RECEIVERS. Jas. D. Taber, Stoughton, Mass. [Filed Apr. 10, 1876.]

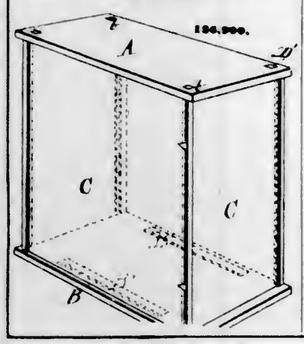
Brief.—The ice-cream holder is divided by movable partitions, to enable the vender to carry different kinds of creams or ices. This is set in a box constructed so that the cream can be removed without exposing the ice.



1. The combination of an ice-cream can or holder, G, provided with movable partitions and bottom, with a refrigerating-box, substantially as set forth.

2. The combination of the movable partitions and bottom G, H, and I, as arranged and constructed with the cream-can D, substantially as set forth.

186,900.

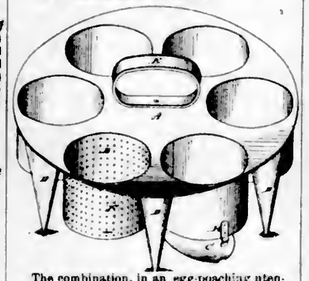


186,900. HONEY-BOXES. H. N. Tennant, Fredonia, N. Y. [Filed Aug. 5, 1876.]

1. As an article of manufacture, corner piece or standard D, having two longitudinal channels d^1 d^2, which are at right angles to one another, and extensions D', substantially as set forth.

2. The standards D, having end extensions D' and longitudinal channels d^1 d^2, in combination with top piece A, bottom piece B, and glass plates C, constructed substantially as and for the purpose set forth.

186,901. EGG-POACHING UTENSILS. E. C. Townsend and A. Washburne, New York, N. Y. [Filed Mar. 10, 1876.]



The combination, in an egg-poaching utensil, of a series of perforated receptacles with the movable bottoms, permitting the removal of their contents through the lower ends of the receptacles, substantially as shown and described.

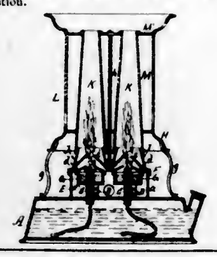
186,902. WASHING-MACHINES. Horace N. Tucker, Stoughton, Mass. [Filed Apr. 10, 1876.]

1. The combination of a roller, E, provided with alternating circumferential depressions and elevations, and with longitudinal corrugations formed in said elevations, with one or more circumferentially-corrugated rollers, D, as constructed and arranged with relation to each other, for the purposes set forth.

2. The roller E, having transverse elevations and depressions of equal width, height, and depth, and provided with longitudinal slots in the elevations, as shown, in combination with one or more rolls, D, having corresponding elevations and depressions, and so arranged relatively to the upper roll as to mesh therewith throughout its whole extent, as and for the purpose specified.

186,903. COAL-OIL STOVES. J. W. Underwood, Aurora, Ill. [Filed July 24, 1876.]

Brief.—Air enters the reservoir under the caps, and, mingling with steam, passes upward through the caps to the point of combustion.



1. The combination, with the wick-tubes C C and water-reservoir G G, as described, of the deflecting-cones c c and caps d d, arranged to form the air-spaces s, substantially as and for the purpose specified.

2. The combination, with the chimneys K K, of the cones J J, provided at each end with the openings s, communicating with the air-spaces s, immediately under the deflecting-cones c c, respectively, substantially as and for the purpose specified.

3. The combination, with the wick-tubes C C, of the water-reservoirs G G, caps d d, covers J J, deflecting-cones c c, chimneys K K, caps F and M', jacket L, and bolts h h, all united and arranged to operate together, as and for the purpose specified.

186,904. MANUFACTURE OF SCREW-THREADED RODS. S. Vanstone and J. W. Hoard, Providence, R. I. [Filed June 26, 1876.]

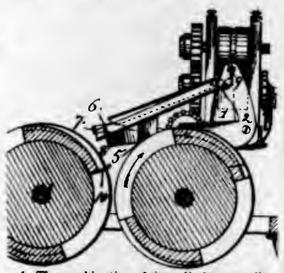


1. The improved method of making screw-threaded rods, consisting in rolling the metal to a somewhat oval form, with grooves on two opposite sides, and then passing the same between rolls having semi-cylindrical grooves that are obliquely scored or chased, said scores being such as to produce the spiral thread, as set forth.

2. A screw or screw-blank, having crescent-shaped eccentric threads projecting from a cylindrical stock.

3. A continuous rod for screws or nails, rolled with raised threads thereon, alternating with cylindrical or unthreaded portions, as and for the purpose described.

186,905. MACHINES FOR MAKING SCREW-BLANKS. S. Vanstone, Providence, R. I., assignor of one-half his right to John W. Hoard, same place. [Filed Sept. 4, 1876.]



1. The combination of the cylinders or rolls, constructed as described, for rolling screw-blanks.

2. In combination with die-rolls, constructed and operating as described, an adjustable automatic wire-feeding device, and an automatic wire-cutting apparatus, adapted for feeding and severing the wire in the desired lengths, preparatory to rolling and shaping.

3. In combination with the die-rolls, provided with catch-pieces 10, operating as described, the chute 6, the automatic forks or detainers 8, and an automatic gate, 7, operating to hold, position, and deliver the rod or piece of wire to the die-rollers at the proper juncture in their revolutions, substantially as and for the purpose set forth.

186,906. MACHINES FOR MAKING SCREW-THREADED STOCK. S. Vanstone, Providence, R. I., assignor of one-half his right to J. W. Hoard, same place. [Filed Sept. 2, 1876.]

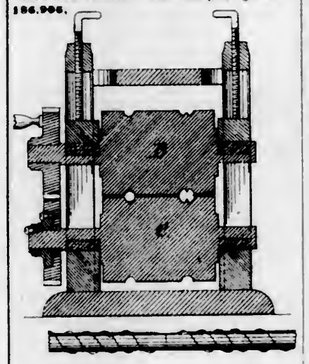
1. In a machine for making a thread or threads on a continuous wire, shaping-rollers, provided with grooves, adapted to impart to the wire a form somewhat elliptical in cross-section, and having longitudinal grooves therein, substantially as shown and described.

2. In a machine for making a thread or threads on a continuous wire, shaping-rollers, provided with grooves having diagonal scores

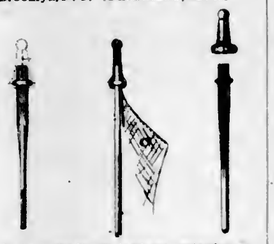
therein, and adapted to produce a true cylindrical stock, having raised threads thereon, alternating with the cylindrical unthreaded portions, substantially as and for the purpose set forth.

3. The combination, with a pair of geared rolls, each provided with diagonal scores *j* therein, for the purpose described, of an adjustable link, applied to the shaft and to the gear of one of such rolls, whereby the scores of the two rolls may be adjusted relatively to each other without disconnecting the gears.

186,906.



186,907. UMBRELLA-RIB TIPS. A. A. Valentine, New York, and H. A. Morrison, Brooklyn, N. Y. [Filed Jan. 9, 1877.]

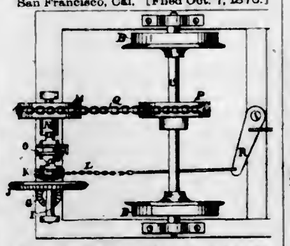


1. An umbrella-rib having a projection, as described, in combination with a tip having an approximately flat shape, and a recess or projection corresponding to the projection or recess of the rib, substantially as set forth.

2. An umbrella-rib having a shoulder struck up on one side, near its end, forming a recess on the opposite side, in combination with a clamping device for holding the covering of an umbrella over and upon said shoulder, as set forth.

3. An umbrella-rib having a flattened outer extremity and a shoulder or recess, as described, in combination with a clamping-tip of an approximately flat shape, for confining the covering of an umbrella over and upon said shoulder, or in said recess, substantially as set forth.

186,908. CAR-STARTERS. Saml. S. Vollum, San Francisco, Cal. [Filed Oct. 7, 1876.]

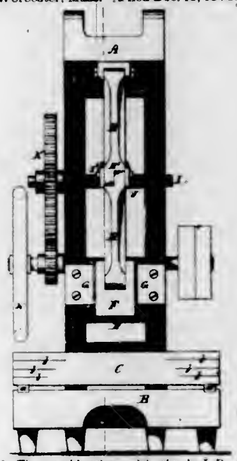


1. The upright shaft E, supported in the upright hollow standard D, and having the hand-wheel F on its upper end and bevel-wheel G on its lower end, in combination with the horizontal shaft I, with its bevel-wheel J, spool K, and clutch O, said clutch being operated by the foot-lever R, substantially as and for the purpose described.

2. The horizontal shaft I, supported beneath the car, parallel with the axle C, and having a chain-pulley, M, secured upon it, said chain-pulley being connected, by means of an endless chain, Q, or equivalent device, with a chain-pulley, P, on the axle, in combination with the sliding clutch O, bevel-wheel J, and upright shaft E, with its hand-wheel F and bevel-gear wheel G, all combined and arranged substantially as and for the purpose described.

3. A car-starter arranged to be operated by the driver of the car by applying hand-power to the brake-wheel F, and transmitting the same by means of suitable mechanism to a chain-pulley, M, which is connected, by an endless chain, Q, with a chain-pulley, P, on the axle C, or by other equivalent connection, substantially as and for the purpose described.

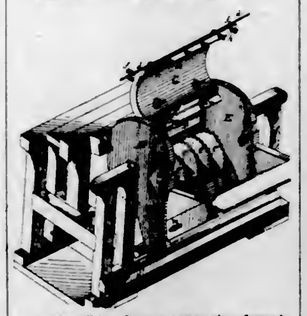
186,909. PRESSES FOR MOLDING THE SOLES OF BOOTS AND SHOES. Jos. H. Walker, Worcester, Mass. [Filed Dec. 15, 1876.]



1. The combination, with the bed B and mold or die D, of the wood pillow-bar C, supported at *a a*, and checked or kerfed at *b b*, substantially as and for the purpose set forth.

2. In combination and relative arrangement, as herein shown and described, the frame A, bed B, crank shaft I, pitman J, toggle-levers H H, slide F, molds or dies E D, and wood pillow-bar C, provided with checked or kerfed ends, all constructed and operating as and for the purposes set forth.

186,910. COTTON-GINS. W. C. Watson, Albany, Ga. [Filed Oct. 26, 1876.]



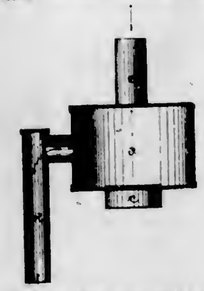
1. The roll-box for saw cotton-gins, formed with the side pieces E, condenser D, hinged front G, provided with brushes *h*, in combination with the feed-rack I, substantially as and for the purposes herein set forth.

2. In combination with a roll-box having a bottom feed, the hinged front G, provided with apertures *a*, with slides *b*, for the purposes herein set forth.

3. The adjustable hinged front G, provided with the screw-threaded rod *d* and nuts *f*, in combination with the slots *e* in the side pieces E, as and for the purposes herein set forth.

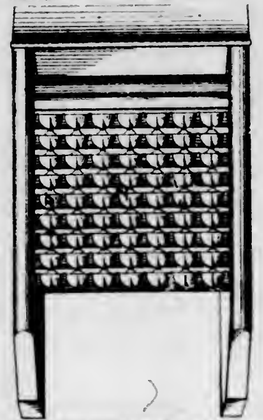
186,911. PORTABLE HEATERS. M. Waterbury, Mason City, Iowa. [Filed Aug. 2, 1876.]

Brief.—Adapted to be placed on the top of a stove.



A portable heater to be applied to stoves, consisting of the chamber *a*, cold-air pipe *d*, and hot-air pipe or pipes *e*, the cold-air pipe being made to extend down near to the floor, so as to cause a constant circulation of air in the room, as shown and described.

186,912. WASH-BOARDS. Thos. M. Webb, Norwalk, Ohio, assignor to L. T. Farrand same place. [Filed Dec. 4, 1876.]



1. The acorn-shaped projections formed on the upper face of the main transverse corrugations of a wash-board, substantially as described.

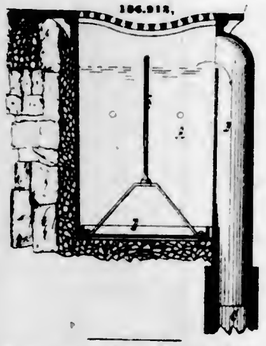
2. The triangular figures embossed on the lower face of the transverse corrugations, said figures having their bases seated in the grooves between the corrugations, and their apices terminated by the summits of the latter, substantially as described.

3. As a new article of manufacture, a sheet-metal wash-board, having a series of longitudinal projections formed on the ridges of the main transverse corrugations, and intermediate an alternate series of acorn-shaped and triangular projections, respectively embossed on opposite faces of transverse corrugations, substantially as described.

186,913. SILT-BASINS. J. Waidenmann, New York, N. Y. [Filed Sept. 2, 1876.]

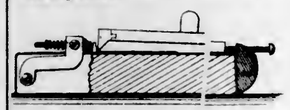
The combination of the silt-basin A, vertical overflow-pipe B, and waste-pipe C, the end of the overflow-pipe being made to slide within the waste-pipe, and all constructed and arranged to operate substantially as described.

186,913.



186,914. MACHINES FOR FOLDING GOLD-FOIL FOR DENTAL PURPOSES. R. S. Williams, New York, N. Y. [Filed Dec. 28, 1876.]

Brief.—The foil is placed upon a leather-covered bed-plate, and pushed up, in folds of defined width, against a hinged stop, which, by means of serrations connected with it, retains the folded sheet until thrown off by a releasing device.



1. A device for folding dental foil, consisting of a bed-plate, three of its sides provided with guides, and an adjustable stop with serrations, and with a detaching-bar with springs, and a folding-plate with a beveled head and cleat, substantially as and for the purpose described.

2. In a device for folding dental foil, a sliding folding-plate with a beveled head, substantially as and for the purpose described.

3. In a device for folding dental foil, a hinged stop, substantially as and for the purpose described.

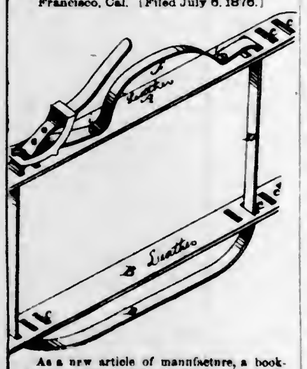
4. In a device for folding dental foil, a stop combined with a detaching-plate, substantially as and for the purpose described.

5. In a device for folding dental foil, a detaching-bar, with devices for retaining the folded foil, substantially as described.

6. In a device for folding dental foil, a bed-plate with guiding-ledges on three of its sides, substantially as and for the purpose described.

7. In a device for folding dental foil, a bed-plate with an adjusting-screw, whereby the throw of the folding-plate may be adjusted, substantially as described.

186,915. BOOK-CLAMPS. G. T. Wood, San Francisco, Cal. [Filed July 6, 1876.]



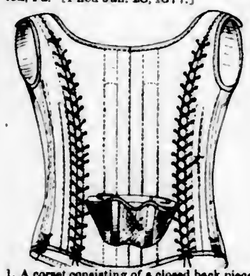
As a new article of manufacture, a book-clamp composed of the flexible braces A B, provided with adjusting-slots c c c, and a single strap, D, fastened to A by rivets i i, so as to form a handle, f, as set forth.

186,916. EYELETS. S. W. Young, Providence, R. I. [Filed Aug. 4, 1876.]



The eyelet A, having the inwardly-turned teeth a, at the top of its tubular portion, and the slits b, extending from the bottom of such serrations to, or nearly to, the base-flange c, substantially as specified.

186,917. CORSETS. Emma S. Reed, Scranton, Pa. [Filed Jan. 23, 1877.]



1. A corset consisting of a closed back piece, extending at each side over the shoulders and front pieces, united to and forming with said back piece rear shoulder-pieces, the back and front pieces being separated from each other from a point at or near the shoulders to the bottom of the corset, and adjustably connected together by means of lacings, substantially as described.

2. In a corset, the back and front pieces, divided as described, adjustably secured by lacings and united at the shoulders, forming a rear shoulder-piece, in combination with the front shoulder-piece, substantially as described.

3. In combination with a corset, the skirt-support consisting of an inclosed pocket, distended by V-shaped springs, and adapted to be secured to the back of the corset, substantially as described.

REISSUES.

7,477. MACHINES FOR SETTING TEMPLE-TEETH. N. Chapman, Hopedale, Mass., assignor, by mesne assignments, to the Dutcher Temple Company. Patent No. 166,719, dated Oct. 11, 1875. [Filed Dec. 1, 1876.]

Brief.—The wooden temple-roller is placed upon and receives from a vertical mandrel a combined vertical and rotary motion, so that teeth may be set spirally in the roller by means of a sliding and rotating drill, and a sliding driver, acting alternately and both in concert with an opposite sliding support. Each tooth is driven, from a rotating container, into the jaws of a transferrer, which, while moving toward the temple-roller, makes a quarter-turn on its axis, and presents the tooth horizontally and butt foremost to a previously-drilled hole of proper inclination, whereupon the driver sends it home.

1. In a machine for setting temple-teeth, the combination, with a tooth-holder to contain the teeth to be set, of a tooth-transferrer, substantially as described.

2. A tooth holder and a tooth-transferrer, in combination with a tooth-driver, substantially as described.

3. A drill to form holes in a temple-roller, and a tooth-driver, in combination with a tooth-holder and tooth-transferrer, substantially as described.

4. A temple-roller controlling shaft adapted to move the temple-roller longitudinally and axially, in combination with a tooth-holder, and a tooth-transferrer, to present a tooth to a driver to be driven, substantially as described.

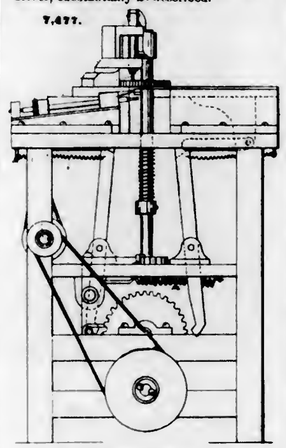
5. In a machine for setting temple teeth, a tooth holder, and a mechanism to remove the teeth singly from the holder, substantially as described, in combination with a tooth-transferrer and a tooth driver, substantially as set forth.

6. A shaft or holder for a temple-roller, in combination with a tooth-transferrer or presenter, a driver, and a rest for the roller, substantially as described.

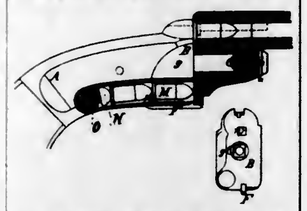
7. In a machine for setting temple-teeth, the combination, with a tooth-holder and transferrer, of a tooth-detacher, to remove a tooth from the holder into the transferrer, substantially as described.

8. In a machine for setting temple-teeth, a tooth-transferrer, in combination with a tooth-driver, substantially as described.

7,477.



7,478. BREECH-LOADING FIRE-ARMS. R. F. Cook, Ilion, N. Y. Patent No. 87,854, dated Mar. 10, 1863. [Filed Oct. 2, 1875.]



1. The lever *k*, spring *m*, slide *s*, and spring *p*, the whole applied in combination with each other and the hooked slide I *i*, the chamber-piece E or barrel, and the breech B, and operating substantially as and for the purpose herein specified.

2. In combination with the magazine, arranged below the axis about which the barrel and stock move relatively to each other, the frame A B, so constructed that at a certain position between that proper for firing from the magazine the rear end of the barrel or chamber is exposed in an open condition, thereby providing for loading by hand or from the magazine, as may be convenient, substantially as herein described.

3. The recess *i* in the lower part of the left-hand side of the chamber-piece E, in combination with the magazine H, and a spring contained therein, substantially as and for the purpose described.

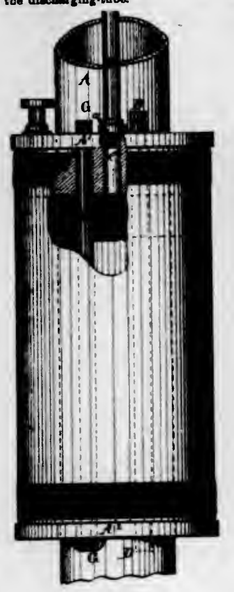
4. In a magazine-gun, the combination of a barrel open at breech, a magazine, and a gate or stop, operating together substantially as specified, whereby the gun may be loaded automatically from the magazine or by hand while the magazine is held in reserve.

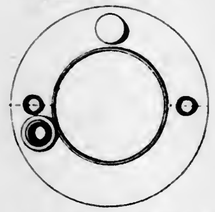
5. In magazine fire arms, a fixed magazine or tube carrying a propelling or cartridge feeding spring, the delivery end of which may be uncovered to receive the cartridges directly through the delivery-orifice while in position against the pressure of the spring, as set forth.

6. A magazine or receptacle for cartridges when fixed to and combined with a breech-loading fire-arm, so as to be charged directly through the delivery-orifice while in position, substantially as described.

7,479. TUBE-PACKING. S. L. FOX, Philadelphia, Pa., assignor to H. H. Doubleday. Patent No. 45,822, dated Jan. 10, 1865. [Filed Dec. 8, 1876.]

Brief.—Metal flanges surround the discharging-tube, and are provided with seats for the supplemental tube. The elastic packing is compressed against the wall of the well, and also the discharging-tube.



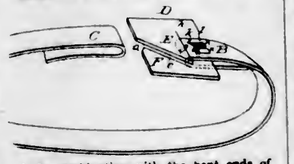


1. In an oil-well the combination of a discharging-tube, a packer, and two supplemental tubes, provided at their upper ends with screw-threads.

2. In an oil-well the combination, with the discharging-tube, of a flange surrounding the tube, and provided with a seat adapted to receive and support an upwardly-extending removable supplemental pipe, substantially as set forth.

3. An oil-well packer, consisting of two rims or flanges, and a flexible or elastic packing material, arranged between the flanges, and adapted to be compressed against the wall of the well, and also against an inner tube.

7,480. BALE-TIES. Abraham A. Goldsmith, Charleston, S. C. Patent No. 183,390, dated Oct. 17, 1876. [Filed Dec. 16, 1876.]



1. In combination with the bent ends of metallic bands, a slit tie-plate, substantially as described, through which the said ends are passed, and by which the outer surfaces of the bends thereof are wedged against each other by the expansive force of the bale, substantially as specified.

2. The tie-plate D, having the angular cross-tongue E, rear bar G, depressed at the bend *h*, and guard F, separated from said cross-tongue by the angular slit *a*, opening at the front of the plate, and joined to the depressed rear bar G, substantially as specified.

3. The tie-plate having the angular cross-tongue E, partly separated by the slit-opening at *a* in front, and the fastening-lugs *a*, cut from the material of the plate in rear, substantially as specified.

7,481. EXPLOSIVE COMPOSITIONS. Egbert Judson, San Francisco, Cal. Patent No. 183,764, dated Oct. 31, 1876. [Filed Dec. 4, 1876.]

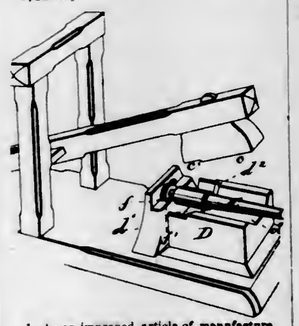
Brief.—The following formula is given: Take sulphur, resin, asphalt, nitrate of soda, anthracite coal; let the sulphur, resin, and asphalt be melted together and well stirred; into this mixture put the nitrate of soda and coal, thoroughly pulverized; stir until thoroughly varnished, and so cool that the grains will not adhere to each other. The dry mixture is then ready for the nitro-glycerine.

1. A powder or explosive compound of the class mentioned, consisting of particles or grains of a gas-producing material rendered non-absorbent by the treatment specified, and rendered explosive by the admixture or incorporation of nitro-glycerine, substantially in the manner and for the purposes set forth.

2. In the manufacture of a powder or explosive compound, the process set forth for forming the conglomerate grains, consisting, essentially, in stirring the dry powdered gas-producing material into a melted adhesive combustible non-absorbent material, substantially as set forth.

3. In the manufacture of explosive compounds of the class herein referred to, the process of preparing the grains or particles of such compound for the reception of the nitro-glycerine by applying a non-absorbent substance to the grains or particles of such compounds, substantially as above specified.

7,482. MANUFACTURE OF AXLE-BOXES. T. V. Le Roy, Utica, N. Y., assignor of one-half interest to Addison Day. Patent No. 182,940, dated Oct. 3, 1876. [Filed Dec. 9, 1876.]



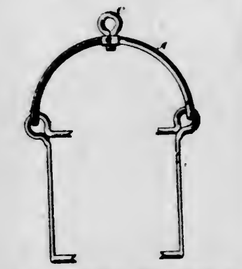
1. As an improved article of manufacture, an axle-box composed of a spirally-wound bar, as and for the purpose set forth.

2. An axle-box composed of iron and steel wound spirally, the steel being on the inner side, substantially as set forth.

3. A welding-pin, B, conforming in shape to the inside of an axle-box, in combination with a movable upper die, having shoulder *c* and recess *c'*, and with a fixed lower die, D, having grooves *d d'*, and shoulder *d²*, substantially as set forth.

4. The process herein described of manufacturing axle-boxes, consisting, first, in winding a rod of metal around a suitable mandrel or former, then in welding the coils by blows upon the ends of the box, and, finally, by shaping said box by means of the die and a welding-pin, substantially as set forth.

7,483. BAILS AND EARS FOR BUCKETS. A. Miller, Cincinnati, Ohio, assignor to C. H. Waters & Co. Patent No. 140,504, dated Apr. 14, 1874. [Filed Feb. 28, 1876.]



1. A bail-ear having two lateral prongs, and formed of a single piece of metal, the upper prong and the body of the ear being directly connected by a single loop, constructed substantially as and for the purpose set forth.

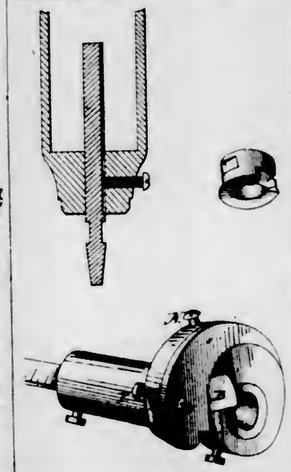
2. As an article of manufacture, the combined bucket bail and ear herein described, the latter constructed of flat iron, with its lower end rounded to pass through the ends of the bucket, and the other end rounded and bent upon itself to form a loop, and terminating in a prong constructed to pass through the side of the bucket, substantially as described.

3. The bail A, re-enforced at its central portion for the attachment of a swivel-loop, substantially as and for the purpose specified.

4. The combination, with the bail A, re-enforced at *a*, of the swivel-loop C, substantially as and for the purpose set forth.

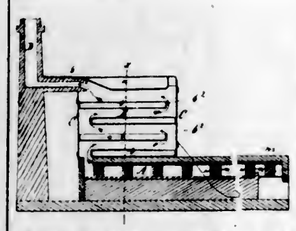
7,484. HOLLOW AUGERS. G. N. Stearns, Syracuse, N. Y. Patent No. 39,841, dated Sept. 8, 1863; antedated Jan. 16, 1863. [Filed Aug. 31, 1876.]

Brief.—Different sizes of tenons are cut upon wagon or carriage spokes by means of a suitable cutter, longitudinally, vertically, and laterally adjustable in a mortise in the upper outer part of an elongated metallic cylinder, through the lower part of which an adjustable stop and shank, formed in one piece, passes, and provided at its upper inner part with a large circular orifice, forming a bearing on the spoke as the auger cuts, and in which is secured one of a series of adjustable notched thimbles.



1. The mortise for confining the cutter and sustaining and locating the cutter by the screws P, O, and N, so as to obtain the longitudinal, vertical, and lateral adjustment, and the drawing out, substantially as and for the purposes specified.

2. An adjustable stop and shank formed in one piece, moving in a hollow-auger body, held by a screw, substantially as and for the purposes specified.



7,485. PROCESSES AND APPARATUS FOR EVAPORATING AND CALCINING ALKALINE SOLUTIONS. M. L. Keen, Stroudsburg, and Hugh Burgess, Royar's Ford, Pa., assignors to American Wood Paper Company. Patent No. 46,244, dated Feb. 7, 1865. [Filed Jan. 17, 1877.]

1. The improved process of recovering the alkali from alkaline solutions used in pulping wood, by first evaporating such solution to dryness, and then consuming the vegetable matter and calcining the alkaline mass by exposing the solution and dry mass directly to the action of the flame and hot gases from the fire, substantially as described.

2. The improved process of evaporating and calcining alkaline solutions used in pulping wood by exposing the solution until evaporated to dryness, and the dry mass until calcined to the direct action of the flame and hot gases from the fire, urged by a blast, whereby the vegetable matter is consumed, and the alkali recovered from the solution, substantially as described.

3. The improved process of calcining alkaline solutions, used in pulping wood, and evaporated to dryness, by exposing the mass to the direct action of the flame and hot gases from the fire, urged by a regulated blast, whereby the vegetable matter is consumed and the alkali recovered, substantially as described.

4. In combination with the main evaporating-hearth of a furnace, the finishing or calcining furnace or furnaces, substantially as described.

5. An improved furnace for recovering the alkali from alkaline solutions used in pulping wood, constructed with a sole or hearth where the solution is evaporated nearly or quite to dryness, in combination with a pan or pans, or the equivalent thereof, where the heat from the fire unabsorbed in its passage over the hearth is utilized for evaporating the solution contained in said pan or pans, substantially as described.

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COMMISSIONER'S DECISIONS.

C. F. DIETERICH.—*Interlocutory Appeal.*

[*Appeal from the decision of the Primary Examiner in the matter of the application of Charles F. Dieterich, filed November 22, 1876, for* "IMPROVEMENT IN MACHINES FOR CHARGING GAS-RETORTS."—*Decided January 23, 1877.*]

Separate and distinct inventions that do not co-operate or depend upon each other for their operation cannot be included in one application.

The retort-charging mechanism, the coke-removing mechanism, and the coke-transporting hopper, although capable of being employed together in the manufacture of gas, cannot for that reason alone, there being no patentable combination between them, be included in the same application.

[*G. H. and W. T. Howard*, attorneys.]

DOOLITTLE, *Acting Commissioner:*

Applicant describes his invention as relating,

First, to a car or wheeled vehicle to be used in the transportation of coal from the coal-shed, or place where the coal is stored, to the retort house, in which the retort-charging mechanism is located; secondly, to the retort-charging machine, used in connection with the transportation-car aforesaid; and, thirdly, to the mechanism or devices for removing the coke from the retorts to a coke-hopper of novel construction, in which hopper it is transported to the coke-yard.

The Examiner requires applicant to divide his case, alleging that three separate and distinct inventions have been included in this application—first, the devices used in transporting the coal and charging the retort; secondly, the devices for removing the coke; and, thirdly, the alleged novel construction of the coke-hopper. In this I think he is correct. It is evident, from an examination of the alleged inventions, that while, as was argued at the hearing, they may contribute to the formation of a novel and valuable system, yet it is nevertheless a fact that they do not co-operate in a patentable sense, but are a mere aggregation, each part performing its separate function, and the result of their conjoint action being the sum of their separate operations, without being in any manner modified by such use. Each part would operate in exactly the same manner and with the same results were the others not in existence, and it is no evidence of unity of invention that several distinct and improved machines, when employed in manufacturing a certain article, can be used to greater advantage than cruder and less perfect devices which had previously been employed for the same purpose.

The retort-charging mechanism is entirely independent of that for removing the coke, and the structure of the coke-hopper in no manner modifies or controls the operation of the latter.

The division of the application required by the Examiner is, therefore, thought to be proper, and his decision is affirmed.

OTTO PRESSPRICH.—*Interlocutory Appeal.—Design.*

[*Appeal from the decision of the Primary Examiner in the matter of the application of Otto Pressprich, filed November 10, 1876, for design for* "AN INSTRUMENT FOR REGULATING THE PRESSURE OF GAS."—*Decided February 1, 1877.*]

The rejection of an application upon the ground that it does not constitute the proper subject-matter for a design patent, has reference to the merits, and is appealable to the Board.

DOOLITTLE, *Acting Commissioner:*

The Examiner denies that the matter included in this application is the proper subject for a design patent, and, upon his suggestion, applicant takes this appeal.

The practice in this matter was changed in the case of *D. L. Proudfit*, (10 OFFICIAL GAZETTE, 535,) where it was determined that the rejection of an application on the ground that it does not present the proper subject-matter for a design patent, has reference to the merits of the case, and is subject to revision by the Board of Examiners-in-Chief upon appeal.

The case does not, therefore, come under the provisions of Rule 44 with reference to preliminary or intermediate questions, and the appeal is accordingly dismissed.

MERRILL AND MERRILL *vs.* GLIDDEN.—*Interference.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the interference between the application for the reissue of patent No. 155,538, of September 29, 1874, filed by Luther and John C. Merrill, October 19, 1875, and the reissued patent granted to Joseph F. Glidden, February 8, 1876, of original patent No. 150,683, granted May 12, 1874, for* "IMPROVEMENT IN WIRE FENCES."—*Decided January 18, 1877.*]

Fraud is never to be presumed, but must be strictly proved, and particularly is this the case when record evidence is sought to be impeached.

The rule confining the parties in their proofs to the dates set up in the preliminary statement is specially applicable where the departure is made under suspicious circumstances.

Obtaining a patent for an invention is presumptive evidence that the party has not abandoned the same.

[*Mason, Fenwick & Lawrence*, for Merrill and Merrill.
Gilmore, Smith & Co., for Glidden.]

DOOLITTLE, *Acting Commissioner:*

It may as well be stated at the outset that the allegations of fraud on the part of Glidden in obtaining his reissue patent, made by the Board in their decision, are not concurred in by me.

It is a well known rule of evidence that fraud is never to be presumed, but must be strictly proved, and particularly is this the case where record evidence is sought to be impeached. Such testimony as has been introduced in this case to show that Glidden's model, upon which his reissued patent is based, is not in the same condition as when originally filed, cannot be considered for a moment as sufficient to establish the fact, and would not overcome the *prima facie* integrity of the records of this Office.

The subject-matter involved in this interference is—

In combination with a fence-wire a barb formed of two short pieces of pointed wire secured upon the fence-wire by coiling between their ends, forming four points, which are extended in different directions.

In their preliminary statement Merrill and Merrill say—

Our first conception of a four-point barb for wire fences was as early as November 1, 1873, and as early as January 1, 1874, we made a perfect model according to the above description.

In their testimony, which consists almost wholly of the testimony of the Merrills, they allege that they had some of the four-pointed barbs as early as November 1, 1873. This evidence I regard as being at variance with the preliminary statement, under which they are restricted, by their own admissions, to January 1, 1874, as to date of their first model.

There are very strong reasons why the rule confining the parties in their proofs to the dates set up in their preliminary statements, should be adhered to in this particular case. They do not produce the barbs said to have been in their possession in November, nor the testimony of any disinterested party, as to their existence. This, taken in connection with the fact that it became very material for them to establish such a date after seeing Glidden's preliminary statement, shows that such evidence, even if admitted, would be of very little weight.

They testify to have had a conception of the idea at that date, and to have made the model which fully exhibits the invention in January, 1874. In the fall of 1874 they commenced the manufacture and sale of this article.

The preliminary statement filed by Glidden recites that he conceived the idea of the invention in the month of October, 1873, and between the 28th day of October and the 10th or 15th of November, 1873, put it in model form. He testifies to these facts upon his examination, and is corroborated by others who saw the exhibits which are introduced, about the middle of December, 1873. The exhibits show the invention in its full-sized operative form, and from Glidden having obtained a patent thereon, we are to presume that he did not abandon the invention. If we give credit to Glidden's testimony, and I see no reason why it should be repudiated, he was not only first to conceive, but also to reduce the invention to an operative form, which is sufficient to sustain his claim to the invention.

The decision of the Board is reversed.

WICKS AND WYMAN *vs.* KNOWLES.—*Interlocutory Motion.*

[*Appeal from the decision of the Primary Examiner in the matter of the interference between the applications of Joseph F. Wicks and Horace Wyman, and the patent of J. Knowles, No. 134,992, granted January 21, 1873, for an* "IMPROVEMENT IN LOOMS."—*Decided January 20, 1877.*]

Ex-parte affidavits cannot be received to establish the statutory bar of two years' public use.

If, in the course of the interference proceeding, either party in taking testimony relating to the history of his invention should introduce proof relevant to the issue of priority, and which, at the same time, shows a statutory bar as against either party, such testimony will be taken notice of and considered in the manner prescribed in Rule 59.

[*W. C. Wood*, for Wicks.
Crosby & Gregory, for Wyman.
Pollok & Bailey, for Knowles.]

DOOLITTLE, *Acting Commissioner:*

This is an appeal from the decision of the Primary Examiner refusing to dissolve the interference upon a motion to that effect based upon the alleged fact of public use and sale for more than two years prior to the filing of the application of Wyman. This motion was supported by *ex-parte* affidavits submitted by Knowles, the patentee. They set forth the fact that the invention in controversy had been in use and on sale for the time mentioned. These affidavits were replied to by an affidavit of Wyman, one of the applicants, who avers that no such use has been made with his knowledge or consent for the time mentioned.

It was argued upon the present hearing of this motion before me that the present statute omitted the words "knowledge or consent," and it was unnecessary to show such fact on the part of the inventor.

Without discussing the latter point at this stage of the case, I must refuse the motion on the ground that the *ex-parte* affidavits offered are not sufficient evidence to convince me of the alleged facts of public use and sale of the completed and perfected invention for more than two years prior to the filing of the application of Wyman, in view, especially, of the denial upon the part of the applicant.

If the alleged facts had been developed in a proper proceeding in which opportunity had been offered for examination and cross-examination of witnesses, and of taking rebutting testimony, it would then also be proper to consider the legal questions bearing upon the testimony adduced.

The interference must proceed; and, if in the course of that proceeding, either party, in taking testimony relating to the history of his invention should introduce proof relevant to the issue of priority, and which, at the same time, shows a statutory bar as against either party, such testimony will be taken notice of and considered in the manner prescribed by Office Rule 59.

It should be understood, as set forth in the case of Smith *vs.* Perry *et al.*, (9 OFFICIAL GAZETTE, 688,) that the testimony here alluded to must have some bearing upon the issue of priority, so that it could have been regularly admitted in an interference proceeding.

The decision of the Examiner is affirmed and the motion denied.

ALFRED MILLER *vs.* PURCHES MILES.—*Interference.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the interference between the applications of Alfred Miller for reissue of patent, dated April 14, 1874, and the patent of Purches Miles, dated February 10, 1874, for* "IMPROVEMENT IN BAIL-EARS."—*Decided January 25, 1877.*]

Priority awarded the party who made and applied the invention before his opponent entered the field as a competitor.

Testimony as to public use taken in an interference in no manner connected with or ancillary to the matter at issue, but relating to the acts of parties not in interest, is not competent evidence, and cannot be received.

The issue in an interference is priority of invention, to which the question of originality is sometimes germane.

Testimony in a cause must be confined to the point in issue, and all not bearing directly or indirectly thereon is subject to being stricken out.

When public use is brought home to the parties in the development of the history of the invention, it may be taken notice of, and form the basis of future action.

The case of *Smith* vs. *Perry et al.*, (9 OFFICIAL GAZETTE, 688,) considered and approved.

[*Leggett & Leggett*, for Miller.
L. W. Serrell, for Miles.]

DOOLITTLE, *Acting Commissioner:*

Miller's first claim, the one in issue, is as follows:

A bail-ear having two lateral prongs, and formed of a single piece of metal, the upper prong and the body of the ear being directly connected by a single loop, all constructed substantially as and for the purpose set forth.

Miles in his patent shows a bail-ear differing somewhat in form from Miller's, but subservient, I am inclined to think, to the broad claim above quoted, and, therefore, embracing the subject-matter in issue.

The evidence shows that Miller had constructed and applied several of these ears as early as December, 1872, filed a caveat August 23, 1873, and his application December 27, 1873, upon which a patent was granted. The manufacture of the ears was commenced in June, 1873, and has since continued.

The earliest date claimed or proved for Miles is March, 1873, when he made specimens of the ears shown in his patent, and commenced manufacturing the same some time in October in the same year.

Both the Board and the Examiner of Interferences concur in their findings as to these facts, and in awarding priority to Miller, and their conclusions are obviously correct, he being not only first to conceive but to reduce the invention to practice and apply it to use.

Testimony has been introduced on the part of Miles tending to show that the invention had gone into public use more than two years prior to the filing of Miller's application. The attorney for Miller objected to the introduction of such testimony, on the ground that it did not relate to the interference proceeding, and was not legal testimony.

It is not pretended that the testimony on this point is in any manner connected with or ancillary to the matter at issue in the interference. The alleged public use was by parties not in interest in this case of an invention neither party knew of.

The only matter at issue in an interference is priority of invention, to which the question of originality, as between the parties, is sometimes germane. It is an elementary rule of evidence that the testimony in a cause must be confined to the point at issue. It necessarily follows that in an interference proceeding all testimony not bearing directly or indirectly upon the issue—*i. e.*, priority of invention—is subject to the rule, and may be stricken out. Sometimes it happens, however, that in the course of the proceedings public use is shown by one of the parties of his invention, and thus the evidence may be brought into the case and considered, but where it has reference to the acts or proceedings of third parties in regard to inventions not those of the parties to the controversy, it must be rejected as irrelevant and immaterial. Such was the rule as laid down in *Smith* vs. *Perry et al.*, (9 OFFICIAL GAZETTE, 688,) and nothing has been developed in the presentment of this case that leads me to change the practice then established. Seasonable objection was taken to this testimony by the attorney for Miller, and he relied upon and gave notice of the decision above referred to, when the testimony was taken. I find, therefore, that this testimony, referring to public use of an invention similar to that in issue by third parties, does not have reference to the matters inquired of in the interference proceeding, and must be excluded from the case.

The decision of the Board is affirmed.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—NORTHERN DISTRICT OF ILLINOIS.

GEO. E. DAYTON *vs.* GEO. WRIGHT AND GRANVILLE HERRING.

[*In equity.—Before* BLODGETT, *J.—Decided October 21, 1876.*]

The purchaser of a patent stands in full privity to a decree obtained by the former owner in a suit for infringement.

A decree for infringement was entered against Wright and a co-defendant, and, pending the report of the master, the former associated another party with him as partner, and engaged in the manufacture of the patented article in another district: *Held*, that Wright's present partner is so far in privity with the former case by his partnership relation to Wright, that he is bound by the decree.

[*Coburn & Thacker*, for complainant.
West & Bond, for defendants.]

OPINION OF THE COURT.

BLODGETT, *J.:*

This is an application to dissolve an injunction which was granted some time since, enjoining the defendants, George Wright & Co., from manufacturing a certain kind of sieve, which, it is alleged, was in violation of the patent granted to one Mann, and now held by the complainant.

It appears from the pleadings and proofs that a pat-

ent, in due form, was granted to Mann for a specific method of constructing a wire sieve with a metallic rim, the device consisting of the mode by which the wire-gauze was fastened into the rim. During his life-time Mann commenced a suit in the United States Circuit Court for the western district of Missouri, against Wright and another defendant, to enjoin an alleged infringement of this patent. Wright and his co-defendant answered the bill filed in that court, and two issues were made up—first, whether there was an infringement; second, whether the device of Mann was novel and patentable. Pending this suit Mann died, and the suit was revived by his executor. Testimony was taken, and the case was brought to a hearing a few months since, and a decree made finding that the defendants had infringed the patent, and that the patent was valid. The case was then referred to a master for the purpose of assessing the damages, and it would seem from the record produced here to be still awaiting the master's report. After the entry of this decree, this bill was filed against the defendant, Wright, and his co-defendant, who since said trial had engaged in the same manufacture here.

The complainant has purchased from Mann's administrator the right to this patent, and now holds the same.

I have no doubt, therefore, but that he stands in full privity to this decree, and that the defendant, Wright, is also bound by the decree as a privy thereto.

I am also of opinion that the other defendant, Wright's present partner, is so far in privity with the former case by his partnership relation to Wright, that he is also bound by this decree, as I do not think Mr. Wright can escape the force of the decree by associating another person with him.

The defendants now seek to re-open the whole controversy by denying the validity of the patent, alleging some instances of prior use of the device not set up in the former case, but at most only cumulative upon the same point.

This, I think, cannot be allowed.

The parties and subject-matter were properly before the Missouri court, and must be held bound by its decree, so long as the same remains in force. That being only in one sense an interlocutory decree, this court must presume that if new evidence has been discovered material to the issue, the case would be opened, and the new proof let in on proper application to that court.

Entertaining these views, I must refuse to dissolve this injunction, leaving the injunction in force until a final hearing of the case, and a more full argument.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date February 6, 1877.]

9,729.—Cooking-Ranges.—JACOB BEESLEY, Philadelphia, Pa., assignor to DAVID STUART, RICHARD PETERSON & Co. Application filed January 16, 1877. Term of patent 7 years.

9,730.—Sleigh-Bells.—ABNER A. BEVIN, East Hampton, Conn. Application filed January 18, 1877. Term of patent 7 years.

9,731.—Paper Box.—NATHAN D. BILL, Springfield, Mass. Application filed December 23, 1876. Term of patent 3½ years.

9,732.—Picture-Frame.—JEFFERSON J. GRAY, Boston, Mass. Application filed June 2, 1875. Term of patent 7 years.

9,733.—Paper Boxes.—LORENZO P. HEATH, Springfield, Mass., assignor to the POWERS PAPER COMPANY, same place. Application filed December 14, 1876. Term of patent 3½ years.

9,734.—Font of Printing-Types.—JULIUS HERRIET, New York, N. Y., assignor to DAVID WOLFE BRUCE, same place. Application filed January 2, 1877. Term of patent 14 years.

9,735.—Font of Printing-Types.—HERMAN IHLENBURG, Philadelphia, Pa., assignor to MCKELLAR, SMITHS & JORDAN, same place. Application filed January 20, 1877. Term of patent 14 years.

9,736.—Wire Table-Mat.—CHARLES E. PEIRCE, Lowell, Mass. Application filed January 19, 1877. Term of patent 3½ years.

9,737.—Paper-Weights.—ALFRED C. SMITH, Jr., New York, N. Y., assignor to the NEW YORK CITY ATTRITION MILL COMPANY, same place. Application filed January 12, 1877. Term of patent 7 years.

9,738.—Heating-Stoves.—NICHOLAS S. VEDDER and FRANCIS RITCHIE, Troy, N. Y., assignors to NICHOLAS S. VEDDER, same place. Application filed November 28, 1876. Term of patent 3½ years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date February 6, 1877.]

4,330.—Skates.—EVERETT H. BARNEY, Springfield, Mass. Application filed January 22, 1877.
"The word-symbol 'Ice Queen.'"

4,331.—Skates.—EVERETT H. BARNEY, Springfield, Mass. Application filed January 22, 1877.
"The word-symbol 'Ice King.'"

4,332.—Zinc White Lead.—CHICAGO WHITE LEAD AND OIL COMPANY, Chicago, Ill. Application filed January 25, 1877.
"An elaborate device in colors, and in the central part a landscape, with mountains in the distance, the most conspicuous features being the word 'MONTANA' on a red ribbon above the landscape."

4,333.—White Lead.—CHICAGO WHITE LEAD AND OIL COMPANY, Chicago, Ill. Application filed January 25, 1877.
"The ship and the word-symbol 'Ironsides.'"

4,334.—White Lead.—CHICAGO WHITE LEAD AND OIL COMPANY, Chicago, Ill. Application filed January 25, 1877.
"The landscape, &c., as described, and the word 'SUNBEAM.'"

4,335.—White Lead.—CHICAGO WHITE LEAD AND OIL COMPANY, Chicago, Ill. Application filed January 25, 1877.
"The representation of a buffalo's head and the word-symbol 'Buffalo.'"

4,336.—White Lead.—CHICAGO WHITE LEAD AND OIL COMPANY, Chicago, Ill. Application filed January 25, 1877.
"Word 'Durhamville.'"

4,337.—White Lead.—CHICAGO WHITE LEAD AND OIL COMPANY, Chicago, Ill. Application filed January 25, 1877.
"An elaborate device, the predominant color of which is red, with some yellow and less blue, and printed on a quadrangular label, with floriate end pieces and concentric circles in the central part. Within the smaller circle, in white letters on a blue ground, is the monogram of this company. Outside thereof, in circular form, is the motto 'Honi soit qui mal y pense,' and above it a yellow crown, surmounted by a lion, and at each side English standards, flags, and a streamer."

4,338.—White Lead.—CHICAGO WHITE LEAD AND OIL COMPANY, Chicago, Ill. Application filed January 25, 1877.
"The circular border on the blue ground, and the fac-simile of the signature of 'E. W. Blatchford, Pres't.'"

4,339.—White Lead.—CHICAGO WHITE LEAD AND OIL COMPANY, Chicago, Ill. Application filed January 25, 1877.
"The representation of the eagle, flags, crown, and swords, and the words 'CROWN IMPERIAL.'"

4,340.—Green Paint.—CHICAGO WHITE LEAD AND OIL COMPANY, Chicago, Ill. Application filed January 25, 1877.
"The representation of the bird and the word 'PARROQUET.'"

4,341.—Green Paint.—CHICAGO WHITE LEAD AND OIL COMPANY, Chicago, Ill. Application filed January 25, 1877.
"The word 'LIZARD' and the representation of a lizard."

4,342.—White Lead.—CHICAGO WHITE LEAD AND OIL COMPANY, Chicago, Ill. Application filed January 25, 1877.
"Compound word 'NORTH-WESTERN.'"

4,343.—Paints.—HARRISON BROTHERS & Co., Philadelphia, Pa. Application filed November 1, 1876.
"A black surface containing a central cube-shaped figure of a contrasted color."

4,344.—Cigars.—HUAU & Co., Jacksonville, Fla. Application filed January 23, 1877.
"The word-symbol 'ESMERO.'"

4,345.—Hair Preparation.—MARY E. JOHNSON, Newburyport, Mass. Application filed January 23, 1877.
"The word-symbol 'CALMANTINE.'"

4,346.—Corn-Starch.—HARM H. LUDEMAN, Williamsburg, N. Y. Application filed December 6, 1876.
"The fanciful title 'HARINA DE MAIZ,' and the pictorial representation of a man carrying a quantity of maize in his arms."

4,347.—Composition of Superphosphate of Lime.—CHARLES V. MAPES, New York, N. Y. Application filed February 23, 1874.
"The name 'Mapes' and the circle, as represented."

4,348.—Japan Teas.—E. B. MILLAR & Co., Chicago, Ill. Application filed March 16, 1876.
"The word-symbol 'Rose.'"

4,349.—Playing-Cards.—JOHN D. D. MORTIMER, Chicago, Ill. Application filed December 7, 1876.
"The word-symbol 'DESTINY.'"

4,350.—Wine.—EMIL SCHULTZE, Jersey City Heights, N. J. Application filed December 27, 1876.
"A red streak or line extending diagonally from an upper to a lower corner of a white oblong label, as shown."

4,351.—Medical Compounds.—WALLACE & POSTLEWAIT, Columbus Grove, Ohio. Application filed December 15, 1876.
"The word symbol 'NATIONAL' and the red and blue colors running lengthwise of the label, as represented."

4,352.—Steel Pens.—JOSEPH GILLOTT & SONS, Birmingham, Great Britain, and New York, N. Y. Application filed September 16, 1876.
"The words and letters 'Jos'h Gillott,' stamped, impressed, written, engraved, lithographed, or otherwise represented as a fac-simile of the signature of Joseph Gillott."

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date February 6, 1877.]

964.—Title: **"Horehound Troches."**—ALBERT G. BASSETT, Rochester, N. Y. Application filed January 27, 1877.

965.—(Print.)—Title: **"Postal Paper."**—ALBERT G. BUZBY, Philadelphia, Pa. Application filed January 19, 1877.

966.—Title: **"Presley B. Combs' Horse Powders."**—PRESLEY B. COMBS, Alliance, Ohio. Application filed January 29, 1877.

967.—Title: **"Wild Cherry Pastilles."**—EDWARDS & HUTCHISON, Leesburg, Va. Application filed January 30, 1877.

968.—Title: **"Mrs. Mary J. Bingham's Sweet Tar Balsam."**—HENRY GOSLING, San Francisco, Cal. Application filed December 15, 1876.

969.—Title: **"Nursery Beer."**—B. MOMENTHY, Baltimore, Md. Application filed June 24, 1876.

970.—Title: **"Wilson's Rumford Yeast Powder."**—RUMFORD CHEMICAL WORKS, Providence, R. I. Application filed January 30, 1877.

971.—Title: **"Wilbor's Pure Cod Liver Oil and Phos. Lime."**—ALEXANDER B. WILBOR, Boston, Mass. Application filed January 27, 1877.

DISCLAIMER FILED.

183,706.—Improvement in Vehicle-Axles.—BENJAMIN F. RICHARDSON, Cincinnati, Ohio. Patented October 24, 1876. Disclaimer filed February 5, 1877. Disclaims that part of the first claim designated as "chamber *g*." After this disclaimer the said first claim should read as follows, viz:

The tightening-plate G, with chamber *g*, substantially as and for the purpose specified.

INDEX OF INVENTIONS PATENTED FEBRUARY 6, 1877.

	Class No.	No. of Patent.
Adding pencil, C. C. Fields	42	187,114
Advertising, B. S. Howard	54	187,139
Animal and vegetable substances, process of preserving, J. P. McLean	58	187,029
Animal and vegetable substances, process of preserving, J. P. McLean	58	187,030
Animal bones and making artificial whalebone therefrom, process of treating, Carples and Koehler	176	186,924
Anode for electroplating with nickel, Hermann and Taylor, (reissue)	113	7,489
Bag for enveloping beef quarters, &c., E. S. Halsted	58	187,008
Bag holder, G. M. Allen	57	186,918
Bail for cast metal hollow ware, Z. Nickerson	154	186,947
Baker's oven, A. Wilson	6	187,209
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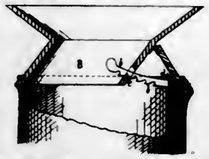
TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED FEBRUARY 6, 1877.

186,918. BAG-HOLDERS. Geo. M. Allen, Hastings, Minn. [Filed Oct. 31, 1876.]

Brief.—Spreads open the mouth of the bag, and holds it open, while filling, by the ratchet.



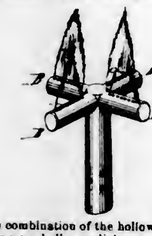
The combination and arrangement of the hinged leaf C, inclined spout B, and adjustable holding-ratchet *b*, when arranged and operated substantially as hereinbefore specified.

186,919. DOLLS. K. C. Atwood, New York, N. Y. [Filed Aug. 7, 1876.]



As a new article of manufacture, an articulated sheet-metal doll, finished substantially as described.

186,920. GAS-BURNERS. John F. Barker, Springfield, Mass. [Filed Nov. 3, 1876.]



The combination of the hollow shaft A with two or more hollow radial arms, B, each provided with a series of escape-orifices, *c*, said arms being connected directly to said shaft, so that an uninterrupted flow of gas is provided for through the said shaft and arms, substantially as described.

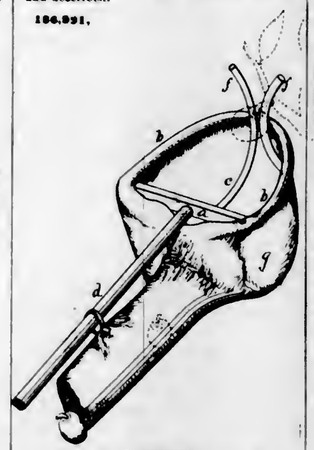
186,921. FRUIT-PICKERS. Thos. Boyd, Des Moines, Iowa. [Filed Aug. 15, 1876.]

Brief.—A piece of elastic wire is bent to form a single horizontal bow and two vertical bows, for the attachment of the conveying-pocket. Said vertical bows terminate in elastic tines for picking the fruit.

1. In a fruit picker, the cross-bar *a* on a handle, *d*, the horizontal bow *b b*, the vertical bows *c c*, terminating in elastic forked tines *f f*, constructed and combined substantially as and for the purposes shown and described.

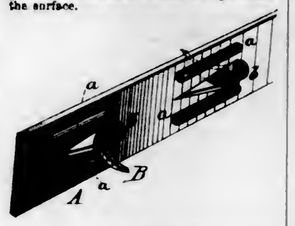
2. The combination of the skeleton frame *a b c f*, and the combined pocket and sleeve *g g*, substantially as and for the purposes shown and described.

186,921.



186,922. METALLIC BARBED FENCES. J. Brinkerhoff, Auburn, N. Y. [Filed Oct. 7, 1876.]

Brief.—A sheet-metal bar or rail is embossed, at intervals in its length, near its sides, and between the bosses a barb is embossed, partially excised, and turned at angles from the surface.



1. A metallic fence strip or bar, A, provided with spurs or barbs B raised therefrom, said spurs or barbs having longitudinal depressions or concavities *b*, substantially as and for the purpose set forth.

2. A metallic fence strip or bar, A, provided with the spurs or barbs B, the strip or bar having the depressions *a* on each side of the spur, and the spur provided with the concavities *b*, substantially as and for the purpose set forth.

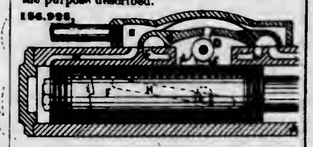
186,923. ROCK-DRILLING ENGINES. Prescott S. Buckminster, San Francisco, Cal., assignor of one-half his right to Ira P. Rankin and George W. Fogg, same place. [Filed June 30, 1876.]

Brief.—The valve is operated by means of a tripping-lever having two cams, which play in diagonal slots formed in a loose sleeve on the piston-rod. Said sleeve is placed between the pistons, and is constructed in two parts, the adjacent ends having inclined faces, and it is also provided with a diagonal slot, in which plays a pin secured to the side of the cylinder. When revolved in one direction the sleeve binds firmly between the piston-heads, and carries with it the piston-rod, thereby shifting the position of the drill at each stroke.

1. The combination of the cams *d d'*, rocker-arm D, and slotted ways E E', as a means of moving the valve C, substantially as described, and for the purpose set forth.

2. The sleeve-piece F, when cut in two by the zigzag cut *i*, in combination with the slotted way E and pin *h*, substantially as and for the purpose described.

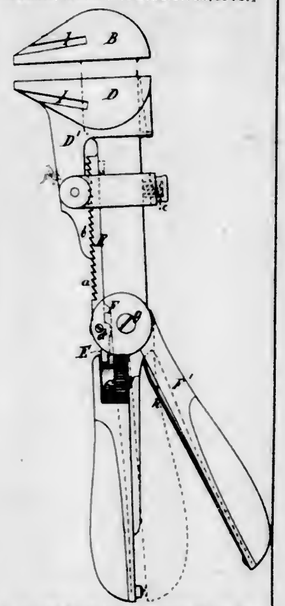
186,923.



186,924. PROCESSES OF TREATING ANIMAL BONES AND MAKING ARTIFICIAL WHALEBONES THEREFROM. Bernard Carples and Jos. M. Koehler, New York, N. Y. [Filed Dec. 19, 1876.]

The process herein described for the production of an artificial whalebone, which consists in removing the earthy salts from the bones by boiling in an acid bath, repeatedly washing in cold water, shaping into uses, and finally pressing until dry, substantially as set forth.

186,925. WRENCHES. Wm. Dicks, Clifton, Ontario, Canada. [Filed Nov. 25, 1876.]



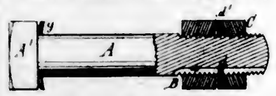
1. A longitudinally-sliding toothed bar, E, geared to the movable jaw, so as to move said jaw when the handle is closed, said bar being operated directly by one part of the handle, substantially as described.

2. The retaining-stop G, applied in rear of the sliding toothed bar E, and serving for holding the movable jaw and handle firmly in their closed positions while using the wrench, substantially as and for the purpose set forth.

3. The oblique receding grooves I in the sides of the jaws proper of the wrench, to receive corresponding tongues of attachments, substantially as described.

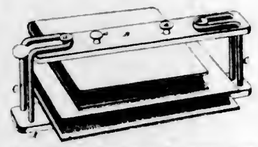
4. The slide E, applied in combination with the laterally and longitudinally adjustable jaw D, stationary jaw B, and lever-handle F F', so that the movable jaw advances when the handle is being closed, substantially as described.

186,926. NUT-LOCKS. Wm. Dicks, Clifton, Ontario, Canada. [Filed Nov. 25, 1876.]



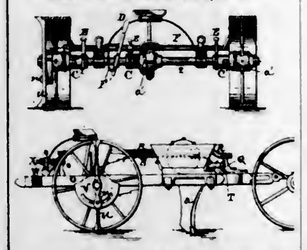
A locking-washer having holding projections d^3 on its face, and a tongue, d, in combination with a grooved screw-bolt, A, and nuts B and C, substantially as set forth.

186,927. BOOK-CLAMPS. Chas. E. Dulin, Philadelphia, Pa. [Filed Dec. 20, 1876.]



A book clamp having india-rubber loops C C' fixed to the ends of the bar A, in combination with the bar B, provided with buttons a near each end, and notched at b b, as shown and described.

186,928. COAN-PLANTERS. Chas. H. Foss, Wataeka, Ill. [Filed Aug. 31, 1876.]



1. The combination of the hand-lever D, rod and set-screws E, rods F F', and clutches C C' C² and a' a', whereby the two wheels and the driving-pulley are thrown in gear with the axle at the same movement, substantially as shown.

2. A plate, V, having a circular slot rigidly secured to the wheel, in combination with the indicator u, adapted to be adjusted back and forth on the plate, and clamped in position by the bolt u, which passes through the slot, substantially as described.

3. The combination of the front axle L and wheels B', the connecting-bar P, jointed at each end e and l, the hand-lever R, casting Q, having the ratchet T and lever S, for operating the pawl, whereby the front end of the frame can be raised, substantially as specified.

186,929. KITCHEN UTENSILS. J. Hamilton, Pittsburg, Pa. [Filed Jan. 2, 1877.]



A kitchen-utensil, consisting of the pan A and secondary draining-bottom A', constructed as specified, and adapted to each other, as hereinbefore described, and for the purpose set forth.

186,930. GRAIN-BINDERS. Emmet Horton, Hartford, Conn., assignor of two-thirds his right to Amos Whitney and John Johnson, same place. [Filed Dec. 22, 1876.]

1. The slotted disk g, having lateral rotation, in combination with the disk-box g^3, having longitudinal rotation.

2. In combination, the rotary slotted disk g and the twine-hold borne on it, all substantially as described.

3. In combination, the hollow angular twine-needle f' and the vibratory needle-arm f, all substantially as described.

4. In combination, the needle-arm f, bearing needle f', and the rotary disk g, slotted to an open center, substantially as described.

5. The peculiar bevel-gear on the slotted disk g, composed of mortises sunk in a raised annulus, in combination with the pinion g^4, having tenon-teeth fitting to the same, all substantially as described.

6. The combinations of the cam-grooves h^2 h^3 in disk d^{12}, rack-arms g^5 h^1, pinions h g^7, shafts g^4 g^6, bevel-pinions g^5, disk-box g^3, and slotted disk g, all substantially as described.

7. The pinion g^4, bearing the extra large tooth g^6, in combination with the slotted disk g, having slot g^3.

8. The combinatinn of the slotted disk g, pinion g^4, shaft g^6, pinion h, rack h^1, rack-arm h^4, cam-groove h^5 in disk d^{12}, and pin h^6, whereby lateral rotation is given to slotted disk.

9. The combination of slotted disk g, disk-box g^3, shaft g^6, gear g^7, rack g^5, rack-arm h^7, with pin upon its side and cam-groove h^5 in disk d^{12}, whereby longitudinal rotation is given to slotted disk and disk-box.

10. The combination of slotted disk g, pinion g^4, shaft g^6, pinion h, rack h^1, rack g^5, gear g^7, sleeve-shaft g^8, and disk-box g^3.

11. The combination of the grasper-arm e, bearing pinion e^{13}, rack-toothed pitman e^9, arm e^7, bearing clutch-half e^2 on its hub, clutch-half e^3, and spring e^4.

12. The combination of the grasper-arm, bearing pinion e^{13}, rack-toothed pitman e^9, arm e^7, bearing clutch-half e^2 on its hub e^5, clutch-half e^3, box e^{14}, projection e^{15}, pawl e^{11}, and ratchet e^{12}.

13. The combination of the pivoted needle-arm f, connecting-rod f^5, lever f^7, bearing pin on its side, and cam-groove f^6.

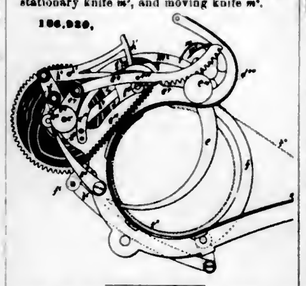
14. The rotating disk-box, provided with the ear h^8.

15. The combination of the twine-stretcher i, pinion i^2, rack-lever i^3, and cam i^4.

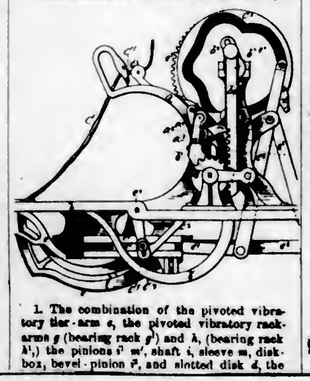
16. The forked twine retainer m, combined with and bearing the knife m^4, all substantially as described.

17. The combination of the forked twine-retainer m, pinion m^1, rack-lever m^2, cam i^5, stationary knife m^3, and moving knife m^4.

186,930.



186,931. GRAIN-BINDERS. Emmet Horton, Hartford, Conn., assignor of two-thirds his right to Amos Whitney and John Johnson, same place. [Filed Dec. 22, 1876.]



1. The combination of the pivoted vibratory tier-arm e, the pivoted vibratory rack-arms g (bearing rack g^5) and h, (bearing rack h^1,) the pinions i^2 m', shaft i, sleeve m, disk-box, bevel-pinion i^2, and slotted disk d, the several parts being constructed, arranged, and combined to operate substantially as shown and described.

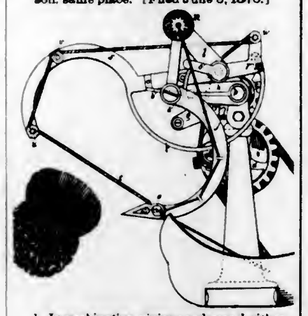
2. The combination of the slide d^2, the pin projecting from the side of the slide d^2 into the slots d^5 g^2 h^3, the pivoted vibratory arm e, the pivoted vibratory rack-arms g (bearing rack g^5) and h, (bearing rack h^1,) and the knot-tying parts i^2 i^3 d h m m', the several parts being constructed, arranged, and combined to operate substantially as shown and described.

3. The combination of the slide d^2, pin d^5, working in slot d^6, and the needle-arm d^3, arranged and operating substantially as shown and described.

4. The combination of the vibratory needle-arm d^3, bearing the needle d^4, with the vibratory tier-arms e e^1, bearing the slotted disk d, all three of these elements having the motions described, and at the relative times substantially set forth and specified.

5. The combination of the stationary arms a a^1, the vibratory grasper-arm b^1, the vibratory needle-arm c^3, bearing the needle c^4, and the vibratory tier-arms e e^1, bearing the slotted disk d, substantially as and for the purpose specified.

186,932. GRAIN-BINDERS. Emmet Horton, Hartford, Conn., assignor of two-thirds his right to Amos Whitney and John Johnson, same place. [Filed June 5, 1876.]



1. In combination, pinion c and gear d, either or both segmental, the grooved cam f and cam-arm g, when designed for operation substantially as shown and described.

2. In combination, the rotary arm h, grasper i j, pivoted thereto, and the pivoted guide-block m, when arranged and designed to operate substantially as shown and described.

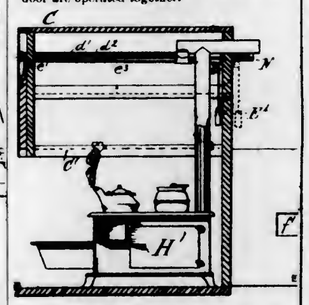
3. In combination, the rotary arm h, grasper i j, pivoted thereto, pivoted grasper r s, and the tension-rope t, when arranged and designed to operate substantially as shown and described.

4. In combination, the rotary arm h, bearing the pin a', the pivoted graspers i j and r s, rope t, weighted arm y with its shaft, and the arm o', when arranged to operate substantially as shown and described.

5. In combination, the grasper-arm r, hook s, pivoted thereto, and fender i^5, adjustable in socket j^5, substantially as shown and described.

186,933. STOVE-REFRIGERATORS. Wm. F. Humphreys, Concord, Mo. [Filed Aug. 16, 1876.]

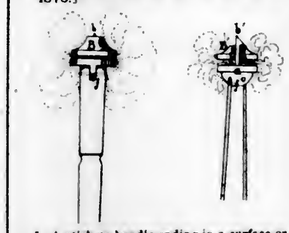
Brief.—The door of the casing and the oven-door are operated together.



1. For a cook-stove the combination, in the hood C, of guides c^1 and c^2, grooves c^3 and c^4, sliding doors F^3 and F and F^4, doors f^1 and f^2, and compound door H, substantially as shown and described.

2. In a cook-stove or kitchen-range, a hood, C, provided with sliding doors F F', and double doors H, dampers, rods, and additional air-pipe N, substantially as herein described.

186,934. LAMP-CHIMNEY CLEANERS. A. H. Jackson, La Fayette, Ill. [Filed Dec. 30, 1876.]



1. A stick or handle ending in a surface or shoulder, a, provided with a stem or pin, projecting therefrom at right angles, to receive a nut or disk, B, for holding the wiper between them, the pin being provided with a screw-thread, substantially as and for the purposes described.

2. The lower disk or shoulder a, screw b, and upper disk or block B, adjustable to hold a cloth, brush, or other chimney-wiper for lamp-chimneys.

186,935. MANUFACTURE OF GLUCOSE. S. H. Johnson, Stratford, England. [Filed May 31, 1876.]



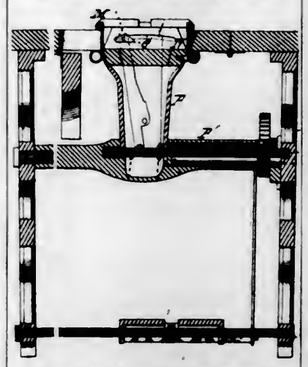
1. The hereinbefore-described method of treating grain in the manufacture of glucose, which consists in macerating with dilute acid, as specified, drawing off the unabsorbed acid, macerating the material with clean water, again macerating in dilute acid, and then drawing off all unabsorbed acid preparatory to treatment in a converter.

2. The hereinbefore-described method of treating grain in the manufacture of glucose preparatory to treatment in the converter, which consists in macerating the grain with an alkaline solution, drawing off the unabsorbed solution, washing the grain with water, macerating with dilute acid, as specified, drawing off the unabsorbed dilute acid, again washing with water, and again treating with acid, substantially in the manner described.

3. The hereinbefore-described method of treating grain in the manufacture of glucose, which consists in macerating the grain with dilute acid, as specified, drawing off the surplus acid from the grain, washing with water, again thoroughly impregnating the grain with acid, introducing the grain, with such acid only as is absorbed thereby, into a converter having a perforated bottom or diaphragm, above which the grain is supported, admitting steam under pressure through said diaphragm, and thereby speedily raising the temperature of the mass (before a sufficient quantity of water has been formed to destroy the porous condition of the mass and prevent the access of the steam to all parts thereof) to the point at which conversion takes place, and finally forcing out the contents of the converter.

4. The hereinbefore-described method of treating grain in the converter in the manufacture of glucose, which consists in submitting grain thoroughly impregnated with dilute acid, but with only such acid as is absorbed thereby, to the direct action of steam under considerable pressure, substantially in the manner described, whereby the entire mass of grain is simultaneously acted upon, and the point at which conversion takes place is attained before the formation of sufficient water to prevent the free access of the steam to all parts of the grain.

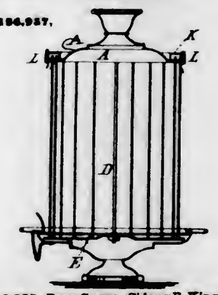
186,936. SEWING-MACHINES. R. Jones, Wilbraham, Mass. [Filed Aug. 25, 1874.]



1. The hollow vertical casing P, arranged to contain the shuttle and feed mechanism, in combination with the cloth-plate M, and the brace K to support said casing, substantially as described.

2. The hollow casing P, in combination with the brace K, and the table A, having the swinging leaves H, whereby an opening may be left in the said table all around the said casing, and the latter be used independently of the table, and whereby said table may be made continuous with the cloth-plate on top of said casing as a support for work, substantially as described.

186,937.



186,937. BIRD-CAGES. Sidney B. King, Buffalo, N. Y. [Filed July 1, 1876.]

Brief.—The top, having perforate rim, and the two bottom rings, the upper one being perforated, are connected rigidly by rods and nuts. Other rods, of glass, &c., are inserted vertically through the perforate rims, and rest on the imperforate rim. An annular cap, secured by springs, covers the upper ends of the loose rods. Remove one loose rod, revolve one fixed rod, carrying the socket, reinsert the bracket, and the feed-cup may be supported outside the cage.

1. The combination of the removable perforated top A, correspondingly-perforated rim E, rim G, the supports D, and removable bars C, substantially as and for the purposes described.

2. The combination and arrangement of the bracket N, sleeve O, and movable bar D, for the purposes set forth.

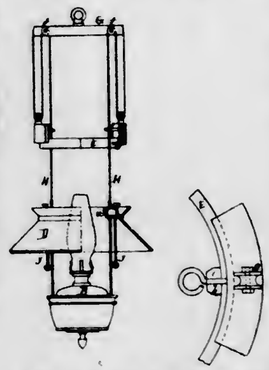
3. The combination of the top A, annular piece K, spring L, and removable bars C, as and for the purposes described and shown.

186,938. GLASS BOTTLES. Wm. C. King, Union Township, Allegheny County, assignor to King, Son & Co., Pittsburg, Pa. [Filed Jan. 12, 1877.]



As a new article of manufacture, a glass bottle the mouth of which has a series of crimps, a', four or more in number, at regular intervals, substantially as and for the uses described.

186,939. HANGING LAMPS. E. C. Lawrence, Chicago, Ill. [Filed Dec. 11, 1876.]



1. In a hanging lamp, the combination, with the weighted rim E and shade D, of the locking-shafts J J, arranged to connect the rim and shade together, substantially as and for the purpose specified.

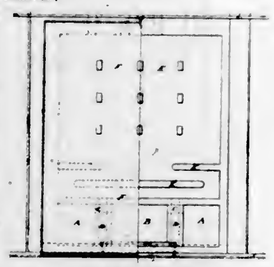
2. In a hanging lamp, the combination, with the lamp B, of the cross-bar G, cords H H, weighted rim E, shade D, and locking-shafts J J, whereby the said weighted rim is elevated with or without the shade, substantially as and for the purpose specified.

186,940. EVAPORATING-PANS. James T. Lockey, Northwich, England. [Filed July 6, 1875.]

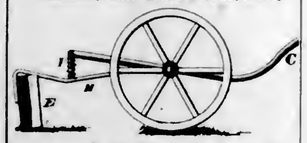
1. The combination of the evaporating-pan F, with the arched tops of the reverberatory furnace B, and one or more side furnaces, A, said furnaces being connected with side passages C, and the reverberatory furnace B having the narrow passage o at its front end, whereby the heat escaping from the main furnaces A is utilized to heat the pan, substantially as described.

2. In combination with the pan F arranged over the furnaces, as described, the bridge-walls E, passages o and D, with the steam-jets s, all arranged to operate as and for the purpose set forth.

146,940.



146,941. ROAD-SCRAPERS. John Maitland, Cleveland, Ohio. [Filed June 29, 1876.]

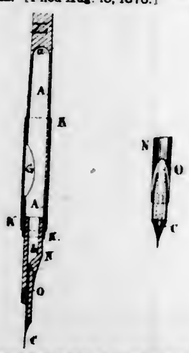


1. In a road-scraper the combination, with the frame C extending in rear of the truck-axle, of the independent scrapers E and spring-shanks H, the latter rigidly secured to a cross-piece arranged over, or in close proximity to, the truck-axle, substantially as and for the purpose specified.

2. In a road-scraper the combination of the upper and lower handles D' D with the frame C, to which the scrapers are secured by means of spring-shanks H, substantially as and for the purpose specified.

3. The combination, with a wheel-truck, whose axle directly supports the spring-shanks H, of scrapers E and guides I, substantially as and for the purpose described.

146,942. FOUNTAIN-PENS. Jno. M. Might and C. W. H. Taylor, Toronto, Ontario, Canada. [Filed Aug. 15, 1876.]



The fountain-pen herein described, consisting of holder L, with recessed chamber A G formed in its large end, inclosing elastic case K, tapered plug N, with tapered hole b O and rib C, all constructed and arranged to operate as and for the purposes set forth and shown.

146,943. APPARATUS FOR WALLING WELLS. A. Moore, Shellsburg, Iowa. [Filed Nov. 12, 1875.]

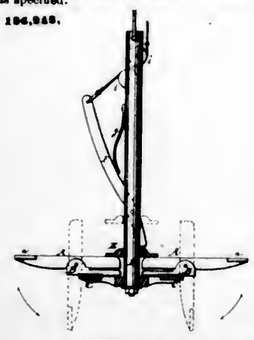
1. The well-waller, consisting of a series of radius arms, upon the outer ends of which the wall may be supported, said arms being pivoted to a center column, and provided with a releasable detent contrivance, capable of being operated from the top of the well, to allow of the tilting of the arms when the implement is withdrawn from the well, substantially as specified.

2. The combination, with the pivoted radius arms A, of the column D, ring or collar E, and lever F, substantially as specified.

3. The combination of the radius arms A, the adjustable bearings B, and collar E, provided with a detent contrivance, substantially as specified, whereby the apparatus may be adjusted to different diameters.

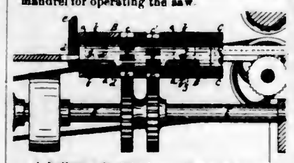
4. In a device for walling wells from the surface, a series of radial arms, formed to support the wall while being lowered, and to be released and withdrawn from beneath the same when the wall is in place, substantially as specified.

146,944.



146,944. MACHINES FOR MAKING WOODEN EAVES-TROUGHS. W. H. Nudd, Minneapolis, Minn. [Filed Nov. 17, 1876.]

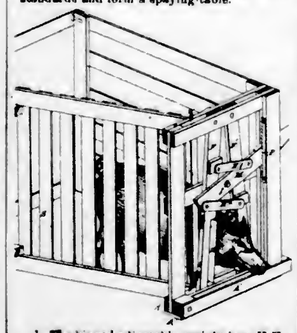
Brief.—Wooden eaves-troughs or gutters for the roofs of houses are formed by means of a hollow cylindrical saw, attached to a hollow cylindrical mandrel mounted in bearings on the top of the main frame, and provided with two series of slots arranged in alternate positions, which engage with gear-wheels arranged upon a rotating shaft immediately below the mandrel for operating the saw.



A hollow cylindrical saw, C, attached to the hollow mandrel B, having the slots or gear-teeth *a a* in the shell thereof, in combination with one or more gear-wheels, D D', arranged and operating substantially as hereinbefore set forth.

146,945. HOG-TRAPS. H. Ogborn, Richmond, assignor to S. Watson, Dublin, Ind. [Filed Jan. 11, 1877.]

Brief.—The side panel and the trap-mechanism are hinged, so that by disconnecting the end pieces the same can be tipped upon the standards and form a spaying-table.

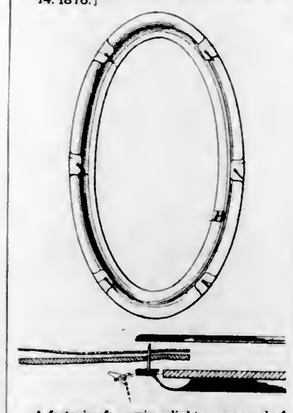


1. The hinged adjustable upright bars H H, having V shaped mortises *a a* cut in them near each end, in combination with the pivoted bars F F' and bolts *b b*, when used together for the purposes and in the manner substantially as set forth and described.

2. The upright adjustable bars H H and jaws F F', in combination with lever M and pivoted pressure-bars H' H', when used and operated together for the purposes and in the manner substantially as set forth and described.

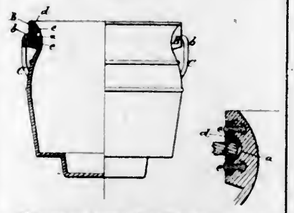
3. The panel S, hinged to the cross-piece A', in combination with the jaws F F' and lever M, substantially as and for the purposes set forth.

146,946. FRAMES FOR CARRIAGE-LIGHTS. F. A. Neider, Madison, Ind. [Filed July 14, 1876.]



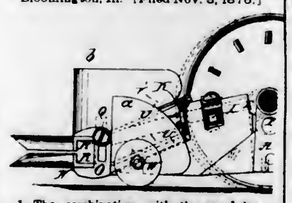
A fastening for carriage-lights, composed of two frames, one provided with recurved ears to hold and conceal the headed ends of the riveting tacks, and the other provided with holes to receive the tacks and clinch them upon, substantially as herein specified.

146,947. BAILS FOR CAST-METAL HOLLOW WARE. Ziba Nickerson, South Carver, Mass. [Filed Sept. 30, 1876.]



The means herein described for attaching bails to hollow ware, consisting of the pocket *a* and washer *d*, in combination with the headed or enlarged end of the bail, the pocket serving to receive such enlargement, and the washer serving to prevent pulling out of such bail, and being riveted to the body of the vessel, as explained, the whole being arranged substantially as set forth.

146,948. LAWN-MOWERS. Henry Otto, Bloomington, Ill. [Filed Nov. 3, 1876.]



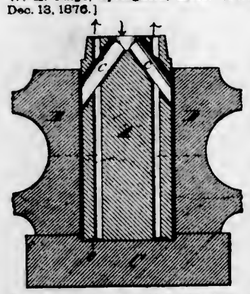
1. The combination, with the pendulum-frame A, suspended from the sleeve B, supported by the shaft of the driving-wheels, of the gear or supplemental frame E, pivoted to the pendulum-frame, substantially as herein shown and described.

2. The rock-shaft H, having the lateral arms I I', collar K, and vertical arms L L', in combination with the slotted shearing-bars E E', having the rear extensions U U', and the driving-wheels D, having the teeth M, substantially as and for the purposes set forth.

3. The combination of the shearing-bar E, having the teeth S, beveled or projecting upwardly, and the shearing-bar E', having the teeth S', beveled or projecting downwardly, substantially as and for the purpose specified.

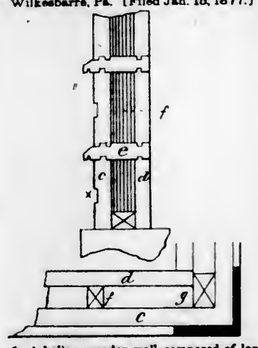
4. The cutter-bar N, having the vertically-slotted extension O, in combination with the covering-bar P and screws Q, substantially as set forth.

146,949. CORES FOR CASTING CAR-WHEELS. W. H. Paige, Springfield, Mass. [Filed Dec. 13, 1876.]



A central core, A, provided with holes or gates *c c*, extending from the upper end thereof downward in an oblique direction to its exterior, between the top and bottom of the mold-cavity, substantially as and for the purpose described.

146,950. WOODEN HOUSES. J. R. Petty, Wilkesbarre, Pa. [Filed Jan. 16, 1877.]



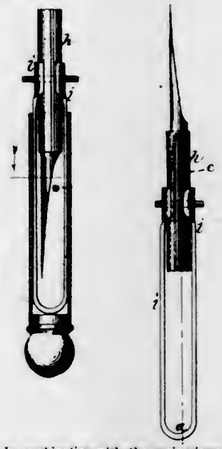
1. A hollow wooden wall composed of longitudinal compartments, which are limited in size by their sides *c* and *d*, plates or cappings *e*, and their intermediate supports *f* and *g*, substantially in the manner and for the purpose specified.

2. The double tongue and groove formed by capping *e*, combined with the outside board *c*, in the manner and for the purpose specified.

146,951. PROCESSES FOR REFINING CRUDE OZOKERIT. C. M. Pielsticker, London, England. [Filed Mar. 22, 1876.]

The process of refining crude ozokerite by melting in an agitator, then adding sulphuric acid, agitating, and, when a drawn sample, freed from impurities, presents a yellow color, drawing off the impurities and washing the ozokerite repeatedly with hot water, allowing it again to settle, and then agitating with carbonate of baryta and caustic soda; when sufficiently agitated drawing off the spent chemicals, and adding to the ozokerite a saponifiable oil, or fat, rosin, turpentine, or soap, and caustic soda, agitating, allowing to settle, drawing off impurities, washing repeatedly in hot water, allowing to rest, and, when the ozokerite is of a light-yellow color, filtering it through animal charcoal, so as to obtain a whitish wax-like material, suitable for similar purposes for which bees-wax, paraffine, and stearine are now in use, substantially as described.

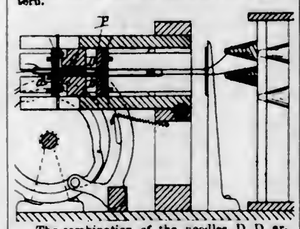
146,952. TOOTH-PICK HOLDERS. Joseph Poznanski, New York, N. Y. [Filed May 1, 1876.]



In combination with the spring-jaws *i* and reversible tooth-pick holder *h*, the core or wedge *c*, for confining the quill in its place, substantially as set forth and shown.

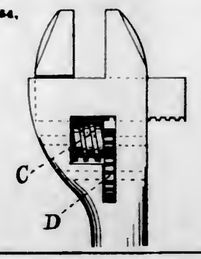
146,953. EMBROIDERING-MACHINES. I. L. G. Rice, Cambridge, Mass. [Filed Nov. 13, 1875.]

Brief.—A set of creels and corresponding needles, (one needle to each creel,) equal in number to the stitches in the pattern, with a guide-plate for the needles, and clamping-plates to hold the worsted, the perforations in the plates corresponding in position to the stitches in the pattern. Each needle makes but one stitch to complete a pattern, the inner ends of the worsted being cut and glued or otherwise fastened to the back of the pattern.



The combination of the needles D D, arranged in their holding-plate F, substantially as described, whereby each needle forms but a single stitch of the pattern, with the guiding-plate C and clamping-plates A and H, and their operative mechanism, whereby a complete pattern is formed when each needle has taken but a single stitch, substantially as shown and described.

146,954.



146,954. WRENCHES. H. Richards, New Britain, Conn. [Filed July 17, 1875.]

In a wrench where a movable jaw moves at right angles to the handle, the combination of a thumb-wheel, D, externally geared into a pinion, E, at the end of the worm C, the pinion being placed in a recess in a slot running lengthwise of the handle.

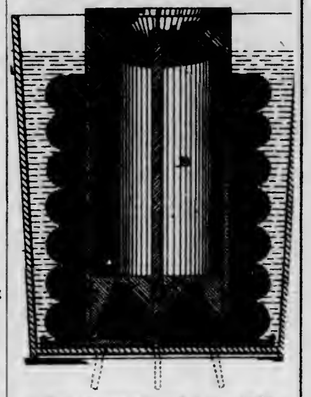
146,955. COMPOSITION CASTING-METAL FOR MAKING ROLLS, &c. Jno. H. Ricketson, Allegheny, Pa. [Filed Dec. 7, 1876.]

1. The described composition metal for casting rolls, &c., consisting of cast and wrought iron and spiegeleisen or ferro-manganese, all substantially in the proportions herein specified.

2. The described process of preparing a compound metal for casting rolls, &c., which consists in alloying cast and wrought iron and spiegeleisen or ferro-manganese on a Siemens furnace hearth, substantially in the manner and the proportions herein specified.

146,956. APPARATUS FOR PICKLING WIRE. C. D. Rogers, Providence, R. I., assignor to American Screw Company, same place. [Filed Dec. 28, 1876.]

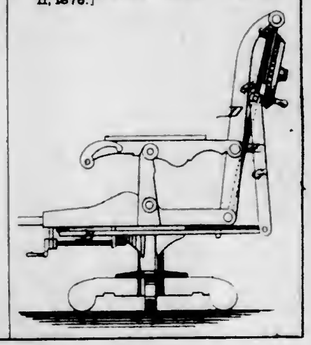
Brief.—To economise acid the space inside of the coils is occupied by a column, which, at the bottom, has four hinged radial arms, that support the coils in the vat, but which are permitted to turn and release the coils on turning the central rod used for lifting the column, which permits the inner ends of the arms to pass upward through slots in the disk on the lower end of the rod, against which the ends of the arms had borne.



1. The combination, with a wire-pickling tub or vat, of a displacing-column, occupying the central space inclosed by the coils of wire, substantially as described, and for the purposes specified.

2. A hoisting-reel provided with a displacing-column, substantially as described.

146,957. RECLINING-CHAIRS. Joseph Roy, Montreal, Quebec, Canada. [Filed July 11, 1876.]



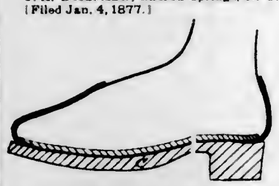
1. In an adjustable chair, the combination of a pivoted base-frame with a hinged seat-section and a locking or clamping device, by which the seat may be locked to or released from the base-frame, substantially as set forth.

2. In an adjustable chair, the combination of the pivoted base-frame and pivoted rear lever-arms with the hinged seat and swinging back and arms, and with an adjusting-screw and gear-wheel mechanism to adjust the seat and back jointly to any inclination, substantially in the manner and for the purpose set forth.

3. The combination of the base-frame, hinged seat, and clamping device, with the swinging back, lever-arms, and adjusting mechanism to adjust the back while the seat is retained in horizontal position, substantially as specified.

4. The combination of the swinging lever-arms of the base-frame with the back section of the chair, having guide-pieces, and with the lateral traversing piece, revolving screw-bolt, pinion, and crank-wheel, substantially as set forth.

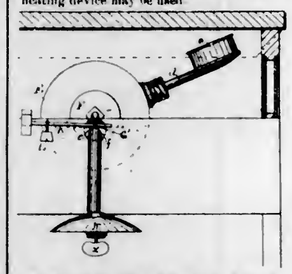
186,958. BOOTS AND SHOES. H. Samson, Ames, assignor of one-half his right to J. A. Dockstader, Sharon Springs, N. Y. [Filed Jan. 4, 1877.]



A boot or shoe provided with a foxing extending entirely around the same, and united at the sole seam only, all substantially as and for the purpose set forth.

186,959. HEAT-REGULATORS. Charles G. Schulze, New Orleans, La. [Filed July 13, 1876.]

Brief.—As the temperature is increased, a portion of the liquid contents of the chamber E is forced into the bowl *e*. A lamp or other heating device may be used.



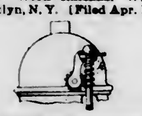
1. The combination of the zinc cylinder D, jacket E, and heads F F', the latter secured to the former by means of a bolt or stud, G, having its outer ends cut substantially as described, so as to form edges upon which the whole may be balanced, as set forth.

2. In combination with the cylinder D, jacket E, heads F F', and stud G, the hollow stem *d*, and bowl *e*, as described, and for the purpose set forth.

3. In combination with the cylinder D provided with jacket E, hollow stem *d*, and bowl *e*, the heads F F', provided with pipes H I, beam K, and weight L, as specified, and for the purpose set forth.

4. In a heat-regulating apparatus the lever M, provided at its free end with dome N and set-screw *s*, arranged to operate in the manner shown, and for the purpose specified.

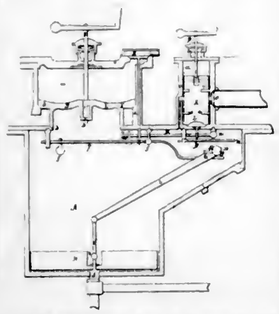
186,960. WICK-RAISERS. W. H. Smith Brooklyn, N. Y. [Filed Apr. 11, 1876.]



1. In combination with the vertical rod extending through the body of the lamp and provided with an endless screw at its upper end, the ratchet-shaft, journaled in the removable top of the lamp, and provided with a pinion on its end adapted to gear with the endless screw on the vertical rod, for the purpose of raising and lowering the lamp-wick, substantially as set forth.

2. An endless screw-rod, provided with an annular groove at its upper end, in combination with an arm attached to the lamp or burner in which said rod is journaled, and the spring for retaining said rod in place, substantially as set forth.

186,961. INDICATORS AND LOW-WATER ALARMS. Wm. Starkey, Pittsburg, Pa., assignor of three-fourths of his right to H. Pullian, J. S. Cooper, and T. S. Hutchinson, same place. [Filed July 24, 1876.]



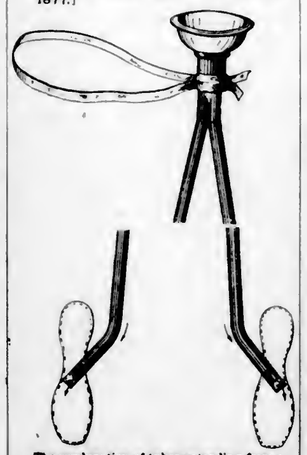
1. In combination with the vessel A and chamber *a*, the valves B and E, lever F, arm *g*, shaft G, arms *i* and *i'*, and float H, combined and arranged substantially as described and shown, and for the purpose set forth.

2. In combination with the vessel A and chamber *a'*, the valves K and L, levers M and N, arm *a'*, shaft G, arms *i* and *i'*, and float H, substantially as described and set forth.

3. The combination of the float H, arms *i'* and *i*, arm Q, lever R, and whistle S, substantially as described and set forth.

4. In a safety attachment for steam-boilers, the combination of the vessel A, chambers *a* and *a'*, the pipes J and J', valves K and K', all combined and arranged as described, substantially.

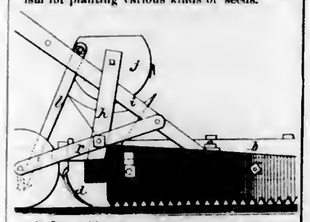
186,962. FOOT-WARMERS. W. T. Steiger, Howard County, Md. [Filed Jan. 16, 1877.]



The combination of tubes extending from a mouth-piece, and foot-coverings, for utilizing the warmth of the breath during respiration, as set forth.

186,963. COTTON-SEED AND CORN PLANTERS. John A. True, Marion, Ala. [Filed Oct. 26, 1876.]

Brief.—To the triangular bars are attached adjustable metal plates, in the lower edges of which are formed saw-teeth for pulverizing the soil. To be mounted upon uprights are interchangeable seed-boxes, having mechanism for planting various kinds of seeds.



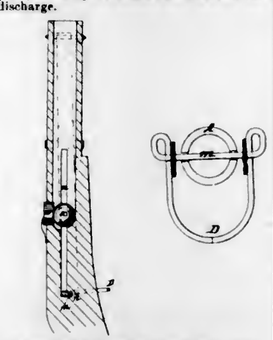
1. In combination with the rearwardly-slanting sides of a cultivator-frame, the metallic plates *e*, secured thereto, and having their lower edges made into saw-teeth, substantially as shown.

2. The combination, in a corn and cotton-seed planter, of a suitable frame, *e*, and the saw-toothed plates *s*, for preparing the ground, the standards *h*, braces *r*, shaft *o*, having the crank *n*, pulley *x*, and wheels *z*, the parts being arranged for operation substantially as shown.

3. The combination of a triangular frame, *e*, provided with harrow-teeth *g*, with the saw-toothed plates *s*, substantially as described, whereby the grass and weeds are first cut away and the ground harrowed at the same time.

186,964. TOY GUNS. J. B. Tyler, Brooklyn, assignor of one-half his right to Saml. L. Bergstrusser, Long Island City, N. Y. [Filed July 11, 1876.]

Brief.—The trigger and cross bar are in one piece, and carry the missile before them at the discharge.



In a toy gun or pistol, the cross-bar *m*, having downward-projecting ends, forming the trigger D, and made in one piece, substantially as and for the purpose set forth.

186,965. BELTING. F. H. Underwood and J. B. Underwood, Brooklyn, N. Y. [Filed Dec. 28, 1876.]

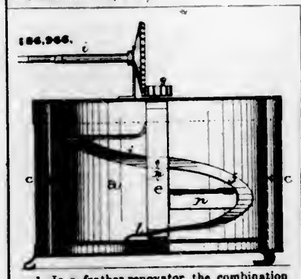


1. The combination of the angular, trapezoidal, or square belt, with the edge or side leather re-enforces, when made, constructed, and fastened, substantially as set forth.

2. An angular, trapezoidal, or V-shaped belt constructed with the re-enforces fastened or attached thereto upon the edge or side, substantially as shown, set forth, and described.

186,966. FEATHER-RENOVATORS. William Walker, Trivoli, Ill. [Filed Dec. 22, 1876.]

186,966.

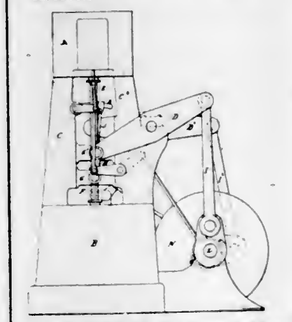


1. In a feather-renovator, the combination of a vertical shaft, having suitable gearing attached thereto, with a spiral stirrer, substantially as shown.

2. In a feather-renovator, a spiral stirrer, having hinged wings or vanes, which act as blowers to drive the feathers out into ticks or cases, substantially as described.

3. The combination of the case *a*, steam-jacket *c*, shaft *e* and its operating mechanism, spiral stirrer, having vanes *l n*, and side openings *s t*, substantially as set forth.

186,967. PUMPING-ENGINES. J. S. Wilson, Philadelphia, Pa., assignor of one-half of his right to W. Cramp & Sons Ship and Engine Building Company. [Filed Sept. 12, 1876.]



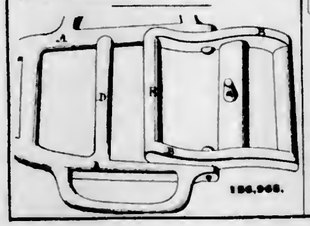
1. The combination, in a vertical direct-acting pumping engine, of the steam-cylinder A, pump B, connecting-links H, walking-beam D, connecting-rod I', and fly-wheel shaft L, substantially as herein described.

2. The combination, in a vertical direct-acting pumping-engine, of the walking-beam D, supported upon the frame C', which connects the steam-cylinder to the pump, the connecting-rod I', and the crank-shaft L, as herein described.

3. In a direct-acting vertical pumping engine, of the independent compound type, the combination of the steam-cylinders A A', operating the pumps B B', and coupled together at right angles by means of the links H, beams D D', connecting-rods I' P, and crank-shaft L, as herein described.

4. The combination, in a direct-acting pumping-engine, of the double beam D, spanning the frame C', which connects the cylinder to the pump, for the purpose of communicating the motion of the piston to the fly-wheel, as herein described.

5. The combination of the piston-rod E, pump-rod F, cross-head G, nut P, and collars *p'* and *r*, substantially as shown.



186,968.

186,968. BUCKLES. H. S. Woodruff, Janesville, Wis. [Filed Mar. 23, 1874.]

A buckle, consisting of the open-ended frame A, having the cross-bar D, in combination with the frame B, having the cross-bar F, with the tongue or stud *s* thereon, said frames being pivoted to each other, as described, and operating in the manner specified.

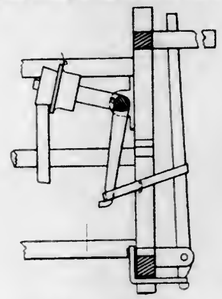
186,969. PROCESSES AND COMPOSITIONS FOR FINISHING SHEET-IRON. W. D. Wood, Pittsburg, Pa. [Filed Dec. 18, 1876.]

1. The mode of finishing sheet-iron by coating the sheets in the process of rolling with a mixture of carbonaceous matter, ammoniacal salt or solution, and suitable fluid, for the purpose of giving the surface a finely-glazed appearance, substantially as described.

2. As a coating for sheet-iron in the process of finishing, a plastic mixture of carbonaceous matter, and a solution or compound of ammonia, substantially as set forth.

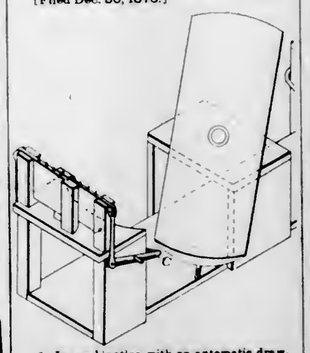
186,970. LOOMS. H. D. Wood, Suncook, N. H. [Filed Jan. 15, 1876.]

Brief.—The roller is loose upon the arm of the rock-shaft, and is provided with a flange, whereby the roller is prevented from lateral motion tending to remove it from the arm.



In a picker-staff operating mechanism for looms, the combination, with the rotating cam *c*, roller-carrying arm, and rock-shaft adapted to be connected with the picker-staff, of the flanged roll placed loosely upon the arm, and prevented by the action of the flange against the cam from lateral motion from the end of the arm under the action of the cam, substantially as described.

186,971. SAFETY-GATES FOR DRAW-BRIDGES. Daniel Arndt, Cleveland, Ohio. [Filed Dec. 30, 1876.]

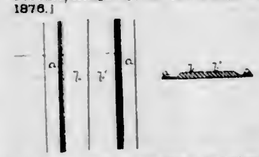


1. In combination with an automatic draw-bridge gate, the pivoted cam-bar C, substantially as and for the purpose described.

2. In an automatic draw-bridge gate, the combination of a pivoted cam-bar, connecting-link, and gate, substantially as and for the purpose described.

3. In combination with a pivoted cam-bar, connecting-link, and gate, a cam projection on the under side of the bridge, substantially as and for the purpose described.

186,972. MANUFACTURE OF FINGER-BARS. J. B. Atkinson, Pittsburg, assignor to B. F. Jones, Allegheny, Pa. [Filed Sept 29, 1876.]



A bar of which to construct finger-bars, having thin edges *a* and thick part *b b'*, proportioned substantially as described, for a low attachment of guards, and an oblique cut of the body for severing the same without waste, into two bars.

186,973. CHAIR-SEATS. S. M. Barrett, Cincinnati, Ohio. [Filed Jan. 16, 1877.]



1. A chair-seat having a seat-rim formed with one or more slots extending through the rim for the insertion of the seat-bottom, substantially as and for the purpose set forth.

2. A seat-rim formed of a single piece of material, and provided with one or more slots extending laterally through the same for the insertion of a seat-bottom, substantially as and for the purpose set forth.

3. A seat-rim formed of a single piece of material, the ends of the rim secured by a lap or other joint at the rear side of the rim, said rim provided with one or more slots for the insertion of a removable seat-bottom, substantially as and for the purpose set forth.

4. A chair-seat consisting of a seat-rim having its inner edge grooved, and one or more slots or openings extending laterally through the seat-rim, whereby the seat-bottom may be secured in place after the completion of the seat-rim, substantially as and for the purpose set forth.

5. The combination, with a seat-rim provided with one or more slots or openings extending laterally through said rim, of a removable seat-bottom, formed of any suitable material, the same being of suitable size and configuration to rest in the grooves in the seat-rim, substantially as and for the purpose set forth.

186,974. BOOK-SUPPORTS. W. S. Barnard, Canton, Ill. [Filed July 12, 1876.]



1. As a new article of manufacture, a book support or holder, composed of separate and unconnected end pieces movable toward or away from each other, substantially as described, the bases being adapted to extend under and be held down by the book or books at either end of a row of books, and the side pieces to support the outermost books at either end of the row in a vertical position, as set forth.

2. An end piece for a book support or holder, composed of a base, *a*, in combination with its side piece *b*, connected substantially as described, whereby they may be placed in parallel planes, when required, as and for the purpose set forth.

186,975. FURNACES AND PROCESSES FOR MANUFACTURING IRON AND STEEL. Benj. Baylis, Pittsburg, Pa. [Filed Feb. 11, 1876.]

1. The combination of the double compound fuel-chamber with the air-blast A and the

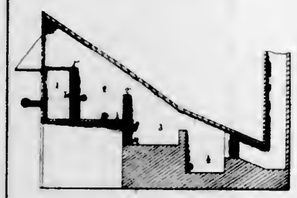
compound air and steam pipe F, operating substantially as and for the purpose described and shown.

2. The combination, with the steam-pipe L, inclosed within the hollow bridge V, of the detachable rabbling pipe M, provided with perforations, for discharging steam into the molten metal, all substantially as herein set forth.

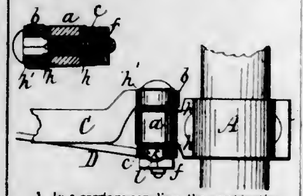
3. In combination with the hollow bridge-wall V, the air-pipe Q, extending laterally therein, and provided with perforations for discharging the contained air, through vents in the bridge, into the molten iron contained within the chamber No. 3, substantially as described and shown, and for the purpose set forth.

4. A furnace having a combustion-chamber, No. 1, fining-chamber No. 2, refining-chamber No. 3, and steel-chamber No. 4, the several chambers communicating with each other by means of troughs, substantially as described, and for the purposes set forth.

5. The herein-described process of fining and refining iron and steel, which consists in subjecting a bath of molten cast-iron in a puddling-hearth to the action of superheated steam, introduced through a rabble-blast, until all contained sulphur and phosphorous impurities are removed, then decarbonizing and refining it in an adjoining hearth by a superheated-air blast, and, finally, recarbonizing to any extent by the introduction of melted spiegeleisen, the successive stages of treatment being all conducted within the same furnace-chamber, for the purpose of concentrating and retaining the heat of the bath, substantially as and for the purpose herein set forth.



186,976. VEHICLE-SHAFT COUPLINGS. G. Beck, Charlotte, N. Y. [Filed Aug. 22, 1876.]



1. In a carriage-coupling, the combination, with the knuckle *a* and thill-iron C, of the rod D, performing the double office of a brace extending across the arch of the thills, and as a part of the coupling, as shown and described, and for the purpose specified.

2. A carriage-coupling, consisting of the knuckle *a*, thill-iron C, brace D, bolt *d*, and packings *h h h'*, the thill-iron and brace fitting on opposite sides of the knuckle, and the brace extending from the coupling across the arch of the thills, as shown and described, and for the purpose specified.

3. In a carriage-coupling, the combination, with the knuckle *a* and the coupling-eyes *b c*, of the packings *h h*, resting between the knuckle and the said eyes, and the corrugated nut *f* outside, bearing against a corresponding corrugated face of the brace-eye, as shown and described, and for the purpose specified.

186,977.

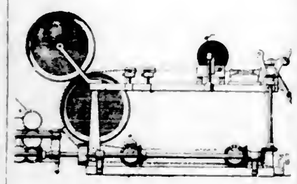


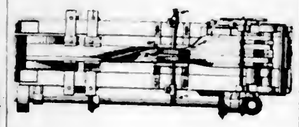
186,977. LAST-BLOCK FASTENINGS. W. P. Beers, Newark, N. J. [Filed July 17, 1876.]

In combination with the last A provided with the groove C and plate *a*, the instep-block B, provided with plate D, screw *e*, and nut *f*, all substantially as shown, and for the purpose set forth.

186,978. PAPER-BOX MACHINES. E. B. Beecher, Westville, Conn., assignor to Swift & Courtney & Beecher Company, same place. [Filed Aug. 11, 1876.]

Brief.—Paper from web passes through adjustable guides on feed-table, under adjustable score-cutters, making four parallel lines of indentations, thence over the glue-box, and receives glue on one edge from a blade on a reciprocating cross-head. The strip now enters the guide-box, and is partially folded by the wheels set at angles therein, the folding of the tube being completed by the beveled guides. The tube now passes between pressure-rollers of large diameters, around the lower one of which it is tightly drawn, with the lap upon the outside, to cause the glue to firmly adhere. Thence it passes between other pressure-rollers, and around an adjustable roller, by means of which the distance traveled for drying the glue is regulated. On leaving the forming-machine the end of the tube is opened out and refolded on the bending-lines heretofore unused, and then passed into the printing-press, where the sides of the tube are simultaneously printed, and the tube is severed into box-lengths corresponding to the impressions.





1. The method herein described of making drawer-cases, consisting, essentially, in scoring a continuous strip of pasteboard upon the proper bending-lines for forming the angles of the case, forming the scored strip into a tube, severing the tube into proper lengths, and opening out the separate lengths upon the angle-lines, to form a complete case, substantially as set forth.

2. The method herein described of making drawer-cases, consisting, essentially, in scoring a continuous strip of pasteboard upon the proper bending-lines, forming the strip into a tube, printing the tube upon its flattened sides, and severing the tube into lengths coinciding with the separate impressions of the press, substantially as described.

3. The combination of the following elements: mechanism, substantially as described, for drawing and guiding the pasteboard strip; mechanism, substantially as described, for scoring the same; mechanism, substantially as described, for gluing one edge; mechanism, substantially as described, for folding the glued strip upon one set of bending-lines into a tube; mechanism, substantially as described, for refolding the tube upon the other set of bending-lines, and mechanism, substantially as described, for severing the tube into proper lengths.

4. In combination with mechanism for scoring and gluing the strip, and folding the same into a tube, mechanism, substantially as described, for printing the sides of the tube.

5. In combination with mechanism for scoring and gluing the strip and folding the same into a tube, mechanism, substantially as described, for printing the same and severing it into proper lengths, substantially as described.

6. In combination with mechanism, substantially as described, for printing simultaneously its sides, and for drawing the flattened tube, mechanism, substantially as described, for severing it into lengths corresponding with the impression of the press.

7. The method described of scoring a pasteboard strip with a double line of indentations, as and for the purpose described.

8. The method described of printing simultaneously the top and one side, and the bottom and remaining side, of a drawer-case, consisting, essentially, in folding a tube into a flattened condition upon the proper bending-lines, and passing it between the impression-rollers.

9. The combination of the boxes c^{16}, carrying the score-cutters c^{20}, and the eccentric shaft c^{5}, for adjusting them with the shaft c^{5} and set-screws c^{24}, as described.

10. The score-cutter c^{21}, substantially as described, adapted to form a double line of indentations, as and for the purpose set forth.

11. The combination of the shaft c^{5} c^{5} and the boxes c^{16}, having eyes c^{17}, with sleeves c^{14}, and the intermediate connecting devices, substantially as described, the construction being such that the boxes are laterally adjustable upon the shaft, as described.

12. The combination of the glue-box and its connections with the reciprocating cross-head and its actuating mechanism, substantially as described.

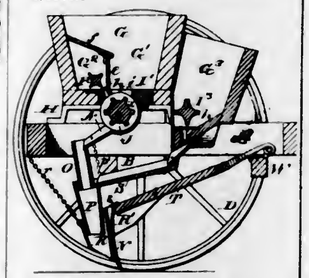
13. In combination with the guide-box E, the wheels e^{1}, set at an angle, as and for the purpose set forth.

14. In combination with the guide-box and wheels e^{1}, the spring e^{11}, as described, for the purpose described.

15. In combination with tube-forming mechanism and refolding mechanism, an adjustable roller b^{13}, adapted to vary the distance traveled by the tube, substantially as described.

16. The method described of uniting the glued edges of a tube, consisting, essentially, in passing the same about a wheel of large diameter, with the lap or fold upon the outside, by means of which the lap is drawn to place, and securely held until a union has been effected.

186,979. COMBINED CULTIVATOR AND SEEDER. J. Bergey, Wadsworth Township, Medina County, Ohio. [Filed Nov. 6, 1876.]



1. The combination of the frame A, grooved casting B, cogged slide C, with spindle *a*, carrying the wheel D and bar *d'*, the segmental cogged levers E, with spring-pawl *b*, and the ratchet-plate *d*, substantially as and for the purposes herein set forth.

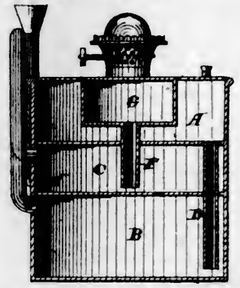
2. The combination, in a grain-box, G', of the slides I', having openings *i* and recesses on its under side, the smooth rollers J, having elongated pockets *x* at one end, and the washers *n*, all constructed substantially as and for the purposes herein set forth.

3. In a grain-drill the combination, with the grain delivery roller or other equivalent mechanism, of the casing N, with hinged spout O, the conductor P hinged to a jointed arm, *s*, the hoe R hinged to the drag-bar T, and the suspending cords or chains *p'* and r, substantially as herein set forth.

4. The combination of the hoe R with arms R', drag-bar T, and the point V, with spring-arms *s*, substantially as and for the purposes herein set forth.

5. The combination, with the pinion *a'*, on the driving-wheel D, and the pinions *e' f'*, of the pinion *b'*, the bar *d'*, having convexity *y*, and placed on the spindle *a*, the slide C, and the casting B, having concavity *z*, all substantially as and for the purposes herein set forth.

186,980. LAMPS. A. Z. Boda, Cleveland, Ohio, assignor of two-thirds his right to Geo. B. Burton and H. P. Malone, same place. [Filed Dec. 20, 1876.]



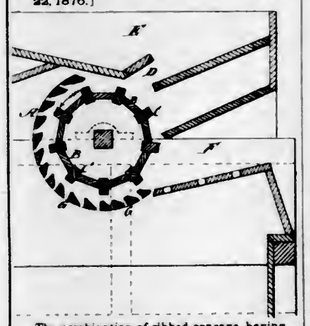
1. The fountain attachment for oil-stoves, lamps, &c., consisting in the combination, with the connecting mechanism, of a vertical series of chambers, the first of the series being the water, the second the oil, and the third the air chamber, the same operating as described, whereby the oil is forced up in the wick-tube, and the latter is kept cool by its passage through the upper water-pressure chamber, substantially as and for the purpose set forth.

2. The combination, with the upper water-chamber located just below the burner, the lower air-pressure chamber, and the intermediate oil-reservoir, of pipes connecting, respectively, the air-pressure chamber with the water and oil chambers, the latter provided with a wick-tube extending down from the burner through the water, and nearly to the bottom of the oil-chamber, substantially as and for the purpose set forth.

3. The combination, with the oil-reservoir located between the upper water and lower air chamber, together with their connecting mechanism, of the wick-tube and the small secondary oil-chamber, the latter suspended within the water-chamber and just below the burner, substantially as and for the purpose set forth.

4. In a fountain-attachment for lamps, oil-stoves, &c., the combination, with the oil-reservoir located in a vertical series between the upper water and lower air chambers, of an air-passage tube connecting the air-chamber with the oil-reservoir, the said air-tube extending up into a horizontal plane above that of the hydrostatic column, whereby flow of water into the oil-chamber is obviated, substantially as and for the purpose described.

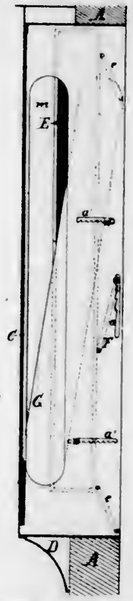
186,981. COTTON-CLEANERS. J. A. Bowers and M. Adar, Princeton, Ark. [Filed May 22, 1876.]



The combination of ribbed concave, having spaces G, rotary cylinder, having beaters C, the throats F D, and the hopper E, all arranged substantially as and for the purpose specified.

186,982. VENTILATORS FOR RAILWAY-CAR WINDOWS. A. Brandon, New York, N. Y. [Filed Jan. 10, 1877.]

Brief.—There are two slides at the front, and two at the rear, of each window. One is of wire-cloth or other foraminous material, to exclude sparks; the other is a sheet of metal or other tight material, to exclude light and air.



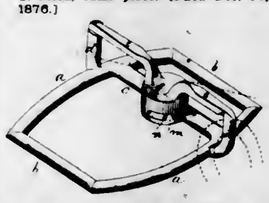
1. In combination with a projecting window, two slides, E G, adapted to allow of being moved inward or outward to open and close the aperture *m* at the edge of the window, as herein specified.

2. The links *c* and adjusting-links F, in combination with a screen E, mounted in the edge of a projecting window, as herein specified.

3. The screen G, formed as shown, and having separate means of adjustment for the top and bottom, in combination with the projecting window D C, as and for the purposes specified.

4. The slides I J, combined, as shown, with each other and with the apertures H under the glass C, for the purposes specified.

186,983. TRACE-CARRIERS. C. B. Bristol, New Haven, Conn., assignor to W. and E. T. Fitch, same place. [Filed Dec. 30, 1876.]



1. The herein described trace-holder, consisting of the frame constructed with the central bearing or support, and with the side bearings or posts, combined with a bar or arms, *e e*, hung substantially at the center, so that turning the one end turns the other, and a spring for holding the said arms in their normal condition, substantially as specified.

2. In a trace-holder, substantially such as described, in which the bar or arms *e e* are formed in one and the same piece with the pivot *g*, with which they turn, and by which they are secured to the frame, combined with a spring for automatically closing said arms, substantially as described.

3. In a trace-holder, substantially such as described, in which the bar or arms *e e* are formed in one and the same piece with the pivot *g*, with which they turn, and by which they are secured to the frame, combined with a spring for automatically closing said arms, and a lug or stop, *m*, on the support for the arms, and a corresponding recess or shoulder, *p*, to form a stop for the turning of the arms, substantially as described.

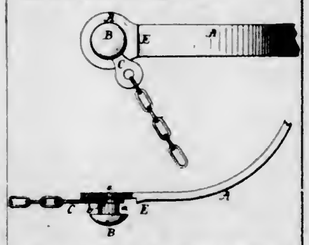
186,984. ARTIFICIAL FEATHERS. J. Brown, New York, N. Y., assignor to himself and M. Leipziger. [Filed Dec. 30, 1876.]



Artificial feathers formed of strips of skin with the natural fur or down adhering to them, the sheet of thin sheet-rubber or other adhesive material B, the back C, and the wire or whalebone D, substantially as herein shown and described.

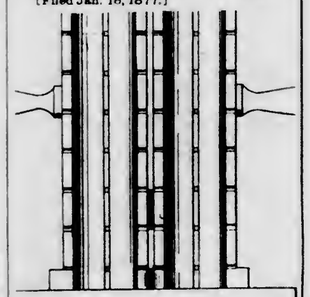
186,985. SPURS. A. Buermann, Newark, N. J. [Filed Nov. 29, 1876.]

Brief.—A projection on the side bar prevents the loop from turning entirely around, and thus avoids twisting the chain.



The combination of the loop C and button B with the bar A, having the projection E on its side, as and for the purpose specified.

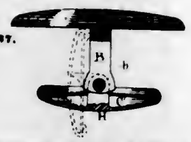
186,986. MANUFACTURE OF HOLLOW GLASSWARE. J. Burgun, Pittsburg, Pa., assignor to Dithridge & Co., same place. [Filed Jan. 18, 1877.]



As an improvement in the manufacture of hollow blown glassware, blowing the same in a mold grooved longitudinally, while either the glass or the mold is rotated.

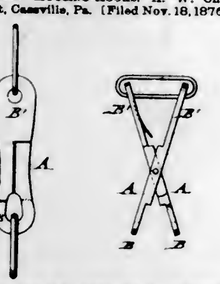
186,987. CUFF-BUTTONS, STUDS, &c. F. B. Capron, Providence, R. I. [Filed Dec. 4, 1876.]

186,987.



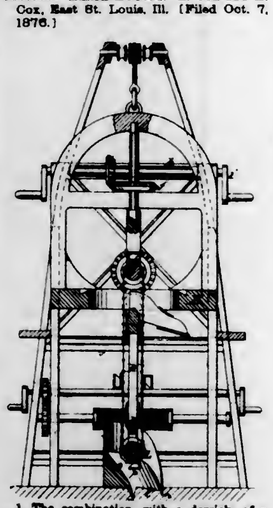
The combination of the shouldered stem B B with the disk H and disk-spring C, constructed and arranged substantially as described, and for the purpose set forth.

186,988. MOUSING-HOOKS. A. W. Chilcott, Cassville, Pa. [Filed Nov. 18, 1876.]



A mousing-hook consisting of two pivoted levers, A A, having at one end recessed hooks B B, and at the opposite end recessed loops B' B', adapted to close upon each other and form a solid hook and loop, substantially as shown and described.

186,989. EARTH-AUGERS. E. Cox and H. Cox, East St. Louis, Ill. [Filed Oct. 7, 1876.]



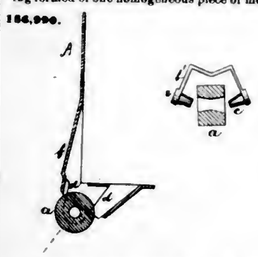
1. The combination, with a derrick, of a box-auger attached to a rotary yoke therein, and an endless chain of buckets, constructed and arranged substantially as shown and described.

2. A hollow, inclined at the bottom, and provided with chain O, cutting-edge *l*, point *n*, and cutting-lip *s*, in combination with an endless bucket-chain, arranged as and for the purpose specified.

186,990. TRUNK-ROLLERS. J. J. Cowell, Newark, N. J. [Filed Aug. 16, 1876.]

Brief.—An inner frame, formed from a single piece of metal, adapted to form journals for the caster by pressing two cone-shaped projections together, is placed inside and combined with an ordinary trunk corner-piece having an angle-iron holding the canal trunk-roller, the construction being such that the inner frame, fitting closely within the outer frame or clamp, is utilized to carry the wheel or roller, the bearings of this inner frame being formed of one homogeneous piece of metal.

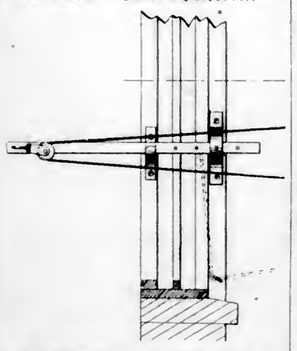
186,990.



1. A trunk-roller, consisting of an outer frame or clamp, A, provided with the inner frame *b* and wheel *a*, constructed and arranged to operate substantially as and for the purposes set forth.

2. In a trunk-roller, an inner frame, *b*, in which the wheel *a* is located and has its bearings, formed from one homogeneous piece of metal, and adapted to be pressed together, either with or without the sectional journals, as set forth.

186,991. LINE-FASTENERS. J. T. Cronk, Hoboken, N. J. [Filed May 16, 1876.]



The combination of the sliding brace or arm, having end hook, the outer supporting-socket, and the clothes-line with a fixed hook or other fastening device below the arm, to take up slack of line when the arm is pushed to outside, substantially as specified.

186,992.



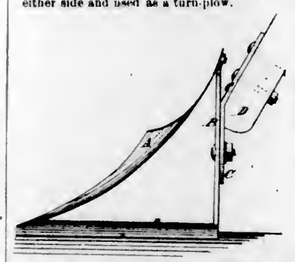
186,993. STOCKING-SUPPORTERS. E. L. Demorest and T. W. G. Cook, New York, N. Y., assignors to W. J. Demorest, same place. [Filed Dec. 9, 1876.]

1. The clips A, provided with the perforations *a*, points *b*, arm C, and pin B combined, substantially as herein shown and described.

2. A stocking-supporter, consisting of the clips A, pins B, elastic strap D, buckle C, plate F, and pin E, substantially as shown and described.

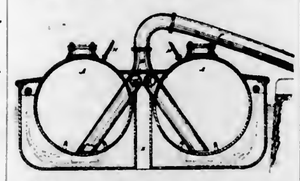
186,993. SHOVEL-PLOWS. T. H. O. Dow, Tampico, Ill. [Filed Aug. 7, 1876.]

Brief.—A shovel-plow of a shape and hung in such a manner that it may be turned upon either side and used as a turn-plow.



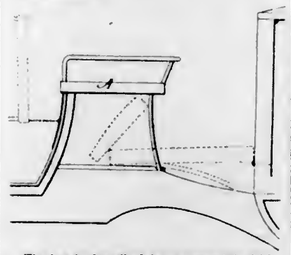
The plow-plate A, the right-angled bar B, and the obtuse-angled bar C, constructed and combined with each other, substantially as herein shown and described.

186,994. DREDGING-MACHINES. F. E. Duckham, Millwall Docks, England. [Filed Aug. 11, 1876.]



The combination, with air-tight tanks A and well B, of outlet-pipe E, hose F, and pipes H, connected with air-pump, substantially as and for the purpose specified.

186,995. FALLING-FRONT CARRIAGES. P. C. Durham, New Haven, Conn., assignor to Durham & Wooster, same place. [Filed Jan. 16, 1877.]



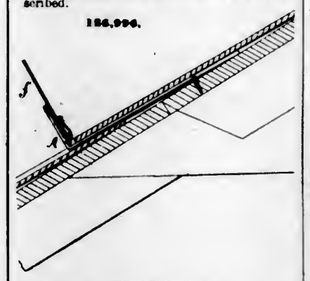
The herein-described improvement in folding-front carriages, consisting in the ends and back beneath the seat hinged, so as to open the space beneath the seat, for the folding of the top, substantially as specified.

186,996. SNOW-GUARDS FOR ROOFS. G. F. Folsom, Boston Highlands, Mass. [Filed Jan. 13, 1877.]

1. A snow-guard for roofs, consisting of a wire bent oppositely at right angles at its ends, having one of its ends flattened and sharpened, and having its other end formed into a loop and tongue, substantially as herein shown and described.

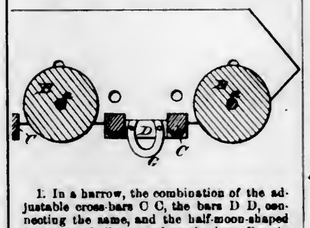
2. The combination of the guard A and plate *f*, substantially as herein shown and described.

186,996.



186,997. HARROWS. A. J. B. Foster, Mount Pleasant, Tenn. [Filed July 12, 1876.]

Brief.—Two side pieces connected by adjustable transverse rollers and bars, to the latter of which are attached the teeth.



1. In a harrow, the combination of the adjustable cross-bars C C, the bars D D, connecting the same, and the half-moon-shaped harrow-teeth G, secured to the bars D, substantially as herein set forth.

2. The combination of the side pieces A A, the three sets of rollers B placed upon adjustable rods *a*, the adjustable cross-bars C, connecting-bars D, and teeth G, all constructed substantially as and for the purposes herein set forth.

186,998. BENCH-PLANES. H. A. Foss, New Britain Conn. [Filed Jan. 9, 1877.]

Brief.—A very fine and delicate adjustment of the bit is had by means of a differential screw, one portion of which is connected with the bit, and the other with a stationary nut upon the under side of the plate which supports the bit.

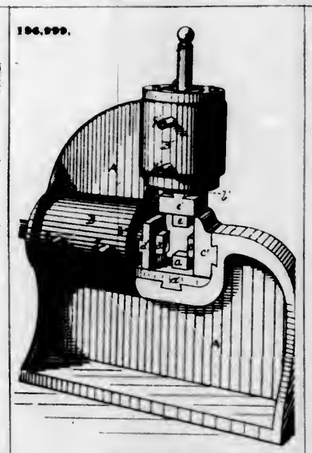


In combination with the body and bit of a bench-plane, a differential screw, one part working in connection with the bit, the other in a stationary nut, substantially as and for the purpose described.

186,999. MANUFACTURE OF ELLIPTIC SPRINGS. Aaron French, Pittsburg, Pa., assignor to A. French & Co., same place. [Filed Dec. 7, 1876.]

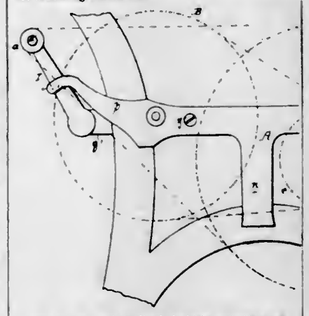
Two fixed dies, *a e*, and two moving dies, *d e*, arranged to form the four sides of an open-ended die-box, in combination with pressure-cylinders B B', arranged to operate the movable dies simultaneously in compressing spring-bands, substantially as set forth.

186,999.



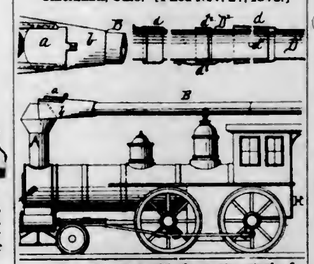
187,000. BOBBIN-WINDERS FOR SEWING-MACHINES. W. L. Fish, Newark, N. J. [Filed Oct. 26, 1876.]

Brief.—An attachment, consisting of driving and speed wheels and bobbin-winding bracket, is removably attached by a clamp to the frame of a sewing-machine.



The within-described bobbin-winding attachment, consisting of the frame A, its socketed arm *p*, driving-wheels and pulleys B C *d*, combined with the bracket I, and with devices for securing the attachment to the leg of a sewing-machine, as specified.

187,001. SPARK-CONVEYERS. W. G. Gale, Cincinnati, Ohio. [Filed Nov. 27, 1876.]



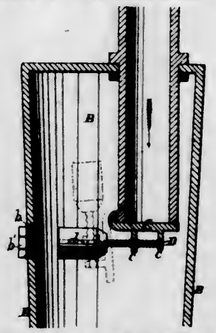
1. In combination with the smoke-stack of a locomotive, a conveyer-tube, having a flaring mouth, *b*, and provided with a sliding cover, located over the mouth of the smoke-stack, as and for the purpose specified.

2. In a locomotive spark-conveyer, the combination of the conveyer-tube B, having a flaring mouth *b*, sliding cover *a*, hinged tube D, rests *b' b'*, and smoke-stack A, substantially as described.

3. In a locomotive spark-conveyer, the combination of the tube D', working loosely in the enlarged end of tube C, support c^3, coupling-tube D^2, pin d^3, and latch d^3, substantially as and for the purpose specified.

4. In a locomotive spark-conveyer, the combination of the smoke-stack A, conveyer-tube B, having sliding cover *a*, rests b^2 b^2, tubes D D^1, coupling-tube D^2, latch d^3, and conveyer-tube C, having draft-openings c^1 c^1, substantially as described.

187,002. SEWER-TRAPS. J. Ganter, New York, N. Y. [Filed June 8, 1876.]

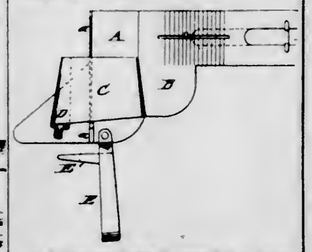


1. In combination with a valve located at the mouth of a waste-pipe, and provided with depending screw-threaded lugs *a a*, the balancing-weight *d*, having screw-stem D, which is adjustable through said lugs, as and for the purposes set forth.

2. In a sewer-trap, the combination of the waste-pipe, provided with a valve having an adjustable weight attached thereto, and the casing B, provided with opening *b* and screw-plug *b'*, to afford access to said weight, the whole being arranged to operate substantially as and for the purposes set forth.

187,003. HEMMERS FOR SEWING-MACHINES. C. L. Goethals, Los Angeles, Cal. [Filed Oct. 30, 1876.]

Brief.—The fabric to be hemmed is introduced to the folding and guiding devices by a triangular extension of the base-plate. The folding-piece extends from the slide-piece over the dividing guide-flange, and is twisted at its outer end into a coiled and tapering part, that is adjusted up or from the flange, according to the width of hem required. A guide-piece is pivoted to the base-plate, and swings laterally across the entrance.

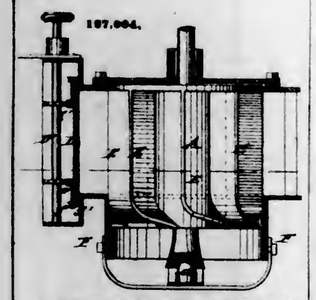


An adjustable hemmer, composed of base-plate A, having raised flange *a* and extension A', of slide-piece B, with folder C and coiled guide D, and of pivoted guide-piece E, with rectangular arm E', substantially as shown and described.

187,004. WATER-WHEELS. N. L. Greene, Edmeston, N. Y. [Filed Dec. 23, 1876.]

Brief.—The buckets of the wheel radiate from the center or core of the same, and are straight from the top part downward, throughout the full height of the casing, and then abruptly curved below the casing to form discharge-openings of diminished width, for utilizing thereby the full power of the reaction. An encircling cylinder or casing extends from the bottom of the casing below the wheel, and assists the curved parts of the buckets to receive the full effect of the reaction of the water at the tail of the wheel.

187,004.



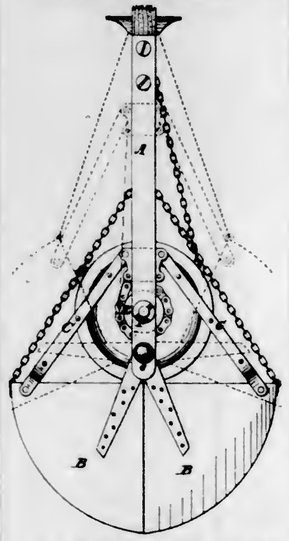
1. A water-wheel whose buckets E are radial to its axis, where the water impinges upon them, and below this curved, as shown and described.

2. The combination, with buckets E, curved at the lower end, as specified, of the subsidiary casing F, arranged to assist in utilizing the full reaction of water at the tail of wheel, as set forth.

3. The combination of the horizontally-moving gate, operated by suitable gearing, and running on top and bottom rollers, with guide-rails having inclined portions at both sides of the entrance-opening of the scroll-casing, to lock gate firmly in closed position, as described.

4. The combination of a scroll-shaped casing, with closed top part and cylindrical extension below bottom of casing, with a wheel having radial buckets, straight at the part within the scroll-casing, and curved at the lower part within the bottom casing, substantially in the manner and for the purpose specified.

187,005. DREDGING-BUCKETS. A. B. Hall, Providence, R. I. [Filed Jan. 6, 1877.]



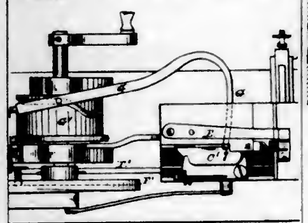
1. In a dredging apparatus, substantially as described, the uprights A A, each constructed of two parallel plates, arranged to form an intermediate slot at right angles to the plane of the hinging-axis, in combination with sliding blocks D D, toggle-bars C C, and buckets or jaws B B, all substantially as herein set forth.

2. The combination of the minor sheaves E E on the shaft F, and between the plates forming the uprights A A, so as to be in the same vertical plane as the sliding blocks D D, and connected therewith by chains c c, substantially as set forth.

3. The combination, in a dredging apparatus, of the slotted uprights A A, constructed and arranged as set forth, the sliding blocks D D, the chain-sheaves E E, chains c c, and sheave G, all arranged to operate substantially as herein set forth.

187,006. OVERSEAMING SEWING-MACHINES. J. S. Hall, Monterey, Cal. [Filed June 2, 1876.]

Brief.—The work is supported upon a cloth-plate in the same manner as on an ordinary sewing-machine, and the stitching (which is the same as that performed by hand) is effected by means of a combined shuttle and needle, which are so arranged, in connection with the cloth-plate and a looper, that when the shuttle moves back in its race the point of the said needle impinges against a projection on the under side of the said cloth-plate, and is thereby deflected upward in a curved line. At this time the looper seizes the thread carried by the needle, and carries it down round the edge of the said cloth and into the path of the shuttle, which passes through the loop thus formed on its next forward movement. The thread is taken up and the stitches completed by means of a take-up, which travels across the line of movement of the shuttle as such device reaches the extreme limit of its forward stroke.



1. In a sewing-machine, the combination, with the needle and shuttle, of the looper F, constructed, as shown and described, to carry the loop of the shuttle-thread down below the point of the shuttle.

2. In combination with the shuttle and needle, the take-up lever G, constructed and operated in the manner shown and described, for the purpose specified.

3. The combination, with the combined shuttle and needle, of the cloth-plate C, the projecting ledge *a*, to support the needle, and the slot *t*, to hold and strip the cloth from the said needle, substantially as described and shown.

187,007. MACHINE FOR THREADING LAMP-COLLARS. J. G. Hallas, Waterbury, Conn., assignor to the Benedict & Burnham Manufacturing Company, same place. [Filed July 24, 1876.]

Brief.—Blanks, with the upper ends infolded, are placed or fed onto a mandrel composed of two parts, one sliding within the other. The screw is formed on or against the inside of the inner part, which is slotted or cut into four conical spring sections, which are pressed together, so as to form a continuous tube by the outer part of the mandrel. A chasing male screw presses the infolded portion of the blank into the female screw of the mandrel. A feed-screw is formed on the outside of the mandrel. A hopper is used to feed the blanks automatically.

1. The combination of the collar-supporting mandrel C, the internally-threaded divided cylinder D, arranged axially within the said mandrel, and with mechanism to impart a reciprocating movement to the said cylinder, substantially as described.

2. The combination of the collar-supporting mandrel C, the internally-threaded divided cylinder D, and the reciprocating carrier E', substantially as described.

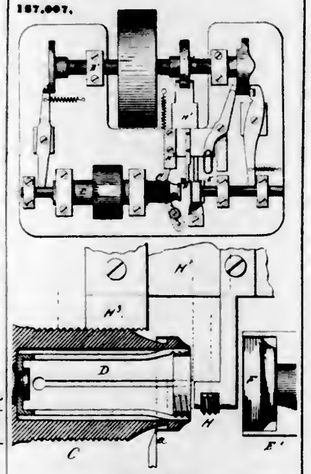
3. The combination of the collar-supporting mandrel C, threaded externally, the internally-threaded divided cylinder D, the threader H, and threaded follower H', substantially as described.

4. The combination of the collar-supporting mandrel C, the internally-threaded divided cylinder D, and the reciprocating threader H, substantially as described.

5. The combination of the collar-supporting mandrel C, the internally-threaded divided cylinder D, and the cutter *a*, substantially as and for the purpose described.

6. The combination of the collar-supporting mandrel C, the internally-threaded divided cylinder D, the reciprocating carrier E', and the reciprocating threader H, substantially as described.

187,007.

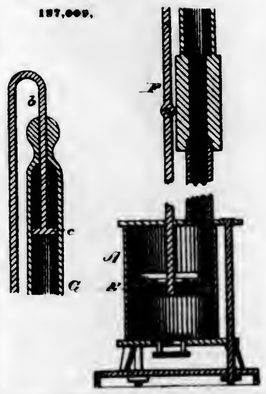


187,008. BAGS FOR ENVELOPING BEEF-QUARTERS, &c. E. S. Halsted, Brooklyn, N. Y. [Filed Jan. 9, 1877.]



The herein-described bag for enveloping beef-quarters, formed of the blank, having its corner shaped as described, and folded upon itself to bring the top and bottom of the bag at an angle to the sides, with the seam crossing the same, as described, all as and for the purpose herein set forth.

187,009.



187,009. PUMPS. J. Harman, Champlain, N. Y. [Filed Oct. 28, 1876.]

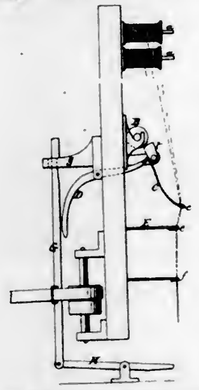
Brief.—The water forced up by the piston is impelled through the nozzle by the action of the ram.

1. The combination of the cylinder A, piston E, stem F, and ram *b c* G with a pump-barrel or stock and nozzle, substantially as shown and described.

2. The handle *s* and pitman *d* attached to the stem F at any suitable point above the piston E, in combination with the piston-stem F, having piston E, and the stem *b*, having piston *c*, substantially as shown and described.

187,010. STOP-MOTIONS FOR SPINNING AND TWISTING FRAMES. Watson F. Hastings, Bridgeport, Conn. [Filed Jan. 25, 1876.]

Brief.—This stop-motion is effected by the frictional contact of the toe with the roll on the shaft, whereby the curved lever is depressed, which, in turn, acts upon the belt-shifter, and shifts the belt in case of breakage of thread.

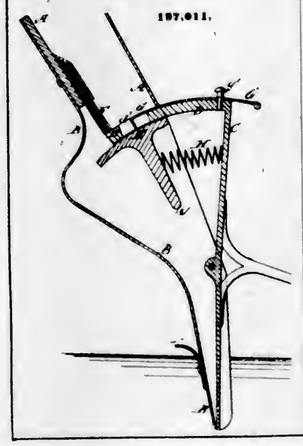


1. The stop-finger or fingers C, provided with a toe or toes *t*, adapted to receive mechanical motion from a driving-shaft, and to transmit said motion to a belt-shifter, substantially in the manner hereinbefore described, for the purpose set forth.

2. The combination of the stop-finger or fingers C, provided with a toe or toes, *t*, with a rotary shaft, B, substantially in the manner hereinbefore described, for the purpose set forth.

3. The combination of the stop-finger or fingers C, provided with a toe or toes, *t*, with the lever D, belt-shifter G, and toe-operating mechanism, substantially as described, whereby said belt-shifter is operated, substantially as hereinbefore set forth.

187,011.

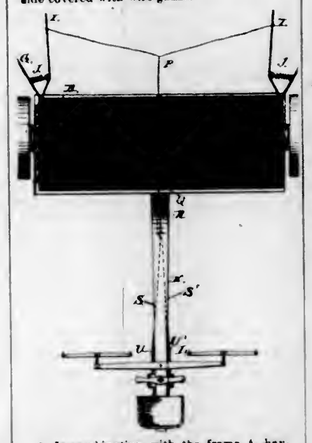


187,011. CORN-PLANTERS. A. J. Hintz, Lemont, Ill. [Filed Dec. 30, 1876.]

An improved hand corn-planter, formed by the combination of the spout B, made with a backward curve or offset, the pivoted plate C, provided with the arm or lever I, the curved arm D, provided with the dropping-hole *d'*, and the adjustable slide G, the bottom E, provided with the arm *s*, and the spring H, with each other, and with the body A, substantially as herein shown and described.

187,012. MACHINES FOR CATCHING AND DESTROYING GRASSHOPPERS. Dexter H. Hutchins, Algona, Iowa. [Filed Oct. 9, 1876.]

Brief.—Devices for operating the draw-flies, which are attached to the forward portion of a wire frame, having its top, ends, and rear side covered with wire-gauze.



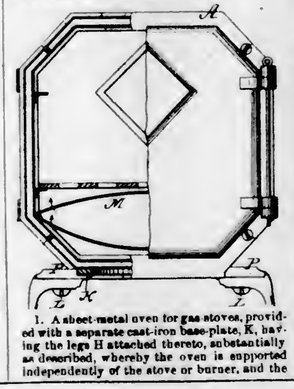
1. In combination with the frame A, having the metal slats V, and a suitable receptacle placed below them, the flies E E, draw-flies I I, and frame F, covered with wire-gauze, substantially as and for the purposes set forth.

2. The draw-flies I I, connected to the frames G G by the spiral springs J J, and provided with the cords P and Q, substantially as and for the purposes set forth.

3. The draw-flies I I, connected to the frames G G by the spiral springs J J, in combination with the cords P Q and S S', and the wheel L, provided with the pins U U', substantially as and for the purposes set forth.

187,013. OVENS FOR GAS-STOVES. W. M. Jackson, Providence, R. I. [Filed Aug. 1, 1876.]

Brief.—The legs and bottom are detachable, and can be packed in the oven.

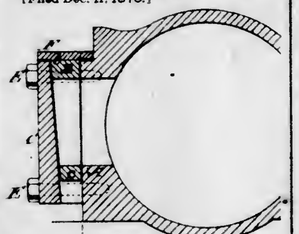


1. A sheet-metal oven for gas-stoves, provided with a separate cast-iron base-plate, K, having the legs H attached thereto, substantially as described, whereby the oven is supported independently of the stove or burner, and the legs can be detached with or without the base-plate, as set forth.

2. An oven for gas-stoves, provided with the deflecting-plates M N, having serrated or notched edges arranged to operate substantially as set forth.

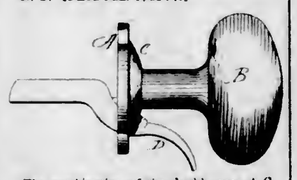
3. In combination with the base-plate K, the legs H, provided with the shoulder *o*, and secured by the screw L, as set forth.

187,014. BALANCED VALVES FOR STEAM-ENGINES. W. Jackson, Millerstown, Pa. [Filed Dec. 11, 1876.]



In combination with the valve-seat A, the valve B, beveled on back, and having exhaust-space extended thereto, correspondingly-beveled cover C, having the projections D resting on seat, and the plate F, projecting over the sides of valve, as shown and described.

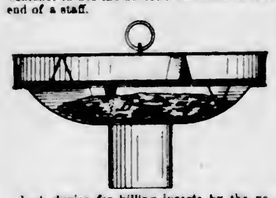
187,015. KNOB-LEVERS FOR MORTISE-LATCHES. Chas. S. Jennings, Branford, Conn., assignor to T. Kennedy, New York, N. Y. [Filed Jan. 9, 1877.]



The combination of the double rose A C, the knob B, and the lever D, provided with trunnions *d*, and the rose constructed with cavities corresponding to the said trunnions, the construction and combination being substantially as shown and described.

187,016. DEVICES FOR KILLING MOSQUITOES. E. B. Johnston, Germantown, Ky. [Filed Jan. 3, 1877.]

Brief.—A shallow vessel is provided with a sponge saturated with some volatile hydrocarbon oil. A perforated plate covers the sponge, and another, perforated, rests thereon. Studs project above the rim of the cup. By pressing the studs against the ceiling the vapor that rises destroys the insects. For convenience in use the device is mounted on one end of a staff.



1. A device for killing insects by the vapors of petroleum, consisting of a cup, a sponge saturated with the oil, and one or more trays for compressing the sponge when pressed against the ceiling, substantially as described.

2. The combination of the handle, cup, sponge, and filter with the tray for compressing the sponge, substantially as described.

187,017. GOVERNORS. J. Judson, Rochester, N. Y. [Filed June 26, 1876.]

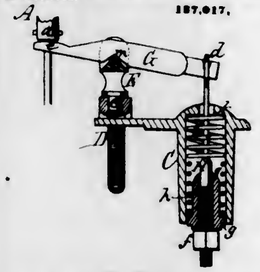
1. The attachment for governor-valves, consisting of the lever G, screw D, swivel-bearing E, and case C, provided with the rod H,

slide *g*, nut *f*, and spring *h*, the whole combined and arranged to operate in the manner and for the purpose specified.

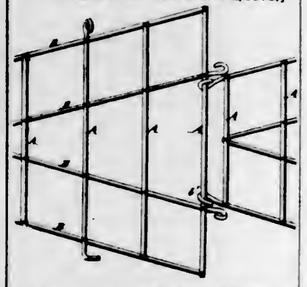
2. The combination, with the lever G, screw D, and valve-rod A, of the swivel-bearing E, constructed and arranged to operate as and for the purpose specified.

3. The combination, with the lever G, of the screw-rod H, provided with a loop, *d*, fitting over the end of a lever, a hollow slide, *g*, resting upon the screw-rod, a nut, *f*, resting below the slide, and a spring, *h*, resting between the slide and the top of the case, the whole forming a device for regulating the upward pressure of the lever against the valve-rod, as herein described.

187,017.

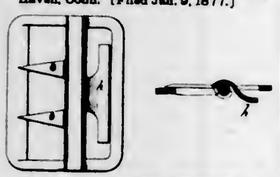


187,018. HARROWS. Chas. Keehner, Roseville Junction, Cal. [Filed Nov. 4, 1876.]



A harrow-section formed of converging rods B B B B, connected by cross-rods A, the outer rods B having their nearer ends hooked, the inner having their farther ends hooked, and the middle rod A provided with a hook at one and an eye at the other end, as shown and described, so that by alternately reversing the sections they may be connected at the sides as well as in alignment.

187,019. BUCKLES. G. R. Kelsey, West Haven, Conn. [Filed Jan. 9, 1877.]



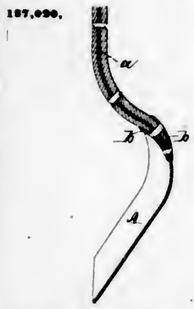
The herein-described improvement in buckles, consisting of the tongues *c*, the T-shaped piece A, and one part of the hinge, all in one and the same piece combined with the frame, substantially in the manner and for the purpose specified.

187,020. SHOVELS. P. C. Kierns, New York, N. Y. [Filed Jan. 13, 1877.]

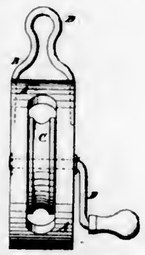
Brief.—The handle is split to receive the tang, which is formed upon the upper portion of the shovel, and said handle is re-enforced at its connection with the shovel by triangular plates riveted thereto.

A shovel consisting of a blade, A, having the tang *c*, the split handle B, and triangular plates *b*, combined, substantially as herein shown and described.

187,020.

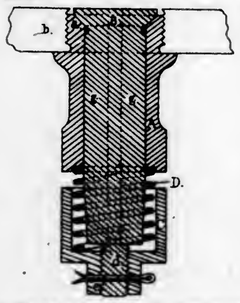


187,021. LINE-FASTENERS. D. H. Levy, New York, N. Y., assignor to himself and G. W. Gumpert, same place. [Filed Nov. 18, 1876.]



The pulley-block A, having loop B and pulley C, the latter held within the block by a wire, D, that is cranked on the outside, as and for the purpose specified.

187,022. INGRESS-VALVES. Wm. Loughridge, Baltimore, Md. [Filed July 19, 1876.]



1. The herein-described valve, consisting of the cylinder A, valve B, cap C, and spring D, arranged in relation to each other and the pump-cylinder *b*, substantially as and for the purposes specified.

2. The cap C, spring D, valve B, wings *g g*, and valve-stem *d*, arranged in relation to each other and to the cylinder A, substantially as and for the purposes specified.

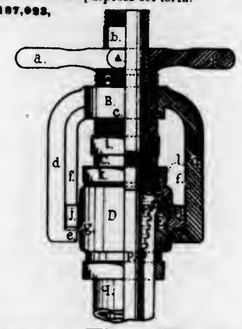
187,023. HOSE AND PIPE COUPLINGS. W. Loughridge, Baltimore, Md. [Filed July 19, 1876.]

1. The herein described male half of a pipe-coupling, consisting of the cylinder A, yoke B, and nipple C, arranged in relation to each other and the pipe *b*, substantially as and for the purposes set forth.

2. The herein-described pipe-coupling for coupling flexible and inflexible conduits together, consisting of the cylinder A, yoke B, cylinder C, cylinder D, cylinder E, and nipple F, arranged in relation to each other and to the inflexible pipe *b* and flexible pipe *g*, substantially as and for the purposes set forth.

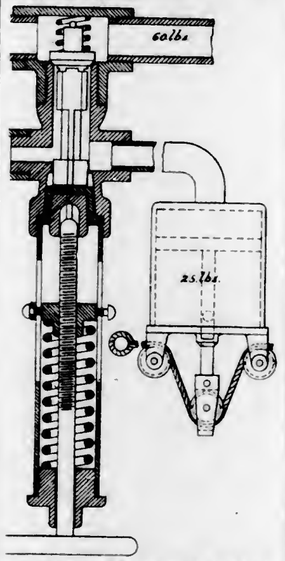
3. The lugs *j j*, hooks *s s*, flanges *f f*, recesses A A, flange *n*, collar E, having its upper end cut away on the inside, the shoulder *l*, in their respective relations to each other and the above-described hose-coupling, substantially as and for the purposes set forth.

187,024.



187,024. ATMOSPHERIC CAR-BRAKES. W. Loughridge, Baltimore, Md. [Filed Apr. 17, 1874.]

Brief.—The brake-pressure on each car is regulated in proportion to the weight of the car by combining an automatic cut-off with each brake-actuating mechanism, and a reserve force is maintained in the main reservoir, so that the brakes can be applied several times before the power is reduced below the maximum. By means of an air-gage and automatic indexed cut-offs the pressure in the main pipe is determined, irrespective of that in the main reservoir.



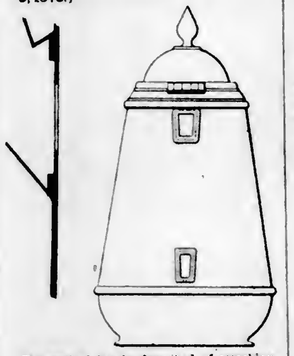
1. The method of governing the pressure to the brakes on the respective cars throughout the train, in proportion to their weight, by combining an automatic cut-off with each brake-actuating mechanism, substantially in the manner hereinbefore described.

2. The combination of an air-reservoir and automatic indexed cut-off with a pipe running throughout the train, and a series of automatic indexed cut-offs, brake-cylinders, and brake-actuating devices, substantially as and for the purpose herein specified.

3. The combination of the main pipe, the brake-cylinder, and an interposed cut-off valve, and the means for regulating the same, substantially as herein described, for the purposes specified.

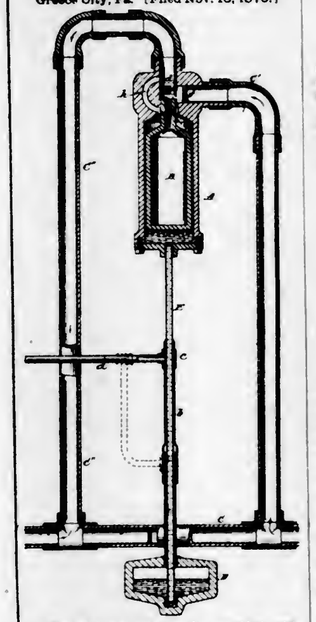
4. An air-reservoir having pipes and cocks for controlling the flow of air therefrom, an automatic indexed cut-off, connecting with the main pipe, and an air-gage, combined, substantially as and for the purposes specified.

187,025. METHODS OF ATTACHING HANDLES TO GLAZED METAL GOODS. Edw. B. Manning, New Haven, Conn. [Filed Oct. 9, 1876.]



The method herein described of attaching handles, spouts, &c., to glazed or similarly coated metal tea-pots and other articles, consisting in forming an uncoated margin or spot where the part is to be attached, and soldering the part thereto, and a collar placed around such point of attachment to overlap the glazed portion, substantially as specified.

187,026. GAS-REGULATORS. E. O. Martin, Greece City, Pa. [Filed Nov. 18, 1876.]



The mercury-chamber D, provided with pipes *a b*, in combination with the float-chamber A, pipe E, pipes C' C'', float B, valve *g*, and valve-seat *d*, having ports *e*, substantially as herein shown and described.

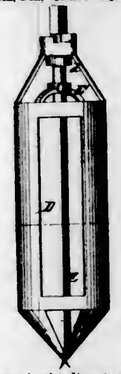
187,027. TAG-FASTENERS. T. P. Marston, New York, N. Y., assignor to Ph. Hake, same place. [Filed Dec. 30, 1876.]

187,027.



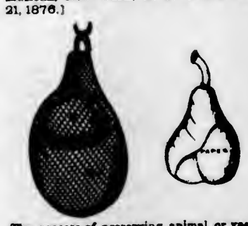
The tag described having a metallic fastener attached to the body by the barbs *b'*, on the prongs or claws *b* thrust through the body, the whole adapted to serve as and for the purposes herein specified.

187,028. EARTH-AUGERS. J. McCullough, Pensacola, Fla. [Filed Sept. 30, 1876.]



The internal valve D, extending down into the hollow conical point and covering the openings therein, as and for the purpose set forth.

187,029. PROCESSES OF PRESERVING ANIMAL AND VEGETABLE SUBSTANCES. J. P. McLean, New York, N. Y. [Filed Oct. 21, 1876.]



The process of preserving animal or vegetable substances, which consists in coating said substances, provided with a suitable envelope or covering, as described, with a plastic composition, consisting of charcoal, gypsum, fiber, and water, and then rolling the article in dry gypsum, substantially as described.

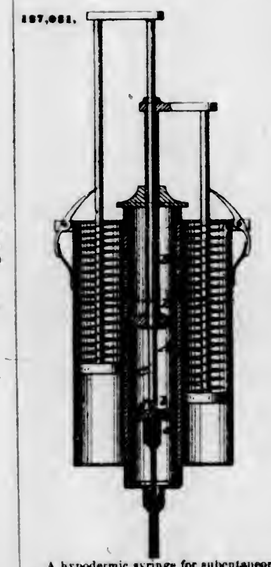
187,030. PROCESSES OF PRESERVING ANIMAL AND VEGETABLE SUBSTANCES. J. P. McLean, New York, N. Y. [Filed Jan. 29, 1877.]

The process of preserving animal and vegetable substances in bulk, which consists in packing them in a dry powder consisting of gypsum and carbon, and then enveloping the whole with plastic shell, composed of gypsum, carbon, silicate of soda, and water, or vice versa, substantially as described.

187,031. HYPODERMIC SYRINGES. J. McMorries, Newberry, S. C. [Filed Dec. 30, 1876.]

Brief.—Two spring-pistons are simultaneously operated upon, releasing two spring-pawls. One piston carries the hollow needle, and the other injects the medicated liquid.

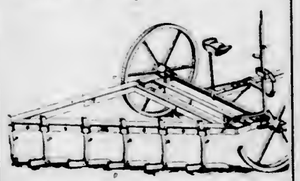
187,031.



A hypodermic syringe for subcutaneous injections, constructed of a syringe having a plunger with hollow rod and a needle-rod sliding therein, in combination with guided, notched, and spring-acted rods, connected, respectively, to plunger and needle-rods, and with spring-acted triggers for locking the same, so as to throw simultaneously the needle, and inject the liquid on releasing the triggers, substantially as and for the purpose set forth.

187,032. GOPHER GANG-PLOWS. M. S. McMahan, San Jose, Cal. [Filed Dec. 4, 1875.]

Brief.—The plow carrying frame jointed to the wheel frame. An angular lever holds down the plow-frame when at work, or lifts the front end of the frame, causing the wheel-frame to rock upon the axle. A reversible spiral share, and devices for fastening to the standard.



1. The combination of the frame *b*, rocking upon the axle, with triangular plow-carrying frame H, I, and M, and with the bent lever E, the latter arranged to lift the plow-frame from the front or to hold it down when at work, all substantially as shown and described.

2. The spirally-curved reversible plow-share A, having an angular slot upon its edge, in combination with the standard B, bent and notched at its lower end, and with the key C, arranged to hold either end of the share in proper working position, as shown and described.

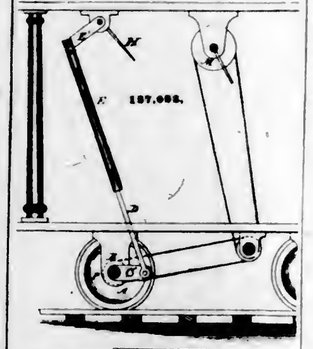
187,033. AUTOMATIC CAR-FANS. John R. McNeille, Philadelphia, Pa. [Filed June 19, 1876.]

Brief.—The two fans, acting in the same car, will produce opposite currents, cooling the air and giving good ventilation.

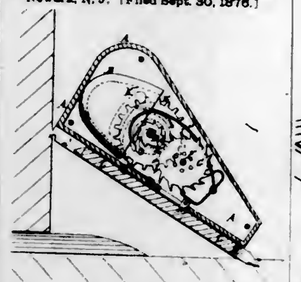
1. The combination of fan H, sleeve E, rod D, and crank C upon axle B, substantially as and for the purposes described.

2. The combination of a compensating-lever, E D, formed by sleeve E and rod D, a crank,

by which motion is imparted to the lever, and a fan, H, which receives its motion from the said lever, all arranged and operating substantially as described.



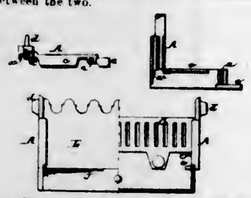
187,034. BURGLAR-ALARMS. D. Mercereau, Newark, N. J. [Filed Sept. 30, 1876.]



In burglar-alarms, the case A, secured by bottom flanges to, and movable on, a support, L, the latter being provided with a stud, M, passing through said case, and holding the escapement until the case is pressed by the door, substantially as shown and described.

187,035. FIRE-PLACE HEATERS. S. Merrick, New Brighton, Pa. [Filed Dec. 21, 1876.]

Brief.—Projections on grate-frame and corresponding recesses in fire-back. A guard-plate outside the grate-front, and an air-space between the two.



1. The grate-frame, provided with side lugs and rear lips, adapted, as described, to openings in the sides and rear of the fire-place, substantially as specified.

2. The combination, in a grate-frame, of side frames A A, cross-piece B adapted to grooves a in the side frames, and an upright grate, C, adapted to grooves a^1, substantially as specified.

3. The combination of a fire-place heater and a detachable cover-plate, L, adapted to grooves a^2 in the side frames, substantially as set forth.

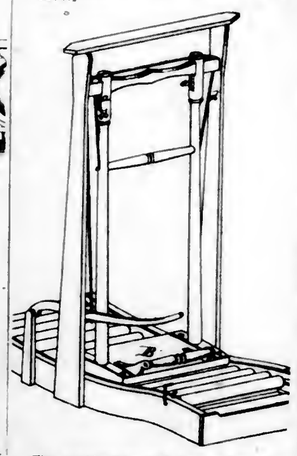
4. The combination of a fire-place heater and a plate, L, arranged parallel to the grate, and forming an air space, f, substantially as set forth.

5. The combination, in a fire-place heater, of a grate, D, a flue to admit air beneath the grate, an upright grate, C, and a cover-plate, L, forming with the grate C a space, f, for the purpose specified.

6. The combination, in a fire-place grate or heater, of the stationary bars m, intermediate spaces contracted at the ends, and series of separate movable bars n n provided with lugs t, extending upward into said contracted spaces, for the purpose set forth.

7. The combination, in a fire-place grate or heater, of the stationary and the intermediate movable bars, both provided with angular lugs r, substantially as and for the purpose specified.

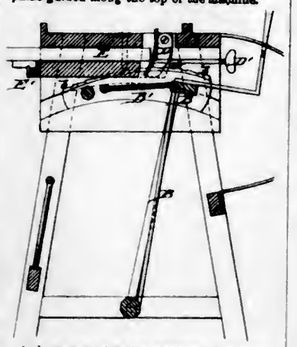
187,036. WASHING-MACHINES. D. W. Miller, Binghamton, N. Y. [Filed Jan. 4, 1877.]



The combination, with the oscillating or swinging rubber B, having spring or yielding connections with its shaft, of the cords a d, pulleys c, lever f, and hook h, substantially as and for the purpose described.

187,037. MACHINES FOR JOINTING STAVES. J. S. Milton, Bardstown, Ky. [Filed Dec. 11, 1876.]

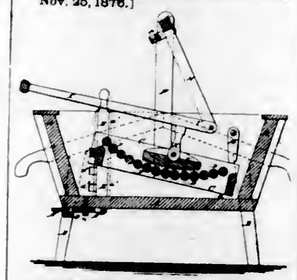
Brief.—Any required bilge is given to the staves, and the edges cut at a uniform bevel, so as to produce perfect joints, by means of a swinging stave-supporting frame, having ratchet-guides operated by a hand-lever, and swinging in guide-grooves of the main frame. The stave is pressed against curved adjustable seats, and held in bulged shape by a cam-lever and spring-ratchet, while being jointed by a plane guided along the top of the machine.



1. In a stave-jointing machine, the combination of the swinging and guided bed-frame B, having arc-shaped eccentric bed-pieces B', and of the curved adjustable stave-seats D, with a swinging cam-lever, E, and a locking spring-ratchet, E', operated substantially in the manner and for the purpose set forth.

2. In combination with operating devices, substantially as specified, the arc-shaped and eccentrically-enlarged bed-pieces B', provided with toothed or ratchet-shaped face-rails, for the purpose of grading the staves, substantially as set forth.

187,038. WASHING-MACHINES. John W. Modlin, Albion, Iowa, assignor to himself and S. C. Gillespie, same place. [Filed Nov. 25, 1876.]



1. The cross-bar d', attached to front end of roller-frame C, and resting in one of the notches a^3, as and for the purpose set forth.

2. The bars E, arranged to slide in grooves the cross-bar d', the bottoms M, and the slides E, with the suds-box A, provided with the notched grooves a^3 a^4 in its sides, substantially as herein shown and described.

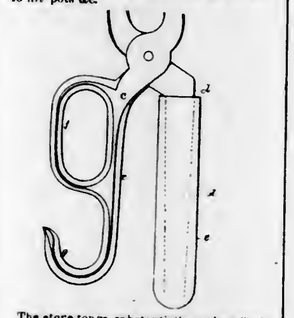
a^4 and lock the cross-bar d' in the notches a^3, as specified.

3. The combination of the spring-holder P with the rock-shaft G and parallel bars H, for receiving and holding the rubber-lever I, substantially as herein shown and described.

4. The combination of the wash-board formed of the frame C and rollers D, provided with

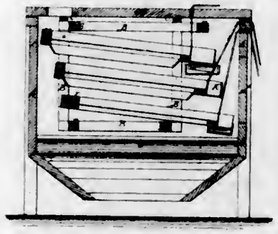
187,039. STOVE-TONGS. C. M. Morrison, North Parsonsfield, Me. [Filed Jan. 12, 1877.]

Brief.—The hook on the handle can be used to lift pots &c.



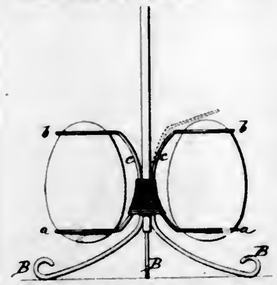
The stove tongs, substantially as described, viz., as provided with the hook g, the eye f, the shanks c d, and the blades or legs a b, arranged and combined as set forth.

187,040. MIDDLINGS-SEPARATORS. Peter Muller, St. Charles, Mo. [Filed Sept. 22, 1876.]



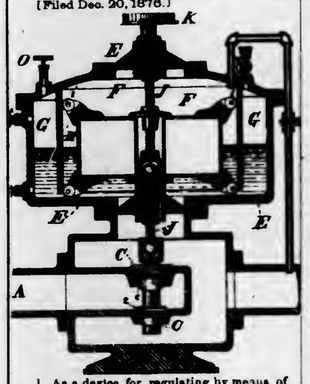
In a middlings-purifier, a frame, B, suspended by straps C, and provided with cam-wheel D, pawl E, shaft F, and springs G, all arranged to give reciprocations and jar transversely to the flow of material, as set forth.

187,041. EGG-HOLDERS. Chas. Mueller, New Britain, assignor of one-half of his right to Louis Lelamann, West Meriden, Conn. [Filed Dec. 20, 1876.]



The herein-described egg-holder consisting of a central support, from which project arms a b, each encircling the egg at opposite ends, and movable one from the other, substantially as described.

187,042. GAS-GOVERNORS. P. Munsinger, Philadelphia, Pa., assignor to Morris, Tasker & Co., (limited,) same place. [Filed Dec. 20, 1876.]



1. As a device for regulating by means of back pressures of gas the inlet-valves C C of a gas-regulator, to the total or proportional exclusion of inflowing gas, a float, I, connected with said valves and adapted to be acted upon and depressed by back pressure of gas, substantially as described.

2. In combination with the annular air-space G, the air-cock O, adapted to regulate the air within said space, substantially as described.

3. The float space F, in combination with the outlet or main A', by means of the back pressure-pipe L, as and for the purpose set forth.

4. The combination of the valves C C with the float I and weight-cap K, by means of the stem J, as specified.

187,043. WHEEL-CULTIVATORS. F. M. Needham, Rockford, Ill. [Filed Nov. 29, 1876.]

Brief.—Pendants for plow-beams, with ball or universal joint connection, slide forward or back on the frame to form a riding or walking cultivator. They are locked at any point by hinged cam, companion levers provided with pawls, and friction-rollers. Pivoted handles, connected by bracket and spring-pin to the beams, and to a diagonal brace reaching to front of frame, to set or hold up the plow-beams. Devices for carrying the arched connecting-bar.

1. The pendants E, with upward-projecting arm fitted to enter the slots formed by the beam C, in pairs on each side, and capable of lengthwise adjustment on the beams, in combination with the drag-bars, carrying one or more shovels, for the purpose of balancing the machine in neck draft, when used either as a riding or as a walking machine.

2. The levers F and F', having cam-formed feet, in combination with the pendants, and caps e, for the purpose of fixing the pendants in position on the beams C, as hereinbefore set forth.

3. The combination of the levers F and F', connecting-bar f, and sliding pawl f', fitted to engage the notched upper portion of the pendants to which the levers are pivoted, to hold the levers in pairs locked, as and for the purpose hereinbefore set forth.

4. The combination of the pendents and wheels f'' journaled thereto, and operating as described, for the purpose of reducing the friction in sliding the pendants back and forth on the beams C, as hereinbefore set forth.

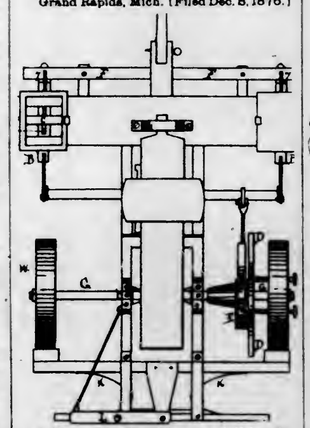
5. The pendants, fitted with the globular enlargement g', in combination with the drag-bars H and loops g'', these parts constructed and applied as hereinbefore set forth.

6. The brackets i, fitted with spring-bolts i', in combination with the drag-bars and suspension-braces, and perforated plates k and k', to hold the drag-bars in an elevated position, as and for the purpose hereinbefore set forth.

7. The brackets i, fitted with spring-bolts i', in combination with the drag-bars, suspension-braces, and perforated sliding plates k', for the purpose of regulating the depth of cultivation, as hereinbefore set forth.

8. The arched sway-bar P, having arms p hinged thereto, and connected to the suspension-braces I, in a laterally adjustable manner, by means of eye or hook bolts, and held in an upright position by staple-formed loop T, these parts constructed, arranged, and operating as and for the purpose hereinbefore set forth.

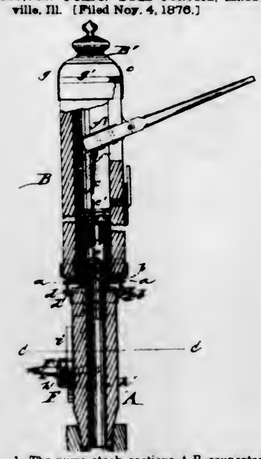
187,044. CORN-PLANTERS. F. Petersen, Grand Rapids, Mich. [Filed Dec. 8, 1876.]



1. The combination of the eccentric E, loosely mounted on the main axle G, the marker D, connected with said eccentric, and the supporting-wheel W', these members being constructed and operating substantially as set forth, whereby the eccentric E and markers D D may simultaneously be thrown into or out of operation by devices connecting them with the wheel, to stop or start the movements of the seed-slides and marker.

2. The combination of the seed-slide B, operating eccentric E, loosely mounted on the main axle G, the supporting-wheel W', and the thumb-bolts H H, for connecting and disconnecting the wheel and eccentric, substantially as shown.

187,045. PUMPS. Swan Petersen, Knoxville, Ill. [Filed Nov. 4, 1876.]



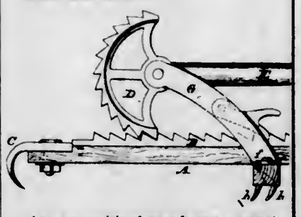
1. The pump-stock sections A B, connected by a tube, C, having the rim a and packing-rings b, arranged substantially as shown and described.

2. The combination, with lugs d and bolts d^2, of the bands extending around the ends, substantially as and for the purpose specified.

3. The pump provided with metallic cap, having recess and cavity for storing dipper, substantially as described.

4. The combination of the lower pump-stock A, having brackets k', with recessed brace F, sliding pieces F', and locking wedge-piece i, substantially as and for the purpose set forth.

187,046. CARPET-STRETCHERS. G. Prichard and John Kienardt, Lockport, N. Y. [Filed Aug. 19, 1876.]

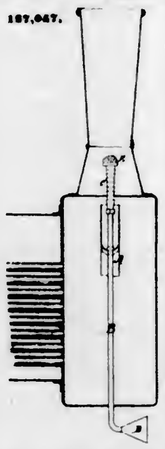


As a new article of manufacture, a carpet-stretcher composed of the following elements, viz: the bar A, rack B, double-pointed hook C, segment D, and lever E, constructed of one piece of metal, bracket G, with the pivoted pawl I, and the transverse bar H, having the double row of curved teeth h, the whole constructed and arranged to operate substantially as described and stated.

187,047. SPARK-EXTINGUISHERS. Carl H. Prusmann, Buchau, near Magdeburg, Prussia, assignor to B. Schaffer and C. Budenberg, same place. [Filed Dec. 13, 1876.]

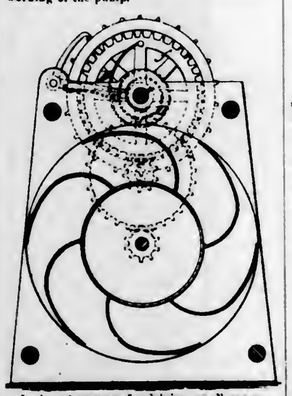
The bell-shaped perforated hood E, to distribute the condensed steam and air through the whole section of the chimney, substantially as set forth.

187,047.



187,048. HYDRAULIC ENGINES. J. D. Richardson, Wheeler's Mills, Ky. [Filed Dec. 18, 1876.]

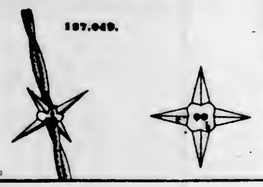
Brief.—A water-wheel for driving small pumps, &c., with a loose gear-wheel, with a coiled spring attached to a pump-operating crank-shaft, with regulating fly-wheel, and connected by suitable gearing with water-wheel shaft, to produce the storing up of the power in the spring, and the intermittent working of the pump.



1. A water-power for driving small pumps, &c., consisting of a water-wheel and of a loose gear-wheel, with a coiled spring attached to a pump-operating crank-shaft, with regulating fly-wheel, and connected by suitable gearing with water-wheel shaft, to produce the storing up of the power in the spring and the intermittent working of the pump, substantially in the manner described.

2. The combination of the loose spring-acted gear-wheel *f*, having sleeve with projecting pin or stud, with the spring-acted lever-arm of the fly-wheel brake, to release brake and produce turning of pump-operating shaft, substantially as specified.

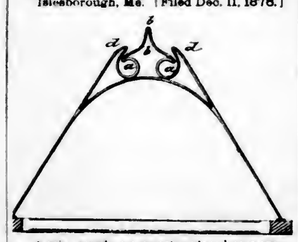
187,049.



187,049. BARBED FENCE-WIRE. Wm. L. Reynolds, St. Louis, Mo. [Filed Sept. 23, 1876.]

A fence-wire having barbs cast thereon, for the purposes specified.

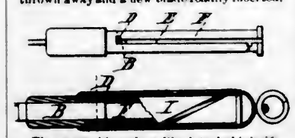
187,050. REIN-SUPPORTS. Jos. L. Ryder, Islesborough, Me. [Filed Dec. 11, 1876.]



A rein guard or supporter placed on a supporting standard or standards of the vehicle shaft or shafts, and bent of one continuous piece of metal into a central guide-piece, *b*, eyes *a*, and guard-tongues *d*, substantially as set forth.

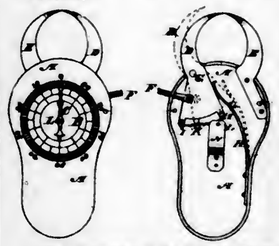
187,051. POCKET-KNIVES. S. Scholfield, Providence, R. I. [Filed Jan. 2, 1877.]

Brief.—A small knife-blade is formed with a screw-threaded shoulder or attaching end, which is screwed into the carrier of the screw-extension mechanism commonly employed in pencil-cases, and is readily unscrewed and detached therefrom, the construction permitting the making of a knife for light use, in which the blade is produced at a minimum of cost, so that, when dull from use or otherwise unserviceable, it may, in ordinary cases, be thrown away and a new blade readily inserted.



The removable and readily-detachable knife-blade A, combined with the carrier B by means of a screw, C, the whole being operated by means of the pin D, slotted tube F, and tubular screw I, substantially as shown and described, for the purpose specified.

187,052. GAGES. F. J. Seybold, Chicago, Ill., assignor of one-half his right to J. D. Vanderford, St. Louis, Mo. [Filed Oct. 23, 1876.]



1. The combination of the movable nipper or jaw D with the chain or cord K, cylinder L, and index-hand C, as shown and described, for the purpose set forth.

2. The combination of jaw D with the spring H, in the manner shown and described, and for the purpose set forth.

3. The combination of the plate A with the jaws D and E, spring H, chain K, cylinder L, index-hand C, and stem F, as shown and described, and for the purpose set forth.

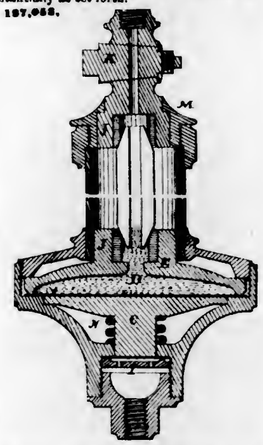
187,053. PRESSURE-GAGES. Thos. Shaw, Philadelphia, Pa. [Filed Oct 18, 1876.]

1. The combination, in a mercury steam-gage, with the plunger C, of a spring, N, supporting the plunger and its load of mercury, substantially as and for the purpose set forth.

2. The combination, in a mercury steam-gage, with the tube, its cap M, and the mercury-reservoir, of a stop-cock, K, arranged as shown, to retain the mercury within the tube during transit, substantially as set forth.

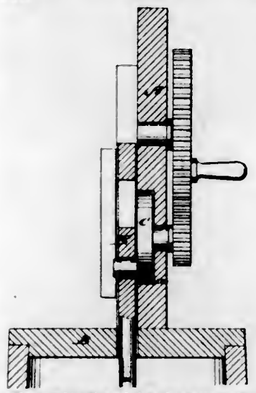
3. The combination of the rubber cushion J and the gage-tube, beveled at its ends, so that the tube is cushioned in every direction, substantially as set forth.

187,054.



187,054. RECIPROCATING CHURNS. J. H. Sheffer, Caiso, Ky. [Filed Nov. 25, 1876.]

Brief.—The dasher is reciprocated by a crank, and is jointed to permit the cover to be raised.



The combination of the churn-cover, having perforated and recessed standard A, the sliding cross-head E jointed to dasher, and the crank-disk C, all constructed and arranged in connection with spur-pinion and hand-wheel, substantially as and for the purpose specified.

187,055. ELECTRO-MAGNETIC ATTACHMENTS FOR TIME-LOCKS. W. W. Sherar, Rochester, N. Y. [Filed Oct. 7, 1876.]

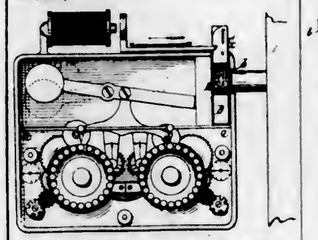
Brief.—Circuit-wires from magnet H traverse the bank, with keys at suitable places. Circuit closed at any key causes attraction of armature I, allowing supplementary dog G to drop behind and instantly lock the bolt-work independently of time-movement.

1. In a time-lock, the combination of an electro-magnet with a dog or bolt by suitable connecting mechanism, so arranged that, the magnet acting through said mechanism upon dog or bolt, it will cause it to abut behind and lock the door-bolt, independent of the time-movement, as herein specified.

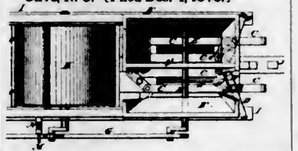
2. In a time-lock, the combination, with the sliding dog or bolt D, of a supplementary dog, G, arranged to move behind and obstruct the door-bolt, when released from its holding device, and capable of being reset or moved to position for a new action by the said dog D, acted upon by the time-movement, as herein described.

3. In a time-lock, the combination of an electro-magnet and armature, a slide connected with the armature, and a dog or bolt retained by the slide in position to move behind and lock the door-bolt independent of the time-movement, when said dog or bolt is released by the magnet, as herein described.

187,055.



187,056. COTTON-PLANTER AND FERTILIZER-DISTRIBUTER. Jos. A. Shine, Mount Olive, N. C. [Filed Dec. 4, 1876.]



The combination of hopper B B', stirrer-shaft and fingers F E, parallel bars C, pivoted connecting-bars C', pivoted levers D, connecting-bar G, opener A, fender J, and coverer H with the frame I, as and for the purpose specified.

187,057. HARVESTER-REELS. A. Shogren, Sandwich, Ill., assignor of one-half of his right to H. A. Adams and J. P. Adams, same place. [Filed June 22, 1876.]



1. In a harvesting-machine, a double-jointed reel-support, consisting of the hinged part C and the hinged part D, mounted on the former, in combination with suitable mechanism, whereby the driver in his seat can adjust either or both members of the support while the machine is in motion.

2. The combination, of the vibrating frame O, pivoted frame D, connecting-rod J, and lever K, substantially as described.

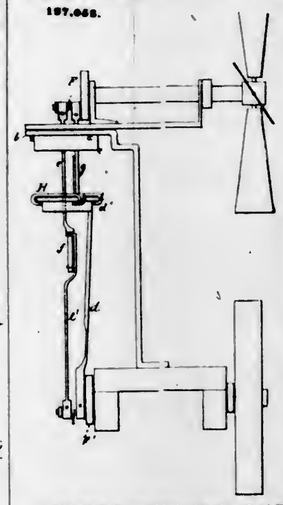
3. The combination of the hinged frames C and D, reel-shaft E, and levers H and K, connected to the frames C and D, respectively, whereby either of said frames may be vibrated independently of the other, to adjust the reel without stopping the machine, substantially as set forth.

4. The combination of the hinged frames C and D, reel-shaft E, connecting-rods G and J, levers H and K, and double-notched rack I, substantially as and for the purpose set forth.

187,058. ATTACHMENTS TO WINDMILLS. J. Smith, Horicon, Wis. [Filed Dec. 9, 1876.]

Brief.—The arm supporting the shaft of the wheel is turned to move the wind-wheel out of the force of the wind, and not change the relative situation of the wind-wheel to the shaft on which it revolves.

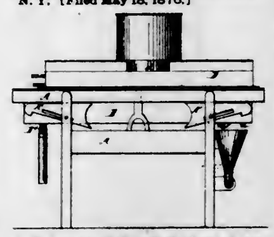
187,058.



1. The shaft D, provided with the wheel F, having bearings on the turn-table, provided with the arm C, in combination with the compound crank *i*, the pitmen *e e'* and *g d*, the turn-table H, provided with the lips *l l*, clasping the crown of the disk *d'*, all so constructed and arranged that the wind-wheel E may be turned to any point of the compass and allow the pitmen *e e'* and *g d* to operate equally well, all substantially as described, and for the purposes set forth.

2. The wheel F', the compound crank *i*, attached thereto, the pitman *e e'*, provided with the swivel *f*, and the pitman *d*, provided with the disk *d'*, in combination with the turn-table H and the pitman *g*, the compound crank *i*, the wheel F, all so constructed and arranged that while one pitman is at its dead-point in the revolution of the wheel, the other pitman shall have passed its dead point, all substantially as described, and for the purposes set forth.

187,059. MILK-PANS. M. J. Smith, W. H. Ryer, and W. W. Clark, Clark's Factory, N. Y. [Filed May 18, 1876.]



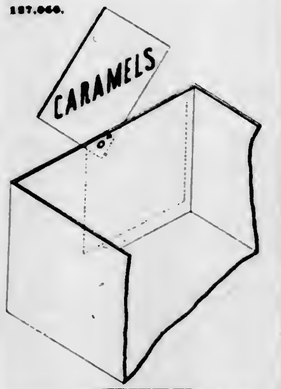
1. The combination, with the frame A, provided with adjustable wedges A' and bearings Z, of the rocking water pans or tanks B B, substantially as shown and described.

2. The combination, with the tank B, provided with tubes B^1 B^2 and packing-rings b^1 b^2, and the milk-pan C and plugs B^3 B^4, of the water-tank D, having openings d^1 d^2, substantially as and for the purpose set forth.

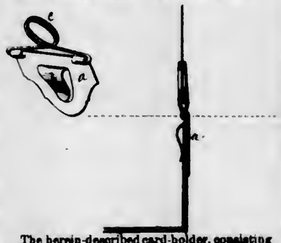
187,060. PAPER BOXES. H. H. Snow, New Haven, Conn. [Filed Nov. 11, 1876.]

In boxes for confectionery and other articles, a display-card pivoted to the box, so as to be turned down upon the surface of the part of the box to which it is attached, or elevated in the same plane, substantially as described.

187,060.

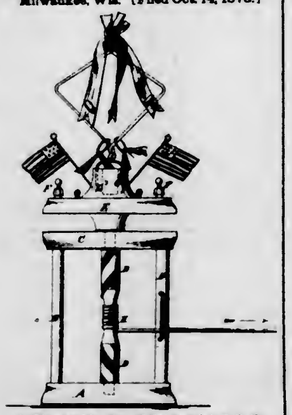


187,061. CARD-HOLDERS. H. H. Snow, New Haven, Conn. [Filed Jan. 9, 1877.]



The herein-described card-holder, consisting of the plate *a* and the clasp *c*, hinged to the plate *a*, substantially as and for the purpose described.

187,062. TOY WHEELBOOS. C. H. Steller, Milwaukee, Wis. [Filed Oct. 14, 1876.]

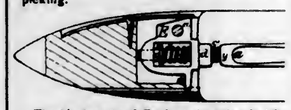


1. In combination with the stand, pivoted shaft, and rotating table, substantially as specified, the detachable ornament or figure provided with a round foot, G, as and for the purpose set forth.

4. In combination with the stand, pivoted shaft, and rotating table, the detachable ornament or figure having a rectangular foot, G^1 or G^2, fitting into a corresponding socket in the table, as herein set forth.

197,063. SHUTTLE-SPINDLES. B. M. Stevens, Boston, assignor to A. L. Wood, trustee, Brookline, Mass. [Filed Oct. 5, 1876.]

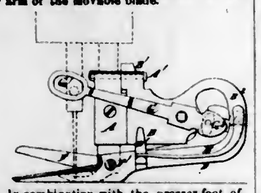
Brief.—The spindle-head, pivoted and controlled by spring, in the usual manner, is constructed with an open slot, to receive a coiled spring around the spindle-stem; also, with longitudinal holes to receive said stem, and a bearing outside the forward hole for another coiled spring. The result is a spring-hold of the head upon the spindle, by which the latter is saved from the effect of concussion in picking.



The block or head E, pivoted to the shuttle by a rod, *a*, having a central opening, *z*, longitudinal openings, and lip *s*, and adapted to the spindle and its spring, all as set forth.

197,064. CUTTING ATTACHMENTS FOR SEWING-MACHINES. Moses Stroop, Peru, Ind. [Filed May 9, 1876.]

Brief.—The whole device is hinged to the presser-foot, to allow it to be swung up out of the way. The arm which is operated by the needle-bar has a swiveled block on its opposite end, which works in a slot in the rear arm of the movable blade.



1. In combination with the presser foot of a sewing-machine, the scissors attachment, hinged to the plate A, to permit it to be turned up against the side of the presser-foot bar when not in use, substantially as set forth.

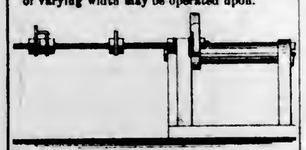
2. In combination with the plate B, carrying the lever G, and moving with the presser-foot, the blade D, pivoted at B^2, and spring E, whereby the lower blade is held stationary on the table, while the other parts are actuated by the movement of the needle-bar, substantially as set forth.

3. The combination of the plates A and B, hinged at A^1, and spring A^2 and hook C, for fixing the position of the scissors, substantially as set forth.

4. The combination of the blade F, slotted at F^2, with the oscillating arm G, carrying the block G^2, and slotted at G^1, to receive a stud on the needle-bar, substantially as set forth.

197,065. SHEET-METAL SHEARS. G. Summers, Niles, Ohio. [Filed Dec. 11, 1876.]

Brief.—The rods are provided with guide-blocks, which increase in height as they are placed farther from the shears, so that sheets of varying width may be operated upon.

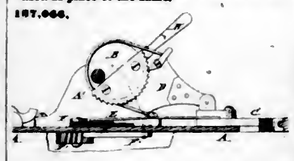


In shears for trimming metal, one or more rods, arranged as shown, and provided with guide-blocks, as and for the purpose specified.

197,066. FLOOR-CLAMPS. W. H. Tarrant, Eau Claire, Wis. [Filed Nov. 4, 1876.]

Brief.—The clamp is adapted for use in laying single or double flooring. The boards are forced into position, and firmly held, while being nailed to the joists, by a pushing-bar working in guideways upon the main frame, and connected by a pivoted lever and encircling band to an actuating-cam, keyed eccentrically to a shaft between side standards, and operated by a hand-lever attached to the cam, and spring-acted and serrated cam-levers for securing the clamp to the joist. In laying double flooring the cam-levers are detached, and a fulcrumed ratchet-dog at the rear end used in place of the same.

197,066.



The combination of supporting main frame A, side standards A', actuating cam B, hand-lever B', connecting-lever D, pushing-bar C, and rear-extending arm E, with jointed and spring-acted levers F, and fulcrumed clamping cams or jaws F', all constructed substantially as shown and described.

197,067. SLATE-PENCIL SHARPENERS. Jas. R. Teal and G. Moulder, Phœnixville, Pa. [Filed Nov. 17, 1876.]



1. As a new article of manufacture, a slate-pencil sharpener consisting of a spring-loop, B, connecting the two halves of a metal block, each block having formed within it the half of a conical abrading cavity, the point of the said cavity being toward the loop B, and the base of the cavity having an elliptic section, as shown in Fig. 3.

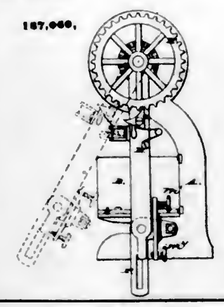
2. As a new article of manufacture, a pencil-sharpener consisting of two separated halves of a metal block, each having formed within it the half of a conical abrading-cavity, the said parts of the metallic block being connected and closed together by the spring-loop B, having an interior abrading-surface, C, substantially as herein described.

197,068. BUSINESS CHECK-BOOKS. James W. Turner, Boston, Mass. [Filed Jan. 3, 1876.]



A check-book, the printed leaves of which contain three similar checks, and a blank for a fourth check, one of which, having on its reverse side printed blanks for the insertion of entries connected with the deliveries of merchandise ordered in the checks, and which check and entries are to be retained as stubs, all substantially as and for the purpose shown and described.

197,069.



197,069. CRACKER-MACHINES. O. L. Vale, Beloit, Wis. [Filed Oct. 24, 1876.]

1. In a cracker-machine, a flexible knife, when held rigidly by being stretched between two fastenings, in combination with the oscillating frames F and E, substantially as described.

2. In a cracker-machine, a swing-frame, E E, carrying the cutting-knife.

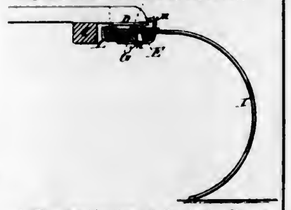
3. In a cracker-machine, a knife-carrier, F, attached to a swinging frame, substantially as described.

4. In combination with the swing-frame, carrying the cut-off mechanism of a cracker-machine, a dog, *e*, substantially as described.

5. The combination of a dog, notched wheel-shaft, bevel-wheels, and screw with a dough box or press, B.

6. In a cracker-machine, the bottom K, made in one piece of metal, having flanges with holes for bolts, and a sunk or recessed portion, with apertures for the escape of dough, substantially as described, and for the purpose set forth.

197,070. HORSE HAY-RAKES. J. L. Wager, Deposit, N. Y. [Filed Aug. 14, 1876.]

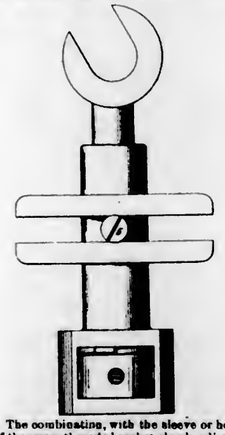


1. The combination of the hooks D, the pins, screws, or bolts F, the rod E, and the straps H with the shafts A and the rake-head G, for connecting said rake-head with said shafts, substantially as herein shown and described.

2. The combination of the bent loops M with the teeth I, the rod E, and the rake-head G, for limiting the play of said teeth, substantially as herein shown and described.

197,071. INKING-ROLLER SOCKETS. D. Weckerlin, Brooklyn, assignor to R. Hoe & Co., New York, N. Y. [Filed Oct. 11, 1876.]

Brief.—A spring-washer between the lower part of the sleeve and the adjusting-nut on the threaded end of the socket-shank prevents the accidental turning of the nut.



The combination, with the sleeve or holder, of the screw-threaded socket-shank, adjusting-nut, and locking-washer, substantially as described.

197,072. GAS-TORCHES. Albert R. Wales, Brooklyn, N. Y. [Filed Jan. 13, 1877.]

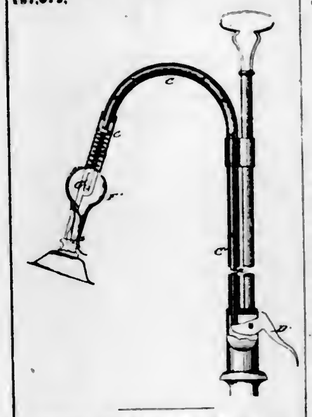
1. A gas-torch composed of a gas bell, and of mechanism for feeding and igniting a fulminate-ribbon, operated in connection with a sliding and spring-acted piston-rod from the handle of the torch, substantially in the manner and for the purpose set forth.

2. The combination of the trigger D', sliding piston-rod *a*, and guide-tube and curved neck-tube C C', with a sliding and spring-acted mechanism for feeding and igniting the pellets of a fulminate-ribbon at the end of the curved neck of the torch, substantially as shown and described.

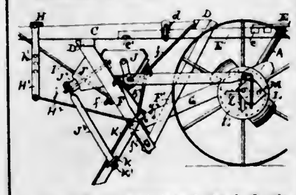
3. The sliding and spring-acted feeder, having extension with end shoulder or seat, in combination with a trigger-acted and sliding piston-rod to push the feeder forward for ignition of pellet, and carry feeder and piston back for resetting trigger, substantially as set forth.

4. The magazine F', having guide-pin near the anvil and exit-opening back of the bell to guide ribbon to anvil, and to the outside, substantially as specified.

197,073.



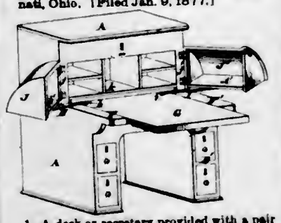
197,073. CONVERTIBLE SEEDER AND CULTIVATOR. N. Whitehall, Newtown, Ind. [Filed Apr. 18, 1876.]



1. The frame consisting of the draft-pole C, cross-bars D D^1, diagonal bars F F^1, adjustable bars G G and E, axle A, and wheels B B, constructed and arranged as described, so as to be convertible into a seed-drill, corn-planter, or corn-cultivator, substantially as and for the purposes specified.

2. The block L, slotted disk L^1, plate M, followers *m*, and rod M^1, operating in combination with the wheel B, for imparting an oscillating motion to the agitator, substantially as and for the purpose specified.

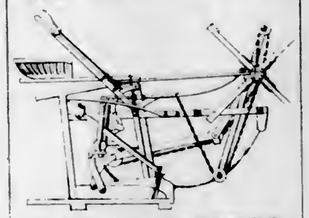
197,074. DESKS. H. H. Wiggers, Cincinnati, Ohio. [Filed Jan. 9, 1877.]



1. A desk or secretary provided with a pair of hinged covers coupled to a sliding member in such a manner that the advancement of said slide causes the covers to open to the right and left respectively, while the retraction of the slide restores them to their normal or closed position, substantially as herein described.

2. In combination with a case or frame, A, hinged covers J J^1 J^2, and reciprocating leaf or table G, the coupling devices H H^1 I I^1, substantially as herein described, and for the purpose set forth.

197,075. HARVESTER-RAKES. H. Wilcox, Brockport, N. Y., assignor to Dayton S. Morgan, same place. [Filed Oct. 27, 1876.]



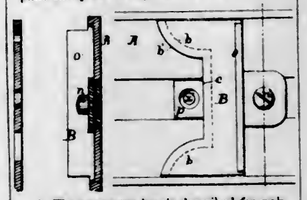
1. The combination of the automatically-vibrating reel-post, rocking upon a pivot at its lower end, the sliding reel-bearing, the reel mounted in said bearing, the two pulleys located the one at the top of the post and the other on the pivot on which the post vibrates, the lifting-chain attached at one end to the reel-bearing, and passing around the pulleys, and the lever mounted on the frame of the machine, and to which the other end of the chain is attached, these members being constructed and operating substantially as hereinbefore set forth, whereby the automatic vibrations of the reel post admit of the unimpeded working of the rake while not interfering with the free vertical adjustment of the reel.

2. The combination, substantially as hereinbefore set forth, of the vibrating sweep-rake, the adjustable reel, its pivoted post, the reel-adjusting mechanism, and connections between the reel and rake, maintaining their relative positions irrespective of any adjustment of the former, whereby the uniformity of vibration and coincidence of movement of the reel and rake are insured, while leaving the reel free to be raised or lowered by the driver, as set forth.

3. The combination, substantially as hereinbefore set forth, of the oscillating rake-post, the oscillating reel-post, the reel-bearing adjustable thereon, and the link connecting the crank of the rake-post directly with the reel-bearing, whereby the reel and rake maintain their relation to each other, notwithstanding vertical adjustment of the reel.

197,076. APPARATUS FOR MAKING PATTERNS AND MOLDS. A. W. Wilmer, New Haven, Conn. [Filed June 19, 1876.]

Brief.—Places letters or figures in a holding-plate, and secures them laterally by sliding clamp. For raised characters holding-plate and clamp have raised border, and characters are held also by a dovetailed joint. Such pattern makes sand-mold for raised characters surrounded by raised border. Into the impression in the sand-mold made by the sliding clamp is put a narrower and thicker metal block, to form that end of the mold, and to leave an unfilled groove, in which that end of the raised border is cast. When sunken characters are to be cast, sunken pattern characters and modified forms of holding-plate clamp and end pieces are used.

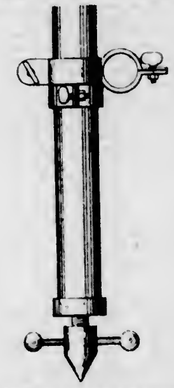


1. The apparatus herein described for making patterns for molding, consisting of the plate A, adjustable end border and clasp B, characters used to express numbers, and letters, substantially as and for the purpose described.

2. The plate A, in combination with the adjustable end border and clasp B, substantially as set forth.

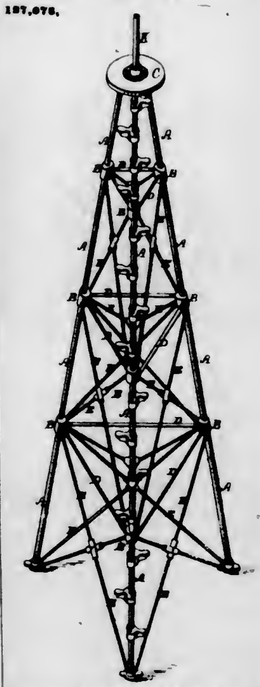
3. The end piece D, to intercept the flow of the melted metal into a part of the impression in the mold formed by end border B, substantially as set forth.

197,077. COLUMNS FOR SUPPORTING ROCK-DRILLING MACHINES. De Volson Wood, Hoboken, N. J. [Filed Sept. 6, 1873.]



The auxiliary clamp for supporting the main clamp, when the latter is free to turn, so that the machine and main clamp may be turned around on the column, in the manner and for the purposes specified.

197,078.



197,078. TOWERS FOR WINDMILLS. J. S. Adams, Elgin, Ill. [Filed Oct. 23, 1876.]

THE GRAPHIC CO. N.Y

THE GRAPHIC CO. N.Y

Brief.—The tower of a windmill constructed by a combination of standards with diagonal or horizontal braces, and the means employed for connecting together the diagonal braces; also, the means employed for connecting the horizontal braces with the guide for the pump-rod.

1. The hereinbefore-described tower, composed of the standards A, constructed in sections, and united by the couplings B, the top plate C, the horizontal brace D, and the diagonal braces E, said parts being combined in the manner and for the purpose specified.

2. In combination with the braces E, threaded at their inner ends, the sleeves F *f* and the block G *g*, substantially as and for the purpose shown.

3. In combination with the braces O, threaded at their inner ends and having their outer ends connected to or with the couplings B, the three-armed block L *l l'* and the sleeves M *m*, substantially as and for the purpose set forth.

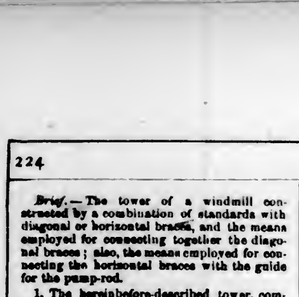
4. In combination with the standard A, the step Q, provided with the half-round bearing *q* and grooves *q'*, and the cap R, having a half-round recessed face and radial lugs *r*, substantially as and for the purpose shown and described.

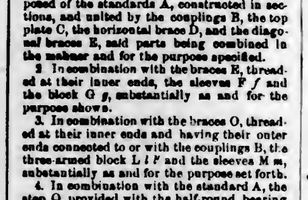
187,079. COMPOSITIONS FOR PRESERVING FOOD. C. G. Am Ende, Hoboken, N. J. [Filed Aug. 1, 1876.]

The composition of boracic acid and acetic acid, substantially as and for the purpose specified.

187,080. TYPE-WRITERS. J. T. Anderson, Philadelphia, Pa. [Filed Oct. 13, 1876.]

Brief.—There is a spirally-arranged rib on type cylinder, with teeth to correspond with keys. On same shaft or cylinder are two type-wheels, adjustable over a platen by means of shifting lever. The paper-carrier consists of two rods, the top rod having a rack, which is operated laterally by means of pawl moved by each key, and longitudinally by cam-surfaces on the small wheel at the end of the paper-carrier. The type-wheel is held above platen by a weak spring, and depressing a key stops this wheel in desired position, and releasing the key allows a gravitating-frame to force the type-wheel against the platen, and the pawl to move the paper-carrier.





1. The mechanically-operated drum B, with spirally-arranged toothed rib C, and spur-wheel F, in combination with the keys G with teeth G', and the frame D with pawl E, substantially as and for the purpose set forth.

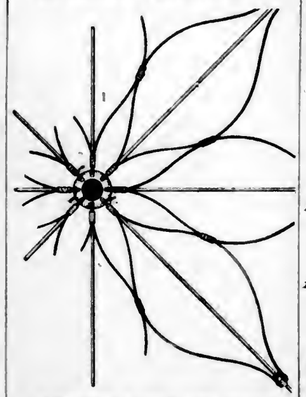
2. The rotary type-wheel, in combination with the spring-elevated bearing-piece J', and gravitating-frame D, substantially as and for the purpose set forth.

3. The sheet-holder bars *e e'*, in combination with the lever L, with pawl M, and the elevating-lug F, substantially as and for the purpose set forth.

4. The feed-wheel P, with inclines *f* and cams *g*, in combination with the sheet-holder N and pin or stud S, substantially as and for the purpose set forth.

5. The sheet-holder and lever L, in combination with the lever T, for operation of the sheet-holder independent of the keys G, substantially as and for the purpose set forth.

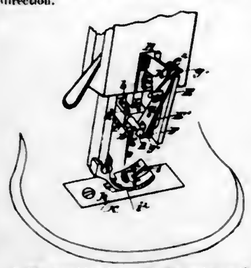
187,081. UMBRELLA-FRAMES. T. W. Ball, Jersey City, N. J., assignor to Winter & Ball, same place. [Filed Dec. 4, 1876.]



In an umbrella or parasol frame, the spring-stretchers, each of which is made of a double spring-wire, perforated and connected at one end to one rib, and at the other end to the runner, the parts being combined and arranged substantially as set forth.

187,082. BUTTON-HOLE ATTACHMENTS FOR SEWING-MACHINES. Charles M. Banks, Philadelphia, Pa. [Filed Sept. 19, 1876.]

Brief.—A spear-head-shaped projection is adjustably attached to the face-plate of the machine, and a block carrying a sliding bar, provided with a needle-holder, is attached to the needle-bar, instead of the needle. When the needle-bar is carried up, its attachment comes in contact with the spear-head above referred to, and a pivoted lever, forming part of the needle-bar attachment, is thrown to one side, carrying the needle with it. By a peculiar arrangement of springs and levers, this lever is, after each action upon it by the spear-head, so thrown that it will, in the next ascent, be acted upon by the opposite side of the spear-head, and thrown in the opposite direction.



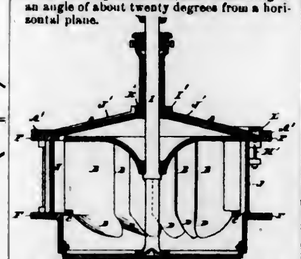
1. The combination, with the reciprocating needle-bar B, standard E, and spear-head *h'*, of the lever F, pivoted to said standard at *f*, and the lever G, pivoted to lever F at *g*, said levers and standard being constructed and provided with mechanism substantially as described, so that the lever G shall be alternately thrown on opposite sides of the spear-head and the proper intermittent reciprocating motion imparted to the bar B, as set forth.

2. The combination, with the reciprocating needle-bar B, recessed standard E, provided with loop or equivalent *e'* and spear-head H, of the levers F and G, constructed and arranged substantially as described, springs *s*, collar *f'*, as and for the purpose set forth.

3. The adjustable plate H, carrying the spear-head *h'*, in combination with the head of the machine, the reciprocating needle-bar B, standard E, and intermediate mechanism, substantially as described, for imparting motion to said needle-bar, as set forth.

187,083. TURBINE WATER-WHEELS. Chas. Barber, Meaford, Ontario, Canada. [Filed Aug. 23, 1876.]

Brief.—Eccentric chutes are combined with buckets, whose outer ends are perpendicular, or nearly so, to the tangents of the inner ends of the curved chutes, and whose inner ends are inclined inward seventy degrees, or thereabout, from the radii of the wheel. The buckets are constructed with scoop-shaped lower ends, inclining downward, and terminating at an angle of about twenty degrees from a horizontal plane.



1. The movable ring A', rotating on its axis on top ring F of the casing, and having eccentric slots *l*, engaging with the friction-blocks of the controlling-pivots H' of the movable gates J, for simultaneously opening and closing the gates by partially rotating the ring, as set forth.

2. The combination, with the eccentric chutes H, of buckets B, intersecting the inner ends of the chutes perpendicularly to the tangents of the latter, extending backward and inward about half way to the center of the wheel, and terminating in tangents inclined inward about seventy degrees from the radii of the wheel, or twenty degrees from the line of motion.

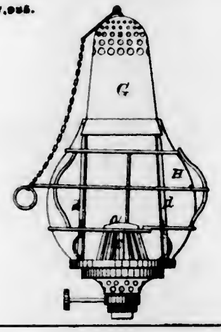
3. The combination, with the upper buckets B, of concave or scoop-shaped heel buckets or extensions D, inclining downward, and terminating at an angle of about twenty degrees from a horizontal line.

187,084. TRACE-DETACHING DEVICES. G. A. Beaver and E. O. Abbott, Indianapolis, Ind., assignors to S. C. Barth, same place. [Filed May 16, 1876.]



A trace-detaching device, consisting of the bolt E, provided with a rack, *g*, and operated in the metallic tips B by means of the segmental cog gear K, provided with a curved and slotted arm, H, in the manner set forth and described.

187,085.



187,086. BURNERS AND LANTERNS. Geo. A. Beidler, Philadelphia, Pa. [Filed Dec. 20, 1876.]

1. In a lamp-burner, a conical cap, C, provided with longitudinal flutes or corrugations *b*, for the purposes herein set forth.

2. In a lamp burner, a conical cap provided with longitudinal flutes or corrugations *b*, and turned-up lips *a a* on each side of the blaze hole, substantially as set forth.

3. In a lamp-burner, the combination of the conical cap C, provided with longitudinal flutes or corrugations *b* and apertures *x*, and the exterior shell or covering D, substantially as and for the purposes herein set forth.

4. The combination of the top G and the base or burner I, connected together by the straps *d d*, and the removable globe H, resting on the base I, all substantially as set forth.

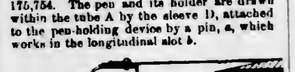
187,087. TRUSSED WHIFFLETREES. Saml. W. Belles, Orion, Mich. [Filed Sept. 11, 1876.]



The whiffletree or neck-yoke described, consisting of a body, A, made of sheet metal, bent into a concave form, as shown, the tension-rod B, the strut *a*, the hoop *b*, and the link *c*, the several parts being constructed and arranged substantially as set forth.

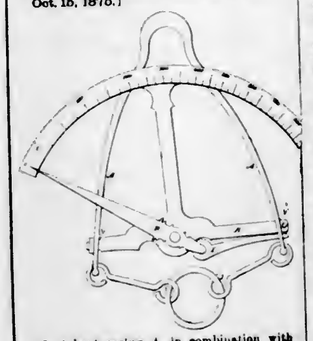
187,088. PEN-HOLDING PENCIL-POINT PROTECTORS. H. C. Benson, Yonkers, assignor to J. Reckendorfer, New York, N. Y. [Filed Oct. 28, 1876.]

Brief.—Improvement on patent granted to Reckendorfer and Palleske, April 4, 1876, No. 175,754. The pen and its holder are drawn within the tube A by the sleeve D, attached to the pen-holding device by a pin, *a*, which works in the longitudinal slot *b*.



The improvement on the pen-holding pencil-point protector described in Letters Patent No. 175,754, the same consisting in the combination, as herein shown and set forth, with the pencil-point-protecting tube, of a pen-holder movable within and lengthwise of that part of the tube which is beyond the portion of said tube that is adapted to receive and protect the lead-pencil.

187,089. DYNAMOMETERS. J. Blackinton, Roscoe, Ill., assignor to W. M. Richardson and F. W. Warner, same place. [Filed Oct. 16, 1876.]



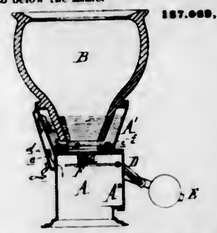
1. A bent spring, A, in combination with the sliding bar B, notched bar I, pointer D, and indicator C, substantially as and for the purpose set forth.

2. The bent spring A, provided with slots *b b'*, in combination with the sliding bar B, notched bar I, and pointer D, substantially as and for the purpose set forth.

187,090. WATER-CLOSETS. W. Blackwood, Jr., Detroit, Mich. [Filed Aug. 25, 1876.]

Brief.—The bowl extends down into the trunk, forming a sealing-chamber. The overflow-passage extends from above the valve-seat to below the same.

187,090.



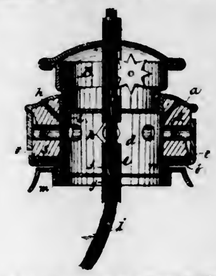
1. The trunk A A' A', provided with the overflow *g*, the flange *a* to support the bowl B, and the flange *c* to support an annular elastic valve-seat, in combination with an upwardly-closing valve, substantially as described.

2. In a water-closet, the combination, with the trunk A A' A' and upwardly closing valve G, of the bowl B, extending down into the trunk, so as to form a sealing-chamber, and the overflow-passage *g*, extending from above the valve-seat to below the same, constructed and arranged substantially as described and shown.

3. The elastic annular valve-seat *d*, secured to the flange *c* of the trunk by the ring *e* and bolts *f f*, substantially as described.

4. The valve G, loosely pivoted to the arm F of the rock-shaft C, the same being actuated by the lever E, substantially as described.

187,090. LAMP-BURNERS. J. H. Boardman, Baltimore, Md. [Filed Sept. 28, 1876.]



1. The combination of adjustable plate *p*, fastening *t*, wick-tube *c*, and ring *b*, as and for the purpose substantially as set forth, for use with wick-tube *c*.

2. The combination of wick-tube *c*, having oil-passage *f*, oil-cup *w*, wick *i*, wick-tube *o*, and the ratchet, as and for the purpose substantially as described.

3. The combination of wick-tube *c*, having vent *g*, the fount-chamber, plate *p*, ring *b*, wick *i*, and wick-tube *o*, as and for the purpose substantially as set forth.

4. The combination of non-conductor *z*, of tubular form, chamber *d*, of cylindrical form, ring *a*, having screw-threads *l*, the annulus, the ratchet, placed as specified, wick-tube *c*, ring *b*, and plate *p*, forming, in part, oil-cup *w*, as and for the purpose substantially as described.

5. The combination of non-conductor *z*, having openings *u*, chamber *d*, ring *a*, having orifices *h*, ring *b*, and plate *p*, as and for the purpose substantially as set forth, for use with a flame wick-tube.

6. The combination of non-conductor *z*, spring-holders *x*, ring *a*, ring *b*, and folded spring-supports *r*, as and for the purpose substantially as described.

7. The combination of ring *b*, having screw-threads *m*, plate *p*, turnable on ring *b*, and forming, in part, oil-cup *w*, and fastening *t*, as and for the purpose substantially as set forth, for use with a flame wick-tube.

8. The combination of non-conductor *z*, of tubular form, chamber *d*, of cylindrical form, folded spring-supports *r*, placed and curved as shown and specified, ring *b*, and plate *p*, as and for the purpose substantially as described, for use with a flame wick-tube.

9. In a detachable lamp-burner attachment for a complete burner, and for the purpose as specified, the combination of ring *b*, having screw-threads *m* and a handle, with plate *p*, as and for the purpose substantially as set forth.

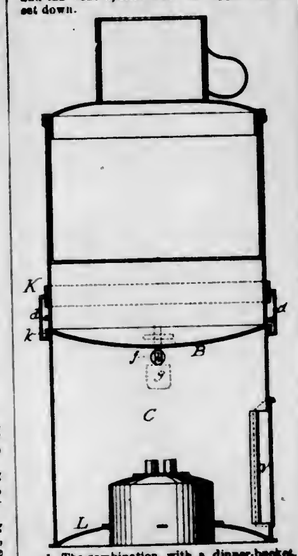
10. The combination of wick *i*, exposed in space *k*, wick-tube *c*, of flattened form, the ratchet, placed as specified, wick-tube *c*, when a flattened tube, plate *p*, forming, in part, oil-cup *w*, and ring *b*, as and for the purpose substantially as described.

11. The combination of folded spring-supports *r*, made of brass wire, ring *a*, having screw *l*, ring *b*, plate *p*, forming, in part, oil-cup *w*, and wick-tube *z*, as and for the purpose substantially as set forth, for use with an upper wick-tube.

12. In a detachable lamp-burner attachment to a complete burner, for the purpose specified, the combination of wick-tube *c*, having the entrance to its lower end slightly larger than the balance of such passage, plate *p*, ring *b*, non-conductor *z*, and ring *a*, having screw-threads *l*, as and for the purpose substantially as described, and for use with an upper wick-tube.

187,091. COMBINED DINNER-BUCKET AND LANTERN. O. M. Bossert, Parnassus, Pa. [Filed Dec. 9, 1876.]

Brief.—When the device is raised by its bail, the lantern-case drops as far as the arm connecting it with the bucket will allow, thus affording draft-space. This space is closed and the vent opened when the apparatus is set down.



1. The combination, with a dinner-bucket, of a drop-lantern suspended thereto by a sliding attachment, substantially as specified.

2. The combination, with a dinner-bucket, having a base bead, *a*, of the lantern-case C, having a raised ring, K, and connecting-arms *d*, substantially as specified.

3. The combination, with the vent *f* of the drop-lantern, of a sliding cover, *g*, having an arm, *h*, attached to a bucket above said lantern, substantially as specified.

4. The combination in a lantern, having the convex bottom L, and a lamp supported thereby, of a dinner-bucket resting on said lantern, and having a concave bottom, B, substantially as specified.

187,092. GAS-ENGINES. Robt. D. Bradley, Preston, Md. [Filed July 11, 1876.]

1. A reciprocating case containing an odd and even number of cylinders, arranged as described, combined with, and adapted to move upon, stationary pistons as upon guides.

2. The case M, containing two cylinders in one end, and one in the other, and re-enforced with metal at its weak points, so as to form a heart shape, to operate in combination with the pistons, for the purpose described.

3. The combination, with a set of pistons, of a case or block containing cylinders arranged with an odd and even relation, as described, and connected by valves and ports, so as to allow the motive fluid to operate consecutively in the one and expansively in the other, for the purpose described.

4. The combination, with a set of stationary pistons, arranged as described, and having ports for the induction and discharge of the motive fluid, of a reciprocating case containing cylinders corresponding to the pistons, arranged for different areas of pressure for the different strokes, and connected by a valve and ports, substantially as and for the purpose described.

5. The stationary pistons L^2, having discharge-ports l^2, and the stationary piston L, having the induction-port l, in combination with the heart-shaped block M, having cylinders M^1 M^2, arranged as described, and connected by valve T through ports t, as and for the purpose specified.

6. The reciprocating case, containing three or more cylinders, arranged as described, with different areas of pressure for the different movements, and connected by ports, in combination with the plug-valve T, having a projecting arm, and the stationary tappets t^1 t^2, for the purpose of effecting communication between the cylinders, substantially as described.

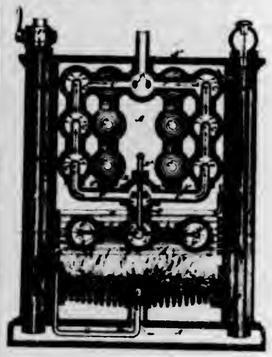
7. The reciprocating case M, carrying the cylinders, and the stationary pistons L L, having the induction and discharge ports, in combination with the valves L^2 L^2 and the connecting-rods p p^1 p^2, receiving motion from a rock-shaft and eccentric, or other suitable mechanism, for imparting reciprocating motion, for the purpose described.

8. The combination, with the crank-shaft O and a pitman, N, of the reciprocating heart-shaped block M, moving upon its stationary pistons as guides, and having a cross-head pin, m, substantially as and for the purpose described.

9. The solid stationary pistons, of equal diameters throughout their length, and having central ports, in combination with the case M, having valve T, as and for the purpose described.

187,092. *l* *l'* m^1 m^2 L^2 L^2 M M^1 m^1

187,093. APPARATUS FOR GENERATING MOTIVE-GAS FROM WATER. Robt. D. Bradley Preston, Md. [Filed July 11, 1876.]



1. The generating-cells B^1, arranged radially, and communicating with a central compound chamber, in combination with the water-pipe B^3, passing through compound chamber B, and having radial branches or glands b^1, which enter the cells through their communication with the compound chamber, and terminate in bulbs provided with minute perforations, substantially as and for the purpose described.

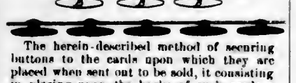
2. The generator-cells B^1, compound chamber B, and the contained water-pipe B^3, with glands b^1, in combination with a series of superposed intensifier-cells C, connected with chamber B through pipes b^2, and communicating with each other through perforated diaphragms c, substantially as and for the purpose described.

3. The air-tight chamber A^1, having a hollow base, and containing the generator and furnace, in combination with the air-pipe I, having cock I^1, and the smoke-pipe H, communicating with the furnace above and the hollow base below, as and for the purpose described.

4. The combination, with the case A^1, having a hollow base, of the waste-pipe G, coiled about the generators, and leading through the hollow base to the furnace, as described.

5. The combination, with the case, having a hollow base and an air-pipe, I, and smoke-pipe H, communicating therewith, of the waste-pipe G, leading through the hollow base to the furnace, and adapted to feed the air and smoke to the same by induction, substantially as described.

187,094. METHODS OF ATTACHING BUTTONS TO CARDS. Abel Brear, Saugatuck, Conn. [Filed Nov. 28, 1876.]

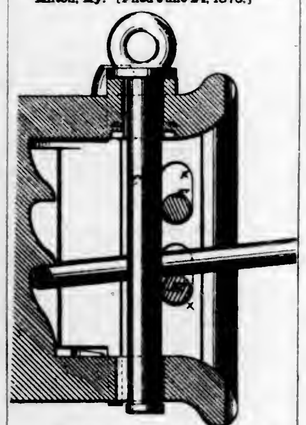


The herein-described method of securing buttons to the cards upon which they are placed when sent out to be sold, it consisting in placing upon the backs of such cards a quantity of glue or other adhesive substance, and placing the eyes of the buttons therein, the adhesive substance being placed in cavities formed in the card, or upon the plain surface thereof, substantially as set forth.

187,095. METHODS OF PRODUCING LUBRICATED MOLDS IN PLASTER. C. S. Brooks, Helena, Ark. [Filed Nov. 6, 1876.]

The method of producing lubricated plaster molds for the reproduction of original designs, the said method consisting in modeling the original pattern in butter, or equivalent greasy and plastic substance, casting the plaster upon and around the same, and then removing the said pattern by heat, substantially as specified.

187,096. CAR-COUPLINGS. Perry Brown, Milton, Ky. [Filed June 24, 1876.]

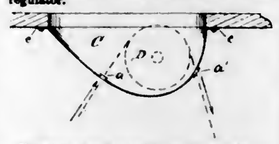


1. The plain rollers F E, made without collars, and playing up and down in pockets s X in the sides of the draw-head, substantially as herein set forth.

2. The pivoted stirrup G, in combination with the draw-head and coupling-link, for the purposes set forth.

187,097. DUST-GUARDS FOR SEWING-MACHINES. A. A. Capeling, Rochester, N. Y. [Filed Sept. 15, 1876.]

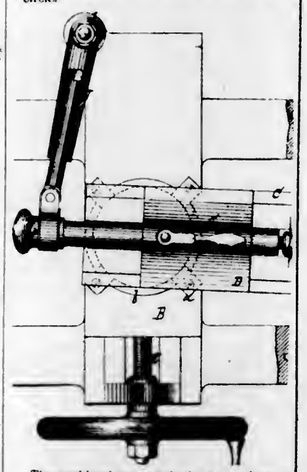
Brief.—This guard is adapted to the particular style of machines, such as the Howe, Weed, &c., in which the feed-regulator is below the table, and it is provided with a spring-door, to admit of easy access to such feed-regulator.



The sheet-metal guard D, having the flange c, and an aperture provided with the spring-hinged self-closing door, as shown and described, for the purpose specified.

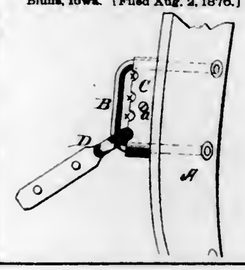
187,098. SLIDE-RESTS FOR SPINNING-TOOLS. M. C. Chambers, Green Point, N. Y. [Filed Aug. 3, 1876.]

Brief.—The tool-stock is mounted over two screw-operated slides, with an intervening swivel-joint; and the upper slide is connected by a telescopic brace pivoted to a standard, so that when either of the slide-screws is operated the end of tool moves in the arc of a circle.



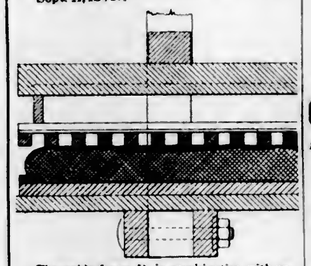
The combination of a swinging arm or brace with the tool-stock of a slide rest, said tool-stock being secured to the secondary carriage D, the guideways of which are connected to the main carriage B by a swivel-joint, the whole being constructed and operated substantially as and for the purpose herein shown and described.

187,099. HAMES. J. A. Churchill, Council Bluffs, Iowa. [Filed Aug. 2, 1876.]



The combination of the two plates C C, fastened together with one or more bolts or screws, and the staple B, said plates or the staple being provided with notches x x, substantially as and for the purposes herein set forth.

187,100. CHEESE-FORMERS FOR CIDER-PRESSES. J. Clark, Pontiac, Mich. [Filed Sept. 11, 1876.]



The guide-frame D, in combination with an extended pomace-rack, and a cloth to inclose a layer of pomace therein, substantially as described.

187,101. COMBINATION-LOCKS. H. Clarke, Baltimore, Md. [Filed Oct. 6, 1876.]

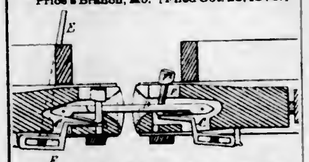


1. In combination with the central stem of the lock, a collar or stop, having a movement independent of the tumblers of the lock, and adapted to be moved to a known position upon said stem, and thus serve as a device for limiting the movement of the tumblers required to be projected or extended to admit of the manipulation of the lock, substantially as herein specified.

2. A threaded central stem, a threaded collar or stop upon the said stem, and a knob placed at the outer end of the same, and having a circumferential movement transmissible to the said collar or stop, combined in a lock, substantially as described, whereby, on indicating-marks upon the said knob and the dial-plate of the lock being brought together, the said collar or stop is caused to occupy a required and known position on the said central stem, for purposes herein specified.

3. In combination, substantially as described, an exterior circumferentially-moving knob, an adjustable threaded collar, a central threaded stem, a dial plate or disk having a curved or circular slot, and a pintle connecting the knob and disk, for the purposes set forth.

187,102. CAR-COUPLINGS. John C. Cope, Price's Branch, Mo. [Filed Oct. 26, 1876.]



1. A coupling-link, D, for cars, provided with a hinged diagonal drop-bolt, F, for coupling, substantially as and for the purposes set forth.

2. The combination of a coupling-link, D, having a diagonal drop-bolt, F, for coupling, and a cut-out draw-head, A, provided with interior trip or trigger C, bent-rod lever E, extending to both sides of the car, to be held by a ratchet, E, substantially as and for the purposes specified.

187,103. BEDSTEADS. H. B. Coyle, Philadelphia, Pa. [Filed June 30, 1876.]

As a new article of manufacture, the improved folding cot or bedstead, consisting, essentially, of the frame made of piping, and composed of the posts A, side rails C, and end rails B, connected by sliding T-coupling D and the slats E E E', the two outer slats being cut away at e e for the passage of the posts, said end rails B being provided with pins b to receive and hold the suitably-perforated slats, all substantially as shown and described.

187,104. TOY CANNONS. C. M. Crandall, Montrose, Pa., assignor to C. M. Crandall & Co., same place. [Filed Dec. 15, 1876.]



1. A toy-cannon, the knob of the cascabel thereof constructed with a sheave and combined with a yielding washer, a spring, and the breech of the cannon, substantially as shown and described.

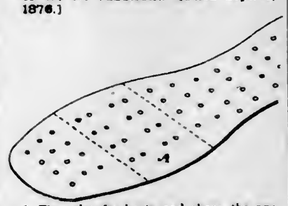
2. In a toy cannon, the trunnions thereof provided with saw-kerfs, within which is secured the operating-spring, substantially as and for the purpose described.

3. In a toy cannon, the knob of the cascabel constructed with a sheave, whereby the tension of the spring is equalized, substantially as described.

4. In a toy cannon, the cheeks thereof provided with locking devices, secured by an adjustable joint at their lower ends, and a notch at or near their upper ends for the reception of the trunnions, substantially as described.

5. In a toy cannon, the trail of the carriage, formed in two or more pieces and united with a hinge-joint, substantially as and for the purpose described.

187,105. GALVANIC SOLES. E. H. Craw, Vallejo, Cal., assignor of one-half his right to W. W. Vanderbilt. [Filed Sept. 4, 1876.]

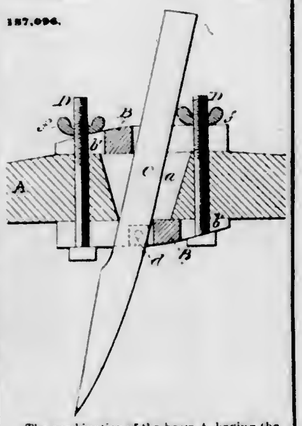


1. The soles for boots and shoes, the one made of a positive and the other of a negative material, substantially as and for the purpose herein described.

2. The soles A, constructed of a positive and a negative element, and hinged or jointed at C, said soles being covered with a fabric, perforated at B, and connecting the parts together, substantially as herein described.

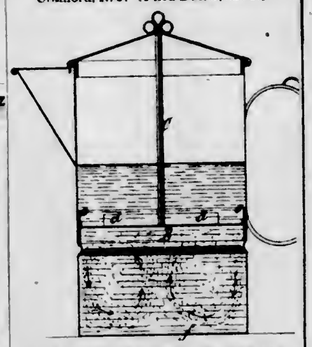
187,106. COLTER-PLOWS. W. H. Collett, Jackson, Tenn. [Filed June 20, 1876.]

187,096.



The combination of the beam A, having the V-shaped slot a, the colter C, and metallic holders B B, having open-ended slot at each end, the set-screws d d above and below on opposite sides, the bolts D, and nuts f, all constructed substantially as and for the purposes herein set forth.

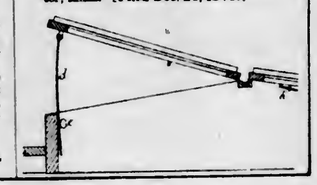
187,107. COFFEE-POTS. John Cromwell, Cranford, N. J. [Filed Dec. 9, 1876.]



1. The combination, with a coffee-pot, of a single perforated or reticulated retaining-diaphragm, held below the outlet-opening of the pot, extending entirely across the pot, and dividing the pot into a lower extracting-chamber for the reception of the solid coffee, and an upper condensing-chamber for the reception, condensation, and retention of volatile extracts, said chamber communicating only through the perforations or reticulations in said diaphragm, substantially as and for the purpose specified.

2. The combination, with a coffee-pot, of the reticulated diaphragm B, strengthened by band and arms or flanges, substantially as described, and having a vertical rod, C, said diaphragm being arranged below the outlet-opening of the pot, and prevented from an upward movement by means of the vertical rod, as and for the object set forth.

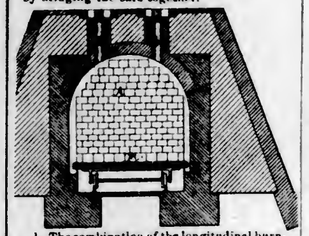
187,108. SKY-LIGHTS. O. Davis, Gloucester, Mass. [Filed Dec. 26, 1876.]



A sky-light provided with the hook *b*, in combination with the securing hasp *c*, adjusting-hasp *d*, and turning buttons *e*, all constructed and operating substantially as and for the purpose set forth.

187,109. BRICK-KILNS. Helmuth Dueberg, Berlin, Germany. [Filed Dec. 26, 1876.]

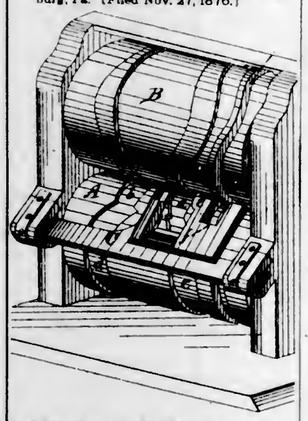
Brief.—The distance between the feed-apertures, in the direction of the length of the kiln, is the same as between the spaces formed by bringing the cars together.



1. The combination of the longitudinal burning-chamber A, having openings *b b* in its top for the introduction of fuel, the grate E and temporary removable partition B at one end of the burning-chamber, and a series of platform-cars, P, arranged for operation substantially as described.

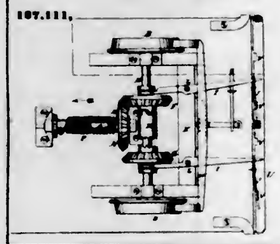
2. The combination, with the burning-chamber A, the fuel-supply openings *b*, the grate E, and temporary partition B at one end of the burning-chamber, of the platform-cars P, forming a continuous brick-carrying floor to the burning-chamber, substantially as described.

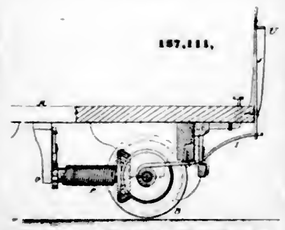
187,110. MACHINES FOR ROLLING METALS OF IRREGULAR SHAPES. Saml. Duff, Pittsburg, Pa. [Filed Nov. 27, 1876.]



In a machine for rolling straight bars into irregular forms, the combination, with a pair of rolls having suitable grooves and corresponding collars, of a sliding guide or bending device, arranged and operating substantially in the manner and for the purposes described.

187,111.



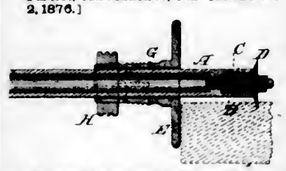


187,111. CAR-STARTERS. Henry Dutcher, Port Jervis, N. Y. [Filed Jan. 18, 1875.]

1. Car-axle A, provided with fixed double clutch H, in combination with sliding clutches for engaging therewith, bevel-wheels F G, rigidly secured on said sliding clutches, third wheel N, spring P, shaft O, operating-levers I I and J J, and notched hand-rail U, substantially as and for the purpose set forth.

2. Car-axle A, provided with fixed sleeve or double clutch H, in combination with sliding clutches for engaging therewith, bevel-wheels F G, rigidly secured on said sliding clutches, third wheel N, spring P, and shaft O, substantially as set forth.

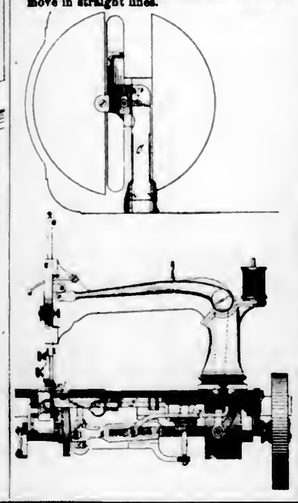
187,112. CARPENTERS' GAGES. Charles O. Farciot, San Francisco, Cal. [Filed Nov. 2, 1876.]



The wheel E, provided with elongated split hub G, having exterior screw-threads, and nut H screwed thereon, in combination with the handle A, spindle B, and sleeve C with wheel D, substantially as and for the purposes herein set forth.

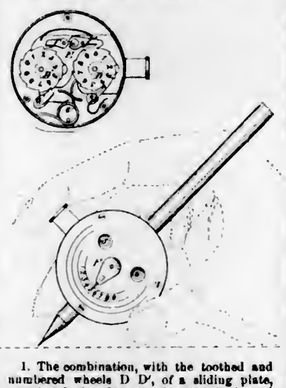
187,113. FEED MECHANISMS FOR SEWING-MACHINES. H. Feyh, New York, N. Y., assignor to S. W. Johnson, same place. [Filed Dec. 19, 1876.]

Brief.—Improvement on the patents of J. L. and D. H. Coles, consisting in removing the feed-dog from the feed-bar, and substituting therefor a feed-dog moving in a slideway in the cloth-plate, and a bracket attached to the feed-bar, to operate the feed-dog, the object being to cause the feed-dog to move in straight lines.



The combination of the feed-bar D, which is free to move in the direction of its length, and also assume an oscillating motion, of the bracket carrying the pin *h*, the rectilinear feed-slide O, carrying the feed-dog N², and provided with slot *m* to receive said pin *h*, and the cloth-plate, substantially as described, whereby the feed-dog is prevented from being thrown out of its rectilinear path by the oscillating motion of the feed-bar, as set forth.

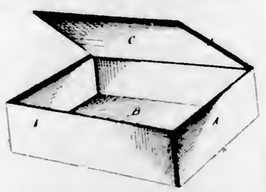
187,114. ADDING-PENCILS. C. C. Fields, Abingdon, assignor to himself and V. Doriot, Washington County, Va., and W. W. Davis and J. M. Thomas, Bristol, Tenn. [Filed Nov. 16, 1876.]



1. The combination, with the toothed and numbered wheels D D', of a sliding plate, carrying devices for operating the wheels, and having slots *c c'*, which inclose and utilize the pivots of the said wheels for guides, substantially as and for the purpose described.

2. The wheel D having ten teeth, and one notch deeper than the others, and the wheel D' having ten teeth and an extended pivot, and both provided with suitable detents, in combination with the slide E extended through the side of the case, a spring, *s*, and the levers *f f'*, arranged to operate the hundreds-wheel once for every ten movements of the tens-wheel, substantially as described.

187,115. CIGAR-BOXES. C. Fletcher, Williamsburg, N. Y. [Filed July 29, 1876.]



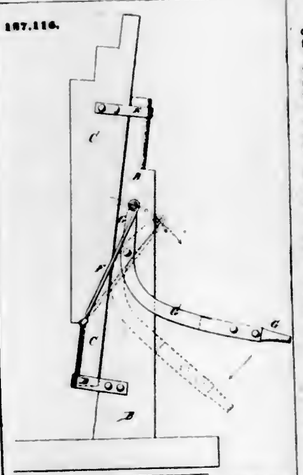
1. As an improvement in the art of manufacturing cigar-boxes, which consists in beveling the upper and lower edges of the four sides of the box, and beveling the sides and ends of the top and bottom pieces, substantially as described, and for the purpose set forth.

2. The combination of the four sides A of a cigar-box, with bottom piece B and cover C, each of the said six pieces having all its edges beveled inward, substantially as and for the purpose set forth.

187,116. WAGON-JACKS. J. A. Fox, Newfane, N. Y., assignor to himself and Shaw, Vincent & Co., same place. [Filed Aug. 21, 1876.]

In a lifting-jack, the slide C, connected with the standard B by means of the straps E D, in combination with the bifurcated lever G, straddling the standard, and bail F attached to the bifurcated ends of the lever G and to the slide, substantially as described, and for the purpose set forth.

187,116.



187,117. VISES FOR CARPENTERS' BENCHES. W. H. Frampton, Topeka, Kans. [Filed Sept. 9, 1876.]

Brief.—A carpenter's bench is provided with a metallic frame, in which is placed a sliding box carrying an adjustable dog, for the purpose of holding pieces of timber while being worked upon.



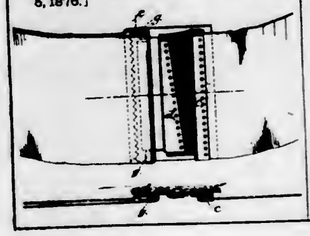
The extended sliding box E, having a vertical slot, into which is inserted the dog *e*, and held by the set-screw, in combination with the screw G connected to the box E, and the slotted frame D provided with ears and ways, all substantially as and for the purposes herein set forth.

187,118. BALE-TIES. G. S. Franco, Worcester, Mass., assignor to Washburn & Moen Manufacturing Company, same place. [Filed Nov. 6, 1876.]



As an improvement on the bale-tie patented to E. S. Lesox April 4, 1876, the horseshoe-shaped loop-hook D, made in the peculiar manner shown and described, whereby, when the tie is in use, the parts 2 2 will abut against each other, and thereby brace the part 1, as and for the purposes stated.

187,119. BUCKLES FOR HAT-BANDS. Isaac H. Francis, Baltimore, Md. [Filed Dec. 5, 1876.]



1. A hat-band, having its buckle-fastening connected thereto by an elastic gore or spring, for the purpose stated.

2. The combination, with a hat-band provided with an elastic gore or spring attachment, of an attachable tongue-piece, *s*, for fastening the band.

3. The buckle-plate, provided with the inwardly-bent lapped hooks *g*, in combination with the upset lip *f*, for securing the band to the hat, as described.

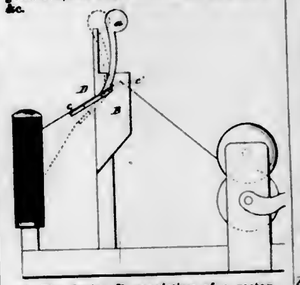
4. The combination, with the buckle and the elastic gore or spring, of the punctured upset lip to form a diagonal fastening for the gore or spring, for the purpose specified.

5. The combination, with the hat-band and its elastic gore or spring buckle-connection, of the double upset clamping-strip *e*, as and for the purpose specified.

6. The hat-band fastening herein described, consisting of the buckle-plate, the elastic gore or spring and band-fastening lip *f*, and strip *e*, and the attachable tongue-piece *s*, all constructed and combined for use, as specified.

187,120. YARN GUIDES AND CLEANERS FOR SPOOLING-MACHINES. Jos. Garrett, Chester, Pa. [Filed Nov. 27, 1876.]

Brief.—The yarn rises and falls in the guide-slot by the vibrating motion of the rectangular device, which moves upon and within the guide-box, and is thus removed of dirt, seeds, &c.

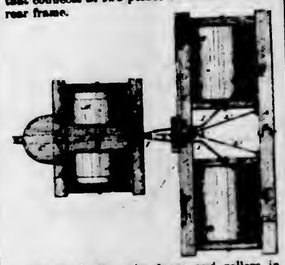


1. The device D, consisting of a rectangular frame, having the weighted arm *a*, the wings or extensions *a a'* located at opposite points, and the journals *i* placed contiguous to said wings, as shown and described, whereby the device is adapted to be suspended or supported by any suitable means, and to operate in the manner described.

2. The combination, with the box-guide B, having notched bearings, of the device D, weighted at one side, as shown and described, to operate as specified.

187,121. LAND-ROLLERS. W. Gates, Hopkins' Station, Mich. [Filed Dec. 16, 1876.]

Brief.—Three rolls are arranged—one in front in the center, and two in the rear. The frame of the rear rollers is hinged, for the purpose of conforming to the surface of the ground. A coupling-rod extends from the rear of the front frame to the rear of the rear frame, and in addition to this is a chain that connects at two points to the rear of the rear frame.



In a land-roller, the frame and rollers, in combination with the high reach I, and the chains A A', connected substantially as and for the purpose herein set forth.

187,122. FREEZING-PANS FOR FISH. Chas. W. Genthier, Sandwich, Ontario, Canada. [Filed Nov. 25, 1876.]

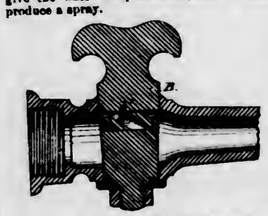
187,123.



A freezing-pan divided into chambers provided with loose plates *b*, for subdividing said chambers, and with a cover, substantially as and for the purposes described.

187,124. NOZZLES FOR HOSE. J. Gielow, Chicago, Ill. [Filed Jan. 23, 1877.]

Brief.—The nozzle-plug is constructed with a main port, for throwing a solid stream, and on a line diagonal there is a worm-port, to give the water a spiral twist, and thereby produce a spray.



In a nozzle for hose, the plug B, provided with the main port *b* and worm-port *b'*, substantially as and for the purpose set forth.

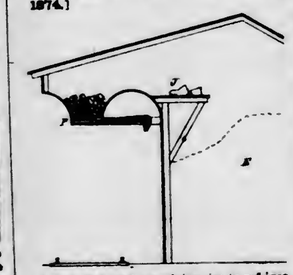
187,124. FENCES. J. G. Gilpin, Eagletown, Ind.. [Filed Nov. 21, 1876.]



1. The fence-post consisting of the notched sill C, triangular pieces D D, and bar E, provided with the latch G, in combination with the panels A B, having notches, as described, substantially as and for the purposes herein set forth.

2. In a fence, the panels A B, in combination with the sill C, bar E, the notched slides H, and the sliding pins I, arranged to form a corner in a fence, as shown and described.

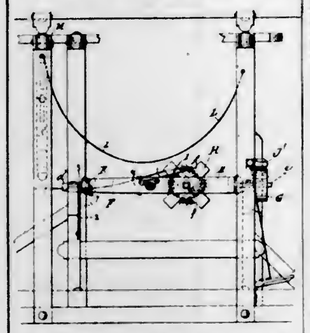
187,125. ICE-LOADING STATIONS. Edward D. Gird, Syracuse, N. Y. [Filed July 8, 1874.]



For storing and supplying ice to refrigerator-cars, the station K, provided with the projecting crib F, extending over the track, having the dumping device W and platform J, all constructed and arranged substantially as described, and for the purpose set forth.

187,186. MACHINES FOR TWISTING AND SPOOLING BARBED FENCE-WIRE. Jos. F. Glidden, De Kalb, Ill. [Filed Nov. 17, 1876.]

Brief.—A length of the wires is passed from the spools through guides, and the slotted journal of twisting frame, to the spool in said frame, where it is secured. The rear end of the wire is then placed in a V-shaped spring-arm, and held by a clamp while this length of wire is being twisted by the revolution of the twisting frame. The twisted wire is then released from the spring-arm and slotted journal, passed through the eye of the swinging arm, and wound upon the spool.



1. The combination, with twisting-frame E, of the slotted journal *d* and *d'*, substantially as and for the purposes set forth.

2. The combination, with twisting-frame E, of ratchet-wheel *f*, pawl 1, and holding-hook 2, substantially as and for the purposes set forth.

3. The combination, with twisting-frame E and stationary frame F, of holding-hook 7, substantially as and for the purposes set forth.

4. The combination, with twisting-frame E and spool H, of swinging arm K', provided with a slotted ring, K, said parts being relatively arranged, substantially as and for the purposes set forth.

5. The combination, with spring-standard I, of wire-holding clamp I', substantially as and for the purposes set forth.

6. The combination, with the swinging arm K', provided with a slotted guide-ring, K, of arm L' and cord or rope L, substantially as and for the purposes set forth.

7. The combination, in a machine for twisting and spooling barbed fence-wire, of mechanism consisting of the slotted spring-standard I, clamp I', chain 5, ratchet-wheel 4, and pawl 6, for straining and holding the strands of the wire secure and taut at one end of the machine, and of mechanism consisting of the stationary frame F, twisting-frame E, slotted bearing and journal *d d'*, spool H, spindle E', ratchet-wheel *f*, pawl 1, holding-hooks 2 and 7, and slotted swinging arm K' at the other end of the machine, for twisting and winding or spooling the same, substantially as described.

187,197. CAR-STARTERS. E. G. Goddard, East Saginaw, Mich. [Filed Sept. 6, 1876.]

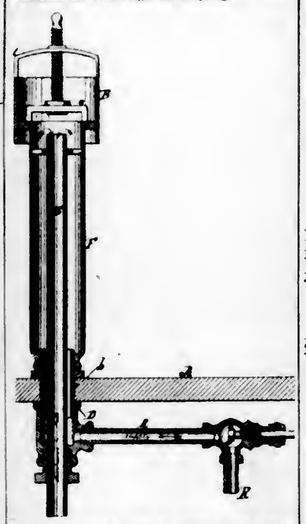


1. The slotted slide C, carrying the pawl A, adapted to engage with and give an impulse to the ratchet B on the axle, the spring D, lever E, and draw-bar F, in combination with a means for automatically disengaging said pawl from the ratchet, and a means for arresting the full retraction of said draw-bar, substantially as described.

2. The combination, with the slotted slide C C', ratchet B, and spring D, of the pawl A *i*, lever *j*, chain *k*, and spring *l*, all constructed and arranged substantially as described and shown.

187,198. BEER-COOLERS. M. Gottfried, Chicago, Ill. [Filed Dec. 12, 1876.]

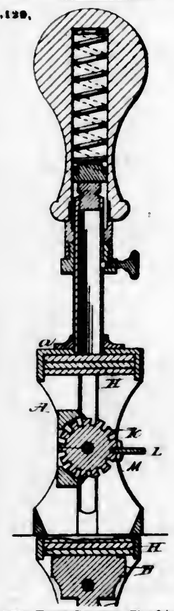
Brief.—A drum having an extension-cap at the top is placed in the vat. Through the bottom of the vat passes a hollow coupling, and by means of a supply-pipe water is forced through the coupling into the drum, and escapes near the top into a discharge-pipe, which extends down through the coupling.



1. The pipe K, drum F, sleeve *b*, and coupling D, and discharge E, in combination with mash-tub A, substantially as set forth.

2. In a beer-cooler, the extension-cap B, in combination with the drum F, substantially as and for the purpose described.

187,129.



187,199. HAND-STAMPS. Siegfried F. Gratz, Philadelphia, Pa. [Filed Dec. 11, 1876.]

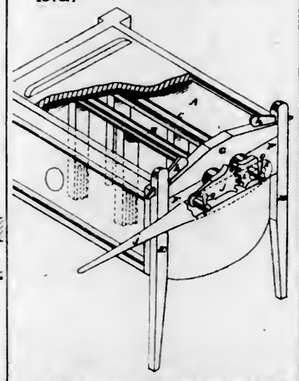
Brief.—The type-wheel is held in position for shifting the type by a latch, which takes into notches in the base-plate, and a locking-bar is secured by said latch, when the type have been properly arranged, and said locking-bar placed in the proper groove in the type-wheel.

1. The base A, with projecting lugs P and slots R, and the sliding and rotary head B, with latch M, combined and operating substantially as and for the purpose set forth.

2. The type-wheel, in combination with the locking-bar L and latch M, substantially as and for the purpose set forth.

3. The base A, with slots R and latch M, combined and operating substantially as and for the purpose set forth.

187,180. CHURNS. Elias Groat, Napa, assignor to M. B. Pond, same place, and W. Cantelon, Vacaville, Cal. [Filed July 6, 1876.]

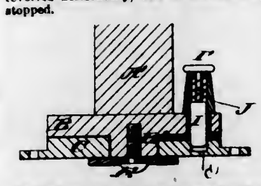


1. The churn-box A, having the end posts or legs E extended above the top of the box, and connected by the cross-piece F, the end of the box being cut away, so as to permit the journals of the shafts B C to rest upon the cross-piece, in combination with the cap-piece G and wedges or keys *h h*, said wedges being arranged to key into mortises in the posts or legs E, substantially as and for the purpose described.

2. The crank-arm K applied to one of the shafts B C, in combination with a secondary lever, *j*, whose fulcrum is distant from its point of attachment to the crank-arm, in combination with the toothed segments *i j*, for transmitting the motion from one shaft to the other, substantially as and for the purpose above described.

187,181. VISES. J. F. Hall and H. P. Cook, Havana, N. Y. [Filed Sept. 16, 1876.]

Brief.—That jaw which is fixed to the table revolves horizontally, and is automatically stopped.



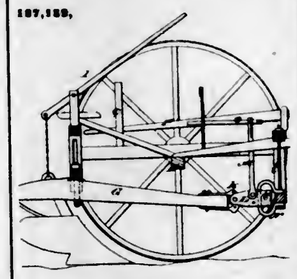
In the fixed jaw of a vise, the combination of the disk C, having recesses *a a*, with the rotating disk B, thimble H, plunger I, and spring J, substantially as and for the purpose set forth.

187,182. SULKY-PLOWS. Jackson F. Hammontree, Harrisonville, Mo. [Filed June 17, 1876.]

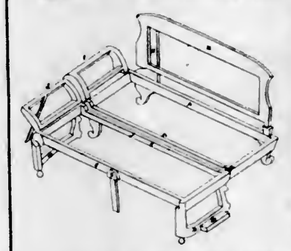
Brief.—The plow-beam is connected to the hanger, by which it is drawn by means of a double clevis, one section of which is provided with a friction-pulley, for the purpose of giving a free vertical movement to the beam.

In combination with a plow-beam, G, the double clevis K L attached to the loop N and to the lever I, substantially as described.

187,183.



187,184. SOFA-BEDSTEADS. Aug. Hansen, San Francisco, Cal. [Filed Nov. 25, 1876.]



1. In combination with the frame A and the frame C, constructed as shown, the uniting-hinges, composed of the leaves G and H, attached to the respective parts, as described, whereby the strain acts at right angles to the holding-screws, substantially as herein set forth.

2. The detachable head-piece, composed of the parts I and J, fitted together, as shown, and having the locking-shoulder and pins K L, substantially as herein described.

3. The swinging sofa-back M, hinged to the pivoted timber N, so as to swing around to form an extension, and provided with the locking-point P and socket Q, or equivalent device, substantially as herein described.

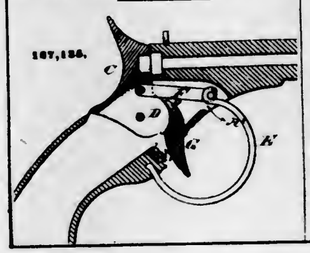
4. The arms D of a sofa, provided with the hinged attachments E for receiving the upholstering, and so constructed as to be turned back when the frame C is turned down, thus preventing them from resting upon the floor, substantially as herein described.

187,134. PROCESSES OF MOUNTING PHOTOGRAPHIC PICTURES. Jay J. Hartman, Cincinnati, Ohio. [Filed Nov. 21, 1876.]

1. The mode of transferring photographic impressions from paper to glass, and fixing the same, by mounting and entirely removing the paper, and then finishing and fixing by polishing and immersing in a hot bath of spermaceti and paraffine, substantially as set forth.

2. The mode of mounting photographs on glass, substantially as set forth, consisting of the following operations: first, coating the surface with paste, then mounting carefully under or above water, then dissolving and washing away the paper entirely, and finally polishing the albumen coating transferred to the glass with pummice-stone dust.

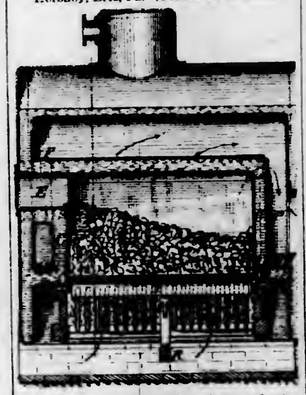
187,185.



187,135. LOCKS FOR PISTOLS, &c. Benjamin Haviland and George P. Gunn, Ilion, N. Y. [Filed Dec. 9, 1876.]

In combination with the trigger G, provided with the dog *g*, having the recess *g'*, the tumbler D, and hammer C, made in one piece, link-bar F, and spring trigger-guard K, substantially as described, and for the purpose set forth.

187,136. STEAM-BOILER FURNACES. Benj. Hershey, Erie, Pa. [Filed Dec. 8, 1876.]



1. The combination, with an inner and outer water-chamber, the former constituting the fuel-receiver, of inner and outer independent grates adapted to operate in conjunction with the chamber water-legs, substantially as described.

2. The combination, with an inner and an outer water-chamber and inner and outer independent grates adapted to operate in conjunction with the water-legs, of the side flues M M formed between said water-chambers, substantially as described.

3. The inner grates K K, arranged in inclined positions with respect to the lower portions of the inner water-chamber and combined for use with bottom or side grates I, arranged in a horisontal position and located at or near the lower end of the outer water-legs, the side flues M, and the fuel-chamber, substantially as described.

4. The combination, with the fuel-chamber formed by the inner water-legs and the grates, arranged in an inclined position with respect to the lower portion of the inner water-chamber, of a central cross rock-bar, I, whereon the fuel is supported, prepared, and fed down between the grates and the inner water-legs, substantially as described.

5. The combination, with the side flues M M and the inclined and horizontal grates, of the rear diving-flue P, substantially as described.

6. The inner water-chamber, having the top and bottom horizontal end extensions F G H, combined with the outer water-chamber, the side flues M, and the diving-flue P, substantially as described.

7. The combination, with inclined pivoted grates, of a cross-bar, I, arranged to have a rocking motion between said inclined grates, and adapted to operate in conjunction with the inner and outer water-legs for the purpose of properly distributing the fuel to the horizontal grate and combustion-chamber, substantially as described.

187,187. GRAIN-REGISTERS. Charles H. Horton, Rochester Depot, Ohio. [Filed July 11, 1874.]

1. A grain-registering apparatus, consisting of a registering-train operated by an armed or spurred wheel, arranged to be turned in one direction by a lug or projection on a measure, and held in the other direction by a stop, and an inclosed passage-way having suitable guides for the measure, all arranged and combined so that the measure can be passed through in one direction only, and that such passage shall set in operation the registering-train, substantially as set forth.

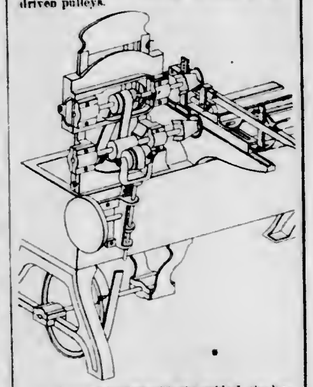
2. The armed wheel C, and spring-stop *c*, in combination with the sliding measuring-box, having a side projection engaging with said wheel, substantially as and for the purpose set forth.

3. The combination, substantially as hereinbefore described, of the armed wheel C, spring-stop *c*, sliding measuring-box B, provided with side projections B', and the registering apparatus, as described.



187,188. TENONING-MACHINES. L. Houston, Montgomery, Pa. [Filed Feb. 6, 1875.]

Brief.—The work-table is provided with a marker, and the pulley which tightens the driving-belt is mounted upon a spindle, thus allowing it to conform to variations in thickness of belt, or the different positions of the driven pulleys.

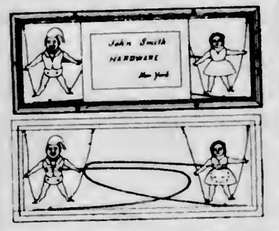


1. In combination with the table I, the longitudinal parallel flanges or supports F F, connected by means of the horizontal screw, F', the inner flange being adjustable to regulate the width of the groove or channel *i* between the two.

2. The tightening-pulley G, having a round spindle, swiveled so as to yield when one side of the band is longer than the other, as set forth.

3. In combination with a hold-down lever, L, a marker, O, operated thereby, substantially as shown and described.

187,139.



187,139. ADVERTISING. Byron S. Howard, New York, N. Y. [Filed Aug. 18, 1876.]

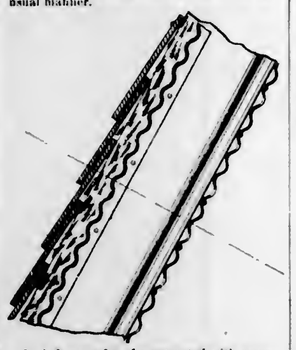
Brief.—Acrobatic figures suspended upon springs, combined with show-cards or advertisements, said figures being caused to move by the vibration or motion of the vehicle upon which they are carried.

1. The combination, in an advertising sign, of a show-card and one or more suspended acrobatic figures, substantially as described.

2. A frame containing a show-card, in combination with one or more acrobatic figures suspended therein by springs, constructed and operated as described.

187,140. FIRE-PROOF ROOFING. John W. Hoyt, Springfield, Mass. [Filed Dec. 14, 1876.]

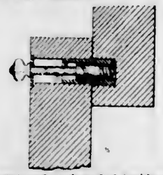
Brief.—A roof constructed without purlins, with transversely-corrugated iron, secured directly to the upright beams, covered with asbestus, and the outer surface slated, in the usual manner.



1. A fire-proof roof constructed with corrugated sheet-iron, secured to the beams or rafters of the roof, the corrugations of the sheet-iron being at right angles to the length of the beams, and the outer surface of the sheet-iron covered with asbestus or other non-combustible material and slates, substantially as and for the purpose described.

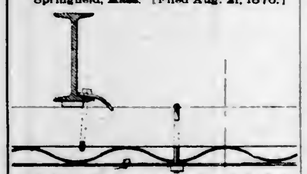
2. A fire-proof roof constructed with asbestus, in combination with slates or shingles, substantially as shown and described.

187,141. FASTENERS FOR MEETING-RAILS OF SASHES. F. J. Hoyt, Batavia, N. Y. [Filed Sept. 18, 1876.]



A metal socket threaded inside and out, in combination with a threaded bolt for fastening the meeting-rails of window-sashes, substantially as described, and for the purposes set forth.

187,142. METALLIC LATHING. J. W. Hoyt, Springfield, Mass. [Filed Aug. 21, 1876.]

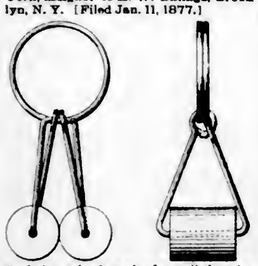


1. Metallic lathing combined with hooked retaining-bolts, substantially as and for the purpose described.

2. In a fire-proof floor, the combination of hooked retaining-bolts, metal furring, metal lathing, and metallic confining-strips, substantially as and for the purpose described.

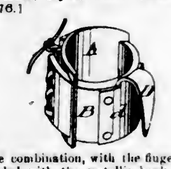
3. In a fire-proof floor, metallic lathing secured to the furring by hooked bolts constructed with screw-threads at their lower ends, and provided with screw-nuts, substantially as and for the purpose described.

187,143. CLOTHES-PINS. S. B. Hunt, New York, assignor to A. W. Billings, Brooklyn, N. Y. [Filed Jan. 11, 1877.]



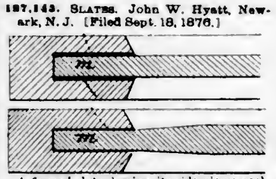
A clothes-pin formed of a coiled spring having its ends bent so as to form loops for rollers, and one or both ends carried around the coil, so as to keep it from spreading, substantially as set forth.

187,144. CORN-HUSKING IMPLEMENTS. M. L. Huss, Clyde, Ohio. [Filed Oct. 14, 1876.]



The combination, with the finger-strap B, provided with the metallic hook D, and an adjusting-cord, of the slotted shield-strap A, interposed between the cord and the finger when in use, substantially as described.

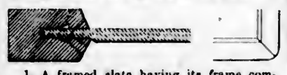
187,145. SLATES. John W. Hyatt, Newark, N. J. [Filed Sept. 18, 1876.]



A framed slate, having its side pieces each independently secured by cement to the margin of the slate, substantially as herein described.

187,146. SLATES. John W. Hyatt, Newark, N. J. [Filed June 26, 1876.]

Brief.—The edges of the slate are grooved to leave a rib or flange thereon. The frame-pieces are correspondingly grooved, and sprung on over the edge ribs of the slate.



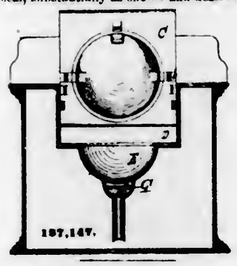
1. A framed slate having its frame composed of separate side pieces, each independently attached to the margin of the slate itself, substantially as herein described.

2. The combination, with the margin of the slate and the face of the groove in the side piece of the frame, of a projection on the one and a recess in the other, substantially as and for the purpose herein specified.

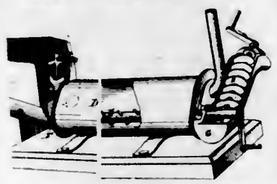
187,147. WASH-BASIN AND SINK COMBINED. Geo. Jennings, London, England. [Filed Sept. 14, 1876.]

1. The wash-basin B hung in gudgeons within the tilting platform C, the two being combined with a sink, D, and a pan, E, which connects with a sewer, substantially as shown and described.

2. The combination of the tilting wash-basin B, the tilting platform C, in which said basin is journaled, the sink D, the pan E, the chamber G, and the two curved partitions, arranged in said chamber so as to overlap each other, for containing water in the chamber to form a seal, substantially as shown and described.

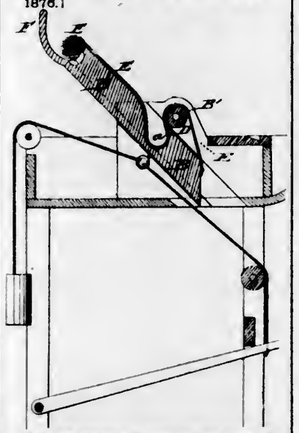


187,148. APPARATUS FOR DRYING DISTILLERY-SLOPS. A. Junker and F. W. Wolf, Chicago, Ill. [Filed Nov. 9, 1876.]



The slop drying apparatus consisting of the revolving sieve A, inclosing jacket B, having the inclined bottom and pocket E', drying-chamber D, having heated central shaft E, with pins i i, trough G, and heated conveyer H, all constructed, arranged, and operated as and for the purpose set forth.

187,149. CIGAR-BUNCHING MACHINES. C. Lersch, New York, N. Y. [Filed May 27, 1876.]



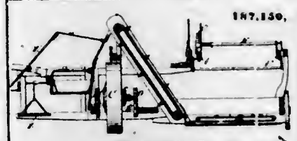
The combination of reciprocating former B, having concavity *a* and extension F, with stretching-roller D, apron E, and roller E', arranged to operate substantially as shown and described.

187,150. HARVESTERS. Chris. W. Levalley, St. Paul, Minn. [Filed June 17, 1876.]

1. The combination, substantially as hereinbefore described, of a harvester frame, having slotted bearings D, drive-wheel C, cross-bar E, and adjusting-screw *c*, or its equivalent, whereby the frame can be raised or lowered on the drive-wheel, as set forth.

2. In combination with lever O, rock-shaft N, sleeves *F F*, and connecting-links and bars L, slotted at *i*, and sliding in said sleeves, as and for the purpose set forth.

3. In a harvester, rack-frame or rods *w w*, in combination with dropper Z', operating substantially in the manner as set forth.



187,151. CHAIN-PUMP BUCKETS. Stephen F. Lockwood, Stamford, Conn., assignor of one-half his right to Elbert White, same place. [Filed Jan. 10, 1877.]

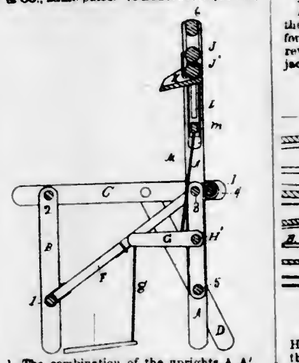
Brief.—A rubber disk has a beveled edge and a plain surface on one side, and an annular channel and a central boss on the other side.



1. A bucket for chain-pumps, made of a flexible material, and constructed with a beveled edge and with a plain face on one side, and an annular channel and boss formed on the other side, substantially in the manner and for the purpose described.

2. In a bucket for chain-pumps, an elastic disk, with a beveled edge, and with a plain surface on one side, and an annular channel and boss on the other side, combined with a link made of one piece of metal, and provided with two flanges, one of said flanges being of less diameter than the other, substantially as and for the purpose described.

187,152. CLOTHES-WRINGERS. Melvin N. Lovell, Erie, Pa., assignor to F. F. Adams & Co., same place. [Filed Nov. 27, 1876.]



1. The combination of the uprights A A', bars C C, legs B B, and braces D D and F, connected together by the rungs 1, 2, 3, 4, 5, and 6, and the hooks I, as and for the purpose specified.

2. The rollers J J', plate K, having boxes *d*, stirrups L, and yoke-bar *m*, in combination with the folding bench, constructed as herein shown and described.

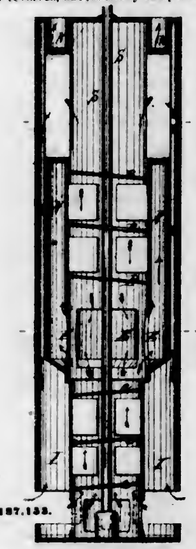
187,153. PUMPS. A. S. Lyman, New York, N. Y. [Filed Feb. 17, 1876.]

Brief.—The pump is balanced by using right-and-left-hand screws on the same shaft, so that, as the water is forced in opposite directions, they balance each other.

1. A screw-pump, having its shaft provided with right-and-left hand screws, in combination with the conduits, so arranged that the screws, revolving in the same direction, force the water toward each other, balancing the screws substantially as specified.

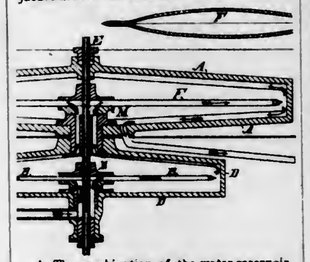
2. A screw-pump, having the screw that forces the water downward, either larger in area, or of greater pitch than the screw that forces the water upward, thus supporting the moving parts on the water, substantially as specified.

3. A screw-pump, in which the water, or a large portion of it, is sent above the upper screw in a conduit outside that in which the screw revolves, substantially as specified.



187,154. ROTARY ENGINES. A. S. Lyman, New York, N. Y. [Filed Feb. 17, 1876.]

Brief.—The usual atmospheric resistance to the revolving arms is removed by a vacuum formed in the chamber in which said arms revolve. The vacuum is induced by a water-jacket around the chamber.

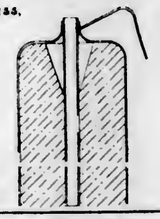


1. The combination of the water-reservoir H H with the vacuum-chamber A A, inclosing the reacting engine F F, so as to make this vacuum-chamber a condenser, in the manner substantially as and for the purposes specified.

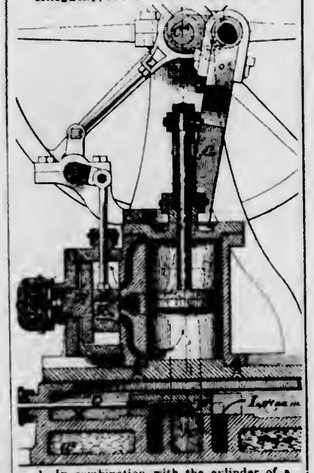
2. The combination of the chamber D D, containing the engine B B, with the vacuum-chamber A A, containing the condensing-engine F F, substantially as and for the specified purposes.

3. The combination of the false roof between the arms F F and the condensing-surface above, to prevent the water of condensation from falling upon the arms and retarding their velocity, substantially as specified.

187,155.



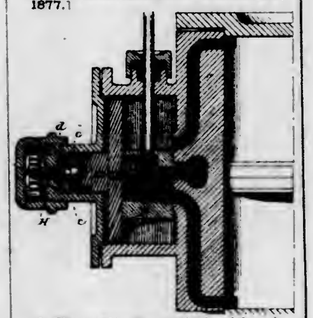
187,156. STEAM-ENGINES. H. E. Marchand, Allegheny, Pa. [Filed Nov. 23, 1876.]



1. In combination with the cylinder of a steam-engine, a supplementary valve-chest communicating with the valve-chest of the engine by means of ports at each side of the cylinders, one entering under the slide-valve and the other opening directly into the valve-chest, the supplementary valve-chest being provided with a slide-valve adapted to uncover either of the ports leading to the valve-chest proper, and throw the other port into communication with an exhaust-port in said supplementary valve-chest, substantially as described.

2. In combination with the supplementary valve-chest, the chambers for the circulation of hot water to prevent condensation of the steam in the valve-chest, substantially as described.

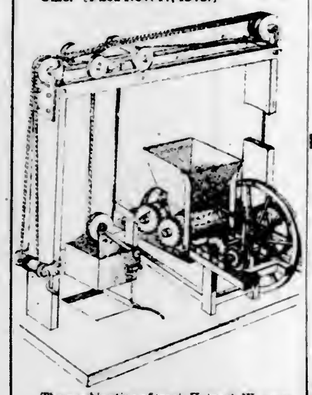
187,157. BALANCE-VALVES. Henry H. Marchand, Allegheny, Pa. [Filed Jan. 9, 1877.]



1. The combination, with the slide-valve of an engine, of a balance-plate, a compensating screw-bearing upon the same, and a spring connected with the screw, for balancing the valve and compensating for wear, substantially as and for the purpose described.

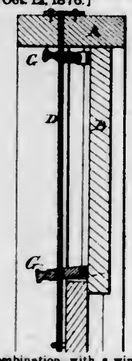
2. The combination, with a slide-valve, D, of the balance-plate G, having the projection *a* and screw-shank *b*, the compensating screw H having the head *d*, the cap *c* confining said screw in place, and the spring I connected with the screw, substantially as and for the purpose described.

187,158. ELEVATORS AND CONVEYERS FOR COKE-CRUSHERS. F. Marmet, Cincinnati, Ohio. [Filed Nov. 17, 1875.]



The combination of track U, truck W, ropes Y Y', box T, and windlass Z, the ropes being connected, and passing the necessary palleys, substantially in the manner and for the purpose specified.

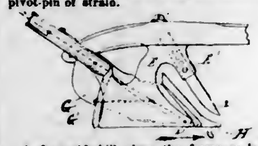
187,159. SASH-HOLDERS. B. Mason, Jr., and E. J. Smith, North English, Iowa. [Filed Oct. 12, 1876.]



The combination, with a window-frame, of the vertical rod D, suspended from the top of the same, midway of the upper edge of the window, and the window-sashes, each provided with perforated pivoted metallic arms G G, of unequal length, through which the rod D passes, substantially as and for the purposes herein set forth.

187,160. PLOWS. E. G. Matthews, Oakham, Mass. [Filed Nov. 2, 1876.]

Brief.—Construction of the base or land-side plate with a colter-socket cast upon it. Mold-board with sharp-edged lugs to rest against the standard. Recessed shoulders on the forward point of land-side, to relieve the pivot-pin of strain.

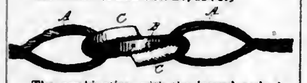


1. In a side-hill plow, the frame or land-side plate, constructed as described, with the rear handle extension D, and the neck E, carrying the colter-socket E', formed rigidly thereon, and arranged to be secured to the under side of the plow-beam, substantially as and for the purposes set forth.

2. The combination with the reversible mold-board G of the knife or beveled edges S S, substantially as and for the purposes set forth.

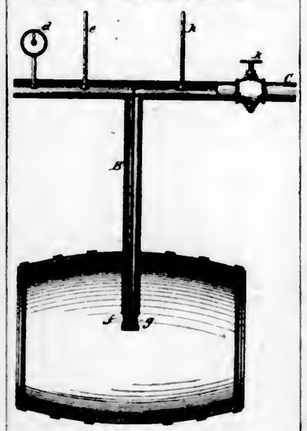
3. The combination, with the point H and mold-board G, of the supporting and bearing curved shoulders 1 and 2, substantially as and for the purposes set forth.

187,161. BALE-TIES. M. F. Maury, Charlottesville, Va., assignor to Washburn & Moen Manufacturing Company, Worcester, Mass. [Filed Oct. 27, 1876.]



The combination, with the looped ends A A of the body or main part of the bale-tie, of the connecting device B, having its ends C C cut off upon a bevel, and bent to overlap each other, as and for the purposes set forth.

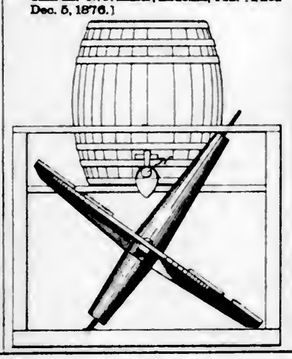
187,162. PROCESSES AND APPARATUS FOR CHARRING THE INTERIOR OF BARRELS. W. McMurtrie, Oxford Township, Warren County, N. J. [Filed Jan. 30, 1877.]



1. The process of charring the interior of barrels or vessels of wood, which consists in heating the interior to a temperature not above 230° centigrade by the introduction of a suitable heated body, with partial or complete exclusion of air, or by introduction of superheated steam or non-oxidizing gases, whereby a stratum of red or brown charcoal *(charbon roux, roth kohle)* is produced upon the internal surface of the vessel, substantially as and for the purpose described.

2. The combination of the pipe B, provided with the longitudinal diaphragm *x*, and apertures *f* and *g* at its lower end, the pipe A, provided with pressure-gage *d* and thermometer *e*, and the pipe C, with thermometer *h* and check-valve *k*, substantially as described.

187,163. MACHINES FOR WASHING PHOTOGRAPHS. N. J. Miller, Ladonia, Tex. [Filed Dec. 5, 1876.]



An apparatus for washing photographic pictures, consisting of a disk or annular wheel mounted upon an inclined shaft and provided with a series of curved buckets, in combination with a perforated distributing-trough secured to the cock or faucet of a tank or other water-supply, the whole adapted to operate substantially as described.

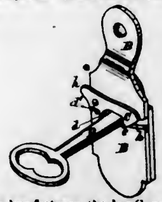
187,164. CHARCOAL-FINERY FURNACES. C. H. Morgan, Worcester, Mass. [Filed Nov. 6, 1876.]

Drawing Omitted.

1. A frame or shell for a charcoal-iron furnace, cast in a single piece, and having the inner ends of the tuyere-frame openings made with bevel or concave faces, substantially as shown and described.

2. The combination, with the inner concave surfaces of the frame A and bolt-supporting projections upon the outside, of the convex tuyere-frames E E, provided with projections *c* and *d*, substantially as and for the purposes set forth.

187,165. KEY-FASTENERS. J. M. Munn, Chicago, Ill. [Filed Jan. 17, 1877.]



In a key-fastener, the dog C, provided with the hook *a*, lips *d d'*, and thumb-piece A, all formed of one piece, in combination with the pivoted drop-plate B, provided with the slot *b* and pin *i*, substantially as and for the purposes herein set forth.

187,166. CARPET-SWEEPERS. H. F. Noyes, Boston, Mass. [Filed Jan. 12, 1877.]



1. The combination of the frame of a carpet-sweeper, having vertical edgewise mortises or slits, the cover provided with a marginal bead, cut away to form a pintle, and a strap-hinge arranged to embrace the said pintle, and have its leaves or extensions secured in the slit or mortise by means of a rivet, substantially as and for the purpose described.

2. The combination, with the frame A, having a groove upon its upper edge, of the hinged cover, having a marginal bead to fit within said groove, and a fastening to hold the parts together, substantially as described.

187,167. GRINDING AND POLISHING SURFACES AND WHEELS. Franklin B. Norton, Worcester, Mass. [Filed Nov. 20, 1876.]

Brief.—"Vitreous clay" is "Albany slip clay." Mix clay, one pound; comminuted feldspar, four pounds. Take of mixture, one pound; emery or corundum, four pounds, and water to form paste; mold to any shape; subject to increasing kiln-heat.

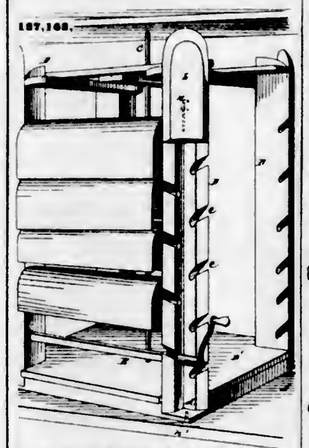


1. A wheel or other shaped grinding, cutting, or polishing article, made from vitreous clay, feldspar, and corundum or emery, combined together substantially in the proportions and manner herein described.

2. The combination, in a grinding, cutting, or polishing wheel of vitreous clay and feldspar, with corundum or emery, substantially as and for the purposes set forth.

187,168. REVOLVING CLOTH-RACKS. Wm. H. Parker, Bedford, Iowa. [Filed Jan. 15, 1877.]

187,168.



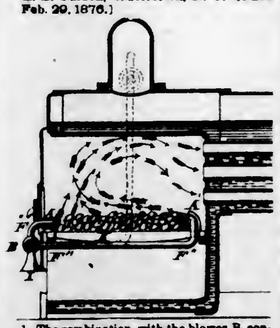
The revolving cloth rack, herein described, and consisting of the posts D, provided with the notches *e* and shields S, the rollers E, and bottom D, provided with the rib *a*, in combination with the counter A provided with the shoe *a*, and the vertical rod C, all constructed and arranged to operate substantially as and for the purpose set forth.

187,169. HYDRANT-VALVES. A. S. Parker, Binghamton, N. Y., assignor of one-half his right to T. R. Morgan, same place. [Filed June 28, 1875.]



The combination, with the tube B, constructed with a conical valve-seat, J, and the drip-passage G, of the movable shell A and the stop-valve C, connected with the shell by a stem, D, the whole being arranged in the manner described, whereby the stop-valve is closed before opening the drip-passage, and the drip-passage is closed before opening the stop-valve, as and for the object specified.

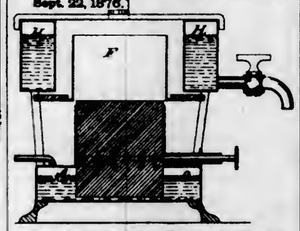
187,170. FURNACES FOR STEAM-BOILERS. H. E. Parson, Watertown, N. Y. [Filed Feb. 29, 1876.]



1. The combination, with the blower B, consisting of steam-pipe H and flaring mouth-piece I, of the upturned flattened flaring nozzle A, connected by pipe F'' to said blower, and located in front of the fuel, to adapt it to draw the products of combustion toward the upwardly-ascending blast, substantially as and in the manner set forth.

2. The combination, with the blower B, consisting of steam-pipe H and flaring mouth-piece I of the pipe F'', and flattened flaring nozzles A A', the nozzle A located in front of the fuel, and adapted to direct a blast upwardly, and the nozzle A' located at the rear of the fuel and adapted to direct a blast horizontally over the fuel, causing it to mingle and pass upwardly with that proceeding from the nozzle A, substantially as described, for the purpose set forth.

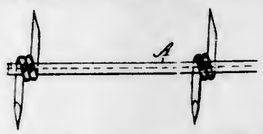
187,171. PETROLEUM-STOVES. O. Petsch and H. Schiebler, New York, N. Y. [Filed Sept. 22, 1876.]



In a petroleum-stove, the annular water-reservoir H, in combination with the separate and distinct system of burners F, whereby the reservoir is heated by lateral radiation from the burners, and the said reservoir is made to serve the double purpose of providing a supply of hot water and of furnishing a support for cooking utensils above the burners, specifically as herein set forth.

187,172. BARBED FENCE-WIRE. Henry W. Putnam, Bennington, Vt. [Filed Jan. 20, 1876.]

Brief.—The barb-wire, being coiled upon the horizontal wire, is pressed or stricken upon two sides thereof, so as to indent it and form sections of a screw, by which the coil is held from revolving and from longitudinal movement.



A barbed fence wire or fencing, produced or formed by the combination, with the round wire A, of wound or coiled barbs B, pressed down upon the main wire A, so as to produce spiral indentations upon two sides of the wire, as and for the purpose described.

187,173. DOLL-HEADS. L. Reichmann, New York, N. Y. [Filed Jan. 2, 1877.]



A doll's head composed of an outer layer or shell made of bees-wax, paraffine, and turpentine, and an inner supporting-layer made of sawdust, glue, and a suitable paste, such as flour-paste, substantially as herein described.

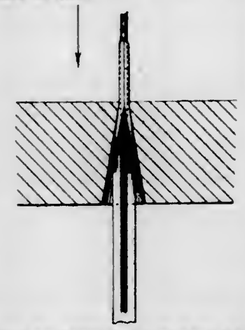
187,174. SEED-PLANTER ATTACHMENTS FOR HOES. J. R. Reynolds, Essex, Vt., assignor of one-half his right to G. C. Lewis, Washington, D. C. [Filed Oct. 3, 1876.]

The combination of the carrier-bar E, the adjustable stop *e* at one end, the stop *g* at the other end, the slotted slide F, the set-screw H, the nut I, the rectangular box C, the exterior spring K, and the seed-box A, having the opening D, the whole being constructed and arranged to operate substantially as described.

187,175.

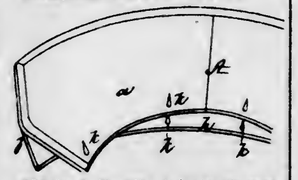


187,175. COMPOUND TELEGRAPH-WIRE. Wm. H. Rice, Worcester, Mass. [Filed Aug. 17, 1876.]



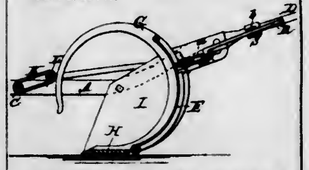
As a new manufacture, a compound telegraph-wire, made in the manner and by the process herein set forth—that is to say, by incasing a copper core, with a longitudinal iron or steel ribbon or strip, and then wire-drawing the same, substantially as herein shown and described.

187,176. DETACHABLE COLLARS. A. Riley, Cambridgeport, assignor to G. Farwell, Salem, Mass. [Filed Jan. 13, 1877.]



The detachable collar A, having the open edge *h* and flaps *a b*, each provided with button-holes *k*, substantially as described.

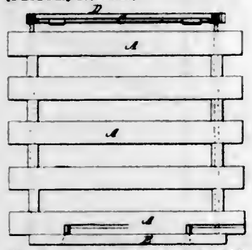
187,177. SCRAPERS. Isaac Robb and Benammi Selgh, Lynchburg, Ohio. [Filed Jan. 6, 1877.]



1. In a rotating scraper the combination of the circle-irons G G, bottom E, cutter H, and side pieces I I, having notches *x*, and pivoted in the frame A C D, all constructed substantially as and for the purposes herein set forth.

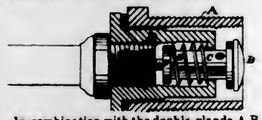
2. The combination, with the rotating scraper G E H, having side pieces I I, with notches *x x*, of the sliding bar J, bail L, spring K, levers P P, handle R, with notch *d*, and bail *b*, all constructed substantially as and for the purposes herein set forth.

187,178. FRUIT-CRATES. R. G. Ross and Francis A. L. Cassidey, Wilmington, N. C. [Filed July 15, 1876.]



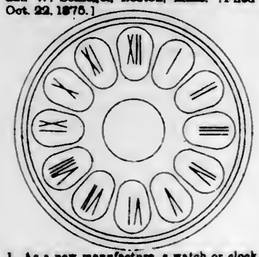
The improved crate formed of the folding side and end bars A, their pivot-rods, connected in pairs by part C, the cover D, and bottom E, provided, respectively, with hasp and studs, as shown and described.

187,179. BARREL-TAPS. H. Sanders, San Francisco, Cal. [Filed Dec. 2, 1876.]



In combination with the double glands A B, the valve D, seating upon the inner end of the gland B, and provided with the triangular guiding-spindle C, and holding-spring E, said spindle being perforated with holes near the valve and opening into an interior longitudinal passage, substantially as and for the purpose described.

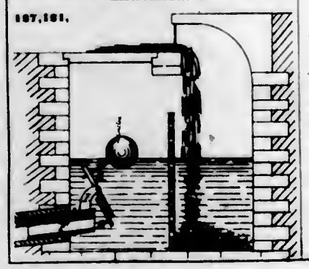
187,180. WATCH-GLASSES. Edw. Schlegel and W. Schlegel, Boston, Mass. [Filed Oct. 22, 1875.]



1. As a new manufacture, a watch or clock crystal having opaque bars, or divisions and transparent intervals, substantially as and for the purpose herein set forth.

2. The combination of the watch or clock dial B with the crystal A, when the latter is furnished on one surface or both surfaces with a colored coating removed in portions, all substantially as described and shown.

187,181.



187,181. AUTOMATIC SEWER-TRAPS. J. P. Schmitz, San Francisco, Cal. [Filed Nov. 13, 1876.]

The tube F, having flange or rib G, and the valve and float attached thereto, in combination with the sewer-pipe and cess-pool, as shown and described.

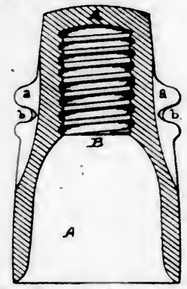
187,182. PLUMBERS' TRAPS. L. Schoenberg, San Francisco, Cal. [Filed Jan. 2, 1877.]

Brief.—The object is to prevent siphoning, while the bell end prevents the formation of a shoulder in the trap-pipe.



The S-trap A, having its inlet end enlarged, and its outlet or discharge end reduced in size, with relation to the body of the trap, substantially as and for the purpose described.

187,183. TELEGRAPH-INSULATORS. Paul Seller, San Francisco, Cal., assignor of one-half his right to J. Hers, same place. [Filed Nov. 18, 1876.]

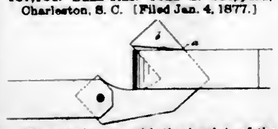


1. An insulator for line-wires of electric telegraphs, composed of a body, A, socket B, projecting ribs or bridges *a a a*, and grooves or notches *b b b*, arranged and constructed substantially as herein described, for the purpose set forth.

2. The combination, with an insulator-body, of the longitudinal ribs or bridges *a a a*, with channels or spaces between them, for the purpose of strengthening the insulator without increasing its size and bulk, substantially as herein described and specified.

3. The application, to the body of an insulator, of a series of projecting ribs or bridges, *a a a*, with notches or equivalent projections, to receive the binding-wire, for the purpose of holding said wire upon points around the circumference, and out of contact with the main body of the insulator, substantially as herein described, for the purpose set forth.

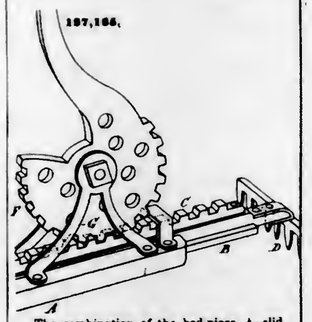
187,184. BALE-TIES. John L. Sheppard, Charleston, S. C. [Filed Jan. 4, 1877.]



The combination, with the band A, of the pivoted buckle B, made hook-shaped, and having the arm *a* bent to form the part *b*, whose inner edge is oblique to said arm, as shown and described, whereby the buckle is adapted to be manipulated for effecting the lock, in the manner specified.

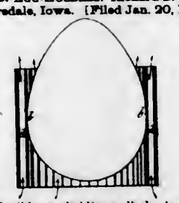
187,185. CARPET-STRETCHERS. James D. Sloan, Lock Haven, Pa., assignor of three-fourths of his right to C. Dorey, Geo. F. Bonlan, and J. K. Orr, same place. [Filed Nov. 26, 1876.]

187,186.



The combination of the bed-piece A, sliding arm B, with rack C and teeth D, standards G, toothed sector F, with handle H and hook E, substantially as described, and for the purposes set forth.

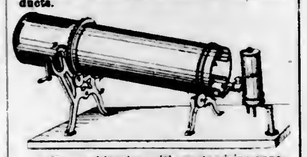
187,186. EGG-HOLDERS. Richard B. Smith, Centredale, Iowa. [Filed Jan. 20, 1877.]



The flexible egg-holding cylinder herein described, open at both ends, and having its entire wall fluted or corrugated in the direction of its length, to form bearings *b* and *c* for the egg and fingers, respectively, and draft-flues *d* between the egg-wall and the holder, substantially as specified.

187,187. TOBACCO-SPRAYING APPARATUS. J. Smith and Chas. R. Messinger, Toledo, Ohio. [Filed Jan. 8, 1877.]

Brief.—An improvement on applicant's patent of January 25, 1876, No. 172,666, reissue No. 7,195, in the present issue the cylinder revolving on inclined axes, its internal flanges being straight, the feed-head having adjustable screens and a central deflector, and the sprayer having converging air and liquid ducts.



1. The combination, with an atomizing apparatus, of a cylinder revolving upon an inclined axis, through which the tobacco to be treated is passed, substantially as shown and described.

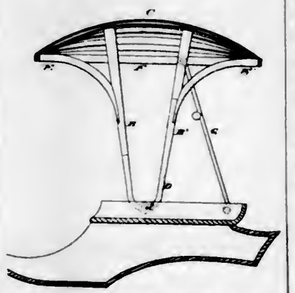
2. The construction of the revolving cylinder, as shown and described—that is to say, provided with internal flanges and a central deflector for the purpose of properly agitating the tobacco while being fed through the cylinder.

3. The construction of the cylinder with a feed-head, having adjustable openings to regulate the separation of shorts from fine-cut tobacco, substantially as set forth.

4. The apparatus for supplying liquid to be atomized in quantities and at a point or points relatively to the air or steam jet, so that the same may be taken up and diffused in requisite quantities, substantially as herein shown and described.

5. The combination in one apparatus of the following elements: first, the faucet to regulate the quantity of liquid delivered to the atomizer; second, the atomizer provided with channels to convey the liquid supplied by the faucet; and, third, a chamber to hold the liquid to be atomized; the whole being constructed and arranged for joint operation, substantially as shown and described.

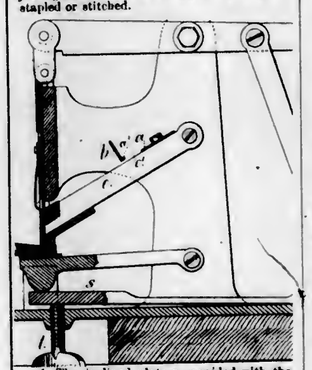
187,188. BUGGY-TOPS. C. B. Smith, Richmond, Ky. [Filed Jan. 13, 1877.]



The combination of main bows B B', supplemental front bow E, and rear bow E', U-shaped plates D, top C, and braces G, substantially as set forth.

187,189. MACHINES FOR STITCHING BOOKS WITH STAPLES. James C. Smyth, Lynn, assignor to G. L. Ward, Boston, and O. S. Smyth, Lynn, Mass. [Filed Dec. 4, 1876.]

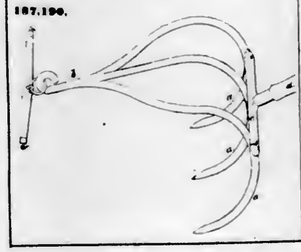
Brief.—The staples are fed down an inclined plate, which is provided with a peculiarly-shaped opening, to cause them to either fall through it and astride of the feeding-bar *c*, or else into a receptacle beneath said plate, according to their arrangement upon the latter. As the lever is moved to operate the plunger in driving the staple, the wedge-plate moves to raise the die and press the "book" against the lower edge of the head-block, and hold it while the plunger drives the staple, and the ends thereof being turned up against said die. By means of the pivoted die and pivoted and sliding wedge-plate and the adjusting-screw, books of different sizes may be stapled or stitched.



1. The inclined plate *a*, provided with the fence *b*, opening *c'*, and strip *a'*, in combination with the staple-bar *c*, substantially as and for the purposes set forth.

2. The combination of the sliding wedge-plate *s* and screw *t*, with the die *m* and staple-driving mechanism, substantially as set forth.

187,190.

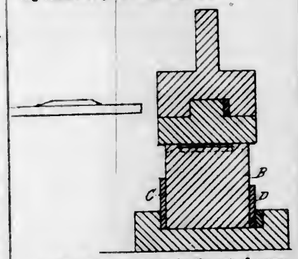


187,190. HORSE FORK-HOOKS. H. Snyder, Conway, Mich. [Filed Dec. 19, 1876.]

The horse fork-hook, consisting of the curved hooks *a*, united to form the shank draft-hook *b*, and combined with the centrally rearward-projecting handle or lever *d*, and its rigid bar *c*, upon the back curve of the tines, for use as described.

187,191. MANUFACTURE OF BLANK PLANE-IRONS. L. Spring, Millbury, Mass. [Filed Jan. 28, 1876.]

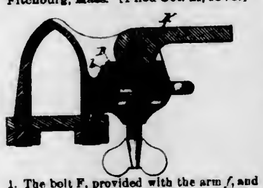
Brief.—A piece of steel, L, is laid upon the bar of iron, slightly welded thereto by hand, reheated, and welded thoroughly by hammer while drawn back and forth upon the anvil—and hammer having rounded faces, and being otherwise peculiarly constructed.



1. As an improvement in the art of manufacturing plane-iron blanks, the method herein specified, executed by dies, constructed substantially as described and shown.

2. The combination, in mechanism for manufacturing blank plane-irons, of the peculiarly-constructed die F, with the peculiarly-constructed die B, provided with the flanges *a a*, and eveners C and D, substantially as shown and described.

187,192. THILL-COUPLINGS. E. G. Stanley, Fitchburg, Mass. [Filed Oct. 21, 1876.]

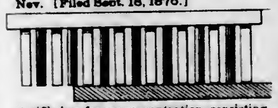


1. The bolt F, provided with the arm *f*, and spring *h*, in combination with the rigid lock-catch G, constructed to operate as described.

2. The concentric bolt F, provided with the arm *f*, and spring *h*, constructed substantially as and for the purpose set forth.

3. The screw *d*, constructed with a rigid button or flange on its end, in combination with pressure-block B, and thill-eye K, substantially as and for the purpose set forth.

187,193. RIFFLE-BOXES FOR CONCENTRATING ORES. W. H. Stanley, Virginia City, Nev. [Filed Sept. 18, 1876.]



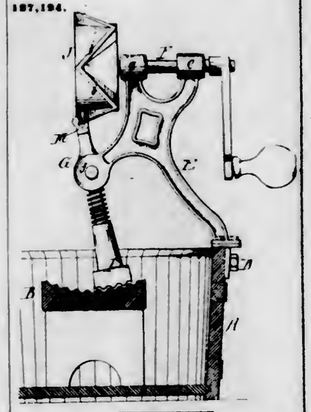
A riffle-box for ore concentration, consisting of a flume or trough, having a flush-fitting cover, from which project rows of arresting pins or riffles, the pins of said rows being alternately triangular and rectangular in cross-section, and the several rows interspaced, substantially as and for the purposes set forth.

187,196. WASHING-MACHINES. C. Stevenson, Philadelphia, Pa. [Filed Dec. 29, 1876.]

1. The combination of the tub A with the elevated rubbing-bed B, and with the frame E, having bearings for a shaft, F, and for a vibrating lever, G, to be operated from the shaft, as set forth.

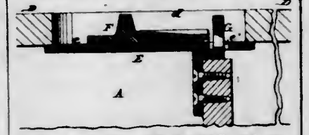
2. The combination of the shaft F and its wheel J, having a zigzag rib, *i*, with the lever G, and its swivel-block M.

187,194.



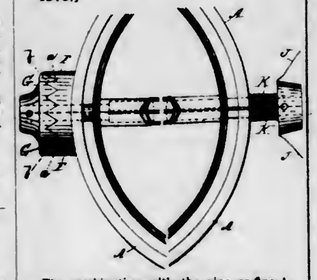
187,195. FASTENERS FOR EGG-BOXES. O. A. Stempel, Chamois, Mo. [Filed Aug. 10, 1876.]

Brief.—The lid is surrounded on all sides by the upwardly-projecting edges of the box, and the fastener is located at exactly its center, so that the lid at once drops to place, and fastens either end first, as the case may be.



The combination, with the lid D, and surrounding rim A B', of the central fastening, consisting of metallic lock-plate E, broad sliding plate provided with bolt F, adapted to engage with a central eye or staple, G, to permit the lid to be changed end for end, as and for the purpose set forth.

187,196. STOVE-PIPE DAMPERS. Henry H. Stevens, Dudley, Mass. [Filed Nov. 6, 1876.]



The combination, with the pipe or flue A, valve or damper B, and stem E, of thumb-piece J, spring K, and ratchet-pieces F G, provided with adjusting and locking teeth *a b*, substantially as and for the purposes set forth.

187,197. UNITING THE UPPERS OF BOOTS AND SHOES. David W. Thompson, Englewood, Ill. [Filed Jan. 6, 1877.]



1. The improved method of uniting the quarters of a boot or shoe, consisting in securing the edges of the quarters to the folded edges of a connecting-piece by one or more rows of stitches upon each side, facing inward, the edges of the quarters being separated, all as shown and described.

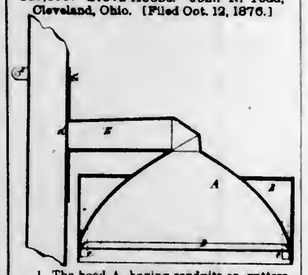
2. In combination with the quarters A A and connecting folded piece B, secured together by one or more edge rows of stitches upon each side, the stay piece C applied on the inner side, and secured by binding-stitches c passing through the parts, as shown and described.

187,196. HEAD-DRESSES. M. E. Thompson, Chicago, Ill. [Filed Dec. 26, 1876.]



A lady's head-dress, constructed and arranged as herein described, and having the strip *d* of ductile metal, substantially as and for the purpose herein set forth.

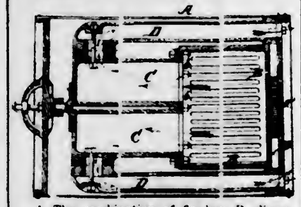
187,199. STOVE-HOODS. John N. Todd, Cleveland, Ohio. [Filed Oct. 12, 1876.]



1. The hood A, having conduits or gutters D around the inner side thereof, pipe E, and adjustable apron G, in combination with the pipe F, substantially as and for the purpose set forth.

2. The slides B, attached to and in combination with the hood A, in the manner as described, and for the purpose specified.

187,200. SECTIONAL STEAM-BOILERS. F. Trump, Springfield, Ohio. [Filed Aug. 23, 1876.]

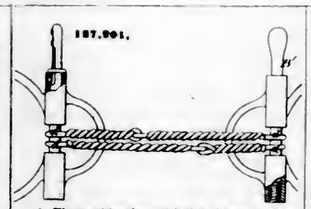


1. The combination of fire-box B, direct flues C, and return flues D, all secured to one end of the boiler, the adjacent ends of the direct flues and return flues being secured together for direct communication, substantially as and for the purpose specified.

2. The combination of fire-box B and flues C and D, the flues D being secured by a transverse joint to the end of the boiler and to the flues C by a longitudinal joint adapted to permit the flues to move on one another under unequal expansion and contraction, substantially as specified.

187,201. BRIDLE-BITS. R. H. Truitt, Rockfield, Ky. [Filed Jan. 6, 1877.]

187,201.



1. The combination, with the adjustable bit-rings having the spaced bearings, of the detachable cheek-bars, whereby the bits are connected to said rings, substantially as specified.

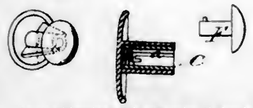
2. The combination, with adjustable bit-rings and detachable cheek-bars, of double bits, consisting of single branches of varying character, combined according to the severity or kind of bit required, substantially as specified.

187,202. BROOM-HOLDERS. Saml. J. Van Stavoren, Philadelphia, Pa. [Filed May 25, 1876.]



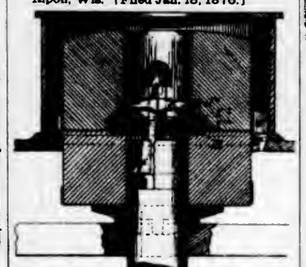
A broom or tool holding clamp composed of one piece of wire bent and struck substantially as described, to form two elastic or spring arms intersecting each other, and an eye or loop for fastening the device to a wall or other fixture, said eye being bent to a right angle with the arms, as set forth.

187,203. BUTTONS. G. L. Voss and A. S. Southwick, Providence, R. I. [Filed Sept. 30, 1876.]



In combination with the tube C, having a longitudinal L, shaped slot, *s*, the tubular shank of the back plate, the cylindrical shank F of the face-plate, having a locking-spur, *i*, and the helical spring seated at the bottom of tube C, substantially as specified.

187,204. MILLSTONE-EYES. F. G. Wallace, Ripon, Wis. [Filed Jan. 18, 1876.]

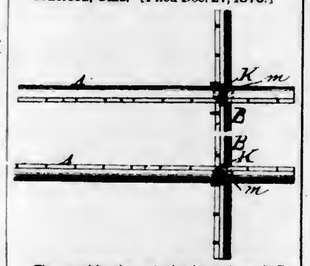


1. The packing device for the runner-spindle, consisting of an annular plate attached to the bed-stone and provided with an upwardly-projecting rim around its central opening, in combination with an annular plate above, consisting of two metallic annular plates with an interposed flexible disk surrounding the spindle, the whole constructed to operate substantially as described.

2. The rubber ring fitted between the edge of the stationary lower stone and the surrounding case, substantially on a line with the upper surface of said stone, the whole being combined for operation essentially as set forth.

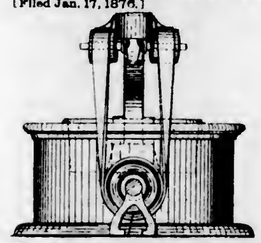
3. In combination with the bed-stone and the skirting two or more angle-irons secured to the skirting at a slight distance from the bed-stone, for the insertion of wedges to hold the bed-stone in position during the operation of dressing, substantially as described.

187,205. QUILTING-FRAMES. A. Warren, Jefferson, Ohio. [Filed Dec. 27, 1876.]



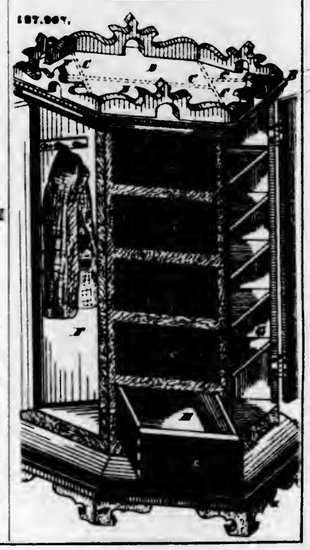
The combination of the bars A and B of a quilting-frame or curtain-stretcher, the double clamping-rings K K', and clamping-screws, *m*, substantially as and for the purpose described.

187,206. APPARATUS FOR TRANSMISSION OF POWER. Chas. C. Webber, Holyoke, assignor to Rice, Barton & Fuller Machine and Iron Company, Worcester, Mass. [Filed Jan. 17, 1876.]



The combination, with the horizontal and vertical pulleys, and box K and frame I, of the independent journals J J J' J', for supporting pulleys H H, substantially in the manner and for the purpose set forth.

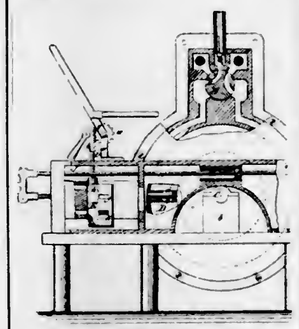
187,207.



187,207. ROTARY WARDROBES. T. Weiss, Bethlehem, Pa. [Filed Dec. 19, 1876.]

The rotary case B, having vertical partitions C C' dividing said case into compartments D, E, F, and G, said compartments being furnished with suitable appliances to form closets, drawers, and shelves, in combination with base A and friction-rollers a^2, substantially as shown and described.

187,208. ROTARY ENGINES. H. I Willson, Harrisville, Tex., assignor to himself and L. J. Russell, same place. [Filed Aug. 21, 1876.]



1. The combination of a sliding abutment working in guide C, the passages *d a f g* W, valve E, and ports F F, all arranged substantially as shown and described.

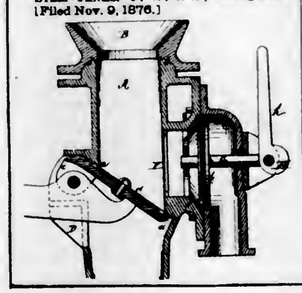
2. The combination, with valve E, of rods U, racks *v*, pinions *w*, arms *y*, and rod *z*, as and for the purpose specified.

187,209. BAKERS' OVENS. Alex. Wilson, Galesburg, Ill., assignor of one-half his right to A. O. Ahlenius, same place. [Filed Nov. 9, 1876.]



The protecting-slide F, having stop *g* and handle G, the latter extending to the outside of the oven, operating in combination with fixed frame, with lights or transparent media *e e'*, and the walls A of a baker's oven, substantially as and for the purpose specified.

187,210. VALVES FOR BREWERS' VATS AND STEEP-TANKS. F. W. Wolf, Chicago, Ill. [Filed Nov. 9, 1876.]



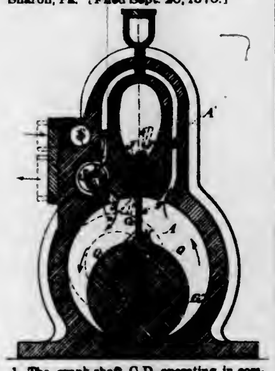
1. The valve C, pivoted at its upper edge by means of lugs *c*, and opening by gravity, so as to lie flush with tube A, in combination with tube A and lever E, substantially as set forth.

2. The valve *f*, rigidly attached to the pin G, in combination with the tube A, screen F, cam H, and lever K, substantially as and for the purpose set forth.

3. In combination with a faucet, constructed substantially as described, the flaring-mouthed piece B, connected by a semi-universal joint, as and for the purpose set forth.

4. The drawing-off apparatus, constructed as described, and provided with the valves C and *f*, levers E and K, pin G, and screen F, substantially as and for the purpose set forth.

187,211. ROTARY ENGINES. H. G. Wood, Sharon, Pa. [Filed Sept. 20, 1876.]



1. The crank-shaft C D, operating in combination with the divided box E, and the oscillating and reciprocating abutment G, substantially as and for the purpose specified.

2. The combination of the crank-shaft C D, divided box E, abutment G, and oscillating guides or boxes I, substantially as and for the purpose specified.

3. The guides or boxes I, having recesses J operating in combination with the reciprocating and oscillating abutment G, substantially as and for the purpose specified.

4. The abutment G, having the circular portion G', in combination with the shoes H, constructed as described, and operating so as to form a tight packing or joint between the abutment and drums M, substantially as specified.

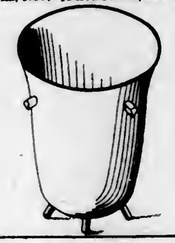
5. The combination of the oscillating and reciprocating abutment G, box E, and shaft C, with the shoes H and drums M, substantially as and for the purpose specified.

6. The conical crank-shaft D and boxing E, made tapering, as described, in combination with the tapering key F and abutment G, substantially as and for the purpose specified.

7. The abutment G, having its circular portion G' provided with springs Q arranged to operate in combination with the cylinder A, substantially as and for the purpose specified.

8. The combination of the loose eccentric pulley *l* and stops or lugs *o*, with the eccentric strap *a*, disk *d*, and crank *b*, for the purpose of operating the valve V, to reverse the engine, substantially as and for the purpose specified.

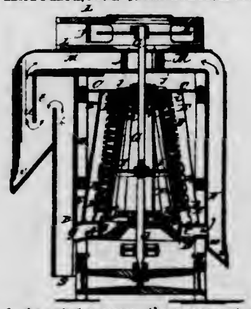
187,212. SLAG-POTS. Henry Zottman, Bureka, Nev. [Filed Jan. 4, 1876.]



The method herein described for the manufacture of slag-pots, the same consisting of forming the pots out of melted steel cast in cold molds, then heating to a light red heat, and maintaining this heat for forty-eight hours, afterward gradually reducing the heat for twelve hours, when the firing ceases, and the pots are allowed to gradually cool in a tight oven, substantially as and for the purpose set forth.

REISSUES.

7,486. MACHINES FOR SCOURING AND POLISHING GRAIN. H. P. Booker, Dixon, Ill., assignor of one-half interest to N. Underwood, same place. Patent No. 151,555, dated June 2, 1874. [Filed Oct. 19, 1876.]



1. An exterior screen, the upper part of which is made of woven wire, and the lower part of perforated sheet or plate metal, substantially as and for the purpose specified.

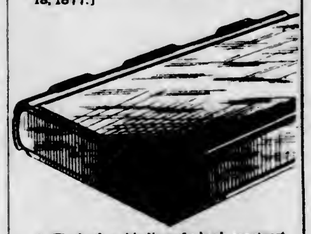
2. In combination with a conical brush, an exterior conical screen, the upper part of which is made of woven wire, and the lower part of perforated sheet or plate metal, substantially as and for the purpose described.

3. The combination, with the solid brush F, of the ring or disk I, to which the brush-staves are secured, shaft G, having a screw thereon, working within the screw-hub of said disk, and set-screws that hold the brush to the shaft, and against casual motion on the screw thereon, the several parts constructed and arranged to operate in the manner herein shown and described.

4. In combination with the base-plate B, the trough *b*, and its outlet, and the annular passage *a*, and its inlets and outlets, being all in one piece, as and for the purpose described.

5. In combination with the wind-trunk M and shaft G, the reversible fan-case, provided with two eyes, the fan, and cap or cover *q*, as and for the purpose described.

7,487. FIRE-PROOF COVERS FOR BOOKS. E. W. Glover, Malden, Mass. Patent No. 159,586, dated Nov. 2, 1876. [Filed Jan. 18, 1877.]



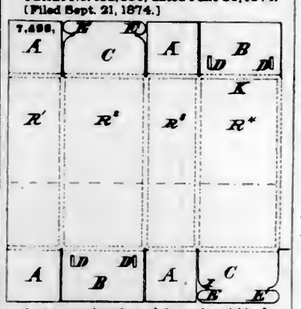
1. The back or binding of a book constructed with a covering of canvas or other textile material, impregnated and rendered fire-proof by the application of suitable fireproofing chemicals, substantially as described.

2. The combination, with the binding and leaves of a book, of a fire-proof protecting-cover, composed of an open box adapted to fit closely over the leaves and between the binding, and forming a tight inclosing-box around the leaves, substantially as described.

7,488. PAPER BOXES. H. R. Heyl, Philadelphia, Pa., assignor to the American

Paper Box Machine Company, same place. Patent No. 152,636, dated June 30, 1874. [Filed Sept. 21, 1874.]

7,488.



1. A paper box formed from the within-described pasteboard blank, constructed with the four sides R^1 R^2 R^3 R^4, the lap G, and four closing end flaps, A A B C, at either end, and with excavated kerfs on all the lines forming the inner angles of the box, substantially as described.

2. The within-described paper box having four closing end flaps, A A B C, at either end, which are so constructed that two of said end flaps do interlock with each other by the introduction of the two corners of one of the flaps into two slits or openings, D D, formed in the opposite flap, said openings being made at an angle to the fold or hinge of said flap, substantially as described.

3. A paper or pasteboard box secured in a tubular form, and closed at one or both ends by portions of the sides thereof bent over and locked into each other by means of the tongue-shaped corners E E being sprung laterally into the corresponding slots or long openings D D made in the opposite flap, lateral to the fold or hinge thereof, substantially as described.

4. A box constructed from a blank having at either end flaps A A B C and fastening-slits D, and secured in tubular form by a seam of wire staples, S, applied substantially as set forth.

7,489. ANODES FOR ELECTROPLATING WITH NICKEL. A. Hermann and W. H. Taylor, Stamford, Conn., assignors, by mesne assignments, to the Yale Lock Manufacturing Company, same place. Patent No. 166,367, dated Aug. 3, 1875. [Filed May 5, 1876.]

1. An anode for electroplating, consisting of a conductor, with particles of the metal to be deposited embedded therein, substantially as herein set forth.

2. An anode for electroplating, consisting of a carbon conductor, with particles of the metal to be deposited embedded therein, and provided with a metallic connector, substantially as herein set forth.

3. An anode for electroplating, consisting of a conductor, with particles of the metal to be deposited united thereto by means of an adhesive substance, substantially as herein set forth.

4. The process of forming anodes for electroplating, consisting of embedding the particles of metal to be deposited in a suitable conductor, substantially as herein set forth.

7,490. TIN CANS. R. Judson and John P. Schenck, Jr., Matteawan, N. Y., assignors to N. Seeley and G. I. Stevens, New York City. Patent No. 96,440, dated Nov. 2, 1869. [Filed Nov. 29, 1876.]

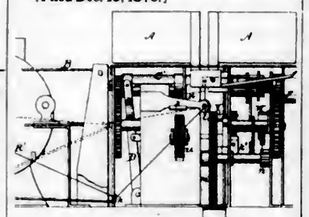


1. A cutting-wire arranged and secured upon the interior surface of the sheet metal forming a part of the vessel, and having its end protruding, for the purpose set forth.

2. A cover or cap, B, for sheet-metal vessels, constructed with a depending flange, *b*, inclosing a cutting-wire having a protruding end, substantially as set forth.

3. A sheet-metal can or vessel whose cover has a depending flange, which overlaps a portion of the body of said vessel, and provided with a cutting-wire, arranged between the cover and the body, with its end protruding therefrom, for the purpose specified.

7,491. GRAIN-BINDERS. Israel Lancaster, Richmond, Ind., assignor to S. D. Locke. Patent No. 52,175, dated Jan. 23, 1866. [Filed Dec. 19, 1876.]



1. The band-carrier M, constructed of two parts, connected by a joint, in combination with the band-carrier R, substantially as and for the purpose set forth.

2. The sheaf-presser Y, in combination with the band-carrier M and the rotating wire-twisting cylinders C' E', substantially as and for the purpose specified.

3. The sliding plates A A and wing B, comprising the gatherers, substantially as described, and for the purpose set forth.

4. The sheaf-dischargers H' H', arranged to operate in the manner substantially as described.

5. The reciprocating bars D P W A' F', arranged as herein described, to communicate motion to the various operating parts from a single driving-shaft, K.

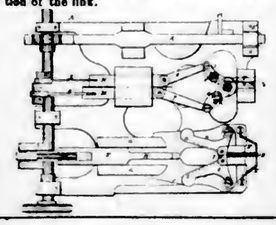
6. The reciprocating carrier R, with a jaw to receive and gripe the band, combined with the rock-shaft r, provided with the projecting elbow-arm *s*, to force said band down into the jaw of the carrier and sever it between said jaw and the bound bundle, as set forth.

7. The reciprocating bars D P W A' F', combined with the transverse bar N', whereby said reciprocating bars may be thrown out of engagement with their driving-cams.

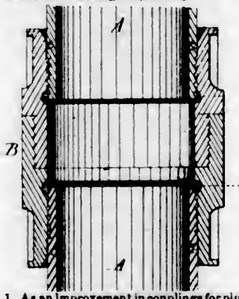
8. The combination, in a binding-machine, of a spool or reel to bear the binding material, mechanism carrying said binding material around the bundle and uniting the same, and an intermediate slack take-up to tighten the band around the bundle prior to its being fastened.

7,492. CHAIN-MACHINES. F. Leonard, Cleveland, Ohio, assignor to the Cleveland City Forge and Iron Company, same place. Patent No. 145,063, dated Dec. 2, 1873. [Filed Nov. 27, 1876.]

Brief.—The bending-levers are linked together to secure uniformity of movement. The lapping-levers differ from one another, both in length and time of throw. The pillow-block elevates one limb of the bent bar above the other, that they may not abut during the lap-bending. The gage is adjustable, and gages the extent of projection of the ends of the bent bar beyond the standard around which the lap-bending is effected. The welding-dies have an increased breadth and capacity at the bend, to accommodate the excess of metal due to the lap of unscarfed ends, and the horns projecting from the dies are to reduce and round this enlarged welded portion of the link.



7,493. JOINTS AND COUPLINGS FOR PIPES, &c. J. Old, Allegheny, Pa., assignor, by mesne assignments, to M. J. Old, same place. Patent No. 50,619, dated Oct. 24, 1865. [Filed Aug. 23, 1876.]



1. As an improvement in couplings for pipes, the method herein before described for strengthening the connection thereof—that is to say, sinking the pipe into the coupling until its unthreaded surface, without any reduction of its diameter, occupies a rabbet in the end of the coupling, and is supported therein so as to bear any lateral movement or strain to which it may be subjected, substantially as herein-before described, and for the purpose set forth.

2. As an improvement in couplings for pipes, the coupling B, provided with the rabbets *a a* in the ends thereof, having a depth about equal to that of the screw-threads of the coupling, in combination with the pipes A A, the diameter of which does not exceed that of the socket of the coupling on the cut of the screw-threads, whereby, when the pipes are entered into the coupling their unthreaded surfaces, just beyond the termination of the screw-threads, are admitted into the coupling without any diminution of their diameters, substantially as herein-before described, and for the purpose set forth.

3. As an improvement in couplings for pipes, the coupling B, having bearing-surfaces in the ends thereof, in combination with the pipes A A, the unthreaded surfaces of which are entered into the coupling without any diminution of the diameter of the pipe, substantially as herein-before described, and for the purpose set forth.

7,494. PACKING FOR OIL-WELLS. O. Redmond, Rochester, N. Y., assignor to R. F. Osgood, same place; said Osgood assignor to H. H. Doubleday, Washington, D. C. Patent No. 59,319, dated Oct. 30, 1866. [Filed Dec. 20, 1876.]

Brief.—The packer is of flexible material, and is forced against the wall of the well, or released therefrom, by mechanism outside of the pump-tube; and controlled by the operator at the top of the well.

1. The combination, in an oil-well packer, of a flexible packing material, and a pressing device arranged outside of the discharging-tube, which presses the packing material against the wall of the well, substantially as set forth.

2. An oil-well packer which is supported independently of the discharging-tube or casing of the well by being expanded against the wall of the well, substantially as set forth.

3. The combination, in an oil-well packer, of a flexible ring or disk surrounding a tube or cylinder, and an annular wedge-shaped device which presses or expands the flexible packing-ring against the wall of the well, substantially as set forth.

4. The combination, in an oil-well packer, of a flexible packing material which surrounds a tube, and a device operated by means of a screw-thread upon the outside of the tube, to press the flexible packing against the wall of the well, substantially as set forth.

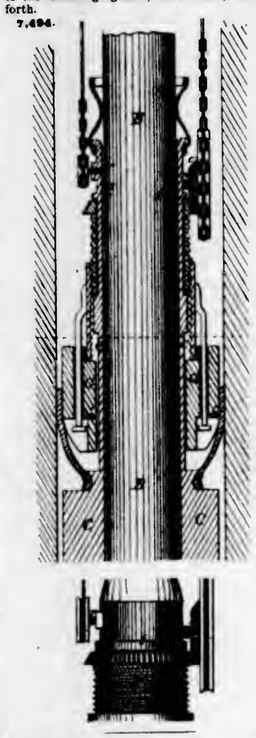
5. In combination with the discharging-tube of an oil-well, flexible packing material pressing against both the tube and the wall of the well, substantially as set forth.

6. In an oil-well packer, a packing cylinder through which the discharging-tube can move freely, an elastic or flexible packing material surrounding such packing cylinder, and a mechanical device for expanding the packing material against the wall of the well, substantially as set forth.

7. A packing for an artesian well, made adjustable vertically within the well, substantially as set forth.

8. In combination with a packing which is movable vertically within an artesian well, a clamping device adapted to secure the packer to the discharging-tube, substantially as set forth.

7,494.

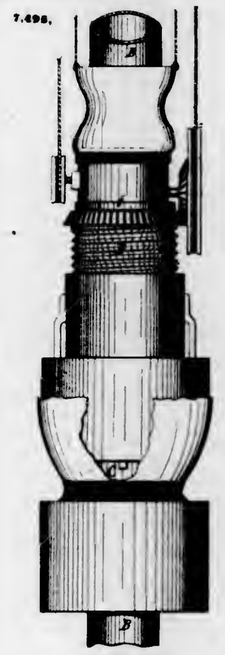


7,495. PACKING FOR OIL-WELLS. O. Redmond, Rochester, N. Y., assignor, by mesne assignments, to H. H. Doubleday, Washington, D. C. Patent No. 59,319, dated Oct. 30, 1866. [Filed Jan. 25, 1877.]

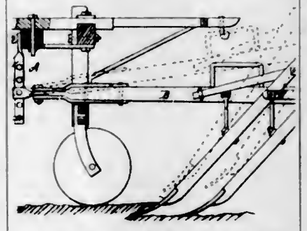
Brief.—The cup-shaped ring and the sleeve are adapted to be pressed against the discharging tube and the wall of the well, respectively.

The combination, with the discharging-tube B, of the cylinder C, cup-shaped ring *b*, and the flexible collar or sleeve *c*, substantially as set forth.

7,496.



7,496. CULTIVATORS. J. Schroder, Kickapoo, assignor to H. H. Pattee, Monmouth, Ill. Patent No. 60,255, dated Sept. 24, 1867. [Filed Jan. 16, 1877.]



1. Two plow beams, B B, connected together by an elevated beam-yoke, A, so that either may operate in advance of the other, while both are drawn forward in the line of progression by draft-animals attached to each side of the machine, so that each animal draws in a manner its adjacent plow, the attachment of the plow-beams to said yoke being by joints, which permit of moving the beams freely and independently in a lateral direction, combined and operating substantially as described, and for the purpose specified.

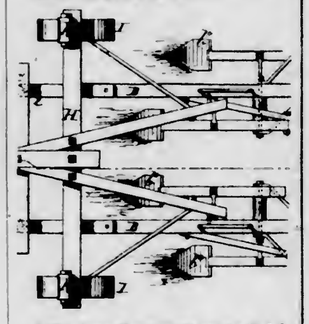
2. Two plow-beams, B B, connected together by an elevated beam-yoke, A, so that either may operate in advance of the other, while both are drawn forward in the line of progression by draft-animals attached to each side of the machine, so that each animal draws in a manner its adjacent plow, the attachment of the plow-beams to said yoke being by joints which sustain the plows in an upright working position without rear connections or other support, and permit of their being moved or oscillated freely in a lateral direction, combined and operating substantially as described, and for the purpose specified.

3. Two plow-beams, B B, connected together by an elevated beam-yoke, A, so that either may operate in advance of the other, while both are drawn forward in the line of progression by draft-animals attached to each side of the machine, so that each animal draws in a manner its adjacent plow, the attachment of the plow-beams to said yoke being by joints, which sustain the plows in an upright working position without rear connections or other support, and permit of their being moved or oscillated freely in a lateral or vertical direction, combined and operating substantially as described, and for the purpose specified.

4. The draft-bars *f f*, connected to the upper and lower portions of the arched beam yoke A, and arranged to operate with said beam yoke and with the two plow-beams B B connected thereto, substantially as described, and for the purpose specified.

5. The draft-bars *f f*, hinged to the beam yoke A, and combined to operate with said beam-yoke and plow-beams B B, substantially as described, and for the purpose specified.

7,497. CULTIVATORS. J. Schroder, Kickapoo, assignor to H. H. Pattee, Monmouth, Ill. Patent No. 60,255, dated Sept. 24, 1867. [Filed Jan. 16, 1877.]



1. The frame H, supported on wheels I I, and combined to operate with the pivoted beam yoke A and beams B B as a support, substantially as described, and for the purpose specified.

2. The guide-pole J, frame H, and wheels I I, arranged to operate with the beam yoke A, pivoted to the frame H, and having plow-beams B B hinged thereto, substantially as described, and for the purpose specified.

7,498. FURNITURE-KNOBS. J. H. Shelton, Waterbury, Conn., assignor to the Benedict & Burnham Manufacturing Company. Patent No. 102,459, dated Nov. 22, 1870. [Filed Aug. 17, 1876.]

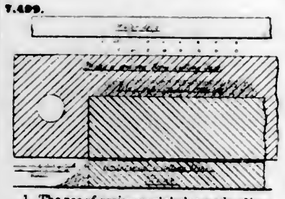
Brief.—A small rectangular notch in a circular socket allows the end of a pull spindle hung in said socket to fall to nearly a perpendicular position.



The combination, in a drawer pull, of the following elements: A socket, the interior of which is of circular form in section at right angles to its axis, the pull-spindle being within said socket, and the socket constructed with a notch, *c*, in its edge, less in width than the internal diameter of the socket, substantially as described, and for the purpose of allowing the spindle to fall into said notch and thereby assume nearly a vertical position.

7,499. CUTTING STONE AND OTHER HARD SUBSTANCES. B. C. Tilghman, Philadelphia, Pa. Patent No. 133,501, dated Nov. 26, 1872. [Filed Dec. 20, 1876.]

7,499.



1. The use of grains or globules made of iron, or cast-iron or steel, or their alloys, subdivided while melted, in the process of cutting, sawing, boring, and grinding stone, glass, pottery, and similar hard substances, substantially as above described.

2. The use of grains or globules made of iron, or cast-iron or steel, or their alloys, subdivided while melted, and of a rounded or spheroidal shape, so as to operate by a rolling crush in the process of cutting, sawing, boring, and grinding stone, glass, pottery, and similar hard substances, substantially as above described.

3. The use of grains or globules made of iron, or cast-iron or steel, or their alloys, and chill-hardened by cooling from a melted state in the process of cutting, sawing, boring, and grinding stone, glass, pottery, and similar hard substances, substantially as above described.

4. As a new article of manufacture, a cutting, grinding, or abrading material for stone, glass, pottery, and similar hard substances, consisting of grains or globules made of iron, or cast-iron or steel, or their alloys, subdivided while melted.

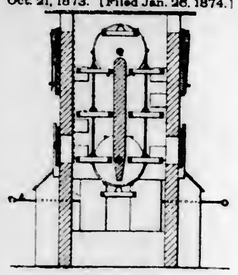
5. As a new article of manufacture, a cutting, grinding, or abrading material for stone, glass, pottery, and similar hard substances, consisting of grains or globules made of iron, or cast-iron or steel, or their alloys, subdivided while melted, and of a rounded or spheroidal shape, so as to operate by a rolling crush.

6. As a new article of manufacture, a cutting, grinding, or abrading material for stone, glass, pottery, and similar hard substances, consisting of grains or globules made of iron, or cast-iron or steel, or their alloys, and chill-hardened by cooling from a melted state.

7. The use of alkaline water in cutting, sawing, boring, and grinding of stone, glass, pottery, and similar hard substances by grains or globules of iron, or cast-iron or steel, or their alloys.

8. The use of notched blades for frame-saws in sawing stone and similar hard substances with grains or globules of iron, or cast-iron or steel, or their alloys.

7,500. FRUIT-DRIERS. J. Williams, South Haven, Mich. Patent No. 143,949, dated Oct. 21, 1873. [Filed Jan. 26, 1874.]



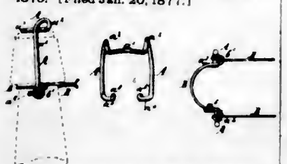
1. An improved wire form for bottle stoppers, consisting of a single piece of wire bent at the middle into a nearly U form, two arms extending at an angle with the plane of the U part, and on one side of it, and two pins bent at right angles to the ends of the arms toward each other, in combination with two loops bent at the extremities of the sides of the U part on the opposite side of its plane to the arms, forming eyes, and connecting the U part with the arms, substantially as described.

2. An improved wire form for bottle-stoppers, bent from a single piece of wire into a nearly U form at the middle, with two loops, forming eyes, at the extremities of the sides of the U part, two arms extending from the loops at an angle with the U part on one side of it, and two rectangular pins at the ends of the arms, in combination with a wire collar, adapted to surround and be fastened to the neck of the bottle, and connected with two loops or eyes on opposite sides, in which said pins fit and turn, substantially as described.

3. An improved wire form for bottle-stoppers constructed with a middle U part, in combination with two loops, and two curved bends between the loops and U part, substantially as described.

4. In combination with the loops *b'*, made on the under side of the neck-wire, the bends *a'* on the arms of the bail-wire, so that, while the bail is free to swing in one direction, the bent ends, coming against the neck-wire, prevent it from swinging in the other and wrong direction in relation to the plunger, substantially as described and represented.

7,501. WIRE FASTENINGS FOR BOTTLE-STOPPERS. H. W. Yerington, Oceanic, N. J., assignor to R. C. Anthony, New York City. Patent No. 162,451, dated Apr. 20, 1875. [Filed Jan. 20, 1877.]



1. The air chamber A, divided into two flues, each independently ventilated by means of dampers at top and bottom, and combined with a heating chamber, C, for drying fruit and the like, substantially as described.

2. The divided and ventilated air chamber A, provided with the endless tray carriers F, in combination with the heating-chamber C, arranged at the lower end of the said air-chamber, and communicating directly therewith, in the manner described, whereby the substance being dried receives the maximum intensity of heat at its insertion in the air-chamber, substantially as and for the purpose specified.

3. A fruit-drying chamber provided with deflectors *k k*, in combination with the rotated trays, substantially as and for the purpose described.

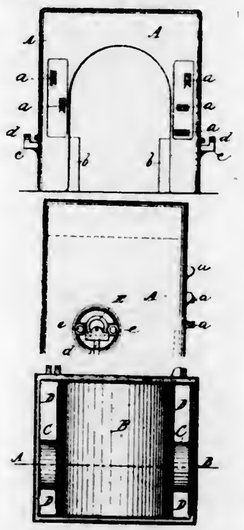
4. The combination, in a fruit-drier, of the slides or dampers *c c* with the heating-chamber and the divided air-chamber, whereby the admission of heat to the flues of said air-chamber is regulated, substantially as and for the purpose specified.

5. The sliding covers *a*, in combination with the sliding doors *b b* and slides *c*, substantially as and for the purpose specified.

6. The air-trunk A, having partition B, and adjustable openings in its upper part, shafts D D, chain wheels and endless chain F, frames G, and dampers *b b*, as described.

Omitted from page 234.

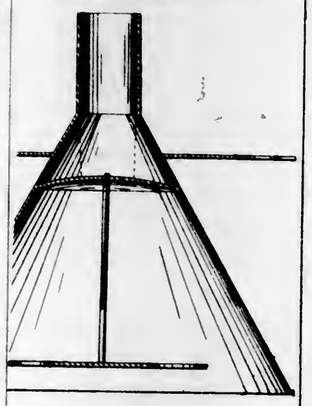
197,164. CHARCOAL-FINERY FURNACES. C. H. Morgan, Worcester, Mass. [Filed Nov. 6, 1876.]



Omitted from page 189.

186,897. CHAPMAN J. SYME, PETERSBURG, VIRGINIA.

CHURN-DASHERS.



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COMMISSIONER'S DECISIONS.

ANSON *vs.* WOODBURY.—*Interlocutory Appeal.*

[*Appeal from the decision of the Examiner of Interferences in the matter of the interference between the application of Alfred Anson, filed September* 13, 1876, *and the patent of Joseph P. Woodbury, dated April* 29, 1873, *for* "IMPROVEMENT IN PLANING-MACHINES."—*Decided December* 23, 1876.]

In an interference all questions affecting the patentability of the subject-matter, the propriety of the interference, and the form of the declaration must be disposed of before the expiration of the time for filing preliminary statements, and all such matters are within the jurisdiction of the Primary Examiner.

Failure to make objections before the expiration of the time for filing preliminary statements will be considered as a waiver thereof and consent to the interference.

During an interference the Primary Examiner may request its suspension for the purpose of considering new references.

The Examiner of Interferences may, in his decision upon the merits, notice any matters affecting the patentability of the subject in dispute, and the Primary Examiner is authorized to consider the same after the interference has been finally disposed of.

It being intimated at the hearing of the motion that there were other patents showing the subject-matter at issue, the case was suspended and returned to the Primary Examiner for report upon that point.

[*Newton Crawford*, attorney for Anson.
Samuel A. Duncan, attorney for Woodbury.]

DUELL, *Commissioner:*

This is an appeal from the decision of the Examiner of Interferences denying a motion made on the part of Woodbury to dissolve the interference on the ground that the matter involved has been in public use for more than two years prior to the filing of Anson's application.

The Examiner denies jurisdiction of the motion, and refuses to consider the affidavits filed in support thereof.

The second clause of Rule 59 provides that—

After the declaration of the interference proper it will not be determined without judgment of priority founded upon the testimony or the written concession of one of the parties.

The rule further provides that matters arising during the interference proceeding which may affect the patentability of the invention may be noticed in the decision of the question of priority, and authorizes the Primary Examiner to consider the same. The jurisdiction of the Examiner of Interferences over the matter of patentability is thus limited to the making of a report in his decision on the merits. The parties are not, however, left without an opportunity to contest the propriety of the proceeding, and the first clause of Rule 59 provides for the determination of questions affecting the patentability of the subject-matter, the propriety of the interference, and the form of the declaration. It is made a condition, however, that these objections be made before the time for filing the preliminary statement has expired, and they are to be considered by the Primary Examiner, from whose decision, except where the subject-matter is decided not to be patentable, an appeal may be taken to the Commissioner in person.

If the parties fail to make objections during this time they must be considered as having waived them and as consenting to the interference. Diligence and care are therefore required at this stage of the proceeding to see that it is proper, in order that expense and fruitless litigation may be avoided.

The rule does not, however, preclude the determination of the interference after it is once declared, if the Examiner is convinced that the subject-matter is not patentable, and requests a suspension of the interference for the consideration of new references.

The motion made before the Examiner was not, therefore, such as he could, under the rule, take cognizance of. It should have been made before the filing of the preliminary statements and have been addressed to the Primary Examiner. The decision of the Examiner is therefore sustained.

At the hearing of this appeal it was intimated that there were other patents besides Woodbury's containing the feature in dispute. If such is the case they should be included, and the interference is hereby suspended and the case returned to the Primary Examiner to investigate and report as to this fact.

Inasmuch as the third clause of Rule 59 prohibits the introduction of new parties after testimony has been

taken, and none has, I believe been taken in this, it becomes important that this matter should be definitely disposed of before further proceedings are had.

JULIUS GERSON.—*Appeal.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the application of Julius Gerson, filed February 3, 1876, for* "IMPROVEMENT IN BLOTTING-PADS."—*Decided February 5, 1877.*]

The useful result claimed for the invention was economy of material; but, it not appearing that such was the natural result of its use, nor that any improvement had been effected in the art, a patent was refused.

New arrangements of printed matter on tickets, cards, &c., the result of fancy or simple mechanical skill, are not proper subjects for patents, however convenient such arrangements may be.

[*Knight Bros. and Francis Forbes*, attorneys.]

DOOLITTLE, *Assistant Commissioner:*

The applicant claims

A blotting-pad, having successive portions of a calendar, or successive short calendars printed on successive blotters with memorandum spaces in juxtaposition to the dates, substantially as illustrated and described, for the purpose set forth.

Each feature of this claim, and a number of them in combination, are old, and admitted to be so by applicant; but what is relied upon as the peculiar good result which characterizes the invention is "the preservation of each blotter a definite and sufficient length of time, so as to insure an economical use of a pad, and thus to prevent waste." This, he alleges, is accomplished by the successive or serial portions of the calendar, or short calendars, and the memorandum spaces as applied to successive blotters.

After an examination of this point, I am convinced that it is not well taken, as the arrangement of the calendar with the memorandum spaces, the latter in juxtaposition with the day of the week, instead of effecting a saving of the pad itself, would obviously often produce a waste, as the value of each sheet depends, so far as its combined use as a calendar and memorandum is concerned, upon the number of entries made upon each page of the blotter. If it is found unnecessary to make any entries, the sheet must be thrown aside when probably unexhausted as a blotter.

I see, therefore, no particular utility in this arrangement. The idea of a daily or weekly calendar upon the pages of a diary or memorandum of course is known to be an old device, and to put such a calendar upon the pages of a blotting-pad does not constitute a patentable improvement, it not being shown that any new art or substantial improvement therein has been produced over the former method.

The greatest advantage which appears to me to arise from this arrangement is the fact of binding together into pad form of successive sheets of blotting-paper, so that when one is used it can be torn off, and the next one comes directly to hand. Advertisements and miscellaneous matter printed upon blotting-paper are old; and the arrangement of memorandum-pads in bound form has been in constant use everywhere for a long time.

The Office is frequently presented with applications for patents consisting alone, substantially, of a new arrangement of printed matter on tickets, circulars, pads, books, &c. It seems hardly necessary to say that such matters are due entirely to mere fancy or simple mechanical skill, and, being generally arbitrary in their nature, are not proper subjects for patents, however convenient such arrangements may be.

A good deal of reliance is placed on the favorable adjudications of the courts on the Hawes patent (No. 68,839) for a hotel-register book consisting of leavee and interleaves of "bibulous" paper, on which advertisements were printed. But, however meritorious that particular structure was, it does not follow that every variation of the same idea is necessarily patentable.

The decision of the Examiners-in-Chief is affirmed.

WICKS *vs.* DU BOIS.—*Interference.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the interference between the application of George W. Wicks, filed November 18, 1875, and the patent granted to Frederick N. Du Bois August 24, 1875, application filed July 12, 1875, for* "IMPROVEMENT IN THE MANUFACTURE OF PLUMBERS' LEAD-TRAPS."—*Decided February 16, 1877.*]

When a person in his endeavors to devise a machine for performing certain operations constructs a mechanism incapable of producing the results aimed at, and afterward branches off in another direction, and attempts to create a new and different machine for performing the same operation, his first attempt must be regarded as an abandoned experiment.

A machine differing radically from one which was previously made and abandoned, involving new operations and mechanisms, although designed to accomplish the same end, cannot be regarded as a continuance of such experiments, so as to entitle the party to go back to his first endeavors to establish the date of conception of his invention.

A person does not assume the role of an inventor until he has devised the means whereby his ideas are to be made available to the public.

The mere knowledge that certain things might be done and would be valuable, without being accompanied with a knowledge of the means or method whereby useful results could be produced, does not amount to the conception of an invention.

[*James A. Whitney and D. P. Holloway & Co.*, for Du Bois. *E. E. Quimby*, for Wicks.]

DOOLITTLE, *Acting Commissioner:*

The subject-matter put in issue by the Primary Examiner comprises,

First, in the manufacture of lead-traps, the ejectment, from an annular orifice or die, of two or more streams of lead moving with unequal velocity; second, an improved machine for making lead-traps consisting of a die having a central mandrel and an annular opening through which the metal is forced, said mandrel being extended to form the partition in the die, on each side of which an independent piston operates to force the metal out at any desired speed equal to, or different from, the speed of the opposite piston.

Both of the lower tribunals have found that Wicks was the first to conceive of the invention. The Board held that Wicks had reduced the invention to practice, whereas the Examiner of Interferences found the contrary; and it is mainly upon this point that the decision of the case turns.

The machine for carrying out the process and made the subject of the second issue in this case, consists, essentially, of two horizontal cylinders communicating with a vertical aperture or die, in the center of which the core or mandrel is situated. The mandrel is provided with lateral projections, forming a division-plate between the two cylinders. This partition extends to within a short distance of the mouth of the die. Lead

is supplied to the cylinders and forced out by hydraulic pressure, and as one piston is made to advance more rapidly than the other the lead on that side is made to flow with greater rapidity, thereby causing the pipe to curve in the opposite direction, producing a curved pipe of uniform size and thickness, the length and degree of curvature being controlled by the speed of the piston.

Du Bois has obtained his patent, and was the first in the Office; consequently the burden of proof is upon Wicks.

In support of his claim of priority Wicks has shown that, as early as the year 1868, he began experimenting to obtain some means for making lead-traps by forcing lead from a die at unequal velocities. He testifies that between July and October of 1868 he made a drawing, Exhibit 1, and in the same year a model, Exhibit 2, embodying the same idea. This model consists of an iron block, having two parallel holes bored therein, converging at their upper ends toward a die and mandrel, such as are employed in lead-pipe machines. The pistons were operated by two screws. He made some experiments with this model, and formed some curved pipe from clay; but, according to his own statement, he abandoned the device as unsuccessful in November, 1868, when he put it away and lost sight of it until after the declaration of interference, when it was again brought to light after considerable search had been made for it. In 1869 or 1870 he contrived a new plan, employing three cylinders instead of two, one cylinder to force the lead direct from the die, and the two others to give an additional pressure on either side when it was desired to form a bend. A model and drawing of this were made, but subsequently abandoned, and a new departure inaugurated. This was to employ two converging cylinders, but was subsequently abandoned, not being deemed practicable. His next endeavor was to obtain the varying flow of lead by employing a cylinder divided centrally by a partition which supported the mandrel or core. Two pistons, or, as it is termed, a divided piston, were employed to force out the lead. This is the highest point yet attained by him in his course of experiments, and upon it depends his claim to priority, the Board having decided in his favor upon the ground that this idea was reduced to practice and constituted a perfected invention. The plan spoken of was hit upon in October or November, 1873, and in the winter of the same year a machine was constructed in accordance with the plans thus far developed; but it was not until after the 4th of July, 1874, that the means for operating it were obtained, and in December of that year it was first tested. The machine used is put in evidence as an exhibit, as are also the samples produced upon it.

It appears from the testimony that, in order to produce a curve with this machine, it was necessary to insert a piece of iron under either piston to drive the lead out on that side. A single hydraulic jack was the motive-power employed, and none other, it would appear, had been devised. A careful analysis of the action of this machine convinces me that it does not, as constructed, embody the invention here in conflict. It is evident that when both pistons are operated by the jack a uniform pressure will be produced, and a straight pipe will issue from the orifice. If now the jack is lowered, as would appear from the testimony was the operation, and a piece of iron inserted under either piston, upon the jack being again operated, lead will flow from that side only, and continue until the other piston has reached the lead, when it will again flow uniformly. Nothing is here found which can be said to answer the description of two or more convergent streams of lead moving at unequal velocities; for it is evident that in this case, except when the flow on one side is interrupted, the lead must necessarily move at the same velocity on either side.

The truth of these conclusions is demonstrated in the samples of pipe produced by this machine. At nearly every bend in Exhibits 10 and 11 the metal is entirely cut through, or, as it might be said, scraped off, caused, undoubtedly, by the cessation of the flow of lead on that side while issuing from the other; even the shortest bends show this result.

The exhibits themselves bear evidence of having been tampered with. It would be an utter impossibility to produce the short curves shown upon the machine, Exhibit 9, the distance between the bends being less than from the center of the die to its circumference. This tampering with the exhibits connected with the imperfect results which were obtained, a complete trap never having been made, and the further fact that he did not continue his endeavors to perfect this machine or take any steps in that direction, but branched off upon another idea, establish, as a necessary conclusion of law, that his efforts in this direction, as embodied in the split piston machine, Exhibit 9, were unsuccessful and abandoned experiments.

Thus far we have been considering the improvement in the art. With reference to the device itself, constituting the second issue, it can only be said that he made a drawing thereof in the spring of 1873, and in 1874, after his experiment with the split cylinder, he made working drawings thereof. Models, embodying this invention were made in the summer or fall of 1873 or spring of 1874, and in July or August, 1875; but he has never made a machine of this description.

My conclusions are, therefore, that the testimony shows, on the part of Wicks, a series of unsuccessful attempts at embodying the invention in controversy; that he has never completed that invention or demonstrated its operativeness; on the contrary, every attempt that he has made has shown that he had not got the invention in such form as to be valuable to the public or capable of being practiced by it.

Subsequent to the filing of the present application it seems that Wicks devised still another machine for making lead-traps, obtained a patent therefor March 28, 1876, and has constructed a machine; but it does not appear that a trial has ever been made of the same. The testimony respecting this point is suspiciously silent and indefinite. According to this plan the escape of lead from an ordinary lead-pipe machine is diminished on either side by opening a valve and permitting some of the lead to escape from that side, thus lessening the flow through the die. Whether this method is capable of being practically utilized remains to be seen. Wicks has not demonstrated it, and, until he has done so, it would be impossible to say that he had made an invention at all. Moreover, this invention is not a continuance of that described in the application here

involved, but differs radically therefrom, involving new operations and mechanism. He was following out one main idea, but until he had devised the means whereby such idea was to be made available to the public, he had not assumed the role of an inventor. *Seymour* vs. *Osborne*, (11 Wall, 516;) *Agawam Woolen Co.* vs. *Jordan*, (7 Wall, 583.)

On the part of Du Bois it is claimed that in October, 1871, he conceived of the invention in dispute. The testimony does not support this claim, however. The mere knowledge that certain things might be done and would be valuable without being accompanied by a knowledge of the means or method whereby useful results could be produced, does not amount to the conception of an invention. Therefore, when Du Bois saw the lead issuing in a curve from the ordinary lead-pipe machine, and thought that it might be utilized for forming traps, without knowing in what manner or by what means it was to be employed, he cannot be said to have conceived the idea of an invention, which, as the testimony shows, required study and experiment before it could be made valuable. It is not clear at what time he first thought of the means described in the patent for accomplishing the result sought. In March, 1875, he made drawings of the invention, and, in April, the model accompanying his application. He commenced the construction of the machine in November, 1875, and, in March, 1876, it was completed and put in operation, working successfully, and producing merchantable articles. Even disregarding the fact that Du Bois had reduced the invention to practice, Wicks has not made such a showing as would overthrow his patent, which is, *prima facie*, valid; but when this is supplemented by evidence of the completion of the invention, and its reduction to practice, the abortive attempts made by Wicks are wholly incompetent to overthrow his title to priority.

The decision of the Board is accordingly reversed.

DECISIONS OF THE COURTS.

SUPREME COURT OF THE UNITED STATES.

DANIEL H. SMITH, APPELLANT, *vs.* THE GOODYEAR DENTAL VULCANITE COMPANY AND JOSIAH BACON.

[*Appeal from the Circuit Court of the United States for the District of Massachusetts.—No.* 113.—*Decided October Term*, 1876.]

The claim of the Cummings patent, reissue No. 1,904—"the plate of hard rubber, or vulcanite, or its equivalent, for holding artificial teeth, or teeth and gums, substantially as described,"—is for a set of artificial teeth, as a new article of manufacture, consisting of a plate of hard rubber with teeth, or teeth and gums, secured thereto, in the manner described in the specification, by embedding the teeth and pins in a vulcanizable compound, so that it shall surround them while it is in a soft state, before it is vulcanized, and so that when it has been vulcanized the teeth are firmly and inseparably secured in the vulcanite, and a tight joint is effected between them, the whole constituting but one piece.

It is for a new product, differing from all that had preceded it not merely in degree of usefulness and excellence, but differing in kind, having new uses and properties. It was different in kind or species from all other devices. Devising and forming such a manufacture by such a process and of such materials was invention, although sets of artificial teeth had been previously mounted upon bases of other materials. The case of *Hotchkiss* vs. *Greenwood* (11 How., 248) considered. That case does decide that employing one known material in place of another is not invention if the result be only greater cheapness and durability of the product. But this is all. It does not decide that no use of one material in lieu of another in the formation of a manufacture can, in any case, amount to invention, or be the subject of a patent. If such a substitution involves a new mode of construction, or developes new uses and properties of the article formed, it may amount to invention. The substitution may be something more than formal. It may require contrivance, in which case the mode of making it would be patentable; or the result may be the production of an analogous, but substantially different, manufacture.

The use of one material instead of another in constructing a known machine is, in most cases, so obviously a matter of mere mechanical judgment, and not of invention, that it cannot be called an invention unless some new and useful result, as increase of efficiency, or a decided saving in the operation, be obtained. But where there is some such new and useful result, where a machine has acquired new functions and useful properties, it may be patentable as an invention, though the only change made in the machine has been supplanting one of its materials by another. This is true of all combinations, whether they be of materials or processes.

An invention is not patented in England, so as to anticipate an invention patented in this country, until the completed specification has been filed. The date of filing the provisional specification is not to be considered.

Casting sets of teeth on a tin base by a process similar to the process described in the complainants' patent was not an anticipation of the invention, it being shown that vulcanite may be used by dentists as a base for artificial teeth in many ways that could not be accomplished by tin, and that, therefore, the cast tin base was not substantially the same product as the Cummings manufacture.

The cast tin base held, in view of its defects, to have been an abandoned experiment, although several sets had been made.

To sustain the position that a reissued patent is not a patent for the same invention which was described in the specification of the original patent, and, therefore, that the reissue is unauthorized and void, the defendant must overcome the presumption against him arising from the decision of the Commissioner of Patents in granting the reissue, and this he can do only by showing, from a comparison of the original specification with that of the reissue, that the former does not substantially describe what is described and claimed in the latter. This must plainly appear before the court can be justified in pronouncing the reissued patent void.

Cummings applied for a patent on April 12, 1855. His application was rejected twice, and on February 3, 1856, a third rejection followed a reconsideration. From that time until the patent was finally granted the applicant was in ill health and poor. He did not withdraw his application, nor acquiesce in the action of the Patent Office. He made frequent applications to his friends for advances to enable him to prosecute his application. In February, 1859, an attempt was made for an appeal to the Board, but the Commissioner refused to allow it. On March 1, 1864, he presented a petition for the grant of a patent for the same invention. The patent was granted on June 7, 1864. The invention went into public use in 1859. *Held:* (Justices Bradley, Miller, and Field dissenting) that the proceeding to obtain the patent was a continuous one from 1855 until it was granted; that the application of 1855 not being severable from that of 1864 there was no foundation for the allegation that the invention was abandoned to the public, and that it was in public use or on sale for more than two years prior to the inventor's application. There was no abandonment, actual or constructive.

[*Henry Baldwin, Jr.*, for appellant.
E. N. Dickerson and B. F. Lee, for appellees.]

Mr. Justice STRONG delivered the opinion of the court.

A brief review of the history and nature of the patent which the complainants allege has been infringed will aid materially in solving the questions presented by this appeal.

On the 14th day of May, 1852, Dr. John A. Cummings, a dentist, of Boston, filed in the Patent Office a caveat to protect an invention he claimed to have made of certain new and useful improvements in the setting and plates of artificial sets of teeth. The description accompanying the caveat indicated with very considerable clearness what the alleged invention was, and the objects sought to be gained by it. The improvement was declared to—

Consist in forming the plate, and also the gums in which the teeth are inserted, of rubber, or some other elastic substance, so compounded with sulphur, lead, and other similar substances as to form a hard gum, or whalebone gum, rigid enough for the purposes of mastication, and pliable enough to yield a little to the mouth.

"By this improvement," the caveator said, "the teeth can be easily baked into the gums, which form one piece with the plate." Subsequently, on the 12th of April, 1855, he applied for a patent, reciting in his application that he had previously entered a caveat. His accompanying specification declared the invention to consist in—

Forming the plate and gums, to which the teeth are attached, of rubber, or some other elastic material, so indurated as to be rigid enough for the purpose of mastication, and pliable enough to yield a little to the motions of the mouth, and in one piece, the teeth being embedded in the elastic material while the material is in a soft condition, and then baked with the gums and plate, so that the teeth, gums, and plate will all be connected, forming, as it were, one piece.

This application for a patent was rejected on the 19th of May next following, and the applicant was referred to two printed publications, one suggesting the use of gutta-percha as a base for artificial sets of teeth, and the other suggesting pastes, analogous to porcelain paste, as well as gutta-percha. Cummings then amended his specification by striking out all reference to gutta-percha, or other merely elastic material, disclaiming the use of gutta percha, and any material which is merely rendered plastic by heat and hardened by cooling, and he claimed the improvement in sets of mineral, or other artificial sets of teeth which consists in combining the teeth with a rubber plate and gums, which, after the insertion of the teeth, are vulcanized by Goodyear's process, or any other process, forming thereby a cheap, durable, and elastic substitute for the gold plates theretofore used. This amendment, however, proved ineffectual. The application for a patent was again rejected, and a third rejection followed a reconsideration, for which the applicant had asked. This third rejection was on the third day of February, 1856. From that time onward for several years, indeed until the patent was finally granted, the evidence very satisfactorily shows that Dr. Cummings was in a condition of extreme poverty, utterly unable to bear the necessary expenses of prosecuting his case further. But he did not withdraw his application. He did not ask for a return of part of the fee he had paid, nor by any act of his did he indicate acquiescence in the unfavorable action of the Patent Office. On the contrary, he continued to assert his expectation of ultimately obtaining a patent, formed plans for his own action after it should be obtained, and complained of what he supposed to be the negligence of his solicitor. The proof of his extreme povity is ample. His ill health interfered with his working successfully in the line of his profession, and his family was subjected to great privations. He seems never to have had any considerable money. He borrowed sometimes small sums to purchase underclothing for himself. He made frequent applications to his friends for advances to enable him to prosecute his application for a patent, offering as a compensation for such advances sometimes one-quarter and sometimes one-half of the patent when obtained. He appears never to have remitted his efforts until, in 1864, he induced Dr. Flagg, who had been his partner in former years, and Dr. Osgood, to advance, first, one hundred dollars, and afterward seven hundred and twenty dollars, by means of which the patent was obtained. Even then he had not the twenty dollars necessary to be paid when it was allowed. For the assistance he thus received he gave one-quarter of his invention Before this time (between the third rejection of his application and his obtaining the advances mentioned) everything was done which was within his power. In February, 1859, in the midst of his pecuniary embarrassments, his solicitor applied to the Patent Office, not for a return of any portion of the fee paid, nor for a withdrawal of the application, but that the specification and one drawing might be sent to him. This request was refused. An attempt was then made for an appeal to the Board; but that not being allowed by the Commissioner nothing further was done in the Patent Office until the applicant was enabled, by the funds obtained from Drs. Flagg and Osgood, to renew his endeavors. Then, on the 1st of March, 1864, he presented a petition for the grant of a patent to himself for the same invention which he had endeavored to secure in 1855, (the application for which remained in the Office unwithdrawn,) and accompanied his petition with a specification and drawings corresponding exactly with those he had previously made. This final effort was successful. The Office practically acknowledged that the prior rejection had been an error, and declared that, in justice to his rights as an inventor, the admission of his claim, limited to the use of hard rubber or vulcanite, as he had before limited it, would not be objected to. Accordingly the patent was granted on the 7th of June, 1864, and, by sundry conveyances, it subsequently became vested in the complainants. Two surrenders and reissues have since been made, the last dated March 21, 1865, and it is for an alleged infringement of this second reissue that the present suit has been brought. The bearing of this history upon the merits of the controversy will appear as we proceed to examine the several defenses set up.

Among these the one perhaps most earnestly urged is the averment that the device described in the specification was not a patentable invention, but that it was a mere substitution of vulcanite for other materials which had previously been employed as a base for artificial sets of teeth, a change of one material for another in the formation of a product. If this is in truth all that the thing described and patented was; if the device was merely the employment of hard rubber for the same use, in substantially the same manner and with the same effect that other substances had been used for in the manufacture of the same articles, it may be conceded that it constituted no invention. So much is decided in *Hotchkiss* vs. *Greenwood*, (11 How., 248.) But such is not our understanding of the device described and claimed. In the specification it is declared that the invention—

Consists in forming the plate, to which the teeth, or teeth and gums, are attached, of hard rubber, or vulcanite, so called, an elastic material possessing and retaining in use sufficient rigidity for the purpose of mastication, and at the same time being pliable enough to yield a little to the motions of the mouth.

This is immediately followed by a description of the

manner of the proposed use—that is, of making the hard-rubber plates, and the claim, as stated, is—

The plate of hard rubber, or vulcanite, or its equivalent, for holding artificial teeth, or teeth and gums, substantially as described—

That is, plainly, formed as described.

The invention, then, is a product or manufacture made in a defined manner. It is not a product alone separated from the process by which it is created. The claim refers in terms to the antecedent description, without which it cannot be understood. The process detailed is thereby made as much a part of the invention as are the materials of which the product is composed. We shall not quote at large the description of the mode of making the plate. Such a quotation would unnecessarily prolong this opinion. It plainly shows a purpose of the inventor to secure what had not been secured before—a combination of a plate with artificial teeth, or with gums and teeth, in such a manner as to be free from the objections and defects or inconveniences attending the method before practiced of attaching such teeth to a metallic plate fitted to the roof of the mouth. Some of these objections are stated—such as expense, hurting the mouth, impeding mastication, and obstruction to perfect articulation. In carrying out the purpose proposed the materials employed were all old. The teeth, the wax, the plaster, the molds, the soft rubber, and the hard rubber were none of them new. It is also true that the steps in the process were not all new. Plaster had been used for formation of molds. The process of forming a plate by the use of such molds was well known, and so was the process of converting a vulcanizable compound into vulcanite by heating it and allowing it to cool in molds. But the process of Dr. Cummings extended beyond the use of known materials, and the employment of the processes mentioned. It was vulcanizing soft rubber in a mold, and in contact with artificial teeth inserted in place into it while it remained in a soft condition. It was well described by the circuit judge as "the making of a vulcanite dental plate out of a vulcanizable compound, into which the teeth were embedded in its plastic condition, and the rubber compound, with the teeth thus embedded in it, afterward vulcanized by heat, so that the teeth, gums, and plate should be perfectly joined without any intervening crevices, and the plate should possess the quality of hard rubber or vulcanite." The combination thus resulted in a manufacture which was "one piece." If, then the claim be read, as it should be, in connection with the preceding part of the specification, and construed in the light of the explanation which that gives, the invention claimed and patented is "a set of artificial teeth, as a new article of manufacture, consisting of a plate of hard rubber, with teeth, or teeth and gums, secured thereto in the manner described in the specification, by embedding the teeth and pins in a vulcanizable compound, so that it shall surround them while it is in a soft state, before it is vulcanized, and so that when it has been vulcanized the teeth are firmly and inseparably secured in the vulcanite, and a tight joint is effected between them, the whole constituting but one piece." It is evident this is much more than employing hard rubber to perform the functions that had been performed by other materials — such as gold, silver, tin, platinum, or gutta-percha. A new product was the result, differing from all that had preceded it, not merely in degree of usefulness and excellence, but differing in kind, having new uses and properties. It was capable of being perfectly fitted to the roof and alveolar processes of the mouth. It was easy for the wearer, and favorable for perfect articulation. It was light and elastic, yet sufficiently strong and firm for the purposes of mastication. The teeth, gums, and plate constituting one piece only there were no crevices between the teeth and their supporters into which food could gather, and where it could become offensive, and there could be no such crevices so long as the articles lasted. They were unaffected by any chemical action of the fluids of the mouth. Besides all this they were very inexpensive as compared with other arrangements of artificial teeth. To us it seems not too much to say that all these peculiarities are sufficient to warrant the conclusion that the device was different in kind or species from all other devices. We cannot resist the conviction that devising and forming such a manufacture by such a process and of such materials was invention. More was needed for it than simply mechanical judgment and good taste. Were it not so, hard rubber would doubtless have been used in the construction of artificial sets of teeth, gums, and plates long before Cummings applied for his patent. To find a material, with a mode of using it, capable of being combined with the teeth in such a manner as to be free from the admitted faults of all other known combinations had been an object long and earnestly sought. It had been a subject for frequent discussions among dentists and in scientific journals. The properties of vulcanite were well known, but how to make use of them for artificial sets of teeth remained undiscovered, and apparently undiscoverable, until Cummings revealed the mode. But when revealed its value was soon recognized, and no one seems to have doubted that the resulting manufacture was a new and most valuable invention. The eminent dentists and experts examined in this case uniformly speak of it as such. Not one has ventured to testify that it was not an invention. They speak of it as "a novel and desirable thing;" as "the greatest improvement in dentistry" made in many years, and as an invention which is "a great benefaction to mankind, whereby both health and comfort are promoted.' The evidence also shows that it has wrought a revolution in dental practice, and that many thousands of operators are using it in preference to older devices. All this is sufficient, we think, to justify the inference that what Cummings accomplished was more than a substitution of one material for another—more than the exercise of mechanical judgment and taste—that it was, in truth, invention. Undoubtedly the results or consequences of a process or manufacture may in some cases be regarded as of importance when the inquiry is whether the process or manufacture exhibits invention, thought, and ingenuity. Webster, on the subject-matter of patents, page 30, says; "The utility of the change, as ascertained by its consequences, is the real practical test of the sufficiency of an invention, and since the one cannot exist without the other, the existence of the one may be presumed on proof of the existence of the other. Where the utility is proved to exist in any degree, a sufficiency of invention to support the patent must be presumed." We do not say the single fact that a device has gone into general use, and has displaced

other devices which had previously been employed for analogous uses, establishes in all cases that the later device involves a patentable invention. It may, however, always be considered, and when the other facts in the case leave the question in doubt it is sufficient to turn the scale.

We have, therefore, considered this branch of the case without particular reference to *Hotchkiss* vs. *Greenwood*, (11 How., 248.) The patent in that case was for an improvement in making door and other knobs for doors, locks, and furniture, and the improvement consisted in making them of clay or porcelain, in the same manner in which knobs of iron, brass, wood, or glass had been previously made. Neither the clay knob nor the described method of attaching it to the shank was novel. The improvement, therefore, was nothing more than the substitution of one material for another in constructing an article. The clay or porcelain door-knob had no properties or functions which other door-knobs made of different materials had not. It was cheaper, and, perhaps, more durable, but it could be applied to no new use, and it remedied no defects which existed in other knobs. Hence it was ruled that the alleged improvement was not a patentable invention. The case does decide that employing one known material in place of another is not invention, if the result be only greater cheapness and durability of the product. But this is all. It does not decide that no use of one material in lieu of another in the formation of a manufacture can, in any case, amount to invention, or be the subject of a patent. If such a substitution involves a new mode of construction, or developes new uses and properties of the article formed, it may amount to invention. The substitution may be something more than formal. It may require contrivance, in which case the mode of making it would be patentable; or the result may be the production of an analogous but substantially different manufacture. This was intimated very clearly in the case of *Hicks* vs. *Kelsey*, (18 Wall., 670,) where it was said "the use of one material instead of another in constructing a known machine is, *in most cases*, so obviously a matter of mere mechanical judgment, and not of invention, that it cannot be called an invention, *unless* some new and useful result, as increase of efficiency, or a decided saving in the operation, be obtained." But where there is some such new and useful result, where a machine has acquired new functions and useful properties, it may be patentable as an invention, though the only change made in the machine has been supplanting one of its materials by another. This is true of all combinations, whether they be of materials or processes. In *Crane* vs. *Price*, (1 Webster's Patent Cases, 393,) where the whole invention consisted in the substitution of anthracite for bituminous coal in combination with a hot-air blast for smelting iron ore, a patent for it was sustained. The doctrine asserted was that if the result of the substitution was a new, a better, or a cheaper article, the introduction of the substituted material into an old process was patentable as an invention. This case has been doubted, but it has not been overruled, and the doubts have arisen from the uncertainty whether any new result was obtained by the use of anthracite. In *Kneass* vs. *The Schuylkill Bank* the use of steel plates instead of copper for engraving was held patentable. So has been the flame of gas instead of the flame of oil to finish cloth. These cases rest on the fact that a superior product has been the result of the substitution, a product that has new capabilities, and that performs new functions. So in the present case, the use, in the manner described, of hard rubber, in lieu of the materials previously used for a plate, produced a manufacture long sought, but never before obtained—a set of artificial teeth, light and elastic, easily adapted to the contour of the mouth, flexible, yet firm and strong, consisting of one piece, with no crevices between the teeth and the plate, impervious to the fluids of the mouth, unaffected by the chemical action to which artificial teeth and plates are subjected when in place, clean and healthy—peculiarities which distinguished it from everything that had preceded it. These differences, in our opinion, are too many and too great to be ascribed to mere mechanical skill. They may justly be regarded as the results of inventive effort, and as making the manufacture of which they are attributes a novel thing in kind, and, consequently, patentable as such.

A second objection urged by the defendant against the validity of the complainant's patent is alleged want of novelty of the invention, and a strenuous effort has been made to convince us that, although hard rubber had not been used in the manner described for the production of the manufacture, equivalent materials and processes had been, and that a plate substantially the same as that of Dr. Cummings had been made before his improvement. We are not, however, convinced. The patent itself is *prima facie* evidence that the patentee was the first inventor—at least it casts upon him who denies it the burden of sustaining his denial by proof. We do not find such proof in the case. Though the patent was not granted until June 7, 1864, the invention was completed at least as early as April 12, 1855, when the application for a patent was made. Indeed, as we have noticed, a caveat to protect it was filed on the 14th of May, 1852, which clearly foreshadowed the invention. Yet, taking the spring of 1855 as the time when it was completed, we find nothing in the proofs to justify a conclusion that Dr. Cummings was not the first inventor. It would answer no good purpose to review the voluminous evidence supposed to bear upon this branch of the case. We shall refer only to that which is deemed most important, and which has been most pressed upon us in this argument. Of the English patent of Charles Goodyear it is enough to say that, though the provisional specification was filed March 14, 1855, the completed specification was not until the 11th of September following. It was, therefore, on the last-mentioned date that the invention was patented.

The experiments made by George E. Hawes, it must be admitted, closely resembled the process described in the reissued patent to the complainants. He cast in molds sets of teeth on a tin base, in a manner very like that in which the vulcanite plate is formed by the Cummings process. But the experiments resulted in nothing practical. Hawes cast sets of teeth for the lower jaw only, the weight of the metal making the plate unfit for the upper. In consequence of the shrinkage of the metal in cooling, a tight joint could not be obtained between the teeth and the base. The sets were, therefore, liable to become offensive in consequence of deposits of food and the secretions of the mouth in the crevices. The shrinkage also prevented a close fitting

of the plate to the roof of the mouth, and the tin base was affected by the chemical action of the secretions. In consequence of these and other objections the manufacture was soon abandoned, and it may properly be considered an abandoned experiment. It not only was not the same manufacture as that of Cummings, but it was not suggestive of it, and Dr. Hawes, who cast the tin plates, testifies that the use of vulcanite for dental purposes is the greatest improvement in his profession that he knew of in twenty-five years. He adds "that vulcanite may be used by dentists in many ways which could not be accomplished by tin or platinum." In his opinion, therefore, the cast tin base was not substantially the same thing as the Cummings manufacture. So, also, Dr. Royce, who cast plates of tin for artificial teeth in a manner very similar to that of Dr. Hawes, testifies that the solid tin base was found practically unfit for the purpose, except in rare instances. He made but a few sets, none after 1850, and adopted the vulcanite, agreeing to pay for a license to use it in manufacturing dental plates.

We need go no farther into a consideration of the various devices and publications offered to show that the manufacture patented was known before Cummings invented it. Suffice it to say that none of them, in our opinion, suggest or exhibit in substance such a manufacture. The defense of want of novelty is, therefore, not sustained.

It is further insisted by the defendant that the reissued patent on which this suit is founded is not a patent for the same invention which was described in the specification of the original patent, and, therefore, that the reissue is unauthorized and void. To sustain this position the defendant must overcome the presumption against him arising from the decision of the Commissioner of Patents in granting the reissue, and this he can do only by showing from a comparison of the original specification with that of the reissue that the former does not substantially describe what is described and claimed in the latter. This must plainly appear before we can be justified in pronouncing the reissued patent void. But this, in our judgment, does not appear. The first specification describes a set of artificial teeth having a hard-rubber plate made by a process substantially the same as that indicated in the later patent. The description of the process is not quite so minute, but it is sufficiently full to be understood, and to enable an operator to make the manufacture. Certainly it is not another process, and, as its result is the same, it is impossible to hold that the reissued patent is for a different invention from the one protected by the orignal patent. It is true the specification of the reissue describes also another process not described in the specification of the first, namely, a mode of making the molds, but that is not claimed as a part of the invention.

The remaining defenses to the bill rest, mainly, on the assumption that the new petition presented to the Patent Office in 1864 cannot be regarded as a continuation of the application made for a patent on the 12th of April, 1855. But this cannot be conceded. The history of the application, as we have given it, forbids such an assumption. No act of Cummings amounted to a withdrawal of his first petition, or to an acquiescence in its rejection. It is true he filed a second petition in 1864, but he accompanied it with substantially the specification that remained in the Office, and with the same drawings. It was a mode of procuring another consideration of his rejected claim, and the Commissioner regarded it as such. The act of March 2, 1861, gave him authority thus to regard it. He replied to the application that his claim was embraced in an application filed by him in 1855, and rejected for want of novelty, admitted that it had been improperly rejected, and suggested an amendment to make it correspond with his former amended claim. It is impossible, in view of these facts, to regard the effort to obtain a new patent in 1864 as a new and independent application, disconnected from the application made in 1855. It was but one stage in a continuous effort. In *Godfrey* vs. *Eames*, (1 Wall., 317,) the first application was actually withdrawn, and a new petition was presented at the time of the withdrawal with a different description of the invention, but as the thing patented under the second might have been engrafted as an amendment of the first it was ruled that all the proceedings constituted one application. This court said "if a party choose to withdraw his application for a patent and pay the forfeit, intending at the time of such withdrawal to file a new petition, and he accordingly does so, the two petitions are to be considered parts of the same transaction, and both as constituting one continuous application." We are not aware that filing a second petition for a patent, after the first has been rejected, has ever been regarded as severing the second application from the first, and depriving the applicant of any advantage he would have enjoyed had the patent been granted without a renewal of the application. The contrary was decided by the circuit court for the southern district of Ohio in *Bell* vs. *Daniels*, (1 Fisher, 372,) and in *Blandy* vs *Griffith et al.*, (3 Fisher, 609.) And these decisions are founded in justice and sound reason.

If, then, as we think it must be held, the proceeding to obtain the patent was a continuous one from 1855 until it was granted; if the application of 1855 is not severable from the proceedings of 1864, there is no foundation whatever for the allegation that the invention was abandoned to the public, and that it was in public use or on sale for more than two years before the inventor's application. The first use of it proved, by any other than Dr. Cummings, was in 1859, and there is no evidence that this was with his consent. And the proof respecting his health and pecuniary condition, together with his constant efforts to obtain the necessary means to prosecute his right, rebuts all presumption that he ever abandoned, actually or constructively, either his invention or his application for a patent. That he never intended an abandonment of his invention is perfectly clear, and it was not his fault that granting the patent was so long delayed.

The conclusion of the whole matter is that the patent is a valid one, and, therefore, that the decree of the circuit court should be affirmed.

The decree of the circuit court is affirmed.

Mr. Justice BRADLEY, dissenting.

I dissent from the judgment of the court in this case on the ground that the patentee having duly made his application for a patent in 1855, and the same having been three times rejected, must be considered as having abandoned the same, inasmuch as no further effort was made to obtain a patent until eight years afterward,

without any pretence that the patentee was engaged in perfecting his invention, and in the meantime the invention which he claims as his had come into general public use. The application for a patent made in 1864 was a new and independent application, and should be treated as such. As the public had enjoyed the use of the invention for more than two years prior to this application the patent should be declared invalid. Great injustice will, in my judgment, be done to the public to allow a patent obtained under such circumstances to stand. The public had a right to suppose that no further application would be made. The levy of a tribute now on all the dentists of the country who have brought the plate into public notice and use seems to me a species of injustice. The delay of the patentee, in fact, is made to operate to his benefit instead of his prejudice; his patent being made to run eight years longer than it would have done had it been granted when first applied for. So that the public is still further injured by sustaining the patent as finally granted. It is too common a case that associated companies, in order to maintain some valuable monopoly, look about to see what abandoned invention or rejected application, or ineffective patent, can be picked up, revamped, and carried through the Patent Office; and by the aid of ingenious experts and skillful counsel succeed in getting the desired protection. I think that the courts ought to be strict in maintaining the rights of the public in such cases. And the present case seems to me to be one in which we ought to hold the patent invalid as against those rights.

Mr. Justice MILLER and Mr. Justice FIELD concur in this opinion.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date February 13, 1877.]

9,739.—Paper Boxes.—NATHAN D. BILL, Springfield, Mass. Application filed December 26, 1876. Term of patent 3½ years.

9,740.—Embroidery Pattern-Sheet.—BERNARD DREYFUSS and SAMUEL SACHS, New York, N. Y. Application filed November 20, 1876. Term of patent 3½ years.

9,741.—Licorice Stick.—HENRY T. JARRETT, WILLIAM C. CONRAD, and FERDINAND H. RENZ, New York, N. Y. Application filed February 5, 1877. Term of patent 14 years.

9,742.—Vapor-Stove.—EDWARD F. ROGERS, Chelsea, Mass. Application filed December 21, 1876. Term of patent 3½ years.

9,743.—Base for Counter-Scales.—FREDERICK W. TROEMNER, Philadelphia, Pa. Application filed January 10, 1877. Term of patent 7 years.

9,744.—Glassware.—HARRY P. PEARS, Pittsburg, Pa., assignor to BAKEWELL, PEARS & CO., same place. Application filed February 5, 1877. Term of patent 3½ years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date February 13, 1877.]

4,353.—Liquid Stove-Blacking.—EDWARD BAXTER, Cold Spring, N. Y. Application filed January 26, 1877.
"The word-symbol 'CHALLENGE.'"

4,354.—Wagon-Axles.—D. ARTHUR BROWN & CO., Fishersville, N. H. Application filed January 19, 1877.
"The word-symbol 'Vulcan.'"

4,355.—Lubricating-Oil.—EDWARD K. CHAMBERLIN, Cleveland, O. Application filed January 23, 1877.
"The word-symbol 'VALVE-OLEUM.'"

4,356.—Cigars.—FREDERICK A. FORD, Elizabeth, N. J. Application filed January 27, 1877.
"The letters 'F. A. F.'"

4,357.—Ladies' Boots and Shoes.—JOHN H. HAPGOOD, New York, N. Y. Application filed December 21, 1876.
"The fanciful words 'Spanish Arch.'"

4,358.—Cigars.—L. HIRSCHHORN & CO., New York, N. Y. Application filed January 6, 1877.
"The symbol illustrated in the accompanying fac-simile, the same consisting of a tobacco plant with foliage and bloom at the base, a shield at the top and side borders, between which is spirally twined a strip or blade."

4,359.—Fluting-Machines.—SUSAN R. KNOX, New York, N. Y. Application filed September 22, 1876.
"A likeness of myself, with a fac-simile of my autograph signature across the bottom thereof."

4,360.—Lamps.—GEORGE H. LOMAX, Somerville, Mass. Application filed December 8, 1876.
"The word-symbol 'GUARD.'"

4,361.—Dry-Goods.—DAVID A. LINDSAY, New York, N. Y. Application filed September 22, 1876.
"The word-symbol 'One length brand.'"

4,362.—Gunpowder.—ORIENTAL POWDER MILLS, Boston, Mass. Application filed January 13, 1877.
"The arbitrarily-selected word 'ORIENTAL.'"

4,363.—Smoking and Chewing Tobacco.—ADOLPH PEARL, New York, N. Y. (Re-registration.) Application filed May 18, 1871.
"The words 'Green Seal.'"

4,364.—Eye-Salve.—PETTIT & BARKER, Fredonia, N. Y. (Re-registration.) Application filed February 24, 1872.
"The letters and words 'Pettit's American Eye Salve,' and 'Dr. Pettit's Genuine American Eye Salve.'"

4,365.—Preparations for Polishing Metal Ware and Like Articles.—QUÉRARD & CO., New York, N. Y. Application filed January 18, 1877.
"The word-symbol 'RAINBOW.'"

4,366.—Buttons and Dress-Trimmings.—LUDWIG ROTHSCHILD, New York, N. Y. Application filed January 6, 1877.
"A representation of the statue of Liberty."

4,367.—Tooth-Powder.—N. R. SCOTT & SON, Worcester, Mass. Application filed January 22, 1877.
"The word 'LILLY' and the pot of lilies, as shown."

4,368.—Borax.—SMITH BROTHERS, San Francisco, Cal., and New York, N. Y. Application filed January 18, 1877.
"The copy of our firm-signature, the monogram composed of the letters 'S B' on a scroll, and the ornamental dark groundwork of the white letters."

4,369.—Writing-Fluid.—JAS. H. STONE & CO., Washington, D. C. Application filed January 31, 1877.
"The script design and the word-symbol 'SPENCERIAN,' used in connection with the words 'Writing Fluid.'"

4,370.—Food for Horses, Cattle, Poultry, and Stock Generally.—THE CONDIMENTAL FOOD COMPANY, Philadelphia, Pa. Application filed January 26, 1877.
"The word-symbol 'CONDIMENTAL.'"

4,371.—Wax-Thread Sewing-Machines.—THE CONSOLIDATED WAX THREAD SEWING MACHINE COMPANY, Boston, Mass. Application filed December 15, 1876.
"The word-symbol 'NATIONAL.'"

4,372.—Hoisery and Gloves.—THE FIRM OF MAURICE SAMUEL ESCHE, Chemnitz, Saxony, Germany. Application filed January 22, 1877.
"The words 'NUNQUAM RETRORSUM,' and the representation of the globe, eagle, and crossed branches, encircled as aforesaid.'

4,373.—Hoisery and Gloves.—THE FIRM OF MAURICE SAMUEL ESCHE, Chemnitz, Saxony, Germany. Application filed January 22, 1877.
"The words 'Nunquam Retrorsum,' and the representation of the globe, and eagle, and the letters M. S. E., encircled as aforesaid.

4,374.—Kummel or Cordial.—THE FIRM OF J. A. GILKA. Berlin, Prussia, Germany. Application filed January 12, 1877.
"A group of medals arranged to fill the upper field of a label, in combination with our firm-name, 'J. A. Gilka.'"

4,375.—Compound Textile Fabrics.—LYMAN W. WHIPPLE, New York, N. Y. Application filed September 21, 1876.

"The word-symbol 'WINDSOR,' (used in connection with the descriptive word fabric,) and the monogram formed by combining the letters 'L. W. W.'"

4,376.—Liniments.—DWIGHT WHITING, Boston, Mass. Application filed January 27, 1877.

"The word-symbol 'LINIMENTINE.'"

4,377.—Whisky.—JOHN C. YOST & Co., Cincinnati, O. Application filed December 13, 1876.

"The words 'King Lear.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date February 13, 1877.]

972.—Title: **"Crockett's Washing Fluid."**—NATHANIEL B. CROCKETT, Boston, Mass. Application filed February 2, 1877.

973.—Title: **"Medicated Paper."**—GAYETTY & Co., Brooklyn, N. Y. Application filed January 20, 1877.

974.—Title: **"Vulcanized Rubber Belting."**—NEW YORK BELTING AND PACKING COMPANY, New York, N. Y. Application filed February 3, 1877.

975.—Title: **"Vulcanized Rubber Belting."**—NEW YORK BELTING AND PACKING COMPANY, New York, N. Y. Application filed February 3, 1877.

INDEX OF INVENTIONS PATENTED FEBRUARY 13, 1877.

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Air and steam blower for furnaces, E. Hershey	140	187,381
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Bale tie, G. F. Jones	7	187,284
Barbed wire, machine for twisting, E. P. Peacock	52	187,306
Bed, air, Macintosh and Boggett	62	187,397
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Breech loading fire arm, H. Rowell	18	187,319
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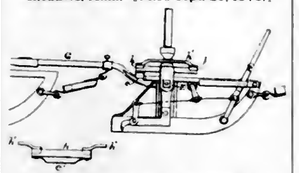
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TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED FEBRUARY 13, 1877.

187,313. BOB-SLED COUPLINGS. T. Bruner, Richfield, Minn. [Filed Sept. 20, 1876.]



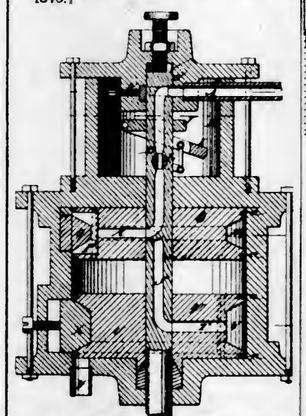
In the construction shown, the frame A, provided with curved iron braces A', and the loop e, in combination with the bifurcated reach G, the latter being coupled, as shown, in the eyelet l in the cross-beam E, as and for the purposes set forth.

187,314. NAPKIN-HOLDERS. F. W. Campbell, Chicago, Ill. [Filed Jan. 4, 1877.]



A napkin holder combining in its construction a hook with a slotted shank, and a spring bent as shown, to form a jaw for engaging the napkin on one side of the shank, and a loop on the other for opening the jaw, substantially as set forth.

187,315. ROTARY ENGINES. P. D. M. Carmichael, Le Roy, N. Y. [Filed June 26, 1876.]

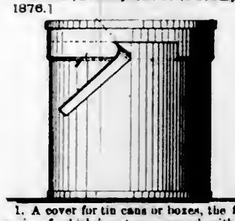


1. The secondary hub s, together with its piston and abutment, combined with the primary hub and its adjuncts in the arrangement, whereby the steam from the first engine exhausts through hub O, shaft B, and hub s into the second engine, substantially as specified.

2. The elongated abutment Q, in the primary steamway M, of a compound rotary engine, arranged in relation to the exhaust of the primary engine, and that of the inlet of the secondary one, whereby it forms the cut-off to the secondary engine, substantially as specified.

3. The combination, with the cock L in the hollow shaft B, of the centrifugal lever I, pivoted to a support, J, mounted on the shaft, substantially as specified.

187,316. SHEET-METAL CANS. George H. Chinnock, Brooklyn, N. Y. [Filed Apr. 12, 1876.]



1. A cover for tin cans or boxes, the flange or rim of which is cut or grooved within its circumference in such manner as to reduce the thickness of the metal along its circumferential line, substantially in the manner herein described, for the purpose specified.

2. A sheet-metal can or box constructed with a cover, the rim of which is soldered fast at its lower end to the body of the can or box, and the said rim grooved or partially cut through on a circumferential line, to provide a line of least resistance in the opening of the can or box by the detachment of the lower portion of the rim, substantially in the manner herein set forth.

187,317. BRICK-KILNS. Wm. S. Colwell, Pittsburg, Pa. [Filed Nov. 27, 1876.]

Brief.—Flue *m* carries air to chamber a, from which it is discharged toward the front into the fire-chamber. Flue *i* conveys air to chamber *k*, whence it is discharged laterally into the rear portion of the fire-chamber. Flue *h* conducts air to orifices *j*, through which it is discharged into the fire-chamber.



1. In a furnace for brick-kilns, the fire-chamber A, bridge-wall B, crown D, extending above the floor of the kiln, and having an opening, C, provided with a valve, *e*, the whole being constructed and arranged with relation to the interior of the kiln and its walls, substantially as hereinbefore described, and for the purpose set forth.

2. In a furnace for brick-kilns, the fire-chamber A, hollow perforated bridge-wall B, opening C in the crown D, furnished with a valve, *e*, and flues *f*, having valves *g* constructed and arranged with relation to the interior of the kiln and its walls substantially as hereinbefore described, and for the purpose set forth.

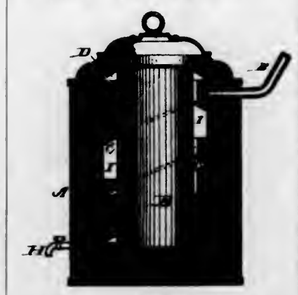
3. In a furnace for brick-kilns, the fire-chamber A, hollow perforated bridge-wall B, opening C in the crown D, furnished with a valve, *e*, flues *f* having valves *g*, and flues *h* and *i* communicating with the fire-chamber A by means of perforations *j* and *k*, constructed and arranged with relation to the interior of the kiln and its walls substantially as hereinbefore described, and for the purpose set forth.

4. In a furnace for brick-kilns, the fire-chamber A, hollow perforated bridge-wall B, opening C in the crown D, furnished with a valve, *e*, flues *f*, having valves *g*, flues *h* and *i* communicating with the fire-chamber A, and the converging walls l at the rear end of the fire-chamber, constructed and arranged with relation to the interior of the kiln and its walls substantially as hereinbefore described, and for the purpose set forth.

187,318. COMPOSITIONS FOR SIZING. N. Crabtree, Fall River, Mass. [Filed Nov. 13, 1876.]

The described composition, consisting of starch, soap, glycerine, salsoda, and water, such being for the purpose set forth.

187,319. BEER-COOLERS. L. M. Davis, Joplin, Mo. [Filed Aug. 10, 1876.]

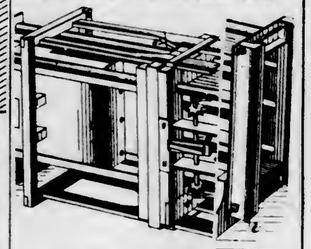


1. The combination, with a water-cooler, A, of the cylinder B, with exterior spiral flange C and top flange D, the inlet-pipe E, and faucets G H, substantially as and for the purposes herein set forth.

2. The breakers I I, arranged on the outside of the cylinder B, in combination with the spiral flange C and cooler A, substantially as and for the purposes herein set forth.

187,320. HAY-PRESSES. P. K. Dederick, Albany, N. Y. [Filed Jan. 3, 1877.]

Brief.—The cam-levers are connected with the follower, and at each backward movement draw in the folders. The inner edges of the folders are so beveled that the traverser, in advancing, pushes them back. The adjustable beveled bars at the exit end of the press diminish the space through which the bale passes.



1. The spur-wheels fixed on the rod, in the described combination with the bars of the press-box, and with the pawls, as set forth.

2. The combination of the press-box, the spur-wheels, and the follower, formed with the metallic strips in the edges, said strips being flush with the edges of the follower, as set forth.

3. The folding devices arranged in slots in the side of the press-box, in combination with the cam-bars, connected to the traverser, as set forth.

4. The improved traverser, having sides capable of yielding inward, in combination with the interior springs, as set forth.

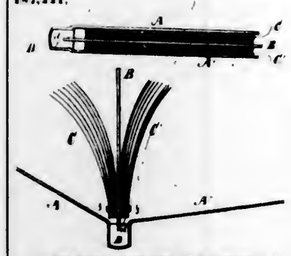
5. A baling-press constructed of T and tabular iron, in the manner set forth.

6. The adjustable retarding devices at the discharge end, consisting of the beveled bars *t t*, applied to the flanges and held by the transverse bolts, as set forth.

187,321. TICKET-BOOKS. P. Deemer, Jr., Kokomo, Ind. [Filed Oct. 30, 1876.]

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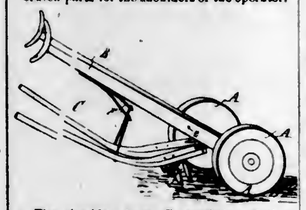
187,221.



A check-book consisting of the covers A A', slotted back D, check-card B, and checks C C', constructed and adapted to be used in the manner set forth and described.

187,222. HAND-CULTIVATORS. Joseph W. Dowler, St. Louis, Mo. [Filed May 11, 1876.]

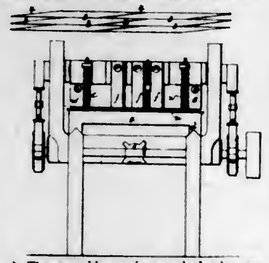
Brief.—The plow-beams are pivoted to a frame supported on wheels, and provided with crutch parts for the shoulders of the operator.



The shoulder-frame B, consisting of the beams *b b'*, having crutch parts *b²*, truck A, bolts D, springs F, plow attachment C, consisting of plow-beams *c c'*, plows E, all said parts being constructed and combined, as shown and described, to operate in the manner and for the purposes set forth.

187,223. MACHINES FOR MAKING TOOTH-PICKS. Jno. K. Duryee, New York, N. Y., assignor to G. W. Gregory, Boston, Mass. [Filed May 5, 1876.]

Brief.—Tooth-picks are cut from sheets of veneers by means of a side-cutting knife and a series of point-cutters attached to a sliding cross-head and a movable carriage, in connection with suitable operating mechanism. A spring-presser, carried by the cross-head, and acting as a stripper, prevents the knives from lifting up with them the formed tooth-picks.



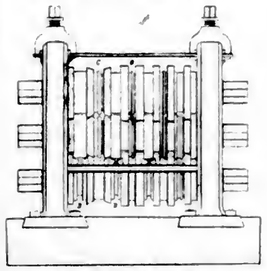
1. The movable carriage or bed *a*, in combination with the side-cutting knife *e* and series of point-cutters *f*, substantially as described.

2. In a machine for making tooth-picks, the side and point cutters and cross-head, in combination with the carriage and holder, substantially as described.

3. In a machine for making tooth-picks, the side and point cutters and cross-head, in combination with the presser *n* and carriage, arranged to operate substantially as described.

4. In the process of manufacturing wooden tooth-picks, forming the wooden tooth-picks by cutting the wood in straight parallel lines, and in inclined parallel lines intersecting the straight lines, in order to form sides and points, substantially as described.

187,224. MACHINES FOR REROLLING AND REDUCING OLD RAILS. H. Greer, Harmar, Ohio. [Filed Aug. 7, 1876.]



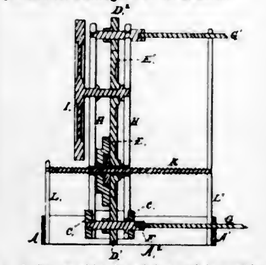
1. The series of roller-grooves B, C, D, G, and L, comprehending the particular shape described of the flange side of groove C, such groove graduated in dimensions relatively to the others, and the series presenting alternating upright and flatwise passes to the rail, substantially as described.

2. The series of roller-grooves B C D G, presenting alternating upright and flatwise passes for the rail, so graduated in dimensions as to gradually reduce the breadth of the flange and of the web, but leave the head or tread of the rail unaltered, substantially as described.

3. In combination with one or more roller-grooves for reducing the dimensions of a railway-rail, or butt of same, one or more guiding-grooves conformable to an inverted railway-rail, for accurately presenting the rail to the upright passes, substantially as described, and for the purposes set forth.

187,225. MINING-MACHINES. C. M. Hall, Philadelphia, Pa. [Filed Dec. 21, 1876.]

Brief.—The two-part nut on the screw-shaft facilitates replacing the frame and drills in position for drilling a new set of holes.



1. In a machine for mining coal, in combination with the gear-wheels D D' E E' D², the top drill G² and lower series of drills G, arranged and operating substantially as described, whereby the cutting or boring of the blast and undermining holes are performed at one and the same operation.

2. In a machine for mining coal, the sliding frame C and supports H H, with gear-wheels D D' D² E E', mounted and operating therein substantially as and for the purposes described.

3. In a machine for mining coal, the combination, with the sliding frame C and wheel E, of slow screw-shaft K and two-part nut J, for advancing the entire series of drills, substantially as described.

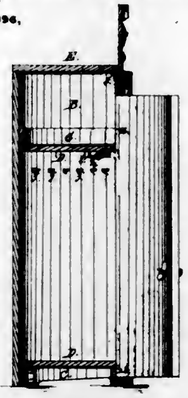
4. The machine for mining coal, consisting of car A, sliding frame C H, upper drill G', lower drills G, series of small cog-wheels D D' D², large wheels E E', nut J, screw-shaft K, and power-wheel I, all constructed, arranged, and adapted to operate substantially as and for the purposes described.

187,226. WARDROBES. Wm. H. Harris, Jamestown, N. Y. [Filed Nov. 22, 1876.]

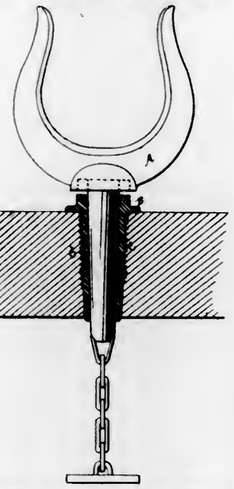
1. A folding wardrobe, made triangular in form, two sections being hinged together to form the back, the shelves being hinged to one of said sections; and a front, consisting of the door and the posts or frame, to which they are hinged, being secured to the sections forming the back by means of a mortise and tenon, or other equivalent fastening device, as and for the purpose set forth.

2. In combination with the hinged sections B B, having hinged shelves D, the detachable front piece, consisting of frame A A, having doors hinged thereto, and the top E, hinged at *f* to said frame, as and for the purpose set forth.

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187,227. ROWLOCKS. R. W. Hathaway, Fairhaven, Mass. [Filed Jan. 19, 1877.]



Concave socket A, rib B, and thread or screw upon the socket C C, all constructed and operating as set forth, for the purposes specified.

187,228. HOES. Jos. R. Hood, Wedowee, Ala. [Filed Dec. 16, 1876.]

Brief.—The plate attached to the lower side of the handle is provided with adjusting-holes for the brace, and a long transverse bearing for the upper edge of the blade. The tension-rod has at its upper end a semi-spherical nut, to avoid cramping when the tension-rod is put to a strain. The handle-plate has also a slotted seat for the reception of the upper end of a narrow blade or rake.

1. In combination with the handle and adjustable and reversible hoe-blade, the plate B, having a single inwardly-inclined flange, B', and straight bearing for the blade, extending laterally on each side of the handle, so as to afford a broad bearing-surface, substantially as set forth.

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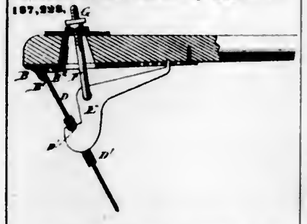
2. In combination with the handle and arm E, the slotted hoe-blade D, having a double re-enforce, D', with rounded ends to the slot, substantially as set forth.

3. In combination with the handle and reversible slotted blade D, the arm E, having a head shaped substantially as shown, filling the slot when the parts are in place.

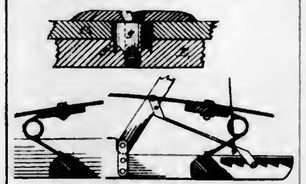
4. In combination with the handle and reversible blade, the arm E, screw-rod F, semi-spherical nut G, and concave cup, for forming a universal bearing, substantially as set forth.

5. In combination with the handle, the plate B, constructed with a bearing and projection, B', adapted to receive the blade of a hoe, and also with a recess, B², adapted to receive the head of a rake, whereby the implement may be made convertible, substantially as set forth.

187,228.



187,229. SPRING BED-BOTTOMS. A. W. Kendrick, Brooklyn, N. Y. [Filed Jan. 22, 1877.]



1. The combination, in a spring bed bottom, of the perforated slat, the supporting cross-bar, the spring, the fastening-block having the blind grooves, the confining-nut, and the clamping-screw, substantially as and for the purpose set forth.

2. The combination of the slotted slat, the supporting-spring, the grooved fastening-block, the oblong confining-nut, of a width and length less than the slot, and the clamping-screw, substantially as and for the purpose set forth.

3. The combination, with the fastening-block, the slotted slat, and the clamping-screw, of the confining-nut, formed with a projecting collar, fitting in the width of the slat, substantially as and for the purpose set forth.

4. The combination, with the slotted slat, the fastening block, and the clamping-screw, of the oblong confining-nut, formed with the projecting collar armed with spurs or corrugations, and the under surface of the nut proper roughened or corrugated, substantially as set forth.

5. The combination, with the supporting-spring, the slotted slat, the confining-nut, and the clamping-screw, of the fastening-block having the curved upper face, substantially as and for the purpose set forth.

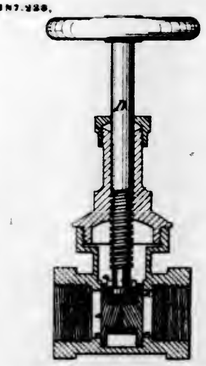
6. The combination, with the supporting-spring, and the supporting cross-bar, having the upwardly-projecting lip, of the adjustable fastening screws, substantially as and for the purpose set forth.

7. The combination, in a spring bed-bottom, of a slotted slat, the oblong nut formed with collar and corrugations, the fastening-block formed with convex upper face, and the blind grooves, the springs, and the supporting cross-bar, all substantially as and for the purpose set forth.

187,230. STRAIGHTWAY-VALVES. Daniel Kennedy, Brooklyn, N. Y. [Filed Dec. 18, 1876.]

Brief.—When the valve is brought downward to its place, the two sections are automatically moved outward and jammed to their seats by the peculiarly-constructed inclines.

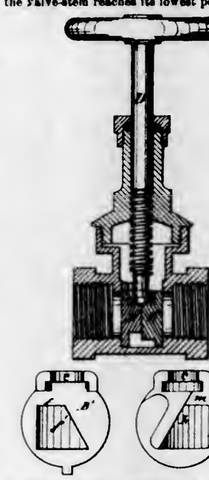
187,230.



In a straightway-valve, the two sections B, constructed with the projections B', having the inclined inner surfaces and the lateral sloping surfaces, in combination with the yoke C, constructed as described, and opposing valve seats *a*, the two sections being actuated through the projections B' by the vertical movement of the yoke with reference to said sections, the said parts being made, combined, and arranged substantially as and for the purpose herein set forth.

187,231. STRAIGHTWAY-VALVES. Daniel Kennedy, Brooklyn, N. Y. [Filed Dec. 18, 1876.]

Brief.—One section moves in advance of the other, the two sections being crowded against the seats by the inclined surfaces as the valve-stem reaches its lowest position.

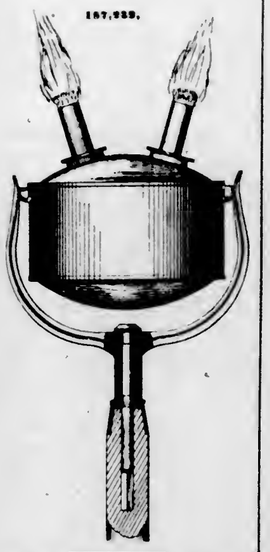


The valve-plug C, composed of the section B', having the projection *f* formed with the inclined surfaces *f'*, and the section B" formed with the cavity or recess, having its surfaces corresponding to those of the projection *f* aforesaid, in combination with the opposing valve-seats *a* and the valve-stem D, the whole combined and arranged for use and operation substantially as and for the purpose herein set forth.

187,232. TORCHES. Jas. A. McPherson, Brunswick, N. Y. [Filed July 3, 1876.]

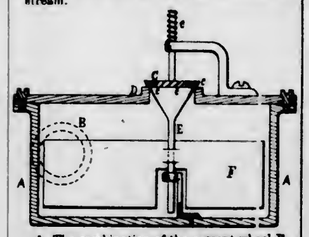
The combination, in a torch-frame, of the arms with pivots upon the inner side, so that they may be sprung from or into the eyes of the cup, and the sleeve or socket at the junction of the arms, through which, by a pin, the frame is secured to the handle, substantially as and for the purposes herein described.

187,233.



187,233. WATER-METERS. W. Park, Norwich, Conn. [Filed July 27, 1874.]

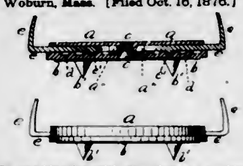
Brief.—A weighted circular valve, adjusted over an opening in the case, has small inclined floats, so that the valve will be lifted up and revolved by the least appreciable stream.



1. The combination of the current-wheel F, revolved by the whirling water within the cylindrical case A, having the tangential inlet-pipe B, with the conical valve C fast upon the same shaft, to support the weight of the wheel and shaft, substantially as herein set forth.

2. The combination of the turbine or propeller wheel *c c* with the conical valve C, when the wheel *c c* is made close above the valve-seat, so that the water is forced by the weight of the valve and wheel, through an annular crevice, in an effective jet, upon the wheel *c c*, substantially as and for the purpose described.

187,234. ICE-CREEPERS. John D. Porter, Woburn, Mass. [Filed Oct. 16, 1876.]



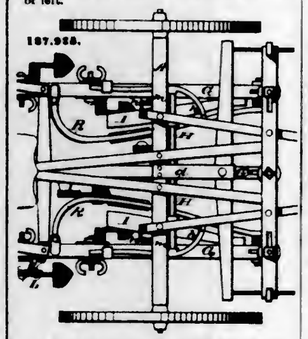
In combination with the plate *a*, provided with the ribs or guides *a" a"*, the slides *c c*, provided with projections *c' c'*, and the plate *b*, provided with the spiral groove *d* and prongs *b'*, all substantially as and for the purpose herein set forth.

187,235. CULTIVATORS. R. B. Robbins, Adrian, Mich. [Filed May 22, 1876.]

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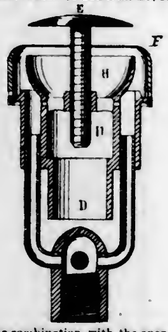
Brief.—The rock-bar, by which the beams are raised, is made in two parts; and united by a sleeve, which is provided with adjustable slots, to accommodate the lateral adjustment of the beams. The foot of the plow-standard is provided with a serrated wrist, with a corresponding one for the share, for the purpose of facing the share to the right or left.

187,225.



1. The jointed rocking rod H, in combination with the beams or swing-frames G G and levers I I, with their connections, substantially as and for the purposes herein set forth.
2. The combination of the beam G, with projection *m*, and the lever I, with loop *n*, for locking them together, as set forth.
3. The adjustable rod R, having its rear end bent vertically upward, and perforated, as shown, in combination with the leg *y*, beam G, spring *w*, and shield S, substantially as shown and described.
4. The combination of the leg L and serrated wrist *l*, slotted to receive the leg L, with serrated sleeve *F*, attached to the tooth or blade, and held in place by a nut on the lower end of the leg, substantially as shown and described, all constructed, arranged, and operating to facilitate the ready adjustment of the tooth to any desired angle.

187,226. VAPOR-BURNERS. E. F. Rogers, Chelsea, Mass. [Filed Dec. 26, 1876.]



1. The combination, with the open chamber D, of the cup H, substantially as and for the purpose set forth.
2. The combination of the cap H with the open chamber D, the cone F, and the adjustable button E, substantially as set forth.

187,227. BUCKLES. F. W. Schafer, London, England. [Filed Aug. 24, 1876.]

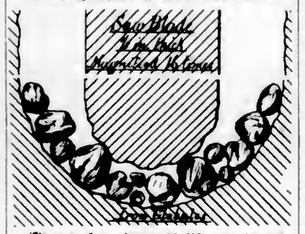
A buckle composed of a fixed plate or body, A, a hinged tongue-plate, B, and a spring-plate, E, all combined as shown and described, and for the purpose specified.

187,228. PEN-HOLDERS. D. M. Somers, New York, N. Y. [Filed July 12, 1876.]



1. A pen-holder tip consisting of a tube having one end bent inwardly to form double walls, which provide a pen-recess between them, one of which walls is solid while the other is split longitudinally to form spring-nibs, substantially as described.
2. A pen-holder tip consisting of a tube having one end bent inwardly to form double walls, which provide a pen-recess between them, one of which walls is split longitudinally to form spring-nibs, and also provided with a transverse inward projection, as 6 or 7, substantially as described.

187,229. SAWING STONE. R. A. Tilghman, Philadelphia, Pa. [Filed Dec. 20, 1876.]



The use of a mixture of different sizes of grains or globules obtained from melted iron or steel, or their alloys, in the sawing of stone, glass, pottery, and similar hard substances, in place of using grains of nearly uniform size in the same operation, as heretofore supposed to be preferable in practicing the said process patented to R. C. Tilghman.

187,230. SAWING AND GRINDING HARD SUBSTANCES. R. C. Tilghman, Philadelphia, Pa. [Filed Dec. 20, 1876.]

Brief.—Instead of alkaline water, uses an alkaline paste—*e. g.*, slaked lime, one part; iron globules, six parts—to prevent globules from rusting and sticking together. Covers the stone with and keeps the globules in the paste.

The use of solid or undissolved lime, magnesia, or other alkali, in combination with grains or globules of iron or steel or their alloys, in the cutting, sawing, boring, and grinding of stone, glass, pottery, and similar hard substances.

187,241.

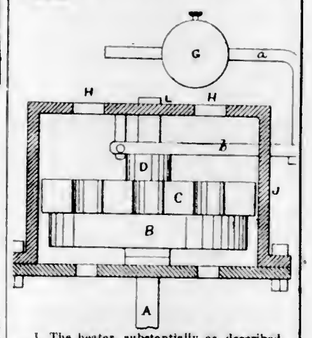


187,241. EARTH-AUGERS. Geo. Watson, Oakland, Cal. [Filed Feb. 21, 1876.]

The conical scroll-shaped blade C, having the straight edge E, curved edge D, and spiral open point F, substantially as specified.

187,242. FRICTION-HEATERS FOR CARS AND BUILDINGS. W. Wells, Boston, Mass. [Filed Jan. 19, 1877.]

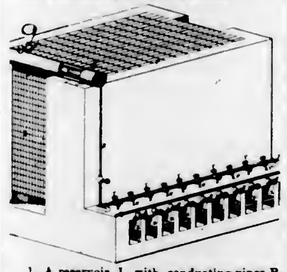
Brief.—The shaft may receive motion from an axle.



1. The heater, substantially as described, composed of the rotary disk B, its shaft A, and the stationary plate C, arranged as set forth.
2. The combination of the perforated case J, the rotary disk B, shaft A, and stationary plate C, arranged and applied substantially as shown and described.
3. The combination of the rotary disk B, and the stationary plate C, with mechanism for varying the pressure of the said plate C against the disk B, such mechanism, as described, consisting of the lever *b*, and the adjustable weight G, applied to it, as set forth.
4. The combination of the perforated case J, the rotary disk B, shaft A, stationary plate C, and the mechanism for varying the pressure of the plate C against the disk B, all being arranged, applied, and to operate substantially as set forth.

187,243. FURNACES FOR BRICK-KILNS. H. W. Adams, Jr., Philadelphia, Pa., assignor to Henry W. Adams and J. Q. A. Ziegler, same place. [Filed June 24, 1876.]

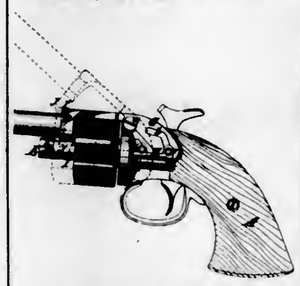
Brief.—Adapted to supply oil to a kiln-furnace, in combination with steam-blast.



1. A reservoir, I, with conducting-pipes R R' leading therefrom, and having pipes S communicating with them, with valves T, in combination with the openings U into the furnaces E, substantially in the manner and for the purposes hereinbefore shown and described.
2. The arrangement of furnaces, in combination with the devices shown, for discharging into the same gas-tar, dead-oil, or other liquid fuel, substantially in the manner and for the purposes hereinbefore shown and described.
3. The arrangement of furnaces with devices for discharging into them jets of steam or air, in combination with devices for discharging into the same furnaces jets of gas-tar, dead-oil, or any hydrocarbon or liquid fuel, substantially in the manner and for the purposes set forth.

4. The openings U into the furnaces E, in combination with the said devices for supplying them with gas-tar, dead-oil, petroleum, and other liquid fuel, for combustion in the said furnaces, substantially in the manner and for the purposes shown and described.
5. The furnaces E, in combination with the tapering flues W and Y and partition-walls X, substantially in the manner and for the purposes hereinbefore set forth.

187,244. REVOLVING FIRE-ARMS. W. G. Ayres and G. Whittaker, Brooklyn, N. Y. [Filed May 22, 1876.]



1. The combination, in a fire-arm, of a revolver-cylinder, a fixed center-pin supporting such cylinder and extending from the breech-piece, an extractor or griping-piece incapable of moving away from the breech-piece, and a barrel pivoted to the breech-piece or stock, so that it may be swung up or down, substantially as set forth.
2. The combination, with a revolver-cylinder supported on a fixed center-pin extending from the breech-piece, and an extractor or griping-piece rotating therewith, but incapable of moving away from the breech-piece, of a barrel pivoted to the breech-piece or stock, and constituting a lever for shifting the cylinder away from the said extractor or griping-piece, substantially as set forth.
3. The combination, with an extractor or griping-piece incapable of movement away from the breech-piece, and a barrel pivoted to the breech-piece or stock, so that it may be swung up or down, of a rod or lever actuated by said barrel, and a pin or slide operated by such rod or lever, and impinging against a cylinder capable of longitudinal movement, substantially as herein set forth.
4. The combination, in a fire-arm, of a revolver-cylinder, an extractor or griping-piece rotating therewith, but incapable of moving away from the breech-piece, and mechanism operating upon the extractor or griping-piece to revolve the cylinder, substantially as set forth.
5. The combination, with a revolver-cylinder, a center-pin supporting the same, and a tongue or return-piece on a barrel pivoted to the breech-piece, so that it may be swung up or down, of a bolt actuated by a spring, and forming an automatic catch for securing the barrel in position for use, and an automatic guard for preventing the cylinder from slipping off the center-pin when the barrel is out of position for use, substantially as described.
6. The combination, in a fire-arm, of the barrel C, pivoted to the breech-piece or stock, the rod G, pin or slide H, extractor or griping piece F, revolving mechanism, return-piece I, tongue J, catch and guard K, substantially as set forth.

187,245. SOAP COMPOSITIONS. J. W. Bartlett, Moline, Ill., assignor to himself and M. Witherell, same place. [Filed Nov. 4, 1876.]

A machine-soap, formed of rain-water, pulverized lime, soap-stone, carbonate of potash, chloride of lime, concentrated lye, golden machine-oil, cotton-seed oil, lard-oil, and melted lard, compounded in the proportions substantially as herein set forth and described.

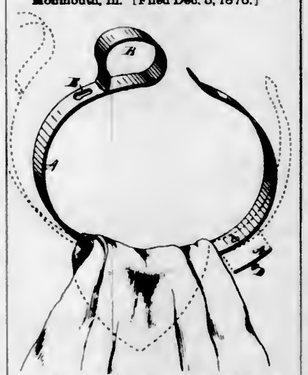
187,246. PRESSED-GLASS DOOR-BLOCKS. W. Beck, Pittsburg, Pa. [Filed July 14, 1876.]

A pressed-glass door-block consisting of pedestal *a*, platform *b*, one or more, and figure *s*, substantially as set forth, as a new article of manufacture.

187,246.

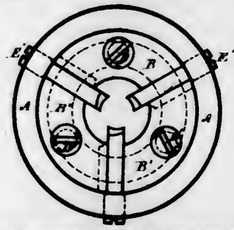


187,247. NAPKIN-HOLDERS. E. C. Bickford, Monmouth, Ill. [Filed Dec. 5, 1876.]



1. A spring napkin supporter and holder, consisting of a resilient spring supporter, A, having a ring-holder, B, formed upon one end, substantially as and for the purpose specified.
2. A spring napkin supporter and holder, consisting of a spring, A, having a slot, E, cut therein, and a stud, D, affixed thereto, substantially as described, and for the purpose specified.
3. A spring napkin supporter and holder, consisting of a spring, A, having a slot, E, cut therein, and a stud, D, affixed thereto, and a ring-holder, B, formed upon one end thereof, substantially as described, and for the purpose specified.

187,248. SCREW-CUTTING DIES. Seth W. Bishop and M. Carlyle Johnson, Hartford, Conn., assignors to the Pratt & Whitney Company, same place. [Filed Jan. 22, 1877.]



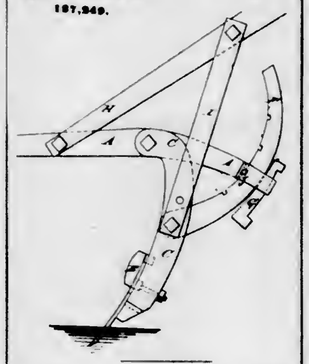
The combination of the inclined-faced cutters C with the inclined-coded segmental holding-blocks B, when arranged as described in an outer shell or chamber A, to serve as a screw-cutting die.

187,249. PLOWS. G. Black, Dadeville, Ala., assignor to himself and J. T. Moye, same place. [Filed Dec. 18, 1876.]

Brief.—All the parts of the plow pivoted to each other, and in such proportion that when the notched brace is released they may all be folded to the beam.

1. The combination, with beam A and handles H, of the standard C, curved bar F, and braces I, all pivoted and arranged to admit of adjustment, in the manner described.
2. A plow-standard, C, and handles H, both pivoted to beam A, and connected by braces I, that are pivoted to each, as shown and described, to allow the several parts to be folded together, as set forth.

187,249.

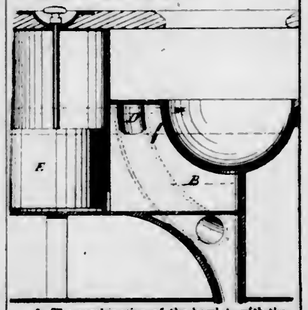


187,250. MANUFACTURE OF MALT SIRUPS OR EXTRACTS. O. F. Boomer and H. R. Randall, Brooklyn, N. Y. [Filed Oct. 4, 1876.]

1. In the manufacture of malt sirup or extract, the treatment of the grain or other starch-bearing substance, previously ground or mechanically reduced to a suitable degree of fineness with an alkaline solution, substantially as and for the purpose herein set forth.
2. The herein described process of producing commercial malt sirup or extract from starch-bearing substances by subjecting such substances to pressure in bags, cloths, or enwrapping material placed in a press, subsequent to and consequent upon the mashing of said substances, substantially as herein set forth.

187,251. WATER-CLOSETS. Jas. E. Boyle, Brooklyn, N. Y., assignor of one-half his right to G. Stevenson, New York City; said Stevenson and Boyle assignors to the New York Valve and Faucet Company, New York City. [Filed June 24, 1876.]

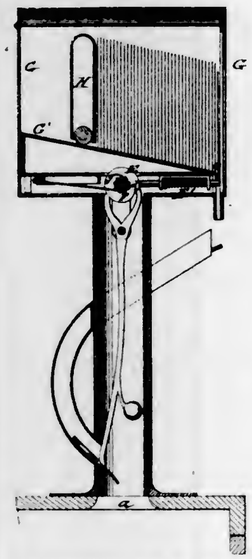
Brief.—When the plunger is raised the contents of the bowl fall into the tank beneath. The plunger being returned, the water in the tank is so increased as to overflow into the side pipe connecting with the soil-pipe, thus carrying off the fecal matter.



1. The combination of the bowl A, with the chamber B, the opening D, the plug-plunger or piston E, the opening *a'* in water-closets to form a trap, substantially as described.
2. The mode herein described of discharging the contents of a water-closet—that is, by increasing the capacity of a receptacle, communicating with the basin, and having a discharge-opening near the top, and then reducing it, so as to cause a portion of the contents to overflow through said opening, as specified.
3. The plug-plunger or piston E, or its equivalent, for the displacing of the water in the chamber or chambers of a water-closet or trap, substantially as described.

187,249. ADVERTISING DEVICES. Wm. A. Brice, London, England. [Filed Oct. 23, 1876.]

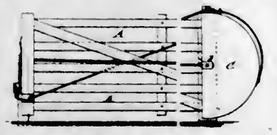
Brief.—Advertising-cards are automatically delivered to the person desiring the same, through the operation of a coin or coins, which, being dropped into a spout, in their descent into a money-box, act to tip a pendulum-lever, whereby mechanism is operated to withdraw a spring-bolt which supports one card, said card falling from the case. The cards are fed forward by a rolling follower.



1. The combination, with the card receptacle or case G, having an inclined bottom, G', and a slot, through which the cards are discharged, of the frame H, supported upon a roller, and arranged to operate in the manner shown and described.

2. The combination of conducting tube or tubes, a weighted pendulum-lever, the escapement and cam mechanism, substantially as described, actuated by spring or weight, and a sliding spring-bolt, that is withdrawn by the action of the required number of coins on the pendulum-lever, to release an advertising-card, substantially as specified.

187,248. TILTING GATES. Isaac Brokaw, Litchfield, Ill. [Filed Oct. 7, 1876.]



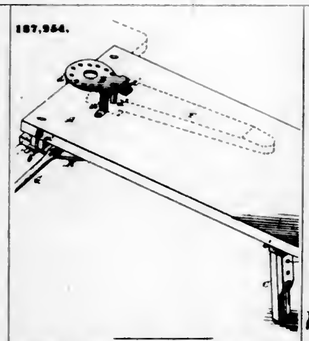
The gate A, having rear counterpoise C behind the pivot on which it swings, and a front spring-latch connected by cord *d* passing through end loop of band-spring *b* to the elevated supports E, substantially as and for the purpose specified.

187,250. IRONING-TABLES. E. H. Caylor, West Elkton, Ohio. [Filed Nov. 18, 1876.]

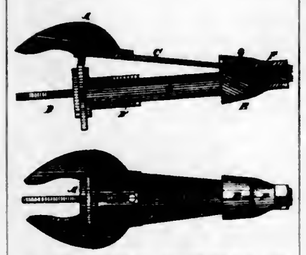
1. An ironing-board, provided with clamping device B b^1 b^2, and-iron device D d^1 d^2, shirt-board E, and sleeve-board F, all constructed and arranged as shown and described.

2. The combination of the pivoted arms G and the semicircular keeper H, with the table A, substantially as herein shown and described.

187,254.



187,255. FLUE-CLEANERS. G. W. Clough, Cleveland, Ohio, assignor to himself and W. W. Davy, same place. [Filed Apr. 24, 1876.]



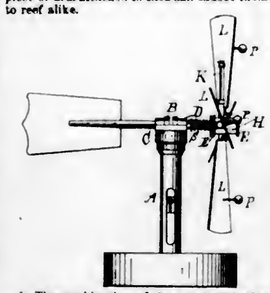
1. In a flue cleaner, the combination, with the wedge-block D and bolt D', of the nut F, recessed as described, ferrule E, and arms C, substantially as and for the purpose described.

2. In a flue cleaner, the combination, with the wedge-block D, and bolt D', rigidly secured together, of the nut F, recessed as described, ferrule E, and arms C, substantially as and for the purpose described.

3. In a flue-cleaner, the combination, with the wedge-block D, and bolt D', rigidly secured together, of the nut F, recessed as described, ferrule E, and arms C, the ends of which have tenons cut thereon to fit the dovetail grooves in the wedge-blocks, substantially as and for the purpose described.

187,256. WINDMILLS. E. A. Dana, Boston, Mass. [Filed Nov. 18, 1875.]

Brief.—The housing holds the main shaft of the wind-wheel, and also the crank. Cross-arms are affixed to the shaft for the sails, which are hung in such manner that each is free to swing on the arm as an axis. A trundle is loosely placed on the shaft and held up toward the wind by the spring. The forked piece or arm attached to each sail causes them to reef alike.

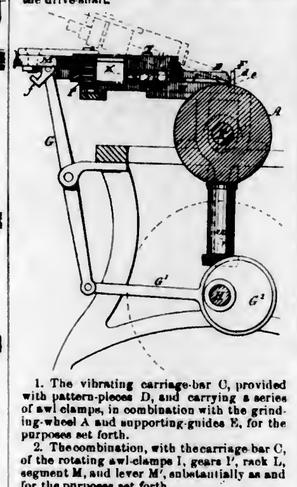


1. The combination of the sail L swinging on the arm K, with the weighted projections P affixed to the sail L, and the spring S acting through the fork N to steady and regulate the action of the weighted projection P, substantially as described, and for the purpose set forth.

2. The combination of the sails l, the arms N, and pins O, with the trundle E H E, shaft D, and spring S, all operating together substantially as described, and for the purpose set forth.

187,257. MACHINES FOR GRINDING AWL-BLANKS. Jno. G. Dimond, Oxford, Mass. [Filed June 23, 1876.]

Brief.—The several blank-holders are rotatable by pinions that mesh into a rack-bar reciprocable by a hand-lever, and are supported by a frame that is reciprocable, on pattern-ways, transversely to the axis of the grinding-cylinder, and the shaft to which the cylinder is keyed is reciprocable longitudinally by lever-connection with a cam on the end of the drive-shaft.



1. The vibrating carriage-bar C, provided with pattern-pieces D, and carrying a series of awl-clamps, in combination with the grinding-wheel A and supporting-guides E, for the purposes set forth.

2. The combination, with the carriage-bar C, of the rotating awl-clamps I, gears I', rack L, segment M, and lever M', substantially as and for the purposes set forth.

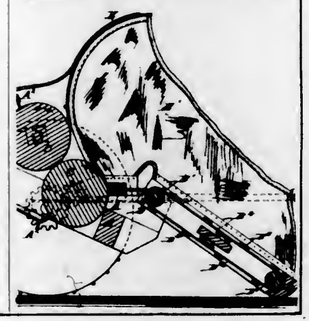
3. The combination, with the grinding-wheel A, and its supporting-frame, of the adjustable grinding-frame E *e*, pattern-pieces D *d*, lock-pieces F, carriage-bar C, and awl-clamps I, substantially as and for the purposes set forth.

4. The combination, with the awl-clamps I, rack L, and segment-gear levers M M', of the spring N and notches L, or other stop device, for indicating the adjustment of the parts, for the purpose set forth.

5. The combination, with the wheel A, carriage-bar C, and awl-clamps I, of shaft H, eccentric G^3, rod and lever G^1 G, and hook *f*, as and for the purpose set forth.

187,258. INSECT-DESTROYERS. G. B. Drum, Syracuse, Neb. [Filed Nov. 11, 1876.]

Brief.—The machine is mounted on a pair of wheels drawn by shafts placed outside the wheels. An endless apron revolves in front of and between the wheels, and at the rear end of this endless apron is mounted a pair of rollers, between which the insects are crushed as the machine is drawn over the ground.

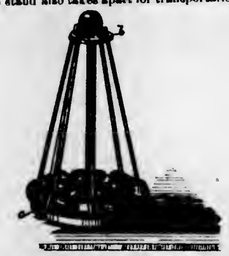


1. The combination, with a wheeled vehicle, of the hinged frames A B, the former provided with brush, A^1, spring-connected scrapers A^2, and spring-connected rolls C, and the latter with rolls B^1 and endless apron B^2, having the strips B^3, the winged top E E' being arranged thereover, as and for the purpose specified.

2. The shafts D of an insect-destroyer, connected with the extension-ends of the journals of axle, substantially as and for the purpose described.

187,259. CROQUET-STANDS. A. Brisbach, Boston, Mass. [Filed Jan. 25, 1877.]

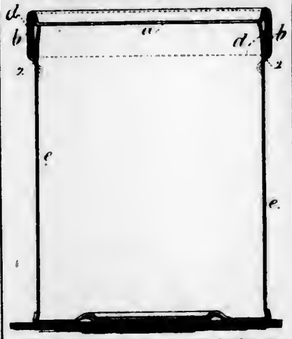
Brief.—The stand holds a set of mallets and balls in a compact and symmetrical form, for advertising and exhibitional purposes, or, after sale, for orderly and convenient stacking. The stand also takes apart for transportation.



A holder for croquet mallets and balls composed of the perforated disk *b*, the upright standard *a*, and the lower disk *c*, having annular grooves *f* and *g*, said parts being combined and arranged substantially as and for the purpose set forth.

187,260. SHEET-METAL CANS. J. S. Field, Brooklyn, N. Y. [Filed Jan. 2, 1877.]

Brief.—The cover holds in its groove the joint-breaking band, and also rests upon the yielding portion of the can-body. The groove (in outline) merely strengthens the can-body.



The cover of a sheet-metal can, having an annular rib at the junction of the rim *b* with the flat portion *a*, in combination with the metal band *d* within the rim, and extending into the circular rib, and the body *c*, against which the flat portion *a* of the cover rests, (with or without a packing,) and the rim being united to the body by a soldered joint at 2, substantially as set forth.

187,261. PIPE-ORGANS. Carl Fogelberg, Boston, Mass. [Filed Sept. 6, 1876.]

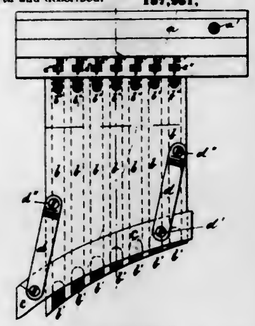
1. In combination with the organ-pipes *b b b*, having the openings $b' b' b'$, herein described, the movable slide *e* and its hinged connections, $d d' d''$, substantially as and for the purpose set forth.

2. In combination with the wind-chest *c*, having passages *f f*, and the pipes *b b b*, the conical valve *e*, substantially as and for the purpose set forth.

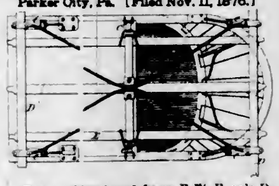
3. The herein-described regulator, consisting of the voice-chamber *g*, channel or recess *g'*, cover *h*, regulating-screw *i*, and block or valve *h*, as and for the purpose set forth.

4. In combination with the pipes *b b*, having orifices $b' b''$, the voice-chamber *g*, its channels $g' g'$, with their arched openings *l l*, in the manner and for the purpose as herein set forth and described.

187,261.



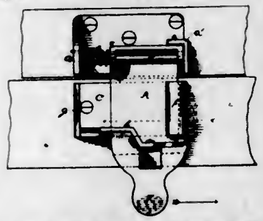
187,262. VEHICLE-SPRINGS. L. A. Fogg, Parker City, Pa. [Filed Nov. 11, 1876.]



The combination of frame E E', F, axle D, and rocker D', with the springs C and median brackets connected by links C', to support a vehicle-body as shown and described.

187,263. FASTENERS FOR THE MEETING-RAILS OF SASHES. M. Foster, Pittsburg, Pa. [Filed Aug. 4, 1876.]

Brief.—A hinged bar on suitable base-plate is attached to the meeting-rail of one sash, and, when drawn down, interlocks with a suitable hook on base-plate attached to meeting-rail of the other sash. A spring is so arranged as to have both torsional and pushing action, pushing the hinged bar under the locking-hook, and also serving to raise it when unlocked, the hinged bar having both vertical and lateral movement; and there is also a pivoted pawl engaging with a suitable lug, for automatically locking the device.



1. The hinged locking-bar A, having both vertical and lateral movement, in combination with a stop *a* or hook *f* for engaging it in a locked position, substantially as described.

2. The combination of the locking-bar A, having vertical and lateral movement, the spring *d*, having a torsional and a pushing-action, and the stop *a* or hook *f*, substantially as and for the purpose described.

3. The combination of the pivoted-pawl h, the locking-bar A, and the lug *g*, for automatically locking the device, substantially as and for the purpose described.

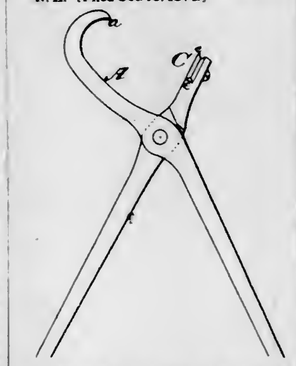
187,264. SCHOOL-DESKS. Henry R. Fry, Marion, Ind. [Filed Jan. 26, 1876.]

A wooden standard for school-desks formed of two portions, one of which is sawed and the other bent into the proper shape, and the two united, substantially as and for the purpose described.

187,264.



187,264. PIPE-TONGS. A. B. Gay, Nashua, N. H. [Filed Oct. 10, 1874.]

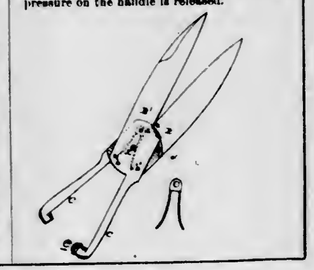


1. The block C, provided with angular recesses *c* and female screw-thread *d*, substantially as and for the purpose set forth.

2. The perforated block C, provided with angular recesses *c* and female screw-thread *d*, in combination with recessed jaw B and curved grasping-arm A, provided with biting-point *a*, substantially as and for the purpose set forth.

187,266. SHEEP-SHEARS. Wm. George, Modesto, Cal. [Filed Aug. 3, 1876.]

Brief.—One blade of a pair of sheep-shears has its shank formed with a curved bevel-edge, which engages with a correspondingly-curved slotted recess on shank of the other blade, the construction being such as to leave a tongue-and-groove chamber or recess. A suitable spring working on pins is interposed or chambered in this recess, and serves to throw the blades automatically open when pressure on the handle is released.

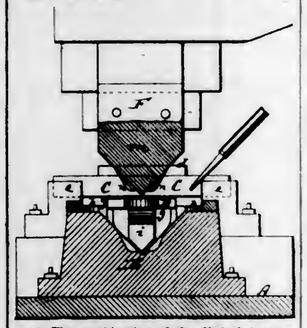


1. In a pair of sheep-shears, the combination, with the curved bevel edge *c* on the shank of one of the blades, of the curved slot or recess *d* on the shank of the other blade, operating substantially in the manner set forth.

2. In a pair of sheep-shears, the combination, with the blades B B′, having the curved slot or recess *d* and the curved bevel edge *e*, of the chambered spring *a*, working on pins *b b′*, all constructed, arranged, and operating substantially as described and shown, for the purpose specified.

187,267. MACHINES FOR MAKING TRUNK CORNER-CLAMPS. W. B. Gould, Montrose, and N. Felck, Newark, N. J., assignors to said Gould. [Filed Jan. 10, 1877.]

Brief.—The vertically-reciprocating plunger carries the punches, cutter, and bender. A longitudinally-reciprocating slide pushes the cut blank along rails disposed beneath the cutting-die until it is properly positioned under the bender. The slide is provided with a downwardly-projecting piece or hook, which ejects the bent blank from the die. A blast of air is directed through a blow-pipe upon the die, and serves to clear the same of scale and other refuse.

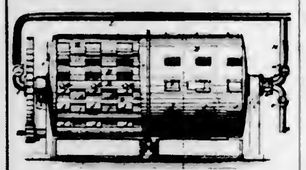


1. The combination of the die-bed A, provided with the die-plate C, perforated as described, and the V-shaped die E, with the plunger F, provided with cutter *i*, pins *j*, and punch *m*, substantially as described.

2. The plate C, made with the holes *b* and perforation *a*, and with the rib *d*, in combination with the pusher-plate D and rails *h*, substantially as specified.

3. The pusher-piece *i*, placed on the blank-pusher D, to operate in combination with the die E, substantially as herein shown and described.

187,268. GRAIN-DRIERS. Jose Guardiola, Chocola, Guatemala. [Filed Jan. 8, 1877.]



1. The cylinder B, tubular shaft D, radial partitions E, plates *d d a*, having formed upon them the wings *f*, all constructed and arranged substantially as herein shown and described.

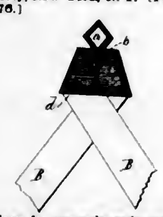
2. The cylinder B, having the tubular shaft D and gauze-covered apertures J, the radial perforated pipes G, partitions E, and the plates *d d a*, having wings, in combination, substantially as herein shown and described.

3. The combination, in a grain-drier, of the conduit *a′*, blast-gates or valves *a″ a‴*, pipe W, blast-gate *a′*, tubular shaft D, and cylinder B, substantially as herein shown and described.

4. The combination of the pipe L, having conduit *e* and blast-gate *e′*, the pipe M, conduit *a′*, and blast-gates *a″ a‴*, with the tubular shaft D, cylinder B, and a suitable air-heater, substantially as herein shown and described.

5. The pivoted and counter-weighted thermometer *f*, in combination with the revolving drying-cylinder B, substantially as herein shown and described.

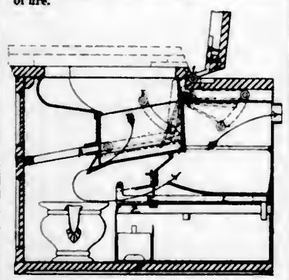
187,269. CLASPS FOR SUSPENDERS. G. B. Gurley, New York, N. Y. [Filed Nov. 9, 1876.]



A clasp for suspender-ends, composed of a flat blank of metal, A, having wings *c* and *d*, and tail-piece *b* carrying hook or eye *a*, and adapted to be applied to a single piece of webbing, B, substantially in the manner and for the purposes as herein shown and set forth.

187,270. DEODORIZING FUMIGATORY CLOSETS. A. Hanel, Berlin, Germany. [Filed Nov. 22, 1876.]

Brief.—When the seat-cover is put down the scraper moves to the rear of the basin, carrying the excrement into the fire-chamber, where it is dried and deodorized by the action of fire.



1. The combination, in a deodorizing closet or commode, of an excrement-receiver, a sliding scraper, a hinged valve, a fire-chamber, a hinged seat-cover, and mechanism, substantially as described, for connecting the seat-cover with the scraper and valve, as and for the object stated.

2. The combination of the hinged seat-cover, having elbow levers and studs, with the pivoted and armed valve and the excrement receiver or basin, substantially as and for the purpose set forth.

3. The combination of the longitudinal sliding rods and the cross rod with the sliding scraper, excrement-receiver, and the hinged seat-cover, having elbow levers or projecting hinge-arms, as and for the purpose specified.

4. In a deodorizing closet, the combination of the independent fire chamber or box, sliding grate, ash-box, and lamp, with the external casing or closet, and a basin for receiving the excrements preparatory to their delivery into the fire-chamber, as and for the purpose set forth.

187,271. STANDS OR REELS FOR ROPES OR CORDAGE. D. M. Haight, Oswego, Ill. [Filed Jan. 8, 1877.]

Brief.—On the standard is placed any number of wheels or spools, for the purpose of holding rope, cordage, or other analogous material, and said wheels or spools are provided with detachable barrels, which fit over their hubs, and also with detachable collars, which not only serve to hold in place the wheels or spools, but also serve as bearings for said barrels.

1. The combination, with a series of independent reels, of a support for holding the same, provided with a detachable section or sections, substantially as described.

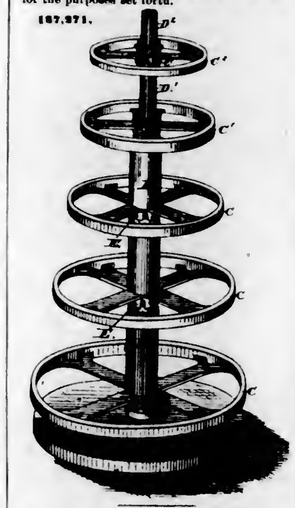
2. A reel for rope, cordage, and other analogous material, consisting of a wheel or spool provided with a detachable hub, substantially as described.

3. The combination, with the wheels or spools C, of the sheet-metal detachable hubs D, as and for the purposes set forth.

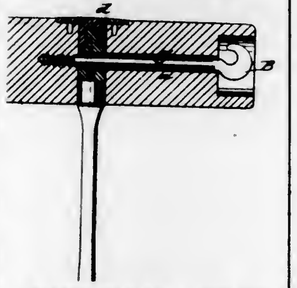
4. In combination with the upright support B and series of reels or spools C, provided with the detachable hubs D, the adjustable collars E, arranged substantially as described, whereby they serve not only as supports for the reels, but also as bearings for the upper end of the detachable hubs, substantially as specified.

5. The combination, with the upright support B, wheels C′ and C², of sleeve D², as and for the purposes set forth.

187,272.

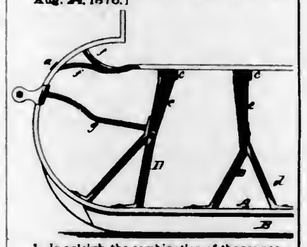


187,273. BALE-HOOKS. Henry Hauschildt, New York, N. Y. [Filed Jan. 13, 1877.]



The combination of hook A, having screw at the upper end and cross slot below the screw, the headed nut *d*, the long bolt C, having end-screw, and the handle B, perforated longitudinally as well as transversely, all as shown and described.

187,274. SLEIGHS AND SHOES. Darius J. Hendrickson, West Meredith, N. Y. [Filed Aug. 24, 1876.]

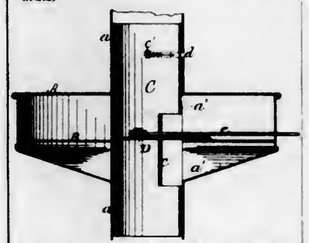


1. In a sleigh, the combination of the runner, shoe, and a packing of suitable flexible or elastic material interposed between the runner and shoe, substantially as and for the purpose set forth.

2. The frame, consisting of the cross-beams *c*, fenders E, having bifurcated ends *f f*, and the braces D, rods *d e g*, runner A, shoe B, with packing C, constructed and arranged as specified.

187,274. STOVE-PIPE SHELVES. Wm. L. Hess, Belle Plaine, Iowa. [Filed Jan. 25, 1877.]

Brief.—By turning the inner pipe the products of combustion are shut off from the drum.

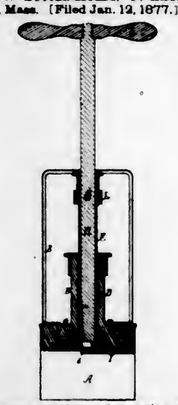


1. The drum or cylinder A, provided with the central pipe *a*, having a perforated diaphragm or plate, B, upon its external circumference and a lateral opening, *a′*, in combination with, and through which, the damper D, enters the pipe *a*, to disseminate the heat, substantially as set forth.

2. The drum or cylinder A, having the perforated or open pipe *a*, in combination with the movable open pipe C, substantially as and for the purpose set forth.

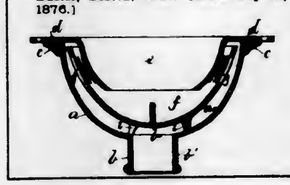
3. The drum or cylinder A, having the open central pipe *a*, in combination with the movable, open pipe C, having a rod, *c′*, passing through a slot, *d*, in pipe *a*, and damper D, having a rod, *e*, substantially as and for the purpose set forth.

187,275. BUTTER-MOLDS. F. Hirst, Pittsfield, Mass. [Filed Jan. 12, 1877.]



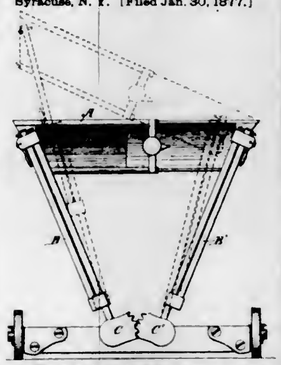
The butter molding and stamping machine, substantially as described, composed of the open mold A, handle B, stamp C, tubular handle D, slotted tube E, collar L, head F, rod H, and arm or knife I, all arranged and applied essentially in manner and to operate as and for the purposes as explained.

187,276. SINK GUARDS AND COVERS. A. S. Hodges, Hyde Park, assignor to Jos. A. Bubier, Boston, Mass. [Filed July 24, 1876.]



The herein-described improved sink-guard and strainer combined, consisting of the receptacle *a*, with its annular groove *c*, and outlet *b*, the central conveyer *e*, with its annular projection *d*, and the strainer *f*, provided with the perforations *g g g*, substantially as and for the purpose set forth.

187,277. BAG-HOLDERS. B. J. C. Howe, Syracuse, N. Y. [Filed Jan. 30, 1877.]



1. The combination of the hopper A, posts B B′, segments C C′, with the platform H resting upon wheels, as shown and described.

2. The combination of segments C C′, with posts B B′, of an extensible bag-holding hopper, substantially as described.

187,278. TYPE-MACHINES. A. M. Howard, Ilion, N. Y. [Filed Dec. 2, 1876.]

Brief.—Produces steel and other hard-metal type by means of pressure applied alternately in opposite directions. The dies are held in a clamp-wheel, which, by means of a rack and pinion, is partially or wholly rotated while pressed against straight or curved blanks. A reciprocative motion is given the die-clamp wheel by means of a slide which supports it on a disk. This disk may be partially rotated, thus giving an oscillatory motion to the die-clamp wheel and its arbor. Clamps of novel construction are used for straight and for curved blanks. Means of adjustment are provided, to determine the length of the stroke of the slide, the oscillation of the disk, and the spacing and the depth of the impressions on the blanks. The dies may be set in the face of the cogs of the pinion, and the blanks in the meshes of the rack. The reciprocation of the slide and oscillation of clamp-wheel are alternately effected.

1. The combination, in one machine, of a separate holder for type metal of curved form, and a separate holder for type metal of a straight form, the reproducing type-wheel and suitable gearing and connections for operating said wheel in connection with each of the said type-holders, as occasion requires, substantially as and for the purpose set forth.

2. The reciprocating slide B, in combination with an oscillating clamp type-wheel, E, and a stationary type-clamp, H H¹, substantially as set forth.

3. The combination of an oscillating clamp type-wheel, E, having an arbor, D², which is on an oscillating support, and a stationary clamp for a type-blank, Y¹, substantially as set forth.

4. The slide B, in combination with the slotted head L, and slide L², having screws L³ L⁴, substantially as set forth.

5. The combination of a type-metal clamp, type-wheel slide B, lever K, connecting-rod K¹, and the transversely-grooved crank-wheel M, substantially as set forth.

6. The slide B, in combination with the disk C, bevel-wheel C², slide D, feed-screw C³, and type-wheel K, substantially as set forth.

7. The type-rack H H¹, in combination with the set-screws *f f′*, substantially as set forth.

8. The combination of the type-rack H H¹, and the clamp G G¹, substantially as set forth.

9. The clamp G G¹, having a recess, G², a transverse slot, *p*, and springs *p′*, substantially as set forth.

10. The type-rack, consisting of linings H H¹, having face-plates *h*, of hardened metal, and steady-pins *h′*, substantially as set forth.

11. The disk C, having a wheel, C¹, in combination with the shaft O, having a wheel, O¹, and a lever-arm, N², the connecting-rod N³, and the eccentric N⁴, substantially as set forth.

12. The combination of the type-wheel, the slide B, the shaft M¹, and intermediate actuating mechanism, substantially as set forth.

13. The combination of the type-wheel, the wheel-arbor support C, wheel C¹, shaft M¹, and intermediate actuating mechanism, substantially as set forth.

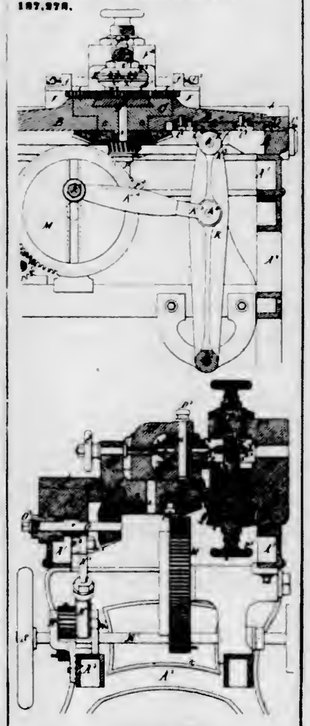
14. The combination of the screws P P¹, the clamp-wheel R, the revolving tubular nut I⁸, the worm-wheel Q, and screw Q¹, substantially as set forth.

15. The combination of the disk B¹, having a shank, *r*, the disk B², having a shank, *r¹*, and pins *r² r²*, and the revolving screw P¹, substantially as set forth.

16. The combination of the clamp G G¹, having a recess, G², the linings H H¹, and the adjusting set-screws *f f′*, substantially as and for the purpose set forth.

17. The combination of sliding shaft O, bevel-wheel O¹, the set-screw O², bevel-wheel C³, and type-wheel-arbor support C, substantially as and for the purpose set forth.

187,279.

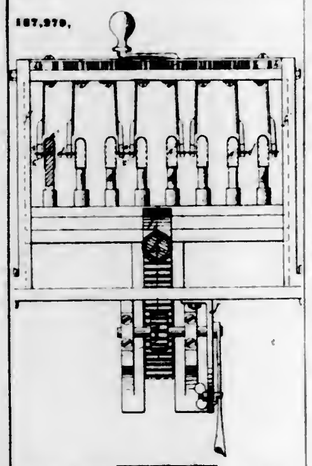


187,280. MACHINES FOR CUTTING OFF GELATINE CAPSULES. F. A. Hubel, Detroit, Mich. [Filed Apr. 17, 1876.]

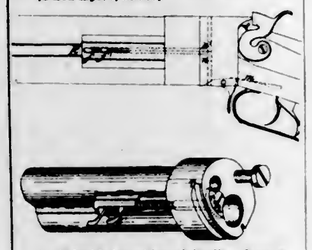
Brief.—A series of cog-wheels, operated by a crank, has a series of pendent spring-arms, which carry rotating cutting-disks. By a movement of the crank the disks are carried around the closed tube which forms the capsule, thus evenly cutting off all at a determined point.

The machine for cutting the capsule off at a required and uniform length after the mold is dipped into the gelatine, and while the capsule is still on the mold, and preparatory to its being removed therefrom, as herein before described, and consisting of the circular knives, working in connection with the springs, screws, cog-wheels, crank, platform, slide, lever, and cylinder, as described herein.

187,879.



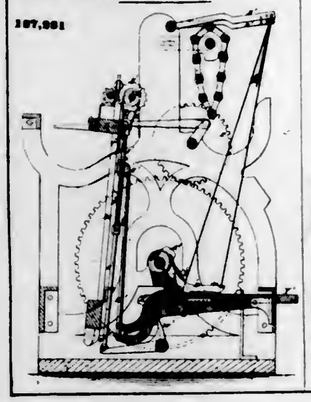
187,880. BREECH-LOADING FIRE-ARMS. A. J. Hudson, Syracuse, N. Y., assignor of one-third his right to A. H. Gillett, and one-third to James A. Riker, same place. [Filed Apr. 1, 1876.]



1. A double-barrel breech-loading fire-arm, in which the barrels are arranged one above the other in the same vertical plane, the barrels and breech being secured together by a groove and projection coupling at *r*, and a pin, *s*, arranged on one side, which pin serves as the axis of rotation upon which the barrels turn to open the breech, by which both barrels are adapted to be opened at one operation, substantially as described.

2. In the breech-loading double-barrel fire-arm in which the barrels are arranged one above the other, the two extractors *a a'*, with stems projecting laterally from one side, and arranged and adapted to be operated separately or together, as described.

187,881



187,881. SHUTTLE-BOX LOOMS. J. Hyde, Stottville, N. Y. [Filed Dec. 4, 1876.]

Brief.—The invention relates to a class of revolving shuttle-boxes, and consists in the combinations of devices set forth in the claims. The shuttle-boxes revolve through a half-revolution, forward or backward, as determined by the pattern-chain. A hinged lever shifts the cam from one heddle to the other. The locking device is also under the control of a pattern.

1. The combination of the hinged cam-mover D, the sliding cam F', the crooked levers G', the rods H' I', the spiral springs J', the flexible straps L', the shaft M', and the gear-wheels N' O' with the chain-levers B', the driving-shaft B, and the semi-revolving shuttle-box P', substantially as herein shown and described.

2. The combination of the lock-lever T', the rod U', the spiral spring V', the compound lever W' X', the sliding bar Y', and the cam A' with the driving shaft B, the semi-revolving shuttle-box P', and the chain-lever B', substantially as herein shown and described.

187,882. REVERSE-POWER CAPSTANS. T. W. Hyde, Bath, Me. [Filed June 19, 1876.]

The combination of the head *a*, having the pivoted pawls *f*, with the barrel *b*, slotted sleeve *e*, disk *g*, keys *h*, and tooth-plate *k*, the said keys, when the head is revolved in one direction, and when the barrel *b* and sleeve *e* are in revolution, sliding up over the teeth *j*, as herein described, so that the barrel *b* may revolve in the same direction with the head *a*, the said keys being so arranged as also to be capable, when the head is revolved in the other direction, of coming in contact with the vertical edges of the teeth *j*, and producing revolution of the gears *l m a o*, placed in the bottom of the capstan, and the revolution of the barrel, as described.

187,883. EXCAVATING APPARATUS. A. W. Johnson, New Haven, Conn., assignor of one-half his right to John Matthewman, same place. [Filed Aug. 24, 1876.]

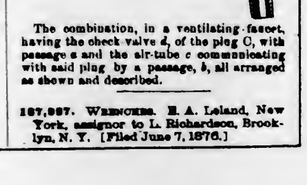
Brief.—A flexible, expansible, air-tight holder is secured to top of the tank, for receiving and holding noxious gases rising from the contents of the tank.

1. The combination with a tank for containing noxious matter of a contractile and expansible stench-reservoir, substantially as and for the purpose described.

2. The combination of a tank for containing noxious matter, a contractile and expansible stench-reservoir, and communicating passages or openings, substantially as and for the purpose described.

3. The combination of a tank for containing noxious matter, and a contractile and expansible stench-reservoir, secured permanently and directly together, substantially as shown and described.

187,884. BALE-TIES. G. F. Jones, Scranton, Pa., assignor of one-half of his right to C. P. Jones, same place; said G. F. and C. P. Jones assignors to themselves, H. A. Kingsbury, and E. P. Kingsbury, same place. [Filed Dec. 6, 1876.]



1. A bale-tie provided with a bent looped hook, *b*, and with a tongue, *x*, extending through the loop of the hook, and securing the latter, as set forth.

2. A bale-tie made of wire doubled at one end, bent to form a looped hook, and twisted round itself, and bent upward into a tongue, *x*, adapted to the said hook, all as set forth.

187,885. CHURNS. G. W. Knapp, Arbuckle, W. Va. [Filed Sept. 30, 1876.]

The combination of the rod F, hinged frames M, rollers L, catch N, spring O, and cross-bar of the frame A, substantially as herein set forth.

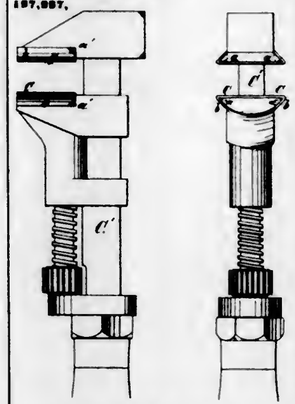
187,886. VENTILATING-FAUCETS. Ole H. Larson, Fort Dodge, Iowa. [Filed Dec. 18, 1876.]

The combination, in a ventilating-faucet, having the check valve *d*, of the plug C, with passage *c* and the air-tube *e* communicating with said plug by a passage, *b*, all arranged as shown and described.

187,887. WRENCHES. H. A. Leland, New York, assignor to L. Richardson, Brooklyn, N. Y. [Filed June 7, 1876.]

Brief.—The soft-metal plate is bent over side flanges of the jaws, and over the rear shoulders of the flanges.

187,887.

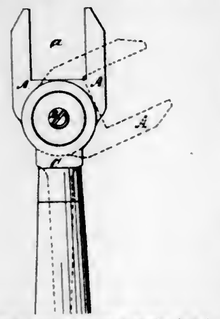


1. A wrench, having the lateral ribs *c*, provided upon its jaws in combination with the soft metal plate C, substantially as and for the purpose herein set forth.

2. The shoulders *a'*, provided on the rib *c*, in combination with the stem C' and the soft metal plates C, whereby provision is made for the retention of said plates upon the jaws of the wrench, substantially as described.

187,888. RATCHET-WRENCHES. E. A. Leland, New York, assignor to L. Richardson, Brooklyn, N. Y. [Filed Sept. 26, 1876.]

Brief.—The ratchet-teeth are held in engagement by the expanding force of a rubber washer.



The ratchet-wrench comprising the jaw A, having the annular system of ratchet-teeth *b*, the handle or lever C, having the disk A' formed with the system of ratchet-teeth *c*, the pivot B, and the spring D, all arranged for use and operation, substantially in the manner set forth, for the purpose specified.

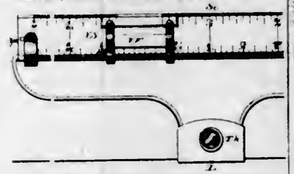
187,889. EXTENSIBLE SHAWL-STRAP BARS. L. Lewine, Brooklyn, N. Y. [Filed Jan. 6, 1877.]



1. An extensible and contractible shawl-strap bar, consisting of bars or plates adapted to slide upon each other, substantially as herein set forth.

2. The combination of the bar A, having T-grooves upon its lower side, and provided with stop-pins *a'*, with the rabbeted end parts B, provided with longitudinal grooves *b'*, and the ordinary holding-straps C, substantially as and for the purpose set forth.

187,890. DRAFTING-SCALES. J. Lyman, Lenox, Mass. [Filed Mar. 30, 1876.]

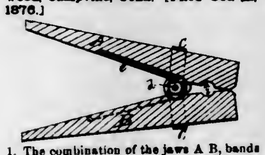


1. The flat scale-plate, constructed as set forth; in which scale-plate each of the two longitudinal edges is double beveled to a definite angle, viz, of about sixty degrees, and in which the four faces produced by such beveling have each the same inclination of about thirty degrees to their adjacent and corresponding flat surfaces.

2. A frame or mounting for this scale-plate, as shown, consisting of base, posts, (beveled to the same angle as the bevels of the plate,) and sliding spring; the posts holding the plate in uniform inclination to the paper, and the spring holding the whole in firm contact with the trigonometer or T arm.

3. The combination, as described, of double verniers (suited to the several scales) with their frame and tri-acting spring.

187,891. CLOTHES-PINS. Wm. N. Lookwood, Campville, Conn. [Filed Oct. 12, 1876.]



1. The combination of the jaws A B, bands C C, pin *d*, and spring D, constructed and operating substantially in the manner described and specified.

2. A clothes-pin in which the jaws are hinged together by the pin-joint, of flat metallic strips secured on their sides, substantially in the manner described and specified.

187,892. WOOD-GRINDERS FOR PAPER-PULP. G. H. Mallary, Newark, N. J., assignor to G. W. Miller, New York City. [Filed May 20, 1876.]

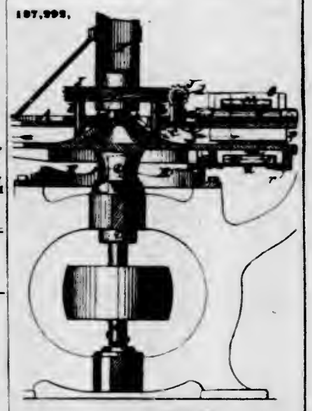
Brief.—The block of wood is fed to the scraping-blade on the revolving disk through an opening in the top of the table, and is held in position to the blades by means of a feeding device surrounding the upper side of the opening, so that as the disk revolves the blade will scrape the wood in the direction of its grain. The blade is kept clean by a stripper, which is operated by a spring that holds the surface of the stripper on a level with that of the disk, and the stripper is caused to rise at intervals by means of a toe or cam. The spring and toe are fastened to the under side of the disk, and the cam to the frame of the table below the disk. The disk itself is cleaned by a conical air distributer placed on the center of the disk, the air being introduced to it by a pipe fastened to and passing through the center of the table, so as to inclose a part of the cone. When the air strikes the cone it spreads out and blows the fiber off the table.

1. The rotating threaded plate or ring I, in combination with the wheels J, the screws *d*, the wheels *s*, the feed-rolls K, and the table or stationary frame A, essentially as described.

2. The combination, with the strippers S, of the arms or cranks *r*, the rock-shafts *u*, the springs *n*, the fixed cam R, the toe *s*, and the toothed scrapers D of the carrier E, substantially as specified.

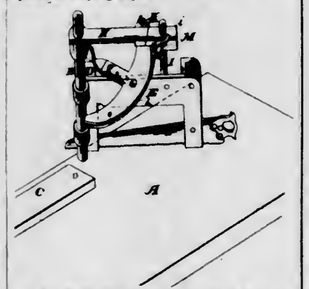
3. The combination, with the table or frame A and rotating disk E, of the central conical air-distributer U and pipe T, arranged and operating to blow out or discharge the reduced or separated fibers from between said table and said disk, essentially as described.

187,893.



187,893. MITRE-BOXES. Henry L. McClain, Avon, Ohio. [Filed Sept. 12, 1876.]

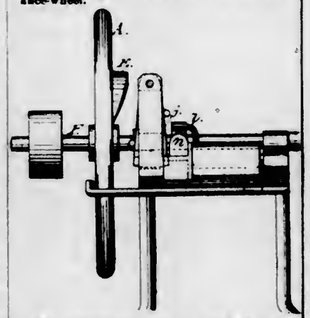
Brief.—For the purpose of operating upon material of any desired width or thickness the saw-guides of a miter-box are made laterally and vertically adjustable. The guide is caused to bear equally upon both ends of the back of the saw by making the slots in the guide-posts of varying depth.



In a miter-box, the vertically-movable saw-guides D D', guide-rod I, and upright post B, in combination with the adjusting-arm H, flanged guide-bar G, and retaining-spring M, substantially as and for the purpose set forth.

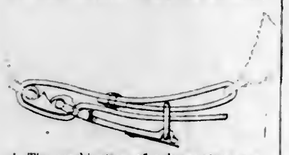
187,894. MACHINES FOR HEADING BOLTS. G. R. Moore, Philadelphia, Pa. [Filed Aug. 7, 1874.]

Brief.—The rod is clamped between the usual dies, and its end is upset by a swinging heading-tool, operated by a cam on the balance-wheel.



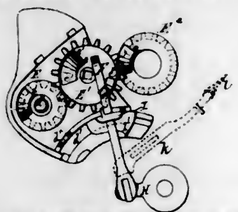
The combination, with the shaft F, provided with the cam H, of the clamping-dies *i*, swinging heading-tool *j*, and balance-wheel A, carrying cam E, substantially as herein shown and described.

187,288. HAME-FASTENERS. J. C. Moore, Chicago, Ill., assignor to himself and J. A. Doran, same place. [Filed Dec. 18, 1876.]



1. The combination of a hame-strap, connecting the hame-sections, with an eccentric cam, swinging lever, and lever-locking link, substantially as and for the purpose set forth.
2. The combination of a hame-strap, passing through the staples of the hame-section, with an eccentric cam-piece, hung to one hame-section, a binding lever, swinging in the eye of the cam, and with a locking-link, retaining the lever, substantially as set forth.
3. The combination of the lever-locking link, running in a guide-loop of the hame-strap, with the grooved or bent end of the lever, having a retaining guard-spring, substantially as specified.
4. The binding-lever, having a ridge or raised seat at the upper side near the connecting staple or loop, for the purposes substantially as set forth.

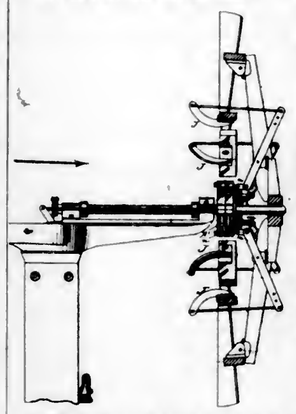
187,296. HARVESTER-RAKES. J. H. Myers, Rochester, N. Y. [Filed May 20, 1876.]



1. In an automatic rake-trip, two or more differential tripping-gears, having a fixed relation, substantially as described.
2. The gear-wheel E^2, for driving the differential tripping-pinions, provided with the tripping spur or incline *e* on its side, and mounted upon and driven by the rake-shaft, for the purpose described.
3. The secondary spur-wheel E^1, provided with two or more tripping spurs or inclines, for varying the size of the gavel.
4. The reciprocating trip-latch, in combination with the cam-gate and retaining-lever *k*.
5. The adjustable trip-guide standard I, made separate from and independent of the studs or posts upon which the tripping-gears rotate.
6. The combination of two or more differential tripping-gears, having a fixed relation, and the swinging adjustable trip-latch, substantially as described.
7. The swivel-pin *h*, to which the swinging trip-latch is attached, provided with a head or shoulder on its end, substantially as and for the purpose described.
8. The post *j*, or its equivalent, for holding the latch front of action.
9. The adjustable trip-latch and the series of two or more permanent differential tripping-gears, arranged within the vertical plane of the circle traversed by the rollers of a harvester-rake, substantially as described.
10. The combination, with an automatic differential-gear trip, of a trip, controlled by the attendant for enabling him to deliver a gavel instantly, at will, by the first approaching rake-arm after sufficient grain has accumulated to form a gavel.
11. The combination, with the cam-gate of a harvester, of an automatic differential-gear trip, and of a supplemental trip, operated by the driver for controlling the action of the rake-arms without stopping the rotation of the automatic tripping-gears.
12. An automatic differential-gear trip having its entire mechanical parts in adjustment, obviating the necessity for any increase, diminution, or interchange of parts, in combination with a harvester-rake having three or more rakes, any one or all of which may be made to rake off the gavel or to reel only, at the will of the operator.

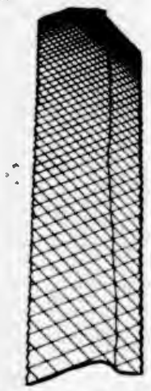
187,297. WINDMILLS. Wm. D. Nichols, Batavia, Ill. [Filed Jan. 22, 1877.]

Brief.—The wheel has no tail-vane, and is kept facing the wind by the action of the current upon the wheel itself, so that the direction of the wind, when the wheel is in position, will be that indicated by the arrow upon the drawing; consequently the face of the wheel is always turned toward the tower instead of away from it, as is the case with wind-wheels provided with tail-vanes.



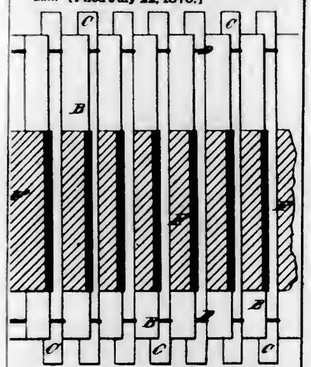
1. The pivoted rosette sail having the lever J, to which the handling apparatus is connected, applied to the head-bar upon the side of the sail which, when the sail is swung out of the wind, is farthest from the center of the wind-wheel, substantially as specified, so that the weight of the said levers shall serve as a governor-weight.
2. The combination, with the wind-wheel shaft and its lever system, of the sliding disk N′, provided with friction-rollers *n* a projecting beyond both faces of the disk, and the inclosing two-part shell, substantially as specified.
3. The sliding disk provided with radially-arranged conical rollers projecting beyond both faces of the disk, in combination with the two-part shell made with beveled bearings, whereby the shell is supported upon the rollers, substantially as specified, and an accurate adjustment permitted.

187,298. FILES. W. T. Nicholson, Providence, R. I., assignor to Nicholson File Company, same place. [Filed Mar. 25, 1876.]



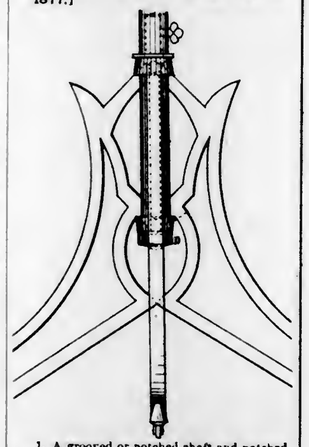
A file whose rows of teeth, from tip to heel, are spaced generally upon the principle of being relatively farther apart from the tip toward the middle, and relatively nearer together from near the middle toward the heel, or progressively farther apart from the tip toward the heel, but in which the above-described characteristic spacing is modified by an uncertain increment or decrement of spacing within fixed limits of variation, sufficient to prevent any absolute uniformity of arrangement of the teeth.

187,299. PLATTING-MACHINES. E. Nickerson and Jas. K. Blanchard, Lynn, Mass.; said Blanchard assignor to said Nickerson. [Filed July 22, 1876.]



A platting device consisting of the combination of sheet A, ribs B, slats C, and cords D, substantially as and for the purpose set forth.

187,300. IRON TABLE-STANDS. G. R. Osborn, East Orange, N. J., and B. A. Drayton, New York, N. Y. [Filed Jan. 12, 1877.]



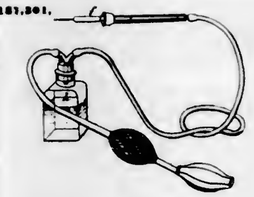
1. A grooved or notched shaft and notched undercut bands and nut, in combination with the separate feet, with projecting points inserted and secured between said bands, substantially as and for the purposes shown and described.
2. The locking device shown, consisting of the combination of the undercut notched bands and shaft, adapted to engage with the projecting points on the feet, the whole secured by the nut, substantially as shown and described.

187,301. CAUTERIZING APPARATUS. C. A. Paquelin, Paris, France. [Filed Aug. 22, 1876.]

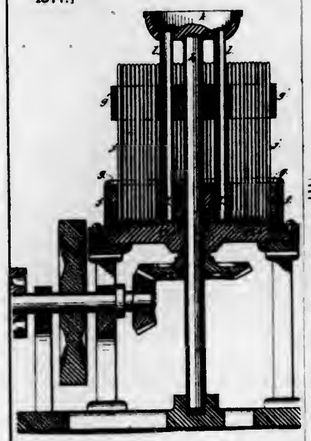
Brief.—The combustion of hydrocarbon is used to heat a cauterizing-iron of tubular form, and both ends of the combustion-tube terminate within an outer sheath.

The combination of the combustion-tube *a* with the sheath *f*, within which both ends of said tube terminate, substantially as herein shown and described.

187,301.

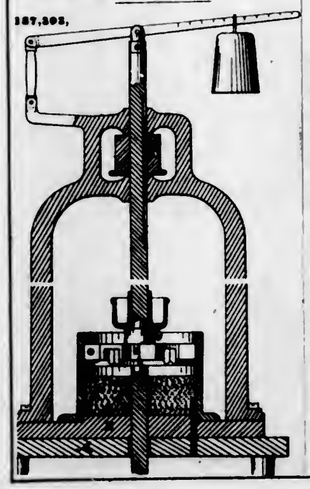


187,302. MACHINES FOR TRITURATING AND POLISHING METALLIC POWDERS. D. D. Parmelee, New York, assignor to A. W. Billings, Brooklyn, N. Y. [Filed Jan. 18, 1877.]



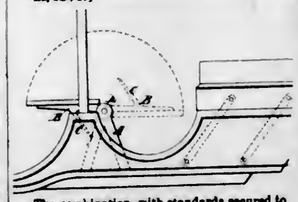
1. A trituturating and burnishing machine, composed of the following parts, to wit: A cylinder provided with a corrugated or fluted bed-plate, and a series of metallic bars or rods resting on the bed-plate, and supported in an upright position by a frame or drum which will allow the rods a vertical play, and appropriate gearing for revolving the frame, substantially as set forth.
2. The combination of the cylinder and bed-plate *f* C, rods and frame *j g g′*, hopper and conveying-tubes *k l*, shaft A and its gearing, substantially as set forth.

187,303.



1. The combination of the push-piece 3 with the rack 9 and hammer 12, and with the pinion 2, all arranged so that by one motion of the push-piece 3 the rack will be thrown into gear with the pinion and the hammer set, substantially as specified.
2. The spring-hammer 12, made with the projecting pins *a*, *b*, *c*, and *e*, and hung upon the pin 11, having cross-bar, all substantially as herein shown and described.
3. The combination of the spring 10 with the rack 9 of the repeater, said rack having two projecting pins, to be actuated by the said spring, substantially as specified.

187,304. TURN-OVER CARRIAGE-SEATS. C. W. Patten, Salisbury, Mass. [Filed Aug. 21, 1876.]



The combination, with standards secured to the wagon-body, of arms, B, adapted to be fastened to the wagon-seat, said arms provided with rigid braces C, the lower ends of which rest in notches formed in the front edges of the arms B when the seat is in use; the braces C of such length that the rear seat may be shifted over the forward seat without interfering with said braces, all constructed and arranged substantially as and for the purpose set forth.

187,305. REPEATING WATCHES. Aml L. Junod-Pattus, Sainte Croix, Switzerland. [Filed Aug. 16, 1876.]



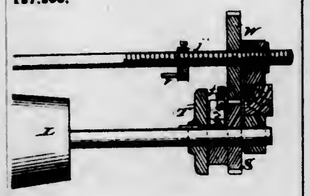
1. The combination of the push-piece 3 with the rack 9 and hammer 12, and with the pinion 2, all arranged so that by one motion of the push-piece 3 the rack will be thrown into gear with the pinion and the hammer set, substantially as specified.
2. The spring-hammer 12, made with the projecting pins *a*, *b*, *c*, and *e*, and hung upon the pin 11, having cross-bar, all substantially as herein shown and described.
3. The combination of the spring 10 with the rack 9 of the repeater, said rack having two projecting pins, to be actuated by the said spring, substantially as specified.

187,306. MACHINES FOR TWISTING BARBED WIRE. Elijah P. Peacock, Chicago, Ill., assignor to the Thorn Wire Hedge Company, same place. [Filed June 5, 1876.]

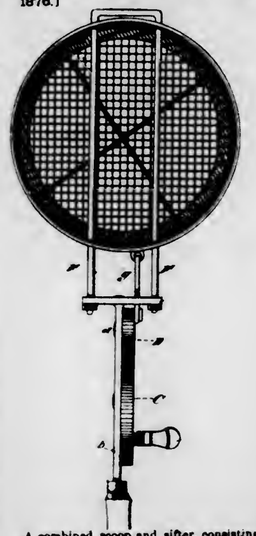
Brief.—Automatic mechanism for traversing the reel, to receive the twisted wire uniformly upon it, is combined with a "sun and planet" motion of the twisting mechanism, in which the "planet" has no absolute revolution on its own axis.

1. The combination of a revolving frame, D, spools of wire B, mounted on spindles turning independently in said frame, gear-wheels *c′* on the spindles, and *c* on the shaft C, transmitting gear-wheels *d*, an open work or skeleton guide-rollers *f* and *g*, supported on the shaft C, substantially as and for the purpose set forth.
2. The combination of the spools E, rotating on independent axes, mounted on a revolving frame, guide-rollers *f*, *f′*, *g*, *g′*, and *h*, and the reel J, substantially as described.
3. The combination of the stationary shaft C, tubular shaft C′, carrying the rollers for guiding the wires, spool-frame D, and plate D′, substantially as described.
4. The combination of the slides O I oted levers a R, cord *m*, and pawl r, substantially as and for the purpose set forth.
5. The combination of the collar *j′* on the reciprocating screw-shaft *j*, pivoted lever E, pawl r, and notched slide O, substantially as and for the purposes set forth.
6. The combination of the shaft *l*, loose pinion S, provided with a spring-stop, *s*, fixed collar T, having a stop, *t*, and vibrating arm U, substantially as and for the purpose set forth.
7. The combination of the collar *j′* on the reciprocating shaft J, lever Y, rock-shaft *u*, vibrating arm U, loose pinion S, and spring-stop *s*, substantially as and for the purpose set forth.

187,306.

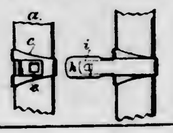


187,307. FLOUR AND MEAL SIFTERS. C. O. Peck, Pittsfield, Mass. [Filed Dec. 26, 1876.]



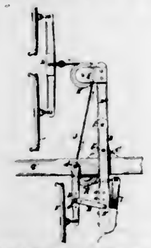
A combined scoop and sifter, consisting of the supporting-handle B *b*, gearing C D, guiding-rods F F, crank-arm or link *g*, and reciprocating bowl and sieve G, suspended from and reciprocating upon the rods F F, all as set forth.

187,308. CORSET-CLASPS. Wm. S. Phyfe, New York, N. Y. [Filed Jan. 25, 1877.]



The eye *e* upon the plate *c* and in front of the steel *a*, in combination with the spring *h* and tooth *o* and the tongue *i*, arranged to pass between the eye *e* and the steel *a*, substantially as set forth.

187,309. DRAFT-EQUALIZERS. S. H. Pierce, Galesburg, Ill., assignor of one-half of his right to C. Tupper, same place. [Filed Dec. 5, 1876.]



1. The cord J, combined with the lever B and pulleys H and K, substantially as described, and for the purpose specified.

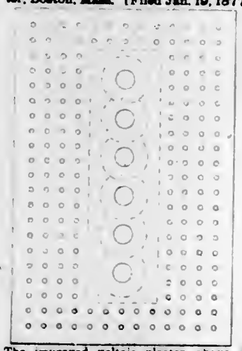
2. The cord J, combined with the compound levers B and D, link E, pulleys H and K, and tongue A, substantially as described, and for the purpose specified.

3. The cord J, combined with the compound levers B and D, link E, tongue A, pulley K, and the pulley H, journaled to the bar G, substantially as described, and for the purpose specified.

4. The cord J, combined with the compound levers B and D, link E, pulleys H and K, tongue A, and lever I, substantially as described, and for the purpose specified.

5. The lever B, constructed in two parts, B' B'', the one placed above and the other below the block C, and combined with the pulleys H and K and cord J, substantially as described, and for the purpose specified.

187,310. VOLTAIC PLASTERS. W. B. Potter, Boston, Mass. [Filed Jan. 19, 1877.]

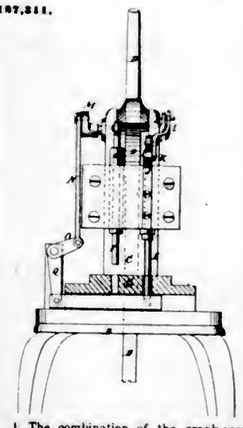


The improved voltaic plaster above described, having the voltaic plates secured to the back of the plaster, and holes cut through the plaster, above the plates, as and for the purpose specified; so that, when in use, the plaster shall lie between the plates and the skin.

187,311. DOUBLE-ACTING PRESSES. Louis Prahar, New York, N. Y. [Filed Sept. 16, 1876.]

Brief.—The blank-cutting punch is suspended directly from the overhanging end of the long curved foot-lever, and the swaging-punch is suspended from a lever that is vibrated by a crank on the shaft on which the lever is suspended, while the blank-carrier is actuated by another crank on the opposite end of the shaft, the foot-lever being so disposed upon the shaft that while its direct action, induced by the foot, will force the cutting-punch down, the return of the lever, when the foot is removed, induced by gravity, will force the carrier forward and the swaging-punch down.

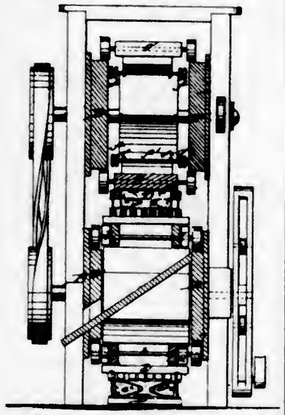
187,311.



1. The combination of the crank-arm H and the connecting-rod I with the lever B, and with the holder K, for the die or cutter L, substantially as herein shown and described.

2. The combination of the sliding bar R, the two cranks Q O, and the connecting-rod N, whether the crank M be used or not, with the foot-lever D, and with the die-block S, substantially as herein shown and described.

187,312. CIDER-PRESSES. R. C. Quinn, Texas Valley, N. Y. [Filed Jan. 19, 1877.]



1. A continuous cider-press, composed of an endless belt with spring-acted pomace-sacks, and of a simultaneously revolving and registering follower-belt, the whole arranged and operated substantially as shown, and for the purpose set forth.

2. The combination of a grinding mechanism with an endless revolving belt, carrying spring-acted pomace-sacks, for charging the sacks as they pass below the grinder, substantially as specified.

3. In a cider-press an elastic sack-carrier, composed of wheeled slat-bottom with a spring-acted and guided pomace-sack, substantially as shown and for the purpose described.

4. The combination of the spring-acted frame of the pomace-sack by sliding and headed end-bolts, with the perforated end-slats, substantially as described.

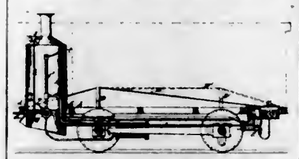
5. The endless follower-belt, composed of link-connected and wheeled followers, having wheels at different width from the center, in combination with the spurred driving-roller and a guide-frame with semicircular ends and receding guide-shoulder for turning the followers into inclined position to facilitate contact with pressing-sacks, substantially as and for the purpose described.

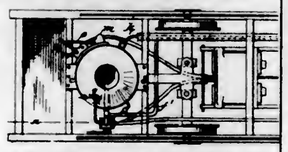
6. The combination of the continuously revolving pressing follower and sack belts with an inclined conducting-board and exit-spout, arranged below the contact sacks and followers, substantially as specified.

187,313. PROCESSES OF MANUFACTURING MALT EXTRACT. H. R. Randall, Brooklyn, N. Y. [Filed Jan. 24, 1877.]

The herein-described process of manufacturing malt extract from raw or unmalted grain or starch-bearing material for brewers' use, the same comprising the two successive steps of first eliminating the starch from the starch-bearing material by subjecting ground grain to the mashing process at a high temperature, about 180° Fahrenheit, and of subsequently subjecting such eliminated starch to the action of malt at a lower temperature, of about 160°, substantially as described.

187,314. STEAM STREET-CARS. L. Ransom, Stratford, N. Y. [Filed Dec. 1, 1876.]





1. In a steam-car, wherein the boiler is placed at one end and the water-tank at the other, the feed-water pipe located below the floor of said car, and combined with the enlarged exhaust pipe which envelops it, to form a feed-water heater and to prevent freezing, as set forth.

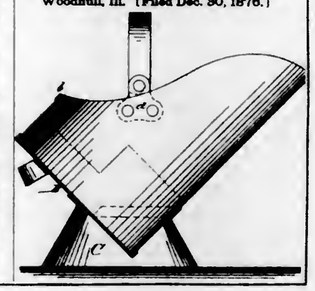
2. In a steam-car in which the boiler is located at one end and the water-tank at the other, the combination, with said tank, of a feed-pump placed thereunder, and adapted to operate in the manner described.

3. In a steam-car in which the boiler is located at one end and the water-tank at the other, the two-way valve Q, in combination with the exhaust and blower pipes, whereby steam from either engine or safety-valve may be directed to the muffler or to the blower, substantially as shown and described.

4. In a street-car carrying a boiler at one end and a water-tank at the other, the combination, with the exhaust-pipe, of a box provided with grated bottom and containing pebbles (or equivalent material) adapted to receive and discharge steam, substantially as and for the purposes set forth.

5. The combination, with a muffler-box provided with a grated bottom and containing a mass of pebbles (or equivalent material) and a pipe leading thereto directly from the safety-valve, of a steam-boiler, said box being located adjacent to the water-tank, substantially as shown and described.

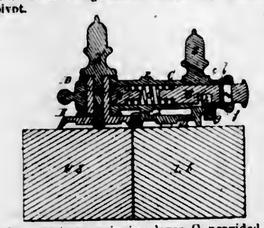
187,315. COAL-SCUTTLES. W. Richards, Woodhull, Ill. [Filed Dec. 30, 1876.]



A coal-scuttle formed of a short cylinder, having rear head B, being cut away at the mouth on the curve *a b*, and being set in the base C at an angle of forty-five degrees to a horizontal plane, as shown and described.

187,316. FASTENERS FOR THE MEETING-RAILS OF SASHES. D. S. Roberts, Boston, Mass. [Filed Sept. 11, 1876.]

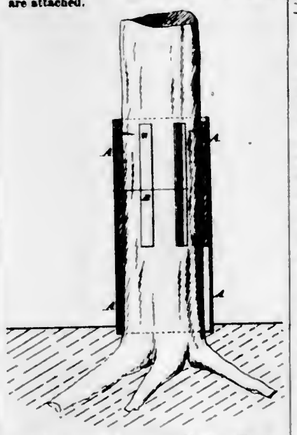
Brief.—A tubular catch or swinging lever attached to the rear plate carries a slide and a locking-bolt, with a suitable spring arranged between them, and these are combined with a standard or pivot, and with a front plate, having two curved ribs and a notched flange, the construction being such that the spring, acting against the slide, causes the catch to be moved and held wholly back out of the way of the lower sash, while, on turning the catch around over the notched flange, the locking-bolt will be shot into the notch, and the two will prevent the catch or swinging lever from being moved either way on its pivot.



The catch or swinging lever C, provided with the locking-bolt E, the slide *p*, and the spring *o*, arranged between and applied to them, as shown, in combination with the pivot D, having the flats *h h'*, and with the front plate A, provided with the notched flange *c*, all being constructed, arranged, and operated substantially as set forth.

187,317. SELF-ADJUSTING TREE-SHIELDS. A. Roff, Southport, Conn. [Filed Dec. 30, 1876.]

Brief.—A sheet of metal bent around the trunk of a tree, to which thin strips of wood are attached.



The combination, with a leaden sheet, A, coiled about the trunk of a tree, of strips B made fast to the tree, substantially as and for the purpose specified.

187,318. CIRCUIT-CLOSERS FOR ELECTRIC RAILWAY-SIGNALS. D. Rousseau and W. C. Smith, New York, N. Y., assignors to W. F. Smith and S. Samuels, New York, City. [Filed Dec. 13, 1876.]

1. The combination of the rail A with the lever C, which is connected with the rail to be vibrated by the deflection and elevation of the same, substantially as herein shown and described.

2. The combination of the deflecting rail A, and of the lever C joined thereto, with the circuit-closing slide D, substantially as herein shown and described.

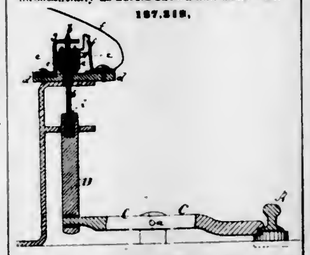
3. The sliding pin *b*, combined with the friction-block F and circuit-closing plate *g*, substantially as herein shown and described.

4. The split friction-block F, held to the rod *b* by the elastic ring *e*, substantially as herein shown and described.

5. The combination of the slide *b* and fixed plates *d* and *g* with the circuit-closing block F, which is moved by said slide, substantially as herein shown and described.

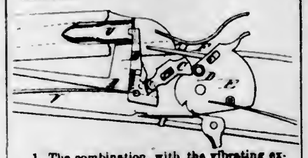
6. The combination of the pin *b* with the non-conducting lining *i* and supporting slide D, substantially as herein shown and described.

187,319.



187,319. BREECH-LOADING FIRE-ARMS. H. Rowell, Columbus, Wis. [Filed July 11, 1876.]

Brief.—An inside lever or "driver," which is operated by an outside lever, mounted on the same shaft, bears against a projection on the hammer, and cocks it when turned by the outside lever, and also depresses the breech-block, and operates the extractor by pressing on a shoulder on the rear lower part of the extractor.



1. The combination, with the vibrating extractor B, of the driver C, when constructed and arranged to operate in the manner substantially as and for the purpose specified.

2. The combination of a breech-block, A, having a lug on its side, and an extractor, B, provided with a slot or shoulder, the parts being so arranged that when the breech-block is depressed, and the extractor thrown back, said lug and slot or shoulder will engage, so as to hold the breech open, substantially as specified.

3. The combination, with the vertically-operating breech-block A, spring V, and driver C, of the extractor B, whereby the forward movement of the extractor releases the breech-block when depressed, so that it may be closed by the spring, substantially as specified.

4. The combination, with the breech-block A and extractor B, of the driver C, the extractor being operated directly by the driver in the act of cocking the arm, substantially as specified.

5. The combination of hammer E, provided with trundle D, and the driver C, arranged on separate bearings, when constructed to operate in the manner substantially as specified.

6. The combination of breech-block A, driver C, and hammer E, the parts being so arranged that the breech-block and hammer may be operated by the driver, and the hammer cocked by the hand independent of the other parts, substantially as specified.

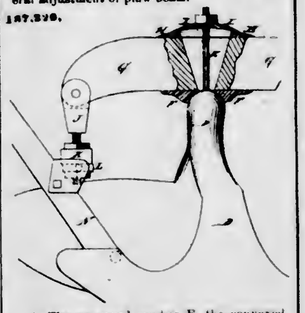
7. The combination, with the breech-block A, extractor B, and hammer E, of the driver C, said driver being arranged to operate the other parts, in the manner substantially as herein shown and described.

8. The combination of the driving pin and arm with the hinged housing, substantially as and for the purpose specified.

187,320. PLOWS. J. Ruch, Mount Eaton, assignor to himself and W. M. Johnston, Wilmot, Ohio. [Filed Dec. 30, 1876.]

Brief.—Standard-plate below the beam, with conical recess, convex slotted plate, and concave washer above the beam. Vertical screw-bolt with ears hinged to rear end of beam, and a slotted cross-bar for vertical and lateral adjustment of plow-beam.

187,320.

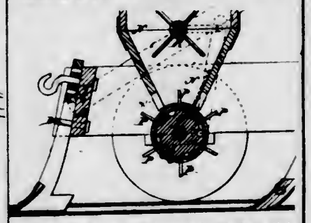


1. The concaved washer F, the convexed slotted washer H, and the concaved washer I, in combination with the rounded upper end of the standard D, the bolt E, and the mortised beam G, substantially as herein shown and described.

2. The combination of the bolt J, pivoted to the rear end of the plow-beam, the block K, the slotted cross-bar L, pivoted to the handles, and the bolt M with the plow-beam G and the handles N, substantially as herein shown and described.

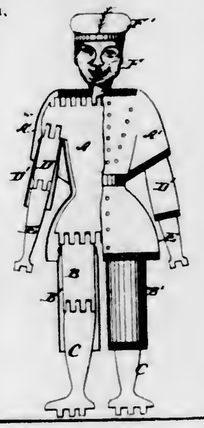
187,321. SEED-PLANTERS. J. R. Sample, Liberty, Miss., assignor to himself and W. P. Anderson, same place. [Filed Dec. 23, 1876.]

Brief.—Over the grooved dropping-cylinder is removably placed a flexible strap, provided with radial pins for feeding the cotton-seed or fertiliser to be sown.



The leather strap O, provided with the radial spikes or pins P, in combination with the grooved dropping-cylinder M and the slotted lower end of the hopper N, substantially as herein shown and described.

187,321.



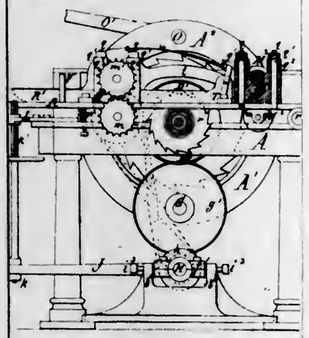
187,322. SECTIONAL TOYS. L. Schmetzer, Rothenburg-on-the-Tauber, Bavaria, Germany. [Filed Dec. 12, 1876.]

Brief.—A sectional doll, with dress also in sections.

The combination of the sections A B C D E F, provided with joints at their ends, with the sectional dress pieces A' B' D' F', arranged to cover the bodies of the sections and lap over one of the joints, leaving the other joint uncovered, substantially as and for the purpose herein shown and described.

187,323. MACHINES FOR MAKING LATHS. Noah Shaw and D. Kennedy, Eau Claire, Wis. [Filed May 11, 1876.]

Brief.—The bolts for laths, and the laths themselves, are rapidly sawed by means of a gang of large saws, arranged between front and rear feed-rolls, and discharging-tables for sawing the bolts; a gang of small saws, operating through a slot in the middle of a hinged table carrying suitable feeding mechanism, for sawing the laths; a compound pressure-roll, mounted in a swinging frame, pivoted immediately over the bolt-saws; an intermediate elevated and removable table arranged between the two gangs of saws, for lessening the labor of handling the lumber, and suitable operating mechanism. Two gangs of saws are mounted upon opposite ends of the same arbor, and accessible without removing the arbor. The heavy end of the arbor is provided with a removable spindle support or bearing.



1. In a combined lath-kerfing and lath-cutting machine, having three tables, the single frame A, constructed with standards a^4, for supporting the middle table at an elevation above the end tables, substantially as herein set forth.

2. The combination, with the bolt and lath cutting mechanisms and rotary continuous feed motion, of the swinging friction-pulley shaft, its swinging bearings, and the adjusting lever and screw, substantially as and for the purpose set forth.

3. In a combined bolt and lath cutting machine, the frame A and the removable bearing-bar or bridge-piece C, having a step, c', for the end bearing or spindle-foot D^2 of the saw-shaft, and a stud bearing, c^1, for the intermediate wheel e of the feed-gear, substantially as and for the purpose set forth.

4. The arch A^1 of the main frame, having halved bearings for the conical bolts e, and the bridge-piece C, having halved bearings for the said bolts to match the said bearings of the arch A^1, the bolts e being provided at their small ends with nuts, substantially as and for the purpose set forth.

5. The swinging finger-board P and its fingers p, constructed and operating substantially as set forth.

6. The swinging table R, having the pressure-rollers of the feed motion, the gages, and the finger-board attached to the said table, substantially as and for the purpose set forth.

7. The vertically-movable bearing Q for the pressure-rollers, constructed with two guide-passages for the guide-bolts, and operating as set forth.

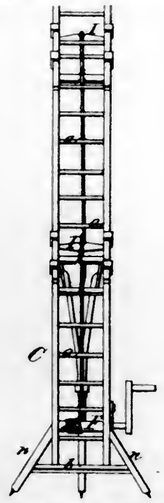
8. The balanced differential gages t, pivoted above the table, and constructed and operating as hereinbefore set forth.

9. The stepped finger-board S, having its extensions s^1 and fastening-screws s^2 below the table R, substantially as set forth.

10. The set-screw r^1, in combination with the hinged table R, and pressure-roller and front feed-roller, substantially as set forth.

11. The frame A, having the bottom bearings of the feed-rollers F formed on it, in combination with the upper removable arches A^1 A^2, having the top bearings of the said feed-rollers formed on them, substantially as hereinbefore set forth.

187,324. EXTENSION-LADDERS. O. Sherwood, Jr., Richford, Vt., assignor of three-fourths of his right to G. W. Kendall, P. Hoddy, and Austin D. Cable, Montreal, Canada. [Filed June 26, 1875.]



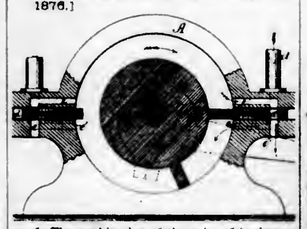
The lower section C, mortised into a cross-brace, *b*, and provided with the spiked inclined braces *a*, in combination with the spiked bifurcated adjustable prop D, substantially as described.

187,325. BUTTONS. S. W. Shorey, Boston, Mass. [Filed Oct. 12, 1876.]



The combination, with the back C, having the raised rim *d*, of the staple F and cap B, adapted to be secured to the back, and to cover the ends of the staple, all substantially as shown, and for the purpose described.

187,326. ROTARY ENGINES. R. W. Skirrow, Windsor, Conn. [Filed Nov. 25, 1876.]



1. The combination of the pairs of horizontally-sliding abutments and apertured valves with the winged piston, and the cylinder A having the ports, two on either side, opening, respectively, one above and the other below the abutments, substantially as shown and described, whereby the induction and exhaust may take place respectively above or below the abutments, or reversely, according to the required direction of rotation of the shaft.

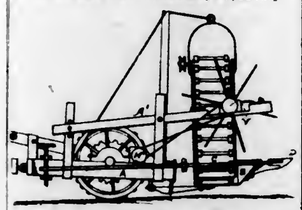
2. In combination with the cylinder and winged piston of a rotary engine, the sliding valves having the curved and notched arms K, the tappets F, rock-shafts G, connecting-rods J, eccentrics H, and piston-shaft I, as shown and described, to operate as specified.

3. The combination, with the cylinder and piston of a rotary engine, of the abutments and valves, connected by a loose T-joint and the interposed springs *b*, substantially as shown and described.

187,327. PROCESSES OF TREATING FATS. A. Springer, Cincinnati, Ohio. [Filed Nov. 24, 1876.]

The process of producing edible fat or tallow by heating the crude fat at a temperature of 140° to 145° Fahrenheit, in contact with common salt, saltpeter, borax, and boracic and salicylic acids, withdrawing the separated fat and incorporating therewith a second and smaller charge of the above chemicals, with the addition of benzoic acid, in the manner set forth.

187,328. HARVESTERS. Edw. D. Stewart, Wheatland, Cal. [Filed May 29, 1876.]



1. The beam C in a harvester or header, for operating the sickles, when made adjustable with reference to the machine-frame A, in the manner and for the purpose herein described and specified.

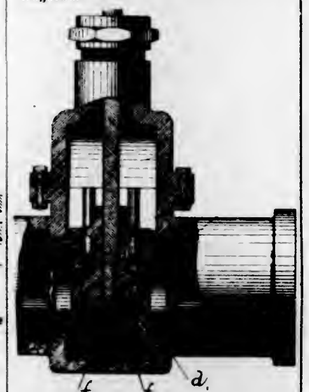
2. In a harvester or header, the combination of the adjustable beam C, for operating the sickles, and the sickle-frame or bar B, adapted to be adjusted with reference to the machine-frame, substantially as and for the purposes set forth.

3. In a harvester or header, the combination, with the tongue and tiller, of the notched plates *l* m and set-screws *k*, for adjusting the tiller, substantially as described and shown.

4. In a harvester or header, the combination, with the reel, of the adjustable bearing V, substantially as described and shown.

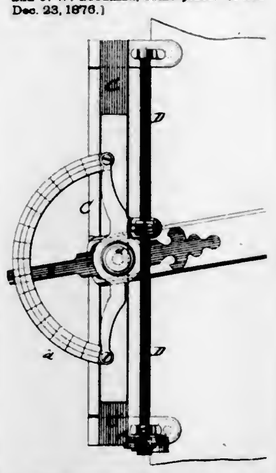
187,329. STOP-VALVES. Wm. F. Thacher, Florence, N. J., assignor to W. Wood, Philadelphia, Pa. [Filed July 13, 1876.]

Brief.—The lateral projections serve as stops to prevent undue tilting of the disks, and prevent extended frictional contact with the prolongation.



The described lifting and spreading device A for stop-valves, as made with the ball *e*, bosses *d d*, and prolongation *f* below the ball, having lateral projections *g g* thereon, as and for the purposes set forth.

187,330. PARALLEL RULERS. E. J. Towne, North Dana, Mass., assignor to himself and J. W. Goodman, same place. [Filed Dec. 23, 1876.]



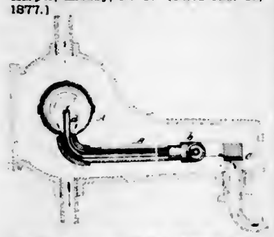
1. The combination of a guided and adjustable T-square having a split nut, attached to the head with a screw-shaft and revolving mechanism, operated by the thumb to produce the parallel motion of the blade, substantially in the manner and for the purpose set forth.

2. The combination of a revolving screw-shaft, D, having fast end-ratchet with a loosely-swinging thumb-rest, spring-pawl, and check-pawl, substantially as specified.

3. The combination of the swinging ratchet thumb-rest, having projecting shoulder, with a slotted adjustable stop-piece and set-screw to regulate extent of rotation of screw-shaft, substantially as set forth.

4. The combination of the revolving screw-shaft with a split nut, attached to head of the T square, the nut being made of hinged and spring-locked sections to be attached or detached from screw-shaft, as required for the purpose set forth.

187,331. STEAM-TRAPS AND BOILER-FEEDERS. B. Vandecar, Canajoharie, and H. V. Harper, Albany, N. Y. [Filed Jan. 19, 1877.]



1. The combination of the float-ball A, tubular lever B, vent-tube *d*, and casting *b*, having the hollow journal *c*, substantially as herein shown and described.

2. The arm C, and elastic disk *e*, in combination with the casting *b*, lever B, and float A, substantially as shown and described.

187,332. DRAWERS. Geo. W. Walgrove, New York, N. Y. [Filed Aug. 9, 1876.]

1. In drawers having the fore part of the leg at the top, and where it is attached to the waistband of an ogee shape, as shown in Fig. 1, the top of back part of the leg rounded, and with one or more V's taken out, as shown in Fig. 2, substantially as and for the purpose set forth.

2. Drawers constructed substantially as above described and claimed, and having the bottom part of the legs rounded and one or more V's taken out, as shown in Fig. 2, for the purpose set forth.

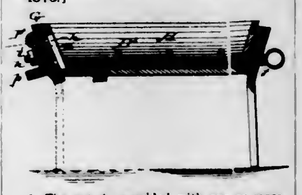
3. In combination with drawers, the tapes A B C D E, arranged around the waistband, substantially as and for the purpose set forth.

4. In combination with drawers constructed and arranged to operate as above described and claimed, the pockets F, substantially as described and shown.

187,333.



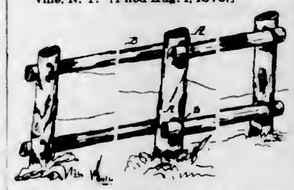
187,334. MILK-COOLERS. W. V. Walker, Moravia, N. Y., assignor to himself and S. B. Young, same place. [Filed Dec. 9, 1876.]



1. The vat A, provided with one or more cross-ribs, D, and series of alternating ribs D' D', arranged to form two or more tortuous passages, d^1, and one common outlet-passage, *d*, in combination with the water-supply pipe E, having two or more branches, *f f*, so as to admit water simultaneously in two or more places, substantially as herein set forth.

2. In combination with a milk-cooler, the register herein described, consisting of the skeleton frame G, with cross-bar *m*, placed over the aperture *h*, the rotating concave disk J, with outlet-tube *p*, and the central bolt *n*, with nut *i*, all substantially as and for the purposes herein set forth.

187,335. FENCES. Jno. W. Webster, Freeville, N. Y. [Filed Aug. 1, 1876.]



The combination, in a fence, of posts A, having contiguous openings *c c*, rails, poles, or boards B B, bearing directly against the posts between said openings, and there secured by means of endless wire loops *b*, passing through both openings and on both sides of the post, around the outer faces of the rails, as specified.

187,336. ADDRESSING-MACHINES. Jno. H. Williston, Marion, Ohio. [Filed Feb. 14, 1876.]

1. The cutting and pressing device herein described, consisting of the blade h and finger-clasp *i*, substantially as and for the purpose specified.

2. In an apparatus for affixing labels from a printed strip, and in combination with such strip, a cutting and pressing device, as herein described, with a reel and moistening device, these separate parts being adapted for joint operation, substantially as set forth.

3. In an addressing or stamping apparatus, a cutting and pressing device adapted to sever the label after it is applied to the object, in combination with a label strip and strip-holder, and a moistening device, these separate parts being adapted for joint operation, substantially as set forth.

187,337.



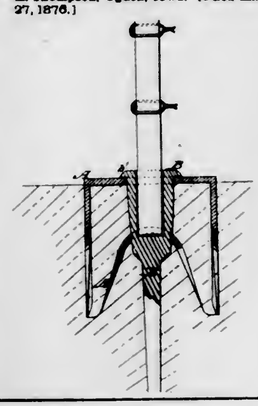
187,338. CORSET-DUMMIES. J. J. Wilson, New York, N. Y. [Filed Jan. 2, 1877.]



1. A corset-dummy having the trunk portion *a*, the hip portion *a*, the breasts *b b*, and the neck, all conforming to a perfect female figure, and serving to sustain, display, and exhibit the fit of a corset, as set forth.

2. A corset-dummy consisting of a head and trunk conforming in form to a female figure, and adapted to carrying and exhibiting a corset, as specified.

187,339. FENCE-POSTS. T. G. Wing and J. H. Thompson, Ogden, Iowa. [Filed May 27, 1876.]



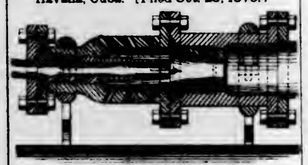
In combination with a fence-post, the socketed drive-base B, provided with flange *b'* and the perforated brace-piece A with its descending prongs, substantially as and for the purpose specified.

187,338. COMPOUNDS FOR ARTIFICIAL STONE. James L. Wray, Rock Island, Ill. [Filed Sept. 30, 1876.]

Brief.—The silicate of soda, sulphate of potash, chloride of magnesium, and water are first mixed together and charged with carbonic-acid gas; then a sufficient quantity of mortar to bring the mass to the proper consistency is added.

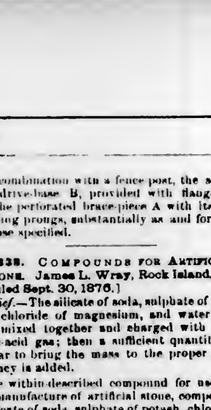
The within-described compound for use in the manufacture of artificial stone, composed of silicate of soda, sulphate of potash, chloride of magnesium, and water, and charged with carbonic-acid gas, with a sufficient quantity of mortar, substantially as set forth.

187,339. WATER-ELEVATORS. A. Wright, Havana, Cuba. [Filed Oct. 23, 1876.]



A steam-pump made of a submerged sectional casting, of which one section is perforated, and provided with a nozzle and steam-supply pipe, while the other section has a tapering collar or spout and wider water-discharge pipe, substantially in the manner and for the purpose set forth.

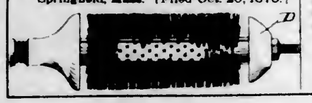
187,340. FIRE-SHIELDS FOR THEATERS, &c. L. W. Wright, Brooklyn, N. Y. [Filed Jan. 15, 1877.]



1. The stationary sheet-metal septum *e* in the upper part of the building, separating the ceiling and roof of the auditorium from the portion of the building occupied by the stage, in combination with the sliding sheet-metal shield *f* and counterpoise, substantially as set forth.

2. The arrangement herein specified of the sheet-metal septum *e* and shield *f* between the scenery and the auditorium, and the water-pipes and jet-nozzles above the scenery, for confining and extinguishing fire in places of amusement, substantially as set forth

187,341. TUBE-BRUSHES. A. W. Abrams, Springfield, Mass. [Filed Oct. 20, 1876.]



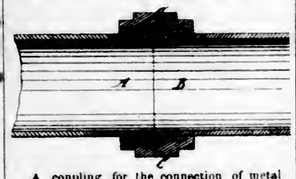
In a boiler-tube cleaner, the rigid sectional bristle-holder having ribs G, in combination with cones D, provided with internal tapering countersinks, having grooves J, to receive said ribs G, substantially as des ri

187,342. HORSE-BLANKET ATTACHMENTS. J. C. Ayres, Philadelphia, Pa., assignor to himself, W. Ayres, G. R. Ayres, Wm. M. Ayres, and Lewis H. Ayres, same place. [Filed Jan. 18, 1877.]



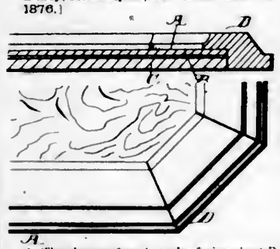
The combination, with a horse-blanket, of bossing-pieces A^1 A^2, arranged apart from each other, as and for the purpose set forth.

187,343. PIPE-COUPLINGS. W. H. Bailey, New York, N. Y. [Filed June 9, 1876.]



A coupling for the connection of metal pipes or tubes, consisting of the removable collars *c b*, secured at the adjoining ends thereof, substantially as shown, one of said collars being provided with an external thread to engage with the internal threaded portion of the nut C, and the other made plain and engaging with the flange *d*, as set forth.

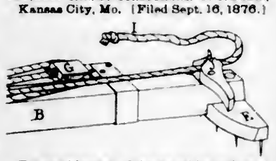
187,344. TOPS FOR FURNITURE. James T. Bailey, Philadelphia, Pa. [Filed Dec. 14, 1876.]



1. The glass surface A, under facing sheet B in imitation of marble, and backing C, combined and operating substantially as and for the purpose set forth.

2. The glass surface A, under facing in imitation of marble, sheet B, backing C, and rim D, combined and operating substantially as and for the purpose set forth.

187,345. CARPET-STRETCHERS. G. C. Banta, Kansas City, Mo. [Filed Sept. 16, 1876.]



The combination of the movable sections A B, and pulleys G H, with rope I, head E, and clamp J, placed above said head E, substantially as and for the purpose set forth.

187,346. BROOMS AND BRUSHES. Silas M. Barrett, Cincinnati, Ohio. [Filed Jan. 3, 1877.]

187,348.



1. The combination, with the handle and head of a broom or brush, of an expansible sheet-metal tube or sleeve, the same constructed to be expanded as the handle is driven therein, substantially as and for the purpose set forth.

2. The combination, with the handle and head of a broom or brush, of a corrugated sheet-metal tube or sleeve, the same constructed to be expanded as the handle is driven therein, substantially as and for the purpose set forth.

3. The combination, with the handle and head of a broom or brush and a perforated expansible sheet-metal tube or sleeve, of an eyelet and a rivet or screw, whereby the binding wire or twine and the tube and handle are secured, substantially as and for the purpose set forth.

4. The combination, with the broom-head, formed upon and firmly secured to an expansible sheet-metal tube or sleeve, of a broom-handle constructed with a wedge-shaped end, substantially as and for the purpose set forth.

5. The combination, with the handle and head of a broom or brush, of an expansible zinc tube or sleeve, substantially as and for the purpose set forth.

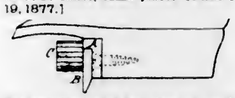
6. The combination, with the handle and head of a broom or brush, of a longitudinally-corrugated zinc tube or sleeve, substantially as and for the purpose set forth.

7. The combination, with the handle and head of a broom or brush, of an inner expansible sheet-metal tube or sleeve, and an expansible cap or socket, substantially as and for the purpose set forth.

8. The combination, with the handle and head of a broom, of an expansible socket or cap to protect the fastening parts of the broom, substantially as and for the purpose set forth.

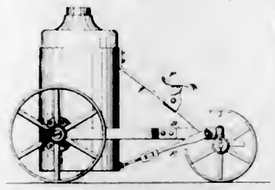
9. The combination, with the handle and head of a broom or brush, of a longitudinally-corrugated socket having a lower outwardly-turned flange, substantially as and for the purpose described.

187,347. ICE-CREEPERS. C. Bartlett and E. C. Lewis, Providence, R. I., assignors to G. F. Leete, same place. [Filed Jan 19, 1877.]



The combination of the plate A, provided with projections, and plate B and screw C, substantially as described.

187,348. MOUNTINGS FOR PORTABLE ENGINES. R. M. Beck, Westminster, Md., assignor to the Taylor Manufacturing Company, same place. [Filed Nov. 9, 1876.]



1. The combination, with the boiler and the wheels, of the independent axle C, terminating in curved plates bolted to the boiler, the reach D pivoted to the front axle and bolted to the boiler in the rear, the bars D' and the braces E E', substantially as and for the purpose described.

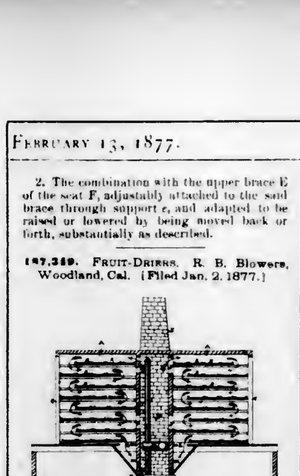
2. The combination with the upper brace E of the seat F, adjustably attached to the said brace through support *e*, and adapted to be raised or lowered by being moved back or forth, substantially as described.

187,349. FRUIT-DRIERS. R. B. Blowers, Woodland, Cal. [Filed Jan. 2, 1877.]

1. The elongated heating-chamber D, with its furnaces and ingress-doors F, as shown, in combination with the double series of drying-rooms A, situated upon opposite sides of the chamber D, said rooms being fitted to receive the tiers of trays K, so as to leave spaces alternately at either end, and provided with doors J at the top, opening into the heating-chamber and doors L at the bottom, connecting with the uptake or chimney E, so that the heat will pass transversely above each tier of trays, substantially as and for the purpose herein described.

2. The elongated heating-chamber D, and the double row of drying-chambers A, arranged to receive the tiers of trays K, and having the doors or gates F, J, and L, in combination with the receiving flues M, extending upon each side, and opening into the chimney E, substantially as herein described.

187,350. HOOP-SKIRTS. E. K. Bullock, Detroit, Mich., assignor of two-thirds his right to Wm. J. Miller and Jas. M. Curtis, same place. [Filed Dec. 16, 1876.]



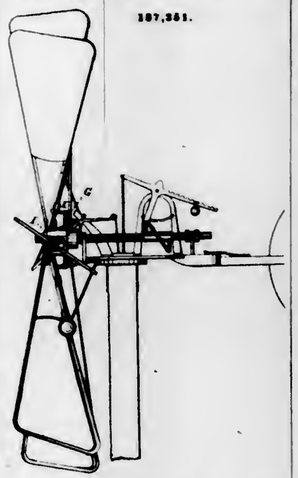
1. In a hoop-skirt, the combination of the suspended strips D, united at top and bottom by the independent sets of hoops *b c*, leaving an open central space between them to act as a flexible hinge, with the hooks and eyes arranged at the middle parts of said strips, substantially as described, and for the purpose set forth.

2. In a hoop-skirt, the combination of the suspended strips D, united at top and bottom by the independent sets of hoops *b c*, with the hooks and eyes arranged at the middle parts of said strips, and the suspended strips G, having hooks and eyes, substantially as described, and for the purpose set forth.

187,351. WINDMILLS. D. Bull, Amboy, Ill., assignor to himself and W. L. Beals, same place. [Filed Jan. 17, 1876.

Brief.—The vanes have at each edge arms or ribs, one of which is fixed, and forms an axis for the partial revolution of the vane to change its inclination to the direction of the wind. The movable arm describes the arc of a circle about the fixed arm as the head slides upon its shaft, and causes said head to move in a path slightly spiral.

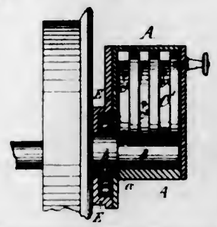
187,351.



The windmill-vane provided with a fixed arm at one edge and a movable arm at the other, combined with the sliding head G, the arm I whereof is jointed to said movable vane-arm, whereby the movement of said head G back and forth causes said movable vane-arm to move correspondingly, and shift the inclination of the vane to the axis of the wind, as set forth.

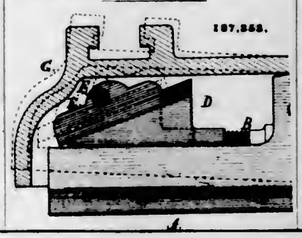
187,352. CAR-AXLE BOXES. C. E. Candee, St. Louis, Mo., assignor to himself and J. W. Conlogue. [Filed Nov. 14, 1876.]

Brief.—Self-lubricating anti-friction bearings.



The combination of the car-axle box A having the shoulder at *a*, guides at *a'*, wheels C C' having lubricant passages *c²* from periphery to center of said wheels, the axle B having shoulder *b*, and the packing-chamber E *e*, formed as a separate side attachment to the car axle box, all said parts being arranged to operate in the manner and for the purpose set forth.

187,353.



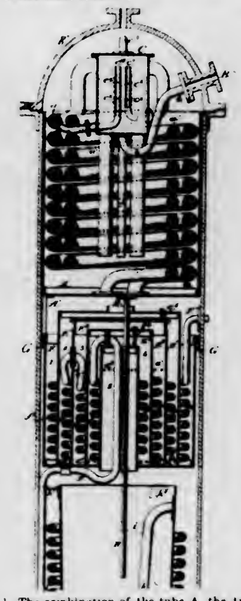
187,353. RESETS FOR METAL-LATHES. T. F. Carver, Worcester, Mass. [Filed May 24, 1876.]

1. The pivoted block E, supporting the case G under the tool post, in combination with the slides D and A, substantially as and for the purposes set forth.

2. The tool-bearing case G, pivoted to A, and surrounding and covering the slides D and E on three sides, as and for the purposes described.

3. The combination of the case G, pivoted to A and E, with the piece A, slide D, screw B, and block E, substantially as and for the purposes set forth.

187,354. REFRIGERATING APPARATUS. F. P. E. Carre and E. Jullien, Paris, France. [Filed Nov. 3, 1876.]



1. The combination of the tube A, the two serpentines *a a'*, the distributer C, and the casing of the rectifier, substantially as described, and shown in Fig. 1 of the drawings.

2. The casing of the rectifier provided with the pipe D, in the exchanger of temperature, substantially as shown and described.

3. The combination of the annular perforated movable rings 2 and 4 with the perforated rings 3 and 5, and the ring 1, in the exchanger of temperature, substantially as shown and described.

4. The combination of the serpentines *f f'* *f² f³* with the vessels E E' E² E³, substantially as shown and described.

5. The combination of the receiver H, provided with the perforation *h'*, with the tube *h*, substantially as shown and described.

6. The combination of the receiver H with the pipe I, serpentines I I', and exit pipe J, substantially as shown and described.

7. The combination of the serpentine A', annular closed vessel B¹², and internal appendage B³ of the liquefier, substantially as described, and shown in Fig. 3 of the drawings.

8. The combination of the tubes C C', placed at an angle to the radius of the vessel B, substantially as shown and described.

9. The flange *a'*, constructed so as to be secured to the vessel B¹², and to support the flange of the tube for the admission of the gas, substantially as shown and described.

10. The combination of the tubes *c'*, diaphragms *l*, and partition F of the absorption-vessel, substantially as described, and shown in Fig. 3 of the drawings.

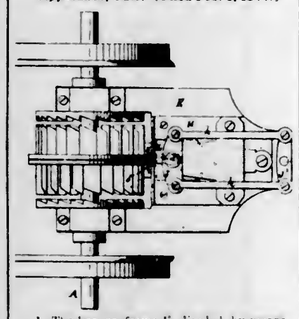
11. The combination of the small disk *g* with tube G, to break up the current and regulate the circulation, substantially as shown and described.

12. The combination of the perforated tube I with the absorption-vessel, substantially as described.

13. The combination of the casing E^2, wooden frame E^3, serpentines 11 12 13 41 51 6, distributer A^{11}, tubes a^5, and collector B^4, of the refrigerator, substantially as described, and shown in Fig. 6.

14. The tap provided with a plug, A^{20}, and the recessed capsule a^{13}, of soft metal, substantially as described, and shown in in Fig. 15 of the drawings.

187,355. CAR-STARTERS. R. R. Carpenter, Tippecanoe, Ohio. [Filed Feb. 5, 1877.]



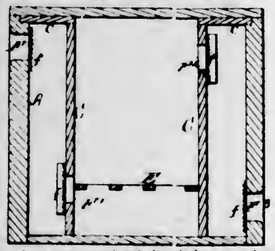
1. The box or frame E, divided by means of the plate H into two separate and independent chambers for containing the pawls I I in one chamber and the forked lever G in the other chamber, substantially as and for the purposes herein set forth.

2. The combination of the pawls I I, the forked lever G, placed in separate chambers in the box E, and the cams *a* and *b*, secured upon the shaft *d*, substantially as and for the purposes herein set forth.

3. The combination of the pawls I I, pins *p p*, and springs *s s*, all inclosed and concealed within the box E, for the purposes herein set forth.

4. The combination, with the pawls I I and forked lever G, of the shaft *d* with cams *a b* thereon, the lever J, connecting-rods *k k*, and the lever J^1 on the brake-rod *m*, substantially as and for the purposes herein set forth.

187,356. MOTH-PROOF SAFES. A. H. Clark, Northfield, Minn. [Filed Dec. 9, 1876.]



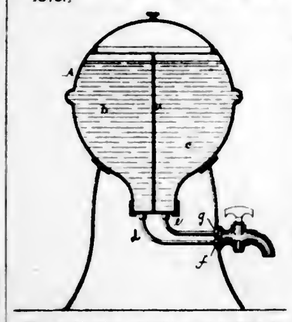
1. A moth-proof safe for clothes or other fabrics, constructed with a central compartment and two end compartments, and having openings $F F^1 F^2 F^3$, arranged substantially as set forth.

2. A moth-proof safe having partitions C C, of cedar-wood or its equivalent, cedar wood supporting-slats E, and perforations $F F^1 F^2 F^3$, arranged substantially as set forth.

3. A moth-proof safe having a ventilating-opening above the clothes at one end, and a similar opening below the clothes at the other end, and provided with cedar wood partitions, and adapted for the passage of a current of air, substantially as described, and for the purpose set forth.

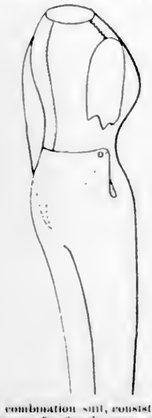
4. In a moth-proof safe, the openings $F F^1 F^2 F^3$, made in the body A and partitions C, said openings being protected by screens *f*, and arranged above and below each other, so as to cause a circuitous circulation of air, substantially as described, and for the purpose set forth.

187,357. APPARATUS FOR THE MANUFACTURE OF MINERAL WATER. E. Cornelis, New York, N. Y., assignor to himself and J. M. Elliott, same place. [Filed Dec. 26, 1876.]



The combination, with the vessel A, divided into two compartments, *b c*, by a vertical partition, *a*, of the two pipes *d e*, attached to the bottom of the said vessel, and communicating with the vessel on opposite sides of the partition *a*, said pipes projecting downwardly, and horizontally attached to the ways *f g* of a two-way cock, B, substantially as described.

187,358. UNDERGARMENTS. C. C. Curtis, San Francisco, Cal. [Filed Aug. 3, 1876.]



1. A combination suit, consisting of waist and drawers, for female wear, cut with one-half of the front of the waist, one leg, and one-half of flap in one single piece, substantially as and for the purpose described.

2. A combined waist and drawers for female underwear having the waist cut in close-fitting sacque form, with horizontal darts and long back, substantially as and for the purposes described.

187,359. BRICK-MACHINES. T. J. Davis, Fairhaven, N. Y. [Filed Aug. 12, 1876.]

Brief.—The train of molds is moved forward by suitable mechanism after each compression the distance between the plungers. The compressing plunger is operated in both directions by the eccentric on the main shaft. The discharging-plunger is urged downward by cams on the main shaft, and raised by means of a spring-bar. A transverse apron or belt carries the bricks out at one side.

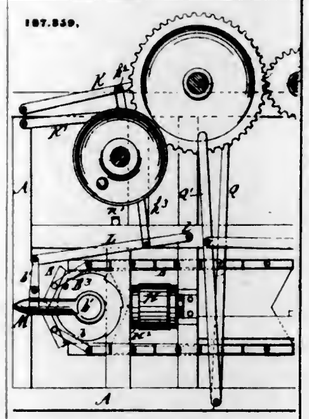
1. The plungers F, with their rods F^1, and the spring bar G, arranged and operated as and for the purpose set forth.

2. The automatic mechanism e^1, K, K', k^2, k^3, L, M, and B^2, for operating the train of molds, as and for the purpose set forth.

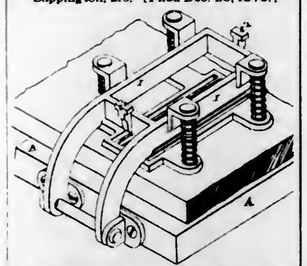
3. The pawl N, arranged and operated as and for the purpose set forth.

4. The valve or gate A^1, with its operating mechanism O, P, P^1, Q, Q', e^1, and e^2, arranged as and for the purpose set forth.

187,359.

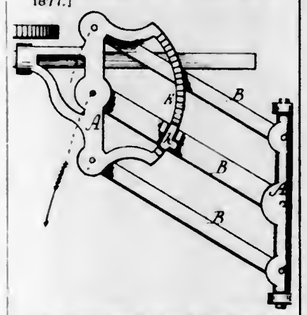


187,360. STEAK-TENDERERS. A. J. Davis, Sappington, Mo. [Filed Dec. 26, 1876.]



The combination of the frame I, hinged to base A, removable cutter-block *c*, and detachable lever D, holding said cutter box or block in position.

187,361. ADJUSTABLE BRACKETS. Geo. P. Davis, Rochester, N. Y. [Filed Jan. 13, 1877.]

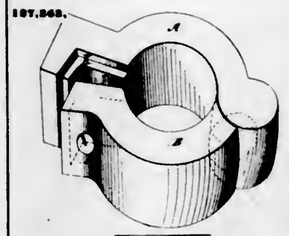


In an adjustable bracket, the combination, with the standards A A and pivoted bars B B, of the curved segment E, attached to and forming a part of the outer standard, extending back and forming a bearing to the said bars, and one of the bars provided with the detent A, engaging with ratchet-teeth on the segment, as shown and described, and for the purpose specified.

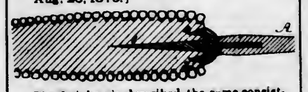
187,362. SHACKLES. H. W. Dilg, Portland, Oreg., assignor to himself, H. C. Paige, and E. Morrill, same place. [Filed Mar. 25, 1876.]

The shackle composed of the parts A B, the one having a hinge-socket and angular portion, and the other provided with a curved tongue and a locking-bolt, as shown and described.

187,363.

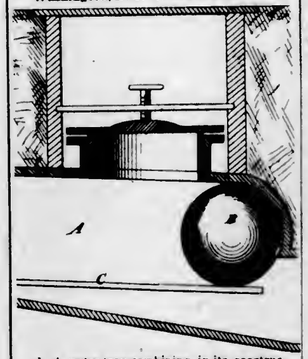


187,363. TABLE-FORKS FOR GREEN CORN, &c. F. M. Dizon, Philadelphia, Pa. [Filed Aug. 28, 1876.]



The fork herein described, the same consisting of the longer tine 1, projecting taperingly to a sharp point in alignment with the straight handle A, and of the two shorter tines 2 2, each tapered to a sharp point in the same direction as that of the longer tine 1, substantially as and for the purpose hereinbefore set forth.

187,364. TRAPS FOR PREVENTING THE INFLOW OF BACKWATER. W. F. Downey, Washington, D. C. [Filed Dec. 16, 1876.]

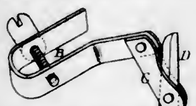


1. A water-trap combining in its construction the shell A and valve-seat, ball-valve B, and way C, arranged to operate substantially as set forth.

2. The shell A, constructed with a man hole, in combination with the ball-valve and ways, substantially as set forth, for giving access to the valve and seat.

187,365. THREAD-CUTTERS FOR SEWING-MACHINES. John Doyle, Hoboken, N. J., assignor to A. Robertson, New York, N. Y. [Filed Nov. 18, 1876.]

Brief.—The thread-cutter has a U-shaped base, which is provided with an oblique descending arm, on which a knife is so pivoted as to form an angle, through which the thread is drawn, and thereby severed.

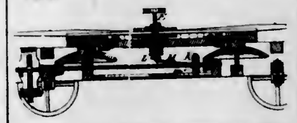


1. The adjustable thread-cutter, having the U-shaped clamping-body B, and the obliquely-descending arm C, carrying the cutter-blade D, substantially as specified.

2. In a thread-cutter, the combination, with the oblique-slotted or double barred arm C, having a clamping attachment, of the blade D, pivoted or riveted therein, to form a low angle therewith, when adjusted for use, substantially as specified.

187,366. HORSE-POWERS. J. H. Elward, St. Paul, Minn. [Filed Jan. 19, 1877.]

Brief.—Gearing around the inner periphery of the main wheel operates below two wheels placed diametrically opposite, which, in turn, rotate the tumbling-shaft. A pinion on the end of the latter can be made to gear with interchangeable wheels of different diameters, by bearings adjustable in a slot. The turning of a rod passing vertically through the center of the main wheel operates a brake beneath.



1. In a horse-power, the combination, with the line-shaft 1, of the brake-wheel K, shoes *a' a'*, brake-arms M M, cross-head L, center-pin E, and connecting devices, substantially as set forth.

2. In a horse-power, the combination, with the line-shaft, of a mounting for the tumbling-rod pinion, arranged to receive pinions of different diameters, as and for the purpose set forth.

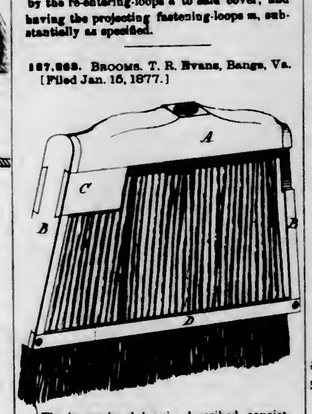
187,367. TEMPORARY BINDERS. Geo. W. Emerson, Philadelphia, Pa. [Filed Jan. 20, 1877.]



1. The combination, with the covers A, of the binding-wires *b*, having projecting loops *m*, riveted on each side to the covers, and forming fastenings from which the binding-strands cannot slip on said wires, substantially as specified.

2. The combination, with the cover A, of the binding-wire *b*, spaced from and running parallel with the edge of said cover, secured by the re-entering-loops *d* to said cover, and having the projecting fastening-loops *m*, substantially as specified.

187,368. BROOMS. T. R. Evans, Bangs, Va. [Filed Jan. 15, 1877.]



The broom-head herein described, consisting of the block A, formed of a single piece of wood, and perforated to receive the handle, the end pieces B B, the dovetailed side pieces C C, and the straps D D, one or both of which may be removable, all combined in the manner and for the purpose set forth.

187,369. SHUTTLES FOR NARROW-WARE LOOMS. G. Fischer, G. F. Kek, and J. B. Sharp, New York, N. Y. [Filed Jan. 11, 1877.]

Brief.—The invention consists in combining, with the body of a loom-shuttle, having an eye and a recess intersecting the same, a fixed cross-bar and a longitudinal pressure-slide, both arranged in said recess, the said slide being provided with an actuating-spring, and with a hook, which partly embraces and bears against the fixed cross-bar, so that the filling-thread can be brought within said hook, between the same and the fixed bar, and thus form a tension device for the thread.

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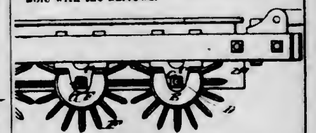


1. The shuttle A, constructed with the eye *a*, and recess D, intersecting said eye with a fixed bar, C, secured transversely in said recess, and with a longitudinal horizontally-moving pressure-slide bearing against said cross-bar, substantially as described.

2. The combination, with a loom-shuttle body, constructed with an eye, *a*, and a recess, D, of the fixed bar C, arranged transversely across the opening D, and adjacent to the eye *a*, the pressure-slide B, arranged longitudinally in said recess, and having a hook, *b*, bearing against the cross-bar C, substantially as described.

187,370. REVOLVING HARROWS. Oliver P. Fisher, Basil, Ohio, assignor of one-half his right to J. F. Campbell, same place. [Filed June 19, 1876.]

Brief.—The frame is rectangular, with a longitudinal bearing in the center. The cylinders are in three pairs, placed by two and two, end to end. The teeth project in radial lines, and are spirally arranged in opposite directions for each pair. Smooth rollers are interchangeable with the harrows.

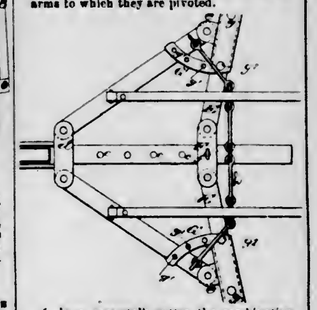


1. The sectional rollers E E, journaled in the frame B and central plate B^3, and armed with teeth helically arranged thereon, which converge on each set of rollers abreast with each other toward the central line of the harrow, forming an obtuse angle with each other, the direction of the curve of the teeth in one roller being also opposite to that in the roller in rear of it, whereby the soil is moved from the central line of the harrow alternately outward and inward in opposite directions, substantially as described, and for the purpose set forth.

2. The harrow-frame B, provided with the central perforated plate B^3 and perforated brackets C, in combination with the sectional rollers E E, having teeth F F, and the detachable rods D D, substantially as described, and for the purpose set forth.

187,371. CORN-STALK CUTTERS. W. Gans, Olathe, Kans. [Filed July 22, 1876.]

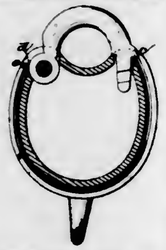
Brief.—The cutting-knives are provided with segmental perforated plates for adjusting them relatively to the adjustment of the arms to which they are pivoted.



1. In a corn-stalk cutter, the combination of devices for adjusting the blades to or from one another, with devices for adjusting the inclination of said blades relatively to the arms which carry them, substantially as set forth.

2. The combination of arm E, having perforation or recess g^2, with knife G pivoted thereon, and segmental adjusting-plate G' perforated at g^1 g^2, substantially as set forth.

187,372. LABEL-HOLDERS. J. B. Gathright, Louisville, Ky. [Filed Aug. 18, 1876.]

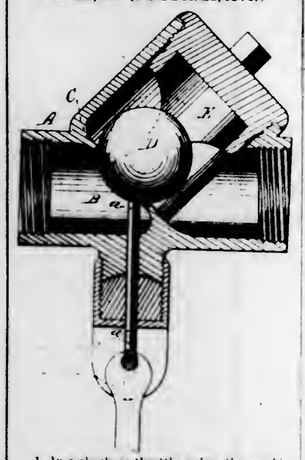


1. A label-holder provided with longitudinally curved grooves, in which the label is held in place by its curved position, as herein shown and described.

2. A combined lock and label-holder for mail-bags and similar uses, in which the perimeter face of the lock is provided with longitudinally-curved grooves to hold the label, substantially as shown and described.

3. In combination with a label-holder formed of longitudinally-curved grooves, as described, the flexible metallic slide *n*, to abift the destination, substantially as shown and described.

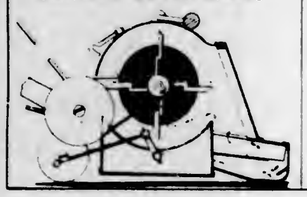
187,373. THROTTLE AND CHECK VALVES. O. B. Goodwin, Oil City, and H. Essex, Meadville, Pa. [Filed Dec. 28, 1876.]



1. In a check or throttle valve, the combination of the gravitating ball or spherical valve D, the rod *a*, independent of the valve, and a mechanism for operating said rod, whereby the ball valve is lifted from the bottom, substantially as herein set forth.

2. The combination, with the valve-chamber A, having straight passage B, of the inclined valve-seat C, enlarged barrel G, with screw-cage E, the ball or spherical valve D, rod *a*, independent and separate from the valve, and a cam-lever, or equivalent mechanism, for raising and lowering said rod, substantially as set forth.

187,374. CARPET-SWEEPERS. W. S. Hall, Quincy, Mass. [Filed Dec. 15, 1876.]



1. In a sweeping machine, the combination, with a rotary fan, fan-case, and dust or dirt receptacle, of a reticulated or foraminous screen arranged between the fan and dirt-receptacle, substantially as described.

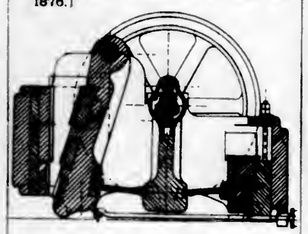
2. In a sweeping machine, the combination, with the fan, fan-case, and reticulated screen, of a clearer to act upon the particles of dust and dirt lodged against the screen, substantially as described.

3. In a sweeping-machine, the combination, with a fan case and spout and dirt-receptacle, of a rotary fan and deflector, adapted to create and maintain a current of air through the sweeper, substantially as described.

4. The combination of the fan, fan-case, and deflector with the gathering-chamber and dirt-receptacle, substantially as described.

5. In a sweeping-machine, a rotating fan-wheel, in combination with a gathering-chamber, and an air-deflector to deflect the air set in motion and forced from the fan-case upon the floor, and direct it thence into the sweeper-case, substantially as described.

187,375. STONE AND ORE CRUSHERS. C. E. Hall, Leeds, England. [Filed Aug. 30, 1876.]

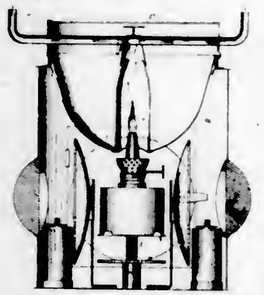


1. The combination of the vibrating jaws and connecting rods and toggles, one set for each jaw, with the driving-shaft of the machine, provided with cranks, eccentrics, or cams, one for each jaw, arranged successively to actuate the several vibrating jaws through their connecting rods and toggles, substantially as set forth.

2. The combination, substantially as described, of the vibrating jaw or jaws and the connecting rod or rods, and toggles for the same, with the driving-shaft of the machine provided with a multiple cam or cams, formed and arranged to impart, through said connecting rods or rods and toggles, two or more vibrations to the said vibrating jaw or jaws for each revolution of said driving-shaft.

3. In a stone-crushing or breaking machine, the combination of swinging jaws arranged side by side to act alternately in the same direction, and coupled substantially in the manner herein shown and described, so that the advancing movement of one swinging jaw shall cause the other jaw to recede.

187,376. SIGNAL-LANTERNS. R. J. Hamilton, Fort Wayne, Ind., assignor of two-thirds his right to F. R. Hamilton and R. J. Hamilton, Jr., same place. [Filed Dec. 18, 1876.]



1. A signal-lantern provided with a side light or lights, and having arranged at or near its top a reflector for throwing the rays of light in an upward direction, substantially as specified.

2. The glass cover C, provided with hinged or pivoted blinds D, substantially as and for the purpose set forth.

3. The lamp rest or support *k*, connected to the screw rod *l*, and the sleeve *m*, and hand-wheel *n*, combined to operate as specified.

187,377. DASH-PROTECTORS FOR VEHICLES. D. R. Harder, North Chatham, N. Y. [Filed Dec. 14, 1876.]



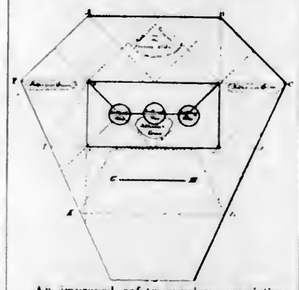
1. A fender for vehicles, composed of the frame E, peripherical covering or hood F, and side fenner F', united together or separated, the rods *d*, and horizontal clip-plate D', substantially as described.

2. A concentric fender, substantially as described, attached to, or united with, the clip-plate D' below the axle, or to the part *b* above the axle, as set forth.

187,378. STOVE-POLISH. Lewis C. Harvey, Jackson, Mich., assignor of one-half his right to John McArdle, Cleveland, Ohio. [Filed Jan. 30, 1877.]

The stove-polish described, consisting of English plumbago, German plumbago, bar-soap, sugar, and turpentine, prepared in about the proportions set forth.

187,379. ENVELOPES. John J. Hayden, Indianapolis, Ind., assignor of one-half his right to C. P. Benedict, Washington, D. C. [Filed Feb. 7, 1877.]



An improved safety envelope, consisting of a blank, cut substantially as herein shown and described, and folded upon the horizontal lines K L, I J, F C, diagonal lines C *j*, F *i*, perpendicular lines A *i* B *j*, diagonal lines *l k* and *k* A, and finally on the line *k l*, as and for the purpose specified.

187,380.



187,380. DROP-LIGHTS. C. Henry, East Somerville, Mass. [Filed Jan. 27, 1877.]

1. In a drop-light the combination of a burner, A, an adjustable flexible support, and a flexible connection between said burner A and the fixed gas-tube, substantially as set forth.

2. The frame A, with sliding or movable weight B, or its equivalent, supported by the chain C, with rings D, hook F, and rod G, substantially as herein shown and specified.

187,381. AIR AND STEAM BLOWERS FOR FURNACES. B. Hershey, Erie, Pa. [Filed Jan. 16, 1877.]

Brief.—The exhaust steam passes through a pipe longitudinally located within a mixing-chamber, and is deflected back into said chamber by a cone in an inner cylinder, concentrically within a live-steam cylinder. Opposite the end of said mixing-chamber, and in the rear of the inner cylinder, is a chamber, into which the live steam enters, and issues through the annular space formed between the inner and live-steam cylinder, and by its force carries the exhaust steam and air into the mixing-chamber, and then into the furnace. All these cylinders are constructed with one end open, and form annular spaces by the difference in the size of their diameters, through which the air and steam are allowed to pass.



1. The combination, with a steam boiler furnace, of a blower having direct connection with the exhaust steam pipe of the engine, with the live steam space of the boiler and with the ash-pit of the furnace, substantially as described, for the purposes set forth.

2. The combination, in a blower for furnaces, of the main cylinder A, live-steam cylinder F, inner cylinder F', and cones D and I, and pipe U, substantially as and for the purpose described.

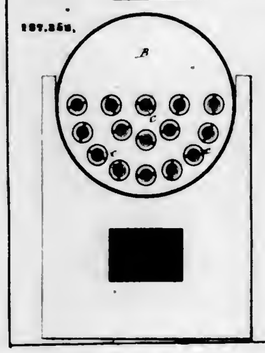
3. The combination, with a boiler-furnace and the exhaust steam pipe, of an air-chamber and a blower, having a clear space at their open junction ends into and through which the supply of air is made, by the force of steam, substantially as described.

4. The combination, with the air-chamber and the furnace, of the exhaust-steam pipe, the blower cylinder F', and its cone D, arranged in relation to each other substantially as and for the purpose described.

5. The combination, with the air-chamber and the furnace, of the double blower, consisting of the inner and outer cylinders, the annular space, the outer cone, and the steam-pipe connecting the boiler, substantially as described.

6. A blower and an air-chamber formed with the clear space *b*, and connected with each other the furnace, and the exhaust-steam pipe, substantially as described.

187,382.

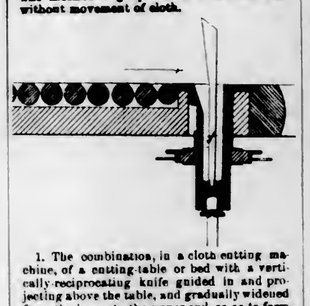


187,383. TUBE-FASTENINGS FOR STEAM-BOILERS. Daniel Hess, Greenville, Miss. [Filed Jan. 30, 1877.]

The combination of the annular nuts C, screw-threaded internally and having a smooth or plain surface exteriorly, the fire-tubes having their ends screw-threaded externally, and the tube-sheets B B' provided with apertures countersunk to a depth equal to or greater than the thickness of the nuts to adapt them to receive the latter, as and for the purpose specified.

187,384. MACHINES FOR CUTTING CLOTH. M. L. Hodson, Camden, N. J., assignor of one-half his right to H. F. Scotchard and H. Hoffman, Philadelphia, Pa. [Filed May 26, 1876.]

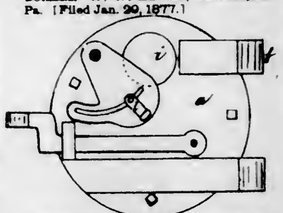
Brief.—The mechanism operating the knife is all below the table. The knife is guided by a socket in and below the table's surface. The inclined edge produces a forward cut without movement of cloth.



1. The combination, in a cloth cutting machine, of a cutting-table or bed with a vertically-reciprocating knife guided in and projecting above the table, and gradually widened from the lower to the upper end, so as to form an inclined cutting edge *i*, at one side, as described.

2. A cloth-cutting machine having a table composed partly of anti-friction rollers, as set forth.

187,385. FURNACE-DOORS FOR STEAM-BOILERS. W. W. Hubbell, Philadelphia, Pa. [Filed Jan. 29, 1877.]

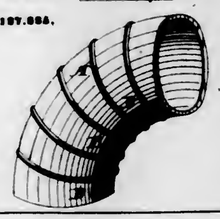


1. The furnace-door for locomotive or similar steam-boilers, consisting of the conical or tapering perforated plate *b*, projecting into the furnace *m*, air-chamber *d*, and plate *a*, with opening *i*, constructed and operating as herein-tially as described.

2. The door provided with the opening *i*, located opposite the unperforated portion of the conical chamber *d*, projecting into the furnace, and perforated in the lower half so as to deflect the air downward and sidewise through the said perforations in the chamber, as described.

3. The conical perforated plate *b*, attached to the furnace-door frame or plate, projecting into and forming perforated chamber-sides in the furnace *m*, for the purpose and operating as described.

187,386.



187,387. ELBOWS FOR STOVE-PIPES, &c. A. C. Hogen, Cleveland, Ohio. [Filed Dec. 19, 1876.]

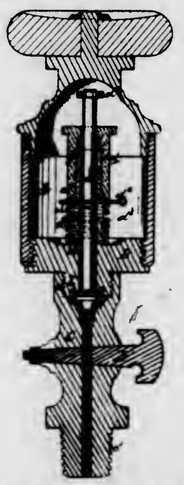
A pipe-elbow, consisting of three or more sheet-metal sections, B, rigidly secured to each other by radial or transverse joints, each section consisting of a plain-surfaced ring, gradually increasing in width from its inner to its outer side, and each ring having its entire inner and outer surface curved to correspond with the arc of the circle of the elbow A, substantially as set forth.

187,388. PROCESSES OF MANUFACTURING BESSEMER STEEL. Robt. W. Hunt and A. Wendel, Troy, N. Y. [Filed June 6, 1876.]

1. The process of manufacturing Bessemer steel from high silicon pig, as herein described, which consists in adding unmelted pig metal to the melted charge in the converter, previous to the conversion of the charge, substantially as and for the purpose specified.

2. The process of manufacturing Bessemer steel, herein described, which consists in adding portions of pig-iron and spiegeleisen, or ferro-manganese, in a solid or unmelted condition to the charge in the converter previous to the conversion of the charge, substantially as and for the purpose specified.

187,389. LUBRICATORS. D. Jenkins, Pittsburg, Pa. [Filed Jan. 17, 1877.]



1. In a lubricator or oil-cup of the class specified, the combination of the valve having a suitable stem provided with a lug or pin, with the slotted sleeve, the spring, and the screw-sleeve, substantially as specified.

2. The combination of the valve having a suitable stem, the nut *d*', and the screw-sleeve *f*, substantially as and for the purpose specified.

3. In a lubricator the combination of the sleeve *e*, threaded and split, substantially as specified, with the sleeve *f*, as and for the purpose set forth.

187,390. WOOD-BORING MACHINES. B. F. Joslyn, Worcester, Mass., assignor to R. P. Bruff, New York City. [Filed July 5, 1876.]

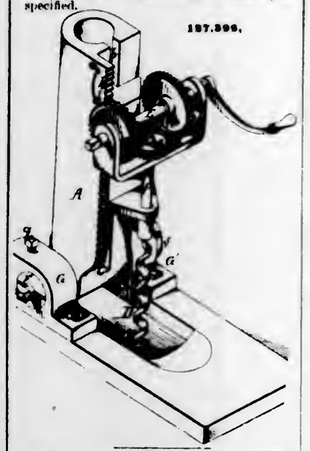
Brief.—The boring-tool can be adjusted and secured at any desired angle by means of a slotted and hollow standard, provided at its lower part with trunnions, adapted to bearings which gripe and hold them securely in position. The auger-frame is guided and prevented from twisting laterally and longitudinally by means of a vertically-adjustable cylindrical block, adapted to the opening in the standard, and connected to the frame by a rib adapted to the slot in the standard.

1. The combination, in a portable boring-machine, of the standard A having an opening, *a*, and slot *b*, with the frame B, its block *i*, and connecting rib *m*, as set forth.

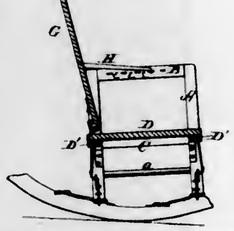
2. The combination of the standard A, its trunnion F', and its recessed trunnion F, and taper screw *p*, with the bearing G and its screw *g*, as set forth.

3. The combination of the standard A and its trunnion F' and trunnion F, with the bearing G', screw *r*, collar *s*, and screw *t*, as specified.

187,388.



187,389. CHAIRS. Paul Kamerer, Chattanooga, Tenn. [Filed Aug. 2, 1876.]



1. The combination of the side frames A B C, the seat D, metal plates *b d*, with hooks *x y*, metal braces E, with hooks *i*, perforated plate *f*, and latches *h*, substantially as and for the purposes herein set forth.

2. The combination, with the chair-frame, of the back G, with sliding bolts *k k*, pivoted arm hooks H, and staples *e*, as and for the purposes herein set forth.

3. The combination of the chair-legs A with L-shaped feet *s*, the rockers R, with sockets *t*, and the sliding bolts *v*, as and for the purposes herein set forth.

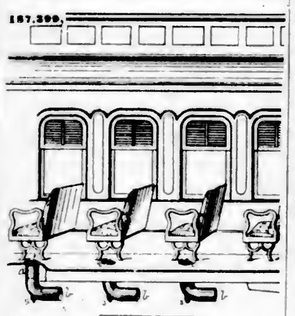
187,390. VENTILATING RAILWAY-CARS. H. King, Allegheny, Pa., assignor to himself and A. C. Milliken, same place. [Filed Dec. 26, 1876.]

Brief.—This ventilating device in the floor of the car is constructed with a pipe or flue placed in an opening in the floor, and supported therein by the shoulder or flange. Any desired form of register-gate is placed at the inner opening of this flue, on a suitable seat in the flange or on the spider-frame. The current from the car will carry out such gases as may have settled to the floor much more thoroughly than can be done by other systems of ventilation, and the action of the valve will prevent any dust or outside air from entering the cars through such flues.

1. A ventilating device for car-floors, consisting of register *c*, barrel *a*, vane *b*, swiveled thereto by flange and socket-joint, spiders *c c'*, rod *d*, and valve *e*, combined and arranged substantially as set forth.

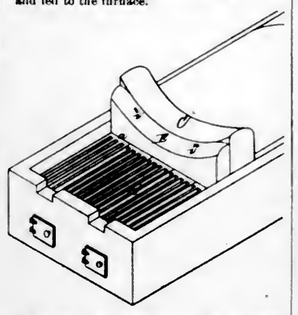
2. In combination with the swinging vane *b*, the valve *e* and stop-arm *g*, arranged substantially as set forth.

187,391.



187,391. BRIDGE-WALL ATTACHMENTS FOR FURNACES. T. King, Jr., Quincy, assignor to himself and C. S. Bryant, Stoneham, Mass. [Filed Dec. 30, 1876.]

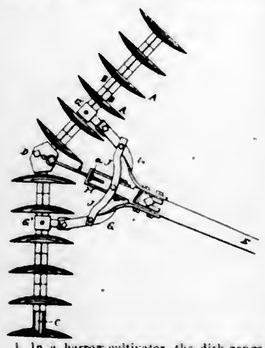
Brief.—A removable chamber is located in front of the bridge-wall, in which air is heated and led to the furnace.



The removable metallic plate E, provided with an air-chamber, *f*, provided with the inlet *g* and the outlet *i*, in combination with, and located immediately in front of, the bridge-wall C, substantially in the manner and for the purpose set forth.

187,392. HARROW-CULTIVATORS. C. Le Dow, Albany, N. Y. [Filed Dec. 13, 1876.]

Brief.—A series of disk-wheels are mounted upon axles connected at their inner ends by a universal joint. The draft-bars are connected to the axle by universal joints. The wheel-gangs are adjustable relatively to the line of draft.



1. In a harrow-cultivator, the disk-gangs, connected at their inner ends by a universal joint, as herein described.

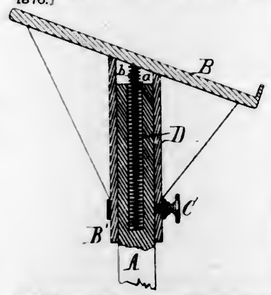
2. The combination, in a harrow-cultivator, of two disk-shafts, connected at their inner ends by a universal joint, and adjustable relatively to the line of draft.

3. The combination of the draft-bars G, boxes G', braces J, pole E, and seat I, with the flexibly-jointed axles C C and wheels A of a harrow-cultivator, as and for the purposes herein set forth.

4. The combination of the draft-bars G G' and universal joints G' G' with the axles C C and the center joint D connecting the axles, and adjustably connected to the rear end of the pole, for the purposes herein set forth.

5. The combination of the axles C C, universal joints G' G', braces G G, and universal center joint D, with the pivoted rod *b*, adjustably pivoted stirrup H, pole E, and nut *a*, substantially as and for the purposes herein set forth.

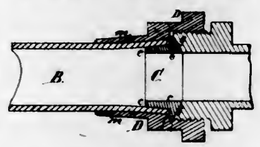
187,393. BOOK-SUPPORTS. J. Lamb and R. Lamb, New York, N. Y. [Filed Mar. 17, 1876.]



1. The adjustable table-support described, having two parts fitting adjustably, one within the other, and having a counter-balancing spring, D, inclosed within a cavity, *a*, in the interior of the smaller part, as and for the purposes herein specified.

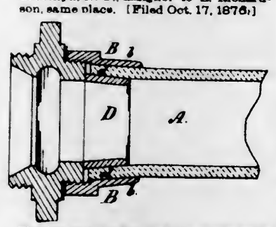
2. A rod, *b*, in combination with the hollow post A *a*, the adjustable desk B, extension B', spring D, and binding-screw C, as herein specified.

187,394. PIPE-COUPLINGS. E. A. Leland, Brooklyn, N. Y. [Filed Oct. 17, 1876.]



The pipe-coupling, comprising the main nut A, having the concave socket provided in its end, the tapering thimble C, constructed with the convex face *f*, the holding-nut D, constructed with the collar *m*, and the pipe or tube section B, having its end flared or enlarged, the whole constructed, combined, and arranged substantially as and for the purpose herein set forth.

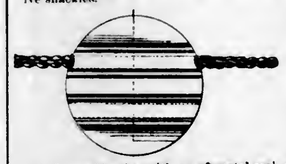
187,395. HOSE-COUPLINGS. E. A. Leland, Brooklyn, N. Y., assignor to L. Richardson, same place. [Filed Oct. 17, 1876.]



The internal leaden ring D, expanded to tapering form, in combination with the nut B, constructed with the tapering portion *b* and the end portion of the hose A, griped between the expanded leaden ring D and the tapering part of the nut B, all in the manner herein set forth, for the purpose specified.

187,396. METALLIC SEALS. E. A. Locke, Boston, Mass. [Filed Feb. 1, 1877.]

Brief.—The shackle-wires are "cable-laid," thus presenting a cellulated surface, into which a portion of the soft metal of the seals is compressed. The seals are provided with grooves upon their faces for the reception of the ends of the shackle-wires, which ends may be compressed into the faces of the seals when the latter are being attached to their respective shackles.

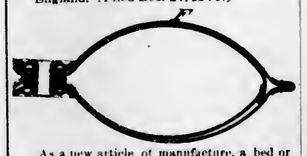


1. In combination with a soft-metal seal, a sealing-shackle composed of two or more strands twisted together, each of which strands is formed by twisting together two or more wires, substantially as and for the purpose specified.

2. A sealing device in which the seal is primarily secured upon one end of a shackle by compressing mechanically a portion of the metal surrounding the opening through which said shackle end passes, substantially as and for the purpose shown.

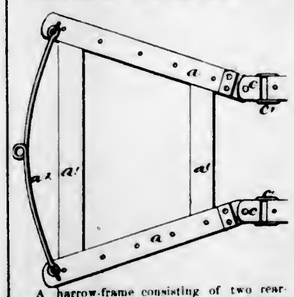
3. A sealing-disk provided upon one or both of its sides with a groove or grooves to receive the rear-wall-turned ends of the shackle, substantially as and for the purpose set forth.

187,397. AIR-BEDS. John M. Macintosh, Finsbury, and William Boggett, Chelsea, England. [Filed Dec. 27, 1876.]



As a new article of manufacture, a bed or cushion constructed of an air or water tight vessel or case and an exterior covering or envelope, F, substantially as shown and described.

187,398. CORN-HARROWS. Ezekiel Martin, Memphis, Mo. [Filed Jan. 6, 1877.]



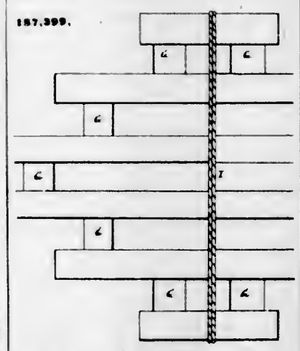
A harrow-frame consisting of two rearwardly-converging side beams, *a a*, and cross-bars a^1 a^1, in combination with vertically and laterally vibrating extension-pieces C C, which are provided at their rear ends with diverging handles D D, substantially as described, and for the purpose set forth.

187,399. FIRE-KINDLERS. S. W. Mather, Cleveland, Ohio. [Filed Jan. 20, 1877.]

Brief.—The sides are made shorter than the central strips, to admit of its being used in stoves of various sizes.

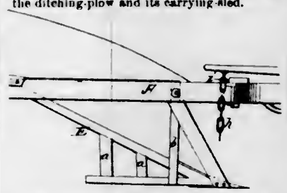
As a new article of manufacture, the herein described fire-kindler, consisting of wood strips, arranged parallel with each other, decreasing from the central to the side pieces in length, in combination with blocks G, band I, and coating of suitable hydrocarbon compound or material, as specified.

187,399.



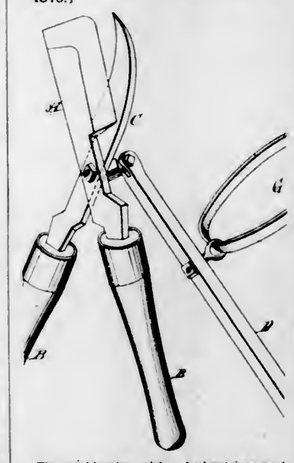
187,400. DITCHING-PLOWS. D. N. Maxwell, Ames, Iowa, assignor of one-half his right to G. W. Jones, same place. [Filed July 17, 1876.]

Brief.—A combination which adds supporting-rollers and laterally-adjustable draft to the ditching-plow and its carrying-sled.



In combination with the ditching-frame A B, carrying the plow, the adjustable sled-frame J, provided with the rollers *d d*, the standards K, rocking bar L, lever M, perforated boards *p*, pin *s*, and laterally-adjustable draft-rod N, all constructed and arranged substantially as and for the purposes herein set forth.

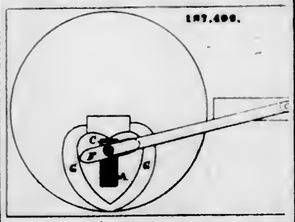
187,401. HEDGE-TRIMMERS. James A. McMarlin, Pittsburg, Ind. [Filed Dec. 28, 1876.]



The combination, with a hedge-trimmer, A B C, of the bar D, belt E, and strap G, substantially as and for the purposes herein set forth.

187,402. COMPENSATING-CRANKS. R. D. Milne, Santa Barbara, Cal., assignor of part of his right to Edw. Graham, W. W. Holister, J. V. Hart, H. S. Greeley, W. S. Chamberlain, E. B. Hall, D. P. Hatch, J. R. Redfield, and H. McLellan. [Filed Jan. 15, 1877.]

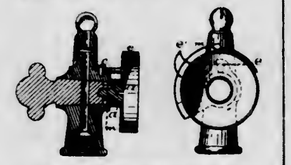
187,402.



1. The method of equalizing and balancing the varying pressure exerted by a piston or other motor upon a crank during its revolution, consisting in producing a series of changes in the line of direct propulsion by means of the compensator C, moving in the radial slot A, or equivalent device, so that the point of impact of force recedes from or approaches the center of the crank during its revolution, substantially as herein described.

2. The method for utilizing the independent motion of a connecting-rod between a crank and its reciprocating motor, consisting in bringing it to bear upon the crank at such an angular inclination as to be equivalent to direct propulsion in a line varying from the line of force inversely as the angle of the connecting-rod and crank varies from a right angle, by means of the curves G, acting upon the regulator F, or an equivalent device, substantially as herein described.

187,403. SELF-LIGHTING GAS-BURNERS. R. R. Moffatt, Brooklyn, N. Y., assignor of one-third his right to C. K. Brower, same place. [Filed Jan. 5, 1877.]



1. In a gas-lighting apparatus, the revolving magazine *a*, substantially as and for the purpose herein specified.

2. The magazine *a*, provided with a recess-chamber, *a'*, substantially as and for the purpose herein set forth.

3. In a lighting apparatus, substantially as specified, the cylindrical magazine *a*, having no projections upon its periphery, as herein set forth.

4. A lighting apparatus constructed, substantially as specified, so that the periphery of the cylindrical magazine will operate or act as an anvil upon which to strike and fire the pellets, substantially as and for the purpose herein specified.

5. The hammer-spring *m*, extending partly around the periphery of the magazine *a*, without contact therewith, so that the tape will pass between them, substantially as herein set forth.

6. The hammer-spring *m*, attached to the gas-cock, substantially as and for the purpose herein set forth.

7. The cam *e'*, arranged as specified, so that the spur *n* will pass under it and press the spring *m* downward upon the tape, substantially as herein set forth.

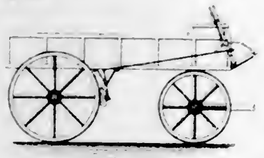
8. In combination with a moving magazine, the stationary feed *e*, arranged and operating substantially as and for the purpose herein set forth.

9. The combination of the stationary feed *e* and cam *e'* with the spring *e*, substantially as and for the purpose herein set forth.

10. The magazine *a*, attached to the gas-cock, as shown, so that they will rotate together, substantially as and for the purpose herein specified.

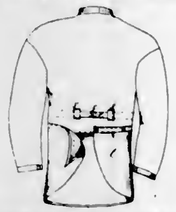
187,404. WAGON-BRAKES. D. C. Montgomery, St. Joseph, Mo., assignor of one-half his right to Z. Montgomery, same place. [Filed Jan. 3, 1877.]

187,404.



A wagon-brake constructed with a rubber spring secured to one end of the brake-rod by nuts and washers, the rod passing through a swiveled guide-plate, and in combination with a block constructed with a dovetail opening, stop, and side openings, substantially in the manner and for the purpose described.

187,405. JACKETS. O. B. Moulton, North Cambridge, Mass. [Filed Dec. 20, 1876.]



1. The combination, with a jumper or jacket, *a b*, of an apron, substantially as and for the purpose set forth.

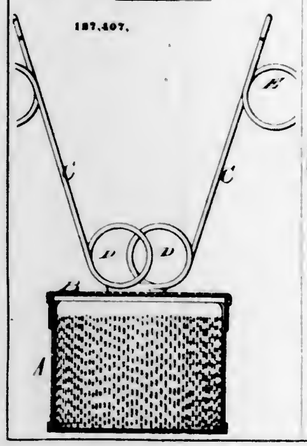
2. The combination, with a jumper or jacket having an apron, of a band, *c*, attached to the jumper, and arranged to operate substantially as and for the purposes set forth.

187,406. FRUIT-JARS. J. A. Nichols, Pittsburg, Pa. [Filed Oct. 21, 1876.]



The combination, with the jar-neck B, having the margin *a*, the internal interspaced marginal flanges *c*, and the external half-seat *b* next said margin, of the cover having the shoulder *a* in contact with said margin, the guide-neck *a*, flanges *c'* and external half-seat *b'* above said shoulder, and the rubber ring E spanning both said half-seats, and closing the joint externally, substantially as specified.

187,407.

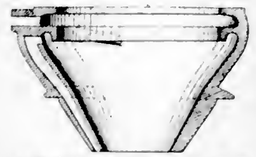


187,407. COFFEE-FILTERS. M. O'Connor, Sparta Centre, Mich., assignor of one-half his right to A. Betterly, same place. [Filed Jan. 6, 1877.]

1. A filter for tea or coffee pots provided with suspending springs C C, having loops E and D, and free upper ends, said springs being attached to cover B of perforated filter A, substantially as described, and for the purpose set forth.

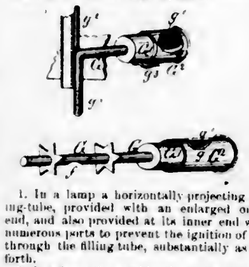
2. A strainer, A, provided with suspending springs which have loops or rings near their upper ends, substantially as and for the purpose set forth.

187,408. VENTILATED WATER-CLOSET BOWLS. Henry Ogden, Providence, R. I. [Filed Jan. 3, 1876.]



A water-closet bowl constructed with an upper and a lower annular channel, the former connected with the exit-pipe, while the latter connects with the water-inlet pipe, substantially as and for the purpose set forth.

187,409. LAMPS. S. S. Newton, Binghamton, N. Y. [Filed Dec. 6, 1876.]



1. In a lamp a horizontally-projecting filling-tube, provided with an enlarged outer end, and also provided at its inner end with numerous ports to prevent the ignition of gas through the filling-tube, substantially as set forth.

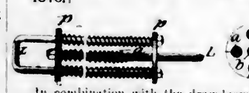
2. In a lamp the combination, with the projecting filling-tube, provided with an enlarged outer end, of a sleeve rotating on the outside of said tube, which serves to close the oil opening in the tubes, substantially as set forth.

3. In a lamp, the combination of a projecting filling-tube, the sleeve G^3, and spring friction-stop, g^4, substantially as set forth.

4. In a lamp, the combination of the gas-escape tube g^5, with the filling-tube G G^1, substantially as set forth.

5. The combination of the wick-tube E, the drip-cup E^1, drip-tube *e*, and the filling-tube A A^1, substantially as set forth.

187,410. DRAFT ATTACHMENTS FOR VEHICLES. G. Otto, Jersey City, N. J., and T. Simon, New York, N. Y. [Filed Dec. 27, 1876.]

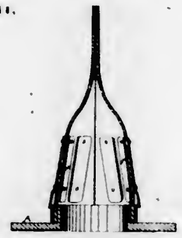


In combination with the draw-loops l, l, the series of rods B, the springs *a*, arranged upon the said rods, and the heads *p p*, one of which is screw-threaded, the tubular casing having an internal screw-thread adapted to the screw-threaded head, substantially as described.

187,411. PUMP-VALVES. Wm. Painter, Baltimore, Md. [Filed Dec. 24, 1875.]

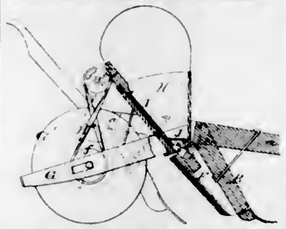
The combination, with a flexible flap-valve, of a suitable brace or stiffener located at the interior of the base of the valve at its entrance, and arranged to operate as a protecting medium, substantially as described, whereby the flexible flaps are readily opened, the valve protected from introverting, and the flexible material protected against undue abrasion, as set forth.

187,411.



187,412. SEED-DROPPERS. W. H. Pennal, Bold Branch, S. C. [Filed Oct. 21, 1876.]

Brief.—Within the hopper, to removable cheek-pieces, is journaled a strike, for removing the surplus seed from a detachable vibrating feeder. Between the rearwardly-extending beams is hinged a frame, carrying the dropping mechanism, operated through the medium of the bearing and pulley wheels.



1. In a corn-planter, the laterally-spread beam *a*, having the branches *a'* extending in the plane of the beam to the rear, on each side of the hopper, in combination with the vertically-vibrating hopper-supporting frame G, hinged by its front end to the beam *a*, and supported in rear by the driving-wheel G', as specified.

2. The hopper H, having removable cheek-pieces *i* in its throat, and the striker J, journaled in the said pieces, combined with a reciprocating dropper-rod, as set forth.

3. A corn planter having the detachable dropper-rod I, the removable cheek-pieces *i* in the throat of the hopper, and a vibrating striker arranged between the said cheek-pieces, substantially as specified.

187,413. PROCESSES OF PRODUCING ARTIFICIAL COLD BY MEANS OF ANHYDROUS SULPHUROUS OXIDE. R. P. Pictet, Geneva, Switzerland. [Filed June 28, 1876.]



The herein-described process of producing artificial cold, which process consists in the utilization of sulphurous oxide that has been rendered anhydrous and condensed, by conducting the same into a refrigerator, and allowing it to volatilize therein, substantially as described.

187,414. STONE AND ORE CRUSHERS. A. Pollok, Washington, D. C., administrator of H. R. Marsden, deceased, assignor to G. Dalton, Leeds, England. [Filed Sept. 12, 1876.]

1. A jaw whose toothed face is constructed substantially as set forth, so that the plane of the face of the upper portion of the length of such surface projects beyond the plane of the face of the lower portion of the length of such surface, and that the lines of the points and furrows of the teeth of the lower portion are diverted laterally from the lines of the points and furrows of the teeth of the upper portion, substantially as and for the purposes herein-before described.

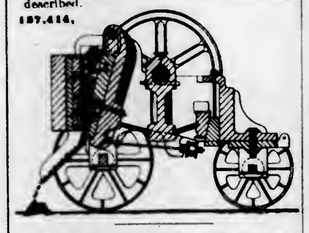
2. A jaw in which the upper and lower portions of the toothed surface have their teeth of a different height and indifferent vertical planes both in the transverse line of the face of the teeth and at right angles thereto, substantially as and for the purposes hereinbefore described.

3. The renewable working-faces of jaws, in which the teeth of the upper and lower portions are in different planes constructed in two or more parts, and fitted and secured to the jaw stock or frame in such a manner as to enable them to be reversed or renewed separately when worn, substantially as hereinbefore described.

4. The acting-faces or portions of the crushing-jaws, made substantially as herein set forth—that is to say, adapted to be removably fitted to, or contained within, a stock or frame, and constructed with their front and back faces cast of metal of different degrees of hardness, as and for the purposes hereinbefore described.

5. A jaw having a recession, substantially as herein shown and described, affording a space for the stone or stones, after having been broken by the upper portion of the toothed surfaces, to be turned and rolled over before being operated upon by the lower portion of the toothed surfaces, as hereinbefore described.

187,414.



187,415. APPARATUS FOR CARBURETING AIR. Alonso C. Rand, Minneapolis, Minn. [Filed Nov. 28, 1876.]

Brief.—Air to be carbureted is heated, to accelerate its flow to the elevated carbureter. The carbureted air falls by its gravity through the descending eduction-pipe, and is thus forced through the mains, having carbureting and drip tanks, from which additional hydrocarbon vapors are given off, or in which an excess of vapors are deposited, depending upon the quantity of vapors first absorbed by the air in the main carbureter.



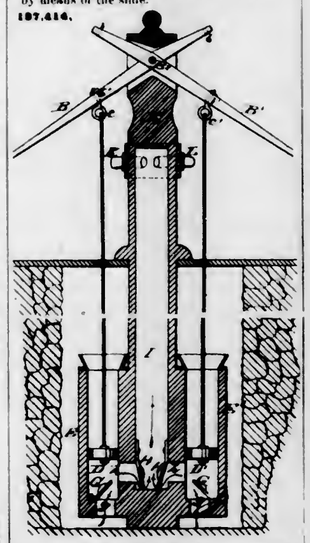
1. The gas apparatus, substantially as described, consisting of a main elevated carbureter, provided with the air-heater and valves, in combination with the devices for carrying the gas at long distances and preserving its illuminating power, as herein set forth.

2. In combination with the heater C, with valve *b*, air-pipe B, with valve *a*, the elevated main carbureter A and delivery-pipe E, one or more combined drip-tanks and carbureters G, arranged in connection with said pipe, substantially as and for the purposes herein set forth.

187,416. PUMPS. J. W. Rider, Altoona, Pa. [Filed Jan. 27, 1877.]

Brief.—A flange-plate secured to the pump is provided with two diverging discharge-tubes; a curved slide, having a handle and perforations, so arranged that the flow of water can be cut off from either discharge-tube, or both, or neither, at the will of an operator, by means of the slide.

187,416.

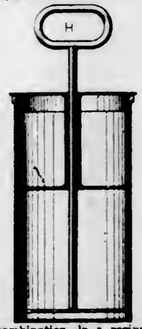


1. In combination with the pump-handles B B^1, both pivoted to the same cross-rod, B^2, and each perforated at *b* and b', on opposite sides of said cross-rod, the piston-rods C C^1, pistons D D^1, pump-cylinders E E^1, and tube I, substantially as described and for the purpose set forth.

2. The combination of two pump-handles, two piston-rods and pistons, two pump-cylinders, a vertical tube I, and two discharge-tubes connected therewith, whereby two persons can operate the same pump simultaneously, and draw water therefrom separately, substantially as set forth.

3. The combination of guide-plate or casing J, discharge-tubes K L, and a perforated slide L^1, adapted to be operated from either end and to close either, both, or neither of the said discharge-tubes, substantially as set forth.

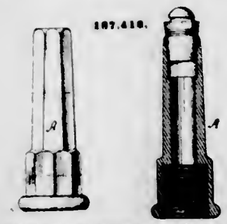
187,417. EGG-BEATERS. M. C. Russell, Deposit, N. Y., assignor of one-half his right to W. R. Wilcox, same place. [Filed Jan. 5, 1877.]



The combination, in a reciprocating egg-beater, substantially as described, of a cover, connecting-tube, and shield.

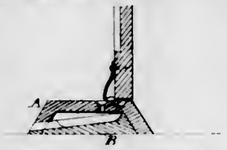
187,418. GAS-BURNERS. S. C. Salisbury, New York, N. Y., assignor of one-half his right to Joseph H. Brown, Pittsburg, Pa. [Filed July 29, 1876.]

187,418.



A gas-burner consisting of a glass body, A, with its top adapted to receive a burner-tip, and provided with a metallic screw-thimble, *a*, inserted within the base, substantially as set forth.

187,419. DOOR-SILLS. A. Saur, Franklin, Ind. [Filed Jan. 17, 1877.]



The sill A, constructed as described, in combination with the bottom B and a door, as and for the purpose set forth.

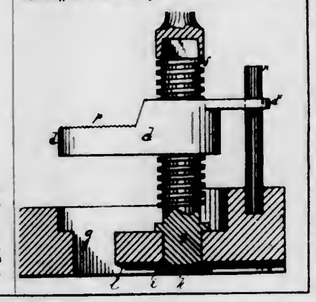
187,420. TOY PUZZLE-BLOCKS. F. P. Schmitthenner, Brooklyn, N. Y. [Filed Jan. 13, 1877.]



A toy puzzle composed of a series of letters cut from suitable material, each letter being composed of two or more sections, and each section provided with a key to indicate the letter of which the section forms part, the entire series when properly brought together representing the capitals and smaller letters of the alphabet, as and for the purpose set forth.

187,421. DEVICES FOR RAISING AND LEVELING RAILROAD-TRACKS. Gustav Schwartz, Budapesth, Austria, assignor of one-half his right to J. Thein, Buffalo, N. Y. [Filed Nov. 22, 1876.]

Brief.—A strong iron shoe has a vertical screw, the revolution of which raises, from out a recess in the shoe, a lifting plate having a rear projection with a guiding-hole, sliding on a vertical pin.



THE GRAPHIC CO N Y

The railroad track-leveling device, consisting of the shoe with the point a, the opening g, the slot l m, the screw e f, with the head h, the lifting-plate d d', the key B, and the guide-pin n o, all substantially as hereinbefore specified.

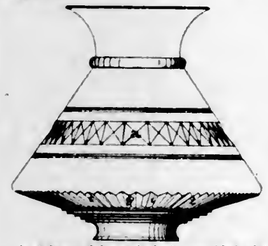
187,422. CURTAIN-FIXTURES. Herman Seehausen, Memphis, Tenn. [Filed Apr. 13, 1876.]



1. The combination, with the hoisting-sheave of a curtain-roller, of the spring-disk J, provided with arms j, in combination with disks E G, washers F H, and screw C, all arranged, constructed, and operating substantially as set forth.

2. The coiled spring K, placed between the sheave A and spring-disk J, substantially in the manner hereinbefore described, and for the purposes set forth.

187,423. LAMP SHADES AND GLOBES. F. S. Shirley, New Bedford, Mass. [Filed Jan. 18, 1877.]



1. A lamp globe and shade provided with a corrugated radiating-surface, substantially as shown.

2. A lamp globe and shade that is roughened to form a reflector, and provided with a corrugated radiating surface, substantially as set forth.

187,424. MOTOR-SPRINGS. Chas. H. Slicer, Baltimore, Md. [Filed Jan. 17, 1877.]



1. A volute motor-spring of equal thickness, and having edge taper or tapers, substantially as and for the purpose herein set forth.

2. Two or more volute motor-springs, equalized in power throughout their length, substantially as described, by means of diagonal or otherwise splitting an ordinary blade of commerce, substantially as herein set forth.

3. A volute motor-spring equalized in power throughout its coils, as described, and increased or re-enforced in power by similar equalized blades, substantially as herein set forth.

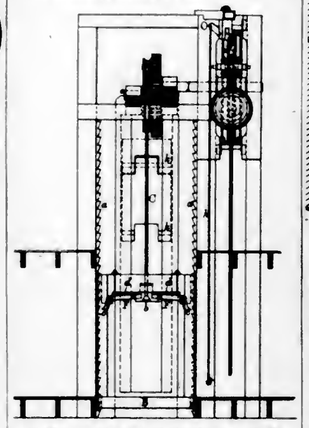
4. A volute motor-spring having its outer coils increased in power in excess of its inner coils by giving the outer coils an excess of metal over that required to equalize the whole length, substantially as herein set forth.

5. A volute motor-spring having its re-enforcing blades connected to the re-enforcing blades by means of headed pins s and slots d, substantially as and for the purpose herein set forth.

6. A volute motor-spring having re-enforcing blades secured in place with the re-enforced blade by means of the slots and the pins upon the spring-box and winding-shaft, substantially as herein set forth.

187,425. HOISTING-MACHINES. H. Snowden, Baltimore, Md. [Filed Jan. 17, 1877.]

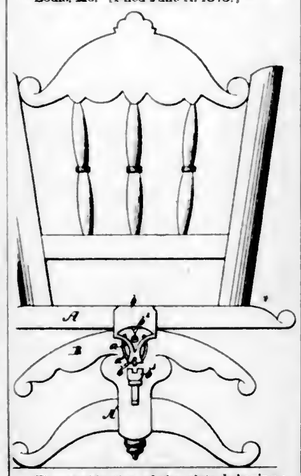
Brief.—On each side of the frame on which the platform works is a rack, into the teeth of which fall the pointed ends of levers placed beneath the upper cross-beam of the platform. The opposite ends of these levers are in the socketed ends of a block, to which the suspensory is attached. On the breakage of the latter the block is forced down by springs. Platform counterbalanced. Its load worked by a hand-rope around a wheel.



1. The combination of the frame-work B, of the platform-rope C, vertically-moving block b, and levers F, supported within the sockets of the said block, substantially as and for the purposes specified.

2. The combination of the bifurcated lever and rope-guide M, upper and lower brake-shoes f, and rods g, substantially as herein described, and for the purposes specified.

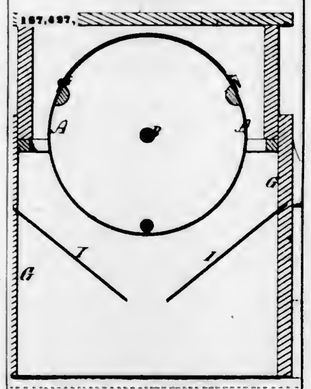
187,426. CRADLES. Carl O. Sobinski, St. Louis, Mo. [Filed June 11, 1875.]



The combination of the plate b, having a knife-edge, and carrying a pin or roller, b', the plate a, having U and V grooves, the latch b', with cradle parts A B A', to operate in the manner herein shown and described.

187,427. SIFTERS. N. W. Starr, Kingston, N. Y. [Filed July 31, 1876.]

Brief.—Sieve may be wire or hair cloth or perforated metal. Handle weighted to keep opening of sieve uppermost. May be placed inside or outside of an ash-box.



A sifter constructed with a revolving sieve, A, divided horizontally into two unequal parts, and a case or box, G, open or capable of being uncovered at the top and bottom and provided with inclined plates or surfaces I I inside of the main walls thereof, and elevated above the bottom, substantially as and for the purposes herein specified.

187,428. TRUSSES. John W. Sutton, New York, N. Y. [Filed Nov. 23, 1876.]

Brief.—A supplemental spring-brace over the usual spring body-band serves, as it is shortened or lengthened, to add to or take from the pressure of the pad.



1. The longitudinal or circumferential spring-brace D, surrounding a greater or less portion of the external circumference of the hingeless truss-spring A, and adjustable in length with reference thereto by a nut or equivalent device, substantially as and for the purpose herein set forth.

2. In the adjustable brace D of the truss, a spring arranged to permit the greater or less elongations of said brace, substantially as and for the purpose herein set forth.

187,429. COMBINED DESK AND CHEST OF DRAWERS. G. S. Sykes, Manahawkin, N. J. [Filed Nov. 27 1876.]

1. A combined desk and chest, the latter being arranged to serve as a seat for the former, and to slide into or beneath the desk when not in use, substantially as set forth.

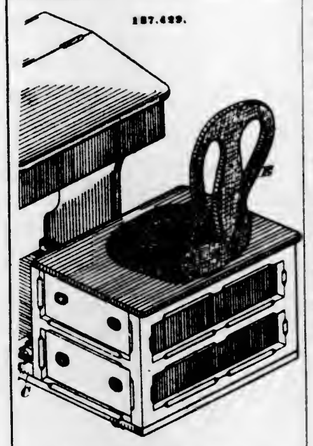
2. In combination with the desk A and chest B, the supplementary sliding bottom C, substantially as shown and described.

3. In combination with the sliding bottom C, the chest B pivoted thereto, substantially as shown and set forth.

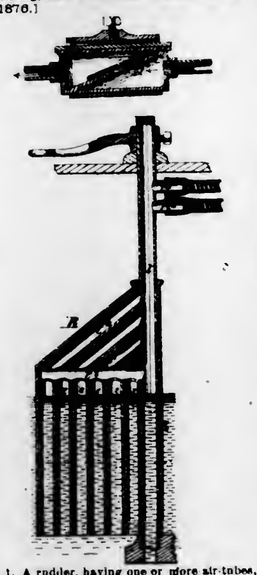
4. The combination of the pivoted chest B, having screw e', with the sliding bottom C, having segmental slot C', substantially as shown and described.

5. In combination with the chest B, having screw f, the chair-seat K, having slot s, substantially as shown and described.

187,429.



187,430. SHIPS' VENTILATORS AND FOG-ALARMS. W. F. J. Thiers, New York, N. Y., assignor of three-fourths of his right to M. C. Jeffers, New York City, E. F. Beecher, Brooklyn, N. Y., and A. P. Armstrong, New York City. [Filed June 30, 1876.]



1. A rudder, having one or more air-tubes, with open lower ends, extending downward into the water, and connected at their upper ends to suction and discharge pipes, substantially as herein illustrated and described.

2. A horizontal air-valve, having an oblique diaphragm, in combination with the suction-pipe or the discharge-pipe of a ship-ventilator, substantially as herein shown and set forth.

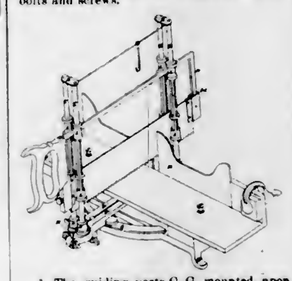
3. A horizontal air-valve, having a removable cover, giving access to the valve-seat and either compartment of the valve-chamber, and secured by a yoke and a clamping-screw or their equivalent, in combination with the suction-pipe or the discharge-pipe of a ship-ventilator, substantially as herein specified.

4. One or more deodorizing and disinfecting chambers, in combination with the discharge-pipe or the suction-pipe of a ship-ventilator, for the application of heat and chemicals, either or both, to destroy the germs of infectious and contagious diseases, and to neutralize foul odors, substantially as herein illustrated and described.

5. The combination of the tubular rudder R, the air-valves A A^1, the discharge-pipe D, and a fog-horn, H, the latter attached to the said discharge-pipe by the branches d^1 d^2, having stop-valves e b, substantially as herein specified, for sounding alarms, in the manner set forth.

187,431. MITER-MACHINES. J. P. Tierney, Sacramento, Cal. [Filed Sept. 4, 1876.]

Brief.—Miters can be cut to any desired angle by means of a saw-blade, the ends of which are adjustably fitted in sockets attached to the back by depending arms; a suitable bench, upon which the work is placed, and guide-posts, provided with vertically-adjustable and grooved and flanged rollers, having their intermediate parts cut away to prevent clogging, and mounted upon a movable and stationary bar, pivoted immediately under the front of the bench, held together by a lever and spring, and laterally adjustable by eye-bolts and screws.



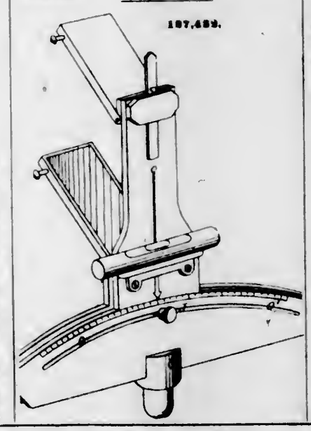
1. The guiding-posts G G, mounted upon the movable and stationary bars F F^1, said posts being in combination with and closed and held together by means of the levers I and spring J, and the latches K, substantially as herein described.

2. The rollers L, constructed as shown and described, with their grooves and flanges for guiding and holding the back and blade of the saw, said rollers having their intermediate parts cut away or made open to prevent clogging.

3. In combination with the rigid and movable bars F F^1, with their guiding-posts and rollers mounted upon the rotating support O, the quadrant Q, and the clamping-screw B for holding the bars and guides in any position, substantially as herein described.

4. The saw consisting of the back or top bar O, with its depending arms N adjustably fitted into the sockets M of the saw-blade, in combination with the guide-rollers L of the standards G, so that the saw-blade may always be adjusted to the same position with relation to the rollers, substantially as herein described.

187,432.



187,433. COLLIMATING SIGHTS FOR FIRE-ARMS, &c. C. A. L. Totten, U. S. A. [Filed Jan. 7, 1875.]

1. A mirror or reflector, provided with a right line or its equivalent upon its surface, so arranged that when any other right line is made by reflection to coincide therewith, the two lines thus coinciding shall determine a plane of collimation, substantially as and for the purposes set forth.

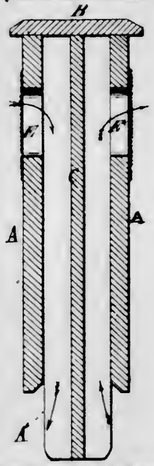
2. The combination of a mirror or reflector provided with lines, as described, in combination with a spirit-level, substantially as and for the purpose set forth.

3. The combination of a mirror or reflector provided with lines, as described, in combination with a graduated arc, substantially as and for the purpose set forth.

4. A sight, consisting of a mirror provided with a line or lines, in combination with a spirit-level and graduated arc, substantially as and for the purpose set forth and described in the foregoing specification.

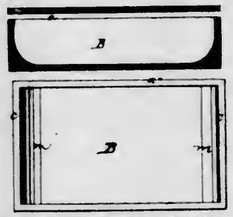
187,433. VENTILATORS. G. A. Unkrich, Fairfield, Iowa. [Filed July 22, 1876.]

Brief.—A casing, preferably of rectangular form, which is closed at the top by a cap or cover, and divided longitudinally by a partition, so as to form chambers or passages. There are openings in the casing, placed opposite to each other, covered by filters of wire or other material. The device is placed upright on a well or cistern, and takes up the foul gases as they accumulate, and carries them out through the openings on either side, covered by the sieves or air-filters.



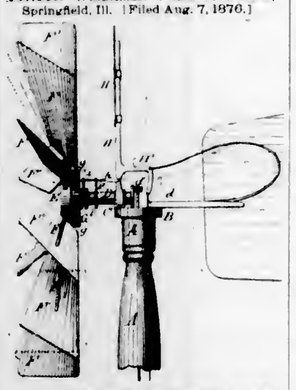
A ventilator provided with the central longitudinal partition C, extending below the sides of the casing A, which latter is provided with openings E E^1 and cover B, substantially as and for the purpose set forth.

187,434. BLACKING-BOXES. B. W. Valentine, Bristol, Conn., assignor to Benj. F. Brown, Newton, Mass. [Filed Oct. 26, 1874.]



A rectangular box constructed with a cavity, B, from a single piece of wood, and having the end walls increased in thickness toward the bottom of the box, as and for the purpose described.

187,435. WINDMILLS. James G. Watson, Springfield, Ill. [Filed Aug. 7, 1876.]

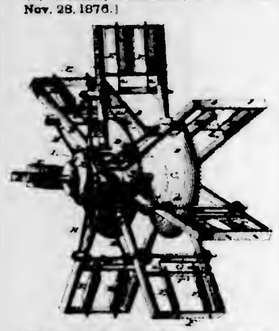


1. In a windmill, the combination, with the sails F' and arms F, of the head E, composed of the hub E', rim E², and connecting part *e*, all constructed and arranged substantially as described and shown.

2. In a windmill, the combination, with the turn-table B, of the sleeve C', the shaft D, the head E, consisting of the hub E', rim E², and connecting part *e*, the sails F', arms F, head G, cranks *f*, arms *g* adjustable upright fan fl, arm fl', rod *k*, and tail-fan C, all constructed and arranged substantially as described and shown.

3. In a windmill, the combination, with the standard A, of the cylindrical casting A', having the flange *a*, and the turn-table B, having the cylindrical casting *b*, flange *b'*, and studs *c*, all constructed and arranged substantially as described and shown.

187,436. FEATHERING PADDLE-WHEELS. W. Webster, Morrisania, N. Y. [Filed Nov. 28, 1876.]



The paddles E, provided with bent arms *a*, the vibrating bar G, the lever H, and the cylinder S, provided with a cam groove, L, the whole arranged to operate substantially as described.

187,437. SEATS FOR WATER-CLOSETS, &c. J. J. Weeks, Locust Valley, N. Y. [Filed June 21, 1876.]

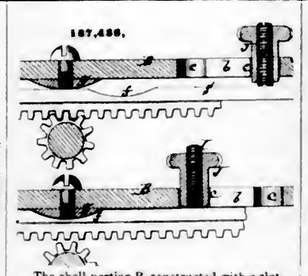


The seat for water-closets or privies, having a surface of cork, as a new article of manufacture, for the purposes set forth.

187,438. CHUCKS. J. H. Westcott, Oneida, N. Y. [Filed Jan. 12, 1877.]

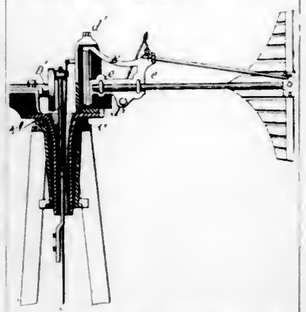
Brief.—The circular rack, having been adjusted in or out of gear with the pinions, is fixed by turning the nut down into one of the recesses at the ends of the slot.

187,439.



The shell portion B, constructed with a slot, *b*, in its back, having enlarged ends *c c*, in combination with the screw-stud I, fast to the ring S and the nut J, essentially as and for the purpose herein set forth.

187,439. WINDMILLS. Wm. H. Wheeler, Beloit, Wis. [Filed Apr. 11, 1876.]



1. The flanged clasp L, embracing the cross-bar to which the slats are secured, the said clasp perforated for the tubular bar, and provided with a set-screw, as set forth.

2. The triangular vane-support E, with pin at its lower end and socket above, and fitted to the standard, as set forth.

3. The vane-support E, adapted to receive the rudder-stem, in combination with the staples connecting the parts, substantially as set forth.

4. The vane-support E, formed with a cross-head to receive the tension-rods W, and in combination therewith, as set forth.

5. The vane-support, in combination with the rod *x* and bell-crank, and with the bar and weight attached thereto, substantially as described.

6. The bell-crank, connected to the vane-support, as described, in combination with the weighted bar Z, arm *z'*, and vertical rod connected therewith, as described.

7. The standard D, formed to hold the vane-support and bolted to the rear edge of the turn-table flange, as set forth.

8. The standard D, having the rock-shaft bearings *d d*, substantially as described.

9. The stops *s s* on the standard D, in combination with the vane-support, provided with corresponding projections, as set forth.

10. The pitman-connection B', having the ball at its lower end, in combination with the half-boxes *o o* and their connections, as set forth.

11. The pitman B', having the perforated ball, half-boxes *o o*, with the offset connections and vertical rod passing through the ball, as set forth.

12. The flanged outer rim fastenings N *n*, constructed and arranged as and for the purpose set forth.

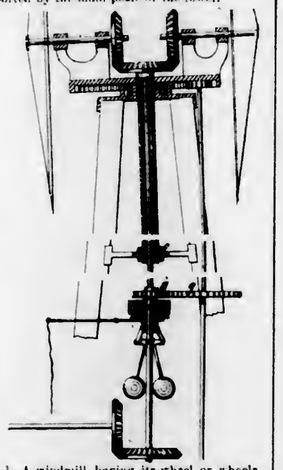
13. The flanged clips *r r* for the inner rims, constructed and arranged as set forth.

14. In a windmill, the guide-rings, having vertical and horizontal recesses, in combination with vertical and horizontal friction rollers, the construction and adaptation of the parts being such that the rings carry and retain the rollers without pivots, and the ring and rollers being adapted to the other parts of the wind-mill, as set forth.

15. In a windmill, a tubular iron vane-shaft, in combination with the clamps and bars which hold the wind-receiving surfaces, as set forth.

187,440. WINDMILLS. L. H. Wheeler, Jr., Beloit, Wis. [Filed June 22, 1876.]

Brief.—Two wheels mounted on independent shafts. These shafts revolve in bearings in the turn-table, and, by means of beveled gears on their inner ends and a horizontal bevel gear on the top of the main shaft, are connected to the said shaft, and through it to the machinery below. The turn-table is mounted on a casting, which rests or moves on friction-rollers, which are suitably guided and supported on the top of the tower. This turn-table is also provided with a tubular extension and support, fixed centrally to the turn-table or to the casting, or to both, and extends downward to a collar supported in a plate or on rods, which extend to and are supported by the main posts of the tower.



1. A windmill having its wheel or wheels mounted on a turn-table, and having also a vertical rotating shaft, by which motion is communicated from the wheels to the machinery to be driven, and a governor driven by the main shaft, or any of its connections, and suitably connected to the turn-table, whereby any excess of motion in the main shaft shall tend to rotate the turn-table, substantially as described.

2. The vertical shaft, carrying a pinion, which meshes into the turn-table, the said shaft being connected to the main shaft through the intervention of a governor, whereby excess of speed in the main shaft shall serve to rotate the secondary shaft, as set forth.

3. The main shaft, friction clutch, governor-pinions *g* and *g'*, connecting the main to the secondary shaft, and thereby to the turn-table, all combined as set forth.

4. The prolongation of the secondary shaft, which operates the turn-table, in combination with the pulleys and weight, as set forth.

5. The lever and cord, in combination with the clutch on the main shaft, as and for the purposes set forth.

6. A pinion operating to revolve the turn-table, in combination with a weight and suitable intermediate connections, whereby the said weight is made to counteract the tendency of the wheel to turn itself out of the wind, as set forth.

7. In a windmill, the wheel or wheels of which are mounted on a turn-table, and which operate to rotate a vertical shaft, a weight acting directly on the turn-table, and counteracting its tendency to turn the wheels out of the wind, and a governor, intermediate between the main shaft and the turn-table, and acting with the tendency of the wheel to turn out of the wind and against the weight, as set forth.

187,441. CAR-WHEEL CHILLS. W. Wilmington, Toledo, Ohio. [Filed Dec. 16, 1875.]

Brief.—As equivalent of tapering cross-grooves, mentions series of holes diminishing in diameter.

A car-wheel chill having a circular recess, B, with transverse spaces D, adapted to be filled with non-chilling material, as and for the purpose set forth.

187,441.



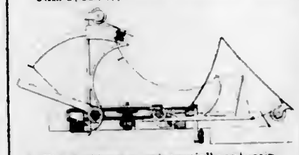
187,442. BUTTONS OR STUDS. H. S. Wing, Rochester N. Y. [Filed Aug. 15, 1876.]



1. A stud or button fastening, consisting of a plate having a shank secured thereto, the latter constructed with two wedge-shaped faces, and the opposite and intermediate portions grooved, in combination with an under plate, which is provided with parallel spring bars secured at both ends, substantially as and for the purpose specified.

2. In a stud or button fastening, the combination, with the cross-bar having parallel springs secured thereto, of a hollow standard suitably notched on opposite sides, whereby it is firmly secured to the cross-bar by means of the parallel springs, substantially as and for the purpose set forth.

187,443. GRAIN-BINDERS. C. B. Withington, Janesville, Wis., assignor to C. H. and L. J. McCormick, Chicago, Ill. [Filed Jan. 9, 1877.]



1. The combination, substantially as hereinbefore set forth, of the rock-shaft, its radius-bars oscillating therewith, the wire-carrying arm oscillating on one radius-bar, and the binding-head arm mounted on the other, whereby the gavel is compressed and encircled with wire.

2. The combination, substantially as hereinbefore set forth, of the rock-shaft, the binding-head mounted on a radius-bar or arm of the rock-shaft, and the sector-rack oscillating on said radius-bar, whereby the wire is twisted.

3. The combination, substantially as hereinbefore set forth, of the rock-shaft, its radius-bars, the wire-carrying arms and binding-head arms, movable endwise thereon, and the adjusting yoke, whereby said movable mechanism may be adjusted to suit different lengths of stalks.

4. The combination, substantially as hereinbefore set forth, of the rock-shaft, its radius-bars, the wire-carrying arm, the binding-head arm, and the yielding compressor, actuated by the rock-shaft, whereby the gavel is simultaneously compressed on all sides.

5. The combination, substantially as hereinbefore set forth, of the rock-shaft, its radius-bars, the binding-head, mounted on one of the radius-bars, the wire-carrying arm oscillating on the other radius-bar, and the forked fingers of the wire-carrying arm, which overlap the binding-head, to insert and hold the wire therein while being twisted.

6. The combination, substantially as hereinbefore set forth, of the rock-shaft, a radius-bar mounted thereon, a binding-head carried by said radius-bar, a rack vibrating on said radius-bar, and a cutter carried by the rack, whereby the wire is twisted and severed.

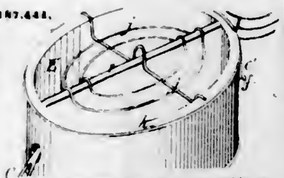
7. The combination, substantially as hereinbefore set forth, of the rock-shaft, a radius-bar carried thereby, and a wire-carrying arm, oscillated on the radius-bar by its movement past a fixed portion of the frame.

8. The combination, substantially as hereinbefore set forth, of the duplex twister-pinion with a cutter reciprocating lengthwise through an annular groove in the pinion to sever the wire.

9. The combination, substantially as hereinbefore set forth, of the vertically-moving binder-head, the duplex twister-pinion, moving simultaneously with and transversely to the line of movement of the binding-head, journaled on its teeth therein, and the oscillating rack, actuating the pinion.

187,444. SPITTOONS. Lewis H. Wooden, Hampstead, Md., assignor of one-half his right to N. W. Brown, same place. [Filed Dec. 23, 1876.]

187,444.



1. In a spittoon, having a removable receptacle, an outer case and a hinged cover, the arrangement of the opposite central case opening *a b*, in combination with the treadle C, rod *d*, outside hooks *e f*, and detachable spring *e'*, all constructed and adapted for use in relation to the hinge of the cover, as described.

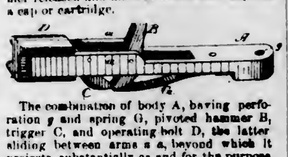
2. The detachable spring *e'*, in combination with the cover hook *e* and the outer-case hook *f*, arranged outside of the hinge of the cover and connected with the treadle, as and for the purpose stated.

3. The receptacle E, provided with the bridge *i*, and adapted for use with the treadle-connections of the hinged cover, as shown and described.

4. The combination, with a spittoon, having a removable receptable, an outer case, and a hinged cover, of a loose grating, *j*, substantially as and for the purpose set forth.

187,445. BURGLAR-ALARMS. William D. Wright, Baltimore, Md. [Filed Dec. 21, 1876.]

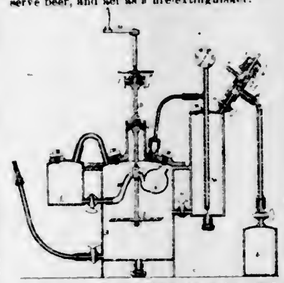
Brief.—The device is suspended from a door or window in such a manner that when the door or window is opened it falls to the floor, striking upon a movable slide in its end, by which the trigger is operated, and the hammer released and allowed to fall and explode a cap or cartridge.



The combination of body A, having perforation *g* and spring G, pivoted hammer B, trigger C, and operating bolt D, the latter sliding between arms *a a*, beyond which it projects, substantially as and for the purpose herein shown and specified.

187,446. SODA-WATER APPARATUS. O. Zwietusch, Milwaukee, Wis. [Filed Jan. 3, 1876.]

Brief.—The invention has a triple purpose in view—namely, to make soda water, to preserve beer, and act as a fire-extinguisher.



1. In a carbonic acid gas generator, or a chemical fire-extinguisher, the self-regulating arrangement, composed or consisting of the in and outward moving rod D, by means of a piston, C, or its equivalent, in combination with one or more liquid-holding vessels.

2. A carbonic acid-gas generator in which the acid is added to the carbonate, or both poured together by bringing the outlets of the liquid-containing vessels below their level, and the adding of which is stopped when the outlet is brought above their level by the within produced pressure, as specified.

3. Gas reserve or fountain *b*, in combination with a carbonic-acid gas generator so arranged that, by drawing beer with carbonic-acid gas, the beer receives the gas from said gas-reserve, during which time the generator is refilled, and there is no interruption in drawing the beer, as specified.

4. In combination with a soda water apparatus, the pressure-equalizer *f*, (shown in Fig. 3,) consisting of inlet *l*, outlet *e*, in combination with self-tightening or closing piston *g*, vent *h*, spring *i*, and cap *k*, for the purpose herein set forth.

5. In a carbonic-acid-gas generator, an agitator, E, in combination with rod D, which works up and downward, and which is so arranged that it may be revolved at the same time, as specified.

6. On a carbonic-acid gas generator, in combination with the generating-chamber A and purifier W, connecting rock N between chamber A and purifier W, to allow the contents of purifier to run into generating-chamber at will, as specified.

7. Lever J, in combination with pins l, and the groove H, and rod D, as specified.

8. Tilting vessel N, in combination with swivel F and rod D, as specified.

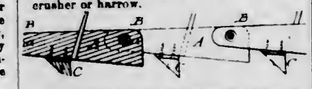
9. Vessel L, flexible outlet M, (shown in Fig. 1,) in combination with swivel F and rod D, as specified.

10. Rod D, in combination with crank G, swivel F, and agitator E, as specified.

11. Rod D, in combination with bail *o*, lever J, brace *p*, and weight *n*, as specified.

187,447. HARROWS. D. W. Baird, Lebanon, Tenn. [Filed Sept. 16, 1876.]

Brief.—The block-sections, connected by rods passing through perforations formed in their ends, are sloping upon one side, thus making their rear ends deepest, to act as clod-crushers. Cutting-teeth are attached to said side. Tearing-teeth are attached to the opposite side, thus forming a reversible clod-crusher or harrow.



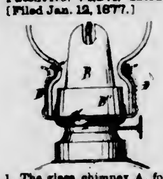
1. A flexible harrow, consisting of the block-sections A, having their under sides sloping downward from front to rear, the connecting-rods B on the same level, the washers *d*, and the front cutting-teeth C, substantially as specified.

2. The tapering block-sections A for a flexible harrow, having the front angular cutter-tooth C and the drooping rear extension *c*, substantially as specified.

3. The combination, with connecting rods and separating washers, of the section-blocks A, level on one side and sloping on the other, and carrying the tearing-teeth on the level side, and the cutting-teeth on the sloping side, forming a reversible duplex clod-crusher or tearing harrow, substantially as specified.

REISSUES.

7,502. LAMPS. A. C. Arnold and E. Blackman, Norwalk, Conn., assignors, by mesne assignments, to the said E. Blackman. Patent No. 74,271, dated Feb. 11, 1868. [Filed Jan. 12, 1877.]



1. The glass chimney A, formed as herein described, in combination with the arrangements of the vertical springs D, perforated base F, and cone B, in the manner substantially as and for the purpose herein set forth.

2. The vertical springs D, formed as described, in combination with a flat-wick lamp-burner, substantially as and for the purpose herein set forth.

3. The cone B, formed as herein described, in combination with a flat-wick lamp-burner, substantially as and for the purpose herein set forth.

7,503. PNEUMATIC RAILWAYS. William H. Bailey, New York, N. Y. Patent No. 183,546, dated Sept. 26, 1876. [Filed Dec. 16, 1876.]

Brief.—A pneumatic conductory for railways is made of seamless drawn tubes, either in one piece or sections, and in them a carriage is freely operated.

7,503.

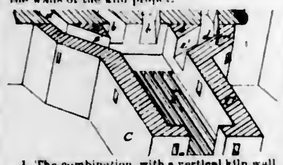


1. The combination of a hollow conductory composed of metal that has been drawn or rolled in the direction of the length of said conductory, and a suitable carrier, for the purpose set forth.

2. A hollow conductory constructed of connected sections composed of metal that has been drawn or rolled in the direction of the length of said conductory, in combination with a suitable carrier, for the purpose set forth.

7,504. BRICK-KILNS. Edw. W. Bingham, Philadelphia, Pa. Patent No. 181,399, dated Aug. 22, 1876. [Filed Jan. 24, 1877.]

Brief.—The passages *b* are wholly within the walls of the kiln proper.



1. The combination, with a vertical kiln wall section, *a*, forming the back of a furnace, and having one or more eyes opening through it, of the bent side eyes *d d*, opening through the side walls C C of said furnace, substantially as specified.

2. The combination, with a kiln furnace having eyes opening angularly into its rear portion, of the oblique rake holes in the walls of said furnace opposite said eyes, to facilitate opening and closing the same, substantially as specified.

3. The combination, with the side walls C C of a kiln furnace, of the obliquely-placed openings or mouths *e* of the bent lateral eyes *d*, which extend through the kiln-wall to the arches, substantially as specified.

4. The combination, with a vertical kiln-wall section, *a*, forming the back of a furnace, of the bent lateral eyes *d d* opening through the side walls C C of the furnace, substantiall as specified.

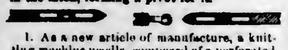
5. In a kiln, the kiln-wall eyes *d b*, each leading from or into its own particular kiln-arch, and bent or curved substantially as and for the purpose specified.

6. In a kiln, the combination, with a furnace built against the exterior face of the kiln wall, of the bent kiln wall eyes *b b*, each leading into its own particular kiln arch, substantially as shown, and for the purpose specified.

7. In a kiln, the combination of a bent or curved passage through and located within the kiln-wall, leading into a particular kiln-arch, and a furnace-chamber, situated on the outside of said kiln-wall, substantially as shown and described.

7,506. KNITTING-MACHINE NEEDLES. F. Burns, Waltham, Mass. Patent No. 184,833, dated Nov. 28, 1876. [Filed Jan. 4, 1877.]

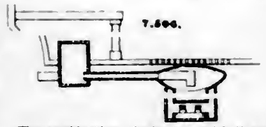
Brief.—The cheeks which hold the latch are not bored to receive a pivot, but the metal from one or both sides is swaged into the hole in the latch, forming a pivot for it.



1. As a new article of manufacture, a knitting-machine needle, composed of a perforated latch, combined with a needle-shank having a bearing or bearings for the latch formed as an integral portion of the side wall or walls, substantially as described.

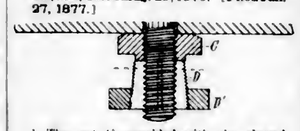
2. The method herein described of securing the latch in a knitting-machine needle, consisting in forcing a portion of the metal from one or both side walls into the opening made through the base of the latch to form a bearing for and hold the turning-latch in place, substantially as described.

7,506. APPARATUS FOR HEATING CARS AND OTHER VEHICLES. C. C. Converse, Brooklyn, N. Y., assignor, by mesne assignments, to James Denamore. Patent No. 62,254, dated Feb. 19, 1867. [Filed Sept. 21, 1876.]



The combination of a heater and boiler or receptacle with a railroad-car or other vehicle, and with circulating currents of warm or hot liquid and the radiating surfaces of the liquid-receptacle or conducting-pipes set under the passenger-seats, substantially as described.

7,507. NUT-LOCKS. K. C. Naylor, New Sharon, assignor of one-half interest to B. L. Cook, Ottumwa, Iowa. Patent No. 181,589, dated Aug. 29, 1876. [Filed Jan. 27, 1877.]

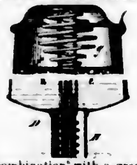


1. The nut C, provided with the slotted sleeve D, the wall thereof increased in thickness at the end farthest from the nut, and screw-threaded internally and externally, in combination with the clamp-nut D', substantially as and for the purpose specified.

2. The combination, with the clamp-nut D', of the nut C, provided with the slotted and tapering sleeve D, having the internal screw-thread running in opposite direction to the external screw-thread, substantially as and for the purpose specified.

3. The nut C, provided with the slotted sleeve D, having the exterior screw-threads running in a direction opposite to the interior screw-threads, in combination with the clamp-nut D', substantially as and for the purpose specified.

7,508. LUBRICATORS. William Schindler, Albany, N. Y., (executor of C. W. Schindler, deceased,) and H. L. Washburn, Jr., (committee of the person and estate of E. J. Gerdom, lunatic,) assignors, by mesne assignments, to A. Cook and P. Pulver, New York City. Patent No. 77,974, dated May 19, 1868. [Filed Dec. 16, 1876.]



1. The combination, with a grease-cup having tubular leg B, of a conductor resting upon the shaft, and having an extension, *e*, that makes it a little longer than the height of cup, as shown and described, so that when the lid is fastened down the cup will be sustained a little above the lower end of conductor and of the shaft to be lubricated.

2. In a lubricating-cup for shafts, the disk or follower *f*, arranged to rest on the grease in cup, and held by a spring, *g*, arranged substantially as and for the purpose specified.

7,509. COMPOSITIONS FOR DRESSING LEATHER. M. Shaw, Abington, Mass., assignor, by mesne assignments, to B. F. Brown, trustee for the Shaw Liquid Dressing Association. Patent No. 34,530, dated Feb. 25, 1862. [Filed May 18, 1876.]

1. A leather dressing consisting of an alkaline solution of shellac and a black or nearly black soluble dye, substantially such as described.

2. A leather dressing consisting of an alkaline solution of shellac, a soluble coloring-matter capable of being held in the alkaline solution without precipitating the shellac and without being itself decomposed by the alkali, and ammonia, in addition to the alkali required for dissolving the shellac.

7,510. MANUFACTURING BOOTS AND SHOES. D. A. Sutherland, Lynn, Mass., assignor to himself and J. N. Smith, same place. Patent No. 176,094, dated Apr. 11, 1876. [Filed Jan. 9, 1877.]

7,510.

1. A stay piece, consisting of a folded strip of leather, corrugated or grooved before the same is secured by sewing on and over the heel or instep seam, substantially as hereinbefore shown and set forth, so that the same may by suitable sewing mechanism, and in conjunction with said seam, be fed automatically, and the stitches formed be lodged in the bottom of grooves for the purpose provided at lines equidistant from said seam.

2. A stay-piece adapted to cover the instep or other seam of boots and shoes, as shown and set forth, said piece being composed of a strip of leather folded along its edges, and grooved or corrugated for the reception of the thread forming the stitches and seam, whereby the same is secured to the upper.

3. A stay piece composed of a strip of leather folded along the edges, and provided with a channel or depression for the reception of the heel or instep seam, substantially as shown and set forth.

7,511. SHADE-HOLDERS FOR LAMPS. Carl Votti, Newark, N. J., assignor to B. B. Schneider, New York City. Patent No. 182,973, dated Oct. 3, 1876. [Filed Jan. 27, 1877.]



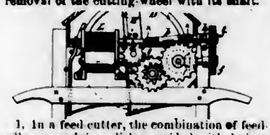
1. In a lamp having a burner, the combination of a shade-holder made of material that will admit of the passage of light, and a shade or globe, arranged and constructed substantially as described, whereby the burner performs the required functions without the use of a chimney, as set forth.

2. The shade-holder H, constructed of material that will admit of the passage of light, and provided with a downwardly-extending socket, *c*, and dish-shaped flange *d*, with rim *e*, in combination with a globe or shade, C, and burner A of a lamp, as and for the purposes herein set forth.

3. The combination, in a lamp, of the burner A, having perforated flange *a* and cone *b*, the shade-holder H, with central socket *c*, and a shade or globe, C, substantially as and for the purposes herein set forth.

7,516. STRAW-CUTTERS. B. Wagoner, Westminster, Md. Patent No. 166,136, dated June 29, 1876. [Filed Jan. 20, 1877.]

Brief.—A cutting and grinding disk revolves upon a horizontal shaft. On the cutting side this shaft carries a pinion, which connects with other gear-wheels, and gives motion to a smooth lower feed-roller and an upper flexible shaft, which revolves an upper fluted feed-roller. The material thus presented to the knives is cut and delivered through openings to the grinding side of the revolving disk, where the surface teeth act by concert with antagonizing teeth on a fixed plate. The fixed plate is cut away to prevent the escape of the cut feed, and to facilitate the removal of the cutting-wheel with its shaft.



1. In a feed-cutter, the combination of feed-rolls, a revolving disk provided with knives and slots, and having a roughened crushing surface, and a stationary plate provided with roughened crushing surface, for the purposes set forth.

2. In combination with the corrugated yielding feed-roller L, the journal *i*, having square tenon *x*, the operating pinion *f*, shaft A of the operating-pinion, having also square tenon *x*, and connecting-shaft *p*, having square recesses or sockets in its ends, substantially as and for the purposes herein set forth.

3. The combination of the revolving disk D, provided with slots *a*, knives E, and teeth or projections *b*, and the circular stationary toothed plate G, having a cut or opening, substantially as and for the purposes herein set forth.

4. The combination of the guard or feeder I, secured to the frame A, with the disks B and G, as and for the purposes set forth.

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DECISIONS OF THE COURTS.

SUPREME COURT OF THE UNITED STATES.

WILLIAM H. CAMMEYER AND SAMUEL LEWIS, APPELLANTS, *vs.* JOHN NEWTON, WASHINGTON ISETTS, CHARLES ECCLESTON, AND WILLIAM L. QUINN.

[*Appeal from the Circuit Court of the United States for the Southern District of New York.—Decided October term*, 1876.]

Inventions may be assigned before they are patented.

Public employment is no defense to the employé for having converted the private property of another to the public use without his consent, and without just compensation.

Private property, the constitution provides, shall not be taken for public use without just compensation, and it is clear that that provision is as applicable to the Government as to individuals, except in cases of extreme necessity in time of war, and of imminent and impending public danger.

A patent is private property, and the Government cannot, after it is issued, make use of the improvement any more than a private individual without license of the inventor, or making him compensation.

Mr. Justice CLIFFORD delivered the opinion of the court.

Holders of valid letters patent enjoy, by virtue of the same, the exclusive right and liberty of making and using the invention therein secured, and of vending the same to others to be used, as provided by the act of Congress, and the rule of law is well settled that an invention so secured is property in the holder of the patent, and that as such the right of the holder is as much entitled to protection as any other property, during the term for which the franchise or the exclusive right or privilege is granted. (*Seymour* vs. *Osborne*, 11 Wall., 533.) (16 Stat. at Large, 201.)

Inventions may be assigned before they are patented, and it appears that Samuel Lewis claims to have been the original and first inventor of the patented improvement; that he, without having applied for a patent, assigned all his right, title, and interest in the invention to the first-named complainant; that the assignee made due application for a patent, and that the patent was duly granted to him for the term of seventeen years, and that the patentee, before the suit was commenced, assigned one undivided half part of the same to the other complainant, together with the like proportion of the claims and rights of action of any infringement of the patent by the making, use, or sale of the patented improvement.

Due evidence of the assignments was exhibited, and the complainants allege that the respondents have infringed the patent, as more fully set forth in the bill of complaint; and they pray for an account and for an injunction. Service was made, and the respondents appeared and filed separate answers.

Briefly stated, the defenses set up in the respective answers are as follows: (1) That Samuel Lewis is not the original and first inventor of the patented improvement. (2) That the patented improvement is neither new nor useful, and was not the proper subject for a patent. (3) That they have never infringed the patent by making, using, or selling the patented improvement. (4) That the use, if any, they have made of the patented improvement was done under the directions of the United States and as their agents or officers.

Proofs were taken by both parties, and the parties having been fully heard, the circuit court entered a final decree in favor of the respondents, dismissing the bill of complaint. Due appeal was immediately taken by the complainants to this court.

Engineers and practical operators have long known and still admit that the work of blasting rocks under water is attended with many and great difficulties. Efforts have been made to overcome those difficulties, but they have never been entirely successful, nor do the complainants pretend that the patented improvement will meet every requirement in that regard. What they allege is that their assignor is the original and first inventor of a new and useful improved portable and adjustable dam for the purpose of producing still water in which to operate for the blasting and removal of obstructions in rivers and other water-courses.

Such obstructions, where they exist in rivers or in channels affected by the ebb and flow of the tide, have the effect to contract the water-course and to accelerate the current or flow, and consequently to increase very much the difficulties of the operator in his endeavors to blast the rocks or to remove the obstruction, except in seasons of low water or when the tide is down.

Difficulties of the kind almost insuperable, it must be

a lmitted, do exist when attempting to remove such obstructions in large running streams or in deep channels affected by the tide, and that the description of the same given by the patentee in the introductory portion of his specification is not very much exaggerated. Different localities are there referred to where, from the nature of the bottom of the stream or channel, a coffer-dam could not be constructed, and where the drilling by hand from the surface would be impracticable, owing to the depth of the water and the strength of the current, as evidence to show that the invention, if successful, will be of great public utility and importance.

Means of a character to remove such obstructions, the specification states, were unknown prior to the patented improvement, and that important water-thoroughfares, for the want of adequate means to accomplish such an end, are either entirely or partially closed to vessels of large draft, which may, by the use of the patented machine, be converted into highways for the largest ships engaged in commerce and navigation.

Suppose the alleged improvement will effect the described results, or will even facilitate to a considerable extent the removal of such obstructions, all it would seem must concede its value and utility, and the patentee proceeds to state that the main object of the same is to enable workmen to continue their operations without suspension or impediment from the strength of the current, the ebb or flow of the tide, or the varying depth of the water. All these results the patentee professes to believe can be accomplished by the mechanism described in the specification and illustrated in the annexed drawings, but it is evident from the language of the specification that the supposed inventor had never put the apparatus which he describes to any practical use or test. Enough appears to justify the conclusion that he believed in the theory of the improvement, and that he felt much confidence that the described mechanism would work out the described results.

Having set forth the object and aim of the improvement the patentee then proceeds to describe the apparatus by which they are to be accomplished, as follows: Two boats are prepared, (double enders, as shown,) on one or both of which is an engine of requisite power, with propeller and machinery complete for moving the boat, raising the anchors, varying the depth of the dam, and operating the drills. These boats or hulls are connected by a substantial deck which has an opening in the center equal to the horizontal area of the dam, for the purposes of access, light, &c., for the diver. From the deck is suspended the telescopic or sectional portion of the apparatus, with the chains and attachments all previously adjusted and ready to be drawn through their respective openings in the deck.

By the description it also appears that the manner of constructing the telescopic or sectional portion of the apparatus is to prepare a series of plates of galvanized iron, or any other proper material, of suitable thickness and bend, and fasten them into the form shown in the drawings, which is that of an acute parallelogram, one sliding vertically within another, so as to offer the least possible resistance to the tide or current, thereby easing the work of the anchors and contributing generally to the control of the apparatus.

Each division of the dam is bent inward at its upper edge, and at its lower edge has a strip fashioned so as to prevent the sections from separating. Every section is likewise provided with four eyes or eyebolts, one at each side and one at each end, which serve as guides to the several sections while operating, the eyebolts on the bottom section being attached permanently to the chains through which the dam is operated, and the bottom section being also provided with four framed wheels or eyebolts through which the side anchor-chains pass, which are to be operated by windlasses, and which extend from the boats, similar to those shown for the operation of the dam above, through the eyebolts on the bottom section and then outward to the side anchors. Chains extend directly from the boats to the side anchors, and from the ends of the boats directly to the end anchors, the dam being operated by windlasses.

Drills are provided which work in tubes, the lower ends of the tubes being fastened into braces attached to the bottom section of the dam. Tubes of full length, it is stated, are not deemed essential, as a section of sufficient height above the braces on the bottom section of the dam, to prevent the drill from being entirely withdrawn from the tube during a stroke, is for some reasons to be preferred, if the tube is properly set with a rocking joint in the lower brace.

Self-anchors, so called, are also provided, which are bars of iron formed and moving in sockets, as shown in the drawings, and which, by virtue of their length and free play, adapt themselves to the irregularities of the bottom, and take a rigid and steady hold during the process of drilling. Anchors of the kind are connected with the deck, so as to be taken out of the way when desirable, and the telescopic apparatus is suspended from the deck by four links and bolts, and the several chains are drawn through their respective openings and attached to their proper windlasses.

All the appurtenances, including the boats and dam, being complete and the sliding sections closed, the machine is taken to the spot where it is intended to begin work, the anchors are put out, and the dam is lowered.

Intelligent description of the mode of anchoring the machine and putting it in operation is also given in the specification, as follows: (1) An anchor is let go and its cable paid out to its full length, the boat moving till the anchor takes hold and the chain is taut. (2) Then the other anchor is dropped and the two chains taken up till the floating structure is held steadily by the two anchors. (3) The side anchors are next launched from a lighter or attendant boat. (4) When these anchors are placed it is suggested that the diver should be sent down to explore the bottom to see whether any change of position is desirable. (5) Change may be made in any direction by letting out one cable and taking up another if it appears that the change will give the self-anchors a better face for work when the dam is lowered. (6) When the drills have penetrated to the desired depth they are withdrawn and the diver goes down and inserts the charges. (7) The apparatus is then removed and the charges fired, when the machine is replaced as before and the work continues.

Four claims are made in the specification, as follows:

1. The construction and arrangement of a portable and adjustable dam in sliding or telescopic sections, in the manner and for the purposes described.
2. The combination of the self-anchors with the dam, in the manner and for the purposes set forth.
3. The combination of the boats, supports, or floats with the dam and the arrangement of anchors to hold the boats in position, in the manner and for the purposes described.
4. The combination and arrangement of windlasses, chains, and boats with the dam, so that by the construction thereof, a series of drills may be operated within and inclosed by the dam, in the manner and for the purposes described in the specification.

Persons seeking redress for the unlawful use of letters patent in which they have an interest are obliged to allege and prove that they, or those under whom they claim, are the original and first inventors, and that the same have been infringed by the party against whom the suit is brought. Both of these allegations must be proved by the party instituting the suit, but the patent, if introduced in evidence by the complainant, affords a *prima facie* presumption that the supposed inventor is the original and first inventor of the patented improvement. Evidence to overcome that presumption is admissible, provided that notice of such defence is given in the answer, as required by the rules of equity practice. (*Seymour* vs. *Osborne*, 11 Wall., 539.) Notices of the kind were not given in this case, and it follows that the *prima facie* presumption must prevail.

Infringement is alleged by the complainants, and the burden is upon them to prove the allegation, as it imputes a wrongful act to the respondents. Such an issue cannot be understandingly determined without first ascertaining the true nature of the invention as embodied in the claims of the patent, when the same are properly construed in view of the descriptive portions of the specification.

Of all the claims of the patent, the first is by far the most important, and embraces all that is embodied in the other three. It is the construction and arrangement of the patented improvement called in the claim a portable and adjustable dam in sliding or telescopic sections, in the manner and for the purposes set forth in the specification.

Argument to show that the dam is to be suspended from the main deck is unnecessary, as the statement is three times repeated in the specification of the patent: (1) Figure three of the drawings, the specification states, shows the manner of suspending the dam from the main deck. (2) It is stated that the deck has an opening in the center equal to the horizontal area of the dam, and that from the deck the telescopic or sectional portion of the apparatus is suspended. (3) That the telescopic apparatus is suspended from the deck by four links and bolts.

Beyond question these references show that the patentee, when he claims the construction and arrangement of a portable and adjustable dam in sliding or telescopic setions, means a dam suspended from the deck when in use, and intends to be understood that such suspension of the dam, in the manner and by the means shown, is a necessary element of the claim.

Evidently the sections are not only free to slide in the manner described, but when the dam is in use the sections are to adjust themselves to varying depths of water, such as are caused by the ebb and flow of the tide, which has the effect to vary the distance the dam is suspended from the bottom, showing that the top section must at all times be connected with the boat by links and bolts, as stated in the specification, or by equivalent means, and that the bottom section must be permanently connected or attached by chains or equivalent means, with a hoisting apparatus arranged on the boat.

Unless the top section is connected with the boat the letting down of the bottom section will cause all the other sections to go down with it, and they will not be opened out telescopically, as described by the patentee. On the other hand, if the top section is connected with the boat and the bottom section is not connected with the hoisting apparatus on the boat the dam cannot be lifted, and the bottom section will always rest where the machine is placed; or, if the water is deep enough all the sections will remain extended to their full length, showing that no dam constructed and arranged in the manner described in the descriptive portion of the specification can be within the first claim of the patent, unless the sections are free, at all times when the dam is in operation, to slide on each other, nor unless the top section is attached to or suspended from the boat, nor unless the bottom section is connected with a hoisting apparatus on the boat.

Self-anchors combined with the dam constitute the second claim, which is merely a subdivision of what is embodied in the first claim. Viewed in that light it will not be necessary to enter into any extended explanation as to its scope and signification.

Remarks already made show that the dam with telescopic sections was to be self-adjusting to tidal and other variations in the depth of the water where the machine is to be operated, and it is equally clear that the self-anchors must be free to slide in their sockets with the rise and fall of the bottom section, in order that they may always rest on the bottom where the machine is placed for operation. Unless the bottom section is free to slide on the self-anchors, should the bottom section be raised by an increase in the depth of water, it would raise the lower ends of the self anchors from the bottom, and might stop the working of the drills, which shows that the self adjustment feature of the anchors is necessary to maintain the connection of the dam with the bottom, for the reason that the dam is suspended from the deck, and that the connection of the dam with the bottom is liable to be severed by the receding of the boat from the bottom, as the tide rises beyond a depth equal to the extreme extent of the sections, showing that the feature of self-adjustment in the self-anchors is inseparable from the feature of the suspension of the telescopic dam from the boat, sufficient explanation of which has already been given.

Much aid has been derived from the very able opinion of the district judge in defining the nature and mode of operation of the patented invention as embodied in the first and second claims of the patent, and the court here also concurs with the district judge in the definition which he gives of the words "self-anchors" and "dam," as used in the claims and specification. As there employed the term self-anchors means anchors capable of self-adjustment, by having at all times free play, because not attached to their sockets nor moving with the bottom section to which the sockets are attached, which sufficiently explains the difference between the word anchor, as commonly used, and the term self-anchors, as used in the description of the patented apparatus.

Where the claim of the patent is for a combination, it is necessary to understand the meaning of the several devices of which the combination is composed. In the second claim the combination is the self-anchors with the dam, and the term "the dam," as there used, means the dam suspended from the boat, with the described devices to accomplish in its movement and operation the functions already explained, from which it follows that no combination can be held to be within the second claim unless it be a combination of such self-anchors with such a dam, constructed and arranged in the manner described, so as to allow of such self-adjustment in the self-anchors.

Two other claims are annexed to the specification, but the language of those claims are sufficiently explicit to speak their own construction without any special exposition, nor is any special explanation necessary in the view taken of the case, as the decision of the question of infringement must depend chiefly upon the first and second claims of the patent.

Before comparing the patented machine with the apparatus used by the respondents it will be useful to advert briefly to certain other issues tendered by the respondents in their answers. Preliminary to that it should be remarked that the respondent first named in the pleadings is an engineer in the employment of the United States, and that the other respondents are his agents and employés in the same service. In their answers they separately deny (1) That they have made, constructed, or used the alleged invention of the complainants, or any substantial or material part of the patented machine; (2) That they or either of them have ever originated or planned any infringement or violation of the complainants' patent; (3) That they ever claimed to be the inventors of a still-water dam or apparatus such as that described in the bill of complaint; (4) That they ever made a model of any invention belonging to the complainants, or ever caused any drawings of the same to be constructed for any purpose. They, or the principal respondent, admit that he invented and devised a machine or apparatus for use as a

caisson coffer dam and diving-bell in excavating and removing rocks at certain reefs in New York harbor, that the same was constructed by and at the public expense, and has since been used solely and exclusively in the prosecution of the work to which the principal respondent has been assigned by the public authorities.

Public employment is no defence to the employé for having converted the private property of another to the public use without his consent and without just compensation. Private property, the constitution provides, shall not be taken for public use without just compensation, and it is clear that that provision is as applicable to the government as to individuals, except in cases of extreme necessity in time of war and of immediate and impending public danger. (*Mitchell* vs. *Harmony*, 13 How., 134; *U. S.* vs. *Russell*, 13 Wall., 627.)

Section twenty-two of the patent act provides that every patent shall "contain a grant to the patentee, his heirs and assigns, for the term of seventeen years, of the exclusive right to make, use, and vend the said invention or discovery throughout the United States." (16 Stat. at Large, 201.)

Agents of the public have no more right to take such private property than other individuals under that provision, as it contains no exception warranting any such invasion of the private rights of individuals. Conclusive support to that proposition is found in a recent decision of this court, in which it is held that the government cannot, after the patent is issued, make use of the improvement any more than a private individual, without license of the inventor, or making him compensation. (*U. S.* vs. *Burns*, 12 Wall., 252.)

Suppose that is so, then it follows that the decision in the case before the court must depend upon the question of infringement.

Four principal propositions are maintained by the respondents responsive to that charge: (1) That the caisson coffer-dam and diving-bell which they use is not a portable and adjustable dam constructed and arranged in sliding or telescopic sections, as described in the specification of complainants' patent. (2) That it does not contain any combination of self anchors or self-adjusting supports. (3) That there is not any combination of a boat or boats with the caisson coffer-dam or diving bell which they use, nor is there any boat or boats used or combined therewith in any manner or for any purpose similar to those set forth in the specification of the patent. (4) That there is not any combination of windlasses, chains, or boats in connection or combined with the caisson coffer dam or diving-bell used by the respondents.

Contracts, it seems, had been made for the removal of rocks in the channel of the New York harbor, and the record shows that the respondent made a report to the War Department, in which he described the difficulties and ascribed the want of success to the imperfections in the machinery employed. Attempt was made by him to construct an apparatus for the purpose, and it appears that he subsequently filed a caveat in the Patent Office for the same, called "improvements in the mode of constructing a caisson coffer-dam and diving-bell for the purpose of conducting operations in waters with rapid currents." Authority was subsequently given to him by the War Department to construct an apparatus embodying the arrangement set forth in the caveat and his antecedent report, from which it appears that an iron dome is to be sunk on the rock to protect the drills and the diver from the velocity of the current, which, though lowered and raised from a boat is yet entirely disconnected therefrom and is uncontrolled thereby when in position. Drill-tubes are arranged within the dome in which the drills work, being dropped by their own weight, and raised by connection with motive power on the boat.

Experimental use of the apparatus commenced late in the fall of 1870, and it was found to work successfully, and it appears that it was for some time in constant use, and that it is the use of the same which it is alleged infringes the complainants' patent.

In that apparatus the dome is let down through the well-hole in the boat. Movable legs are provided for use when the bed is hard and uneven, which are attached to the lower edge of the dome and fall by their own gravity until they bear on the bed in such a manner as to insure the horizontal position of the lower edge of the dome, the legs being kept to their bearings by self-acting cams, which hold them permanently in place. When the dome is properly located it is then detached from the lowering apparatus and becomes a structure firmly located on the bed of the channel, having no suspension from the boat or any floating structure. Of course the apparatus has drill-tubes, but they are fixed to the inside of the dome, and the drills are raised by lifting-engines on the boat and dropped to the work by their own gravity, working vertically and without friction, because the dome stands erect and immovable. Both the dome and the drill-tubes are unaffected by any motion in the boat, and the attachments to the drills being by loose connections, the action of the drills is also practically unaffected by such motion within the range to which it is limited by proper anchorage and by allowing sufficient play between the face of the well-hole and the side of the funnel, which projects up from the center of the dome.

Without more, these suggestions are sufficient to show that the apparatus used by the respondents is substantially different from that of the complainants, for the following reasons: (1) Because the dome when in position for work is not suspended from the boat or any other floating structure. (2) Because the funnel of the dome in the respondents' apparatus, though it is capable of being adjusted at different heights, is not and never was self-adjusting to varying depths of water. (3) Because it has no self-anchors, free to slide and self-adjusting at all times while the apparatus is in use.

Prior observations are sufficient to show that these features in the apparatus of the complainants are necessary features in the operation of the patented improvement, as clearly indicated in the first and second claims of the patent, and, if so, they are abundantly sufficient to substantiate the proposition that the apparatus of the respondents is substantially different from the machine described in the complainants' specification.

Proofs were introduced by the respondents which showed that no apparatus such as is described in the specification of the patent was ever constructed and put into practical operation, and the evidence tends to show that the apparatus, if constructed as described, would be worthless.

Serious difficulty, it is apparent, would arise if the mode of anchoring the dam there described should be adopted, as its tendency certainly would be to render it impossible to work the drills with useful effect.

Discussion is scarcely necessary in respect to the third claim, as the very statement of it shows that it not infringed by anything in the apparatus of the respondents, as their apparatus has no anchors connected with the dome, nor which connect the dome with the boat, which is an essential feature of the third claim in the patent.

In order to make the dam an element of the combination set forth in the third claim the anchors connected with the boat by chains passing through eyebolts on the bottom section of the dam must be included, and as the anchors so connected and operating are wanting in the apparatus of the respondents, it follows that it does not infringe the apparatus of the complainants.

Nor is it necessary to enter much into the discussion of the fourth claim of the patent, as it has already sufficiently appeared that the apparatus of the respondents has no chains connected with the dome, nor do the respondents operate the drills in the manner or by the means described in the complainants' specification. Instead of that, drill grooves in the complainants' apparatus are all connected below with the bottom section of the dam, and that is connected with the boat by chains and a hoisting apparatus, and the upper section of the dam is fixed to the boat with the other sections hanging from it. Unlike that, the drills in the apparatus of the respondents are operated in reference to the rock without any chains connected with the dome, showing that the apparatus is substantially different from that of the complainants in respect to every claim of the patent.

Suffice it to say, without pursuing the examination, that we are all of the opinion that there is no error in the record.

Decree affirmed.

DESIGNS PATENTED DURING THE WEEK

[Each Design bearing date February 20, 1877.]

9,745.—Carpets.—ALPHONSE BATE, London, England, assignor to ROXBURY CARPET COMPANY, Boston, Mass. Application filed January 31, 1877. Term of patent 3½ years.

9,746.—India-Rubber Erasers.—CHARLES B. DICKINSON, Brooklyn, N. Y. Application filed November 14, 1876. Term of patent 14 years.

9,747 to 9,751, inclusive.—**Oil-Cloth.**—CHARLES T. MEYER and VICTOR E. MEYER, Bergen, N. J., assignors to EDWARD C. SAMPSON, New York, N. Y. Applications filed February 6, 1877. Term of patents 3½ years.

9,752 and 9,753, inclusive.—**Carpet.**—THOMAS J. STEARNS, Boston, Mass., assignor to ROXBURY CARPET COMPANY, same place. Applications filed January 31, 1877. Term of patents 3½ years.

9,754 to 9,756, inclusive.—**An Embroidery-Pattern.**—EMIL CRISAND, New Haven, Conn., assignor to HENRY ST. JOHN, same place. Applications filed February 2, 1877. Term of patents 3½ years.

9,757.—Combined Water-Pont and Contribution-Box.—JOSEPH W. FISKE, New York, N. Y. Application filed February 10, 1877. Term of patent 7 years.

9,758.—Cooking-Stoves.—RICHARD A. CULTER and DAVID C. PROCTOR, Peoria, Ill. Application filed February 8, 1877. Term of patent 7 years.

9,759.—Rubber Shoes.—JOSEPH PIENOVI, Newark, N. J. Application filed January 24, 1877. Term of patent 14 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date February 20, 1877.]

4,378.—Eivets and Rivet-Burs.—BROWN & BROTHERS, Waterbury, Conn., and New York, N. Y. Application filed February 7, 1877.
"The figure of an anchor."

4,379.—Medical Preparation.—JOHN CAHNRICK, Bayonne, N. J. Application filed February 3, 1877.
"The word-symbol 'YERBINE.'"

4,380.—Soap.—CORYELL & RUSS, St. Mary's, Pa. Application filed February 5, 1877.
"The word-symbol 'COLLIER.'"

4,381.—Medicinal Preparations.—R. COLTER & Co., Houston, Texas. Application filed February 1, 1877.
"The letters 'I-X-L.'"

4,382.—Fertilizer.—GUSTAV DAMBMANN, Baltimore, Md. Application filed January 4, 1877.
"The word-symbol 'DIAMOND,' and the device of a black diamond with the letters 'G. D.' in the center of the same."

4,383.—Paints.—HEATH & MILLIGAN, Chicago, Ill. Application filed February 8, 1877.
"The letters 'H. M.,' arranged as a monogram upon a circular ground."

4,384.—White Lead.—HEATH & MILLIGAN, Chicago, Ill. Application filed February 8, 1877.
"The word-symbol 'WESTERN PRIDE.'"

4,385.—White Lead.—HEATH & MILLIGAN, Chicago, Ill. Application filed February 8, 1877.
"The word-symbol 'American Pride.'"

4,386.—Paints.—HEATH & MILLIGAN, Chicago, Ill. Application filed February 8, 1877.
"The word-symbol 'CRYLIGHT.'"

4,387.—Cigars.—GEORGE P. LIES & Co., New York, N. Y. Application filed February 1, 1877.
"The word-symbol 'GRAND REPUBLIC.'"

4,388.—Soap.—ROBINSON BROS. & Co., Boston Mass. Application filed February 3, 1877.
"The arbitrary words 'SILVER LINE.'"

4,389.—Paper Collars.—S. W. H. WARD'S SONS, New York, N. Y. Application filed February 7, 1877.
"The word-symbol 'TOILET BOX' and the representation of a toilet-box."

4,390.—Compound for Packing Joints of Steam-Engines and for Other Purposes.—SOLOMON J. GORDON, New York, N. Y. Application filed January 29, 1877.
"The word-symbol 'Usudurian.'"

4,391.—Soap.—LAUTZ BROTHERS & Co., Buffalo, N. Y. Application filed December 13, 1876.
"The word-symbol 'OX MARROW.'"

4,392.—Gin.—JOHN D. PARK, Covington, Ky. Application filed December 28, 1876.
"The words 'ENGLISH CROWN,' which precede the descriptive word 'Gin,' and the monogram composed of the letters 'J. D. P.'"

4,393.—A Medicinal Preparation.—SULLIVAN N. SMITH, Jr., Dayton, Ohio. Application filed January 20, 1877.
"The word-symbol 'WINE OF TAR.'"

4,394.—Olive-Oil.—D. ST. AMANT & SON, New York, N. Y. Case A. Application filed February 2, 1877.
"The coat-of-arms, together with the lower frame or shield, containing the monogram composed of the letters 'G. S. A.'"

4,395.—Olive-Oil.—D. ST. AMANT & SON, New York, N. Y. Case B. Application filed February 2 1877.
"The arbitrarily-selected word 'GOURMETS.'"

4,396.—Soap.—JOHN E. WEAVER, Lancaster, Pa. Application filed December 14, 1876.
"The word-symbol 'FLAG.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date February 20, 1877.]

976.—Title: "**Superior Pure White Lead.**"—HEATH & MILLIGAN, Chicago, Ill. Application filed February 8, 1877.

977.—Title: "**Superfine Coach Color.**"—HEATH & MILLIGAN, Chicago, Ill. Application filed February 8, 1877.

978.—Title: "**Genuine Burnt Umber.**"—HEATH & MILLIGAN, Chicago, Ill. Application filed February 8, 1877.

979.—Title: "**DeWitt's Carbolated Tar Soap.**"—THOS. DEWITT KAVANA, New York, N. Y. Application filed February 8, 1877.

980.—Title: "**New York Nipple Shield.**"—GEORGE M. NICHOLS, Brooklyn, N. Y. Application filed February 8, 1877.

981.—Title: "**Morocco Moorish Cigarettes.**"—J. BELESHE, Philadelphia, Pa. Application filed January 25, 1877.

982.—Title: "**Reese's Patent Adjustable Stencil Letters.**"—OLIVER G. BRYANT, of Chicago, Ill. Application filed February 3, 1877.

983.—Title: "**East Indian Pain Cure.**"—DONNELL & MANSIR, Richmond, Me. Application filed February 9, 1877.

984.—Title: "**Raven Paste Stove Polish.**"—N. H. PARKER & Co., Boston, Mass. Application filed January 11, 1877.

985.—Title: "**English Crown Gin.**"—JOHN D. PARK, Covington, Ky. Application filed December 28, 1876.

986.—Title: "**Special Notice to Dealers and Consumers.**"—JOHN D. PARK, Covington, Ky. Application filed December 28, 1876.

987.—Title: "**English Crown Gin.**"—JOHN D. PARK, Covington, Ky. Application filed December 28, 1876.

988.—Title: "**English Crown Gin.**"—JOHN D. PARK, Covington, Ky. Application filed December 28, 1876.

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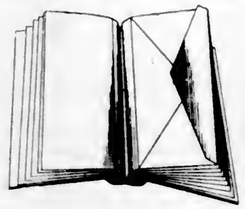
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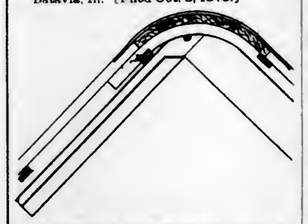
PATENTS GRANTED FEBRUARY 20, 1877.

187,448. SCRAP-BOOKS. D. R. Breed, St. Paul, Minn. [Filed Nov. 4, 1876.]



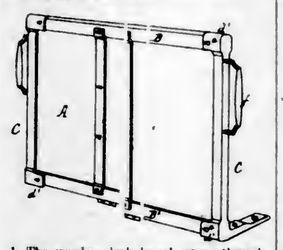
As a new article of manufacture, the scrap-book constructed of envelopes, bound together in book form, substantially as shown and described.

187,449. BENT-WOOD CORNERS. B. Burt, Batavia, Ill. [Filed Oct. 3, 1876.]



The bent-wood corner for wagon-work, consisting of a thick inner layer bent across the grain, and a thin outer layer bent along the grain, the inner layer abutting against the ends of the side pieces, and the outer being made to overlap the joints, and being countersunk to come flush with the outer surface of the sides, substantially as specified.

187,450. DASH-BOARDS. B. Burr, Batavia, Ill. [Filed Oct. 3, 1876.]

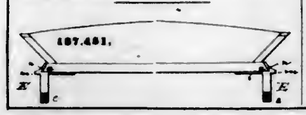


1. The wooden dash-board, strengthened and inclosed at the ends by socket-pieces of metal riveted to the dash-board, and furnished with tangs by which the whole may be secured to the wagon-body, substantially as specified.

2. The socket-piece or standard C, made with a lateral socket, D *d d*, prolongations *d*^{1} *d*^{1}, and tang *g*, substantially as specified.

3. The wooden dash-board provided with the metal-socketed end standards and the double intermediate standards, applied in pairs and riveted through the board, substantially as specified.

187,451.

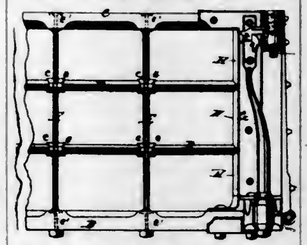


187,451. METAL SEAT-RISERS. B. Burr, Batavia, Ill. [Filed Oct. 3, 1876.]

1. The metal riser for carriage-seats, as an article of manufacture, consisting of the legs *e e*, the molding *m*, hollowed out as at *n*, to receive the chamfered ends of the wooden sill-pieces of the seat-bottom, and furnished with a shoulder or flange, *i*, to support the sill-pieces, and to afford a means of attachment thereto, as specified and shown.

2. The combination, with the carriage-seat and the longitudinal wooden sills thereof and the bottom board, of the metal risers E E, constructed with legs *e e*, hollowed molding *m n*, and flange *i*, as specified and shown.

187,452. WAGON-BODY IRONS. B. Burr, Batavia, Ill. [Filed Oct. 3, 1876.]



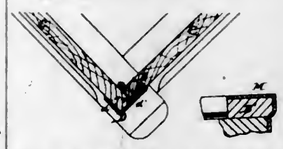
1. The metallic upright rib E, made with lateral intersecting sockets *s s*, pierced at the intersections to receive rivets, and fitted at top and bottom to be secured to the sill and rail, substantially as specified.

2. The metallic upright rib E, made with lateral intersecting sockets *e e*, formed to receive the ends of the horizontal ribbing, substantially as specified.

3. The combination, with the panel forming the sides or ends of a wagon-body, of the metallic upright rib or ribs E, made with lateral intersecting sockets *e e*, the horizontal ribs D, the corner-plates or angle-irons G, and the short filling-blocks H, substantially as specified.

4. The socket, provided with a lip to rest upon the sill, and fitted with pins to project into cavities in said sill, substantially as shown and described, for securing the cross-beams to the sills.

187,453. METAL CORNERS FOR WAGON-BODIES. B. Burr, Batavia, Ill. [Filed Oct. 3, 1876.]



1. The corner-joint for wagon-bodies, consisting of an angle-plate secured to the outer surface of one panel, and furnished with a recurved lip to enter a groove in the other panel, which other panel is rounded off at the end, so that it may act as a lever in turning the parts of the joint together, substantially as specified.

2. The metal cap M, constructed as shown and described, and provided with the recurve flanges *m* and the aperture for a bolt at the inner corner, substantially as specified.

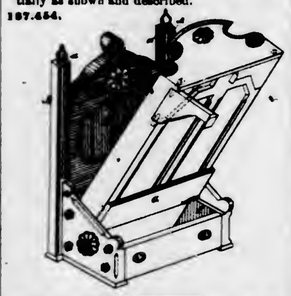
187,454. WARDROBE-BEDSTEADS. F. Caulier, Philadelphia, Pa., assignor, by mesne assignments, to the New England Wardrobe Bedstead Manufacturing Company, Boston, Mass. [Filed Nov. 10, 1876.]

1. In combination with the tilting body of the bed, the independent sliding head-board B, substantially as shown and described.

2. In combination with the sliding head-board B, the posts A A, grooved at *a*, said grooves being diminished in depth to form shoulders *a*^{2} for arresting the descent of the said head-board, as set forth.

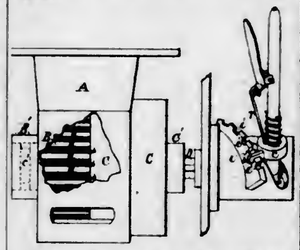
3. In combination with the elevating-body, the hinged board G, resting and moving on or above the projecting base F, permitting access to the interior of said base, substantially as shown and described.

187,454.



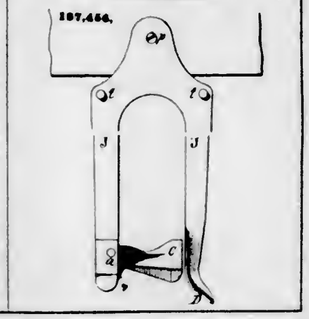
187,455. GRAIN OR SEED DRILLS. P. H. Cavanaugh, Springfield, Ohio. [Filed Aug. 18, 1876.]

Brief.—A male distributing-cylinder, with long grooves on its outer surface, slides in and out of an inclosing case, thus enlarging or reducing the size of the seed-cups. This adjustment is effected by means of a cam-rack and keeper, in combination with a tension-spring.



In combination with the shaft D, seed-cup A, distributer-sections B and C, and the device for operating said shaft, and the female section C by an end movement, in the manner specified, the spiral spring H, with its retaining cap or button *h* and screw *i*, for the purpose of taking up any lost motion, lessening the wear, and closing the distributers in case the locking-latch for holding them in adjustment should be accidentally released from its notch in rack *c*, as hereinbefore set forth.

187,456.

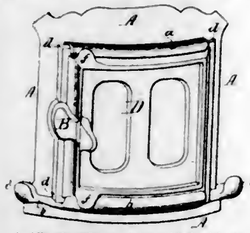


187,456. CATCH-HOOKS FOR SUSPENDING LEATHER. Cyrus Chambers, Jr., and J. T. Chambers, for themselves, and C. Chambers, Jr., and M. B. Chambers, executors of S. Chambers, deceased, Philadelphia, Pa., assignors to C. Chambers, Jr. [Filed Jan. 12, 1877.]

1. A suspending catch-hook, provided with the long jaws J J', latch-pawl C, palm D, and lugs t t, all constructed, arranged, and operating substantially as and for the purposes set forth.

2. In combination, with the jaw J, of a catch-hook, the latch-pawl C of the form represented, made a little shorter than the distance between the jaws J J', and provided with the stop s, all as and for the purpose specified.

187,457. SLIDING STOVE-DOORS. J. Cox, Philadelphia, Pa. [Filed Jan. 26, 1877.]

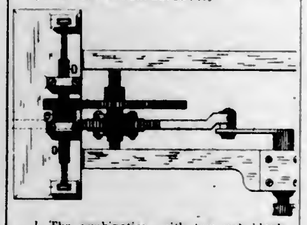


1. The door-frame A, provided with the inwardly projecting raised flanges *a b* and guide *c* with the portions *b' b'* cut away, as shown, in combination with the door D, substantially as and for the purpose herein set forth.

2. The door D, provided with the small raised outwardly-projecting flanges *f f*, with the portions *e e* cut away, as shown, in combination with the frame A, substantially as and for the purpose herein set forth.

3. In combination, the frame A and door D, constructed as shown and described, for convenience in casting, and provided with the removable stop B, substantially as and for the purpose herein set forth.

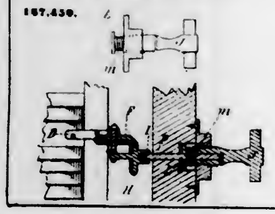
187,458. MACHINES FOR TAPPING NUTS. W. Crighton, Providence, R. I., assignor to the American Screw Company, same place. [Filed Jan. 22, 1877.]



1. The combination, with two nut-blank holders, a double tap-spindle, which is longitudinally controlled wholly by the contact of its taps with threads just cut by them in nuts within the holders, of a gear on the spindle, and a driving-gear which is intermittingly rotated in opposite directions, and meshes with the spindle-gear, substantially as described.

2. In a double-tap nut-threading machine, the combination, with the blank-holders, of a tap-spindle, which is longitudinally controlled wholly by nuts just threaded within the holders, substantially as described.

187,459.

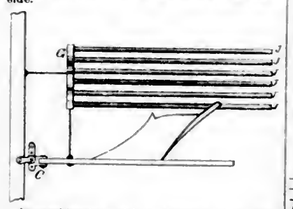


187,459. SHUTTER-WORKERS. John W. Delano, Marion, and Lewis C. Norton, Auburndale, Mass. [Filed Oct. 14, 1876.]

In a window-blind fastener, substantially such as described, the handle J, head I, rod P, spring *m*, gear H, lug *f*, and gear F, constructed and arranged to operate substantially as and for the purpose set forth and specified.

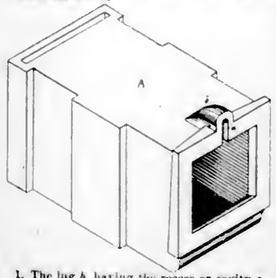
187,460. PLOW ATTACHMENTS FOR POTATO-DIGGERS. J. J. Dihel, Washington, Iowa. [Filed Jan. 15, 1877.]

Brief.—The attachment consists of a fingered separator, that is attached to the double-tree and plow-beam, so as to be drawn by the side of the mold-board of the plow, and upon which the potato-hills are thrown as the furrow is turned. The soil is sifted through, and the potatoes thrown into a row upon one side.



In combination with a common plow, the separator consisting of the head G and prongs J, curved as described, and attached to the plow-beam and evener, as set forth.

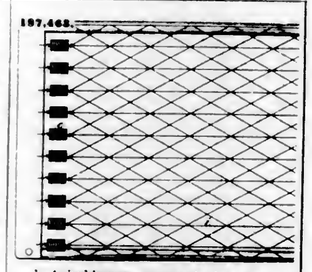
187,461. CAR-AXLE-BOX COVERS. M. Ellis and P. M. Nelson, Hudson, Wis. [Filed Nov. 23, 1876.]



1. The lug *b*, having the recess or cavity *a*, in combination with the axle-box A, arranged and operating as hereinbefore set forth.

2. The combination and arrangement of the axle-box cover C, and pin or bolt *c*, arranged and operating as hereinbefore set forth.

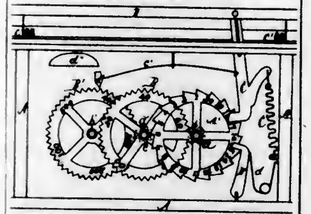
187,462. SPRING BED-BOTTOMS. Edwin S. Field, Hartford, Conn. [Filed June 5, 1876.]



1. A bed-bottom composed of continuous angulated wires *e*, connected at the angles by simply running one wire around the other, with springs at the ends, substantially as described.

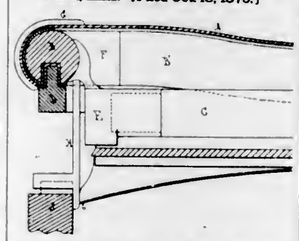
2. In combination, the continuous angulated wires *e*, connected at the angles by simply running one wire around the other, the end springs *e*, and the continuous straight wires *i*, substantially as described.

187,464. REGISTERS. P. Harry, Chicago, Ill. [Filed Apr. 1, 1876.]



An indicator consisting of the combination of the box or case A, numbered ratchet A', numbered gear-wheels B and B', the shafts and pinions operating in connection with the said ratchet and gears, the lever C, pawl D, the bell, hammer, pawl, and springs, all arranged for operation together, substantially as and for the purposes set forth.

187,465. CAR-SEATS. Daniel H. Haywood, Boston, Mass. [Filed Oct. 18, 1876.]



1. A removable cane car-seat, having a curved bottom raised from the fixed seat-frame, substantially as described.

2. In combination with the rounds B B', grooved upon their lower sides, the removable strip D, fitted into such groove upon the lower side of the seat, to hold the covering A in the groove, after it is carried over the rounds, substantially as described.

3. The combination of the rounds B' B, with the socketed metallic corner-irons F F, substantially as described.

4. In combination with the rounds B B', the cross-bar or brace C, secured to the former by socketed metallic supports at its ends, substantially as described.

5. In combination with the seat-covering A, and the rounds B B', the cushion or sheet of elastic material interposed between them, substantially as described.

6. The combination of the socketed metallic corner-irons F F, the rounds B B', and the legs H H, forming a support for holding the cane bottom at the proper level above the seat frame, which is permanently in the car, substantially as described.

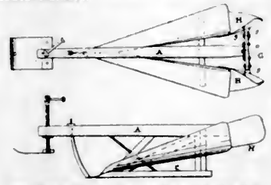
7. The combination of the rounds B B', with the socketed corner-irons F and cap G, substantially as described.

8. In combination with the covering A, the angle-cap G, fitted over the corner and secured to the seat-frame B B', substantially as described.

9. In combination with the seat-covering A, pervious to heat, the deflector M interposed between it and the heating apparatus of the car, substantially as described.

187,466. DITCHING-MACHINES. James W. Humphreys, La Fayette, Ind. [Filed Aug. 16, 1876.]

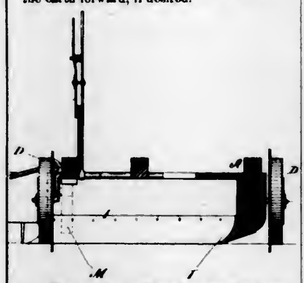
Brief.—Slotted beam-plate and cross-bar, and loose couplings, to provide various adjustments of the loosely-pivoted wings of the concave blades.



The ditcher-beam A, provided with the slotted plate *c*, the cross-piece G, provided with bolts and nuts, and connecting with the wings H by rods *g*, as shown, for the purposes set forth.

187,467. ROAD SCRAPERS AND GRADERS. H. D. Janes, Dodge Centre, Minn. [Filed Aug. 3, 1876.]

Brief.—An adjustable wheeled frame, provided with a series of colters in front to break up, and an inclined scraper to deliver the loose earth sidewise upon the road-bed. The wheels are provided with cutting-flanges, to take hold upon the ground and prevent the machine from shifting sidewise. A removable side-board is arranged on the frame to carry the earth forward, if desired.



1. The grading and leveling machine, consisting of the adjustable wheeled frame A, provided with the colters F, the oblique scraper I, and the rake J, constructed and arranged to operate substantially as shown and described.

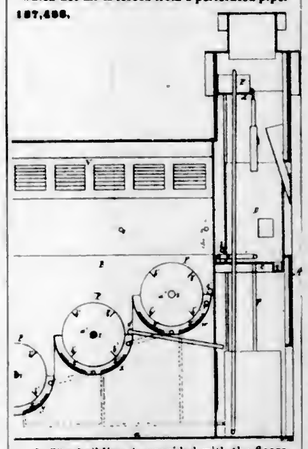
2. In combination with the frame A, having the oblique scraper I attached, the supporting-wheels D, provided with the flanges *a*, to enter the ground and prevent the machine from moving laterally.

3. In combination with the frame A, provided with the oblique scraper I, the removable side board M, substantially as and for the purpose described.

187,468. APPARATUS FOR EXTRACTING TANNIN. Thos. W. Johnson, New York, assignor to H. C. Johnson, Astoria, N. Y. [Filed Jan. 19, 1877.]

Brief.—Water is admitted to the leaches from tank above, through a rotary sprinkler, that may be raised or lowered according to the depth of material in the leaches, while steam enters through foraminous columns and jacket. The solution of tannin passes by its own gravity to settling-tanks, where the sediment is deposited upon a series of platforms, one above another, having glass tubes projecting upward outside the tank to show the depth of sediment deposited. The clear liquor next runs into the highest of a series of semi-cylindrical evaporating-tanks, having steam-pipes coiled in the bottom through the series, and from the lowermost one into cooling-tanks under the evaporators. These condensers are provided with a number of revolving disks upon a horizontal shaft, upon which hot air is forced from a perforated pipe.

187,469.



1. The building A, provided with the floors or platforms *b b c* and the evaporating-chamber B, and with one or more leaches, sediment-depositors, and a concentrating apparatus, arranged with such platforms and chamber, substantially as shown and described.

2. The combination of one or more leaches, D, one or more sediment-depositors, C, an evaporating-chamber, B, and one or more tanks, *w x y*, each of which is provided with an evaporator, F, all being constructed and connected or applied substantially in the manner and to operate as set forth.

3. The combination of one or more water-supply tanks, E, one or more leaches, D, one or more sediment-depositors, C, an evaporating-chamber, B, and one or more tanks, *w x y*, each of which is provided with an evaporator, F, all being connected and applied substantially as set forth.

4. The improved leach D, substantially as described, consisting of the vessel *e*, the foraminous jacket *i*, the slatted or perforated bottom *f*, and one or more foraminous columns, A, arranged as set forth.

5. In combination with the leach D, the sprinkler *i*, provided with means of adjusting it within such leach, and applied to such leach so as to be adjustable therein, as and for the purpose specified.

6. The combination of the series of glass tubes or "tell-tales" *e* with the vessel C, and the series of platforms arranged therein, as shown and explained.

7. The combination of one or more "junks," F, one or more leaches, D, one or more sediment-depositors, C, and an evaporating-chamber, B, provided with concentrating apparatus, substantially as described, all being arranged and applied essentially as and to operate as explained.

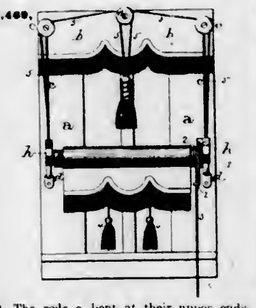
8. The combination of one or more "junks," F, one or more liquid-supply tanks, E, one or more leaches, D, one or more sediment-depositors, C, and an evaporating-chamber, B, provided with a concentrating apparatus, substantially as described, all being arranged and applied essentially as set forth.

9. The combination of the receiving tank or tanks *d'*, one or more evaporators, F, and one or more tanks, *w x y*, all being constructed and arranged substantially as set forth.

187,469. CURTAIN-FIXTURES. C. A. Kellogg, East Palestine, Ohio. [Filed Jan. 12, 1877.]

Brief.—The rods that support the roller-bearings are bent at their upper ends, and have a hole through them to receive the bolts that fasten the cord-supporting knobs to the frame. The lower ends of said rods are held in fixed brackets. The sliding bearings are made triangular in shape, and the rods pass through both arms of each bearing. One of the bearings is provided with a pawl, that engages with a ratchet on the end of the roller.

187,469.



1. The rods *c*, bent at their upper ends, and having a hole through them, so that the same bolts or screws that secure the knobs or rollers *c* to the frame shall secure the rods also, in combination with the brackets *d*, substantially as shown.

2. The brackets *d*, of the form and construction shown, in combination with the rods *c*, bent at their upper ends, so as to be uniformly distant from the frame all their length, as specified.

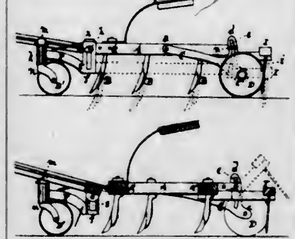
3. The sliding triangular bearings *h*, rods *c*, curtain-roller, and cords 5, combined as described, for raising and lowering the roller.

4. The sliding triangular bearings *h*, curtain-roller journaled therein, lever 2, pivoted to one of the bearings, and provided with a stud or catch, 1, combined with a ratchet, *i*, on the end of the roller, and a cord, 3, substantially as set forth.

5. The combination of the rods, sliding bearings, cords 5, knobs or rollers *c* 6, and tassel 7, substantially as specified.

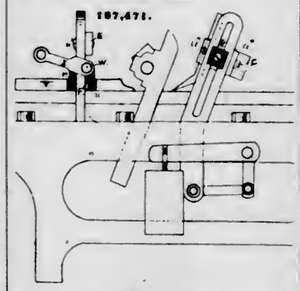
187,470. CULTIVATORS. S. F. Lee, New Scotland, N. Y. [Filed Jan. 3, 1876.]

Brief.—A square frame having in front adjustable arms, projecting forward, and carrying caster-wheels and rear adjustable arms with fixed wheels.



In combination with the cultivator-frame A, the rear wheels D mounted on pivoted arms C, provided with slotted arms *d* and set-screws *s*, and the caster wheels D' mounted on the adjustable arms F, substantially as and for the purposes set forth.

187,471.



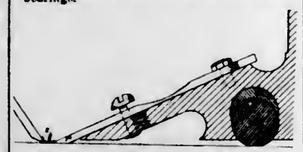
187,471. MOLDING-MACHINES. John S. Loomis, Brooklyn, N. Y. [Filed Jan. 4, 1876.]

Brief.—An oscillating head provided with a wooden block, adapted to be used for polishing a strip of molding, or as a presser-foot, and operated by a screw-shaft, is attached to a loop laterally adjustable upon a swinging and vertically-adjustable bar, having its bearings in slotted standards upon the top of the machine.

In a wood molding machine the combination of the adjustable pivoted bar E, open standards F F', loops *y* and *m*, pin *r*, transverse screw-shaft W, and presser-block V, in the manner and for the purposes set forth.

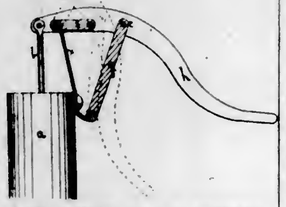
187,472. SECTIONAL PRESSURE-BARS FOR PLANING AND MOLDING MACHINES. J. S. Loomis, Brooklyn, N. Y. [Filed Apr. 6, 1876.]

Brief.—Cross-grained lumber can be passed through a planing or molding machine with safety by means of a series of presser-feet provided with flexible chip-breakers, and mounted upon a roller having Babbitt-metal bearings.



A sectional pressure bar for planing and molding machines, formed of a series of pressure-feet having a flexible chip-breaker attached to each, and mounted upon a roller provided with Babbitt-metal bearings, all constructed to operate as shown and described, and for the purpose specified.

187,473. MECHANICAL MOVEMENTS. G. W. Law, Erie, Pa. [Filed Jan. 8, 1877.]



1. The oscillating arm *s*, in combination with the lever *h*, having a movable fulcrum, *c*, substantially as and for the purpose herein set forth.

2. The combination of the lever *h*, the oscillating arms *s* and *g*, and the piston-rod *b*, substantially as and for the purpose herein set forth.

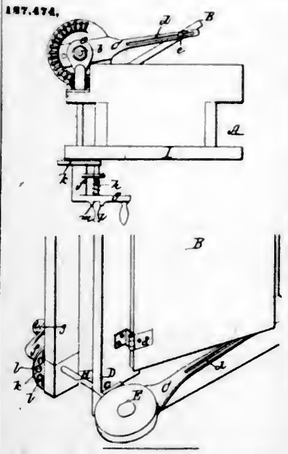
187,474. SHUTTER-WORKERS. W. P. McCobb, Boston, Mass. [Filed Jan. 17, 1877.]

Brief.—A swinging arm or lever, longitudinally slotted, and carrying a shield-plate with segmental rack on its under side, is suitably pivoted to the window-frame, and combined with the ordinary shaft and pinion. There is also attached to the crank-handle a double-locking device, consisting of a perforated disk and a spring bolt or detent, which has a button or head engaging with a notched spur, whereby the shutter is automatically held, and then locked in desired position.

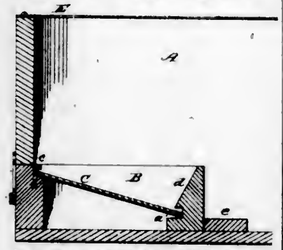
1. The combination, with the window-frame A and shutter B, of the slotted swinging arm C, pivoted to the window-frame, and provided with its segmental rack F and shield-plate E, the outer end of such arm being swiveled in a suitable manner to the shutter, and its motions controlled by the pinion, the whole operating substantially as and for purposes stated.

2. In combination with the arm C and shutter B, and their adjuncts, the operating and double locking device herein described, consisting of the hub *f*, crank *g*, with its notched spur *m*, bolt *h*, with its button *i*, and perforated disk *k*, the whole being in manner and operating as herein described.

187,474.



187,475. EGG-TESTERS. D. R. McCutchen, Chatsworth, Ill. [Filed Jan. 22, 1877.]

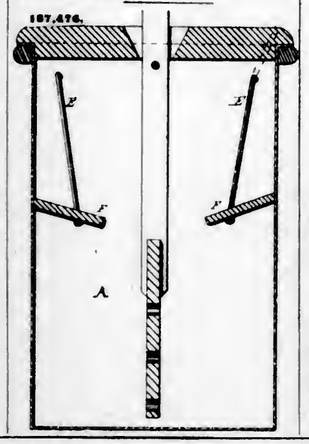


1. An egg-tester consisting of the box A, table D, having the openings *b*, and the removable frame B, having the mirror C, said frame, with its mirror, being inserted in or drawn from the box through an opening at its end, substantially as and for the purpose set forth.

2. The frame B, with the inclined surface *d* and inclined mirror C, substantially as and for the purpose described.

3. The combination, with the box A, having the table D and opening E, of the frame B, formed with inclined surface *d*, and the mirror C, secured therein by the recess *a*, and clamping strip or bar *c*, substantially as and for the purpose specified.

187,476.

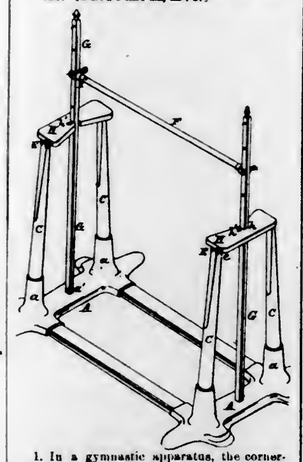


187,476. CHURNS. A. L. McQuary, La Belle, Mo. [Filed Jan. 18, 1877.]

1. In a churn, the plates F and arms E, for the purpose specified.

2. The combination of the box A, plates F, arms E, and a pendulous dasher, all substantially as set forth.

187,477. GYMNASTIC APPARATUS. Philip Medart and Frederick Medart, St. Louis, Mo. [Filed June 21, 1876.]

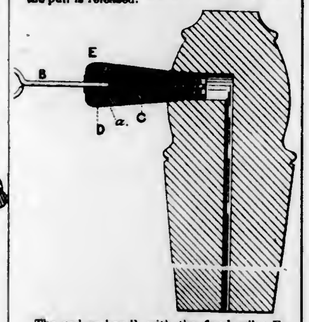


1. In a gymnastic apparatus, the corner-posts C, bars D, brace H, posts G, and bar F, all constructed and arranged to form either a horizontal or parallel bars, as specified.

2. In a gymnastic apparatus, substantially as described, the cast-metal bases A, having sockets *a*, for the reception of the corner-posts C, as specified.

187,478. VENTS FOR BARRELS, &c. G. W. Moore, Auburn, N. Y. [Filed Dec. 29, 1876.]

Brief.—The cap is fastened to the handle, and is pulled up with it to admit air, said cap being closed by the tension of the spring when the pull is released.

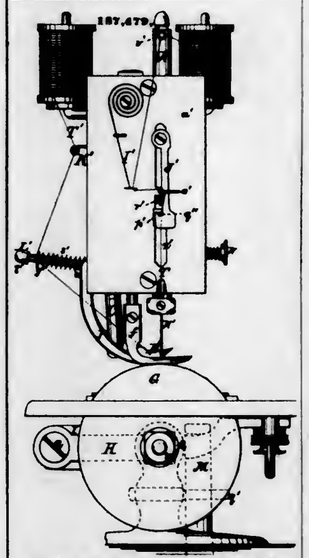


The rod or bar B, with the fixed collar E, the washer D, the spring C, and the shell or tube A, with orifice *a*, the whole combined as shown, and constructed substantially for the purpose specified and set forth.

187,479. OVERSTITCH SEWING-MACHINES. W. A. Palmateer, Johnstown, N. Y., assignor to himself and J. S. Hosmer, same place. [Filed Mar. 26, 1876.]

Brief.—The material is placed so that it bears on the roughened surface of a wheel, which is loosely placed on a yielding axis, and is fed along by a feed-foot above, being held down by a fixed foot. The feed-wheel is adjustable lengthwise its shaft, and is elevated by a spring and depressed by a knee-lever. Also, improvements in the mechanism for actuating the feed-foot and the looper, which are too complicated to brief.

187,479.



1. The combination, in a sewing-machine, of the roller G, turning loosely on a yielding bearing, the vibrating and reciprocating feed-foot *f*, and the fixed foot-piece J, whereby the material to be sewed is fed to the needle.

2. The combination, in a sewing-machine, of the tapered bar C, working in a rectangular way, *s*, in plate *s'*, and carrying feed-foot *f*, with the rod D pivoted to said bar by pin *h*, having spring I, and engaging eccentric E on main shaft S, the crank-lever F carrying pin *k*, and engaging cam B, whereby the said bar C, carrying the said feed-foot, is given its peculiar vibrating and reciprocating motions, as herein described.

3. The combination, in a sewing-machine, of the fixed foot-piece J, feed-roller G on shaft *p*, mounted on lever H, pivoted at *q* to arm I, and spring K, and nut L, with the knee-lever M, whereby the said feed-roller is given a yielding bearing, and whereby said roller may be swung away from the said fixed foot-piece, as described.

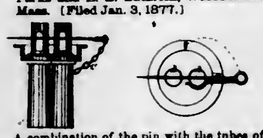
4. The combination, in a sewing-machine, of the feed-roller G, having sleeve *s* on shaft *p* in lever H, and nut *r* and spring *t*, whereby the said feed-roller is capable of adjustment laterally to the needle, as described.

5. In a sewing-machine, the throat-plate P, having oblique longitudinal channel *b''*, the transverse path *c''*, and open slot *d''*, whereby the needle is somewhat deflected on its downward course, and its contact with the looper is avoided, as described.

6. In a sewing-machine, the combination of the throat-plate P, constructed as described, with roller G on shaft *p*, lever H, nut *r*, and spring *t*, whereby the plate P is capable of lateral adjustment with roller G to the needle, as described.

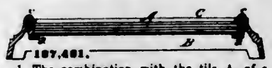
7. In a sewing-machine, the double-thread overstitch looper B', having hook eod *e'*, shoulders at *f'* and *f''*, and transverse openings *g'* and *g''*, as described, and for the purpose specified.

187,480. BURNERS FOR LANTERNS. A. S. Parks and L. B. Bathrick, Winchendon, Mass. [Filed Jan. 3, 1877.]



A combination of the pin with the tubes of the burner provided with holes P, for the purposes herein set forth.

187,481. DISH-STANDS. Geo. W. Pierce, Albany, N. Y. [Filed Dec. 26, 1876.]



1. The combination, with the tile A, of a metallic frame, B, provided with a seat, *a*, for holding the tile from one of its sides, substantially as and for the purpose set forth.

2. The combination, with the tile A and frame B, having a seat, *a*, for engagement with one of the sides of the said tile, of the removable flange C, adapted to be secured to the said frame, and engage with the opposite side of the tile, substantially as and for the purpose set forth.

187,482. BAIL-EARS. H. A. Pond, Bristol, Conn., assignor to Henry A. Seymour, Jr., Washington, D. C. [Filed Oct. 6, 1876.]

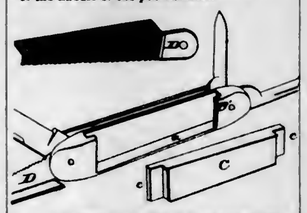
Brief.—The ear may be made of cast-iron, malleable or not, or of sheet metal.



A bail-ear made of a single piece of material, and formed with a perforated convex head for the attachment of the bail, and attaching-prongs sharpened at their ends, the same bent at right angles to the convex head, whereby they are adapted to be driven into a wooden pail or stave, substantially as and for the purpose set forth.

187,483. POCKET-KNIVES. W. R. Rightor, Helena, Ark. [Filed Dec. 30, 1876.]

Brief.—A small piece of hone or whetstone, easily detachable, is utilized to form a part of the handle of an ordinary pocket-knife, serving, when temporarily removed, as a convenient means of honing or sharpening the knife-blades, and one of the blades is saw-toothed, and formed with one or more right-angular rasping or filing surfaces, its peculiar shape serving also to help confine the whetstone in its proper place within, and as forming part of the handle of the pocket-knife.

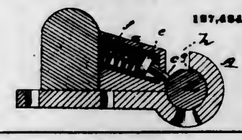


1. A knife whose handle is constructed with a removable whetstone forming part of the same, substantially as and for the purpose described.

2. A knife provided with a saw-blade having one or more right-angular rasping-surfaces, substantially as and for the purpose described.

3. The pocket-knife constructed with one or more cutting-blades, a saw-blade, D, having rasping or filing surfaces, and a detachable whetstone, C, the latter seated in the metallic side piece of the handle, and substituted for the bone or other analogous material usually secured thereto, substantially as and for the purpose set forth.

187,484.



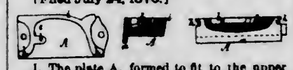
187,484. THILL-COUPLINGS. Osmore O. Roberts, Northampton, Mass. [Filed Dec. 11, 1876.]

1. In a thill-coupling the combination, with the journal or cross-piece *d*, flattened upon its periphery, as shown at *g*, of the chambers *a*, springs *f*, pins *c*, and the box A, with recess *h*, substantially as and for the purpose specified.

2. The box A, formed with a recess, *i*, and opening *j*, substantially as and for the purpose described.

3. A thill-coupling consisting of the chambers *a*, pins *c*, springs *f*, and the box A, formed with recess *i* and opening *j*, constructed and arranged to operate as specified.

187,485. ANCHOR-FLUKE SUPPORTERS AND TRIPPERS. B. Robbins, Cotuit Port, Mass. [Filed July 24, 1876.]



1. The plate A, formed to fit to the upper surface of the rail, and provided on its upper side with one or more projections, *b*, and one or more recesses, *c*, for receiving and retaining or holding an anchor-fluke, and allowing and aiding in its discharge from such plate, all substantially as described.

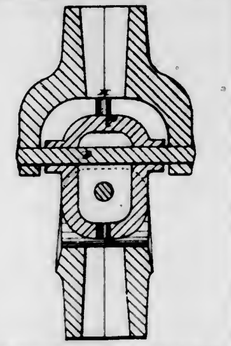
2. The plate A, provided with a flange or guard, *a*, extending down from one or each of its longer edges, and also with one or more projections, *b*, extending upward from such plate, and being to support an anchor-fluke, and permitting or aiding in its discharge, under circumstances substantially as set forth.

3. The improved anchor-fluke supporter and tripper, consisting of the plate A, the projection *b*, recess *c*, and one or more chocks, *h*, all being arranged substantially as, and for use as, set forth.

4. The plate A, provided with the anchor-fluke-receiving recess *c*, supporting projection *b*, and curved guide-flange *i*, all arranged substantially as shown and described.

5. The plate A, provided with the anchor-fluke-receiving recess *c*, the supporting projection *b*, the curved guide-flange *i*, and one or more chocks, *h*, all arranged as set forth.

187,486. UNIVERSAL SHAFT-COUPLINGS. T. B. Rowell, Beaver Dam, Wis. [Filed Sept. 4, 1876.]



The hollow globular or ellipsoidal shell C, provided with holes transversely through it, on opposite sides of its minor diameter, in combination with bolts put through the shell, and the ears of the couplers, said bolts acting as journals to give flexibility to the coupling, and being riveted to the ears, as described and shown.

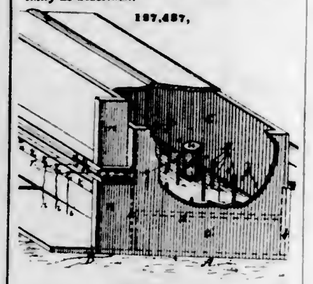
187,487. THREAD-CABINETS. B. F. Saurman, Apalachicola, Fla. [Filed Mar. 29, 1876.]

1. The series of pins having rows arranged convergingly with respect to each other, substantially as described, and for the purpose set forth.

2. The wire S extending transversely across the floor and having a lever, *v*, provided at its ends, with hooks *t t*, in combination with the doors *u u*, provided with staples *s*, substantially as described, and for the purpose set forth.

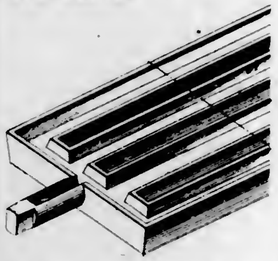
3. The numbered transverse bars *o o*, provided with wire staples or guides *p*, the numbers *r* corresponding with the number of the spools to which they are attached, substantially as described.

187,487,



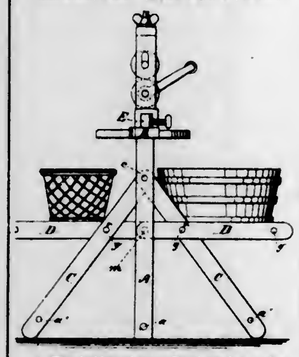
187,486. STOVE-GRATES. A. H. Scholfield, Worcester, Mass., assignor to Eva M. Sterry, same place. [Filed June 12, 1876.]

Brief.—Grooved bars to contain ashes, to prevent injury from heat, or coal oil, to facilitate combustion of coals or other fuel. Grooved journal to receive oil.



The grooved fire-grate, with grooved stem, as herein described and shown, constructed and combined to operate substantially as specified.

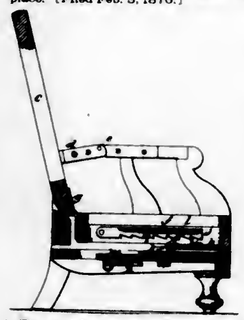
187,489. WASH-BENCHES. N. T. Scott, Hartford, Conn. [Filed Sept. 25, 1876.]



1. The bolding-frames D, pivoted together at their inner ends, with their pivot *m* working in the slots *b* of the vertical standards A, the pivoted standards C, pivoted to the said vertical standards A, and to the supporting-frames D, the whole constructed, combined, and arranged substantially in the manner herein set forth, for the purpose specified.

2. The bar E, made adjustable, as described, upon the cross-piece B of the slotted vertical standards A, and arranged in relation with the pivoted supporting-frames D and the pivoted standards C, the whole constructed and combined for use and operation substantially as and for the purpose herein set forth.

187,490. ADJUSTABLE EXTENSION-CHAIRS. G. N. Seidler, Hartford, Conn., assignor of one-half his right to Chas. May, same place. [Filed Feb. 3, 1876.]

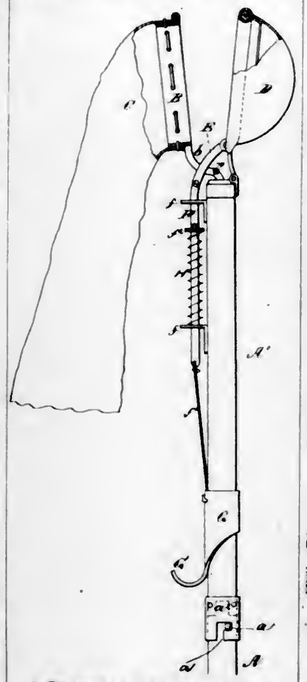


1. The partial arms *d d*, rigidly secured to the back *c*, and jointed by hinges *e e* to arms *b b*, substantially as shown and described.

2. In combination, sliding seat *f*, pivoted and ratchet-arm *i*, spur *j*, and operating-rod *k*, bearing cam *l*, all substantially as and for the purpose set forth.

187,491. FRUIT-GATHERERS. A. J. Shunk, Des Moines, Iowa. [Filed July 22, 1876.]

Brief.—To the end of a rigid staff is affixed a hoop, to which is secured a bag or sack, into which the fruit is deposited when picked. Upon the end of the staff is hinged another hoop, which forms the moving jaw of the picker. This is opened by a spring placed between flanges or guides for the draw-rod, which passes down the staff to the hand of the operator.



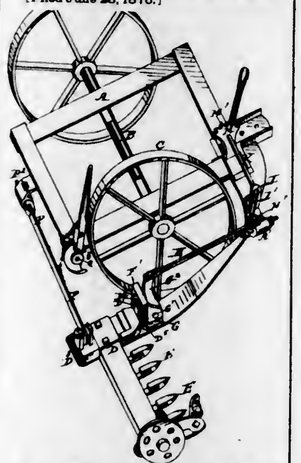
1. The handle A A', having slotted guide-plates *f f* and slide G, in combination with the hoop B, provided with a sack, C, hinged cap D, link E, sliding rod F, disk *f'*, and spring H, substantially as described, and for the purpose set forth.

2. The combination of handle A A' with slide G, finger-piece G', link *f'*, sliding rod F, slotted guide-plates *f f*, disk *f'*, and spring H, substantially as and for the purpose set forth.

187,492. MANUFACTURING FULLED RAWHIDE. John A. J. Shultz, St. Louis, Mo. [Filed July 11, 1876.]

The improved process in preparing fulled rawhide, consisting of liming, baiting, and drying the hides, and then fulling and stuffing them, all as set forth.

187,493. MOWERS. Wm. S. Stone, New Philadelphia, Ohio, assignor of two-thirds his right to English & Dixon, same place. [Filed June 28, 1876.]



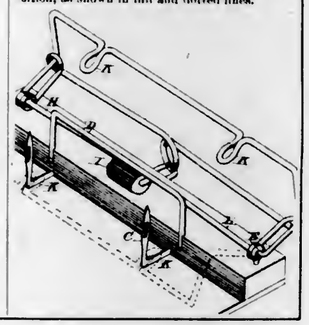
1. A cutter-bar, D, carried by an arm, D^1, hinged or otherwise connected to a drag-bar, F, and raised and lowered by means of a segment or rack, D^2, operated by a segment, G, controlled by levers or rods, substantially as described.

2. The combination, with the cutter-bar D, having guards E, arm D^1, and segment or rack D^2, of the drag-bar F, slotted bracket F', segment G, rod H, arm I, shaft K, and lever N, substantially as set forth.

3. A drag-bar, F, provided with a bracket, F', supporting a segment, G, and hinged at D^2 to an arm, D^1, the said bar F being connected at its front end with capability of turning freely in a bearing, A', and its rear end hinged to one end of a bar or rod, P, the opposite end of which turns freely in a bearing, P', substantially as shown and described.

187,494. TEMPORARY BINDERS. J. D. Underwood, Fayetteville, N. C., assignor of one-half his right to Wm. A. Whitehead, same place. [Filed Feb. 5, 1877.]

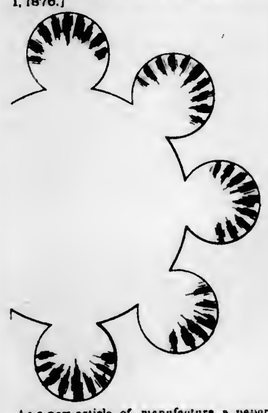
Brief.—The eccentric I holds the clip K F H, either upon the paper that may be registered upon the needles, or in a rearward position, as shown in full and dotted lines.



1. A clip constructed of wire, and bent to form the loops K K, arms H H having cranks near the ends, terminating in and forming the axes of the roller I, eccentric to the hinges E E.

2. In combination with a hinged clip, actuated by a spring, and eccentric, to hold it either up or down, the loops K K and the needles C C, arranged substantially as and for the purpose set forth.

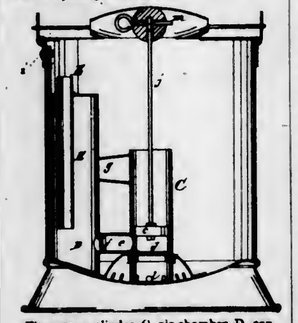
187,495. WRAPPERS FOR BONBONS. I. J. Van Skelline, Brooklyn, N. Y. [Filed Dec. 1, 1876.]



As a new article of manufacture, a paper for mottoes, bonbons, and the like, consisting of a sheet having a plain center, and crimped, fringed, and colored at the edges, substantially as set forth.

187,496. WINDOW-WASHERS AND GARDEN-SPRINKLERS. W. Westlake, Chicago, Ill. [Filed June 22, 1876.]

Brief.—The cylinder and air-chamber are so secured to the water-vessel that they can be easily removed therefrom. A heavy flange at bottom is provided with a stiffening-wire and an opening for the foot.



The pump-cylinder C, air-chamber D, connected by means of the tube *s*, valves *d f*, and outlet-pipe E, arranged within the vessel A, and secured to it by bolt and nut *t*, substantially as and for the purpose set forth.

187,497. BARREL-HEADS. Seth Wheeler, Albany, N. Y. [Filed Dec. 27, 1876.]

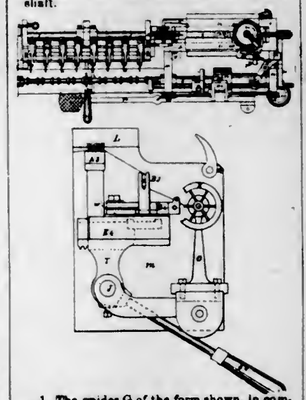
Brief.—The head is formed of three main sections, the middle one of which is divided transversely into two sub-sections of suitable length, the whole secured in position by a sliding clasp formed of an upper and an under plate, and fastened by a screw-bolt passing through slotted holes in the plates and sub-sections.



The combination, with a barrel-head having its central section divided transversely into the subsections A and B, provided with a slotted hole for the screw-bolt *a*, of the sliding clasps and clamping device, herein shown and described, consisting of the upper plate C, under plate D, and screw-bolt *a*, when constructed and arranged to operate as and for the purpose specified.

187,498. SPOOL-WINDING MACHINES. J. T. Wibberley, Newark, N. J. [Filed June 22, 1876.]

Brief.—The machine stops itself, after winding a determined measure of thread, by combination of measuring and stopping devices. Thread-guides have a forward and backward motion, the latter by the increase of the wind of thread on the spools. The traverse of the guides to right and left is varied automatically to suit the figure of the spools. The change of traverse is effected by a combination of sliding catches and lever, which bring into and out of engagement with a right-and-left-handed screw segmental nuts on arms connected with the traversing thread-guide shaft.



1. The guides G of the form shown, in combination with the self-adjusting guide-holders B^4 and slotted guide-plate A^4, substantially as described.

2. The combination of guide-holders B^4, self-adjusting, as described, with slotted guide-plate A^4, its rack A^4, recessed uprights T T, segment D^2, and hand-lever C^4, and mechanism, as shown and described, for producing a pressure of the guides upon the spools, whereby a greater or less number of guides may be employed, and a forward and backward motion of the same is produced, as set forth.

3. The combination of the spindle, mounted upon centers and having its clutch-coupling, nut, and washers for holding the reels, with the standard D, its spring center for supporting and detaching the end of the spindle, and the supporting anti-friction wheels, mounted as shown, and all operating as and for the purpose set forth.

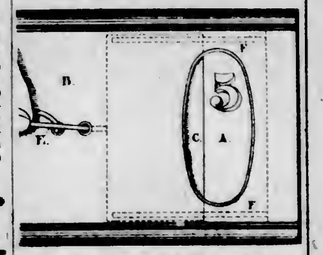
4. The combination of cam-levers U^1 U^2, having their weights, cords, and pulleys, sliding box *n*, and sliding plate O, having the angular arm Y^2, sliding catches f^1 f^2, their springs and pins, screw-shaft S^1 S^2, traversing-shaft J, carrying the rocking arm *e*, and the engaging parts q^1 q^2, adjustable shaper-nut H^1, its hollow adjusting-screw, having its angular sliding piece, holder L^4, having stop-pins *s s*, guide-plate A^4, having the projecting slide X upon the upright arm V, attached to and moving with it, all as and for the purpose set forth.

5. The combination of measuring-wheel M^4, having its ratchet-teeth, pin-holes, pin and lifter O^4, the spring and spring-box n^4, the stop-pawl r_1, and its adjusting-screw P^4, and its projecting nose-stop for pin, all mounted on sliding box *n*, hooked spring-pawl P^4, attached to upright q^4, adjustable piece n^4, stop-lever S^4, hooked piece e^4, upright rod D^2, forked lever r^4, mounted on support projecting from q^4, brake o^4, shipper X^4, treadle Y^4, weight Z^4, and connecting-cords, all as and for the purpose set forth.

6. The combination of the pulley-shaft *n*, its clutch on the left end for driving the reel-spindle B, its fast and loose pulleys, its worm *w*, with the worm-wheel and shaft F, and the bevel-wheels for driving the screw-shaft, for the purposes specified.

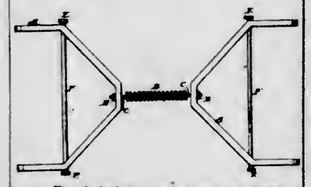
7. The combination of the bobbin-stand, its central upright rod, its adjustable radiating rods, and perforated top bar with the winding portion of the machine, as described, forming, as a whole, a new compact and complete reel or spool winding machine, for the purposes described and specified.

187,499. POCKET-BOOKS. W. Wilkinson, Toronto, Ontario, Canada. [Filed Dec. 21, 1876.]



The slides C, operated by the cord E, and springs F, in combination with the back B, provided with the openings A, substantially as and for the purpose specified.

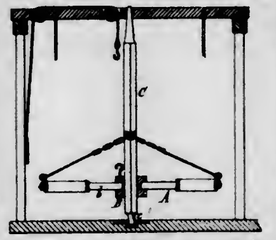
187,500. VEHICLE-SPRINGS. F. B. Zay and J. Dennison, Findlay, Ohio. [Filed Aug. 21, 1876.]



1. The forked levers A A, provided with projections E E, fulcrumed in the hooks G G attached to the bottom of the vehicle-body, in combination with the spiral spring B, directly connecting the inner ends of said forked levers, substantially as described, and for the purpose set forth.

2. In combination with the levers A, the spring B, the tension rods C, with nuts D, the projections E, and the hooks G, and the brace F, all arranged relatively one to the other, as and for the purposes hereinbefore specified.

187,501. HORSE-POWERS. T. B. Adams, North Evans, N. Y. [Filed Dec. 6, 1876.]



1. In a horse-power, the combination, with the upright shaft C, of the band-wheel A, made vertically adjustable thereon, so as to be lowered to the floor or ground, substantially as and for the purpose hereinbefore set forth.

2. In a horse-power, the combination, with the removable upright shaft C, of the detachable band-wheel A, adjustable guys *e*, and hoisting-rope *f*, substantially as and for the purpose hereinbefore set forth.

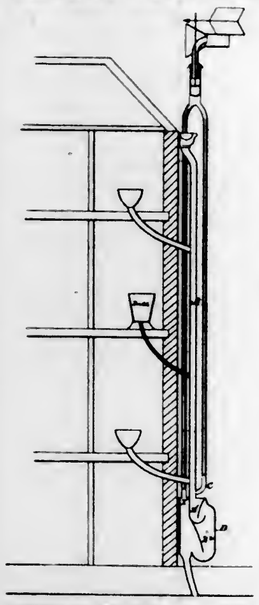
187,502. PANELS. G. W. Banker, Brooklyn, N. Y. [Filed Dec. 6, 1876.]

187,502.



As a new manufacture, the panel-block A, formed of three sheets or layers of wood, *a b c*, secured together, the interior sheet *c* being so placed between the exterior sheets *a b* as to form the tongues 1 2 and the grooves 3 4, substantially as described.

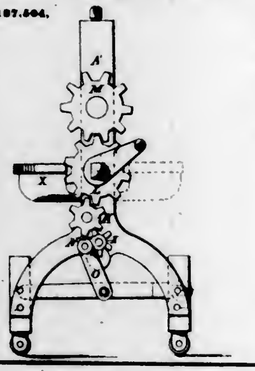
187,503. APPARATUS FOR VENTILATING SOIL AND DRAIN PIPES, &c. H. G. Banner, London, England. [Filed Sept. 27, 1876.]



1. The combination, with the soil-pipe having trap of the exhaust-cowl placed on top of pipe, and the air-pipe just above trap, as and for the purpose set forth.

2. A ventilating-trap, consisting of two dip-traps, D^1 D^2, and an air-shaft, I, arranged substantially as and for the purpose specified.

187,504.



187,504. MANGLES. G. C. Broom, Cleveland, Ohio. [Filed Nov. 24, 1876.]

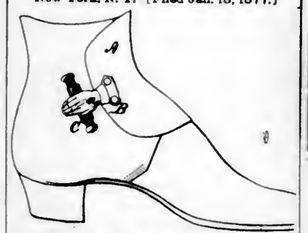
1. In a mangle, the combination of casters feet T, hinged or pivoted to the legs or standards A, the said feet provided with shoulders, which abut against the ends of the standards when in use.

2. The combination, with the standards A A', provided with sockets or apertures *a b*, of the removable and reversible treadle, constructed so as to be attached and swung from either side of the machine, substantially as described.

3. The combination, with standards or legs A, slotted and perforated, as set forth, of the caster-feet T, the same pivoted within the slotted standards, and adapted to be secured thereto by a detachable pin, substantially as and for the purpose set forth.

4. The combination, with the frame of a mangle, provided with sockets on opposite sides, as set forth, of a detachable table, X, adapted to be attached to either side of the frame, substantially as and for the purpose set forth.

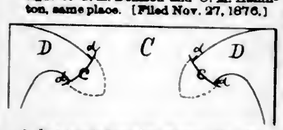
187,505. SHOE-FASTENERS. W. J. Brown, New York, N. Y. [Filed Jan. 13, 1877.]



1. The casing D, having clips *e*, and holes *f*, the bolts C C', springs *d d'*, and the hasp B combined, substantially as herein shown and described.

2. The combination of the casing D, having an opening, *b*, and the double spring-bolts C C', having beveled ends with the hasp B, and an ordinary shoe having the flap A, substantially as and for the purpose set forth.

187,506. PAPER BOXES. J. P. Buckingham, Chicopee, Mass., assignor of one-half his right to G. A. Denison and O. M. Hamilton, same place. [Filed Nov. 27, 1876.]

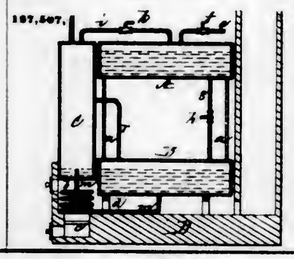


1. In a knock-down box, the peculiar shape of the corner flaps D D D D, to wit, the outer edge describing a circle of which the corner of the bottom is the center, and having two shoulders on a radial line of said circle, just forward of a narrow neck, substantially as described.

2. In a knock-down box, the combination of the corner-flaps formed on flaps B B with the side flaps C C, having the diagonal slits *e e e e* pointing toward the corner of the bottom, substantially as described.

3. In a knock-down box, the flaps C C, having the diagonal slit *e*, and the transverse slits *d d* near the ends of the said slit, substantially as described, and for the purpose set forth.

187,507.



187,507. STEAM-BOILERS. D. Burbank, Woburn, Mass. [Filed Dec. 13, 1876.]

The combination of the boiler-tanks A B and boiler C, with their connecting-pipes *i g m r*, valves *k h*, and supply-pipe *e*, with its valve *f*, constructed and arranged to operate substantially in the manner and for the purpose set forth.

187,508. ARTIFICIAL FUEL. S. Cabot, Jr., Boston, Mass. [Filed Oct. 31, 1876.]

An artificial fuel, composed of spent dyewoods, tan, sawdust, or other waste vegetable matter, and finely-powdered coal-tar or asphaltom residuum, substantially as set forth.

187,509. GRASSHOPPER-DESTROYERS. L. B. Canfield, Syracuse, Neb. [Filed Nov. 9, 1876.]

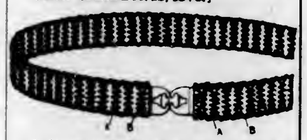
Brief.—A series of shallow pans are joined together by a strut, with a wire-gauze guard extending the whole length of the series upon the side. Handles are provided at each end of the series, by which the pans are carried over the ground. Naphtha or other hydrocarbon oil is placed in the pans, and as they are moved over the plants the grasshoppers hop into the oil and die.



1. The pans A, connected by the plates B and truss C, and provided with handles D, substantially as described, and for the purpose specified.

2. The pans A, connected by the plates B and truss C, and provided with handles D and back E, substantially as and for the purpose specified.

187,510. COIL-SPRING BANDS. T. J. Carroll, Bridgeport, Conn., assignor of one-half of his right to F. A. Nickerson, same place. [Filed Dec. 18, 1876.]



1. In an elastic band, the combination of the transverse springs A A and cord or link B, constructed and arranged to operate as described.

2. In an elastic band, the combination of transverse springs A A, cord or link B, and clasp C with the securing-fangs D D, constructed and arranged to operate as described.

187,511. DISH-WARMERS. N. Clark, New York, N. Y. [Filed Jan. 20, 1877.]



An improved dish-warmer, formed of the iron plate A, and the wooden holder B, to adapt the device to be placed upon a table to hold a dish, substantially as herein shown and described.

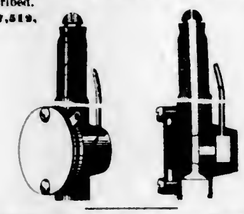
187,512. GAS-BURNERS. Edw. Coe, New Haven, Conn., assignor to the American Street Lighting Company, same place. [Filed Feb. 2, 1877.]

Brief.—The plug is held in by spring, and it can be easily rotated.

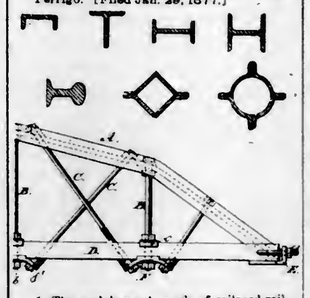
1. The combination, in a gas-cock, of the taper plug with the shell having a corresponding taper-seat for the plug, and closed at its smaller diameter, and a spring applied at the larger end of the plug, substantially as described.

2. The combination of the taper plug, constructed with the principal passage at right angles to the axis, the auxiliary passage parallel to the axis and leading from the principal passage, the shell constructed with a chamber, to which the said auxiliary passage leads the gas, a principal burner opening from the principal passage, and an auxiliary burner opening from the said chamber, all substantially as and for the purpose described.

187,513.



187,513. BRIDGES. E. E. Colby, Groton, N. Y., assignor of one-half his right to O. Avery, Jr., C. Bartholomew, and Chas. Perrigo. [Filed Jan. 29, 1877.]



1. The arch-beam A, made of railroad-rail, H-beam, or other iron of analogous character, bent at uniform angles, and at uniform distances from each other, thereby constructing the upper chord of a bridge, in the manner and for the purpose herein shown and described.

2. In combination with an arch having its sections bent at regular intervals, the post-rods B and truss-rods C, arranged substantially as and for the purpose specified.

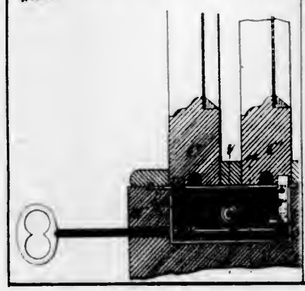
3. The angle-block F, having the two angled ends *f f* made spherical, or with rounding faces, as shown, and for the purpose set forth.

4. The shoe E, having the inclined tongue *e*, base-plates *e' e'*, and vertical flange *e''*, constructed and arranged substantially as shown and described.

5. The bridge herein described, consisting of the arch A, post-rods B, truss-rods C C, angle-blocks F, chords D, and shoes E, all constructed and arranged substantially as shown and herein described.

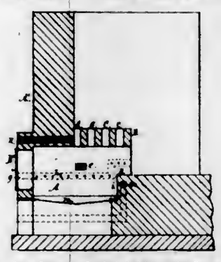
187,514. SASH-FASTENERS. D. M. Cole, Elgin, Ill. [Filed Oct. 12, 1876.]

Brief.—In a sash-fastener case inclosing two separately-operated bolts, one for each sash, the spring common to both bolts is secured around the stud which receives the screw which holds the parts of the case together.



The sash-fastener herein described, consisting of the two bolts B B', having shoulders *p p'* and lugs *b b'*, the rotating shaft H, provided with cams *t t'*, the spring S, mounted upon the central stud D, serving, also, to receive the screw which holds on the cover of the box, all constructed and arranged to operate in the manner and for the purpose specified.

187,515. BRICK-KILNS. Wm. S. Colwell, Pittsburg, Pa. [Filed Nov. 27, 1876.]



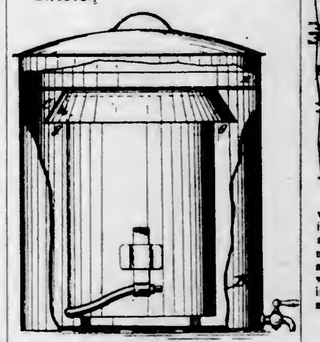
1. In a furnace for brick-kilns, the fire-chamber A, bridge-wall B, crown D, extending above the floor *x*, the bridge-wall, and provided with a series of central openings, C, all constructed and arranged, with relation to the interior of the kiln and its walls, substantially as herein described, and for the purpose set forth.

2. In a furnace for brick-kilns, the fire-chamber A, hollow perforated bridge-wall B, openings C in the crown D, and flues *e*, constructed and arranged, with relation to the interior of the kiln and its walls, substantially as herein described, and for the purpose set forth.

3. In a furnace for brick-kilns, the fire-chamber A, hollow perforated bridge-wall B, openings C in the crown D, flues *e*, and valves *f*, constructed and arranged with relation to the interior of the kiln and its walls, substantially as herein described, and for the purpose set forth.

4. In a furnace for brick-kilns, the fire-chamber A, the hollow perforated bridge-wall B, openings C in the crown D, flues *e* and *g*, the latter communicating with the fire-chamber A by means of perforations *h*, the whole constructed and arranged, with relation to the interior of the kiln and its walls, substantially as herein described, and for the purpose set forth.

187,516. OBTAINING CREAM FROM MILK. W. Cooley, Waterbury, Vt. [Filed Oct. 27, 1876.]



1. The process of treating milk for raising cream by sealing with water and air the cover applied directly to the vessel containing the milk, substantially as set forth.

2. The described process of treating milk for the raising of cream by totally submerging in water the closed vessel containing it.

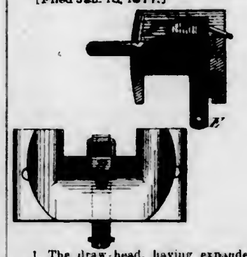
3. The described process of separating the cream, after it has been raised from the milk from which it was raised, by gradually and automatically withdrawing such milk from the bottom of the vessel, leaving the body of cream therein.

4. The combination, in an apparatus for setting milk for cream, of a vessel for holding the milk, a cover adapted for water-sealing the same, and a fastening device serving to hold the cover to the vessel, substantially as shown and described.

5. In combination with the vessel for milk, and with the water-sealing cover and fastening device, a water-vessel adapted to contain the milk-vessel and to permit it to be water-sealed or submerged therein, substantially as shown and described.

6. In combination with a can or vessel for raising cream, a flexible tube, *j*, applied at the bottom of the can, and adjustable at its exit end to the desired height, and adapted for discharging the milk from the vessel, leaving the cream remaining therein, substantially as shown and described.

187,517. CAR-COUPLINGS. M. M. Coppuck and S. Lloyd Wiegand, Philadelphia, Pa. [Filed Jan. 16, 1877.]

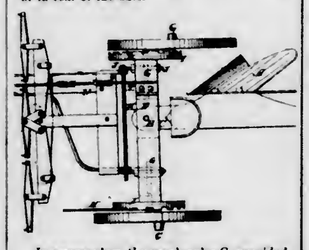


1. The draw-head, having expanded surface for cushioning, and open at the top for the introduction of a link upon a stationary hook or pin, in combination with the lip headed pin E, having a feather to retain it when locked, and to lift the link for the purpose of disengaging it, substantially as described.

2. The feathered pin E, having a lip head and bail, as described, adapted to hold and lift a link, substantially as set forth and shown.

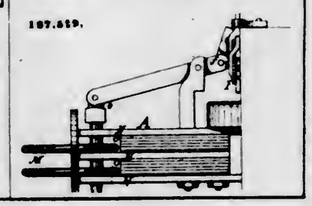
187,518. GANG-PLOWS. J. R. Cummins, McKinney, Tex. [Filed Dec. 4, 1876.]

Brief.—Both crank-axles are turned upon the main axle by levers. The levers are removable, and the cranks have sockets on both sides to receive them. By changing the levers the wheels may be locked to run forward or in rear of the axle.



In a gang-plow, the crank-axles G, provided with a mortise upon their front and rear sides, in combination with the removable levers H and notched segments I, whereby the levers may be inserted in either side of the crank-axles, and locked in the ratchet, adjusting the wheels as to height, and causing them to run in front or rear of the main axle, substantially as and for the purpose specified.

187,519.



187,519. CAR-COUPLINGS. Geo. J. Curry, Chemung, Ill. [Filed Jan. 10, 1876.]

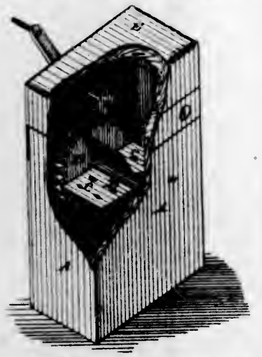
The coupling-link M, consisting of the solid plate *m*, perforated at *n*, and an open semi-link, in combination with the draw-head A, having one or more dividing-plates, N, by which the doubly-recessed coupling-box is formed, substantially as and for the purpose herein shown and specified.

187,520. TIP-CUPS FOR UMBRELLAS. L. Cutting, San Francisco, Cal. [Filed Jan. 8, 1877.]



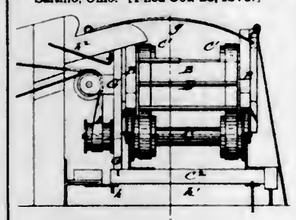
In an umbrella or parasol, the combination, with the stick A, of the cylinder *b*, the pin *d*, passing through the said stick and cylinder, the tip-cup B, and the slots *c* in such tip-cup, all constructed and arranged substantially as described and shown.

187,521. ROTARY CHURNS. Chas. C. Dean, Sherman, Tex. [Filed Sept. 25, 1876.]



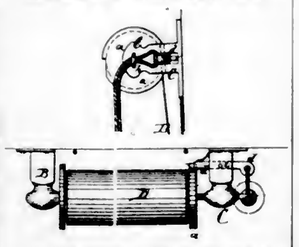
The shaft B, having dasher or paddle-wheel C, in combination with the wooden gear-wheel D, having grooves *e*, substantially as and for the purpose hereinbefore set forth.

187,522. STRAW-STACKERS. Wm. Deets, Saltillo, Ohio. [Filed Oct. 23, 1876.]



The combination of the threshing-machine frame A, provided at the rear end with brackets *a a*, with the detachable stacker-frame B, detachable pulley-support G, detachable base-piece G^2, carrying the driving-pulleys G^1 of the stacker, and the detachable braces A^1 A^2, all combined substantially in the manner set forth, for detaching and changing the direction of the stacker.

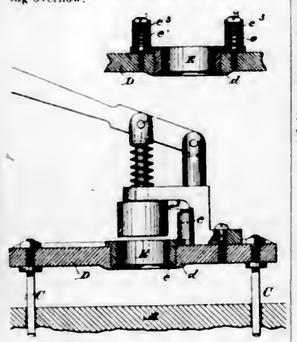
187,523. CURTAIN-FIXTURES. J. Dougherty, New York, N. Y. [Filed Dec. 21, 1876.]



The combination of the curtain-roller D, notched disk *a*, and bracket B, with the bracket C, which is slotted between its point of attachment and the axle of the roller, and with the pawl *d*, which is parallel and in line with the back of the roller, and pivoted in said slot of the bracket, substantially as and for the purpose herein shown and described.

187,524. SEALING-PRESSES. S. R. Dummer, Jersey City, N. J. [Filed Jan. 26, 1877.]

Brief.—Parcels to be secured by sealing-wax are placed upon a table under an adjustable stamping-plate, by means of which they are securely held, the sealing-wax being poured into an orifice in the plate, which has a yielding bushing, whereby, when pressure is applied to the wax by the plunger carrying the seal, any excess of wax will be accommodated by the rising of the bushing, thereby avoiding overflow.



1. The combination of the table A, the spring-treadle B, the threaded rods C C, and the stamp-plate D, whereby articles of varying thickness may be adjusted and stamped for stamping, substantially as specified.

2. The adjustable stamp-plate D, provided with a beveled projection, *d*, substantially as described.

3. The combination of the adjustable stamp-plate, provided with its beveled projection, and the yielding bushing E, substantially as described.

4. The combination of the adjustable stamp-plate, provided with its beveled projection, and the yielding bushing, beveled on its lower side, and having the spring-barrels c^1 c^2, substantially as described.

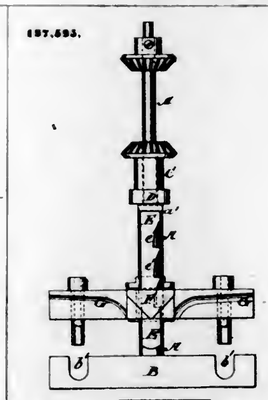
5. The combination of the swinging bracket, carrying the hand-lever and plunger, the adjustable stamp-plate, the guide-pin, and the bushing, substantially as described.

6. The combination of the swinging bracket, carrying the hand-lever and plunger, the adjustable stamp-plate, the guide-pin, the yielding bushing, the spring-treadle, the threaded rods, and the table, substantially as described.

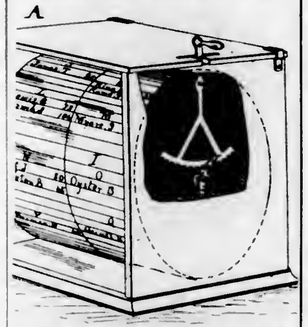
187,525. CHURNS. J. A. Durree, Nunda, N. Y. [Filed Dec. 23, 1876.]

The combination of the sleeve C, the cross-bar D, the notched blades E, the cross-bars F G, beveled in opposite directions upon their lower sides, and the buttons I with the shaft A and cross-bar B, substantially as herein shown and described.

187,526.



187,526. REVOLVING INDEXES. J. Ettinger, Mansfield, Ohio. [Filed Sept. 21, 1876.]

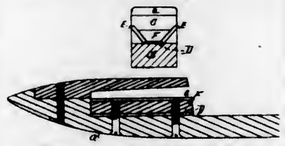


1. The case or box A, provided with the transparent door D, in combination with the roller I, lever N, and pinion L, substantially as and for the purpose set forth.

2. In a revolving index, the combination of a glass front, a roller, and a lever for moving the roller to and stopping it at any desired point, substantially as specified.

3. The gear or segmental lever N and wheel or pinion L, in combination with the roller I, for the purpose set forth.

187,527. HARVESTER GUARD-FINGERS. J. C. Fesler and G. D. Fettingell, Kings, Ill. [Filed June 19, 1876.]



1. The combination, with the part *a'* of the guard, of the adjustable centers E E, arranged at an angle to the plane of the upper surface of the guard, substantially as and for the purpose specified.

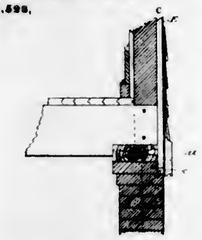
2. The combination, with the part a of the guard, provided with the longitudinal groove D, having the inclined side walls, of the centers E E and key F, substantially as and for the purpose specified.

187,528. FRAME HOUSES. H. E. Fickett, Arlington, N. J. [Filed Jan. 31, 1877.]

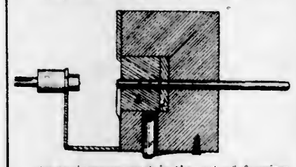
1. The method herein described of protecting the sheathing O at its base by means of the tarred or other paper D, arranged to overlap or surround its lower edge, and said paper being secured or covered by means of the water-table G, substantially as shown and specified.

2. The combination, with the foundation, recessed upon its upper portion, as at *a*, of the interposed strip of wood *c* and the sheathing, applied diagonally, substantially as and for the purpose set forth.

187,529.



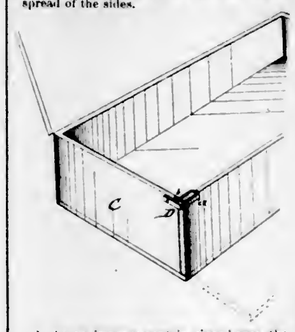
187,529. ART OF UPSETTING BOLT-HEADS. J. B. Ford, Burlington, assignor of one-half his right to W. E. Simonds, Collinsville, Conn. [Filed July 10, 1876.]



As an improvement in the art of forming heads on blanks for short bolts or rivets, the use, substantially as specified, of a die substantially equal in depth to two or more blanks superposed endwise, one on the other, said die resting on a shear or die plate interposed between the die and the support, and the die or the die-plate, or both die and die-plate, movable in relation one to the other, by which the blanks are severed from the stock, fed into the die through the die-support, as set forth.

187,530. CIGAR-BOXES. F. Hasselbach and E. Hasselbach, Brooklyn, N. Y. [Filed Jan. 13, 1877.]

Brief.—The hinged clasps at the corners permit the front lid to be opened, and, when closed, hold it in place, and prevent lateral spread of the sides.



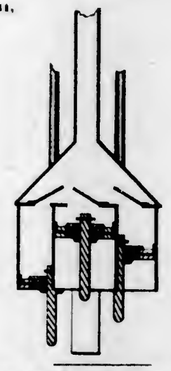
1. As an improvement in cigar-boxes, the combination of hinged front section or wall B of a cigar-box with the side walls C, provided with pivoted oblong clasps D near the front corners, locking into recesses of the front wall, substantially as and for the purpose set forth.

2. In a cigar-box, the combination of the side walls C, having rounded off front corners, with the pivoted clasps D, swinging front B, and hinged top lid, as and for the purpose set forth.

187,531. PUMPS. B. J. C. Howe, Syracuse, N. Y. [Filed Aug. 8, 1876.]

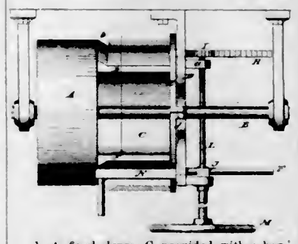
In a submerged pump, the combination of three cylinders, arranged in triangular form, with a single discharge pipe and a three-throw crank, as and for the purpose described.

187,531.



187,532. BELT-SHIFTERS. W. W. Hubbard, Manchester, N. H. [Filed Feb. 3, 1877.]

Brief.—A ring with an attached bar is worked across the periphery of a fixed drum, the latter having a beveled flange at the side next the rotating drum.

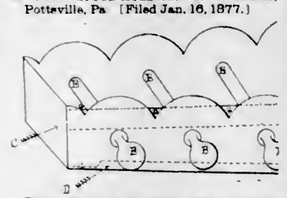


1. A fixed drum, C, provided with a beveled collar, *b*, the sliding follower E, carrying the arm N and pin O, and the pulley A, in combination, substantially as herein shown and described.

2. The follower E, having racks F G H, in combination with the pinions I J K, intermediate wheels *g h*, shaft L, and hand-wheel M, substantially as herein shown and described.

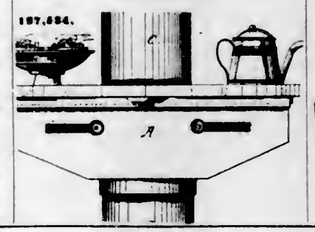
3. The drum C, cut away at *i i*, and provided with the beveled collar *b*, substantially as herein shown and described.

187,533. SPOOL-HOLDERS. T. B. Inness, Pottsville, Pa. [Filed Jan. 16, 1877.]



The combination, in a spool-holder, substantially as described, of the box or holder A, the spring D, the pins B B, and the partly concealed knife C, for the purpose hereinbefore set forth.

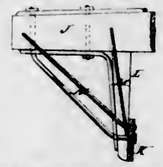
187,534.



187,534. COMBINED STOVE-PIPE, DRUM AND SHELF. J. P. Jaeger, Eureka, Wis. [Filed Jan. 11, 1877.]

The heater A, provided with the horizontal partition D and the sliding dampers thereon, and having the bottom made with two flat inclines, as described, in combination with the removable shelf K, made in two parts, substantially as set forth.

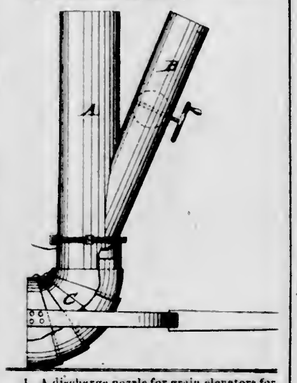
187,535. PROPELLERS FOR STEAM-VESSELS. W. G. Ketchum, Augusta, Ill., assignor of two-thirds his right to D. W. Vowles, Washington, D. C. [Filed May 1, 1876.]



1. The combination of the pillow-blocks F, beams G, truss H, and posts I, all constructed and arranged as and for the purpose described.

2. The combination of paddles K, brackets L, rods J, and diagonal braces M, extending from the paddle to the carrier-beam J, as and for the purpose set forth.

187,536. DISCHARGE-NOZZLES FOR GRAIN-ELEVATORS. F. J. Kimball, Philadelphia, Pa. [Filed Jan. 29, 1877.]

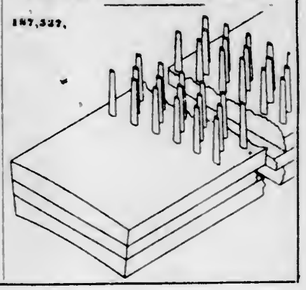


1. A discharge-nozzle for grain-elevators for trimming grain into vessels, &c., consisting of the spout of the elevator-leg, in combination with an air-blast pipe and a cheek or deflecting plate, substantially as and for the purpose described.

2. A discharge-nozzle for grain-elevators, consisting of an exit spout, with valved air-blast pipe and telescoping and revolving nozzle, substantially in the manner and for the purpose specified.

3. The combination of the telescoping and revolving nozzle with a forked and weighted governing-handle, for deflecting and directing the issuing grain, substantially as specified.

187,537.



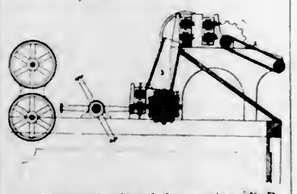
187,537. CLOTHING FOR MACHINES FOR CARDING, PICKING, &c. R. Kitson, Lowell, Mass. [Filed Dec. 15, 1876.]

Brief.—The lag is made in two or more sections of wood, with the grain of one section in an opposite direction to that of the next adjacent section.

The lag for the clothing of cylinders, of two or more sections, the direction of the grain of one of these sections being different from that of the adjacent section, substantially as described.

187,538. MACHINES FOR OPENING AND SEPARATING COTTON, &c. R. Kitson, Lowell, Mass. [Filed July 1, 1876.]

Brief.—The grasping-rolls are followed by a pair of dividing-rolls running at a high rate of speed, which open the lumps and bunches of cotton, and convey it to a gaging-box, whence it is delivered to the feed-rolls and eater in a constantly uniform quantity. The feed-rolls are driven at a speed slightly greater than that of the grasping-rolls.



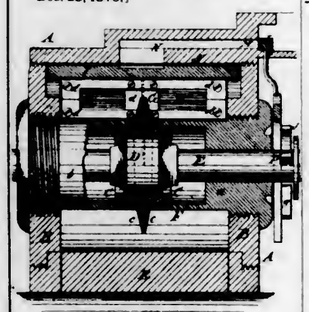
1. The combination of the grasping-rolls B B with the intermediate dividing-rolls C C and the feed-rolls F F, the said dividing-rolls being driven at a higher speed than either the grasping or the feed rolls, substantially as described.

2. The combination of the dividing-rolls C C, running at a given rate of speed, with the condenser D and the delivery feed-roll E, running at a less rate of speed, to deliver the fiber from the condenser to the beater, substantially as described.

3. The combination of the condenser D with the delivery feed-roll E, substantially as described.

4. The combination of the feed-apron A, the separating and condensing mechanism B B, C C, and D, and the feed-rolls F F, substantially as described.

187,539. ROTARY ENGINES. P. A. Knapp and I. S. Knapp, Danbury, Conn. [Filed Dec. 23, 1876.]



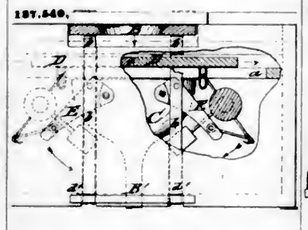
1. The spring-plate *c*, in combination with the piston-arm G, for excluding steam from the shaft while permitting the rotation of the arm, substantially as herein shown and described.

2. The combination of the cylinder A, the core F, shaft E, arm G, piston H, and spring-plates *a c*, substantially as herein shown and described.

187,540. WATER-CLOSETS. Geo. R. Kuhn, Brooklyn, N. Y. [Filed Dec. 30, 1876.]

The combination, with a sliding cover, D D, held in place by a weight or spring, of the vertical bars *b b*, connected with mechanism K and treadle B', as and for the purpose specified.

187,540.

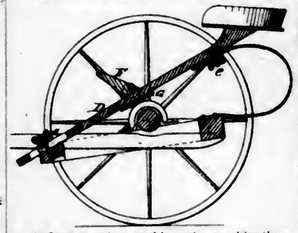


187,541. BROOMS. Joseph Lay, Olmstead Falls, Ohio. [Filed Sept. 18, 1876.]



The splints A, split part way of their length for making the broom, substantially as and for the purpose specified.

187,542. MOWERS. Michael E. Lowth, Owatonna, Minn. [Filed June 24, 1876.]



1. In a mowing-machine, the combination of an adjustable board spring-seat support and an adjustable auxiliary seat-spring, substantially as and for the purposes set forth.

2. The combination of the board spring-seat support D with the adjustable foot-rest F, having a cam-shaped edge, and connected to the shoe G, substantially as described.

187,543. HARVESTER-REELS. C. W. Marsh and W. W. Marsh, Sycamore, Ill. [Filed Oct. 25, 1875.]

1. The combination of the supporting-frame *a* and shaft *d*, with the lever *g* and post or lock *h*, for effecting the front or rear adjustment, substantially as specified.

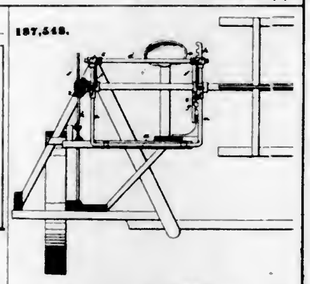
2. The combination of the sliding journal-bearings *b*, with the arms *e*, rods *f*, and lever *g*, for adjusting the reel vertically, substantially as specified.

3. The combination of the frame *a*, lever *g*, shaft *d*, arms *e*, rods *f*, and sliding journals *b*, with the reel-shaft K, for effecting both adjustments by a single movement, substantially as described.

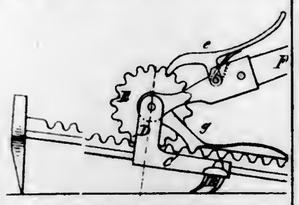
4. The combination of the reel-shaft K, pivoted frame *a*, and sliding journal-bearings *b*, with the wheel *f*, pinion *k*, and rod or shaft *p*, for maintaining motion by gearing in all positions, substantially as set forth.

5. In a harvester, the sliding bearings *b*, in combination with the pivoted frame *a*, swinging in the first quarter of a circle, and reel-shaft K, substantially as and for the purpose set forth.

187,543.

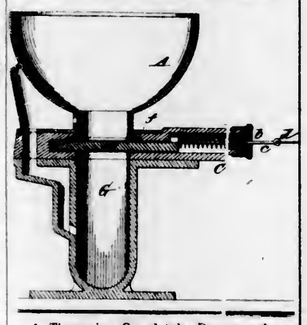


187,544. CARPET-STRETCHERS. Wm. H. Maybach, Buffalo, N. Y. [Filed Sept. 16, 1876.]



The combination, with the stationary rack-bar A, adapted to be secured to the floor, of the movable cross-bar B, bearing C D, gear-wheel E, lever F, actuating-pawl *e*, and detent-pawl *g*, so that, by operating the lever F, the movable bar B will be drawn toward the fixed end of the bar A, substantially as and for the purpose hereinbefore set forth.

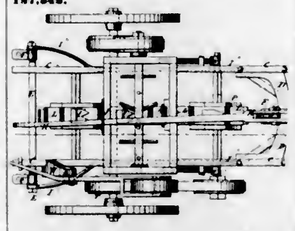
187,545. WATER-CLOSETS. M. J. McEwan, New York, N. Y. [Filed Aug. 7, 1876.]



1. The casing C and tube D, arranged as shown with respect to bowl A, and provided with slide-valve having spring *e*, as shown and described, for the purpose specified.

2. The combination of the valve *a*, packing *f*, casing C, tube D, stuffing-box *b*, rod *c*, spring E, bowl A, and trap G, substantially as specified.

187,546.

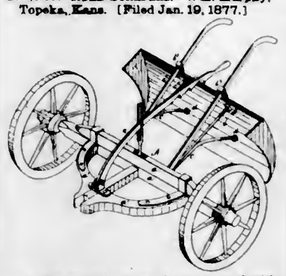


187,546. SEED-PLANTERS. B. F. Miller, Gatesville, Tex. [Filed Nov. 20, 1876.]

1. The combination of hounds D, tongue E, standard F, and levers H I, the lever I and standard F bent toward each other, while said lever I is pivoted in the tongue in front of the hounds, as shown and described.

2. The combination of the bar E', bent twice at right angles at each end, the clevises F', and the brace-bars I', with the bars C, substantially as herein shown and described.

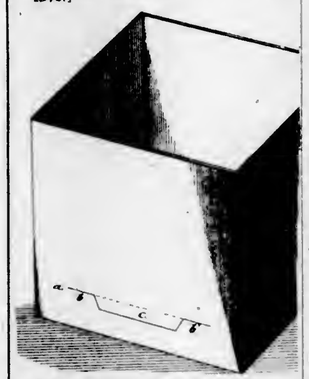
187,547. ROAD-SCRAPERS. Wm. Murphy, Topeka, Kans. [Filed Jan. 19, 1877.]



1. The curved scraper *b*, constructed with the eyes or loops b^1 b^2 and holes b^3 b^4, and adapted to be placed on, and operated by, a triple-armed frame, *c*, with capability of adjustment at any desired angle, substantially as set forth.

2. The combination, with a carriage, A, and scraper *b*, hinged to the axle *a*, with capability of a vertical swinging movement, of a ratcheted lever, *c*, hinged to the hounds a^1 in front of the axle *a*, and arranged and adapted to automatically catch and hold the scraper *b* clear of the ground, substantially as described.

187,548. PAPER FRUIT-BOXES. Wm. W. Neighbour, Chicago, Ill. [Filed Mar. 27, 1876.]



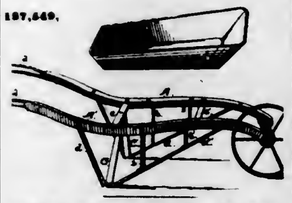
A fruit-box having in at least two of its opposite sides a slit or cut, *a*, forming rests b b^1, and a spring, *c*, adapted to receive and firmly hold the bottom, which is provided with projections a a^1 to enter said slits, and projections b b^1 to turn down, thus giving additional strength, substantially as described.

187,549. METAL WHEELBARROWS. Calvin Nutting and C. Nutting, Jr., San Francisco, Cal. [Filed Jan. 3, 1877.]

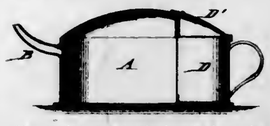
1. In a metallic wheelbarrow, the separate side pieces A A', curved substantially as shown, made from angle-iron, and having at one end the handles *e*, and at the other the journal-boxes *a'* for the wheel-axle, constructed and arranged substantially as and for the purposes set forth.

2. In a metallic wheelbarrow, the combination of the separate angle-iron side pieces A A', cross-pieces *c c'*, brace C, side braces *d d'*, and supports *b b'*, constructed and arranged substantially as described and shown.

187,549.

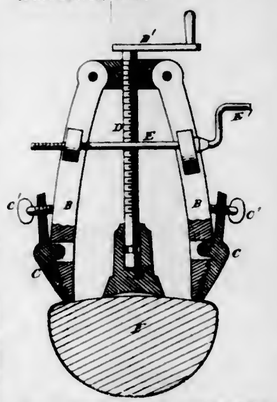


187,550. STRAINER-CUPS. Jacob W. Oberholtzer, Hiawatha, Kans. [Filed Jan. 6, 1877.]



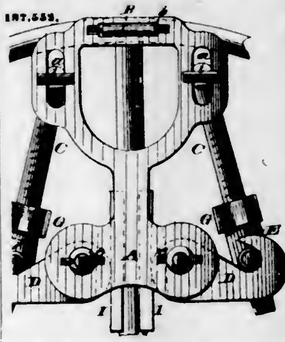
The strainer-cup herein described, consisting of the main section A, having a spout, B, and an open back, and the detachable rear section D, provided with a strainer-front and a suitable cover, D', substantially as and for the purpose set forth.

187,551. LASTING APPARATUS FOR BOOTS AND SHOES. A. O'Donnell, St. Clair, Pa. [Filed Dec. 18, 1876.]



The combination, in a boot and shoe laster, of the oscillating arms B B C attached to a cross-head, A, and screw D resting on a foot-piece, D', which foot-piece is connected with the cross-head only by the screw, which turns in the foot-piece as a base, and acts upon the cross-head and clamps without other guide or support, and a horizontal screw-rod, E, arranged to operate substantially as set forth

187,552.



187,553. TIRE-TIGHTENERS. M. Osborn, Cleveland, Ohio. [Filed Jan. 26, 1877.]

1. In a tire-tightener, the eccentric clamps D, which serve to fasten the tightener to the spoke and to expand the felly, substantially as described.

2. In a tire-tightener, the eccentric clamps D, which serve to fasten the tightener to the spoke and to expand the felly, in combination with the retaining-frame, substantially as described.

3. The eccentric clamps D and retaining-frame, in combination with the expanding-bars C, substantially as and for the purpose described.

4. The eccentric clamps D and retaining-frame, in combination with the expanding-bars C and tightening and expanding nuts G, substantially as and for the purpose described.

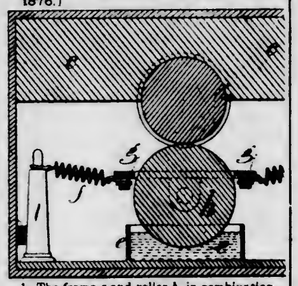
5. The eccentric clamps D and retaining-frame, in combination with the expanding-bars C, tightening and expanding nuts G, and spoke-clamps I, substantially as and for the purpose described.

6. The eccentric clamps D and retaining-frame, in combination with the expanding-bars C, tightening and expanding nuts G, and clamp-tightener E, substantially as and for the purpose described.

7. The combination of the retaining-frame A and adjusting-strap B with the expanding-bars C, eccentric clamps D, clamp-tightener E, tightening and expanding nuts G, and spoke-clamps I, substantially as and for the purpose described.

8. In a tire-tightener, the adjusting strap or band B, connecting the plates of the retaining-frame, and allowing the same to be adjusted for wheels of varying breadth, substantially as described.

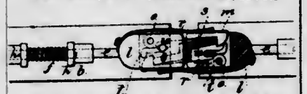
187,555. CAR-AXLE LUBRICATORS. Wm. Palmer, New York, N. Y. [Filed Oct. 18, 1876.]



1. The frame *g* and roller A, in combination with the suspending-springs *f* attached to the angles of the frame *g*, and the columns *i* receiving the other ends of the springs *f*, substantially as and for the purposes set forth.

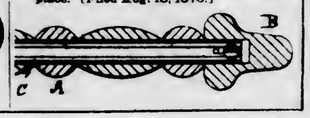
2. The combination, in an axle-box, of the receptacle *e*, the frame *g*, roller A, suspension-springs *f*, and removable plate *d*, substantially as set forth

187,556. CAR-COUPLINGS. Wm. Palmer, New York, N. Y. [Filed Oct. 23, 1876.]



The draft-head *l*, at the end of the sliding bar *e*, having the catch-plate *s*, within the draft-head, in combination with the coupling-hook *m*, pivoted at *o*, and pressed inwardly by the spring *r*, disengaging toe *t*, and shaft *u*, the parts being constructed and arranged substantially as set forth.

187,556. ORNAMENTAL STAIR-RODS. J. H. Peterson, Philadelphia, Pa., assignor of one-half his right to J. R. Tobin, same place. [Filed Aug. 16, 1876.]



An improved ornamental stair-rod, consisting of the rod C, having strung upon it the pieces A, made of glass or other suitable material, for ornamentation, together with thickened and suitably-shaped cap or end pieces B, of like material, all substantially as herein shown and described, for the purpose specified.

187,556. PAPER YARN-SPOOLS. F. Pratt, Pawtucket, R. I. [Filed Nov. 22, 1876.]

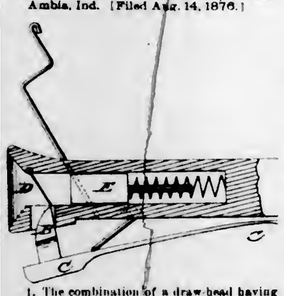
Brief.—Roughens the surface of the base of the spool-case by coating with glue and sprinkling sawdust thereon before the glue has set.



1. The shell E E', arranged to form the base for a conical yarn spool, and provided with a roughened surface, substantially as described, and for the purpose specified.

2. The combination, with the shell E, provided with the conical base E', of the spool a b, provided with the slits e e, and the plug d, as and for the purpose described.

187,557. CAR-COUPLINGS. Jas. C. Pugh, Ambia, Ind. [Filed Aug. 14, 1876.]



1. The combination of a draw-head having central bottom recess, with a spring hook and swinging recessed drop-gate, for coupling the entering link, substantially as and for the purpose set forth.

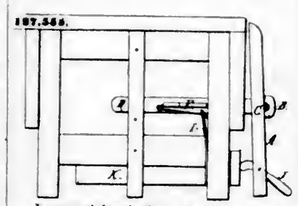
2. The combination of draw-head A, spring-hook B C, weighted drop-gate D, and sprung-acted block E, substantially as described.

3. The drop-gate D, having weighted outer arm, in combination with outer stop-pin d of draw-head, to prevent gate from swinging beyond a certain inclination, for the purpose set forth.

187,558. WORK-BENCHES. G. M. Rathbun, Sedan, Kans. [Filed Mar. 24, 1876.]

Brief.—The work is securely held upon the bench by means of a vise-jaw attached thereto, by an extension-bar passing through a slot in the jaw, which is pressed against the work by a wedge working in a slot in the extension-bar, and connected to a slotted slide adjustable upon a rod, and in a slot in the side of the bench by a hand-lever pivoted to the under part of the top of the bench, and steadied by a cam-lever pivoted in a slot in the lower part of the jaw, and a foot-bar working in a slot in the lower part of one of the legs of the bench. The jaw is released by a retracting-spring attached to the extension-bar.

187,559.



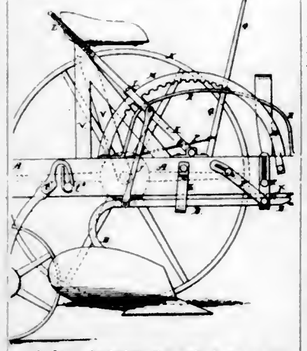
In a work-bench the combination of the jaw A, extension-bar B, wedge E, moving devices H G, foot-bar K, and retracting-spring I, all constructed and arranged substantially as and for the purpose set forth.

187,559. PROCESSES OF ORNAMENTING CASTINGS AND PROTECTING THE SURFACE OF SAME. Milo A. Richardson, West Stratford, Conn. [Filed July 6, 1876.]

The process of finishing metal castings by first directing a sand-blast upon the surface of the same, then applying an oil or gum that will retard decomposition without discoloring the metal, and finally applying a blast of steam to the metal surface so treated, all substantially as and for the purpose set forth.

187,560. SULKY-PLOWS. Wm. N. Riddle, Caddo Grove, Tex. [Filed Dec. 4, 1876.]

Brief.—The rear end of the tongue forms the frame to which the plow and the wheels are attached. The land-wheel is upon an axle, the other end of which is pivoted in the tongue, and the outer end is moved horizontally forward and back, causing the wheel to run to or from land. Devices for securing and operating the plow.

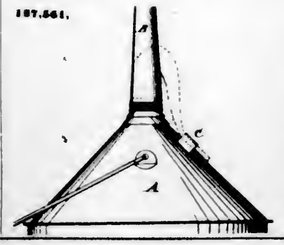


1. In a wheel-plow, the main beam A, extended rigidly forward to form the tongue, in combination with the adjustable plow-beam B, and adjustable wheel S, pivoted behind the plow to the rear end of the tongue, substantially as and for the purpose specified.

2. The combination of the keepers G E I, with the plow-beam B, the double-tree H, and the tongue A, substantially as herein shown and described.

3. The combination of the pivoted axle O, the connecting-rod P, the pivoted lever Q, and the catch-bar R, with the tongue A and the wheel N, substantially as herein shown and described.

187,561.

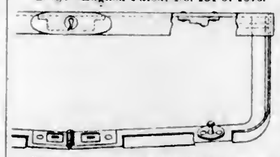


187,561. FLEXIBLE CAN-SPOUTS. Wm. R. Rightor, Helena, Ark. [Filed Nov. 25, 1876.]

The combination of a flexible spout, B, and a keeper, C, with the top of a can, A, to adapt said spout to serve as a spout and as a stopper, substantially as herein shown and described.

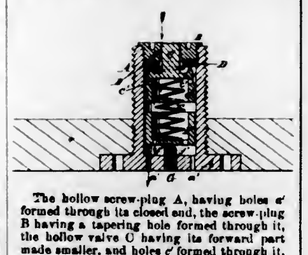
187,562. TRAVELING-BAG FRAMES. Henry Simpson, Manchester, England. [Filed Nov. 17, 1876.]

Brief.—English Patent No. 131 of 1876.



The combination of a bag-frame, constructed with one side rigid and the other centrally hinged, with the lock and side studs and sockets for such studs, substantially as shown and described.

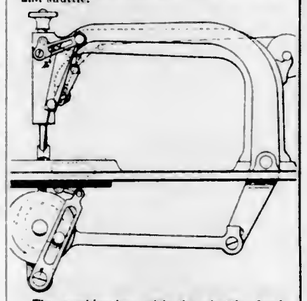
187,563. AUTOMATIC RELIEF-VALVES FOR CASKS. A. Smith, New York, N. Y. [Filed Jan. 29, 1877.]



The hollow screw-plug A, having holes *c* formed through its closed end, the screw-plug B having a tapering hole formed through it, the hollow valve C having its forward part made smaller, and holes *c'* formed through it, the packing D, the spiral spring E, the hollow follower F having the holes *f'* formed through it, and the screw G, in combination with each other, substantially as herein shown and described.

187,564. SEWING-MACHINES. E. H. Smith, New York, N. Y. [Filed July 28, 1869.]

Brief.—The thread-controlling lever, pivoted to the head of the machine, and actuated by the needle-arm, is governed by a link, so as to operate in combination with the needle and shuttle.

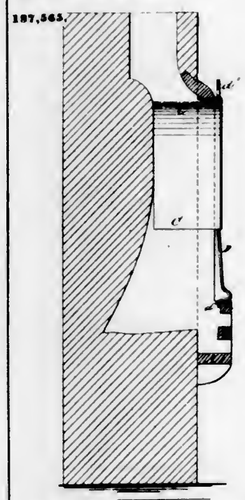


The combination, with the shuttle, fixed arm of the machine, and needle-carrier, of the thread-controlling lever C and link E, substantially as and for the purposes described.

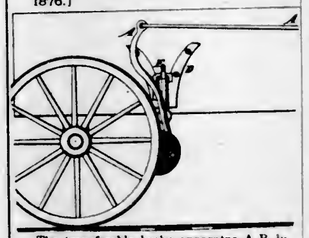
187,565. CHIMNEY-DAMPERS. T. Speed, Louisville, Ky. [Filed Jan. 6, 1877.]

As an article of manufacture, a sheet-metal plate, C, having one edge bent around the wire D, said wire being provided in the middle with a loop, *d'*, and at each projecting end with steps *d''*, as shown and described, for the purpose specified.

187,565.



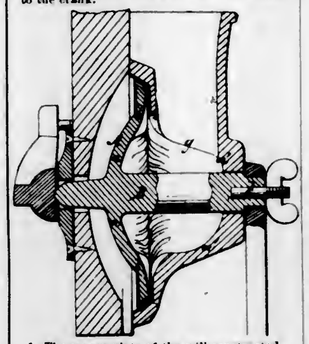
187,566. REMOVABLE WAGON-BRAKES. E. Spears, La Fayette, Ind. [Filed Oct. 27, 1876.]



The transferable brake apparatus A B, in combination with the sockets D, and stems or standards C, constructed with notched holes, and keys E, which, when inserted, are held in place by being turned out of register, substantially as set forth.

187,567. COFFEE-MILLS. H. Stuttle, Batavia, Ill. [Filed Jan. 29, 1877.]

Brief.—The mill is made by bringing together two concavo-convex plates, suitably dressed as grinding-burrs, the stationary plate being cast with hopper attached, and having perforation leading therefrom into the chamber made by the concavo-convexity of the united plates, the runner being cast with spindle, which passes through the stationary shell to the crank.



1. The runner-plate of the mill constructed with a concavo-convex form immediately around its shaft, and with a dress of long and short grinding-teeth outside of the concavo-convex portion, and with beveled teeth on its periphery, in combination with the stationary grinding-plate having a concavo-convex form immediately around its eye, and dressed beyond this concavo-convex portion with long and short grinding-teeth, and with beveled teeth on its periphery, and provided with an opening, *g*, through it, substantially as and for the purpose described.

2. The stationary concavo-convex grinding-plate with a hopper formed on it, and with a feed-opening, *g*, from the hopper through the concavo-convex part of the plate, substantially as and for the purpose described.

3. The concavo-convex runner-plate formed on its shaft, and with its grinding-surface beyond its concavo-convex surface, substantially as and for the purpose described.

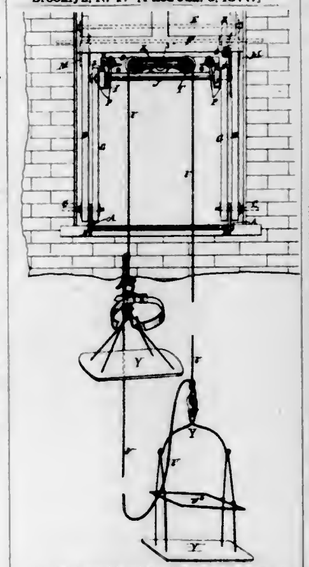
4. The combination of the hopper, stationary concavo-convex grinding-plate, having opening *g* through it, concavo-convex runner-plate, having its shaft attached to it, the supporting-board, and the screws and lever-step, all constructed substantially as and for the purpose set forth.

187,568. HARNESS-SADDLE PADS. Wm. Thompson, Matteawan, N. Y. [Filed Aug. 7, 1876.]



A molded harness-pad, the body of which is sponge-rubber covered by a thin film or coating of vulcanized rubber, substantially as and for the purpose described.

187,569. FIRE-ESCAPES. Jules A. Tixier, Brooklyn, N. Y. [Filed Jan. 6, 1877.]



1. The combination of the armed bars A, provided with the rods B and pins C, the pivoted bars D, provided with the rods E F, the shoulders M, and the catches N, the pivoted bars G, provided with the rod H, and the pivoted bars I, provided with the rods J K L, with each other, to adapt them to be placed in a window-frame, substantially as herein shown and described.

2. The combination of the cross-bar R', the hook S', and the spring T with the rods E F and the pivoted bars D, for securing the frame-work in the window, substantially as herein shown and described.

3. The combination of the frame O, the cylinders T, the rope U, the lock-bar V, the cross-bar W, and the spring-plates X with the pivoted bars I of the frame-work, substantially as herein shown and described.

4. The combination of the hooks P, the pivoted bars Q, the cross-bars R, and the springs S with the frame O and the pivoted bars I of the main frame, substantially as herein shown and described.

5. The combination of the chairs Y, provided with the guard-rail p^2, with the rope of the friction device, substantially as herein shown and described.

6. The combination of the shaft N', the crank O', the spool P', and the reel Q with the pivoted bars I of the main frame, substantially as herein shown and described.

187,570. PYROTECHNIC SHELLS. C. A. L. Totten, United States Army. [Filed Jan. 9, 1877.]



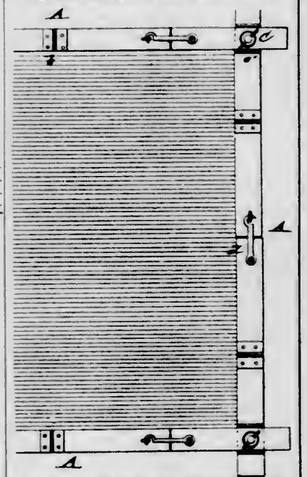
1. College cases made of plaster-of-paris, surrounding an interior case or core, substantially as and for the purposes within described.

2. The handle, anchored as herein described.

3. The safety-cap, of paper and plaster, to protect the fuse until required for use, as herein described.

4. The plaster sabot, and its method of attachment to the shell, as herein described.

187,571. QUILTING-FRAMES. F. M. Tousley, Lincoln, Neb. [Filed Dec. 23, 1876.]



A folding quilting-frame, composed of sectional rails A, hinged at alternate sides, and locked by stiffening hooks and eyes of flanged seats B, and binding on the rails by connecting screw-bolts C, passing through rails and seats, and fastened by thumb-nuts C', substantially as described.

187,572. PUMPS FOR OIL-WELLS. William Turner, Barnhart's Mills, Pa. [Filed Jan. 12, 1877.]

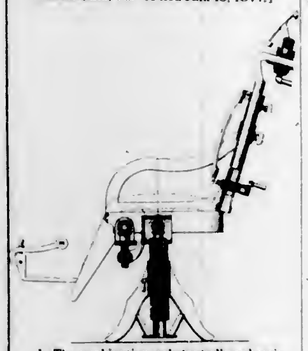
Brief.—A short section, secured to the end of the pump, has upon its lower end a seat of soft metal, upon which rests the inner barrel.

The casing *e*, provided with the short removable section *e* at its lower end, in which is made the seat *e*, in combination with the barrel *g*, having the removable packed end *h*, so shaped as to fit the seat *e*, and the bushing *e*, substantially as shown.

187,372.



187,373. DENTAL CHAIRS. Saml. S. White, Philadelphia, Pa. [Filed Jan. 15, 1877.]



1. The combination, substantially as hereinbefore set forth, of the base or stool, a support adjustable thereon, the chair-frame rocking on the support, a screw working in said support and having its upper end journaled in a pivoted plate on the chair-frame, and gearing for operating said screw, whereby the inclination of the chair-frame relatively to the base upon which it is mounted may be varied.

2. The combination, substantially as hereinbefore set forth, of the chair-frame, its tubular portion, the section telescoping therewith carrying a hinged back rest or support, and a screw also carried by said section, whereby the back-rest is capable of being adjusted both vertically and to and from its support.

187,374. OIL-STOVES. Don C. Wilmot, Boone, Iowa. [Filed Jan. 16, 1877.]

1. The combination of the reservoir A, having air-tubes *f*, with the support B and the wick-tubes *g h*, arranged in pairs, with an air-space, *i*, between them, substantially as and for the purpose set forth.

2. The combination, with the independently-removable drum C, having the horizontal legs or arms *n*, of the support B, formed with rim *k* and recesses *m*, substantially as and for the purpose set forth.

3. The support B, with flange or rim *k*, forming a receptacle for water, said support having rigidly secured thereto, by castings *j*, wick-tubes *g h*, and leaving between them air-spaces *i*, substantially as and for the purpose described.

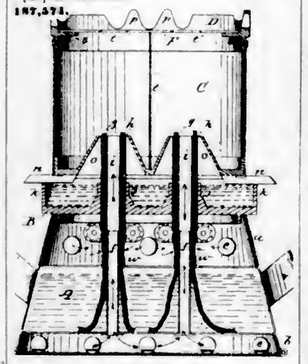
4. The combination, with the rim D, having annular flanges *s*, of the plate or disk F, with openings *t* and partition *t*, substantially as and for the purpose set forth.

5. The drum C, having rim D, with curves *p*, in combination with the shell E, formed with flanges *q r*, substantially as and for the purpose specified.

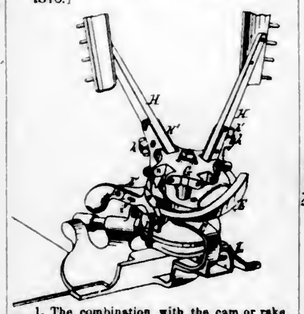
6. The drum C, formed with openings *o* and partition *t*, in combination with the removable plate or disk F, having openings *t'*, as and for the purpose set forth.

7. An oil-stove consisting of the reservoir A, with flanges *a b*, openings *c*, tubes *f*, support B, with wick-tubes *g h* and air-spaces *i*, and the drum C, substantially as and for the purpose described.

187,375.



187,375. HARVESTER-RAKES. William A. Wood, Albany, N. Y. [Filed Oct. 21, 1876.]



1. The combination, with the cam or rake track E, of a vibrating switch or gate, *e'*, adapted to be projected into and to form a part of, or to be withdrawn from, the cam-track, substantially as and for the purpose set forth.

2. The vibrating switch *e'*, in combination with the vibrating portion *e* of the cam-track E, attached to the weighted lever I, arranged and operating substantially as described.

3. The combination, with the switch or gate *e'* and lever I, with its track portion *e*, arranged and operating as described, of the link *l* and lever L, or equivalent devices, for placing said lever and switch under control of the driver, as explained.

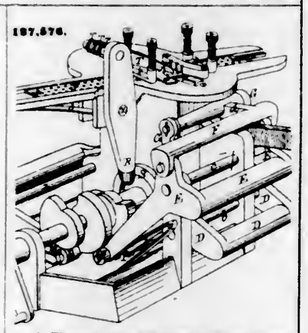
4. The rake-arms H, provided with the pendent brackets *h* and adjustable pins *h'*, in combination with the lever I and pivoted track portion *e*, for operating said switch *e'*, as described.

5. The return-switch *m*, adapted to rock or roll on a horizontal longitudinal pivot, as described, in combination with the spring *p*, arranged and operating as described.

187,376. MACHINES FOR MAKING MATCH-STICKS. McClintock Young, Frederick, Md. [Filed Aug. 12, 1874.]

Brief.—The bolt from which the match-sticks are to be cut is fed up to and firmly held against the cutters by a "knife-edge feed." The sticks are arranged in the carriers so that they can be held, while being forced into a perforated plate, by a series of points corresponding to the cutters, and the perforated plates are provided with handles, by which they may be carried when filled, and with couplings, for feeding them into and through the machine in a continued series, and admit of their being taken out, singly or in sections, as they become filled.

187,376.



1. The combination of the independent pawls or fingers T, in series, upon the same vibrating stud or arm, with the perforated plates *s*, so as to insure the feeding along of said plates, as and for the purpose described and represented.

2. The combination of the rocking frames D E, bar F, and projecting arm *d*, and coupling-bars G, for the purpose of imparting four motions to the block-feeding mechanism, substantially as described.

3. The combination, with the four-motion feed, as herein described, of the knife-edge feeding-points, as and for the purpose described.

4. The block-holding mechanism, provided with the separate points *t* for supporting the wood that is to constitute the match-stick when cut off, as described and represented.

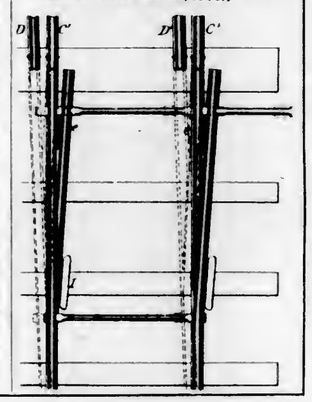
5. The plates *s*, provided with the handles *u*, coupling-bar *v*, and stud or pin *w*, as and for the purpose described and represented.

187,377. CAR-COUPLINGS. B. Albertson, Union, Iowa. [Filed June 24, 1876.]

1. The draw-bars A A, the heads of which are made flaring, in combination with the U-shaped spring S, made in one piece, the outer ends of which are bifurcated at *a a*, substantially as described, and for the purpose set forth.

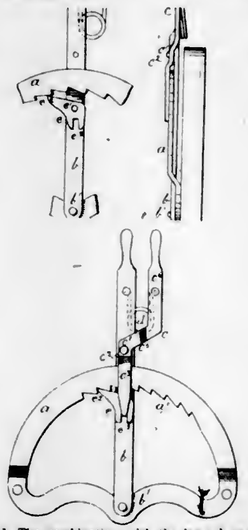
2. As a new article of manufacture, the U-shaped spring S, made in one piece, and having its outer ends bifurcated at *a a*, to be applied to a car-coupling, in the manner substantially as described, and for the purpose set forth.

187,378. RAILWAY-SWITCHES. T. Alexander and Wm. Dunn, St. Mary's, Ontario, Canada. [Filed Mar. 25, 1876.]



The main rails C C, frogs *e e*, having single-rail attachments F F, safety blocks I, rails C' C', and siding-rails D D', all combined and arranged to operate substantially in the manner and for the purpose shown and specified.

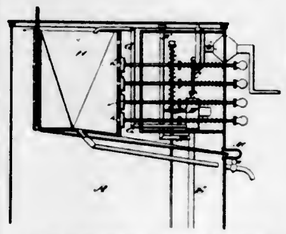
187,379. WAGON-BRAKE LEVERS. John W. Anderson, South Bend, Ind. [Filed July 14, 1876.]



1. The combination, with the lever *b* and segment *a*, of the lever *c*, bent in the form described, and provided with the pin *c'*, substantially as and for the purpose described.

2. The combination, with the lever *b* and lever *c*, having the pin *c'* and segment-rack *a*, of the dog or pawl *e*, having the slot *e'*, arranged and operating substantially as and for the purpose set forth.

187,380. MEASURING OIL-CANS. Austin E. Anderson, Richmond, Va. [Filed Jan. 3, 1877.]



1. The combination of tube E, having slot *e* near its lower end, with valve-rod F, and a spring for holding up said rod, substantially as set forth.

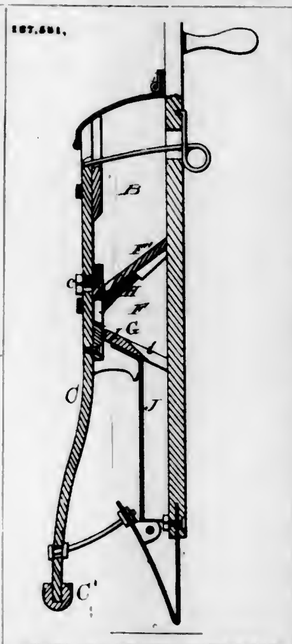
2. The combination of measuring-vessel H, having perforations *h'*, with trough or chute I, and transparent indicator M, substantially as and for the purpose set forth.

3. The combination of pump D, with devices for operating the same, pipes E, G, and N, measuring vessel H, and can A, substantially as set forth.

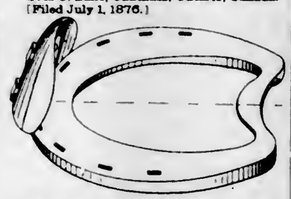
187,381. HAND CORN-PLANTERS. John H. Arney, Lancaster, Ohio. [Filed Dec. 9, 1876.]

The vertically-sliding spring-bar C, provided with the pocket-plate G, in combination with the hopper E, brush H, compartment F, having bottom recess *i*, and seed-tube J, substantially as and for the purpose set forth.

187,381.

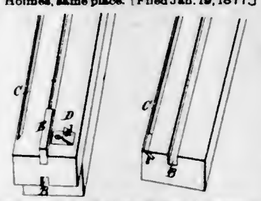


187,382. TOE-WEIGHTS FOR HORSESHOES. Seth T. Bane, Chatham, Ontario, Canada. [Filed July 1, 1876.]



The combination, with a horseshoe, provided with a clip or clips forged or cast thereon, of a recessed weight adapted to fit upon such clip or clips, and to be secured thereto by means of screw-bolts, substantially as and for the purpose described.

187,383. EXTENSION-TABLE SLIDES. N. E. Barber, St. Louis, Mich., assignor to Albt. Holmes, same place. [Filed Jan. 19, 1877.]



The combination of the V-shaped tongues D and oblique grooves C with the central groove B and tongue E, substantially as described, for the purpose specified.

187,384. SKATE-FASTENINGS. E. H. Barney, Springfield, Mass. [Filed Nov. 27, 1876.]



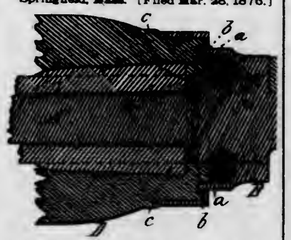
1. The swinging bar-clamp E, in combination with the pivot N and foot-plate B of a skate, substantially as described.

2. The combination of the swinging bar-clamp E, the pivot N, the foot-plate B, and the slotted draw-bar H, whereby the said clamp is secured to and operated upon the skate, and may be removed therefrom by moving the said draw-bar out of its longitudinal position with the skate, substantially as described.

3. The combination of the movable heel-clamp F, the draw-bar H, and the cam J, attached to the rear end of said draw-bar, and arranged to operate against the rear end of said heel-clamp, the latter having a longitudinal motion independently of said draw-bar and cam, substantially as described.

4. A longitudinal draw-bar, H, made in two parts, and adjustable one part with the other at L, the forward part attached to and operating the bar-clamp, and the rear part passing through the movable heel-clamp F, and provided with a cam, J, on its rear end, which operates against the rear end of the heel-clamp, to actuate both the bar-clamp and heel-clamp, substantially as set forth.

187,385. CARRIAGE-AXLES. S. A. Bemis, Springfield, Mass. [Filed Mar. 28, 1876.]

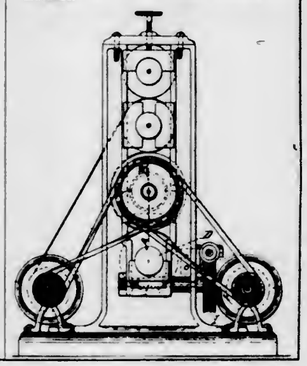


1. The axle A, having the shoulder *c'* and the turned arm A', all made in one piece, in combination with the recess *e* made in said axle, the threaded band B, and the hub recessed at *b* to receive the flange *a*, and at *f* to receive the shoulder *c'*, all substantially as set forth.

2. The combination of the axle A, having the shoulder *c'*, the perforated washer *e*, and the hub D recessed at *f*, and the axle-box F secured in said hub, all substantially as specified.

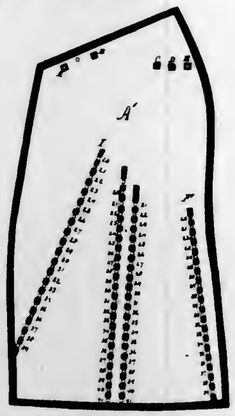
187,386. PAPER-CALENDERING MACHINES. F. W. Bird, East Walpole, Mass. [Filed Sept. 22, 1876.]

Brief.—The friction or polishing roll is placed beneath the lowest roll in the stack of smooth rolls, which are supported upon bearings separate and independent from those that support the polishing-roll, which latter bearings rest upon wedge-shaped blocks, operated by screws passing through them, having worm-gears at their ends, in turn operated by other worm-gears upon a shaft, whereby, when said shaft is turned, the wedge-shaped blocks are moved forward or back, and the polishing-roll thus adjusted toward or from the lower smooth roll without stopping the machine.



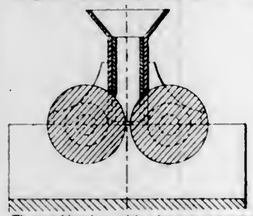
The combination, with a stack of paper-calendering rolls, two or more high, of the friction and polishing roll D, arranged upon separate and independent bearings from the other rolls, and beneath them, and driven at a different speed from the other rolls, and also having combined therewith mechanism, substantially as described, for adjusting roll D at the will of the operator, while the machine is in operation, as and for the purposes set forth.

187,587. PATTERN-CHARTS FOR CUTTING GARMENTS. Lucy J. Bixby, Binghamton, N. Y. [Filed Jan. 12, 1877.]



The series of pattern-guides A', B', C', D', E', and F', constructed as described and shown, and provided with the scales and letters thereon, substantially as and for the purpose specified.

187,588. FEEDING-HOPPERS FOR PULVERIZING-MACHINES. Edward S. Blake, Pittsburg, Pa. [Filed May 22, 1876.]



The combination, with a hopper constructed substantially as described, of the removable and reversible wearing-plates, substantially as specified.

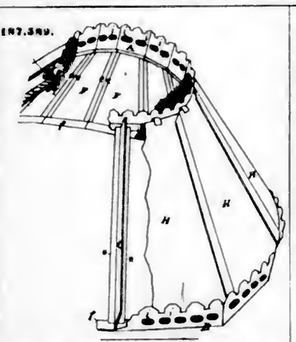
187,589. REFLECTORS. Emil Boesch, San Francisco, Cal. [Filed Dec. 19, 1876.]

Brief.—The sections of glass can easily be replaced when broken. They are kept cool by the air circulation.

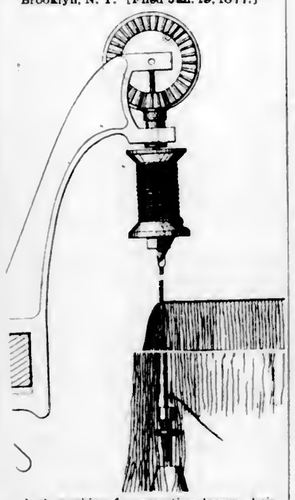
1. A reflector-frame consisting of the upper rim A and lower rim B, connected by the ribs or partitions C C, which are arranged to form cells or compartments, each of which has a ledge, *e f*, entirely around it, upon which the plates or sections of silvered glass F rest and are secured, in combination with a metal back consisting of the overlapping sections H, which rest upon the ribs or partitions *c*, substantially as above specified.

2. A silvered glass reflector having its frame divided into distinct cells or compartments, in the bottom of which the glass is placed, and provided with a back or cover which is arranged to form a space between said cover and the silvered glass, in combination with apertures *i i* in the lower and upper parts of said cell or compartment, by which a current or circulation of air is established through said space, substantially as and for the purpose described.

187,590.



187,590. MACHINES FOR MOUNTING HAIR SWITCHES. Charles Bourgard, New York, assignor to himself and Jones Waters, Brooklyn, N. Y. [Filed Jan. 19, 1877.]



1. A machine for mounting human-hair switches, composed of a vertical revolving shaft, with loose spool and lower hook end, and of a spool-binding mounting-cord, with tension-weight clamped to the lower end, arranged and operated substantially as shown and described.

2. A machine for mounting human-hair switches, composed of a vertical frame or supporting arm, a vertical revolving shaft with loose spool, and automatic mounting-cord tension, to produce mounting of weft simultaneously with turning of shaft, substantially as specified.

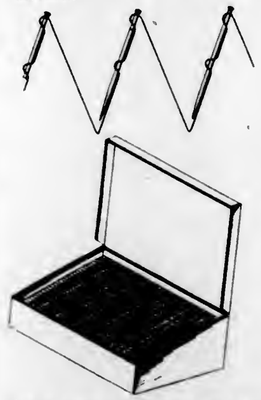
187,591.



187,591. CANS FOR PRESERVING MEAT. M. Brenner, Baltimore, Md. [Filed Jan. 19, 1877.]

A can for preserving meats, having its body A constructed to form a flattened truncated cone, with parallel portions *g g*, and with an interiorly-concave top, *c*, and rounded portions *c'*, substantially as described.

187,592. PIN-PACKAGES. J. H. Bronson, Waterbury, Conn., assignor to the Oakhill Company, same place. [Filed Sept. 23, 1876.]



As an article of manufacture, the herein-described pin-package, consisting of the box with the inclined cover, and the pins stuck in papers so as to present the heads above the folded edge of the paper, the said paper with the pins therein arranged within the said box in successive rows, and each row elevated above the next preceding, substantially as described.

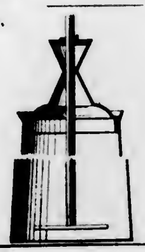
187,593. EMERY GRINDING-WHEELS. I. P. Brown, Jr., and A. A. Sanborn, Newark, N. J., assignors to themselves and Chas. P. Zimmerman, same place. [Filed Jan. 22, 1877.]

Brief.—To produce a thoroughly-dried wheel, makes thin disks, dries them, faces them by pressure on steam-heated surface, or by turning with diamond tool, softens faces by a solvent, and compresses the disks.



The mode herein described of manufacturing an emery or corundum wheel—that is to say, by preparing and drying thin disks, and subsequently uniting the same, in the manner described.

187,594.



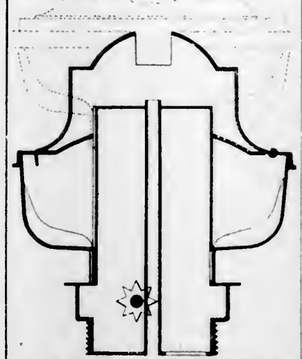
187,594. CHURNS. Rebecca Sarah Brusie, Sonora, Cal. [Filed June 26, 1876.]

Brief.—The cover is removable, with or without the dash-rod and dasher, and is surmounted by a rigidly-connected cap of two cones, the apices of which meet a disk adjustably attached to the dash-rod, so as to press into the top inverted cone at every descent.

The two truncated cones above described, and the attachment to the dasher, as above described, and for the purposes hereinbefore set forth.

187,595. LAMP-BURNERS. E. L. Bryant, Ansonia, Conn., assignor to Wallace & Sone, same place. [Filed Dec. 20, 1876.]

Brief.—The elevation of the sleeve uncovers the filling-orifice in the cylinder.

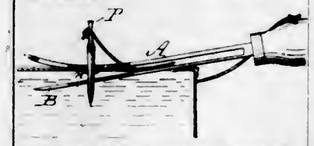


1. In a lamp-burner, the combination of a vertical guide-cylinder around the wick-tube, a sleeve movable vertically on said cylinder, a chimney-rest and deflector attached to the said sleeve, and movable therewith relatively to the wick-tube, substantially as described.

2. The combination, in a lamp-burner, of a cylinder around the wick-tube, the said cylinder constructed with a filling-aperture, and provided with a cover for opening and closing said aperture, substantially as specified.

187,596. CAN-OPENERS. Jno. E. Buckingham, Washington, D. C., assignor of one-half his right to J. L. Miller, same place. [Filed Aug. 8, 1876.]

Brief.—A straight narrow steel blade and a curved prong slightly larger than the blade are united together near the handle, and each is pierced, near the forward end, with a series of holes, for the insertion of a suitable pin, acting as a pivot, the construction permitting the cutting out of circular pieces of varying sizes, according to the adjustment of the pin, or, as in sardine-boxes, a straight cut, by thrusting in the blade, and using the pin as a fulcrum.

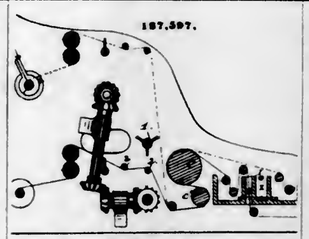


A can-opener consisting of the prong A and blade B, provided with holes for the insertion of the pin P, substantially as described.

187,597. MACHINES FOR SIZING AND BEAMING YARN. John Bullough, Accrington, England. [Filed Oct. 19, 1876.]

Brief.—A double sizer, having double size-box, with one steam heating apparatus and float arranged for both compartments, double drawing-rollers, and one drying mechanism (either air-chamber or cylinder and fan) for the two yarns. If a hot-air drier, both yarns may pass through the machine distinct from each other. If a cylinder, the two yarns blend on the cylinder. The mechanism for expanding or contracting the wraith, applying steam and feed to size-boxes, doffing, &c., are all controlled from the head-stock end of the machine.

187,597.



1. The combination, with the two independent sizing mechanisms, of a drying mechanism and two independent sets of drawing-rolls, arranged in relation to each other substantially as described, whereby the yarns for two weaver's beams are conducted in separate sheets, and in the same direction, and kept separate until they have left the size-box.

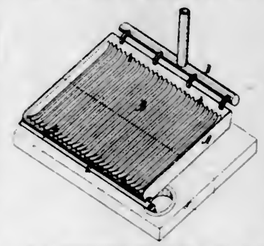
2. The combination, with the two independent sets of sizing-rolls, of a double size-box provided with a cavity or chamber located between them, for receiving the supply of size and distributing it to both boxes, substantially as shown and described.

3. The combination, with the double sizing and drying mechanism, of two pairs of rollers of a double head-stock, arranged substantially as described, whereby the yarn is drawn through the sizing mechanism, and delivered to the weaver's beam, substantially as and for the purpose described.

4. In combination with an adjustable wraith or comb, the short shafts S, gearing therewith, and extending to the front of the machine, whereby the wraith may be adjusted from the front, as and for the purposes set forth.

5. The combination, with the drying-cylinder C, and with the guide rods or rolls 2 2 2' 2', for the two sets of yarns, a fan, 1, arranged with relation thereto, as set forth, whereby a single fan may blow both sets of yarns.

187,598. SKATING-RINKS. Emil Birgin, New York, N. Y. [Filed Jan. 27, 1877.]



In a skating-rink, the tank A, the corrugated bed-plate B, and suitable inlet and outlet fluid-conductors, all constructed and combined to operate substantially as described.

187,599. COTTON-TIES. Chas. S. Coleman, Allegheny, Pa., assignor of one-half his right to Theodore F. Coleman, same place. [Filed Sept. 4, 1876.]

Brief.—A rectangular buckle with two inner bars, (one removable,) parallel with its ends. Each extremity of the band is passed around an inner bar, and out between the bar and end of the buckle, the effect of the strain being to tighten each buckle end against the band.



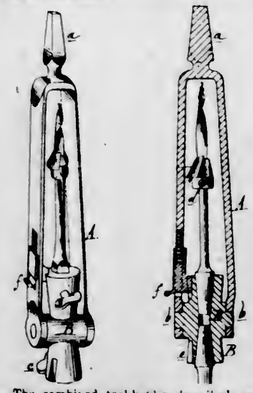
1. The buckle A, consisting of side pieces 1, cross-pieces 2, 3, 4, having a gib-bar, B, susceptible of being moved sidewise in the buckle, substantially as herein described, and for the purpose set forth.

2. A buckle, constructed substantially as hereinbefore described, having a gib-bar, B, secured in one side of it, said bar being susceptible of being drawn to one side, substantially as herein described, and for the purpose set forth.

3. The buckle A, constructed substantially as herein described, and used in combination with the band B', as and for the purposes set forth.

187,600. TOOL-HOLDERS. George Collins, Fort Wayne, Mich. [Filed Aug. 31, 1876.]

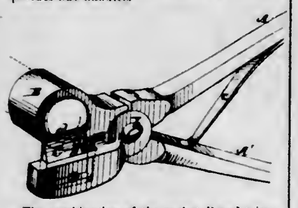
Brief.—A reversible double socket, adapted to receive the shanks of tools, is pivoted by trunnions between the ends of a metal fork having a square shank. The socket is secured in position by means of a sliding spring-latch working in longitudinal slots in each end of the socket.



The combined tool-holder described, consisting of the metal fork A, having square shank *a*, the reversible double socket B, pivoted by trunnions *b* between the ends of the said fork, the slots *c* in the ends of the socket, and the sliding spring-latch *f*, all constructed, arranged, and combined substantially as described and shown.

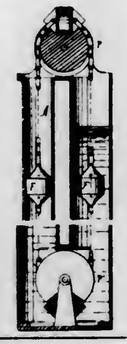
187,601. BILLIARD-CUE TRIMMERS. J. F. Clune, New York, N. Y., assignor of one-half his right to Emanuel Ettenheimer, same place. [Filed Dec. 27, 1876.]

Brief.—The socket holding the cue and the cutter are combined with a pair of pivoted or pincher-like handles.



The combination of the socket B and trimming-blade C with the handles A A' of the tool, substantially as specified.

187,602.



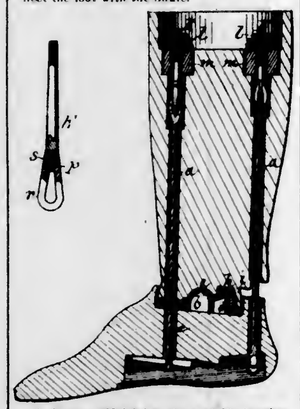
187,604. ROTARY ENGINES. Luigi D'Auria, Gaetano, Italy. [Filed Dec. 16, 1876.]

1. The combination, with a series of connected pistons and the pulleys P P', of a working cylinder, A, and liquid-chamber B C, substantially as described.

2. The combination of the cylinder and piston of a steam or other analogous engine with a liquid abutment, when the cylinder is so arranged that the liquid abutment is prevented from entering the same, substantially as and for the purpose set forth.

187,605. ARTIFICIAL LEGS. Jos. Dawes, Rochester, N. Y. [Filed Jan. 22, 1877.]

Brief.—The guide or bearing at the ankle-joint is of segmental form, to prevent twisting of the leg. A peculiarly constructed eye-bolt retains the upper ends of cords that connect the foot with the ankle.



1. In an artificial leg, the metallic bearing C, constructed with the wings *d d* and rim *f*, forming a segment one-fourth, more or less, of the circle, in combination with a corresponding cavity, A, of the ankle fitting over it, the said segment being carried forward, to prevent disengagement of the cavity therefrom at the extreme forward bend of the leg, as herein shown and described, and for the purpose specified.

2. In an artificial leg, the eyebolt E, consisting of a threaded screw, provided with a shouldered shank, *p*, at its lower end, and the loop *r*, having open ends fitting said shank, the parts being secured together by the rivet *e*, as shown and described, and for the purpose specified.

187,606. RIBBON-PROTECTORS. Hiram V. Dempster, Washington, D. C., assignor of one-third his right to Geo. S. Prindle, same place. [Filed Jan. 10, 1877.]

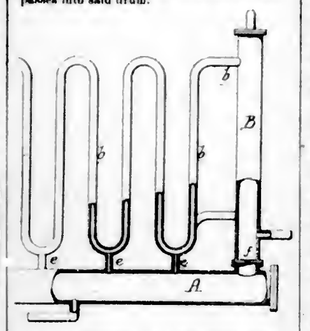
Brief.—A cylindrical case divided through its axis, with roller, shaft, and button for containing and rolling the ribbon; a slit in the side for drawing it out, and a spur near the slit to hold the end, so that it may be easily seized and drawn out.



As an improvement in the means for storing and handling ribbons, the casing C, constructed as shown, and provided with the axial openings *c* and peripheral opening *c'*, the cylindrical block B, having the journals *b* and button-head *b'*, and the spur *x*, secured within the exterior of said casing at the side of said opening *c'*, substantially as and for the purpose specified.

187,607. WATER-HEATERS. Wm. Dootson, Philadelphia, Pa. [Filed Jan. 22, 1877.]

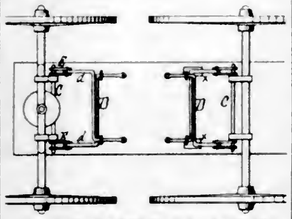
Brief.—The water enters at the bottom of a stand-pipe, and up said pipe to near its top, where it enters a vertically arranged serpentine pipe, communicating with a mud-drum at each bottom bend, through which the sediment passes into said drum.



1. The combination, in a feed-water heater, of the mud-drum A with the vertical bent pipe *b*, each lower bend communicating with the said drum, as specified.

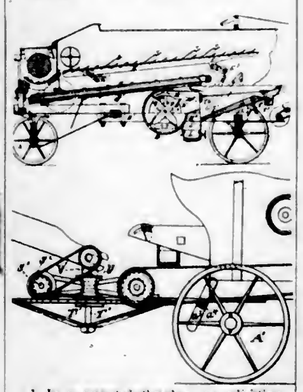
2. The combination of the vertical tubes B B' with the bent pipes *b b'*; the mud-drums A A', communicating-pipes *e e'*, and inlets and outlets, all substantially as set forth.

187,608. TORSION-SPRINGS FOR VEHICLES. Richard Dudley, Erie, Pa. [Filed Oct. 15, 1875.]



In combination with the body of a vehicle, rocking shafts G G and torsion-springs D D, connected by links E E, to operate substantially as described.

187,607. THRASHING-MACHINES. John H. Elward, St. Paul, Minn. [Filed Feb. 8, 1877.]



1. In a mounted thrasher, an adjusting mechanism, whereby the front end of the machine can be adjusted or leveled relative to the front axle, substantially as set forth.

2. The combination, with the wheel A, of hooked rod *a'* and cross-tie *a²*, as and for the purpose set forth.

3. In a thrashing-machine, the combination, with the concave of toggle-levers, a crank-shaft or rock-shaft, and links connecting the crank-shaft with the toggle-levers for adjusting the position of the concave, substantially as set forth.

4. The combination, with crank-wheel F, pitman F^1, and connecting-bar F^2, of the adjusting-plate *f*, as and for the purpose set forth.

5. The combination, with the crank-arms E^1 F^1, of an adjustable connecting-bar, F^2, as and for the purposes set forth.

6. In a separating-machine, the separating-table E, provided with blind-slats and shouldered wires *e e*, as and for the purposes set forth.

7. The combination, in a thrasher and separator, of the slatted separating-table E, shouldered fingers *e*, grain-table G^1, and the grain-rake or raddle-belt G, substantially as set forth.

8. In a thrasher and separator, a grain-table, G^1, provided with the trap or hinged portion G^3, to afford access to the interior of the machine, substantially as set forth.

9. In a grain-separator, the combination, with the fan of a winnower-shoe having an adjustable false bottom, substantially as set forth.

10. In a separator, the combination of a blast-fan, a screen, and an adjustable false bottom made in two parts hinged to each other, substantially as set forth.

11. In combination with the winnower shoe, the supplemental returning-board J^3 and adjusting segments J^2, substantially as set forth.

12. The bell-crank L^2 and link *P*, in combination with link *I* hinged to the shoe, and adjustable link *P*, substantially as set forth.

13. Link *P*, in combination with spout L and adjusting-plate L^2, substantially as set forth.

14. Spout L, having bottom openings *l l'* and slides *l² l³*, in combination with the centrally-pivoted grass-seed screen *P*, substantially as set forth.

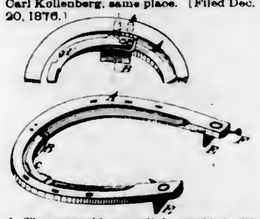
15. In a grain-separator, the combination of an overblast fan and a central blast-deflector, N, with the screen or sieve I, and the bottom board of the winnower-shoe, substantially as set forth.

16. The combination, with the overblast fan, the central blast-deflector, and the screen, of an adjustable bottom board in the winnower-shoe, substantially as set forth.

17. The combination of the adjustable tailings-board *P*, and returning-spout J with the nest of sieves consisting of the long coarse-meshed upper sieve and the short finer-meshed lower sieves, substantially as set forth.

18. In combination with the swinging plate T and shafts R R^1, the pulleys R^2 S^2, belt U^2 loose pulley U, and supporting mechanism for driving the swinging stacker, substantially as set forth.

187,608. HORSESHOES. Franz Ernst, Chicago, Ill., assignor of one-half his right to Carl Kollenberg, same place. [Filed Dec. 20, 1876.]



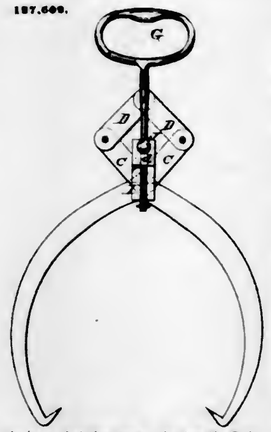
1. The removable toe-calk B, provided with the notched studs *b*, in combination with the horseshoe A and locking-lever C, substantially as described and shown.

2. The removable heel-calk E, having shank *e*, provided with nose projections, and to be secured in the horseshoe A by a nail or pin F, substantially as described and shown.

187,609. ICE-TONGS. Peter Euler, Troy, N. Y. [Filed Jan. 31, 1877.]

Brief.—Each curved arm is extended upward beyond their common pivot, to pivot with links pivoted together at top and to the rod of the handle, which rod works in a guide-block having a knob to be held in working the device.

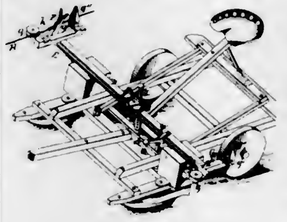
187,609.



In ice or hoisting tongs, the handle G, levers C D, the top levers D pivoted to the handle, pivoted bar I, with a stand, *b*, extending below said bar, guide *d*, and the knob J, combined and constructed substantially as and for the purpose set forth.

187,610. CHECK-ROWERS FOR CORN-PLANTERS. Robert Faries, Decatur, Ill., assignor to Wm. B. Chambers, Wm. J. Quinlen, and J. Edw. Bering, same place. [Filed Jan. 16, 1877.]

Brief.—Upon the rock-shaft, provided with forks at each end, is pivoted a wiper, that strikes alternately one of two bell-cranks. To the bar to which the bell-cranks are secured is attached the upper end of a pivoted lever, to the lower end of which is attached a connecting-rod for vibrating the seed-slide.



1. The single wiper or tappet P, combined with the bell-crank levers J J and rock-shaft E, to transmit motion alternately to said bell-crank levers, substantially as described, and for the purpose specified.

2. The wiper or tappet P, having a hinged plate, *p*, affixed to its distal end, combined with the loosely-hung bell-crank levers J J and rock-shaft E, substantially as described, and for the purpose specified.

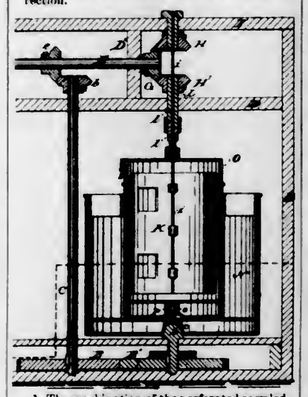
3. The knotted wire H, forked levers F, shaft E, wiper P, having hinged plate *p*, bell-cranks J J, link K, lever L, link *s*, slide *s*, and bar D, combined substantially as described, and for the purpose specified.

187,611. PROCESSES OF MANUFACTURING ARTIFICIAL LEATHER FROM WOOLEN OR VEGETABLE FABRIC. Ambrose G. Fell, New York, assignor to Wm. H. Smith, Brooklyn, N. Y. [Filed July 10, 1876.]

The process of manufacturing artificial leather which consists in spreading upon the surface of animal or vegetable fabric a mixture of gelatinous matter, glycerine, water, protosulphate of iron, sulphuric and nitric acids, substantially as described.

187,612. ICE-CREAM FREEZERS. B. Frank and J. Kissling, Rahway, N. J. [Filed Sept. 8, 1876.]

Brief.—A crank turns a horizontal shaft having two beveled pinions upon it, the first of which gears with a similar pinion upon a vertical shaft. At the lower end of the vertical shaft is a pinion gearing with another of similar size upon a short shaft which revolves the ice-tub. Upon the end of the horizontal shaft is the second beveled pinion, engaging two similar pinions, the upper of which turns the dasher-shaft, while the lower is attached to the coupled cream-tub shaft, which is perforated to allow the dasher-shaft to pass through and revolve freely in the opposite direction.

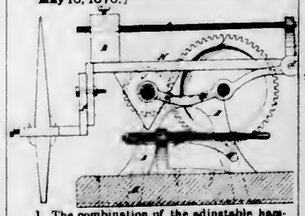


1. The combination of the perforated coupled shaft L, shaft or rod *i*, pinions H H', dasher K, cream-tub O, ice-tub N, and pinion B', all constructed substantially in the manner and for the purpose herein shown and specified.

2. In an ice-cream freezer, the combination of the revolving ice-tub N, revolving cream-tub O, and revolving dasher K, substantially as and for the purpose hereinbefore set forth.

3. In combination with the ice-tub N, cream-tub O, dasher K, perforated shaft L, and rod *i*, the gearing B B' C *b c* E G H H', and crank F, substantially as and for the purpose herein shown and specified.

187,613. MILLSTONE-DRESSING MACHINES. Harvey R. Fuller, Princeton, Mo. [Filed May 16, 1876.]



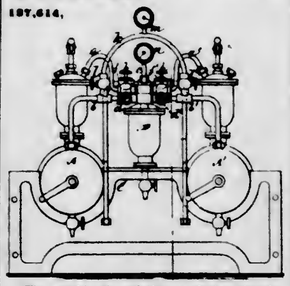
1. The combination of the adjustable hammer-weight M, rod N, and standard O, with the pick-lever handle, substantially as specified.

2. The driving-wheel L, feed-screw C, lifting-shaft D, pick-lever H, and cam J, in combination with the pinion K, support G, rod N, weight M, and standard O, substantially as and for the purpose set forth.

187,614. CARBONIC-ACID-GAS GENERATORS. Wm. Gee, New York, N. Y. [Filed Jan. 17, 1877.]

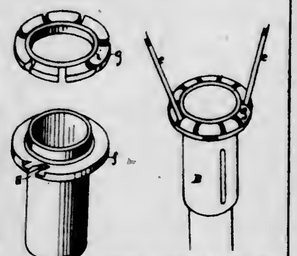
Brief.—An arrangement of duplicate generators and washers. When one generator is in use, connection with the other is shut off. The regulating-pipe is for the purpose of regulating the gas-pressure before admitting the gas into the washers.

187,614.



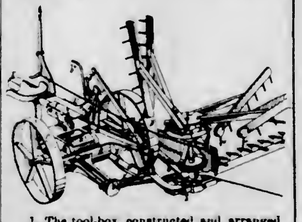
The combination of the regulating-pipe *k*, its pressure-gage *m*, and valves I I' with the generators A A', the pipes *b b'*, the valves *d d'*, and the purifier D, substantially as specified.

187,615. UMBRELLA-RUNNERS. Adam Good, San Francisco, Cal., assignor of one-half his right to John J. Smith. [Filed Dec. 11, 1876.]



The tube or runner B, provided with the stationary flange *f*, with its T shaped notch S, and having the rotating ring *g*, provided with a groove, *i*, on its under side, and as many notches O in its rim as there are wires to be attached, in combination with the brace-wires *r*, having the ends flattened, and provided with pins *t*, substantially as and for the purpose described.

187,616. HARVESTERS. Alexander Gordon, J. H. Myers, George Telford, and M. G. Hubbard, Rochester, assignors to Jas. I. Hendryx, Cooperstown, N. Y. [Filed Feb. 28, 1873.]



1. The tool-box, constructed and arranged relatively to the main frame, substantially as described, whereby it is made to constitute the pole-extension arm of said main frame, in combination with the transferable pole, adapted to be applied to either side of the tool-box, substantially as and for the purpose set forth.

2. The metallic main frame A, provided with the tool-box pole extension F, lever-arm H, and back-bone rib G, extending between said pole and lever-arms, and forming a part of said frame and arms, as described.

3. The tilting-handle *b*, sliding jaw T, and

spring retaining pawl F, in combination with the rack or post U, all arranged and operating substantially as described.

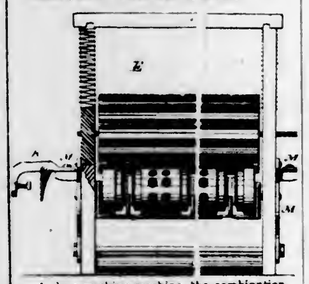
4. The plate or jaw to which the lifting-lever is pivoted applied to the lever-arm H, and provided with the socket for the lifting-lever, and the fork or hook adapting the chain for adjusting the height of the cutting apparatus to be readily attached and detached, substantially as and for the purpose described.

5. The rake strap or iron V, provided with the socket and tube for the pivoted pin or bolt cast thereon, as described.

6. The rake-head strap or iron V', provided with the hollow stud for the friction-roller cast thereon, substantially as and for the purpose set forth.

7. The elastic inner rake-tooth W, arranged obliquely to the rake-head for sweeping the inner corner of the platform, and operating substantially as and for the purpose set forth.

197,617. WASHING-MACHINES. J. C. Gove and G. H. Gove, Cleveland, Ohio, assignors of one-third their right to Chas. F. Gove, same place. [Filed Dec. 5, 1876.]

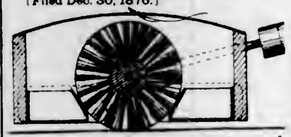


1. In a washing-machine, the combination, with a longitudinal fluted roll, E, of the rolls F F, provided with circumferentially-arranged grooves, having circular depressions or cavities on their circumference, and strippiug-fingers between said grooves, substantially as and for the purpose specified.

2. In a washing machine, the metallic plates M', provided with swivel-jointed clamps K, which are adapted to be moved forward or back in the slotted arm by means of the clamping-screw M, for adjustment to varying sizes of tubs or vessels, substantially as specified.

3. In a washing-machine, the combination of the fluted and grooved rolls, the latter provided with holes or cavities, adjustable pivoted clamps, and the finger-guard, serving as strippers, substantially as set forth.

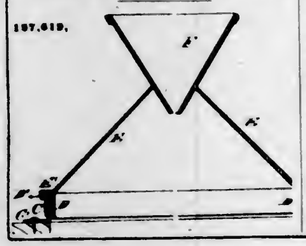
197,618. CARPET-SWEEPERS. H. A. Gore, Goshen, and G. W. Edgcomb, Lima, Ind. [Filed Dec. 30, 1876.]



1. The combination, in a carpet-sweeper, of the levers H, drive-wheels C, and friction-wheel h^3, substantially as herein shown and described.

2. The combination of the spring e and levers H, substantially as shown and described.

197,619.

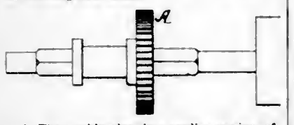


197,619. CHURN ATTACHMENTS. James H. Gray, Washington, Iowa. [Filed Dec. 9, 1876.]

The conoidal churn-cap E, provided with a funnel, F, and bent attaching-flange E', in combination with the ring D, having the exterior horizontal flange D', and the annular rim C, having its upper edge bent over, and provided with a horizontal exterior base-flange, C', for attachment to the churn-body, substantially as and for the purpose set forth.

197,620. CONDENSING-CYLINDERS FOR CARDING-ENGINES. James Greaves, Philadelphia, Pa. [Filed Sept. 30, 1872.]

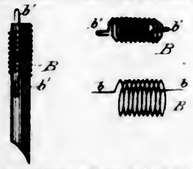
Brief.—The spindle and the bearing in which it reciprocates are both made of cast-iron, or of metal having the same crystalline structure as cast-iron, so as to resist wear by friction. The other features are shown and described by drawing and claims.



1. The combination, in a carding-engine, of a condensing or rubber cylinder, a driving-wheel, and a polygonally shaped horizontal shaft or spindle, the latter being adapted to be revolved, and at the same time to be continuously reciprocated in a correspondingly polygonally-shaped bearing, said bearing and said shaft or spindle being of cast-iron or of metal of the same crystalline structure as cast-iron, and a continuously-reciprocating rubber, substantially as and for the purposes described.

2. In a carding-engine, the combination of a continuously-reciprocating rubber, a driving-wheel, to turn said rubber, and a horizontal shaft or spindle, connecting the two together, said shaft or spindle and the bearing in which it reciprocates being both made of cast-iron, or both of metal, having the same crystalline structure as cast-iron, whereby in the reciprocating action, the tendency of the crystalline particles of cast-metal in the bearing to wear the spindle will be resisted by the crystalline particles of the latter, substantially as and for the purposes described.

197,621. PENCIL-HOLDERS. E. W. Grove, Paris, Tenn. [Filed Oct. 30, 1876.]



The combination of the holder or fastener B, having prongs or hooks b b', and catch a, with the pencil or pencil-case A, having notch c, substantially in the manner and for the purpose hereinbefore set forth.

197,622. SET-WORKS FOR CIRCULAR-SAW MILLS. Chancey M. Hall, Bay City, Mich., assignor of one-half his right to Bay City Iron Company, same place. [Filed Sept. 5, 1876.]

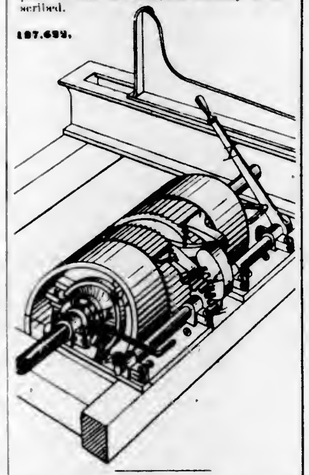
Brief.—Either knee may be advanced or receded independently of the other, or both knees actuated synchronously, to enable the operator to set the knees one-sixteenth of an inch or more at a single movement of the set-lever, by means of a divided set-shaft, double ratchet-wheels, two collars provided with spring-pawls and differentially-pitched segments, diagonally-slotted cam-collars, supporting-drums provided with dogs, all operated by an intermediate rock-shaft, provided at one end with a set-lever, and having a pinion with a pitch corresponding to the pitch of the segments.

1. The differentially-pitched segments c c', in combination with the pinion d of the rock-shaft, having corresponding pitches, for imparting an equal throw to the pawl-collars F F', substantially as described.

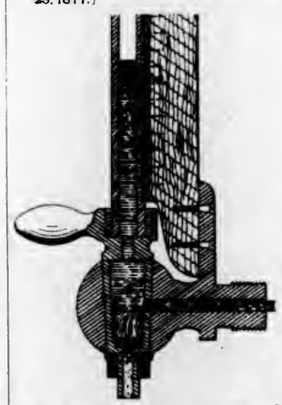
2. The combination, with the drums J J and their dogs f, the diagonally-slotted cam-collars K, levers L, and the stationary arms l, for retracting said dogs from the main ratchet-wheels, substantially as described.

3. In combination with a divided set-shaft, the double ratchet-wheels, the pawl-carrying drum on each section of said set-shaft, the differentially-pitched pawl-carrying segments, and a correspondingly-pitched pinion on an intermediate rock-shaft, all combined and arranged to impart an equal movement to both parts of said set-shaft, substantially as described.

197,623.



197,625. MEASURING-FAUCETS. Francis H. Hambleton, Baltimore, Md. [Filed Jan. 23, 1877.]



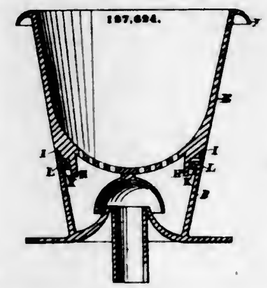
1. A flow-rate indicator for liquids, consisting, essentially, of a chamber having three openings—one connecting with the source of supply, one with a discharge-nozzle, and one with a stand-pipe—for showing the head, and thereby indicating the rate of flow.

2. A flow-rate indicator for liquids, consisting, essentially, of a chamber having three openings—one connecting with the source of supply, one with a discharge-nozzle, and one with a stand-pipe—in combination with a cock or valve for controlling the desired rate of flow.

197,624. SLOP-HOPPERS. Miles M. Harvey, San Francisco, Cal. [Filed Sept. 16, 1876.]

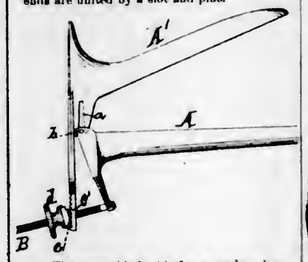
The trap-vessel B, provided with the inclined lugs L L, in combination with the hopper-vessel E, with its rabbeted seat I, and having the flange H, with its oppositely-inclined lugs K K, arranged to interlock with the lugs L on the trap-vessel, substantially as and for the purpose described.

197,624.



197,625. SPECULUMS. Evans B. Harding, Northampton, Mass. [Filed Dec. 6, 1876.]

Brief.—The rear ends of the blades, as well as the forward, are expanded by means of a thumb-screw, lever, and rack-bar. The rear ends are united by a slot and pius.



1. The upper blade A' of a speculum, having the slots a a, in combination with the lower blade A, having the studs b b, by which their outer or rear ends are expanded, permitting of greater expansion of their inner or free ends to obtain the greatest amount of distention, substantially as set forth.

2. The upper blade A', having the slots a a, and slotted extension c', in combination with the lower blade A, having the studs or projections b b, screw or lever B, and thumb-nut d, substantially as and for the purpose set forth.

3. The upper blade of a speculum, having the slotted, rack c' in combination with the lower blade and screw or lever B, having the serrated or toothed nut a, and thumb-nut, substantially as and for the purpose set forth.

197,626. CIGAR-BOX CATCHES. Ferdinand Hasselbach and Ernst Hasselbach, Brooklyn, N. Y. [Filed Jan. 13, 1877.]

Brief.—The catch is sunk in a slit in the box, and when hooked is below the surface.



1. The combination of a pivot hook or catch, swinging in a cross-slit or recess of the front wall of the box, at right angles to the same, with a catch or seat placed into a slit or recess of the lid, substantially in the manner and for the purpose set forth.

2. The combination of the hook or catch C, pivoted to a bent strip or band, D, in a slit or recess of the front wall of the box, with a top strip or band, E, of the lid, having a bent part or seat entering a slit or recess of the lid, substantially as shown and described.

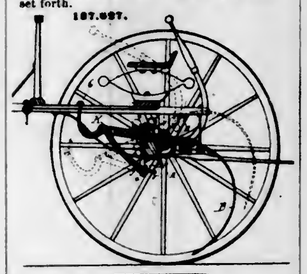
197,627. HORSE HAY-RAKES. Horace R. Hawkins, Akron, Ohio. [Filed May 31, 1876.]

1. The combination, with the notched locking-lever J, of the hinged triangular locking piece g, substantially as and for the purposes set forth.

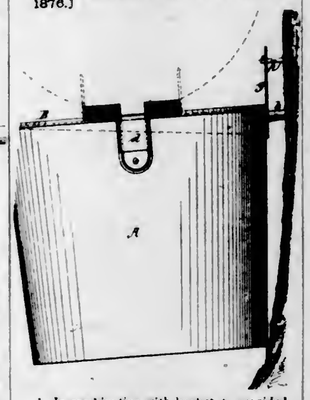
2. The combination, with locking and unlocking lever J, of the foot piece 6, substantially as and for the purposes set forth.

3. The combination, with the grooved or scored axle A and arm E, of the straps c, slotted cross-piece H, springs 3, links 2, and rake-teeth B, arranged to operate in relation to each other, substantially as and for the purposes set forth.

197,627.



197,628. SAP-BUCKETS. T. B. Hayward, South Acworth, N. H. [Filed Sept. 7, 1876.]



1. In combination with bucket A, provided with slide d, the lid B, provided with coil-spring e and securing-loop, arranged and operating substantially as described.

2. In combination with bucket A, the ear or hanger g, provided with apertures for the reception of spout b and nail h, arranged and operating substantially as described.

197,629. CIGAR-LIGHTERS. Julien T. Hill, Brooklyn, assignor to Wm. H. Bailey, New York, N. Y. [Filed Feb. 8, 1877.]

Brief.—The tinder, tape, and operative parts are carried by the removable plate. The working-lever is at the back side of the plate, which is slotted to allow connection and operation.



1. The removable plate C, supporting and combining the essential operative parts specified, substantially as described.

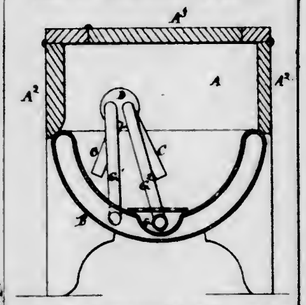
2. The combination of the pivoted lever M, having arm m, and the spring-hammer K, provided with the notches k l, substantially as described.

3. The combination of the pivoted lever M, carrying the spring feeding-pawl N, the anvil L, and fixed guide a, for adjusting and supporting the percussion-tape, substantially as described.

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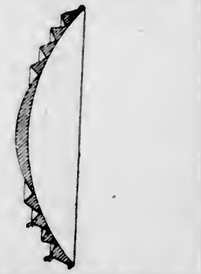
4. The pivoted lever M, provided with the operating-knob O, and plate P, covering the slot o, substantially as and for the purpose set forth.

197,630. FEATHER-RENOVATORS. John T. Hopkins and Merritt H. Smith, Fort Madison, Iowa. [Filed Oct. 12, 1876.]



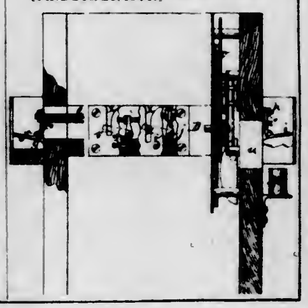
In a feather-renovator, the combination of a stationary frame, provided with hinged side doors A^3 A^3 and hinged lid A^2, the semicircular hollow pan B, suspended from the bearings D by one or more straps, C, at each end, and the pipes G' G^2, passing through the bearing at one end, and their lower ends entering into the chamber in the pan and into the perforated tube G, respectively, all substantially as and for the purposes herein set forth.

197,631. SEMAPHORE-LENSES. Charles F. Houghton, Corning, N. Y. [Filed Jan. 9, 1877.]



A semaphore-lens of meniscal form, having one surface a portion of sphere or spheroid, and the other composed of zones of a parabolic or hyperbolic form, with two surfaces—one adapted to project a portion of the rays to a long distance, and another, at the same time, by dispersing another portion of the rays, to illuminate a field near the lens, substantially as set forth.

197,632. FARE-REGISTERS. W. H. Hornum, New York, N. Y., assignor to the Hornum Patent Register Manufacturing Company. [Filed Dec. 26, 1876.]



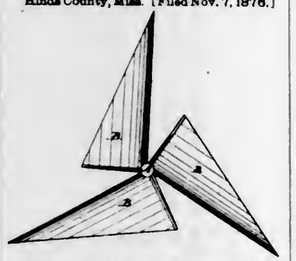
1. A registering apparatus secured permanently in a car or other vehicle, in combination with a wire extending the entire length of the vehicle, and connected with the prime motor of the register, a bell-crank lever, *f f'*, on the exterior of the car, a bell-crank lever, *k l*, in the interior of the car, and the plates *r*, having slots *x*, of a size sufficient only to admit of an operating-book, all substantially as and for the purpose described.

2. In a fare register for cars and other vehicles, a registering apparatus permanently secured in said vehicle, in combination with a rock-shaft, *a*, connected with the prime motor of the register, the levers *b*, *c*, and *d*, connected with said shaft, the rod or wire *e*, extending the entire length of the vehicle, the bell crank lever *f f'*, attached to the exterior of the car, and connected with the rod or wire, and having an opening to receive a hook for operating the latter, substantially as described.

3. The combination, with a registering apparatus secured in a car or other vehicle, and a wire extending the entire length of the latter, of the rock-shaft *a*, having the arms *b*, *c*, and *d*, the bell crank lever *f f'*, the rod *k*, and bell-crank lever *i i'*, the said levers having openings for receiving books by which to operate them, substantially as described.

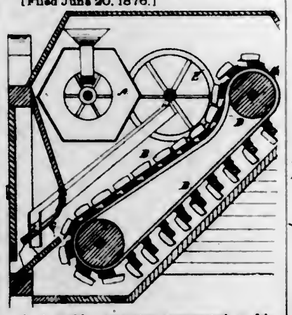
4. The combination, with the box D, wire *e*, having collar *m*, and extending the entire length of the car or vehicle, and the registering mechanism, with which said wire is connected, of the rock-shaft *j*, the lever *k*, the lever *l*, bearing against the collar *m* of the wire *e*, and the slotted plate *r*, for receiving a hook to operate the lever *k*, substantially as described.

187,633. SCREW-PROPELLERS. W. S. Hull, Hinds County, Miss. [Filed Nov. 7, 1876.]



The combination, with the propeller-shaft, of a series of right-angled triangular blades, having their front sides attached to said shaft at right angles, and their rear apices deflected away from the same, substantially as and for the purpose described.

187,634. GRAIN-SEPARATORS. Alfred Huntington and John Hicks, Milwaukee, Wis. [Filed June 20, 1876.]



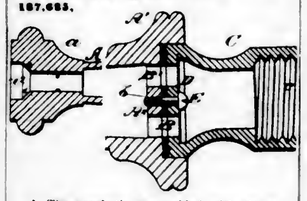
1. A cockle-separator constructed as follows: with reel A, endless pitted platform B, wheels E, cockle-board F, grain board G, and grain-holder L, arranged substantially as described.

2. Indented endless platform B, grain-board G, grain-holder L, and cockle-board F, all in combination, substantially as described.

187,635. HOSE-NOZZLES. Harry Hunt, Boston, Mass. [Filed Jan. 13, 1877.]

Brief.—The nozzle is provided with an enlarged mouth. A partition near the larger end has pivoted to it a leather disk, and a metallic disk with registering-openings, for regulating the discharge of the water.

187,635.

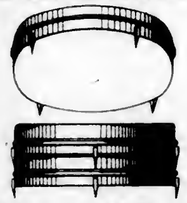


1. The nozzle-tip *a*, provided with the enlarged mouth a^2, having outwardly-inclined sides *c c*, which are a continuation of the bore of said tip, substantially as described, and for the purpose set forth.

2. The combination of nozzle A, having partition A^2, with leather disk B, casing C, disk D, and clamping screw-bolt E, the above described disks and partitions being provided with oblong registering-openings, arranged substantially as and for the purpose set forth.

187,636. BLACKING-BOXES. W. Jameison, Saratoga Springs, N. Y. [Filed Jan. 8, 1877.]

Brief.—The pins prevent the box from moving when a brush is turned in the blacking.



A blacking-box provided with a suitable number of pins attached to the sides thereof, and projecting below the bottom of the box, whereby the boxes can be packed one upon another inside of the pins, substantially as and for the purposes herein set forth.

187,637. SUBSOIL-PLOWS. James Jarrell, Thorntown, Ind. [Filed Sept. 16, 1876.]

Brief.—A subsoil-share with vertical knives and a vertically-adjustable mold-board.



The combination of adjustable mold-board C with subsoil share D and cutting-blades H H, substantially as and for the purpose set forth.

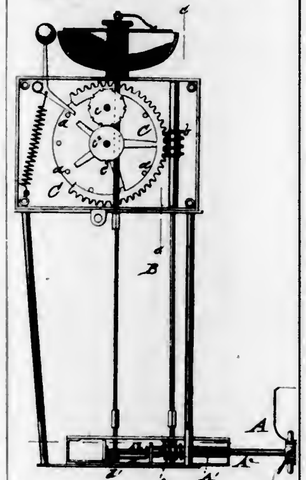
187,638. ROTARY VALVES. James Jenks, Detroit, Mich., assignor of one-half his right to Geo. A. Jenks, same place. [Filed Oct. 31, 1876.]

In an oscillating valve, the combination, with the case A, having the passages *a*, *b*, and *c*, of the hollow valve B, provided with a large opening at its top, and the ports *b'* in the bottom thereof, and the spider-shaped valve E, having the perforated ribs or wings *d d d'*, constructed and arranged substantially as described and shown.

187,638.



187,639. SPEED AND DISTANCE INDICATORS. G. M. Jessen, Portland, Oreg. [Filed Apr. 25, 1876.]

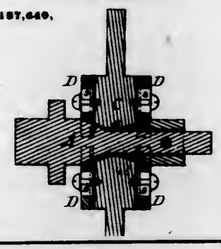


1. A distance and current indicating instrument for hydrographic surveys, consisting of an actuating revolving propeller, in connection with a distance registering and indicating dial and bell mechanism, and with a simultaneously-operated stroke and current-measuring device, substantially in the manner and for the purpose set forth.

2. The propeller A, shaft A^2, tubular sleeve A^3, having gear-wheel *a*, spring *g*, shaft B, having worm-wheel *b*, cog-wheel C, dial C^2, index-hand C^1, wheel c^2, having spar c^3, notched wheel *c*, and dial C^3, the whole constructed, combined, and arranged to indicate power of current and stroke of the oar, substantially as described.

3. In a distance-indicating device for hydrographic surveys, the combination of a revolving propeller with distance-indicating dials and hands, and a bell mechanism striking at fixed distances, substantially in the manner and for the purpose set forth.

187,640.



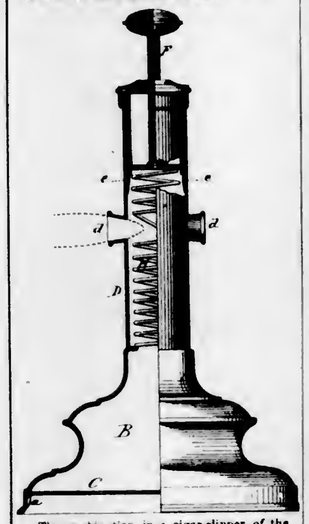
187,640. STUDS AND BEARINGS FOR SEWING-MACHINES, &c. Levin T. Jones, Baltimore, Md. [Filed Feb. 3, 1877.]

Brief.—The hub of the wheel is shaped to receive a spindle, having a conical form at one end, and a conical sleeve on it at the other, all held in place by two sliding blocks at each side, adjusted by clamping-screws in slots.

The slotted adjustable bearings D, diametrically in line with each other, on opposite sides of a journal or shaft, in combination with the parallel abutments or guides *d* and the clamp-screws K, substantially as specified.

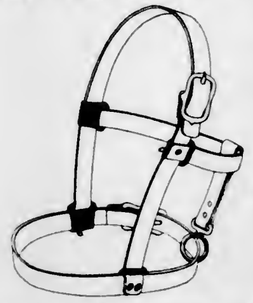
187,641. CIGAR-CUTTERS. Ernst Kast, Waterbury, Conn., assignor of two-thirds his right to Louis Wensel and Emil Miller, same place. [Filed Nov. 11, 1876.]

Brief.—The device is hollow, and has a removable bottom, so that the severed tips may be removed when the base is filled.



The combination, in a cigar-clipper, of the base A, removable bottom C, forming a receptacle, B, for the clippings, the vertical tube D on said base, one or more apertures, *d*, in said tube, the vertical slide F, carrying cutters *e*, and the spring H, all substantially as shown and described.

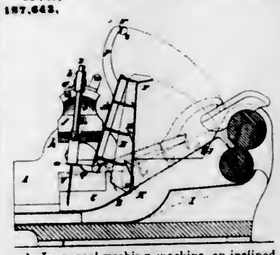
187,642. CLIPS FOR HALTERS. E. M. Kione, Cuba, assignor to S. E. Tompkins, Sing Sing, N. Y. [Filed Dec. 13, 1876.]



A halter-clip consisting of a riveting plate having a loop on one side and a flange on the opposite side, substantially as described.

187,643. WOOL-WASHING MACHINES. J. H. Knowles, J. K. Proctor, and F. P. Pendleton, Philadelphia, Pa., assignors to said Proctor and Pendleton and Thos. Cunningham, Lucian Brown, George Brown, and H. B. Lincoln, same place. Filed Oct. 16, 1876.]

187,643.



1. In a wool-washing machine, an inclined chute constructed in two parts, B' and C, pivoted at the point D, between the fork-bearing and squeeze rolls, so as to swing freely upward, for the purpose described.

2. In a wool-washing machine, the rolls G and H, arranged on an incline, in combination with an inclined or curved chute and a carrier or device for lifting stock over the latter to said rolls, substantially as and for the purpose described.

3. The combination of the inclined chute B with the guide P or U^1, bottoms I S, rolls G and H, and openings T, for the purpose described.

4. The standard *g* and curved support *d*, in combination with the bearing O', for the purpose described.

5. The table *f*, legs *h*, standard *g*, and support *d*, cast in one piece, in combination with the bowl A, substantially as described.

6. The arms *k*, in combination with the rake-head *s*, the lever-rod Z, ears *a*, and carrier *w'*, substantially as and for the purpose described.

7. In a wool-washing machine, a rigid carrier or carrier formed in one piece, combined with mechanism which moves one of its ends forward and backward in the same line, and raises its other end on the return-stroke, substantially as and for the purpose described.

8. In a wool-washing machine, the combination of the following elements: a rigid carrier combined with mechanism for raising the rear end on its return stroke, while its forward end moves to and fro in the same line, a stirrer rake or fork, inclined chute, and squeezing-rollers, substantially as and for the purpose described.

9. In combination with the reciprocating carrier of a wool-washing machine, having anti-friction rollers or slides *s*, the guides or ways U, secured to or forming continuations of the sides of the bowl A on both sides of the squeeze-rolls G H, substantially as shown and described.

10. In combination, with the reciprocating carrier of a wool-washing machine, having forwardly-projecting arms *p*, united by a cross-bar, *r*, the slides or rolls *s*, substantially as shown and described.

11. The combination of the levers *p* with the slides or rolls *s*, the side bars *l*, and cross-bars *m*, substantially as and for the purpose described.

12. The combination of the bars *l* and *m*, levers *p*, rod *r*, slides or rollers *s*, and ears *n*, forming the carrier-frame, substantially as and for the purpose described.

13. The combination of the bars *l*, bars *m*, and slides or rolls *s* with the swing-teeth *o'''* and *o''''*, for the purpose described.

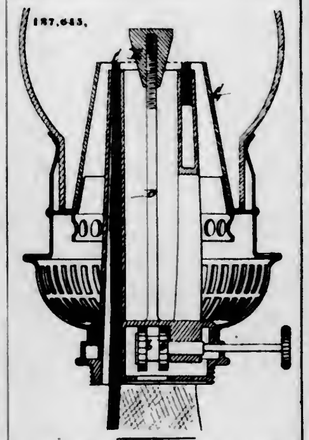
187,644. COMPOSITIONS FOR PRESERVING ANIMAL AND VEGETABLE MATTER. J. A. Kohrssen, Allegheny, Pa. [Filed Sept. 20, 1876.]

A compound for preserving animal and vegetable matter, consisting of calcined alum, sugar, niter, salt, sal-soda, and water, substantially in the proportions herein described.

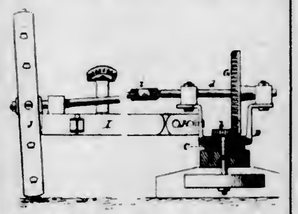
187,645. LAMP-BURNERS. Bernard Labarthe, Sabres, Achille Guillemare, Mont de Maison, and Leopold Pallas, Sabres, France. [Filed Jan. 6, 1877.]

The combination, with the conical wick-tubes, of the cone G, having its upper edge extending above the top of the wick-tubes, and the deflector adjustable on its carrying-rod, substantially as described.

187,645.



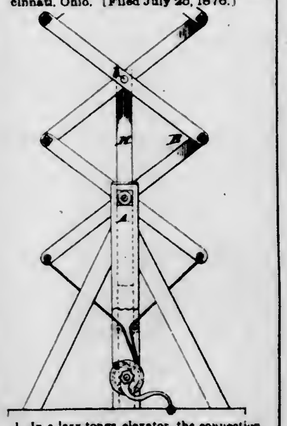
187,646. HORSE-POWERS. Reuben Leonard, Oakland Mills, Pa. [Filed Jan. 20, 1877.]



1. The combination of the angular metallic frame D, provided with clip H, the detachable pivoted sweep I, shaft *d*, gear-wheel G, flanged hub C, and pinion *b*, on the vertical shaft *a*, all constructed substantially as set forth.

2. The wheel J', with internal cog-gear L, the sweep I', pinion *m*, and shaft A', in combination with the frame D, wheel G, shaft *d*, coupling *i*, shaft *a*, pinion *b*, and flanged hub C, all substantially as and for the purposes herein set forth.

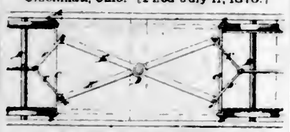
187,647. ELEVATORS. Sigmund Levi, Cincinnati, Ohio. [Filed July 25, 1876.]



1. In a lazy-tongs elevator, the connection, between frames B and platform C, of racks *c c'*, pinions D, and securing-rolls E, connected and operating substantially as and for the purpose specified.

2. In a lazy-tongs elevator, the combination, with frames H and platform C, of supporting-bars G, connected and operating substantially as and for the purpose specified.

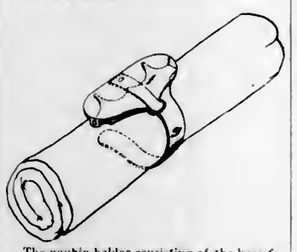
187,646. CAR-BRAKES. Sigmund Levi, Cincinnati, Ohio. [Filed July 11, 1876.]



1. In a car-brake for action upon brake bar or bars C C', the expanding pivoted pressure-bars E E', connected to operate substantially as and for the purpose specified.

2. In combination with brake-bars C C' and pressure-bars E E', the connecting operating-bars F, operating substantially as and for the purpose specified.

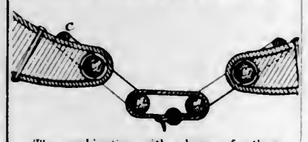
187,649. NAPKIN-HOLDERS. W. F. Lewis and R. T. Lattin, Waterbury, Conn. [Filed Oct. 30, 1876.]



The napkin-holder consisting of the base *f*, the hook *g*, and the spring clamping device *i k e k*, on the inner side of the base, the whole being arranged for operation together, substantially as and for the purposes specified.

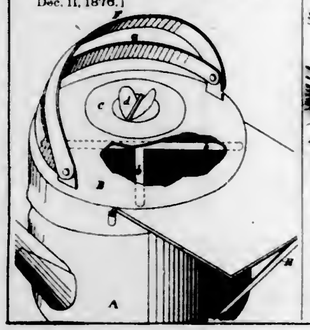
187,650. EYES FOR HAMES. G. J. Latchworth, Buffalo, N. Y. [Filed Oct. 2, 1876.]

Brief.—A three-barred link is pivoted to the lower end of the hame by its central bar, and adapted as a fastener for the hame-strap.



The combination, with a hame, of a three-barred link attached to the lower end of the hame by its central bar c^1, adapted to form an angular extension of the hame, when the hame-strap is applied to the lower bar c^2 of the link, substantially as set forth.

187,651. MANUFACTURE OF TEA-KETTLES, &c. A. J. Lowell, Alvarado, Cal. [Filed Dec. 11, 1876.]



1. The tea-kettle A, having the flat top B, which is supported on the under side by braces or bridges *b*, substantially as and for the purpose described.

2. In combination with a tea-kettle, A, having a flat top, B, the flat lid or cover C, provided with a depression in its top, and having a handle, *d*, which is made of cloth, substantially as and for the purpose described.

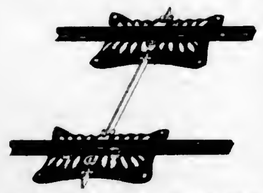
3. A tea-kettle, A, or equivalent vessel, having two handles or bails, F G, arranged to serve as one single bail when brought together, and adapted to spread apart and form a ring or upward-projecting rim around the upper edge of the vessel, substantially as and for the purpose described.

4. In combination with a tea-kettle, A, or equivalent culinary vessel, provided with a pocket, *i*, the detachable shelf G, with its supporting leg or brace H hinged to the edge of the shelf, substantially as and for the purpose described.

5. The improvement in protecting the corners or inside angles of tin vessels, the same consisting in laying a wire, or other metallic strip, *o*, in the angle, and securing it with solder, substantially as described.

6. An inside angle-protecting wire, *o*, combined with an outside base or foot wire, *s*, both wires being secured by a metal strip or loop, V, the loops of the two wires being placed opposite each other and secured by rivets, and afterward soldered, substantially as and for the purpose described.

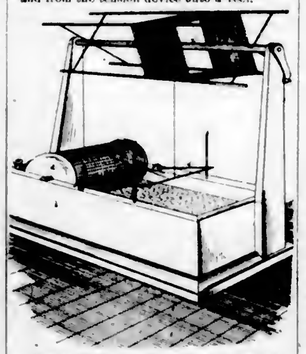
187,652. RAILWAY-CHAIRS. Walter MacLellan and Jno. P. Smith, Glasgow, Scotland. [Filed Dec. 29, 1876.]



The malleable-metal railway-sleeper chairs, having embossations passing or radiating from, or from near, the top bearing-surface to or near the outer lower bearing-edges, substantially in the manner and for the purposes set forth.

187,653. MACHINES FOR WINDING AND STRETCHING SILK THREAD. J. S. Macfarlane, Mansfield Centre, Conn. [Filed Sept. 13, 1876.]

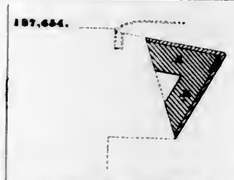
Brief.—The silk is wound off a bobbin through water and under a tension device, which device is a wire loop hinged at its base, and kept from rising too high by standards, and from the tension device onto a reel.



In combination, water-box *b*, bobbin *a*, hinged loop *d*, and reel *e*, all substantially as and for the purpose set forth.

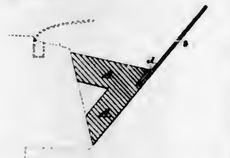
187,654. BILLIARD-TABLE CUSHIONS. J. E. Maynadier, Boston, Mass., assignor to H. W. Collender, New York, N. Y. [Filed Jan. 11, 1877.]

187,654.



A billiard-cushion composed of a rubber body molded with a depression or recess in its face, a face-hardening device resting in said depression, and a covering and retaining sheet or strip of rubber, the whole combined to operate substantially as described.

187,655. BILLIARD-TABLE CUSHIONS. J. E. Maynadier, Boston, Mass., assignor to H. W. Collender, New York, N. Y. [Filed Jan. 11, 1877.]



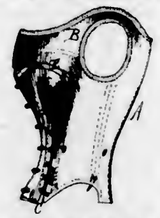
A billiard cushion composed of a single piece of rubber having an extension or flap, *b*, a cavity or depression, *d*, and a face-hardening strip, *r*, secured in place by said flap, all substantially as and for the purpose set forth.

187,656. BILLIARD-TABLE CUSHIONS. J. E. Maynadier, Boston, Mass., assignor to H. W. Collender, New York, N. Y. [Filed Jan. 11, 1877.]



Molding the rubber strip with a flap, or in form as shown in cross-section, to fold over onto itself and around a face-hardening strip, substantially as set forth.

187,657. CORSETS. Charlotte A. McGee, Jackson, Mich. [Filed Oct. 31, 1876.]



1. The corset A, extended at the top to form the under-waist B, and having the lapels B', substantially as described and shown.

2. The garment described, consisting of the corset A, having the laced slits C each side of the steels, and the skirt-supporting device F G and the extended part B, forming an under-waist, the lapels B', and the breast-springs E, all constructed and arranged substantially as described and shown.

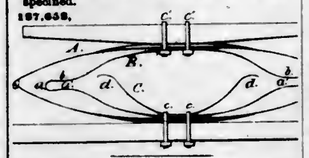
187,658. VEHICLE-SPRINGS. James W. McGowen, Marlborough, N. C. [Filed Aug. 16, 1876.]

1. The improved combination-spring for vehicles herein described, consisting of an outer elliptical spring, A, in combination with the auxiliary spring B, bent at *a* and *a'*, and stretched between the clips *c c* and *c' c'*, by which the outer spring is secured to the running-gear and wagon-bed, substantially as and for the purpose hereinbefore set forth.

2. In combination with the spring A, having the inner auxiliary spring B, constructed as described, the semi-elliptical spring C, bent at *d d*, and arranged within spring B, substantially in the manner and for the purpose hereinbefore set forth.

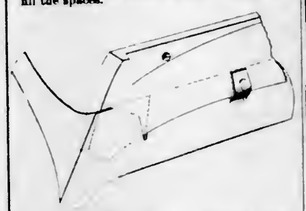
3. An auxiliary spring, B, for vehicle-springs, consisting of one or more pieces of tempered steel, bent at *a* and *a'*, substantially as and for the purpose herein shown and specified.

187,658.



187,659. PLOW-POINTS. A. L. McIntyre, Toledo, Ohio, assignor of one-half his right to B. G. Peckham, same place. [Filed Jan. 20, 1877.]

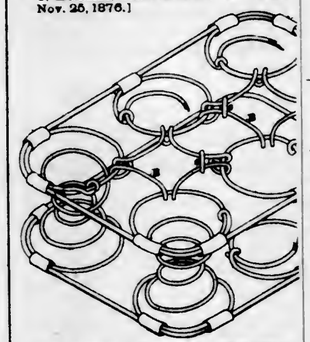
Brief.—A socket-point to go upon a worn share. Lugs and socket-pieces cut from the share, and having pieces of metal welded in to fill the spaces.



1. A removable plow-share provided with the lug C, formed from a part of the same, and having the space filled by a piece, D, substantially as set forth.

2. The plow-share provided with socket I, to receive the plow-point, formed by cutting away a portion of the share, and welding either a part of, itself or a separate piece of metal over the cut-away portion, substantially as set forth.

187,660. SPRING-MATTRESSES. Alexander C. McMains, San Francisco, Cal. [Filed Nov. 25, 1876.]

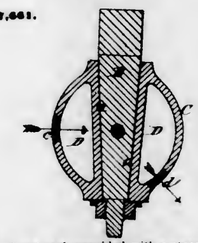


The connecting wire or brace *s* for uniting the hooked ends of the four-armed connecting-link B, substantially as and for the purpose described.

187,661. PET-COCKS FOR STEAM-ENGINES. Mathew Meehan, Athens, Pa. [Filed Sept. 29, 1876.]

Brief.—The pet-cock is provided with a steam-jacket. To prevent freezing a current of steam is passed around the cock where it joins the barrel.

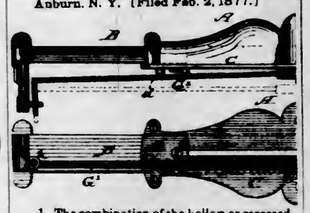
187,661.



1. A pet-cock provided with a steam jacket or chamber, C D, encompassing the intermediate junction of water-tube *b* and cock B, around which junction the steam enters, circulates, and passes out, substantially as described.

2. In a pet-cock provided with a steam-jacket, as described, the inlet-port *c*, arranged in such position as to cause the warming steam-jet to impinge directly upon the junctions of cock and barrel, in combination with the outlet *d*, for the purpose set forth.

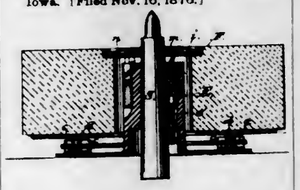
187,662. WINDOW-CORNICES. A. Michel, Auburn, N. Y. [Filed Feb. 2, 1877.]



1. The combination of the hollow or recessed center part A, the back plate C, with slot *a*, and the end parts B B, with stops *b b*, substantially as set forth.

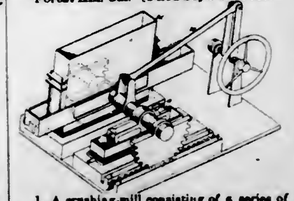
2. The tubular rod G, with interior sliding rod G', in combination with the extension window-cornice A B, substantially as and for the purposes herein set forth.

187,663. PACKING FOR MILL-SPINDLES. Enoch Moore and David Moore, Vinton, Iowa. [Filed Nov. 16, 1876.]



The flanged ring F in the eye of the bed-stone, in combination with the flexible disks *i* and *m*, and the metallic concavo-convex plate *n*, provided with projections on its periphery, all operating substantially as and for the purpose set forth.

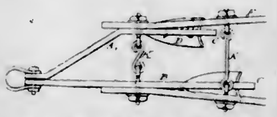
187,664. QUARTZ-MILLS. Allen Oliver, Forest Hill, Cal. [Filed Sept. 4, 1876.]



1. A crushing-mill consisting of a series of curved-faced crushers located in a series of parallel batteries, and upon a shaft provided at each end with segmental pinions, said crushers having a reciprocating motion imparted by pitmen H and racks F, as set forth.

2. The crushing roller or weight C, provided with a circular lower face and a straight upper side, said upper side being ridged and provided with a curb or raised flange, O, in combination with the box M, substantially as and for the purpose described.

187,665. PLOW-COUPLINGS FOR DOUBLE SHOVELS. Chas. W. Oneal, Shop Spring, Tenn. [Filed Oct. 14, 1876.]

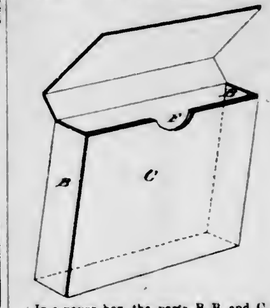


The plow having the long straight rudder-beam B in line with the draft, and the short blades I, and gauge-covered openings *y*, the space between the inner and outer cylinders being filled with a suitable fibrous material, substantially as described.

2. The pipes R and S, connecting the compartments B and C, the said pipes being of glass, and thus serving the double purpose of conduits and gages, substantially as described.

3. The combination, with the case A, of the glass gage and conduit-pipes, and the drum laterally-bent beam A, having its clevis and rear ends parallel with the beam B, the handles F, connected to the parallel portions of said beams, the links K K', and the clevis-pin *s*, whereby the clevis ends of the straight and bent beams are pivoted together, substantially as specified.

187,666. PAPER BOXES. Bennet Osborn, Newark, N. J. [Filed Dec. 23, 1876.]



In a paper box, the parts B B and C, respectively cut away at *f*, *f'*, and *f''*, so as to form recess F in the upper edge of the front of said box, substantially as set forth.

187,667. CARBURETERS. Jno. J. Paquette, New Orleans, La. [Filed Dec. 27, 1876.]

Brief.—Oil is fed from the reservoir above to the carbureting chamber below. Air enters the revolving carbureting-drum by a pipe at the axle, which opens above the hydrocarbon liquid, and is forced through the absorbent packing in the drum by its curved blades

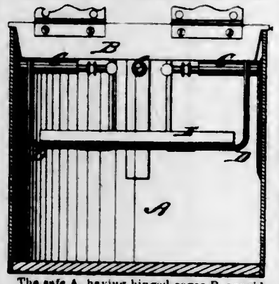
into the central wire-gauze cylinder, from which it escapes at the end, and passes to the eduction-pipe leading from the outer case.

1. The combination, with the case A, of the drum F, having the wire-gauze cylinder H, blades I, and gauze-covered openings *y*, the space between the inner and outer cylinders being filled with a suitable fibrous material, substantially as described.

2. The pipes R and S, connecting the compartments B and C, the said pipes being of glass, and thus serving the double purpose of conduits and gages, substantially as described.

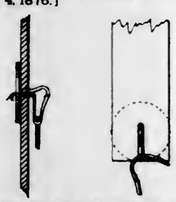
3. The combination, with the case A, of the glass gage and conduit-pipes, and the drum F, having the cylinder H, and interposed fibrous material and wire-gauze-covered openings *y*, substantially as described.

187,668. TOBACCO-SAFES. L. C. Parker, Robinson, Kans. [Filed Nov. 20, 1876.]



The safe A, having hinged cover S, provided with fastenings C, suspending devices D, evaporating-water pan E, rubber packing on edge of cover B, substantially as and for the purpose set forth.

187,669. FASTENERS FOR HAT-CORDS. F. B. Phillips, Barre Centre, N. Y. [Filed Dec. 4, 1876.]



A button having a shank bent on a line with its horizontal face, and forming a converging loop, substantially as shown and described, and for the purpose set forth.

187,670. HARTE-AUGERS. O. H. Polley and D. W. Toles, Plymouth, Mich. [Filed Mar. 6, 1876.]

Brief.—To the lower end of the auger is attached an adjustable feed-gage to regulate the depth of cut.

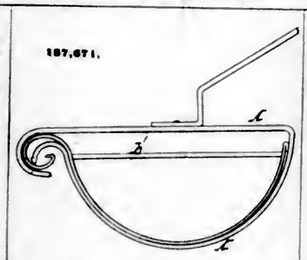


The combination of the adjustable feed-gage E with the body A of the auger, substantially as herein shown and described.

187,671. EAVES-TROUGH HANGERS. Frank Rahte, Fond du Lac, Wis. [Filed Aug. 25, 1876.]

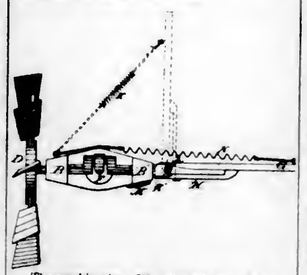
The eaves-trough hanger consisting of the strap of metal A, curved so as to underlap the beaded or curved portion of the trough, thence sprung around and across the same, and again curved so as to overlap the said beaded portion of trough, substantially as shown and described.

187,671.



187,672. WIND-WHEELS. S. Rittenhouse, Pioneer, Ohio. [Filed June 16, 1876.]

Brief.—The vane is held parallel to the wheel by a spring in its normal position, keeping the wheel out of the wind. By means of the cord the vane may be pulled around to throw the wheel into the wind.



The combination of the pivoted frame B, carrying wind-wheel D, spring K, vane G H, chain L, and pulley M, all arranged to operate substantially as and for the purpose hereinbefore set forth.

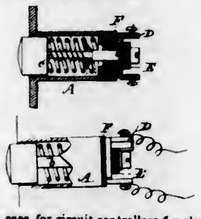
187,673. EXTENSION DEVICES FOR CHANDELIERS. Jacob Roberts, Brooklyn, N. Y. [Filed Jan. 17, 1877.]



1. The combination of the outer tube D, the inner slide or tube E, having one or more inclined faces, *b b*, the incline-faced dog G, controlled by a counterbalance weight or spring, and the rod H, substantially as and for the purpose or purposes herein set forth.

2. The combination of the coiled spring *d* with the mainspring-drum C, the incline-faced dog G, the inner slide or tube E, having one or more inclined faces, *b b*, and the outer tube D, substantially as specified.

187,674. CIRCUIT-CLOSERS FOR BURGLAR-ALARMS. W. H. Sawyer, Philadelphia, Pa. [Filed Jan. 16, 1877.]



1. A case for circuit-controllers for electric burglar-alarms, consisting of a section of a cylinder of plain unbroken exterior, and flanged at one end, and adapted to be applied as herein described, and having the circuit breaking or closing mechanism secured thereto, substantially as and for the purpose set forth.

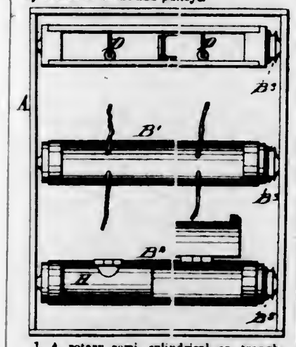
2. The combination of a plain cylindrical flanged case, as shown, an interior piston with a head filling loosely the area of the open end of the cylinder, and projecting therefrom, a spring, and contact-points, insulated and arranged substantially as and for the purpose set forth.

3. The combination of the contacts D *e*, insulators E F, the piston, and spring, all arranged in relation to the case A, substantially as shown and described.

4. The combination, with the case, spring, and insulators, of the valve-seated contacts, substantially as shown and described.

187,675. DEVICES FOR EXHIBITING WALL-PAPER. Chas. A. Sexton, Topeka, Kans. [Filed Jan. 6, 1877.]

Brief.—Semi-cylindrical shells, provided with devices to hold the rolls of paper therein, are arranged in a frame, with the open side of each shell downward. The shells are rotated by means of cords and pulleys.



1. A rotary semi-cylindrical or trough-shaped shell, provided with paper-fastening devices, for the purpose set forth.

2. Frame A, provided with rotary shells B B^1 B^2, substantially as set forth.

3. A rotary shell provided with pulley and cord attachments and paper-fastening devices, substantially as set forth.

4. A rotary shell, in combination with metal clamp D, curved at d^2, and attached substantially in the manner as described, and for the purpose set forth.

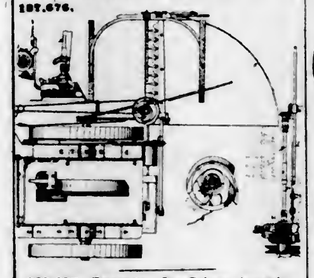
187,676. HARVESTER-RAKES. E. Smith, Bellaire, Ohio. [Filed July 18, 1873.]

Brief.—The wheel to which the rake-arm is hinged and the guiding-cam are supported upon the inner reel-standard, and are concentric with the reel-driving shaft.

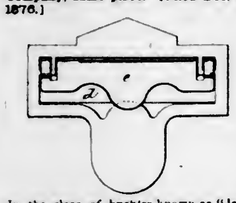
1. The laterally-adjustable reel-standard L, constructed with a sleeve, *u*, on its base O, surrounding the reel-driving shaft P, inside of the rake-carrier T, constructed and arranged substantially as and for the purpose herein specified.

2. The combination of the carrier T, with its ratchet-pawl U, the driving-shaft P, with its ratchet-teeth *y y*, and the movable gate V, operating substantially as described, and for the purpose herein specified.

187,676.



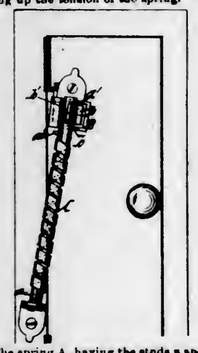
187,677. BUCKLES. Jno. Splann, Ansonia, Conn., assignor to Osborne & Cheeseman Company, same place. [Filed Dec. 20, 1876.]



In the class of buckles known as "lever-buckles," the lever *c*, hung in a recess in the front of the frame, and substantially flush with the outer surface of the frame, combined with the depressed bearing-bar *d*, substantially as described.

187,678. DOOR-SPRINGS. A. A. Stimson and C. T. Sabin, Montpelier, Vt. [Filed Dec. 9, 1876.]

Brief.—A suitable spring, preferably made from flat or ribbon strips of sheet metal coiled into tubular form, is attached by suitable studs or short cylinders, one of which, at the upper end of the spring, is provided with radial arms and suitable holes or orifices. There is also secured to the door a suitable boss or receptacle, in which is formed a seat, upon which one of the radial arms rests and is held, while another of the arms is kept in place by a plate attached to the receptacle, the use of a pin or short lever in the holes giving ready means of keying up the tension of the spring.

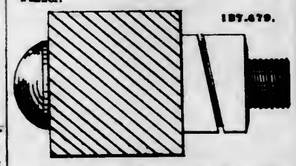


The spring A, having the studs *a* and a^1, the latter provided with radial arms or plates *b b*, and adjusted in a seated flanged boss or receptacle, B *c d*, substantially as and for the purpose set forth.

187,679. NUT-LOCKS. Hiram C. Stouffer, Canfield, assignor of one-half his right to Lemuel T. Foster, Youngstown, Ohio. [Filed Sept. 11, 1876.]

Brief.—Both nut and washer are grasped by the wrench and advanced together till the washer strikes the fish-plate. The washer is then released, and the nut turned on the washer.

187,679.



The combination, with a bolt, of a wedge-shaped nut and a wedge-shaped washer or follower, the nut and washer having in cross-section like size and shape, and their meeting surfaces being planes without locking recess or projection, and being oblique to the axis of the bolt, whereby both may be worked on or off the bolt together, and either may turn in either direction to lock the nut on the bolt.

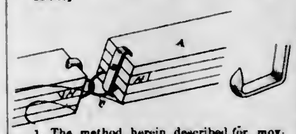
187,680. STUDENTS' CHAIRS. W. F. Taylor, Medina, N. Y. [Filed Jan. 9, 1877.]

Brief.—The leaves form a table or book-support in front of the occupant of the chair. The curved supports on which they rest are adjustable vertically by means of their stems or rods, which pass through brackets attached to the chair-arms, and are held by set-screws. The leaves are also adjusted laterally in the arc of a circle by means of the curved recessed cleats on their under face engaging with and moving on the curved supports, the rear corners of the leaves being suitably hinged to the side standards of the chair-back.



The chair A, provided with the arms B and brackets *b b*, in combination with the leaves E, provided with the cleats *c c*, and the supports D D, provided with the stems *a a*, all constructed to operate substantially as and for the purpose set forth.

187,681. METHODS OF CONNECTING LUMBER FOR TRANSPORTATION IN FLUMES, &c. W. H. Thurman, Borden, Cal. [Filed Oct. 27, 1876.]

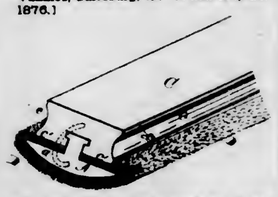


1. The method herein described for moving lumber in flumes, the same consisting in uniting the lumber into piles, and then binding it together by clamps, substantially as described.

2. The method herein described for uniting and bonding the piles of lumber, the same consisting of the clamps B, constructed to clasp the ends of the pile, and the keys H, the whole operating substantially as described.

3. The within-described method of uniting piles of lumber for transportation in flumes or artificial water-courses, when the same consists in the combination of the piles A A, clamps B B, and cords or ropes C C, in the manner and for the purpose herein set forth.

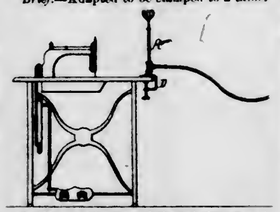
187,682. BLACKBOARD-RUBBERS. Peter T. Vannice, Galesburg, Ill. [Filed May 24, 1876.]



The combination of the strip or flat piece of rubbing material D with blocks A and C, united by a T-shaped tenon, and having the binding-surfaces *a' c'*, substantially as described, and for the purpose specified.

187,683. PORTABLE DROP-LIGHTS. Chas. I. Wallace, Philadelphia, Pa. [Filed Jan. 19, 1877.]

Brief.—Adapted to be clamped to a table.

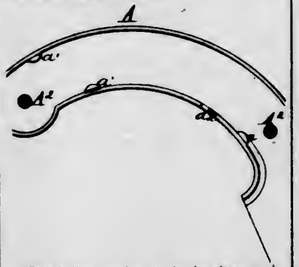


1. The combination of the tubular stem A, its burner *a*, and branch *c*, for a flexible tube, with the clamp D, substantially as specified.

2. The stem A, having a burner and a branch, *c*, and constructed at its lower end forready attachment to, and detachment from, a clamp or base, substantially as set forth.

187,684. PLOW-HANDLE TIPS. W. Weaver, Havana, N. Y., assignor of one-half his right to G. S. Weaver, same place. [Filed Aug. 5, 1876.]

Brief.—The construction of the hand portion or tip, made in two parts, secured together by lugs and bolts.



The hollow section A, having lugs *a a'*, tooth a^2, and the flaring lip A^2, in combination with the hollow section A^1, recessed to receive the tooth a^2, and provided with the flaring lip A^2, substantially as described, and for the purpose set forth.

187,685.

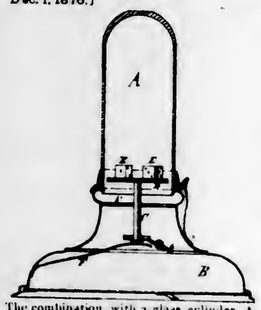


THE GRAPHIC CO. N.Y.

187,685. HORSESHOE-NAILS. L. Weaver, Seymour, Conn., assignor to the Fowler Nail Company, same place. [Filed Oct. 2, 1876.]

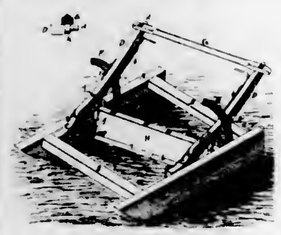
As an article of manufacture, the herein-described horseshoe-nail, the bearing or edges of the under portion of the head of substantially A shape in transverse section, substantially as specified.

187,686. DICE-BOXES. J. Wedeweiler, Chicago, Ill., assignor of one-half of his right to M. Shmitz, same place. [Filed Dec. 1, 1876.]



The combination, with a glass cylinder, A, hinged to a foot-piece, B, of a plate, D, secured to a stem, C, a spring, F, and cam-bars A on shaft G, substantially as described and shown.

187,687. ROAD-SCRAPERS. J. C. Welsh, Edgerton, Ohio. [Filed Oct. 11, 1876.]

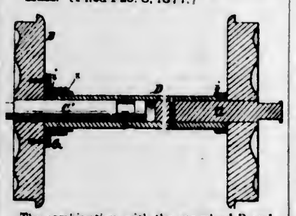


1. In a road-scraper, the combination of the plank H, with self-sharpening double bit I I, U shaped supports J J, with slots *x*, rods *f f*, and the handles D D, with bolts *i i*, substantially as and for the purposes herein set forth.

2. The combination of the hinged handles D D, having tenons *d d* on their upper ends, the cross-bar G, with loops or bands *h h*, the rack-bars E E, loops *e e*, and spring pawls *b b*, all substantially as and for the purposes herein set forth.

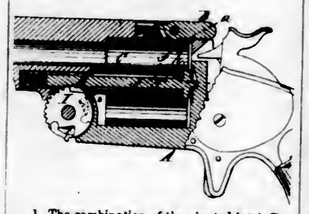
3. The combination of the sled A B, handle-supports C C, handles D D, the cross-bar G, jointed to the handles, the U shaped slotted supports J J, the plank H, and bit I I, all as and for the purposes herein set forth.

187,688. CAR-AXLES. W. Wells, Salem, Mass. [Filed Feb. 8, 1877.]



The combination, with the car-wheel B and its axle C, of the sleeve or cylinder D, provided with the ring *i* at its end, the flanged box G, secured to the wheel and formed with the interior shoulder *x*, and the packing *h*, substantially as and for the purposes herein set forth.

187,689. REVOLVING FIRE-ARMS. Danl. B. Wesson and Jas. H. Bullard, Springfield, Mass. [Filed Jan. 29, 1877.]

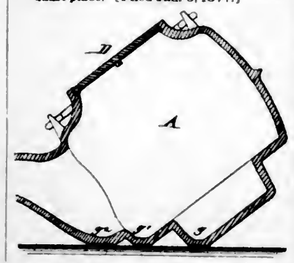


1. The combination of the pivoted latch D, provided with the projection *a*, and the cylinder C, substantially as and for the purpose described.

2. The combination of the cylinder, provided with an internal screw-thread, *h*, and the stem *e*, provided with a corresponding screw-thread, *g*, and recess *f*, substantially as and for the purpose set forth.

3. The combination of the oscillating or rotating lifter I with its catch F pivoted therein, and operating substantially as and for the purpose described.

187,690. TEA-KETTLES. L. A. White and G. W. Lewin, North Digbton, Mass., assignors to themselves and Jos. B. Warner, same place. [Filed Jan. 6, 1877.]

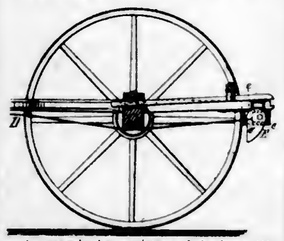


1. The combination, with the sliding cover D of a tea-kettle, of the seats *e e*, arranged substantially as and for the purpose specified.

2. The combination of the kettle A, having lug *f*, with the spring-catch *f'*, of the recessed lid-handle D', substantially as described.

3. A tea-kettle, having laterally flattened or cut off portions or seats *g g' g²* at the bottom, body, and spout in the longitudinal axis of the kettle, substantially as shown and described.

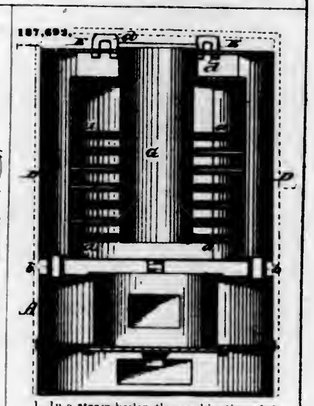
187,691. WAGON-BRAKES. Wm. O. Williams, Pierrepont Manor, N. Y. [Filed Jan. 21, 1876.]



A wagon brake consisting of the lever D', rod D, spring *d'*, brake-bar C, having shoes E E pivoted thereto, said shoes being cam-shaped, and so arranged that when the brake is thrown on, the shoes shall first strike the wheels at their points *e e*, and then, through the revolution of wheel, be fully brought in contact therewith, substantially as described.

187,692. SECTIONAL STEAM-BOILERS. W. H. Wilson, Westfield, N. Y., assignor of two-thirds his right to J. N. Stevens and R. D. Rockwell. [Filed Sept. 5, 1876.]

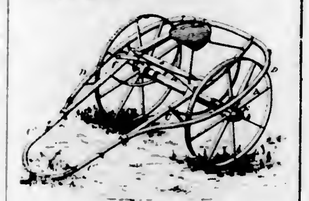
187,693.



1. In a steam-boiler, the combination of the annular base A and the segmental sections D, constructed so as to receive the removable magazine G, and connected together at the top and to the base at the bottom, substantially as herein set forth.

2. The combination of the annular base A with the sections D E, with pipes *a*, nipples *b*, and return-bends *d*, and the removable magazine G, all substantially as and for the purpose herein set forth.

187,695. TROTTING-SULKIES. J. W. Wood, Owatonna, Minn., assignor of one-half his right to Chas. Schoen, same place. [Filed Dec. 9, 1876.]



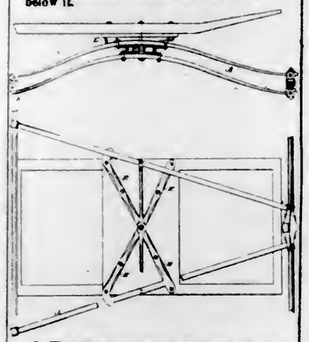
1. The hinged ends C', combined with shafts or thills C, substantially as and for the purposes set forth.

2. The fender D, combined with shafts C, substantially in the manner and for the purposes set forth.

3. The combination of fender D, braces E, and nut *b*, substantially as and for the purposes set forth.

187,694. VEHICLE-GEARING. D. G. Wyeth, New Way, Ohio. [Filed Sept. 30, 1876.]

Brief.—Springs in pairs, and forming, with the rear axle, a triangle. One spring of each pair is coupled above the axle, and the other below it.



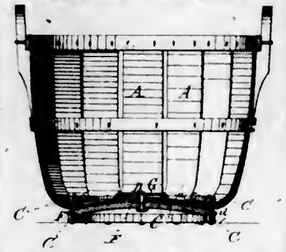
1. The triangular braces E and the blocks C, in combination with the pairs of springs

and body of a vehicle, substantially as shown and described.

2. The upper and lower bearers H H', the clips I and K, and the two pairs of springs A, arranged in a triangular relation to the rear axle, all combined as shown and described, whereby the upper and lower springs of each pair are connected to the axles, respectively, above and below the latter, as and for the purpose specified.

3. The front bearers H and H', curved as shown and described, and provided with sockets having pivot-bolts, arranged diagonally, as and for the purpose specified.

187,695. STAVE BASKETS. H. C. Jones, Dowagiac, Mich. [Filed Aug. 17, 1875.]

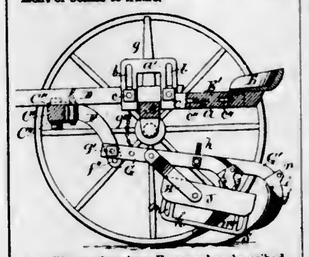


The combination of the staves A, hoops C, rib F, and cap G, substantially as and for the purpose set forth.

REISSUES.

7,513. CORN-CULTIVATORS. A. Canfield, Davenport, Iowa. Patent No. 155,419, dated Sept. 29, 1874. [Filed Jan. 16, 1877.]

Brief.—Reversible stirrups on plow-beams. Adjustable tongue. Curved bars for attachment of beams to frame.



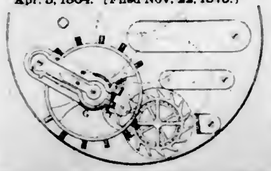
1. The pendent bars F, curved as described, and arranged to operate with the plates C'', carrying the bolt *f*, bar C', and having the holes *f''*, for the adjustment of the beams G G', substantially as described, and for the purpose specified.

2. The vertically-adjustable arched irons *a a*, in combination with the tongue D and seat-beam E', substantially as and for the purpose specified.

3. The arched plates *a*, secured to the tongue, as described, and having slots *c''*, combined with the bar E' and bolts *c'*, substantially as and for the purpose specified.

4. The reversible foot or stirrup braces, combined with the shovel-beams, substantially as and for the purpose specified.

7,514. REGULATING WATCHES. C. Fasoldt, Albany, N. Y. Patent No. 42,175, dated Apr. 5, 1864. [Filed Nov. 22, 1875.]



1. In combination with the time-regulating mechanism of a watch, the regulating-screw F, as and for the purpose herein set forth.

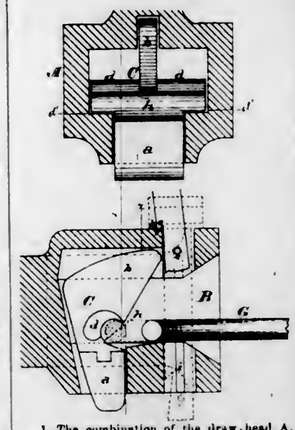
2. The combination of the regulating-screw F and loop or fork H, with the hair-spring G, as and for the purpose specified.

3. The combination of the regulating-screw F, loop or fork H, and stud D, with the hair-spring G, as and for the purpose specified.

4. The combination of the spring C and regulating-screw F, as and for the purpose set forth.

5. The combination of the stud D with the set-screw E, substantially as and for the purpose specified.

7,515. CAR-COUPLINGS. W. Gray, Davenport, Iowa, administrator of Joab Enos, deceased; said Enos assignor, by mesne assignments, to the Enos Car Coupling Company, Chicago, Ill. Patent No. 150,309, dated Apr. 28, 1874. [Filed May 15, 1876.]



1. The combination of the draw-head A, having shoulders within a chamber, which constitute the bearing-surfaces for the support of the toggle, and the toggle C, provided with arms or flanges *d*, by which it is supported, and on which it vibrates, substantially as described.

2. The draw-head A, having a chamber provided with shoulders *d'*, for supporting the toggle, and recesses, so that the toggle can vibrate on said shoulders, substantially as specified.

3. The combination of the draw-head A, having an ordinary flaring mouth, B, loose toggle C, constructed as described, with supporting-flanges *d*, concavity *h*, and weighted ends *a b*, and coupling-link G, whereby the link may be held in a horizontal position by the toggle, but at the same time may be moved in any direction desired, to facilitate the coupling of the cars together, substantially as set forth.

7,516. MACHINES FOR MAKING AND SETTING BLIND-STAPLES. J. Keith, Providence, R. I., assignor to H. G. Thompson. Patent No. 112,719, dated Mar. 14, 1871; reissue No. 7,094, dated May 2, 1876. [Filed Dec. 18, 1876.]

Brief.—The staple-blank is severed, bent, held, and guided for driving by a reciprocating bending-fork having a cutting-edge, and provided with internal longitudinal grooves.

1. In combination with the supporting-table C, the sliding and feeding carrier plate *f*, the bender-plate or fork *t*, provided with a cutting-edge, *s*, and the driving-rod *b²*, all combined and arranged to operate substantially as hereinbefore set forth.

2. In combination with the mechanism for cutting, forming, and driving the wire staples, the cutters *c²*, whereby the wire is nicked, substantially in the manner and for the purpose hereinbefore set forth.

3. The bender-plate *t*, having a longitudinal opening for the driver *b²*, and a slot, *u*, for the beak *q*, as and for the purposes specified.

4. The combination of the bender-plate *t*, the driver *b²* working within it, and the beak *q*, the beak leaving the staple as the driver operates, all substantially as described.

5. The combination of the bender-plate *t*, driver *b²*, beak *q*, and mechanism, substantially such as is described, for pressing the bender plate upon the material to be stapled, and holding it there while the hammer operates, the whole combination being and operating substantially as described.

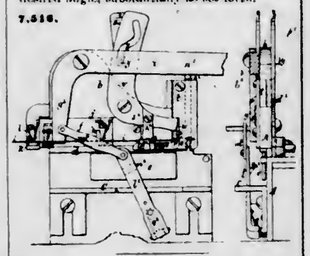
6. In combination, the wire-feeding mechanism, the staple-forming mechanism, and the staple-driving mechanism, substantially as described, the driver *b²* being arranged with relation to the staple-forming mechanism, as and for the purposes specified.

7. In combination, the levers *r* and *x*, pin *y*, bent slot *z*, and bender-plate *t*, substantially as described.

8. In combination with the feeding, cutting, bending, and driving mechanism hereinbefore described, the driver *b²* and link *m²*, for effecting the feed movement of a slat-rod, substantially as set forth.

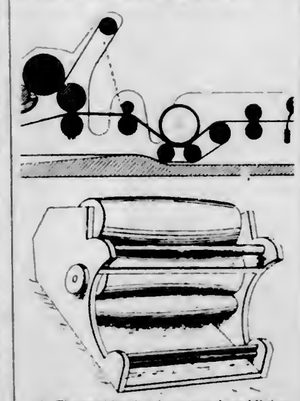
9. In combination with the staple forming and driving mechanism hereinbefore described, the die-plate or cutter *r*, whereby both ends of the staple are pointed at any desired angle, substantially as set forth.

7,516.



7,517. APPARATUS FOR LINING PAPER-BOARD. H. L. Palmer, Brooklyn, N. Y., assignor, by mesne assignments, to B. C. Faurot, trustee. Patent No. 87,359, dated Mar. 2, 1869; reissue No. 4,951, dated June 18, 1872; reissue No. 5,471, dated July 1, 1873. [Filed Nov. 11, 1876.]

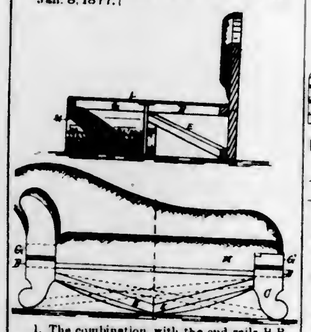
Brief.—The paste-roll, revolving in a trough, feeds paste to the surface of a distributing roll in contact therewith, which, in turn, transfers the paste to a sheet of lining-paper passing between said distributing-roll and a pressing roll, which lining-paper is then brought into contact with a sheet of straw board, and the two sheets pass unitedly between pressing-rolls and under a drying-cylinder.



1. The combination, in a straw-board lining-machine, of a paste-reservoir, a paste-roll, a distributing-roll, and a feeding-press roll, for feeding, pasting, and pressing the thin lining-paper, with a roll for bringing the straw-board in contact with the lining-paper and uniting them, all constructed and operating substantially in the manner and for the purposes set forth.

2. The combination, in a straw-board lining-machine, of a paste-reservoir, a paste-roll, a distributing-roll, and a feeding-press roll, for feeding, pasting, and pressing the thin lining-paper, with a roll for bringing the straw-board in contact with the lining-paper and uniting them, and a drying-cylinder, all constructed and operating substantially in the manner and for the purposes set forth.

7,512. SOFA-BEDSTEADS. D. J. Powers, Chicago, Ill., assignor to Union Wire Mattress Company, same place. Patent No. 170,687, dated Dec. 7, 1875. [Filed Jan. 8, 1877.]



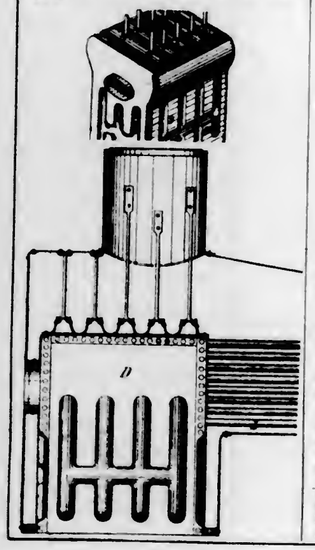
1. The combination, with the end rails B B and G G' of a folding lounge or sofa, of the wire-fabric bed-bottom I, attached at its ends to the said rails, and adjusted to fold with the rails G G', and lengthwise of the fabric, substantially as and for the purpose specified.

2. The combination, with the end rails B B and G G', of the braces E E, substantially as and for the purpose specified.

3. The cushion M, hinged to the end rails G G', and adapted to drop away from the fabric I, when the lounge is unfolded, and to rest upon or above the fabric when folded, substantially as specified.

7,519. LOCOMOTIVE FIRE-BOXES. G. W. Tilton, Chicago, Ill., assignor, by mesne assignments, to himself, M. Sellers, and J. Penkoth. Patent No. 174,097, dated Feb. 29, 1876. [Filed Feb. 7, 1877.]

Brief.—Unequal expansion and contraction is provided for by the corrugations, and the plates are also strengthened by the same means.



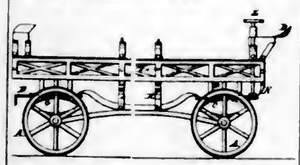
1. In a rectangular fire-box, a corrugated crown-sheet, having an uncorrugated riveting-edge, the plane of such edge being even with or below the depressions *c*, substantially as and for the purposes set forth.

2. The rectangular fire-box D, having the corrugated crown-sheet *a*, as described, and corrugated side and end sheets, as described.

3. A fire-box, side or end sheet, corrugated with corrugations transverse to or crossing each other in the same side or end, substantially as set forth.

7,520. HOOK-AND-LADDER TRUCKS. Jacob Schmidlapp, New York, N. Y. Patent No. 97,969, dated Dec. 14, 1869. [Filed Dec. 14, 1876.]

Brief.—Reissue of No. 97,969.



1. In a hook-and-ladder truck-frame, the string-pieces or side rails thereof made bridge-fashion or trussed, in combination with the ladder-supports or cross-bars J, constructed and arranged substantially as and for the purposes set forth.

2. The braces K, as a means of transmitting the strength or stiffness of the truck-frame to the reach, and the strength and stiffness of the reach to the frame, substantially as described.

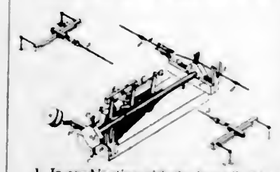
3. In a hook-and-ladder truck; the reach constructed with forked or branching ends F and G, whereby the branch F, by its downward-bent shape beyond its junction with the horizontal line of the body of the reach G becomes a brace, as and for the purposes set forth.

4. In a hook-and-ladder truck, the combination of the braces K with a reach constructed with forked or branching ends, F and G, substantially as and for the purposes described.

5. In combination with a hook-and-ladder truck-frame, the permanently fixed pilot-seat P attached thereto and at an elevated position above the ladders, substantially as described.

6. The combination of the adjustable steering-wheel spindle L, with a hook-and-ladder truck-frame, having a permanently fixed pilot-seat, P, attached thereto, and elevated above the ladders, as and for the purposes set forth.

7,521. CORN-PLANTERS. Alden Barnes, Bloomington, Ill., assignor of one-half interest to M. Barnes. Patent No. 132,792, dated Nov. 5, 1872. [Filed Jan. 16, 1877.]



1. In combination with the lever G, for operating the seed-slides of a corn-planter, an intermittently-rotating shaft, B, and actuating knotted chain J, substantially as described, and for the purpose specified.

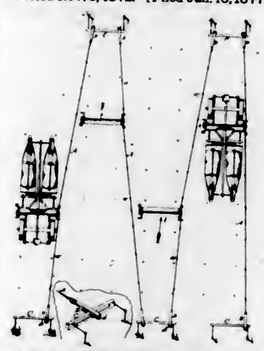
2. In combination with the knotted chain J and shaft B, for actuating the seed-dropping parts of a corn-planter, the series of radial forked levers *c*, arranged on said shaft B, so that the movement of one by contact with a knot will bring the next succeeding one into proper position for the action of the next succeeding knot, substantially as and for the purpose specified.

3. Bent levers E, connected by a link, *f*, in combination with actuating-wipers *d* and bar G, for operating the seed-dropping devices of a corn-planter, substantially as described, and for the purpose specified.

4. The intermittently rotating shaft B, having wipers *d*, arranged to operate with the bent levers E alternately, and the lever G and link *f*, substantially as described, and for the purpose specified.

5. The intermittently-rotating shaft B, having forked levers *c* on its ends and wipers *d* on its central part, combined with the knotted chain J, bent levers E, links *f f'*, and lever G, substantially as described, and for the purpose specified.

7,522. CORN-PLANTERS. Alden Barnes, Bloomington, Ill., assignor of one-half interest to M. Barnes. Patent No. 132,792, dated Nov. 5, 1872. [Filed Jan. 16, 1877.]



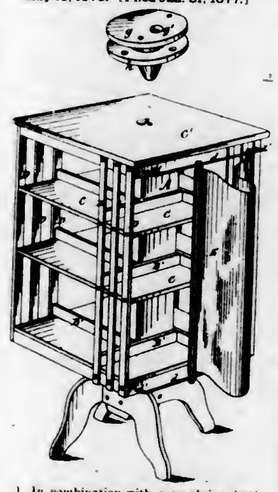
1. In combination with a corn-planter check-row chain, having knots *a'* formed by coiling a portion of wire around the main wire, substantially as described, and for the purpose specified.

2. In combination with a corn-planter check-row chain, and with the field-anchor, a traversing-bar, D, for connecting the check-row chain to the anchor, so that it may have lateral movement, substantially as described, and for the purpose specified.

3. The bar C, having an upper and lower limb arranged to operate with the bar D and check-row chain A, substantially as described, and for the purpose specified.

4. The bar C, staked to the ground, substantially as described, and arranged to operate with the bar D, pulley *d*, and check-row chain A, substantially as and for the purpose specified.

7,523. REVOLVING BOOK-CASES. J. Danner, Canton, Ohio. Patent No. 177,479, dated May 16, 1876. [Filed Jan. 31, 1877.]



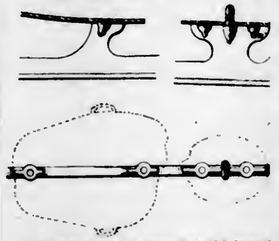
1. In combination with a revolving book-case, suspended from the top of a stationary post having an oil-cup bearing, A, the pendent spindle *g*, attached to the top shelf of the frame, and oil duct *i*, constructed substantially as and for the purpose described.

2. In combination with a revolving book-case, suspended from the top of a stationary post, F, the series of vertical strips D, located adjacent to the corners of the book-case, to support the outer end of the shelves and keep books from falling off, substantially as described.

3. In combination with a revolving book-case, suspended from the top of a stationary post, the series of horizontal bars B', to cover the joints and strengthen the case, substantially as shown and described.

4. The quadrangular platform or solid upper shelf C' of a revolving book-case, in combination with a vertical quadrangular hollow frame, A, and vertical strips D, to support a series of shelves from the top of a central post, substantially as and for the purpose described.

7,524. SKATES. O. Edwards, Florence, Mass. Patent No. 164,176, dated Aug. 18, 1874; reissue No. 6,410, dated May 4, 1875. [Filed Nov. 14, 1876.]



1. The standard of a skate, cast with lateral projections and a central rivet, substantially as described.

2. In a skate, the combination, with a foot or heel bearing plate, of a supporting-standard, having segmental brackets formed in the same piece therewith, and vertically supporting the plate on either transverse side of the standard, substantially as and for the purpose described.

3. In a skate, the combination, with metallic foot or heel plates, of a standard, the latter having plate-supporting brackets and a plate-engaging device formed in the same piece therewith, substantially as and for the purpose described.

4. The combination, with the foot or heel plates, of a skate-standard, which latter has lateral supporting-brakets and a central plate engaging device, all formed in a single piece, substantially as and for the purpose described.

5. The runner of a skate, whose sole and heel standards have their respective plate-connecting rivets provided with enlarged bases, and made of the same piece with the runner, substantially as described.

6. A skate-heel standard, having its plate-engaging mechanism constructed with lateral projections, and formed in the same metallic piece with the button, which secures the heel of the skater to its plate, substantially as and for the purpose described.

7. The runner of a skate having a widened tread, and constructed with plate-supporting and connecting mechanism, all made in the same metallic piece, substantially as and for the purpose described.

8. A skate-runner, having its bottom constructed with a laterally-projecting rib, and its standards provided with plate-supporting brackets, all made in a single piece of metal, substantially as and for the purpose described.

7,525. MACHINES FOR OPENING COTTON, &c. Wm. C. Jillson and A. B. Palmer, Willimantic, Conn. Patent No. 110,368, dated Dec. 20, 1870; reissue No. 4,312, dated Mar. 28, 1871. [Filed Feb. 8, 1877.]

Brief.—The fibrous material is operated upon by yielding and revolving whipper-rods or beaters, which are attached by their ends to the cross-bars connecting the drum-heads. Said cross-bars have coils of wire or washers surrounding them, for regulating the distance apart of the beaters, and causing one series or row to be out of line with the preceding series or row.

1. In a machine for opening fibrous material, the combination, with an inclosing shell or case, of a series of yielding whipper rods or arms, arranged and rotating within said shell or case, substantially as and for the purpose described.

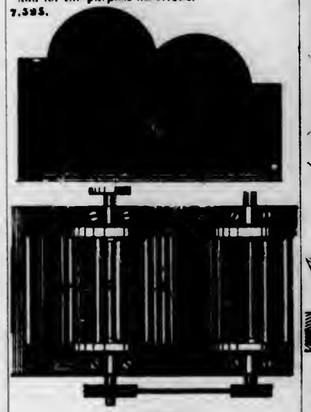
2. In a machine for opening fibrous material, the combination of revolving pivoted whipper rods or arms and an inclosing shell or case for confining the fibrous material while being acted upon by the whippers, all substantially as described.

3. In a machine for opening fibrous material, two or more reels or pulleys, provided with hinged or pivoted whipping-rods, in combination with two or more shells or concaves, these parts being constructed and arranged substantially as shown and described, whereby the material, after being partially opened by the first set of whippers, shall be fed to the second set of whippers by the action of the first, substantially as set forth.

4. In combination with the whipper-rods and reel-bars, constructed as shown, the elastic sleeves for separating the whipper-rods, and allowing them to yield laterally, substantially as set forth.

5. In a machine for opening fibrous material, the combination, with a rotating drum, of the several rows or series of yielding whipper rods or arms, the rods or arms of one row or series being arranged out of line with those of the preceding row or series, substantially as and for the purpose described.

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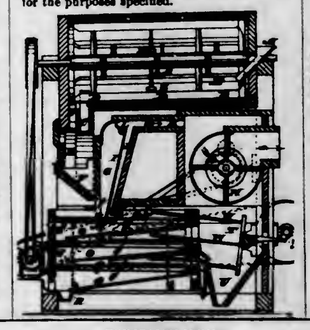
7,526. MIDDLINGS-SEPARATORS. J. P. Reel and A. J. Seyler, Cedarville, Ill. Patent No. 176,242, dated Apr. 18, 1876. [Filed Nov. 13, 1876.]

1. The spreaders a, arranged in passage E, above the chute F, projecting from one side thereof, partly across it, and inclined at different angles, as and for the purpose described.

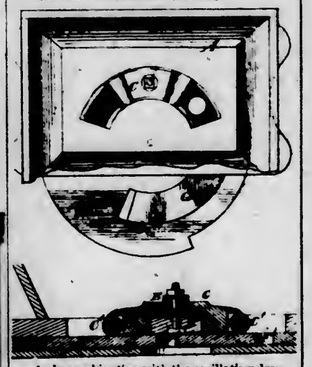
2. The combination, in a middlings-separator of the passage E, separator *d*, chute F, and spout G, arranged substantially as described with relation to each other, for the purposes set forth.

3. The spouts G and J, terminating at the top in the eduction-flue K, in combination with the feed board or floor M, and the valve L at the top of spout G, substantially as and for the purposes specified.

4. The series of knockers W, rigidly attached to a common vibratory shaft, X, as and for the purposes specified.



7,527. CORN-PLANTERS. D. W. Jacoby, Shelbyville, assignor to John A. Chessent, Springfield, and A. McKim Dubois, Carlinville, Ill. Patent No. 68,443, dated Sept. 3, 1867. [Filed Nov. 4, 1876.]



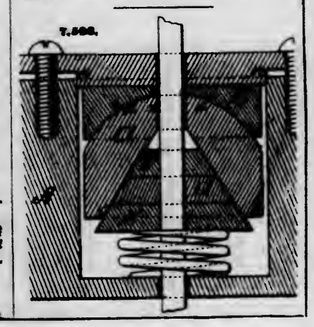
1. In combination with the oscillating dropper-plate F, a cut-off, C, having rollers C' at each end, bearing on the hopper-plate, to regulate the passage of seeds from the hopper to the hole A, substantially as set forth.

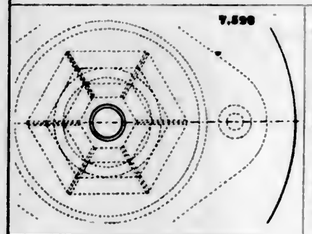
2. The semicircular plate G, for regulating the discharge-orifices F', substantially as set forth.

3. A cut-off, bearing at both ends in cutting-off grains in the dropper plate, in combination with a centrally-placed spring, bearing with adjustable tension against the cut-off, so that there shall be an equal and adjustable pressure on each end of the cut-off applied to grains coming under the cut-off from either side, substantially as set forth.

4. The combination of the centrally-supported and arched cut-off C and spring E with a cut-off plate having openings adjacent to either end of the cut-off, substantially as set forth.

7,528.





7,528.

7,528. PISTON-PACKINGS. J. T. Wright and M. Schneble, Dayton, Ohio. Patent No. 187,666, dated Dec. 8, 1874. [Filed June 17, 1876.]

1. The packing F G H, of the form of a pyramidal frustum, composed of segments *f g h*, applied around the rod, breaking joints with each other, and leaving a slight space between the ends of the segments, substantially as specified.

2. The combination, with a packing-box having a pyramidal chamber and a spherically-rounded end, *d*, of the packing F G H and the spherically-concave socket-plate E, substantially as specified.

3. The combination, with a packing-box having a central rod-opening expanding in wedge form toward the steam side and a spherically-rounded end, *d*, of a plano-concave socket-plate having through the central thin portion an opening slightly larger than the rod, adapted to receive the spherical end of the packing-box, substantially as specified.

4. The combination, with a sectional packing ring or rings, of a rocking bearing at one end and an elastic and yielding bearing at the other end of the box or case, in which the packing-rings are arranged to work, substantially as specified.

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COMMISSIONER'S DECISIONS.

WRIGHT AND BRYANT *vs.* SAMUEL W. REESE.—*Motion.*

[*In the matter of the interference between the application of J. T. Wright and O. G. Bryant, filed March 22, 1876, and the patent granted to Samuel W. Reese, February 1, 1876, for* "IMPROVEMENT IN STENCIL-PLATES."—*Decided January 30, 1877.*]

In computing the thirty days in which an appeal may be taken from the decision of the Board, the date of the notice of the decision is to be included.

Parties should take notice of delays in the arrival of mails when the same are of public notoriety, and not by negligence in acting subject themselves to such ordinary risks.

When the final fee has been paid by the successful party in an interference, and nothing remains to be done but to issue the patent, it will not be withheld for the purpose of declaring another interference with an application filed subsequent to the rendition of the judgment.

The same principle is applicable to a motion to reopen an interference after the limit of appeal has expired and the case gone to issue, and everything been done except the delivery of the patent.

DOOLITTLE, *Acting Commissioner:*

A motion is made to reopen the above-named interference on the ground that the appeal taken from the decision of the Board of Examiners-in-Chief to the Commissioner, although the notice of the same was received two days after it was due at the Office was, in fact, mailed from the place of sending, Chicago, within a time sufficient to have reached here before the limit of appeal had expired, and that the appeal fee having been deposited with the sub-treasurer in Chicago, the appeal should have been regarded as regularly taken.

The notice of the Office fixing the limit of appeal was dated December 11, 1876, and the expiration of the thirty days is regarded as having occurred on the 10th of January. Notice of appeal was not received until the 12th. No proof is adduced showing the cause of delay in forwarding the notice of appeal. From the time generally taken for letters to reach here from Chicago, it was possible for the notice of appeal to reach the Office in due time. But one mail a day, however, was at that time brought from the General Post-Office, and it is a well-known fact that mails were being delayed during that part of the month by snow-storms.

Parties should take notice of such matters, and not by negligence in acting subject themselves to such ordinary risks.

Another serious matter has since intervened, and that is the allowing of a patent to the applicant in whose favor the award of priority was given. The patent went to issue January 16, 1877, was numbered, signed, sealed, printed, and published, everything in fact having been done but the mere manual delivery of the same. To withhold the delivery of this patent now, in view of the above circumstances, which upon their face show a lack of diligence, to say the least, on the part of the patentee, in pushing his remedy by appeal, would be, I think, an extraordinary stretch of authority.

Under Office Rule 59 an application, after the final fee has been paid and nothing remains to be done but issue the patent, will not be withheld for the purpose of declaring an interference with another application filed subsequent to the rendition of the judgment, and I think the reopening of interferences should proceed upon the same principle. The applicants in such cases acquire rights which should not be withheld from them by reason of any laches on the part of opposing parties.

The motion is denied.

J. J. GRAY.—*Interlocutory Appeal.*

[*Appeal from the decision of the Primary Examiner in the matter of the application of J. J. Gray, filed October 9, 1876, for* "IMPROVEMENTS IN SCROLL-SAWS.—*Decided January 31, 1877.*]

Claims which recite definitely the article invented, and contain in addition matter descriptive of the functions of certain parts, are not objectionable.

A claim to a scroll-saw having a U-shaped frame, A, the arms of which are adapted to be lengthened or shortened in such manner as to increase or diminish the distance between the bend or cross-bar 1 of the frame and the saw-blade B as set forth, is not a claim to a function, but to a saw, the arms of which are adjustable to suit different material.

[*Carroll D. Wright and Brown,* attorneys.]

DOOLITTLE, *Acting Commissioner:*

The claim made by the applicant is as follows:

A scroll-saw, having a U-shaped frame, A, the arms of which are adapted to be lengthened or shortened in such manner as to

increase or diminish the distance between the bend or cross-bar 1 of the frame and the saw-blade B, as set forth.

The Examiner considers this a functional claim, and rejects it accordingly. It is difficult to perceive wherein the claim is objectionable. It recites definitely the article invented, and qualifies its structure by describing the function performed. Applicant has adopted, perhaps, the best method of claiming broadly a scroll-saw having the U-shaped frame, the arms of which may be adjusted by various contrivances. This, if new, applicant is entitled to secure by patent. The claim comes clearly within the decision in the case of Jeremiah Kieth, (9 OFFICIAL GAZETTE, 744.) The matter regarded as establishing a claim for a function is simply descriptive of the functions which the feature mentioned performs, and the manner of its construction.

The improvement desired to be here secured is evidently a saw, the arms of which are adjustable to suit different work. The precise devices employed, while embodying and including this invention, are not, perhaps, the exact measure of the improvement effected.

The decision of the Examiner is overruled.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—DISTRICT OF NEW JERSEY.

THE RUMFORD CHEMICAL WORKS *vs.* GEORGE V. HECKER.

[*In equity.—Before* NIXON, *J.*]

It is not the established practice in the second and third circuits to stay injunctions upon application of the defendant until the coming in of the master's report. On the contrary, the ordinary practice is for an injunction, as a matter of course, to follow a decree in favor of the complainant on the merits, unless the defendant is able to show that the equities between the parties demand the withholding of the injunction until after an accounting has been had.

[*C. A. Seward & C. M. Da Costa*, for plaintiff.
C. F. Blake, for defendant.]

NIXON, *J.*:

I have examined the two decrees respectively proposed by the counsel of the complainant and the counsel of the defendant, and the arguments by which they are sustained, and I am of the opinion that the form submitted by the counsel of the complainant should be approved. Without noticing a few verbal differences, it may be said that the chief contention between the parties may be reduced to three points:

1. Whether this court should decree affirmatively that the first, second, and third claims of the complainant's reissued patent are void, in the words of the decree in the suit pending in the circuit court of the United States for the southern district of New York, or whether it should simply decree that, as a matter of amity, it declines to adjudge the question of the novelty of these claims in view of the adjudication of the co-ordinate court.

Not holding the subject-matter to be *res judicata*, it seems to me that the form of the decree in this regard, proposed by the complainant, is the proper one. In its practical effect on the accounting, it will give to the defendant all the benefit of a direct adjudication that these claims are void for want of novelty; and at the same time it will not mislead, as it reveals the distinct ground on which the court declined to look into the question—to wit, that in comity it was not now an open one between the parties in this court.

2. Whether under the circumstances of the proceedings here and in the circuit court of the United States for the southern district of New York the decree should authorize the complainant to take a separate account for damages from June 9, 1868, to March 20, 1873, the period of accounting for gains and profits ordered in the New York suit.

In delivering the opinion of the court, I took occasion to intimate that I was inclined to believe that the fair construction of Section 4921 of the Revised Statutes only allowed a decree for the damages arising from the special infringement alleged in the bill of complaint. But the question was one of first impression. The counsel of the parties in the argument did not seem to have directed their attention especially to the points on which it turned. The statute was new and introduced extraordinary and anomalous methods in equity proceedings. Under these circumstances, I thought it was best for both parties to allow the complainant to have a separate accounting if, after the intimation of the court, it decided to risk the costs of failure to sustain its claim for damages, and to hear an argument on the question of construction on exceptions to the master's report.

I assumed, and still assume, that the accounting for gains and profits in the New York case during this period of time would make the labor comparatively light, as the materials needed for the two purposes are substantially the same. I find no reason, after considering the argument of the defendant's counsel, to change my opinion.

3. Whether the present is one of the class of cases where the court ought to withhold an injunction until after the accounting and the final decree.

It is undoubtedly true that there are such cases, although I do not assent to the proposition of the learned counsel of the defendant, that within a comparatively few years it has become the established practice in the second and third circuits to stay injunctions upon application of the defendant until the coming in of the master's report. No such practice has ever prevailed in this circuit, although sporadic instances may be found where the court has very properly listened to and heeded such applications. On the other hand, the ordinary practice is for an injunction, as a matter of course, to follow a decree in favor of the complainant on the merits, unless the defendant is able to show the court such facts and circumstances existing in the case as make it manifest that the equities between the parties demand the withholding of the injunction until after an accounting has been had.

Courts have the power to withhold it, and usually will do so, in those cases where, by granting the injunction, there seems to be more danger of producing an irreparable injury to the defendant than of preventing it on the part of the complainant. The injunction now proposed to be taken is drawn in the precise words used in the decree of March 20, 1873, in favor of the complainant, against the defendant, in the circuit court of the United States for the southern district of New York, as appears from the defendant's answer, filed in this suit.

But the defendant objects to it, in substance, because this court, in sustaining the validity of the fourth claim, has given it a different and broader construction than did Judge Blatchford in his opinion. I have not differed from that learned judge in the sense of contradicting his judgment, and I can hardly imagine a case in which I should feel willing to do so; but in construing this claim I have expressed an opinion in favor of its scope and meaning in accordance with the views of the complainant, which view, as I understand it, had previously been submitted to Judge Blatchford, and upon which, holding the matter under advisement, he has refused to pass until the coming in of the master's report.

While matters were in this condition there, the counsel for the complainant applied to the learned judge for an injunction to restrain the defendant from doing what the court had not yet determined they had no right to do, and he very properly refused to grant it. His refusal is now invoked by the counsel of the defendant as a reason why this court should refuse; but the circumstances are different. In the one case the judge was asked to grant an injunction in advance of his opinion, and in the other in conformity with it.

The long delay of several months, which seemed unavoidable in settling the decree, has given to the defendant ample opportunity for so arranging and adjusting his business that he need not suffer special practical inconvenience from an injunction. If he has not availed himself of such opportunity, it is not the fault of the court or the complainant. I find no circumstances connected with the past relations of the defendant to the complainant's patent, and no facts in the case which will justify me in taking it out of the ordinary course, or in refusing to the complainant the full benefit of a decree in its favor.

The injunction must accompany the decree.

U. S. CIRCUIT COURT—NORTHERN DISTRICT OF ILLINOIS.

GEORGE B. CORNELL *vs.* THE DOWNER AND BEMIS BREWING COMPANY AND HENRY M. BEMIS. GEORGE B. CORNELL *vs.* AMERICAN BUSH COMPANY AND GEO. W. GELLETT.

[*In chancery.—Before* DRUMMOND, *J.*]

Where there is a slight change in a machine, by which a new result is brought about, and which might be the subject of a patent, courts do not feel inclined to extend the invention beyond the mere change, although they may be inclined to sustain the patent; but where something elementary has been discovered and constitutes fairly a part of the invention of the patentee no other inventor or manufacturer ought to be permitted to use that elementary part without paying tribute to the first inventor or originator.

The invention claimed in the reissued patents of Lacey and Cornell for improvements in bushes and wrenches for their insertion in beer-barrels, held to be patentable.

[*Goodwin, Offield & Towle*, and *J. W. Meriam*, for complainant.
L. L. Coburn, for defendants.]

DRUMMOND, *J.*:

The bill in these cases was filed upon the reissues A and B of the original patent of Lacey and Cornell, of August 29, 1871, for an improvement in bushes and wrenches for their insertion in beer-barrels. Reissues dated August 6, 1872.

The claim of Division A, No. 5,026, is—

The wrench herein described, consisting of a shank, A, plate B, projection D, and core E, the said core adapted to fit the opening through the bushing, whereby the same is prevented from assuming an oblique position when being turned into place, substantially as described.

The claim of Division B, No. 5,027, is—

The screw-threaded metallic bung-bushing, made tapering upon both its outer and inner sides, and protected with the flange B, having the V-shaped notch *d*, by and for the purpose described.

In this case, everything must depend on the construction which shall be given to the patents which have been reissued to the plaintiff. If the true construction is that contended for by the defendants, then it can hardly be said that the defendants have infringed. I do not propose to consider these patents separate from each other, but, really, as constituting together substantially one patent, to accomplish a particular purpose. To be sure, there are two patents issued, and two claims made by Lacey and Cornell, but they were issued at the same time, (the reissues,) and they refer to the same common object. If this were a suit upon the bung-bush alone, without reference to the wrench, the court might possibly be disposed to take a different view of the matter; but looking at both together as in a certain sense one conjoint patent consisting of several parts, the question is, What is the true construction of the reissued patents? Is it so narrow as that contended for by the defendants? I hardly think that it is. It seems to me that the object was to make a bush of a particular kind, possessing certain attributes; and, secondly, at the same time, to make a wrench which could be applied to the bush in a particular way, so as to insert it in the cask or barrel. The qualities of the bush were, that it was to be metallic, with a screw on the outside, smooth on the inside, tapering both outside and in, and with a flange to press on the stave of the cask, and a device for the "engagement" of the wrench with it, by means of which it was to be inserted in the barrel. The wrench had a handle, its other end expanded or flattened out, and a device attached to it by which it could be engaged in the bush, and it was to possess a core which was to be inserted in the hole of the bush, and into which, when the bush was screwed in the barrel or cask, a wooden plug or bung could be driven. Now, the question is, whether or not this was a patentable invention, and how far the invention extends. There can be no doubt, I think, that it was a patentable invention. If it be true that there were bung-bushes manufactured of metal and with a screw outside, and a flange, which was to rest upon the stave of the barrel, there does not seem to have been a bush constructed like that of the plaintiff's, and which was to be inserted into the barrel by the same device or apparatus as his, viz., by a wrench with a shank, and a device to engage with the bush, and with a core constituting a part of the wrench which was to fit into the hole of the bush, and so, by the operation of revolving the bush in the barrel, to be inserted firmly, so as to make it tight, and in such a way that the operator had complete control of the bush by means of the wrench, and pressing equally on all sides of the bush, one of the objects being to remove the core and insert a different sized one when necessary, corresponding to the size of the bung-bush.

I think, therefore, it was a patentable invention. As I understand, there never had been, before it was dis-

covered by these parties, a bung-bush with a wrench, such as are described in these patents. The core, taking it altogether, seems to be an essential element of the device, and is one of the principal objects, and I should think, also, one of the principal excellencies of the whole device, because it enables the operator, in inserting the bush into the cask, to command completely the act of insertion. I agree with the counsel of the defendant's, that the V-shaped device in the bush, and the corresponding device in the wrench are essential parts of the invention of the plaintiff and Lacey; but while that is so, the question is whether or not the plaintiff is restricted to the precise form in which the patent has set forth the device.

Now, this is the form (Compl't's Ex. 1) in which it is set forth in the patent, as I understand. This is the V-shape device in the bush, and there is a corresponding one in the wrench, where the bush is to be inserted, so that they engage together, and in this way the bush is inserted in the cask. While this is an essential part of the device, is the plaintiff limited to that precise form? If he is, then I suppose it may be admitted that the defendants do not in that particular infringe; because that identical form is not used by the defendants. A change is made, but the bush is used substantially, as well as the wrench and the core, and another method is adopted by which the engagement takes place between the wrench and the bush, so as to hold the bush fast while it is being inserted in the barrel. The main difficulty of this part of the case has been in reference to the particular device of the plaintiff.

It is said in the patent—

> We do not wish to confine ourselves exclusively to the V-shaped projection, as any form that will prevent the core from turning, independent of the bush, will produce the same result.

They are not to be confined to the mere form, but any other form substantially like that, although there may be a change, would be within the terms of the patent. I have come to the conclusion, after some hesitation, that considering the core was a very essential part of the mode of inserting the bush, and one of the objects which the inventor had in view was to enable the wrench, and the core, as a part of it, to engage with the bush so as to firmly turn the bush in the act of insertion—that the mere change in this method of engagement, although varied in different ways, does not prevent the infringement of the substantial part of the plaintiff's device. It is often very difficult in patent cases to determine the extent of the invention.

Where there is a slight change in a machine, by which a new result is brought about, and which might be the subject of a patent, courts do not feel inclined to extend the invention beyond the mere change, although they may be inclined to sustain the patent; but where something elementary, so to speak, is discovered, and constitutes fairly a part of the invention of the patentee, then I do not think that any other inventor or manufacturer ought to be permitted to use that elementary part without paying tribute to the first inventor or originator. Such I regard the core in this case. I think that belongs to the plaintiff, and that it is not right or just for any one to use it without his consent. What I mean is, that the defendants are prevented from using such an arrangement with the core in it, so as to engage it with the bush of the plaintiff, and by which, if done, there is an infringement of the plaintiff's patents.

Decree entered for plaintiff with reference to Bishop, master, to assess damages and perpetual injunction.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date February 27, 1877.]

9,760 to 9,766, inclusive.—Cassimere.—HORACE A. KIMBALL, Pascoag, R. I. Applications filed February 13, 1877. Term of patents 3½ years.

9,767.—Cans.—EDWIN NORTON, Chicago, Ill. Application filed February 12, 1877. Term of patent 7 years.

9,768. — Carpet. — THOMAS J. STEARNS, Boston, Mass., assignor to ROXBURY CARPET COMPANY, same place. Application filed January 31, 1877. Term of patent 3½ years.

9,769.—Vase.—WILLIAM TWEEDDALE, Brooklyn, N. Y., assignor to THE NORTH AMERICAN IRON WORKS, same place. Application filed November 29, 1876. Term of patent 7 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date February 27, 1877.]

4,397.—Perfume. — THOMAS M. BIDDLE, Fort Wayne, Ind. Application filed January 29, 1877.
"The word-symbol 'SATISFACTION BOUQUET.'"

4,398.—Veterinary Medicines.—GEORGE J. BUSTEED, New York, N. Y. Application filed December 12, 1876.
"The word 'Busteed's,' in connection with a barn-yard scene."

4,399.—Stoves.—COMSTOCK, CASTLE & Co., Quincy, Ill. Application filed February 10, 1877.
"The arbitrarily-selected word-symbol 'GENERAL LEE.'"

4,400.—Medical Compound.—WM. E. CHESTER & Co., Montreal, Quebec, Canada, and Boston, Mass. Application filed February 10, 1877.
"A triangle with a circular space within it; a monogram composed of the letters W. E. C. and a fac-simile of the autograph signature of WM. E. CHESTER."

4,401.—Horseshoes.—HARVEY K. FLAGLER, Boston, Mass. Application filed August 14, 1876.
"The representation of a Maltese cross, the head of a horse, the word 'Standard,' and the figure of the horseshoe, as shown."

4,402.—Lager-Beer.—HARTMANN BROTHERS, Belleville, Ill. Application filed August 10, 1876.
"The word or sign of a star."

4,403.—Plug-Tobacco.—C. A. JACKSON & Co., Petersburg, Va. Application filed February 1, 1877.
"The words 'Jackson's Best,' preceded and followed by a transverse mark, as shown."

4,404.—Tobacco and Cigars.—LOZANO, PENDAS & Co., New York, N. Y. Application filed February 10, 1877.
"The picture of a lady holding a fan in her hand."

4,405.—Tobacco and Cigars.—LOZANO, PENDAS & Co., New York, N. Y. Application filed February 10, 1877.
"The word-symbol 'Esta es la mia.'"

4,406.—Prepared and Packed Fish.—EDWARD G. NICKERSON, Boston, Mass. Application filed February 9, 1877.
"The figure or representation of a schooner at full sail."

4,407.—Stove-Polish.—N. H. PARKER & Co., Boston, Mass. Application filed January 11, 1877.
"The word-symbol 'RAVEN.'"

4,408.—Medical Compound.—M. A. THEDFORD & Co., Chattanooga, Tenn. Application filed February 6, 1877.
"A portrait or vignette of Dr. A. Q. Simmons."

4,409.—Putty.—CHICAGO WHITE LEAD AND OIL COMPANY, Chicago, Ill. Application filed February 21, 1877.
"The designation 'STANDARD COMMERCIAL.'"

4,410.—Putty.—CHICAGO WHITE LEAD AND OIL COMPANY, Chicago, Ill. Application filed February 21, 1877.
"The designation 'STANDARD GLAZIERS.'"

4,411.—Confectionery.—FLOHR, HYMERS & Co., St. Louis, Mo. Application filed December 9, 1876.
"The representation or picture of the interior and exterior of a confectionery-store, with groups of persons congregated in and about the same."

4,412.—Envelopes and Letter-Paper.—LABAN C. STYLES, New York, N. Y. Application filed February 14, 1877.
"A figure of triangular form applied to one corner of an envelope or letter-sheet."

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date February 27, 1877.]

989.—Title: **"Dr. A. Q. Simmons' Liver Medicine."**—M. A. THEDFORD & Co., Chattanooga, Tenn. Application filed February 6, 1877.

990.—Title: **"Whitman's Instantaneous Chocolate."**—STEPHEN F. WHITMAN & SON, Philadelphia, Pa. Application filed February 14, 1877.

CATALOGUES AND CIRCULARS RECEIVED.

[Inventors, manufacturers, and dealers in engines, machines, tools, and manufactured articles are respectfully requested to send duplicate copies of catalogues and circulars issued by them to the Commissioner of Patents, Washington, D. C. Where such publications have a permanent value, other than as mere advertisements, their receipt will be acknowledged in the OFFICIAL GAZETTE.]

Coffee-Roasting Machinery.—JABEZ BURNS, New York City.

Combination Locks.—CLARKE COMBINATION LOCK COMPANY, Baltimore, Md.

Grain-Cleaning Machinery.—TURNER, PARKS & Co., Cuyahoga Falls, Ohio.

Magic-Lanterns.—N. H. EDGERTON, Philadelphia, Pa.

Punching-Presses.—STILES & PARKER PRESS COMPANY, Middletown, Conn.

Railway-Track Tools.—METCALF, PAUL & Co., Pittsburg, Pa.

Soda-Water Apparatus.—WILLIAM GEE, New York City.

Steam-Heaters, &c.—A. L. IDE, Springfield, Ill.

Wood-Molding.—WORCESTER MOULDING WORKS, Worcester, Mass.

THE illustrated portion of the Patent Office Report for 1869 and for 1871 has recently been completed, and can be had, by those having the remaining volumes for those years, by applying to the Commissioner of Patents.

Letters Patent of the United States do not reach the patentee or owner until about two weeks from the day of their date. The letters, nevertheless, have the force of patents from the time they are signed and sealed.

Patent Office coupons, which purchase a copy of any drawing which has been photolithographed, are sold singly by the Chief Clerk at twenty-five cents each, or twenty coupons at one time for two dollars.

The GAZETTE is made to bear the same date as the patents to which the claims, briefs, and drawings relate, although it is not actually mailed to subscribers until about two weeks later than its date.

Single copies of the specification and drawing of any patent issued this week may be had from the Patent Office for twenty-five cents, or for a ten cent Patent Office coupon.

Where specifications are in print they are furnished with the drawings without extra charge.

SALE OF SPECIFICATIONS AND DRAWINGS.

Photolithographic copies of the drawings of all patents issued since November 26, 1867, have been produced, and will be sold to the public at 25 cents per patent, or, where twenty or more copies are ordered at one time, at 10 cents per patent.

Coupon-books, to the amount of $2 or more, can be purchased from the Chief Clerk of the Patent Office; the coupons, for 10 cents each, may be filled out at any time, and, on presentation, will entitle the holder to a photolithographic copy of *any* drawing which has been reproduced.

The specifications of all patents issued since July 1, 1871, are in print, and will be furnished with the drawing without extra charge. In some cases the specifications of patents issued prior to July 1, 1871, are in print, and where such is the case the Office will furnish them with the drawings, but the Office will not undertake to reprint copies of patents which have been exhausted.

In addition to the above, the Office has reproduced, and offers for sale at the price mentioned above, all drawings in the following classes, embracing patents granted from 1790 to date. The classes are those of the Examiners.

Apparel.	Paper manufactures.
Boats.	Printing.
Bookbinding.	Projectiles.
Bridges.	Railways, (Cars and Interior Fittings.)
Carding.	Railways, Exterior
Carriages and Wagons.	Mountings and Fittings.
Cloth.	Sewing-machines.
Cordage.	Ships, construction.
Crinoline and Corsets.	Ships, propulsion.
Driers and Kilns.	Signals.
Electricity.	Silk.
Felting and Hats.	Spinning.
Fire-arms.	Stationery.
Harvesters.	Stoves and Furnaces.
Knitting and Netting.	Thrashing.
Lamps and Gas-fitting.	Umbrellas and Fans.
Mills.	Weaving.
Ordnance.	
Paper-making.	

And the subdivisions of—

Bench-planes.	Buttons and Machines.
Bale-ties.	Combs, &c.

About sixty other classes are in progress, and it is hoped that all the drawings remaining, some forty thousand in number, may be completed during the fiscal year.

The total number of patents of which drawings are complete and offered for sale as above will approximate one hundred and fifty thousand.

The Government fee on making application for a patent is fifteen dollars. The final fee is twenty dollars. Usually there are no other Government fees unless the application is appealed.

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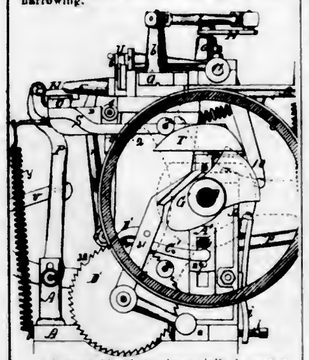
TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED FEBRUARY 27, 1877.

187,696. KNITTING-MACHINES. Wm. H. Abel, Laconia, N. H. [Filed July 29, 1876.]

Brief.—Combines narrowing mechanism with latch-needle machine by means of vibrating work-bars, between which the work passes. Determines the times and extent of narrowing by a pattern mechanism. A shifting-block sliding in the main frame, and governed by the pattern, throws in and out of engagement the sets of cams actuating the knitting and narrowing.



1. The combination, substantially, by means of sinker-bars J and M, of narrowing mechanism, substantially as described, with a "straight" latch-needle knitting-machine, for the purpose herein specified.

2. In combination with a narrowing mechanism, substantially as described, and self-acting pattern-wheel controlling the movements thereof, the reciprocating needle-operating cam-bar G, of a straight latch-needle knitting-machine, arranged to be stopped before the said narrowing mechanism is brought into action, substantially as and for the purpose herein specified.

3. In combination with a narrowing mechanism, substantially as described, and self-acting pattern-wheel controlling the movements thereof, the reciprocating needle-operating cam-bar G and yarn-carrier 20, of a straight latch-needle knitting-machine, arranged to be stopped at, or nearly at, one or the other extremity of their reciprocating movement before the said narrowing mechanism is brought into action, substantially as and for the purpose herein specified.

4. The shifting-block A', provided with projections 24 and 25, and adapted to slide in a guideway, as described, in combination with the two counter-operating cams Z Z' on the longitudinally-reciprocating driving-shaft B, substantially as and for the purpose herein specified.

5. The bearings 23 23 of the driving-shaft, having a sliding movement in the frame, to allow the alternate longitudinal movement of the driving-shaft, substantially as and for the purpose herein specified.

6. In combination with the crank H, sliding cam-bar G, the cloth 19, affixed to and moving with the driving-shaft B, and connecting mechanism, substantially as and for the purpose herein specified.

7. The device for bringing the front sinker-bar into or out of action, consisting of the projecting arm r and pivoted catch s, in combination with the rock-shaft o and cam-arm p, substantially as herein specified.

8. The combination of the cam-arm Q, pivot u, and notched catch v, provided with an adjustable pivot for adjusting the position of the narrowing mechanism and throwing it into and out of action, substantially as herein specified.

9. The combination of the arm S, bearing a stationary cam, T, with the rocking bar O of the narrowing mechanism, and the cam-rollers x x, which operate the said cam for producing the up and down movements of the covering-points, substantially as herein specified.

10. A locking-device for holding the covering-points securely in position while narrowing, consisting of the front and back stops z z, on the cam-arm S and stops 1 and 3, substantially as and for the purpose herein specified.

11. The combination of the back and front sinker-bars, having the combined movements herein specified, with the latch-needles and covering-points, for performing the narrowing operation, substantially as herein specified.

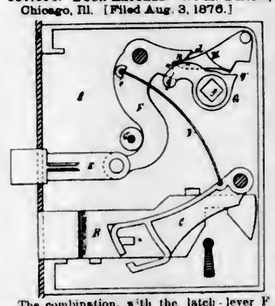
12. The slides Y Y, constructed substantially as herein specified, in combination with the latch-needles E E and narrowing mechanism, substantially as and for the purpose herein specified.

187,697. SKATES. Jas. Adair, Allegheny, Pa., assignor to himself and C. C. Hussey, same place. [Filed Feb. 3, 1877.]



A skate-runner composed of iron (or soft-steel) center and hard or high steel faces, having the central layer of iron (or soft steel) and the exterior layers of hard steel, so disposed that the edges of all shall constitute the running and wearing surface, substantially as set forth.

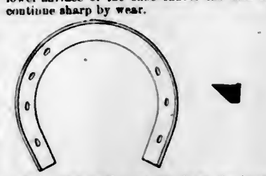
187,698. DOOR-LATCHES. W. A. Barlow, Chicago, Ill. [Filed Aug. 3, 1876.]



The combination, with the latch-lever F and hub G, provided with the arms g g', of the intermediate lever H, interposed between the short arm of the latch-lever and arm g' of the hub, substantially as and for the purpose specified.

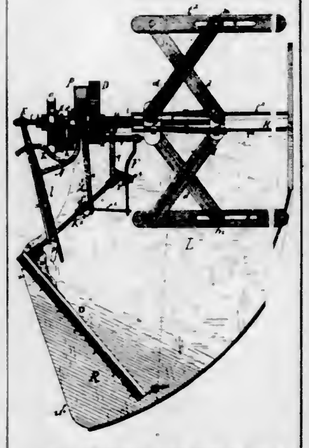
187,699. HORSESHOES. J. D. Billings and M. A. Decker, New York, N. Y. [Filed May 19, 1876.]

Brief.—The wedge-shaped form of the shoe serves as a continuous calk. The flat or level shape of the top of the shoe, together with the rim extending about its outer edge, enables the shoe to be fitted to the hoof without heating it. The convex and wedged shape of the lower surface of the shoe causes the calk to continue sharp by wear.



A horseshoe of a convex form, the lower portion of which is of a wedged shape, tapering downwardly and outwardly, and having a level top, the outer edge of which is provided with a rim or bead, extending upwardly and entirely around the shoe, substantially as herein described.

187,700. HARVESTER-RAKES. H. H. Bridenthal, Jr., Latrobe, Pa. [Filed Jan. 22, 1876.]



1. The combination of the shafts i n, wheel C, arm h', pawl b, stop-bolt s, and the lever g, substantially as and for the purposes herein specified.

2. The combination of the cam-groove plate D, shaft n, arm q, with the oblique spindle o' formed thereon, secondary arm K', rock-shaft F, and the link f', substantially as and for the purposes herein specified.

3. The combination of the disk f, cam-pawl e, stud h, and the arm h', substantially as and for the purposes herein specified.

4. In an intermittently-revolving harvester-rake, the operating-arm h', provided with the set-screws i, for the purpose of circumferential adjustment relative to the rake-arm q, substantially as and for the purposes set forth.

5. In an intermittently-revolving harvester-rake, the stop s, provided with the spring e, or equivalent, substantially as and for the purposes herein specified.

6. In an intermittently-revolving harvester-rake gear, the spring-box V, notches o', and the plate f', these members all constructed substantially in the manner and for the purposes set forth.

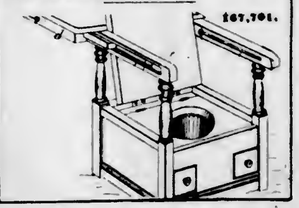
7. The cam-plate D, disk f, and the spring-box r, these members all formed in one piece, substantially as and for the purposes herein specified.

8. The hubs d', pivoted crossed arms d, and the floats f', these members all arranged substantially in the manner and for the purposes herein shown and described.

9. The reel-adjusting lever l, swinging fulcrum-arm N, segment K, pawl and band-lever y, these members all arranged substantially in the manner and for the purposes shown and described.

10. The combination of the crossed arm d, bolt m, washers n', tube g, and the slotted reel-float f', substantially as and for the purposes herein specified.

187,701.

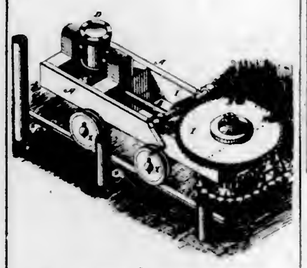


187,701. CHAIR-COMMODES. W. H. Bricker, Chambersburg, Pa. [Filed Feb. 5, 1877.]

The combination of a laterally sliding and adjustable table-top, with an arm-chair commode, substantially as described, for the purpose specified.

187,702. COAL-CUTTING MACHINES. H. F. Brown, Corning, N. Y. [Filed May 16, 1876.]

Brief.—A carriage drawn by a winding-drum on ways has a longitudinal shaft worked by compressed air, which, by bevel-gearing at its other end, works an endless series of cutters on an extensible frame, having a sprocket-wheel at each end. This frame is adapted, by vertical and horizontal angular adjustment, to work into the floor portion of a breast of coal.



1. In a machine for cutting or mining coal, a cutting-chain composed of a series of cutter-holders, constructed substantially as described, and connected by wire ropes or their equivalents, in the manner and for the purpose described.

2. The joint-block T, in combination with the ropes U and cutter-holders S, as and for the purpose set forth.

3. The vertically-adjustable driving-wheel H, in combination with the frame L, adjustable wheel P, and the endless chain of cutters R, as and for the purpose specified.

4. The driving-wheel H, in combination with the ring *c*, bolts *b*, drivers *d*, and slotted vertical shaft G, as and for the purpose described.

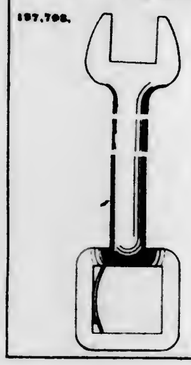
5. The vertically and horizontally adjustable cutter-frame, provided with the slides K, in combination with the guides J, wheel I, and screw-shaft I', as and for the purpose specified.

6. The cutter-holders S, provided with the followers V, bolt *a*, cutters *m*, and pierced with holes for the passage of the ropes U, as set forth.

7. In a coal-cutting machine, the driving-shaft B, pinion E, wheel F, and vertical shaft G, in combination with the cutter-frame L, elevating-screws N, wheel I, and screw-shaft I', for the purpose of giving motion to the cutters, and adjusting them at any desired angle, as set forth.

8. The chair E, constructed as set forth, and provided with the hook *w*, in combination with the rail and props, as set forth.

187,703.

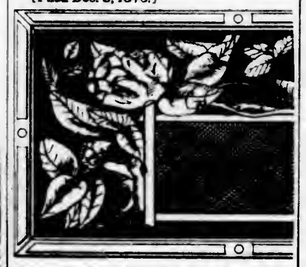


187,703. WRENCHES. A. S. Bunker, Lawrence, assignor of one-half his right to W. Sanborn, Chelsea, Mass. [Filed Apr. 10, 1876.]

Brief.—Secures the spring by oval rivets to prevent it from turning.

A carriage-wrench provided with a flat elliptic spring, secured at its middle portion to one of the faces of the wrench-head, substantially as and for the purpose specified.

187,704. ILLUSTRATED PERFORATED CARD-BOARD. Geo. T. Clare, New York, N. Y. [Filed Dec. 8, 1876.]



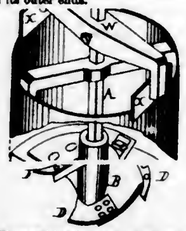
1. A partly-perforated and partly-printed pattern-board, substantially as and for the purpose described.

2. A card-board for patterns, part of which only is perforated, and the remaining part is printed with appropriate designs, substantially as and for the purpose described.

3. A board for fancy needle-work, consisting of a plain perforated section and a printed illustrated section, substantially as and for the purpose described.

187,705. HARTH-AUGERS. Geo. G. Collins, Philo, Ill. [Filed Aug. 4, 1876.]

Brief.—The auger-shaft is provided with spiral sections increasing in diameter. The sections have cutting-bits and shoulders at their junctions. A bar secured by a set-screw above the auger-basket is provided with reamers on its outer ends.



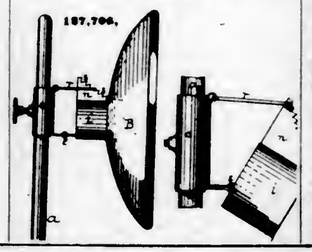
1. The combination, on a shaft, of an earth-auger formed in sections, which increase in diameter, substantially as shown and described.

2. The auger-end A, having the bits D and shoulders E and bits F, substantially as specified.

3. The section H, connected with the auger end A, and provided with the shoulder L and bit M, substantially as set forth.

4. The bar W, having the transverse cutters X, operating to throw the earth, sand, and other loosened matter toward the shaft A, substantially as expressed and shown.

187,706.

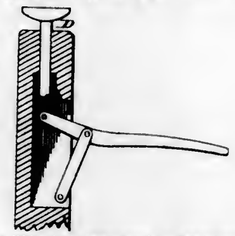


187,706. LAMP-REFLECTORS. W. D. Cummings, Pittsburg, Pa. [Filed Dec. 26, 1876.]

1. The flexible joint, ratchet, and pawl, combined with a reflector, substantially as described, whereby an angular adjustment of the reflector is effected.

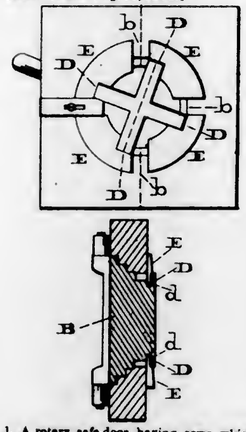
2. In combination with a reflector, S, a sleeve, movable on its standard both vertically and by a rotary movement, a flexible joint, ratchet, and pawl, whereby, in the manner set forth, the reflector may be adjusted vertically, horizontally, and angularly, substantially as described.

187,707. LIFTING-JACKS. C. Gaillard, Jr., Erie, Pa. [Filed Jan. 13, 1877.]



A lifting-jack, constructed as hereinbefore described, composed of a stock, A, a perforated elevating-post, B C, pin *a*, and a crotch, D, with toggle-jointed lever E F arranged within the stock, substantially as shown and described.

187,708. BURGLAR-PROOF SAFE-DOORS. H. Herman, Philadelphia, Pa., assignor of one-half his right to J. Watson, same place. [Filed Aug. 10, 1876.]



1. A rotary safe-door, having arms which engage with inclined faces, projecting from the inner wall of the safe surrounding the opening for the door, whereby, by the rotation of the door, the arms will wedge against the inclined faces, substantially as stated.

2. The rotary door B, with wedging-arms D, in combination with the locking-bolt engaging with said arms, substantially as and for the purpose set forth.

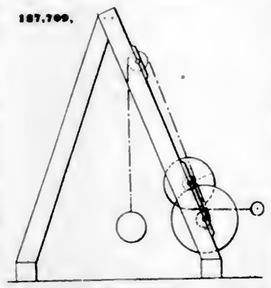
3. The projections E E, separated by the passages *b*, in combination with the locking-bolt, fitted in one of said passages, substantially as and for the purpose set forth.

187,709. STUMP-EXTRACTORS. Jos. Hollen and W. H. H. Hollen, Fostoria, Pa. [Filed Dec. 28, 1876.]

1. The method of creating friction by the weight of the matter to be lifted in proportion to the weight thereof by means substantially as described and set forth.

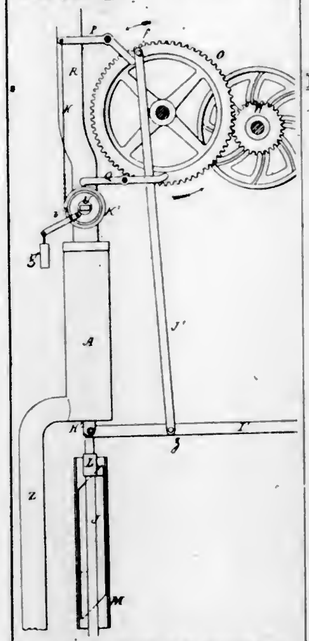
2. The middle upright, in combination with loose journal-boxes and journals, substantially as and for the purpose specified.

187,709.



187,710. HYDRAULIC ELEVATORS. E. H. Hunt, Chicago, Ill. [Filed June 16, 1876.]

Brief.—The valve-wheel is provided with a counterbalancing weight and notch, trip-lever, and cord, forming a device for automatically opening and shutting the valves in water-supply pipe. The toggle and cord, with pinion, are so arranged as to throw the pinion in and out of gear.



1. The combination, in an elevating apparatus, of the valve-wheel K', provided with a counterbalancing-weight, *g*, and notch *i*, with the trip-lever P and cord H, with the hook trip-lever Q and the crank-pin *f* upon the driving-gear, the whole forming a device for automatically opening and shutting the valve U in the water-supply pipe K, substantially as described.

2. The combination, in an elevating apparatus, of the piston I, constructed and operating as described, the swinging piston-rods H' H', the balance-bar J, the balance-weight *k*, and the connecting-rod J', the whole forming a device for driving the main gear O, substantially as described.

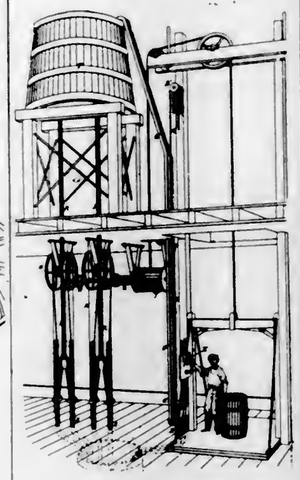
3. As a device for returning water through the pipe G' from tank S into the tank T by the descending weight of the elevator-platform, the following mechanism in combination, viz: elevator-platform, hoisting-rope, lifting-drum, gear-wheel K'', pinion L', driving-cord A', pinion M', pinion N', and force-pump D', substantially as described.

4. The combination of the pinion M', operated as described, with the pinion N' and force-pump D', to elevate a column of water through the pipe G' from the tank S into the tank T, substantially as described.

5. The combination of the toggle O' and cord P with the pinion N' so as to throw such pinion in or out of gear with the pinion M', substantially as described.

187,711. HYDRAULIC ELEVATORS. E. H. Hunt, Chicago, Ill. [Filed June 16, 1876.]

Brief.—By opening the cocks in the supply-pipes the weight of water descends upon the gates, one set of which will always be open, allowing the water to fall upon the only piston which is ready to receive it. Water is returned by the pump through a pipe from the lower to upper tank.



1. In combination with a cylinder, A, a piston, I, piston-rod J, connecting-rod N, and driving-gear O, the whole adapted to rotate the driving-gear by the weight of a column of water admitted within the cylinder upon the piston, substantially as described.

2. In combination with the inclosing-case H located above the cylinder, one or more sliding gates, C C, within the casing, adapted to be opened or shut by toothed segmental pinions D engaging with racks upon the gates, the whole arranged to admit or exclude water from the cylinder, essentially as described.

3. In combination with a cord or rod, H, provided with a weight, *g*, one or more segmental cog-wheels, G, connected to the rope by means of one or more arms, *b*, and one or more segmental toothed wheels, F, gearing with G, and set upon the shaft E of the internal wheels D, the whole arranged to open or shut one or more sliding gates, C, when the cord is lifted or allowed to fall, substantially as described.

4. In combination with the trip-lever Q, the detent *x* upon the cord H, to retain the cord when raised, substantially as described.

5. In combination with the trip-lever Q and detent *x*, the pivot-pin *f* upon the driving-gear O, to release the detent and allow the cord to drop, essentially as described.

6. In combination with the piston I, the piston-rod J, crank N, and driving-gear O, to drive the pinion W, substantially as described.

7. In combination with the piston-rod J and piston head-plate *a'*, the valve-plate *a*, casing K, and arm L, the whole forming a device for retaining water in the cylinder, while the piston is descending and letting water out of the cylinder when the piston has descended, substantially as described.

8. In combination with the valve-plate *a*, casting K, and arm L, the slotted camway M to rotate the valve-plate through the arc of a circle, substantially as described.

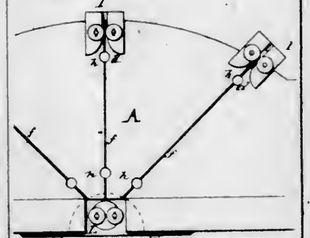
9. In combination with mechanism for driving the pinion W, to wit, driving-gear O, connecting-rod N, piston-rod J, piston I, and cylinder A, the shaft X, clutch Z, and driving-drum Y, for transmitting power from the cylinder to the platform of the elevator, to raise the same, substantially as described.

10. In combination with the platform of the elevator, the spring hand-lever E', constructed as described, to clutch an endless chain, A', for the purpose specified.

11. In combination with the hand-lever E' upon the platform, the endless chain A', passing over the sprocket-pulley B', and sprocket-driving pulley C', to operate the force-pump D', and thereby return water through the pipe G' from the tank S, into the tank T, when the entire device is operated by the descending weight of the elevator, substantially as described.

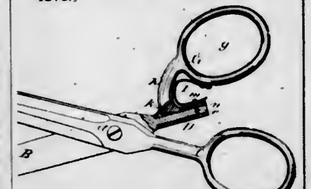
187,712. MITER-BOXES. James M. Jones, Lawrence, Kans., assignor of one-half his right to H. W. Howe, same place. [Filed Aug. 23, 1876.]

Brief.—The front guide-rollers are mounted upon an adjustable clamp, and the guide-rollers at the back are swiveled on a stand secured to the bed-plate.



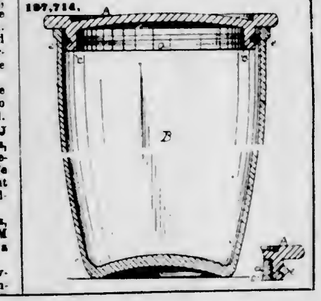
The slotted clamps I, provided with the standards W and rollers *e*, in combination with the stand F, swivel N, provided with the standards V and rollers I, and bed-plate A, all constructed to operate in the manner shown and described, and for the purpose specified.

187,713. REVERSIBLE SCISSORS. Thos. A. Kelly, Jackson, Ala. [Filed Sept. 18, 1876.]



The combination, in a pair of scissors or shears, provided with double cutting-edges *a a' b b'*, of the blade B, having round stem D, with the reversible handle G, having perforated shank k and spring l, having tooth in the latter, passing through perforation *n* in shank *k*, and fitting into notches *r* in stem D, all substantially as and for the purpose herein shown and specified.

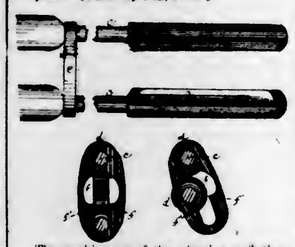
187,714.



187,714. JELLY-GLASSES. Wm. C. King, Union Township, Allegheny County, Pa. [Filed Dec 18, 1876.]

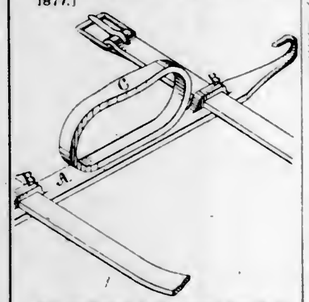
A jelly-glass consisting of a tapering pressed-glass vessel, B, having a mouth interiorly uncrenosol, and a pressed glass cap, A, the latter having an exterior rim to rest on the mouth of B, a flange, *a*, to go inside the mouth, with a groove or recess, *c*, in the exterior periphery of the flange, to receive and retain a packing-ring, *c*, the article as a whole being substantially as set forth.

187,715. FLUTING-IRONS. T. E. King, Rockville, Conn., assignor to S. Fitch, same place. [Filed Apr. 12, 1876.]



The combination of the crimping or fluting plates *a b*, handles *c*, and mortised latch *f*, all substantially as described, and for the purposes set forth.

187,716. HANDLES FOR SHAWL-STRAPS. W. Kirk, Albany, N. Y. [Filed Jan. 2, 1877.]



The shawl-strap handle herein described, consisting of the cross-bar A, provided with a metallic handle, C, and hook D, substantially as and for the purposes set forth.

187,717. MACHINES FOR APPLYING POWDER FOR THE DESTRUCTION OF INSECTS. Park Kitchell, Whippany, N. J. [Filed June 29, 1876.]

Brief.—The perforated cylinder is connected with a pulley and crank by a band. By operating the crank the cylinder is revolved and deposits the powder.

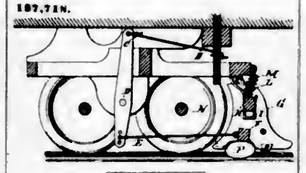


The perforated cylinder A, support B, pulley G, and band I, in combination with the crank H and handle K, arranged as and for the purpose set forth.

187,718. CAR-BRAKES. H. C. Laubach, H. Barghausen, and H. T. Ries, Washington, D. C. [Filed Oct. 25, 1876.]

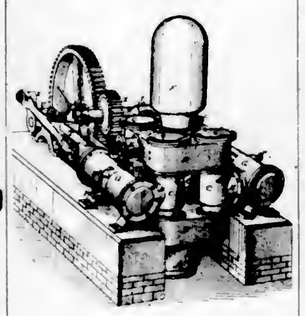
The brake-shoes G G, in combination with the brake-bars F F H H, spiral springs M M, springs or guides I I, stops K K, connecting-rod E, rubber blocks *o o o o*, side plates P P, adjustable lever C, chain B B, and crank rod or lever A A, substantially as shown and described.

187,719.



187,719. PUMPS FOR TOWN AND CITY SUPPLY. W. H. Lang, Vergennes, Vt. [Filed Jan. 18, 1877.]

Brief.—An air-chamber is located in the suction-pipe to relieve the valves from the ram which results from the alternate stopping and starting of a current of water. The valves are kept in line by means of an axial sleeve, which guides the valve-spindles. A stationary packing-ring has positive adjustment, without stopping the pump, by means of a rod projecting through the side of the cylinder. To relieve the bottom wear the plunger is made buoyant, its weight being supported by the water within which it is acting.



1. A vacuum chamber, I, inclosed within the inlet-chamber B, in combination with the inlet-valves K, to prevent the reaction or ram caused by the sudden starting and stopping of water as it is drawn alternately through each valve, substantially as set forth.

2. The valves J and K, combined with their seats, provided with the hollow axial sleeve L, whereby the lower spindle or stem of one valve and the upper spindle or stem of the other of said valves are guided.

3. In combination with the upper and lower valves J and K and the inclosed chamber, the priming-valve in the channel M.

4. The stationary elastic packing-ring N, divided on one side, and combined with a device adjustable from the outside while the machine is in motion, whereby the same may be positively adjusted, substantially as set forth.

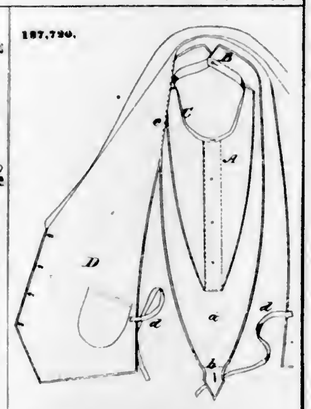
5. The stationary elastic packing-ring N, divided on one side, combined with the right-and-left adjusting-screw O, capable of being operated from without the cylinder, substantially as set forth.

6. The elastic packing-ring N and its adjusting-screw, combined with the loose key P, substantially as described.

7. A horizontal pump-cylinder, combined with a buoyant piston, R, to prevent excessive friction on the bottom of said piston and its packing, substantially as set forth.

8. The chest B, with the suction-pipe A at its center below, the valve-chests C C C C, receiver D, with the air-chamber F, placed over its center, and the cylinders G G, all arranged in relation to each other, substantially as shown and described.

187,720.



187,720. COMBINED VEST AND SHIRT FRONT. B. Loffler and J. Weil, New York, N. Y. [Filed Jan. 9, 1877.]

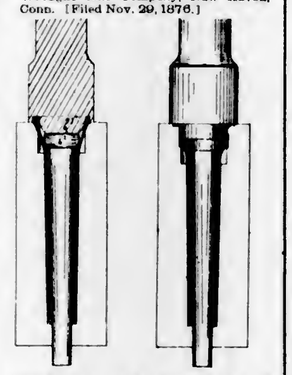
As a new article of manufacture, a dress-front for men, consisting of the vest-front D D, provided with strings *d d*, or their equivalents, the bosom A, constructed as shown, the yoke B, and neck-band C, the vest-front and shirt-front being attached together at their adjacent edges on one side, all as herein set forth.

187,721. SLATE-PENCIL SHARPENERS. T. B. Merrill, Portland, Me. [Filed Dec. 15, 1876.]



The pencil-sharpener having the cutter-hand block *a*, the said block having the ledge, the groove, and the opening, and the knife, the beveled edge, slot, and set-screw, as herein described.

187,722. MANUFACTURE OF AXLE-BOXES. G. A. Morse, Plantaville, assignor of one-half his right to the Dalzell & Ives Wrought Box Company, New Haven, Conn. [Filed Nov. 29, 1876.]



Jointly, the two sets of partible dies and punches for forming axle-boxes, substantially as shown and described.

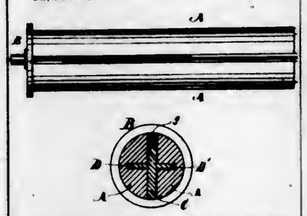
187,723. BARBED FENCES. A. J. Nellis, Pittsburg, Pa. [Filed Jan. 18, 1877.]

Brief.—Hoop-iron is corrugated longitudinally, and barbs struck out laterally therefrom.



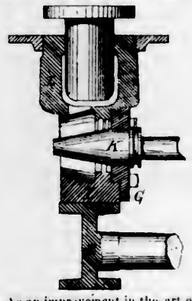
A barbed corrugated metal fence-rail, substantially as described.

187,724. EXTENSION CURTAIN-ROLLERS. T. Notwell, Indianapolis, Ind. [Filed July 12, 1876.]



The sliding part, consisting of the strips C D D', having the outer end A' cylindrical, and provided with pivot-plate B', in combination with the semi-cylindrical grooved parts A A, arranged to operate in the manner set forth and described.

187,725. MOLDING GLASS. S. Oakman, Winchester, Mass. [Filed Feb. 6, 1877.]

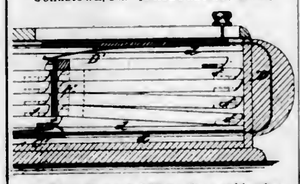


1. As an improvement in the art of manufacturing glassware, first forming the neck A, in the usual manner, and then placing it in the mold, and forming the shoulder B and screw C, as described, and for the purpose set forth.

2. The combination of the parts F with the opening parts L L', back piece G, and spindle K, all operating together substantially as described, and for the purpose set forth.

3. As a new article of manufacture, a glass bottle having a re-enforced shoulder and screw-neck, substantially as described, and for the purpose set forth.

187,726. PICTURE-EXHIBITORS. S. A. Peden, Johnstown, Pa. [Filed June 20, 1876.]



1. In a picture-exhibitor, the combination of slotted lid with screw-button, sliding board, and spring-band, as described.

2. The combination of case, having end grooves and side guides, with sliding top and bottom boards, and connecting spring-bands, as set forth.

3. The combination of sliding boards, spring-hooks, beveled end-recessed picture-frames, and transverse partition, the whole constructed and arranged to operate as specified.

4. The combination of sliding picture-frames having beveled ends, transverse partitions, having spaces above and below, and guide-plates, as described.

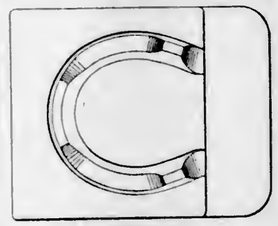
187,727. MANUFACTURE OF HORSESHOES. C. H. Perkins, Providence, R. I. [Filed Nov. 8, 1876.]

1. As an improvement in the art of finishing horseshoes made of iron creased and punched by rolling, and of the form substantially in cross-section as described in my Patent No. 174,924, the swaging of said shoe in a die for the purpose of partially closing the distended creases and nail-holes, and otherwise imparting a finished form to the shoe, as herein set forth.

2. The die constructed as herein described, for curving and shaping the sides of the shoe, and partially closing the grooves, as specified.

187,727.



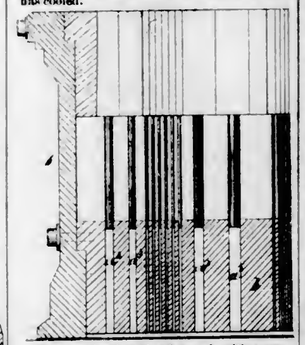


187,728. COMPOSITION PATTERNS FOR TAKING MULTIPLE IMPRESSIONS. Carl H. O. Radde, Hamburg, Germany. [Filed Dec. 11, 1876.]

The described composition for damping materials to be printed upon in colors, consisting of driers, sugar of lead, linseed-oil varnish, and essence of turpentine, substantially as set forth.

187,729. MOLDS FOR SOLID-COLOR PRINTING-BLOCKS. C. H. O. Radde, Hamburg, Germany. [Filed Dec. 19, 1876.]

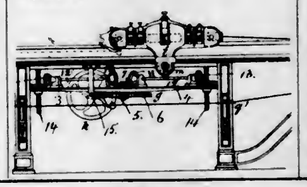
Brief.—The colors are melted and poured into the mold, each after the preceding color has cooled.



The combination of a frame, *b*, with a system of vertically-movable blocks or forms, *a*, supported severally upon appropriate guides or stems, and each adapted, when pushed down in the frame, to leave a chamber for the reception of the coloring matters, as described.

187,730. PRINTING-PRESSES. Carl H. O. Radde, Hamburg, Germany. [Filed Dec. 19, 1876.]

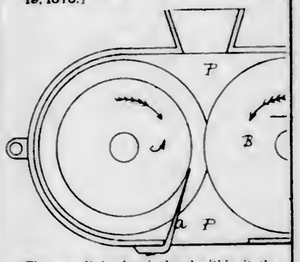
Brief.—In a machine for printing from blocks of solid colors, the horizontally-reciprocating carriage, bearing the impression-rollers and scrapers, has attached a blade to level the colors, and the stationary bed is vertically adjustable.



1. In a press adapted for printing and reproducing in quantity copies of representations in varieties of colors, as a means for adjusting the height of the mass of colored composition, the combination of the worm-shaft 15 16, gears 6 7, diagonal geared shafts 12, and screws 14, and their gears, the combination operating as set forth.

2. The combination of the frame or carriage *i*, rollers *b b*, rubbers *a*, and knife or blade 2, the parts operating substantially as and for the purposes described.

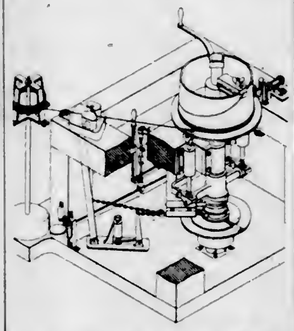
187,731. VEGETABLE-CUTTERS. W. Reitz and E. Eichholser, Joliet, Ill. [Filed Aug. 19, 1876.]



The case P, having inclosed within it the rollers A B, knives *c*, and guard *a*, and gearing *x*, all arranged, operating, and constructed particularly as and for the purpose set forth.

187,732. MACHINES FOR DRAWING WIRE. C. D. Rogers, Providence, R. I. [Filed Dec. 23, 1876.]

Brief.—The winding-drum is supported by a cross-head with a spirally-inclined face, that rests on a sleeve having a like face, which loosely surrounds the driving-shaft, and this sleeve rests on a disk fixed to said shaft. Spring-stops normally connect the disk to the sleeve, and the latter connects with the cross-head by the clutch-surfaces. A foot-lever may be used to elevate the cross-head and destroy its connection with the power-shaft; but the same is done automatically in virtue of the connection of the stops with the draw-plate, this being quickly thrown back by a spring if the wire happens to break. The reel-post also accomplishes the same result by accidentally upsetting or being removed from off a spring-pin that is in connection with the stop mechanism. There is also an automatic brake, that clamps the wire to the drum when a break of the wire occurs.



1. In a machine for drawing wire, the combination, substantially as described, with the drum and the draw-plate, of stopping mechanism, whereby, when the wire breaks between the draw-plate and drum, the latter will be prevented from revolving, substantially as set forth.

2. In a machine for drawing wire, the combination, with the drum and its driving-shaft, of stopping mechanism, controlled by a reel-standard, substantially as described, whereby, when the reel-standard is unduly displaced from its proper position, the drum will be stopped, as set forth.

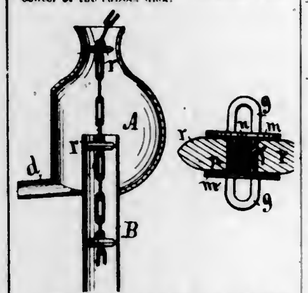
3. The combination, with the drum of a wire drawing machine, of a presser for preventing the wire from uncoiling, substantially as described.

4. In combination, with a drum in a wire-drawing machine and stopping mechanism, of a presser, substantially as described, whereby, when the drum is stopped, the presser is caused to engage with the wire coiled on the drum, as set forth.

5. The combination, with the driving-shaft, the drum, and its connecting-clutch, of the disk on the shaft, its latch, a spring-slide, controlled either by a die-plate or a reel-standard, or both, a sleeve provided with inclined planes loosely mounted on the shaft, and a cross head for lifting the drum, substantially as described.

187,733. CHAIN-PUMPS. Wm. H. Rutan, Des Moines, assignor to J. C. Rutan, Iowa City, Iowa. [Filed Dec. 26, 1876.]

Brief.—The mouth of the chamber is adapted to be closed by a chain-pump bucket to prevent freezing. The reversible bucket is formed exactly alike on both sides by means of two flanged loops, made from one and the same pattern. The nut is embedded in the center of the rubber disk.

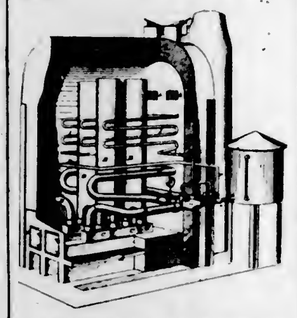


1. The globular chamber A, having the throat and mouth *c*, and spout *d*, in combination with the top of a well-tube, B, substantially as and for the purposes shown and described.

2. The combination of the elastic disk *r*, nuts *s*, and the two loops *g*, each loop carrying a flange, *m*, and screw *n*, substantially as and for the purposes shown and described.

187,734. PROCESSES AND APPARATUS FOR MANUFACTURING GAS. Silas C. Salisbury, New York, N. Y. [Filed Aug. 15, 1876.]

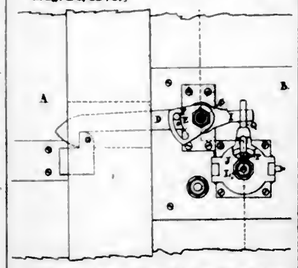
Brief.—A jet of hot air enters with the oil for vaporizing it. The pipe for oil and air is surrounded by superheated steam in the pipe of the steam-jet for further heating the oil. The oil is blown, by a jet of superheated steam under high pressure, into a blast of hot air, and the mixed oil-vapor, superheated steam, and hot air are forced rapidly through hot retorts.



1. A continuous process for converting liquid hydrocarbon into gas, substantially as herein described—to wit, injecting, by means of superheated steam, at a pressure of ninety pounds per square inch and upward, a spray or atomized jet of liquid hydrocarbon into a blast of hot air, whereby it is conveyed into and through a series of hot retorts, wherein its conversion into inflammable gas is completed, as set forth.

2. The combination, for the purpose set forth, of a series of retorts, B B, set in a hot oven, a steam-injector, G, a hot-air feed-pipe, F, and a supply-pipe, M, entering the supplemental hot-blast chamber P within the steam-nozzle of said injector, and delivering liquid hydrocarbon, as set forth.

187,735. LOCKS FOR SLIDING DOORS. R. W. Semple, Toronto, Ontario, Canada, assignor to G. A. Shaw, same place. [Filed Aug. 24, 1876.]

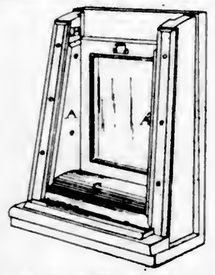


1. The quadrant-plate E, keyed or otherwise fastened to the latch-stud C, and having a slot, *e*, in combination with the latch-pin F and latch D, as and for the purpose specified.

2. The pivoted latch-handle G, in combination with and secured to the eye H by means of the seal K, or its equivalent.

3. The combination of the latch D, latch-pin F, quadrant plate E, tail-piece I, locking-bolt Q, with a permutation-lock, substantially as and for the purpose specified.

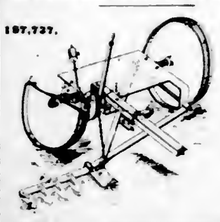
187,736. CASINGS FOR CAR-WINDOWS. C. H. Shattuck, Boston, Mass. [Filed Nov. 20, 1876.]



1. As a means of preventing the circulation of a cold draft of air from between window-sashes and frames, and from blind and window slots, the above-described method of casing the window by means of the side strips A A' and bottom strip C, fitted and fastened to the window-frame relative to the sash, as set forth.

2. In combination with the stiles and sill of a car-window, which opens by dropping into a slot between the inner and outer shells of the car-body, the removable strips A, A', and C, adapted and shaped to completely cover in all the air-channels around the window, and to lap and press bottom and sides of the window-sash, substantially as described.

187,737.



187,737. MOWING-MACHINES. A. Stevens, Gorham, Me. [Filed May 12, 1876.]

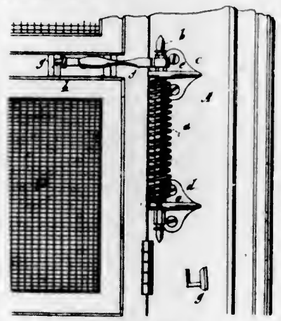
1. The lifting-pulley *d* and chain thereon, connected to the cutter-bar, in combination with the counter-balance independent of the hand-levers, as set forth.

2. The combination of the pulley, chain, hinge-bar, and the independently-operating counter-balance and hand-lever, as set forth.

3. The variable draft apparatus *i k*, as and for the purposes set forth.

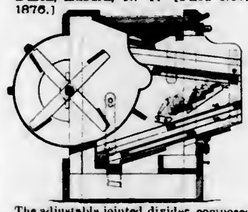
187,738. DOOR-SPRINGS. G. E. Sutphen, Aurora, Ill. [Filed June 19, 1876.]

Brief.—A projection upon the outer end of the spring-lever takes over and sets in connection with a projection upon a plate secured upon the door just underneath. Applicant's arrangement serves to hold the door either open or closed.



In a door-spring, the plate *g*, provided with a projection or catch, *h*, and a lever or rod, *f*, provided with a projection or notch, *i*, in combination with the spring *e*, substantially as and for the purpose specified.

187,739. GRAIN-SEPARATORS. J. D. Van Dusen, Auburn, N. Y. [Filed Nov. 2, 1876.]



The adjustable jointed divider, composed of a series of slats, L L, hinged together so as to be folded and unfolded at will, and arranged between the upper and lower set of sieves in the shoe of a grain-separator, for the purposes herein set forth.

187,740. WATER-TIGHT JOINTS FOR ROOFS, &c. E. Waters, Troy, N. Y. [Filed Aug. 14, 1876.]



A water-tight joint or packing for roofs, weatherboarding, staves, or similar purposes, consisting of a strip of paper, paper board, or vulcanized fiber, in combination with the planks or staves A and B, to be united, the latter having longitudinal grooves *a* and *b* for the insertion of the paper or vulcanized fiber, substantially in the manner and for the purpose hereinbefore set forth.

187,741. WHEEL-HARROWS. W. Whipple, Carbon, Iowa. [Filed Dec. 19, 1876.]

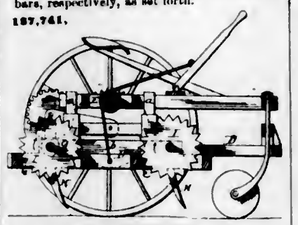
Brief.—The teeth are bifurcated at their upper ends, and supported in position by two longitudinal bars, above which is a transverse shaft carrying toothed disks or blades, which, in their revolution, cut away whatever obstruction may accumulate in their front.

1. The combination of the teeth H, divided at the upper ends and carried by cross-bars *e e*, or their equivalents, and cutters I, attached to shafts *g*, arranged above the teeth, to carry the cutters through the slots of the teeth or at the sides, substantially as set forth.

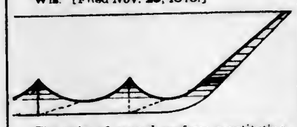
2. The combination of the teeth H and shafts carrying cutters I and bars N, substantially as specified.

3. The combination of the frame D, cross-bars *e e*, and teeth divided at the upper ends, each side being connected to one of the said bars, respectively, as set forth.

187,741.

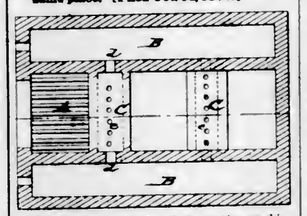


187,742. CONSTRUCTION OF HULLS OF VESSELS. W. B. Whiting, Waukesha County, Wis. [Filed Nov. 29, 1875.]



The series of curved surfaces constituting the bottom of the boat.

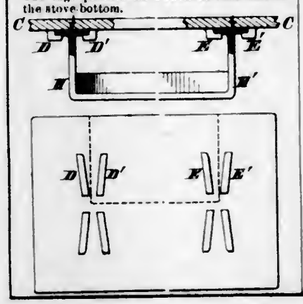
187,743. HEATING AND FEEDING AIR AND STEAM TO FURNACES. Wm. Woolcock, Newburg, Ohio, assignor of two-thirds his right to A. Atkinson and J. Woolcock, same place. [Filed Oct. 14, 1876.]



In a smoke-consuming furnace, the combination of the chambers B, located on each side of the furnace, for the reception of air and steam, the inlets *a b* to the chambers, outlets *d*, and hollow bridge C, provided with the holes *s*, whereby the steam is superheated, and the air heated before being mingled together and fed to the fire, substantially as shown and described.

187,744. SHELF ATTACHMENTS FOR STOVES. S. L. Yourtee, Cincinnati, Ohio. [Filed May 26, 1876.]

Brief.—The rib serves to stiffen the shelf. The lugs provide for a shelf on each side of the stove-bottom.

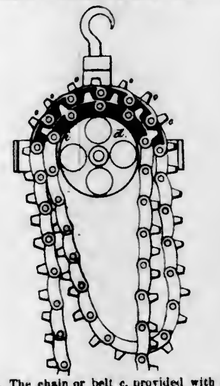


1. The shelf I, supported by hangers or ends H H', depending from the bottom of a cook-stove, said shelf being out of contact with the floor.

2. The combination of bottom plate C, lugs D D' E E', and detachable shelf H h H' h' I, substantially as described and set forth.

3. The stiffening-rib or fender J, extending from end to end of the shelf, and connecting with the bottom plate I of the same, for the purpose specified.

187,745. DIFFERENTIAL CHAINS FOR PULLEY-BLOCKS. B. Arnold, East Greenwich, R. I. [Filed Jan. 3, 1877.]

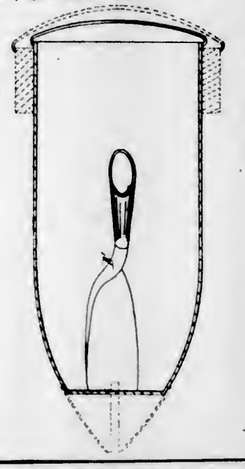


1. The chain or belt c, provided with projections, the distances between which are differential with regard to the distances between the centers of the links or the recesses in them, substantially as and for the purpose herein set forth.

2. The combination of the chain c with the pulleys *d* and *a*, substantially as described, and for the purpose set forth.

187,746. PROJECTILES. C. B. Ball, Philadelphia, Pa. [Filed Nov. 7, 1874.]

Brief.—Spiral air-passages are formed within the projectile, starting at the front end and opening out laterally near the base, by which rotary motion is imparted to the projectile. A round the base is placed a wooden sabot or band, which closes the openings of the air-passages, and which is thrown off, as soon as it leaves the gun, by the impact of the air passing into and through the channels. A cap having an opening which leads into the air-passage of the projectile is placed upon the front end, for the alleged purpose of causing the projectile to ricochet.



1. The combination, with a projectile having the spiral diverging air and grease channels B', beginning at its flat end and terminating at its sides, of the wooden sabot E covering the rear end-openings of said channels, so as to be shattered by the issuing currents when the shot is discharged, substantially as described.

2. The separable projectile point B, having a central longitudinal aperture, *d'*, for the admission of air to the air-channels of the projectile, substantially as shown and described.

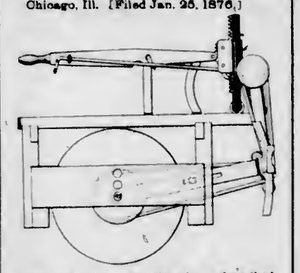
187,747. SACCHARINE-COMPOSITION SIRUPS. H. B. Blackwell, Boston, Mass. [Filed Apr. 13, 1876.]

The described artificial saccharine sirup or composition, consisting of glucose in the form of an uncrystallized or an uncrystallizable sirup, or of a sirup not readily crystallized, sucrose, and water, combined in or about in the proportions as specified.

187,748. ROOFING COMPOSITIONS. Jas. C. Cheatham, Decatur, Ill. [Filed Mar. 20, 1876.]

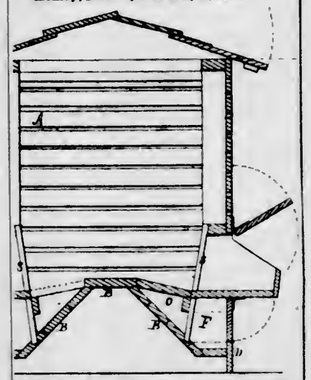
A roof-covering formed and composed of cloth stretched upon the roof, the said cloth being covered with a layer composed of coal-tar, unslaked lime, sulphur, and water, in the proportions herein described, and upon that layer a coating of fine gravel or coarse sand, pressed into the surface of the composition, substantially as herein specified.

187,749. HARVESTER-REELS. F. J. Coddington and H. N. Kennedy, Plano, assignors to E. H. Gammon and W. Deering, Chicago, Ill. [Filed Jan. 25, 1876.]



The rigid frame a, hinged as described, whereby the sides of the frame are held in parallel lines, in combination with trusses *c*, sliding journal-supports *b*, and operating mechanism, substantially as and for the purpose set forth.

187,750. CORN-CRIBS. Chas. H. Davis, Ackley, Iowa. [Filed May 4, 1876.

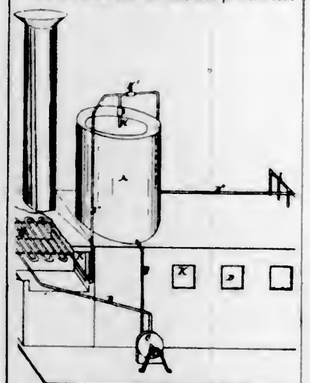


1. A self-feeding corn-crib, provided with feed troughs or boxes *x* and F, situated one above the other, substantially as described.

2. A corn-crib provided with a pyramidal floor, B, in combination with troughs F *x* and cover O, substantially as set forth.

187,751. APPARATUS FOR RECOVERING WASTE ALKALIES. J. W. Dixon Philadelphia, Pa. [Filed Sept. 7, 1876.]

Brief.—The evaporating-pan and coil containing the liquor in circulation are both heated from one furnace, and when a charge is ignited upon the incinerating-hearth the products of combustion therefrom unite with those from the furnace to heat the said pan and coil.

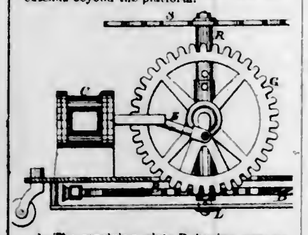


1. The combination of a furnace, E, heat-passage K, evaporating-pan A, over the passage K, coil of pipe B' placed in said passage, and having upon it a pump, C, to circulate the liquor from the evaporating-pan A through the coil and back to the said pan A, whereby one furnace is used to heat the evaporating-pan and the coil containing the liquor in circulation, substantially as described.

2. The combination of a furnace, E, incinerating-hearth D in the heat-passage K, evaporating-pan A over the passage K, coil of pipe B' placed in said passage, and having upon it a pump, C, to circulate the liquor through the coil from and to the evaporating-pan A, whereby the united heat from the furnace E and the hearth D, through passage K, heats both the evaporating-pan A and the coil B' containing the liquor in circulation, substantially as described.

187,753. COAL-MINING MACHINE. C. L. Driessloin, Chicago, Ill. [Filed Oct. 17, 1876.]

Brief.—The engine, on a platform, operates, by gearing, a horizontal disk below it, on the shaft of which is a disk, above. Teeth on both, those below in sockets attached to plates locked into the disks. Half the surface of both disks extends beyond the platform.



1. The revolving plate B, having recesses T in its outer edge, in combination with the independent cutter-holders M, constructed with sockets N and the independent cutting-tool P, substantially as described.

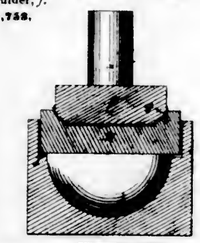
2. The revolving cutter B, in combination with the gear-wheel G, fixed on the crank-shaft, and meshing with the cutter-plate, crank-shaft F, and pitman E, arranged and operating substantially as described.

3. The revolving cutter plate B, in combination with the upright shaft R and upper cutter S, arranged to cut an upper and lower channel simultaneously, substantially as described.

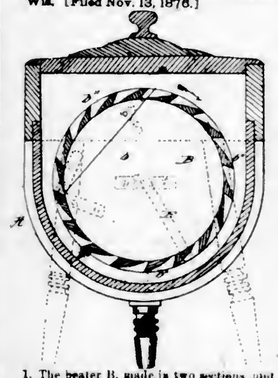
187,752. MANUFACTURE OF WATCH-CASES. F. Ecaubert, New York, N. Y. [Filed Jan. 31, 1877.]

The female die B, constructed with an internally annular milled surface or portion, *b*, in combination with the male die C, substantially as shown and described, whereby the watch-case front or back is not only struck up into form, but is milled on its border or rim, and formed with an internal ring-supporting shoulder, *f*.

187,754.



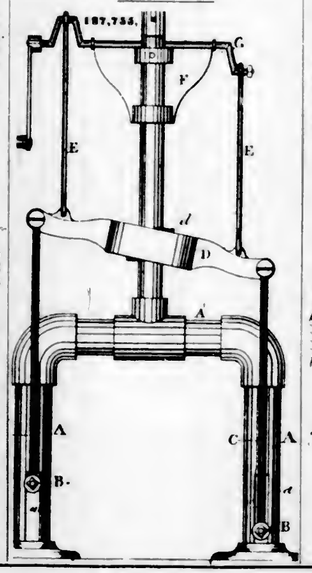
187,754. CHURNS. S. E. Frazier, Ironton, Wis. [Filed Nov. 13, 1876.]



1. The beater B, made in two sections, and having wedge-shaped floats *b*, substantially in the manner and for the purposes set forth.

2. The combination of the beater B with the box A, having a curved or semicircular bottom, substantially as set forth.

187,755.

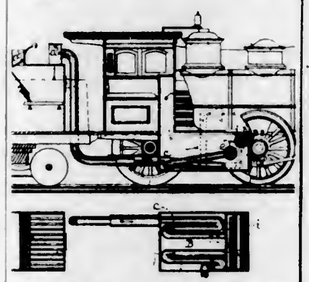


187,755. FORCE-PUMPS. Cyrus Green, Hespeler, Ontario, Canada. [Filed July 29, 1876.]

Brief.—Two upright cylinders, flanged at the bottom, and secured to a bed-piece in the bottom of the well. The cylinders are constructed with slots, and are each of them provided with a working bucket and a stationary valve, and are connected with each other at the top of the elbows and other suitable pieces, and forming, when so connected, a double pump, but with one discharge-pipe common to both, which rises from the middle of the connection-pipes and projects above the mouth of the well.

The combination of the cylinders A A, connection-pipes A* A', discharge-pipes P, cross-heads B B, side-rods C C, oscillating beam D, connecting-rods E E, top bracket F, crank-shaft G, and winch H, as shown and described, and for the purposes set forth.

187,756. APPARATUS FOR UTILIZING GAS AS A FUEL. Wm. Hainsworth, Pittsburg, Pa., assignor to himself, H. W. Patterson, and J. Irwin, same place. [Filed Feb. 3, 1877.]

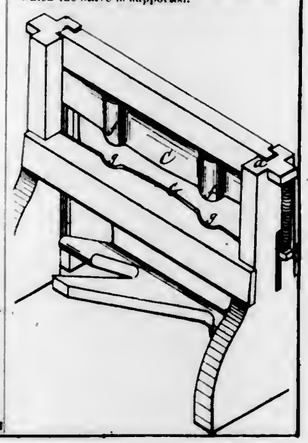


1. The pipes *e s* and slitted or perforated cross-tubes or drums *s i*, arranged in the fire-space of a heating apparatus, with the drums opposite the exit-flue, and the pipes in the line of draft between the drums and exit-flue, substantially as set forth.

2. A gas-producer, a gas-heater, and burner apparatus connected therewith, and an air heating and supply apparatus for perfecting the combustion of the gas, arranged on and combined with a locomotive and tender, substantially as set forth.

187,757. MACHINES FOR JOINTING STAVES. J. Hazard and J. Greenwood, Rochester, N. Y. [Filed Dec. 11, 1876.]

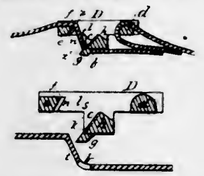
Brief.—Staves for ventilating-barrels are simultaneously jointed and notched upon their edges by means of a vertically-reciprocating knife provided with curved offsets, and a metallic shear having corresponding offsets, and attached to the edge of the cutting-bed upon which the stave is supported.



1. In a stave-jointer, the knife C and shear G, having the coincident offsets *f g*, for producing notches in the edges of the staves in the act of jointing, as herein shown and described.

2. The process herein described of notching staves in the act of jointing, by the employment of a knife and shear having offsets *f g*, operating as and for the purpose specified.

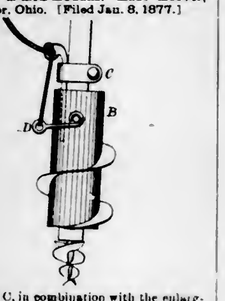
187,758. BALE-TIES. B. Hempstead, Little Rock, Ark. [Filed Sept. 2, 1876.]



1. The combination of the buckle D, having depressed front and rear bars *d e*, and a depressed acute-edged intermediate bar, *h*, having an oblique stud, *g*, the band A adapted to be passed around the bars *d e*, between the raised side bars of the buckle, and provided with spaced perforations *b*, adapted to receive the stud *g*, substantially as specified.

2. The rectangular bale-tie buckle having the level front and rear bars, and the depressed acute-edged central bar provided with the oblique stud *g*, substantially as specified.

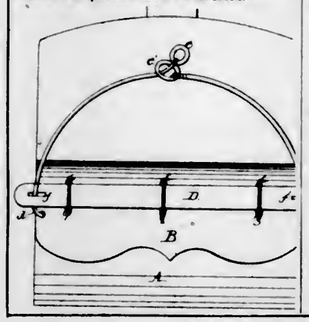
187,759. EARTH-AUGERS. Isaac Hoover, Webster, Ohio. [Filed Jan. 8, 1877.]



The key C, in combination with the enlarging-anger B, bail D, shaft A, and chain G, substantially as set forth.

187,760. FASTENERS FOR POCKET-BOOKS. J. H. Jantsen, Pittsburg, Pa. [Filed Dec. 14, 1876.]

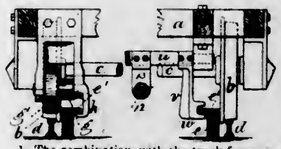
Brief.—The manner of operating the device is as follows, to wit: The flap being fastened, as shown, to unfasten it, draw the cord *d* through the eyelet *f* until the end of the strap reaches the ring *e'*; then pass the end of the strap through this ring and draw the ring *e* through the eyelet *f*. This releases the strap at one end, and it can be drawn out of the rings 1 2 3 and release the flap. To fasten the flap down this operation must be reversed.



As an improvement in fasteners for pocket-books, &c., the combination, with the flap B, provided with the eyelets 1 2 3, of the rings *c c c*, strap D, having eyelets *f f'*, and cords *d d'*, provided with the rings *e e'*, substantially as and for the purpose hereinbefore described and set forth.

187,761. SAFETY-GATE. Job Johnson, Brooklyn, N. Y. [Filed Dec. 20, 1876.]

Brief.—Supplemental wheels arranged to support the car on a supplemental rail in case of injury to the main rail or wheel. A brake which operates by clutching the supplemental rail.



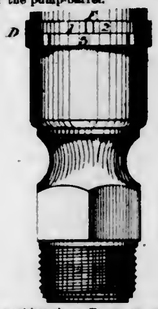
1. The combination, with the truck-frame *a* and wheels *b*, of the guide-rollers *g g'*, each being composed of two different-sized cylinders, and the main rails *d* and supplemental rails *e*, for the purposes and substantially as set forth.

2. The combination of the truck-frame *a*, wheels *b*, guide-rollers *g g'*, main rail *d*, supplementary rails *e*, and hanging arms *h*, for the purposes and substantially as set forth.

3. The brake-arms *v* and graspers *x*, in combination with the rock-shaft *u* and brake-actuating mechanism and flanged rail *e*, substantially as set forth.

187,762. METALLIC PACKINGS FOR OIL-WELL PUMP-VALVES. Thos. B. Kelley, Harmonsburg, Pa. [Filed Nov. 17, 1876.]

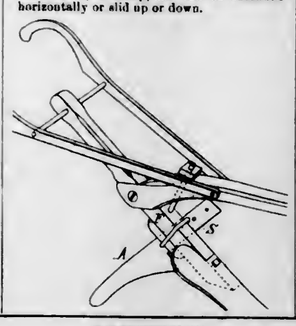
Brief.—The packing is adjustable on the inside of the pump-barrel.



The packing-rings D, constructed in segments 1 2 3 4, with the flange at O O O O, in combination with the spring H K, constructed as described, for the purposes set forth.

187,763. PLOWS. T. B. Kersh, Palestine, Tex. [Filed Dec. 29, 1876.]

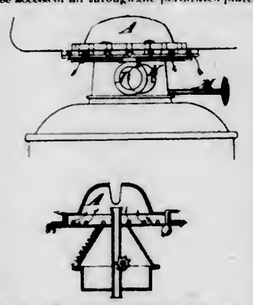
Brief.—An auxiliary blade or scraper to level the furrow or remove the earth farther from the plow. Attached to the rear side of standard by a clamp, and can be extended horizontally or slid up or down.



The combination, substantially as herein set forth, of the blade A, made with a series of bolt-holes in the shank, for the purpose of allowing a side adjustment; the stirrup iron S, with the nuts on its ends, for fastening the blade to the foot-beam of a plow; and the foot-beam F, constructed so that the blade can be moved and secured to it in the adjustable manner described.

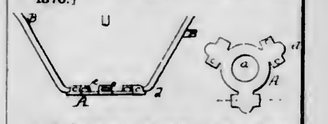
187,764. LAMPS. J. Lowtas, Manchester, England. [Filed Jan. 22, 1877.]

Brief.—Air passes through and also between the tubes on which the globe rests. The construction of the filling chamber above allows free access of air through the perforated plate.



The combination of the burner A with the globe C, substantially as described.

187,765. GAS-SHADE HOLDERS. T. F. McGann, Boston, Mass. [Filed June 29, 1876.]

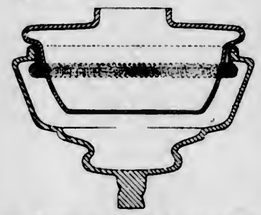


1. A globe or shade holder, in which arms B are connected to a plate, A, by means of lips of said plate bent down upon the arms, substantially as set forth.

2. In a globe or shade holder, the projections *d*, extending beneath and supporting the arms, as specified.

3. In a globe or shade holder, the combination of the plate A, its clamping-lips *e*, and arms B, enlarged at the ends, as set forth.

187,766. LAMPS. R. S. Merrill, Boston, Mass., assignor of one-half his right to H. G. Moshring, Philadelphia, Pa. [Filed Feb. 7, 1877.]



1. The movable oil-reservoir and its holder, formed of glass, porcelain, or other brittle and fragile material, in combination with an interposed metallic bearing, substantially as set forth.

2. The removable oil-reservoir and its holder, formed of glass, porcelain, or other brittle and fragile material, in combination with an interposed metallic bearing and an elastic or yielding cushion or packing, which prevents the wabbling or lateral play of the reservoir in the holder, as set forth.

3. The combination, substantially as set forth, of the reservoir, the holder, its metallic rim, and attached coiled-wire spring.

187,767. OVERALLS. C. B. Moulton, North Cambridge, Mass. [Filed Aug. 26, 1876.]

As an improved article of manufacture, overalls provided with seams only at the inner portions of the legs, and at front and back, as at c d, with a slit at one side, to which are applied suitable fastening devices, crossed shoulder-straps, and with an intermediate seat-supporting strap, all constructed and arranged substantially as set forth.

197,767.



197,768. HINGED COVERS FOR GAS-RETORTS. Peter Munsinger, Philadelphia, Pa., assignor to Morris, Tasker & Co., (limited,) same place. [Filed Mar. 29, 1876.]

Brief.—A radial presser-piece, connected at a single central point to the cross-bar and at two or more peripheral points to the cover, operates to distribute the clamping pressure to a series of points near the periphery of the cover, instead of directly upon its center.

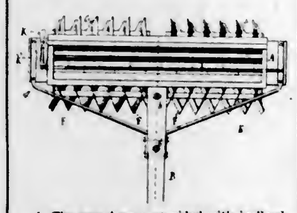


1. In combination with the cover B, the radial presser-piece G, mounted on the set-stud F, and bearing near the edge of the cover, essentially as described.

2. The combination, for the object specified, of the mouth-piece A, cover B, caps H, presser-piece G, set-stud F, cross-bar C, hinge-bar D, and cam-lever E, substantially as described.

197,769. ROTARY HARROWS. William T. Nichols, Chicago, Ill. [Filed Dec. 28, 1876.]

Brief.—The frame consists of a tongue and cross-bases, seed-box, and adjustable braces. The shaft is made in two parts, and is coupled in the middle by a ring, held by an adjustable brace secured to the under side of the tongue. The shaft is supported upon pendent arms, and is provided with a series of spiral blades, each section of the shaft having their spiral cutters winding in opposite directions.



1. The cross-bars a, provided with inclined lugs or arms a', in combination with the spirally-wound metallic strips F, substantially as and for the purpose set forth.

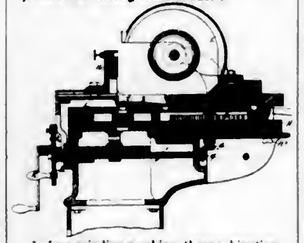
2. The screw or spiral rotary scarifiers E, in combination with the jointed adjustable shaft C, substantially as and for the purpose set forth.

3. The rotary screw-scarifiers E, in combination with the jointed shaft C, adjustable hanger D, and tongue B, substantially as and for the purpose set forth.

4. The cam I, attached to one end of a revolving scarifier, E, in combination with the sliding adjustable rock-shaft K and seeding-slide k, substantially as and for the purpose set forth.

197,770. GRINDING-MACHINES. C. D. Owen and L. Sharpe, Providence, R. I., executors of J. R. Brown, deceased. [Filed Oct. 28, 1876.]

Brief.—Upon the reciprocating table is pivoted, either centrally or at one end, at will, a secondary table carrying an adjustably-pivoted head and a foot-stock. Contour of article to be ground determined by a pattern against which works an index or guide. The wheel-arbor, which carries a stone for inside and one for outside work, is adjustably secured to a pivoted and sliding stand or table.



1. In a grinding-machine, the combination, with the bed-plate, of a reciprocating table, the latter made of sufficient length to cover the bed-plate through the limit of travel of the table, and thereby prevent the ingress of dust or cuttings into the groove in said bed-plate, substantially as set forth.

2. In a grinding-machine, the combination, with a reciprocating table, of a table resting thereon, the latter secured to the reciprocating table, and provided with means to change its pivotal movement from its center to one of its ends, and thus move about a central or an end pivotal bearing-pin, substantially as and for the purpose set forth.

3. In a grinding-machine, the combination, with a reciprocating table, of a pivotal or vibrating table resting thereon, the latter serving as a support for the head and foot stocks of the machine, said pivotal table being provided with an adjusting-screw, g, whereby the pivotal table may be secured at any desired angle to the line of travel of the reciprocating table, substantially as and for the purpose set forth.

4. The combination, with the wheel-arbor base, secured to a pivoted base, of the lower swinging base a', and the intermediate reciprocating base a, substantially as and for the purpose set forth.

5. The combination, with the reciprocating base a, pivoted base m, and wheel-arbor base l, of an actuating and pivotal shaft, the same provided with a pinion to engage with a rack secured to the reciprocating base, and with a gear-wheel which meshes with a corresponding gear secured to the main actuating-shaft, substantially as and for the purpose set forth.

6. The combination, with a wheel-arbor constructed to have a pivoted and reciprocating movement, of an actuating-shaft, which also serves as a pivotal bearing for the lower base of the grinding-wheel, said shaft having a pinion secured to its upper end for engagement with a rack on a reciprocating base, and with a bevel-gear on its lower end which meshes with a corresponding gear-wheel secured to the end of the adjusting-shaft, substantially as and for the purpose set forth.

7. The combination, with the shaft g', arranged at right angles to, and beneath, the bed-plate of the machine, of a vertical actuating and pivotal shaft, for imparting movement to the grinding-wheel, the shaft g', provided with a suitable hand-wheel, for operating the same, substantially as and for the purpose set forth.

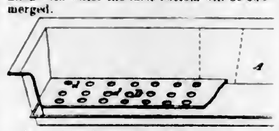
8. The combination, with the laterally-adjustable wheel arbor, having a grinding-wheel secured thereto outside of the arbor-bearings, of the head-stock, pivoted to the vibrating table, whereby the machine is adapted for grinding the inner and outer surfaces of articles secured thereto, substantially as and for the purpose set forth.

9. The combination, with the wheel-arbor of a grinding machine, constructed to have both horizontal and pivoted adjustment, substantially as set forth, of an adjusting-shaft provided with the disk k and clamp s, and stop-pins secured to the stationary portion of the machine, substantially as and for the purpose set forth.

10. In a grinding-machine, the combination, with the head and foot stocks, adapted to be adjusted both laterally and longitudinally, of a grinding-wheel constructed to be adjusted both laterally and pivotally, substantially as and for the purpose set forth.

197,771. WINDOW-PLANT BOXES. F. H. Piaget, Albany, N. Y. [Filed Dec. 12, 1876.]

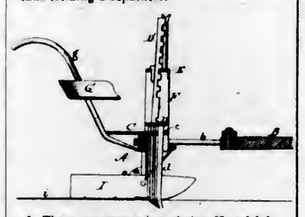
Brief.—The box has three permanent sides and a false perforated bottom. The front side of the box is removable. Running along the whole length of the box, upon its front side, is a water trough, the top of which is just above the false perforated bottom, so that when filled with water the false bottom will be submerged.



In combination with a window-plant box, A, having one of its sides removable, and adapted to hold a variety of plants, the bottom D, provided with vertical perforations, and supported above the bottom c, and the water-reservoir B, having ports communicating to the chamber between the said two bottoms, in the manner and for the purpose set forth.

197,772. POTATO-DIGGER, MARKER, AND CULTIVATOR. G. S. Pickett, Paoli, Wis. [Filed Jan. 3, 1877.]

Brief.—The main frame is provided with open ends or slots for the attachment of land-marking or cultivator beams. A platform, and handles with a seat supported between them, are attached to the rear portion of the frame. A series of prongs attached to an adjusting-bar pass through perforations in a metal plate secured to the main frame. Rods attached to cross-chains secured to the runners have their forward ends secured to the forward chain, thus forming a separator.



1. The cross-supporting chains H and h h, the series of rods i i i, and the guides I I, the same forming a screen to separate the potatoes from the soil, as herein set forth.

2. In combination with the separator, consisting of the chains, rods, and guides, as described, the series of prongs d d, adjustable bar D', and perforated plate C, substantially as and for the purpose specified.

3. In combination with the frame A and platform C, the handles g g, and seat G, supported between the handles, substantially as herein shown and described.

4. The frame A having open ends or slots, and provided with perforated plate C, posts F F, cross-bar E, and standards N N, with forks n n, whereby the machine is adapted to be used as a potato-digger, cultivator, or land-marker, substantially as and for the purposes herein set forth.

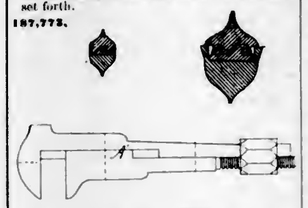
197,773. MONKEY-WRENCHES. Jay W. Powers, Chicago, Ill., assignor of one-half his right to F. M. Mellok, same place. [Filed Jan. 12, 1876.]

Brief.—The main parts are cast, and the flanges of one bent inward over bevels of the other to form a holding slideway.

1. In a sliding-jaw wrench, the combination of a jaw having on each side an inwardly-beveled groove, with a jaw having on each side a flange bent into one of such beveled grooves, in contradistinction to a jaw originally formed with inwardly-inclining flanges, and retaining the inclination, as and for the purpose set forth.

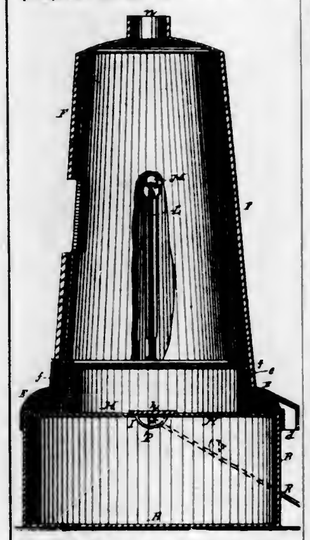
2. In a wrench, the threaded stems of whose jaws are embraced by the operating nut, the combination of a stationary jaw having a seat for the operating-nut, and a beveled groove on each of its sides, with a sliding jaw having on each of its sides a flange bent into one of the beveled grooves, as and for the purpose set forth.

197,773.



197,774. CAR-STOVES. Jas. H. Prentice, Saginaw, Mich. [Filed Feb. 16, 1877.]

Brief.—The rods being withdrawn by the retracting mechanism, the flanged plate and the grate and its contents, resting upon it, are precipitated into the tank.



1. A safety-stove in which the device whereon the grate is placed is sustained by removable supports above a tank containing extinguishing material, substantially as set forth.

2. A safety-stove in which the devices sustaining the grate or fire-bed are retracted by the gravitation of a pendulum, substantially as expressed.

3. In a safety-stove, a grate sustained on removable supports above an open tank of extinguishing material, substantially as set forth.

4. A safety-stove in which the devices sustaining the grate, with the fuel thereon, may be caused to descend into a tank of extinguishing material, substantially as set forth.

5. In a safety-stove, a tank placed below, and capable of receiving, the devices sustaining the grate and fuel, substantially as set forth.

6. In a safety-stove, a stud having inclined sides, or an inclined side, for the purpose of spreading the arms of the bail, as set forth.

7. In a safety-stove, the conical stud D, for spreading the arms of the bail, as set forth.

8. The steam-chamber B, provided with the apertures b and flanges a and c, as set forth.

9. The steam-chamber E, provided with the inlet-apertures b and outlet-pipe d, in combination with the tank B, substantially as specified.

10. The plate H, for the purpose of sustaining the grate and ash-pit, and provided with the aperture I, to permit the plate and its superposed devices to sink readily in the tank when descending, substantially as set forth.

11. The plate H, provided with the aperture I and valve k, substantially as and for the purpose specified.

12. The grate, preserved in proper horizontal position by the sliding rods L, in combination with the heat-chamber, having the slots M, as specified.

13. The tank B and flange c, provided with the aperture N, in combination with the arms P, substantially as specified.

14. In a safety-stove, a movable device for supporting a plate carrying the grate, the plate and grate made capable of descent, as specified.

15. The bail K, in combination with the studs D and plate H, as set forth.

16. The bail K, in combination with the stud D and plate H, and connected with any suitable mechanism for raising the loop p, as set forth.

17. The shaft W, provided with the spring w and head z, in combination with the shaft X, provided with the pendulum Z, as specified.

18. In a device for operating a safety-stove, a pendulous shaft provided with a pendulum, and supporting the pressure of a tripping device, so arranged that when the support of the stove is tilted the pendulum shall move the end of the shaft from under the device it sustains, and allow said device to drop or descend, as specified.

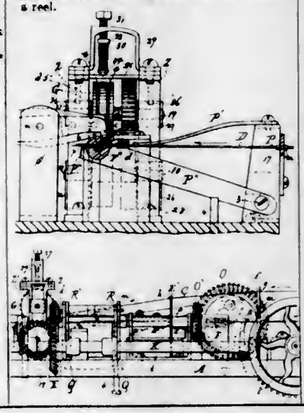
197,775. SHOE-TIPS. S. Prior, Trenton, N. J. [Filed Jan. 15, 1877.]



A boot or shoe tip of leather or rawhide, provided with a base-plate or web of rubber secured to its flange, substantially as shown, and for the purpose specified.

197,776. FENCE-WIRE-BARBING MACHINES. H. W. Putnam, Bennington, Vt. [Filed Jan. 15, 1877.]

Brief.—Separate wires are fed into the machine from the same side; one is barbed from a third wire fed at right angles to the other two, the barbs being severed after being coiled. Both main wires may be barbed by duplicating barbing mechanism. Two pairs of grooved and sprocketed feed rolls are pressed together and fed forward at desired intervals, and on leaving the last pair of feed-rolls the wires are at once twisted together and wound onto a reel.



1. The combination, with barb winding shaft F', of lever K, provided with wire-holding feet o and 6, substantially as described.

2. The combination, with guide-plate i, of notched guide-piece k, substantially as and for the purposes set forth.

3. The combination, with cog-gear M', provided with pins y and s, of blank cog-gear M', provided with locking lever u and arm r, substantially as and for the purposes set forth.

4. The combination, with notched wheel or pulley T and standard 17, of spring-lever P, provided with tubular guide-piece 16, substantially as and for the purposes set forth.

5. The combination, with the feed and guide-rolls G G', the latter gears being provided with barb receptacles f f, of the cog-gears Y and Y' upon shafts 18 and 19, as and for the purposes stated.

6. The combination, with the feed and guide roll G', provided with barb-receptacles f f, of grooved table 39 and vertical flange 40, as and for the purposes set forth.

7. The combination, with the bearings of the upper feed-rolls G, of the self-adjusting compressing devices 30, consisting of the parts marked and lettered 31, 32, 33, 34, 35, 37, and Z Z', substantially as and for the purposes set forth.

8. The combination, with locking-gear V' and notched wheel 23, of blank gear-wheel V, provided with lever 25, substantially as and for the purposes set forth.

9. The combination, with spring-acted feed-rods 61, of the inclined arm 63, provided with curved end 68, as and for the purpose set forth.

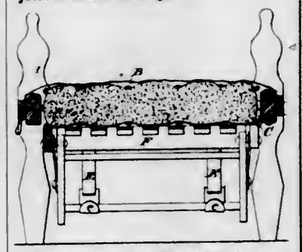
10. The combination, with twister-frame 48, of the skeleton-guide and twisting-rolls 49 and 50, as and for the purposes set forth.

11. The combination, with the twister-frame 48, of combined pulley and ratchet wheels 56, double-threaded screw-shaft 72, provided with pulleys 76, and sliding table 81, as and for the purposes set forth.

12. The combination, with the mechanism for barbing the wire B and feeding the barbed wire B and the wire C, of mechanism for at once both twisting or cabling the wires, to form the finished barbed cable-wire or fencing H, and winding the same upon its spool or reel in a uniform and even manner, substantially as described.

197,777. INVALID-BEDSTEADS. Jno. Q. A. Sargent, Manchester, N. H. [Filed Jan. 9, 1877.]

Brief.—The trundle-bed is raised to take the weight of the patient and lowered for dressing wounds, circulation of air, &c.—in which case the weight of the patient will be on the adjustable transverse straps.



1. The combination of the rod C, the cross-rods E E, provided with links d' d', the hooked lifting-straps e e, and the trundle-bed F, all substantially as described.

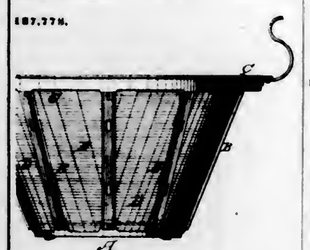
2. The combination of the adjustable looped supporting-straps B and holding-pins b of the main bed with the trundle-bed and its adjusting mechanism, consisting of the rod C, the cross-rods E E, with links d' d', and the hooked lifting-straps, all substantially as described.

3. The combination of the adjustable looped supporting-straps B with the holding-pins b, substantially as and for the purpose set forth.

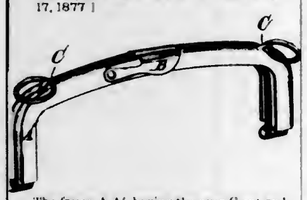
197,778. SHADE-HOLDERS. B. B. Schneider, New York, N. Y. [Filed Jan. 31, 1877.]

The metallic shade holder frame A B C, adapted to be held in position upon the lamp, and provided with means for holding the shade in position, and also provided with material allowing the passage of light, substantially as described.

187,778.

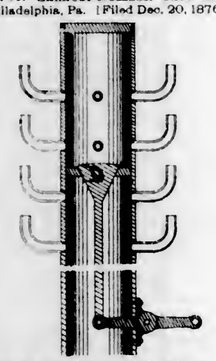


187,779. FRAMES FOR POCKET-BOOKS. T. Schimper, New York, N. Y. [Filed Jan. 17, 1877.]



The frame A A′, having the eyes C cut and struck up from, and forming part of, the frame itself, substantially as and for the purpose specified.

187,780. EXHAUST-NOZZLES. Thos. Shaw, Philadelphia, Pa. [Filed Dec. 20, 1876.]



1. An exhaust-pipe provided with jets set at an angle, to give a spiral motion to the ascending current.

2. A jet exhaust-pipe provided with a valve, by which steam is shut off from a portion of the jets, and the draft increased through the remaining jets.

187,781. CAR-STARTERS. E. R. Stillman, Burr Oak, Mich. [Filed Nov. 2, 1876.]

1. The shaft D, driven by friction devices from one car wheel, and provided with adjustable gears for connecting it with another, in combination with the spring H and band I, connected to the spring, and to a drum on the said shaft, all substantially as and for the purpose specified.

2. The spring H and driving-shaft D, and flexible band or strap I, connected to the shaft and spring, all combined and operating as set forth.

3. The combination of the axle, the driving-shaft D, parallel to the axle, shafts E F, carrying friction and bevel pinions, movable bearings *e e′*, supporting the inner end of said shafts, and lever G, arranged between and connected by links to both bearings, substantially as specified.

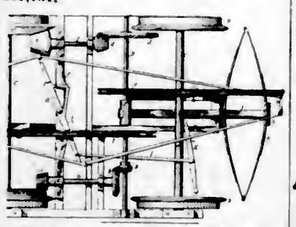
4. The lever G, connected to shafts M at both ends of the car, and to the movable bearings of the friction and gear wheels, substantially as set forth.

5. The combination of the spring H, slotted bar L, and lever K, connected to the lever G, substantially as and for the purpose set forth.

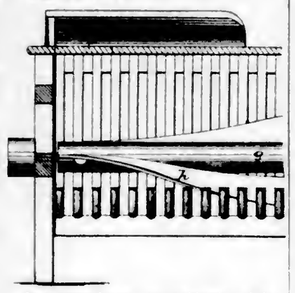
6. The combination of the shaft D, its ratchet-wheels *t t′*, levers P P′, and bars *n n′*, as specified.

7. The combination of the two elliptic springs *g g′* and plates A A′, as specified.

187,782.



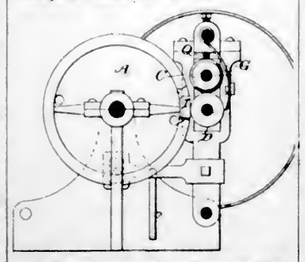
187,782. COTTON-CLEANERS. Edwin H. Taliaferro and S. Kline, Sr., Columbus, Miss. [Filed Sept. 11, 1876.]



In a cotton-cleaner, the combination of the shaft *g*, having the radial wings A extending its whole length, for both beating the cotton, generating a current of air, and forcing the cotton along, with the inclosing case, substantially as described, that allows the dust and dirt to escape, substantially as shown.

187,783. MACHINES FOR POUNCING HATS. E. B. Taylor, Portland, Me. [Filed Sept. 27, 1876.]

Brief.—The pouncing material passed around the cylinder is secured to the latter by its ends being inserted in the opening at L, caught by a split key, and drawn inward to tighten or cause the material to lie close, after which a dovetail key, K, is interposed between the movable section I and the end of the cylinder-rim, to retain the material in position. Guard F prevents the hand of the operative from being caught in the feed-rolls, and spring-guard G prevents the hat from folding or wrinkling while passing through the rolls, and lessens the liability to cut or tear.



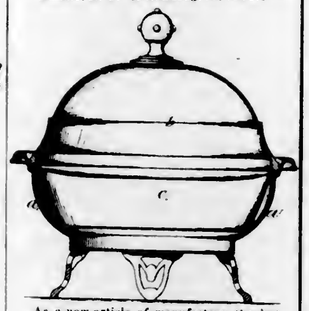
1. The combination of sand-paper or other pouncing material with the cylindrical roll, movable section and arms, and dovetailed key, substantially as described.

2. The combination of the feed-rolls C and D, the movable frame, and stop-lever, substantially as and for the purposes above described.

3. The combination of the cylindrical pouncing-roll A with the feed-rolls C and D, the two guards F and G, the movable frame, and stop-lever, substantially as and for the purposes above described.

4. The combination of the pouncing-roll A with the pouncing material and the two feed-rolls and movable frame, substantially as and for the purposes above described.

187,784. BUTTER-DISHES. A. C. Townsend, Buffalo, N. Y. [Filed Aug. 18, 1876.]



As a new article of manufacture, the butter-dish herein described, consisting of the vessel *a a* and cover *b*, and the removable ice-holder *c*, having a perforated bottom, and provided with a butter platform, hinged or free, as and for the purpose set forth.

187,785. BRANDING-STAMPS. J. D. Trapp, Lexington, Ky. [Filed Jan. 18, 1877.]

Brief.—The type-clamping jaws are operated by mechanism situated at that end of the handle farthest from the type, to avoid burning the hands of the operator. A spiral pinion and worm are connected with the operating shaft, to move the jaws more slowly and with greater force than with the operating-shaft alone.

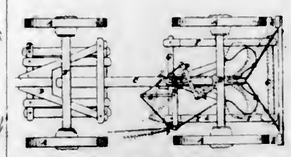


1. In a lettering palette, the combination of the screw *c*, head *b*, hollow handle *a*, pinion *i*, racks *h*, jaws *d*, shaft *g*, and the thumb-wheel *l*, substantially as specified.

2. A lettering-palette in which the jaws are moved back and forth by means of racks and pinion, substantially as described.

3. In a lettering-palette, the combination of a hollow handle, a shaft passing therethrough, and a mechanism, substantially as described, for operating the shaft fast or slowly, substantially as specified.

187,786. WAGON-BRAKES. John M. Van Derzee, New Baltimore, N. Y. [Filed Apr. 13, 1876.]

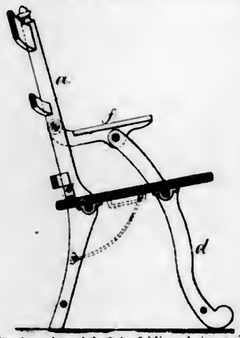


1. The combination, with the rear axle of a farm or equivalent draft wagon, of the springs F, made of elastic wood, in flat and straight pieces, and the supporting-bars G G, provided with stakes *b b*, substantially as and for the purpose set forth.

2. In combination with the front gearing of a farm or draft wagon, the wooden side springs H H, secured to bolster *c*, cross-bars *d d*, upper side springs J J, out of a vertical line with side springs H, and the supporting-bar K, all constructed, arranged, and combined substantially as and for the purpose set forth.

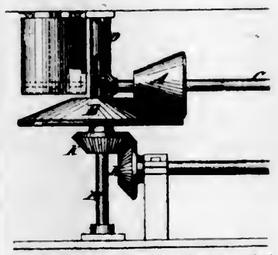
3. The combination, with the springs F, H H, and J J, made of wood, and in the manner of form and relative arrangement substantially as described, supporting-bars G G and K, provided with stakes, with the gearing of a farm-wagon capable of having its length between the forward and hind axles variously changed, the brake comprised by the several parts arranged as set forth, and rope T, or its equivalent, substantially as and for the purpose set forth.

187,787. FOLDING CHAIRS. E. W. Vaill, Worcester, Mass. [Filed Apr. 24, 1875.]



The front legs *d d* of the folding chair specified, connected, by joints, to the seat-frame, and extending above the seat at an inclination toward the chair-back, and united, by the hinged arm-pieces *f*, to such back, and forming braces between the respective parts, substantially as set forth.

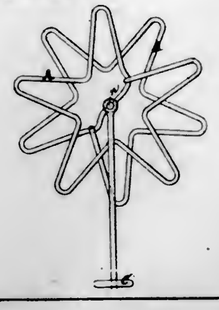
187,788. PAINT-MILLS. J. F. Walter, Jr., Brooklyn, N. Y. [Filed July 1, 1876.]



1. The combination, with the lower conical grinder B and the conical grinder A, arranged upon and at right angles to the lower grinder, and both revolving at different speed, of a feeder constructed and arranged to deliver the substance to be ground at the crowns of the conical grinders, whereby it is, by centrifugal force, fed toward the outer edges of both grinders, substantially as and for the object specified.

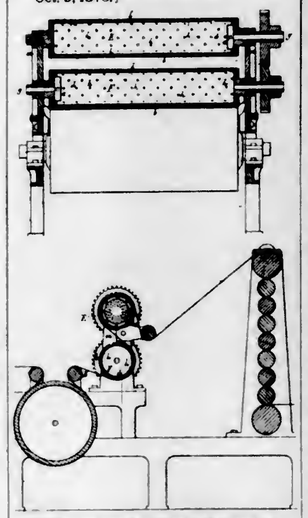
2. The combination, with the shafts C and E, of the conical grinders and the hollow hanger D, containing bearings for both of said shafts.

187,789. TOASTERS AND BROILERS. J. E. Wickham, Watchemoket, R. I. [Filed Feb. 5, 1877.]



A toaster or broiler, provided with frames A A, turning on studs *a* attached to the ends of the handles B B, arranged substantially in the manner and for the purpose specified.

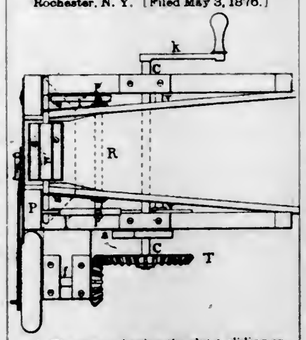
187,790. MACHINES FOR DAMPING PAPER. S. W. Wilder, Lawrence, Mass. [Filed Oct. 9, 1876.]



1. The combination of the perforated dampening-rollers E and F, provided with the jackets *b b*, inlets *g g*, and steam receiving and distributing reservoirs *c c*, all constructed and operating as specified.

2. The dampening-rolls E and F, provided with the steam-inlets *g g*, located in their opposite ends, for the purpose of causing the steam in said rolls to flow in opposite directions, so as to equalize the heating and moistening of the sheet of paper, as specified.

187,791. STRAW-CUTTERS. L. Winslow, Rochester, N. Y. [Filed May 3, 1876.]



1. The arm *m*, having the slot *t*, sliding on the leg *g*, provided with the spring *p*, and connected to the balance-wheel by the stub-wrist *s*, in combination with the knife N and wheel W, for the purposes substantially as set forth.

2. The arm *m*, having the slot *t*, sliding on the leg *g*, provided with the spring *p*, and connected to the balance-wheel by the stub-wrist *s*, in combination with the crank-shaft C, crank *k*, gear-wheels T and *l*, as and for the purposes specified.

3. The compound cam *s*, vibrating shaft *v*, flat semicircular spring *w*, and toothed arm *b*, in combination with the rock-shaft R, oscillating posts *p′*, pallets *l′ l″*, springs *r′*, with the feed-rolls *w′ w″*, substantially as and for the purposes specified.

4. The rock-shaft R, provided with the rocking posts *p′ p″* and mortised rocking pendant *d*, in combination with the pallets *l′* and *l″*, ratchet-wheels W, and pawls, substantially as and for the purposes specified.

5. The rock-shaft R, oscillating posts *p′*, pallets *l′ l″*, springs *r″*, with the feed-rolls *w′ w″*, substantially as and for the purposes specified.

187,792. VENTILATING AND WARMING BUILDINGS. T. Winans, Baltimore, Md. [Filed Jan. 29, 1877.]



1. The method of heating or ventilating buildings, by forming in the floor of the apartment to be heated or ventilated long narrow air channels or slits, which communicate with a source of air-supply beneath the floor, and divide the floor into strips corresponding in width to the width of the several strips of carpeting to be applied thereto, as set forth.

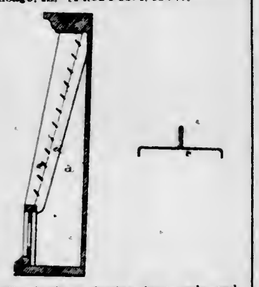
2. The combination, substantially as set forth, with the floor, provided at proper intervals apart with long and narrow air channels or passages, of dust-troughs located in said channel below the level of the floor.

3. A floor divided into strips by means of slits or passages which are formed therein, so as to extend from end to end, or side to side, of the apartment, or thereabout, and are in communication with a suitable source of air-supply.

4. The combination of the floor-channels or air-passages, formed with overhanging sides, and the dust-troughs located in said channels, under the arrangement and for operation substantially as set forth.

5. The dust-troughs, located in the air channels or passages, and provided with bottoms which at one or both ends terminate in an incline, substantially as and for the purposes set forth.

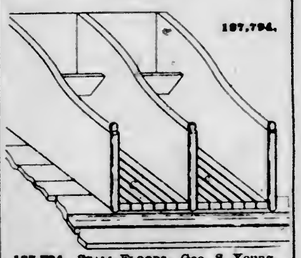
187,793. TICKET-CASES. F. R. Wolfinger, Chicago, Ill. [Filed Feb. 1, 1877.]



1. The hooks *c*, having bent ends and doubled at their centers, so as to form prongs to pass through the tickets, substantially as set forth.

2. The combination of the case *a*, inclined rods *d*, and wire hooks *c*, all constructed and arranged substantially as specified.

187,794.

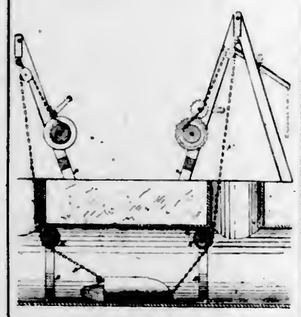


187,794. STALL-FLOORS. Geo. S. Young, Concord, N. H. [Filed Dec. 19, 1876.]

1. A stall-floor composed of the diagonally-grooved planks *a*, metal tongues *c*, and transverse securing-strips *d*, substantially as set forth.

2. A reversible stall-floor composed of planks diagonally grooved upon thin edges, with metal tongues entering the grooves, and transverse fastening-strips for securing the parts together, all constructed and arranged substantially as and for the purpose set forth.

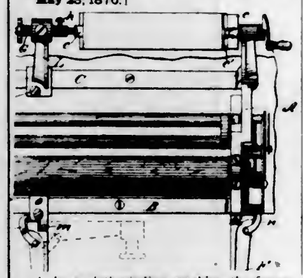
187,795. SEWER-CLEANERS. Henry Allen, Milwaukee, Wis. [Filed Dec. 14, 1876.]



1. A scoop, with a plow at one end of same, yokes D D and rollers E E, in combination with derricks B B and chains F F, substantially as described.

2. Yoke D, roller E, and screws M, placed in a sewer, substantially as and for the purpose described.

187,796. CLOTH-MEASURING MACHINES. C. B. Allyn, Grand Rapids, Mich. [Filed May 23, 1876.]



1. In a cloth-winding machine, the frame composed of the end plates A and beveled cross-bars B and C, with the adjustable arms F G secured thereon by the clamps O and screw *l*, all constructed to operate substantially as set forth.

2. The arms F, hinged to their supports so as to permit them to be folded against the front bar, substantially as described.

3. The combination of the journal H with the sleeve *g*, provided with a set-screw, *h*, and the tubular screw-sleeve G, for adjusting the clamp *c*, as and for the purpose set forth.

4. The clamp *c*, provided with the recesses or enlarged cavity r at its center, substantially as described.

5. The loose or extra clamp *c'*, for use in connection with the journaled clamps *c*, substantially as and for the purpose set forth.

6. In combination with the pivoted or hinged arms F, the hooks *n*, arranged to lock the arms in position, substantially as set forth.

187,797.



187,797. BROOM-HANGERS. Wm. Altick, Dayton, Ohio. [Filed Dec. 9, 1876.]

Brief.—The ring through which the handle is inserted is removable, and, by means of a shoulder, prevents the broom from striking against the wall.

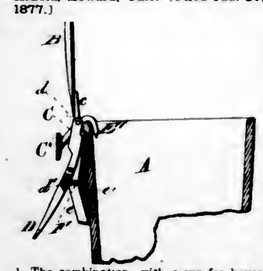
As a new article of manufacture, the herein-described broom and tool hanger, composed of the ring A, with its shank, trunnions, and shoulder, and the slotted and recessed bracket B, when constructed and united, substantially as and for the purpose specified.

187,798. CHEESE-MAKING PROCESSES. L. B. Arnold, Gates, assignor of two-thirds his right to J. Higgins, Berkshire, N. Y., and J. T. Ellsworth, Barre, Mass. [Filed Feb. 4, 1876.]

Brief.—The milk, fresh from the cow, is first heated, then cooled, and then, after standing for the cream to rise, is skimmed; the cream is then churned, and its buttermilk is added to the skimmed milk, which is then heated and set for curd with rennet, as usual in cheese-making.

The herein-described process of making cheese from skim-milk, consisting, first, in heating and cooling the whole milk, as described, and, second, in adding to the sweet skim-milk the buttermilk from the scalded milk, and in subsequently treating the mixture as in making cheese from whole milk, substantially as described.

187,799. COVERS FOR CUPS. Hudson H. C. Arnold, Howard, Ohio. [Filed Jan. 20, 1877.]

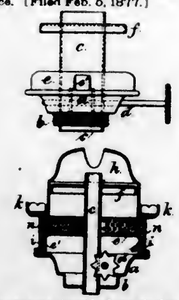


1. The combination, with a cup for beverages, of a sliding cover and a lever, whereby said cover may be partly withdrawn from said cup, substantially as set forth.

2. The combination of cover B, lever D, attaching-plate E, and spring F, substantially as and for the purpose set forth.

3. The combination of cover B, hinged angular bar C, thumb-piece C', lever D, attaching-plate E, and spring F, substantially as and for the purpose set forth.

187,800. LAMPS. L. J. Atwood, Waterbury, Conn., assignor to the Plume & Atwood Manufacturing Company, same place. [Filed Feb. 5, 1877.]

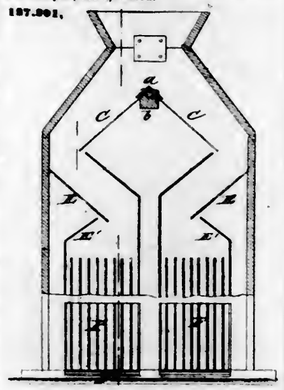


The open-work guide *f*, attached to the wick-tube near the upper part thereof, and the shell and ratchet-cap *e*, in combination with the removable portion of the burner, composed of the cone *h*, chimney-holder *k*, and cylinder *g*, substantially as set forth.

187,801. ASH-SIFTERS. Thos. H. Badger, Boston, Mass. [Filed June 20, 1876.]

The combination, in an ash-sifter, with fingers C C, attached to median cap *a*, and inclined from each other, of the fingers E E, attached to side of vessel, and downwardly-inclined toward each other, substantially as and for the purpose specified.

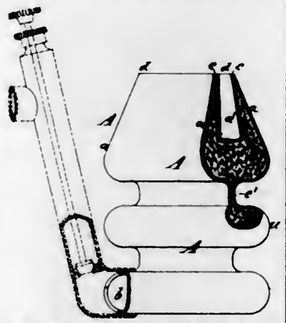
187,802.



187,803. DISINFECTING COMPOUNDS. H. J. Bang, New York, N. Y. [Filed Feb. 1, 1877.]

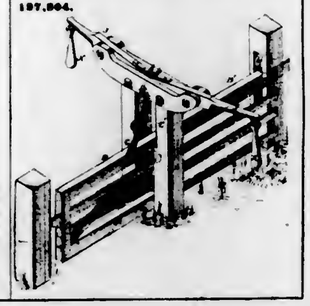
A disinfecting composition consisting of maple-sugar, and of the oils and extracts of pine needles and juniper-berries, in about the proportions herein set forth.

187,803. KEROSENE-BURNERS. E. John M. Becker, New York, N. Y. [Filed July 10, 1876.]



The burner A, constructed to form the chamber *b*, which is provided at its upper end with the narrow capillary slit *c*, and at its lower part directly joined to the supply-pipe, to supply the flame with fuel without the use of a wick, substantially as specified.

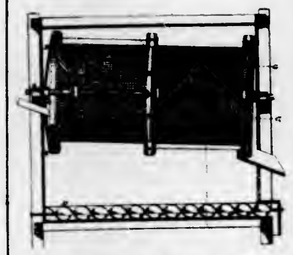
187,804.



187,804. GATES. N. M. Bell, McHenry, Ill. [Filed Dec. 13, 1876.]

The combination, with a gate, A, having top beam B, with extension B', and supported by the rollers *a* and *b b*, of the levers J J, with handles K K, and bands or hooks *d d*, the link *e*, bar L, and levers G G', all constructed and arranged substantially as and for the purposes herein set forth.

187,805. BOLTING-REELS. P. M. Bennett and G. C. C. Smith, Lebanon, Mo. [Filed May 12, 1876.]



The supporting-arms G, placed within the reel-bolt, and formed with feathered edges, substantially as set forth.

187,806. PRINTING-PRESSES. J. E. Braunsdorf and C. Kaiser, Pearl River, assignors to J. E. Braunsdorf & Co., New York, N. Y. [Filed Oct. 7, 1876.]

Brief.—Automatic devices feed the sheets from the pile, on a table below the vertical stationary bed, to gripers on a shaft swinging in links connecting the inking-roller carriage to its rocking frame. Pedestals, reciprocated on horizontal ways by crank-arms, carry the platen, which is oscillated by a link connecting its shaft to the main frame. Lugs on the pedestals hold the roller-carriage up during the impression. A cam-plate fixed to the side of the frame opens the gripers as they descend, and the printed sheet is dropped into an oscillating receiver linked to the sliding pedestal. The ink-drum above the bed longitudinally reciprocates one distributer, intermittingly lifts another, and rocks the fountain and its roller.



1. The sliding pedestals E, having frames *e*, provided with lugs f^2, in combination with rocking disks D', connecting-rods D, fixed guide-tracks E', link-bar F', and roller-frame I, substantially as described, and for the purpose set forth.

2. In ink-reservoir K, the combination of flat plate *k*, curved flange k^1, semi-cylindrical casing k^2, screw-threaded rod or stud k^3, and adjusting-nut k^4, substantially as set forth.

3. Inking-cylinder M, having projections and depressions *m m* on one of its ends, in combination with the sliding block P, friction-roller m^3, stop-block P^1, spring P^2, and distributing-roller L^2, substantially as described, and for the purpose set forth.

4. The wheel C, having a cam-groove on its inner face, in combination with the rocking frame J, having a lug engaging in said cam-groove, and provided with link-plates J^3, pivoted to the inking-roller frame I, and the griper-shaft U, journaled in lugs of the link-plates, substantially as described, and for the purpose set forth.

5. Side arms J^1 J^1 of rocking frame J, in combination with link-plates J^2 J^2, ink-roller frame I, and gripers T' T', carried by a shaft, pivoted in lugs on link-plates J^3 J^3, substantially as set forth.

6. Sliding frames *s s*, provided with lugs s^2 s^2, in combination with composition-roller frame I, rocking arms J^1, and link-plates J^3 J^3, for the purpose of holding the composition-rollers in position to be inked, substantially as set forth.

7. The swinging gripers T' T', depending from the shaft U, and sleeve U', in combination with the platen G, provided with the recess g^2, substantially as described, and for the purpose set forth.

8. Plate X, having cam-guide flanges *x x'*, in combination with studs *w w'* in arms W W', shaft U, sleeve U', spring *u'*, and the gripers, substantially as set forth.

9. The combination of horizontal rocking frame P with table Q and a feeding device consisting of weight R^1 and rubber clamp R^2, substantially as set forth.

10. Horizontal rocking frame P, provided with tracks r^2 and beveled lugs r^3, in combination with feeding device R, having beveled extensions r^4, said devices being arranged to operate so that frame P frees the forward part of each sheet when device R draws it back, and frame P frees the rear part of said sheet when device R feeds the said sheet forward, substantially as set forth.

11. The combination of frame P and feeding device R with a cross-rod, which is arranged to interpose between rubber feeding-pad *r* and the sheet of paper which is being fed forward, substantially as and for the purpose set forth.

12. The combination of cam N^1 on shaft N with rod O, spring O', and frame P, substantially as set forth.

13. The combination of cam N^1 in shaft N with vertical vibrating frame P^1, and feeding device R, for the purpose of giving a backward and forward motion to said device, substantially as set forth.

14. The combination of weight R^1 with rubber holding-clamp R^2 and adjusting-screws and springs for regulating the pressure of rubber feeding-pad *r* upon the paper, substantially as set forth.

15. Oscillating paper carrier or guide casing V, in combination with links *v v'*, and sliding platen-supporting pedestal E, substantially as set forth.

16. Oscillating fountain-roller L, in combination with bearings *l l* and link-plates L^2 L^2, having beveled lugs l^2 l^2, eccentrically attached to disks m^1 m^1 of the inking-cylinder M, and roller L^1, substantially as described, and for the purpose set forth.

187,807. SHOE-LAST FASTENERS. Samuel Brumley, Jonesborough, Ind., assignor of part of his right to E. W. Pemberton and C. L. Pemberton, same place. [Filed Sept. 5, 1876.]

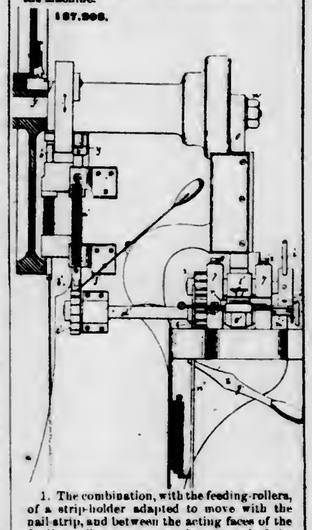


The lever-catch C, provided with the hook *b*, the foot *c*, and the spring *a*, adapted to be pivoted within the cavity *f* of the interpiece B, in combination with the slotted lock-plate *m*, the dowel *p*, and the knob or pin-head *n*, substantially as and for the purposes specified.

187,808. MACHINES FOR MAKING HORSE-SHOE-NAILS. R. E. Cady, Boston, Mass., assignor to Globe Nail Company. [Filed June 3, 1876.]

Brief.—Intermittingly-revolving feed-rollers advance the strip, and adjustable gages at the front and back of the said rollers keep the edge of the strip in proper line with the punches and dies. A strip-holder united by a dovetail connection with the end of the strip is acted on by the rolls after the strip has passed beyond their bite, and serves to present the extreme end of the strip to the punches and dies. A gage on the strip-holder prevents it from being advanced over the dies by coming in contact with a lever of the trip mechanism, which, being turned, releases the devices connecting it with the clutch and stops the machine.

187,808.



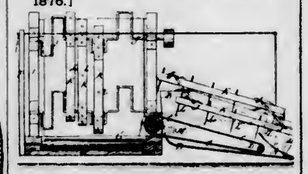
1. The combination, with the feeding-rollers, of a strip-holder adapted to move with the nail-strip, and between the acting faces of the feeding-rollers, to present the rear end of the strip to the action of the punch and die, substantially as described.

2. The strip-holder and its detaching-gage, in combination with the tripping-lever, and with connected devices to stop the machine when the end of the nail-strip reaches the punch and die, substantially as described.

3. The tripping-lever *w'*, rod *w'*, levers *m* and *l*, and connected unclutching-bar *i*, provided with a shoe, and adapted to operate the bolt *e* and disengage the pulley, substantially as set forth.

4. In a machine for making horse-nails, the feeding-rollers and punch and die, in combination with the adjustable gages *r r'*, arranged and adapted to operate as described.

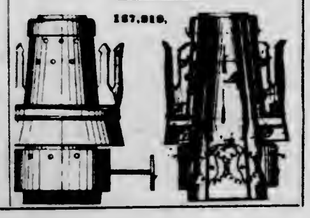
187,809. HARVESTERS. Andrew Campbell, Nebraska City, Nebr. [Filed Aug. 14, 1876.]



1. The combination, with fingers A, of the bars K, having a sharp point and edge on forward tooth, as and for the purpose described.

2. The combination, with the cutters and cutter guards, and an endless apron carrying the grain directly back therefrom, of the reciprocating heads having depending teeth, substantially as and for the purpose specified.

187,810.

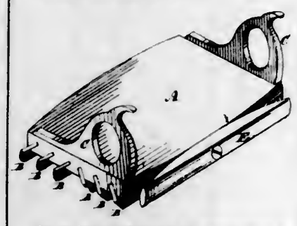


187,810. LAMP-BURNERS. W. L. Carter, Monroe, Mich. [Filed Feb. 1, 1877.]

1. The regulating perforated plate D, combined with the hood F and the inlet to the outside tube G, substantially as specified.

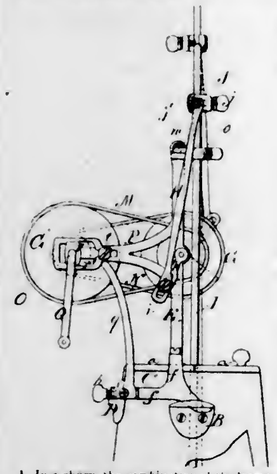
2. The hood F, exteeding downward from the bottom of the chimney-holder, to form an extension of the chimney, substantially as specified.

187,811. HAND-RUBBERS. Henry Carter, Aylmer, Ontario, Canada, assignor of one-half his right to D. Stewart, same place. [Filed Jan. 3, 1877.]



As an improved article of manufacture, a clothes scouring device consisting of the board A, having rubber or other flexible strips B, or rows of brush, as described, and two vertical handles, C, on its upper face for its manipulation, and cleat E on its rear edge for securing the clothes, as set forth.

187,812. CHURNS. Oscar Chase, Rutland, Ohio. [Filed July 8, 1876.]



1. In a churn, the combination of the frame C, having arms *g*, catches *g'*, and the set-screw *h*, and the tub A, having slotted lugs H and stop D, substantially as specified.

2. The combination, with a churn-pitman and the crank-arm *k*, having the rabbeted slot *i*, of the rabbeted nut *i'*, extending into said slot, and the clamp-screw *l*, substantially as specified.

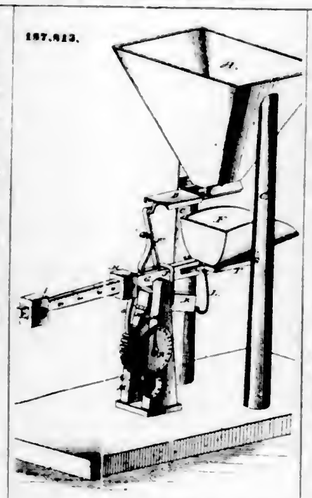
3. The combination of the shaft F, having pulley G and crank-arms K K, the adjustable shaft O, having pulley G', and the belts M N, with the dasher-shafts and pitmen, substantially as and for the purpose specified.

4. The clip K, having a fixed jaw, *o*, and a horizontally-vibrating lever jaw, *o'*, in combination with the dash-rods I and a spring, *s*, as and for the purpose set forth.

187,813. GRAIN-SCALES. P. H. Cherry, Parsons, Kans. [Filed June 23, 1876.]

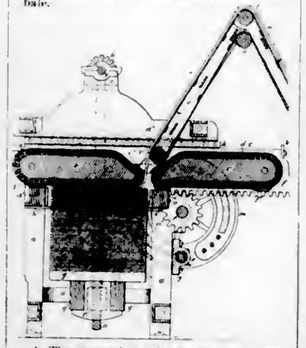
In a grain-register, the combination of scale-beam Q, hopper A, and vessel F with ratchet-wheel P, cog-wheel U, and chain R and S, substantially as and for the purposes set forth.

187,813.



187,814. COTTON-PRESSES. A. H. Chetlain, Chicago, Ill., administrator of S. A. Clemens, deceased. [Filed Dec. 19, 1876.]

Brief.—The cotton as it comes from the gin is formed into a continuous sheet, which is pressed and laid, under pressure, in folds, doubled one upon the other. The bale is lowered as formed. The aprons around the platens are attached to fixed parts of the press, so as to pass back and forth around the platens as they are reciprocated, and are thus alternately brought, without frictional resistance, in contact with the upper surface of the bale.



1. The traversing table *b*, when combined with a cotton-press, for the purpose of laying and packing the cotton in folds under pressure, substantially as herein described.

2. The combination of the platens *c* and girders *f*, when constructed substantially as described, for the purpose of keeping in place the layers of compressed cotton.

3. The platen *c*, rollers *d*, and endless apron *e*, when combined with the traversing table *b*, substantially as described, and for the purposes set forth.

4. The hopper *f'*, when attached to and in combination with the traversing table *b*, substantially as described, for the purpose of guiding the sheet of cotton, and preventing it from being displaced by the aprons *e*.

5. The anti-friction rollers *k*, constructed in sets, detached from the rest of the press, in combination with the frame of the press and the traversing table *b*, substantially as described, and for the purposes set forth.

6. The combination of the baling-bed *g* with the screws *u*, having a continuous automatic motion, and gradually lowering the baling-bed as the bale is formed.

7. The combination of the mangle-wheel *m*, shaft *p*, pinions *o*, and traversing table *b* with toothed racks *f'*, for the purpose of baling cotton, in the manner herein described.

8. The combination of an adjustable feed mechanism, consisting of the ratchet-wheel *j*, arms *q q'* and *l l'*, and eccentric *k'*, constructed substantially as described, with the feed-screws *u* and baling-bed *g*, substantially as described, and for the purposes set forth.

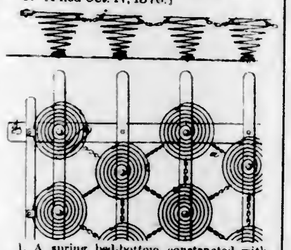
9. The combination of the hinged apron-frame *r'* and apron *w'* with the traversing table *b* and cylinder *p'*, constructed substantially as described, and for the purposes set forth.

10. The combination of the cylinder *p'*, rollers *s'* and *s'*, and apron *w'*, when combined with a cotton-press, for the purpose of forming the cotton into a sheet and carrying it to the press, substantially as described.

11. The traversing table *b*, constructed with the opening between the platens *c*, in combination with the cross-bars *a'*, for the purpose of passing the bagging and ties around the bale, substantially in the manner described.

12. The combination of the cylinder *p'*, the hinged apron-frame *r'*, the apron *w'*, the traversing table *b*, the feed mechanism, as described, the feed-screws *u*, the baling bed *g*, the mangle-wheel *m*, pinion *r*, and vibrating shaft *s*, substantially as and for the purposes described.

187,815. SPRING BED-BOTTOMS. Chas. J. Clements and E. P. Fowler, New York, N. Y. [Filed Oct. 17, 1876.]

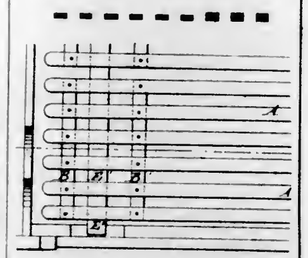


1. A spring bed-bottom constructed with flexible and elastic foundation strips, and without rigid frame-work, so that the same can be rolled up for transportation, substantially as described.

2. In a bed-bottom with flexible and elastic foundation strips, the springs thereof combined with adjustable side pieces, substantially as and for the purpose described.

3. A bed-bottom constructed with flexible and elastic foundation-strips, having slots and studs formed in the ends of such strips, substantially as and for the purpose described.

187,816. SPRING BED-BOTTOMS. John F. Coder, Toledo, Ohio. [Filed Dec. 11, 1876.]



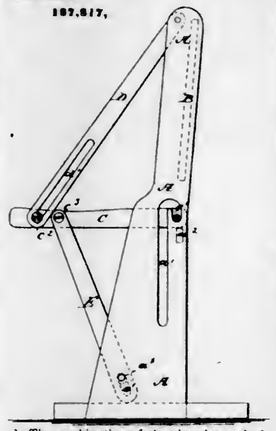
1. A bed-bottom composed of strips of wood attached together, substantially as described, and made in two sections, the strips of one section being more rigid than the strips of the other section, substantially as herein set forth.

2. The combination of the bottom composed of strips A and cross-bars B B', and the curved cross-bars E E', substantially as shown and described.

187,817. FOLDING SEATS. A. B. Cogswell, Burlington, Vt. [Filed Dec. 30, 1876.]

Brief.—The seat has projecting pins on its side edges, at its rear corners, which move in vertical slots in the standards as the seat is opened or closed, and the pins rest in recesses at the upper ends of the slots when the seat is opened, and at the bottom of the slots when the seat is closed. Slotted brace-bars extend from the standards to the front of the seat, to support it when opened and to guide it in its movements.

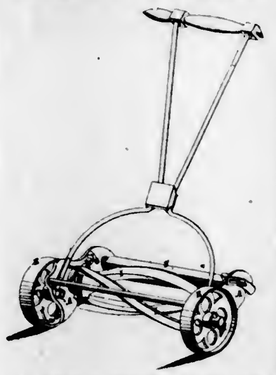
187,817.



1. The combination of the pins *c'*, attached to the rear parts of the ends of the seat C, and the standards A, provided with slots *a'*, having their upper ends curved into the form of an inverted U, substantially as herein shown and described.

2. The combination of the bars D, having long longitudinal slots in their lower parts, and the bars E, having short longitudinal slots *a'* in their lower ends, with the seat C and the standards A, substantially as herein shown and described.

187,818. LAWN-MOWERS. Thos. Coldwell, Newburg, N. Y. [Filed Nov. 20, 1876.]



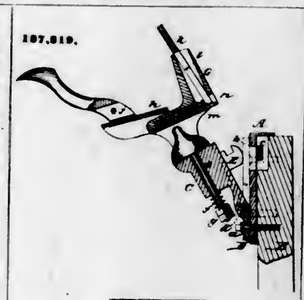
As a means for operating the rotary wiper I, the pinion K, provided upon its outer face with the laterally-projecting teeth *k*, and the driving-wheel E, having upon its inner face horisontally inward-projecting teeth *e*, substantially as and for the purpose specified.

187,819. LASTING-JACKS. C. H. Collins, Lynn, Mass., assignor to himself and F. Deshon, same place. [Filed Oct. 14, 1876.]

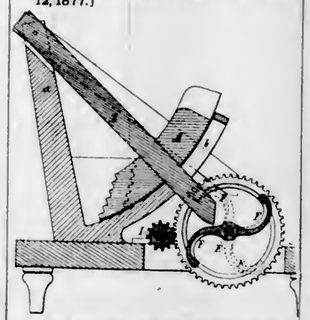
1. A lasting-jack, in which the socket C is hinged at the lower end to a plate, D, and latched at the upper end in a plate, A, as and for the purpose described.

2. The shoulder *d*, arranged on the rear and below the pivot of socket C, and adapted to rest upon the upper edge of plate D, as and for the purpose set forth.

187,819.



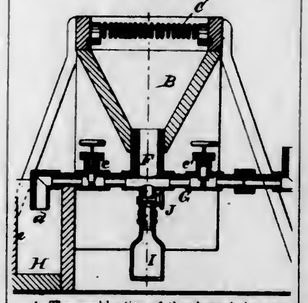
187,820. FULLING-MILLS. Chas. T. Colby, Newburyport, assignor to himself and R. B. Hawley, Amesbury, Mass. [Filed Jan. 12, 1877.]



In the fulling-mill, the stock-tappets applied to opposite sides of, and fixed rigidly to or cast in one piece with, their gear, in combination with the latter, provided with a driving gear, and arranged on a supporting-shaft, and extended between the stock-arms, all being substantially as set forth, and to operate as specified.

187,821. ORE-SEPARATORS. W. M. Courtis, Wyandotte, Mich. [Filed Jan. 13, 1877.]

Brief.—An inlet at the bottom of the hopper admits an upward water-current, which rises against the inclined grating, over which the tailings are flowing. The grating retains the large masses, which pass, with the light worthless material, off at the side chute or overflow. The separated ore, mercury, and amalgam sink through the bath, and collect in the settling-tank and the trap-receptacle, located opposite to and below the inlet-orifice.



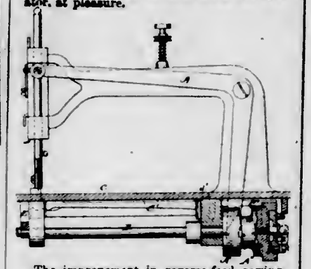
1. The combination of the chute A, hopper B, grating C, pipes F G, and valves *e e'*, substantially as herein shown and described.

2. The combination of the receptacle I, hopper B, and pipes F G, substantially as shown and described.

3. The settling-tank H, in combination with the hopper B and its pipes, substantially as and for the purpose herein shown and described.

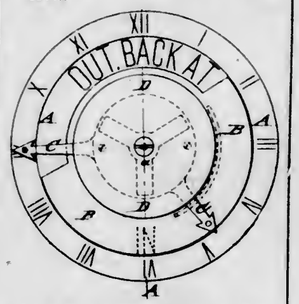
187,822. SEWING-MACHINES. W. G. Cummins, Cokeville, Tenn. [Filed July 22, 1876.]

Brief.—An improved combination of reversible feed, shuttle-driver, and needle-arm, whereby, (by means of a device attached to the cam which drives the needle-bar,) by the reversal of the driving-wheel or shaft, the seam may be sewed toward or from the operator, at pleasure.



The improvement in reverse-feed sewing-machines hereinbefore set forth, consisting in the cam A', for operating the needle-arm, having the circular cavity and the projection *b*, the disk D, provided with the projection *g*, the link B', the shuttle-lever C', arranged beneath the bed plate, and the four-motion feed-bar E, connected to the eccentric wrist-pin *d* of the driving-shaft, all combined, as shown and described, to operate as specified.

187,823. INDICATORS. C. C. Curtiss and J. Curtis, Chicago, Ill. [Filed Jan. 19, 1877.]



An office-dial, composed of a base dial-plate, A, attached to door or bulletin-board of a partly-recessed and movable disk-plate, B, of one or more hands, C, and of a binding top or face-plate, D, substantially in the manner and for the purpose set forth.

187,824. LASTS. L. Darosir, Natick, Mass., assignor to C. B. Travis, same place. [Filed Dec. 11, 1876.]



1. A wooden last, in combination with strips *b* of leather fitted in grooves in the last, and with the flesh side uppermost, substantially as and for the purpose described.

2. A wooden last, in combination with strips *b* of leather prepared and treated with an oleaginous preparation, substantially as described.

3. A wooden last, in combination with strips of leather *b* shaped and fitted in grooves in the last, substantially as described, and nailed to the last at one edge of the strips, substantially as set forth.

4. A wooden last, grooved substantially as described, in combination with strips of leather glued into the grooves and nailed or pegged,

to assist in holding the strips in place, substantially as described.

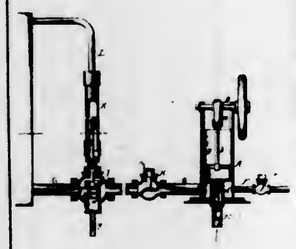
5. A wooden last grooved substantially as described, in combination with strips of prepared leather fitted to the grooves and glued and nailed or pegged to hold the strips, substantially as set forth.

6. A wooden last, in combination with leather strips *b* and center-pieces *g*, placed in grooves and recesses in the last bottom and nailed or pegged to the wood of the last, substantially as and for the purpose described.

7. A wooden last, in combination with leather strips *b* and heel-plate *d*, placed in grooves or recesses in the last bottom and nailed or pegged to the wood of the last, substantially as described.

8. A wooden last, in combination with leather strips *b*, center-pieces *g*, and heel-plate *d*, all applied in grooves or recesses in the last bottom and nailed or pegged to the wood of the last, substantially as and for the purpose described.

187,823. HEATER AND FEEDER FOR STEAM-BOILERS. A. De Beaumont, Philadelphia, Pa., assignor of one-half his right to W. H. Palmer, same place. [Filed Jan. 8, 1877.]



1. The combination of the pump A, the pipe E communicating with the exhaust-pipe of the engine-valve *c*, water-pipe F, and force-pipe G, communicating with the boiler.

2. The combination of the boiler J, pipe G, cylinder K, and its float *n*, carrying a valve, *m*, with the chest I, its two sets of ports, and its waste-pipe *y*, as set forth.

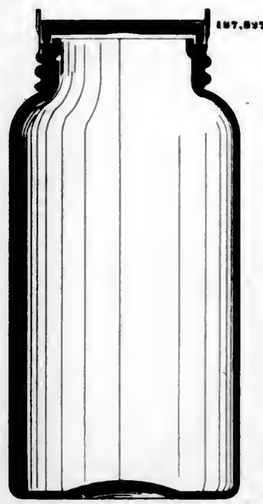
187,826. PANTALOONS. S. Deutsch, Philadelphia, Pa. [Filed Dec. 5, 1876.]



As a new article of manufacture, a pair of pantaloons or similar garment, provided with a combined adjusting-strap and measure ticket, consisting of a leather buckle-strap marked with the maximum, minimum, and intermediate sizes or measures of waists to which such garment may be adjusted, substantially as described.

187,827. FRUIT-JARS. A. Dickey, Middletown, Ohio. [Filed Oct. 26, 1876.]

Brief.—Asserts that light induces fermentation of contents of a jar from which air has been excluded; hence makes the jar of opaque ("black or dark-colored") glass.

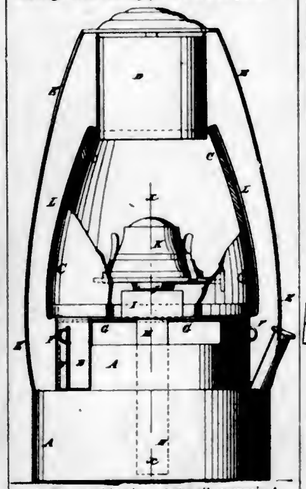


187,827.

As a new article of manufacture, a fruit-jar composed of black glass, as and for the purpose specified.

187,828. KEROSENE-LAMPS. Saml. Dodsworth, Leavenworth, Kans. [Filed Jan. 19, 1877.]

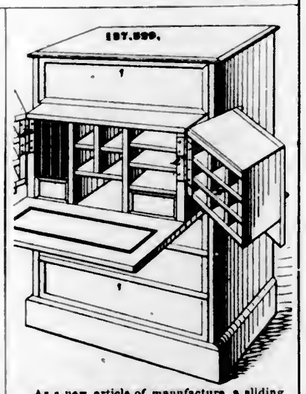
Brief.—The globe and plate on which it rests can be raised, and by partial rotation be made to rest on the legs, to give access to the burner through the cut-away portion of the plate.



1. The combination of the oil-reservoir A, made with a shoulder around its upper part, the plate B, the globe C, the top D, the rods E I, the perforated plate G, the burner K, and the wick-tube, box, and cap H I J, with each other, substantially as herein shown and described.

2. The wick-tube H of a kerosene-lamp, made with flanges *h'* upon the inner surface of its edges, to adapt it to receive a permanent wick or wicks and the burning wick, substantially as herein shown and described.

187,829. DRAWER-DESKS. B. N. Doring, New York, N. Y. [Filed Feb. 3, 1877.]

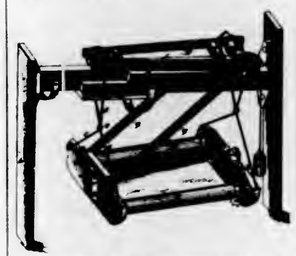


187,829.

As a new article of manufacture, a sliding or drawer desk, having a durable set of pigeon-holes hinged thereto, the whole closing into a chiffonier, or other suitable article of furniture, in the manner substantially as herein set forth, shown, and described.

187,830. QUILTING ATTACHMENTS FOR SEWING-MACHINES. Jno. Douglass, Millport, Mo. [Filed June 12, 1876.]

Brief.—A frame provided with rollers, to carry the quilt and keep it taut, is pendent from a traveling carriage which is supported (on rollers or wheels) upon an extensible beam or frame overhead.



The combination of the quilting-frame and its suspending-cords, the traveling weighted carriage, and the connecting-bars *q*, substantially as shown and described.

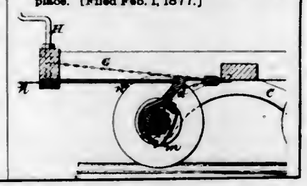
187,831. TRAVELERS FOR JIB-SHEETS. J. D. Drinker, Montrose, Pa. [Filed Jan. 6, 1877.]

Brief.—Travelers for jib-sheets.



The combination of the notched and grooved bar A, the slides C, the hinged blocks D, the spiral springs F, and the ring E, with each other, to adapt the device to be attached to a vessel, to receive and hold the jib-sheet, substantially as herein shown and described.

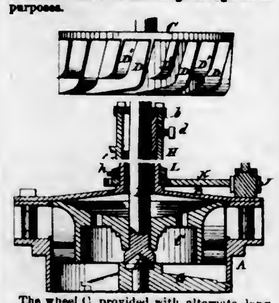
187,832. CAR-STARTERS. M. V. Drake, Attica, Ind., assignor of two-thirds his right to J. S. Nave and C. Nave, same place. [Filed Feb. 1, 1877.]



The combination of the forward axle, provided with groove *i*, the metallic box-sections E F, having interior flanges *s*, exterior flanges *s s*, and ratchet between the same, the lever *d*, strap *m*, and draft-rod I, all constructed to operate substantially as set forth.

187,833. TURBINE WATER-WHEELS. M. V. Drake, Attica, Ind., assignor of one-fourth of his right to N. P. Foster, same place. [Filed Dec. 13, 1876.]

Brief.—The casing is composed of a bottom part and top part, receiving between them the wheel, which is attached to a vertical shaft, and is provided on its circumference with a series of nearly L-shaped buckets, and between these buckets are shorter buckets, making a circle of alternate long and short buckets. By this means greater power is obtained, while the exit of water remains large enough for all purposes.



The wheel C, provided with alternate long L shaped buckets D and short buckets D', substantially as herein set forth.

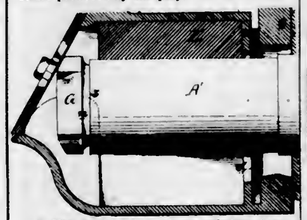
187,834. HARNESS-TRIMMINGS. G. F. Eberhard, Pittsburg, Pa., assignor to Eberhard Manufacturing Company, same place. [Filed Dec. 2, 1876.]



An improved gag and rein runner, consisting of a buckle and an open hook or loop, adapted to receive the rein or strap edgewise, made from a single piece of metal, substantially as shown and described.

187,835. CAR-AXLE BOXES. Jos. Elder, Beardstown, Ill., assignor of one-half his right to P. Farwell, same place. [Filed Aug. 9, 1876.]

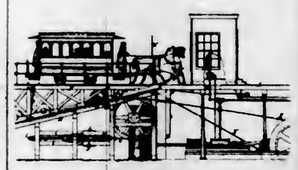
Brief.—A collarless axle having an endwise bearing upon a block in the front of the axle-box, and the wheel-hub fitted to bear upon the rear end, thus relieving the brass lining of strain produced by end play.



1. The combination of an axle-box, having at its rear a bearing, with the end of the car-wheel hub, a collarless journal, A', and a bearing, E, relieved from all end strain.

2. The combination of the box, having a rear end bearing for the hub of a car-wheel, with a bearing for the collarless end of the axle.

187,836. SAFETY HOISTING APPARATUS. J. J. Badrea, New York, N. Y., assignor of one-third his right to J. H. Bonn, Weehawken, N. J. [Filed Jan. 19, 1877.]



1. The combination, with two hoisting-ropes, E E', extending from drums D D', and attached to the trucks F of an elevator, of a safety-rope, G, passing around the horizontally-journaled pulley H, and connected at its ends with the middle of the trucks, substantially as described.

2. In combination with the drum D, the truck F and the track B of two ropes, E E', secured at one end of the truck, and at the other end to the center of the drum, so as to wind outwardly on the drum from its center, substantially as described.

3. The horizontally-adjustable pulley H, in combination with the pulleys I, the safety-rope G passing around the pulleys H and I, and connected at their ends with the trucks F, and the two hoisting-ropes, E E', connected with the truck, and the drums D D', substantially as described.

4. The combination of bolts or latches *y* with gates N of a truck or cage, F, for retaining the trucks or cages while the gates are opened, substantially as described.

5. The combination of stops *d* with the gates N of a truck or cage, substantially as and for the purpose set forth.

187,837. SEWING-MACHINES. Wm. Esty, Fitchburg, Mass., assignor to N. Corning, North Londonderry, N. H., G. W. Hobbs, Uxbridge, and D. W. B. Jackson, Boston, Mass. [Filed Mar. 16, 1876.]

1. The combination, in a machine for uniting two or more pieces of material by means of two threads, of a reciprocating barbed needle, adapted to pierce the material, and to be partially rotated about its axis at each extreme of its reciprocation, a whirl or looper mounted in a work-support, and adapted to carry the lower thread around the barbed needle to form a loop, and an eye-pointed looper-needle, adapted to be reciprocated horizontally above the material to be sewed, and to carry the upper thread doubled through a loop of the under thread, drawn up through the material, and a previously-formed loop of the upper thread, substantially as described.

2. In combination with a vertically reciprocating barbed needle, adapted to enter the stock from above, the eye-pointed looper-needle *t*, curved or cut away upon the side toward the barbed needle, and between its eye and its attachment to its carrier, and mechanism, substantially as described, for imparting thereto a reciprocating motion in the same plane with, but at right angles, or nearly so, to, the barbed needle, as and for the purposes described.

3. In combination with a reciprocating needle-bar carrying a barbed needle, the bar *m*, provided with the slot *n* and the coarse-pitch screw *o*, adapted to be automatically rotated by an upward or downward movement of the presser-bar, the lug *u*, secured to the needle-bar, and projecting therefrom into the slot *n*, and a mechanism, substantially as described, for imparting to the bar *m* a constant reciprocation of invariable length, as and for the purposes described.

4. In combination with the needle-bar and presser-foot of a sewing-machine, the coarse-pitch-screw *o*, adapted to be rotated by the pressure of the needle-bar upon its end, the pinion *p*, and rack *q*, all arranged and connected together as set forth, and adapted to operate as and for the purposes described.

5. The combination, with the bifurcated or U-shaped presser-bar *t*, of the presser-foot *d'*, feed-prong *e'*, secured thereto upon one side of the needle-bar, and the looper-carrier *s'*, secured thereto upon the other side of the needle-bar, all arranged and adapted to operate as and for the purposes described.

6. The combination of the spur-gear wheels *f'* and *g'*, cam *h'*, lever *i'*, rocker-shaft *j'*, lever *k'*, link *l'*, and jointed feed-prong *e'*, all arranged and adapted to operate substantially as described.

7. The combination of the spur-gear wheels *f'* and *m'*, cam *n'*, lever *o'*, rocker-shaft *p'*, lever *q'*, link *r'*, and looper-carrier *s'*, all arranged and adapted to operate substantially as described.

8. The combination of the horn or work-support L, movable stand K, and the standard A, provided with suitable slides to carry said stand K, the several parts being arranged as described, whereby the work-support may be raised or lowered without disturbing the linear position of the tip of the horn relative to the axial line of the needle, as and for the purposes described.

9. The combination of the work-supporting horn, provided with suitable mechanism for forming a loop of the under thread in the inside of the shoe, the stand K, adapted to be moved vertically upon suitable ways on the main standard, and a counterweighted treadle-lever for operating the same, substantially as described.

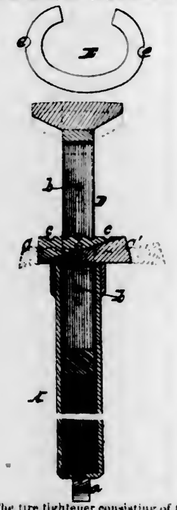
10. In combination with a work-supporting horn, provided with a whirl or looper, mounted in its tip substantially in line with the axis of the needle, the shaft A, provided with a coarse-pitch screw-thread, as shown, and the nut N, fitted to said screw and to vertical ways parallel to said screw, and adapted to be reciprocated in said ways, and thereby rotate the shaft A, and, through the connecting shafting and gearing contained in the horn, rotate the whirl in the tip of the horn, first in one direction and then in the other, substantially as described.

11. The combination of the shaft A, provided with a coarse-pitch screw, as shown, the nut N, fitted to parallel ways, and the cam O, adapted to impart to the nut N a reciprocating motion, with a period of rest at either extreme of its reciprocation, substantially as described.

12. In combination with the work-supporting horn of a sewing-machine, mounted upon a movable stand adapted to be reciprocated vertically, and provided with gearing and shafting to operate a whirl in its tip, and a vertical shaft at some distance from the whirl-operating shaft, two pairs of bevel-gears and a complex shaft, provided with two universal or gimbal joints and a telescopic means of ex-

tension, all arranged and adapted to operate as set forth, to impart motion to the whirl in whatever position vertically the horn may be placed.

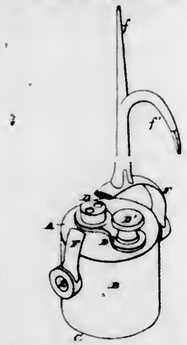
187,838. TIRE-TIGHTENERS. T. A. Frakes, New Holland, Ill. [Filed Jan. 22, 1877.]



1. The tire tightener consisting of the swiveled footed hollow upright A, having the hollow lifting upright or standard B, provided with the cross-bars *b b*, in combination with the wedge C, having notches or grooves *c c* and wedge C', substantially as and for the purpose set forth.

2. The felly-tightening wedge D, having beveled prongs *d d*, substantially as and for the purpose set forth.

187,839. CAST-METAL LAMPS. L. P. Fries, St. Louis, Mo. [Filed Dec. 13, 1876.]



The cast-metal body A B C, burner D, arm D^2, and screw D^1, for securing the same, all constructed and combined substantially as and for the purpose set forth.

187,840. UNDER-WAISTS. S. F. Follette, Boston, Mass. [Filed Feb. 5, 1877.]

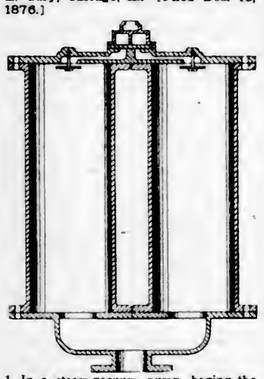
1. An under-waist composed of the six pieces 1 2 3 4 5 6, the part A, and their several converse pieces, formed as shown, and arranged and combined in one garment, substantially as shown and described.

2. An under-waist composed of the six pieces 1 2 3 4 5 6, the part A, and their several converse pieces, formed as shown, in combination with the stays *a a c c a a*, *b b*, and *c*, and their corresponding stays, the whole being combined and arranged in one garment, substantially as shown and described.

187,840.



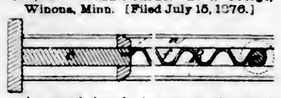
187,841. STEAM AND VACUUM PUMPS. J. E. Gary, Chicago, Ill. [Filed Dec. 16, 1876.]



1. In a steam-vacuum pump, having the webbed-wing flaps and the ports *j j' j''*, operating in combination with a valve-seat, having ports *g g'*, *h h'*, and *i i'*, substantially as and for the purpose specified.

2. The main pipe *c* and the branches *d* and *d'*, in combination with the steam-fitter's T, or cross and strainer *s*, arranged and constructed substantially as and for the purposes described.

187,842. WASH-BOARDS. D. I. George, Winona, Minn. [Filed July 15, 1876.]



In a wash-board, the corrugated metallic plate B, formed of a single piece of sheet metal, and provided at its lower end with a tubular enlargement, *g*, substantially as specified.

187,843. BOX-NAILING MACHINES. A. P. Goodhue, Fond du Lac, Wis. [Filed Jan. 6, 1877.]

1. The combination of the grooved eccentric wheel X and the pins W with the gear-wheels Y A' and the sliding punch-holders S, substantially as herein shown and described.

2. The combination of the flange T and its adjustable gib V, and the adjustable angle-plate U, with the sliding punch-holder S and the plate B, substantially as herein shown and described.

3. The combination of the flanges C and their gibs E, and the slide-blocks D, with the plate B, substantially as herein shown and described.

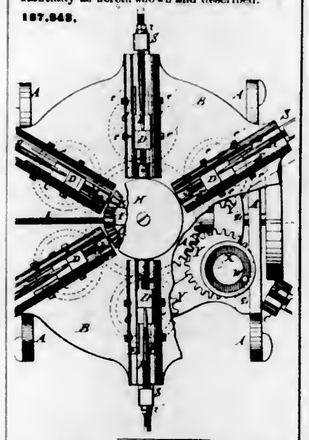
4. The combination of the swiveled screws F, the gear-wheels G H I, and the crank-shaft J with the slide-blocks D and the plate B, substantially as herein shown and described.

5. The combination of the pivoted die-holders L, and the dies N and their springs O, with the slide-blocks D, substantially as herein shown and described.

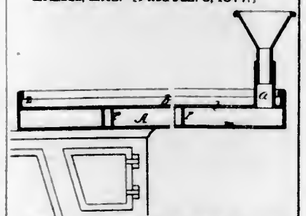
6. The combination of the spring M with the die-holder L and the slide-block D, substantially as herein shown and described.

7. The combination of the spring-catch Q and the pin P with the slide-block D, the die-holder L, the dies N, and their springs O, substantially as herein shown and described.

187,843.



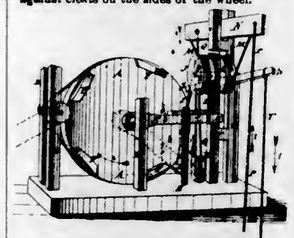
187,844. FRUIT-DRIERS. Lewis Granger, Armada, Mich. [Filed Jan. 6, 1877.]



The combination of the steam or water chamber A, drying-pan *b*, supported by the posts P, escape-pipe *a*, and handles A, the whole adapted as described, for use in connection with a cooking or other stove.

187,845. MOTIVE POWERS. Jarratt Gross, Catlettsburg, Ky. [Filed Dec. 4, 1876.]

Brief.—A vertical wheel and a weighted lever on each side are on the same pivot, between two posts. The levers, raised alternately by ropes and pulleys, act as pawls against cleats on the sides of the wheel.

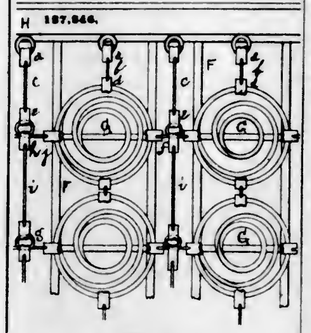


The combination of the wheel A, having projections F, the weighted levers E, the rope connecting them with the pulley J, the pulley L, rope M, and lever N, the lever S, for assisting the operation of lever N, and the pull-ropes P T, all constructed and arranged as shown and described, to operate as specified.

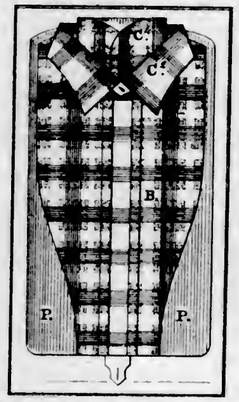
187,846. SPRING BED-BOTTOMS. Robt. M Gruwell and C. Newhouse, Stockton, Cal. [Filed Feb. 23, 1877.]

In a bed-bottom, substantially as described, the combination, with the rectangular frame and spiral springs, of the rings H, leather loops *a d e j*, hook *b c f i*, and center ring *g*, when the several parts are constructed and arranged substantially as described and shown.

187,846.



187,847. SAMPLE-CARDS. S. Gutmann, New York, N. Y. [Filed Jan. 2, 1877.]



1. A show-card for exhibiting manufactured goods, to which is attached portions of the fabric from which the goods are made up, said fabric being shaped to represent in miniature any desired article of apparel in a finished condition, substantially as and for the purpose set forth.

2. A sample, consisting of a card adapted to exhibit together or separately the strips of real fabric B, C^1, and C^2, shaped to represent in miniature, and in a finished condition, the articles of apparel manufactured from said fabric, substantially as and for the purpose set forth.

187,848. BASE-BALLS. D. Hale, Boston, Mass. [Filed Feb. 10, 1877.]



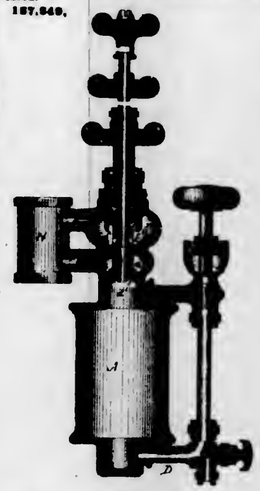
As a new article of manufacture, a base-ball provided with a sewed cover of india-rubber cloth, substantially as described.

187,849. LUBRICATORS FOR STEAM-ENGINES. J. Harper, Westville, Conn. [Filed Feb. 5, 1877.]

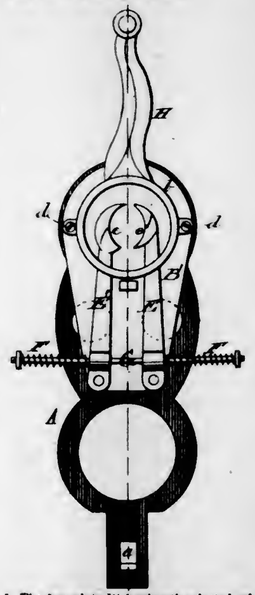
1. In a lubricator, substantially such as described, the combination of an adjustable valve to regulate the outflow of the lubricating material, and a passage independent of the passage opened by the said valve for the inflow of condensation, substantially as specified.

2. In a lubricator for steam-engines, substantially such as described, the lubricating-chamber, the steam-pipe coupling, the valve-chamber, and connections, all constructed in one and the same piece, substantially as set forth.

187,849.



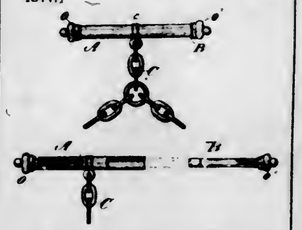
187,850. CORN-SHELLERS. J. M. Hawley, Odin, Ill. [Filed Dec. 2, 1876.]



1. The face-plate H', having the slotted cylinder B formed on, or otherwise rigidly secured thereto, and carrying the grasping-arms E E', substantially as described, and for the purpose set forth.

2. The standard A, provided with the orifice A', in combination with the face-plate H', having the slotted cylinder B formed on, or otherwise rigidly secured thereto, and carrying the grasping-arms E E', substantially as described, and for the purpose set forth.

187,851. WATCH-CHAIN BARS. William S. Hicks, New York, N. Y. [Filed Jan. 26, 1877.]

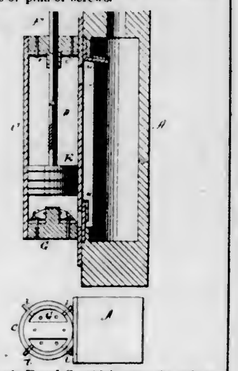


1. The open-ended tubular chain-bar A, provided with a central ring, C, in combination with the detachable pencil-case B, constructed and arranged to operate substantially as described.

2. The tubular or hollow chain-bar A, provided at one end with an ornamental head, *o*, in combination with a detachable pencil-case, B, provided with a corresponding head, *o'*, all constructed substantially as described, so that when the bar and pencil are united the whole shall have the appearance of a single solid bar, as set forth.

187,852. PUMPS. G. W. Holmes, Council Bluffs, Iowa. [Filed Jan. 20, 1877.]

Brief.—The cylinder-heads are held in place by means of pins or screws.



The heads F and G, which carry the valves *e e*, made separate from, and independently connected to, the cylinder C by the pins or screws *i i*, and in combination with the valves *e e* and the stock A, as and for the purpose set forth.

187,853. UMBRELLA TIP-CUPS. Thos. G. Hojer, New York, N. Y. [Filed Feb. 28, 1876.]



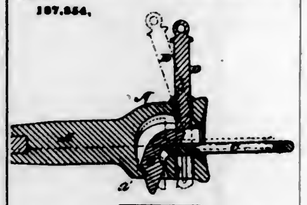
The combination of the externally-screw-threaded ferrule C and the internally-screw-threaded tip-retainer A B, with the umbrella-handle D, substantially as and for the purpose set forth.

187,854. CAR-COUPLINGS. E. T. Hopkins, Davenport, Iowa, assignor to Ence Car Coupler Company, same place. [Filed Nov. 2, 1876.]

The draw-head A, recessed as described, and constructed with side cheeks or projections a

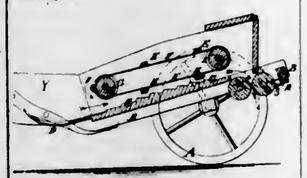
and shoulder *a'* at the rear of the recess, in combination with the loose tumbler B, provided with a rabbet or shoulder, *b*, upon its back, substantially as and for the purpose set forth.

187,854.



187,855. GRASSHOPPER-KILLERS. Charles Hoos, Arago, Nebr. [Filed Dec. 18, 1876.]

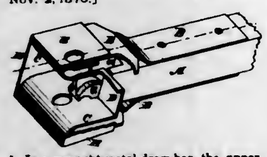
Brief.—The device is mounted upon two wheels, one of which is affixed to a driving-gear, by which an endless apron and crushing-rollers are put in motion. The platform over which the endless apron passes is formed into a series of inclined planes, against which the cross-slats of the apron impinge, thus crushing the insects. The forward part of the platform is provided with upwardly-curved fingers, and in rear of the endless apron are situated a pair of crushing-rollers, for the purpose of crushing such insects as may escape the endless apron.



1. The combination of the wheels A, the frame B, the grooved or rabbeted platform C, the curved fingers D, the cross-bars E, the endless belts F, the pulleys and shafts G I H J, and the rollers M Q, with each other, substantially as herein shown and described.

2. The combination of the gear-wheels K L N O P with the rear shaft J, the rollers M Q, and the revolving axle of the wheel A, substantially as herein shown and described.

187,856. CAR-COUPLINGS. E. T. Hopkins, Davenport, Iowa, assignor to Ence Car Coupler Company, same place. [Filed Nov. 2, 1876.]



1. In a wrought-metal draw-bar, the upper and lower plates or bars B, bent inwardly to form the sides C and back D, as described, in combination with the inclosing-band E, to form a recessed or chambered draw-head, substantially as set forth.

2. The combination of the bars B, interior plates C D, slotted as described, and wooden stock or bar A, provided with a recess, *a*, at its forward end, substantially as and for the purpose set forth.

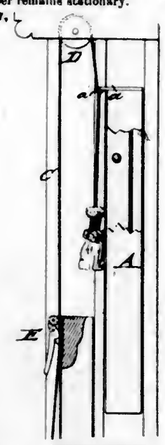
3. The combination of the wooden stock or bar A, wrought-metal plates B, bent to form the sides and back C and D, band E, and loose coupling-tumbler G, all constructed, arranged, and operating substantially as and for the purpose set forth.

187,857. SASH-BALANCES. Jules Houriet, Terre Haute, Ind. [Filed Apr. 4, 1876.]

Brief.—The end of the usual balancing-cord extends beyond its attachment, and can be used for pulling down the sash.

In a sash-balance, the knotted cord C, having one end clamped to lower sash and the other passed over case-pulley through metallic loop, and provided with an extension below the loop, said extension forming a handle by which the lower sash may be raised while the upper remains stationary.

187,857.

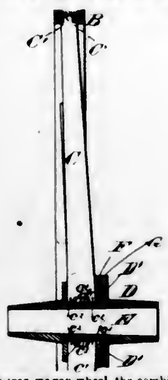


187,858. NECK-TIE HOLDERS. F. Hovey, New York, N. Y. [Filed Jan. 26, 1877.]



The within-described fastening or supporter C for neck-ties and scarfs made of a single piece of sheet metal, with orifice *d*, with notch *e*, and turned-up part *a*, with points or prongs *b b*, substantially as and for the purposes herein set forth.

187,859. VEHICLE-WHEELS. J. E. Howell, El Dorado, Mo. [Filed Sept. 16, 1876.]



1. In an iron wagon-wheel, the combination of wrought-iron spokes C, iron hub having sockets D' D', equal in width at all parts of their length, iron wedges F, and annular band G, substantially as described.

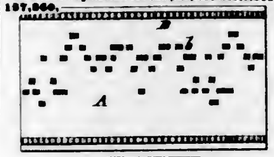
2. Spoke-sockets D', provided with projections *c'*, in combination with recessed spoke C, having projections *c' c'*, wedges F, and band G, substantially as set forth.

187,860. SHEETS FOR AUTOMATIC MUSICAL INSTRUMENTS. P. B. Hoyt, Brooklyn, N. Y. [Filed Sept. 21, 1876.]

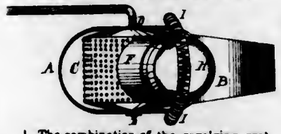
1. A music-sheet for use in automatic musical instruments, made of paper or other flexible material, and provided with projections or studs *a*, substantially as and for the purpose set forth.

2. An automatic music-sheet made of paper or other flexible material, and constructed with serrated or cogged edges, adapted to be fed forward by suitable actuating mechanism, substantially as and for the purpose described.

187,860.



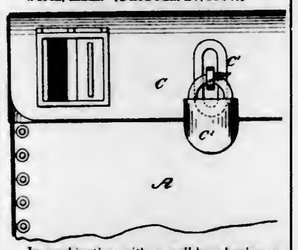
187,861. NUTMEG-GRATERS. J. R. Hughes, Saugus, Mass. [Filed Jan. 29, 1877.]



1. The combination of the revolving grating-cylinder C, the tubular holder F, the follower H, and the looped spring I, secured by both its ends to the casing A or the tube F, all arranged and adapted to operate substantially as and for the purpose specified.

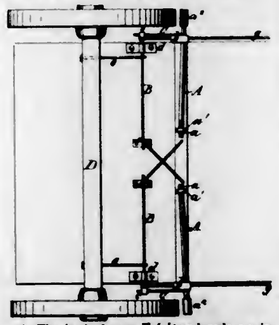
2. The combination of the revolving cylinder C, provided with a grating-surface, the open-ended tubular casing provided with the handle B, the tubular holder F, secured within said casing, with its top end inclined toward the handle B, and the follower H, all arranged and adapted to operate as and for the purposes described.

187,862. MAIL-BAGS. F. R. Hunt, Leavenworth, Kans. [Filed Jan. 27, 1877.]



In combination with a mail-bag, having a closing-flap, B, of an auxiliary safety outer flap, C, provided with intermediate side wings or flaps D D, adapted to fold between the outer and inner flaps, all secured in place by a single fastening device, substantially as described.

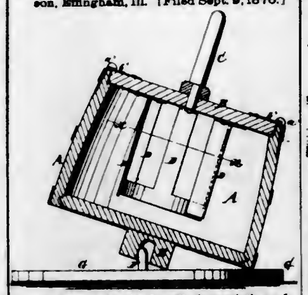
187,863. WAGON-BRAKES. Reuben Hurd, Westford, Mass. [Filed July 6, 1876.]



1. The brake-levers E *h h'* and rods *g g*, in combination with the independently-movable shoe-bars A A and intermediate mechanism, substantially as and for the purpose set forth.

2. The pivoted and laterally-adjustable shoe-bars A A, stirrups *b b*, rods C C, adjustable crank-shafts B B, connected to axle D by rods *e e*, substantially as and for the purpose set forth.

187,864. RECIPROCATING CHURNS. B. Janson, Effingham, Ill. [Filed Sept. 9, 1876.]



The churn herein described, consisting of the body A, cover B, handle C, dasher D, socket E, platform G, and pin F, all constructed and relatively arranged to operate as set forth.

187,865. FLUID MEATS. Jno. L. Johnston, Sherbrooke, Quebec, Canada. [Filed Oct. 14, 1876.]

A compound consisting of lean flesh and albumen, in the form of a dry powder, and the well-known gelatined meat-essence, as set forth.

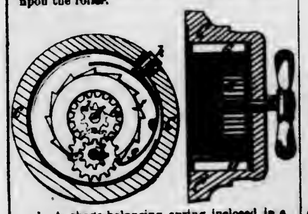
187,866. PROCESSES OF PREVENTING THE ACCUMULATION OF CARBON IN RETORTS. W. Kart, Frostburg, Md. [Filed Jan. 29, 1877.]

Brief.—The retort is first charged with a small proportion of semi-bituminous coal, after which it is filled with bituminous coal. The light gas (principally hydrogen) from the semi-bituminous coal combines with and carries off the tarry vapor and carbonaceous matter from the bituminous coal, that would otherwise be deposited and baked upon the retort, forming there with carbureted hydrogen gas suitable for illuminating purposes.

The process of preventing the accumulation of carbon in retorts used for the generation of carbureted hydrogen, by combining bituminous and semi-bituminous coals, substantially in the manner described.

187,867. SPRING-BALANCES FOR WINDOW-CURTAIN FIXTURES. A. H. Knapp, Newton, Mass. [Filed Feb. 20, 1876.]

Brief.—At its lower extremity the endless cord passes around a spring-balance drum, which is inclosed in a case to be attached to the window-casing. A handle is attached to the spindle, to operate the roller by means of the cord. There is a geared connection between the spring winding-drum and the spindle, whereby, by a single turn of the spindle, the curtain is wound or unwound several turns upon the roller.



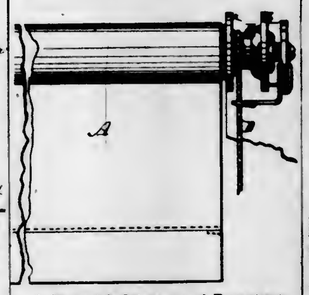
1. A shade-balancing spring inclosed in a detached case, C, in combination with a shade-roller, A, and connecting cord or chain H, substantially as and for the purpose herein specified.

2. The combination of a hand-turning spindle, D, shade-balancing spring E, and revolving drum G, substantially as and for the purpose herein specified.

3. The combination of intermediate gearing *a b c d* with the hand-turning spindle D, spring E, and drum G, substantially as and for the purpose herein specified.

4. The combination of a ratchet-wheel, *f*, and detent *g* with the spindle D and spring-drum G of a detached spring-balance case, C, substantially as and for the purpose herein specified.

187,868. CURTAIN-FIXTURES. A. H. Knapp, Boston, Mass. [Filed Nov. 12, 1876.]



1. In a curtain-fixture, a spool, B, constructed with an inner head, *a*, and an outer head, *b*, the latter having formed therewith the barrel of the spool, and an extension-tube, *c*, to enter the curtain-roller, substantially as and for the purpose herein specified.

2. The combination of the spool-head *b* and friction and ratchet disks *d f i*, the said spool-head having a cavity in which the said disks are located, and ratchet-teeth *h h* on the periphery of the said cavity, to receive the detents of the ratchet-disk, substantially as and for the purpose herein specified.

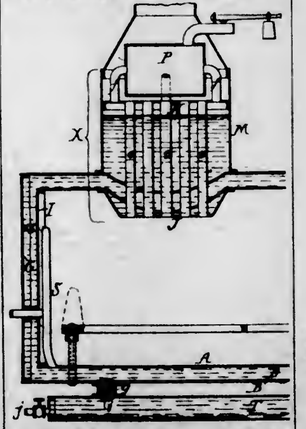
3. The ratchet *f*, formed from a plate of sheet metal, with detent-bearings and receiving-notches in its periphery, and detents *g g*, also cut from sheet metal, to fit in the bearings of the said disk *f*, substantially as and for the purpose herein specified.

4. The spindle *p*, located in the spool E, and retained therein by an outer shoulder or flange, *r*, abutting outward against a shoulder of the spool, substantially as herein specified.

5. The pressure-disk *i*, constructed with a flat or angular outward projection, *s*, and an inwardly-projecting flat or angular part, *t*, substantially as and for the purposes herein specified.

6. The combination of the looped cord-guide *v* and the spindle-bracket C, having a receiving-notch beneath the spindle-notch, substantially as and for the purpose herein specified.

187,869. STEAM-BOILERS. Geo. M. Kraft, Evansville, Ind. [Filed Dec. 16, 1876.]

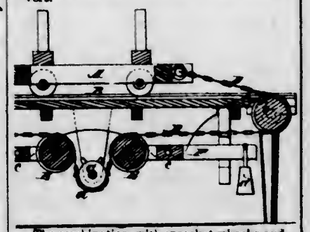


1. The combination, in a steam-boiler, of the horizontal casings A and B, the opposite heads G G, the upright casing M, the combustion-chamber E and its grate F, the dished tube-sheet J within the combustion-chamber, the tubes *c*, and the tube-sheet K within the casing M, as set forth.

2. The combination of a boiler of the character described with the mud-drum T, its connections *g g'*, having valves *i*, and the cocks *j j* at opposite ends of the drum, as set forth.

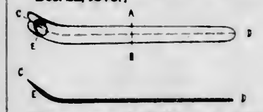
187,870. METHODS OF OPERATING SAW-MILL CARRIAGES. M. Lally, Eau Claire, Wis. [Filed Sept. 9, 1876.]

Brief.—The carriage is moved upon the track by means of a square-linked chain attached to each end of the carriage, passing over stationary pulleys at the ends of the track, under a sprocket-wheel mounted upon a driving-shaft supported in bearings below the track, and over tightening-pulleys arranged on each side, but above, the sprocket-wheel, and journaled in the inner ends of pivoted and weighted levers.



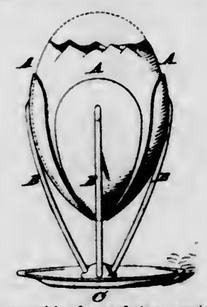
The combination, with sprocket-wheel *a* and link-chain D, the latter extended over stationary pulleys to the ends of carriage, of a guide-pulley, E, on each side of bar above the sprocket-wheel, said guide-pulley being journaled at one end of levers whose other end is weighted, as set forth.

187,871. INSTRUMENTS FOR DRAFTSMEN. A. Langerfeld, New York, N. Y. [Filed Dec. 22, 1876.]



The instrument for draftsmen, consisting of the wedge, with notch C, the indenture at E, the following bend, and the flat handle A D B, shaped like a paper-knife, substantially as described, and for the purposes set forth.

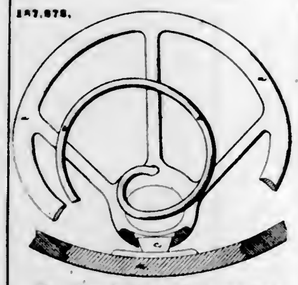
187,872. EGG-HOLDERS. P. M. Leprohon, Brooklyn, E. D., N. Y. [Filed Jan. 13, 1877.]



A new article of manufacture, consisting of leaves A, supported in springs B, that converge toward, and are secured at their lower ends in, the center of a drip-plate, C, as shown and described.

187,873. MOP-WRINGERS. Caleb A. Libby, Evansville, Wis., assignor of one-half his right to G. D. Potter, same place. [Filed Dec. 2, 1876.]

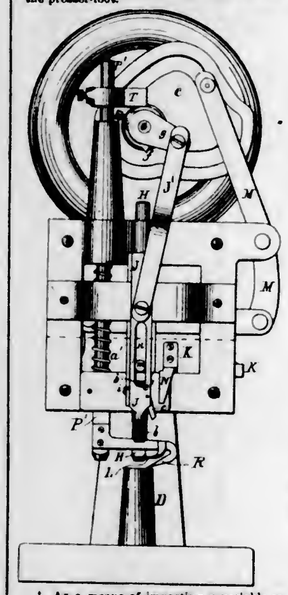
187,873.



The wringer herein described, consisting of the cast frame *a*, having dovetail *s*, and the spiral conical rod *b*, constructed and arranged as set forth.

187,874. SEWING-MACHINES. A. Leavitt and H. L. Draw, Boston, Mass., assignors, by mesne assignments, to the American Staple Sewing Machine Company, same place. [Filed July 10, 1876.]

Brief.—An automatic arrangement (fully set forth in the claims) by which the length of stroke of the needle-bar is regulated by the thickness of the cloth, through the medium of the presser-foot.

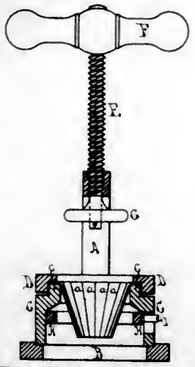


1. As a means of imparting a variable reciprocating motion to the needle-bar of a sewing machine to adapt its stroke to the thickness of the stock being sewed, the combination of the stud *m*, set in the side of the needle-bar, the secondary bar J, provided with the slot *n*, and adapted to be reciprocated in a line parallel to the needle-bar by the crank *g*, as set forth, and the bolt *b* set in the lower end of the bar J, with one end projecting into the slot *n*, and adapted to engage with the stud *m*, and to be automatically adjusted endwise, to vary the working length of the slot *n*, as and for the purpose described.

2. The combination of the needle-bar H, provided with the stud *m*, the operating-bar J, provided with the slot *n* and pawl *c*, the bolt *b*, provided with the spring *d*, and a series of ratchet-teeth, to engage with the pawl *c*, and the arm or bracket L, secured to, or connected with, and having its position vertically controlled by the presser-foot or feed-guard R, all arranged and adapted to operate as and for the purposes described.

3. In combination with the needle-bar of a sewing-machine, provided with the stud *m*, and a slotted operating-bar for imparting an intermittent reciprocation thereto, the bolt *b*, provided with a spring, *d*, and a series of ratchet-teeth, the pawl *c*, a stop for limiting the downward motion of the bolt *b*, and controlled by the presser-foot, and the arm or bracket N, adapted to engage with and trip the pawl *c*, to release the bolt *b*, substantially as and for the purposes described.

187,875. TOOLS FOR INSERTING RINGS IN HOSE. S. H. Loring, Lawrence, Mass. [Filed Aug. 7, 1876.]

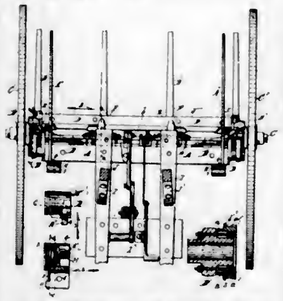


1. The combination of the box C and band D with the splints *a a*, the latter overlapping each other at their lower end and forming an expansible metallic surface, substantially as described.

2. The combination of the yoke A and spindle E, having a cap, G, and splints *a a*, substantially as described.

3. The combination of the adjustable gage-ring H with the box C and splints *a a*, substantially as described.

187,876. HORSE HAY-RAKES. C. M. Lufkin, Alstead, N. H., and C. G. Allen, Barre, Mass., said Lufkin assignor to said Allen. [Filed June 10, 1876.]



1. The combination, with the ratchet-wheels *a* and hubs B′ of wheels C′, of hay guards or shields *a′* and *b′*, substantially as and for the purposes set forth.

2. The combination, with the main axle or rake-head A and clearer-supporting bar D, of holding and depressing stops E E, substantially as and for the purposes set forth.

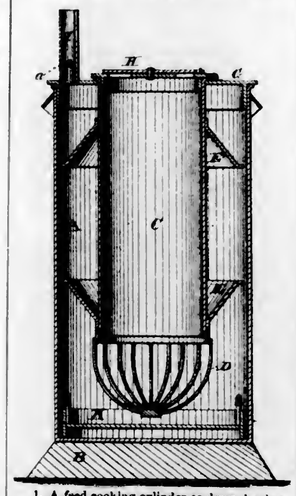
3. The combination, with the connections G G and hinged clearer-bar D, of resting-stops F, substantially as and for the purposes set forth.

4. The tooth holding and supporting device H, constructed to receive and hold the rake-tooth, substantially as and for the purposes set forth.

5. The combination, with the socket-holding part 2 of the tooth-holding device H and the bent end *f* of the rake-tooth A″, of the spiral spring 3, substantially as and for the purposes set forth.

6. The combination, with the projecting end 5 of coiled spring 3, of the projections 9 of the tooth-holder H, substantially as and for the purposes set forth.

187,877. FEED-COOKERS. Jno. P. Martin, Xania, Ohio. [Filed Feb. 1, 1877.]



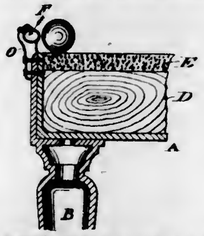
1. A feed-cooking cylinder or drum having a weighted bottom or base, B, for retaining it in the water vessel, as set forth.

2. The cylinder C, having conical flanges E E′, in combination with the cylinder A and the grate D, all substantially as and for the purposes herein set forth.

3. The combination of the main cylinder A, the interior cylinder C, having grate D, the flanges E E′, ventilator H, and exit-pipe I, having a damper, *a*, all constructed substantially as and for the purposes herein set forth.

187,878. BILLIARD-TABLES. J. Marsden, Liverpool, England. [Filed Dec. 6, 1876.]

Brief.—The bed being made of cement upon its playing-surface, and the rails being of metal, and not cushions, the elasticity being in the balls, the whole is adapted for outdoor use.



1. A billiard-table for out-door use, consisting of the metal frame A, provided with the slats or bars D and concrete bed E, and the metallic rail F, adapted for use in connection with rubber or other highly elastic balls, as set forth.

2. The metallic rail F, applied to the frame A, substantially as shown and described.

3. The perforated legs B, arranged as described, whereby they form a rack for the cues, as set forth.

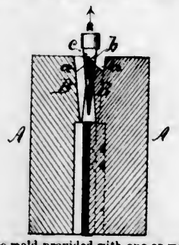
187,879. FASTENINGS FOR GLOVES, &c. T. Masso, Philadelphia, Pa. [Filed Jan. 16, 1877.]

The combination of the strip C, having pointed projections for attachment to the glove and hooks *d d*, with the similarly-pointed holding-strip C′, adapted to receive the hooks and form a fastening, substantially as described.

187,879.

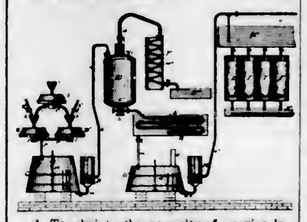


187,880. TYPE-MOLDS. T. Mason, New York, N. Y. [Filed Feb. 2, 1877.]



A type-mold provided with one or more oppositely-disposed angular projections or shoulders within its breaks for severing the jet from the type, as described.

187,881. APPARATUS AND PROCESSES FOR MANUFACTURING PURIFIED SACCHARINE SOLUTIONS. A. Maubre, Penge, England. [Filed May 6, 1876.]



1. To obviate the necessity of previously soaking the grain, and to better fit it for fermentation, the process of treating it previous to passing it into the first receiving-vat C, consisting in first grinding the raw material, as sold upon the market, in a mill or mills without water, and then grinding in another mill or mills with water, substantially as described.

2. The process described of treating the material to obtain a purified saccharine solution, consisting in first grinding in a mill or mills without water; then regrinding in a mill or mills with water; then conveying to a vat, and acidulating the mixture with sulphuric acid; then conveying the mixture into a converter, where the starchy and fatty matters are separated, and from which the fatty matters pass off and are distilled; then passing the saccharine solution through a cooling-coil; then conveying it into a vat, and introducing a solution of carbonate of lime, stirring the same into the mixture, and forming carbonic-acid gas and sulphate of lime, which is taken out of the vat; then conveying into a settling vat or vats; then passing through bag filters into a receiving-vat, substantially as described.

3. The process described of treating the material to obtain a purified saccharine solution, consisting in first grinding in a mill or mills without water; then regrinding in a mill or mills with water; then conveying into a vat and acidulating the mixture with sulphuric acid; then conveying the mixture into a converter, where the starchy and fatty matters are separated, and from which the fatty matters pass off and are distilled; then passing the saccharine solution through a cooling-coil; then conveying it into a vat, and introducing a solution of carbonate of lime, stirring the same into the mixture, and forming carbonic-acid gas and sulphate of lime, which is taken out of the vat; then conveying into a settling vat or vats; then passing through bag filters into a receiving-vat; then blowing in carbonic-acid gas; then passing through bag filters into a final receiving-vat, substantially as described.

4. The combination of the mills A B B′, vat C, provided with stirrer, pump D, converter E, distilling-coil e^3, vat F, cooling-coil h', vat G, provided with stirrer, pump H, vat H′, bag filters I, and receiving-vat I′, all connected and arranged substantially as described and shown.

5. The combination of the mills A B B′, vat C, provided with stirrer, pump D, converter E, distilling-coil e^3, vat F, cooling-coil h', vat G, provided with stirrer, and pipe o^1, pump H, vat H′, bag filters I, receiving-vat I′, and perforated pipe *p*, all connected and arranged substantially as described and shown.

187,882. PROCESSES OF SOFTENING, DECOLORIZING, AND CLEANSING ANIMAL AND VEGETABLE FIBER. Wm. Maynard, New York, N. Y. [Filed Sept. 21, 1876.]

The herein-described process of cleansing, softening, and decolorizing vegetable and animal fiber, by subjecting them to the action of hydrated sulphurous acid, and a solution of an alkali mixed in neutralising proportions, substantially as and for the purpose described.

187,883. SCREW-FASTENINGS FOR COFFINS. J. McCarthy, Syracuse, N. Y. [Filed Feb. 9, 1877.]

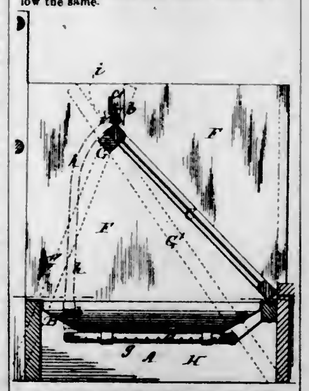
Brief.—The nut into which the screw takes has an elongated opening, and by pushing it forward against a spring it at once releases the screw, which may be then lifted out or replaced without rotation.



The improved screw-fastening, consisting of the screw *s* fitted loosely in the body B, and a movable catch or sectional nut, *b*, in channel *c*, transverse in said body, and held engaged with the threads of the screw by a spring, constructed and combined to operate substantially as described and shown, for the purpose set forth.

187,884. APPARATUS FOR PRODUCING OPTICAL ILLUSIONS. Chas. W. McGlennen and O. McGlennen, Hanoverton, Ohio. [Filed Jan. 3, 1877.]

Brief.—An optical illusion is produced by an inclined glass or transparency between audience and actors, a ghostly image being projected upon the glass from actors concealed below the same.



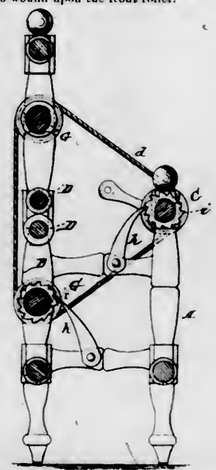
1. An apparatus for producing optical illusions, consisting of an open oven, A, inclined pebble C, stage D, and key G, for controlling the oven and pebble-lights, substantially as and for the purpose described.

2. In an apparatus for producing optical illusions, the combination of the oven A, consisting of shields, gas-jets, and dark-colored bottom and side walls and open top, with an inclined pebble or unsilvered mirror, provided with gas-jets, as described, the whole in combination with a controlling-key, G, consisting of set-cocks and control-cocks for regulating the light, substantially as described.

3. The combination, with the inclined pebble C and its top jet-pipe *i*, of the frame G′, substantially as described.

187,885. QUILTING-FRAMES. M. A. Mills, Columbia, Tenn. [Filed Feb. 8, 1877.]

Brief.—The quilt is wound around the upper roller and the lining around the lower roller. As they are unwound from their rollers the ends are passed between idle rollers; the cotton batting is then fed in between from the rear. The whole is passed across the frame, and is wound upon the front roller.



1. In a quilting-frame the roller C, idle rollers D D, and rollers G G, all combined and arranged substantially as described, and for the purposes set forth.

2. The roller C, with pulley *a* and crank C′, the idle rollers D D, rollers G G, with pulley *b*, and the cord or belt *d*, all combined and arranged substantially as and for the purposes herein set forth.

187,886. SHEET-METAL VESSELS. John C. Milligan, South Orange, N. J., and Geo. Booth, Philadelphia, Pa., assignors to Lalance & Grosjean Manufacturing Company, of New York. [Filed Dec. 6, 1876.]



A sheet-metal vessel constructed in two or more sections, united at the edges by semicircular overlapping joints, and coated with vitreous enamel, whereby the lapped joints are cemented together and held, and the vessel strengthened and ornamented, substantially as set forth.

187,887.

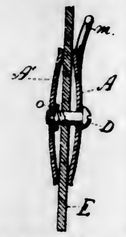


187,887. PEN-HOLDERS. D. H. Murphy, Plainville, assignor, by mesne assignments, to himself, H. L. Bartlett, same place, and W. R. Hartigan, Burlington, Conn. [Filed June 30, 1876.]

1. The triangular sheet-metal head B, having the tubular socket *a* and flanged cap *b*, and provided with the split handle C, extending through the body of the same, to serve as a means for retaining the pen within the said socket *a*, substantially as described and shown.

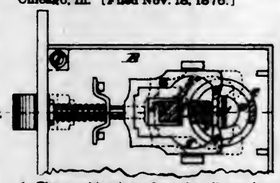
2. The triangular sheet-metal head B, provided with the tubular socket *a*, in combination with the flanged cap *b* and stale or handle C, substantially as described, and for the purpose specified.

187,888. CLASPS FOR ATTACHING STRAPS TO HORSE-BLANKETS. A. Z. Neff, Amsterdam, N. Y. [Filed Aug. 30, 1876.]



The combination of the clamping-plate A, having the loop or ring *m* and perforations *c*, cast in one and the same piece, with the plate A', having the corresponding perforations *c* and the screw-threaded nut *e*, adapted to be united by the screw and lacing, substantially as and for the purposes specified.

187,889. KNOB-LATCHES. M. O. Niles, Chicago, Ill. [Filed Nov. 18, 1876.]



1. The combination of a tube, C, passing through the lock-case, a tubular spindle, D, having its bearing within the tube C, and holding-pins E', substantially as and for the purpose set forth.

2. The tube C, passing through the lock-case, and cut away at its center, as described, in combination with the hollow spindle D, having one side cut away near its center, and provided with a cam, D', and the bolt-talons G, substantially as and for the purpose set forth.

3. The spindle D, constructed with a cam, D', near its center, and a narrow neck, *d'*, adjacent to the cam, substantially as and for the purpose set forth.

4. The spindle D, provided with a cam, D', constructed as shown, in combination with the bolt-talons G, having hooks *g*, and cut away so as to form circular recesses *g'* just behind the hooks, substantially as and for the purpose set forth.

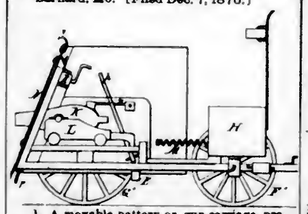
5. The lock-case B, provided with screw-threaded orifices *b*, in combination with the tube C, having a screw-thread cut upon its surface, substantially as and for the purpose set forth.

6. The lock-case B, having screw-threaded orifices *b*, in combination with the threaded tube C, provided with a small aperture, *c*, near its center, and the stop-plate H, provided with a small stud, *h*, substantially as and for the purpose set forth.

7. The lock-case B, provided with holes *b* and *b'*, in combination with the threaded tube C, stop plate H, and key I, arranged in the lock-case and door so as to hold the tube from turning, and at the same time fasten the case securely within its mortise, substantially as described.

8. The hollow spindle D, having internal screw-threads cut in its ends, in combination with the knobs E, having external screw-threads cut upon their shanks *e*, and recesses *e'* in their ends, the tube C and the holding-pin E', arranged to hold the knobs from turning in the spindle, and the spindle from slipping back and forth in the tube, substantially as described.

187,890. GUN-CARRIAGES. T. O'Bryan, Barnard, Mo. [Filed Dec. 7, 1876.]



1. A movable battery or gun carriage, provided with the wings B B' and the inclined front N', the tongue A attached to the rear of the carriage, and the cross-pieces I I', each provided with the double-trees, substantially as described, and for the purposes set forth.

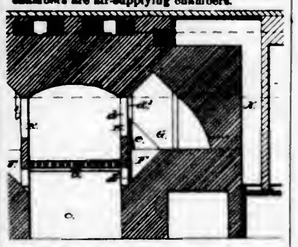
2. The pilot-wheel S, the chains *k k'*, and the axle-tree D, and wheels F F', substantially as described and set forth.

3. The movable apron N and the inclined front N' in combination with the wings B B', substantially as described, and for the purposes set forth.

4. The tongue, constructed as described, to permit the horses to be turned in either direction without unhitching, in combination with the caisson H and carriage provided with the steering mechanism, substantially as described, and for the purposes set forth.

187,891. FURNACES FOR BRICK-KILNS. J. Old, Allegheny, Pa. [Filed Sept. 9, 1875.]

Brief.—The furnace is opposite a pier, and on each side of it is a combustion-chamber opposite an arch. Outside of the combustion-chambers are air-supplying chambers.



1. The fire-chamber D, arranged with relation to the flues G and the arches of the kiln, substantially as described.

2. The side walls E, provided with the interstices *d d'* and piers *d²*, in combination with the fire-chamber and combustion-chambers, substantially as described.

3. The air-flues I, provided with dampers *k* and the passages A, in combination with the flues G, substantially as described.

4. The combination of the reservoir M, flues or shafts N, passages *l*, and flues G, substantially as described.

187,892. SPRING BED-BOTTOMS. S. P. Olney, Detroit, Mich. [Filed Oct. 9, 1876.]

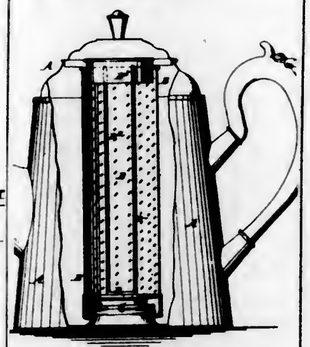


1. The combination of the frame A, provided with the socket-plates *a*, and the bar *b*, provided with the socket-plates *a'*, to receive and secure the ends of the slats B, substantially as described.

2. The tie-bar C, consisting of two strips riveted together, and the metal sleeves *c*, interposed between such strips, substantially as described and shown.

3. The combination, with the frame A and slats B, of the socket-plates *a a'*, the sliding bar *b*, and the stop *d*, substantially as described and shown.

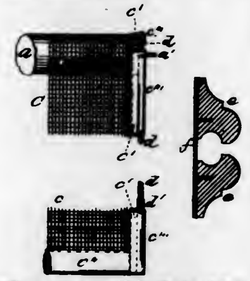
187,893. TEA-POTS. E. Oliver, New York, N. Y. [Filed Jan. 19, 1877.]



1. In combination with the pot A, having the fixed screw-threaded projection C, the holder B, provided with a corresponding screw-thread, whereby it is adapted to be screwed on said projection, as shown and described.

2. In combination with the perforated open-ended holder B, the disk or false bottom D, wires D^2, and ring D^3, forming the device for withdrawing the spent tea-leaves from said holder, as shown and described.

187,894. WINDOW-SCREENS. H. D. Osgood, Somerville, Mass., assignor of one-half his right to J. M. Osgood, same place. [Filed Jan. 19, 1877.]



1. The screen *a*, provided with the cloth *a'* upon each side, pockets *a'''*, and cords *d*, substantially as and for the purpose herein set forth.

2. The screen *a*, provided with the cloth edges *a'*, pockets *a'''*, cords *d*, and tubes *d'*, substantially as and for the purpose above described.

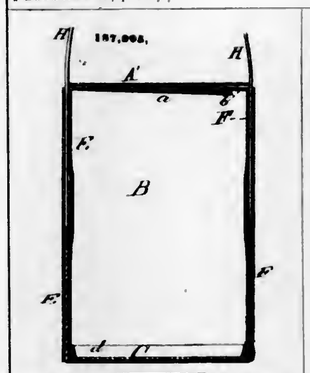
3. In combination with the screen *a*, provided with the pocket *a'''* and cord *d*, the short roller *a*, made shorter than the width of the screen, for the purpose of giving space for the thick edges and cords, substantially as above specified.

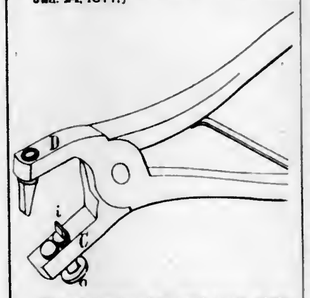
4. In a window-screen having screen *a*, provided with pockets *a'''* and cords *d*, a pair of moldings, the interior of which forms a tube, having a space of sufficient width to allow of the entrance of the said screen, substantially as and for the purpose above set forth.

187,895. PAPER BOXES. B. Osborn, Newark, N. J. [Filed July 1, 1876.]

The improved box made from a rectangular sheet of paper, and provided with double sides E F, folding flaps *a b*, removable bottom *d* and the cover A', bent over at its front edge, with a flexible suspension bail or handle, H, having its ends fastened between the side folds E F, substantially as and for the purposes set forth.

187,896. HAND-PUNCHES. H. F. Osborne, Newark, N. J., assignor to Champion Belt Hook Company, of New York. [Filed Jan. 24, 1877.]



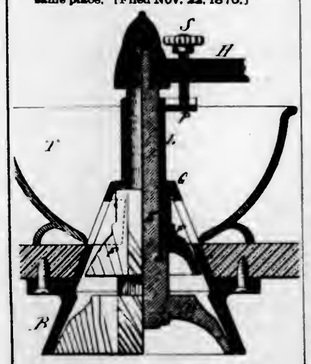


The combination, in a hand-punch, of the eccentric guide-pin *i*, formed on a stud, *l*, with the jaw C and the tube *t*, all constructed and operated substantially in the manner shown and described.

187,897. STOVE-POLISH. D. W. Parker, Cambridge, Mass. [Filed Jan. 11, 1877.]

The improved stove blacking and polish composed of lime, resin, tallow, sal-soda, plumbago, and fresh water, the whole combined substantially as and in about the proportions herein set forth.

187,898. COPPER-MILLS. D. W. Parker, Meriden, Conn., assignor to Chas. Parker, same place. [Filed Nov. 22, 1876.]

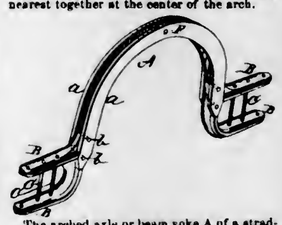


1. In a double-runner grinding-mill, the lower or grinding runner formed solid upon the spindle, which extends through the cracker-runner, the said cracker-runner secured to the spindle in its proper relative position to the grinder, substantially as specified.

2. In a double-runner grinding-mill, the lower or grinding runner formed solid upon the spindle, which extends through the cracker-runner, the said cracker-runner secured to the spindle in its proper relative position to the grinder, combined with a crank upon the upper end of the spindle, and an adjusting-screw for adjusting the elevation of the spindle, substantially as specified.

187,899. CULTIVATORS. Henry H. Pattee, Monmouth, Ill., assignor of two-thirds of his right to Jas. H. Pattee and I. P. Pillsbury, same place. [Filed Dec. 5, 1876.]

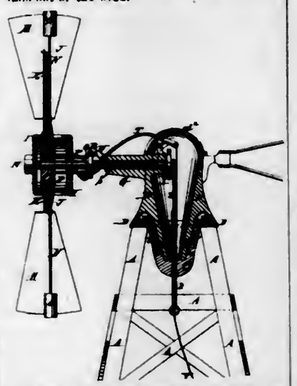
Brief.—An arched axle formed of two parallel bars of metal having the horizontal end pieces secured between them, and approaching nearest together at the center of the arch.



The arched axle or beam yoke A of a straddle-row cultivator, constructed, as described, of similarly-curved bars *a a* of iron or steel, arranged side by side in close proximity, and parallel, or nearly so, and having the side plates B B secured to and between the curved bars *a a*, in manner substantially as and for the purpose specified.

187,900. WIND-WHEELS. Geo. W. Penn, Onawa, and Wm. S. Sharpsaek, Missouri Valley, assignors to P. D. Miokel, Missouri Valley, Iowa. [Filed Nov. 25, 1876.]

Brief.—As the velocity of the wheel increases the weights are thrown outward by centrifugal force, which brings the rods toward the plane of the arms and slides the wheel forward, turning the crank-rods, and turning the fans out of the wind.



1. The combination, with wind-wheels, of cord V, lever W, weight X, and weighted fork-lever, to act directly upon the wheel without reference to the vane, as set forth.

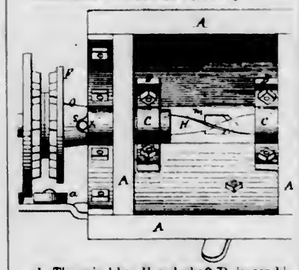
2. The combination of the stationary arms J, the pivoted rods K, having cranks formed upon their inner ends, and the grooved sliding wheel L, with the fans M, the drum I, and the shaft H, for connecting the said fans adjustably with said drum and shaft, substantially as herein shown and described.

3. The combination of the pivoted weighted rods N O with the grooved sliding wheel L and the crank-rods K, that carry the fans, for throwing the fans M out of the wind automatically as the velocity increases, substantially as herein shown and described.

4. The combination of the rods P and S, the swiveled wheels Q R, and the forked weighted lever T U with the shaft H, the grooved sliding wheel L, and the crank-rods K, for holding the fans to the wind, and throwing them into the wind as the velocity decreases, substantially as herein shown and described.

5. The combination, with cord V, of the pitman Z, grooved longitudinally in its lower part substantially as and for the purpose specified.

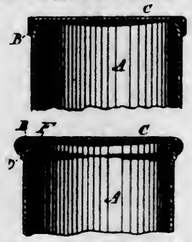
187,901. SEEDERS. O. Perry, Flint, Mich., assignor of one-half his right to O. Stone, same place. [Filed Feb. 8, 1877.]



1. The spiral bar H and shaft D, in combination with hub O and its wheels E and F, the bar I, and its wheels *a a*, and the lever J, all substantially as and for the purpose specified.

2. The triangular braces B, with their hubs C, in combination with the box A and the bar H, and the shaft D, as and for the purpose specified.

187,902. METALLIC CANS. G. H. Perkins and J. H. Perkins, Philadelphia, Pa., assignors of part their right to Joseph Le Comte, New York city, and the Le Comte & Perkins Manufacturing Company, (limited,) same place. [Filed Apr. 20, 1876.]



1. A can provided with a yielding or compressible chine or body, and adapted for ready opening by force or blows against the cover, substantially in the manner shown and described.

2. A sheet-metal can, the upper chine of whose body is provided with or formed into a yielding or compressible bevel, B, and whose cover rests upon said yielding bevel, and is united to the body below the same by frangible solder, to the end that blows properly applied to the cover will compress the yielding portions, and permit the descent of the cover, so as to rupture its frangible joint, substantially as described.

3. A sheet-metal can, the upper chine of whose body is provided with or formed into a yielding or compressible bevel, B, in combination with an exterior circumferential swelling, D, and whose cover rests upon said yielding bevel B, and is united upon the summit of the swelling D to the body by frangible solder, to the end that blows properly applied to the cover will compress the yielding portions of the body, permit the descent of the cover to rupture its frangible joint, and will further bulge the corrugation D to aid in said rupture, substantially as described.

187,903. CORN-HARVESTERS. J. Pleukharp, Columbus, Ohio. [Filed Nov. 13, 1876.]

1. The gatherers composed of vertical shafts A, provided with the upper and lower sets of arms *b a*, the former being more numerous or thickly set, and the ratchets and spring-pawls, in combination with the cutters and guards, as shown and described, to operate as and for the purpose specified.

2. The reciprocating carrier, having arms,

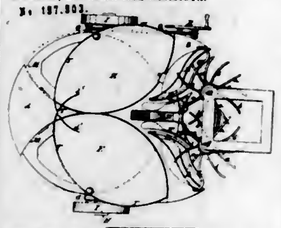
as specified, in combination with the gatherer and guard, as shown and described.

3. The combination of eccentric right-angled arm, carrier, and slotted platform, as shown and described.

4. The pivoted swinging and tilting sections E of the platform, and a gear arranged for adjusting their position, combined as and for the purpose specified.

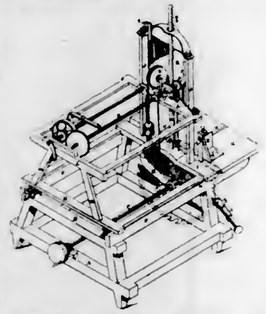
5. The combination of the spring-arms or extensions of the fence and the pivoted tilting sections, as shown and described.

No. 197,903.



197,904. MACHINES FOR RESAWING LUMBER. S. Putnam, Emigrant Gap, Cal. [Filed Nov. 6, 1876.]

Brief.—Ordinary boards are split into thin boards for special purposes by means of a circular saw mounted on the outer end of a shaft supported on the base portion of the frame, (so as to rotate in a vertical plane close against the side of the frame,) and suitable operating mechanism, while being automatically fed between a laterally-adjustable platform and a longitudinally-adjustable frame carrying the feeding mechanism, both mounted on the top of the main frame.



1. The frame A B, having the saw-shaft C supported on the base portion A, so that the saw will rotate in a vertical plane close up against the side of the frame, in combination with the adjustable frame H, with its upright guides J J, automatically-operated gate K, with its lugs or feet *f f*, and the adjustable platform G, all arranged to operate substantially as and for the purpose described.

2. The sliding gate K, having the vertical rack *q* and curved rib *r*, arranged as described, and having the weight P suspended from its lower end, and the trip-arm *t* at its upper end, in combination with the shaft *s*, which is supported at one end by a pivoted standard, O, and having the pinion *p* on its opposite extremity, arranged to engage with the rack *q*, and spring dog or pawl S, all combined and arranged to operate substantially as and for the purpose above described.

3. In combination with the frame A B and adjustable sliding frame H, with its upright guides J J and automatically-operated gate K, the adjustable platform G, with its spring-rods V V and adjustable head-block X, substantially as and for the purpose described.

197,905. AUTOMATIC FRUIT-DRIERS. J. H. Reynolds, Asa Q. Reynolds, and A. J. Reynolds, Chicago, Ill. [Filed Feb. 16, 1877.]

1. A fruit-drying cylinder located above and in combination with an air-heating chamber, and caused to revolve by the heated-air currents, substantially as set forth.

2. The standard S, carrying the tray-bed, and adapted to be operated by means substantially as described, in combination with the hollow pivot V, which supports the revolving cylinder, as set forth.

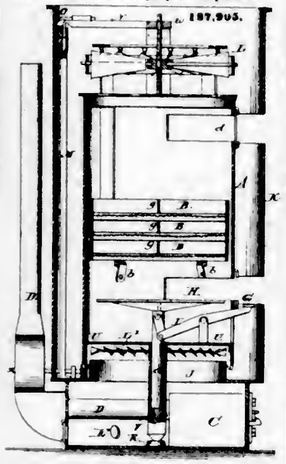
3. In a fruit-drier, the combination, with the standards M M, of the removable cross-pieces N N, adapted to sustain the vertical axis of the revolving cylinder, substantially as shown and described.

4. In a revolving fruit-drying tray provided with a foraminated bottom, the cross-plates *g g*, serving to deflect the ascending currents of heated air, in the manner and for the purposes explained.

5. In combination with a revolving fruit-drier, carrying a series of trays, as described, and provided at or near its lower portion with a rack or series of teeth, a fan-wheel, located in the smoke-pipe thereof, and having a pinion upon its projecting shaft, for the purpose of engaging with said rack or teeth, the whole being arranged to operate substantially as shown and described.

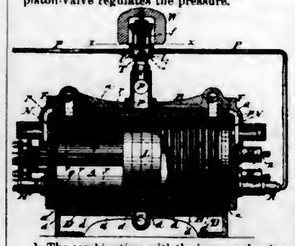
6. In combination with a revolving fruit-drier, a fan-wheel located above the same, and provided with adjustable fans, by opening or closing which the motion of the drier may be arrested or regulated, as hereinbefore described, and for the purposes explained.

197,905.



197,906. AIR-COMPRESSORS. George H. Reynolds, New York, N. Y., assignor of part of his right to C. H. Delamater and G. H. Robinson, same place. [Filed Aug. 31, 1876.]

Brief.—The cooling-fluid is received at the bottom of the outer cylinder, and flows into the space between the two cylinders, and is discharged at the ends of the same. A relief piston-valve regulates the pressure.



1. The combination, with the inner and outer cylinders A B, of the longitudinal passage D, receiving the cooling-fluid at or near the middle of its length, and the short passages *d*, connecting the said passage D at intervals with the annular space between said cylinders and the outlet-passages E E near the ends of the cylinder, all substantially as and for the purpose specified.

2. The combination of the interior cylinder A, constructed with radiating and re-enforcing rings *r* on its exterior, forming channels in between them for the circulation and direction of cooling-fluid around said cylinder, the outer cylinder B, an inlet-passage, C, for the cooling-fluid to the space between the two cylinders, at a distance from the ends of them, and the outlet-end passages E E, substantially as described.

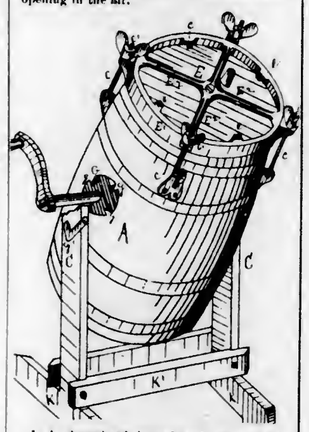
3. The combination of the relief-valve I, piston K, cylinder R, pipe or passage P, and loaded valve T, substantially as and for the purpose specified.

4. The piston K of the relief-valve, constructed with a valve-face, *a'*, in combination with a valve-seat, *b'*, provided between the relief-valve box H' and the cylinder R, in which said piston works, all substantially as herein described.

5. The recessed shoulder *e* in the walls of the compressor-cylinder, in combination with the induction-valve I, extending beyond the circumference of the bore of said cylinder, substantially as and for the purpose herein set forth.

197,907. ROTARY CHURNS. E. Rhoades, Rockford, Ill., assignor to himself and C. W. Farrington, same place. [Filed June 8, 1876.]

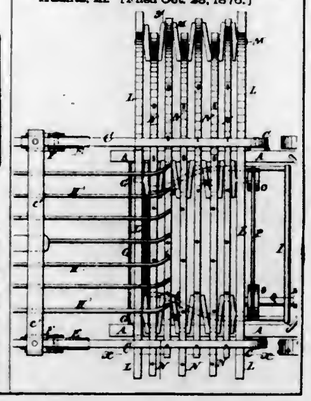
Brief.—A barrel trunnioned at its sides and revolving in the direction of its length; an automatic vent closing below the liquid-line and opening in the air.



1. A churn-head braced and surrounded by the crucial arms and surrounding rim, and having the inserted packing resting upon the chine, substantially as described, and for the purpose set forth.

2. A churn-vent consisting of an elongated shell, having small perforations in the larger end of said shell, concave bottom, and conical valve, substantially as described.

197,908. HAY-LOADERS. David F. Roach, Atlanta, Ill. [Filed Oct. 28, 1876.]



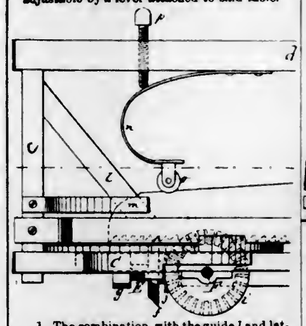
1. The two parallel bars A A, pivoted to the axles of rear wheels, curved subjacently in front to run on the ground, and supporting the tooth-bar G, substantially as and for the purpose described.

2. The draw-bar O O *o'*, pivoted to frame A at the rear, then curved upwardly and over the elevator, and supported in front on wheels, substantially as and for the purpose set forth.

3. The combination, with wheels B E, of slide-frame A, carrying pivoted rake, the draw-bar frame C, over the elevator, and the elevator arranged at right angles to the rake, substantially as shown and described, for the purpose specified.

197,909. SAW-SHARPENING MACHINES. P. D. Robbins, Harrellsville, N. C. [Filed Sept. 2, 1876.]

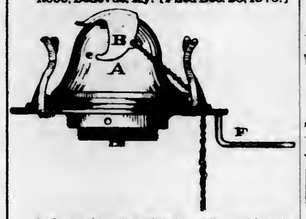
Brief.—The feeding and sharpening disk is mounted centrally in a turn-table, to which is attached proper driving-gear, and the whole adjustable by a lever attached to said table.



1. The combination, with the guide I and lateral spring *m*, of the grooved roll *o*, and spring-presser on the top of saw, as shown and described, to hold the saw with a yielding pressure.

2. The combination of the turn-table C, shaft F, crank A, wheel *i*, mandrel E, pinion *j*, rotary file *f*, socket B, set-screw *e*, springs *m n*, set-screw *p*, and frame A, substantially as and for the purpose specified.

197,910. LAMP-EXTINGUISHERS. Byron H. Robb, Bellevue, Ky. [Filed Dec. 26, 1876.]



1. In combination with the ordinary hinged cap A of a lamp-burner, the extinguishing-hood B, pivoted on the cap, a little to one side of its central vertical plane, parallel to the flame-aperture, so that it will bind on the cap when swung over to cover the flame-aperture.

2. The combination of the cap A, the hood B, adjustably attached thereto, the chain C, and weight D, for automatically operating said hood, when the weight is dislodged from bracket F by tilting, substantially as specified.

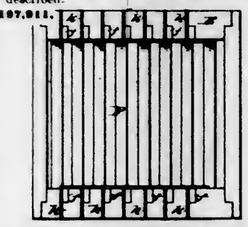
197,911. BEE-HIVES. Albert H. Russell, Adrian, Mich. [Filed Jan. 19, 1877.]

1. The comb-frames of a bee-hive, having rabbeted interlocking side pieces, and secured together by loops on one frame, entering and secured in sockets in the next adjacent frame, substantially as described.

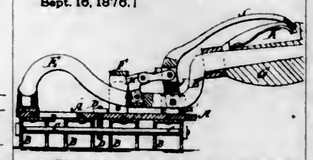
2. The rabbeted comb-frames, provided with a socket, I, and tongue *f'* at the lower ends of their sides, the said tongues of one section entering the sockets of the next adjacent section, so as to lock the frames together, substantially as described.

3. Comb frames having rabbeted side pieces combined with eyes and pins at their upper, and tongues and sockets at their lower, ends, respectively, whereby such frames can be intimately united or connected in forming a continuous series of frames, substantially as described.

197,911.



197,912. CURRY-COMBS. Jas. N. Rundle, San Francisco, Cal., assignor to himself and D. L. Fonseca, same place. [Filed Sept. 16, 1876.]

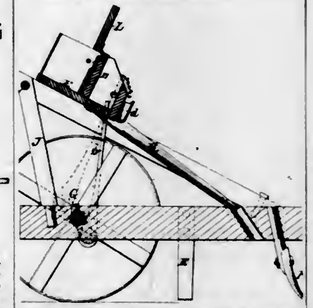


1. The combination of the hinged bar E and keeper F with the frame A, to which the tooth-plates B are attached, substantially as herein shown and described.

2. The combination of the rod C and eye-bolt D with the tooth-plates B and the frame A, substantially as herein shown and described.

3. The combination of the catch H, the connecting-bar I, the lever J, and the spring K, with the bar E, the keeper F, and the handle G, substantially as herein shown and described.

197,913. SEED-DRILLS. J. H. Sale, Boydsville, Ky. [Filed June 1, 1876.]

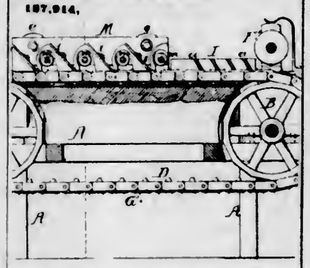


The combination, with the seed-box having apertures in its bottom, near its front side, the wheels B, and rigidly-attached shaft G, having cranks *a*, of the feed-rods *b b*, having cups in their upper ends, and arranged with their lower ends pivoted to the cranks, and their upper ends loosely moving in the apertures in the bottom of the seed-box, substantially as and for the purpose described.

197,914. MOLDING-MACHINES. S. Sawyer, Philadelphia, Pa. [Filed Jan. 15, 1877.]

Brief.—Strips of molding of any desired width are formed by means of a series of cutters of suitable form for dressing the top of the molding, mounted in a frame provided with yielding pressure-rollers and a laterally-adjustable pressure-strip; two series of cutters for dressing the sides, attached to horizontal plates upon the top of a longitudinally-slotted table, one of said plates being laterally adjustable, the other swinging on a pivot, so as to have an angular adjustment; an endless chain working through the slot in the table passing over chain-wheels at either end of the main frame, and provided with short spikes for penetrating the under side of the strip which is placed upon it and fed to the cutters; yielding pressure-rolls at the ends of the table for insuring the proper penetration of the spikes into the strip of molding.

197,914.

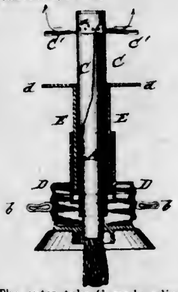


1. The combination of the feeding-band G, with the cutter-plate J hinged at one end, and laterally adjustable at the other, as described.

2. The combination of the frame M and its cutters *i*, with the laterally-adjustable pressure-strip *s*, as specified.

3. The combination of the longitudinally-traversing-band G, the laterally-adjustable cutter-plate I, and the frame M with its laterally-adjustable pressure-strip *s*, as set forth.

197,915. VAPOR-BURNERS. F. A. Sawyer, Houston, Tex., assignor to himself, A. H. Baldwin, and A. N. Carter, same place. [Filed Nov. 4, 1876.]



1. The outer tube C, made adjustable up and down on the wick-tube A, to close a greater or less number of the jet-holes *a*, as and for the purpose specified.

2. The combination of outer burner-tube C, having disk-shaped flange C', with a sliding sleeve below the same provided with a corresponding disk flange, to prevent draft of cold air to the burner-flange, substantially as set forth.

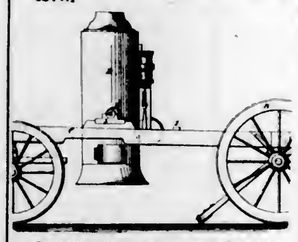
197,916. WHIPS. A. Scharff, Philadelphia, Pa. [Filed Jan. 22, 1877.]



1. The mode herein described of manufacturing whips—that is to say, the coating of a core of oiled rattan, with tempered pitch or shoemakers' wax, then covering the waxed core with rawhide, and finally waterproofing the latter, all substantially as set forth.

2. As an improved manufacture, a whip composed of a core of oiled rattan with a coating of tempered pitch or shoemakers' wax and a cover of waterproofed rawhide, all as set forth.

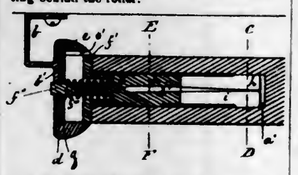
187,917. VERTICAL PORTABLE ENGINES. J. S. Schofield, Macon, Ga. [Filed Jan. 15, 1877.]



In combination with a wagon, A B, and carry-log C, the engine E, boiler D, with trunnions *a*, the boxes *b*, and stop-plates *d*, all substantially as and for the purposes herein set forth.

187,918. CURTAIN-FIXTURES. W. C. Sharp, Boston, Mass. [Filed Sept. 2, 1876.]

Brief.—An adjustable friction device at the end of the roller opposite the cord-pulley. The spindle and cord-pulley have split shanks, that project into the rod or roller, and are provided with annular enlargements to press against the outer wall of the recess of the roller. The bracket adjoining the cord pulley is made tapering on its outer edge, and provided with a projecting guard to prevent the cord from getting behind the roller.



1. In combination, the roller *a*, bearing *b b'*, cap *c*, washers *d g*, pivot *f''*, and spiral spring *f'''*, as and for the purpose set forth and described.

2. In combination, the roller *a*, shank *f*, with its pivot *f''*, annular enlargements *h h'*, slits *i i'*, and the cylindrical recess *a'*, as and for the purpose set forth and described.

3. In combination, the roller *a''*, the roller *k*, with its cap *k''*, shank *l*, with its annular enlargement *m*, and screw-threaded enlargement *m'* fitting in the female screw-thread of the recess *a''*, and provided with the slits *n n'*, as and for the purpose set forth and described.

4. In combination, the roller *k*, with its flange *k'*, recess *k'''*, and pivot *k''*, and the shield-bearing *c*, with its annular projection *c'*, central recess *c''*, tapering edge *c'''*, and stop or projection *c''*, as and for the purpose set forth and described.

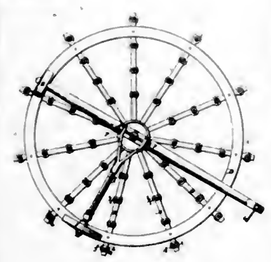
187,919. HARROWS. Isaac Shupe, New Market, Ontario, Canada. [Filed Feb. 1, 1877.]

Brief.—A metallic harrow composed of a central hub having a series of radial teeth carrying arms, upon which is secured an annular track, which holds said arms in their proper places. The hub is made in two parts, the upper part having a central circular recess and a number of radial grooves to receive the inner ends of the arms, and the lower part having a central projection to fit in said recess.

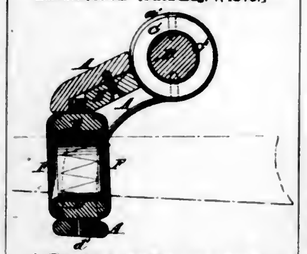
1. In a revolving harrow, the hub composed of the main part A, having bottom recess *b*, and radial grooves, as described, and the disk A', having top projection *d* to fit in said recess, substantially as and for the purposes herein set forth.

2. The combination, in a revolving harrow, of the metallic hub A A', the metallic radial arms S, having swells *f*, the teeth O, and the annular metallic track D, all constructed substantially as and for the purposes herein set forth.

187,919.



187,920. NECK-YOKE RINGS. C. Shuman, Red Oak, Iowa. [Filed Aug. 7, 1876.]



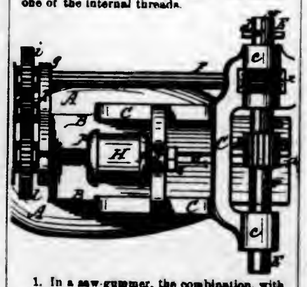
1. The ring A, provided with two lugs, *a'*, to receive the neck-yoke, with sockets to receive the pivots of an inner ring, and with a block, E, substantially as herein shown and described.

2. The combination of the collar *c* and sleeve *c'*, with the lugs *a'* of the ring A, for securing said ring A in place upon the neck-yoke, substantially as herein shown and described.

3. The inner ring D, provided with the pivots *d'*, in combination with the ring A and the block E, substantially as herein shown and described.

187,921. SAW-GUMMERS. Jos. M. Smith, Rochester, N. Y., assignor of one-third his right to Jas. H. Lindsay, Allegheny, Pa. [Filed Jan. 13, 1877.]

Brief.—The cutter-carriage is automatically advanced, by a system of gearing, which is connected with a cogged nut on the feed-screw. A rubber spring is arranged between two metal disks on the forward end of the feed-screw, in virtue of which the carriage will yield when the cutter encounters undue resistance. One of the sections of the carriage is permanent, (the other section being removable,) and contains internal screw-threads of different diameters. When a different size of cutter is required, the section in use is removed, and the screw-thread of a section adapted to the bore of the cutter inserted in one of the internal threads.

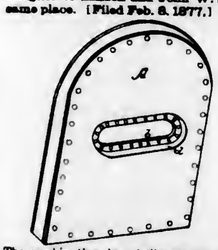


1. In a saw-gummer, the combination, with the carriage C and feeding-screw G, of the worm *e*, the sliding shaft F, and the gears *f h l*, connecting the said shaft F with the feeding-screw, the gear *l* forming a nut to the feeding-screw, in the manner and for the purpose specified.

2. In a saw-gummer, the combination, with the carriage C and feeding-screw G, of a set of gears connected with the screw, one of which forms a nut to the screw, and imparts a positive feeding motion to the same, the screw being arranged to turn backward by hand, to neutralize the automatic feeding motion, as shown and described, and for the purpose specified.

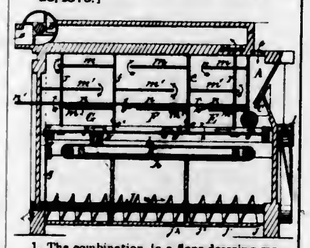
3. The cutter-shaft E, constructed in halves, as described, one half containing the internal threads *s s* of different diameters, and the other half provided with the screw-stem *y*, fitting therein, the milling-tool being held on the stem, and clamped between the two shoulders of the shaft, as shown and described, and for the purpose specified.

187,922. FURNACE-DOORWAYS FOR STEAM-BOILERS. Jas. T. Smith, Baltimore, Md., assignor to himself and John W. Smith, same place. [Filed Feb. 6, 1877.]



The combination, in a boiler-furnace head, of the outer straight sheet B and the inner sheet A, having the double flanges *d* and *b* formed therewith, and the second flange *b* riveted to the outer sheet B, substantially as and for the purposes herein set forth.

187,923. MIDDLINGS-SEPARATORS. Geo. T. Smith, Washington, D. C. [Filed Dec. 26, 1876.]



1. The combination, in a flour-dressing machine, of a reciprocating shaker, having bolting-cloth of different degrees of fineness, an air-chamber arranged above the shaker, and divided into sections by transverse partitions, and a conveyer below the shaker, whereby the middlings may be divided into grades of fineness, and subjected to air currents of different degrees of strength, and afterward intimately remixed for a second purification, substantially as set forth.

2. The combination, in a flour-dressing machine, of a reciprocating shaker clothed with bolting-cloth of different degrees of fineness, an air-chamber arranged above the shaker, and divided into sections by transverse partitions, a fan arranged above the air-chamber, and having an air-trunk for each section of the air-chamber, and a brush traversing the under surface of the bolting-cloth, substantially as set forth.

187,924. DISTRIBUTING LIQUIDS THROUGH TOBACCO. J. Smith and C. B. Messinger, Toledo, Ohio. [Filed Sept. 27, 1876.]

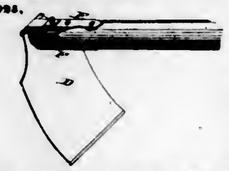
Brief.—Tobacco in the leaf is moistened as cut tobacco is in patent to same inventors, January 25, 1876, reissued June 27, 1876.

The described method of treating leaf-tobacco, which consists in distributing or spraying on or through said tobacco liquid moistening, sweetening, or flavoring material by means of compressed air, substantially in the manner set forth.

187,925. HOE-FASTENINGS. J. H. Starnes, Buncombe County, N. C. [Filed Feb. 14, 1877.]

Brief.—Two L-shaped or flanged metallic plates are attached to the handle. Between the flanges of said plates the upper portion of the blade is inserted, and secured in position by means of a curved bolt passing through perforations in the blade and plates, and through a correspondingly-curved hole in the handle. By adjusting the nut and bolt the angle of the blade is varied.

187,926.

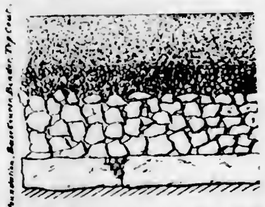


1. The combination of the handle K with two L shaped plates, and a curved bolt and nut, substantially in the manner and for the purpose specified.

2. The combination of the handle K, having two L-shaped plates, and a curved bolt and nut, with a hoe or other blade, substantially in the manner and for the purpose specified.

187,926. CONCRETE PAVEMENTS. Jno. G. Stafford and J. W. Phillips, Washington, D. C. [Filed Jan. 19, 1877.]

Brief.—Stone slabs from four to six inches thick are laid close together on the road-bed, the interstices being filled with broken stone. A layer of broken stone is then spread over the stone slabs, and the interstices filled with hydraulic or bituminous concrete. A layer of any hard broken stone, from two to four inches in diameter, having been previously mixed with chemically-prepared bitumen, is spread evenly on and thoroughly rolled. A binder-course is next applied, which consists of broken stone, from one-half to one and a half inch in diameter, free from dust, heated to a little more than blood-heat, and mixed with prepared bitumen distilled at a heat of 500°. The surface-coat consists of a compound of pulverized lime or blue-stone, thirty parts; fuller's-earth or white clay, five parts; fine hard cement, five parts; clean sharp sand, thirty parts; Peekskill gravel, screened through a half-inch screen, thirty parts—mixed and heated and incorporated with the following bituminous compound: Three hundred and ninety-six pounds refined asphalt, two hundred and four pounds chemically-prepared bitumen, thirty-six pounds of oil, one hundred and twenty-six pounds oxide of iron, and fifteen pounds pulverized brimstone.



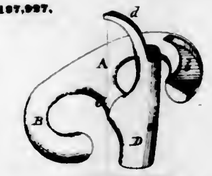
1. The pavement herein described, consisting of a foundation of slabs and broken stone, a second course of broken stone and bituminous matter, a binder-course of heated broken stone and prepared bitumen, and a top course of clean sand and gravel, mixed with pulverized limestone or blue-stone, hydraulic cement, and bituminous matter.

2. The bituminous compound, consisting of asphalt, boiled coal-tar, oil, oxide of iron, and brimstone, mixed in about the proportions stated, and applied, together with clean sand, gravel, and hydraulic cement, to form a surface-coat, substantially as herein described and specified.

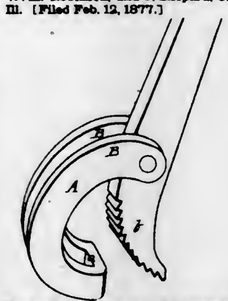
187,927. DETACHABLE LINKS. S. Stevens, Alleyton, Mich. [Filed Oct. 24, 1876.]

The combination of the bar A, with center-post C and semicircular hook B at each end, and the part D, pivoted on the center-post, and provided at one end with the projecting curved flange *d*, to fit in a recess, *b*, on one side of one of the hooks B, and straight at the other end, substantially as set forth.

187,927.

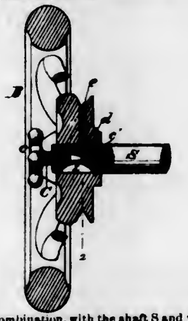


187,928. PIPE-TONGS. Wm. A. St. John, W. M. Robinson, and J. Shepard, Carmi, Ill. [Filed Feb. 12, 1877.]



The hook A, constructed of a single bar of metal, bent at its middle to form the connecting-bar *a*, and having the curved arms B B, pivoted to the handle *b*, substantially as described.

187,929. PULLEY AND SHAFT CONNECTIONS. R. H. St. John, Springfield, Ohio. [Filed Jan. 29, 1877.]



The combination, with the shaft S and wheel or pulley B, of the loose journal segment or key Z and screw C, adapted to press the said key outward against the wheel, as and for the purpose set forth.

187,930. PROCESSES OF PRESERVING MEAT. Wm. Stone, Boston, Mass., assignor to himself and Wm. Taylor, same place. [Filed Jan. 19, 1877.]

The new and useful or improved process, substantially as described, of curing meat, each consisting in first treating it with chloride of sodium, or such and nitrate of potash, and next subjecting it to the action of steam and malt, and finally to that of malt alone, all essentially as explained.

187,931. VALVE-GEARS FOR STEAM-ENGINES. J. C. H. Stout, San Francisco, Cal. [Filed Dec. 19, 1876.]

1. The hinged or spring plates P P', inclined to meet at the V-shaped projection Q, in combination with the stem N and arm M of the bell-crank lever, as set forth.

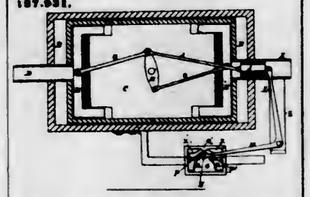
2. The piston, J, operating upon the cam H and its connections, in combination with the bell-crank lever L M and the plates P P', whereby the pressure of steam upon the piston causes the pin to drop instantaneously and allow the cut-off plates to act and close the ports, as described.

3. The inclined plates P P', having beveled edges, and springs R R, in combination with the pin N, so that as the plates are withdrawn the pin will fall from their edges sooner, and actuate the cut-off earlier, as described.

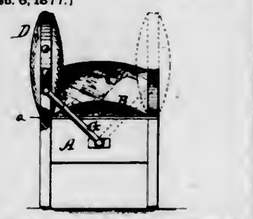
4. In combination with the box O, containing the inclined and beveled plates P P', the slotted stem T and the wedge U, actuated by the governor, substantially as and for the purpose set forth.

5. The plates or projections X, lying below the inclined plates P P', and having their edges inclined so that the pin N will first fall from the plates P upon them, and thence to the side of the box, or, when the plates P are withdrawn from the pin, the latter will fall directly to the side of the box, substantially as herein described.

187,931.



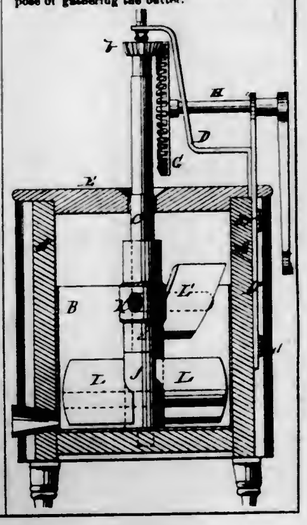
187,932. REVERSIBLE BACKS FOR LOUNGES. J. Sullivan, Tippecanoe City, Ohio. [Filed Feb. 6, 1877.]



The combination of the lounge-frame A having dowels or holes, as described, the back D upholstered on both sides, and provided with projecting dowel-pins *a a* in its lower edge, and the pivoted connecting-braces G G, substantially as and for the purposes herein set forth.

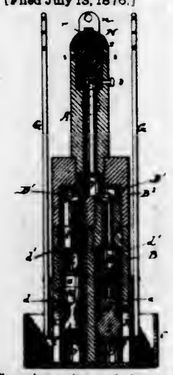
187,933. CHURNS. Jerome B. Sweetland, Pontiac, Mich. [Filed Nov. 28, 1876.]

Brief.—The wings catch on the sides of the churn-box and remain stationary, for the purpose of gathering the butter.



The combination of the upright revolving shaft C, provided with the paddles L L, and the wings *l l* connected, to a hub or collar, K, placed loosely on said shaft, as and for the purposes herein set forth.

187,924. PUMPS. M. D. Temple, Chicago, Ill. [Filed July 13, 1876.]



1. The valve-casing made in two parts, correspondingly bored to receive the valve-tubes, and combined with said tubes, whereby said parts are united, substantially as set forth.

2. The piston or plunger packed at the top, and made with the swell or enlargement at the bottom, substantially as specified.

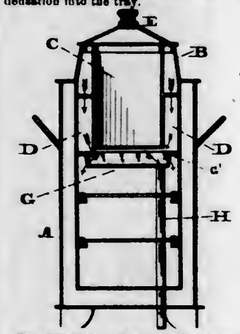
3. The valve-casing made in two parts, with a transverse joint, and bored or chambered to receive the shoulder or flange of the metallic lining E and base of the valve-tube F, whereby the said valve-tube retains the metallic lining in place, and also unites the said parts of the casing.

4. The metallic lining, made with a flange at the top, in combination with the water-way of the casing, made with a shoulder and enlargement, to receive said flange and the valve-tube, substantially as specified.

5. The combination, with the pump-stock, having an enlarged bore or air chamber at the top, of the plug bolted to the metal cap, the metal cap flanging down over the stock, and the pins or screws, or equivalent means for securing the plug to the stock through the sides thereof, substantially as described.

187,925. REFRIGERATORS. F. A. Thompson, Philadelphia, Pa. [Filed June 26, 1876.]

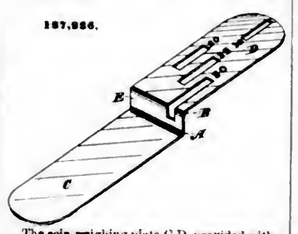
Brief.—The tray has a closed bottom and perforated sides. The ledge G overhangs the sides of the tray and leads the water of condensation into the tray.



The combined water-cooler C and refrigerator-case A, in combination with an interposed tray, G, having a closed bottom and open sides, and a ledge, G', overhanging the open sides, substantially as and for the purpose set forth.

187,926. DETECTORS OF COUNTERFEIT COIN. John A. Thompson, Chicago, assignor to F. M. Smith, Lake, Ill. [Filed Jan. 12, 1877.]

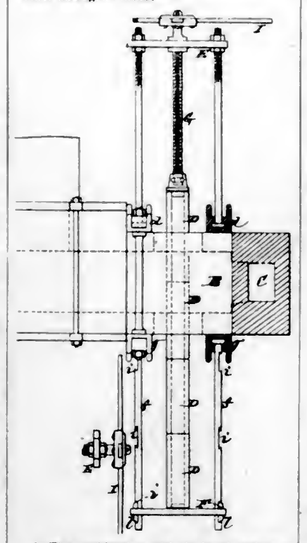
187,926.



The coin-weighing plate C D, provided with the right-angular bend A B, and slotted at D, substantially as described, and for the purpose set forth.

187,927. ATTACHMENTS TO TUBE-WELDING FURNACES. C. Tolmie, Cold Spring, N. Y., assignor to R. P. Parrott, same place. [Filed Aug. 25, 1876.]

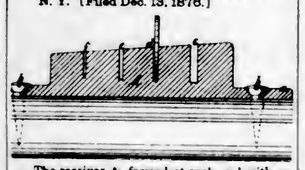
Brief.—For welding together sections of steel or iron lining-tubes of ordnance and other analogous tubes.



1. The combination, with the heating-chamber B of the furnace, having openings in its sides for reception and passage of the work, of the screw G, or equivalent compressing and welding device, on the one side of said chamber, and the thrust-piece or bar F on the opposite side thereof, essentially as described.

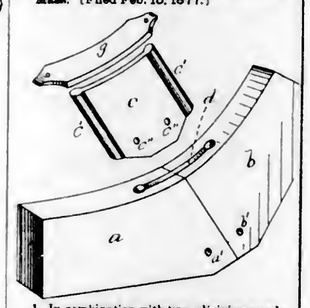
2. The thrust-piece F, made adjustable on or along the rods *f* on the one side of the furnace, in combination with the welding screw G on the opposite side of the furnace, substantially as specified.

187,928. DEVICES FOR DETECTING COUNTERFEIT COIN. T. J. Towsey, New York, N. Y. [Filed Dec. 13, 1876.]



The receiver A, formed at each end with a perforated flange, *a*, for the passage of screws, to secure it to a counter or table, and provided in its body with a series of vertical recesses, *c d e f*, of different width and depth, substantially as and for the purpose herein described.

187,929. BOAT-KNEES. D. True, Salisbury, Mass. [Filed Feb. 16, 1877.]



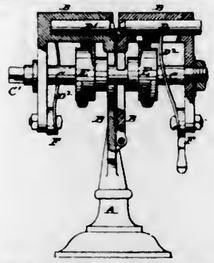
1. In combination with two adjoining or adjacent parts of a boat-knee, an interior metallic connection, which, by means of its shape, holds or assists to hold together, or nearly so, the said portions of the knee.

2. In combination with the metallic connection *c*, the plate *g*, substantially as and for the purpose herein set forth.

3. The combination of the parts *a b*, connection *c*, plates *g e*, and rivets *f*, substantially as and for the purpose above described.

187,940. MACHINES FOR SETTING SAWS. D. W. Turner, St. Louis, Mo. [Filed Nov. 4, 1876.]

Brief.—By this machine each alternate tooth is set in one direction, and then the remaining teeth in the other direction, one hammer being made inactive, while the other is in operation, by turning the plate F and releasing the spring.

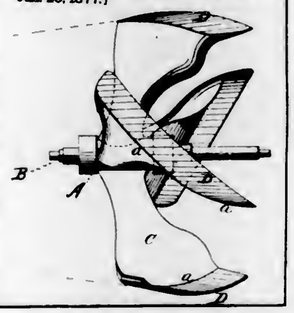


1. The hammer D, impelled in its blow by a spring, D^s, in combination with the anvil D^1 and operating-cam E, as and for the purpose set forth.

2. The duplicate hammers D, anvils D^1, and springs D^s, in combination with the operating-cams E, crank O', and shaft C, as and for the purpose set forth.

3. The housing B, made in two parts, in combination with spring-projection *c*, and driving-shaft C, as and for the purpose set forth.

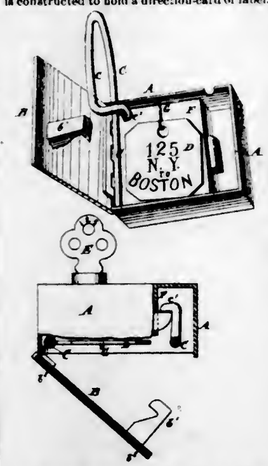
187,941. SCREW-PROPELLERS. Wm. F. Tyson, Reading, Pa., assignor of one-half his right to J. R. Tyson, same place. [Filed Jan. 20, 1877.]



The within-described propeller wheel, consisting of the hub A, the blades C, projecting from the hub, inclined outward and backward, with their outer edges a on a true circle, and the rims D inclining upward and backward from the blades, substantially as set forth.

187,942. BAGGAGE-CHECK GUARDS. David Untermeyer, New York, N. Y. [Filed Feb. 10, 1877.]

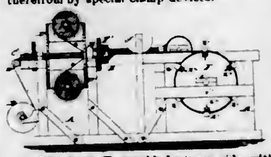
Brief.—Two checks are used, one attached to the key and carried by the holder of the latter, while the other (duplicate) is hung upon the face of the lock, within the guard-box, so that it may be concealed when the lid of the device is closed. Closing the lid locks it and the loop C, the latter being first passed through the trunk-handle. The face of the lid is constructed to hold a direction-card or label.



The combination of the box A, the hinged door B, provided with a hook-catch, b^1, the swiveled loop C, provided with a hook-catch, *c*, and the lock F, with each other, to receive and conceal a baggage-check and connect it securely with the baggage, substantially as herein shown and described.

187,943. MACHINES FOR MAKING WIRE-ROPE. N. Van Loon, St. Cloud, Minn. [Filed July 11, 1876.]

Brief.—Movable lugs on winding-drum and a movable bearing of its shaft permit the ready removal of the coil. The bobbins are retained in the revolving frame, and are removable therefrom by special clamp devices.



1. The drum F, provided at one side with the fixed lugs h h, and at the other side with the movable lugs h^1 h^1 attached to said drum by the clamp-screws h^2 h^2, substantially as described, and for the purpose set forth.

2. The drum F, provided with fixed and movable lugs, constructed as described, in combination with the removable cross-piece *f'*, and detachable side bearing *i*, substantially as and for the purpose set forth.

3. The combination of the radially-supported wire-guiding pulleys or wheels with lateral steadying-pieces and clamp devices, substantially as specified.

187,944. FOLDING CHAIRS. Jno. A. Ware, Morris, Ill. [Filed Dec. 16, 1876.]

Brief.—The side brace-bars are formed with toggle-joints in them, whereby the parts are firmly braced when the chair is unfolded and lie closely together when it is folded up. One of the arms of each toggle is bent and formed into a tubular pivot to connect it with the side rails of the back.

187,944.

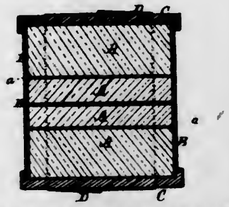


1. The combination, with the back and rear legs A B, of the seat C, pivoted to the same at *a*, and having recesses b^1, the front legs D having tenons *b*, and the side braces E, pivoted to the front legs at *c*, to the seat at c^1, and to the back at c^2, and having an upwardly-folding toggle-joint, substantially as and for the purpose described.

2. The combination, with the back A, of the bar *d*, bent at right angles and then in tubular form, *d'*, to form a pivot, substantially as and for the purpose described.

187,945. BUTTER-BOXES. N. Waterbury, Baltimore, Md. [Filed Jan. 25, 1877.]

Brief.—Wooden hoops fastened together by textile bandages glued thereto, or one bandage glued to the outside and including the heads; or each hoop and its contents may be surrounded by the bandage and all hoops held together. Width of hoops indicates quantity of contents. Cuts the package and contents apart by cutter between beveled edges of therefrom hoops.



1. A packing-box consisting of connected sections of the same diameter, designedly made easily separable by force applied exteriorly to their connections, and of heads entirely covering and including the sections between them, and of suitable means for holding all the heads and sections together, substantially as and for the purpose set forth.

2. The combination of bands A A, easily-severable connections B B B between sections, and between sections and heads, the inclosing slitted heads C C, and wires or cords D D, as and for the purpose set forth.

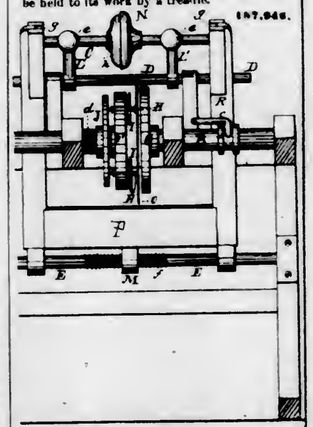
3. A packing-box consisting of two or more separate bands, A A, of the same or different width, each being separately surrounded and covered at top and bottom by a suitable bandage, B B, of slitted heads C C, and of cords or wires D D, as and for the purpose set forth.

4. The bandaged rings or bands A A, having their meeting or abutting edges beveled, as at *a a*, to indicate the points for their separation and for severance of their bandage, substantially as set forth.

187,946. SHEET-METAL-SPINNING MACHINES. J. E. Wells, New Milford, Conn. [Filed Mar. 23, 1875.]

Brief.—The face of the former has disk-sections, the lower ones expanded by gravity and the upper ones by cam-action of conical pin or screw-heads, which are seated in the disk-sections by a sliding chuck abutting against them, and actuated by a sliding spring-disk against the points of the pins. Spinning-tool operated back and forth by feed-screw, and plays up and down in grooves in tool-frame; is swung from over the former; has holding-plate before it on its shaft; may have a hand-worked polishing-tool on its shaft to follow it, and may be held to its work by a treadle.

187,946.



1. In a metal-spinning machine, the forming-head F, having the adjustable expanding and contracting face-sections I, the margins of which form a continuous guide for the spinning-tool, substantially as specified.

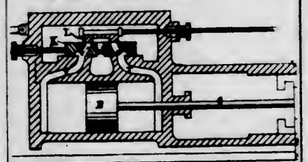
2. In a metal-spinning machine, the combination, with the forming-head F and its automatically-adjustable contracting and expanding face-sections I, of the longitudinally-adjustable shaft B, and its pressure-head G, substantially as specified.

3. The combination, with the head F and its adjustable sections I, of the pressure-head G and the expanding pins H, substantially as specified.

4. In a metal-spinning machine, the combination with the forming-head, F and its automatically-adjustable face-sections I, of the pressure-head G and the traveling tool N, substantially as specified.

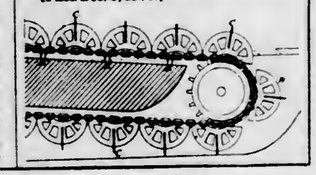
5. In a metal-spinning machine, the combination, with the vibratory frame L', and its sliding shaft C, carrying the spinning-tool, of the traveling frame P, engaging with said shaft, and the screw-shaft E, substantially as specified.

187,947. VALVE-GEARS FOR STEAM-ENGINES. Saml. H. Wheeler, San Francisco, Cal. [Filed Sept. 9, 1876.]



The combination, in a reciprocating engine, of a movable valve-seat, K, actuated through a fixed connection of intermediate mechanism by the main piston B, and a distribution-valve, L, moved by a means independent of the main engine, whereby the time of the stroke in either direction is controlled by the operator, substantially as described, and for the purpose set forth.

187,948. CHAIN-PROPELLERS FOR VESSELS. Wm. B. Whiting, United States Navy. [Filed Dec. 5, 1876.]

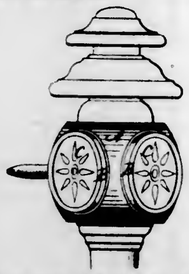


1. The combination, with the endless chains H, of the braces D, supporting the paddles, and curved or cut away to accommodate the turn of the sprocket-wheels, together with the transverse bars E, supporting the braces, and having rounded ends loosely arranged in the links of the chains, substantially as and for purpose described.

2. The endless chain H, having the rigidly-fixed transverse bars G, in combination with the braces D for the paddles, curved or cut away as described, and the supporting-bars F for the braces, having rounded ends loosely fitted in the links of the chain, substantially as and for the purpose described.

3. The endless-chain propeller, having its rear end elevated, in combination with the inclined connecting-compartments I, carrying series of rollers, substantially as and for the purpose described.

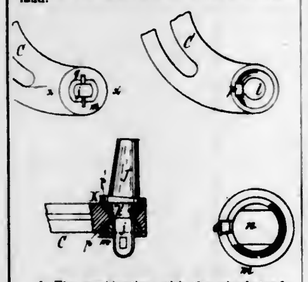
187,949. IMITATION LAMPS FOR CARRIAGES. George H. Whitmore, New Haven, Conn. [Filed Oct. 9, 1876.]



As an article of manufacture, the herein-described imitation carriage-lamp, consisting of the wood body with the moldings or ornamental parts formed from metal and applied thereto, substantially as described.

187,950. PLOWS. T. Wiard, East Avon, assignor, by mesne assignments, to Wiard Plow Company, Batavia, N. Y. [Filed Oct. 3, 1876.]

Brief.—A bent shank to the wheel-spindle, with devices for holding in position and for reversing to cause the wheel to run to or from land.



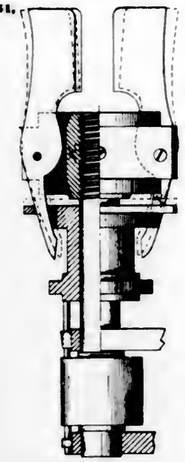
1. The combination, with the wheel-standard C, provided with double-conical opening *l*, of the arbor J, having shank *j* and conical collar *k'*, and conical washer *m*, substantially as and for the purpose hereinbefore set forth.

2. The combination, with the wheel-standard C, provided with double-conical opening *l* and recesses *p p'*, of the arbor J, having shank *j* and conical collars *k'*, and conical washer *m*, provided with ing *o*, substantially as and for the purpose hereinbefore set forth.

187,951. MACHINES FOR CUTTING BUNGS. M. H. Wiley, Pittsburg, Pa. [Filed Feb. 7, 1876.]

Brief.—The tapering and chamfering tools, with the head, are retracted and held out of the way by the centrifugal force, when released by the devices which force them against the material, by a sliding collar. The tool-head is advanced and receded and the tools operated by a sliding frame actuated by a cam and a pitman, said frame, by means of elbow-levers, causing the saw to travel in a plane at right angles to the tapering-tools. The bung-blank is advanced at regular intervals, and held stationary during the action of the cutters by shipping mechanism operated from the cam-shaft.

187,951.



1. The combination of the revolving cutter-head and the pivoted tapering-tools, the tools being combined with, and connected to, the head, so as to be free to separate by centrifugal force when not confined by the sliding collar, substantially as specified.

2. The combination of the revolving tool-stock, the pivoted tapering tool or tools, and the sliding collar, substantially as and for the purpose specified.

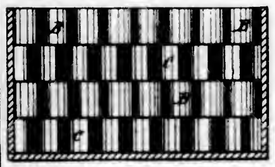
3. The combination of the tool-stock, the pivoted tapering-tool and sliding collar, with the sliding frame, and the cam and pitman or similar mechanism for reciprocating the frame and operating the collar, substantially as and for the purpose specified.

4. The combination of the sliding saw-frame and saw mounted thereon, the cam, and the main and compound levers, substantially as specified.

5. The combination of the feed mechanism D^1 D^2 d^2 d^3, the cam c^1, and suitable intermediate mechanisms for causing the feed to take place at regular intervals, substantially as specified.

6. The combination of the feed mechanism, the saw and tapering-tools mounted in sliding bearings, the cam-shaft provided with the series of cams and suitable intermediate mechanism, whereby the feeding forward of the strip and tapering and severing of the bung are accomplished in regular succession, substantially as specified.

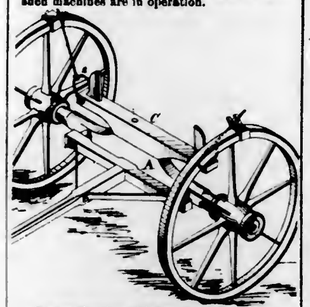
187,952. EGG-CARRIERS. Geo. D. Willis, Caverna, Ky. [Filed Dec. 16, 1876.]



In combination with a suitable packing box or case, a series of egg trays, formed of vertical tubular boxes, glued together, each alternate tray having the outer row cut away vertically, and the several trays being arranged so that the open quadrantal spaces between the tubes shall be presented in line with the centers of the cells of the two adjoining trays, to form a support and cover for the points and butts of the contained eggs, substantially as and for the purposes hereinbefore set forth.

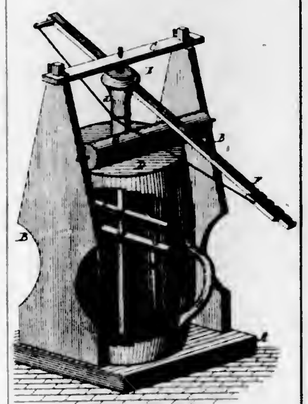
187,953. STAY-RODS FOR WAGON-BOLSTERS. C. A. Weed, Racine, Wis. [Filed Jan. 20, 1877.]

Brief.—The object of the device is to hold rigidly the bolsters of wagons which support threshing-machines or portable engines while such machines are in operation.



In combination with the axle A and wheels B B, the bolster C, connected to the wheels by means of clamps, screw-rods, and clevises, substantially as herein set forth.

187,954. RECIPROCATING CHURNS. J. M. Walch, Buena Vista, Tex. [Filed June 21, 1876.]

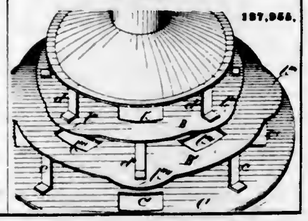


1. The hereinbefore-described churn, provided with the stand A, detachable sides and top B C, and central vertical shaft E, having the dashers *b b*, adjustable thereon at suitable heights by means of the wedge *c*, fitting into the recesses *a*, the several parts constructed and arranged substantially as and for the purpose described.

2. In a churn, the vertical shaft E, provided with the recesses *a*, in combination with the adjustable dashers *b b*, and wedges or pin *c*, substantially as described.

3. The combination of the vertical shaft E, carrying the adjustable dashers *b b*, the bow F, and friction-roller G, substantially as and for the purpose described.

187,955.



187,956. CHURN-DASHERS. G. D. Woods, Aurora, Ill. [Filed Dec. 5, 1876.]

A churn-dasher, constructed as described, of circular ring C and plates B' B, having circular openings and projections *b'' b'''*, and slots arranged as described, and with the inverted imperforate cup-shaped plate A, all united and operating substantially as and for the purpose specified.

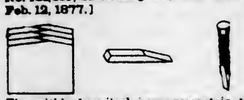
REISSUES.

7,599. COMBINED LAMP CHIMNEY AND SHADE. T. B. Atterbury, Pittsburg, Pa., assignor to himself and J. S. Atterbury, same place. Patent No. 176,160, dated Apr. 18, 1876. [Filed Feb. 14, 1877.]



The globe, shade, or bowl, with a chimney at its top, and a neck at its base, the whole constructed of glass and in one piece, and taking the place on a lamp of the ordinary chimney, and serving the purposes of the ordinary globe and chimney, which are made in separate parts, substantially as described.

7,580. MANUFACTURE OF SHOE-NAILS. L. W. Austin, Taunton, Mass., assignor to the Albert Field Tack Company. Patent No. 181,619, dated Aug. 29, 1876. [Filed Feb. 12, 1877.]



The within-described improvement in the art of cutting blanks for nails, consisting in cutting the plate on the inclined lines, as and for the purpose specified.

7,581. CANS FOR OIL, &c. J. G. Sweeden, Chicago, Ill., assignor of two-thirds interest to F. C. Wilson. Patent No. 153,816, dated Aug. 4, 1874. [Filed Dec. 28, 1876.]



1. A metal can, in combination with an exterior wooden drum, secured to the can by devices which leave the drum free to move on the can by shrinkage, without loosening or injuring the fastenings, substantially as described.

2. The metal can A, in combination with a wooden drum, B, and metal strip D, secured to the exterior of the can, and fastened to the drum, substantially as and for the purpose set forth.

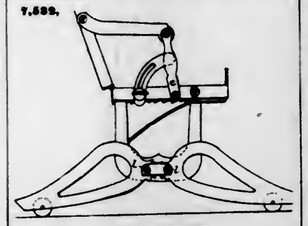
7,582. NURSERY-CHAIRS. E. S. French, Templeton, Mass., assignor to Thompson, Perley & Waite. Patent No. 179,851, dated July 18, 1876. [Filed Feb. 12, 1877.]

1. The combination of the chair-seat and its supporting-frame, to elevate the seat above the pivots of the legs, with legs pivoted to the frame, to be extended in front of and behind the seat, or contracted, and rollers, whereby the legs, when contracted, (their ends then resting upon the floor,) maintain the seat in an elevated position for a chair, and, when extended, the rollers rest upon the floor, to convert the chair into a carriage, substantially as described.

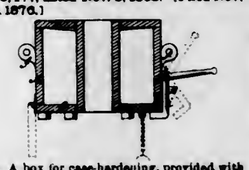
2. The chair-seat, its supporting-frame, to elevate the seat above the pivots of the legs, and pivoted legs and wheels, arranged between the pivotal points of the legs and the ends, which latter are adapted to rest upon the floor when the seat is elevated, in combination with devices to keep the legs contracted when the ends of the legs rest upon the floor, and to permit the legs to be extended to convert the chair into a carriage, substantially as described.

3. The chair and frame and movable curved legs pivoted thereto, so as to be extended in front of and behind the seat, or to be contracted, as described, whereby, by changes in the position of the legs with relation to the frame and seat, they support the chair-seat upon their ends, making a fixed chair, or upon their curved edges, making a rocking chair, as set forth.

7,582.



7,583. BOXES FOR CASE-HARDENING. Jas. Greene, Providence, R. I. Patent No. 40,477, dated Nov. 3, 1863. [Filed Nov. 8, 1876.]



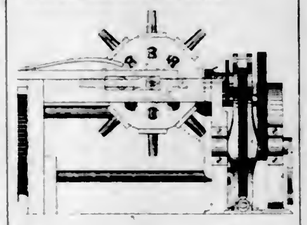
1. A box for case-hardening, provided with a central opening or flue, and a movable discharging-bottom, substantially as described.

2. A box for case-hardening, provided with a bottom, which is connected with the walls of the box, and is also movable, substantially as described.

3. A box for case-hardening, provided with a central flue, and with supports or legs, substantially as described, for securing a circulation beneath the box and upward through the central flue, as set forth.

7,584. MACHINES FOR SHAVING THE HEADS OF WOOD-SCREWS. H. A. Harvey, New York, N. Y., assignor, by mesne assignments, to the American Screw Company. Patent No. 44,723, dated Oct. 18, 1864. [Filed Jan. 22, 1877.]

Brief.—A wheel or hub with split-blank holders projecting radially from its periphery has a reciprocating sliding movement given to it by a cam, and an intermittent rotary movement, produced by contact in its backward movement with a fixed stop. The forward movement thrusts the holder, with its blank, into a rotating socket, which compresses the holder upon the blank and imparts to both rotary movement, and a milling-tool is then brought against the head to dress it.



1. A series of receivers capable of rotation upon their own axes, mounted radially upon a hub arranged in connection with devices by means of which the hub is caused to rotate intermittently, and also to reciprocate in a right line, substantially as shown and described.

2. A receiver capable of rotation upon its own axis, mounted in a hub having an intermittent rotating motion and a reciprocating sliding motion, substantially as described, in combination with a device for imparting to the receiver rotation upon its own axis.

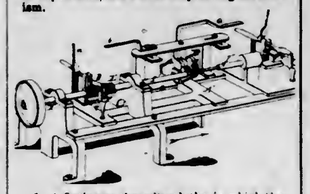
3. A receiver, substantially such as described, mounted upon a hub having the compound motions described, in combination with the revolving collar *c'*, when the latter is adapted to the double office of pressing the slit end of the receiver upon a screw-blank contained therein, and at the same time communicating a rotary motion to the receiver, substantially as set forth.

4. A receiver, or a series of receivers, mounted upon a hub having the compound motions described, and a device for successively causing each receiver to rotate upon its own axis, and to gripe a screw-blank, in combination with a cutting-tool, whether revolving or otherwise, substantially as herein specified.

5. The combination of the revolving collar and receiver described with a yielding presser-finger, for pressing the blank home in the receiver, and holding it in that position until it can be griped, substantially as described.

7,585. LATHES. D. Heer, Philadelphia, Pa., assignor to H. D. Hirst, same place. Patent No. 141,347, dated July 29, 1873. [Filed Mar. 2, 1874.]

Brief.—Spirals or flutings are rapidly and automatically formed upon the surface of cylindrical or conical blanks of wood by means of a series of cutters of suitable form attached to spring-actuated levers hung to a projecting head by a longitudinally-sliding carriage, spaced and arranged in two sets, one of which forms spiral grooves with blank spaces between them, and the other removes said blank spaces; a driving-spindle carrying a revolving grooved former and an adjustable rod, between which and the spindle the blank is held during the operation, and suitable operating mechanism.



1. A fluting or threading lathe in which the cutters are spaced and arranged in sets, substantially as herein described, so that the cutters of one set shall form spiral grooves with blank spaces between them, which blank spaces shall be operated upon by the cutters of the next set or sets, as specified.

2. The combination of the arm G on the carriage, the spring-rod F', and the devices described, through the medium of which the said rod may be released by the arm.

3. The combination of the former E, arm D of the carriage, projection *b*, and trigger *a*, substantially as and for the purpose set forth.

7,586. CAR-SPRINGS. E. J. Horner, Wilmington, Del., assignor to C. Scott and G. F. Godley. Patent No. 83,855, dated Nov. 10, 1868. [Filed Feb. 13, 1877.]



A graduated car-spring, consisting of two or more spiral springs of unequal diameter, and of unequal height relatively to their bearings, combined with supports or plates to receive the load, the arrangement of springs being such that each receives the load in succession and graduates the force to sustain light and heavy loads, as set forth.

7,587. CAR-SPRINGS. E. J. Horner, Wilmington, Del., assignor to C. Scott and G. F. Godley. Patent No. 89,999, dated May 11, 1869. [Filed Feb. 13, 1877.]

1. A graduated car-spring consisting of two or more spiral springs of unequal diameters, one within the other, and supported by plates or bearings, so that the pressure is received by an inner spring after having first com-

pressed as outer spring or springs, as set forth and described.

2. In combination with one, two, or more spiral springs, constructed as herein described, the rubber pin C tapering at its lower end, and resting on the stationary pin B, substantially as and for the purpose set forth.

7,537.



7,538. PEN AND PENCIL CASES. C. M. Johnson, New York, N. Y. Patent No. 181 447, dated Aug. 22, 1866. [Filed Jan. 18, 1877.]

Brief.—Band *e* operates the pencil-carrying tube, and *d* the pen-holder which surrounds the pencil-tube, and *f* the knife-blade and its sliding plug or base-piece. Either of these implements may be locked within the tube, or without the same, by turning the bands so as to bring the pins *g* into the short transverse slots at the ends of the longitudinal slots *a b c* of the exterior tube **A**.



1. In a pen or pencil case, I claim the combination, together with the outer case A and operating bands *d e*, of the pencil-holder D, combined with the pen-holder B, in such a way that the former is arranged to slide directly within and in contact with the latter, which forms its bearing and guide, substantially as herein shown and described.

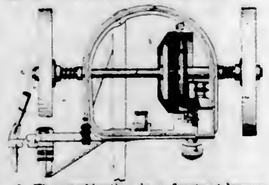
2. The combination, with the slotted tubular case A, open at each end, and operating bands *d e f*, of the knife h, arranged to slide out of one end of the case, together with a pen or pencil holder, B D, arranged to slide from the opposite end of the case, substantially as herein set forth.

3. In combination with the slotted case A, the pen-holder B, provided with the inner lining C, in combination with the pencil-holder D, arranged to slide within it, substantially as shown and described.

4. In combination with the slotted case A and operating pins *g*, and with the pencil-holder D, arranged to slide within the pen-holder, the pen-holder B, provided with the slot or opening E, substantially as and for the purpose set forth.

7,539. HARVESTERS. Frank Bramer, Little Falls, N. Y. Patent No. 51,546, dated Dec. 19, 1865. [Filed Jan. 18, 1877.]

Brief.—A drum, internally geared and co-operating with a planetary gear within, is fixed upon the main frame, and is adjustable about the driving-shaft. The ball-and-socket joint of connecting-bar B' permits an upward and axial movement of the cutter-bar.



1. The combination, in a front-cut harvester, of the main frame, the stiff tongue, the rocking double-hinged coupling-arm, and the push-bar, hinged at its front end to said coupling-arm, and pivoted at its rear end to the main frame, these members being constructed and operating in combination, substantially as hereinbefore set forth.

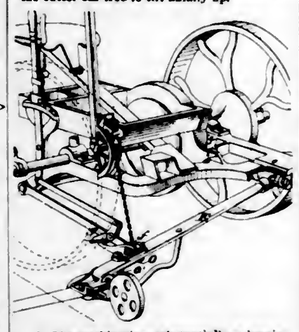
2. The combination, in a front-cut harvester, of two main supporting and driving wheels, a main frame mounted thereon, a stiff tongue secured to the main frame, a finger-beam and shoe connected with the main frame by an axially-rocking double-hinged coupling-arm in front of and parallel with the main axle, and a push-bar pivoted in rear to the frame, and hinged in front to the rocking coupling-arm, these members being constructed and operating in combination, substantially as hereinbefore set forth.

3. The drum, constructed as described, with a vertical and a horizontal flange, in combination with corresponding flanges on the main frame, whereby the drum may be adjusted concentrically upon the main axle, and at right angles thereto.

4. The slotted finger-bar rest K, constructed as shown, and secured to one end of the main axle, to hold the cutter-bar when folded for transportation.

7,540. MOWING-MACHINES. F. Bramer, Little Falls, N. Y. Patent No. 166,760, dated Nov. 10, 1874. [Filed Jan. 18, 1877.]

Brief.—A hand-lever and link fixed to the push-bar operate cams to hold the cutters close to the ground. A lifting-lever is connected with the cutting apparatus by means of a gag-iron fixed upon the doubly-hinged connecting-arm, whereby the cutter-bar is bodily raised and its outer end upwardly tilted, still leaving the cutter-bar free to tilt axially up.



1. The combination, substantially as herein-before set forth, of a main frame, a rocking-hinged coupling-arm, a thrust-bar connecting the main frame and coupling-arm, a lifting apparatus, a tilting lever, a rocking cam, and a wedge upon the coupling-arm.

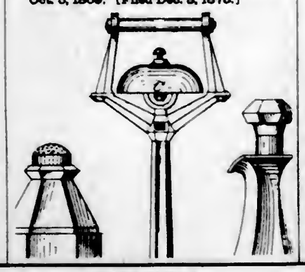
2. The combination, substantially as herein-before set forth, of the wedge-block on the rocking coupling-arm with the rocking-cam on the thrust-bar, for tilting or rocking the finger-bar on its longitudinal axis.

3. The combination, substantially as herein-before set forth, of the main frame, the rocking coupling-arm, the block or wedge thereon, the push-bar connecting the main frame and coupling-arm, the hand-lever, its link, and the rocking-cam on the thrust-bar.

4. The combination of the rocking coupling-arm, the shoe, the cranked gag-iron or locking-stop, rocking underneath the coupling-arm and acting on the shoe, the lifting-lever, and the chain connecting it with the gag-iron, these members being constructed and operating in combination, substantially as hereinbefore set forth, to allow the guards to rock or roll upward, while the cutting apparatus is elevated above the ground.

5. The divider-iron, constructed as herein-before described, with a transversely-slotted socket, in combination with the divider-finger inserted therein, and the screw-bolt passing through the slot into the finger, for permitting said finger to be rolled and secured in any desired position, substantially as and for the purpose hereinbefore set forth.

7,541. TABLE-CASTERS. H. A. Dirkes, New York, N. Y. Patent No. 93,572, dated Oct. 5, 1869. [Filed Dec. 3, 1876.]

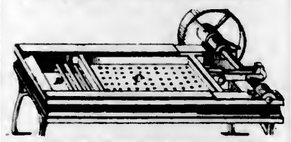


1. The bell or gong and its operative mechanism, arranged upon the top or upper portion of the stem of a table-caster or similar utensil, so that each may be supported and upheld by said stem, and be visible and equally accessible from all sides, substantially as herein set forth.

2. The arrangement of an annunciator as a whole, mounted on the stem of a caster or table utensil, above the band or other support for the receptacles, as and for the purposes substantially as set forth.

3. The arrangement, within the bow of the handle of a caster or similar table utensil, of the gong C and its operating-lever, whereby the latter are entirely exposed to view, removed from the receptacles, and adapted to be operated as and for the purposes set forth.

7,542. OATMEAL-MACHINES. Asmus J. Burrichson, Akron, Ohio, assignor to F. Schumacher. Patent No. 170,826, dated Nov. 30, 1875. [Filed Feb. 14, 1877.]



1. An oatmeal-machine, consisting of a perforated feeder, and one, two, or more bars, or cutting-blades, said bars or blades and perforated feeder placed in such relation and juxtaposition that the movement of either, (the other being stationary,) or opposite movements of both, will crush, fracture, or cut kernels of grain extending through the perforations of said feeder, substantially as shown, and for the purpose specified.

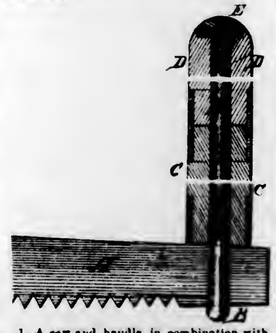
2. In an oatmeal-machine, a perforated feeder, C, substantially as and for the purpose described.

3. In an oatmeal-machine, the combination, with a perforated feeder, of a series of knives, substantially as and for the purpose described.

4. The combination of the perforated plate C and horizontal knives D, or their equivalent, both or either adapted to be relatively reciprocated, substantially as and for the purpose described.

7,543. CROSSCUT-SAW HANDLES. J. Neimeyer, Hamilton, Ohio, assignor to the Wheeler, Madden & Clemson Manufacturing Company. Patent No. 27,308, dated Feb. 28, 1860; extended seven years. [Filed Feb. 9, 1877.]

Brief.—The saw can be readily attached and detached from the handle, and held by a clamping-pressure without perforating the saw-blade, by means of a sectional slotted and perforated handle, through which is passed a clamping-rod slotted at its lower end, and provided with a screw-thread upon its upper end, to receive a nut for securely clamping the saw in position.



1. A saw and handle, in combination with a clamping bolt, B, and nut E, or its equivalent, whereby the saw is readily clamped and released, for the purpose specified.

2. The compound saw-handle hereinbefore described, the same consisting of the combination of the slotted rod B with the parts C and D of the handle, and the nut E, all constructed, arranged, and operating as and for the purpose specified.

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DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—DISTRICT OF CONNECTICUT.

THE UNITED STATES RIFLE AND CARTRIDGE COMPANY AND E. REMINGTON & SONS *vs.* THE WHITNEY ARMS COMPANY *et al.*

[*In equity.—Before* SHIPMAN, *J.*]

The provisions of section 35 of the act of 1870, that upon the hearing of the renewed applications therein referred to, abandonment should be considered as a question of fact, does not render delay of itself conclusive evidence of abandonment, but makes the decision of such cases depend upon the peculiar circumstances as a question of fact and not of law.

The decision of the Commissioner in regard to the questions which have been committed to his exclusive jurisdiction is final—such as the sufficiency and competency of the formal acts and proofs which the statute provides shall be a prerequisite to the issuing of a patent; the existence of those facts upon which a reissue is to be granted or an extension made; and the sufficiency of the reasons for delay exceeding two years in prosecuting an application made since the act of 1870.

The granting of a patent is *prima facie* but not conclusive evidence that the right to the invention has not been surrendered to the public, and the same is true in regard to abandonment upon renewed applications which were made under the 35th section of the act of 1870.

All the defenses which the statute authorizes may be made as well in respect to patents granted upon applications renewed under the 35th section of the act of 1870, as in respect to those issued upon original applications. Lapse of time, *per se*, does not constitute abandonment.

The filing of an application is conclusive evidence that at its date the inventor did not intend to give his invention to the public, but it is not conclusive evidence that he did not subsequently do so.

Cochran's application was filed January 11, 1859, withdrawn February 20, 1860, and not renewed until after a period of eight years had elapsed. He, in the meantime, made numerous other inventions of a kindred nature, and obtained twenty-two patents thereon, constantly engaged in their development, and though poor, not thereby deterred from prosecuting his other inventions, and could have obtained a patent on this, or at least kept the application alive had he so desired. Meanwhile the invention was patented by others, and finally introduced in 1867, a year before Cochran filed his second application. *Held:* that while the new petition did not of itself sever the second application from the first, his acts and conduct show that the proceeding had been abandoned, and there was no continuity in the two applications.

The case distinguished from Smith *vs.* Dental Vulcanite Company, where the first application had never been withdrawn, and the inventor was unremitting in his endeavors to obtain a patent.

Forfeiture or abandonment may be inferred from the acts of an inventor who, without substantial reason or excuse, neglects the use of his invention and sleeps upon his rights for a number of years, while others in the meantime produce the same thing and give the public the benefit thereof; and the same is true whether the device be patented or had gone into use without a patent.

A use for the mere purpose of competitive examination, experiment, and test, is not a public use.

[*Frederick H. Betts and George Gifford*, for plaintiffs.
Benjamin F. Thurston and John S. Beach, for defendants.]

SHIPMAN, *J.*:

This is a bill in equity to restrain the defendants from an alleged infringement of letters patent granted to John W. Cochran on May 7, 1872, for improvements in breech-loading guns. The plaintiffs are the owners of the patent, and E. Remington & Sons, for whose benefit the suit is brought, are the exclusive licensees thereunder. The answer of the defendants denies infringement upon their part, and also denies novelty of invention upon the part of the patentee, and alleges that the application of the said Cochran for a patent was filed on May 6, 1868, and that for more than two years prior to said date the invention had been in public use and sale with the consent and allowance of said Cochran, and that prior to the said date the invention had been abandoned to the public.

Mr. Cochran's application for a patent was made on the 11th of January 1859, and was rejected February 8, 1859. No appeal was taken from the original rejection by the primary examiner, and on February 20, 1860, the application was withdrawn, and twenty dollars, the balance of the Patent Office fee, was refunded to the applicant. On May 6, 1868, Mr. Cochran filed a new application, which was rejected upon the ground of abandonment. The decision of the Board of Examiners was affirmed by Mr. Fisher, who was then Com-

missioner, whose decision was reversed by the supreme court of the District of Columbia. The Commissioner then declined to issue the patent, but after the passage of the patent act of July 8, 1870, a new application was filed and the patent was issued by the successor of Mr. Fisher. During the interval of eight years between the first rejection and the second application, Cochran obtained twenty-two different patents upon his own application, nine of which patents relate especially to breech loading fire-arms. He was constantly occupied after 1859, and especially during the war of the rebellion in endeavors to perfect and bring to the favorable notice of the War Department, and of the public, his inventions other than the one which is now in controversy. He sold in the year 1865 an English patent for another breech-loading fire-arm for the sum of $13,000, of which sum $5,000 was spent in making models and procuring foreign patents, and went to England on two occasions for the purpose of introducing that weapon to the foreign market. He was during a portion of this interval very poor, in debt, and in ill health, and his habits were irregular, but he was prosecuting his other inventions with constancy and energy. There is no evidence that any arm embodying the invention in controversy was ever constructed by Mr. Cochran, or by any person on his behalf; neither is there any evidence that he ever sought means to renew his application, or that he said or did anything which indicated his idea that this invention was to be pressed or was to become available to him. On the contrary, he apparently acquiesced in the action of the Patent Office and entirely turned his attention to other inventions. He died on January 2, 1873. Patents were granted to James Stillman in 1865, and also to Laidley & Emoty in 1866, for improvements in fire-arms, which are embodied in the gun of the defendants, and constitute its peculiar features.

It was said by Commissioner Fisher, in his opinion upon the second application, that the primary examiner reported that the devices mentioned in the 1st and 2d claims of Cochran's specification were found in eighteen patents which had been granted between 1860 and 1868. I have no means of verifying the truth of this statement. As I think that the principal question in the case is in regard to the validity of the Cochran patent by reason of abandonment, or by reason of laches and want of diligence in procuring the patent to the injury of the intervening equities or other inventors and patentees, I do not enter into the question of novelty, but assume that Cochran's invention was not anticipated by the persons named in the answer, and also assume what was not seriously denied that the Whitney gun contains, in substance, the Cochran invention.

The second application, which was rejected in 1869, was renewed after the passage of the patent act of 1870, (16 Statutes at Large, page 198.) The 35th section of this act provided that when an application for a patent has been rejected or withdrawn prior to the passage of this act the applicant shall have six months from the date of such passage to renew his application or to file a new one, and if he omit to do either his application shall be held to have been abandoned. Upon the hearing of such renewed applications abandonment shall be considered as a question of fact. Prior to the passage of this act, the practice of the Patent Office in regard to the granting of renewed applications for patents after the lapse of years from the date of their previous rejection or withdrawal was not uniform. It had been held that the withdrawal of an application and the neglect to prosecute it within a reasonable time was an abandonment of the invention. The contrary had been held both by the Patent Office and the courts. Inventors whose applications had been rejected were desirous of renewing them, and it was proper both that some limitation should be placed upon the time within which the new applications should be made, and that some stable principle should be adopted in regard to the question of abandonment. The section provided that this question should be regarded as a matter of fact that lapse of time should not of itself be conclusive evidence of abandonment, but that the decision of such cases should depend upon peculiar circumstances as a question of fact and not of law.

Both parties while uniting in this construction of the 35th section differ materially in the effect to be given to the decision of the Commissioner upon a renewed application which was made subsequent to the passage of the act.

The plaintiffs contend that his decision is conclusive upon the question of abandonment, and is not open to review collaterally, while the defendants insist that a patent granted upon a renewed application is still open to the same attacks which can be made upon any other patent.

The decision of the Commissioner in regard to the questions which have been committed to his exclusive jurisdiction are final. His decision is conclusive in regard to the sufficiency and competency of the formal acts and proofs which the statute provides shall be a prerequisite to the issuing of a patent. He is, moreover, made the tribunal which is to decide both in regard to the existence of those facts upon which a reissue is to be granted, and upon which an extension of patents issued prior to March 2, 1861, is to be made.

By the 32d section of the act of 1870 he is to judge of the sufficiency of the reasons for delay exceeding two years in prosecuting application which shall be thereafter made. Upon these three subjects which are submitted to him his decision is conclusive.

The statute also provides that an inventor of an improvement not known or used by others in this country, and not patented or described in any printed publication in this or any foreign country before his invention, and not in public use or on sale for more than two years prior to the application, unless the same is proved to have been abandoned, may obtain a patent therefor, and that in an action for infringement or a suit in equity for relief against infringement the defense of abandonment may be pleaded. The granting of a patent is *prima facie*, but not conclusive, evidence that the right to the invention had not been surrendered to the public. I am of opinion that the decision of the Commissioner in regard to abandonment upon renewed applications which were made under the 35th section has no higher authority or more enlarged scope than his decision upon the same questions upon an original application, and that all the defenses which the statute authorizes may be made as well in respect to patents granted upon applications renewed after the act of 1870, as in respect to those issued upon original applications.

The question is simply whether the 35th section gave the Commissioner the exclusive jurisdiction which is conferred upon him in the cases which have been mentioned. His decision upon a renewed application prior to the act of 1870 had no conclusive effect. The provision that "abandonment shall be considered as a question of fact" when it is admitted that the object of the provision was primarily to make a distinction between questions of law and of fact hardly confers upon the Commissioner an exclusiveness of jurisdiction which he did not previously have, and which he has not since had upon any other class of applications.

The question of abandonment being then one of fact, and now open to examination, it is plain that no laches can be imputed to Cochran after May 6, 1868, and that the consideration of the question is confined to the eight years subsequent to his withdrawal of the first application. It is also true that lapse of time, *per se*, constitutes no abandonment, and that upon the defendants rest the burden of clearly establishing by affirmative evidence a positive and actual abandonment, or such laches as clearly to indicate an intent to abandon. It may be also considered as true that the original application is conclusive evidence that at its date the inventor did not intend to give his invention to the public, but it is not conclusive evidence that he did not subsequently conceive such intention, or that he was not subsequently guilty of such neglect in obtaining a patent that he ought not to have a monopoly to interfere with the equities of those who did anticipate him in giving the public the benefit of their inventive skill and labor.

In considering this question of fact the court is deprived of aid from the testimony of the inventor, who died in 1873. There is also an absence of the usual evidence from the declarations or the acts of the inventor in regard to his invention, and the court has therefore to consider only the evidence which the undisputed facts on the one side or the other disclose, and the inferences from those facts. The application was withdrawn in 1860, and was not renewed until eight years had elapsed. In the meantime, Mr. Cochran's attention was directed to other kindred inventions, and to invention of cartridges, shot and shell, for which he solicited and obtained twenty-two patents in this country. From his letters, which tell also a sad story of poverty, it appears that his mind was constantly engaged in these various patents, and his energies were constantly directed to their development. If it could be shown that his poverty was a reason for his not renewing and pressing an application for this particular invention, such testimony would tend greatly to dispel the idea of laches; but poverty did not deter him from entering into the necessary expenses which his other patents required, and from devoting himself energetically to obtain a recognition of their merits from the government and from the public. His want of means was not apparently the cause of his not seeking to place the invention in its present position. He was absorbed in the attainment of success in the enterprises which occupied his mind to the exclusion of this invention, which he did not regard of as much value as the others. In the meantime, during the war of the rebellion, inventive skill was greatly stimulated in regard to the perfection of breech-loading fire-arms, and the attention of other inventors than Cochran became engaged in the same line of thought and experiment which he had originally entered upon.

In brief, the case shows that Cochran made an invention and an application to the Patent Office, which, upon its rejection, he voluntarily withdrew, and for eight years neglected to renew, while he devoted himself to other inventions. He could have obtained a patent for this improvement, or he could at least have kept his application in the Office. Meanwhile, his invention is patented by others, and is finally introduced to the public in the year 1867 by the present licensees, when Mr. Cochran presents it again to the Patent Office.

The new petition did not of itself sever the second application from the first, *Smith* vs. *Dental Vulcanite Company*, (Sup. Ct. of U. S., Oct. 1, 1876,) but the acts and conduct of Mr. Cochran show that the proceedings to obtain a patent which were originally undertaken in 1859 had been abandoned, and that there was no apparent intent at the time of the withdrawal to file a new petition, but there was an acquiescence in the decision of the Patent Office. There was no continuity in the two applications.

The case presents very different circumstances from those which are disclosed in *Smith* vs. *Dental Vulcanite Company*, in which case the original application was never withdrawn, but from the date of the third rejection in February, 1856, until March, 1864, when the successful petition was again presented, it is found that the inventor did not remit his efforts, but did everything in his power to obtain a patent, and no act amounted to an acquiescence in the rejection. In this case there was a withdrawal of the first application, the efforts to obtain a patent were remitted, nothing was done toward that end, there was an apparent acquiescence in the rejection, there was a devotion of the thoughts and energies of the inventor to other pursuits, the cessation of active interest in the invention, and a relinquishment of any attempt to perfect his title thereto.

A person "may forfeit his rights as an inventor by a wilful or negligent postponement of his claims, or by an attempt to withhold the benefit of his improvement from the public until a similar or the same improvement should have been made and introduced by others." *Kendall* vs. *Winsor*, (21 Howard, 322.) If there was no purpose on the part of Cochran to withhold his improvement from the public, there was a negligent postponement of his claims until after the other inventor had acquired equities which it seems unjust to destroy. The language of Judge Woodruff in *Consolidated Fruit Jar Company* vs. *Wright*, (12 Blatch. C. C. R., 149,) though not necessary to the decision of that case is just and pertinent to the facts which are here disclosed:

> If an inventor without substantial reason or excuse abandons the use of his invention, and for nine years sleeps upon his rights, and in the meantime others in good faith employ their industry, skill, and money, in producing the same thing and give the public the benefit thereof, putting it into extensive use and sale, such a state of facts not only warrants the inference of abandonment by the first inventor, but it also creates as between him and the others, the same equity as would arise if such others had gone further and taken out a patent. Whether the device be patented or had "gone into use without a patent," should make no difference. *Kendall* vs. *Winsor*, (21 Howard, 322.) This is not because lapse of time, *per se*, deprives an inventor of his rights, but because

the circumstances giving character to the delay indicate abandonment, and also because the intervening rights of others make it inequitable that he should thereafter be permitted to assert any such exclusive title to the invention.

To the same effect in the case of *Marsh* vs. *Sayles*, (5 Fisher, 610.)

I find no adequate evidence of public use of any one for two years preceding the date of the final application. Even if one of the guns which was presented for competitive examination by the board of army officers at Springfield in the year 1865, embodied the Cochran invention, it does not appear to me that the submitting of an invention to the test of examination by experts in competition with other inventions is the public use to which the statute refers. A use for the mere purpose of competitive examination, experiment, and test, is not a public use.

Let a decree be entered dismissing the bill.

APPLICATION FOR EXTENSION.

DEPARTMENT OF THE INTERIOR,
U. S. PATENT OFFICE,
Washington, D. C., March 10, 1877.

On the petition of HENRY VOELTER, of Heidenheim, Germany, praying for the extension of a patent granted to him August 10, 1858, antedated August 29, 1856, extended for seven years from August 29, 1870, reissued June 6, 1871, and numbered 4,418, for an improvement in reducing wood to paper pulp, this application having been authorized by act of Congress approved March 3, 1877:

It is ordered that the testimony in the case be closed on the 29th day of May next; that the time for filing arguments and the Examiner's report be limited to the 8th day of June next; and that said petition be heard on the 13th day of June next.

Any person may oppose this extension.

ELLIS SPEAR,
[tf] *Commissioner of Patents.*

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date March 6, 1877.]

9,770.—Combined Match-Holder and Friction-Mat.—PERCY L. DAVIS, San Francisco, Cal. Application filed February 16, 1877. Term of patent 3½ years.

9,771.—Carpeting.—EDWIN FISHER, New York, N. Y. Application filed February 22, 1877. Term of patent 3½ years.

9,772 to 9,783, inclusive.—**Carpeting.**—JOHN FISHER, New York, N. Y., assignor to LOWELL MANUFACTURING COMPANY, Lowell, Mass. Applications filed February 22, 1877. Term of patents 3½ years.

9,784 to 9,795, inclusive.—**Carpeting.**—JAMES L. FOLSOM, Brooklyn, N. Y., assignor to HARTFORD CARPET COMPANY, Hartford, Conn. Applications filed February 19, 1877. Term of patents 3½ years.

9,796 to 9,810, inclusive.—**Carpeting.**—OTTO HEINIGKE, New Utrecht, N. Y., assignor to HARTFORD CARPET COMPANY, Hartford, Conn. Applications filed February 19, 1877. Term of patents 3½ years.

9,811.—Font of Printing-Types.—JULIUS HERRIET, New York, N. Y., assignor to DAVID WOLFE BRUCE, same place. Application filed February 12, 1877. Term of patent 14 years.

9,812 to 9,821, inclusive.—**Carpeting.**—HENRY HORAN, East Orange, N. J., assignor to HARTFORD CARPET COMPANY, Hartford, Conn. Applications filed February 19, 1877. Term of patents 3½ years.

9,822.—Match-Holders.—WILLIAM W. LYMAN, West Meriden, Conn. Application filed February 20, 1877. Term of patent 14 years.

9,823 to 9,829, inclusive.—**Carpeting.**—ELEMIR J. NEY, Lowell, Mass., assignor to LOWELL MANUFACTURING COMPANY, same place. Applications filed February 22, 1877. Term of patents 3½ years.

9,830 to 9,834, inclusive.—**Carpeting.**—ELEMIR J. NEY, Dracut, Mass., assignor to HARTFORD CARPET COMPANY, Hartford, Conn. Applications filed February 19, 1877. Term of patents 3½ years.

9,835 to 9,838, inclusive.—**Carpeting.**—HENRY NORDMANN, New York, N. Y., assignor to HARTFORD CARPET COMPANY, Hartford, Conn. Applications filed February 19, 1877. Term of patents 3½ years.

9,839.—Instruments for Regulating the Pressure of Gas.—OTTO PRESSPRICH, New York, N. Y. Application filed November 10, 1876. Term of patent 3½ years.

9,840 to 9,842, inclusive.—**Carpeting.**—CHARLES W. SWAPP, Lowell, Mass., assignor to LOWELL MANUFACTURING COMPANY, same place. Applications filed February 22, 1877. Term of patents 3½ years.

9,843.—Inkstand and Match-Safe.—OTTO F. FOGELSTRAND, New Britain, assignor to THE HART, BLIVEN & MEAD MANUFACTURING COMPANY, Kensington, Conn. Application filed February 17, 1877. Term of patent 7 years.

9,844.—Inkstand and Match-Box.—OTTO F. FOGELSTRAND, New Britain, assignor to THE HART, BLIVEN & MEAD MANUFACTURING COMPANY, Kensington, Conn. Application filed February 17, 1877. Term of patent 7 years.

9,845.—Inkstands.—OTTO F. FOGELSTRAND, New Britain, assignor to THE HART, BLIVEN & MEAD MANUFACTURING COMPANY, Kensington, Conn. Application filed February 17, 1877. Term of patent 7 years.

9,846.—Center-Pieces.—SAMUEL KELLETT, San Francisco, Cal. Application filed December 14, 1876. Term of patent 14 years.

9,847.—Rubber Shoes.—JOHN A. OLMSTEAD, Richmond county, N. Y., assignor to UNION INDIA RUBBER COMPANY. Application filed January 31, 1877. Term of patent 14 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date March 6, 1877.]

4,413.—Medical Compounds.—WILLIAM W. BARTLET & CO., Boston, Mass. Application filed December 19, 1876.

"The fanciful title 'IN HOC SIGNO VINCES. HONESTY.'"

4,414.—Cotton Warps or Twine.—DANIEL WARNER, Oxford, Mass. Application filed January 15, 1877.

"The factory buildings, the medallion portrait, and the word 'Warner's,' as shown."

4,415.—Cotton Fabrics.—AMOSKEAG MANUFACTURING COMPANY, Manchester, N. H. Application filed December 18, 1876.

"The fanciful word 'MASSABESIC.'"

4,416.—Wines and Brandies.—A. DE LUZE & FILS, Bordeaux, France. Application filed January 17, 1877,

"The coat-of-arms of the De Luze family, displayed as shown.'

4,417.—Medical Preparations.—DUNDAS DICK, New York, N. Y. Application filed February 19, 1877.

"The word-symbol 'CAPSULOID.'"

4,418.—Pocket and Other Knives.—JOSEPH W. GARDNER, Shelburne Falls, Mass. Application filed September 14, 1876.

"The name of J. W. GARDNER and the representation of an open knife, showing the lap bolster and lap cap, and the word 'Challenge.'"

4,419.—Spectacles and Eyeglasses.—GEORGE JOHNSTON, Detroit, Mich. Application filed January 15, 1877.

"The symbol of a heart."

4,420.—Fertilizers.—LANE & JOHNSTON, Newark, N. J. Application filed January 24, 1877.

"The figure of the moose's head and the word-symbol 'Moose Head.'"

4,421.—Cotton Sheetings.—LAWRENCE MANUFACTURING COMPANY, Lowell, Mass. Application filed February 19, 1877.

"The word-symbol 'ARABIC.'"

4,422.—Signs.—ALEXANDER S. MANN, St. Louis, Mo. Application filed June 15, 1876.

"The words 'Union Sign Works,' combined with the eagle, the shield, and two boys on either side."

4,423.—Copper Paint.—JOHN A. ORR, Brooklyn, N. Y. Application filed November 13, 1876.

"The words 'Orr's Centennial' and the figure of a ship."

4,424.—Dentifrice.—FRANCIS M. OSBORN, Port Chester, N. Y. Application filed February 8, 1877.

"The heads of a man and woman represented in the act of saluting, and the name 'F. M. Osborn's.'"

4,425.—Pills.—E. R. POST & CO., Newburg, N. Y. Application filed December 11, 1876.

"The fanciful title 'KNOTT'S PAIN KNOT.'"

4,426.—Relishes, Embracing Pickled Fruits and Vegetables, Catchups, and Salad Dressings.—RECKHOW PRESERVING COMPANY, New York, N. Y., and Paterson, N. J. Application filed December 8, 1876.

"The word-symbol 'Monticello' and the device showing two bottles and a can surrounded by a circle."

4,427.—Preparation for the Cure of Croup.—JAMES ROACH, Scranton, Pa. Application filed April 29, 1876.

"The arbitrary word 'GALVIN'S.'"

4,428.—Cigars.—PEDRO ROSELLÓ, New Orleans, La. Application filed September 7, 1876.

"The representation of a shield having a golden field which contains a Maltese cross placed with a tressure nebulée, or a sinuous border."

4,429.—Abrasive Cloth, Paper, or Leather.—FREEMAN K. SIBLEY, Waltham, Mass. Application filed February 20, 1877.

"The word-symbol 'ADAMANTA.'"

4,430.—Tobacco, Cigars, and Cigarettes.—MATTHIAS M. SMITH, New York, N. Y. Application filed February 17, 1877.

"The word-symbol 'MAGENTA.'"

4,431.—Yeast-Powder and Yeast.—STEELE & PRICE, Chicago, Ill., Cincinnati, Ohio, and St. Louis, Mo. Application filed February 16, 1877.

"The word-symbol 'GEMS.'"

4,432.—Perfumes.—DAVID G. STRAWN, Boston, Mass. Application filed February 17, 1877.

"The word-symbol 'Gyneco.'"

4,433.—Silver and Plated Ware.—THE ADAMS & SHAW COMPANY, New York, N. Y. Application filed January 22, 1877.

"The letters 'A. S. Co.'"

4,434.—Teas.—WALKER BROTHERS, Salt Lake City and Ogden City, Utah Territory. Application filed February 27, 1877.

"An imitation rustic frame in a square form, and bolted together."

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date March 6, 1877.]

991.—Title: **"Scratch My Back."**—GEORGE H. BROWNE, New Haven, Conn. Application filed February 5 1877.

992.—Title: **"Flohr, Hymers & Co., Choice Confections."**—FLOHR, HYMERS & CO., St. Louis, Mo. Application filed December 9, 1876.

993.—Title: **"Gaff, Fleishmann & Co.'s Compressed Yeast."**—GAFF, FLEISCHMANN & CO., Cincinnati, Ohio. Application filed January 2, 1877.

994.—Title: **"Dr. Wm. Heath's Dropsy Cure."**—JOHN N. C. GROVES, St. Louis, Mo. Application filed February 27 1877.

995.—Title: **"Liquid Amandine."**—JOHN Q. HILL, Worcester, Mass. Application filed February 23, 1877.

996.—Title: **"Ducelle's French Yeast Powder."**—JOHN A. LANE and ALBERT A. GREENE, Boston, Mass. Application filed February 22, 1877.

997.—Title: **"Diphtheritic Troches."**—C. H. and J. PRICE, Salem, Mass. Application filed February 22, 1877.

As 12 o'clock on Friday is the latest hour that a final fee can be received in order to get a patent into the "issue" of the following Tuesday, applicants are earnestly requested to make the final payment before Friday, if possible, so that the proper entries may be made on the books of the Office before closing the "issue."

The Patent Office prefers that applicants should furnish their own drawings. Where drawings are defective, or cannot be otherwise obtained, the Office will cause a formal drawing to be made from the model at the actual cost of making it.

When a patent has been allowed, and the application has not been forfeited by delay of six months, if the final fee of twenty dollars is paid before 12 o'clock on Friday, the patent will issue and bear date the following Tuesday.

THE Illustrated portion of the Patent Office Report for 1869 and for 1871 has recently been completed, and can be had, by those having the remaining volumes for those years, by applying to the Commissioner of Patents.

Letters Patent of the United States do not reach the patentee or owner until about two weeks from the day of their date. The letters, nevertheless, have the force of patents from the time they are signed and sealed.

The Government fee on making application for a patent is fifteen dollars. The final fee is twenty dollars. Usually there are no other Government fees unless the application is appealed.

The "Rules of Practice" are furnished gratis on personal or written application to the Commissioner of Patents.

The "Rules of Practice" contain full instructions, forms, &c., for making applications for patents.

The drawing accompanying an application for a patent must be on a sheet ten by fifteen inches.

All letters to the Patent Office must be addressed to the Commissioner of Patents.

All patents issued during the week are signed, sealed, and dated on Tuesday.

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TITLES, DRAWINGS, AND CLAIMS

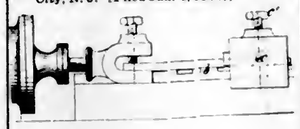
OF

PATENTS GRANTED MARCH 6, 1877.

187,956. COMPOSITIONS FOR PRESERVING. C. G. Am Ende, Hoboken, N. J. [Filed Aug. 1, 1876.]

The composition of boracic acid and chloroform, or substance yielding chloroform, substantially as specified.

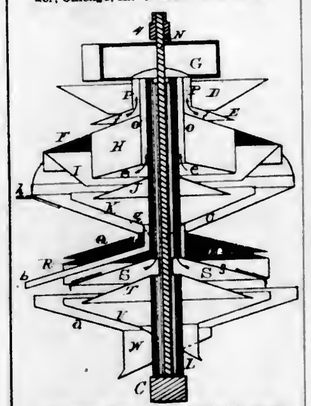
187,957. METHODS OF STRAIGHTENING BARS OF IRON. S. W. Baldwin, Jersey City, N. J. [Filed Jan. 4, 1877.]



1. The mode or process herein described, of straightening bars or rods of metal, by pulling or stretching the same lengthwise, as they leave the rolls by which they are formed.

2. The mode or process of straightening rods or bars of metal by pulling or stretching the same, while warm, lengthwise, substantially as described.

187,958. MIDDLINGS-SEPARATORS. J. Barker, Chicago, Ill. [Filed June 2, 1876.]



1. The air-cylinder L, surrounded by exterior air-cylinders O P, for the passage of air upward, in combination with stationary sieves F Q R, for separating the middlings, and deflectors 3 E J K l a e, for conveying middlings from one sieve to the others, and discharging them outside of the cylinder L, and at the bottom of the separator, as set forth.

2. The cylinder L, provided with one or more surrounding cylinders, O P, in combination with sieves F Q R, deflectors 3 E J K l a e, suitable suction fan G, and devices for imparting a shaking motion to the sieves e S, as and for the purpose set forth.

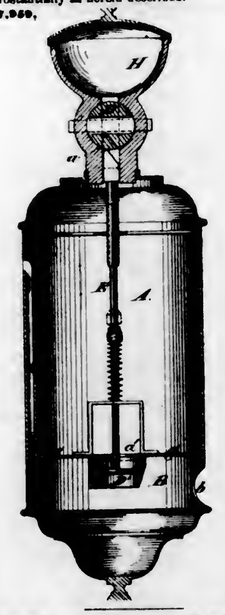
3. The combination of concentric cylinders L O P, fan G, and sieves F, one or more of said sieves being provided with solid or imperforate centers, all arranged substantially as and for the purpose set forth.

187,959. FOUNTAIN-LAMPS. B. John M. Becker, New York, N. Y. [Filed Jan. 31, 1876.]

1. In combination, with a liquid-reservoir, the primary compartment A, the secondary compartment B, partition C, air-pipe G, valves D and D', and the receptive-cup H, all arranged substantially as shown and described, and for the purpose set forth.

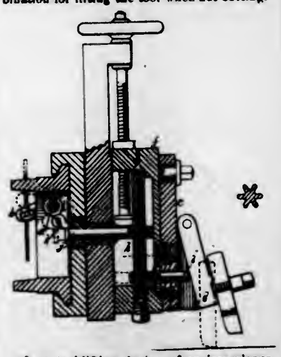
2. The combination, with a plug-valve in the primary compartment of a fountain-reservoir and the valve of the secondary compartment, of a rod attached to the latter, and so combined with the key of the former that, when it is turned to close the passage which it controls, the said rod is made to force open the said valve of the secondary compartment, substantially as herein described.

187,960.



187,960. IRON-PLANERS. Geo. E. Brettell, Rochester, N. Y., assignor to F. S. Brettell, same place. [Filed Dec. 21, 1876.]

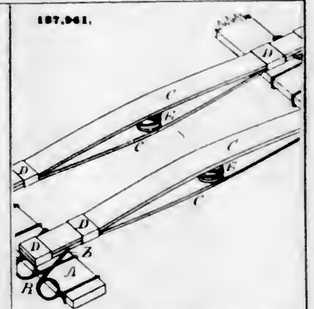
Brief.—To a rod passing through the cross-head above the feed-rod, and connected thereto by means of a crank, are attached the combination for lifting the tool when not cutting.



In a tool-lifting device, of an iron-planer, the combination of a pinion, A, racks e and f, loop k, sleeve l, and rod e, together with its crank b, to which it may be applied, and suitable actuating mechanism, substantially as shown and described.

187,961. SPRING BED-BOTTOMS. John O. Burch, Cleveland, Ohio. [Filed Jan. 8, 1877.]

187,961.

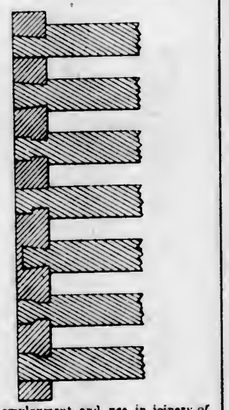


1. The springs B, formed from one piece of wire, and having the loops for attaching them to the cross-bars A A, as shown and described.

2. The bars A A, springs B B, the slats C C, ferrules D D, and the springs E, combined and arranged as shown, and for the purpose specified.

187,962. DOVETAIL TENON AND MORTISE JOINTS FOR JOINERY. Robt. B. Cantrell, Brooklyn, N. Y. [Filed Dec. 27, 1876.]

Brief.—The tenon is compressed previous to being inserted in the mortise, and subsequently expanded to its natural size, or to the dimension to which it has been designed and cut, for the purpose of forming a dovetail-tenon joint, in which the tenon and mortise shall tightly and accurately fit, and which can be applied in places where the tenon is inclosed on all sides by its corresponding mortise.



1. The employment and use in joinery of compressed dovetailed-tenon joints, substantially as herein shown and described.

2. The method herein described of compressing dovetailed tenons for subsequent expansion in corresponding mortises.

3. Doors, sashes, and other analogous work of joinery or carpentry, the several pieces of which are united or joined together by means of compressed dovetail tenon joints, substantially as herein shown and described.

187,963. BOAT-DETACHING APPARATUS. Jas. Carpenter, Southampton, England. [Filed Aug. 21, 1876.]

1. The movable davits a a', turning upon centers c c, in combination with the self-adjusting bars e e' e'', forming a cradle for a ship's boat, substantially as described, and shown in the drawing.

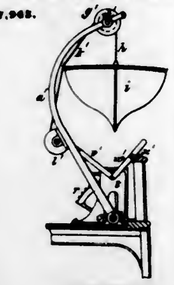
2. The combination of the movable davits a a' and the self-adjusting cradle e e' e'' with

the shaft revolving in bearings *d d'* at the ends of the davits, and carrying the ropes *h h'*, to which the boat is suspended, and with the shaft *m* and the ropes *h h'*, by which the shaft *s* is made to revolve, substantially as and for the purposes described, and shown in the drawing.

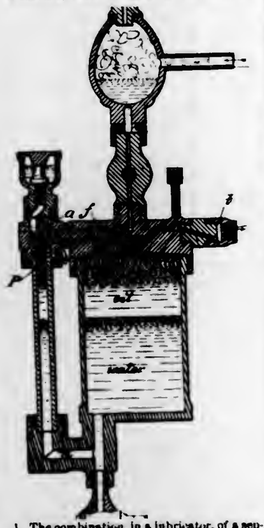
3. The davits *a a'*, fastened to the rod *b*, which turns in its bearings, in combination with the tangent-segment *r* on said shaft and the screw S, substantially in the manner, and for the purpose described.

4. The combination of the davits *a a'*, the davit-shaft *b*, drum shafts *s* and *m*, drums *f g f' g'*, the ropes *h h h' h'*, substantially in the manner and for the purpose described.

197,963.



197,964. LUBRICATORS. William A. Clark, Westville, Conn. [Filed Oct. 24, 1876.]



1. The combination, in a lubricator, of a separate condensing-chamber and a passage, *f*, for conducting the water direct to the glass tube or reservoir, said passage being so arranged that the water shall enter the reservoir without passing through the oil-passages, substantially as set forth.

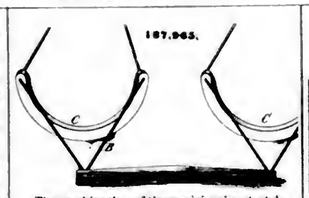
2. A drip-tube, *b'*, constructed and arranged to operate substantially as described, whereby the water from the condenser shall be delivered against, or close to, the side of the glass, in order that it may be seen as it enters the oil or passes through the same.

3. The check-valve *e*, arranged to close the water-passage *f* against back pressure, whereby the oil is prevented from entering said passage, or the condensing-chamber, substantially as described.

4. The trap *i*, arranged at the end of the oil-passage, as shown and described.

197,965. PLOW-HARNESS FOR HORSES. A. B. Coleman, Lyndonville, N. Y. [Filed June 1, 1876.

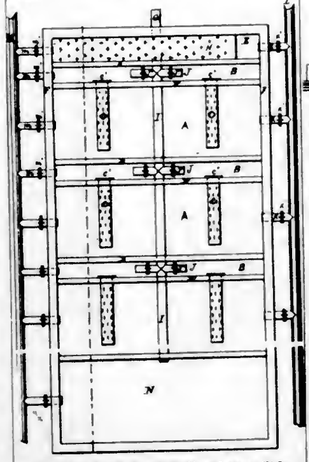
197,965.



The combination of the semicircular stretcher-bars C C, the tugs B B, and the draw-lever A, all substantially as and for the purpose hereinbefore set forth.

197,966. ARTIFICIAL FILTRATION. Josiah D. Cook, Toledo, Ohio. [Filed Nov. 10, 1876.]

Brief.—A device for purifying water by upward filtration. Suitable pipe-connections are furnished for the supply and discharge of cleansing water used to flush the filter-chambers.



1. Pipes I and J, valves J', and gates O for conveying water from B to B without entering chamber A.

2. In combination with the filtering-compartments, the pipes L and K, and valves K' for the admission of cleansing-water.

3. Chambers E, B, and A, in combination with the walls D and D', having openings, and the perforated pipe C and overflow-pipe W, for the purposes as herein set forth.

197,967. CAR-WHEELS. Almond F. Cooper, Cambridge, Mass. [Filed Sept. 29, 1876.]

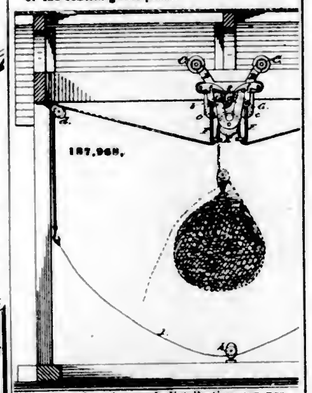


A railroad car wheel consisting of a central portion, including the hub, web, and rim, made of cast or wrought iron in one solid piece, a steel tire, and an india-rubber packing between the wheel and its tire, when the wheel and the tire are made to interlock and engage each other, in the manner or substantially as described.

197,968. HAY-ELEVATORS. G. A. Dickson, Shortsville, N. Y. [Filed Nov. 29, 1876.]

Brief.—The eccentric cam holds the elevating-rope while moving the car to either end of the building desired, and until the car is brought back to reload. The rope is released from contact with the cam by means of the pins on the cam engaging in the curved slots of the central guide-piece.

197,968.



1. An elevating and distributing car provided with the pendent frame, having a sheave-pulley, E, tripping-levers and pawls, and a cam, *a*, constructed as and for the purpose described.

2. The combination of the elevating and distributing car, having pendent frame carrying the sheave, tripping-levers and pawls, and the eccentric *a*, with the centrally-curved guide-pieces G.

197,969. HAY-ELEVATING DEVICES. Geo. A. Dickson, Shortsville, N. Y. [Filed Nov. 29, 1876.]

Brief.—The binding-rope, with the ring and double catch, is passed around the hay, and the ends of the catch inserted into the lower end of the pulley-block. The load is released by drawing a rope actuating a lever, and the toggle-joint and connecting-levers.



1. A pulley-block, provided with pivoted hooked levers connected at their upper ends to toggle-arms, having a projecting central pin, constructed substantially as specified.

2. The pulley-block herein described, provided with the pulley *e*, hooked levers D D', toggle-arms G G', and pivoted lever E, bearing upon the pin *g*, arranged substantially as shown, and for the purpose specified.

3. The double catch H, having the hooked ends *b b'*, in combination with the pulley-block C, provided with levers D D', toggle-arms G G', and pivoted lever E, constructed substantially as shown and specified.

4. The double catch H with hooked ends *b b'*, and a binding-rope, A, in combination with the pulley-block C, provided with levers D D', toggle-arms G G', pin *g*, pivoted lever E, and disengaging-rope F, all arranged substantially as shown and described.

197,970. STOP-VALVES. George W. Eddy, Waterford, N. Y. [Filed Jan. 19, 1877.]

Brief.—Two circular valve-plates, with flanges with an intermediate equalising-bar, are moved by the spindle.

1. In combination with the body A, having the two valve-seats *a*, the screw stem or spindle B, sleeve C, loose bar D, and flanged valve-plates E, substantially as shown and described.

2. In a stop-valve, the combination of two peripherally-flanged valve-plates, E, with an intermediate equalising-bar, D, and a nut or sleeve, C, mounted on an operating stem or spindle, and provided with lugs *d* and *g*, substantially as shown and described.

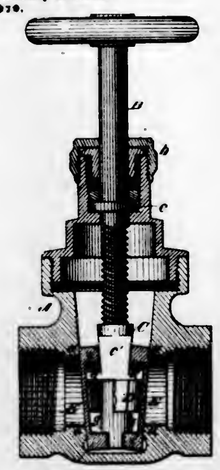
3. In combination with the body A, having the seats *a* arranged parallel with each other.

the stem or spindle B, peripherally-flanged plates E, having the inclines *k*, the bar D, and the sleeve C, with or without the spring *l*, as shown and described.

4. In a stop-valve, the combination of a peripherally-flanged valve-plate, a screw stem or spindle, and a nut or sleeve mounted on the screw, and provided with lugs or studs *d* and *g*, engaging within the flange to carry the valve-plate, substantially as shown and described.

5. The combination, in a valve, of two valve-plates and an intermediate bar, D, arranged to bear upon the periphery of the plates, for the purpose of holding them to their seats, substantially as shown.

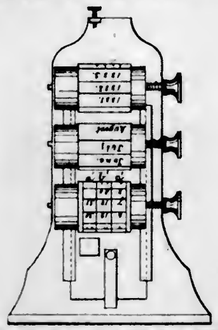
197,970.



197,971. ARTIFICIAL KAOLIN. Abel D'Estampes, New Orleans, assignor of part of his right to Petit. Leonard, Parish of Plaquemines, La. [Filed Feb. 15, 1877.]

Artificial kaolin, when formed of shells, white sand, and feldspath, as described, and for the purpose set forth.

197,972. CALENDARS. Henry Gram, Cleveland, Ohio. [Filed Dec. 5, 1876.]



The roller G, provided with three columns of figures, *a' b' c'*, in combination with the slide *c*, having corresponding openings 1 2 3, spring M, and case A, substantially in the manner as and for the purpose set forth.

197,973. PROCESSES OF CONSTRUCTING BARRELS. E. J. Granger, Brooklyn, N. Y. [Filed May 20, 1876.]

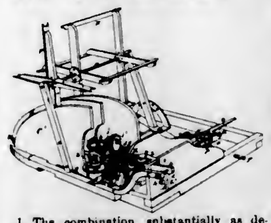
Brief.—The bulge of a barrel, constructed from gored sheets of wood, is formed partially by the removal of the surplus material from the sheet, and partially by the annular compression of the cylindriform part of the barrel, progressively, from the middle toward the ends.

197,973.



The improved process of constructing wooden barrels herein described, which consists in forming a prescribed bulge shape, partially by the removal of a portion of the surplus material composing the cylindriform part of the barrel, and partially by the annular compression or condensation of such material, substantially as and for the purposes set forth.

197,974. GRAIN-BINDERS. G. A. Houston, Beloit, Wis. [Filed Nov. 13, 1876.]



1. The combination, substantially as described, of devices for separating out a thin strip of the standing grain and conducting it into a narrow passage, a cutter for severing it within said passage, and mechanism for automatically feeding the cut grain to a twisting apparatus adapted to form it automatically into a continuous twisted band.

2. The supplementary divider C, arranged outside of the ordinary grain-divider B, so as to leave an open space between the two, substantially as and for the purpose set forth.

3. The divider B and grain-guard B', in combination with the supplementary divider C and grain-guard C', outside of the former, whereby a narrow passage is produced at the outer end of the platform, leading back to the rear of the machine, substantially as and for the purpose set forth.

4. The auxiliary reel F, in combination with the grain-guards B' C', between which the reel revolves, substantially as and for the purpose set forth.

5. The grain-guards B' C', in combination with the receptacle D, arranged between the guards and below the reel F, substantially as and for the purposes set forth.

6. The tubular shaft G, in combination with the feed-rollers H, mounted on the forward end of the shaft, just in rear of the receptacle D, and driven positively about their own axes, substantially as described.

7. The tubular shaft G, in combination with the feed-rollers H, mounted on its forward end and turning therewith, and the stationary feed-rollers N N', substantially as and for the purpose set forth.

8. The pivoted divider C, in combination with the yielding support of one of the feed-rollers N', with which it is connected, whereby the opening between the dividers B C is regulated by the size of the band, substantially as described.

9. The combination of the pivoted divider C, spring S, hinged frame L', having a feed-roller, N', mounted therein, and connected at its free end to the rear end of the divider C, substantially as and for the purpose set forth.

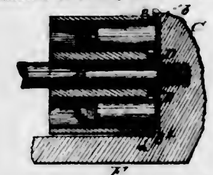
10. The pivoted divider C, in combination with the clutch-lever for throwing the twisting mechanism into and out of operation, connected to the said divider, whereby the latter is vibrated to close the opening between the two dividers when the twister is thrown out of operation, substantially as described.

11. The tubular twisting-shaft G, in combination with the feed-rollers N N' and band-receptacle T, all arranged as described, and for the purpose set forth.

12. In a harvesting-machine, a narrow passage obtained by two grain dividers and guards, projecting in front of the cutting apparatus, and extending to rear thereof, in combination with a receiver and a twisting mechanism, whereby a thin strip of standing grain is conducted into the passage, severed therein, automatically fed to the twisting mechanism, and made into a continuous twisted band as the machine is drawn along over the field.

197,975. REVOLVING FIRE-ARMS. Wm. A. Hulbert, Brooklyn, N. Y. [Filed Dec. 4, 1876.]

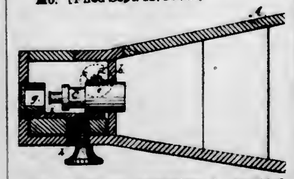
Brief.—The heads of the cartridges are held in the annular extractor by a flange, which prevents their lateral movement when the cylinder is moved away from the recoil-shield.



1. In a revolving fire-arm, a rigid recoil-shield, C, with gate C', provided with a forwardly-projecting rim or or flange, *b*, around its entire circumference, and an annular extractor, substantially as and for the purposes herein set forth.

2. The frame-strap E, provided with the flange or shoulder *b'*, to form a continuation of the rim *b*, surrounding the recoil-shield, for the purposes herein set forth.

197,976. PHOTOGRAPHIC CAMERAS. J. O. Jewett and P. F. Leonard, Macon City, Mo. [Filed Sept. 18, 1876.]

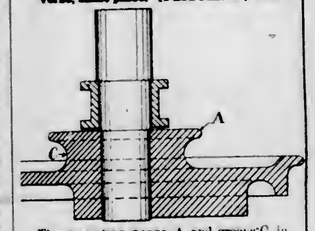


The partitioned camera-box A, provided with a movable lens-tube, *e*, and adjustable tube *g*, attached to, and moving with, the guide-plate *i*, substantially as described, and for the purpose set forth.

197,977. BATHS FOR TEMPERING STEEL. A. Kalstrom, Middlebrook, Mo. [Filed Jan. 10, 1876.]

A bath for tempering steel, compounded of the cyanide of potassium, sal ammoniac, concentrated potash, and water, substantially in the proportions and as set forth.

197,978. CAR-WHEELS. Edw. Longstreth, Philadelphia, Pa., assignor of part of his right to G. Burnham, C. T. Parry, B. H. Williams, W. P. Hennessy, and J. H. Converse, same place. [Filed Jan. 23, 1877.]



The projecting flange A and groove C, in combination with a city street-car wheel.

197,979. TREE-PROTECTORS. A. E. Martin, Beverly, Mass. [Filed Dec. 22, 1876.]

Brief.—A water-proof cloth sleeve and tapering or conical roof, the outside of the former and the inside of the latter provided with a

coating of sticky cement, to prevent the worms from ascending the tree.

187,979.



The herein-described tree-protector, consisting of the water-proof sleeve *b*, in combination with the water-proof conical or tapering protector *c*, with its hoop or expander *d*, and having the sticky cement *s s'* applied to it, in the manner and for the purpose substantially as set forth.

187,980. REVOLVING FIRE-ARMS. Daniel Moore, Brooklyn, N. Y. [Filed Feb. 17, 1877.]

Brief.—When the barrel is rotated on the center-pin the inclined slots and grooves in said pin and in the frame impart longitudinal motion to the barrel and cylinder, to draw the latter away from the recoil shield, and thus start the cartridge-shells from their chambers.

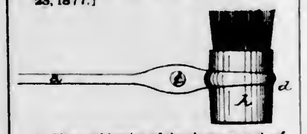


1. In a revolving fire-arm, the combination of the barrel and cylinder with a center-pin, said pin provided with a spiral and longitudinal slot, the barrel being provided with a stop or projection to engage with said slot for the purpose herein set forth.

2. In a revolving fire-arm, the combination of the frame strap or straps, provided with a diagonal slot or groove, the cylinder and barrel provided with a projection to engage in said slot or groove, for the purpose herein specified.

3. The combination of the center-pin E, having longitudinal slot *i* and inclined slot *i'*, the cylinder C, frame-strap B, with inclined groove *h* and spring-bolt *a*, and the barrel G with notched projection *f* and the spring-dog *k*, all constructed substantially as and for the purposes herein set forth.

187,981. KNIFE AND FORK POLISHERS. P. M. Ogg, Port Jervis, N. Y. [Filed Jan. 23, 1877.]



1. The combination of the clamp *a*, made of two pieces and provided with the clamp, socket *c*, and tenon *g*, with the cleaner *d*, consisting of the brush *i* and cork *k*, substantially as shown.

2. The clamp *a*, formed of two pieces, having the circular clamping ends, socket, and tenon, *c g*, and secured together by means of a set-screw, substantially as specified.

187,982. COUPLINGS FOR PIPES. Robt. L. Pirsson and John S. Oliver, New York, N. Y. [Filed Jan. 2, 1877.]

Brief.—The teeth on the valves, engaging with the valve case, serve to open and close the valves.

1. The combination, substantially as before set forth, of the valve case, the valve, the appurtenance of the valve by which it may be moved, and the valve-mover adapted to close an adjacent coupling-valve.

2. The combination, substantially as before set forth, of the valve-case, the valve, the appurtenance of the valve by which it may be moved, the valve-mover adapted to close an adjacent coupling-valve, and the guide.

3. The combination, substantially as before set forth, of the valve-case, the valve, the appurtenance of the valve by which it may be moved, the valve-mover adapted to close an adjacent coupling-valve, and the nozzle by which said valve-case may be connected with another.

4. The combination, substantially as before set forth, of the valve-case, the valve, the appurtenance of the valve by which it may be moved, the valve-mover adapted to close an adjacent coupling-valve, and the socket to receive the nozzle of another valve-case.

5. The combination, substantially as before set forth, of the valve-case, the valve, the appurtenance of the valve by which it may be moved, the valve-mover adapted to close an adjacent coupling-valve, and the fastening device.

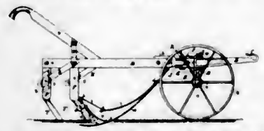
6. The combination, substantially as before set forth, of the turning-valve, the peripheral tooth by which it is moved, and the slotted valve-case, through the slot of which the said tooth projects.

187,983.



187,985. TONGUELESS PLOWS. William F. Reeves, A. B. Reeves, and M. T. Reeves, Columbus, Ind. [Filed Oct. 10, 1876.]

Brief.—The hollow wheel-spindles with caps at each end, and devices for securing the parts. The wheel-carrying arm set to the inner side of the draft-bar. A pin to make the draft-bars and wheels rigid with the axle, or allow them to swing independently. The coupling for beams to axle, their vertical vibration limited by spurs upon an inner collar working in slots in the couplings. Sled for the shovels with a spring-hook.



1. The spindle *t*, formed with a cap, *m*, said cap having an annular recess, *s'*, between its front edge and spindle to receive the end of the hub *j*, and having a projecting lug, *y*, at the front, to enter a corresponding recess formed in the front cap *k*, all constructed and arranged as shown and described, for the purposes set forth.

2. The spindle *t*, formed with a cap, *m*, which is provided with a lug, *r*, at its rear, and an annular space, *s'*, to incase the end of the wheel-hub in front, and said spindle being further provided with a projecting lug, *y*, at its front end, to engage with the front cap *k*, and adapted to be secured to the arm D of the hooked arm B C, in the manner and for the purposes set forth and described.

3. The combination of the pivot hook-arm B C, constructed as described, the arch-bar G', pivot-bolt G, and stop F, in the manner and for the purpose set forth and described.

4. The slide W, provided with spring-board X and hook Y, all arranged and adapted to be operated in the manner shown, for the purposes specified.

5. The hooked arm B C, having a downwardly-projecting arm, D, constructed as described, and placed at or near the inner end of the lower jaw *g'*, in the manner set forth and described, for the purposes specified.

6. The two half-boxes J H, constructed to clasp the sleeve G^2, and to come in contact with each other at their central joint, in combination with the sleeve G^2, said sleeve being provided with a hole having one or more flat faces that fit on corresponding shaped axle G^1, the sleeve G^2 being provided with lug *g* or lugs *g g'*, arranged to operate in elongated notches *u* or *u u'* of the boxes J H, in the manner and for the purposes set forth and described.

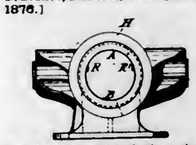
7. The lower end of the shovel-arm P, provided with the curved shank T, said curved part being bent or curved backward, (not forward,) and adapted to receive the shovel V, and to allow said shovel to be adjusted up or down for the purpose of regulating the pitch of the shovel, as set forth and described.

8. The hooked arm B C, having a downwardly-projecting arm, D, located at or near the inner end *g'*, combined with the bar G^1, and with a pin, F, adapted to openings in the arm and bar, as set forth.

9. The combination of the pivoted arm B C, having a slotted arm, D, the hollow spindle *t*, having a lug, *r*, and the bolt *n*, adjustable with said spindle in the slot of the arm D, and confining the spindle to said arm, as set forth.

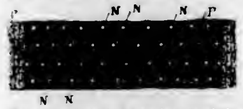
10. The two half-boxes J H, arranged to clamp the pivot-plate L in a loose manner at the rear, and to extend over and clamp in a loose manner the sleeve G^2, and to come together at their inner faces in front of the sleeve G^2, at the lugs *z z*, said lugs having their inner front edges beveled off to allow the half-boxes J H to spread apart in case of the rear bolt *k* being lost, and prevent breaking the lugs *z z'*, in the manner set forth and described.

187,984. BED-FRAMES FOR STEAM-ENGINES. F. B. Rice, Dunkirk, N. Y. [Filed Nov. 24, 1876.]



In a double-crank bed-plate, the cylinder-flange H, cylindrical slides A B, pillow-blocks N N^1, and projecting pieces R R^1, all combined and arranged substantially as and for the purposes specified.

187,985. PISTON-PACKING. P. W. Richards, Boston, Mass. [Filed Nov. 27, 1876.]



The above described packing, consisting of the strips of webbing P P P, combined with the metallic pieces N N N, arranged substantially as described, and for the purpose set forth.

187,986. PROCESSES OF PREPARING AND PRESERVING MEATS. G. W. Scollay, St. Louis, Mo. [Filed Apr. 8, 1876.]

1. In preserving meat, the process of preparing the carcass for infiltration and permeation, which consists in introducing compressed or liquefied gas or gases into the arterial and venous system, as described, whereby the blood vessels are cleared, and the temperature of the carcass reduced, as set forth.

2. The process of preparing a composition, as set forth, to be used in the preservation of meat, and which consists in mixing with sugar, pulverized carbon, benzoic, salicylic, and boracic acids, stirring in a tight or closed box, then treating with sulphurous-acid gas and the vapor of hydrate of phenol, and then adding a neutral solution consisting of the alkaline carbonates, ammonia, potash, and soda, subjected to the action of hydrate of phenol and sulphurous-acid gas.

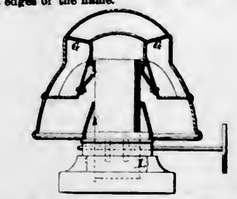
3. The process of preventing deterioration, by molding or otherwise, of preserved fresh meats, which consists in subjecting such meats in suitable compartments to an atmosphere, resulting from the introduction therein of an alkaline and an acid gas or gases in their equivalent quantities by volume, substantially as described.

4. The process of preserving the prepared meat, whereby it is subjected at once to the action of an antiseptic atmosphere, and to a refrigerating influence or moderately low temperature, which consists in introducing sulphurous-acid and ammoniacal gases, or other suitable gases, in their equivalent quantities, by volume, under suitable pressure, and in the manner substantially as described.

5. The process of preserving fresh meat or animal matter, which consists of subjecting it to successive antiseptic influences, as follows: first, by infiltrating or treating it with an antiseptic that leaves it fresh; second, by storing it in a compartment having its temperature reduced and kept from rising above 60° of Fahrenheit.

187,987. LAMP-BURNERS. Thos. Silver, Nyack, N. Y. [Filed Dec. 6, 1874.]

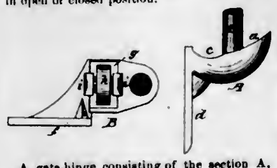
Brief.—The deflectors join the edges of the slots, and prevent the rising air from striking the edges of the flame.



In the construction of lamp-burners with domes or covers placed over each other, the combination therewith of the inclined plates or deflectors G G, for the purposes herein expressed.

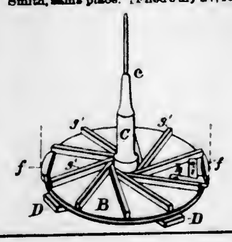
187,988. GATE-HINGES. Geo. M. Simpson, Circleville, Ohio. [Filed Aug. 11, 1876.]

Brief.—The essential novelty is that of constructing the roller-bearing section of the hinge with wrought-metal plates connected to the recess or cavity during the process of casting, and constituting the journal-bearings, the other section of the hinge having the pintle, an incline or turn-table, and two other separate inclines or depressions, the construction permitting the gate to be held automatically in open or closed position.



A gate-hinge consisting of the section A, formed with the pintle *e*, incline or turn-table *a*, and inclines or depressions *b c*, and the section B, formed with recess *g*, and having wrought-metal plates *i* for retaining the roller *h* within said recess, all substantially as and for the purpose set forth.

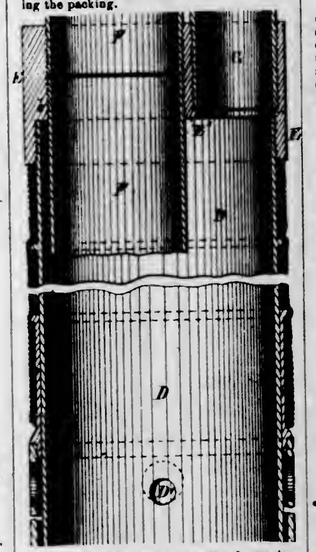
187,989. WASHING-MACHINES. E. Smith, Whitestown, N. Y., assignor to C. H. Smith, same place. [Filed July 27, 1876.]



In a washing-machine, the plate B, with cleats *g'*, and having the fastenings *h i*, in combination with the cleats *f*, as shown and described.

187,990. PACKERS FOR PETROLEUM-WELLS. L. Stewart, Titusville, Pa. [Filed Feb. 25, 1876.]

Brief.—The packing-case is provided with a ring to support the packing. The coupling-cup is attached to the upper end of the packing-case, and can be removed without disturbing the packing.



1. The combination, in a packer for an Artesian well, of the following elements, namely: a cylindrical packing case or shell, which is open at its lower end, one or more pipes or tubes connected to the upper end of the packing-case, but not extending within the cylinder or shell, and a packing interposed between the packing-case and the walls of the well, substantially as set forth.

2. The combination, in a packer for an Artesian well, of a cylindrical packing case or shell, a coupling-cap provided with an internal screw-thread, for connecting it to the packing-case, a screw-threaded seat or socket adapted to receive the ends of the upper and lower sections of the pumping-tube, and with a seat adapted to receive a gas-escape or other auxiliary pipe, substantially as set forth.

3. In a packer for an Artesian well, a cylindrical packing case or shell, provided near its upper end with a ring adapted to receive and support the packing, in combination with a coupling-cap, E, attached to the upper end of the packing-case, and which can be removed without disturbing the packing, substantially as set forth.

187,991. EARTH-CLOSETS. A. W. Thompson, Northampton, Mass. [Filed Feb. 5, 1877.]

Brief.—The closet has a urinal attached, connected by a trap with a lower receptacle. The sliding platform moves the urn back and forward. The upper valve has pins to prevent the earth from caking.

1. An earth-closet provided with a receptacle for solid matter, and with a separate vessel for liquids, sealed by a trap, as described.

2. The combination of the urinal, the receptacle F and adjusting appliances, substantially as described, whereby the vessel may be raised into contact with the top of the case, as set forth.

3. The combination, in an earth-closet, of the receptacle F, chamber E, and trap-pipe *b*, substantially as specified.

4. The combination of the carriage G and hinged platform J, connected to and operating the carriage, as specified.

5. The combination, in an earth-closet, of the earth passage *n*, the parallel valves *s s'*, and intermediate mechanism for operating each valve independently of the other, on the movement of the carriage G, as set forth.

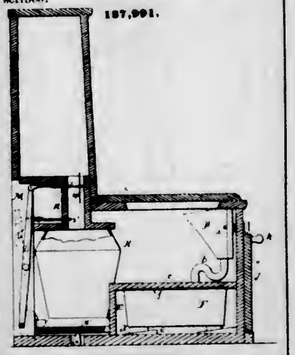
6. The combination of the valves *s s'*, levers L L', the carriage G, and rod *n*, or its equivalent, as set forth.

7. The sliding valve *s*, provided with vertical rods *w*, for the purpose specified.

8. The combination of the movable urn H, sliding in the case A, discharge-opening *n*, and shelf K, arranged at the rear of the case to close the mouth of the urn, when the latter is below the same, as set forth.

9. The combination of the sliding urn H, earth-passage *n*, shelf K and appliances, substantially as described, for bringing the edge of the urn and the shelf in contact, when the urn is moved back and the earth is deposited, as and for the purpose set forth and described.

187,991.



187,992. MATTRESSES. Joseph A. Torrey, Boston, Mass. [Filed June 3, 1876.]

A mattress stuffed throughout with any suitable filling, when made of suitable thickness at the middle portion and diminishing in thickness toward the head or foot, or both, substantially as and for the purpose described.

187,993. KNITTING-MACHINE NEEDLES. O. F. Tripp, Battle Creek, Mich. [Filed Aug. 31, 1876.]

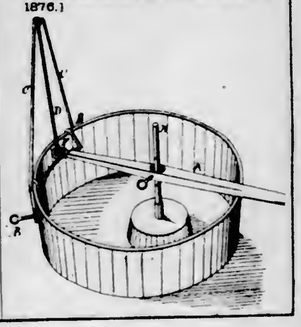
Brief.—The rear end of the shank is formed into a spring capable of engaging a stop to hold the needle out of working position.



1. A knitting-machine needle provided with the spring B, substantially in the manner and for the purpose set forth.

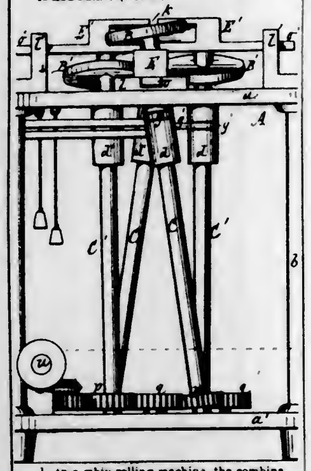
2. The combination of a stationary needle-stop with a knitting-machine needle in such a manner that the lower end of the needle or extension B engages with and extends over or beneath the stop when the needle is moved out of working position, substantially as and for the purpose described.

187,994. WASHING-MACHINES. George H. Waldo, Prattsburg, N. Y. [Filed Sept. 6, 1876.]



The combination of the swinging pendulum D with the lever K by means of the joint F and standards C C, attached to the top of the tub or other vessel by means of the clasps B B, all constructed and arranged substantially as and for the purpose described.

187,995. MACHINES FOR ROLLING WHIPS. Edmund F. Woodbury, Rochester, N. Y. [Filed Jan. 31, 1877.]



1. In a whip-rolling machine, the combination of a series of yielding rollers set in spiral form to bear upon the whip, and feed it through, as well as roll its surface, as shown and described, and for the purpose specified.

2. The combination, with the rollers B' and their shafts C C', of the connecting-rings and arms g g', the eccentric h, and its lever h', operated upon by a spring or a weight, to close the rollers upon the whip, as herein shown and described.

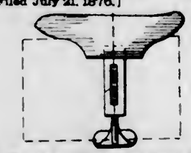
3. In a whip-rolling machine, the pendant i, constructed in tubular form to allow the passage of the whip, and serving as a bearing for the eccentrics h h, as shown and described.

4. In a whip-rolling machine, the combination, with a series of yielding rollers bearing upon the whip, of centering guides E E', closing upon the whip between the rollers, as shown and described, and for the purpose specified.

5. The guide E, constructed with the concave ends k k projecting between the rollers, as shown and described, and for the purpose specified.

6. The process of rolling whips by passing them between inclined whirls or rollers B B', which roll them in one continuous direction and feed them down to the work, as and for the purpose specified.

187,996. CHIN-RESTS FOR VIOLINS. B. W. Bridge, Philadelphia, Pa., assignor of one-half his right to F. G. Pincus, same place. [Filed July 21, 1876.]



1. The chin-rest and clamp-hook, in combination with the adjusting nut and spring, when said nut and spring are concealed in a shank intermediate of the rest and hook, substantially as and for the purpose set forth.

2. The chin-rest and clamp-hook with a screw-stem, in combination with a hollow shank having a nut and spring fitted therein, substantially as and for the purpose set forth.

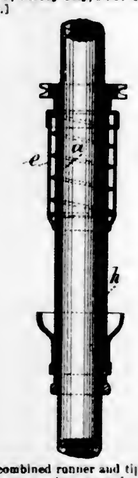
187,997. WEATHER-STRIPS. H. Brightmann, Taunton, Mass. [Filed Aug. 26, 1876.]



187,997. C

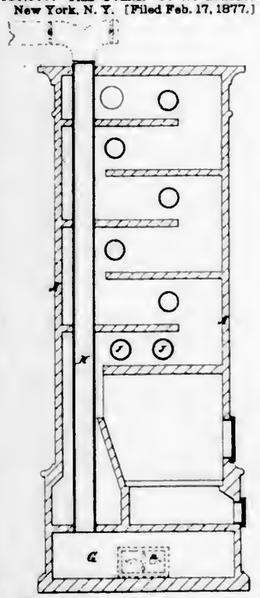
The combination of the molding A, channeled at a a' b b', the movable strip C, crank-lever D, rod E, and spring F, together with the stud or pin c, arranged to operate as and for the purpose specified.

187,998. UMBRELLA-RUNNERS. Felix S. Brown, Jersey City, N. J. [Filed Oct. 26, 1876.]



In a combined runner and tip cup, the tube h, of the same size, or nearly so, as the runner-tube a, and the cylinder e, surrounding the spring, and connected to the tube h, for the purposes and as set forth.

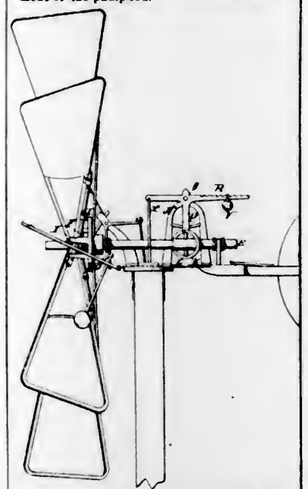
187,999. TILE OVENS. F. W. Brunnert, New York, N. Y. [Filed Feb. 17, 1877.]



In combination with a tile oven, the horizontal flues J J, the air-chamber G, and the vertical flue H, arranged in the manner and for the purpose described.

188,000. MECHANISMS FOR OBTAINING RECIPROCATING MOTION FROM WIND-WHEELS. D. Bull, Amboy, Ill., assignor to himself and Wm. L. Beals, same place. [Filed Aug. 3, 1876.]

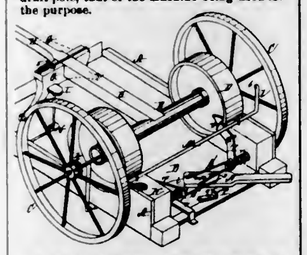
Brief.—The elliptical cam on the shaft engages in a notch in the lower end of the central pendent arm of the walking-beam, and thereby causes a vertically-reciprocating movement of the pump-rod.



In obtaining reciprocating motion from wind-wheels, the combination of the cam K, shaft E, T-shaped walking-beam O P R, frame N, and rod X, as and for the purpose set forth.

188,001. TRUCKS FOR HARVESTERS. D. J. Cashman, Hanover, Mass. [Filed Jan. 30, 1877.]

Brief.—A low bed or platform is supported on a cranked axle, with devices for readily loading or unloading the machine, and securing it firmly while in transit. There is no draft-pole, that of the machine being used for the purpose.



1. An independent truck or carriage, A, for conveying a mowing machine, &c., from place to place, said truck consisting of a low platform, B, hung on an axle, a, provided with a pair of wheels, C C, and with suitable devices for locking the wheels of the mowing-machine, &c., in place thereon, said platform having no draft-pole, but having a bridge, G, or other device for connecting the front of the platform with the pole of the mowing-machine, &c., substantially as and for the purpose described.

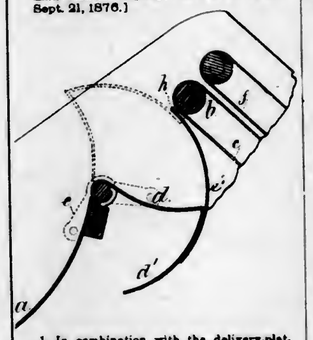
2. The device for locking and unlocking the wheels of the mowing-machine, consisting of the levers T T, with their shoulders e e, operated by the springs r r, rods S S, and lever N, substantially as set forth.

3. The spring-plate P, with its shoulder q, and the lever N, with its projection p, in combination with the rods S S, springs r r, and levers T T, with their shoulders s s, substantially as and for the purpose specified.

4. The pivoted pole-bridge G, in combination with the pole H and truck A, substantially as described, for the purpose set forth.

5. The seat I, with its bent arm or standard e pivoted to the platform B, or device attached thereto, in combination with a recessed cleat, f, or other means of supporting the standard e, substantially as described.

188,002. HARVESTERS. C. H. Chadbourn, Rochester, Minn., assignor to the Chapman Binder Company, same place. [Filed Sept. 21, 1876.]

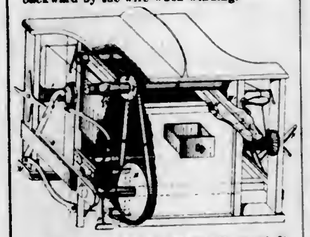


1. In combination with the delivery-platform a of a grain-binder, the stationary segmental guard d', the segment d', and section d, hinged at the upper edge of the platform, and of corresponding width, and a crank-arm or similar means for swinging the section d periodically, to deliver the grain upon the platform a, substantially as set forth.

2. In combination with the elevating-apron c and roller b, the swinging section d d' of the platform a, arranged substantially as specified, so that the grain is cleared from between the apron and the stripper-bar h by the movement of the section d d', substantially as set forth.

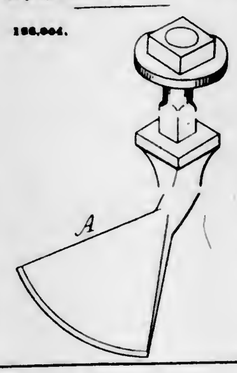
188,003. BROOM-MACHINES. G. W. Chodrick, Stockton, Mo. [Filed Sept. 12, 1876.]

Brief.—A tightening device upon the mandrel prevents the same from being turned backward by the wire when winding.



The combination of the treadle-wheel D, band-wheel E, shaft B, spool F, friction-strap g, and tension-lever G, substantially as and for the purposes set forth.

188,004.



188,005. CULTIVATOR-TEETH. J. B. Colt, Lyndonville, N. Y. [Filed Oct. 17, 1876.]

A cultivator-tooth having its blade A made in the form of an equilateral triangle, broadest at its point and tapering back to the shank, and constructed with a convex cutting-edge, as shown and described, and for the purpose specified.

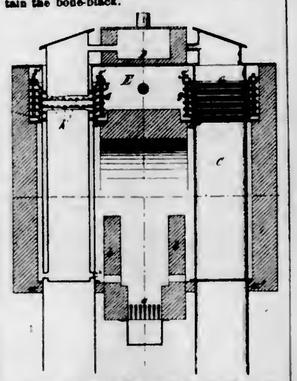
188,006. TIPS FOR BOOTS AND SHOES. D. K. Cross, Boston, Mass. [Filed Feb. 12, 1877.]



A metallic boot or shoe tip, having its base cut away, as at c, and provided with an arm, e, having projections 3, and with perforated arms f, all substantially as and for the purpose described.

188,008. BONE-BLACK KILNS. Walter B. Elmenhorst, Jersey City, N. J. [Filed Feb. 1, 1877.]

Brief.—Two upper chambers connect with a series of retorts—one to receive and convey away the heated products of combustion, the other the steam. Removable sections adapt the retort to be regulated in length in case of expansion. Apertures in the sections permit the escape of steam, while external flanges retain the bone-black.



1. The chamber E, provided with the outlet e, in combination with one or more retorts passing through the chamber E, and provided with the lateral openings h.

2. The retort C, provided with the openings h on its outside, as and for the purposes set forth.

3. The retort C, having the openings h, in combination with the guard-flanges projecting outward and upward from the side of the retort, substantially as and for the purpose set forth.

4. A vertical retort composed for a portion of its length of a series of two or more short sections, G, longitudinally bolted together by the bolts and nuts g and g', substantially as shown.

188,007. CORSETS. S. B. Ferris, Brooklyn, N. Y. [Filed Feb. 6, 1877.]



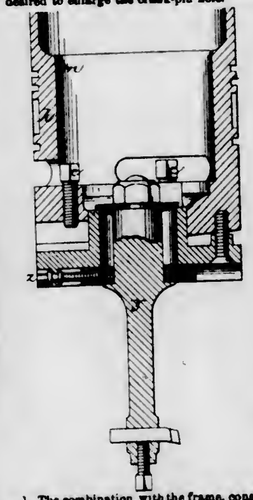
1. A corset provided with flat paper as stiffening devices, substantially as herein shown and described.

2. The combination of a corset-body, A, with the semicircular bosom-pad B, whose straight lower edge is directly joined to the body, so that the body will constitute the lower half of the pad, substantially as herein shown and described.

3. The combination of the corset A and steel D with a strip of fabric, g, that extends beyond the seam h, substantially as herein shown and described.

188,008. MACHINES FOR TURNING LOCOMOTIVE CRANK-PINS. L. B. Flanders, Philadelphia, Pa. [Filed July 3, 1876.]

Brief.—The turning-tool is carried by a cylinder, which is given a longitudinal feed-motion by a screw working in a nut formed with tongues that enter grooves cut around its periphery, and a rotary motion by a pinion which meshes with spur-teeth, also formed on the periphery of said cylinder. A boring attachment is secured to the cylinder when it is desired to enlarge the crank-pin hole.



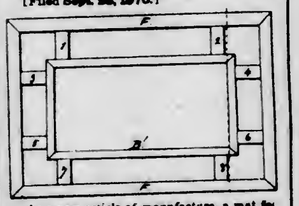
1. The combination, with the frame, consisting of the base-plate, columns, and cap, of the cylinder m, substantially as shown and described.

2. The combination with the frame, consisting of the base-plate, columns, and cap, of the cylinder m, and the boring or turning tool, substantially as and for the purpose set forth.

3. The center b, in combination with framing f, tightening-screw g, and screw r, as specified.

4. The arrangement of feed-gearing o, u, t, q, and p, in combination with screw p, nut l, and cylinder m, as specified.

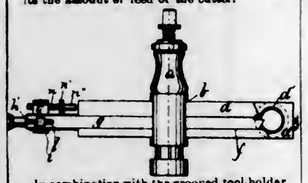
188,009. MATS FOR PICTURES AND SHOW-CARDS. E. A. Galindo, Brooklyn, N. Y. [Filed Sept. 28, 1876.]



As a new article of manufacture, a mat for pictures and show-cards, consisting of an outer frame, F, and inner frame B, separated by means of any suitable number of tongued braces, 1 2 3 4 5 6 7 8, operating in longitudinal grooves in the inner edges of the frames B' and F, in combination with any suitable covering C, all constructed and arranged substantially as and for the purpose specified.

188,010. CUTTER-HOLDERS FOR METAL-LATHES. F. D. Hazelton, Boston, Mass. [Filed Aug. 17, 1876.]

Brief.—The rear end of the cutter is furcated, and is attached to a block upon the feed-screw by a set-screw. The holder is grooved on one side for the reception of the cutter, and carries at its forward end a detachable ring, which serves as a rest for the piece of work that is to be turned. An adjustable stop limits the amount of feed of the cutter.



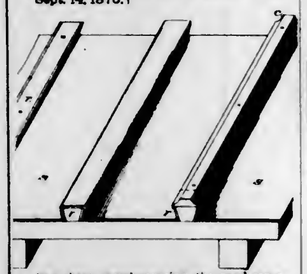
In combination with the grooved tool-holder *d* and its rest *d'*, the sliding cutting-tool *g*, feed-screw *h h' h''*, block *i i'*, and stop *n*, substantially as and for the purpose set forth and described.

188,011. KEYS FOR LOCKS. T. Hendricks, New York, assignor to himself and W. H. Price, Brooklyn, N. Y. [Filed July 22, 1876.]



A lock key formed of a single sheet-metal blank, with a hollow cylindrical shank, flat stem, a shoulder, one open end below the bit, and a single joint, as shown and described.

188,012. METAL ROOFS. L. Henkle, Rochester, N. Y., assignor of two-thirds of his right to E. C. Smith, same place. [Filed Sept. 14, 1876.]



In a sheet-metal covering, the wood cap *c*, having its flanged edges project below the top edges of the upturned sections S, in combination with the ribs *r* and sections S, as and for the purposes specified.

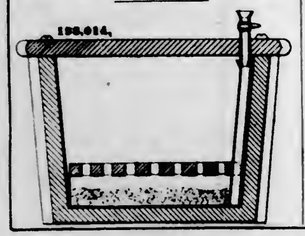
188,013. TROTTING-SULKIES. D. G. Hetfield, Rahway, N. J. [Filed July 10, 1876.]



1. In a trotting-sulky, the supplemental braces *a a*, attached to the thills and to the axle near its middle, substantially as shown and described.

2. The brace *b*, having its inner edge recessed, and the brace *a*, having a projecting lag adapted to fit such recess, in combination with the thill of a trotting-sulky, substantially as shown, and for the purpose set forth.

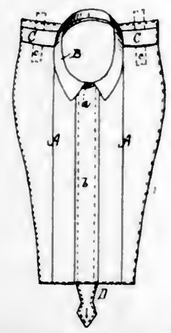
188,014.



188,014. PROCESSES OF PRESERVING DEAD BODIES. Thos. Holmes, Brooklyn, N. Y. [Filed Oct. 28, 1876.]

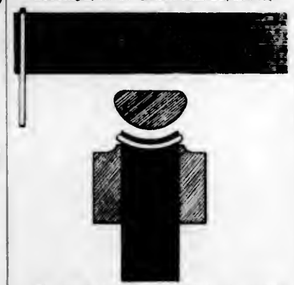
The process of preserving bodies in a closed antiseptic chamber, which consists in subjecting them to the vapors evolved from a solution of bisulphite of lime combined with sulphurous-acid gas, substantially as and for the purposes set forth.

188,015. OVERBOSOMS. H. C. Holmes, Boston, Mass., assignor to himself and La F. W. Hall, same place. [Filed Feb. 5, 1877.]



The combination of the open-front overbosom A A, the collar B, the suspender-loops C C, and the adjustable strap D, all substantially as described and shown, for the purpose specified.

188,016. BINDING BOOKS. G. P. B. Hoyt, Brooklyn, N. Y. [Filed Jan. 26, 1877.]



The method herein specified of binding books, consisting in inserting the binding-wires straight, and, near the back edge of the book, clinching such wires, and bending the wires into the arc of a circle, for the purposes and as set forth.

188,017.

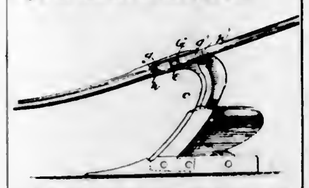


188,017. WEATHER-STRIPS. Levi Johns and I. Falcon, Salineville, Ohio. [Filed Aug. 25, 1876.]

The strip C, hinged upon and extending the length of the under face of the lower edge of the door A, and provided with the arm D, projecting beyond the exterior edge of the door, and carrying on its outer end the downwardly-turned lug *d*, together with coil-spring E in recess *c*, arranged to operate as and for the purpose specified.

188,018. PLOWS. I. R. Kern, Bloomington, Ill. [Filed Feb. 6, 1877.]

Brief.—The construction and curvatures of the beam; the double series of corrugations upon the beam and the handle-sockets.

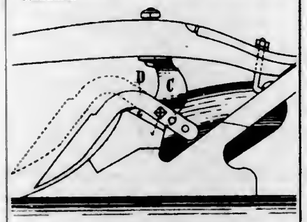


1. The combination, with the handles and mold-board and land-side of a plow, of the beam and standard, constructed of one piece of metal, made flat or oval, and having the rib *c* on each side thereof, said standard being made smooth to the top of mold-board, curved irregularly forward, and curved laterally from the top and over the mold-board, all as herein shown and described, and for the purpose specified.

2. The combination, with the bolt and nut G *e*, or their equivalents, of the handles having the series of horizontal teeth and corrugations *g g'*, and the beam having the series of corresponding teeth and corrugations *h h'* upon each side thereof, whereby the handles can be raised and lowered, and secured in any desired position, substantially as and for the purpose specified.

188,019. PLOWS. W. S. Lawrence, Kalamazoo, Mich. [Filed Jan. 29, 1877.]

Brief.—The colter or jointer raised or lowered by sliding in the inclined groove of the standard.



1. The standard C, provided with a recess or groove, *c'*, upon the land-side thereof, inclined downward from front to rear of the standard, and adapted to receive a colter or jointer arm, substantially as and for the purpose set forth.

2. The standard C, having an inclined recess or groove, *c'*, upon the land-side thereof, in combination with the adjustable bent arm D, carrying upon its outer end a colter or jointer, substantially as and for the purpose set forth.

188,020. WIND AND WATER WHEELS. E. Manley, Marion, N. Y., assignor of three-fourths of his right to W. W. Bunyan, same place. [Filed Oct. 30, 1876.]

Brief.—A concavo-convex disk of conical shape, with curved blades secured to the convex side of same, and extending from the projecting center radially outward to the rim or periphery. These blades are formed of a narrow or reduced part at their inner or central joining with the disk, while they increase in depth as they extend to the outer edge of the disk.

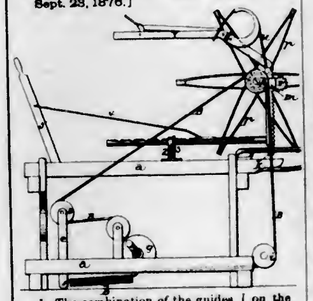
1. The conical wheel, constructed with blades or buckets secured to the outer face of a single hollow disk, and forming the exterior curved plane of the wheel, substantially as described.

2. The combination, with the concavo-convex metallic disk, the convex face formed with a constant plane surface, of tangential blades or buckets secured thereto, and constituting the extreme periphery of the wheel, substantially as described.

188,020.



188,021. HARVESTER-REELS. G. W. McCollom, Polo, Ill., assignor to the Polo Harvester Company, same place. [Filed Sept. 23, 1876.]



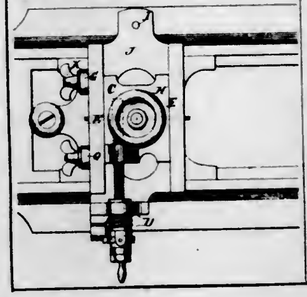
1. The combination of the guides *l* on the front of frame, the two cogged standards *n*, that are connected together by the bar *k*, and move horizontally back and forth on the said guides, and a lever for moving the standards, substantially as specified.

2. The combination of the guides *l*, sliding cogged standards *n k*, moving thereon, notched bar 1, a guide, 2, a catch, 3, and a lever, 5, substantially as described.

3. In a harvester-reel, the combination of fixed guides on the frames, cogged standards that move horizontally thereon, and a reel that moves up and down upon the said standards, the two movements of the reel being at right angles to each other, whereby it can be accurately adjusted in relation to the cutter-bar, substantially as shown and described.

188,022. MILLSTONE-DRESSING MACHINES. T. McFeely, Marion, Ind., assignor to S. E. Griscom, Potteville, Pa. [Filed July 10, 1876.]

Brief.—The pivoted bed on which the carriage carrying the cutting-tool slides may be elevated on either side or on one side only, in order to give the desired position of the cutter for dressing the furrows.

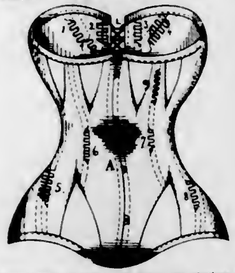


1. The carriage-bed D, pivoted to the sliding frame B, and adapted to be inclined with respect to the same, for dressing furrows, substantially as described.

2. As a means of adjusting the inclination of the pivoted bed D with respect to the sliding frame B, the thumb-screws F K and standards G, and the thumb-screws H' I, and ears J L, arranged substantially as specified.

3. In combination with a pivoted carriage-bed, D, the carriage C, reciprocating in guides E on said carriage-bed, and the actuating mechanism, both carriage and mechanism being adapted to rock with the bed, substantially as described.

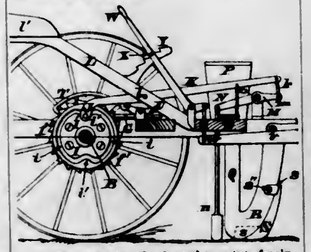
188,023. CORSETS. Jas. P. McLean, New York, N. Y. [Filed Jan. 26, 1877.]



A new article of manufacture, consisting of a corset provided with zigzag wires 1 2 3 4 5 6 7 8 9, underlaid with wicking, and inclosed in bone casings or pockets, the whole constructed in the manner substantially as above described.

188,024. CORN-PLANTERS. H. McQuiniff, Frankfort, Ohio. [Filed Oct. 28, 1876.]

Brief.—Upon the axle is a clutch, and the part that is secured to the axle is provided with a cam-groove for imparting reciprocating motion to the seed-slide and marker, through the medium of a connecting-rod and stud. Working over the series of notches on the clutch-wheel is a hand-lever for correcting inaccuracies in planting.



1. The cam-plate I, adapted to rotate freely upon axle B, and having a concentric groove, *i*, and one or more eccentric grooves, *i'*, which connected grooves *i* and *i'* are traversed by stud J of vertically-vibrating lever K, said cam-plate I *i i'* being applied to a wheel or disk, F *f f'*, which latter is driven from axle B by the clutch *b* D *d* E, and is capable of an independent rotation by the feed-hand T, or its equivalent device, substantially as herein described and set forth.

2. In combination with ratchet-wheel F *f f'*, and its attached cam-plate I *i i'*, and driving-clutch *b* D *d* E, the feed-hand T, operated by treadle U, or its equivalent device, for imparting an independent rotation to said wheel and cam-plate, substantially as herein described and set forth.

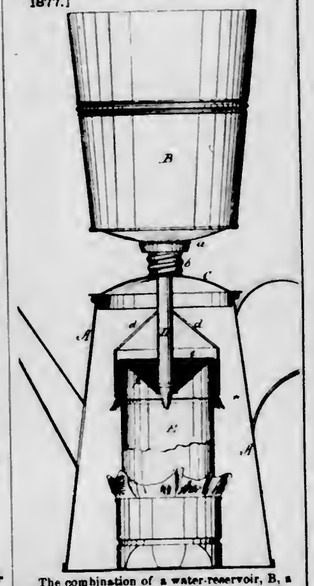
3. The combination of ratchet-wheel F *f f'*, cam-plate I *i i'*, driving-clutch *b* D *d* E, and the devices T U and G *g g'*, whereby the driver of the implement is enabled to compensate for any loss or gain of ground, substantially as herein described and set forth.

4. The divided two-part cam-plate I I', having connected concentric grooves *i*, and one or more eccentric grooves, *i'*, said two-part cam-plate I I' *i i'* being secured to the ratchet-wheel F *f'* with bolts H, or their equivalents, substantially as herein described and set forth.

5. The detachable point S, secured to share R with lug *s'* and bolt *s''*, said point being provided with a rearwardly-projecting shank, *s*, that engages with the recess *r* of the share, substantially as herein described, and for the purpose set forth.

6. In combination with a planter, a freely-rotating cam-plate, mounted upon the driving-axle, and operated by a disk or wheel, so as to reciprocate the seed slide or slides of the implement, said cam-plate being capable of one independent movement to compensate for any gain of ground, and of another independent movement to make up for a loss of ground, arranged and operating substantially as herein described and set forth.

188,025. COFFEE-POTS. Richard L. Nelson, Orange Court-House, Va. [Filed Feb. 16, 1877.]



The combination of a water-reservoir, B, a coffee-pot, A, cover C, and the drip-tube D, contracted at its lower end, as specified, and permanently attached to said cover, the ring-cap, the coffee-holder E, and the strainer *e*, all arranged as shown and described, to operate as specified.

188,026. PAINT-CANS. E. Norton, Chicago, Ill. [Filed Jan. 8, 1877.]

Brief.—To open can, cut through at upper bead, then ream into the rim, and reset cover on body.



1. In a paint-can, the cover B, having its soft-metal rim C provided with the inwardly-projecting bead *a* and the outwardly-projecting bead *b*, substantially as and for the purposes herein set forth.

2. The combination of the can-body A, having bead *d*, and the cover B, with soft-metal rim C, having beads *a b*, all constructed substantially as and for the purposes herein set forth.

188,027. BARREL-CARRIERS. Nathl. Oak, Exeter, Me. [Filed Feb. 6, 1877.]

1. In barrel-carriers, a hinge so constructed and arranged that its pivotal point is out of the plane of the side bar, whereby the hinge serves as a lever to augment the adjustable distance between the cross-bars, substantially as and for the purposes specified.

2. In barrel-carriers, the hinge, consisting of the part *d*, with its members 1 2 3, and the part *d'*, with its members 1 2, substantially as described and shown.

3. In barrel-carriers, a hinge constructed and arranged to be susceptible of horizontal or end adjustment, substantially as described and shown.

4. In barrel-carriers, a hinge constructed and arranged with a vertical adjustment, whereby the sections may be in line, or one section of the carrier may be adjusted above the other, substantially as described and shown.

5. In a barrel-carrier, a cross-bar, constructed, combined, and arranged to be automatically adjusted relatively to the pivotal center of the side bars, substantially as described and shown.

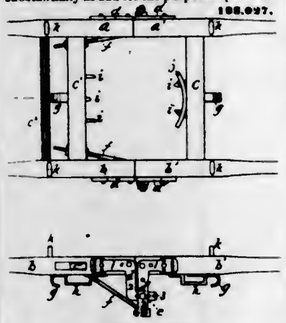
6. In a barrel-carrier, the combination of the sliding bar *c'*, the adjusting-rods *f f*, and the hinge, substantially as and for the purposes specified.

7. In a barrel-carrier, the combination of side-bar sections *a b*, sliding cross-bar *c'*, and the auxiliary bar *c''*, substantially as and for the purposes specified.

8. In a barrel carrier, the combination of the teeth *i i*, for contact with the barrel-bilge, and the hooks *g g*, to engage the chines, substantially as described and shown.

9. In a barrel-carrier, in combination with the cross-bar *c*, the segmentary bilge-bar *j*, substantially as and for the purposes specified.

188,027.



188,028. SPRING AIR-GUNS. H. M. Quackenbush, Herkimer, N. Y. [Filed Sept. 9, 1876.]

Brief.—The barrel is centrally secured to a spring-plunger, which is arrested by a central partition, the latter serving with the plunger to guide the movement of the barrel. Compression of the air is effected between the partition and the inner face of the plunger, and its escape is through the central tube-barrel. The removable breech-pin permits the insertion of the missile.



1. In an air gun or pistol, the combination of a plunger and a connected actuating-spring, said spring being arranged forward of the plunger, and each having a forward movement when acting to compress the air and expel the projectile.

2. In an air gun or pistol, the combination of a plunger, a connected barrel, and an actuating-spring, each having a forward movement when acting to compress the air and expel the projectile, the plunger and spring being arranged in separate chambers, as set forth.

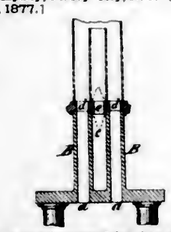
3. In an air gun or pistol, the combination of a plunger, a barrel connected thereto, and an actuating-spring.

4. The cylinder A, having chambers *a b*, in combination with the plunger B, barrel D, and spring E, constructed and arranged to operate substantially as shown.

5. The plunger B, connected to, and moving with, the barrel D, when acting to compress the air and expel the projectile, substantially as shown and described.

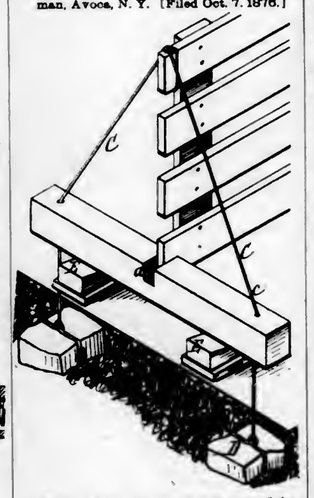
6. The spring-impelled plunger B, provided with the notch *x*, in combination with the pivoted sear *k*, spring *p*, and trigger I, substantially as shown.

188,029. BONE-BLACK RETORTS. Edw. E. Quimby, Orange, assignor to the F. O. Matthiessen & Wiechers Sugar Refining Company, Jersey City, N. J. [Filed Feb. 17, 1877.]



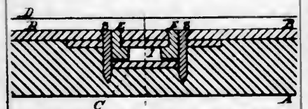
In a retort for revivifying bone-black, substantially such as described, the hollow columns B, cast upon the bed-plate of the heating-chamber, substantially as and for the purposes set forth.

188,030. FENCES. I. Saltsman and E. Saltsman, Avoca, N. Y. [Filed Oct. 7, 1876.]



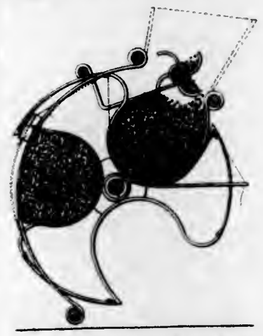
The wire brace C, secured to the top of the fence, passing loosely down through the sill, and anchored to stones embedded in the ground, in combination with the wedges or keys E E, resting under the sill, and serving to tighten the fence up against the anchor-wires, as shown and described, and for the purpose specified.

188,031. RAIL-JOINTS. W. H. H. Scholey, Chicago, Ill. [Filed Aug. 19, 1876.]



The sill-plate D, extended down into a mortise, J, at C in the sill, and provided with a longitudinal open space, I, and with notches L, in combination with gibs or keys E, and rails B, as and for the purpose set forth.

188,032. GRAIN-BINDERS. L. A. Scovil, Circleville, Ohio, assignor to himself and L. E. Scovil, same place. [Filed Apr. 17, 1876.]



1. The combination of an intermittently-moving rotating receptacle, to hold and carry the grain, a stationary slotted-bottomed receiver, upward through which the receptacle moves, a continuously-revolving rake or packer, to which the grain is fed, and mechanism for imparting motion to the receptacle at intervals, these members being constructed and operating substantially as hereinbefore set forth, whereby the grain is supplied directly to the receptacle when in proper position, and, during its movements, to the stationary receiver, ready to be gathered up by the receptacle, and held by it, while it is being completely filled, during a pause in its movements.

2. The combination, substantially as hereinbefore set forth, of a series of intermittently-moving receptacles, revolving around a common axis, a continuously-operating rake or packer, and mechanism by which the receptacles are presented in turn to be filled with grain, to automatically set in motion said mechanism.

3. The combination of a series of receptacles mounted on a common shaft, a continuously-revolving rake or packer, to which the grain is delivered, and by which it is fed into the receptacles, a shifting frame or lever, projecting within the path traveled by the peripheries of the receptacles, and rocking on the rake or packer shaft, clutch mechanism on said shaft, thrown into operation by the outward movement of the shifting-frame, a loose endwise-moving pinion, also carried by said rake-shaft, and a gear on the shaft of the series of receptacles, these members being constructed and operating substantially as hereinbefore set forth, whereby, upon the filling of one of the series of receptacles, the series is caused automatically to move the distance between two receptacles, and gavels of uniform size formed.

4. The series of receptacles, constructed, as hereinbefore set forth, of rows of parallel bars and central portions or holders, having curved peripheries, and openings to receive the grain.

5. The combination, substantially as hereinbefore set forth, of the rake or packer, the series of intermittently-moving receptacles, mechanism for partially rotating said receptacles at intervals, to bring them, in turn, in position beneath the packer to be filled, and the stationary receiver, into which the grain is fed during a portion of the time consumed by the movements of the series of receptacles, ready to be gathered up by them as they, in turn, are caused to move into the receiver, and pause to be filled, whereby waste is prevented and regularity in the formation of the gavels insured, as set forth.

6. The combination, substantially as hereinbefore set forth, of an intermittently-moving receptacle and a stationary compressor, eccentric to the axis of rotation of said receptacle, against the inner surface of which compressor the grain of the gavel is pressed as the receptacle moves, whereby the gavel is automatically compressed into a compact bundle for binding.

7. The combination, substantially as hereinbefore set forth, of the intermittently-moving revolving receptacles, cord-clamps carried by the receptacles, and a cord-guide, from which the cord passes to the clamps in turn, and is

automatically seized by them, and carried across the openings in the receptacles through which the grain enters.

8. The combination of a series of intermittently-moving receptacles, rotating round a common axis, their curved central portions or holders, and a cord-clamp and cord supporter or hook, mounted on the periphery of each of said holders, at or near the opposite ends thereof, these members being constructed and operating, substantially as set forth, to carry cord to encircle and tie each bundle.

9. The combination, substantially as hereinbefore set forth, of the receptacle, the cord-clamp, composed of a fixed part and a movable finger, between which the cord is supported, and a stationary incline, against which the finger moves to retract it, and allow the cord to drop into a position to be clamped by the subsequent passage of the finger from the incline before the receptacle reaches the position at which it receives the grain.

10. The combination, substantially as hereinbefore set forth, in a grain-binder, of a series of three receptacles, intermittently and partially rotated about a common axis at intervals, by mechanism substantially such as described, and automatic apparatus for connecting and disconnecting said receptacles and their rotating mechanism, thrown into operation by the pressure of the gavel upon the filling of the receptacles with grain, and acting directly upon the mechanism, by which the receptacles are positively started in motion, and caused to move one third part of a complete revolution at each movement.

11. The combination of a series of intermittently-moving receptacles, cord-clamps carried thereby, supports for loosely holding the cord, likewise carried by the receptacles, a guideway, into which the cord enters, and a cutter for severing the cord, these members being constructed and operating substantially as set forth, whereby the cord is caused completely to encircle the bundle, and is severed with its ends together, ready for tying, while leaving a portion of the cord in advance of the clamp of the following receptacle, for use in tying the succeeding gavel.

12. The combination, substantially as hereinbefore set forth, of the series of intermittently-moving rotating receptacles, the cord-clamps carried thereby, the compressor, the incline for relieving the cord from pressure by the clamps, and knot-tying mechanism, to which the cord passes when released by the clamps.

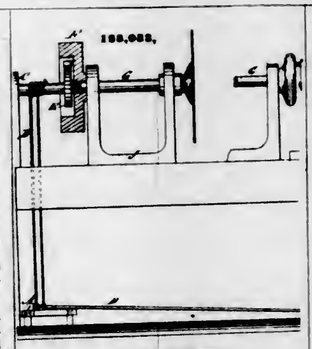
13. The combination of a cord-guideway, a stationary tube, an endwise-moving rotating hook, moving round said tube, an endwise-moving tube, working in the stationary tube, a non-rotating endwise-moving hook, working in the inner tube, and a stationary hook, these members being constructed and operating substantially as hereinbefore set forth, whereby a knot is tied in the cord, and the cord yieldingly held to tighten the knot as it is drawn from the tier.

14. The combination, substantially as hereinbefore set forth, of the cord-guideway, the cutter, the spring holders or fingers, and the tying mechanism.

15. The combination, substantially as hereinbefore set forth, of the cord-guideway, a spring-holder, *f*, the knot-tying mechanism, and the endwise moving bridge-bar, for the purpose specified.

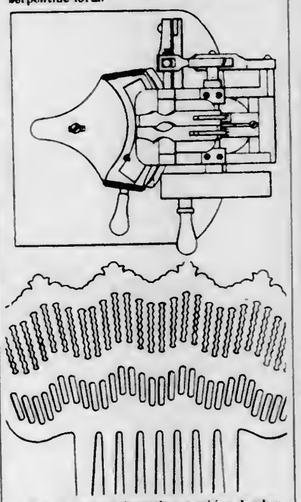
16. The combination of the long toothed gear-wheel, the endwise-moving pinion engaging therewith, the collar connected and moving endwise with the pinion, the pin carried by the collar, the cylinder revolving with the long-toothed gear-wheel, and having a serpentine groove, into which said pin projects, and the slotted stationary tube of the knot-tying mechanism, these members being constructed and operating substantially as and for the purpose hereinbefore set forth.

188,033.



188,034. MACHINES FOR PRODUCING OPEN-WORK IN COMBS. S. A. Tisdale, Leominster, Mass., assignor to Union Comb Company, same place. [Filed Feb. 6, 1877.]

Brief.—The comb supporter or carrier is provided with mechanism for imparting to it an intermittent sinuous or serpentine movement under the cutter, for imparting to each range of slots in the comb back a sinuous or serpentine form.



In the open-work-cutting machine, having one or more cutters, the comb-supporter provided with mechanism for imparting to it an intermittent sinuous or serpentine movement under the cutter or cutters, substantially as and for the purpose specified.

188,035. PEG-FLOATS. Amos Whittemore, Cambridgeport, Mass. [Filed Jan. 23, 1877.]

1. In combination with rotating cutters J, rotating guards or shields m, substantially as described.

2. Rotating cutters J, in combination with the rotating plate formed with shield m, and scored as shown.

3. The removable rotating cutter J, in combination with the plate L and shields m, of segment form, substantially as shown.

4. Cutters J, which rotate with the plate L, in combination with stud *q* and holes *s*, as set forth.

5. The shield-plate L, perforated at *t*, in combination with gear-case cover E, provided with the perforations *v*, as and for the purposes set forth.

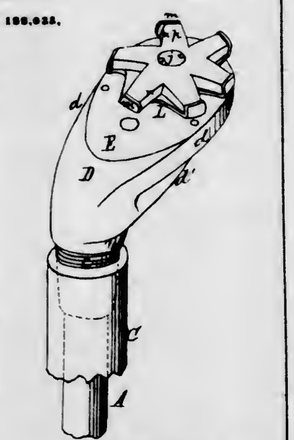
6. In combination with rotating cutters J and rotating shield-plate L, the gearing G, G', *f*, and *s*, applied in a gear-case, D, which is set at an angle with respect to the spindle A, substantially as described.

188,036. LATHE-GEAR. Jno. N. Tannahill, Bradford, Iowa, assignor to himself and E. A. Bigelow, Farmington, Minn. [Filed Feb. 14, 1876.]

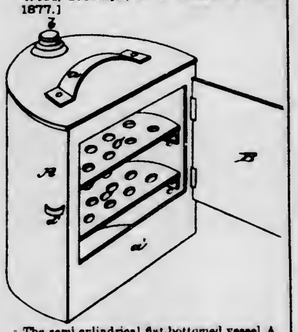
Brief.—The driving-shaft is divided into two parts—one part serving as a saw-arbor or lathe-spindle, and provided with its own journals, so that by means of such shaft the arbor or spindle can be speeded faster than can be done by a continuous shaft having an encircling collar.

The combination of the shaft G, provided with its own journals, wheel F attached thereto, shaft C, ratchet-wheel E, dog H, cord or strap B, treadle A, and spring D, substantially as set forth.

188,038.



188,037. CULINARY STEAMERS. Oliver W. Wren, Brooklyn, N. Y. [Filed Feb. 16, 1877.]



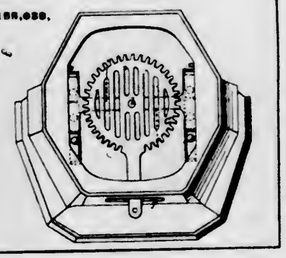
The semi-cylindrical flat-bottomed vessel A *h s'* provided with a vent, *b*, controlled as specified, and with cleats *c* and door B, and adapted to serve in connection with the perforated semicircular shelves C, as and for the purpose described.

188,039. SUSPENSION HOOKS AND CLASPS. Frank Anderson, Peekskill, N. Y. [Filed May 6, 1876.]



A suspension-hook, constructed as described, having the clasp A, formed of helical coils lying in the same plane, substantially as and for the purposes specified.

188,040.

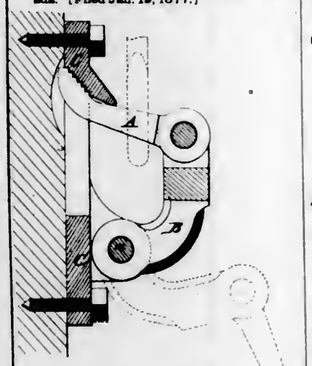


188,038. STOVE-GRATES. A. C. Barstow, Providence, R. I. [Filed Aug. 26, 1876.]

1. A stove grate, arranged and adapted to slide bodily back and forth, and at the same time to rotate horizontally, substantially as set forth.

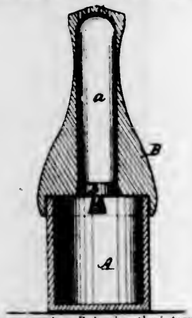
2. The combination, substantially as set forth, of a rotary stove-grate, and a sliding or reciprocatory grate-supporting frame.

188,039. BOAT-DETACHING APPARATUS. W. McK. Bell, Collingwood, Ontario, Canada. [Filed Jan. 19, 1877.]



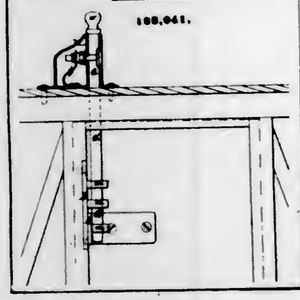
In a boat-detaching apparatus, the combination, with curved tumbler B, of the pivoted tongue A, and bent and locking with a rigid catch in the slot of fast plate C, the tongue and catch being serrated, as shown and described.

188,040. SPICE-BOXES. Orvill M. Brock, Monroeton, Pa. [Filed Feb. 10, 1877.]



The pepper-box B, having the internal cavity *a*, stopper *b*, and recess for receiving the salt-cellar, in combination with the salt-cellar A, substantially as herein shown and described.

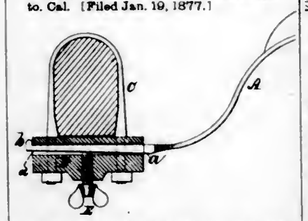
188,041.



188,041. SEAT-BOLTS FOR CAR-DOORS. W. Burtis, New York, N. Y., assignor of two-thirds his right to G. W. Bogert and F. W. Melvil, same place. [Filed Jan. 31, 1877.]

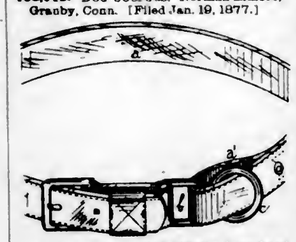
In a railroad freight-car, the internal fastening, consisting of the staple E, tongue m, and bolt G, extending up through the roof of the car, in combination with the spring-locking bolt *s*, arranged in a close box, H, acting as a guide for the bolt G, and fastened to the roof of the car, said box being provided with an opening, *x*, opposite the spring-bolt *s*, and seal covering the same, the whole being arranged to operate substantially as described.

188,042. THILL-COUPLINGS. J. L. Crist, W. E. Crist, and G. H. Smith, Sacramento, Cal. [Filed Jan. 19, 1877.]



The thill-coupling herein described, consisting of the spring A, having shoulders *a* and lug *b*, the socket-piece D, and thumb-screw E, all constructed and relatively arranged in respect to the thills and axle, substantially as herein set forth.

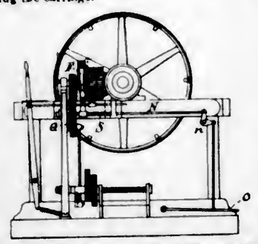
188,043. DOG-COLLARS. Norman Elmore, Granby, Conn. [Filed Jan. 19, 1877.]



A dog-collar provided with the looped end *a'* and loop *b*, by which the collar is made adjustable, substantially as shown and described.

188,044. YARN-PRINTING MACHINES. C. W. Gilbert, Worcester, Mass. [Filed Nov. 24, 1875.]

Brief.—The crank-wheel which reciprocates the color-carriage is driven by a clutch from a loose pulley. A pin on the side of the wheel strikes a pivoted lever, which releases a spring-rod, freeing the clutch, and thus stopping the carriage.

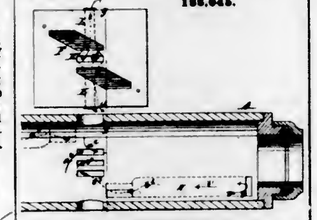


The stop-lever H, collar J, rod N, spring S, foot-lever O, clutch E, and wheel G, with its studs *g g*, in combination, as and for the purposes above described.

188,045. STEAM ROCK-DRILLS. Joseph C. Githens, New York, N. Y. [Filed Nov. 26, 1876.]

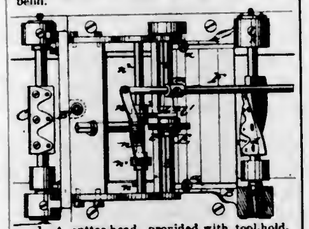
The sleeve C, provided with the curved slots c^1, the cavity c^2, and the slots c^3, in combination with the cylinder A, the piston B, and the guide-pins D, to adapt it to serve as a valve, substantially as herein shown and described.

188,045.



188,046. MACHINES FOR PLANING WOOD. F. Godeau, Paris, France, assignor to P. F. Arbey, same place. [Filed Nov. 26, 1876.]

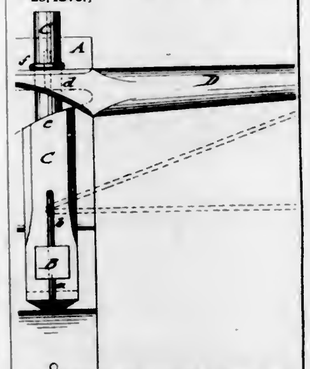
Brief.—The cutting-knives are held and are longitudinally adjustable between two holding-plates by means of a screw passing through the knife and plates, and are attached by a subjacent screw to a cutter-head mounted in a frame vertically adjustable in relation to an emery-wheel, laterally adjustable upon a shaft mounted in bearings in side plates attached to the upper part of the supporting-frame, by means of a hand-lever attached by a sliding clutch to a sleeved collar secured to a swiveled sleeve, through which the lever passes, the other end of which is pivoted to a sleeve-lever, laterally adjustable upon a shaft mounted in bearings in said side plates, above the shaft which carries the emery-wheel. The knives can be sharpened when worn out without removing them from the bead.



1. A cutter-head, provided with tool-holding plates, held together adjustably by a screw, *d*, and to the cutter-head only by a subjacent screw, *b*, as and for the purpose set forth.

2. The hand-lever F, attached by sliding clutch to the sleeve-collar *f*, secured to a swiveled sleeve *m*, and pivoted to the sliding-sleeve lever *n*, in combination with the grinding attachment, as and for the purpose specified.

188,047. LINE-FASTENERS. A. S. Goodrich, New York, N. Y., assignor to himself and H. Goodrich, same place. [Filed Nov. 25, 1876.]

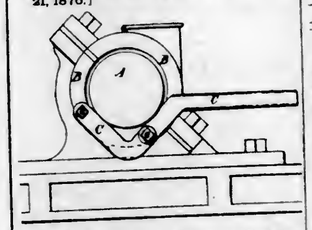


1. A clothes-line supporter or crane, constructed of a base or supporting plate, A, fastened to the window-casing outside of the lower

sash, of a fixed horizontal arm, B, with outer hook *b*, of an upright post or standard, C, and of a swinging lever-arm, D, having outer eye, hook, or pulley *g*, constructed and arranged substantially as and for the purpose set forth.

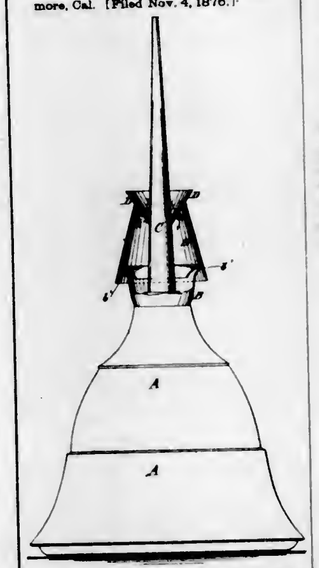
2. The combination of upright post or standard C, having inclined collar *e* and binding set-screw *f*, with the inclined end of swinging lever-arm D, to secure the lever-arm securely in inwardly and outwardly extending position, substantially as and for the purpose set forth.

188,048. DEVICES FOR LINING ENGINE-SHAFTS. L. H. Hall, Erie, Pa. [Filed Oct. 21, 1876.]



A shaft-sustaining iron, C, so attached to the machine as to hold the shaft A concentric with the journal-boxes B, as shown, and for the purposes mentioned.

188,049. OILERS. W. H. Harrison, Livermore, Cal. [Filed Nov. 4, 1876.]



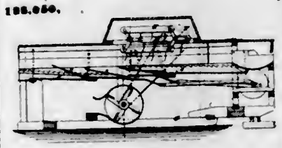
1. The combination of the cup B, provided with an inwardly and downwardly projecting ring-flange, *b'*, with the can A and with the stem C, substantially as herein shown and described.

2. The combination of the perforated cup D and the cup E with the stem C, and with the flanged cup B, formed upon the top of the can A, substantially as herein shown and described.

188,050. GRAIN-SEPARATORS. T. Harrison and W. C. Buchanan, Belleville, Ill. [Filed May 22, 1876.]

The combination, with a straw-shaker made in sections, vibrating from one crank-shaft in opposite directions, and provided with lifting-fingers working under the straw, of the picker-rakes, placed over the shaker at the junction of its sections, and working over the straw, as and for the purpose specified.

188,050.

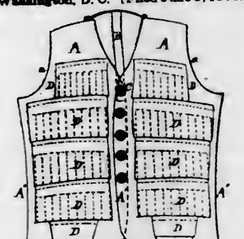


188,051. CARD-RACKS. F. Hayek, New York, N. Y. [Filed Feb. 8, 1877.]



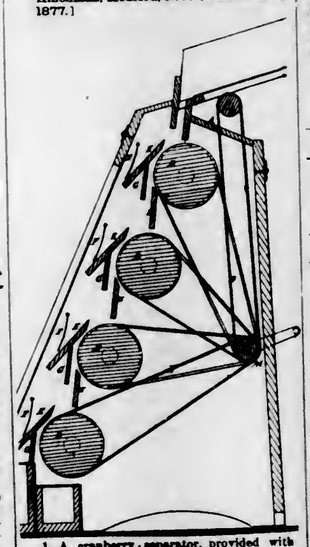
A card-rack composed of a supporting-frame, pivoted and recessed clamping-strips, and of an operating slide strip or rod connected thereto, for throwing the strips to one side or the other, substantially in the manner and for the purpose described.

188,052. HUNTING-VESTS. G. C. Henning, Washington, D. C. [Filed June 9, 1876.]



As a new article of manufacture, a reversible vest, constructed of four similar sections, A, fastened together as represented, and having the several series of independent cartridge-pockets or pouches D arranged upon each side of the front and back, respectively, and provided with game-pouches D' on the inside, all substantially as described and shown, for the purpose set forth.

188,053. CRANBERRY-SEPARATORS. J. C. Hinchman, Medford, N. J. [Filed Jan. 18, 1877.]



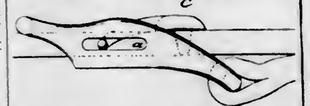
1. A cranberry-separator, provided with rollers for the berries to bound from, substantially as herein shown and described.

2. The combination of the adjustable inclined boards E and with the rollers D, substantially as herein shown and described.

3. The combination of the certains F with the inclined boards E and the rollers D, substantially as herein shown and described.

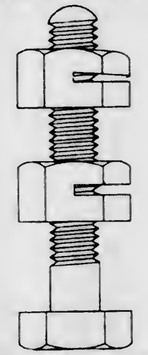
4. The combination of the pairs of boards G H with the inclined boards E and the rollers D, substantially as herein shown and described.

188,054. TRACE-BUCKLES. L. D. Hubbard, Hume, N. Y., assignor to himself and H. C. Brown, same place. [Filed June 26, 1876.]



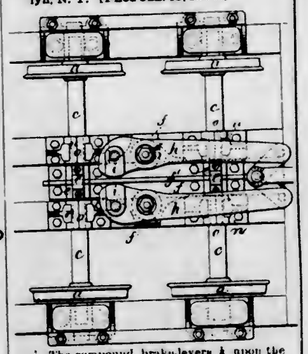
A trace-buckle provided with a swinging tongue-section, C, provided with wedge-shaped sides, that slides in horizontal slots *a* of the buckle-frame, substantially as and for the purpose specified.

188,055. NUT-LOCKS. A. Johnson, Springfield, Mass. [Filed Dec. 1, 1876.]



A nut having a transverse slot in its body in a plane across the bolt-hole, such slot ending within the bolt-hole, and permitting the permanent flexure of the portion of the nut above the slot, as and for the purpose set forth.

188,056. CAR-BRAKES. J. Johnson, Brooklyn, N. Y. [Filed Jan. 15, 1877.]

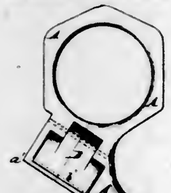


1. The compound brake-levers A upon the frame *f*, in combination with the axles, wheels, and pillow-blocks *n*, substantially as and for the purposes set forth.

2. The combination, with the frame *f* and boxes *o*, of the boxes *o* and pillow-blocks *n*, substantially as set forth.

3. The guide-bar *f'* and links *k*, in combination with the brake-levers A and frame *f*, for the purposes and as set forth.

186,057. HARNESS-TRIMMINGS. I. N. Just, Belding, Mich. [Filed Jan. 13, 1877.]



1. A terret provided with the strap-fastener B, substantially as herein shown and described.

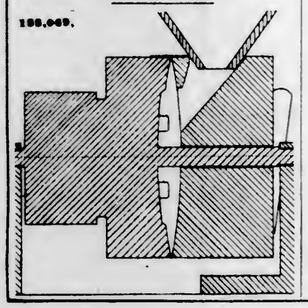
2. The combination of the swinging wedge-block B, having its bottom concaved and provided with a flange, *b'*, along its inner edge, with the terret A and extension *a'*, having the inner side of its bottom bar made concave or flat, substantially as herein shown and described.

186,058. GLAZIERS' DIAMOND-HOLDERS. J. B. Karelsen, New York, N. Y. [Filed Jan. 29, 1877.]



A glazier's diamond-holder in which the breaker is rigidly attached to handle, while the socket is swiveled to the end of breaker, substantially as shown and described.

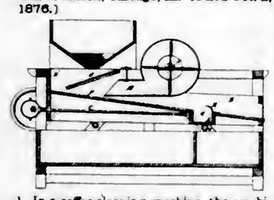
186,059.



186,059. FRUIT-GRINDERS. H. Kelly, East Portland, Oreg. [Filed Jan. 22, 1877.]

The combination, in a fruit-grinding machine, substantially as described, of two perpendicular circular grinders of concave abutting faces with the teeth or cogs, feed-channel, hopper, shaft, band, and driving-drum, hereinabove described.

186,060. GRAIN-SEPARATORS. J. W. Kline and P. Mason, Chicago, Ill. [Filed Oct. 2, 1876.]



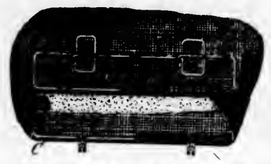
1. In a coffee cleaning machine, the combination of the shaking-frame, carrying feeder-board B', and sieves O P, arranged to approach each other, with the fan J, having blast-spout M, arranged to deliver its blast directly beneath and against sieve O, substantially as specified.

2. The shaking-frame B, carrying the inclined screen P, the depressed receptacle Q, and the elevated stop R, for catching and holding the heavy foreign matters, arranged and operating as set forth.

186,061. PROCESSES OF OBTAINING ARTIFICIAL PURPURINE FROM ALIZARINE. Felix de Lalande, Paris, France. [Filed June 7, 1876.]

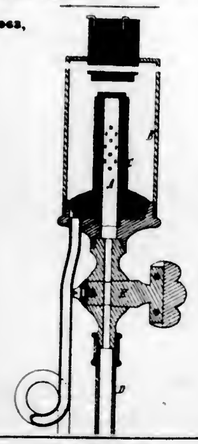
The process of obtaining artificial purpurine from alizarine, consisting in combining with the latter antimonic acid and sulphuric acid, heating the mixture, and adding water thereto, and then boiling, cooling, and filtering the solution to obtain a residue or dye-stuff, substantially as herein set forth.

186,062. BAG-FASTENERS. C. Lazarsvitch, Brooklyn, N. Y. [Filed Aug. 28, 1876.]



The combination of rectangular frame A and hook-bar C on opposite sides of a bag, the former being provided with transverse frames B, whose bars *a* serve for catches, as shown and described.

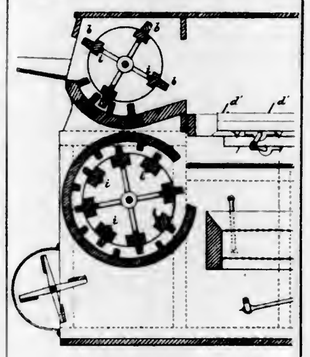
186,063.

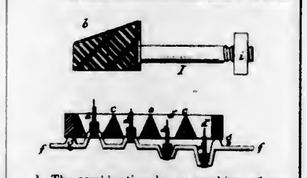


186,063. AIR-MOISTENING APPARATUS. C. R. Merrill, Boston, Mass., assignor to himself and B. S. Calef, same place. [Filed Feb. 6, 1877.]

The air-moistener, substantially as described, consisting of the foraminous disseminator A, the surrounding jacket C, the inclosing open case B, and the induct D, all arranged and applied as set forth, and provided with means for getting rid of the water of condensation escaping from the jacket, as explained.

186,064. CLOVER-HULLERS. A. Miller, Hagerstown, Md., assignor to Hagerstown Agricultural Implement Manufacturing Company, same place. [Filed Feb. 19, 1877.]





1. The combination, in one machine, of two cylinders fitted with rubbers, substantially as and for the purposes described.

2. The combination, in one machine, of the open upper cylinder with the open lower cylinder, substantially as and for the purposes described.

3. The combination, in one machine, of the open upper cylinder, fitted with a small number of rubbers, with the open lower cylinder, fitted with a large number of rubbers, substantially as and for the purposes described.

4. The combination, in one machine, of two cylinders fitted with rubbers, and the separator or rake C, substantially as and for the purposes described.

5. The separator or rake C, formed by combining the bars *c c c c*, made with upper beveled edges, and the raker-bars *d d d d*, made in the form of an inverted T, substantially as and for the purposes described.

6. The raker-bars *d d d d*, constructed in the form of an inverted T, substantially as and for the purposes described.

7. The raker-bars when beveled on their outer ends, substantially as shown and described.

8. In combination with the raker-bed, the projections or knockers *g g* on the raker-shafts *f f*, for the purpose of jarring the rake-bed, substantially as set forth.

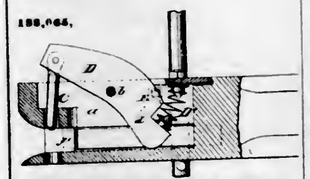
9. In combination with a hulling-cylinder, the rubbers *b b*, having roughened sides and rounded front edges *h*, substantially as and for the purpose specified.

10. In combination with an open lower cylinder, the rubbers having shanks 1 and nuts *i*, for the purpose described.

11. A rubber having its back thicker than its front, and its front edge rounded and smooth, substantially as and for the purpose specified.

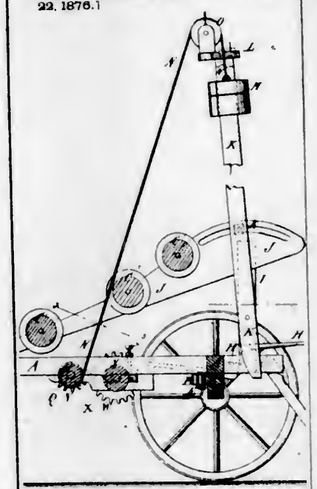
186,065. CAR-COUPLINGS. J. B. P. Mohan, Dryden, Minn., assignor of one-third his right to Thomas D. M. Mohan, same place. [Filed Nov. 16, 1876.]

186,066.



The combination, with lever D, having pivoted front pin C and fulcrum *b* in cavity of draw-head, of the spring D' and locking-bolt E, arranged to operate as shown and described.

186,066. POST AND PILE DRIVERS. Wm. A. Newton, Pappinville, Mo. [Filed Sept. 22, 1876.]



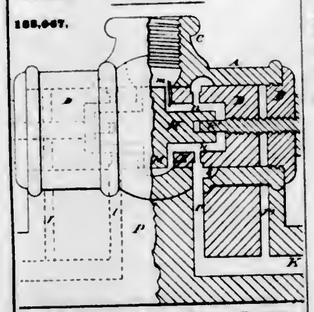
1. The frame A, bolster B, and rear axle, secured together by the stakes C, keys D, and hooks E, arranged as shown and described.

2. The lever F, connected by a pivoted rod, G, with movable frame A, and pivoted at its front end to the bolster B, as and for the purpose specified.

3. The combination of the false bolster B, provided with the stakes C and keys D, and having its forward edge concaved and its upper side notched, the levers H F, the hook-rod G, and the hooks E, with the base-frame A of the machine, substantially as herein shown and described.

4. The combination of the gear-wheels V W, the shaft X, the drum Y, the clutch Z, and the trip-lever A' with the frame A and the shaft Q, substantially as herein shown and described.

186,067.



186,067. VALVES FOR STEAM VACUUM-PUMPS. George H. Nye, Chicago, Ill. [Filed Feb. 8, 1877.]

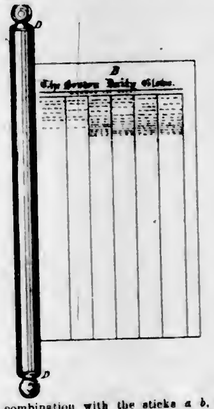
Brief.—The steam-ports are enlarged or contracted, as may be required in the use of different pressures of steam or raising columns of water to different heights.

1. The cups D D, in combination with the adjusting screw-rods E, case A, stand P, and a reciprocating valve between the cups, as and for the purpose set forth.

2. The combination of the valve M, adjustable cups D, screw-rods F, and ports *m n* J K K' with case A and stand P, as and for the purpose specified.

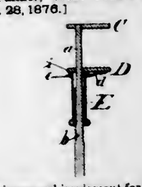
186,068. NEWSPAPER-FILES. C. Z. O'Neill, Boston, Mass., assignor to H. S. Williams and S. B. Stillings, same place. [Filed Dec. 14, 1876.]

Brief.—The papers are clamped between the sticks *a b*, which latter are held together by means of the slotted plate, screw-rod, and clamp-nut D.



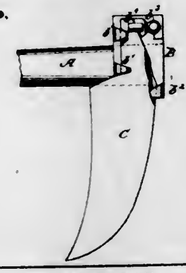
In combination with the sticks *a b*, the slotted plate C, the screw-rod *d*, and a clamp or nut, D, substantially as and for the purpose specified.

186,069. LAMP-CHIMNEY CLEANERS. Chas. P. Palmer, West Concord, Vt. [Filed Dec. 28, 1876.]



The improved implement for cleaning lamp-chimneys, herein described, consisting of rod H, having square part *a* and screw-threaded section *b*, clamp C secured to rod B, clamp D, and screw-threaded sleeve E, having flange *i*, for operating clamp D by means of the plate *d*, having arms *e* attached thereto, all combined and operating substantially in the manner and for the purpose herein shown and specified.

186,070.

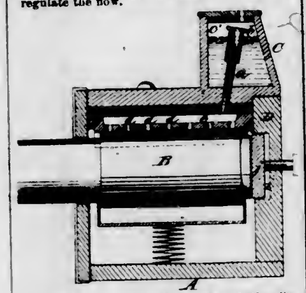


186,070. BRUSH AND CANE CUTTERS. O. Pickering, Needham, Mass., assignor to himself and Chas. E. Keith, same place. [Filed Dec. 23, 1876.]

The ferrule B, provided with the hooks *b' b' b'*, the pivoted button *b*, and the bolt *b'*, in combination with the handle A, to receive and hold the shank of the cutter C, substantially as herein shown and described.

186,071. CAR-AXLE BOXES. J. A. Picard, North Platte, Neb. [Filed July 15, 1876.]

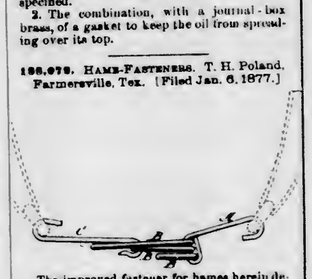
Brief.—Oil is conducted from the reservoir to the bearing through a tube having a longitudinal slit, and a screw-cap constructed to regulate the flow.



1. The combination of the reservoir C, split tubes *a*, cap *b*, brass D, having the grooves *c*, and holes *d*, the journal B, and case A, as specified.

2. The combination, with a journal-box brass, of a gasket to keep the oil from spreading over its top.

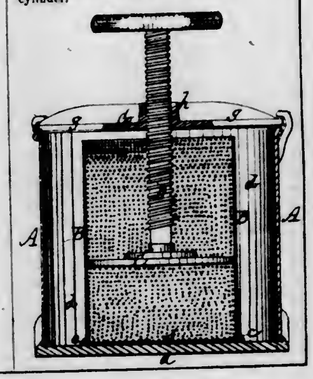
186,072. HAME-FASTENERS. T. H. Poland, Farmersville, Tex. [Filed Jan. 6, 1877.]



The improved fastener for hames herein described, consisting of the strap or bar A, having an eye upon its inner end, the set of graduated licks B, and the strap or bar C, having a hook upon its inner end, substantially as herein shown and described.

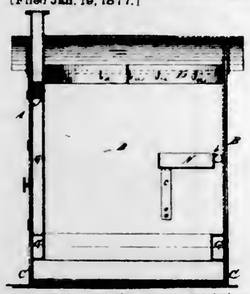
186,073. HAND FRUIT-PRESSES. A. V. M. Sprague, Rochester, N. Y., assignor of one-half his right to J. E. Jones, same place. [Filed June 6, 1876.]

Brief.—The groove in the bottom of the exterior vessel centers the interior perforated cylinder.



The exterior receptacle A, constructed with the stiff iron bottom a, provided with the groove c, in combination with the interior perforated cylinder B, fitted removably in the said groove, and the screw D, follower C, and bearing G, forming one attachment, resting upon the outer and within the interior cylinder, the whole arranged to operate in the manner and for the purpose specified.

188,074. COMBINED DRIER AND SMOKE-HOUSE. Ransom Sabin, Shelby, Mich. [Filed Jan. 19, 1877.]



1. A smoke and dry house, consisting of the sheet-iron walls A B, having attached to their inner surface the fire-place E and the flue G, and provided with the circle L, having hooks a, and the detachable cover O, combined and arranged substantially as herein shown and described.

2. The hinged tray N, and the supporting-spring c, in combination with the dry-house, constructed as shown and described.

188,075. PAPER CARPETS. T. S. Scott, Philadelphia, Pa., assignor to T. Seymour Scott & Brother, same place. [Filed Oct. 24, 1876.]

As a new article of manufacture, a noiseless paper carpet or oil-cloth, consisting of a surface layer of tough paper cloth figured at will, and a bottom layer of soft paper, felt, or other equivalent fabric, substantially as described.

188,076. PROCESSES AND COMPOUNDS FOR REFINING IRON. J. B. Sherman, Boston, Mass. [Filed Feb. 23, 1877.]

1. The process of treating iron with bromine, in connection with chlorine, substantially as described, whereby the defect known as red-short is cured.

2. The composition for treating iron, consisting of bromide of sodium and chloride of ammonia, substantially in the proportions specified.

188,077. COMPOUNDS AND PROCESSES FOR REFINING IRON. J. B. Sherman, Boston, Mass. [Filed Feb. 23, 1877.]

1. The process of treating iron with iodine, in connection with chlorine, substantially as described, whereby the defect known as cold-short is cured.

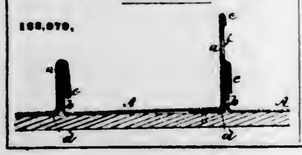
2. The composition for treating iron, consisting of iodide of sodium and chloride of ammonium, substantially in the proportions specified.

188,078. COMPOUNDS AND PROCESSES FOR REFINING IRON AND STEEL. J. B. Sherman, Boston, Mass. [Filed Feb. 21, 1877.]

1. The process of treating iron with iodine, bromine, and chlorine, in connection with each other, substantially as described, whereby the defects above named (cold-short, red-short, and cold-shuts) are cured.

2. The composition for treating iron, consisting of a mixture of iodide, bromide, and chloride salts, as above described, and substantially in the proportions specified.

188,079.

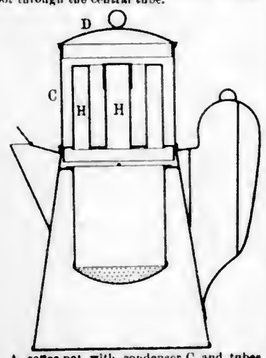


188,079. SHEET-METAL ROOFING. H. W. Smith, Waynesburg, Ohio, assignor to himself and T. C. Snyder, same place. [Filed Dec. 30, 1876.]

In sheet-metal roofs, the sheets A having flanges *a b* of unequal width, and the wider turned at *c*, in combination with anchor *d*, having divisions *e f*, the one, *e*, bent over flange *b*, and the other, *f*, bent with flange *a* over flange *b*, substantially as and for the purpose specified.

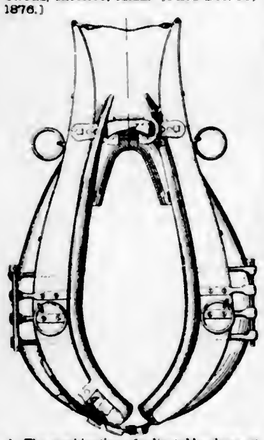
188,080. COFFEE-POTS. J. B. Smith, Milwaukee, Wis. [Filed Sept. 12, 1874.]

Brief.—The tubes are placed in the cold-water chamber, which acts as a steam-condenser. Cold water may be poured into the pot through the central tube.



A coffee-pot with condenser C and tubes H in the same, the middle tube being closed by a removable cap, and cover, D, all in combination, substantially as described.

188,081. COMBINED COLLAR AND HAME. E. Stroud, Ricford, Minn. [Filed Dec. 30, 1876.]



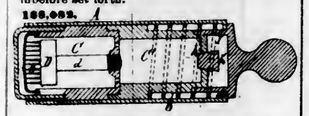
1. The combination of adjustable clasps at the upper part of the hame with a lateral connecting-link, and a seat or eye swinging forward and backward upon it, substantially in the manner and for the purpose set forth.

2. The combination of the adjustable hame-clasps, passing through the slits of the upper ends of the collar, with a swinging jointing-link, to form flexible connection of collar and hame section with pad, substantially as specified.

188,082. DERMOPATHIC INSTRUMENTS. C. B. Tucker, Lyons, N. Y. [Filed Dec. 6, 1876.]

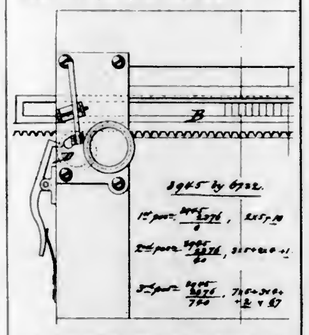
The combination, with the outer stationary case A, provided with shoulder *a*, of the inner movable cylinder C C', provided with needle head and shank D *d*, and perforated head *f*, spring *b* interposed between the outer case and movable cylinder, and cover I I', secured to the latter, and provided with shoulder *i*, substantially as and for the purpose hereinbefore set forth.

188,082.



188,083. SLATES. G. S. Veles, New York, N. Y. [Filed Jan. 29, 1877.]

Brief.—A novel system of multiplication, in which the order of numerals in the multiplier is reversed, is aided by a sliding scale of slated surface, in combination with an ordinary slate, the said scale and slate being ruled with equal spaced cross-lines.



1. A multiplication-slate composed of a slotted slate, with graduated or subdivided adjoining sections, and of an intermittently-sliding and subdivided slate-rule, substantially as and for the purpose set forth.

2. The combination of a slotted or recessed slate, having suitable guide-rails, with a sliding slate-rule, and suitable mechanism for moving the same forward and back, substantially as set forth.

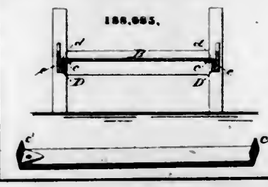
188,084. SPINNING-RING HOLDERS. Jos. W. Wattles, Canton, Mass. [Filed Nov. 24, 1876.]

Brief.—The auxiliary receiver is split and provided with a flange, which rests upon the ring-rail. The primary receiver is also split, and provided with a horizontal and a vertical flange, such flanges forming a socket to receive a duplex ring. Both receivers are eccentric, so that by revolving them the ring may be adjusted into concentricity with the spindle. They are held in place and made to contract upon the race-ring by means of a set-screw.



The receiver B, constructed as described—viz., with the horizontal flange *d*, vertical flange *e*, peripheral slit *s*, the cylindrical bore, and the cylindrical outer surface eccentric with such bore, all being as shown, and for use with the duplex race-ring A, as represented, and with the auxiliary split and eccentric receiver C, arranged with and applied to the ring rail, as set forth.

188,085.

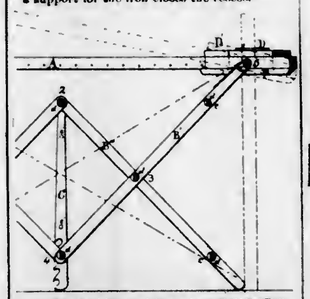


188,086. BED-SLATS. A. Watson, Altona, Mo. [Filed Oct. 19, 1876.]

In combination with a bedstead, A, the side rails D of which have mortises *d* formed with slots *e*, the improved slats B herein described, having at each end clamps or catches *c* fitting into slots *e*, substantially as and for the purpose herein shown and specified.

188,086. IRONING-TABLES. O. S. White, Norwalk, Ohio. [Filed Aug. 22, 1876.]

Brief.—The jointed legs turn over and fold upon the upper surface of the table. A recess formed in the end of the table receives the cloth-holder, and a pivoted plate carrying a support for the iron closes the recess.

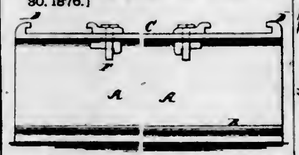


1. The double set of frame-bars B B' B'' B''', arranged as and for the purpose described, in combination with a pivoted table-top.

2. The combination of the double set of frame-bars, the central brace O C, and pivoted table-top A.

3. The table-top constructed with the recess E and cover D, substantially as and for the purpose described.

188,087. CROSS-TIES FOR RAILWAYS. H. S. Wilson, Fernandina, Fla. [Filed Dec. 30, 1876.]



A metallic railroad cross-tie, having the web A with bottom flange B, and slotted top flange C, having the end clips D, as shown and described.

188,088. PROCESSES OF TREATING BONES FOR GLUE-STOCK. W. Adamson, Philadelphia, Pa. [Filed Sept. 1, 1874.]

Brief.—The cage, in revolving, agitates the contained bones, and causes the adhering earthy matters to separate therefrom, pass through the slats, and deposit on the vat-bottom, thus constantly exposing fresh surfaces to the action of the solving acid.



The within-described process of treating bones—that is to say, by agitating them in dilute acid, and at the same time separating the detached earthy or calcareous matter from all contact with the bones, as set forth.

188,089. MACHINES FOR CUTTING IRON. J. L. Beckus and E. W. Beckus, Rock Falls, Ill., assignors of one-third of their right to Jas. R. Gilchrist, Mount Pleasant, Iowa. [Filed Aug. 11, 1876.]

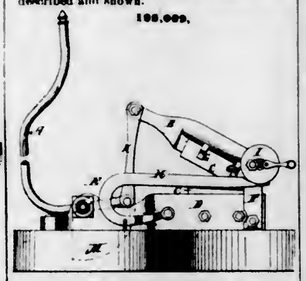
1. The construction and arrangement described and shown of the base-bar D, blade-lever B, vertical standards F, and shear-blade C, said bar and lever being in the same vertical plane, one above the other, and the shear-blades occupying central positions in them, respectively, in virtue of which torsional strain on either bar or lever is avoided.

2. The combination, as described and shown, of the curved lever A, with the blade-lever B.

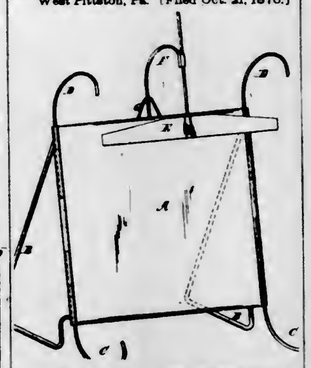
3. The combination, as described and shown, of the shear-blade and its support on lever, and the clamps G.

4. The combination, with the shearing devices, of the guard H and the eccentric I, as described and shown.

188,089.



188,090. BOOK-SUPPORTS. G. S. Bailey, West Pittston, Pa. [Filed Oct. 21, 1876.]



1. The hooks C C and D D, the former being adjustable independently of the latter for holding the book and preventing the leaves from turning, in the manner described.

2. The triangular supports B B, sustaining the holder, and operating for the purpose and in the manner described.

3. The combination of the hooks, the supports, and the ring G, for the purpose of holding the book while the holder is suspended, in the manner described.

4. A book-holder having the triangular supports B B, adapted to hook into perforated ears upon the surface of the supporting-frame, and to be held in position when unfolded by the slots in the lower ears H H, as and for the purpose set forth.

5. The marker R, in combination with the hook F, operating in the manner and for the purpose described.

188,091. RAILROAD-SWITCHES. R. W. Barrett, Ely, Vt., assignor to himself, Smith Ely, same place, and John C. Ely, New York, N. Y. [Filed Nov. 22, 1876.]

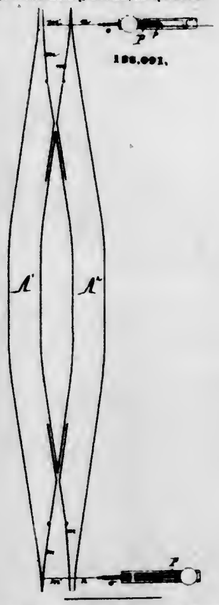
Brief.—This switch is designed for mining-tracks, where the cars are propelled by rope and pulley. The points of the switch are operated by the flanges of the wheels, and held in position by a weighted lever. When the points have been shifted by the passing car, they remain in this position, and the car, in its return, takes the same siding as in its outward or downward passage. A spring is interposed between the horizontal operating-bar and the weighted lever, to give elasticity and prevent too great concussion.

1. The tracks A A' A², in combination with the switch-rails m m and their connections, adapted to operate in such a manner that a car passing in one direction will automatically set the switch for its return on the same track, as herein specified.

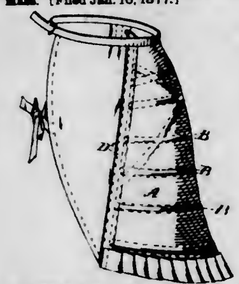
2. The single track A, double track A' A', and switch-rails m m, connected, as shown, by the rods m' m', in combination with the loaded lever P, the whole adapted to operate in such a manner that the respective cars traveling back and forth will automatically set the switch for their return, as herein specified.

3. The spring, in combination with the loaded lever P, and with the connections to the rails of a self-acting switch, as specified.

188,091.



188,092. BUSTLES. T. C. Barclay, Boston, Mass. [Filed Jan. 16, 1877.]



In a bustle, the re-enforcing binding D *d* D', the body A, and stiffening-wires B B, combined and arranged substantially as described, and for the purpose set forth.

188,093. PRESERVING ANIMAL AND VEGETABLE SUBSTANCES. F. S. Barff, Kilburn, England. [Filed Aug. 14, 1876.]

1. The process of effecting the preservation of animal and of vegetable matters by the employment, in the manner hereinbefore described, in conjunction with diluents, of the hydrated lower metallic oxides, by preference the hydrated lower oxides of manganese, such hydrated oxide or oxides being capable of absorbing oxygen and becoming converted into higher oxides.

2. The process of preserving animal and vegetable substances by the employment, in the manner hereinbefore described, of the lower oxides of manganese and of iron, in conjunction with a diluent.

3. The process of effecting the preservation of animal and of vegetable substances by the employment, in the manner hereinbefore described, of organic salts or compounds which

are capable of absorbing oxygen, such, for example, as the tannates, gallates, pyrogallates, or analogous bodies, either employed alone or when contained in or mixed with vegetable or other matters, such, for example, as the lower oxides of manganese.

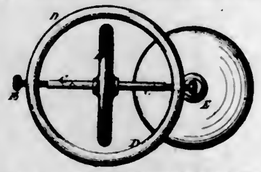
188,094. STOPPERS FOR OIL-CANS, &c. Addison Berdan, Salem, Mich. [Filed Nov. 9, 1876.]



An oil-can provided with a stopper attached to an exterior slide, arranged to be operated by the thumb, substantially as and for the purposes herein set forth.

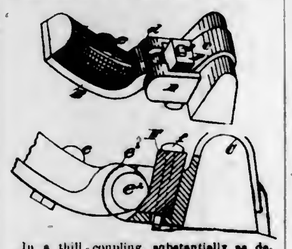
188,095. GYROSCOPE-TOPS. H. Beesley, New York, N. Y., assignor of one-half of his right to I. Jenree, same place. [Filed Nov. 27, 1876.]

Brief.—The hollow ring, being very light, is carried round by the top while spinning, and gives the appearance of a transparent sphere.



A gyroscope-top consisting of the hollow ring D, wheel B, shaft C, and round-headed screws E E, all constructed and arranged to operate substantially as described and shown.

188,096. THILL-COUPLINGS. Peter E. Bird, Jenkintown, Pa. [Filed Nov. 16, 1876.]

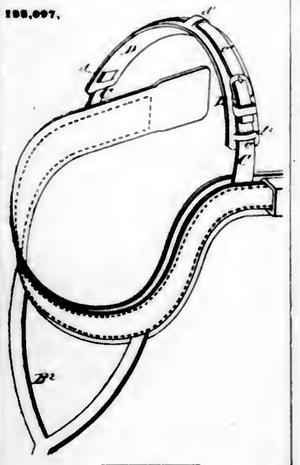


In a thill-coupling, substantially as described, the combination with the clip C, having the open chambered projection D, and the removable tang E, having bosses or cross-head e^1, of the rubber plug F, provided with the embedded key f, having a barb or shoulder on its lower end, said plug and key being fitted within the recessed portion of the projection D, and held in place, as and for the purpose set forth.

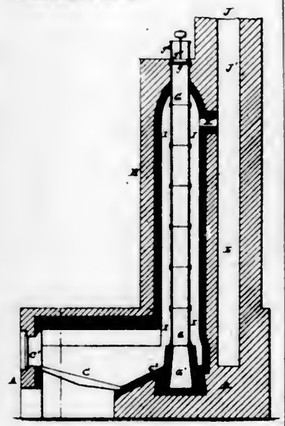
188,097. BREAST-COLLARS FOR HARNESS. P. Boyden, Amsterdam, N. Y., assignor to himself and C. J. Stratton, same place. [Filed Feb. 3, 1877.]

The combination of flexible body A with leather envelope B, neck-strap C, and shield D, having cross-pieces d d^1 d^2, substantially as and for the purpose set forth.

188,097.



188,098. SHAFT-FURNACES FOR TREATING ORES. Mathew D. Brett, Boulder, Colo. [Filed Sept. 8, 1876.]



1. The combination of the vertical pipe G, surrounded by an annular flue, I, and a base, G^1, having an open front, as and for the purpose set forth.

2. The combination, with the pipe G, having open base G^1, of the furnaces O and D, the furnace O arranged to direct the products of combustion in front of the opening in said base and around the same, and the furnace D arranged to maintain a flame at the exit of said pipe, as and for the purpose set forth.

3. The hearth B and furnace C, in combination with the flues I and K, stack J, and dust-chamber L, as and for the purpose set forth.

4. The hearth B, furnaces C and D, pipe G, open base G^1, annular flue I, perforated partition g, stirrer g^1, and hopper g^2, in combination with the flue K, stack J, and dust-chamber L, as and for the purpose set forth.

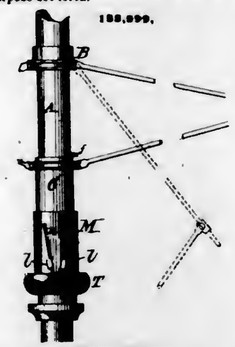
188,099. UMBRELLA-RUNNERS. Wm. H. Brock, New York, N. Y., assignor to Dawes & Fanning, same place. [Filed Jan. 25, 1877.]

1. The combination of the griping friction-runner C, provided with clamping parts k k, terminating with lugs l, and the griper-slide M, having the inclined slots s to act upon said lugs, to clamp or unclamp said runner, the whole being for operation with the stick of an umbrella or parasol, substantially as and for the purpose specified.

2. The combination of the tip-cup T, the griper-slide M, and the griping friction-runner C, substantially as and for the purpose described.

3. The combination, with the runner of an umbrella or parasol, of the pad I, arranged within and attached to said runner by insertion in the slits h, substantially as and for the purpose set forth.

188,099.

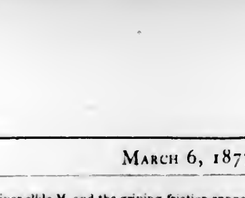


188,100. AWNINGS FOR BIRD-CAGES. Susannah P. Burton, San Francisco, Cal. [Filed Jan. 15, 1877.]



An awning for cages, consisting of the outer and inner rings A B, with their covering, said awning being provided with the standards C and supplemental ring D, for elevating it above the cage, and the elastic securing devices E, substantially as herein described.

188,101. SPRING-LINKS. W. W. Campbell, Frankfort, Ind. [Filed Dec. 9, 1876.]

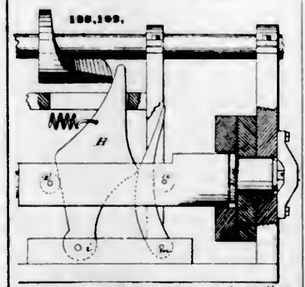


As an improved article of manufacture, the link A, having enlargement A^1, opening C, and flat spring B opening inward, fastened at one end of the link, and closing the said opening, its free end, when closed, resting in a recess, substantially as and for the purpose set forth.

188,102. HORSESHOE-MACHINES. John W. Chewning, Jr., Shadwell Depot, Va., assignor to himself, T. C. Forebee, Camden Court-House, N. C., and Julia M. Wallace, Deep Creek, Va. [Filed Dec. 26, 1876.]

Brief.—Improvement on machine described in Letters Patent No. 181,641. The projections of the swaging-die and ejector are together, and overlap while the blank is being bent, and the said die and ejector move in unison toward the die in which the bent blank is creased and finished. The toe of the projection on the ejector has a slight bevel, in virtue of which the metal of the shoe is caused to flow over and fill the shallow recess between the face of the swage and ejector (formed by the said bevel) when struck by the swaging-die. The ejector slides on a rod carried by the swaging-die, and remains in the finishing-die as the swage retreats, until caused to move forward (to discharge the shoe) by the impact of a cross-pin of the said rod against its rear face.

188,103.

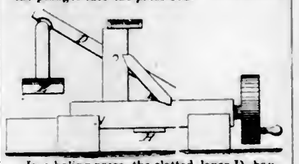


1. In a horseshoe-machine, a reciprocating swaging-die having a portion of its face plain or flat, and the remaining or heel portion raised, in combination with a sliding former and ejector having a corresponding face, and a female die surrounding the former and ejector, substantially as shown and described.

2. In a horseshoe-machine, the combination, with a reciprocating swaging-die having a slotted shank, of a cam-shaft, pivoted lever H, and a lever having an inclined or beveled side, substantially as shown and described.

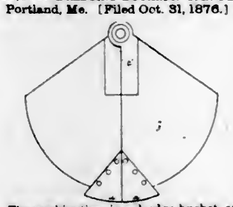
188,104. BALING-PRESSES. N. H. Collins, Rayville, La. [Filed Sept. 8, 1876.]

Brief.—The rear end of the forked lever rests on the follower, which works in and out by the horizontal screw, raising and forcing the plunger into the press-box.



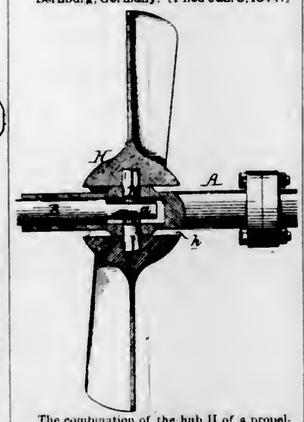
In a baling-press, the slotted lever D, having a pivoted plunger, E, in combination with the horizontal screw G, working in box A, and follower H, substantially as and for the purpose shown and specified.

188,105. DREDGING-BUCKETS. J. B. Curtis, Portland, Me. [Filed Oct. 31, 1876.]



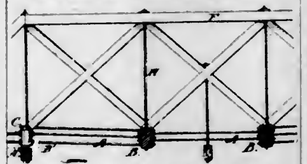
The combination, in a dredge-bucket, of the shell b and the triangular detachable cutting piece or lips, provided with ears k, constructed substantially as and for the purpose set forth.

188,106. SCREW-PROPELLERS. Alex. de Beaumont, Philadelphia, Pa., assignor of one-half his right to Wilhelm Rothe, Bernburg, Germany. [Filed Jan. 8, 1877.]



The combination of the hub H of a propeller, having two blades and a recess, k, with the tubular portion of the shaft A, the pivot-pin D, the rod B, adapted to the shaft A, and mechanism, substantially as described, whereby the movement of the rod is communicated to the propeller, as herein described.

188,107. TRUSS-BRIDGES. L. W. Densmore, St. Joseph, Mo. [Filed Sept. 16, 1874.]



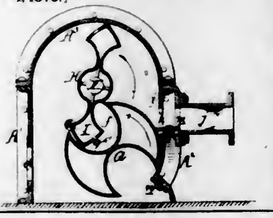
1. The truss-chord formed of metallic rods A, having their ends extended past each other, combined with, and fastened directly to, the girders or coupling-blocks by means of nuts upon the opposite side of the said couplings from the central parts of the rods, substantially as and for the purpose described.

2. The clusters of chord-rods A, having their ends extended past each other through the couplings, and fastened to their opposite sides, and arranged with increased number or weight of metal toward the center about a common axis of tension, substantially as and for the purpose described.

3. A bridge having one or more of the tension-rods I in each panel, whose brace or strut carries a cumulative horizontal thrust, combined and connected directly with and fastened to an independent or loose angle-block, C, carrying said strut, substantially as and for the purpose described.

4. The combination, with nuts h h', the coupling-block B', and girder A', of the suspension-rod H, extended through the said coupling-block and girder, and arranged to detachably secure said girders, substantially as and for the purpose described.

188,108. BLOWING-MACHINES. Thomas S. Dinston, Philadelphia, Pa. [Filed Sept. 4, 1876.]



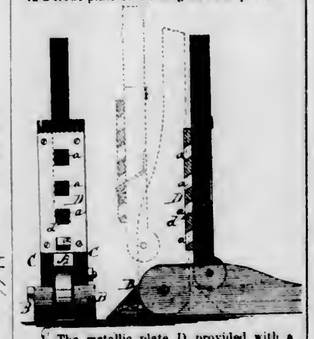
1. The chest, with its vaned cylinder H, arranged concentrically in respect to the arched top of said chest, in combination with the recessed cylinder G, turning in bearings nearer to the side A^2, containing the outlet, than to the inlet side A^1 of the chest, as and for the purposes herein set forth.

2. The combination of the chest and its two cylinders with the side A^2 of the chest, parallel with the shafts of the cylinders, and having an outlet, h, the upper edge of which is below a horizontal line, x, drawn through the center of the vane-cylinder, as and for the purpose set forth.

3. The combination of the recessed cylinder G and its two segments with the segmental portion of the side A^2 of the chest and its adjustable plates m and n, as described.

188,109. LIFTING-JACKS. Milton Durnell, King's Creek, Ohio. [Filed Jan. 24, 1877.]

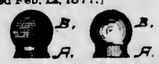
Brief.—A lever pivoted at bottom between two shoes has pivoted to each side, just above the shoes, ascending pieces, to receive between them a sliding rest-bar, the foot of which is passed into one of a series of holes in a front plate connecting the side pieces.



1. The metallic plate D, provided with a series of holes, a a, in combination with the pivoted uprights C C of a lifting-jack, for the purposes herein set forth.

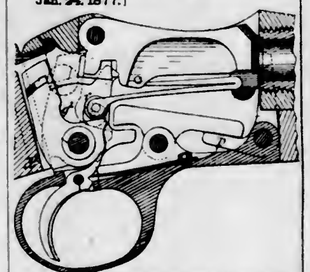
2. The combination of the lever A, foot-blocks B B, uprights C C, metal plate D, with holes a, and the sliding bar G, with metal tongue d, all substantially as and for the purposes herein set forth.

188,110. THIMBLES. W. Durand, Newark, assignor to Durand & Co., Newark, N. J. [Filed Feb. 12, 1877.]



The thimble having the ball-shaped top or end B, attached to the base A, substantially as and for the purpose specified.

188,111. BREECH-LOADING FIRE-ARMS. J. S. Edge, Jr., Yardley, England. [Filed Jan. 24, 1877.]



1. In falling-block breech-loading guns, the combination of a jointed stock and a breech-block operated by the movement of said stock, substantially as herein set forth.

2. In falling-block breech-loading guns, the combination, with the breech-block and hammer, of a jointed stock, by whose movement

the block is operated and the hammer is cocked, substantially as set forth.

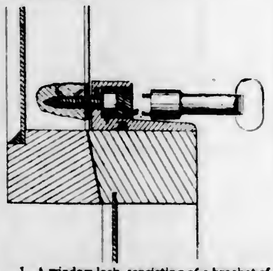
3. In falling-block breech-loading guns, the combination of a jointed stock with a breech-block, hammer, and extractor, which are operated by the movement of the jointed stock, substantially in the manner set forth.

4. The combination, substantially as set forth, of the jointed stock, the falling breech-block, the hammer, and the mainspring, by the action of which the hammer is cocked when the breech-block falls.

5. The combination, substantially as set forth, of the jointed stock, the extracting-lever, and the intermediate lever, through which the stock acts on the extracting-lever.

186,112. SASH-FASTENERS. A. Eberman, Brooklyn, N. Y. [Filed Feb. 12, 1877.]

Brief.—A right-angular bracket is provided with a flush-head screw-bolt, which, when in locked position, is received into a recess, and remains flush with the outer surface of the bracket, there being a detachable key, or other suitable device, for screwing and unscrewing the bolt. The bracket is secured to the upper surface of the lower sash, and a perforated plate attached to the inside face of the upper sash.



1. A window-lock, consisting of a bracket of rectangular shape, with a screw-hole through the same, and a counterbored seat for the head of the screw-bolt formed therein, in combination with a screw-bolt provided with a head that will lie flush within the seat formed in the bracket when in the closed position, substantially as and for the purpose described.

2. In a window-lock, a screw-bolt with a head lying flush within a seat formed in a bracket, and provided with devices for screwing and unscrewing the bolt formed in or on its head, substantially as described.

186,113. LINKS FOR DRIVE-CHAINS. William D. Ewart, Chicago, Ill., assignor to Ewart Manufacturing Company, same place. [Filed May 27, 1876.]



1. A link for drive-chains, having a divided or branching coupling-hook, C C', at one end, both branches projecting from the same central bar, and a suitable coupling-bar at the other end, substantially as described.

2. A single-bar link composed of the link-bar A, cross-head B, and branching hook C C', constructed and operating substantially as described.

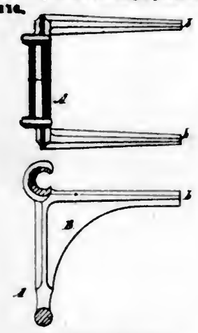
3. A compound link for drive-chains composed of two or more single-bar links, constructed with branching hooks, as described, and united together, substantially as set forth.

186,114. LINKS FOR CHAINS. W. D. Ewart, Chicago, Ill., assignor to Ewart Manufacturing Company, same place. [Filed Jan. 15, 1876.]

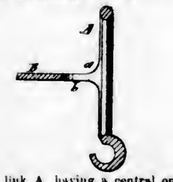
1. A detachable link for sprocket-chains having a central open space, in combination with an upright triangular flange or projection, B, applied to one or both of the side bars, and rigidly attached thereto, in the same vertical plane as said bars, substantially as and for the purpose set forth.

2. A link for use in a chain as a carrier, consisting of a link, A, with a central open space for sprockets, triangular flanges or projections B, attached to the side bars, and a vertical flange, C, located in front of the projections B, and connecting them together, substantially as and for the purposes set forth.

186,116.

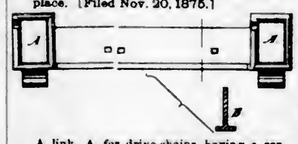


186,115. LINKS FOR DRIVE-CHAINS. William D. Ewart, Chicago, Ill., assignor to Ewart Manufacturing Company, same place. [Filed Jan. 15, 1876.]



The link A, having a central open space provided with a carrying flange, B, extending from one side bar to the other and cast in one piece therewith, substantially as and for the purposes set forth.

186,118. LINKS FOR DRIVE-CHAINS. William D. Ewart, Chicago, Ill., assignor to Ewart Manufacturing Company, same place. [Filed Nov. 20, 1876.]



A link, A, for drive-chains, having a central open space to receive sprockets, provided with a supplementary piece or pieces, B, cast in one piece with one or more of the link-bars, and adapted in form and construction to receive and hold the slats of a conveyer, which are to be fastened thereto, substantially as described.

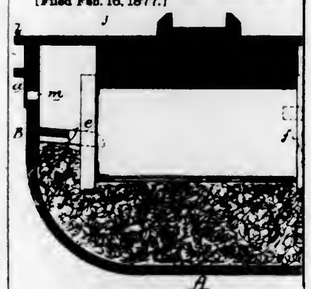
186,117.

186,117. LINKS FOR DRIVE-CHAINS. William D. Ewart, Chicago, Ill., assignor to Ewart Manufacturing Company, same place. [Filed Jan. 15, 1876.]

1. The link A, having a central open space, and constructed with side bars gradually increasing in size toward the hook end of the link, and with the end bar at that end enlarged and inclined backward, substantially as and for the purpose set forth.

2. The link A, having a central open space, and constructed with enlarged bars, as described, in combination with a rake-pin, E, cast in one piece therewith, substantially as and for the purpose set forth.

186,119. CAR-AXLE BOXES. H. C. Fegar, Pottstown, Pa., assignor of one-fourth his right to John H. Hobart, Jr., same place. [Filed Feb. 16, 1877.]



1. The combination of a car-axle with an axle-box having plates for preventing the axle from carrying the lubricating material into the upper portion of the box, as set forth.

2. The combination of the axle D, having a flange, *s*, and shoulder *f*, with plates *i i* and *j j*, as set forth.

3. The combination of the axle D with plates *i i* on the sides of the box and plates *j j* on the cover-plate B, as specified.

4. The combination of the axle-box A and its slotted projection *b*, the cover-plate B hung to the box, and having a slotted lug, *d*, and opening *m*, and the retaining key or plate *a*, as described.

186,119. COFFEE-ROASTERS. Geo. Fisher, Toledo, Ohio. [Filed Aug. 3, 1876.]

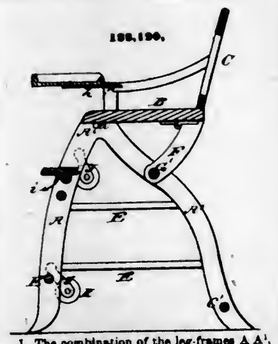


1. The coffee-roaster herein described, consisting of the flanged receiver A D, with fixed top and bottom, and inside wire bottom C, and in which the vertical crank-shaft of perforated wings B is arranged to pass through the fixed top and wire bottom, between which a heat and dust chamber is formed, as herein set forth.

2. The fixed top, provided with the covered opening, and the fixed bottom having the slide-cover, in combination with the inner wire bottom C, and the vertical winged shaft, all constructed for use, as set forth.

186,120. CONVERTIBLE CHAIRS. Brastus S. French and Leonard Hunting, Baldwinsville, assignors to W. P. Clark & Co., Winchendon, Mass. [Filed Feb. 24, 1877.]

186,120.



1. The combination of the leg-frames A A', the bluged braces F, and the chair-body, substantially as described, whereby the chair can be converted into a high chair or rocking-chair, as set forth.

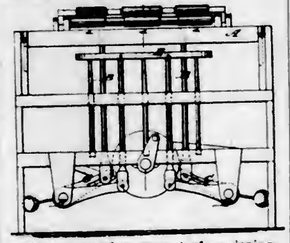
2. The combination of recessed seat B with legs A A', spring-bolt *b*', studs *a a*, hinged braces F F, back C, and bars C' G', substantially as and for the purpose set forth.

3. The combination of rockers A A with reversible foot-board I and studs *i i*, substantially as set forth.

4. The combination of rockers A A with studs *k*, rollers K, and arms or standards J, recessed at *j j*, substantially as and for the purpose set forth.

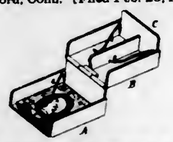
186,121. TRAVERSE-MOTIONS FOR GUIDE-WIRES OF SPINNING-MACHINES. J. Garrett, Chester, Pa. [Filed Jan. 26, 1877.]

Brief.—The guide-wire board has a vertical traverse independently of the ring-rail, being directly connected to the spider-shaft.



The wire-board traverse A of a spinning-machine, connected to the spider-shaft arms C, to traverse independently of the ring-rail, substantially as specified.

186,122. POSTAGE-STAMP HOLDERS. Jas. W. Gladding and Geo. W. Hauxhurst, Hartford, Conn. [Filed Feb. 20, 1877.]



A stamp-holding box composed of the two sections A and B, each for holding stamps, constructed as described, and hinged together and provided with the springs *c c*, substantially as and for the purpose specified.

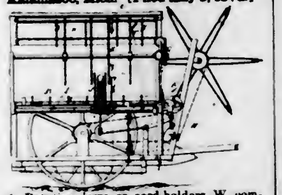
186,123. METHODS OF LAYING CONCRETE UNDER WATER. John C. Goodridge, Jr., New York, N. Y. [Filed Jan. 20, 1877.]

The method of laying concrete under water, as herein described, consisting in rendering the water strongly alkaline by air-slaked lime, and depositing into said water a mixture of sand and cement by means of an incline, substantially as and for the purpose set forth.

186,124. EXPLOSIVE COMPOUNDS. J. Goetz, San Francisco, Cal. [Filed Dec. 4, 1876.]

An explosive compound in which the dry gas-producing or explosive base is mixed with glucose, uncrystallizable sugar, or syrupy solution, for the purpose of preventing premature or accidental discharge thereof.

186,125. GRAIN-BINDERS. Geo. F. Green, Kalamazoo, Mich. [Filed May 5, 1876.]



1. Rotating jaws or cord-holders W, combined with a stationary transversely-slotted tube, X, and the rectilinear reciprocating gripers Y, substantially as described.

2. Rotating jaws or cord-holders W, combined with a slotted tube, X, rectilinear reciprocating gripers Y, and horn *s*, substantially as described.

3. A knife, Y', combined with rotating jaws W and cord-holding gripers Y.

4. The spurred wheel *a'*, combined with the cord-holding jaws V, and so constructed that it will assist in holding the cord without cutting the same, and at the same time clearing the jaws, substantially as described.

5. A shield, Y', of tubular form, rigidly secured to one of the jaws of the gripers Y, substantially as described.

6. Gripers Y, a tubular shield, Y', on one of the jaws on said gripers, a horn, *s*, and rotating gripers W combined, whereby the knot is tightened, substantially as described.

7. A curved vibrating, compressing, and cord-carrying arm, *i*, of curved form, recessed at *x x'*, and combined with cord-griping jaws W and gripers Y, substantially as described.

8. A vibrating divider, K, in combination with a vibrating cord-carrying arm, *i*, for the purpose described.

9. In combination with a vibrating divider, K, a hood, K', arranged over it, for the purpose set forth.

10. In combination with one or more rigid compressing-arms J and flexible supporting-fingers 8 on shaft U, the cord-carrying arm *i*, substantially as described.

11. A spring-lever, J', combined with the compressing-arms J, for the purpose set forth.

12. In combination with the compressing-arms J and a lever, J', an endwise adjustable connecting-rod, J', for the purpose described.

13. Latch 3, starting-bar A, catch 4, tube *c*, bar *m*, in combination with a clutching device on the shaft G, for the purpose described.

14. The rigid compressing-arms J and shaft U, in combination with the light flexible fingers 8 and spring B, substantially as described, and for the purpose set forth.

15. In combination with a lifting device for measuring the grain, a tripping-arm, O, and intermittently-rotating fingers P, substantially as described.

16. Intermittently-rotating dividing-arms P, in combination with a divider, K, and a cord-carrying arm, *i*, substantially as described.

17. Intermittently-rotating dividing-arms P, in combination with a hood, K', and a vibrating divider, K, substantially as described.

18. The combination, with the toggle-levers H and L and link *f*, of the compressing and cord-carrying arm *i*, substantially in the manner and for the purpose described.

19. An adjustable grain-guide, T, combined with a grain-elevator in a harvester, substantially as described.

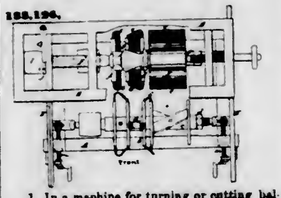
20. In combination with a catch, *q*, the rotating jaw W, for the purpose described.

21. In combination with the switch *v*', the gripers Y, provided with the anti-friction rollers *w*', for operating the jaws of the gripers, substantially as described.

186,126. MACHINES FOR MAKING BALUSTERS. P. M. Haas, Youngstown, Ohio, assignor of one-fourth his right to L. Nold, same place. [Filed Sept. 21, 1876.]

Brief.—The baluster-blanks to be cut or turned and polished are secured in a carriage, and moved over revolving cutters and polishers of suitable form, which are arranged in the same plane for successive action upon the articles.

186,126.



1. In a machine for turning or cutting balusters, the over-traversing frame B, carrying the piece to be formed, in combination with under-revolving cutters and polishers, constructed and operating substantially as herein set forth.

2. The combination, with the over-traversing frame B, carrying the piece to be formed, arranged and operating as described, of the cutters and polishers, adjustably arranged at opposite sides of the frame A, for operation as herein set forth.

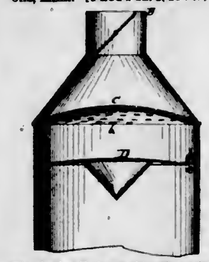
3. The over-traversing frame B, provided with the screw and mandrel centers F F', the notched collar *j*, spring-dog G, and pulley I, in combination with the revolving cutters and polishers, whereby the blank may be either cut into polygonal or round form, as herein set forth.

4. The polishing-surfaces *e* and their mandrel, in combination with the horizontal adjustable bearing-boxes *g*, the vertical adjusting screws *h*, and the yoke D, whereby said yoke and polishers are adjusted, in relation to the cutters and the over-traversing frame, as and for the purpose herein set forth.

5. The combination, with the over-traversing frame B, carrying the piece to be formed, and the under-revolving cutters and polishers, arranged to operate as described, of the adjustable ways E, provided with inclines *k k*, the slide-bars J J, having coincident inclines *l l*, and the adjusting-screws *m m*, as herein set forth.

6. The combination, with the over-traversing frame B, carrying the article to be turned, the mandrel-driving belt H, and the under-revolving cutters and polishers, of the automatic take-up carried by said over-traversing frame, all constructed and operated as and for the purpose herein set forth.

186,127. CAR-STOVES. R. Hale, Minneapolis, Minn. [Filed Feb. 1, 1877.]



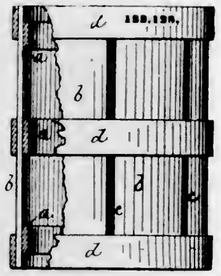
The fender D, in combination with the perforated diaphragm C, for protecting the stove-pipe opening, substantially as set forth.

186,128. BARRELS. T. Harvey, Rochester, N. Y., assignor to the Harvey Barrel Manufacturing Company, same place. [Filed Jan. 24, 1876.]

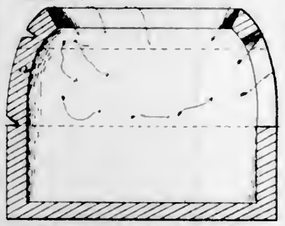
Brief.—The staves are placed so as to leave a space between them, and they are secured by two sets of hoops—one inside, the other outside, placed opposite to each other, and secured together by nails.

1. A ventilated barrel, composed of thin strips or veneers of wood, nailed to hoops or bands holding the same, with heads made of similar strips, crossing each other at right angles, the whole surface of the barrel having open joints between the strips, to allow free passage of air, as herein shown and described, and for the purpose specified.

2. A barrel constructed of a single body, *b*, with interior and exterior hoops *a a a* and *d d d*, placed in coincidences, the whole secured by nailing through the three thicknesses, as here in shown and described, and for the purpose specified.



188,129. GLASS-MELTING POTS. A. Harcum, Pittsburg, Pa., assignor to himself and P. Kunzler, same place. [Filed Feb. 12, 1877.]



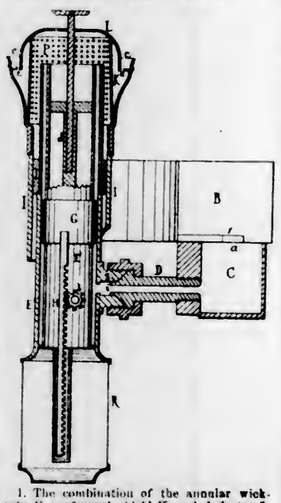
1. The open-top glass-melting pot, having the extended walls and the notch or ring-hole, substantially as and for the purpose specified.

2. A glass-melting pot having a ring-hole and open top curved at the mouth, substantially as and for the purpose specified.

3. The glass-melting pot having grooved walls for forming extra notches or ring-holes, substantially as specified.

188,130. LOCOMOTIVE HEAD-LIGHTS. C. T. Ham, Rochester, N. Y., assignor to Buffalo Steam Gauge and Lantern Company, same place. [Filed Dec. 6, 1876.]

Brief.—The perforated cone or cylinder extends above the wick-tube to the conical deflector. The conical joint and extension are adapted to secure a close and firm fit.



1. The combination of the annular wick-tube E, perforated shield K, and deflector L with the inner perforated cone P, extending above and surrounding the upper end of the wick-tube, substantially as described.

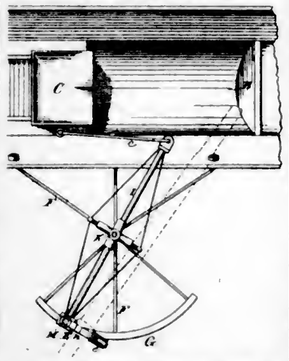
2. The combination of the annular wick-tube E, jacket I, perforated shield K and deflector L, and the inner perforated cone P, substantially as set forth.

3. The combination, in a locomotive head-light, of the upper and lower reservoirs B and C, opening *a*, supply-tube D, annular wick-tube E, perforated shield and deflector K and L, and the inner perforated cone P, substantially as and for the purposes set forth.

4. The combination, in a head-light, of a burner and oil-reservoir, connected by the supply-tube D, fitted to the boss *g*, with a conical joint and extension, *i*, and nut S, substantially as set forth.

5. In combination with the pinion *b*, the rod *m*, provided with the cone *l*, spring *r*, boss *t*, and nut U, constructed and operating substantially as and for the purposes set forth.

188,131. SLIDING OUTRIGGERS FOR BOATS. D. Harrington, Worcester, Mass. [Filed Apr. 3, 1876.]



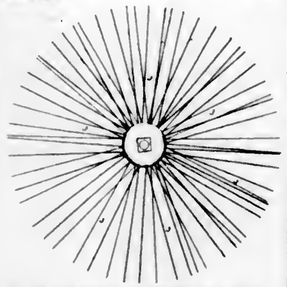
1. In combination, substantially as described, the outrigger F, traverse-way G, swinging lever I, rowlock E, sliding seat C, and connection-rod *e*, for the purposes set forth.

2. The combination, in a rowlock or outrigger, of a straight thole or fulcrum-bearing and a yielding clamping device, arranged for holding an irregular-shaped oar without backlash, and for indicating the proper position of the oar-blade for rowing, substantially in the manner set forth.

3. In combination, substantially as described, the pivot-stud M, oscillating socketed frame E' E², and yielding presser-piece I, for the purposes set forth.

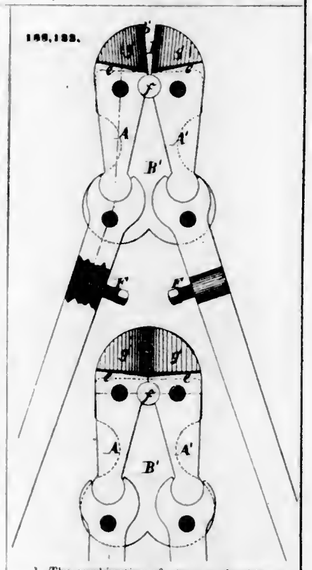
188,132. WIRE BRUSHES. Jno. F. Haskins, Philadelphia, Pa. [Filed Jan. 31, 1877.]

Brief.—The wires or flat strips of metal which form the brushing material are held in place by a short circular bend fitting a slot in the head.



In a wire brush, the combination of a body having a number of recesses or holes, 1, grooves 2, and spines 3, having enlarged heads, with a suitable handle, substantially as shown.

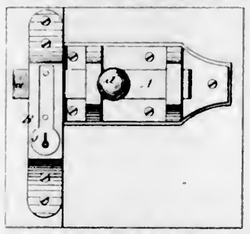
188,133. BOLT AND RIVET CUTTERS. John Hellwig, McGregor, Iowa. [Filed Oct. 11, 1876.]



1. The combination of stops or shoulders *c* with the cutting-jaws A A' and the supporting-plates B B', substantially as and for the purpose described.

2. The combination, with the cutting-jaws A A', of a washer, *f*, arranged between the said jaws, substantially as described, and for the purpose specified.

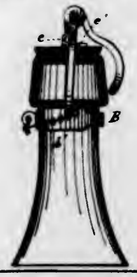
188,134. LOCKS FOR CAR-DOORS, &c. Jos. Hill, Wabash, Ind. [Filed Sept. 18, 1876.]



The box B, having transverse opening *c*, pivoted latch C, perforated at *i*, coiled spring F, and tumbler or slide G, in combination with the bolt A herein described, substantially as and for the purpose herein shown and specified.

188,135. BOTTLE-STOPPERS. Thos. Hipwell, Bridgeton, N. J., assignor to Cohansey Glass Manufacturing Company, same place. [Filed Feb. 13, 1877.]

Brief.—The stopper-plate has lugs to limit the backward movement of the ball.



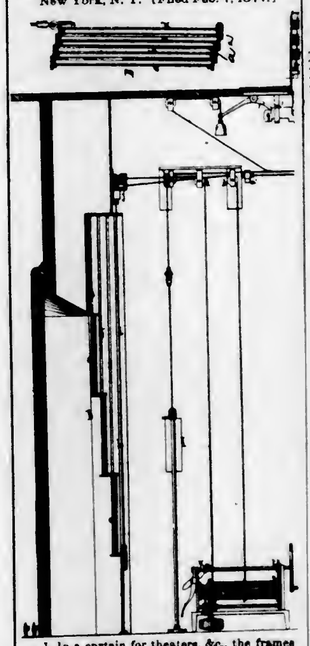
1. The combination, in a bottle-stopper, of the following elements, namely: a swinging ball pivoted to a neck-band, a stopper pivoted to and vibrating upon the swinging ball, and a stop projecting from the stopper-plate to limit the throw of the swinging ball, substantially as set forth.

2. The plate E, provided with the stops *a' a'*, substantially as set forth.

3. In a bottle-stopper, a swinging ball, which is adjustably attached to the neck-band by means of pivots which engage alternately with different holes formed in or connected with the neck-band, substantially as set forth.

4. The neck-band B B', provided with holes *b b'* for the reception of the legs of the ball, substantially as set forth.

188,136. THEATER-CURTAINS. C. Hoffmann, New York, N. Y. [Filed Feb. 7, 1877.]



1. In a curtain for theaters, &c., the frames B, filled with fire-proof material, and each frame constructed with vertical rods *a'*, upon which the adjoining frames move and are guided, and each frame being arranged at its side edges in guide-grooves, in combination with one or more hoisting-ropes, extending from a windlass to the bottom frame of the curtain, substantially as described.

2. The combination, with a curtain and the windlass of a safety-rope, of a weight and a mechanism for freeing the hoisting-drum of the windlass, all constructed and operating substantially as and for the purpose set forth.

3. The combination, with a curtain and with the windlass used for raising and lowering the same, of a self-regulating brake, constructed and operating substantially as and for the purpose shown and described.

4. The combination, with a curtain, the hoisting-gear, and the safety-rope, of a ventilator, which is automatically thrown open whenever the safety-rope is parted, substantially as and for the purpose set forth.

188,137. PNEUMATIC PUMPS FOR RESPIRATING APPARATUS, &c. D. L. Holden, Covington, Ky. [Filed Jan. 31, 1877.]

The combination, with the cylinder B, having an inlet check-valve, G, and an escapement below the piston, of the movable valve F, made of greater diameter than the bore of the cylinder, and the imperforate piston C, arranged to pass the inlet-orifice in forcing out the contents of the cylinder, substantially as and for the purpose set forth.

188,138. CRANKS AND CRANK-SHAFTS. R. P. Houston, Liverpool, England. [Filed Feb. 16, 1877.]



1. The crank shaft consisting of the shafts D, webs B, and pin A, made in separate pieces, and united substantially as shown and described.

2. In a crank-shaft, the combination of a shaft, D, having a flanged or enlarged end, and a web, B, bolted thereto, as shown.

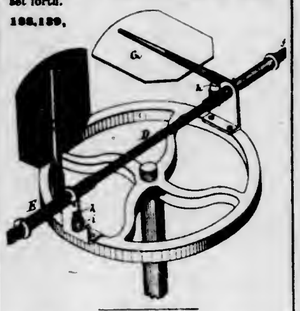
188,139. WIND-WHEELS. E. Howard and J. B. Sweetland, Pontiac, Mich. [Filed Dec. 14, 1876.]

Brief.—Spring-cushions are arranged to let the sail ease down. There is also a self-adjusting joint, the object of which is, that in heavy winds the spring will give enough to allow the sails to tip over and blow out straight, and when the wind slacks the sail will straighten up. The springs are intended to be stiff enough to hold the sails up straight in any ordinary wind.

1. The spring-cushions A A, arranged in combination with the shaft D and its sails, for the purposes herein set forth.

2. The combination of the shaft D, loose sleeve E, carrying the sail G and having notch *d'*, the pin *e*, and the spring *f*, all constructed substantially as and for the purposes herein set forth.

188,139.

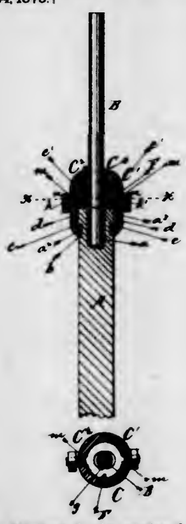


188,140. SPRING-SEATS. F. M. Hubbard, Nora Springs, Iowa. [Filed Nov. 4, 1876.]



The wagon-seat A, provided on its under side with the staples B B, and stirrup-fulcra G G, having plates *g g* and rods *g'*, in combination with the springs C, hooked at their ends, and provided with staples D D, and the supporting-bars F, provided at their upper ends with hooks E, substantially as described, and for the purpose set forth.

188,141. CHUCKS FOR ROCK-DRILLS. S. Ingersoll, Stamford, Conn. [Filed Aug. 24, 1876.]

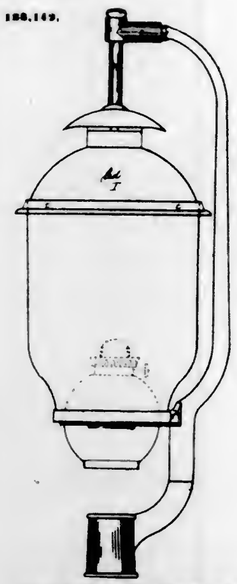


1. The chuck C, with mortises *d*, shoulders *s* and *s'*, holes *m*, and grooves *c*, in combination with the drill B, piston A, and sleeve F, substantially as described.

2. The sleeve F, with the oval opening *g*, lugs *h* and *h'*, in combination with the chuck C, substantially as and for the purpose set forth.

188,142. STREET-LAMPS. J. Irwin, Allegheny, Pa. [Filed Jan. 9, 1877.]

188,142.



1. In a lamp of the class specified, the combination, with the globe-lid, of the sliding rod and swivel-connection, substantially as and for the purpose specified.

2. In a lamp of the class specified, the combination of the spring locking devices with the lid and its swiveling connections, substantially as and for the purpose specified.

3. In combination with the main globe, the globe ring or support provided with a supplemental flange adapted to sustain a flame-globe or oil-reservoir, substantially as specified.

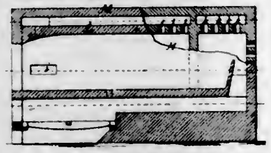
4. In a lamp of the class specified, the combination of the main globe, the globe ring or support, and the flame-globe, substantially as and for the purpose specified.

5. The combination of the standard provided with the T-shaped lug I and rest i, with the globe-holder having the T-slot formed by arms p p, substantially as and for the purpose specified.

6. In a lamp of the class specified, the jointed standard provided with the locking-socket, substantially as and for the purpose specified.

7. In a lamp of the class specified, which has a main globe and globe-ring or support, catches secured to the globe-ring, substantially as and for the purpose specified.

188,143. ANNEALING-FURNACES FOR METALS. James Ives, Mount Carmel, Conn. [Filed Nov. 22, 1876.]



1. An annealing-furnace, consisting, essentially, of a lower fire-grate with longitudinal conveying-flues and an upper hearth or sole on which the annealing-pots are deposited, said hearth having at its rear end a transverse opening and a vertical shield or guard arranged at the edge of said opening, and which is of less length than the width of the bottom of the oven, the several parts being relatively located, as described, whereby the products of combustion from the fire are compelled to traverse the longitudinal flue in direct contact with the hearth-bottom, and thence through its transverse opening into the body of the oven, the vertical guard serving, with the outlet-draft flues, to deflect the course of the gases, and to distribute them over and among the annealing-pots, substantially as and for the purpose herein set forth.

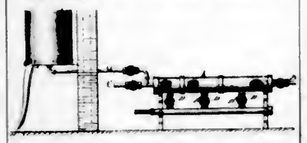
2. In an annealing-furnace, the oven F, having a rear opening, G, and openings i near its front, in combination with side flues I, substantially as set forth.

3. The combination of the fire-chamber C, oven F, side flue I, partition J, passages l, flue above the top L of the oven, and passages k, substantially as set forth.

4. In an annealing-furnace, the oven F, having openings e, in combination with the fire-place C, substantially as set forth.

5. An annealing-oven, the hearth of which is provided with a transverse guard, g, and opening G, said guard being about the height of the annealing-pots, and of less width than the oven-hearth, substantially as and for the purpose described.

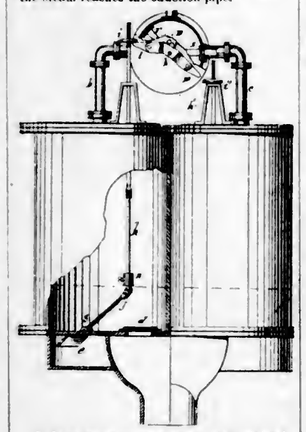
188,144. FILTERS. R. S. Jennings, New York, N. Y., assignor of one-half his right to N. G. Kellogg, same place. [Filed Nov. 3, 1876.]



The combination of cylinder A with inlet-pipe B, outlet-pipe C, waste-water pipes D, boiler F, and hot-water pipe G, each one of said pipes being provided with a suitable cock, substantially as set forth.

188,145. STEAM VACUUM-PUMPS. H. B. Johnson, Beloit, Wis., assignor of two-thirds of his right to J. R. McPherson and F. N. Davis, same place. [Filed May 16, 1876.]

Brief.—A plate is placed between the eduction and induction valves, and operated in one direction by the flow of the water, and in the other by the weight of the valve-stem, so that the water has all passed the plate, and allowed it to ascend and shut off steam before the steam reaches the eduction pipe.



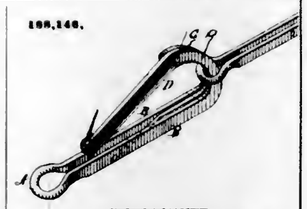
1. In a steam vacuum-pump, the weighted plate or wing e, located in the eduction pipe or passage, in combination with a suitable eduction-valve and cylinder, substantially as and for the purpose set forth.

2. The plate or wing e, in combination with the rod h, tappet i, arm or lever k, pawl l, and valve D, all constructed and operating substantially as and for the purposes specified.

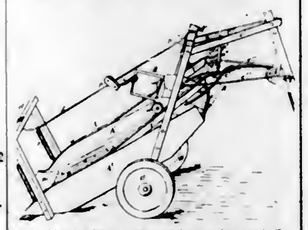
188,146. TRACE-FASTENINGS. B. F. Jones, Beauregard, Miss. [Filed Jan. 20, 1877.]

The within-described safety-tug, consisting of a metal bar bent to form the eye A, parallel bars B B, and hooks C C, and the U-shaped hook D, pivoted between the ends of said hooks, substantially as and for the purposes herein set forth.

188,146.



188,147. EXCAVATING AND LOADING MACHINES. Bolivar Judy, Plattsburg, Ohio. [Filed Dec. 11, 1876.]



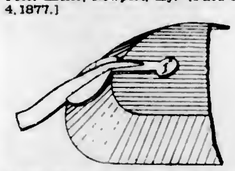
1. The incline A, mounted upon its truck C, in combination with the derrick D, with its braces c' and rods c'', for the purpose of supporting the hoisting device, for operating the scraper B or drag B', the whole arranged substantially as shown and described, for the purpose set forth.

2. In combination with an incline for excavating and loading dirt, gravel, manure, or other material, the elevated ways A', substantially as A'', track-irons a, with their top curves a' and cross-bar a'', the gallows-frames d d', rod f, pulley p, with its hook h, scraper B, and derrick D, with its hoisting device, substantially as described and set forth.

3. Vertical rollers r r, as attached to the gallows-frame d of the incline A, for the purpose described and set forth.

4. The combination of the pole e, pivoted braces e', hooks e'', and the gallows-frame d' of the incline A, for the purpose of allowing the folding of the derrick under the incline, substantially as described.

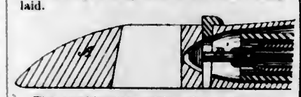
188,148. MANUFACTURE OF FIRE-SHOVELS. Peter Kiefer, Newport, Ky. [Filed Jan. 4, 1877.]



As an improvement in the art of making fire-shovels, the construction of the lap and rivets integrally with the handle, from a blank of wrought-iron of the form represented, by means of dies, in the manner described.

188,149. LAYING DRAIN-TILES. C. B. Kline, Dodgeville, Iowa. [Filed Aug. 31, 1876.]

Brief.—A rubber or flexible tube placed upon the cable, filling the inside of the tile, and serving to keep them in line while being laid.

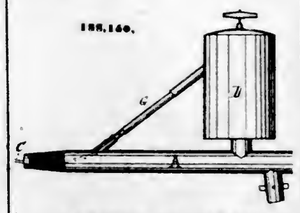


The combination, with a drain-plow, of a rope or cable and rubber tubing for laying tiles, substantially as described.

188,150. APPARATUS FOR TREATING BEER ON DRAFT. Jacob Klein, Baltimore, Md. [Filed Feb. 16, 1877.]

Brief.—The compressed air passes from the pump through the liquid in the purifier, and through the spigot into the cask.

188,140.



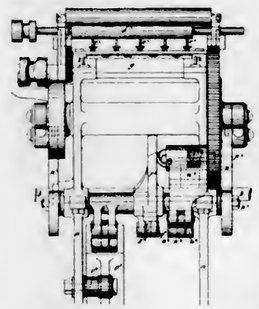
1. In combination with a beer-spigot, an air-pump and a purifier or washer for eliminating impurities from the air supplied to the cask, substantially as described.

2. The combination, with the pump D', of the purifier D, having the bent tube b and rose c, substantially as described.

3. In combination with the purifier D, the pipe F and sleeve G, substantially as described.

4. In combination with the spigot A, having pipe C, the pump D' and purifier D, substantially as described.

188,151. PRINTING-PRESSES. W. C. Kritch and Arthur Greenwood, Leeds, England. [Filed Dec. 30, 1875.]



1. The combination, with the principal inking-cylinder e', of a constantly-rotating ink-supply roller, s', mounted in a fountain, y, which latter is capable of being slid back on, or entirely removed from, its seat, on which it may be secured in any position by means of clamping-screws z, such adjustable fountain y and constantly-rotating ink-supply roller being provided with an adjustable scraper, b', and regulating-screw c', so that by such scraper bearing either heavily or lightly on the ink-supply roller, the supply of ink to the distributing and inking rollers may be regulated as may be desired, as herein set forth.

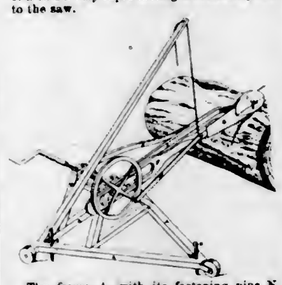
2. The combination of the curved levers n', mounted on the rock-shaft n°, with the bell-crank lever n', linked to an arm, n², on the rock-shaft n°, and provided with a spring-pin, p', the end of which works in the cam-groove f° of the large driving-wheel f, for the purpose of moving the inking-rollers k' at the required intervals across the face of the type, substantially in the manner herein set forth.

3. The combination, with the spring-pin p', (which is capable of lateral motion,) of the lever r', link s', and hand-lever q', whereby the lever r' may be withdrawn (when desired) from the end of the spring p', which will then be forced back out of the groove f° by its spring, and the above parts being combined with the mechanism for moving the inking-roller k' across the face of the type, and which inking mechanism will then be thrown out of action when required, substantially as and for the purpose herein set forth.

4. The platen-bridge mounted upon a shaft journaled eccentrically in blocks which move upon horizontal guides, said shaft being provided with a lever projecting through an aperture in the platen-bridge, and provided with a clamping device for adjusting and holding the platen in the desired position, in combination with the feet v and brackets s and w, constructed and arranged substantially as described, whereby the platen is thrown back to receive the paper as it recedes from the type, and is presented squarely to the face of the type as it approaches the same, as set forth.

188,152. SAWING-MACHINES. F. W. Krogh, Tulare, Cal. [Filed Dec. 2, 1876.]

Brief.—The frame can always be supported solidly at any point upon uneven ground, the motion of the saw steadied, and by the action of a cam a very rapid cutting movement given to the saw.



The frame A, with its fastening-pins N, mounted upon three wheels, having the saw G so mounted as to be operated at right angles with the line of travel by means of the pitman F, crank wheel and connecting-rod, and guide I, connected with the shaft C by means of the arms J, all constructed to operate substantially as described.

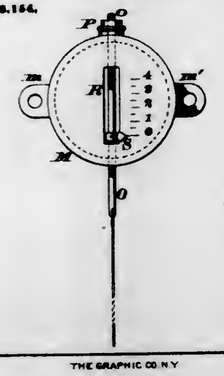
188,153. FRUIT-BAGS. A. Larkin, Almond, N. Y., assignor of one-half his right to H. S. Hall, same place. [Filed Sept. 9, 1876.]

Brief.—A bottomless bag, provided with rings and cord for drawing it together, is secured to a circular frame having a stationary bail and double rotating hook.



The combination of the frame B, with stationary bail C, double rotating hook D D', bottomless bag A, with rings c, cord b, with ring d, and cord h, all substantially as and for the purposes herein set forth.

188,154.



188,154. GAS AND WATER REGULATORS. W. D. Leavitt and B. J. Thurston, Cincinnati, Ohio, assignors of one-third their right to J. W. Hadlock, same place. [Filed Jan. 19, 1877.]

Brief.—The tension-spring is held between the nut and stationary guide.

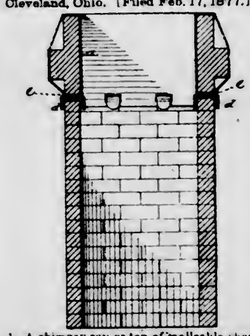
1. The combination, in the shell of a gas or water regulator, of tension-spring H, located below valve E and surrounding the valve-stem F f, said spring being confined between stationary guide I and nut G, which latter is capable of adjustment upon threaded portion f of valve-stem F, when cap C e is disengaged from the lower end a of shell A, substantially as herein described, and for the purpose set forth.

2. The combination of slotted plate M B, guides N, adjustable shaft O e P, pointer S, and graduated scale T, said pointer being attached to the adjustable shaft in the manner herein described, and for the purpose set forth.

188,155. SHEET METAL. Charles D. Leet and Henry A. Chapin, Springfield, Mass. [Filed Feb. 9, 1877.]

As a new article of manufacture, a sheet metal made from pieces of copper and brass permanently united together in ingots, bars, or thick sheets, and rolled to any desired thickness, substantially as and for the purpose set forth.

188,156. CHIMNEY-TOPS. Geo. Lemmle, Cleveland, Ohio. [Filed Feb. 17, 1877.]



1. A chimney cap or top of malleable sheet-metal sections, matched and joined at their edges at the angles of the chimney, and formed over the flue sides, and over and below the chimney-bands, and having their ends tied through the wall below said bands, substantially as herein set forth.

2. In a chimney cap or top formed of separate sheet sections, corresponding to the sides and angles of the chimney, the slots s in the end edges of said sections, in combination with through tie-plates d, bent and locked at their ends, for the purpose set forth.

188,157. CARRIAGE-BUTTONS. A. I. Lenhart, New Brunswick, N. J., assignor of one-half his right to Wm. H. Rust, same place. [Filed Jan. 17, 1877.]



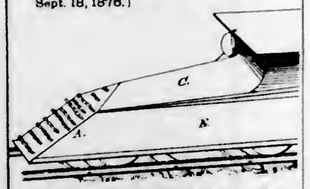
1. The notched link C e, of round wire or metal, operating as a sliding button or fastening, substantially as set forth.

2. The link C, in combination with the rubber cushion or spring E.

3. The combination of the link C, of round wire or metal, the cushion or spring E, and an eye, staple, or cross-piece to lock the link by the action of the spring, as explained.

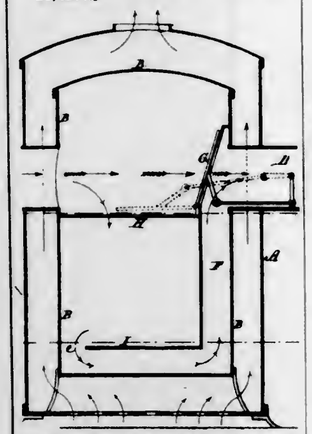
4. The excavated cushion shown and described.

186,158. SNOW-PLOWS. James D. Mann, Bathurst, New Brunswick, Canada. [Filed Sept. 18, 1876.]



The improved snow-plow herein described, consisting of the flat and inclined share A, having cutters *a*, parallel sides E E, mold-board C, and side flanges or clearers D D and D' D', the whole constructed and combined substantially as and for the purpose herein-before set forth.

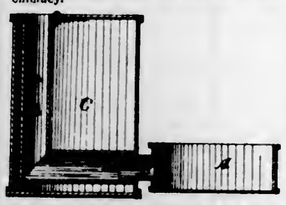
186,159. AIR-HEATING ATTACHMENTS. D. McAllister, Walton, N. Y. [Filed Feb. 20, 1877.]



The improved air-heating attachment for furnaces, consisting of the inner drum or cylinder B, having closed ends, and provided with the diaphragms H and I, cut away to form the respective crescent-shaped openings *d d* and *e*, the vertical pipe F, the regulator G, and the outer drum or cylinder A, open at each end, and the circular flanges C D of the furnace and exit-flues, all combined as shown and described.

186,160. STOVE ATTACHMENTS FOR UTILIZING HEAT. Hugh McConnell, Cleveland, Ohio. [Filed June 19, 1876.]

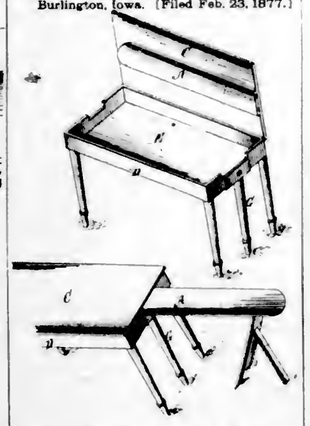
Brief.—A ring made to fit the pot-hole of a stove, and connected with a flue which passes through a cooking-vessel, thus utilizing the heat that would otherwise pass out of the chimney.



1. The combination of the ring, cylinder, or body A, and a reservoir or other heating-chamber of a stove, the same being relatively independent and detachable, substantially as and for the purpose described.

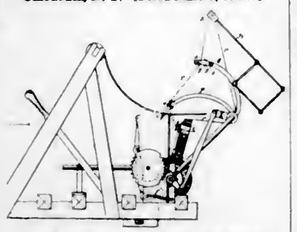
2. The combination, with the ring A, provided with vent or flue B, of the independent water-reservoir C', substantially as and for the purpose described.

186,161. IRONING-TABLES. R. S. McEntire, Burlington, Iowa. [Filed Feb. 23, 1877.]



The combination of the table D, having a closet, E, and folding top C, with the folding skirt-board A attached to the top, and the sliding support G H, as and for the purpose set forth.

186,162. GRAIN-BINDERS. D. McPherson, Caledonia, N. Y. [Filed June 5, 1876.]



1. The eccentric U and crank T, in combination with the shaft G and twister-post S, substantially as and for the purposes specified.

2. The shaft R, collar X, cam *a*, and lever *b*, in combination with the sliding bar *c* and movable jaw *d*, frame Z'', and spring *i*, substantially as and for the purpose set forth.

3. The combination of the shaft R, collar X, cams *f i*, levers *g* and *j*, with the bars *h* and *k*, for holding and locking the strap *r*, substantially as specified.

4. The endless strap *r*, in combination with the support Q, needle-arm P, and two alternately holding and releasing bars located at or near the twister for compressing gavels and releasing bundles, substantially as specified.

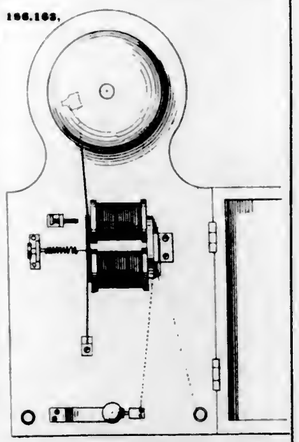
5. The roller *s* of the support Q, plates *g' g''*, spring *g'''*, and set-screw *t*, in combination with the endless belt *r*, for adjusting the tension, substantially as set forth.

6. The endless strap *r*, in combination with the support Q and roller *s*, needle-bar P, and roller *u*, rod or bar *j'*, roller *k'*, and spring *l'*, and holding devices *h* and *k i*, substantially as described.

7. The lever or pivoted bar *c'*, in combination with the wheel V and pin *e'*, for forcing the needle-arm up to or against the twister, substantially as specified.

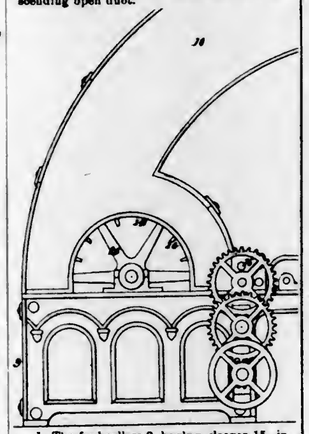
8. The tilting bar C', having a pin, *a'*, in combination with the sliding bar D', provided with a slot, *b'*, and lever E', substantially as described.

186,163.



186,164. COTTON CLEANING AND STRAIGHTENING MACHINES. J. R. Miles and H. F. Robinson, Memphis, Tenn., assignors to C. C. Selden, same place. [Filed Sept. 8, 1876.]

Brief.—The feed-rollers have sleeves at their ends; their journals turn in flanged boxes between pillows and blocks; a spring permits their rise and fall; the teeth on their periphery are arranged diagonally; the large cylinder has interior vanes and peripheral air-passages; a flue leads to a perforated cylinder and pressure-roller, where there is a descending open duct.



1. The feed-rollers 2, having sleeves 15, in combination with the toothed drum 3, as and for the purpose set forth.

2. The journal-bearing 16, consisting of pillow-blocks 17 and flanged boxes 18 19, in combination with the rollers 2 and cylinder 3, as and for the purpose set forth.

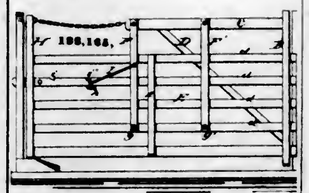
3. The central screw-bolt 21, rubber spring 22, and nut 23, in combination with the journal-bearing 16 and rollers 2, as and for the purpose set forth.

4. The combination, with the cylinder 3, of the lags or cards 4, provided with teeth arranged diagonally in opposite direction on alternate lags, as and for the purpose set forth.

5. The combination of a picking-cylinder, having vanes and peripheral air-passages, an air and fiber connecting flue, a perforated cylinder, and pressure-roller, arranged at the end of said flue, and a duct open at its lower end leading from said cylinder.

186,165. AUTOMATIC GATES. Myton Miles, Thomas, Mich. [Filed Oct. 23, 1876.]

186,166.

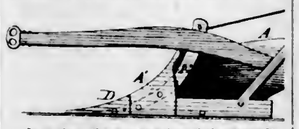


1. The combination of the swinging frame B C D, hinged at *a a*, sliding frame E, and swinging arms F F', substantially as and for the purpose herein shown and described.

2. The combination of the swinging arm F, latch I, having bail or catch *h*, and rail *d*, having notches *i i'*, substantially as and for the purpose herein shown and described.

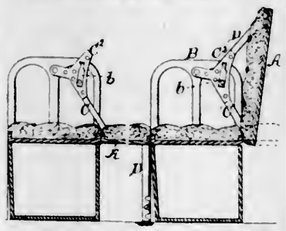
186,166. PLOWS. P. G. Miller, Sycamore, Ill. [Filed Aug. 16, 1876.]

Brief.—Both share and mold board have a vertical section, which form part of the land-side, and admit of securing them without a bolt-head or hole upon their wearing-surfaces.



In a plow, the combination of the share D, having the rear projecting lip *i*, and the mold-board A, having recess *g* and vertical land-side portion A', with the triangular standard and plate E, constructed as described, whereby the share and mold-board are secured from the inside without a bolt-hole upon their wearing-surfaces, substantially as and for the purpose shown and specified.

186,167. CAR-SEATS. James L. Mitchell, Pueblo, Colo. [Filed Jan. 16, 1877.]



1. The detachable and reversible braces D, in combination with the chair-back A and the reversing-arms C, whereby the detachable braces serve as leg-supports for the outer edge of the seat-back, when turned down to form the lower couch.

2. The combination, with the detachable and reversible braces D of the angular socketed extensions C^2 *d*, of the reversing braces C and the spring-catches *b*, as and for the purpose herein set forth.

3. The angular socketed extensions C^2 of the reversing braces C, provided with interior lugs or pins *e e*, in combination with the interlocking-notches *f f* of the detachable braces, and the spring-catches *b*, as and for the purpose herein set forth.

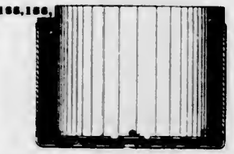
4. The combination, with the braces C D, of the seat-back plates E and their bearing-sleeves *a*, for said braces, as and for the purpose herein set forth.

5. The combination, with the detachable and reversible braces D and the seat-backs, of the floor-socketed plates F, as and for the purpose herein set forth.

186,168. PAPER BOXES. Frank S. Moore, Brooklyn, N. Y. [Filed Feb. 26, 1877.]

In a paper box, the tongues *a a* formed on the box-body, or on the bottom, or on both, and bent to form alternate interior and exterior stays for securing the bottom of the box, as herein set forth.

186,169.



186,169. TOBACCO-PRESSES. Bong Moon, San Francisco, Cal. [Filed Jan. 15, 1877.]

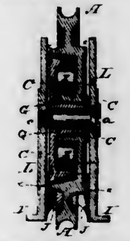
Brief.—The plug is pressed upon its edges by being placed between the uprights, and bringing down the lever.



The brace-bars L L, connected at one end by the metal loop M, and arranged to be compressed upon the parallel rows of standards K K by means of the draw-fastening O, in combination with the bench or table B, lever I, bale F, draw cord J, and windlass D, substantially as and for the purpose described.

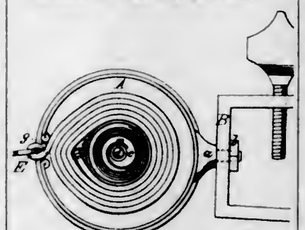
186,170. DOOR-SHEAVES. Saml. H. Moore and Edwd. Y. Moore, Chicago, Ill. [Filed Feb. 14, 1877.]

Brief.—As an improvement on Patent No. 180,619, August 1, 1876. The wheel is provided on each side with outwardly projecting flanges, within which a loose cup carrying the friction rollers is closely fitted, the construction permitting the wheel, rollers, and cups, when together, to be readily inserted between the side pieces of an ordinary shell, cast in a single piece.



The wheel A, having recessed hub C, and outward projections *x*, and the loose cup D, inclosed centrally within the recess and hub G, and the rollers *b*, likewise inclosed within the recess, in combination with the shell I J L, cast in one piece, substantially as and for the purpose set forth.

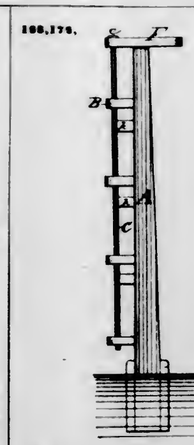
186,171. RAZOR-STROP CASES. L. A. Morse, Rutland, Vt. [Filed Dec. 30, 1876.]



The razor-strop case having on its perimeter a swiveled fastening plate or clamp, and a transverse slot for the passages of the strop, and between the two the spring winding drum, for the attachment of the strop.

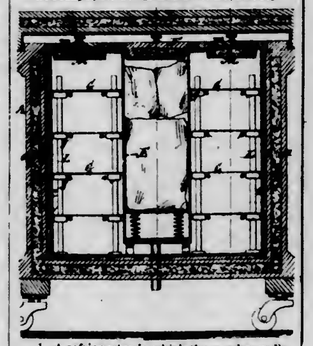
186,172. FENCE-POSTS. D. Moyer, Taberg, N. Y. [Filed May 20, 1876.]

186,173.



The combination of a fence-post, A, having laterally-projecting perforated brackets B, with the vertically-sliding and removable rod C, having button *c*, substantially as and for the purpose set forth.

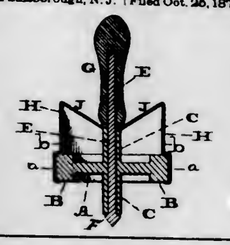
186,174. REFRIGERATORS. Chas. H. Oley, Brooklyn, N. Y. [Filed Dec. 27, 1876.]



1. A refrigerator in which the wooden walls *a a* are separated from each other to form an intervening space, provided with a filling of curled hair, the metallic lining *c*, with one or more intervening layers of woolen cloth, *d*, being attached to the inner wooden shell *a*, substantially as described.

2. A refrigerator composed of walls *a a*, metallic lining *c*, upright removable ice-chamber E, lateral supplemental ice-chamber H, pipe H', extending from the chamber H to or near the lower end of the vertical chamber E, the vertically-adjustable shelves G, secured upon uprights L L on opposite sides of the vertical ice-chamber, and lids D, D, F, and I, the whole being constructed substantially as and for the object shown and described.

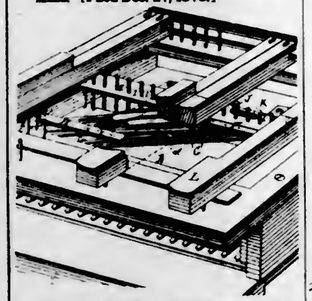
186,176. SPINNING-TOPS. E. W. Packer, Paulsborough, N. J. [Filed Oct. 26, 1876.]



1. The disk A, with collars C, spindle E, with head F and the handle G, in combination with the humming-chamber H, substantially as and for the purpose set forth.

2. The disk A, with rim B and collars C C, the spindle E, with head F and handle G, in combination with the chamber H connected to the disk A, and formed with the concave top J, substantially as and for the purpose set forth.

186,175. OCTAVE AND MANUAL COUPLERS FOR ORGANS. W. D. Parker, Worcester, Mass. [Filed Dec. 27, 1876.]



1. The combination of two levers, G and G', arranged to operate in the manner substantially as and for the purposes set forth.

2. The combination of a spring, e, with two levers, G and G', arranged to operate in the manner substantially as and for the purpose set forth.

3. The combination of two levers, G and G', arranged to operate substantially as described, with a platform, A, hinged at its front side, for the purpose set forth.

4. The combination and arrangement, substantially as described, of two levers, G G', with a valve-pitman, I, and a platform, A, hinged at its front side, so as to act on the ends of said levers which adjoin the pitman, for the purpose set forth.

5. The combination and arrangement, substantially as set forth, of levers G and G' with a pitman, I, button *f*, or equivalent device, and a platform, A, hinged at its front side, so as to operate in the manner and for the purposes set forth.

6. The combination of a spring, e, and levers G and G', arranged to operate substantially as described, with a pitman, I, and its button *f*, for the purposes set forth.

7. The combination of a spring, e, two levers, G and G', and a platform, A, all arranged to operate in the manner substantially as described, with a pitman, I, and its tappet or button, *f*, for the purposes set forth.

8. The combination of the levers G and G' with a platform, A, and actuating slide-bar E, the whole being arranged to operate in the manner substantially as described.

9. The combination of a spring, e, levers G and G', with a platform, A, and actuating slide-bar, all being arranged to operate in the manner substantially as set forth.

10. The combination of two levers, G and G', arranged to operate substantially as described, a platform, A, hinged at its front side, and its actuating slide-bar with a pitman, I, for the purposes set forth.

11. The combination of a spring, e, and levers G and G', arranged to operate as described, with a pitman, I and a platform, A, hinged at its front side, and its actuating slide-bar E, for the purposes set forth.

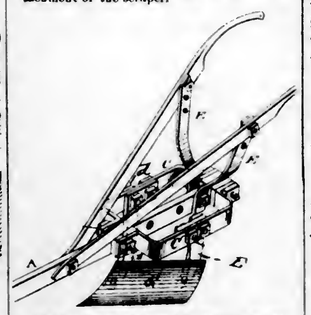
12. In combination with levers G and G', arranged to operate as described, the regulating-screw *c*, pitman I, slide-bar E, and platform A, hinged at its front side, for the purpose set forth.

13. The combination of a key, *k*, and its pitman I, with a stud or pin, *c*, and two levers, G G', arranged to operate upon the pitman I of another key, as L, located an octave apart from the other, in the manner substantially as described.

14. In an octave or manual coupler for an organ, the combination of the following instrumentalities: A key, K, and its pitman, I; two levers, G G', arranged to operate substantially as described; a stud, *c*, through which the latter are acted upon by the key; a spring, *e*, so arranged as to constantly tend to depress the lever G' upon the tappet or button of its corresponding pitman; a frame or platform, A, hinged on its front side; an actuating slide-bar, E, arranged to operate platform A in such manner that the latter acts on the rear instead of the front end of lever G'; and lastly, a pitman, I, of a key, L, an octave apart from the former or actuating-key, K, substantially as set forth.

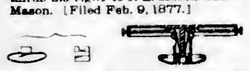
186,176. PLOWS. Geo. W. Peterson, Oxford, Ala. [Filed Dec. 13, 1876.]

Brief.—Construction of the frame and attachment of the scraper.



The beam A and bowed frame C C, as constructed, in combination with the standards E E, secured to each side of the frame, with the plow G', supported near each end to the standards, as set forth.

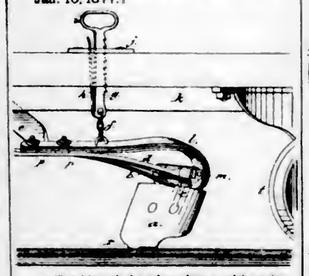
186,177. SLEEVE-BUTTONS AND STUDS. G. Pitts, Providence, R. I., assignor of two-thirds his right to J. L. Mason and G. L. Mason. [Filed Feb. 9, 1877.]



1. The combination, with the flattened tubular post provided with interior shoulders, and the flat shank provided with locking springs, of a base-spring within the post, substantially as described.

2. The combination, with the shank, its locking-springs, and a flattened tubular post provided with interior shoulders, of lugs located within the post, for preventing lateral movement of the end of the shank, substantially as described.

186,178. TRACK-CLEARERS. M. Poole, Columbus, assignor of one-half his right to W. McOrory, Columbus, Ohio. [Filed Jan. 10, 1877.]

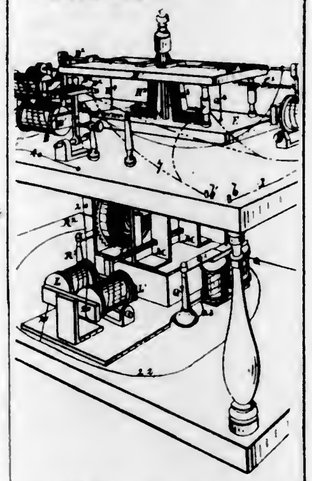


1. The hinged shovel or plow *a*, with spring *l*, stay *b*, and beams *d e*, in combination with the adjusting-rack *g*, and handle *i*, arranged substantially as shown and described.

2. A snow-plow or shovel, *a*, provided with point *r* and hinge-joint *m*, in combination with a spring, *l*, stay *b*, and beams *d e*, all arranged as shown and specified.

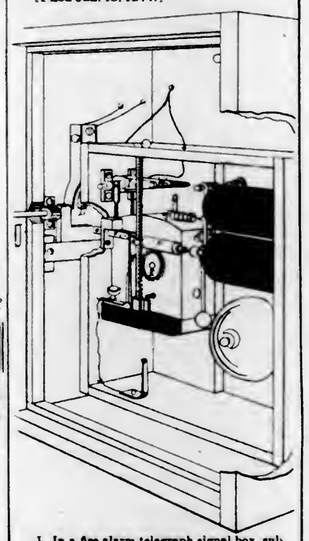
3. The snow-cleaner herein described, consisting of the shovel or plow *a*, provided with knuckle-joint *m*, the spring *l*, beams *d e*, stay *b*, adjusting-rack *g*, and handle *i*, all constructed and arranged, substantially as shown and described.

186,179. FIRE-ALARM-TELEGRAPH REPEATERS. C. H. Pond, Jackson, Mich., assignor of one-half his right to Chas. R. Knickerbocker and D. Gibson, same place. [Filed Feb. 26, 1877.]



In a fire-alarm-telegraph repeater, substantially as described, a transmitter actuated by a local battery, in combination with the main-line magnets, the control of said transmitter being given to the local points of that loop in the alarm system in which the electric circuit is first interrupted, substantially as and for the purpose set forth.

186,180. FIRE-ALARM-TELEGRAPH SIGNAL-BOXES. C. H. Pond, Jackson, Mich., assignor of one-half his right to Chas. R. Knickerbocker and D. Gibson, same place. [Filed Jan. 15, 1877.]



1. In a fire-alarm-telegraph signal-box, substantially as described, a vertically-moving circuit-bar, dropped by gravity, when its containing-box is opened, to position for signaling, and raised by a spring-driven train to signal.

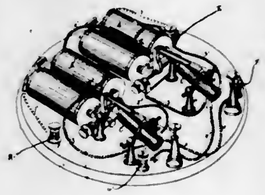
2. In a fire-alarm-telegraph signal-box, substantially as described, a drop-switch or cut-out, adapted to be sustained by a vertically-moving circuit-bar, or its equivalent, when the main-line circuit is complete, but when said circuit is broken to drop below the plane of its circuit-breaking push-pin or equivalent device, substantially as and for the purpose set forth.

3. In a fire-alarm-telegraph signal-box, substantially as described, the combination, with a switch or cut-out adapted to short-circuit the magnet, of a rod having the wedge-shaped projection at its end, operated by the door to simultaneously close the cut-out or switch and hold the rock-bar in gear with its pinion.

4. In a fire-alarm-telegraph signal-box, substantially as described, an intermediate door between the outer door of the box and that through which the circuit-breaking push-pin or starting device protrudes, as and for the purposes set forth.

186,181. FIRE-ALARM-TELEGRAPH REPEATERS. C. H. Pond, Jackson, Mich., assignor to the Michigan Fire Alarm Company, same place. [Filed Feb. 19, 1877.]

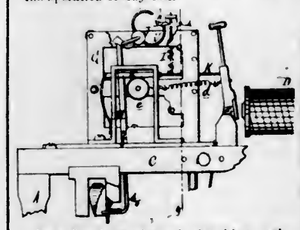
Brief.—The mercury-tubes set to reclose the circuit immediately after it is broken, thus putting the apparatus in condition to respond to the next break.



In a fire-alarm-telegraph repeater, substantially as described, the tilting mercury-tubes C C', actuated by the armatures of the magnets A A', for repeating or transmitting the signals from one circuit to another through the connections, substantially as described.

186,182. SIGNAL-BOXES FOR FIRE-ALARM TELEGRAPHS. C. H. Pond, Jackson, Mich., assignor to the Michigan Fire Alarm Company, same place. [Filed Feb. 19, 1877.]

Brief.—For preventing interference. Detent for releasing alarm-train is held in operative position by a hook, *g*, on rack-bar H, which is released from gear with a pinion, *e*, of a secondary train, falling by gravity whenever main-line circuit through D is broken by the operation of any box.

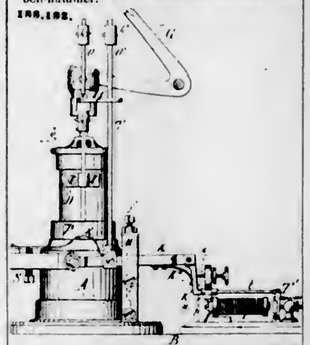


In a fire-alarm-telegraph signal-box, substantially as described, the combination of the following elements, to wit: a detent for the going-barrel or main wheel of the circuit-breaking train; a lever with a pivoted dog adapted to release said detent from the said wheel only when raised into contact with the detent, a rack-bar, arranged to raise said dog, and to be raised and sustained by a pinion of a spring-driven train; and a connection with the armature of the local magnet that will throw said rack-bar into or out of gear with said pinion as the circuit is closed or opened, substantially as and for the purpose set forth.

186,183. BELL-STRIKERS FOR FIRE-ALARM TELEGRAPHS. C. H. Pond, Detroit, assignor to the Michigan Fire Alarm Company, Jackson, Mich. [Filed Jan. 4, 1877.]

Brief.—The tripping device for operating the valve mechanism of a single-acting pneumatic engine, whose piston-rod operates the bell-hammer.

186,183.

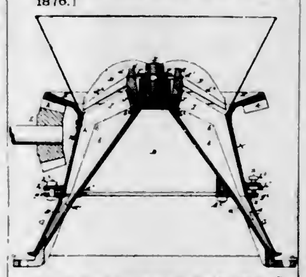


1. In a bell-striker, the combination, with the pneumatic engine, of the lever K, having a movable foot, K^1, the step *n* on its standard U, and the trip-rod *t*, pivoted to its armature T', substantially as and for the purposes set forth.

2. The toe *s* on the foot K^1, for lifting the projecting end of the trip-rod *t* from the step *n* when the local circuit is closed, substantially as described.

3. In a bell striker, substantially as described, the combination, with the valve-chamber and cylinder of the pneumatic engine, of the spring-valve *b*, the rock-shaft J, and arm K, the said arm being operated in the manner set forth and shown.

186,184. GRINDING-MILLS. T. D. Powers, St. Louis, Mo., assignor of all his right to J. A. Field, same place. [Filed Sept. 8, 1876.]

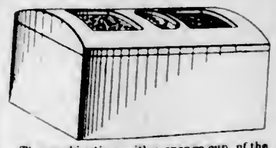


1. The outer grinder made in two parts, G H, in combination with the adjusting-screws h^1 h^2, substantially as and for the purpose set forth.

2. The part B, having teeth *b*, the angle b^1 of which is of varying height, in combination with grinder G H, as and for the purpose set forth.

3. The hub *d* of the stirring arm D, having rib d^1 and cylindrical block or post C, having recesses for the reception of the ribs d^1, in combination with the screw E, substantially as set forth.

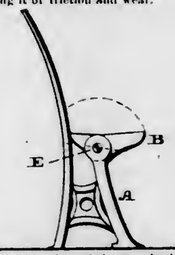
186,185. SPONGE-CUPS. C. Prentiss, 2d, New London, Conn. [Filed Feb. 19, 1877.]



The combination, with a sponge-cup, of the sponge-shaft, its fork or forks, and the finger-wheel for rotating the shaft, substantially as described.

186,186. FOLDING SEATS. G. B. Pullinger, Philadelphia, Pa. [Filed Nov. 24, 1876.]

Brief.—The convex head on the seat-arm fits into the concave socket of the standard, and they are secured together by a screw-bolt and nut, the bolt passing the socket and head, and through an elastic piece bearing against the interior concave surface of the head, and against the nut or its washer. The bolt-holes in the head and elastic piece are enlarged, thereby forming a space around the bolt, and relieving it of friction and wear.



The combination of the standards A, having the semi-spherical sockets D, and openings *a'*, the side arms B, having the semi-spherical heads C, and enlarged openings *c*, the bolts K, and elastic pieces F, substantially as and for the purpose set forth.

186,187. SUCKER-ROD COUPLINGS. Saml. J. Reno, Allegheny, Pa. [Filed Feb. 13, 1877.]



1. A sucker-rod coupling having a socket provided with one or more spirally-twisted overlapping tangs, substantially as set forth.

2. A spirally-twisted tang to secure a sucker-rod to either part of a coupling, substantially as set forth.

3. The socket composed of the tangs D, in combination with the cylinder *c* or *d*, substantially as expressed.

186,188. LIQUID-MEASURES. M. C. Richards, Oswego, Ill. [Filed June 24, 1876.]

1. In a liquid-measuring apparatus, the combination of a pipe in which the liquid stands, and a siphon-pipe which is operated by submerging a piston thereon in the liquid contained in the former, substantially as described.

2. The combination of the stand-pipe, plunger-pipe, provided with a piston, and outlet-pipe, so as to produce a siphonic action by forcing the piston below the surface of the liquid in the stand-pipe, substantially as described.

3. The combination of the receiving-vessel A and stand-pipe B, having communicating apertures, substantially as and for the purpose set forth.

4. The combination of the stand-pipe B, having apertures *a* at its bottom, and spring-valves *b*, one for each aperture, substantially as described.

5. The combination of the plunger G, stand-pipe B, pipe F, and air-tube *g'*, arranged to

admit air to the siphon when the liquid falls below a certain point in the receiver, substantially as and for the purpose set forth.

6. The graduating-ribs g^1, arranged upon the plunger G, substantially as and for the purpose set forth.

7. The combination of the ribs g^1 on the plunger, recessed cap H, and recessed ring I, substantially as described.

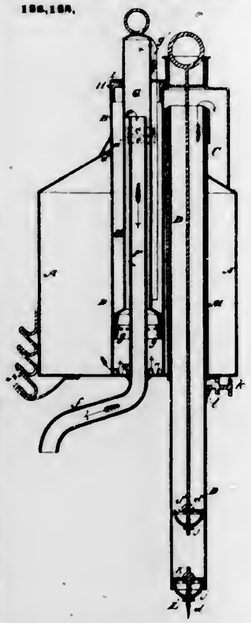
8. The combination of the stand-pipe B, chamber C, communicating therewith, and pump D, substantially as described.

9. The combination of the chamber C, stand-pipe B, having apertures c and s, and waste-pipe E, substantially as described.

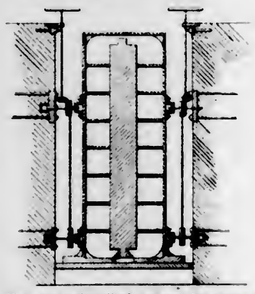
10. The pump-valve consisting of the perforated metal disk J, yoke j, flexible disk K, and fastening bolt or rod L, substantially as described.

11. The valve-fastening bolt L, constructed with its lower end projecting below the valve, and provided with a screw-thread, substantially as and for the purpose set forth.

186,188.



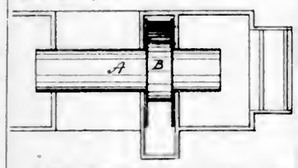
186,189. PROCESSES OF ANNEALING CASTINGS. J. S. Robinson, Canandaigua, N. Y. [Filed May 20, 1876.]



The herein-described process for treating cannon, shafts, rollers, and other castings, it consisting in the application thereto of pulverized coal before removing them from the positions in which they are cast, and while they are at a red heat, substantially as and for the purpose set forth.

186,190. APPARATUS FOR WASHING LIGHT OR FINELY-PULVERIZED SUBSTANCES. J. B. Root, Green Point, N. Y. [Filed July 26, 1875.]

Brief.—The convoluted feed device carries the material into the cylinder, from which it is forced against a current of water by the screw conveyer.

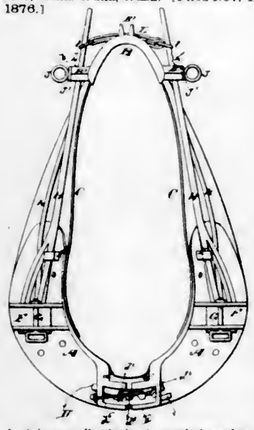


1. The combination, in an apparatus for washing or purifying light or finely-pulverized substances, of a convoluted feed device, B, with a screw-cylinder, A, through which the material is fed, substantially as described.

2. The combination, with the screw-cylinder and convoluted feed device, of a water tank constructed with an overflow having an adjustable gate, substantially as and for the purpose described.

3. In a machine for washing and purifying light or finely-pulverized substances, a cylinder with internal screw-threads, in combination with a receiving-tank at one end, and a discharging-tank at the other end, arranged as described, whereby the water-level of one or both tanks shall communicate and equalize through the interior of the cylinder, in the manner and for the purpose described.

186,191. HORSE-COLLARS. Adam Rutherford, Walla Walla, Wash. [Filed Nov. 4, 1876.]



1. A horse-collar body, A, consisting of two sections and provided with box E, in combination with cogged adjusting-racks D D', substantially as set forth.

2. In a horse-collar, the combination of adjusting-rack D, having stop-lug d^2, staple d^3, and ring d^4, with rack D', having hook d^5 and a sectional collar-body, substantially as set forth.

3. In a horse-collar, the combination of supplemental bracing-rods K with main rods H, draft-boxes F, and sectional neck-cap B, having block B^1, substantially as set forth.

4. The combination of rods H with supplemental fastenings L attached to collar body A, substantially as and for the purpose set forth.

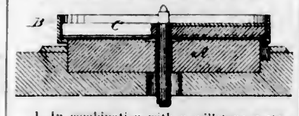
5. The combination of a rod, H, with a recessed block, B, a hame-ring, J, and a fastening-flange extending from said hame-ring, substantially as set forth.

6. The combination of a rod, H, with a hame-ring and a fastening-flange rigidly secured to said hame-ring, substantially as set forth.

7. Cap-piece B, consisting of two sections provided with outwardly-beveled flanges, for the purpose of allowing adjustment, as set forth.

8. Divergingly-beveled flanges B^2 on cap-piece B, perforated at b^3, in combination with strap L, metal rings or loops l l, and transversely grooved or indented rods H H, substantially as set forth.

186,192. MILLSTONE-PROOFS. J. J. Rymal, Milwaukee, Wis. [Filed Feb. 3, 1876.]

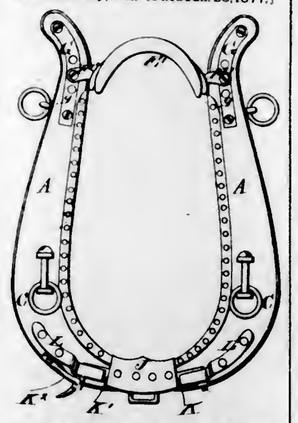


1. In combination with a millstone, a stationary plane arranged to sustain and guide a movable rod-staff in its passage over the face of the stone, substantially as shown and described.

2. The ring B, constructed with a true face, e, and provided with the screws d, substantially as shown and described.

3. The combination of the millstone A, the stationary adjustable plane or ring B, and a movable staff, C, bearing upon and supported by the plane, substantially as shown and described.

186,193. HORSE-COLLARS. J. N. Schmitz, Kilbourn City, Wis. [Filed Jan. 20, 1877.]

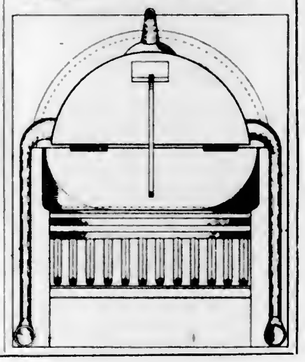


1. The combination of leather bow E, plates F F, and hames A A, said plates and hames being attached substantially as and for the purpose set forth.

2. Hame A, provided with cross-perforations arranged in series, a vertical slot in its inner face, and protecting-plates G G H, substantially as and for the purposes set forth.

3. The combination of leather strip J, bars K K^1, casings L L', and thong K^2, substantially as and for the purpose set forth.

186,194. HEATERS FOR FIRE-PLACES. L. A. Seitz, West Bellevue, Pa. [Filed Jan. 26, 1877.]

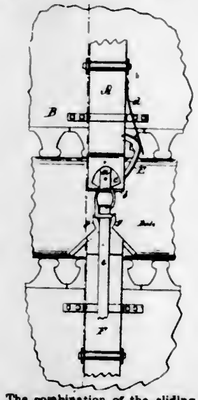


1. In combination with an open fire-place, and air-heating chamber, provided with draft and discharge pipes, said chamber located and arranged wholly in advance of the fire-front, substantially as and for the purpose specified.

2. The movably-adjustable hinged blower, in combination with a supporting device for supporting it in any desired position, as and for the purposes described.

3. The adjustable air-heating fire-front, provided with an air-chamber, suitable draft and discharge pipes, and a hinged blower, in combination with a hook or other suitable supporting device, substantially as and for the purposes described.

186,196. BALE-BAND TIGHTENERS. John L. Sheppard, Charleston, S. C. [Filed Jan. 20, 1877.]



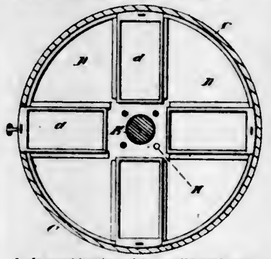
1. The combination of the sliding bars A F, constructed to adapt them to bite or engage the buckle and free end of the band, substantially as shown and described.

2. The bar A, formed with an open slot, and an angular edge face or shoulder in the lower end of the same, whereby the band may pass through the slot, while the buckle rests against the angular-faced end of the bar, substantially as and for the purpose set forth.

3. The combination, with the bar A, the end of which is formed with an open slot, of a movable bar, E, which serves to retain the band in place, and is constructed to be automatically opened and closed as the bar A is reciprocated, substantially as and for the purpose set forth.

4. The combination, with the bar F, sliding vertically in keepers on the front of the follower, of the locking device, pivoted to said bar, and serving to clasp the edge or edges of the band, and securely retain the same as the bar is forced upward, substantially as and for the purpose set forth.

186,196. TABLES. W. S. Shurtleff, Springfield, Mass. [Filed Dec. 26, 1876.]



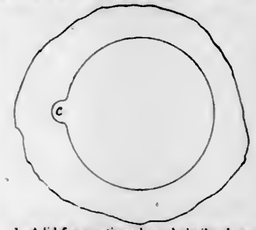
1. In combination with a solid table-top, a gang of drawers made to revolve immediately beneath the same, to have any drawer exposed by being slided out clear of the table-edge, as set forth.

2. In combination with a fixed table-top, A, provided with a dependent rim or side, C, which has one or more openings corresponding in size to the end of drawers d, the wheel of drawers D revolving beneath the top A and presenting the drawers d to be extended through said openings to expose the drawer, or to have its face flush with the outside surface of rim C, substantially as shown and described.

3. In combination with the carrier D, and with the rigid bottom B, and leg F, the spring pawl or stop H, with rod h and treadle, substantially as and for the purpose shown.

186,197. HEADS FOR CAUSTIC-SODA DRUMS. Jas. Simpson, Liverpool, England. [Filed Jan. 17, 1877.]

Brief.—Insert one of the lugs at the shortest diameter of the cover, beneath the head of the drum; drop the opposite into the recess in the head of the drum; give the cover a quarter-turn, and the locking-lug is, by the elasticity of the drum-head, sprung down into the recess of the drum head.

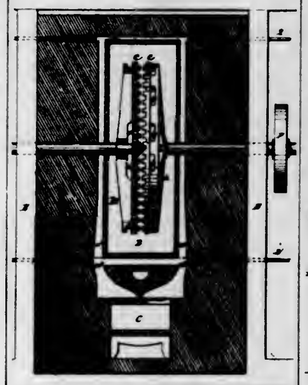


1. A lid for caustic soda and similar drums, said lid having two sets of supporting or engaging lugs, arranged on different planes, and a locking-lug at right angles to the first-mentioned lugs, the whole formed substantially as described, and adapted to be used with a flexible top, for the purpose specified.

2. In combination with the recessed filling-opening of a drum, having a flexible metal head, the lid having the engaging or supporting lugs, and a locking-lug which engages with the recess of the filling-opening, substantially as and for the purpose specified.

186,198. TEMPERING AND FORMING ARTICLES OF STEEL. Geo. F. Simonds, Fitchburg, Mass. [Filed Dec. 12, 1876.]

Brief.—Throwing the heat onto any part of the article by dampered flues, causes a circuit of the heated air in the chamber.



1. The process herein described of adjusting the fast and loose in a saw by throwing the heat on the center or the outer edge, or on any desired part of the saw, the same being held to the required position, substantially as set forth.

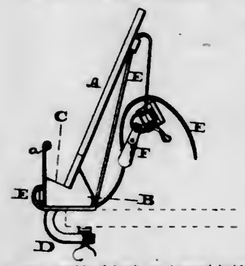
2. Formers for tempering and forming articles of steel, in combination with a fan or blower to equalize the heat, substantially as described.

3. Formers for tempering and forming articles of steel, inclosed in a heating-oven, in combination with a fan or blower, substantially as set forth.

4. The distributer s, constructed with sharp downward point and with ogee sides, substantially as described and shown, in combination with a tempering-oven, substantially as and for the purpose set forth.

5. The distributer s, provided with the flues s'', in combination with the vertical flues s' and dampers, substantially as and for the purpose set forth.

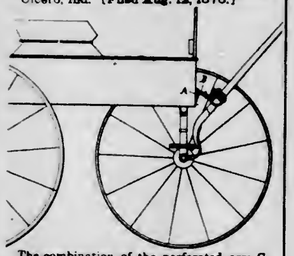
186,199. BOOK CARRIERS AND HOLDERS. E. W. Smith, Philadelphia, assignor to D. Sutter, same place, and A. Miller, Moorestown, Pa. [Filed Nov. 3, 1876.]



1. The combined book carrier and holder, the same consisting of the board A, with base B and projecting ledge C, in combination with the holding-straps E, passing around the board, and connected at top by the carrying-handle F, substantially as and for the purpose set forth.

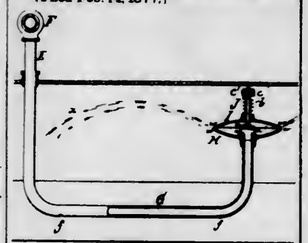
2. The holder A B, with clamp D and straps E, substantially as and for the purpose set forth.

186,200. SUPPORTING TRELLS. W. Smith, Cicero, Ind. [Filed Aug. 12, 1876.]



The combination of the perforated arm C, with hooks D D, and the longitudinally slotted bar B, hinged to a bed-plate, A, and having the arm C pivoted in it, substantially as and for the purposes herein set forth.

186,201. STEAM-BOILER FEED-WATER HEATERS. Thos. Snowdon, Pittsburg, Pa. [Filed Feb. 14, 1877.]



1. A distributer formed of separate disks placed one opposite the other, and affording a discharging-space between their edges, in

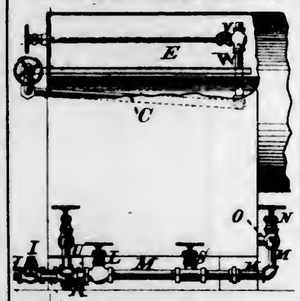
combination with a supplying and heating pipe, which is within the boiler, and is in communication with the supply-pipe of the doctor or pump, substantially as described.

2. A perforated feed-water supply and heating pipe, which is within the boiler, and has its perforated portion submerged, in combination with a feed-water distributer of a steam-boiler, substantially as described.

3. A feed-water supply and heating pipe, which has a distributing-disk attached to its inner end, in combination with an adjustable disk applied above the disk attached to the pipe, substantially as described.

4. A feed-water supply and heating pipe, which has a distributing-disk attached to its inner end, in combination with a disk applied opposite the disk attached to the pipe, and a spring or springs for pressing upon one of the disks, substantially as and for the purpose described.

188,202. FEED-WATER HEATERS. G. Steele, New York, N. Y. [Filed July 15, 1876.]



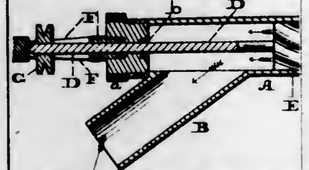
1. The combination, with the pipe M and the pipe P, of the pipe U and check-valve K, for maintaining circulation through said pipes when feeding is intermitted, substantially as and for the purpose described.

2. The combination of the pipe P, the pipes M and O, and the stop-valves S and N, for maintaining circulation while the check-valves I K and pipes H U are closed or removed, substantially as and for the purpose set forth.

3. The safety-pipe W, inserted in the heating-pipe P, and delivering steam from the said pipe P into the steam space of the boiler, and provided with a stop-valve, Y, to be operated from outside the boiler, substantially as specified.

188,203. HYDRAULIC ENGINES. A. J. Stott, Philadelphia, Pa., assignor of one-half of his right to J. Fletcher, Manchester, England. [Filed Oct. 30, 1876.]

Brief.—A cylindrical case, within which is mounted the wheel, adjacent to which are secured the distributing-chutes; the arrangement of the induction and eduction portions of the case being such that when the device is properly located the foot of the operator may readily open and close the cock or faucet of the water supply.

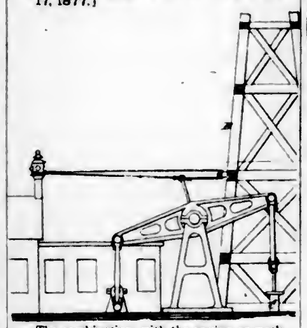


1. The case A, with cap a and projecting discharge-branch B, in combination with the fixed chute C, wheel E, having its inner bearings on said chute as a step, and shaft D, substantially as and for the purpose set forth.

2. The case A, with branch B, and wheel-shaft D, with pulley G, in combination with the encircling yoke F, substantially as and for the purpose set forth.

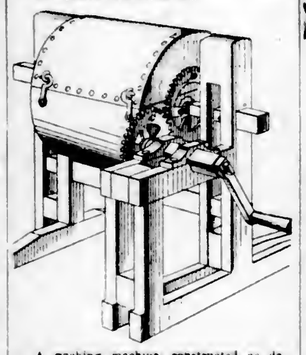
3. The case A, in combination with the chute C, fixed within the case, and the wheel E, having its inner bearings on said chute as a step, substantially as and for the purpose set forth.

188,204. MEANS FOR OPERATING SIGNAL-LANTERNS FOR OIL-WELLS. E. E. Swett, Edenburg, (Knox P. O.,) Pa. [Filed Jan. 17, 1877.]



The combination, with the engine or working-beam, or other rocking or reciprocating device operated by the engine, of a signal-lantern and means of imparting to said lantern, or to part of it, from the engine or said beam or device, an oscillating motion, whereby a flashing of the light is produced at regular intervals, corresponding with the working of the engine, substantially as specified.

188,205. WASHING-MACHINES. Saml. F. Todd and John G. Sinaley, Jacob's Creek, Pa. [Filed Dec. 14, 1876.]



A washing-machine, constructed as described, consisting of an outward revolving cylinder, composed of two hinged sections, in combination with an internal slatted cylinder, independent shaft *f*, and pins *a a*, substantially as and for the purpose set forth.

188,206. BUTTON-FASTENINGS. James C. Tetera, San Francisco, Cal. [Filed Jan. 18, 1877.]

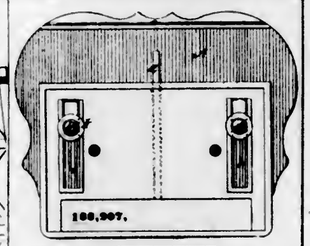


1. A button fastener consisting of the plate F, with its bent or kinked tongue C and enlargement of the slot I, substantially as and for the purpose described.

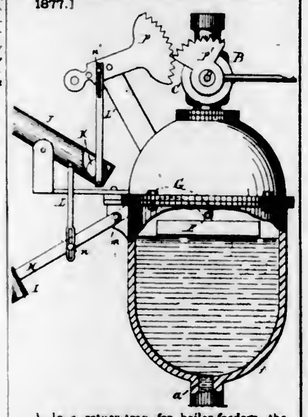
2. The plate F, having the tongue C, provided with the kink or bend S, and provided with semicircular enlargement in slot I and holes O, in combination with the button B, with its eye D, substantially as and for the purpose described.

188,207. DOOR-PLATES. W. Tracy, Poughkeepsie, assignor of one-half his right to G. H. Swords, Fishkill on-Hudson, N. Y. [Filed Dec. 26, 1876.]

A name-plate, combined with, and secured to, a back plate by studs and slots, and provided with a guide-fin, whereby the name-plate may slide upward and downward on the back-plate, to close and uncluse a letter-chute formed in the back plate, substantially as shown and described.



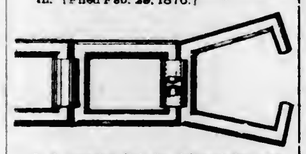
188,208. BOILER-FEEDERS. Henry L. Traphagen, New York, N. Y. [Filed Feb. 6, 1877.]



1. In a return-trap for boiler-feeders, the combination, with the trap A, of the plug B, having passages *f h* and ports *g y s*, the valve-chamber C, with steam-inlet *b*, and the valve D, having port *d* and passage *e*, all substantially as and for the purposes herein set forth.

2. The combination of the valve D, the segments P P', links L L', tube J, with ball K, lever H, and arm G, with float E, all substantially as and for the purposes herein set forth.

188,209. LINKS FOR DRIVE-CHAINS. B. B. Tuttle, Naugatuck, Conn., assignor to Ewart Manufacturing Company, Chicago, Ill. [Filed Feb. 29, 1876.]



1. A sprocket-link for drive-chains, provided with a tubular projection cast upon one of its end bars, substantially as described.

2. An open link for drive-chains, having one of its end bars divided, and the opposite end bar provided with a tubular projection, substantially as described.

3. The method herein described of coupling two links together, by means of a tubular projection on the end bar of one link, and a divided end bar on an adjacent link, the sections of which are inserted in the tube, substantially as described.

188,210. GRAIN-SEPARATORS. Jas. S. Upton, Battle Creek, Mich. [Filed Sept. 9, 1876.]

1. The combination of a double-crank shaft E, with pitman G G', the boot C, connected to one pitman, and the pendulum H, connected to the other pitman, the boot and pendulum working in opposite directions for counterbalancing the former, as herein set forth.

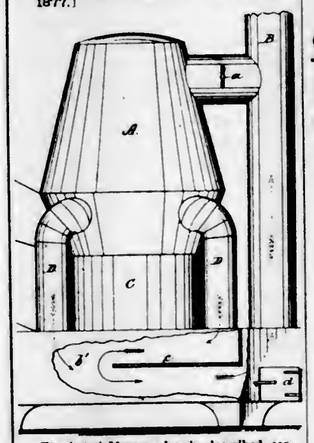
2. The combination of the swinging boot C, with lifting-fingers *d*, swinging pendulum H, and double-crank shaft E, with pitman G G', all constructed substantially as and for the purposes herein set forth.

3. The combination of the suspended swinging boot C, having lifting-fingers *d d*, the picker I, the open revolving rake J, and the swinging pendulum H, all substantially as and for the purposes herein set forth.

188,210.



188,211. HOT-AIR FURNACES. Edwin Varney, Leavenworth, Kans. [Filed Jan. 24, 1877.]

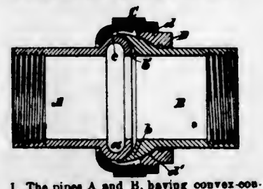


The hot-air furnace herein described, consisting of the double-conical combustion-chamber A, fire-pot C, the base E, having side compartments *b' b'*, with partitions *c*, the smoke-pipe B, and the down-draft fire-flues D, forming communication between the enlarged portion of the combustion-chamber and the side compartments *b'*, all combined and arranged substantially as shown and described.

188,212. CANCELING-INKS. Wm. F. Van Der Linden, and H. C. King, Brooklyn, N. Y. [Filed Feb. 20, 1877.]

A canceling ink consisting of cotton-seed oil, oil-varnish, ivory-black, rosin-black, chrome-green, chrome-yellow, Berlin blue, and English vermilion, substantially as described.

188,213. PIPE-COUPLINGS. Thos. Weiss, Bethlehem, Pa. [Filed Feb. 2, 1877.]



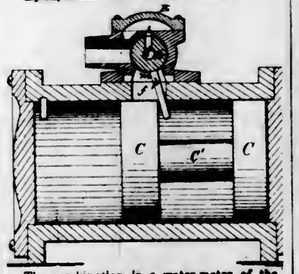
1. The pipes A and B, having convex-concavo flanges or meeting ends *a b*, in combination with the ring or coupling C, having a concave seat, *c*, and the ring or collar D, to which the ring C is attached, substantially as shown and described.

2. In combination with the correspondingly-flanged pipes A B, the internally-threaded union C, and externally-threaded ring or collar D, substantially as described.

3. The combination of pipes A and B with union C, an annular space, *s*, being formed between the pipes and the union, to give play to the former, substantially as shown and described.

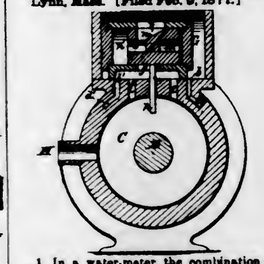
4. In combination with a union, C, the pipes A and B, made smooth or plain externally, to permit play in said union, and held in place therein by a nut, D, substantially as shown and described.

188,214. WATER-METERS. Parker Wells, Lynn, Mass. [Filed Feb. 9, 1877.]



The combination, in a water-meter, of the valve-chest D, cap E, with ports *d*, *d'*, and *e*, and a water-inlet, and the solid plug-valve G, provided with annular grooves *h h'*, passages *i i'*, *m*, and *n n'*, and stem *p*, with the cylinder A, and the connected pistons C C, all constructed as and for the purposes set forth.

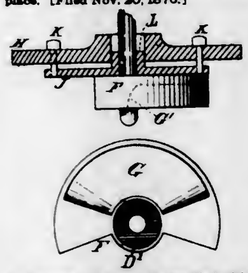
188,215. WATER-METERS. Parker Wells, Lynn, Mass. [Filed Feb. 9, 1877.]



1. In a water-meter, the combination of a sliding valve, operated directly by the pressure of the water, and a rocking valve placed within the sliding valve and operated by the action of the pistons, substantially as herein set forth.

2. The combination of the sliding valve G, having port *i* and aperture *f*, the interior rocking valve I, having ports *m m'* and *n n'*, and provided with the arm *h*, the valve-chest D, cylinder A, with their respective ports and passages, as described, and the connected pistons C C, all substantially as and for the purposes herein set forth.

188,216. OSCILLATING VALVES. C. Whitman, Buffalo, N. Y., assignor of one-half his right to E. and G. H. Dunbar, same place. [Filed Nov. 20, 1876.]



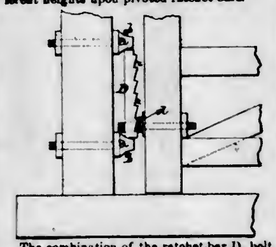
A sector-shaped valve, F, provided with a depression or exhaust chamber, G, a depression, D', and relief-plate J, provided with adjusting-screws K, and a projecting hollow hub, L, in combination with the cover H, as specified, and a valve-seat provided with ports A B, depression D, and exhaust-port C, substantially as described.

188,217. PROCESSES OF MAKING DYES FROM NAPHTHALINE. Justus Wolff, Wyke, near Bradford, and Ralph Betley, Wigan, England. [Filed Jan. 23, 1877.]

The process of making dyes from naphthaline, and also from the derivatives therefrom, in which one atom of the hydrogen contained therein is substituted by one molecule of benzole, or its derivatives, or the homologues of benzole, or their derivatives, by first submitting the same to an oxidizing process, and, after separating the products of oxidation, submitting such products to a second oxidizing process, and, finally, to the action of an alkali, substantially in the manner hereinbefore described.

188,218. SWINGING GATES. L. G. Woolley, Meadon, Mich. [Filed Jan. 15, 1877.]

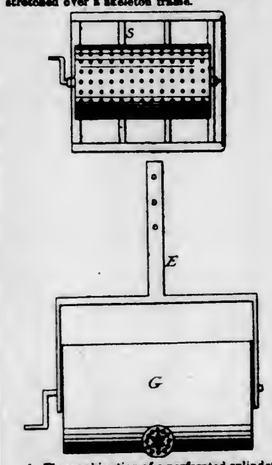
Brief.—The gate can be adjusted to different heights upon pivoted ratchet-bars.



The combination of the ratchet-bar D, bolt *d* catching thereon, eyebolts *a a'*, smooth bolt D', and bolt *d'*, the parts being arranged for action substantially as shown.

188,219. PARIS-GREEN DUSTERS. James W. Young, Southfield, Mich. [Filed Dec. 28, 1876.]

Brief.—A neck-yoke is formed with retaining metallic straps in front. The cans that contain the paris-green are adjustably suspended from the two ends of the yoke, and the discharge is regulated by a slide, and to prevent the dust from rising the cans are covered with a hood consisting of cloth stretched over a skeleton frame.



1. The combination of a perforated cylinder, crank A, shield S, and adjustable hanger, substantially as and for the purpose specified.

2. The combination, with the shoulder-bar A, having curved arms F and perforated arms C, of the branched hangers D E, carrying dusting-cans G, substantially as specified.

188,220. ELECTRIC LIGHTING APPARATUS FOR LAMPS. Wm. H. Zimmerman, Chestertown, Md. [Filed Jan. 17, 1877.]

1. The twin socket for containing the battery and gas-generating cell, in combination with the said cells, and a lamp or its equivalent, as described, provided with connections, substantially as shown and described.

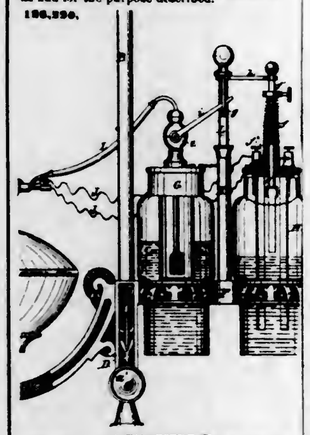
2. The combination, with the pedestal and standard, of the brachial slide, carrying the lamp, and the twin socket carrying the bat-

tery and gas-generating cells, and connected with said brachial slide, substantially as and for the purpose described.

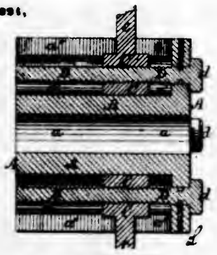
3. The slide L, having slotted piece and forked arm, in combination with slide-rod f^1, having spring f, and the lever i operating the valve e, substantially as and for the purpose described.

4. The guide-standard K and movable slide-rod L, arranged centrally upon the twin socket, between the gas-generator and the battery, in combination with said twin socket, and with the valve of the gas-generator and the movable element of the battery, substantially as and for the purpose described.

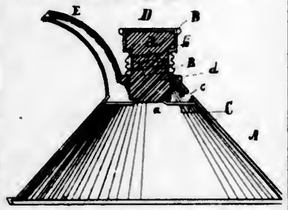
186,220.



186,221.



186,222. CAN-TOPS. F. C. Wilson, Chicago, Ill. [Filed Dec. 11, 1876.]



1. A can-top, provided with a perforated diaphragm, C, within and extending entirely across the top, substantially as and for the purpose set forth.

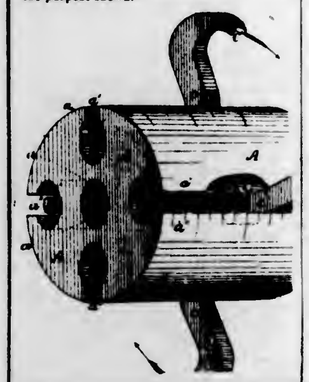
2. The breast A, terminating in a nozzle, B, at its apex, in combination with the diaphragm C, within and extending across the top, and provided with an orifice, a, the stopper D, and spout E, substantially as and for the purpose set forth.

186,224. CUTTER-HEADS. L. R. Washburn and W. H. Walker, New Bedford, Mass. [Filed Feb. 26, 1877.]

Brief.—Grooves of any desired width, or several parallel grooves, can be cut by means of a series of peculiarly-formed cutters, having an inner cylindrical part provided with an axial threaded opening, secured in round recesses extending longitudinally from one end of a cylindrical head nearly to the opposite end, and laterally adjustable in said recesses by headed screws swiveled in the solid end of the head, and passing through the threaded openings in the cylindrical parts of the cutters.

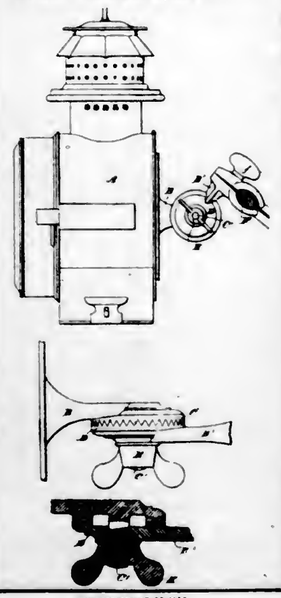
1. In combination with the cutter-head A, provided with the longitudinal recesses a' and radial longitudinal slots a'', the cutters composed, each, of a head, C, and radial arm c, and fitted within one of said recesses a' and slots a'', substantially as and for the purpose specified.

2. In combination with the cutter-head A, a', and a'', and cutters C c, constructed as described, the screws D, swiveled within said cutter head, and passing through the heads of said cutters, substantially as and for the purpose shown.



REISSUES.

7,344. ADJUSTABLE LAMP-SUPPORTS FOR VEHICLES. T. Botdren, Bridgeport, Conn., assignor of three-fourths interest to the White Manufacturing Company, George H. Johnson, and Charles H. Stevens, same place. Patent No. 147,362, dated Feb. 10, 1874. [Filed Feb. 19, 1877.]



1. The combination of the lamp, its support, and the clamping-jaws and set-screw for detachably securing the arm to the dash-board, substantially as described.

2. The combination of the lamp, the jointed supporting-arm provided with an adjusting-clamp, and the clamp at the outer end of the supporting arm for attachment to the dash-board, substantially as set forth.

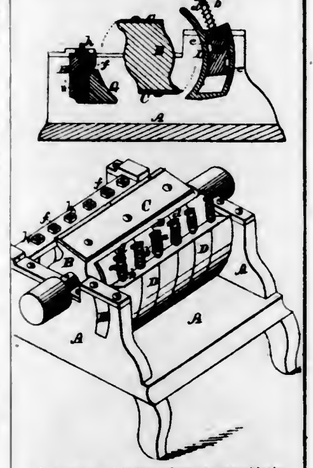
3. The hereinbefore-described vehicle-lamp having the short rigid arm or bracket projecting from the lamp, and a second arm adjustably jointed to the said rigid arm, and adapted to be detachably secured in position at its outer end.

4. The combination of the lamp with a jointed supporting-arm capable of being adjusted or rocked vertically and provided with a clamp, by which it is retained in the desired position.

5. The combination of the lamp, its short rigid arm or bracket, and the serrated disk or clamp-section carried by said bracket, substantially as and for the purpose specified.

7,345. PLANING-MACHINES. C. B. Patterson, Pittston, Pa. Patent No. 163,802, dated May 25, 1875. [Filed Feb. 23, 1877.]

Brief.—Two boards of different thickness can be fed at the same time, and both held alike, or one board can be planed on one side of the machine, held alike at both edges, and uniform thickness and even surface secured in wood-planing machines, by means of a series of independently-operating chip-breakers or pressure-blocks, arranged upon an interior cross-bar or guide, upon either side of the cutter-head, and operated by spiral springs and friction-rollers. The inner sides of the cross bar or blocks are carved on a circle concentric with the circle described by the cutters in their revolutions.



1. A series of independent pressure-blocks, D D, provided with anti-friction rollers, substantially as shown and described.

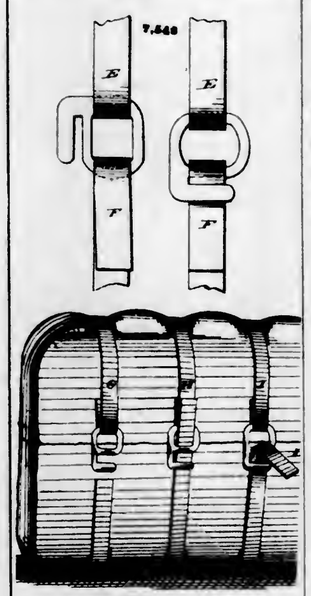
2. Two series of independent pressure-blocks, D and G, in combination with a rotating cutter-head, substantially in the manner and for the purpose shown and described.

7,346. COTTON-BALE TIES. J. L. Sheppard, Charleston, S. C., assignor, by mesne assignments, of one-half interest to M. H. G. Sheppard. Patent No. 75,706, dated March 17, 1868. [Filed Feb. 15, 1877.]

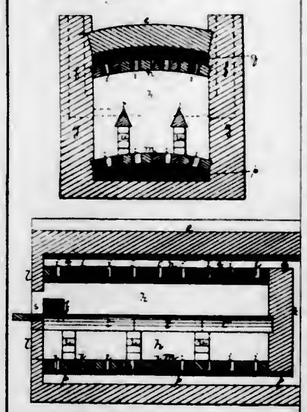
1. A bale-tie formed of a single piece of material, having a ring portion at one end, and a single arm on one side thereof, whereby an opening is formed between the ring and the arm, the ring portion of the tie being of sufficient size to allow of the turning of the head therein, substantially as and for the purpose set forth.

2. A bale-tie formed with a ring portion, the sides of which are curved, said ring portion provided with an arm for securing the free end of the head.

7,346.



7,347. FURNACES FOR FINISHING SHEET-IRON. W. Dewees Wood, Pittsburg, Pa. Patent No. 46,841, dated Mar. 14, 1865. [Filed Nov. 18, 1876.]



1. A sheet-metal-heating furnace having a perforated floor, and bearings elevated above the level of the floor to support the sheets, substantially as set forth.

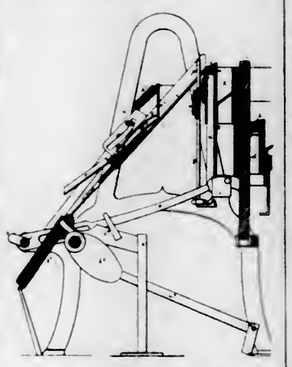
2. A sheet-metal-heating furnace having a perforated covering, s, over the heating-chamber, and bearings to support the sheets, elevated above the level of the floor, and between the floor and the cover, substantially as set forth.

3. A heating-chamber having a perforated cover and floor, arranged relatively to the heat-distributing flues substantially as described, whereby the fire and heated air shall enter the chamber through the openings in the cover and floor at various points above and below the level of the sheets placed therein, for the purposes set forth.

4. A heating-chamber having a series of perforations, f i, in the cover and floor, of increasing size from the fire end of the heating-chamber toward the opposite end, substantially as and for the purposes set forth.

7,348. NAIL ASSORTING AND FEEDING MACHINES. B. Bevelander, Boston, Mass., assignor to the Globe Nail Company. Patent No. 136,312, dated Jan. 28, 1873. [Filed Feb. 9, 1877.]

Brief.—Two vertically-reciprocating bars, each working up through a separate hopper, to deliver the nails upon a chute; a gate across the chute, with an opening that allows a nail to pass only when in a particular position; an agitator working under the gate to adjust the nails to the opening; a stop in the chute for the blank to strike against, and, in virtue of the greater weight of the head portion, to be turned head downward; and a spring-striker to remove the nail from the stop in case it should lodge against it.



1. In a machine designed to be adapted to automatically deliver horseshoe-nail blanks, and present them one by one to a rolling-machine, the inclined chute, provided with a bottom to support a nail-blank, and a lifter to present a blank in the chute, in combination with a directing device to turn the nail and cause its head to move down the chute in advance of its point, substantially as described.

2. In a machine designed to be adapted to automatically deliver horseshoe-nail blanks, and present them one by one to a rolling-machine, the combination, with a chute, of a gage, constructed and arranged with relation to the walls of the chute, to present enlarged head-receiving passages at the ends of the gage, to permit the passage of all blanks having their right faces in one direction, and to prevent the passage of all blanks having their right faces in an opposite direction, substantially as described.

3. A hopper provided with a slide-bar to elevate a nail-blank from a mass of blanks, in combination with a second compartment, provided with a lifter to elevate a blank placed therein, substantially as described.

4. In combination, a chute to support the flat face of a horse-nail blank, a gage above the chute, and blank-shaped, to permit the passage of only such blanks as have their straight sides against the chute, and a directing device to turn the head of the blank passing down the chute in advance of its point, to deliver the blank head first from the chute, substantially as described.

5. A chamber to contain horse-nail blanks, and a lifter therein, in combination with a chute and a stop to hold the blank in advance of a gage for the blank, substantially as described.

6. The combination, with a directing-bar, s, and chute, of a starting-bar, to strike the head of the nail and start it in advance of the point, substantially as described.

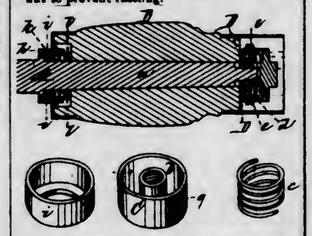
7. The gage-plate and chute, in combination with the slide, to right the nail-blank, substantially as described.

8. In combination, a chamber to contain horse-nail blanks, a lifter to elevate a blank therefrom, a chute, a stop to hold the blanks in advance of a gage, a gage to permit the passage of the nails that rest with their flat faces next to the chute, and mechanism to direct the head of the blank in advance of its point, substantially as described.

9. The hopper and slide to lift a nail-blank, in combination with an agitator, to loosen or move the nail-blanks to fall upon the slide, substantially as described.

7,349. ATTACHING HUBS TO AXLES. D. A. Johnson, Boston, Mass., assignor of part interest to J. F. Pray and C. H. Kendall. Patent No. 147,503, dated Feb. 17, 1874. [Filed Feb. 9, 1877.]

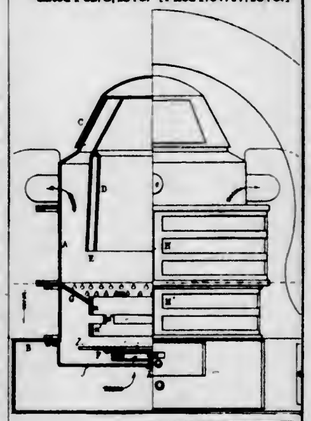
Brief.—A spring interposed between the outer end of the axle-arm and the fastening-nut to prevent rattling.



1. The spring c, placed within the fastening-nut C, in combination with and applied to the outer end of an axle, substantially in the manner and for the purpose set forth.

2. The cup-shaped ring i, and the spring k placed therein, in combination with and applied to the inner end of an axle, substantially as and for the purpose described.

7,350. FIRE-POTS AND GRATES FOR FIRE-PLACE STOVES. H. L. McAvoy, Baltimore, Md., assignor to D. L. Bartlett and H. W. Robbins, same place. Patent No. 173,317, dated Feb. 8, 1876. [Filed Nov. 17, 1876.]



1. As a fire-bed for stoves, a vibrating fire-plate, having an internal opening and solid sliding door to cover the same, substantially as herein specified.

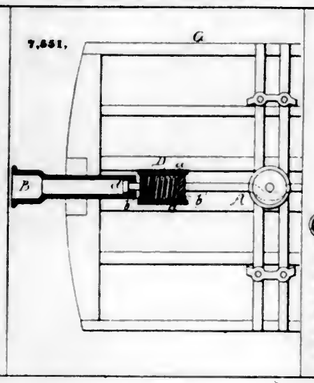
2. A vibrating fire-plate, having an internal opening and solid sliding door to cover the same, and provided also with outer or peripheral ash and air passages, combined with and arranged in close proximity to a fire-pot having ash and air openings at or near its bottom, substantially as and for the purposes described.

3. The inclined annular plate or fire-pot G, provided with spines or projections m, in combination with the rings a a' and their connecting pieces, the rings having spaces between them, the whole being arranged over the movable grate, as specified.

7,551. BUMPERS AND DRAW-BARS FOR RAILROAD-CARS. A. Middleton, Jr., Philadelphia, Pa. Patent No. 142,402, dated Sept. 2, 1873. [Filed Feb. 16, 1877.]

1. The combination, in a railroad-car, of springs D D', a draw-bar, A, passing through the said springs and bumper-heads B B', one of which is connected to each end of the said bar, substantially as described, so as to slide inwardly independently of the same, but outwardly with the said bar, as set forth.

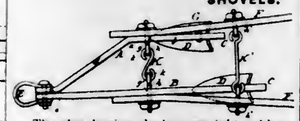
2. The combination of the spring-boxes D D', bumper-heads B B', and the draw-bar A, passing through the said springs and through the movable and fixed plates b b', and having heads d, adapted to the bumper-heads, all substantially as and for the purpose set forth.



Errata page 321.

February 20, 1877.

187,665. CHARLES W. ONEAL, PLOW-COUPLINGS FOR DOUBLE SHOVELS.



The plow having the long straight rudder-beam B in line with the draft, and the short laterally-bent beam A, having its clevis and rear ends parallel with the beam B, the handles F, connected to the parallel portions of said beams, the links K K', and the clevis-pin e, whereby the clevis ends of the straight and bent beams are pivoted together, substantially as specified.

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COMMISSIONER'S DECISIONS.

WITHINGTON *vs.* LOCKE.—*Interference.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the interference between the application of Charles B. Withington, filed March* 5, 1874, *and the patent granted to Sylvanus D. Locke November* 28, 1871, *for* "IMPROVEMENT IN AUTOMATIC BINDERS FOR HARVESTERS."—*Decided February* 21, 1877.]

It is not necessary to an interference that the combination of each party should consist of elements identically the same in form so long as the combinations as entireties are the equivalents in arrangement and mode of operation.

An applicant for a patent is the prior inventor, as against a patentee, if he was the first to clearly originate the invention and diligent in reducing it to practice.

Although an interference is not the same in nature as an action for infringement, or a suit in equity to uphold or defeat a patent, the character of proof required to show the fact of invention is the same.

Sketches, drawings, models, oral and written descriptions, and experiments, all constitute evidence to be considered in determining the question of priority of invention.

[*Baldwin, Hopkins, and Peyton*, for Withington.
R. D. O. Smith and Hull & Ellsworth, for Locke.]

DOOLITTLE, *Assistant Commissioner:*

Lengthy discussions have been had, and several decisions made, upon the issue in this case, which I deem unnecessary to review in detail.

Withington, the applicant, has a claim for a combination of certain elements, which combination was declared by the Primary Examiner to be shown and described, but not claimed, in the patent of Locke. This combination regarded as a unit comprises the sole matter in dispute. It is not necessary to an interference that the combination of each party should consist of elements identically the same in form so long as the combinations as entireties are the equivalents in arrangement and mode of operation.

In accordance with this principle it has been held that a patented machine frequently has a broader scope than the particular form of the machine described as the form used by the patentee. *Blake* vs. *Rawson*, (6 Fisher, 74.)

The claim of Withington for the combination in controversy is as follows:

The rotating spring-tension drum S, in combination with a wire-reel, a wire-carrying arm, K^2, and a binding-head, G^1, said drum being intermediate between the reel and binding-head, substantially as and for the purpose herein described.

Now, there are differences in some of these elements in the combinations of the two parties; but the scope of the above claim includes the combination described by Locke, as well as any other combination having the same mode of operation, and effecting the same result. The nature of the combination, and the scope of the claim embodying it, are clearly set forth by the Primary Examiner, as follows:

It will be observed that the relation of these parts is such that the wire is drawn from the supply-reel through and around the tension device by the wire-carrying arm, which places the band around the sheaf in the operation of binding. It will also be observed that the device here called a "spring-tension drum, S," serves both as a tension device proper, and as a take-up for the slack periodically occasioned in the binding-wire by the movements of the wire-carrying arms.

It will be observed, further, that this device is separate and distinct from the reel or spool which carries the supply of wire, that the tension is applied directly to the wire and not to the reel, and that the slack is taken up solely by the tension device, and without any retrograde movement of the reel. * * * * The new mode of operation and the new result above referred to are to be found in both machines—they spring from substantially the same combination in each machine—a combination consisting of the same essential elements, arranged and co-operating in substantially the same way, and to effect the same purpose.

In the above light of the nature and operation of the combination in question, and the doctrine of equivalents as applied to combinations generally, the issue in this case must be considered and determined as was substantially held by the Commissioner in his decision of September 20, 1876.

Upon Withington rests the burden of proof. His application was filed March 5, 1874. Locke's application was filed October 5, 1871, and his patent granted November 28, 1871. Withington, therefore, should clearly show that he was not only the first to originate this invention, and diligent in reducing the same to practice, but that, in view of the length of time prior to this application that the patent of Locke was granted, he had

not, by acquiescence, consent, or allowance, abandoned his invention to the public.

Withington's occupation formerly was that of a watchmaker and jeweler. His attention, he says, was directed to the subject of binding grain by machinery as early as 1860; and he has since obtained several patents relating to harvesters and grain-binders. It appears that his first efforts to produce a wire-binding machine were in 1865.

In 1867 he discovered a spool-tension device; but it is not pretended that it was combined in the manner or adequate to the work now claimed. His efforts were continued in this direction in 1868 and 1869, and in the latter year he invented a tension device which was substantially a part of the reel or supply-spool, the spring designed to take up the slack being attached thereto.

An application for a patent embracing this device was filed in this Office in September, 1869. December 29, 1869, Withington wrote to his attorneys in New York inclosing a model of an intermediate tension device, which is substantially the device incorporated in the present combination. In that letter he describes the tension as "acting upon the wire or thread between the spool or reel upon which it is wound, and the binding-head and wire-carrying arms, or other devices using said wire or thread," and further describes the manner in which he proposes to adapt the same to the general mechanism of the binder. He desired his attorneys to introduce the same into his application of September 29. The letter also states that he had in view the latter-constructed device at the time he forwarded the model to accompany this application, which was September 6, 1869.

The letter, corroborated by evidence showing that this model was completed at least a week before the writing of said letter, evinces a clear conception and understanding by Withington of the invention in dispute as early at least as the middle of December, 1869, although he insists that he had the idea fully developed months before.

It not being possible under the Office rules to introduce the device into the application of 1869, Withington, January 25, 1870, filed an application for this tension device, broadly, to be used in grain-binders, sewing-machines, &c. He subsequently amended the application, and restricted it to harvesters, but, failing therein to show by drawings or model its connection with a harvester, the claim was refused. This action was taken by the Office January 16, 1871.

Before this, however, in the spring of 1870, he had embodied the device in a binder, and used it experimentally in a shop at Janesville, Wisconsin. From all the evidence I am of opinion that this experiment was not earlier than May of that year. This machine was then taken apart, a new one built embodying the tension device, and used in the harvest of 1870, several acres of grain being cut with it. It appears to have been also displayed at a county fair at Cincinnati in the same fall. Subsequent to this, and almost constantly up to the time of this interference, Withington has been busy in efforts to adapt the device in controversy to harvesters, and introduce it upon the market. Not that he has found difficulty in making this invention work, but that he has met with many obstacles in perfecting the other parts of harvesting-machines, and endeavoring to persuade manufacturers to adopt this and other devices of his in connection with machines of their own.

In March, 1874, he filed his present application. He also attempted about the same time to renew his former application of 1870, but it was held to have been abandoned by operation of Sec. 32, act of 1870.

Turning now to Locke's testimony, it is not clear when he conceived this invention. That he had been striving to make a successful tension device for years previous to his invention of the present one there is no doubt.

In 1864 he invented an intermediate take-up, consisting "of a small pulley or sheave on the end of a spring located between the spool bearing the wire and the wire-carrying arm." This spring-arm was a strip of bent or twisted iron or steel, had a very limited movement, and, in fact, was not a tension device at all in the sense called for by this issue.

A similar experiment was made in 1869, in which the pivoted arm was actuated by a spring located intermediately between the spool and wire-carrying arm and binder-head. In 1867, he invented what he calls a "spool take-up," which in construction was substantially the same as that shown in Patent No. 84,065, granted to him November 17, 1868.

This is one of that class of machines where the spring-tension is attached to the supply-spool, and necessitates a retrograde movement of the spool with all its wire, to take up the slack. Neither of these devices, when attached to a harvester, were the equivalents, in operation, of the combination in controversy, and never were considered so by either party. The introduction of the rotary intermediate tension device produced a different and better result in the combination, being far more efficient than any spring-arm, and at the same time relieving the supply-reel of a retrograde movement with all its load.

Without considering the point attempted to be made by Withington against Locke, that the latter obtained his idea of the present invention from the former, I cannot find any evidence that satisfies me that Locke had clearly conceived this invention earlier than the winter of 1869 and '70. Notwithstanding the difficulty of originating such a device, adapting it to a machine, and the necessity almost always arising of previous efforts and experiments, no evidence of descriptions, sketches, or models made in secret or communicated to others prior to that time, is adduced.

The testimony as to the date of Locke's conception of the invention consists solely in his unsupported allegation that he conceived the invention in the summer or fall of 1869. This amounts to nothing more than Withington's allegation that he conceived the invention months before December, 1869. The date of discovery of an invention must be proved, not alleged. Some time during the following winter, in what month no one but Locke can tell, he put the complete invention on a full-sized binder. This he says was successfully operated in the months of January, February, and March, 1870.

Admitting that Locke was an original inventor, it is impossible to fix the date of the invention by him earlier than January, 1870. The binder alluded to was destroyed by fire in the spring of 1870. Another was built and a successful experiment was made therewith in the harvest of 1870. In 1871 it is alleged that binders containing the invention were made, but it is not clear from the testimony whether they were used. They have been made, sold, and used, however, in the harvests of the years following. Improvements and changes in adaptation also were made, but no change in the principle of the invention. As already stated the application of Locke was filed in October, and his patent granted in November, 1871.

Withington was first to clearly conceive this invention, but it is contended, substantially, that he should have fully constructed it before it was made by Locke, such act being necessary in order to defeat a patentee.

The doctrine on which the Office proceeds at present in these cases is that an applicant for a patent is the prior inventor as against a patentee if he was the first to clearly originate the invention and diligent in reducing it to practice.

No principle is better established than that the first inventor is he who first reduces the invention to practical form by embodying it in a machine capable of useful operation, modified, it is true, by the proviso that if the first to conceive the invention is second in reduction to practice, his right to the invention shall not be destroyed if he was using due diligence in perfecting it. (*Smith* vs. *Barber*, 7 OFFICIAL GAZETTE, 1; *Gorden* vs. *Withington*, 10 OFFICIAL GAZETTE, 1069.)

Says Judge Story in *Reed* vs. *Cutter et al.*, (1 Story, 590:)

In a race of diligence between two independent inventors, he who first reduces his invention to a fixed, positive, and practical form would seem to be entitled to a priority of right to a patent therefor. The clause of the fifteenth section now under consideration seems to qualify that right by providing that in such cases he who invents first shall have the prior right if he is using reasonable diligence in adapting and perfecting the same, although the second inventor had, in fact, first perfected the same, and reduced the same to practice in a positive form. It thus gives full effect to the well-known maxim that he has the better right who is prior in point of time, namely in making the discovery or invention. (*White* vs. *Allen*, 2 Fish., 440; *Reeves* vs. *Keystone Bridge Company*, 5 Fish., 456.)

The 15th Sec., act of 1836, here spoken of, has substantially the same provisions as Sec. 4920, R. S.

Although an interference of this kind is not the same in nature as an action for infringement or a suit in equity to uphold or defeat a patent, the character of proof required to show the fact of invention is the same. The Office herein is considering the question of granting a patent to an applicant who alleges himself to be the first and original inventor. In determining that question can it refuse to consider proof as to the time when said applicant discovered the invention and described it to others? Or shall we confine ourselves to the date when the applicant reduced the invention to practice in a full-sized machine? I think not. Although reduction to practice is necessary to show a perfected invention, the courts or the Office do not hold that nothing anterior to that event can be considered. Sketches, drawings, models, oral and written descriptions, and experiments, all constitute evidence to be considered in determining the question of priority of invention.

Two years prior to the filing of Withington's application takes us back to March 5, 1872. Did he abandon his invention to the public by allowing or consenting to its public use or sale before that time? There is no evidence whatever that he knew of any sale during that time, and it is also perfectly clear that his own use was during the same period experimental.

The decision of the Examiners-in-Chief awarding priority to Withington is hereby affirmed.

WILLIAM S. GILLEN.—*Petition to reopen interference.*

[*In the matter of the petition of the assignees of Wm. S. Gillen to reopen the interference between the application of said Gillen and the application of William Rogers.—Decided February* 15, 1877.]

A patent having been issued to the unsuccessful party to an interference after his withdrawal of the interfering claim, he cannot introduce the same matter in a reissue application, his right to it being *res judicata*.

An application for the reopening of an interference on the ground of newly-discovered evidence cannot be allowed where it appears that the testimony was not newly discovered, but was within the possession of the party from the beginning of the proceedings.

After a patent has been issued the Office has no power to investigate or determine whether or not the patentee has made false suggestions in his oath; nor is it a proper subject of investigation in an interference proceeding.

DOOLITTLE, *Assistant Commissioner:*

May 31, 1875, the Commissioner affirmed a decision of the Board of Examiners-in-Chief, awarding priority to Rogers upon the subject-matter embraced in his application, filed June 3, 1874. The Examiner of Interferences had also awarded priority to Rogers. Upon the decision of the Commissioner Patent No. 164,876 was issued to Rogers, assignor to himself and Thomas J. Burchfield, of Allegheny, Pennsylvania. Thereupon Gillen withdrew his claims in interference, and Patent No. 167,163 was issued to him August 31, 1875. Gillen's assignees now seek to reissue said patent, introducing the claims which were originally stricken out.

It may be here started that upon withdrawing the claims from his original application, before a patent was allowed him, Gillen notified the Office that he should prosecute the same upon a suit in equity in the United States courts, and he did commence said suit, but his attorneys, after the suit had gained some headway in the taking of testimony, learning that Gillen had withdrawn the claims upon which the suit was based, discontinued the same.

On the present application for reissue the Primary Examiner held that the matter, so far as the Office was concerned, and as between Rogers and Gillen, was *res judicata;* but the attorney for the assignees of Gillen insist upon a reopening, or, rather, of a renewal of the interfence between Rogers and Gillen, to proceed upon the present reissue application of Gillen, and the patent granted to Rogers, on the ground that newly-discovered evidence has since been had, which should induce the Office to declare the interference now asked for.

This newly-discovered evidence consists of testimony given by Rogers in the equity proceeding commenced, as above stated, and in an affidavit by Burchfield, the assignee of Rogers. Other evidence of a similar nature is alleged to be obtainable by the parties to this motion.

Rogers' testimony does not admit of, nor give color to, the fact that he is not the first and original inventor of the subject-matter formerly in controversy; but the point now made upon it is that he does not appear to understand the operation of his invention as described in his patent, and that one feature thereof—viz., the air-pump—is not used by him, and is, in fact, admitted by him to be inoperative. But the air-pump is not an essential part of Rogers' invention, for he claims this invention irrespective of the use of that pump.

Burchfield's affidavit simply goes to the point that Rogers did not describe to him this invention, as was alleged by Rogers in his testimony taken in the interference proceedings. It is proposed to also show by Burchfield and one John Coles that Rogers was not the original inventor. It has not been shown, nor pretended, that this testimony could not have been procured at the time of the interference in question, and it is therefore not newly-discovered evidence.

The General Chemical Examiner, Prof. Hedrick, in a written opinion, holds that Rogers does not describe an inoperative invention in his specification and drawings, so far as the air-pump is concerned, and that if he did the air-pump is not a necessary part of the invention.

The allegation that Rogers made false suggestions in his oath cannot now be inquired into by this Office, his patent having passed beyond its jurisdiction, and the matter is not a proper subject of investigation in an interference proceeding.

I fail to see any good grounds for granting this motion or disturbing the previous decisions of the Office awarding priority to Rogers upon the invention now sought to be incorporated by Gillen in a reissue of his patent.

So far as the remedy of applicants in a court of equity is concerned, they now stand in the same position that Gillen did before he withdrew his claims from the original application, and can prosecute their suit in a court of equity upon this judgment.

The decision of the Primary Examiner, that the matter of this reissue application is *res judicata*, is affirmed.

N. B. FASSETT.—*Reissue.—Motion.*

[*In the matter of the application of N. B. Fassett for reissue of patent No.* 127,036, *May* 21, 1872, *filed December* 2, 1876.—*Decided February* 24, 1877.]

The reason and necessity of the rule requiring an abstract of title to accompany an application for reissue explained, and the practice approved.

DOOLITTLE, *Assistant Commissioner:*

The above-entitled application for reissue is made by the inventor and four assignees. Three of these assignees appear by the Office records to be the owners of the entire interest. No assignment to the fourth assignee has been recorded. The law requires the Commissioner to grant a reissued patent, "in the name of the patentee, or in the case of his death, or of an assignment of the whole or any undivided part of the original patent, then to his executors, administrators, or assigns, for the unexpired part of the term of the original patent." (Sec. 4916, R. S.)

His action in this respect cannot be impeached for fraud, *Seymour* vs. *Osborne*, (11 Wall., 516,) and the reissued patent, if granted without the assent of assignees, would be defective. *Potter* vs. *Holland*, (1 Fish., 327;) *Woodworth et al.* vs. *Stone*, (3 Story, 749;) *Dental Vulcanite Company* vs. *Wetherbee*, (3 Fish., 87;) *Meyer et al.* vs. *Bailey et al.*, (8 OFFICIAL GAZETTE, 437;) *J. D. Wright*, (10 OFFICIAL GAZETTE, 587.)

It is necessary, therefore, that he should have the record purporting to be the assignment before him, in order to determine whether the alleged assignee is an assignee within the contemplation of the law.

With all due deference to the attorneys, or their clients in this case, their allegation even under oath, is not sufficient to inform me upon this point.

The reissue application will go forward, however, for examination, but will not be allowed until either the assignment of Keller, the fourth assignee, is recorded, or his name withdrawn from the petition.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—DISTRICT OF MARYLAND.

JOHN C. BIRDSELL *vs.* THE HAGERSTOWN AGRICULTURAL IMPLEMENT COMPANY.

[*In equity.—Before* BOND, *C. J., and* GILES, *J.—Decided January* 1877.]

In a motion for commitment for contempt for violating an injunction issued upon a patent the question as to whether the new machine is the same as the old is a question of fact to be determined on the evidence.

The rule is that courts of equity will never attach unless the violation of the injunction is plain and clearly proven to the court.

Birdsell's invention, construed to be for the combination of a pure thrashing-cylinder with a pure hulling-cylinder, and defendant's present machine, a combination of two hulling-cylinders, and although the first cylinder may separate the straw from the heads by a rubbing action, it is not a pure thrashing-cylinder, and therefore not an infringement of Birdsell's claim.

[*M. D. Leggett & Co.*, for complainant.
Hatch & Parkinson, for defendant.]

STATEMENT OF THE CASE.

[Hearing on motion of complainant for an attachment for contempt, to issue against defendant for violation of an injunction. The injunction was granted against defendant in 1874, under the patent granted John C. Birdsell, April 8, 1862, as a reissue of his patent granted May 18, 1858.]

The claims of the reissue, on which the defendant was enjoined, were as follows:

I claim the arranging and combining in one machine the cylinder which thrashes the bolls and seed from the straw or stalks, and the cylinder which hulls the seed, so that the bolls and seed thrashed may be hulled before it (the seed) passes out of the machine.

And—

In combination with the thrashing and hulling cylinders above claimed, I claim the bolting or screening and conveying apparatus, which separates the bolls and seed from the straw or stalks, and delivers them to the hulling-cylinder.

And—

In combination with the threshing and hulling cylinders, I claim the screening and fanning apparatus, which separates the hulls or bolls, and cleans the seed, after it leaves the hulling-cylinders.

Some time after the injunction defendant made certain changes in the machines and proceeded to manufacture and sell. Upon this manufacture and sale of the machine so changed the present motion was brought.

OPINION OF THE COURT.

BOND, *C. J.*, and GILES, *J.*:

The injunction in this case was to restrain the defendant from making, using, or vending any combined machinery for thrashing and hulling clover seed, made in accordance with any of the inventions specified or claimed in any of the claims of the complainant's reissue patent 1,299, or such as they have heretofore made and sold.

Petition now is for an attachment against defendant for violating this injunction by making and selling machines containing a thrashing and a hulling machine combined, as patented to complainant in the first claim of his patent.

The defendant denies that it has done this, but that the machines made and sold by it are substantially different from what it made before the issuing of said injunction, and from the machine described in complainant's patent No. 1,299.

This is largely a question of fact, and many affidavits have been submitted to the court by the counsel for the respective parties.

The complainant has filed the affidavits of Frank Millward, an expert, Joseph W. Dougall, Jno. C. Birdsell, complainant, and Hiram King—four in all.

The defendant has filed the affidavit of William C. Dodge, J. F. Reigart, L. W. Downin, Jacob Downin, Jacob W. Zantzinger, Jno. Weller, S. C. Downin, A. Miller—eight in all.

In considering the question of a violation of an injunction the court cannot but regret that they have not been furnished with models of the machine patented by Birdsell, and the machine which he alleges to be a violation of the first claim of his patent. The court can always best judge from models whether one machine differs in principle and mode of operation from another. In the absence of such evidence the court must look to the testimony of the experts who have examined the two machines. Now, it is a rule governing courts of equity in such cases that they will never attach a defendant for contempt where the violation of the injunction is not plain and proved to the satisfaction of the court. So far from a violation being proved in the case, the evidence of the witnesses clearly shows to this court that the two machines are different in their mode of construction, and it is for the court to decide whether there is a substantial difference in the principle upon which they act. Now, the expert produced by complainant swears that they are substantially the same. But the two experts on behalf of defendant, Reigart and Dodge, both men of great experience in such matters, testify that the machines now made by defendant do not contain the feature of Birdsell's first claim. This, the court thinks, is fully sustained by the written evidence in the case. Birdsell's patent is for a combination of a pure thrashing-cylinder with a pure hulling-cylinder. The defendant's machines contain a combination of two hulling-cylinders, and, although the upper cylinder may in some measure separate the straw from the head by rubbing or crushing, it is not a pure thrashing-cylinder. This had been done in machines made and patented before the date of Birdsell's patent, as will be clearly seen by the diagrams I, K, and L, attached to the deposition of Dodge filed in this case.

The court will therefore dismiss the motion for an attachment in this case.

APPLICATION FOR EXTENSION.

DEPARTMENT OF THE INTERIOR,
U. S. PATENT OFFICE,
Washington, D. C., March 10, 1877.

On the petition of HENRY VOELTER, of Heidenheim, Germany, praying for the extension of a patent granted to him August 10, 1858, antedated August 29, 1856, extended for seven years from August 29, 1870, reissued June 6, 1871, and numbered 4,418, for an improvement in reducing wood to paper pulp, this application having been authorized by act of Congress approved March 3, 1877:

It is ordered that the testimony in the case be closed on the 29th day of May next; that the time for filing arguments and the Examiner's report be limited to the 8th day of June next; and that said petition be heard on the 13th day of June next.

Any person may oppose this extension.

ELLIS SPEAR,
[tf] *Commissioner of Patents.*

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date March 13, 1877.]

9,848.—Glassware.—DAVID BARKER, Pittsburg, Pa., assignor to CRYSTAL GLASS COMPANY, same place. Application filed February 19, 1877. Term of patent 3½ years.

9,849.—Stoves.—CHAUNCEY H. CASTLE, Quincy, Ill. Application filed February 23, 1877. Term of patent 3½ years.

9,850.—Spoons, Forks, &c.—JOHN M. CULVER, Wallingford, Conn., assignor to HALL, ELTON & CO., same place. Application filed February 28, 1877. Term of patent 7 years.

9,851 and **9,852.—Carpets.**—EUGÈNE D. DANIELS, Paris, France, assignor to THE ROXBURY CARPET COMPANY, Boston, Mass. Applications filed February 28, 1877. Term of patents 3½ years.

9,853.—Carpet.—THOMAS J. STEARNS, Boston, Mass., assignor to THE ROXBURY CARPET COMPANY, same place. Application filed February 28, 1877. Term of patent 3½ years.

9,854.—Handles for Knives, Forks, and Spoons.—JOSEPH SEYMOUR, Syracuse, N. Y. Application filed February 9, 1877. Term of patent 7 years.

9,855.—Trimming.—AUGUST STURM, New York, N. Y., assignor to ROBERTS MANUFACTURING COMPANY, same place. Application filed January 27, 1877. Term of patent 3½ years.

9,856.—Woven Borders for Towels, &c.—RICHARD T. WEBB, Randallstown, Ireland. Application filed March 2, 1877. Term of patent 3½ years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date March 13, 1877.]

4,435.—Liquid Cosmetic.—JOSEPH BURNETT, Boston, Mass. Application filed February 12, 1877.

"The words 'AGUA DE FLORIMEL' and the representation of the woman on horseback."

4,436.—Soap.—WILLIAM DREYDOPPEL, Philadelphia, Pa. Application filed February 9, 1877.

"The national colors, red, white, and blue, in the form of a circular endless figure, forming the distinctive symbol shown."

4,437.—Brandy.—L. FURLAND & CO., Cognac, France. Application filed February 17, 1877.

"The representation of a heraldic shield, which is printed upon a background of red color, as shown."

4,438.—Medical Compound.—CHARLES GIGAULT, Worcester, Mass. Application filed January 31, 1877.

"The words 'The Children's Comfort,' and of my fac-simile signature 'Charles Gigault.'"

4,439.—Watches.—JOHN GORDON, San Francisco, Cal. Application filed January 15, 1877.

"The word 'TUCKER' and the sheaf of wheat."

4,440.—Manufactured Tobacco.—MICHAEL F. KEESHAN, Cincinnati, Ohio. Application filed February 17, 1877.

"The word-symbol 'CHARMER.'"

4,441.—Paper Collars.—JAMES L. LIBBY, New York, N. Y. Application filed February 14, 1877.

"The word-symbol 'Teapot.'"

4,442.—Matches.—ROBINSON, LORD & CO., New York, N. Y. Application filed December 13, 1876.

"The word-symbol 'NO BRAND.'"

4,443.—Cigars and Tobacco.—V. MARTINEZ YBOR & CO., New York, N. Y. Application filed February 27, 1877.

"The word-symbol 'Rosaro.'"

4,444.—Cigars.—GEORG RAHNSTADT, New York, N. Y. Application filed January 31, 1877.

"The word-symbol 'Union-Star.'"

4,445.—Pumps.—JOHN RYER, ABRAM H. VAN HORSEN, and SARAH HARDICK, Brooklyn, N. Y., executors of CHARLES B. HARDICK, deceased. Application filed February 22, 1877.

"The word-symbol 'NIAGARA.'"

4,446.—Piano-Fortes.—FREEBORN G. SMITH, New York, N. Y. Application filed March 3, 1877.

"The word-symbol 'CONSERVATORY.'"

4,447.—Organs.—FREEBORN G. SMITH, New York, N. Y. Application filed March 3, 1877.

"The word-symbol 'BRADBURY.'"

4,448.—Piano-Fortes.—FREEBORN G. SMITH, New York, N. Y. Application filed March 2, 1877.

"The word-symbol 'DOMESTIC.'"

4,449.—Striped or Figured Felt Fabrics.—ENOCH WAITE, Franklin, Mass. Application filed February 20, 1877.

"The word-symbol 'VELTINE.'"

4,450.—Deer and Gate Springs.—VAN WAGONER & WILLIAMS, New York, N. Y. Application filed February 27, 1877. "The figure of a star and the word 'Star.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date March 13, 1877.]

998.—Title: "**Solidified Glycerine.**"—CHARLES H. BEERS, New Haven, Conn. Application filed February 8, 1877.

999.—Title: "**Lewis Sherman, Milwaukee.**"—LEWIS SHERMAN, Milwaukee, Wis. Application filed February 6, 1877.

1,000.—Title: "**Thurston's Great Scrofula Cure and Blood Purifier.**"—THURSTON & Co., Garden City, Minn. Application filed January 13, 1877.

1,001.—Title: "**Compressed Tablets of Chlorate of Potash.**"—JOHN WYETH & BROTHER, Philadelphia, Pa. Application filed February 28, 1877.

1,002.—Title: "**Compressed Tablets of Chlorate of Potash.**"—JOHN WYETH & BROTHER, Philadelphia, Pa. Application filed February 28, 1877.

1,003.—Title: "**Compressed Tablets of Chlorate of Potash.**"—JOHN WYETH & BROTHER, Philadelphia, Pa. Application filed February 28, 1877.

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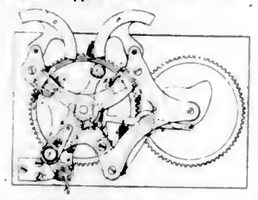
TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED MARCH 13, 1877.

188,223. SPOOL-PRINTING MACHINE. E. Allen, Norwich, Conn. [Filed July 12, 1876.]

Brief.—The spools are fed down a conveying-tube one upon another, and rest upon a stationary table. They are pushed therefrom, by an intermittent rotary transferrer, into oscillating nipping-jaws, which carry them under continuously-rotating printing-dies. The inking-rollers are pivoted to the frame, and cams on the revolving gear, which carries the lower set of dies, raise them so as to ink the upper set of dies.

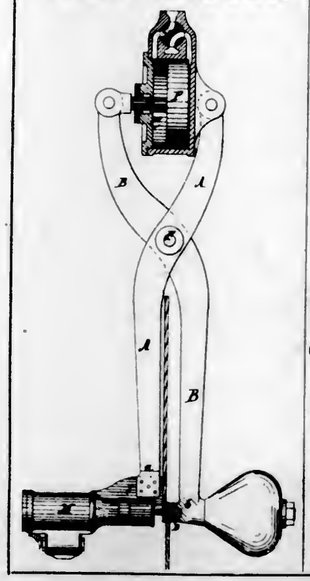


1. The combination of the stationary platform *d* and spool-receiver F with the continuous rotary sets of printing-dies *s r r s*, the oscillatory nippers K L, and the intermittent rotary transferrer G, provided with mechanism for operating them, substantially as specified.

2. The coloring rollers M′ N and their reciprocating rotary sectors O P, arranged and provided with mechanism for operating them, as described, in combination with the stationary platform *d* and spool-receiver F, and with the continuous rotary sets of printing-dies *s r r s*, the oscillatory nippers K L, and the intermittent rotary transferrer G, provided with mechanism for operating them, essentially as set forth.

3. The combination of the conical coloring-rollers M N with the two sets of printing-dies *r s s r* and the reciprocating rotary sectors O P, all being arranged and to operate substantially as set forth.

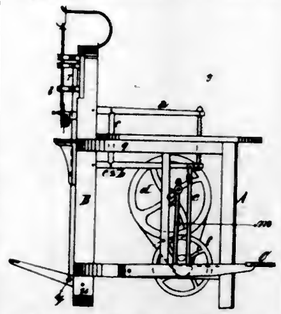
188,224. RIVETING-MACHINE. J. F. Allen, New York, N. Y. [Filed Aug. 25, 1876.]



1. The levers A and B, turning on a fulcrum, F, having on one arm a riveting-machine, M, and on the other arm a die, D, and a suitable weight, W, attached directly opposite each other, in combination with a cylinder, C, provided with suitable valves, piston, and piston-rod, said cylinder being connected to one arm, and the piston-rod to the other arm opposite, the whole to be suspended by suitable cords, or their equivalent, and arranged to operate in the manner and for the purpose substantially as set forth and described.

2. A holding-on bar consisting of two levers, A and B, turning on a fulcrum, F, and constructed substantially as described, in combination with a pressure-cylinder, or its equivalent, to open or close the ends of said levers, substantially in the manner and for the purpose herein specified.

188,225. SCROLL-SAWING MACHINE. I. Arthur, Shepherdstown, Pa. [Filed Feb. 19, 1877.]



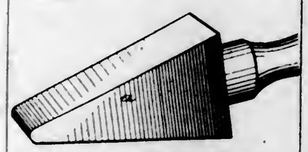
The combination of the bars *a b*, brace *c*, saw *s*, parallel connecting-rods *m m*, crank-shaft I, main band-wheel *d*, pulley *w*, fly-wheel *f*, pitman-rod *e*, treadle C, and frame A A B, as herein set forth, and for the purpose specified.

188,226. CHEESE-MAKING PROCESS. L. B. Arnold, Rochester, N. Y. [Filed Feb. 20, 1877.]

Brief.—In making cheese from skim milk, the milk, or a part of it, is first agitated until near the point of forming butter, after which rennet is added to set the curd.

In the process of making cheese from skim-milk, the agitation, by churning or otherwise, of the skim-milk, substantially as and for the purposes set forth.

188,227. BLACKBOARD-RUBBERS. Chas. N. Bacon, Winchester, Mass. [Filed Dec. 18, 1876.]



The herein described improved blackboard-eraser, consisting of the wedge-shaped piece of felt or its equivalent, *a*, in combination with the handle *b*, substantially as and for the purpose set forth and described.

188,228.

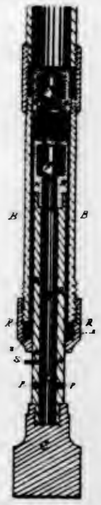


188,229. CATCHES FOR CORSET-CLASPS, &c. M. H. Bergen, Brooklyn, N. Y. [Filed Jan. 6, 1877.]

The combination of the pin D and the buckle, consisting of the base-plate A, with right-angled arms B B, slotted at E, and provided with the cam-lever C, pivoted to the said arms at their ends by the lugs A A, all operating substantially as described, and for the purposes set forth.

188,229. PUMPS FOR ARTESIAN WELLS. William Z. Blakslee, St. Petersburg, Pa. [Filed Apr. 3, 1876.]

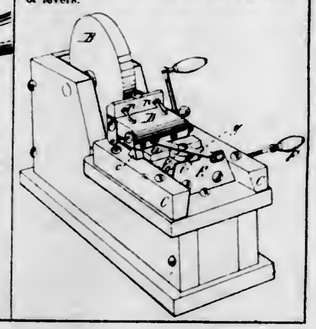
Brief.—The pump is intended to rest on the bottom of the well, the base being sufficiently heavy to anchor it there.



The combination of the anchor C, hollow rod A, provided with apertures P P, barrel B R, packing Z, valve-seats H and G, valves D D, and tubing T, substantially as described.

188,230. GRINDING-MACHINE. Farewell Booker, Shelburne Falls, Mass. [Filed Nov. 27, 1876.]

Brief.—A carriage is operated to and from the stone by a rack and pinion. Upon it is a tool-carriage, which slides laterally, and is hinged to permit the end adjacent to the stone to be raised vertically by cams. To this tool-carriage is pivoted the tool-clamp-holding hook, being tightened by cam links or levers.

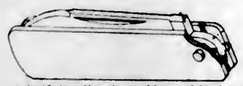


1. In a machine for grinding cutlery-blades, the combination of the movable platform *a'*, the slide *c*, the table D hinged to said slide, and the rock-shaft and eccentric *e*, arranged with said table, all to give its forward end a vertical vibratory movement in front of the grinding-stone, substantially as described.

2. The combination of the movable platform *a'*, the slide *a*, moving in guides upon and at right angles to said platform, the table D, hinged to said slide, the rock-shaft and eccentric *e*, arranged to give the forward end of said table a vertical vibratory movement, the set-lever *g*, for holding the slide and table in their desired position, and the grinding-stone B, all operating substantially as and for the purposes herein set forth.

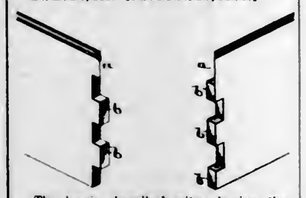
186,921. POCKET-KNIVES. Farewell Booker, Shelburne Falls, Mass. [Filed Nov. 3, 1876.]

Brief.—No back-spring is used, but the blade is held open and shut by means of ridges on its pivoted end, which take into grooves in the sides of the case, which are formed of one and the same piece as the back.



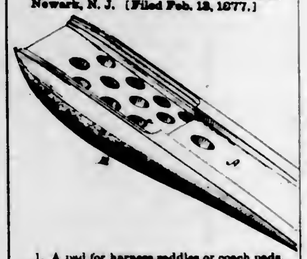
A knife-handle whose sides and back are of one piece, in combination with a blade and the devices—viz., the grooves and ridges—for holding the blade either open or shut, substantially as set forth.

186,922. PRINTERS' RULES. T. S. Bowman, St. Louis, Mo. [Filed Dec. 26, 1876.]



The herein-described miter, having the bevels *a a* and interlocking lugs *b b b*, substantially as described.

186,923. HARNESS-PADS. H. R. Cahoone, Newark, N. J. [Filed Feb. 13, 1877.]



1. A pad for harness saddles or coach pads, composed of a base, A, preferably of vulcanized india-rubber, perforated, as shown, or other elastic material molded to fit the tree, and combined with a lining, B, of felt, as set forth.

2. A pad, A, molded with perforations *a*, substantially as shown, for the purpose of ventilation and to diminish weight, as set forth, combined with a lining, B, of felt or other suitable material secured thereon by any glutinous substance, or in the process of vulcanization.

186,924. FIRE-ESCAPES. E. A. Copeland, Bay City, Mich., assignor to Ann E. Copeland and A. Walther, same place. [Filed Oct. 2, 1876.]

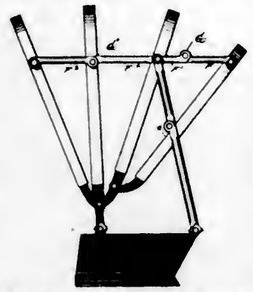
1. The fire escape or ladder, substantially as herein shown and described, the same consisting of the combination, with a stand-pipe, of loose collars secured to said stand-pipe by rounds forming set-screws.

2. The combination, with a stand-pipe, of loose collars and side rails united with said collars and the stand pipe by rounds forming set-screws, substantially as shown and set forth.

186,924.



186,925. CARRIAGE-TOP BRACES. John F. Croft and Henry B. Pitner, La Porte, Ind. [Filed Aug. 9, 1876.]



The horizontal or bow-spreading brace-system consisting of the four arms F F¹ F² F³, extending from the front to the rear bow, jointed at G and G', and having the joint M, between G and G', made with stops, so that, after a limited motion, the further motion of the front joint G' will fold the rear arms upon the joint G, substantially as specified, whereby the rear joint is controlled by the front one, and the movement rendered easy and uniform throughout.

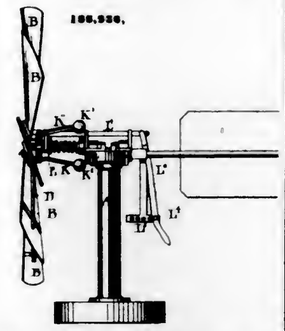
186,926. WINDMILLS. Edward A. Dana, Boston, Mass. [Filed Feb. 20, 1877.]

Brief.—Each sail has at its inner end a forked projection, which receives the end of a bent arm. These bent arms are affixed radially to the sliding collar, and with it constitute a spider, which is operated upon by the automatic action of the governor-balls and the bent levers. Each of the levers is pivoted to an extension of the fixed radial arm, so that the balls may be free to fly outward as the velocity of the wheel increases, and to cause the spider, to which the arms by means of a slot and pin are connected, to move longitudinally on the shaft, and thus, acting through the arms, change the angles of the sails.

1. The combination of the sliding spider E E', H H', &c., with the sails B B and the governor-levers K K', operating substantially as described, and for the purpose set forth.

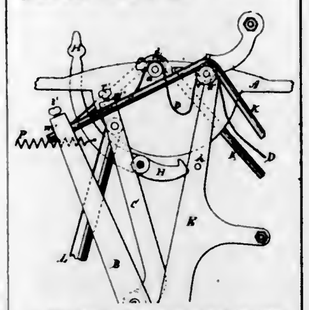
2. The combination of the spider E E', H H', &c., with the rod L L¹ and lever L², operating substantially as described, and for the purpose set forth.

186,927.



186,927. CIGARETTE-MACHINES. D. W. De Forest, Brooklyn, N. Y., assignor of one-half his right to W. Spence, same place. [Filed Nov. 23, 1876.]

Brief.—The reciprocating apron has one end attached to an auxiliary arm upon the oscillating frame, whereby the size of the pocket can be varied at will.



1. In a cigar or cigarette machine, having a reciprocating flexible apron, D, the combination of belts for giving motion to rollers *d d'*, as described.

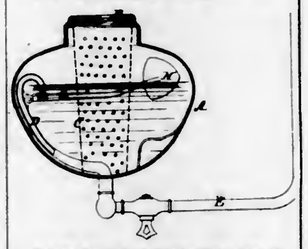
2. In a cigar or cigarette machine, the belts K, having one end attached to a drawing-lever, B, and the opposite to a yielding means, S, in combination with the rollers *d d'* and apron D, as set forth.

3. The adjustable tension-frame C, in combination with apron D and frames B E, substantially as set forth.

4. The rod L, foot-rack T, in combination with tension-frame C, frames B E, and apron D, substantially as set forth.

5. The belts K K', in combination with frame B and spring S, substantially as set forth.

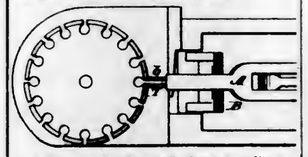
186,928. LAMPS. J. F. Dour, New York, N. Y. [Filed Aug. 30, 1876.]



A lamp-bowl, A, provided with a pipe, D, connected, through a suitable pipe, E, with a reservoir, F, in combination with a lever, G, having a float, H, at its end, and provided with a suitable projection, *m*, acting against the end opening of the pipe D, substantially in the manner and for the purpose herein described.

186,929. MACHINES FOR FINISHING HORSE-SHOE-NAILS. P. Dunn and T. Harris, Cote St. Paul, Quebec, Canada. [Filed Jan. 29, 1877.]

Brief.—The main lever is pivoted near its forward end to a swinging yoke-piece, and is reciprocated by a link connected with a crank on the driving-shaft. Cams raise the rear end of the lever just before it begins its backward reciprocation, thereby depressing its front end, and causing the drawing-roller to bear heavily upon the shank of the nail-blank from head to point. A spring-guide assists in properly positioning each blank.



1. The combination of the lever A, roller *a*, pitman D, cam or cams F, and yoke B, substantially as described.

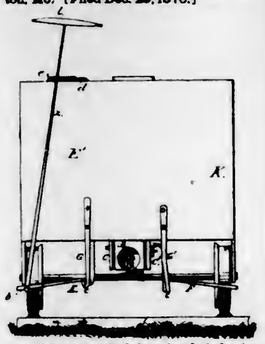
2. The combination of the frame H, stationary bed-piece *b*, inclined guide I, and drawing-lever A, provided with roller *a*, substantially as and for the purpose specified.

186,930. SALT-VESSELS. Rufus Dunham, Deering, Me. [Filed Jan. 24, 1877.]



A salt-vessel, having the cap *a*, branching prongs *b*, center prong *c*, disk *e*, and stud *f*, as and for the purposes herein set forth.

186,931. CAR-COUPLINGS. C. G. Ely, Tipton, Mo. [Filed Dec. 29, 1876.]



1. A flaring-mouthed draw-head, A, having shoulder *a*, bolt *h*, and slot *k*, in combination with draw-bar B, hung at one end on journal-bolt *i*, the other being beveled, provided with shoulder-rests *u u* and coupling-hook *r*, and springs H, substantially as described, and for the purpose stated.

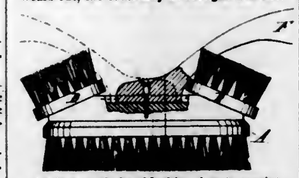
2. Supporting-timbers C C, having slots *f* and grooves *g*, in combination with flaring-mouthed draw-head A, having a shoulder, *a*, a draw-bar, B, provided with shoulder-rests *u u* and coupling-hook *r*, and springs H, stay-bolt *k*, and supporting-bar *m*, substantially as described, and for the purposes specified.

3. In combination, draw-bar B, provided with shoulder-rests *u u* and coupling-hook *r*, spring H, eyebolt *e*, levers E and F, brackets G G and *d*, spring-latch *s*, teeth *x* in lever-arm E', joint *h*, lever-handle *l*, and grooved draw-head A, substantially as described, and for the purposes specified.

4. In combination, a flaring-mouthed and grooved draw-head, A, shoulder *a*, hooked draw-bar B, with shoulder-rests *u u*, and coupling-link L, substantially as described and specified.

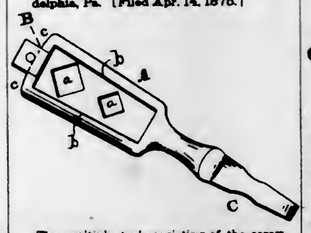
186,932. SHOE-BLACKING BRUSHES. C. B. Goldsmith, Holyoke, Mass. [Filed Oct. 6, 1876.]

Brief.—The handle is made reversible, so that when one of the blacking-spreaders wears out, the other may be brought into use.



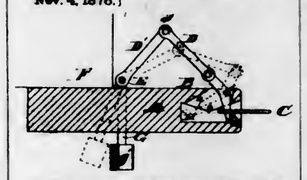
An improved shoe blacking brush consisting of the polishing-brush A, with the two netting-brushes D and the handle F secured thereto, so that said handle may be reversed in its position with reference to the said brushes D, substantially as and for the purpose described.

186,933. WRENCHES. W. D. Gold, Philadelphia, Pa. [Filed Apr. 14, 1876.]



The multiple tool consisting of the screw-driver C and a triple wrench, which is constructed of the shank A, with angular openings *a* and longitudinal flanges *b b*, in combination with the flanges *c c*, inwardly continuous of the longitudinal flanges *b*, and forming the space B, extending in the longitudinal direction of the shank, substantially as and for the purpose set forth.

186,934. CAR-COUPLINGS. J. J. Hoffman and C. F. Possmer, St. Louis, Mo. [Filed Nov. 4, 1876.]



1. The herein-described car-coupling, consisting of the draw-head A, having a chamber, H, whose roof is slotted at *h* and depressed at *e*, pin B, link C, jointed rod D D', rod E, and weighted levers G G', combined and operating substantially as described and shown.

2. The combination of the draw-head A, pivoted pin B, rod D D', and the rod E, arranged horizontally, and extending to either side of the car, and at its ends provided with the levers G G', having the weights *g g'*, substantially as described.

186,935. COOKING APPARATUS. Eben N. Horsford, Cambridge, Mass. [Filed Feb. 28, 1877.]

1. The combination, with a canteen of otherwise usual form and construction, of detachable conforming shells, which may serve the purpose of frying-pans or receptacles for liquid or solid matter.

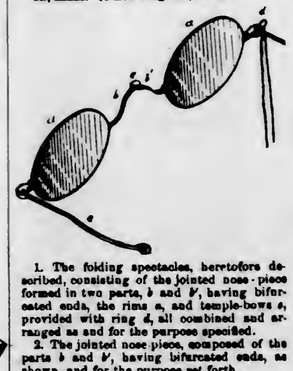
2. The combination, with a canteen and conforming shells, as described, of a fork and spoon, carved in the manner set forth, so as to conform with the shape of the shells, the fork and spoon being adapted to serve as handles for the inclosing shells, substantially as herein shown.

3. The shells provided with the clasps and hinge, and adapted to inclose a canteen, substantially as described.

186,935.



186,936. SPECTACLES. J. Johnson, Lowell, Mass. [Filed Aug. 26, 1876.]

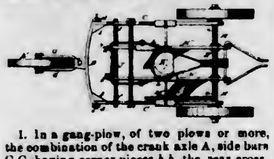


1. The folding spectacles, heretofore described, consisting of the jointed nose-piece formed in two parts, *b* and *b'*, having bifurcated ends, the rims *a*, and temple-bows *c*, provided with ring *d*, all combined and arranged as and for the purpose specified.

2. The jointed nose-piece, composed of the parts *b* and *b'*, having bifurcated ends, as shown, and for the purpose set forth.

186,937. GANG-PLOWS. Mark D. Judkins, Oaskis, Minn. [Filed June 6, 1876.]

Brief.—Notches are formed in the rear ends of the plow-beams, to fit upon the crank-rod suspended in the side beams. Their front ends are connected to the crank-axle, to which is secured a lever for operating said axle and rod, by means of which the plows are raised or lowered. The rear ends of the side bars are connected by a cross-piece, having the arms between which the supporting-wheel is mounted swiveled thereto.



1. In a gang-plow, of two plows or more, the combination of the crank axle A, side bars C C, having corner-pieces *b b*, the rear cross-bar D, with bolts *d d* and nuts *e e*, and the swiveled frame G, with wheel E, all substantially as and for the purposes herein set forth.

2. The combination of the crank-axle A with lever M, the plow-beams H having notches X near their rear ends, and the crank-rod J, substantially as and for the purposes herein set forth.

186,938. CALENDARS. Wm. W. Kitchen, Grimsby, Ontario, Canada. [Filed Oct. 26, 1876.]



A perpetual calendar, consisting of the dial-plate A, having letters and figures arranged

thereon as shown, and the disk B, having letters arranged thereon as shown, so arranged that the day of the week upon which any year begins being known, the day of the week upon which each month commences can be ascertained, substantially as described.

186,249. MAIL-BAGS. Judson C. Lowell, Jackson, Mich. [Filed Feb. 28, 1877.]

Brief.—The metal plates are provided with slots and studs, to guide the tongues through the staples of the bag, and prevent lateral and vertical play.

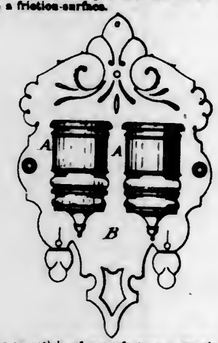


1. A fastening for mail-bags, consisting of a series of metal plates secured to a flexible strap, said plates being provided with tongues and longitudinal slots, in combination with studs or projections secured to the bag, and adapted to slide in said slots, and the staples F, substantially as and for the purpose specified.

2. A fastening for mail-bags, consisting of a series of metal plates secured to a flexible strap, said plates being provided with tongues and longitudinal slots, in combination with studs or projections secured to the bag, and adapted to slide in said slots, and the staples F and side flanges, substantially as and for the purpose specified.

186,260. MATCH-BOXES. J. A. Kratt, Buffalo, N. Y. [Filed Feb. 19, 1877.]

Brief.—The match-box plate is hinged to the back plate, and provided on its rear side with a friction-surface.



As an article of manufacture, a match-safe composed of the parts A, B, and D, hinged together at C, and provided with a friction-surface, E, and holding-strips E' and G, substantially as and for the purposes specified.

186,261. TEMPER-SCREWS FOR ARTESIAN WELLS. Kasper Kugler, Oil City, Pa. [Filed Jan. 12, 1877.]

Brief.—The upper end of the screw is left blank, with a circumference sufficient to prevent it from passing through the divided nut, when the latter is simply opened far enough to allow a rotation of the screw. The cup at the bottom holds the lubricating-oil for the swivel.

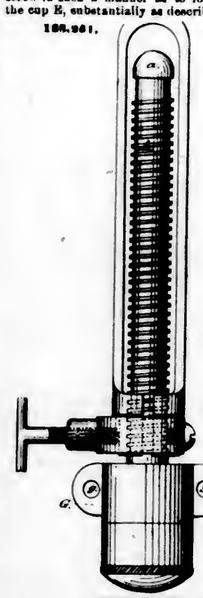
1. A self-lubricating swival for the lower end of a temper-screw, substantially as described.

2. The combination of the clamp-carrier G with the screw A, head b, and cap D, the clamp-carrier G provided with an oil-chamber, C, with its oil-hole e, and with or without washers between said G and the head b, said clamp-carrier G being arranged to turn freely upon the base of the screw A, substantially as described.

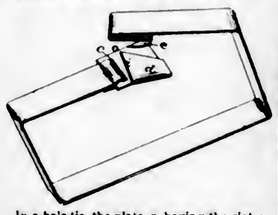
3. In the clamp-carrier of the temper-screw, the oil-chamber C, with its oil-hole, substantially as described.

4. In the swivel of a temper-screw, the cap D, to surround and cover the lower end of the screw in such a manner as to form below it the cup E, substantially as described.

186,261.

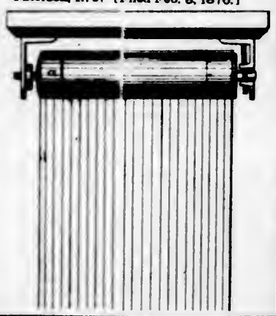


186,262. BALE-TIES. John M. H. Martin, Brookhaven, Miss. [Filed Mar. 2, 1877.]



In a bale-tie, the plate a, having the slot e, wing d, projecting corner c, the wing and corner being folded toward each other, so as to leave a slit between them, and the band being made to catch over the edge i of the wing d, and prevented from coming out sidewise by the projecting corner c, substantially as shown and described.

186,263. SHADE-ROLLERS. F. C. D. McKay, Paterson, N. J. [Filed Feb. 8, 1876.]



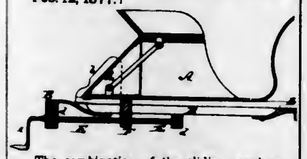
A curtain or shade-roller made in tubular form, of paper, pasteboard, or other suitable fibrous material, for the purposes herein set forth.

186,264. ARTIFICIAL TEETH. Frederick T. Mercer, Mystic Bridge, Conn. [Filed Feb. 2, 1877.]



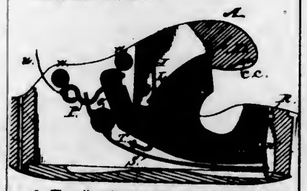
In artificial teeth, the roof A, of any alloy gum, attached to a metallic base, B, in which the teeth are fastened, substantially as set forth.

186,265. EXTENSIBLE WAGON-BODIES. F. Oppenheim, San Francisco, Cal. [Filed Feb. 12, 1877.]



The combination of the sliding carriage-body A and supporting-frame B with the screw E and nut F, all arranged substantially as herein shown and described.

186,266. CLUTCHES FOR JIB-SHEET TRAVELERS. Robert T. Osgood, Orland, Me. [Filed Apr. 24, 1876.]



1. The vibrating tumbler *j*, consisting of the pin E, upright F, and inclined arm G, in combination with the case A, provided with the notch E E, substantially as described.

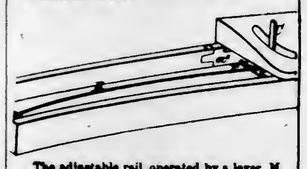
2. The pawl H, as hinged into the pin E as to form a secure brace when in the catch R of the chamber, substantially as described.

3. The long lever S, with its roller o, the inclined arm G, the short lever P, together with the springs L and I, for the purposes substantially as described.

4. The case A, made with or without flanges, the tumbler j, and its attachments, in combination, substantially as set forth and described.

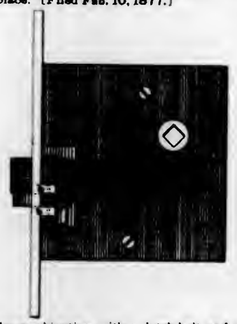
186,267. MACHINES FOR JOINTING STAVES. Lemuel B. Palmer, Belfast, Me. [Filed May 23, 1873.]

Brief.—The truck upon which the stave-carrying table moves is made adjustable to different degrees of curvature, to suit staves of different widths.



The adjustable rail, operated by a lever, M, and the stave-carriage, with its bearings C, lever D, and plate E, when combined with a lifting-incline, r, and a wire or cord for guiding the incline into the plate w, substantially as shown, and for the purposes set forth.

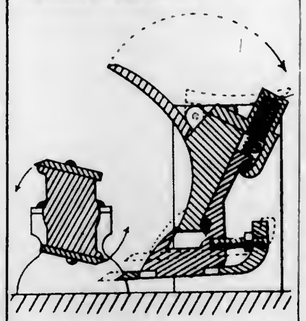
186,268. KNOB-LATCHES. E. Parker, New Britain, Conn., assignor to the Russell & Erwin Manufacturing Company, same place. [Filed Feb. 10, 1877.]



The combination, with a latch-bolt and a controlling-lever, which is operated by the striker, of a pin and a sliding block, by which the lever and latch-bolt are connected, substantially as described.

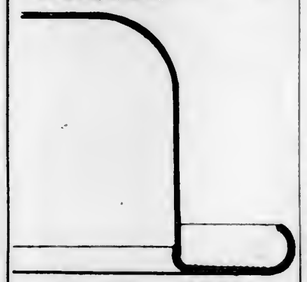
186,269. PRESSURE DEVICES FOR PLANING AND MOLDING MACHINES. C. E. Patterson, Pittston, Pa. [Filed Feb. 21, 1877.]

Brief.—The lumber is held firm, and the operator enabled to adjust the machine to knives of different lengths, and to the edges of crooked knives, by means of a series of independent pressure-blocks provided with longitudinally-adjustable shoes.



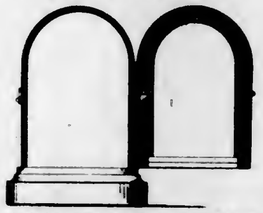
A pressure device for planing and molding machines, composed of a series of independent pressure-blocks provided with longitudinally-adjustable shoes, constructed to operate in the manner shown and described, and for the purpose set forth.

186,270. HATS. C. E. Richards, North Attleborough, Mass., assignor of one-half his right to S. Scholfield, Providence, R. I. [Filed July 6, 1876.]



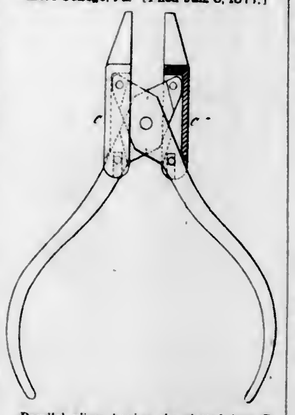
A hat fabricated of paper thread or twine, having a knit and stiffened encircling rim of two thicknesses, as a new manufacture.

186,271. CLOCK-CASES. A. T. Robinson, Bristol, Conn., assignor to Geo. A. Jones, same place. [Filed Oct. 25, 1876.]



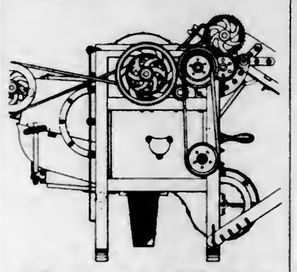
A clock-case the top and sides of which are formed of veneers, each of which is made of a single continuous piece of wood, and united at their ends to the base-piece of the case, substantially as and for the purpose set forth.

186,272. PLIERS. H. R. Russell, Swarthmore College, Pa. [Filed Jan. 3, 1877.]



Parallel pliers, having the slotted jaws C C, the sides of which communicate closely with the closed back, substantially as described.

186,273. CORN-SHELLING MACHINES. Andrew H. Shreffler, Joliet, Ill. [Filed Dec. 16, 1876.]



1. The combination, with the shelling-wheel in a corn sheller, of the feeding wheel or wheels and beater or beaters, arranged substantially as specified, so that the path of the corn shall be horizontal, or substantially so from the delivery end of the elevator to the sheller-wheel.

2. The corn-sheller in which the path of the corn from the delivery end of the elevator to the sheller-wheel is horizontal, or substantially so along the moving surfaces of wheels, beaters, or other like contrivances for urging it along, substantially as specified.

3. A corn-sheller provided with a horizontal, or substantially horizontal, feed, continuing from and including the delivery end of the elevator, substantially as specified.

4. The combination, with the corn-sheller, having a horizontal, or substantially horizontal feed, of an elevator for bringing the corn up to the feed, having its delivery end upon a level, or substantially upon a level, with the feed mechanism, substantially as specified.

5. The combination, with a corn-shelling machine, of an elevator for carrying the corn to the machine, hinged or jointed to the machine, so that it may be adjusted or given different inclinations or pitch beneath the mass of corn, in order thus to govern or regulate the feed, substantially as specified.

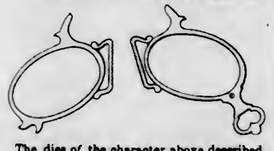
6. The combination, with a corn-shelling machine, provided with a hinged or jointed elevator, and hopper B', of adjustable legs or supports attached to said elevator, whereby said elevator may be supported at various inclinations, substantially as specified.

7. The combination, with a corn-shelling machine, provided with an elevator hinged or jointed thereto, and hopper B', of adjustable legs or supports extending from the elevator to the frame of the machine, substantially as specified.

8. The forcing-beaters in the throat of the sheller, or at the commencement of the feed apparatus, consisting of a cylinder sufficiently large to nearly fill the gap in which it revolves, and support the ear as it passes, and provided with flanges, substantially as specified.

9. The partitions I, I, provided with tongues *i i*, projecting downward through the shield E, to separate the feed-holes, substantially as specified.

186,274. EYEGLASSES. John S. Spencer, New York, N. Y. [Filed Jan. 22, 1877.]



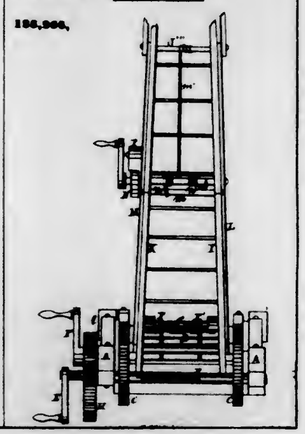
The dies of the character above described, for making frames for glasses or other articles out of plastic material, or material that can be made plastic, substantially as shown and set forth.

186,275. SIEVES. W. F. Starnes and W. M. Lipe, Macomb, Ill. [Filed Oct. 21, 1876.]



A removable sieve-bottom, consisting of wire cloth B, and inner and outer hoops *s s*, each hoop having a horizontal and a vertical flange, the wire cloth being clamped between the flanges of the hoops and between the lower edge of the vertical flange of the inner hoop, and the curved lower part of the vertical flange of the outer hoop, substantially as and for the purpose described.

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188,266. FIRE-ESCAPES. Wm. W. Stead, Cleveland, Ohio. [Filed Jan. 10, 1877.]

1. The racks R R, boxes D', with racks therein, in combination with the pinions B', shaft C', and ladder I, arranged substantially as herein described, and for the purpose set forth.

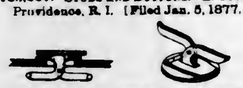
2. Wheel H, pinions D, and segments C, in combination with hinged ladders I K, jointed, respectively, to said segments and shaft C', arranged in relation to, and co-operating with, the pinions B' and racks, for the purposes described.

3. Jointed ladders I K, braces L M, pivoted to said ladders, and cross-rods *o'*, in combination with the shaft O, ratchet and pawl P N, and cords *n n'*, in the manner as herein set forth.

4. The shaft and cog-wheel S T, pinion U, and cord or cords F', in combination with the pinions B', racks R, and ladder I, substantially in the manner as described, and for the purpose specified.

5. The boxes D' and racks therein, in combination with the racks E E and segments C C, as and for the purpose set forth.

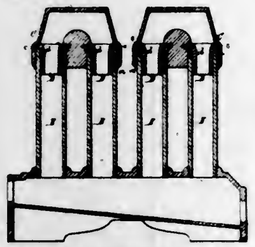
188,267. STUDS AND BUTTONS. L. Towne, Providence, R. I. [Filed Jan. 5, 1877.]



1. In a stud or button, the combination, with a rigid L-shaped arm, of an L-shaped arm pivoted to the rigid arm, and a locking-plate, substantially as described.

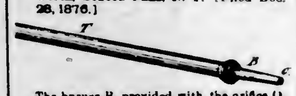
2. In a stud or button, the combination, with arms which are changeable in position with relation to each other, of a lateral bar or plate on each arm, substantially as described.

188,268. STEAM-HEATING RADIATORS. C. C. Walworth, Boston, Mass. [Filed Aug. 14, 1876.]



The return head C, provided with the chambers *g*, in combination with the expander D and the enlarged upper end of tube B, substantially as shown and described.

188,269. LAMP-LIGHTERS. Wm. P. Wentworth, Seneca Falls, N. Y. [Filed Dec. 28, 1876.]



The burner B, provided with the orifice O, made to fit the wick in the particular manner and for the purpose set forth, combined with the tube T and the handle H, the whole constructed, arranged, and operating as herein specified.

188,270. LAMPS. W. Westlake, Chicago, Ill. [Filed Oct. 19, 1876.]

Brief.—Air is supplied to the burner through pipes. None enters at the base of the chimney.

1. In a suction-lamp, the combination of the close-fitting jacket D *a* and packing *b* with a chimney-cone, C, and air-chamber B, for preventing the entrance of any disturbing currents of air at the base of the chimney, substantially as specified.

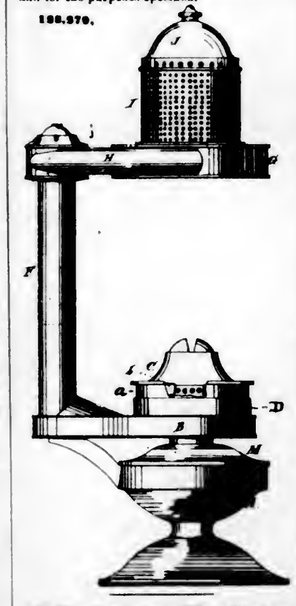
2. The air-chamber G, having an opening, *h''*, around the chimney L, in combination with the chimney L, one or more tubes, H, tube F, and air-chamber B, substantially as described.

3. The combination of the air-chamber G, open space *h''*, chimney L, perforated cylinder I, and cap J, all constructed and arranged substantially as and for the purposes set forth.

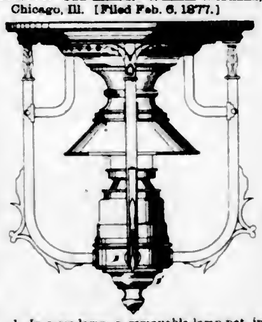
4. The slip-tube *g*, provided with the slot *s*, in combination with the tube *f* and pin *h*, substantially as and for the purpose specified.

5. The air-chamber B and oil-pot A, arranged with an air-space, M, between them, in combination with the tube F, air-chamber G, and one or more tubes, H, substantially as and for the purposes specified.

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188,271. CAB-LAMPS. William Westlake, Chicago, Ill. [Filed Feb. 6, 1877.]



1. In a car-lamp, a removable lamp-pot, in combination with a slip-chimney, M, air-chamber G, and one or more air-tubes for supplying air from the chamber G to the flame, substantially as specified.

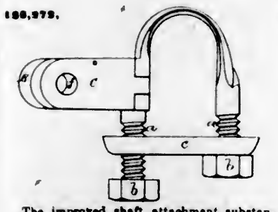
2. The chimney-guide L, provided with tongues or fingers *f*, in combination with an air-chamber, G, and one or more air-tubes for supplying air from the chamber to the flame, substantially as and for the purposes specified.

3. The chimney-guide L, provided with fingers or tongues *f*, in combination with the band *g*, substantially as and for the purpose described.

4. The oil-pot, or jacket thereof, provided with a fork, *b*, to engage with the band D, and so formed on the outside that the overflow cannot escape, but will be directed into the drip-cup D' substantially as specified.

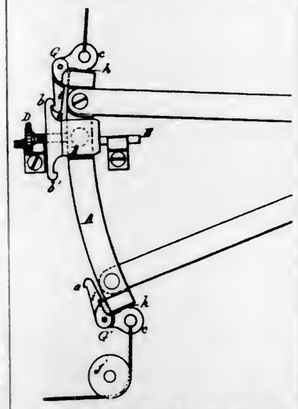
188,272. TELL-COUPLINGS. F. F. Wheeler, Ashby, Mass. [Filed Dec. 28, 1876.]

188,273.



The improved shaft attachment, substantially as described, provided with the stationary guard B and joint-pin D, and the movable or hinged jaw C, and having a notch, *e*, in the joint-pin, and a latch, E, arranged in, and pivoted to, such hinged jaw, so as to engage or operate with such notch, all as set forth.

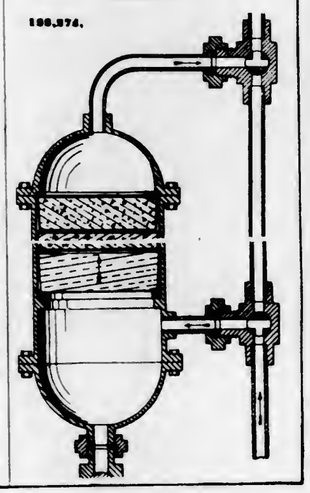
188,275. LINKS FOR STEAM-ENGINES. D. A. Woodbury, Rochester, N. Y. [Filed Jan. 22, 1877.]



1. The catch G, provided with stop-projections *h* and *i*, and spring *d*, in combination with the solid link A and block B, upon which is formed the hook *b*, constructed and operating substantially as set forth.

2. In combination with the solid link A, provided with automatic locking devices G *a b*, the set-wheel D, substantially as and for the purposes set forth.

188,274.



188,274. FILTERS. Geo. W. Woolsey, Toledo, Ohio. [Filed Jan. 24, 1877.]

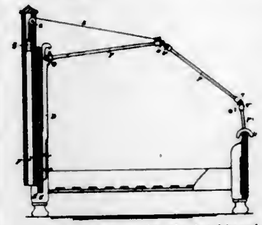
Brief.—The water enters through the inlet-pipe at the bottom below the stone diaphragm, and is discharged from outlet-pipe at top. The outlet and inlet pipes are connected by a vertical pipe, and the circulation of the water is regulated by two three-way cocks, making the action of the filter reversible.

1. The combination, substantially as set forth, of the main or service pipe, the filter, the flush-cock, the inlet and outlet pipes, and the two three-way cocks.

2. The combination, with the body of the filter, of the series of superposed filtering-pans and interposed packing-gaskets, and the cap by which said pans and gaskets are held and packed tightly together, substantially as set forth.

3. The filter, consisting of a metal cylinder closed by top and bottom caps, and provided internally with a porous stone diaphragm and superposed series of filtering-pans and intermediate gaskets held and pressed together by the upper cap of the cylinder, as set forth.

188,275. MOSQUITO NETS AND CANOPIES. Albt. R. Baker, Indianapolis, Ind. [Filed Dec. 7, 1876.]



1. In combination with the head-board E of a bed, a tube, F, arranged to operate in the manner set forth and described.

2. In combination with the head-board E of a bed, the uprights D, constructed and arranged to operate substantially as set forth and described.

3. In combination with the head-board E of a bed, the canopy-frames O P O' O² P' O², uprights D, tube F J, cord K, and weight G, arranged to operate substantially as set forth and described.

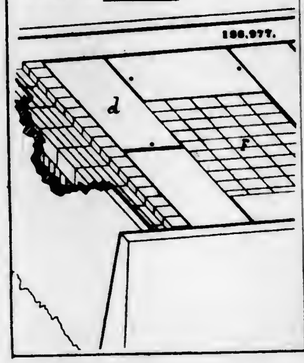
4. The hinge, T-shaped socket T T', constructed and arranged to be operated in the manner and for the purposes specified.

5. In combination with the frames O² P' O², the adjustable leg or bar P² and curved foot V, in the manner and for the purposes specified.

188,276. COMBINED SHAWL-PIN AND BUTTON-HOOK. J. Barnes, Brooklyn, N. Y. [Filed Nov. 2, 1876.]

The combined shawl-pin and glove-buttoner, provided with a point at one end and an open hook or loop at the other, substantially as described and shown.

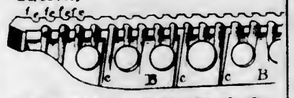
188,277.



188,277. BRICK-KILNS. E. W. Bingham, Philadelphia, Pa. [Filed Feb. 14, 1877.]

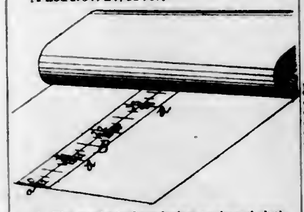
In an open-topped kiln, the combination of the upper surface of the contents of the kiln with the laterally-adjustable metallic sheets *d*, loosely spread over it, and adapted to descend with it as the mass settles, substantially as shown and described.

188,278. GRATE-BARS FOR FURNACES. J. H. Blanchard, Boston, Mass. [Filed Jan. 24, 1876.]



In a grate-bar, the combination of a fire-surface composed of projections *f* and niches *e* broader than the projections, perforated web B provided with the buttresses *c*, with the wedge-shaped supporting ends, substantially as shown and described.

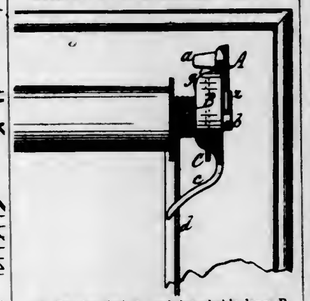
188,279. MEASURING PACKAGED FABRICS. V. A. Bond, Gregg County, Tex., assignor, by mesne assignments, to E. F. Bedell. [Filed Nov. 27, 1876.]



1. The method of rendering packaged cloth accurately self-measuring by attaching a graduated strip permanently thereto by pasting or otherwise, and preferably on or near the edge of the cloth, substantially as described.

2. The flexible strip B, made of paper or other fabric, attached to the roll at its ends, and in the direction of its length having a central longitudinal line, *a*, and vertical lines *d d*, along which a scale representing the number of yards and fractions of yards, or other units of measure, contained in the roll are indicated, and said numbers being so arranged on each side of the vertical lines that they will indicate to the seller the number of yards or units of measure remaining in the roll, and the original number contained thereon, and at the same time will indicate to the buyer the number of yards or other units of measure bought, substantially as described.

188,280. CURTAIN-FIXTURES. N. Campbell, Rochester N. Y. [Filed June 9, 1876.]



1. The bracket A and detachable lever B, the latter located between the foot *a* and socket-bearing *b* of the bracket, and provided with the loose joint connection *m p*, whereby the lever retains its place against end thrust and lateral displacement, and is made effective in its connection with the ratchet-wheel, as herein described.

2. The bracket A, constructed with the foot *a* and socket-bearing *b*, and the lever B, constructed with the arm *c*, pawl *f*, and arm *k*, the connection between said parts being made by the bit *m* and key-hole *p*, located between the foot and socket-bearing of the bracket, as and for the purpose specified.

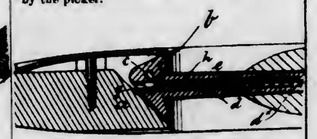
3. The bracket A, with key-hole *p*, constructed with the sharp-edged bearing *r* and projection *w*, and with the bosses *r s*, as herein shown and described.

4. The lever B, constructed with the curved end *g*, with shield *f'* for protecting the ratchet, and with or without the stop *h*, as shown and described, and for the purpose specified.

5. The bosses Z Z, formed upon the back side of the bracket, for the purpose of preventing contact of the bit *m* with the wood in its turning movement, as herein shown and described.

188,281. LOOM-SHUTTLES. D. H. Chamberlain, Boston, Mass., assignor to himself and Wm. H. Ireland, same place. [Filed Jan. 8, 1877.]

Brief.—The spindle is provided with a tube or sleeve, to the outer and closed end of which, and on the inside of the same, is secured a slender rod or wire, which passes through the hollow spindle, and is attached to a block or head. Between this block and a shoulder of the spindle is a spiral spring, that surrounds the aforesaid wire or rod. This construction allows the sleeve or tube to yield toward the eye end of the shuttle when that end is struck by the picker.

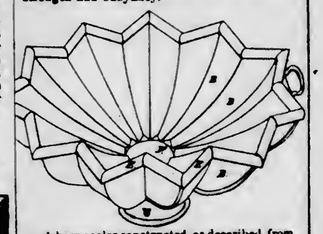


1. The combination, with the hollow spindle *d d' d''*, provided with a head, *b*, of the movable tapering cop-tube *e*, provided with the rod or wire *f g* and the spring *h*, as and for the purpose set forth and described.

2. In a shuttle, the combination of a stationary spindle, *d*, with a yielding cop-tube, *e*, as and for the purpose set forth.

188,282. BEER-COOLERS. Ford Cisar and Frank Sochurek, Milwaukee, Wis. [Filed Sept. 27, 1876.]

Brief.—The construction is to secure strength and buoyancy.



A beer-cooler constructed, as described, from plates B, having concave edge *g* and convex edge *h*, and united together at their edges in the manner described, and at their upper ends by the hollow sheet-metal tube E, substantially as and for the purpose specified.

188,283. VAPOR-BURNERS. G. W. Clough, Cleveland, Ohio, assignor to himself and W. W. Davy, same place. [Filed Nov. 18, 1876.]

1. The combination, with the combustion-cap K, of the adjusting-plate I, the latter constructed with guide-pipe *b*, substantially as and for the purpose set forth.

2. The combination, with perforated adjusting-plate I, of the combustion-cap K, removably secured to the outer edge of said adjusting-plate, substantially as and for the purpose forth.

3. In a vapor-burner, the adjusting-plate I, provided with guide-pipe *b* and jet-apertures *c'*, substantially as described.

4. The combination, with plate H, of the perforated adjusting-plate I, provided with guide-pipe *b*, substantially as and for the purpose set forth.

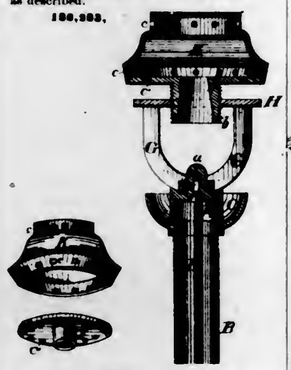
5. In combination with the vaporizing chamber D, expansion-chamber N, and screw-valve

E, the adjusting-plate I and removable cap K, substantially as and for the purpose described.

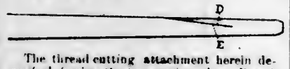
6. The combination, with the vaporizing-chamber D, expansion-chamber N, and screw-valve E, of the adjusting-plate I, top plate H, and removable combustion-cap K, substantially as described.

7. The combination, with the vaporizing-chamber D, expansion-chamber N, screw-valve E, and primary heating-cup C, of the arms G G, adjusting-plate I, top plate H, and removable combustion-cap K, substantially as described.

188,283.

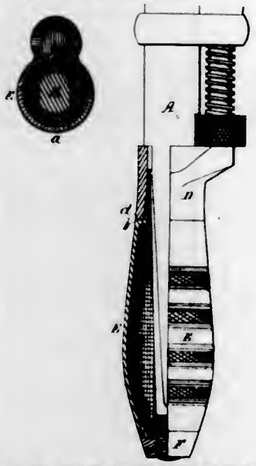


188,284. THREAD-CUTTING ATTACHMENTS. Andrew Coats, New York, N. Y. [Filed Oct. 28, 1874.]



The thread cutting attachment herein described, having the two cutting edges, D and E, formed in the side of a plate of metal, the edge D being arranged obliquely to the edge E, as and for the purposes set forth.

188,285. WRENCHES. L. Coes, Worcester, Mass. [Filed Feb. 17, 1877.]



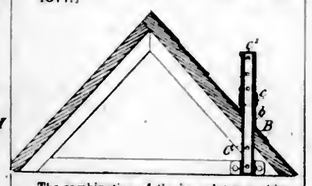
1. The metallic handle E, formed of thin hollow sections or shells fitted to each other at their edges a a, and provided with offsets or shoulders b and s at their ends, substantially as and for the purpose set forth.

2. The combination, with the bar A and ferrule D, in a screw-wrench, of the metal handle E, formed in two halves or sections, and having offsets or shoulders *b s*, and the flanged tip *F f*, substantially as shown and described.

188,286. POMADE. Mack Culberton, Lake City, Minn. [Filed May 27, 1876.]

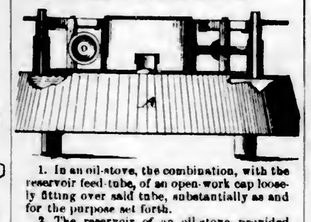
The hair-pomade composed of cocoa or palm soap, salts of tartar, glycerine, oil lavender, and citronella, in the proportions substantially as above described.

188,287. SNOW-GUARDS FOR ROOFS. P. A. Dugan, Brooklyn, N. Y. [Filed Feb. 22, 1877.]



The combination of the iron slates or shingles B, provided with the sockets *b*, the bars or supports C, provided with the cap pieces *c*, and the snow-guard, formed of a series of rods, E, constructed and operating substantially as and for the purposes set forth.

188,288. OIL-STOVES. O. Edwards, Florence, Mass. [Filed Oct. 12, 1876.]



1. In an oil-stove, the combination, with the reservoir feed-tube, of an open-work cap loosely fitting over said tube, substantially as and for the purpose set forth.

2. The reservoir of an oil-stove, provided with hollow standards, which serve to support the upper portion of the stove, and also to ventilate the oil contained in the reservoir, substantially as and for the purpose described.

3. In an oil-stove wherein the reservoir supports the top of the stove, the combination, with the wick-tubes, of two or more independent removable chimneys, having burners secured thereto, substantially as and for the purpose described.

4. The reservoir and top of an oil-stove, connected by top-supporting rods, in combination with two or more independent removable chimneys, substantially as and for the purpose described.

5. In an oil-stove having its top supported by rods, the combination, with two or more wick-tubes, of removable chimneys, whereby the chimneys may be readily inserted or removed without disturbing the other parts of the stove, substantially as and for the purpose set forth.

6. The combination, with the removable chimneys of an oil-stove, of vertically-movable collars, the latter supported by the upper drum of the stove, substantially as and for the purpose specified.

7. The combination, with the removable chimneys of an oil-stove, of a diaphragm provided with openings formed with a depending flange, for retaining the chimneys against lateral displacement, and lugs secured to said flange to support perforated plates on which the chimneys rest, substantially as and for the purpose specified.

8. The combination, in an oil-stove, of its reservoir with a deflecting-plate located above the same, and a superposed plate constructed to support the chimneys, said upper plate provided with a central opening for the passage of air, substantially as and for the purpose set forth.

9. In an oil-stove, the combination, with the reservoir and hollow standards connecting the interior of the reservoir with the outer air, of a deflecting-plate for protecting the reservoir from the heat, substantially as and for the purpose set forth.

10. In an oil-stove, the combination, with a diaphragm supporting the upper part of the stove, of standards provided with shoulders, upon which the diaphragm rests, said standards made hollow and serving as vents for the reservoir.

11. The combination, with two or more independent removable chimneys of an oil-stove, of independent perforated base-burner plates, substantially as and for the purpose set forth.

12. In an oil-stove, the combination, with a reservoir-deflector, of a plate supporting the upper part of the stove, said supporting-plate having perforations about its edge to admit of a draft of air through the same, substantially as and for the purpose specified.

188,289. GLOBE-VALVES. W. B. Fowler, Lawrence, Mass., assignor to himself and J. L. Littlefield, same place. [Filed Apr. 5, 1876.]



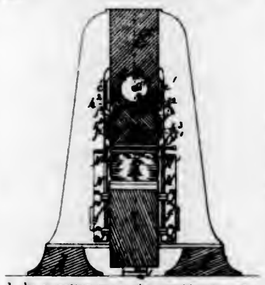
1. The combination of the nut C with the auxiliary stem B, the valve *a*, and the tubular screw-stem A, all arranged and applied substantially as specified.

2. The combination of the chambered screw-cap D, the auxiliary stem B, the valve *a*, and the tubular main screw-stem A, all arranged and applied substantially as set forth.

3. The combination of the chambered screw-cap D, the nut C, the auxiliary stem B, the valve *a*, and the tubular main screw-stem A, all arranged and applied together and to the case and the stuffing-box of the cock, as represented.

188,290. COTTON-PRESSES. S. H. Gilman, New Orleans, La. [Filed Feb. 12, 1877.]

Brief.—One bale is pressed and held by rods connecting with the lower platen, and then another bale is pressed thereon, and both bound together by bands. The upper platen is stayed by rods pivoted to the press-standards.



1. In a cotton-press the combination of a hydraulic cylinder and a graduating wedge, the cylinder being within the beam above the wedge, substantially as and for the purpose set forth.

2. The wedge H having flanges h^2, in combination with the beam C, having rollers *e* and lugs *c'*, substantially as set forth.

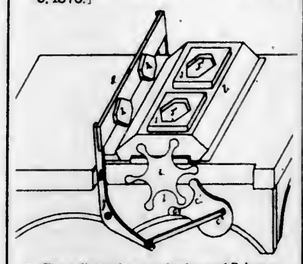
3. The combination of the wedge H, platen J, and the connecting-rod K, having a stationary fulcrum, *k*, substantially as set forth.

4. The mode of compressing and baling twin bales in a press, the said mode consisting in first pressing one bale, retaining the pressure thereof, and then pressing another bale upon the first bale, and applying the bands around the two bales, substantially as and for the purpose described.

5. The combination of the platen F', the rods N, and the rods O, substantially as and for the purpose set forth.

6. The cap-pieces E^1 of the frame, having the flanges E^2 for supporting the reversing-cylinders E^3, and serving as abutments for the sectors, substantially as set forth.

188,291. ROOFING-TILE MACHINES. Jacob Greenawalt, Pittsburg, Pa. [Filed Aug. 5, 1876.]



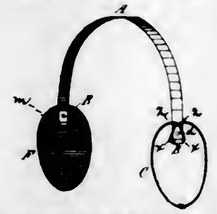
1. The cylinder *i*, gear-wheels *r* and S, levers *f*, beams *a*, wrists d^3 and f^3, pivots f^4, and wheel C, substantially as described and shown.

2. The diamond-shaped dies J and A, working in conjunction with each other, having the planes inclined from the point *k* to the points *k' k'*, depressions *l l*, level parts *n*, ridge *m*, and sunken groove k^1, as described and shown substantially, and for the purpose set forth.

3. The combination of the triangular cylinder *i*, dies *h* and J, gear-wheels *r* and S, pulley C, beams *a*, levers *f*, wrists f^3 and d^3, pivots f^4, pulley n^2, and endless belt n^3, all combined and arranged substantially as and for the purpose set forth.

4. In a roofing-tile machine, the diamond-shaped dies, having the bottoms inclined from the point *k* to the points *k' k'* and level part *n*, for making a tile thinner at its upper edge, and rabbeted at its lower edge, substantially as described and shown.

188,292. EAR-MUFFLERS. C. Greenwood, Farmington, Me. [Filed Feb. 8, 1877.]



The improved ear-muffler described, consisting of the elastic metallic body A, provided with the pads F F, the frames C of the pads being formed of wire, having the bends or angles *x x x*, all constructed and arranged to operate substantially as and for the purpose specified.

188,293.



188,293. BOTTLE-STOPPERS. W. H. Hicks, Brooklyn, N. Y. [Filed Jan. 11, 1877.]

1. The combination, within a bottle, of a raised projection on its inner walls extending around its circumference, with a compressible seat, recessed in its larger diameter to fit over said projection, substantially as and for the purposes set forth.

2. The combination, within a bottle, of a raised projection extending around its inner walls, a compressible seat grooved in its outer diameter to fit and cover said projection, with a ball-stopper or otherwise, contained within the bottle below said projection and seat, substantially as and for the purposes set forth.

3. The combination, within a bottle, of a groove or recess formed in its inner walls, with a bridge of less area than the area of the bottle at that point, supported in said groove upon opposite sides and extending across the bottle, substantially as and for the purposes set forth.

4. A detachable bridge placed across the inner walls of a bottle, substantially as and for the purposes set forth.

5. A detachable controlling-bridge, of less area than the area of the bottle at that point, placed across the inner walls of a bottle to support a stopper or closing-piece, and on one side of the perpendicular center-line of the bottle, formed to control the stopper from falling to its seat when the bottle is turned upon one side, and so formed as to allow the stopper to pass it freely on the other side of said center-line, substantially as and for the purposes set forth.

6. A compressible seat having a groove in its outer surface to fit over a corresponding projection on the inner walls of a bottle, having the groove nearer its upper surface than its lower, and having an opening in it or through it for the passage of the fluids or contents of the bottle, substantially as and for the purposes set forth.

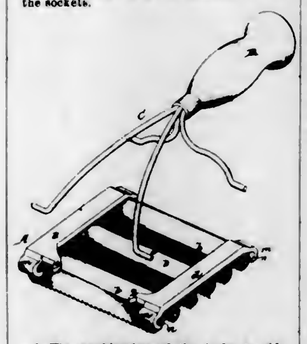
7. A bridge, constructed as described, with an upper curved or claw-shaped portion for controlling the position of a stopper for a bottle, substantially as and for the purposes set forth.

8. A chamber formed by the inner walls of a bottle, between an internal projection on its inner walls, covered by a compressible seat, and a groove or recess in its inner walls, holding a detachable bridge, substantially as and for the purposes set forth.

9. The combination, within a bottle, of a raised projection on its inner walls, a compressible seat fitting over said projection, a groove in its inner walls below said projection, a detachable bridge supported in said groove, a stopper contained between said projection and seat, and the groove and bridge below, with said bottle, substantially as and for the purposes set forth.

188,294. CURRY-COMBS. C. E. L. Holmes, New York, N. Y. [Filed Jan. 2, 1877.]

Brief.—The tang separates into four rods, which turn abruptly near their ends, two of them entering loops at the rear and two at the front of the comb, from which they may be released by springing, transverse bars on the back turning back at the ends to form the sockets.



1. The combination of the body A, side handle B, and frame C, secured detachably to the body, substantially as specified.

2. The combination of the handle, frame C, and loops *m*, forming, with the comb-bars, sockets *a* for the reception of the tongues of the frame, substantially as set forth.

3. The combination of the comb-bars and side plates or strips *d*, having U-shaped ends arranged on the sides of the bars, substantially as described.

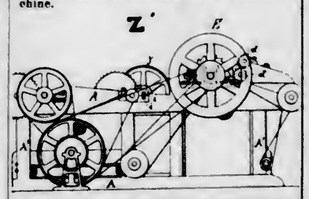
4. The side strips *d*, having elongated lugs *i*, and the comb-bars with slots *e* adapted to the lugs on the frame or side strips, as set forth.

5. The combination of the body, the handle B, secured rigidly thereto, and the detachable cross-bars, substantially as set forth.

6. A curry-comb knocker-bar, having U-shaped ends, as set forth.

188,295. MACHINES FOR SEPARATING FUR FROM PELTS AND HIDES. Loftus Hollingsworth, Scotch Plains, N. J., assignor to Harper, Hollingsworth & Darby, New York, N. Y. [Filed June 6, 1876.]

Brief.—Pieces of pelt or skin are fed in between the chopping-cylinder D and board I by feeding-aprons B B', and fall onto apron K as chopped-up fur, by which it is conveyed to the fluted feed-rolls i i and picker-cylinder M, which latter throws the light loose fur up into receiver N, the heavier portion of the stuff dropping upon apron O, which conveys it to another set of feed-rolls and a picker-cylinder, which latter throws it up into receiver N'. The heavier and longer portions of fur not thrown up into N' drop on incline sieve P, which may be shaken by tappets. The fine chopped and furless portion of the hide drops through sieve P into a box, from which it may be removed, while the portion containing fur and the remaining fur slides off upon apron Q, which delivers it to the twin machine, to pass through a second operation, as just described. Apron W carries forward to the feed end of the machine, for further treatment, any fur which may be lodged upon it by the sieve of the twin machine Z'. The loose fur thrown up into receivers N N' drops upon aprons L L', which deliver it upon transverse aprons S S', which, in turn, deliver said fur upon endless carrier or apron T, which latter delivers it into a receptacle provided for the finished article, located at the rear or delivery end of the machine.

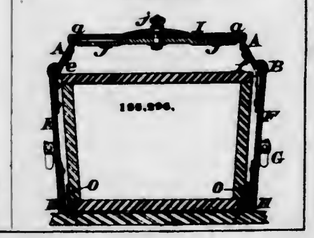


1. The combination, with the chopping-cylinder D and chopping-board I, of the endless aprons B B' and studded feed-rollers *e*, substantially as and for the purposes herein specified.

2. The combination of the following elements: the feed-aprons B B', the chopping-cylinder and board D and I, the endless apron K, the feed-rollers *i i*, the picking-cylinder M, the receiver N, the endless apron L, and transverse delivery-apron S, the said parts being arranged and operating substantially as and for the purposes specified.

3. The combination of the mechanism Z, the mechanism Z', the endless feeding-aprons B B', the aprons S S', and the endless delivering-carrier T, all arranged and operating substantially as and for the purpose herein specified.

188,296.



188,296. COFFINS. Francis B. James, Cincinnati, Ohio. [Filed Jan. 24, 1877.]

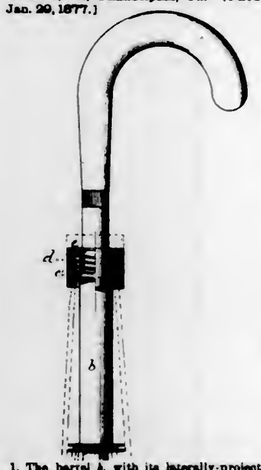
Brief.—An exterior bottomless coffin conceals a common pine box, from which it is automatically disengaged as soon as it reaches the bottom of the grave.

1. An external or false casket or case which envelops the coffin proper, and is automatically disengaged therefrom as soon as said coffin comes in contact with suitable supports placed in the grave, substantially as herein described, and for the purpose set forth.

2. The combination of outer casket or case A D D', hinged and outwardly-opening sides E e F f, handles G, and retaining devices H, which latter engage with sockets n O of the inner coffin N, substantially as herein described and set forth.

3. The combination of frame A, rings a a', lid I, turn-bar J j, tongue K, and cap L l/ M, whereby said turn-bar is rendered capable of locking the lid to the frame, and also securing the cap to the lid, substantially as herein described and set forth.

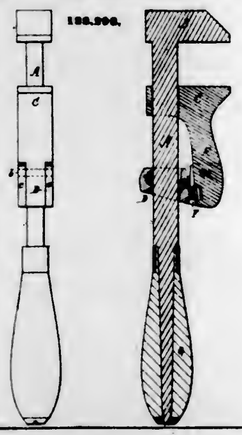
188,297. UMBRELLA TIP-CUPS. George K. Johnson, Jr., Philadelphia, Pa. [Filed Jan. 29, 1877.]



1. The barrel *b*, with its laterally-projecting annular flange *e*, in combination with the cylindrical cup *c*, with its inwardly-projecting flange *c'*, and a spring, *d*, to automatically carry and hold up said cup, all constructed and combined to operate substantially as described and shown.

2. The barrel *b*, with its annular flange *e*, in combination with the cylindrical cup *c*, substantially as described.

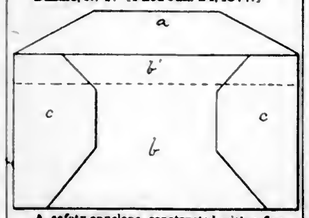
188,298.



188,298. COACH-WRENCHES. R. Jones, Boston, assignor to Wm. Douglas, Rockland, Mass. [Filed Jan. 19, 1877.]

In the coach-wrench as described, the locking-toggle D, encompassing the shank A, and hinged to the projection E of the movable jaw C, and provided with the prismatic pins *d d* and the operative spring F, all arranged substantially as set forth.

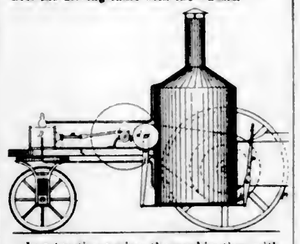
188,299. ENVELOPES. John B. Marshall, Buffalo, N. Y. [Filed Jan. 24, 1877.]



A safety-envelope constructed with a flap, *b*, having its edges overlapping the flaps *a* and *c*, and its corners beveled or cut away, to allow the flaps *a c c* and the overlapping edges of the flap *b* to be folded neatly when the envelope is closed, substantially as set forth.

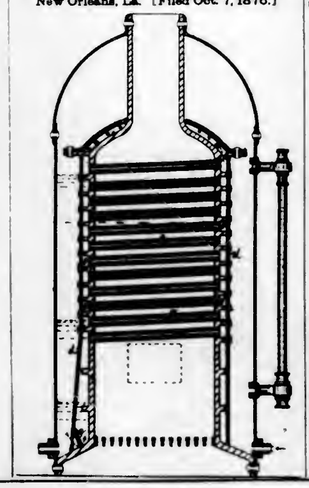
188,300. ROAD-ENGINES. A. D. Martin, Eden, N. Y., assignor of one-half his right to A. H. Case, same place. [Filed Dec. 29, 1876.]

Brief.—Friction-wheels employed to connect the driving-shaft with the wheels.



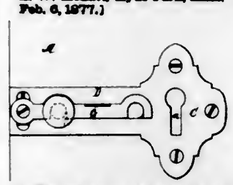
In a traction engine, the combination, with the main driving-wheels B, of the pulleys *h*, pulleys *h*, shafts *s*, friction-wheels *d*, friction-pulleys *c*, crank-shaft *b*, piston *a*, and cylinder D, all constructed and arranged for operation as herein shown and described.

188,301. STEAM-BOILERS. F. Mathews, New Orleans, La. [Filed Oct. 7, 1876.]



The improved boiler or steam-generator herein described, consisting of a rectangular fire-box, A, having inclined tubes *c*, spiral grooves *e*, and castings *d* and F, as described, and for the purpose set forth.

188,302. KEY-HOLE GUARDS FOR LOCKS. E. W. Moffatt, Hyde Park, Mass. [Filed Feb. 6, 1877.]



1. The key-hole escutcheon-plate C, provided with the slotted arm D and the duplex notched latch G, arranged and applied as set forth.

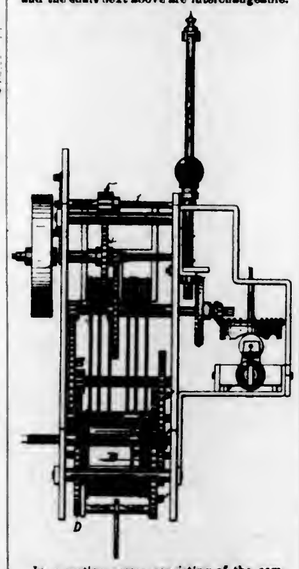
2. The gate E, its shank *e*, and the duplex notched latch G, arranged and combined with the lock B, the door A, and the key-hole *a*, substantially as and to operate as specified.

188,303. MANUFACTURE OF INDIA-RUBBER HOSE AND TUBING. J. Murphy, New York, N. Y. [Filed Aug. 14, 1876.]

The process herein described for preventing mildew and decay in rubber hose, the same consisting in saturating or impregnating the fabric of which the hose is made with a preparation of copper free from corrosive acid or acids, substantially as set forth.

188,304. MOTORS. E. Pepple, Hartford, assignor of a part of his right to G. Harley and T. H. Smythe, same place, and R. M. Buck and B. F. Buck, Hamilton, Mich. [Filed Jan. 23, 1877.]

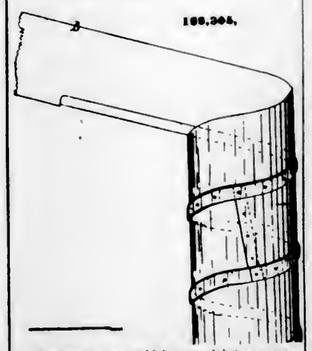
Brief.—The shaft carrying the fly-wheel and the shaft next above are interchangeable.



In a motive power consisting of the combination of the winding-drum B, a train of wheels or gearing, E, fly-wheel G, shafts 1 2, gearings 4 5, shaft 1, governor J, and connecting-wheels for imparting a reciprocating motion to the lever R, the shafts 1 2 being made interchangeable, so as to impart a slower or faster motion, substantially as shown and described.

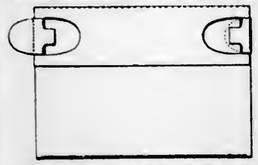
188,305. METALLIC TUBING. Jno. B. Root, New York, N. Y. [Filed Mar. 24, 1876.]

188,305.



A pipe or tube which has a joint or seam passing spirally around it, such joint or seam being formed by the offsetting, overlapping, and riveting of the edges of the blank, substantially as described.

188,306. ENVELOPES. Lebbeus H. Rogers, New York, N. Y. [Filed Feb. 6, 1877.]



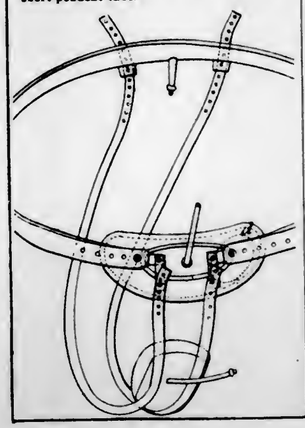
1. A combined letter-sheet and envelope, provided with sealing flaps within the compass of the body of the sheet, formed and arranged substantially as shown and described, whereby they may be used either to seal the letter or to close the same in such manner as to allow it to be opened without breaking the sealing-flaps.

2. The combined letter-sheet and envelope, formed with sealing-flaps, made substantially as shown in Figs. 1 and 2, with or without perforations along the several lines of fold of the flaps, as set forth.

3. A combined letter-sheet and envelope, provided with sealing flaps formed in a portion of the sheet separated from the main portion thereof by a line of perforations, which permits the flap portion of the sheet to be readily torn off from the other portion, substantially as and for the purposes set forth.

188,307. TRUSSES. Jacob A. Sherman, New York, N. Y. [Filed Jan. 22, 1874.]

Brief.—The pad and the perineal straps are hollow, and filled with air through a short pendent tube.



1. A self-accommodating strap, for a truss-pad, formed of one or more air-tight india-rubber tubes, with inflating valves or tubes, substantially as and for the purposes set forth.

2. The tubular india-rubber straps, connected to the india-rubber pad, and opening into the same, so that the pad and strap are simultaneously inflated, substantially as set forth.

3. The truss-pad, made of an inflated india-rubber bag, in combination with the secondary back, connected at its edges with the pad, and having a central opening, and the attaching-plate or stock introduced therein, substantially as set forth.

4. A rigid presser united to the surface of the air-bag, forming the hernial pad, as and for the purposes specified.

188,308. COMBINED LATCH AND BOLT. J. A. Sherman, New York, N. Y. [Filed June 11, 1875.]

Brief.—A collar on the shank of the bolt is held by a thumb-screw, when it is desired to change the bolt to a spring-latch.

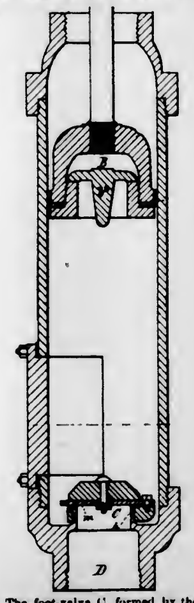


1. The collar 3 around the shank of the latch, forming an abutment for the spring *f*, in combination with the movable pin or screw 5, rack *e*, and pinion *l*, substantially as and for the purposes specified.

2. The talon *p* for the key upon the inner end of the spring-latch, in combination with the tongue *q*, rack *e*, pinion *l*, and stops 2 2, substantially as set forth.

188,309. PUMPS. J. H. Smith, Gloucester City, N. J. [Filed Feb. 10, 1877.]

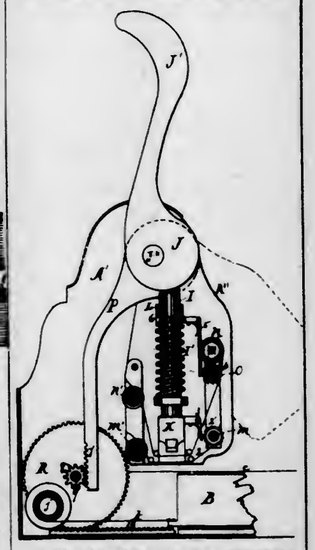
Brief.—The cylinder has an opening on one side near the bottom, which is closed by a cap, which is bored out with the barrel, so that the bucket can descend close to the foot-valve. A projecting valve-seat receives a ring, to which is hinged the leather valve.



1. The foot-valve C, formed by the socket D, the screwed seat A, the ring *k*, and valve *m*, as herein set forth.

2. The pump-cylinder A, having a removable cap, E, close to the foot-valve, which cap is bored out to form a part of the working barrel, as herein set forth.

188,310. DEVICES FOR PRINTING AND RECORDING CASH-RECEIPTS. J. H. Smith, Buffalo, and J. Moss, New York, assignors of one-third their right to E. Wilman, New York, N. Y. [Filed Oct. 26, 1876.]



1. The slides B B, having the spring-guides *e g* and catches *f h i*, and in combination with the springs *k k*, as and for the purpose specified.

2. The combination of the printing-slides B B, the spring-guides *e g*, catches *f h*, knobs and pins *a a'*, dogs *m m*, the base *b*, box D, and catches *p p s s*, all arranged and operating substantially as specified.

3. The box D, with the spring-catches *q q s s* therein, and in combination with the operating side levers E E, case A, and slide H *h'''*, as and for the purpose specified.

4. The combination of the box D, spring-catches *q s*, bars *r r*, pins *t t*, guide-pins *u v*, and operating-levers E E, as and for the purpose specified.

5. In combination with the printing-slides B and their spring-guides *g* and catches *i*, the returning-loop *w* F, as and for the purpose specified.

6. In this device, the combination of the inking-ribbon drums G G', the operating-ratchet *z*, pawl *y*, arm *z*, dog *x'*, and bottom slide H *h'''*, substantially as and for the purpose specified.

7. In combination with the printing-slides B B, the eccentric lever-handle J J', printing-piston I K, spring I', and the paper-drums and inking-ribbon drums, substantially as and for the purpose specified.

8. In this device, the combination and arrangement of the piston I I', clasp 6, spring-pawl 5, and head K with the spring-pawl, for operating, respectively, the paper and inking ribbon drums, as set forth.

9. In combination with the eccentric lever J J' and its shaft J'', the eccentric arms P P, with cogs 7 7, cog-wheels 8 8 and R R, racks 10 10', and slide H, as and for the purpose specified.

10. In combination with the catches *i i* of the printing-slides B B, the slide H *h'''*, having the slot I'' and the spring L, as and for the purpose specified.

11. The combination of the crank-bar *t'' J''* and the slide H, having the slot I'' and spring L, as and for the purpose hereinbefore specified.

12. In combination with the upper case A', the swinging case A'', containing the piston I, and the paper and inking-ribbon drums, substantially as and for the purpose specified.

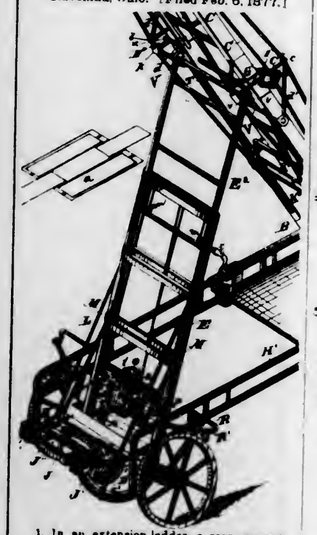
186,311. COMBINED SASH LIFT AND FASTENER. W. H. Sparks, New Britain, Conn., assignor to P. and F. Corbin, same place. [Filed Jan. 15, 1877.]

Brief.—Semicircular flanges project outwardly from the plate, over which flanges the spring-actuated lifting-lever, formed with corresponding notches or recesses, works, instead of being journaled within the customary ears—the construction aiming to give additional strength to the operative parts.



In a combined sash lift and lock, the semicircular flanges *c* upon the plate *f*, and the lifting lever *a b*, having recesses in the sides corresponding to the flanges *c*, and with a finger-piece at one end, and a hook at the other, substantially as and for the purposes set forth.

186,312. FIRE-ESCAPES. Jos. H. Spencer, Cleveland, Ohio. [Filed Feb. 6, 1877.]



1. In an extension-ladder, a rear support, the lower end of which passes through the axle of the truck, and is pivoted thereto to admit of lateral swing of said support, substantially as described.

2. In an extension-ladder, a rear extension-support which can be lengthened or shortened, the lower end of which is secured to and passes through the axle of the truck, substantially as and for the purpose described.

3. An extension fire-ladder, the sections of which are adapted to be folded on a four-wheel truck, the ladder pivoted to the truck in a manner to have lateral as well as vertical adjustment, substantially as and for the purpose set forth.

4. In combination with the lower section of a fire extension-ladder, a rear support connected to a carriage which slides on rails secured to the side pieces of the ladder, substantially as and for the purpose described.

5. In combination with the side rails of an extension-ladder, braces B′ (one for each rail) and brace-rods B″ on the under side of the side rails, and braces M and brace-rods O″ (rods O″ secured to the lower section only) on the front or upper side thereof, substantially as and for the purpose set forth.

6. An extension fire-ladder, consisting of hinged sections provided with braces on the outer side of the side rails, the central post of said braces being secured to the lower section of the ladder, substantially as and for the purpose set forth.

7. An extension fire-ladder consisting of hinged sections which are provided with braces on the upper and outer sides of the side rails, said braces secured to posts attached to the lower section of the ladder, substantially as and for the purpose set forth.

8. An extension fire-ladder composed of hinged sections, and provided with braces on the three outer sides of the side rails, the lower braces being secured to independent posts, while the upper and side braces are secured to posts attached to the lower section, substantially as and for the purpose set forth.

9. An escape or extension section, G, arranged on the under side of the ladder proper, so that it can be extended upward or swung into a window, substantially as described.

10. The combination of tiller *n*, sheaves *o o o*, and chain or cord *p* with the rear axle, by which the ladder is swung laterally, substantially as and for the purpose described.

11. The combination of rear support, carriage V, pulleys l′, rails T, corrugated sheaves S, and chains or cords by means of which the ladder is elevated, substantially as described.

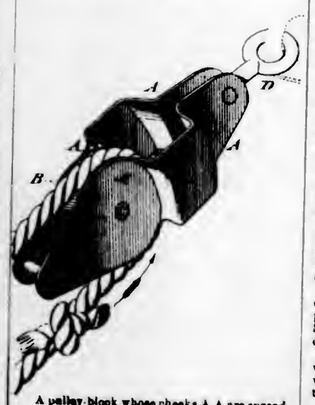
12. A hinged extension fire-ladder, provided with pin *l* and socket or aperture *k*, by means of which the sections of the ladder are secured to each other in a firm position when open, substantially as described.

186,313. CAR-BRAKES. E. Squire, Cleveland, Ohio. [Filed Oct. 31, 1876.]

Brief.—When the train is slowed, and the brake applied by the usual hand-wheel, the car-body, having a slight movement on the trucks, by its momentum, causes the brake-blocks to bear first on the front wheels.

In combination with the brake mechanism of railway car truck, the levers G G and the connecting rods F F, when connected by a continuous draw-bar, E, or otherwise, for operating substantially as and for the purpose set forth.

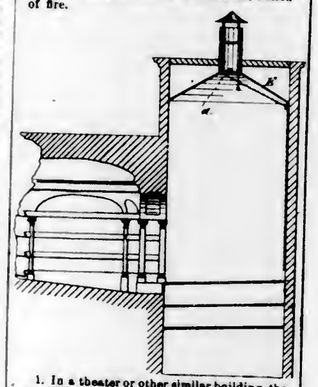
186,314. PULLEY-BLOCKS. John Strubel, Green Point, N. Y. [Filed Feb. 7, 1877.]



A pulley-block whose cheeks A A are spread apart between the sheave B and the suspension-loop D, to form a laterally-enlarged passage, *c*, substantially as and for the purpose herein shown and described.

186,315. THEATRES AND METHODS OF PROTECTING THE SAME FROM FIRES. L. Sues, Chicago, Ill. [Filed Jan. 24, 1877.]

Brief.—A large outlet is made in the roof over the stage, for the passage of smoke in case of fire, so that a current of air will be induced from the auditorium to the stage, instead of from the stage to the auditorium, and in combining with such outlet a ceiling over the stage portion of the building, which will for a considerable time resist the action of fire.



1. In a theater or other similar building, the passage F, provided with a valve, *a*, in combination with a fire-proof ceiling, E, both located in that part of the building devoted to the stage, substantially as and for the purposes set forth.

2. The method herein described of protecting audiences in theaters and similar buildings from the effects of smoke and fire in case the building takes fire about the stage, by providing over the stage an outlet for smoke and flame, thus inducing a current of air from the auditorium to the stage, substantially as set forth.

186,316. MACHINERY FOR DRILLING OIL AND OTHER ARTESIAN WELLS. C. Swan, Trenton, N. J., assignor to the J. A. Roebling's Sons Company, same place. [Filed Aug. 12, 1876.]

1. The wire rope W, leading from the operating-drum directly over the pulley P, and to the drill without other loop or bend, in combination with the drum D, operating the drill-rope in drilling by vibratory motion, and also, in feeding the drill and rope as the well deepens, by rotatory motion.

2. The wire rope W, leading from the operating drum directly over the pulley P and to the drill without other loop or bend, in combination with the drum D, arranged to operate the wire rope W, for three purposes, as follows: first, to drill by vibratory motion; second, to feed the rope, in drilling, by rotatory motion; third, to withdraw the rope and drill by rotatory motion.

3. The drum D, arranged to revolve around the shaft S in feeding the drill-rope W, step by step, as the boring proceeds.

4. The drum D and shaft S in combination, the drum D having rotatory motion thereon, and also rotatory and vibratory motion therewith, at will, as set forth.

5. The drum D, carrying the drill-rope W, and automatically feeding the same at each vibration, in the manner and for the purpose set forth.

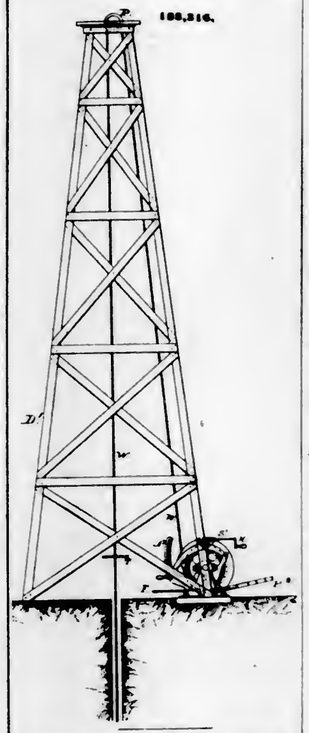
6. The drum D, provided with the worm-wheel G, in combination with the worm W³, operating upon the drum so as to revolve it around the shaft S in feeding the rope and drill as the well deepens.

7. The lever L, worm W³, worm-wheel G, in combination with the drum D, for the purpose of revolving the drum around the shaft S in feeding the rope and drill as the well deepens.

8. The lever L and arm A¹ in combination, when operating, through the worm W³, worm-wheel G, and drum D, to feed the rope W as the drill sinks in the well.

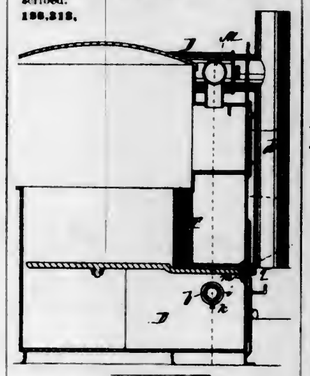
9. The worm-shaft S¹, supported by bearings in the arm A¹, attached to the shaft S, moving therewith in the rotatory and vibratory motions, as described, and provided with the hand-crank H, for the purpose set forth.

186,316.

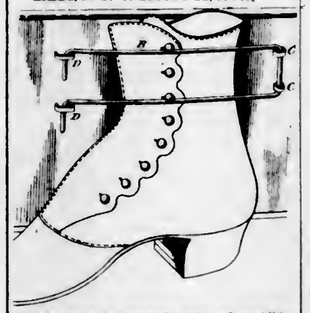


4. In a heating-furnace, the two draft-passages direct from the inside of the casing of the dome, one draft, M, opening into the inclosed feed-passage within the door, the other, D, from the top of the main dome, in combination with the main draft-flue C, as described.

186,318.



186,317. SHOE-HOLDERS. H. Thompson, Elmira, N. Y. [Filed Jan. 22, 1877.]



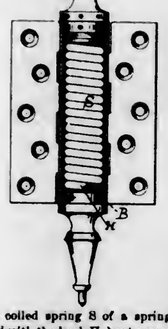
The device for suspending shoes for exhibition, consisting of the elastic ball B, hinged at C to the drawer or box, and hooked at D, substantially as set forth.

186,318. HOT-AIR FURNACES. William J. Towne, Newton, assignor to the Highland Foundry Company, Boston, Mass. [Filed Jan. 10, 1877.]

1. The washer *g*, spring *h*, and collar *i*, in combination with a dust-flue, *b*, leading from the ash-pit B to the smoke pipe or flue C, operating substantially in the manner and for the purpose set forth.

2. The frame G, with its opening *n* and slot *l*, in combination with the follower *m*, with its opening *p* and the grate-handle *q*, all constructed to operate substantially as and for the purpose described.

3. The ash-pit door with its projection *s*, in combination with the frame G, with its opening *n*, substantially as described, for the purpose set forth.



1. The coiled spring S of a spring-hinge, provided with the hook H, bent across the end of the coil beyond its axis, and so as to leave the larger part of the annular space thereof within the hook, as shown and described.

2. The lug G of the cap of a spring-hinge, provided with a slit, to receive the hook end H of a coiled spring, cut on one side of the vertical axis of the cap, and part way through the same, as shown and described.

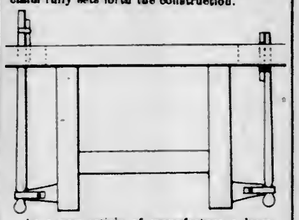
3. The coiled spring S, provided with the hook H, bent across the end of the coil beyond its axis, and so as to leave the larger part of the annular area thereof within the hook, in combination with the lug G of the adjusting-cap, provided with the slit S′, located beyond the axis of the lug, and cut only part way through the same, substantially as shown and described.

186,320. METHODS OF MAKING PRINTING-ROLLS. J. Waldron, New Brunswick, N. J., assignor of one-half his right to J. J. Janeway, same place. [Filed June 20, 1876.]

The improved method of manufacturing outline plate-printing rolls under the Janeway process by tinning such portions of the surface of the roll as are to be occupied by isolated or non-continuous figures, and pouring in molten type-metal immediately about the pins or plates forming said figures upon the portions tinned, to the end that it may unite with the tin to form a solder-securing pin and layer to the rolls, substantially as described.

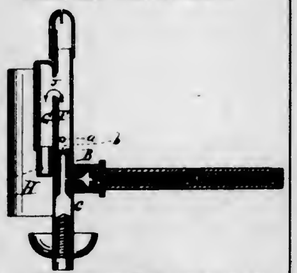
186,321. LOOM-PICKERS. S. S. Walker, Orompton, R. I. [Filed Oct. 7, 1876.]

Brief.—The object of the invention is to obviate the necessity of an expensive band, and to prevent the picker from flying out of the shuttle-box when the band breaks. The claim fully sets forth the construction.



As a new article of manufacture, a loom-picker provided with a head or broad portion at each end, and with an intermediate narrower portion, adapted to work in the slot of the lay, all constructed substantially as described, whereby the picker is adapted to project above and below the lay, and the heads act as flanges to prevent the picker from flying out when the strap breaks, as and for the purpose specified.

186,322. VAPOR-BURNERS. A. H. Watkins, Boston, Mass. [Filed Feb. 12, 1877.]



1. The herein-described vapor-burner, consisting of the gas-chamber F, provided with the tube G, in combination with the shield H, brazed to the generator C, and having the tube B enter at right angles thereto without passing through the said shield, all constructed and arranged substantially as and for the purpose specified.

2. In a vapor-burner, a packing of brass piercings, as above described, and for the purpose herein set forth.

186,323. EAR-RINGS. Louisa A. Weed, Brooklyn, N. Y. [Filed June 3, 1876.]



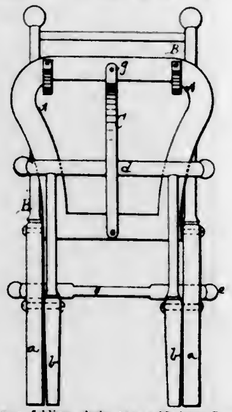
1. In an ear-clasp for ear-rings, the compression-disks *c c*, being, respectively, concave and convex upon their inner surfaces, and provided thereon with a pad, to prevent arrest of circulation, substantially as specified.

2. An ear-clasp, consisting of two opposite branches, having spring-connection and lever projections or lugs *z*, for pressing the branches apart, substantially as specified.

3. An ear-clasp consisting of two branches, having spring-connection and chain attachment *l*, substantially as specified.

4. The curved branches *c c*, having compression-disks *c c* at their upper ends, constructed as described, and pivoted together at their lower ends, and the depending catch *e*, pivoted at their joint, combined and arranged substantially as specified.

186,324. FOLDING CHAIRS. J. J. Weller, Buffalo, N. Y. [Filed Oct. 23, 1876.]



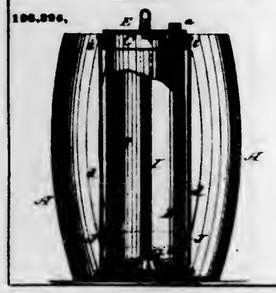
In a folding chair, the guide-loop C and back stop *e*, in combination with the seat A, bar *d*, and legs *a b*, substantially as and for the purpose specified.

186,325. CARRIAGE-ROOFS. Thos. Winans, Baltimore, Md. [Filed Jan. 29, 1877.]

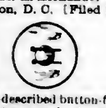


A covered carriage whose roof is composed, in whole or in part, of a transparent material, substantially as set forth.

186,326.



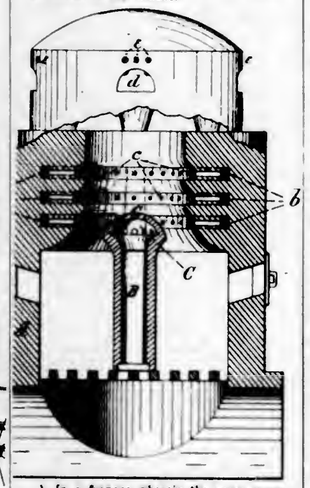
186,327. DEVICES FOR ATTACHING BUTTONS. Chas. L. Alexander and D. Breed, Washington, D. C. [Filed Feb. 9, 1877.]



The above-described button-fastener B, having a straight, or nearly straight, central bar, with two branches bent at right angles, or nearly right angles thereto, and then extending in a regular or easy curve, so as to be readily inserted into the garment, substantially as and for the purposes set forth.

186,328. GLASS-FURNACES. P. Arbogast, Pittsburg, Pa., assignor of a part of his right to F. T. Plunkett and D. O. Cunningham, same place. [Filed Oct. 31, 1876.]

Brief.—Heated air is thoroughly commingled with the products of combustion in the throat of the furnace.



1. In a furnace wherein the gaseous products of combustion are inflamed by the introduction of heated air, a central sprayer projecting into the center of the flue of the combustion-chamber, and delivering heated air into the middle or core only of the body of such gaseous products, in order to inflame said body from the interior, substantially as described.

2. In a furnace as above described, the method of mingling the heated air and gaseous products, by simultaneously admitting one portion of the air to the core, and another to the shell or exterior, of the body of gaseous products, both in the flue of the combustion-chamber, substantially as described.

3. In a furnace as above described, the method of assisting the air to mingle with the body of gaseous products, by constructing the walls or interior of the throat with a ridged surface, in order to break up the continuity of the gaseous current, and thereby afford more complete access of air, substantially as specified.

4. In a furnace as above described, a perforated hollow dome, C, projecting upwardly into the flue of the combustion-chamber, in combination with an air-heater, B, arranged substantially as and for the purposes set forth.

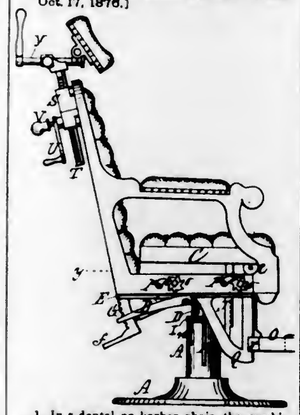
186,329. FEED-COOKERS. H. I. Aldrich, New Sharon, Iowa. [Filed Jan. 9, 1877.]

1. The conical slotted grate G, formed with the rim *b* and central draft-tube I, in combination with the feed-cooker B, substantially as and for the purpose set forth.

2. The combination of the cooker B, clamp C, with handles D D, and the semicircular pivoted covers E E, as and for the purposes herein set forth.

3. In combination with the receptacle A and feed-cooker B, the rods *d d*, band J, and hooks *i i*, substantially as and for the purposes herein set forth.

186,330. DENTAL AND BARBERS' CHAIRS. Geo. W. Archer, Rochester, N. Y. [Filed Oct. 17, 1876.]



1. In a dental or barber chair, the combination, with the hollow standard A′ and stem D resting therein, of the cord A, made fast at one end at the top of the standard, the other end passing under the stem, and thence extending to a winding-pulley on the chair, as shown and described, and for the purpose specified.

2. In a dental or barber chair, the combination, with the standard A′, stem D, and cord A, of the flanged collar I, provided with the lever K, said collar serving as the attachment for the end of the cord, and arranged to turn with the stem in the standard, thereby preventing twisting of the cord, as shown and described, and for the purpose specified.

3. In a dental or barber chair, the combination, with the winding-pulley *g*, of the coiled spring L, attached at one end to the shaft of the pulley, and at the other to the arm D′, as shown and described, and for the purpose specified.

4. In a dental or barber chair, the stem D, provided with the stiff arm D′, serving as a rest to the chair when thrown back, and to receive the adjusting-segment, and constructed with the side flanges *b b*, to receive the spider between them, thereby preventing strain upon the pivot in turning the chair, as shown and described, and for the purpose specified.

5. The elbows O O, constructed with the joints *q q*, connecting with the seat and the bearings *r r*, resting upon the ways Q Q of the chair, as shown and described, and for the purpose specified.

6. The combination, with the platform P′, adjusted by the links *s s*, of the ratchets *t t*, formed on the ends of said links, the detents *u u*, engaging with the ratchets, and the shaft *v* and lever *w*, for operating the detents, as herein shown and described.

7. The combination, with the rack-bar T and its operating-pinion 5, of the sliding shaft V, passing loosely through the pinion, and provided with the cross-head *y*, engaging with the ratchet *s*, as shown and described, and for the purpose specified.

8. The combination of the hollow shaft Y, provided with the cleft socket *a*², and the tightening-screw N, for securing the head-rest at any adjustment, as herein shown and described.

9. The head-rest attachment, consisting of the rack-bar T, pinion 5, sliding shaft V, hollow shaft Y, screw N, and cross-shaft *b*², the whole combined to operate as and for the purpose specified.

186,330. BUCKLE ATTACHMENTS FOR ELASTIC BANDS OR STRAPS. Frank Armstrong, Bridgeport, Conn. [Filed Feb. 9, 1877.]

In elastic adjusting-straps, the buckle or loop formed with a series of shanks adapted to enter the several stands of coiled wire, said shanks being provided with eyes, and

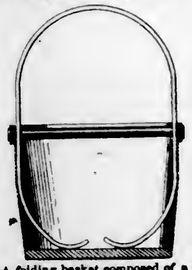
THE GRAPHIC CO. N.Y.

having the surrounding metal distorted in opposite directions, as described, to receive the securing-pin, substantially as set forth.

186,330.



186,331. BASKETS. C. H. Ball, New York, N. Y. [Filed Jan. 29, 1877.]

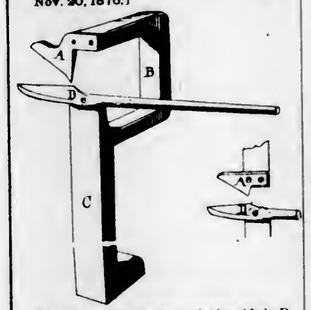


1. A folding basket composed of a flexible body part, and of a swinging bail, serving to stretch the body when turned into a vertical position, and permitting the same to be folded when turned into a horizontal position, substantially as and for the purpose set forth.

2. A folding basket, formed of a canvas or other flexible body, with solid bottom and top band or hoop, in connection with a swinging bail having downwardly-extended stretching ends, substantially as set forth.

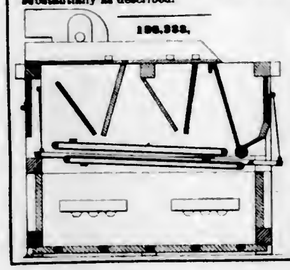
3. A folding basket formed of a body of canvas or other flexible fabric, with solid bottom and top band or hoop, in connection with a laterally braced and pivoted bail having downward-extended spring ends, substantially as and for the purpose set forth.

186,332. SHEARS FOR CUTTING SHEET METAL. Jno. M. Bernett, Lynn, Mass. [Filed Nov. 20, 1876.]



The combination of the swinging blade D pivoted to the standard C, as shown, and provided with a handle, bent arm B, and the short blade A rigidly fastened to the bent arm, all arranged in relation to each other substantially as described.

186,333.

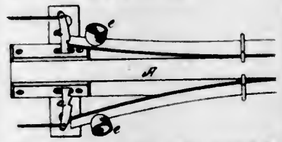


186,335. MIDDLINGS-SEPARATORS. Saml. L. Bean, Philadelphia, Pa. [Filed July 31, 1876.]

A brush or brushes traveling upon the upper surface of the cloth on a shaker in a middlings-purifier, in combination with a brush or brushes traveling upon the under side of the cloth on the same shaker.

186,334. BALL-THROWERS FOR SHOOTING PRACTICE. A. H. Bogardus, Elkhart, Ill. [Filed Feb. 22, 1877.]

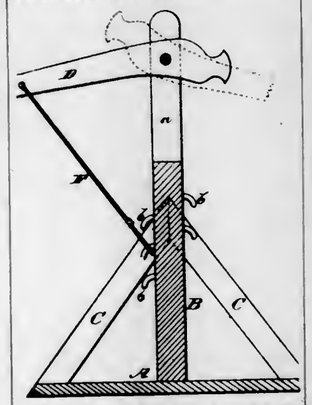
Brief.—For throwing a glass ball into the air, to be shot at while in motion, to prepare for shooting birds on the wing.



The base A, provided with springs B B, upon which are secured cups *c c*, in combination with the notched bar and cord, as and for the purpose set forth.

186,335. WAGON-JACKS. F. A. Boughner, Muscatine, Iowa, assignor of one-half his right to L. Coe, same place. [Filed Nov. 16, 1876.]

Brief.—A standard braced on each side to its foot-piece, has pivoted to its top a lever reversible for different heights.



1. In a wagon-jack the slotted standard B, provided with downward-bent hook *b*, brace C C, and brace A, substantially as described, and for the purpose set forth.

2. In a wagon-jack the slotted standard B, braces C C, and base A, in combination with lever D and link F, substantially as described, and for the purpose set forth.

3. In a wagon-jack, having standard B and lever D, the link F, made of one piece, and constructed to operate substantially as described.

4. In a wagon-jack the slotted standard B, made in one piece, and provided with base A, braces C C, and hooks *b*, in combination with lever D, having link F attached thereto, said link and lever operating substantially as described, and for the purposes set forth.

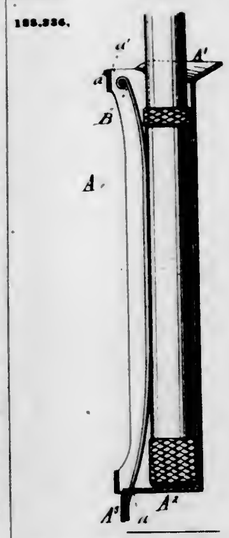
186,336. WHIP-SOCKETS. G. F. Brinkerhoff, Bucyrus, Ohio. [Filed Dec. 23, 1876.]

1. Whip-socket A, having bottom A^3, perforated at *a*, in combination with spring C, cross-bar B, and apron or bearing-plate A^3, substantially as set forth.

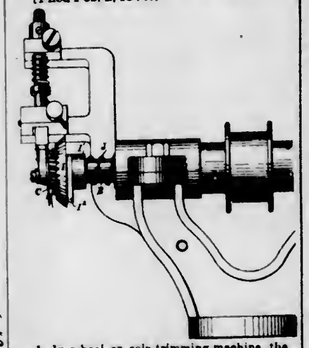
2. A whip-socket provided with a slot in its bottom, in combination with an inwardly-curved clamping-spring, the free end of which works through said slot, substantially as set forth.

3. A whip-socket provided with a downwardly-extending apron or bearing-plate A^3, constructed and arranged as and for the purpose set forth.

186,336.



186,337. HEEL AND SOLE TRIMMING MACHINES. James H. Bussell, Boston, Mass. [Filed Feb. 2, 1877.]



1. In a heel or sole trimming machine, the combination of a rotary edge-trimming cutter adapted to revolve about a fixed axis, and a rand-knife and a rand-guide, both mounted upon and adapted to revolve about a movable axis, substantially as described.

2. In combination with a rotary edge-trimming cutter, the ring-cutter I mounted upon and adapted to revolve with the shaft H, and to be moved endwise on said shaft to adapt it to the varying thicknesses of the sole, substantially as described.

3. The ring-cutter I, provided with one or more teeth, i^2, in combination with an edge-trimming cutter, provided with one or more grooves between its cutting-teeth to receive said teeth i^2, substantially as and for the purposes described.

4. The combination of the cutter C, shaft B, ring-cutter I, and spring J, constructed, arranged, and adapted to operate substantially as and for the purposes described.

5. The combination of a rotary edge-trimming cutter, a rand-knife, and a rand-guide, both mounted upon and adapted to revolve about a movable axis, and the ring-cutter I, all arranged and adapted to operate substantially as and for the purposes described.

186,338. STRAW-CUTTERS. Edw. B. Carr, Snydertown, Pa. [Filed Sept. 14, 1876.]

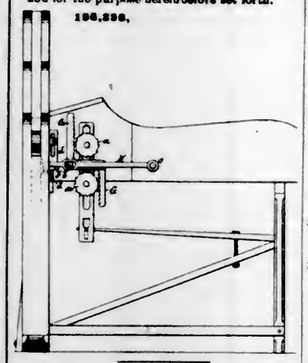
1. A straw-cutter embodying in its construction and arrangement the lever-knife K, bottom X, yielding knife K′, feed-rolls C D, provided with ratchet-wheels, the duplex pawl

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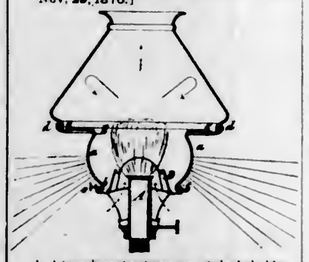
G, lever H, tappet *d*, upon knife-lever, and gage-plate L, substantially as hereinbefore set forth.

2. In combination, the feed-rolls, double-acting pawl G G, lever H, and the gage-plate L, provided with the arm *f*, substantially as and for the purpose hereinbefore set forth.

186,338.



186,339. TRANSLUCENT SHADE-HOLDERS. G. H. Chinnock, Brooklyn, N. Y. [Filed Nov. 29, 1876.]



1. A translucent or transparent shade-holder or base, provided with a lenticular portion for projecting up outside of a flame, an outwardly-projecting lip or portion at the base, facilitating its attachment to its support, and a flange and an incline at the top or outer part for securing the shade in place, substantially as set forth.

2. The combination, with the device B, having a lenticular portion, *a*, of a lip, *b*, adapted to engage with a screw or its equivalent, substantially as and for the purpose set forth.

3. The combination, with the device B, of the flange *d* and incline *e*, substantially as and for the purpose set forth.

186,340.

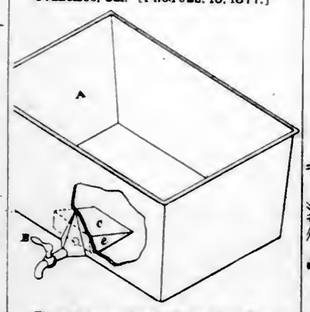


186,340. STUMP-EXTRACTORS. G. H. Clark, Lapeer, Mich. [Filed Feb. 19, 1877.]

Brief.—Between the descending arms of a stirrup suspended from a derrick is pivoted a ratchet-wheel with a chain-drum attached, the wheel being operated by two levers, each having two pawls—one lever pivoted to the stirrup, the other to a brace projecting from it.

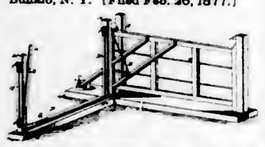
The combination of a derrick, A, with suspended clevis B, ratchet-wheel C, chain-wheel D, lever G, with pawls *b b*, and the lever G′, with pawls *b′ b′*, said lever G′ being held in and adjusted by the arms E and perforated arms I, substantially as and for the purposes herein set forth.

186,341. MILK-COOLERS. H. Clifford, San Francisco, Cal. [Filed Jan. 15, 1877.]



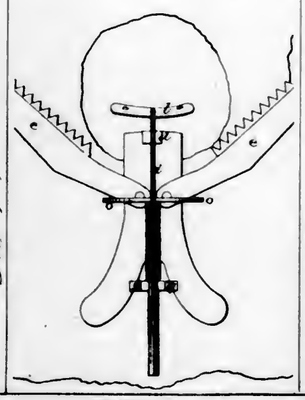
The tank A, provided with the faucet B, and having a shield, C, and side pieces *s*, which are so arranged as to admit the milk laterally from the bottom of the tank to the faucet, substantially as and for the purpose described.

186,342. GATES. G. H. Cornell, East Saginaw, Mich., assignor to S. V. Parsons, Buffalo, N. Y. [Filed Feb. 26, 1877.]



In a lifting and tilting gate, constructed substantially as herein described, the combination of posts A A, pulleys P P, post B, having lever H, and pulleys P″ P″, rod or chain D, and chain G, having weight F, substantially as and for the purpose herein shown and specified.

186,343. ANIMAL-TRAPS. Jno. S. Crowell, Louisville, Ky. [Filed Feb. 7, 1877.]



The frame *a*, provided with the guide *g*, in combination with the trigger *i*, rod *h*, spring, slide *o*, and jaws *s*, substantially as specified.

186,344. COMBINED CHAIR AND CARRIAGE. J. F. Downing, Erie, Pa. [Filed Nov. 25, 1876.]

Brief.—The chair is constructed with an adjustable back and foot-rest, and a supplementary adjustable foot-rest, and the whole chair can be combined with a running-gear, to convert it into a carriage.



1. In a child's chair, the hinged back D, having a rim, D^3, formed with curved extensions D^1, which pass through orifices in the arms, and are held by set-screws, as described, whereby the back can be adjusted, as set forth.

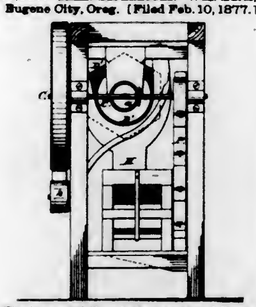
2. In a child's chair, the combination of the seat A^1, the pivoted foot-rest E, having the holes *s s* and the adjustable secondary foot-rest E^1, the pivoted curved arm E^2, and the arm *b*, having an orifice and thumb-screw, *b′*, substantially as described.

3. In a child's chair, the adjustable back D, curved arms D^1, seat A^1, arms C, adjustable foot-rest E, pivoted curved arm E^2, arm *b*, thumb-screws *b′ c*, legs A, and rockers B^1, the whole constructed, combined, and arranged substantially as described.

4. A child's chair consisting of the seat A^1, adjustable back D, foot-rest E, and rockers B^1, all constructed as described, in combination with the curved springs H and running-gear, substantially as described.

5. In a child's chair and carriage, the curved springs H, formed as shown, cross-bar H^1, having arms k pivoted to said springs, and strap W, the whole constructed and arranged to connect the rear of the chair with the running-gear of the carriage, substantially as described.

186,345. GRAIN-SEPARATORS. Wm. Edris, Eugene City, Oreg. [Filed Feb. 10, 1877.]



The inner reel D and the outer reel D′, located concentrically upon the same shaft, in combination with the trough F and spiral conveyer G, adapted to carry away the impurities passing through reel D′, and the subjacent case J connected with the annular space between reels D D′ by means of the chute H, and containing a suction-fan and a set of shaker-sieves, as and for the purpose described.

186,346. REVERSIBLE KNOB-LATCHES. H. Essex, Meadville, Pa. [Filed Feb. 5, 1877.]

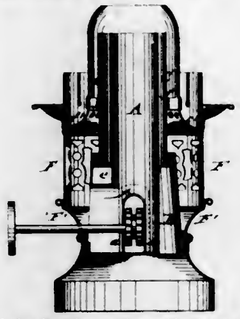
186,346.



1. In a reversible latch, the hub or follower D, constructed short, as described, and removable, along with the latch-bolt, through the latch-bolt hole in the edge of the lock-case, substantially as herein set forth.

2. The combination of the chambered and slotted latch-bolt B, the spiral spring C, and the hub D, with ears *d d*, all constructed and arranged as described, to be removable together bodily through the latch-bolt hole in the edge of the lock-case, substantially as and for the purposes herein set forth.

186,347. LAMP-BURNERS. C. A. Ferron, Paris, France, assignor to G. R. Tuttle, New York, N. Y. [Filed Dec. 9, 1876.]

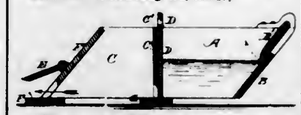


1. In a lamp-burner, the combination of the conical base section, a fixed interior wick-tube, and an exterior detachable wick-tube, for inserting readily the wick, substantially as set forth.

2. The combination of the flat wick D, being closed at the upper part and open at the lower part, with a radial partition or stop-plate, *e*, at the base-section B, to arrest positively-downward motion of wick at a fixed point, substantially as specified.

3. The combination of the broken-out chimney, globe, and dome holder F, having inner guide-ring *f*, with the outer wick-tube C and supporting-collar F^1 of base-section B, substantially in the manner and for the purpose set forth.

186,348. DAMS FOR STORING AND UTILIZING TIDE-POWER. Wm. H. Foster, Kelsey, Cal. [Filed Aug. 24, 1876.]



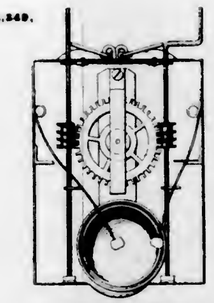
The means for utilizing the power of tides described, consisting of the dam B, inclined apron B′, dam C′, vertical gates D, projecting wall G, dam F, and inclined apron E, the several parts forming the reservoir A and basin C, arranged side by side, constructed, arranged, and combined substantially as described and shown.

186,349. FARE-REGISTERS. V. Fountain, Jr., West New Brighton, N. Y. [Filed Jan. 20, 1876.]

1. In an apparatus for registering and indicating fares, and adapted to be carried in the hand, a shaft moved by the direct application of the hand, provided with a worm meshing into a suitable wheel, and thereby communicating motion to the mechanism which carries the indexes, and also provided with an arm which operates the bell-hammer, substantially as set forth.

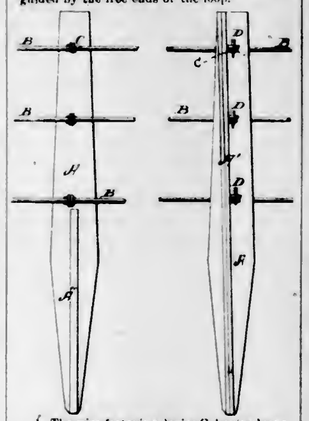
2. In the described apparatus, the rotating shaft-worm thereon, operating to impart motion, through proper gearing, to the indexes and the hammer-lifters, in combination with the jewel and ratchet on the said shaft, as set forth.

186,349.



186,354. WIRE FENCES. Wm. H. H. Frye, Marshalltown, Iowa. [Filed Feb. 22, 1877.]

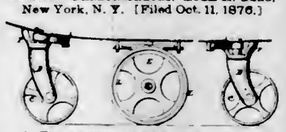
Brief.—The wire is held to the post by a loop, through which passes a wedge, that is guided by the free ends of the loop.



1. The wire-fastening device C, having loops *c c′* and ends *c″*, and adapted to be used with key or wedge D, substantially as and for the purposes set forth.

2. The combination of post A, as described, with metallic fastening device C, made as described, and wedge or key D and wire B, substantially in the manner and for the purposes set forth.

186,351. PARLOR-SKATES. Louis H. Gano, New York, N. Y. [Filed Oct. 11, 1876.]



1. The combination of the two posts D, pivoted in the brackets F and plate A, the springs S for bearing against the posts and wheels C, substantially as shown.

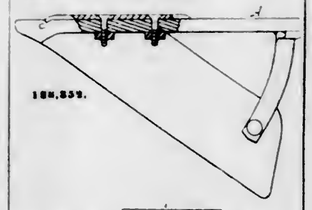
2. In combination with the wheels C, posts D, brackets F, and springs S, the bracket E, axle K, and wheels L, substantially as set forth.

186,352. SOD-CUTTERS. J. Gemly, Victor, Iowa. [Filed Aug. 19, 1876.]

Brief.—A cutter bolted to the outside of the land-side.

The combination, with the land-side A, having the notch-seat *c* formed in its exterior face, of the sod-shear C, having its base bolted to the land-side, and its point bent inward and seated in the said notch-seat, substantially as specified.

186,352.



186,353. BOYS' SLEDS. S. Gilsinger, Rondout, N. Y., assignor of one-half of his right to A. A. Crosby, same place. [Filed June 20, 1876.]



The combination of the runners and braces A B, formed of a single continuous piece of metal, curved in the manner specified, the combined tugs D and clips *d*, and clips, staples, or a cleat, E, with the seat C and grooves *s*, constructed substantially as shown and described.

186,354. MACHINES FOR MAKING FASTENINGS FOR THE SOLES OF BOOTS AND SHOES. Louis Goddu, Winchester, assignor to the American Cable Screw Wire Company, Boston, Mass. [Filed Feb. 3, 1877.]

1. An improved machine, for forming sole-fastenings for boots and shoes, in integral wire or rods of distinct nails or pegs, with heads and points, having die-rolls embedded and incased in solid bearings, which support them directly above and below where the pressure is applied to keep the surface of the rolls in contact.

2. The combination, in a machine for forming headed sole-fastenings in continuous lengths of wire or rods of distinct nails or pegs, of die-rolls, embedded and incased in solid bearings, to give the required support, with a feed-passage for the wire made through said solid beds, across and in line with the meeting-surfaces of said rolls, for the entrance of the wire to and its passage from said embedded die-rolls.

3. An improved machine for forming sole-fastenings for boots and shoes, in integral wire or rods, of distinct nails or pegs, having heads and points, constructed and organized with die-rolls embedded and incased in solid bearings, a feed-passage for said wire, through solid beds, and having transverse corrugations in said dies, to effect a uniform feed of the wire and corrugate the shanks of the nails or pegs, substantially as herein set forth.

4. In a machine for producing headed sole-fastenings for boots and shoes in continuous integral lengths, substantially as described, die-rolls embedded and incased in solid bearings, and operated by equal gears to maintain the coincidence of the nail-forming indentations, substantially as herein set forth.

5. In a machine for producing headed sole-fastenings for boots and shoes, in continuous integral lengths, having die-rolls embedded and incased in solid bearings, constructed in separate beds or sections, secured together, in line with the meeting-surfaces of said die-rolls, for operation as herein set forth.

6. The combination, in a machine for producing headed sole-fastenings for boots and shoes, in continuous lengths, of integral wire or rods of die-rolls of small diameter embedded and incased in solid bearings, and held from end movement by means of the shoulders formed by the equal gears bearing against said solid bed, and the cap-plate bearing against the ends of said gears, substantially as herein set forth.

7. The combination, in a machine for producing headed sole-fastenings for boots and shoes in continuous lengths of integral wire or rods, of die-rolls embedded and incased in solid bearings, having a feed-passage for the wire in line with the meeting-surfaces of said die-rolls, of a trimming-plate for taking off any burr or wire edge from the nail-formed wire which may be left in passing through the rolls.

188,355. FASTENINGS FOR THE SOLES OF BOOTS AND SHOES. Louis Goddu, Winchester, assignor to the American Cable Screw Wire Company, Boston, Mass. [Filed Jan. 31, 1877.]



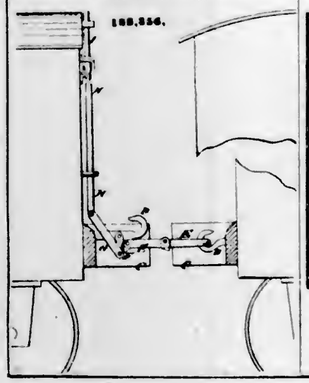
1. As a new manufacture, a continuous length of wire or rod of nails or pegs adapted for ready separation, having surface enlargements upon one side only, to form the heads of the nails, substantially as and for the purpose herein set forth.

2. A continuous wire of nails or pegs, having surface enlargements to form heads on one side only, and a flat or oval surface corrugated or smooth on the opposite side of the nail-wire, for the purpose stated.

3. A continuous length of wire or rod, adapted for ready separation into nails or pegs, having heads and points formed upon its corrugated side, an uninterrupted flat or oval surface on the opposite side, and a fine rib upon the corrugated shank-surface, for the purpose herein set forth.

4. A continuous length of wire or rod of nails or pegs, having a fine rib, *t*, on the shank-surface of each nail, as herein set forth.

188,356.



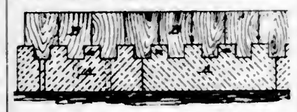
1. In a machine for exterminating grasshoppers or the army worm, a system of hinged or pivoted knives or bars adapted to accommodate themselves to the inequalities of the ground, and to crush the insect, substantially as described.

2. The combination of the pivotal knives or bars *a*, the side wheels *m*, and the slides *e*, as described.

3. The apparatus herein described, consisting essentially of a frame, *h i*, wheels *m*, pivotal knives or bars *a*, support *k*, carrying collectors *e c*, and hood or dash *d*, as and for the purposes set forth.

188,357. STONE PAVEMENTS. S. E. Gross, Chicago, Ill. [Filed Feb. 28, 1877.]

Brief.—A pavement in which the foundation is composed of natural-stone slabs or blocks, grooved or recessed on their upper surfaces, to receive the upper or wearing surface of whatever material.



1. A pavement in which grooved, cellular, or channeled natural-stone slabs or blocks are used as a foundation for a surface or wearing course of any suitable material or materials, substantially as described.

2. In combination with the natural-stone slabs or blocks, provided with cells, channels, grooves, or hollow compartments, the blocks B, which form the wearing-surface or upper section, all constructed as described, and for the purposes set forth.

188,358. COLLAR-FASTENERS AND NECK-TIE HOLDERS. J. Haney, Allegheny, Pa. [Filed Jan. 26, 1877.]



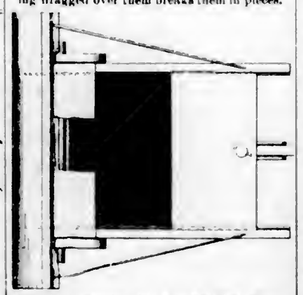
1. The within-described collar-fastener, consisting substantially of two spring-arms, *a a*, in combination with a plate or base supporting the same, and serving as a stop for the collar, substantially as described.

2. The combination of the two spring-arms *a a*, having looped ends, with a plate or base to which they are attached.

3. The combination of the spring arms *a a*, a stop for the collar ends, and a plate or base to which said arms are secured, the whole adapted for attachment to a neck-tie or other article, substantially as described.

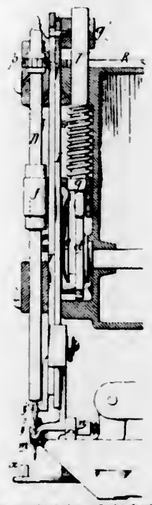
188,359. MACHINES FOR EXTERMINATING GRASSHOPPERS. T. K. Hanaberry, Padonia, Kans. [Filed Jan. 30, 1877.]

Brief.—A series of rods are pivoted at the upper end, and dragging loosely on the ground rearwardly. Wings extend on each side to gather in the grasshoppers, and the rods being dragged over them breaks them in pieces.



188,360. MACHINES FOR SEWING BOOTS AND SHOES. S. Henshall, Philadelphia, Pa. [Filed Dec. 16, 1876.]

Brief.—Improvement on Patent No. 137,640, and consists in adapting the machine therein set forth to the sewing of boots and shoes. The feed is a clamp-feed, each jaw having four motions. The needle is partially rotated to drop the loop as it ascends, the stitch being the ordinary chain-stitch. A finger to support the sole is placed in front of the feed, and is dropped out of contact when the feed takes place.



1. The combination of the feeding-jaws *i i'* and the movable finger *m* with devices whereby the said finger is depressed when the jaws are in the act of feeding.

2. The combination of the spring hasting-arm *n* with the finger *m*, the two presenting a recess for the reception and guidance of the upper and sole, as set forth.

3. The combination of the finger *m*, bell-crank lever L, connecting-rod *k*, and scroll-cam *a*.

4. The combination of the feeding-jaws *i* and *i'* with the supporting-finger *m*, in advance and independent of said jaws, whereby the manipulation and feeding of the work is facilitated, as set forth.

5. The combination of the spring-rod F and its block *g'*, and the vibrating plate J, with the lever G, bar H, and connecting-plate *h*, as set forth.

6. The combination of the needle-bar D and pinion *p*, connected together as described, with the sliding plate R and its rack, and the disk V, with the cam-groove *v*.

188,361. STOVES AND HEATERS. James N. Herah, Allentown, Pa. [Filed Feb. 19, 1877.]

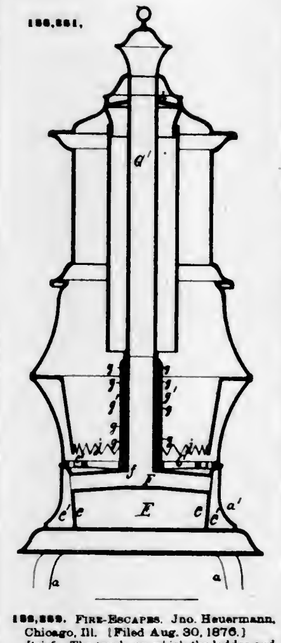
1. In a magazine stove or furnace, the combination of a central air-heating pipe and a lateral air-supplying and grate-supporting pipe, substantially as set forth.

2. The combination of the pipes G G' and F and the vibrating grate C, substantially as set forth.

3. The combination of the air-supply pipe F and the grate C, supported by it directly, substantially as set forth.

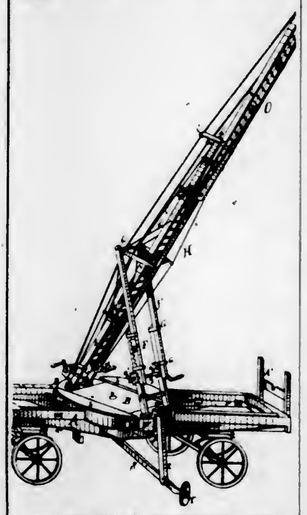
4. The combination of the pipe F and the chamber *e'*, having openings *o'* arranged around the ash-pit E, substantially as set forth.

188,351.



188,362. FIRE-ESCAPES. Jno. Heuermann, Chicago, Ill. [Filed Aug. 30, 1876.]

Brief.—The truck, on which the ladder and elevating and supporting derrick are pivoted, is provided at its center with a turn-table, on which the lower ends of the ladder and derrick are drawn by means of ropes and windlasses, and when in this position the ladder is capable of being turned in any desired direction.



1. A turn-table, B, mounted upon a wagon-frame, A, in combination with cross-beams D and D', as the supports for an extension-ladder, arranged to slide longitudinally in said wagon-frame, but when moved upon the turn-table to form part thereof and rotate therewith, substantially as and for the purpose described.

2. A turn-table, B, mounted upon a wagon-frame, A, and having windlasses E and E' attached, by which cross-beams D and D', sliding longitudinally in said wagon-frame, can be drawn upon said turn-table, and to rotate therewith, substantially as described and shown.

3. As a protection against ice, the L-shaped plates C, hinged to the side beams of the wagon-frame A, and the hinged leaves *b* upon the turn-table, substantially as described and shown.

4. The ladder-supporting frame F, consisting of sections *f*, having a crank-shaft, *g*, and pinions *g'*, and of section *f'*, telescoping with sections *f*, and having racks *f''* upon the lateral edges of its uprights, substantially as described, and for the purpose set forth.

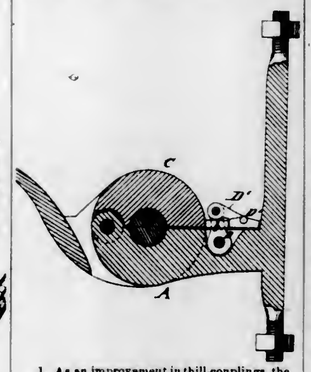
5. The ladder-section H, arranged with plates K, K', K'', and K''' as guides for the telescoping ladder-section O, said plates being provided with rectangularly-projecting struts for the truss-rods *i* and *i'*, substantially as described and shown.

6. The ladder-section O, being braced by cross-bars P and trussed by pipes *p* and rod *p'*, substantially in the manner as described and shown.

7. In combination with the turn-table B and its fulcrum-pin *s*, beam S, wheel T, and brace *t*, substantially as shown and specified.

188,363. THILL-COUPLINGS. Jas. F. Hill, Fleetwood, Pa. [Filed Feb. 17, 1877.]

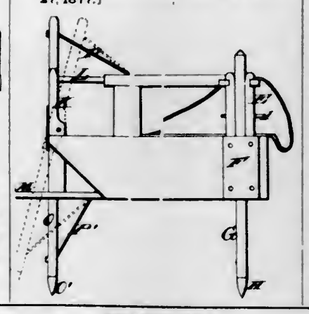
Brief.—The knuckle jointed catch slips over the lip on the swinging top, and holds it down.



1. As an improvement in thill-couplings, the combination of the stationary bearing or support A, hinged cap C, and center-pin B' of shaft attachment B, with a locking device D D' D², applied between cap and clip, to rigidly lock the shaft coupling or box, substantially as and for the purpose set forth.

2. The combination of the cap C, having tongue *b*, with the pivoted side links D, pivoted top plate D', and swinging locking-plate D², seated between tongue and clip, substantially as and for the purpose specified.

188,364. DREDGE-BOAT ANCHORS. Franklin Hinman, Lockport, N. Y., assignor of one-half his right to the Pound Manufacturing Company, same place. [Filed Jan. 27, 1877.]



1. A dredge-boat, provided with an adjustable rear guiding-spud, substantially as and for the purpose set forth.

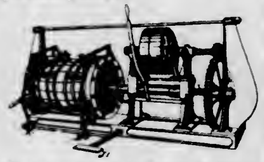
2. The combination of pivoted case or sleeve N, or its equivalent, with spud-shaft O sliding therein, and standards K K, constructed and arranged substantially as and for the purpose set forth.

3. The combination of sliding spud-shaft O, pivoted case N, or its equivalent, and cords or chains P P', substantially as set forth.

4. The combination of sliding spud-shaft O, pivoted sleeve or case N, cords P P', and slotted guide-pieces L and M, substantially as set forth.

188,365. MACHINES FOR LEVELING AND TRUSSING BARRELS. Edward Holmes and Britain Holmes, Buffalo, N. Y. [Filed Sept. 21, 1876.]

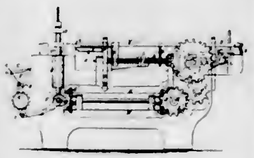
Brief.—Barrels, after being beveled by suitable mechanism, are trussed by means of a series of adjustable and simultaneously acting truss-hoop drivers.



The combination of a series of simultaneously-acting truss-hoop drivers, G, with the parts H H', arms K' K², and footstep J', or its equivalent, for the purposes specified.

188,366. CAKE-MACHINES. D. M. Holmes, New York, N. Y., assignor to J. C. Fuller, Orange, N. J., and M. G. Holmes, New York, N. Y. [Filed Jan. 6, 1877.]

Brief.—The feeding-plunger is attached to right-and-left screws, whose motion is capable of being reversed by means of the alternate movement of sliding clutches placed on opposite ends of a horizontal shaft; said shaft being provided with bevel-gear wheels, meshing with similar wheels on the ends of the screws. The hollow cutters are provided with ejecting-plungers, for discharging the cakes formed by the contact of the beveled edges of the hollow cutters with the edges of the beveled openings formed in the bottom plate of the dough-box. The movement of the apron may be reversed by the alternating contact of the arms of a bifurcated pawl with the teeth of a ratchet-wheel placed on the shaft of the rear supporting-roller of the said apron.



1. The combination of movable plungers M with the hollow cutters G, the cutter-plate F, and the dough-box B, of a cake-machine, substantially as herein shown and described.

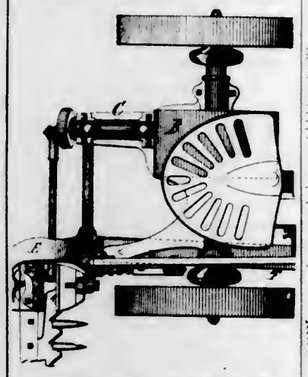
2. The combination of the plungers M, the cross-bar O, and its spring U and stops R, the two pairs of sliding bars S T, and the two pairs of cams V W, with the cutters G, the cross-bar J, and the driving-shaft X, substantially as herein shown and described.

3. The combination of the ratchet-wheel A', the forked pawl B', the lever O', the spring E', and the connecting-rod D' with the roller Z of the endless carrier H, and with the driving-shaft X, substantially as herein shown and described.

4. The combination of the slide-bar Y', provided with the two arms Z' Z', the bent lever X', and the sliding bar V', provided with the forked arms U' U', with the cross-bar S', of the plungers D and the clutches T' T', for throwing the gear-wheels M' M' into and out of gear with the swiveled screws E' R', that operate the plungers D, substantially as herein shown and described.

5. The combination of the two gear-wheels I′ M′ and the three gear-wheels L′ O′ M′ with the shafts K′ N′, clutch T, and a suitable operating mechanism, to enable the shaft N′ to be driven in either direction by the continuous movement of the shaft K′ in the same direction, substantially as herein shown and described.

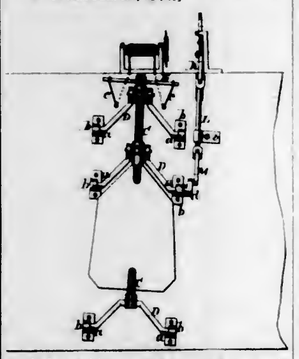
188,367. MOWING-MACHINES. M. G. Hubbard, Minneapolis, Minn. [Filed June 7, 1876.]



1. The combination, with the ratcheted tilting-post G, of the tilting-jaw F′, handle H, and spring-pawl *f*, for the purpose and substantially as described.

2. The wear-plate and surface-spring E F, to which the cutting apparatus is hinged, pivoted to, and vibrating upon, the hinged extension iron or brace I, substantially as described.

188,368. BRAKES AND AUXILIARY RUDDERS FOR VESSELS. J. Hutton, New York, N. Y. [Filed Jan. 24, 1877.]

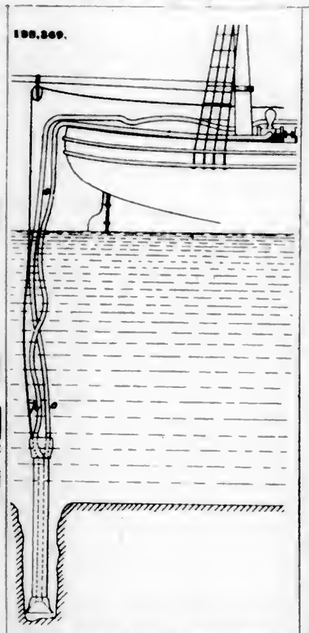


1. In combination with a vessel, a set of frames pivoted to the side of the vessel and having mechanism for raising them up against the side of the vessel or letting them down to a horizontal position, and a rudder-shaped brake pivoted vertically in said frames, and adapted to turn in the same to any desired angle, substantially as described.

2. The combination, with the rudder-shaped brakes B, of the Y-shaped frames D, pivoted to the sides of the vessel, and in which frames the brakes B are adapted to turn at any angle, substantially as described.

3. The combination, with the rudder-shaped brake, of the frames D D, pivoted to the side of the vessel and carrying the brake, which can be turned in the frames at any desired angle, of the crank *d*, attached to one of the frames D, the link M, rod L, and bell-crank lever K, substantially as described.

188,369. DREDGING. Wm. B. Hyde, Oakland, Cal. [Filed Jan. 27, 1877.]



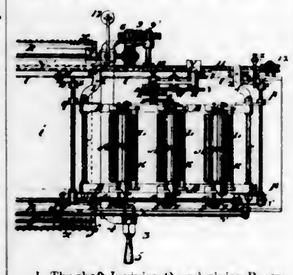
1. The mode or method of making submarine excavations, consisting in boring a number of vertical holes in the bottom of rivers, lakes, and bays, and allowing them to fill, substantially as and for the purpose described.

2. A submarine boring or dredging implement, consisting of an open bottom vessel or bell-shaped chamber, D, in combination with two separate passages, *b c*, each of which is connected by a flexible or extensible tube, *c*, with a separate and independent pump, one of which acts as a force, while the other acts as a suction pump, substantially as and for the purpose described.

3. The inverted bell-shaped end piece D, connected with the hose or conduit *b* by a central passage or opening, and having the conduit *c* connected with an annular chamber, from which small nozzles or perforations *i* connect with the interior of the bell-shaped chamber, substantially as and for the purpose described.

188,370. MACHINES FOR PRINTING TEXTILE FABRICS. William Ireland, Buckhaven, North Britain. [Filed May 1, 1875.]

Brief.—The fabric is stretched transversely across the table, over rollers fixed at each side thereof, and the horizontally-reciprocating carriage, bearing the printing-rollers, is supported by wheels on cranked arms, the rocking of which, by stops on the frame, lifts the rollers to return free of the fabric.



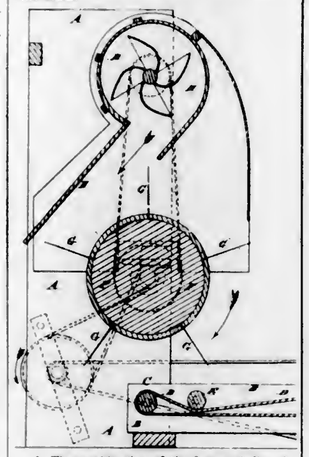
1. The shaft I, pinion O, and pinion P, carried upon the stud Q, bracket U, provided with counter-shaft *d*, intermediate wheel W, spur-wheels V V′, rack X, and arm Z, combined and relatively arranged as described.

2. The worm-screw 7, tangent screw wheel 8, beam *f*, rollers *g h j k*, and table *i*, combined as and for the purpose described.

3. The combination of the frame B, provided with brackets *g*, levers *r′ e′*, rollers *t u*, connecting-rod *v*, arm *w*, stop *y*, and guide *y′*, as and for the purposes described.

188,371. PAPER-PULP DISTRIBUTERS. I. Jennings, Fairfield, Conn. [Filed Feb. 3, 1877.]

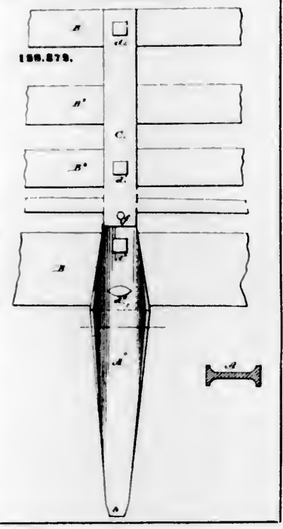
Brief.—The article to be coated is placed upon a slowly-revolving stand in front of the machine, and then, as the endless apron on the lower frame dips into the pulp-vat and brings up pulp, the spring-fingers on the drum throw the pulp at the object to be coated, assisted by air from a fan-blower placed above the drum.



1. The combination of the frames A B and the endless carrier C E D with the drum F, provided with the spring-fingers G, for throwing particles of paper-pulp upon objects to be coated, substantially as herein shown and described.

2. The combination of the fan-blower H and the drum F, provided with the spring fingers G, with the endless carrier C E D and the frames A B, substantially as herein shown and described.

188,372.



188,373. FENCE-POSTS. P. Jones, Adams, Ind., assignor of one-half his right to H. B. Collins, Newport, Ky. [Filed Oct. 23, 1876.]

1. The iron post A, constructed, as described, with tapering sides and edges, and with ribs *a* at the edges on both sides, with a sharp lower end beveled from both sides, and with an offset, B, at the top, all as set forth.

2. The upright wooden posts C C′, united together by means of bolts *d d′ d² d³*, with the fence-rails B B¹ B² B³ between them, and all combined with and secured to the upper notched side E of the iron post A by the lower bolts *d² d³*, said post A being constructed and adapted to support the wooden posts C C′, in the manner set forth and described.

188,374. FASTENERS FOR KEG-COVERS. J. H. Jones and C. Walker, Buffalo, N. Y. [Filed Jan. 31, 1877.]

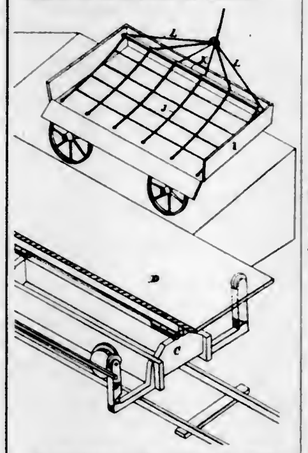


1. In combination with the born and the stirrup, both secured to the inside of the keg, the rigid stirrup, secured to the lid, and the swinging hook pivoted to a swinging cam-lever, substantially as hereinbefore set forth.

2. The hook H and lever I, the latter provided with the lip L, in combination with the slotted plate J and spring latch-bolt M, substantially as hereinbefore set forth.

188,376. DEVICES FOR UNLOADING AND STACKING HAY, &c. G. F. Kelley, Sumnerville, Cal. [Filed Jan. 2, 1877.]

Brief.—On ways which ascend to the necessary height for the erection of a stack there is a car having a platform centrally and longitudinally pivoted thereto, with hinged side props to admit of tilting it. The wagon-load is placed on a rope netting, which latter is attached on one side, and is hauled by the other to roll the load onto the platform.

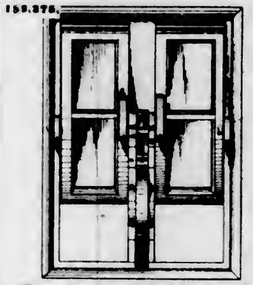


In combination with a wagon, I, to receive the hay, the netting or hammock J, when said netting is provided with bar K at one edge, and the operating-ropes L, so that the load may be discharged or rolled upon the platform D, substantially as herein described.

188,375. WINDOW-SASH HOLDERS. Jas. Kelly, San Francisco, Cal., assignor of one-half his right to M. Dalton, same place. [Filed Feb. 2, 1877.]

Brief.—The toothed slide, being moved up by the disk, imparts motion to the rock-shaft, thus swinging the window open on its pivots. The opening may be regulated as desired.

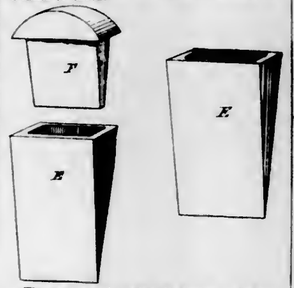
188,378.



The combination of the sliding bar E, with a rack at its lower end, the toothed disk F, and the rock-shaft D, with its arm G, connected with the end of the bar E by the hinge-joint *e*, the whole arranged and connected with the sash, as described, and operating to form a sash holding and operating device for windows, ventilators, &c.

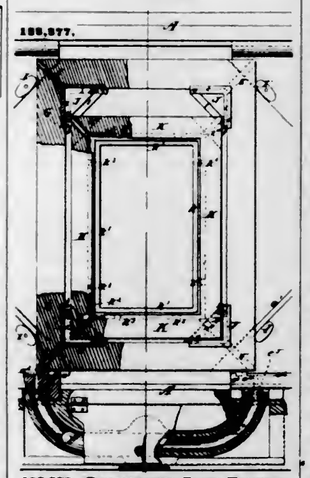
188,376. METAL WEDGES. Jas. Kelly, San Francisco, Cal., assignor of one-half his right to M. Dalton, same place. [Filed Feb. 2, 1877.]

Brief.—A metal wedge, for removing earth, is provided with an aperture in its upper end, adapted to receive a metal head to take the blows of the driver, or a lever for prying off a mass of earth.



The cast-metal wedge E, having a hollow end, in combination with the loose head F and loose lever G, substantially as described and shown.

188,377.



188,377. PHOTOGRAPHY-PLATE HOLDERS. Charles L. Kempf, Brooklyn, N. Y. [Filed Dec. 11, 1876.]

Brief.—The novelty consists in the special construction of parts.

1. The double reversible corners E, provided with the rabbet *e¹* along their inclined edges, the groove *e²* along their lower flange, the rib *e³*, the projection *e⁴*, and the spout *e⁵* to adapt them to receive and carry off the solution, substantially as herein shown and described.

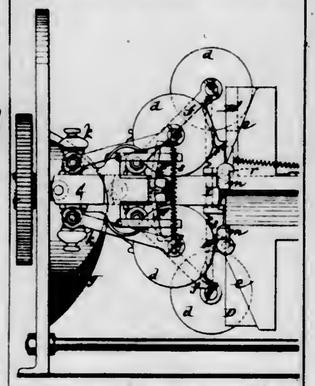
2. The kit-frame corners J, provided with the rabbet 1 along their inclined edges, the grooves 2 along both flanges, the ribs 3, and the projections 4 at the ends of the grooves 2, in combination with the tubes 5 passing through the angles of said kit-frame, substantially as herein shown and described.

3. The ferrotype kit-frame K, made with the rabbet *k¹*, the grooves *k²*, and the perforated ribs *k³*, and provided with the tubes *k⁴*, substantially as herein shown and described.

4. The curved solution-bottle F, provided with a mouth at each end, in combination with the recessed bottom bar of the frame A, and with the two corners E, substantially as herein shown and described.

188,378. PAPER-BAG MACHINES. S. L. King, Brooklyn, N. Y., assignor of part of his right to J. R. Gilbert, Jersey City Heights, and L. D. Gordon, Jersey City, N. J. [Filed Sept. 22, 1876.]

Brief.—The bag-tube is held in one pair of the revolving flaps. A pair of hooks open the end of the tube, when the pasters and folders advance and form the bottom of the bag.



1. The combination, with the hinged flaps C C and fixed flaps D D on reverse sides of the central shaft B, with which they revolve, of the hooks F F, arranged to work inward and outward in oblique directions relatively to said shaft, essentially as and for the purpose herein set forth.

2. The combination of the table-sections D D′, having inclined planes or surfaces *e e*, the sliding frame G, the rods *f*, the axles or shafts *b*, the wheels *d*, and the hooks F, substantially as specified.

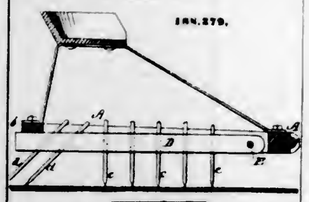
3. The rocking folders and formers H H, provided with toes *m m*, in combination with the sliding frame G, the elastic slotted arms *y y*, and the paster or paste-tank I, essentially as described.

188,379. COMBINED HARROW AND CLOD-CRUSHER. Wm. H. Kuhn and S. Miller, Albany, Oreg. [Filed Jan. 31, 1877.]

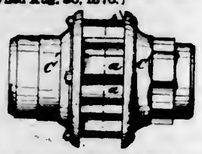
Brief.—The frame is rectangular, having an elevated seat mounted upon it. A series of plank sections are hinged to the front of the frame, their rear ends extending back and beneath the rear beam of the frame. Two sets of teeth are set in each section, the forward set being perpendicular to the face of the sections, while the rear set are inclined backward at an angle of about forty-five degrees.

The improved harrow and clod-crusher formed of a frame, A, and a series of toothed sections, D, hinged independently on the rod E, and extending rearward beneath the bar *b* of the frame, also provided with two sets of teeth, *c c*, the teeth *c* being at right angles to the beam, and the teeth *d* inclining rearwardly at an angle of about forty-five degrees, as shown and described, for the purpose specified.

188,279.

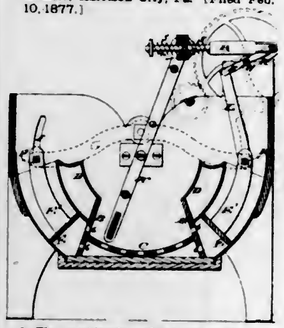


188,280. VEHICLE-WHEEL HUBS. C. Kundegraber, Wyandotte, assignor of two-thirds this right to F. Settles, same place, and L. Weinberg, Leavenworth, Kans. [Filed Aug. 30, 1876.]



The hub, consisting of sections C C and box B, the section C having a screw, *f*, and the box B having an angular neck, A, and a screw-thread, *i*, as and for the purpose set forth.

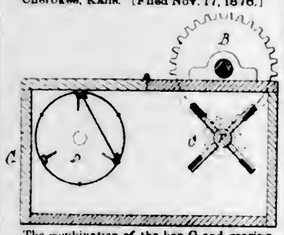
188,281. WASHING-MACHINES. Josiah B. Lauffer, Harrison City, Pa. [Filed Feb. 10, 1877.]



1. The combination of concave perforated wash-board C with perforated partitions *b b*, guiding shells D D, pistons E E, guide-rods F F, yokes G G, crank-shaft H, and plungers L L, substantially as and for the purpose set forth.

2. The combination of crank-shaft H, having double cranks K' K' and Q, with plungers L L, guide-rods F F, arms E' E', pistons E E, pitmen R, rod *r*, spring S, and rocking clothes-frame N, substantially as and for the purpose set forth.

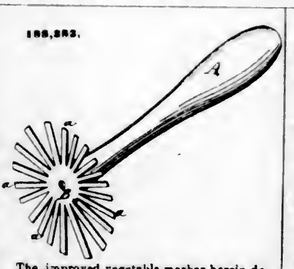
188,282. WASHING-MACHINE. S. E. Leigh, Cherokee, Kans. [Filed Nov. 17, 1876.]



The combination of the box G and gearing B, with the paddle-wheel C and cylinder D, having pulleys E and F, and cord *c*, substantially as and for the purpose specified.

188,283. VEGETABLE-MASHER. Elisa S. Leslie, Saxonville, Mass. [Filed Nov. 22, 1876.]

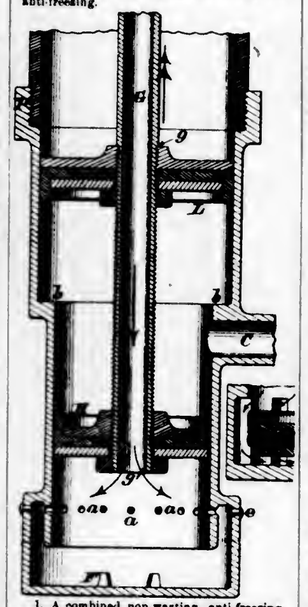
188,283.



The improved vegetable-masher herein described, consisting of handle A and disk B, having narrow radiating arms *a a*, the mashing-disk consisting of a circular piece of sheet metal from which triangular pieces have been cut, and having a central perforation, substantially in the manner and for the purpose herein shown and specified.

188,284. HYDRANTS. S. W. Lewis, Cincinnati, Ohio. [Filed Dec. 15, 1876.]

Brief.—The piston being liberated from a depressed position, the water-pressure on the upper cupped portion lifts the lower portion above the annular supply-holes in the lower part of the stock, thus stopping the flow. The hydrant is non-wasting, self-closing, and anti-freezing.



1. A combined non-wasting, anti-freezing, and automatically-closing hydrant, having its inlet-port located at or near the junction of two communicating valve-chambers of unequal diameter, substantially as herein described and set forth.

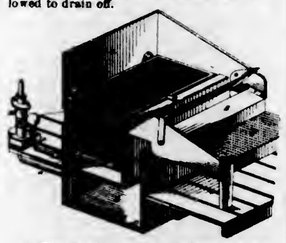
2. A hydrant whose valve-chamber consists of two communicating cylinders of different diameters, traversed by independent pistons, attached to a common moving water-way, said chamber being provided with inlet and outlet ports, the inlet-port being situated at or near the junction of the two valve-chambers, substantially as herein described and set forth.

3. The combination of communicating cylinders A and B, of unequal diameters, inlet C, located at or near the junction of cylinders A B, outlets a or S, packed pistons H L, and a moving water-way, G *g'*, or its equivalent device, substantially as herein described and set forth.

4. In a non-wasting hydrant-valve, the upturned cupped packing or piston H, and downturned cupped packing or piston L, when so arranged that the upper piston L will be of greater diameter and present more area of surface to the water than the lower piston H, thereby causing an unequal pressure of water upwardly, so as to elevate and automatically close the valve when the inflowing current is admitted between said differential pistons, substantially as herein described and set forth.

188,285. MACHINES FOR CLEANSING WOOL AND OTHER MATERIAL. O. Lowe, Hyde Park, Mass. [Filed July 31, 1876.]

Brief.—The wool to be cleansed is placed in an inner tank resting upon a double diaphragm near the bottom of said chamber, and it is packed therein firmly, to prevent agitation of its particles during the cleansing process. The chemical solution is then driven, by a forcing-pump, into said chamber, entering near the bottom beneath the foraminous diaphragm supporting the wool, and passing up through its mass to the top, where it flows out through the perforated cover, and is guided, by a raised gate, back into the large chamber beneath. The wool may be rinsed in a similar manner, by supplying pure water to the pump after using the ordinary alkaline fluid. It is discharged from the cleansing-chamber by opening the cover, dropping the adjustable gate, and driving a stream of water into the tank, by which the wool is floated up over the top, and down the incline leading to a receiver, where the surplus water is allowed to drain off.



1. The combination, in a machine for cleansing wool and other material, of a closed receiving chamber, having suitable escape-openings, with mechaniam for forcing water or other liquids through said chamber under pressure.

2. In a machine for cleansing wool or other material, the combination, with a cleansing-chamber and a receiver, of suitable mechaniam for forcing water into said chamber under pressure, whereby the wool is, by the current or overflow, wholly discharged from said chamber and deposited in the receiver, as and for the purposes set forth.

3. The combination, in a machine for cleansing wool or other material, of the tank A, chamber B, and pumping mechaniam R, having draft-pipe *e'* and injection-pipe *e*, as and for the purposes set forth.

4. The combination, with tank A and chamber B, of the adjustable sluiceway *g*, as and for the purposes set forth.

5. The combination, with tank A and sluiceway *g*, of the receiver *f*, as shown and described.

6. The double diaphragm, consisting of the metallic perforated plate *b* and the foraminous wire screen *c*, adapted to be placed in the top or bottom, or both, of the chamber B, as and for the purpose set forth.

7. The combination, with the chamber B, having a perforated cover, *d*, of the double diaphragm *b c*, as and for the purpose set forth.

8. In a wool-cleansing machine, the combination, with a closed chamber having suitable opening for the escape of the liquor, of a foraminous diaphragm placed near the bottom of said chamber, above the injection-pipe, as shown and described.

9. In a wool-cleansing machine, the combination, with tank A and chamber B, of the double diaphragm *b c*, as shown and described.

10. The combination, in a wool-cleansing machine, of a tank, A, chamber B, and adjustable sluiceway *g*, the dog K, incline S, and receiver *f*, as shown and described.

188,286. INKING APPARATUS FOR PRINTING-PRESSES. F. Macdonald, New York, N. Y., assignor of one-half of his right to I. Smith, same place. [Filed Dec. 8, 1876.]

1. The combination of the oppositely rotat-

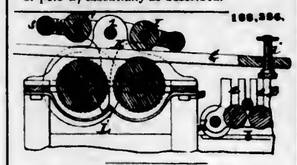
ing and reversing rollers E E', the pressure-rollers I I', controlled by a tripping device to operate alternately and in proper relation respectively with the reversing-rollers E E', the push-and-draw bar or pole G, and the inking-roller carriage B, essentially as described.

2. The push-and-draw bar or pole G, constructed with a recess, *l*, in combination with the reversing roller E, substantially as and for the purpose specified.

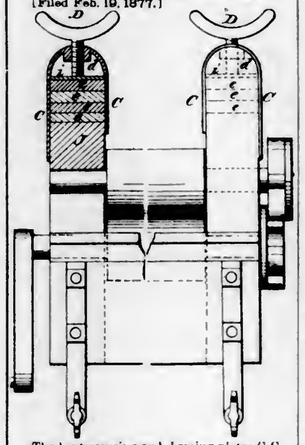
3. The push-and-draw bar or pole G, provided with a tripping-button, *r*, in combination with the stop or roller *s* on the rocking tripping device H, which carries the pressure-rollers I I', substantially as specified.

4. The rocking tripping device H, constructed of a yoke arranged to work on a pivot, *k*, and having pressure-rollers I I' on opposite sides of said pivot, also provided with one or more locking arms or toes, K, and one or more retaining-springs, L, for operation in relation with the reversing-rollers E E', and push bar or pole G, essentially as described.

188,286.



188,287. WRINGERS AND MANGLES. Chas. A. Mallory, Oshawa, Ontario, Canada. [Filed Feb. 19, 1877.]



The bent covering and bracing plates C C, having an inwardly-projecting shoulder, *d*, directly below the bent part, in combination with the recessed posts B B, bearing-blocks J, rubbers *e*, plate *i*, and tension-screw D, substantially as and for the purpose hereinbefore set forth.

188,288. ELEVATORS. Benjn. G. Martin, New York, N. Y. [Filed Nov. 16, 1876.]

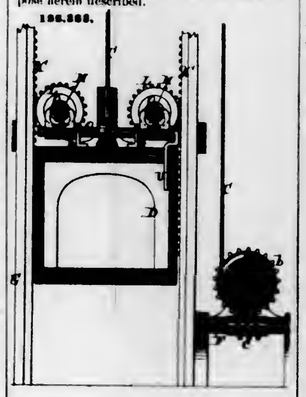
Brief.—Cog-wheels secured on the top of the car gear with racks on the sides of the well. Friction-clutches on the wheel shafts are operated by a hand-lever or by a spring on the breaking of the rope, to prevent the fall of the car. The rotation of the winding-drum is reversed by a clutch and lever, and system of bevel-wheels.

1. The combination of the elevator-drum A, the shaft B, and the worm-wheel *b*, arranged upon the same, with the shaft F, the worm *e*, upon the same adapted to the worm-wheel *b*, and the reversing mechaniam, composed of the three bevel-wheels G H H', and the friction-clutch J, arranged between the wheels H H', substantially as and for the purpose described.

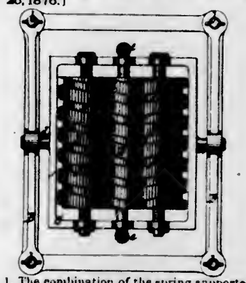
2. The combination, with an elevator car or platform, D, its well E, and rope C, of two or more racks, K K, cog-wheels L L, friction-clutches O O, rock-shaft Q, lever S, and spring *d*, substantially as and for the purpose set forth.

3. The combination of the hand-lever U with the rock-shaft Q, friction-clutches O O, cog-wheels L L, racks K K, well E, and car or platform D, substantially as and for the purpose herein described.

188,288.



188,289. CAR-AXLE LUBRICATORS. Benjn. G. Martin, New York, N. Y. [Filed Nov. 26, 1876.]

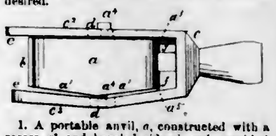


1. The combination of the spring-supported frame or bars B, the frame C, capable of having an oscillating or swinging motion in said bars, and the distributing-rollers D D, journaled in said frame, substantially as and for the purpose described.

2. The combination of the spring-supported frame B, the frame C, arranged to oscillate or swing in said spring-supported frame, the distributing-rollers D, journaled in the swinging frame, and the spring-supported roller E, as and for the purpose described.

188,290. DEVICES FOR SHARPENING PLOW SHARES AND POINTS. F. M. Marquis, West Middleburg, Ohio. [Filed Jan. 24, 1877.]

Brief.—The plow is laid on its land side, the edge of the share resting on the nose; the wedge is inserted to clamp it, when, by means of a hammer, the edge may be drawn out, as desired.

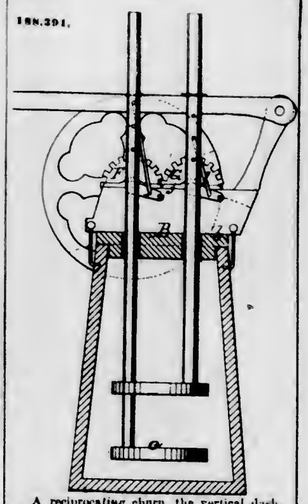


1. A portable anvil, *a*, constructed with a recess, a^1, and beveled side a^1, and provided with a removable nose, *b*, substantially as and for the purpose set forth.

2. The combination, with a portable anvil, *a*, constructed with a nose, *b*, groove or grooves a^1, and pin or axle a^4, of a frame, *c*, constructed with arms c^2 c^2, slots *d*, hooks *e*, guide or guides *f*, and wedge *g*, substantially as and for the purpose set forth.

188,291. RECIPROCATING CHURNS. Joseph E. Marquis, Sharon, Ohio. [Filed Dec. 9, 1876.]

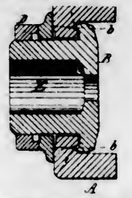
188,291.



A reciprocating churn, the vertical dash-rods of which are adjustably attached to a horizontal lever, which carries guides for the upper portions of said rods, the rods having alternate action by means of two pinions actuated by pitmen from the lever, the whole operating mechanism being mounted upon the detachable top of the churn, substantially as shown and described.

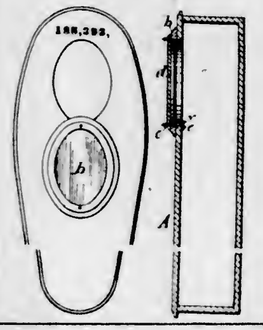
188,292. LATHE-CHUCKS. E. W. Mathewson, Bridgeport, Conn., assignor to F. Armstrong, same place. [Filed Feb. 15, 1877.]

Brief.—Improvement on Letters Patent No. 154,162, August 18, 1874, to George Doolittle and Frank Armstrong, as assignees of John H. Vinton. The bevel gear is provided with a V-shaped projection, and the shell with a corresponding annular groove.



In a lathe-chuck substantially such as described, the shell A provided with an annular V-shaped groove, in combination with the gear B, provided with a corresponding rib, *b*, substantially as and for the purposes hereinbefore described.

188,293.



186,393. REMOVABLE FACE-GLASSES FOR COFFINS. J. McCarthy, Syracuse, N. Y. [Filed Feb. 9, 1877.]

Brief.—The face-glass frame is pivoted to the coffin by a single bolt. Inclines upon the under side of the coffin-lid throw the face-glass frame upward and off the coffin as it turns, so as to prevent scratching the varnish.

The combination and arrangement, with the face-glass frame and the lid of the coffin, of the bolt *c*, fitted loosely in the lid A, and carrying on its outer end the face-glass frame *b*, and provided with the hook or shoulder *e* at its lower extremity, and the wedge *w* and bridge *v*, attached to the under side of the coffin-lid, at opposite sides of the bolt *c*, constructed and combined to operate substantially as described, for the purpose set forth.

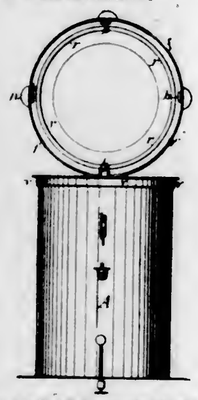
186,394. ROLLS FOR BEVELING AGRICULTURAL IRONS. W. H. McOune, Pittsburg, Pa., assignor to the Pittsburg Steel Casting Company, same place. [Filed Dec. 28, 1876.]



1. The flat-bottomed recess *a*, beveled, as at *c*, on two converging sides, in one of a pair of rolls, R R', or equivalent roll-segments, as a device for making a bevel on the rear edges of agricultural irons and steels, substantially as hereinbefore set forth.

2. The roll R, having the removable recessed die D, in combination with the roll R', arranged with its axis back of a vertical line passing through the axis of the lower roll, substantially as set forth.

186,395. PRESERVING VEGETABLES, &c. G. L. Merrell and O. F. Soule, Syracuse, N. Y. [Filed Jan. 17, 1877.]



1. A cylindrical steam-chamber for heating vegetables and other articles in sealed cans, having the cover hinged to its cylinder or body, and fitted to its seat by elastic packing, substantially as herein described.

2. In combination with the tightening bolts *b b*, the hinge *h*, having its pintle or gudgeon supported in an elongated eye in the ear of the hinge by set-screws or their equivalents, substantially as and for the purpose specified.

3. The combination and arrangement, with a cylindrical steam-chamber, of the L-shaped band *e* and hinged cover C, provided with elastic packing-ring *r*, substantially as and for the purpose specified and shown.

4. The combination and arrangement of the cover *c*, projecting over the edge of the cylinder, and the L-shaped bolts *b b*, passing with their screw-threaded end through holes in the projecting portion of the cover, and outside of the periphery of the flange aforesaid, substantially in the manner described, for the purpose set forth.

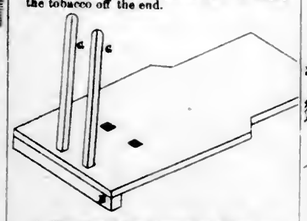
5. In combination with the bolt *b*, having hook *l* at the lower end, engaging an external flange on the cylinder A, the flange *f* on the periphery of the cover *c*, substantially in the manner and for the purpose specified and shown.

186,396. MODES OF WELDING BESSEMER-STEEL RAILS. Otto W. Meyseubnrg, St. Louis, Mo., assignor of one-half his right to Theodore A. Meyseubnrg, same place. [Filed Dec. 20, 1876.]

The method herein described of welding Bessemer steel rails—that is to say, forming a pile of several of such rails, pieces of rail, or crop ends, without the admixture therewith of any other substance; heating said pile slowly and uniformly to the temperature, substantially, of 1200° centigrade; and then passing the same through or between compressing-rollers adapted to the shape of the pile, thereby welding the pile into a homogeneous mass.

186,397. TOBACCO-CUTTERS. Bong Moon, San Francisco, Cal. [Filed Jan. 15, 1877.]

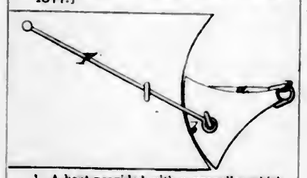
Brief.—The plug is held edgewise between the standards and the plane used to shave the tobacco off the end.



1. The plug-holder consisting of the platform A, with its standards G G arranged as described.

2. The plane H, provided with the chamber K and guard *i*, substantially as and for the purpose described.

186,398. PROPELLERS FOR VESSELS. F. Morris, Norwood, N. J. [Filed Jan. 31, 1877.]



1. A boat provided with a propeller which is supported on a fulcrum at a point remote from the boat proper, and in rear of the working-face of the propeller, substantially as and for the purpose described.

2. The triangular propeller, having diverging working-faces, in combination with the concave end of the stern of the boat, substantially as and for the purpose described.

3. The propeller, made with its broadest end a little wider than one-half the width of the stern of the boat, and limited in its movement so as not to pass the central longitudinal axis of the boat, substantially as and for the purpose described.

4. The triangular propeller-blade, made with concave faces, substantially as and for the purpose described.

186,399. SAND-BOXES FOR LOCOMOTIVES. S. E. Mosher, Chillicothe, Ohio. [Filed Dec. 23, 1876.]

1. The combination, with the discharging-spouts of a sand-box, of longitudinal clearers extending therein, substantially as specified.

2. The reciprocating clearers herein described, arranged within the discharging-pipes of a sand-box, and designed to clear said pipes when operated, substantially as specified.

3. The combination, with the reciprocating spout-clearers, of the transversely-vibrating lever *d*, for operating the same, substantially as specified.

4. The combination, with the valves *a* and their operating mechanism, of the spout-clearers and their lever *d*, substantially as specified.

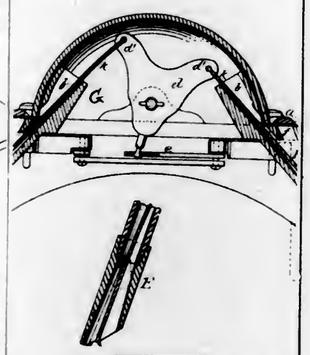
5. The combination of the lower section of the sand-box, having the cavity G, the pipes E E, provided with passages *b b*, and cleaner *k*, substantially as specified.

6. The combination, with the reciprocating clearers in the discharging-spouts, of the valves arranged in the lower portions of said spouts, substantially as specified.

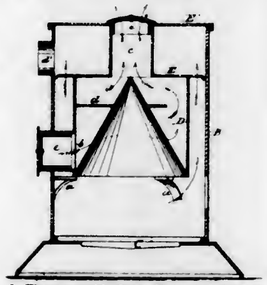
7. The combination, with the sand-box and its discharging-spouts, of the steam-pipes arranged therein to heat and dry the sand, substantially as specified.

186,399.





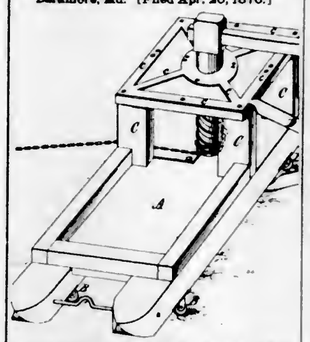
186,400. AIR-HEATING STOVES. John B. Oldershaw, Baltimore, Md. [Filed Feb. 13, 1877.]



1. The removable drum D, having flanged and perforated upper surface E, in combination with the outer case B, having supporting-brackets or arms *a* and the removable cover E', substantially as, and for the purpose described.

2. The removable heating-drum, having an inlet and outlet, *b c*, and the outer case, having corresponding openings registering with said inlet and outlet to the drum, in combination with a detachable sleeve, *c*, containing the damper or register, and arranged to form a break-joint with the said removable drum and outer case, as and for the purpose described.

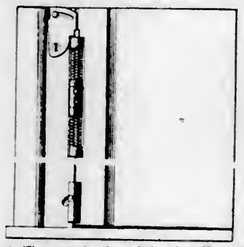
186,401. STUMP-EXTRACTORS. Geo. Ortel, Baltimore, Md. [Filed Apr. 20, 1876.]



In combination with the truck A, mounted upon casters B, the capstan F, mounted in a frame, C, the drag-chain H, secured to the capstan, and anchor-chain L, secured to four converging arms, rigidly connected to the frame and truck, substantially as shown and described.

186,402. SPRING-HINGES. J. Palm, Sandwich, Ill. [Filed Sept. 9, 1876.]

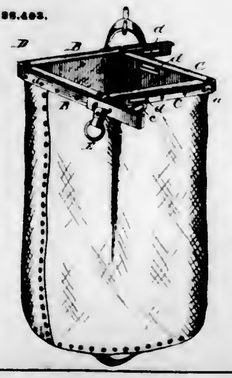
Brief.—An adjustable spring-hinge has one leaf provided with headed pins or buttons, fitting in key-hole slots of a suitable plate let into the door-frame as a means of ready disengagement. There is also a pivoted shouldered plate combined with the hinge and its extra attaching-plate, which is swung over and locks the hinge in position.



1. The combination of the plate E, having slots *a a* and enlargements *o o*, the levers D G, the latter provided with headed pins or buttons *m m*, the pintle A, knuckles *a a*, *d d*, and *e*, springs *i*, lugs *b b*, and pins *x x*, all constructed substantially as described and shown, for the purposes set forth.

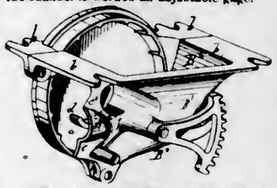
2. The pivoted plate J, with shoulder *y*, in combination with the plate E and spring-hinge D G, substantially as and for the purposes herein set forth.

186,403.



186,404. DISTRIBUTERS FOR GRAIN-DRILLS. Chas. H. Patric, Springfield, Ohio. [Filed Dec. 7, 1876.]

Brief.—One side of the feed-wheel casing has a concave converging channel from beginning to end, and vertical walls above and below the channel at its discharge end. In the channel is worked an adjustable gage.

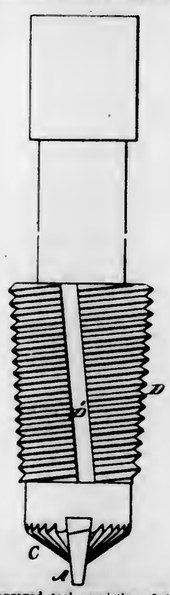


1. The casing-plate B', provided with the converging concave channel extending to the outlet-opening, and having the vertical walls *c c'* above and below said channel, at its discharging end, arranged and operating as described.

2. The casing-plate B', provided with the converging concave channel extending to the outlet-opening, and having the vertical walls *c c'* above and below said channel, at its discharging end, in combination with the adjustable gage *d*, arranged and operating as described.

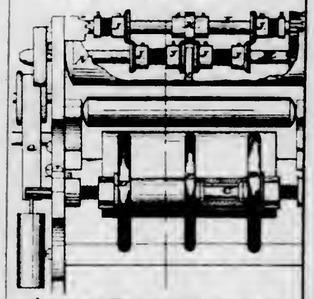
3. The combination, with the distributer-wheel casing B', having the concave converging portion B' of the measuring-channel, as described, of the adjustable gage *d*, adapted to vibrate across said concave portion of the channel, at its discharging end, substantially as and for the purpose described.

186,405. COMBINED DRILL, REAMER, AND TAP. C. Peterson and A. Dunnebake, Detroit, Mich. [Filed Feb. 3, 1877.]



The improved tool consisting of the drill A, the tapering fluted reamer C, and the tap D, the several parts connected substantially in the manner as described, and for the purpose set forth.

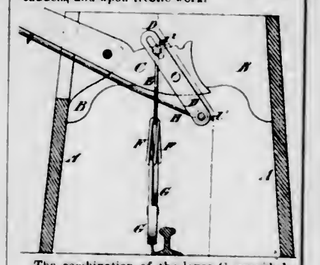
186,406. MACHINES FOR CUTTING AND WINDING PAPER. L. W. Pettebone, Niagara Falls, N. Y. [Filed Jan. 24, 1877.]



In a paper-rolling machine, the combination of the square-faced cutter K, mounted upon the shaft I, knives J J upon shaft H, the tooth V, and the center flange E, carried upon the shaft C, the width of said flange corresponding to that of the piece cut from the center of the web of paper, and to the width of the cutter K, substantially as described.

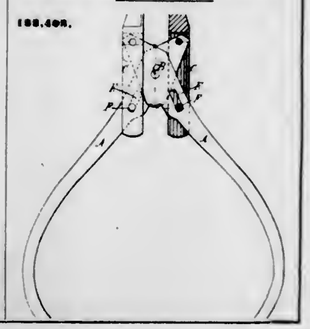
186,407. SPIKE-EXTRACTORS. J. A. Powell, California, Pa., assignor to himself and J. B. Crowthers, same place. [Filed Sept. 2, 1876.]

Brief.—By means of a lever pivoted in a suitable frame, provided with notches in the upper side of its forward end, having pivoted to it two bars, the upper ends of which are slotted to receive a rod, which supports the clevis to which is secured the links that are attached to and operate the clamping-jaws, and a rod secured to the lower side of the lever, for changing the bolt in the lower ends of the bars from one to another of the notches without releasing the end of the lever, railroad-spikes can be drawn without bending, the operator can always stand within the track, and the device can be used in cuts, tunnels, and upon trestle-work.



The combination of the lever C, provided with one or more notches, *c'*, in the upper side of its forward end, the pivoted slotted bars D and their rods or bolts d^2 d^3, the clevis E, the links F, the clamp G, and the rod H with each other and with the frame A B, substantially as herein shown and described.

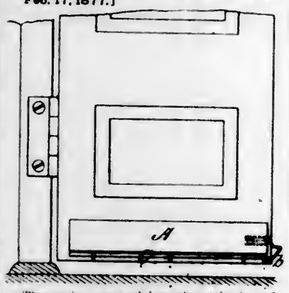
186,408.



186,409. PARALLEL PLIERS. Wm. Quirk, Philadelphia, Pa., assignor to Thos. B. Hagstoz and Chas. N. Thorpe, same place. [Filed Feb. 9, 1877.]

Parallel pliers, having guide-pins F passing through and permanently fastened in the jaws C, and sliding in slots E in the levers or handles A, as and for the purpose specified.

186,409. WEATHER-STRIPS. Christian B. Rager, North Manchester, Ind. [Filed Feb. 17, 1877.]



The spring recessed into the strip A, and having a projecting finger, *b*, in combination with the guard-strip, hinged to the strip A, and the stop *f*, substantially as specified.

186,410. CHAIR SEATS AND BACKS. P. Eath, New York, N. Y. [Filed Jan. 29, 1877.]

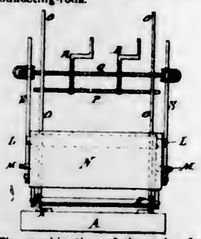


1. The combination of pasteboard B, having hole *a*, the covers C E, and the stuffing D, substantially as and for the purpose specified.

2. The pasteboard B, provided with concave molding *b*, surrounding hole *a*, substantially as and for the purpose set forth.

186,411. DUMPING-WAGONS. R. A. Reed, Hoboken, N. J. [Filed Feb. 10, 1877.]

Brief.—Designed particularly for lumber. The load rests upon rollers having their bearings in quadrantal plates hung upon rock-shafts, so as to be tilted by the hand-lever and connecting-rods.



1. The combination of the pair of quadrantal plates B and their shaft C and roller D, and the roller or rollers E, having slotted and raised bearings F G, with the bottom or frame A of a vehicle, substantially as herein shown and described.

2. The combination of the second pair of plates, J, and their shaft K and roller L, with the first pair of plates, B, and their shaft C and roller D, the roller E and its slotted and raised bearings F G, and the bottom or frame A, substantially as herein shown and described.

3. The combination of the supporting plate or bar N with either or both pairs of plates J B and their shafts C K and rollers D L, substantially as herein shown and described.

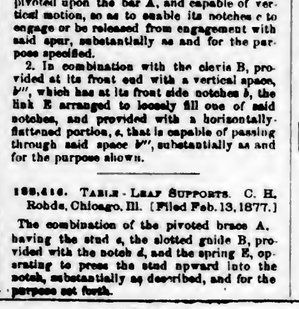
4. The combination of the connecting-rod H and lever I with the forward plates B and their shaft and roller D, substantially as herein shown and described.

5. The combination of the connecting-rods M with the two pairs of plates B J and their shafts C K and rollers D L, substantially as herein shown and described.

6. The combination of the movable cross-bars P Q, the swiveled crank-screws R, and the pivoted bars S with the plates J and the upright bars or stakes O, attached to the bottom or frame A, substantially as herein shown and described.

186,412. METHODS OF MAKING WOODEN HOOPS. L. Reed, New York, N. Y. [Filed Jan. 8, 1874.]

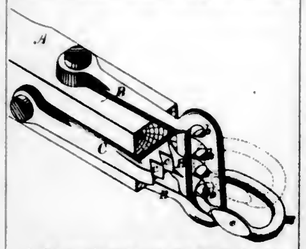
Brief.—A flaring hoop, adapted to fit the bulge of a barrel, is formed by cutting from a sheet of wood of suitable thickness a curved piece, forming the segment of a circle, and bending the same flatwise into the hoop form, when the edge having the larger curve will have the larger diameter.



The method herein described of fabricating a wooden barrel-hoop, by cutting the wood into a sheet and then cutting from such sheet a curved strip or piece, and bending the same into a hoop, whereby a hoop is made flaring to fit the bulge or taper of a barrel.

186,413. CLEVISES FOR PLOWS. C. Robinson, Eau Claire, Wis. [Filed Jan. 22, 1877.]

Brief.—The vertical bar extending between the horizontal portions of the clevis, in rear of its notched end, is provided with a spur, the lower part of which terminates in a horizontal shoulder, upon which the locking-plate rests when any one of its notches engages with said spur at any lateral adjustment. The ring has a horizontally-flattened portion, and to be moved must first be placed in a position which it could not otherwise assume.



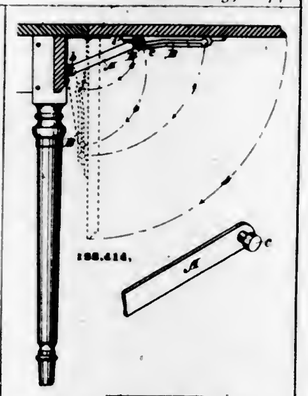
1. In combination with the clevis B, provided with the spur *b'* and shoulder *b''*, the locking-plate C, having a toothed front edge, pivoted upon the bar A, and capable of vertical motion, so as to enable its notches *c* to engage or be released from engagement with said spur, substantially as and for the purpose specified.

2. In combination with the clevis B, provided at its front end with a vertical space, *b'''*, which has at its front side notches *b*, the link E arranged to loosely fill one of said notches, and provided with a horizontally-flattened portion, *e*, that is capable of passing through said space *b'''*, substantially as and for the purpose shown.

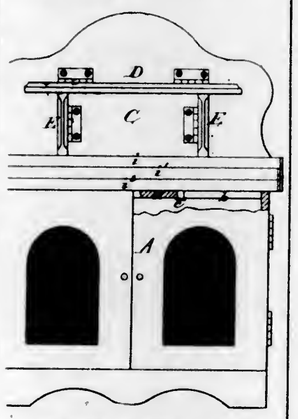
186,414. TABLE-LEAF SUPPORTS. C. H. Robbs, Chicago, Ill. [Filed Feb. 13, 1877.]

The combination of the pivoted brace A, having the stud *a*, the slotted guide B, provided with the notch *d*, and the spring E, operating to press the stud upward into the notch, substantially as described, and for the purpose set forth.

186,414.



186,415. COMBINED TABLE, SIDEBOARD, AND SAFE. B. Rosenthal, Baltimore, Md. [Filed Feb. 21, 1877.]



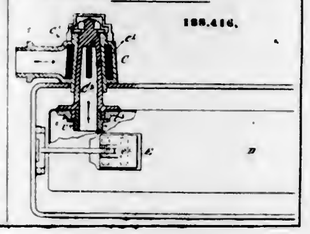
1. The hinged top board C, having the hinged shaft D, and brackets E, in combination with a safe or cupboard having a sectional unfolding endwise movable and vibrating top B, substantially as specified.

2. In combination with the false top a, having longitudinal slots *b*, the sections *c c'* of a table-top, connected together by the link-joint hinges *c'*, the lower one of said sections being provided with the headed pin *c*, adapted to slide in the slots *b*, substantially as specified.

3. The combination of the sectional folding table-top with a safe or sideboard body, and the board C, adapted to be swung back out of the way behind the body, or up into position to form the board, substantially as specified.

4. A sideboard provided with the hinged vertically-vibrating board C, having the hinged shelf or shelves D, and the hinged brackets E, connected with the sideboard-body A, substantially as specified.

186,416.

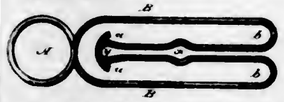


186,416. STEAM-TRAPS. John Jas. Royle, Manchester, Great Britain. [Filed Aug. 1, 1876.]

1. An inverted condensing chamber, D, with the open end downward and immersed in the water of the reservoir, in combination with such reservoir, and the cock or valve opening into the interior of the condensing-vessel, substantially as and for the purposes set forth.

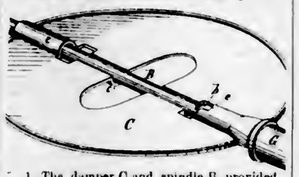
2. The air-valve E, in combination with the open-bottom condensing chamber D and cock C, substantially as and for the purposes set forth.

186,417. CLOTHES-PINS. D. B. Sanderson and D. H. Linscott, Lewiston, Me. [Filed Feb. 17, 1877.]



As an improved article of manufacture, the wire clothes-pin herein described, having the spring loop A, doubled legs or prongs B B, crossing each other, inner double jaws or recesses *x* and *y*, and double bent terminal hooks *a a*, crossing each other, substantially as and for the purpose herein shown and specified.

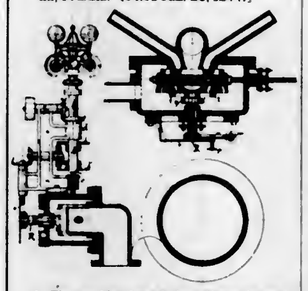
186,418. STOVE-PIPE DAMPERS. S. Selden and M. Griswold, Jr., Erie, Pa., and J. S. Crump, Westfield, N. Y., assignors to Selden & Griswold Manufacturing Company, Erie, Pa. [Filed Feb. 19, 1877.]



1. The damper C and spindle B, provided with the spur *b* and notch or socket *c*, for keying the damper to the spindle, and preventing relative rotation, as described.

2. The spindle B, provided with the lug or spur *b*, in combination with the clamping-sleeves *c'* and G, and spring *g*, arranged and operating substantially as described.

186,419. CUT-OFFS. Adam Ruthel, Stettin, Prussia. [Filed Jan. 26, 1877.]

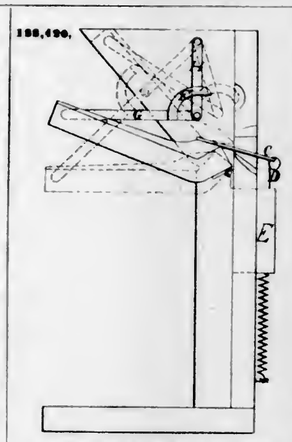


1. The combination of the adjustable segmental rack s, movable upon the hub of disk *o*, and the horizontal shaft R, having the slotted disk o and pinion *g*, with the two-part cut-off valve r, having rack-teeth *r'*, and the vertical worm-shaft *m*, and governor mechanism, all constructed and relatively arranged as herein set forth, for the purpose specified.

2. The disk *o*, provided with the arc-shaped slot P, and clamping-screw *p*, in combination with the movable segmental rack s, shaft R, cut-off valve r, and governor mechanism, as and for the purpose described.

186,420. REGISTERS FOR SLEEPING-CAR BERTHS. Chas. E. Sargeant, Chicago, Ill. [Filed June 29, 1876.]

186,420.



1. The catch F, fastened to the jointed support of a sleeping-car berth, for the purpose described.

2. The extension C, in combination with the berth of a sleeping car, for the purpose described.

3. In combination with an upper berth of a sleeping car, the register E, operated by the movement of the extension C of the said berth, substantially as described.

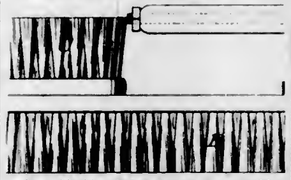
186,421. COMBINED BRIDLE AND HALTER. William Schmolze, Pittsburg, Pa. [Filed Jan. 24, 1877.]



In a combined bridle and halter, arranged substantially as shown, the combination of rings B and D and a snap-hook or other suitable fastening device, whereby the bit may be held in position to constitute a bridle or detached, so as to provide a halter, all substantially as shown and set forth.

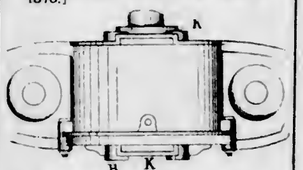
186,422. SHOE-BRUSHES. Wm. B. Seal, Baltimore, Md. [Filed Dec. 9, 1876.]

Brief.—The handle is reversible, and is held in a metal standard having a broad base, which turns upon a metal-disk foundation.



In a blacking-brush having a reversible handle, the perforated bed-plate D and the pivotal handle-post F, bearing the spring locking-stud *s*, and having the circular flanged foot *x* in frictional contact with said plate, and covering at all times its locking-apertures *d*, which engage with said stud, substantially as specified.

186,423. CAR-AXLE BOXES. C. H. Shattuck, Boston, Mass. [Filed Sept. 27, 1876.]

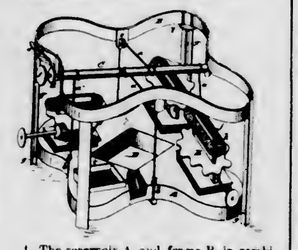


1. In a car-axle box, the combination of the shell A, provided with the extensions I, hollow bearing-projections C, and removable plate B, with the axle F and anti-friction rolls D, all arranged in relation to each other, substantially as and for the purpose described.

2. In a car-axle box, the oil-reservoirs K, arranged upon each side of the box and opening into the bearings, as shown, and connected at their top by the supply channel A, substantially as described.

3. A car-axle box provided with the female screw N upon one or both its ends, substantially as and for the purpose described.

186,424. OIL-STOVES. D. Shields, Florence, Mass. [Filed Oct. 20, 1876.]



1. The reservoir A and frame B, in combination with the shaft C, cords or chains *a a'*, pulleys *c*, ratchet-wheel *d*, and pawl *e*, substantially as and for the purpose specified.

2. The combination, with the drums, of an oil-stove, having a central opening, L, of an adjustable oil-reservoir, A, formed with a similar opening, D, substantially as and for the purpose described.

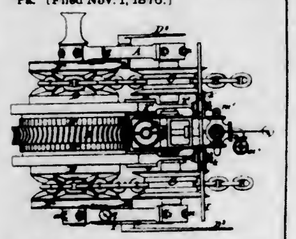
3. The perforated flange *l* extending below the end of the wick-tube, and made somewhat deeper than the flange *l'*, so that when placed over the same an inlet for the air is formed to allow its passage to the wick, for the purpose set forth.

4. The removable drums, having sharp-edged projections M upon the under side thereof and resting upon suitable supports *q* of the frame B, substantially as and for the purpose specified.

5. The combination, with the cone *n* and perforations *o* of the supplemental cone *m*, substantially as and for the purpose set forth.

6. The combination, with the drum N, having near its upper edge perforations or holes *t*, of the convex cap P, with a central depression, *z*, substantially as and for the purpose described.

186,425. POWER AND HAND WINDLASS COMBINED. F. E. Sickels, Philadelphia, Pa. [Filed Nov. 1, 1876.]



1. In a windlass operated by steam-power, an automatic pressure-controlling valve, *m*,

and indicator L, limiting the pressure upon the chain cable if the latter should foul while the engines are running rapidly, and indicating the tension upon said chain, substantially in the manner described.

2. In combination with a windlass operated by steam or hand power, the shackle r and links s s at the ends of each section of chain, formed so that the length of the three united shall be substantially equal to the length of three consecutive links of the adjacent section of chain, substantially as and for the purpose described.

3. In combination with the wild-cat pulleys D, and keys d to connect the wild-cat pulleys D and the windlass B, the said windlass B having openings d' extending through it, so that a bar, f, can be introduced through said openings, to disconnect the windlass from the wild-cat pulleys, substantially as described.

4. The worm-wheel pinion E, located upon a vibrating rotary shaft, in combination with a windlass, operated by steam or hand power, to connect or disconnect the engines from the windlass, substantially as described.

5. The standards G, for sustaining the hand-power lever I, made of wrought-iron plates, united by bolts at such distance apart as to inclose the worm-wheel pinion, and form a column to resist tension as well as compression strains without through vertical bolts between decks, as set forth.

6. In a windlass operated by steam, the spring-valve m', to limit the pressure upon the cable chain if the latter should foul while the engines are running rapidly, substantially as described.

7. In combination with the wild-cat pulleys of a windlass, and the projection p upon said pulleys, the counter-wheel n, connected with each wild-cat pulley, so as to register as well in paying out as in taking in the anchor chain, substantially in the manner described.

8. In combination with the oscillating hand-lever I and the connecting-rods K, used to operate upon the windlass, the adjustable shifting-blocks k, inclosing the hand-lever I, said blocks being provided with friction-rollers k', as described.

9. In combination with a windlass operated by steam-power, the slide-valve f of the steam-chest of each cylinder, so proportioned in relation to the steam and exhaust ports, and to the position of the eccentric, as to keep the exhaust-port open until each engine has passed its center, respectively, to let out water that may have accumulated within the cylinder, substantially as described.

186,426. DETACHING HORSES. Louisa F. Sleeper, Philadelphia, Pa., assignor of one-half her right to C. B. Ritter, same place. [Filed Nov. 27, 1876.]



1. The screw-rod I, secured by means of a nut, K, on the front of a vehicle, and serving to connect the shafts to the axle-tree through the medium of the cross-bar D and pivoted plate H, substantially as shown and described.

2. In combination with the pivoted cross-bar D, axle E, and screw-rod I, the pivoted plate H, substantially as and for the purposes set forth.

3. The lugs m m, secured to the axle E, for the purpose specified.

186,427.



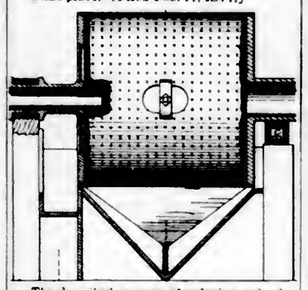
186,427. DETACHING APPARATUS FOR HORSES. Louisa F. Sleeper, Philadelphia, Pa., assignor of one-half her right to C. B. Ritter, same place. [Filed Jan. 5, 1877.]

The shaft-supporting straps E, made in sections e, e', and e², adjustable at e² and e³, having spring-clips e⁴ and e⁵, and ring e⁶, so as to facilitate adjustment and secure ready attachment to, and detachment from, the pivoted cross-bar H of the shafts of a vehicle, as set forth.

186,428. PROCESSES OF EXTRACTING OLEOMARGARINE FROM ANIMAL FATS. A. Smith, Cincinnati, Ohio, assignor to Amor Smith & Co., same place. [Filed Feb. 17, 1877.]

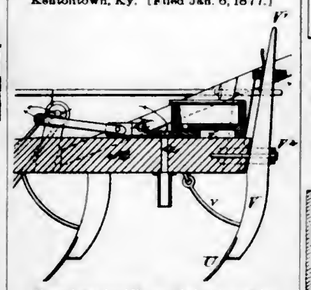
The within-described method of separating oleomargarine from the fat of kine—that is to say, by separating it directly from the stearine and membrane at a low heat, without having first heated the mass to a higher point, for the purpose of removing the membrane from the stearine and oleine.

186,429. PROCESSES OF REDUCING ANIMAL FATS. A. Smith and L. Smith, Cincinnati, Ohio, assignors to Amor Smith & Co., same place. [Filed Feb. 17, 1877.]



The described process of reducing animal fats, which consists in subjecting the same to a continuous pounding or disintegrating action, as set forth, whereby the contained oil globules are thoroughly broken up, water at the same time being admitted to the material under treatment to purify and assist disintegration, as herein described.

186,430. CORN-PLANTERS. Thos. Sparks, Kentontown, Ky. [Filed Jan. 6, 1877.]



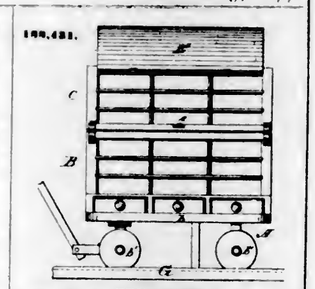
Pivoted standard V, provided with covering-shovel U and handle V³, in combination with beam A, band V², and pivoted brace e, substantially as described, and for the purpose set forth.

186,431. APPARATUS FOR RESCUING GOODS FROM FIRE. G. W. Staker, Monroe, Iowa. [Filed Feb. 12, 1877.]

1. The truck A, in combination with the folding shelving B C, and door E, having spring catch or lock e, substantially as and for the purpose herein shown and specified.

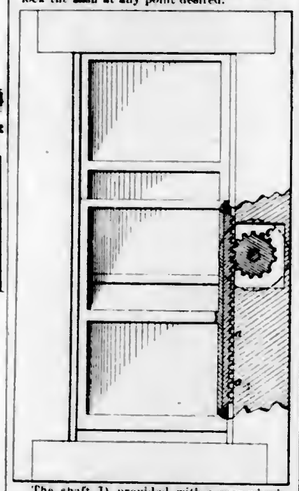
2. The combination of the inclined track G, truck A, having folding shelving B C E, upright I, hooks i K, and staples k k, the latter arranged upon shelving C and door E, respectively, substantially as and for the purpose herein shown and specified.

186,432.



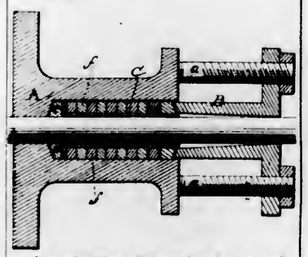
186,432. SASH-BALANCES. D. F. Stanbaugh and Wm. A. Smith, Casey, Ill. [Filed Feb. 8, 1877.]

Brief.—The ordinary gear-wheel, meshing into a rack-bar, is provided with a shaft, collar, nut, and knob or handle, the construction being such that the turning of the knob forces the parts rigidly together, thus serving to lock the sash at any point desired.



The shaft, D, provided with a gear-wheel, C, and collar c, in combination with the nut d, the knob F, and the rack-bar a, the knob serving to make the parts rigid, for holding the sash at any desired point, substantially as set forth.

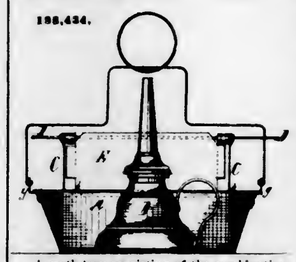
186,433. PACKING FOR PISTON-RODS. Jas. C. Stead, Green Point, N. Y. [Filed June 1, 1876.]



In combination with a stuffing-box, A, and gland B, the open and perforated band or ring C and packing material f, substantially as and for the purposes set forth.

186,434. MOTH-EXTERMINATORS. John R. Stephens, Lone Star, Miss. [Filed Jan. 31, 1877.]

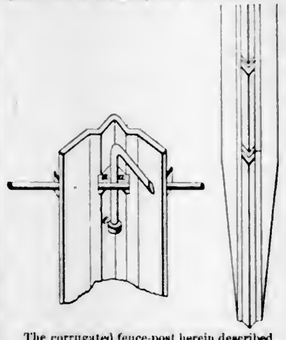
186,434.



A moth-trap consisting of the combination of the vessel A, the lamp B, the standards C, the ring D, shade E, and suspension-handle H, substantially as described.

186,435. IRON FENCE-POSTS. S. H. St. John, Cedar Rapids, Iowa. [Filed Jan. 4, 1877.]

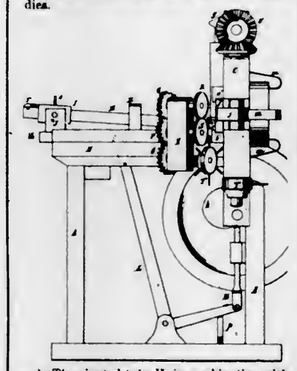
Brief.—The metal post is corrugated, and has an angular center, in which are slots, through which the wires are drawn from post to post, and in the apex of the channel of the posts a rod for fastening the wires is driven.



The corrugated fence-post herein described, having the slots and wire-fastening means, substantially as and for the purposes set forth.

186,436. WIRE-BARBING MACHINES. D. C. Stover, Freeport, Ill. [Filed Oct. 25, 1876.]

Brief.—The main wire is fed forward at intervals by a sliding tube mounted on trunnions. The wire is fed, cut, and each barb compressed into a V about main wire by a vertically-moving die acting against a holding-plate. The ends of the V are crossed by horizontally-moving dies, and the crossed ends compressed onto main wire by vertical dies.



1. The pivoted tube H, in combination with the sliding plate G and lever L, for carrying the main wire forward, substantially as specified.

2. The tube H, in combination with the sliding plate G, lever L, pitman M, and cam or eccentric k, substantially as described.

3. The tube H, in combination with the pivoted bearing I, for permitting a free upward movement of the inner end of the tube, substantially as set forth.

4. The tube H, in combination with the clutch r, attached thereto for holding the main wire so that it will be carried forward with the tube, and released in returning, substantially as set forth.

5. The stationary plate l, having an opening, x, in combination with the hammer plate d, having the part o, and the cam-wheel h, for holding the wire while the tube H is receding, all constructed and operating substantially as and for the purpose set forth.

6. The hammer or plate d, having a groove, y, in its face, in combination with the tube H, and plate a, and cam h, for forcing the barb into the groove y, substantially as specified.

7. The hammers or plates e f, in combination with the cams or eccentrics i j, for crossing the barb, and carrying the points thereof to opposite sides, substantially as specified.

8. The hammers or plates e f, provided with shoulders w, for forcing the encircling portion of the barb tightly onto the main wire, substantially as described.

9. The hammer or plate c, in combination with the cam or eccentric g, for forcing the hammer down, and completing the fastening of the barb, substantially as specified.

10. The wheel T', provided with an arm or projection, in combination with the spur-wheel T, for feeding the barb-wire forward at regular intervals, substantially as described.

11. The guide n, in combination with the grooved wheels R S, for keeping the barb-wire in position, and holding it while being cut, substantially as described.

12. The wheels W V U, in combination with the wheel X, for operating the parts, substantially as specified.

13. The springs m, in combination with the plates c d e f and eccentrics or cam g, h, i, and j, for returning the plates, substantially as specified.

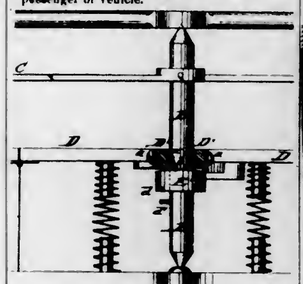
14. The guide-plate a, extending inward to limit the lifting of the feed tube or wire, and preventing kinking of the main wire, substantially as specified.

15. The plates c d e f, in combination with suitable operating devices for wrapping and securing a barb onto a main wire equally at all points of contact with the wire, substantially as specified.

16. The method of attaching barbs to a main wire by first bending the barb-wire across, so that the ends will project above such main wire, then crossing the ends, then setting the crossing against the main wire, all by a succession of blows, substantially as specified.

186,437. TURNSTILES. A. F. Swan, Hoboken, N. J. [Filed Dec. 18, 1876.]

Brief.—A platform divided transversely at the center, where yielding supports sink to a stop under a moving weight, causing arms to automatically open before and close behind a passenger or vehicle.



1. A turnstile, consisting essentially of horizontally-swinging entrance and exit arms C C, vertical shafts B B, and movable platforms D E, all constructed and relatively arranged, substantially as shown, to operate in the manner set forth.

2. An automatic turnstile, formed of horizontally-swinging entrance and exit arms, secured at such relative position to each other and to the longitudinal axis of the passage that the depression and release of the platforms, by the person passing over the same, respectively closes the entrance-arms and opens the exit-arms, and then closes the exit-arms and opens the entrance-arms, substantially as specified.

3. The combination of the pivoted side-standards B, having horizontal entrance and exit arms, arranged respectively parallel to the axis of the passage and at oblique angles thereto, with the hinged and spring-acted platform D engaging and turning the standards to such an extent that the entrance-arms are placed at an angle to each other, while the exit-arms assume a parallel position, substantially as described.

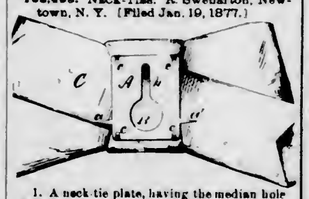
4. The combination of the hinged and spring-acted platform D, having sliding sleeves fitting to side standards B, and inwardly-projecting pins a, with spiral recesses b of standards A, substantially as specified.

5. The combination of the hinged and spring-acted platforms D and E, having sleeves D' and E' sliding on standards B, with each other and with locking devices of the standards, to depress the platforms simultaneously and lock standards in turned position, substantially as set forth.

6. The hinged and spring-acted platforms D and E, the latter having sliding sleeves E', with bottom recesses d, in combination with the projecting stop-pins d' of standards B, substantially as and for the purpose set forth.

7. The hinged and spring-acted platform E, having sleeves E' sliding along standards B and bottom recesses d, in combination with stop-pins of standards B, to lock standards in position before turning when depressing the platform, for the purpose of preventing return of persons having passed the turnstile, substantially as shown and described.

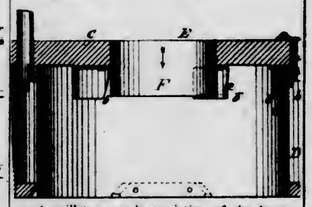
186,438. NECK-TIES. R. Swenarton, Newtown, N. Y. [Filed Jan. 19, 1877.]



1. A neck-tie plate, having the median hole B b, holes c c on opposite ends, and spurs a a' on its opposite sides, to adapt it to be used, as specified.

2. The plate A, provided with the hole B, slot b, and holes c, and having formed on it the points a a', and the bow C and band D, in combination, substantially as herein shown and described.

186,439. MILLSTONE-CURBS. W. D. Taggart, Niles, Mich., assignor to himself and W. R. Taggart, same place. [Filed Dec. 4, 1876.]



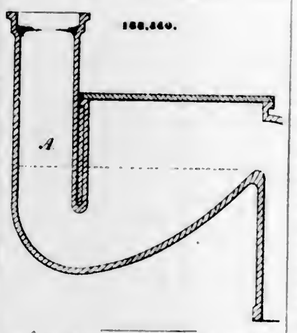
A millstone-curb consisting of the inner wall A, having valved openings a, outer wall B, having the valved openings b, and the top C, having central aperture E and downwardly-projecting sleeve F, a space, D, being formed between said walls, substantially as and for the purpose specified.

186,440. FLUID-TRAPS. Alfred H. Thorp, New York, N. Y. [Filed Nov. 14, 1876.]

Brief.—The object is to prevent siphoning.

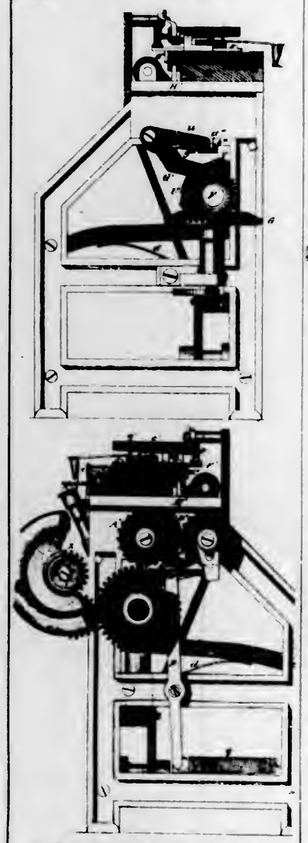
A fluid-trap having its holding capacity enlarged at the side adjacent to the outlet B, presenting a larger surface of liquid adjacent to said outlet than that presented in the side adjacent to the inlet A of the trap, all substantially as and for the purpose herein set forth.

188,440.



188,441. KNITTING-MACHINES. E. Tiffany, Bennington, Vt., assignor of one-half his right to Chas. Cooper, same place. [Filed July 8, 1876.]

Brief.—The needle-bar and knock-off bar have a common center of motion. The cam-bar and needles have a regular backward and forward motion, together with an increased motion of the same sort for knitting slack courses. Special mechanism is shown for moving the latch-opener for each reciprocation.



1. The needle bar *x* and knocking-over bar *y*, attached to the levers or arms A' and H', respectively, and pivoted on a common center, I, substantially as specified.

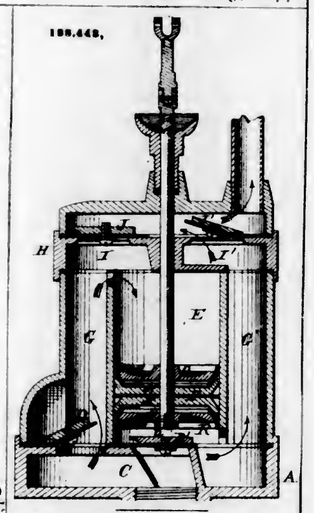
2. The described means for producing the transverse reciprocating movement of the slur-bar during the progress of the knitting between welts, consisting of the left edge of cam W, truck *e*, arm G', fulcrum-shaft Y, arms H' H', spring *a'''*, and sliding boxes *f' f'*, all combined and operating as described and set forth.

3. The described means for producing the extra transverse backward movement of the slur-bar for making slack courses, consisting of the right-hand edge of cam W, laterally-movable truck *i*, arm G', fulcrum-shaft Y, arms H' H', spring *a'''*, and sliding boxes *f' f'*, all combined and operating as described and set forth.

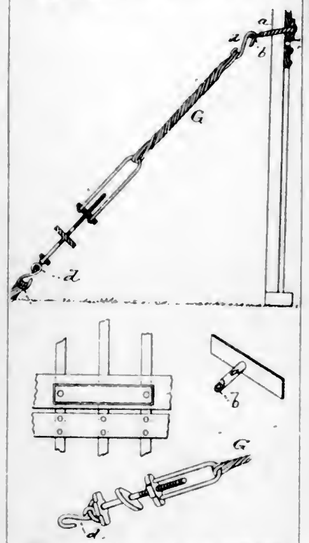
4. The described means of shipping the trucks *a a*, and locking down the needle-bar during the formation of a welt, consisting of the ratchet-wheel A'', cams *c'''* and *d'''*, sliding bar *b'''*, projection *n*, lug *c''* on needle-bar, and dependent projection *m*, combined and arranged substantially as specified.

5. The described mechanism for shifting position of the latch-opener at each stroke of the slur-bar, consisting of the sliding head O, stud *b''*, slot *p'''*, oscillating arm *q'''*, spring *c'*, and abutments *d' d'*, all arranged and combined substantially as set forth.

188,442.

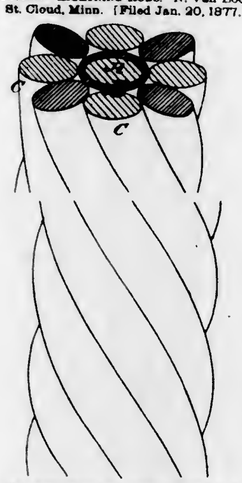


188,443. WIND-ANCHORS FOR FRAME HOUSES. R. Tobin, Macomb, Ill. [Filed Feb. 10, 1877.]



The combination, with the inside house-plate having *g* the oblique projecting arm *a*, of the buried anchor-stake E, its looped rope or stem D, and the connection G, substantially as specified.

188,444. LIGHTNING-RODS. N. Van Loon, St. Cloud, Minn. [Filed Jan. 20, 1877.]



The combination of copper sheath B with iron core A and twisted iron inclosing-wires C, substantially as and for the purpose set forth.

188,445. PUMPS. A. J. Tyler, Buffalo, N. Y. [Filed Aug. 24, 1876.]

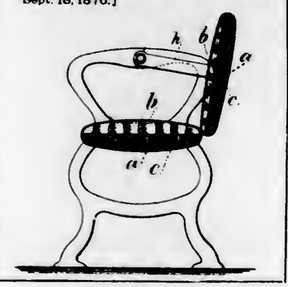
Brief.—The water-passages are in the top and bottom heads, and in the side passages attached to the cylinder the water is discharged in a direct line from the cylinder.

1. The combination of the bottom head A with its passages and valves D D', the cylinder E, with side passages G G', the top head H, with chambers I I', and two or more valves, J J', and the valve chamber K, extending over the cylinder and both side passages, all substantially as and for the purposes herein set forth.

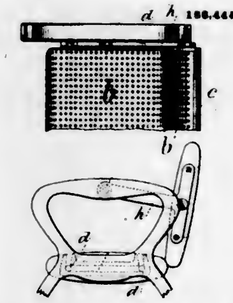
2. The plunger herein described, consisting of the four cups N N and O O, the leathers R R, and one or more center washers, P, substantially as and for the purposes herein set forth.

3. The combination of the top plate W with passage A', air-chamber B', with interior pipe C', and the spout E' with reservoir H', substantially as and for the purposes herein set forth.

188,446. REVERSIBLE SEATS AND BACKS FOR CHAIRS, LOUNGES, AND CAR-SEATS. H. Waksman, New York, N. Y. [Filed Sept. 18, 1876.]



188,448.



1. The reversible seat or back made of the frame *a*, with perforated material or open-work *b* at one side, and upholstery *c* at the other side, substantially as set forth.

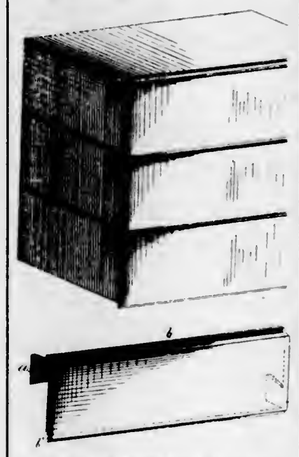
2. A chair or seat back made of a frame, with perforted material or open-work at one side, and upholstery at the other, in combination with the T-headed links *h*, pivots *s*, and connecting devices, substantially as set forth.

188,446. FLEXIBLE TUBING. H. Wakeman, New York, N. Y. [Filed Aug. 15, 1876.]



The flexible tubing, composed of a flexible hose and a surrounding flexible resilient metallic armor, consisting of interlaced ranges of springs, substantially as specified.

188,447. FACINGS FOR WALLS OF HOUSES. Thos. Walton, Wheeling, W. Va. [Filed Jan. 31, 1877.]



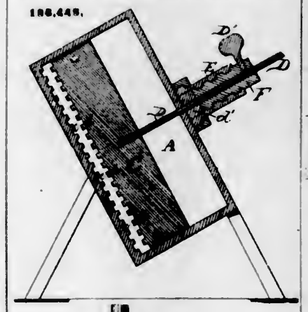
As an article of manufacture, the improved facing-plate for brick or stone walls, the same having rabbets *b b'*, and lugs or flanges *a*, whose sides are parallel to the body thereof, to adapt them to enter the spaces between the bricks or stones, as shown and described.

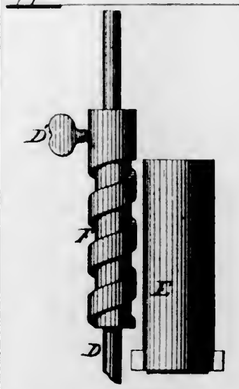
188,448. WASHING-MACHINES. Wm. W. Walker, Baltimore, Md. [Filed Feb. 15, 1877.]

1. In a washing-machine having two rubbing-surfaces, one solid and the other rotating or reciprocating, the cylindrical screw-threaded sleeve E, longitudinally-perforated screw-threaded cylinder F, having set-screw D', and adjustable shaft D, all combined and operating substantially in the manner and for the purpose herein shown and specified.

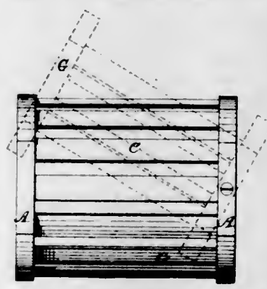
2. In combination with the sleeve E and cylinder F, the rubber cushion or washer *d'*, substantially as and for the purpose set forth.

188,449.





188,449. FRUIT-CRATES. Wm. Wells, Muskegon, Mich. [Filed July 27, 1876.]

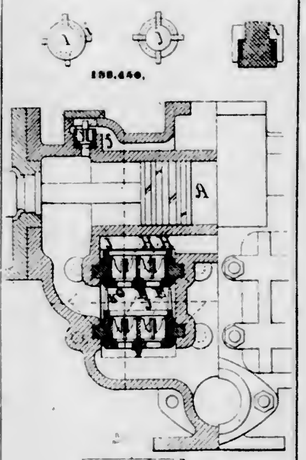


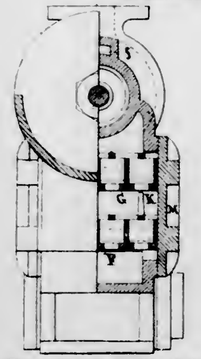
A crate for fruit of all kinds, constructed of two solid end pieces, A A, having grooves B B, into which are inserted slats, in combination with rod D and cover G, all substantially as shown and described.

188,450. PUMPS. Norman W. Wheeler, New York, N. Y. [Filed Feb. 9, 1877.]

Brief.—The general valve-chamber, connected with each end of the barrel, has openings in its sides, to be closed by bonnets, and is divided into suitable compartments by diaphragms. Each division is made complete by the insertion of the seat-drawers, which carry the suction-valves, completely inclosed by bolting on the bonnets. The valves are composed of a hollow skeleton of metal, into which is fitted a plug of rubber or other elastic material.

188,440.





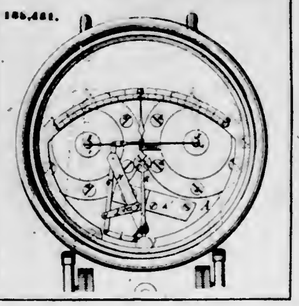
1. The combination of the seat drawer or drawers F G, tongue-pieces L L, and bonnet or bonnets M, substantially in the manner and for the purposes described.

2. The combination of the seat drawer or drawers F G and grid-bar check or checks, substantially in the manner and for the purposes described.

3. The arrangement of the delivery-valves H H H', substantially as described—that is to say, the greater part H H below the level of the lowest wearing part of the barrel A, in combination with the lesser part H' at or above the level of the highest wearing part of the barrel A, substantially in the manner and and for the purposes described.

4. The combination of the skeleton metallic valve *i* and the withdrawable rubber plug, having seat and check faces *j i*, substantially in the manner and for the purposes described.

188,451.



186,451. INDICATORS. S. Wheeler, Albany, N. Y. [Filed July 21, 1876.]

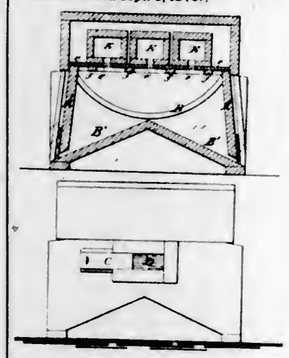
1. A water-indicator having a diaphragm or piston which is connected to a pointer, and is operated by the action of a moving column of air, substantially as described.

2. A water indicator having two elastic diaphragms or pistons which are connected with a pointer, and operated by the simultaneous action of two separated and oppositely-moving air columns, substantially as described.

3. In an indicator operated by movable air-columns, the diaphragms C, the lever F, the lever G, the lever-arm I, and the pointer K, constructed and operating substantially as set forth.

4. An indicator having two sets of coupled diaphragms, one set imparting motion to the other through compression and expansion of the air confined between them, substantially as and for the purpose set forth.

186,452. BEE-HIVES. John R. Wheeler, Warren Township, Poweshiek County, Iowa. [Filed Sept. 8, 1876.]

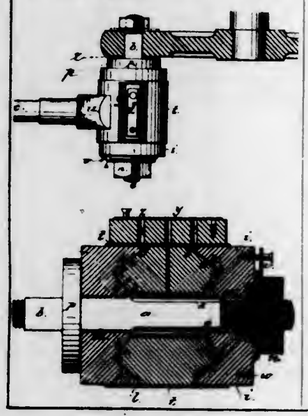


1. In a bee-hive, the combination of the bow or bows B, and slats *f f*, substantially as and for the purpose shown and specified.

2. In a bee-hive, having the bow or bows B, and slats *f f*, the double inclined floor B' B', slanting toward the entrances, substantially as and for the purpose shown and specified.

186,453. COMPENSATING PITMAN-CONNECTIONS, JOURNALS, OR AXLES. H. C. White, Versailles, Ky. [Filed Feb. 17, 1877.]

Brief.—The crank-pin has affixed to it at each end a piece of exterior cylindrical form, formed inwardly of two concentric reversed cones, working into a central piece of corresponding form. A disk is attached to the nut which binds the parts together, from which extends a spring catch-pin, to drop into one of a series of holes.



1. In a compensating pitman-connection, journal, or axle, the device of a double-reverse-coned hub, in combination with caps or retainers having corresponding and intermatching double reverse-cone bearings and an angular connecting-bolt, substantially as and for the purpose herein set forth.

2. In a compensating device for revolving or vibrating connections, consisting of a double-reverse-coned hub, caps, or retainers, having corresponding and intermatching double reverse-cone bearings, and an angular connecting-bolt, the combination therewith of a nut adapted to lock with the outer cap, for cooperation in compensating for the wear, as herein set forth.

3. In a compensating device for revolving or vibrating connections, consisting of a double-reverse-coned hub, caps, or retainers, having corresponding and intermatching double reverse-cone bearings and an angular connecting-bolt, the combination therewith of a hub-covering band or rim, for protecting the bearing-surfaces from dust and dirt.

4. The combination, with the compensating pitman-connection constructed substantially as herein set forth, of the dust-band or bearing-shield and the pitman-rod, substantially as herein set forth.

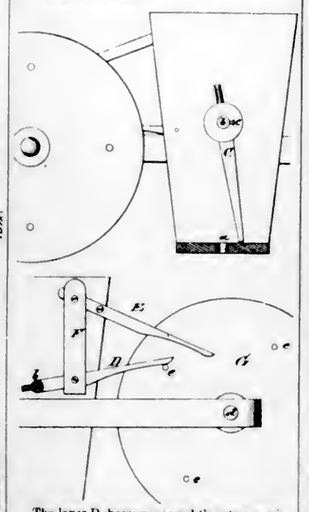
5. The combination, with the compensating device, constructed substantially as herein set forth, of the oil-chamber, arranged to feed the supply at the junction of the outer truncated cone-bearings of the hub and caps, as described.

6. The combination, with the angular bolt *a*, the hub and the caps constructed and adapted for compensation, as set forth, and the nut locked by the outer cap, of the washers *x* and the bolt-shoulder *p*, for the purpose set forth.

7. A compensating pitman-connection device, consisting of the angular bolt *a*, the hub, and the take-up caps having like double-reverse diverging cones, working one within the other, a covering or shield-band, *t*, for the joints thereof, and a nut locked by and supporting the outer cap, all constructed and co-operating substantially in the manner and for the purpose herein set forth.

8. The combination, with the angular bolt *a* and the outer cap or retainer *i*, having the recess *x*, of the lock-nut *n*, having the annular neck or collar *r*, to fit within said recess, to support the outer end of the cap and keep its bearings intact.

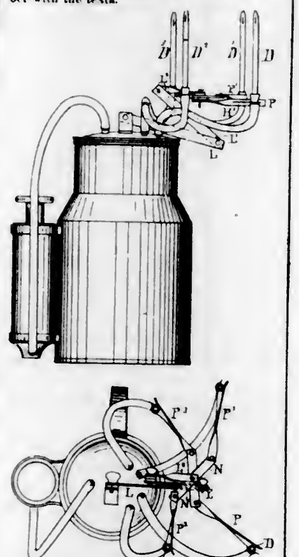
186,454. FEEDING DEVICES FOR GRAIN-DRILLS. Charles W. Wilde, Berlin, Mich. [Filed Dec. 1, 1876.]



The lever D, having secured thereto an agitator, C, and the pivoted lever E, connected to the lever D by a link, F, in combination with a wheel or disk, G, carrying pins or projections *e*, constructed to operate substantially as and for the purpose set forth.

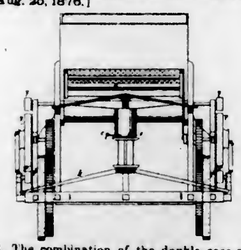
186,455. COW-MILKERS. Wm. A. Wilson, Chelsea, Mass. [Filed Aug. 21, 1876.]

Brief.—A set of adjustable, self-sustaining, flexible tubes, connecting the vacuum-chamber with the teats.



In a cow-milker, the combination of the vacuum-chamber A, and the supporting device L L' L², N N', P P' P² P³, with the teat-tubes D D' D² D³, all operating together substantially as described, and for the purpose set forth.

186,456. COMBINED HARVESTER AND THRASHER. A. J. Wise, R. R. Wise, and E. J. Wise, Vaca Station, Cal. [Filed Aug. 25, 1876.]



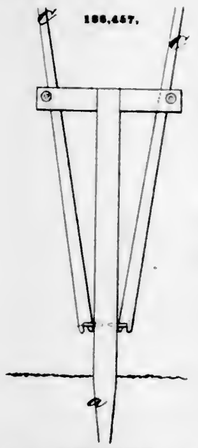
1. The combination of the double case or chamber D, the independent digesting fans E, and the independent mechanism for driving the same, consisting of the shafts and pulleys F, belts S, and pulleys P P', receiving motion from the independent driving-wheels, substantially as described.

2. In combination with the main portion of the machine, the balancing portion consisting of the pivoted bars L L' L², the rack and pinion *d d'*, and the guiding-wheel mechanism, substantially as described.

186,457. HOP-FRAMES. L. G. Wood and C. Maples, Hartwick, N. Y. [Filed Sept. 30, 1876.]

Brief.—A post enters the ground. At the top in a cross-head with slotted ends, and staples below upon corresponding sides. Poles, with notches in their lower ends, rest upon the staples, and are held in the slot by pins in the cross-head.

In combination with the upright A, having staples *d* upon opposite sides, and the cross-piece B, having notches *b* in its ends, the trellis-pole C, having notch *c*, and the removable pin *e*, substantially as specified.



186,457.

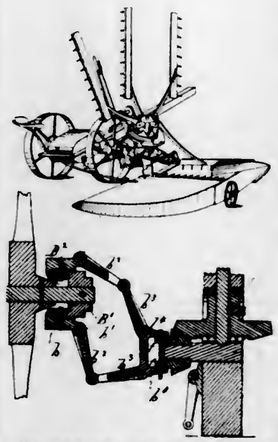
186,458. MANUFACTURE OF STEEL PLATES AND BLOCKS. James Yates, Rotherham, England. [Filed July 26, 1876.]

1. The process of forming armor-plates, beams, or other blocks or masses from steel of varying temper and hardness, by running the same in a molten condition successively into molds, substantially as herein set forth.

2. The process of forming armor-plates, beams, or other blocks or masses from steel of varying temper and hardness, by first running the same in a molten condition successively into molds, and by then stamping, rolling, or pressing the same, substantially as set forth.

3. As a new article of manufacture, compound blocks or masses of steel suitable for ships' and fort armor, beams, supports, girders, rails, tires, boiler and ship plate, and other purposes, consisting of strata of steel of varying temper and hardness, prepared and treated in the manner herein described.

186,459. HARVESTERS. Chas. M. Young, Meadville, Pa. [Filed June 7, 1876.]

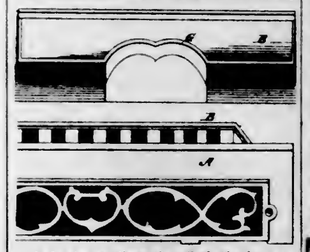


The combination, with a harvester-rake or rake and reel combined, of the extensible tumbling driving-coupling, composed of the pivoted collar-blocks B^2 b^1 and the two toggle-links b^2 b^3 b^4 b^5, separately pivoted to said blocks at opposite sides of and eccentrically to their axes or centers of rotation, substantially as and for the purpose described.

REISSUES.

7,532. VENTILATORS. John C. Bates, Cold Spring, N. Y. Patent No. 156,011, dated Oct. 20, 1874. [Filed Nov. 10, 1876.]

Brief.—A deflecting-case, having an indentation in its front, serving as a lift for the sash. The case is open only at the top, and is covered with an inclined register or valve.



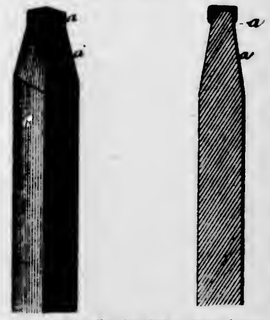
1. In the ventilator described, the box or deflecting-case B, combined to operate with the sash-rail A, substantially as and for the purpose specified.

2. The combination of the ventilating-box B, having the lift aperture or projection G, with the sash-rail A, substantially as and for the purpose specified.

3. The ventilator-box or deflecting-case B, provided with a valve, E, to close the same, combined to operate with the sash-rail A, substantially as and for the purpose specified.

7,555. MATCH-SPLINTS. G. Hargreaves, Detroit, Mich., assignor to M. Hargreaves and G. Upton. Patent No. 175,452, dated Mar. 28, 1876. [Filed Dec. 30, 1876.]

Brief.—The dip ends of match-splints are reduced to a lesser area in cross-section than the bodies thereof, the shape or configuration being retained.



1. A match-splint, beveled or tapered near its dip end, and terminating in a nib, *a*, substantially as and for the purpose set forth.

2. A match-splint having a dip end or nib, *a*, and intermediate tapering part, *a'*, substantially as and for the purpose set forth.

7,556. FARE-REGISTERS. W. H. Hornum, New York, N. Y., assignor, by mesne assignments, to the Hornum Patent Fare Register Manufacturing Company, same place. Patent No. 165,832, dated July 20, 1876; reissue No. 6,946, dated Feb. 22, 1876. [Filed Mar. 7, 1877.]

1. The combination of a switch, E, with a prime mover, D, and with two or more levers, *g g' g²*, and corresponding registering devices B B^1 B^2, substantially as shown and described.

2. The combination of a switch, E, prime mover D, the registering devices B B^1 B^2, (one or more,) and a bell and hammer or other alarm, substantially as and for the purpose set forth.

3. The combination, in a passenger-register, of the switch E, the prime mover D, the registering devices B B^1 B^2, (one or more,) and a general registering device, J K, substantially as and for the purpose described.

4. The combination, in a passenger-register, of the set of indicator-wheels B, adjustable for each day or trip, the inaccessible general register J K, the prime mover for operating the two sets of registers simultaneously but independently, through connections substantially such as herein shown and described.

5. The combination, in a passenger-register, of a general registering device and a single-trip-registering device, with a shaft secured in a head which fits the end of the case inclosing the single-trip registering device, so that by removing said head the single-trip-registering device can be withdrawn and another substituted for it without disturbing the general register, substantially as set forth.

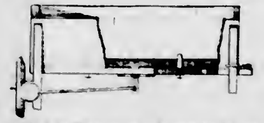
6. The combination, in a passenger register or indicator, of a general register, a single-trip register, adapted to be set back to zero at will, actuating mechanism common to all, and a pawl and ratchet to prevent the forward movement of the single-trip register independently of the actuating mechanism, substantially as and for the purpose described.

7. The combination, with the single-trip register, and with a pawl and ratchet which prevents its forward movement independently of the actuating mechanism, of a zero-guard, substantially as and for the purpose set forth.

7,554.



7,555. MACHINES FOR SOWING FERTILIZERS. D. F. Hull, Hagerstown, Md., assignor to the Hagerstown Agricultural Implement Manufacturing Company. Patent No. 184,010, dated Nov. 7, 1876. [Filed Feb. 21, 1877.]



1. In a fertilizer-sower, a hopper having one or more feed-orifices formed at an angle oblique to the line of motion of the stirrers, substantially as and for the purposes set forth.

2. Two adjustable feed-slides, arranged in the bottom of the hopper, and adapted to form a feed-orifice at an angle oblique to the angle of the feeding-fingers, for the purpose specified.

3. The combination of a horizontally-reciprocating bar, provided with feeding-fingers, with oblique feed-orifices, substantially as described.

7,556. PROCESSES OF DECORATING TIN PLATES, CANS, &c. J. Roussel, L. Delangre, and L. Robin, Nantes, France, assignors to P. W. Flower, Briton Ferry, and W. Flower, London, England. Patent No. 43,463, dated July 5, 1864. [Filed Jan. 29, 1877.]

Brief.—The plate, can, &c., made of tin or other metal, is marked or colored by direct printing on the surface with suitable inks, and then subjected to the action of heat of a sufficient temperature to render the marking permanent or indelible.

1. The process of indelibly or permanently coloring, ornamenting, or lettering tin plates, cans, boxes, or other metallic articles, which consists in printing directly by the press upon the metal surface with suitable colors or inks, and then subjecting the articles so printed to the action of artificial heat, substantially as and for the purpose specified.

2. The process of decorating tin plates or cans by subjecting them to the operation of printing the colored surface and the lettering or designs directly upon the tin, substantially in the manner specified, and then subjecting the plates so decorated to heat in a furnace, substantially as and for the purpose described.

3. The process of decorating tin plates or cans by subjecting them to the action of printing the colored surface directly upon the tin, substantially in the manner specified, and then subjecting the plates to heat in a furnace, substantially as and for the purpose described.

4. The process of decorating tin plates or cans by subjecting them to the operation of printing the lettering or designs directly upon the tin, substantially in the manner specified, and subjecting the plates so decorated to heat in a furnace, substantially as and for the purpose specified.

5. The process of decorating tin plates, cans, boxes, or similar articles by imprinting colors, designs, or lettering directly upon the surface of the tin and then imparting to the articles so printed a rotary motion during the process of heating, substantially as and for the purpose described.

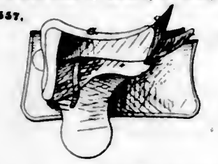
7,557. SADDLE OR SWEAT CLOTHS. Robert Spencer, Newark, N. J. Patent No. 41,044, dated Mar. 15, 1864; reissue No. 4,356, dated Apr. 26, 1871. [Filed June 22, 1876.]

1. As a new article of manufacture, a graduated saddle-cloth in which the varying thickness of the different parts is produced in the process of manufacture, either by felting or weaving, substantially as described, as distinguished from a saddle-cloth in which the varying thickness is produced by sewing or stitching on pads or thickening, as was formerly done.

2. As a new article of manufacture, a graduated saddle-cloth in which the two similar sides are practically united in the process of manufacture, by felting or weaving, substantially as described, as distinguished from one in which the two similar sides were separately made, and then united with each other by stitching or sewing.

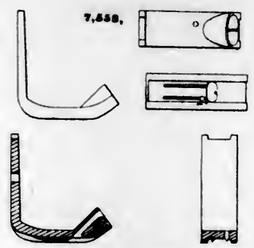
3. As a new article of manufacture, a graduated cloth, to be used between the saddle and the horse, which does not extend beyond the back and front of the saddle, in which the two similar sides are practically united in the process of manufacture, by felting or weaving, substantially as described, as distinguished from one in which the two similar sides are separately made, and then united with each other by stitching or sewing.

7,557.



7,566. PRESSER-FEET FOR SEWING-MACHINES. D. A. Sutherland, Lynn, Mass., assignor to himself and J. N. Smith, same place. Patent No. 177,266, dated May 9, 1876. [Filed Jan. 16, 1877.]

7,566.



1. A sewing-machine presser-foot for use in sewing stay or saddle pieces to seams, the under or acting face of which is formed with a recess, consisting of a longitudinal central recession to receive the saddle part of the stay-strip, and of side recessions to contain the part of the strip intervening between its central saddle part and its edges, substantially as set forth.

2. The presser-foot formed with central and side recessions, as described, and with parallel ribs intervening between the central recession and side recessions, as set forth.

3. A sewing-machine presser-foot provided with recessions and ribs on the under side of the foot, and a folding mouth and a partition on the upper side of the foot, substantially as and for the purposes set forth.

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DECISIONS OF THE COURTS.

SUPREME COURT OF THE UNITED STATES.

MORITZ COHN, APPELLANT, *vs.* THE UNITED STATES CORSET COMPANY, JOHN H. LANE, AND WILLIAM LYALL.

[*Appeal from the Circuit Court of the United States for the Southern District of New York.—Decided October term, 1876.*]

A patent is invalid if the invention claimed is found to be patented or described in a printed publication prior to the patentee's invention or discovery thereof; and it is enough if the thing patented is described, and not the steps necessarily antecedent to its production.

Thus, when the invention claimed is an article, it is not necessary, in order to render the patent void, that the prior publication should also contain a description of the process by which such article was made.

Unless the earlier printed and published description does exhibit the later-patented invention in such a full and intelligible manner as to enable persons skilled in the art to which the invention is related to comprehend it without assistance from the patent, or to make it, or repeat the process claimed, it is insufficient to invalidate the patent.

Mr. Justice STRONG delivered the opinion of the court.

A careful examination of the evidence in this case has convinced us that the invention claimed and patented to the plaintiff was anticipated and described in the English provisional specification of John Henry Johnson, left in the office of the Commissioner of Patents on the 20th of January, A. D. 1854. That specification was printed and published in England officially in 1854, and it is contained in volume second of a printed publication circulated in this country as early as the year 1856. It is, therefore, fatal to the validity of the plaintiff's patent, if, in fact, it does describe sufficiently the manufacture described and claimed in his specification. It must be admitted that, unless the earlier printed and published description does exhibit the later-patented invention in such a full and intelligible manner as to enable persons skilled in the art to which the invention is relation to comprehend it without assistance from the patent, or to make it, or repeat the process claimed, it is insufficient to invalidate the patent. Keeping this principle in view, we proceed to compare the plaintiff's invention with the antecedent Johnson specification. In order to do this a clear understanding of the patent and of the invention the plaintiff claims to have made is indispensable. His application at the Patent Office was made on the 30th of January, 1873. In it he claimed to have invented "a new and useful improvement in corsets." After reciting that previous to his invention it had been customary in the manufacture of corsets to weave the material with pocket-like openings or passages running from edge to edge, and adapted to receive the bones, which are inserted to stay the woven fabric, and which serve as braces to give shape to and support the figure of the wearer, but that it had been necessary, after the insertion of the bones into said pocket-like passages, to secure each one endwise by sewing, he proceeded to mention objections to that mode of making a corset. He specified two only. The first was that it involved much hand-labor and consequent expense in sewing in the bones, or securing them endwise in the woven passages; and the second was that the arrangement or placement of the bones in the passages had to be determined by hand manipulation, and that it was therefore variable and irregular, such as frequently to give to the corset an undesirable shape or appearance near its upper edge. These objections he proposed to remove, and to produce a corset in which the location or position endwise of the bones shall be predetermined with the accuracy of the jacquard, in the process of weaving the corset-stuffs or material, thereby effecting the saving of labor and expense in the manufacture. He therefore declared his invention to consist in having the pocket-like openings or passages into which the bones are put closed up near one end, and at that point at which it is designed to have the end of each bone located. The claim then made was as follows:

A corset woven with the pockets for the bones closed at one end, substantially as and for the purpose set forth.

It is very evident that when this application was presented to the Commissioner of Patents the only invention the applicant supposed he had made, and the only one claimed, was a corset the bone pockets in which had been closed at one end in the weaving. A patent for it was refused for the reason assigned, that such a cor-

set was described in the printed publication of Johnson's specification. The plaintiff then amended his application, manifestly to set forth an invention differing in some particulars from that of Johnson. The amendment, however, proved insufficient and a second rejection followed. Other amendments were then made until his present patent was at last granted, dated April 15, 1873. In the specification which accompanies it the patentee admits what he admitted at first, that prior to his invention it had been customary in the manufacture of corsets to weave the material with pocket-like openings or passages running through from edge to edge, and he makes the further admission that it had been customary to weave the material with such passages all stopped and finished off at uniform distances from the edge. He therefore disclaims "a woven corset with the pockets stopped and finished off at a uniform distance from the edges," and he disclaims also "a hand-made corset with pockets of varying lengths stitched on" and his claim is—

A corset having the pockets for the reception of the bones formed in the weaving, and varying in length relatively to each other as desired, substantially in the manner and for the purposes set forth.

The specification nowhere sets forth the manner in which the alleged improvements in the corsets are produced, unless it be by reference to a jacquard in a loom. No process is described. None is patented. The claim is for a manufacture, not for a mode of producing it. Its peculiarities, as described, are that the pockets for the reception of the bones are formed in the weaving, rather than by hand, and that they are of varying lengths relatively to each other—that is, that the pockets differ in length from other pockets in the same corset, as desired. There are no particulars mentioned descriptive of the patented improvement, unless they are that the weaving or variations in the length of the pockets are to be in the manner and for the purpose set forth in the specification. Referring to that, the purpose avowed is the production of a better-shaped corset at less expense, and the manner of effecting this is by substituting weaving for stitching, in closing the pockets at desired or predetermined distances from the edge. Now, in view of the patentee's disclaimers, stopping off the passages or pockets in the weaving is not covered by the patent. It is admitted that had been done before, and no claim is made for it. All that is left then is that the woven and closed pockets in the corset vary in length. No rule is stated for the variation. It is not stated which are comparatively short and which long, or how much shorter some are than others, or how near any or all of them come to the edge. The demands of the claim in this respect are met if some of the pockets desired to be longer than others are thus made. But the claim must be further limited in view of the state of the art when the application for the patent was made. The manufacture of hand-made and woven corsets is an art long known—known long before the Johnson improvement. Those made by hand had gores inserted to give enlarged space for the breasts of the wearer, and also gores or gussets at the lower part to give space for the hips. In woven corsets these enlargements, equivalent to gussets, were formed by the jacquard loom. For more than twenty years it has been customary to weave in these gussets bone pockets stopped off or closed in the weaving at various distances from the edge of the corset. Those extending upward from the lower edges were stopped off at varying heights, and those extending from the upper edge downward over the breast were woven close at their lower extremities at unequal distances from the top. It is true that where the stoppage was effected in weaving, the pockets in the gussets were closed pointedly, and unavoidably so, by the necessary contraction of the threads of the weft. But whether the stoppage was pointed, or blunt, or square, is unimportant. It is not claimed as a feature of the plaintiff's invention. His claim, then, cannot refer to the gusset pockets. The well-known state of the art, existing before even the Johnson description, requires its limitation. It must refer exclusively to the pockets under the arms of the wearer, or on the back or in front of the body. It claims weaving them of various lengths when closed. That is all.

Having thus analyzed the plaintiff's alleged invention, and ascertained what it is, we are prepared to examine the Johnson provisional specification, and inquire whether it described with sufficient certainty and clearness a corset having the improvement claimed by the plaintiff. We quote at length the entire description. Johnson, having declared the nature of the invention for which he sought a patent to be "improvements in the manufacture of stays or corsets," communicated to him by Adolphe Georges Geresme, of Paris, in the Empire of France, described it as follows:

This invention relates to the manufacture of what are known as "woven corsets;" and consists in the employment of the jacquards in the loom, one of which effects the shape or contour of the corset, and the other the formation of the double portions of slots for the introduction of the whalebones. These slots or double portions are made simultaneously with the single part of the corset, and in place of being terminated in a point they are finished square off, and at any required length in the corset, instead of always running the entire length, as is usually the case in woven corsets. When the corset is taken from the loom the whalebones are inserted into these cases and the borders are formed, thus completing the article, which contains all the elegance and graceful contour of sewed corsets made by manual labor.

Undeniably this is a description of woven corsets, woven by the use of the jacquards in the loom, woven with slots or passages for the bones, made simultaneously with the other parts of the corsets, and requiring nothing to be done to them after their removal from the loom except the insertion of the bones and the formation of the borders. It is also plainly a description of corsets in which the passages for the bones, called the "double portions" or "slots," are finished—that is stopped off in the weaving. That the expression "finished off square" means closed or stopped off square, is manifest for several reasons. It is used to distinguish the manufacture from one in which the termination of the slots is pointed, as is always the case with the slots in the gussets, and necessarily so. The pointed terminations are closures, and the finished square terminations are only a different mode of closure. The idea in Johnson's mind was, therefore, that of ending or termination by shutting up or closing squarely, instead of inclosing pointedly. And it was the slot or passage that was to be finished off, and not merely the upper portion of the slot or one of its sides. A second reason for concluding that the specification describes closed slots or passages is found in the concluding paragraph, which states that when the corsets are taken from the loom all that remains to be done to complete them is to insert the bones into these "cases" and form the borders. Thus, it is said, they are completed, "containing all the elegance and graceful contour of sewed corsets made by manual labor." There is not an intimation that the needle is to be applied after removal from the loom. This portion of the description is utterly inconsistent with the idea that the pockets are not closed by the weaving. If they are not, more is required to complete the corsets after the loom has done its work than forming the borders and inserting the bones. The pockets must be closed by stitching before they are ready for the bones. Besides, those parts of the corset which in one part of the specification are denominated "double portions of slots," and in another, "slots or double portions" finished square off, are also called "cases," a word that expresses the idea of inclosure, and which is inapplicable to open passages. For these reasons we cannot doubt that the meaning of the specification is that the passages, slots, double portions, cases, pockets, by whatever names they are called, are to be closed in the weaving. And the plaintiff so understood it when he applied for his patent. In view of the published description, to which his attention was called, he disclaimed stopping and finishing off the pockets in the weaving, and stated in his amended specification that he was aware of corsets thus made, and that it had been customary in the manufacture to weave the material with pocket-like passages, all stopped and finished off at uniform distances from the edge, and adapted to receive the bones.

It is manifest, then, there is nothing in the plaintiff's patent which was not described in the Johnson specification, unless it be that the closed slots or cases mentioned in the former are required to be woven of varying length. A variation in the length of the pockets relatively to each other, as desired, is, as we have seen, the sole distinctive feature of the plaintiff's invention. But it was well known before Johnson filed his specification that the bone pockets of a corset must vary in length. They were made to vary in hand-made corsets, and in woven ones by sewing. In all corsets, whether hand-made or woven, the pockets under the arms were made shorter, and those at the back and in front were made longer, in order to fit the wearer and preserve a graceful shape at the top. Every person skilled in corset-making knew the necessity of such variation.

In Johnson's description it was asserted that the shape or contour of his corset was formed in the weaving. So far, therefore, as that was effected by the relative length of the pockets it was dependent upon the loom. The description left to the manufacturer to determine what should be the length of each pocket in order to secure the elegance and graceful contour of sewed corsets; in other words, to determine before the weaving where the double portions or slots should be stopped off. Johnson knew, having before him the state of the art at the time, that pockets of uniform length would not adapt the corset to fit the wearer, and would not be consistent with elegance of shape. And there is not a word in his description that intimates the pockets are to be stopped off or closed at uniform distances from the edge or without variation in length. The contrary idea is manifest. It is said they are to be finished (closed) *at any required length*. Required length? Required by whom and for what? Plainly by the manufacturer, and that they may have all the elegance and graceful contour of sewed corsets made by manual labor, and also that they may fit the wearer. Such a requirement could be met only by pockets of different lengths in the same corset. And if they were stopped wherever required, and it was required that they should stop off at varying distances from the edges of the corset, the description pointed out a corset thus made. It is true no particular length of the different pockets was specified, nor was any proportion mentioned which one pocket should bear in length to another. That was left to the manufacturer, as it is to the manufacturer of hand-made corsets, and as it is in the plaintiff's specification. He does not say how near to the upper edges of his corset the base of the closed pockets comes, nor what proportion in length one bears to the others. He simply describes them as varying in length relatively to each other, as desired. This is certainly not more definite than Johnson's description. In both the variations in length and their relative proportions are left to the judgment and taste of the corset-maker. It is impossible, therefore, to find anything in the plaintiff's patent which was not with equal definiteness and perspicuity described in the printed publication (Johnson's specification) made nineteen years before the patent was granted.

It is quite immaterial, even if it be a fact, that the Johnson specification is insufficient to teach a manufacturer how to make the patented corset. It is enough if it sufficiently describes the corset itself. Neither it nor the plaintiff's specification exhibits the process of making. Neither of them set up a claim for a process. The plaintiff claims a manufacture, not a mode of making it, and the important inquiry, therefore, is whether the prior publication described the article. To defeat a party suing for an infringement it is sufficient to plead and prove that the thing patented to him had been patented or described in some printed publication prior to his supposed invention or discovery thereof. (Rev. Stats., sec. 4920.)

What is required is a description of the thing patented, not of the steps necessarily antecedent to its production. But the evidence shows that the Johnson specification, in connection with the known state of the art at the time when it was filed and published, was sufficient to enable one skilled in the art of corset-making, and in the use of the jacquard, to make the patented corset. It is very clearly proved that it gave sufficient instruction, and that it needed no addition to furnish full information to a corset-weaver how to weave a corset with the use of the jacquard, and stop off all the bone-pockets in the weaving at the right places. It is also proved that the corset patented to the plaintiff can be made as easily by the use of two jacquards, as described by Johnson, as by the use of one, and it was so made during the trial of the present case. It is, however, unnecessary to consider the possibilities of two jacquards in operation at the same time in one loom. It could only be material if the plaintiff was claiming a process for making a corset. It is enough for this case that the invention patented to the plaintiff was clearly described in 1854 in the printed publication of the Johnson (Geresme) provisional specification. The patent is, therefore, invalid, and, hence, the decree of the circuit court dismissing the bill must be affirmed.

Decree affirmed.

Mr. Justice CLIFFORD, dissenting:

Inventors are required, before they receive a patent, to deliver a written description of their inventions and of the process of making, constructing, and using the same "in such full, clear, concise, and exact terms" as to enable persons skilled in the art or science to make, construct, and use the same.

Power to grant letters patent is vested in the Commissioner; but when the power is exercised and the patent has been duly granted it is of itself *prima facie* evidence that the patentee is the original and first inventor of that which is therein described and secured to him as his invention.

Proofs are admissible to overcome that presumption, but it is well-settled law that patented inventions cannot be superseded by the mere introduction of a foreign publication of the kind, though of a prior date, unless the description and drawings contain and exhibit a substantial representation of the patented improvement "in such full, clear, concise, and exact terms" as to enable any person skilled in the art or science to which it appertains to make, construct, and use the invention to the same practical extent as he would be enabled to do if the information was derived from a prior patent. Applicants for a patent are as much required to describe the manner and process of making, constructing, and using the invention as they are to file in the Patent Office a written description of the alleged improvement, and both are expressly required to be in such full, clear, concise, and exact terms as to enable any person skilled in the art or science to make, construct, and use the invention.

Nothing deserving the least consideration is exhibited in the record to support the defense that the appellant is not the original and first inventor of the patented improvement, except the Johnson specification, which, in my judgment, does not contain or exhibit a substantial representation of the patented invention in such full, clear, concise, and exact terms as to enable even an expert, without previous experiments, to make, construct, or practice the invention.

Instead of that the provisional specification fails altogether to describe the means or mode of operation by which the pockets of varying lengths are to be stopped or closed in the process of weaving. Conclusive support to that proposition is found in the fact that it became necessary for the infringers to experiment for a long time before they could imitate the patented product.

APPLICATION FOR EXTENSION.

DEPARTMENT OF THE INTERIOR,
U. S. PATENT OFFICE,
Washington, D. C., March 10, 1877.

On the petition of HENRY VOELTER, of Heidenheim, Germany, praying for the extension of a patent granted to him August 10, 1858, antedated August 29, 1856, extended for seven years from August 29, 1870, reissued June 6, 1871, and numbered 4,418, for an improvement in reducing wood to paper pulp, this application having been authorized by act of Congress approved March 3, 1877:

It is ordered that the testimony in the case be closed on the 29th day of May next; that the time for filing arguments and the Examiner's report be limited to the 8th day of June next; and that said petition be heard on the 13th day of June next.

Any person may oppose this extension.

ELLIS SPEAR,
[tf] *Commissioner of Patents.*

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date March 20, 1877.]

9,857.—Font of Printing-Types.—DAVID WOLFE BRUCE, New York, N. Y. Application filed February 12, 1877. Term of patent 14 years.

9,858.—Telegraph-Insulator.—JAMES M. BROOKFIELD, Brooklyn, N. Y. Application filed February 1, 1877. Term of patent 14 years.

9,859.—Pack of Playing-Cards.—JOHN H. BINGHAM, Hartford, Conn. Application filed January 25, 1877. Term of patent 7 years.

9,860.—Glass Jars.—FRANCIS L. BODINE, Philadelphia, Pa., assignor to COHANSEY GLASS MANUFACTURING COMPANY, Bridgeton, N. J. Application filed February 15, 1877. Term of patent 14 years.

9,861.—Handles of Spoons and Forks.—JOHN M. CULVER, Wallingford, Conn., assignor to HALL, ELTON & CO., same place. Application filed March 9, 1877. Term of patent 3½ years.

9,862.—Head-Comb.—PAUL J. CULLINAN, New York, N. Y. Application filed March 6, 1877. Term of patent 3½ years.

9,863.—Erasive Heads for Lead-Pencils.—FRANCIS H. HOLTON, Brooklyn, N. Y., assignor to ORESTES CLEVELAND, Jersey City, N. J. Application filed February 20, 1877. Term of patent 14 years.

9,864.—Burial-Caskets.—ALBERT H. NIRDLINGER, Rochester, N. Y. Application filed March 10, 1877. Term of patent 7 years.

9,865.—Picture-Exhibitor.—JOSEPH W. TAFT, Chicago, Ill. Application filed September 7, 1876. Term of patent 14 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date March 20, 1877.]

4,451.—Medical Compound.—GEORGE C. BARCLAY, Brooklyn, N. Y. Application filed February 13, 1877.

"The fac-simile of the signature of John Renter and the portrait of the woman wearing spectacles, as shown."

4,452.—Cigars.—BAUM BROTHERS, Chicago, Ill. Application filed January 29, 1877.

"The gilded mortar and pestle and the scroll surmounting the same, as shown."

4,453.—Soap.—R. W. BELL & Co., Buffalo, N. Y. Application filed March 6, 1877.

"The pictorial representation of the buildings and apparatus, such as trestle-works, inclined railway, &c., arranged at the mouth of a coal-mine."

4,454.—Soap.—R. W. BELL & Co., Buffalo, N. Y. Application filed March 6, 1877.

"The word-symbol 'CORLISS.'"

4,455.—Whisky.—H. C. CLAY & Co., Paris, Ky. Application filed February 10, 1877.

"The representation of a peacock."

4,456.—Medical Compound.—COUSSENS & TABLER, Nashville, Tenn. Application filed January 13, 1877.

"The word-symbol 'LIGHTNING.'"

4,457.—Liquors and Spirits.—E. CUSENIER FILS AINÉ & CO., Paris and Ornans, France. Case A. Application filed December 12, 1876.

"Three escutcheons, initials 'E. C. & C.,' and the fac-simile of our firm-signature."

4,458.—Liquors and Spirits.—E. CUSENIER FILS AINÉ & CO., Paris and Ornans, France. Case B. Application filed December 28, 1876.

"The two circular seals having the escutcheons upon them and the band connecting the said seals."

4,459.—Champagne Wine.—FREDERICK DE BARY & CO., New York, N. Y. Application filed February 21, 1877.

"A piece of blue ribbon passed around the neck of the bottle in which the goods are sold, the dependent ends of the ribbon extending downward, and being crossed upon the body of the bottle."

4,460.—Soap.—ROBERT EASTMAN, Philadelphia, Pa. Application filed January 31, 1877.

"The word-symbol 'KITCHEN CRYSTAL.'"

4,461.—Soap.—GOWANS & CO., Buffalo, N. Y. Application filed January 13, 1877.

"The word-symbol 'ANVIL,' and a pictorial representation of the same."

4,462.—Paper Collars.—GEORGE HARRINGTON, Springfield, Mass. Application filed November 9, 1876.

"The representation of a box in the form of a truncated cone, provided with a bail and cover upon its larger end, having its inferior one as its bottom."

4,463.—Essential Oils.—HIRAM G. HOTCHKISS, Lyons, N. Y. Application filed March 12, 1877.

"The fac-simile of my signature."

4,464.—Cigarettes.—FRANCIS S. KINNEY, New York, N. Y. Application filed January 27, 1877.

"The representations of the tobacco-leaves and the cigarettes, forming the symbol shown."

4,465.—Trimmings, Such as Braids and Bindings.—LESHER, WHITMAN & CO., New York, N. Y. Application filed February 3, 1877.

"The title 'WASHINGTON.'"

4,466.—Paper Collars.—JAMES L. LIBBY, New York, N. Y. Application filed March 7, 1877.

"The word-symbol 'SUGAR BOWL.'"

4,467.—Paper Collars.—JAMES L. LIBBY, New York, N. Y. Application filed March 7, 1877.

"The word-symbol 'COFFEE-POT.'"

4,468.—Paper Collars.—JAMES L. LIBBY, New York, N. Y. Application filed March 7, 1877.

"The word-symbol 'MILK PITCHER.'"

4,469.—Cigars.—S. LOWENTHAL & Co., Cincinnati, Ohio. Application filed January 13, 1877.

"The word-symbol 'REDEMPTION,' and a representation of 'paper money,' and gold and silver coin, arranged as shown."

4,470.—Cigars.—S. LOWENTHAL & Co., Cincinnati, Ohio. Application filed January 29, 1877.

"The title 'SILVER DOLLAR,' and the two sides of the silver trade-dollar."

4,471.—Smoking-Tobacco.—CHARLES R. MESSINGER, Toledo, Ohio. Application filed March 8, 1877.

"The word-symbol 'TOLEDO BANNER.'"

4,472.—Note Paper and Envelopes.—MORGAN ENVELOPE COMPANY, Springfield, Mass. Application filed October 6, 1876.

"The representation of wicker or basket work, or thin flat splints woven together, as shown."

4,473.—Champagne Wine.—G. H. MUMM & Co., Rheims, France. Application filed December 14, 1876.

"The fanciful words 'CORDON ROUGE.'"

4,474.—Fertilizers.—SINGER & BREHAN, Philadelphia, Pa. Application filed January 26, 1877.

"The word-symbol 'Phœnix,' in connection with the representation of a phœnix."

4,475.—Liquid for Removing Grease and Other Stains from Cloth, &c.—GEORGE P. TAPLING, Brooklyn, N. Y. Application filed February 26, 1877.

"The word-symbol 'ELUINE.'"

4,476.—Starch and Corn-Starch.—THE ST. CHARLES STARCH COMPANY, St. Charles, Mo. Application filed December 16, 1876.

"The representation or picture of the upper portion of a stalk of corn surmounted by a crown in place of the tassel."

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date March 20, 1877.]

1,004.—Title: "Clinton Window Screen Wire Cloth."—CLINTON WIRE CLOTH COMPANY, Clinton, Mass. Application filed March 9, 1877.

1,005.—Title: "Foye's Italian Liniment."—W. B. FOYE, Canton, Ohio. Application filed March 7, 1877.

1,006.—Title: "International Prize Medal Oil of Peppermint."—HIRAM G. HOTCHKISS, Lyons, N. Y. Application filed March 12, 1877.

1,007.—Title: "Toledo Banner."—CHARLES R. MESSINGER, Toledo, Ohio. Application filed December 20, 1876.

1,008.—Title: "Miller's Ointment for the Prevention and Positive Cure of Gathered Breasts."—FRANCIS L. MILLER, Newark, N. J. Application filed March 7, 1877.

1,009.—Title: "Miller's Sure Cure for Piles."—FRANCIS L. MILLER, Newark, N. J. Application filed March 7, 1877.

1,010.—Title: "Parce's Diphtheria Cure."—JUDSON E. PARCE, Otselic, N. Y. Application filed March 18, 1877.

1,011.—Title: "Complimentary."—JOSEPH SCHLOSS, New York, N. Y. Application filed March 6, 1877.

1,012.—Title: "Compressed Tablets of Pure Chlorate of Potash Without Gum or Sugar."—JOHN WYETH & BROTHER, Philadelphia, Pa. Application filed February 28, 1877.

In order to furnish individuals and the press with early information, the Patent Office has begun the publication of a list of patents issued, which list is ready for delivery on Wednesday of each week, the day following issue.

This list is furnished at 10 cents per single copy; $4 50 per annum to subscribers.

Patent Office coupons, which purchase a copy of any drawing which has been photolithographed, are sold singly by the Chief Clerk at twenty-five cents each, or twenty coupons at one time for two dollars.

The GAZETTE is made to bear the same date as the patents to which the claims, briefs, and drawings relate, although it is not actually mailed to subscribers until about two weeks later than its date.

Single copies of the specification and drawing of any patent issued this week may be had from the Patent Office for twenty-five cents, or for a ten cent Patent Office coupon.

Where specifications are in print they are furnished with the drawings without extra charge.

As 12 o'clock on Friday is the latest hour that a final fee can be received in order to get a patent into the "issue" of the following Tuesday, applicants are earnestly requested to make the final payment before Friday, if possible, so that the proper entries may be made on the books of the Office before closing the "issue."

The Patent Office prefers that applicants should furnish their own drawings. Where drawings are defective, or cannot be otherwise obtained, the Office will cause a formal drawing to be made from the model at the actual cost of making it.

The Government fee on making application for a patent is fifteen dollars. The final fee is twenty dollars. Usually there are no other Government fees unless the application is appealed.

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Richards, H., and J. A. Traut, Bench plane, (reissue)	7,565
Richardson, J., Hydrant	188,676
Richoux, L., Temporary binder	188,674
Ritty, S., Horse hay rake	188,677
Ruick, T., Bridge joint	188,678
Saunders, J. R., Cigarette mouth piece	188,543
Schaffer, C., Compound for artificial stone	188,679
Schinneller, J., and L. Fitzpatrick, Die for welding chain links	188,545
Schmitz, F. E., Book binding	188,544
Schoonmaker, D., Check rein spread and attachment	188,546
Scofield, L., Planter	188,547
Secord, J. E., Rake for salt boilers	188,680
Serviss, W., Wash board	188,681
Seys, C. D., Bucket ball ear	188,682
Sim, T., Preserving meat or animal matter, (reissue)	7,564
Skree, M. O., Corn planter	188,683
Smiley, F. E., and J. A. Pierce, Carbureter	188,667
Smith, H. E., Mangle	188,685
Smith, H. E., Ironing apparatus	188,686
Smith, W. B., Ratchet brace	188,684
Smith, W. M., Cotton bale tie	188,548
Snediker, W. E., Vise	188,688
Snow, G. K., Metallic collar box	188,687
Somers, D. M., Pocket pencil	188,721
Sommers, R., Toilet washing powder	188,549
Specht, E. C., and J. Spieler, Skylight	188,689
Spieler, J., and E. C. Specht, Skylight	188,689
Stegner, L. M., Land roller	188,484
Stevens, C. H., Horse collar	188,550
Stibbs, H., Engine gearing	188,690
Strothman, J. H., Curtain fixture	188,551
Stuart, J. J., Pump	188,692
Stutz, S., Coal washing machine	188,691
Talbott, A., Tobacco and cotton press	188,693
Tatlock, G., and S. Newby, Corn planter	188,694
Taylor, J., Washing machine	188,695
Temple, A. F., Curtain roller	188,552
Thomas, J., Line fastener	188,485
Thuesen, K. N., and J. Olsen, Pump	188,534
Tobin, J. C., Blacksmith's machine	188,696
Todd, G. W., Gas retort	188,553
Traut, J. A., and H. Richards, Bench plane, (reissue)	7,565
Trevallee, O. A., Fire kindler	188,697
Turner, T. N. and S., Ditching machine	188,698
Van Court, R. A., Privy seat	188,699
Vaughan, P. W., and J. F. Glidden, Barbing fence wire, (reissue)	7,566
Von Otter, C. G., Light house signaling apparatus	188,700
Wakeman, H., Armor for flexible tubing	188,554
Walker, M. H., Plow shoe	188,701
Warburg, B. H., Burning stone coal slack in the manufacture of brick, &c	188,703
Warth, A., Machine for cutting textile and other material	188,702
Weed, C. A., and R. D. Bell, Harvester reel	188,704
Weinel, J. J., Miner's lamp	188,705
Wessell, O., A. Nickel, and R. Gross, Piano action	188,706
Westley, J., Injector for steam boilers	188,707
Whippie, C. F., Hame fastener	188,486
White, H. J., Spice box	188,709
White, N. S., Railway chair and tie	188,710
White, P. F., Vehicle axle	188,708
Whitehead, A. E., Can or pail top with opener	188,711
Wiard, E., Plow	188,555
Wiarda, J., Counterfeit coin detecter	188,712
Wiggins, C. P., Relief and safety stop valve	188,556
Wilhelm, H., and F. D. Davis, Diamond millstone dressing machine	188,713
Willard, H., Weighing scales	188,557
Williams, J., Apparatus for sprinkling liquid poison on potato vines	188,487
Williams, J. I., Rotary puddling furnace	188,488
Willis, G. A., and N. Ellis, Foot scraper and cleaner	188,612
Wilmington, W., Casting car wheels	188,714
Wilmington, W., Casting car wheels	188,715
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Wilson, J. E., Fitting machine	188,558
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Wright, A., Loom shuttle	188,489
Wright, J. A., Oil cabinet	188,560
Wroth, A. B., Device for hitching horses	188,717
Yantis, V., Lever clamp	188,718
Young, H., Jr., Smoke consuming furnace	188,719
Young, H. P., and F. Calvert, Plaiting board	188,561
Zuenkeler, F., Manufacture of boxes	188,720

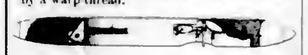
TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED MARCH 20, 1877.

188,460. LOOM-SHUTTLES. Chas. W. Anderson, Pawtucket, R. I. [Filed July 26, 1876.]

Brief.—The oval spring co-operates with the L-shaped detecter-arm, so as to return it to its vertical position after being actuated by a warp thread.



The combination, with a loom-shuttle, of the detecter-arm *g*, provided with the arm *i* and spring *j*, and means, substantially as described, by which the filling-yarn is broken, or the delivery of the same from the shuttle stopped, when the detecter arm comes in contact with imperfections in the warp, as and for the purpose set forth.

188,461. JUMPING TOYS. G. Boeringer, St. Louis, Mo., assignor of one-half his right to G. H. Lasar, same place. [Filed Oct. 25, 1876.]

Brief.—The toy is of grasshopper shape, and the two binder legs are a pair of springs adapted to be locked to the base-piece, and disengaged therefrom by pressure.

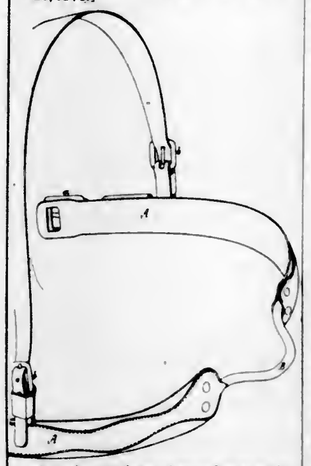


1. The herein-described toy grasshopper, consisting of the body *a* and legs *b b*, arranged to operate in connection with the rest *c*, substantially as described.

2. As a new article of manufacture, a toy grasshopper, consisting of the body *a* and the legs *b b*, provided with the hooks *b'' b''*, substantially as described.

3. The combination of the body *a*, having the shoulder *a'*, the legs *b b*, having the coils *b' b'* and hooks *b'' b''*, and the rest *c*, having the beveled end *c'*, substantially as described.

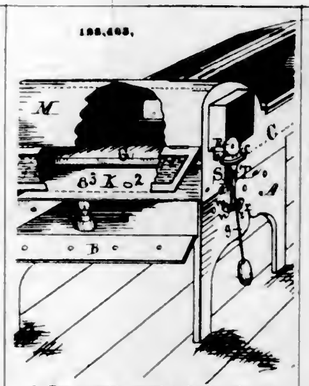
188,462. BREAST-PLATES FOR HARNESS. W. Dyer, Hyde Park, Mass. [Filed Dec. 28, 1876.]



As an improved manufacture for use, or in combination with the flexile straps A A, as described, the arch-piece B, having the flat ears and curved lengthwise and downward, in manner as represented and explained.

188,463. ROASTER AND WARMER. Henry S. Graham, Indianola, Iowa. [Filed Oct. 28, 1876.]

188,463.

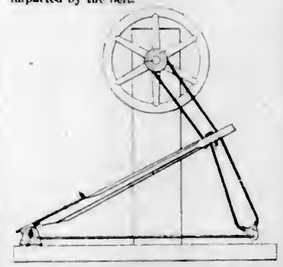


1. The portable stand A, having the tray-formed top and hinged door B, the case C, having the rear extension D, the movable warming-pan E, having the sliding plate G, the rotating cylinder H, the movable lamp-chamber top K, the movable cover M, having the hinged door N, and the case P, having a spring-motor and clock-work gearing, arranged and combined substantially as and for the purposes shown and described.

2. The pivoted lever T, having pallets *b c* at its top, and a bridle, *m n*, at its bottom, and carrying the adjustable bearer *r s*, in combination with the pendulum-stem *g*, the escapement-wheel R, the clock-work in the case P, and the rotary cylinder H, carried by the portable stand A, substantially as and for the purposes shown and described.

188,464. MECHANICAL MOVEMENTS. Jas. A. House, Bridgeport, Conn. [Filed Mar. 1, 1877.]

Brief.—The shaft to be driven has a pulley connected therewith, around which and another pulley connected to a vibrating arm the band passes. Both ends of the band are secured to the vibrating arm, whereby the pulley is revolved by a succession of impulses imparted by the belt.



1. The combination, substantially as hereinbefore set forth, of a driven pulley, a driving-belt passing around said pulley, a shoe or second pulley, around which said belt passes, and an arm or treadle vibrating between the driven pulley and shoe, to which both ends of said belt are secured.

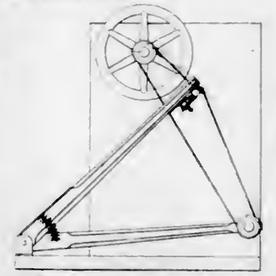
2. The combination, substantially as hereinbefore set forth, of a shaft or wheel to be revolved, a pulley thereon, a driving-belt passing around said pulley, a tension shoe or support around which the belt also passes, a treadle to which the ends of the belt are secured, and a spring for elevating the treadle.

3. The combination of the belt, the treadle to which both ends of the belt are secured, the shoe around which and the driven pulley the belt passes, and the tension-arm on which the shoe is mounted, substantially as set forth.

4. The combination of the treadle, the wire tension arm or frame, and the spring formed of one piece of wire with said frame, substantially as and for the purpose specified.

188,465. MECHANICAL MOVEMENTS. Jas. A. House, Bridgeport, Conn. [Filed Mar. 1, 1877.]

Brief.—The endless belt passes at one end around a pulley to be driven, and at the other over a self-adjusting tension-pulley. A griper acts upon the belt during the movement of the treadle in one direction.



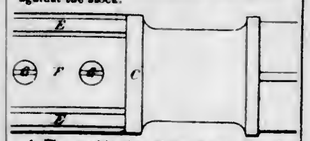
1. The combination, substantially as hereinbefore set forth, of a wheel or shaft to be driven, a pulley thereon, an endless belt passing at one end around said pulley, a treadle, provided with a spring for throwing it up after being depressed, and a griper or clamp, carried by the treadle, and acting upon the belt.

2. The combination of the driven shaft or wheel, the pulley connected therewith, the endless belt, the endless belt, the pulley or support for the lower end of the belt carried by the tension lever, the driven pulley, around which the opposite end of the belt passes, and a clamp or griper carried by the treadle, and connecting with and imparting motion to the belt, these members being constructed and operating substantially as hereinbefore set forth.

4. The belt clamp constructed, substantially as hereinbefore set forth, of a main fixed section, slotted for the passage of the belt, and having a roughened or serrated bearing therefor, and the movable section pivoted to the main section, having a flange at its outer end, between which and the bearing on the main section the belt passes, and the spring between the two sections, whereby the movable section is held in position, to facilitate the griping of the belt.

188,466. SCREW-TAPS. M. C. Johnson, Hartford, Conn., assignor of one-half his right to J. R. Reynolds, same place. [Filed Feb. 16, 1877.]

Brief.—The bits rest with their backs against the surface of the stock, and are held in place by intervening segmental blanks, that are fastened to the stock by screws. Scores across the back of the bit are designed to make them somewhat flexible, so that they may the more certainly come to full bearing against the stock.



1. The combination of the cutters E and the segments F, arranged around a central

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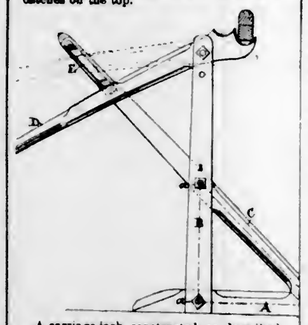
stock, B, to which the segments F are attached by means of screws, substantially as herein described.

2. The combination of the collar G with the cutters E and the segments F, substantially as and for the purpose herein described.

3. The channels or grooves *e* in the cutters E, substantially as and for the purpose herein described.

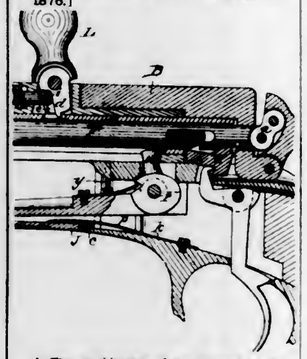
188,467. LIFTING-JACKS FOR CARRIAGES, &c. George S. Jones, Brookfield, Ohio. [Filed Nov. 9, 1876.]

Brief.—A post formed of two pieces has a forwardly-extended foot bolted to its bottom, from the extremity of which a diagonal brace passes upward through the middle height of the post, and backward to hold the lever by catches on the top.



A carriage-jack constructed, as described, of the foot-bar A, vertical bars B B, and diagonal bar C, bolted together so as to form a triangular supporting-base, and arranged to operate with the lever D and plate E, substantially as and for the purpose specified.

188,468. MAGAZINE FIRE-ARMS. John W. Keene, Newark, N. J. [Filed Dec. 19, 1876.]



1. The combination of the pivoted handle L with the firing-pin F, substantially as described, whereby the firing-pin is retracted by the movement of the handle.

2. The combination of the pivoted handle or lever L with the locking-bolt *b* and firing-pin F, constructed to operate substantially as described, whereby the breech-bolt is unlocked and the firing-pin is retracted by the single movement of the handle.

3. The combination of the pivoted handle L, firing-pin F, and sear W, substantially as shown and described, whereby the movement of the handle shoves back the firing-pin and half-cocks the gun.

4. The combination of the extractor *f*, locking-bolt *b*, and pivoted handle L, substantially as set forth, whereby additional force can be applied to the extractor by drawing the handle back when desired.

5. The firing-pin F, provided with a stud, *i*, in combination with the sleeve B^1 and B^2, provided with the grooves o^1 and o^2, arranged to operate as described, whereby the firing-pin is held back until the breech is closed and locked.

6. The swinging or pivoted hooks I, constructed to operate as described, whereby it is made to support the pivot of the carrier E, and can be detached therefrom at will, substantially as set forth.

7. The cut-off O, in combination with the sliding thumb bolt R, constructed to operate substantially as described, for shutting off the flow or passage of the cartridges from the magazine.

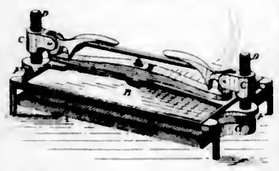
8. The cut-off O, provided with the beveled or oppositely-inclined lips *n* and *n'*, and the beveled top *m*, in combination with a sliding breech-block, said parts being constructed to operate substantially as described.

9. As a means for closing the bottom of the receiver, the plate J, provided with the projections or tongues *c* at its ends, for holding it in place, substantially as described.

10. The breech-bolt B, provided at its front and with the undercut recess, for more securely holding the cartridge-shell while it is being withdrawn, substantially as set forth.

11. The ejector-pin *x*, provided with the inclined or beveled faced arms *x'*, arranged to operate in connection with the breech-bolt, substantially as set forth, whereby said ejector has imparted to it both a forward and an upward movement, as described.

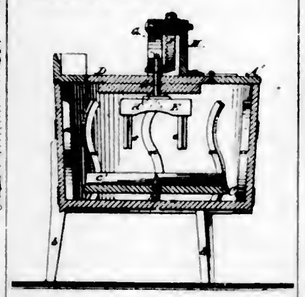
188,469. COPYING-PRESSES. R. H. Kidder, Worcester, Mass., assignor to I. R. Joslin, New York city. [Filed Oct. 12, 1876.]



1. The combination of the bed A, standards D D, having adjustable sockets C C, carrying cam-levers, and the platen B, substantially as and for the purposes set forth.

2. The adjustable springs F F and their nuts, in combination with the socket-bearing standard D D, bed A, and platen B, as and for the purposes described.

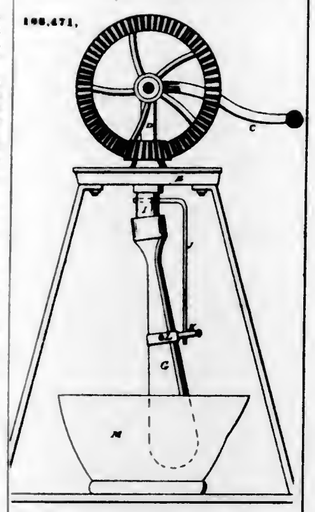
188,470. WASHING-MACHINES. J. Kiehle, Cedar Falls, Iowa, assignor of one-half his right to L. N. Bronson, same place. [Filed Feb. 6, 1877.]



In a washing-machine, the combination of the tub A, having serpentine or S shaped ribs *s s* with the revolving ribbed bottom C, hinged cover D, fluted stirrer E *s s*, operated by pinion *f* and segment F, and supported on brackets G H, all constructed and arranged for operation as shown and described.

188,471. GRINDING AND TRITURATING APPARATUS. Jos. J. Lancaster, London, Ontario, Canada. [Filed Dec. 16, 1876.]

The combination of power-arm J, adjustably attached to rotating shaft I, with mortar M and pestle G, provided with band L, having projecting slotted bar K, substantially as described, whereby the pestle is given a rotatory motion, while at the same time it is allowed extension within the mortar by centrifugal force, for the purpose set forth.



188,472. WASH-BOARDS. Jos. H. Lapham, Cleveland, Ohio. [Filed Feb. 21, 1877.]

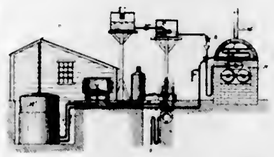


1. A wash-board plate the crimps of which have smooth crests, with the intervening depressions, substantially as and for the purpose described.

2. A wash-board plate formed by crimping a plate that has been previously roughened, and forming the crimps with smooth crests, substantially as and for the purpose described.

188,473. APPARATUS FOR THE MANUFACTURE OF GAS. A. C. Lippitt, New London, Conn. [Filed Mar. 22, 1876.]

Brief.—Water-gas is generated, washed, purified, and stored in a holder, from which it is forced in regulated quantity through a heating-coil in the retort-furnace, where it is heated and fed with oil or oil-vapor into the combining and fixing retorts. The oil is automatically regulated in its flow, and on its way to the combining-retorts is heated in a coil in the top of the furnace. Test-burners are used for testing the quality of the gas being generated, so that the relative quantities of water-gas and oil may be regulated as desired.

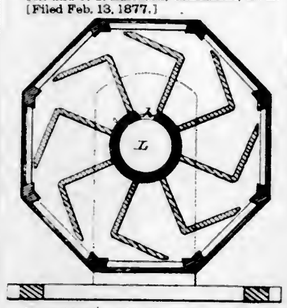


1. In combination with the retort R, the automatic or self-regulating cock *c*, for controlling the flow of the oil, and the gas-holder H, for supplying the water-gas to the retort, whereby the relative quantities of the oil and water-gas are rendered constant, so as to produce an illuminating-gas of uniform quality, as set forth.

2. In combination with the self-regulating oil-supplying device and the gas-holder, the cocks *h* and *i* in the pipes connecting the oil-tank and the gas-holder with the retort, for

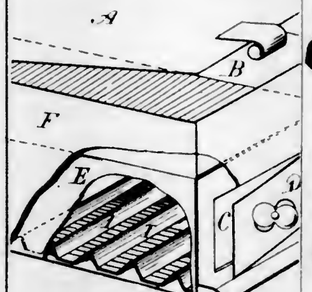
the purpose of adjusting and controlling the relative quantities of the oil and gas fed into the retort, as set forth.

188,474. PAPER-PULP WASHERS. Geo. L. Lovett, Fitchburg, Mass., assignor to himself and J. T. Emerson, Claremont, N. H. [Filed Feb. 13, 1877.]



In combination with the strainer and buckets, constructed as herein described, the central stationary cone L, provided on top with the longitudinal slot *h*, substantially as herein set forth.

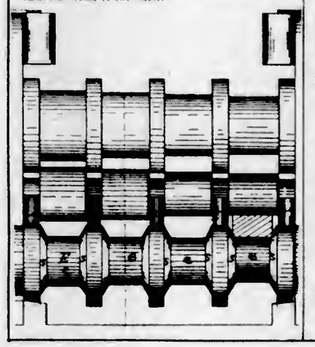
188,475. STOVES FOR HEATING SAD-IRONS. Rosa Martin, Portland, Oreg. [Filed Jan. 22, 1877.]



A stove consisting of the parts A B C D E F G I, as shown, substantially as described, and for the purpose set forth.

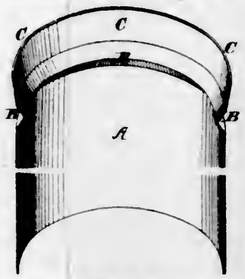
188,476. ROLLING-MILLS. P. McGann, Allegheny, assignor to Lewis, Oliver & Phillips, Pittsburg, Pa. [Filed Feb. 16, 1877.]

Brief.—Each groove of the feed-rolls is somewhat less in width at its bottom than the iron to be fed, so that the heated metal, when introduced, will wedge somewhat between the inclined sides of the groove, thus enabling the feed-roll to gain sufficient purchase to feed it forward.



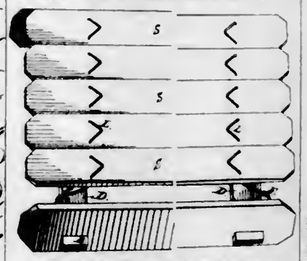
The combination of one or more feed-rolls, having a groove or grooves with inclined sides, with a pair of work-rolls, substantially as and for the purpose specified.

188,477. FRUIT-CANS. John F. Merrill, Cincinnati, Ohio. [Filed Mar. 16, 1876.]



A fruit-can having the body A, rim C, internal vertical neck L L' M, said neck having a less diameter than has the body A, and its folds L L' being in contact, and cap N, whose downturned flange *n* enters the sealing-trough O, and fits snugly around the outer fold L of said neck, so as to retain the lid in position previous to the application of the wax or cement, substantially as herein described and set forth.

188,478. SPRING BED-BOTTOMS. H. Ogborn, Richmond, Ind., and T. T. Kendrick, New York, N. Y. [Filed Jan. 5, 1877.]



1. The bed-slat S, made thicker at the middle and at the points of attachment to the springs, and thinned at the intermediate points and at the ends, as shown and described.

2. The lever-spring E, having its stirrup end curved slightly upward, to adapt said spring to lie entirely under the slat and engage with the connecting-hook, substantially as shown and described.

3. The double reversible slat-hook L, constructed substantially in the manner and for the purposes set forth.

4. The double-pointed hooks K K, in combination with the bar D and spring E, the whole constructed and arranged substantially in the manner and for the purposes described.

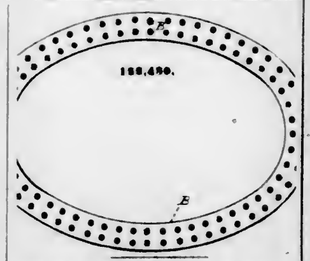
5. The combination of the slat S, the double slat-hook L, the lever-spring E, and the hook K, substantially in the manner and for the purpose herein set forth.

188,479. LUBRICATING COMPOUNDS. Peter M. Papin, St. Louis, Mo. [Filed Jan. 27, 1877.]

A lubricating compound composed of French chalk, (pulverized soap-stone,) caustic soda or potash, as herein set forth, mixed with petroleum or tars, greases, rosin, slaked lime, as and for the purposes herein represented.

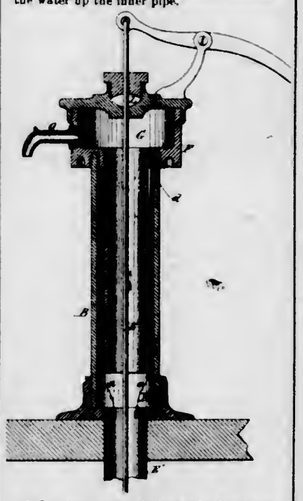
188,480. PACKING FOR MAN-HOLES, HAND-HOLES, &c. A. Powell, Philadelphia, Pa., assignor of one-half his right to D. M. Molyneaux, Bordentown, N. J. [Filed Feb. 26, 1877.]

A gasket for hand-holes, man-holes, and cylinder-heads, consisting of the perforated leaded form B, and lamp-wick or other similar material wound around it and stitched thereto, substantially as set forth.



188,481. PUMPS. L. D. Railsback, Indianapolis, Ind. [Filed Nov. 9, 1876.]

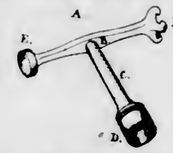
Brief.—A pipe located inside the pump is connected to an enlarged chamber above, the air-chamber being between the inner and outer pipes. A space between the inner and lower pipes allows the water to pass from the lower pipe while being elevated into the air-chamber, thus causing an air-pressure to force the water up the inner pipe.



1. In a force-pump, the inner pipe E, secured to the enlarged chamber-casting F, the outer pipe B, also secured to the same casting F and to the base A received to receive the lower pipe E', leaving a space between the lower end of pipe E and upper end of pipe E', and also an annular space between the pipe E and pipe B, in the manner and for the purposes set forth and described.

2. The casting F, formed with an enlarged chamber, G, stuffing-box and gland L J, spout O, and provided with screw-threads *b d* below, to receive the inner and outer pipes E B, in the manner and for the purposes set forth and described.

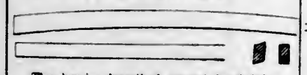
188,482. COMBINED TOOL FOR FIRE-ARMS. Wm. G. Rawbone, Toronto, Ontario, Canada. [Filed Feb. 19, 1877.]



The combined loader, hand turn-over, and extractor implement A, consisting of the cross-bar B and stem C, joined together in a detachable manner, and provided at their respective ends with a loading-head, a hand turn-over head, and a shell-extractor head, substantially as shown and described.

186,488. HEAD-LININGS FOR BARRELS. L. Reed, New York, N. Y. [Filed Nov. 11, 1876.]

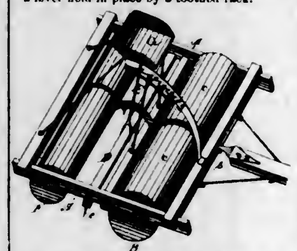
Brief.—The head-lining is made of such curved form that when applied to a barrel it will conform to the head and chine.



The herein-described curved head-lining, rhomboidal in cross section, substantially as set forth.

186,494. LAND-ROLLERS. L. M. Stegner, Harveyville, Kans. [Filed Oct. 19, 1876.]

Brief.—There are four rollers set in a rectangular frame in two ranks placed end to end. The forward rollers are much larger than the rear ones, and between the two sets is placed an adjustable harrow-bar, having the teeth inclined from the center outward. This bar is adjusted forward or backward by means of a lever held in place by a toothed rack.



1. The combination, within a frame, A, of the heavy front roller B, intermediate swinging bar D, having teeth *a*, and light rear roller F, substantially as and for the purpose shown and specified.

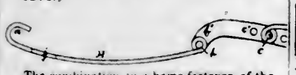
2. The farm implement, herein described, for rolling and cultivating the soil, consisting of frame A, sectional rollers B F, intermediate toothed bar D, having lever E, that engages with the notches *a* in bar *g*, all constructed and arranged to operate substantially as and for the purpose shown and specified.

186,495. LINE-FASTENERS. J. Thomas, Chicago, Ill. [Filed Jan. 24, 1877.]



The device for holding lines in a taut condition, consisting of a case, C, wherein one end of the line is secured, and through which the other end passes, the eccentric *e*, inclosed and pivoted in said case, and the spring *i*, for automatically operating the clamp, substantially as specified.

186,496. HAME-FASTENERS. C. F. Whipple, Grand Rapids, Wis. [Filed Jan. 25, 1876.]

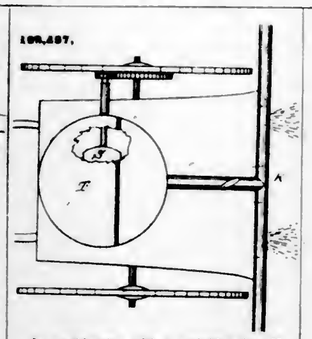


The combination, in a hame-fastener, of the hooked clamps A and A′ and lever B, the said lever being hinged to the clamp A at *b*, and adjustably pivoted to the clamp A′ at *c*, the said clamp A′ being slotted at *d*, together with the locking device C and the slot *f*, constructed and arranged to operate as described.

186,497. APPARATUS FOR SPRINKLING LIQUID POISON ON POTATO-VINES. John Williams, Le Roy, N. Y. [Filed Jan. 5, 1877.]

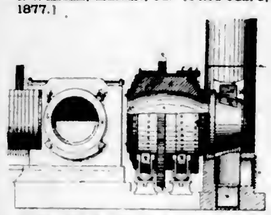
Brief.—A tank to contain the liquid is mounted upon a pair of wheels, connected with a distributing-pipe in the rear. A cog-gear is attached to the hub of one of the wheels, and drives a pinion that puts in motion an agitator in the bottom of the tank.

186,497.



In combination with a sprinkler-pipe, K, cask T and stirrer S, constructed and arranged to operate conjointly, substantially in the manner and for the purposes set forth.

186,498. ROTARY PUDDLING-FURNACES. J. I. Williams, Millvale, Pa. [Filed Jan. 8, 1877.]



1. The fire-chamber and rotary working chamber, angularly arranged to each other, in combination with an adjustable intermediate flue-section, substantially as set forth.

2. The combination, with fire-chamber and rotary working-chamber, of the intermediate removable flue-section, substantially as set forth.

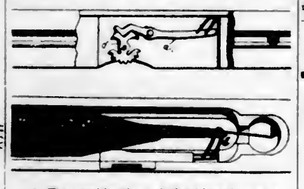
3. The rotating working-chamber A, having the usual angular slope in its shell at the fire-inlet end, and end rings *a a′* at its outlet end, at an increased angle relatively thereto, substantially as and for the purposes set forth.

4. The T-ring a^3, in combination with the cylindrical part of the casing, and with the end ring a^1, substantially as set forth.

5. A brick-lined cast-iron fine-case, having an opening in the case through which to key the arch or top of the brick-work, substantially as set forth.

186,499. LOOM-SHUTTLES. Aug. Wright, Providence, R. I. [Filed Aug. 18, 1876.]

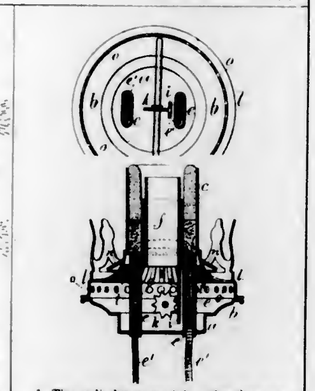
Brief.—The loop on end of arm *a*, when the arm is actuated by double cam *b′*, is entangled with the wheel and breaks the thread.



1. The combination of the hinged arm *a*, provided with a projecting loop, hook, or pin at its forward end, and with the double-inclined planes at its rear end, with the double cam *b*, substantially as described, and operated as and for the purpose specified.

2. In a loom-shuttle, the combination of the lever-arm *a*, having the loop, hook, or pin secured thereto, substantially as described, and the double cam *b*, as and for the purpose described.

186,500. LAMP-BURNERS. A. Angell, East Orange, N. J., assignor to C. F. A. Hinrichs, Brooklyn, N. Y. [Filed Feb. 5, 1877.]

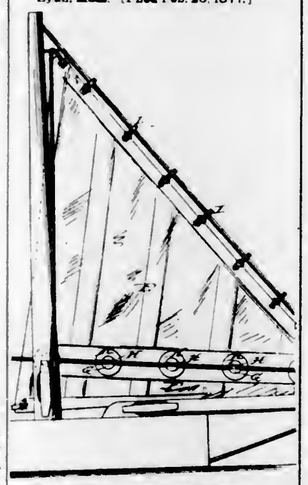


1. The cylinder *a*, receiving the non-combustible Argand wick *d*, in combination with the wick-tubes *e e*, passing from such cylinder *a* down through the metal of the burner, substantially as set forth.

2. The combination, with the non-combustible Argand wick *d* and movable air-tube *f*, of the rack *i* and pinion *k*, for the purposes and as set forth.

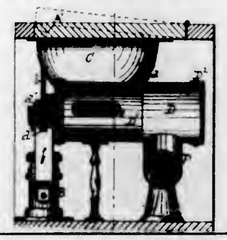
3. In combination with the cylinder *c*, wick-tubes *e*, and burner-body *b*, the removable chimney-holder *l*, perforated air-distributer *n*, and perforations *o*, substantially as set forth.

186,501. REEFING SAILS. O. W. Atwood, Lynn, Mass. [Filed Feb. 26, 1877.]



The metallic grommet-ring K, in combination with the toggle G, provided with roller H, substantially as set forth.

186,502. WATER-CLOSETS. H. J. Bailey, Pittsburg, Pa. [Filed Nov. 1, 1876.]



1. In combination with a water-closet bowl or basin, a valve-case and rotating valve arranged in one adjustment, to drain the contents of the bowl or basin through the valve, and, by being rotated to the other position, to seal the discharge-orifice of the bowl or basin, and at the same time leave an opening through the valve for the escape of the excess of water admitted in flushing, substantially as set forth.

2. A rotary valve, D^1, having two communicating ports arranged, with suitable packing, in a valve-chamber, D, and in combination with the discharge-opening C′ of the bowl or basin C, such ports being open not only when draining the contents of the bowl, but also when the escape-opening of the bowl is sealed, substantially as set forth.

3. The valve-case D, having a removable cap or caps, arranged in line with the trap P, whereby access may be had through the valve-case to the trap for cleaning the same when obstructed, the combination being substantially as set forth.

4. In a water-closet flushing-valve, a piston, *e*, having a water-port entering the piston a little to one side of the tapped eye, and communicating thence with the eye, in combination with a piston-stem, e^1, arranged to regulate the flow of water through such port, substantially in the manner set forth.

5. The stem e^1, flattened at a little distance from its end, whereby the area of port-opening in the piston may be varied from a maximum by the adjustment either way of the stem, in combination with a perforated piston having no water-way through or past the same, except that water-way the effective area of which is regulated by the stem, substantially as set forth.

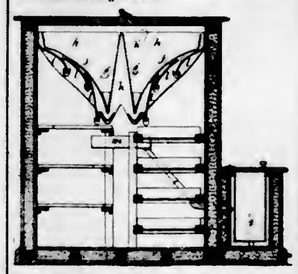
6. The valve *i*, operated in opening by external pressure, and in closing by a spring, i^2, in combination with a series of ports in the barrel s^1, for progressively increasing or lessening the supply, and a valve-seat, s^2, to cut off the supply completely, substantially as set forth.

7. The curved slot a^2 in the crank *a* of the rotary valve D^1, in combination with such rotary valve, with the loose wrist playing in such slot, and with the vertically-moving operating-stem, substantially as set forth.

8. The barrel s^1, having a series of water-inlet ports arranged at different points along its length, in combination with the valve *i*, which opens and closes such ports progressively or in succession during its motion, substantially as set forth.

186,503. REFRIGERATORS. Geo. A. Banta, New York, N. Y. [Filed Aug. 21, 1876.]

Brief.—Air-spaces are formed between the sides of the refrigerator and the wooden front and back of the ice-basket. The sides, bottom, and double central partition of the ice-basket are made of wire, while metallic plates lead the drip into troughs, from which it runs into a water-pan. From this pan the water is led by a pipe through the side of the refrigerator into a tank in which are suspended metallic cooling-vessels.



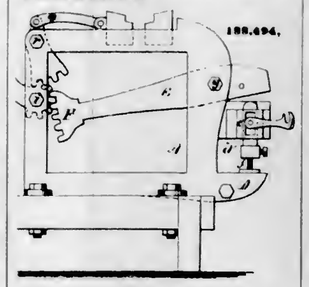
1. The wire-work ice-holder for a refrigerator, made with the central partition *g*, in combination with the pan *m* and deflector-plates *l*, substantially as set forth.

2. The combination, in a refrigerator, of the wire-work ice-basket *f g*, sides *h*, and air-spaces *h′*, substantially as set forth.

186,504. COMPOUND METAL-WORKING MACHINES. Robt. Bandhauer, Denver, Colo. [Filed Jan. 19, 1877.]

An improved tire-upsetter, shear, and punch, consisting of the frame A, having arms C D, the shear-blade and punching mechanism, supported on said arms, the shearing-lever E, that may be attached, by hook and lug, to punch, the hand-lever H and the upsetter, united by link with a lever, S, the three levers being connected by racks and pinion, as shown and described.

186,494.



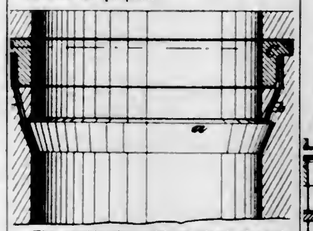
186,505. ARRANGEMENT OF LAPPING-MACHINES. Job Batty, Philadelphia, Pa., assignor to Albt. Batty, same place. [Filed Sept. 28, 1876.]



The combination, with a breaker and finisher card, of a series of endless aprons and doublers, arranged substantially as described, whereby the fibers composing the lap are taken from the doffer of the breaker endwise, doubled and redoubled, and then fed to the finisher in a continuous sheet, with the fibers entering the finisher endwise, as and for the purpose set forth.

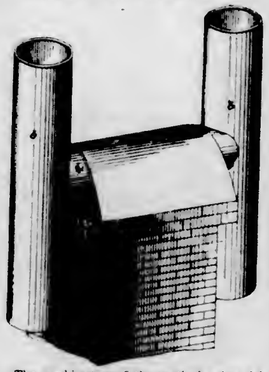
186,506. PACKING FOR HYDRAULIC CYLINDERS. C. E. Boardman, New York, N. Y. [Filed Feb. 17, 1877.]

Brief.—The pressure of the water in the cylinder forces the rubber packing into contact with the plunger, the water having access to back of packing through channels provided for that purpose.



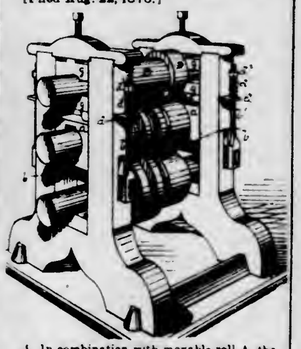
The combination, with an elastic flanged packing, C *e*, of a cylinder, having the groove *a* B, connected by the water-channels *b*, as shown and described, so that the packing will not shift, is forced evenly out, and will wear uniformly.

186,507. DEVICES FOR PREVENTING CHIMNEYS FROM SMOKING. J. R. Bowers, Concord, N. H. [Filed Dec. 18, 1876.]



The combination of the vertical tubes *b b*, open at both ends, with the horizontal tube or pipe *a*, having a downward-projecting flange or casing, *c*, when applied to the tops of chimneys, as and for the purpose set forth.

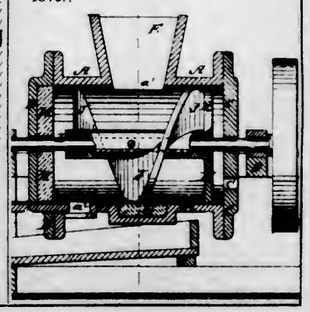
186,508. MACHINES FOR ROLLING METAL. Wm. Bunton, Pittsburg, assignor to himself and Hugh McDonald, Allegheny, Pa. [Filed Aug. 22, 1876.]



1. In combination with movable roll A, the cross-bar *b*, stirrups *b′*, and springs b^2, to support it from below, and an eccentric roll above, substantially as set forth.

2. The eccentrics *c*, arranged in the grooved or hollow boxes *c′* so as to play through the groove or hollow of the lower box and against the box or bearing *a* of the upper movable roll, the combination being substantially as described.

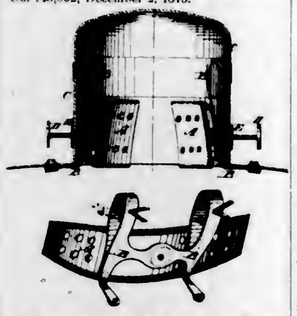
186,509. RICE-CLEANING MACHINES. Jesse Carter, Lake City, Fla. [Filed Nov. 18, 1876.]



The combination, with hoppered cylinder E A, having air-space at one end and delivery-aperture at the other, of the bottom stone G, the end stone H, and the spiral conveyer J, as and for the purpose specified.

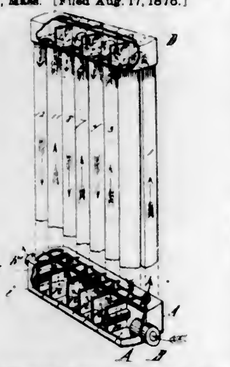
188,500. ADJUSTABLE HATS. I. Ygnacio Cassiano, San Antonio, Tex. [Filed Jan. 19, 1877.]

Brief.—Improvement on applicant's Patent No. 145,092, December 2, 1873.



The combination of the hand-screws D and nuts E with the hat C, the U-springs B, and the sections A, substantially as herein shown and described.

188,501. HEATERS. E. Chadwick, Westfield, Mass. [Filed Aug. 17, 1876.]



1. An improved heater, consisting of the combination of the casting A provided with partitions a, openings i, and orifice B, the pipes 1 2 3 6, &c., and the casting D, provided with partitions a, the same being formed in two sets or duplicated, and secured together, substantially as described.

2. A heater composed of the combined duplicated castings D and A, connected together by the pipes 1 2, &c., and bolted together, substantially as set forth.

188,502. CORN-ROW MARKERS. T. A. Cole, Trafalgar, Ind. [Filed July 20, 1876.]

1. In combination, the shaft L', curved arms O^2 O^3 D^2 O^2 O^3 O^4, arranged as described, and adapted to be operated in connection with the shovel-beams O O^2 O^3, as set forth and described.

2. The adjustable dirt-scraper O^4, formed with pivot-bearing d at the upper ends of the forks, and segmental adjusting-slot r near its mid height, in combination with the hollow shovels C^4 attached to the shovel-beam, as set forth and described.

3. The links r r^1, arranged to operate under the projection of the part r^2 of the lever T, and held in position by means of the rod y which passes through the ends of links r r^1 above the lever T, in the manner, and for the purposes set forth and described.

4. The feed-bar slide J, having its two ends at right angles to the slide, which are attached to the feed-bar F by bolts or screws, the rear edge of the slide J having a projection downward, in which is formed a slot, S', to receive the wrist-pin S of the crank-wheel R, in the manner and for the purposes set forth and described.

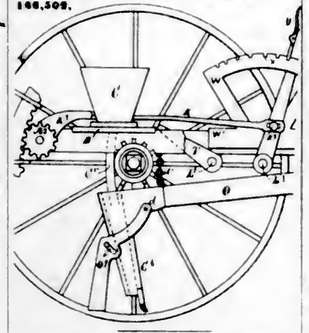
5. In combination, the sleeve Z^2, shaft L^4, curved arms O^2 O^3, link *b*, nut Z, and screw L^3, arranged and adapted to be operated for the purposes set forth and described.

6. In a corn and seed planter, the shaft L^2, arranged to be operated by the lever V and communicate motion to the shaft L^3, for the purposes specified, by means of the lever *u*, links r r^1, rod *y*, foot-levers T^5 T^6 T^7, in the manner set forth and described.

7. The foot-lever T^7, pivoted on the central ends of the two sections of the shaft L^2, and arranged to be operated in the manner and for the purposes set forth and described.

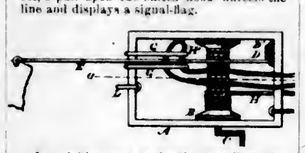
8. The combination of the foot-levers T^6 T^7, rod *y*, and links r r^1, in the manner shown, for the purposes set forth and described.

188,503.



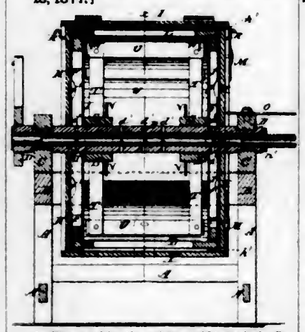
188,503. FISHING-TRAPS. Saml. M. Davis, Lawrence, Mass. [Filed Dec. 14, 1876.]

Brief.—Novel arrangement of devices in that kind of fishing apparatus in which, when set, a pull upon the baited hook unreels the line and displays a signal-flag.



In a fishing-trap, as herein described, the frame A, the spool B, its crank C, the spring D, the pivot D^1, the flag-spindle E, the wires G G, the line H, the guide I, and the anchoring-brad L, constructed and arranged to operate substantially as described.

188,504. FEATHER-RENOVATORS. Joseph C. Divers, New Haven, Mo. [Filed Jan. 13, 1877.]



1. The combination of the half-tube hubs S, the radial arms T, the cross-bars U, and the open rings V with the hollow perforated shaft D and the double-walled wheel F G H I J K, substantially as herein shown and described.

2. The combination of the flanged pipe N *s'* and the adjustable holder O with the hollow perforated shaft D d^3 d^4 of the double-walled wheel F G H I J K, substantially as herein shown and described.

3. The combination of the rod Q, provided with the head q^1 and the packings q^2, with the hollow perforated shaft D d^3 d^4 of the double-walled wheel F G H I J K, substantially as herein shown and described.

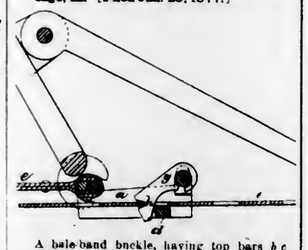
188,505. EDUCATIONAL TOYS. E. S. Fisher, Boston, Mass. [Filed Dec. 14, 1876.]

Brief.—For kindergarten and other instruction play.



As a new article of manufacture, the paper toy coin formed of card-board and printed upon with ink, substantially as described, and for the purpose set forth.

188,506. BALE-TIES. Jos. H. Fisher, Chicago, Ill. [Filed Jan. 29, 1877.]



A bale-band buckle, having top bars *b c* connecting side bars *a a*, a bottom bar, *d*, and a notched tongue, *g k*, the latter pivoted to bar *c*, and when under strain resting against the bar *d*, as shown, and for the purpose specified.

188,507. ALBUMS. Albert Foerste, Berlin, Prussia. [Filed Feb. 17, 1877.]



The album herein described, having a rigid or solid back piece of a wedge shape in cross-section, and a series of leaves provided with hinge-strips, gradually decreasing in width from the outer to the middle leaves, and flexibly connected to the rigid back and to the leaves, as and for the purpose herein set forth.

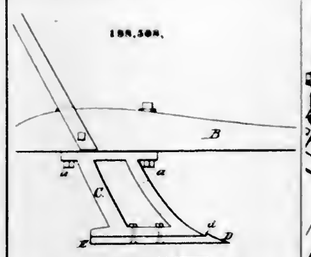
188,508. PLOWS. B. D. French, Byhalia, Miss., assignor to himself and J. L. Harris, same place. [Filed Aug. 21, 1876.]

Brief.—A removable shoe which forms the cutting-point, above which is a shoulder to receive the mold-board or shovel.

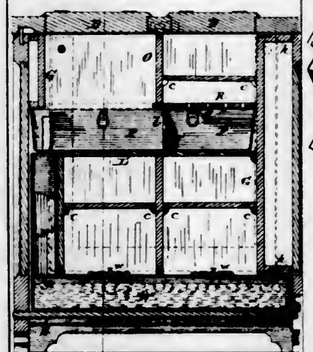
1. The combination, with the plow-beam B, of the parallelogram or diamond shaped frame C, provided on its front bar with the slot *e*, and of the part E D, composed of shoe or sole and point, and provided with the shoulder *d*, substantially as shown and described, for the purpose specified.

2. The combination, with the plow-beam B, and parallelogram or diamond shaped frame C, of the part E D, shoulder *d*, and plow-blade F, substantially as shown and described, for the purpose specified.

188,508.



188,509. REFRIGERATORS. H. E. Fuller, Lansingburg, N. Y. [Filed Feb. 6, 1877.]



1. In a refrigerator having removable partitions, locking-studs *b b*, and pin *p*, as specified, the combination therewith, of the cover C, carrying hinged lids D D, and having upon its under side T-shaped sockets *a a* and slot *p'*, substantially as shown.

2. In combination with the frame A A, provided with the removable slide S, the water-tank W, located and arranged substantially as shown and described.

3. A refrigerator provided with a lower water-tank, an upright filter-case attached thereto, an upper removable ice-pan, from which the drip passes to the filter-case, and a series of storage compartments located with reference to the ice and water tanks, and separated by removable partitions, substantially as and for the purposes set forth.

4. In combination with the removable tank W, which occupies the entire bottom of the refrigerator, the upright case F, provided with grated bottom *g* and slide S, the whole being located and arranged substantially as shown.

5. In combination with the removable interior walls of a refrigerator, a removable box, containing non-conducting material, the whole arranged and operating substantially as shown and described.

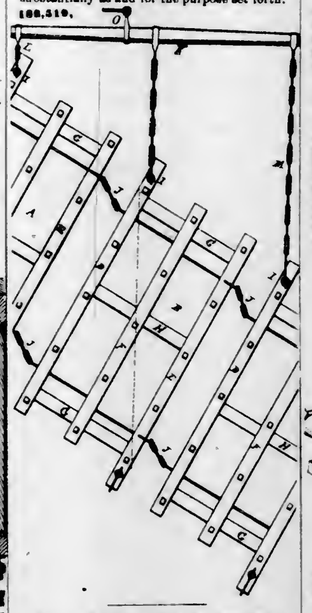
6. In a refrigerator of the character herein shown, the combination, with the removable water-tank and its attached filter-case, occupying the entire bottom and a portion of one end of the refrigerator-box, and the removable ice-pan discharging the drip from the ice into said filter-case, substantially in the manner shown and described.

188,510. HARROWS. Jas. Garrett, Le Roy, assignor of one-half his right to Robt. C. Smith, Thompson, Ohio. [Filed Nov. 25, 1876.]

Brief.—The harrow consists of three sections, connected together side by side by links. The outer bar of each section, at alternate ends, projects beyond the others, and is furnished with a clevis. A common draw-bar is connected with all the sections by chains of different lengths, so that the sections are drawn diagonally. An adjustable clevis on the draw-bar enables the operator to change the line of draft at pleasure, for coarser or finer work.

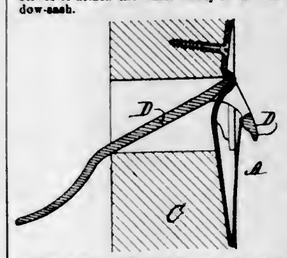
In harrows, the adjustable links L M, of various lengths, in combination with the sections A, B, and C, stretcher or bar K, with the adjustable clevis or draft-point eccentric thereto, and link-connections J J, arranged substantially as and for the purpose set forth.

188,511.



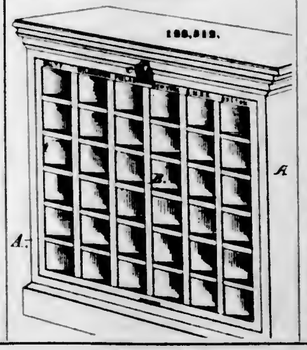
188,511. SASH-HOLDERS. H. C. Gladding, Providence, R. I. [Filed Sept. 16, 1876.]

Brief.—A device of old form is so constructed that a suitable bend made in the spring constitutes the fulcrum on which the lever is made to operate, and a single screw serves to attach the whole firmly to the window-sash.



The lever D, with its fulcrum in the bend B of the spring A, substantially as described, for the purpose set forth.

188,512.

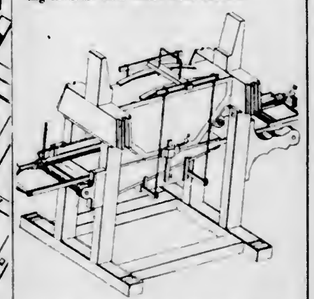


188,513. POST-OFFICE BOXES. J. B. Harlow, St. Louis, Mo. [Filed Mar. 3, 1877.]

The combination of the frame A, with its interior inclined at the top and bottom, the reversible case B, labeled on opposite sides, and inclined at the top and bottom, and the spring-catch *c*, substantially as and for the purpose described.

188,514. COTTON-PRESSES. Wm. Golding, New Orleans, La. [Filed Nov. 4, 1876.]

Brief.—The wedge is actuated by a steam-cylinder and piston at one end. At the other end is placed a water-governor, to regulate the speed of the wedge. As the piston of said governor is advanced within the cylinder, the capacity thereof is diminished, and the stand-pipe provides for the reception of the surplus water, which pipe also serves in filling the governor-cylinder and pipe connecting its ends with water when desired.



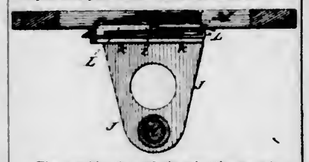
1. The combination, substantially as specified, of the running wedge, the engine for moving it, and the hydraulic governor for controlling the movements.

2. The combination, substantially as specified, of the cylinder of the hydraulic governor, the perforated piston thereof, the pipe for connecting the ends of the cylinder, and the cock or valve in said pipe.

3. The combination, substantially as specified, of the cylinder of the hydraulic governor, the perforated piston thereof, the piston-rod on one side of the piston, and the compensating stand-pipe.

188,515. SEWING-MACHINES. O. S. Hazard, Coventry, R. I. [Filed Nov. 27, 1876.]

Brief.—The shuttle is kept from jumping out of the holder by a horizontal lever pivoted to the carrier at one end, having a lip near its center, to engage with the top of the shuttle, and held against the shuttle by engagement at its other end with a notch in an adjustable plate attached to the carrier.



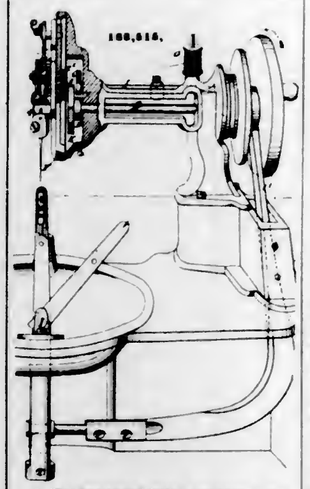
The combination of the shuttle-carrying arm J, shuttle A, spring-bar L, having stop *m* and the adjustable notched plate M, substantially as and for the purpose set forth.

188,516. MACHINES FOR SEWING GLOVES. H. P. Henriksen, Copenhagen, Denmark, assignor to himself and L. Hansen, Brooklyn, N. Y. [Filed Dec. 26, 1876.]

Brief.—The machine is capable of making, at the will of the operator, the zigzag or herring-bone stitch, and the plain lock or shuttle stitch. The needle is mounted eccentrically in its bar, which is a rock-shaft mounted in bearings in the needle-slide, and having a crank-arm, to which is attached rigidly a bar operated upon by a face-cam mounted upon a stud upon the slide. The stud has also upon it a ratchet-wheel, which, as the needle-slide ascends, is moved one tooth by a pawl on the stationary head of the machine, and which may be thrown into or out of gear, as desired.

188,517.

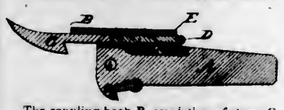
186,514.



1. The presser and feeder mechanism, consisting of the foot G and plate *g*, provided with the stationary block g^2 and swiveled block g^1, the latter sliding in the inclined slot *f*, in combination with the cams D E on the shaft B, and the lifting hook or lever *i* on the shaft I, all constructed and operating substantially as specified.

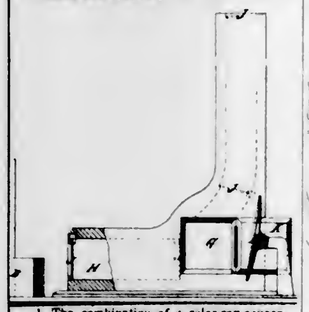
2. The gage-wheel P, spring r^1, crank-pin r^2, and crank S, in combination with the needle-bar L, having the needle attached eccentrically, the slide M, and the stationary pawl and cam-lever E r^1, all constructed and operating substantially as specified.

186,516. CAR-COUPLINGS. Jas. A. Hinson, Oskaloosa, Iowa. [Filed Sept. 30, 1876.]



The coupling-hook B, consisting of stems C D, hinged together at *c*, and plate E, pivoted upon section D, substantially as and for the purpose shown and specified.

186,517. APPARATUS FOR COLLECTING, STORING, AND UTILIZING HEAT. J. S. Hittell and G. W. Deimler, San Francisco, Cal. [Filed Oct. 7, 1876.]

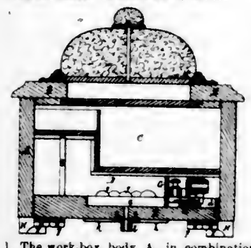


1. The combination of a solar ray concentrating apparatus with a heat-reservoir, a heat-reservoir chamber, a heat-box, a drying-chamber, and a davaporising-chamber, substantially as specified.

2. The combination of solar-heat concentrator A and a heat-reservoir, B, substantially as specified.

3. The combination of a heat chamber, G, heat reservoir *B*, and a drying chamber, H, substantially as specified.

186,518. WORK-BOXES. Wm. Huntress, Lowell, Mass. [Filed Feb. 6, 1877.]



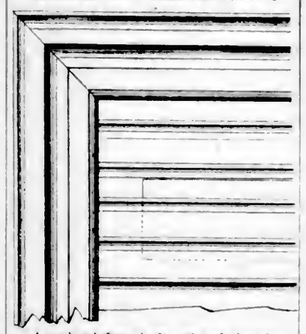
1. The work-box body A, in combination with the movable bottom E, and the series of arms F applied thereto, as and for the purpose specified.

2. The box-foot H and the arm F, arranged and combined as set forth.

3. The work-box provided with the two chambers C D and the movable bottom E, furnished with the series of spool-supporters *b*.

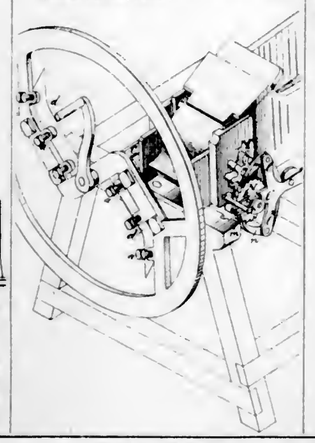
4. The movable bottom E, the series of arms F, and latching-springs *k*, arranged and combined as set forth.

186,519. CARD-RACKS. Jas. P. Lamoree, Middlesex, N. Y. [Filed Feb. 17, 1877.]



A card-rack formed of a series of clamping strips or slats, connected in step shape at their thicker ends, so that the thinner spring ends extend one beyond the other, and form spaces for the storing of the cards, substantially in the manner and for the purpose set forth.

186,520. STRAW-CUTTERS. Christen Larsen and Rasmus Olsen, Racine, Wis. [Filed Oct. 23, 1876.]

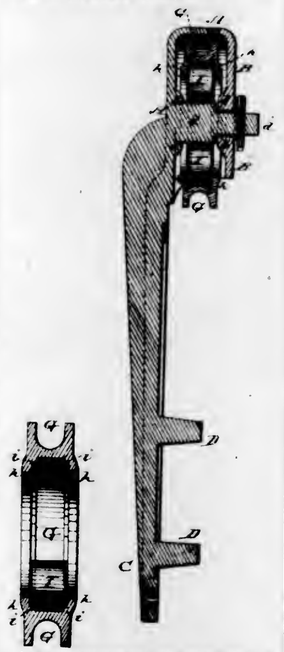


1. In a feed-cutting machine, the combination of the feed-rolls Q, ratchet-wheel N, plate L, having spring-pawls *n n*, and cam-lever *o*, substantially as and for the purpose herein shown and specified.

2. The feed-rolls herein described, consisting of shafts M, having alternate flat smooth and toothed disks *q r*, substantially as and for the purpose hereinbefore set forth.

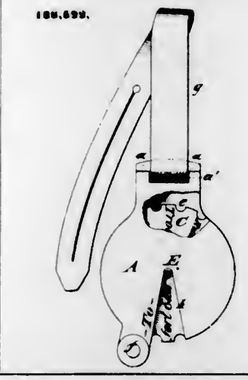
186,521. BARN-DOOR HANGERS. J. H. Lawrence, Sterling, Ill. [Filed Feb. 19, 1877.]

Brief.—The frame and cap piece are each provided with washers or annular projections, and the grooved wheel, carrying chilled anti-friction rollers, has inside flanges and ridges or shoulders; the construction avoiding side friction, and keeping the wheel straight and true, and preventing rocking motion.



In a barn-door hanger, the combination of the frame A and cap B, each provided with the washers or annular projections *b b*, the stud *d*, the grooved wheel G, having interior side flanges *h h*, and ridges or shoulders *i*, and the plain anti friction rollers I I, all substantially as and for the purposes herein set forth.

186,522.



186,522. BAGGAGE-CHECKS. Ray F. Livermore, Port Henry, N. Y. [Filed Dec. 30, 1876.]

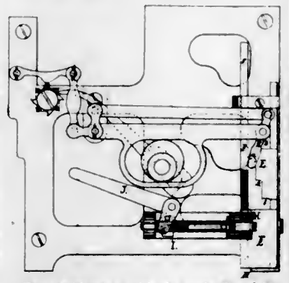
Brief.—The points of departure and destination are visible upon opposite sides of check, through slots in the pivoted face-plates.

1. A baggage-check provided with two end-pivoted face-plates inclosing indicator-disks C that turn on a common center, E, as shown and described.

2. The plates A B locked together by lip *a* and strap *g*, the latter passing through loop *b* and slots *a' a'*, arranged substantially as set forth.

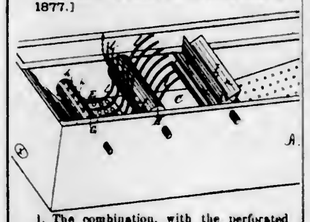
186,523. SHUTTLE-BOX MOTIONS FOR POWER-LOOMS. Jas. Long, Jr., Philadelphia, Pa., assignor to Jas. Long, Sr., same place. [Filed Jan. 17, 1877.]

Brief.—The racks are provided with steps, with which engages a finger under the control of the pattern mechanism. The reciprocation of the racks rotates the pinion in the required direction. The pinion revolves the shaft, which is provided with a screw-thread at the opposite end. The nut to which is connected the box-lever is moved forward or backward, and to a greater or less extent, according to the direction and extent of motion of the pinion. The movement of the nut determines the action of the lever, and thereby the position of the boxes.



The combination, with the racks E and F, mechanism for operating the same, and shaft G, provided at one end with the pinion H, and at the other end with a screw-thread, of the nut I and box-lever J, as and for the purpose specified.

186,524. WASHING-MACHINES. George D. Luce, New Orleans, La. [Filed Jan. 8, 1877.]



1. The combination, with the perforated bottom of a washing-machine, of a revolving shaft or drum, H, the latter provided with a series of flexible beaters, *l*, for the purpose set forth.

2. The combination, with the box A, provided with false bottom C and cover O, of a feed-roller, G, revolving beaters *l*, and paddle-wheel I, as described, and for the purpose set forth.

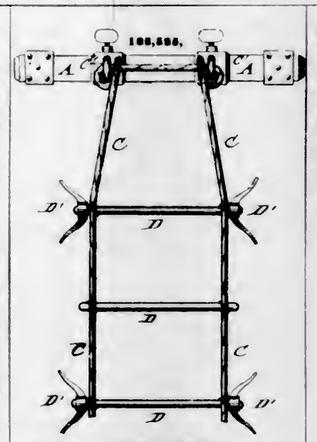
186,525. FIRE-ESCAPES. T. Lyness and J. P. Dunne, New York, N. Y. [Filed Jan. 20, 1877.]

1. Ladder ropes C C, connected with a top cross-bar, A, by slide-bands having eyes C^1, as described.

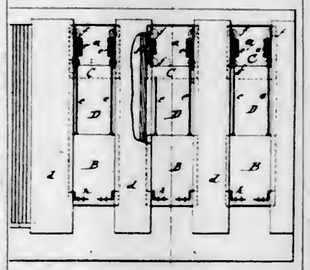
2. The cross-piece E, having eyes or staples E^1, resting on round and receiving the ropes, as set forth.

3. A rope-ladder provided with wall-bracket D^1, consisting of two corresponding prongs, rigidly fastened at their junction to the ends of rounds, for the purpose specified.

186,526.



186,526. COMBINED FREIGHT AND STOCK CAR. J. R. Maitland, Hot Springs, Ark. [Filed Feb. 17, 1877.]

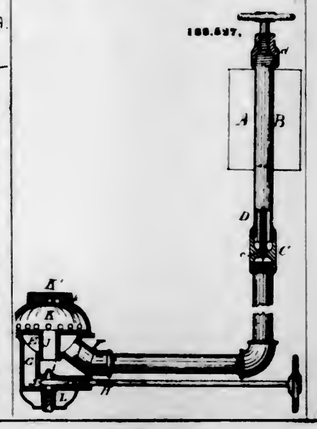


1. The combination, with a car, A, having upper and lower side openings *a b* of jointly-sliding sections B and C, to open or close said openings, substantially as and for the purpose set forth.

2. The combination of the upper air-opening *a* and lower grated opening *b* of the car with guided and sliding sections connected by ropes and pulleys, substantially as specified.

3. The combination of the jointly-moving sections B C with an intermediate dividing piece or casing, D, having a water-shedding rail and exit groove or opening, for the purpose described.

186,527.

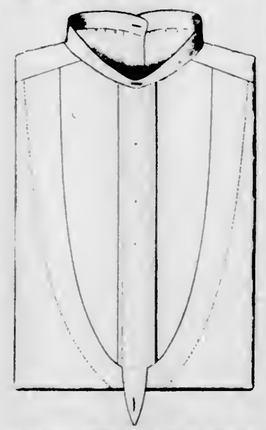


186,527. GASOLINE-BURNERS. Fred. Marquart, Cleveland, Ohio. [Filed Dec. 9, 1876.]

1. The combination, with the pipe B, of the fount A, the coupler C, having the valve *c*, and the rod D, as shown and described, and for the purpose set forth.

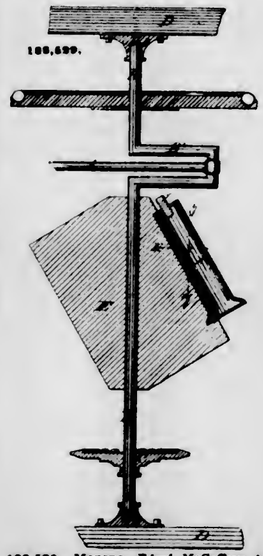
2. The generator E, having the connection F, and pipe G, valve *g*, the rod H, jet *i*, tube J, cap K', and the cup L, all combined, constructed, and arranged to operate as shown and described.

186,528. SHIRTS. G. P. Marvin, New Haven, Conn. [Filed Jan. 23, 1877.]



The method herein described for attaching bosoms to shirts, consisting in combining with the body of the shirt, around the edge of the bosom, a facing stitched to the body, the edge of the bosom being introduced between the said facing and the body fabric, substantially as specified.

186,529.



186,529. MOTORS. Edwd. McCaffrey, Albany, N. Y. [Filed May 26, 1876.]

Brief.—Cylindrical and partially-filled chambers of quicksilver affixed nearly upright around a vertical axis have, according

to the increased amount of centrifugal force, their contents thrown farther from their center of rotation, and thus, on cutting off the force, the motion more readily ceases.

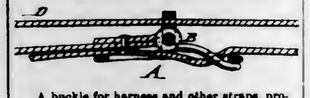
The combination, with a steam or other engine, of the cube E, secured vertically and diagonally upon a vertical rotating shaft, B, and having reservoirs F, partially filled with quicksilver, affixed upon its sides or faces, substantially as and for the purpose herein shown and specified.

186,530. PEGGING-AWL HANDLES. A. U. McDonald, New York, N. Y. [Filed Feb. 10, 1877.]



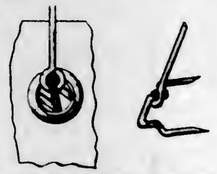
The combination of the metal or rubber spring E, the sleeve F, and the cap G with the stem D, the awl B, and the handle A, substantially as herein shown and described.

186,531. BUCKLES. B. F. Melton, Gainesville, Tex. [Filed Feb. 3, 1877.]



A buckle for harness and other straps, provided with a fixed loop extending from the tongue-bar at the under side of the buckle, substantially in the manner and for the purpose set forth.

186,532. RAIL-BARS FOR PAILS, &c. P. Miles, New York, N. Y. [Filed Feb. 22, 1877.]



1. The bail-ear formed of metal, with an open eye between the two penetrating-points diagonally to a plane passing through such points, and a shoulder at the junction of one or both of the points with the eye, substantially as set forth.

2. The bail-ear formed with a vertical, or nearly vertical, loop or open eye, at right angles, or nearly so, to the surface of the pail, and penetrating-points at each side thereof, in a plane that is horizontal or at an inclination, substantially as set forth.

3. The bail-ear made with an eye, two penetrating-points, and a shoulder, in combination with the plate or washer that is confined by the shoulder, substantially as set forth.

186,533. LAMPS. L. H. Olmsted, Brooklyn, N. Y. [Filed Feb. 14, 1877.]

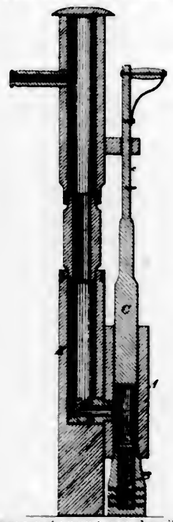
The combination, with the screw-cap, of the chimney-supporting fingers, permanently attached to the wick-tube or other portion of said cap, and holding the lower edge of the chimney up at or about a level with the top of the wick-tube, for the purpose of admitting the greatest possible amount of air to the flame and thus preventing smoking, substantially as herein set forth.

186,534.



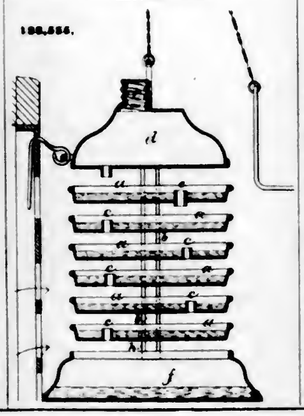
186,534. PUMPS. Jens Olsen and Knud N. Thuesen, Summitsburg, Iowa. [Filed June 24, 1876.]

Brief.—The two cylinders are connected by a detachable tube fitted with a valve, giving easy access to the valve for repairs.



The improved pump herein described, consisting of cylinders A E, secured together detachably by the connecting-tube D, having valve *e*, perforated reservoir B, having valve *a*, and plunger C, all combined and arranged to operate substantially as and for the purpose herein shown and specified.

186,535.



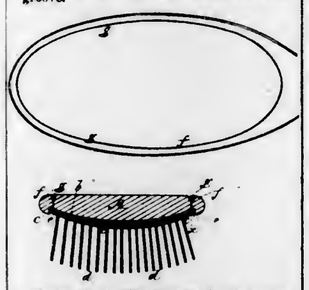
186,535. EVAPORATORS FOR HOT-AIR REGISTERS. I. W. Parmenter, New York, N. Y. [Filed Feb. 22, 1877.]

1. The atmospheric evaporator, made of a series of shallow pans connected together and provided with overflow-pipes, substantially as set forth.

2. The combination of the reservoir *d*, base *f*, and series of shallow pans *a a*, substantially as and for the purposes set forth.

186,536. BRUSHES. J. P. Poland, Arlington, Mass. [Filed Sept. 11, 1876.]

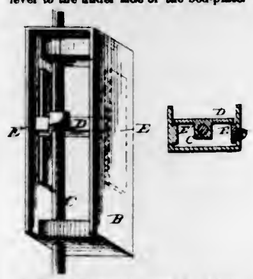
Brief.—The flexible face which carries the wires is fastened to the backing by means of stitches or tacks, which pass through an outer groove.



The handle A, with its recess *b* and groove *f*, in combination with the soft backing material *c*, secured thereto by stitches or tacks passing through the handle into the groove *f*, provided with a filling, *g*, for concealing the stitches or clinched points of the tacks, substantially as and for the purpose set forth.

186,537. SEWING-MACHINES. D'Arcy Porter, Cleveland, Ohio, assignor to White Sewing Machine Company, same place. [Filed Dec. 23, 1876.]

Brief.—The slide attached to the needle-bar, in the groove of which a crank-pin operates, is guided by two projections on the inside of the head of the machine, one of which is adjustable to take up wear; also, improved means for attaching or pivoting the shuttle-lever to the under side of the bed-plate.



1. The combination, with the needle-bar and cam, of a fixed and an adjustable bearing secured to the case, substantially as and for the purpose set forth.

2. The combination, with the shuttle-lever, of the stud F, split bushing G, and adjustable conical head H, substantially as and for the purpose described.

186,538. LOOM-TEMPLES. Alfred Porter and John A. Clark, Manchester, N. H. [Filed Dec. 2, 1876.]

Brief.—In addition to the usual adjustments, the temple is provided with means for securing its angular adjustment. The piece which supports the temple-frame has its lower side curved to correspond to the upper curved surface of the part which is attached to the breast-beam. The detaining-pawl is provided with a projection upon its upper side, whereby the temple is held back when desired. The temple-rod is surrounded by two spiral springs, separated by a pin, whereby the temple is adapted to yield longitudinally in either direction.

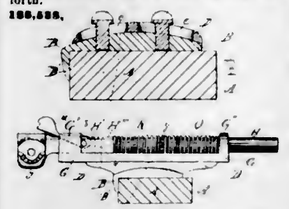
1. The combination of the curved temple-supporting piece D with the curved seat B and one or more holding and adjusting screws, *d*, substantially as and for the purposes set forth.

2. The combination of pawl M, provided with projection S, with temple-rod H and frame G, substantially as and for the purposes set forth.

3. The combination of the curved temple-supporting piece B, the curved seat D, the frame G, and the temple-rod H, substantially as shown and set forth.

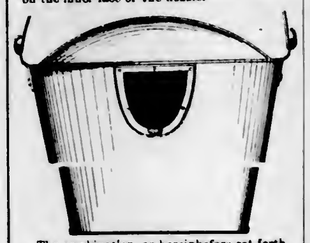
4. The combination, with temple-rod H and its frame G, of the springs N and O and pin *g*, substantially as and for the purposes set forth.

186,539.



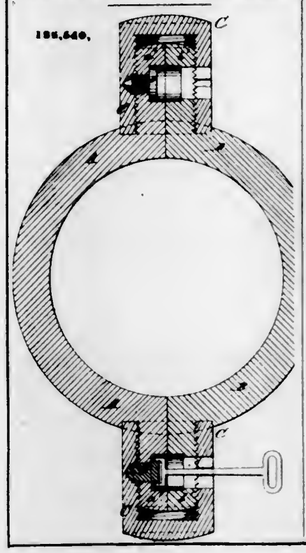
186,539. MILK-STRAINERS. J. A. Preston, Oxford, N. Y. [Filed Mar. 18, 1876.]

Brief.—A nozzle like that usually attached to a large coffee-boiler is set into a milk-vessel, a strainer being embraced with a rubber packing between two plates, fitting a flange on the inner face of the nozzle.



The combination, as hereinbefore set forth, in a strainer-pail, of a spout, A, with its recess B and flanged edge C, and detachable strainer-frame D E, all constructed substantially as described, and for the purpose herein set forth.

186,540.

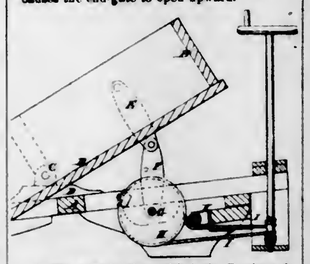


186,540. CONVICTS' SHACKLES. Jay L. Quackenbush, Portland, Oreg. [Filed Jan. 29, 1877.]

The combination of the bidden screws D with the semi-cylindrical jaws *a' b'* of the half-ring parts A B of the shackle, the jaws *a' b'* having a screw thread cut upon their outer surface, and the caps C having screw-threads cut upon their inner surface, substantially as herein shown and described.

186,541. DUMPING-WAGONS. R. A. Reed, Hoboken, N. J. [Filed Feb. 10, 1877.]

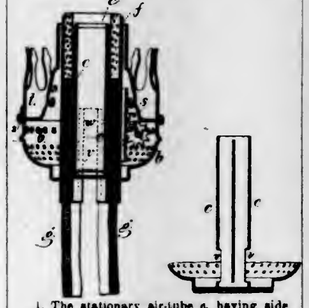
Brief.—The front of the bed is elevated by means of the jointed links operated by the hand-wheel and cord. The tilting of the bed causes the end-gate to open upward.



1. The combination, with body B, pivoted to frame at or near the middle, of the sectors L M, connecting the rear of body and frame, as and for the purpose set forth.

2. The combination, with the hinged tail-board on a pivoted dumping-wagon, of the bars N, slotted at one end, and at the other connected with sectors L M or bars E F, as and for the purpose specified.

186,542. LAMPS. C. Beistle, Brooklyn, N. Y., assignor to C. F. A. Hinrichs, same place. [Filed Feb. 20, 1877.]



1. The stationary air-tube *a*, having side openings *r*, in combination with the mineral Argand wick *i* and the flexible wicks *g* and their metallic wick-tubes or holders, and the pinion and rack for raising and lowering the wick-tubes and wicks, substantially as set forth.

2. The plates *w* upon the movable Argand wick-tubes, in combination with the central air-tube *a* and its lateral openings *v* for regulating the air passing to the inside of the flame, as set forth.

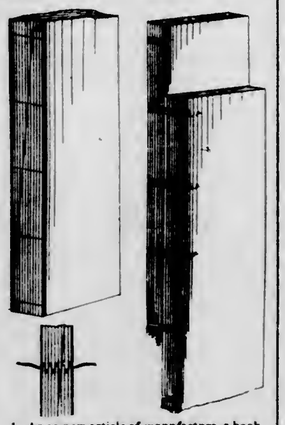
186,543. CIGARETTE MOUTH-PIECES. Jas. R. Saunders, New York, N. Y. [Filed Mar. 9, 1877.]



A complete mouth-piece formed of a single strip of paper or other suitable material, cut with parallel sides and formed with a cone-shaped portion spirally wound, substantially in the manner described.

186,544. BOOK-BINDING. F. B. Schmitz, Middletown, N. Y. [Filed Aug. 9, 1876.]

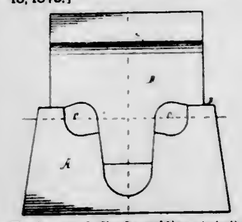
Brief.—The sheets are folded and placed in consecutive order, according to printers' signatures. This completed, the front and bottom edges of the book are trimmed, after which the backs of the sheets are cut off to form single leaves. Horizontal and diagonal lines are next made across the back of the book—the former to designate the places for angular cuts, and the latter to act as a gage-line—whereby the several sections of leaves, (after having been separated into two piles, one of which contains imaginary odd, and the other imaginary even numbers, prior to and for the purpose of forming angular cuts) may be accurately collated prior to passing the binding-threads through the orifices formed by the diagonal cuts in the alternate sections.



1. As a new article of manufacture, a book composed of single leaves united by means of binding-threads passed through orifices formed by the crossing of opposite diagonal cuts in the alternate sections of leaves.

2. The method of binding books consisting in uniting the leaves by passing the binding-threads through the opposite diagonal cuts in the alternate sections, whereby the threads are securely held within the orifices or cuts by means of the alternately-projecting corners made by the cuts, substantially as described.

186,545. DIES FOR WELDING CHAIN-LINKS. J. Schinneller, Pittsburg, Pa., and L. Fitzpatrick, Benwood, W. Va. [Filed Oct. 18, 1876.]



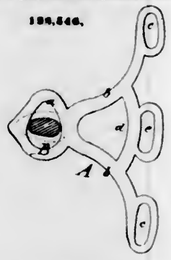
The improved die for welding chain-links, consisting of the parts A B, inclosing curved space C, the lines of parting of the parts outside and inside of the curved space being distant from, and respectively on opposite sides of, a plane passing through the center of said space, whereby the flu is worked into the body of the link by turning it in said die, substantially as herein described.

186,546. CHECK-REIN SPREAD AND ATTACHMENT. D. Schoonmaker, Newark, N. J. [Filed Sept. 9, 1876.]

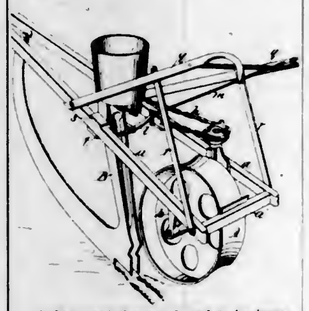
1. As an improved article of manufacture, a check-rein spread, A, composed of the oval eye *a*, curved arms *b*, eyes *c*, and arc-shaped brace *d*, with or without the eye *e*, substantially as herein shown and described.

2. The combination of the check-rein spread A and saddle-bolt B, having the oval grooved head *g*, substantially as shown and described.

No. 186,546.



186,547. PLANTERS. Levi Scofield, Grand Haven, Mich., assignor of one-half his right to J. B. Wait, same place. [Filed Jan. 12, 1877.]



1. In a seed-planter, adapted to be drawn by one horse, the combination of the single drive-wheel, a vertical shaft driven by said wheel, and a sprocket and chain, or equivalent, connection for the seed-plate, as set forth.

2. The combination of the driving-wheel A, vertical shaft *f*, and connecting bevel-gears *d d'*, with the wheel *g*, and the adjustable sprocket-wheel, as set forth.

3. The bracket *b'*, formed with the shell *e* and studs *e e*, in combination with the shaft *f* and bevel-gear *d*, as set forth.

4. The check-valve *i*, pivoted within the seed-tube, and the spring *k*, arranged between the partition or hook *o*, and the upper end of the valve, substantially as described, for the purpose specified.

5. The combination of the check-valve *i* and its spring *k*, with the lever *l*, operated by means of connections within reach of the driver, as set forth.

6. The combination of the lever *l* and adjustable stop *p*, as set forth.

7. In a seed-planter, the combination of an automatic mechanism for dropping the seed in regulated quantities, a check-valve for detaining such seed in the tube, and a stop by which the check-valve may be held out of operation, as set forth.

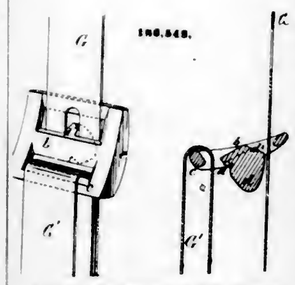
8. The partition or hook *o*, let or fitted into the standard S, to form the seed-tube, and at the same time permit the rear edges of the standard to form protecting side walls for the check-valve and its spring, substantially as described.

9. The combination of the beams *a a*, colter pivoted between said beams, standard B, and flanges *t*, as set forth.

10. The frame of the seed-planter, consisting of the straight side beams *a a*, the flanged clevis, the rear end piece *a'*, and suitable handles, having combined with it the raised hopper, the colter and seed-standard B, and the brackets *b b'*, for the support of the driving-wheel, and the mechanism for communicating motion from the driving-wheel to the seed plate, substantially as and for the purpose specified.

186,548. COTTON-BALE TIES. W. M. Smith, Augusta, Ga. [Filed Mar. 6, 1877.]

No. 186,548.



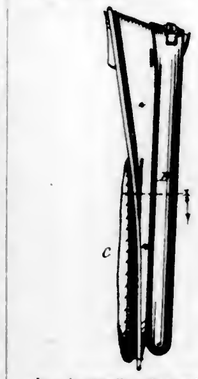
1. In a tie for uniting the ends of cotton-bale bands, the tongue *d*, recessed at d^1 and d^2, in combination with the slotted end G of the band, substantially as and for the purpose set forth.

2. In combination with the two ends G and G' of a cotton-bale tie, the side pieces *c*, bar *e*, and middle bar *b*, carrying a central tongue, *d*, recessed at d^1 and d^2, the bar *a* to retain the band upon the tongue, substantially as and in the manner described.

186,549. TOILET WASHING-POWDER. R. Sommers, Glastonbury, Conn. [Filed Jan. 19, 1877.]

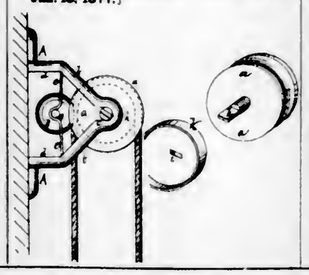
A toilet washing-powder composed of pulverized white soap, bitter almonds, orris-root, cereal flour, oil of bitter almonds and sweet almonds, in substantially the proportions specified.

186,550. HORSE-COLLARS. C. H. Stevens, Chicago, Ill., assignor of one-half of his right to H. D. Huff, same place. [Filed Sept. 18, 1876.]



In a horse-collar, the combination of the metal plate A with the roll B, covering *a*, and pads C, substantially as shown and described, and for the purposes set forth.

186,551. CURTAIN-FIXTURES. John H. Strothman, Minneapolis, Minn. [Filed Jan. 18, 1877.]



1. The combination and arrangement of the hanger A *b b'*, spring-plate *s*, friction-roller B, and cord-pulley *s*, arranged and operated substantially as hereinbefore specified.

2. The spring-plate *s*, arranged as described, and friction-roller B, in combination with the cord-pulley *s*, as hereinbefore set forth.

3. The cord-pulley *s*, having the square or angular-shaped axle *k*, in combination with the curtain-roller C and socket *i*, arranged and operating substantially as hereinbefore described.

186,552. CURTAIN-ROLLERS. A. F. Temple, Montague, Mich. [Filed Oct. 2, 1876.]

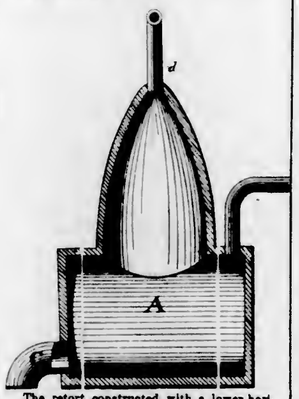


1. The curtain-roller made of two strips of wood, having ribs and grooves *a b*, and glued together, substantially as set forth.

2. The combination, in a curtain-roller, of the two strips *a* and *b* and plug *c*, glued together, the strips *a* and *b* having semicircular grooves for receiving the plug *c*, substantially as and for the purposes set forth.

186,553. GAS-RETORTS. Geo. W. Todd, Pittsburg, Pa., assignor to himself, T. F. Grubbs, and J. T. Speer, all of same place. [Filed Dec. 14, 1876.]

Brief.—Oil is vaporized in the horizontal part of the retort, and the vapors are converted into a fixed gas in the upper dome-shaped chamber.



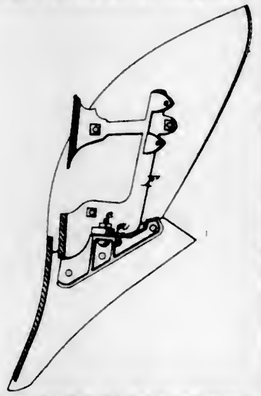
The retort constructed with a lower horizontal cylindrical chamber and an upper dome-shaped chamber, the two having uninterrupted interior communication, while the lower chamber is provided with an upper oil-feed pipe and a lower tar-discharge pipe, substantially as described.

186,554. ARMOR FOR FLEXIBLE TUBING. H. Wakeman, New York, N. Y. [Filed Nov. 6, 1876.]

The metallic armor for flexible tubing, made of woven or interlaced wire-netting, bent up into a cylindrical form around the tube, and its edges connected together, substantially as set forth.

186,555. PLOWS. Edw. Wiard, Louisville, Ky., assignor to Benj. Avery, same place. [Filed Feb. 15, 1877.]

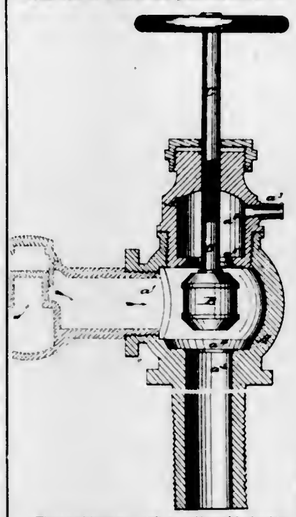
Brief.—The mold-board seat has a raised ear, which meets a corresponding one upon the share-block. These are bolted together, avoiding a bolt-hole upon the wearing-surface.



A plow provided with the lugs or flanges *a* and *b*, located beneath or on the under side of both the point and mold-board, and having a bolt, *c*, passed through them and fastened by a nut or key, substantially in the manner and for the purpose described.

186,556. RELIEF AND SAFETY STOP VALVES. Chas. P. Wiggins, St. Louis, Mo. [Filed Jan. 19, 1877.]

Brief.—An open discharge-pipe is provided, which acts as a relief and prevents accident.



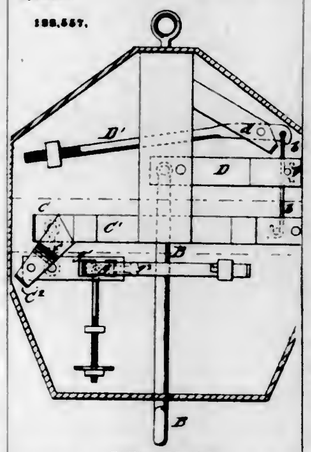
The combination, with an adjustable double valve, B, of the shell A, provided with check-valve opening a^1, boiler-pipe opening a^2, discharge a^3, and valve-seats a^4 a^4, all constructed and arranged substantially as and for the purpose specified.

186,557. WEIGHING-SCALES. H. Willard, Vergennes, Vt. [Filed Jan. 6, 1877.]

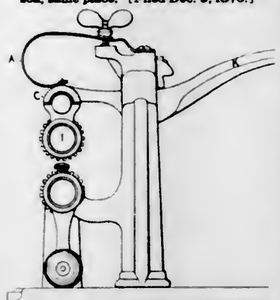
1. A weighing-scale provided with only one main lever, D, whose weight-rod B passes through an eye of the lever C, and is pivoted to its short arm, while its long arm is connected, by rod *b'*, with beam-lever C' below and adjusting lever D' above it, as shown and described.

2. The combination of the recessed lever E with the sliding weight-supporting extension-beam E' and adjusting-wedge and set-screw, substantially as and for the purpose specified.

No. 186,557.

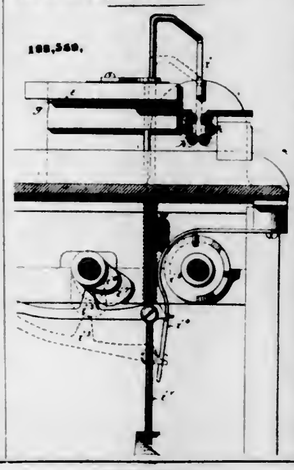


186,558. FLUTING-MACHINES. Jas. H. Wilson, Bridgeport, Conn., assignor to J. Wilson, same place. [Filed Dec. 9, 1876.]



The combination of upper fluting roll I, bow-spring A, thumb-screw H, and lever-arm C, constructed and arranged substantially as and for the purposes described.

No. 186,559.



186,559. CIGAR-MACHINES. J. S. Winsor, Providence, assignor to M. Fish, Valley Falls, R. I. [Filed Nov. 6, 1876.]

Brief.—The tobacco, as it comes from the hopper, is partially formed into bunches by reciprocating compressors, and they are carried to a set of rolls, the upper and lower pairs of which open automatically to receive and discharge the bunches.

1. The combination, with the hopper *a* and inclined shelf *b*, of the feed-roll *c*, provided with longitudinal knives or serrated plates, and a receptacle to receive the tobacco from the feed-roll, substantially as and for the purpose set forth.

2. The combination, with the hopper *a* and feed-roll *c*, provided with plates for carrying the binders and filling to hopper *d*, of means, substantially as described, for imparting an intermittent motion to the feed-roll, and a hopper, *d*, to receive the tobacco from the feed-roll, substantially as and for the purpose set forth.

3. The combination, with the hopper *d* of a cigar-machine, of two or more thin-metal compressors, formed with serrated or toothed ends, substantially as and for the purpose set forth.

4. The combination, with the hopper *d* of a cigar-machine, of two or more independent yielding compressors, *f*, substantially as and for the purpose set forth.

5. The combination, with hopper *d*, the reciprocating slide f^3, and compressors *f*, two or more attached thereto, of the crank f^1 and connecting-rod f^2, substantially as and for the purpose set forth.

6. The combination, with the roll *c*, reciprocating slide f^3, crank f^1, and connecting-rod f^2, of the ratchet-pawl c^7, substantially as and for the purpose set forth.

7. The combination, with the compressors *f f* and hopper *d*, of the reciprocating knife-plate *e*, arranged to close the aperture to hopper *d*, substantially as and for the purpose set forth.

8. The combination, with the hopper and compressing-rollers of a cigar-machine, of compressors *f*, a reciprocating carrier, and means for actuating the carrier, substantially as described, whereby the carrier delivers the tobacco from the hopper to the rolls, substantially as and for the purpose set forth.

9. The combination, with the knife-plate *e* and levers e^1 e^2 and cam e^3, for operating the same, of the hopper *d*, compressors *f*, and carrier-box *g*, levers g^1 g^2 and cam g^3, substantially as and for the purpose set forth.

10. The combination, with the hopper *d* and compressing-rolls of a cigar-machine, of a reciprocating carrier and the follower *i*, operating substantially as and for the purpose set forth.

11. The combination, with the compressing-rolls of a cigar-machine, the upper and lower sets of which are adapted to be opened and closed, and suitable means for alternately opening and closing said rolls, of a follower, arranged to have an intermittent movement and pass through the opening between the rolls to deposit and discharge the tobacco, substantially as and for the purpose set forth.

12. The combination, with the rolls and carrier of a cigar-machine, the upper and lower pairs of said rolls adapted to be opened and closed, of a follower, *i*, rod i^2, lever i^3, cams i^4 i^5 i^7, and shifting-lever i^6, substantially as and for the purpose set forth.

13. The combination, with the rolls of a cigar-machine, the upper and lower pairs of said rolls journaled in movable bearings arranged in lines radiating from a common center, of cams and connecting-rods, arranged substantially as described, whereby the upper and lower rolls are alternately forced apart to admit the tobacco and discharge it therefrom, substantially as and for the purpose set forth.

14. The combination, with the follower of a cigar-machine, and suitable means to impart intermittent movement thereto to deposit and discharge the tobacco, of a set of rolls, the upper and lower pairs of which are journaled in movable bearings, and suitable actuating mechanism, substantially as set forth, whereby the upper and lower pairs of rolls are alternately opened and closed, substantially as and for the purpose set forth.

15. The combination, with the rolls *h* and radial slides *o*, of the cams and connecting-lever, arranged substantially as set forth, to impart lateral movement to said rolls, substantially as and for the purpose set forth.

16. The combination, with the rolls *h h*, journaled in radial slides *o o*, of the slotted levers h^1 and h^2 and compound cam h^3, substantially as and for the purpose set forth.

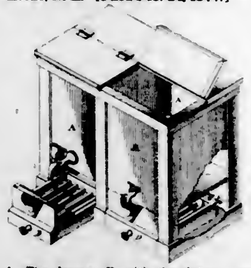
17. The combination, with rolls A A, journaled in radial slides *o*, and means, substantially as described, for imparting lateral movement to said rolls, of the gears *q q* and connecting-rods *p p*, the latter adapted to have lateral movement to correspond with the movement of the rolls, substantially as and for the purpose set forth.

18. The combination, with the gear *l*, of the cam *F*, hinged bell-crank lever *m*, and gear *m'* and pinion *n*, substantially as and for the purpose set forth.

19. The combination, with the rolls A, of the driving-gears, one of said gears pivoted to a rocking lever, and a cam secured to the main gear, whereby the rolls are automatically stopped to receive the charge, substantially as and for the purpose set forth.

20. The combination of main driving-shaft, compressors, feeding-rolls, and means substantially as set forth, to actuate the same, of the counter-shaft, laterally-moving rolls, follower, knife-plate, carrier, and means substantially as set forth, for actuating the same, substantially as and for the purpose set forth.

186,560. OIL-CABINETS. John A. Wright, Keene, N. H. [Filed Feb. 24, 1877.]

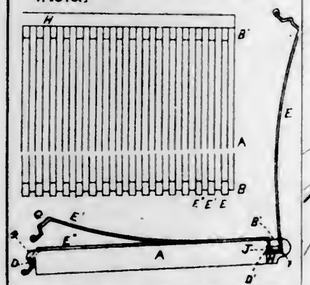


1. The drawer D, with the slats *e e* and the emptying-faucet *f*, in combination with the tank A.

2. The combination of an oil-tank having a faucet, F, with a drawer having a removable funnel supported in its face-piece, as and for the purposes set forth.

3. The drawer D, having a drip-funnel in its face-piece and cut-away sides, as and for the purposes set forth.

186,561. PLAITING-BOARDS. H. P. Young and F. Calvert, Lowell, Mass. [Filed Dec. 7, 1876.]



1. In combination with the board A, the curved spring-blades E E', as and for the purpose described.

2. In combination with the board A, the individually-locked blade E E', as and for the purpose described.

3. In combination with the tongued-and-grooved board A, a series of blades, E E' E'', having their ends beat to enter the grooves in said board, as and for the purpose described.

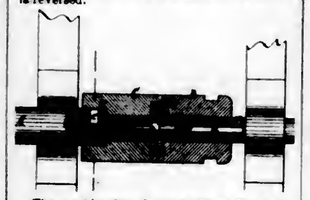
4. The combination of the lock G on the blade E, and the wire D, as and for the purpose described.

5. The arrangement of the lock G and hinge J below the surface of the board A, as and for the purpose described.

6. The combination of the hinged blades E E', and the stop-molding H, as and for the purpose herein described.

186,562. CLUTCH SHAFT-GEARING. Walter Adriance, Poughkeepsie, N. Y. [Filed Mar. 1, 1877.]

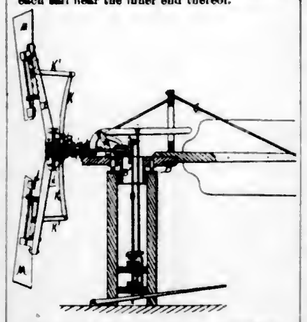
Brief.—To prevent the machinery from being turned backward in case the driving-shaft is reversed.



The combination of two shafts, A B, a stationary clutch, C, mounted on the driving-shaft A, a sliding clutch, D, mounted on the driven shaft B, a driving-wheel firmly secured to the shaft C, ratchet-teeth *b*, formed in the interior of the clutch C, and a spring-pawl, one or more, fitted into a socket formed for its reception in the driving-shaft A, and meshing into the ratchet-teeth *b*, all constructed and operating substantially as and for the purpose set forth.

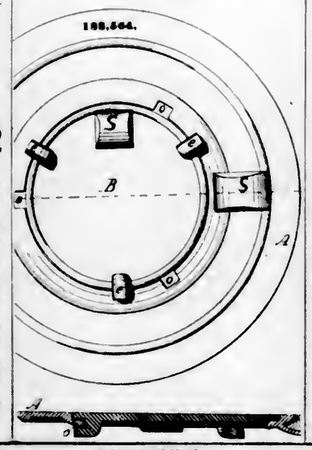
186,563. WIND-WHEELS. J. A. Allen, Albion, assignor to himself and H. Osborn, Sheridan, Mich. [Filed Aug. 31, 1876.]

Brief.—A weight is secured to the girt of each sail near the inner end thereof.



In a windmill, substantially as described, the combination, with the sails M, of the pivoted shafts L, a girt, N, at the inner ends of each set of sails, the braces N', the links K', for turning the sails, and the weights *d*, secured to the said girts near the inner ends of the said sails, all constructed and arranged substantially as described and shown.

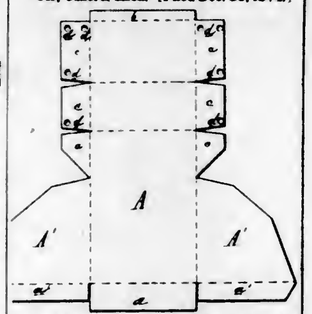
186,564.



186,564. STOVE-COVERS. Geo. N. Bacon, Wilkesbarre, Pa. [Filed Sept. 2, 1876.]

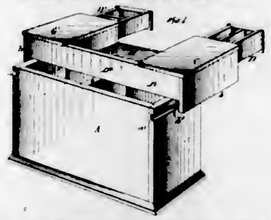
The plate A, provided with openings *o o o*, combined with the plate B, having the lugs or projections *l l l*, substantially as described, for the purpose specified.

186,566. ELEVATOR-BUCKETS. F. C. Barber, Oxford, Mich. [Filed Dec. 30, 1874.]



An elevator-bucket, substantially of the shape shown, made from a single piece of sheet metal, and having the quadrant-shaped projections A', lips *c*, lips *a*, *a'*, and *b*, and rivets *d*, as and for the purpose set forth.

186,566. COMBINED FLOUR-CHEST AND BREAD-TABLE. W. A. Barnes, Goodwin's Corner, Ind. [Filed Feb. 3, 1877.]



The combination, with the sliding top B, having the stop-apron *b*², downward extensions *b b*, tongues *b*' *b*', compartments C C', and drawers D D', of the chest A, provided with the grooves *a'* and compartments A' A', substantially as and for the purpose set forth.

186,567. REFRIGERATORS. John J. Bate, Brooklyn, N. Y., assignor to Bate Refrigerating Company. [Filed Apr. 12, 1876.]



The combination of the ice-box A, constructed with the distributing-opening *a*, the trunk C, provided with the fan-blower G or other air-forcing apparatus, and the horizontal air-conducting pipes D, provided with the vertical inlet-pipes F, open at or near the ends, and arranged at the sides of the refrigerating-chamber E, the whole constructed, combined, and arranged for use and operation, substantially as and for the purpose herein set forth.

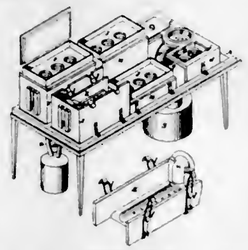
186,568. ATTACHMENTS FOR INVALID-BEDSTEADS. J. P. Seaman, San Francisco, Cal. [Filed Aug. 24, 1876.]

1. The bed-extension or table A, inclined, as described, and having one or more covering-boxes, G H I, with their irrigating boxes E J, substantially as and for the purpose described.

2. The table or bed-extension A, having the board C, the irrigating-tanks E J, the boxes H I, arranged as described, the wasteways O O and vessel P at one end, and the hole Q, fitted with a spout or tube, and vessel S at the opposite end, substantially as and for the purpose described.

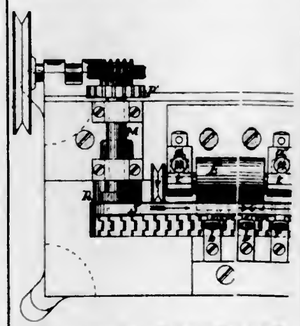
3. In combination with the foot-boxes I, the suspended trough K, having its sides hinged so as to be folded outward, and having the grooved foot-board *m* and sliding cap-piece *n*, all arranged to operate substantially as described.

186,568.



186,569. MACHINES FOR POINTING SEWING-MACHINE NEEDLES. Philo M. Beers, Bridgeport, assignor to Wheeler & Wilson Manufacturing Company, Fairfield, Conn. [Filed Feb. 19, 1877.]

Brief.—For flat point needles; adaptable to round-point needles by substituting a larger wheel on the shaft of one of the drivers; lower belt to cause it to travel faster than the upper belt, and cause the needle to revolve.



1. In combination with the endless belt S, pulleys R R', presser-bars *o o*, bar *s*, drivers *v v'*, and grinding-wheels E E', the jointed endless feed-belt T, constructed with the slots *x* on the side of the same, which passes between the endless belt S and bar *s*, so that the shanks of the needles in said slots may receive friction from the belt S and bar *s*, during the operation of grinding the points on said needles, substantially as shown and described.

2. The interchangeable gear-wheels P P' and Q Q', in combination with the shafts L, M, N, and O, the feed-belt T, endless belt S, and hopper V, all arranged substantially as shown and described, for the object set forth.

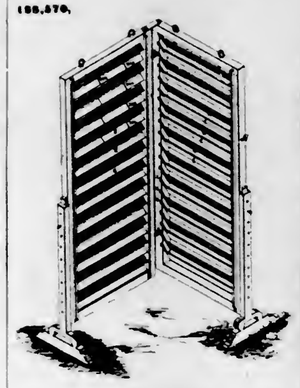
186,570. BLUE-GLASS SUN-BATHS. Henry M. Beidler, Philadelphia, Pa. [Filed Feb. 24, 1877.]

Brief.—Hinged movable and adjustable screen, with slats of blue and clear glass, set at an angle alternately.

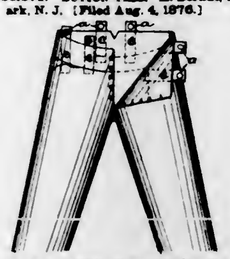
1. Two or more frames hinged or adjustably connected, carrying alternate strips of blue and clear glass, separated one from the other, and placed at different angles, and said frames capable of vertical adjustment, as and for the purpose specified.

2. A frame or frames provided with angular grooves, for carrying alternate strips of blue and clear glass, in combination with said strips, arranged parallel to each other, as and for the purpose set forth.

186,570.

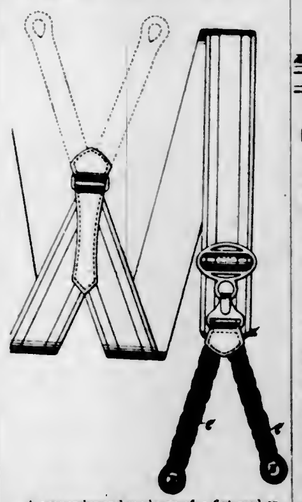


186,571. BUTTON-TAGS. A. Berndt, Newark, N. J. [Filed Aug. 4, 1876.]



As a new article of manufacture, the tag *a* carrying the button *a* when secured thereto by means of a rivet, *b*, substantially as and for the purpose set forth.

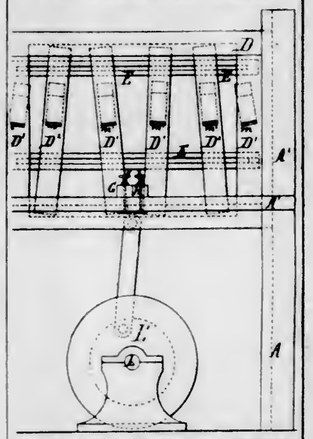
186,572. SUSPENDERS. Jacob Betts, New York, N. Y., assignor to himself and Salmon Schirmer, same place. [Filed Feb. 14, 1877.]



A suspender-end made up of a flat cord or braid doubled to form a button-hole, B, its free ends being braided together, and combined with a supplemental cord, C, for retaining the braid, substantially as herein shown and described.

186,573. MACHINES FOR TRIMMING BOXES. Christ Bopp, Brooklyn, N. Y., assignor to himself and J. H. Swift, same place. [Filed Aug. 2, 1876.]

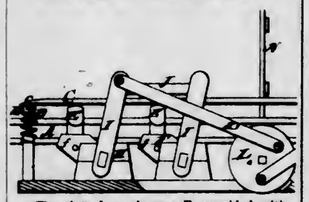
Brief.—The overhanging ends of the pieces of boards forming the top, sides, and bottom of a box are rapidly planed off by means of a series of planes carried in a vertically-reciprocating sash, and having cutters adjustable thereon, a table extending up to the plane of the cutting-edges, two cross-bars serving as gages, and suitable operating mechanism.



1. The sash D, carrying planes D' D² D³, and plane-irons *m m'* *m'*, in combination with the table A' and gages G H, as and for the purpose herein specified.

2. In combination with the table A' and reciprocating sash D, the duplicate sets of cutters and duplicate gages G H, as and for the purposes herein specified.

186,574. RAILROAD-GATES. S. P. Boston, Bloomsburg, Pa. [Filed Feb. 10, 1877.]



The slotted crank-arms F, provided with standards E, pivoted at their lower ends thereto, and attached at their upper ends to the bars C, having springs D, in combination with the rock-shafts G H, connecting-rods J I K K', and disks L L', substantially as described, and for the purpose set forth.

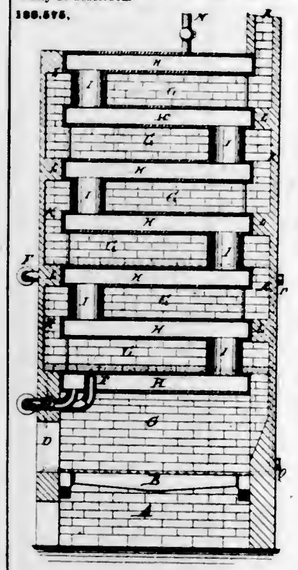
186,575. CIRCULATING STEAM-GENERATORS. H. C. Bowers, New York, N. Y. [Filed Sept. 19, 1876.]

1. The arrangement of the several parts, consisting of the chambers H, connecting-pipes or tubes I, alternating at each end of said chambers, whereby water is continuously supplied to the top of the described steam-generator, and distributes itself downward in thin layers over the extended inner surface of the lower plate of said chambers, from a colder to a hotter region, together with the described arrangement of the flues, by which the heat-currents are conducted from side to side, as shown, and made to impinge upon both sides of said chambers from a hotter to a colder region.

2. In a steam-generator, substantially as described, the arrangement of the feed-pipe M, provided with check-valve, &c., the chambers H, connecting-pipe I, exit-steam pipe F, and waste-water pipe E, arranged with relation to the reservoirs N and O, in the manner and for the purposes set forth.

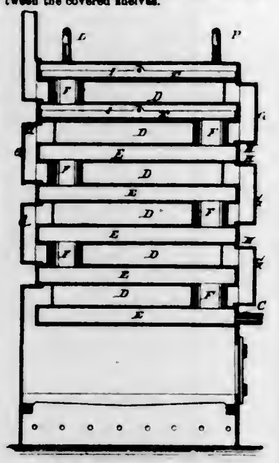
3. The combination, with the chambers H and pipe I, of the alternate stops, passages K, flues G, and combustion-chamber C, constructed and arranged to operate substantially as described.

186,575.



186,576. SALT-WATER EVAPORATORS. H. C. Bowers, New York, N. Y. [Filed Sept. 18, 1876.]

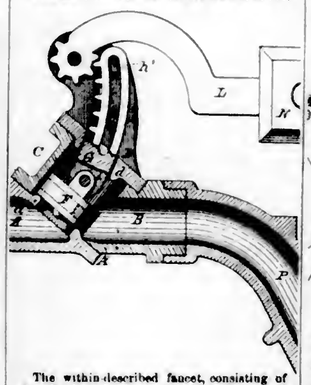
Brief.—The salt-water is first heated in a steam-heater supplied with waste steam from the evaporating-shelves. It is then forced, by the pressure of the entering fluid, to the upper evaporating-shelf of the series, from which it flows gradually down through the series to the bottom shelf, being mostly evaporated on its passage, and depositing its salt on the shelves, from which it is removed through the end doors by rakes. The flame and products of combustion pass up back and forth between the covered shelves.



1. In a salt-water evaporator, the combination, with the covered or inclosed shelves K, having doors K, of the rakes I, for the purposes set forth.

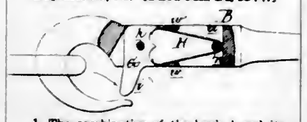
2. The combination of the covered or inclosed shelves E with the heater N and connecting-pipes C, P, and L.

186,577. FAUCETS. H. Bradley, Buffalo, N. Y., assignor of one-half his right to J. Scherer, same place. [Filed Jan. 3, 1877.]



The within-described faucet, consisting of the shank A, having the obliquely-arranged flange and valve-seat A', casing C, spout B, valve F, and an operating device consisting, substantially as described, of the rack and pinion, or their equivalent, and the lever L, provided with the adjustable weight N, the whole being constructed and arranged to operate in a manner and for the purpose substantially as hereinbefore set forth and stated.

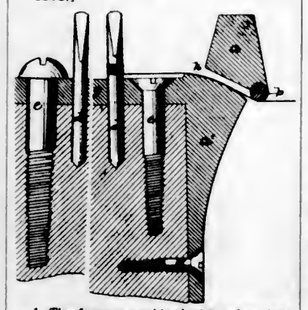
186,578. SNAP-HOOKS. Edw. P. Brennan, Doylestown, Pa. [Filed Jan. 24, 1877.]



1. The combination of the hook A and its slotted stem B with the dog G and the bent spring H, the opposite ends of which are adapted to recesses in the dog on opposite sides of the pivot-pin, as described.

2. The combination of the dog G, the two spring-arms, and the stops *w w*, for restricting the movement of the said arms, as specified.

186,579. STRINGING PIANO-FORTES. Peter Brenner, Augusta, Ga. [Filed Oct. 4, 1876.]



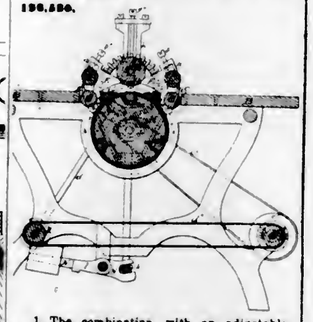
1. The frame *f*, combined with a drooping flange, *a'*, and a flange, *a*, cast with rectilinear faces at right angles to the lines of the several strings and perforated, as set forth.

2. The flange *a*, cast with rectilinear faces, perforated with holes *k*, and provided with bearing-pieces *b*, of brass, soldered to the iron at right angles to the lines of the strings to be supported.

186,580. WOOD-POLISHING MACHINES. A. Bridgman and J. L. Perry, Berlin, Wis. [Filed Jan. 18, 1877.]

Brief.—The feed-rolls are adjustably mounted in the outer ends of pivoted radial arms, and, by means of a lever and weights, pass vertically through a transverse slot in the supporting-table.

186,580.



1. The combination, with an adjustable bearing-roll, R, parallel with the sand-wheel, of the adjustable feed-rolls O O and their swinging bearings, automatically pressed, by suitable mechanism, toward said bearing-roll, substantially as specified.

2. The combination, with an obliquely spiral grooved sand-wheel, H, of oblique sections of sand-paper and spiral clamping-wedges *w*, substantially as specified.

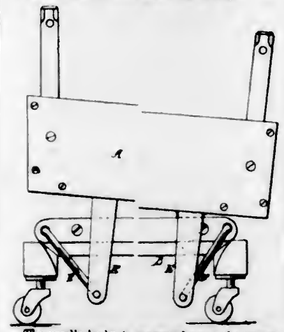
3. The combination, with the feed-rolls O O and their swinging bearings, of the guy-rod L, its branches *k*, the rod-bearing *k*, and weighted levers N, substantially as specified.

4. The combination, with the weighted levers N and rocking fulcrum *k'*, of the lifting-arms *l* and handle *l'*, attached to said fulcrum, substantially as specified.

5. The beveled guards G, extending over the sand-wheel, between the same and the feed-rolls, substantially as specified.

6. In a sandpapering-machine, the combination, with the sand-wheel and the parallel bearing-roll, of feeding-rolls automatically pressed toward said bearing-roll, substantially as specified.

186,581. CRADLES. G. Buchanan, Washington, Pa. [Filed Feb. 19, 1877.]



The cradle-body A, mounted upon the frame B, and connected to the same by means of the hangers E E and the crank-rods F F, the hangers being connected to the rods at points within or between vertical lines drawn crosswise of the frame through the bearings of the crank-rods, as shown and described.

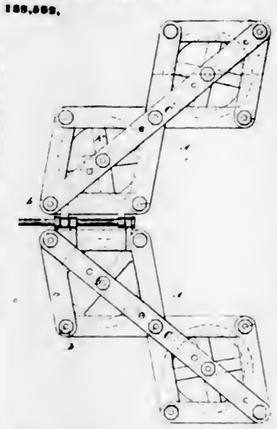
186,582. HARROWS. Noah Burnham, Menomonee, Wis. [Filed Dec. 15, 1876.]

Brief.—The frames are made in the form of lazy-tongs, and two or more are hinged together. Brace-bars run diagonally over the pivoted side bars, and at the center of each section may be mounted a horizontally-rotating harrow.

1. The harrow consisting of the crossed and pivoted bars *a*, the adjustable brace-bars O, and the rotary toothed wheels E, located and arranged as shown and described.

2. A compound flexible and laterally-adjustable harrow, consisting of two front sections, A, hinged together side by side, and two or more rear sections, A, hinged to the rear ends of the front sections in diverging lines, each of said sections consisting, as shown, of crossed and pivoted bars *a*, adjustable brace-bars C, and transverse end bars *a'*, provided with ears *b'*, all as shown and described, so that the form and width of the harrow may be varied at will.

186,583.



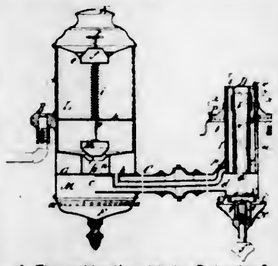
186,583. METALLIC CANS. Rufus T. Bush, New York, N. Y. [Filed Dec. 6, 1876.]



A can having angularly-expanded sides *a a*, outward angular flutes *c c*, and the ends *b b*, formed with angular depressions *c c* and turned-down flanges *d d*, substantially as and for the purpose specified.

186,584. FOUNTAIN-LAMPS. W. A. Butler, New York, N. Y. [Filed Jan. 22, 1877.]

Brief.—The oil-feeding tube is surrounded by an air-supplying tube.



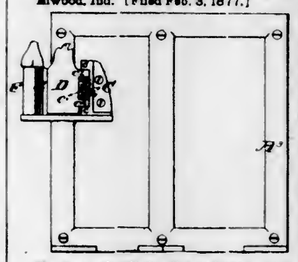
1. The combination, with the oil-chamber L, having valvular openings *e* and *f* in its top and bottom, of the valves *f* and *m*, connected by a valve-stem, and a spring, *i*, to close the upper and open the lower valve, substantially as and for the purpose described.

2. The auxiliary draft-passage through the supporting-arm C, substantially as and for the purpose set forth.

3. The combination, with the wick-feeder or tubular screw *c'* and the wick-carrier *w*, of the rod or bar *d'*, extending downward through the inner tube *s* of the burner, for turning said wick-feeder *c'*, substantially as and for the purpose described.

4. In an Argand burner, the tubes I and *s*, made with an opening or openings between their upper ends to allow oil to run back into the burner through the annular space between said tubes when the wick is raised, substantially as and for the purpose set forth.

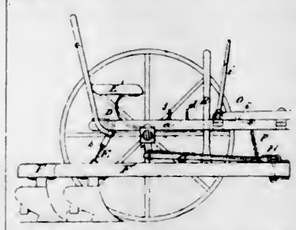
186,585. REIN-HOLDERS. Wm. Callaway, Elwood, Ind. [Filed Feb. 3, 1877.]



The grooved cylinder G, revolving in the casing F, in combination with the clamping-plate D and spring E, substantially as described, and for the purpose set forth.

186,586. GANG-PLOWS. H. H. Canaday, Fairfield, Iowa. [Filed Feb. 17, 1877.]

Brief.—Combination of the hinged yoke projecting forward, the two crank-shafts with suspending-arms and levers, and the plow-frame capable of sliding laterally upon the yoke.



The combination of the vertically-vibrating frame G, and the beam-frame F F' f', having staples H, with shaft D, arms *b b*, chains E, levers *s O s' θ'*, and chain P, substantially as specified.

186,587. ORE-FEEDERS FOR QUARTZ-MILLS. G. A. Church, Nevada City, Cal., assignor to himself and B. L. Montgomery, same place. [Filed Dec. 23, 1876.]

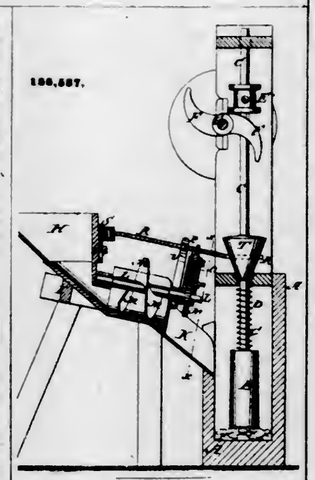
Brief.—The ore is fed intermittingly from the hopper to the battery by means of the spirally-flanged shaft, controlled by a pawl-lever, ratchet device, and spring-bar, operated by an inverted cone on the stamp-shaft.

1. The combination, in a quartz-mill, of the shaft L, journaled in hopper, having spiral flange M, and provided with ratchet K, with a reciprocating pawl, O, to produce an intermittent feed, as set forth.

2. The combination, with the pawl-lever P, that operates the intermittent mechanism, of the pivoted spring-bar E and inverted cone T on the stamp-shaft U, as and for the purpose specified.

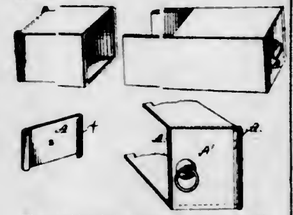
3. The combination of the semi-tubular spout J, the flanged shaft L M, the ratchet-wheel N, the pawl-pawl O, the holding-pawl Q, the driving-bar E, the inverted cone T, and the spring U, with the feed-hopper H, the mortar A, and the stamp-stem O of a quartz-mill, substantially as herein shown and described.

186,587.



186,588. BILL-FILES. C. C. Chamberlain, New York, N. Y. [Filed July 28, 1876.]

Brief.—The beads A' upon their inner side are re-enforced by metal strips A, the ends of which protrude beyond the sides of the box, and are flanged over onto the face of the beads, as at *x*.



The combination of a box, constructed substantially as described, with a metallic strengthening-strip, having flanges *x x* interposed between the heads A' A' and their interior flaps C C, as shown and set forth.

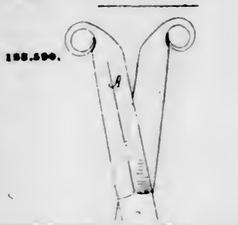
186,589. CLASPS FOR POCKET-BOOKS. S. F. Clement, Philadelphia, Pa. [Filed Dec. 22, 1876.]



1. The combination of plate A, with penetrating-prongs *a'* and slot *a²*, and plate B, having the flanged ends *b b'*, with the post C, slide-catch D, and spiral spring E, as shown and set forth.

2. The combination of the plates A B, rigid post C, slide D, and spiral spring E, said slide and spring embracing the post, with the keeper F, substantially as shown and described.

186,590.

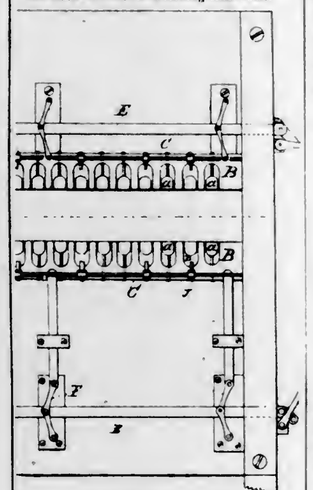


188,590. SCISSORS. Amos W. Coates, Alliance, Ohio. [Filed Feb. 21, 1877.]

As a new article of manufacture, a pair of scissors having each blade provided with a protective end guard, made in the form of a loop, ring, or eye, substantially as and for the purpose described.

188,591. BALING-PRESSES. W. S. Coates, Charleston, S. C. [Filed Jan. 23, 1877.]

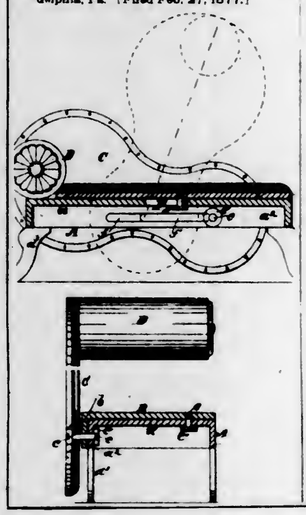
Brief.—When the hinged blocks are in place, the keys are held solid and flush with the face of the platen. When they are not so used, spaces are left for the insertion of bands, which are forced against the bale by the toggle-levers, for fastening their ends.



1. The hinged blocks D, made to slide upon the rods C, substantially as described, and for the purposes set forth.

2. The combination, in a bale-press, of the sliding keys a a, inserted between each cross-bar or batten of the platens, the iron bars B, the rods C, and the hinges D, the whole being constructed and arranged substantially as described, and for the purposes specified.

188,592. LOUNGES. Jno. J. Coburn, Philadelphia, Pa. [Filed Feb. 27, 1877.]



1. A lounge formed with a pivoted back, and pillow or head-rest attached thereto, adapted to be swung from end to end of the bench or body, for the purpose of reversing the same, substantially as set forth.

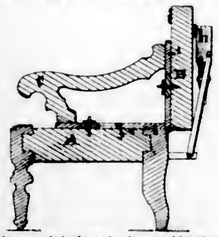
2. The bench-board A and cushion-board B, of unequal lengths, secured by a connection, *e*, the board B being adapted to slide on the board *d*, so as to form an offset for the reception of the pillow or head-rest D.

3. The combination of side rails *a*¹ and *b*, having slots *f f'*, with the back C and pivot or rod *e*, substantially as shown and described.

4. In combination with a lounge bench or body, A, a back, C, pivoted thereto on one side of a line drawn transversely through the middle of said bench or body, the pivot of said back being adapted to move across said line when said back is moved for the purpose of reversing the lounge, as set forth.

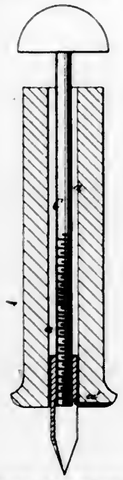
5. The combination of bench A, sliding board B, pivoted back C, and pillow or head-rest D, when the parts are constructed and arranged as shown and described.

188,593. SOFA-BEDSTEADS. F. A. Coleman, Newport, Ky. [Filed Apr. 8, 1876.]



In a sofa-bedstead, the combination, substantially as specified, of the seat-frame and the back frame, the end rails of which are connected together by hinges, the axes of which are removed both from the slatted surface and the adjacent edges of the cushions by distances equal to half the thickness of the cushions.

188,594. SUPPOSITORY-MOLDS. Henry W. Comstock, La Fayette, Ind. [Filed Aug. 5, 1876.]

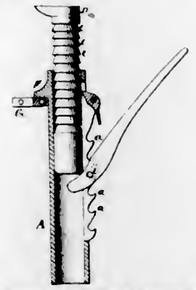


1. The process of manufacturing pills or suppositories, by first preparing a smooth surface of clay, soap, plaster, putty, or other plastic or semi-plastic material; next cutting out suitable molds therein with an excavating-tube; then pouring the material of said suppositories or pills into said molds while said material is in a fluid or semi-fluid state; then allowing said material to cool and solidify in said molds; and, finally, by breaking said molds or otherwise extracting said suppositories or pills in a solid form, substantially as and for the purpose set forth.

2. A suppository-mold composed of plastic or semi-plastic material mixed with glycerine, said glycerine being used to prevent said material from becoming dry and hard, substantially as set forth.

3. The combination of tubular stock A, screw-threaded excavating-tube B, and adjusting screw-threaded rod C, substantially as and for the purpose set forth.

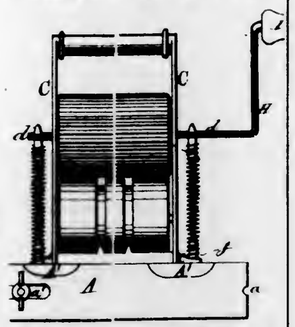
188,595. TIRE-TIGHTENERS AND LIFTING-JACKS. A. W. Comstock and Jas. W. Hampton, Mount Pleasant, Iowa. [Filed Feb. 1, 1877.]



1. The combination of the hinged jaws G and set-screw H, with the shell A, having shoulder F and the lifting-bar D, all substantially as set forth.

2. The combination of the cylindrical metallic shell A, with slot and flanges, having teeth *a a*, the cylindrical metallic lifting-bar D, having annular serrations *c c*, and top projections *o*, and the hinged jaws G, set-screw H, and shoulder F, all substantially as herein set forth.

188,596. WASHING-MACHINES. Patk. H. Cooney, Erie, Pa. [Filed Sept. 2, 1876.]



1. Base-plate A, provided with block or enlargement A' A', in combination with standards C C, having recessed foot-pieces *c c*, substantially as set forth.

2. Detachable fastening rod or stud *f*, provided with beveled lugs *f' f'*, substantially as and for the purpose set forth.

3. Detachable fastening rod or stud *f*, provided with beveled lugs *f' f'*, in combination with the spring F and detachable hook F', having beveled lugs *f' f'*, substantially as described, and for the purpose set forth.

188,597. ALARM AND REGISTERING APPARATUS. J. Corbett, Hartford, Conn., assignor to Railway Register Manufacturing Company. [Filed Feb. 9, 1876.]



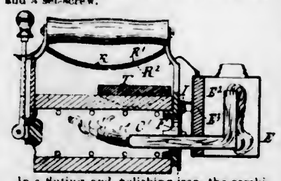
1. An improvement in alarm-registering mechanism, consisting of a guard or internal supporting frame, in combination with an external shield, the latter having small perforations, substantially as and for the purpose set forth.

2. The double guard or shield, consisting of two perforated or open-work parts or screens, placed adjacent to each other, or nearly so, substantially as set forth.

3. A perforated double guard or shield, adapted to cover the alarm device in an alarm instrument, and protect the alarm device from improper interference, and permit the egress of sound, all substantially as shown and described.

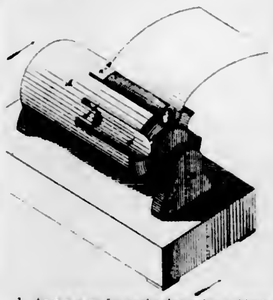
188,598. FLUTING AND SMOOTHING IRONS. H. E. Crocker and G. C. Farnsworth, Buffalo, N. Y. [Filed Feb. 15, 1877.]

Brief.—The fluting-iron embraces a face of the flat-iron, and is secured by means of arms and a set-screw.



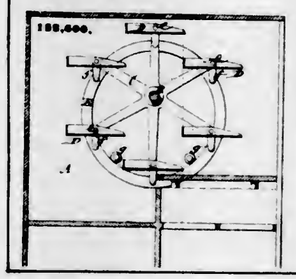
In a fluting and polishing iron, the combination therewith of the guard E, non-conductor E², and adjustable and removable fluting device T, all arranged substantially as and for the purposes specified.

188,599. MEANS FOR PACKAGING COIN. H. Crogton, Washington, D. C., assignor to himself and Geo. S. Prindle, same place. [Filed Feb. 24, 1877.]



1. As a means for packaging coins, a block provided with a half-round groove, which has a slightly larger diameter than the coins to be packaged, and operates as a holder for said coins and for the paper that is to be wrapped around the same, substantially as specified.

2. In combination with a half-round groove for containing coins and paper for enveloping the same, a stop or gage arranged at one end of said groove, and projecting inward over the same, so as to support one end of the roll of coins at a suitable distance from the corresponding edge of said paper, substantially as and for the purpose shown.



188,600. OVENS. A. Crumbie, Nyack, assignor to himself and D. Donald, Brooklyn, N. Y. [Filed Feb. 17, 1877.]

1. The combination of one or more free or loose disks or rings, E, with the rotating reel or carrier of swinging shelves D, the oven or baking chamber A, and the cranks *f*, by which said disks or rings are connected with and supported by the pivots of the swinging shelves or trays, substantially as specified.

2. The combination of two or more guiding studs or rollers, *g*, with the free or loose ring E, the rotating reel or carrier of swinging shelves D, the cranks *f*, attached to the pivots of said shelves, and the baking chamber or oven A, essentially as and for the purposes herein set forth.

188,601. SHEARS AND SCISSORS. A. Delkescamp, New York, N. Y., assignor of one-half his right to J. Herdtfelder, same place. [Filed Feb. 12, 1877.]

Brief.—The pivot holds against one of the blades a cap, which contains a coil-spring, to crowd the cutting-edges together.

The combination, with the screw-pivot *d* and spring *e*, of the independent external spring-box *b*, inclosing said spring, and attached to the shears by the said screw-pivot, substantially as and for the purposes set forth.

188,602. DETACHING HORSES. N. Dexter, Finleyville, Pa. [Filed Sept. 9, 1876.]

The bolts G G, with their springs and ears H H', in combination with the whiffletree and its bolts, and the disk *e*, with its arms D D and lever *e'*, substantially as and for the purpose set forth.

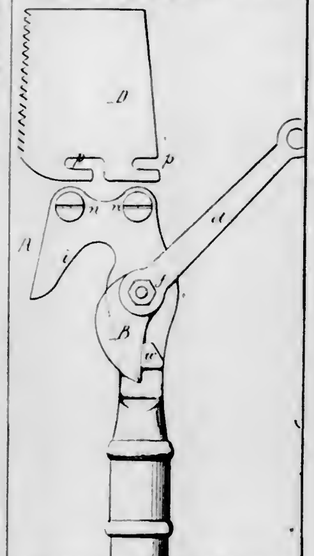
188,603. MACHINES FOR FORMING AND LEVELING THE BOTTOMS OF SHOES. Elijah M. Dickinson, Fitchburg, Mass. [Filed Feb. 14, 1877.]



1. In a shoe-bottom leveling and forming machine, the drop-hammer B, provided with the die *g*, in combination with the anvil-block G, provided with the last *g*, all constructed to operate substantially as and for the purpose set forth.

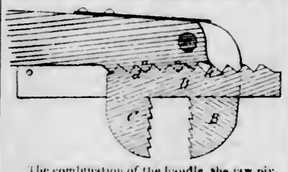
2. The drop-hammer B, provided with the die *g*, in combination with the anvil-block G, provided with the last *g*, the cord D, shaft *b*, pulley C, and guides *a a*, substantially as and for the purpose set forth.

188,604. COMBINED PRUNING SHEARS AND SAW. T. S. Disston, Philadelphia, Pa., assignor to Henry Disston & Sons, same place. [Filed Feb. 9, 1877.]



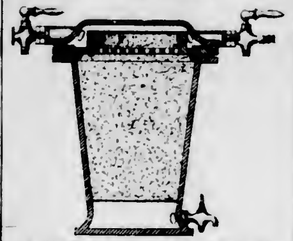
The combination, in a pruning implement, of the body A, its edge i, and bolts n with the saw D, and with the knife B, its lever *d*, pivot *f*, and spring *m*, as set forth.

188,605. WRENCHES. J. A. Dodge, Bridgetown, Nova Scotia. [Filed Nov. 21, 1876.]



The combination of the handle, the jaw pivoted thereto, the spring for holding in place the pivoted jaw, and the sliding jaw supported and adjustable in the pivoted jaw, and provided on its inner edge with teeth which engage teeth on the handle, substantially as and for the purposes set forth.

188,606. FILTERS. Victor Dordet, Philadelphia, Pa. [Filed Mar. 3, 1877.]

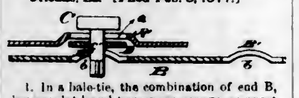


1. The filtering apparatus, consisting of the vessel for reception of the filtering material, in combination with the cap, vertically through

which the unfiltered water passes, the surrounding cover forming a sediment-chamber, and the inlet and flush cocks or openings, arranged laterally in the cover opposite the imperforate sides of the cap as set forth.

2. The combination, in a filtering apparatus, of an inlet pipe or cock above the filtering chamber, an outlet for the filtered water below the filtering chamber, and a discharge or flush pipe or cock, the said flush-cock and inlet pipe or cock being on opposite sides of the filter, and on the same level, so that the sediment-chamber above the filtering-chamber may be flushed or swept out by opening the flush-cock, as shown and set forth.

188,607. BALE-TIES. S. N. Drake, New Orleans, La. [Filed Feb. 3, 1877.]



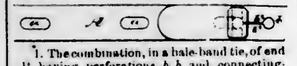
1. In a bale-tie, the combination of end B, having slot *b* and transverse groove or upset E', with the other end of said tie-band, and a button having an end piece adapted to set into said groove, substantially as and for the purpose set forth.

2. A bale-tie band having longitudinal slots near one end thereof, and transverse grooves crossing said slots, substantially as set forth.

3. A bale-tie band having slot *a* and upset A', in combination with button or key C and washer D, substantially as and for the purpose set forth.

188,608. BALE-TIES. S. N. Drake, New Orleans, La. [Filed Feb. 24, 1877.]

Brief.—One end of the band is provided with perforations connected by a slat forming lips, which are bent apart sufficiently to allow the insertion of the button, after which said lips are closed again to hold the button permanently.

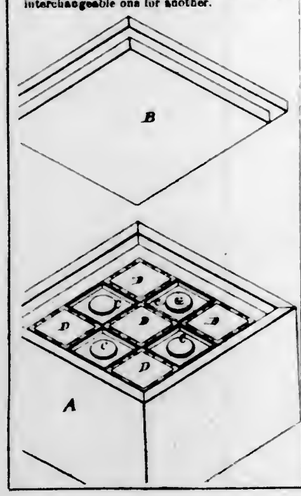


1. The combination, in a bale-band tie, of end B, having perforations *b b* and connecting-slot *b'*, with end A, having elongated openings *a* and button C, substantially as specified.

2. A bale-band having round perforations near one of its ends, and a slit connected therewith, for the purpose of allowing the attachment of button C, as shown and described.

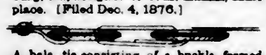
188,609. REFRIGERATING SHIPPING-BOXES. H. A. Duc, Jr., Charleston, S. C. [Filed Sept. 9, 1876.]

Brief.—The non-conducting case contains a number of closed ice-boxes and open fruit-boxes, which are of equal size, removable and interchangeable one for another.



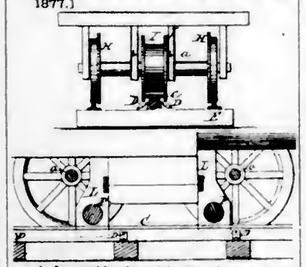
A refrigerating shipping-box, consisting of an exterior case, A, with cover B, and containing a number of closed ice boxes, C, and open fruit-boxes D, which are removable and interchangeable, one with another, substantially as and for the purposes herein set forth.

188,610. BALE-TIES. J. S. Durning, Pittsburg, Pa., assignor to J. M. Hamill, same place. [Filed Dec. 4, 1876.]



A bale-tie consisting of a buckle formed with a single opening, said buckle riveted to one end of the band, in combination with a similar buckle adapted to be adjustably secured in a loop, B, having a downwardly-turned end, substantially as and for the purpose set forth.

188,611. SAFETY CAR-TRUCKS. D. E. Dutrow, Washington, D. C. [Filed Jan. 29, 1877.]

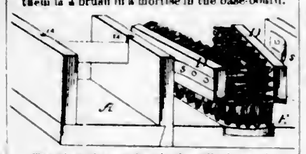


1. In combination with the axle *a* operating in the usual manner and carrying the center-wheel I, the pedestals or hangers *b b*, constructed and operating substantially as described.

2. The bars L L, attached to a locomotive, as described, and having the wheel P mounted between them, in combination with a rail arranged centrally between the rails of a railroad track, substantially as and for the purposes herein set forth.

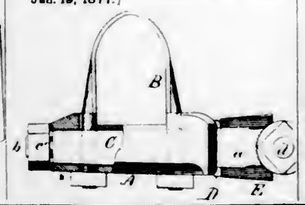
188,612. FOOT SCRAPERS AND CLEANERS. N. Ellis and G. A. Willis, Cameron, Mo., assignors to A. C. Jackman, same place. [Filed July 17, 1876.]

Brief.—The side brushes are yielding, and arranged obliquely to each other, and under them is a brush in a mortise in the base-board.



The shoe-cleaner herein described, consisting of the base A and its uprights, the lateral horizontal brushes D, forming an acute angle with each other, and having their bristles facing each other, the oblique attachment-springs *s*, connecting said lateral brushes and uprights, and the sole-brush E, attached to said base, and having its bristles upward under said lateral brushes, substantially as specified.

188,613. THILL-COUPLINGS. T. B. Farrell and M. D. Borst, Cobleskill, N. Y. [Filed Jan. 19, 1877.]



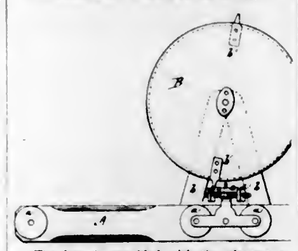
The combination of the fork C, having diverging side arms *a a*, shank *b*, and nut *c'*, and the piece A, provided with a tapering socket, with the clip B, plate D, rubber cushion E, and thill-head, substantially as herein shown and described.

188,614. CONCRETE PAVEMENTS. Lewis S. Filbert, Philadelphia, Pa. [Filed Feb. 26, 1877.]

Brief.—A base of broken stone well rolled or sprinkled with a composition distilled from coal-tar, or Trinidad or other asphalt, reduced by petroleum tar or dead-oil distilled from tar. Upon this base is laid a binder or layer of small broken stone or gravel, well heated and mixed with the above-mentioned bituminous matter. Upon this is laid one or two layers of asphaltum, reduced by the residuum of petroleum, in the proportions of one part residuum of petroleum to from three to eight parts of asphaltum, well heated and mixed with fine sand or stone-dust, hydraulic or other cement, and a sufficient quantity of sulphur to vulcanize the mixture.

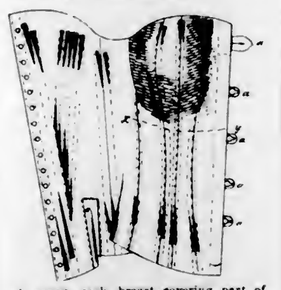
A vulcanized pavement formed with a base of broken stone rolled and sprinkled or saturated with a composition distilled from coal-tar, or asphalt reduced by petroleum-tar; then a binder or layer of small broken stone or gravel heated and mixed with a composition distilled from coal-tar or asphalt, or both, reduced by residuum of petroleum or petroleum-tar, and well rolled; and then a layer or top coat of Trinidad, or other asphalt, reduced by petroleum-tar mixed with fine sand, stone-dust, hydraulic cement, and sulphur, and heated so as to vulcanize the same, and then top-dressed with hydraulic or other cement, substantially as herein set forth.

188,615. CHECK-ROWERS. Wm. Flaherty, Ravanna, Mo. [Filed Feb. 12, 1877.]



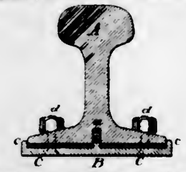
The bar A, provided with the sheaves *a a a*, and disk B, provided with the tappets *b' b'*, in combination with the vertical bar D, provided with the pivoted arms *e* and *i*, and the bolt C, provided with the nuts *d d*, all constructed to operate substantially as and for the purpose set forth.

188,616. CORSETS. Sarah F. Follette, Boston, Mass. [Filed Jan. 2, 1877.]



A corset, each breast-covering part of which, above the dotted line *x y*, is composed of the pieces numbered 1 2 3 4 5, shaped for the pad, as described, and said pieces being continuous from top to bottom of said corset, in combination with the stays *b c c c d*, the whole being constructed and combined substantially as shown, and for the purpose described.

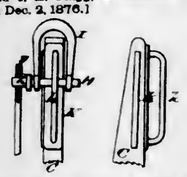
188,617. RAILROAD-RAILS. Josiah Foster, Honesdale, Pa. [Filed Oct. 3, 1876.]



1. In railroad-rails, the combination of the T-rail A, provided with the groove *a*, and the flat shoe-rail B, having a central fin or rib, *b*, the several parts constructed and arranged substantially as described.

2. In railroad-rails, the combination of the T-rail A, provided with the groove *a*, the flat shoe-rail B, having a central fin, *b*, and the interposed packing C, the several parts constructed and arranged substantially as described.

188,618. DRAFT-EQUALIZERS. A. B. Fowler and I. H. Flagg, Kalamazoo, Mich. [Filed Dec. 2, 1876.]



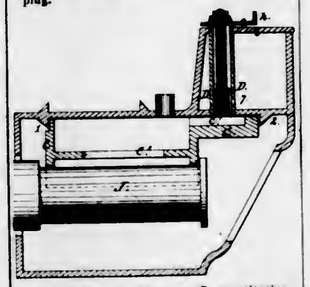
1. The pivoted connecting rods G G, screw-threaded at their outer ends, in combination with the double-tree C, clevises I I, clevis-bolts H H, having screw-tapped eyes *h h*, and lever F, substantially as described.

2. Shield K and guide-bar *k*, made in one piece, in combination with a double-tree, clevis, and clevis-pin, substantially as set forth.

3. As a new article of manufacture, the shield K and guide-bar *k*, made in one piece, substantially as described, and for the purpose set forth.

188,619. CAR-AXLE LUBRICATORS. Heman Gardiner, New York, N. Y. [Filed Nov. 6, 1876.]

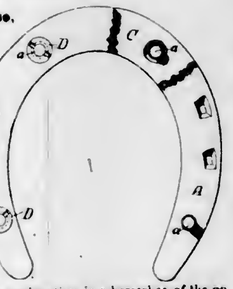
Brief.—The oil is carried in a reservoir connected with the chamber over the journal by a tube partially closed with an adjustable plug.



1. The tube D, the stem G, constituting the valve, placed and operating within the oil-tank, and the stem and tube extending above the cover of the oil-tank, so that the valve can be adjusted and regulated from the outside, combined, constructed, and arranged substantially as set forth.

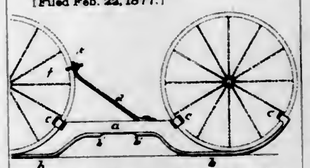
2. The combination of the tube D and valve E within the oil-tank outside the journal-box, and the tube and stem extending above the cover of the oil-tank, with the arms or indicators *h*, constructed, arranged, and operating substantially as set forth.

188,620. HORSESHOES. J. B. Going, New York, N. Y., assignor to himself and J. A. Going, same place, and W. S. Hitch, Laurel, Del. [Filed Jan. 10, 1877.]



The combination, in a horseshoe, of the upper plate A, lower plate B, and rubber plate C with the riveted screw-studs *a a* and headed female screws or threaded sleeves D D, all constructed and arranged to form a substantial fastening, as herein set forth.

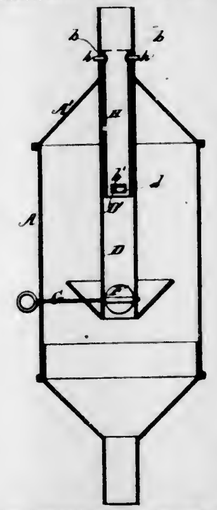
188,621. SLEIGH-RUNNERS FOR WAGONS. Theodore Griesinger, Mechanicsburg, Pa. [Filed Feb. 22, 1877.]



1. The combination of the connecting piece *e*, shoes *b b*, brace *d*, and stirrup-iron *f*, constructed as shown, with the center of the runner between the shoes raised, as and for the purposes set forth.

2. The combination of the brace *d*, plate *c*, constructed with the notches *i*, and stirrup-iron *f*, substantially as described, and for the purposes set forth.

188,622. STOVE-DRUMS. Joseph Hacker, Waterloo, Iowa. [Filed Feb. 10, 1877.]

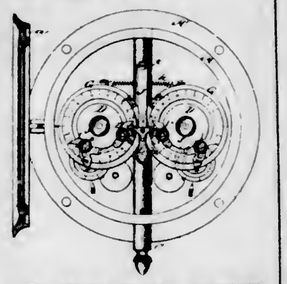


1. The combination of a stove-pipe drum with inwardly-extending pipe D, having openings *d*, and regulating-cylinder H, having openings *h'* and supporting-studs *h*, substantially as and for the purpose set forth.

2. The combination of drum A, with flue D, having openings *d* and flanges D', with regulating-cylinder H, having openings *h'*, substantially as and for the purpose set forth.

3. The combination of drum A, flue D, having openings *d*, and flanges D', with regulating-cylinder H, having openings *h'*, damper F, and deflector E, substantially as and for the purpose set forth.

188,623. TIME-LOCKS. Lewis A. Haines, Westminster, Md., assignor, by mesne assignment, of one-half his right to the Taylor Manufacturing Company, same place. [Filed Feb. 26, 1876.]



1. In a time-lock, the case A, provided with circumferential projecting flange A' and the lid B, with annular groove *a*, to form a ground joint.

2. The combination of the shaft *b*, beveled disk *d*, screw *e*, recessed dial D, and nut *f*, as and for the purpose set forth.

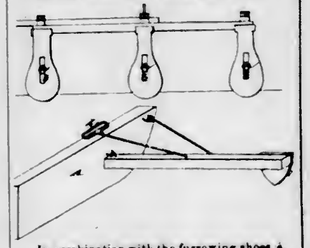
3. The dial D, formed with an annular concentric T-shaped groove, in combination with the adjustable pointers I I', screws *h*, and nuts *i*, as and for the purpose set forth.

4. In a time-lock, the eccentrics G G, connected by a spring, K, and operating in connection with a pin, S, on the bolt, to hold the same locked, as herein set forth.

5. The combination of the dials D D, pointers I I', pins *n n*, eccentrics G G, and spring K with bolt C, arm J, pin S, and finger L, substantially as and for the purposes set forth.

6. The combination of the dials D D, pointers I I', arms *m m*, eccentrics G G, having pins *p p*, with bolt C, arm J, and pin S, substantially as and for the purposes set forth.

188,624. FURROWING OUT CORN-GROUND. N. C. Hammell, Brown Township, Miami County, Ohio. [Filed May 20, 1876.]



In combination with the furrowing-shoes A, the slotted teeth C, provided with guides *k*, and adjustably secured to the rear ends of said runners by bolts *s*, substantially as described, and for the purpose set forth.

188,625. BOILER-TUBE PLUGS. T. R. Hand, Philadelphia, Pa. [Filed Feb. 22, 1877.]

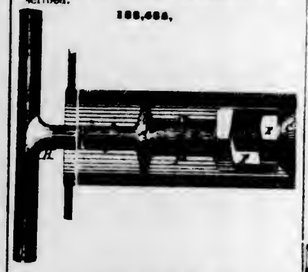
Brief.—The plug is provided with a scraper in front, and so arranged in the rear that, when the plug is tightened to fit the bore of the tube, the wrench may be unscrewed and withdrawn, the handle also being provided with an annular guide-piece.

1. A tool or wrench for plugging boiler-tubes, composed of a detachable socket, F, of polygonal shape, of a tubular stem, G, having an internal screw thread, and of a handle, H, in combination, and adapted to operate in conjunction with a plug of the character hereinbefore described.

2. The combination of a guide-flange, K, with the tubular screw-stem G of the plug-ginning tool or wrench, substantially as described.

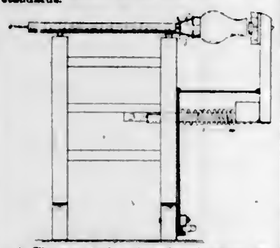
3. The combination of a scraper, L, with the head H of the plug, substantially as described.

188,626.



188,626. DEVICES FOR CRIMPING LAMP-CHIMNEYS. A. Harcum, Scott Township, Allegheny County, assignor of one-half his right to James Lindsay & Co., Pittsburg, Pa. [Filed Feb. 26, 1877.]

Brief.—The hinged arm carrying the crimper is brought forward against the end of the lamp-chimney by means of a strap actuated by a treadle. The snap-tool is rotated on wheels as bearings in the tops of the frame-standards.



1. The snap-tool having clamping-jaws attached to spring arms, which press outwardly, in combination with the rod furnished with loops for contracting and releasing them.

2. The combination of the sliding arm with its spring, and the hinged arm carrying the crimping-tool, operated by a lever for the purpose herein before set forth.

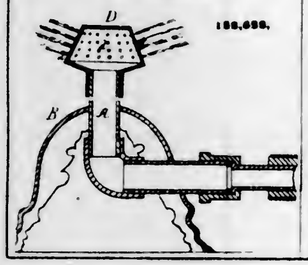
188,627. TOBACCO-PIPE COVERS. George Havell, Newark, N. J., assignor to Wm. Demuth & Co., New York city. [Filed Feb. 14, 1877.]

Brief.—The rim that supports the cover has lugs struck up from it, for forming the lower part of the hinge.



A joint for covers of tobacco-pipes, composed of two eyes which are stamped up from the metal composing the flanged rim A, and of an intermediate eye secured to the cover B, substantially as shown and described.

188,628.

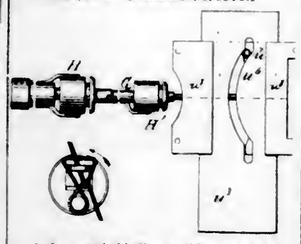


188,629. LAWN-SPRINKLERS. J. S. Heacock, Buffalo, N. Y. [Filed Aug. 9, 1876.]

1. A lawn-sprinkler provided with a closed flat top and perforated beveled sides, cast in a single piece, and adapted to be used with a vertical nozzle or pipe, substantially as and for the purpose hereinbefore set forth.

2. The lawn-sprinkler D, composed of a closed flat top, and perforated inclined sides, in combination with the vertical pipe A and base-support B, substantially as and for the purpose set forth.

188,629. GRAIN-BINDERS. E. Heath, Fowlerville, N. Y. [Filed Nov. 3, 1876.]



1. In a grain-binding machine, mechanism for tying a knot in the cord or band, and clamping mechanisms above and below it operating in relation to each other and in the described relation to the mechanism which carries the twine, and suitable severing mechanism, as set forth.

2. An upper clamp acting intermittently, and a lower clamp acting with constant pressure, in combination with the mechanism for tying a knot in the cord or twine, and with the cutting mechanism, as set forth.

3. The combination of upper and lower clamps, a rotating tying mechanism, and a yielding arm, which clamps and cuts the twine, as set forth.

4. The lower clamp, consisting of the two jaws, under constant pressure, in combination with the arm by which the twine is forced from the binder-arm into the clamp, as set forth.

5. The combination of the two jaws *l l'*, and spring behind *l'*, arm *m*, and oscillating lever *m'*, lever *n*, and slotted arm *o*, as set forth.

6. In combination with the oscillating lever on which the arm *m* is pivoted, the additional clamp *l'*, and arms *q q'*, as set forth.

7. The arm F, with its sliding bar and offset, constructed as described, and arranged to close against the head of the bar and over the knife, as set forth.

8. In combination with the bar F, hung so as to yield in an upward direction the cutting and clamping bar, and mechanism by which the latter is moved upon the head or offset o^3, as and for the purpose set forth.

9. A tying mechanism consisting of a rotating shaft, points sliding in head of said shaft, and a sliding hook partaking of the motion of the shaft, as set forth.

10. A tying mechanism consisting of a head adapted for rotary and reciprocatory motion, in combination with sliding points and hook, partaking of the motion of said shaft, as set forth.

11. A tying mechanism consisting of a rotating and reciprocating head, provided with points and hook, as described, the shaft of said head being so hung as to permit upward motion in the act of tying, as set forth.

12. The combination, with the head of the shaft G, of the bars *t t'*, spring *t''*, and hook *t²*, as set forth.

13. The shaft G, sliding in oscillating bearings *v x*, and carrying pinion *w'*, in combination with the rack-bar for rotating the shaft, and mechanism for imparting thereto a reciprocating movement, as set forth.

14. The combination of the pinion *w'*, the rack-bar on the sliding frame, and the box w^2, the sliding frame operating the parts specified, and being itself operated by means of the slot and pin, as set forth.

15. The box U, having bearings for the shaft G, and pivoted transversely to said shaft, in combination with mechanism for rotating and reciprocating the same, as set forth.

16. The clamping-arm *k*, in combination with the yielding lever k^2 and the pitman-connections to the lever *i*, as set forth.

17. The combination of the upper and lower clamps and their connecting-levers with the lever *i*, as set forth.

18. The guards *g g*, in combination with the slotted apron, the binder-arm, and upper clamp, as set forth.

19. In a grain-binding machine, a binder-arm, adapted to carry the twine around the gavel, and having a further movement in a different direction to compress the bundle, as set forth.

20. In a grain-binding machine, a binder-arm, adapted to separate the gavel and carry the twine around it, and also having a further movement in a different direction to tighten the twine, in combination with a clamp holding the end of the twine, and receiving the part brought back by the said arm and suitable cutting and tying mechanism, as set forth.

21. In combination with the binder-arm, the guideways, gates, and operating levers, as set forth.

22. The longitudinal shaft E, in combination with the levers *i i*, the upper and lower clamps, and the bar M, as set forth.

23. The combination of the bar M, pitman *e*, and operating-lever, with the levers that move the cutting, and clamping, and tying mechanism, as set forth.

24. The bell-crank lever r^1, connected with the sliding frame s^2 and with the bar M, by the slotted pitman, as set forth.

25. The combination of the head H', bar M, and the slotted pitman r^1, as set forth.

26. In combination with the head H', and hook attached thereto, and with the slotted connection, the spring s^3, as set forth.

27. The lever J pivoted to the frame, in combination with the movable cams on the bar M, as set forth.

28. The lever J, moved as described, in combination with mechanism which operates the cutting and clamping head, as set forth.

29. The combination of the lever J, the mechanism which moves the cutting and clamping devices, and the points in the head H, as set forth.

30. The combination of the lever J, wheel S, and pitman connecting the two slotted pitmen k^1, connected to the head H, as set forth.

188,630. CORSETS. MAX W. Henius, New York, N. Y., assignor to Moritz Cohn, same place. [Filed Nov. 4, 1876.]



1. The improvement in the art of manufacturing corsets which consists in corrugating by embossing, as described, those portions of a corset which compose the breast or hip gores, as a means for supporting and giving stiffness and elasticity to the corset at such places, and dispensing with the necessity of supporting-bones for such gores, substantially as described.

2. A corset, as a new article of manufacture, in which the gores of the fabric, to conform to the shape of the figure at the breast or at the hips, are stiffened by embossed corrugations, as described, at such places, as a substitute for whalebone or other supports, substantially as specified.

188,631. TOBACCO-HANGERS. J. G. Hester, Dutchville, N. C. [Filed Sept. 25, 1876.]

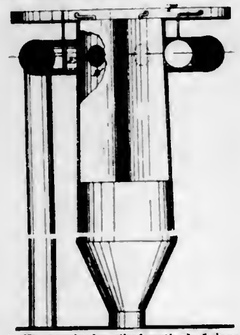
Brief.—The stick is held horizontally, and the leaves are strung onto the sharp-ended wires, which suspend them and hold them apart, and can be used in the field or curing-house.

A single or double angle wire, sharpened at the exposed end or ends, and flattened at the center, or where grasped or held to or within the stick, in combination with said stick, substantially as described.

188,631.



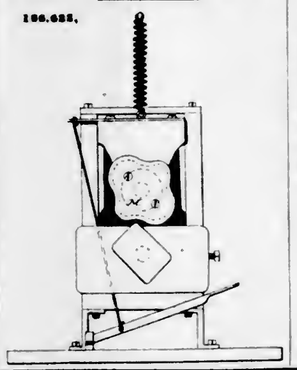
188,632. METHODS OF CHARGING AND MANAGING BLAST-FURNACES. Chas. Himrod, Youngstown, Ohio, assignor to himself and A. S. Bartolet, Crown Point, N. Y. [Filed Dec. 5, 1876.]



1. The herein-described method of charging and managing blast-furnaces having longitudinal compartments, which consists in feeding ore and flux into one compartment, and fuel into the next, and at intervals reversing this mode of charging to distribute the furnace-burden, the generated gases being compelled to traverse the compartment in which the ore is uppermost on their way to the exit, to their entire exclusion from the one in which the fuel is uppermost, substantially as and for the purpose described.

2. The combination, with a blast-furnace having longitudinal compartments, of a discharge or exhaust flue, communicating with each of the said compartments, near the top of the furnace, through outlets provided each with dampers, whereby the exhaust or discharge may be taken from any of the compartments to the exclusion of the others, substantially as described, and for the purpose of carrying out the method herein set forth.

188,633.



188,633. SEAMING-MACHINES. Wm. Hipperling, New York, assignor to S. L. Hines and R. A. Donaldson, Brooklyn, N. Y., and S. A. Ginna, Plainfield, N. J. [Filed Jan. 24, 1877.]

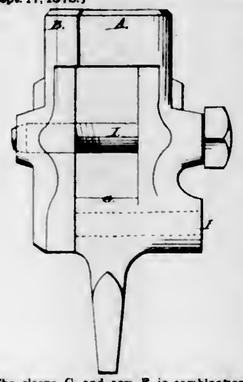
1. The crimping-head M, having four concavities or depressions in its periphery, substantially as shown and described, and for the purpose specified.

2. The combination of the head M, having four concavities in its periphery, with the head L, having four angles upon its periphery, substantially as and for the purpose set forth.

3. A crimping-head the periphery of which is elongated by concavities or depressions, for the purpose set forth.

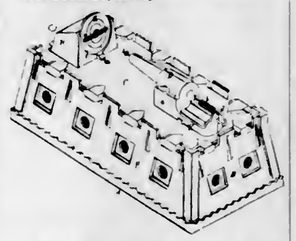
4. The combination of an angular former-head with a crimping-head having concavities or depressions, substantially as set forth.

188,634. STOCKS FOR SCREW-CUTTING DIES. J. Hochheimer, Hamilton, Ohio. [Filed Sept. 17, 1876.]



The sleeve G, and arm F, in combination with the jaws A B, and screw-bolt I, substantially as described, for the purpose specified.

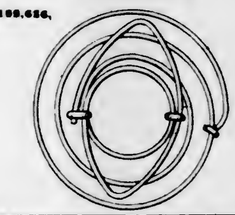
188,635. TOY MONEY-BOXES. L. C. Hoffmeister, Philadelphia, Pa., assignor of one-half his right to H. M. Beidler, same place. [Filed Jan. 20, 1877.]



1. The combination, with a toy bank, A B C, of the cannon D and carriage E, made in two longitudinal parts, the rod *b*, with catch *d* and collar *h*, and spring *i*, substantially as and for the purposes herein set forth.

2. The combination, with a toy bank, A B C, of the target G, with slot *s*, and the house H, with rest *t* and slot *v*, substantially as and for the purposes herein set forth.

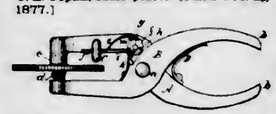
188,636.



188,636. FURNITURE-SPRINGS. Horace H. Holmes, Elmira, N. Y., assignor of one-half his right to Sidney A. Manwaring, same place. [Filed Dec. 16, 1876.]

A furniture-spring having an elongated or elliptical base-coil, substantially as described.

188,637. COIN-TESTERS. G. M. Hopkins, Brooklyn, N. Y., assignor to himself and C. L. Topliff, same place. [Filed Feb. 12, 1877.]

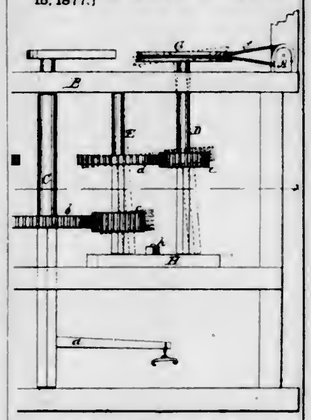


1. The combination of a clamp for holding coin and a spring-actuated hammer for striking the same, substantially as herein shown and described.

2. The combination of the levers A B, spring *d*, hammer C, and springs *k i*, substantially as herein shown and described.

3. The combination of the U-shaped frame A', spring-follower *b'*, hammer *f'*, and springs *k' m'*, substantially as shown and described.

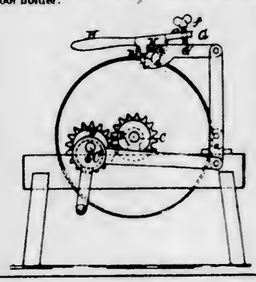
188,638. HORSE-POWERS. Wm. H. House, Bennett's Cross Roads, N. C. [Filed Feb. 16, 1877.]



The vertical driving-shaft C, the pivoted adjustable plate H, and fastening-pin A, the counter-shaft D, and intermediate shaft E, provided with the meshing-gears *b d* and pinions *c e*, arranged below the floor B, the band-pulley G, fixed on the shaft E above said floor, the gin-head A, and band *f*, all being combined as shown and described, for the purpose specified.

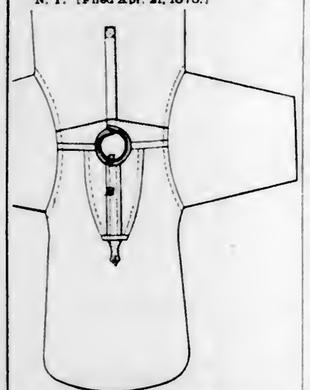
188,639. SICKLE-GRINDERS. Wm. S. Ingraham, Waukegan, Ill. [Filed Dec. 8, 1876.]

Brief.—The tool-holder receives a reciprocating motion by the rotation of the stone, by means of a pivoted lever, one end of which is connected to a pitman, and the other to the tool holder.



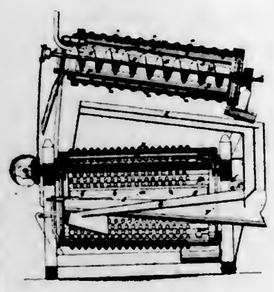
The pivoted arms G', connected together by the pieces *t t t*, and provided with the grooves *d* and lugs *c*, in combination with the clamping frame H, having recesses *n*, lugs *n'*, handle H', perforated projection *o*, and set-screw *f*, substantially as and for the purpose set forth.

188,640. SHIRTS. O. H. Keep, New York, N. Y. [Filed Apr. 21, 1876.]



As a new article of manufacture, a partly-made shirt, having its front, back, sleeves, and bosom fitted and sewed together, leaving the side seams of the body and of the sleeves unsewed and said sleeves without wristbands, substantially as and for the purpose specified.

188,641. GRAIN-SEPARATORS. H. Kurth, Milwaukee, Wis. [Filed Mar. 10, 1877.]



1. Two or more revolving cylinders, provided with pockets upon their internal perimeter of different sizes, with the cylinder, having the smaller pockets arranged to receive the materials to be separated from the cylinder or cylinders having larger pockets, substantially as set forth.

2. A revolving cylinder, having inner pockets or cavities, and an inclined bottom, combined with a conveyer and trough, arranged to carry the cleaned wheat in opposite direction from the cockle, substantially as described.

3. The cylinder A, having inner cavities *a*, and separate intervening perforations *b*, substantially as and for the purpose described.

4. In a grain separator, a cylinder, having inner cavities or pockets supported at one end upon and rotated by a central shaft, and supported at its periphery at the other, so as to permit the use of means for delivering the cockle and wheat at opposite ends of the cylinder, as and for the purpose described.

5. The inclined cylinder A attached to the central shaft at one end and free from the same at the other, in combination with trough F, projecting outside of the cylinder at its free end, and the shaft D, carrying conveyer G, arranged to revolve in the trough F, and discharge the cockle at the free end of the cylinder, substantially as and for the purpose described.

6. The combination, with the revolving cylinder in a grain-separator, of supporting-rollers, having an elastic periphery, and a bushing of glass or analogous anti-friction material; for the purpose specified.

7. The catch-board, hinged or pivoted to the receiving trough within the cylinder, and self-adjusting, with respect to the cylinder, by its own weight, substantially as described, and for the purpose set forth.

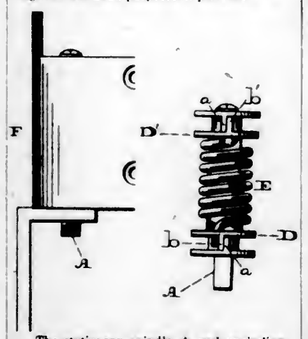
8. The combination, with the revolving cylinder, of the catch-board, having a detachable and adjustable elastic strip clamped between the edge of catch-board and a longitudinal plate by means of binding-screws, for the purpose described.

9. The cylinder B, having indented cavities upon the inside, pressed up to form conical projections upon the outside, with a greater thickness of metal at the apex of said cone or the bottom of the cavity, for the purpose described.

10. The combination, with the cylinder, supported at one end upon a central driving axis and free at the other from the same, of the trough F, swung upon the shaft D at one end and projecting outside of the cylinder at the other, and connected with a rigid support, for the purpose described.

188,642. SPRING-HINGES. J. McA. Jones, Philadelphia, Pa., assignor of one-half his right to Wm. Allen, same place. [Filed Feb. 26, 1877.]

Brief.—A suitable inclosing-box contains a stationary spindle having an encircling spring, the end of the spindle resting in a bearing attached to the door frame or jamb. On the spindle are fitted loose rings, while a series of lugs and two alternating pins are so arranged as to secure right and left automatic action, though employing only the single spring, thus adapting the hinge for right or left hand purposes at pleasure.



The stationary spindle A and encircling-spring E, in combination with loose rings D D', lugs *a a' b b' d d'*, and an inclosing-box, F, with alternate-acting pins G G', substantially as set forth.

188,643. MACHINES FOR FORMING THE EYES OF PICKS. A. C. Jordan, Pittsburg, and C. Konold, Evergreen Hamlet, Pa. [Filed Mar. 1, 1877.]

Brief.—Each of the four dies is dovetailed into the end of one of four die-carrying bars, that oscillate so as to carry the dies to and fro across the same vertical plane, and simultaneous with these oscillating motions the bars have also longitudinal motions, imparted by adjustable cam-disks that are embraced by shoulders on the sides of the bars. Thus the dies have a double movement, oscillating in arcs of circles, modified by predetermined movements toward and from one another, imparted by the cams upon which they swing.

1. In a metal-working machine, the die-carrier or arm, in combination with its circular offset-cam, and with suitable driving mechanism, substantially as and for the purpose specified.

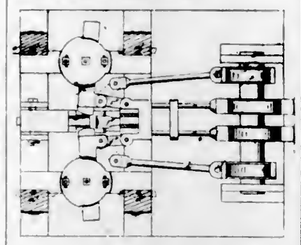
2. In a metal-working machine, the combination of two or more die-carriers with circular offset-cams adapted to project the dies, substantially in the manner and for the purpose specified.

3. In a metal-working machine, the combination of the die-carrier or arm with the adjustable offset-cam, substantially as and for the purpose specified.

4. The combination, in a metal-working machine, of a series of die-carriers and their offset-cams, with mechanism, substantially as described, adapted to cause one or more of the carriers to move in reverse direction to the rest of the series.

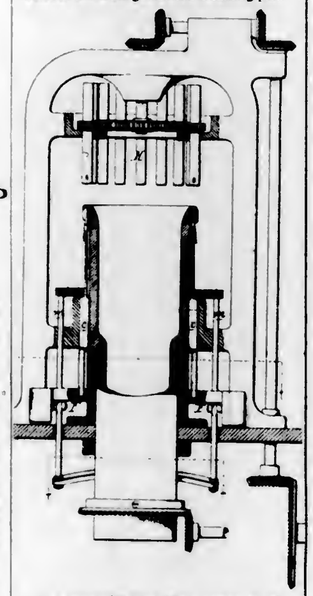
5. The combination of the carriers and their offset-cams, the cross-head, and the cam and yoke driving mechanism, substantially as and for the purpose specified.

6. In combination with the convex side dies, the concave top and bottom dies, having the offsets or projections, substantially as and for the purpose specified.



188,644. KNITTING-MACHINES. C. H. Landenberger, Philadelphia, Pa., assignor to Mary A. Landenberger, same place. [Filed Sept. 11, 1876.]

Brief.—In the fabric the last loops of the courses of adjacent stripe interlap. In the machine the needles work one in each set simultaneously, a reciprocating pin actuating, and a revolving thread-guide feeding, one needle of each set in the same manner. The sets may be varied as to the number of needles included in each, by simply changing the number of thread-guides and actuating-pins.



1. A tubular knitted fabric composed of a series of united stripe, each strip being composed of one thread knitted into transverse courses of loops, and the last loop of a course in one strip being interlocked with the first loop of the next previous course of the adjacent strip, all as set forth.

2. The combination, in a circular-knitting machine, of an intermittently-rotating needle-

carrying cylinder with thread-guides and devices, substantially as described, whereby the needles are caused to operate in sets, and whereby any thread-guide is caused to co-operate with any or all sets of needles, all as described.

188,645. CONCRETE PAVEMENTS. Archibald K. Lee, Philadelphia, Pa. [Filed Feb. 17, 1877.]

Brief.—On a properly-prepared and heavily-rolled surface is placed a course of about four inches of broken stone, the upper surface of which is coated with fluid asphaltum. Upon this bed of broken stone is placed a six-inch layer of concrete, composed of the following ingredients: Twenty-five yards small broken stone, nine cubic feet sand, two barrels cement, four hundred pounds hydrate of lime, and ten pounds powdered alum. These ingredients are to be well mixed with a sufficient quantity of oil or water to form a plastic mass, and while this coarse is still wet an upper layer or facing of asphaltic concrete, composed of the following ingredients, is put on: Nine cubic feet clean gravel, nine cubic feet pulverized limestone, six cubic feet fine sand, two barrels cement, one barrel plaster-of-paris, four hundred pounds hydrate of lime, twenty pounds pulverized glass, twenty-five pounds litharge, and thirty pounds black oxide of manganese. These ingredients are heated and mixed, and about forty-five gallons liquid asphalt to each cubic yard is thoroughly incorporated.



1. A concrete composition, consisting of gravel, pulverized stone, fine sand, cement, plaster-of-paris, hydrate of lime, pulverized glass, litharge, and black oxide of manganese, substantially as set forth.

2. The combination, in a pavement, of a lower layer of stone, with an intermediate layer of concrete, and an upper layer or facing of concrete composition, as above set forth, cemented with liquid asphaltum.

188,646. PROCESSES OF REDUCING ASPHALTUM TO A LIQUID. Arch. K. Lee, Philadelphia, Pa. [Filed Feb. 28, 1877.]

The method of reducing asphaltum to a liquid state by grinding it in burr-stones or other grinding apparatus, with the addition of a solvent, substantially as set forth.

188,647. AUTOMATIC FEEDERS FOR FURNACES. B. F. Littlepage, Los Angeles, Cal. [Filed Jan. 12, 1877.]

Brief.—By means of pivoted bars, having an oscillating vertical and a horizontal movement, the coal is directed to any part of the fire-box. Said bars are adapted to receive a sudden or jerking motion, by means of a toothed cam-wheel operating against the resistance of springs, by which mechanism the feed is thrown from the feed-bars onto the grate. The fuel is supplied to the feed-bars by means of a flexible metallic sheet or apron. The air is supplied through interstices between the lifters.

1. The combination of the flexible endless feeding apparatus with the pivoted feeders or fire-bars, arranged and operating substantially as herein described.

2. The combination of the pivoted bars, the head *b*, and the lifters A', substantially as described, and for the purpose set forth.

3. The combination of the cam-wheel having one or more cams, the tripping-toe G, and the spring-lifters with the pivoted bars *a*, as set forth.

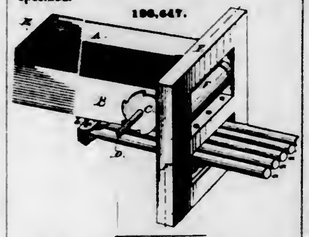
4. The combination of the head *b*, pivoted bars *a*, and links *f*, by which said bars are given a right-and-left motion, as and for the purpose specified.

5. The combination of the head *b*, pivoted bars *a*, and links *f*, with the lifters and cam-wheel, by which the bars are given an oscillating motion and a vertical motion, either independently or together, substantially as described, and for the purpose set forth.

6. The combination of the longitudinal slide *a'*, cross-links *f*, pivoted bars *a*, and head *b*, with a furnace-feeding apparatus, in the manner shown and described.

7. The case B, metallic flexible plate A, rollers E, cam-wheel C, and bars *a*, with intermediate mechanism, constructed and arranged to automatically feed a furnace, substantially as described, and for the purpose specified.

188,647.



188,648. SEWING-MACHINE NEEDLES. L. Loesaks, New York, N. Y., assignor of one-half his right to A. L. Wood, same place. [Filed Aug. 26, 1876.]



The double needle B B' herein described, the head of the needle B' being united rigidly to the shank of the needle B, and the latter projecting above the needle B', whereby the double needle is adapted to be applied to the needle-bar of a sewing-machine having but one needle-socket, substantially as described.

188,649. LAMPS. John C. Mairs, Steubenville, Ohio. [Filed Jan. 20, 1877.]

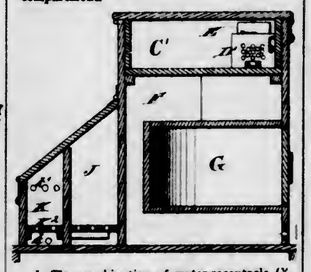
Brief.—The combined match-box and cover can be put on the bottom of the device when in use.



The combination of the tube A, wick and burner having sleeve *a*, and the cap D, provided with partition *f*, all substantially as herein set forth.

188,650. REFRIGERATORS AND FILTERS. A. McClain, Nashville, Tenn. [Filed Feb. 3, 1877.]

Brief.—The water passes from the upper receptacle through a sponge into a lower chamber containing ice, and passes thence through filtering materials in an adjoining compartment.

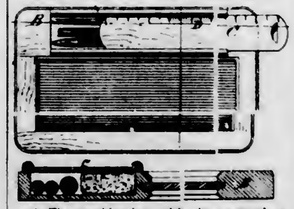


1. The combination of water-receptacle C' with sponge-box D, having perforated walls D' D' and slide E, substantially as and for the purpose set forth.

2. Refrigerating chamber G, in combination with compartment F, having space H and tube I, arranged at diagonally-opposite corners, substantially as and for the purpose set forth.

3. The combination of filtering-chambers J and K, end spaces K' and K', and perforations connecting said chambers and spaces, substantially as and for the purpose set forth.

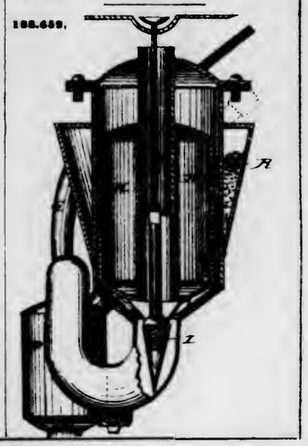
188,651. COMBINED SLATE AND SCHOLAR'S COMPANION. Wm. D. McCormick, Scranton, Pa. [Filed Oct. 7, 1876.]



1. The combination, with the recessed or chambered slate-frame and the sliding cover, of a friction-spring arranged to hold the cover in its place, substantially as described.

2. A slate-frame, B, having one of its sides or ends recessed or chambered short of its entire length, so as to leave both the ends of said side solid, in combination with the separate projecting ribs *a a* and the sliding cover C, substantially as and for the purpose described.

188,652.



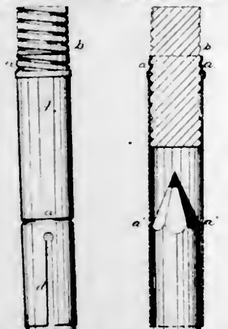
186,642. SINK AND SEWER-TRAPS. John H. Mackie, Oakland, Cal. [Filed Mar. 16, 1877.]

1. A siphon-trap having an air-chamber above or communicating with the arch of the siphon, for the purpose of preventing the discharge branch of the siphon from completely filling with water, substantially as set forth.

2. In a siphon-trap, an air chamber connected with the discharge branch of the trap, to allow the bubbles of air or gas to burst, and thus escape from the outflowing water, substantially in the manner and for the purposes set forth.

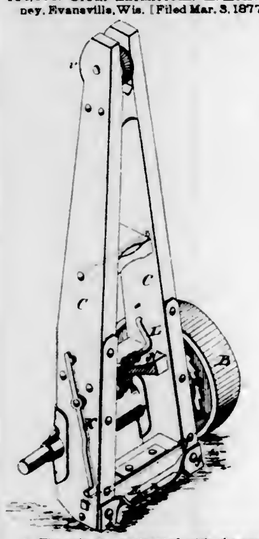
3. The central cylinder, provided with the disinfecting-chamber K, in combination with the buoy K, having the cork L rigidly attached thereto, substantially as and for the purposes set forth.

186,643. COMBINED ERASIVE TIP AND PENCIL-POINT PROTECTOR. Geo. W. McGill, New York, N. Y. [Filed May 24, 1875.]



The metallic tube A, split at its lower end *d*, and provided with the screw-thread *a* and annular groove *a'*, in combination with the erasive tip B, having a spiral thread or groove, *b*, formed in or upon its exterior surface, substantially as and for the purpose specified.

186,644. STUMP-EXTRACTORS. A. McKenney, Evansville, Wis. [Filed Mar. 3, 1877.]



1. The axle A, constructed with the parallel lugs *a a*, flanges *b b*, and shoulders *d d*, and recesses *e e*, substantially as and for the purposes herein set forth.

2. The concave depressions *x x*, formed in the flanges *b b* of the axle A, for the purposes herein set forth.

3. The combination, with the crutch-lever C and wheels B B, of the ratchet-wheels D D secured on said wheels, and the straight ratchet-arms K K, having long bearings on the lever and short arms *m m* extending toward the wheels, substantially as and for the purposes herein set forth.

4. The bite E, constructed of a flat metal bar, twisted near its ends to form flat bearings *f f* at the ends, and sharp edge *h* along the middle, substantially as and for the purposes herein set forth.

5. The combination of the crotched lever C, girt G, bite E, constructed as described, and the plates *i*, substantially as and for the purposes herein set forth.

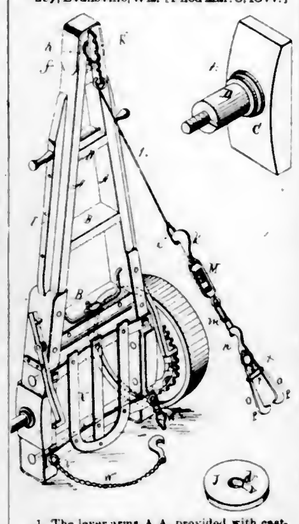
6. The hook H, formed of a single metal bar, having its end split, and side-bars I I welded to them, the block J and bolt *g*, all constructed and combined substantially as and for the purposes herein set forth.

7. The clevis O, twisted in the bend as shown at *s*, for the purposes herein set forth.

8. The bail L, constructed as described, and provided with eccentric gudgeons *s s*, in combination with the lever C and ratchet-arms K K, substantially as and for the purposes herein set forth.

9. The shoes *v*, attached to the arms of the lever C at the upper end on the under side, for the purposes set forth.

186,655. STUMP-EXTRACTORS. A. McKenney, Evansville, Wis. [Filed Mar. 3, 1877.]



1. The lever-arms A A, provided with castings C C, having projecting journals D and wheels E, all arranged as described, so that the lower ends of the lever-arms and bottoms of the wheels will have an even bearing, for the purposes herein set forth.

2. The combination of the V-shaped lever A A, chamfered, as described, to receive the castings C C, the cross-girts B, inside wedge-pieces G, outside strengthening-pieces H, ribs I, and bolts *a*, substantially as and for the purposes herein set forth.

3. The rounded projecting plate *f*, in combination with the lever-arms, link h, and notched bar K, for the purposes herein set forth.

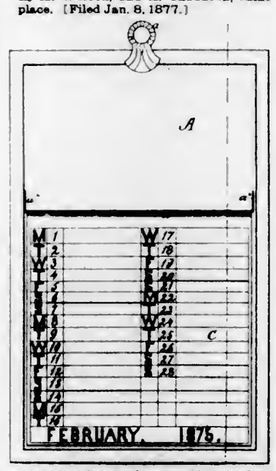
4. The grappling-hooks, consisting of the spring N, arms O, with hooks F, and sliding links *p*, substantially as and for the purposes herein set forth.

5. The combination of the notched bar K, round bar L, with eye *e*, swivel M, with screw-hook *k*, and links *m*, and the grappling-hook, or its equivalent, for the purposes herein set forth.

6. The open triangle R with chains S S, in combination with the swivel M and bars L and K, as and for the purposes herein set forth.

7. The combination, with the lever-arms A A, of the platform V, girts T, cross-bolts *t*, eyebolts *v*, and chains W, all as and for the purposes herein set forth.

186,656. CALENDARS. E. P. Morse, Batavia, N. Y., assignor to himself, G. Bowen, H. M. Warren, and H. Chaddock, same place. [Filed Jan. 8, 1877.]



A memorandum having monthly calendars C, fastened at their upper edges, near an opening, *a'*, to allow them to be turned over, and made to hang in regular order behind one another, as shown and described, for the purpose specified.

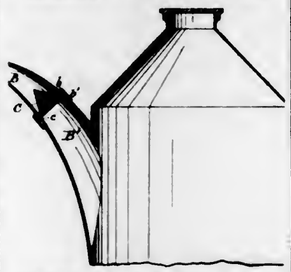
186,657. MITERING-MACHINES. Josiah H. Mosher and John Pennington, Pewamo, Mich. [Filed Jan. 29, 1877.]

Brief.—Moldings of any desired length can be cut on any desired angle, and picture-frames of any desired size put together, by means of a loose plate provided with parallel grooves, and graduated guide-rails carrying sliding frame-supports, having adjustable saw-guides attached thereto, in connection with a suitable saw.



The combination of the sliding supports C C, having adjustable saw-guides D D, and frame-clamping screws E, with the base A, provided with guide-rails B, as and for the purpose set forth.

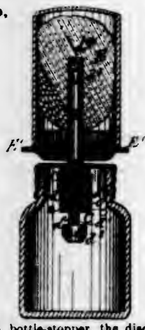
186,658. OILER-NOZZLES. S. S. Newton, Binghamton, N. Y. [Filed Dec. 19, 1876.]



The herein-described oil-can nozzle, consisting of the parts B B', united by a screw thread, in combination with the strainer C, secured between the base of the part B and the shoulder *b'* of the part B', substantially as set forth.

186,659. MUCILAGE-HOLDERS. S. S. Newton, Binghamton, N. Y. [Filed Feb. 27, 1877.]

186,659.



1. In a bottle-stopper, the discharge-tube D, provided with the thumb-plate E', in combination with the sponge E, arranged outside of and secured to the tube above the thumb-plate, substantially as set forth.

2. In a blacking-bottle, the combination of the sponge E, the screw-threaded tube D, provided with ports *d'* *E'*, and the screw-threaded tube C, substantially as set forth.

3. In a blacking-bottle, the screw-threaded tube D, provided with ports *d'* and shoulder *d*, in combination with the screw-threaded tube C, provided with flange *c*, substantially as set forth.

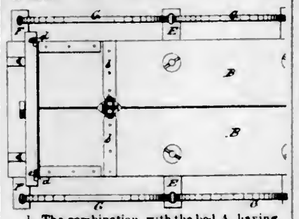
186,660. ARTIFICIAL-STONE COMPOSITION. Mary Nolan, St. Louis, Mo. [Filed Dec. 7, 1876.]

Brief.—Mixes finely-pulverized glass and clay in the proportion of twenty-five pounds of the former to seventy-five pounds of the latter. Glass of different colors may be used.

An artificial-stone composition, consisting of pulverized glass and kaolin, combined substantially in the manner and proportions set forth.

186,661. CONVERTIBLE WAGON-BED AND HAY-RACK. Jas. M. O'Neall, Fort Worth, Tex. [Filed Feb. 8, 1877.]

Brief.—May be used as a box, or is readily converted into a rack for hay, cotton, lumber, or wood.



1. The combination, with the bed A, having grooved bars *a* attached thereto, the grooved head-board, and the adjustable sides R, having straps whose heads work in the grooves of said bars, substantially as and for the purpose specified.

2. The stakes or bars F and E, provided with holes in their outer ends, and attached to the under side of the wagon-bed, and the side bows or guards G, all combined as shown and described.

3. The combination, with the wagon-bed, of the detachable end-board D, having the end hooks *h* and the slotted adjustable bars or slides *i*, as shown and described.

186,662. PORTABLE FURNACES FOR THAWING LEADERS. Wm. R. Ostrander, New York, N. Y. [Filed Jan. 27, 1877.]

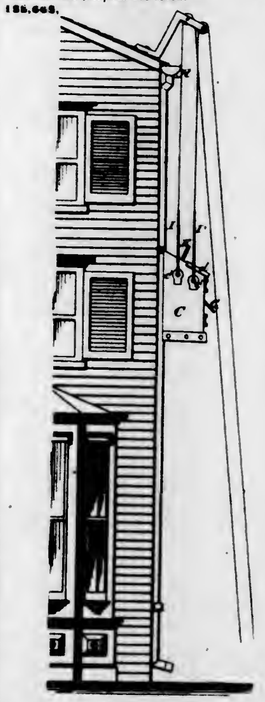
1. The heater C, provided with the rear recess C', in combination with the leader B, fitting into said recess, substantially as described, and for the purpose set forth.

2. Heater C, having bails I I', one of said bails being attached to said heater in front of and below the other, substantially as and for the purpose set forth.

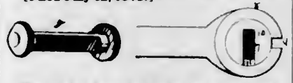
3. Heater C, having top or roof C', extending beyond the body of said heater, lid D, raised plate K, and shed G, for the purpose of protecting the fuel-opening and draft-openings, substantially as and for the purpose set forth.

4. Heater C, provided with rollers H' H', brackets H H, and bails I I', substantially as and for the purpose set forth.

186,663.

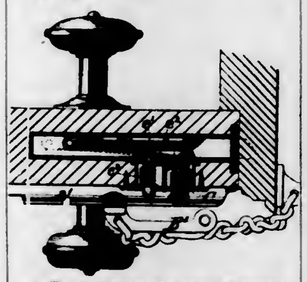


186,663. THILL-COUPLINGS. W. B. Owen and E. J. McClintock, East Saginaw, Mich. [Filed July 12, 1876.]



The shaft 3, provided at its inner end with the slotted cylinder 8, in combination with the revolving slotted barrel 10 and flat bolt 7, substantially as described, and for the purpose set forth.

186,664. LOCKS AND CHAIN-FASTENINGS COMBINED. C. Parham, Philadelphia, Pa. [Filed Feb. 6, 1877.]



1. The combination of a grooved slide-piece having a free opening at the end adjacent to the lock side of the door with a check piece or stop hinged or pivoted to the slide-piece, so as to be swung across the same to prevent the withdrawal of the chain slide through its open end, substantially as set forth.

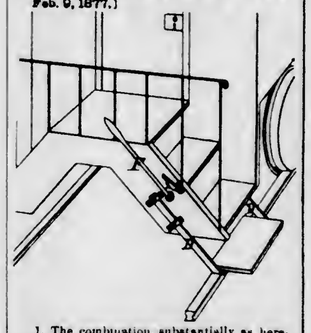
2. The combination of a slide-piece, the groove of which has a free opening at the end adjacent to the lock side of the door, and a sliding stop or bolt which is movable at right angles to the groove of the slide-piece, and is forced into the same by the pressure of the chain slide, substantially as set forth.

3. The combination of a grooved slide-piece, a movable stop or bolt, and a starting-pin, substantially as set forth.

4. The combination of a grooved slide-piece, a movable stop or bolt, and a starting-plate, substantially as set forth.

5. The combination of a grooved slide-piece, a movable stop or bolt, a sliding bar which moves and locks said bolt, and a pivoted lever operating said sliding bar, substantially as set forth.

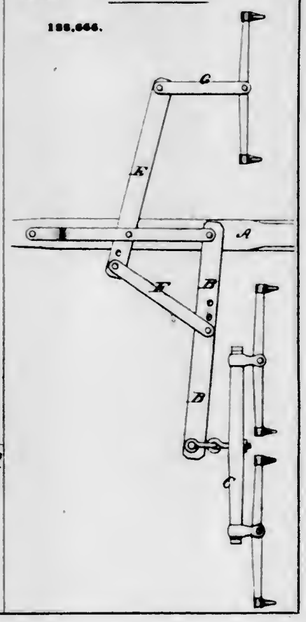
186,665. EXTENSION-STEPS FOR CARS. C. W. Perkins, Washington, D. C. [Filed Feb. 9, 1877.]



1. The combination, substantially as hereinbefore set forth, with the fixed steps of a railway-car, of a drop-step operated by rock-shaft, rigid arm, and connecting link, behind the fixed steps, and a lever extending to the platform.

2. The combination of a drop-step, connecting-rod, vibrating arm, rock-shaft, and hand-lever extending to the platform, the combination being and operating as shown and described.

186,666.

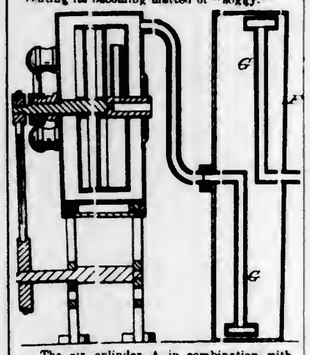


188,666. DRAFT-EQUALIZERS. Horace L. Phelps, Dodge Centre, Minn. [Filed July 7, 1876.]

The combination of the tongue A, lever B, pivoted at one end to the tongue, lever E, pivoted near one end across the tongue, and the link G, connecting the end of the lever E with the middle of lever B, as shown.

188,667. CARBURETERS. John A. Pierce and Francis E. Smiley, Philadelphia, Pa. [Filed Dec. 11, 1876.]

Brief.—The carbureting-chambers, having induction and eduction pipes extending from near the middle to opposite ends, is reversed or inverted at intervals, for the purpose of loosening the absorbent packing, and preventing its becoming matted or "soggy."



The air-cylinder, A in combination with the reversible chamber F, having the induction pipe G and eduction-pipe G', extending alternately to opposite ends of said chamber, substantially as and for the purpose set forth.

188,668. SCREWS. James Pleukharp, Columbus, Ohio. [Filed Feb. 10, 1877.]



As an article of manufacture, the double-ended screw hereinbefore described, formed of a wrought-iron core, c, and the surrounding cast-metal shell, composed of the parts *a a*, having a right screw-thread, and the central rib or projection *b*, as shown and set forth.

188,669. BALE-TIES. Jas. M. Pollard, New Orleans, La., assignor of three-fourths of his right to W. L. McNeely, J. D. Milburn, and T. M. McNeely. [Filed Dec. 21 1876.]



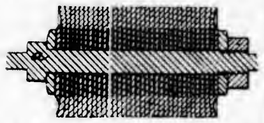
1. In a bale-tie, in combination with a buckle, a movable device acting as a wedge or cam, and supported upon a cross-bar, as described.

the looped end of the band attached to the buckle and forming a spring, to operate as shown and set forth.

2. In a bale-tie, the combination of the roller D, the cross-bar C of the buckle inclined on the upper side, and the looped end B of the band, forming a spring and exerting an elastic pressure on the roller, as shown and described.

3. In a bale-tie, the combination of the central cross-bar, having the inclined upper side, and the flange *e* formed on the lower edge thereof, the roller D, the end B of the band looped around the bar *d*, and having the spring end *f* and the cross-bars *c c*, arranged with relation to the cross-bar C as shown and described, to operate as specified.

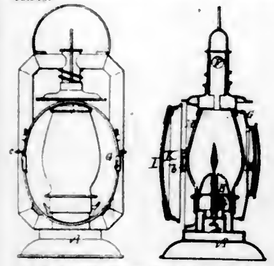
188,670. BUFFING OR TAKE-OFF ROLLS FOR FINISHING PRINTED PAPER. A. D. Poole, Wilmington, Del. [Filed Mar. 8, 1877.]



In a machine for finishing printed paper, a buffing or take-off roll composed of a series of disks of fibrous material and a series of disks of smaller diameter, composed of any suitable material, arranged alternately upon a spindle or shaft, and compressed together by suitable clamping devices, substantially as described.

188,671. SIGNAL-LANTERNS. H. B. Pond, Franklin, Mass. [Filed Nov. 14, 1876.]

Brief.—A detachable hood or case is attached to an ordinary open lantern. The case is provided with a reflector, and with one or more interchangeable windows of different colors.



1. In hand-lanterns containing the lamp, draft-tube, and adjustable chimney-support, substantially as described, the hood G, surrounding the burner and chimney, essentially as and for purposes stated.

2. In combination with the hood G, the adjustable window or windows I, substantially as and for purposes stated.

3. The combination, with the lantern proper, of the removable hood G and one or more windows detachably connected with the hood, so that one window may be removed and replaced by another, substantially as and for the purposes set forth.

4. The combination, with the lantern proper and the hood G, of the reflector L, applied to and removable from the deflector, substantially as set forth.

5. A window-pane for hand lanterns, constructed as follows: consisting of the two sheets of gelatine with the interposed material, cemented together and varnished, essentially as and for purposes described.

188,672. RUNNING-GEAR FOR CARS. Louis T. Pyott, Philadelphia, Pa. [Filed Sept. 4, 1876.]

Brief.—Front and rear axles are attached to triangular frames pivoted to the middle beam, and reciprocally controlling each other through segment-gears and an interposed pinion. Motor suspended beneath truck-frame, and driving a compensating gear-wheel on middle axle.

1. The frame 11, pivoted to a cross-tie, D, by the center-pin E, and adapted to be moved radially by the front wheels, as and for the purpose set forth.

2. The combination, with the radially-moving frame 11, of the front frame 8, rack-segments 15 19, and the pinion 21, as and for the purpose set forth.

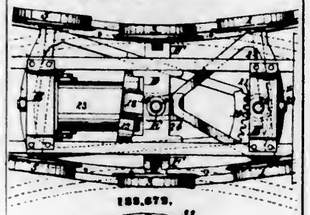
3. The cross-tie D, having shoulders F and pedestals G, for the vertically-sliding journal-boxes H, as and for the purpose set forth.

4. The combination, with the gear-wheel 26, having projecting rim 30 30', of the grooved side plates 31 and cushion 32, as and for the purpose set forth.

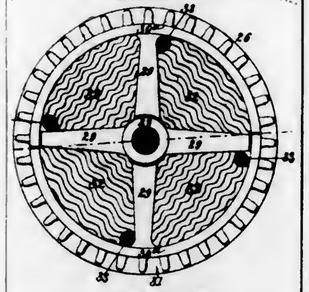
5. The combination, with the gear-wheel, having projecting rim, grooved side plates, and cushion, of the screw-bolts 33, as and for the purpose set forth.

6. The gear-wheel, having divided rim and arms detached from hub, in combination with the hub having arms detached from rim, cushion 32, and side plates 31, as and for the purpose set forth.

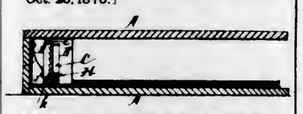
7. The engine or motor supported wholly by the driving-axle, and links depending from the car-bed, as set forth.



188,673.

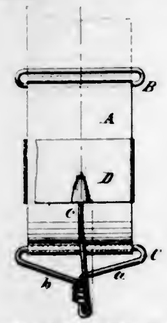


188,674. TEMPORARY BINDERS. L. Riohoux, New York, N. Y., assignor of one-third his right to C. L. Abry, same place. [Filed Oct. 25, 1876.]



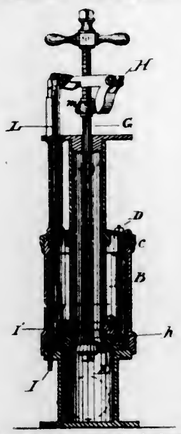
The bar H, with lugs J and spring I, in combination with the ratchet-bars D, with pins or handles *k* and their springs F, standards B, with slots C and cover A, substantially as described, and for the purpose set forth.

188,675. SKIRT-SUPPORTERS. C. V. Richards, Garland, Me., assignor to himself and F. W. Swan, same place. [Filed Jan. 29, 1877.]



A skirt-supporter consisting of the plate A, loop B, loop C, having formed upon it the pin *c*, and the slide D, combined and arranged substantially as shown and described.

188,676. HYDRANTS. John Richardson, New York, N. Y. [Filed Sept. 18, 1876.]



1. In combination with the hydrant C, the main A, provided with the rods D, to guide the foot of the hydrant to its seat, as described and shown.

2. The combination of the main A, provided with rods D, the jacket B, and the hydrant C, provided with the flange or cap *c*, as shown.

3. In combination with the hydrant C and jacket B, the waste-pipe I and valve I', arranged as shown, so as to prevent the escape of water into the space between the jacket and the hydrant.

4. In combination with the hydrant C and jacket B, the waste-pipe I, passing down through the foot of the hydrant, within the jacket, as shown, allowing the jacket to be removed without disconnecting said pipe, as described.

5. The combination of the valve rod or stem G, having collar *m*, elbow lever M, lever K, rod L, and valve I'.

6. The hollow valve-rod G, provided with openings *k* above the valve F, as shown and described.

7. The valve-rod L, having its upper end hinged or jointed, substantially as shown.

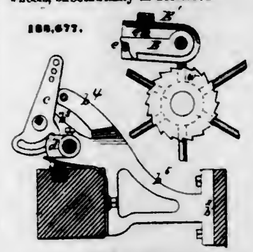
188,677. HORSE HAY-RAKES. S. Ritty, Dayton, Ohio, assignor of part of his right to J. Dodds and T. Mathison, same place. [Filed Feb. 20, 1877.]

1. In a horse hay-rake, the combination of the slotted cam-lever *e*, arm *d*, and pin with the oscillating bar O, dogs, and ratchets, substantially as described.

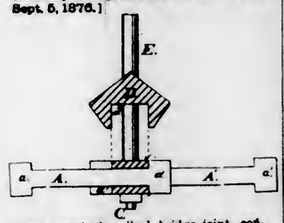
2. The bracket *b'*, constructed with the rear extension *b²*, vertical flange *b³*, and arms *b⁴ b⁵*, substantially as described.

3. The combination of the loose dogs E with their casings E', stops *e*, and springs *e'*, and with the oscillating bar and ratchet-wheels, substantially as described.

188,677.



188,678. BRIDGE-JOINTS. Thos. Buick, St. Louis, Mo., assignor of one-half his right to Henry S. Hopkins, same place. [Filed Sept. 5, 1876.]



1. The herein-described bridge-joint, consisting of the bars A A A' A', having the heads *a a' a'*, the cross-plates B B, arranged, respectively, above and beneath the chord, but not bearing upon each other, and the bolts C C, combined and operating substantially as described.

2. The combination of the bars A A A' A', cross-plates B B, arranged as described, bolts C C, and angle-block D, having the projections *d d d*, substantially as described.

3. The combination of the bars A A A' A', cross-plates B B, arranged as described, angle-block D, with or without the projections *d d d*, and rods E E E, substantially as described.

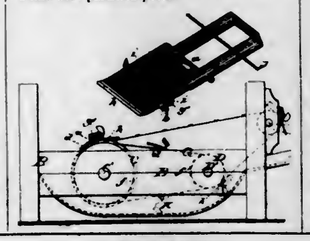
4. The combination, in a bridge-joint, of the chord-bars A A A' A', provided with heads *a a' a'* and the cross-plates B B, arranged as described, substantially as and for the purpose set forth.

188,679. COMPOUNDS FOR ARTIFICIAL STONE. C. Schaffer, Washington, D. C., assignor to Geo. W. Cook, same place. [Filed Mar. 7, 1877.]

An artificial stone, composed of Portland cement, sand, crushed marble or stone, salicylic acid, water, and zinc white, compounded substantially in the proportions, and treated as herein specified.

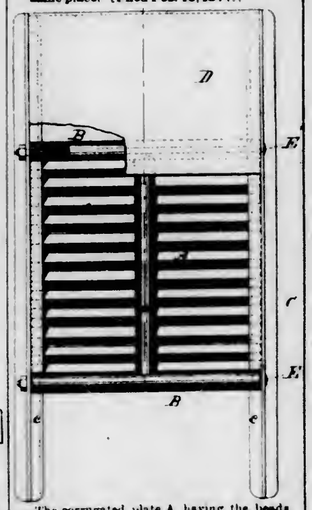
188,680. RAKES FOR SALT-BOILERS. J. E. Secord, Port Sanilac, Mich., assignor of one-third his right to J. H. Huyck, same place. [Filed Oct. 30, 1876.]

Brief.—Salt deposited upon the bottom of the evaporating-pan is removed by rakes, and deposited upon the inclined draining-board. Auxiliary rakes remove the salt deposited on a line with partition-posts.



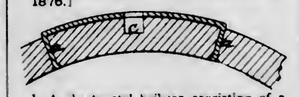
The self-emptying rake or scraper I herein described, consisting of a bent arm, *e*, swung upon a rod or cross-piece, *d*, and having hooks or supports *h*, rake blade *g'*, sweep A, and chains *i*, all constructed, combined, and operating substantially in the manner and for the purpose shown and specified.

188,681. WASH-BOARDS. Wm. Service, Sidney, Ohio, assignor to W. M. Service, same place. [Filed Feb. 10, 1877.]



The corrugated plate A, having the beads B, and stay *a*, in combination with the side pieces C, plate D, and bolts E, substantially as herein shown and described.

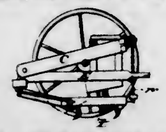
188,682. BUCKET-BAIL EARS. C. D. Seys, Springfield, assignor to W. M. Dunham and T. Dunham, Cleveland, and J. S. Kendrick, Springfield, Ohio. [Filed Feb. 19, 1876.]



1. A sheet-metal bail-ear, consisting of a body of a plane surface throughout, and provided with a bail-eye and sharp-pointed prongs extending from the body, and at a suitable angle with the plane of the body, as and for the purpose set forth.

2. A sheet-metal bail-ear having a body of a plane surface throughout, containing the bail-hole, and having sharp-pointed prongs for piercing the wood, in combination with a pail having a cavity for the return end of the wire bail, each prong being clinched on the inside of the pail, as and for the purpose set forth.

188,683. CORN-PLANTERS. M. O. Skree, Houston, Minn. [Filed Oct. 23, 1876.]



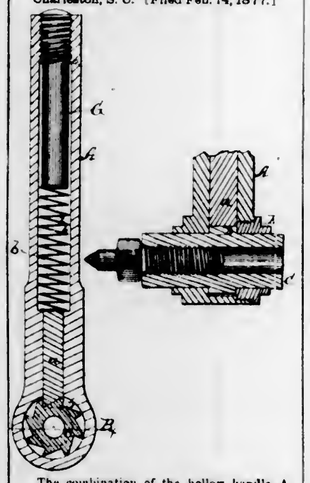
1. In a corn or seed planter, the combination of the frame C, having bearings for the axle A with the hinged frame E carrying seed-box F, the latter sliding vertically in frame C, substantially as and for the purpose set forth.

2. The combination of frame C, axle A, consisting of pieces *a a'*, clutch-collars *b c*, levers B N, the latter having rod O, and hinged frame M, substantially as and for the purpose hereinbefore set forth.

3. The frame E, having feed-box F and

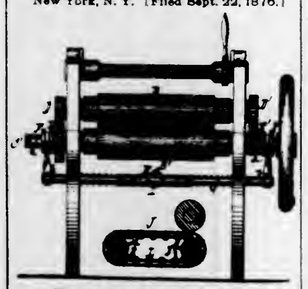
feeding mechanism, as herein described, in combination with the frame C, lever N having rod O, levers B D, axle a a', and clutch-collars b c, all combined and arranged to operate substantially in the manner and for the purpose herein shown and specified.

188,686. RATCHET-BRACES. W. S. Smith, Charleston, S. C. [Filed Feb. 14, 1877.]



The combination of the hollow handle A with hollow head B, the spindle C with ratchet-wheel D thereon, the screw-collar E, pawl a, spiral spring b, and screw-plug G, all substantially as and for the purposes herein set forth.

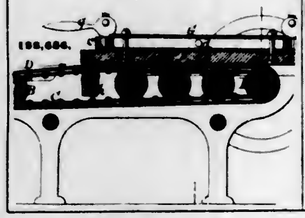
188,685. MANGLES. Hamilton E. Smith, New York, N. Y. [Filed Sept. 22, 1876.]



1. The combination, with the rollers B B' and their shafts C C', of the two loose cog-wheels E E', two fast cog-wheels, D D', and the clutches F F', the whole being adapted to operate substantially as described.

2. The carrying-apron J, chains I, and the rollers K and B', around which the apron passes, in combination with the revolving polishing-roller B, arranged above the roller B', and the two being geared together, as and for the purpose described.

188,684.



188,686. IRONING APPARATUS. H. E. Smith, New York, N. Y. [Filed Aug. 26, 1876.]

1. The combination, in a machine for polishing clothes or other articles, of endless chains and chain-wheels with a cloth-carrying apron, with a heating-box shod with a polishing-surface, and with a series of supporting-rollers, substantially as herein shown and described.

2. The combination, with an endless carrying-apron, D, and with a heating-box, G, of a shoe, H, of marble, soap-stone, or other equivalent material, substantially as and for the purpose set forth.

3. The combination, with an endless carrying-apron, D, chains C C, and shoe H, secured to a heating-box, G, of a spring-supported feed-roller, I, substantially as shown and described.

4. The combination, with the heating-box G and its shoe H, and with the carrying-apron D and its supporting-rollers E, of cam-levers g for depressing the shoe upon the apron, substantially as shown and described

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188,687. METALLIC COLLAR-BOXES. Geo. K. Snow, Watertown, assignor to Reversible Collar Company, Boston, Mass. [Filed Jan. 20, 1877.]

Brief.—Of metal card-board. May be lined with ornamental or advertising paper. Cover or bottom may be imperforate. May be inwrought with designs in worsteds or silks. May be used as a dredger, soap-holder, strainer, steamer, &c.



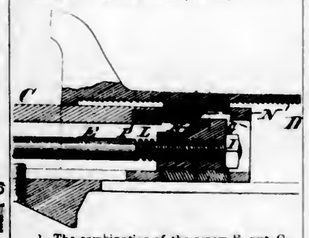
1. A box for packing collars, cuffs, and other light dry merchandise, having its vertical wall made of perforated sheet-metal card-board, substantially as and for the purposes described.

2. A box for packing collars, cuffs, or other dry merchandise, made of sheet metal, and having its entire surface pierced with a series of small holes of uniform shape and size, arranged in parallel rows and equidistant apart, as and for the purposes described.

3. A box provided with a cover, and having its vertical wall pierced with a series of small holes of uniform shape and size, arranged in regular order and equidistant apart, in combination with a lining of paper, cloth, or other flexible material, the outer surface of which is plain or colored, or has printed, stamped, or otherwise affixed thereon letters, figures, or ornamental designs, adapted to be viewed through the perforations in the box, substantially as and for the purpose described.

4. A box made of sheet metal, and having its entire surface, except a narrow strip around the edge of the cylindrical portion, pierced with a series of small holes of uniform shape and size, arranged in regular order and equidistant apart, substantially as and for the purpose described.

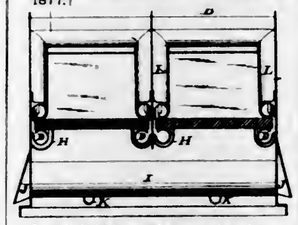
188,688. VISES. Wm. E. Snediker, Trenton, N. J. [Filed Feb. 12, 1877.]



1. The combination of the screw E, nut G, having the inclined plane N, clamping-block H, having the inclined plane N' and notches n, the slotted sword C, and the notched sheath D, substantially as and for the purpose set forth.

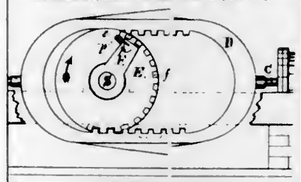
2. The combination, with the screw E, nut G, clamping-block H, sword C, and sheath D, all constructed substantially as described, of the supporting-block K, arranged substantially as and for the purpose described.

188,689. SKYLIGHTS. E. C. Specht and J. Spieler, Cincinnati, Ohio. [Filed Feb. 14, 1877.]



In a skylight-frame, the congeries of open sided and ended tubular members C D G H I J, for the support and drainage of the lights or sashes, substantially as set forth.

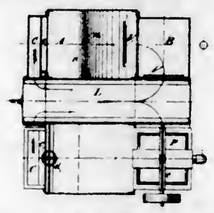
188,690. ENGINE-GEARING. Henry Stibbs, Baltimore, Md. [Filed Feb. 17, 1877.]



1. In combination with the shaft S, the cranks F F', having pawls P P', and disks E E', each disk having a step, e, as set forth.

2. The disks E E', separated by flange f, in combination with the piece D, as set forth.

188,691. COAL-WASHING MACHINES. S. Stutz, Pittsburg, Pa. [Filed Apr. 11, 1876.]



1. A coal-washing apparatus consisting of the two chambers with their appropriate sieves, pistons, and valves, and an intermediate chamber, into which the coal is delivered from both.

2. A coal-washing apparatus having the two chambers A A, and the intermediate chambers L, chambers B B, with pistons operating alternately on the masses of coal in the boxes A A, and the valves V V_1, as and for the purposes set forth.

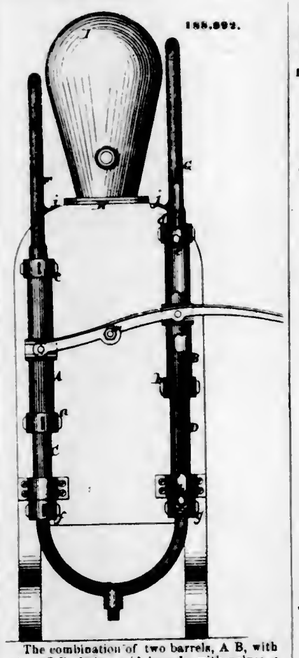
3. The chambers A A, having sieves s s, inclined ways C C leading into the central chamber L, and the valve-passages c c, as set forth.

4. The partition a within the box A, and in combination with the valve V_1 and the sieve s, said partition being arranged in relation to the other parts as described, whereby the current entering through the valve is deflected upward against the sieve, and the lower part of the box A is left as a receptacle for small particles of sulphur and slate, all as set forth.

188,692. PUMPS. J. J. Stuart, New York, N. Y. [Filed Feb. 22, 1877.]

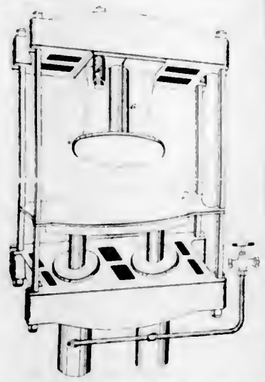
Brief.—Two movable pump-barrels are combined with a suction-pipe, which is bent to form two branches—one for each of the barrels, and with suitable valves in the barrels and suction-pipes, and with flexible ascension-pipes, which connect with an air-vessel in such a manner that, by imparting to the pump-barrels a reciprocating motion in opposite directions, a double pump is obtained, which can be operated by hand or other power.

188,692.



The combination of two barrels, A B, with pipes C D, fitting said barrels, with valves e and h, flexible pipes F G, air-vessel I, and with mechanism for imparting to said barrels a reciprocating motion in opposite directions, all constructed and operating substantially as herein shown and described.

188,693. TOBACCO AND COTTON PRESSES. Allan Talbott, Richmond, Va. [Filed Feb. 21, 1877.]



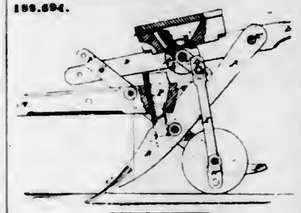
In combination, with the movable follower and the frame of the press, the plunger G pivoted to and beneath the head of the press, whereby it is adapted to be swung under said head for co-operating with the follower in the pressing operation, and to be swung out to facilitate filling the hogshead, as shown and described.

188,694. CORN-PLANTERS. G. Tatlock and S. Newby, New Philadelphia, Ind. [Filed Jan. 6, 1877.]

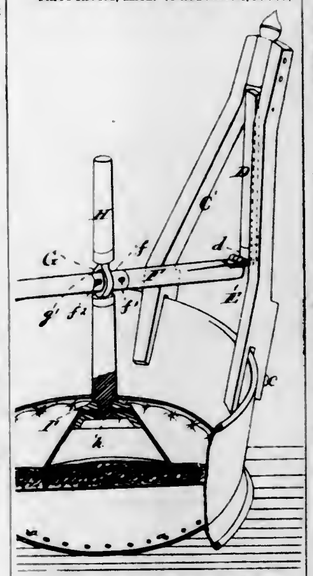
1. The handles D E, supported on extensions of the standard B, in combination with adjustable bars F, beam A, and hopper L, as shown and described.

2. A handle-frame, D, pivoted to a rear extension of standard B, and adapted to be connected in front either with the beam A or bars F, as and for the purpose set forth.

188,694.



188,695. WASHING-MACHINES. J. Taylor, Three Rivers, Mich. [Filed Nov. 4, 1876.]



1. The combination of a swinging fulcrum-arm, D, with an operating-lever, and a double-joint or universal-joint connection, substantially as set forth.

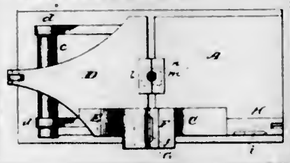
2. The combination of plunger H with notched ring G, and wedge-shaped stud f on lever F, substantially as set forth.

3. The combination of a plunger or pounding rod, having a pivoting-ring formed in or near its middle part, with an operating-lever having a sleeve or shield, provided with lugs or studs, between which said pivoting-ring plays, substantially as set forth.

4. The lever F, provided with sleeve f, in combination with rod F', which forms studs on opposite sides of said lever, and also secures said sleeve or shield thereto, substantially as set forth.

5. The eye or ring G, having extensions G' G' in one piece therewith, substantially as and for the purpose set forth.

188,696. BLACKSMITHS' MACHINES. J. C. Tobin, Northampton, Mass., assignor of one-half his right to O. O. Roberts, same place. [Filed Jan. 31, 1877.]



1. The reversible jaw F, of the form described, and having an angular recess, f, and plain face k, in combination with the standard C, substantially as and for the purpose described.

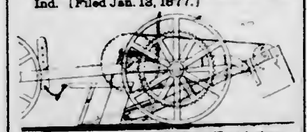
2. The improved blacksmith's machine herein described, consisting of the tables D A, with jaws G F and dies l m H, and the gage I, as specified.

188,697. FIRE-KINDLERS. O. A. Trevallee, Buffalo, N. Y. [Filed Sept. 6, 1876.]



As a new article of manufacture a fire-kindler, constructed of a series of horizontal strips, and strips at either end, inclined in opposite directions, all placed vertically on their edges, joined together, and having their lower portions saturated or coated with inflammable material, substantially as herein before set forth.

188,698. DITCHING-MACHINES. Thomas N. Turner and Sanford Turner, Rushville, Ind. [Filed Jan. 13, 1877.]

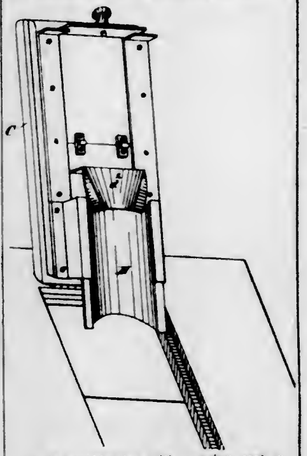


1. The combination of colters K and share with a plow-frame consisting of top bars H, standards I, and feet J, the colters K being attached to the top bars H at the upper end, and to share at the lower end, as and for the purpose specified.

2. The combination of the pulleys and band P R Q and the gear-wheel T U with the elevator M N, the frame E, and the rear axle D, substantially as herein shown and described.

3. The combination of the chain V and the bent lever W with the plow-frame H I J, and with the carriage-frame E, substantially as herein shown and described.

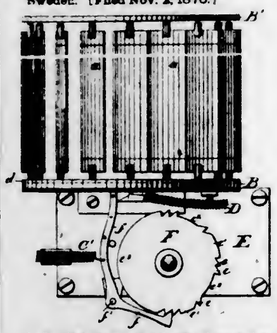
188,699. PRIVY-SEATS. R. A. Van Court, Philadelphia, Pa. [Filed Feb. 24, 1877.]



1. In combination with a privy-seat, a hinged slide, D, adapted to cover the opening in said seat when pushed in, and, when drawn out, to swing down out of the way against the front side or support of said seat, substantially as shown and described.

2. In combination with a hinged privy-seat, C, the concave shield or guard E, fastened on the under side of said seat, substantially as described, for the purpose set forth.

188,700. LIGHT-HOUSE SIGNALING APPARATUS. Chas. G. Von Otter, Stockholm, Sweden. [Filed Nov. 2, 1876.]

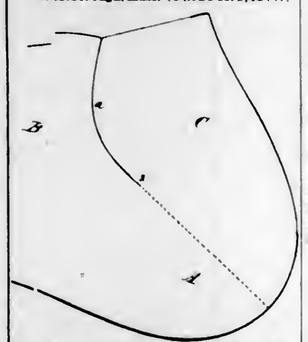


1. In a light-house lantern the pivoted plates *a a* of colored glass or metal disposed around the lantern of the light, and arranged to be operated by suitable opening and closing mechanism, for the purpose of transmitting signals for navigators, substantially as herein shown and described.

2. The combination, with a light house lantern, of the rings B B', pivoted plates *a a*, ring C, clock work E, springs D C', lever *f*, and toothed disk F, the teeth or projections upon the latter being arranged in such a manner as to cause certain signals to be given at regularly recurring intervals, after the Morse telegraphic alphabet code, all in the manner and for the purpose substantially as herein shown and specified.

3. The combination with a light or sound signal, adapted to be operated as described, of the clock-work E, springs C' D, lever *f*, and disk F, substantially as and for the purpose herein shown and specified.

188,701. PLOW-SHOES. M. H. Walker, Westborough, Mass. [Filed Feb. 9, 1877.]



1. The plow-shoe upper composed of the parts A, B, C, D, and F, cut in the form described and shown.

2. A plow-shoe in which the parts A, B, C, D, and F, cut as shown and described, are combined with the piece E and straps and buckles, as set forth.

188,702. MACHINES FOR CUTTING TEXTILE AND OTHER MATERIALS. Albin Warth, Stapleton, N. Y. [Filed Feb. 1, 1877.]

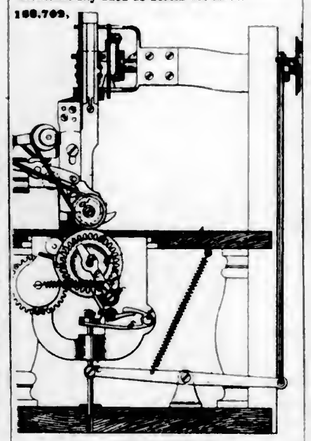
Brief.—An improvement on patent to A. Warth, No. 124,180, February 27, 1872; and it consists in placing the driving mechanism above the table instead of below.

1. The combination of a table for supporting the material to be cut, a rigid beam extending over said table, a driving-shaft, having its bearings in or on said beam, and serving to impart motion to the cutter, a post which carries the cutter, a bracket secured to the rigid beam, and forming the bearing for the upper part of said post, a foot-plate directly connected to the lower end of the post, and a handle secured to said post, the whole being constructed and operating substantially as and for the purpose herein shown and described.

2. In combination with a table for supporting the material to be cut, a rigid beam extending over said table, a driving-shaft, having its bearings in or said beam, and serving to impart motion to the cutter, a post, which carries the cutter, a bracket, secured to the rigid beam, and forming the bearing for the upper part of said post, a foot-plate connected to the lower end of the post, and a handle, secured to said post.

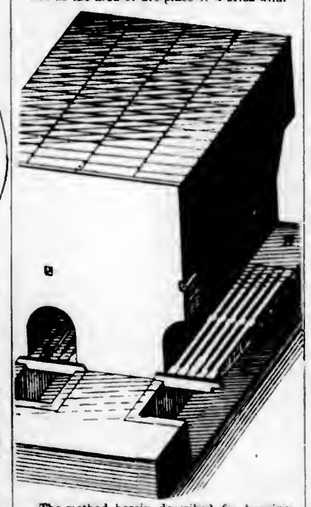
3. A mechanical feed, receiving its motion from the driving shaft, which has its bearings on or in the rigid beam by connections substantially such as herein set forth.

188,703.



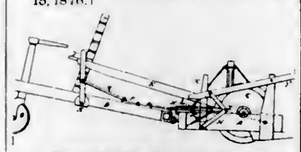
188,703. METHODS OF BURNING STONE-COAL SLACK IN THE MANUFACTURE OF BRICK, &c. B. H. Warburg, Cincinnati, Ohio. [Filed Nov. 22, 1876.]

Brief.—Stone-coal slack or breeze is mixed with a porous material, such as spent tan-bark or sawdust, and placed in a hot furnace, such as the arch or fire-place of a brick-kiln.



The method herein described for burning stone-coal slack, consisting in placing the same mixed with spent tan or sawdust in a furnace provided with a grate and a blast device, substantially such as described, so as to keep the mass sufficiently open for the admission of air to support combustion, as set forth.

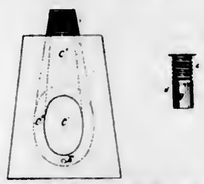
188,704. HARVESTER-REELS. C. A. Wood and R. D. Bell, Racine, Wis., assignors to J. I. Case & Co., same place. [Filed Dec. 15, 1876.]



1. The combination of reel-bearing arms or levers Y, standard X, jointed connection H, bar I, slide K, runner L, rope M, and pulleys N, substantially as and for the purpose described.

2. The combination of lever Y, standard X, connection H, bar I, slide K, runner L, rope M, pulleys N, quadrant W, slide P, rods O and Q, and lever R, substantially as and for the purpose described.

188,705. MINERS' LAMPS. J. J. Weinel, Allegheny Township, Westmoreland County, Pa. [Filed July 26, 1876.]

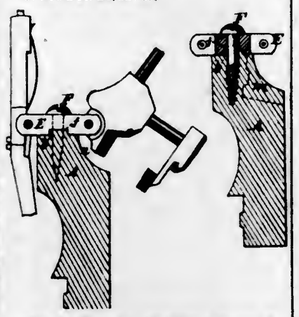


1. In a miner's lamp, the burner D, having the thread *d* for securing the same in the spout C at *c*, and the perforations *d'* for supplying air to the burner, substantially as described and shown.

2. The chamber *c'*, formed by the walls of the spout C, and tube *c'* as an air-chamber, in combination with the perforations E and *d'* and the burner D, substantially as described and shown.

3. In a miner's lamp, the combination of the burner D, perforations *d'* and E, tube *c'*, with the lamp-spout C, substantially as described and shown.

188,706. PIANO-ACTIONS. O. Wessell, A. Nickel, and R. Gross, New York, N. Y. [Filed Dec. 27, 1876.]

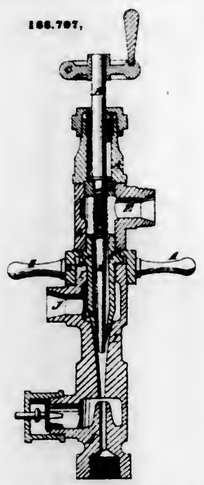


The combination of the flange E, having the groove *f*, with the main rail A, having the tongue *b* snugly fitted and clamped within the said groove *f*, and the screw F, inserted through the flange E and the tongue *b* into the main rail, substantially as and for the purpose described.

188,707. INJECTORS FOR STEAM-BOILERS. Jas. Westley, Salford, Manchester, England, assignor to himself and John Morris, same place. [Filed Oct. 23, 1876.]

The combination, with parts A I, having respectively steam-inlet E and water-inlet J, of the nozzle F, adjustable by a ring, G, and an adjustable cone-spindle, H, arranged substantially as and for the purpose specified.

188,707.

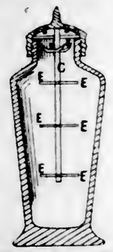


188,708. VEHICLE-AXLES. Patk. F. White, Western Port, Md., assignor to himself and Harry C. Black, same place. [Filed Jan. 24, 1877.]



As an article of manufacture, the body of the axle, formed of the horizontal top plate *a* and subjacent rib *b*, and the blocks B, provided with holes or sockets for the journal-arms, and attached to the under side of the plate *a*, and the notched or recessed ends of said rib, all as shown and described, for the purpose specified.

188,709. SPICE-BOXES. H. J. White, Boston, Mass., assignor to D. B. Morey and W. C. Smith, same place. [Filed Feb. 12, 1877.]



The salt-pulverizer, consisting of the perforated cap B, provided with a screw-thread, and having a stationary rod, C, rigidly connected thereto, and provided with several series of radial points, E, in such manner that the unscrewing of such cap from the neck of a bottle shall produce a spiral rotary motion of the points E through the contents of such bottle, as they rise vertically out of the same by the action of the screw-thread, all being constructed, combined, and arranged to operate substantially in the manner described, as and for the purposes set forth.

188,710. RAILWAY CHAIRS AND TIES. N. S. White, Millerstown, Pa. [Filed Oct. 27, 1876.]

Brief.—The rails are supported by a continuous rail-bed, extending between and jointed to the metal cross-ties. The rails are secured in position on the ties and bed-plate by a detachable clamp-piece.

1. The continuous chairs or rail-support D, having the outer flange or cheek-piece, in combination with the flanged cast-metal heads of the sleepers and the detachable clamp-pieces C, as shown and described, for the purpose specified.

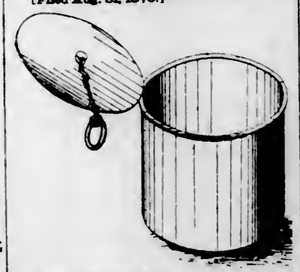
2. The combination of the detachable clamp-piece C, having slotted tongue, the heads *b*, provided with the flange and an elongated vertical mortise, and the wedge-key, all constructed and arranged as shown and described, for the purpose specified.

3. The combination, with the cast-iron heads *b*, of the bottom piece *a'* and shorter top piece *a*, composing the sleeper, said parts being constructed and joined together substantially as specified.

188,710.



188,711. CAN OR PAIL TOPS WITH OPENING. A. B. Whitehead, Brooklyn, N. Y. [Filed Aug. 31, 1876.]



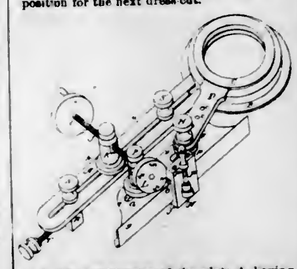
The combination of the flanged can and its cover with the opener extending from the inside to the outside of the can when closed, and constructed to operate substantially in the manner and for the purposes set forth.

188,712. COUNTERFEIT-COIN DETECTERS. John Wiarda, Green Point, N. Y. [Filed Feb. 22, 1877.]

The combination, with a coin-supporting platform, A, of a knife-edged support, *a*, a stop or leg, *b*, and a balance-weight, *c*, the platform being provided with gages which control the correct position of the coin to be tested, substantially as and for the purpose shown and described.

188,713. DIAMOND MILLSTONE-DRESSING MACHINES. H. Wilhelm and F. D. Davis, Minerva, Ohio. [Filed Feb. 12, 1877.]

Brief.—The cutting-tool cuts from the periphery of the stone toward its center. As it is brought back for repeating the stroke, its trigger engages the lowermost projection of the feed-wheel, turning it one-fourth of a revolution, and thus placing the machine in position for the next dress-cut.



1. The combination of the plate A, having slot *a* and ring B, with the ring C, having arm D, slotted bed-plate G, feed-screw J, and pivoted adjustable bearings I K, substantially as and for the purpose herein shown and specified.

2. In a diamond-tool millstone-dressing machine, the slotted plate A, having ring B, and adjustable fastening-blocks R R', with set-screws S S', the outer block R having additional horizontal set or clamping screw T, substantially as described, for the purpose set forth.

3. In a diamond-tool millstone-dressing machine, the feed-screw J, arranged in pivoted adjustable bearings I K, and having feed-wheel L, provided with four equidistant projections, *n*, and friction-regulating set-screw *p*, substantially as and for the purpose herein shown and specified.

4. The diamond-tool carriage F, having reversible trigger *m*, provided with triangular projection *r*, in combination with the feed-wheel L, having four equidistant projections, *n*, substantially as and for the purpose herein set forth.

5. The carriage F, having reversible trigger *m*, stud *s*, and adjustable pins *t t*, substantially as and for the purpose herein shown and specified.

6. In a millstone-dressing machine, the detachable bed-plate G, adapted to be adjusted on either side of the main plate A, for the purpose of causing the machine to make right or left hand dress-cuts at option, when arranged substantially in the manner herein shown and described.

7. The combination of the detachable and reversible head-plate G with the carriage F, having reversible trigger *m*, substantially as and for the purpose herein shown and specified.

8. The improved diamond-tool millstone-dressing machine herein described, consisting essentially of the slotted plate A, having ring B, ring C, having arm D, slotted bed-plate G, having guide-strip *g*, carriage F, feed-screw J, having pivoted adjustable bearings I K, feed-wheel L, and adjusting blocks R R', having set-screws S S', all combined and arranged to operate substantially in the manner and for the purpose herein shown and specified.

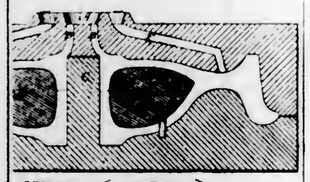
188,714. CASTING CAR-WHEELS. William Wilmington, Toledo, Ohio. [Filed Jan. 30, 1877.]

Brief.—Pours of hard metal about half enough to fill mold. It passes through radial depressions in sand of mold, and partly fills the rim-cavity. Before first metal ceases to flow, pour softer and tougher metal. It forces first metal outward to form tread and flange of wheel.

The method herein described of casting car-wheels from two different qualities of metal by pouring in first the superior metal to form the tread and flange of the wheel, and afterward the inferior metal to form the central parts of the wheel, and regulating the inflow of both by radial passages, whereby circulating currents and the homogeneous mixture of the two metals is avoided at the tread, and the proper disposition of the two metals in the car-wheel is secured, as set forth.

188,715. CASTING CAR-WHEELS. William Wilmington, Toledo, Ohio. [Filed Feb. 28, 1877.]

Brief.—For small wheels may pour two metals simultaneously, their quantities being relatively proportioned by size of inlets, &c., to produce the same effect as if poured in the order claimed.



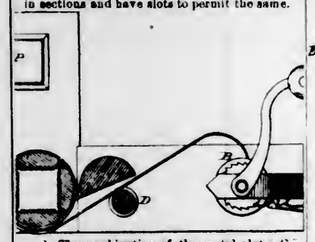
No. 186,715.



The method herein described of casting car-wheels from two kinds of metals or compositions of metals, consisting in first introducing the inferior metal until it shall have attained the level of the barrier formed by the outer raised or swelled portion of the plates next to the rim; then introducing the superior metal to the rim portion through separate channels; and, finally, continuing the inflow of the inferior metal through its channels, to force the superior metal contained in the outer plate portion of the mold outwardly and upward, to cause the latter to fill the upper rim and tread portion of the mold, substantially as and for the purpose described.

186,716. CIGAR-BUNDLERS. I. A. Wilson, Zanesville, Ohio. [Filed Aug. 12, 1876.]

Brief.—The windlass and strap contract the former, with cigars in it, so that the casing can be placed over the bunch. The former contracts and expands at will, as its sides are in sections and have slots to permit the same.



1. The combination of the metal plates G, having pins *d*, the wooden segments H, L-shaped plates or triangles I, provided with transverse slots *b*, the triangles J, and wooden strips K, all constructed substantially as and for the purposes herein set forth.

2. The combination of the form herein described, consisting of the parts G, H, I, J, and K, with the paper casing L and square block l', substantially as and for the purposes herein set forth.

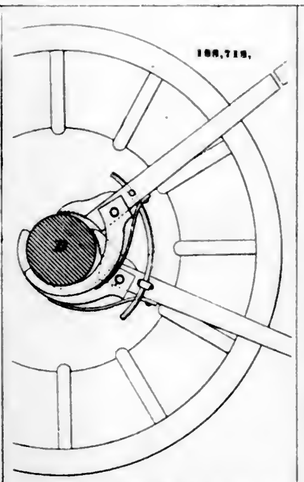
186,717. DEVICES FOR HITCHING HORSES. A. B. Wroth, Winterset, Iowa. [Filed Jan. 6, 1877.]



A hitching device consisting of the sliding ring *b*, held within the recess *a*, and secured from entire withdrawal by means of a pin, *c*, substantially as and for the purpose described.

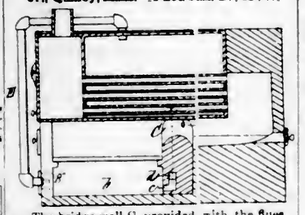
186,718. LEVER-CLAMPS. V. C. Yantis, Rolla, Mo. [Filed Dec. 26, 1876.]

The clamps with fixed and varied radii, roughened on the contact part, the spring, the curved rod, and the coupling-eye, combined with the lever-bars, as and for the purpose herein described.



No. 186,719.

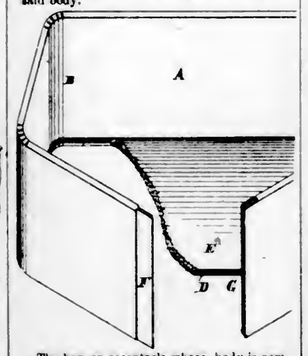
186,719. SMOKE-CONSUMING FURNACES. H. Young, Jr., Woburn, assignor to himself, C. B. Bryant, Stoneham, and T. King, Jr., Quincy, Mass. [Filed Jan. 27, 1877.]



The bridge-wall C, provided with the flues *d*, opening into the ash-pit *b*, in combination with the steam-pipe E, aperture *g*, and ash-pit *b*, substantially as described, and for the purpose set forth.

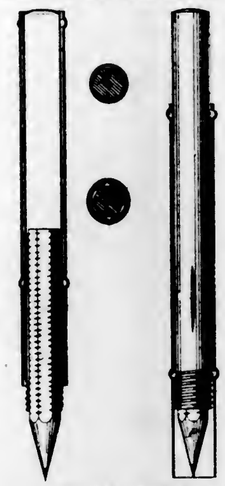
186,720. MANUFACTURE OF BOXES. Ferdinand Zuenkeler, Cincinnati, Ohio. [Filed Feb. 13, 1877.]

Brief.—The body of the box is formed of a rectangular strip of wood, scored and bent around a hot block, and provided at one end with a groove, and at the other with a tongue fitting said groove. The bottom is crozed into said body.



The box or receptacle whose body is composed of a single strip of wood, A, so scored and bent, B, as to possess alternately curved and flat portions, in one of which latter the ends of the strip are united by tongue F and groove G, and whose bottom E is crozed, D, into said body, as set forth.

186,721. POCKET-PENCILS. D. M. Somers, New York, N. Y. [Filed Sept. 5, 1876.]



1. A pocket-pencil, consisting of an inner tube, provided with interior pencil-holding projections, and with exterior projecting frictional detents, in combination with an outer protecting-tube adapted to slide longitudinally thereon, substantially as described.

2. The combination of two tubes sliding upon each other, one of which tubes is provided with a projection swaged from its body, and bearing upon the other tube to form a frictional detent, substantially as described.

REISSUES.

7,559. PROCESSES OF PURIFYING PARAFFINE WAX. F. X. Byerley, Cleveland, Ohio. Patent No. 132,863, dated Oct. 22, 1872. [Filed Feb. 19, 1877.]

1. The process of separating paraffine wax from the oil, which consists in removing the latter from a chilled mass of the paraffinized material by a continuous direct exhaust or suction action, as herein set forth.

2. The process of purifying paraffine wax, which consists in dissolving out the contained oil by passing naphtha or other solvent through the chilled mass, and promoting its passage by an exhaust or sucking action, as herein set forth.

3. The process of preparing refined paraffine wax, which consists in removing the principal portion of the oil contained in the chilled paraffinized mass by a continuous direct exhaust or suction action, and then completing the separation by passing naphtha or other solvent through it, and at the same time continuing the exhaust, as herein set forth.

7,560. CULTIVATORS. R. Ellwood and R. L. Pitcher, Sycamore, Ill.; said Pitcher assignor to said Ellwood. Patent No. 177,063, dated May 9, 1876. [Filed Feb. 12, 1877.]

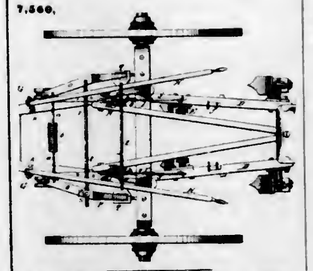
Brief.—Levers connected by spring, to cause them to engage with the ratchet. Devices for hanging and oscillating the plow-beams. Cross-rod between standards, to withstand pressure of pressure-levers.

1. The combination of the standards I and cross-rod *l*, with the side pressure-levers H, for keeping the standards in position without additional bolts or braces, substantially as specified.

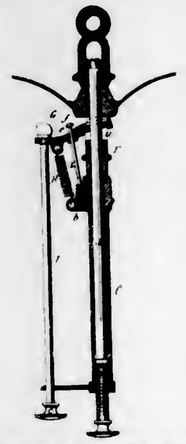
2. The combination of the levers H, provided with pins *d*, and the spring *b*, with the curved standards I, provided with openings *c* on their sides, substantially as and for the purposes specified.

3. The bent bar *p*, in combination with the drag-bar D, shaft G, cylinder F, bar *o*, and cross-rod *l*, substantially as and for the purposes specified.

No. 7,560.



7,561. EXTENSION-CHANDELIERS. L. Hull, Charlestown, Mass., assignor, by mesne assignments, to Bradley & Hubbard Manufacturing Company and the Meriden Malleable Iron Company, West Meriden, Conn. Patent No. 142,107, dated Aug. 26, 1873. [Filed Dec. 6, 1876.]



1. In an extension chandelier the combination of the following elements, viz., first, a vertical central shaft or support composed of two parts—one within the other, and telescopically movable, so as to extend or contract said shaft, one of the said parts stationary, the burner-arms attached to the other; second, a clamping device to engage said two parts with each other to support the movable part at various elevations, and by an upward action on said clamping device; third, a rod in connection with said clamping device, and extending down as a means for imparting such upward action to said clamping device, substantially as described.

2. The elevator I and spring H, combined and arranged with the lever-brake G and head F or upper part of the slide-tube C, said tube being applied to the rod A and supported by springs E, substantially as represented.

3. The check L, lever-brake G, spring H, and the elevator I, arranged and combined together, and with the rod A, the slide-tube C, and the springs E, all substantially as and to operate as explained.

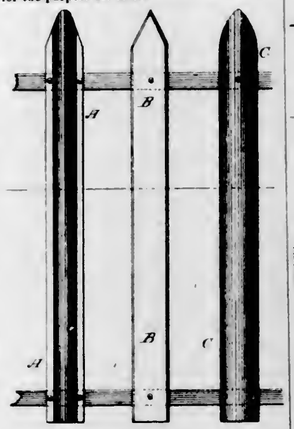
7,562. CORRUGATED FENCE-PICKETS. B. F. Miller, New York, N. Y., assignor to J. Brinkerhoff. Patent No. 43,644, dated July 26, 1864. [Filed Jan. 5, 1877.]

Brief.—The pickets or pales are corrugated or formed into single or duplex semicircles, and pointed at top; or they may, in transverse sectional views, show raised backs and angular sides.

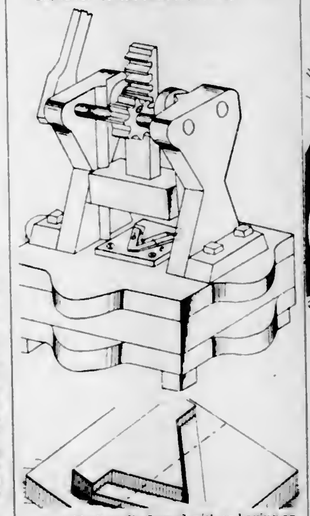
1. The sheet metallic corrugated picket or pickets, part or parts A B C D for fencing purposes, substantially for the purpose herein specified.

2. The sheet metallic picket or pickets, part or parts A B C D for fencing, having corrugated points, for the purpose described.

3. Sheet metallic picket or pickets, part or parts A B C D for fencing, provided with corrugations or flanges and corrugated points, for the purpose set forth.



7,563. MACHINES FOR TEMPERING SICKLE-SECTIONS. S. F. Reynolds, Auburn, N. Y., assignor of one-half interest to C. S. Trowbridge. Patent No. 107,541, dated Sept. 20, 1870. [Filed June 12, 1876.]



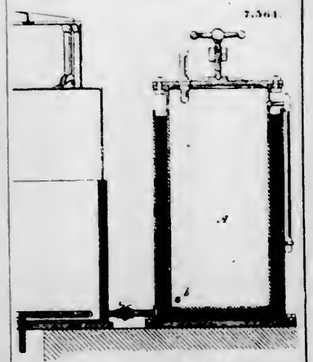
1. A block or die formed with or having an inner protecting-surface and outer openings or passages through the die or block, and leading to the sides of the protecting-surface, substantially as and for the purpose set forth.

2. A block or die having openings or passages through it, and a protecting or shielding surface extending to a plane above the plane of the outlet of said openings or passages, substantially as and for the purpose described.

3. The combination, with a block or die having an inner protecting or shielding surface and outer openings or passages through it, of a device for holding the article to be tempered upon the protecting or shielding surface during the process of tempering, for the purpose specified.

7,564. PROCESSES FOR PRESERVING MEAT OR ANIMAL MATTERS. Thos. Sim. Morristown, N. J. Patent No. 85,184, dated Dec. 22, 1868. [Filed Feb. 21, 1877.]

No. 7,564.

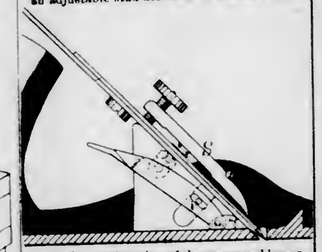


1. The process of preserving meat and other animal matter, which consists in subjecting the same to the action of the vapor of bisulphide of carbon under heat and pressure, substantially as described.

2. The process of preserving meat and other animal matter, which consists in subjecting the same to the action of the vapor of bisulphide of carbon under heat and pressure, in connection with phenic acid, methyl, or other product of the destructive distillation of wood or coal.

7,565. BENCH-PLANES. Justus A. Traut and Henry Richards, New Britain, Conn. Patent No. 176,152, dated Apr. 18, 1876. [Filed June 28, 1876.]

Brief.—The plane iron is longitudinally adjustable by compound levers acting upon a rocking spindle, which receives the tooth of an adjustable stud attached to the cap-plate.

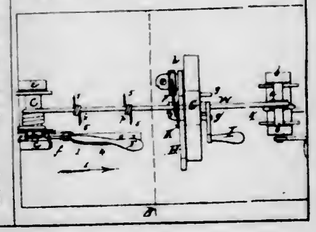


1. The combination of the compound levers *f*, *h*, and *j* with a plane iron and stock, substantially as described, and for the purpose specified.

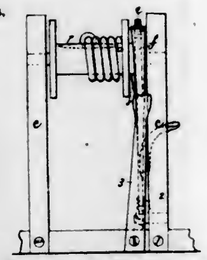
2. The iron A, provided with slot *p*, in combination with the shouldered stud *o* and the fastening-nut *r*, substantially as described, and for the purpose set forth.

3. The combination of the inclined brackets *d*, levers *f*, *h*, and *j*, adjustable stud *o*, and plane-iron A, all substantially as described, and for the purpose set forth.

7,566. BARBING FENCE-WIRES. J. F. Glidden and P. W. Vaughan, De Kalb, Ill., assignors to Washburn & Moen Manufacturing Company, Worcester, Mass., and I. L. Ellwood, De Kalb, Ill. Patent No. 157,508, dated Dec. 8, 1874. [Filed Jan. 11, 1877.]



7,866.



1. The combination of two wire-supporting reels, at suitable distances apart for properly supporting the wire to be barbed, with barb-applying mechanism between the reels, for barbing the wire as it is passed from one reel to the other.

2. The combination of mechanism for properly supporting the barb with mechanism for coiling or winding the same around or upon the main fence-wire.

3. The combination, in a machine or device for applying barbs to fence-wire, of a barb-support or guide-table with a twisting-lug, or device for winding or coiling the barb-wire about the main fence-wire.

4. The combination, in a machine or device for applying barbs to fence-wire, of suitable guides or supports, both for the barb and main fence wire, with a twisting-lug for winding or coiling the barb about or upon the fence-wire.

5. The combination, with a machine or device for applying barbs to fence-wire, of a barb-coiling or winding lug, arranged to rotate or move in the arc of a circle about the main fence-wire.

6. The combination, in a machine or device for applying barbs to fence-wire, of a barb-supporting guide, stand, or receiver, and a stop or gage to limit the movement of the barb when placed in position preparatory to being coiled or wound about or upon the main fence-wire.

7. A device or mechanism for applying barbs to fence-wire, fitted to receive and support the barb, and mechanism for winding the barb-wire about the main wire by such pressure thereon as to cause the barb to clasp and gripe the main wire by a comparatively uniform compression thereon.

8. The combination, in a device or machine for applying wire barbs to fence-wire, of a guide or support for the barbs, arranged at an obtuse angle with the main fence-wire, with a winding or coiling mechanism, to facilitate the barbing operation.

9. The combination, in a machine or device for applying barbs to fence-wire, of a keeper with the barb-coiling mechanism, to prevent the barb from slipping or escaping from the action of the barb-coiling mechanism or device.

10. The combination, in a machine for barbing fence-wire, of the following elements, viz: first, two reels for properly supporting the main fence-wire; second, mechanism for wrapping or compressing the barbs about or upon the main wire, and arranged between the supporting-reels; and, third, straining and feeding mechanism, all for properly holding the fence-wire during the operation of applying the barbs thereto, and feeding it forward at suitable intervals, and winding the barbed wire upon its receiving reel or spool.

11. The combination, with the pinion W and barb-support h, of the twisting-lug t and segment H, for the purposes set forth.

12. The combination, with segment H and pinion B, of the stops g g', lug t, stop K, and keeper or guide l, substantially as and for the purposes set forth.

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DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—DISTRICT OF CONNECTICUT.

MAGIC RUFFLE COMPANY *vs.* ELM CITY COMPANY.

[*In equity.—Before* SHIPMAN, *J.*]

Where a bill is brought for a discovery and for other equitable relief within the appropriate jurisdiction of a court of equity, and the ultimate object of the plaintiff is to obtain damages, in such case the court, having granted a discovery, will proceed and give the proper relief in damages.

It is generally true that a court of equity ought not to sustain a bill which, although it may contain matter which can give the court jurisdiction, is merely for the assessment of damages for a breach of contract.

Where a bill is brought for discovery in a case which is not the proper subject of an action or bill for account, the fact that the plantiff is entitled to a discovery does not necessarily entitle him also to an account.

Where the relief to be ultimately rendered is the payment of damages, and the aid of a court of equity is needed for discovery in a case not of trusteeship or agency, but where the ascertainment of damages is complicated and intricate, and the action at law cannot be adequately tried without great difficulty, a court of equity assumes jurisdiction of the whole case and proceeds to a final decree upon the merits.

The amount of profits on a manufactured article is not always the rule of damages for an infringement. The court should endeavor to ascertain the damages which resulted to the plaintiff by the unauthorized use of his invention.

Interlocutory orders and decrees are subject to revision until a final decree is made, and if, after an interlocutory decree, the master's report discloses facts properly heard by him upon the order of reference, which, in the opinion of the court, should be further investigated, it is competent for the court to direct such an investigation.

Parties may forfeit their claim to receive the aid of a court of equity to the extent of its powers by their laches in restraining known violations of their rights and acquiescence in the assertion of adverse rights.

[*Clarence A. Seward*, for plaintiff.
Charles R. Ingersoll and *Edwin W. Stoughton*, for defendants.]

EXCEPTIONS TO MASTER'S REPORT.

SHIPMAN, *J:*

The bill of complaint herein alleged, in substance, that the plaintiffs were the owners of letters patent granted to George B. Arnold on May 8, 1860, for a new and useful improvement in ruffles, and that an executed agreement of license, dated February 21, 1863, was entered into between the plaintiffs and defendants, by which the former licensed the latter to manufacture and sell the ruffles then manufactured by them and known as the double ruffle, and the latter agreed to manufacture only said ruffle, and admitted the validity of said patent. The bill also alleged that after the date of said agreement, the defendants in violation thereof and of said letters patent, made and sold many thousand yards of single ruffles, each of which contained the invention described and claimed in said letters patent, and prayed for a disclosure of all their gains and profits, and of the number of yards so made and sold, and to account for and pay over such gains and profits, and also all damages which the plaintiffs had sustained by reason of the premises. The patent had expired before the bill was brought.

The court was of opinion that while the averments of the bill were sufficient to justify a court in holding, if necessary, that it was a bill for an injury to patent-rights, yet it was manifest that the pleader intended to make the alleged breach of agreement the foundation of the action, and then he sought to recover damages for an injury to the plaintiff arising out of the violation of the contract.

In reply to the objection that a bill in equity based upon the contract could not be sustained, because for a breach of contract there was complete and adequate remedy at law, the court held that it properly had jurisdiction of the cases, inasmuch as the proper averments of the bill made it a bill for a discovery, and that the ascertainment of the facts from which damages are to be estimated in cases of injury to property in letters patent is peculiarly within the province of a court of equity, and whether having jurisdiction it would proceed to grant further and more complete relief, and what relief would be granted, were questions which could be determined after the master's report had been made.

The court also found that the agreement had been broken, and that the defendants had made and sold ruffles in violation of said agreement, and which ruffles contained the improvement described and claimed in said letters patent. An interlocutory decree was passed

in which it was adjudged that the plaintiffs were entitled to a discovery from the defendants of facts from which damages for the violation of said contract could be completed and ascertained, and that an account be taken by a master to ascertain and report the number of yards of ruffles made and sold by the defendants during each year between February 21, 1863, and May 8, 1874, which contained the improvement claimed in said letters patent, and to ascertain the gains and profits which had been made by the defendants during the period aforesaid from said manufacture and sale.

The opinion of the court detailing the pleadings and the facts in the case at length is to be found in 8 OFFICIAL GAZETTE, 776.

The master's report states that after a number of hearings and adjournments the parties agreed upon the number of yards of ruffling manufactured and sold by the defendants, and that the gains and profits on the whole of the goods so manufactured and sold amounted to the sum of thirty thousand dollars, the agreement being made upon the basis of the facts found in the examination of the business transacted in the years 1863 and 1864. The whole number of yards is 2,363,030, and the number of yards of each article and the profits upon each are stated in an exhibit attached to the report.

The plaintiffs now ask for a final decree for the amount which has been reported by the master. The defendants insist that inasmuch as the court has held that the violation of the agreement was the foundation of the action, and jurisdiction was obtained merely for purposes of discovery, and as the relief which is desired is simply the payment of damages for a breach of contract, the court has no jurisdiction to grant further relief. They claim that the jurisdiction which has been exercised in ordering a discovery is exhausted, and cannot empower the court to retain the case for the relief prayed for.

When a bill is brought for a discovery and for other equitable relief within the appropriate jurisdition of a court of equity, and the ultimate object of the plaintiff is to obtain damages, in such case the court having granted a discovery will proceed and give the proper relief in damages, and not compel the plaintiff to undergo the delays and expenses of a suit at law. "The jurisdiction having once regularly attached, it shall be made effectual for the purposes of complete relief." (1 Story's Eq. Juris., Sect. 64, K. 8 Ed.) This rule is expressed in 1 Foublanques Eq., B. 1, Chap. 1, Sec. 3, as follows: "The court having acquired cognizance of the suit for purposes of discovery will entertain it for the purpose of relief in most cases of fraud, account, accident, and mistake," all of which are subjects of equitable jurisdiction.

In some cases courts have laid down the principle more broadly, and have apparently held that when jurisdiction once attaches for discovery in any case the court will entertain a bill for relief, although no equitable relief is or could be sought, and where the only relief that can be granted is in damages. The cases of *Parker* vs. *Dee*, 2 Ch. Cas., 200; *Eyle* vs. *Haggie*, 1 Jac. and Walker, 234; *Armstrong* vs. *Gilchrist*, 2 Johns. Cas., 424; *King* vs. *Baldwin*, 17 Johns. R. 384, assert this doctrine, and the language of Ch. J. Marshall, in *Russell* vs. *Clarke*, 7 Cranch, 69, if interpreted literally, and not in connection with the facts of the case, justifies the assertion. Other courts have disclaimed this extensive jurisdiction, and have held that when a party comes into equity for discovery merely, and this is the only ground upon which a court of equity obtains jurisdiction, and no other equitable relief is or can be sought, the case will not be retained for purposes of assessing damages, but the parties will be remitted to an action at law. In *Middletown Bank* vs. *Russ*, 3 Conn., 135, Ch. J. Hosmer says:

> This brings me to consider whether a court of chancery, having taken jurisdiction for enforcing a discovery, will universally assume cognizance of the cause, settle every question which may arise, and grant ultimate relief. I have no hesitation in giving a negative to the question.

The cases of *Hipp* vs. *Berlin*, 19 How., 278, and *Ins. Cos.* vs. *Bailey*, 13, Wall., 617, are illustrations of indisposition of courts of equity to entertain jurisdiction of suits which are merely for the enforcement of a legal demand.

It may be regarded as generally true that a court of equity ought not to sustain a bill which, although it may contain matter which can give the court jurisdiction, is merely for the assessment of damages for a breach of contract, (*Hatch* vs. *Cobb*, 4 Johns. Ch. 559; *Kempshall* vs. *Stone*, 5 Johns. Ch. 193; *Milkman* vs. *Ordway*, 106 Mass., 132,) and that when a bill is brought for discovery in a case which is not the proper subject of an action or bill for account, the fact that the plaintiff is entitled to a discovery does not necessarily entitle him also to an account. (*Foley* vs. *Hill*, 2 House of Lords' Cases, 28; *Frietas* vs. *Donsantos*, 1 G. & Jew., 574.)

There is, however, a class of cases in which the relief to be ultimately rendered is the payment of damages alone, and where a party seeking such relief needs the aid of a court of equity for discovery in a case which is not of trusteeship or agency; but where the ascertainment of damages is complicated and intricate, and the action at law cannot be adequately tried without great difficulty resulting from the nature of the accounts or from other circumstances. In such cases a court of equity assumes jurisdiction of the whole case, and proceeds to a final decree upon the merits. In *Foley* vs. *Hill*, (cited *supra.*,) a case in which a debt against a banker for a deposit in his bank was sought to be recovered, the Lord Chancellor says:

> It is not because you are entitled to a discovery that therefore you are entitled to an account. That is entirely a fallacy. That would, if carried to the extent to which it would be carried, according to the argument at the bar, make it appear that every case is matter of equitable jurisdiction, and that where a plaintiff is entitled to a demand, he may come into a court of equity for discovery; but the rule is that where a case is so complicated, or when from other circumstances, the remedy at law will not give adequate relief, then the court of equity assumes jurisdiction.

To the same effect are *Corporation of Carlisle* vs. *Wilson*, 13 Ves., 276, and *O'Connor* vs. *Spaight*, 1 Sch. & Sef., 309, and the principle is fully recognized in *Fowle* vs. *Lawrason*, 5 Pel., 495.

In my opinion this case comes fully within the rule which has been considered. A discovery was certainly necessary, for the facts which are embodied in the master's report required an expenditure of much time, labor, and pains taken by the defendants' treasurer before they could be stated, and it would have been impracticable to obtain them in the ordinary method of trial by jury. These facts having been thus obtained, the court is now asked to leave the parties to the remedy at law, where the main question must be, in fact, the ascertainment of damages for an injury to the patent-rights of the plaintiffs, oftentimes one of the most complex and difficult questions of patent law, one which demands careful study, reflection, and experience upon the part of the master, and which can often be very inadequately solved in a jury trial. The careful and accurate computation of damages in this case is a matter which will require time and labor, for, as will be seen hereafter, I do not think that all the elements from which damages are to be computed have been ascertained by the agreement of the parties.

There is another reason which induces me not to remit the parties now to an action at law. It is disclosed in the testimony taken before the master that since the commencement of this suit the defendants have gone into insolvency, and their estate is now being administered upon in the probate court under the insolvent system of this State. This creates no bar to an action at law against the defendants; but as their estate is entirely in the onstody of a court for the benefit of their creditors, and a dividend can only be expected, it is for the advantage of all the parties and the creditors that the dividend should not be diminished by protracted and expensive litigation and a multiplicity of suits.

It is next claimed by the plaintiffs that the report of the master discloses all the facts from which damages can be ascertained, and that it having been agreed that the profits of the defendants upon the ruffles manufactured and sold by them were the sum of $30,000, such sum is the measure and rule of damages. I do not understand that in all cases and invariably the amount of profits upon the manufactured article is the rule of damages for an infringement. (*Cowing* vs. *Rumsey*, 8 Blatchf. C. C. R., 36; *Bell* vs. *Daniels*, 1 Fisher's Patent Cases, 372.) In this case, as was stated in the former opinion, "the magic ruffle of the plaintiffs is an unfinished article, to be attached by a band to ladies' or children's undergarments. The Princess ruffle is a finished article, having a band with an even and finished edge, and is designed to be worn as a neck-ruffle. Still the distinguishing character of the magic ruffle is found in the Princess ruffle." The defendants' ruffles contain the patented improvement which is embodied in the magic ruffle; but the ruffles of the two parties are different in the eye of the trade and of the purchaser. The endeavor of the court should be to ascertain the damages which resulted to the plaintiffs from the unauthorized use of their improvement, how much the plaintiffs have lost in consequence of the violation of this contract by the manufacture and sale of the twenty-two kinds of ruffles which are mentioned in the report, and the fact that upon the entire ruffles of the character which the defendants manufactured they made a profit, is not sufficient to enable a court to determine that the plaintiffs suffered that amount of damages from the use of their patented improvement. (*Mowry* vs. *Whitney*, 14 Wall., 650; *Littlefield* vs. *Perry*, 21 Wall., 205.)

There should, therefore, be a reference to a master to ascertain the amount of damages which the plaintiffs have suffered in each year, from the year 1863 to 1874, from the breach of the contract by the use of the patented improvement in the manufacture of the ruffles which it has already been found were manufactured and sold by the defendants during said years.

The defendants made the point upon the former hearing that they had been manufacturing the Princess ruffle ever since the date of the agreement, with the knowledge and acquiescence of the plaintiffs, and were not notified that such manufacture and sale were regarded by the plaintiffs as a violation of the agreement or of the patent until after it had expired, and about the time of the commencement of this suit, and that this claim had become stale, and should not be favored by courts of equity by reason of the laches of the complainants in the vindication of their rights, and their acquiescence in the assertion of adverse rights. It was said in the opinion that "if I was satisfied from the evidence that the defendants had manufactured and sold the Princess ruffle since 1862 in such quantities that the attention of the plaintiffs must have been early called to the infringement, or that they actually knew of the violation of the agreement ever since the year 1862, I should be of opinion that their delay in making known their claim was such as to prevent them from now receiving the aid of a court of equity to the extent of its powers." This doctrine is found in the very nature and character of the jurisdiction exercised by courts of equity on this and other analogous subjects. (*Wyette* vs. *Stone*, 1 Story, 273.)

There was at that time no adequate evidence of laches on the part of the plaintiffs. It now appears from the report of the master that 2,359,079 yards of infringing ruffles were sold by the defendants from 1863 to 1874, in which amount is included 1,055,246 yards of the Princess ruffle, the one which was the principal subject of discussion upon the former hearing. The defendants renew their claim from these facts that there must have been laches on the part of the plaintiffs, who properly say that they have had no opportunity to introduce any testimony upon their part, because they did not know that the question of laches was to be made an issue before the master. Enough is brought to the attention of the court from the evidence properly received by the master to show that the evidence in regard to laches was not exhausted in the proofs which were taken before the interlocutory decree.

The order which has been heretofore passed being only interlocutory, if the master's report discloses facts, properly heard by him upon the order of reference which, in the opinion of the court, should be further investigated, it is competent for the court to direct such an investigation. Interlocutory orders and decrees are subject to revision until a final decree is made. (*Perkins* vs. *Fourniquet*, 6 How., 206.)

The decree should also provide that the master should take proofs as to whether the plaintiffs have had knowledge of the manufacture and sale of said ruffles which have been manufactured and sold by the defendants in violation of said agreement, and during what period of time the plaintiffs have had such knowledge, and whether the defendants have manufactured and sold said ruffles since 1862 in such quantities that it must have come to the attention and knowledge of the plaintiffs, or that they actually knew of such manufacture during said period.

The second exception to the master's report in regard to the admission of patents subsequent to the plaintiffs' patent is sustained.

The master's report is confirmed with said exception.

Let a decree be passed in conformity with the opinion.

APPLICATION FOR EXTENSION.

DEPARTMENT OF THE INTERIOR,
U. S. PATENT OFFICE,
Washington, D. C., March 10, 1877.

On the petition of HENRY VOELTER, of Heidenheim, Germany, praying for the extension of a patent granted to him August 10, 1858, antedated August 29, 1856, extended for seven years from August 29, 1870, reissued June 6, 1871, and numbered 4,418, for an improvement in reducing wood to paper pulp, this application having been authorized by act of Congress approved March 3, 1877:

It is ordered that the testimony in the case be closed on the 29th day of May next; that the time for filing arguments and the Examiner's report be limited to the 8th day of June next; and that said petition be heard on the 13th day of June next.

Any person may oppose this extension.

ELLIS SPEAR,
[tf] *Commissioner of Patents.*

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date March 27, 1877.]

9,866.—Cooking-Stoves.—AUGUSTUS P. CORSE, Troy, N. Y., assignor to EDDY, CORSE & Co., same place. Application filed January 2, 1877. Term of patent 7 years.

9,867.—Paper Boxes.—LORENZO P. HEATH, Springfield, Mass., assignor to POWERS PAPER COMPANY, same place. Application filed December 26, 1876. Term of patent 3½ years.

9,868.—Ball-Room Favors.—MARTIN KEPPLER, New York, N. Y. Application filed February 7, 1877. Term of patent 3½ years.

9,869.—Match-Boxes.—FREDERICK MARKOE, Philadelphia, Pa., assignor to GEORGE BOOTH & Co., same place. Application filed March 3, 1877. Term of patent 7 years.

9,870.—Pen and Pencil Holders.—PHILIP SCHRAG, New York, assignor to EBERHARD FABER, Port Richmond, N. Y. Application filed March 1, 1877. Term of patent 14 years.

9,871.—Cooking-Stoves.—GARRETTSON SMITH and HENRY BROWN, Philadelphia, assignor to ENOS S. SHANTZ, same place, and OLIVER B. KEELEY, Spring City, Pa. Case A. Application filed March 7, 1877. Term of patent 7 years.

9,872.—Cooking Stove or Range.—GARRETTSON SMITH and HENRY BROWN, Philadelphia, assignors to ENOS S. SHANTZ, same place, and OLIVER B. KEELEY, Spring City, Pa. Case B. Application filed March 7, 1877. Term of patent 7 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date March 27, 1877.]

4,477.—Smoking-Tobacco.—CHARLES H. CONRAD, Danville, Va. Application filed March 7, 1877.

"The fanciful words 'MAY QUEEN.'"

4,478.—Smoking-Tobacco.—CHARLES H. CONRAD, Danville, Va. Application filed March 17, 1877.

"The fanciful words 'LOVE AMONG THE ROSES.'"

4,479.—Medical Compound.—COUSSENS & TABLER, Nashville, Tenn. Application filed January 31, 1877.

"A figure representing a bough of the horse-chestnut tree, with three figures representing the fruit of said tree, of which two are represented as attached to the said branch, and one, of a larger size, represented as bursted and lying near the said bough."

4,480.—Medical Compound.—JOHN CARNRICK, Bayonne, N. J. Application filed March 12, 1877.

"The compound word-symbol 'KIDNEY-LEAF.'"

4,481.—Medical Compound.—D. D. DANIELS & Co., New York, N. Y. Application filed December 30, 1876.

"The letters 'D. D. D.'"

4,482.—Liquid Paints.—HARRISON BROTHERS & Co., Philadelphia, Pa. Case A. Application filed March 14, 1877.

"The letters 'R. E. A. D. Y. M. I. X. E. D.' arranged in the form of a puzzle, as shown."

4,483.—Washing-Powder.—EDWARD M. JOHNSON, Brooklyn, N. Y. Application filed February 21, 1877.

"The word-symbol 'WASHINE.'"

4,484.—Champagne Wine.—G. H. MUMM & Co., Rheims, France. Application filed December 14, 1876.

"A red ribbon, that is applied in the manner in which what are customarily known as 'neck-labels' are applied—that is to say, the ribbon is caught together near its ends, thus forming a loop, and the loop is passed over the neck of the bottle, the crossed ends of the ribbon extending downward, and being secured by means of a label or otherwise."

4,485.—Iron Paint.—P. D. NICOLS, Pittsburg, Pa. Application filed December 7, 1876.

"The symbol of the shield."

4,486.—Chilled Rolls and Rolls of Other Material for Rolling Metal, Calendering Paper, &c.—J. MORTON POOLE & Co., Wilmington, Del. Application filed March 3, 1877.

"A symbol composed of two circles arranged in relation to each other, as shown in the accompanying fac-simile, (representing a pair of rolls in cross-section,) and containing the letters and character 'J. M. P. & Co.,' respectively."

4,487.—Medicine.—R. V. PIERCE, Buffalo, N. Y. Application filed February 28, 1877.

"A symbol described as follows: A large letter P, having the capital letter D of the abbreviation 'Dr.' entwined upon its stem, the said capital letter P being so arranged as to constitute the initial of the words 'Pierce's Pleasant Purgative Pellets.'"

4,488.—Medicine.—R. V. PIERCE, Buffalo, N. Y. Application filed February 28, 1877.

"The letters 'R. V. P.' and 'G. M. D.,' arranged in monograms, and the word-symbol 'GOLDEN MEDICAL DISCOVERY.'"

4,489.—Decalcomanie Transfer-Pictures.—C. PALM & Co., New York, N. Y. Application filed March 8, 1877.

"A faciful picture of a man and a rooster, as shown."

4,490.—Smoking-Tobacco.—JOHN RICHARDSON, Baltimore, Md. Application filed March 8, 1877.

"The word-symbol 'ALDERNEY.'"

4,491.—Watches.—ADOLPHE SCHWOB, New York, N. Y. Application filed February 10, 1877.

"The word-symbol 'UNIVERSAL.'"

4,492.—Towelings.—STARK MILLS, Manchester, N. H. Application filed December 9, 1876.

"The fanciful word 'Eagle,' in connection with a picture of a piece of toweling."

4,493.—Medical Compounds.—SAMUEL T. W. SANDFORD, Long Island City, N. Y. Application filed March 7, 1877.

"The illustration or diagram of the liver."

4,494.—Cigars.—SULLIVAN & BURK, Detroit, Mich. Application filed September 30, 1876.

"The words 'SITTING BULL,' and a figure of a buffalo bull, having a human face, in a sitting posture underneath."

4,495.—Apparatus and Materials for Multiplying Copies of Writings, &c.—W. H. W. CAMPBELL, Norwich, Conn. Application filed March 19, 1877.

"The word-symbol 'PAPYROGRAPH.'"

4,496.—Liniment.—CLARK, COOK & Co., Tecoma, Nev. Application filed February 14, 1877.

"The arbitrary words 'ROCKY MOUNTAIN.'"

4,497.—Tongues, Tripe, and Pigs' Feet.—H. C. DERBY & Co., New York, N. Y. Application filed February 26, 1877.

"A pictorial representation of the heads of an ox, sheep, and pig, which are grouped together in such a manner that the head of the ox is arranged on the left, that of the pig on the right, and that of the sheep above and between the heads of the ox and the pig, as shown."

4,498.—Toilet-Powder.—VICTORINE FRANCK, New York, N. Y. Application filed February 26, 1877.

"The fanciful word 'NATVICK.'"

4,499.—Cigars.—GUSTAV FUCHS, New York, N. Y. Application filed December 21, 1876.

"A white tag of rectangular shape, with a piece of ribbon through one corner thereof."

4,500.—Gun and Sporting Implements.—SAMUEL GLOVER and BERN L. BUDD, Fairfield, Conn. Application filed March 20, 1877.

"The fanciful words 'The Sportsman's.'"

4,501.—Silk-Twist.—JANE HOLLAND, Windham, Conn. Application filed January 10, 1877.

"The words 'Boot Mills' and the figure representing a boot."

4,502.—Silk-Twist.—JANE HOLLAND, Windham, Conn. Application filed January 10, 1877.

"The fanciful words 'LA GAZELLE,' and the figure representing a gazelle."

4,503.—Cigars.—HORACE R. KELLY & Co., New York, N. Y. Application filed March 7, 1877.

"The word-symbol 'BOUQUET DE CAYO HUESO.'"

4,504.—Corsets.—MAYER, STROUSE & Co., New York, N. Y. Application filed February 20, 1877.

"A six-sided figure, two opposite sides of which are longer than the other four sides, making a narrow band, pointed at both ends."

4,505.—Sachet-Powder.—THEODORE METCALF & Co., Boston, Mass. Application filed January 15, 1877.

"'T. Metcalf & Co's.,' and the monogram composed of the letters 'T. M. & Co.,' the same being used in connection with the words 'Sachet Powder.'"

4,506.—Lager-Beer.—ANTON MICHENFELDER, Detroit, Mich. Application filed March 7, 1877.

"The mash-tub, the animals rearing on their hind legs at, and facing, each side of said mash-tub, with said mash-tub and animals resting upon a scroll, underneath which is a shield bearing a monogram composed of the letters 'A. M.'"

4,507.—Edible Products of a Packing-House.—NEWTON & RICHARDSON, Erie, Pa. Application filed December 16, 1876.

"The word-symbol 'EPICURE.'"

4,508.—Whisky.—STEINWENDER & SELLNER, St. Louis, Mo. Application filed March 14, 1877.

"The symbol composed of the letters 'F. F.'"

4,509.—Spool-Cotton.—A. T. STEWART & Co., New York, N. Y. Application filed February 17, 1877.

"The word-symbol 'CHECAQUE.'"

4,510.—Plug-Tobacco.—S. W. VENABLE & Co., Petersburg, Va. Application filed March 15, 1877.

"The representation of an arrow."

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date March 27, 1877.]

1,013.—Title: **"Use Fragrance. It Cleanses the Teeth, Hardens the Gums, and Deodorizes the Breath."**—E. BUGBEE & Co., Somerville, Mass. Application filed March 2, 1877.

1,014.—Title: **"Colton's Toilet Article No. 3. For the Complexion and Skin."**—J. W. COLTON, Westfield, Mass. Application filed March 17, 1877.

1,015.—Title: **"Double Cover."**—L. H. MAHN, Jamaica Plain, Mass. Application filed March 15, 1877.

1,016.—Title: **"Notice."**—MARSH & Co., New York, N. Y. Application filed March 20, 1877.

1,017.—Title: **"Directions."**—MARSH & Co., New York, N. Y. Application filed March 20, 1877.

1,018.—Title: **"Keep the Bottle Well Corked, and Shake Before Using."**—MARSH & Co., New York, N. Y. Application filed March 20, 1877.

1,019.—Title: **"Directions."**—MARSH & Co., New York, N. Y. Application filed March 20, 1877.

1,020.—Title: **"The Directions Must Be Followed."**—MARSH & Co., New York, N. Y. Application filed March 20, 1877.

In order to furnish individuals and the press with early information, the Patent Office has begun the publication of a list of patents issued, which list is ready for delivery on Wednesday of each week, the day following issue.

This list is furnished at 10 cents per single copy; $4 50 per annum to subscribers.

INDEX OF INVENTIONS PATENTED MARCH 27, 1877.

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Fishing float and sinker attachment, P. S. Redfield	143	188,755
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St. John, R. H., Adjustable tap wrench	188,978
Strand, A. B., Water wheel	188,979
Striewig, H., Corn planter	188,980
Strobel, C., Pattern chain for looms	188 981
Strobridge, T., Coffee mill, (reissue)	7 583
Sutton, J. W., Counterfeit coin detecter	188 982
Swan, T. B., Pump	188 828
Sylvester, B., Insect trap	188 760
Taylor, G., Toy ship	188 953
Taylor, J. D., Device for teaching penmanship	188,984
Thompson, G., Machine for sawing hoop poles	188,829
Thompson, S. J., and Y. Widdup, Let off mechanism for looms	189,002
Tiffany, D. B., Curtain fixture	188,985
Tippet, A. L., Bushing for mill spindles	188 986
Torrey, J. R., Razor strop	188,830
Tucker, S. D., Machine for folding paper	188,987
Tyler, J. T., Shovel	188,831
Van Horn, A., Ventilator for chimneys	188,989
Van Horn, A., Steam generator	188 990
Vantrump, A., Water elevator	188,988
Vaughan, T., Show case	188,832
Venable, E. C., Marking plug tobacco	188 991
Von Gerichten, M., Safety attachment for pockets	188,993
Von Tiedemann, F. H. W., Cigar holder	188,992
Waitt, G. L., Car door	188,994
Wallace, B., Sink	188,995
Walton, F. H., and P. Neddo, Lamp extinguisher	188,935
Westcott, C. S., B. Adriance, and T. Miner, Punch for numbering checks	188,761
White, R. J. and R. N., Car coupling	188,996
Whiteford, D., Lamp	188,998
Whiteford, D., Lamp	188,999
Whiteman, L. P., and B. M. Gerardin, Drawer pull	188,762
Whiting, A. F., Seal bolt	188 997
Wickers, J. L., Perforating stamp	189,000
Wickes, J. H., Refrigerator car	189,001
Widdup, Y., and S. J. Thompson, Let off mechanism for looms	189,002
Wilson, S. M., Cotton bale tie	189,003
Wilson, S. M., Cotton bale tie	189,004
Wood, C., Apparatus for treating furnace slag or scoria	188,763
Wright, E., Mechanism for operating doffer combs	188,833
You, G., Ventilator	189 000
Young, J., Cork fastening bottle necks	189,007
Young, T. J., Machine for making pills, lozenges, &c	189 005
Zanini, P. G. B., and F. Pasquale, Rotary engine	188,752
Zimmerman, M., Corn marker	189,008

TITLES, DRAWINGS, AND CLAIMS

OF

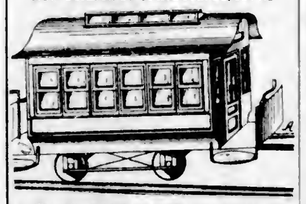
PATENTS GRANTED MARCH 27, 1877.

188,722. KEYS FOR LOCKS. R. A. Abbott and M. W. Parrish, Jackson, Mich. [Filed Jan. 12, 1877.]



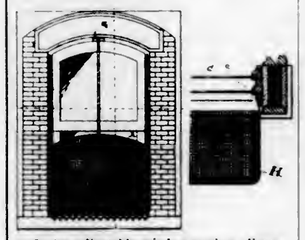
The combination of a thumb-screw or nut with a door or other key, when constructed and operated substantially as and for the purpose herein described.

188,723. DEVICES FOR LIFTING AND REPLACING HORSE-CARS. Henry C. Baker, New York, N. Y. [Filed Jan. 23, 1877.]



The adjustable bar or rod A, connected with the car by staples or eyes D, substantially as shown and described.

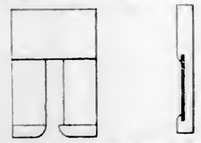
188,724. WINDOW SCREENS AND AWNINGS. S. Colahan, Cleveland, Ohio. [Filed July 25, 1876.]



1. An adjustable window-awning, disconnected at all points from the window-frame, and adapted to slide up and down on the rods C C, and to be operated by suitable mechanism, substantially in the manner and for the purpose specified.

2. The adjustable screen A, in combination with the apron or door H, constructed and operated substantially as described, and for the purposes set forth.

188,725. BALE-TIES. Frederic Cook, New Orleans, La. [Filed Nov. 22, 1876.]

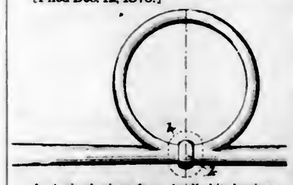


1. In a cotton-bale tie, a recess with elevated sides or strips for riveting or pressing over onto the edges of fixed end of band lying in such recess, so as to fasten the buckle or tie to the band by means of such side riveting-strips.

2. The bent end L of fixed end of the band in combination with side riveting-strips for fastening band to buckle.

3. An adjustable bale-tie with fixed open-sided buckle without loops in band, perforations, cuts, or rivets.

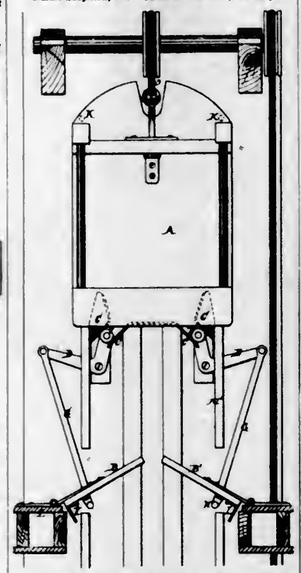
188,726. BRIDLE-BITS. F. Crane, Bloomfield, assignor to himself, H. N. Crane, Newark, and J. Crane, Bloomfield, N. J. [Filed Dec. 12, 1876.]



1. A cheek-piece for a bridle-bit having a raised bead, *k*, substantially as and for the purpose set forth.

2. A bridle-bit provided with a cheek-piece with a raised bead, *k*, and a mouth-piece with a head, *h*, surrounding the bead *k*, so as to hold the parts in position, substantially as described.

188,727. HATCHWAYS. Geo. N. Creamer, Philadelphia, Pa. [Filed Oct. 24, 1876.]



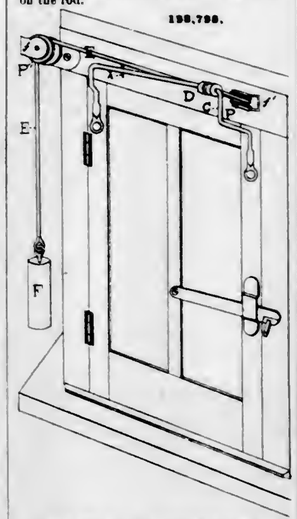
1. The combination of the car A, provided with the double cams C C' C C', with the bell-crank levers D D', friction-rollers E E', rods G G', and doors B B', the whole arranged to operate in the manner set forth, and for the purpose specified.

2. The combination of the hinged catch or levers I I with the pins or projections K K', when arranged to operate in the manner described and for the purpose set forth.

188,728. DEVICES FOR CLOSING DOORS. I. S. Doten, Bristol, Ill. [Filed Dec. 12, 1876.]

Brief.—A bent rod of peculiar configuration is attached, one leg, with offset, to the door, near the upper hinge, and the other, with greater offset, at opposite side of the door, also near the top. A cord, suitable palleys, and weight are provided, one end of the cord being attached to a movable sleeve, which slides on the rod until arrested by a suitable adjusting-pin; the construction serving to apply the power so that when the door commences to close it will begin slowly, and move with accelerated force, the greatest power being applied to hold the door when closed, and the least when the door stands wide open, or nearly so, the adjusting-pin preventing the movable sleeve from sliding too far on the rod.

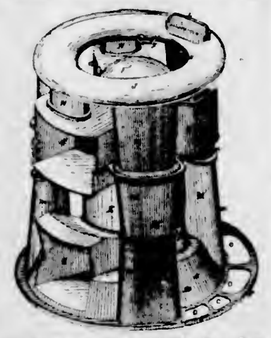
188,728.



1. The bent rod C, in combination with the movable sleeve D, cord E, pulleys P P', and weight F, when arranged, constructed, and operating for the purpose, and substantially in the manner hereinbefore specified.

2. The adjusting pin A, in combination with the bent rod C, and movable sleeve D, substantially in the manner described and shown, for the purpose specified.

188,729. AIR-HEATING FURNACES. Edw. H. Doyle, Albany, N. Y. [Filed Nov. 2, 1875.]



1. The combination, with the base-flues B, having inclined walls B', and openings O O in the base-rim, of the deflecting-hood E, substantially as and for the purpose set forth.

2. In an air-heating furnace having descending, ascending, and base flues and dampers for a reversible draft, the combination of the inclined wall B' and deflecting-hood E, inclining over said inclined wall, substantially as and for the purpose set forth.

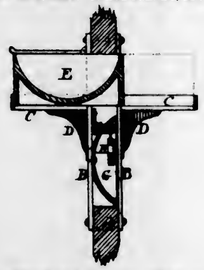
3. In an air-heating furnace, the combination, with the ring-chamber J above the dome,

flues B in the base, of descending flues M M, situated forward of the rear half of the furnace proper, and ascending flue M', situated at the rear, substantially as and for the purpose set forth.

4. In an air-heating furnace, the combination, with the combustion-chamber F, dome F', and chambers G G G', having their mouths opening to the said dome, of the flues H H H, ring-chamber J, and exit L, substantially as and for the purpose set forth.

5. In an air-heating furnace, the combination, with the combustion-chamber F, dome F', chambers G G G', flues H, and ring-chamber J, of the descending flues M, base-flues B, ascending flue M', and dampers N, substantially as and for the purpose set forth.

186,730. OVERGATES. W. A. Dutton, Cleveland, Ohio. [Filed Jan. 24, 1877.]



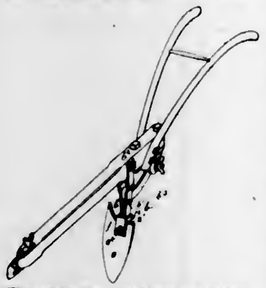
The combination and arrangement of the plates B B, frames C C, drawer E, lid F, gong G, hammer H, sleeve I, spring J, rod K, and lever L, constructed to operate substantially in the manner and for the purpose set forth.

186,731. INSIDE BLINDS. Alfred T. Ilford, Oakland, Cal. [Filed May 2, 1876.]



The blind-slats B having the bead J near the edge, to form the ogee finish and the bead-strip O, having the double bead K and L, and elongated mortises *a*, as set forth and described.

186,732. PLOWS. A. B. Farquhar, York, Pa. [Filed Jan. 26, 1877.]



The combination, with a standard, *b*, and a shovel or share, *e*, having a straight portion, *e'*, as described, of a clip, *f*, consisting of a front plate, *f'*, and lugs *f''*, and adapted to hold the share *e* in position by means of a single bolt, *e'*, substantially as shown and described.

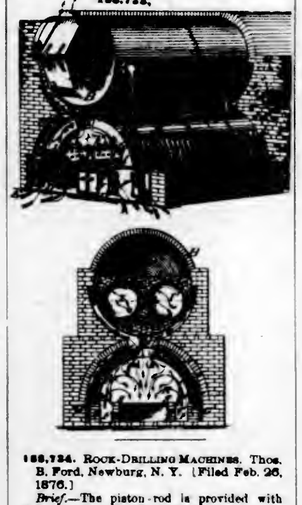
186,733. BOILER-FURNACES. E. Fair, San Francisco, Cal. [Filed Sept. 23, 1876.]

1. The combined furnace and water-heater described, consisting of the inclosed arched heater A A, provided with top opening S S, and communicating with a boiler, B B, by pipes F' F', the air-flues F F, provided with perforated plates V V, constructed and arranged to the grate *g g*, as shown, and the combustion jet-flues C C *f f*, all for the purposes herein set forth and specified.

2. The combination, substantially as specified, of the grate and the air passages or flues F F, which are covered with perforated plates, inclined, as shown, so as to direct converging jets of air into the combustion chamber.

3. The corrugated metallic flue-backings C C', fitted to the outer shell of the tank A A, and flue-chambers G G', arranged as shown, in combination with the furnace-opening S S of the arched heater A A, substantially as and for the purposes herein set forth and specified.

186,733.



186,734. ROCK-DRILLING MACHINES. Thos. B. Ford, Newburg, N. Y. [Filed Feb. 26, 1876.]

Brief.—The piston-rod is provided with zigzag grooves, in which spring-pawls work, to give the piston a rotary movement on the downstroke. The piston is provided with similar grooves, but which serve as steam-passages, to make connection between a steam-port in the center of the cylinder and passages in the walls of the cylinder which lead to the ends. The exhaust takes place in the same way, through similar ports and passages on the other side of the cylinder.

1. The combination of the piston, provided with spiral passages, and the cylinder, provided with steam and exhaust passages, substantially as and for the purpose set forth.

2. In a rock-drilling machine, the combination of the cylinder, provided with steam and exhaust passages, and the piston, provided with a series of passages, whereby the piston, while receiving a rotary motion, receives steam for the whole stroke, substantially as specified.

3. The combination of the piston, having a reciprocating and rotary motion, and provided with spiral passages, and the cylinder, provided with steam and exhaust passages, substantially as set forth.

4. The combination of the piston-rod, provided with straight and spiral grooves, and the pawls Q, whereby the piston is positively guided both in its up and down movements, substantially as specified.

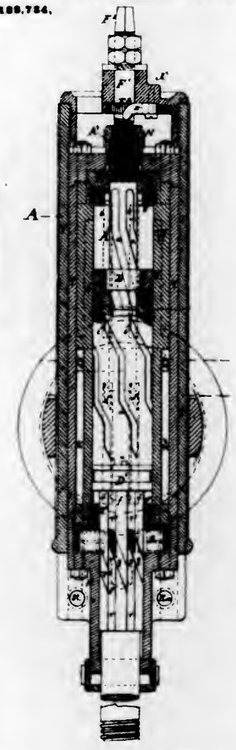
5. The combination of the cylinder, provided with steam and exhaust passages, the piston with a series of passages, and the piston-rod, provided with straight and spiral grooves to rotate the piston, substantially as set forth.

6. The combination of the piston-rod, provided with straight and spiral grooves, and pawls Q, and the feed-nut A, with the spiral grooves *a a*, the friction arrangement A^3 N at the upper end, bush B, with its projections in the grooves, feed-screw F, pawl *x*, and ratchet F^3, for the purpose of feeding the drill, substantially as specified.

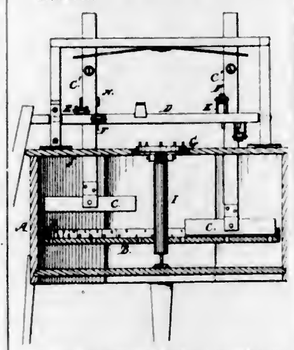
7. The rock-drilling machine, with the longitudinal projections on the cylinder fitting in grooves in the shell, which is provided with longitudinal projections on its outside surface, in combination with the clamp, consisting of a clamp-strap provided with a beveled edge, fitting in a corresponding undercut on the saddle, the clamp-blocks, saddle, set-screw, bolt, and nut, substantially as and for the purpose specified.

8. The combination of feed-nut A^1, the part A^3 of which is slotted, the feed-screw F, and the conical nut N, substantially as specified.

186,734.



186,735. WASHING-MACHINES. Wm. W. Goodwin, Nevinsville, Iowa. [Filed Dec. 26, 1876.]

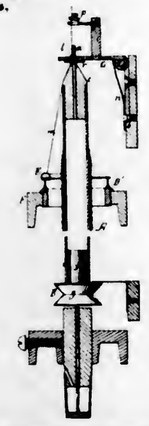


The tub A, platform B B', and shaft I G, in combination with the beaters C C and shaft D, having lifters E N and pulleys F, as and for the purpose specified.

186,736. RING-SPINNING. John Goulding, Worcester, Mass. [Filed July 31, 1876.]

Brief.—The bobbin is closed at its upper end, and is provided with a journal projecting therefrom, which has its bearings in a hinged piece, to which the thread-guide is also attached, so that both may be thrown out of the way when it becomes necessary to remove the bobbin.

186,736.



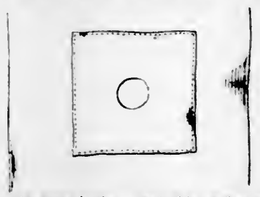
1. The combination of the bobbin A, provided with the journal *a* at its upper end, with a loose bearing, *l*, as described, for the reception and play, as explained, of the yarn and such journal, and with the spindle B arranged with and applied to the bobbin at its lower end, substantially as specified.

2. The loose bearing-piece carrier G, pivoted or so applied to its supporter as to be capable of being raised off the journal of the bobbin, essentially as and for the purpose set forth, in combination with the bobbin A and the journal *a*, arranged at its upper end, as set forth.

3. The combination of the yarn-guide *p*, the loose bearing *l*, the bobbin provided with the single journal at its top, and the spindle applied to the bobbin at its foot, all being substantially as specified.

4. The yarn-guide *p* and the loose bearing *l*, applied to the carrier G so as to be simultaneously moved with and by it, as set forth, in combination with the bobbin A and the journal *a*, arranged at its upper end, as set forth.

186,737. BARBERS' APRONS. A. H. Hart, Mount Vernon, N. Y. [Filed Feb. 9, 1877.]



AN apron having a part of its surface of light elastic material, and provided with a suitable opening in the elastic portion, so that it may be stretched to pass over the head of the wearer and may then contract so as to fit closely, but without too great pressure, around the neck, substantially as described.

186,738. SPEED-INDICATORS. W. Heckert, Providence, R. I. [Filed Nov. 24, 1876.]

1. The dial-bracket B, pivoted to the standard A, and keeping the registering mechanism in gear in proper engagement by the spring G, substantially as shown.

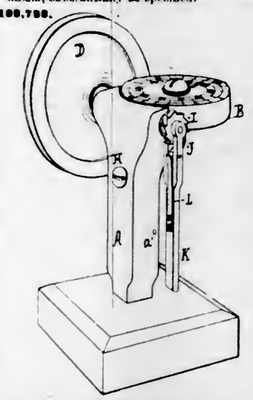
2. The regulating-screw H, in combination with the spring G, standard A, adjustable bracket B, and registering mechanism, substantially as and for the purpose specified.

3. The counting attachment herein described, consisting of the standard A, bracket B, spindle C, worm E, ratchet I, pawl J, oscillating arm K, springs G L, and a registering mechanism, substantially as described.

4. The combination of the standard A, bracket B, spindle C, pulley D, worm E, and a registering mechanism, together constituting a measuring device, substantially as described.

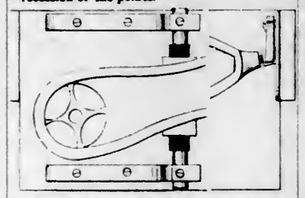
5. The combined counting and measuring attachment, herein described, consisting of the standard A, bracket B, spindle C, pulley D, worm E, ratchet I, pawl J, oscillating arm K, springs G L, and dials or registering mechanism, substantially as specified.

186,738.



186,739. MODES OF ATTACHING FOOT-TREADLES, &c. A. Hitchcock, New York, N. Y. [Filed Sept. 7, 1876.]

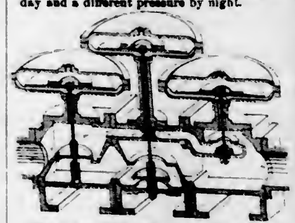
Brief.—The cross-bar on which the treadle works is screw-threaded, giving, during its rocking motion, a slight lateral horizontal motion. The connecting-pin between the pitman and treadle-toe is also screw-threaded, with the effect of causing an approach and recession of the points.



A bearing for treadles or connection-rods, when such bearings or connection is made substantially as set forth.

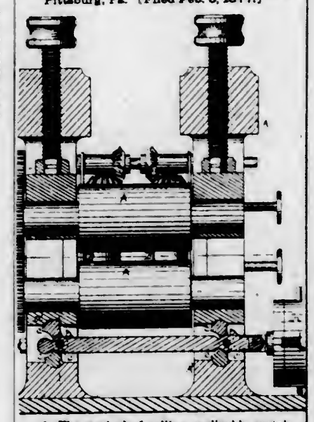
186,740. GAS-REGULATORS. A. Kipp, Jr., and H. Murphy, Sing Sing, N. Y. [Filed Nov. 28, 1876.]

Brief.—Adapted to automatically regulate the flow of gas under a certain pressure by day and a different pressure by night.



The combination of the shut-off valve No. 1 with the night-pressure valve No. 2 and the day-pressure valve No. 3, in conjunction with the several gas-passages and appurtenances, substantially as described, for the purpose of regulating automatically either a day or a night pressure, the change from one to the other being effected through the medium of the pressure of the gas turned on or off at the works.

186,741. METAL-ROLLING. A. Kloman, Pittsburg, Pa. [Filed Feb. 6, 1877.]



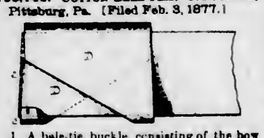
1. The method of rolling malleable metals to varying sizes in cross-section by reversing the motion of the rolls while the bar is still engaged by them, or is still within their bite, and simultaneously forcing the biting rolls into closer proximity, substantially in the manner set forth.

2. The rolled bridge-link blank D D, substantially as described with reference to Fig. 2.

3. In combination with a pair of metal rolls, A A, a hydraulic cylinder and plunger operating a toggle-joint, whereby one roll is caused to move to or from the other, substantially as set forth.

4. The housings, with their recesses R constructed to receive the whole or the greater part of a vertical roll and its driving-gear, in combination with such roll and driving-gear, and with means of adjustment for adjusting such roll and gear into or entirely out of the recess of the housings, substantially as set forth.

186,742. COTTON-BALE TIES. J. N. Lauth, Pittsburg, Pa. [Filed Feb. 3, 1877.]



1. A bale-tie buckle, consisting of the bow D' and triangular parts D D, lying in parallel planes opposite to each other, and having each a bearing-edge for engaging the hoop, and a turned-up lug, *c*, at the outer extremity of each bearing-edge, substantially as set forth.

2. A bale-tie buckle having the bow D' and triangular parts D D, each with a bearing-edge for engaging the hoop, and one having at its outer end the bends *r s*, substantially as set forth.

3. The bale-tie buckle described, having two independent bearing-edges, *d d*, in different planes, each made sloping from the open to the closed side of the buckle, substantially as set forth.

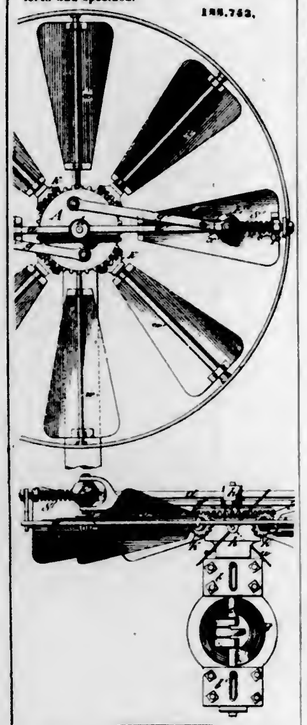
186,743. WINDMILLS. Jno. Lochhead, San Francisco, Cal. [Filed Jan. 10, 1877.]

Brief.—The wheel is fitted with sails or wings which make it a self-governor and prevent too great speed, thereby securing the pump-rods or their attachments from being broken or worn out by unnecessary speed. Also relates to mechanism whereby the wheel may be adjusted so as to preserve such limit to the speed as may be desirable.

1. In a windmill, the wheel-governor described, consisting of the sliding weights E E' on fixed supplementary arms *z z' z''*, connected by jointed rods *g g'* to the central bevel-wheel A, or its equivalent, in combination with the alternate movable sails *w' w'' w'''*, provided with beveled pinions *k k k*, or their equivalents, and the spiral springs S S', arranged as herein shown, substantially as and for the purposes specified.

2. The threaded supplementary arms *a x a' x'*, provided with adjusting-nuts *p p'*, spiral springs S S', and sliding weights E E', connected to the central wheel A by jointed rods *g g'*, or their equivalents, in combination with the movable sails *w' k w' k*, described, substantially as and for the purposes herein set forth and specified.

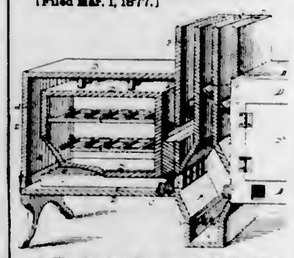
188,743.



188,744. DISINTEGRATING SOLUTION FOR GOLD AND SILVER BEARING ORES. John J. Ludi, Santa Fe, N. Mex. [Filed Dec. 26, 1876.]

A disintegrating solution for gold and silver bearing ores, consisting of salt, vinegar, sulphuric and nitric acids, caustic potash, and water, prepared substantially in the manner herein set forth.

188,745. GLASS-ANNEALING FURNACES. J. Lowery, Pittsburg, Pa., assignor to Excelsior Flint Glass Company, same place. [Filed Mar. 1, 1877.]



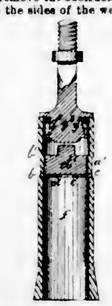
1. The close box D¹, with surrounding flues, in combination with a fire-chamber and ports, doors, dampers, or registers suitably arranged for applying either hot air and gases alone, or cold air alone, to the exterior of the box, the combination being substantially as set forth.

2. A glass-annealing oven, consisting of a close box, D¹, outer case D, interposed flues *c d d' d''*, and one or more cold-air ports, *s*, in combination with fire-chamber A, flues B B', dampers *b b'*, and register C, substantially as set forth.

3. A fire-chamber, A, having an independent smoke-flue, B, and damper *b*, in combination with a glass-annealing oven on each side of the same, and an independent system of flues or passages, regulated by registers leading from the fire-chamber around each annealing-box, whereby the effective heat of the fire-chamber can be directed onto either box, or cut off from both, at pleasure, the combination being substantially as set forth.

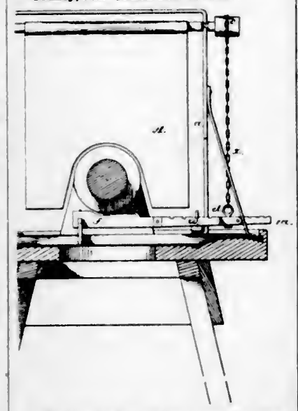
188,746. OIL-WELL-WALL CLEANERS. M. T. McCormick, Petrolia, Pa. [Filed Nov. 23, 1876.]

Brief.—The tool provides for the flow of gas and water through its hollow portion and the communicating apertures, when dropped into an oil-well. The percussive force and ebullition remove the obstructions to the flow of oil from the sides of the well.



The hollow weight *a*, provided with an annular indentation or groove, *a'*, collars or shoulders *b b'*, perforations *c*, internal annular projection *d*, threaded, as shown, and the threaded plug *d'*, adapted to be screwed into the projection *d*, and having a bell-shaped lower end, substantially as and for the purpose set forth.

188,747. AUTOMATIC GOVERNORS FOR WIND-WHEELS. O. P. McDonald, Volusia County, Fla. [Filed Oct. 11, 1876.]

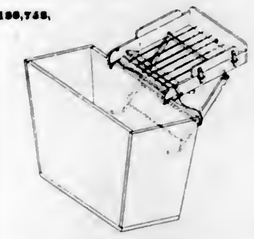


The combination, with the shaft of a wind-wheel, of the governing-vane A, pulley *c*, chain *x*, and brake *f m*, as and for the purpose described and set forth.

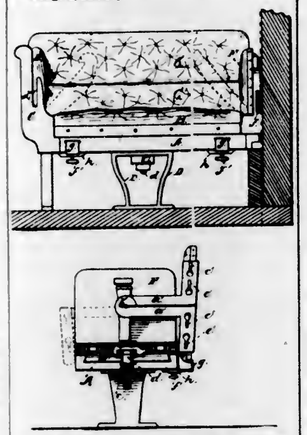
188,748. COAL-SCREENS. E. D. McLean, New Athens, Ill. [Filed Aug. 30, 1876.]

A portable coal-screen, attachable to a coal-car by suspension-hooks and held in any desired sloping position by supporting-bars notched for reception of hinged adjustment-rod, in combination with a coal-car, for the purpose and in the manner as herein described.

188,749.



188,749. CONVERTIBLE SEAT AND COUCH. Chas. A. Mikinas, Dayton, Ohio. [Filed Aug. 4, 1876.]



1. The seat B, having hinged cushions E and F, and arranged to slide in the frame A, which is constructed as described, when supported upon the standard D, and clamped by the nut *c*, in the manner and for the purpose specified.

2. The back divided into sections G G', and turning upon the pivoted arms *a'*, to form sides to the couch, substantially as and for the purpose specified.

3. The combination, with the back sections, of the pins *c'* and the arms *a'*, flanged and slotted as represented, the bolts *d'* and link *d'*, when the respective parts are arranged and connected in the manner and for the purpose specified.

4. In combination with the frame A and back G G' the L-shaped bolts *g*, secured by the screws *f'*, substantially as and for the purpose specified.

5. A car-seat capable of being turned upon a central pivot and drawn out to form a couch, substantially as and for the purpose specified.

6. A car-seat capable of being turned upon a pivot, and extended to form a couch when held firmly to the floor by a central bolt passed through the standard D and clamped by a nut, *c*, as and for the purpose specified.

7. A car-seat capable of being turned upon a pivot, and extended to form a couch when held firmly to the side of the car by the arms *a'* pivoted thereto, and held by the loops *f*, as and for the purpose specified.

188,750. COLTER-JOURNALS. G. Moore, Moline, Ill., assignor to Deere & Co., same place. [Filed Jan. 13, 1877.]

Brief.—The colter-bosses tapered and extended to form journals, which revolve on the center bolt, and also within boxes carried by the arms or hangers, which may be drawn up by the center bolt to compensate for the wear.

1. The plow-colter bosses C, having frusto-conical ends *c*, arranged to operate with similarly shaped apposed recesses in the arms A' of the colter-yoke A, substantially as described, and for the purpose specified.

2. The plow-colter bosses C, having frusto-conical ends *c*, arranged to operate with similarly-shaped apposed recesses in the arms A', and with the tightening-bolt E, substantially as described, and for the purpose specified.

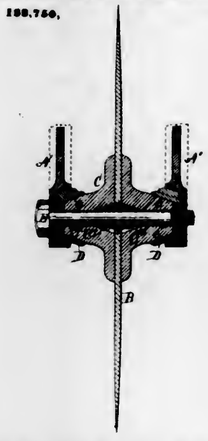
3. The plow-colter bosses C, having frusto-conical ends *c*, arranged to operate with similarly-shaped recesses in the arms A', and having a portion of their central aperture C'' fitted and journaled on the bolt E, which bolt E serves at the same time as a tightening bolt, substantially as and for the purpose specified.

4. The substitutive journal-boxes D, arranged to operate with the bosses C, arms A', and bolt E, substantially as described, and for the purpose specified.

5. A plow-colter, B, having bosses C with tapering ends, which are formed into journals, and a central opening for an axial bolt, E, substantially as and for the purpose specified.

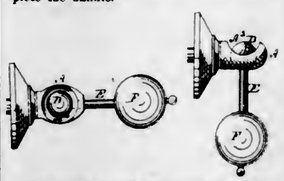
6. A wheel or colter, B, having bosses C, the ends of which are formed into journals, combined to operate with bearings in the arms A', substantially as and for the purpose specified.

188,750.



188,751. DRAWER-PULLS. L. Muller, Hartford, Conn., assignor of one-half his right to L. Muller, Jr., same place. [Filed Feb. 26, 1877.]

Brief.—A socket attached to the front of the drawer, in the usual manner, is provided on its upper side with a large hollowing recess, in which the ball of the hanging handle closely fits, and on its under and front side with a longitudinal opening, which permits the forward and upward movement of the shank of the handle until brought to a horizontal position, the construction being such that the shank is passed through the recessed socket, the ball resting within it, before the larger ornamental portion is secured in place to complete the handle.



The socket A, with the recess A^2 and slot A^3, in combination with the ball D, the shank E, and the handle F, operating substantially as herein shown and described.

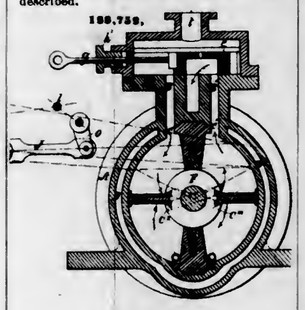
188,752. ROTARY ENGINES. Francisco Pasquale, Stella, and Pietro Giovanni Battista Zanini, Diano-Marino, Italy. [Filed June 8, 1876.]

1. The double oscillating piston, constructed as shown and described, having wings G G' inserted in the boss of the shaft, and provided with beveled packing-pieces *c*, and the springs *c' c'*, substantially as and for the purpose set forth.

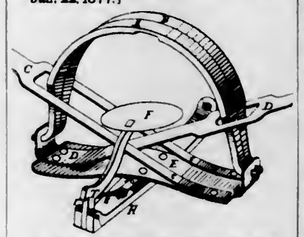
2. In combination, the double oscillating piston, wings G G', beveled metallic packing *c*, springs *c' c'*, and the steam passages through the shaft, substantially as shown and described.

3. In combination, the double oscillating piston, wings G G', beveled packing-pieces *c*, springs *c' c'*, steam-passages through the shaft, and the abutments E E, provided with spring-packing, substantially as shown and described.

188,753.



188,753. ANIMAL-TRAPS. J. D. C. Pownall and H. Broomall, Christiana, Pa. [Filed Jan. 22, 1877.]



1. In a steel-trap, the jaws A and B, in combination with the springs C and D, when constructed and arranged to operate substantially as described.

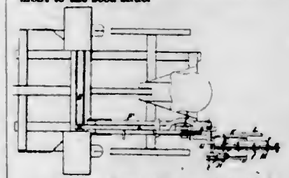
2. In combination with the tread-pan and one of the jaws of a steel-trap, a trigger which, aided by a spring or its equivalent, operates automatically in setting the trap to catch and hold the said jaw, substantially as and for the purpose described.

3. In a steel-trap, the trigger T and spring S, or its equivalent, in combination with the jaw A, the tread-pan F, and the transverse bar H, these members constructed to operate substantially as described.

4. The transverse bar H, extended beyond the point reached by the jaw B when the trap is set and the upward turn given thereto, for the purpose described.

188,754. CORN-DROPPERS. John Putnam, Rushville, Ill. [Filed Dec. 9, 1876.]

Brief.—To the frame is hinged a beam, carrying at its rear end an adjustable marking-wheel, provided with cams, lugs, and an indicator. To the rear of a bar connected at the front to the seed-slide is attached a fork-arm having rollers, that are struck by cams on the marking-wheel to impart an intermittent movement to the seed-slide.

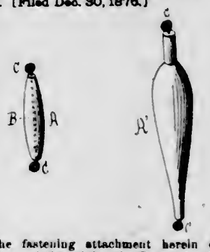


1. The marking-wheel M, provided with the cams *g g'* and lugs *k k'*, in combination with the indicater L, substantially as described, and for the purposes set forth.

2. The beam F, pivoted to the runner-frame, and provided with the lever *a*, pivoted thereto, in combination with the lever I' and the slide G, provided with the fork H, substantially as described, and for the purposes set forth.

3. The wheel M, provided with the indicator L, cams *g g'*, and the lugs *k k'*, in combination with the beam F, lever *a*, slides E and G, forks H and K, lever I', and chain *i*, substantially as described, and for the purposes set forth.

188,755. FISHING FLOAT AND SINKER ATTACHMENTS. P. S. Redfield, Providence, R. I. [Filed Dec. 30, 1876.]



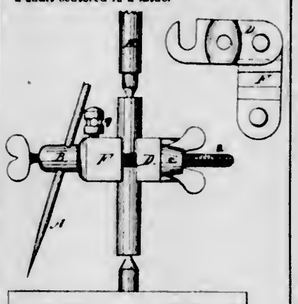
1. The fastening attachment herein described, consisting of the wire B, terminating at one end in a close elastic spiral coil, C, arranged at a right angle or transversely to the longitudinal axis of the float or sinker, substantially as and for the purpose specified.

2. The sinker A, in combination with the wire attachment B, having a close elastic spiral coil, C, whereby the line is held firmly by compression, substantially as described.

3. The float A', in combination with the wire attachment B, provided with a close elastic spiral coil, C, substantially as and for the purpose set forth.

188,756. GAGING AND CENTERING TOOLS. F. A. Rich, Grand Rapids, Mich., assignor of one-third of his right to J. H. Jones, same place. [Filed Feb. 23, 1876.]

Brief.—A machinist's tool that may be used for leveling, gaging, and for drawing circles, and for any of these purposes may be attached by its jaws to a plate, a rod, a drill-bit, or to a shaft centered in a lathe.



The combination of the clamps D F, screws *a*, nuts *c*, head or pin B, scriber A, set-screw *g* and *s*, round or flat bar C, substantially as shown and described.

188,757. TOOLS FOR OPENING JEWELS. A. Schwerter, New York, N. Y. [Filed Dec. 12, 1876.]



1. In an instrument for opening jewels, the combination of the screw *c*, provided with the plain portion *c'*, with the jaws *a* and *a'*, the said screw forcing the jaws apart against the action of their spring, the plain portion *c'* acting as a steady-pin, to add to the rigidity of the jaws, substantially as hereinbefore set forth.

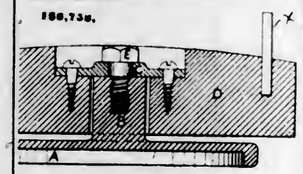
2. The combination of the screw *c*, steady-pin *c*, and spring-jaws *a* and *a'*, substantially as and for the purpose hereinbefore set forth.

188,758. HAT-BLOCK SPINNERS. C. Sieber, Jr., Philadelphia, Pa. [Filed May 16, 1876.]

THE GRAPHIC CO. N.Y

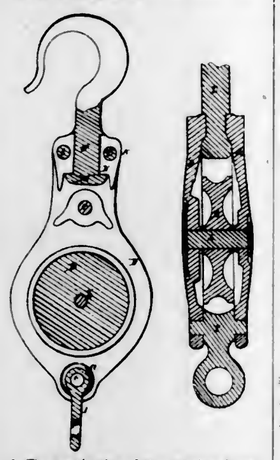
Brief.—This device is designed to receive a hat while upon its block, and to facilitate hand manipulation in finishing the same. The block-carrier D is so connected to the base-piece as to admit of its being free to revolve about the latter.

186,735.



A hat-block spinner, consisting of the base A, provided with the tapped guide-post B, and the rotary block-carrier D centrally bored and countersunk, and provided with pins *x x*, and detachably secured to the base A by screw bolt E and plate C substantially as described, and for the purpose set forth.

186,760. TACKLE-BLOCKS. John Simpson and Alfred A. Pope, Cleveland, Ohio. [Filed June 22, 1876.]



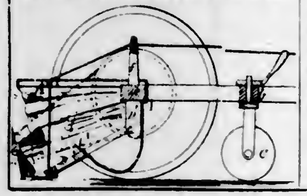
1. The combination of the eye-piece I, constructed substantially as described, and the hook L, provided with the shank J, with the E F or sides D G, having projections *x*, and extensions K K′, with recesses therein, all as described.

2. The pieces E F, formed with projections *x o* on their inside upper parts, and with projections *o′ a′* above and below on their outsides, in combination with the plates D G, provided with projections *b b′*, substantially as and for the purpose described.

3. The combination of the eye-piece I, having pivoted projections on each side, with the plates of a pulley-block, substantially as and for the purpose described.

186,766. INSECT-TRAPS. B. Sylvester, St. Peter, Minn. [Filed Feb. 27, 1877.]

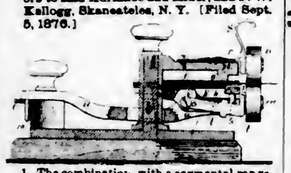
Brief.—A revolving brush attached to the front end of the machine sweeps the insects into the cage provided with a receiver, and having a hinged lower portion and devices for raising said portion at the option of the driver.



1. The combination of the revolving brush, the cage provided with the hinged lower portion, and means for raising or lowering said hinged lower portion, substantially as set forth.

2. In combination with the revolving brush and the cage, the supporting-frame and the guiding-wheel C, arranged within reach of the driver while riding in his seat, substantially as set forth.

186,761. PUNCHES FOR NUMBERING CHECKS. Chas. S. Westcott, Elizabeth, N. J., and B. Adriance and T. Miner, Brooklyn, assignors to said Adriance and Miner, and P. W. Kellogg, Skaneateles, N. Y. [Filed Sept. 5, 1876.]



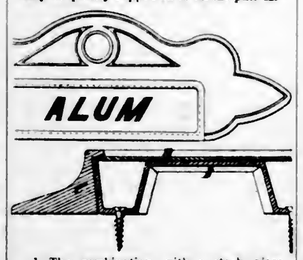
1. The combination, with a segmental range of perforating-punches, of a segmental die-plate, *e*, clearing-plate *f*, and mechanism swinging upon a pivot at the center of the segment, for holding the paper to be punched, and for actuating the punches, substantially as set forth.

2. The lever *u*, swinging with the arms *t* and *s* upon the vertical pivot *b*, and also swinging vertically upon the pivot 3, in combination with the grasping-rollers *o* and *m*, die-plates *e f*, and spring-pawl *t* for turning the grasping-rollers, substantially as set forth.

3. The guard-plate *c* with holes, in combination with the pin 10, lever *u*, and holding and perforating mechanism, substantially as and for the purposes set forth.

186,762. DRAWER-PULLS. L. P. Whiteman, New York, N. Y., and B. M. Gerardin, Jersey City, N. J., assignors to W. D. Whiteman, New York city. [Filed Mar. 2, 1877.]

Brief.—The stock piece or pull proper is attached to the drawer, and by means of the face-piece the name-plate is kept in position upon the face of the stock piece. The face-piece is provided with an opening to exhibit the name-plate. It receives no strain, and may be quickly slipped on or off the pull A.



1. The combination, with a stock-piece adapted to be secured to a drawer or other article by screws or otherwise, and constituting a back protector to a name-piece, of a face-piece adapted to interlock with and overlap said stock-piece, conceal the means which secure it in place, and hold the name-piece in place, substantially as set forth.

2. The combination, with a stock-piece having inwardly-converging outer ends, and constituting a dovetail-tenon, of a face-piece provided with a dovetail groove or cavity adapted to interlock with said stock-piece, substantially as set forth.

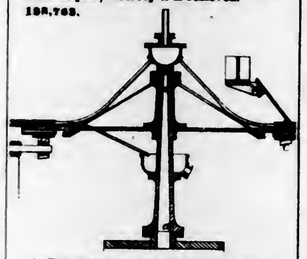
3. A drawer-pull stock-piece, consisting of end pieces and a connecting-bridge, forming a pull-piece and protector to a name-piece, and so formed that a face-piece may interlock therewith and cover it, substantially as set forth.

4. A drawer-pull face-piece adapted to interlock with a stock-piece, and cover the same, substantially as set forth.

186,763. APPARATUS FOR TREATING FURNACE SLAG OR SCORIA. C. Wood, Middlesborough-on-Tees, England. [Filed Nov. 9, 1876.]

Brief.—The slag runs onto the revolving table, and is cooled by water coursing through pipes beneath its surface. The table, in its revolution, brings the cooled slag in contact with scrapers, whereby it is removed.

186,763.

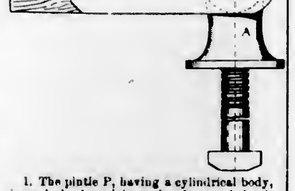


1. The apparatus for producing slag-shingle, such apparatus consisting of a rotating table or trough, receiving, cooling, and conveying away the slag or scoria as it flows from a furnace, and having scrapers combined with it to remove the slag or scoria from its surface, substantially as described.

2. The combination, substantially as hereinbefore set forth, of the rotating trough or table which receives the slag as it flows from the furnace, the water pipes or space beneath the surface of the table, the supply-bowl or water-reservoir, and the pipes for conveying the water therefrom to the table, for the purpose specified.

186,764. PUMP-HANDLES AND SUCKER-ROD JOINTS. S. Jarvis Adams, Pittsburg, Pa. [Filed Feb. 5, 1877.]

Brief.—The ends of the pintle are made non-cylindrical, and fit into correspondingly-shaped bearings in the straps, by which the pintle will be prevented from turning in said bearings.



1. The pintle P, having a cylindrical body, irregularly-shaped journal ends *a*, and shoulders *s*, in combination with perforated head A and straps D, substantially as set forth.

2. The sheet-metal straps D, in combination with sucker-rod R, head A, and pintle P, having non-rotating journals *s*, substantially as set forth.

186,765. PROCESSES FOR RENOVATING PRINTERS' ROLLS. B. F. Allen, Boston, Mass. [Filed Feb. 8, 1877.]

The process of renovating printers' rollers by replacing the saccharine matter lost through use, by applying to them an alkaline or acid wash, and a covering of molasses, glucose, or its equivalent, substantially as hereinbefore set forth.

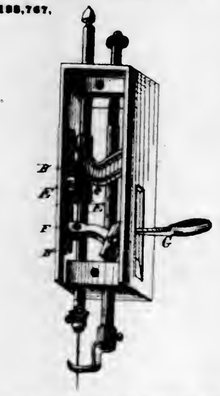
186,766. INSECT-DESTROYING COMPOSITIONS. B. Bagnicki and A. Grossebal, Jersey City Heights, N. J. [Filed Nov. 14, 1875.]

A compound consisting of naphtha, benzine, oil of turpentine, oil of hemlock, and alcohol, in the proportions hereinbefore set forth, and for the purpose specified.

186,767. SEWING-MACHINES. Geo. W. Baker, Cleveland, Ohio, assignor to White Sewing Machine Company, same place. [Filed Dec. 22, 1876.]

Brief.—The needle-bar and the presser-bar are each provided with a clutch, (rigidly attached,) each clutch carrying fingers to embrace a guide-bar in the interior of the head of the machine, the fingers being adjusted by set-screws to take up the wear of the clutches and guide-bar. The lever to raise the presser is attached to the presser-bar by the same screw that fastens its clutch.

186,767.



1. The combination, with the needle-bar and the case, constructed with a guide, of a forked clutch attached to the needle-bar to embrace said guide, the clutch being provided with means, substantially as described, for adjusting the arms of the clutch to take up the wear of the clutch and guide, substantially as and for the purpose set forth.

2. The combination of the case, guide, needle-bar E, with the clutch and adjusting device E′, substantially as and for the purpose set forth.

3. The combination, with the presser-bar and the case, constructed with a guide, of a forked clutch attached to the presser-bar to embrace the guide, the clutch being provided with means, substantially as described, for adjusting the arms of the clutch to the guide, to compensate for wear of clutch and guide, substantially as and for the purpose set forth.

4. The combination, with the presser-bar and clutch F, of the lever G, said lever and clutch secured by set-screw *f*, substantially as described.

5. The combination, with the removable head, of the bar or projection B′, the needle-bar, presser-foot, and clutches E and F, substantially as described.

2. The hood made as a box—that is, around the lens-holder and its box—and adjustable in its position to the lens-holder, substantially as set forth.

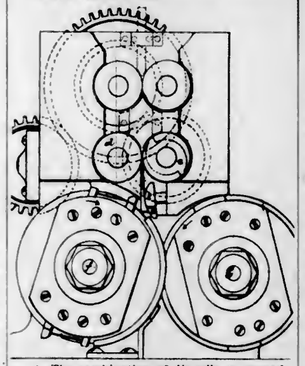
3. The movable picture-holder, adjustable upon the picture-holding slide, in combination with the movable hood, and the lens and holder, substantially as set forth.

4. The sliding picture-holder, made of the cross-bar *e*, central spring 10, and post or finger *o*, substantially as and for the purposes set forth.

5. The handle *d* and bracket-yoke *c*, combined with the base *z* and lens-holder *b*, substantially as set forth.

6. The hood *f*, made with the central portions 2 turned upwardly and forming a guide, in combination with the lens-holder *b*, substantially as set forth.

186,770. MACHINES FOR FINISHING HORSE-SHOE-NAILS. Benjn. Bevelander, Boston, Mass., assignor to Globe Nail Company. [Filed Feb. 12, 1877.]



1. The combination of die-rolls to spread the point of a nail-blank with a rotating punch and a rotating die to shear the nail-blank, substantially as described.

2. The combination, with die-rolls to cold-draw and spread the points of nail-blanks, of a rotating punch and a rotating die to shear the nails, all substantially as described.

3. The combination, with a rotating punch and a rotating die, of independently-actuated jaws, adapted to move with the punch and die, and mechanism to actuate the jaws, whereby they grasp the head of the nail-blank and hold it before, during, and after the action of the punch and die upon the blank to shear it, substantially as described.

4. A rotating die and rotating punch, and jaws to hold the head of the blank, as described, in combination with a chip-holder to hold the surplus metal sheared from the flattened point of the nail-blank, and discharge the chip before the blank is discharged, substantially as described.

5. The die-rolls *d s* and rotating jaws, in combination with a guide-surface and yielding finger, to hold the nail-blank for the jaws to grasp it, substantially as described.

6. The rotating jaw and punch, in combination with a yielding finger to set upon the nail held by the jaws and crowd it down upon the punch, substantially as described.

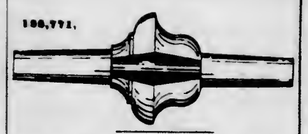
7. The combination, with a rotating punch and die, and jaws and guard adapted to hold the nail-head, of a yielding chip-holder to hold the surplus metal sheared from the point of the nail, and permit its discharge before the discharge of the nail, substantially as described.

186,771. CUTTER-HEADS. M. T. Boult, Battle Creek, Mich. [Filed Dec. 27, 1876.]

Brief.—The cutter is formed of solid steel, provided with edges which will cut, while the tool is revolving in either direction, right or left, and has a shank or stem at each end, either of which can be used to hold the cutter or guide the lumber to be molded. The cutter can be reversed in the tool-stock.

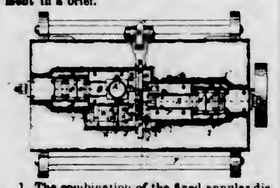
A molding-cutter constructed with a shank or stem on each end, either of which may be used to hold the cutter or guide the lumber to be molded, and provided with double cutting-edges, as and for the purpose specified.

186,771.



186,772. MACHINES FOR MAKING RIVETS. Mellen Bray, Newton, Mass. [Filed Oct. 2, 1876.]

Brief.—The invention consists of sub-combinations of devices of minor character, too numerous and too varied to admit of statement in a brief.



1. The combination of the fixed annular die *b*, the die-carrier P, having set therein the single annular die *s*, the lever R, connected at its movable end with the carrier P, and the cam J, having three throws, as set forth, all arranged as described, and adapted to sever a blank from the rod or wire, convey it into a position in front of the heading-plunger, remain in a state of rest till the rivet is headed, carry the finished rivet to the place of its charge, remain in a state of rest till the rivet is discharged from the die *e*, and then return the die *e* to its former position in front of the die *b*, substantially as described.

2. In combination with the stationary annular cutting-die *b*, the intermittently-reciprocating carrier P, having mounted therein a single annular cutting and forming die, *e*, and three hardened-steel bushings, *f*, having conical or funnel shaped mouths, said bushings being distinct and separate from the cutting and forming die, and a register-pin having a tapered point to engage with said bushings, and having a positive intermittent reciprocation imparted to it independent of the motion of the carrier, substantially as and for the purposes described.

3. The combination, in a rivet-making machine, of an annular die, mounted in a carrier adapted to be moved intermittently into three different positions in succession, and remain in a state of rest for a limited time in each of said positions, and a cross-head, carrying in its front end a gage-pin, a register-pin, and a heading swage or die, and adapted to be reciprocated in a direction at right angles to the motion of the die-carrier, in such a manner that the register-pin shall engage with the carrier while it is standing still in each of its three positions, substantially as and for the purposes described.

4. The combination of the annular die *b*, mounted in the intermittently-reciprocating carrier P, the reciprocating cross-head S, carrying in its front end the gage-pin *w*, register-pin *n*, and heading-die *o′*, and the reciprocating cross-head O, carrying in its front end a locating-plunger, *t*, and the discharge-plunger *u*, all arranged and adapted to operate as and for the purposes described.

5. The combination, in a rivet-making machine, of the cross-head S, carrying in its front end the register-pin *n*, and heading-swage *o*, the toggle-links S^1 and S^2, connecting-link S^3, the reciprocating bar U, and cam H, all arranged and adapted to operate as and for the purposes described.

6. In combination with a pair of toggle-links, adapted to impart a reciprocating motion to the cross-head O or S, the bolt *q*, provided with the head q^1, and ears q^2 q^2 and nut q^3, and the sleeve *r*, provided with a hexagonal or other prismatic-shaped section at one end, and a male screw-thread fitted to, and adapted to work in, a female screw formed in a portion of the bed of the machine, or a block of metal secured thereto, substantially as described.

7. The combination, in a rivet-making machine, of the cross-head O, carrying in its front end the locating-plunger *t* and discharge-plunger *u*, toggle-links O and O^2, connecting-rod O^3, reciprocating bar V, and the cam I, all constructed, arranged, and adapted to operate as and for the purposes described.

8. The combination, in a rivet-making machine, of the reciprocating plate W, provided

with the raised rib or jaw *v*, the pivoted jaw W^1, provided with the slot *w*, the lever W^2, and cam K, all constructed, arranged, and adapted to operate substantially as described.

9. The combination of the plate W, provided with the raised rib or jaw *v*, the pivoted jaw W^1, lever W^2, cam K, the frictional pressure-jaw b^1, and spring c^1, substantially as described.

10. The combination of the plate W, provided with the raised jaw *s*, the pivoted jaw W^1, the lever W^2, cam K, spring c^1, and the screw-stop Y, all arranged and adapted to operate as and for the purposes described.

11. The combination of the bar N, die-carrier I^2, abutment I^1, and the wedge-block *k*, all arranged and adapted to operate substantially as and for the purposes specified.

12. In combination with the dies *b* and *c* and a reciprocating gripe feeding device, for intermittently feeding the wire into the dies, the gage-pin *m*, adjustably set in the automatically reciprocating cross-head S, and adapted to approach within a greater or less distance of the cutting surfaces of said dies, as and for the purposes described.

13. The combination of the fixed annular die *b*, the carrier P, having mounted therein the annular die *a*, and adapted to be moved in succession into three different positions, the plunger *n*, set in the cross-head O, arranged relatively to the carrier I^2 and die *b*, as shown, and the knock-off plunger *f*, all arranged and adapted to operate substantially as described.

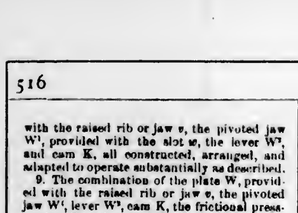
14. The combination, in a rivet-making machine, of the solid reciprocating annular die *c*, the heading-swage *o*, and the conical-pointed reciprocating plunger *t*, all arranged and co-operating as set forth, to locate the blank in the die, form a head upon one end of said blank, and a counterrank recess in the other end, substantially as described.

15. In combination with a solid annular die, in which the rivet-blank is held while being headed, and a reciprocating heading-swage, an oil-tank, placed above the heading-tools, and provided with a discharge-pipe, adapted to convey the oil from said tank to the heading-tools, as and for the purpose described.

16. In combination with the oil-tank A^1, provided with the discharge-pipe *w'*, the die *a*, and reciprocating carrier P, the channel way *o'*, and oil-hole *s*, all arranged and adapted to operate as and for the purposes described.

186,775. MACHINES FOR DRILLING THE SHANKS OF RIVETS. Mellen Bray, Newton, Mass. [Filed Oct. 2, 1876.]

Brief.—The invention consists of sub-combinations of mechanical devices of minor character, too numerous and too varied to admit of statement in brief.



1. In combination with the supplementary frame M, movable upon the main frame A, the clamping-jaws *g g*, mounted upon said supplementary frame M, and adapted to engage with the levers J J when the frame M is secured in position, and to be disengaged therefrom when the frame M is moved back, substantially as and for the purposes described.

2. The combination of the carrier-wheel *m*, the inclined chute Q, the reciprocating plunger *r'*, and the discharge channel-way V^3 extending from the carrier-wheel directly opposite the plunger *r'*, substantially as described.

3. The discharge channel-way V^3, having formed upon its outer end the shallow tray-like extension V^3, constructed and arranged substantially as described.

4. The combination of the inclined chute Q, the reciprocating plunger *r'*, and the reciprocating finger d^1, provided with an inclined or wedge-shaped end, all constructed, arranged, and adapted to operate as and for the purposes described.

5. In combination with the carrier-wheel *m*, adapted to be intermittently rotated about its axis, and an automatically-operated drill, the detent-wheel N, the reciprocating rod N^1, provided with a V-shaped point or end, and the cam F^1 and spring N^2, all arranged and adapted to operate substantially as described.

6. The combination of the clamping levers J J, having formed in their rear ends rectangular slots extending transversely thereof, the boxes J^1 provided with lips and carrying the cam-trucks h^3, and the adjusting-screws J^2 J^2, all arranged and adapted to operate, as and for the purposes described.

7. The box J^1, made in two parts, provided with lips, and bound together and to the lever J by the bolt h^1, in combination with the adjusting-screw J^2 connected thereto, so as to impart a positive motion to said box in both directions, substantially as described.

8. The combination of the inclined chute Q, the feed-plunger *r'*, adapted to take a rivet from the foot of the chute and feed it to the carrier-wheel, the lever T, connecting-rod U, cam-lever U', and the path cam E^2, all adapted to impart to said plunger a positive motion in both directions, substantially as described.

9. In combination with an automatically-operated drill, an intermittently rotating carrier-wheel and a pair of clamping jaws, adapted to seize and hold the rivet while it is being drilled, an elevated oil-tank, a suitable discharge-pipe provided with a cock to regulate the flow of oil and a funnel to receive the oil and direct it upon the drill, substantially as described.

10. The combination, in a drilling-machine, of the elevated oil-supply tank Z, the receiving-tank Z^1, the secondary tank Z^2, and the pump A^1, adapted to draft from the secondary tank Z^2 and discharge into the supply tank Z, substantially as described.

11. In combination with an intermittently-operated carrier-wheel, provided with a series of pockets, each adapted to receive and carry a rivet to the drilling-tool, an inclined chute, and a reciprocating plunger, adapted to feed the rivets successively from the foot of the chute to the pockets in the carrier-wheel, the lever V, pivoted to the plunger-carrier, and carrying at one end the testing-pin t^1, and connected at its other end with a toggle having no fixed fulcrum, and the bar *s*, movably attached to the plunger-carrier, and connected to the center of the toggle, all arranged and adapted to operate substantially as described.

12. The combination of the carrier-wheel *m*, inclined chute Q, plunger *r'*, lever V, testing-pin t^1, a toggle having no fixed fulcrum, and adapted to impart motion in either of two opposite directions, the reciprocating bar *s*, the spring V^3, provided with the catch *w'*, and the shipper-lever W, adapted to engage with the catch *w'*, and be held thereby against the tension of the spring W^1, substantially as and for the purposes described.

13. In combination with the shipper-lever W, held in position by the spring V^3 and catch *w'*, and the spring W^1, adapted to move the lever W away from the catch *w'* when the spring V^3 is depressed, the bell X, flexibly connected to the shipper-lever, substantially as shown and described.

14. The combination of the carrier-wheel *m*, the inclined chute Q, the feed-plunger *r'*, the lever V, provided with the testing-pin t^1, the discharge channel-way V^3, and the spring-operated gate d^1, all arranged and adapted to operate as and for the purposes described.

15. The combination of the pulley D, provided with the beveled-sided notch h^4 in the end of its hub, and mounted loosely upon the shaft C, so that it may be revolved or moved endwise thereon, the collar C^1, secured to the shaft C, and having formed upon its radial face, contiguous to the hub of the pulley D, the bevel-sided tooth h^3, and the spring *i*, all arranged and adapted to operate as and for the purposes described.

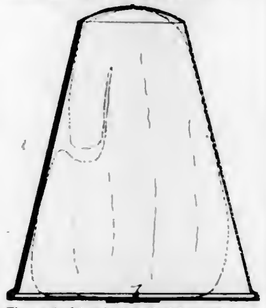
16. The combination of the pulley D, provided with notch h^4, and mounted loosely upon the shaft C, the spring *i*, the collar C^1, provided with the tooth h^3 and the circumferential groove f^2, and the spring-actuated pawl k^1, all arranged and adapted to operate as and for the purposes described.

17. In combination with a driving-pulley adapted to be engaged with its shaft by being moved lengthwise of said shaft by the pressure of a spring, and to be disengaged therefrom by an increase of resistance to the revolution of said shaft, the spring B^3, having secured thereto or otherwise connected therewith the bell D', and the pin f^3, projecting from and revolving with the pulley D, all arranged and adapted to operate as and for the purposes described.

18. In combination with the rotating and reciprocating drill-spindle G, the Babbitt metal half-boxes A^3, fitted to and movable in mortises made through the caps of the spindle-bearings, the follower-plates F^3, and the set-screws F^3, having their bearings in the secondary caps F^4, substantially as described.

19. The stand H^1, provided with the groove or slide in its upper surface, in combination with the yoke H H^1, provided with the tongue fitted to and adapted to reciprocate in the groove, substantially as and for the purposes described.

186,774. PROCESSES OF PRESERVING AND PUTTING UP MEAT. Moses Brenner, Baltimore, Md. [Filed Dec. 11, 1876.]



The method herein described for putting up and preserving fresh cooked meat, consisting in cutting it in the form of a roast, &c., in which it is to be served on the table, treating with a pickle made of salt, spices, and herbs, substantially such as described, then cooking and inclosing it in a properly-fitting hermetically-sealed case, all substantially as specified.

186,773. FIRE-PROOF SAFES. W. H. Butler, Brooklyn, N. Y. [Filed Jan. 29, 1877.]



1. In a safe, the door-frame and the door-flange, or either, made in sections of separate corner-pieces and intermediate filling-pieces, constructed substantially as shown and specified.

2. The manner of securing the back C of a safe in place by means of spring-pieces *k*, angle-pieces *i*, and angle-iron frame A^2, substantially as set forth.

3. The combination of the back C, springs *k*, and bar, substantially as set forth.

4. The inner wire-gauze or reticulated screen or door attached to the main safe-door or to the door-frame by means of hinges or otherwise, substantially as shown and described.

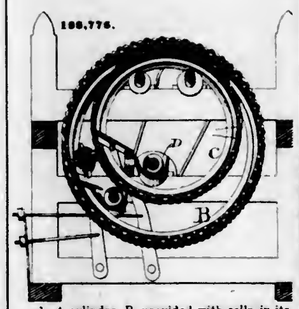
5. The door-flange or door-frame herein described, consisting of the corner-pieces *b* and intermediate filling-pieces *d*, made step shape, substantially as specified.

6. In a safe the angle-iron frame A^4, having its corners strengthened by the corner-pieces *m*, substantially as set forth.

7. The safe, herein described, consisting of angle-pieces A^3, back C, door and frame B, corner-pieces *b*, and filling-pieces *d*, all constructed and arranged substantially as set forth.

186,776. GRAIN-SEPARATORS. D. Butger, Milwaukee, Wis. [Filed Sept. 9, 1876.]

186,776.



1. A cylinder, B, provided with cells in its interior surface, combined with a similar, though smaller, cylinder, C, located within said cylinder B, for the purpose set forth.

2. A cylinder, B, provided with circular indented cells, suitable in size to receive grains of cockle-seed, combined with a similar, though smaller, cylinder, C, provided with elongated indented cells sufficiently large to receive small grains of wheat, for the purpose set forth.

3. The cone or step traction-rollers to support and rotate the cylinders B C, one within the other, and at different rates of speed, combined with said cylinders.

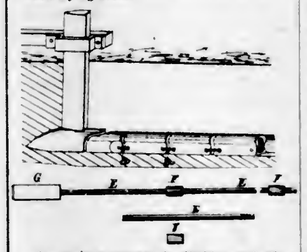
186,777. PRINTERS' BODKINS. W. Chester, Brooklyn, assignor to R. Hoe & Co., New York, N. Y. [Filed Mar. 7, 1877.]



The combined bodkin and tweezers, consisting of a bifurcated and slitted metal plate, bent upon itself to form the tweezer-arms, and a spring, said arms and spring being adapted to receive and maintain the bodkin, substantially as described.

186,778. DITCHING AND TILE-LAYING. T. G. Coil, Washington Court-House, Ohio. [Filed Aug. 23, 1876.]

Brief.—Device for finding breaks in the tiles when laying drains.

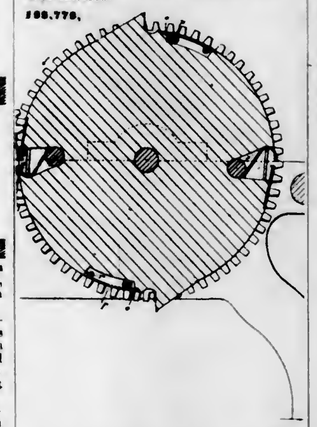


As an improvement in ditching and tile-laying, the combination of the rods E, nuts F, and casting G, for finding the breaks, substantially as shown.

186,779. PAPER FOLDING AND DELIVERING MACHINES. L. C. Crowell, Boston, Mass. [Filed Jan. 31, 1877.]

Brief.—The middle of a sheet of paper cut from a web is seized transversely by jaws pivoted in the opposite cylinders, and carried back to nipping-surfaces on the cylinders, forming a crease or fold. By an adjustment of cams, pins on one cylinder take the end of the web from pins on the other, and the jaws being rendered inoperative, the sheet is delivered unfolded.

186,779.



1. The combination, with a rotating cylinder, its movable jaw and nipping-surface, of a second cylinder, provided with a jaw and nipping-surface to co-operate therewith, as described, to form a transverse gather across the web, and project the gather within the grasp of the jaw to fold the web without the employment of a blade, all substantially as described.

2. A rotating cylinder, a movable jaw, and nipping-surface, in combination with a second rotating cylinder, movable jaw, and nipping-surface, and with mechanism to operate the two jaws in unison to move the web of paper at the point grasped transversely by the jaws toward that portion of the web grasped by the nipping-surfaces, to form a transverse fold or gather, all substantially as described.

3. A rotating cylinder, a movable jaw, and nipping-surface, in combination with a yielding surface, 3, between the jaw and nipping-surface, to close the opening between the open jaw and nipping-surface, and prevent the transverse gather of the paper from entering between the jaw and nipping-surface, between which the surface 3 is located, all substantially as described.

4. A rotating cylinder and movable jaw, provided with an opening, in combination with a second rotating cylinder and movable jaw, provided with a pin to enter the opening in the opposing jaw, to insure the movement of the two jaws in unison, all substantially as described.

5. A rotating cylinder provided with a jaw and nipping-surface and web-holding hooks, in combination with a cylinder provided with a movable jaw, a nipping-surface, and with devices to close and open the jaw to grasp a gather formed transversely of the web, by positively carrying one portion of the web toward another portion thereof grasped by the nipping-surfaces, all substantially as described.

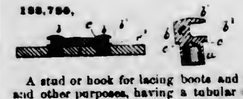
6. The cylinder, in combination with the set of hooks *o* and plate *p*, provided with a slot or opening, *x'*, substantially as described.

7. The combination, with two co-operating rotating cylinders, of mechanism to hold and carry the web forward, mechanism to form a transverse gather in the web by carrying one portion of the web grasped transversely by jaws toward another portion of the web grasped transversely by nipping-surfaces, and mechanism to sever the web, the mechanism being and to operate substantially as described.

8. In a delivery mechanism for a web-printing press, the combination, with two rotating cylinders, of jaws and web holding and carrying mechanism, and devices to operate them, to enable the same cylinders to either deliver a newspaper folded or straight, the mechanism being and operating substantially as described.

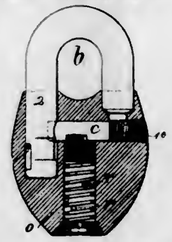
186,780. LACING-STUDS FOR BOOTS AND SHOES. A. Dawes, Wakefield, assignor to M. Bray, Newton, Mass. [Filed Jan. 9, 1877.]

186,780.



A stud or hook for lacing boots and shoes and other purposes, having a tubular shank or body, *a*, closed at one end, and provided with a shoulder, *c*, disks b^1 and b^2, and eccentric neck *s*, all made from a single solid piece of wire, substantially as and for the purposes described.

186,781. PADLOCKS. Adolph Delkescamp, New York, N. Y. [Filed Oct. 26, 1876.]

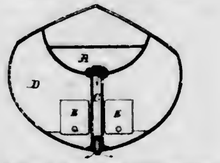


1. In a padlock, a partially sliding and turning shackle with a recess in the longer leg 2, and partially removed at one side, in combination with the bolt *c*, entering the recess in the leg 2 to lock the shackle, and also forming a stop to prevent the entire withdrawal of the shackle when unlocked, substantially as set forth.

2. The ping or short cylinder 10 and eccentric pin 3, in combination with the bolt *c*, shackle *b*, and recess in the longer leg of said shackle, substantially as set forth.

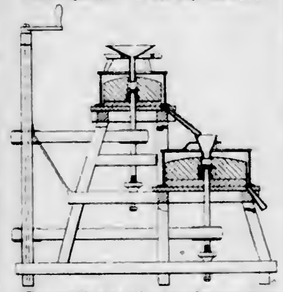
3. The slotted disk *i*, plug *e*, spring *o*, and bolt *c*, in combination with the shackle *b*, having the leg 2 entering a socket in the case and receiving the end of the bolt *c*, substantially as set forth.

186,782. LIFE-BOATS. Charles Dickenson, Portland, Oreg. [Filed Apr. 13, 1876.]



In a life-boat, constructed substantially as described, the combination of the cock-pit A, trunk C, and closed hold D, provided with ballast-tanks E, all constructed and arranged substantially as and for the purpose set forth.

186,783. GRINDING-MILLS. J. S. Detwiler, Philadelphia, Pa. [Filed Sept. 12, 1876.]



The combination of a pair of stones set to grind coarse, with a second pair of stones of larger diameter set to grind fine, and run at a lower speed than the upper and smaller pair of stones, the partially ground grain falling from the upper to the lower stones,

and passing from the latter in the form of flour, substantially as herein specified.

186,784. BOBBINS. Wm. F. Draper, Hopedale, Mass. [Filed Feb. 12, 1877.]

Brief.—A bushing is fitted in the top of the bobbin, and extended downward along the spindle toward the bolster and center of bobbin, without contact of the lower end of the bushing with the bobbin, allowing lateral motion of the bushing at its lower end within the bobbin, and thus reducing vibration at top of bobbin. An India-rubber packing between the bushing and interior of bobbin may be used to reduce wabbling of bobbin at top.

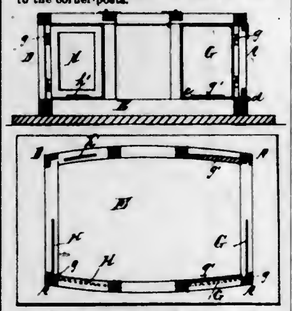


1. The combination, with the chambered bobbin, of a bushing fitted to the top of the bobbin, and adapted to extend downward along the spindle toward the bolster and center of the bobbin, without contact of the lower end or portion of the bushing with it, to permit the lower end of the bushing to move laterally within the bobbin-chamber and toward the bobbin, substantially as and for the purpose described.

2. A chambered bobbin and bushing to fit the spindle, in combination with an elastic packing interposed between the bobbin and bushing, for the purposes described.

186,785. LANDAU QUARTER-LIGHTS. Robt. Dunn, South Bend, Ind. [Filed Sept. 13, 1876.]

Brief.—Front quarter-sashes hung by hinges to the corner-posts.



1. The sashes G and H of the quarter-lights of a landau carriage, secured, respectively, to the corner pillars A and D by means of the vertically adjustable hinges *g g*, substantially as and for the purpose set forth.

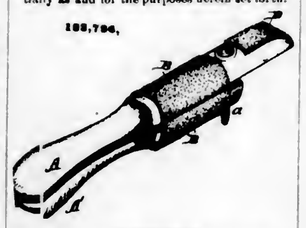
2. The carriage-body E, with weather-stops *g' h'* and hinged quarter-lights G H, arranged as and for the purpose set forth.

186,786. CUTLERY-SCOURERS. Leander K. Dutton, Oskaloosa, Iowa. [Filed Sept. 13, 1876.]

1. The combination of the bisected handle A A', the rubbers B B, and the pivoting-screw *a*, substantially as and for the purposes herein set forth.

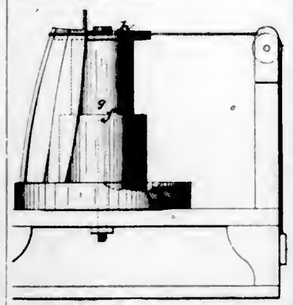
2. The combination of the bisected handle A A', one of the parts projecting beyond the other part, and provided with a rubber, D, with the rubbers B B and screw *a*, substantially as and for the purposes herein set forth.

186,786.



186,787. MACHINES FOR SETTING UP BARRELS. William H. Ewing, Pittsburg, Pa. [Filed Jan. 15, 1877.]

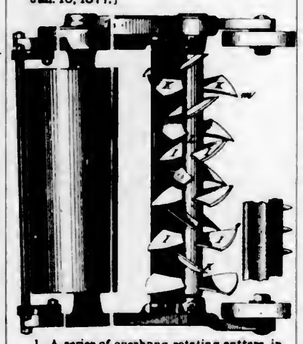
Brief.—The staves are set on end upon a horizontally-revolving form, provided with a flanged edge and a central post, while being held in position, ready for trussing, by a weighted rope or chain.



1. In a machine for setting up staves, a horizontally-revolving form, as herein shown and described, upon which the staves are set on end, and which has a flange around its edge, substantially as described.

2. In a machine for setting up staves, the revolving form shown and described, that is provided with the central post *g*, in combination with a weighted rope for holding the staves in position against the disk *h*, substantially as shown.

186,788. LAWN-MOWERS. W. C. Farnum, Hoosick Falls, N. Y., assignor of one-half his right to L. Wilder, same place. [Filed Jan. 10, 1877.]

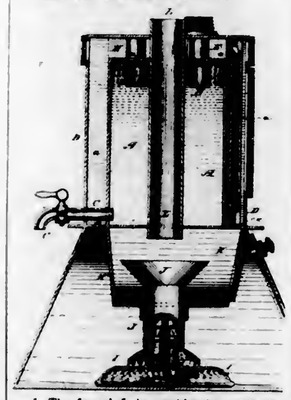


1. A series of overhung rotating cutters, in combination with a ledger plate or blade, substantially as described.

2. The combination of a series of rotating cutters, I I and K K, with the ledger-blade H, when said rotating cutters cut against small portions of the ledger-plate at one time, a part of the cutters cutting in one direction, the other in the other direction, substantially as described.

3. The combination, in a lawn-mower, of a series of revolving spiral cutters, a ledger-plate to cut against, and fingers projecting into the material to be cut to sustain the same, substantially as described.

186,789. PHOTOGRAPHERS' BATH-WARMERS. C. J. Fellrath and L. Schnell, Gatesville, Tex. [Filed Feb. 8, 1877.]

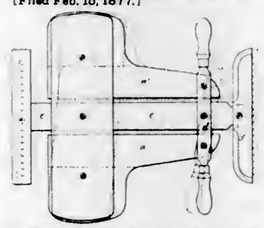


1. The funnel J, in combination with the lamp I, generator K, reservoir A, and disconnected chimney L, substantially as and for the purposes herein set forth.

2. The combination of the reservoir A, exterior jacket D, forming air-chamber *a*, with perforations *s s*, the generator K, lamp I, and disconnected chimney J, substantially as and for the purposes herein set forth.

3. The funnel J, lamp I, generator K, and reservoir A, in combination with chimney L and the exterior jacket D, constructed and arranged substantially as and for the purpose set forth.

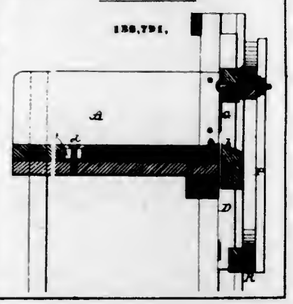
186,790. CARPET-STRETCHERS. Wm. M. Galusha, East Arlington, Vt., assignor to himself and Dewey Phillips, same place. [Filed Feb. 16, 1877.]



1. The frictional fulcrum-bars *a a'*, in combination with the hand-lever *d*, stretcher-bar *e*, and cross-head *f*, substantially as and for the purposes set forth.

2. The combination, with the frictional bars *a a'*, lever *d*, stretcher-bar *e*, and cross-head *f*, of the second cross-head *m*, substantially as set forth.

186,791.



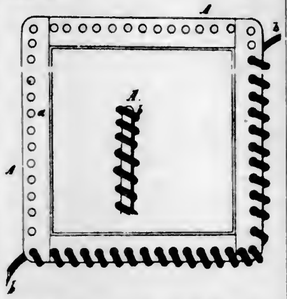
186,791. STRAW-CUTTERS. Wm. S. Gibson, Cropper's Depot, Ky. [Filed Feb. 10, 1877.]

1. In a feed-cutter, the combination of a vertically-moving sash, D, carrying the knife G, plates *a b*, one of which is attached to the bottom E, so as to be adjusted back and forth, and the levers L P P' E, for operating the knife G, substantially as shown.

2. The false bottom E, provided with the sloping plate *c*, and adjustably secured to the bottom of the feed-box A, for the purposes herein set forth.

186,792. SLATE-FRAMES. H. C. Goodrich, Chicago, Ill. [Filed Dec. 26, 1876.]

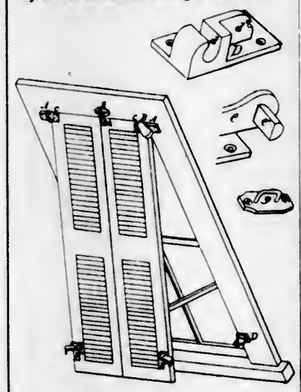
Brief.—The frame is perforated with a series of holes, and cushion or muffling cord is interwoven therein, to prevent the noise of the slate coming in contact with the school or other desk.



The slate-frame A, having the holes *a*, in combination with the cord *b*, so inserted in the holes as to form the entire muffler, substantially as specified.

186,793. HINGES FOR AWNING-BLINDS. J. J. Greenough, Syracuse, N. Y. [Filed Jan. 20, 1877.]

Brief.—A peculiar form of double-pivoted hinge, attached to the top of an outside blind or shutter, is combined with detaching-hinges below, formed with a slotted socket or thimble and suitable pintle. There is also provided a hook-joint to co-operate as a supporting-hinge when the blind is thrown out at the bottom, the construction permitting the blind or shutter to be projected outward and readily converted into an awning-blind.



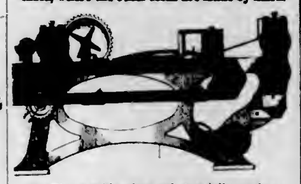
1. The combination of the double-pivoted hinge A B C and the slotted detaching-hinge E D, substantially as and for the purposes specified.

2. The combination of the hook-joint G *g* with the double-pivoted hinge A B C, as and for the purposes herein set forth.

3. The detaching-hinge E D, having a slotted thimble or socket, *d*, and pintle *e'*, as and for the purposes set forth.

186,794. PAPER-BAG MACHINES. Thos. W. Grinter, Cincinnati, Ohio, assignor of one-half his right to J. F. Jewett, same place. [Filed June 14, 1876.]

Brief.—The strip of paper is carried between the feeding, creasing, and severing rolls, its end being held down by the upper bearing-spring, to insure its being griped by the clamp on the traveling chain. The side-folders form the blank into a tube when the first bottom fold is made by one of the arms of the reel opening the tube, and the stationary folders pressing the sides down in the creases formerly made. The tube is then drawn between the pasting-rolls, when, the clamp being opened by the sprocket-wheel, it is delivered onto a table, where the other folds are made by hand.



1. The combination, substantially as hereinbefore set forth, of creasing-rollers, constructed substantially as described, each provided with dies and recesses, and the dies of each roller corresponding with the recesses of the other, and operating upon the unfolded strip or blank to form the inward and outward creases therein, and the former, which forms the tube after the blank is creased by the rollers, leaving the creases in the blank in the proper condition for subsequent manipulations, as set forth.

2. The feeding, creasing, and blank-severing apparatus hereinbefore described, consisting of two rollers, one of which carries a knife to sever the blank from the paper strip when fed in a sufficient distance on its passage to the former, each roller being provided with creasing dies and recesses, the dies on each roller corresponding with the recesses on the other, whereby the flat paper strip is fed into the machine, creased both inwardly and outwardly while in a flat state, or before passing to the former, and cut into blanks, as set forth.

3. The blank-carrying mechanism, heretofore described, consisting of the combination of polygonal sprocket-wheels, an endless carrying chain mounted thereon, and a series of clamps pivoted on the chain at a distance apart slightly in excess of the length of the blank and tripped by passing over the sprocket-wheels, substantially as herein before set forth.

4. The combination, substantially as hereinbefore set forth, of the polygonal sprocket-wheels, the endless chain, a rocking-clamp pivoted thereon, and a spring bearing on the clamp, whereby the latter is held close to the chain until tripped by the sprocket-wheel.

5. The combination, substantially as hereinbefore set forth, of the polygonal sprocket-wheels, the endless chain, the clamps pivoted thereon, and the former, whereby each clamp is successively turned up by the proper sprocket-wheel in front of the incoming blank, and turned down upon it by the former at the proper moment.

6. The combination, substantially as hereinbefore set forth, of the feeding, cutting, and creasing-rolls, the traveling-clamp, and the plate-spring which bears upon the loose end of the blank, whereby the paper is first clamped between the spring and the back of the clamp, and is then held down by the spring in front of the clamp to be seized by it.

7. The combination, substantially as hereinbefore set forth, of the pasting-roller, the continuously rotating, feeding, cutting, and creasing rolls, the continuously-moving traveling clamp, the fixed former and the fixed folding-plates, whereby the web of paper is continuously pasted, creased, cut, and folded into tabular blanks, as described.

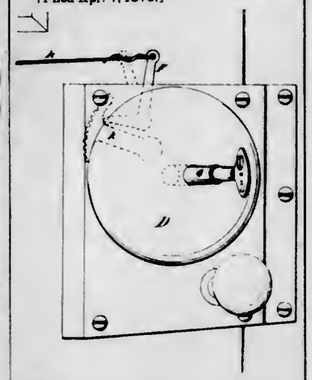
8. The combination, substantially as hereinbefore set forth, of the traveling-clamp, the fixed folders and the rotating reel, whereby the first bottom fold is formed in the tabular blank, as set forth.

9. The combination, substantially as hereinbefore set forth, of the pasting-roll, the feeding, cutting, and creasing-rollers, the traveling-clamp, the former, the side-folding plates, the end folders, and the rotating reel, whereby the web of paper is pasted, creased, cut, folded into a tabular blank, and the bottom fold formed by one continuous operation.

10. The combination, substantially as hereinbefore set forth, of tube-forming mechanism, a traveling-clamp, fixed end-folders, a rotating-reel, and pasting-rollers between which the blank is drawn by the clamp directly after the formation of the first bottom fold.

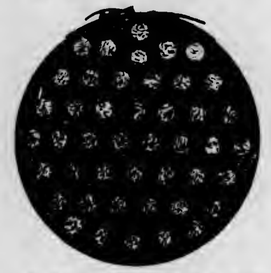
11. The combination, substantially as hereinbefore set forth, of rotating pasting-rollers, and an endless chain carrying a clamp and passing between the rollers.

186,795. COMBINED ALARM-LOCK AND DOOR-BELL. Lev Griswold, Johnstown, N. Y., assignor to D. Hays, same place. [Filed Apr. 7, 1876.]



In combination with the alarm mechanism, provided with sector *k* and bell D, of the lever F and wire *h*, for connection with a bell-pull, substantially as for the purpose set forth.

186,796. MANUFACTURE OF CIGARETTES. Louis Groeskopf, Konigsberg, Prussia. [Filed Feb. 13, 1877.]



The method, herein described, of drying and pressing cigarettes, consisting in packing the same in loose layers of grasses or stems, which entirely surround them, and while in such state subjecting both the grasses and cigarettes to pressure, as and for the purpose set forth.

186,797. SULEY-PLOWS. O. D. Hall, Freeport, Ill. [Filed Feb. 8, 1877.]

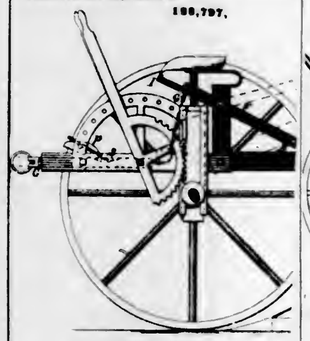
Brief.—The plow-beam has its front end pivoted upon the rear cross-rod of the frame. A lever rises from the rear end of the plow-beam, and has its fulcrum upon a post of the frame. A chain descends from the front end of the lever under a pulley, and is connected to a sliding bar having the clevis. A foot-pawl holds the draft-strain when the plow is at work. When the pawl is released the draft raises the plow. An auxiliary foot-lever does the same thing. The pawl will engage and hold the plow up when raised.

1. The latch or trigger *p*, adapted to be operated by the feet, in combination with the draw-rod and chain G G, for applying the power of the team to the raising of the plow, and for holding the plow off the ground, substantially as described and represented.

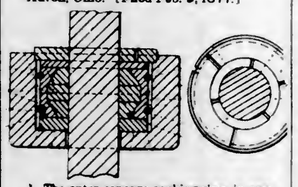
2. In combination with the draw-rod and pulley, the branch lever I, for the purposes substantially as described and represented.

3. The combination of the draw-rod, pulley, and chain with the lever F, latch *p*, and plow-beam C, substantially as and for the purpose described and represented.

186,797.



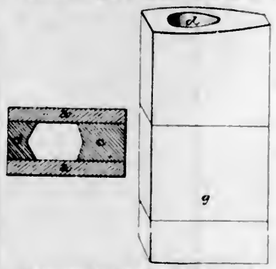
186,798. STEAM-PACKING FOR STEAM ENGINES AND PUMPS. John W. Hawkins, Akron, Ohio. [Filed Feb. 9, 1877.]



1. The outer concave packing-ring, in combination with two or more inner rings held together and in place by the beveled or sloping faces of the concave of the outer ring, substantially as shown and described.

2. The combination of the outer sectional concave packing-ring, two or more inner rings held together and in place by the beveled or sloping faces of the concave of the outer ring, and a clamping spring or springs encircling the outer ring, these elements being arranged for joint operation, as set forth.

186,799. MANUFACTURE OF AXES. W. G. Howell, Troy, N. Y. [Filed Jan. 26, 1877.]



1. As a new article of manufacture, a bar, *g*, from which the az-polls are to be cut, having the eye *d* perfectly formed, substantially as shown.

2. A pile for making axes, consisting of the two plates, *a*, and the intermediate bars *c c'*, substantially as set forth.

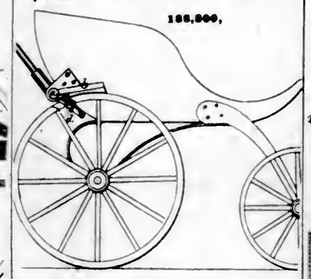
186,800. CHILDREN'S CARRIAGES. J. Jenkinson, Brooklyn, N. Y. [Filed Dec. 2, 1876.]

1. In a child's carriage a spring-pressure brake so combined with the handle by which the vehicle is propelled that the push or weight brought to bear on the handle in propelling the carriage shall throw the brake out of action and keep it out of action, substantially in the manner described and specified.

2. In a child's carriage, the hinged or movable handle combined with the brake constructed and operating substantially in the manner described and specified.

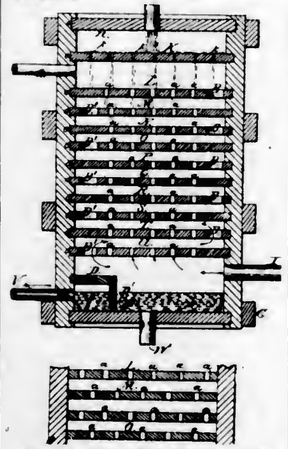
3. The combination of the brakes, springs, stop, and handle, constructed and operating substantially in the manner described and specified.

186,800.



186,801. APPARATUS FOR MANUFACTURING HYDRATED SULPHUROUS ACID. W. Davidson Jones, Hagaman's Mills, N. Y., assignor of one-half his right to H. H. Pawling, same place. [Filed Mar. 12, 1877.]

Brief.—The clear liquid hydrated sulphurous acid is drawn from a sealed chamber by a pipe opening above the bottom of the condenser, whereby gas and sediment are prevented from escaping with it. A pipe leads directly from the bottom of the condenser, whereby all the liquid and sediment may be drawn off in washing it out. Gases enter by a pipe above the surface of the liquid, and pass in a zigzag course up through the condenser by large openings in opposite sides of alternate shelves, and are thus subjected to sprays of water passing through small perforations in the shelves.

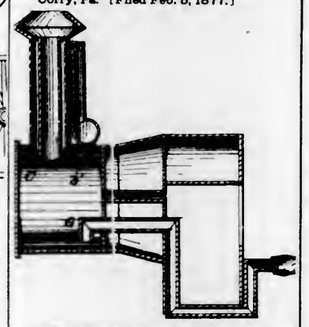


1. In an apparatus for hydrating gases, the finely-perforated distributing-diaphragm K and the series of perforated diaphragms L M N O, &c., each diaphragm being provided with a series of large holes, B, or B', at alternate ends, and the alternating diaphragms having their perforations *a* situated in vertical lines with the imperforated parts of the intermediate ones, and the diaphragms extending entirely across the condensing-chamber, as and for the purposes specified.

2. The combination and arrangement, with the lower part of an apparatus for hydrating gases, of the chamber F, having passage E, eduction-pipe V, vapor-pipe I, and discharge-pipe W, said pipe W being provided with a removable cork or plug, whereby, when the cork is inserted, the lower part of the apparatus will be flooded, as shown and described, and when the cork is withdrawn the liquid will escape freely, all substantially as and for the purposes shown and set forth.

3. The combination and arrangement, with the lower part of an apparatus for hydrating gases, of the eduction-pipe V above the bottom of the condenser, vapor-pipe I, opening above the level of the liquid, and discharge-pipe W, said discharge-pipe W being provided with a removable plug, whereby, when the plug is inserted, the lower part of the apparatus will be flooded, as shown and described, and when the plug is removed the liquid will have free escape, all arranged substantially as and for the purposes shown and set forth.

186,802. CAR-HEATERS. W. H. Kilbourn, Corry, Pa. [Filed Feb. 5, 1877.]

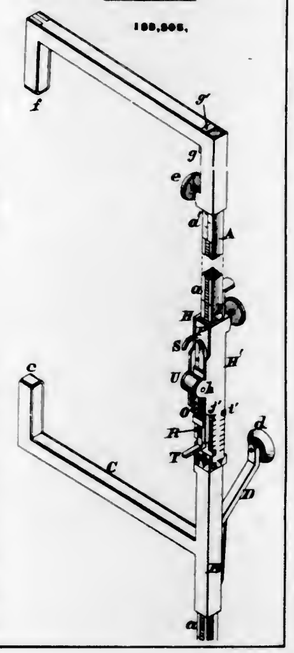


1. In railroad-car-heating apparatus, the smoke-stack of a locomotive having a hot-air passage formed in its side wall, substantially as described.

2. In a railroad-car-heating apparatus, a locomotive whose smoke-stack and smoke-box have annular hot-air passages formed in their respective side walls, substantially as and for the purpose described.

3. In railroad-car heaters, the combination of a steam air-pump and connecting mechanism with the smoke-stack and smoke-box of a locomotive, both the latter constructed with double-shell cylinders, forming hot-air passages in their respective side walls, substantially as described.

186,803.



186,803. BARREL-GAGES. F. Kuhlman, Cincinnati, Ohio. [Filed Feb. 12, 1877.]

1. In a barrel-gage, the combination of adjustable caliper B C *c* and chine-roller D *d*, when adapted for use with rod A, substantially as herein described, and for the purpose set forth.

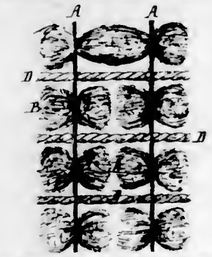
2. The combination, with mean-diameter scale H H', of one or more springs, I J, for retaining said adjustable scale upon the gage-rod A, substantially as herein described, and for the purpose set forth.

3. In combination with mean-diameter scale H H', the shaft h, pinions M N N', racks O O' P R, hook S, and bung-rod T, said pinions M and N N' having the relative proportions to each other substantially as herein described, and for the purpose set forth.

4. In combination with mean-diameter scale H H' h, pinions M N N', racks O O' P R, hook S, and bung-rod T, the pointers *p p'*, substantially as herein described, and for the purpose set forth.

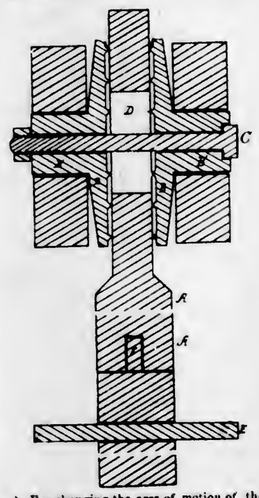
186,804. FRINGES. Martin Landenberger, Philadelphia, Pa. [Filed Nov. 20, 1876.]

Brief.—Stiffening-cords are interwoven to prevent tangling of the lighter cords and tufts.



The combination, in a fringe, of pendent cords A, carrying tufts B, with the supplementary cords or strands D, as and for the purpose set forth.

186,805. PITMEN. D. L. Lewis, Lovell's Station, assignor of one-half his right to W. Boynton, Petersburg, Pa. [Filed Feb. 12, 1877.]



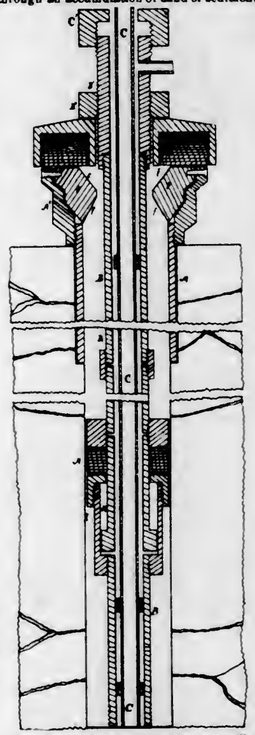
1. For changing the area of motion of the ends of the working-beam of an oil-well, an adjustable clamp or coupling having an axle or journal, B' B', for so connecting with the working-beam as to conform to the position of the pitman during the oscillation of the beam and the revolution of the driving-wheel, as set forth.

2. The combination of a pitman or connecting-rod, A, with an adjustable clamp or coupling, for changing the area of motion of the working-beam, as and for the purposes set forth.

3. The combination of a pitman or connecting-rod A, having a slot, D, with an adjusting device, which connects with the working-beam, as set forth.

186,806. METHODS OF TUBING AND CASING OIL-WELLS. D. L. Lewis, Lovell's Station, and Wm. Boynton, Petersburg, Pa. [Filed Feb. 22, 1877.]

Brief.—The head has an external thread, which engages a nut that rests on the top of the cap, by which the casing is extended. A slip-joint on the casing allows the flanges to be pressed toward each other, and thereby expand the packing. A burr on one of the flanges enables the flange to be moved up through an accumulation of sand or sediment.



1. The arrangement within an oil-well of a casing, B, extending to the bottom, with a slip-joint, K, and packing H, and with perforations near the bottom for the escape of gas, substantially as and for the purposes mentioned.

2. The arrangement within an oil-well of the casings A and B and tubing C, when the said casing B extends to and rests upon the bottom of the well, and is provided with a slip-joint, K, and packing H, and perforations near the bottom for the escape of gas within said casing, substantially as shown, and for the purposes mentioned.

3. In combination with the slip-joint K on casing B, the packing H, placed between two flanges, said parts operating together as shown, and for the purposes mentioned.

4. In combination with a casing, B, having a slip-joint, K, and packing H between two flanges, the head B', external thread and nut B'', as shown, and for the purpose of adjusting said casing and packing, as set forth.

5. The head B' of a casing or tubing, when provided with an external thread and nut, B'', substantially as shown, and for the purpose of adjusting said tubing or casing within the well and upon the bottom, as set forth.

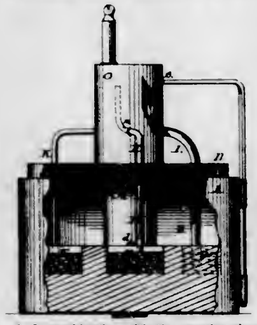
6. The head B' of a casing or tubing, having an external thread and nut, B'', in combination with an elastic packing, E, substantially as shown, and for the purposes mentioned.

7. An oil-well casing or tubing, in combination with a device at its upper end for holding it taut, whereby the said tubing or casing is enabled to rest upon the bottom of the well, for the purpose of sustaining the weight of the same, and also the force of pumping which may be exerted within the same, substantially as set forth.

8. In combination with the casing B and packing H, the flange G, when provided with burr-grooves, as shown, and for the purposes set forth.

9. A tubing or casing head, when provided with a disk, F, with conical or flaring faces *f f*, substantially as shown, and for the purposes mentioned.

186,807. GAS-LIGHTERS. Edwd. Lindsley, Cleveland, Ohio. [Filed Mar. 6, 1877.]



1. In combination with the annular chamber C, gas holder or chamber B, the cells E, F, and G, in the manner substantially as described, and for the purpose set forth.

2. The pipes H, I, and K, arranged in relation to, and in combination with, the gas-holder B, cells E, F, and G, and cap D, substantially as described, and for the purpose set forth.

3. The cam S and finger *e*, in combination with the cap D, in the manner substantially as described, and for the purpose specified.

4. The pipe I, and one or more pipes for igniting the burner of said pipe I, in combination with their respective cells in the gas-chamber B, in the manner substantially as described.

5. In gas-lighting apparatus, the gas-chamber, having a movable cap, and operated by means of the pressure of gas induced by a compressor or governor regulating the gas-pressure, by which means the pipes connected to said cap are lowered into, and raised out of, cells charged with a medium for sealing the pipes for the purpose of igniting and extinguishing the gas-light automatically.

6. The cam S, finger *e*, movable cap D, in combination with the pipes H, I, and K, cells E, F, and G, gas chamber or holder B, and annular chamber C, substantially in the manner as described, and for the purpose set forth.

186,808. RUBBER ATTACHMENTS FOR HORNSHOME TO PREVENT INTERFERING. Michael McBarren, Boston, Mass. [Filed Feb. 17, 1877.]



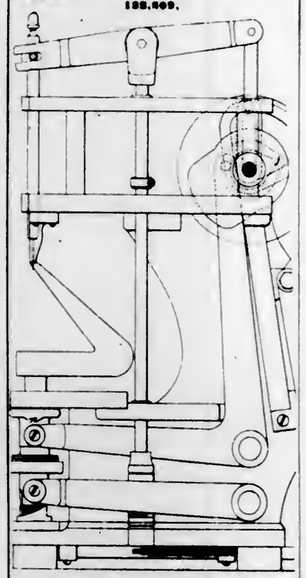
An elastic cushion shaped to conform to and partially inclose and surround the base of a horse's hoof and the shoe attached thereto, by means of the overlapping portions *a* or *a'*, and adapted to be secured to the foot by being clamped between the shoe and hoof, as herein set forth, as a new article of manufacture.

186,809. MACHINES FOR SEWING BOOTS AND SHOES. G. McKay, Cambridge, Mass. [Filed Oct. 18, 1876.]

Brief.—The stroke of the needle is always the same in extent; but its lowest point is changed to correspond with the position of the horn, which is automatically lowered a

fixed distance from the variable base-line represented by the lower side of the stock being operated upon. The adjustment of the needle-throw is effected by changing the height of the fulcrum of its operating arm by means of a lever acted upon and controlled by the horn-support.

186,809.



1. In a sewing-machine, the combination, with a stationary presser and a horn, of mechanism adapted to automatically lower the horn from a variable base-line, the lower surface of the stock being sewed, substantially as described.

2. A horn and attached foot-plate, *r*, in combination with a rest, and mechanism to lock the horn and rest, and with a fulcrum-post stop-lever, all substantially as described.

3. In combination, a horn and mechanism to depress it from a variable base-line, corresponding with the under side of the stock, and a fulcrum-post stop-lever to determine the descent of the needle, substantially as described.

4. The needle-actuating lever and fulcrum-post, in combination with a collar to determine its downward throw, and a fulcrum-post stop-lever placed in position by the horn to determine its upward throw, substantially as described.

186,810. NAILING AND PEGGING MACHINES. Gordon McKay, Cambridge, Mass. [Filed Nov. 4, 1875.]

1. In a machine for driving nails or pegs, an atmospheric-spring cylinder, constructed with an aperture for the ingress and egress of air, and adapted to force down the piston and driver by compressed air, all substantially as and for the purpose described.

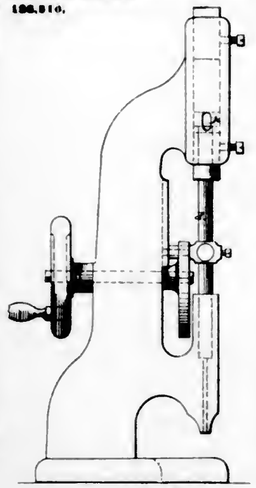
2. In a nailing-machine, a positively-lifted driver and attached piston, adapted to be driven by the expansion of air compressed by the piston at its ascent, in combination with a stationary yet adjustable head, to regulate the operative force of the air-spring upon the driver, substantially as described.

3. A nail-driver and piston adapted to be operated by the force of air compressed by the piston at its ascent, in combination with a stationary yet adjustable head, to regulate the extent of downward motion of the driver through the action of air compressed between the lower side of the piston and the upper portion of the head, substantially as described.

4. The piston and attached driver, in combination with a cam adapted to lift the driver and piston within a cylinder to compress air, which, when the cam releases the driver, permits the compressed air to operate as a spring to cause the descent of the driver, substantially as described.

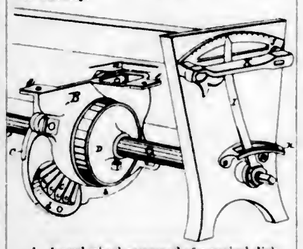
5. The combination, with an atmospheric-spring cylinder, constructed with an aperture and provided with adjustable heads, of a reciprocating piston, all substantially as and for the purpose described.

186,810.



186,811. SEED-PLANTERS. Wm. D. Miller, Springfield, Ohio. [Filed Aug. 5, 1876.]

Brief.—The seed-wheels are fluted, and consist of a series placed upon a rotating shaft connected with a cam, index-finger, scale, and binding-rod, for regulating the quantity of grain delivered. The delivery-channel is separated from the hopper or seed-box by a bridge, with a continually-enlarging space to the point of delivery.



1. A seed-wheel composed of a conical disk, C, with tangential flutes *c* and fluted cylinder D, adjustable thereon, provided with a hub, combined with a suitable case provided with a hopper, chute, and delivery-mouth, as described.

2. The shaft G, to which are attached the adjustable parts of the several feed-wheels, and a lever, I, loosely attached to the shaft, combined with the slotted segmental cam H, secured to the frame, as set forth.

3. The lever I, cam H, and shaft G, whereby all the seed-wheels are adjusted simultaneously, combined with the index-scale J and clamp-bar K, as set forth.

4. The conical disk C, provided with tangential flutes or grooves *c*, combined with the sliding longitudinally-fluted hub D, and the case B, constructed with the reservoir-chute *b*, as described and shown.

5. Combined with a fluted seed-wheel C, the expanding chute-reservoir *b*, separated from the hopper by the dam *h*, the seed being fed from said reservoir by the action of the fluted disk.

186,812. CAR-DUMPING APPARATUS. J. L. Mitchell, Nelsonville, Ohio. [Filed Dec. 18, 1876.]

1. The adjustable portions of track-rail B B, levers C C, rods *z z z z*, double arm *p p*, pivoted, and crank *r*, all arranged and operating substantially as described.

2. The adjustable portions of track B B, levers C C, rods *z z z z*, double arm *p p*, crank *r*, arranged as described, in combination with slotted piece *s*, secured to the dumping-track, as shown and described.

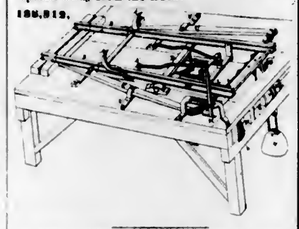
3. In a car-dumping apparatus, the supporting shaft or axle D, track-rails *m m*, having suitable car stops attached to the down-tilting end, in combination with the rope V, passing around the drum E on shaft G and attached to weight N, and a hand-brake lever, suitably arranged relative to the friction-brake wheel F, for the purpose of regulating the descent of the dump.

4. The brake mechanism for regulating the tip of the track-rails of a car-dumping apparatus, consisting of the rope V, drum E, brake-wheel F, shaft G, hand-lever H, and friction-band *b*, arranged substantially as described.

5. In a car-dumping apparatus, the adjustable car-stops A A, pivoted to the track-rails, with the bell-crank parts A′ A′ connected by rods *e e* to an oscillating or sliding frame arranged between the track-rails, and to which a spring is attached in such a way as to keep the car-stops closed to the track-rails.

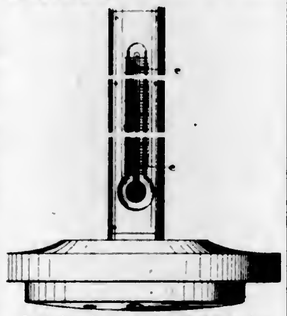
6. In a car-dumping apparatus, the adjustable car-stops A A, pivoted to the track-rails, and connected, as shown and described, to an oscillating or sliding frame arranged between the tracks, in combination with the treadle L, pivoted at one end to the inner side of the track-rail, and connected at the other end by suitable means to said movable frame, whereby, when the flange of the car-wheel depresses the treadle, the car stops A A are spread away from the track.

186,812.



186,813. CHURN-DASHERS. John G. Montgomery, Sheakleyville, Pa. [Filed Dec. 4, 1876.]

Brief.—The thermometer rests in a groove in a metal plate which conforms to the shape of the dasher-rod.



In combination with a churn-dasher, the handle of which has a groove in its side, the sheet-metal plate *c*, having a groove extending nearly its whole length, in which groove is placed the thermometer, and secured in position by means of the metallic bands *a*, the lower end of the said groove being enlarged out, so as to form a recess to receive the bulb of the thermometer, and allow the cream free access to it from all sides, substantially as shown and described.

186,814. ADVERTISING-FRAMES. William H. Naulty, Little Rock, Ark. [Filed Dec. 22, 1876.]

1. In combination with the sectional frame *a a′*, the divided collar *c c′*, supported upon the collar or ring *d*, as and for the purposes explained.

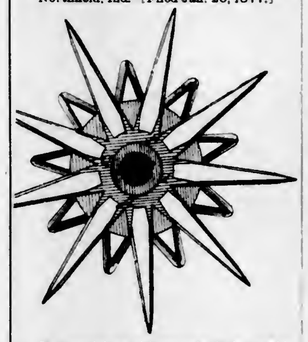
2. The herein-described combined directory,

indicator, and letter-box, illuminated from within and mounted upon a suitable post, so as to be readily accessible from the street, the whole constructed and operating substantially as herein shown and described.

186,814.

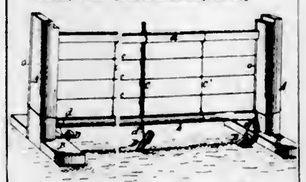


186,815. CULTIVATORS. H. W. Nichols, Northfield, Ind. [Filed Jan. 20, 1877.]



In a revolving cultivator-wheel, the combination of two alternating series of long and short teeth or spokes, substantially as and for the purposes herein set forth.

186,816. PORTABLE FENCES. G. S. Pickett, Paoli, Wis. [Filed Dec 23, 1876.]



1. The posts A, notched into and firmly secured to base-blocks B, placed at right angles with the line of fence, to which posts the panels, which consist of wood rails *a* and *b* and longitudinal wires *c c c*, are clamped by the cleats *o o*, the said posts and panels being firmly secured in place by the wires *d d* and stakes D D driven into the ground, substantially as and for the purposes herein set forth.

2. In combination with the panel the rod and wire C, and the stake D, substantially as and for the purpose described.

186,817. FIRE-ESCAPES. Wm. C. Pulaski, Chicago, Ill. [Filed July 21, 1876.]



1. In a fire-escape of the character herein specified, the combination, with the sliding block, perforated to receive a rope, C, and provided with a brake or lever, F, of the supplementary brake A B, adapted to regulate the maximum descending speed of said block, substantially as and for the purposes specified.

2. The herein-described block, provided with main and auxiliary brakes F and A B, supplementary handle K, and enlarged base perforated to receive the cage or carrier E G, the whole combined to operate in connection with rope C, substantially as and for the purposes explained.

186,818. CARPET-FASTENERS. A. Rosello, Baltimore, Md. [Filed Mar. 6, 1877.]

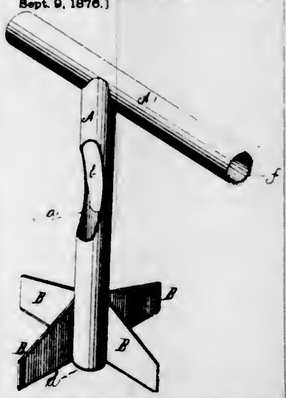
Brief.—A dovetail in the head of a screw is narrower at one end than the other, and a corresponding tenon on a plate secured to the carpet is inserted and automatically crowded tight by the elasticity of the carpet.



1. In a carpet-fastening, a screw, A, having a head, B, provided with a dovetailed tapering groove, *b*, adapted to receive and hold a plate, D, fastened to the carpet, substantially as and for the purposes herein set forth.

2. In a carpet-fastening, the plate D, provided with a dovetailed tapering lug, *d*, and fastened to the carpet by one or more tangs, or otherwise, in combination with a screw having a grooved head adapted to receive said lug, substantially as and for the purposes herein set forth.

186,819. APPLE CORER AND QUARTERER. S. Jennie Renner, Petersburg, Pa. [Filed Sept. 9, 1876.]

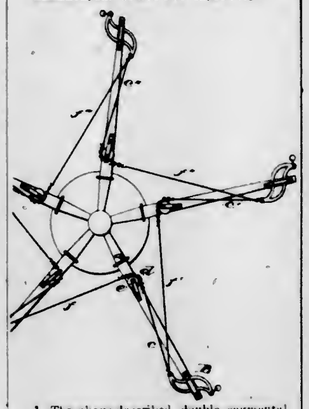


The combination of the tapering tube A′, the tube A, with slot *a*, and wings B, both of said tubes having cutting-edges *f d* at their ends, as set forth.

186,820. MANUFACTURE OF STEEL. Hermann Schierioh, Jersey City, N. J., assignor to Schierioh Manufacturing Company, same place. [Filed July 13, 1876.]

The process of converting Bessemer steel into weldable steel, herein described, which consists in applying to the surfaces of Bessemer-steel billets an even coating of powdered iron and calcined borax, then in piling them in the usual way, and after heating the piles to a cherry red, subjecting them to pressure by rolling or hammering, thereby welding the billets into a solid mass, and finally, after reheating the piles or welded billets, hammering or rolling them down into any desired forms.

186,821. HORSE-POWERS. Jacob S. Shelly, Shannon, Ill. [Filed Feb. 12, 1877.]



1. The above-described double segmental and reversible draft-bar, constructed substantially as specified.

2. The combination of the double segmental and reversible draft-bars B, short rods *c c′*, &c., long rods *f f′*, &c., chains *d*, and pulleys *e*, substantially as and for the purpose described.

186,822. MODES OF CASTING INGOTS OF STEEL. C. Shunk, Philadelphia, Pa., assignor of one-half his right to A. Boyd, same place. [Filed Jan. 29, 1877.]

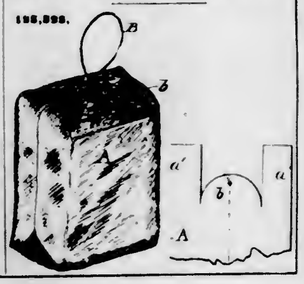
Brief.—May partially cover the mold with a metal plate. After pouring, a covering of charcoal or fine sawdust will prevent oxidation. Flux of borax or carbonate of soda may be placed in bottom of mold before pouring.



1. The method of casting ingots of steel which consists in casting the same in an open mold having a horizontal or nearly a horizontal dimension greater than its height, and having upwardly-converging sides, for the purpose set forth.

2. An open mold for casting ingots of steel, having a horizontal or nearly horizontal dimension greater than its height, and having upwardly-convergent sides, for the purpose set forth.

186,823.

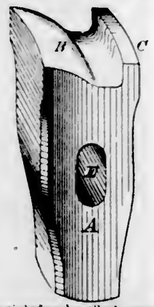


186,823. PAPER BAGS. Albert L. Slager, Springfield, Ohio. [Filed Feb. 1, 1877.]

1. A bag made of paper or other flexible material, formed from a blank, cut with the three projecting strips *a a' a*, and perforated ears *b b* at the top, substantially as shown and described.

2. The bail B, of wire, in combination with the ears *b b* and body A, having the turned-in strips *a a a'*, substantially as set forth.

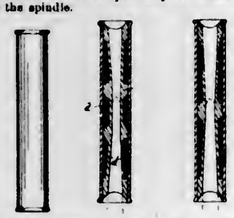
186,824. HORSESHOE-SWAGES. J. Smith, Buffalo, N. Y. [Filed Mar. 1, 1877.]



The hereinbefore-described swage for shaping horseshoes, consisting of the body A, having an opening for the insertion of a handle, and a curvilinear face, B, provided with the heel C, substantially as and for the use and purpose set forth and described.

186,825. SPINNING-QUILLS. Jas. C. Stanley, New Hartford, Conn. [Filed Nov. 29, 1876.]

Brief.—The quill is provided with an inner shell, which has bearings, said shell being so constructed that the quill may be reversible on the spindle.



In a spinning-quill, the inner shell *d*, so shaped as to fit upon the spindle either end uppermost, substantially as described, and for the purpose set forth.

186,826. KNOB-LATCHES. C. H. Stewart, Johnstown, N. Y., assignor to D. Hays, same place. [Filed Apr. 7, 1876.]

The L-shaped pivoted lever D, sliding plate F, and armed hub I, in combination with the lug *h* and ward *o*, as and for the purpose set forth.

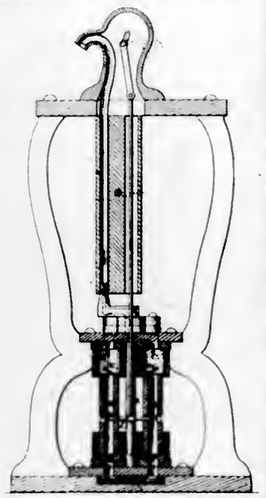
186,827. KEYS FOR LOCKS. C. H. Stewart, Johnstown, N. Y., assignor to D. Hays, same place. [Filed Apr. 7, 1876.]



The combination, in a key provided with a pivoted bit, of the plunger E, spring *g*, and stem A, operating substantially in the manner and for the purpose set forth.

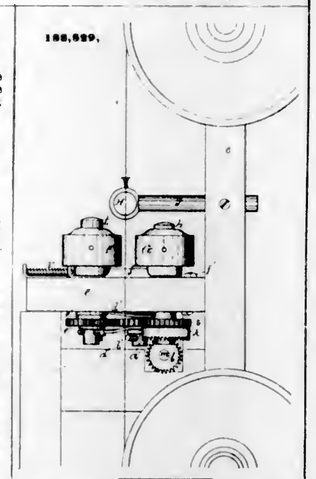
186,828. PUMPS. T. B. Swan, Minot, Me. [Filed Jan. 19, 1877.]

Brief.—Two hollow pistons are provided with apertures in their sides for the admission of water. The pistons are connected by a cross-piece operated by and connected to a vertical rod reciprocated by mechanism at the top of the well.



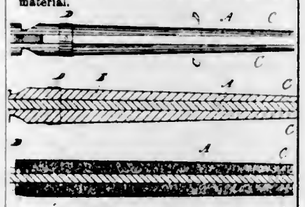
The combination in a pump, substantially as described, of two connected hollow pistons and valves, and apertures to let the water into said pistons, with a single rod for moving both said pistons, and with four barrels and tubes leading from said barrels to one common tube.

186,829.



186,830. RAZOR-STROPS. Jos. R. Torrey, Worcester, Mass. [Filed Oct. 27, 1876.]

Brief.—Glues bags onto stem; affixes metal band to stem; stretches bags with former; draws on a glued leather; removes former; stuffs with bran; coats the leather with proper material.



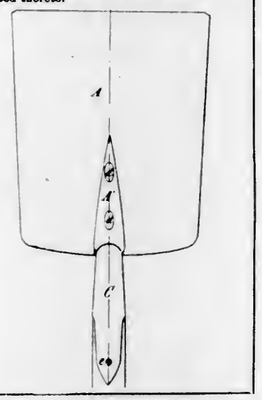
1. The combination of the stretched taper and convex paper bags C C with the stem A, as and for the purposes set forth.

2. The combination of the stretched convex and paper bags C C, metal band D, and stem A, as and for the purposes set forth.

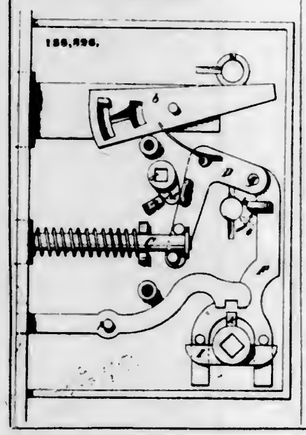
3. The convex and taper former, as shown and set forth.

186,831. SHOVELS. J. T. Tyler, Pittsburg, Pa. [Filed Feb. 8, 1877.]

Brief.—The handle-socket is formed with a bayonet-shaped rib having rivets, and a correspondingly-shaped groove having perforations is formed in the shovel-blade. Said rib fits within the groove of said blade, and is riveted thereto.



186,832.



186,833. MACHINES FOR SAWING HOOP-POLES. G. Thompson, Nashua, N. H., assignor to J. B. Proctor, same place. [Filed Oct. 25, 1876.]

Brief.—Hoop-poles of irregular shape are fed between a pair of feed-rollers, one of which acts as a pressure and feed roller both, and over a convex rest, on the top of which they are supported while being longitudinally sawed by a band-saw arranged at the inner side of the machine.

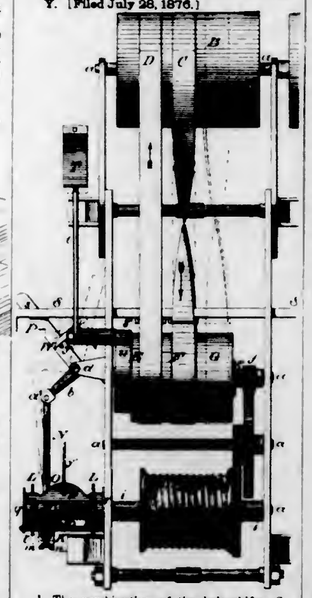
1. The combination of the endless or band saw A and the feed-roller G, provided with mechanism for operating them, as described, with the movable feed and pressure roller F, and mechanism for actuating it, as specified, such consisting in the arbor *a'*, gears *i b' c' w*, links *d' g' f' e'*, carrier *u*, and spring *v*, all being substantially as set forth.

2. The combination of the convex rest *f* with the platform *e* and the endless band saw A, the feed-roller G, and the pressure-roller F, provided with mechanism for operating them, as explained.

1. A shovel-handle socket, C, having the bayonet-rib D, rivets *d d*, all substantially as described and shown, and for the purpose set forth.

2. The shovel-handle socket C, having the rib D and rivets *d d*, combined with a shovel-blade having a bayonet-shaped groove, substantially as described and shown, and as and for the purpose set forth.

186,834. BELT-SHIFTERS FOR HOISTING-ELEVATORS. J. Aeckerle, New York, N. Y. [Filed July 28, 1876.]



1. The combination of the belt-shifter S, having slot *s*, with the bent lever-arm P *b*, pivoted at *c*, connecting-rod N, and female screw M, having downward-projecting arm *m*, substantially as and for the purpose shown and specified.

2. The combination of the female screw M, having downward-projecting slotted arm *m*, with the sliding cross-piece *o* of the regulating-frame O, substantially as and for the purpose shown and specified.

3. In combination with the drum-shaft *i*, terminating in screw K, and having solid toothed disks L L' provided with projections *l l'* upon their inner faces, the female screw M having lateral projections m^1 m^2 and downward-projecting slotted arm *m*, substantially as and for the purpose shown and specified.

4. The regulating-frame O, consisting of slotted side pieces *q r* and cross-pieces *o p*, in combination with the toothed disks L L' affixed solidly upon drum-shaft *i*, substantially as and for the purpose herein shown and specified.

5. The combination of drum-shaft *i*, terminating in screw K, and having solid toothed disks L L' provided with projections *l l'* upon their inner faces, female screw M, having lateral projections m^1 m^2 and downward-projecting slotted arm *m*, vertically-sliding frame O, the lower cross-piece of which slides in the slotted arm *m*, connecting-rod N, bent lever P *b*, and belt-shifter S, having slot *s*, all arranged to operate substantially as and for the purpose shown and specified.

186,835. PERAMBULATORS. Edw. G. Allen, Baltimore, Md. [Filed Feb. 2, 1877.]

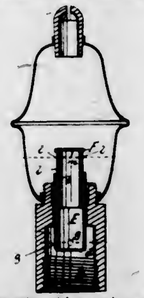
1. In combination with the rigid body A, the wheel-standards C C, hinged or pivoted to the same, and adapted to be folded over the end of the body upon the same, substantially as described.

2. In combination with the rigid body A, the detachable push-rods I I, having a curvature conformable to the shape of the body, and adapted to be placed within the same, substantially as described.

3. In combination with the wheel-standards and rigid body A, the catch E, substantially as described.

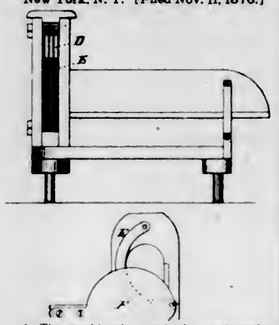
4. In combination with the rigid body A, the top G, of a shape conformable to the curvature of the body, and adapted to be folded within the same, substantially as described.

186,836. GAS-BURNERS. James Anderson, Boston, Mass. [Filed Jan. 2, 1877.]



In combination with a gas burner, the tube E, having holes *g*, and provided with an adjustable cap, F, having holes *l*, and adapted to be moved up and down within the fixed tube, for covering or uncovering more or less of the holes *l*, the whole being arranged and applied substantially as and for the purpose specified.

186,837. STRAW-CUTTERS. J. B. Andrews, New York, N. Y. [Filed Nov. 11, 1876.]



1. The combination, with the semicircular knives D, of the stationary semicircular guides E, secured together and to the frame by bolts and nuts, as shown, and the packings *c*, as set forth.

2. The semicircular knives D, with plate F, in combination with the semicircular guides E, substantially as and for the purpose set forth.

186,838. FIRE-PLACES. Samuel B. Baker, Nelsonville, Ohio. [Filed Feb. 10, 1877.]

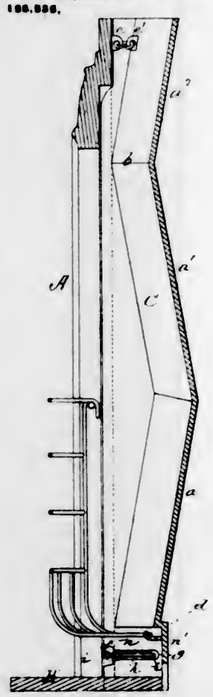
1. The combination, with the front A, having eyes *e f*, of the grate-back C, having eyes *e'*, perforations *g*, grooves *j*, and the hooked rods *h*, recessed in the said grooves, and connecting the said eyes *f* and perforations *g*, substantially as specified.

2. The combination, with a metallic fire-place front, A, of a separate metallic grate-back, consisting of recess *d*, inclines *a a' a²*, and sides *c*, as described, extending from below the hearth to above the throat, as shown, and connected to said front by detachable

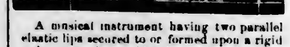
rods or connections, substantially as specified.

3. The combination, with a metallic grate-back, consisting of the concave middle parts a a^1, fine-back a^2, and side walls c, of the downwardly-extending ash pit back d, substantially as specified.

186,838.

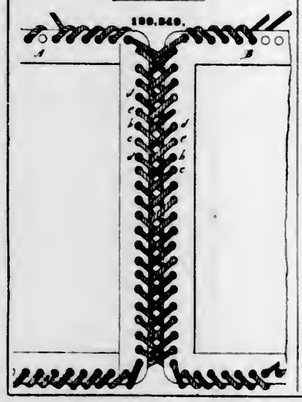


186,839. MUSICAL TOYS. C. W. Banks, Elk Ridge Landing, Md. [Filed Jan. 23, 1877.]



A musical instrument having two parallel elastic lips secured to or formed upon a rigid rod or stem, in combination with a vibrating plate or tongue arranged flatwise between said lips, substantially as and for the purpose set forth.

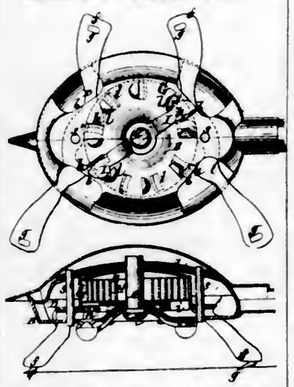
186,840.



186,840. HINGED SLATES. R. S. Barnum, Chicago, Ill., assignor to H. C. Goodrich, same place. [Filed Dec. 26, 1876.]

In a double slate, the frames A B, provided with muffling-cords so arranged that they cross from one frame to the other at the back, and form a hinge to permit the frames to turn in either way, substantially as described.

186,841. AUTOMATIC TOYS. W. Baxter, Jr., Newark, N. J. [Filed Feb. 17, 1877.]



1. The propelling-wheel G, constructed of sheet metal to form a cup or box for reception of the operating-spring H, and with curved teeth i struck up on one side or face, essentially as described.

2. The combination of a toothed propelling-wheel, G, and the centrally or intermediately pivoted levers or limbs C D, arranged on opposite sides of the axis of said wheel, and having duplicate tappets or tappet-like projections A k, substantially as shown and described.

3. The feet f of the limbs, provided on their under side with one or more claws, g, constructed to slope backward, in combination with the tappets A on reverse sides of the pivots of the levers or limbs C D, essentially as specified.

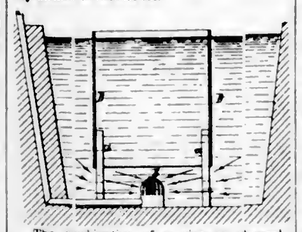
4. The key I attached to the arbor e of the operating-spring, and constructed to act as a pawl against the teeth of the ratchet, which keeps the spring to its work, substantially as shown and described.

5. The ratchet which keeps the operating-spring to its work, through the intervention of a pawl, constructed of a sheet-metal plate indented on its surface to form ratchet-teeth l, essentially as specified.

6. As a new article of manufacture, a toy tortoise or other reptile, to the anterior and posterior limbs of which a creeping movement is communicated by a spring and gearing, substantially as described.

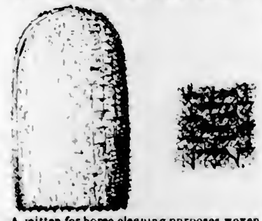
186,842. PREVENTING THE OBSTRUCTION OF WATER-CHANNELS. L. H. Beebe, Lake Side, Mich. [Filed Aug. 7, 1876.]

Brief.—The casing or platform protects the mouth of pipe or channel from downward currents of surface-water, and from obstructions by anchor or surface ice.



The combination of a pipe or channel through which water is drawn from a river or reservoir with a casing or platform arranged wholly above the entrance to said pipe, and serving to prevent the direct downward flow of water to the same, as set forth.

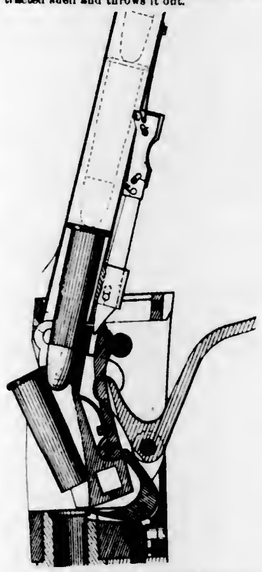
186,843. HORSE-BRUSHES. C. W. Beiser, New York, N. Y. [Filed Feb. 26, 1877.]



A mitten for horse-cleaning purposes woven from cords of horse-hair, substantially as shown and described.

186,844. MAGAZINE FIRE-ARMS. Thos. G. Bennett, New Haven, Conn., assignor to the Winchester Repeating Arms Company, same place. [Filed Feb. 24, 1877.]

Brief.—A stop for retaining the cartridges in the magazine is operated by an arm on the breech-block in such a manner as to release one cartridge at a time and allow it to be fed forward into the breech of the gun when the shell of the previous cartridge has been withdrawn. The channel in the breech-block is so formed that the point of the bullet, as the cartridge moves forward, passes under the extracted shell and throws it out.



1. The stop or plate F, provided with the shoulder a and the oppositely inclined slots c and c', arranged to operate in connection with a magazine-tube, T, substantially as and for the purpose described.

2. In combination with a magazine-tube, T, the stop or plate F, spring f, and operating slide or bar b, all arranged to operate substantially as described.

3. The breech-block B, having the groove E formed therein, substantially as described, in combination with the magazine-tube T, arranged in the rear thereof, so as to deliver its cartridges to the groove in said block, substantially as shown and described.

4. The combination of the grooved breech-block B, with its arm C, the magazine-tube T, and the stop F, with its spring f and sliding bar b, all constructed to operate substantially as described.

186,845. WIRE BALE-TIES. H. P. Bennett, Ooblenkill, N. Y., assignor to Washburn & Moen Manufacturing Company, Worcester, Mass. [Filed Oct. 16, 1876.]

186,846.

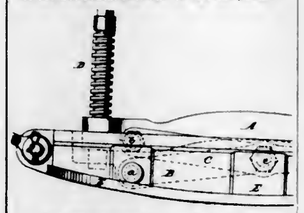


1. A wire bale-tie consisting of a button composed of a loop, E, formed out of the wire of the band, and encompassed by the strands of said wire bent back upon themselves and twisted together, said button being adapted to and combined with a loop, as shown, and for the purpose set forth.

2. The combination, with the stirrup C, transverse loop E, and knot D, made continuous with the main strand of a wire bale-tie, of the receiving-loop F, having a contracted and upturned draft end, x, and distended side strands at x, to form an enlarged opening to said receiving-loop, substantially as and for the purpose set forth.

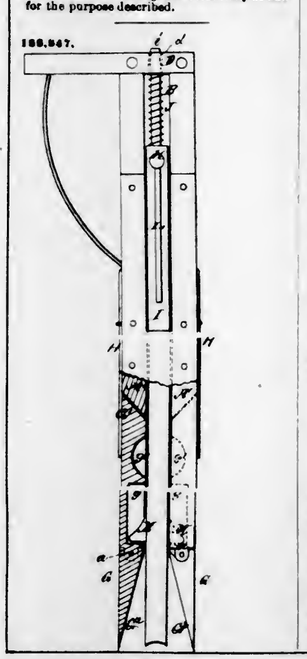
186,846. APPARATUS FOR LEVELING RAILS OF RAILROADS. J. Beugger, Winterthur, Switzerland. [Filed Jan. 30, 1877.]

Brief.—In a runner-shaped bed plate is a vertical screw, the revolution of which causes the rise of a horizontal arm, supported by two bars centrally pivoted together, with one end of each pivoted, respectively, to the inner end of the horizontal arm and to the bed-plate.



The combination of plate E, link C, lever B, pivoted to plate E, lever A, and screw D, upon which the lever A is arranged, the whole constructed and arranged substantially as and for the purpose described.

186,847.



186,847. TOBACCO-TRANSPLANTERS. Jno. W. Beverly, Lisbon, Mo. [Filed Sept. 2, 1876.]

Brief.—A vertical shaft having lugs operates two recessed jaws, pivoted between the lower bifurcated ends of two bars, which form the casing. Springs return the jaws to and hold them in position after displacement.

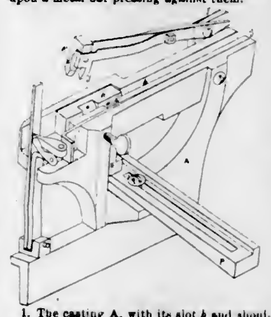
1. The combination of jaws G G, each one of which has inner recesses g g', with shaft I, having beveled lugs M M, substantially as and for the purpose set forth.

2. The combination of recessed jaws G G and flat springs H H with shaft I, having lugs M M, substantially as and for the purpose set forth.

3. The combination of shaft I, having lugs M M and guide-rod i, with spring J, recessed jaws G G, and head D, substantially as set forth.

186,848. MACHINES FOR SETTING THE TEETH OF SAWS. A. Boisnet, San Francisco, Cal. [Filed Feb. 16, 1877.]

Brief.—Ledges are formed in the casting for the reception of the dies, which are constructed with recesses in their meeting edges. The hammer is formed with inclined points, which strike two of the teeth and force them in opposite directions to the recesses upon each side. The dies can be raised or lowered, as desired, so as to adjust them to different-sized teeth, by a wedge-block which operates upon a metal bar pressing against them.



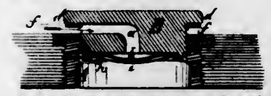
1. The casting A, with its slot b and shoulders c d, and provided with the spring-hammer E, with its oppositely-inclined points i j, in combination with the dies g h, with their oppositely-beveled recesses O, substantially as and for the purpose described.

2. The spring-hammer E, consisting of the permanent hammer i, with its beveled point, and spring-attached hammer j, with its oppositely-beveled point, arranged as described, in combination with the dies g h, with their oppositely-beveled recesses O, substantially as and for the purpose described.

3. The recessed dies g h, in combination with the adjustable wedge-shaped block P and metal bar S, substantially as and for the purpose described.

186,849. BUNGS FOR BARRELS. E. F. Bonaventure, New York, N. Y., assignor of forty per centum of his right to F. Ochs, same place. [Filed Aug. 26, 1876.]

Brief.—An aperture under the flange admits, but does not allow of the escape of, air through an automatic valve.

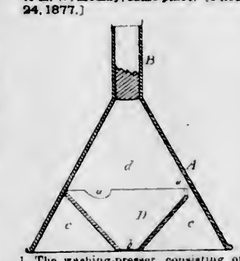


1. The threaded adjustable bung B, made with the flange d, and with the aperture a, which extends from beneath the flange through the lower part of the bung, substantially as specified.

2. The perforated bung B, made with the undercut recess h in the lower face, and combined with the valve b and supporting-plate e, substantially as herein shown and described.

3. The threaded bung B, made with the flange d, and with the aperture a, leading under said flange and combined with the elastic washer f, which partly closes the aperture a, and with the bush A, substantially as herein shown and described.

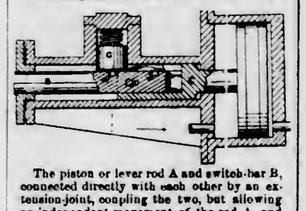
186,850. CLOTHES-POUNDERS. A. Bugbee, Elkhart, Ind., assignor of one-half his right to A. W. McKay, same place. [Filed Feb. 24, 1877.]



1. The washing-presser, consisting of the outer cone A, and the inner funnel D joined to the inner wall of the former, open at its lower end or apex, and having the openings a leading from the annular space c around it into the chamber above it, substantially as specified.

2. In a washing-presser the combination, with the outer cone A, of the inner annular wall D, joined to the inner wall of said cone, and having vents formed in said inner wall, the latter extending downward to form an annular space, c, around the base of the cone, substantially as specified.

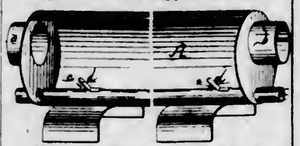
186,851. RAILROAD-SWITCHES. D. A. Burt, Philadelphia, Pa. [Filed May 26, 1876.]



The piston or lever rod A and switch-bar B, connected directly with each other by an extension-joint, coupling the two, but allowing an independent movement of the rod A, and combined with a locking device to engage the switch-bar and be operated by the independent movement of the rod, substantially in the manner and for the purpose herein set forth.

186,852. APPARATUS FOR PURIFYING FURNACE-GASES. John Burt, Detroit, Mich. [Filed Oct. 9, 1876.]

Brief.—Sprays of water are directed against the current of furnace-gas as it flows through the receiver, for the purpose of eliminating therefrom particles of dust and ash. Deflectors are secured to the water-pipe near its perforations, for the purpose of spreading and directing forward the fusing jets of water.



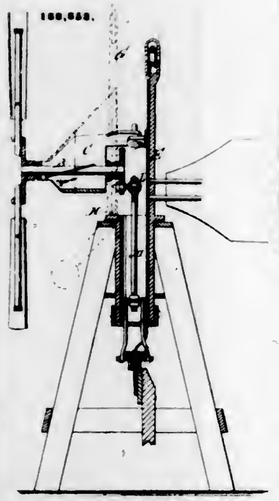
The combination, with the receiver A, having the inlet a and exit b, of the water-tube B in the bottom of the said receiver, the deflectors d, and the outlet e, all constructed and arranged substantially as described and shown.

186,853. WINDMILLS. Wm. T. Burrows, Nashua, Iowa. [Filed May 1, 1876.]

Brief.—The wheel-shaft is mounted on a frame which is pivoted obliquely to the tail-vane support, so as to rise up an incline when swinging out of the wind. The vane has a weighted lever.

The combination, with frame C, pivoted to tail-vane support E, and arranged on an inclined shaft, of the tail-vane G, pivoted at H, and connected by chain with said frame C, substantially as and for the purpose specified.

No. 188,854.



188,854. HEEL-PLATES FOR BOOTS AND SHOES. L. W. Buxton and J. P. Greeley, Nashua, N. H. [Filed Oct. 14, 1876.]



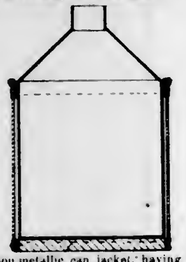
1. A heel-plate for shoes and boots having the radial ribs *b* on its upper surface and the three equidistant screw-holes *g* in the central space *e*, substantially as specified.

2. The rubber cushion C for a heel-plate, consisting of the flat sector shaped body *h* and the downwardly-projecting stud K, substantially as specified.

3. The combination, with the radially-ribbed heel-plate A, of the sectional ring of cushions C, having studs K projecting downward through an annular series of holes in said plate, substantially as specified.

188,855. CAN-JACKETS. U. B. Campbell, Boston, Mass. [Filed June 30, 1876.]

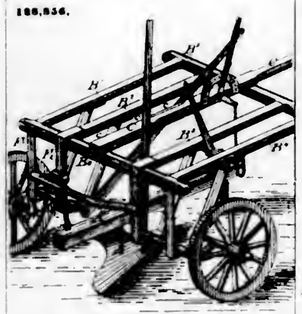
Brief.—Jacket of paste, leather, card, or other board, water-proofed and bound with zinc or other sheet-metal strip by staples. Bound edges of body overlapped and riveted, or met and soldered, or met and overlapped by a strip of metal soldered thereto. Body secured to can by metal strips soldered to both at top or bottom, or at both ends.



A non-metallic can jacket, having its exposed edges, protected by a continuous metallic binding, substantially as and for the object specified.

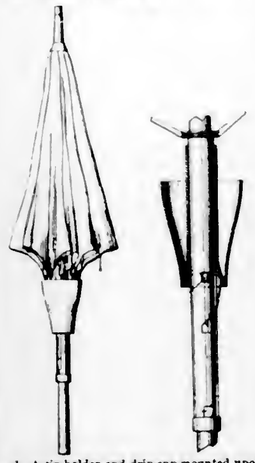
188,856. PULEY-PLOWS. H. E. Carver, Marion, Iowa, assignor of one-half his right to A. J. Boardman, same place. [Filed May 25, 1876.]

No. 188,856.



An attachment for sulky-plows, consisting of a frame constructed of parallel beams B^1 B^1 B^2 B^2, arranged in pairs on each side of the tongue, and united by cross-pieces B^3 B^3, each pair or set carrying brackets F^1 F^1 F^1 F^1 for the support of the stub-axles carrying the wheels, substantially as and for the purpose herein shown and specified.

188,857. COMBINED TIP-CUP AND DRIP-CUP FOR UMBRELLAS. C. C. Clay, Factoryville, assignor to I. F. Tillinghast, La Plume, Pa. [Filed Dec. 13, 1876.]



1. A tip-holder and drip-cup mounted upon the runner of an umbrella, substantially as and for the purpose described.

2. The combination, substantially as set forth, of the umbrella-handle, the slotted and notched runner movable endwise thereon, and the combined drip-cup and tip-holder movable endwise on the runner, and having a locking-lug engage in the slot thereof, for the purposes set forth.

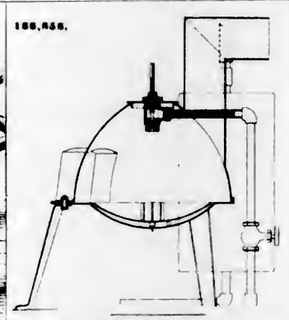
188,858. FURNACES FOR HEATING SOLDERING-IRONS. P. Cook and J. G. Jones, Baltimore, Md. [Filed Dec. 8, 1876.]

1. In a furnace for heating soldering-irons, a removable false bottom for deflecting the flame issuing from the burner, combined with the shell of the furnace, substantially as and for the purposes specified.

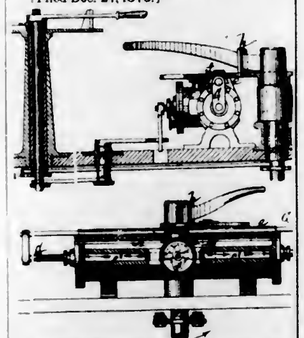
2. In a furnace for heating soldering irons, a removable deflecting false bottom, combined with a burner inclosed within the furnace-shell, and placed over the said false bottom, substantially as and for the purposes specified.

3. In a furnace for heating soldering-irons, the combination of a furnace shell, a hydro-carbon-reservoir, and a pipe conducting the fluid therefrom to the burner, the said pipe being arranged to pass through the draft-flue, and be heated by the indirect action of the products of combustion, substantially as and for the purposes herein set forth.

No. 188,858.



188,859. POWER STEERING APPARATUS. A. Crosby, New York, N. Y., assignor to Central Propelling Company, same place. [Filed Dec. 27, 1876.]



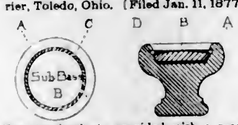
1. The combination, with the rudder, the tiller U, and the yoke G, connected with the tiller, as described, of the guides *e s* on the cylinder A, for guiding said yoke, substantially as shown and described.

2. The combination, in a steering apparatus constructed to provide either for steering by hand or by power, of an index, *s*, on the sleeve *r*, operated by the motion of the rudder and the spindle *h'*, by which the valves is controlled, fitted with a hand wheel or lever, and arranged concentrically within the sleeve *r*, essentially as described.

3. The tiller C, loosely fitted on the rudder-post D, in combination with the band-tiller C', fast to said post, and a removable coupling pin or piece, *k*, applied to said tillers, essentially as and for the purpose herein set forth.

4. The combination, with the operating-cylinder, piston, and the tiller of a power steering apparatus connected with said piston, of a valve constructed to admit steam or other fluid into the cylinder upon both sides of the piston simultaneously, substantially as described, whereby said piston and the tiller are held in a locked position, as and for the purpose set forth.

188,860. ORGAN-STOP KNOBS. W. H. Currier, Toledo, Ohio. [Filed Jan. 11, 1877.]



The stop-knob A, provided with a recess having a chine, D, the tablet B, and the elastic or other holding-ring C, substantially as and for the purposes described.

188,861. GRAIN-BINDERS. Henry Curtis, Chicago, Ill. [Filed July 17, 1876.]

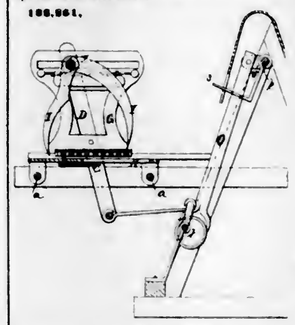
1. The combination of the crank-shaft B, pitmen C C, swinging side levers D D, and rod E with the binding and compressing arms carried by said levers, substantially as herein set forth.

2. The combination of the binding and compressing arms I I, tubes *b b*, rod *d*, slotted standards G G, and slotted swinging levers D D, substantially as and for the purposes herein set forth.

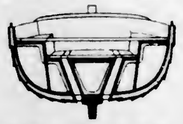
3. In combination with the tubes *b b*, carrying the arms I I, the levers *h*, with projecting pins *i*, the standards G, with grooves *x*, projections *f*, inclines *y*, and springs *z*, all constructed and arranged to operate substantially as and for the purposes herein set forth.

4. The combination of the stationary rack K, the movable rack L, and the twister J, all constructed substantially as and for the purposes herein set forth.

188,861.



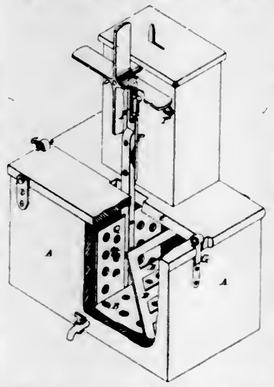
188,862. LIFE-BOATS. P. B. Curtis, Haverhill, Mass., assignor to himself and J. C. Tilton, same place. [Filed June 23, 1876.]



1. A life-boat provided with central and lateral fore and aft buoyant chambers and water-escape passages, arranged substantially as set forth.

2. A life-boat provided with central and lateral fore and aft buoyant chambers, and water-escape passages, and end buoyant chambers, arranged substantially as set forth.

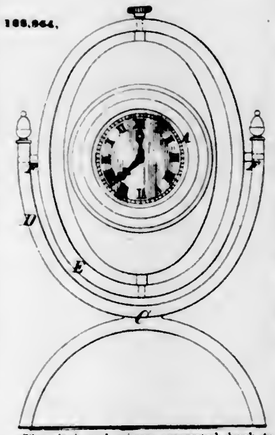
188,863. CHURNS. H. P. Daggett, Troy, Mo., assignor of one-third his right to A. B. Ellis, same place. [Filed July 14, 1876.]



The churn, consisting of outer receptacle A, inner stationary vessel B, having inclined perforated partitions D D, and dasher P Q, as and for the purpose set forth.

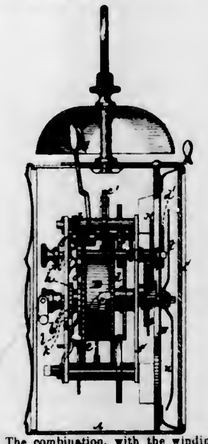
188,864. COMBINED CLOCK AND MIRROR. Henry J. Davies, New York, N. Y. [Filed Jan. 17, 1877.]

No. 188,864.



The clock and mirror connected back to back, in combination with a frame or support, in which such clock and mirror are so pivoted as to be reversible, substantially as described.

188,865. ALARM-CLOCKS. Henry J. Davies and Walter D. Davies, New York, N. Y. [Filed Feb. 14, 1877.]



1. The combination, with the winding-arbor *b* and mainspring D, of the ratchet-wheels *g* and *h*, having a fast and loose relation, relatively, with said arbor, and provided with one or more engaging studs or stops, *k* and *l*, the loose main alarm-driving wheel *e*, and the pawls *f i*, substantially as and for the purpose herein set forth.

2. The alarm-setting spindle M, made capable of independent adjustment, in combination with the alarm-releasing device or trip Q, arranged to rotate loosely upon or around said spindle, essentially as described.

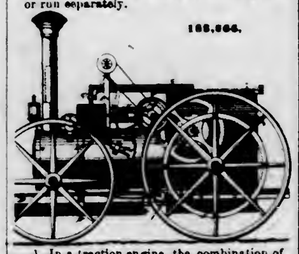
3. The combination of the gears *o*, N, and *p* with the hour-hand or its sleeve, and the alarm-trip Q, substantially as specified.

4. The combination of the alarm engaging and disengaging spring hook or lever E, the loose wheel N, with its attached notched trip Q, arranged to rotate in unison with the hour-hand of the clock, and the independently-adjustable alarm-setting spindle M, having a stud or projection, *f'*, essentially as and for the purpose herein described.

188,866. PORTABLE AND TRACTION ENGINES. Noble M. Davidson, Ada, Ohio. [Filed Jan. 27, 1877.]

Brief.—Two independent driving-shafts propelled by separate engines, and connected at will with the running-gear by a train of gearing. The two shafts may be coupled together or run separately.

No. 188,866.



1. In a traction-engine, the combination of plate L', slotted at *P P*, and rigidly attached to shaft L, with a sleeve turning on said shaft, and carrying a part of the gearing, whereby one of the transporting-wheels is operated, substantially as and for the purpose set forth.

2. In a traction-engine, the combination of two independent operating-cylinders, with the rear transporting-wheels, two independent trains of connecting gearing, and two independent slotted disconnecting-plates, L, arranged and operating substantially as set forth.

3. In a traction-engine, the combination of two engine-cylinders, and their piston-rods and connecting-rods, with two driving-shafts operated thereby, and a detachable connection for said shaft, substantially as and for the purpose set forth.

4. The combination of engine-cylinder N, connecting-rods N', and shafts M, with detachable connecting arm or link O, substantially as set forth.

5. The combination, in a traction-engine, of two independent driving-shafts, with a governor-operating shaft operated by either or both of them, substantially as and for the purpose set forth.

6. In a traction-engine, the combination of boiler-casing A, steam-dome C, water-tank D, and suspending-band D', substantially as and for the purpose set forth.

188,867. GRATE-BARS. H. B. Denby, Circleville, Ohio, assignor of one-half his right to H. W. Ruth, same place. [Filed Jan. 2, 1877.]

Brief.—The bars have four wings or blades, located at right angles to each other, and springing from a point to one side of the axis of motion, by means of which the adjoining blades lap when in a horizontal position. The bars are made to revolve by means of gearing.



1. The grate-bars A, constructed as described, and provided with the cog wheels B, pawl D, and lever C, the several parts being arranged to operate substantially as and for the purpose described.

2. The bars A A, having four legs or wings, *b*, so arranged that the wings of one bar lap over or project past the wings of the next succeeding bar, so as to form a continuous table for the reception of fuel, substantially as specified.

3. The grate-bars A, provided with the wings *b*, springing from a point to one side of the axis *a*, and at right angles to each other, substantially as and for the purpose described.

188,868. HORSESHOE-CALK SHARPENERS. Robt. Denholm, Cleveland, Ohio. [Filed Feb. 26, 1877.]

1. The combination, with a pair of tongs, of a revolving cutter, journaled in an adjustable bracket, substantially as and for the purpose set forth.

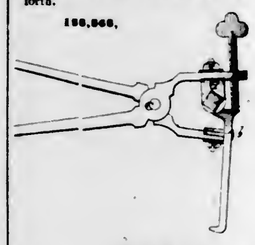
2. The combination, with a pair of tongs, provided with a bearing-plate, N, of a revolving cutter journaled in an adjustable bracket, substantially as and for the purpose set forth.

3. The combination, with a pair of tongs, provided with an adjustable bearing-plate, N, of a revolving cutter journaled in an adjustable bracket, substantially as and for the purpose set forth.

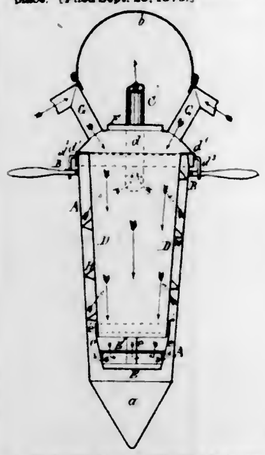
4. The combination, with a pair of tongs, provided with an adjustable bearing-plate, N, of a revolving cutter journaled in an adjustable bracket and an adjusting-screw, S, the latter arranged in the extreme end of the upper jaw, substantially as and for the purpose set forth.

5. The combination, with a pair of tongs, one jaw of which has a hook, *b'*, formed thereon, of a bearing-plate, N, and a revolving cutter, journaled in an adjustable bracket, substantially as and for the purpose set forth.

186,868.



186,869. HEATERS. B. G. Devoe, Kenton, Ohio, assignor of two-thirds of his right to **S. Parkinson** and **W. W. McLean**, same place. [Filed Sept. 29, 1876.]



1. In a heater, the outer cylinder or inclosing-case A of a tapering form, and having a conical or pointed closed bottom, substantially as described, for the purpose specified.

2. The combination, with the inclosing-cylinder A, of an inner smaller cylinder, D, of tapering shape, open at bottom, and having a fire-grate and ash-pan suspended therefrom, the top or upper part of such cylinder D being constructed as described, to form a head for both cylinders, substantially as specified.

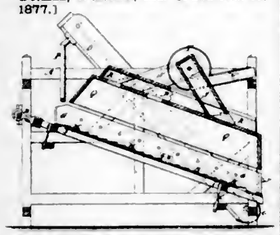
3. A heater consisting of an inclosing-casing, A, and an inner smaller cylinder, D, carrying an ash-pan and fire-grate, and having a charging-door, F, in its head, in combination with the pipes G G and C, to impart a downward draft through the inner cylinder, all constructed and arranged to operate substantially as described.

4. The combination of the ash-pan and fire-grate and their supporting ring *e'*, constructed as described, with the inner cylinder D, from which said ash-pan and fire-grate are removably suspended, all arranged and operating as specified.

5. The combination of the cylinders A D, of varying diameter, to form a heating-chamber between the two, and a passage-way for the heat and products of combustion, with the spiral flange or deflector H, substantially as described, for the purpose set forth.

6. The combination of the outer casing A, having bundle-sockets B, with the inner cylinder D, the head of which is provided with hooks *d*², to lock the two cylinders together, substantially as described, for the purpose specified.

186,870. MIDDLINGS-SEPARATORS. Edwd. Dolman, Westville, Ind. [Filed Jan. 19, 1877.]



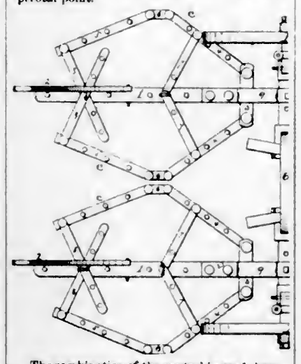
1. The system of vibrating tubes formed of the inclined tubes G, the narrow overlapping bottom-plates H, the upwardly-inclined tubes I, the adjustable overlapping valves K, and their adjusting-bars J, substantially as herein shown and described.

2. The combination of the elevator O, divided into compartments, and having spouts P, with the system of vibrating tubes G H I J K, substantially as herein shown and described.

3. The combination of the air-chamber Q, provided with the small upper air-chambers R, the exhaust-tubes S, the exhaust-fan T, with the system of vibrating tubes G H I J K, substantially as herein shown and described.

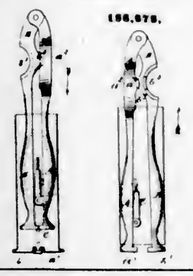
186,871. HARROWS. J. H. Dolan, Geneseo, Ill. [Filed Mar. 8, 1877.]

Brief.—A combination-harrow, adjustable on the sides by means of adjusting-plates, so as to enlarge or compress the same, to suit convenience, a rigid central beam being the pivotal point.



The combination of the central beam 1, handles 2, plates 3 6, side beams 4 5, and adjusting plates 7 8, substantially as set forth.

186,872.

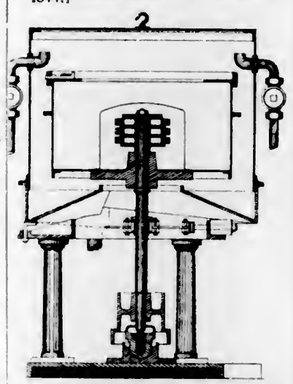


186,873. CARTRIDGE-LOADING IMPLEMENTS. J. H. Dudley, Poughkeepsie, N. Y. [Filed Jan. 6, 1877.]

1. An instrument for capping, uncapping, loading, grooving, and withdrawing cartridge-shells, consisting of needle C and hinged arms A B, the latter having notched disks a^1 b^1, hole a^2, lip a^3, knob b^2, and curved flange b^3, substantially as shown and described.

2. The hinged arms A B, provided with the curved flange b^3 and the lip a^3, substantially as herein shown and described.

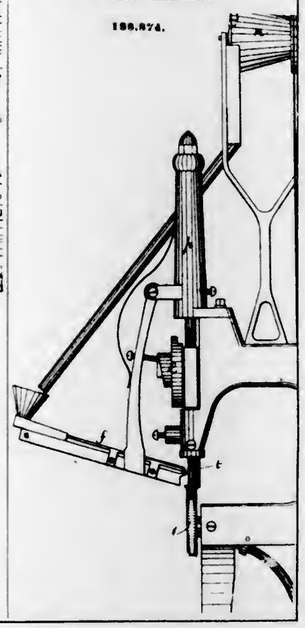
186,873. PROCESSES FOR TREATING SUGAR. James Duncan and Benjamin E. R. Newlands, London, England. [Filed Feb. 17, 1877.]



1. The process of treating saccharine matter for the purpose of purifying the same by subjecting it in a centrifugal machine to dry steam, admitted into the space between the outer casing and the basket, substantially as shown and described.

2. The process of treating saccharine matter in a centrifugal machine by the combined action of steam and hot air, substantially as shown and described.

186,874.



186,874. NAIL-DRIVING MACHINES FOR BOOTS AND SHOES, &c. Henry Dunham, Abington, Mass., assignor to T. M. Bristol, New York, N. Y. [Filed Mar. 10, 1876.]

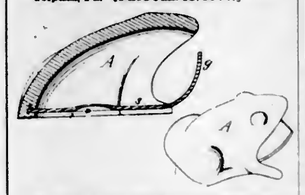
Brief.—The feed mechanism consists of a rotating wheel or disk having a roughened or corrugated periphery, adapted both to feed the stock and to present a continuous clinching surface for the nails.

1. In combination, the feed-wheel 1, adapted to support and feed the stock and present a continuous nail-clinching surface, the nail-tube *s*, the inclined way *f*, and driver *r*, all substantially as and for the purpose described.

2. In combination, an automatic feeder and nail-clinching surface, 1, on the under side of the material, with the movable dies *t t'* and driver *r*, as and for the purpose set forth.

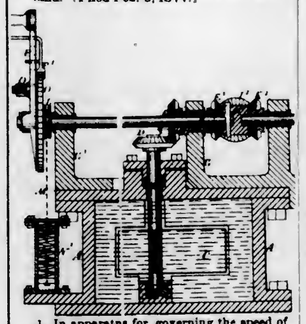
3. In combination, a feed-wheel, 1, inclined way *f*, movable dies *t t*, and driver *r*, substantially as and for the purpose set forth and described.

186,875. TOY FROGS. H. Durand, Philadelphia, Pa. [Filed Jan. 18, 1877.]



The toy croaking frog herein described, consisting of the concave plate or body A, having a base-flange, *d*, and groove *z* around the latter portion, and a dented spring, *s*, one end being seated in the flanged groove, and the free end *g* curved upward toward body A to form a throat, all constructed and arranged to operate substantially as specified.

186,876. GOVERNORS. Frederick W. Durham and Henry Howse, Homerton, England. [Filed Feb. 6, 1877.]



1. In apparatus for governing the speed of prime movers, the vanes C, operating in combination with the shafts F H, toothed gearing E E' I I' K', spring N, and lever P, substantially as herein described.

2. In combination with the vanes C, operating with the shafts F H, toothed gearing E E' I I' K', spring N, and lever P, the toothed disk O, fixed on the shaft H, and operating in combination with the lever P and catch P', substantially as and for the purposes specified.

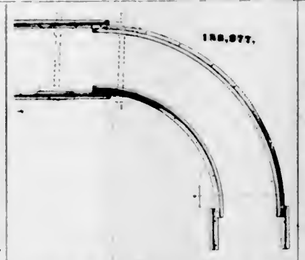
3. In combination with vanes C, operating with the shafts F H, toothed gearing E E' I I' K', spring N, and lever P, the index O' on the disk O, operating in combination with the scale O², for indicating the speed of the prime mover, substantially as herein described.

186,877. RAILROAD-CURVES. D. E. Dutrow, Washington, D. C. [Filed Feb. 27, 1877.]

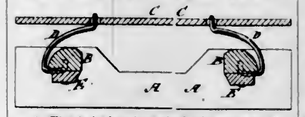
1. A street or other railroad having the curves of a narrower gage than the straight track, substantially as described.

2. The combination of a railroad-track, having the curves of a narrower gage than the straight track, with the wheels of a truck having two treads, substantially as described.

186,877.



186,878. SPRING BED-BOTTOMS. W. M. Edmans, Troy, N. Y. [Filed Jan. 29, 1877.]

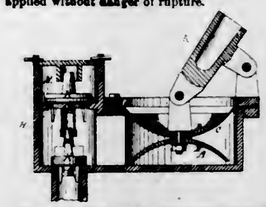


1. The forked or branched wire springs D, having their lower ends bent upward, to enter the lower sides of the end rails B of the bed-bottom, having their middle parts curved inward, and their angles bent upward to enter holes in the spring-slats of the bed-bottom, substantially as herein shown and described.

2. The combination of the wire springs D, constructed as described, and the cleats E, with the end rails B, the side rails A, and the spring-slats C, substantially as herein shown and described.

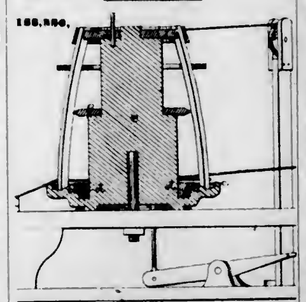
186,879. SHIPS' PUMPS. Albert F. Bells and Saml. C. Lord, Boston, Mass. [Filed Mar. 3, 1877.]

Brief.—The disks are placed with their convex sides together, and serve to form the support of the flexible diaphragm, to prevent wrinkling and to allow greater pressure to be applied without danger of rupture.



The combination of the diaphragm-pump D C D' A with the valve-chamber H in the uptake, said chamber being provided with valves K K', all operating together, substantially as described.

186,880.



186,880. MACHINES FOR SETTING UP BARRELS. William H. Ewing, Pittsburg, Pa. [Filed Jan. 15, 1877.]

Brief.—The staves are set up for trussing by means of a horizontally-revolving former, having a flanged outer edge and a recess in its bottom to receive the bottom truss-hoop, and carrying a center shouldered post, an agitator for shaking the staves down into the truss, and a windlass for drawing the staves into the truss.

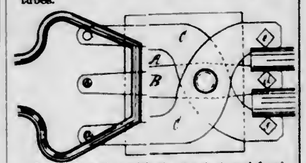
1. In a machine for setting up staves, a horizontally-revolving former, which is provided with a recess for receiving the ends of the staves, and a second interior recess for receiving a truss, substantially as shown.

2. The combination, with a former, of an agitator for shaking down the staves into the truss, substantially as described.

3. A horizontally-revolving former having a flange, *a*, a place inside of the flange upon which to set the ends of the staves, and a recess to receive the truss, in combination with a windlass for drawing the ends of the staves into the truss, in the manner shown and described.

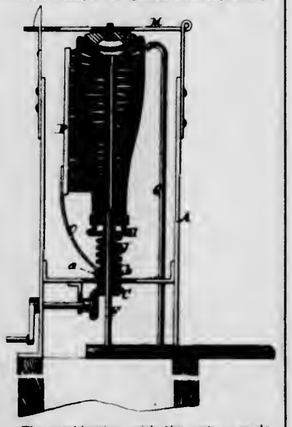
186,881. PIPE-WELDING TONGS. J. Fieldhouse, Chicago, Ill. [Filed Dec. 22, 1876.]

Brief.—The tongs are made capable of grasping two tubes at the same time by the interposition, between the jaws, of a fixed pin, against which the movable jaws clamp the tubes.



In combination with the truck A and fixed bar B, having the block *d*, the movable bars C C, having the blocks *e f*, arranged to form the jaws, as specified.

186,882. BOTTLE-WASHERS. A. Fisher, New York, N. Y. [Filed Dec. 26, 1876.]



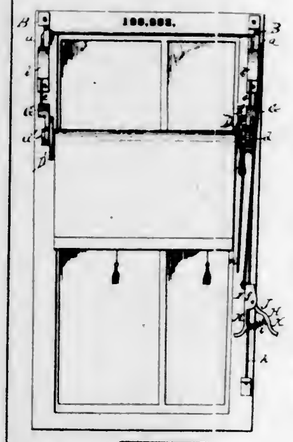
The combination, with the water-supply pipe F, of the pinion C, having a tubular shank, the revolving brush H, having a tubular head secured on said shank, the spring J arranged around the shank, the disk I arranged upon and supported in a yielding manner by the spring, and the pad L secured to the cross-bar or lever M, substantially as described.

186,883. CURTAIN-FIXTURES. A. H. Foster, Muncie, Ind. [Filed Feb. 8, 1877.]

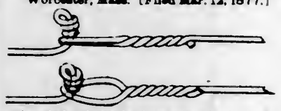
1. The combination, with a curtain-roller provided with headed journals *d d'*, of the hangers G G, the brackets B B, formed with the guides *b b*, and provided with the pulleys *a a*, and the cords *c c*, carrying a griping or fastening device, operating on a stationary cord, A, substantially as and for the purposes herein set forth.

2. The combination of the arm H with jaw F, the pivoted jaw J with arm K, and the spring *i*, all constructed as described, and operating in connection with the stationary cord A, and the hoisting-cords *c c*, substantially as and for the purposes herein set forth.

188,883.

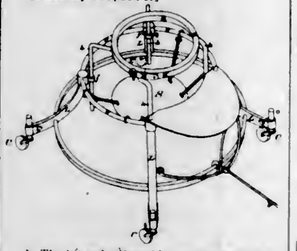


188,884. BALE-TIES. G. S. France, Central Bridge, N. Y., assignor to the Washburn & Moen Manufacturing Company, Worcester, Mass. [Filed Mar. 12, 1877.]



In a bale-tie made from wire, the hooked end, formed by bending or looping it upward, and then twisting or winding the remaining part of the wire around said upturned end, substantially as shown and set forth.

188,885. BABY-WALKERS. J. C. Frederick, Chicago, Ill., assignor to J. C. F. Von Rosenberg-Lipinsky, Burlington, Iowa. [Filed Apr. 19, 1876.]



1. The hinged adjustable arm-support *a a'*, having arms or rods *b* secured thereto, arranged to operate in combination with the outwardly-curved legs L, united by rings *c* and *n*, and provided with sockets *f* and casters C, substantially as and for the purpose specified.

2. The combination of the seat S, united legs L, casters C, and tongue or drag-handle *r*, substantially as and for the purpose specified.

3. The combination of the arm-support *a a'* and legs L, united and connected together as described, with the casters C and drag-handle or tongue *r*, substantially as and for the purpose specified.

188,886. HOSE-COUPLINGS. John Galvin, Detroit, Mich. [Filed Feb. 21, 1877.]

1. The combination of the hose A, internal metallic coupling-neck D, external collar B, and the packing strip or cord E, wound upon the hose and underneath or inside of the collar B, substantially as described.

2. In combination with the hose and the internal coupling-neck D, having the external teeth or ribs, the external collar B, provided with the opening F, and the metallic band E, wound within the collar upon the exterior of the hose, as shown.

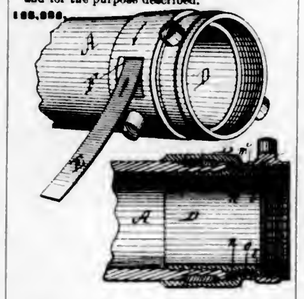
3. In a hose-coupling, the combination of a neck or tube, D, to enter the hose, and a collar, B, to encircle the same, provided with an opening, F, through which to insert a fastening-band.

4. In combination with the hose A, the coupling-neck D, provided with the flange *l* and screw-thread *n*, the collar B, provided with the screw-thread *m*, and the fastening-band E, substantially as shown and described.

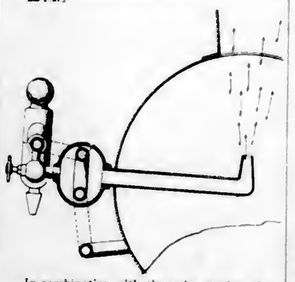
5. The combination of the neck D, provided with the flange *l* and screw-thread *n*, with the loose threaded collar or sleeve C and the collar B, provided with the screw-thread *m*, both applied thereto as shown.

6. In combination with the hose and the coupling constructed as shown, the metallic band or strip E, provided with teeth or corrugations at its end to engage with the hose, as and for the purpose described.

188,886.

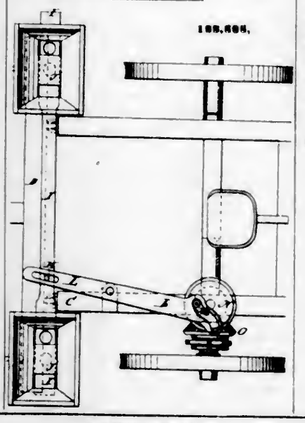


188,887. SPARK-EXTINGUISHERS. John J. Gilcert, Lewisville, Ind. [Filed June 18, 1874.]



In combination with the exhaust-pipe of a steam-engine, a pipe through which water is discharged into the exhaust pipe to mingle with the steam.

188,888.

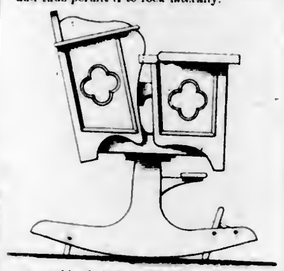


188,889. CORN-PLANTERS. C. L. Goethals, Los Angeles, Cal. [Filed Jan. 29, 1877.]

The combination, with slide-bar I and horizontal wheel N, the latter operated by axle-wheel O, of the horizontal lever L, having a diagonal S-shaped slot at one end working over a crank-pin, M, and at the other a slot working over stud K, as and for the purpose specified.

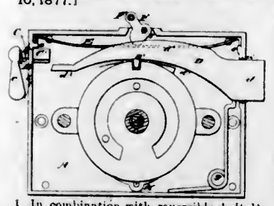
188,889. COMBINED CHAIR AND CRADLE. Abraham Goldschmidt, Columbus, Ohio. [Filed Feb. 15, 1877.]

Brief.—The back and front are hinged, as stated in the claim, and the rockers are pivoted to the body, so that they can be turned thereon to a position transverse of the cradle, and thus permit it to rock laterally.



A combined chair and cradle, consisting of a hinged back, provided with a hinged headboard, a hinged front or table, and pivoted rockers, substantially as and for the purpose described.

188,890. REVERSIBLE COMBINATION-LOCKS. H. Goodrich and F. J. Chapman, McLeansborough, Ill., assignors to themselves and W. B. Garner, same place. [Filed Feb. 10, 1877.]



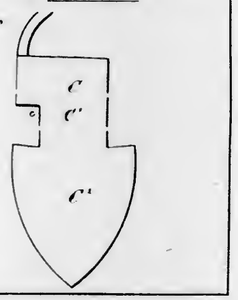
1. In combination with reversible bolt D, provided with recessed portion *d'*, spring E, interposed between the bolt and cam F, substantially as described, and for the purpose set forth.

2. The combination of cam-faced block C', shaft C, and handle *c* with latch-bolt D, substantially as set forth.

3. The combination of detachable plate B with casing A, having an opening at each end, and with a locking-cam journaled in said plate, whereby said cam is adapted to be used with a reversible bolt, substantially as set forth.

4. The combination of recessed oscillating tumbler with one or more recessed combination-wheels and a reversible bolt, having a rib which enters such recesses only when they all coincide, substantially as set forth.

188,891.



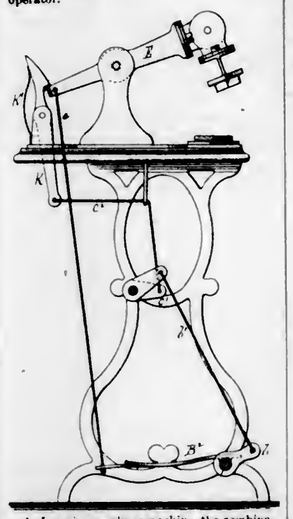
188,891. POST-HOLE AUGERS. A. Graham, Mumford, N. Y. [Filed Sept. 16, 1876.]

Brief.—A semi-cylindrical blade having a central bottom recess, and provided with points in the shape of an arrow-head.

In an earth-excavating auger, blade C, provided with semi-cylindrical upper part, recess *c*, necks C^1 C^1, and arrow-headed blades or points C^2 C^2, constructed and operated substantially as set forth.

188,892. CIGAR-WRAPPER CUTTERS. F. Hachnel, New Orleans, La., assignor of one-half his right to H. Norman, same place. [Filed Mar. 21, 1877.]

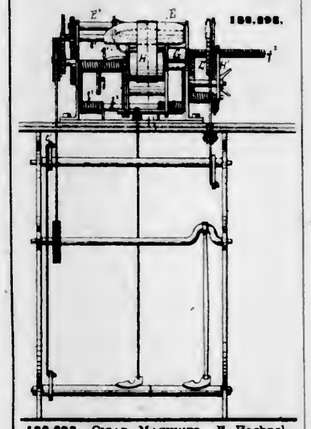
Brief.—The horizontal arm which carries the cutter is caught at its rear end to suspend it, and is brought down by its own weight when the trip is removed by the foot of the operator.



1. In a cigar-making machine, the combination of the lever E, notched arm K, spring K', cords c^1 *c*, arm *b*, and treadle B^1, substantially as described.

2. In a cigar-making machine, the lever E, notched arm K, spring K^1, cords c^2 *c*, arm *b*, and treadle B^1, in combination with the arms *c* c^1, substantially as described.

188,893.



188,893. CIGAR-MACHINES. F. Hachnel, New Orleans, La., assignor of one-half his right to H. Norman, same place. [Filed Mar. 21, 1877.]

Brief.—The bunch is inclosed in a pocket of the shape of the ultimate cigar, and rotated by a loose narrow belt or apron conforming to the internal contour of the holder.

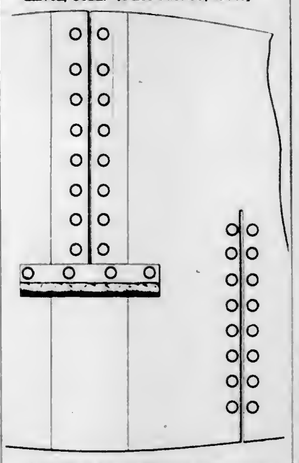
1. In a cigar-making machine, the loose belt H, in combination with a bunch-holder, E E^1, which conforms to the contour of the bunch or cigar, while the narrow belt rotates the same, substantially as described.

2. In a cigar-making machine, the paste-holding cylinder G and an intermittingly-working piston, having an exit-pipe, *f'*, said cylinder located as specified, in combination with a covered bed or bunch-holder, E E^1, and narrow belt H, substantially as described.

3. The combination of the bunch-holder E E^1 and narrow belt H, the movable part E of the holder having a rounded end, as and for the purpose set forth.

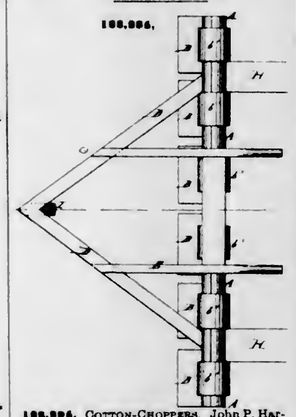
4. The independently-rotating knife *f*, located as specified, in combination with the bunch-holder E E^1, and narrow belt H, substantially as described.

188,894. CORSETS. T. F. Hamilton, New Haven, Conn. [Filed Feb. 20, 1877.]



In a corset, the combination of the stationary skirt-supporter, arranged transversely across the center of the back waist-line, with a vertical slit from the supporter up, and side slits extending from the bottom to a point above the supporter or waist-line, substantially as specified.

188,895.

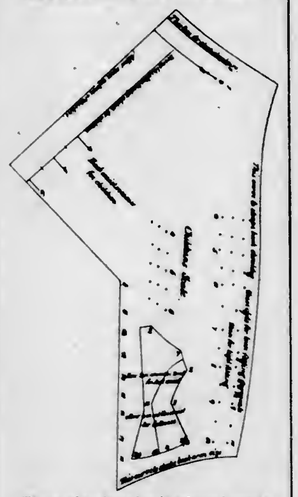


188,895. COTTON-CHOPPERS. John P. Harrisson, Aberdeen, Miss. [Filed Dec. 23, 1876.]

Brief.—A long beam, provided with hoes at such distance from each other as to leave room for the stand, is supported upon the rear side by a spring at each end, and one upon the forward end of the draw-bar. The beam is provided with handles, and, in use, is drawn crosswise of the rows of cotton, the space between the hoes leaving the required stand of plants.

The combination of the shaft A, the hoes B, the beams D, and the springs H and I with each other, substantially as herein shown and described.

188,896. DRESS-CHARTS. M. Harrison, Rock Island, Ill. [Filed Nov. 29, 1876.]



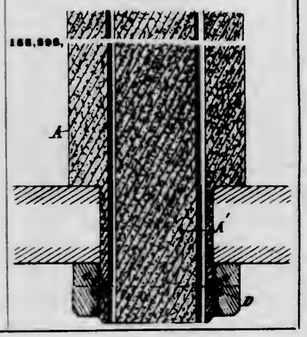
The set of graduated and perforated patterns herein described, and illustrated by Figs. 1, 2, 3, 4, and 5 of the drawings, adapted for use in cutting ladies' and children's garments.

188,897. WATER-CLOSET BASINS. Charles Harrison, New York, N. Y. [Filed Feb. 19, 1877.]



As a new article of manufacture, a sheet-metal water-closet basin provided with an inside bottom lining of porcelain, which is secured in position by means of the annular shoulder *c'*, spun against or upon the edge of the disk, substantially as shown and described.

188,898.



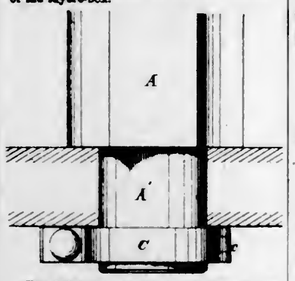
186,898. BESSEMER-CONVERTER BOTTOMS. Andrew J. Hawe, Johnstown, Pa. [Filed Dec. 29, 1876.]

Brief.—Securing the brick forming the bottom of a Bessemer converter within the top plate of a tuyere-box by means of a ring of metal or other material, fitting loosely around the inwardly-projecting lug of the brick, annular grooves being provided on the exterior of the lug and the interior of the ring to receive a body of cement, which locks the two together.

The bricks A, provided with lugs A', projecting within the tuyere-box, in combination with locking-rings D, fastened thereto by a body of cement or other material, substantially as set forth.

186,899. BESSEMER-CONVERTER BOTTOMS. Andrew J. Hawe, Johnstown, Pa. [Filed Dec. 29, 1876.]

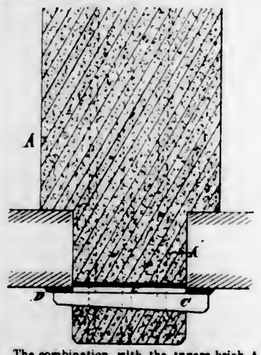
Brief.—Securing the bricks which form the bottom of a Bessemer converter to the tuyere-box by means of clamps encircling the lugs, hinged at one side and fastened by a screw at the other, so as to serve the combined purpose of fixing the bricks and forming washers to close the joints between the lugs and the plate of the tuyere-box.



The bricks A, provided with lugs A', in combination with clamp-rings C, fitting around the said lugs, in the manner set forth.

186,900. BESSEMER-CONVERTER BOTTOMS. Andrew J. Hawe, Johnstown, Pa. [Filed Dec. 29, 1876.]

Brief.—Securing the bricks by means of horizontal keys passed transversely through apertures prepared for them in the respective lugs, and bearing on annular washers, which serve the further purpose of closing the joint around the brick-lugs.



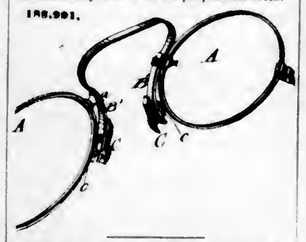
The combination, with the tuyere-brick A, provided with a projecting lug, A', in which the horizontal opening c is formed, of the key C and washer D, as and for the purpose specified.

186,901. EYEGLASSES. Henry H. Hempler, Washington, D. C. [Filed Feb. 3, 1877.]

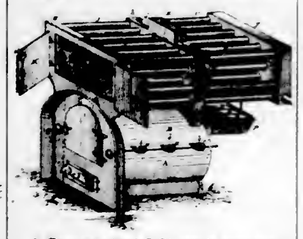
1. The combination of an eyeglass-spring having elongated slots near its ends, with nose-pieces C C having guide-rods passing through the slots, the whole adapted to give both a longitudinal and pivotal motion, substantially as described, and for the purpose set forth.

2. The combination of frames A A, spring B, slotted as described, nose-pieces C C, and curved guide-rods c c, arranged and operating substantially as and for the purpose set forth.

186,901.



186,902. HOT-AIR FURNACES. William E. Henderson, Winona, Minn. [Filed Feb. 8, 1877.]



1. The center head G G', cast in two parts, with the horizontal diaphragm *m m'*, cast one-half with each part of the center head, in combination with the series of horizontal pipes J J' and the front and rear heads H and I, all substantially as herein set forth.

2. The center head herein described, cast in two parts, G G', with shoulders *i* around their edges, and the interior horizontal diaphragm cast in two parts, *m m'*, one-half with each part of the head, so that the parts will overlap each other, and be fastened together by bolts *h*, passing through projecting lugs *f*, all substantially as and for the purposes herein set forth.

3. The combination of the end heads H and I, having collars *n n* cast therewith, the central head G G', having collars *n n* cast on each section thereof, and having interior partition *m m'* and shoulders *i* all cast therewith, the horizontal flue-tubes J J', and the double set of connecting-rods *p p*, all substantially as herein set forth.

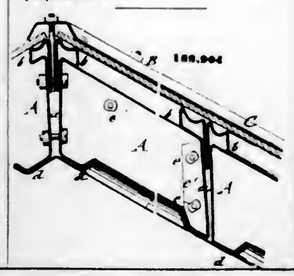
4. The check-draft L, arranged as described, and provided with the operating-rod *t*, in combination with the central head, having a central diaphragm, the end heads H I, tubes J J', and exit-flue E, all substantially as set forth.

5. The detachable evaporator P, provided with the pivoted fans R, connected and operated by the rod *w*, suspended under the pipes J', and attached to the end of the furnace, as and for the purposes herein set forth.

186,903. COMPOSITION FOR PRESERVING CORPSES. George Henry, Hamilton, Ontario, Canada. [Filed Feb. 28, 1877.]

The composition of matter for preserving corpses, consisting of *Baptisia tinctoria* (wild-indigo shrub) root bark and sulphur, in about the proportions above described, and for the purposes set forth.

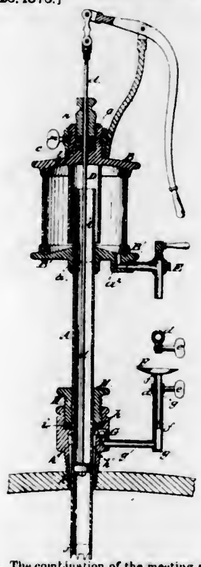
186,904.



186,904. SKY-LIGHT BARS. J. Henry, Chicago, Ill., assignor to himself and R. P. Gormully, same place. [Filed Feb. 3, 1877.]

The bar A, having median part *a*, concaved glass-supports *b*, top piece C, and gutters *d*, in combination with flattened bolt B, rivets *e*, and cross-bars having flanges *a'*, substantially as and for the purpose specified.

186,905. MEASURING-PUMPS. Charles Hildebrand, Youngstown, Ohio. [Filed Oct. 26, 1876.]



1. The combination of the meeting sections A A' of the pump-stock and the head B' of the reservoir, provided with a central hubbed screw-socket, *a*, whereby the said reservoir inclines and is supported directly upon the pump-stock, substantially as described.

2. The combination of the pump-stock section A', the sleeve D, and the reservoir, forming a narrow flowway for the oil into the reservoir to prevent foaming, substantially as described.

3. The tubular index-scale *p*, secured upon and by the tension-rod *b*, in combination with the reservoir, as and for the purpose set forth.

4. The bung G, having the annular chamber *h'* formed therein below its packing *i*, and provided with the packing-nut H, and the valved connection with the drip pan, as and for the purpose herein set forth.

5. The combination of the dripping-pan F with its pipe-connection *g* and the annular chamber of the bung G of an automatic valve, *g'*, to prevent the escape of gas from the barrel through the drip-openings, substantially as set forth.

6. The combination of the dripping-pan pipe-stem *f* and the pipe-bung connection *g* of a supporting-clamp, *d*, and set-screw *e*, whereby the drip-pan is made extensible and is supported.

7. The combination of the chambered bung G, the pump-stock A, nut H, and washer *i*, whereby the pump-stock connection is sealed, substantially as set forth

186,906. VAPOR-BURNERS. J. G. Hobart, Syracuse, N. Y. [Filed Nov. 18, 1876.]

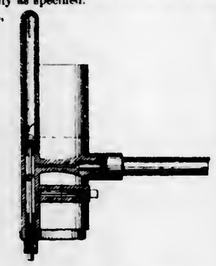
1. The combination of the exit-aperture of a vapor-burner with a grooved or channeled and conical valve-stem, substantially as and for the purpose set forth.

2. The combination of the lower burner-tube with a screw-plug having an enlarged shoulder or collar, and an alcohol-dish placed vertically below the inclosing tube or shield of the burner, substantially as specified.

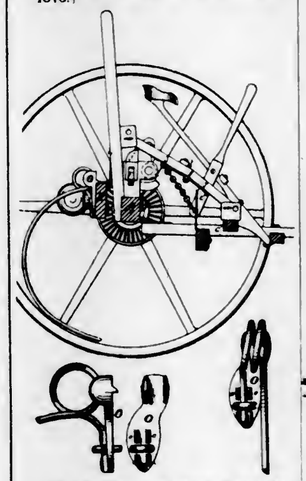
3. The combination of the flattened supply-tube and lower burner-tube with a heating-tube, placed vertically below the supply-tube,

and having an adjustable stem-valve for regulating the gas-jets of the heating-tube, substantially as specified.

186,906.



186,907. HORSE HAY-RAKES. James Hollingsworth, Chicago, Ill. [Filed June 5, 1876.]



1. In a horse hay-rake which is dumped by the rotation of the wheel or wheels, the combination, with the pawl or pawls which move to engage the wheel or wheels in the line of the axle, of a vertically-oscillating cam, which will return of its own weight upon its pivot after action, being thus perfectly self-adjusting, substantially as set forth.

2. In combination with the scroll-tooth, the metallic tooth-holder, constructed to receive the main wire of the tooth, and provided with lateral support for the scroll, whereby a firm and durable fastening is insured, substantially as specified.

3. In a horse-rake, and in combination with the axle-tree thereof, the independent and vertically-adjustable rake-head or tooth-bar, attached to the rear of said axle-tree, and carrying the rake-teeth, substantially as specified.

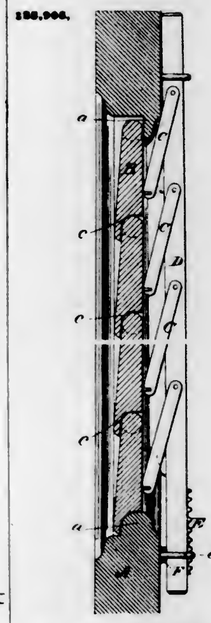
186,908. WINDOW-SHUTTERS. Charles B. Hopkins and James A. Johnston, Topeka, Kans. [Filed Mar. 13, 1877.]

1. In combination with the frame A, having the continuous internal flange or shoulder *a*, the overlapping slats B, provided with the recessed lower edges *c*, and pivoted at their upper edges to the frame in front of the flange, as shown, whereby the ends of the slats are permitted to lap their full width against the flange, in order to wholly exclude the light.

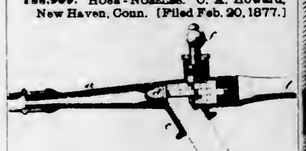
2. In combination with the slats B, pivoted at one edge, as shown, the links C and sliding bar D.

3. The combination of the frame A, pivoted slats B, links C, sliding bar D, mounted in guides *d e*, and provided with the notched plate E, and spring F, seated under the bar, as shown.

186,909.

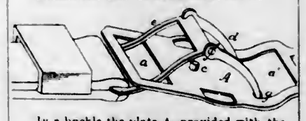


186,909. HOSE-NOZZLES. C. A. Howard, New Haven, Conn. [Filed Feb. 20, 1877.]



The herein-described hose-pipe consisting of the pipe *a*, with a lateral or transverse attachment, *c*, and the handle *l*, with an adjustable valve between the lateral entrance and the pipe, all combined substantially as described.

186,910. TRACE-BUCKLES. T. J. Hubbell, Yountville, Cal. [Filed Mar. 9, 1877.]



In a buckle the plate A, provided with the bent loop *a'*, the pin *c*, and the loop *a*, in combination with the pivoted arms *d d* and pivoted frame *a*, one end extending through loop *a*, all constructed and operated as and for the purpose set forth.

186,911. WATER-WHEELS. Saml. C. Humphreys, Indian Creek, W. Va. [Filed Dec. 9, 1876.]

Brief.—A water-wheel provided with a number of helical flanges, which are notched or divided, so as to allow the passage of water vertically from one to another of said flanges.

1. A water-wheel provided with helical flanges or blades, which are notched or cut transversely, so as to allow the water to fall from one flange to another, substantially as set forth.

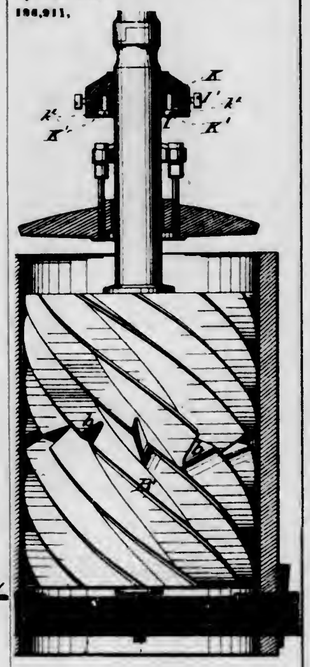
2. The combination of semi-annular bearing-blocks K K with adjusting-screws I' I', attaching-screws K' K', and cross-bar I, having elongated holes k^2 k^2, substantially as set forth.

3. The combination of bearing-blocks K K with shell J and adjusting-screws, substantially as set forth.

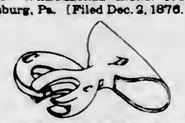
4. The combination of loosely hinged staff or operating-arm M, bifurcated lever L, rods or bolts L' L', and gate G, substantially as set forth.

5. The combination of lever L, having longitudinally-slotted arms *l l*, with headed rods or bolts L' L', having collars *l' l'*, substantially as set forth.

186,911.

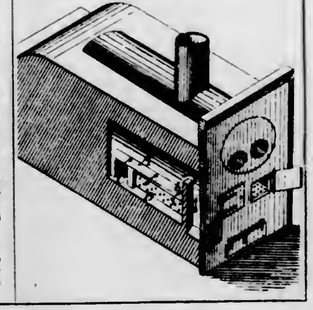


186,912. WHIFFLETREE-IRONS. J. Irvine, Ickesburg, Pa. [Filed Dec. 2, 1876.]



The hook C, hinged in and closing into arms *c* of ferrule D, and forming therewith a single link, substantially as specified.

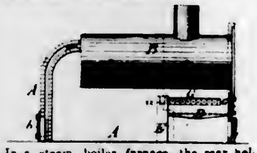
186,913. FEEDING AIR TO FURNACES. Jas. Jenks, Detroit, Mich., assignor of one-half his right to George A. Jenks, same place. [Filed Oct. 31, 1876.]



In a boiler-furnace, the combination of the flues A, opening *a*, flue-strip *b*, perforated plates B, and perforated bridge-wall C, all constructed and arranged substantially as described and shown.

186,914. DEVICES FOR HEATING AND FEEDING AIR TO FURNACES. J. Jenks, Detroit, Mich., assignor of one-half his right to G. A. Jenks, same place. [Filed Oct. 31, 1876.]

Brief.—Atmospheric air is heated in a rear hollow arch, and conveyed to the furnace through side conduits and a hollow bridge-wall provided with a perforated top.



In a steam-boiler furnace, the rear hollow arch A, atmospheric air-aperture *b*, and curved side flues F, in combination with the side perforated plates G, and perforated bridge-wall *a*, all arranged as shown, whereby air is heated and fed to the combustion-chamber, substantially as described.

186,915. STATION-INDICATORS. C. Jeesen, Boston, Mass. [Filed Mar. 20, 1877.]



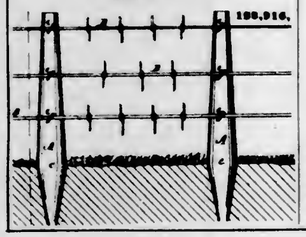
1. The frames A A, provided with the eyes *b b*, in combination with the bent bars B, having the backwardly-inclined open ends *b'*, substantially as and for the purpose set forth.

2. The frames A A, provided with the eyes *b b* and the bent bars B, in combination with the hinged toothed bar C, substantially as and for the purpose set forth.

3. The frames A A and bars B, in combination with the weighted catch E, provided with the fixed arm *e* and pivoted arm *e'*, substantially as and for the purpose set forth.

4. The weighted catch E, provided with the arms *e e'*, in combination with the frame or arm I, sheaves 1 and 2, and the cord H, substantially as and for the purpose set forth.

5. The weighted lever-catch E, provided with the arms *e e'* and frames A A, in combination with the hinged catch C, spring G, and bent bars B, substantially as and for the purpose set forth.



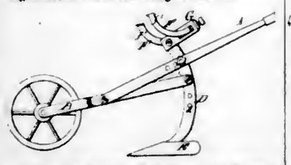
186,916. WIRE FENCES. Charles D. Johnson and Levi F. Johnston, Marshalltown, Iowa. [Filed Jan. 22, 1877.]

1. The cast-iron fence-post A, tapered each way from the point *c*, made semicircular in cross-section, and provided on the concave side with the lengthwise rib *b*, extending from end to end, as shown and described.

2. The combination, with the posts A and wires B, of the wire fastenings D, having their ends twisted together, and forming projecting points for the posts, as shown and described.

186,917. HAND GARDEN-WEEDERS. Moses Johnson, Lockport, N. Y. [Filed Sept. 16, 1876.]

Brief.—A vertically and horizontally adjustable standard, provided at one end with a plow-point and at the other end with adjustable knives, is secured between wheel-supporting arms, said devices being reversible.

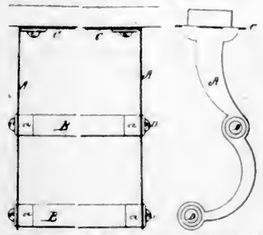


1. The vertically and horizontally adjustable standard D, provided at one end with a plow-point, E, and at the other end with weeding-knives F F, substantially as described, and for the purpose set forth.

2. The knives F F having each a transverse handle, *f*, curved shank *f'*, and blade *f''*, in combination with the slotted holder G, block H, and thumb-screw I, substantially as and for the purpose set forth.

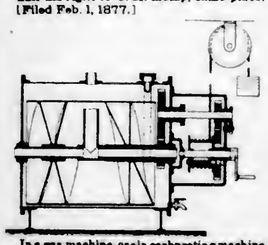
3. Wheel-supporting arms B B, in combination with handles A A, wheel C, and adjustable standard D, said devices being reversible, and adapted to operate equally well in either position, substantially as set forth.

186,918. TOWEL-RACKS. S. T. Kanuse, Taunton, Mass. [Filed Feb. 27, 1877.]



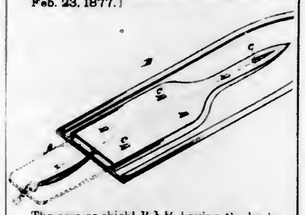
The improved towel-rack, constructed as described—viz., with its bars B B connected to the supporters A A by screws, and with such supporters provided with a fastening-ear, C, arranged to project from it in manner and with respect to the fastening-ear of the other supporter, as represented and explained.

186,919. GAS-CARBURETERS. Wm. W. L. Kemp, Baltimore, Md., assignor of one-half his right to C. M. Kemp, same place. [Filed Feb. 1, 1877.]



In a gas-machine, or air-carbureting machine, an air-forcing drum, consisting of a cylindrical casing with heads formed of right and left hand spiral or volute disks, arranged as double-threaded right and double-threaded left hand screws, combined with a stationary central air-conducting hollow shaft secured to the heads of the outer shell of the machine, substantially as described.

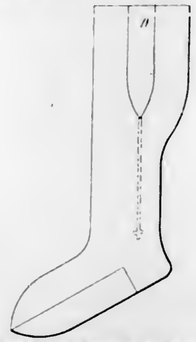
186,920. TAGS. E. F. Krelwitz, Inkpeming, Mich., assignor of one-third of his right to E. G. St. Clair, same place. [Filed Feb. 23, 1877.]



The case or shield B *b b'*, having the barbs or projections *c c*, in combination with the elastic connection *a* and tag or label A, substantially as and for the purpose set forth.

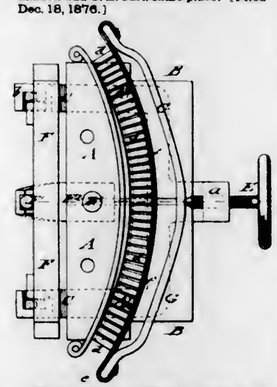
186,921. STOCKINGS. M. Landenberger, Jr., Philadelphia, Pa. [Filed Nov. 17, 1876.]

Brief.—A gore is introduced in one or both sides of the calf to enlarge the tube at that point.



As a new article of manufacture, a stocking having a leg combined with a strip or strips, D, as specified.

186,922. MACHINES FOR SHAPING SPRINGS. E. C. Lewis, Auburn, N. Y., assignor to himself and C. E. Taft, same place. [Filed Dec. 18, 1876.]



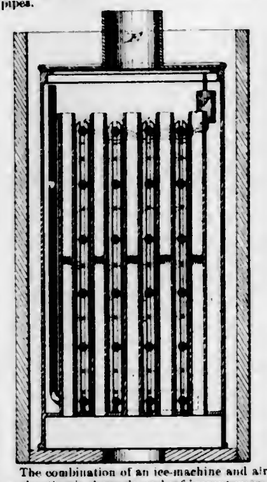
1. The combination, with rigid former A, of the flexible former A', consisting of the metallic lugs *d* riveted to an elastic band, *e*, as shown and described.

2. The combination, with the shaping formers A A' and bed B, of a drop, F, attached to a hinged arm, F', as and for the purpose set forth.

3. The combination, with flexible former *d e*, of the band *f*, rigid bow *g*, and screw E, arranged as and for the purpose specified.

186,923. AIR-COOLING APPARATUS. Jas. C. Mack, Brooklyn, N. Y. [Filed Mar. 13, 1877.]

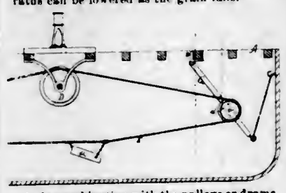
Brief.—The refrigerant pipe-coils are placed in the tank between the air passages, which have an inlet and an outlet at top and bottom of the case. The water is frozen solid about the coils and the passages, and is kept frozen by the coils during the passage of air through the apparatus. Springs are placed in the air passages to press them back into shape when the ice melts, which may happen upon the stoppage of the flow of refrigerant through pipes.



The combination of an ice-machine and air-cooler, the air channels, and refrigerant means inclosed within said machine, whereby the ice is formed and utilized to cool the air passing through said machine, substantially as described.

186,924. UNLOADING GRAIN-VESSELS. C. J. Mann, Buffalo, N. Y. [Filed Mar. 7, 1877.]

Brief.—To feed the standing-pipes of a grain-elevator in the hold of a vessel. By means of the swinging end pulleys the apparatus can be lowered as the grain falls.



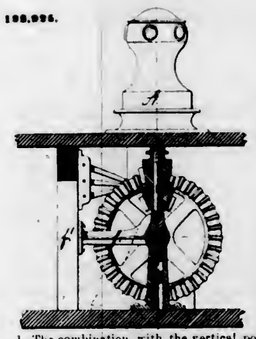
1. In combination with the pulleys or drums D D, endless rope E, and buckets *a a*, the adjustable sheaves or pulleys *d d*, substantially as and for the purpose specified.

2. In combination with the endless rope E and buckets *a a*, the arm or arms G *c e f*, with the adjustable pulley *d*, all arranged and operating substantially as and for the purpose specified.

3. In combination with the buckets (shovels or scoops) *a a*, and attached thereto in the center, the hook h, (or its equivalent,) as and for the purpose specified.

4. In combination with the shovels *a a*, chains *k k*, and endless rope E, the movable clamps H H, hinged at the back *l*, and fastened by the thumb-screw *m*, substantially as and for the purpose specified.

186,925. WINDLASSES. Frank S. Manton, Providence, R. I. [Filed Nov. 4, 1876.]

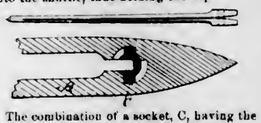


1. The combination, with the vertical post E, arranged to support the center of the windlass-shaft, and extending upward to receive the shaft of the pinion *d*, of the horizontal brace *f*, substantially as and for the purpose specified.

2. In a double windlass, substantially as described, the central laterally or fore-and-aft braced bearing, arranged to support the shaft, and relieve the same from lateral or downward strains, substantially as described.

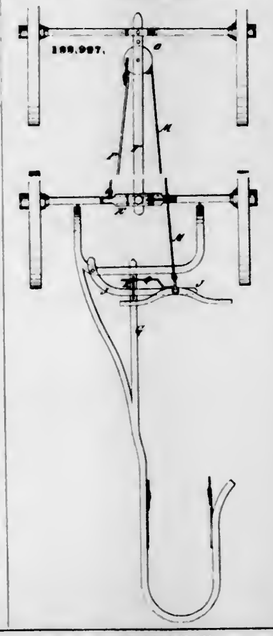
186,926. LOOM-SHUTTLES. E. W. Marble, Wilkinsonville, Mass. [Filed Sept. 2, 1876.]

Brief.—In a shuttle, a round recessed piece held in place by ears, and compressing the split heel of the spindle when it is pressed into the shuttle, thus holding the cop.



The combination of a socket, C, having the described groove and ears, with a shuttle having a spindle-slot, round hole, and bottom side groove, as and for the purpose specified.

186,927.

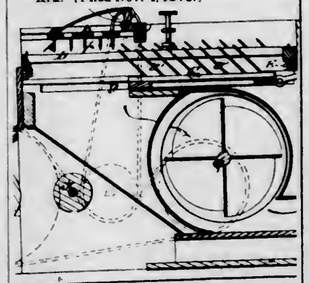


186,927. CENTER-DRAFT SIDE THILLS. C. H. Matthiessen, Odell, Ill. [Filed Jan. 29, 1877.]

1. The single-tree I, pivoted to lever J and flexibly connected by mechanism M O P with the front axle, as and for the purpose described.

2. The spring Q, combined with lever J, to take up slack in rope M, as set forth.

186,929. COTTON-GIN FEEDERS AND CLEANERS. Geo. W. McCauley, Pleasant Plains, Ark. [Filed Nov. 4, 1876.]



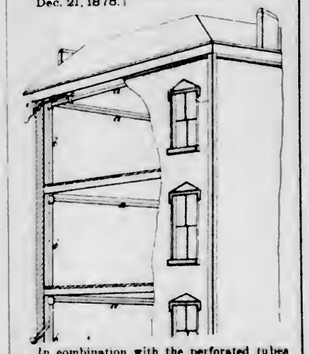
1. The combination of a vertically adjustable slotted platform, D, with reciprocating platform or cotton-carrier G, substantially as set forth.

2. In combination with platform D and perforated lugs *f f*, the supporting springs E E, screw-threaded rods F F, and carrier G, substantially as set forth.

3. In combination with a fixed slotted platform, a reciprocating platform or carrier and an agitating-card, P, provided with vertical teeth or tines *p' p'*, substantially as and for the purpose set forth.

4. The combination, substantially as hereinbefore described, of a perforated agitating-card, P, a fixed slotted platform, D, having inclined teeth, a reciprocating slotted platform or carrier, G, with inclined teeth, and an air-exhausting apparatus, substantially as and for the purpose set forth.

186,928. EXTINGUISHING FIRE AND APPARATUS THEREFOR. D. McLennan, West Green, assignor of one-half his right to Mary A. Davis, London, England. [Filed Dec. 21, 1876.]

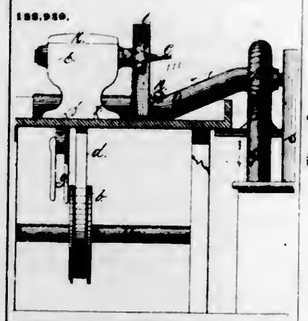


In combination with the perforated tubes *a*, arranged in the several rooms of a building, and the supply-tube *b*, connected therewith, the cocks *c*, connecting rods *d*, elbow-levers *e*, and pull-rods *f*, the latter being placed together, and extending downward to a point conveniently accessible, as shown and described.

186,930. BUFFING AND POLISHING MACHINES. J. McWilliams, Providence, R. I. [Filed Sept. 8, 1876.]

Brief.—A screen is placed near the mouth of the suction-pipe to prevent the passage of small articles into the dust-receptacle, and a valve just to the rear of the screen, so that the article lodged against the screen may be removed without stopping the machine. The remaining features are explained by the claim.

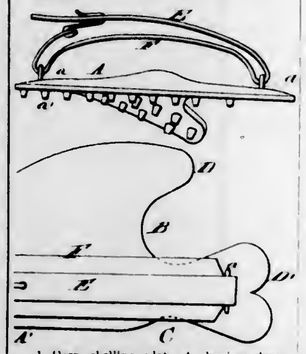
188,930.



1. In a jeweler's buffing or polishing machine, the combination of the adjustable spindle-stock E, provided with the hinged cover K of the ways *f f*, the lever *g*, and clamping lever *h*, the whole operating together substantially as and for the purpose set forth.

2. In a jeweler's buffing or polishing machine, arranged substantially as described, the combination, with the fan *p* and suction-pipe *o*, of the funnel *k*, the screen *m*, and valve *n*, arranged substantially as and for the purpose specified.

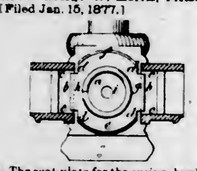
188,931. CORN-SHELLING IMPLEMENTS. H. P. Maggs, Polkton, N. C. [Filed Feb. 17, 1877.]



1. Corn-shelling plate A, having sharp knobs or shelling-points *a a*, bent point D, and thumb grasp D', substantially as and for the purpose set forth.

2. The combination of strap E, having hand-shield F, with plate A, having shelling points *a a*, bent corner D, and recesses B and C, substantially as and for the purpose set forth.

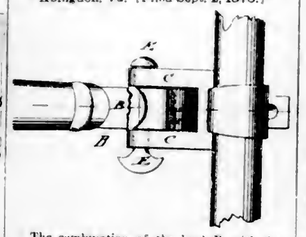
188,932. SPRING-SEATS FOR CAR-PEDESTALS. George W. Morris, Pittsburg, Pa. [Filed Jan. 15, 1877.]



1. The seat-plate for the spring, having arms *e f g h* at right angles to each other, lips *b* on two of said arms, a central recess, *a*, and a central opening, *i*, and adapted for use with the car-axle box and its open pedestal, as herein specified.

2. The combination, with a car-axle box, its open pedestal and spring, of seat-plates for each end of the spring, each having arms *e f g h* at right angles to each other, and a central recess, *a*, said arms being adapted to fit into and between the open sides of said pedestal, whereby both the spring and its seat-plates are held in place, as described.

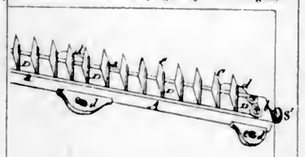
188,933. THILL-COUPLINGS. B. P. Morrison, Abingdon, Va. [Filed Sept. 2, 1876.]



The combination of the hook B, with the clip-bolt E, having the flat portion, and pivoted eccentrically in the ears C, as shown and described.

188,934. CIGAR-MACHINES. Chas. Muller, Albany, N. Y. [Filed Sept. 28, 1876.]

Brief.—The knives can be removed from the slat without taking it from the roll, and are held in position and upright by side wedges.



In combination, with the slat-frame A, or its described equivalent, of the division-blocks D and knives C, made with the forms described, and the set-screw S', substantially as and for the purpose set forth.

188,935. LAMP-EXTINGUISHERS. P. Neddo and F. H. Walton, Alton, Me. [Filed Feb. 28, 1877.]



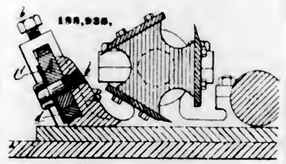
1. In a lamp-extinguisher, the combination of a loose sleeve, *b*, surrounding the wick-tube, arm A, rod *g*, cover *f*, and one or more levers, *i i*, arranged and operating as set forth, for the purposes described.

2. In a lamp-extinguisher, levers *i i*, extending down and around the body of the lamp, and serving both to operate the extinguishing devices and as a guard for the lamp, substantially as specified.

188,936. PRESSURE-BARS FOR PLANING-MACHINES. Geo. E. Newall, Flint, Mich., assignor of one-half his right to S. N. Andrus, same place. [Filed Aug. 31, 1876.]

Brief.—A uniform downward pressure is exerted upon the entire width of the board being planed, and the bar adjusted to any slight inequalities in its surface, by means of a series of T-shaped bearing sections attached to and vertically adjustable upon a rigid and slotted pressure bar vertically adjustable at each end in slotted standards upon the sides of the main frame; a rubber strip interposed between the sections and the bar; a thin metallic strip placed upon the rear part of the sections below the rubber strip, to prevent the ends of the bearings from cutting the rubber strip; and a washer-plate attached to the back of the pressure-bar for keeping said strips in place.

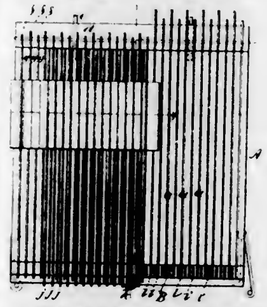
188,936.



1. In a planing-machine, substantially as described, the combination, with the vertically-adjustable, but rigid and unyielding pressure-bar A, of the extended bearing-sections B, loosely attached thereto, each having a vertical movement independent of the others, and the flexible metallic strip *c* and the elastic strip *d*, interposed between said bar and sections, substantially as and for the purpose set forth.

2. In a planing-machine, substantially as described, the combination with the unyielding pressure-bar A, having a vertical adjustability at each end in a slotted standard, and provided with the slot *e*, of the T-shaped bearing-sections B, the bolts *b*, slotted plate C, metallic strip *c*, and the elastic strip *d*, all constructed and arranged substantially as described and shown.

188,937. PLAITING-BOARDS. Saml. G. Otis, Springfield, Mass. [Filed Feb. 10, 1877.]



1. The board A, having grooves *a*, the part *d*, having the tongue *c*, slots *f*, the hinged wires *g g*, and the slotted and pivoted bar B, in combination, substantially as herein shown and described.

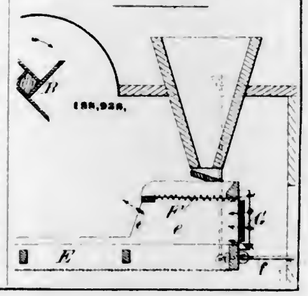
2. The board A, having grooves *a*, the part *d*, having the tongue *c*, slots *f*, and triangular recesses *i*, the hinged wires *g g*, the detached wires *j*, and the slotted and pivoted bar B, in combination, substantially as herein shown and described.

3. The combination of the hinged wires *g'*, detached wires *j*, part *d*, slotted bar B, and a plain board, A, substantially as herein shown and described.

4. The combination of the flat springs *o*, having hooks *p*, the part *d'*, having slots *n*, the bar B, having notches S, and the plain board A, substantially as herein shown and described.

5. The combination of the detached springs *r*, springs *o*, part *d*, notched bar B, and board A, substantially as herein shown and described.

188,938.

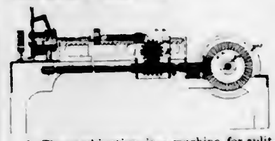


188,938. MIDDLINGS-SEPARATORS. M. H. Palmer, Mantorville, Minn. [Filed Nov. 27, 1876.]

The combination, with the suction-fan B, of the reciprocating frame carrying the coarse distributing-sieve F and bolt E, and provided with slats G, secured to the end of said frame in the interval between the sieve and bolt, the whole arranged and operating within the same air-chamber, substantially as and for the purposes described.

188,939. MACHINES FOR SPLITTING HOOP-POLES. Jas. A. Peoples, Chicago, Ill., assignor to R. Hart, Rochester, N. Y. [Filed Jan. 6, 1877.]

Brief.—The pole is pushed through a centering device against a splitter, consisting of three or more radial knives.

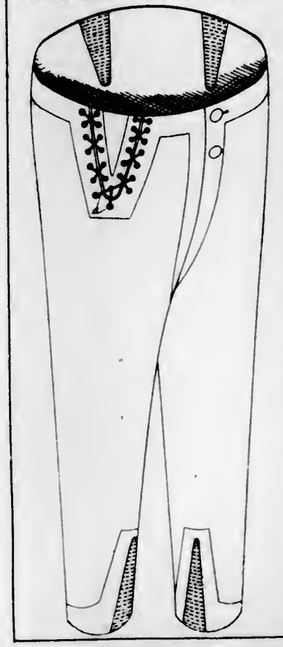


1. The combination, in a machine for splitting hoop-poles, of a stationary knife, three or more centering-rolls, moving radially toward and from the center of said knife, pivoted bell-cranks, connecting said rolls with a sliding sleeve, and a pivoted shipping-lever actuating said sleeve, and governed by a spring or weight, substantially as set forth.

2. The combination, in a machine for splitting hoop-poles, of a stationary knife and a centering device, substantially as described, with a carriage reciprocating on guides upon the frame, a grooved shaft rotating in bearings on the frame, and carrying a longitudinally-moving worm, meshing with a worm-wheel on the carriage, and a pinion on the carriage meshing with a rack upon the frame, substantially as set forth.

3. The combination, in a machine for splitting hoop-poles, of a stationary knife, a movable carriage, and an intermediate movable spring-clamping rest to prevent the bending of the pole, substantially as set forth.

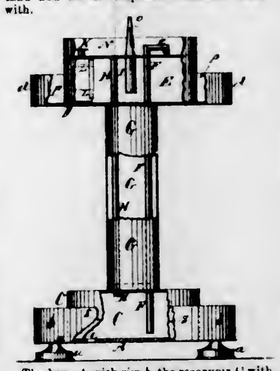
188,940. DRAWERS. A. Packscher, San Francisco, Cal. [Filed July 25, 1876.]



As a new article of manufacture, gentlemen's drawers provided with removable elastic gores, as set forth.

188,941. COMBINED AQUARIUM, FOUNTAIN, AND FLOWER-STAND. Alphonse Peltier and Matthew Hoerning, Williamsburg, N. Y. [Filed Dec. 19, 1876.]

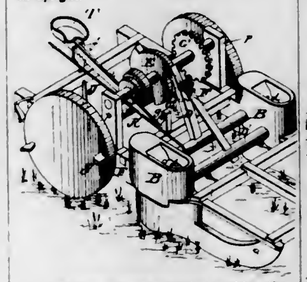
Brief.—An intermitting fountain has a fish-tank and flower-receptacle combined therewith.



The base A with rim *b*, the reservoir C with opening *c*, the annular space S', the hollow standard G, the platform D with rim *d*, the reservoir E with swimmer L, the annular space P, and the tank N with tube K, in combination with the tubes F, H, and I with nozzle *g*, substantially as described, and for the purpose set forth.

188,942. SELF-DROPPING CORN-PLANTERS. James W. Petty, Keytesville, Mo. [Filed Mar. 13, 1876.]

Brief.—The rock-shaft to which the seed-slides are attached is operated by a three-pronged cam-wheel, against which a vertical bar secured to the rock-shaft is pressed by a suitable spring. The driver's seat is secured to a bar fastened at the front by link-connection, and at the rear it is provided with notches on its under side for adjustment on an upright.



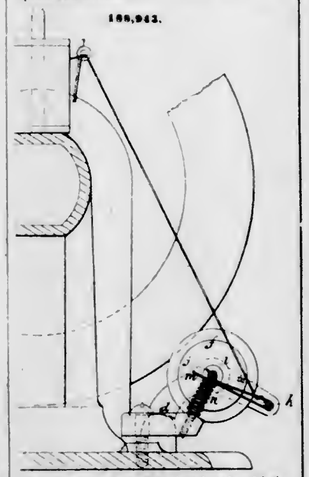
1. In a two-row corn-planting machine, the combination of the two hoppers, B, provided with the feed-slides *d*, the transverse rock-shaft D', provided at its ends with pins to actuate the slides, and at its middle with the rigid arm D, the depressing-spring F, and the cam-wheel E, driven from the main wheels of the machine, as shown.

2. The driver's seat T, mounted on the notched bar *s*, sustained at its rear end in the standard *f*, and connected at its front end to the frame by the link *g*.

188,943. BOBBIN-WINDERS FOR SEWING-MACHINES. Chas. T. Powers, Sheffield, assignor to Wm. Jones, Guide Bridge, near Manchester, county of Lancaster, England. [Filed Nov. 28, 1876.]

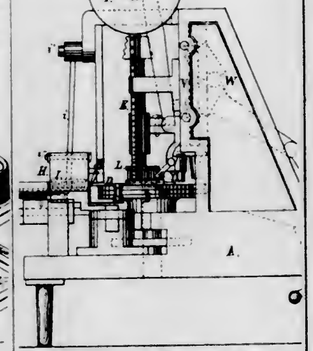
Brief.—A spring presser-plate hinged to the guide-rod around which the thread is last passed before reaching the bobbin, the object being to cause the thread and presser-plate to be maintained in about the same tangential line with respect to the bobbin, no matter how much thread is on the bobbin, and thus cause the thread to come in contact with the bobbin at the point of contact of the presser-plate and bobbin.

188,943.



The combination of the bracket *d* and bobbin or reel *i* with the guide-bar *k* and the spring presser-plate *m*, hinged to the said bar, substantially as described.

188,944. MACHINERY FOR MANUFACTURING BUTTONS. Chas. Redcliffe, Newark, N. J., assignor to New Jersey Manufacturing Company, same place. [Filed July 1, 1876.]



1. The combination of a hopper, F, with a vertical tube, E, whose cross-section is of the same size and shape as the fillings to be conveyed by it, a brush, *f*, arranged to vibrate in the hopper close over the mouth of said tube, and thereby lay the fillings one, by one, flat therein, and a revolving plate provided with holes *e e e*, substantially as herein before described.

2. The combination of the tilting hopper with its slot-like depression, the reciprocating bar K, and the revolving plate, substantially as herein before described.

3. The combination of the revolving plate and revolving brush and guide, for conducting articles to be stamped or punched to depressions in the edge of said revolving plate, substantially as herein before described.

4. The combination of the tilting hopper, revolving plate, rotating brush, and guide, substantially as herein before described.

5. The combination of the hopper F, the tilting hopper H, and revolving plate, substantially as herein before described.

6. The combination of the hopper F, vibrating brush *f*, tilting hopper H, vibrating brush I, reciprocating bar K, and revolving plate, substantially as hereinbefore described.

7. The combination of the tilting hopper, reciprocating bar, revolving plate, and one or more punches, substantially as hereinbefore described.

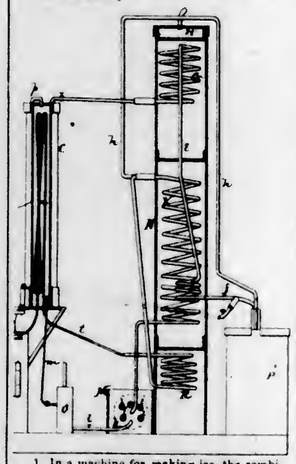
8. The combination of the tilting hopper, reciprocating bar, revolving plate, revolving brush, and one or more punches, substantially as hereinbefore described.

9. The combination of the hopper F, tilting hopper H, revolving plate, revolving brush, and one or more punches, substantially as hereinbefore described.

10. The combination of a revolving plate or table provided with holes or receptacles for faces or fillings, one or more vertical tubes arranged above said plate for conveying such faces or fillings and automatically delivering the same to said receptacles, and one or more punches, substantially as and for the purposes described.

11. The combination, with the sliding frame, of the punches, reciprocating bar K, and vibrating brush *f*, all deriving their motions from said sliding frame, substantially as hereinbefore described.

188,945. ICE-MACHINES. Thos. L. Rankin, Lyndon, Kans., assignor to North American Ice Company, Dallas, Tex. [Filed Jan. 4, 1877.]



1. In a machine for making ice, the combination of a horizontal coil, with an inclined floor, for forming vertical cakes of ice, substantially as set forth.

2. In an evaporator for ice-machines, the trough *e'*, pump V, and drip-trough S, combined and arranged substantially as and for the purposes herein set forth.

3. The combination, in the evaporator P', of the inclined hollow floor T, horizontal coil J, drip-trough S, with felt-strip *d'*, connecting-pipe *z*, and pump V, all constructed substantially as and for the purposes herein set forth.

4. In an evaporator for ice-machines, having an inclined floor, upon which the cakes of ice are formed, a pointed dog, operated by a wheel, *b*, for regulating the sliding down of the ice and holding the cake at any point, as set forth.

5. The combination, with the condenser-tank N, of the rectifying-coil G, absorption-coil K, liquid-ammonia coil I, and cooling coil R, in the manner shown and described, so that one flow of water and one blast of air will operate upon all, substantially as set forth.

6. The separator C, provided with a series of alternating perforated funnels, D, and cones D' of unequal diameter, arranged upon a central vertical rod, *b*, substantially as and for the purposes herein set forth.

7. The combination, in an ice-machine, of the tank N, the box M, the absorption-vessel L, having a series of longitudinal pipes, *i*, the pipe *k*, and pump O, all substantially as set forth.

8. The heater P, provided with the interior pipes *n*, in combination with the analyzer or separator C, as and for the purposes herein set forth.

9. The combination of the cooling-coil R, w h pipe V, the coil J, with pipe A, and the absorption-coil K, into which both pipes *e* and A lead, whereby the weak ammonia and expended gas are intermingled, substantially as and for the purposes set forth.

10. In combination with the heater, separator, and boiler, the cooling-coil R, arranged to receive the weak ammonia from the heater and thoroughly cool the same before it passes to the absorption coil or chamber, as herein set forth.

11. The pipe *w*, with valves *y y*, connecting the main pipe *a* with the distributer, for the purposes herein set forth.

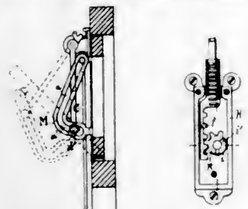
188,946. ATTACHING KNOBS TO SPINDLES. Wm. Regan, Branford, Conn., assignor to Thos. Kennedy, New York, N. Y. [Filed Feb. 5, 1877.]



The combination of the neck of the knob, constructed with an annular groove near its end; an internally-threaded nut, constructed with lugs to engage the said annular groove in the neck of the knob; the knob-spindle, threaded upon its angles to correspond to the thread of the nut; and the rose, constructed with notches upon the inside to engage the lugs of the nut, substantially as and for the purpose specified.

188,947. TRANSOM-LIFTERS. F. A. Reiher, Chicago, Ill., assignor of one-half his right to C. T. Bollmann, same place. [Filed Feb. 5, 1877.]

Brief.—The rack and pinion for operating the transom-lifting rod are so arranged as to serve for both a right and left hand fixture.



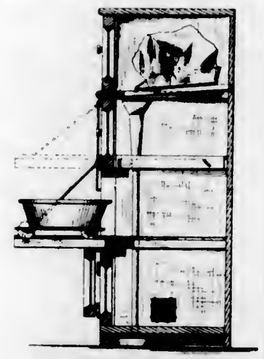
1. The rail M, with slots *a* and *a'*, acting in conjunction with the arm C and finger *d*, for the purpose set forth.

2. The combination of the rack *f*, pinion-segment K, handle G, and pin *g* with the casing H and cover *h*, all arranged as shown and described.

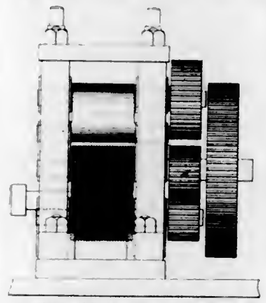
3. The rack *f*, with its corrugated surfaces *p p*, in combination with the plate *q* and thumb-screw J, as and for the purposes set forth.

188,948. REFRIGERATORS. J. R. Reynolds, Essex, Vt. [Filed Jan. 9, 1877.]

A refrigerator having a series of storage-compartments located below and in open communication with a central ice-chamber, each of said compartments being provided with a hinged or folding track, whereon the wheeled truck rides and is withdrawn, the several tracks in their extended position being supported by suitable hook-braces, substantially as herein shown and described.



188,949. MACHINES FOR THE MANUFACTURE OF SCREWS. Thomas Rickett, Northfield, near Birmingham, England. [Filed Feb. 27, 1877.]

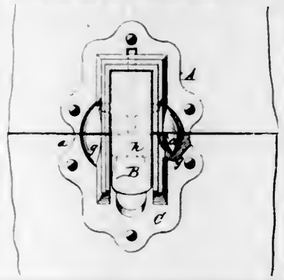


1. The combination of a series of rolls having screw-threads formed on them, which screw-threads have a proportion both in number and pitch to the screw-thread to be produced on the bolt operated upon similar to the proportion between the diameter of the said rolls and the bolt operated upon—that is, if the rolls have a diameter three times the diameter of the said bolt the said rolls have three equidistant screw-threads, each thread having a pitch three times as great as that of the thread to be produced, substantially as hereinbefore described, and illustrated in the accompanying drawings.

2. In combination with rolls having screw-threads upon them proportionate in number and pitch to the screw-thread to be produced on bolts to be operated upon, as before described, the eccentric or equivalent means for the automatic rising and falling of one, in relation to the other, of said rolls, substantially as herein shown and set forth.

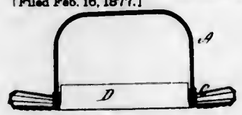
188,950. TRUNK-CATCHES. Eliakim Rice, Cazenovia, N. Y. [Filed Aug. 19, 1876.]

Brief.—This is for a convenient way of casting the trunk-catch, with its journals, its sockets, guide-pins, &c., in three pieces.



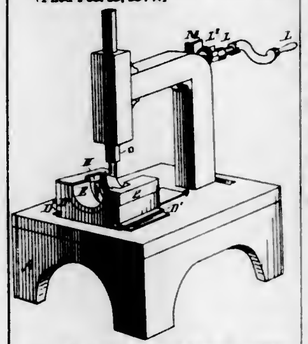
A trunk-catch comprised of the part A, having dowels *a a* and recesses for receiving the catch and spring, the catch B, spring *c*, and part C, having sockets *g* and the cross-bar *h*, substantially as herein shown and described.

188,951. HATS. C. H. Richards, North Attleborough, Mass., assignor of one-half his right to S. Schofield, Providence, R. I. [Filed Feb. 16, 1877.]



A hat consisting of a knit crown or body, combined with a braid rim, as a new manufacture.

188,952. MACHINES FOR MAKING PISTON-PACKING. P. W. Richards, Boston, Mass. [Filed Feb. 19, 1877.]



1. The combination of the curved reciprocating feed-box D E E with the nailing mechanism O, operating substantially as described, and for the purpose set forth.

2. The combination of the curved reciprocating feed-box D E E with the feeding devices K' K N' N M' M M' M' L' L, all arranged substantially as described, and for the purpose set forth.

3. The combination of the reciprocating feed-box D E E with the feed-wheel H, operating substantially as described, and for the purpose set forth.

4. The combination of the sliding pawl P' *a a a* with the feed-wheel H, operating substantially as described, and for the purpose set forth.

188,953. PAPER-BAG MACHINES. Chas. M. Richardson and J. S. Gibbs, Bridgeport, Conn. [Filed Aug. 9, 1876.]

Brief.—The paper is folded into a tube around a square former, which is provided with a sleeve having V-shaped projecting guides on two sides. The folding-rolls advance alternately with the revolving paster and complete the bottom, the V guides being withdrawn before the last two sides are folded. The tube is then fed forward a bag-length, when the four angular knives, advancing toward a common center, sever the tube, and the bag falls between the vibrating folders, where it is flattened and fed out of the machine between the rolls. The sleeve around the former is made in four angular parts, which are adjustable by a cam-slotted ring. The folding-rolls are carried on a plate provided with a rack, sliding within another sliding plate provided with a pinion gearing with another rack on the frame of the machine, whereby a motion double that of the actuating-cam is imparted to the rolls. A latch is provided to lock the folding and pasting mechanisms while the cutting and feeding mechanisms are operating, and vice versa.

1. The adjustable four-sided sleeve, separated on the sides, and each section combined with mechanism, substantially as described, for moving the several parts simultaneously, for the object set forth.

2. The combination, with the four-sided fixed shaper B, the sleeve arranged around the same, and the vertically-movable V-shaped guides I I, of the laterally-reciprocating plates E' and F F', and the rollers for folding the end of the bag, mounted in bearings in the plates E', substantially as described.

3. The combination, with the rectangular fixed shaper B, the sleeve arranged around the same, the feed-rolls C in the sides thereof, of the laterally-reciprocating rollers for flattening the bag and folding its bottom, the folding blades or edges S S', and the delivery-drums S² and S³, as and for the object specified.

4. The combination of the folders S and S' with a rotating drum and compression-roll, for completing the folding operation and delivering the bag from the machine, as described, and for the purposes set forth.

5. The combination of the paste-receptacle L, the sliding bottom L', and the sliding sides L' of the pasting-stamps M M' M', mounted in the sliding sides, as and for the object specified.

6. In combination with the gear-wheels C' and H', the locking-latch W and cam W', for operating the same, as described, and for the purposes set forth.

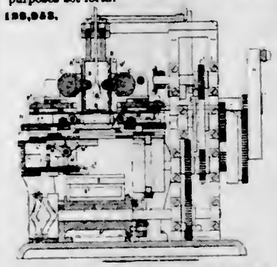
7. In combination with the sleeve B', the circular cam-plate B' and pinion B', for enlarging and closing the sleeve, substantially as described.

8. In combination with the cutters E, the plate B' and the intermediate levers E', E', E', and E', substantially as described, and for the purposes set forth.

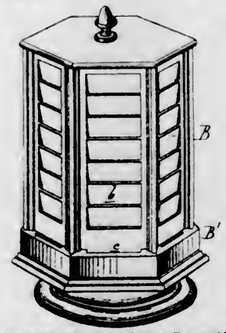
9. In combination with the folding-rolls, the racks and intermediate pinions, for imparting a motion to the rolls double that of the actuating-cam, substantially as described.

10. The combination of the zigzag grooves in the axis of the paster with the slotted lever P', substantially as described, and for the purposes set forth.

188,955.



188,954. REVOLVING ADVERTISING-CASES. B. D. Richmond, Detroit, Mich., assignor, by mesne assignments, to himself and G. W. Hoffman, same place. [Filed Aug. 25, 1876.]



The revolving hexagonal case B, provided with a series of inwardly-inclined pockets, *b*, on each side of the case, adapted to show the heads of folders placed therein, and the pockets *a*, constructed and arranged substantially as described and shown, for the purposes set forth.

188,955. HOLDBACK ATTACHMENTS FOR HAMES. Julius Robbins, Auburn, N. Y. [Filed Feb. 21, 1877.]

1. The combination, with a hame, of a swiveling holdback-ring.

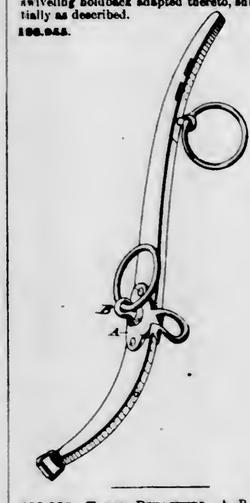
2. The combination of a swiveling holdback-ring with a brace-plate, in which it is socketed.

3. The brace-plate A of a holdback attachment, provided with an elevated bearing-socket, *d*', in combination with a swiveling-eye, B, provided with a web-shank, *f*, as and for the purpose described.

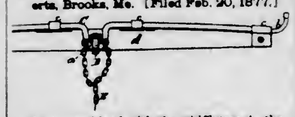
4. The brace-plate A of a holdback attachment, provided with the triangular bracing-ends *a a a'*, substantially as described.

5. A brace-plate for a hames' holdback attachment, consisting of the triangular bracing-arms, the tag-loop for the clip, and an elevated socket-bearing, having an inward and an outward flare, in combination with a swiveling holdback adapted thereto, substantially as described.

188,955.



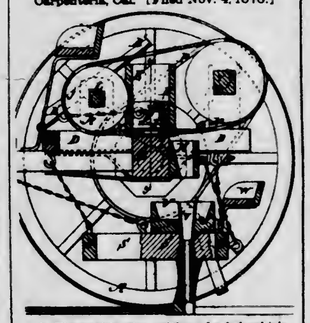
188,956. HORSE-DETACHERS. A. B. Roberts, Brooks, Me. [Filed Feb. 20, 1877.]



1. As combined with the whiffletree A, the rotary detacher C, constructed as described—viz., with its central projection *a* formed or arranged to rest and bear on the top of the whiffletree, while the traces are drawing upon the quadrilateral hooks *b b*.

2. In combination with the cross-bar B, the whiffletree A and the rotary detacher C, constructed and applied as described, the holding-spring D, fixed to the cross-bar, and arranged with the bow *a* in manner and to operate therewith essentially as set forth.

188,957. SEED-PLANTERS. H. J. Robinson, Carpenteria, Cal. [Filed Nov. 4, 1876.]

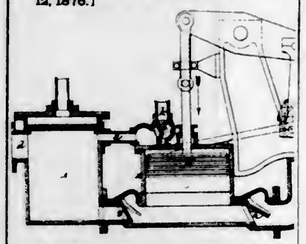


1. The combination, with a wheeled vehicle, of a suspended frame, S, box U, tube V, and seat W, arranged with respect to each other,

to enable potatoes to be planted by hand, as set forth.

2. An elastic hand-slide, C' D', arranged in a potato-planter, with respect to a hub-ratchet, as shown and described, so as to indicate the dropping-intervals or not, as the operator may desire.

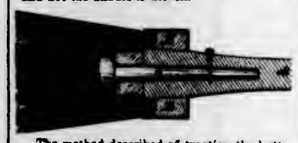
188,958. AIR-PUMPS AND CONDENSERS. J. B. Root, Port Chester, N. Y. [Filed Aug. 12, 1876.]



The combination with the pump-cylinder B and its piston C, of the condenser A, having an inlet or nozzle, *d*, for attachment to the exhaust-pipe of a steam-engine, the valve *g* arranged between the lower end of the condenser and open bottom or end of the pump-cylinder, the delivery-valve *h*, the steam-induction passage *k* to the upper or closed end of the pump cylinder, the passage *s* connecting said end of said cylinder with the upper end of the condenser, an induction and eduction valve, *l*, controlling said passages *k s*, and means for mechanically returning the pump-piston when in equilibrium, substantially as and for the purpose herein set forth.

188,959. BRUSHES. H. Rosenthal, New York, N. Y. [Filed Jan. 15, 1877.]

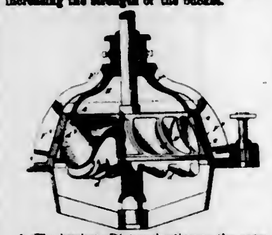
Brief.—The butt-ends of the bristles are covered with a cement, which is made to penetrate by being heated, and while this is thin and hot the handle is driven.



The method described of treating the butt-end of the bristles with an oily cement, then subjecting them to the action of heat, and driving in the handle, so as to compress them into a solid mass, substantially as shown and described.

188,960. WATER WHEEL AND GATE. J. W. Ross, Piqua, Ohio. [Filed Feb. 17, 1877.]

Brief.—The impact face of the bucket receives the entering water, so as to obtain the full force of its pressure. On the other side the bucket is formed with an increased thickness at the edge, and cut away toward the center of the wheel, forming thus a cutting-edge, which divides the expanded water and gives it free passage to the issue, thus preventing the lagging or back pressure, as also increasing the strength of the bucket.



1. The buckets D', terminating at the outer or impact edge *d*' with a convex edge, inclined from the vertical, and thence curving with a double curvature horizontally and vertically to the aperture at *d*', substantially as set forth.

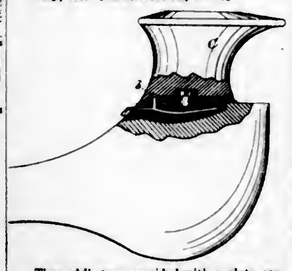
2. The buckets having a cutting-lip, *d*, formed on the back face at the outer end of the bucket, substantially as set forth.

3. In combination with the wheel having the outer ends of the buckets curved and inclined, the casing E, having chutes E', similarly inclined, but not curved, so as to form the spaces *s* above and below, substantially as set forth.

4. In combination with the casing having chutes E', the register-gate formed with permanent chutes F' and independent tangent plates F', substantially as forth.

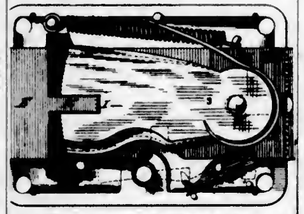
5. In combination with the dome-formed casing E, the register-gates F, suspended from a bearing at F', near the top of the casing, and segment and pinion for turning the gates on such bearing, substantially as set forth.

188,961. SADDLES. H. Buwart, Jefferson City, Mo. [Filed Feb. 22, 1877.]



The saddle-tree provided with a plate carrying a key, B, and a spring locking-bolt, *b*, in combination with a pommel or its equivalent, as described, having a base-plate, provided with an opening for the key and a perforation for the locking-bolt, substantially as and for the purpose described.

188,962. LOCKS FOR CELL-DOORS. James Sargent, Rochester, N. Y. [Filed Feb. 5, 1877.]



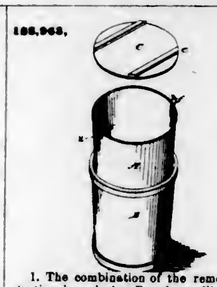
1. The combination, in a lock, of a lock-bolt and tumblers, said lock-bolt being arranged within a suitable casing, provided with a double key-hole, one end of which bolt, protruding through the case, serves as a handle for projecting it, while the other end fastens the door by riding over a portion of its outside surface when in a locked position.

2. The combination, in a lock, of a lock-bolt and tumblers, said lock-bolt being arranged in a suitable casing or support, and a pawl, dog, or other device for holding the same in an unlocked condition, the lock-bolt being constructed to be retracted by means of a key, and automatically projected into a locked position when released by the action of the door directly against the end of the bolt in closing, substantially as described.

3. The combination, in a lock, of a lock-bolt and tumblers, said lock-bolt being arranged in a suitable casing or support, and a pawl or dog which is made to engage the lock-bolt by means of a key when the bolt is retracted, and automatically released by the action of the door in closing, thereby allowing the bolt to be automatically projected into a locked position.

188,963. JACKETED BUTTER-PACKAGES. B. J. Scofield and M. Scofield, Hartfield, N. Y. [Filed Mar. 26, 1876.]

Brief.—Jacket of wood, grain running horizontally around pail, re-enforced by wooden hoops at top and bottom, and secured by friction between pail and jacket, and by rabbet of cover pressing pail outward at top against jacket. Cover held by hinged loops, with or without holding-lugs on cover.

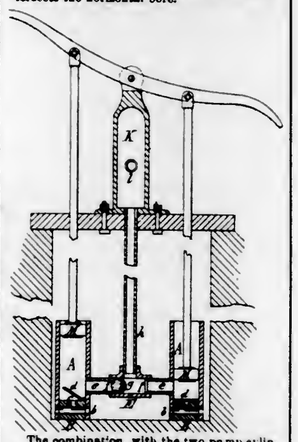


1. The combination of the removable protecting hoop-jacket B and metallic bucket A, diminishing from top to bottom, and secured together by forcing the metallic bucket into the wooden hoop-jacket, substantially as specified.

2. The butter-package, consisting of the metallic bucket, having the flat ears *s* and angle loops *f*, the rabbeted top C, and the bent-hoop jacket B covering the side of the bucket, and having its lower edge level with the bottom thereof, as specified.

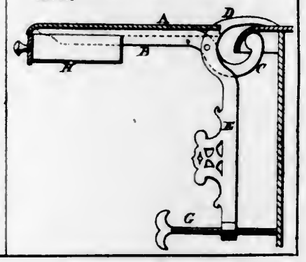
188,964. PUMPS. J. Schrankel, Lancaster, N. Y. [Filed Feb. 22, 1877.]

Brief.—The wooden block closing the lower end of each cylinder is provided with one or more horizontal bores extending through the wall of the cylinder. A central vertical bore, provided at the top with a suitable valve, intersects the horizontal bore.



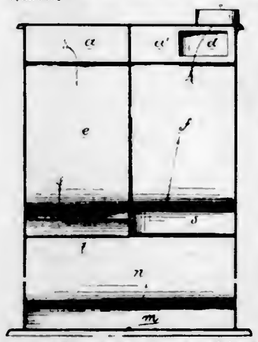
The combination, with the two pump-cylinders A, provided with foot-blocks B, having bores *b* and *c*, of the horizontal discharge-pipes *e e* and connecting T-piece E, forming two valve-seats, *f f*, double-acting spherical valve *g*, vertical discharge-pipe A, and air-vessel K, all constructed and arranged as shown and described.

188,965. DETACHABLE SHELVES. E. Sears, Kimbolton, assignor to himself and D. Dull, Wheeling, Ohio. [Filed Sept. 23, 1876.]



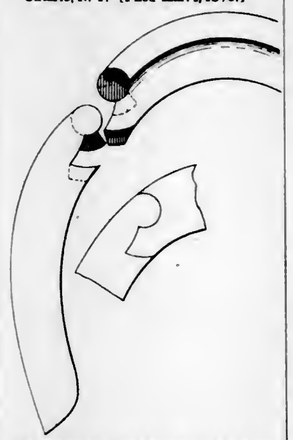
The combination of the slotted shelf A, having the drawer H secured to its under part, the stationary arms B B, having hooks C C at their ends, with the straight arms E E, having hooks D D, and independently pivoted to the arms B B, and the adjusting-screws G G, all constructed substantially as and for the purposes herein set forth.

188,966. COOKING-STOVES. E. S. Shants, Philadelphia, assignor to himself and C. B. Keeley, Spring City, Pa. [Filed Mar. 7, 1877.]



The combination of the upper and lower ovens D and E with the descending and ascending flues *e* and *f* and the flues *i*, *j*, *m*, and *n*, as set forth.

188,967. HORSESHOES. Geo. P. Sheffield, Ontario, N. Y. [Filed Mar. 1, 1876.]



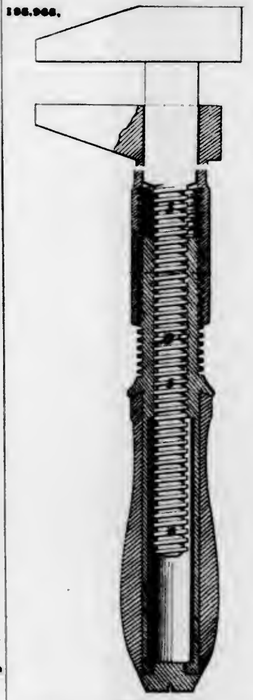
In combination with the sections of an expanding horseshoe the semi-cylindrical pintles and corresponding recesses in which they fit, and the segmental lugs and recesses adapted to interlock with each other, the whole constructed and arranged to operate substantially as described.

188,968. WRENCHES. Jas. Shepard, Angola, Ind. [Filed Feb. 3, 1877.]

1. As an improvement in wrenches, the combination, with a hollow turning-handle, having exterior and interior screw-threads, of the corresponding threaded shanks of the jaws, moving simultaneously in opposite direction to each other, substantially as and for the purpose set forth.

2. The combination of a hollow turning-handle, having exterior and interior screw-threads, with the threaded shank of the outer jaw, and the hollow threaded shank of the inner jaw, the upper oblong part of the shank of the outer jaw being guided in a corresponding opening of the inner jaw, substantially as specified.

188,969.

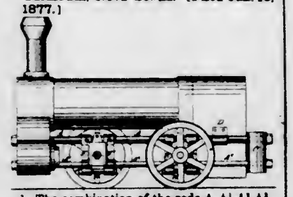


188,970. BOTTLE-STOPPERS. D. G. Smith, Carbondale, assignor of one-half his right to G. B. Smith, Dunmore, Pa. [Filed Feb. 24, 1877.]

1. In combination with a stopper for a bottle or fruit-jar, a yoke or bail, E, having spring-bars E' E', bent at *e' e'*, a stirrup, D, and a plate, C, notched at *c c*, substantially as and for the purpose set forth.

2. The combination of the stopper B, bail E, and stirrup D, substantially as described, and for the purpose set forth.

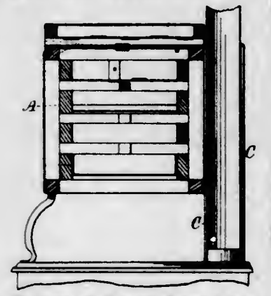
188,971. LOCOMOTIVES. T. T. V. Smith, Yarmouth, Nova Scotia. [Filed Jan. 16, 1877.]



1. The combination of the rods A A^1 A^2, with the buffer beam C, fire-box, and cylinder-supports, all constructed substantially as described, and for the purpose set forth.

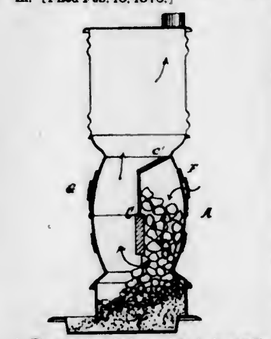
2. The combination of the rods A A^1 A^2, with the sides E E', of the housings and the rod H, all constructed substantially as described, and for the purpose set forth.

188,972. FRUIT-DRIERS. Oliver N. Smith, Shreve, Ohio. [Filed Feb. 21, 1877.]



The receptacle A, mounted upon a stove, and having the back or reflector C partially inclosing the stove-pipe, substantially as and for the purpose set forth.

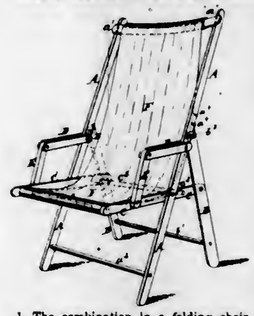
188,973. STOVES. H. M. Smith, Chicago, Ill. [Filed Feb. 16, 1876.]



1. The grateless fuel-chamber A, in combination with the dividing partition or diaphragm C C', and the opening to admit draft through the fuel to the fire, substantially as specified.

2. The combination, with the grateless fuel-chamber A, divided by the diaphragm C C', of the doors F G and draft-openings, substantially as specified.

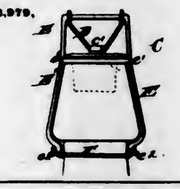
188,974. CHAIRS. Ernest Smith, London, England. [Filed Aug. 21, 1876.]



1. The combination in a folding chair of front and rear legs A B, the former provided with holes a^2 and pins a^3, while the latter has pins b^2 and hooks b^3, as and for the purpose set forth.

2. The chair-frame formed of the front legs A, the rear legs B, the seat-bars C, and the jointed arms D E, and their rounds or cross-bars constructed and combined with each other, substantially as herein shown and described.

188,975.



3. The combination, with the grateless fuel-chamber A and diaphragm C C', of the draft-opening c in the upper part of said diaphragm, substantially as specified.

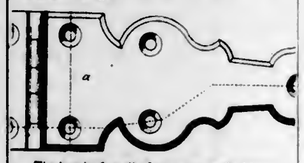
188,974. KEY-HOLE ESCUTCHEONS. Jas. Spruce, Waterbury, Conn., assignor to the Scoville Manufacturing Company, same place. [Filed Mar. 9, 1877.]



As an article of manufacture, a key-hole escutcheon, formed from sheet metal, with a corresponding flange around the edge of the plate, screw, and key-holes, substantially as described.

188,975. HINGES. J. Spruce, Waterbury, Conn., assignor to the Scoville Manufacturing Company, same place. [Filed Mar. 9, 1877.]

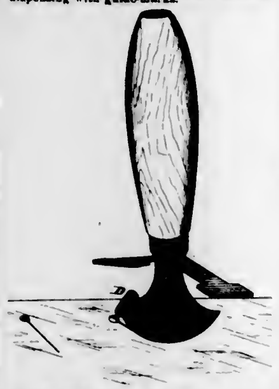
Brief.—An ornamental cap, struck up from sheet metal, with the edge turned down to form a flange, and the screw-holes likewise flanged, is made to cover the square flap of the hinge, extending outward therefrom, to represent the strap or ornamental part, more specially for piano and the like pianished ornamental hinge.



The herein-described cap or cover for hinges, consisting of the plate a, formed to cover the flap of the hinge, and extend therefrom to represent the strap or ornamental part, substantially as specified.

188,976. BUTTON-HOLE CUTTERS. N. A. Scott, Columbus, Pa. [Filed Mar. 21, 1877.]

Brief.—A suitable blade, with segmental cutting-edge and the usual tubular punch at one end of the blade, is provided with an adjustable gage, formed of a single piece of wire bent to the proper shape, passed through a hole near the top of the blade, and pendent or swinging therefrom, to limit the length of the button-hole, and there is also provided another adjustable gage, consisting of a yielding metallic arm, the formation of which is to locate the button-hole at the proper distance from the edge of the cloth or other material, dispensing with guide-marks.



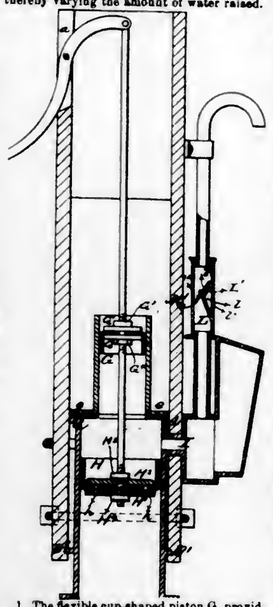
1. In a button-hole cutter, the combination of a blade, B, having a segmental cutting-edge, and the adjustable swinging wire gage C, or its equivalent, substantially as and for the purpose set forth.

2. In a button-hole cutter, the combination of a blade, B, and the adjustable yielding metallic arm-gage E to locate the button-hole from the edge of the cloth or other material, substantially as set forth.

3. The improved button-hole cutter, consisting of handle A, segmental cutting-edge blade B, adjustable swinging wire gage C, or its equivalent, tubular punch D, and adjustable yielding metallic arm-gage E, substantially as and for the purpose set forth.

188,977. FORCE-PUMPS. Wm. N. Starr, Ashland, Ohio. [Filed Feb. 24, 1877.]

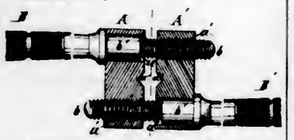
Brief.—The cup-shaped pistons can be adjusted on the piston-rod, so that they may be made to approach or recede from each other, thereby varying the amount of water raised.



1. The flexible cup-shaped piston G, provided with metallic plates G^1 G^2 and nuts G^3 G^4, in combination with the flexible cup-shaped piston H, provided with the perforated metal plate H^1, valve-disk H^2, nuts H^3 H^4, and screw-threaded piston-rod C, whereby the pistons can be adjusted on the rod relatively to each other, substantially as described.

2. Drip-valve M^1, provided with extension m, in combination with valve-seat L^1 and valve-chamber L perforated at F, substantially as and for the purpose set forth.

188,978. ADJUSTABLE TAP-WRENCHES. R. H. St. John, Springfield, Ohio. [Filed Mar. 2, 1877.]

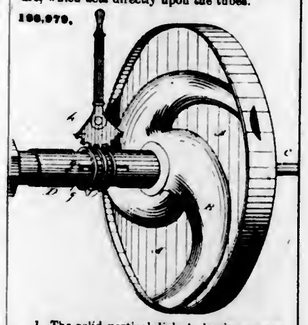


The tap-wrench, consisting of jaws A A', each provided with an angular recess, a'', adapted to fit the tap head or dies with which they are used, and having an orifice, a, and female screw a', and the handles B B', each having a male-screw thread, b, adapted to engage through the orifice of one jaw with a screw, c', on an opposing jaw, all arranged to operate in the manner and for the purpose set forth.

188,979. WATER-WHEELS. A. B. Strand, Chicago, Ill., assignor of one-half his right to L. Thoen, same place. [Filed Mar. 6, 1877.]

Brief.—The water, when fed into the core of the wheel, which is formed by the converging, wide ends of the eccentrically-curved conical discharge-tubes, will, when discharged through the tubes, press against the walls, causing the wheel to rotate, not only from the weight of the water, but also from the pressure, which acts directly upon the tubes.

188,979.



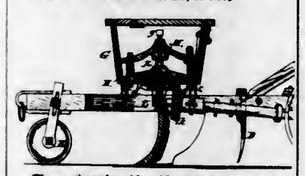
1. The solid vertical disk A, having on one or both sides conical eccentrically-curved tubes, converging at the center, and having for axle on one side the solid shaft C and on the other side the tube D, through which water is fed into the wheel, substantially as and for the purpose herein shown and specified.

2. The disk A, having on each side a set of conical eccentrically curved discharge-tubes, B B', converging at the center so as to form chambers b b', united by a central perforation, a, the tubes on the two sides being curved in opposite directions, substantially as and for the purpose hereinbefore set forth.

3. The combination of the disk A, having tubes B B', arranged as herein described, with the inlet-tube D, having slots d, and the tube K, closed at one end, and having slots e, the tube K sliding inside tube D, substantially in the manner and for the purpose herein shown and specified.

4. The combination of a water-wheel, consisting of a solid vertical disk, A, having pipes B B', curved in opposite directions, with a device, substantially as herein described, for cutting off the flow of water into either set of pipes at any time, thus reversing the wheel, substantially as and for the purpose set forth.

188,980. CORN-PLANTERS. H. Striewig, York, Pa. [Filed Dec. 28, 1876.]

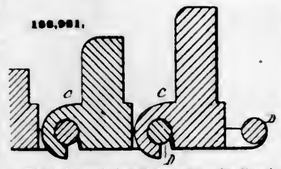


The socketed spider M, adjusting-screw g, passing through the socketed portion of said spider, the cog-wheel J, the shaft K, the upper end of which rests in the socket of said spider M, the feed plate d, bed H, recessed and made annular to receive said plate, the hopper G, and operating mechanism, constructed, combined, and arranged substantially as shown and described.

188,981. PATTERN-CHAINS FOR LOOMS. C. Strobel, Philadelphia, Pa. [Filed Dec. 30, 1876.]

Brief.—The chain is composed of links that are readily detached from one another. Each link is provided at one end with an open eye or hook and at the other with a bar, between which and the body of the link is left a suitable space for the insertion of the hook of the adjoining link. One end of the bar is shouldered and the opposite end is not, but is elliptical in form. The hook is slipped upon the bar from the elliptical end of the same, the two links being held at right angles to each other for this purpose. When turned back into proper position to conform to the periphery of the cylinder the links are securely locked.

188,982.



The link consisting of the eye portion C and the bar D, the latter being elliptical, circular, and enlarged or shouldered at various portions of its length, whereby said link is adapted to be connected to and disconnected from the chain by lateral movement, substantially as set forth.

188,983. COUNTERFEIT-COIN DETECTORS. John W. Sutton, New York, N. Y. [Filed Feb. 28, 1877.]



1. The coin-detector constructed with the receivers a and the angular openings c, arranged in relation thereto, substantially as and for the purpose herein set forth.

2. The receivers a, having a gaged or graduated width coincident with the thickness of the coin to be tested, and provided in relation with the angular opening c, substantially as and for the purpose herein set forth.

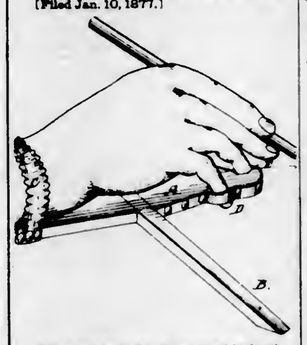
188,985. TOY SHIPS. George Taylor, New York, N. Y. [Filed Feb. 3, 1877.]

Brief.—The mast-tubes lead down to a water-chamber in the bottom for filling the same with water ballast.



A toy or miniature vessel, provided with a secondary or additional deck, C, and with inlet and vent tubes F and F', which also serve as supports for the masts, arranged in connection therewith, substantially as and for the purposes herein set forth.

188,984. DEVICES FOR TEACHING PENMANSHIP. John D. Taylor, Willington, Conn. [Filed Jan. 10, 1877.]

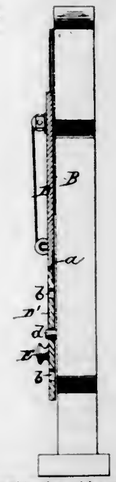


The mechanical aid to penmanship herein described, consisting of the bed-piece A, provided with the lateral extension B, and having the elastic wrist and finger-bands C D E, all constructed and arranged as set forth.

188,986. CURTAIN-FIXTURES. D. B. Tiffany, Xenia, Ohio. [Filed Jan. 6, 1877.]

Brief.—To each upper sliding bar is connected, by a flexible joint, a lower slide-bar, provided with perforations at suitable distances, into which perforations a projecting pin on the window-casing enters.

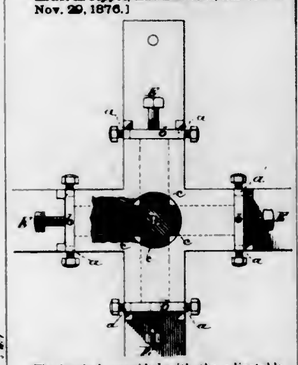
188,985.



1. The combination, with a curtain-roller, G, of the brackets C, the flexibly-jointed sliding bars D D', moving in guides on the window-frame, and a mechanism for holding the jointed bars at any point desired, substantially as set forth.

2. The combination of the vertical guides B B, the sliding bars D D, carrying the curtain-roller, the perforated bars D' D', flexibly jointed to the bars D D, and the pins d d, projecting from the window-frame, all substantially as and for the purposes herein set forth.

188,986. BUSHINGS FOR MILL-SPINDLES. Arner L. Tippet, Hawkinsville, Ga. [Filed Nov. 29, 1876.]



The heads b, provided with the adjustable screws E, passing through the heads, the latter secured in the grooves a of the radially-closed boxes containing the movable followers C, so as to slide vertically for removing the heads with their screws, as and for the purpose described.

188,987. MACHINES FOR FOLDING PAPER. Stephen D. Tucker, New York, N. Y. [Filed Mar. 18, 1876.]

1. The combination of a rotating sheet-carrier, provided with a vacuum sheet-holding device with a folding device, all substantially as described.

2. In combination with folding-rollers, a mechanism which creates a vacuum beneath a sheet along the line of the desired fold, and holds and carries the sheet into the nip of said folding-rollers, all substantially as described.

3. The combination of a mechanism for creasing a sheet along a given line, a mechanism which holds the sheet in position by creating a vacuum behind it, and carries it into folding devices, which double it, all substantially as described.

4. The combination of two rotating folding devices, (as 3 and 4,) one of which is provided with a means for creating a vacuum along the desired line of folding, and thus holds the sheet so as to carry it into the nip of said rotating folding devices, substantially as described.

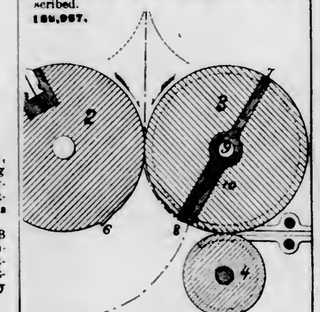
5. The combination of the creasers 6 and 8 and vacuum apparatus with the cylinders or rotating carriers, substantially as described.

6. The combination of the creasers 6 and 8, vacuum apparatus, cylinders or rotating carriers 2 and 3, and the roller 4, substantially as described.

7. The combination of two cylinders or rotating carriers, each one of the pair being provided with one member of a cutting apparatus, and with one member of a creasing apparatus, with a sheet-doubling mechanism, all substantially as described.

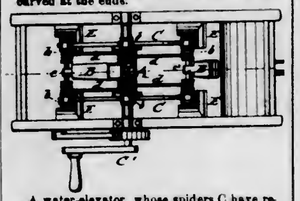
8. The combination of a cylinder or rotating frame, carrying a cutting and a creasing device, with sheet-receiving devices co-operating therewith, to complete the folding or doubling of the sheet, all substantially as described.

188,987.



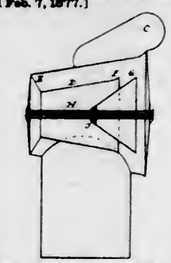
188,988. WATER-ELEVATORS. Abraham Vantrump, West Elkton, Ohio. [Filed Feb. 12, 1877.]

Brief.—The valve-bucket is secured by hooks to the cross-pins of the chain. The bucket-chain has flanged vertical guides carved at the ends.



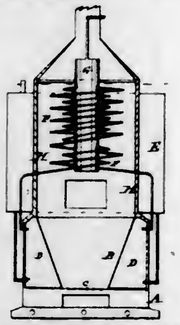
A water-elevator, whose spiders C have recesses a, and its endless bucket-carrier A, having the pins b on the links d, as shown and described.

188,989. VENTILATORS FOR CHIMNEYS. A. Van Horn, Brooklyn, E. D., N. Y., assignor of two-thirds of his right to Abner Van Horn and H. Baragwanath, same place. [Filed Feb. 7, 1877.]



In a gas or foul-air ventilator, I claim the combination of the flare F of the exhaust-tube D, adjustable conical deflector G, and screw-rod H, substantially as described.

188,990. STEAM-GENERATORS. Abner Van Horn, Brooklyn, E. D., N. Y., assignor of two-thirds of his right to Andrew Van Horn and H. Baragwanath, same place. [Filed Feb. 3, 1877.]



1. In a steam heater, the combination of the steam-generator G with the coil or coils of pipe F, surrounding the same, substantially as described, and for the purposes set forth.

2. In a steam-heater, the combination of the water-supply box E, water-tight compartment D of the fire-pot B, coil or coils of pipe F, and steam-generator G, constructed and arranged substantially as described.

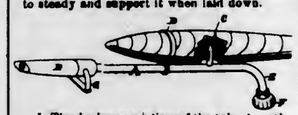
188,991. MARKING PLUG-TOBACCO. Edw. C. Venable, Petersburg, Va. [Filed Feb. 19, 1877.]



A metallic rim-frame having spurs for inclosing a label, and confining same to a plug of tobacco, substantially as herein set forth.

188,992. CIGAR-HOLDERS. Frederick H. W. Von Tiedemann, San Francisco, Cal. [Filed Oct. 27, 1876.]

Brief.—The cigar is held upon the tube by a hollow slotted prong, which enters it, and a steadying ring. Legs are situated at the tip to steady and support it when laid down.



1. The device consisting of the tube A, with its mouth-piece, and the perforated tube C adapted to be thrust into the side of the cigar, together with a steadying device, D, substantially as herein described.

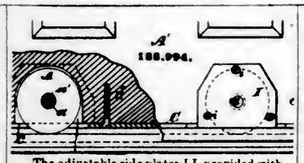
2. In combination with a cigar-holder, A, having the bent supporting-head F, the bar or legs G, so fitted as to retain it in an upright position when laid down, substantially as herein described.

188,993. SAFETY ATTACHMENTS FOR POCKETS. M. Von Gerichten, New York, N. Y. [Filed Dec. 27, 1876.]



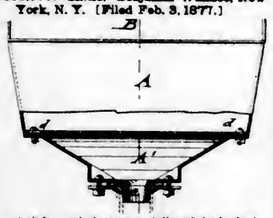
The combination of the duplicate heads or plates A C, constructed to be connected together upon the reverse sides of a watch-pocket, the inner plate C being provided with a loose ring or eye, *f*, substantially as described.

188,994. CAR-DOORS. G. L. Waitt, Philadelphia, Pa., assignor to S. L. Garrett, same place. [Filed Sept. 18, 1876.]



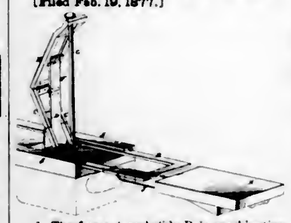
The adjustable side plates I I, provided with the cylindrical studs *a a*, in combination with the bushing *a'*, roller A, grooved shoe C, and elongated slots *c c*, substantially as herein shown and described.

188,995. SINKS. Benjamin Wallace, New York, N. Y. [Filed Feb. 3, 1877.]



A sink consisting, essentially, of the body A, guard B, arranged above seats *a*, and strainer-covered bottom A', having spout *c*, substantially as and for the purpose specified.

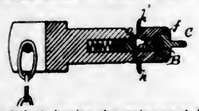
188,996. CAR-COUPLINGS. Robt. J. White and Robert N. White, Washington, Pa. [Filed Feb. 19, 1877.]



1. The frame A and slide B, in combination with the bars C, D, E, and F and pin G, the several parts being constructed and operating as and for the purpose set forth.

2. The plate H, with its spring I and the link J, in combination with the slide B and frame A, and their operating mechanism, as and for the purpose specified.

188,997. SEAL-BOLTS. A. F. Whiting, Norwich, Conn. [Filed Feb. 21, 1877.]



The bolt A, having the spring-catch B, and provided in one side with a slot, *a*, and in its lower end with a cavity or slot, *b*, in combination with the seal C, having the socketed plate *f* and arm *b'*, substantially as and for the purpose set forth.

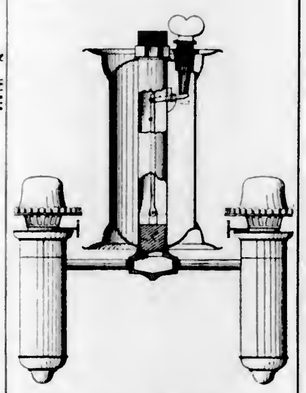
188,998. LAMPS. D. Whiteford, Chicago, Ill. [Filed Apr. 8, 1876.]

1. The described combination, in the oil-fount, of the regulating-valve, the stopper, or its equivalent, for closing the filling-orifice, and intermediaries, substantially such as set forth, between the said valve or stopper, whereby the valve is positively lifted from its seat by the stopper when the latter closes the filling-orifice, and is released and allowed to drop by its weight into its seat when the stopper is removed to open the filling-orifice.

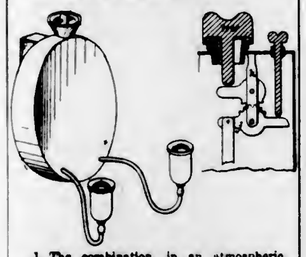
2. The oil fount or reservoir and the valve, in combination with elongated stopper, or its equivalent, the vibratory lever, and the jointed rod connecting the lever and the valve, for joint operation, as set forth.

3. The combination, in the oil-reservoir, of the valve, the bearing-tube, the lever and connecting-rod, and the elongated stopper, or its equivalent, substantially as set forth.

188,999.



188,999. LAMPS. D. Whiteford, Chicago, Ill. [Filed Feb. 21, 1877.]

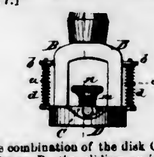


1. The combination, in an atmospheric lamp, of these elements: an oil-fountain, a stopper for closing the filling-orifice in the fountain, a valve or cock for controlling the flow of oil from the fountain, caused to open when the stopper is inserted, and to close when the stopper is withdrawn, one or more burner-carrying bent or curved arms, and a chamber intermediate between the fountain and the arms and communicating with the atmosphere, the combination being and acting as set forth.

2. The oil-fountain and the valve adapted to rotate in a seat at the bottom of the fountain, in combination with the removable stopper which closes the filling-orifice, and is adapted to engage and operate the valve, as and for the purposes set forth.

3. The valve-operating removable stopper, in combination with the funnel surrounding the filling-orifice of the fountain, and the ribs on the interior of the funnel, substantially as and for the purposes set forth.

189,000. PERFORATING-STAMPS. John L. Wickers, Chicago, Ill. [Filed Feb. 26, 1877.]



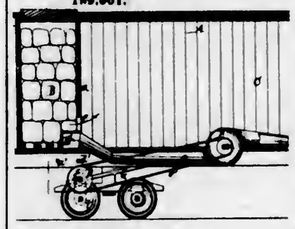
The combination of the disk C, attached to the frame B, the sliding spring collar or sleeve D, the locking-pads A A, and the circular cutters *m m*, having exterior screw-threads, all constructed substantially as herein set forth.

189,001. REFRIGERATOR-CARS. Jas. H. Wickes, New York, N. Y. [Filed Feb. 1, 1877.]

Brief.—Places a self-acting float-valve in one side of the floor of the ice-chamber, and protects it with a board. The fan-blower receives power from a friction-wheel, which may

be raised, by means of a gravitating-frame, away from the friction-pulley mounted upon one of the car-axles. The gravitating-frame is raised and held in position by a rope or chain wound around a crank-shaft having a pawl and ratchet-wheel.

189,001.



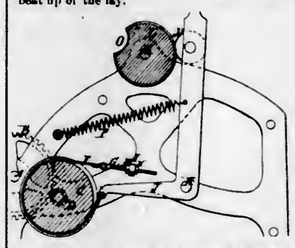
1. The combination, with the ice-chamber of a refrigerator-car, of a valve-chamber, *h*, secured in the bottom of the ice-chamber, a self-acting valve, *k*, arranged in the valve-chamber, and a waste-pipe, *g*, extending from the latter above its bottom, said valve being protected by the board *j*, substantially as and for the purpose described.

2. The combination, in a refrigerator-car, of a hand-gear, *b' c' s*, with the gravitating frame G, pulleys *p* and *s*, and fan-blower F, substantially as and for the purpose set forth.

3. The combination, in a refrigerator-car, of a ratchet-wheel, *b'*, pawl *c'*, and shaft *s'*, with the gravitating frame G, pulleys *p* and *s*, and fan-blower F, substantially as and for the purpose shown and described.

189,002. LET-OFF MECHANISMS FOR LOOMS. Y. Widdup and S. J. Thompson, Newark, N. J. [Filed Nov. 29, 1876.]

Brief.—The friction-strap is connected to a bell-crank lever, and the latter is operated by a notched disk which is mounted upon the crank-shaft. The friction-band is slackened at the beat up of the lay.



1. The combination of the wheel or drum L, mounted on the loom crank-shaft, and having the notch O in its periphery, the elbow-lever J pivoted to the loom-frame, and with or without the friction-roll N and the friction-band F, with the friction drum or wheel C, and the warp beam A, substantially in the manner described.

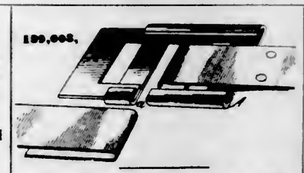
2. The combination of the loom crank-shaft M, the notched wheel or drum L thereon, the elbow-lever J, friction-band F, drum C, and spring P, the band being connected to the frame from the upper side of the drum C, and to the lever from the lower side, and also being adjustably connected to the frame, substantially as described.

189,003. COTTON-BALE TIES. S. M. Wilson, Pittsburg, Pa. [Filed Mar. 8, 1877.]

Brief.—The two plates are held together by the tension of the bands, and cannot step sidewise.

A cotton-bale tie formed of two sliding frames, A A', having openings at *a* and *b*, through which the loops in the bands may be slipped and then confined by sliding the frames one on the other.

189,004.



189,004. COTTON-BALE TIES. S. M. Wilson, Pittsburg, Pa. [Filed Mar. 8, 1877.]

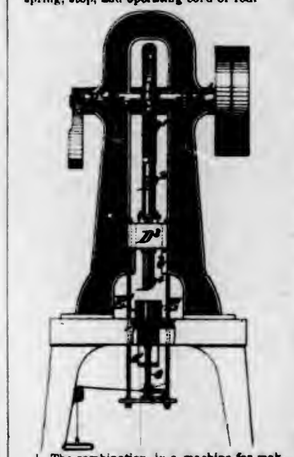
Brief.—The links can only be separated when in one position, and when fixed are prevented from getting in that position by the strain of the bands.



A cotton-bale tie formed of two rings, B B', cut and bent, substantially as set forth, to admit of their being connected or separated only when the ends are brought into juxta-position.

189,005. MACHINES FOR MAKING PILLS, LOZENGES, &c. T. J. Young, Philadelphia, Pa., assignor to H. Bower, same place. [Filed Mar. 9, 1877.]

Brief.—The combination of a lower die having a downwardly-projecting stem with a lifter connected to the cross-head of the upper die, and provided with a movable ejector-block, its spring, stop, and operating cord or rod.



1. The combination, in a machine for making pills, lozenges, &c., of a lower die, having a downwardly-projecting stem, a lifter connected to and moving with the cross-head of the upper die, and an ejector-block, movable upon the lifter into and out of line with the stem of the lower die, substantially as set forth.

2. The combination of a lifter, a movable ejector-block, a spring and stop, and an operating cord or rod, substantially as set forth.

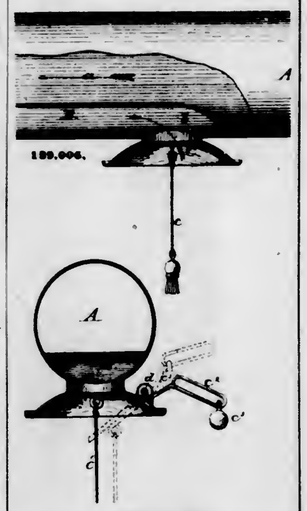
189,006. VENTILATORS. G. Yon, Montreal, Quebec, Canada. [Filed Oct. 6, 1876.]

Brief.—Foul air is admitted to the flue through the side opening prolonged to form a branch flue. The damper is counterbalanced by a shifting weight.

1. The damper or valve C, hinged at *d* by means of a slotted lever, *d'*, in combination with the counter-weight *c'*, and cord and weighted tassel *c'*, as and for the purpose substantially as described.

2. The combination of the pipe or flue A, provided with the prolongation B, with the counterbalanced automatic valve or damper C, substantially as and for the purpose described.

189,006.



189,007. CORK-FASTENING BOTTLE-NECKS. John Young, Amsterdam, N. Y. [Filed Sept. 6, 1876.]

Brief.—Spiral grooves are made in the neck of the bottle crossed by one or more transverse grooves. The cork, when driven, swells and fills the grooves.



In a bottle-neck, the combination of the groove or grooves *b* and grooves *a a a*, when formed substantially as and for the purpose specified.

189,008. CORN-MARKERS. M. Zimmerman, Mohican Township, Ashland County, Ohio. [Filed Feb. 3, 1877.]

Brief.—The marking-bars are centrally hinged together and run in guides. Endwise movement is given to the hinged bars by means of cords that are attached to the outer end of each section, and to a centrally-journaled double-grooved drum, so that as one cord is wound up the other is unwound. The bracing-cord passes through staples on the whiffletrees from end to end of the bars. The wheels, in connection with the other devices, are laterally adjustable for increasing or diminishing the width of the rows.

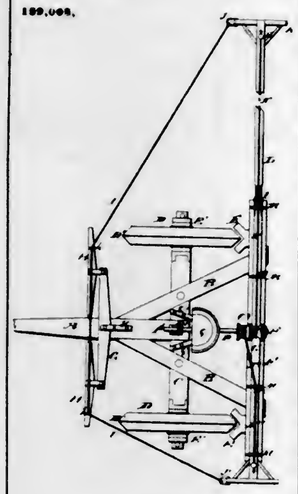
1. In a corn-row marker, a pair of endwise-shifting gage-bars hinged together at their inner ends, in combination with a rotating spool and cords running therefrom to the outer ends of said gage-bars, substantially as and for the purpose set forth.

2. The combination of cross-bar F, having guides M *m*, with gage-bars L' L, shifting-cords N N', doubly-grooved spool O, and crank-shaft P, substantially as and for the purpose set forth.

3. The combination of bracing-cord I, guides A A on whiffletrees H H, gage-bars L L', and shifting apparatus, substantially as and for the purpose set forth.

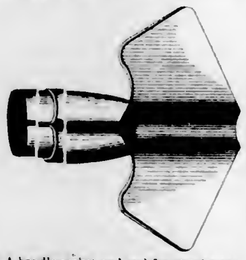
4. The combination of laterally adjustable transporting-wheels D D with bars L L', having perforations *l' l* and limiting-pins R R, grooved spool O, and shifting-cords N N', substantially as and for the purpose set forth.

189,068.



REISSUES.

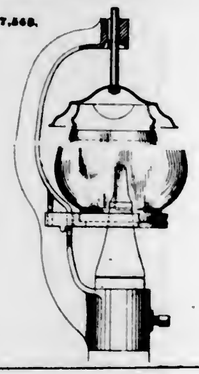
7,567. SOCKETS FOR AGRICULTURAL IMPLEMENTS. Thos. B. De Forest, Birmingham, Conn., assignor to Sarah A. De Forest. Patent No. 152,085, dated June 16, 1874. [Filed Feb. 5, 1877.]



1. A handle-socket and pad for attachment to shovels, hoes, and other articles, formed complete from a single piece of sheet metal, and substantially as described.

2. A handle-socket for shovels, hoes, or analogous articles, formed from sheet metal, the edges turned inward, so as to enter or be embedded into the handles, substantially as described.

7,568.



7,569. STREET-LAMPS. James S. Hagerty, Baltimore, Md. Patent No. 142,693, dated Sept. 9, 1873. [Filed Mar. 16, 1877.]

1. A lamp-globe-supporting arm, a cap constructed to fit over the lamp-globe, and a sliding connection between the cap and arm, combined substantially as described.

2. A street-lamp globe-support, consisting of a vertical supporting-arm, a globe base-ring, a globe-cap, and a sliding connection between the cap and arm, combined substantially in the manner shown and described, whereby the globe is removably held between the base-ring and cap, and the said cap may be slid from the globe and seated upon the same, for the purposes specified.

3. A lamp-globe-supporting arm combined with a sliding connection for holding the globe-cap the said arm and sliding connection being constructed to interlock and fasten the cap firmly and steadily upon the globe, substantially as specified.

4. In combination with a street-lamp, a sliding cap adapted to be slid to and from the globe, substantially as and for the purposes described.

5. A lamp-globe-supporting arm combined with a globe base-ring, the said arm and base-ring being provided with co-operating lugs or projections, whereby the base-ring is connected to the arm in a horizontal position without other attachment, substantially as and for the purposes specified.

6. In a street-lamp, a single supporting-arm sustaining the upper and lower holders or inclosures of the globe, and extending below the said lower holder as a means of attachment to the lamp-post, substantially as herein described.

7. In a street-lamp, a globe-cap combined with a sliding sustaining-rod, substantially as set forth.

8. In combination with the sliding cap and rod of a street-lamp, a slotted socket to receive the said rod, and a feather or pin for guiding and steadying the union of the rod and socket, substantially as specified.

9. A detachable base-ring for supporting a street-lamp globe, combined with a lamp-globe-supporting arm, whereby cheapness and facility in manufacture and transportation are accomplished.

7,569. CARTRIDGES. H. Kellogg, Milford Township, New Haven County, Conn., assignor to H. L. Butler, Jr. Patent No. 35,878, dated July 15, 1862. [Filed Feb. 1, 1877.]

Brief.—A nipple projects from the rear of the shell, and is shorn off by a cutter on the breech-block in the act of closing the breech, thus forming an opening in the shell, through which the fire from the cap passes to ignite the charge. The shell is coated on the inside to prevent corrosion of the case and deterioration of the charge.



1. A metallic cartridge-case formed with an outwardly-projecting nipple at the rear end, for the purpose specified.

2. A metallic cartridge-case having an interior water-proof lining, as described.

3. A cartridge-case having an interior lining or coating of gun-cotton dissolved in sulphuric ether, as described.

7,570. PAPER BOXES. Anna Powers, New York, N. Y., executrix of T. J. Powers, deceased. Patent No. 156,591, dated Nov. 3, 1874; reissue No. 6,618, dated Aug. 24, 1875. [Filed Jan. 27, 1877.]

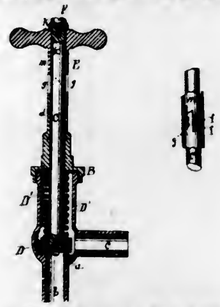


1. As a new manufacture, a paper box, the body or cover of which is composed of a hollow cylinder, one end of which, to form the bottom or top, is folded inward and pressed without being cut, and covered with a disk of paper, as described.

2. As a new manufacture, a paper box, the body or cover of which has a projecting flange, *b*, formed without a seam between the body and head or bottom by bending and folding the pasteboard upon itself, as described.

7,571. FAUCETS. F. Roach, Boston, Mass., assignor to himself and Joseph Zane, same place. Patent No. 81,948, dated Sept. 8, 1868. [Filed Feb. 22, 1877.]

Brief.—The rotating key rises on the faucet-neck, compressing the spring and allowing the water to flow. When the handle is released the spring returns the valve to its seat.



1. The combination of the induction and eduction pipes *b c*, the valve-seat *a*, the valve D, the case A, the spring D', the stem C, the cap B, the neck *d*, the key E, and the cams *f f* and stops *g g*, the whole being as and to operate as hereinbefore described, and as represented in the accompanying drawings.

2. The key E and the spindle C, having the two holes *h i*, arranged and combined with the valve, its spring, and case, as specified.

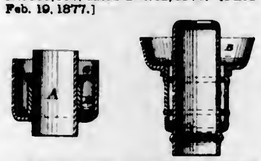
3. The combination of the adjusting-screw F and the annulus *k*, applied to the spindle C, as described, with the key E, arranged with the spindle C, its valve and spring, and the neck *d*, substantially in manner and under circumstances as hereinbefore specified.

4. The valve D, forced toward and held to its seat against the pressure of the water by the spring D', in combination with the cams or inclines *f f* and the rotating key E, operating with said cams or inclines to raise the valve D, substantially as herein described.

5. The stops *g g* on the neck of the faucet, in combination with the key E, substantially as and for the purpose described.

6. The nipple projecting downward from the cap of the faucet, as a means of centering the spring D' upon the valve-stem, substantially as described.

7,572. UMBRELLA TIP-CUPS. O. M. Smith, Frankford, Pa., assignor to S. W. Evans and S. W. Evans, Jr., (doing business as S. W. Evans & Son,) same place. Patent No. 185,357, dated Dec. 12, 1876. [Filed Feb. 19, 1877.]



1. A friction spring or springs interposed between the tube A and the tip-cup or its tubular extension, as and for the purpose specified.

2. An umbrella tip-cup and tube or tip-cup runner, in frictional spring contact with each other, for the purpose holding the cup at any desired position on the tube, as set forth.

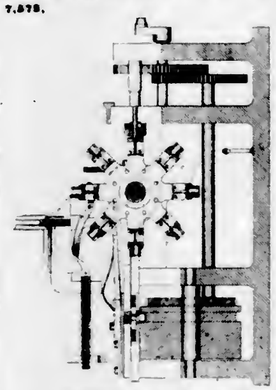
3. An umbrella tip-cup and tube or tip-cup runner, having metal or other suitable material interposed between the stick-tube or tip-cup runner and the tip-cup, and adapted to produce spring friction, for keeping the cup in place, substantially as set forth.

4. A tip-cup struck up from one piece of metal, having a washer formed at one end, the face of which shall be at right angles to the inner or outer circumference of the body of the tip-cup, substantially as described.

7,573. MACHINES FOR THREADING WOOD-SCREWS. American Screw Company, Providence, R. I., assignee, by mesne assignments, of H. A. Harvey. Patent No. 42,766, dated May 17, 1864; antedated Apr. 26, 1864. [Filed Mar. 7, 1877.]

Brief.—A series of radial blank holders on a wheel which is intermittingly rotated, and also horizontally reciprocated. The holder embraces the blank by its head portion, but is recessed, so as, while leaving a back-rest to support the stem of the blank, to expose it to the action of the threading-tool, when the head of the blank has been brought in connection with a screw-driver rotating within a socket, into which the holder is thrust by the reciprocating movement of the wheel.

7,573.



1. A screw-driver for engaging the nick in a screw-head, in combination with a carrying-wheel provided with a series of screw-blank receivers, and having an intermittent rotating motion and a reciprocating sliding motion, substantially as described.

2. One or more screw-blank receivers, arranged upon a wheel or hub having the compound motions described, in combination with the stationary supporting-socket *h* and mechanism for cutting the thread upon the blank.

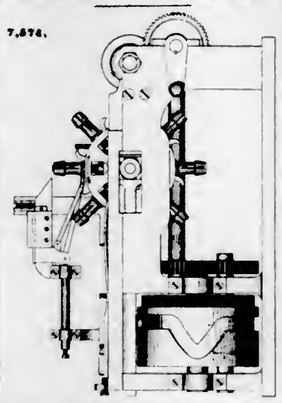
3. A chasing tool having the motions described, in combination with a back-rest for the shank of a screw, and a device for revolving the blank, when such rest forms a part of a receiver and carrier arranged upon a wheel having the compound motions described.

4. A revolving screw-driver, in combination with a receiver and carrier, or a series thereof, moved toward the screw-driver by a differential or fast and slow motion, substantially in the manner and for the purpose specified.

5. A delivering apparatus consisting of a bent or curved inclined conductor, and a slide operating in the lower or bent end thereof, the whole having a mode of operation substantially as described.

6. In combination with a delivering apparatus, substantially such as described, a receiver and carrier which moves as the slide of the delivery apparatus moves, so that the blank may be delivered and received under a mode of operation substantially as set forth.

7,574.



7,574. MACHINES FOR NICKING THE HEADS OF SCREW-BLANKS. American Screw Company, Providence, R. I., assignee, by mesne assignments, of H. A. Harvey. Patent No. 42,768, dated May 17, 1864; antedated Apr. 26, 1864. [Filed Mar. 7, 1877.]

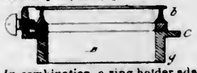
Brief.—A series of radial blank-holders on a wheel which is intermittingly rotated, and also reciprocated horizontally toward and from the saw. Guideways and an automatic pusher deliver a blank into each holder while the latter is revolving, and a socket on a yielding frame, into which the split end of the holder is thrust, causes the holder to gripe the blank, and at the same time it accommodates itself, in virtue of the yielding frame, to the reciprocating movement of the wheel, induced by a cam-groove in the surface of a revolving drum.

1. A series of holders capable of receiving and griping screw-blanks, and having both a sliding and a rotating motion, as described, in combination with a sliding griping apparatus, acting substantially as specified.

2. A series of rotating and sliding holders or receivers, substantially such as described, in combination with a sliding griping apparatus and a nicking-saw, substantially as set forth.

3. A carrying-wheel provided with a series of screw-blank receivers, and having an intermittent rotating motion and a reciprocating sliding motion, in combination with a revolving saw for cutting the nick in a screw-head, when the heads of the blanks contained in the receivers are successively fed to the cutting-edge of the saw by a part of the sliding motion of the carrying-wheel in which the receivers are arranged.

7,575. RINGS FOR SPINNING-MACHINES. W. T. Carroll, Worcester, assignor to G. Draper and W. F. Draper, Hopedale, Mass. Patent No. 78,427, dated June 2, 1868; reissue No. 3,714, dated Nov. 9, 1869. [Filed July 19, 1875.]



1. In combination, a ring-holder adapted to rest on the surface of a ring-rail, provided with spindle-openings, a ring sustained by the holder and movable above the surface of the ring-rail, and screws placed at opposite sides of the ring and holder, whereby the ring may be held in adjusted position above the ring-rail, and with reference to the spindle-opening in the ring-rail, for the purpose set forth.

2. The combination, with the ring, of the holder provided with a neck, and adapted to be placed on and within the ring-rail, and with the flange, posts or ears, and adjusting-screws, substantially as and for the purpose described.

3. The holder B, provided with the flange *d*, the open space *h*, and screws *e e*, combined and adapted to operate in connection with the ring A, as set forth.

4. A spinning-ring supported by the ring-rail, and laterally adjustable above the surface of the rail with reference to the spindle-openings therein, substantially as and for the purposes above described.

5. In a ring-spinning machine having a ring-rail provided with spindle-openings, a ring adapted to be adjusted laterally entirely above the upper surface of the ring-rail, combined with mechanism to hold it in adjusted position thereon, for the purpose specified.

7,576. FLY-TRAPS. H. A. Farnam, South Bend, Ind. Patent No. 111,332, dated Jan. 31, 1871. [Filed Jan. 8, 1877.]

1. The combination of the case B and cap F, the latter constructed to cover or shade the entrance-opening, substantially as and for the purpose set forth.

2. The inner part or cone C, constructed entirely of woven fabric, having a passage-opening formed in its apex, in the manner described, and its base extending to the outer cone, to afford easy access to the passage-opening, and prevent the return of flies, and in combination with the outer case, substantially as described.

3. The combination of the bait-cup F with the case B and inner case or cone C, substantially as specified.

4. The base or cup F, in combination with the case B, supported thereon between the upper and lower sections, substantially as set forth.

7,576.



7,577. CORN-PLANTERS. W. W. Hubbard, Edinburg, Ind., assignor, by mesne assignments, to G. D. Haworth, J. W. Haworth, L. L. Haworth, and M. Haworth, Decatur, Ill. Patent No. 54,166, dated Apr. 24, 1866. [Filed Mar. 6, 1877.]

Brief.—Horizontal traversing-bars for automatically moving check-row cords at the end of the field. Movable arms for supporting cord on machine while turning.



1. In a seed-planter, in which the seeding devices are operated by a check-row cord or wire, an arm or guide for transferring said cord or wire from one side of the machine to the other without removing the cord or wire from the arm or guide.

2. The combination, with a check-row seed-planter, of a swinging arm or guide for the check-row cord or wire, adapting the latter to be automatically transferred from one side of the machine to the other when the machine is turned.

3. The combination of the check-row cord or wire for operating the seeding devices, with traveling arms or anchors adapting said cord or wire to be moved automatically by the machine into position, thereby enabling the machine to approach to and reach the end of the row without the transfer of the anchor by hand.

4. The combination, with the horizontal bars P', of the arms or anchors, to which the ends of the check-row cord or wire are attached, substantially as and for the purpose described.

5. The combination of the arm or guide for transferring the check-row cord or wire with the arms or levers for actuating the seeding devices, whereby the machine is adapted to plant out to the same terminal point or line when moving in opposite directions.

6. The combination of the upper and lower seed-drops, with the arms or levers actuated by the check-row cord or wire, whereby a positive movement in one direction is simultaneously imparted to said drops by the action of the check-row cord or wire on said arms or levers.

7. The combination, with the swinging arm, which supports and guides the check-row cord or wire, of stops for locking said arm in the desired position, to act on the seeding devices.

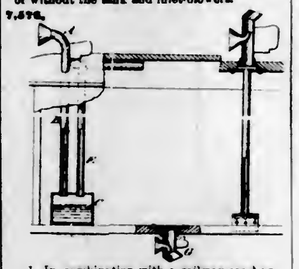
8. The forked arms or levers, actuating the seeding devices, in combination with an arm or lever for moving said forked arms out of the path of the check-row cord or wire and its supporting-arm, when the machine is being turned.

7,578. CAR-VENTILATION. C. G. Lee, Alton, Ill. Patent No. 176,717, dated Apr. 4, 1876. [Filed Sept. 13, 1876.]

Brief.—The monk's-head blower has a pipe extending into the water-tank. Another conducts the air from the tank into the car. Simi-

lar blowers exhaust from the car to aid in inducing a current of fresh air into the car, and for conducting the air out after it has been used. The exhaust-blowers may be used with or without the tank and inlet-blowers.

7,578.



1. In combination with a railway-car having one or more exhaust-ventilators, the inlet-ventilator, consisting of the mouth's hood A, and pipes B, E, and F, communicating with the water-tank C, for purifying the air, constructed substantially as described.

2. An exhaust for a railway car, consisting of the large pipe H, extending from inside the car to the outside, in combination with the smaller pipe K, provided with the funnel attachment, and entering the larger pipe, and extending toward the outlet of the same, all constructed and arranged, substantially as and for the purpose set forth.

7,579. BOBBIN AND THREAD HOLDERS FOR SPINNING-MACHINES. T. L. Luders, Philadelphia, Pa., assignor, by mesne assignments, to G. Draper & Sons. Patent No. 83,354, dated Oct. 20, 1868. [Filed Mar. 16, 1877.]

Brief.—The holder for the bobbin and thread is composed of a piece of elastic wire coiled tightly around the spindle, so as to rotate therewith, the salient arms forming the means for grasping and holding the bobbin and fastening the end of the thread. The bobbin is chambered at top and bottom, leaving an intermediate adhesive bearing upon the short spindle for some distance along the center of said bobbin.



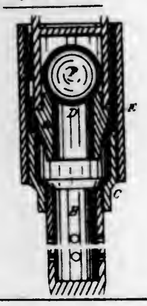
1. The coiled wire holder A, having outwardly-curved arms *a a*, constructed as described, combined with the rotary spindle and the bobbin, and adapted to serve as a holder for the bobbin and for the thread, as set forth.

2. A bobbin provided with a centrally-located interior adhesive bearing, and with a frictional bearing at its lower end, combined by means of such bearings with a rotating spindle, substantially as described.

3. In combination, the bobbin, having the centrally-located adhesive bearing, and the part of the spindle within the bobbin made shorter than the bobbin, substantially as described.

4. A bobbin, combined with the spindle by means of interior and exterior frictional bearings, and provided with a chamber between them, substantially as described.

7,580.



7,580. DRIVEN OR BORED WELLS. Jos. E. Morrison, Aurora, Ill. Patent No. 139,018, dated May 20, 1873. [Filed Nov. 30, 1874.]

1. The detachable valve-seat D, having the unscrew-threaded elongated conical base, the lower end adapted to loosely enter the orifice of the filter and be driven into place, and its upper end approximating the diameter of the cavity in the tube, as and for the purpose specified.

2. In combination with the detachable valve-seat D, having the elongated conical base, the flexible packing-band E, arranged to close the space between the periphery of the valve-seat and inner surface of the orifice in the collar or filter, as specified.

7,581. BOTTLE-STOPPERS. D. T. Robinson, Boston, Mass., assignor, by mesne assignments, to H. W. Putnam, Bennington, Vt. Patent No. 60,424, dated Dec. 11, 1866. [Filed Mar. 6, 1877.]



1. The combination, substantially as before set forth, of the cam-lever, the yoke-wire, and the stopper-body provided with a transverse groove for the yoke-wire.

2. The combination, substantially as before set forth, of the cam-lever, the yoke-wire, and the stopper-body provided with a transverse groove for the cam-lever.

3. The stopper-body, constructed substantially as before set forth, with a solid button-headed under projection, adapted to enter the mouth of the bottle, and to hold the piece of rubber to the stopper-body.

4. The combination, substantially as before set forth, of the yoke-wire with a stopper-body constructed with a solid button-headed under projection adapted to enter the mouth of the bottle and to hold the piece of rubber to the stopper-body.

5. The combination, substantially as before set forth, of the circular piece of rubber with the stopper-body, having a solid button-headed under projection whose shoulder engages with the rim of the hole in the rubber.

7,582. CHAIRS. A. B. Stevens, Philadelphia, Pa., assignor of one-half interest to the Hale & Kilburn Manufacturing Company, same place. Patent No. 185,796, dated Dec. 26, 1876. [Filed Feb. 15, 1877.]

Brief.—The legs are connected at their upper ends with the metallic frame attached to the seat by laterally-bent pivoted metallic plates, whereby the legs are inclined laterally to give them a broad bearing at their base, and at the same time allow them to turn freely on their pivots. The legs of each pair are also connected by an adjustable brace pivoted to a pin on one leg, and bearing on a pin on the other leg, whereby the legs are held in their proper vertical position to form a high chair. When the chair is to be converted into a carriage, the adjustable braces are lifted, the legs turned on their pivots until their upper ends bear on stops formed on the metallic frame, and their lower ends rest on wheels, with which they are provided. A table is connected with the arms of the chair by slotted metallic plates and pins, whereby it can be used as a table or converted into a canopy over the chair.

1. In combination with the chair seat and frames B B, the swinging legs D D′ and adjustable cross-braces E, bearing against the legs, to hold them in their vertical position, substantially as set forth.

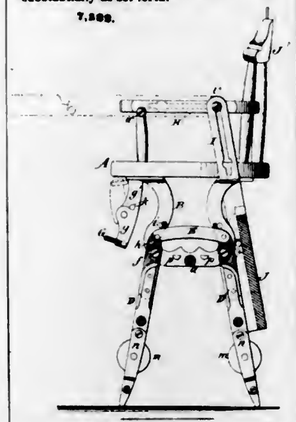
2. In combination with the chair seat and frames B B, the swinging legs D D′, and stops *p p*, and wheels *w*, for supporting the seat when lowered to form a carriage, substantially as set forth.

3. In combination with the seat of a chair, and a metallic frame attached to the seat, the curved plates *f*, hinged to the frame, and so bent as to give an outward inclination to the legs attached thereto, and supporting the seat in either position, with a flaring base, substantially as set forth.

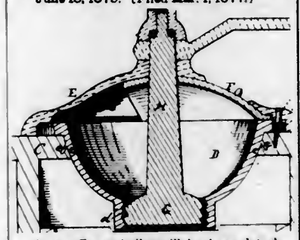
4. The combination of the seat and the foot-board G and hinges *g g*′, secured to the under side of the seat by the fixed section *g*′, substantially as set forth.

5. In combination with the seat, provided with a back, the table J and slotted arms I I, adjustably attached to the arms H, so that the table may be converted into a canopy, substantially as set forth.

7,583.



7,583. COFFEE-MILLS. T. Strobridge, New Brighton, Pa. Patent No. 159,467, dated Feb. 2, 1875; reissue No. 7,174, dated June 13, 1876. [Filed Mar. 1, 1877.]



1. A coffee or similar mill, having a detachable hopper and grinding-shell formed in a single piece, and suspended within the box by the upper part of the hopper or a flange thereon, substantially as and for the purpose specified.

2. In a coffee-mill, the combination, with the box and its top, of a detachable hopper suspended within the box by its upper part, and a bridge supported on the box, substantially as and for the purpose specified.

3. In coffee and spice mills, the combination of the box, having a top, with the hopper suspended therein by means of a projecting flange or lugs, which rest upon, or take into, the top, substantially as described.

4. The combination of the box, having a top, with the hopper suspended therein by means of a projecting flange or lugs, which rest upon, or take into, the top, and a cover, substantially as described.

5. The combination of cover E and grinding shell or hopper D, the latter provided with lugs or a flange, so that the two parts may be secured to the box by a single set of screws, substantially as specified.

6. The hopper and grinding-shell D, provided with points or projections *e* on its outer surface, in combination with cover E, projecting, so as to rest upon the top of the box and bind upon the upper edge of the hopper, substantially as and for the purpose specified.

7. A coffee-mill, having a detachable hopper suspended within the box or case by its upper part, and a sliding cover for closing the top of the hopper, substantially as specified.

8. The combination of the hopper and grinding-shell D, grinding-nut G, having shank H, and cover E, having a sliding gate or door, F, substantially as and for the purpose specified.

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DECISIONS OF THE COURTS.

SUPREME COURT OF THE UNITED STATES.

HENRY W. FULLER AND ISAAC W. BARNUM, APPELLANTS, *vs.* ENOCH S. YENTZER AND WALTER SCATES.

[*Appeal from the Circuit Court of the United States for the Northern District of Illinois.—Decided October term*, 1876.]

A patent will not be sustained if the claim is for a result, a principle, an idea, or any other mere abstraction.

Where a new combination of old elements, producing new and useful results, is patented, it is the established rule that the invention, if any, within the meaning of the patent act consists in the means or apparatus by which the result is obtained, and not merely in the mode of operation independent of the mechanical devices employed.

Where the claim immediately follows the description of the invention, it may be construed in connection with the explanations given in the description, and if the claim contains words referring back to the specification it cannot properly be construed in any other way.

It being understood that a result is not patentable, claims which read "forming one, two, or more creases in cloth, by means of, &c.," and "marking a line on the surface of cloth or other material sewed in a sewing-machine, by means of, &c.," construed to be for the described apparatus for producing the results named.

Where the invention is embodied in a machine, the question of infringement is best determined by a comparison of the machine or apparatus constructed or used by the respondent with the mechanism described in the specification of complainants' patent.

Combinations consisting of old elements are not the same when none of the devices employed in one can be substituted for those in the other, so as to render the apparatus operative to effect the described result without reconstruction and invention.

A patent may be granted for a new combination of old elements or ingredients if it produces a new and useful result; but in such case the invention consists merely in the new combination, and the patent therefor is not infringed by a substantially different combination, even though it includes the exact same elements or ingredients.

The rights of a patentee for a mere combination of old ingredients are not infringed unless it appears that the alleged infringer made, used, or sold the entire combination.

The substitution of a known equivalent for one of the ingredients of a patented invention is not a good defense for an infringer; but if the ingredient was a new one, or performed a substantially different function, or was not known at the date of the patent as a proper substitute for the one omitted, there is no infringement.

Mr. Justice CLIFFORD delivered the opinion of the court:

Patents for a machine will not be sustained if the claim is for a result, the established rule being that the invention, if any, within the meaning of the patent act, consists in the means or apparatus by which the result is obtained, and not merely in the mode of operation, independent of the mechanical devices employed; nor will a patent be held valid for a principle or for an idea, or any other mere abstraction. (*Burr* vs. *Duryea*, 1 Wall., 570.)

Where the claim immediately follows the description of the invention it may be construed in connection with the explanations given in the description, and if the claim contains words referring back to the specification, it cannot properly be construed in any other way. (*Seymour* vs. *Osborne*, 11 Wall., 549.)

Improvements in mechanism for marking cloth in a sewing-machine, it is alleged in the bill of complaint, were invented and patented by the complainant, and he charges that the respondents have infringed the exclusive privilege secured to him by the letters patent, and he prays that they may be decreed to account for the gains and profits which they have made by the infringement, and for an injunction. Process was served and the respondents appeared and filed an answer, setting up several defenses, two of which it will be important to examine in disposing of the case: (1) That the complainants are not the original and first inventors of the patented improvement. (2) That the respondents have never infringed the complainants' patent, as alleged in the bill of complaint.

Before describing the nature of his invention the patentee refers to Fig. 1 of the drawings, as showing the main features of the patented improvement when arranged in a sewing-machine for the purpose of accomplishing the results described in the specification, and he proceeds to state that the invention consists in a vibrating marking instrument which moves in unison with the needle of the sewing-machine, so as to crease the cloth at given distances from the needle, the marking instrument not pressing on the cloth except while the needle is in the cloth, which prevents the cloth from being obstructed in the movement by the feed, and allows the marking to be made at any distance from the sewing without wrinkling the even surface of the cloth.

By the use of a point vibrating in unison with the needle and acting on the upper surface of the cloth in connection with a notch or an elastic surface or pad below the cloth, a crease will be made whose ridge is below the cloth, and by the use of one, two, or more of these up or down markers, or one up and one down marker, the crease or ridge can be made exactly at the required distance from the line of sewing, and either upward or downward, according to the way in which the cloth is to be folded for the subsequent operations.

Where more than one line of sewing is required the crease or creases for the next fold are made in the same way, and the patentee states that the device is especially useful in all kinds of tucking and in plaiting shirt-bosoms and other similar work, and he represents that by the use of a vibrating pencil or chalk a line of marks may be made by which a second line of stitching may be guided, which will become useful in quilting or in performing any straight, curved, or parallel lines of stitching. Superadded to that he also represents that if the marking-points are at right angles to the feed, from the needle, the marking will be at a given distance from the sewing and parallel thereto, regardless of the curved or zigzag form in which the sewing is performed.

Sufficient appears in the preceding description of the invention and of the principal devices of which it is composed, including the arrangement of the same and their mode of operation, to render it unnecessary to reproduce the minute references in the specifications to the representations exhibited in the different figures of the drawings.

Throughout the description it is apparent that the patented apparatus is to be attached to an organized sewing-machine, and the patentee states that the manner of effecting the attachment must be varied as circumstances may require, in view of the structure of the particular sewing-machine and the kind of work to be performed, and he adds that the vibrating motion may be given to the marker by the needle-bar or any other suitable device. Gages it seems are employed for spacing off the width of the folds, tucks, or plaits, but the patentee states that he does not claim those devices, though he is of the opinion that the devices which he employs work better than any he has before known.

What he claims is—

1. The forming one, two, or more creases in cloth by means of markers on opposite sides of the cloth, one of which is connected with the bed of the machine and the other operates simultaneously with the vibrations of the needle in a sewing-machine, whereby the crease or creases are formed in the cloth itself, parallel to the line of sewing, in such a manner that the cloth is ready for doubling over at the creases for the next line of sewing.

He also claims—

2. Marking a line on the surface of cloth or other material sewed in a sewing-machine, by means of a pencil or similar article pressed upon the surface of the cloth at the time the needle perforates the same, and is raised therefrom when the feed takes place, so as to produce a series of marks parallel to and simultaneous with the line of sewing.

Concede that a result is not patentable, which is clearly shown to be true by the preceding remarks, and two things follow as a necessary consequence: (1) That the invention described in the first claim is merely the described apparatus for forming one, two, or more creases in cloth by means of markers on opposite sides of the cloth, for the purpose and in the manner and by the means therein described, it being clearly understood that the patentee does not claim the described means of attaching the patented apparatus to a sewing-machine. (2) That the invention described in the second claim is merely the described apparatus for marking a line on the surface of cloth or other material sewed on a sewing-machine, by means of a pencil or similar article pressed upon the surface of the cloth at the time the needle perforates the same, for the purpose and in the manner and the means described, excluding the means by which the patented apparatus is attached to a sewing-machine.

Special reference is made to the principal features of a sewing-machine, but inasmuch as the apparatus may be attached to any such machine, it is not deemed necessary to enter into those details, especially as the patentee states to the effect that the sewing is to be performed by the needle of the machine to which the apparatus is attached, in connection with a shuttle, looper, or other similar device.

Particular mention is made of the operative devices of the patented apparatus for marking lines parallel to the line of sewing and for forming the creases in the cloth, as shown in the drawings. Briefly stated, those devices are as follows: (1) An arm extending from the needle-arm or bar and vibrating with the same. (2) A pencil, chalk, or point adjusted on the arm of the apparatus so that in its vibrations the point shall press upon the cloth and make a mark thereon for the second line of stitches at the required distance from the line of sewing and parallel to the same. (3) Both the specification and the drawings also show a bar which, as the patentee states, may be attached to the presser-foot, so as to be raised up with it or that it may be sustained in any other convenient manner. (4) Adjustable marking-arms are also shown, which extend from the bar of the apparatus, and which are provided, one with a marking-point and the other with a marking-notch. Arms formed as springs are also provided, so that the marking-point and the marking-notch are raised from the cloth except when acted on by the arm of the apparatus. Springs are also used in connection with the adjustable marking-arms so as to yield in case of inequality in the thickness of cloth and not to interfere with the full stroke of the needle-bar.

Enough appears to show that the apparatus is attached to the bed of a sewing machine, to which a plate is screwed which carries another adjustable marking-point, formed somewhat similar to the marking-point previously described, and the device or its equivalent employed to regulate the distance of the second line from the one being sewed.

Two marking-points are particularly described, and the representation is that they are both made thin, round, blunt, and chisel-formed, so as not to injure or catch on the cloth, and that the one shown in the third figure of the drawings may be fitted to slide in a groove to render the same adjustable at the desired distance from the needle, or that several such points may be formed or attached permanently at short distances apart.

Speaking of the device to regulate the distance for the second line of sewing, the patentee states that it may be adjustable and that it will form a crease for the marking-point, and that it may be set in a small metal holder, or it may be constructed of sufficient length to comprise the whole distance to which the marking-point may be adjusted.

Three marking points and the notch are mentioned in the specification, and the statement is that the one first mentioned and the device employed to regulate the distance for the second line produce a downward crease, and that the notch and the other marking-point shown in the third figure of the drawings produce an upward crease when the cloth is exposed to the action of these parts by passing between the same.

In order to give motion to these markers the bar or arm of the apparatus strikes on the spring part of the adjustable marking-arms, which extend from the bar attached to the presser-foot, pressing the surfaces together and cramping or creasing the cloth.

For tucking, the markers should extend on the other side of the needle arm, and for that purpose the bar attached to the presser-foot of the sewing-machine may be fitted in any convenient manner, but where a holder or arm to the presser-foot is used in the manner shown, the hole into which the bar sets may pass through the same and be provided with a clamping-screw, so that the bar attached to the presser-foot can be inserted from the other side, and in that case the plate also should stand on the other side of the needle, a second slot being provided for the purpose. Change to the other side must also be made in the arm of the apparatus, extending from the needle-arm of the sewing-machine to the marking-point first described, and the device to regulate the distance for the second line of stitching.

Corresponding variations must be made in the manner of attaching the apparatus to the sewing-machine, and the patentee states that the vibrating motion may be given to the markers by the needle bar or by any other suitable device.

Proofs were taken, the parties heard, and the circuit court entered a decree dismissing the bill of complaint, and the complainants appealed to this court.

Want of novelty in the supposed invention, and the denial of infringement by the respondents, constitute the two defenses set up in the answer; but the evidence to overcome the *prima facie* presumption that the patentee is the original and first inventor being insufficient for the purpose, the first defense must be overruled. (*Cammeyer* vs. *Newton & al.*, 3 Otto.)

Grant that and it follows that the decision in the case before the court must depend upon the question of infringement. Without more, the remarks already made are sufficient to show that the patented improvement is a combination of old elements constituting an apparatus for effecting the results described in the specification.

Intentional infringement is alleged by the complainants and the burden is upon them to prove the allegation, as the charge imputes a wrongful act to the respondents.

Where the invention is embodied in a machine, the question of infringement is best determined by a comparison of the machine or apparatus constructed or used by the respondent with the mechanism described in the specification of complainant's patent. Comparison of the kind has been carefully made by the court in the case under consideration, aided by the expert evidence exhibited in the record, and the court is of the opinion that the invention of the complainant, when the patent is properly construed, is not embodied in the apparatus constructed, sold, or used by the respondents, as charged in the bill of complaint.

Two distinct devices are shown in the complainant's patent which operate upon the cloth when being sewed in a sewing-machine, so as by the one to leave a mark and by the other to make a crease in the cloth to indicate where it should be folded for the future operation. Briefly described, one of the devices consists of a pencil arranged as before explained, and the other consists of the notch and the point fitting into it, called the markers, and placed on opposite sides of the cloth, and which are operated by the needle-arm, and so arranged in their connections as to vibrate in unison with the needle to press the cloth in the notch while the needle is in the cloth, thereby forming a crease in the same parallel to the line of sewing, for the purpose of indicating the place for the next fold.

Creases of the kind are made by the point and notch, but the pencil is employed to make a mark on the cloth when the cloth is moved under it, as a guide for folding the cloth, as before sufficiently explained. No such device as the pencil or its equivalent is found in the respondents' apparatus, nor anything which will perform the same function, or which has or can be made to have the same mode of operation. Nothing of the kind is exhibited in their apparatus; nor is anything of the kind described in the patent under which they profess to work; nor are there any means or mechanism exhibited or described whereby such a device can be employed in the apparatus or be made to operate to mark the cloth in any manner so that the same could be evenly folded.

In the complainant's apparatus the pencil is fastened to a bar which projects out from the needle-arm in nearly a horizontal direction, entirely unlike anything shown in the respondents' apparatus. Projecting outward from the presser-foot and fastened to it is a substantial frame-piece, called a bridge by one of the witnesses, which supports a bar running parallel with the bed of the machine and nearly parallel with the needle-arm, which supports one or more spring arms, the same being provided with two slides or markers—one being a point operating in an elastic bed fastened to the plate of the marker, and the other being a point or sharp device fastened to the bed-plate and operating on an elastic bed attached to one of the described spring-arms. Attached to the needle-bar is the arm which supports the pencil, and in the downward movement of the bar it comes in contact with the spring-arms and causes the described points to mark the cloth.

Viewed in the light of these suggestions it is clear that the distinct features of the invention consist in the elevated bar projecting out of the frame attached to the presser-foot, the described spring-arm, the bar projecting out from the needle-arm with the described points, and the bed-plate on which they strike.

Turn from that to the patent of the respondents, or to the apparatus which they make, use, and sell, and it appears beyond all doubt that the apparatus of the respondents is substantially different in many respects from the patented improvement of the complainants. There is no frame-work in the respondents' apparatus, projecting out from the presser-foot, nor any horizontal bar projecting out from the frame-work; nor are there any spring-arms attached to any horizontal bar; nor is there any horizontal bar projecting out from the needle-arm to operate any such spring-arms as those described in the complainants' specification.

Instead of that there is in the apparatus of the respondents a pivoted double-spring blade operating on both sides of an upwardly-projecting point. Effective means for operating that blade are also shown, and it appears that they consist in a spring-arm attached to the bed-plate of the marker which extends over the double blade, and that a vertical slot is made in the spring-arm through which the needle passes, and allows the lower end of the needle-arm to force the spring down on to the double blade while the cloth passes under the blade and over the sharp point, by which the elasticity of that portion of the cloth is lessened so that it will readily bend to form a tuck at the marked place.

Other differences are also apparent; as, for example, the spring-arm in the apparatus of the respondents is not attached to the double blade or marker; nor is the double blade attached to any horizontal bar projecting out from the presser-foot as in the apparatus of the complainants.

Without more, the differences suggested are sufficient to warrant the conclusion that the construction and mode of operation employed by the respondents are substantially different from the means and mode of operation described in the specification of the complainants' patent.

Expert witnesses testify that the bar projecting out from the frame attached to the presser-foot, the spring marker-arm, and the bed-plate are all necessary in the apparatus of the complainants to perform the function described in the specification, and the court without hesitation concurs in that conclusion; and the witnesses also state that if any one of those devices be omitted the apparatus will be wholly inoperative, except that perhaps one marker instead of two might answer the purpose to some extent, as set forth in the specification.

Beyond doubt all those devices must co-operate to effect the described result, and it is equally clear that neither those devices, nor any of them, can be substituted by any device in the respondents' patent or apparatus without reconstruction and invention; nor would anything short of invention enable the constructor to successfully use the devices shown in either apparatus in the other, so as to render the apparatus operative to effect the result described in the complainants' patent. None of the elements of the patented apparatus are new, and it follows that the patent consists in the described apparatus, or in the combination of the old elements of which the apparatus is composed.

Valid letters patent undoubtedly may be granted for an invention which consists entirely in a new combination of old elements or ingredients, provided it appears that the new combination of the ingredients produces a new and useful result; but the rule is equally well settled that the invention in such a case consists merely in the new combination, and that a suit for infringement cannot be maintained against a party who constructs or uses a substantially different combination, even though it includes the exact same elements or ingredients, if the combination is in fact new and useful, and substantially different from the one which preceded it. (*Gill* vs. *Wells*, 22 Wall., 14.)

Such an invention, if it produces a new and useful result, is the proper subject of a patent, and such a patent is valid and operative, but the right of the patentee under it differs in one respect from those of a patentee for an invention which consists of an entire machine, or of a new and useful device, as the rights of a patentee for a mere combination of old ingredients are not infringed unless it appears that the alleged infringer

made, used, or sold the entire combination. (*Gould* vs. *Rees*, 15 Wall., 194; *Prouty* vs. *Ruggles*, 15 Pet., 341; *Vance* vs. *Campbell*, 1 Black, 428.)

Beyond doubt that rule is correct, but the mere substitution of another old ingredient for one of the ingredients of a patented invention is not a good defense for an infringer if the substitute performs the same function as the ingredient for which it was substituted, and was well known at the date of the patent as a proper substitute for the omitted ingredient; but the rule is otherwise if the ingredient substituted was a new one, or performed a substantially different function, or was not known at the date of the patent in question as a proper substitute for the one omitted, as in that event the defendant does not infringe. (*Roberts* vs. *Harnden*, 2 Cliff., 504.)

Substantial differences between the apparatus of the respondents and the patented improvement of the complainants, other than those referred to, may also be pointed out, which of themselves are quite sufficient to show that the charge of infringement is not established.

By the patent of the respondents it appears that their apparatus contains an additional device, consisting of a slide-guide, the function of which appears to be to regulate the width of the tuck, the scales being marked on the bed-plate to be used as a guide for that purpose. Plainly no such device is shown in the apparatus of the complainants. Instead of that they adjust the spring-arms which are on the bar projecting out from the frame-work or bridge attached to the presser-foot.

When the slide-guide in the respondents' apparatus is moved the needle-arm still continues to strike the spring-lever or spring arm on the same place; but when the spring-arms in the complainants' apparatus are moved on the bar projecting out from the frame attached to the presser-foot of the sewing-machine, the bar projecting out from the needle-arm necessarily strikes the spring-arm at another point on the bar, showing that the two devices operate on distinct principles, as they are controlled and regulated by different mechanical means.

Wide differences also exist in the operation of the marking-points when one apparatus is compared with the other. Suitable means for adjusting the marking-point are shown in the complainants' patent, but the marking-point in the respondents' apparatus is stationary. In the complainants' apparatus it is adjustable in a slot made in the bed plate, so that it may be moved longitudinally to correspond with the notches or bearings in the ends of the spring-arms when the latter are adjusted, it appearing that one marking-point in that apparatus projects up from the bed-plate, and that the other marking-point extends down from one of the spring-arms; that the point in the bed-plate operates in a bearing or notch in one of the spring-arms, and that the other spring arm has a point operating in a bed in the slot made in the bed-plate, which shows that either spring-arm with its respective marker may perform the same functions substantially as the other spring-arm.

From these remarks it follows that the point or bar for marking in the complainants' apparatus must necessarily be adjusted in the bed-plate to a distance corresponding to the movement of the spring-arms. Unlike that, the marking-point in the respondents' apparatus is stationary, and in that particular is entirely different, as all must admit who have given the matter any examination whatever.

Besides, there is in the patented apparatus a curved or movable plate attached to a horizontal arm or frame-piece fastened to the presser-foot, the function of which plate is the holding of the cloth smooth on the bed-plate as it passes through the apparatus. One end of the movable plate is elevated above the bed of the machine, while the other end is curved and brought nearly or quite to the bed-plate of the marker, and operates independently of the other mechanism. Compare those means for holding the cloth with the means employed in the apparatus of the respondents, and the difference is at once seen to be material and obvious; as, for example, the bar which holds the cloth to the bed-plate in the latter apparatus is attached to one end of the bed-plate and extends lenthwise of it, and is rigidly fastened to the marking-blade, forming a different combination from that exhibited in the other apparatus, inasmuch as the bar which holds the cloth to the bed-plate is made to bear harder thereon when the spring-arm is brought down on the blade than when the needle-arm is ascending. Detach the bar from the bed-plate in the respondents' apparatus and no marking can be done, but the marker will continue to perform its functions in the complainants' apparatus even though the smooth plate were detached from the device fastened to the presser-foot.

Differences of equal importance might be continued at much greater length, but the court is of opinion that those already pointed out are amply sufficient to show that the decision of the circuit court dismissing the bill of complaint is correct, and that there is no error in the record.

Decree affirmed.

APPLICATION FOR EXTENSION.

DEPARTMENT OF THE INTERIOR,
U. S. PATENT OFFICE,
Washington, D. C., March 10, 1877.

On the petition of HENRY VOELTER, of Heidenheim, Germany, praying for the extension of a patent granted to him August 10, 1858, antedated August 29, 1856, extended for seven years from August 29, 1870, reissued June 6, 1871, and numbered 4,418, for an improvement in reducing wood to paper pulp, this application having been authorized by act of Congress approved March 3, 1877:

It is ordered that the testimony in the case be closed on the 29th day of May next; that the time for filing arguments and the Examiner's report be limited to the 8th day of June next; and that said petition be heard on the 13th day of June next.

Any person may oppose this extension.

ELLIS SPEAR,
[tf] *Commissioner of Patents.*

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date April 3, 1877.]

9,873.—Corset.—MAX ADLER, New Haven, Conn., assignor to MAYER, STROUSE & CO., same place. Application filed March 17, 1877. Term of patent 7 years.

9,874 to 9,876, inclusive.—Carpets.—ALPHONSE BAYE, London, England, assignor to ROXBURY CARPET COMPANY, Boston, Mass. Applications filed March 20, 1877. Case A. Term of patents 3½ years.

9,877.—Dishes.—EDWARD BOOTE, New York, N. Y. Application filed March 10, 1877. Term of patent 3½ years.

9,878.—Font of Printing-Types.—JAMES M. CONNER, Greenville, N. J. Application filed March 12, 1877. Term of patent 7 years.

9,879.—Heating-Stoves.—RICHARD A. CULTER and DAVID C. PROCTOR, Peoria, Ill. Application filed February 8, 1877. Term of patent 7 years.

9,880.—Carpets.—EUGÈNE DANIEL, Paris, France, assignor to ROXBURY CARPET COMPANY, Boston, Mass. Application filed March 20, 1877. Term of patent 3½ years.

9,881.—Motto.—JULIUS W. FLEISCHMANN, Williamsburg, N. Y. Application filed January 22, 1877. Term of patent 3½ years.

9,882.—Hinges.—FRANCIS T. FRACKER and LOUIS WIDMAYER, New Britain, Conn., assignors to P. and F. CORBIN. Application filed March 16, 1877. Term of patent 7 years.

9,883 to 9,886, inclusive.—Necklace.—GEORGE F. GLEASON, Newark, N. J. Applications filed March 13, 1877. Term of patents 3½ years.

9,887.—Chairs and Settees.—HOWARD F. GOODWIN, Sheboygan, Wis. Application filed January 26, 1877. Term of patent 14 years.

9,888.—Chair-Frame.—ADOLPH G. HOFSTATTER, New York, N. Y. Application filed February 17, 1877. Term of patent 7 years.

9,889.—Oil-Cloths.—JAMES HUTCHISON, Newark, assignor to LINCOLN D. FARR, Camden, N. J. Application filed February 20, 1877. Term of patent 3½ years.

9,890.—Cooking-Stoves.—OLIVER B. KEELEY, Spring City, assignor to himself and ENOS S. SHANTZ, Philadelphia, Pa. Application filed March 7, 1877. Term of patent 7 years.

9,891.—Sheet-Metal Water-Pipe.—JOHN F. STARK, Jr., Camden, N. J. Application filed February 17, 1877. Term of patent 7 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date April 3, 1877.]

4,511.—Fertilizer.—JOHN ARRINGTON & SONS, Petersburg, Va. Application filed March 14, 1877.

"The picture of a bunch of tobacco-leaves and the sign '£' and the numerals '10' appearing or imprinted thereon."

4,512.—Fertilizers.—JOHN ARRINGTON & SONS, Petersburg, Va. Application filed March 14, 1877.

"The symbol representing a cotton-bale."

4,513.—Lager-Beer.—BOCA BREWING COMPANY, San Francisco, Cal. Application filed December 28, 1876.

"The word-symbol 'BOCA,' and the figure of a bear, a wreath of grain, and a monogram consisting of the letters 'B. B. Co.'"

4,514.—Soap.—R. W. BELL & Co., Buffalo, N. Y. Application filed March 6, 1877.

"The pictorial representation of the Centennial Corliss steam-engine."

4,515.—Butter.—CONSTABLE & CO., Philadelphia, Pa. Application filed March 19, 1877.

"The arbitrary word-symbol 'GLASPAKT.'"

4,516.—Tobacco-Pipe Stems.—WILLIAM DEMUTH, New York, N. Y. Application filed March 14, 1877.

"The word-symbol 'ORCHARD.'"

4,517.—Cosmetic.—WILLIAM HUNT, near North East, Md. Application filed March 14, 1877.

"The word-symbol 'CONCINNARE.'"

4,518.—Flour.—JENKINS & HOVER, Oswego, N. Y. Application filed March 19, 1877.

"The arbitrarily-selected word 'BRILLIANT.'"

4,519.—Flour.—JENKINS & HOVER, Oswego, N. Y. Application filed March 19, 1877.

"The arbitrarily-selected word 'DICTATOR.'"

4,520.—Medical Preparation.—AUGUSTUS KIEFER, Indianapolis, Ind. Application filed March 15, 1877.

"The work-symbol 'Taraxine.'"

4,421.—Cigars.—M. C. MCDONALD & Co., Chicago, Ill. Application filed March 19, 1877.

"The word-symbol 'ANONYMA.'"

4,522.—Smoking-Tobacco.—CHARLES R. MESSENGER, Toledo, Ohio. Application filed March 6, 1877.

"The word-symbol 'NATIONAL.'"

4,523.—Soap.—OMER TOUSEY & Co., Indianapolis, Ind. Application filed March 19, 1877.

"The word-symbol 'WRINKLE.'"

4,524.—Refined Petroleum-Oil.—ELIPHALET WICKES, Englewood, N. J. Application filed February 17, 1877.

"The fanciful words 'WICKES ECLECTIC.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date April 3, 1877.]

1,021.—Title: "**Orange Wine.**"—B. GENOVAR, St. Augustine, Fla. Application filed March 24, 1877.

1,022.—Title: "**Sapo. A Saponaceous Tooth Elixir.**"—JAMES KING, Jr., New York, N. Y. Application filed March 19, 1877.

1,023.—Title: "**Swiss Health Tea.**"—JOHN PFENNINGER, Alton, Ill. Application filed March 23, 1877.

1,024.—Title: "**These Buttons Obtained the Only Prize Awarded to Pearl Buttons, &c.**"—JOHN THORNTON & Co., Philadelphia, Pa., and New York, N. Y. Application filed March 29, 1877.

1,025.—Title: "**Dr. Shiloh's System Vitalizer.**"—SCHUYLER C. WELLS, Le Roy, N. Y. Application filed March 26, 1877.

1,026.—Title: "**Half-Ounce Prepared Gutta-Percha Pellets.**"—SAMUEL S. WHITE, Philadelphia, Pa. Application filed March 22, 1877.

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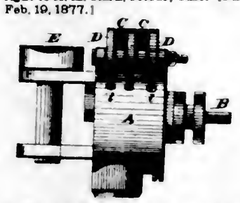
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TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED APRIL 3, 1877.

189,009. PERFORATING-STAMPS. Geo. F. Almy, Delphos, assignor of one-half his right to H. M. Clark, Toledo, Ohio. [Filed Feb. 19, 1877.]

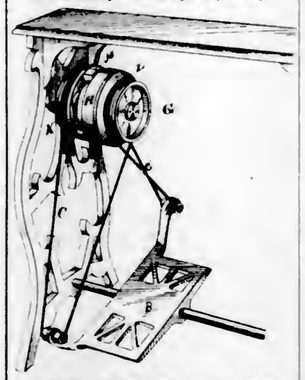


1. In a hand canceling-stamp, the combination of one or more independent disks C, the stamp-frame arranged to be nearly flush with the periphery of the disk or disks, said disks roughened on their periphery, and provided with notches *c*, with a revolving shaft, B, substantially as and for the purpose described.

2. The combination of disk or disks C, shaft B, regulator D, and regulating-screws *l*, substantially as and for the purpose described.

3. In a hand canceling-stamp, the regulator D, provided with slots *k*, in combination with regulating screw or screws *l*, substantially as described.

189,010. SEWING-MACHINE MOTORS. S. Artley, O. Berg, and H. Dieterlea, Chicago, Ill.; said Berg and Dieterlea assignors to said Artley. [Filed Apr. 29, 1876.]



1. The centrally-pivoted treadle B, in combination with the bracket attachments E and F, arranged one on each end of the treadle, substantially as and for the purpose set forth.

2. The centrally-pivoted single treadle B, in combination with the endless belt C, and the pulleys K and L, substantially as specified.

3. The pulleys K L and clutches M P, constructed and arranged, as described, to fit one upon the inside of one pulley, and the other on the outside of the other pulley in combination with the eccentrics O and Q, and the drive-wheel H, substantially as and for the purpose set forth.

4. A double-pronged clutch, having a central opening, and two bearing-points at some distance apart, in combination with an eccentric bearing, substantially as shown and described.

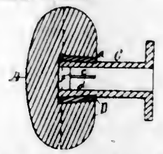
5. The wheel H provided with a flange, projecting from one side thereof, in combination with the clutch P constructed as described, to clasp the wheel upon the outside of said flange, substantially as shown and set forth.

189,011. HORSESHOES. C. W. Atkinson, Indianapolis, Ind., assignor to H. Atkinson, same place. [Filed Nov. 21, 1876.]



A toe-weighted horseshoe—namely, a cast shoe having a cored chamber in the toe, in which is inserted lead or other metal whose specific gravity is heavier than the metal of the shoe, in the manner and for the purposes set forth and described.

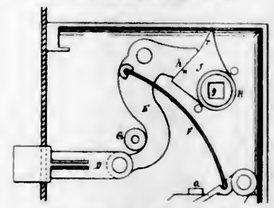
189,012. ATTACHING KNOBS TO THEIR SHANKS. Wm. A. Barlow, Chicago, Ill. [Filed Aug. 17, 1876.]



1. The combination, with the knob A, of the slotted shank C, ring D, and key F, substantially as and for the purpose set forth.

2. In a door-knob, the combination, with the tapering mortise formed within the shank C, of the key F, adjusted to pass through said mortise from the inner end of the shank, substantially as and for the purpose specified.

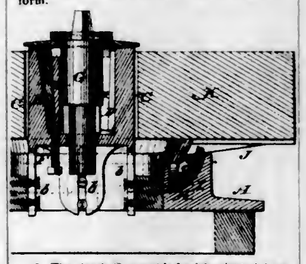
189,013. KNOB-LATCHES. W. A. Barlow, Chicago, Ill. [Filed Aug. 3, 1876.]



In combination with the latch-lever E, operating the latch, and beveled, as at A, the hub H, having the arm J, provided with the bearing-faces *s r*, arranged at different angles, and adjusted to act upon the lever, substantially as and for the purpose specified.

189,014. BALANCING AND ROCKING MILL-STONES. C. E. Benade, York, Pa., assignor to himself and Jas. Kell, same place. [Filed Mar. 13, 1877.]

Brief.—Provides for rocking the bed-stone by means of anti-friction balls held between the supporting-plate and the upholding platform.

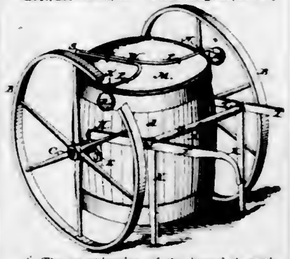


1. The bush C, provided with slotted legs *b*, and adjustably attached to the lugs *a* on the flange B of the bed-plate A, substantially as and for the purposes herein set forth.

2. In a run of millstones, the combination of the bed-plate, the bed-stone, and a series of balls, interposed between the stone and plate, to cause a rocking motion of the bed-stone, for the purposes herein set forth.

3. The combination of the bed-plate A, having concave flange B, the loose ring I, with balls D, and the bed-stone K, having spider J, with convex flange L, all substantially as and for the purposes herein set forth.

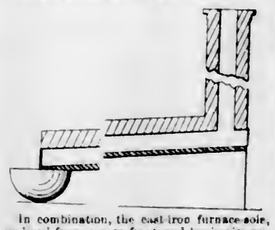
189,015. GARBAGE-TRUCKS. J. O. A. Bennett, Morrison, Ill. [Filed Aug. 21, 1876.]



1. The combination of the barrel A with the cover M, pivot-rods W, balls R, substantially as shown and described, and for the purpose set forth.

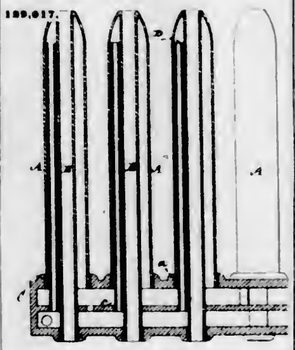
2. The combination of the barrel A with the cover M, pivot-rods W, balls R, wheels B, handles F, lugs E, and the spindles C, substantially as shown and described, and for the purpose set forth.

189,016. LEAD-FURNACE BOTTOMS. Theo. Bisch, De Soto, Mo. [Filed Oct. 28, 1875.]



In combination, the cast-iron furnace-sole, inclined from rear to front, and having its upper surface longitudinally synclinal, and the metal-discharging pot, the sole being suitably cut away at its discharge end to receive the pot, and form therewith a drip-proof seat, all substantially as and for the purpose herein set forth.

189,017.

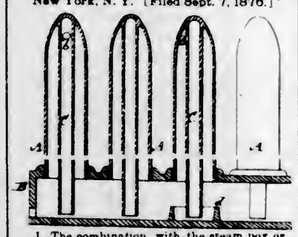


189,017. STEAM-RADIATORS. G. W. Blake, New York, N. Y. [Filed Sept. 7, 1876.]

1. The outer steam-heating pipes A and inner air-circulating and heating pipes B of the radiator, united at their upper or outer ends by welding, whereby said inner and outer pipes are integral portions of each other, substantially as and for the purposes herein set forth.

2. The outer and inner pipes A and B, united with each other at their upper or outer ends, and constructed with screw-threads *a* and *b*, of like pitch and direction, at their opposite ends, in combination with the radiator-base C, having tapped holes, into which the threaded portions of both pipes A and B are simultaneously screwed, essentially as described.

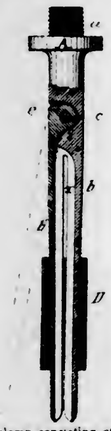
189,018. STEAM-RADIATORS. G. W. Blake, New York, N. Y. [Filed Sept. 7, 1876.]



1. The combination, with the steam box or base B, of the outer or main steam-heating pipes A, attached to said base, and the inner steam-return pipes C, united at their upper or outer ends, by welding, with the main pipes A, but free from or disconnected with the base at their lower or opposite ends, substantially as specified.

2. The combination, with the steam box or base B and outer or main steam-heating pipes A, of inner steam-return pipes C, attached at or near their upper ends to the main pipes, but extending below the latter, and a water-pit in the steam box or base, operating to seal the lower ends of the steam-return pipes, essentially as described.

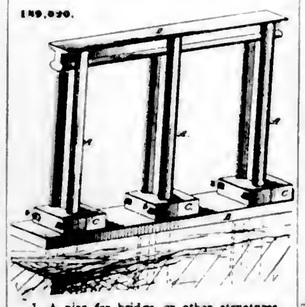
189,019. ROPE-CLAMPS. John H. Calor and David Powell, Fallston, Pa. [Filed Feb. 26, 1877.]



1. A rope-clamp consisting of a stem, A, provided with tapering jaws *b b'*, and with a sleeve, D, said jaws inclosing a socket, *x*, enlarged at the inner end, and corresponding to the tapering end *y* of a rope, C, all as set forth.

2. The combination of the shank A, its jaw *b*, socket and shoulder *i*, and the pivoted jaw *b'*, its head *s*, and recess, as set forth.

189,020. BRIDGE-PIERS. B. B. Colby, Groton, N. Y., assignor of one-half his right to O. Avery, O. Bartholomew, and C. Perrigo. [Filed Aug. 11, 1876.]



1. A pier for bridge or other structures, formed of piles A made of railroad-rails and cross-pieces D, substantially as described.

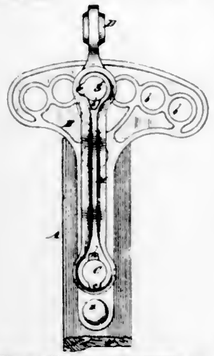
2. The piles A of railroad-iron, in combination with the mudsill B, substantially as specified.

3. The combination, in a pier, of driven piles, with mudsill B, and stops C C, substantially as specified.

4. In a pier, the cap or cross-piece D, formed of railroad-iron, in combination with a series of driven piles, substantially as specified.

189,021. CLEVISES. J. C. Coonley and A. O. Buckius, Chicago, Ill. [Filed May 27, 1876.]

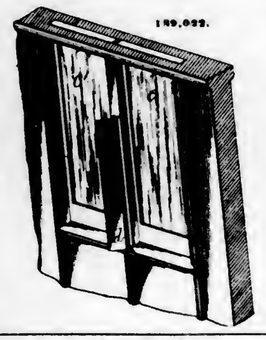
Brief.—The brace-bar is attached to the clevis-plate and draft-bar by detachable locking connections.



1. The combination, substantially as set forth, of the clevis-plate B, draft-bar D, and brace-bar H, attached to the plate and draft-bar by detachable locking connections, constructed and operating as specified.

2. The combination of the draft-bar D and brace-bar H, attached thereto by a detachable locking-connection, constructed and operating as described.

189,022.

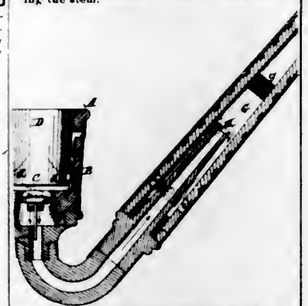


189,023. RAILROAD-CAR VENTILATORS. S. Darling, Providence, R. I. [Filed Aug. 31, 1876.]

The combination, with reversible car-seats, of divided windows, the same consisting of single sashes separated by a parting-strip, having a deflector hinged to its outer surface, substantially as and for the purpose set forth.

189,023. TOBACCO-PIPES. J. Davis, St. Paul, Minn. [Filed Aug. 2, 1876.]

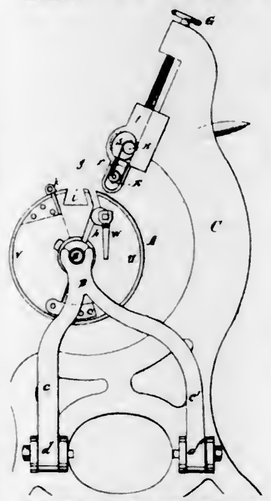
Brief.—The bowl is in two parts or shells, between which there are channels for the circulation of the smoke, to cool it before entering the stem.



1. In a pipe-bowl, the combination of the inner shell A, divided into two compartments by the partition C, and provided with spiral grooves *a* on the outside communicating with ducts leading to said compartments, with the outer shell B fitting over said inner shell, and the fire-pot D sitting within said inner shell, the whole arranged to operate substantially as set forth.

2. In a pipe-stem, the combination of the body G, divided into two compartments by the partition *g*, said compartments communicating with each other by means of spiral channels on the outside of said body, and the outer casing, and supplemental stem H, secured in the lower part of the body, substantially as herein set forth.

189,024. PAPER-BARREL MACHINES. Francis N. Davis, Beloit, Wis. [Filed Sept. 19, 1876.]

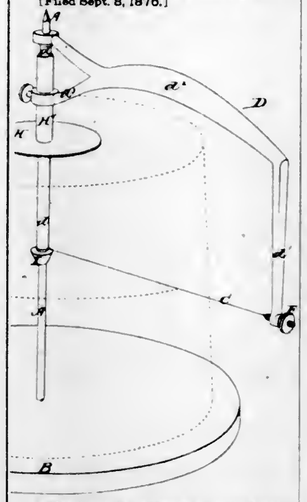


1. The roller A, constructed in two parts, hinged together at one side, one section having a dovetailed groove, *i*, in combination with the eccentric k, for expanding or contracting the cylinder, so as to enable the shells to be easily withdrawn with their clamps, substantially as specified.

2. The locking rod *j* and lock *l w*, in combination with the removable clamp *s p*, and roller A, substantially as set forth.

3. The combination of the sliding heads F, frame C, screws G, roller B, eccentric *e*, shaft H, and roller A, for adjusting space and pressure, substantially as described.

189,025. BUTTER-CUTTERS. Jas. H. Dugan and Geo. Monorief, Stoneham, Mass. [Filed Sept. 8, 1876.]



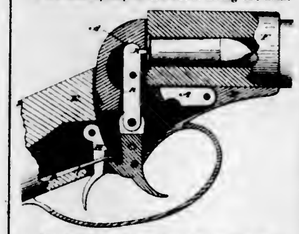
1. The frame D, constructed as described, combined with the wire C and the supporting-standard A, as set forth.

2. The stop or rest H, combined with the frame D, wire C, and standard A, as set forth.

3. The conical collar I, combined with the standard A and frame D, as set forth.

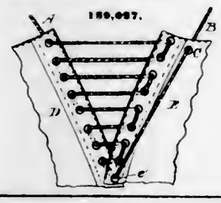
189,026. BREECH-LOADING FIRE-ARMS. I. M. Earle, Pella, Iowa. [Filed Sept. 28, 1876.]

Brief.—The piece is cocked and the breech opened by a pull upon the front trigger or lever. The breech block and hammer move together, and the breech is closed by the action of the mainspring in the act of firing the arm.



The firing-lever B and the trigger C, so pivoted to each other and to the breech-block A that a pull or said trigger withdraws spar K from the cartridge and opens the breech by depressing the breech-block A, substantially as described.

189,027.



189,027. LACING BOOTS AND SHOES. N. Evans, Boston, Mass., assignor of one-half his right to E. S. Fisher, same place. [Filed Feb. 17, 1877.]

A shoe provided with lacing holes along the two edges of the opening, one set of holes being coincident with the other set, together with an auxiliary hole at one side, as shown, all adapted to receive a lacing, substantially as shown and described.

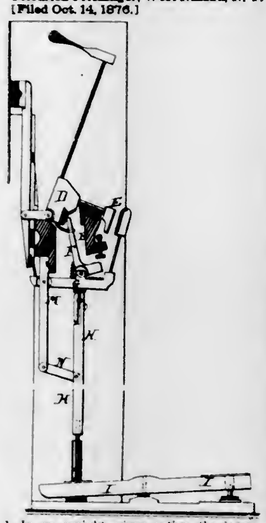
189,028. HANDLE AND CATCH COMBINED FOR SLIDING DOORS. Wm. C. Folant, Eltenville, N. Y. [Filed Oct. 24, 1876.]



1. The handle H, provided with the projection A and aperture C, in combination with the spring-catch B F and staple E, substantially as and for the purpose specified.

2. The spring-catch B F, provided with the thumb-piece G, in combination with the staple E and recessed handle H, having the projection A and aperture C, substantially as and for the purpose specified.

189,029. UPRIGHT PIANO-FORTE ACTIONS. Friedrich Frickinger, West Nassau, N. Y. [Filed Oct. 14, 1876.]

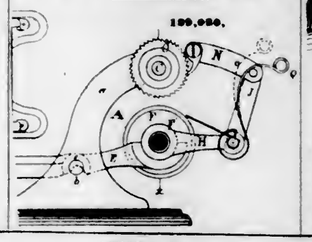


1. In an upright-piano action the inner rail B, placed with reference to the fly F and hammer-catch E, to constitute a combined fly-stop and hammer-rest, substantially as specified.

2. The hammer-catch E, elongated and combined with the inclined face of the fly-stop B, substantially as herein shown and described.

3. The butt M, having the fly-lever G and brace N, both directly pivoted thereto, and to the lifter H, substantially as specified.

189,030.



189,030. PLAITING-MACHINES. T. Hagerty, Brooklyn, N. Y. [Filed Mar. 6, 1877.]

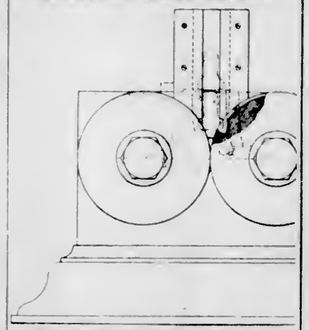
1. In a plaiting-machine, the driving-shaft C, when passing loosely through the upper roller B, and being independent of the same, in combination with the adjustable crank D, pitman K, blade-shaft I, link J, oscillating arm N, ratchet-wheel O, and pawl P, substantially as shown.

2. The spring Q, attached to the blade-shaft I when made to press intermittently on the cloth by the forward and backward movement of arm N, or other parts of the machine.

3. In a plaiting-machine, the bifurcated adjusting-lever for raising and adjusting the lower roller, and also forming the bearings of the same, constructed substantially as described.

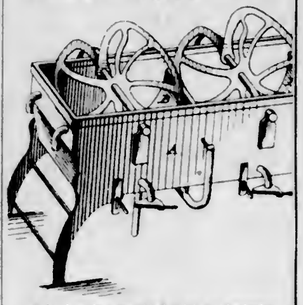
4. The combination of the driving-shaft C with the oscillating arm N and link J, to act on or engage the ratchet-wheel, part of the time positively, and part of the time with lost motion, when the machine is in operation.

189,031. MANUFACTURE OF HORSESHOE-NAILS. G. L. Hall, Boston, Mass., assignor to Narragansett Horse Nail Company, Hartford, Conn. [Filed Dec. 13, 1876.]



As an improvement in the art of manufacturing horseshoe-nails, the particular adaptation herein described of the dies to the nail-blank, which latter is of an uniform thickness, but of a shape otherwise, as represented and set forth, in virtue of which the head metal, instead of being first forced laterally and upwardly into the shank, is at first forced laterally and downwardly toward the apex of the head, thus completely filling all the angles of the head-die, and after this forcing any surplus metal toward and into the shank, to be succeeded immediately by the reduction of the shank itself, which latter operation commences about the time the head is passing across the plane of the axis of the die-rolls.

189,032. LARD-COOLERS. W. P. Harvey, Baltimore, Md. [Filed Feb. 6, 1877.]



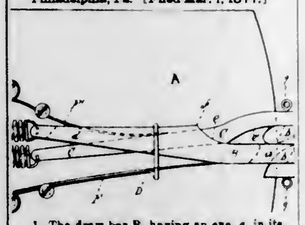
A lard-cooler provided with an inclosing-jacket chamber, a series of transverse curved hollow partitions communicating therewith, suitable inlet and outlet pipes for the admission and discharge of the refrigerant, and a series of revolving spiral agitators for promoting the rapid cooling of the lard, the several parts being relatively arranged substantially as herein set forth.

189,033. SLATE-WASHERS. R. De Haven, Rochester, N. Y., assignor, by mesne assignments, to E. G. De Haven and E. L. Thomas, same place. [Filed Sept. 30, 1876.]



The combination, in a slate-eraser, of the handle H, extended to form the shank K and bulb B, the sponge or other substance S, attached by wire or cord to the shank K, and the cap C, substantially as and for the purposes herein set forth.

189,034. CAR-COUPLINGS. Jas. Hayden, Philadelphia, Pa. [Filed Mar. 1, 1877.]



1. The draw-bar B, having an eye, *a*, in its front end, in combination with the draw-bar C, having a hook, *b*, the bars being so arranged in relation to each other and with the platform A that, when two cars are brought together, the hook of each pair of bars will automatically couple with the eye of the other bar, substantially in the manner and for the purpose set forth.

2. The arrangement of the bars B and C diagonally with each other, the bar B having a longitudinal slot, *d*, in which the bar C is held in position, substantially in the manner and for the purpose set forth.

3. The bar B, having projections *f*, for the double purpose of supporting the bar C in its lateral movements, and for forming a space between the projections for the movement of the bar, substantially as set forth.

4. The combination of the springs F F' with the draw-bars B C, when so arranged as to press toward each other, and thus keep the bars in their central position when the cars are on a straight line, and allow them to yield in accommodation to each other in turning curves, substantially as set forth.

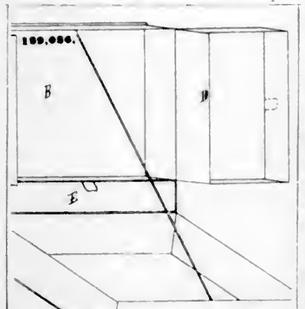
189,035. BUTTON-FASTENINGS. Simon A. Haselton, Linden, N. Y. [Filed Aug. 29, 1876.]



1. The combination of the button *a*, provided with slotted shank *b*, and the curved fastening-shield *d*, having elongated slot *f* and tongue *e*, arranged, applied, and operating as and for the purposes as herein shown and set forth.

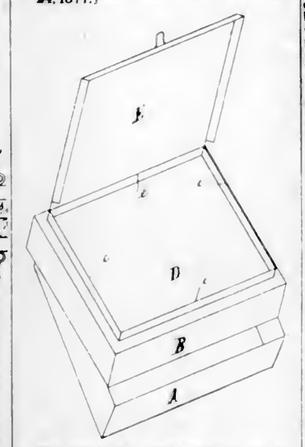
2. The fastening-shield *d*, concave on one face and convex on the other, provided with elongated slot *f* and tongue *e*, as and for the purposes herein set forth and described.

189,036. PAPER BOXES. L. P. Heath, Springfield, Mass., assignor to Powers Paper Company, same place. [Filed Jan. 24, 1877.]



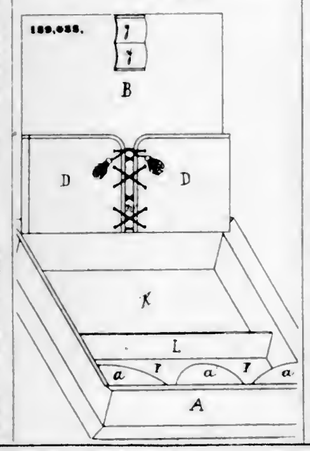
A box having a deep cover, B, in which are two deep cabinet-doors, D D, and a drawer, E, all arranged substantially as and for the purpose set forth.

189,037. PAPER BOXES. L. P. Heath, Springfield, Mass., assignor to Powers Paper Company, same place. [Filed Jan. 24, 1877.]



The combination of the auxiliary box D, the hinged cover E, and the vertically-lifting cover B, with the main box A, substantially as and for the purpose set forth.

189,038.

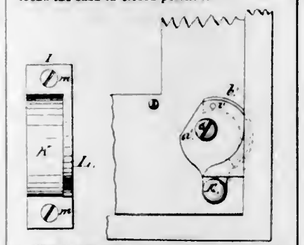


189,039. STATION-INDICATORS. John H. Hersog, Cincinnati, Ohio. [Filed Mar. 9, 1877.]

Brief.—By means of pawls and ratchets on the ends of the rollers, which are out of engagement when the rollers are at rest, the apron may be moved in either direction without first reversing the ratchet mechanism.

189,040. SASH-HOLDERS. R. Holcroft, Philadelphia, Pa. [Filed Oct. 11, 1876.]

Brief.—As an improvement on Patent No. 177,247, May 9, 1876, a fastening-plate is provided, having in the middle a curved recess and on the side a projecting catch, cast in a single piece, and let into the sash-frame in such manner that the weighted handle of the cam passes under the catch and automatically locks the sash in closed position.



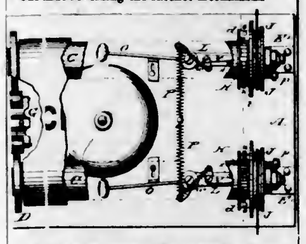
The combination of the fastening-plate I, having a curved recess, K, and catch L, with the cam or eccentric A, having handle E, or its equivalent, substantially as shown and described, for the purpose set forth.

189,041. COUPLINGS FOR GLASS PIPES. H. P. Humphrey, Chelmsford, assignor of one-half his right to J. W. Bruce, Westford, Mass. [Filed Dec. 23, 1876.]

1. The cushion O, placed between the collar M and the pipe A and hose B, as and for the purpose described.

2. The rods R R R, provided with nuts N N, in combination with the collars M M' and bosses B B', as and for the purpose described.

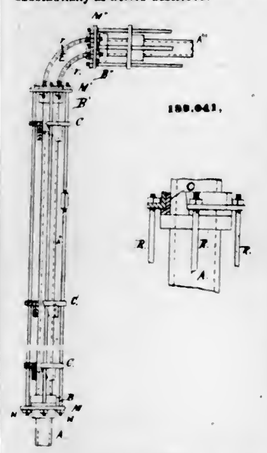
3. The coupling-rings C C and collars M M, in combination with the rods R R' R'', to prevent lateral motion of the pipes.



1. The spring-pulley J, provided with projecting tooth *a*, in combination with the pivoted lever I, carrying hammer *c*, finger *e*, and spring *w*, substantially as and for the purpose set forth.

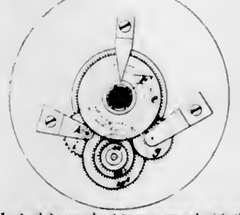
2. The combination of the curtain-rollers O with ratchet-wheels H and standards E', having stationary hubs *h*, provided with projecting hooks *i*, the hollow pulleys J, springs I, pawls *m*, and stops *p* and *s*, whereby the curtain can be operated in both directions, all substantially as and for the purpose set forth.

4. The method herein described of coupling pipes by elastic cushions and supporting-rods, substantially as herein described.



189,042.

189,043. TIME-GLOBES. Louis P. Juvet, Glen's Falls, N. Y. [Filed Sept. 15, 1876.]



1. A globe revolved to correspond with the diurnal rotation of the earth by means of mechanism within it, communicating also through intermediate gearing with one or more hands, and imparting thereto a rotation in reverse direction to that of the globe, so as to indicate the time on an ordinary clock-dial.

2. A time-globe, A, provided with an equatorial dial, B, for indicating the time at various longitudes, and a polar dial, D, for indicating the time at a selected place by means of hands *b d*, having the motions proper to the hands of a time-piece.

3. The globe A, revolved on its axis from west to east by the wheels *w s*, in combination with gearing *w' w'' g i k* and hands *b d*, to indicate the time on a dial, D, substantially as set forth.

189,044. PROJECTILES. De Lancy Kennedy, New York, N. Y. [Filed Mar. 16, 1877.]

Brief.—The cutting edge is designed to give the projectile greater penetration when used against iron plates.



A projectile constructed with a cutting edge, extending radially from the axis at A to the periphery at B, and thence spirally around, or partly around, the periphery to the point C, substantially as shown and described.

189,045. CORN-DRILLS. D. Kerschner, Connersville, Ind. [Filed May 25, 1876.]

1. The feeding mechanism, consisting of the slide J, to which is pivoted at *y* the U-shaped double pawl 1, arranged to be operated by means of the links t and its connections with the working parts of the machine, to give a vibrating motion to the double pawl 1, and at the same time a sliding motion to the slide J, whereby motion is communicated to the feed plate *g* by means of the ratchet *i*, in the manner and for the purposes set forth and described.

2. The combination, with the frame A, its driving wheel and shaft L, of the rear pivoted frame E, carrying the hopper and feed mechanism, the intermediate devices driven by the shaft L, and a clutch, which is disconnected on the elevation of the frame, as set forth.

3. The adjustable platform E, with its studs *s'*, having inclined faces, combined with washers *s'*, with inclined faces, nuts *d*, and covers F, having slotted shanks, as specified.

4. The combination of the yoke C, carrying the plow, the platform E, pivoted to the yoke and moving freely independent of the plow, and the slotted link *v*, for operating the devices by which the platform is raised and the feed thrown out of gear, as set forth.

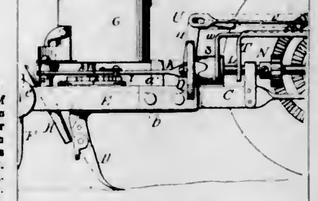
5. The combination of the platform E, carrying the hopper, and feed mechanism operated from the shaft L of the main frame, the devices for disconnecting the shaft and feed mechanism, and the slotted link *v*, connecting said devices and the platform, and permitting a limited movement of the latter without disconnecting the gear, as set forth.

6. The platform-elevating device, consisting of the crank-shaft U, connected, by a link, *u*, to the yoke C, and, by a link, *w'*, to a hand-lever, V, hung to the frame of the machine, as shown, a link, *v*, connected with the slide *w*, slotted at one end to receive the crank-shaft U, arranged and adapted to be operated by the forward or backward movement of the lever V to elevate or lower the platform E with its feed mechanism, in the manner set forth and described.

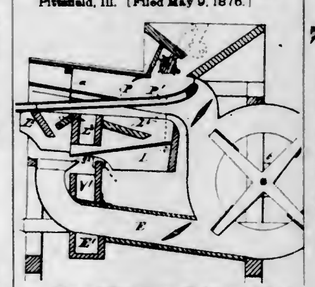
7. The combination of the slide J, pawl I, lever K, and rod r, connected by a universal joint to the lever, and to a pin on the revolving disk Q, substantially as specified.

8. The platform F, carrying the hopper G and coverers F, and hung to and adjustable independently of the plow-beam, as set forth.

189,046.



189,046. GRAIN-SEPARATORS. N. Kibler, Pittsfield, Ill. [Filed May 9, 1876.]

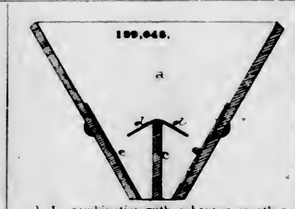


1. The curvilinear shoe P, having two or more sieves, concave in the line of feed, and tapering toward the discharge end, substantially as shown and described.

2. The combination, with the fan and the curvilinear shoe P, of the shoe L, having removable extension L', and the air-trunk E, having removable extensions S or T, substantially as shown and described.

189,046. MAGNETIC PROTECTORS FOR COPPER AND SPICE MILLS. W. A. King, Detroit, Mich. [Filed Feb. 7, 1877.]

189,045.

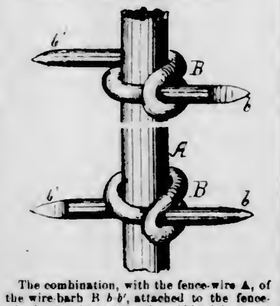


1. In combination with a hopper or other receptacle of a mill through which the material to be ground passes, a magnet or magnets, or magnetic substances arranged around or in the discharge, substantially as shown.

2. The combination of the hopper *c* and magnetic plates *e*, arranged in the bottom thereof, substantially as described.

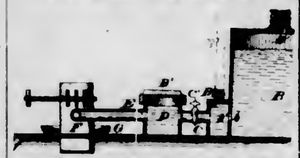
3. The combination of the hopper *c*, magnetic plates *e*, and shield *d*, substantially as set forth.

189,047. BARBED FENCE-WIRE. Ole O. Kittleson, Milan Township, De Kalb County, Ill. [Filed Aug. 21, 1876.]



The combination, with the fence-wire A, of the wire-barb B *b b'*, attached to the fence-wire by forming a bight in said barb *b* around the said fence-wire, and returning the point *b* through said bight on the opposite side of the fence-wire, so that the points *b b'* project, as shown and described.

189,048. OIL-STOVES. H. P. Malone, Cleveland, Ohio. [Filed Feb. 21, 1877.]



1. The combination of reservoir B, provided with supplemental air-chamber B^2, wick tube or tubes F, pipes C E, and chamber D, the latter furnished with a loose cover, substantially as and for the purpose set forth.

2. The combination, with pipe E, having two or more wick-tubes secured thereto, of an oil-reservoir, B, supplemental chamber B^2, and cock C', and cock or pipe B^2, substantially as and for the purpose set forth.

3. The combination of reservoir B, chamber B^2, pipe C, and cocks C' and B^2, substantially as and for the purposes described.

189,049. VALVES. Wm. Mann and Saml. Owens, London, England. [Filed Feb. 22, 1877.]

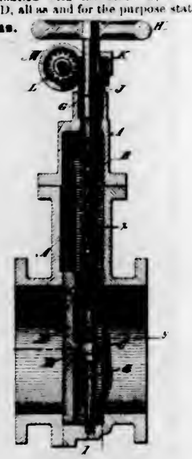
Brief.—The valve is locked against its seat by a cam fixed on the screw-spindle, which raises and lowers the slide. The screw-spindle passes through a nut placed loosely in a bracket on the slide.

1. The combination of the spindle G, screw B, nut F, cam C, rib E, and slide D, all constructed, arranged, and operating substantially in the manner and for the purpose described.

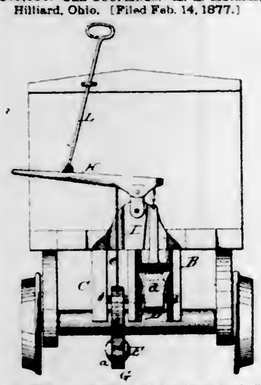
2. The slide D, provided with the rib E, and driven to its seat by means of a cam on the same shaft as the screw, for raising and lowering the slide, all as specified.

3. The nut F, playing in the bracket P, in combination with the screw B, cam C, and slide D, all as and for the purpose stated.

189,048.



189,050. CAR-COUPLINGS. M. L. Mathias, Hilliard, Ohio. [Filed Feb. 14, 1877.]

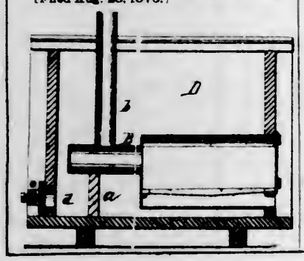


1. The combination of the draw-head C, with stationary horizontal pin *b*, the chamber D, and the coupling-bar G, provided at its front end with the upwardly-bent hook *a*, and at the rear end with the weight E, substantially as and for the purposes herein set forth.

2. The swinging gate *d*, in combination with the draw-head C and pin *b*, to form an inclined guide for the coupling-bar, as herein set forth.

3. The combination of the hooked and weighted coupling-bar G, connection *e*, lever H, with rod L, and the movable foot J, all substantially as and for the purposes herein set forth.

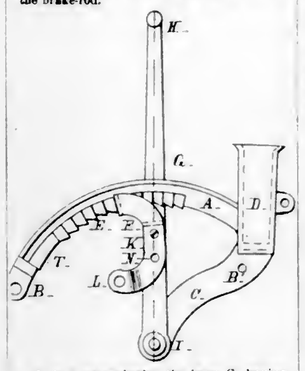
189,051. AGRICULTURAL BOILERS. Wm. McAfee and Y. P. True, Clarence, Mo. [Filed Aug. 23, 1876.]



The agricultural boiler consisting of the flue *b*, pipe B, and furnace, provided with an open draft, all wholly within the tank D, having a hinged cover and drain-outlet, *d*, provided with adjustable stop *e*, all as and for the uses and purposes substantially as set forth.

189,052. WAGON-BRAKE LOCKS. Saml. H. Miller, Canton, Mo., assignor of one-half his right to J. T. Lemley and R. D. Lemley, Quincy, Ill. [Filed July 29, 1876.]

Brief.—The lever loosely pivoted, so as to permit the pawl to be disengaged by a twisting pressure upon the handle. Engagement of the pawl produced by the angular pull of the brake-rod.



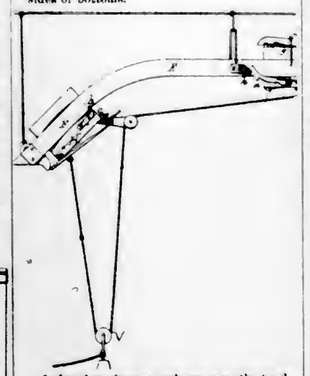
1. In a wagon-brake, the lever G, having the handle H and loose pivot I, the latch F, and angular projecting eye L, in combination with the curved rack E and brake-rod S, arranged substantially as set forth.

2. In combination with the brake-rod S and curved rack E, the loose-pivoted lever G, having the latch F and the bearing part on opposite sides of the rack-bar, arranged so the latch may be engaged or disengaged from the rack by twisting the handle H, substantially as set forth.

3. The combination of the brake-rod S, the screw-block having the hook S', and the latch-lever G, with eye L, arranged for use substantially as set forth.

189,053. HAY ELEVATORS AND CONVEYERS. J. R. Moran, Schoharie, N. Y., assignor to W. B. Murphy, same place. [Filed Feb. 14, 1877.]

Brief.—Suspended carriage-ways curved in either a vertical or a horizontal plane. Carriages adapted to conform thereto by curved sides or bottoms.



1. In a hay elevator and conveyer, the track E, so curved as to turn a corner, in combination with the carrier F, suitably conformed to pass between the rails of same, substantially as set forth.

2. In a hay elevator and conveyer, the carrier F, having concave and convex surfaces, substantially as described.

3. The inclined or curved track E, in combination with the carrier F, having concave and convex surfaces, substantially as set forth.

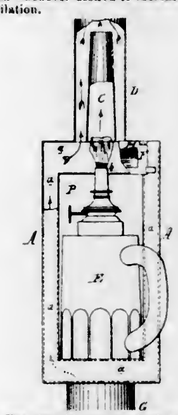
4. In a hay elevator and conveyer, the carrier F, having concave and convex surfaces, and provided with the plate P, check M, wheel L, and swivel T, substantially as set forth.

5. The dummy X, provided with spring-catches *a d*, in combination with the carrier F and curved track E, substantially as shown and described.

6. The carrier F, having concave and convex surfaces, and provided with the projection *b* and staple *c*, in combination with the dummy X, furnished with the spring-catches *a d*, substantially as specified.

189,054. VENTILATORS. Geo. R. Moore, Philadelphia, Pa. [Filed Feb. 28, 1877.]

Brief.—The application of a lighted lamp or gas-jet to the internal atmosphere of any flue, air-draft pipe, or chimney, whereby the circulation of air through the same may be impelled whenever desired to increase draft for ventilation.



1. The flue chimney or air-pipe A, provided with external lamp-holder or niche B, with its communicating aperture *b* into the said pipe or chimney, substantially as and for the purpose herein set forth.

2. In combination, the chimney or air-pipe A, niche B, internal chimney C, and pipe D, substantially as and for the purpose herein set forth.

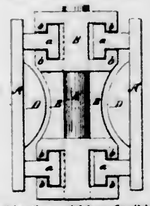
3. In combination, the air-pipe A, with aperture *b* and side door or window F, either with or without mica or glass, substantially as and for the purpose herein set forth.

4. In combination, the air-pipe A, with aperture *b* and pivoted slide *c*, substantially as and for the purpose herein set forth.

5. In combination, the air-pipe A, with aperture *b*, mica or glass front F, and a bright or reflecting surface back of the tight, substantially as and for the purpose herein set forth.

6. In combination, the air-pipe A, lamp E, or gas-jet, mica or glass front F, and adjustable reflector H, substantially as and for the purpose herein set forth.

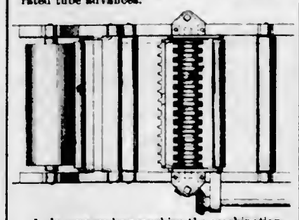
189,055. BALANCE SLIDE-VALVES. T. M. Nagle, Erie, Pa. [Filed Feb. 7, 1877.]



The combination, within a flexible, double, or duplex slide-valve, of the faces A A' and the web or carrier B, when the same are provided with projections *a a a a* and *b b b b*, which interlock or overlap, substantially as and for the purposes mentioned.

189,056. PAPER-BAG MACHINES. Chas. A. Nixon, Dayton, Ohio. [Filed Feb. 16, 1877.]

Brief.—The paper tube is perforated, where it is desired to separate the bag-blanks, by a serrated revolving perforating-blade, which operates in connection with a grooved roller, the projections on blade fitting into the grooves in the roller. A revolving arm or beater detaches the bag-blanks as the perforated tube advances.

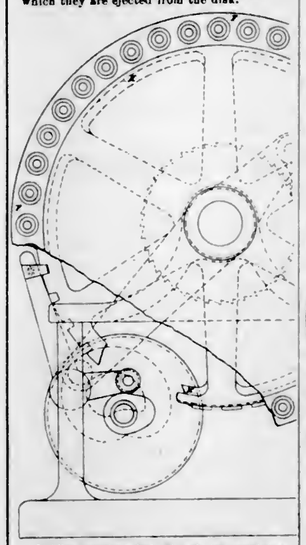


1. In a paper-bag machine the combination, substantially as specified, of the perforator and the grooved roller.

2. In a paper-bag machine the combination, substantially as specified, of the perforator, the grooved roller, and the beaten or breaker.

189,057. MACHINES FOR VARNISHING THE INTERIOR OF CARTRIDGE-SHELLS. F. A. Pratt and J. R. Reynolds, Hartford, Conn., assignors to the Pratt & Whitney Company, same place. [Filed Feb. 2, 1877.]

Brief.—The cartridges are placed in a hopper, from which they are picked up and automatically fed into cells in a rotating disk, by which they are carried in front of reciprocating brushes, by which the varnish is applied to the interior of the shells. The continued rotation of the disk brings the shells successively in front of a reciprocating plunger, by which they are ejected from the disk.



1. The rotating disk F with its revolving spring-cells for holding the cartridge-shells, substantially as herein described.

2. The disk F in combination with a varnishing and wiping mechanism, substantially as herein described.

3. The disk F in combination with an arranging, conveying, and feeding mechanism, substantially as herein described.

4. The disk F in combination with an ejecting-bar for removing the shells, substantially as herein described.

5. The combination of the mechanism for intermittently rotating the disk F, the mechanism for operating the varnishing and wiping brushes, and the mechanism for ejecting the shells with the disk, brushes, and ejecting-bar, substantially as herein described.

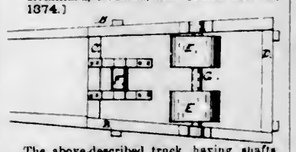
6. The spring-plate N in combination with the series of rotating cells in the disk F, substantially as and for the purpose herein described.

7. The conveying-box D and its operating mechanism, substantially as herein described.

8. The combination of the studs B^4 and the spring B^3 with the projections B^4 on the wheel B, as an engaging device, substantially as herein described.

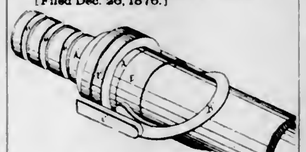
9. The spring-bands *d d'* in combination with the cells L, for holding the cartridge-shell, substantially as herein described.

189,058. BRICK-YARD TRUCKS. Edouard Remillard, Oakland, Cal. [Filed Dec. 18, 1874.]



The above-described truck, having shafts B, rollers E E, axle G, and central roller F, said three rollers being arranged to support and balance the load, and their tread covering the track of the truck, thus rolling the ground smooth, substantially as set forth.

189,059. HOSE-COUPLINGS. A. F. Rich, Fall River, Mass., assignor of one-third of his right to J. H. Orittenden, same place. [Filed Dec. 26, 1876.]



1. The eccentrically-hinged lever B^1, hinged to loose collar E', and carrying pivoted yoke O^1, as specified.

2. In combination, couplings A^1 A, collar E', packing D^2, with lever B^1 and yoke C^1, as described, for the purpose specified.

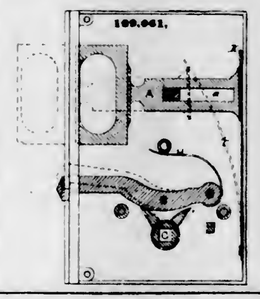
189,060. PENCIL-SHARPENERS. James B. Roache and W. F. Redding, New York, N. Y., assignors to said Redding. [Filed Jan. 29, 1877.]

Brief.—The end of the pencil to be sharpened is placed in the forked carrier C, and then revolved around within and against the inclined abrasive surface D.



A pencil-sharpener, consisting of a cylindrical shell, A, the inner wall of which is coated with sand or emery, and flaring outward from its base, in combination with the revolving holder C, operated substantially as described.

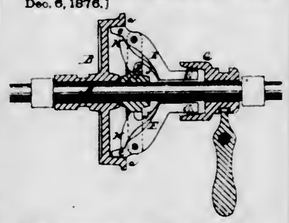
189,061.



189,061. LOCKS FOR SLIDING DOORS. W. O. Rogers, Chicago, Ill. [Filed Apr. 17, 1876.]

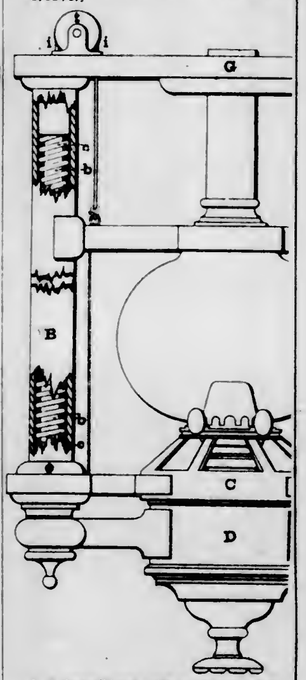
The sliding pull A, provided with a shoulder near its lower front end, for engaging with the face-plate when forced into the case, in combination with the spring K, for throwing the pull outward when released from its engagement, substantially as described.

189,062. FRICTION-CLUTCHES. M. Rumely, La Porte, Ind., assignor of one-half his right to John Rumely, same place. [Filed Dec. 6, 1876.]



The combination of the loose pulley B, provided with a rim, *a*, the bent levers E E, provided at one end with shoes *e e*, and at the other end with set-screws *i i*, the hub *c*, provided with arms D and springs J, and the hollow-cone sliding head G, into the interior of which enter the ends of the levers E, substantially as set forth.

189,063. CENTER-LAMPS. G. Sherwin and E. Hoople, Brooklyn, N. Y. [Filed Sept. 5, 1876.]



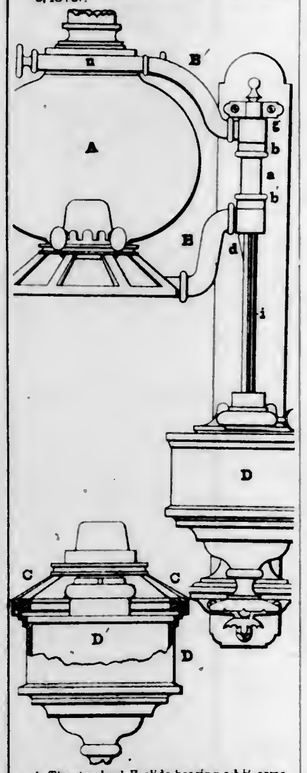
1. A drop oil-lamp, with or without a drip-holder, in combination with the rods *b b*, actuating-springs *c c*, and the suspension-tubes B B, substantially as and for the purpose set forth.

2. A stationary globe and suspension tube or bars B B, in combination with a drop oil-lamp, with or without a drip-holder, tension-rods *b b*, and actuating-springs *c c*, for the purpose specified.

3. The nut *e'*, tension-rod *b*, spring *c*, and support B, in combination with a drop-lamp, for the purpose specified.

4. The tubes B B, springs *c c*, rods *b b*, and cords *i i*, in combination with a lamp-fount, with or without a drip-cup, D, and globe-holder C, as described, and for the purpose specified.

189,064. BRACKET-LAMPS. G. Sherwin and E. Hoople, Brooklyn, N. Y. [Filed Sept. 5, 1876.]



1. The standard F, slide-bearing *a b'*, arms or brackets E E', and globe-holder, in combination with a stationary lamp, with or without a drip-case, for the purpose specified.

2. In combination with the standard F and slide-bearing *a*, the rib *i*, for the purpose specified.

3. The catch *d*, in combination with the standard F and its slide-bearings *b b'*, for the purpose specified.

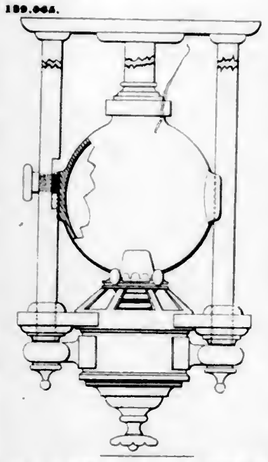
4. A stationary bracket-lamp, with or without a drip-case, D, for railroad-cars and other purposes, in combination with an elevating swinging globe-holder, C, its bracket or arm E, combined with a slide-bearing, *a b'*, arm or bracket E', with its chimney-ring *n*, which keeps the globe A in a fixed and secure position upon the globe-holder C, as and for the purpose specified.

189,065. CENTRE-LAMPS. G. Sherwin and E. Hoople, Brooklyn, N. Y. [Filed Sept. 5, 1876.]

1. A lamp-globe with bearings formed in the material of which the globe is composed, in combination with its guideways or rods, for the purpose specified.

2. A lamp-globe with slide-bearings formed therein, as described, placed between guideways or rods, for the purpose of guiding its upward and downward movement, in combination with a device, whereby the globe can be readily removed and replaced, for the purpose specified.

189,066.



189,066. HEEL-STIFFENERS FOR BOOTS AND SHOES. N. J. Simonds, Woburn, Mass. [Filed Oct. 5, 1876.]



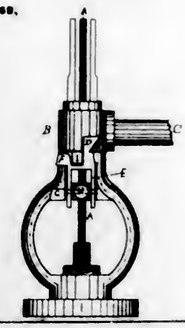
A boot or shoe stiffener having a groove or channel formed on its outer surface, at the angle of intersection of its vertical wall with the horizontal flange, as shown, adapted to receive the seam of the quarters at or near the joint where it enters between the inner and outer sole, all substantially as shown and described.

189,067. MANUFACTURE OF HEEL-STIFFENERS FOR BOOTS AND SHOES. Nathan J. Simonds, Woburn, Mass. [Filed Oct. 6, 1876.]



In the manufacture of boot and shoe stiffeners, the improved process, consisting of first molding the stiffeners when in a moist state, then partially drying the same, and finally remolding to give it the perfect contour and finish requisite, all substantially as set forth.

189,068.



189,068. STOP-MOTIONS FOR GOVERNORS. Le Grand Skinner, Erie, Pa. [Filed July 28, 1876.]

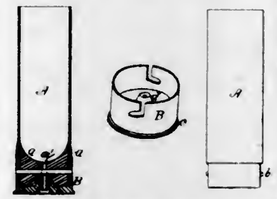
1. The sustaining-frame E, pivoted at one end, and having the counter-weight arm H pivoted to it at the other end, and forming, with the said arm, the shut-off lever, substantially as shown and described.

2. The frame E, pivoted and operating substantially as described, and the arm H, pivoted to and sustained by the frame E, in combination with the rod A, as shown, and for the purposes mentioned.

3. The combination of the frame E and catching device D *d*, constructed and operating substantially as shown and described.

4. The pulley-shaft C, connected to the frame by a swinging sleeve, B, in combination with a catching device for sustaining the shut-off lever, substantially as shown, and for the purposes mentioned.

189,069. CARTRIDGES. Albert B. Smith, Geneva, N. Y. [Filed Feb. 6, 1877.]



1. A metallic cup-shaped head, B, for cartridges formed with a conical projection, *d*, on its interior face, in combination with shell A, formed with a conical opening in its base, the head and shell constructed to be secured together by bayonet-fastening, as shown and described.

2. The paper diaphragm covering the base of the cartridge when applied on the outside of the shell, so as to be ruptured in the act of connecting the base to the shell, as set forth.

189,070. DARTS FOR AIR-GUNS. C. Spring, Hyde Park, and J. T. Robinson, Boston, Mass. [Filed Mar. 7, 1877.]



1. The dart-head, provided with an internal shoulder, in combination with a brush formed of a band and fibrous material placed within and without the band, to operate substantially as described.

2. A dart-brush, composed of a strand of fibrous material, surrounded by a yielding collar, and turned back outside of the band to envelop the periphery of the band, all substantially as described.

3. A dart-brush, composed of an annular band, filled and covered peripherically with fibrous material bent about the band, as described, in combination with a dart-head having its open end contracted to a diameter less than the diameter of the band and fibrous material within the opening in the head, substantially as described.

189,071. STOVE-PIPE WALL-THIMBLES. C. Street, Cincinnati, Ohio. [Filed Sept. 26, 1876.]

Brief.—The swinging sleeve can be adjusted to fit different sizes of pipe.

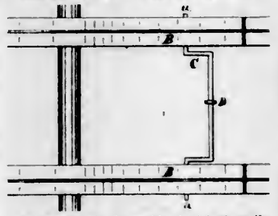


1. A thimble, A, for stove-pipe, having a swinging sleeve attached therein, substantially as and for the purpose specified.

2. The combination of shell or ring A, and reducible sleeve B, constructed and operating substantially as and for the purpose specified.

3. In combination with the ring A and reducible sleeve B, the bale C, and screw-fastener D E, connected and operating substantially as and for the purpose specified.

189,072. HOSE-BRIDGES. James Taylor, Indianapolis, Ind. [Filed Feb. 19, 1877.]



The crank-rods C, combined with the rails B B of a hose-bridge, as and for the purpose specified.

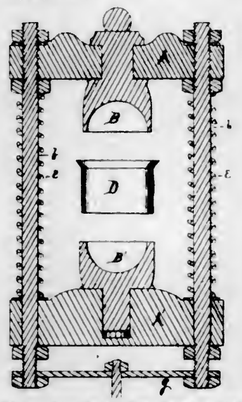
189,073. CORKS, STOPPERS, OR BUNGS FOR CANS, BARRELS, &c. T. Tully, Springfield, Ill., assignor to himself and W. H. Doan, Cleveland, Ohio. [Filed Aug. 28, 1876.]

Brief.—A core of solid material is covered with a yielding jacket of lead, or similar yielding metallic substance, which can be forced into a metal bushing, so as to form a ground joint.



The combination, with a solid bung or stopper, of a yielding jacket of lead or similar yielding metallic substance, whereby the yielding jacket may be forced into intimate contact with a metal bushing, and form a ground joint therewith, substantially as and for the purpose set forth.

189,074. CORN-BALL PRESSERS. Chas. B. Vankeuren, Wheeling, W. Va. [Filed July 19, 1876.]



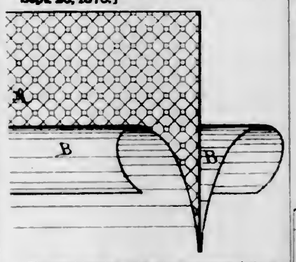
The machine for making pop-corn balls, consisting of movable head-block A, stationary base A', with cup-molds B B' secured thereto, rods *b b*, rigidly secured at one end to head-block A, passing loosely through base A', and secured at bottom to cross-bar *g*, spiral springs *e e*, encompassing the rods *b b*, and keeping the blocks A A' asunder, treadle H, clamp *f*, and separate or detached gage-cup D, all constructed, arranged, and adapted to operate as and for the purposes set forth and shown.

189,075. NUT-LOCKS. T. Vernon, Charleston, Mo., assignor to I. Hisey, Waynesville, Ohio. [Filed Jan. 30, 1877.]



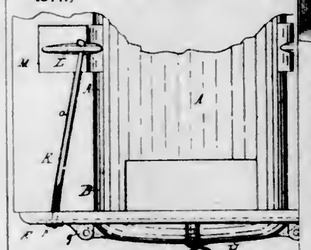
In combination with a series of bolts, C, with nuts D on their ends, the stirrups G G, placed on two of the bolts, with the nuts on them between the arms of the stirrups, and the elongated key L, substantially as and for the purposes herein set forth.

189,076. ORNAMENTAL CARD-BOARD. A. Adams and A. Bott, Albany, N. Y. [Filed Sept. 20, 1876.]



The combination, with the ornamented sheet A, of one or more plain sheets, B, secured thereto in the manner and for the purpose herein specified.

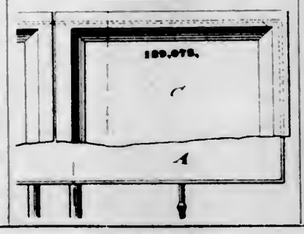
189,077. BOILER-FURNACE FRONTS. G. L. Allen, Worcester, Mass., assignor to Wm. Allen & Sons, same place. [Filed Mar. 2, 1877.]



1. The combination, with the grooved circular projection or flange G of the boiler-furnace front E, of the convex doors H, provided with curved projecting edges *f f* to fit the circular groove F, substantially as and for the purposes set forth.

2. The combination, with boiler-furnace front E and projecting ears L upon projections M M upon the boiler A, of the self-adjusting holding-rods K K, substantially as and for the purposes set forth.

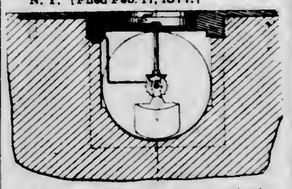
189,078.



189,078. APPARATUS FOR PREPARING BUTTER FOR PACKING. W. B. Bemis, Cincinnati, Ohio. [Filed Jan. 29, 1877.]

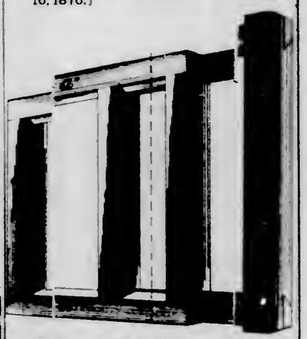
The combination, with butter-pan C, of the tank A, connected by valved pipes with a hot and cold water reservoir, as shown and described, so that the temperature of the heating-fluid may be regulated as desired.

189,079. LEVELS. T. H. Burk, New York, N. Y. [Filed Feb. 17, 1877.]



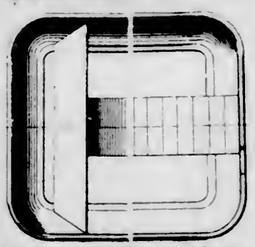
An improved level and plumb, having weighted side indicators and a jointly-working top indicator, whose shaft is connected by bevel-gearing with the weighted shaft of the side indicators, substantially in the manner and for the purpose set forth.

189,080. WINDOW-SCREENS. R. Calhoun, Allegheny, assignor of one-half his right to P. C. Dean, Pittsburg, Pa. [Filed Aug. 16, 1876.]



In an adjustable window screen, composed of the two sliding sections having each its inner upright bar *a' b'*, respectively, tenoned and dovetailed, as shown, the beveled bars *a'' b''*, one of which is secured to each bar *a' b'*, and separated from the other by the tenon or tongue, as shown, and for the purpose set forth.

189,081. KNIFE-SCOURING PANS. D. H. Cassel and G. W. Zint, Crestline, Ohio. [Filed Feb. 26, 1877.]

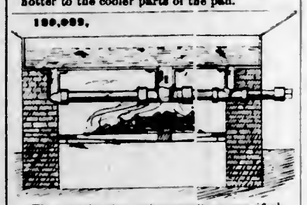


A scouring-pan for knives and forks, consisting of a dish or pan, with longitudinal inclined plane or rest-piece, and a lateral partition in front of the same, forming a receptacle for the scouring-powder, substantially in the manner described, and for the purpose herein specified.

189,082. SUGAR BOILING AND EVAPORATING PANS. W. V. Clough, Madison, Ind., administrator of W. Clough, deceased. [Filed July 11, 1876.]

Brief.—The transverse horizontal pipes, connected to the bottom of the evaporating-pan at its center and sides by short vertical pipes, are for the purpose of better heating the juice and causing its uniform circulation from the hotter to the cooler parts of the pan.

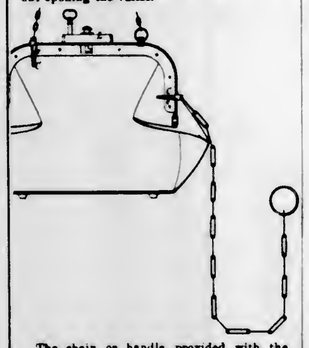
189,089.



The combination, substantially as specified, of the evaporating-pan, and the pipes arranged underneath thereof, transversely across the combustion-chamber, and connected, by vertical pipes, at both ends and in the center, with the bottom of the pan.

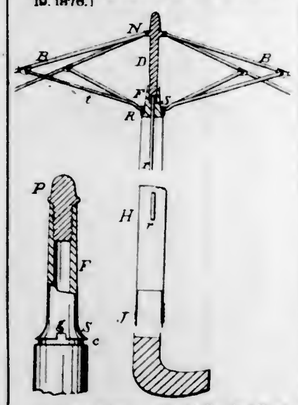
189,083. SAFETY ATTACHMENTS FOR TRAVELING-BAGS. Hiram Collins, Amesbury, Mass. [Filed Feb. 6, 1877.]

Brief.—The chain cannot be removed without opening the valise.



The chain or handle, provided with the spring-catch, in combination with the frame of the valise or bag, provided with the perforation or aperture adapted to receive and hold the catch, substantially as set forth.

189,084. COMBINED CANE AND UMBRELLA. M. M. Copp, Rochester, N. Y. [Filed Aug. 19, 1876.]

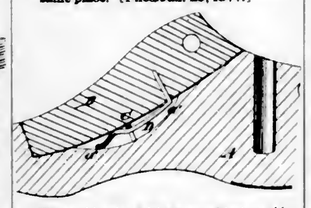


1. The combination of the hollow handle or cane H, in two parts, connected by the screw slip-joint J, having the threaded tube finial F, provided with the sloped shoulder S, vertical groove *g*, horizontal groove *c*, and screw-plug P, for the purposes substantially as set forth

2. The screw rod D, to which is solidly joined the notched ring N and the guide-rod *r*, and having the horizontal groove *v*, in combination with the ribs B, stretchers *t*, and runners R, for the purposes substantially as herein set forth.

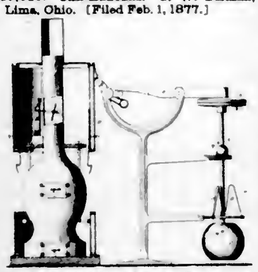
3. The combination of the runner-ring R, provided with the vertical opening *a* and lug *l*, bent stretchers *t*, ribs B, guide-rod *r*, and screw-rod D, substantially as described.

189,085. LASTS. C. B. Cree, Marlborough, Mass., assignor to himself and J. E. Curtis, same place. [Filed Jan. 20, 1877.]



The combination, with a grooved last provided with a staple, as shown, of a last-block, having a curved spring, one end of which enters the body of block, securing it thereto, while the free end is adapted to enter the staple to hold the block in place, all substantially as shown and described.

189,086. CAR-HEATERS. G. W. Disman, Lima, Ohio. [Filed Feb. 1, 1877.]



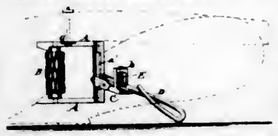
1. A movable jacket, in combination with a heater and automatic catches for securing the jacket, and a tripping device for causing the jacket to fall in case of accident to the car, substantially as set forth.

2. In combination with the movable section D of the jacket, a damper, G, placed in the pipe normally open, but which will be closed automatically upon the fall of the jacket, substantially as set forth.

3. The tripping device, consisting of the lever L, disk L^1 N^1, and rod N, freely-swinging weight N^2, and springs O, substantially as set forth.

189,087. CLEARING ATTACHMENTS FOR PLOWS. J. F. Dock, Elkhart, Ind. [Filed Mar. 3, 1877.]

Brief.—A roller is journaled in a frame, which is secured to the plow-beam, and a hook is hinged to a support, which is secured to said frame, for the purpose of drawing stubble, weeds, &c., into the furrow.

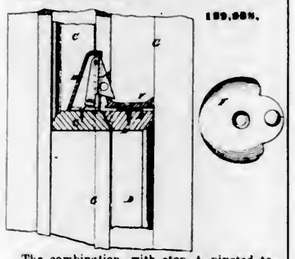


The combination of the frame A, roller B, support C, hook D, and spring E, substantially as herein shown and described.

189,088. FASTENERS FOR MEETING-RAILS OF SASHES. W. T. Doremus, New York, N. Y. [Filed Feb. 26, 1877.]

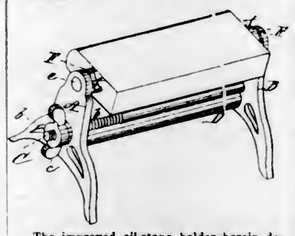
Brief.—An automatic pivoted stop, differing but little from the ordinary construction, impinges on a pivoted lock plate having upwardly-projecting flanges and side shoulders; the peculiar form of the lock-plate giving added security, and drawing the sashes together to prevent rattling.

189,088.



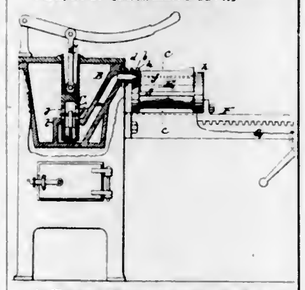
The combination, with stop A pivoted to plate B, and having toe *a*, of the pivoted lock-plate F, having upwardly-projecting flanges and shoulders upon its sides, as shown and described.

189,089. OIL-STONE HOLDERS. Geo. W. Dudley, Alton, N. H. [Filed May 17, 1876.]



The improved oil stone holder herein described, consisting of the rotating spur-pivots F, in combination with the standards A B, bar or brace D, connecting-rod C, and nut *c*, substantially as and for the purpose herein shown and specified.

189,090. APPARATUS FOR CASTING METALS. C. Dusenbury and S. H. Dusenbury, New York, N. Y. [Filed Mar. 3 1877.]



1. The tank B, having partition *l* and spout *a*, and combined with the hollow pump-plunger C, having the valve *i* and the aperture *j* above said valve, substantially as herein shown and described.

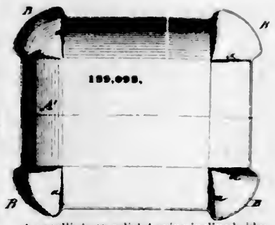
2. The shaft *c*, made with the projecting ribs *g g* and plates *b b*, one of the plates *b* having the hole *d*, all arranged for combination with the solid journal-box *f*, and constituting a mold for lining said journal-box, substantially as herein shown and described.

189,091. PAINT COMPOSITIONS. Saml. B. Fisher, Pleasant Unity, Pa. [Filed Jan. 13, 1877.]

The paint composition herein described, consisting of Rosendale cement, water, glue, linseed-oil, and benzine, in about the proportions described, for the purpose specified.

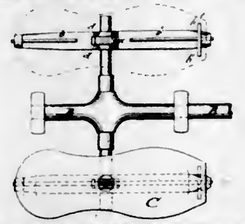
189,092. BUTTER-DISHES. W. H. Fitch, Brooklyn, N. Y. [Filed Feb. 26, 1877.]

189,093.



A metallic butter-dish having inclined sides, connected by corner moldings B, having the sections *a* extended outwardly from the sides, as shown and described.

189,095. TREADLES. W. B. Floyd, Kansas City, Mo. [Filed Feb. 26, 1877.]

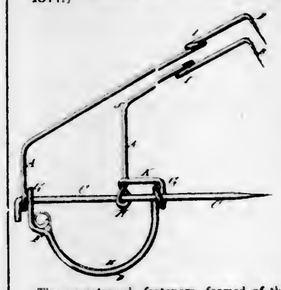


1. As an improvement in treadles, the combination of a laterally-oscillating treadle-bar with adjustable and clamped treadles, to give more or less leverage, substantially in the manner and for the purpose set forth.

2. As an improvement in treadles, the combination of the laterally-swinging treadles with the centrally-pivoted and longitudinally-oscillating brackets or arms of the treadle-bar, to form a duplex pivot-joint, for the purpose described.

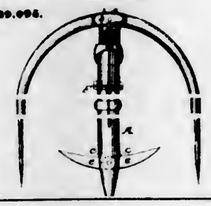
3. The combination of the treadle C with a longitudinal pivot-rod, *b*, fixed end seat *b'*, and oscillating bracket D, substantially as specified.

189,094. EAVE-TROUGH FASTENERS. A. J. Gilbert, Honeoye, N. Y. [Filed Mar. 3, 1877.]



The eave-trough fasteners, formed of the wire A, bent to form the curve D, to receive the eave-trough, the eyes G, to receive the spike or bolt C, the shoulder K, the hook-points B, and the eyes I, whether the eye H and the offset F be used or not, substantially as herein shown and described.

189,096.

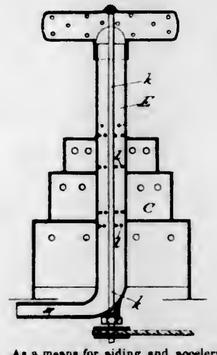


189,095. HORSE HAY-FORKS. P. Grant, Clinton, Ontario, assignor to himself and J. R. Grant, Brussels, Canada. [Filed Nov. 11, 1876.]

A horse hay-fork provided with a key, F, bent over the front of tine A, and formed into an eye for receiving the disengaging-cord, substantially as shown and described.

189,096. DEVICES FOR SUPPLYING AIR TO FURNACES. Wm. Halsted, Trenton, N. J. [Filed Feb. 16, 1877.]

Brief.—A graduated series of perforated air-sheets are located within the fire-chamber, and are supplied with air from a perforated tube, which runs up through their center. The top of said tube is provided with another tube, which is also perforated, forming a T-piece, and made to revolve by means of a rod provided with a pulley at its bottom, thus distributing air in all directions within the furnace.

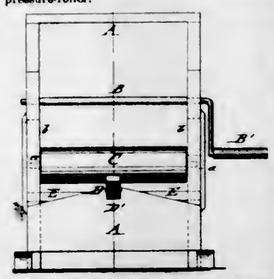


1. As a means for aiding and accelerating the combustion of fuel in furnaces, locomotives, &c., the series of graduated and perforated chambers within the fire-pot, in combination with the perforated air-tube E, extending through and supplying air to such chambers, substantially as shown and described.

2. The combination, with the perforated chamber or chambers, and with the central perforated tube E, of the horizontal perforated tube I, connected to a rod or support, *k*, and adapted to be revolved upon the tube E, substantially as and for the purposes set forth.

189,097. MACHINES FOR WINDING HAY INTO ROLLS FOR FUEL. B. Harding, Delavan, Minn. [Filed Jan. 19, 1877.]

Brief.—The hay is wound upon a flat revolving spindle, being pressed upward upon said spindle by a vertically-sliding lever-acted pressure-roller.

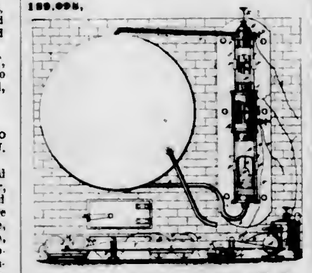


The combination, in frame A, of the spindle B, roll C, lever D, and support E, to condense hay or straw into convenient form for fuel, as described.

189,098. ELECTRO-MAGNETIC BOILER-FEED REGULATORS. R. A. Hayes, Elgin, Ill. [Filed Jan. 22, 1877.]

Brief.—Automatically controls the feed of the water by means of a float making and breaking an electric circuit; also closes a circuit to alarm-bell if water falls too low.

189,098.



1. A float that varies in height with the level of the water in the boiler, a relay, and a series of oppositely-arranged magnets, constructed and arranged to open or close the throttle or governor valve of a steam-boiler feed-pump, or the water-supply valve, as the electrical current is established or broken by the rise or fall of the said float, substantially as herein shown and described.

2. The float-chamber consisting of a central metallic section, A, the glass cylinders B D, cap E, head C, and bolts *e f*, substantially as herein shown and described.

3. The float C, having the spindle *h* and guide *k*, the float-chamber, having an insulated central metallic section, A, the metallic cap E, adjustable rod H, and the electrical conducting-wires l n q, in combination, substantially as herein shown and described.

4. The relay I and battery J, in combination with the float and float-chamber, made as described, and the conducting-wires n q, substantially as herein set forth.

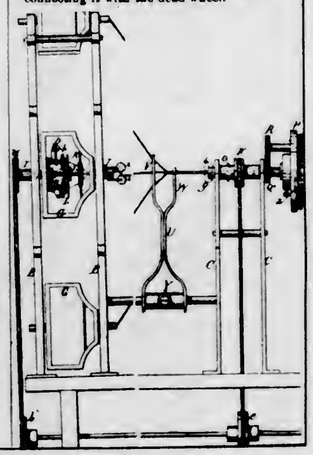
5. The relay I, the oppositely-arranged magnets M Q and O P and their conducting-wires, the lever T, connecting-rod V, and throttle-valve A, combined and arranged substantially as herein shown and described.

6. The bell-magnet B' and battery O', in combination with the float G, point *v''*, insulated wire *f'*, conducting-wires *l o*, and the float-chamber, consisting of the parts A B C D E, in combination, substantially as herein shown and described.

7. The insulators F, consisting of a metallic casing and an insulating substance, *j*, in combination with the belts *e f*, substantially as shown and described.

189,099. MACHINES FOR MAKING HOPS. L. B. Higby, Belleville, N. J. [Filed July 7, 1876.]

Brief.—The strand-formers are supported within a frame or grid having hollow journals, and strand-receiving rollers upon the end of one of them. By revolving this grid an additional twist may be given to the strand. The winding-drum is simplified by means of an internal rack engaging with the gearing, connecting it with the dead-wheel.



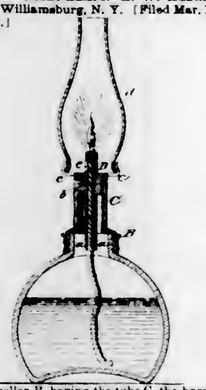
1. The combination of the spools L, revolving upon hollow spindles upon the revolving plate H, with guide J, and hollow spindle I, having pulleys *s s*, and arranged to revolve substantially as described.

2. The stationary guides V and W, in combination with hollow shaft O, having the grooved pulleys *h* and *g*, and with revolving plate P, and take-up or feed-drum F, arranged together substantially as described.

3. The drum F, provided with the rack T, in combination with the revolving plate P, gear-wheels Q and R, and pinion S, substantially as described.

4. The combination of the revolving heads D, carrying spool L, auxiliary twisting hollow spindle I, and guide J, with stationary guides V W, and a twisting device consisting of grooved pulleys *g* and *h*, hollow shaft O, plate P, and take-up drum F, substantially as described.

189,100. NIGHT-LAMPS. H. W. Huntington, Williamsburg, N. Y. [Filed Mar. 12, 1877.]



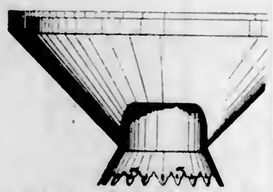
The collar B, having the tube C, the burner D, provided with arms *c* for holding the chimney, and having the long wick-tube *a*, in combination, substantially as herein shown and described.

189,101. COIN-TRAYS. Albert A. Hyde, Wichita, Kans. [Filed Feb. 10, 1877.]



A coin-tray consisting of sides A, bottom B, partitions C, front D, and handle E, the sides projecting at an acute angle below the bottom, as and for the purpose specified.

189,102. LAMP-SHADE HOLDERS. H. L. Ives, Troy, N. Y., assignor to himself and T. H. Dutcher, same place. [Filed Feb. 26, 1877.]



1. A lamp-shade holder of inverted conical shape, having two flanges at the upper circumference, to admit the use of shades of different size, substantially as specified.

2. A lamp-shade holder of inverted conical shape, and provided with two flanges, at the upper circumference of which the inner flange rises from an inclined collar, being below the level of the outer flange, substantially as described.

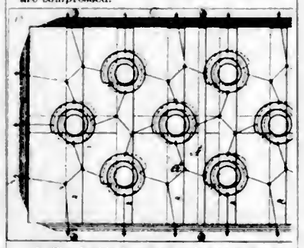
189,103. EYEGLASSES. Ira H. Johannes, Washington, D. C., assignor of one-half his right to R. T. Waters, Baltimore, Md. [Filed Feb 26, 1877.]



In eyeglass frames, the combination of bows or other devices for holding the glasses, pads or rests for supporting the frames upon the nose, and ball-and-socket joints for uniting the pads to the bows, the operation of the parts being substantially such as described.

189,104. SPRING BED-BOTTOMS. T. R. Jones, Utica, N. Y. [Filed Dec. 21, 1876.]

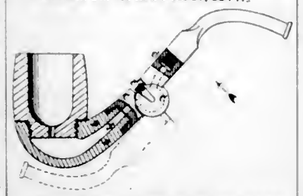
Brief.—The upper frame is made longer than the lower one, in order to give the springs resting upon the transverse end bars greater freedom of motion, and the inner edges of the upper frame are beveled, so that the links connecting the outer springs with the frame may accommodate themselves to the downward movement of the springs when the latter are compressed.



1. The double frame for spring-beds, herein described, consisting of frame A, uprights B, slats *a*, cross-bar A', and upper frame C, the inner sides of which are beveled, substantially as and for the purpose herein shown and specified.

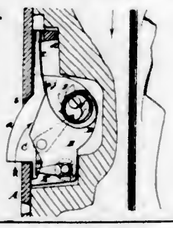
2. In a spring bed bottom, the upper frame C of which has inwardly-beveled sides, the link E for connecting the outer springs with the said frame, consisting of a piece of wire having eyes *e e'*, the one of which, *e'*, nearest to the frame is bent, for the purpose of enabling said link to work freely against the frame, substantially as and for the purpose hereinbefore set forth.

189,105. SMOKING-PIPES. B. A. Jonasson, Warren, Pa. [Filed Feb. 17, 1877.]



A folding smoking-pipe whose joint consists of two rabbeted hollow half-spheres and an open-ring spring-retainer, *c'*, arranged substantially as and for the purpose specified.

189,106.



189,106. SASH-FASTENERS. H. Jones, East Saginaw, Mich. [Filed Oct. 7, 1876.]

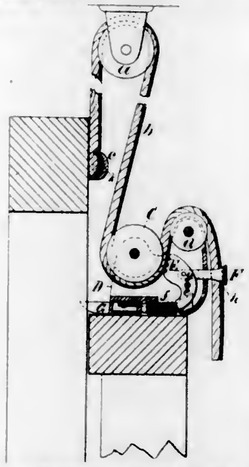
1. In a window-fastening, the part C, having the curved face *a* and shank *c* arranged to slide upward and backward against the spring D, by engagement with the plate A, substantially as shown and described.

2. The combination of the volute spring D, post *f*, ratchet *g*, pawl *h*, and part C, substantially as set forth.

3. The combination of the detent E and part C, substantially as shown and described.

189,107. SASH-BALANCES. A. Kolb and C. Oeberghaus, Sandusky, Ohio. [Filed Jan. 29, 1877.]

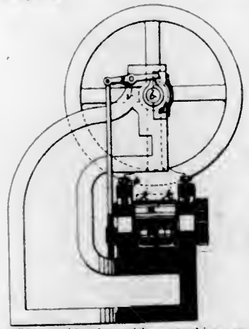
Brief.—Suitable pulleys, serrated spring-clutch, and cord are combined with a horizontal rod, which has an end eye for the cord, and, passing through a suitable hole in the shell or casing, is pivoted at the other end to the clutch, there being also a spring-bolt for fastening purposes.



The combination, with pulleys C *d*, cord *b*, and spring-clutch E, of the rod F, pivoted to the clutch, passing through a hole in casting D, and provided with an end eye, A, as and for the purpose specified.

189,108. MACHINES FOR MAKING HORSE-SHOE-NAILS. Jos. M. Laughlin, Boston, Mass. [Filed Sept. 21, 1876.]

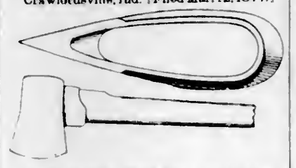
Brief.—One of the rollers is provided with projections for making the nail-point recesses in the plate.



1. The combination, with a punching-machine, of a beveling-machine, provided with beveling-rollers for forming indentations or depressions, substantially as described, and suitable connecting mechanism, by which a rotary, but intermittent, motion is imparted to the rollers *n n'* from the punching-machine, as and for the purpose set forth and described.

2. The combination, with a beveling-machine, of the roller provided with projections around its circumference, substantially as and for the purpose set forth and described.

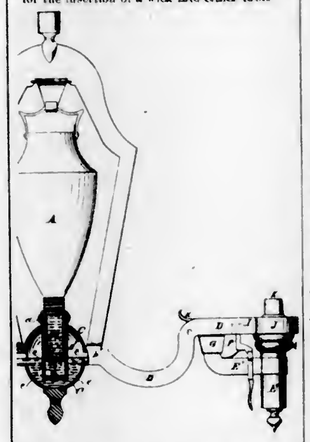
189,109. AX-HELVE SHIELDS. J. M. Larsh, Crawfordsville, Ind. [Filed Mar. 12, 1877.]



As an article of manufacture, the ax-helve shield having an edge forming a supplementary bit, substantially as described and shown.

189,110. OIL LAMPS OR CHANDELIERS. J. F. Lauth, Pittsburg, Pa. [Filed Feb. 12, 1877.]

Brief.—The two tubes, each provided with a wick, can be readily disconnected to allow the removal of burner. A hinged lid provides for the insertion of a wick into either tube.



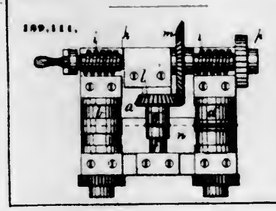
1. The combination, in a lamp or chandelier, of the receptacle C, tubes D E', wicks *c c'*, lamp E, and the reservoir A, provided with screw-cap B', all arranged substantially as described, and for the purposes set forth.

2. In combination with receptacle C, one or more tubes, D, provided with an ascending portion filled with a material having the power of capillary attraction, all arranged and operating in manner as described, for the object set forth.

3. The lamp E, detachable from the oil-supply, and provided with the tube E', having the wick *c'*, all combined, constructed, and operating as described, and for the object set forth.

4. The combination of the tubes D and E' and the wicks *c c c'*, or their equivalents, conveying illuminating-fluid over an elevation between and higher than the lamp E and its base of supply, all constructed and operating in manner as described, and for the object specified.

189,111.

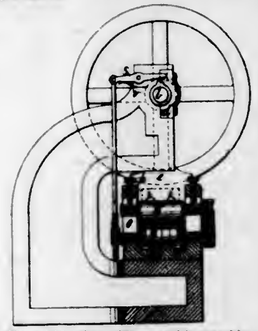


189,111. MACHINES FOR BEVELING HORSE-SHOE-NAIL PLATES. Joseph M. Laughlin, Boston, Mass. [Filed May 26, 1876.]

The improved milling or shaping machine, as herein shown, consisting of the feed-rollers *b c d e*, the mill-shaft *f*, with its mill or cutter *g*, and the bed or support *n* for the nail-plate, substantially as and for the purpose set forth.

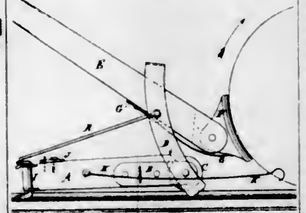
189,112. MACHINES FOR MAKING HORSE-SHOE-NAILS. Jos. M. Laughlin, Boston, Mass. [Filed Sept. 21, 1876.]

Brief.—Rollers for producing the grooves in the plate, that serves for the formation of the point of the nail, are combined with a punching-machine.



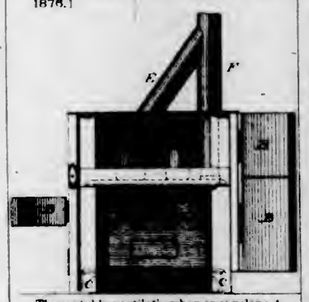
The combination, with a punching-machine, of a beveling-machine, provided with beveling-rollers for forming a groove, substantially as described, and suitable connecting mechanism, by which a rotary but intermittent motion is imparted to the rollers *n n'* from the punching-machine, as and for the purpose set forth.

189,113. CAR-PUSHERS. H. La Tourette, Shellsburg, Iowa. [Filed Jan. 29, 1877.]



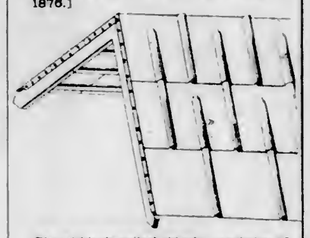
The combination of the bar A, the roller C, the U-bar D, the lever E, the shoe F, the spring G, the rods H, and the double cranks I, with each other, substantially as herein shown and described.

189,114. KITCHEN-VENTILATORS. Jas. A. Leeper, Concord, Mo. [Filed May 18, 1876.]



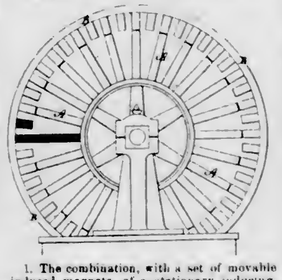
The portable ventilating box or envelope A, to be placed over a cooking stove or range, and having the doors B and branch pipe E, connected with the main pipe F, substantially as set forth and described.

189,115. METAL SHINGLES. E. Locher and C. Knispel, Newark, N. J. [Filed Sept. 1, 1876.]



The within-described shingle, consisting of a metallic plate bent upward at one edge and downward at the other, to form plain hollow ribs A C, and having a central hollow rib, D, as set forth.

189,116. DYNAMO-ELECTRIC MACHINES. D. F. J. Lontin, Paris, France. [Filed Mar. 1, 1876.]



1. The combination, with a set of movable induced magnets, of a stationary inducing-magnet having its cores extended, and provided with one or more separate coils, from which alternate currents in opposite directions may be taken, substantially as and for the purpose described.

2. The combination of the inducing electro-magnets A^1 A^2, having extended cores and independent coils C^2, with the induction-wheel F, having induced magnets D', arranged as described, and the rubbers *a a'*, forming electrical connection between the coils of the inducing-magnet A^1 A^2 and the coils of the induced magnets, substantially as described.

3. The combination, with the revolving inducing-magnets A and the stationary induced magnets B, of the stationary inducing-magnets A^1 A^2 and the revolving induced magnets D', arranged as described, together with the conducting-rubbers *a a'*, which make contact with the induced wheel in the polar line, and conduct the currents invariable in direction to the revolving inducing-magnets A, for the purpose of charging the same, substantially as and for the purpose described.

189,117. METHODS OF PRESERVING AND FINISHING PICTURES. L. T. Luther, Mill Village, Pa. [Filed Aug. 25, 1876.]

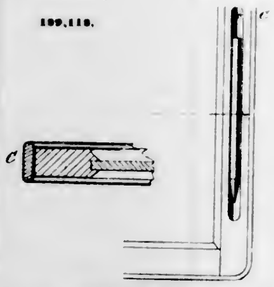
The method of preserving and finishing pictures herein described, consisting in covering the picture with a textile fabric rendered transparent by shellac, glue, or other adhesive substance which will secure the covering to the picture, substantially as described.

189,118. SLATES. F. W. Mallett, Chicago, Ill., assignor to A. H. Andrews, H. L. Andrews, and T. S. Hayden, same place. [Filed Aug. 28, 1876.]

Brief.—The width of the cushion, which is tacked to the outer edge of the slate-frame, being greater than the thickness of the frame, the whole rests upon the edges of the cushion.

A slate-frame, B, in combination with a strip, C, secured to the outside edge thereof, and projecting beyond the frame upon both side faces, substantially as and for the purpose specified.

189,119.

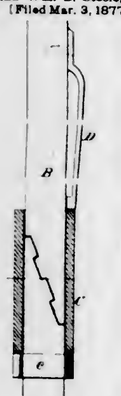


189,119. SKIRTS. Julius Mark, Herkimer, N. Y. [Filed Feb. 17, 1877.]



The method herein described of manufacturing knit skirts for ladies and children, consisting in, first, cutting a tubular piece of knitted goods into lengths corresponding to the lengths which the skirts are to have; second, cutting these sections open; and, third, finishing the skirt by uniting a suitable number of these sections, goring, and trimming, substantially as and for the purpose hereinbefore set forth.

189,120. ROD-COUPLINGS. Wm. C. McClintock, Hooperston, Ill., assignor to himself and Wm. B. Steele, Bernhart's Mills, Pa. [Filed Mar. 3, 1877.]



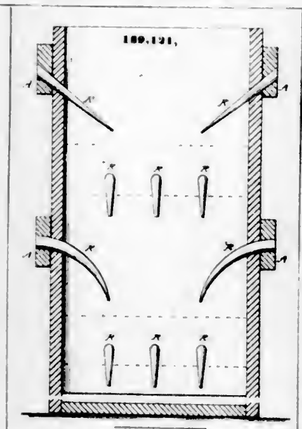
The sections A B, scarfed at their inner ends, and provided with transverse recesses and projections, the section A having the collar *c*, the sleeve C, and spring-latch D, in combination substantially as herein shown and described.

189,121. COTTON-PRESSES. G. C. McKee, Jackson, Miss. [Filed Mar. 20, 1877.]

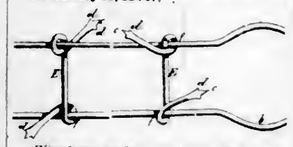
1. The pins R, passing through the walls of the press-box, substantially as shown and described.

2. The bar A, in combination with the pins R, as and for the purposes herein set forth, substantially as shown and described.

189,121.



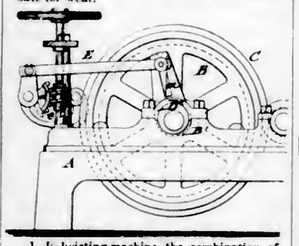
189,122. BARBED FENCE-WIRES. John McNeill, Chicago, assignor of one-half of his right to A. C. Decker, Bushnell, Ill. [Filed July 18, 1876.]



Wire fence meshes, consisting of the rail-wires *a a*, provided with curves *b b*, the Z-shaped wire barb E, herein described, having beveled points *c* and shoulders *d d*, substantially as and for the purpose set forth.

189,123. HOISTING-MACHINES. D. H. Merritt, Marquette, Mich. [Filed Mar. 12, 1877.]

Brief.—The hoisting-drum has eccentric bearings B^3, by means of which it may be thrown in and out of gear with the driving-shaft D. The band-brake is connected to the operating-cam by screw-bolts, by means of which the band may be tightened to compensate for wear.



1. In hoisting-machine, the combination of frame A, having boxes B^1, eccentric sleeves B^2, having slotted arms *a*, connecting pivot-rods E, and arms *b*, operated by worm and segment-gear, with the shaft of winding-drum seated in the eccentric sleeves, to impart a parallel motion to the friction-wheel of drum toward the friction-pinion, substantially in the manner and for the purpose set forth.

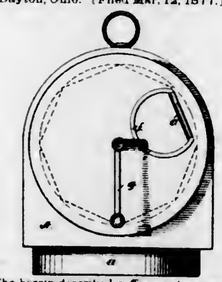
2. The combination of a worm and segment-gear, by connecting pivot and swivel rods, with brake F and winding-drum, to put on or take off the brake at any moment, substantially as set forth.

3. The combination of worm f^3, toothed segment d^3, having arms d^2, and adjustable pivot-rods d^3, with swivel-sockets of forked yoke ends *g* of brake F, to compensate for the wear of the brake, substantially as specified.

4. The combination of the brake F with a shoe, F', at a point opposite to the worm and segment-gear, and with a pivoted supporting-rod, A^2, to hold brake, when not in use, clear of wearing-surface, substantially as described.

5. The brake F, composed of an outer band, faced with blocks, having wedge-shaped or tapering ends, for the purpose set forth.

189,124. COFFEE-ROASTERS. N. Metz, Dayton, Ohio. [Filed Mar. 12, 1877.]



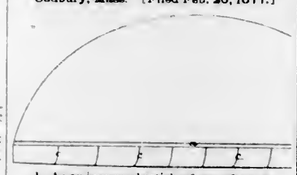
The herein-described coffee-roaster, consisting of the casing A, with flanged bottom and rod *b*, attached to one end thereof, at a point opposite to the center of a circular opening in the other end, and prism B, with its axial tube *e*, beaded sleeve C, sliding door *c*, and crank *g*, the whole constructed and arranged as and for the purpose specified.

189,125. WINDOW-BLINDS. J. Miller, Chambersburg, Pa. [Filed Mar. 1, 1877.]



A window-frame having an upper and lower shade, and an insect-screen occupying one-half of the length of the frame, in addition to the ordinary double hung glass sashes, whereby either the top or bottom section of the window may be used for ventilation, and yet prevent the admission of insects, substantially as described.

189,126. HEEL-STIFFENERS FOR BOOTS AND SHOES. S. Moore and H. Rogers, South Sudbury, Mass. [Filed Feb. 20, 1877.]



1. As an improved article of manufacture, a shoe or boot counter-blank indented or creased, or creased and beaded, at the base of its lip, substantially as and for the purpose described.

2. A shoe or boot counter-blank, having in its lip a series of slits, each of which is cut obliquely to the opposite faces of the lip, substantially as set forth.

3. A shoe or boot counter-blank indented or creased, and beaded at the base of its lip, and having in such lip a series of slits, each of which is cut obliquely to the opposite faces of the lip, all substantially as shown and specified.

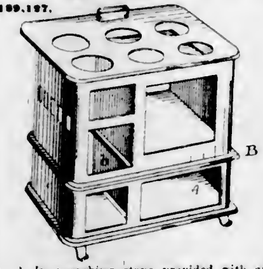
4. A boot or shoe counter-blank, molded or curved longitudinally, or transversely and longitudinally, and having in its lip a series of slits, each of which is cut oblique to the opposite faces of the lip, all essentially as set forth.

5. A boot or shoe counter-blank, molded or curved longitudinally or transversely, and longitudinally indented, creased, or filleted at the base of its lip, and having in such lip a series of slits, each of which is cut oblique to the opposite faces of the lip, all being substantially as set forth.

189,127. COOKING-STOVES. E. P. Morong, Boston, Mass. [Filed Feb. 20, 1877.]

Brief.—Plate *b* may be inserted at the bottom of the front compartment of either the upper or the lower section. Plate C divides section A vertically.

189,127.

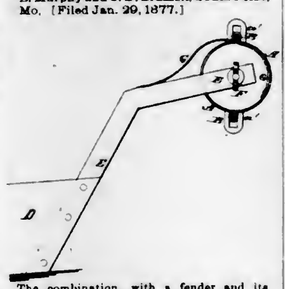


1. In a cooking-stove provided with an auxiliary removable under section, the combination of the base-plate B, provided with a removable plate, *b*, under the ash-pit, with the compartment A, provided with the standards or lugs *a*, substantially as shown and described.

2. In a cooking-stove consisting of two detachable horizontal sections, the interchangeable plate *b*, adapted to set either as a part of the base plate B, or as the division-plate in dividing the compartment A, substantially as and for the purpose described.

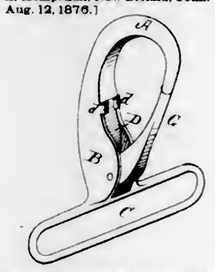
3. In a cooking-stove, the auxiliary section A, provided with a removable plate, *c*, substantially as and for the purpose described.

189,128. CORN-GUARDS FOR PLOWS. E. B. Murphy and C. D. Bramsell, South Point, Mo. [Filed Jan. 29, 1877.]



The combination, with a fender and its crooked bar D E, of the hollow casting A, arc-slotted and provided with slotted lugs *a'*, the bolts B, slotted bar C, pivot F, and spring G, all constructed and arranged substantially as and for the purpose specified.

189,129. SNAP-HOOKS. Wm. Nash and E. Kempshall, New Britain, Conn. [Filed Aug. 12, 1876.]



The within-described snap-hook, formed of the hook A, shank B, having longitudinal recess *a*, shoulder *b*, and ears *d d*, the spring D, secured in said recess, under the ears, and the pivoted tongue G, having a cam under its pivoted point, which bears on the free end of the spring, as set forth.

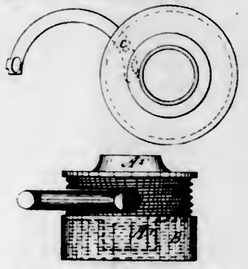
189,130. CORN-SHELLERS. H. Neubert, Ironton, Ohio. [Filed Feb. 26, 1877.]

189,129.



The combination of the ring-plate C, provided with the knives D, the ring-plate E, having lugs F and an outer concaved edge, and the short tube G, with the revolving shaft A, substantially as and for the purpose set forth.

189,131. LAMPS. S. S. Newton, Binghamton, N. Y. [Filed Jan. 26, 1877.]

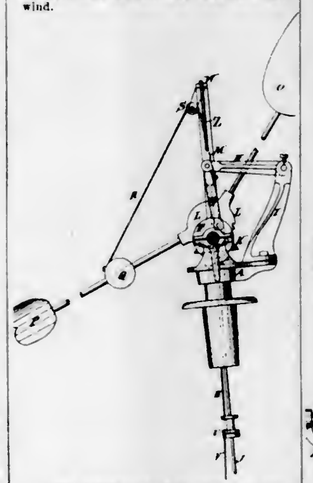


1. In a lamp, a filling-tube vibrating horizontally through an opening in the side of the burner, substantially as set forth.

2. In a lamp, an opening in the side of the burner, a filling-tube vibrating in said opening, and a plate-ring or cap to cover said opening, substantially as set forth.

189,132. WINDMILLS. Daniel Nysewander, Springfield, Ohio. [Filed Feb. 10, 1877.]

Brief.—Upon the turn-table, directly opposite the wheel-bracket, is formed an arm, to which is pivoted a segmental bevel-gear wheel, the teeth of which mesh into the teeth of a segmental bevel-gear wheel pivoted to an upright arm formed upon the turn-table. To one segment is attached the main vane, and to another segment are attached the stems of two vanes, which project upon the opposite sides of the turn-table, and are set at such an angle that the wind may tend to turn them toward the main vane and throw the wheel out of the wind.



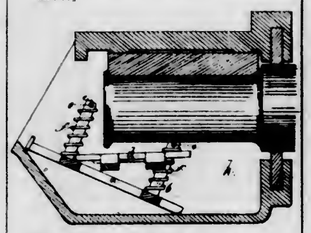
1. The combination of the segmental gear-wheels K L, the two regulating-vanes O P, and the weight Q with the turn-table A and the main vane N, substantially as herein shown and described.

2. The combination of the flaring flanges e^1 with the edges of the wings of the wheel E, substantially as herein shown and described.

3. The combination of the bars e^2 with the flanges e^1 and the wings of the wheel E, substantially as herein shown and described.

4. The combination of the upright bar m', the cross-bar W, the hinge-bar Y, and the brace-bars X Z with the turn-table A and the vane N, substantially as herein shown and described.

189,133. CAR-AXLE LUBRICATORS. Wm. Palmer, New York, N. Y. [Filed Mar. 6, 1877.]



The combination, with the frame a, columns *b b c*, springs *f*, and roller *e*, of the frame *d*, provided with the elongated openings for the upper ends of the columns *b*, for allowing the frame to be removed from the columns *c* while being inserted, substantially as set forth.

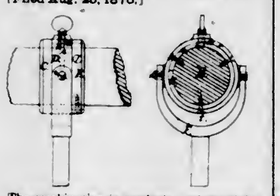
189,134. STANDING-COLLARS. Jas. K. P. Pine, Lansingburg, N. Y. [Filed Jan. 29, 1877.]



1. A standing-collar having its lower edge where it is joined to the neck-band cut in a reverse curve, substantially as and for the purpose set forth.

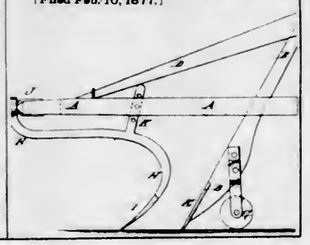
2. The collar A, having its lower edge cut in a reverse curve, as described, in combination with the band B, curved to correspond with the collar, substantially as and for the purpose set forth.

189,135. ROWLOCKS. T. S. Popplewell, Ithaca, N. Y., assignor of one-half of his right to H. J. Linderberry, same place. [Filed Aug. 25, 1876.]



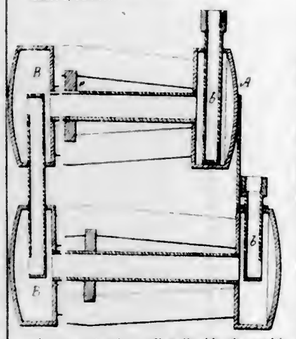
The combination in rowlocks, substantially as described, of a thumb-screw with a slotted ring, so as to make a tight or loose oar by simply turning the thumb-screw.

189,136. PLOWS. J. Preston, Millford, Ky. [Filed Feb. 10, 1877.]



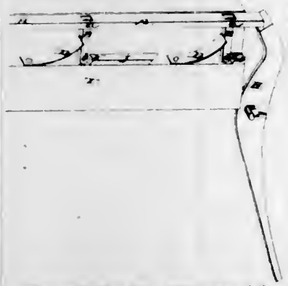
The combination of the curved beam H, provided with the plow-plate I and the rigid perforated bar K, with the slotted beam A, the standard B, provided with the square plow E and the roller G, and the handles D, substantially as herein shown and described.

189,137. APPARATUS FOR COOLING LIQUIDS. A. D. Puffer, Boston, Mass. [Filed Mar. 1, 1877.]



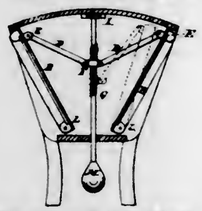
In apparatus for cooling liquids the multitubular cylinders herein explained, consisting of the hollow closed heads A B, and the connecting-pipes *d d*, &c., with the circulating-pipes *b* and *c*, the multitubular cylinders being arranged in clusters in the refrigerating chamber of the fountain, as explained, and the whole operating essentially as and for purposes stated.

189,138. MACHINES FOR TIGHTENING IRON BANDS ON BALES. M. Quin, Galveston, Tex. [Filed Feb. 14, 1877.]



The combination, in a cotton-press, of the horizontal bar A, parallel bars B, pivoted to platen T and bar A, and depressing springs D, with rod P and operating lever or levers H, all constructed as shown and described.

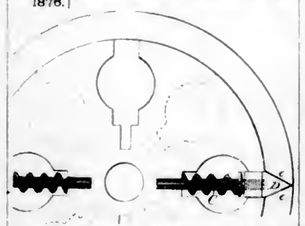
189,139. WINDOW-MIRRORS. P. W. Ralfs, Milwaukee, Wis. [Filed Feb. 19, 1877.]



1. Box or frame A, looking-glasses B B, with arms D D, screw-shaft G, and nut F, substantially as described.

2. Arms D D, screw-shaft G, nut F, handle H, keeper I, and looking-glasses B B, all in combination, substantially as described.

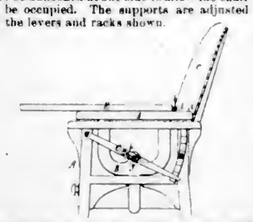
189,140. PISTON-PACKING FOR STEAM-ENGINES. W. Rankin, St. Margaret's Bay, Nova Scotia, Canada. [Filed Dec. 13, 1876.]



The combination of the sectional packing-rings E E', having beveled ends *e*, with the wedges D, having screw-threaded steps or shoulders *d* projecting at right angles, and operated by screw-bolts C and coiled springs R, substantially in the manner and for the purpose herein shown and specified.

189,141. COMBINED CHAIR AND WORK-TABLE. G. L. Rich, Rockland, Me. [Filed Dec. 18, 1876.]

Brief.—A leaf is pivoted to vertically-adjustable side supports by hooks and loops, so that it can be thrown up against the back of the chair, or turned down upon the supports in a horizontal position to form a table, and it can also be unhooked at one side to allow the chair to be occupied. The supports are adjusted by the levers and racks shown.



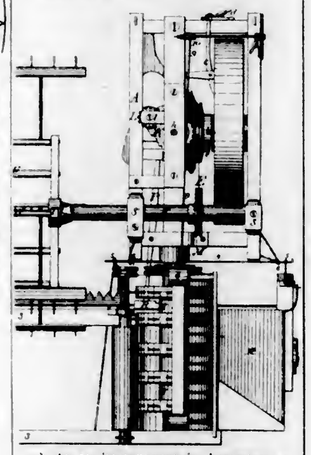
The combination of the pivoted table leaf E and the chair A with the vertically-movable supporters B B, their operative levers C C, and sustaining-racks D D, all being arranged and applied substantially in manner and to operate as set forth.

189,142. HAND CORN-PLANTERS. Wm. E. Seelye, Anoka, Minn. [Filed Feb. 17, 1877.]

Brief.—The seed-slide is reciprocated by an inclined rod secured to the plunger.

The combination of the bar I, the bolts K, and the block or blocks L, with the plunger H, the handle J, and the slotted back of the planter, substantially as herein shown and described.

189,143. HARVESTERS. O. N. Skaaraas, Hale, Wis., assignor of one-half his right to Louis Bagger & Co., Washington, D. C. [Filed Jan. 4, 1877.]



1. As an improvement in harvesters or reaping-machines, a reel having jointed wings connected by rods with a cranked shaft, whereby the wings are extended and folded as the reel revolves, substantially as and for the purpose hereinbefore set forth.

2. The combination of the forked lever-arm N, constructed as described, and having cross-piece *f*, with the lever P, lever Q, and sickle-bar R, substantially in the manner and for the purpose hereinbefore set forth.

3. The combination of the shaft *i*, adjustable coupling M, upright S, rod 9, and rock-shaft 10, all arranged and operating substantially in the manner and for the purpose hereinbefore set forth.

189,144. PAPER-PERFORATING MACHINES. R. T. Smith, Nashua, N. H. [Filed Oct. 6, 1876.]

Brief.—The card-board is drawn through the dies by a clamp, which travels in unison with a perforated table, which automatically rises and falls, so as to press upon the punches and force them through the card-board. Those punches which are not to perforate enter the perforations in table as it is raised, and those alone against which the upper surface of table presses perforate the card-board. A vibrating lever, operated by a cam, feeds the table along through the medium of a pawl and ratchet.

1. The combination of the die E, the punch F, the collar *b*, the presser *c*, and the sliding platform D, or their equivalent, substantially as described.

2. The combination of the die E, the punches F, the sliding platform D, the collar *b*, the presser *c*, and the part *d*, or their equivalents, substantially as described.

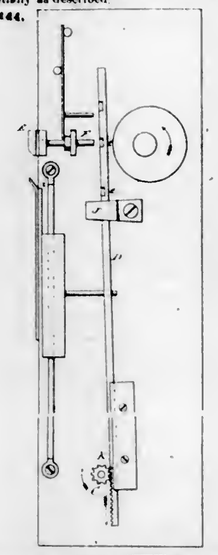
3. The combination of the die E, the punch F, the sliding platform D, the gear K, the ratchet R, the dog *p*, the bar I, and the cam H, or their equivalent, substantially as described.

4. The combination of the die E, the punch F, the sliding platform D, the gear K, the ratchet R, the dog *p*, the bar I, the cam H, and the stop *j*, or their equivalents, substantially as described.

5. The combination of the dies E, the punch F, the sliding platform D, the gear K, the ratchet R, the dog *p*, the bar I, the cam H, the block L, and pinchers *k* and *i*, or their equivalents, substantially as described.

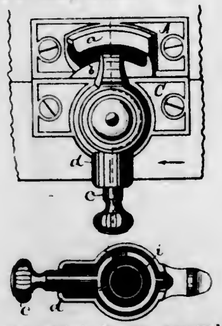
6. The combination of the dies E, the punches F, the sliding platform D, the gear K, the ratchet R, the dog *p*, the bar I, the cam H, and the wire *s*, or their equivalents, substantially as described.

189,144.



189,145. FASTENINGS FOR MEETING-RAILS OF SASHES. Wm. E. Sparks, New Britain, Conn., assignor to P. & F. Corbin, same place. [Filed Feb. 28, 1877.]

Brief.—The sweep or swinging lever is composed of two parts, swinging together on their transverse axis, one of these parts being adapted to lock the sweep in position by a quarter-turn or independent partial rotation on its longitudinal axes. There is also a single spring, so arranged as to swing both parts while partially rotating one of them, and also a peculiar keeper, provided with an overhanging flange at the rear, and a cam-surface at the front, into which keeper the two-part sweep enters for locking the device.



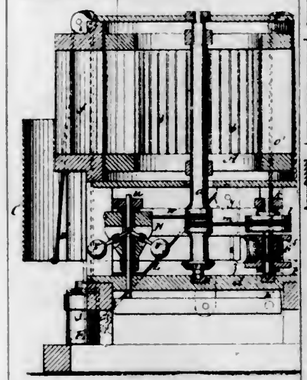
1. In a sash-lock, the sweep composed of two parts adapted to swing together on a transverse axis, and having one of said parts adapted to lock the sweep by an independent partial rotation on its longitudinal axis, substantially as described, and for the purpose specified.

2. In combination with the two-part sweep E and plate C, a single spring, *i*, operating to swing the parts *c d* of the sweep and partially rotate the part *c*, substantially as described, and for the purpose specified.

3. In a sash-lock, the keeper A, open at its end, and provided with the overhanging flange *a* at the rear and the cam *b* at the front, disconnected from said flange, substantially as described, and for the purpose specified.

189,146. WINDMILLS. Elias Stata, Cape Vincent, N. Y., assignor to Mary E. Stata, same place. [Filed Feb. 3, 1877.]

Brief.—The combination of a hoop or shield and a governor with a vertical windmill, in such a way that the action of the governor applies a portion of the power of the wheel to raise the said shield, exposing more or less of the wheel to the action of the wind, thus controlling its motion.



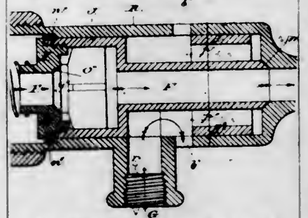
1. A wind-wheel provided with a shield, self-regulating, and covering the whole thereof, substantially as shown and described.

2. The combination of the governor H, lever I, winding-drum G, wheel *l*, ropes *o o'*, and shield C, substantially as shown and described.

3. The combination of the rope L, pulleys *y* and *z*, and winding-drum G, substantially as specified.

4. The combination of the weights *j*, rope D, tube E, pulley *i*, and shield C, as shown and described.

189,147. STEAM AND AIR BRAKES. H. H. Taylor, Warsaw, and A. McCamish, East St. Louis, Ill., assignors to J. F. Degnon, St. Louis, Mo., and C. D. Leet, Springfield, Mass. [Filed Aug. 11, 1876.]



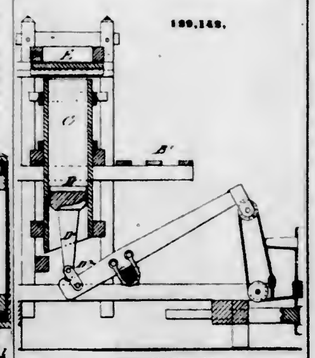
The combination of the valve case or shell R, with its eduction-ports *b' b'*; the hollow piston-valve J, constructed with valve-shaped end, made to fit its seat *n''*, and moved thereto by the current of compressed air, and which carries in its interior a wing-valve, seating itself by moving in the opposite direction, said piston-valve J being also constructed with the slide-valve or ring-bearing *d'' d''*, with air-passages through it between the arms *p'' p''*, Fig. 1; the wing-valve *p''*, and the pipe-connections from G, Fig. 1, to the brake-cylinder, whereby the air-pressure in the brake-cylinder is equalized each side of piston B, substantially as and for the purpose set forth.

189,148. COTTON-PRESSES. J. Templeton, Florence, Ga. [Filed Feb. 10, 1877.]

Brief.—A vertical frame, a sliding cover at top, a follower moved upwardly from beneath by the end of a lever, the other end of which is drawn down by a rope around a capstan.

As an improvement in cotton-presses, the combination of the cotton-box C, with vertically-movable follower D, entering box at lower end, and a sliding and closing top panel, E, substantially as and for the purpose set forth.

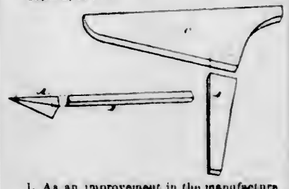
189,149.



189,149. PROCESSES OF TREATING WOOL OIL OR GREASE TO OBTAIN GLUE OR GELATINE. H. Thaulow, Christiania, Norway. [Filed Feb. 1, 1877.]

The process herein described of treating wool oil or grease to obtain glue or gelatine therefrom, consisting in the following steps, successively performed, viz: combining the crude oil with water and beef-blood, boiling the mixture, straining or filtering the same, mixing beef-blood with the strained and cooled liquid, and then reboiling the same, substantially as herein set forth.

189,150. MANUFACTURE OF PLOWSHARES. C. H. Thompson, Pittsburg, Pa. [Filed Sept. 8, 1876.]

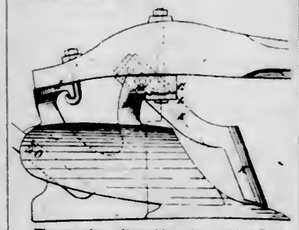


1. As an improvement in the manufacture of plowshares, the method hereinbefore described and set forth—that is, passing the blanks A, B, C, and D through a series of dies, for the purpose of welding them together and forming a complete plowshare, substantially as described.

2. As an improvement in the manufacture of plowshares, the series of dies shown and described, for the purpose set forth.

189,151. PLOWS. R. B. Thomson, Dansville, Mich. [Filed Feb. 10, 1877.]

Brief.—An angular plate bolted beneath the beam, having the land-side arm grooved for a colter-holder.

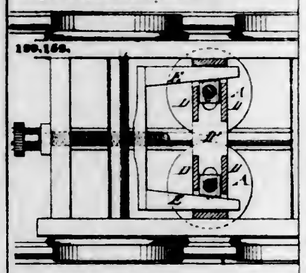


The angular adjustable colter-holder L, in combination with the arm G of the standard D and with the colter K, substantially as herein shown and described.

189,152. GRIPING AND PROPELLING ATTACHMENTS FOR CAR-TRUCKS AND LOCOMOTIVES. J. J. Thomas, Cahto, and Wm. J. Anderfuren, San Francisco, Cal. [Filed Dec. 4, 1876.]

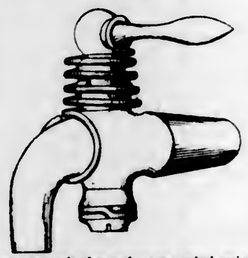
The combination, with horizontal grooved wheels A A, arranged opposite to each other

on vertical shafts C, and in bearings C', of the vertical guides D, horizontal slotted guides D', and the movable wedges E, all arranged to operate as specified.



189,153.

189,154. ATTACHMENTS FOR AUTOMATICALLY CLOSING COCKS AND FAUCETS. H. B. Towle, Roselle, N. J., and R. H. Plass, New York, N. Y.; said Plass assignor to said Towle. [Filed Aug. 26, 1876.]



As an article of manufacture, a spiral spring having the ends thereof bent for attaching it to the handle and nozzle or horizontal body of a faucet, substantially in the manner and for the purpose set forth.

189,154. SKIRT-SUPPORTERS. W. W. Towson, Baltimore, Md. [Filed Oct. 19, 1876.]



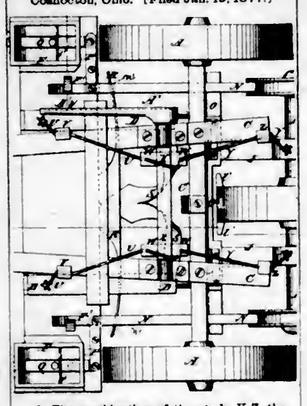
A skirt or dress supporter consisting of the plate A, having a waistband hook or attachment, and provided with one or more eyes or holders, e, for receiving the looping-up buttons or devices of the skirt or dress, substantially as herein specified.

189,155. MACHINES FOR STAMPING LEATHER GOODS. L. H. Urner, Nevada, Mo. [Filed Feb. 22, 1877.]

In a machine for stamping leather or leather goods with ornamental designs, the combination of a reciprocating striking-rod, carrying a bit or die, a spring acting on said rod to give the blows, a rotary spring-presser, G, to act on the material to be ornamented, and a vibrating feed mechanism therefor, substantially as shown and described.

189,156.

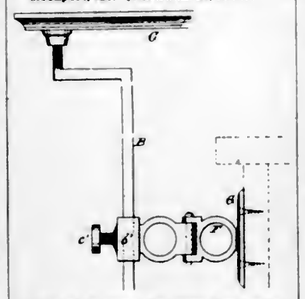
189,156. CORN-PLANTERS. H. Wagoner, Coshocton, Ohio. [Filed Jan. 19, 1877.]



1. The combination of the studs V Z, the cords U Y, the cross-bars W W, the shaft X, and the lever A', with the thills C and the hinged bars D J, substantially as herein shown and described.

2. The combination of rods E', slide-pins F', and springs G', with the dropper-slide bars N and spout-valves D', as and for the purpose specified.

189,157. ARM-RESTS. Philo R. Wagor, Rockport, Mo. [Filed Jan. 19, 1877.]

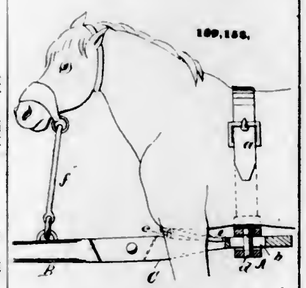


The arm E, having the sleeve b' and screw c', arm F, plate G, standard B, and board C, combined substantially as herein shown and described.

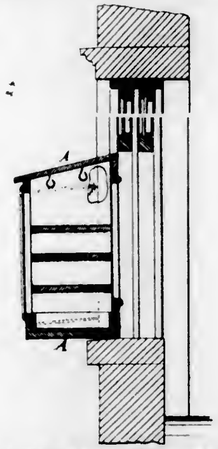
189,158. ANIMAL-POKES. B. D. Watson, Durant, Miss., assignor to himself and J. C. Watson, same place. [Filed Feb. 17, 1877.]

The saddle A, arm C, having the point e and spring e, arm B, strap f, and belt a, in combination, substantially as herein shown and described.

189,158.

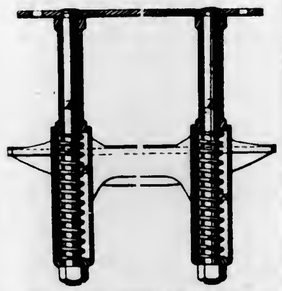


189,159. PROVISION-SAFES. Ezra Webb, Brooklyn, N. Y., assignor to Mrs. S. E. Shutter, New York city. [Filed Sept. 16, 1876.]



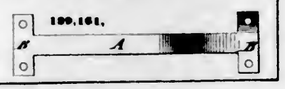
A safe, A, provided with wire cloth in its front and rear, with an inclined top, and with chains F, to adapt it to be applied to a window, substantially as herein shown and described.

189,160. WAGON-SEAT SPRINGS. Benj. F. Wells, Brooklyn, N. Y. [Filed Sept. 23, 1876.]



The reversible tubular head a herein described, applied loosely to and combined with the pin B of a wagon-seat spring, substantially as and for the purpose specified

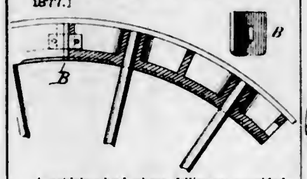
189,161.



189,161. GRANE-SUPPORTS FOR BOOTS AND SHOES. G. W. Wells, Black Hawk, Colo. [Filed Feb. 17, 1877.]

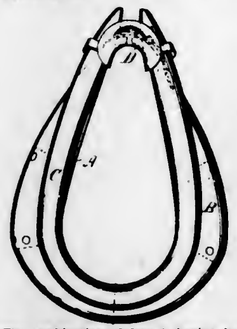
Boot and shoe springs A, made with cross-heads B upon their ends, and with holes in the ends of said cross-heads, to receive the rivets by which they are secured to the insoles of boots and shoes, substantially as herein shown and described.

189,162. FELLIES. W. A. Wharton, Belle Centre, Ohio, assignor to himself and H. B. Lambert, same place. [Filed Jan. 29, 1877.]



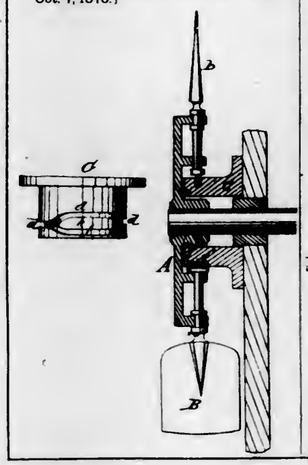
A vehicle-wheel whose fellies are provided with the intermediate detachable blocks B, through which pass the dowel-pins, as shown and described.

189,163. HORSE-COLLARS. H. W. Whitney and C. F. Whitney, Oswego, N. Y. [Filed Feb. 3, 1877.]



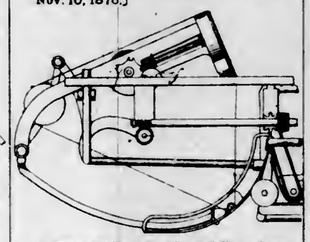
The combination of face A, having inner convexity c d and concavities d e c f, the part B, overlapping face A, and the roll C, having parallel edges, one stitched to part A and the other riveted to part B, as and for the purpose specified.

189,164. FEATHERING PADDLE-WHEELS. Henry Williams, Milwaukee, Wis. [Filed Oct. 7, 1876.]



The combination of the stationary cam C, having the double or divided groove d d' f and intervening solid part A, with the wheel A and radial paddles B, provided with inner cross-arms c, each having pins or rollers e, and moving in the grooves of the cam, as and for the purpose set forth.

189,165. GRAIN-BINDERS. C. B. Withington, Janesville, Wis., assignor to C. H. and L. J. McCormick, Chicago, Ill. [Filed Nov. 10, 1876.]

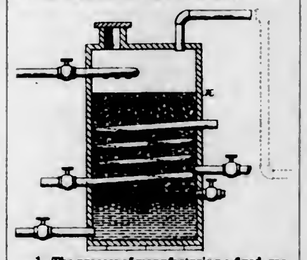


1. The combination, substantially as hereinbefore set forth, of a binder-arm and a wire-carrying arm mounted on a common swinging support, and a crank-shaft for actuating them.

2. The combination, substantially as hereinbefore set forth, of a grain-receptacle, a wire-carrying arm, and a binding-head, both of the latter vibrating in a vertical plane, for the purpose set forth.

189,166. PROCESSES AND APPARATUS FOR MANUFACTURING ILLUMINATING-GAS. J. Abterdam, New York, N. Y. [Filed Aug. 12, 1876.]

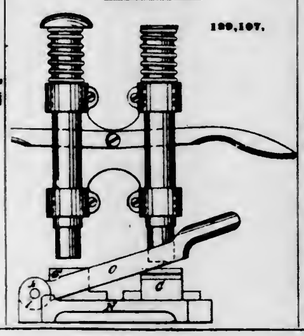
Brief.—Water is passed through a coil of pipe below the surface of the oil, or is admitted freely into the liquid hydrocarbon, to control its temperature below its surface.



1. The process of manufacturing a fixed gas by bringing steam in contact with liquid hydrocarbon, cooled or refrigerated below its surface, thence conveying the mixed steam and hydrocarbon vapors into a heated retort, and there converting the mixture into a fixed gas, substantially as described.

2. The combination of the boiler A, still K, cooling or refrigerating coil X, and retort J, substantially as described.

189,167.



189,167. MACHINES FOR INCASING POCKET-PORTRAITS. J. R. Applegate, Philadelphia, Pa. [Filed Oct. 28, 1876.]

In a machine for punching and incasing pocket-portraits, the cutting-die G, the sealing-die G', and shear N O, jointly, the several parts attached to a single bed-plate, and arranged for successive operation, substantially as and for the purpose set forth.

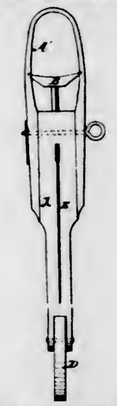
189,168. LATHE-CHUCKS. F. Armstrong, Bridgeport, Conn. [Filed Feb. 28, 1877.]

Brief.—Improvement on lathe-chuck shown in Letters Patent No. 134,162, August 18, 1874, to prevent unevenness of wear incident to the frictional contact between the central bevel-gear and its containing-shell.



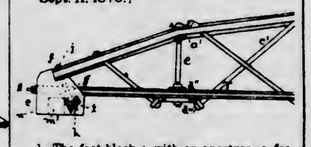
The shell A and gear B, having their contact-faces beveled toward the axis of the gear, combined substantially as shown and described, and for the purposes set forth.

189,169. ANIMAL-POKES. R. B. Atteberry, Savannah, Iowa. [Filed Sept. 27, 1876.]



The bar A, provided with a suitable yoke, A', in combination with lever D, rod C, having cross piece B, bent finger E, and rod F, constructed and arranged as and for the purpose set forth.

189,170. BRIDGES. O. Avery, Jr., Groton, and C. Bartholomew, Etna, N. Y. [Filed Sept. 11, 1876.]



1. The foot-block s, with an aperture, g, for the chord r, toothed or serrated, and said teeth or serrations of the chord and aperture locked together by a key, s, as set forth.

2. The foot-block s with a serrated recess, h, or transverse aperture for the tie t, said tie being bound to the foot-block or in the aperture, as set forth.

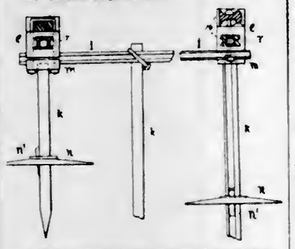
3. The middle cross beams or ties i' fast to the lower part of the bridge, and bent or curved upward outside of the bridge, in combination with the rods e'' fast to the end of

said beam or beams at or nearly at right angles to the beam, and bracing the bridge-truss, as shown and described.

4. The chord *r*, having its base upward and ends serrated, as and for the purpose set forth.

5. The tie *i* fast or locked to the foot-block as a transverse end tie or band, as set forth.

189,171. BRIDGE-PIERS. O. Avery, Jr., Groton, and C. Bartholomew, Dryden, N. Y. [Filed Aug. 11, 1876.]

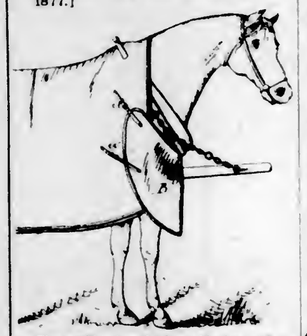


1. In bridge-piers, the pile-head *m* and foot-block *e*, in combination with the cross or end tie *i*, as and for the purpose set forth.

2. The head-cap *m* and foot-block *e*, when formed in, and consisting of, one piece, secured to, and holding the top of, the piles, in combination with the cross-band or end tie *i* and pile *k*, as and for the purpose set forth.

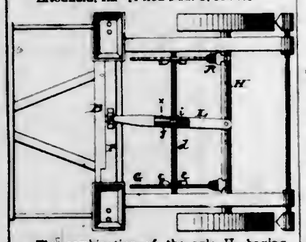
3. Abutments and piers of bridges consisting of the piles *k*, with head-caps *m* and foot-blocks *e*, be the said parts *m* and *e* made of one or two parts, as shown and described, whereby the pier and the bridge are bound together, in the manner and for the purpose set forth.

189,172. HORSE-BLANKETS. J. C. Ayres, Philadelphia, Pa., assignor to himself, W. Ayres, G. R. Ayres, W. M. Ayres, and L. H. Ayres, same place. [Filed Feb. 16, 1877.]



The combination of a horse-blanket with a shield, B, and adjusting connections *a* and *a'*, all substantially as set forth.

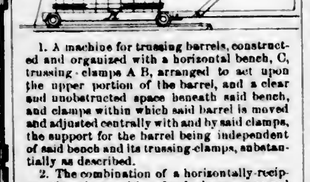
189,173. CORN-PLANTERS. D. C. Bacon, Litchfield, Ill. [Filed Feb. 8, 1877.]



The combination of the axle H, having brushes R R, the slotted bar I, having its rear end pivoted to the axle, and its front end connected to the center of the seed-slide P, the cross-shaft *d*, with spur or spiked wheels G G, and the vertically-placed disk on the shaft *d*, and having cams *i i* on opposite sides, all substantially as set forth.

189,174. COTTON-SEED PLANTERS. R. Ball, Petersburg, Va., assignor to William H. Tappey and A. Steel, same place. [Filed Oct. 31, 1876.]

Brief.—The revolving feed-wheel is provided with side flanges and central pins for carrying out the seed. Above and working over the feed-wheel is a horizontal agitator for stirring the seed to be sown. The coverer is a weighted box secured to pivoted arms, and has a bar or scraper removably and adjustably attached to its rear side.



1. The revolving wheel or cylinder D, provided with flanges *a* and pins or bars *b*, projecting from its surface between said flanges, as described, for taking the seed from the hopper, as set forth.

2. The horizontally-rotating agitator I, in combination with the wheel or cylinder D, as and for the purposes herein set forth.

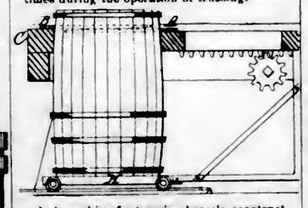
3. The combination of the pivoted drag-bars F F, the weight-box O, and the movable and adjustable bar R, substantially as and for the purposes herein set forth.

189,175. SOAP COMPOSITION. Charles H. Baxter and H. Horrocks, Fall River, Mass. [Filed Feb. 17, 1877.]

A sizing-soap composed of sal-soda, white soap, rosin, baryta, lard-oil, water, and silicate of soda, in the proportions substantially as set forth.

189,176. MACHINES FOR TRUSSING BARRELS. Philip Beamer, Duncansville, Pa. [Filed Dec. 12, 1876.]

Brief.—The edges of the staves from which the barrel is to be formed are joined in a true circle, to allow the top hoop to be put on, by means of two semicircular trussing-clamps provided with flaring ends, one of said clamps being fixed, and the other supported in the end of a horizontal carriage reciprocating in guideways upon a bench, beneath which is a clear and unobstructed space, within which the barrel is moved and adjusted centrally by the said clamps, in connection with a push-arm depending from the under side of said carriage, and acting simultaneously with the trussing-clamps, for the purpose of maintaining the barrel in a vertical position at all times during the operation of trussing.



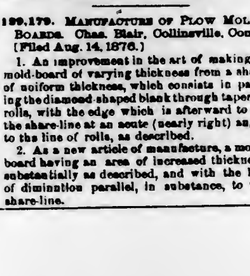
1. A machine for trussing barrels, constructed and organized with a horizontal bench, C, trussing-clamps A B, arranged to act upon the upper portion of the barrel, and a clear and unobstructed space beneath said bench, and clamps within which said barrel is moved and adjusted centrally with and by said clamps, the support for the barrel being independent of said bench and its trussing-clamps, substantially as described.

2. The combination of a horizontally-reciprocating clamp with a fixed clamp, arranged upon a bench to operate in the same horizontal plane, or nearly so, with their projecting flaring ends adapted to lap and pass each other in gathering the staves, substantially as herein set forth.

3. The combination, with a horizontal reciprocating clamp, of a push-arm, adapted to act upon the lower end of the barrel or its supporting-truck in unison with the clamp, to move the barrel vertically in position between the clamps.

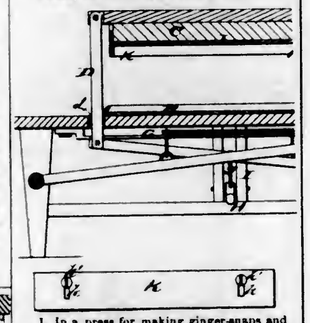
189,177. COTTON-PRESSES. C. J. Beasley, Petersburg, Va., assignor to William H. Tappey and A. Steel, same place. [Filed Oct. 31, 1876.]

Brief.—To obviate the danger of the gearing being drawn out of gear, or going too deeply therein, in consequence of wear resulting from the end thrust of the screw, or the pressure in the opposite direction, the collar bearing on the cross-head is made adjustable as well as the cross-head itself.



The combination of the screw A with the stationary collar C, movable collar D, adjustable cross-head B, screws *h h*, and nuts *b b*, all substantially as and for the purposes herein set forth.

189,178. PRESSES FOR MAKING GINGER-SNAPS. Axel H. Bell and N. Hills, Belle Plaine, Iowa. [Filed Feb. 3, 1877.]



1. In a press for making ginger-snaps and other cakes, the follower O, provided with the floor bolding facing J, in combination with the vertically-adjustable gage plate K, substantially as described, and for the purpose set forth.

2. In a press for making ginger-snaps and other cakes, a follower, O, in combination with a vertically-adjustable gage-plate, K, substantially as and for the purpose set forth.

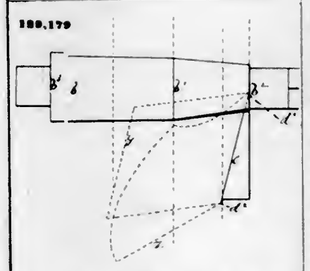
189,179. MANUFACTURE OF PLOW MOLD-BOARDS. Chas. Blair, Collinsville, Conn. [Filed Aug. 14, 1876.]

1. An improvement in the art of making a mold-board of varying thickness from a sheet of uniform thickness, which consists in passing the diamond-shaped blank through tapered rolls, with the edge which is afterward to be the share-line at an acute (nearly right) angle to the line of rolls, as described.

2. As a new article of manufacture, a mold-board having an area of increased thickness, substantially as described, and with the line of diminution parallel, in substance, to the share-line.

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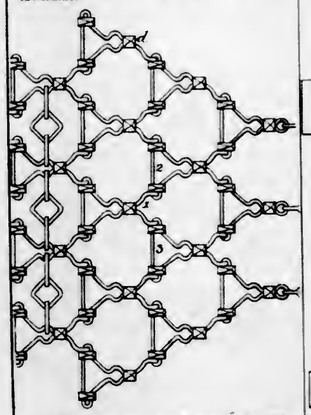
189,180. MANUFACTURE OF GLASS SHADES, GLOBES, &c. Jos. Bourne, West Meriden, Conn., assignor to the Meriden Flint Glass Company, same place. [Filed Mar. 28, 1877.]



The improvement in the manufacture of combined globes and shades, and chimneys and shades for illuminating purposes, consisting in forming upon the one part, as opal, before it is completely shaped, a finished edge, and uniting thereto sufficient glass for the second part, as flint, subsequently finishing the article, as herein described, whereby a clearly-defined dividing-line between the opal and flint portions is produced, and without the overlaying of one part upon the other.

189,181. HARROWS. E. T. Bousfield, Bedford, England. [Filed Mar. 16, 1877.]

Brief.—A flexible wrought or steel framed harrow, made with hooks and eyes, and stiffened, with teeth cast in to give stiffness to the frame.



1. A flexible chain-harrow, composed of tripod-frames, made with eyes and hooks from rods of iron or steel, bent to shape, as shown at Figs. 3 and 4, and stiffened by tines or tine-sockets cast thereon, as above described.

2. In combination with tripod-frames, constituting a flexible or chain harrow, the links or acting-surfaces *c*, for dividing up the spaces between the tripods, as and for the purpose described.

189,182. CIGAR-WRAPPERS. W. Broseker, Baltimore, Md., assignor of one-half his right to A. J. La Fleur, same place. [Filed Mar. 3, 1877.]

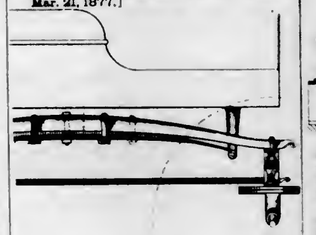
1. As an article of manufacture, a cigar-wrapper consisting of a sheet of thin paper saturated with tobacco, sugar, tannin, and starch, substantially as and for the purpose set forth.

2. A composition of matter for treating tobacco-wrappers, consisting of tobacco, sugar, tannin, and starch, substantially as and for the purpose set forth.

3. The process of manufacturing cigar-wrappers, consisting, first, in reducing tobacco to a pulp by the action of water or steam; next, in straining it and allowing it to settle, so as to produce a paste; next, in mixing therewith starch, sugar, and tannin; next, in saturating thin paper with said mixture and drying said paper; and, finally, in wetting said wrappers with alcohol, substantially as and for the purpose set forth.

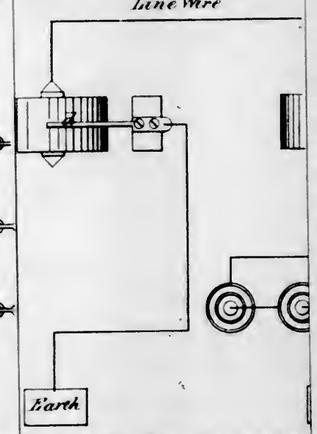
4. In the process of manufacturing cigar-wrappers, the saturation of thin sheets of paper with a mixture consisting of tobacco, paste, sugar, tannin, and starch, substantially as and for the purpose set forth.

189,183. SIDE-BAR SPRING-VEHICLES. J. F. Bridget, Washington, D. C. [Filed Mar. 21, 1877.]



The combination, in a side-bar buggy, of the side bars and their springs with the transverse cross connecting-bars, the central fastening-bolt, and the adjustable clips, all constructed and arranged to operate substantially as described.

189,184. AUTOMATIC TELEGRAPHY. James W. Brown, Port Huron, Mich. [Filed May 21, 1875.]



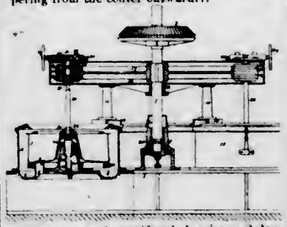
1. In automatic telegraphy, the method of forming dashes, by, first, transmitting a strong initial current; second, compensating by weakening, cutting off, or reversing such current, as the state of line may determine, as explained; third, by transmitting a current identical with the initial current; and, finally, a reverse current, equal in strength to initial current, substantially as set forth.

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2. Combination of strip, perforated as described, the marking, compensating and reversing pens, the battery, and resistance, with circuit-connections, as described, whereby a dash is transmitted, by using, first, a strong initial current; second, the compensation therefor, as explained; third, a current similar to initial current; and, lastly, a reversing or clearing current.

189,185. CENTRIFUGAL DRYING AND CLEANING MACHINES. J. Buchanan, Jr., Liverpool, England. [Filed Mar. 6, 1877.]

Brief.—Four centrifugal machines, placed at equal distances from a central shaft, are operated by a central friction-wheel bearing upon the friction-pulleys of the machines, any one of which pulleys may be thrown out of gear while the others are kept in motion. The finished sugar is removed from the bottom of the machine through flanged openings in the bed-plate of the outer case. The friction-pulleys are composed of alternate rings of compressed paper and metal, the latter rings tapering from the center outwardly.



1. A group of centrifugal cleaning and drying machines, arranged circumferentially around a central driving-spindle, and in combination therewith, substantially as and for the purposes set forth.

2. The centrifugal machines arranged equally around the circumference of the central shaft, and in combination therewith, so as to obtain an equal pressure in all directions, substantially as and for the purpose specified.

3. The combination of centrifugal machines, arranged circumferentially around a central driving-shaft, with a sole-plate provided with bearings for the machine and driving-shafts, substantially in the manner and for the purposes set forth.

4. The casing 13, columns 14, bridges 16, and casings 15, in combination with the sole-plate 3, substantially as and for the purposes set forth.

5. In a centrifugal machine, the friction-pulleys of compressed paper 19, divided into layers by metal disks 20, tapering from the center outward, substantially as and for the purposes set forth.

6. The combination of the bearing 4, oil-reservoir 21, conical bushes 22, adjusting-nut 23, spindle 24, convex plates 25, foot-step 26, and adjustable carrying-pieces 27, substantially as and for the purpose set forth.

7. The combination of bearing 5, oil-reservoir 21, convex plates 25, and loose foot-step 26, substantially as and for the purpose specified.

8. The combination of pulley 18, casing 13, adjustable carrying-pieces 27, slides 28, and adjusting-screws 29, substantially as and for the purpose specified.

9. The combination of the pulley 18, the casing 13, the carrying-pieces 27, slides 28, adjusting-screws 29, and limiting-screws 30, substantially as and for the purpose specified.

10. The combination of the carrying-pieces or bearings 27 and hand-wheel and screw 29 with springs 31, substantially as and for the purposes set forth.

11. The combination of the auxiliary or intermediate spindles 32 with the main spindles 24 and carrying-pieces or bearings 27, for the purposes set forth.

12. The driven pulleys 18, secured to the auxiliary spindles 32, and arranged substantially as set forth.

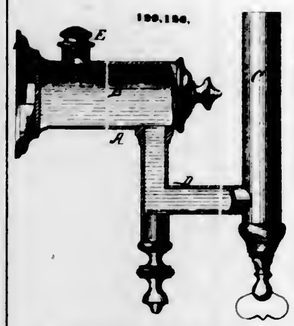
13. The combination of the spindles 32 and 24 with the joint 33 34, arranged, connected, and combined substantially as and for the purposes set forth.

14. The combination of the stems 37, rocking bushes 36, spindles 32, and cups 35, substantially as and for the purposes set forth.

189,186. LAMPS. William A. Butler, New York, N. Y. [Filed Feb. 17, 1877.]

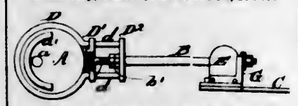
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The horizontal tubular bracket-arm A, forming an oil-containing reservoir, B, and provided with an opening closed by a cap, E, for filling said reservoir, in combination with the pipe D, projecting downwardly from the lower side of the bracket-arm, and bent horizontally, as shown, and an Argand burner, C, attached to the extreme end of said horizontal portion of the pipe, and having its wick-tube extending a short distance only above the bottom of the oil-reservoir, as and for the purposes hereinbefore set forth.

189,187. PITMAN-RODS. B. E. Carpenter, Plain City, Ohio. [Filed Feb. 24, 1877.]

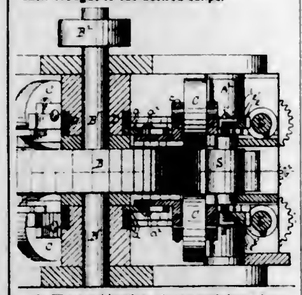


1. The combination of circumferentially-grooved wheel A with collar D, having ends *d d*, yokes D^1 D^2, pitman B, and nuts *b'*, substantially as and for the purpose set forth.

2. Wheel A, provided with crank-hole *a*, counterbalance a^1, and circumferential groove a^2, in combination with a pitman-rod and collar connection, substantially as and for the purpose set forth.

189,188. MACHINES FOR ROLLING METALLIC RINGS AND CYLINDERS. Robert A. Carter, Pittsburg, Pa. [Filed Nov. 4, 1876.]

Brief.—The annular blanks cut from a plate of metal are placed successively upon reducing-rolls, so arranged around the drum as to approach the same in their revolution about it, and thereby reduce and draw the blank until brought to the desired shape.



1. The combination of a central drum, having a rolling-periphery, and a series of two or more drawing and reducing rolls, S, arranged radially around the drum, and eccentrically thereto, so as to be operative in the manufacture of seamless rings and tubes, substantially as set forth.

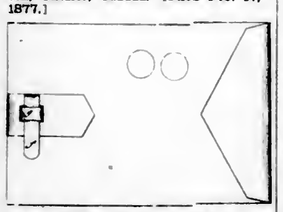
2. The combination of a central drum, B, a series of two or more vertical rolls, S, and a corresponding series of rolls, C, substantially as set forth.

3. The eccentrically-arranged vertical and edging rolls S C, mounted in a single frame, and simultaneously adjustable toward or from their center of motion, substantially as and for the purpose set forth.

4. The combination of drum B, eccentrics D, yokes e, radially-adjustable frames e, and edging and reducing rolls S C, substantially as described.

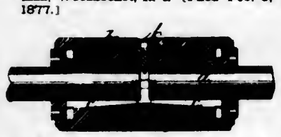
5. The combination of drum, eccentrically-operating edging and reducing rolls C S, and gear-wheels *s*, substantially as set forth.

189,189. ENVELOPES. R. C. Carter, Kingston, Ontario, Canada. [Filed Feb. 17, 1877.]



The combination, with the body of the envelope, having the loop *g* of the flap or strip, provided with a slot, and the locking-tongue *f*, substantially as shown and described.

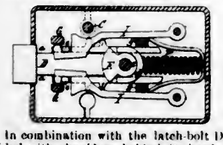
189,190. SHAFT-COUPLINGS. G. A. Chapman, Woonsocket, R. I. [Filed Feb. 5, 1877.]



1. A shaft-coupling consisting of an outer sleeve provided with a central oblong perforation, *g*, said sleeve having conical holes, the same gradually increasing in size from the center of the sleeve toward its ends, in combination with split conical sleeves and screw-threaded followers, substantially as and for the purpose set forth.

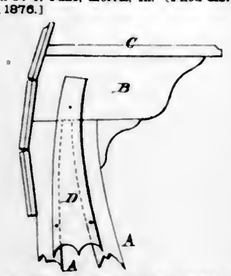
2. The combination, with the solid tubular coupling-sleeve *b*, of the screw *f*, arranged and operated substantially as described.

189,191. LOCKING-LATCHES. H. A. Chase, Hartford, Conn., assignor of one-half his right to S. H. Hubbard and C. H. Clark, same place. [Filed Mar. 2, 1877.]



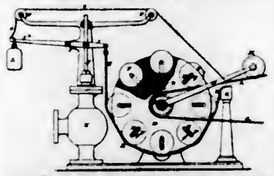
In combination with the latch-bolt D, provided with shoulders behind its head, and a suitable casing having posts G parallel with the latch, independent locking-bars H and spring-tumblers I, arranged to operate substantially as hereinbefore set forth.

189,192. SCHOOL-DESKS. Wm. B. Cogger and F. T. June, Morris, Ill. [Filed Mar. 21, 1876.]



A school-desk, having its sides formed of sawed wood legs A A, connected by a mortised bracket, B, on top, and a covering and bracing plate, D, on the outside, substantially as herein set forth.

189,193. GOVERNORS. J. W. Collet, Upper Alton, Ill. [Filed Feb. 13, 1877.]



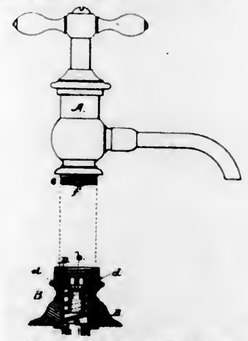
1. The combination, with the governor-valve stem lever I, of the rotating head D, with rollers F, acting upon said lever by centrifugal force, substantially as and for the purpose set forth.

2. In a governor, the combination of lever I, belt H, rotating head or wheel D, and radially-movable rollers F, substantially as and for the purpose set forth.

3. In a governor, the combination of rotating head D with radially movable weights or rollers F, belt H, weighted lever I, cord or chain O, and idler M N, substantially as set forth.

189,194. AUTOMATIC CHECK-VALVES. O. Collier, Sacramento, Cal., assignor of one-half of his right to G. W. Gilbert, same place. [Filed Dec. 15, 1876.]

Brief.—The lower part of the body, that is permanently connected with the service-pipe, forms a valve seat and chamber for an automatic check-valve. This valve is pressed down and kept open by the end of the faucet-body when it is screwed down in its place, but is thrown up and closed by a spring when the faucet is taken off.



An improved faucet, constructed substantially as herein described and shown, consisting of the part A, with its end *a* provided with a screw-thread to fit into the part B, and a bridge, *f*, and the part B having a valve, *b*, valve-seat *d*, and spring *c*, for the purpose of controlling the flow of water from the service-pipe when the faucet is removed, as herein set forth.

189,195. MACHINES FOR DRESSING SILK, &c., IN HANKS OR SKEINS. C. Corron, St. Etienne, France. [Filed Feb. 17, 1877.]

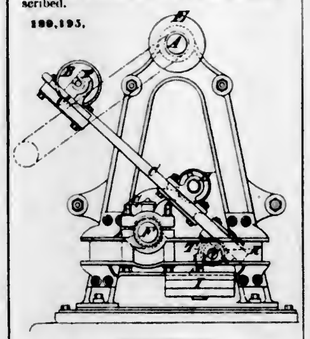
Brief.—The hank or skein is placed over the flanged rollers, and shaken and straightened by the jerking motion of the beater, which is pivoted upon an independent shaft, and intermittently acted upon by a cam upon the main shaft. The remaining features are explained by drawing and claims.

1. The combination, with the flanged roller or rotating peg A', of the oscillating beater C C' and the flanged roller or peg B, attached to and oscillating with said beater, substantially as and for the purpose specified.

2. The combination of the shaft F, the cam G, the oscillating beater C C', the removable flanged roller or peg B, the rotating flanged roller or peg A', and the spindle A receiving rotating motion from the main shaft F, substantially as and for the purpose set forth.

3. The combination, with the oscillating beater C C', of the sector R, attached to the pivot of said beater, the flexible strap T, attached to and passing over said sector, and the weight or weights I suspended from said strap, substantially as and for the purpose described.

189,195.

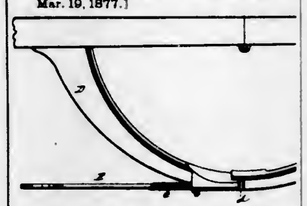


189,196. ICE-TOOLS. Jno. Crawford, New York, N. Y., assignor, by mesne assignments, to Rebecca Chapman, Plainfield, N. J. [Filed Feb. 9, 1877.]



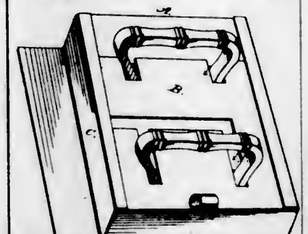
The combination ice tool or implement described, consisting of the hatchet F, pick D, shovel *b d*, and cutter *c*, and a handle, A, all substantially as and for the purpose specified.

189,197. TABLE-LEAF SUPPORTS. Wm. F. Daly, Peru, assignor of one-half his right to E. D. Olin, Indianapolis, Ind. [Filed Mar. 19, 1877.]



The grooved arm C, provided with the lug *f*, and the arm D, provided with the hollow enlargement *b*, in combination with the rod E, spring *e*, and plate *d*, all constructed and arranged substantially as set forth.

189,198. FLAT-IRON HEATERS. S. B. Dinsmore, Richmond, Me. [Filed Feb. 10, 1877.]

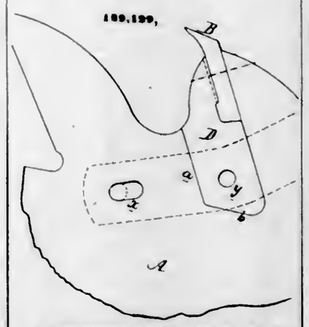


The combination of the cover A, slide B, and front C, constructed substantially as described.

189,199. INDESTIBLE SAW-TEETH. T. S. Dieston, Philadelphia, Pa., assignor to H. Dieston, H. Dieston, A. H. Dieston, and H. C. Dieston, same place. [Filed Sept. 4, 1876.]

Brief.—The tooth and locking-plate are held in a recess in the saw-plate, having straight and parallel opposite edges.

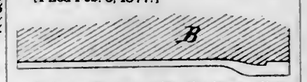
189,199.



1. The combination of the blade A and its recess, having straight and parallel opposite edges, with the locking-plate D and tooth B, adapted to the said locking-plate and recess, all substantially as set forth.

2. The blade A and its hole *x*, in combination with the locking-plate and its hole *y*, one or both of the holes being elongated, as and for the purpose specified.

189,200. DIES FOR FORMING SUCKER-ROD JOINTS. G. Douglass, Bridgeport, Conn. [Filed Feb. 5, 1877.]

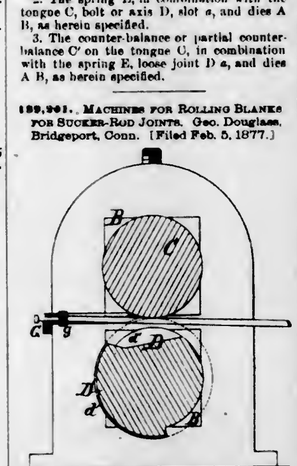


1. In combination with the intermediate die C and main dies A B, the yielding joint D *a*, adapted to provide for the bodily movement of the tongue C, and also for its turning or changing its inclination, as herein specified.

2. The spring E, in combination with the tongue C, bolt or axis D, slot *a*, and dies A B, as herein specified.

3. The counter-balance or partial counter-balance C' on the tongue C, in combination with the spring E, loose joint D *a*, and dies A B, as herein specified.

189,201. MACHINES FOR ROLLING BLANKS FOR SUCKER-ROD JOINTS. Geo. Douglass, Bridgeport, Conn. [Filed Feb. 5, 1877.]



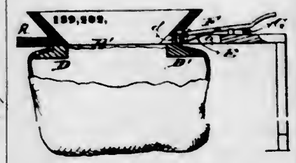
In combination with the rolls C D, having a groove and a cavity, *d'*, the guides I I, adapted to receive the end of the metal and to guide it in its backward and forward movement, as and for the purposes herein specified.

189,202. BAG-HOLDERS. Josiah Eberhard, Burr Oak, Mich. [Filed Feb. 3, 1877.]

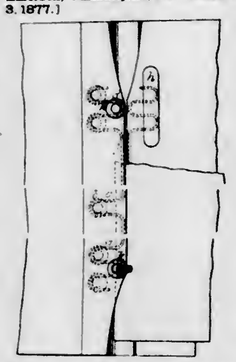
Brief.—Beneath a table, upon which is placed a hopper, are two buttons, upon which the mouth of the bag is fixed. One of the buttons is fixed, while the other is revolved to further distend the mouth of the bag.

The combination of table A, having curved slot *a*, with adjusting-bar F, rack G, cord E, guide-stud *d*, pivoted button D', and fixed button D, substantially as and for the purpose set forth.

189,203.

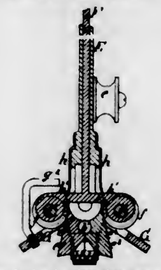


189,203. TEMPORARY BINDERS. Geo. W. Emerson, Philadelphia, Pa. [Filed Feb. 3, 1877.]



The improved file or temporary binder herein described, consisting of opposite lids each having a marginal wire bent to form projecting loops *d* and reversed loops *b*, and in connection with said loops, respectively, eyelets and belaying cleats forming fastenings for the filing-thread, substantially as specified.

189,204. CLAMPS FOR ENDLESS-ROPE RAILWAYS. W. Eppelsheimer, San Francisco, Cal. [Filed Feb. 3, 1877.]



1. In a device for clamping a car to an endless traveling cable, the combination, with the shank E, carrying the clamping device, and having vertical movement and lateral oscillation in its seat or bearings in the car-truck, and provided with the wheels or pulleys *c*, of the rail *c'*, having curves *n'* and elevations *n*, as and for the purpose described.

2. The combination of the shank E, carrying the clamping device, and in which works the operating slide F, with the box *s* pivoted at s^1 in frame s^2, which slides in ways s^3 in truck-frame s^4, as described.

3. The combination, with the shank E, as described, of the hinged clamping jaws e^3, together with the operating slide F, its cross-bar f^1, and bearing-rollers *f*, as and for the purpose specified.

4. The combination, with the shank E, its hinged jaws e^3, and the operating slide F, carrying rollers *f*, of the hinged frames G, carrying guide-pulleys *g*, as and for the purpose specified.

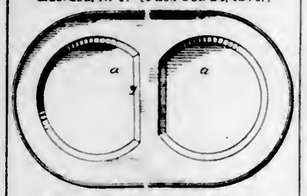
5. The combination, with the shank E, jaws e^3, and slide F, with rollers *f*, of the spring-arms *h*, carrying the half pulleys H, as described, and for the purpose specified.

6. The combination, with the shank E, carrying the cable-griping devices, of the cross-piece e^4, carrying the front and rear upper

guide-pulleys c^1, as described, and for the purpose specified.

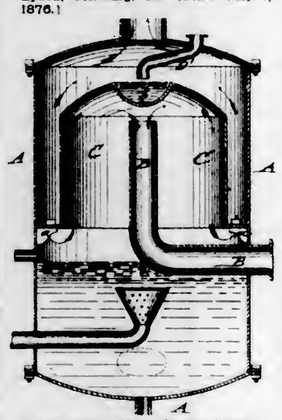
7. The combination, with the hinged upper cable guide-pulley d^1, having hood d^2 and spring d^3, of the curved bar or plate d^4, arranged to operate as and for the purpose specified.

189,205. BOILER-BOTTOMS. C. R. Everson, Macedon, N. Y. [Filed Oct. 24, 1876.]



The wash-boiler bottom consisting of a single sheet with two pits, *a a*, having parallel opposite edges, as and for the purpose set forth.

189,206. FEED-WATER HEATERS. Benj. Eynon, Pittsburg, Pa. [Filed July 1, 1876.]



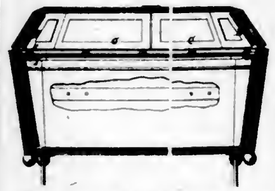
In a feed water heater, the combination of the casing A, the dome C, having depending cylindrical wall, separated by an annular space from the casing, and the steam induction pipe B, entering said dome and terminating near the top, whereby the admitted steam is brought in contact with the interior of the dome, the surface of the heated feed water and the water falling between the dome wall and casing, substantially as described and shown.

189,207. RAILROAD-SWITCHES. Smith H. Winch, New York, N. Y. [Filed Mar. 10, 1877.]

The slotted sliding bar B, in combination with the pins *f f*, the sliding bar I, and the bolts *h h*, substantially as and for the purpose described.

189,208. BURIAL-CASKETS. A. Fischer, New York, N. Y. [Filed Mar. 7, 1877.]

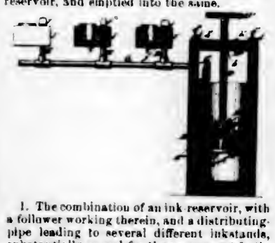
Brief.—Folding legs are secured to the bottom of the coffin to serve as standards.



The combination, with a burial-casket, A B, of hinged standards, substantially as and for the purpose described.

189,209. FILLING AND EMPTYING INKSTANDS. I. M. Fisher, Camden Point, Mo. [Filed Feb. 24, 1877.]

Brief.—Inkstands are filled from a protected reservoir, and emptied into the same.



1. The combination of an ink-reservoir, with a follower working therein, and a distributing-pipe leading to several different inkstands, substantially as and for the purpose set forth.

2. Non-conducting casing B and head B^1, in combination with ink-reservoir A and vertical passage F, substantially as and for the purpose set forth.

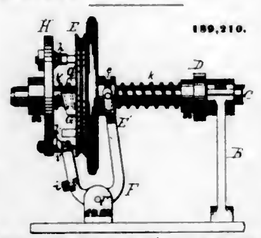
3. The combination of screw-tapped block C and screw-threaded rod D with piston or follower E, well A, tube F, and distributing-pipe G, substantially as and for the purpose set forth.

4. The combination of distributing-pipe G, with branch pipes H, inkstands I, having separate cocks J, passage F, reservoir A, and piston E, substantially as and for the purpose set forth.

5. The combination of screw-threaded rod D, having fixed collar D^2, with sectional upper piece E^2, clamping collar or nut e^1, packing E^1, and disk E^3, having shank E^2, with a collar fixed on its upper end, substantially as and for the purpose set forth.

189,210. CLUTCHING DEVICES. H. Fuchs, Chicago, Ill., assignor to G. W. Barnhart, A. E. Barnhart, A. M. Barnhart, and C. Spindler, same place. [Filed Nov. 22, 1876.]

Brief.—For use in type-casting and other machines. The clutch is intermittent in its operation. The cam shaft may be rotated at every second, third, or other desired number of revolutions of the drive-wheel. A star-wheel, provided with arms for being engaged by a catch on the circumference of the driving-wheel, determines the intervals of rest of the cam-shaft.



1. The combination, with the cam-shaft, of a drive-pulley mounted loosely thereon, and carrying one or more catches, G^1, a wheel, H, fast upon said shaft, and carrying a clutch, *k*, and cam k^1, and a bent rock-lever, actuated by the cam k^1, and provided with a shifter for shifting said pulley, substantially as set forth.

2. The combination, with the pulley mounted loosely upon the cam-shaft, and the wheel H, fast upon the same shaft, and both provided with catches, so that they will clutch when brought together, of a coiled spring encircling the shaft and held thereon, so as to exert a pressure upon the pulley, tending to force it toward the wheel H, substantially as specified.

3. The bent lever, jointed so as to permit one end to yield transversely, in combination with the spring i^3, so attached as to resist such yielding, essentially as described.

4. The star-wheel provided with radiating arms m^1 and m^3, constructed substantially as shown and described.

5. The star-wheel provided with radiating arms, and having its hub flattened with the same number of sides that it has arms, and combined with a spring impinging upon said flattened sides, substantially as and for the purpose set forth.

6. The combination, with the pulley and the spring pressing it toward the clutch-wheel, of a wheel mounted upon an appropriate standard, and provided with radiating arms, the wheel being so placed that the arms will act to resist the spring, substantially as specified.

7. The pulley provided with a catch, *n*, essentially as shown, in combination with the wheel $m\ m^1\ m^3$, substantially as set forth.

8. The combination, with the cam-shaft, of the drive-pulley E, the wheel H, the lever F, spring *k*, and star-wheel $m\ m^1\ m^3$, the pulley carrying the catches G^1, *x*, and *n*, the wheel carrying catch *k* and cam k^1, and the lever being provided with a shifter for shifting the pulley, and all the parts being arranged substantially as set forth.

9. The combination, with the drive-pulley and the wheel which rotates the cam-shaft, both pulley and wheel being provided with catches to clutch, of a device for shifting the pulley away from the wheel, operated by a cam upon the wheel, substantially as set forth.

10. The clutch operating the cam-shaft, the driving part whereof is provided with a catch, *n*, in combination with a wheel, *m*, suitably mounted and located with reference to the movable part of the clutch, essentially as shown, and provided with radial arms, so constructed that one or more of them will permit the contact of the parts of the clutch, while the others will prevent it, substantially as specified.

11. The cam-shaft intermittently operated by and in combination with a clutch, one part of which is provided with several removable catches, so that the number of contact-points may be changed at pleasure, substantially as set forth, whereby the period of rest may be regulated by changing the number of catches.

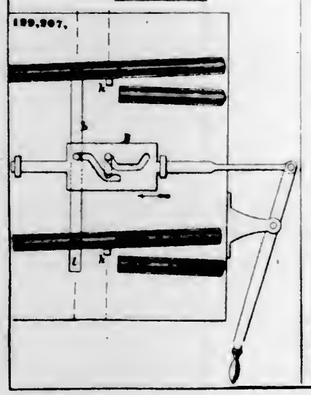
189,211. HINGES FOR BOXES, &c. Amos F. Gerald, Augusta, Me., assignor of one-half his right to W. Harvey, same place. [Filed Mar. 9, 1877.]

Brief.—A strip of brass, tin, or other metal is bent loop-shaped, with projecting ends, and these ends are driven or forced into the top edge of the box, while a dowel or trunnion is formed on the outside edge of the cover, over which the loop of the hinge-piece passes, and on which it turns freely, the construction forming a convenient and inexpensive hinge-connection for salt-boxes and the like.



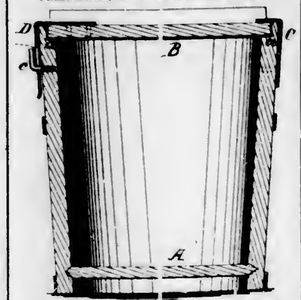
The hinge piece C, made loop-shaped from a single piece of brass, tin, or other suitable material, in combination with a cover turning freely on the dowels or trunnions G, formed on the side or end of cover B, or its equivalent, substantially as shown and described, for the purposes specified.

189,207.



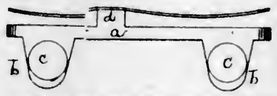
189,210.

189,212. BUTTER-PAILS. James Gilberds, Jamestown, N. Y. [Filed Jan. 13, 1877.]



The combination of the pail A, having rabbet *a* and angular metallic clip C, and rotating button *e*, with the cover B, resting on the rabbet, with its top flush with the top of the pail, and having the angular and slotted spring-hasp D rigidly attached, all as set forth.

189,213. REIN-HOLDERS. F. E. Hall and C. W. Richardson, Portland, Me. [Filed Mar. 17, 1877.]



A hitch and rein holder, having the flat plate *a*, with the concave under side, ears *b*, set-screws *c*, support *d*, and spring *e*, substantially operating as and for the purposes herein set forth.

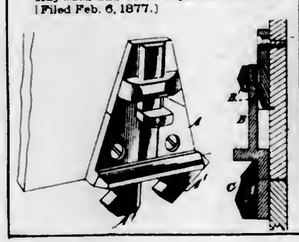
189,214. KNIFE-SCOURERS. P. Hauersperger, Homer, Ill. [Filed Mar. 8, 1877.]



1. The combination, with the lower rubber-board provided with the dust-box, of the upper reciprocating rubber-board, loosely connected thereto by a guide slot and pin engagement, the said guide-slot formed longitudinally in the body of the upper rubber-board, substantially as and for the purpose described.

2. The upper rubber-board, loosely connected with the lower rubber-board by the guide slot and pin, respectively formed on the two, the said lower board being provided with the dust-box, formed in its solid body and in a horizontal line below its padded rubber-face, substantially as and for the purpose described.

189,215. CARRIAGE-SEAT LOCKS. Nahum Hayward and P. C. Hays, Roanoke, Ind. [Filed Feb. 6, 1877.]

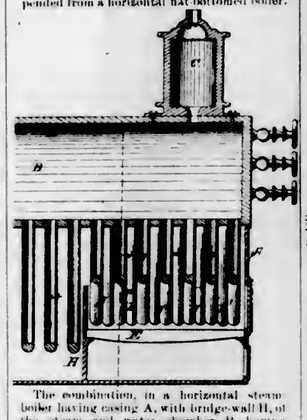


1. The combination of the lock A and hasp C, the interlocking jaws of which have inclined faces, so as to prevent the lock from being lifted vertically out of the hasp, and a bolt, B, which, when thrown, prevents any lateral movement of the lock, substantially as set forth.

2. The lock A, formed in two pieces, and with beveled faces, in combination with the bolt B, with similarly-inclined faces, and spring B^1, for creating friction between such beveled and opposed faces, substantially as set forth.

189,216. DROP-TUBE STEAM-BOILERS. C. K. Heath, Toledo, Ohio. [Filed Aug. 12, 1876.]

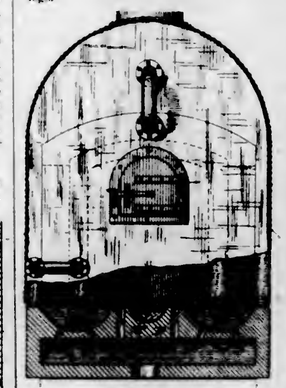
Brief.—Drop-tubes protect the sides of the casing from the intense heat; short drop-tubes are suspended immediately over the fire, and long tubes in rear of the bridge wall, all suspended from a horizontal flat-bottomed boiler.



The combination, in a horizontal steam-boiler having casing A, with bridge-wall H, of the steam and water chamber B, having rounded top and flat bottom, from which depend the short drop water-tubes J, protecting drop water-tubes J^1 on each side of the fire-box adjacent to the casing, and the long water-tubes J^2 in the rear of the bridge wall, all constructed substantially as and for the purposes herein set forth.

189,217. HYDROCARBON-FURNACES. Benj. Hershey, Erie, assignor of one-half his right to J. E. Shaw, Pittsburg, Pa. [Filed Feb. 20, 1877.]

Brief.—Air is admitted through perforations around the edge of the oil-trough, also through perforations in the bottom of the side troughs. Said side troughs form diving flues, by which the flame is made to pass under the water-legs.



In combination with the inner water-leg section and the outer water-legs and boiler of a boiler-furnace, the independent transverse fire-back forming the rear of the fuel-chamber, formed by the inner water-leg section, substantially as described.

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1. The hollow chamber, of fire brick or other refractory material, divided into three troughs or compartments, the central one forming the fuel-chamber, and the others being perforated and communicating with the air-chamber, which is connected with a blast apparatus, the whole forming a grate for burning liquid fuel, substantially as set forth.

2. In combination with the fire chamber of a furnace, the central hydrocarbon receptacle, with surrounding air-passages, the troughs or compartments at each side, provided with air-passages, and the water-legs *a* and *b*, substantially as described.

189,218. GRATES FOR FURNACES. Benj. Hershey, Erie, assignor of one-half his right to J. E. Shaw, Pittsburg, Pa. [Filed Feb. 20, 1877.]

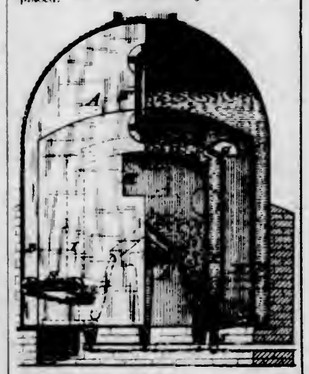
Brief.—The fuel is partially burned on the upper grate. Said grate is then shaken, whereby the strata of fuel is broken, and automatically fed down the incline section to the horizontal grate.



In a grate-furnace, the combination of the horizontal sections *a a*, the inclined sections *b b*, and the central independent breaker G, the whole arranged to operate and distribute the fuel, substantially as described.

189,219. FIRE-BOXES FOR STEAM-BOILERS. B. Hershey, Erie, assignor of one-half his right to J. E. Shaw, Pittsburg, Pa. [Filed Feb. 20, 1877.]

Brief.—A detachable fire-box is provided with water-legs upon three of its sides. A transverse water fire-back, connected to the boiler, forms the fourth and back side. The fire-box may be removed for repairs or replaced.



189,220. HOES. O. H. Hicks, Baltimore, Md. [Filed Mar. 3, 1877.]

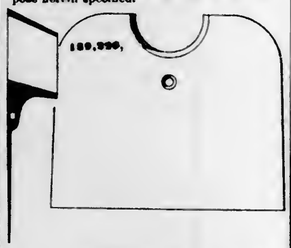
Brief.—A composite hoe of duplex construction, the eye-piece recessed, and the blade beveled to fit therein, secured in front by a rivet through a projecting portion of the eye-piece; forms a perfectly-smooth surface on back of the hoe.

1. An eye-piece for a hoe, recessed to the

thickness of the blade, and having a dovetailed projecting edge, adapted to fit over a correspondingly-shaped edge of the hoe-blade, and form, when so united, a flat or finish connection at the back thereof, substantially as specified.

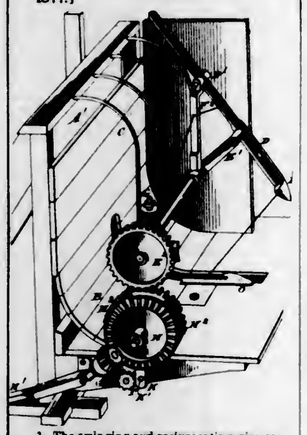
2. An eye-piece recessed to the thickness of the blade, and provided with a dovetailed projecting edge, as described, combined with a hoe-blade having a cut to receive the said eye-piece, and an edge shaped to fit the projecting edge thereof, substantially as herein specified.

3. An eye-piece for a composite hoe, having a practically circular eye therein, provided with a key-seat, substantially as and for the purpose herein specified.



189,220.

189,221. GRAIN-BINDERS. P. F. Hodges and F. S. Blim, Massillon, Ohio; said Blim assignor to said Hodges; said Hodges assignor of one-half his right to Wm. McClymonds, same place. [Filed Feb. 12, 1877.]



1. The swinging and reciprocating wire-carrying arm, provided with a lateral projection at its point, through which the wire passes, combined with the overhung twisting-pinion, so that said arm will pass by the pinion, and carry the wire to the center thereof, both in its upward movement to gather the gavel, and in its forward movement to compress the same, substantially as set forth.

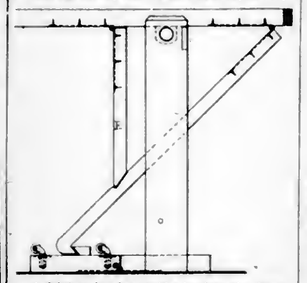
2. In combination with the slotted platform B and twister, arranged to overhang one side of the slot, the wire-carrying arm free to enter the slot at one end, pass the twister, and escape at the other end, substantially as set forth.

3. In combination with the twister and wire-carrying arm, the fluted rollers N N', and ratchet and double pawls, and oscillating shaft I', pinion I', swinging segment I, and cam for oscillating it, substantially as set forth.

4. In combination with the twister-pinion M and the driving-pinion L', revolving in the same plane, the wrist-pin on the driving pinion, and slotted reciprocating chisel, operated by the wrist-pin, for shearing the wires above the twister, while the free end is held by the rollers below the twister, substantially as set forth.

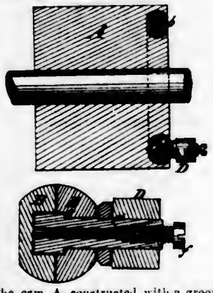
5. In combination with the twister-pinion and wire-carrying arm, revolving so as to carry the wire under and over the twister, the reciprocating hooked plate O, actuated by the shaft I' through the arm I' and intermediate connections, for catching and confining the wire, substantially as set forth.

189,222. IRONING-TABLES. G. W. Hook, Towsontown, Md. [Filed Jan. 18, 1877.]



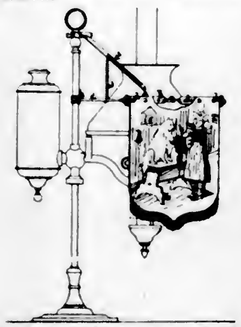
A folding ironing-table having the base thereof in two sections, hinged together, and one of them fitted with casters, as shown, and the pivoted top thereof fitted with diagonal and supplemental braces, whereby it is rigidly supported in a horizontal position, substantially as herein specified.

189,223. CAM-MOTIONS. W. Houghtaling and B. Siviter, Bridgeport, Conn. [Filed Jan. 31, 1877.]



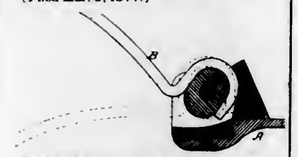
The cam A, constructed with a groove, *b*, having its sides or walls concave, in combination with the roller B, divided transversely of its axis, the pin C on which the roller turns having a shoulder, *c*, set in a recess between the sections of the roller, the arm or lever D, and the screw *f* passing longitudinally through the pin C, for adjusting the sections of the roller, substantially as described.

189,224. SCREEN-HOLDERS FOR LAMPS. J. E. Hubbell, New York, N. Y. [Filed Feb. 22, 1877.]



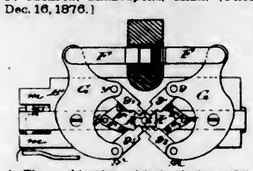
A screen-holder for lamps, composed of the bracket, constructed of the arm a^3, inclined arm a^2, and horizontal arm B, having the screen D attached thereto, the arms a^1 and a^2 having the eye *b* and hook *c*, for securing the bracket to a lamp standard, the whole being combined substantially as and for the purpose described.

189,225. THILL-COUPLINGS. T. J. Hubbell, Yountville, Cal., assignor of one-half his right to J. A. Boylan, Canaseraga, N. Y. [Filed Mar. 9, 1877.]



In a thill-coupling, the box A, having the packing *a a'*, in combination with the fixed bolt D, movable cam C, and hooked thill-iron B, all constructed, arranged, and operated as set forth.

189,226. BOLT-THREADING MACHINES. A. F. Jackson, Minneapolis, Minn. [Filed Dec. 16, 1876.]



1. The combination, with the shaft D, of the yoke F F, the lower ends of which are pivoted to two horizontal arms, G, carrying the bolt-heading dies, substantially as and for the purpose set forth.

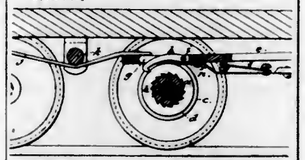
2. The combination of shaft D, having crank *d*, with angular yoke F F and horizontal die-carrying arms G G, substantially as set forth.

3. In a bolt-heading machine, a shaft, provided with two eccentrics, arranged so as to operate both the vertical spreader and the horizontal dies by direct and positive motion, substantially as set forth.

4. Arm G, in combination with sliding jaw E^1 K^1, dies g^1 g^2, links g^4 g^5, and pin g^6, substantially as set forth.

5. The combination of jaws G G, having the rear dies g^1 and the forward dies g^2, with links g^4 g^5 and pins g^6, substantially as set forth.

189,227. CAR-STARTERS. W. Jasper, Morrisania, assignor of one-half his right to J. C. Kelley, Brooklyn, N. Y. [Filed Mar. 8, 1877.]



1. The combination, with the ratchet-wheel *a* and the slide-bar *s*, having a pivoted hook, *h*, adapted for operation with said ratchet-wheel, as described, of the axle, disks *c c*, and their annular shoulders *d d*, whereby to form a support and guideway for the inner end of said slide-bar.

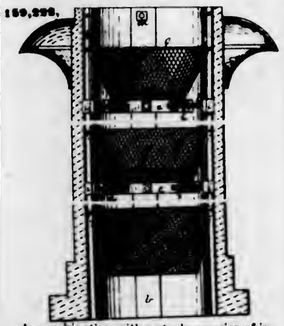
2. The combination, with the ratchet-wheel *a*, the slide-bar *c*, and its pivoted hook *h*, of the draft-bar *l*, having a movement independent of the slide-bar, and an extension to pass under and elevate the hook, as herein set forth.

3. The combination, with the slide-bar, its hook, and the ratchet-wheel disks, of the spring *j* and the roller *k*, as and for the purpose described.

4. The combination, with the slide-bar and its pivoted hook, arranged to operate in relation to the ratchet-wheel as described, of a draft-bar having a movement independent of the slide-bar, and the spring *z*, as and for the purpose herein set forth.

189,228. SPARK-ARRESTERS. E. M. Johnson, Pittsburg, Pa., assignor to himself and J. E. Sampsel, same place. [Filed Jan. 17, 1877.]

189,228.



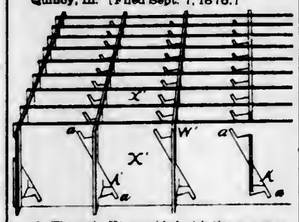
In combination with a stack, a series of inverted hollow perforated conical frusta or baskets, having central openings arranged within the stack, one above another, substantially as and for the purposes specified.

189,229. CLOTHES-DRIERS. J. Kahn, New York, N. Y. [Filed Feb. 14, 1877.]



A frame for stretching curtains and other articles, composed of a series of frame-sections, B C D, connected by hinge-joints *a*, in combination with the sliding traverses *d* and traverse h, and loose traverses *j*, the rails *c*, end traverses *k* and loose traverses *j* being provided with points on one or both sides, substantially as and for the purpose shown and described.

189,230. EGG-CARRIERS. W. J. H. Kappe, Quincy, Ill. [Filed Sept. 7, 1876.]



1. The strip X', provided with the apertures A', having the slits *a*, substantially as shown and set forth.

2 The strip X', provided with the apertures A', having the slits *a*, in combination with the strip W', having the slits *b*, as shown and specified.

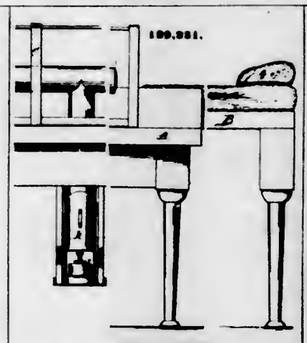
189,231. APPARATUS FOR GIVING HOT-AIR AND OTHER BATHS. T. Keech, New York, N. Y. [Filed Feb. 24, 1877.]

Brief.—The treating medium is supplied directly to the patient from lamps placed beneath the table. The patient is supported on a sliding bed-rest.

1. An apparatus composed of a suitable table or support for the patient, a cover for the confinement of the treating medium, lamps for generating the latter, and lamp-holding and heat-conveying tubes and discharge-pipes, the several parts arranged relatively to each other, and operating as set forth.

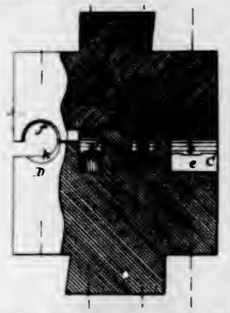
2. The combination, with the table A and its other appliances, of the sliding bed-rest B, the whole arranged to operate as and for the purpose set forth.

189,231.



189,232. DIES FOR MAKING HAMMERS. H. W. Kip and E. Bleckal, Buffalo, N. Y. [Filed Dec. 18, 1876.]

Brief.—The first pair of die surfaces form a solid projection for the ada-eye, and stretches the metal to form the claw; the second pair rounds the poll; the third shapes the eye and partly severs the blank from the bar, and the fourth opens the solid eye.

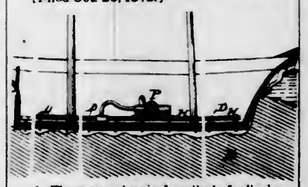


1. The dies A B, with the impressions C D E F and the punch G, for forming, drawing out, shaping, finishing, and punching the hammer-blank, all constructed and operating substantially in the manner herein shown and described.

2. Jointly, the surfaces *a b* and *f g* on the hammer-face, and the surfaces *c d e* and *h i* on the anvil-block, substantially as and for the objects set forth.

3. Jointly, the surfaces *a b f g* and *n o* on the hammer-face, and the surfaces *c d e h i* and *k l* on the anvil-block, substantially as and for the purposes set forth.

189,233. MEANS FOR RELIEVING STRANDED VESSELS. H. F. Knapp, New York, N. Y. [Filed Oct. 26, 1876.]

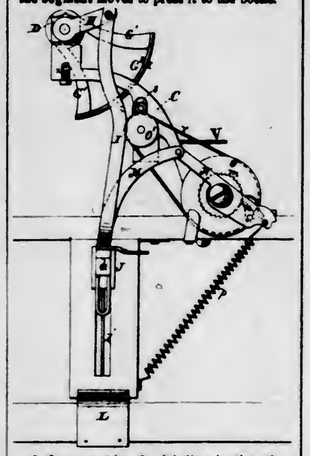


1. The process herein described of relieving stranded vessels by causing them to float in a fluid or semi-fluid, by means of forcing continuous streams of fluid immediately around its bottom into the sand or mud in which the vessel is embedded or lies, for the purpose of washing away and softening the sand, while at the same time a lateral movement or strain is imparted to the vessel by means of warping-lines or equivalent means, whereby it may be moved into deeper water, substantially as and for the purpose set forth.

2. As a means for relieving stranded vessels, the tube H, located on the side of the keel, and provided with exit-tubes D, passing in a water-tight manner through the bottom of the vessel, in combination with the force-pump P, substantially as and for the purpose described.

189,234. LABELING-MACHINES. C. Knoch and S. L. Salomon, New York, N. Y. [Filed Sept. 23, 1876.]

Brief.—An oscillating segment presses the labels upon the bottle as they are fed thereto between the paste roller and a pressure roller, motion being imparted to the several parts by a treadle, which is attached to a sliding cross-head attached to an arm, which is secured to a vibrating lever carrying a pawl, which engages with a ratchet upon a pulley, from which the feeding-roll is driven. The cross-head is also attached to the crank-arm link, which operates the pressure segment by a slot, thereby allowing the label to be fed forward before the segment moves to press it to the bottle.



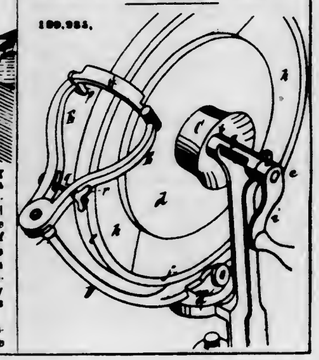
1. In a machine for labeling bottles, the padded segmental presser-plate G^2, adjustably attached to the rocking and yielding shaft E, for the purposes herein set forth.

2. The combination of the standards C C, boxes or bearings D D, with stems *d d*, the springs *b b* surrounding said stems, the hub G, with set-screw *f* and arms G^1, and the padded presser-plate G^2, all substantially as and for the purposes herein set forth.

3. The combination of the rocking and yielding shaft E, carrying the adjustable presser-plate G^2, the crank H, arm I, slotted at its lower end, stud *h*, cross-head J, rod *i*, and treadle L, substantially as and for the purposes herein set forth.

4. The combination of the pressure-roller B, paste-box R, paste-roller P, with pulley O', cord *r*, pulley O, with ratchet *m*, and the lever N, provided with the pawl *n*, and operated by means of the treadle and spring, all as and for the purposes herein set forth.

189,235.



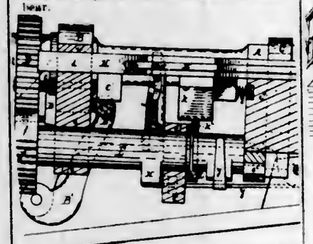
189,225. GRINDING-MACHINES. Geo. A. Knowlton, Natick, Mass., assignor to himself and W. D. Parlin, same place. [Filed Jan. 13, 1877.]

1. The curved guide D, secured by a set-screw, *s*, in combination with the caliper-leg holders E E, attached by a horizontal joint, 7, compressed by screw-nut r, and the grinding-wheel B, as described.

2. The guard C, provided with an expanding mouth covering the joint 6, in combination with the shaft *a*, bearing *b*, and grinding-wheel B, as specified.

189,226. NAIL-PLATE FEEDERS. William Koplin, Newcastle, Pa., assignor to H. B. Koplin, same place, and Anthony Welsh, Youngstown, Ohio. [Filed Dec. 9, 1876.]

Brief.—Improvement on machine patented to applicant June 13, 1876. The rear end of the feed barrel is hung in an oscillating bearing, against which a projection on the mutilated gear-wheel bears, and prevents it from moving while the cut is being made. The forward ends of the feed fingers are provided with guard flanges, which support the plate and prevent it from rising during the cutting of the nail-blank, and the rearward ends with set-screws, against which the operating levers bear.



1. In a nail-plate feeder, the combination of the feeding-barrel, the sliding frame, and the feed-fingers, provided with the guard-flanges, substantially as and for the purposes specified.

2. In a nail plate feeder, the combination of the feed-fingers, pivoted in the sliding frame, and the lever and cam mechanism for operating the fingers, substantially as and for the purposes specified.

3. In a nail-plate feeder, the combination of the feed-fingers with mechanism for operating the same, and the set-screws on the feed-fingers, substantially as and for the purpose specified.

4. In combination with the sliding-finger frame of a nail-plate feeder, the set-screw for regulating the travel of the frame, the feed-fingers, and the set-screws thereon, substantially as and for the purpose specified.

5. The feed-barrel provided with the spring-nippers, and the supplemental spring working through a slot in one of said nippers for controlling the scrap, substantially as and for the purpose specified.

6. In combination with the feed-barrel, the vertical rising and falling bearing C, yoke R, and the oscillating or rocking bearing B B', substantially as and for the purpose specified.

7. In combination with the rocking bearing, the projection for locking the bearing, substantially as described.

189,227. MEAT-TENDERERS. V. Lapham, Marion, Ohio. [Filed Sept. 23, 1876.]



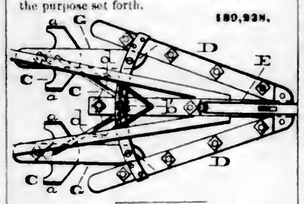
In a meat-mangler, the handle made in two parts, pivoted together, and provided with L-shaped jaws, in combination with a rod, *b*, rolling or drawing knives, and intermediate washers or collars, substantially as and for the purposes herein set forth.

189,228. WEED-DESTROYERS. J. A. Lees, Philadelphia, Pa. [Filed Feb. 28, 1877.]

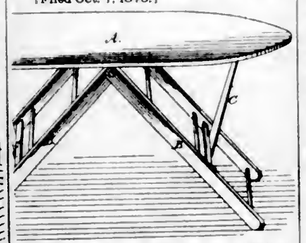
Brief.—A weed-destroyer combining clearing teeth and blades with sharpened side edges, for cutting weeds and grass even with the surface of the ground.

The teeth B and cutters C, in combination with the central beam E and pivoted side beams D, and with the pivoted rear beams G, straps F, and rods *d*, substantially as and for the purpose set forth.

189,228.



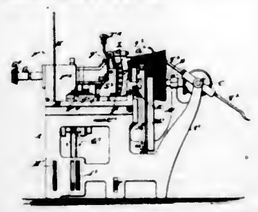
189,229. IRONING-TABLES. Thos. Libby, Minneapolis, Minn., assignor of one-half his right to Harvey C. Fuller, same place. [Filed Oct. 7, 1876.]



The board A, provided with the cross-bar D and cleats *a*, in combination with the legs H and pawls C, constructed to operate substantially as and for the purpose set forth.

189,240. BROOM-MACHINES. C. E. Lipe, Ilion, assignor of two-thirds of his right to Edw. D. Bronson, Amsterdam, and A. Walrath, Fort Plain, N. Y. [Filed Mar. 10, 1877.]

Brief.—Mechanism for pressing and holding the broom, winding the band before stitching; devices for passing the needle and thread for the stitch, and drawing the surplus thread, and devices for giving the proper motions to the broom after each stitch.



1. In a broom-sewing machine, a rocking broom-holding vise provided with alternating ratchet-teeth on its sides, in combination with vertically and horizontally movable pawls, substantially as and for the purpose set forth.

2. A broom-holding vise, in combination with devices whereby the oscillation of said vise causes the same to climb upward step by step, substantially as and for the purpose set forth.

3. In a broom-sewing machine, a moving broom-holding vise, in combination with shifting mechanism, whereby, when the sewing is completed, the driving-wheel is thrown out of gear, substantially as and for the purpose set forth.

4. In a broom-sewing machine, a broom-holding vise provided with a tripping-lug, in combination with a clutch-shifting lever having a pivoted pawl or arm, substantially as and for the purpose set forth.

5. In a broom-sewing machine, a shaft having two rotary take-up arms, that operate alternately on each side of the broom, substantially as and for the purpose set forth.

6. In a broom-sewing machine, the combination of two needle-carriers with a double-pointed needle, each of said needle-carriers being provided with a tooth that catches into a perforation in said needle, substantially as and for the purpose set forth.

7. The combination, with a guideway having an oblique slot and stop-piece, of a needle-carrier having a hinged needle-holding bar, and a stud adapted to engage with said stop and slot, substantially as and for the purpose set forth.

8. The combination of a sliding needle-carrier, having a pivoted needle-holding bar and a recess behind the same, with a yoke, operated by the driving-shaft, said yoke having a pressure stud or arm, substantially as and for the purpose set forth.

9. The combination of pawls S' with a treadle and suitable connections, substantially as and for the purpose set forth.

10. Blocks S', provided on the inside with studs or blocks, for bracing against the thrust of the needle, in combination with rocker R and broom-holding vise, substantially as and for the purpose set forth.

11. The combination of a cam-grooved disk or wheel with a system of levers and a broom-carriage, whereby a rapid intermittent backward and forward motion is given to the broom, substantially as and for the purpose set forth.

12. The combination, with the broom-carriage, of a lever, either end of which may be made the fulcrum at will, substantially as and for the purpose set forth.

13. In a broom-sewing machine, a rocking broom-vise, in combination with a sliding broom-carrier, substantially as and for the purpose set forth.

14. In a broom-sewing machine, a broom-holding vise, in combination with a U shaped rocker, a cam on the driving-shaft, and suitable connections, substantially as and for the purpose set forth.

15. In a broom-sewing machine, a pivoted broom-holding device, in combination with a U shaped rocker, the side vise being adapted to slide up and down in said rocker, substantially as and for the purpose set forth.

16. In combination with a broom-holding vise, a pair of pivoted levers, in combination with a treadle, whereby said vise can be closed at will, substantially as and for the purpose set forth.

17. A broom-holding vise having a bevel-geared spindle, in combination with a bevel-geared shaft, and two treadles, connected by cords to said shaft, substantially as and for the purpose set forth.

18. A broom-holding vise, in combination with mechanism for rotating the same, substantially as and for the purpose set forth.

19. A broom-vise, in combination with clasps for holding together its two parts or jaws when released from the pressure of the closing-levers, substantially as and for the purpose set forth.

20. In a broom-sewing machine, a broom-holding vise, in combination with a carrier, the two being connected by a universal joint, substantially as and for the purpose set forth.

21. In a broom-sewing machine, a broom-holding vise provided with double-hinged supplemental clamps, substantially as and for the purpose set forth.

22. A double-pointed needle provided with an inserted tension-spring, substantially as and for the purpose set forth.

23. The combination of a driving shaft with a take-up shaft at right angles thereto, the two being connected by suitable gearing, substantially as and for the purpose set forth.

24. The combination of a connecting-yoke with two needle carriers, which are alternately opened and closed thereby, substantially as and for the purpose set forth.

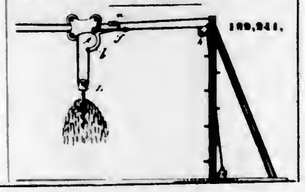
25. The combination of a connecting-yoke with two needle-carriers, which are alternately moved inward and outward thereby, substantially as and for the purpose set forth.

26. In a broom-sewing machine, the combination of two rotating take-up arms with two thread-guides, one being arranged on each side of the broom, substantially as and for the purpose set forth.

27. The combination of a broom-holding vise with two needle-carriers and a needle.

28. In a broom-sewing machine, a rocking broom-holding vise, in combination with two revolving take-up arms.

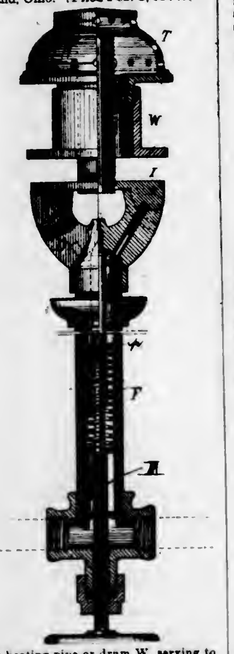
189,241.



189,241. HAT-ELEVATORS. J. Lux and P. Lux, Hopkinton, Iowa. [Filed Dec. 13, 1876.]

The combination of the car C, having a pivoted dog, M, attached thereto, constructed with a coupling, *d*, curved lever *b*, coupling-hook *c*, draft-rope H, pulley L, and bumper-block *a*, all arranged and operating substantially as described.

189,242. VAPOR-BURNERS. F. A. Lyman, Cleveland, Ohio. [Filed Feb. 8, 1877.]



1. The heating pipe or drum W, serving to conduct gas from the mixing-chamber downwardly, for the purpose of forming the auxiliary heating-flame, the same being vertically adjustable independently of said burner or mixing-chamber, substantially in the manner and for the purposes set forth.

2. In a vapor-burner in which the supply of oil is fed to the vaporizing-chamber from a point below the same, the combination, with said vaporizing-chamber, of the hollow arms projecting upwardly therefrom, for the purpose of supporting the burner, and adapted to contain a reserve supply of oil, as and for the purposes explained.

3. In a gasoline or vapor stove, the combination of the gas-jet orifice, forming the valve-seat, and a valve having a sectional shaft and interposed spring, for the purposes explained.

4. In combination with the burner T, the depending and adjustable drum, having a horizontal flange at its lower end, operating in conjunction with the plate I, for the purpose of regulating the auxiliary flame, substantially as shown.

5. The perforated flange *c*, in combination with the screw-threaded pipe B and burner T, substantially as set forth.

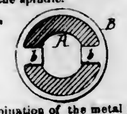
6. The combination of the burner-supporting arms, provided with cap or plate I, the screw-threaded pipe B, and vertically-adjustable drum W, having the horizontal flange, as and for the purposes explained.

7. The valve-rod composed of the two sections E and M, and provided with plates or pins *p*, combined with the spring F, the whole being arranged and adapted to operate in the manner shown and described.

189,243. BOBBINS. J. Mawson, Philadelphia, Pa. [Filed Jan. 24, 1877.]

Brief.—In the base of the bobbin a metal ring is fitted, having interval projections which bear against the flattened portion of the spindle, thus causing the bobbin to be rotated with the spindle.

189,243.



The combination of the metal ring B, having internal projections *b b*, with the lower slotted portion *d* of the body A of the bobbin, all substantially as set forth.

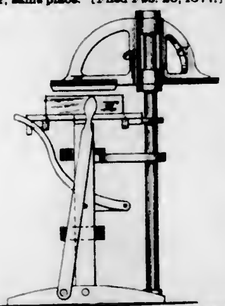
189,244. ATTACHING KNOBS TO SPINDLES. W. De C. May, Baltimore, Md. [Filed Mar. 2, 1877.]



1. The encompassing collar or band, provided with a tongue, *d*, in combination with the knob having a socket, *c*, and its fastening-screw *b*, substantially as and for the purpose described.

2. The spring collar or sleeve C, slitted transversely, and combined with the knob and its holding-screw, as and for the purpose described.

189,245. MOLDING-MACHINES. J. B. McOune, Hamilton, Ontario, Canada, assignor of one-half his right to R. M. Wanser, same place. [Filed Feb. 20, 1877.]



1. The combination of the double swinging bracket, carrying a tacking-plate and a ramming-plate, with a flask adapted to be moved to and from said plates, the whole so arranged that the sand can be first tucked into the flask and afterward leveled for the reception of a plain bottom board, substantially as described.

2. In combination with the upright standard, a double bracket secured loosely thereto, and provided with a tacking-plate and ramming-plate, so arranged in relation to a reciprocating flask that either may be brought over the same at will, substantially as described.

189,246. LAMPS FOR BURNING HYDROCARBON OILS, &c. D. McCarty, Philadelphia, Pa., assignor of a part of his right to E. A. Collins and John H. Lewara, same place. [Filed Jan. 30, 1877.]



The combination, with a lamp-collar having an opening in its periphery, of a valve, D, pivoted between the lugs *a a*, longitudinally of, and parallel with, the vertical wall of the said collar, and provided with a rearwardly-projecting thumb-piece, *c*, and a spring, E, secured between said thumb-piece and the lamp-collar, substantially as and for the purpose described.

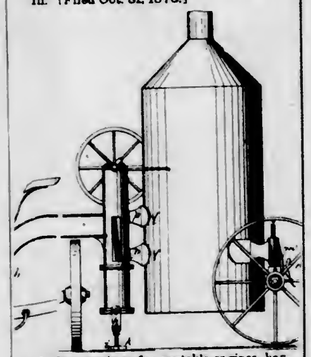
189,247. BURIAL-CASES. S. Metz, Rochester, N. Y. [Filed Mar. 1, 1877.]

Brief.—The bottom is removable to serve as a laying-out board.



The coffin having a removable bottom for a laying-out board, and the rubber bead B, embedded at the joint between the sides and bottom, and provided with through screw-bolts L and cleats S, by which the receptacle is made air-tight, substantially as set forth.

189,248. CARRIAGES FOR PORTABLE ENGINES. C. M. Miller, Shortsville, N. Y., assignor to Benj. T. Adams, same place, and E. Beach and M. A. Morse, Chicago, Ill. [Filed Oct. 31, 1876.]



1. In a carriage for portable engines, having a pivotal connection between the forward end of the reach and the axle mechanism, substantially as described, for locking the forward axle at any angle.

2. The universal joint connection, consisting of the king-bolt, pivoted upon the axle and turning in the end of the reach, when the reach is provided with a stop or clamp, by which the axle may be held at any angle, as set forth.

3. The intermediate adjustable foot for supporting the central part of the carriage, as set forth.

4. The connections for the rear axle, consisting of the socketed bracket sliding on the vertical bolt, and having the bar *m'* bearing against the sleeve on the axle, as set forth.

5. The slotted bar *m'*, fixed to the bracket, working in connection with the threaded bolt, passing through the slot and set-nut thereon, as set forth.

6. In a carriage for portable engines, the combination of the reach with the interposed bracket supporting the engine and driving-shaft, and connected to the boiler, as set forth.

189,249. DENTAL PLUGGERS. K. L. Mills, Kansas City, Mo. [Filed Feb. 22, 1877.]

Brief.—The mallet 1 is of two parts, with symmetrical ends of different materials, and is reversible in its cylindrical case. The spring is adjusted by a set-screw in different holes in the tool-shaft.

1. The mallet B, formed of two or more separate reversible blocks having symmetrical ends, fitting tightly together, and fixed in cylindrical case or handle A, substantially as set forth.

2. In combination with the point-holder C and spring D, the screw K, with series of screw-holes *c'*, to regulate the play of the holder and tension of the spring D, substantially as set forth.

189,249.



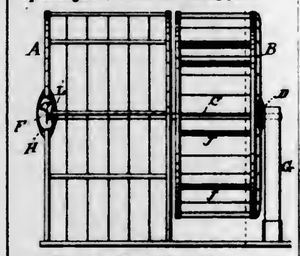
189,250. SHEET-METAL VESSELS FOR CULINARY PURPOSES. Henry C. Milligan, Brooklyn, N. Y., assignor to Lalance & Grosjean Manufacturing Company, same place. [Filed Feb. 6, 1877.]



A vessel, A, constructed of sheet metal spun or struck up into the desired shape, and provided with a rounded shoulder or offset, b, at or near its upper edge forming an annular seat, g, for the cover, and strengthened at its extreme edge by an inclosed annular wire, h, substantially as set forth.

189,251. BIRD-CAGES. A. H. Mook, East Pembroke, N. Y. [Filed Dec. 26, 1876.]

Brief.—Annular passage around axis from cage to wheel. Wheel removable by lifting standard at one end of axis from its socket, and raising the head of the other end of axis up through a V-slot in the bearing-plate.



1. The wheel B, provided with the rod D, having head C', in combination with the opening L and standard G, constructed and arranged substantially as and for the purposes specified.

2. The combination of a revolving cage-wheel, B, with a series of perches, J, for the purposes described.

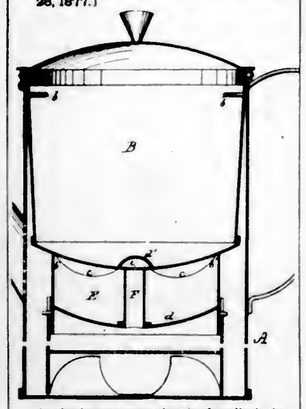
189,252.



189,253. FENCE-POST TIPS. D. C. Morris, New Sharon, Iowa. [Filed Jan. 11, 1877.]

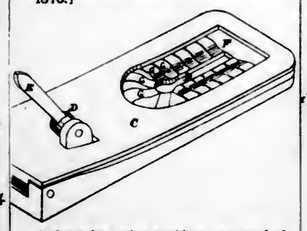
As a new article of manufacture, the metallic tip for posts herein described, consisting of the point A, the socket-wings C, flange B, opening *b*, drain or ventilating opening E, and mortise D, constructed as and for the purpose set forth.

189,255. COFFEE-POTS. R. L. Nelson, Orange Court-House, Va. [Filed Feb. 26, 1877.]



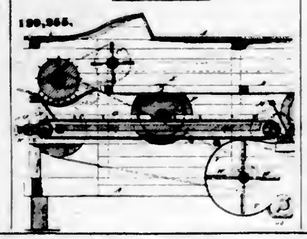
As the improvement herein described, the combination, with the pot A, of the tapered water-reservoir B, the coffee-holder, and its ring E, attached directly to the bottom of the reservoir by means of ears *b'*, thus leaving openings *c*, and the tube F, provided with the strainer *d'*, all as shown and described, whereby the entire drip attachment is concentrated within the pot, as and for the purposes set forth.

189,254. CLAMPS FOR BUTTON-HOLE SEWING-MACHINES. E. Moreau, San Francisco, Cal., assignor to the Moreau Machine Manufacturing Company. [Filed Oct. 17, 1876.]



A clamp for sewing-machines, composed of a series of independent pressers, G G G, placed side by side and arranged along the line of the stitches, close to the sewing-point, and to be pressed upon the cloth by means of the plate C and eccentric-lever D, each of said pressers being arranged to exert a pressure independent of all the other pressers in the series, substantially as and for the purpose described.

189,255.

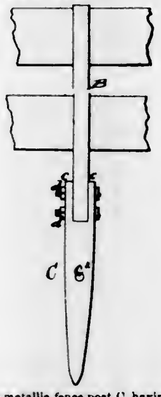


189,256. GRAIN-SEPARATORS. E. F. Osborne, St. Paul, Minn., assignor to J. H. Elward, same place. [Filed June 28, 1876.]

In combination with the scraper *n'*, the grain belt M, provided with an automatically-adjustable tension device, substantially as and for the purposes set forth.

189,258. FENCE-POSTS. John R. Peffley, Ladoga, Ind. [Filed Feb. 10, 1877.]

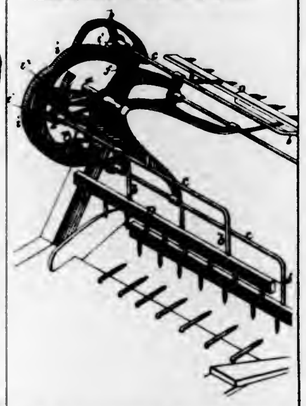
Brief.—A wooden post has a metal socket and point, to be driven into the ground. The socket has an outlet for the escape of water from the interior thereof.



1. The metallic fence-post C, having its upper part made hollow, and provided with an outlet hole, *c'*, at the bottom of said hollow, substantially as described, and for the purpose set forth.

2. The combination of post B, having conical block B' on its lower end, with point C, having perforated lugs *c c*, cavity C', and an outlet at the bottom of said cavity, substantially as and for the purpose set forth.

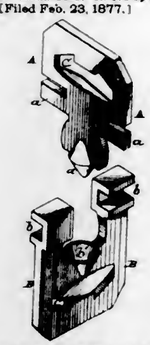
189,257. HARVESTER-REELS. H. L. Phipps, Milford, Mich. [Filed Feb. 1, 1877.]



1. In a harvester-reel, the combination of the shafts C, having the rakes or arms D rigidly connected thereto, and mounted in the rotating spider B, the disks *d*, having slots *x* and arms *d' d''*, with projecting studs *e' e''*, and the spring-catches *f*, substantially as and for the purposes herein set forth.

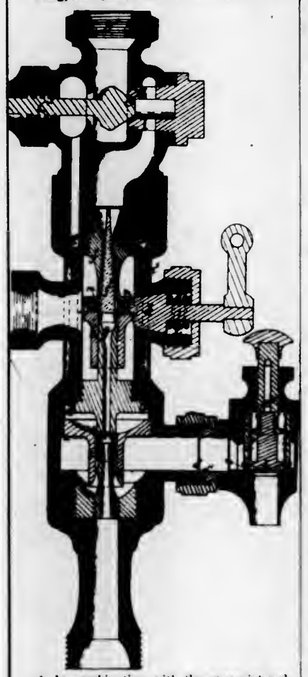
2. The adjustable track-plate G, having cam *h* and flanges *i k*, in combination with the reel, having independently-operating shafts C, with arms or blades D, spider B, and disks with arms, slots, and projecting studs, and a spring, all substantially as and for the purposes herein set forth.

189,256. BALE-TIES. R. C. Pope, St. Louis, Mo. [Filed Feb. 23, 1877.]



The bale-tie A B, formed with locking-lugs *a*, recesses *b*, and turn-pin *a'* and recess *b'*, all combined substantially as set forth.

189,259. INJECTORS. J. Proeger, Pittsburg, Pa. [Filed Mar. 10, 1877.]



1. In combination with the steam-jet and combining-tube of an injector, the reducing-cylinder, movable on the combining-tube, substantially as and for the purpose specified.

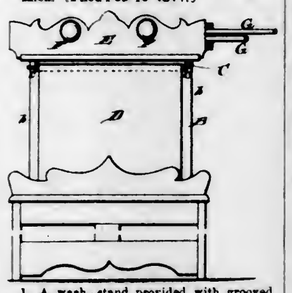
2. In an injector, the combination of the jet, the combining-tube, and the perforated reducing-cylinder, movable on the combining-tube, substantially as and for the purpose specified.

3. The combination of the auxiliary jet with the discharge end of the combining-tube and the delivery-tube, and inclosing the same, substantially as and for the purpose specified.

4. In an injector, the hollow cylindrical double-seated overflow-valve, substantially as and for the purpose specified.

5. In combination with the double-seated hollow cylindrical overflow-valve, the central valve for closing the overflow-nozzle, substantially as specified.

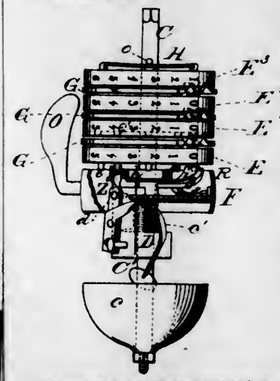
189,260. COMBINED TOWEL-RACK AND WALL-PROTECTOR. E. Pullan, Detroit, Mich. [Filed Feb 10 1877.]



1. A wash-stand provided with grooved guides A' A', having catches H H, in combination with the sliding frame B, carrying the wall-protecting sheet D, substantially as described, and for the purpose set forth.

2. The sliding frame B, which is provided with rod C, staples *c c*, removable wall-protecting sheet D, lifting-knobs F F, towel-rack G, in combination with a wash-stand which is provided with stirips A' A' and stops H H, substantially as described, and for the purpose set forth.

189,261. COMBINED REGISTER AND PUNCH. N. A. Ransom, Chicago, Ill. [Filed Aug. 5, 1876.]



1. In combination with the cylindrical casing, containing the mechanism of a registering-alarm, and serving as one of the lever arms or handles of the punch, the removable cap B, having the fixed jaw *b* of a punch secured thereto, the removable jaw *b'* pivoted to the fixed jaw, and provided with a handle, *b''*, extending along the casing, and a spring, S, for holding the jaws open, substantially as specified.

2. A ticket-punch, having one of its lever-arms or handles made hollow to inclose a registering-alarm mechanism, substantially as specified.

3. In combination with the disk E, having teeth *e* upon its under side, the lever-wheel F, having pawl *g* engaging with the said teeth, and rotating with the said wheel, and the collar *h* fixed to the main shaft and provided with a spring-stop, *i*, overlying the said pawl, and preventing disk E from backward rotation, substantially as specified.

4. The combination, with the casing A, having groove *n*, the central non-rotating shaft C, the registering-disks E E' E'' E''', having spaced cogs upon their under sides, and spring-pawls upon their upper faces, of the plates G, having spurs *k* fitting in groove *n*, and the upturned prongs *l'*, substantially as specified.

5. The casing A, having longitudinal groove *n*, the non-rotating central shaft C, and the registering-disks E E' E'' E''', operated, the one by the other, in combination with the guard-plates G engaging with the said groove *n*, substantially as specified.

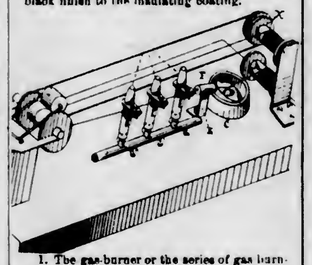
6. The register-wheel, having a circular series of teeth, *e*, on its face, exterior and interior circular channels *h'* at the sides of said series, and raised interspaces *r* between said teeth, substantially as specified.

7. The non-rotating guard-plates G, having upturned prongs *l'* adapted to be placed between the register-wheels, substantially as specified.

8. The registering-disk, having a circular series of teeth, *s*, and a channel beside the same sunk deeper than the raised spaces between the teeth, in combination with an adjoining disk, having a spring-pawl, *j*, and the intermediate non-rotating guard-plate G, having a prong, *l'*, playing in said channel, substantially as specified.

189,262. INSULATED WIRE. H. Redding, Boston, Mass., assignor of one-half his right to J. Redding, same place. [Filed Jan. 27, 1877.]

Brief.—Wire passed through a solution of shellac in alcohol, and then over a series of burners, which serves to give a tough jet-black finish to the insulating coating.

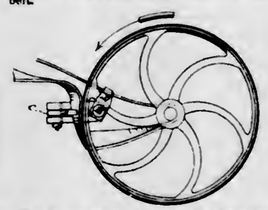


1. The gas-burner or the series of gas burners or lamps, through which the wire passes, and by which the insulating coat is hardened or cured, in combination with the reels A and X, the trough C, containing the liquid insulating substance, and the wiper or guard F.

2. As a new article of manufacture, the wire, in combination with its insulating coating or covering, prepared as herein described, or by an equivalent process.

189,263. DEVICES FOR THROWING BELTS ON PULLEYS. R. Reinhard, Langendreer, Prussia, assignor to Wm. R. Reinhard, Huntington, Ind. [Filed Jan. 4, 1877.]

Brief.—A slotted plate is so clamped to a spoke of the drum that it projects radially from the periphery, and has a slot, in which there is a spring-catch for the insertion of the belt.



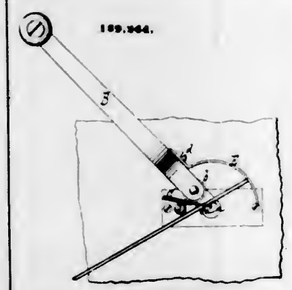
The device hereinbefore described, consisting of a plate, A, having a groove, *c*, and a spring clamping-bar, B, a screw-rod rigidly attached to part A, at right angles, an arm, D, adapted to slide on the rod, and a nut for securing it in any adjustment, substantially as shown and described, to operate as specified.

189,264. BAIL-EYE FORMERS. Henry S. Reynolds, Green Point, N. Y. [Filed Sept. 22, 1876.]

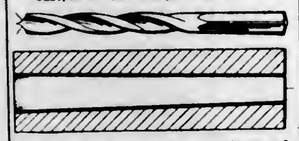
Brief.—A wire is passed through a bail-ear, and is gaged by a stop secured to the lever. The pivot of the lever is grooved to receive the end of the bail-ear. A friction-roller on the lever bears against the wire, and bends the wire about the lever-pivot.

In combination with the lever B, having a friction-roller, *b*, and a gage, E, the stud *a*, constructed with a groove, *c*, to receive the edge of the ear, whereby the eye of the wire can be formed and fastened in the ear without injury to the same, substantially as set forth.

189,964.



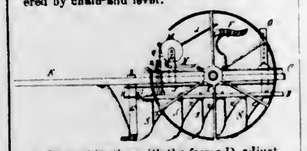
189,965. GIMLETS AND TWIST-DRILLS. J. C. Richardson, Philadelphia, Pa., assignor of one-half his right to T. Hooker, Syracuse, N. Y. [Filed Sept. 7, 1876.]



The improvement in the manufacture of gimlets and twist-drills from grooved blanks, such as described—namely, twisting the blank while inclosed, except at the two ends, within a tubular die, the walls of which limit and graduate the diameter of the twist, as set forth.

189,966. FALLOW-CULTIVATORS. John Richardson, Anoaster Township, Wentworth County, Ontario, Canada. [Filed Aug. 11, 1876.]

Brief.—The frame carrying the teeth is suspended below the main frame. Bars or rods on the former slide in vertical sockets in the latter, when the cultivators are raised or lowered by chain and lever.

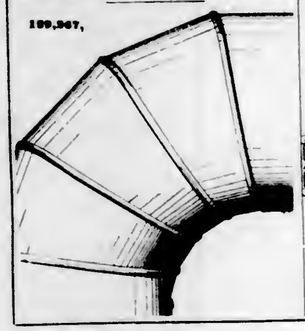


1. In combination with the frame D, adjustably secured to the rear of the cultivator by the rod O and pin *e*, the rods P and nuts R, for adjusting the height of said frame, and the chain Q and wheel M, and its pawl for elevating said frame, substantially as herein set forth.

2. In combination with the draft-bar G, the center-bolt, and rear adjustable bar O, the bar J, for preventing the frame from drawing obliquely, substantially as set forth.

3. The combination of the draft-bar G, bolted to the tongue, the link H and hook I, attached to the frame D, and the bar J, secured to the rod O, as and for the purposes set forth.

189,967.



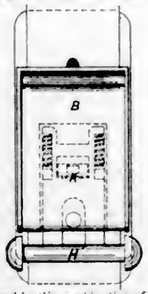
189,967. SHEET-METAL ELBOWS. N. I. Rothan, Cincinnati, Ohio. [Filed May 26, 1876.]

1. The process of forming a sheet-metal curved pipe from a strip of metal spirally wound and grooved or seamed, substantially as herein described.

2. A curved pipe constructed from a strip of sheet metal spirally wound and grooved or seamed, as herein described.

3. A blank constructed of a strip of sheet metal of varying widths, adapted to form an elbow or other curved pipe, in the manner set forth.

189,968. BUCKLES. F. W. Schafer, London, England. [Filed Dec. 26, 1876.]



In a buckle, the combination of the tubular base-plate A, having a perforation near its upper front portion, and provided with the slotted lug L and spring E, in combination with the top plate B, having the cam-hinge D, stud C, and locking mechanism adapted to be operated by a draw-bar, all constructed as and for the purpose specified.

189,969. SUPPLYING BEER-KEGS WITH BICARBONATE OF SODA. J. J. Schillinger, New York, N. Y. [Filed Mar. 24, 1877.]

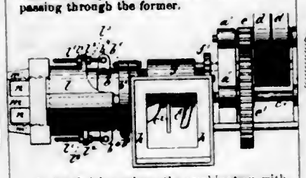
Brief.—The soda is confined between the two plugs shown.



The method, substantially as herein described, of supplying a keg or barrel containing beer or other liquid with bicarbonate of soda, or other equivalent material, by providing in any portion of said keg or barrel, or on any part connected thereto, a chamber for the reception of the bicarbonate or equivalent material, from which chamber such bicarbonate is pushed into the liquid contained in the keg or barrel whenever it may be required.

189,970. BRICK-MACHINES. C. Schlickeysen, Berlin, Prussia. [Filed Dec. 2, 1876.]

Brief.—The cylinder is made in two parts, connected on one side by a hinge, and on the other by a locking device. The former-head is removable and adjustable, and is provided with a water-reservoir, lined in its bottom with a straining-fabric. Channels lead to a series of overlapping plates, making a lining to the former, and distributing the water in thin sheets upon the surface of the material passing through the former.



1. In a brick-machine, the combination, with the feed and mixing cylinder *b*, of a former-head adapted to be adjusted to and from said cylinder in a line with that of its axis, substantially as described, for the purpose set forth.

2. The driving or operating mechanism, consisting of the gear wheels *f' f' e'* and the pinion *e* and a fast pulley, the latter two mounted on a counter-shaft, *e'*, in combination with the pug-shaft *c'* and the feed-roll *g*, all constructed, arranged, and operating substantially as described.

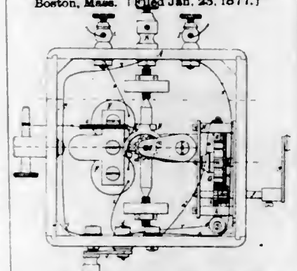
3. The former *m*, the adjustable former-head *l*, the cylinder *b*, and the feed mechanism, all combined and operating substantially as described, for the purpose specified.

4. The cylinder *b*, adapted to be opened and closed, in combination with the adjustable and removable former-head, all constructed and operating substantially as described, for the purpose specified.

189,971. COMPOSITION FLUXES. C. F. Secor, San Francisco, Cal. [Filed Sept. 26, 1876.]

As a flux for smelting and liquidizing gold and silver ores, the described composition, consisting of natural alkali, iron oxide, caustic lime, cryolite, niter, and petroleum, substantially as set forth.

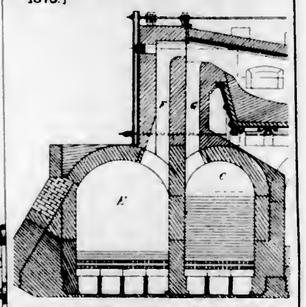
189,972. DIAL-TELEGRAPHS. R. J. Sheehy, Boston, Mass. [Filed Jan. 23, 1877.]



1. The combination of a circuit-breaker, G, substantially as described, with the dial B, its hand D, electro-magnet F, lever E, armature *d*, and escapement *a b c*, applied and arranged essentially as set forth, such circuit-breaker consisting of the arbor *f*, pinion *h*, ratchet-wheel *i*, retaining-pawl *k*, gear *m*, brake-wheel *n*, brake-lever *o*, and insulated stud *q*, all being arranged and applied substantially and to operate as set forth.

2. The combination of the switch *v*, connection-knobs *s t u*, posts I K L, and wires *r x y a'* with the case A, dial B, electro-magnet F, lever E, armature *d*, escapement *a b c*, dial-hand D, arbor C, and the circuit-breaker G, all being arranged, applied, and to operate substantially as set forth.

189,973. PROCESSES OF CONVERTING CAST-IRON INTO CAST-STEEL. C. W. Siemens, Westminster, England. [Filed Nov. 15, 1876.]



The process of manufacturing steel by tapping, turning, pouring, or otherwise transferring the charge of a furnace or other apparatus for refining cast-iron into a heated ladle lined with refractory material, and containing ferro-manganese in a solid condition, as and for the purposes described.

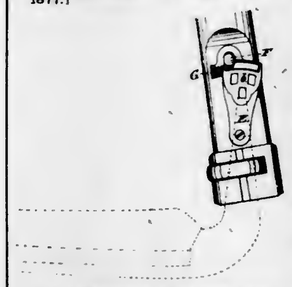
189,974. ROPE-CLAMPS. Henry T. Smith, Washington, D. C. [Filed Mar. 7, 1877.]

189,974.



The shell A, with its hub *e* and groove *a*, in combination with the cup B, with its serrated rim, and the screw C, substantially as and for the purpose set forth.

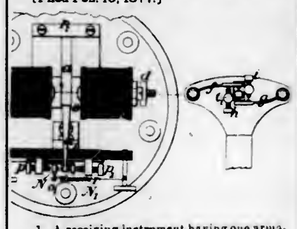
189,974. SCYTHE-SNATH FASTENINGS. M. Smith, Springfield, Vt. [Filed Mar. 17, 1877.]



1. The combination of the clamping-bolt, the swinging socket-plate, having a roughened under surface at its free end, and a plate arranged upon the snath, and having a roughened upper surface to clutch the swinging socket-plate from the action of the bolt, substantially as and for the purpose specified.

2. The plate G, having a roughened outer surface, and an opening, *e*, in combination with the swinging socket E, having a roughened under surface, and the clamp-bolt F, passing through the opening of the plate G, and arranged to clamp the parts, substantially as described.

189,975. MULTIPLE TELEGRAPHS. G. Smith, Astoria, N. Y., assignor of one-half his right to G. B. Prescott, New York, N. Y. [Filed Feb. 10, 1877.]



1. A receiving-instrument having one armature so arranged as to respond to changes in the strength and in the polarity of the line-current, either or both, in combination with two independent sounding or recording instruments.

2. Two independent keys or transmitters in combination with a receiving-instrument having one armature so arranged as to respond to changes in the strength and in the polarity of the line-current, either or both, and two independent sounding or recording instruments.

3. Two independent keys or transmitters, so arranged with reference to each other and to a main battery or batteries that their separate and combined action is capable of producing four distinct electrical conditions in the main line, differing from each other in respect to the strength or polarity of the current, or both, in combination with a receiving-instrument, having one armature so arranged as to be capable of being placed in four different positions, corresponding, respectively, to the four electrical conditions of the main line and two independent sounding or recording instruments.

4. A key or device for transmitting signals by changing the polarity of the line-current, and an independent key or device for transmitting signals by changing the strength of the line-current, in combination with a receiving-instrument having one armature so arranged as to respond to changes in the strength and in the polarity of the line-current, either or both, and two independent sounding or recording instruments.

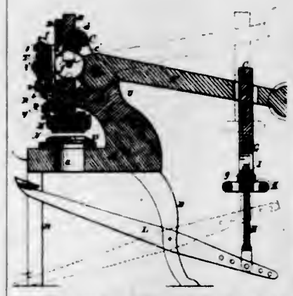
5. A key or device arranged to transmit signals by reversing the polarity of the normal main-line current, in combination with a second key which, when depressed, transmits a signal by diminishing or weakening the normal current, irrespective of the polarity of said current.

6. In a receiving-instrument, a polarized armature, acting upon two movable contact-levers, one of which presents a contact-point and the other an insulating-point to the said armature or its extension, in combination with stops which serve to limit the movement of each of the said contact-levers in each direction.

7. The vibrating lever *f* of a pole-changing transmitter, in combination with the contact-springs *f* and *g*, mounted upon a fixed support, and the adjustable stops *h* and *i*, substantially as and for the purpose specified.

189,977. METAL-DRAWING PRESSES. O. Smith, Bridgeton, N. J. [Filed Dec. 5, 1876.]

Brief.—Friction-wheel on end of operating-lever plays vertically in slots in arms of both the cutting and the drawing dies. Arm of drawing-die carries arm of cutting die, and after cutting is done passes on to effect the drawing.



1. A press for cutting and drawing sheet metal, in which the bar that carries the cutting-die is moved positively by the bar which carries the drawing-die, substantially as and for the purpose specified.

2. The means employed for combining the movements of the bars D and E, consisting of the tripping-block Q, pivoted within said bar D, and provided with an arm, *q*, which is caused to engage with a spur, *e'*, upon said bar E by the pressure of the spring *r*, substantially as and for the purpose shown.

3. The means employed for disengaging the bar D from the bar E, consisting of the jointed bar R, pivoted to or upon the tripping-block Q, and connected to or with the block S, substantially as and for the purpose set forth.

4. The means employed for locking the bar D at its lowest point, consisting of the tripping-block Q *q* and spurs *s* and *e'*, substantially as and for the purpose shown and described.

5. In combination with the bar D, tripping-block Q, and jointed bar R, the block S, secured to or upon the yoke T, and made vertically adjustable by means of the screw *t*, swiveled within the lug *e'*, substantially as and for the purpose specified.

6. In combination with the levers F and L, the connection formed by the forked bar G *g*, threaded bar H, and nuts I and K, substantially as and for the purpose shown.

7. The hereinbefore-described die-clamp, consisting of the threaded sleeves V *v v'*, the threaded bolt X *x'*, and the nuts W, Y, and Z, all combined to operate in the manner and for the purpose substantially as set forth.

189,978. WRINGERS. L. Sternberger, Philadelphia, Pa. [Filed Aug. 31, 1876.]

1. The combination of the depressing strip *f* of a wringing machine with the screw shafts *d d*, geared together so as to be operated simultaneously, substantially as set forth.

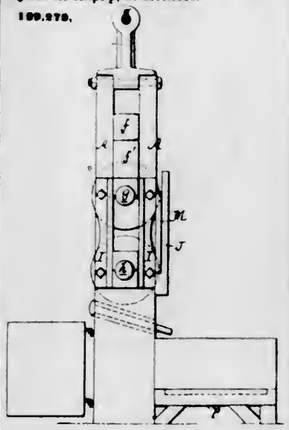
2. The combination of the rolls of a wringing-machine with the plate M, having a contracted opening, *w*, and so adapted to guides J J as to be readily removed and replaced, as set forth.

3. The combination of the lower journal and box A and its lugs *i' i'* with the plates I I, bottom plate *i*, and transverse pin *j*, as set forth.

4. The combination of the lower journal-box of a wringing-machine with a passage for conveying the drippings of the lubricant away from the inner side of the post in which the bearing is situated, as specified.

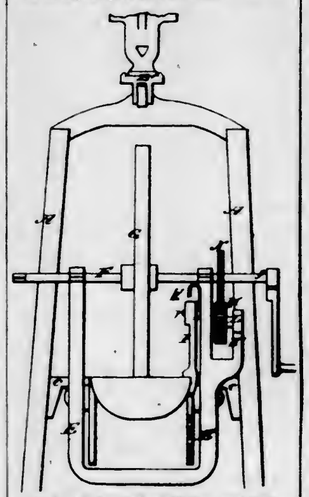
5. The combination of the open frame P of a wringing or starching machine with the tub Q and its strips *p*, as described.

189,979.



189,979. SICKLE-GRINDERS. Homer S. Stevens, Waukegan, Ill., assignor of one-half his right to J. F. Powell, same place. [Filed Nov. 18, 1876.]

Brief.—The stone is adjustable vertically, and vibrates at the same time it rotates, if desired. The vibration is stopped by detaching a pitman-connection from an eccentric or crank wheel on the pivoted journal-frame, and attaching or hooking it into a catch, thereby converting the pitman into a brace.

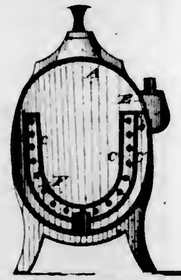


1. A rotating and oscillating grindstone, provided with a connecting-arm which is made detachable, for the purpose of causing the oscillating motion of the stone to cease at the will of the operator, and the rotary motion to continue, substantially as described.

2. In combination with fixed trough C, the vertically-adjustable tilting frame E and the grindstone G, supported thereby, substantially as set forth.

3. The pivoted block O, having lugs *o o*, and upward extension O′, in combination with the pivoted sickle-holder P, provided with projections *p p′* and catch *g*, substantially as described.

199,220. HEATING-STOVES. **E. Stewart**, Fort Madison, Iowa. [Filed Mar. 1, 1877.]



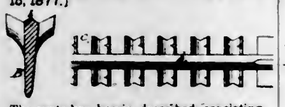
1. The double lining, forming a hot-air chamber about the bottom and sides of the fire-box, the indirect-draft passage of which latter is between the said hot-air chamber and the wall of the stove, substantially as described.

2. The combination, with the fire-box, provided with a double lining, forming the hot-air chamber, of the indirect-draft passage between the said double lining and the wall of the stove, substantially as described.

3. The hot-air chamber formed at the bottom and sides of the fire-box, and communicating with the open air by lower feed and end exit passages, as described, the said fire-box being provided with an indirect-draft passage between the hot-air chamber and the wall of the stove, substantially as described.

4. The combination, with the damper and connecting-rod, of the swinging stove-door, communicating motion to the same, the said rod and door engaging by rack and pinion mechanism, substantially as described.

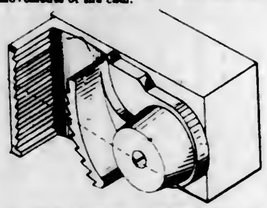
199,221. GRATE-BARS. **A. Stroh**, Mauch Chunk, Pa., assignor to **O. Albright** and **W. H. Stroh**, same place. [Filed Mar. 15, 1877.]



The grate-bar herein described, consisting of the central bar B, raised and beveled on its upper surface *b*, and the concave and grooved ribs *c*, projecting outward and upward from the central bar, making the fire-surface concave, raised, and corrugated, each bar being independent, substantially as described.

199,222. TOOL-HOLDERS. **T. Strobridge**, New Brighton, Pa. [Filed Jan. 24, 1877.]

Brief.—The device can be set for large or small handles of tools, and a gage limits the movements of the cam.

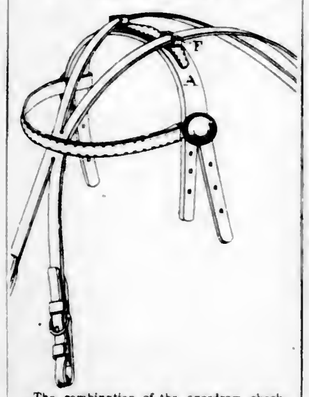


1. The combination of the rest, the plate slotted as at *a*, the cam or dog, the cap, and a fastening device, substantially as and for the purpose specified.

2. The combination of the rest or bar, the cam or dog, and the slotted cap, substantially as and for the purpose specified.

3. The combination of the slotted plate, the rest, the cam or dog, and the slotted cap, substantially as and for the purpose specified.

199,223. BRIDLES. **G. M. Strong**, Boston, Mass. [Filed Aug. 31, 1876.]



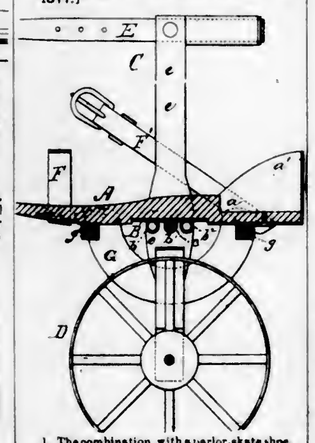
The combination of the overdraw check-rein, the open loops F F′, with the crown-piece A of a bridle, constructed and operating as and for the purpose specified.

199,224. COUNTERFEIT-COIN DETECTERS. **J. A. Thompson**, Chicago, Ill. [Filed Feb. 23, 1877.]



In a counterfeit coin detecter, the bar C K, provided with the flanges F, and lugs D D, substantially as shown and described, and for the purpose set forth.

199,225. PARLOR-SKATES. **H. L. True**, McConnellsville, Ohio. [Filed Mar. 3, 1877.]



1. The combination, with a parlor-skate shoe, having suitable fastenings, and a central journal-bearing below said shoe, of a single roller, arranged under the hollow of the shoe, below the level of the same, substantially as specified.

2. The combination, with a parlor-skate shoe, of a roller, D, which is adjustable to the front or rear, substantially as specified.

3. The braces C C, extending above and below a skate-shoe, A, to form ankle-braces *e* and bearings *e′* for a roller, substantially as specified.

4. The shoe-plate A, having plate B, provided with spaced bearings *b b′ b′*, in combination with braces C C and the journal-bolt *c*, substantially as specified.

5. The shoe-plate A, adjustable to front or rear, in combination with the braces C C and the transporting-roller D, substantially as specified.

6. The rocking shoe-plate A, in combination with the braces C C, bolt *c*, and the transporting-roller D, substantially as specified.

7. The combination, with the braces C C and the transporting-roller D, of the shoe-plate A, having brake-shoes *g*, and the journal-bolt *c*, substantially as specified.

8. The combination, with the braces C C, the shoe-plate A journaled therein, and the transporting-roller D, of the semi-annular braces G, locking the said plate against vibration, substantially as specified.

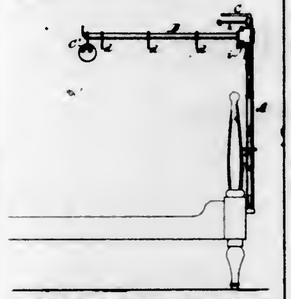
9. The arched transverse brace H, in combination with the braces C C, shoe-plate A, and roller D, substantially as specified.

199,226. LIGHTNING-RODS. **L. D. Vermilya**, Dayton, Ohio, assignor of one-half his right to **H. Webbert**, same place. [Filed Mar. 8, 1876.]



A lightning-rod of twisted sheet metal, provided with a serrated strip, B, located between its folds, in the manner and for the purpose specified.

199,227. MOSQUITO-NET FRAMES. **J. F. Volle**, Houston, Tex. [Filed Feb. 27, 1877.]



1. The folding and extensible frame for supporting mosquito nets, consisting of the swiveled L-shaped parts A B, and the sliding rod C′, connecting them in the manner shown and described.

2. In combination with the L-frames A B, having short lever-arms *k*, the cord 4, passing through loops, and otherwise arranged, as shown and described, for the purpose specified.

3. In combination with the sliding rod C′, net-rings *d*, and L-frames, the cord 3, arranged as shown, for the purpose specified.

199,228. ANCHOR AND HYDRAULIC SUPPORTS FOR WELL-TUBING. **M. Warner** and **J. Yockers**, Kansas City, Pa. [Filed May 31, 1876.]

Brief.—The piston is drawn out of the chamber until the shoulder strikes the shoulder of the chamber. When the anchor and chamber are lowered into the liquid, the chamber fills, and when the lower end of the piston strikes the bottom of the well the valve closes.

199,228.

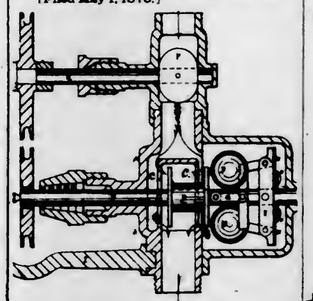


1. The anchor consisting of a fluid-chamber, valve, and plunger, in combination with the tubing of oil, salt, and other wells, substantially as herein described, and for the purpose set forth.

2. The anchor consisting of a fluid-chamber, compound valve, and plunger, in combination with the tubing of oil, salt, and other wells, substantially as herein described, and for the purpose set forth.

3. The anchor consisting of a fluid-chamber, valve or valves for holding the working-chamber or barrel of well-tubing at the desired pumping-line in the well, substantially as herein described.

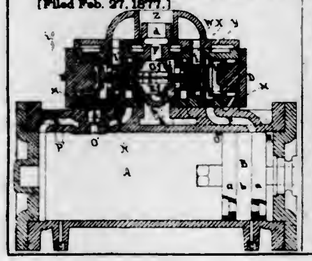
199,229. STEAM-ENGINE GOVERNORS. **S. A. West**, San Francisco, Cal., assignor of one-half his right to **P. Hinkle**, same place. [Filed May 1, 1876.]



1. The rotating rod F, provided with the cross-head E, containing springs N, in combination with the link G, balls D D, loose sliding valve B, and casing C, as set forth.

2. In a steam engine governor, the bolt U, wheel T, arm S, and rod *a*, in combination with the rotating cut-off valve P, governor-valve B, as and for the purpose described.

199,230. VALVES FOR STEAM PUMPING-ENGINES. **N. W. Wheeler**, New York, N. Y. [Filed Feb. 27, 1877.]



1. The combination of the bored valve-chambers D, D′, and F, valve-seats W W′ Y Y′, and diaphragms X X′, in the same line, substantially in the manner and for the purposes described.

2. The combination of the valves G, H, and H′, and their seats, the connected pair of valves G forming a distance-piece between the distance-pins K, substantially in the manner and for the purposes described.

3. The combination of the independent chamber F and seats W W′ with the pair of plug puppet-valves G, connected by a bar or bars, E, which are too short to allow both valves to be seated at the same time, substantially in the manner and for the purposes described.

4. The combination of the chambers D D′ and seats Y Y′ with the pair of plug puppet-valves H H′, separated by distance-pins K and distance piece or pieces G E, so far as to prevent the seating of both valves at the same time, substantially in the manner and for the purposes described.

5. The combination, in the chamber D, of the seats W Y, diaphragm X, and valves G and H, which seats and diaphragm are connected by the distance-lugs L L, substantially in the manner and for the purposes described.

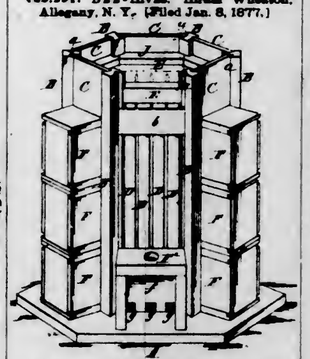
6. The combination of the preventer plug or plugs J and *i*, and seats W W′ and Y Y′, with the valves G and separate valves H H′, which valves are capable of being thrown or actuated by steam-pressure upon the backs of H or H′, substantially in the manner and for the purposes described.

7. The combination of the channels *c c*, opening into the cylinder A within the stroke of the piston B, with the cushion-ports O O′, cushion-valves N N′, and exhaust-channels P P′, substantially in the manner and for the purposes described.

8. The guarding-recess *g* in the steam channel R, to receive the cushion-valve N, and prevent it from being disturbed by steam passing through said channel R, as set forth.

9. The combination of the rabbeted packing-rings of the piston B with the cushion-ports O O′ and valves N N′, substantially in the manner and for the purposes described.

199,231. BEE-HIVES. **Hiram Wheaton**, Allegany, N. Y. [Filed Jan. 8, 1877.]



1. The combination, with the surplus-honey boxes F, the posts B, and the removable slides C, forming the comb-chamber, of the removable inclosing-case G, and the removable cover I, substantially in the manner and for the purposes herein set forth.

2. The means herein described of forming the corner ventilating-flues H, consisting of the tiers of surplus-honey boxes F, the inclosing-case G, and the fixed posts B, said boxes being arranged between the case and the comb-chamber, and said flues being formed within said space by and between the walls of the tiers of boxes, as herein set forth.

3. The removable and interchangeable covers E and K, in combination with the slides C, posts B, and inclosing-case, forming the top and comb chamber, as and for the purpose herein set forth.

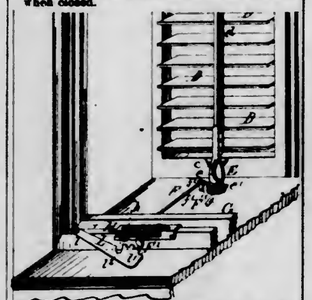
4. The slides C and posts B, extended above the comb frames D, combined with the removable glass cover E and inclosing-case, to form the top chamber J, as and for the purpose herein set forth.

5. The combination, with the radial tiers of honey-boxes F, arranged to form ventilating-flues between them, as described, of the inclosing-case G, adapted to be raised sufficiently from the base to open said flues at the bottom, to give equal ventilation to the several tiers of honey-boxes, as described.

6. The base A and the fixed posts B, constructed to form a skeleton frame constituting guides, holds, and supports for the boxes, and the comb-chamber slides, and combined with the removable inclosing-case, in the manner and for the purpose herein set forth.

199,232. BLIND-SLAT WORKERS. **E. C. Whipple**, Davenport, Iowa. [Filed Jan. 27, 1877.]

Brief.—A double-crank lever extending into the room actuates a plate having a segmental slot in a vertical direction, which plate is rigidly attached to the blind-slat rod. There is also a peculiar locking-lever, having a segmental toothed enlargement, which is pivoted to the inside of the window-frame, and by lateral movement serves to lock the double-crank lever, when the blind-slats are either opened or closed, and also, by passing into a slot or recess in the sash, to fasten down the same when closed.

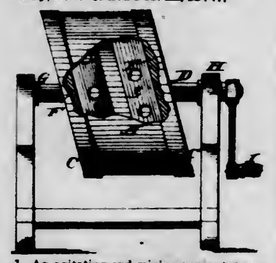


1. The blind-slat rod *d*, or a series of such rigidly connected together, the plate or extension E having a segmental slot, *e′*, in a vertical direction, the guide-pin *e*, and the double-crank lever F, all combined, constructed, and operating substantially as and for the purpose set forth.

2. In a blind slat worker, the combination of the crank-arm F′ of the double-crank lever F with the segmental toothed enlargement I′ on the pivoted locking-lever I, all constructed and operating substantially as described, for the purpose specified.

3. In a combined blind stop and sash fastener, the combination of the crank arm F′ of the double-crank lever F and the sash frame, provided with a slot or recess, *b*, with the segmental enlargement I′, and the notch or recess F on the pivoted locking-lever I, all arranged, constructed, and operating substantially as described, for the purposes specified.

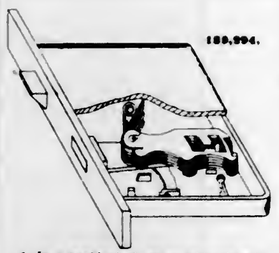
199,233. AGITATING AND MIXING APPARATUS. **G. L. Witsil**, Camden, assignor of one-half his right to **A. F. Porter**, Woodbury, N. J. [Filed Feb. 22, 1877.]



1. An agitating and mixing apparatus consisting of a revolving cylinder, the ends of which are cut obliquely to its axis, substantially as and for the purpose set forth.

2. The combination, with a cylinder, the ends of which are cut obliquely to its axis, of perforated deflectors, substantially as and for the purpose set forth.

199,234. MASTER-KEY LOCKS. **P. C. Yanda**, Pittsburg, Pa. [Filed Mar. 1, 1877.]



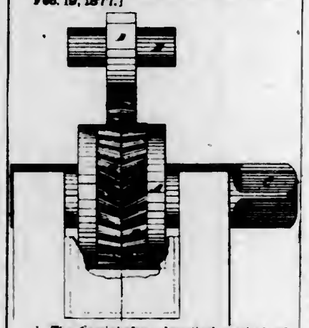
188,994.

1. In a tumbler-lock, the combination of a master-tumbler with the series of tumblers adapted to be operated from or by the master-tumbler, substantially as and for the purpose specified.

2. In a tumbler-lock, the combination of a master-tumbler with a series of tumblers adapted to be operated from or by the master-tumbler, and with a tumbler operated independently of the master-tumbler, substantially as and for the purpose specified.

REISSUES.

7,564. MANUFACTURE OF GEAR-WHEELS. J. Comly, Williamsburg, N. Y. Patent No. 132,899, dated Nov. 12, 1872. [Filed Feb. 19, 1877.]

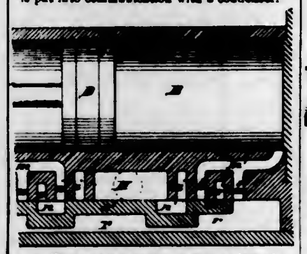


1. The hereinbefore-described method of manufacturing gear-wheels, which consists in rotating a toothed die or former in contact with a heated blank wheel, whereby teeth are formed on the periphery of the blank wheel as it rotates.

2. The combination, substantially as hereinbefore set forth, of a revolving toothed die or former, its shaft, and supporting-frame, with a mandrel which carries a blank wheel, whereby teeth are formed upon the blank wheel as it rotates in contact with the former.

7,565. COMBINED HIGH AND LOW PRESSURE ENGINES. Thos. L. Jones, Natchez, Miss. Patent No. 76,776, dated Apr. 14, 1868. [Filed Oct. 10, 1874.]

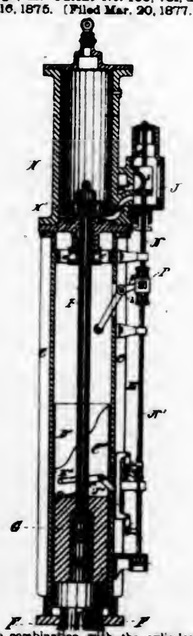
Brief.—After the engine has exhausted down to atmospheric pressure, the cylinder is put into communication with a condenser.



1. The combination, in a steam-engine, of a valve-seat provided with the ports a^1, e, and i, and a valve provided with the chamber s, substantially as and for the purpose set forth.

2. The cylinder B, piston D, steam-chest A, provided with the ports m m', a a^1 a^2 a^3, e e', i i', and space 2, valves g g', pipes F and H, and valve c c^1 c^2, provided with the recesses s s', substantially as described and shown.

7,566. STEAM PILE-DRIVERS. T. T. Loomis, Chicago, Ill. Patent No. 160,781, dated Mar. 16, 1875. [Filed Mar. 20, 1877.]



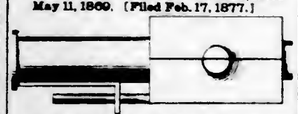
1. The combination, with the cylinder H, having the grooves arranged in the flanges centrally on opposite sides thereof, and grooved plate F, of the hammer-frame E, all arranged to and between the leaders A A of the ordinary derrick of a pile-driver, substantially as specified.

2. The combination, with the leaders A A, of the frame E and grooved hammer G, the grooves of the hammer being adapted to receive both the side pieces of the frame and the leaders, substantially as and for the purpose specified.

3. The combination, with the frame E, of the detachable grooved plate F, adjusted to receive and guide the pile, and support the frame while driving the pile, substantially as and for the purpose specified.

4. The coupling P, provided with the adjustable boxes t t, to receive the lever employed to elevate and depress the coupling, in combination with the valve-stem N and connecting-rod N', substantially as and for the purpose specified.

7,567. LOCKING-CASES FOR STOP-COCKS. H. C. Meyer & Co., New York, N. Y., assignees of J. H. Morris, executor of V. T. Hall, deceased. Patent No. 89,930, dated May 11, 1869. [Filed Feb. 17, 1877.]

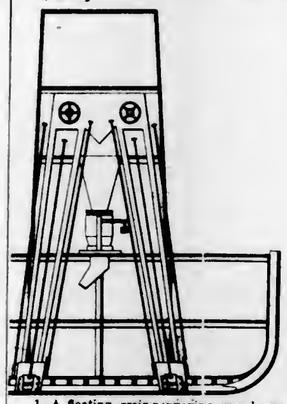


1. A case or clasp adapted to wholly or partially surround and protect a stop-cock or the union or connection between the cock and the supply-pipe, and which may be locked about the said cock or the said connection, substantially as and for the purpose described.

2. The combination, with a case or clasp adapted to protect a stop-cock, of means for engagement with a strap or lug permanently attached to the pipe with which the stop-cock is connected, substantially as and for the purpose set forth.

3. A protector case or clasp made in parts adapted to be locked together, and provided with an interior or concealed coupling or joint, substantially as and for the purpose set forth.

7,568. FLOATING GRAIN-ELEVATORS. C. W. Mills, Mont Clair, N. J. Patent No. 166,023, dated July 27, 1875. [Filed Feb. 5, 1877.]



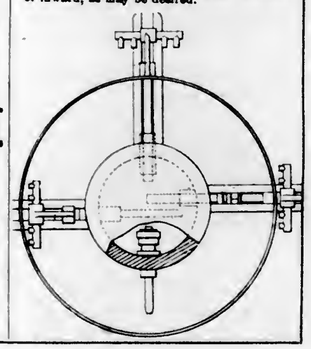
1. A floating grain-conveying vessel containing grain-receptacles, a vertical, or nearly vertical trunk, having openings leading directly from the bins to the trunk, and provided with slides or gates, and an elevating chain or belt, with buckets, and the pulleys thereof permanently fitted into such grain-conveying vessel, substantially as and for the purposes set forth.

2. A floating grain-conveying vessel provided with an elevator-trunk located between two or more bins, in combination with the elevator chain or belt and its wheels, permanently fitted into such trunk, and slides or gates to admit the grain from either of the bins directly to the elevator, substantially as set forth.

3. The combination, with a grain-elevator permanently fitted into a floating vessel containing grain-bins, of a water-tight trunk extending below the bottom of the grain-bins, and provided with gates or slides, whereby the grain-elevator is also adapted to use as a water-raiser, substantially as set forth.

7,569. TIRE-HEATING APPARATUS. Saml. G. Reed, Wellesley, Mass. Patent No. 156,522, dated Jan. 5, 1875. [Filed Mar. 21, 1877.]

Brief.—A gas-containing chamber, from which radiate several telescopic tubes, curved upward at their outer ends, and each provided at its extremity with a short cross-tube, studded with burners, which may be turned so as to direct the flame upon an inclosed or upon an outlying tire. Bars for supporting the tire radiate from the chamber, and curved guards, connected to the ends of the tubes, and resting on the supports, may be turned outward or inward, as may be desired.



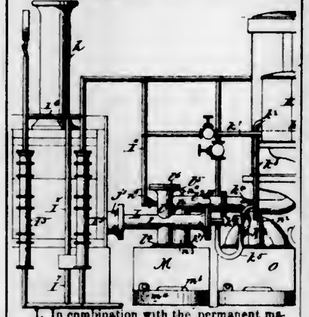
1. A gas-receiver and a series of radially-adjustable heads, burners, and tubes, in combination with the slotted supports for the tire, and the heads and burners, substantially as described.

2. The head and its series of burners, in combination with the foot or guard to retain the gas-burners at the proper position with reference to the tire, and guard the burners, substantially as described.

3. A gas-receiver and tube-receiving sockets, in combination with a series of tubes made radially adjustable with relation to the sockets and with gas-burners, to permit the gas-burners to be moved to direct their flame on large or small tires, substantially as described.

4. A gas-receiver and tubes and adjustable heads, each provided with a series of burners, in combination with slotted supports to sustain the heads and burners, and permit their adjustment in radial lines to discharge the gas-flame against the tire to be heated, all substantially as described.

7,570. PROCESSES AND APPARATUS FOR MANUFACTURING ILLUMINATING-GAS. J. Rigby, Montreal, Quebec, Canada. Patent No. 186,602, dated Jan. 30, 1877. [Filed Mar. 12, 1877.]



1. In combination with the permanent masonry-base A, the superstructure, substantially as described, having sectional removable walls on every side, adapted to permit the removal of any desired part without disturbing the remainder, as set forth.

2. In combination with the permanent base A, the angle-iron frame-work and the sectional removable walls, substantially as described.

3. In combination with the sectional covering-plates, the sectional water-backs, substantially as described.

4. In combination with the sectional covering-plates and sectional make-up blocks, the removable retorts, substantially as described.

5. In combination with the permanent base, the sectional water-backs, the sectional make-up blocks, and the sectional covering-plates, substantially as described.

6. In combination with the permanent base, the sectional water-backs, the sectional make-up blocks, the retorts, and the sectional covering-plates, substantially as described.

7. The steam-generating system described, consisting essentially of the sectional water-backs, the stand-pipes, the connecting branches, and the supply-tank, substantially as described.

8. In combination with the water-backs and stand-pipes, the connecting-pipes and the superheating-chambers, substantially as described.

9. In a gas apparatus, the combination of the following elements: A water-bridge, water-backs, stand-pipes, and superheating-chambers, substantially as described.

10. In combination with the water-backs and the superheaters, the pipes I^5 I^6, supplying live and superheated steam to the first and second injectors, substantially as described.

11. In combination with the relatively-fixed dip-pipe, the plate k^2 and the pipe-length k^3, passing through the dip-pipe, substantially as described, the plate and pipe-length being adapted for removal without disturbing other parts, substantially as described.

12. In combination with the dip-pipe, the pipe-length k^2 passing through the dip-pipe, and having the siphon-pipe k^4 and the removable plate k^5, as described.

13. The triangular retort J, having an excess of metal on the angle-lines and on the central portion of the faces, as described.

14. In combination with a retort, a dip-pipe and a washer, an injector-pipe and injector, substantially as described, located beyond the washer, and adapted to exhaust the gas therefrom, as set forth.

15. In combination with the retorts, dip-pipes, and first washer, the injector-pipe, injector, and second washer, as described.

16. In combination with an exhaust apparatus and a first or main air-cock, a second or auxiliary air-cock, substantially as described, adapted to supplement the action of the first.

17. In combination with a gas-furnace water-backs, arranged on either side of the retort-chamber, divided up horizontally into compartments connected by stand-pipes, and having their inner faces extending upward and inward, to throw the products of combustion against the retorts, as herein set forth.

18. In the furnace A, the combination therewith of the water-backs connected by the water-bridge, and communicating with the water-tank by pipe I^{10}, inlet-pipe I^9, and stand-pipes I^8, for the purpose of securing perfect equilibrium, as herein set forth.

19. The combination of furnace A with retorts J, washer M, second washer or purifier O, scrubber Q, oil-tank K, and water-tank I, all constructed, arranged, connected together and operating substantially in the manner and for the purpose set forth.

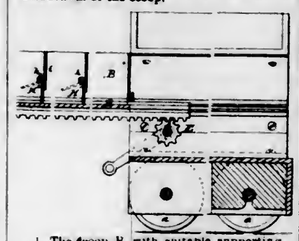
20. The described method of treating gas consisting essentially in subjecting it successively to the action of live and superheated steam.

21. The method described of making gas, consisting essentially in decomposing oil in a retort, and subjecting the products successively to the action of live steam and a mixture of superheated steam and hydrogen.

22. The described method of treating gas, consisting essentially in subjecting the products of the retorts to the following steps: first, to the action of a washing agent; second, to the action of live steam as a softening agent; third, to the action of a second washing agent; and, fourth, to the action of superheated steam as a drying agent.

7,571. MACHINES FOR CHARGING GAS-RETORTS. Thos. F. Rowland, Green Point, Brooklyn, N. Y. Patent No. 131,564, dated Sept. 24, 1872. [Filed Dec. 18, 1876.]

Brief.—The charging-scoop loaded with coal is projected into the retort by the wheeled carriage, and the bottom is then withdrawn, the coal being deposited by transverse plates and hinged valves, which prevent the coal being slid back with the bottom of the scoop. The transverse plates level the coal upon the withdrawal of the scoop.



1. The scoop B, with suitable supporting-means A, and having a removable bottom, D, and valves H^1 H^2, combined and arranged for joint operation, substantially as herein specified.

2. The removable bottom D, corrugated longitudinally, in combination with the correspondingly-formed valves H^1 H^2, and curved sides B, adapted to match in a D retort, and reciprocate separately therein, substantially as and for the purposes herein set forth.

3. The combination, with a stoking-machine in which the scoop enters the full length of the retort, and is co-extensive therewith, of one or more partitions or stops, the said apparatus so constructed being effective in preventing the withdrawal of the coal upon the withdrawal of its support, substantially as described.

4. A coal-carrier or scoop, B, combined and arranged with one one or more swinging plates or partitions, H^1 H^2, which apparatus so constructed is effective in preventing the withdrawal of the coal upon the withdrawal of its support, while the scoop or carrier is easily withdrawn without withdrawing the coal, substantially as described.

5. The combination of a scoop or coal carrier with one or more fixed diaphragms, which apparatus is effective in leveling the surface of the coal by its withdrawal from the retort, substantially as described.

6. A D-shaped coal carrier or scoop having approximately the same length and shape as the D-shaped retort which it is intended to enter and fill, and adapted to carry and discharge the full amount of coal which the retort is capable of receiving, substantially as described.

7. The removable corrugated bottom D, as combined and connected with a coal carrier or scoop, B, substantially as described.

7,572. APPARATUS FOR RAKING GAS-RETORTS. Thos. F. Rowland, Green Point, Brooklyn, N. Y. Patent No. 127,486, dated Apr. 1, 1873. [Filed Dec. 18, 1876.]

Brief.—The forward movement of the rake-carriage slightly elevates the rakes and their supporting-frame by means of a pair of friction-sectors and connecting-levers, so that the rakes enter the retorts above the coke, and upon the backward movement of the carriage the rakes are depressed, so as to withdraw the coke. The rakes and their frame are given a slight lateral movement, to adjust them to different parts of the retort, by a horizontal toothed rack and a toothed sector and lever. The rake-rods are hollow, and are cooled by water admitted within them.

1. In combination with a carriage, A, moving forward and backward on the support X, the rising and sinking frame B, rakes D d, and means for raising and lowering them, so as to enter the retorts in an elevated, and return in a depressed, position, as herein specified.

2. The knuckle-joints C between the rake-levers D, and the rising and sinking frame and its connections, as herein specified.

3. In combination with traversing carriage A, rising and sinking frame B, and connected rakes D d, the transverse carriage B^1 and adjusting means O, arranged to allow the adjustment of the rakes to one side or the other within moderate limits, as herein specified.

4. The friction-sectors M and spring H, in combination with the traversing carriage A and its operating means, rising and sinking frame B, rakes D d, and a balancing or partially-balancing means, F, arranged as shown, so that the changes of motion of the carriage A will elevate or depress the rakes, as herein specified.

5. The stops B^1 on the jumping frame, arranged to serve relatively to the main frame A, and to the means of raising and lowering, B, as and for the purposes herein specified.

6. The water-connections D^1, in combination with the hollow levers D, rakes d, and means for operating them, as herein specified.

7. In a machine arranged to withdraw coke or other substances from retorts, a rake, *d*, and rake-handle D, combined with mechanism for elevating them together as they enter the retort, and depressing them upon their withdrawal, substantially as described.

8. A mechanical rake combined with mechanism for adjusting it to the center of the retort or other desired position independent of the mechanism for moving the main carriage, substantially as described.

9. A rake and rake-carriage, combined with mechanism which, upon the forward motion of the carriage, automatically raises the rake, so that it passes into the retort free of the coke, and which, upon the backward motion of the carriage, drops the rake into the coke, substantially as described.

10. The combination of a rake-carriage having a motion parallel to the retorts, and a motion at right angles to the first motion, thereby carrying the rake into the retorts, with a rake having a separate lateral adjustment, so that the controlling operator is enabled to enter the rake at any part of the retort, substantially as described.

7,593. APPARATUS FOR MAKING PLUMBAGO CRUCIBLES. W. Smith, Pittsburg, Pa., assignor, by mesne assignments, to M. McCullough and John H. Dalzell. Patent No. 40,606, dated Nov. 3, 1863. [Filed Mar. 3, 1877.]

1. In a crucible-machine, a counterpoised former, having both a vertical and a radial movement in a bulged mold for forming bulged crucibles, in combination with the mold, substantially as described.

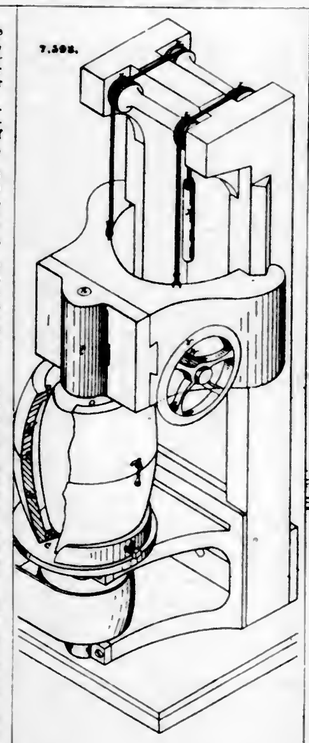
2. In a crucible-machine, the former mounted or dependent on a sliding carrier, provided with suitable means for moving it to and from the side of the mold, substantially as described.

3. A partible removable mold, open at both ends, having a loose bottom, upon which the crucible is made, substantially as described.

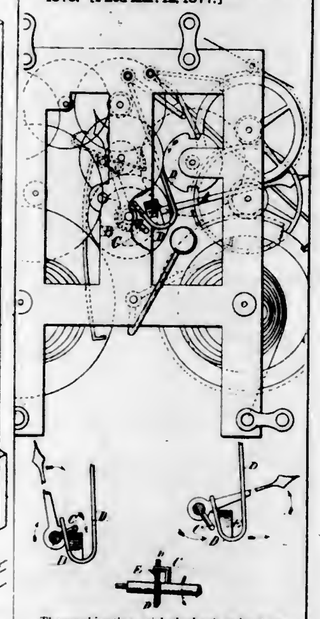
4. A partible bulged mold, in combination with a hollow or recessed wheel or chuck, which receives and sustains the same under the operation of the former, which has a radial movement in the mold, and bears against one side, substantially as described.

5. The hollow or recessed wheel, provided with means for fastening the mold therein, substantially as described.

7,593.



7,594. LOCK-WORK ATTACHMENTS FOR CLOCKS. J. W. Williams, New York, N. Y. Patent No. 183,094, dated Oct. 10, 1876. [Filed Mar. 12, 1877.]



The combination, with the hook or bent arm C and the trip-wire D, of an incline or cam plate, E, upon the trip-wire D, and operating in the manner and for the purposes set forth.

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COMMISSIONER'S DECISIONS.

RICHARD PINTSCH.—*Division of application.*

[*Appeal from the decision of the Primary Examiner in the matter of the application of Richard Pintsch for* "IMPROVEMENTS IN FLOATING LIGHTS," *filed January* 23, 1877—*Decided March* 23, 1877.]

The requirement of a division of an application presupposes the existence of matters which might become the subjects of separate patents.

The rejection of an application on the ground that there is no legitimate combination between the devices represented, or that they are deficient in novelty or invention, is appealable to the Board of Examiners-in-Chief.

[*Bakewell and Kerr*, for applicant.]

DOOLITTLE, *Assistant Commissioner:*

Applicant claims a buoy to serve as a recipient for compressed illuminating gas to supply burners in combination with a lamp carried thereby. The Examiner requires the application to be divided; at the same time there is no claim made for the buoy, *per se*. The requirement of a division of an application presupposes that matter exists which might constitute the subjects of two or more patents.

The only valid objection, then, that can be urged against such a case as this, wherein it is alleged that, if there is anything novel, it consists in the construction of a lantern to be attached to the buoy and not in the buoy itself, is that there is no new combination, and not that there are separate or independent inventions.

The Examiner, in one of his letters of rejection, states that signal-lights having heretofore been attached to buoys, "there appears to be no novelty in attaching the particular mechanism described to the buoy, any more than attaching it to any other detached or portable receiver." "Whatever novelty, therefore," he adds, "the device contains, would seem to lie in the construction of the reflector and the lamp, and not in the application of the device to the buoy."

It will thus be seen that the Examiner attacks the legitimacy of the combination, regarding it, it would appear, in the light of a mere aggregation. This, then, is an objection to the merits of the case, and is proper matter for appeal to the Board of Examiners-in-Chief. (*F. L. Ellis*, 9 OFFICIAL GAZETTE, 1110, and *J. H. Keith*, Ib. 744.)

If the appeal is taken the Examiner should not only urge his objections to the validity of the combination, but also cite all references he may have affecting the questions of novelty, whether relating to the alleged combination or to other matters claimed in the application.

The appeal is dismissed.

DECISIONS OF THE COURTS.

SUPREME COURT OF THE UNITED STATES.

HENRY W. FULLER AND ISAAC W. BARNUM, APPELLANTS, *vs.* ENOCH S. YENTZER AND WALTER B. SCATES. SAME *vs.* HERMAN B. GOODRICH.

[*Appeals from the Circuit Court of the United States for the Northern District of Illinois.—Decided October term*, 1876.]

The infringement of a patent is not avoided by the substitution for one member of the combination of an old ingredient performing the same function, and well known at the date of the patent as a proper substitute for the one omitted. But the rule is otherwise, if the ingredient substituted is a new one, or performs a substantially different function; or was not known at the date of the patent as a proper substitute for the one omitted.

A result is not patentable, and claims nominally for results will if possible be construed to be for the apparatus or certain portions thereof, as described in the specification of the patent.

A patent for improvements in an apparatus may be valid, if they are new, and accomplish a new and useful result, even though all the elements of the same are old, provided the combination or arrangement of such elements is new and of such a character that it involved invention to construct the same.

The burden of proof is upon complainant to show that the defendant has infringed the patent under which he claims.

A claim for "a tuck-creasing mechanism, such as described, having its upper and lower parts connected, and together adjustable as to its relations with the needle of a sewing machine, and operated by the sewing machine, as set forth," is not infringed by every form of mechanism by which a creaser is attached or adjusted to a sewing-machine by which unity of adjustment is accomplished.

Mr. Justice CLIFFORD delivered the opinion of the court:

Modifications or alterations in an invention consisting in a combination of old ingredients, which merely substitutes another old ingredient for one of the ingredients in the patented combination, is an infringement of the patent if the substitute performs the same function and was well known, at the date of the patent, as a proper substitute for the one omitted from the patented invention; but the rule is otherwise if the ingredient substituted is a new one or performs a substantially different function, or was not known at the date of the patent as a proper substitute for the one omitted from the patented combination.

Both of these suits are instituted by the first-named complainant, who became, by certain mesne conveyances, the owner of the invention by assignment in due form. Since then, the other complainant, having become the owner of the patent, was, on motion of the respondents, made a party complainant in each of the two suits.

Sufficient appears to show that Israel M. Rose was the supposed inventor of the improvement; that the original patent was granted to James Wilcox, assignee of the inventor; that the first-named complainant, having subsequently become the owner of the patent, surrendered the same, and that the reissued patent, bearing date December 1, 1868, on which the present suits are founded, was granted to the rightful owner of the invention at the date of the reissued patent.

Remarks respecting the title of the complainants are unnecessary, as it is not questioned by the respondents, nor is it necessary to enter into any comparison of the reissued patent with the original, as the means for such comparison are not exhibited in the record.

Briefly stated, the allegation is that the patented invention consists of a new and useful improvement in mechanism for marking cloth in a sewing-machine, or for a new method of marking a crease in cloth by what is known as the pinching process, and for other improvements in the mechanism of a tuck-creaser, independent of the creasing devices, and that the respondents, since the 1st day of May, 1872, have infringed the same, as more fully set forth in the bill of complaint.

Process was served and the respondents appeared and filed an answer, setting up the following defenses, which it is important to notice: (1) That the supposed improvement was not patentable because it had been in public use more than two years before the inventor applied for a patent. (2) That it was not patentable because it was well known and had been in common use long before the alleged invention. (3) They deny the charge of infringement and justify all their acts under a patent granted to Enoch S. Yentzer, dated May 28, 1872, for an improvement in tuck-markers for sewing-machines.

Proofs were taken, the parties heard, and the circuit court entered a decree, in each case, dismissing the bill of complaint. Immediate appeal was taken by the complainants in each case to this court, and the questions here are the same as those considered and decided in the circuit court.

Previous to that invention the statement of the inventor is that fabrics were marked or creased by a protuberance or point and a notch or indentation caused to impinge upon opposite sides of the fabric, and the patentee states that that mode of marking or creasing the fabric is open to the objection that fine goods will sometimes be cut by the marking operation, while in heavy or flimsy goods the crease is often insufficiently defined.

Instead of the point and notch the present invention forms marks, ridges, or creases in the fabric by a succession of nips or pinches of the same while it has motion imparted to it, in line with the crease. Motion is usually given to the fabric by the feed-mechanism of a sewing-machine, in which it is intended it shall be used as an attachment, but the motion may be imparted to the fabric in any other manner.

Objections, it is said, exist to other modes of forming creases for the described purpose, and that the process of nipping or pinching is designed to obviate those objections to other tuck-markers and to produce a more efficient instrument. Devices called jaws are provided for the purpose, which are caused to descend while open, with more or less force or pressure, on the fabric, and then in being closed are capable of seizing a portion of the fabric and compressing the same tightly, the fabric at the same time being properly supported against the descending force of the jaws, and which operation being repeated while the fabric is moved along produces the required ridge or crease, in the line of which the fabric will naturally fold, to facilitate the forming of the tuck for future operations.

Said invention also comprises certain details of construction, arrangement, and combination to adapt tuck-markers for use in connection with sewing-machines forming a tuck-creasing mechanism having an upper and under part adjustable as to its relation with the needle of a sewing-machine, and to be operated by the sewing-machine. Reference is made to the drawings for the different views of the apparatus when properly arranged in a sewing-machine in operation, to effect the described result. Detailed description is also given of the various elements or ingredients of the apparatus and of their mode of operation.

Mention is first made of the base-plate, which has an upright standard firmly secured thereto, so as to form a permanent part of the apparatus. To the upper end of the standard a lever is jointed which carries a spring-branch, buckled at its lower end with the blade that forms one of the jaws for seizing and crimping the fabric. Freedom of motion to and from the fabric is insured by the lever, jointed as before explained, the suggestion being that the stiffness of the lever prevents any lateral motion of the creasing device; and the statement is that the lever is also designed to receive the force of the arm or other moving part of the sewing-machine, and that it transmits the motion directly to the jaws through the spring-branch which is carried by the lever jointed to the upper end of the standard.

Besides the base-plate there is a plate called the bed-plate, with a small upright projection, to which is permanently fixed a spring-blade having its front end bent downward and which forms a mate to the jaw already described. These jaws are hinged together, as shown in the drawings, their lower ends being sharp or serrated in order more readily to seize the fabric.

Effectual means are provided to cause the marking

device to react after each creasing action, and follow the upward motion of the needle-arm, in order to give room for the free insertion and removal of the work; and this spring-branch shown in the drawings is made to hold the outer jaw away from the inner one when in the normal position there exhibited.

Creases are to be made in the fabric, and the design is that the creasing action shall take place as nearly as possible in front of the needle and in line with the arm of the sewing-machine, and to secure that an extension-plate is provided extending out laterally from the base-plate in line with the movement of the feeding device, which supports the material under the jaws and receives their impinging action in the operation of making the crease. By that arrangement the creasing devices are brought across the presser-foot in the proper location with respect to the needle for performing the creasing operation.

Upper and under devices are employed, on opposite sides of the cloth, to effect the patented result, and a particular description is given of the means and mode of operation of the same, by which the jaws seize the fabric and double up and compress the same so as to produce the described creases by the apparatus when attached to a sewing-machine. When properly attached the several parts of the apparatus are so arranged that the lever is immediately under the arm of the sewing-machine, and the arm, when the machine is operated, will strike the lever and actuate the creaser or tucker.

Tucking may also be done by the apparatus when attached to a sewing-machine, but in order to accomplish that, a fold must first be made, by hand, in the fabric, the gage being fastened by a set-screw to make the seam the proper distance from the edge of the required tuck. Fit means are also shown in the drawings for adjusting the apparatus in such relation to the needle that the distance from the needle to the jaws will be at least double the distance between the needle and the gage.

Suffice it to say that one movement or alteration of either part will adjust the whole tucker with respect to the needle as the upper part is permanently connected with the under part, and when adjusted as required, the fabric is placed in the machine with the folded edge against the gage, and the machine being started the lever carries down the spring-branch and with it the jaws to the surface of the fabric, which operate as before explained. On the upward motion of the arm the jaws rise and open by the elasticity of the springs, the fabric being advanced by the feeding mechanism of the sewing-machine. Movements of the kind are continued and the pinching process repeated until the cloth is fed through the machine, causing a well-defined ridge to be formed in the fabric by the creaser at the same time that a seam is sewed in the folded part of the same, forming a tuck.

Eight claims are appended to the specification, and the charge is that the respondents have infringed the first, second, fifth, sixth, and eighth, five in all, substantially as follows:

1. The mechanism as described for forming a ridge or ridges on fabrics to be afterward folded in the line of such ridge.
2. The method of nipping or pinching the fabric to form ridges or creases thereon by means of jaws opened and closed at intervals to seize and pinch the fabric when at rest and then release it as the same is moved along intermittently by a suitable feeding mechanism.
3. The combination of the creasing device or devices of a tuck-marker with a jointed lever, for the purposes set forth.
4. A tuck-creasing mechanism, such as described, having its upper and lower parts connected, and together adjustable, as to its relations with the needle of a sewing-machine, and operated by the sewing-machine as set forth.
5. The combination, with a tuck-marker having upper and under parts connected and together adjustable as specified, of the lever and spring, for the purposes set forth.

Argument to show that a result is not patentable is not necessary, as that proposition is decided in the opinion just delivered, as well as in many other cases to which reference might be made. Apply that rule to the several claims of the patent in this case which it is alleged the respondents have infringed, and it is clear that they are all for the apparatus or certain portions of the apparatus described in the specification of the patent set forth in the bill of complaint.

Whether tested by the descriptive portion of the specification, or by the specific claims appended to the same, it is clear that the invention consists of a described apparatus intended to be attached to a sewing-machine for the purpose of making a mark, ridge, or crease in cloth by a succession of "nips or pinches thereof," while it has motion imparted to it by the feeding device of the sewing-machine, as already sufficiently explained, the work of sewing being performed during the same operation of the feeding device.

Detailed description is given of the elements of the apparatus, from which it plainly appears that the invention does not include any described means of attaching the apparatus to the sewing-machine. Particular means of the kind are neither described nor claimed; nor are they shown in the drawings in a way to justify the conclusion that the means of attaching the apparatus to the motive power are any part of the invention. Instead of that the patentee states that motion may be imparted to the apparatus in any convenient manner; nor is there anything in any one of the eight claims of the reissued patent which would afford any support to a different theory.

Fuller's patent for his own invention preceded that of Rose by several years, but it is evident from a comparison of the two that they are substantially different in many respects, so that the latter may be considered as valid to the same extent that it would have been if the first invention had never been made.

Improvements in an apparatus of the kind may be valid if new, and if they accomplish a new and useful result, even though all the elements of the same are old, provided the combination or arrangement of the elements is new and of such a character that it involved invention to construct the combination or arrangement. When a subsequent apparatus is substantially the same as one which precedes it, the former is not the proper subject of a patent, but if it be substantially different in construction and mode of operation then it is as much the proper subject of a patent as if nothing of the kind had ever before been invented.

Tested by these rules it is clear that the Rose patent is not superseded by the Fuller patent which preceded it in point of time.

Two of the defenses set up by the respondents, to wit, the first and second, must also be overruled, for the reason that they are not sustained by the proofs exhibited in the record.

They also deny infringement, and the decision in the

case must turn upon that issue. Infringement is charged by the complainants, and the burden of proof is upon them to sustain the charge. Beyond doubt it is established in these cases that all the elements or ingredients of the patented apparatus are old, and that the invention consists in the combination or arrangement of the several devices of which the apparatus is composed.

Differences exist in the answers filed in the two cases, but the respondents in both aver and allege that all the tuck-markers or creasers constructed, used, or sold by them were constructed under the patents to Enoch S. Yentzer, and in conformity therewith, and that they have in no respect infringed or violated the rights of the complainants. Coming to that proposition it is plain that it involves two questions: (1) Whether the respondents have constructed, used, or sold apparatuses not constructed in conformity with the patent under which they seek to justify all their acts. (2) Whether the apparatuses which they have constructed, used, or sold, infringe the patent described in the bill of complaint.

Some difficulty attends the solution of the first question, because all the evidence applicable to the three cases was taken together to save expense. It consists of depositions, admissions, documents, models, and other exhibits; but in view of the whole the court is of the opinion that the apparatuses constructed and sold by the respondents were constructed in conformity with the patents under which they profess to act.

Support to that view is also derived from the opinion of the circuit judge exhibited in the record, in which he admits that the complainants would be entitled to a decree if their construction of the Rose patent was correct. Damages are claimed in that case for an alleged infringement of the sixth claim of the patent, which is for tuck-creasing mechanism such as described, having its upper and lower parts connected and together adjustable as to its relation with the needle of a sewing-machine, and operated by the sewing-machine, as set forth.

Nothing can be plainer than the proposition that the claim there made is for the previously-described apparatus when arranged in a sewing-machine as the motive power for operating the patented apparatus. Judging from the opinion of the circuit judge it would seem that the complainants did not claim that the respondents had constructed improvements not within their patent; but that they, the complainants, could claim under their patent every form of mechanism by which a creaser is attached or adjusted to a sewing-machine, by which unity of adjustment is accomplished, which is plainly an erroneous construction of their patent.

Viewed in the light of all the proofs the court is of the opinion that the apparatuses constructed and sold by the respondents were constructed in conformity to the patents under which they justify in their answer.

Five of the claims of the patent, to wit, the first, second, fifth, sixth, and eighth, are involved in the charge of infringement in the third suit, which is the second suit under consideration in this case. Enough has already been remarked to show what the opinion of the court is in respect to the construction of the patent, and that the decision of the case depends upon the question of infringement. What has already been remarked is sufficient to explain the views of the court as to the nature and character of the apparatus of the complainants and its mode of operation, and it will be sufficient to refer to the opinion just delivered for a full exposition of the views of the court as to the nature, character, and mode of operation of the patent under which the respondents justify in their answer. Better means of comparison and decision need not be required than is found in the respective specifications of these patents. Careful comparison of the two instruments has been accordingly made, and the court is unhesitatingly of the opinion that the charge of infringement is not proved and that there is no error in the record.

Decree in each case affirmed.

U. S. CIRCUIT COURT—EASTERN DISTRICT OF NEW YORK.

THE RUMFORD CHEMICAL WORKS *vs.* THOMAS C. VICE. THE SAME *vs.* FIFTY-SIX DEFENDANTS.

[*In equity—Before* BENEDICT, *J.—Decided April* 2, 1877.]

A party whose patent is about to expire, seeking a preliminary injunction against infringers, is not chargeable with laches, where, being obliged to maintain his rights in the courts, he had but recently obtained an adjudication in their favor.

The suggestion, in defense, that the grant of a preliminary injunction will work injury in an indirect way to third parties, affords no ground for denying the plaintiff that which he has been adjudged entitled to.

[*O. A. Seward*, for complainant.
Francis Forbes, for defendants.]

BENEDICT, *J.*:

These actions come before the court upon motions for preliminary injunctions. There are many actions similar in character brought by the same plaintiffs, who, as assignees of Eben Norton Horsford, are the owners of a patent for self-raising flour made by the use of an acid phosphate of lime, and to be employed as a substitute for leaven or ferment in the making of bread.

The defendants are, with one exception, grocers, who are charged with selling a self-raising flour, such as is described in the plaintiffs' patent, to families, where the same is used solely for the purpose of making bread.

One of the defendants is a manufacturer of a self-raising flour. The plaintiff's patent has been the subject of much litigation, which has resulted in its being sustained by the courts upon final hearings. The fourth claim of the patent has been sustained by the final decree of the circuit court of the United States for the southern district of New York, and the district of New Jersey. The third and fourth claims have been sustained by final decree in the district of South Carolina.

Upon this motion, it has not been contended that the prior adjudications upon the patent in other courts do do not afford a sufficient ground for asking a preliminary injunction in these actions, and the motion for an injunction has been opposed upon grounds outside of the question of the validity of the patent; and, first, upon the ground of laches, because the patent will expire on the 22d of the present month. To this objection the answer is, that the plaintiffs have been compelled to maintain their rights in court, and have but recently obtained an adjudication in their favor. Since that time there has been no unnecessary delay. Surely, the fact that infringers have been able to keep the patent in litigation until within a few days of its expiration, furnishes no reason why the patentee should not enjoy his grant during the small remnant of the term.

The next ground of opposition is, that grocers are timid men, easily frightened, and, if an injunction be issued directing these defendants who are grocers to abstain from selling such self-raising flour as is described in the plaintiffs patent, they will be afraid to sell certain other kinds of self-raising flour not covered by the plaintiff's patent, and not protected by the injunction here sought, whence great injury will follow to the trade of those who make such other flours.

This position can hardly be said to be taken by the grocers, in whose name it is advanced, for it is conceded that the defense here interposed has been assumed by manufacturers of other self-raising flours. It is the injury to manufacturers of such other flours, and not to the defendants in these actions, that is put forward as a reason for withholding the injunction. Plainly, the suggestion that the injunction will work injury in an indirect way to third parties affords no ground for denying the plaintiff's application.

Damage from loss of trade, that may result to manufacturers of other self-raising flours not covered by the plaintiff's patent, from groundless fears of other suits, and injunctions in respect to other articles, that may come to possess the minds of timid grocers, is not to be charged to the plaintiff, and affords no reason for withholding from the plaintiff what he has been adjudged to be entitled to.

Again, it is said in behalf of the defendant, who manufactures a self-raising flour, that he has now desisted from manufacturing any self-raising flour with phosphoric acid, and has no intention of making such a flour. An injunction against him is therefore useless. But neither will an injunction hurt him, if it be true that he has desisted. Inasmuch as he concedes that up to a late day he has been engaged in making such an article, he cannot complain if he be enjoined for the future, when, upon his own showing, there is no possibility of his being injured by the injunction asked for, and upon that ground alone the injunction may be granted in a case like this.

As to the grocers, it is conceded they sell a self-raising flour to those who use it for the sole purpose of making bread, in violation of the fourth claim of the patent, which claim has been sustained in all the courts that have been called on to consider this patent. The plaintiff may, therefore, well ask to have them restrained.

The motions must therefore be granted.

APPLICATION FOR EXTENSION.

DEPARTMENT OF THE INTERIOR,
U. S. PATENT OFFICE,
Washington, D. C., March 10, 1877.

On the petition of HENRY VOELTER, of Heidenheim, Germany, praying for the extension of a patent granted to him August 10, 1858, antedated August 29, 1856, extended for seven years from August 29, 1870, reissued June 6, 1871, and numbered 4,418, for an improvement in reducing wood to paper pulp, this application having been authorized by act of Congress approved March 3, 1877:

It is ordered that the testimony in the case be closed on the 29th day of May next; that the time for filing arguments and the Examiner's report be limited to the 8th day of June next; and that said petition be heard on the 13th day of June next.

Any person may oppose this extension.

ELLIS SPEAR,
Commissioner of Patents.

[tf]

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date April 10, 1877.]

9,892.—Fancy Cassimeres.—FREDERICK S. BOSWORTH, Providence, R. I., assignor to the "WEYBOSSET MILLS," same place. Application filed March 26, 1877. Term of patent 7 years.

9,893.—Carpets.—JOHN H. BROMLEY, Philadelphia, Pa., assignor to JOHN BROMLEY & SONS, same place. Application filed March 31, 1877. Term of patent 3½ years.

9,894.—Carpets.—HEINRICH F. GOETZE, Boston, Mass., assignor to ROXBURY CARPET COMPANY, same place. Application filed March 24, 1877. Term of patent 3½ years.

9,895.—Cassimeres.—THOMAS HOLMES, Brooklyn, N. Y. Application filed 31, 1877. Term of patent 3½ years.

9,896.—Sash-Holder.—THOMAS OVERTON, Rockport, Texas, Application filed March 27, 1877. Term of patent 7 years.

9,897.—Signs.—ALGERNON D. SMITH, Cincinnati, Ohio. Application filed March 6, 1877. Term of patent 14 years.

9,898.—Fancy Cassimeres.—WILLIAM A. WALTON, Providence, R. I., assignor to the "WEYBOSSET MILLS," same place. Application filed March 26, 1877. Term of patent 7 years.

9,899.—Woven Borders for Towels, &c.—RICHARD T. WEBB, Randallstown, Ireland. Application filed March 30, 1877. Term of patent 3½ years.

9,900 and 9,901.—Fancy Cassimeres.—WILLIAM B. WEEDEN, Providence, R. I., assignor to the "WEYBOSSET MILLS," same place. Applications filed March 26, 1877. Term of patents 7 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date April 10, 1877.]

4,525.—Collars and Cuffs.—EDWARD J. FROST, Philadelphia, Pa. Application filed March 23, 1877.
"The word-symbol 'MAJOR.'"

4,526.—Soap.—JOHN H. KELLER, New Orleans, La. Application filed March 24, 1877.
"The word-symbol 'SOAPINA.'"

4,527.—Teas.—ALBERT MAU & CO., San Francisco, Cal. Application filed January 15, 1877.
"The word-symbol 'Anchor,' and the figure of an anchor."

4,528.—Cheviots.—MCKEEN & RAPHAEL, South Easton, Pa. Application filed March 19, 1877.
"The word-symbol 'LANGLEY.'"

4,529.—Cleaning Compound.—MASURY, YOUNG & CO., Boston, Mass. Application filed March 12, 1877.
"The word-symbol 'SAVOGRAN' and the letter 'S.'"

4,530.—Stove-Polish.—S. S. MYERS, Philadelphia, Pa. Application filed March 21, 1877.
"The capital letters A B C, arranged upon a shaded ground-work on a label or wrapper, of a bright color, such as red or orange."

4,531.—Bed-Quilts or Comfortables.—PALMER BROTHERS, Montville, Conn. Application filed March 23, 1877.
"An oblong figure having two parallel sides, and having each end composed of a re-entering angle, as represented."

4,532.—Baking-Powder.—RHORER, CHRISTIAN & CO., St. Louis, Mo. Application filed March 21, 1877.
"The word-symbol 'CHARM.'"

4,533.—Steam and Hydraulic Packing.—ADAM SCHWARTZ, New York, N. Y. Application filed March 24, 1877.
"The representation of the 'phœnix rising from the flames.'"

4,534.—Cooking-Stoves and Ranges.—THOMAS, ROBERTS, STEVENSON & CO., Philadelphia, Pa. Application filed March 27, 1877.
"The arbitrary words 'ZEB VANCE.'"

4,535.—Dental Fillings.—SAMUEL S. WHITE, Philadelphia, Pa. Application filed March 26, 1877.
"The compound word-symbol 'OE-ARTIFICIEL.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date April 10, 1877.]

1,027.—Title: **"Brain Food."**—JOHN H. ALLEN and RICHARD A. CUNNINGHAM, New York, N. Y. Application filed April 2, 1877.

1,028.—Title: **"Economical Soap."**—CHARLES F. KOPITZSCH & SON, Pottsville, Pa. Application filed April 2, 1877.

1,029.—Title: **"Murphy Pledge Charms."**—THOMAS MCFADDEN, Jr., Pittsburg, Pa. Application filed April 4, 1877

1,030.—Title: **"The Stock Condition Powder."**—PAINTER & CALVERT, San Francisco, Cal. Application filed April 4, 1877.

1,031.—Title: **"Instantaneous Disinfectant and Deoderizer."**—JOHN W. REAY, Brooklyn, N. Y. Application filed March 31, 1877.

1,032.—Title: **"Self Recommending Eye Salve for Diseased Eyes."**—CHRISTIAN SANDER, Brownsville P. O., Ohio. Application filed March 12, 1877.

DISCLAIMER FILED.

184,611.—Improvement in Wash-Boards.—JOHN M. GORHAM, Cleveland, Ohio. Patented November 21, 1876. Disclaimer filed April 7, 1877. Disclaims that part of the specification which is in the following words, to wit;

If desired, the wash-board plate may be so heavily embossed as of itself to form a sufficiently-roughened surface without the provision of the usual crimps.

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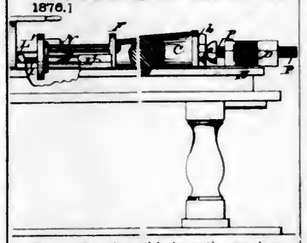
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Viets, E. B., Steaming and drying apparatus for shaping pantaloons, (reissue)	7,603
Voorhees, E. H., Stove caster frame	189,531
Vorwald, L. and J., and A. Fox, Railway gate	189,447
Vosburgh, G. W., and H. Van Slyck, Stove drum	189,530
Wade, J., Printing press	189,532
Wadlington, J. M., and J. R. Slaton, Ditching machine	189,395
Wafer, J., Seed planter	189,404
Wallace, W., and L. L. Smith, Process and apparatus for electroplating wire	189,533
Walsh, J., Saw sharpener	189,534
Warner, I. D. V., Corset	189,405
Warren, A., Die for cutting leather	189,406
Warren, F. M., Steam tank for cooking fish and meat in cans	189,407
Watson, A. P., and C. E. Crane, Adjustable safety sole for boots and shoes	189,408
Weeden, W. N., and J. G. Hallas, Lamp burner	189,542
Whittemore, J. R., Feed cutter, (reissue)	7,605
Wilkerson, B. M., Dental engine	189,409
Willbanks, D. A., Apparatus for teaching spelling	189,535
Willis, E., Sap spout	189,330
Wilson, N., Treating hides and skins	189,536
Wolff, J., and R. Betley, Production of coloring matter from anfline	189,538
Woltz, G. W. J., Fly fan	189,537
Wood, G. W., Exercising machine	189,539
Worthington, H. F., Trunk, portmanteau, &c	189,410
Wright, E., Riveting hammer	189,411
Wright, J. H., Dish warmer	189,412
Ziegler, J. Q. A., Composition for artificial fuel	189,413
Zink, J. B., Car coupling	189,540

TITLES, DRAWINGS, AND CLAIMS

OF

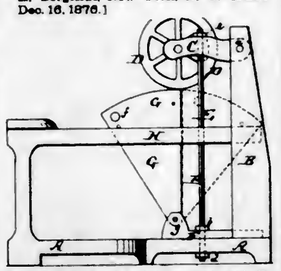
PATENTS GRANTED APRIL 10, 1877.

189,295. TUYERE-MACHINES. Jas. E. Atwood, Harrisburg, Pa. [Filed Aug. 28, 1876.]



The combination, with the stationary plates E, of the supporting-frame, the horizontal steam-cylinder G, its piston-rod I, the cross-head N, horizontal rods B, fixed guide F, through which the rods pass, mold C, plate b, setting in the latter, and the horizontal adjustable screw P at the rear of the mold C, substantially as described.

189,296. TOBACCO-STEM FLATTENERS. N. H. Borgfeldt, New York, N. Y. [Filed Dec. 16, 1876.]

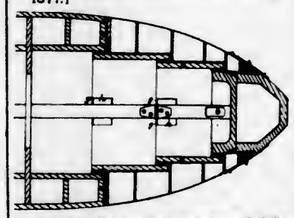


1. The combination of the movable table G, having handles *f f*, with the adjustable compression-roller D, substantially as herein shown and described.

2. The combination of the movable table G with the stationary guide-rails H H and adjustable compression-roller D, substantially as herein shown and described.

3. In combination with the bed-plate A, having two posts, B B, the vibrating frame C, pressure-roller D, bolts E E, block F, and table G, all arranged to operate substantially as herein shown and described.

189,297. SECTIONAL LIFE-BOATS. George Bates, Cohasset, Mass. [Filed Mar. 21, 1877.]



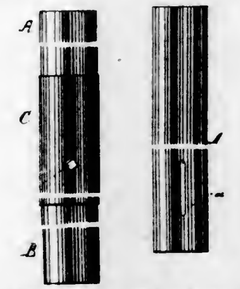
1. The folding boat-body as composed of the central and end and intermediate sections, provided with the shoulder ribs, and constructed and arranged substantially in manner and to operate as specified.

2. The series of fixed and detachable floats, provided with locking hasps or devices, as described, in combination with the boat-body composed of the central and end and intermediate sections, constructed, arranged, and furnished with shoulder-ribs, all substantially as set forth.

3. The combination of the separable longitudinal braces with the boat-body composed of sections, constructed and arranged or applied as specified.

4. The combination of the series of projections *g h* with the sectional boat-body, as described, such projections being for use with the braces, and to serve as stops to the sections, as explained.

189,298. COUPLINGS FOR LIGHTNING-RODS. L. Bradley, Chicago, Ill. [Filed June 5, 1876.]

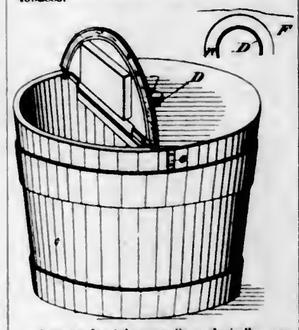


1. The part A, provided with a slot, *a*, in combination with the part B, provided with the coupling C, substantially as and for the purpose set forth.

2. The part A, provided with a slot, *a*, in combination with the part B, collar C, and the fastening-bolt *b*, constructed and arranged substantially as and for the purpose set forth.

189,299. COVERS FOR TOBACCO-PAILS. F. A. Braymer, Jr., Chicago, Ill., assignor of one-half his right to O. A. Peck, same place. [Filed Nov. 8, 1876.]

Brief.—Under the cover is a water-receptacle, which is filled from the outside, and has an opening connecting with the pail to cause the evaporation of the water to dampen the tobacco.

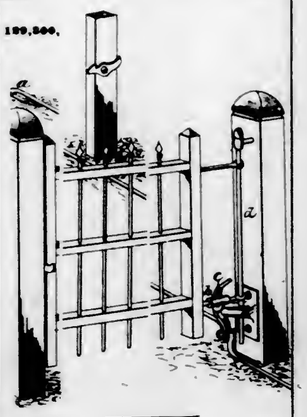


A cover for tobacco-pails, and similar articles, having secured to its inner or under side a pan or box, F, for containing a liquid, with an opening, *a*, in its upper surface, and a tube, D, for filling the same, all constructed to operate substantially as described.

189,300. AUTOMATIC GATES. Thomas E. Breakey, Homer, Mich. [Filed Aug. 17, 1874.]

The reciprocating lever *c*, provided with a semicircular-shaped head, and pivoted to the projection *h*, as shown, in combination with the roller *b*, connecting-rods *e*, upright rod *d*, and rods *a*, and the wheel-iron lever, the several parts operating substantially as and for the purpose described.

189,300.

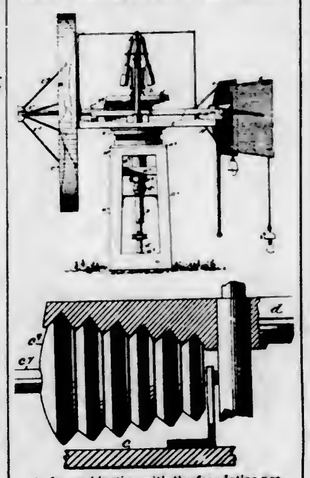


189,301. COMPOSITION COVERING FOR STEAM-PIPES. P. Cary, Philadelphia, Pa. [Filed Apr. 25, 1876.]

A non-conducting covering for steam-pipes, consisting of the following ingredients: fine wood-ashes, steamed sawdust, Manilla fiber, plaster of paris, white glue, air-slaked lime, all combined in substantially the proportions specified.

189,302. WINDMILLS. Geo. R. Comstock, Mankato, Minn. [Filed Aug. 1, 1876.]

Brief.—The superstructure revolves freely upon the foundation portion, the friction being greatly reduced by the anti-friction rollers employed between the fixed and moving parts.



1. In combination with the foundation portion and the revolving superstructure of windmill, having inclined bearing surfaces a^2 c^2, the conical loose rollers B, substantially as described.

2. In combination with a foundation portion and revolving superstructure of a windmill, a series of loose plain rollers, and a series of loose flanged rollers, the members of which alternate with each other, substantially and for the purpose described.

THE GRAPHIC CO N Y

3. In combination with the foundation-plate of a windmill, having an inclined bearing, a^x, and annular recess a^{xx}, the corresponding plate above, and the intermediate loose rollers, substantially as described.

4. In combination with the vertical shaft of a windmill-shaft and the wind-wheel, the intermediate friction-gearing described, consisting of the wheels d, resembling in form the frustum of a cone, and wheel d', of corresponding form, the two being united by a series of V-shaped projections and recesses, substantially as described.

5. The vertical shaft D, having the disk d, with annular V shaped projections and recesses, in combination with the wind-wheel shaft c', having the conical gearing d', with annular V-shaped projections and recesses, the projections being less in length than the recesses, so that the two are united to communicate movement by the weight of the upper, substantially as described.

6. The combination of the centrifugal governor, the lever, the intermediate rope, and the hinged vane, substantially as described.

7. The combination of the governor, lever, rope, and hinged vane with the retracting weight, substantially as described.

8. In combination with the hinged vane c', and a fixed pulley, d', a cord, d^2, extending from the vane, over the pulley, to a point within reach, and provided at its lower end with a weight, d^3, having means for holding other weights, as and for the purpose described.

9. In combination with a governor and a hinged vane united by intermediate connecting-devices, substantially as described, a retracting-weight, made adjustable, substantially as and for the purpose set forth.

10. In combination with the hinged vane, the stop-rope, adjustable pulley, and dependent beam g^1, as described.

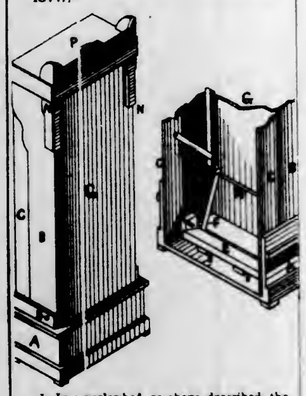
11. The combination of a shaft having a crown-wheel provided with annular V-shaped projections and recesses, as described, with a shaft having corresponding projections and recesses, and supporting the former, as described.

12. A turn-table movement, having a series of intermediate loose flanged and plain rollers, alternated, located as described.

13. In combination with the hinged vane, the adjustable stop-bar I, substantially as and for the purpose described.

14. In combination with the governor-lever and the regulating-vane, the removable auxiliary weight, as described.

189,302. WARDROBE-BEDSTEADS. Mark Crosby, Wakefield, Mass. [Filed Jan. 22, 1877.]

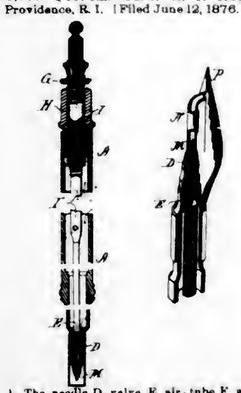


1. In a parlor-bed, as above described, the automatic-adjusting side pieces C C, having hinged arms D D, in combination with the side pieces B B, all being constructed and arranged to operate substantially in the manner described, as and for the purposes set forth.

2. The combination of the hinged weight E, having arms F, with the stops S, whereby the movement of the said weight is arrested before the case B G P arrives at a vertical position, as and for the purposes set forth.

3. In combination with the hinged weight E, arms F, and rod H, the blocks or stops S, all being constructed and arranged to operate substantially in the manner described, as and for the purposes set forth.

189,304. FOUNTAIN-PENS. A. T. Cross, Providence, R. I. [Filed June 12, 1876.]

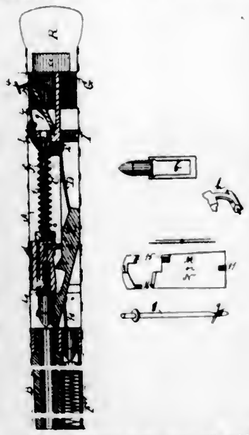


1. The needle D, valve E, air-tube F, and vent-screw H, in combination with the cap I and outer case A, substantially as described.

2. The needle D, tube M, and pen P, in combination with the ink-conveying tube N, of greater diameter than the tube M, substantially as described.

189,305. MAGAZINE CANE-GUNS. Marcelin Daigle, Houma, La. [Filed Aug. 24, 1876.]

Brief.—The barrel and handle have reciprocating motion relatively to each other, by which the breech is opened, the empty shell extracted and thrown out, and a new cartridge carried by the carrier into line with the bore of the barrel and inserted, and fired by bringing the parts together. The magazine is charged through an opening in the bottom of the frame when the parts are drawn apart to open the breech.



1. The combination of the devices M and N, having catches 15 and 16 and pivots 11 and 12, with the springs 13 and 14, when arranged to operate as described, and for the purpose set forth.

2. The arrangement, within frame A, of the block d and breech-block C, the latter provided with a spring, D, for operating the cartridge-lever E, as described, and for the purpose set forth.

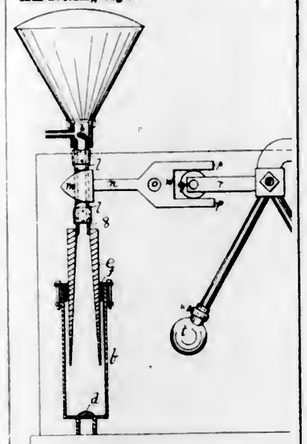
3. The combination of the block d, sliding block C, firing-pin L, rod 1, and spring f with the pawl h and spring i, all arranged to operate as described, and for the purpose specified.

4. The arrangement, within the frame A, of the breech-block C, side pieces G, stem 6, and handle R, substantially as set forth.

5. A magazine cane-gun, consisting of the frame A, provided with a barrel, B, magazine F, lever E, provided with spring 10, shell-extractor b, block d, sliding breech-block C, firing-pin L, rod 1, and handle R, the whole constructed and arranged to operate substantially as described.

189,306. PUMPS. W. S. Davis, Pittsfield, Me., assignor to himself and W. L. Parks, same place. [Filed Feb. 26, 1877.]

Brief.—The conical cavity in the piston gradually diminishes the size of the column of water from the lower end of the piston to the opening of the hollow piston-rod, forming a continuous tube, flaring at the lower end, thus avoiding angles.

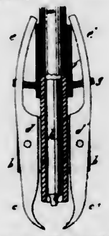


1. In a pump, the combination of a hollow piston-rod, g, with a piston, s, cylindrical in form externally, and having a conical cavity, K, therein, diminishing in size from the bottom to its junction with the rod g, at the top, forming, with said rod, a continuous tube, with its orifice flaring at the bottom, and substantially smooth upon its inner surface, substantially as and for the purposes herein set forth.

2. In combination with the piston-rod of a pump, the friction-rollers l l, attached thereto, cam m, and lever n, substantially as shown and set forth.

3. In a pump, the combination of the piston and rod s g, friction-rollers l l, cam m, and lever n, the arms p p, roller q, and lever r, either with or without the weights t t, substantially as and for the purposes specified.

189,307. ROLLER-ABSTRACTORS FOR WATCHES. B. Frese, Chicago, Ill. [Filed May 29, 1876.]



1. The independently-pivoted jaws c c', having circular grooves in the faces of their turned-in ends, in combination with the extensions e e' and cross bar g, for closing the jaws simultaneously, and grasping the object uniformly on all sides, substantially as and for the purpose specified.

2. The stiff pivoted jaws c c', having extensions e e' and the sliding bar g, in combination with a handle and a spindle, h, substantially as specified.

3. The combination of the pivoted jaws c c', having extensions e e', sliding bar g, spindle h, lever j, and handle, substantially as and for the purpose specified.

189,308. BREAST-COLLARS FOR HARNESS. W. Gibbs, Canton, Ohio, assignor to L. Gibbs, same place. [Filed Nov. 4, 1875.]



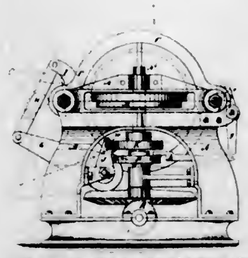
1. A breast-collar frame, A B A, having the draft-arms A bent inward at n, to form draft-bearings for the pads E, and with the front portion B bent downward at n from the plane of the arms A A, substantially as and for the purpose specified.

2. The adjustable draft-pads E, secured in vertical position, substantially as shown, in combination with the collar-frame A B A, for the purpose described.

3. The herein-described draft-pad joint, consisting of cap F, with angular hole f, joint-bolt H, with square or angular bearings A i, and frame-socket G, the several parts being constructed and combined substantially as and for the purpose herein specified.

189,309. MACHINES FOR COMPRESSING BARRELS. O. D. Goodell, St. Louis, Mo., assignor to the United States Barrel and Stave Company, New York, N. Y. [Filed Oct. 1, 1875.]

Brief.—The dies employed to compress a barrel are automatically opened and closed, locked and unlocked, and moved in and off the barrel by means of sectional dies operated by cams, a reciprocating follower-plate, and side bars, for taking the strain from the action of the cams, all arranged in the same horizontal plane.



1. The combination, in a barrel-compressing machine, of the dies C C', with the cam K, the levers J G 1, arm H, and shaft F, whereby the said dies are automatically opened and closed, and the shaft N, cam M, having the flange s, the follower-plate L, and arm q, whereby a reciprocating movement is given to the said dies, substantially as described.

2. The combination, in a barrel-compressing machine, of the sectional dies described with the cam P, the web p, the lever g, and the latch e, whereby the said dies are automatically locked and unlocked, as described.

3. The combination, in a barrel-compressing machine, of the sectional dies C C', the follower-plate L, the cam M, the groove s', arm or bracket q, and bolt t, as and for the purpose described.

4. The combination, in a barrel-compressing machine, of the sectional dies C C', follower-plate L, and the cam M, provided with the groove s', the arm or bracket q, and the bolt t', all constructed to operate as and for the purpose specified.

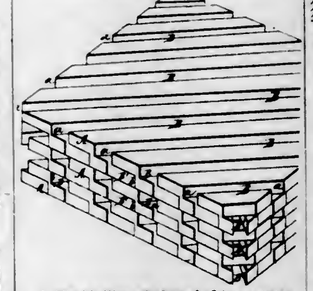
5. The combination, in a barrel-compressing machine, of the sectional dies C C', the guide-bar B, and the hollow sleeve hinged joint b e, as and for the purpose described.

6. The combination, in a barrel-compressing machine, of the cam P, the latch e, the shaft D, the forked projection b'''', and the sleeve d, as and for the purpose described.

7. In a barrel-compressing machine, the construction and arrangement described of the side bars B B', the cam M, in the same plane with the center of the dies, the shaft of said cam having bearings above and below said plane, as and for the purpose described.

8. The combination, in a barrel-compressing machine, of the sectional dies C C', the reciprocating follower-plate or frame L, connected to said sectional dies, as specified, and the cam K, levers J, G, and I, and arm H, acting to open and close the dies, as described.

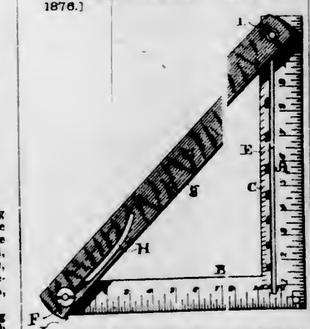
189,310. FIRE-KINDLERS. C. H. Hayden, Columbus, Ohio. [Filed Feb. 23, 1877.]



1. The kindling-pile formed of two or more pieces of plank or board, grooved on top and bottom transversely to the grain of the wood, and placed on one another and secured together in the manner described, so as to form communicating circulation-passages, which extend from side to side on all sides and up through the pile, substantially as described.

2. A pile for kindling constructed of pieces which are grooved, in the manner described, and afterward united together, and when united form vertical and lateral circulation-passages, which passages are in communication with one another and extend out to all sides of the pile, as herein described.

189,311. BEVELS. J. F. Klingleesmith, St. Louis, Mo., assignor of one-half his right to C. Farner, same place. [Filed Apr. 28, 1876.]



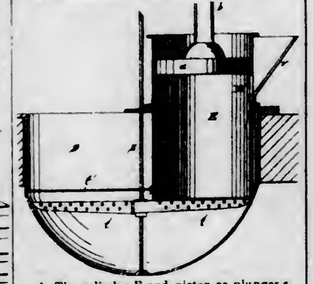
1. The herein described bevel, consisting of the square A B, having the slot E and pin F, and the straight-edge G, having the slot H, constructed as described, and the pin I, combined and operating substantially as described.

2. The square A B, having the slot E and pin F, and the scales C and D, or either of said scales, and the straight-edge G, having the slot H, as described, and the pin I, combined and operating substantially as set forth.

189,313. COMPOSITIONS FOR LINING BARRELS, &c. M. Laflin, Chicago, Ill. [Filed Aug. 26, 1876.]

The mixture or composition of paraffine and rosin for lining or coating barrels, packages, other vessels or pipes, and coating eggs, fruits, and other articles, substantially as specified.

189,312. PROCESSES AND APPARATUS FOR AMALGAMATING ORES. M. Laflin and S. Elliott, Chicago, Ill., said Elliott assignor to said Laflin. [Filed Aug. 17, 1876.]



1. The cylinder E and piston or plunger a, located within the kettle D, and in combination therewith, substantially as specified.

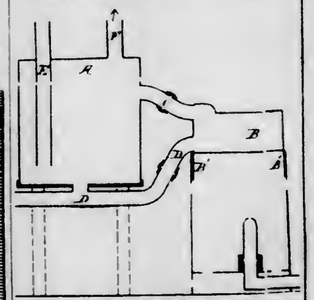
2. The cylinder E, piston a, and kettle D, with or without sieve s', in combination with a stirrer operating between the lower end of the cylinder and the bottom of the kettle, substantially as and for the purpose set forth.

3. The combination of the rack c, pinion d, and stem or shaft b, with the catch-lever i, rod k, and pin l, substantially as described.

4. The combination of the stem b with the bar m and lever n, for stopping the action of the piston while the cylinder is being filled, substantially as specified.

5. The process of amalgamating gold and silver bearing ores, which consists in forcing the pulverized ore at regular intervals, and in a heated condition, as described, into a bath of molten lead, and permitting it to rise freely to the surface of said bath during constant stirring and dissemination, substantially as and for the purpose set forth.

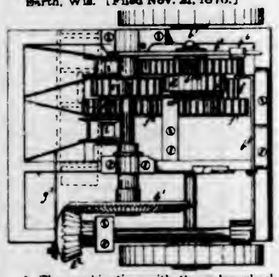
189,314. HOT-WATER APPARATUS. Edw. Lawler, Hartford, Conn. [Filed Mar. 6, 1877.]



1. The combination of the flat cylindrical boiler B, having the flange B', the reservoir A, and the pipes C D E F, with the chamber J for heating by means a flame, all constructed and arranged substantially as and for the purpose herein set forth.

2. The combination of the flat cylindrical closed boiler B, the reservoir A, and the pipes C D, with a mechanism for heating by means of a gas-flame, substantially as herein described.

189,315. CORN-PLANTERS. J. Leitch, Black Earth, Wis. [Filed Nov. 21, 1876.]

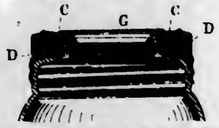


1. The combination, with the index-wheel *b*, having a stud, b^2, and the seed-slide g^1 in the feed-box *g*, of the segmental wheel *d*, lever b^2, gears e e^1 e^2, and pitman g^2, substantially as and for the purpose set forth.

2. The combination, with the index-wheel *b* and droppers *i i*, mounted on the axis i^1, of the segmental wheel *d*, having the stud d^1, lever d^2, and gear-wheels f, f^1, f^2, and f^3, substantially as and for the purpose set forth.

3. In a machine for planting grain, the segmental wheel *d*, provided with stud or pin d^1, adapted to be attached to an index-wheel, *b*, and arranged to engage alternately with and operate the two sets of gearing which operate the gage-valve and dropping-hoppers, substantially as set forth.

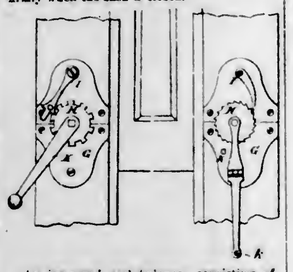
189,316. FRUIT-JARS. J. L. Mason, New Brunswick, N. J. [Filed Dec. 30, 1876.]



The cover G, having on its under side the wedge-shaped channel J, and the rib K projecting thereunto, in combination with the gasket D, encircling the top flange C of the jar, and projecting above said flange, all constructed, arranged, and operating substantially as and for the purpose set forth.

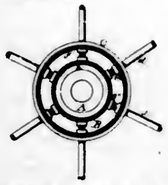
189,317. SASH-BALANCES. B. F. McCuno Barboursville, W. Va. [Filed May 0, 1876.]

Brief.—A recessed box or case contains a pinion, which meshes into the teeth of a rack-bar; a two-part facing-plate carries a suitable pawl and ratchet, for holding the sash at any desired height; and the operating-shaft, after passing through the base and pinion, is brought out between the facing-plates, and then provided with a crank or folding handle, which is hinged, and has its end formed into a locking-pin, for engaging in a hole in the lower part of the facing-plate, to lock the device firmly when the sash is closed.



An improved sash-balance, consisting of the recessed box or case C, the pinion or cog wheel D, the cogged rack-bar E, the two-part facing-plate G, the ratchet wheel H, and pawl I, the operating-shaft J, and the folding handle or crank K, formed with an inwardly projecting locking-pin *k*, all constructed, arranged, and operating substantially as shown and described, for the purpose specified.

189,318. VEHICLE-WHEELS. J. McGowan, Mifflin Township, Allegheny County, Pa. [Filed Mar. 15, 1877.]



1. The flange B, bearing at its periphery and outer extremity, and on each side thereof, an overhanging circular rim, C, perforated or provided with holes for the reception of the spokes *d d*, in combination with the elastic band *f* and nuts e' e'', substantially in the manner shown, and for the purposes set forth.

2. The flange B, bearing at its periphery and outer extremity and on each side thereof, an overhanging circular rim, C, perforated or provided with holes for the reception of the alternating spokes *d d* arranged on each side of the circular rim C, in combination with the elastic band *h* and nuts e' e'', substantially in the manner shown, and for the purposes set forth.

3. The flange B, bearing at its periphery, and on each side thereof, an overhanging circular rim, C, perforated or provided with holes for the reception of the spokes *d d*, in combination with the elastic bands *f* and *h* and nuts e' e'', substantially in the manner shown, for the purposes set forth.

189,319. WASHING-MACHINES. D. Miller, Bellvue, Pa. [Filed Feb. 23, 1877.]

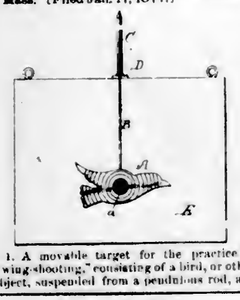
In combination with the boiler A, the herein described washing apparatus, the corrugated cylinder C, having its convex ends *g g* formed with a series of radial corrugations, and adjusted to rotate within the boiler, substantially as shown and set forth.

189,320. DRAW-BRIDGES. R. C. Mounsdon, Cleveland, Ohio. [Filed Mar. 7, 1877.]



The combination, with an ordinary swing or turning bridge, of the serrated curved bar B, pinion C, levers *b b'*, cranks *c c'*, and gates E, substantially as and for the purpose set forth.

189,321. TARGETS FOR SHOOTING-GALLERIES. Wm. H. H. Norcross, Boston, Mass. [Filed Jan. 17, 1877.]

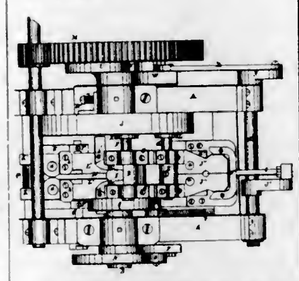


1. A movable target for the practice of "wing-shooting," consisting of a bird, or other object, suspended from a pendulous rod, and bearing the character of a target, substantially as and for the purposes stated.

2. As a complete target for indoor practice, the combination of the swinging target-figure A, suspensory B, post C, angle-piece D, and board E, substantially as and for the purposes stated.

189,322. HORSESHOE-MACHINES. Webster Roberts, Cleveland, Ohio. [Filed Nov. 25, 1876.]

Brief.—Reciprocating arms, provided with detachable plates, bend the blank around the former. Fingers attached to pivoted levers surround the former, and prevent the blank from springing up while being bent. The former is attached to a rock-shaft, and is provided with a cam-shank, which opens the pivoted levers and fingers when the former is thrown up, to permit the entrance of the pressing and creasing and punching dies. These dies are journaled in segmental arms integral with the main shaft, and are provided with pinions on their respective axles, which mesh with teeth formed in a stationary wheel. The bending-plates surround and sustain the bent blank while it is being pressed, creased, and punched. The under side of the shoe is beveled while being pressed, &c., by a horizontally-adjustable die. The benders carry the shoe with them as they withdraw until they are opened by contact of their rear ends with cam-surfaces.



1. The shaft B, segmental radial arms or head C C, carrying the dies or blocks D and E journaled therein, as described, and pinions K L, in combination with the inside gear-wheel J, substantially in the manner as herein described and for the purpose specified.

2. The revolving segmental arms or head C C and die-blocks D E, journaled therein, and operating conjointly, substantially as and for the purpose set forth.

3. The levers K' K', detachable fingers L' L', and spring t'', arranged to operate in relation to, and in combination with, the former R' and arms J'' J'', substantially as and for the purpose set forth.

4. The levers K' K' and detachable fingers L' L', in combination with bending-head or former R' and its cam-shank N', in the manner substantially as described, and for the purpose specified.

5. The beveling or bed die M', having a horizontal adjustment, in combination with the levers J'' J'', provided with the detachable bending-plates *e e* and fingers L' L', substantially as and for the purpose set forth.

6. The arms J'' J'' and detachable bending-plates *e e*, having a rabbet, e', and their inner edges conforming to the configuration and thickness of a horseshoe, and serving to hold the shoe while being pressed, creased, and nail printed, in combination with the former R' and the pressing and creasing dies H I, in the manner substantially as described, and for the purpose set forth.

7. The angle-iron or bracket R'' and spring h', in combination with the wheel J, substantially in the manner as described, and for the purpose specified.

8. The combination of the cam Q, lever S, lever T, spring *t*, and shear *m*, as and for the purpose set forth.

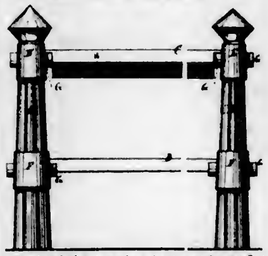
9. The levers K' K', detachable fingers L' L', spring t'', and adjustable plates *h h*, in combination with the bending-head or former R' and its cam-shank N', substantially as described, and for the purpose set forth.

10. The vertically-adjustable bed B', arms J'' J'', and detachable bending-plates *e e*, in combination with the former R', segmental arms or head C C, and die-blocks D E, and

their respective dies, substantially in the manner as herein set forth, and for the purpose specified.

11. The arms J'' J'', in combination with the pins e' e'', spring T'', and shoulders O'', substantially as and for the purpose specified.

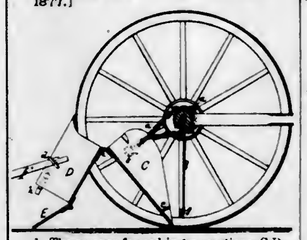
189,323. IRON FENCES. Corydon A. Root, Andover, and D. W. Strickland, Wellington, Ohio. [Filed Mar. 3, 1877.]



1. A tubular tapering sheet-metal post fluted or corrugated, as herein described, and provided with bands E F and lugs G, substantially as set forth, and for the purpose specified.

2. The rail C, consisting of the cap *a* and bar *b*, in combination with the posts A and B, substantially as herein set forth.

189,324. ROAD-SCRAPERS. P. Schneider, Sr., White Bear, Minn. [Filed Feb. 17, 1877.]



1. The scraper formed in two sections, C D, connected by hinges c c' at the bottom, when supported from the axle B by adjustable chains *s s'*, and trunnions *b b'* on the forward section, arranged and operating substantially as hereinbefore set forth.

2. The combination and arrangement of the hinged body C D, hinged back E, locking-bars F, adjustable chains *s s'*, axle B, and supporting hooks or rods *g g'*, arranged and operating as hereinbefore explained.

189,325. BALE-BAND TIGHTENERS. J. L. Sheppard, Charleston, S. C. [Filed Mar. 13, 1877.]

1. The combination, with the rails attached to the platens of a cotton-press, said rails having grooves formed therein, of a slide having a buckle or band clamping-bar hinged thereto, said slide constructed to fit within the grooves in the rails, substantially as and for the purpose set forth.

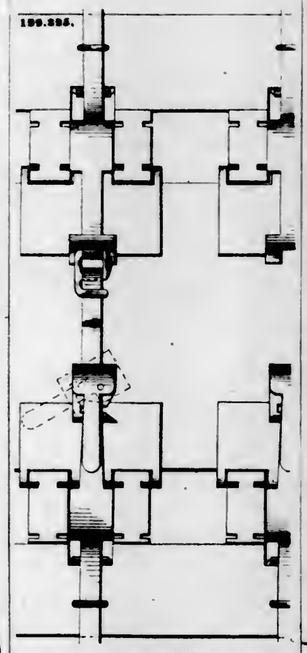
2. The combination, with the rails attached to the platens of a cotton-press, said rails having grooves formed therein, of a slide having a buckle or band clamping-bar hinged thereto, and a band, chain, or lever secured to said slide, substantially as and for the purpose set forth.

3. The combination, with the rails of a press-platen, of an equalising-frame, substantially as and for the purpose set forth.

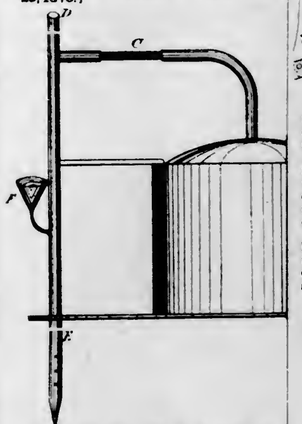
4. The combination, with grooved rails secured to the face of a press-platen, and a slide having a clamping-bar hinged thereto, of an equalising-frame, the front plates of which are formed to rest against the side of the bale, substantially as and for the purpose set forth.

5. A band-clutch or clamping-bar, consisting essentially in the combination, with a hinged bar, of a clutch pivoted thereto, said clutch provided with an open slot for its attachment to the band, and also with a handle, whereby it may be readily released, substantially as and for the purpose described.

189,326.



189,326. LIGHTNING-RODS FOR OIL-TANKS. J. A. Sherriff, Franklin, Pa. [Filed July 29, 1876.]



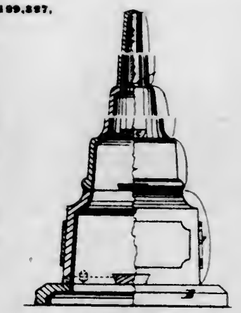
1. In combination with an oil-tank, the lightning-conductor D E, and gas-escape tube B, the latter provided with the section C made of non-conducting material, substantially as and for the purpose specified.

2. The hollow lightning-conductor D, having the pointed and perforated end E, and funnel and tube F, for the introduction of water, substantially as and for the purpose specified.

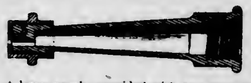
189,327. MONUMENTS. A. Smith, Palmyra, N. Y. [Filed Sept. 23, 1876.]

A metallic sectional monument having its members connected together by dovetail coupling-bars *a*, arranged transversely across the sections, substantially as shown and described, for the purposes set forth.

189,327.



189,328. HOSE-NOZZLES. Jno. H. Stump, Baltimore, Md. [Filed Mar. 9, 1877.]



A hose-nozzle provided with an eccentrically-located discharge-orifice, in combination with a rotary perforated cap, by means of which the orifice can be completely and partially opened and closed.

189,329. BREECH-LOADING ORDNANCE. F. M. Swallow, Springfield, Mass. [Filed Mar. 9, 1877.]

1. A cannon-trail made in two parts jointed together, one part provided with arc *s*, and the other part with mortise *t* and set-screw *u*, substantially as described.

2. The breech-loading cannon *a*, the hammer *j*, pivoted within the trail, and provided with the spring *l*, and the detent-arm *n*, pivoted within the trail, all combined and arranged to operate substantially as shown and described.

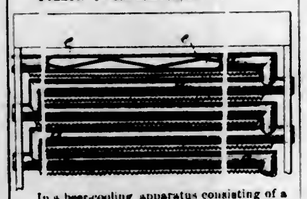
3. The cannon *a* with rear open end, the laterally-swinging breech-block *f*, perforated for the passage of the firing-pin, and the pivoted hammer *j*, provided with the firing-pin *i*, all combined substantially as described.

189,330. SAP-SPOUTS. E. Willis, Colton, N. Y. [Filed Oct. 6, 1876.]



A sap-spout, consisting of a metal hanger or block, A, having at the top a hollow cylinder projecting at right angles from the rear side, prolonged downward, and formed into a hook, *a*, and extended forward to form a projection, *c*, having an inclined groove, *x*, in its front face, as specified.

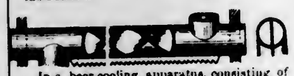
199,321. COOLERS FOR BEER, ALE, &c. F. V. Baudelot, Harancourt, near Sedan, France. [Filed Mar. 12, 1877.]



In a beer-cooling apparatus consisting of a vertical range of horizontal tubes, *a*, connected at alternate opposite ends, and over which the beer or other liquid trickles, the zigzag detaining and agitating strips *c* within the tubes *a*, for the purposes and substantially as specified.

199,322. BEER-COOLERS. F. V. Baudelot, Harancourt, near Sedan, France. [Filed Aug. 21, 1876.]

Brief.—A twisted metallic strip is placed in each pipe to throw the cold water that is passing through against the inner surface, to more thoroughly cool the beer that is trickling over the outside.



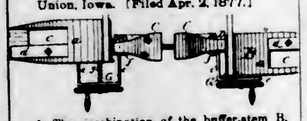
In a beer cooling apparatus, consisting of a vertical range of horizontal tubes connected at alternate ends, and over which the beer trickles, the twisted detaining and deflecting strip *b* within the tubes, for the purposes and substantially as set forth.

199,323. BOOTS AND SHOES. J. M. Bibbins, Williamsport, Pa. [Filed Mar. 14, 1877.]



A shoe having a front opening closed by a lap attached at one side to the outside of the vamp along one edge of the opening, and a gore attached at one side to the outside of the vamp along the opposite edge of the opening, the said lap and gore, when consisting of two separate pieces, being fastened together at their outer edges, by sewing the gore to the inner face of the lap, as shown and set forth.

199,324. CAR-COUPLINGS. A. T. Bigelow, Union, Iowa. [Filed Apr. 2, 1877.]

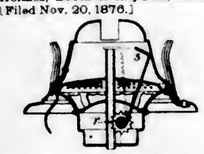


1. The combination of the buffer-stem B, having recess *b* and slots *c c*, with the vertically-adjustable draw-head C, having stem D, provided with laterally-projecting brackets and guide-bars *d d*, substantially as and for the purpose herein shown and specified.

2. The combination of the longitudinally-recessed buffer-stem B, vertically-adjustable draw-head C, having stem D, plate *f*, bail G, and adjusting-screw *g*, all arranged and operating substantially in the manner and for the purpose herein shown and specified.

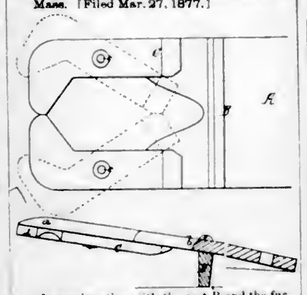
3. The improved car-coupling device, herein described, consisting essentially of the vertically-adjustable draw-head C, having stem D and pivoted coupling-bolt I, longitudinally-recessed buffer-stem B, plate *f*, bail G, and adjusting-screw *g*, all combined and arranged to operate substantially in the manner and for the purpose shown and specified.

199,325. LAMP-EXTINGUISHERS. Edw. C. Blakeslee, Waterbury, Conn., assignor to Holmes, Booth & Haydens, same place. [Filed Nov. 20, 1876.]



The extinguisher *s*, formed of a solid plate of metal, and connected to the friction-eye *r*, that is around the shaft *l*, by the arm which extends from one side of the extinguisher, near the middle thereof, for the purposes and as set forth.

199,326. BOOT-JACKS. J. Buzzell, Boston, Mass. [Filed Mar. 27, 1877.]



In combination with the rest B and the furcated board A, arranged as shown, the two jawed levers pivoted to the prongs *a a*, and arranged with the said rest on the under side of the said board, all substantially as set forth.

199,327. STONE PAVEMENTS. B. F. Camp, Philadelphia, Pa. [Filed Mar. 11, 1876.]



A stone pavement composed of rectangular blocks laid obliquely across the road-bed, combined with an asphalt filling between the stones, as and for the object specified.

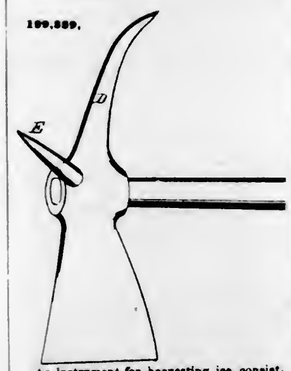
199,328. CRAYONS FOR MARKING ON GLASS, &c. B. J. Clarke, New York, N. Y. [Filed Jan. 29, 1877.]

A compound, consisting of a pigment, beeswax, suet, and oil of cedar, substantially as herein described.

199,329. ICE-AXES. Wm. H. Coleman, Salisbury Mills, N. Y. [Filed Feb. 3, 1877.]

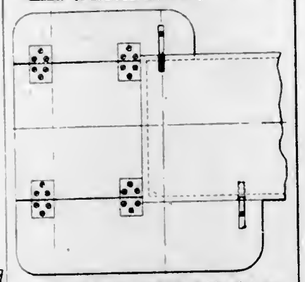
Brief.—The implement is adapted for use as an ax for cutting ice, as a pike for pushing it from place to place, and as a hook for drawing it from the water.

199,329.



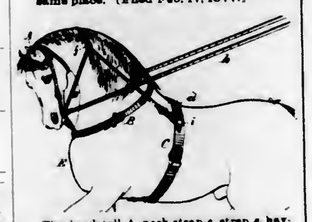
An instrument for harvesting ice, consisting of an ax having formed on it the hook D and pike E, substantially as herein shown and described.

199,330. EXTENSIONS FOR SEWING-MACHINE TABLES. H. G. Crawford, Peabody, Kans. [Filed Jan. 19, 1877.]



The combination, with the table of a sewing-machine, having a bottom recess at one side, and a recess and socket-hole at the opposite side, of the hinged leaves of an extension-board, said leaves having fastening-pins entering said recess and hole to rigidly attach the leaves and extension, substantially as specified.

199,331. BRIDLE ATTACHMENTS. Seton S. Cummings, Turner's Point, Tex., assignor of one-third his right to W. C. Stevenson, same place. [Filed Feb. 17, 1877.]



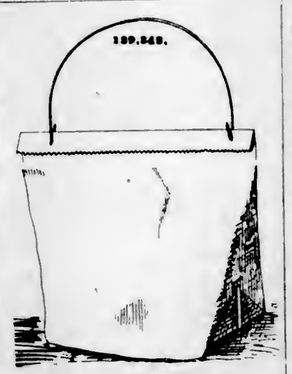
The headstall A, neck-strap *c*, strap *g*, having the ring *f*, the brace-rein D, the martingale E, collar-strap B and its loops, the surcingle C, having rings *d d*, combined and arranged substantially as herein shown and described.

199,332. PAPER BAGS. A. S. Dennison, Watertown, N. Y. [Filed Oct. 13, 1876.]

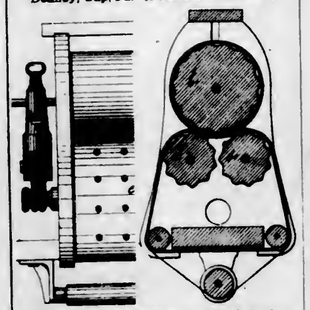
1. A bail for paper bags, formed with pointed ends, and adapted for application to the bag, so as to close the end and serve for a bail, as set forth.

2. A bail for paper bags, formed with pointed ends, inserted through the two sides at the mouth of the bag, and bent to hold the mouth closed and to secure the bail to the bag, as set forth.

199,343.



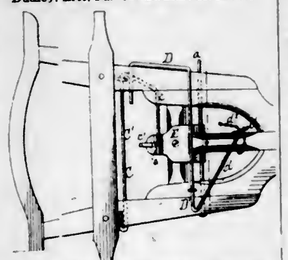
199,333. WASHING-MACHINES. Samuel L. Deaney, Gap, Pa. [Filed Nov. 15, 1876.]



1. In a washing-machine, a roller, *b*, having longitudinal corrugations, as shown, and covered with a thin sheet of rubber, which rest upon the ridges between the corrugations, as and for the purpose shown.

2. The combination of the rollers *b c d* with perforated band *e*, when arranged substantially in the manner specified.

199,334. WAGON-TONGUE SUPPORTS. R. Dudley, Erie, Pa. [Filed Mar. 21, 1877.]



1. In a wagon-tongue support, a torsional spring whose rod passes clear across both hounds, and is connected to the tongue, substantially as described.

2. The torsional spring C, passing under both hounds, and connected to the rear of the tongue, substantially as described.

3. The torsional spring D, passing over both hounds, and connected to the tongue by means of the chain *d*, substantially as described.

199,335. LIQUID-MEASURES. S. R. Dummer, Jersey City, N. J. [Filed Mar. 1, 1877.]

1. A liquid-measure provided with a passage or canal along its side, from which a circular spout projects about midway of its height and at right angles, substantially as specified.

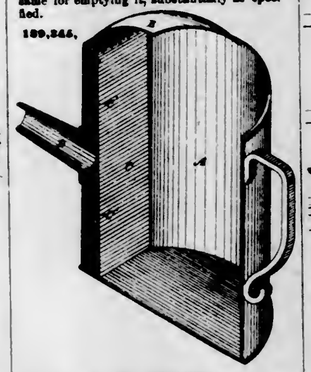
2. A liquid-measure provided with a hood, B, and partition C, substantially as specified.

3. A liquid-measure provided with an inclined partition, substantially as specified.

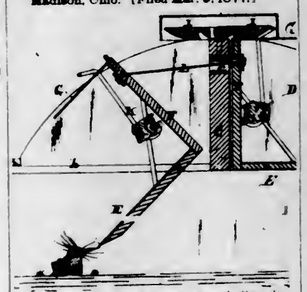
4. In a liquid-measure, the combination of a hood, B, a partition, C, and a spout, D, substantially as specified.

5. As an improved article of manufacture, the combined measure and funnel herein described, in which the spout projects from about the middle height of the side of the measure, so as to balance and support the same for emptying it, substantially as specified.

199,336.



199,336. ANIMAL-TRAPS. M. Early New Madison, Ohio. [Filed Mar. 9, 1877.]



1. An animal-trap having two similar pitfalls, consisting of the parts E, F, and G, in combination with the open frame B and partition C, whose orifice *c* is traversed by cord or thong I, connecting the two platforms, and with suitable bait and set hooks K I, as and for the purpose set forth.

2. The barriers D, in combination with the pitfalls, consisting of parts E, F, and G, adapted to reset each other, as and for the purpose set forth.

3. A dumping-platform or pitfall, composed of floor E, rear wall F, and canopy G, from which the bait-hook K is suspended, and with which the catch I engages, in the manner shown.

199,337. COTTON-CHOPPERS. J. B. Eaves, Rutherford County, N. C. [Filed Mar. 15, 1877.]

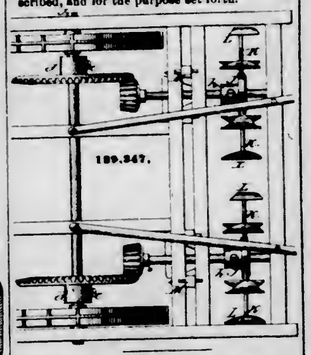
Brief.—The revolving cutters, having hoes or blades of different widths, are arranged to operate immediately in the rear of rearwardly-converging fenders.

1. In a cotton-chopper, the combination of the rearwardly-converging fenders or guards N, with the revolving cutters arranged in close proximity thereto, said fenders serving to press together the row of plants and hold them during the action of the cutters, substantially as shown and described.

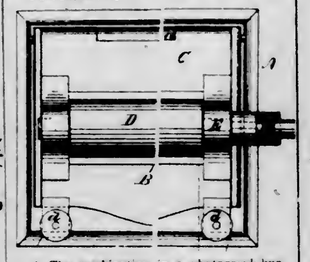
2. In a cotton-chopper, the combination of the plows O, the rearwardly-converging guards or fenders N, and the revolving cutters, substantially as shown.

3. A revolving cutter for a cotton-chopper, consisting of a drum or hub, J, provided with detachable radial arms K, and detachable blades or knives L of different widths, arranged as described, so as to allow two or more of said blades to make a continuous unbroken cut equal to the combined width of the said blades, substantially as shown and described, and for the purpose set forth.

199,347.



199,338. PHOTOGRAPHIC BURNISHERS. J. H. Ferguson, Leavenworth, Kans. [Filed Feb. 10, 1877.]

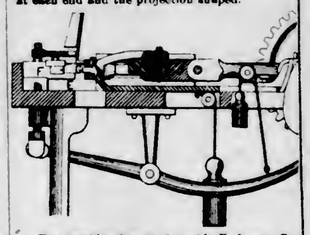


1. The combination, in a photograph-burnisher, of the stationary base A, stationary burnisher B, vertically-adjustable frame C, having an opening for the passage of the burnisher, and carrying the feed-roll D, substantially as and for the purpose herein set forth.

2. The studs *a* and nuts *d e*, in combination with the bed A and frame C, for adjusting the roller D, substantially as shown and described.

199,339. MACHINES FOR MAKING TOE-CALKS. Henry C. Field, Providence, R. I. [Filed Nov. 24, 1876.]

Brief.—The blanks are deposited upon the table by the pockets, and held against the die by the fingers, while the ends thereof are bent at each end and the projection shaped.



The combination of the table E, fingers G G, double die F, guides *a a*, and pivoted arms I I, having friction-rollers, as described, substantially as and for the purpose specified.

199,340. DITCHING-MACHINES. Thos. T. Fleener, Arlington, Ind. [Filed Sept. 16, 1876.]

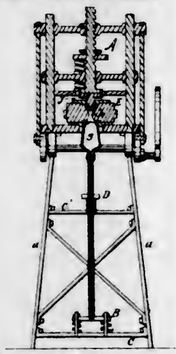
1. In a ditching-machine, the combination of the cutters D D E, the sliding and adjustable wheel-frame H, with friction-belt B, wheel C, and conveyer F, constructed and operating in the manner and for the purpose set forth.

2. The ditching-machine herein described, consisting of the frame A, the cutters D D' E, the sliding adjustable frame H, double caster-wheels I, friction-belt B, wheel C, and conveyer F, all constructed and arranged substantially as shown and herein specified.

189,850.



189,851. MANUFACTURE OF GLASSWARE. W. Fox, Wheeling, W. Va., assignor of one-half his right to A. H. Baggs, Bridgeport, Ohio. [Filed Feb. 15, 1877.]



1. In a machine for forming glassware, the press A, mounted upon the frame a a, and provided with the slotted bed plate c c', substantially as described, and for the purposes specified.

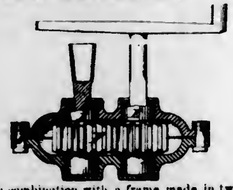
2. In a machine for forming glassware, in combination with the mold E, the removable plate *f*, having a beveled slot or passage-way, K, extending from center to circumference, substantially as described, and for the purposes specified.

3. In a machine for forming glassware, the self-adjusting rest B, substantially as described, and for the purposes specified.

4. In a machine for forming glassware, in combination with the guide-rest B, the guide-arm D, substantially as described, and for the purposes specified.

5. The process of forming glassware, consisting in forming the body or bowl by blowing it upon the blow-iron without the use of molds, and then affixing the base, foot, stem, or other finishing part, by means of molten glass pressed in a mold thereon, substantially as described.

189,852. WRENCHES. John B. Fox, South Bend, Ind. [Filed Oct. 2, 1876.]

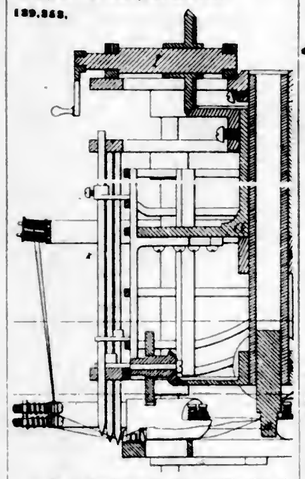


In combination with a frame made in two parts, and adapted to be secured together, and provided with suitable bearings, the meshing gears with slotted shafts or hubs adapted to receive a wrench-block and operating-handle, substantially as and for the purposes set forth.

189,853. CIRCULAR LOOMS. J. E. Gillespie, New York, N. Y., assignor to the Eureka Fire Hose Company, same place. [Filed Dec. 4, 1876.]

Brief.—The loom is adapted to weave more than one ply. The shedding-cams are arranged on a vertical cylindrical frame, and do not cross or run into each other, as is usually the case. The cylindrical frame is revolved by suitable gearing. The warp-lifters are vertical rods arranged in rings that are secured to the stationary frame. These lifters are divided into groups of three each, and upon each one of the three is fixed a collar having an arm or projection provided with holes, through which the other two rods of the group pass. These collars prevent the rods from turning on their axes, and also steady the said rods.

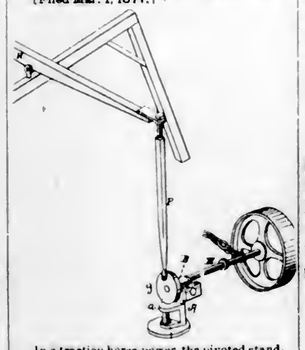
189,853.



1. In a circular loom, the combination of two or more harness-cams, separate from each other, and arranged upon the periphery of a revolving vertical and cylindrical frame, with the vertically sliding rods k arranged substantially as described, whereby the warps are separated into sheds, and a web of more than one ply is woven, as and for the purpose specified.

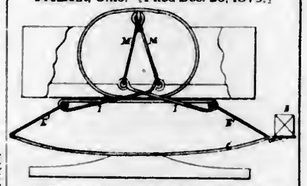
2. In a circular loom, the combination of the warp-carrier rods *k*, arranged in groups of two or more, each rod of the group carrying an arm, *r*, through which the other rods of the group pass, with the mechanism for inserting into the sheds two or more weft-threads, all constructed and arranged to operate as and for the purpose described.

189,854. TRACTION HORSE-POWERS. D. T. Gillis, San Leandro, Cal., assignor of one-half his right to F. A. Hill, same place. [Filed Mar. 1, 1877.]



In a traction horse-power, the pivoted standard A *a*, with blocks *c c* and journaled box B at its upper end, in combination with the traction-wheel and axle E thereof, which passes through the box B and is provided with a crank-wheel, *g*, said crank-wheel being connected with the walking-beam H by means of the pitman P, the said parts being constructed and arranged for operation substantially in the manner and for the purposes set forth.

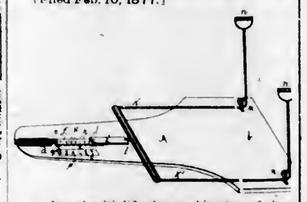
189,855. VEHICLE-SPRINGS. J. W. Groat, Fremont, Ohio. [Filed Dec. 26, 1876.]



1. The combination of the spring J, suspension-rods M M, levers E E, and side bars B B, all substantially as and for the purpose described.

2. The lever E, having bent ends E' E' and arm I on the opposite side, in combination with the side bars B B of a vehicle, substantially as and for the purpose described.

189,856. EXERCISING-MACHINES. H. F. Hanson and F. O. Buzzell, Bangor, Me. [Filed Feb. 10, 1877.]



1. In a health-lift, the combination of the lifting or extending devices, with a spring, *d*, and with both retaining and readjusting devices, said retaining devices holding the spring in extension, while the readjusting devices enable the cords to be taken up to compensate for the increased length of the spring, whereby the power necessary to extend said spring may be increased with each successive lift, substantially as and for the purposes described.

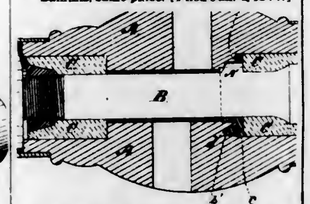
2. In combination with the spring *d*, the toothed bar *f* and pin *o*, holding the spring in extension, substantially as set forth.

3. In combination with the spring *d*, toothed bar *f* and pin *o*, holding the spring in extension, the perforations *h*, bar *i*, stud *j*, and lifting devices, adjustable substantially as and for the purposes set forth.

4. In a health-lift, in combination with the resisting-spring *d*, the bar *f*, and pointer *q*, moving with said spring and scale *p*, adjusted to show the strength exerted in extending said spring, as set forth.

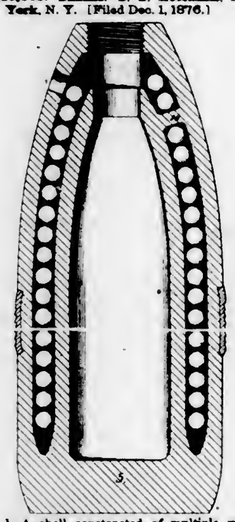
5. In combination with the platform A, the spring *d*, toothed and perforated bar *f*, bar *i*, stud *j*, pin *o*, cords *k k'*, cross-bar *l*, pulleys *m* and handles *s*, arranged as herein described, for the purposes set forth.

189,857. ELASTIC HUBS. Geo. W. Hayes, New York, N. Y., assignor to John B. Sammis, same place. [Filed Jan. 4, 1877.]



The ring D, of sleeve-like form, slotted at *b*, constructed with the flange *c*, having the studs or fins *b'*, notched at *a'*, in combination with the radial spur or projection A' of the box B, and the cavities *d* in the face of a recess formed in the end of the hub, all as herein set forth, for the purpose specified.

189,858. SHELLS. B. B. Hotchkiss, New York, N. Y. [Filed Dec. 1, 1876.]

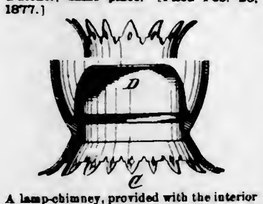


1. A shell constructed of multiple walls united to a solid base, as an integral part thereof, said walls being arranged parallel, or nearly so, with each other, whereby is provided between them a narrow chamber, adapted to receive and support a separate shell, or tier of balls, and a central chamber of great cubical area for the reception of the bursting charge, all substantially as described.

2. A shell having multiple walls united to a solid base, as an integral part thereof, and inclosing between them a separate shell, substantially as described.

3. A shell having multiple walls united to a solid base, and secured together by one or more anchors, substantially as described.

189,859. LAMP-CHIMNEYS. Hiram L. Ives, Troy, N. Y., assignor to himself and T. H. Dutcher, same place. [Filed Feb. 26, 1877.]



A lamp-chimney, provided with the interior dome D and the scalloped base C, substantially as and for the purpose specified.

189,860. REVOLVING FIRE-ARMS. Owen Jones, Philadelphia, Pa. [Filed Aug. 22, 1876.]

Brief.—A rack carried by the tilting barrel engages with a toothed extension on the cylinder, and draws the latter away from the frame by tilting the barrel, and extracts the cartridges, which are held by an extractor-plate secured to the frame. The rack may be disconnected from the cylinder by withdrawing a pin, which holds it, when it will be allowed to swing on a pivot.

1. In combination with a fixed extractor-plate, a sliding cylinder, and a tilting barrel, the intermediate rack mechanism for uniting the barrel to the cylinder, substantially as described.

2. In combination with a sliding cylinder and a lever-barrel for moving the cylinder, intermediate rack mechanism for communicating the movement of the former to the latter without lost motion, substantially as described.

3. The combination of the rack-bar with the teeth of the cylinder, the former being adapted to move on an arc of a circle struck from the pivot-point of the barrel, and the latter on a horizontal line cutting the highest point of the circle, as and for the purpose described.

4. In combination with a lever barrel provided with a pivoted rack-bar, a sliding cylinder, having annular teeth, as described.

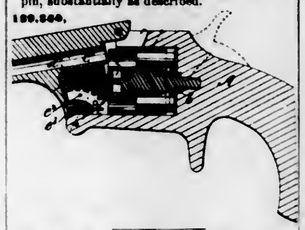
5. The combination of the following elements: a tilting-lever, a sliding cylinder, and a pivoted rack-bar, having a removable securing-pin adapted to engage with the cylinder, as described.

6. The combination of the following elements: a fixed center-pin, a fixed extractor-plate, a sliding cylinder, a tilting barrel, and rack mechanism for uniting the barrel to the cylinder, substantially as described.

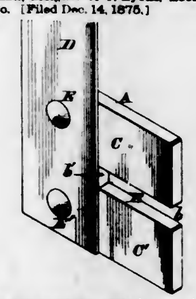
7. In combination with the pivoted rack-bar E, the spring *e'*, as described.

8. In combination with a tilting barrel for sliding the cylinder a limited distance, the cylinder having the hollow sleeve, and the center-pin having the extension *b'*, the construction being such that the cylinder is guided and supported in all its movements by the pin, substantially as described.

189,860.

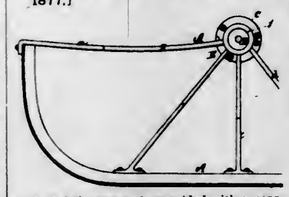


189,861. STRAP-LOCKS. Bart Kane, Cincinnati, assignor to J. Lyons, Lockland, Ohio. [Filed Dec. 14, 1876.]



A bale-tie consisting of the locking-plate or buckle A, having two lugs or prongs, C C', separated by a slot, B, open at *b*, and closed at *b'*, said plate having secured to it one end of band D, whose free end D' has the fourfold engagement G, H, I, and J with said lugs and slot, substantially as herein described, and for the purpose set forth.

189,862. HUB-RUNNERS. G. F. Kimball, Newton, Mass., assignor to himself and E. N. Kimball, same place. [Filed Mar. 6, 1877.]



1. A hub-runner, A, provided with a separate reversible axle-journal box, B, arranged and confined in it substantially as and for the purpose specified.

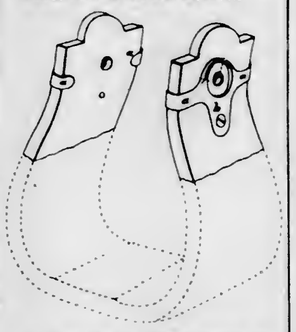
2. A hub-runner provided with an auxiliary axle-journal box supporter, *f*, and guard and oblique braces arranged with the main journal-box supporter and the spokes of the runner, substantially as set forth.

3. The hub-runner A, provided with the auxiliary axle-journal box supporter *f* and the flanged cap C, arranged with the axle-box and its main supporter, essentially as shown and described.

4. The hub-runner provided with the reversible axle-journal box, its two supporters, and the flanged cap, arranged and provided with confining screws, as set forth.

5. The combination of the axle and its collar-plate D with a hub-runner, A, the flanged disk C, and the separate removable axle-box B, and the auxiliary supporters *f* thereof, all being arranged and connected substantially as set forth.

189,863. STIRRUPS. H. H. Knight, Sandusky, Ohio. [Filed Feb. 26, 1877.]

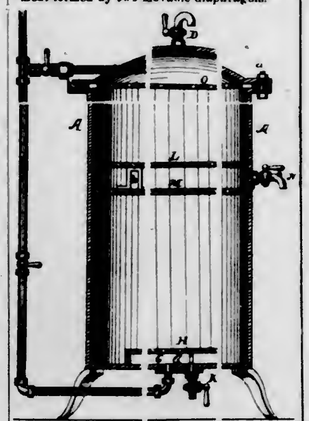


1. A bolt-plate for wooden stirrups, constructed with side arms *a*, which are bent round the edges of the stirrup, substantially as described, and for the purposes set forth.

2. A bolt-plate for wooden stirrups, constructed with the side arms *a*, which extend over the edges of the stirrup, and ear *b*, substantially as described, and for the purposes set forth.

189,864. LIQUID-FILTERS. M. Lansburgh, Baltimore, Md. [Filed Feb. 20, 1877.]

Brief.—The liquid is admitted above and below the filtering material, and is drawn off, through a stop-cock, from a central compartment formed by two movable diaphragms.



1. The combination of the movable diaphragms L and M with the stop-cock N.

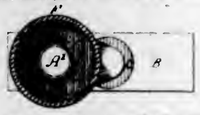
2. The combination of the stop-cocks D and K with the cover and air-chamber G near the bottom.

3. The combination of the diaphragms L and M, having between them stop-cock N, with the vessel A, having inlets E and I at its top and bottom, respectively, whereby the liquid is passed through the two bodies of filtering material in opposite directions, and is drawn off at the middle of the vessel, or thereabout, substantially as and for the purpose described.

189,365. HARNESS-PADS. M. V. Longworth, Delphos, Ohio. [Filed Sept. 16, 1876.]

The cross-bars *a'* upon the upper ends of the flanged pad-plates A, to receive and hold the saddle-strap, substantially as herein shown and described.

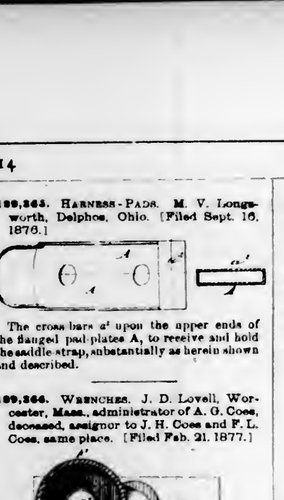
189,366. WRENCHES. J. D. Lovell, Worcester, Mass., administrator of A. G. Coes, deceased, assignor to J. H. Coes and F. L. Coes, same place. [Filed Feb. 21, 1877.]



In a screw-wrench, in combination substantially as shown and described, the bar A, having screw-threaded shank A', ferrule D, provided with beveled or conical end *d*, and the hollow metallic handle F, having screw-threaded diaphragm I, and interior beveled surface *b*, fitting the beveled end of ferrule, as set forth.

189,367. FURNACES FOR PRODUCING HEATING-GASES. P. W. Mackenzie, Blauveltville, assignor to the Smith & Sayre Manufacturing Company, New York, N. Y. [Filed June 15, 1876.]

Brief.—Steam is superheated in a retort having delaying devices—places within the decomposing-furnace—from the lower end of which it escapes, being distributed, by a bell-mouthed chamber, through the incandescent carbonaceous material, where it is decomposed. Bridges extending from the lower chamber of the retort into the walls of the furnace assist in supporting the coal or other carbonaceous material.



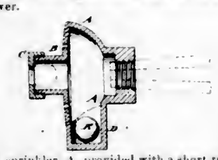
1. The combination, with the furnace proper for generating heating gases, of a steam-superheating retort, provided with delaying devices, said retort being of a larger transverse area than the pipe which supplies it with steam, and arranged within the furnace, substantially as and for the purpose or purposes herein set forth.

2. The interior bell-mouthed distributing-chamber K, in combination with a steam-superheating retort and its surrounding or inclosing furnace A, essentially as described.

3. The combination of one or more bridges, M, the chamber K, and the furnace proper A, with its ash-clearing aperture *b*, substantially as and for the purpose specified.

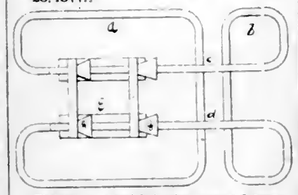
189,368. COMBINED NOZZLE AND SPRINKLER. N. Malmquist, Brooklyn, N. Y., assignor to himself and J. Loyd, New York city. [Filed Mar. 19, 1877.]

Brief.—The sprinkler is provided with a short tube in its face directly opposite the screw-socket, and having its end covered with a perforated cap, with a tube in its side, having its outer end closed, and with a small marble or ball placed within it, to adapt it to be used for throwing water in a solid stream or shower.



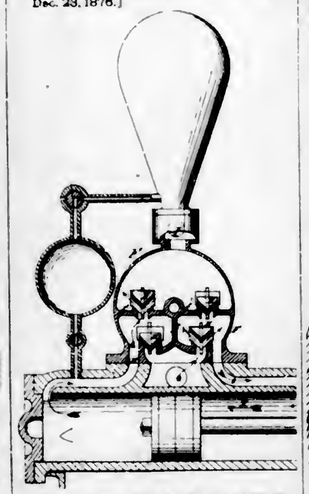
A sprinkler, A, provided with a short tube, B, in its face, directly opposite its screw-socket, and having its outer end covered with a perforated cap, C, with a tube, D, in its side, having its outer end closed, and with a small marble or ball, E, placed within it, to adapt it to be used for throwing water in a solid stream or a shower, substantially as herein shown and described.

189,369. HORSE-PROTECTORS. William S. Marsh, New Gloucester, Me. [Filed Jan. 23, 1877.]



The frames *a* and *b*, having arms *c d*, frame *e*, socket *g*, the part *a* being placed higher than *b*, as herein set forth, the whole operating as herein described.

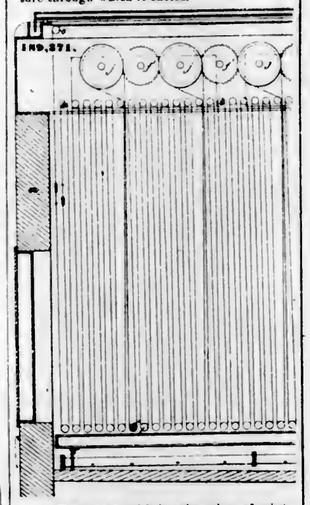
189,370. VALVES FOR STEAM-PUMPS. Jas. W. Mathieson, Brooklyn, N. Y. [Filed Dec. 23, 1876.]



A pump whose valves and valve-seats extend from side to side of chamber F, and are made of V shape, substantially as and for the purpose specified.

189,371. APPARATUS FOR STEAMING AND AGING PAINTED FABRICS. Wm. Mather, Salford, England. [Filed Nov. 26, 1876.]

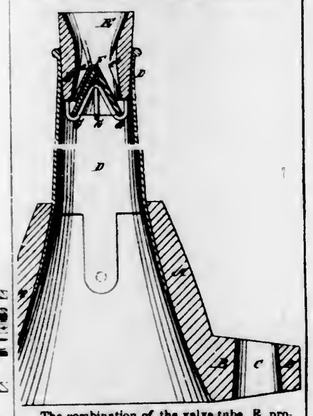
Brief.—The printed fabric passes alternately over large heating or drying rollers in the top of the apparatus, and a series of smaller rollers underneath the heating-rollers. Moist steam is admitted through a perforated pipe placed near the floor. The fabric is steamed while passing up and down over the small rollers, and, after alternate steaming and heating, passes out of the apparatus at the same aperture through which it enters.



1. The process of fixing the colors of printed fabrics, consisting in the alternate application of heat and moisture, substantially as set forth.

2. The improved apparatus for aging or fixing the colors of printed fabrics by the alternate application of heat and moisture, consisting of a case or chamber, *a*, provided with perforated steam-induction pipe and heated rollers, located respectively at bottom and top of the case or chamber, and other rollers *a' a''*, for carrying the fabric, in the manner described.

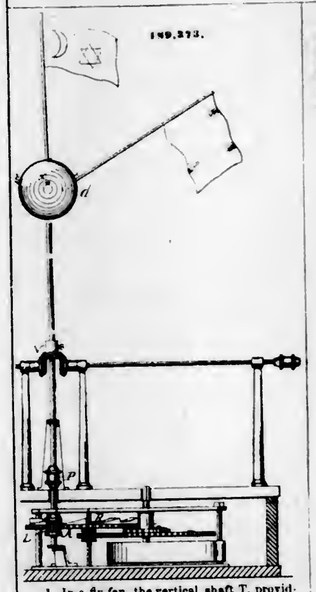
189,372. CHURN-DASHERS. J. L. Maxwell, Bentonville, Ark. [Filed Jan. 29, 1877.]



The combination of the valve-tube E, provided with the guide-ribs *e'*, the hollow-cone valve F, and the cage or spider G, with the hollow handle D of the dasher A B C, substantially as herein shown and described.

189,373. FLY-FANS. James F. McMillen, Mansfield, Ohio. [Filed Dec. 27, 1876.]

189,373.



1. In a fly-fan, the vertical shaft T, provided with the ball *d*, and driven by wheels A and L, said ball being furnished with the sockets or cavities *x*, for the reception of the ends of the flag shafts, substantially as described.

2. In a fly-fan, the horizontal shafts *x x*, vertical shaft P, and wheels V, in combination with the wheel A, having cams B, substantially as and for the purpose set forth.

3. In a fly-fan, the wheel A, provided with the cams B, in combination with the vertical shaft L, substantially as set forth.

4. The oscillating bars *s*, pivoted to the standard *f*, and provided with the hangers or props *g*, substantially as specified.

5. The gear-wheel A and cams B, in combination with the props *g* and bars *e*, substantially as specified.

189,374. WEED-HIDERS. G. H. McDonel, J. Thorn, and S. Ewing, Fostoria, Ohio. [Filed Sept. 6, 1876.]

Brief.—Secured to the forward part of the plow-beam, and dragging in and upon the edge of the furrow, to turn under weeds or grass.



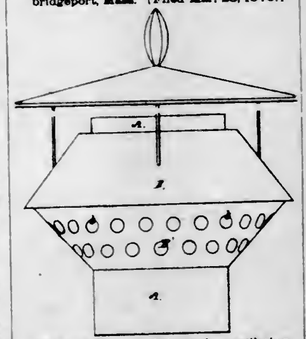
The above-described device for covering grass and weeds, consisting of the rod D, having the hook C and the prongs E and F, in combination with the clamp A, provided with the eye B, arranged to attach the weed-turner D E F loosely to the front part of a plow-beam and allow the prongs to drag in the furrow last cut, substantially as shown and described.

189,375. NUTMEG-GRATERS. John Meyer, Washington Court-House, Ohio. [Filed Mar. 17, 1877.]

1. In a spice-grater, the chute 4, leading to the compartment 6, the latter being provided with the side pieces 7, to support the drawer and leave a space beneath it, as and for the purpose set forth.

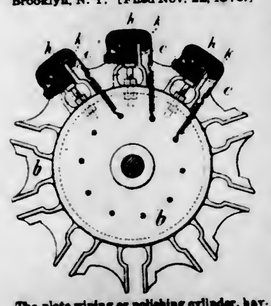
2. As a new article of manufacture, the improved spice-grater shown, consisting of the grating mechanism *a c e*, the chute 4, compartment 6, having the drawer 5, and provided with a sifting-cloth, 8, as and for the purpose described.

189,376. VENTILATORS. P. Mihan, Cambridgeport, Mass. [Filed Mar. 28, 1876.]



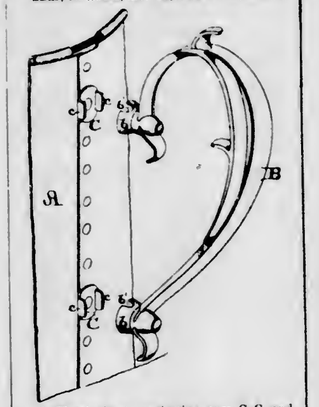
The combination of the male ventilating-pipe A, the conic frusta B B', and dome, when the parts are constructed and relatively arranged as shown and described.

189,377. DEVICES FOR WIPING AND POLISHING ENGRAVED PLATES. Robt. Neale, Brooklyn, N. Y. [Filed Nov. 22, 1876.]



The plate wiping or polishing cylinder, having heads *h*, presser-bars *c*, and radial screws, separately adjustable to adjust and sustain the bars *c* at the desired distance from the axis of the cylinder, in combination with the elastic material *k* and covering *h*, for the purpose and as set forth.

189,378. MODES OF ATTACHING HANDLES. F. G. Niedringhaus and W. F. Niedringhaus, St. Louis, Mo. [Filed Feb. 16, 1877.]



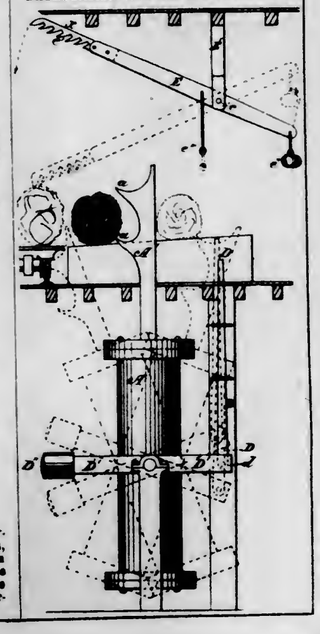
1. The body A, projecting ears C C, and handle B, having the sockets *b b*, constructed and combined substantially as described.

2. In a sheet-metal or other vessel, the combination of an enameled body, A, a projecting ear or ears, C C, formed of a metal to which enamel does not adhere, and a handle, B, substantially as described.

3. The ears C C, having the projections *c c*, and the handle B, having the cup-points *b b*, arranged and united by soldering, substantially as described.

189,379. LOG-TURNERS FOR SAW-MILLS. John Orm, Paducah, Ky. [Filed Mar. 19, 1877.]

Brief.—The reciprocating spiked rod, which engages the log on the log-deck, and forces it on the head-block, is given a great horizontal range. The log is prevented from rolling back by means of a swinging arm, having a balance-weight at one end and a series of teeth at the other, and pivoted to an arm suspended from a frame attached to the side of the main frame.

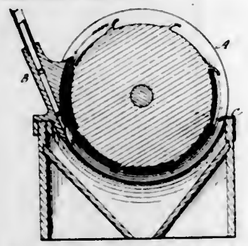


1. The lever D, weighted arm D', in combination with the oscillating steam-cylinder A, containing the reciprocating bar A', as and for the purposes described.

2. The toothed and weighted arm E, pivoted at *e*, having balance-weight *e''*, and pull-cord *e'''*, in combination with the reciprocating log-turner A, operating in the manner substantially as described.

189,380. HYDRAULIC ENGINES. C. D. Page, Rochester, N. Y. [Filed Apr. 2, 1877.]

Brief.—The prime feature is the abutment-block, which serves the double purpose of a nozzle and an abutment

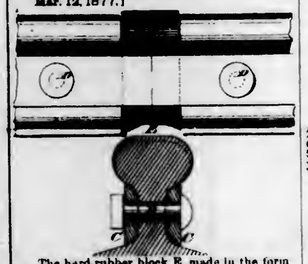


1. The butment-block B, constructed with the butment *f* and the internal water-passage *a*, in combination with the wheel A, in the manner and for the purposes specified.

2. The batment *f* of the block B, made concentric with the wheel to an extent equal to the distance of the buckets apart, and formed at the bottom with the curved depression or offset *f'*, for allowing the proper discharge of water upon the buckets as they pass forward, as shown and described.

3. The combination, with the wheel A, of the dash-plate C, as and for the purpose specified.

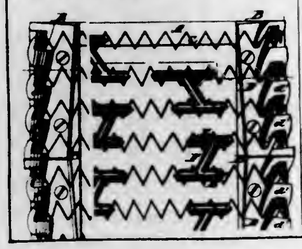
189,381. RAILROAD-JOINTS. C. Palm and J. Fitzgerald, Cerro Gordo, Ill. [Filed Mar. 12, 1877.]



The hard rubber block E, made in the form of a short section of a rail, interposed between the adjacent ends of two rails, and kept in place by the fish-plates, substantially as herein shown and described.

189,382. SPRING BED-BOTTOMS. J. H. Palmer, Warren, Pa. [Filed Jan. 20, 1877.]

Brief.—The end plates are made with upward-projecting flanges, having cross-notches formed therein, to receive the ends of the springs, which can be lifted from the notches to adjust their tension. The adjacent inner ends of the plates are inclined to form an arch or brace for the end rails.

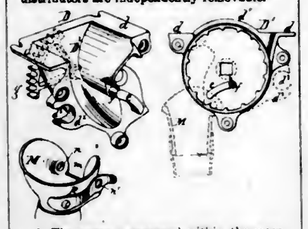


1. The plates D, provided with single or double notched flanges *d'*, and made in two parts, with their adjacent ends inclined to cause them to meet at an angle, in combination with the frame A B and with the springs C of a bed-bottom, substantially as herein shown and described.

2. The couplings formed of the two short rods E, rigidly connected by an arm, F, in combination with the springs C of a bed-bottom, substantially as herein shown and described.

189,383. GRAIN-DRILLS. Chas. E. Patric, Springfield, Ohio. [Filed Oct. 30, 1876.]

Brief.—The feeding-case has spurs for the attachment of the removable seed-funnel, which is provided with an eye on one side, and a slot and spring arm having an eye on the other. Within the measuring-channel of the feeding-case, and on the rock-shaft, is secured a gage, that is adjusted by segment and pinion, for graduating the amount of seed sown. By means of the slotted bearing the distributers are independently removable.

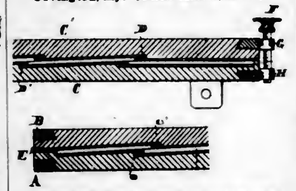


1. The gages *e*, arranged within the measuring-channels of the distributing wheels, in combination with the rock-shafts *f* H, segments *g*, and pinions *h*, arranged and operating substantially as described.

2. The slotted or open bearing-brackets *i''*, in combination with the sliding pinions *h*, adapting the distributers to be independently removed and replaced, as described.

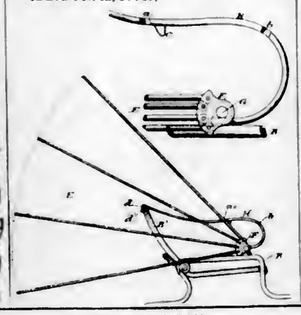
3. The distributer wheel casing D D', provided with the spurs *q q*, in combination with the funnel M, provided with the eye *n* and perforated spring *p*, arranged and operating substantially as described.

189,384. WINDOW-SASHES. John Petri, Covington, Ky. [Filed Mar. 9, 1877.]



The described combination of stepped frames A C *a* B C' *c'*, lips K, gaskets D D', hinges E, and screw-fastenings F G H, as and for the purpose set forth.

189,385. CARRIAGE-TOP AND SHIFTING SEAT-RAIL. J. W. Post, New York, N. Y. [Filed Oct. 12, 1876.]



1. The shifting top E, made of tubular metal, without intermediate cross bars or braces, and united at the ends into a trunnion, G, in combination with the socket C on rail B, as described.

2. The removable spring hand-rail H, as and for the purposes described.

3. In combination with the top E, with keeper F, trunnion G, and stop *c'*, the removable rail H, with recesses *a b*, stop *c*, and plate *d*, as described.

4. The combination and arrangement of top bows with trunnion G, rail F, with socket C, and removable rail H, as and for the purposes described.

5. In combination with the rail B, with socket C, and removable rail H, with ends *h*, the trunnions G of the top, provided with recesses *g*, as and for the purposes described.

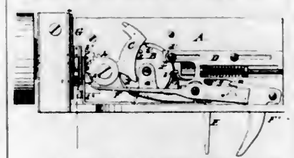
189,386. WHEEL-TIRES. I. N. Pyle, Decatur, Ind. [Filed Mar. 19, 1877.]



The outer tire C, made with the groove *c'* upon its inner surface, and the inner tire B, made with the tongue *b'* upon its outer surface, and the groove *b²* and the two pairs of lips *b³ b³* upon its inner surface, in combination with the fellies A, made with the tongue *a¹*, the two grooves *a²*, and the two bevels *a³* upon their face, substantially as herein shown and described.

189,387. LOCKS FOR FIRE-ARMS. Ira Robbins, Hughesville, Pa. [Filed Mar. 12, 1877.]

Brief.—A coiled spring is used for the main-spring, and is connected with an intermittently-revolving notched disk, by which the hammer is thrown forward. The lock is cocked automatically after each pull of the trigger.



1. In a repeating-lock for fire-arms, the combination of the releasing-trigger mechanism with a spring-acted revolving disk and a pivoted hammer, substantially in the manner and for the purpose set forth.

2. In a repeating-lock for fire-arms, the combination of a revolving spring-acted disk with a releasing-trigger mechanism, pivoted hammer, and a spring-acted return-lever to throw the hammer forward for firing and then reset it again, substantially as described.

3. The combination of the spring-acted revolving disk B, having projecting studs, with the pivoted hammer, a sliding spring-bolt, D, and releasing-trigger, to simultaneously throw the hammer forward while returning the bolt for relocking the disk and trigger, substantially as specified.

4. The combination of the spring-acted revolving disk B, having circumferential notches, with the sliding spring-bolt D, pivoted lock-pawl *h*, and releasing-trigger, substantially as set forth.

5. The sliding spring-bolt D, having recess *g* with inclined sides, in combination with the pivoted lock-pawl and releasing-trigger, to withdraw the pawl from the spring-disk on pulling the trigger, substantially as described.

6. The combination of the sliding spring-bolt D, having lower heel *f'* and side heel or projection *f''*, with spring-hook *f* and spring-hook *e* of trigger, to release spring-bolt for forward motion on pulling of trigger, substantially as specified.

7. The combination of the spring-acted revolving disk B, having circumferential notches and projecting studs, with the sliding spring-bolt D, having extending heel *d'*, pivoted lock-pawl *h*, spring-hook *f*, and locking-hook *e* of trigger, to return bolt and lock bolt and disk for next operation, substantially as specified.

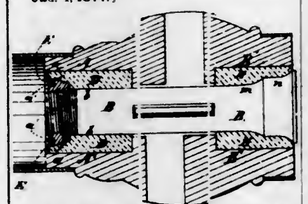
8. The swinging hammer D, having mutilated pinion *h'*, revolving mechanism of cylinder, and return-lever F, to return hammer and simultaneously turn cylinder, substantially as and for the purpose set forth.

9. The combination of swinging hammer C, sliding rack-plate *h'*, having pin *i* and lower hook end *h'*, with spring-pawl *i'*, inner ratchet *i²*, slide-rod *l P*, check-pawl *m*, and outer ratchet G, to release ratchets and revolve cylinder, substantially as specified.

10. The combination of sliding rack-plate *h'*, having lower hook end *h'*, with spring-point *l*, slide-rod *P*, tapering guide-plate *P*, and pin *P*, to drop pawl-lifting rod as soon as the check-pawl clears the outer ratchet, substantially as described.

11. The combination of the pivoted hammer C and rack-plate *h'*, having heel *h²*, with spring-acted lever F and supplemental trigger *F'*, to raise hammer for firing when required, as described.

189,388. ELASTIC HUBS. Jno. B. Sammis and Geo. W. Hayes, New York, N. Y.; said Hayes assignor to said Sammis. [Filed Jan. 4, 1877.]

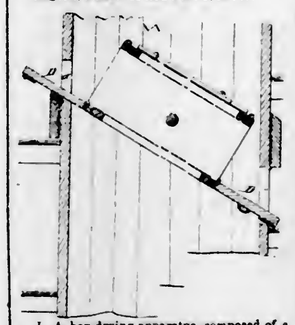


1. In an elastic hub, the tapering nut E, combined in such relation with the outer end of the elastic cushion D and the adjacent portions of the hub as to compress the said outer end of the elastic cushion between the circumference of the nut and the concentric inner surface of the recess formed in the hub, in the manner described, for the purpose specified.

2. In an elastic hub and axle-box, B, constructed with the double wedge-like surfaces *a a*, in combination with the recessed inner elastic cushion H, substantially as and for the purpose herein set forth.

3. The combination of the box B, constructed with one or more radial projections, ribs, or spurs, and fitting loosely in the bore of the hub, with one or more elastic cushions, and a frame, G, formed internally in the wood of which the hub is composed, whereby provision is made for the action of the cushion or cushions in relieving the box B, without danger to the cushion or cushions from torsion exerted by the turning of the box within the hub, substantially as set forth.

189,389. HOP-DRIERS. C. A. Sands, Burlington, Kans. [Filed Feb. 3, 1877.]



1. A hop-drying apparatus, composed of a revolable and reversible drying-box, having wire-gauze or perforated top and bottom doors to admit the passage of the heated air, and hinged entrance and discharge doors at the end, substantially as and for the purpose set forth.

2. The combination, with the drying shaft or chamber, of the centrally-pivoted and revolving drying box or floor, having hinged doors at opposite ends, and an entrance-opening above the level of the box and a discharge-opening below the level of the box, to tilt the same in inclined position for receiving or discharging the hops, substantially as specified.

3. The combination of the transverse strips or cushions *d* with the doors D of the box, to close the space between the box and walls of the drying-room, substantially as described.

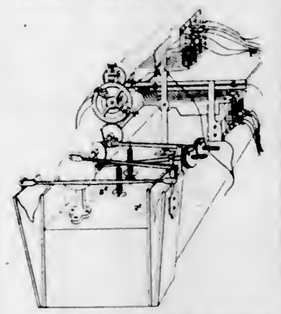
189,390. BUTTER AND FRUIT JARS. Chas. A. Sands, Burlington, Kans. [Filed Dec. 30, 1876.]



1. A butter or fruit jar, having the body A and bottom B connected by a compressible gasket and diagonal joint, the latter being covered on the outside by an elastic band, C, arranged as shown and described.

2. The jar A, having circumferential recess on lower edge and rubber band D lapping into recess and over bottom of jar, to form, in connection with top band, a cushioning packing for the jar, substantially as specified.

189,391. ELECTRO-PNEUMATIC MUSIC-PLAYING APPARATUS. Wm. F. Schmoele and H. Schmoele, Jr., Philadelphia, Pa., assignors of one-third their right to Chas Schmoele. [Filed Feb. 26, 1874.]



1. The combination of opposite rows of readers, arranged to read simultaneously from opposite surfaces of the music-sheet, substantially as described.

2. The combination, with a set of conducting-fingers, of a non-conducting comb to determine the position of the fingers, substantially as described, and for the purpose set forth.

3. The combination of an electro-magnet and armature with an internal pocket or train of pockets, substantially as described.

4. The internal or "chamber valves" used in this combination, which, when starting into action, moves against the wind-pressure to close the ingress-aperture, and, when returning to rest, moves with the wind-pressure to close the egress-aperture, substantially as described.

5. The combination of an electro-pneumatic action with a circuit-arrester upon a draw-slide, substantially as and for the purpose set forth.

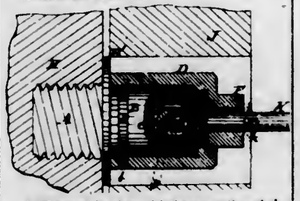
6. The graduating piano-action consisting of the combination of a series of slides with the electro-pneumatic trains, for the purpose of varying the force of the impulses delivered to the piano-hammers by the final pockets of these trains, substantially as described.

7. The combination of an intermitting circuit-breaker with an electro-pneumatic train, to produce a rolling electro-pneumatic action for drums and other percussion-instruments, and for tremolo, substantially as described.

8. In an electro-pneumatic drum-action, the combination of one or more resistance-pockets with the main or striking pocket, to modify the force of the blows, substantially as set forth.

9. The battery-plunging pocket, to automatically lower and raise the battery-plates into and from the exciting-liquid, substantially as described.

189,392. LOCKS FOR SLIDING DOORS, &c. James W. Schoonmaker, Albany, N. Y. [Filed Feb. 3, 1877.]



1. The combination, with the screw-threaded bolt A B, provided with a clutch-holding recess, and the revolving sleeve D, also provided with a corresponding clutch-recess, and secured in a loose manner to said bolt, of the clutch E and spring S, as and for the purpose set forth.

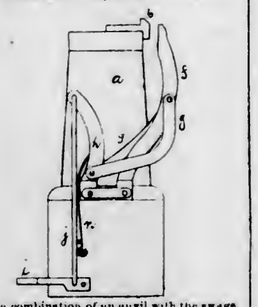
2. The combination, with clutch E and pin *u* projecting in the central recess of said clutch, of the key K, having an annular groove, *x*, and groove *y*, leading to said annular groove, in the manner and for the purpose set forth.

3. The combination, with the clutch E, having an opening or recess, provided with pin *u*, the screw-threaded bolt A B, having a clutch-holding recess, and the loose sleeve D, having a corresponding clutch-holding recess occupied by a coiled spring, and a key-hole, having ward *i*, of the key K, provided with annular groove *x*, way *y*, bit or stop *e*, and pin *u*, as and for the purpose set forth.

4. The within-described lock, composed of a screw-threaded stem, having a shaft solid with the same, a revolving sleeve, having an angular head, and working over said shaft, and a spring-clutch capable of engaging with clutch-holding recesses in the shaft and sleeve, and adapted to be operated by a key to effect such engagement, all combined to adapt the lock to be screwed in place or unscrewed, and subsequently rendered inoperative for said operations, as and for the purpose set forth.

189,393. BLACKSMITHS' ANVILS. H. B. Sevey, Vienna, Me. [Filed Feb. 7, 1877.]

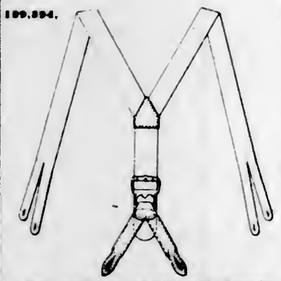
Brief.—An ordinary anvil with a vise attached to it at one end and bolt-heading dies at the other, the two devices operated separately by foot-levers, and both detachable when circumstances require it.



The combination of an anvil with the swage *b*, jaw *f*, bands *g*, treadles *i*, rods *j*, springs *n*, levers *k*, part *k*, clasp *c*, having the grooves *c*, and set-screw *d*, arm *m*, all operating as and for the purposes herein described.

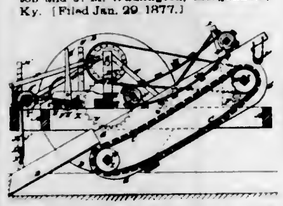
189,394. SUSPENDERS. A. Shenfield, New York, N. Y. [Filed May 15, 1877.]

189,394.



The suspenders provided with diverging ends and an adjustment at the back, and with diverging ends at the front that are continuations of the webbing **a**, and without intervening slides or buckles, substantially as set forth.

189,395. DITCHING-MACHINES. J. R. Slaton and J. M. Wadlington, Morganfield, Ky. [Filed Jan. 29 1877.]



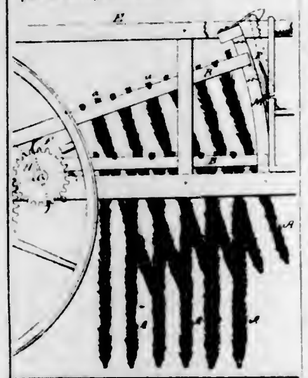
1. The combination of the gear-wheels U T and the pulleys P O J K with the drive-wheel D and the rear shafts of the carriers C M, substantially as herein shown and described.

2. The combination of the gear-wheels V W, the shafts X B' F', and their connecting-gearing, the lever G', the cord H', the shaft I', and the cords J', with the drive-wheel D, the frame A, and the scraper B, substantially as herein shown and described.

3. The combination of the extension-bars Q' with the front cross-bar of the frame A and the extensible axle F, substantially as herein shown and described.

189,396. COTTON-PICKERS. O. R. Smith, Raleigh, N. C. [Filed May 29, 1876.]

Brief.—Flexible rods, bearded with spines pointing upward, depend vertically from a series of alternately-vibrating finger-bars. These picker-rods, by their interaction, strip the cotton from the bolls as the machine passes through the field.



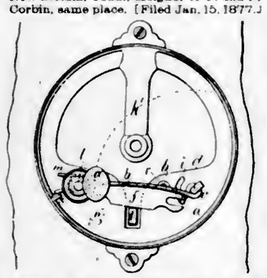
1. In a cotton-picker, the flexible toothed rods A and vibrating bars B, having laterally-projecting brushes, combined and operating substantially as described.

2. In a cotton-picker, the combination of the vertical flexible toothed rods A, horizontal vibrating bars B, tappet-shaft, gearing, and transporting-wheel, as shown and described.

3. In a cotton-picker, the combination of the carrier and vibrating bars carrying toothed rods, and receptacle E, as shown and described.

4. In a cotton-picker, the combination, with the vibrating picker-bars, of the pivoted board, carrying spring-catches, substantially as shown and described.

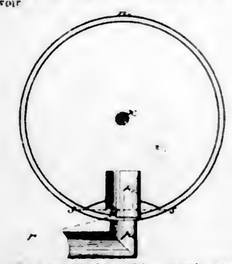
189,397. DOOR-BELLS. Wm. E. Sparks, New Britain, Conn., assignor to P. and F. Corbin, same place. [Filed Jan. 15, 1877.]



The lever *f* upon the fulcrum-stud *l* at one side of the plate *g*, and the hammer *a* upon the pivot-pin *d*, at the opposite part of such plate *g*, and the hammer-tail entering the notch at the end of the lever *f*, in combination with the stops *i o*, and the lever *t*, that passes through the door and acts upon the lever *f*, as and for the purposes set forth.

189,398. FOUNTAIN-LAMPS. E. J. Stearns, Denton, Md. [Filed Dec. 6, 1876.]

Brief.—A depression in the periphery of the reservoir provides for the insertion of a short tube, which may be used for filling or feeding, according to the position of the reservoir.



1. The combination, with a semi-rotating reservoir and a fixed inclosing-case therefor, of a concave formation or cup in the circumferential side of said reservoir, and a supply-pipe projecting externally within said concave or cup, and adapted for operation in relation to the case and the delivery-pipe, substantially as herein set forth.

2. The supply-pipe **h** of the reservoir, provided with the side opening *r*, in combination with the top and delivery openings **s** and **p** of the fixed case, substantially as and for the purpose herein set forth.

3. An air and oil chamber formed above the delivery-pipe *p*, below the supply-pipe **h**, and between the reservoir and fixed case, when these pipes are coincident, in combination with the top opening **s** and the said supply-pipe, substantially as and for the purpose herein set forth.

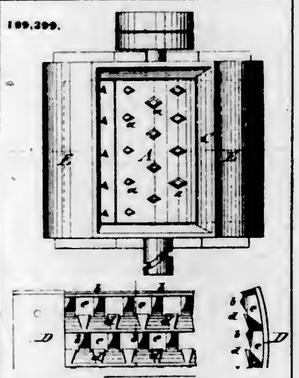
189,399. MACHINES FOR GRINDING SHAVINGS. I. Tompkins and A. G. Tompkins, Brooklyn, N. Y. [Filed Oct. 23, 1876.]

Brief.—Reduces the shavings of planing-mills, sash-factories, &c., into fine particles of sawdust size.

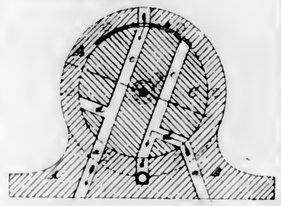
1. The combination, in a shaving-grinder, of the case E, fixed grinding-cylinder D, and rotary grinding-cylinder A B, substantially as and for the purpose specified.

2. In a shaving-grinder, the shell provided with alternate longitudinal cutters and chipping-teeth *b d*, between which are arranged perforations *s*, as shown and described.

189,399.



189,400. CIRCULAR VALVES FOR STEAM-ENGINES. H. L. Tumy, Cincinnati, Ohio. [Filed Aug. 14, 1876.]



1. The valve C, constructed in a circular form, placed in and accurately fitting the cylindrical case A, and having the inlet-ports *c* *c* passing directly through it, intersected by the exhaust-ports *a* *a*, so arranged that they can be put in connection or communication with the outlet *b* alternately, said inlet-ports *c* *c* being put in communication with *d* *d* alternately by a reciprocating movement of the valve C, substantially as set forth and described.

2. The combination of the bearing plate *e*, casing A, and valve C, and the inlet and exhaust ports, substantially as shown and described.

189,401. PETROLEUM PRODUCTS AND METHODS OF OBTAINING THE SAME. Herbert W. C. Tweddle, Pittsburg, Pa. [Filed July 31, 1876.]

1. As a new article of manufacture, the petroleum product hereinbefore described, and having the characteristics herein described.

2. The process herein described for obtaining a new product from petroleum, the same consisting in washing the orange-colored resinous oily product obtained toward the close of the distillation of tar residuum, and subsequently driving off the solvent and recovering the heavy oil, substantially as and for the purpose specified.

189,402. PETROLEUM PRODUCTS AND METHODS OF OBTAINING THE SAME. Herbert W. C. Tweddle, Pittsburg, Pa. [Filed July 31, 1876.]

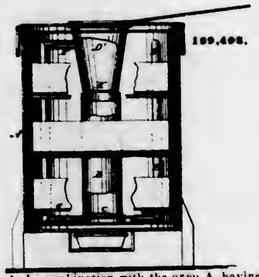
1. As a new article of manufacture, the petroleum product hereinbefore specified, and having the characteristics herein described.

2. The process herein described for obtaining a new product from petroleum, the same consisting in lixiviating the orange-colored resinous oily product obtained toward the close of the distillation of tar residuum, and recovering the precipitate, substantially as and for the purpose specified.

189,403. PORTABLE OVENS. Edw. B. Van De Mark, New York, N. Y. [Filed July 1, 1876.]

Brief.—A double fire can be built within the oven. The smoke escapes through the pipe passing entirely around the oven.

189,404.

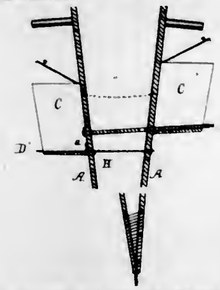


1. In combination with the oven A, having coincident holes at top and bottom, the pipe B, the fire-pot, and the pipe F, extending from the latter around the oven, as shown and described, for the purpose specified.

2. The cone-shaped fire-pot D', having a slotted or perforated bottom, K, the same being applied to the reversed end of the cylindrical pipe B, as shown in Fig. 2, for the purpose of enabling two fires to be built within the oven, one in the fire-pot D', and one at the base of the pipe B, substantially as shown, and for the purpose specified.

189,404. SEED-PLANTERS. J. Wafer, Etna, N. Y. [Filed Mar. 28, 1877.]

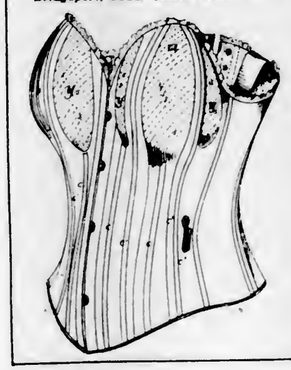
Brief.—A combined hand planter (corn and pumpkin-seed) with a "nib" on the under side of the pumpkin seed slide, to prevent the seed from wedging or catching, as would otherwise occur.



1. In a combined corn and pumpkin-seed planter, the iron slide D', having the projecting nib H, arranged substantially as described, and for the purpose specified.

2. In a corn and pumpkin-seed planter, arranged with sides A, seed-boxes C C', and slides D D', the nib H, in combination with the grooved bottom, all constructed and arranged substantially as described, and for the purpose set forth.

189,405. CORSETS. Ira De Ver Warner, Bridgeport, Conn. [Filed Feb. 13, 1877.]



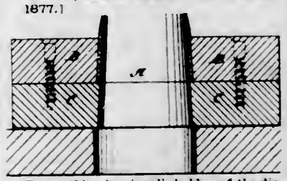
1. The improvement in the art of manufacturing corsets, consisting in forming pockets in the separate sections, inserting the ribs therein, and then uniting the sections, as set forth.

2. A bosom-pad corset in which those portions of the gores which aid in forming the bosom-receptacles are provided throughout their entire extent with ribs placed side by side, as set forth.

3. A bosom-pad corset in which the breast-receptacles are stiffened by series of diagonal and vertical ribs, as specified.

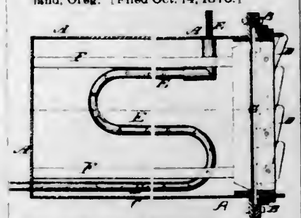
4. The combination of the ribs *e'*, extending the length of the corset, the shorter ribs *e e* extending from the lower edge to the breast-sections, and the series of small ribs stiffening the breast-sections, substantially as specified.

189,406. DIES FOR CUTTING LEATHER. A. Warren, Jefferson, Ohio. [Filed Feb. 10, 1877.]



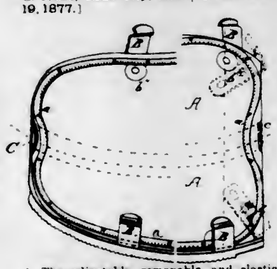
The combination, in a die-holder, of the die A and blocks B C, each of the latter provided with a central aperture to allow the cut stock to drop through, and the lower block C constituting the base-support for the die, all constructed and arranged substantially as shown and described.

189,407. STEAM-TANKS FOR COOKING FISH AND MEAT IN CANS. F. M. Warren, Portland, Oreg. [Filed Oct. 14, 1876.]



The steam-tank A, provided with the rim B around its open end, the sliding door C, the cams D, the perforated steam-pipe E, and the track F, substantially as herein shown and described.

189,408. ADJUSTABLE SAFETY-SOLES FOR BOOTS AND SHOES. A. P. Watson and C. E. Crane, Lake City, Minn. [Filed Mar. 19, 1877.]



1. The adjustable, removable, and elastic sole-protector A, having the soft and yielding edging **e**, and spring holding-clamps B, substantially as and for the purposes described.

2. The adjustable, removable, and elastic sole-protector A, having the soft and yielding edging **e**, spring holding-clamps B, and serrated or toothed spring C, substantially as and for the purposes described.

189,409. DENTAL ENGINES. B. M. Wilkerson, Baltimore, Md. [Filed Feb. 13, 1875.]

Brief.—The driving-shaft is rotated by a portable water-wheel, the case of which is provided with two rubber tubes, to admit and carry away the water. A sliding sleeve catches under the beveled end of a spring, which carries a fastening lug for the tool proper. A small tube carries water to the end of the tool to keep it cool.

189,409.

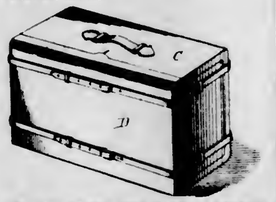


1. In combination with the water-wheel and its tool-driving shaft, the case D, having an attachment at its rear face of two flexible tubes, the smaller one for conveying water or fluid, to drive the wheel and engine, and the larger one to convey the waste water from the wheel, substantially as shown and set forth.

2. In combination with the stock or stem A, the movable slotted sleeve *g'*, and the spring *g''* and its inclines and tooth, the combination operating substantially as and for purpose set forth.

3. In combination with a dental engine, adapted to be driven by water, the small watering-tube *i*, extending to the forward end of the hand-piece I, and provided with a cut-off valve or stop-cock, substantially as shown and described.

189,410. TRUNKS, PORTMANTEAUS, &c. H. F. Worthington South River, N. J. [Filed Feb. 20, 1877.]



The combination, with the box or body C and its cover D D, the auxiliary compartments A A and covers B B, substantially as described.

189,411. RIVETING-HAMMERS. E. Wright, Denmark, Iowa. [Filed Sept. 20, 1876.]



The improved cross-panel hammer, herein described and shown.

189,412. DISH-WARMERS. J. H. Wright, New York, N. Y. [Filed Mar. 19, 1877.]



The combination of the inner case B and the asbestos packing C with the outer case or body A and the iron heating-block D, substantially as herein shown and described.

189,413. COMPOSITION FOR ARTIFICIAL FUEL. J. Q. A. Ziegler, Philadelphia, Pa., assignor of one-half his right to H. W. Adams, same place. [Filed Nov. 28, 1876.]

The composition artificial fuel consisting of small coal, clay, coal-tar or petroleum, and water, substantially in the manner and for the purposes hereinbefore set forth.

189,414. STEAM-PUMPS. C. Ahrens, Cincinnati, Ohio. [Filed May 18, 1876.]

Brief.—Compressed air is supplied to the air-chamber of a steam-pump by the air-pump. The piston of air-pump forces the air entirely out of air pump barrel (leaving no air to expand) into the pressure-vessel underneath, and thence into air-chamber.



1. In a steam-pump, the positive-moving supplemental pump J, adapted to supply air to the air-vessel, substantially as and for the purpose specified.

2. In an air-pump, the combination, substantially as specified, of the pump-barrel, the piston, the valve thereof, the pressure-chamber underneath the pump-barrel, and the valve governing the induction-port of said air-chamber, the relative arrangement of the parts being such as hereinbefore stated.

3. In combination with the air-pump J and air-vessel G, the supply-pipe L, provided with check-valve *l* and the stop-cock P, connected and operating substantially as and for the purpose specified.

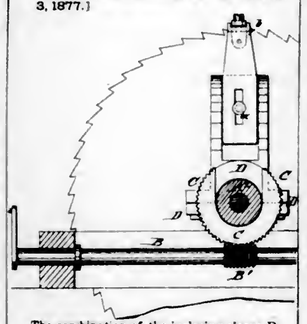
189,415. BENCH-PLANES. L. Bailey, Hartford, Conn. [Filed Feb. 16, 1877.]

Brief.—The bit is longitudinally adjustable by means of a link working in a longitudinal slot in the bed-plate, and provided at one end with a stud, which engages with a series of holes in the bit, and near the other end with a similar stud, which engages with a cam-slot in a gear-wheel attached to the under side of the bed-plate, and operated by a pinion attached to a milled head pivoted to the same side of said plate.



The combination of the longitudinally-slotted bed-plate I, the link L, provided with the studs M K, the pinion G, and the gear-wheel H, having the cam-slot J, constructed to operate as shown and described, and for the purpose specified.

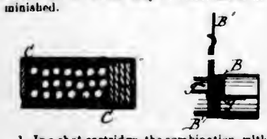
189,416. ADJUSTABLE SAW-GUIDES. Geo. W. Baker, Watsontown, Pa. [Filed Mar. 3, 1877.]



The combination of the inclosing sleeve D, carrying the guide-supporting arm, and having a sectional gear-wheel, C, with a worm-wheel of crank-shaft B, to swing the guide down and out of the way, for the purpose specified.

189,417. SHOT-CARTRIDGES. H. H. Barnard, Rochester, N. Y., assignor of one-half his right to H. S. Miller, same place. [Filed Mar. 10, 1877.]

Brief.—The cartridge is wound with several threads of short lengths. By increasing or diminishing the number of threads, the range at which the case will separate and the shot be allowed to scatter may be increased or diminished.

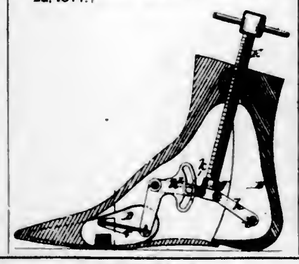


1. In a shot-cartridge, the combination, with the divided case A A, of the several threads B B', wound one after another upon the case, the ends of the threads looping around each other, as described, so that, in unwinding, one thread will raise the end of the next, as and for the purpose specified.

2. In a shot-cartridge, the combination, with the case A A and the threads B B', of a paper envelope, C, covering the cartridge, and connected with the threads in such a manner as to start the unwinding of the thread as the cartridge leaves the gun, as herein shown and described.

3. The envelope C, constructed with the two flaps *h i*, arranged for folding one over the other, a slit, *k*, for the insertion of the thread, and the notches *m m*, for producing even wrapping of the envelope around the cartridge, as herein shown and described.

189,418. LASTS FOR BOOTS AND SHOES. John Batley, Kensington Park Gardens, John Keats, Wood Green, and Jas. Neil, Worship Street, England. [Filed Feb. 22, 1877.]



1. The combination, with the body of the last, of a pivoted swinging heel-piece adjustable toward and from the instep, and within or under cover of the body of the last, substantially as specified.

2. A last provided on either side of its foot or forward portion with a side piece constructed and applied to swing outward from an axial line parallel, or nearly so, with the sole and length of the foot, essentially as described.

3. The combination of the swinging and adjustable heel-piece of the last with the laterally swinging or rolling side pieces on either side of the forward portion of the last, substantially as specified.

4. In a last having an adjustable heel-piece and expanding and contracting side pieces at its forward portion, the combination, with said heel-piece and forward side pieces, of mechanism organized to provide, first, for the expansion of the heel-piece, and subsequently for the expansion of the side pieces, essentially as described.

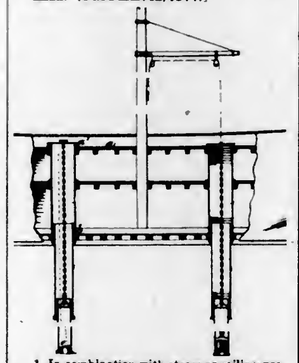
5. The combination, with the pivoted or swinging heel-piece B and rolling side pieces D D, of the screw E, the toggle-levers *h h'*, the stud or pin *k*, the lever *m*, having a slotted arc, *l*, and the rods *r r*, substantially as specified.

189,419. FASTENINGS FOR BUTTONS. Geo. W. Beeley, Toledo, Ohio. [Filed Mar. 8, 1877.]



The hereinbefore-described button-fastener A, constructed from wire, and provided with the loop *a*, arm *a'*, and offset *a''*, substantially as and for the purpose specified.

189,420. TELESCOPIC BALLASTING-TUBES FOR VESSELS. Alex. Berghold, New Ulm, Minn. [Filed Mar. 12, 1877.]



1. In combination with steam or sailing vessels, a series of telescoping pipes capable of being lowered down below the keel or raised within wells in the hold of vessels, said series of pipes being located on a line with the keel, or adjacent to it on each side, to keep vessels from capsizing or drifting before the wind, substantially as described.

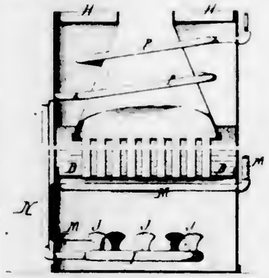
2. In combination with steam or sailing vessels and a series of telescoping pipes extending through the bottom of said vessels, the spring-valves attached to the lower end of the telescoping pipes, substantially as and for the purpose described.

189,421. HYDROCARBON-BURNERS. Joshua Bishop, Philadelphia, Pa., assignor of one-half his right to Jas. Forney, same place. [Filed Dec. 29, 1876.]

1. The combination of the vapor-pipe N and the steam-pipe M, with the tube I, its burners J, and chambers *a* and *b*, the former communicating with the burners through openings *i* and the latter through nozzles *m*, as set forth.

2. The combination of the tube I and its chambers *a* and *b*, with the burners J, their openings *i* and *f*, and the nozzles *m*.

189,421.



189,422. SPHERICAL GLASS TARGETS. A. H. Bogardus, Elkhart, Ill. [Filed Mar. 26, 1877.]



A hollow glass ball, having a serrated or roughened surface or exterior, as and for the purpose specified.

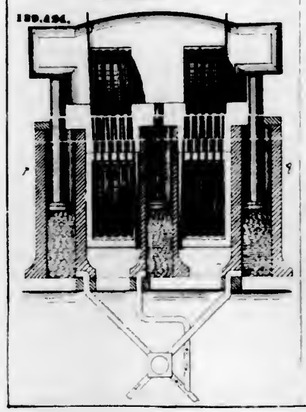
189,423. SEWING-MACHINE SHUTTLES. W. Bown, Birmingham, England. [Filed Jan. 9, 1877.]



1. The shuttle or shell having the open-ended slit *b'* made therein, extending lengthwise of the shuttle, and terminating at its end in an open cut, extending transversely from such slit to the edge of the face of the shuttle, and thereby forming a spring-flap having its free end rounded to coincide with, and forming part of, the rounded heel of the shuttle.

2. In combination, the sliding presser plate or spring D within the shuttle, its adjusting-screw, the slot L in the shuttle, and a fixed visible device on the outside of the shuttle, serving to indicate readily to the eye the degree of tension imparted to the thread by the presser or tension spring, as shown and described.

189,424.



189,425. HYDRAULIC ELEVATORS. E. Brewer, Boston, Mass. [Filed Jan. 10, 1877.]

Brief.—Cross-head is lifted by the pressure of the water upon the pistons at its ends, while the central cylinder and piston serves to counterbalance the elevator-car.

The cross-head, its two sets of sheaves, and two equal pistons, positively attached at the ends of the cross-head, in combination with two stationary equal cylinders, *p q*, adapted to be connected with the main or service and waste pipes, as described, to lift the cross-head at its end, and with a central car-counterbalancing cylinder and piston arranged to operate, all substantially as described.

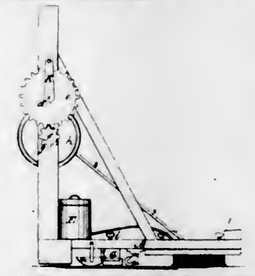
189,426. SAFETY-PIN SHIELDS. Wm. A. Butler, New York, N. Y. [Filed Mar. 14, 1877.]



A safety-pin shield made of the blank A, with the notches *a* and *b* formed therein in relation with each other, and having the part 1 bent over the part 2, and the lateral borders of said parts joined, substantially as and for the purpose set forth.

189,427. SCRUBBING-MACHINES. P. Byrne, Jr., Norwalk, Wis. [Filed Feb. 10, 1877.]

Brief.—A frame on wheels carries a reciprocating scrubbing-brush, with mechanism for operating it. It also has a water-holder, connected with the scrubber by a flexible tube, and a mop and pan for taking up the water that has been used.



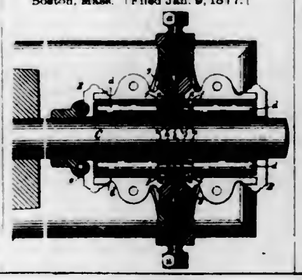
1. The combination, with the horizontal frame, of the reciprocating scrubber, sliding on ways, the rod *i*, the wheel A, and gearing for rotating the same, as shown and described.

2. The combination of the scrubber and its vertically-adjustable ways or guides with the part B of the frame, substantially as shown and described.

3. The water holder E, flexible tube, and the reciprocating scrubber, combined as shown and described.

4. The combination of the pan *m* with the rubber mop G, having an angular or curved form, and provided with a hole, *o*, for the passage of water to pan.

189,428. ANTI-FRICTION BEARINGS FOR REVOLVING SHAFT-AXLES. O. R. Chaplin, Boston, Mass. [Filed Jan. 9, 1877.]



1. The combination of the shaft C, box B, a series of rolls, *d*, provided with the centrally-located reduced journals *h*, and adapted to roll in contact with the shaft and the inclosing-box, a second series of short rolls or cylinders, *i i*, adapted to bear along their whole length upon said reduced journals *h*, and the two rings *j k* adapted to be revolved in opposite directions by contact with opposite sides of the rolls *i i*, substantially as and for the purposes described.

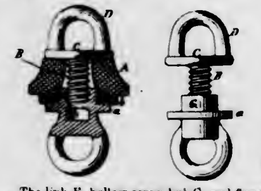
2. In combination with the two series of rolls *d* and *i*, and the ring *j*, constructed and arranged as set forth, the ring *k*, made in two semicircular parts, hinged together at one side, and secured together at the other side, by a pin, as and for the purposes described.

3. The box B, made in two parts, divided longitudinally, and having formed in its interior two cylindrical surfaces, *c c*, of equal diameter, separated by an annular groove or enlarged chamber, *g*, in combination with the supporting-rolls *d d*, separating-rolls *i i*, and the rings *j k*, adapted to revolve in opposite directions in the same plane, substantially as and for the purposes described.

4. The combination, in a box or journal-bearing, made in two parts, divided longitudinally, of two interior cylindrical surfaces of equal diameter, separated by an annular groove or enlarged chamber, *g*, and two inwardly-projecting annular ribs, *e e*, cast with or forming an integral part of said box and its cap, substantially as described.

189,429. CHAIN-PUMP BUCKETS. W. Cooper, Ypsilanti, Mich. [Filed Sept. 23, 1876.]

Brief.—The female screw or closed nut is not formed of one piece with a link and flange, but is made separate, the link being attached separately to the flange, the nut turning in said flange or plate.



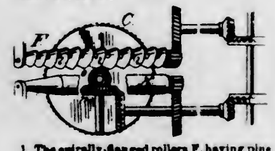
The link E, hollow screw-hub G, and flange *a*, formed of one piece of metal, in combination with the link D, plate C, and screw B, all connected together, the rubber A, and washer *b*, all substantially as and for the purposes herein set forth.

189,430. STOP-PLUGS FOR BOILERS AND OTHER TUBES. M. Coryell, Paris, France. [Filed Feb. 7, 1877.]



The combination of the hollow tapering plug C, the tube E, secured at its one end to said plug and passing therethrough, the adjustable rod F, inclosed in its passage through said plug by the tube E, the outer bulk-head D', the inner bulk-head D, and the expanding disk I, the whole being arranged substantially as herein shown and described.

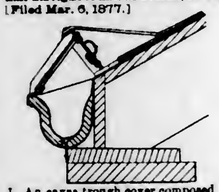
189,431. CORN-HARVESTERS. W. H. Cox and J. L. Cox, Milwaukee, Wis. [Filed Mar. 24, 1876.]



1. The spirally-flanged rollers F, having pins *l* between the flanges, constructed and operating substantially as and for the purpose specified.

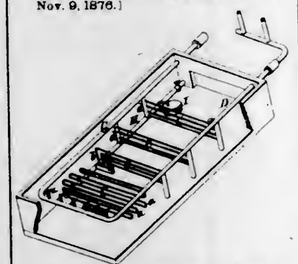
2. The combination of the spirally-flanged stripping and husking rollers F, having pins between the flanges, with rollers K, and rotary serrated knives or cutters C, operating simultaneously to cut the corn-stalks, stripe them, and husk the ears, substantially as set forth and described.

189,431. EAVES-TROUGH COVERS. Jas. R. Creighton, Boston Mass., assignor of one-half his right to Alfred B. Hall, same place. [Filed Mar. 6, 1877.]



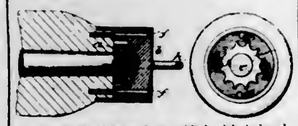
1. An eaves-trough cover composed in part of glass, for the purposes specified.
2. A combined snow-guard and gutter-cover, substantially as and for the purposes specified.
3. A combined gutter-cover and snow-guard, constructed with openings through which to clear the gutter from sediment or deposit, substantially as described and shown.

189,432. LUMBER-DRIERS. J. J. Curran, Chicago, Ill., assignor of one-third his right to C. Wilcox, same place. [Filed Nov. 9, 1876.]



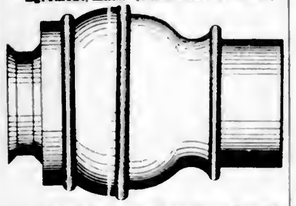
1. In a kiln for drying lumber, the steam-pipes C, arranged upon the inclined ground-floor B, and underneath the inclined floor O of the drying-chamber on which the cars run, as and for the purposes herein set forth.
2. The steam-pipes C, set up in gate form across the kiln, with free expansion-joints and headers, running across and lengthwise of the kiln, substantially as and for the purposes herein set forth.
3. The broad chimney M, extending entirely across the kiln, and provided with the two chimneys M' M', separated by inclined deflecting boards, as set forth.
4. In combination with the chimney M, having a sliding door in front, the steam-box P, arranged forward of the chimney, and provided with a hinged and a sliding door, as shown, and arranged upon the forward extension of the floor O, so as to be entirely independent of the kiln proper, substantially as and for the purposes herein set forth.
5. In combination with the broad chimney M, kiln A, and heating-chamber underneath, the sliding door or curtain N, arranged in the mouth of the chimney, and leaving an opening at the bottom whereby the hot air is compelled to descend to the floor of the kiln before passing out through the chimney, as set forth.

189,433. HUB-CAP AND AXLE-NUT. A. R. Cushman, Memphis, Mo. [Filed Apr. 24, 1876.]



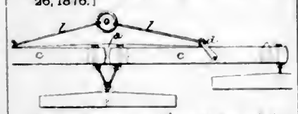
The solid hub-cap *b*, provided with holes *d d*, and secured to the hub by screws *f f*, in combination with grooved axle-nut *a* and key *h*, substantially as described.

189,434. AXLE-BOXES. D. Dalzell, South Egremont, Mass. [Filed June 29, 1876.]



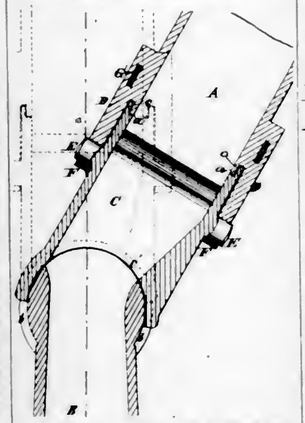
1. An axle-box, having formed upon its head an annular shoulder or bead for conducting off the oil from the hub or wheel, substantially as and for the purpose specified.
2. In combination with an annular shoulder or bead, formed upon the head of an axle-box for conducting off the oil from the wheel or hub, a supplemental shoulder upon the head to form a bearing for the hub and protect it from the water or other substances, substantially as and for the purpose described.

189,435. THREE-HORSE EQUALIZERS. E. B. Decker, Rockbridge, Ill. [Filed Oct. 26, 1876.]



The construction and arrangement of the ring *e*, rods *l*, and clevises *d d* with the double trees *c c*, and ends of the spreader-bar *a*, whereby the double-trees and bar are connected, as shown, and a yielding connecting device for attaching the equalizer to a plow, or the like, afforded, substantially in the manner and for the purposes specified.

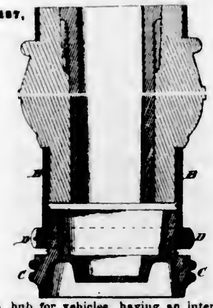
189,436. PIPE-JOINTS FOR PUMPING AND DREDGING APPARATUS. James B. Eads, St. Louis, Mo. [Filed Mar. 9, 1877.]



1. The pipe-coupling herein described, consisting of the three members A B C, fitting together with rabbeted knuckle-joints, and moving in planes at right angles to each other.
2. The combination with the coupling-sections A C and their rabbet-joints *a*, of the lugs D D and gudgeons E E, for sustaining pressure and relieving the rabbet-joints, as described.
3. The combination of the coupling-sections A C, rabbet-joints *a*, gudgeons E E, lugs D D, and straps F F, substantially as and for the purposes set forth.

189,437. CAPS FOR VEHICLE-HUBS. Edwin G. Edgley, Cincinnati, Ohio, assignor to Crane, Breed & Co., same place. [Filed Mar. 19, 1877.]

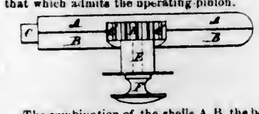
189,437.



A hub for vehicles, having an interiorly-threaded band, B, fitted with a screw-threaded cap, C *c*, and annular locking-nut D, substantially as and for the purpose specified.

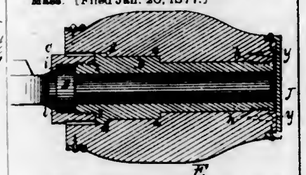
189,438. DOOR-BOLTS. Robt. Eichmuller, Thomaston, Conn., assignor of one-half his right to Aaron C. Sanford, same place. [Filed Jan. 26, 1877.]

Brief.—The rack-bolt and its case are inserted in an auger-hole of the same size as that which admits the operating-pinion.



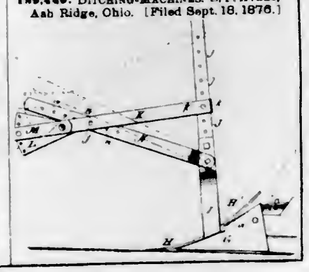
The combination of the shells A B, the bolt C, with its rack C', the pinion D, the socket E, and the handle F, constructed and arranged so that the stationary sockets and shells for containing and holding the working parts are all contained within the space formed by two auger-holes of the same diameter bored into the thickness of the door, substantially as herein described.

189,439. VEHICLE HUBS AND BOXES. Geo. W. Eldridge, Chatham, assignor of one-half his right to Jos. Raymond, Harwick, Mass. [Filed Jan. 20, 1877.]



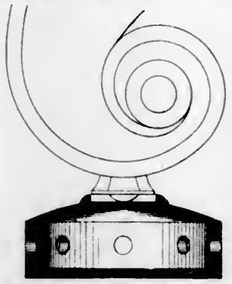
1. The combination of the box D, having closed end and annular grooves *h*, with the wooden hub E, connected to the box by the wedges *y y*, whereby the outer end of the box is secured to the hub without the use of an exterior nut and cap, J, substantially as set forth.
2. The axle-box D, having closed outer end and provided with shoulder *d*, grooves *h*, and screw-threads *x x*, the nut C, with flange *i*, the axle A, with collar B, and the wooden hub E, with cap J, all constructed substantially as set forth.

189,440. DITCHING-MACHINES. S. P. Evans, Ash Ridge, Ohio. [Filed Sept. 18, 1876.]



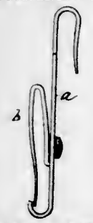
1. In a ditching-machine, the combination, with the trough A, pivoted or hinged shoe G, colter H, and upright side cutters I, of the standard J, draw-bar K, connecting-brace N, and clevis M, all constructed and arranged substantially as shown and described, for the purpose specified.
2. In a ditching-machine, the combination, with the trough A, hinged or pivoted shoe G, colter H, and upright side cutters I, of the standard J, draw-bar K, connecting-brace N, sector-shaped piece L, and pivoted clevis M, all constructed and arranged substantially as shown and described, for the purpose specified.

189,441. HOLLOW SUPPORTS FOR PIANOS. James Fairman, New York, N. Y. [Filed Feb. 7, 1877.]



1. A support for the legs of a piano-forte, consisting of a hollow block with an arched top, and a perforated rim, substantially as shown and described.
2. A support for the legs of a piano-forte, made with an arched top, a perforated or partly-open rim, and a projecting circular bead on its top, substantially as and for the purpose set forth.

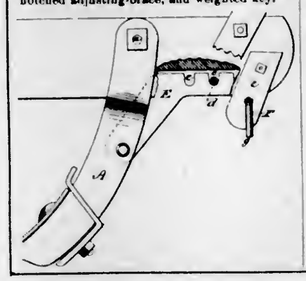
189,442. CLASPS FOR SKIRT AND STOCKING SUPPORTERS. E. C. Fales, Foxborough, Mass. [Filed Feb. 21, 1877.]



In a clasp or garment holder, the plate *a* centrally slotted, and provided at one end with a loop or hook, and a shoulder at the opposite end, in combination with a bent spring-plate, *b*, provided with a pivot on its inner side adapted to slide in the slot of plate *a*, and the elongated portion or end adapted to rest within the shoulder, all constructed and arranged as described.

189,443. PLOWS. D. P. Ferguson, Jonesborough, Ga. [Filed Jan. 6, 1877.]

Brief.—Combination of pivoted standard, notched adjusting-brace, and weighted key.



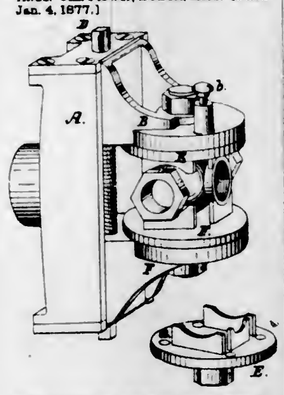
The combination, with the pivoted standard A, of the brace E, having an angular form and provided with notches or open slots on the upper side of its horizontal arm, the bolt *d*, passing through the plow-handle and traversing the slot *e* in the beam, the weighted key F *g*, and the slotted pendent ears *c*, all arranged as shown and described, for the purpose specified.

189,444. BOOTS AND SHOES. J. Fleming, Brooklyn, N. Y. [Filed Jan. 17, 1877.]



A high-cut boot or shoe having a button or lace opening at the side, composed of two pieces of stock, united by a curved or deviating side seam opposite the opening, all substantially as shown and described, for the purpose set forth.

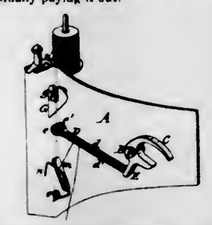
189,445. CHUCKS FOR HOLDING PIPE-FITTINGS. Jas. Flower, Detroit, Mich. [Filed Jan. 4, 1877.]



The combination, with the chuck-frame A, stationary chuck-heads B C, and right-and-left-hand screw D, of the revolving heads E F, and the spring-bolt *h*, constructed and arranged substantially as described and shown.

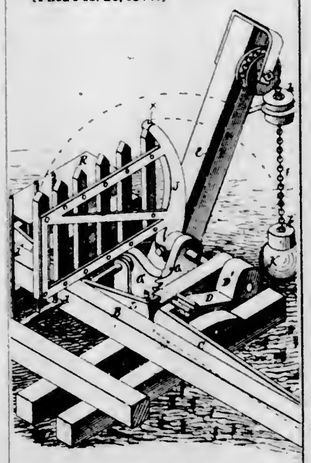
189,446. TAKE-UP DEVICES FOR SEWING-MACHINES. J. L. Follett, New York, N. Y. [Filed Jan. 22, 1877.]

Brief.—The take-up lever is bifurcated longitudinally, said bifurcation terminating at its outer end in two eyes. The thread, (through these eyes,) on the upward motion of the arm, is carried up until it comes in contact, between the eyes, with an adjustable cast-off, which forces it into the slot in the lever; said lever being held in such a position as to form an incline, over which the thread must slide as it is drawn downward, thus gradually paying it out.



1. A sewing-machine take-up, constructed and operating substantially as herein shown and described, so that while the positive hold of the take-up on the thread is released at the proper time with respect to the needle, the take-up still acts to control and pay out gradually the slack created by the release of the thread, as set forth.
2. In a take-up, the combination of a vibratory double-eyed longitudinally-slotted thread-carrier and a cast-off, the two being combined for operation, substantially as herein shown and described.
3. The combination of the vibratory thread-carrying lever with a stationary cast-off, the latter being capable of adjustment for the regulating of its action upon the needle thread in the thread carrier, substantially as shown and set forth.
4. The combination, substantially as set forth, of the vibratory double-eyed longitudinally-slotted thread-carrier, the cast-off, and the spring-holder *n*.

189,447. RAILROAD-GATES. A. Fox, L. Vorwald, and J. Vorwald, Columbus, Ind. [Filed Feb. 26, 1877.]



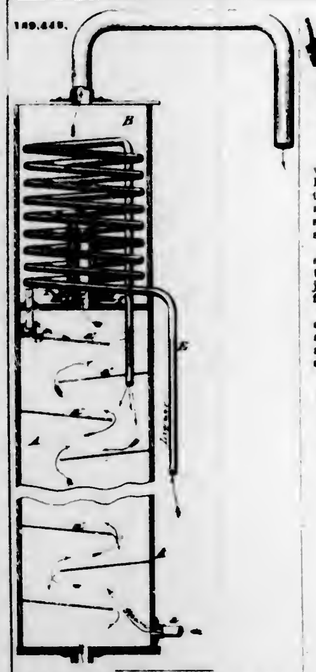
1. The combination of the levers C L, having cogged segments *a a'* upon their adjacent ends, the double-cogged lever D, and the single-cogged lever D' on the shaft *b*, carrying the side gate I J, substantially as and for the purposes herein set forth.
2. The combination, with the gate I, of the curved arm or head J, having exterior longitudinal groove *s*, the chain *s*, elevated pulley H, chain K, and rubber bumpers *k k*, all substantially as and for the purpose herein set forth.
3. The combination, with the gate I J, secured to the rock-shaft *b*, and operated by the levers C L, having cogged ends and levers D D', with the central gate *d d'* and cogged arms G G, whereby both gates are operated simultaneously by the action of the cars on the levers, substantially as set forth.

189,448. STILLS. Thos. Gaff, Aurora, Ind. [Filed Nov. 17, 1876.]

Brief.—The beer or wash is passed through a coil of pipe in a chamber above the still-column, where it is heated and acts as a condenser to the ascending vapors. A perforated hood upon the lower end of the cap, covering the upper vapor-pipe of the column, distributes the vapors through the liquid in the upper chamber, and the liquid accumulating above a certain height, by condensation in this chamber, is returned by trapped overflow-pipes to the column to be redistilled.

1. In combination with still A, case B, pipes E *e*, and conducting-pipe C, the downwardly-conducting cap F, terminating in a perforated bell-mouth, *f f'*, for spreading the vapors, substantially as and for the purpose specified.
2. In combination with still A, case B, pipes E *e*, pipe C, and cap F *f f'*, the trapped overflow-pipes G *g*, substantially as and for the purpose specified.

189,448.

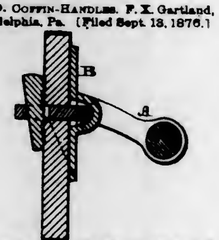


1. In a roller-skate, the combination of a vertical swivel-standard, *b*, and a regulator, E, with the roller frame or truck supporting the axle of the rollers, and the foot-plate A, all constructed and arranged to operate substantially as and for the purpose herein described.

2. The combination, with the foot-plate A, standard *b*, and roller-frame B, which contains the rollers D D, of a ball-and-socket joint, substantially as and for the purpose set forth.

3. The combination, with the foot-plate A, swivel-standard *b*, roller-frame B, and the segmental plates *a*, which retain the standards in their sockets, of elastic cushions *f*, substantially as and for the purpose described.

189,449. COFFIN-HANDLES. F. X. Gartland, Philadelphia, Pa. [Filed Sept. 13, 1876.]



The coffin or casket handle A and ears B, in combination with auxiliary fastening-pins, fitted to the axis of the handle, and formed with slots for the reception of keys, substantially as and for the purpose set forth.

189,450. PROCESSES OF ORNAMENTING CROCKERY-WARE. B. J. Gerard, Trenton, N. J. [Filed Sept. 30, 1876.]

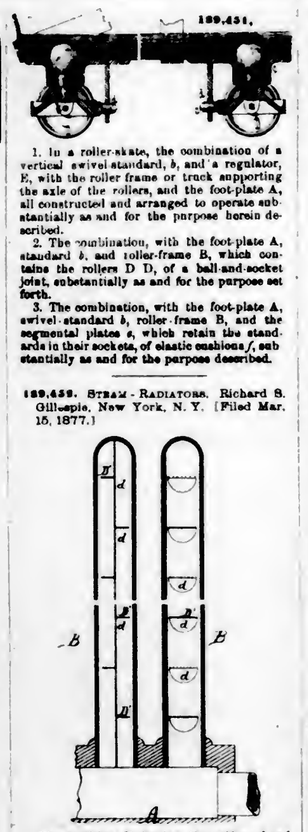
1. The method of preparing a color-feeder for the stamp in marking crockery and other surfaces, which consists in first spreading or placing the coloring matter employed on a hard, non-absorbent, and inelastic plate, and then covering said coloring matter with a textile fabric, substantially as and for the purpose set forth.

2. The method herein described of marking china and crockery ware, which consists in spreading or placing the coloring composition on a hard, non-absorbent, and inelastic plate, covering said coloring matter with a textile fabric for charging the flexible stamp in the usual manner, and then marking the article in its biscuit state, substantially as and for the purpose set forth.

3. A coloring composition for marking china and crockery ware, consisting of the following ingredients: black oxide of cobalt, calcined Turkish umber, and chromate of iron, mixed together in about the proportions above described.

189,451. ROLLER-SKATES. Robt. Gibson, New York, N. Y. [Filed Mar. 24, 1877.]

189,452.



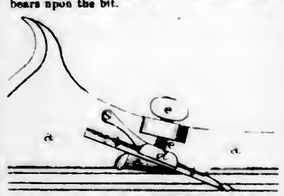
1. The partition D, having the orifices *d* and deflectors D', in combination with a steam-radiator, B, and base A, as herein specified.

189,453. STEAM-RADIATORS. Richard S. Gillespie, New York, N. Y. [Filed Mar. 15, 1877.]

The partition D, having the orifices *d* and deflectors D', in combination with a steam-radiator, B, and base A, as herein specified.

189,454. BENCH-PLANES. George Gocher, Johnstown, Pa. [Filed Jan. 24, 1877.]

Brief.—The bit has a bead rolled its entire length, and is secured in position on the stock by means of an inclined bed corresponding to the form of the bit, and upon which it is clamped by a set-screw passing through a lug on the stock, and pressing upon a clamping-lever pivoted to the stock, and which bears upon the bit.



The combination of a bit, i, made from a single sheet of metal, and having a bead rolled its entire length, with the stock a, having the inclines c and clamp d, and a set-screw, e, substantially as specified.

189,455.



189,456. PAPER BOXES. A. Goldback, Richmond, Va. [Filed Mar. 10, 1877.]

A drawer case or cover consisting of a continuous sheet of paper, card-board, wood, or other suitable material, creased and folded so as to form two or more compartments or chambers, adapted to receive slides or drawers, for the reception of matches or other articles, substantially as described.

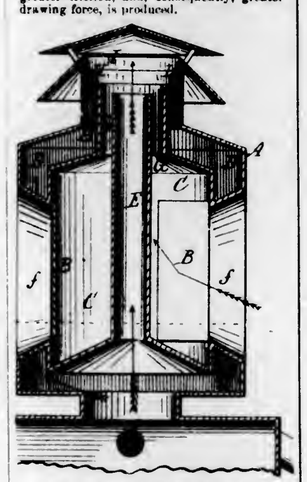
189,457. WIPERS FOR FIRE-ARMS. James T. Hamilton, Brooklyn, N. Y. [Filed Mar. 13, 1877.]



A swab or wiper for fire-arms, provided with means for attaching it to a rammer or wiper-rod by a swivel or similar connection, substantially as and for the purpose herein described.

189,458. VENTILATORS. Geo. W. Harrold and Le Roy Satterlee, Rochester, N. Y.; said Harrold assignor to A. S. Strong, same place. [Filed Aug. 2, 1876.]

Brief.—The object in this ventilator is to produce a more active motion of the dead air by injecting a current of fresh air through the same; said current being carried up in the center of the dead-air chamber, whereby greater friction, and, consequently, greater drawing force, is produced.



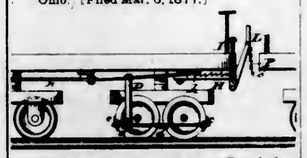
1. In a ventilator, the pivoted valves B B B B, hung in windows *f f f f* of the ventilator A, and opening inward, in combination with a live-air chamber, C, located above said valves, and a dead-air space, D or E, opening above said live-air chamber, whereby the air that enters the ventilator by the opening of the valves on one side is arrested by the closing of the valves on the opposite side, and deflected up through the chamber C to exert a lifting power upon the dead air, in the manner and for the purpose specified.

2. In a ventilator, the body A, constructed with a live-air chamber, C, receiving its supply from the outer air through windows *f f*, in combination with a dead-air space, D, surrounding said live-air chamber, and a dead-air tube, E, passing up through the live-air chamber, said dead-air space and dead-air tube communicating at the bottom with a common dead-air supply, and opening at the top above the live-air chamber to receive the impetus of the live-air currents, in the manner and for the purpose specified.

3. In a ventilator, the combination, with the live-air chamber C, the dead-air space D, and the dead-air tube E, of the dividing-tube H, located between the top of the live-air chamber and the exterior of the case, for the purpose of giving an upward direction to the currents that mingle at the top, in the manner and for the purpose specified.

4. In a ventilator, the tube E, constructed with the deflectors *h h*, in combination with the surrounding live-air chamber C, whereby a portion of the live air is carried within said tube to impel the dead air upward, as herein shown and described.

189,457. CAR-BRAKES. L. T. Hay, Xenia, Ohio. [Filed Mar. 6, 1877.]



1. The combination, with lever F and the brake mechanism, of a spring-pressed rack-bar, arranged to engage with lever F, and automatically lock the brakes, substantially as set forth.

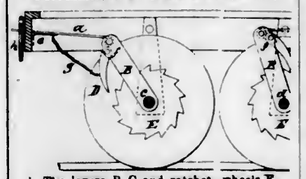
2. The combination, with lever F, rack-bar, and brake mechanism, of lever L, chain P, and ring O, substantially as and for the purpose set forth.

3. The combination, with lever F, of rack-bar and spring, to press the rack-bar against the edge of lever F, substantially as and for the purpose set forth.

4. The combination, with lever F, rack-bar and spring, of a sliding bolt arranged to engage with the forward end of rack-bar, whereby the brakes may be released when desired, substantially as and for the purpose set forth.

5. The combination, with lever F, rack-bar and brake mechanism, of lever N, rod or chain *n*, and lever O, substantially as and for the purpose set forth.

189,458. CAR-STARTERS. R. Hermance, Fort Miller, N. Y. [Filed Mar. 9, 1877.]



1. The levers B C and ratchet-wheels E, rigidly secured to the axles of a car, in combination with the pawls D and chains or cords *g*, connected thereto and to the draft-bars *a b*, the same being provided with stops *c*, holes *i*, and the pins *k*, the whole arranged to operate substantially as and for the purpose set forth.

2. The combination, with the levers B C, ratchet-wheels E, pawls D, chains or cords *g*, and the draft-bars *a b*, with stops *c*, holes *i*, and pins *k*, of the U-shaped iron G and springs *h l*, substantially as and for the purpose specified.

189,459. CONSTRUCTION OF SAILING-VESSELS. N. G. Harrenhoff, Providence, R. I. [Filed Mar. 20, 1877.]

1. The two hulls A A, connected near the ends by the cross-pieces B, with universal joints C, as herein specified.

2. The longitudinal timber M and deck G, in combination with the end cross-pieces B, universal joints C, and hulls A A, as specified.

3. The amidship-beam D and links E, in combination with the deck G, end connections B C, and hulls A A, as herein specified.

4. The elastic arms A^1 A^1, in combination with the hulls A A and their connections to the deck G, or its equivalent, as herein specified.

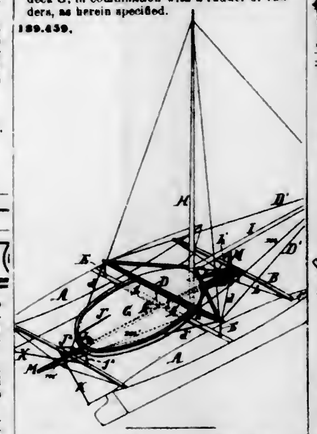
5. In a double-hulled boat, the mast H, sliding to support, and being itself supported by, a deck, G, and having its foot braced in all directions, as herein specified.

6. A double-hulled vessel having a deck or frame-work supported upon jointed connections, as and for the purposes herein specified.

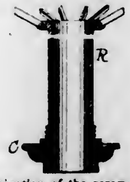
7. In combination with the two connected hulls A A and two rudders, R R, the arms J^3 J^3 and rods K, adapted to compel the turning of the one rudder more than the other, as herein specified.

8. The two hulls A A, connections B C, and deck G, in combination with a rudder or rudders, as herein specified.

189,459.



189,460. UMBRELLA-RUNNERS. Thos. G. Hojer, New York, N. Y. [Filed Aug. 8, 1876.]



The combination of the screw-cap C, with the runner R of an umbrella, in the manner and for the purpose set forth.

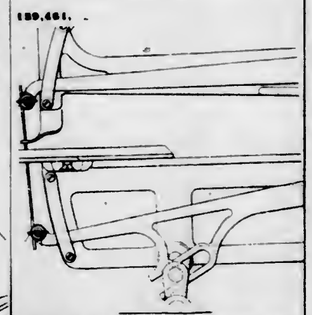
189,461. SCROLL-SAWS. James A. House, Bridgeport, Conn. [Filed Mar. 8, 1877.]

Brief.—The saw is attached by set-screws to clamping-heads upon the outer ends of a C-shaped frame, provided upon its lower part with a slotted bracket, and pivoted at its rear to a bifurcated supporting-frame, having guide-plates or ways upon its front portion, in which the outer ends of the saw-arms work. A cam-lever pivoted to one side of the upper outer end of the main frame for straining the saw, and a vertically-adjustable presser-foot attached to the other side of said part of the main frame. The rear is operated by means of a crank-arm upon a short shaft mounted in a bracket with the lower part of the main frame, and having a crank-pin, which works in the slotted bracket of the lower saw-arm. The saw-supporting frame can be readily secured to and detached from a table or bench by means of an overhanging flange projecting laterally from the lower saw arm, and a clamping-screw passing through a lug formed on a downwardly-projecting bracket on the main frame.

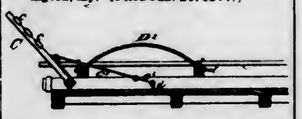
1. The combination of the bifurcated supporting-frame, having the pendent portion or bracket projecting from its lower arms, and adapted to be clamped in position, the saw-arms pivoted to the frame, the guideways in which the outer ends of the saw-arms work, the slotted bracket on the lower saw-arm, and the crank mounted in the pendent portion of the saw-supporting frame, and working in the slot in the saw-arm bracket, these members being constructed and operating substantially as hereinbefore set forth.

2. The combination, substantially as hereinbefore set forth, of the supporting-frame, the pivoted saw-arms provided with clamps to secure the saw-blade in place, and the cam-lever mounted upon the supporting-frame, and acting directly upon the yielding saw-arms to strain the saw-blade, as set forth.

189,461.



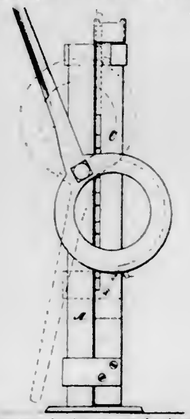
189,462. WAGON-BEDS. R. R. Hunt, Lexington, Ky. [Filed Jan. 20, 1877.]



1. The wagon-bed A, provided with longitudinal rails A'', mortised at a^2, in combination with the hinged standards B C, and transverse frames D D^1, provided with tenons on their under faces, substantially as described, and for the purpose set forth.

2. Transverse frame D^1, provided with staples *d*, fenders D^2, and tenons d^2, substantially as set forth.

189,463. LIFTING-JACKS. A. R. Hurst, Mechanicsburg, Pa. [Filed Mar. 30, 1877.]



1. The lever having the cam-head partially flanged, and combined with the stationary standard, and the sliding lift-bar, having laterally-projecting teeth or pins, substantially as and for the purpose described.

2. The combination, with the standard A, and the lift-bar C, having laterally-projecting teeth or pins, of a lever having a partially-flanged cam-head, whose flange is arranged to be disengaged from the teeth of the lift-bar by a movement of the lever, to permit the independent adjustment of the lift-bar to the axle, substantially as described.

189,464. HITCHING-POSTS. W. N. Hutchinson, South Bay City, assignor of one-half his right to W. P. Lapham, Bay City, Mich. [Filed Jan. 4, 1877.]

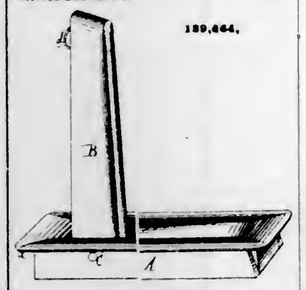
1. The pivoted hitching-post B, let into the curb or sidewalk, and adapted to rest in a horizontal position flush with the surface of the same, substantially as and for the purposes set forth.

2. The combination, with the frame A, of the post B, pivoted in the said frame, and

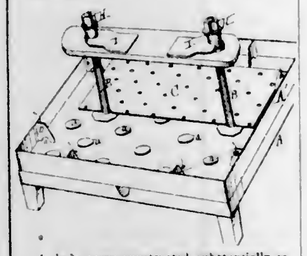
adapted to rest in a horizontal position flush with the top of the same, substantially as and for the purposes set forth.

3. The combination, with the frame A, of the post B, having the slot *b* and the bolt C, constructed and arranged substantially as described and shown.

189,464.



189,465. HOP-PRESSES. J. Jakel, Detroit, Mich., assignor of one-half his right to F. L. Dohnstreich, same place. [Filed Jan. 15, 1877.]

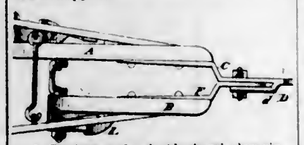


1. In a press constructed substantially as described, the studs *a*, by which the perforated bottom is elevated above the bottom proper, in combination with the perforated bottom, and with the guttered flanges *b*, substantially as set forth.

2. In a press, the combination of the base A, studs *a*, flanges A′ and *b*, gutters *c*, outlet *d*, follower-guides B, perforated bottom C, box or frame D, follower-boards E, and cross-bars F, and follower G, flanged nuts H, and stradler I, arranged to operate substantially as and for the purposes set forth.

189,466. PLOWS. J. C. Jenkins, Lebanon, Tenn. [Filed Feb. 26, 1877.]

Brief.—Cultivator-beams loosely shackled together. A shield to protect the forward connecting-joint.



1. The beams of a double-shovel plow pivoted at their forward ends, said joint being protected by a bridge, substantially as and for the purpose set forth.

2. The combination of the plow-beams A B, bars C F, and bridge D, substantially as and for the purpose set forth.

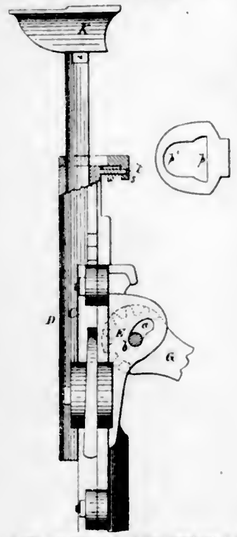
189,467. WAGON-BOX STRAP-BOLTS. J. Jensen, Racine, Wis. [Filed Dec. 19, 1876.]

The box-strap or strap-bolt for wagon-beds herein described, consisting of a lower round screw-threaded part, A, an intermediate flattened and spreading section, B, and an upper semi-oval section, C, the sections B and C having a central longitudinal groove, *c*, reaching to the top or end of the strap, and provided with perforations *d e f*, substantially as and for the purpose herein shown and specified.

189,467.



189,468. LIFTING-JACKS. Victor Johnson, Mount Pleasant, Iowa, assignor of one-half his right to J. W. Hampton, same place. [Filed Mar. 15, 1877.]



1. The combination of the standard A with concave foot B, the sliding standard D, having two series of alternating cogs, *e e*, and the operating lever G, provided on its inner segmental end with two series of alternating cogs, *d d*, all substantially as and for the purposes herein set forth.

2. The combination of the sliding standard D, having side flanges *h*, with ratchet-teeth *i*, the pivoted pawls H, and springs *f*, substantially as and for the purposes herein set forth.

3. The combination of the hollow standard D, the post J, having notches *x*, and the plate P, provided with the aperture *p p′*, and operated by a spring, *w*, all substantially as and for the purposes herein set forth.

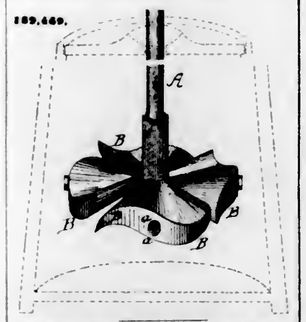
189,469. CHURN-DASHERS. F. M. Johnson, Asheville, N. C., assignor of one-half his right to W. M. Cooke, Jr., same place. [Filed Mar. 9, 1877.]

1. In a vertically-reciprocating churn-dasher, a series of independently-rotating paddles, placed upon stationary arms or spindles projecting from the dasher rod or handle, substantially as herein set forth.

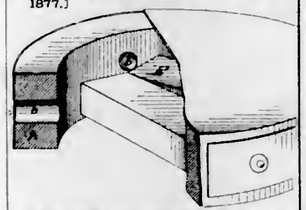
2. The rotating sectoral paddles B, constructed in serpentine form, with concave and convex upper and lower surfaces, substantially as and for the purposes herein set forth.

3. The combination of the rod or handle A, the radial arms *a* projecting therefrom, and the rotating sectoral paddles B, made in serpentine form and provided with the hooks *b*, substantially as and for the purposes herein set forth.

189,469.

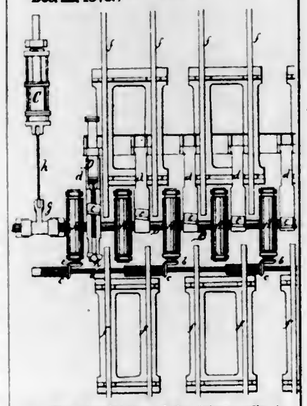


189,470. ZINC BOARDS FOR STOVES. Ebn Jones, Winterset, Iowa. [Filed Feb. 23, 1877.]



A ventilated zinc-board platform for stoves, provided with one or more drawers as receptacles for stove utensils.

189,471. HOT-BEDS FOR BENDING RAILROAD-RAILS. Wm. R. Jones, Braddock's, assignor to the Edgar Thomson Steel Company, (limited,) Pittsburg, Pa. [Filed Dec. 22, 1876.]



1. The combination of the driven rolls A and the curved line of stops *e*, arranged and operating substantially as specified.

2. The combination, with the driven rolls A, of the curved line of interlying stops *e*, provided with means of vertical elevation and depression, substantially as shown and described.

3. The combination, with the driven rolls A, of the curved line of interlying stops *e*, each provided with means of horizontal adjustment, whereby the curvature of the line may be varied at will, substantially as and for the purposes set forth.

4. The combination of the curved line of stops *e* and the movable head-blocks *n*, arranged and operating substantially as described.

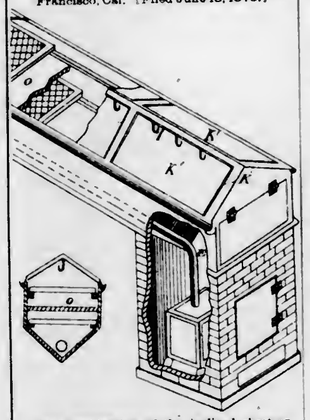
5. The combination of a slotted arm, *d*, and a stop, *e*, bolted thereon, and capable of being located at different points of the arm, substantially as described.

6. The combination, with the shoulders of the step *e*, of the self-adjusting face-plates *e′*, pivoted thereupon, substantially as and for the purpose described.

7. The combination of rock-shaft B, cams *i*, and arms *d*, as and for the purpose described.

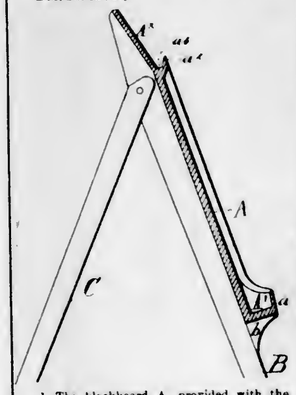
8. The combination of rolls A and a series of guide-rails, *f*, on one or both sides thereof, substantially as and for the purpose described.

189,473. FRUIT-DRIERS. J. M. Keeler, San Francisco, Cal. [Filed June 18, 1876.]



The combination of the inclined chest or chamber B, having a V-shaped bottom, and opening at one end into a furnace, A, the heat-radiating pipe E, imperforate partition O, and the transparent inverted V-shaped roof K, substantially as and for the purpose set forth.

189,473. BLACKBOARDS. H. L. Kingsley and W. P. Packard, Racine, Wis. [Filed Dec. 23, 1876.]



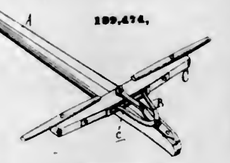
1. The blackboard A, provided with the flange *a²* and head-piece A′, rearwardly inclined from the face of said blackboard, substantially as described, and for the purpose set forth.

2. The blackboard A, provided with the flange *a²*, rearwardly-inclined head-piece A′, standards B, and chalk-trough *a*, in combination with the pivoted supports C, substantially as described, and for the purpose set forth.

189,474. WHIFFLETREE ATTACHMENTS. J. D. Lane, Onondaga, Mich. [Filed Jan. 13, 1877.]

The combination, with the pole A and evener C, of the brace B, secured to the pole, with its ends sliding in a slot formed by the plate on the back of the evener, constructed and arranged substantially as and for the purpose set forth.

189,474.



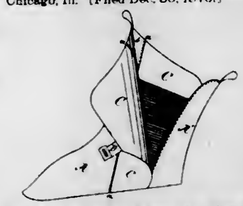
189,475. PLATFORM-SCALES. H. T. Lawton, Middletown Springs, Vt. [Filed Dec. 11, 1876.]

Brief.—Places steam-pipes below platform, to prevent obstruction of working parts by snow and ice.



In combination with the platform-scale and its pit, one or more pipes provided with an induct and educts, and arranged substantially as and for the purpose as described.

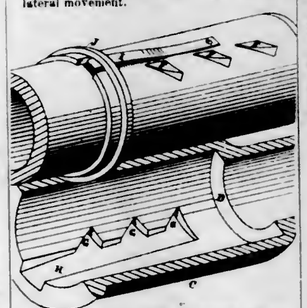
189,476. CONGRESS-GAITERS. C. Libby, Chicago, Ill. [Filed Dec. 30, 1876.]



The combination with a congress-gaiter top, consisting of front and back ankle-pieces A and A′ and the gores B B, connecting said ankle-pieces, of the lapels C C, joined to or continuous with A, seamed in with the gores at the bottom, and overlying the gores, for their concealment and protection, substantially as described and shown.

189,477. PIPE-COUPLINGS. S. Lightburns, Jr., San Francisco, Cal. [Filed Dec. 2, 1876.]

Brief.—When the lugs enter their corresponding slots they are kept from unlocking by the spring shown, said spring preventing lateral movement.

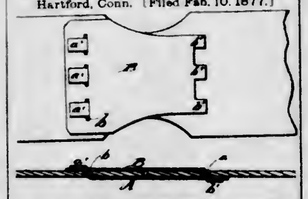


1. The coupling-section A, having the triangular inclined lugs F, as shown, in combination with the section B, having the enlargement C, said enlargement being provided with the depressions or slots G, to receive the lugs, and the beveled channels H, substantially as herein described.

2. The double-edged elastic ring E, secured to the end of the section A, and made compressible against the shoulder D by means of the lugs F and slots G, substantially as herein described.

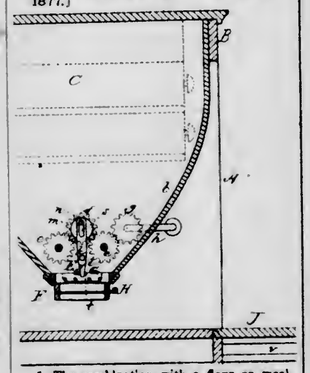
3. The piece E, provided with ring J and spring I, in combination with piece C, provided with channels H, as and for the purpose set forth.

189,478. BELT-FASTENERS. Patk. Lyons, Hartford, Conn. [Filed Feb. 10, 1877.]



In a belt-fastener, the combination, substantially as hereinbefore described, of the plate A, provided at one end with transverse slots *a*, and at the other end with raised tongues *a′*, and the plate B, provided with slots *b* and downwardly-bent tongues *b′*, as and for the purpose set forth.

189,479. COMBINED FLOUR AND PASTRY CUPBOARD AND KNEADING-BOARD. F. M. Mahan, St. Joseph, Mo. [Filed Feb. 10, 1877.]

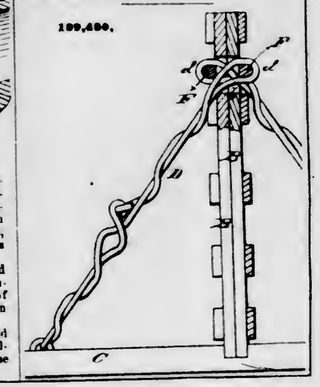


1. The combination, with a flour or meal bin having a discharge-orifice at one end, of the conveyers D D, a mechanism for rotating them in the same direction, the sifter F, and reciprocating agitating-grate G, substantially as specified.

2. In combination with the bin C, having rotary agitators at its lower end, pinions *e*, upon adjacent ends of the agitator-shafts, pinion *f*, meshing with pinions *e*, a master-gear, *g*, and its crank *h*, of the disk *m*, stud *n*, slotted lever *k*, sliding agitator G, and a sifter arranged under the discharge-orifice of the bin, substantially as specified.

3. The rests *q*, consisting of the sections *e e′*, tongued and grooved into each other, and the former extensible relative to the other, in combination with the hinged front J of a bin-case, substantially as specified.

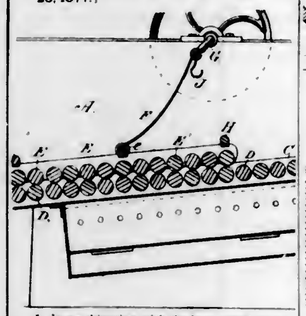
189,480.



189,480. FENCE-POSTS. W. B. Markham, Bethel, assignor of one-half his right to F. Duckett, Chapio, Ill. [Filed Feb. 10, 1877.]

The combination of two corresponding perforated battens, B B, ground-piece C, bracing-wires D D, having loops *d d*, and keys F F, substantially as and for the purpose set forth.

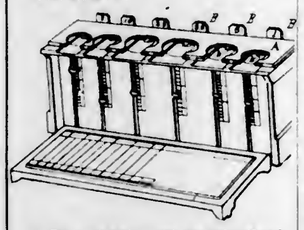
189,481. WASHING-MACHINES. Edward McBride, Vermillionville, La. [Filed Jan. 26, 1877.]



1. In combination with the lower stationary rubber C D, the top reciprocating rubber E E′, with cross-bars *e* H I, secured at its central portion to arms F F, connecting with the crank-shaft G and hook J, all constructed and arranged as described, for the purposes specified.

2. The washing-machine herein described, consisting of case A, lower rubber C D, with stationary rollers, top reciprocating rubber E E′, with revolving rollers, crank-shaft G, pitman arms F F, cross-bar H, and hook J, all constructed and arranged to operate substantially as and for the purposes described.

189,482. BOXES FOR HOLDING COIN. Chas. E. McConnell, Columbus, Wis. [Filed Feb. 20, 1877.]



1. The combination, with the spring E and follower D, of the slide B, having a beveled lug, and constructed and arranged substantially as described, and for the purposes herein set forth.

2. The combination, with cover A, of the slotted slides B B B, constructed and arranged substantially as specified.

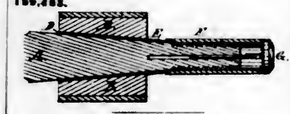
189,483. DEVICES FOR FITTING AND POLISHING CYLINDERS AND RINGS. M. H. McNair, Meadville, Pa. [Filed Oct. 12, 1876.]

Brief.—A tapered mandrel; a split cylinder with a tapered hole through it lined with a split steel ring; a short tapered ferrule abutting against the lining at its smallest end; a cylindrical ferrule abutting against the end of the tapered ferrule; and a button that covers the outer end of the cylindrical ferrule, and extends by a long stem into the end of the mandrel. Thus the split cylinder may be distended while in use by light blows upon the button. The griping device will be readily understood from the drawings.

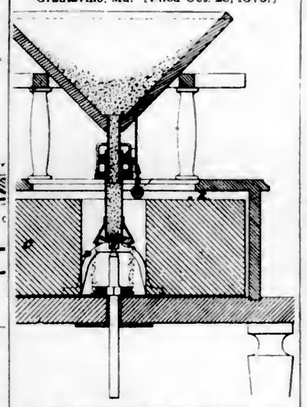
1. The combination of the tapered mandrel A, expansible cylinder and cylinder-lining B D, ferrules E and F, and button G, substantially as and for the purpose specified.

2. The combination of the tapered mandrel A, expansible cylinder B, and the griping and holding device, substantially as described, and for the purpose set forth.

189,484.



189,484. GRINDING-MILLS. J. Mellinger, Grantsville, Md. [Filed Oct. 25, 1876.]

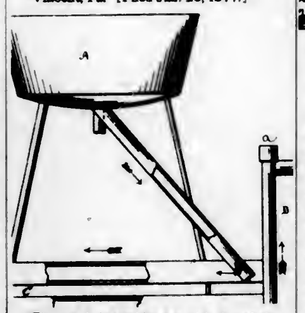


1. The combination of the adjustable feed-tube, the vertically-rocking lever, supported on the cross-bar and connected with the feed-tube, the spring connecting the inner end of the lever with the cross-bar, the yoke secured to the cross-bar, the arm pivoted to the yoke above and extending beyond the outer end of the lever, the screw passing through the arm and bearing upon the lever, and the cord secured to said arm, these members being constructed, arranged, and operating substantially as hereinbefore set forth, whereby the feed may be regulated by the screw or by the cord, either of which may be, at any time, adjusted from its respective floor to rock the adjusting-lever without interfering with the operation of the other to increase or diminish the feed.

2. The combination, substantially as hereinbefore set forth, with a valve in the hopper, controlled by the weight of the grain, and the runner, of a globular alarm-bell connected with the valve, and operated by direct contact with the runner, upon which it rolls when the hopper is empty, or nearly so.

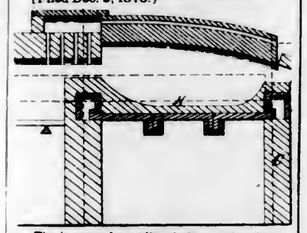
3. The combination of the runner, the cross-bar, the bell-lever pivoted to the bar, the bell flexibly suspended from the outer end of the lever, the rod pivoted to the inner end of said lever, and the valve in the hopper, against which the rod bears, these members being constructed and operating substantially as hereinbefore set forth.

189,485. MILK-COOLERS. B. Davis Miller Vincent, Pa. [Filed Jan. 26, 1877.]



The pan A, in combination with the tubular base C, consisting of the double zigzag pipe, and with the upwardly-projecting pipe D, substantially as and for the purpose set forth.

189,486. CONSTRUCTION OF REVERBERATORY FURNACES. J. Morrison, Pittsburg, Pa. [Filed Dec. 9, 1876.]



The improved metallurgic furnace hereinbefore described, having the two air-heating flues taking respectively into the front and rear walls, each passing half-way around the hearth through the boshes, and then rising to the crown, where they commonicate with an air-gathering chamber extending transversely across the crown, and from which the air-current passes into the furnace through a series of two or more cumulative delivering-slits constructed in the crown, the several parts being combined substantially as and for the purpose specified.

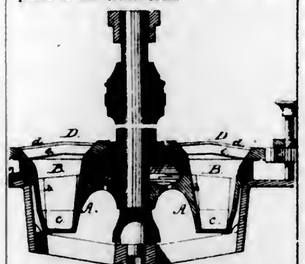
189,487. HEELS FOR BOOTS AND SHOES. Morris A. Myers, New York, N. Y. [Filed Feb. 22, 1877.]



The combination, in a shoe or boot heel, of a flanged iron having an open center, a filling containing "blind" pegs, and a covering-pad, secured to the heel by said pegs, in the manner and for the purpose set forth.

189,488. TURBINE WATER-WHEELS. Jos. Osborn and J. P. Lybarger, Delphos, Ohio. [Filed Feb. 26, 1877.]

Brief.—A concavity is formed in the base of the wheel-shaft, adapted to fit and revolve upon the conical wooden bearing, while upon the same shaft, under the coupling at the top, is placed a circular flange, which drops down over and covers the top of the stand, so as to prevent sand from getting into the working parts. The gate is opened and closed by means of a rack on one side of the gate-rim, which is operated in either direction by the pinion on the vertical shaft.



1. In a turbine water-wheel, the buckets A, formed of the inclined planes *b b* and *c*, comprising the sides and bottom of the said buckets, and cast solid with the wheel, substantially as and for the purpose described.

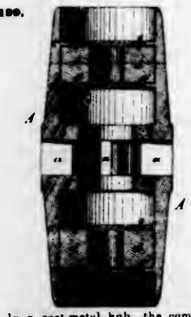
2. The buckets A, having their upper edges or rims of a concave form, in combination with the convex surface of the chutes, substantially as and for the purpose specified.

3. The gate D, formed of an angular arch, in combination with the case or chute-rim B, substantially as specified.

4. The gate D, formed of an angular arch, and provided with the correspondingly-shaped slides *e*, having angular ribs or braces *d*, substantially as and for the purpose described.

189,489. METALLIC HUBS. Chas. H. Owen, Fenton, Mich. [Filed Oct. 31, 1876.]

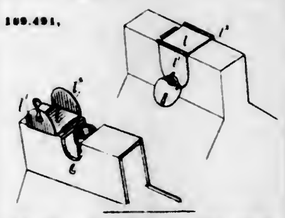
189,490.



1. In a cast-metal hub, the combination, with the shell A, having the spoke-sockets *a*, of the two sets of internal flange-rings *c c* and the two sets of friction-rollers *d*, constructed and arranged substantially as described and shown.

2. The cast-metal hub described, consisting of the shell A, the sockets *a*, the strengthening-flanges *b b*′, the internal flange-rings *c c*′, the rollers *d*, and cage-rings *e e*′, all constructed and arranged substantially as described and shown.

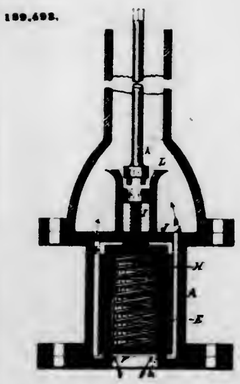
189,491.



189,492. COLLAPSIBLE CORES FOR CASTING METAL PIPES. J. Pennycook, Chicago, Ill. [Filed Aug. 10, 1876.]

Brief.—A tapering expanding-bar, with toggle-levers attached by means of fins, has a screw attached to one end by means of a swivel, so that the core may be expanded or contracted by forcing the bar longitudinally.

189,493.



189,494. SUSPENDERS. James R. Pollock, Mansfield, Ohio. [Filed Feb. 6, 1877.]

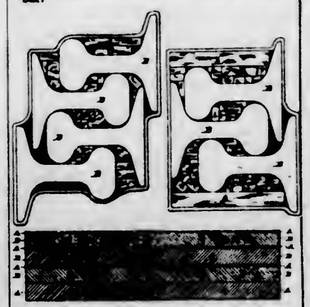


1. A suspender-button end consisting of a cord secured to the end of a piece of webbing by means of a corrugated clamp of malleable metal or analogous material, substantially as specified.

2. The suspender-button strap consisting of the loops B and E, secured to the webbing A, by means of the corrugated clamp D, substantially as set forth.

189,495. PILES FOR NAIL-PLATES. Wm. H. Powell, Belleville, Ill. [Filed Dec. 20, 1876.]

Brief.—The pile, Fig. 3, is composed of bars made from piles 1 and 2, the letters on the several piles indicating the quality of the iron, whether it be of old rail, scrap, or muck-bar.



1. The fagot constructed, substantially as shown in Fig. 2, with a number of sections, B B B, of old rail, and one or more surface-pieces of muck-bar, applied as shown at A, to produce bars *b d*, with one or more new surfaces, as and for the purpose set forth.

2. The pile for final rolling, constructed of bars *b* and *d*, made from old rail, with new surfaces, and interposed bars *c* of old rail-iron, as explained.

189,496. PLOWS. J. Reich, Buffalo, N. Y. [Filed Feb. 28, 1877.]

189,497. PACKING-CASES FOR DEMIJOHNS, &c. George W. Peck, Brooklyn, N. Y. [Filed Mar. 22, 1877.]

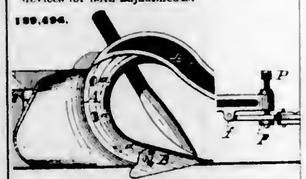
The shield *d*, having a hinge at one side, by which it is united to the top surface of the ridge of the packing-case, and provided with wings *b b*, that pass down at each side of the ridge to close the aperture therein, substantially as set forth.

189,498. SAFETY-VALVES. Ira M. Phelps, Philadelphia, Pa., assignor, by mesne assignments, to S. L. Garrett, same place. [Filed Sept. 9, 1876.]

The compression-cylinder H, set-screw I, valve-casing A, and funnel L, adapted to guide the key K, in combination with the safety-valve E, substantially as shown and described.

Brief.—Curved plow-beam with angular standard, forming a section of the mold-board, and support for the other parts. Clevis devices for both adjustments.

189,496.

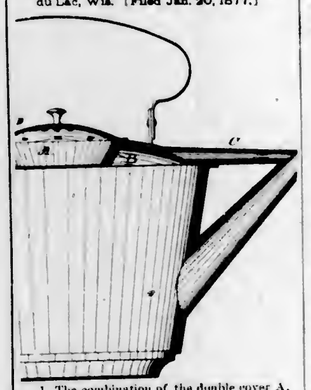


1. In a plow, the combination of the following elements: the curved beam A, having socket for the colter, and having the standard A', L-shaped in cross-section, one member forming the front portion of the mold-board, and supporting the rear wing thereof, the land-side and frame secured to the other member of the standard, forming a support for the handles, substantially as shown and described.

2. The combination, with the plow-beam A, having the lugs *f* on its forward end, of the adjusting-screw P and the pivoted open disk L, as described.

3. The combination, with the plow-beam A, having the lugs *f*, of the adjusting-screw P, the pivoted open disk L, and the clevis N, as stated.

189,497. TEA-KETTLES. J. Reinig, Fond du Lac, Wis. [Filed Jan. 20, 1877.]



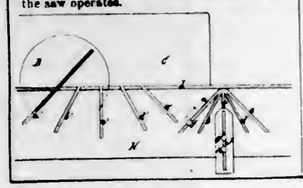
1. The combination of the double cover A, perforated on the top, with the rim B, constructed in the manner set forth, so as to make a perfectly tight joint, substantially as described.

2. The condensing tube C, combined with the top of the kettle and with the mouth of the spout, substantially as described, and for the purposes set forth.

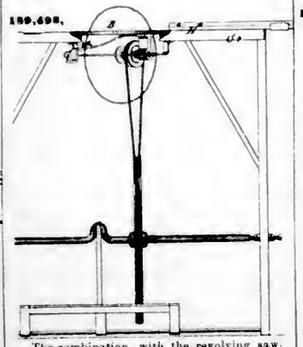
3. A tea-kettle constructed with the rim B, cover A, and condensing-tube C, combined substantially as described, and for the purposes set forth.

189,498. SAWING-MACHINES. M. Rose, New York, N. Y. [Filed Feb. 7, 1877.]

Brief.—The saw is mounted in a revolving carriage secured to a stationary table, upon which is placed a movable table having a raised edge for the work to rest against, provided with a double series of slots, by which it is guided on pins projecting from the surface of the stationary table, and provided with a series of slots, through which the saw operates.



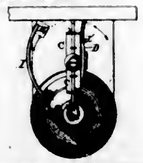
189,499.



The combination, with the revolving saw-carriage B and stationary table C, of the movable bed H, for supporting and guiding the work, said bed having the guide-slots *a b c d e* and *a' b' c' d' e'*, substantially as and for the purpose described.

189,499. DEVICES FOR LIGHTING NIGHT-LAMPS. J. R. Rowlands, Lancaster, Ohio. [Filed Nov. 18, 1876.]

Brief.—The plate which holds the matches is attached to a vertical spring-rod, which, when wound up, is held from returning by a double-acting lever, D, to which, at its rear end, a cord is attached.



1. In a night-lamp-lighting apparatus, the combination of a rotating lever with a match at each end, and actuated by a coil-spring, a double-acting trigger, and a friction arm, substantially as and for the purposes herein set forth.

2. The combination of the pivoted lever C, with match-holders *x* at each end, the coil-spring *s*, trigger D, with lugs *d d'*, spring *f*, and wires connecting with the pendent handle G, for the purposes herein set forth.

3. The friction-arm I, pivoted to the standard H at one of its ends, so that it can be raised up out of the way of the matches while the arm C is being wound up, as herein set forth.

189,500. KNITTING-MACHINE NEEDLES. L. E. Salisbury, Providence, R. I. [Filed Jan. 22, 1877.]

Brief.—The receiving and casting off of the yarn is controlled by a bridge and guard sliding in the cavity of the hook.



A knitting-machine needle having a suitable shank and a rigid main hook, in combination with a sliding guard, provided with a hook and a heel, substantially as described, whereby said guard may be wholly controlled by the yarn, as set forth.

189,501. KNITTING-MACHINE NEEDLES. L. E. Salisbury, Providence, R. I. [Filed Jan. 17, 1877.]

Brief.—The receiving and casting off of the yarn is controlled by means of a finger arranged wholly within the spring-hook.

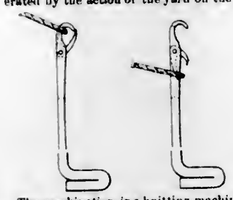
A knitting-machine needle having a spring-hook which is normally closed, and a movable finger which is attached to the shank of the needle, located wholly within the spring-hook, and arranged to engage with the inner surface of said hook, substantially as described.

189,501.



189,502. KNITTING-MACHINE NEEDLES. L. E. Salisbury, Providence, R. I. [Filed Nov. 7, 1876.]

Brief.—In place of the ordinary latch, the needle has a combined hook and guard, the guard serving as a latch, but in all cases operated by the action of the yarn on the hook.



The combination, in a knitting-machine needle, of a suitable shank with a combined hook and guard, connected with each other and pivoted to the shank, substantially as described, whereby yarn, when fed to the needle below the hook, will, when the needle descends, by contact with the hook, cause the guard to be elevated and afford free passage through the loop last formed, and also whereby, when no yarn is fed to the needle, the loop last formed, by contact with said hook, will cause the guard to be elevated, and prevent the loop from being cast off by retaining said loop within the hook, substantially as set forth.

189,503. KEYS FOR LOCKS. John Schade, Stamford, Conn., assignor to the Yale Lock Manufacturing Company, same place. [Filed Mar. 13, 1877.]



1. A composite key formed of a sheet-metal shank and bow, a cast-metal stem, and a bit secured in a slotted recess in the stem, substantially as described.

2. The combination of a sheet-metal key shank and bow, unprovided with a bit, and a solid cast-metal stem, unprovided with a bit, substantially as and for the purpose described.

3. The process of forming a key, substantially as described, consisting in stamping out the bow and shank, casting the stem upon it, and then forming a slotted recess in the stem, and securing the bit within it.

189,504. PROCESSES FOR CLARIFYING SUGAR. John Schwartz, Pelham Street, Mile End, New Town, England. [Filed Dec. 12, 1876.]

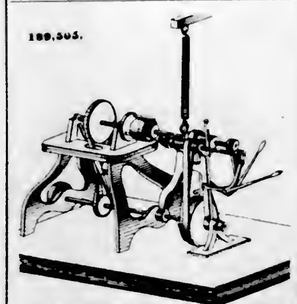
Brief.—Cold water or liquor, reduced to a temperature of about 32° Fahrenheit, is sprayed upon sugar under treatment in molds or centrifugal machines, to clarify it without melting the sugar-crystals.

The process of clarifying raw and refined sugar, which consists in submitting it to the action of a spray of water or sugar-liquor reduced to a temperature of 32° Fahrenheit, or thereabout, the same being evenly diffused through the sugar mass by centrifugal force, substantially as and for the purpose specified.

189,505. MACHINES FOR GRINDING AND POLISHING HOLLOW-WARE. Wm. Scully, Detroit, Mich., assignor to the Detroit Iron and Brass Manufacturing Company, same place. [Filed Nov. 25, 1876.]

Brief.—A series of grinding-tools, graduated from coarse to fine, are supported by a frame pivoted at its bottom, so as to be brought into use alternately. The holding-chuck is mounted on a table or base capable of partial rotation, so as to present the article at different angles to the grinding-tools.

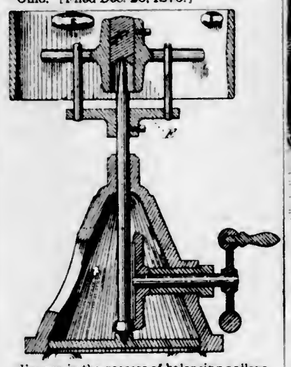
189,505.



1. The combination, with a rotary tail spindle and chuck adapted to receive and secure an article of hollow-ware, of a swinging frame and a gang of grinding-wheel spindles, susceptible of longitudinal adjustment in their bearings, all of which spindles are driven from the same shaft, substantially as described.

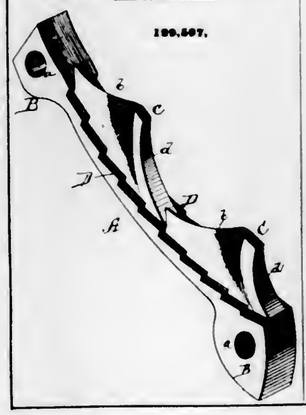
2. In a grinding machine, substantially as described, the swinging frame, carrying a gang of grinding-spindles, all driven by belts from a pulley on the main shaft, and susceptible of independent longitudinal adjustment to and from the surface of the work, substantially as set forth.

189,506. DEVICES FOR BALANCING FLY-WHEELS, &c. Chas. Seymour, Defiance, Ohio. [Filed Dec. 20, 1876.]



For use in the process of balancing pulleys, &c., the apparatus consisting of a spindle, a supporting base or frame, and a gear for rotating said spindle, a yoke, E, vertical arms, and a step-block, F, all constructed as shown and described.

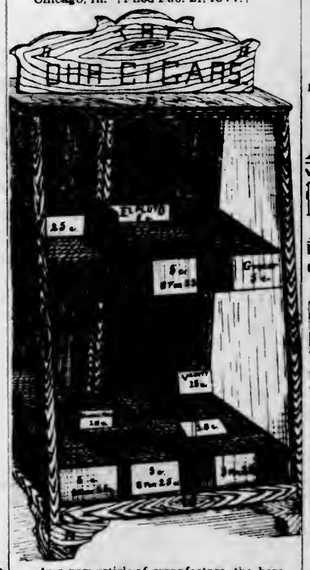
189,507.



189,507. CONCAVES FOR THRASHING-MACHINES. John H. Sharp, Doylestown, Pa. [Filed Feb. 17, 1877.]

In a concave for thrashing machines made in sections, the section A, provided with the perforated heads B B, projecting teeth C C, formed with sharp front edges *b*, and arranged in line, as shown, and the series of side teeth D on both sides of the teeth C, along the edges of the section substantially as and for the purposes herein set forth.

189,508. SHOW-CASES. Wm. T. Sherer, Chicago, Ill. [Filed Feb. 21, 1877.]



As a new article of manufacture, the here-inbefore-described show-case, having vertical glazed ends, an upward and rearward inclining glazed front side, and a vertical rear side inclosed by folding doors, which are covered by mirrors upon their front sides, substantially as and for the purpose specified.

189,509. CHANDELIERS. F. S. Shirley, New Bedford, Mass. [Filed Mar. 6, 1877.]



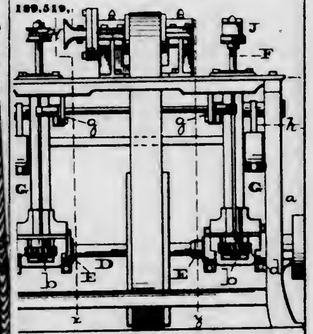
1. In a chandelier, the combination of a pipe, *e*, the cup A, nose-piece *b*, a rod, *i*, attached to the cup, and a mechanism for raising and lowering the cup, substantially as shown.

2. A cup, A, filled with mercury, glycerine, or other material, in combination with the rod *i*, pipe *e*, having slots 2, rod 1, and knob 3, having screw-threads for the rod 1 to catch in, substantially as described.

189,510. MACHINES FOR MAKING WOODEN RODS AND DOWEL-PINS. H. B. Smith and J. Salter, Jr., Smithville, N. J. [Filed Nov. 20, 1876.]

Brief.—Wooden dowel-pins and similar articles are formed by means of a hollow rotary cutter attached to a hollow axial shaft; a pair of laterally-adjustable feed rollers, mounted on vertical shafts, whose bearings open and close in reverse order, and have a common axis, and provided with V-shaped grooves and serrated surfaces at the center of said grooves; a pair of laterally and vertically adjustable discharge-rollers, formed with shoulders at opposite ends, and arranged with their central portions coincident with the openings of the cutter, and adapted to fit finished rods of any size; screw-stops for limiting the closing movements of the feed-rollers, and suitable operating mechanism. The main shaft is relieved of the weight and strain of the feed-rollers, roller-shafts, and bearing-arms by means of independently-supported sleeves encircling worms upon said shaft, and provided with side openings, into which project worm-wheels attached to the feed-roller shafts, and which mesh with said worms.

189,510.



1. The combination of the rotary shafts F, carrying the feed-rollers H and J, the shaft-bearing arms G, the levers *g* and *h*, and gearing *b d*, substantially as shown and described.

2. The combination of the sleeves E, main shaft D, gearing *b d*, feed-roller shafts F, and shaft-bearing arms G, constructed and arranged substantially as shown, for the purpose specified.

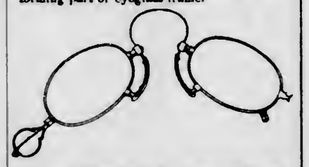
3. The feed-rollers J, constructed as shown in Fig. 4, having shoulders at opposite ends, and adjustable relatively to one another, substantially as and for the purpose specified.

4. The feed-rollers H, formed of V-grooves, with smooth sides and serrations or corrugations at the center or angle, substantially as and for the purpose set forth.

5. The bearing-arms G of the roller-shafts F, and the connected levers *g*, in combination with the adjusting or regulating screw-stop K, substantially as and for the purpose set forth.

189,511. EYEGLASSES. John S. Spencer, New York, N. Y. [Filed June 7, 1876.]

Brief.—Suspending-hook attached to and forming part of eyeglass-frame.



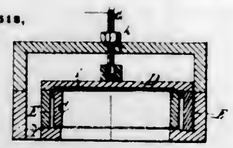
1. The combination of a suspending and fastening attachment to the frame of an eyeglass, substantially as herein represented and described.

2. As a new article of manufacture, an eyeglass provided with a self-attachable suspending hook, substantially as herein represented and described.

189,512. BALANCED VALVES. W. Stephens, Pittston, Pa. [Filed Feb. 13, 1877.]

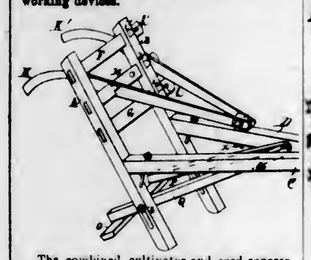
The combination, in a slide-valve for steam-engines, of the raised seat *m* and shouldered supports E within the valve-chest, the valve C, having enlarged back projections *x*, the plate D, provided with recesses *i* and lugs *d*, and the bolts G, with nuts *h*, all constructed and arranged to operate substantially as and for the purposes herein set forth.

189,512.



189,512. CULTIVATORS. Jas. C. Stevens, Pleasant Hill, La. [Filed Jan. 22, 1877.]

Brief.—Construction of the frame for adjustment, and to adapt it for interchangeable working devices.



The combined cultivator and seed-coverer herein described, composed of the main beam D, the angular beam C, adjustable on the main beam, the slotted standards A B, the adjustable cross-bars F G M, and the laterally-adjustable handles K K', adapted to carry the covering devices O P Q or cultivator-teeth and shovels, substantially as shown and described.

189,514. STREET AND PARK LAMPS. Jas. Stimpson, Baldwinsville, Mass. [Filed Mar. 21, 1877.]



1. The combination, with a lamp-post, of a pivoted lever and lantern, substantially as and for the purpose described.

2. The pivoted lever, lantern, and post, in combination with a locking device to hold the lever in an upright position.

3. A locking device, in combination with a lantern-cage and its carrying-lever, to operate substantially as described.

189,515. GIMP-LOOMS. Robt. Stone, Coventry, England. [Filed Aug. 31, 1876.]

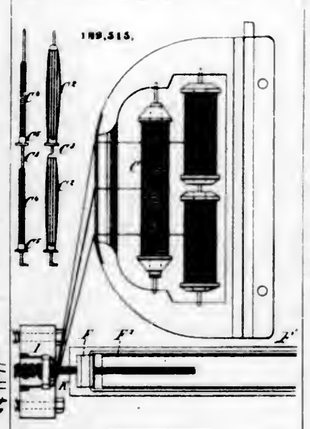
Brief.—The crooked pin-wires of the shuttle are provided with helical springs, one end of which is secured to the pin wire, and the opposite end to a bush loose upon said wire. The bush fits into the tube with sufficient closeness to cause the latter, when turned, to coil up the spring. When, however, the spring is coiled tight, the tube will be turned by the further unwinding of the bobbin, thereby providing an additional protection against the breakage of the spring. The reed is held down by a spring strut-piece, which allows the reed to be pushed out should a shuttle be caught. A yielding table with a pressure-spring is provided for making the loops.

1. The combination, with a gimp-loom shuttle, of two crooked pin-wires, C^3, (for each shuttle,) placed parallel to each other and longitudinally of the shuttle, such pin-wires being fitted with helical springs C^4 and bushes C^5, the same being inclosed in tubes C^1, having attached to their exterior retaining-springs C^2 for holding three or more bobbins in place in the shuttle, such arrangement being designed to maintain the tension of the several weft-threads, while providing for unequal rates of delivery during the throw of the shuttle.

2. The combination of the socketed reed-frame F^1, the self-liberating reed F, and the elastic strut or clip-piece F^2, substantially as and for the purpose above described.

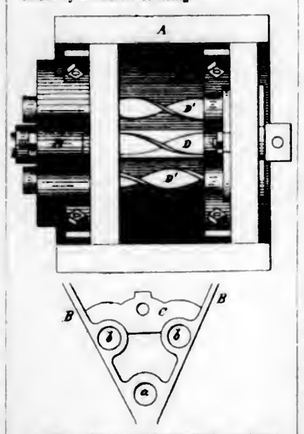
3. The combination of the yielding table I and its return-springs, with the spring-presser K and the reed F, for automatically bringing the loops of gimp to shape, as the beating up takes place, and the work is wound upon the work-roll, essentially as described.

189,515.



189,515. SEEDER AND FERTILIZER. Oren Stone, Flint, Mich., assignor of one-half his right to Oliver Perry, same place. [Filed Mar. 15, 1877.]

Brief.—The spiral distributing-shafts are journaled in V-shaped castings, that are secured, one to the outside and the other to the inside of the hopper. The two upper shafts or agitators are made to run faster than the lower or discharge shaft, for feeding out the material to be sown. The gearing is protected by a suitable covering.



1. The castings herein described, consisting of the inclined side straps B B, united at their lower ends, connected by the cross-bar C, and formed with the boxes *a* and *b b*, substantially as and for the purposes herein set forth.

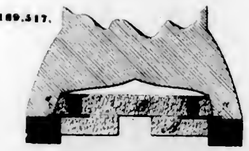
2. In a seed or fertilizer hopper, the twisted agitators D and D' D', arranged as described, and rotating at varying rates of speed, substantially as and for the purposes herein set forth.

3. The combination, with the hopper A, of the castings B C B C, twisted agitators D D', gear-wheels G G', of varying size, provided with slotted journals *d*, and the cap H, substantially as and for the purposes herein set forth.

189,517. MOISTENING-PADS. Charles E. Stockder, West Meriden, assignor to Wm. H. Maguire, same place, and L. C. Whitney, South Meriden, Conn. [Filed Feb. 5, 1877.]

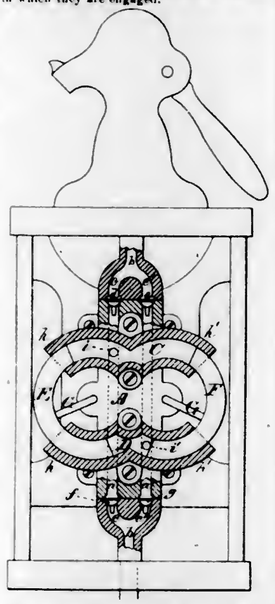
The herein-described moistening-pad for horses' feet, consisting of the fibrous or absorbing material, provided with lugs *a*, for attaching the same within the shoe, substantially as specified.

189,517.



189,518. SUCTION AND FORCE PUMPS. T. B. Swan, Mechanics Falls, Me. [Filed Mar. 14, 1877.]

Brief.—The body of the pump has two parallel ducts extending from end to end. The pump-barrels are in the form of sections of an annulus. Curved plungers fit the bore, and are of the same curvature as the barrels in which they are engaged.

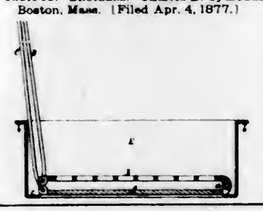


1. In a combined lifting and force pump, the body A, having ducts *a a'*, and valves *d* and *e* and *f* and *g*, respectively, at the upper and lower ends of said ducts, the curved barrels C D, communicating the one with duct *a*, and the other with duct *a'*, the curved pistons E F, engaged in said barrels, and, as described, for operating said pistons, combined substantially as specified.

2. The curved endwise-reciprocating pistons E F and curved barrels C D, combined with the body A, having ducts *a a'*, valves *d e* and *f g*, and orifices *i i'*, respectively connecting the barrels C D with their ducts *a a'*, substantially as specified.

3. The combination, with the valved and channeled body A and the curved barrels C D, communicating therewith through passages *i i'*, of the curved reciprocating pistons E F, substantially as specified.

189,519. BROILERS. Charles D. Symonds, Boston, Mass. [Filed Apr. 4, 1877.]



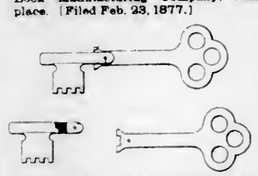
The combination of the double-flanged ring E, as described, with the two grids A B and the two handles C D, all arranged and connected together substantially as shown and explained.

189,520. STOCK FOR THE MANUFACTURE OF KEYS. W. H. Taylor, Stamford, Conn., assignor to the Yale Lock Manufacturing Company, same place. [Filed Feb. 26, 1877.]



A blank for the manufacture of key-stems and bits, of the form shown and described.

189,521. KEYS FOR LOCKS. W. H. Taylor, Stamford, Conn., assignor to the Yale Lock Manufacturing Company, same place. [Filed Feb. 23, 1877.]



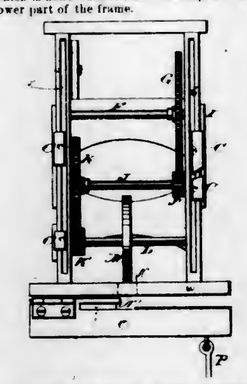
1. A key shank and bow without bit or stem, formed of one piece of sheet metal, and provided with a slot in its end for uniting it with the stem, substantially as described.

2. The combination of a sheet-metal bow and shank, slotted at its end, with a round slotted stem, carrying a bit, substantially as described.

3. The combination of a sheet-metal bow and shank with a round slotted stem, carrying a bit, when the shank is wider at the point of junction with the stem than the diameter of the stem, for the purpose specified.

189,522. SAW-GRINDERS. E. P. Terrell, Bloom Centre, Ohio. [Filed Oct. 28, 1876.]

Brief.—The grinder and train of gearing to drive it are journaled in a vertically-sliding sash or frame, so as to control the grinding, which is done while the saw is clamped in the lower part of the frame.



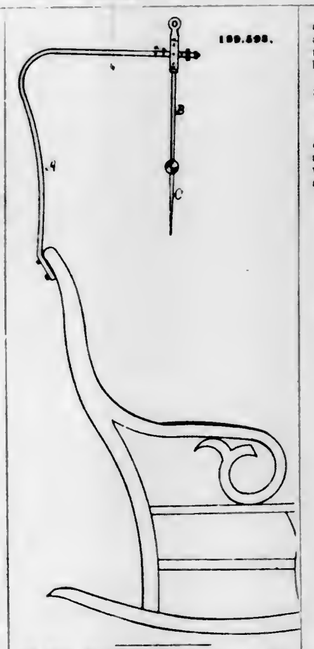
1. In a saw-sharpening machine, the piece O, hinged to the bed-piece A, and provided with a recess, *r'*, for the reception of a circular saw, in combination with the hook P and sockets *r*, substantially as described, and for the purpose set forth.

2. The combination of shafts F, J, and L, with gear-wheels G, J, K, and K', and dressing-wheel M, all journaled in sliding sash D, substantially as set forth.

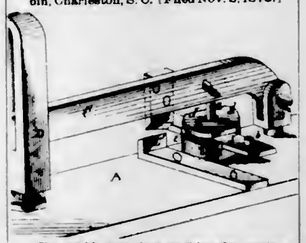
189,523. FAN ATTACHMENTS. K. Thompson and L. G. Bergstrom, Norwalk, Ohio. [Filed Feb. 12, 1877.]

A fan attachment for rocking-chairs, having a rod, A, and pendant B, said parts being provided with holes *a a a*, and a pin, *b*, by which the position of the fan can be regulated, substantially as set forth.

189,523.

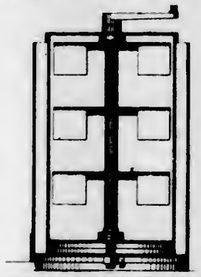


189,524. MACHINES FOR CUTTING AND PUNCHING COTTON-BALE TIES. J. R. Tobin, Charleston, S. C. [Filed Nov. 8, 1876.]



The combination, in a machine for cutting and punching cotton-bale ties, of the bed-plate A, provided with cutter E', adjustable anvil H, tapering die I, and perforated top cap J, and the lever C, pivoted to the fork B, and provided with the punch G and cutter E, all constructed and operating substantially as and for the purposes herein set forth.

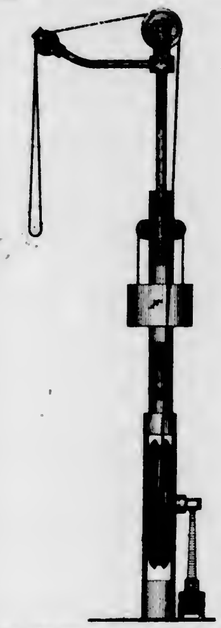
189,525. ICE-MACHINES. S. Tragheim, New York, N. Y. [Filed Feb. 1, 1877.]



The combination, in an apparatus for manufacturing ice, of an inner and an outer chamber, the inner chamber containing an agitator and the refrigerating or freezing material, and the outer chamber containing the water to be frozen into blocks or cakes, substantially as herein shown and described.

189,526. DENTAL ENGINES. G. W. Tripp, Auburn, N. Y., assignor to S. S. White, Philadelphia, Pa. [Filed Mar. 22, 1877.]

Brief.—The telescoping vertical rod, which carries a horizontal rod and pulleys, is balanced at various heights by a perforated weight, which works over the hollow vertical standard.



1. The combination, substantially as hereinbefore set forth, of a base or stand, a shaft rising therefrom, a rod telescoping and turning in said shaft, and a balance-weight acting upon said rod, for the purposes set forth.

2. The combination, substantially as hereinbefore set forth, of the tubular shaft, the telescoping-rod, its arm projecting at right angles therefrom, the pulleys, carried by the rod and arm, and the balance-weight, for the purposes set forth.

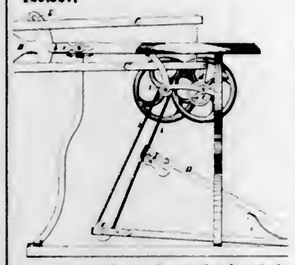
3. The combination, substantially as hereinbefore set forth, of the tubular shaft, its telescoping and turning rod, and a spring detent to lock the shaft and rod together.

4. The combination, substantially as hereinbefore set forth, of the base or stand, the driving-pulley, the shaft, the telescoping-rod, its projecting arm, the pulleys carried by the rod and arm, the balancing-weight, the belt-connections, and a hand-piece, these members being constructed to operate in combination, for the purposes set forth.

189,527. SCROLL-SAWING MACHINES. G. H. Truxell, Greensburg, Pa., assignor of one-half his right to Wm. Truxell, same place. [Filed Aug. 16, 1876.]

Brief.—The loss of power is obviated by means of a two-part treadle, its upper and lower parts held apart by a spring, and its upper part carrying a gravity friction-clutch. Tension is given the saw, and the saw-arms adapted to various lengths of blade by a bracket pivoted to a rear extension of the table, and provided with upper and lower projections, to which are pivoted the outer ends of the arms, and with an upper projection having a curved slot to receive a set-screw on the upper arm. The length of stroke is varied, as required, by an adjustable eccentric slotted diametrically, and secured to the power-wheel by a set-screw passing through the slot.

189,527.



1. The pivoted brace B, slotted as described, in combination with the arm or arms of the saw, substantially as specified.

2. In combination with brace B and extension a, the guide-piece b, substantially as described.

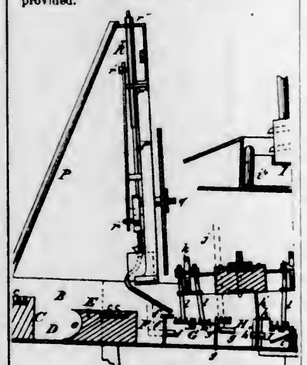
3. In combination with wheel *f*, rod *d*, and saw-frame C C', &c., an adjustable eccentric, *e*, to regulate the length of stroke of the pitman, substantially as specified.

4. The combination of a continuous cord or band, *k*, a clutch operating substantially as described, pulleys i and o, and a two-part treadle sprung apart by a spring, *s*, substantially as and for the purpose described.

5. The two-part treadle, the upper carrying a gravity friction clutch, and the lower a pulley or band-wheel, and held apart normally by a spring, *s*, substantially as and for the purpose described.

189,528. COMBINED WASHER AND AMALGAMATOR. B. Tyson, Washington, D. C. [Filed Mar. 3, 1877.]

Brief.—The gold bearing débris passes, with the water of the flume, through the grate-bars situated at the head of the washer, thence descending from riffle to riffle, and through the various compartments of the washer, until finally it overflows at the tail-piece. Mercury contained in the troughs and riffle arrests, separates, and retains the fine gold; a series of bars reciprocating across the machine assisting amalgamation. A device for automatically feeding the mercury is provided.



1. The removable grate-bar a, provided with the groove a^2 in the side of the web part, as and for the purposes described.

2. In a machine for washing and amalgamating gold, the grate to receive the gold-bearing earth, composed of the sides a'', transverse plates a''', grate-bars a, and keys a^4, all constructed and arranged as and for the purposes substantially as described.

3. The combination, with the riffle-arrest C, of the removable grate X, seated in its upper face, and provided with a series of parallel grooves or pockets, substantially as herein set forth.

4. The riffle or arrest E, provided with a concave, *s*, in its upstream face, as and for the purposes substantially as described.

5. The riffle *f*, having a projecting top, *f'*, in combination with reciprocating agitator-bars *m* and *m'*, as and for the purposes described.

6. The reciprocating bars *m* and *m'*, provided with angular projections 6 on their under sides, substantially as and for the purposes described.

7. The reciprocating agitator-bars *m* and *m'*, having ribs 2 and intervening grooves 3 on their upper sides, substantially as and for the purposes described.

8. The reciprocating agitator-bars *m* and *m'*, provided with mortises or holes 5, formed transversely through the bars, substantially as and for the purposes described.

9. The agitator-bars *m* and *m'*, provided with ribs 2, intervening grooves 3, and mortises 5, as and for the purposes described.

10. The reciprocating agitator-bar *n*, having a series of pins on its top side, and angular projections on its under sides, substantially as described.

11. The reciprocating agitator-bar *n'*, angular in form, and with pins projecting from its sides, substantially as described.

12. In a machine for washing and amalgamating gold, a reciprocating agitator, composed of the frame L, agitator-bars *m* and *m'* *n* and *n'*, constructed as described, in combination with two or more grooved riffles, such as *f g h*, and trough I', as and for the purposes described.

13. The trough I', having transverse blocks i^3 and nozzles i^4, in combination with the agitator-bars *n'*, as and for the purposes substantially as described.

14. The final riffle J, with the grooves or grating on its top, constructed as shown, in combination with the trough I', provided with the water-nozzles i^4, and the reciprocating agitator-bar *n'*, as and for the purposes described.

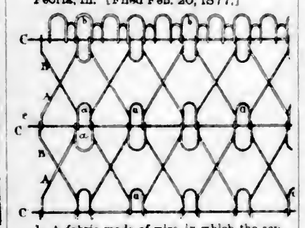
15. The combination, with the water-pipes f''' and riffle f_1 of reciprocating agitators *m* *m'*, in the manner and for the purpose described.

16. The combination, with agitators *m* *m'* and riffle *g*, of the bent water-pipe *g'*, giving a jet of water forward of riffle *g'*, in the manner and for the purpose substantially as described.

17. The combination, with agitators *n* *n'* and trough I', provided with inclined plates i^5, of the water-pipe h''', giving a jet of water upon said plates i^5, as and for the purposes described.

18. In a machine for washing and amalgamating gold, the automatic device for supplying quicksilver in the operation, consisting of the combination of the adjustable plunger T, reciprocating cup T', cistern V, funnel e, and pipe e', substantially in the manner and for the purpose described.

189,529. WIRE FABRICS. H. R. Van Epe, Peoria, Ill. [Filed Feb. 20, 1877.]



1. A fabric made of wire, in which the separate zigzag divisions which form the article are united to a continuous wire by turning the loops or points of each bend or zigzag over said continuous rod or wire, the common bond of union between each adjoining zigzag division, substantially as and for the purposes described.

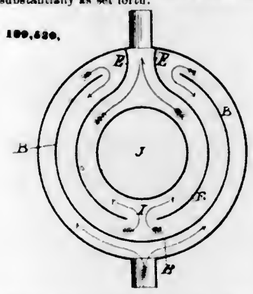
2. The wire sections A, (or A and B_1) of a zigzag form, united to wires C by turning over the loops a, or the points of the zigzag sections A B, to form, with several such sections or divisions and rods C, a flat article, or an article made up of curves, substantially as and for the purposes set forth.

3. The combination, in a wire fabric, of the divisional connecting loops a and the uniting-wire C, substantially as and for the purposes described.

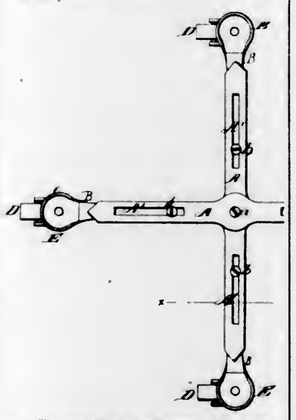
189,530. STOVE-DRUMS. G. W. Voeburgh and H. Van Slyck, Waterloo, Wis. [Filed Dec. 29, 1876.]

A stove-drum constructed, as described, with the external central opening or air passage J, and the internal deflecting-partitions B E E, arranged as described, so as to cause the products of combustion to circulate within, and not pass directly through, the drum, substantially as set forth.

189,530.



189,531. STOVE-CASTER FRAMES. Ellison H. Voorhees, Pella, Iowa. [Filed Feb. 3, 1877.]



1. The combination, in a supporting frame for stoves, of crossed bars A A, pivoted together at their middle points, with extension-bars B B and standards or legs C C, the said frame being adjustable longitudinally and laterally, substantially as and for the purpose set forth.

2. The combination of crossed bars A A, pivoted together at their middle points, longitudinally slotted and recessed near their ends, as described, with extension-bars B B, having stove-feet-holders E, standards C, and casters D, substantially as and for the purpose set forth.

189,532. PRINTING-PRESSES. Josiah Wade, Halifax, England. [Filed Jan. 7, 1875.]

Brief.—The main shaft, on which the platen is sleeved, carries a cam, which rocks a shaft having a segment-arm geared to a segment fixed to the platen. Crank-wheels on the main shaft are connected to an eccentric shaft mounted in the pivoted bed-frame, which is oscillated by the cranks, and receives additional motion by the rocking of the eccentric shaft, which carries a cam-arm engaging a stop-stud on an adjustable sliding rod. The turning of the rod, disengaging stud and arm, avoids an impression. The ink-roller frame is detachably connected to a rocking lever-arm, jointed to a band on one of the crank-wheels. The ink-fountain is adjustable at the edge of the distributing-disk. The edges of jointed adjustable gages are perforated to receive pins to hold down the edges of the sheet to the platen.

1. The combination of the oscillating bed and the automatically-rocking eccentric shaft, mounted in the bed-frame, substantially as described.

2. The combination of the bed-frame, the crank-wheels, and connecting-rods, and the automatically-rocking eccentric shaft, substantially as described.

3. The oscillating bed and the rocking eccentric shaft, mounted in the bed-frame, and having a cam-arm in combination with the stop-stud, substantially as described.

4. The oscillating bed and the rocking eccentric shaft mounted in the bed-frame, and having a cam-arm, in combination with the stop-stud, the spring 34, and stops 34A 34B, substantially as described.

5. The combination of the oscillating bed, the rocking eccentric shaft, having a cam-arm, and the adjustable stop-stud, substantially as described.

6. The oscillating bed and the rocking eccentric shaft, having a cam-arm, with a swiveled guide-stud thereon, combined with the sliding rod, having a stop-stud thereon, substantially as described.

7. The sliding rod bearing a stop-stud and a pin, in combination with the cam-arm, the eccentric rocking shaft, and the oscillating bed, substantially as described.

8. The revolving shaft 35A, carrying a cam, and the crank-wheels oscillating the bed; the platen, sleeved on said shaft and provided with a segment-gear, 22, and the rock-shaft 18, carrying a segment-gear, 17, and having a crank-arm, 19, all combined and operating substantially as described.

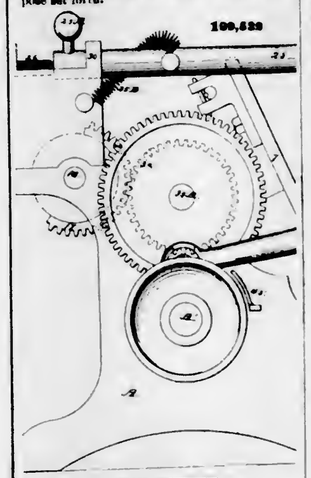
9. The adjustable gage, provided with holes for receiving the sheet-holding pins, substantially as described.

10. The jointed adjustable gage, combined with the pivoted adjustable links, substantially as described.

11. The combination of the ink-roller frame with mechanism substantially as described, for oscillating said frame, and a locking-nut, for connecting and disconnecting said frame with or from said mechanism, substantially as described.

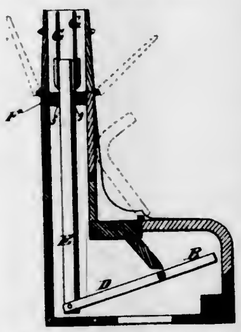
12. The combination of the ink-fountain 57, adjusting-screw 58, roller 56, screws 60 and 62, and clip-piece 63, all as and for the purpose set forth.

189,533



189,533. APPARATUS FOR TEACHING SPELLING. David A. Willbanks, Monroe, Ga. [Filed Sept. 30, 1876.]

Brief.—A key-board exhibits a letter or word upon pressing each key thereof.

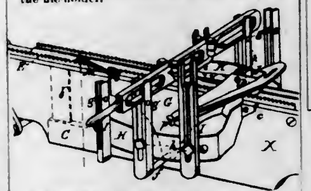


1. The combination of a series of keys, B, with a series of levers, D, a series of vertically-sliding rods, E, and a series of letter-slides or letter-plates, G, substantially as set forth.

2. The combination of a key, B, a lever, D, a vertical rod, E, a letter-slide or letter-plate, G, and a perforated guide-board or guide-plate, F, substantially as set forth.

189,534. SAW-SHARPENERS. John Walsh, Newton, Iowa. [Filed Oct. 5, 1876.]

Brief.—Depth of cut of file regulated by guide-rods on each side of file. A notched gage-plate, to properly space the teeth, connected to hand-slides, which rest by means of flanges on the upper edges of the saw-clamp. Adjustable guide-standards on each side, for the file-holder.



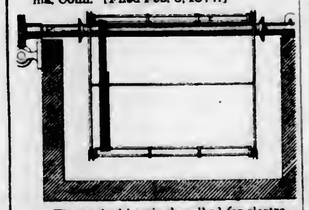
The clamp X, constructed as shown and described, and strip E, in combination with side plates G G, spring-catch M, adjustable standards I I, file-holder M, gage-rods *s s*, and tooth-gage K, all arranged substantially as and for the purpose set forth.

189,535. TREATING HIDES AND SKINS. N. Wilson, Becket, Mass. [Filed Jan. 2, 1877.]

Brief.—After the hides or skins have been limed, they are treated in a solution of ground barley, chloride of sodium, saltpeter, sulphate of magnesia, or Epsom salts, sulphuric acid, and water.

In the process of tanning hides or skins after they have been subjected to the action of lime for removing the hair, &c., the treating of them to a compound or solution, substantially as described.

189,536. ELECTROPLATING WIRE. Wm. Wallace, Ansonia, Conn., and L. L. Smith, Passaic, N. J., assignors to Wallace & Sons, Ansonia, Conn. [Filed Feb. 5, 1877.]

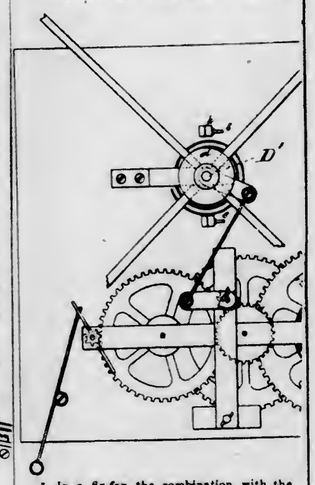


1. The method herein described for electroplating coils of wire, consisting in separating or distributing the convolutions forming the coil in substantially an axial line with each other, and then subjecting them to the action of the coating-bath during their gradual rotation, substantially as described.

2. The herein-described reel or frame, consisting of the two rings or heads, connected together by one or more pairs of longitudinal rods, the outer one of each pair being detachable from the end rings, and between which and the inner rods the wire to be plated is secured before placing in the bath, substantially as and for the purpose described.

3. In combination with an electroplating-vessel and a frame for holding the coils of wire to be plated, a friction rotating axis, for imparting a rotary motion to the said frame, the combination being substantially as and for the purpose described.

189,537. FLY-FANS. George W. J. Wolm, Greenfield, Ohio. [Filed Feb. 17, 1877.]



1. In a fly-fan, the combination, with the oscillating fan-shaft D, of the springs *s*, for preventing jarring, substantially as specified.

2. The longitudinally-slotted clamp *k*, in combination with a fly-fan arm and a "brush" wrapped around the same, substantially as specified.

3. In combination with the oscillating shaft D, the spring *s* and the oscillating spring l, for the prevention of jarring, substantially as specified.

189,538. PRODUCTION OF COLORING MATTERS FROM ANILINE. Justus Wolff, Wyke, near Bradford, and Ralph Betley, Wigan, England. [Filed Jan. 23, 1877.]

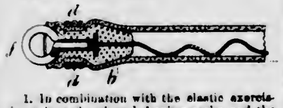
1. The production of a dye, or of a series of dyes, from aniline, or from toluidine, or from mixtures of the same, and either with or without the employment of xylidine, together with nitro-benzole or nitro-toluol, or mixtures of the same, in conjunction with metallic salts, as herein mentioned, in the manner and for the purposes as hereinbefore described.

2. The production of coloring matters from aniline, in conjunction with nitro-benzole, by the employment of hydrochloric acid, or of other suitable hydrogen acids, in the manner hereinbefore described.

3. The production of coloring matters from aniline by the employment of arsenic acid, or, of other metallic oxygen acids, in the manner and for the purposes hereinbefore described.

4. The production from aniline, partially or completely neutralized or saturated by hydrochloric acid, or by any other suitable acid, and treated in the manner hereinbefore described, of coloring matters soluble in water, or in acidulated water, at an elevated temperature, the same being capable of dyeing various shades of black and gray on wool, cotton, and other fabrics.

189,539. EXERCISING-MACHINES. Geo. W. Wood, New York, N. Y., assignor to M. M. Stanfield and H. W. Wood, same place. [Filed Mar. 24, 1877.]

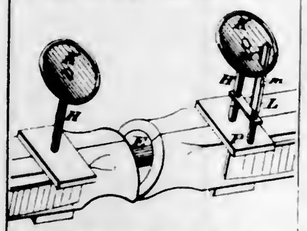


1. In combination with the elastic exercising-tube *a*, the plugs *b*, having necks, and the elastic bands *d*, confining the tube into said necks, substantially as set forth.

2. The combination, with the elastic exercising-tube and the end plugs thereof, of the hooks or eyes *f*, attached to said plugs, substantially as set forth.

3. In the exercising apparatus, the combination, with the elastic exercising-tube and connecting eyes or staples, of the lever *g*, substantially as set forth.

189,540. CAR-COUPLINGS. Jacob B. Zink, Union City, Mich. [Filed Jan. 18, 1877.]

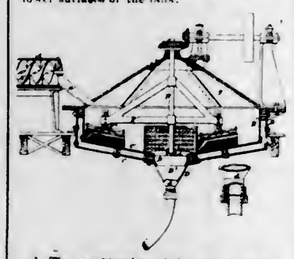


1. The combination, with the draw-head, constructed with fixed and spring-pressed jaws, of a cam, G, and locking mechanism M m L P, substantially as and for the purpose set forth.

2. The combination, with the draw-head, constructed with fixed and spring-pressed jaws, of an actuating shaft, H, provided with a cam and a screw, the latter adapted to engage with a plate secured to the under side of the draw-head, substantially as and for the purpose set forth.

189,541. PROCESSES AND APPARATUS FOR RENDERING FATS. William E. Andrew, New York, N. Y. [Filed Feb. 17, 1877.]

Brief.—The combination of a hasher with a cylindrical jacketed kettle having an inclined bottom, the oil-outlet surrounded with a perforated cylindrical strainer, and revolving metallic brushes having vertical and horizontal teeth, which brush the outer surface of the perforated cylinder, and the bottom and lower surfaces of the tank.



1. The combination of the meat-hasher A A′ s with a rendering vessel having a heat-radiating surface, B′ C′, and a perforated cylinder, E, rigid therewith, as specified.

2. The combination of a jacketed rendering-vessel, B B′ C C′, having an orifice, D, with a perforated cylinder, E, rigid with the vessel and surrounding the orifice, and extending slightly upon the heating-surface, as herein specified.

3. The perforated cylinder E, in combination with, and rigidly attached to, the bottom of an open-bottomed rendering-kettle, as specified.

4. The vertical shaft F, in combination with metallic brushes H, having vertical and horizontal teeth, in combination with the rendering-tank and perforated cylinder, as specified.

5. The brushes H, hung differentially, in combination with the operating means F F′, the rendering-vessel, and the perforation outlet, as herein set forth.

6. The process described of dry-rendering animal fat, which consists in subjecting it to an extracting heat, conveying the oil away from the heat and tissue as fast as rendered, and at the same time preventing the clogging of the oil-outlets and the accumulation of gluten or other non-conducting material, as specified.

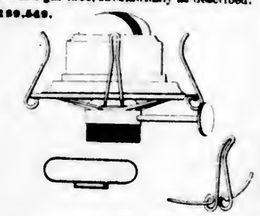
189,542. LAMP-BURNERS. Jas. G. Hallas and Wm. N. Weeden, Waterbury, Conn., assignors to the Benedict & Burnham Manufacturing Company, same place. [Filed Mar. 9, 1877.]

1. In a lamp-burner, substantially such as described, the deck or chimney-rest, constructed with its edge turned inward, and inclosing a wire to form the edge of the chimney-rest, substantially as described.

2. In a lamp-burner, substantially such as described, the chimney-holding springs formed from wire, the ends of the said springs turned into a horizontal plane with the chimney-rest, and secured thereto by turning the edge of the chimney-rest over the said ends, substantially as described.

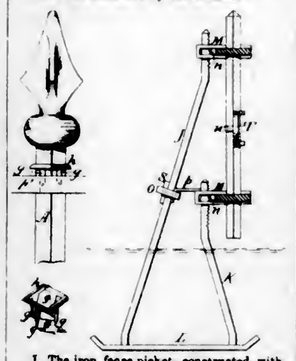
3. In a lamp-burner, the combined wick and gas tube, formed complete in a single piece of metal, with a division between the wick and gas tube, substantially as described.

189,543.



189,545. IRON FENCES. Jas. H. Van Dorn, Cleveland, Ohio. [Filed Oct. 30, 1876.]

Brief.—The stringers are connected adjustably to the posts, and the ornaments and pickets are connected by novel means.



1. The iron fence-picket, constructed with the lateral recesses and applied to the fence-stringers by being inserted therein and then moved laterally or turned partly round, substantially as described, for the purpose specified.

2. The combination of one or more wedges, *g*, with the recessed pickets and the stringers F, substantially as described, for the purpose specified.

3. The picket-collar A, provided with one or more wedges, *g*, substantially as described, for the purpose specified.

4. The combination of the uprights J K of the post, with the upper and lower fence-stringers united thereto by suitable means, substantially as described, for the purpose specified.

5. The fence-post, consisting of the inclined uprights J K of unequal length mounted upon the base-plate L, substantially as described, for the purpose specified.

6. The grooved lateral wedges *n*, and looped plates or bars M, in combination with the fence-stringers and the corrugated uprights of the fence-post, substantially as described, for the purpose specified.

7. The combination of the dog *p* and collar O, with the long upright of the fence-post and the lower fence-stringer, substantially as described, for the purpose specified.

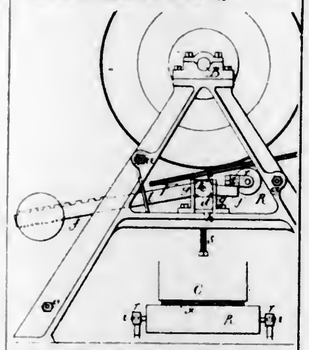
8. The base-plate L of the fence-post, having its ends turned upward to prevent it from slipping longitudinally in the ground, substantially as described.

9. The picket-heads, constructed substantially as described, secured to the pickets by forcing their lower edges into the recesses of the pickets at one or more points, substantially as described.

10. The picket-ornament T, constructed with the cross-bar *v* to fit into a notch in one side or corner of the picket, substantially as described, for the purpose specified.

REISSUES.

7,585. GRINDING-MACHINES. Saml. Bevan, Philadelphia, Pa., assignor, by mesne assignments, to Henry Disston & Sons, same place. Patent No. 114,099, dated Apr. 26, 1871. [Filed Feb. 16, 1877.]



1. The combination of a grinding or polishing wheel, C, with a roller, R, and with a strip, *z*, carrying the object to be ground, and serving as a lever, of which the said roller R is the fulcrum.

2. The combination of the grinding or polishing wheel with a fulcrum-roller, R, clothed with rubber or other equivalent yielding material.

3. The combination of the grinding or polishing wheel with a fulcrum-roller, R, and yielding bearings of the same, which permit the said roller to accommodate itself to the plates to be ground or polished, as described.

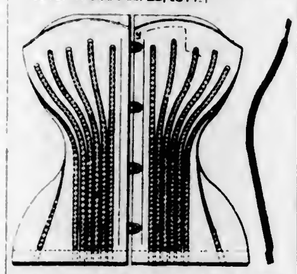
4. The combination of the grinding or polishing wheel and the fulcrum-roller with stripe for preventing the said roller from coming in contact with the said wheel.

5. The combination of the grindstone or polishing-wheel with weighted levers F and fulcrum-roller R.

6. The combination of a grinding or polishing wheel with a yielding fulcrum-roller situated at one side of a vertical line drawn through the axis of the said stone or wheel.

7. The combination of the grinding or polishing wheel with levers F F, hung loosely to a spindle, the fulcrum-roller R, and the swivel-bearings for of the said roller.

7,596. CORSETS. M. Cohn, New York, N. Y. Patent No. 137,898, dated Apr. 15, 1873. [Filed Feb. 28, 1877.]

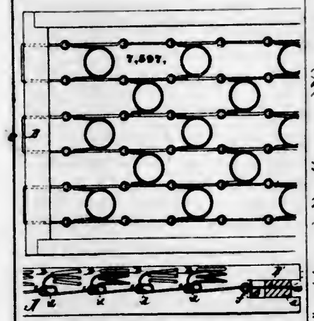


1. A corset, the bone-passages of which have been closed in the weaving of the fabric at places predetermined by the jacquard, substantially as described.

2. The improvement in the mode of making corsets by closing one end of the bone-passages in the weaving at points predetermined for locating the ends of the bones, substantially as described.

7,597. SPRING BED-BOTTOMS. F. B. Franklin, Appleton, Wis., assignor to the Union Wire Mattress Company, Chicago, Ill. Patent No. 34,870, dated Mar. 4, 1862. [Filed Mar 10 1877.]

7,587.



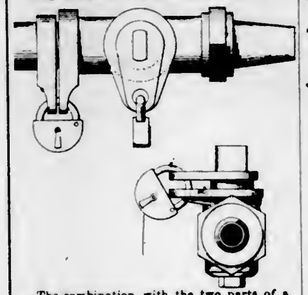
1. The continuous elastic web composed of spring links and links, substantially as set forth and described.

2. In a bed-bottom, the combination, with a rectangular frame, of the elastic wire web set forth and described, and stretched longitudinally between and supported wholly from the end bars of the frame, substantially as specified.

3. In a bed-bottom, the combination, with a frame, of the continuous wire web shown and described, supported wholly from its ends, and the end bar B′, adjustably connected with the side rails, so as to admit of being moved to or from the end bar B, to slacken or tighten the web longitudinally, substantially as and for the purpose set forth.

4. In a removable bed-bottom frame, the removable end piece B′, made adjustable, as set forth, and for the purpose specified.

7,588. LOCKING DEVICES FOR STOP-COCKS. H. C. Meyer & Co., New York, N. Y., assignees of J. H. Morris, executor of V. T. Hall, deceased. Patent No. 90,929, dated May 11, 1869. [Filed Feb. 17, 1877.]



The combination, with the two parts of a stop-cock, or with the cock and the pipe to which it is coupled or connected, of means, substantially as described, adapted to be fastened together by a lock, and which, when locked together, effectually prevent any rotation relatively of the parts with which said means is combined.

7,589. HORSE HAY-RAKES. L. Myers, Ludlowville, N. Y. Patent No. 105,117, dated July 5, 1870; antedated June 28, 1870. [Filed Nov. 30, 1875.]

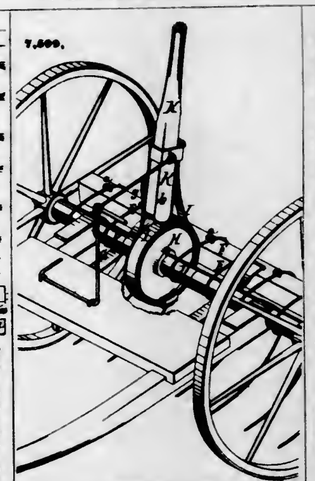
1. The combination of a revolving axle and rake-teeth, and a flexible friction-gripe for gearing them together, for the purpose set forth.

2. A friction-surface applied on opposite sides of a revolving axle, in combination with the rake-teeth, for the purpose of gearing the teeth with the axle, substantially as set forth.

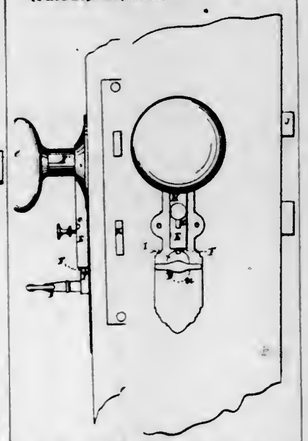
3. The combination of the wheel H fixed to the axle, the disk or flange J, with its studs *g* and *d*, the lever K, strap I, and the staple-bar F, substantially as set forth.

4. In a hay-rake, in combination with the revolving axle and with the lifting-bar for raising the teeth, a friction-strap having connections with the bar and with mechanism by which it is caused to bite the rotating surface at will.

7,590.



7,600. COMBINED KEY AND KNOB FASTENER. Wm. Neracher, Cleveland, Ohio, assignor of one-half interest to H. B. Piper. Patent No. 179,943, dated July 18, 1876. [Filed Sept. 26, 1876.]



1. The case E, slide or bolt F, spring G, and finger-piece H, in combination with the key D, notched cam I thereof, and door A, in the manner substantially as described, and for the purpose specified.

2. In combination with the notched cam I of key D, and notched knob-shank F′, the slide F, spring G, case E, and notch *e*, for locking simultaneously the knob-shank and key, substantially in the manner as herein set forth, and for the purpose specified.

7,601. REGISTERS FOR GAS AND WATER METERS. J. J. Squire, St. Louis, Mo., assignor, by mesne assignments, to H. E. Towle, New York city. Patent No. 37,832, dated Mar. 3, 1863. [Filed Oct. 3, 1876.]

1. In a registering mechanism, a revolving disk, in combination with another disk having numerical characters upon it, the first disk serving at one point in its revolution to obscure for the time being the number upon the second disk which would otherwise be exposed, substantially as set forth.

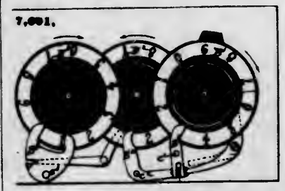
2. The arrangement, substantially as shown and described, of cams, levers, and shields, for the purposes set forth.

3. In a registering apparatus, the combination of a units-disk overlapping a part of a tens-disk with the said tens-disk, the said units-disk having parts of it cut away so as to allow characters or numbers upon the said tens-disk to be seen and read at a designated place or visual opening at which the state of the register is to be ascertained, substantially as set forth.

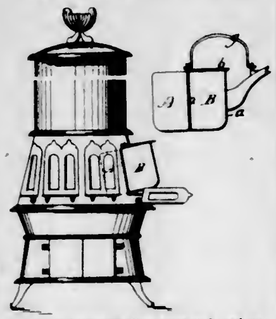
4. Registering mechanism, composed of a unit-disk and a ten-disk, geared to work together by ratchet-wheel and pinion, said unit-wheel being cut away or mutilated at or near its periphery in such a manner as to allow numerical characters upon the ten-disk to be seen at the cut-away or mutilated places through suitable openings in an exterior cover plate, substantially as set forth.

5. In combination with a registering apparatus, consisting of one or more wheels showing numbers upon the same, a shield or screen centered and pivoted in such a manner as to allow the screen or shield to be shifted to cover or uncover numbers as the registration or indications proceed, substantially as shown and described.

7,602.



7,602. COOKING UTENSILS. S. Spoor, Troy, N. Y., assignor to W. M. Spoor, H. M. Russell, S. B. Norton, and Foxell & Jones. Patent No. 86,108, dated Jan. 19, 1869. [Filed Feb. 20, 1876.]



1. A cooking-utensil constructed and arranged substantially as represented and described, to fit in a door or window opening in a vertical or upright side of a heating-stove, and to partially project into the interior of the stove, so as to be self sustained or supported therein, for the purposes herein specified.

2. Cooking-utensils constructed and arranged substantially as represented and described, to project through the side of a stove into the interior thereof, and be subjected to the immediate heat of the fire in the combustion-chamber, substantially as and for the purpose herein specified.

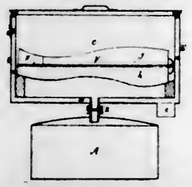
3. In cooking-utensils, kettles, or boilers, a resting-face, *a′*, constructed substantially as shown and described, in combination with the spout A, or equivalent projection, on the upper part of the said resting-face, for the purpose herein specified.

4. A cooking-utensil having a pit or stove-entering portion, A, at one side, substantially as shown and described, and for the purpose herein specified.

5. A cooking-utensil having a flange, *a*, between the inner part or pit A and the outer part or body B, formed to fit the edge of the stove-opening which receives it, substantially as shown and described, and for the purpose specified.

6. A tea-kettle having a bail, *g*, hung at one end to the body thereof, and at the other end to the spout *h*, substantially as shown and described, and for the purpose herein specified.

7,603. STEAMING AND DRYING APPARATUS FOR SHAPING PANTALOONS. E. B. Viets, Boston, Mass. Patent No. 144,644, dated Nov. 18, 1873. [Filed May 22, 1875.]

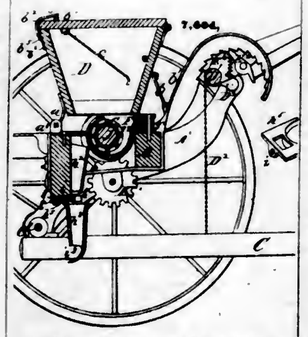


1. For shaping pantaloons or trousers, the mode or process substantially as described, consisting in first stretching the garment on and by means of an expansible former, and next introducing such former, and the garment stretched thereon, into a box or chamber, and, while therein, subjecting both garment and former to the action of steam let into such chamber or box, and subsequently rapidly desiccating the garment, while on the former, by heat applied thereto, as described, all being substantially as set forth.

2. The combination of a former, F, constructed substantially as described, and the steaming and drying chambers C B, substantially as and for the purpose set forth.

3. The combination of the former F, the steaming and drying chambers C E, and the steam-generator A, all being arranged and applied together substantially in manner and for the purpose as specified.

7,604. SEEDERS AND CULTIVATORS. W. A. Van Brunt, Horicon, Wis. Patent No. 156,152, dated Dec. 22, 1874; reissue No. 7,466, dated Jan. 16, 1877. [Filed Mar. 6, 1877.]



1. The combination, with the drag-bars C and an eccentrically-journaled shaft, from which the former are suspended, of the lifting and supporting devices, consisting, essentially, of a rigid support and a lever, attached to said shaft, and provided with means for engagement with and disengagement from said support, substantially as and for the purpose set forth.

2. The combination, with the eccentrically-journaled shaft D', supporting the drag-bars C, of the chain *i*, weighted lever L', gear-wheel K, and intermediate connections between said lever and wheel, whereby the drag-bars and seeding devices may be adjusted simultaneously, as and for the purposes set forth.

3. The combination of the tube *h'* and plate *h''*, said tube being hinged or swung upon said plate, and fastened to it in front by a yielding connection, for the purposes set forth.

4. The cylinder-box, having a converging channel or cavity in its lower interior surface, in combination with an adjustable cylinder, substantially as described.

5. The combination, with the toggles O O', drag-bars C, and shovel-standards N, of the pins or screws *p'*, substantially as and for the purpose set forth.

6. The sockets or collars O', formed with the projections *o'*, to enter the drag-bars in front, and the rearwardly-projecting plate *o''*, to receive a fastening-bolt, substantially as shown and described.

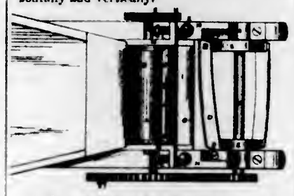
7. The pivoted adjustable hinges, consisting of the plates *a*, having the curved lateral projections *a'* and transverse slots *a''*, in combination with the hopper D, and frame A, substantially as shown, and for the purpose specified.

8. The combination, with the side casting A', having the annular flanges or journal-box P', of the wheel E', mounted upon a spindle, from which it is detachable without removing the latter, and having an inwardly-projecting bearing-fitting the spindle, and having its bearing in said box P', substantially as shown and described.

9. The combination, with the eccentrically-arranged shaft D' for supporting and adjusting the drag-bars, of a support located between the ends of said shaft, to prevent sagging.

7,605. FEED-CUTTERS. J. R. Whittemore, Chicopee Falls, Mass. Patent No. 111,594, dated Feb. 7, 1871. [Filed Oct. 16, 1876.]

Brief.—The straw is fed by an upper toothed roll and a lower smooth roll, both arranged for an interchange of gear, so as to vary the speed of each positively and relatively. The revolving knives are diagonal upon the peripheries that carry them. The intervening ledger-bar is adjustable by set-screws, horizontally and vertically.



1. In combination, the revolving knives D, the side frames M, having the mortises J, the ledger-bar I, having its ends resting in the mortises J, the vertical and horizontal adjusting-screws K L, and the feed-rolls A B, all substantially as described, and for the purpose set forth.

2. In combination, the feed-rolls A B, with their shafts, the variable and interchangeable gears G H, and the cutting-roll D E F, all substantially as described, and for the purpose set forth.

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DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—DISTRICT OF MINNESOTA.

DAVID C. PRICE *vs.* JAMES E. KELLEY.

[*In equity.—Before* NELSON, *J.—Decided February*, 1877.]

The patents granted to David C. Price for improvements in portable show and circus seats are not infringed by the use of chair-seats placed upon every alternate board of the ordinary circus-seats.

[*Davis O'Brien Wilson*, for complainant.
Palmer & Bell, for defendant.]

OPINION OF THE COURT.

NELSON, *J.*:

The complainant obtained two patents, Nos. 125,329 and 134,486, dated respectively April 2 and December 31, 1872, as the original inventor of an "improvement in show and portable show seats." He also secured patent No. 163,537, to be issued to himself as the assignee of the original inventor, Wm. H. Shuey, and dated May 18, 1875, "for an improvement in circus-seats." He brings suit against James E. Kelley, because of an infringement of his patents.

The complainant declares his invention, No. 125,329, has for its object "to provide an improved arrangement of seats for use in circus and other shows, the same being constructed with a view to the comfort of the spectator, while possessing the necessary qualities of security when erected, and compactness when packed for transportation." He claims as new an "improvement consisting of notched support, straps or bars, and boards and chairs, constructed and arranged as shown in a diagram;" also chairs provided with slots or recesses through which boards can pass, and "the seats be shoved along to the required position;" also "the combination, with the supports and boards, of the binding bars or straps and stakes to secure the supports."

The diagram of this invention shows the ordinary stringers used in circus and out-door portable seats, elevated and adjusted on an inclined plane, the stringers being notched for the support of boards and elevated at the back by means of trestles. Every alternate board has a chair-seat upon it, and the board immediately in front is used as a foot-rest. The boards upon which are the chairs or seats, as well as the foot-rests, are secured in place at each end by a zigzag-shaped strap passing from the top of each stringer over the boards to the bottom and terminating in an eye, through which a stake is driven into the ground.

In No. 134,486 every alternate board is suspended at each end from the under side of the stringer by a band of metal running the length, or nearly so, of each one, and by forming the shape of a clevis, upon which the ends of the board rest, secures it in position like a hanging shelf, and is called a foot-rest. The complainant claims as new "the series of foot boards or rests, in combination with the supports (stringers) and braces" (trestles.)

In No. 163,537 the invention is claimed as a "show-seat consisting of the frame, the back formed of a single piece of bent wood, pivoted to the side of the frame, and jointed braces, the back being constructed to fold around and closely embrace the seat-frame in order that the upper surfaces may be flush."

The defendant alleges wants of novelty; denies that the patents are for original inventions, and denies that he has infringed either of the inventions and patented improvements.

It is admitted that there is no novelty in using stringers and trestles to form portable show-seats, nor in making every alternate board on the stringers a foot-rest; but the combination of all these in connection with a chair-seat and folding-back, and straps to secure the ends of the seat-boards in position, is urged by the complainant's counsel as new and patentable, and the infringement of this combination is charged.

An examination of the manufacture of the defendant shows that it has nothing in common with that of the complainant except the notched stringers and the trestles, and the metal straps used to secure the seat-boards, the space between the strap and the stringer at the notches being sufficiently open to allow the ends of each board to pass easily through.

The chair-seat proper has nothing in common except a cushion. The Price or Shuey patent has an open back in the shape of a yoke, pivoted to the side of the seat and with braces attached and jointed to permit its being folded about the seat. The Kelley seat is com-

posed of two leaves upholstered and connected at one edge by a hinge joint, so as to hold the back when open and allow it to be folded upon the top of the seat. The hinged edges are rabbeted so that the back when open bears against the seat proper, and prevents the seat-board from splitting. Price suspends every alternate board in the ordinary circus-seat by a stirrup of metal fixed below the stringers for a foot-rest. He is thus enabled to bring his seat-boards nearer together, and accommodate more spectators with no inconvenience. The knees and feet of the person when seated, being below the seat-boards, do not interfere with those seated in front.

Kelly uses notched stringers and raises his seat-boards so they have the appearance of a high bench, upon which he puts his chair-seats, and then uses for a foot-rest every alternate board on the top of the stringers, as in the old and ordinary circus seats. When the seat-board is raised, the board in front used as a foot-rest falls below the back of the seat immediately in front of it, and the persons seated do not interfere with those in front. The security and comfort of the spectators are attained by each, and the mechanism permits the seats to be packed in a small compass for transportation, and rapidly and easily adjusted, but the arrangement in each is different. The only device used by Kelley not found in the old and ordinary circus-seat is the upholstered chair seat and back, and the metal strap or clamp fastened to the stringers which holds the seat-board in position. Price describes this strap in his patents and claims it as new. The testimony of the mechanics and architects is, however, that this mode of securing boards or underlying axles by a clamp or clevis in a firm and fixed position is a common and ordinary device, and "is on general principle of holding stairs or steps in their place and securing windlasses," &c.

The complainant, therefore, cannot maintain his suit on account of the use of this device, and as defendant constructs substantially the ordinary circus-seat, which is old and common, and upon every alternate board of which, when elevated, he puts a chair-seat which is not an infringement, his bill of complaint must fall.

It is unnecessary then to examine the other issues raised by the pleadings. Decree will be entered dismissing the bill of complaint.

U. S. CIRCUIT COURT.—EASTERN DISTRICT OF PENNSYLVANIA.

LORILLARD & CO., *vs.* MCDOWELL & CO.

[*In equity.—Before* MCKENNAN, *C. J.—Decided February* 24, 1877.]

Charles Seidler's reissued patent of October 24, 1876, construed to embrace the impressment of a hard or metallic label upon either the inner or outer face of a plug of tobacco.

An inventor is supposed to describe in his patent the best mode of practicing his invention, but is not necessarily limited to the precise construction shown, so as to exclude a method differing from it only in a single detail, but producing the same result.

A reissued patent is not void simply because it contains an expanded claim. The inadvertence on the part of the inventor in not making such claim in his original patent is conclusively determined by the Commissioner of Patents in granting the reissue.

[*George Harding*, for plaintiff.
Leonard Meyers, for defendant.]

MCKENNAN, *Cir. J.:*

This is a motion for an interlocutory injunction, to restrain infringement of the patent set up in the complainant's bill. An original patent was granted to Charles Seidler, on the 12th of January, 1875, which was surrendered and reissued to him October 24, 1876. The invention is thus described:

I have discovered and successfully developed in practice a means of marking and distinguishing tobacco in plugs. I prepare labels, or distinguishing pieces of separate material, and impress them into the body of the plugs, one label into each plug, preferably putting the label under the outside wrapper, and giving it a character by raised letters or analogous devices, which is recognizable through the flexible covering. The material of which these labels are composed is preferably sheet iron tinned, cut into a circular form, and having points or prongs bent backward from their edges, and with raised or sunken letters or marks upon their upper face, to indicate the quality, origin, or trade-mark. Before the plug of tobacco is subjected to its final pressure, one of these labels is placed upon it in proper position, and, by powerful pressure, the prongs of the label are sunk into the tobacco, so that its face is about flush with the outer surface of the plug, and adheres firmly to it. An outer leaf of properly dampered tobacco is then wrapped around the plug, which is subjected to a powerful pressure, and the label is seen beneath this wrapper, and is rendered thereby difficult of removal.

The invention is therefore claimed under five heads, the first and third of which are:

1. A plug of tobacco having a hard label pressed into one of its faces, as specified.
3. A plug of tobacco having letters or other decorative and distinguishing marks produced on a hard metallic surface, and pressed as specified.

These claims the respondents are alleged to have infringed, and construing them, as I think they must be construed, to indicate the impressment of a hard or metallic label upon either the inner or outer face of a plug of tobacco, the fact of infringement is clearly made out, both by the affidavits read in support of the motion, and by an inspection of the tobacco manufactured and sold by the respondents.

This construction of the patent has been very earnestly contested, upon the ground that the specification describes only the mode of applying the label to the plug underneath the outer covering, and that the words "as specified," limit the scope of the claims to that particular mode, but the patentee must be understood as merely describing what he regards as the best mode of practicing his invention, as the law requires him to do, and not as excluding a method different from it only in a single detail, which produces the same result, and is distinctly within its object. He claims to have discovered a new method of identifying tobacco, which consists in the attachment of a hard label to each plug by pressing into it the points or prongs which project from the under surface of the label, and thus the fundamental object of his invention is fully effectuated. When this is done the outside wrapper is applied; but the label is thus placed underneath the wrapper, not as auxiliary in any way to the specific office of the label, but avowedly only to render it more difficult of removal.

It is obvious then that to dispense with this additional safeguard, and to apply the label outside of the wrapper, does not differentiate the devices, nor does it vary the method of attaching them to the plug in any essential degree.

Of the objections to the validity of the patent but little need be said at this stage of the case.

The first of these is to the novelty of the invention, or rather that it is a double use of an old device. But it is not shown to have been used for any purpose analogous to that contemplated by the patentee, or even remotely suggestive of such use.

It was the result of considerable thought, and of careful and repeated experiments, and supplied a perfect means of distinguishing the quality and origin of plug-tobacco, which had not before been furnished to either the manufacturer or consumer. Nor does the denial of its patentability seem to me to have any firmer foothold.

Simple as it is, it nevertheless involved reflection and experiment to bring it to practical maturity, and its evident utility, indicated by its prompt displacement of other identifying devices, and its very extensive use, even by the respondents, strongly attests its patentable merit.

The remaining objection, that the reissue is void, as not being for the same invention described in the original patent, is clearly untenable. The drawings in both are the same, and the specifications of both are substantially the same. They both describe, as the invention, a hard or metallic label applied to a plug of tobacco before it is subjected to its final pressure, with characters impressed upon it indicating its quality, origin, or trade-mark; while, in the original patent, the claim is limited to tobacco, to which the label is applied underneath the wrapper. To remedy this restriction, inadvertently imposed, as the Commissioner of Patents has conclusively found, the reissue was properly granted with an expanded claim, to secure to the patentee the full benefit of the invention described, but not claimed in the original.

The motion for a preliminary injunction must therefore be allowed.

U. S. CIRCUIT COURT—DISTRICT OF MARYLAND.

JOHN C. BIRDSELL *vs.* THE HAGERSTOWN AGRICULTURAL IMPLEMENT COMPANY.

[*In equity.—Before* BOND, *C. J., and* GILES, *J.—Decided March*, 1877.]

[Motion to enjoin complainants from bringing suits against the defendants' vendees.]

In this case, an injunction had been issued restraining defendants from infringing on the reissued patent granted complainant May 18, 1858; reissued April 8, 1862; for an improvement in machinery for hulling and thrashing clover. The defendants afterwards changed the construction of their machine and proceeded to sell clover-hullers of the changed construction. On a motion made by complainant to commit them for contempt of court, for violating the injunction issued against them, by selling machines of this changed construction, the court held that, on the showing made, the machines were substantially different from Birdsell's patented machine; and, therefore, dismissed the motion. (See OFFICIAL GAZETTE, March 13, 1877.) Thereafter, complainant notified several of the vendees of defendants—some of whom were using the original machine that had been enjoined, and some of whom were using the machine as it had been changed—that, unless settlement were made with him forthwith, suit would be brought against them. Defendants, thereupon, moved upon a cross-petition filed in the original case, for an injunction to issue against the complainant, restraining him, while the original suit was still pending against them, under which damages and profits could be collected for all the machines that they made and sold, from bringing any suit, or threatening to bring any suit against any vendees of theirs, based upon a user of a machine that might become subject of account in the original case.

Counsel for defendants, seeking the injunction against complainant, based their motion upon the general equity jurisdiction of the court; that, inasmuch as complainant had submitted himself to the jurisdiction of the court to obtain relief against the defendants, he was also subject to the order of the court in relation to any matter relating to the granting of that relief; that the defendants were thoroughly responsible; and that upon the original suit being carried on to completion, if recovery was made, the complainant would recover in that suit all the profits that defendants had obtained from the wrongful manufacture, and the damages that he had suffered by reason of the wrongful manufacture, and that complainant would, therefore, be put in the same position as if he had originally sold all the machines. That, this being the case, he ought not to be allowed to interfere with the vendees of defendants while the suit against them was pending. In support of their position they cited the decrees of Judge Drummond in the case of *Isaac W. Barnum* vs. *Herman B. Goodrich*, entered in United States circuit court for the northern district of Illinois, July 2, 1873, wherein the complainant having brought suit against the defendant and obtained an order for defendant to keep an account of the sale of the devices alleged to be an infringement, was enjoined from prosecuting suits, already begun by him in other circuits, against the defendants' vendees, and from bringing any further suits against defendants' vendees; also the decree entered by the Hon. H. H. Emmons, United States circuit judge, and Hon. P. B. Swing, United States district judge, in the circuit court of the United States for the southern district of Ohio, in the case of *Hezekiah B. Smith* vs. *J. A. Fay & Co.*, restraining the complainant from bringing suit against the defendants' vendees in other circuits, the complainant in this case having obtained an interlocutory decree and a reference to the master, and the suit being, at that time, pending before master on the question of the account.

The defendants relied upon the fact that the complainant was a resident of Indiana, and not before the court, and had sought the jurisdiction of the court for the purpose of bringing the suit, and for no other purpose. He was not, therefore, subject to any order upon him; that the court could not enforce an order if it made one, and it would not do an idle thing.

The respondents asking the order were represented by Hatch & Parkinson, of Cincinnati; the complainant by M. D. Leggett & Co., of Cleveland.

The court did not deliver a written opinion; but, having considered the matter, entered the following order:

DECREE.

BOND, *J.:*

This cause coming on to be heard upon the petition of the defendant herein for an injunction to issue against the complainant to restrain him from commencing or prosecuting, or threatening to prosecute, any suits against any of the vendees, or vendees of vendees of defendant, for the use or sale of clover-hullers manu-

factured by the defendant at Hagerstown, and sold by them or their agents, and it appearing to the court that the complainant has been threatening to bring suits against said vendees while suit is still pending by him in this court against the defendant, the manufacturer, and the case having been fully argued by the counsel for the respective parties, the court doth order: That said John C. Birdsell, the complainant herein, be restrained and barred from commencing or prosecuting, or threatening to commence or prosecute, any suit against any vendee of this defendant, or any vendees of a vendee of this defendant herein, for any alleged infringement of the reissued letters patent involved in this case, and on which this case is brought based upon a use or sale by said vendee of any clover-machine purchased of this defendant;

Provided said defendant shall within thirty days file a bond in this case in the sum of five thousand dollars, with securities to be approved by the court, for the payment of any damages that may be adjudged against the defendant in the above-entitled suit, and that defendant shall file in this court a sworn monthly statement of the number of clover-machines hereinafter made and sold by them.

APPLICATION FOR EXTENSION.

DEPARTMENT OF THE INTERIOR,
U. S. PATENT OFFICE,
Washington, D. C., March 10, 1877.

On the petition of HENRY VOELTER, of Heidenheim, Germany, praying for the extension of a patent granted to him August 10, 1858, antedated August 29, 1856, extended for seven years from August 29, 1870, reissued June 6, 1871, and numbered 4,418, for an improvement in reducing wood to paper pulp, this application having been authorized by act of Congress approved March 3, 1877:

It is ordered that the testimony in the case be closed on the 29th day of May next; that the time for filing arguments and the Examiner's report be limited to the 8th day of June next; and that said petition be heard on the 13th day of June next.

Any person may oppose this extension.

ELLIS SPEAR,
[tf] *Commissioner of Patents.*

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date April 17, 1877.]

9,902.—Corset-Clasp Eye.—MAX ADLER, New Haven, Conn., assignor to MAYER, STROUSE & CO., same place. Application filed February 5, 1877. Term of patent 7 years.

9,903.—Carpets.—ALPHONSE BAYE, London, England, assignor to the ROXBURY CARPET COMPANY, Boston, Mass. Application filed April 3, 1877. Term of patent 3½ years.

9,904.—Chairs.—PETER DIEHL, New York, N. Y. Application filed February 28, 1877. Term of patent 3½ years.

9,905.—Card of Buttons.—JAMES FENTON, Birmingham, England, assignor to JOHN THORNTON & CO., New York city, N. Y. Application filed March 22, 1877. Term of patent 7 years.

9,906.—Card of Buttons.—JAMES FENTON, Birmingham, England, assignor to JOHN THORNTON & CO., New York city. Application filed March 23, 1877. Term of patent 7 years.

9,907 to 9,913, inclusive.—**Oil-Cloth.**—CHARLES T. MEYER and VICTOR E. MEYER, Bergen, N. J., assignors to EDWARD C. SAMPSON, New York, N. Y. Applications filed April 4, 1877. Term of patents 3½ years.

9,914.—Organ-Cases.—JOHN R. LOMAS, New Haven, Conn., assignor to B. SHONINGER, same place. Application filed February 28, 1877. Term of patent 14 years.

9,915.—Glassware.—JAMES B. LYON, Pittsburg, Pa. Application filed March 29, 1877. Term of patent 7 years.

9,916.—Bottle.—EUGENE RAYNAUD, Paris, France, assignor to D. ST. AMANT & SON, New York city. Application filed April 2, 1877. Term of patent 14 years.

9,917.—Base-Relief.—GEORGE BECK, Highland, N. Y. Application filed December 16, 1876. Term of patent 7 years.

9,918.—Badge.—JAMES MCCOY, Ypsilanti, Mich. Application filed March 6, 1877. Term of patent 3½ years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date April 17, 1877.]

4,536.—Champagne Wine.—KUNKELMANN & Co., Rheims, France. Application filed February 14, 1877.

"An oval blue medallion having a serrated edge, and bearing the words and letters 'H. Piper & Co., successors to Heidsieck à Rheims, Marne.'"

4,537.—Champagne Wine.—KUNKELMANN & Co., Rheims, France. Application filed February 14, 1877.

"An oval medallion having a serrated edge, and bearing the words and letters 'H. Piper & Co., successors to Heidsieck à Rheims, Marne,' and a representation of grapes and leaves in a curved line, with a serrated oval field of divergent rays, forming a ground or field, upon which is placed, above the medallion, a representation of leaves resting upon a base of scroll-work."

4,538.—Champagne Wine.—KUNKELMANN & Co., Rheims, France. Application filed March 23, 1877.

"The words and letters 'John Osborn, Son & Co., New York & Montreal, General Agents for the United States & Canada,' in combination with the oval medallion bearing the words and letters 'H. Piper & Co.'"

4,539.—Champagne Wine.—KUNKELMANN & Co., Rheims, France. Application filed March 23, 1877.

"The representation of the branch of a grape-vine."

4,540.—Champagne Wine.—KUNKELMANN & Co., Rheims, France. Application filed March 23, 1877.

"An oval medallion of blue, bearing, in white letters, the words 'Heidsieck à Rheims.'"

4,541.—Hog-Medicines.—WINCHESTER D. SCOTT, Philadelphia, Pa. Application filed March 30, 1877.

"The representation of a hog."

4,542.—Nursing-Bottles.—WHITALL, TATUM & Co., New York, N. Y., and Philadelphia, Pa. Application filed March 10, 1877.

"The word-symbol 'PHENIX' used in connection with the words 'Nursing-Bottle.'"

4,543.—Croquet Apparatus.—ALBERT ANGELL, East Orange, N. J. Application filed March 28, 1877.

"The word-symbol 'VEXILLO.'"

4,544.—Medical Compound.—E. J. BENTON & Co., Homerville, Ga. Application filed February 26, 1877.

"The twig with leaves and berries and the scroll or band, as represented."

4,545.—Tobacco and Cigars.—ABEL E. BROOKS, Windham, Conn. Application filed March 7, 1877.

"A picture of a nude human figure represented as sitting astride a cask or barrel and clasping in his hands a basket of fruit, which is resting on the cask."

4,546.—Soap.—HENRY E. BURGER, Brooklyn, E. D., N. Y. Application filed March 12, 1877.

"The word-symbol 'COMMON SENSE.'"

4,547.—Purified and Condensed Milk.—S. W. CANFIELD, Piermont, N. Y. Application filed April 2, 1877.

"The word-symbol 'EUREKA.'"

4,548.—Roofing and Sheathing Felts.—WARREN CHEMICAL AND MANUFACTURING COMPANY, New York, N. Y., and Boston, Mass. Application filed March 22, 1877.

"The representation of an anchor used in connection with the words, 'Roofing and Sheathing Felt.'"

4,549.—Illuminating-Oil.—P. J. FITZGERALD & Co., Philadelphia, Pa. Application filed March 31, 1877.

"The letters 'E. R. I. O.'"

4,550.—Spool-Cotton.—GEORGE F. FOSTER, Brooklyn, N. Y. Application filed March 28, 1877.

"The arbitrary letters 'N. E. T.'"

4,551.—Spool-Cotton.—GEORGE F. FOSTER, Brooklyn, N. Y. Application filed March 28, 1877.

"The arbitrarily-selected symbol or figure of a diamond."

4,552.—Spool-Cotton.—GEORGE F. FOSTER, Brooklyn, N. Y. Application filed March 7, 1877.

"The arbitrary letters 'N. M. T.'"

4,553.—Cigarettes.—MAX FRIEDMAN, New York, N. Y. Application filed April 2, 1877.

"The word-symbol 'BLUE GLASS.'"

4,554.—Soap.—GOWANS & Co., Buffalo, N. Y. Application filed March 22, 1877.

"The word-symbol 'RAIL-ROAD.'"

4,555.—Cigars.—S. HERNSHEIM & BRO., New Orleans, La. Application filed March 14, 1877.

"The word-symbol 'EMPEROR,' in connection with a shield surmounted by a crown."

4,556.—Hats and Caps.—AMELIA JACOBS, Brooklyn, N. Y. Application filed March 29, 1877.

"The word-symbol 'GREAT.'"

4,557.—Flour.—S. S. MARVIN & Co., Pittsburg, Pa. Application filed February 17, 1877.

"The figure of a person represented as leaning over a stove baking cakes."

4,558.—Cigars.—M. C. MCDONALD & Co., Chicago, Ill. Application filed March 28, 1877.

"The arbitrary words 'LA BELLE CREOLE.'"

4,559.—Sheetings.—E. R. MUDGE, SAWYER & Co., Boston, Mass., New York, N. Y., and Philadelphia, Pa. Application filed March 23, 1877.

"The picture of a stage-coach drawn by four horses, and carrying passengers inside and out, a person on the rear seat being represented in the attitude of blowing a horn."

4,560.—Lamps.—LEVERETT H. OLMSTED, Brooklyn, N. Y. Application filed March 21, 1877.

"The fanciful words 'LITTLE HARRY'S NIGHT.'"

4,561.—Cigarettes.—HENRY POHALSKI, New York, N. Y. Application filed March 28, 1877.

"The word-symbol 'SARATOGA,' a monogram composed of the letters 'H. P. & Co.,' and a fac-simile of the signature of 'Henry Pohalski & Co.'"

4,562.—Cigars.—SEIDENBERG & Co., New York, N. Y., and Key West, Fla. Application filed March 29, 1877.

"The word-symbol 'HERALDO.'"

4,563.—Table-Sauce.—CHARLES H. SMITH, New York, N. Y. Application filed March 3, 1877.

"The pictorial representation of the allegorical terra-cotta group of I. Bell, which was exhibited in the Art Gallery of the Centennial Exposition at Philadelphia, and entitled 'Columbia directing the course of America.'"

4,564.—Cigars.—HALL BLAIR & Co., Brooklyn, N. Y. Application filed February 24, 1877.

"The pictorial representation of an elephant, and the word-symbol 'ELEFANTE.'"

4,565.—Bitters.—WILLIAM W. HENRY, Burlington, Vt. Application filed April 13, 1877.

"The word-symbol 'GREEN-MOUNTAIN,' used in connection with the words 'HENRY'S CIDER BITTERS.'"

4,566.—Bread Preparations.—RUMFORD CHEMICAL WORKS, Providence, R. I. Application filed March 7, 1877.

"The word-symbol 'RUMFORD.'"

4,567.—Whiskies.—WOOLNER BROTHERS, Peoria, Ill. Application filed April 2, 1877.

"The words 'ROCK CAVE.'"

4,568.—Whiskies.—WOOLNER BROTHERS, Peoria, Ill. Application filed April 2, 1877.

"The arbitrary words 'GILT EDGE.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date April 17, 1877.]

1,033.—Title: **"H. Clausen & Son, Export Lager Beer."**—H. CLAUSEN & SON, New York, N. Y. Application filed March 23, 1877.

1,034.—Title: **"Eggleston's Lubricating Oil."**—JESSE S. EGGLESTON, Auburn, N. Y. Application filed March 24, 1877.

1,035.—Title: **"Phenix Nursing Bottle."**—WHITALL, TATUM & Co., New York, N. Y. Application filed March 28, 1877.

1,036.—Title: **"Factory Salt Ashton."**—S. ABBEY & SON, Rondout, N. Y. Application filed October 5, 1876.

1,037.—Title: **"Horsford's Acid Phosphate."**—RUMFORD CHEMICAL WORKS, Providence, R. I. Application filed January 30, 1877.

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Bath tub, C. E. L. Holmes	8	189,558
Bed bottom, spring, J. H. Frizelle	62	189,553
Bedstead, wardrobe, C. Pabst	62	189,776
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Beer faucet, P. Lyons	167	189,760
Boiler flue cleaner, J. S. Smith	148	189,666
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Car coupling, C. C. Dow	122	189,710
Car coupling, W. B. Dunning	122	189,614
Car coupling, J. Lips	122	189,634
Car coupling, A. C. Rumble	122	189,791
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Carbureter, J. M. Palmer	27	189,645
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Chair seat, J. Lemman	62	189,758
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Corset, E. S. Weldon	80	189,672
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Curtain fixture, A. B. Shaw	62	189,798
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Bugh, S. J., Sad iron	189,602
Burgess, R. O., Harness pad	189,694
Buzby, A. G., Gas key	189,695
Byrne, G. P., and F. W. Griffith, Printing press	189,556
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Carpenter, J. H., Steering propeller	189,603
Carrozzi, G. N., Attachment for key board musical instruments	189,548
Cauhapé, P., Tobacco package	189,604
Cherry, I. N. and R. N., Self rake for harvesters	189,605
Clapp, H. W., Stench trap for catch basins and sewers	189,549
Clark, A. L., Leaf turner	189,698
Clark, J. B., Jr., Broom and brush rack	189,606
Clark, J. N., Car track cleaner	189,696
Clark, W., Machine for winding thread on spools	189,697
Clore, W., Plow	189,607
Clow, H. A., Butter worker	189 608
Coakley, W. L., and S. W. Lloyd, Tooth brush	189 699
Cobb, A. J., Wind wheel	189,700
Coddington, F. J., and H. N. Kennedy, Harvester elevator	189,701
Colson, H. W. P., Lamp lighter	189,702
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Cowen, R., Machinery for manufacturing water tight hose	189,610
Cristadoro, C., Valve nozzle for bottle stoppers	189,611
Crossley, J., Ice creeper	189,703
Cronshorn, D. C., and W. McBee, Washing machine	189 612
Cumming, A. M., Locomotive engine	189,704
Curtis, G. H. W., Braider for sewing machines	189,705
Day, A., Skid for handling boxes	189,706
Denney, M. P., Horse hay rake	189,707
Destouy, A., deceased, by H. Miller, assignee, by mesne assignments, of administratrix of, Molding sheet metal, (reissue)	7,609
Dicey, E. C., Lath machine	189,613
Doisy, J. F. R., and H. L. E. Sarrasin, Boot jack	189,708
Douglas, G. B., and L. C. Wemple, Mower	189,709
Dow, C. C., Car coupling	189,710
Drummond, J. T., Marking plug tobacco	189,711
Dunn, E., and M. A. Requa, Copy book	189,574
Dunning, W. B., Car coupling	189,614
Earle, A. I., Staff picker for looms	189,712
Earle, T., and F. H. Perry, Self sealing fruit jar	189,713
Eberhard, W., Pipe wrench	189,615
Edison, T. A., and F. L. Pope, Printing telegraph, (reissue)	7,621
Egger, M., Electro magnetic engine	189,714
Elwood, J. J., Water heater for stoves	189,551
Elwood, R., Attaching cultivator shovels	189,550
Evans, W. N., Ticket reel	189,552
Fergus, J., Injector	189,715
Ferris, G. H., Lamp stove	189,616
Feyh, H., Feed dog for sewing machines	189,716
Field, S. D., District telegraph signal box	189,717
Fisher, C., Table easel	189,617
Fisher, D. M., and S. E. Warren, Wash board	189,618
Fisher, S. P., Horseshoe	189,718
Flood, W., Window screen	189,720
Flower, J., Tap and die	189,719
Fowler, W. R., Fly frame, (reissue)	7,613
Freeman, J. J., Link for ornamental chains	189 619
Freund, F. W., Front sight for fire arms	189,721
Frizelle, J. H., Spring bed bottom	189,553
Fuller, A., Faucet, (reissue)	7,619
Fuller, C. S., Apparatus for drying ground wheat, (reissue)	7,618
Fuller, L. K., Reed organ action	189,554
Fuller, L. K., Reed organ	189,555
Fuller, O. F., Farm gate	189 620
Gale, H., Plow	189,722
Gillies, J., Steam slide valve	189,723
Girvin, E. R., Pipe tongs or wrench	189,621
Gleason, G. R., Gas heater for soldering irons	189,724
Gordon, R., and W. W. Baxter, driving mechanism for ships' pumps	189,622
Graves, E. H., L. L., and E. A., Rice huller	189,725
Gray, S. S., Paper collar	189,726
Greenough, B. F., Apparatus for producing illuminating gas	189,727
Griffith, F. W., and G. P. Byrne, Printing press	189,556
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Habermehl, J., Pattern for metallic casting composition	189,729
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Hamlin, C. A., Stove	189,557
Hancock, E. L., Washing machine	189,730
Hardy, T. P., Vise	189,731
Hargrave, R. W., Ironing board	189,623
Harper, B. F., Heater and evaporator for molasses	189,732
Haworth, J., and W. H. Newell, Motor for sewing machines	189,624
Heffernan, P., File	189,733
Hersey, C. H., Drying and cooling apparatus	189 625
Hewitt, J. S., Hay raker and loader	189,626
Heyl, H. R., Machine for forming and inserting wire staples in paper boxes, (reissue)	7 608
Hodge, E. C., Reversible plow	189,558
Holmes, C. E. L., Bath tub	189,559
Holmes, H. C., and J. N. Bogert, Grapnel for submerged piles	189,688
Holmes, N., Sash cord fastener	189,560
Hood, J., and S. H. Reynolds, Dental foil condenser	189,735
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Hopkins, C. B., Shade for try squares	189,737
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Israel, H. E., Washing list indicator	189,740
Jennings, G., Water closet	189 741
Johnson, J. S. W., Water engine	189 627
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Kelly, W., Hay press	189,744
Kelter, M., and P. Leickem, Gate	189,745
Kendall, T. R., Fruit drier	189 746
Kennard, J. D., Nut lock	189,747
Kennedy, H. N., and F. J. Coddington, Harvester elevator	189,701
Kenyon, T., Adjustable elastic bucket for chain pumps	189,629
Ketchum, F. A., and H. Wilde, Pocket hone, strop, and oil cup, combined	189,561
Kilmer, E. E. and I. A., Bale tie twisting machine	189,748

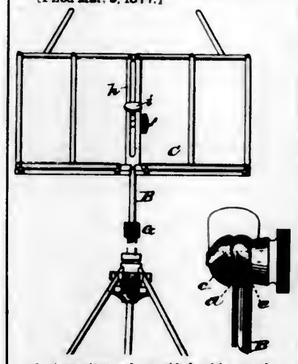
	Patent No.
King, C. H., Desk	189,749
Kinney, F. S., Hydraulic press	189,630
Klingleamith, J. F., Wagon brake lever	189,750
Knowlton, D., Variable power windlass beam	189,751
Kupferle, J. C., and P. White, Water closet	189,592
Lamb, J. C., Lubricator	189,752
Lambert, J. T., Waffle iron	189,753
Landreth, W. M., Churn dasher	189,631
Lane, L. S., J. R. Roberts, and D. P. Rowe, Clothes pounder	189,577
Lansdell, H. S., Machine for threading metal screws	189,754
Latta, E. G., Harness buckle	189,632
Leclère, F., Harness connection for vehicles	189,755
Ledford, M. M., Tobacco stick	189,756
Leickem, P., and M. Kelter, Gate	189,745
Lemman, J., Chair seat	189,757
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Lewando, C., Loom shuttle	189,633
Lewinsohn, L. L., Machine for mounting flowers, &c., upon wire stems	189,759
Lewis, J. E., Corn sheller, (reissue)	7,616
Lewis, J. E., Mechanical movement, (reissue)	7,617
Lindsay, G. F., Leather cutting gage	189,563
Lips, J., Car coupling	189,634
Little, J. D., C. P. Ballard, and L. H. Pursell, Grain separator	189,545
Lloyd, S. W., and W. L. Coakley, Tooth brush	189,699
Locke, J. R., Oscillating cutter head for finishing spokes	189,635
Looker, J. M., Plow	189,636
Lublinski, R., Umbrella tip cup	189,564
Ludden, F., Scythe fastening	189,565
Lykke, C. E., Water elevator	189,761
Lyons, P., Beer faucet	189,760
Manning, E. B., Tea and coffee pot	189,762
Marsh, C. W. and W. W., Harvester reel	189,566
Martin, G. A., Machine for twisting whip lashes	189,637
Masse, T., Thread cutter	189,763
Mathews, E. R., Pipe wrench	189,567
Mathews, J., Flavoring aerated beverages	189,764
Manll, J. P., Potato digger	189,568
McBee, W., and D. C. Croushorn, Washing machine	189,612
McIlvain, W., Wash boiler	189,765
Meyerhoff, H. W., Corn planter	189,766
Miller, H., assignee, by mesne assignments, of administratrix of A. Destouy, deceased, Molding sheet metal, (reissue)	7,609
Mole, J. G., Clamp	189,767
Moore, D., Revolving fire arm, (reissue)	7,610
Moore, M. E., Machine for fitting sidings for whips	189,569
Morey, P. F., Stench trap	189,570
Morgan, C. C., Water filter	189,771
Morgan, G., Device for stringing pianos	189,768
Mortimer, S. S., and J. R. Robinson, Machine for finishing horseshoe nails	189,769
Morton, H. J., Machine for sawing shingles	189,638
Morton, W. F., Tenon and mortise joint	189,770
Neilson, G., Nut lock	189,642
Newell, W. H., and J. Haworth, Motor for sewing machines	189,624
Newhouse, H., Tide power	189,643
Niedringhaus, F. G. and W. F., Hinge of vessels of enameled iron ware	189,639
Niedringhaus, F. G. and W. F., Spout and strainer	189,640
Niedringhaus, F. G. and W. F., Spout and strainer	189,641
Norcross, J. W., Tackle block	189,773
Norcross, J. W., Tackle block	189,774
Norman, J., Mill pick	189,772
Ohaver, W. A., Swinging gate	189,644
Oothout, W., Warp regulator	189,775
Pabst, C., Wardrobe bedstead	189,776
Painter, W., Counterfeit coin detector, (reissue)	7,620
Palmer, J. M., Carbureter	189,645
Palmer, L. A., Corset	189,777
Paquette, J. J., Gage glass	189,778
Park, R. W., Hydrocarbon gas lamp	189,780
Parrish, M. W., Galvanic battery	189,779
Pattillo, S. V., Saw filing machine	189,646
Pay, S. R., Folding flower stand	189,571
Peet, W. R., Ditcher	189,647
Pennypacker, M., Hoisting apparatus	189,648
Pennypacker, M., Hoisting apparatus	189,649
Peper, C., Marking plug tobacco	189,572
Perry, F. H., and T. Earle, Self sealing fruit jar	189,713
Philbrick, J. W., Dredging machine	189,650
Phillips, P. W., Spring shade fixture	189,781
Pohley, F., Water closet	189,782
Pool, C., Gate	189,573
Pope, F. L., and T. A. Edison, Printing telegraph, (reissue)	7,621
Post, J. W., Parlor skate	189,783
Powell, J., Lubricator for steam engines	189,651
Powell, J., Chuck for gas and water fittings	189,652
Prince, F., Picture exhibitor	189,784
Pudigon, A., Reflector and plant protector	189,653
Pursell, L. H., J. D. Little, and C. P. Ballard, Grain separator	189,545
Pyott, L. T., Screw hoisting pulley apparatus, (reissue)	7,611
Radde, C. H. O., Machine for shaping solid colors for printing	189,654
Redler, J. A. J., Watchman's time detector	189,785
Requa, M. A., and E. Dunn, Copy book	189,574
Reynolds, S. H., and J. Hood, Dental foil condenser	189,735
Rigby, J., Gas apparatus	189,575
Rigby, J., Process and apparatus for manufacturing gas	189,576
Rigby, N. L., Lamp	189,655
Rigdon, I., Platform scales	189,786
Roberts, J. R., D. P. Rowe, and L. S. Lane, Clothes pounder	189,577
Robinson, J. R., and S. S. Mortimer, Machine for finishing horseshoe nails	189,769
Rooney, P. G., Apparatus for the redistillation of spirits	189,578
Rothschild, S., Jr., Nursery gas and heating stove	189,787
Rowan, T., Machine for punching sheet metal	189,656
Rowe, D. P., L. S. Lane, and J. R. Roberts, Clothes pounder	189,577
Rowe, W. F., Tire tightener	189,788
Rowland, E. and G. E., Fire bar for furnaces	189,789
Rugg, J. K., Hydrant	189,790
Rumble, A. C., Car coupling	189,791
Sandford, W. B., Tube welding furnace	189,579
Sarrazin, H. L. E., and J. F. R. Dolsy, Boot jack	189,708
Saur, A., and J. Wilson, Harrow cultivator	189,792
Sawyer, J. A. J., Carriage shaft	189,657
Schlenker, E., Paper cutting machine, (reissue)	7,612
Schmidt, J. G., Fan	189,793
Schmitz, J. P., Station indicator	189,794
Schoepflin, J., Cider and wine press	189,658
Schultz, F., Vent attachment for beer barrels	189,795
Seaman, J. H., Friction clutch for gas chandeliers	189,580
Seawell, C. H., Illuminating sign	189,796
Seery, E. F., Ornamental chain link	189,797
Selden, G. B., Machine for splitting hoop poles	189,659
Shaw, A. B., Curtain fixture	189,660
Shaw, A. B., Curtain fixture	189,798
Shedlock, A., F. W. Griffith, and G. P. Byrne, Printing press	189,728
Sheldon, J. A., Screw threading machine	189,661
Shirley, F. S., Shade holder and gas burner	189,799
Siemens, F., Manufacture of glass	189,800
Silabee, F., N., and P., Dropping and marking attachment for corn planters	189,581
Slater, L., Wash stand	189,662
Slim, J., Bottle stopper	189,801
Smith, A. A., Board lath	189,664
Smith, A. M., Hair crimping pin	189,804
Smith, B. F., Fish and other traps	189,805
Smith, E., Chamber closet	189,802
Smith, E. B., Ironing table	189,663
Smith, H., Stand pipe for supplying locomotives with water	189,665
Smith, J. N., Seal lock	189,582
Smith, J. S., Boiler fine cleaner	189,666
Smith, W. J., Burglar alarm	189,803
Snook, W. S., Water filter	189,806
Snow, H. H., Putting up confectionery	189,807
Snyder, W. W., Flue ditcher	189,667
Spayd, B. F., Toy dancer	189,808
Spencer, C. F., Burial casket	189,809
Spraker, J. E., Extension table	189,810
Stackpole, J., Molding sand sifter	189,583
St. John, R. H., Sewing machine shuttle, (reissue)	7,615
Stossmeister, A. W., Molding machine	189,812
Stroh, H., Armature for electro magnets	189,584
Sullivan, D., Construction of steam boilers	189,585
Swartz, S. and G. R., Safety car stove	189,668
Tate, I. C., Manufacture of horseshoe nails	189,586
Taylor, J. M., Writing fluid	189,813
Taylor, J. P., Feeder for machine guns	189,811
Thompson, P., Fog horn	189,587
Tinsley, G. J., Gate	189,814
Tripp, J., Cotton picker	189,815
Turbeville, E. C., Bottle washer	189,669
Turnbull, A., Safety valve	189,816
Uebele, C., and H. Will, Velocipede	189,588
Vogeley, A., Stone and glass polishing machine	189,817
Vorrath, G., Chamber case	189,818
Wallis, T., Chain pump	189,670
Warren, J. S., Paper pulp engine	189,671
Warren, S. E., and D. M. Fisher, Wash board	189,618
Watkins, W. J., Boot and shoe	189,819
Weldon, E. S., Corset	189,672
Wemple, L. C., and G. B. Douglas, Mower	189,709
West, J. W., Thread spooling machine	189,673
Weston, C. C., Incubator	189,820
Whipple, C. S., Door check	189,822
Whipple, C. S., Door check	189,823
Whipple, C. S., Door check	189,824
Whipple, C. S., Door check	189,825
White, P., and J. C. Kupferle, Water closet	189,593
Whitecar, T. J., Combined seed drill and harrow	189,821
Wilde, H., and F. A. Ketchum, Pocket hone, strop, and oil cup, combined	189,561
Will, H., and C. Uebele, Velocipede	189,588
Wilson, J., and A. Saur, Harrow cultivator	189,792
Wood, W. T., Automatic lamp extinguisher	189,826
Woodcock, W. H., Damping roller for lithographic printing	189,828
Woodcock, W. H., Printing press	189,829
Woodford, C. W., Machine for finishing horseshoe nails	189,589
Woodford, R. S., Apparatus for cementing rubber boots and shoes	189,827
Woods, W., Ten pin ball	189,674
Worthen, W. E., Pump valve	189,830
Wright, G., Pan and basin	189,590
Yeager, C. H., Steam trap	189,591
Zimmerman, J., Clasp for making frames	189,831

TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED APRIL 17, 1877.

189,544. MUSIC-STANDS. Jos. D. Alvord and Chas. E. Alvord, Bridgeport, Conn. [Filed Mar. 9, 1877.]



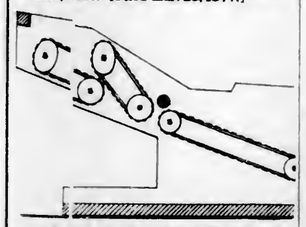
1. A music-stand provided with a wedge-like thimble, sliding on its post or standard, and adapted to hold the legs extended or folded, substantially as described.

2. The combination of legs having beveled ends with a wedge-like thimble and a casting, D, substantially as shown and described.

3. The combination of the frame C, having a slotted bar, with the arm *c*, wedge-shaped spline *g*, and set-screw *i*, substantially as shown and described.

4. A music-stand having the articulated arm *c*, with a wedge-shaped spline, *g*, and serrated surface *d*, adapted to engage with the desk C and rod B, substantially as shown and described.

189,545. GRAIN-SEPARATORS. C. P. Ballard, L. H. Pursell, and J. D. Little, Springfield, Ohio. [Filed Mar. 28, 1877.]



1. In a grain-separator, an inclined endless carrier-apron, carried at its discharging end upon an elliptical roller or elliptical pulleys, substantially as and for the purpose set forth.

2. The combination, with two or more straw carriers or sections, of an intermediate endless carrier-apron, carried at its upper or discharging end upon an elliptical roller or pulleys, and having a steeper inclination than the other carrier-sections, substantially as and for the purpose set forth.

3. The combination, in a series, of two or more endless carrier-aprons, each of said aprons being carried at its upper or discharging end upon an elliptical roller or pulleys, substantially as and for the purpose set forth.

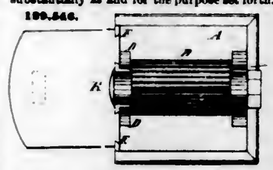
4. The combination, with the primary carrier apron or section, of an endless carrier-apron arranged at a steeper inclination, and carried at its upper end upon an elliptical roller or pulleys, and a rotary beater above the space between the two carriers, substantially as for the purpose set forth.

189,546. FLUTING-IRONS. B. B. Bignall, Chicago, Ill. [Filed June 18, 1876.]

1. The hollow roller B, stand A, and straight fluting-iron H, constructed and arranged to operate as described.

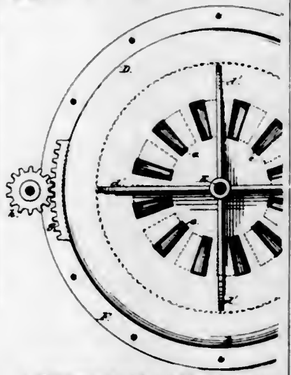
2. The combination of the roller B, stand A, provided with bearings D E, and table B, substantially as and for the purpose set forth.

189,546.



189,547. WATER-WHEELS. J. S. Boddie, Jr., Nashville, N. C. [Filed Mar. 2, 1877.]

Brief.—A wheel having a double set of radial buckets, divided by a partition, in connection with a single gate having one set of ports or openings in the top to correspond with the inner row of buckets, and another set of ports or openings in the side, to correspond with the outer row of buckets, and which can be adjusted to suit the requirements of the work.



1. The water-wheel herein described, provided with an inner and outer set of buckets divided by a partition, in combination with an outer case, provided with openings in its top and wedge-shaped openings in its side, and a single gate, having openings corresponding with said openings, substantially as shown and specified.

2. The combination of the water-wheel A, having inner and outer buckets *a a'*, with the case C, provided with ports *c* in its top and wedge-shaped ports *d* in its side, and a single gate, D, having ports *e* and *f*, and teeth *g*, operated by pinion *h*, all constructed and arranged as shown, and for the purpose specified.

189,548. ATTACHMENTS FOR KEY-BOARD MUSICAL INSTRUMENTS. G. N. Carrossi, Chicago, Ill. [Filed Aug. 24, 1876.]

Brief.—To enable a singer to play accompaniments in a standing position, (the preferable one for vocalization,) an auxiliary key-board of the proper height is arranged over the keys of an ordinary piano or organ, to operate the keys thereof underneath.

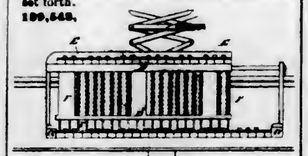
1. The herein-described attachment for key-board musical instruments, consisting, essentially, of the auxiliary removable key-board D E, the pins F F, and a frame for supporting the same, substantially as and for the purposes specified.

2. A removable auxiliary key-board, substantially as described, having its supports made adjustable as to length and height, as set forth.

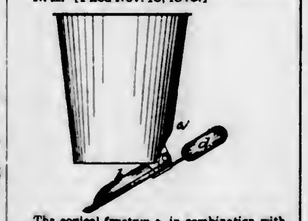
3. The vertically-extensible music stand or holder, in combination with an auxiliary removable key-board, both together constituting an attachment, for the purposes set forth.

4. The apparatus, substantially as herein specified, consisting of a vertically-extensible music stand or holder, an auxiliary removable key-board, and an extension pedal-lever, all adapted for operation together in connection with each other, and a key-board musical instrument having a pedal, for the purposes set forth.

189,549.

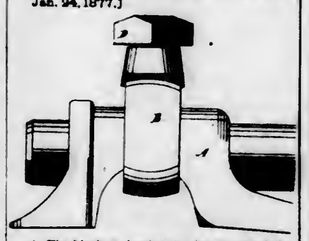


189,549. STENCH-TRAPS FOR CATCH-BASINS AND SEWERS. Henry W. Clapp, Concord, N. H. [Filed Nov. 10, 1876.]



The conical frustum *e*, in combination with the channeled flap-valve *b*, having a raised central portion, and provided with the weight *d*, all arranged and operating as and for the purpose set forth.

189,550. ATTACHING CULTIVATOR-SHOVELS. R. Elwood, Sycamore, Ill. [Filed Jan. 24, 1877.]



1. The block A, having its back extended around the standard, and fitting against the standard, where the pressure is applied, and provided with the end holes *b* and suitable rivet-holes, substantially as specified.

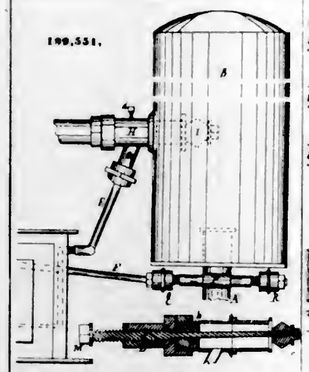
2. The combination of the block A, constructed as described, with the clamp B and screw D, arranged to clamp the standard against the back of the block and support it under the set-screw, substantially as set forth.

189,551. WATER-HEATERS FOR STOVES. J. J. Elwood, Cleveland, Ohio, assignor of one-half his right to S. Sloss, same place. [Filed Jan. 20, 1877.]

1. The connection-valve pipe H and valve I, in combination with the boiler B, pipes E and F, and fire-place, in the manner substantially as described, and for the purpose set forth.

2. The divergent pipe P, provided with union-caps Q and R, in combination with the boiler B and pipe F, in the manner substantially as and for the purpose specified.

189,331.

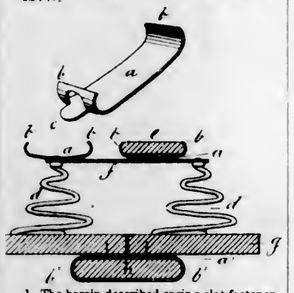


189,332. TICKET-REELS. Walter N. Evans, Chicago, Ill. [Filed July 31, 1876.]



The combination, with an imperforate cylinder, A, constructed with parallel flanges, the cylinder and flanges formed of a single piece of material, of a removable slotted cap, which is retained on the cylinder by the tension of the flanges, substantially as described, and for the purpose set forth.

189,333. SPRING BED-BOTTOMS. James H. Friselle, Boston, Mass. [Filed Jan. 26, 1877.]



1. The herein-described spring slat-fastener *a b b*, having the lug or projection *c*, as set forth.

2. In combination with the spring slat-fastener *a b b*, a coiled or other spring, as and for the purpose set forth.

3. The combination, with the slat-fastener *a b b*, as described, of the flexible strap or connection *f*, as set forth.

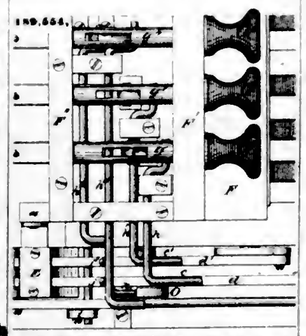
4. The combination, with the slat-fastener *a b b* and its flexible strap *f*, as described, of conoidal or spiral springs *d d*, substantially as set forth.

5. The combination of the fastener *a' b' b'*, the spring-rail *g*, and the framing-stile *h*, substantially as and for the purpose set forth.

6. The combination of the slat-fastener *a b b*, slats *e e*, straps *f*, springs *d d*, rails *g g*, and stile *h*, as and for the purpose set forth.

189,334. REED-ORGAN ACTIONS. Levi K. Fuller, Brattleborough, Vt., assignor to J. Estey & Co., same place. [Filed Jan. 6, 1877.]

189,335.



1. The hinged stop-frame, composed of the hinging-arms H, base-board F, name-board F', and back-strip F'', in combination with stops G G', links *c c'*, and cranked stop-rods *h h'*, all arranged to operate substantially as herein set forth.

2. The combination of the hinged stop-frame, the stops G G', links *c c'*, stop-rods *h h'*, slides *d d'*, and dampers K K', all arranged to operate substantially as set forth.

3. The combination of the hinged stop-frame, the stop G'', link *c''*, stop-rod *h''*, swell-lever J, and swell I, all arranged to operate substantially as herein set forth.

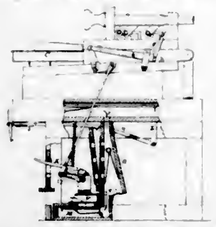
4. The combination of the standard E, the stop-frame hinged thereto, the stops G G', and stop-rods *h h'*, the slides *d d'* provided with projections *e e'*, and bearings in the standard E, and the dampers K K', all arranged to operate substantially as herein set forth.

5. The combination of the rod M, crank N, rod *n*, lever O, and rod *h'''*, all arranged to operate in the manner substantially as herein set forth.

6. The combination of the cranked rod *h'''*, the slides *d d'*, connecting with all the dampers in the organ, and provided with pins or projections *j j'*, the lever O and suitable rods connecting the same with the knee-lever *m*, substantially as herein set forth.

7. The combination, with slides arranged to actuate the dampers of a reed-organ, of a rod, *h'''*, arranged to be actuated by the knee, to throw open simultaneously all the dampers of the organ without actuating the individual stop mechanism, or in the least degree disturbing it, all substantially as herein set forth.

189,335. REED-ORGANS. Levi K. Fuller, Brattleborough, Vt., assignor to J. Estey & Co., same place. [Filed Jan. 19, 1877.]



1. In a reed-organ, the combination of the rod H, provided at one end with a crank-arm, arranged to simultaneously engage projections on the slides *b b*, and a branch, *l*, to engage the upright *m*, and at the other end with a crank, *g*, to engage a sliding bar, *h*, with the slides *b b*, the rod J, and the pedal K, when all are arranged to operate substantially as herein set forth.

2. The combination of the rod H, provided with the branch *l*, with the upright *m* unattached thereto, but arrranged to engage said branch, the cranks L *o*, rods *n p*, slides *b b*, and dampers *c c*, all arranged substantially as set forth.

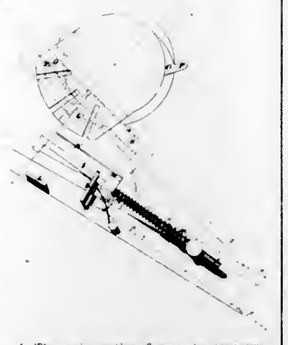
3. The arrangement of the pedal-reeds N and chamber M at the lower edge of the bellows O, and in connection therewith by means of the throat *q*, substantially as and for the purposes set forth.

4. The bellows O of a reed-organ, provided with a throat, *r*, at its upper edge, and a throat, *q*, at its lower edge, arranged to take air from separate sets of reeds, substantially as herein shown.

5. The combination of a bellows arranged to take air through throats at its upper and lower edges, with an ordinary set or sets of reeds, arranged to communicate with the upper throat, and a lower or pedal set or sets of reeds, arranged to communicate with the lower throat, substantially as specified.

189,336. PRINTING-PRESSES. F. W. Griffith and Geo. P. Byrne, New York, N. Y. [Filed Jan. 17, 1876.]

Brief.—The frame carrying the frisket-fingers slides in studs swiveled on the platen-arms, and is held from the platen by springs. Stops on the roller-frame press the fingers to the platen as it approaches the bed, and as it retreats projections push the finger-frame downward, so that the fingers draw the printed sheet from the platen to endless tapes below. Spiral springs give the frame backward motion.



1. The reciprocating fingers to overcome the adhesion of the sheet to the platen and draw it therefrom, in combination with the mechanism for operating them, substantially in the manner described and specified.

2. In combination, the rods I I, springs *j j*, fingers N N, and stops for coming in contact with and depressing the rods, constructed and operating substantially in the manner described and specified.

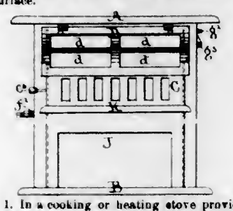
3. In combination, the rods I I, springs *j j*, fingers N N, and cams O O, for keeping the fingers depressed during the early descent of the platen, substantially as described and specified.

4. In combination, the rods I I, springs *j j*, springs *m m*, fingers N N, cams O O, projections P P, and ledges L L, substantially as described and specified.

5. The combination of the stripping-fingers N N, for drawing the sheet off the platen, with the tapes R R, situated in the same plane with the top of the platen, for receiving and conveying away the sheets, constructed and operating substantially in the manner described and specified.

189,337. STOVES. C. A. Hamlin, Albany, N. Y., assignor to S. H. Ransom & Co., same place. [Filed Jan. 22, 1877.]

Brief.—The grate F is hinged at the bottom, and may drop to expose a larger fuel-surface.



1. In a cooking or heating stove provided with a permanent projection, *e'*, of the front plate C, a fire-box having an adjustable front plate, F, for extending the upper surface of

the burning fuel into said projection within the exterior casing of the stove, and beyond the area of the grate E, for the purposes of broiling, radiation, or illumination, in the manner herein specified.

2. The permanent projection *e'* of the front plate C, in combination with the inclined front plate F of the fire-box extending thereinto, as and for the purpose herein specified.

3. The combination, with the projection *e'* of the front plate C, having the grooves *e''*, of the end pieces *e''*, having the shoulders *e'''*, as and for the purpose herein specified.

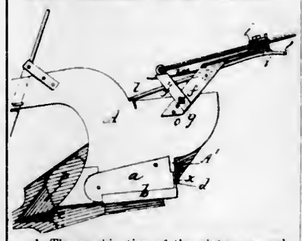
4. The combination of the adjustable front plate F with the damper G, as and for the purpose herein specified.

5. The damper G and door D, combined and arranged to co-operate in the manner and for the purpose herein specified.

6. The combination, with the projection *e'* of the front plate C, provided with the means, substantially as herein described, for holding the gridiron I, of the hearth-plate K, arranged in relation to the gridiron in the manner and for the purpose herein specified.

189,338. REVERSIBLE PLOWS. E. C. Hodge, Oneonta, N. Y., assignor of one-half of his right to De Witt Ford, same place. [Filed Nov. 22, 1876.]

Brief.—Pivoted land-side plates and adjustable heel-plate. The handles swing to alternate sides with the turning of the mold-board, and both are locked in position by the same spring-lever. Mold-board strengthened by cross-ribs on its inner side. The bent beam in combination with the wheel-arms.



1. The combination of the plates *a a* and shoe *b*, the parts being hinged at the forward ends thereof, and the rear adjustable vertically, as set forth.

2. The combination of the lever by which the mold-board is locked, the spring by which it is held down, and the pin or stud fixed thereon to lock the handles, as set forth.

3. The combination of the bars *f f*, pivoted to A', the plates *i i*, and the adjustable handles, as set forth.

4. The yoke *f'*, in combination with the pivoted handles and with the locking-lever *l*, arranged within the yoke, as set forth.

5. The improved mold-board for plows, formed with the checkered interior surface.

6. In combination with the point, having the two cutting edges, the mold-board, formed with both its edges continuous with the straight edges of the point, and arranged in the described relation to the curve of the beam, as set forth.

7. The curved end of the beam A, in combination with the arms *u u* and straps *u' u'*, by which the wheel is raised or lowered, as set forth.

189,339. BATH-TUBS. Chas. E. L. Holmes, New York, N. Y. [Filed Mar. 24, 1877.]

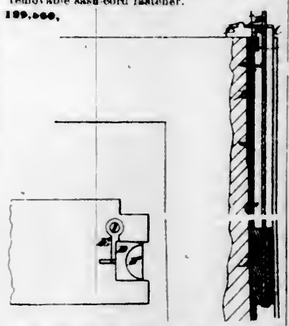


As a new article of manufacture, a bath-tub in which are combined a body or backing, *a*, of zinc and a facing of block tin or tin compound united face to face to the zinc, as set forth.

189,340. SASH-CORD FASTENERS. Nelson Holmes, Ypsilanti, Mich. [Filed Feb. 24, 1877.]

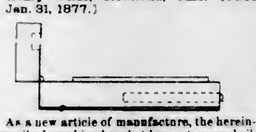
Brief.—A long box or case, fitting tightly in the sash-groove, is provided near its lower end with a tubular block for the reception of the cord, and recessed at its upper end to receive a swinging catch pivoted to the top of the sash, the recessed part abutting against a lip in a stationary plate attached to the sash, constituting an adjustable and readily removable sash-cord fastener.

189,000.



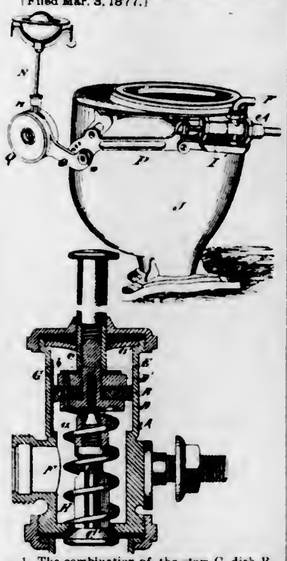
The combination, with a grooved sash, of the recessed box or case C, having the tubular block F and catch E, substantially as described, and for the purpose set forth.

189,341. POCKET HONE-STROP AND OIL-CUP COMBINED. Fredk. A. Ketchum and Henry Wilde, Cleveland, Ohio. [Filed Jan. 31, 1877.]



As a new article of manufacture, the herein-described combined pocket hone, strop, and oil-vessel, having a hinged cap or cover, substantially as set forth and specified.

189,342. WATER-CLOSETS. John C. Kupferle and Peter White, St. Louis, Mo. [Filed Mar. 3, 1877.]



1. The combination of the stem C, disk B, flange D, lock-nut D', having the perforations *b b b*, washer E, and valve-case A, substantially as described.

2. The combination of the valve-case A, stem C, extension *c*, flange D, disk B, nut D', having the perforations *b b b* and washer E, substantially as described.

3. The combination of the valve-case A, wire G, and valve B, substantially as described.

4. The combination of the valve-case A, wire G, valve B, flange D, nut D', having the perforations *b b b*, washer E, and stem C, substantially as described.

5. The combination of the nut D', having the perforations *b b b*, washer E, stem C, and extension *c*, substantially as described.

6. The combination of the valve-case A, pipe I, and trunk J, the said pipe leading from the valve-case at a point above the main valve therein to the trunk, and to provide means for draining the valve-case after the main valve is closed.

7. In a water-closet, the trunk J, having the bearing *k*, and the cover J' having the bearing *k'*, said bearings, for the purpose set forth, being cast directly in said trunk and cover, respectively, substantially as described.

8. In a water-closet, the trunk J, having the bearing *k*, the cover J', having the bearing *k'*, said bearings, for the purpose set forth, being cast directly in said trunk and cover, respectively, and the hinge K, having the shoulder *k'''* and washer *k''''* combined, substantially as shown.

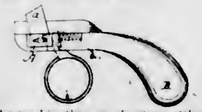
9. The cover J', having the tapering recessed lug L and plug *l*, in combination with the pan M, substantially as shown, for the purpose set forth.

10. The lever O, having the lug *o'*, and the lever P, having the openings *p p p*, combined and operating substantially as described.

11. The weight Q, having the grooves *s'' s''*, and the pull-rod extension *s*, having the lug *s' s'*, combined and operating substantially as set forth and described.

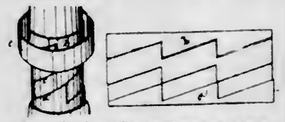
189,343. LEATHER-CUTTING GAGES. Geo. F. Lindsay, Sherman, Tex. [Filed Feb. 22, 1877.]

Brief.—A spiral spring holds the ring-trigger and toothed scale-bar in contact, and prevents the latter from falling out of its slot in the handle when not in use.



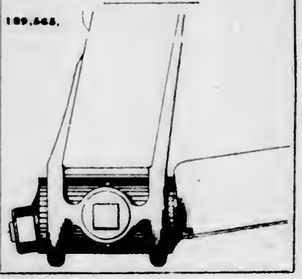
The combination, in a leather-cutting gage, substantially as described, of a beveled and notched rule, A, trigger *b*, and spiral spring *d*, with a handle or stock, B, for holding the same.

189,344. UMBRELLA-TIP CUPS. Robt. Rublinski, London, England, assignor to Ardon S. Fitch, New York, N. Y. [Filed Apr. 28, 1876.]



An umbrella tip fastener formed of the cup *c*, the inclines *a b*, the sleeve *c*, having inclines on both edges, and to which is secured the said cup, all combined to operate as and for the purpose described.

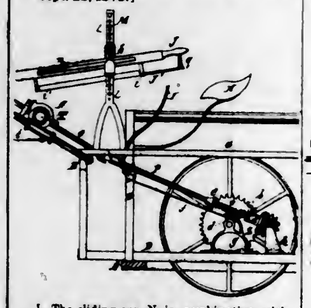
189,345.



189,565. SCYTHE-FASTENINGS. F. Ludden, Bridgeport, Conn., assignor of one-half his right to O. B. Alvord, same place. [Filed Jan. 31, 1877.]

In a scythe-fastening, a sleeve adapted to be rotated and held in different positions within a suitable holder, and having a receptacle for the tang of the blade, extending from near one side of one end to near the opposite side of the other end of the sleeve, substantially as shown and described.

189,566. HARVESTER-REELS. C. W. Marsh and W. W. Marsh, Sycamore, Ill. [Filed Sept. 26, 1876.]



1. The sliding cap N, in combination with the sliding bearings T t, reel-supporting arm, shaft O, and wheels U V, substantially as and for the purposes specified.

2. The sliding collar *k*, arm *j*, and lever J J', in combination with the post M, substantially as and for the purpose specified.

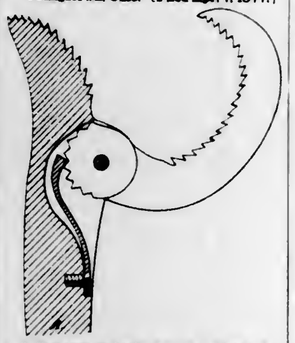
3. The combination of the lever J J', the section J, having holes *m*, with the standard M, having holes *l*, and locking-arm *j*, substantially as and for the purpose described.

4. The lever J, having the slot *a*, in combination with the pin *o*, and sliding collar *k*, whereby the reel may be vertically adjusted at any point of its forward and backward adjustment, substantially as described.

5. The combination of the lever J, having holes *m*, and slot or groove *n*, pivoted bar J', spring *q*, lock *j*, sliding collar *k*, and pin *o*, with the standard M, having holes *l*, and pivoted reel-support K, substantially as and for the purposes specified.

6. The reel-driving shaft P, in combination with the clutch *a b*, spring *c*, lever *d*, rod *f*, lever I, and wheels R S, whereby the reel has an independent attachment to the main driving-shaft, and does not revolve when the machine runs backward, and can be thrown out of operation altogether at will, substantially as set forth.

189,567. PIPE-WRENCHES. E. R. Mathews, Youngstown, Ohio. [Filed Apr. 7, 1877.]



1. Two or more hooks, curved and toothed, of varying sizes, and adapted to be pivotally attached to the bar of the wrench, as and for the purpose set forth.

2. A hook having a two-way ratchet, in combination with a spring-catch attached to the bar of the wrench, as and for the purpose set forth.

189,568. POTATO-DIGGERS. Jos. P. Maull, St. Louis, Mo. [Filed Nov. 2, 1876.]

Brief.—The digging device consists of a series of bars secured together and acting as one, hinged to the axle-tree of a pair of wheels. Rigid plows are attached to the center bars, and reversible plows to the outer ones. Every alternate bar has a supplemental one near the top, for the purpose of conveying the vines to a pair of rollers, which convey them to a conveyer, which deposits them in a row on the near side of the machine, while the potatoes pass between the supplemental bars, and are carried beneath the rollers upon a shaking-screen, and into a receptacle placed to receive them.



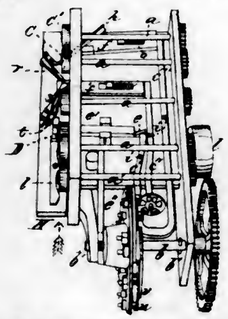
1. The hounds C and arched frame H, in combination with the rollers D D, conveyer F, obliquely-inclined separator B, vibrating bar *a*, and cam *d*, all arranged and operating substantially as and for the purpose set forth.

2. The sloping apron, consisting of a series of finger-bars, the rear ends of which are hinged to the axle-tree, in combination with the rigidly-attached plows *i i* and the reversible plows *i' i'*, substantially as and for the purpose specified.

3. The dividing-fingers *q*, in combination with alternate sloping apron-bars, as and for the purpose specified.

189,569. MACHINES FOR FITTING SIDINGS FOR WHIPS. Moses E. Moore, Westfield, Mass. [Filed Sept. 18, 1876.]

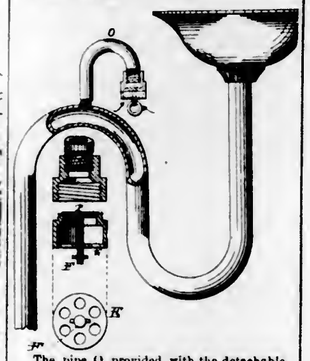
Brief.—The tapering form is given to whip-centers, and the cutting of the siding so that when placed around the wedges of the whip the pieces of siding will fit together, and give an approximate elongated conical form to receive the covering, by means of a series of pivoted levers and bars, actuated by cams attached to, kept in place and adjusted by, a disk; a series of upper yielding feed-rolls arranged immediately over a series of rigid feed-rolls; a vertically-moving presser-roll mounted between the upper rolls; a shaving knife secured upon either side of the upper rolls, and a similar knife attached below the bed; a suitable platform or bed, on which the strips, as they are passed along, are pressed against the knives; and suitable operating mechanism.



1. The combination of the cams *u v w*, the levers *d' d'' d'''*, the feed-rolls C C', the vertically-moving presser-roll D, and the knives N r A, and platform for holding the strip to be operated upon, all substantially as herein described.

2. As a means of moving the bars *f*, *f'*, and *e'* in a machine for shaving siding for whips, the combination of the cams *u v w* and the pivoted levers *c' c'' c'''*, substantially as herein set forth.

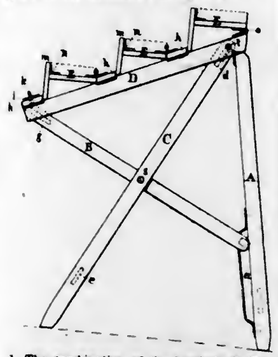
189,570. STENCH-TRAPS. P. F. Morey, Oakland, Cal., assignor of one-half his right to J. W. Musser, same place. [Filed Mar. 1, 1877.]



The pipe O, provided with the detachable part B, having perforated bottom E and air-valve P F, in combination with the bent pipe and bowl of a stench-trap, substantially as and for the purposes herein set forth.

189,571. FOLDING FLOWER-STANDS. S. R. Pay, Peoria, Ill. [Filed Mar. 3, 1877.]

Brief.—A folding flower-pot stand with folding legs and shelves, without taking apart, for convenience of storing away.



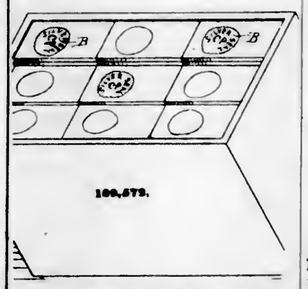
1. The combination of the brackets B B, connected by cross-bar *g*, pivoted at *s*, or centered on the middle part of legs C, each in combination with the respective rear legs A, said brackets B so combined with said legs A by means of slots *s* and the cross-rod *f* or detent, and said legs A hinged or pivoted to said legs C or their cross-piece *d*, at their upper extremities, to sustain the flower-shelf supports D D, substantially as and for the purpose described.

2. The combination, in a flower-stand, of the folding shelf-frame D D, the legs A A, pivoted to the legs C C near the pivot which unites both to said shelf-frame, and the brackets B B, substantially as and for the purposes described.

3. The combination of the hinged shelves E, and inclined pivoted shelf-supports D, substantially as and for the purposes described.

189,572. MARKING PLUG-TOBACCO. C. Peper, St. Louis, Mo. [Filed Feb. 5, 1877.]

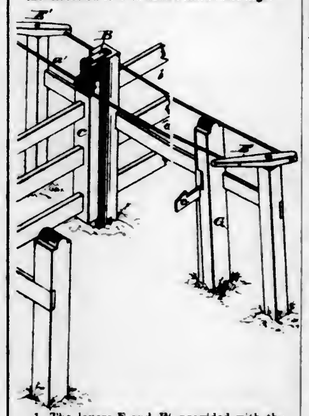
A label, B, impressed into a plug of tobacco by a superimposed plate, C, which remains on the surface, between the plugs in a package, until removed for use, substantially as described.



189,573.

189,573. GATES. Cyrus Pool, Ottawa, Ill. [Filed Jan. 29, 1877.]

Brief.—The upper hinge is connected to the post by a link, so that the rods that open and close the gate throw the weight of it in the direction it is to turn before it swings.



1. The levers E and E', provided with the wires *a a'*, each one running to the far side of the hinge post C, and the wire *b*, attached to the levers, as shown, and for the purpose set forth.

2. The combination, with an ordinary gate, of the levers E E', wires *a a' b*, double hinge B, post G, and catches *c c'*, substantially as and for the purpose set forth.

189,574. COPY-BOOKS. M. Augusta Requa and Eleanor Dunn, New York, N. Y. [Filed Mar. 19, 1877.]

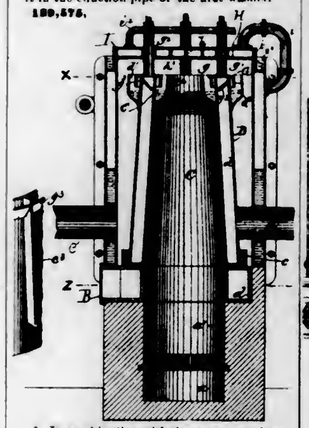


A writing copy-book having, in addition to the usual pages of set copy or words and letters to be imitated, interposed removable trial-leaves, provided with one or more lines of letters corresponding with the set copy, outlined or indicated by dots or other suitable means, and with a space for free handwriting, substantially as and for the purpose specified.

189,575. GAS APPARATUS. James Rigby, Montreal, Quebec, Canada. [Filed Mar. 19, 1877.]

Brief.—Gas is generated from oil, and is forced by a steam-jet into a washer, from which it is exhausted by a steam jet. Hydrogen or other gas is forced by a steam-jet, and mixed with the hydrocarbon gas, for diluting it in the eduction-pipe of the first washer.

189,575.



1. In combination with the permanent base A, the removable vertical boiler, composed of similar semicircular independent sections E and F, substantially as described.

2. In combination with the boiler having a removable section, F, the removable annular retort C D, having the central flue-passage, substantially as described.

3. In combination with the permanent base A and the relatively-fixed section E of the boiler, the removable section F and the removable annular retort C D, having a central flue-passage, as described.

4. In combination with the relatively-fixed section E, having recess *e'*, the removable shell D, having the outlet-pipe *d'* rigidly attached thereto, as described.

5. In combination with the boiler E F, having the seal-basin *e'*, the removable top plate H I, as described.

6. In combination with the permanent base, the removable superstructure and the removable annular bridge, as described.

7. In combination with the fire-chamber *a'* and the smoke-pipe *e'*, the annular retort C D, the cover-plate, and the lucloing-boiler, forming main and return flues, as described.

8. In combination with the retort, having a central passage, forming the main flue, the cover-plate and boiler, forming a return-flue, as described.

9. In combination with the conical shell, the removable shell D, forming the annular closed retort, as described.

10. The retort described, consisting of the shell C, with seal-cups *e e'*, shell D, with seal-cup *d'*, and covering-plate G, as described.

11. In combination with the retort, the defecting and distributing plates *g'*, as described.

12. The vertical retort, provided with the vertical partition-plates and independent oil-pipes, as described.

13. The removable cover-plates H I, having the vertical division plates *h*, forming a superheating-chamber, as described.

189,576. PROCESSES AND APPARATUS FOR MANUFACTURING GAS. Jas. Rigby, Montreal, Quebec, Canada. [Filed Mar. 20, 1877.]

Brief.—Gas is made by passing heated air and steam through layers of incandescent anthracite coal and lime. The gas is exhausted by a steam-jet and forced into a washer, where particles of lime are deposited in the water, forming a milk of lime, which acts as a purifying agent to the gas.

1. The furnace described, having the outer shell B, with base *b'*, and inner shell C, with base *c'* and projection *c''*, as described.

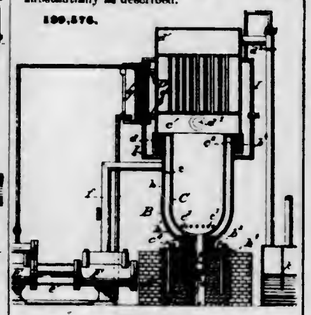
2. In combination with the furnace B C, having the flange *c'* and seal-cup *b'*, the tubular boiler having the extension *d*, as described.

3. In combination with the furnace and boiler, the double-acting pump, adapted to supply water and air, substantially as described.

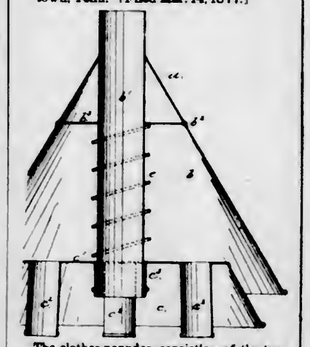
4. The method described of making gas, consisting essentially in causing air and steam to pass through the burning fuel and lime layers, and in subjecting the resulting products to the action of steam, substantially as described.

5. The method described of making gas, consisting essentially in subjecting air and steam to the action of burning fuel and lime, substantially as described.

189,576.



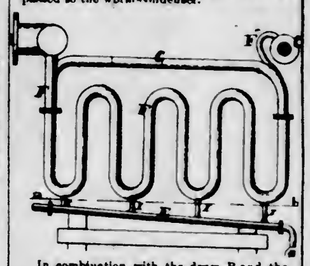
189,577. CLOTHES-POUNDERS. J. R. Roberts, D. P. Howe, and L. S. Lane, Morristown, Tenn. [Filed Mar. 14, 1877.]



The clothes-pounder, consisting of the two parts *b* and *c*, the part *b* being constructed with the central stem *b'*, and the inner part *c* being constructed with a flat top, *c'*, and sliding vertically on the stem *b'*, and provided with a series of air-pipes, *c''*, and so that when pressed up into the outer part *b* it will fit snugly therein and form an air-chamber, *d*, all substantially as and for the purpose set forth.

189,578. APPARATUS FOR THE REDISTILLATION OF SPIRITS. P. G. Rooney, Cincinnati, Ohio. [Filed Apr. 22, 1876.]

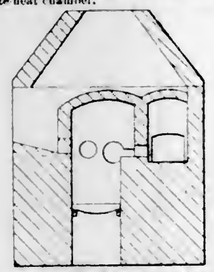
Brief.—The fusel-oil and heavier substances in the vapor condense at the lower bends of the coils, and are returned to the still, while the spirit-vapor at a high "sweet" proof is passed to the worm-condenser.



In combination with the drum B and the pipe F''', leading to the condenser, the separator composed of two or more coiled pipes, F and F, the return-pipes G and G, and the pipes E, connecting with the pipes F F by means of the pipes I, the whole arranged to operate substantially as described.

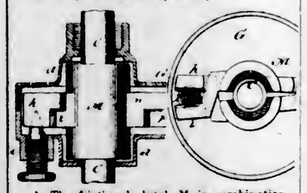
189,579. TUBE-WELDING FURNACES. W. B. Sandford, Chicago, Ill., assignor to Crane Brothers Manufacturing Company, same place. [Filed Feb. 6, 1875.]

Brief.—The combustion-chamber communicates with a lateral waste-heat chamber by perforations in the wall that separates them, and a ledge or shelf within the first-named chamber, over which the heat must pass on its way into the other, is designed to be a place of deposit for the partly-heated tubes as they are successively removed from the waste-heat chamber.



In the pipe-welding furnace herein described, the offset or shelf *a* for supporting the pipe-blanks, in combination with opening *b*, arranged to admit of the insertion and removal of the pipe-blanks, as specified.

189,580. FRICTION-CLUTCHES FOR GAS-CHANDELIERS. J. H. Seaman, Brooklyn, N. Y. [Filed Mar. 29, 1877.]



1. The frictional clutch M, in combination with the sliding tube C of an extension-light gas-chandelier, substantially as and for the purposes herein specified.

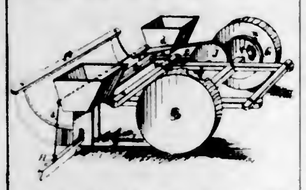
2. The combination of a regulating device, I, with the lugs h i, and the clutch M, substantially as and for the purposes herein specified.

3. The combination, with the two parts of the clutch M, having the lugs h i, of the hinge a p, substantially as and for the purposes herein specified.

4. The combination, with the two parts of the clutch M, provided with lugs h i, of the frictional lining g, substantially as and for the purposes herein specified.

5. The combination, with the inclosing-case G, sliding tube C, clutch M, and regulating point I, arranged and having a mode of operation substantially as shown in Figs. 3 or 6.

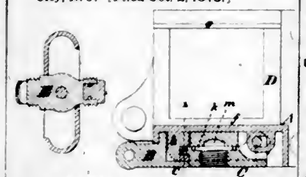
189,581. DROPPING AND MARKING ATTACHMENTS FOR CORN-PLANTERS. F. Silsbee, N. Silsbee, and P. Silsbee, Little Sioux, Iowa. [Filed Dec. 15, 1876.]



1. The wheel J, having the pinion g, cords d d, and notch r, in combination with the hinged markers H, the spring m, and the wheel G, having the pinions f f and cams n n, substantially as and for the purposes shown and described.

2. The grooved cam-wheel G, having the pinions f and cams n, the pivoted lever e, and seed-slide a, the wheel J, having the pinion g, notch r, and cords d d, the hinged markers H, and the spring m, all arranged and combined substantially as shown and described, to simultaneously plant and mark.

189,582. SEAL-LOCKS. J. N. Smith, Jersey City, N. J. [Filed Oct. 2, 1875.]



1. The casing A, provided with the notched bracket *b*, in combination with the removable clasp B, constructed to fit within said casing, and the pivoted bolt C, having a limited sliding movement and a point, *a*, for engaging with the notch of the bracket, substantially as and for the purpose herein specified.

2. The casing A, notched bracket *b*, removable clasp B, provided with the socket *m*, in combination with the pivoted sliding bolt C, having the cavity *k* for the reception of the seal *i*, and stamp *j*, substantially as and for the purpose herein specified.

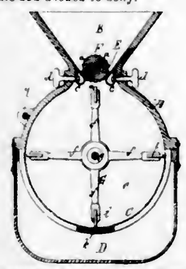
3. The combination of the casing A, provided with the frame D, and the removable clasp B, having the projecting flange A, with the pivoted and sliding bolt C, substantially as and for the purpose herein specified.

4. In combination with the casing A, clasp B, and bolt C, forming a seal-lock as described, and the seal *i j*, the sealing tool or key E, substantially as and for the purpose set forth.

5. In combination with the casing A, clasp B, and bolt C, forming a seal-lock as described, and the hasp F, staple G, and staple H, the link I, pin K, and clevis J, substantially as and for the purpose set forth.

189,583. MOLDING-SAND SIFTERS. John Stackpole, Woburn, Mass. [Filed Nov. 21, 1876.]

Brief.—The comminuted substance passes between guard and adjustable wings in throat. Lumps are disengaged from either side of rotary guard by reversing its direction. A removable bod hooked to body.



1. A machine for sifting or screening molders' sand, flour, or other finely comminuted substances, constructed as herein described—that is to say, as composed of the case A, rotary guard F, variable and adjustable wings or sides e, dash G, screen C, and the trap *k* or its equivalent, the whole being substantially as and for the purposes stated.

2. In combination with the case A, dash G, and screen C the rotary guard F, constructed substantially as shown and described, so that a reversal of its movement shall detach and bring up substances too large to pass the throat E, substantially as and for the purposes stated.

3. In combination with the hopper B and guard F, the adjustable wings *c e*, for varying the extent of the passage between the sides of the throat E and the periphery of the guard, substantially as and for purposes stated.

189,584. ARMATURES FOR ELECTRO-MAGNETS. Henry Stroh, Edwardsville, Ill. [Filed Sept. 14, 1876.]

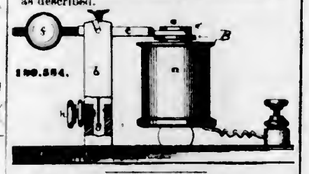
1. The herein-described armature B, provided with the perforations *d d*, operating substantially as described.

2. The combination of the standards *b b*, arm *c*, magnet *a*, poles *e e*, and armature B, having the perforations *d d*, substantially as described.

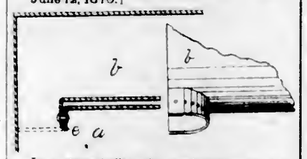
3. The combination of the armature B, provided with the perforations *d d*, arm c, standards *b b*, spring *g*, screw *h*, and magnet *a*, substantially as described.

4. The combination of an electro-magnet, *a*, and a perforated armature, B, substantially as described.

189,584.

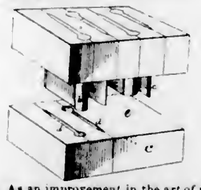


189,585. CONSTRUCTION OF STEAM-BOILERS. Danl. Sullivan, Bangor, Me. [Filed June 12, 1876.]



In a steam-boiler, the combination of the boiler *a* and dome or cylinder *b*, united by a nozzle, B, formed, in part, by the turned metal of said boiler and dome, and in part by the boiler-head, substantially as set forth and shown.

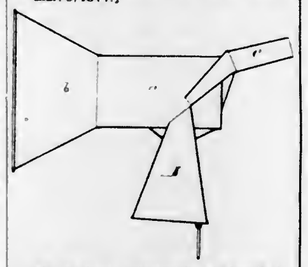
189,586. MANUFACTURE OF HORSESHOE-NAILS. I. C. Tate, New London, Conn., assignor to P. Williams, same place. [Filed Mar. 6, 1877.]



1. As an improvement in the art of making horseshoe-nails by stamping impressions of nails upon or into a sheet of metal, and then cutting out said impressed portions by punching, in the usual manner, I claim so operating upon the metal while cold, in virtue of which the same is tempered and finished, as set forth, before being punched.

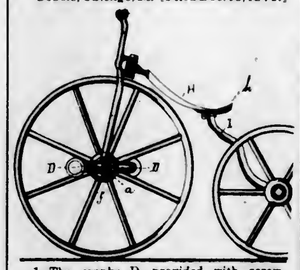
2. In combination with the cutting-dies *b b*, the compressing and finishing dies *c c* and the die and anvil block C, substantially as set forth.

189,587. FOG-HORNS. P. Thompson, Calais, Me., assignor to himself, W. S. Taylor, and G. A. Blake, same place. [Filed Mar. 6, 1877.]



The fog-horn, substantially as described, composed of the trumpet A, the hollow cone or vessel B, and the blast or induction pipe C, arranged essentially as set forth.

189,588. VELOCIPEDES. H. Will and C. Uebele, Chicago, Ill. [Filed Dec. 16, 1876.]

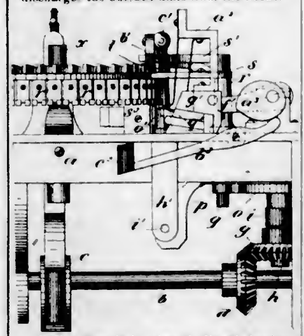


1. The cranks D, provided with screw-threads on their outer ends, and with flanges *d* and shoulders *d'*, as shown, combined with the screw box or sleeve E shorter than the hub, as set forth, and provided with ribs *e* on the outer side, for the purpose described.

2. The seat H, provided with lugs *h'* upon its under side, in combination with the reaches I and plate *i*, provided with a slot, *i'*, and bolted to the seat, substantially as described.

189,589. MACHINES FOR FINISHING HORSESHOE-NAILS. C. W. Woodford, Montreal, Quebec, Canada. [Filed Jan. 29, 1877.]

Brief.—The nail-blanks hang by their heads in the peculiarly-formed hooks of an intermittingly-revolving wheel. The shearing die is carried in a vibratory rest, and trims the nail against the usual fixed punch. Lugs for holding the point-beveling dies are formed in the rest. A cup on the end of a pivoted lever discharges the finished nails from the hooks.



1. The annularly-shaped die *m'*, having acute-angled space *a'*, substantially as and for the purposes set forth.

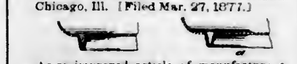
2. The combination of the wheel r with hooks *r'*, having horizontal part *u'*, upturned ends *r'*, and slit *w*, substantially as and for the purposes described.

3. The hooks *r'*, constructed with upwardly-turned and slotted ends *v'*, substantially as described, in combination with the cup *c'*, constructed, arranged, and operated substantially as described, for the purposes set forth.

4. The annularly-shaped die *m'*, having bevels forming acute-angled recess *a'*, in combination with the punch *o'*, substantially as and for the purposes set forth.

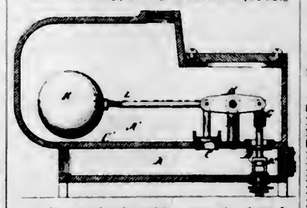
5. The combination of the vibrating rest *g'*, constructed as described, with cramp *k'* and removable part *l'*, and having a segmental annulus formed therein, with the annularly-shaped die *m'*, having acute-angled spaces *a'*, substantially as and for the purposes herein set forth.

189,590. PANS AND BASINS. Geo. Wright, Chicago, Ill. [Filed Mar. 27, 1877.]



As an improved article of manufacture, a sheet-metal pan or basin, provided with a bead, *a*, upon the bottom thereof, such bead being filled with solder or block tin, or other suitable material, substantially as and for the purpose specified.

189,591. STEAM-TRAPS. C. H. Yeager, St. Louis County, Mo. [Filed Mar. 15, 1876.]

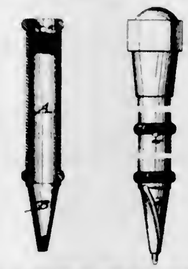


1. In combination with a wrench adapted to adjust the valves from the outside of the case, the valves C D and beam B, as and for the purposes set forth.

2. In combination with the wrench E, valves C and D, beam B, and float R, as and for the purposes set forth.

3. The combination of the water-chamber A, discharge-chamber K, partition C', valves C and D, beam B, and float R, as and for the purposes set forth.

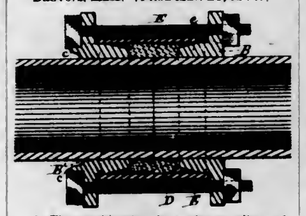
189,592. PENCIL-SHARPENERS. G. Agnew, Titusville, N. J. [Filed Jan. 29, 1877.]



1. A continuous pencil-sharpener, having an interior feed thread and small way-cutting blade at the end of the guide part, substantially as and for the purpose set forth.

2. The conical point of the sharpener, having an interior threaded surface or lead-file, substantially as set forth.

189,593. PIPE-COUPLINGS. Michael Allen, Danvers, Mass. [Filed Mar. 26, 1877.]



1. The combination, in a pipe-coupling, of collars B B', and sleeve D, constructed and operating substantially as described.

2. The combination, in a pipe-coupling, of collars B B', sleeve D, and bolts E, constructed and operating substantially as described.

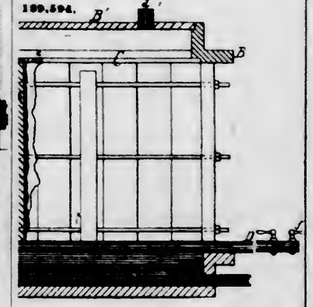
3. A pipe-coupling having the plastic material used in cementing the joint confined between collars on the adjacent ends of pipes to be joined, and a connecting-sleeve interposed between and covering said collars, the said collars and sleeve being brought in close contact, and the plastic compressed between them by bolts extending from collar to collar, substantially as described.

189,594. SINUP AND SUGAR FILTERS AND PROCESSES OF CLEANING THE SAME. W. J. Allen, Buffalo, N. Y. [Filed Jan. 24, 1877.]

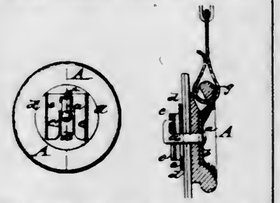
1. The combination of the filter proper containing a series of filter-plates, A, covered with a layer of pasteboard, and a layer of cloth, the perforated cover C, and removable cover B, substantially as herein specified.

2. The combination of the filter proper and its series of filter-plates, the perforated and removable covers and the pipes D and *d*, the whole arranged to operate substantially as set forth.

189,594.



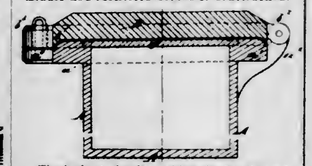
189,595. BUTTONS. Benjamin Bailey, Yale, British Columbia. [Filed Dec. 28, 1876.]



The combination, with button A, of the headed book *a*, apertured plate *b*, slotted plate *d*, and open slotted plate *e e'*, having recess *e'*, substantially as and for the purpose specified.

189,596. CAST-IRON EXTERIOR COFFINS OR VAULTS. Robert Beachman, Lyons, N. Y. [Filed Mar. 19, 1877.]

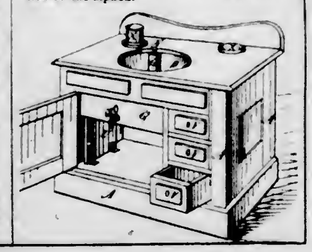
Brief.—Improvement consists in certain minute and restricted details of construction.



The body A, having rabbeted edge flanged at a^1, and having lugs a^2 a^2, the latter of which is provided with a staple, in combination with plate C and cover B, the latter having lip b^1 and lugs b^2 b^2, as and for the purpose specified.

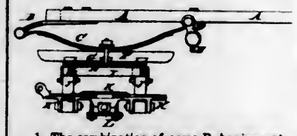
189,597. PORTABLE WASH-STANDS. N. O. Bond, Fairfax Court-House, Va., assignor to H. A. Richardson, New York city. [Filed Feb. 17, 1877.]

Brief.—The flanges, passing through the cover of the stand, form an extension of the water-tank, and allow the tank to be completely filled with water, thus aiding the action of the siphon.



1. The bowl, having a circumferential flange supported on screws attached to legs of the water-tank, as and for the purpose set forth.
2. In combination with the siphon, the tank C and the flanges W, forming upward extensions of the latter, as shown and described, for the purpose stated.
3. In combination with bowl Q, the supports U, hinged to the bottom of stand A in such manner that they will fold toward each other, as shown.

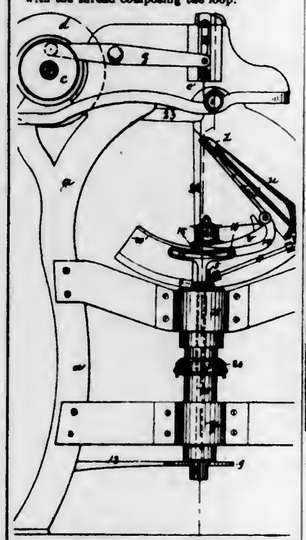
189,598. PLATFORM-WAGONS. Ebenezer H. Booth, West Ocisville, N. Y. [Filed Feb. 26, 1877.]



1. The combination of arms B, having outwardly-bent ends, the springs C, the shackles D, the cross-bar E, frame F, and fifth-wheel, having upper part G, as and for the purpose described.
2. The combination of fifth-wheel having lower part H, the frame I, the springs J, and the ragged bars K, with the axle L and tongue-irons having eyes, as and for the purpose specified.

189,599. SHOE-SEWING MACHINES. Jos. Read, Jr., Woonsocket, R. I. [Filed Dec. 7, 1876.]

Brief.—The horn is provided with a take mechanism, to take up the slack thread occasioned by carrying a loop of the under thread around a tubular shuttle-race above the work, through which loop and race the shuttle is passed without coming in contact with the thread composing the loop.



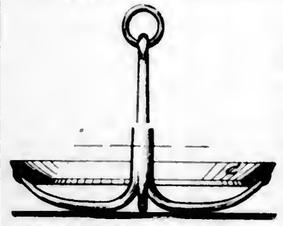
1. The combination, in a shoe sewing machine, of a horn containing a looper carrying a waxed thread, and provided with a thread-controller, a thread-carrier penetrating the material from the outside, and carrying the lower waxed thread through the same in the form of a loop, a shuttle reciprocating above the horn, a tubular race, *h h*, and a rotating and sliding sleeve, *e*, and hook *e'*, whereby the said loop is opened to permit the passage of the shuttle, without contact, through the loop, and the loop is drawn, with the upper waxed thread, to the material, all as set forth.
2. The combination, in a shoe-sewing machine, of a horn, a thread-carrier within the same, and a thread "take-up" mechanism for operating the thread passing through the horn to the carrier, substantially as set forth.
3. The combination of a horn, take-up lever 14, and slotted bar 18, all carried by the horn, substantially as set forth.

189,600. WATCH-WINDING DEVICES. W. H. Bracy, Boston, Mass. [Filed Feb. 24, 1877.]



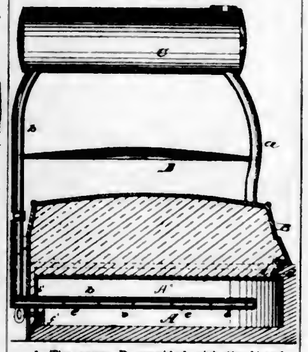
1. As a new article of manufacture, a detachable winding device, consisting of a base, a pipe secured thereto, and a thumb-piece pivoted thereon, all arranged and adapted to be applied to the arbor, and contained and folded beneath the outer case of a watch, substantially as and for the purpose set forth.
2. The combination, with the thumb-piece C and plate B, of a spring, E, substantially as and for the purpose set forth.

189,601. ANCHORS. F. A. Buck, Eastport, Me. [Filed Mar. 19, 1877.]



An anchor formed of a shank with radial branching and upwardly-curved arms, carrying at the outer ends an inclined and tapering fluke of circular shape, substantially in the manner set forth.

189,602. SAD-IRONS. S. J. Bugh, St. Joseph, Mo. [Filed Sept. 22, 1876.]

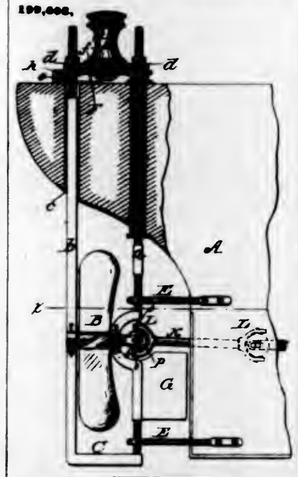


1. The cover B, provided with lip *b'* and groove *d'''*, in combination with the part A having rib *d* and lug *f'*, as and for the purpose set forth.
2. A sad-iron, consisting essentially of bottom A, having rib *d*, cover B, having lip *b'* and groove *d'''*, the handle-reservoir C, the rod *a*, the tbe *b*, and the fender D, as shown and described.

189,603. STEERING-PROPELLERS. Jas. H. Carpenter, New York, N. Y., assignor of one-fifth his right to G. Newton, St. Louis, Mo. [Filed Feb. 16, 1877.]

1. The combination of a screw-propeller, B, and a laterally-swinging frame, C, provided with a pivotal post or arm, *a*, and with a rear sustaining arm, *b*, supported independently of the pivotal arm, substantially as shown.
2. The swinging screw-carrying frame C, having the threaded arms *a* and *b*, provided with the sustaining-nuts *d*, substantially as shown.
3. In combination with a vessel, A, a screw-supporting frame, C, provided with a fulcrum or pivot arm, *a*, and a rear sustaining-arm, *b*, sustained by a wheeled carriage, F, substantially as shown.
4. The combination of the frame C and carriage F with the pinion-nuts *d* and gear-wheel *f*, mounted on the carriage, as shown.
5. The combination of the vertically-adjustable and laterally-swinging frame C, the screw *b* mounted therein, and the rudder G, attached to the frame in advance of the screw, so as to rise and fall therewith, and retain its position in relation thereto.
6. The combination of a vertically-adjustable screw, mounted in permanently-horizontal bearings, an engine-shaft, located in the hold of the vessel, and a connecting-shaft passing through a slide in the stern of the vessel, and attached at its ends by universal joints to the screw and the engine-shaft, respectively, substantially as shown and described.
7. A vertically-adjustable and laterally-swinging screw, B, connected with and driven by a horizontal engine-shaft in the hold of the vessel, substantially in the manner shown and described.

189,604.

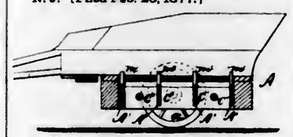


189,604. TOBACCO-PACKAGES. P. Cauhapé, New York, N. Y., assignor to himself and E. Greenfield, same place. [Filed Feb. 17, 1877.]



A tobacco-package covered with a mixture of honey, gum-arabic, and gelatine, as and for the purpose specified.

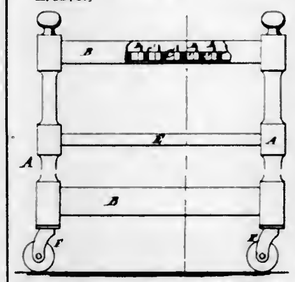
189,605. SELF-RAKES FOR HARVESTERS. I. N. Cherry and R. N. Cherry, Jersey City, N. J. [Filed Feb. 26, 1877.]



1. The pivoted slide-bar F, having cross-bar G, and pivoted in the arms thereof, a spring-bar, H, said bars being provided with fingers and guard, constructed and arranged as shown and described.
2. The slotted sliding bar F, fingers *d e*, guides E *b*, arm *r*, ropes J *t*, shaft D, pulley *u*, and cam I, in combination, substantially as herein shown and described.

3. The combination of the bar F, catch *s*, lug *w*, and finger *q*, substantially as herein shown and described.
4. The latch *p*, in combination with the cam I and bar F, substantially as herein shown and described.
5. The lever P and screw P', arranged in connection with the wheel L', substantially as and for the purpose specified.
6. The combination of the worm D', rod F', having the log *o'* and projection *p'*, the triangular block *r'*, cam *q'*, and spring *t*, substantially as herein shown and described.
7. The combination of the ratchet-bars A', rods C', springs K', rod F', and worm D', substantially as herein shown and described.

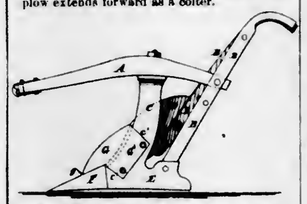
189,606. BROOM AND BRUSH RACKS. Jas. B. Clark, Jr., Vineland, N. J. [Filed Nov. 11, 1876.]



A rack consisting of corner-posts A, bars B, having the bottom foot-board *b'*, parallel notched bars C, having top pins D, and the bars or fenders E, all constructed and arranged as shown and described, whereby all the brooms are displayed brush upward, while the intermediate space is utilized by the aid of the fenders for handled brushes.

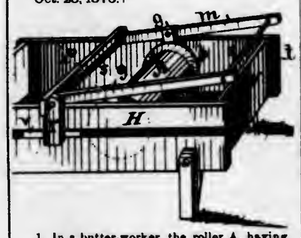
189,607. PLOWS. Wm. Clore, Rising Sun, Ind. [Filed Feb. 3, 1877.]

Brief.—A plate let into the land-side of the plow extends forward as a colter.



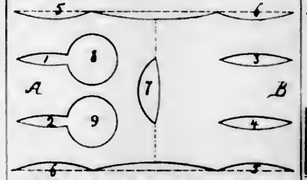
The combination of a one-piece standard and land-side, C E, having inclined recess *c'*, share F, and colter G G', the latter having a forward projection, *g*, that rests upon the share, as shown and described.

189,608. BUTTER-WORKERS. H. A. Clow, Des Moines, assignor of one-half his right to R. A. Rhoads, Newton, Iowa. [Filed Oct. 23, 1876.]



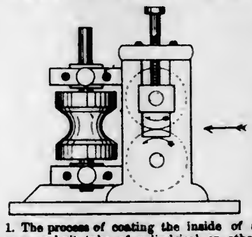
1. In a butter-worker, the roller A, having the short journals *d*, and annular cavities *e*, and the bent bearers *g*, arranged and combined substantially as and for the purposes shown and described.
2. The movable carriage P, having runners *r* to engage the tracks *t* on the outside of the tray, the hinged arms *m*, carrying the bent bearers *g* inside of the tray, and the roller A, having enlarged ends *b* fitted against the inside faces of the vertical tray sides H, all arranged and combined to operate substantially as and for the purposes shown and described.

189,609. UNDER-GARMENTS. Susan T. Converse, Woburn, Mass. [Filed Dec. 16, 1876.]



1. The under-garment composed of the two parts A and B, shaped as described, and provided with the openings 1, 2, 3, 4, 7, 8, and 9, of the form shown, substantially as and for the purpose set forth.
2. An under-garment formed with the circular openings 8 and 9, and having the semi-spherical pieces C inserted in such openings, as described.

189,610. MACHINERY FOR MANUFACTURING WATER-TIGHT HOSE. Robt. Cowan, Cambridgeport, Mass. [Filed Sept. 7, 1876.]



1. The process of coating the inside of a woven or knit tube of cylindrical or other shape of cotton or other textile fiber, by first drawing a gummy tube into the tube, then inserting a heated incompressible body therein, while applying external pressure, and subsequently vulcanizing the same, all substantially as described.
2. In a machine for the manufacture of water-tight hose, the combination, with one or more pairs of grooved rollers, of a solid head mandrel adapted for use, substantially as shown, and for the purpose set forth.

189,611. VALVE-NOZZLES FOR BOTTLE-STOPPERS. C. Cristadoro, New York, N. Y. [Filed Mar. 19, 1877.]

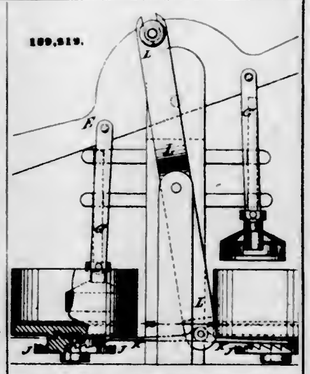


The valve *e*, having the triangular spindle *f*, upon the end of which is formed a head, *h*, in combination with the nozzle B and tube A, substantially as herein shown and described.

189,612. WASHING-MACHINES. David C. Croushorn and William McBee, Panther Springs, Tenn. [Filed Sept. 16, 1876.]

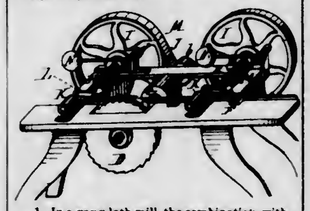
The combination of the swinging handle-beam E, lever L, and reciprocating pawl-rod K, with forked ends, with the ratchet-wheel J of the rotating stands I, to produce the alternating rotary motion of the tubs placed on the stands, substantially as shown and described.

189,613.



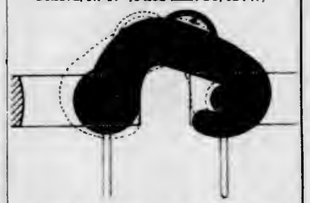
189,613. LATH-MACHINES. E. C. Dicey, Grand Haven, Mich. [Filed Nov. 23, 1875.]

Brief.—The saw-mandrel is hollow, and the collars pierced with apertures for the passage of air to cool the saws. A self-adjusting gage guides the operator in placing the lath-bolts upon the table, where they are retained in contact with the feeding-rolls by cranked and weighted presser-rolls.



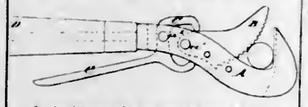
1. In a gang lath mill, the combination, with the table B and the bracket G on the under side of said table, of the step-guide F, having two steps on its upper surface, and a shank, F', playing in the said bracket G, and a spiral spring, *d*, placed around said shank, between it and the head of the step, all substantially as described and shown.
2. The press-rolls K, arms L, shafts M, and weighted levers N, in combination with the frame and feed-rolls of a lath-mill, substantially as described.
3. In a gang lath mill, the combination of the hollow mandrel C, perforated gage-collars E E E, gang-saws D D D, and V-shaped feed-rollers on shafts H H, constructed to operate substantially as and for the purposes described.

189,614. CAR-COUPLINGS. W. B. Dunning, Geneva, N. Y. [Filed Mar. 30, 1877.]



A hook for coupling cars, constructed with a straight portion extending upward from its pivotal point, and having a portion extending forward therefrom, and terminating in a hook, which embraces a bolt or ferrule between the two bars of the buffer-head, its under portion extending some distance in the rear of such ferrule or bolt, the under surface of said forward-extending portion being straight and raised above the line of its pivotal point, whereby it is prevented from being uncoupled when in use, substantially as set forth.

189,613. PIPE-WRENCHES. W. Eberhard, Akron, Ohio. [Filed Mar. 19, 1877.]

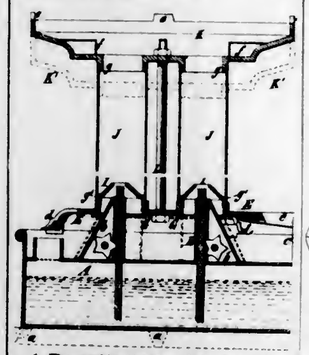


1. An improved pipe-wrench formed of the stationary jaw A, projecting forward nearly at right angles, and formed upon the outer end of a rearwardly-inclined slotted shank, the detachable and adjustable pivoted jaw B, made cam-shaped, and with graduated teeth, the pivoted forked lever C, and the handle D, constructed and combined with each other, substantially as herein shown and described.

2. The lever E, having its forward end bent upward, and a number of holes formed in it, and having a rotary cutter, F, pivoted to its slotted forward end, in combination with the slotted shank of the stationary jaw A of the wrench, substantially as herein shown and described.

189,614. LAMP-STOVES. Geo. H. Ferris, Brooklyn, N. Y. [Filed Apr. 6, 1877.]

Brief.—The legs and hinge which supplies the place of one of the legs support the cone-plate above the lamp.

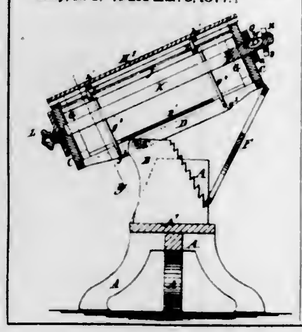


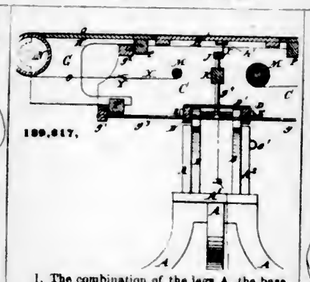
1. The combination, in a lamp-stove, of a base-piece, E, with legs *d* and hinge *c*, supported on a lamp, and a combustion-chamber adapted to support articles to be heated, with flues interposed between the base-piece and the combustion-chamber, substantially as described.

2. In a lamp-stove, a cast-metal bottom piece, E, provided with part of a hinge or articulation, and legs *d*, adapted to be supported on the lamp-reservoir, and to support the flues of the stove, substantially as set forth.

3. The combination of the base-piece E, provided with legs *d* and hinge *c*, flange *g'* thereof, flues J, combustion-chamber K, flanges *g* thereof, and bolt L, substantially as and for the purpose set forth.

189,617. TABLE-EASELS. C. Fisher, Salisbury, N. C. [Filed Mar. 3, 1877.]





189,617.

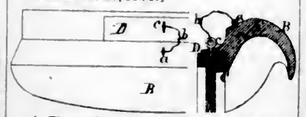
1. The combination of the legs A, the base A^1, the uprights A^2, the notched uprights B, the pivots E, the frame C D g^1, and the hinged pawl F, with each other, to enable the table to be adjusted to any desired inclination, substantially as herein shown and described.

2. The combination of the sliding frames G P P^1, provided with the pins P^2, with the frame C D g^1 g^2, to enable the table to be expanded and contracted, substantially as herein shown and described.

3. The combination of the two cylinders N, the two shafts M, the two gear-wheels S, the intermediate detachable gear-wheel L, the two ratchet-wheels Q, the ratchet-wheel catch R, and the double spring W, with each other, and with the main frame C D g^1 g^2, the two sliding frames G P P^1, and the cross-bar K, substantially as herein shown and described.

4. The combination of the four-armed lock-frame or spider T, and the pins U, with the gear-wheel S and the side board C of the frame C D g^1 g^2, substantially as herein shown and described.

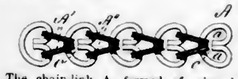
189,618. WASH-BOARDS. Danl. M. Fisher and Saml. E. Warren, New York, N. Y. [Filed Oct. 20, 1876.]



1. The wash-board protector B, for the uses and purposes mentioned.

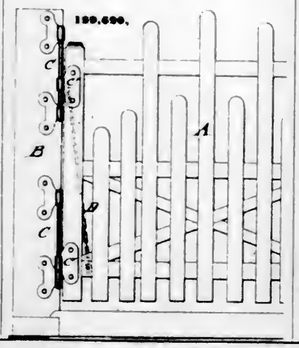
2. The wash-board protector B, provided with flange C and plate D.

189,618. LINKS FOR ORNAMENTAL CHAINS. J. J. Freeman, Attleborough, Mass., assignor to Freeman & Co., same place. [Filed Feb. 10, 1877.]



The chain link A, formed of wire, bent around, as shown, and having its ends turned inwardly, so as to form the two loops *a a*, and leaving a space, C, between the ends of the wire and the inner surface of the link, sufficient to receive but one thickness of the wire at a time, substantially as described.

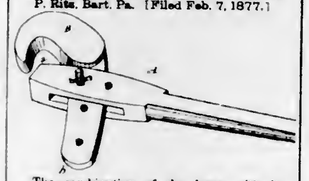
189,620.



189,620. FARM-GATES. O. F. Fuller, Lamont, Mich. [Filed Jan. 13, 1877.]

The combination, with the gate and posts A B, rods C, rigidly secured in sockets C, and the sleeves C', of the chain D fastened at one end near the bottom of gate, and at the other to a superposed hook on gate-post, as shown and described, to enable the gate to be readily adjusted to hang at different heights.

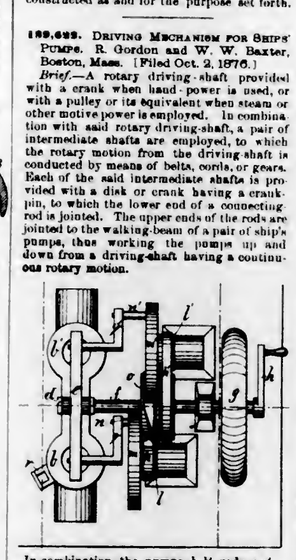
189,621. PIPE TONGS OR WRENCHES. E. R. Girvin, Strasburg Township, Lancaster County, assignor of one-half his right to P. Rits, Bart, Pa. [Filed Feb. 7, 1877.]



The combination of the lever, with its oblique, terminal, fixed jaw *a*, and slotted head A, for the reception of a shouldered straight extension, *b*, on the end of a reversible single hook or jaw, B, which end, like the head A, is provided with two or more holes for adjustment by means of a detachable headed pivot-bolt, *c*, the whole arranged and constructed as and for the purpose set forth.

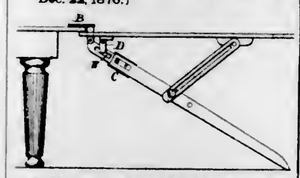
189,622. DRIVING MECHANISM FOR SHIPS' PUMPS. R. Gordon and W. W. Baxter, Boston, Mass. [Filed Oct. 2, 1876.]

Brief.—A rotary driving-shaft provided with a crank when hand-power is used, or with a pulley or its equivalent when steam or other motive power is employed. In combination with said rotary driving-shaft, a pair of intermediate shafts are employed, to which the rotary motion from the driving-shaft is conducted by means of belts, cords, or gears. Each of the said intermediate shafts is provided with a disk or crank having a crank-pin, to which the lower end of a connecting-rod is jointed. The upper ends of the rods are jointed to the walking-beam of a pair of ship's pumps, thus working the pumps up and down from a driving-shaft having a continuous rotary motion.



In combination, the pumps *b b'*, rods *c c'*, standard *d*, and its walking-beam *e*, with the connecting-rods *q q'*, cranks *m m'*, pulleys *l l'* *o* or their equivalents, and the driving-shaft *f*, with its balance-wheel *g*, and crank A, as and for the purpose set forth and described.

189,623. IRONING-BOARDS. Richard W. Hargrave, Marshalltown, Iowa. [Filed Dec. 22, 1876.]

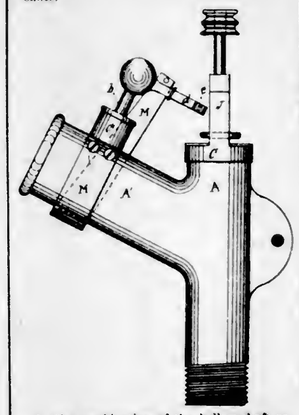


1. The combination of the clamp B C, having the slot E and the stirrup D, constructed substantially as set forth.

2. The combination of the said clamping device, consisting of the clamp, slot, and stirrup, with the leg F and slotted brace G, substantially as and for purposes set forth.

189,624. MOTORS FOR SEWING-MACHINES. J. Haworth and W. H. Newell, Philadelphia, Pa.; said Newell assignor to said Haworth. [Filed Mar. 9, 1877.]

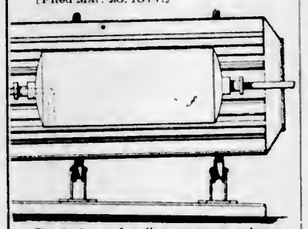
Brief.—The cylinder has a central shaft, which passes through the stuffing-box in the upper end of the cylinder. The lower end of the shaft, which is provided with the water-wheel, turns in the step. The middle part of the shaft revolves within the hollow shaft or tube, the upper end of which is fast to the stuffing box, and permanently connected with the lower end of the tube is the permanent chute.



1. The combination of the hollow shaft or tube H with the stuffing-box C and the stationary chute I, the end of the shaft being permanently connected with the stuffing-box and chute, substantially in the manner and for the purpose set forth.

2. The combination of the check-valve L, having a stem, *b*, and arm *d*, the spring M, and link N, with the induction-branch A', substantially as and for the purpose set forth.

189,625. DRYING AND COOLING APPARATUS. C. H. Hersey, Boston, Mass., assignor to himself and F. C Hersey, same place. [Filed Mar. 23, 1877.]



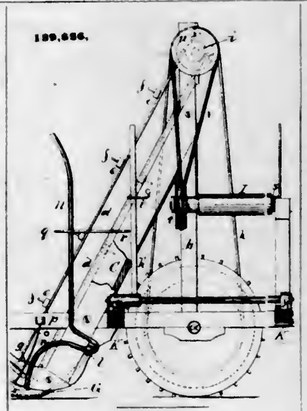
The drying and cooling apparatus, substantially as herein described, consisting of an interior-heated drying-cylinder, *f*, and a surrounding-cylinder, *a*, provided with buckets, and of such length, substantially as described, as to permit the material passing beyond the end of the drying-cylinder toward the discharging end of the outer cylinder to become cooled before it is discharged therefrom, all substantially as described.

189,626. HAY RAKERS AND LOADERS. J. S. Hewitt, Wheatland, Mo. [Filed Feb. 26, 1877.]

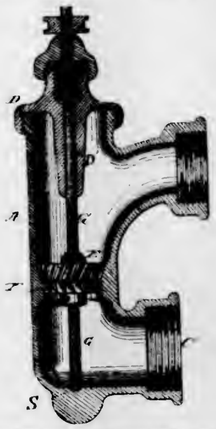
1. The combination of the lever H, rake G, arms *a*, drum *g*, and its shaft, slotted piece *c*, and the springs *o*, substantially as herein shown and described.

2. The arms K, hinged pieces *b'*, racks *c'*, toothed sectors *f'*, shaft *g'*, and lever *h'*, substantially as herein shown and described.

189,626.



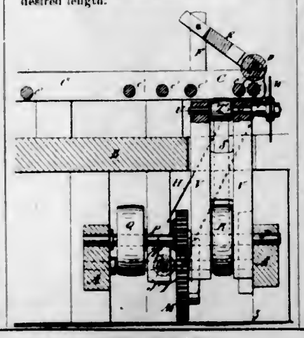
189,627. WATER-ENGINES. John S. W. Johnson, Camden, N. J. [Filed Mar. 23, 1877.]



The above-described flume chamber A, having the lateral discharge C, and solid bottom with the step S therein, in combination with the shaft G, wheel F, chute E, and cap D, substantially as and for the purposes set forth.

189,628. SAWING-MACHINES. G. J. Kautz, Emporium, Pa. [Filed Feb. 27, 1877.]

Brief.—The lumber to be sawed into laths and pickets is fed forward to the saw intermittingly, and the saw automatically fed to the lumber, and adjustable to cut it into any desired length.



1. The combination of the pulleys and belt G I H, the shaft J, the small gear-wheel K, and the segmental gear-wheel L with the large gear-wheel M and the toothed feed-roller *c'*, for feeding the lumber forward to the saw intermittingly, substantially as herein shown and described.

2. The combination of the swinging frame V, the cam X, and the spring Y with the saw-mandrel U, the shaft P, and the large gear-wheel M, for feeding the saw forward to the lumber intermittingly, substantially as herein shown and described.

189,629. ADJUSTABLE ELASTIC BUCKETS FOR CHAIN-PUMPS. T. Kenyon, Hamilton, Ohio. [Filed Mar. 12, 1877.]

Brief.—The cone and links have screw-threads cut upon them, by means of which the packing can be expanded and contracted to fit the tube and take up the wear of the packing.



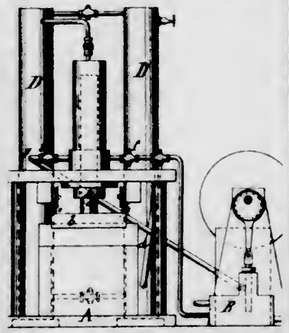
1. The independent cone D, made adjustable under elastic bucket over a one piece link, A, as shown and described, so as to regulate the adjustment of buckle without shortening the link.

2. The combination of link A, having a hole near each end, a collar, B, and a thread, C, with the internally threaded cone D, washer E, and elastic bucket F, substantially as and for the purpose specified.

3. The lifting-collar B, formed upon the upper part of the link A, and above the working part of the packing F, when the bucket is in the tube, substantially as herein shown and described.

189,630. HYDRAULIC PRESSES. Francis S. Kinney, New York, N. Y. [Filed Feb. 10, 1877.]

Brief.—Water is forced by the pump into one cylinder to compress air in the other. When the resistance reaches a certain point a safety-valve is opened, and the water is then forced into the tank.

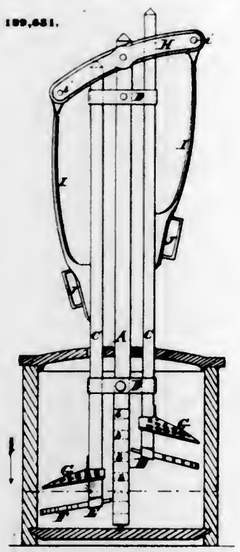


In a hydraulic press, the combination of the force-pump B, the two magazines D D', and the tank E, connected by valved pipes having stop-cocks, to cause an air-pressure in the magazine D', as specified.

189,631. CHURN-DASHERS. W. McQ. Landreth, Johnson City, Tenn. [Filed Oct. 10, 1876.]

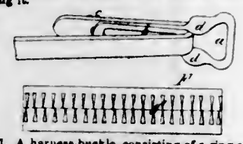
The dashers E F G, vertically-sliding rods C C, having guides D D, connecting-rods I I, and beam H, constructed, combined, and operated substantially as and for the purpose set forth.

189,631.



189,632. HARNESS-BUCKLES. E. G. Latta, Friendship, N. Y. [Filed Feb. 22, 1877.]

Brief.—A harness-buckle cast in a solid piece, adapted to be surrounded by and fastened to a leather sheath, having arranged on its inner side a metallic plate provided with points for stiffening the sheath, and fastening together the edges of the leather composing it.



1. A harness-buckle, consisting of a ring or loop, *a*, bar or plate *b*, and hook-shaped tongue *c*, arranged as shown, and cast in one piece and adapted to be used with a surrounding sheath or loop, F, substantially as and for the purpose hereinbefore set forth.

2. The combination, with the buckle composed of the loop *a*, bar *b*, and tongue *c*, of the sheath F, provided on its inner side with a metallic plate, *g*, having a depression, *h*, substantially as and for the purpose hereinbefore set forth.

3. The leather sheath F, having arranged on its inner side a metallic plate, *g*, provided with points *g'* for stiffening the sheath and securing the two edges of the leather together, substantially as hereinbefore set forth.

4. The combination, with a surrounding sheath, F, of a buckle, composed of a loop, *a*, wedge-shaped plate *b*, tongue *c*, and side flanges *d d*, all formed in one piece, substantially as and for the purpose hereinbefore set forth.

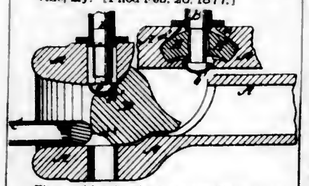
189,633. LOOM-SHUTTLES. C. Lewando, Boston, Mass. [Filed Sept. 18, 1876.]

Brief.—A spurred lever is applied by a pivot inside a hollow spindle, contact with a fixed pin forcing the spurs into the cop-tube, when cop and spindle are closed into the shuttle.



The combination of the lever K K' and the spindle H with the shuttle A and pin M, all operating together substantially as described, and for the purpose set forth.

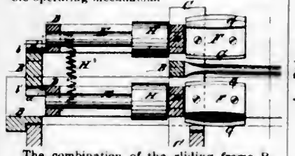
189,634. CAR-COUPLINGS. J. Lips, Louisville, Ky. [Filed Feb. 26, 1877.]



The combination, in a car-coupling, of the bumper-head A, having recesses *a'*, the blocks E, and the collared pin B *b'*, flattened on its opposite sides, as and for the purpose specified.

189,635. OSCILLATING CUTTER-HEADS FOR FINISHING SPOKES. Jos. R. Locke, Amesbury, Mass. [Filed Jan. 19, 1877.]

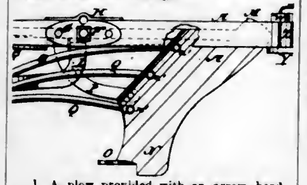
Brief.—The cutter-heads can be oscillated, to bring their cutters into proper position for finishing spokes, by means of a sliding frame provided with curved guides, two pivoted spring-frames, in which the cutter-heads are mounted, a main supporting-frame, and suitable operating mechanism.



The combination of the sliding frame B, provided with the curved guides *b'*, the pivoted frames D, the spring H', the shafts E, and the cutter-heads and cutters F G, with each other, and with the uprights C, and the main frame A, substantially as herein shown and described.

189,636. PLOWS. J. M. Looker, Abilene, Kans. [Filed Feb. 26, 1877.]

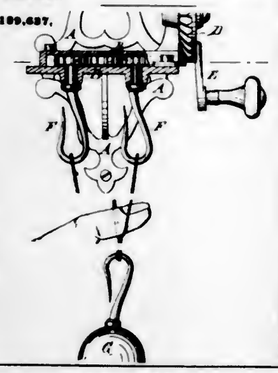
Brief.—The horizontal share projecting beyond the land-side, a vertical cutter at its heel, the curve of its edge.



1. A plow provided with an arrow-head point, M, having its land-side wing projecting beyond the line of the land-side of said plow, substantially as herein shown and described.

2. The share N, formed solid with the arrow-head point M, made nearly flat, and having the outer part of its forward edge curved forward, substantially as herein shown and described.

189,637.

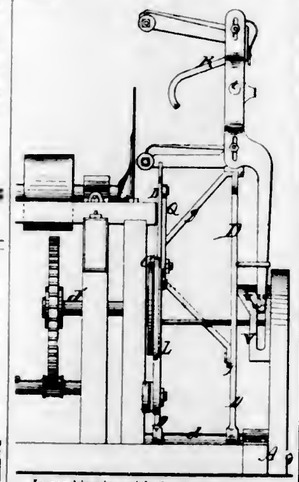


189,637. MACHINES FOR TWISTING WHIP-LASHES. Geo. A. Martin, Myerstown, Pa. [Filed Mar. 12, 1877.]

In a machine for twisting whip-lashes, the combination of the crank-wheel E D, train of gear-wheels C, hooks F F, and weight G, all arranged and operating substantially as shown and set forth.

189,638. MACHINES FOR SAWING SHINGLES. H. J. Morton, Norway, assignor of one-half his right to F. C. Merrill, South Paris, Me. [Filed Feb. 18, 1874.]

Brief.—The shingle-bolt is held, during the operation of sawing, in a vibratory carrier having a slow forward and quick backward movement. The bolt sweeps by the saw on the farther side of the saw-shaft, whereby the teeth of the saw, in all positions of the bolt, are caused to cut "with the grain" of the wood.



In combination with the vibratory bolt-carrier D, the revolving disk or wheel C, vibratory slotted arm L, and connecting-rod Q, substantially as and for the purpose herein specified.

189,639. HINGES OF VESSELS OF ENAMELED IRON-WARE. F. G. Niedringhaus and W. F. Niedringhaus, St. Louis, Mo. [Filed Apr. 2, 1877.]



The combination of the vessel A, wire *a*, cover B, having the slot *b*, strap C, and solder D, substantially as described and shown.

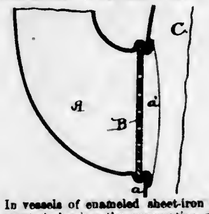
189,640. SPOUTS AND STRAINERS. F. G. Niedringhaus and W. F. Niedringhaus, St. Louis, Mo. [Filed Mar. 7, 1877.]



1. The enameled body A, having the flange *a'*, and the collar B, having the flange *b*, without enamel, combined substantially as and for the purpose described.

2. The combination of the enameled body A, having the flange *a'*, the collar B, having the flange *b*, without enamel, and contracted as described, and the strainer C, substantially as described.

189,641. SPOUTS AND STRAINERS. F. G. Niedringhaus and W. F. Niedringhaus, St. Louis, Mo. [Filed Mar. 7, 1877.]



1. In vessels of enameled sheet-iron ware, the spout A, having the corrugation *a*, and flange *a'*, and the body C, combined substantially as described.

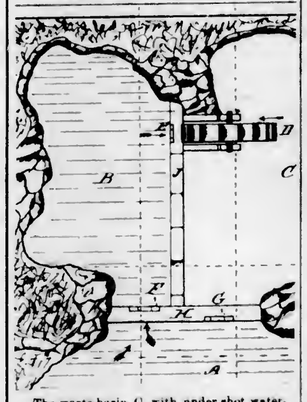
2. In vessels of enameled sheet-iron ware, the spout A, having the corrugation *a* and flange *a'*, the strainer B, and body C, combined, substantially as described.

189,642. NUT-LOCKS. Geo. Neilson, Chelsea, Mass. [Filed Feb. 20, 1877.]



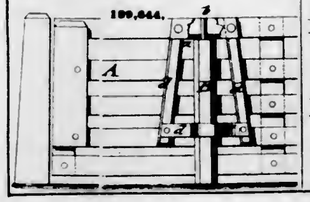
The combination of the nut D and the bent strip H, having its ends inserted in the recesses K K of the fish-plate B, operating substantially as described, and for the purpose set forth.

189,643. TIDE-POWERS. H. Newhouse, Oakland, Cal. [Filed Jan. 4, 1877.]



The waste-basin C, with under-shot water-wheel D, and the reservoir B, the same being separated from the basin by the wall J, and inclosed by the sea-wall H, and the arrangement of the gates E F G in relation thereto and operating as set forth.

189,644.

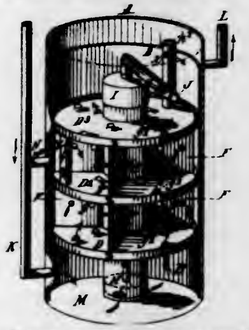


189,644. SWINGING GATES. W. A. Ohaver, Monmouth, Ill. [Filed Dec. 4, 1876.]

The combination, with gate A, of the perforated metallic plate *a*, guide-frame *d d'*, and post B, having the top pin *b*, as shown and described.

189,645. CARBURETERS. Jas. M. Palmer, Boston, Mass., assignor of one-half his right to Geo. C. Shaw, Biddeford, Me. [Filed Feb. 22, 1877.]

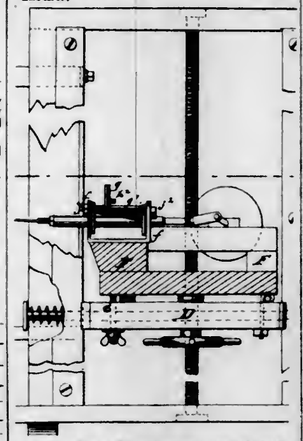
Brief.—The flow of hydrocarbon oil is regulated automatically by a float and a conical valve. Oil flows from one shelf or tray to another by openings having a raised rim or flange, to retain a thin layer on each tray. Absorbent material is placed upon the shelves. The air or gas entering below flows up through the absorbent material saturated with oil, and, if too highly carbureted, is diluted by air or gas admitted to the upper chamber.



The combination, with the case A, provided with induction-pipe K, eduction-pipe L, hollow standard C, having conical cap I, float H, valve-rod *m*, conical valve *i*, supply-pipe J, having a conical aperture, of the horizontally and removably arranged disks D D^1 D^2, radial and perforated vertical partitions P, and pipes A A^1, having lateral apertures *s* and s^1, the several parts constructed, arranged, and operating in the manner substantially as and for the purpose specified.

189,646. SAW-FILING MACHINES. S. V. Pattillo, Greenville, Ala., assignor to himself and F. J. Kohn, same place. [Filed Feb. 17, 1877.]

Brief.—A vertically-sliding frame is regulated by coiled spring, to prevent locking, &c., when the file is moved from one saw to another.

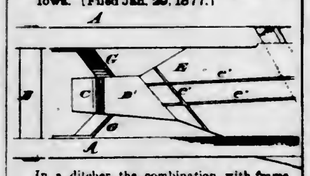


1. The frame F, spring supported in front and hinged in rear to the bed D, in combination with screw bolt and nut, to allow the pressure on file to be increased, as described.

2. The combination, with the spring-actuated arm H, of the lever h^1 and file-stock, having pin *g*, substantially as and for the purpose set forth.

3. The combination, in a filing-machine, of the oblique guides *g'*, slotted lateral plates *f*, file-stock, and clamp-screws, to allow the file to be set for right or left hand work, as specified.

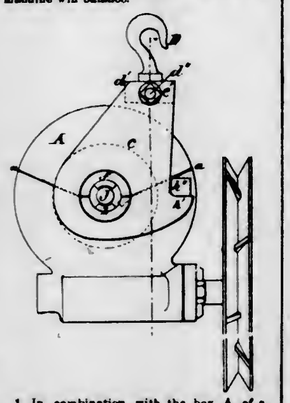
189,647. DITCHERS. W. R. Post, Viola, Iowa. [Filed Jan. 29, 1877.]



In a ditcher, the combination, with frame A B, share C, side cutters G G, and rest D', having extension D, of the turning-board E, inclined laterally as well as longitudinally, extending above the frame A B, and provided with channels *e'*, as and for the purpose specified.

189,648. HOISTING APPARATUS. Matthias Pennypacker, Philadelphia, Pa. [Filed Mar. 2, 1877.]

Brief.—The suspending-hook D is placed intermediately between the hoisting-wheel in the box and the driving-wheel B, so that the machine will balance.



1. In combination with the box A of a screw hoisting apparatus, a suspension device supporting the apparatus at a point in line with the lifting-chain, and intermediate between the driving-wheel and the worm-wheel axis.

2. The combination, with the divided box A, having gudgeons *f*, of the cheek-plates or yoke for securing the box together, as and for the purpose set forth.

3. In combination with a screw hoisting apparatus, the cheek-plates or yoke, having a swivel-hook, D, adapted to suspend the apparatus in line with the lifting-chain, as and for the purpose set forth.

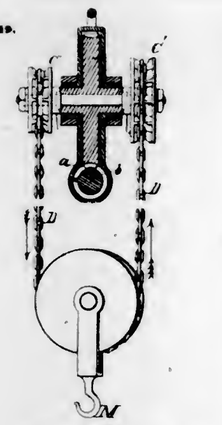
189,649. HOISTING APPARATUS. Matthias Pennypacker, Philadelphia, Pa. [Filed Sept. 30, 1876.]

Brief.—On the same shaft are pulleys of different diameters on opposite sides of a worm-wheel, which is revolved by a haul-rope around a drive-wheel.

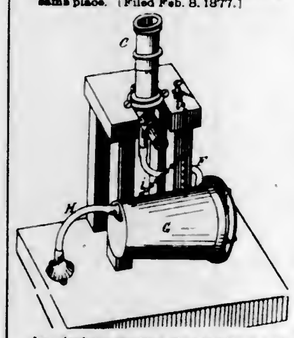
1. A screw hoisting apparatus, constructed with sheaves of different diameters, located on opposite sides of the main wheel and central box, in combination with a hoisting-chain passed diagonally from the smaller to the larger sheave, substantially as described.

2. The combination of a screw hoisting apparatus with differential sheaves or pulleys C C', located on opposite sides of the main wheel and central box, a hoisting-chain, D, and a traveling hook or support, M, for the purposes set forth.

189,649.



189,650. DREDGING-MACHINES. J. W. Philbrick, Waterville, Me., assignor to S. M. Philbrick, I. S. Bangs, and E. R. Emerson, same place. [Filed Feb. 8, 1877.]



In a dredging-machine, the combination of the pump O, flexible pipe F, conical receiver G, and flexible pipe H, provided with the nozzle I, when constructed and arranged as and for the purpose set forth and specified.

189,651. LUBRICATORS FOR STEAM-ENGINES. James Powell, Cincinnati, Ohio. [Filed Aug. 28, 1876.]

1. An improved steam-engine lubricator, consisting of a condensing-chamber and a vacuum-chamber, applied to a common supporting stand or base, substantially as described and set forth.

2. An improved steam-engine lubricator, consisting of a condensing-chamber and a vacuum-chamber contained within a single shell, which latter is applied to a stand or base, through which base the contents of said chambers are discharged into the steam-chest, substantially as described and set forth.

3. An improved steam-engine lubricator, consisting of shell or reservoir F, provided with partition H, that divides said shell into two separate and distinct chambers, I and J, having independent outlets communicating with the steam-chest through the supporting-stand, the former chamber I being adapted to discharge its contents solely by condensation, while the latter chamber J operates only by a vacuum, substantially as herein described, and for the purpose set forth.

4. An improved steam-engine lubricator, consisting of shell F, plate H, semi-cylindrical chambers I and J, stand A, channels C C', common discharge-passage a, and throttle-valves a' B a'' B', as and for the purpose specified.

5. In combination, with condensing-chamber I, discharge-tube K, and sleeve-valve L F, the bridge N n, and vertically-adjustable guide-stop M m m'', as and for the purpose specified.

6. In combination with vacuum-chamber J and tube O o' r, the valve P p, which latter opens downwardly and discharges oil from said chamber when a vacuum is produced in the steam-chest, and closes upwardly to arrest the flow of lubricant the moment a pressure of steam occurs in said chest, the stroke of said valve being controlled by the adjusting devices p' Q, situated externally with reference to tube O, and at the upper end of the same, substantially as herein described and set forth.

7. The vertically-reciprocating sleeve-valve L, when constructed with a series of vertical or nearly vertical apertures, l', in its head l, as and for the purpose herein described and set forth.

8. In combination with the screw-stem p', the nut Q, whose threaded portion is split completely through on one side from end to end, while the upper extremity of said nut is closed, with a solid and grooved head, q', substantially as herein described and set forth.

9. A non-conducting medium, extending from the base-plate to the cap of a lubricator, for the purpose of preventing radiation of heat from the sides of the reservoir, said non-conductor being applied either to the exterior or interior of the shell, substantially as herein described and set forth.

10. The internal non-conducting lining T, secured in a groove, t, at top of the lubricator and confined at bottom by a curb, D, and the shell F, as and for the purpose specified.

11. In combination with the hinged members U u and X x, the notch Y, for reception of the snaps V V', which latter are separated by an interval, s, as and for the purpose specified.

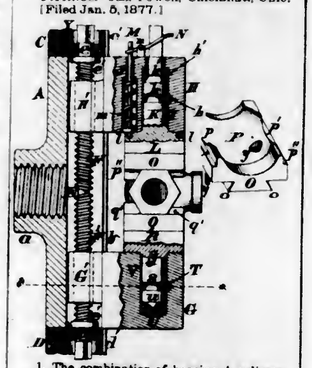
12. The hinge appliances, consisting of cap X Z z z' 2 2' and ring U W w w', whose pivots w w' are retained in their respective sockets z z' by the locking-plate 1 engaging with the under-cut grooves 2 and 2', as and for the purpose specified.

13. The combination of plate X', outwardly-projecting lugs or stumps 5, and metallic ring 7, which latter surrounds the central bosse 8 of wooden handle or wheel 4, and is secured thereto by screws 6 tapped into said lugs 5 of plate X', substantially as herein described, and for the purpose set forth.

14. The cylindrical guide M, screw-threaded externally at m, split longitudinally at m', and spanned at top with a yoke, m'' m''', which yoke serves as a stop to limit the ascent of vertically-reciprocating sleeve-valve L, substantially as herein described and set forth.

15. In combination with vacuum-chamber J, tube O o o' r, and valve P p, the adjusting devices p' Q, and spring R, substantially as herein described and set forth.

189,652. CHUCKS FOR GAS AND WATER FITTINGS. Jas. Powell, Cincinnati, Ohio. [Filed Jan. 5, 1877.]



1. The combination of housing A, adjustable jaws G H, rotatable tables L R, and removable chucks O Q, one of said tables, L, being capable of locking at any desired position, substantially as herein described, and for the purpose set forth.

2. An improved lathe chuck, consisting of housing A a C D, reversely-threaded shaft E F F', simultaneously but oppositely-adjustable jaws G G' H H', rotating tables L R, and detachable chucks O Q, one of said tables, L, being capable of locking at any desired position, substantially as herein described, and for the purpose set forth.

3. The combination of housing A a C D, simultaneously-adjustable jaws G G' H H', rotating tables K L E S, and locking devices I M m, or their equivalents, substantially as herein described, and for the purpose set forth.

4. The combination of the pivoted lever N with the pin or bolt M, and the table L with its pintle K, as and for the purpose described.

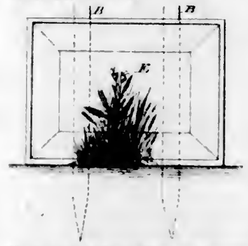
5. The combination, in the jaws of a lathe-chuck, of the anti-friction bearings h' and U, for supporting the respective spindles K and S of rotatable tables L and R, substantially as herein described, and for the purpose set forth.

6. In combination with lathe-chuck O and rotatable table L, the retaining-screw y, as and for the purpose described.

7. The removable chuck O, recessed at P, notched at p p', and provided with ledges or projections p'', which ledges are adapted to grasp the pipe-ends of a cock, substantially as herein described, and for the purpose set forth.

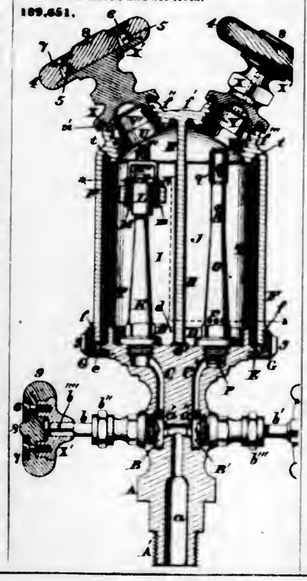
8. The removable chuck O, when constructed with a recess, P, notches p p', ledges p'', and a dovetail tenon, o, which latter engages with the under-cut groove l' of the rotatable table L, substantially as herein described, and for the purpose set forth.

189,653. REFLECTOR AND PLANT-PROTECTOR. August Pudigon, Charleston, S. C. [Filed May 18, 1876.]

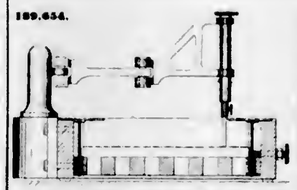


The within-described reflector and protector for plants, formed of wood, and consisting of the part A, secured to one or more stakes, B, and provided with the daring sides C D E, and painted white on the front, substantially as and for the purposes herein set forth.

189,654. MACHINES FOR SHAPING SOLID COLORS FOR PRINTING. Carl H. C. Radde, Hamburg, Germany. [Filed Jan. 17, 1877.]



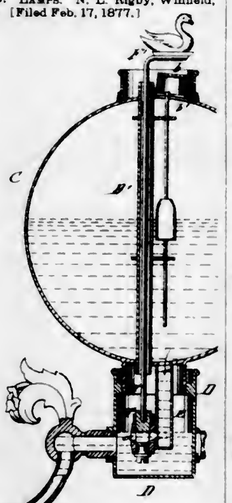
189,654.



1. In a machine for shaping and cutting to shape a printing material composed of aggregated parti-colors, representing a predetermined pattern, the combination, with a knife-supporting mechanism, of a slab for supporting the color composition, and adjusting devices, substantially as described, for regulating the position of such slab and the grate upon which it rests, all as shown and set forth.

2. In combination with the frame and slab adapted for holding the color composition, a knife-supporting mechanism, substantially as described, having capacity for a universal movement horizontally, and carrying a knife or cutter for trimming the composition, the combination being substantially as and for the purpose described.

189,655. LAMPS. N. L. Rigby, Winfield, Kans. [Filed Feb. 17, 1877.]



1. The combination, with a lamp-font having the air-tube D', of the removable cup attached to under side of said font, and having arms leading to burners, as shown and described.

2. The combination, with an oil-font, C, having a bottom exit-pipe, E, of a valve, F, oil-cup D and air-tube D', the valve-rod F, passing through the air-tube, and for the purpose as specified.

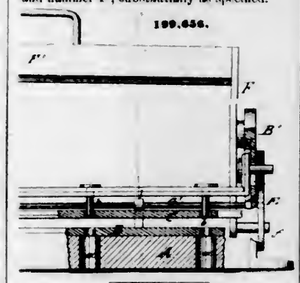
189,656. MACHINES FOR PUNCHING SHEET METAL. Thos. Rowan, Haverstraw, N. Y. [Filed Mar. 3, 1877.]

Brief.—A long hammer-block falls upon the punch-bar, and forces the perforating-pins attached thereto through the metal. Guide-holes for the pins to work through are formed in a long stripper-bar arranged above the dies. Pins projecting from arms of the hammer-block operate the levers for elevating the punch-bar when the hammer is raised.

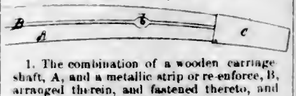
1. In a sheet-metal-punching machine, the combination of a perforated die-bar, perforated guide bar, and vertically-sliding puncher with a swinging hammer-block, that lowers and raises the puncher simultaneously with the dropping and raising of the hammer, substantially in the manner and for the purpose set forth.

2. The combination of the recessed and slotted side standards B' with vertically-sliding puncher C, connecting-pins e, fulcrumed levers E, swinging-arms F, having end pins f, and hammer F', substantially as specified.

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189,657. CARRIAGE-SHAFTS. J. A. J. Sawyer, Lynn, Mass. [Filed Mar. 13, 1877.]

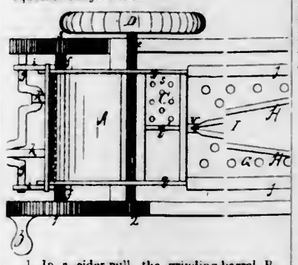


1. The combination of a wooden carriage-shaft, A, and a metallic strip or re-enforce, B, arranged therein, and fastened thereto, and provided with flanges, as set forth.

2. The combination of a wooden carriage-shaft, A, and its metallic thimble or ferrule C, with a metallic strip or re-enforce, B, provided with flanges, and arranged within such shaft and thimble, and fastened to the shaft by rivets, all substantially as specified.

189,658. CIDER AND WINE PRESSES. John Schoepflin, Gardnersville, N. Y. [Filed Mar. 7, 1877.]

Brief.—The apples are ground in the hopper A, and forced through the wedge-shaped passages H H by the pressers C, which squeezes the juice out.



1. In a cider-mill, the grinding-barrel B, constructed with the longitudinal segmental pieces I I, holding the knives c c between each, and having the beveled ends n n, and the heads k k', with the beveled circles m m therein, all held together by the screw or screws p, substantially as and for the purpose specified.

2. In combination with the mill A B, the perforated pressers C C, operated by the crank-shaft g, all arranged and operating substantially as and for the purpose hereinbefore specified.

3. In combination with the mill A B, pressers C C, and trough E', the perforated pressing pulp-box I G G' j j, the converging and diverging partitions or sides H H, and cover L, with the tightening screw w, substantially as and for the purpose hereinbefore set forth.

189,659. MACHINES FOR SPLITTING HOOP-POLES. Geo. B. Selden, Rochester, N. Y. [Filed July 13, 1876.]

Brief.—The machine can at will be adapted to split hoop-poles into two, three, four, or more parts by combining suitable feeding, centering, and discharging mechanism with a three-part oscillating knife.

1. The oscillating three-part knife C.

2. In combination with suitable feeding mechanism, the oscillating three-part knife C and centering-rolls m n o.

3. In combination with the knife C, the centering-rolls m n o and p q.

4. The combination of the movable plate L, knife C, and centering-rolls m n o and p q.

5. In combination with suitable feeding mechanism, the knife C, centering-rolls m n o and p q, and suitable discharging-rolls 1 2, 3 4, 5 6.

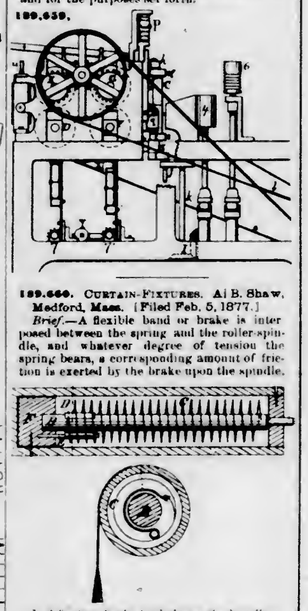
6. In combination with suitable feeding mechanism, the movable plate L, carrying the knife C, and centering-rolls m n o and p q.

7. In combination with suitable feeding-rollers, the movable plate L, carrying the knife C, and the centering-rolls m n o and p q, and suitable discharging mechanism.

8. In a machine for splitting hoop-poles, the combination, with a two-part and a three-part knife, and their respective centering devices, of suitable feeding and discharging rollers, operating substantially as and for the purposes set forth.

9. The combination of the knife C, slides M N O, rolls m n o and p q, and racks and gears r r' r'', and plate L, operating substantially as and for the purposes set forth.

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189,660. CURTAIN-FIXTURES. Al B. Shaw, Medford, Mass. [Filed Feb. 5, 1877.]

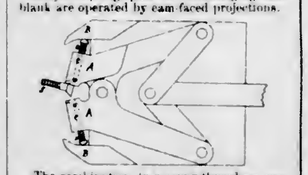
Brief.—A flexible band or brake is interposed between the spring and the roller-spindle, and whatever degree of tension the spring bears, a corresponding amount of friction is exerted by the brake upon the spindle.

1. A friction brake for balance shade-rollers, operated by the spring C, and acting continuously upon the roller or spindle with a force proportioned to the tension of the spring, substantially as and for the purpose set forth.

2. The combination of the curtain, roller, spring, spindle, and counterpoise, with a friction-brake, bearing continually upon the roller or spindle, and operated automatically by the direct action of the spring C, substantially as and for the purpose set forth.

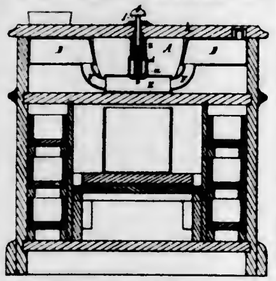
189,661. SCREW-THREADING MACHINES. J. A. Sheldon, Providence, R. I. [Filed Mar. 12, 1877.]

Brief.—Spring pins for discharging the blank are operated by cam-faced projections.



The combination, in a screw-threading machine, of the gripping jaws A A, cam-faced projections B B, and the punches C C, provided with retracting springs C, the whole arranged and operating in the manner substantially as described, for the purposes specified.

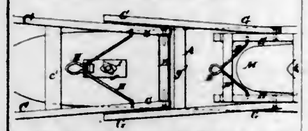
199,663. WARE-STANDS. L. Slater, Cambridgeport, Mass. [Filed Feb. 20, 1877.]



1. The combination of the bowl A, the two tanks D D, the valve *b* and its operative mechanism, the valve-chest E and its pipes, F F *d*, of communication with the bowl and the tanks, all being arranged and applied substantially as set forth.

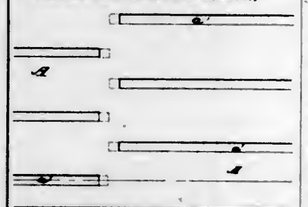
2. In combination with the bowl A, and arranged therewith as set forth, the tank D, valve-case E, pipes *d* and F, and the valve *b* and its operative mechanism, substantially as specified.

199,664. IRONING-TABLES. B. B. Smith, Nyack, N. Y. [Filed Feb. 10, 1877.]



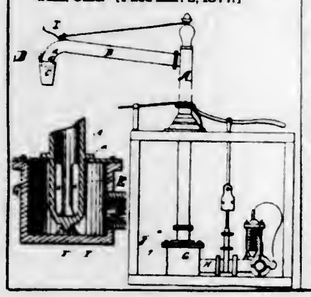
The V-shaped brace-rods H, having eyes formed in their angles, and the studs and buttons I J, in combination with the pivoted legs C G, and the table-top A, substantially as herein shown and described.

199,665. BOARD-LATHS. A. A. Smith, Boulder, Colo. [Filed Mar. 3, 1877.]



Board-lath A, formed by slotting boards of the proper thickness with sets of slots *a'*, alternating or breaking joints with each other, substantially as herein shown and described.

199,666. STAND-PIPES FOR SUPPLYING LOCOMOTIVES WITH WATER. H. Smith, Norwalk, Ohio. [Filed Mar. 3, 1877.]



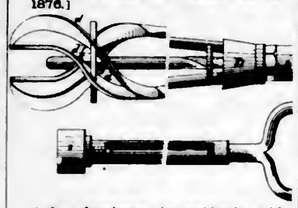
1. The combination of delivery-pipe B and hinged sheet-metal tube C, substantially as described.

2. The combination of delivery-pipe B, pivoted hinge D, and sheet-metal tube C, surrounding and projecting above the mouth of said delivery-pipe, substantially as and for the purpose set forth.

3. The combination of stand-pipe A, pivoted within chamber G, flange *a*, and flexible or elastic ring *g'*, substantially as and for the purpose set forth.

4. The combination of chamber G, having supply-pipe H, base-chamber E of the stand-pipe, having openings *e e e e* and pivot F, step F', flexible or elastic ring *g'*, and flange *a*, substantially as and for the purpose set forth.

199,666. BOILER-FLUE CLEANERS. John S. Smith, Jackson, Mich. [Filed Dec. 13, 1876.]



1. In a flue-cleaner, the combination, with a central rod, of a series of spring-bars, secured at one end to the central rod, and provided at their free ends with spiral cutters or scrapers, substantially as and for the purpose set forth.

2. In a flue-cleaner, the combination, with a central rod, of a series of spring-bars, secured at one end to said rod, the spring-bars provided at their free ends with spiral cutters, and a slotted disk, located on the central rod between the spiral cutters, substantially as and for the purpose set forth.

3. In a flue-cleaner, the combination, with a central supporting-rod, screw-threaded at its outer end, of a series of spring-bars secured at one end to said rod, the spring-bars provided at their free ends with spiral cutters, and a slotted disk adjustably secured to the central rod by means of nuts *d' d'*, substantially as and for the purpose set forth.

4. In a flue-cleaner, the combination, with a central supporting-rod, of a series of round spring-bars secured to said rod, the free ends of said spring-bars provided with spiral cutters or scrapers, and a slotted disk or guide, substantially as and for the purpose set forth.

5. A flue-cleaner consisting of a series of spring-bars secured to a central supporting-bar, the said spring-bars provided at their free ends with spiral scrapers located at one side of the plane of the bars, whereby the latter have a torsional and lateral resiliency to force the cutters against the flues, substantially as and for the purpose set forth.

6. In a flue-cleaner, the combination, with the central supporting-rod, formed with enlarged end and with perforated faces, of spring-bars provided with hooked ends, and a conical sleeve to secure the several parts in position, substantially as and for the purpose specified.

7. In a flue-cleaner, the combination, with the central supporting-rod, a portion formed with an angular-twisted surface, of the spring-bars, and a slotted adjusting-disk, substantially as and for the purpose set forth.

8. The combination, with a flue-cleaner, of an extensible handle, substantially as and for the purpose set forth.

9. The handle of a flue-cleaner consisting of a slotted tube provided with a sliding rod and means for locking the tube and rod together, substantially as and for the purpose set forth.

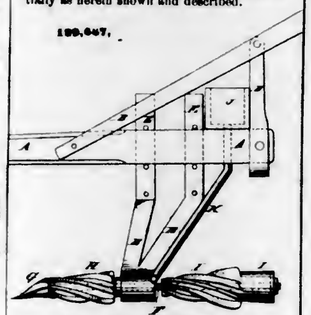
199,667. FLUE-DITCHERS. W. W. Snyder, Martinsville, Ohio. [Filed Feb. 3, 1877.]

Brief.—A horizontal rod carried at the bottom of an adjustable standard has a fixed point, a rotating spirally ribbed conical mole, and a rotating rear block, having its forward end shaped like the front mole, and its rear end made smooth, to shape and pack the earth around the drain.

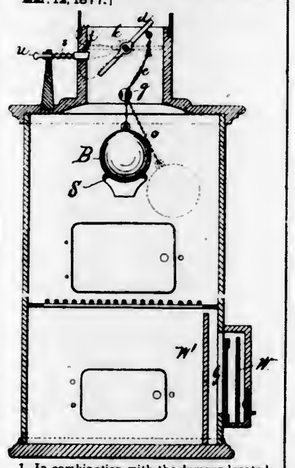
1. The combination of the adjustable branched standard E, the rod F, the point or cutter G, the rotating spirally corrugated or ribbed cutter H, and the rotating cutter and packer I, having its forward part spirally corrugated or ribbed and its rear part smooth, with the beam A, handles B, and upright D, substantially as herein shown and described.

2. The combination of the adjustable branched standard E, the rod F, the rotating spirally corrugated or ribbed cutter H, and the rotating cutter and packer I, having its forward part spirally corrugated or ribbed, and its rear part smooth, with the beam A, the handles B, and the upright D, substantially as herein shown and described.

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199,668. SAFETY CAR-STOVES. S. Swarts and G. R. Swarts, Buffalo, N. Y. [Filed Mar. 12, 1877.]



1. In combination with the damper located within the exit opening of a car-stove, and adapted to govern the draft, in the usual manner, a weight connected therewith by means of a chain, substantially as set forth, the arrangement being as described, so that the weight will fall within the body of the stove, and close said damper in case of accident, as and for the purposes specified.

2. In combination with a damper adapted to be closed by a falling weight, a spring catch and stop for the purpose of holding said damper in its closed position, as set forth.

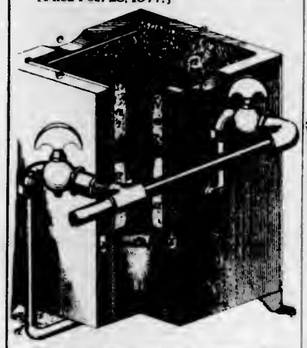
3. The combination of the damper, its attached weight B, and the socket or seat S, as and for the purposes explained.

4. The combination of the damper, its attached weight, the socket or seat S, and the chain-guide *g*, the whole being arranged to operate substantially as set forth.

5. In a car-heater, the combination, with a frame carrying the draft-register, of a wall, and a grate or screen located within said frame, the whole being attached to the outside of the body of the stove, and arranged to operate substantially as shown and described.

6. In a car-heater in which the passage to the draft-register is guarded by means of a wall and a grate or screen, the interior wall W', extending either partially or wholly around the interior of the ash-pit, substantially as shown and described.

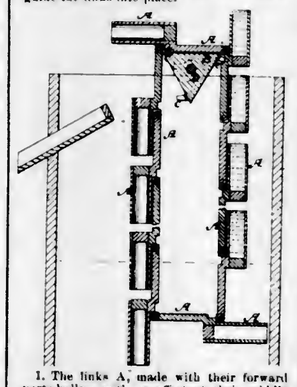
199,669. BOTTLE-WASHERS. E. C. Turbeville, St. Louis, Mo., assignor of one-half his right to Geo. S. Shryock, same place. [Filed Feb. 28, 1877.]



A bottle-washer consisting, essentially, of a double-walled compartment, having the spaces *s s* between the walls thereof, the pipes *d d'*, nozzle O, perforations *i i*, and sponges *a a*, fastened by wires *m* to thin boards *e e*, all substantially as and for the purposes set forth.

199,670. CHAIN-PUMPS. T. Wallis, Scipio, N. Y., assignor to himself, S. Eddy, and C. Fiero. [Filed Mar. 24, 1877.]

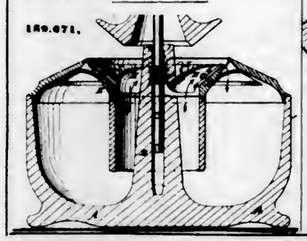
Brief.—The links are made with their forward parts hollow, with an offset at their middle parts, with lugs at their shoulders to receive the rear ends of the preceding links, and with lugs at their rear ends to receive the shoulders of the succeeding links, and in the triangular wheel provided with the guides to guide the links into place.



1. The links A, made with their forward parts hollow, with an offset at their middle parts, and with lugs at their shoulders to receive the rear end of the preceding links, and with lugs at their rear ends to receive the shoulder of the succeeding link, substantially as herein shown and described.

2. The triangular wheel B, provided with the guides C, in combination with the chain of bucket-links A, substantially as herein shown and described.

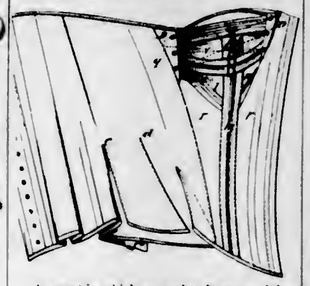
199,671.



199,672. PAPER-PULP ENGINES. J. S. Warren, Cumberland Mills, Westbrook, Me. [Filed Mar. 3, 1877.]

In a paper-pulp engine, the female cone E, provided with the groups of knives G, and the guide-cavities H I in the spaces between said groups of knives, substantially as herein shown and described.

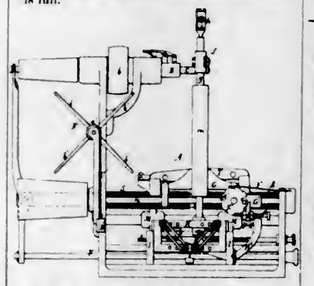
199,673. CORSETS. Elizabeth S. Weldon, New York, N. Y. [Filed Jan. 13, 1877.]



A corset in which an eyeleted tongue, *l*, is combined with a strip, *m*, stays *n o p*, gores *r*, eyeleted flaps *s*, and lacings *t t*, as and for the purpose specified.

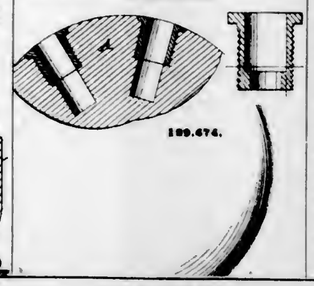
199,674. THREAD-SPOOLING MACHINES. J. W. West, Boston, Mass. [Filed Aug. 16, 1876.]

Brief.—The thread is spooled directly to the reel, a cord and weight drag being applied to the reel, and a tension to the thread-guide. A ratchet-wheel applied to the thread-guide carriage and stationary pawl, together with pins upon the wheel, acting upon a sliding block, having an adjustable bolt for engaging a shipping-lever, constitute a stop-motion, acting automatically when the spool is full.



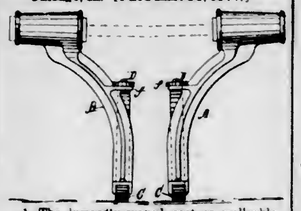
1. The combination of the reel B' and its friction mechanism with the thread spooling machine A, provided with the guide A and tension-spring *i*, essentially as set forth.

2. The combination of the stop-motion with the yarn-spooling machine A, such stop-motion consisting of the ratchet-wheel E', its studs *c'*, the spring F', its catch *d'*, the slide G', the screw-bolt *f'*, nuts *g' h'*, and the shipper-lever H', all being arranged and applied to the machine substantially as specified.



199,674.

199,675. SLEIGH-KNEES. A. A. Abbott, Chicago, Ill. [Filed Mar. 30, 1877.]

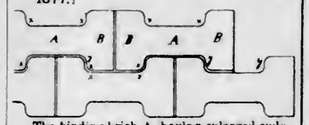


1. The inwardly-curved cast or malleable iron sleigh-knee A, provided with the thimble *a* to receive the axle of a wheel-vehicle, substantially as specified.

2. The inwardly-curved cast or malleable iron sleigh-knee A, provided with the inwardly-projecting bracket *f* to receive the rave, substantially as specified.

3. The combination, with the runner C and rave D, of the inwardly-curved cast or malleable iron knee A, substantially as and for the purpose specified.

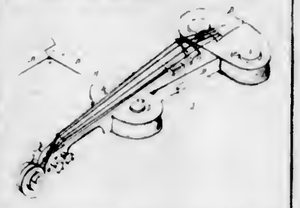
199,676. BRICKS. T. F. Adams, Philadelphia, Pa., assignor to the Peerless Brick Company, same place. [Filed Mar. 15, 1877.]



The binding brick A, having enlarged ends B B, with curved shoulders *y y*, when the spaces from *x* to *x* in the central portion of the brick A are double the width of the enlarged ends B B, the whole constructed and arranged as herein described.

199,677. VIOLINS FOR PRACTICE. Chas. F. Albert, Philadelphia, Pa. [Filed Feb. 2, 1877.]

Brief.—A violin of the ordinary length, provided with diminished sounding capacity, to spare the nerves of both the practitioner and adjoining roomers. It is also provided with a hinge-joint in the middle, so as to fold up within less compass.



1. A practicing-violin, the body of which is composed of two hollow parts, A and B, and a rigid connecting-bar, D, as set forth.

2. The within described violin-body, having two hollow portions, A and B, provided with valved openings, substantially as specified.

3. The combination of the connecting-bar D of the body, with the adjustable bridge H.

4. The violin-body, composed of two parts hinged together, substantially as set forth.

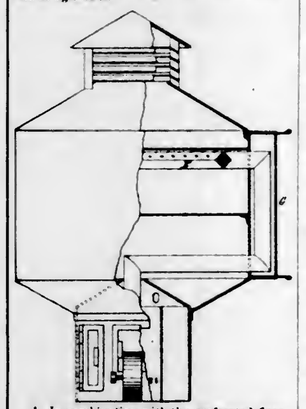
5. The combination of the violin-body and its connecting-bar D, with the supplementary detachable sounding chamber I.

6. The combination of the hinged connecting-bar D of the body, with the adjustable locking-slide M and bridge H.

7. The combination of the hollow portion B of the body, with the rigid strip D, having a valved chamber, *w*, as set forth.

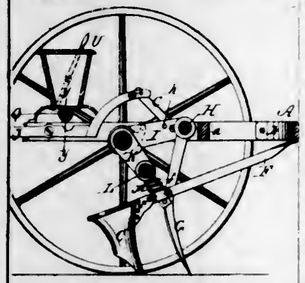
189,679. MALT-KILNS. H. Altenbrand, Brooklyn, E. D., N. Y. [Filed Jan. 16, 1877.]

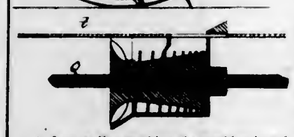
Brief.—The perforated pipe, in close proximity to the malt, delivers air in such manner as to agitate it.



1. In combination with the perforated floor of a malt-kiln, a perforated pipe for conducting air under pressure underneath the malt from a furnace and blower or exhauster, in order that the malt may be agitated by the circulation of the air, substantially as described.
2. The combination of the malt-kiln and hot-air pipe E, cooling-tube G, and dampers for regulating the circulation of the currents of air, substantially as described.
3. The combination of the fan and hot-air pipe with the furnace of a malt-kiln, whereby the malt is kept in agitation, substantially as described.

189,679. SEEDING-MACHINES. John C. Baker, Mechanicsburg, Ohio. [Filed Apr. 5, 1876.]

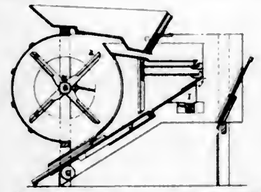




1. In a seeding-machine, the combination of a beat-wood frame, A, constructed with the straight front bar, as shown and described, and a series of drag-bars, F, having their forward ends attached to said front bar.
2. In combination with the hoes of a grain-drill, a series of clearers, G, suspended on a transverse shaft, and arranged to operate in the manner described.
3. In combination with the arms I, the bar or shaft H, pendent arms G, lever-arm J, and eccentric K, constructed and operating as shown and described.
4. In combination with the arms K', connected by the shaft L, having the links M mounted thereon, and connected to the drag-bars, the hand-lever O, mounted on the main axle, and connected by the sleeve N to one of the arms K', as shown.
5. In combination with the arms K', connected with the drag-bars, and operated by the hand-lever O, the arm I, provided with the pin A, and having the clearer-arm shaft attached thereto, as shown, so that the movement of the lever to raise the hoes will also raise the clearer-arms.
6. In combination with the hand-lever O for raising the hoes, provided with the locking-dog i, the pivoted rack-bar or arm P, carrying one of the feed-operating pinions, and having one end passed through the lever, as shown, so that the hoes and feeding devices may be thrown into and out of action simultaneously by the driver with one hand while on the machine.
7. In combination with the driving-shaft Q, the feed-roll bearing loosely at one end on the shaft, and supported at the opposite end by the surrounding case or cup, as shown.
8. In combination with the shaft and the journaled feed-roll mounted loosely thereon, the loose fastening-pin k, secured in place by the cup or case encircling the journal, as shown and described.
9. In combination with the feed-regulating slide t, having its end provided with the oblique slot l, the upright hand-lever U, mounted on the end of the hopper, with its lower end in the slot l, as shown.

189,680. GRAIN-SEPARATORS. A. A. Balat, Couvin, Belgium. [Filed Oct. 23, 1876.]

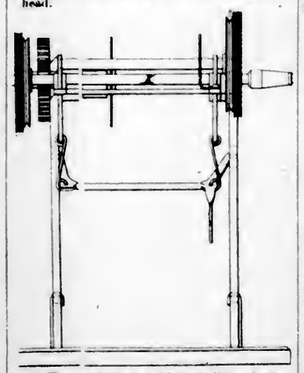
Brief.—The lower end of the separator-shoe rests on rollers, and its upper on transverse vibrating levers, having its free end suspended by link.



In a grain-separator, the combination, with the vibrating lever N, having one end pivoted to one side of the frame and the other end suspended from a rod, for the purposes specified, and the connecting-rod L, and slotted arm M, of the wedge or bracket I affixed to the shoe containing the grating and screens, and pivoted on the vibrating lever by means of a bolt or pin, to impart to said shoe a reciprocating motion longitudinally of the machine, substantially as specified.

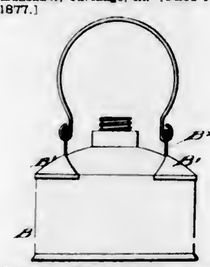
189,681. SAWING-MACHINES. William F. Barnes and John Barnes, Rockford, Ill. [Filed Sept. 9, 1876.]

Brief.—The saw is adjustable toward or from a stationary guide, to regulate the width of strip to be cut, by means of a longitudinally grooved saw-shaft passing through and movable freely endwise in a feathered pinion-wheel, turning in a suitable yoke, the end of the saw shaft being in a sliding adjustable head.



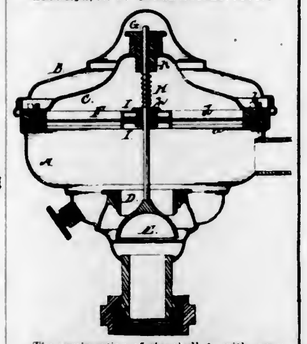
1. The combination, substantially as hereinbefore set forth, of the frame, the driving-shaft, its gear, the pinion wheel, the saw-shaft capable of endwise movement through said pinion, the sliding head supporting the inner end of the saw-shaft, and a stationary gage or guide located at one side of the frame toward and from which the saw is adjustable, for the purpose specified.
2. The combination, substantially as hereinbefore set forth, of the frame of the machine, the driving-shaft, the pulleys carried by said shaft, the feed-rollers provided with pulleys, and both positively driven from the driving shaft, and the frame swinging around the driving-shaft and supporting one of said rollers, for the purposes specified.
3. The combination of the driving-shaft, the frame mounted upon and free to swing around said shaft, the upper swinging frame and feed-roller driven from the driving-shaft and mounted in said swinging frame, and the lever-frame for adjusting and controlling said feed-roller, these members being constructed and operating substantially as set forth.
4. The improved sawing-machine, constructed substantially as hereinbefore set forth, consisting of the following instrumentalities, to wit: the frame, the driving-shaft mounted thereon, its cone-pulleys and gear-wheel, the feathered pinion, the grooved saw-shaft adjustable endwise therethrough, the stationary gage, toward and from which the saw is adjustable, the feed-rollers, between which and the driving shaft the saw is located, the cone-pulleys on the feed-rollers, and the swinging frame carrying the upper feed-roller.

189,682. OIL-CANS. W. H. Bartels, Elgin, assignor of one-half his right to Geo. T. Hunsaker, Carthage, Ill. [Filed Feb. 10, 1877.]



The casing B, having the top pieces B' B² and lugs B³ B⁴, for the attachment of a bail, in combination with a glass can and an interposed packing, substantially as shown, and for the purposes set forth.

189,683. GAS-REGULATORS. J. Bessemir, Brooklyn, N. Y. [Filed Dec. 23, 1876.]



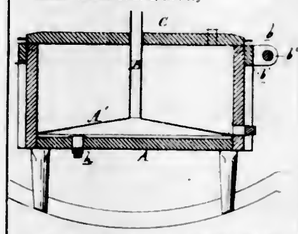
The combination of the shell A, with cover B, annular flange P, with adjustable valve-seat D, semi-spherical valve E, with stem K, flexible diaphragm F, with plates I and stuffing-box h, and the spring H, interior cap C, and regulating-screw G, all substantially as and for the purposes herein set forth.

189,684. ANTI-FRICTION COMPOUNDS. G. E. Behrens, Brooklyn, N. Y., assignor to O. B. Reynolds and J. Smalley, Boundbrook, N. J. [Filed Jan. 16, 1877.]

Brief.—The metal or alloy is intimately mixed and blended with the plumbago in any suitable manner, and then the compound is placed in strong molds or dies formed in the shape of the required journal-box or lining, and subjected to pressure.

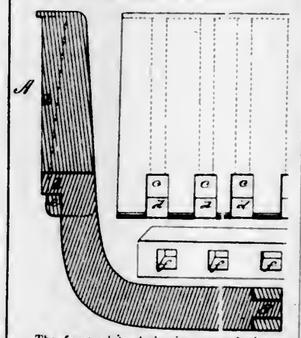
The new material or compound composed of metals or their alloys, mixed and combined with graphite or plumbago, substantially as specified, and in the proportions mentioned, and then molded and pressed into sheets, plugs, tubes, or such other form as required, substantially as described.

189,685. CHURNS. Geo. S. Bell, Sumner, Mich. [Filed Jan. 4, 1877.]



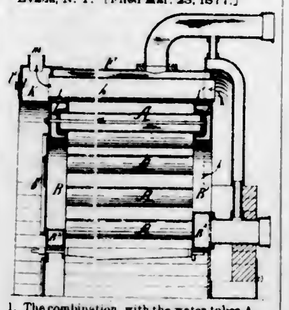
The body A, mounted on rockers, and provided with the cover C, false bottom A', tube B, and strengthening frame *b b b¹ b¹ b² b²*, substantially as described.

189,686. GRATES. M. G. Bell, Glen Gardner, N. J. [Filed Feb. 24, 1877.]



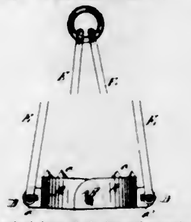
The front plate A, having spaced slots *c* and vertical recesses *d*, the rear bar B, having spaced slots *f*, and the curved grate-bar C, having tenons *h g*, adapted to be received, respectively, in the slots *c f* of the front and rear plates, combined substantially as specified.

189,687. HOT-WATER HEATING APPARATUS. S. Bennett and J. Bennett, North Evans, N. Y. [Filed Mar. 23, 1877.]



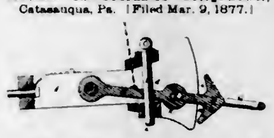
1. The combination, with the water-tubes A, arranged in the form of an arch, and water spaces B B', of the surrounding arch-shaped water-space F, provided with return-flues h, substantially as and for the purpose hereinbefore set forth.
2. The combination, with the water-tubes A and water-spaces B B', of the arch-shaped water-space F, provided with return-flues h and water-back I, all arranged as shown, for the purpose set forth.
3. The combination, with the water-tubes A and water-spaces B B', of the arch-shaped water-space F, provided with return-flues h, and smoke box K, provided with openings *l* and removable covers *k'*, arranged as shown and described, for the purpose set forth.
4. The combination, with the water-tubes A, of the water-spaces B B', having recessed sockets *b*, for the reception of the tubes, substantially as and for the purpose hereinbefore set forth.

189,688. GRAPNELS FOR SUBMERGED PILES. J. N. Bogert and H. C. Holmes, San Francisco, Cal. [Filed Mar. 16, 1877.]



The toothed jaws A A, hinged together by bolt B, and provided with lifting-lugs *a'*, to which the lifting-rods E are attached by the hinge-bolts D, all substantially constructed and operated as and for the purpose set forth.

189,689. CAR-COUPLINGS. George Bower, Catasauqua, Pa. [Filed Mar. 9, 1877.]



1. The coupling-bar C, constructed as described, with head D, forming hooks *a a*, and formed with the swell h with link G passing through the same, and with the swell *d*, for the passage of the coupling-pin I, substantially as herein set forth.
2. The draw-bar A, provided with the open head B, constructed substantially as shown, in combination with the coupling-bar C, having the link G passing through a swell, h, thereon, as and for the purposes herein set forth.

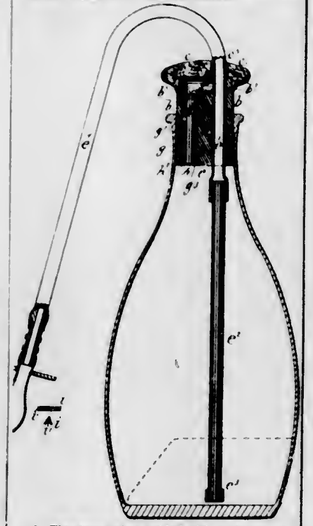
189,690. LADDERS. N. S. Boynton, Port Huron, Mich., assignor to W. L. Bancroft, J. Goulden, and N. S. Boynton, same place. [Filed Oct. 12, 1876.]



1. A ladder in which movable levers H are combined with stays G G', substantially in the manner described.
2. The combination of the poles A A' of the ladder, the end rungs of the same, and plates D, for receiving the ends of stays.
3. The combination of the poles A A', stays K, and rung B', to which the said stays are attached.
4. The combination of the opposite poles A and A' of the ladder with the diagonal wire-rope stays I, as set forth.

189,691. NURSING-BOTTLES. Julius Briere, Alencon, France. [Filed Oct. 28, 1876.]

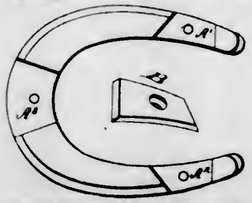
Brief.—The air enters the bottle by an enlarged tube opening in the cork, which leads into a passage closed at its bottom by a rubber disk, with an opening eccentric to the central aperture of the valve-tube.



1. The stopper *b*, provided with perforations *e f*, and an air-chamber, *f*, substantially as described, for the purpose specified.
2. The stopper *b*, having perforations *f' e*, the air-chamber *f*, and a valve, in combination with a capsule, *e*, having enlarged aperture *e'*, and a suction tube, substantially as described, for the purpose specified.
3. The valve consisting of a valve-tube, *g*, constructed as described, the rubber film *h*, and a valve-aperture, *h'*, placed eccentric to the central aperture of the valve-tube, substantially as described.

189,692. HORSESHOES. J. C. Brightman, Fall River, Mass. [Filed Jan. 27, 1877.]

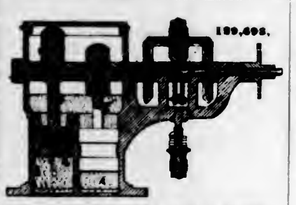
Brief.—To provide for bad travel the plain plates are replaced by similar plates provided with calks.



A horseshoe provided with dovetailed recesses for use interchangeably, with the plates B B¹ B², and calks C D C¹ D¹ C² D², and in combination therewith, as and for the purpose described.

189,693. GOVERNORS FOR ENGINES. A. W. Browne, Brooklyn, N. Y., assignor to himself and W. E. Kelly, New Brunswick, N. J. [Filed Oct. 11, 1876.]

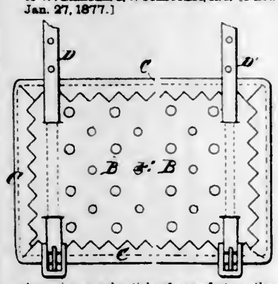
THE GRAPHIC CO. N.Y.



189,693.

In combination with the piston or plungers acting as a resistance, a valve, a swinging frame, and devices for transmitting motion from the motor to the piston through such frame, substantially as set forth.

189,694. HARNESS-PADS. R. O. Burgess, Providence, assignor of one-half his right to W. Blanchard, Woonsocket, R. I. [Filed Jan. 27, 1877.]



As an improved article of manufacture, the harness-pad herein described, consisting of the perforated felt A, having the perforated leather facing B, the holes in the facing and felt registering with each other, border C, attached to the felt and facing, and straps D D', substantially as described, and for the purpose set forth.

189,695. GAS-KEYS. A. G. Busby, Philadelphia, Pa., assignor to E. Anthony, H. T. Anthony, and V. M. Wilcox, New York city. [Filed Feb. 16, 1877.]

Brief.—Designed to supply hydrogen and oxygen to the burners in any desired proportion, and maintain a small permanent jet of hydrogen to ignite the combined gases whenever they are turned on.



1. The combination of two gas-reservoirs and one or more calcium-light apparatus with a distributing-block, consisting of a single homogeneous casting, as set forth.

2. A high-pressure gas-dissolver or quick-light gas-key, in which are combined within a single casing valved passages for the various gases, and a controlling-valve for directing the gases to or cutting them off from said passages.

3. The combination, of two high-pressure gas-reservoirs, A and B, with a distributing-block, D, rigidly secured to one reservoir, and connected to the other by a pipe, P, and detachable coupling, as and for the purpose set forth.

4. The block D, having passages *d* and *e* and valved passages d^1 c^1 or d^2 c^2, and a valve-plug, E, serving to open or close communication between said passages *d* and *e*, and the valved passages d^1 c^1 or d^2 c^2, as set forth.

5. The combination of the block D, and its passages *d*, d^1, and d^2, and *e*, c^1, and c^2, with the valve-plug E, having two openings, each composed of three branches, *i*, *m*, and *n*, as set forth.

6. A valved gas-key, in which the passage in the body, or the passage in the valve, or both, are made V-shaped, for the purpose set forth.

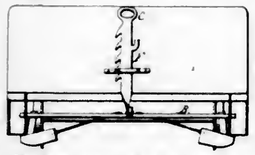
7. The combination of the passages d^2 and c^2 of the block D with the passages *s* and *t* of the same, as set forth.

8. The combination of the valve-plug E, having a groove, *w*, with the passage *x* in the block D, as set forth.

9. The combination of the valve-stems and their arms *y* with the tube G, adapted to said arms, as set forth.

10. The combination of the valve-plug E with stops for limiting the movement of the plug, either or both of said stops being movable, as and for the purpose set forth.

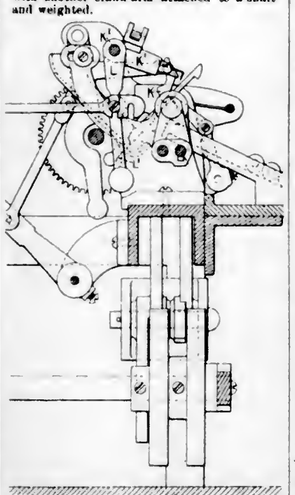
189,696. CAR-TRACK CLEANERS. Jas. N. Clark, Cleveland, Ohio. [Filed Jan. 30, 1877.]



In a track-cleaner, the combination of the pivoted bar B and spring arms and braces C C' E E' with the arm G and the rack-rod F, all constructed and arranged substantially as described and shown.

189,697. MACHINES FOR WINDING THREAD ON SPOOLS. Wm. Clark, Newark, N. J. [Filed Jan. 11, 1877.]

Brief.—To secure the requisite pressure upon the thread-guide a crank-arm is attached to one end of the guide-rod, and extends down into a grooved segment, which is mounted upon an arm, and at its upper end attached to a draw-bar, which is connected with another crank-arm attached to a shaft and weighted.



The combination, with the two mandrels B B', and mechanism for moving the same toward or from each other, of the thread-guide K, guide-rod K^1, arm L, and grooved segment L', substantially as and for the purpose described.

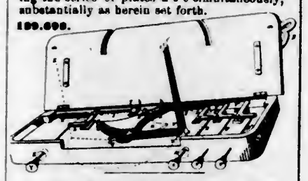
189,698. LEAF-TURNERS. Alfred L. Clark, Dubuque, Iowa. [Filed Apr. 4, 1877.]

1. The combination, with the rack B, of the parallel bars H H, pivoted plates L L, lever *m*, and pins *n*, substantially as and for the purposes herein set forth.

2. The combination of the series of cogged segmental plates *a b c*, the rods *g g' g''*, the corresponding series of separately-pivoted elbow-levers G G' G'', and rods D D' D'' with knobs X X' X'', substantially as and for the purposes herein set forth.

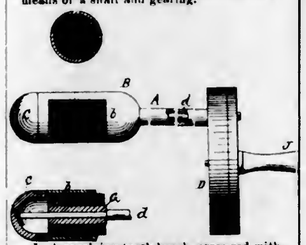
3. The combination of the knob Y, rod *y*, elbow-lever *k*, spring Z, and rod J, for operating the series of plates *a b c* simultaneously, substantially as herein set forth.

189,699.



189,699. TOOTH-BRUSHES. W. A. Coakley and S. W. Lloyd, Washington, D. C. [Filed Mar. 31, 1877.]

Brief.—A cylindrical brush is rotated within a cylindrical case, having a slotted side, by means of a shaft and gearing.

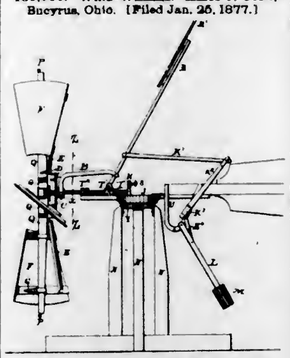


1. A revolving tooth-brush, arranged within a case provided with a suitable aperture in the side, for the purposes herein set forth.

2. The combination of the hollow stem A, cylindrical case B with aperture *b*, cap C, and rotating shaft *d*, with tooth-brush G, substantially as and for the purposes herein set forth.

3. The combination of the hollow stem A and cylindrical case B with the case D, gears *e* E, handle J, shafts A and *d*, and brush G, substantially as and for the purposes set forth.

189,700. WIND-WHEELS. Amos J. Cobb, Bucyrus, Ohio. [Filed Jan. 26, 1877.]

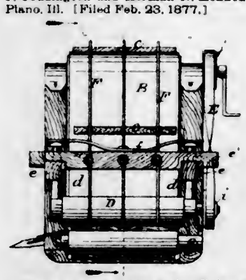


1. The regulator A and wing A', in combination with the weight M, weighted lever L, and levers k^1, k^2, and k^3, attached as described, and for the purpose of holding the regulator A in proper position, as aforesaid, dispensing with springs and other devices for making the machine automatic.

2. The movable thimble *x*, provided with arms C, in combination with the fans F, hung upon arms Q by hinges, and, by means of the fan-governors E and thimble-rods D, thimble *x*, and connecting-rod, attached to said regulator A, so that the position of the fans F depends upon the position of the regulator, which latter is governed by the force of the weight M, acting through the levers k^1 k^2 k^3 k^4, which tends to sustain it in a perpendicular position, and the force of the wind acting upon the regulator A through the obstruction of the wing A' thereto, which tends to force the regulator to a horizontal position, in the manner and for the purpose afore described.

3. The fans F, attached, by means of strap-hinges, to the stationary arms Q, so that the fans swing laterally, and either present their whole flat surfaces at right angles to the wind-line, or stand at any less angle thereto, and when said regulator is in a horizontal position, said fans present only their lateral edges to said wind-line, and said fans so hung in combination with the regulator A, connecting-rod B, thimble *x*, thimble-arms C, thimble-rods D, and fan-governors E, secured to fans F, in the manner and for the purpose described.

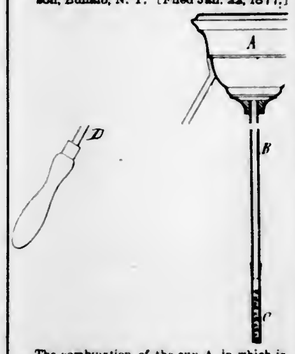
189,701. HARVESTER-ELEVATORS. Frank J. Coddington and Herman N. Kennedy, Plano, Ill. [Filed Feb. 23, 1877.]



1. The suspended-yielding roller D, in combination with the embracing bars or springs F F F, substantially as and for the purpose set forth.

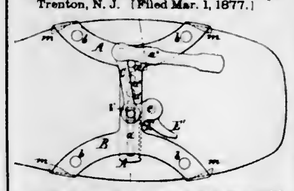
2. The suspended yielding roller D, embracing bars or springs F F F, and endless apron or elevator B, in combination, substantially as and for the purpose set forth.

189,702. LAMP-LIGHTERS. H. W. P. Colson, Buffalo, N. Y. [Filed Jan. 22, 1877.]



The combination of the cup A, in which is held the alcohol or other light burning-fluid, with the handle D, tube B, cap C, and asbestus or wire-gauze wick, substantially in the manner and for the purposes set forth.

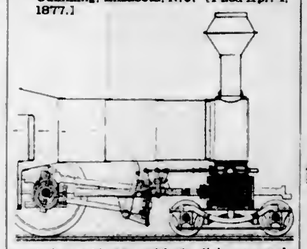
189,703. ICE-CREEPERS. Joseph Crossley, Trenton, N. J. [Filed Mar. 1, 1877.]



1. The parts A B, adapted to engage with the sole of the boot or shoe, and provided with the points *b*, in combination with an intermediate pawl-and-ratchet mechanism to render the parts adjustable, as herein specified.

2. The creeper described, having the two parts A B and pawl E connected by the pin b^1, and provided with slot *a* and holes a^1 a^2, in combination with each other and with a detachable lever, D, and link C, as herein specified.

189,704. LOCOMOTIVE-ENGINES. Alex. M. Cumming, Hilizabeth, N. J. [Filed Apr. 4, 1877.]



1. In combination with the links operated by the eccentrics of a locomotive-engine, the levers connected with the valve-rods of the main or primary cylinders, and with the rock-shafts connected with the valve-rods of the secondary cylinders on opposite sides, substantially as herein set forth.

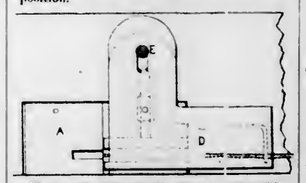
2. The combination of the primary cylinders provided with outside connections, and the secondary cylinders provided with inside connections, substantially as described, for the purpose specified.

3. In a locomotive-engine, the inside connected secondary cylinders, the valves of which are operated by rockers controlled by the links on opposite sides of the locomotive, substantially as herein set forth.

4. The combination of the shaft for operating the secondary engine, and the rocker for operating the primary engine, both being connected by a single link, so that the valves of both may be reversed and controlled, substantially as described.

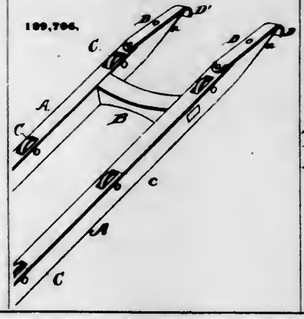
189,705. BRAIDERS FOR SEWING-MACHINES. G. H. W. Curtis, New York, N. Y. [Filed Jan. 11, 1877.]

Brief.—The passage for the braid is adjusted to the size of braid used by sliding guides held to the bed-plate by a T-rivet, and adjustable by means of a set-screw. An L-shaped spring on one of the guide-plates serves to guide the braid which is passed under it, and another spring in the recess between the throat-plate and the guides presses upon the braid from below, thus holding it in position.



The combination of the slotted adjustable plates D D' and T-rivet H with the recessed throat-plate A, the spring K, arranged in said throat for pressing on the under side of the braid, and the flat spring L on the under side of the plate D, substantially as described.

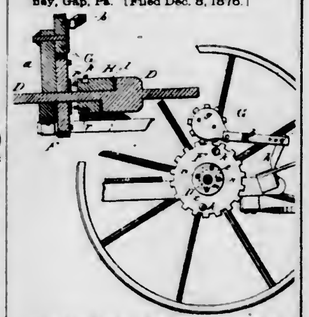
189,706.



189,706. SKIDS FOR HANDLING BOXES. A. Day, Boston, Mass. [Filed Mar. 10, 1877.]

A skid consisting of recessed longitudinal bars A A and cross-bars B B, in combination with rollers C, partly let into the recesses of said bars A, and caps D, having hooks D' on the side opposite to said rollers, substantially as and for the purpose set forth.

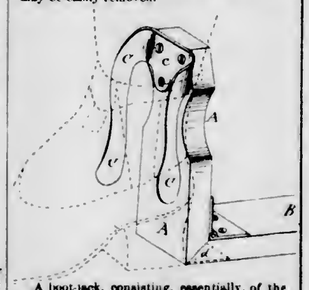
189,707. HORSE HAY-RAKES. M. P. Denney, Gap, Pa. [Filed Dec. 8, 1876.]



In a horse hay-rake, the combination of the axle D, having rigid clutch-collar D', sliding sleeve H, having fingers *l* and projections *p*, loose gear-wheel F, having clutch *m*, pinion G, and reciprocating rod *k*, all arranged to operate substantially in the manner and for the purpose herein shown and specified.

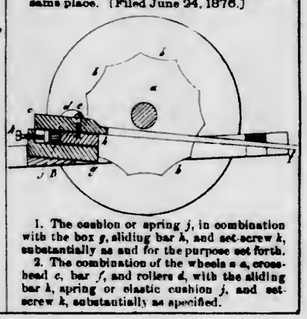
189,708. BOOT-JACKS. Jean F. R. Doisy and Henri L. E. Sarrasin, Paris, France. [Filed Oct. 30, 1876.]

Brief.—The horns are introduced on the inside of a gaiter or bootee, next to the heel, and conform to the shape of the heel, so that, by their striking against the insole, the bootee may be easily removed.



A boot-jack, consisting, essentially, of the plates A B and the hooks or horns C, arranged and operating substantially as described, for the purpose specified.

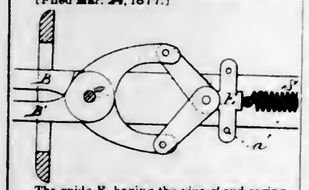
189,709. MOWERS. G. B. Douglas and L. C. Wemple, Evanston, Ill., assignors of two-thirds their right to Thos. K. Elvey, same place. [Filed June 24, 1876.]



1. The cushion or spring *j*, in combination with the box *g*, sliding bar *k*, and set-screw *k*, substantially as and for the purpose set forth.

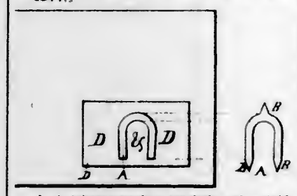
2. The combination of the wheels *a a*, cross-head *c*, bar *f*, and rollers *d*, with the sliding bar *k*, spring or elastic cushion *j*, and set-screw *k*, substantially as specified.

189,710. CAR-COUPLINGS. Chris. C. Dow, Bridgeborough, N. J., assignor of one-half his right to S. C. Upham, Philadelphia, Pa. [Filed Mar. 24, 1877.]



The guide E, having the pins *a'* and spring S, in combination with the crossed pivoted draw-irons B B', and a lazy-tongs connection between said irons and guide, substantially as specified.

189,711. MARKING PLUG-TOBACCO. J. T. Drummond, Alton, Ill. [Filed Feb. 23, 1877.]

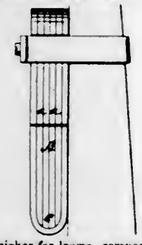


1. A tobacco-marker consisting of a rigid piece of material in the form of a horseshoe, provided with lugs or prongs, which pass through a flexible piece of material of greater dimensions than the horseshoe, and serving as a base for the same, the means of connection acting also as a means of securing the marker upon the tobacco, substantially as set forth.

2. A label for plug-tobacco, composed of the part A, in the form of a horseshoe, provided with lugs B and part D, of flexible material, the said lugs passing through the part D, which is of greater dimensions than the part A, substantially as shown and described.

189,712. STAFF-PICKERS FOR LOOMS. A. Earle, Valley Falls, R. I. [Filed Feb. 9, 1877.]

Brief.—A continuous strip passes from the rear to the front face of the picker, and around the lower end of the same. This binds the several layers firmly together, thereby preventing the said layers from curling outward and upward from the bottom, and improperly thrusting the shuttle.



A staff-picker for looms, composed of several layers of hide or other suitable material, compressed and united, and having its front and rear layers composed of a continuous piece of hide bent around the foot of the picker, substantially as described.

189,713.

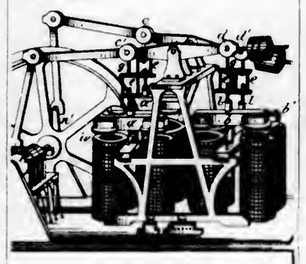


189,714. SELF-SEALING FRUIT-JARS. T. Earle, Valley Falls, and F. H. Perry, Providence, R. I. [Filed Feb. 13, 1877.]

1. The combination, with a jar having clamp-engaging recesses molded in the sides thereof, a suitable packing-ring, and a cover, of a non-pivotal inwardly-swinging metallic locking-clamp, having a downwardly curved stop for engaging with the center of the cover, and inwardly-bent fingers for engaging with the recesses in the jar, for locking the cover and jar together, substantially as described.

2. The combination, with a jar having an annular shoulder surrounding its neck, and a suitable packing-ring fitted thereto, of a cover provided with an annular rim, which encircles the packing-ring, and with an annular shoulder within the rim, which is beveled upwardly and inwardly from the rim, and bears on the upper surface of the packing-ring, substantially as described, whereby, when the cover is forced upon the jar, the packing-ring is forced inwardly against the exterior of the neck of the jar, as set forth.

189,715. ELECTRO-MAGNETIC ENGINES. M. Egger, Mariaschein, Austria. [Filed Dec. 28, 1876.]



1. In an electro-magnetic engine, an oscillating beam or beams, having a connecting-rod on one extremity, and a pair of armatures suspended therefrom at equal distances from its center of oscillation, and a counterbalancing weight on the other extremity to counterbalance the connecting-rod, while the armatures counterbalance each other, in combination with a pair of electro-magnets or a series of magnets, arranged in pairs, substantially as described.

2. In an electro-magnetic engine the arrangement of India-rubber or leather rings *e e*, at the pole ends of the magnets.

3. In combination with the oscillating beams and the armatures of the frames *e*, to adjust the armatures vertically on said beams, and relatively to their respective electro-magnets, all constructed and operating substantially as described, for the purpose specified.

4. In combination with the oscillating beams, the armatures and their respective electro-magnets of the frames *e*, loosely suspended from said beams in such manner as to permit the downward motion of the oscillating beams after the armatures are in contact with their respective magnets, substantially as described, for the purpose set forth.

5. The armatures *a a' b b'*, in combination with the guide-pieces *p q*, and the slotted transverse pieces of the frame, substantially as described, for the purpose specified.

6. A commutator, consisting essentially of a non-conducting cylinder having a series of conducting-surfaces alternately arranged upon its periphery, and in metallic contact with each other, a series of contact-springs, *t t' t'' t'''*, the metal disk *r* and spring *s*, or their equivalent, to close the circuit from the battery to one magnet, after having opened said circuit to the other magnet, substantially, as described, for the purpose specified.

189,715. INJECTORS. J. Fergus, Philadelphia, Pa., assignor of two-thirds his right to G. H. Colket, same place. [Filed Nov. 17, 1876.]

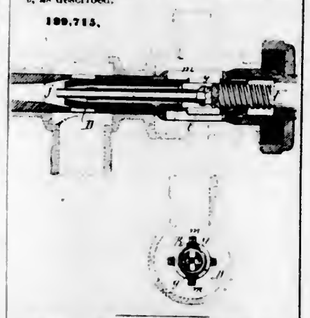
Brief.—The area of the water-inlet can be increased simultaneously with the diminishing of the area of the steam-inlet, and vice versa, so that the injector can be arranged for lifting its supply of water from various depths.

1. The combination of the tube B of the casing and the stem F, having a valve, *t*, with the sliding plug D and its valve-seat *s*, as described.

2. The combination of the tube B and its arms *m* with the sliding plug D and its grooved arms *g*, as specified.

3. The combination of the casing A of the injector and the tube B with the threaded cap *c*, as described.

189,715.



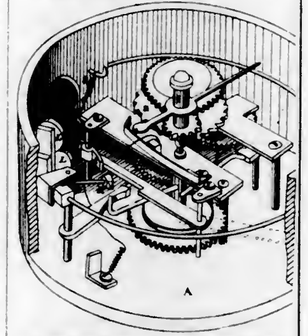
189,716. FEED-DOGS FOR SEWING-MACHINES. H. Feyh, New York, N. Y., assignor to S. W. Johnson, same place. [Filed Feb. 7, 1877.]

Brief.—A circular feed-dog adapted to a universal feed-machine, provided with a smooth flange around the circular row of teeth, to prevent the under thread from accidentally catching on the teeth.



The circular feed-dog A, having the circularly-arranged teeth *a*, and constructed with the circumferential smooth flange *p* outside of the teeth, as and for the purpose described.

189,717. DISTRICT-TELEGRAPH SIGNAL-BOXES. S. D. Field, San Francisco, Cal. [Filed Jan. 2, 1877.]



1. The combination, with an electric-signal transmitter, of an electro-magnet, L L, of low resistance, the armature of which is connected with a mechanical alarm or sounder, so that said electro-magnet will remain dormant under the ordinary electric current while the message is being transmitted, but is capable of being subsequently magnetized, so as to operate the sounder, by an increase of the main-line battery-power, either by shunting resistance or increasing cells, or by reversal of the main battery, substantially as above specified.

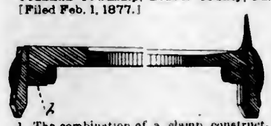
2. A mechanical return-signal or sounder attachment to district-telegraph signal-boxes, which serves also as a cut-out, said cut-out being opened by the operation of setting or operating the main signal, and released and closed by the action of an electro or polarized magnet, by means of an increased current or reversed battery, substantially as and for the purpose above described.

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3. In combination with a telegraphic signal apparatus, a mechanical alarm or sounder, operated by an electro-magnet of low resistance, which is interposed in the circuit between the signal apparatus and a distant station, so that after the signal has passed over the wire a response signal or alarm can be sounded by momentarily increasing the battery-power, substantially as above specified.

4. In combination with a telegraphic signal-box, A, a mechanical alarm or sounder which is set by the same operation that winds up the signal mechanism, and which remains in its set position until after the message has been transmitted, and which is subsequently operated to give an alarm by an increased battery-current sent over the same wires that transmitted the message, substantially as above specified.

189,718. HORSESHOES. Simon P. Fisher, Franklin Township, Beaver County, Pa. [Filed Feb. 1, 1877.]

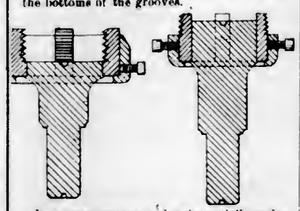


1. The combination of a clamp, constructed substantially as set forth, a wedge-shaped calk, and a suitable projection on the face of the shoe, substantially as specified.

2. The combination of a clamp, constructed substantially as set forth, a wedge-shaped calk, and a heel, *b*, on the shoe, rabbeted to form shoulders for the clamp, substantially as described.

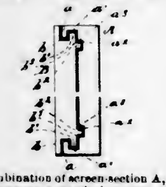
189,719. TAPS AND DIES. James Flower, Detroit, Mich. [Filed Feb. 19, 1877.]

Brief.—The bits, square in cross-section, lie in square grooves in the stock, with their lower ends resting on the bottom of a dish-like collar, through the rim of which set-screws pass, that hold them firmly down upon the bottoms of the grooves.



In a screw-cutting tool, substantially as described, and in combination, removable chaser-cutters, the radially-slotted chuck-head to receive said cutters, and the flanged collar and set-screws to secure them in their relative positions, substantially as set forth.

189,720. WINDOW-SCREENS. Wm. Flood, New York, N. Y., assignor to S. Roebuck, same place. [Filed Mar. 24, 1877.]



The combination of screen-section A, having vertical tongues *a*, vertical grooves *a'*, horizontal grooves a^2, and corner ridges a^3, with section B, having grooves *b*, tongues b^1 and b^2, and corner recesses b^3, substantially as and for the purpose set forth.

189,721. FRONT SIGHTS FOR FIRE-ARMS. F. W. Freund, Cheyenne, Wyo. [Filed Apr. 7, 1876.]

Brief.—In aiming at dark objects the light portion of the sight, by reason of the contrast, is rendered more clearly visible, and in aiming at light objects the dark portion of the sight forms the contrast, and enables the marksman to take quick and accurate aim.

189,721.

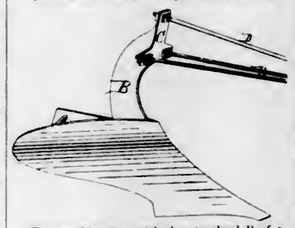


1. A front sight for fire-arms, in which the rear face, or that portion nearest the eye in aiming, presents two contrasting colors, one of which forms a vertical line between two lines of the other color, as and for the purpose described.

2. A front sight for fire-arms in which the rear face, or that portion nearest the eye in aiming, presents a center line of white or light-colored substance, with a dark line on either side, substantially as and for the purpose set forth.

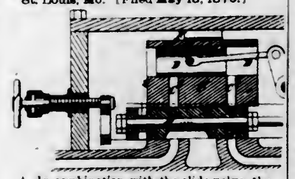
189,722. PLOWS. H. Gale, Albion, Mich. [Filed Jan. 4, 1877.]

Brief.—A skeleton-beam formed of rods converging together at the front, and adjustably connected to a plate upon the standard.



The combination, with the standard B of a plow, of the plate C at the top thereof, and the draft-rods D attached to such plate by means of screw-nuts placed on each side of the said plate, constructed and arranged substantially as described and shown, for the purpose set forth.

189,723. STEAM SLIDE-VALVES. J. Gillies, St. Louis, Mo. [Filed May 13, 1876.]



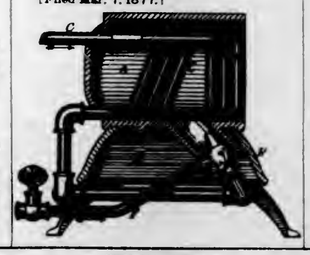
1. In combination with the slide-valve, the cap C, formed with ports and tubular valve-seats, and the balanced tubular valve D, substantially as set forth.

2. In combination with the cap C, inclosing the cut-off valves, the wedge-frame E for regulating the seat of the cap, so as to control the relation of the cap to the slide-valve without disturbing its relation to the cut-off valve.

3. In combination with the slide-valve, the adjustable cap C, containing the tubular cut-off valve D, the oscillating shaft, and governor, substantially as set forth.

4. The combination of the cap, having ports through it, the adjustable wedge-frame, and the spring F, substantially as set forth.

189,724. GAS-HEATERS FOR SOLDERING-IRONS. George R. Gleason, Chicago, Ill., assignor to Wilson Packing Company. [Filed Mar. 7, 1877.]



1. The heating cylinder or chamber A, provided with a coiled pipe, C, one end of which communicates with a heating apparatus, and the other end open for the admission of cold air, substantially as set forth.

2. The combination of the stand B, pipe F, with burner D, the inclined chute E, and the cylinder A, having coiled pipe C, all substantially as set forth.

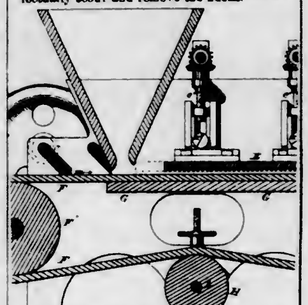
3. The nozzle *e*, provided with a nut, and threaded above and below the same, as shown, in combination with the shell *d* and pipe C, substantially as set forth.

4. The combination, with the burner, of the air-pipe O and gas-pipe F, substantially as specified.

5. The combination, with the chute E, of the burner C, when the chute is so inclined as to shelter the burner from the dripping solder, substantially as set forth.

189,725. RICE-HULLERS. B. H. Graves, L. L. Graves, and B. A. Graves, Batavia, Ill. [Filed Mar. 10, 1877.]

Brief.—The hopper-fed rice is carried by the belt beneath the corrugated scrubbing-plate, whose reciprocations on the belt effectually scour and remove the husks.



1. In a machine for hulling rice, the yielding feed-belt F, in combination with the adjustable reciprocating and corrugated hulling-plate E, as and for the purposes described.

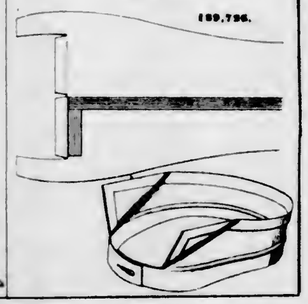
2. In a machine for hulling rice, the combination of the adjustable bed-plate G and the carrying or feed belt F, and a suitable hulling-surface, as and for the purposes substantially as described.

3. In a machine for hulling rice, the combination of the reciprocating and corrugated hulling-plate E with the gear-wheels C C' and pitman D', whereby the hulling-plate is given an unequal motion in its forward and backward movements, substantially as and for the purposes described.

4. In a machine for hulling rice, the combination of a yielding endless feed-belt, F, a reciprocating hulling-plate, E, having a corrugated or roughened hulling-surface, and moving with the belt faster than in its reverse movement, and a bed-plate, G, that is adjustable, to sustain the feed-belt in position with relation to the hulling-plate, substantially as described.

5. In a machine for hulling rice, the reciprocating hulling-plate E, having corrugations in its face at right angles to the direction in which the feeding-belt F moves, substantially as described.

189,726.



THE GRAPHIC CO N Y.

189,726. PAPER COLLARS. S. S. Gray, South Boston, assignor to T. N. Page, Boston, Mass. [Filed Mar. 28, 1877.]

1. An integral collar-blank, composed of paper or other textile fabric, or of paper and other textile fabric combined, consisting of two portions which are similar to a finished collar, and adapted to be folded on a line corresponding to the upper edge of the collar, to form an entire finished collar, substantially as hereinbefore set forth.

2. A collar constructed of an integral blank of suitable fabric, the combination of the two similar portions folded on a line corresponding to the upper edge of the collar, substantially as herein set forth.

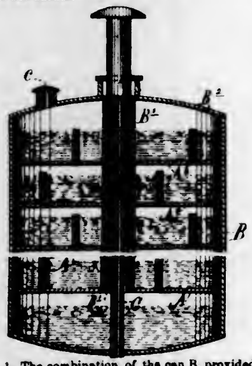
3. The combination of the two portions of an integral collar-blank, each similar in form and construction, with an independent welt, strip, or re-enforce of linen, paper, or other suitable material, secured between the two portions at the line of folding, substantially as set forth.

4. An integral collar-blank, composed of two similar portions, having inwardly-turned edges on the corresponding parts adapted to form, when the two parts are cemented together, a re-enforce for the ends of the collar, substantially as set forth.

5. As a new article of manufacture, a collar consisting of two similar portions formed as an integral, and made of suitable fabric, folded one upon the other, with the re-enforced edges and ends, and having an intermediate longitudinal corrugation between the body of the collar and the neck-band, substantially as set forth.

189,727. APPARATUS FOR PRODUCING ILLUMINATING-GAS. Benjo. F. Greenough, Brooklyn, N. Y., assignor of one-half his right to J. J. Nichols, New York, N. Y. [Filed Aug. 29, 1876.]

Brief.—Air flows in at the top of the apparatus, and down over the volatile liquid hydrocarbon, and through the tubes in each chamber to the bottom of the apparatus, becoming carbureted with volatile vapors. The carbureted air passes up and down through the siphon-tubes in the center of the apparatus to the burner below. The heavy carbureted air falls by gravity to the burner, and thus automatically draws air in at the top of the apparatus, so long as it is consumed at the burner.



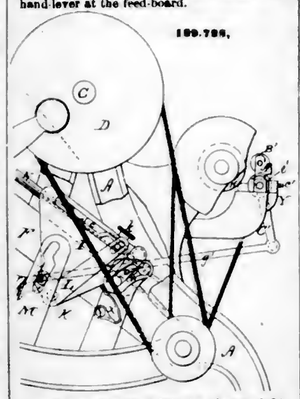
1. The combination of the can B, provided with a series of evaporating-pans, A A¹, carrying a gas-producing liquid, fixed tube B¹, sliding tube F, and discharge-tube C, forming an adjustable siphon by means of which gas is drawn from the base of the can, carried above the level of the liquid, and thence to a burner, in the manner and for the purposes herein shown and set forth.

2. The combination of the can B, provided with a series of evaporating-pans, A A¹, carrying a gas-producing liquid, central tube B¹, encircling fixed tube C, and forming a siphon, by means of which gas is drawn from a chamber in the base of the can and conveyed to a burner, in the manner and for the purposes as herein shown and set forth.

189,728. PRINTING-PRESSES. F. W. Griffith, G. P. Byrne, and A. Shedlock, New York, N. Y.; said Shedlock assignor to said Griffith and Byrne. [Filed Aug. 29, 1876.]

Brief.—Grooved cams operate the nipper-fingers, which are reciprocated to draw the printed sheet from the platen to endless delivery-tapes mounted in the platen-frame. The ink-fountain is fixed and its roller adjustable. The transfer-roller frame is mounted on the journals of the latter, and rocked by a hand-lever at the feed-board.

189,729.



1. The combination of the bar J, arms L L', cam M, arm O, spring P, latch Q, and platen E, constructed and operating substantially in the manner described and specified.

2. In combination, the rock-bar J, arm O, spring P, and spring-latch Q, so constructed and combined that when the arm O is depressed it shall force back the latch, and slip thereunder, and be retained thereby during its backward motion, substantially in the manner described and specified.

3. In combination; the rock-bar J having bearings in the arms L L', arm O, spring P, and stop S, constructed and operating substantially in the manner described.

4. The combination of the bar T, arm O, and compound cam V W X, constructed and operating substantially in the manner described and specified.

5. The compound cam, consisting of the stationary and movable parts V and W, and retaining-spring X, constructed and operating substantially in the manner described and specified.

6. The combination, with the fountain Y, having a fixed edge, *b'*, of the roller Z, sliding journal-boxes *c'*, and set-screws *c'*, constructed and operating substantially in the manner described and specified.

7. The combination, with the ink-fountain provided with a stationary knife-edge, of a roller adjustable to and from the stationary knife-edge, for the purpose of regulating the supply of ink from the fountain, constructed and operating substantially in the manner described and specified.

8. The combination, with the fountain-roller Y, rocking-roller B', frame A', of the mechanism for moving the rocking-roller to and from the taking-roller H from the position of the feeder of the press, constructed and operating substantially in the manner described.

9. The combination, with a roller having a motion to and from the taking-roller H, for supplying such taking-roller with ink from the fountain, of the mechanism, whereby the necessary motion can be imparted to such roller by the feeder of press from his position at the feed-board, and by which such roller can be held in continuous contact with the taking-roller H, substantially in the manner described and specified.

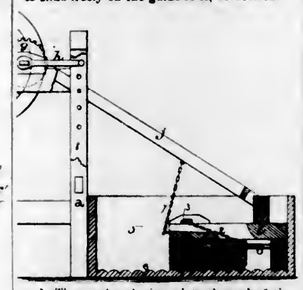
189,729. PATTERNS FOR METALLIC CASTING COMPOSITION. J. Habermehl, Allegheny, Pa. [Filed Apr. 2, 1877.]

1. Beeswax, stearine, or paraffine, incorporated with leather, cloth, paper, or any fibrous material, to be used in the construction of patterns for metallic castings, in manner explained and set forth.

2. A compound as a smoothing cement in finishing patterns for metallic castings, having for its bases beeswax, stearine, or paraffine, in combination with any carbonaceous or calcareous pulverulent substance, substantially as and for the purposes specified.

189,730. WASHING-MACHINES. E. L. Hancock, Cadiz, Ky. [Filed Feb. 15, 1877.]

Brief.—By means of the rack-bar and lever on top of the reciprocating washer, the rubbing-blocks can be held together solidly, or, by releasing the lever, they may be allowed to slide freely on the guide-rods, as desired.

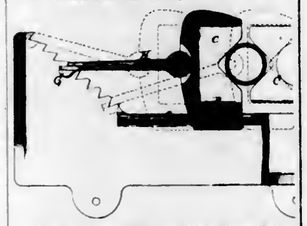


1. The washer *l*, pivoted to the end of the rod *j*, and provided with the rods *o* and sliding pieces I, substantially as shown.

2. The combination of the washer *l*, rod *j*, chain or cord 2, lever 3, and ratchet 4, guide-rods *o*, and sliding pieces 1, substantially as described.

3. The combination of the frame *a*, and operating mechanism, as described, the washer *l*, chain 2, lever 3, ratchet 4, guide-rods *o*, and sliding pieces 1, chain 7, and the box 5 6, all arranged for operation substantially as described.

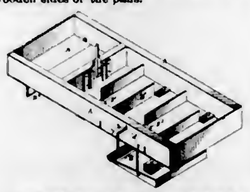
189,731. VISES. T. P. Hardy, Marion, N. J. [Filed Feb. 14, 1877.]



The combination of two sliding jaws, B C, with a stationary frame, which supports and guides the same, a screw-spindle, which is tapped in a standard rising from said frame, and which carries one of the jaws, a brace hinged to the other jaw, and a vertically-inclined stepped abutment rising from the frame, all constructed and operating substantially as shown and described.

189,732. HEATERS AND EVAPORATORS FOR MOLASSES. B. F. Harper, Mount Vernon, Ill. [Filed Nov. 9, 1876.]

Brief.—The flame and hot products of combustion are thrown upon one part of the pan, while they are deflected from another part by a swinging regulator placed below the pan. The folds of sheet metal bent up from the bottom of the pan, forming the division-plates, are fitted into slots or chamfers in the wooden sides of the pans.

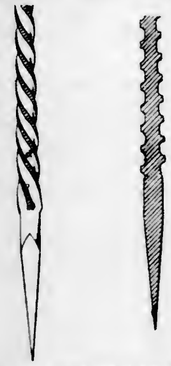


1. The combination of the wooden sides A, having chamfers cut in their lower edges, and the bottom B, consisting of a single sheet of metal forming the ends of the pan and bent into the chamfers in the side pieces, to form the interior projecting cross-bars B', having openings at alternate ends, the bent-down

ends B², and one or more under-projecting and bracing cross-bars, B³, all substantially as set forth.

2. The regulator G, suspended from the crank-shaft H, in combination with the index I and evaporator, with scale J, as and for the purposes herein set forth.

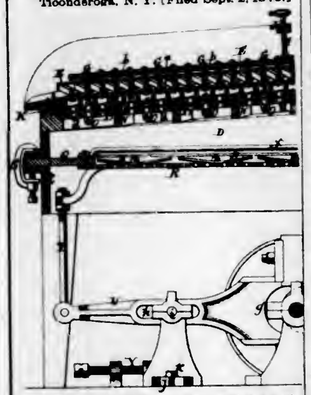
189,733. FILES. P. Heffernan, Philadelphia, Pa., assignor to himself, U. Widmer, and H. Trottman, same place. [Filed Mar. 30, 1877.]



1. As a new manufacture, a round file, in which the teeth are on a spiral rib or ribs, alternating with a spiral groove or grooves, as set forth.

2. The mode herein described of making round files—that is to say, first twisting a bar of steel, and then cutting teeth on the rib or ribs formed by thus twisting the bar, all as set forth.

189,734. ORE-SEPARATORS. Wm. Hooper, Ticonderoga, N. Y. [Filed Sept. 2, 1876.]



1. In a dry-ore separator, the combination of an ore-bed or sieve, A, composed of cloth or other material which is pervious to air and impervious to dust, or nearly so, a grate, B, for supporting the ore-bed, said grate and ore-bed or sieve being inclined both in a lateral and in a longitudinal direction, and a box, C, to inclose the whole, substantially as described.

2. The combination of a supporting-grate, B, having diagonal bars, an ore-bed or sieve, A, which is depressed between the said bars by means of tension wires or cords *a*, so as to form diagonal channels therein, and an ore-box, C, substantially as and for the purpose described.

3. The combination of a series of diagonal skimmers or bars, E, having a passage formed at one end thereof, with the ore-bed or sieve A, its diagonal channels, the supporting-grate B, and ore box, the said diagonal skimmers extending in a direction contrary to that of the said diagonal channels, substantially as described.

4. The combination, with the ore-bed or sieve A and tension wires or cords *a*, of a bar, H, situated above the said ore-bed, and an adjusting-screw, I, to the said bar being attached a series of springs, G, carrying pins or blocks *b*, to hold the said tension-wires in position, substantially as described.

5. The combination, with the ore-bed or sieve A, supporting-grate B, and ore-box C, of a stationary perforated plate, K, and of movable or adjustable plates L, arranged beneath the said ore-bed and supporting-grate, substantially as described.

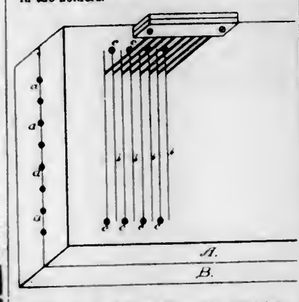
6. The combination of the clamp S, rubber diaphragm Q, its supporting-frame, the perforated plate R, flap-valves *d*, and longitudinal bars *f*, arranged above said valves, substantially as and for the purpose described.

7. The combination of sliding boxes W and adjusting-screws Y with the levers U, their slots *h*, and fulcrum-pins *i*, substantially as described.

8. The combination of an air-cock, *l*, with the air-chamber P, bellows Q, and ore-bed A, substantially as and for the purpose described.

189,735. DENTAL-FOIL CONDENSERS. Jno. Hood and S. H. Reynolds, Boston, Mass. [Filed Oct. 25, 1876.]

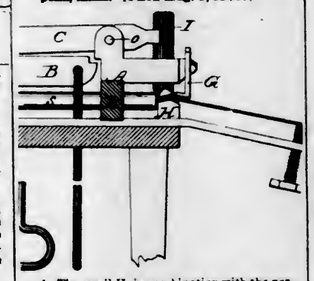
Brief.—The foil is rolled between cushions, and the rolls are then placed in longitudinal grooves of two holders, where they are divided into proper lengths by saws moving in guides in the holders.



1. The holders A and B, provided with longitudinal semicircular grooves *a*, for holding the rolls of foil, and transverse slits *b*, which act as guides for the saws *g*, substantially as and for the purpose set forth.

2. The process of preparing pellets of foil for dentists' use, consisting of the following steps: First rolling the foil between cushions into suitable rolls, placing these rolls within the longitudinal grooves *a* of the holders A B, and then dividing the rolls into pellets by the saws *g*, guided in their action upon the rolls of foil by the transverse slits *b*, all substantially as hereinbefore set forth.

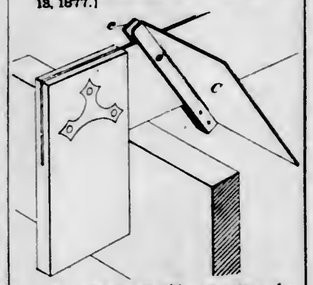
189,736. SAW-SETS. C. B. Hopkins, Topeka, Kans. [Filed Aug. 5, 1876.]



1. The anvil H, in combination with the vertically-moving plunger or punch I, with the operating-levers B C, all constructed and arranged to operate substantially as described.

2. The adjustable guide or clamp G, arranged directly in front of, and close to, the anvil H, for holding narrow blades or saws when being set, substantially as described.

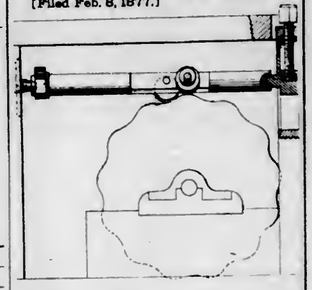
189,737. SHADES FOR TRY-SQUARES. C. B. Hopkins, Topeka, Kans. [Filed Mar. 13, 1877.]



1. The combination, with a try-square, of a shade constructed to operate substantially as described.

2. The shade C, provided with the spring-clamp, *c*, or equivalent device, for attaching it to the blade of a try-square, substantially as, and for the purpose set forth.

189,738. MECHANICAL MOVEMENTS. E. C. Hopping, Madison, N. J., assignor of one-half of his right to E. A. Ely, same place. [Filed Feb. 8, 1877.]

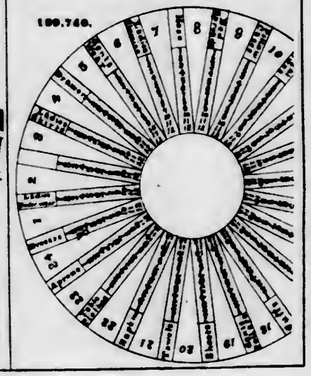


In a mechanical movement for converting rotary motion into reciprocating motion, two rollers, placed one forward of the other, on opposite sides of a rock-shaft or lever-fulcrum, in combination with a single set of corrugations, all substantially as shown and described.

189,739. COMPOSITION FOR WASHING CLOTHES. Robt. B. Hurd, Paterson, N. J. [Filed Jan. 23, 1877.]

A composition consisting of sal-soda, borax, soap, ammonia, and water, proportioned in relation to each other, substantially as described, to form a solution for washing clothes or for other similar purposes.

189,740.

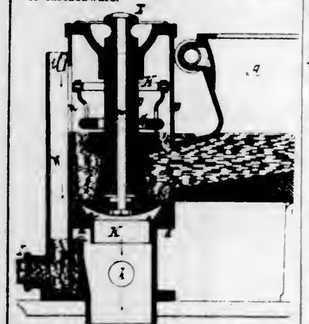


199,740. WASHING-LIST INDICATORS. H. B. Israel, Stockton, Cal. [Filed Mar. 1, 1877.]

As a new article of manufacture, a washing-list indicator, the same consisting of a cushion, A, with a washing-list disposed thereon, substantially as described, whereby the device can be utilized both as an indicator and as a pin-cushion, as set forth.

199,741. WATER-CLOSETS. G. Jennings, London, England. [Filed Mar. 28, 1877.]

Brief.—By means of the trap formed in the side extension of the upright case of the pull-valve, water from bath-tube, &c., may pass down the waste-pipe of the closet. The stem and handle of the discharge-valve are made of earthenware.



1. The stem or plug D of the discharge-valve C, when made, together with the handle E and shoulder F, of a single piece of earthenware, substantially as and for the purpose described.

2. The combination, with the stem or plug D of the discharge-valve C, and with the weighted lever H and feed-valve R, of the shoulder F and cushion *b*, all constructed and arranged to operate substantially as and for the purposes described.

3. The combination, with the tube or upright limb B, the socket I, and trap J, of a detached thimble, K, arranged in said upright limb, substantially as and for the purpose described.

4. The combination, with the tube or upright limb B and thimble K, of flanges *c d*, substantially as and for the purpose described.

5. In combination with the bowl A, the induction and eduction chambers L^2 and L^3, the valve R, and the diaphragm P, provided with the channel *f* and central opening S, all constructed and arranged to operate substantially as described.

6. In combination with the bowl A, the upright limb B, and the feed-valve L, the trap J, connected with said feed-valve by a branch pipe, i, and the thimble K, the lower end of which terminates below the discharge-opening of the trap, to prevent the entrance of the matter discharged from the bowl into said trap, substantially as set forth.

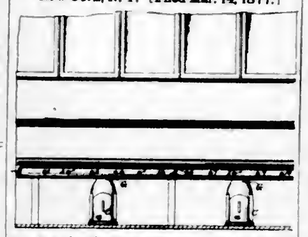
7. The combination, with the bowl A and upright limb B, of the trap J, provided with an extension, W, communicating, by means of an opening, *s*, with the limb B above the valve C, substantially as and for the purposes set forth.

199,742. ATTACHMENTS FOR WASH-BOILERS. C. Kamlah, Jersey City Heights, N. J. [Filed Mar. 14, 1877.]



A removable pan or attachment for wash-boilers composed of the perforated top plate A, the bottom plate B, having upward-projecting spouts *b*, the rim C, and feet *c*, the whole being combined and adapted to operate substantially as described.

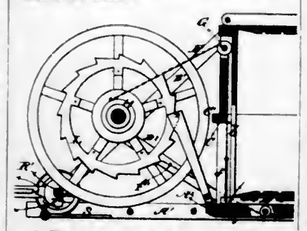
199,743. CAR-HEATERS. Thomas Keech, New York, N. Y. [Filed Mar. 14, 1877.]



A car-heating apparatus, consisting of the radiating perforated tube A, conducting pipes G, lamp-holders C, and lamps *d*, all arranged substantially in the manner shown, to operate as described.

199,744. HAY-PRESSES. Wm. Kelly, Sonora, Cal., assignor to F. J. Kelly, same place. [Filed Dec. 28, 1876.]

Brief.—Devices are arranged for using the draft of the horses for raising the front end of the press, and throwing the weight thereof upon the front wheels for transportation. The beveled ends of the follower and head allow the bale to be of greater size at the ends than in the middle.



1. The combination of draw-bar V with doubly-grooved eccentric T, axle R^1, chains *e* and *e'*, and frame or bar S, fixed to vertically-movable sill-beams A^1 A^1, substantially as and for the purpose set forth.

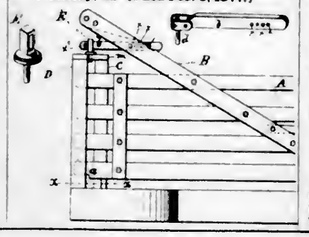
2. The combination of pivoted arms or frame R^2 with curved guide-bar R^3, recessed doubly-grooved eccentric T, and swiveled axle R^1, substantially as set forth.

3. In a press for hay and similar materials, the combination of a sill which is vertically movable in front with transporting-wheels and axle, and an eccentric which operates to raise the front end of said sill relatively to said wheels and axle when draft is applied, substantially as set forth.

4. In a hay-press, the combination of a follower having its upper face beveled at each end with a head having its lower face beveled at each end, substantially as set forth.

5. The combination of chains F and F' with pulleys G G^1 *g g'*, arranged as shown, and spirally-grooved hubs or drums H H^1, substantially as set forth.

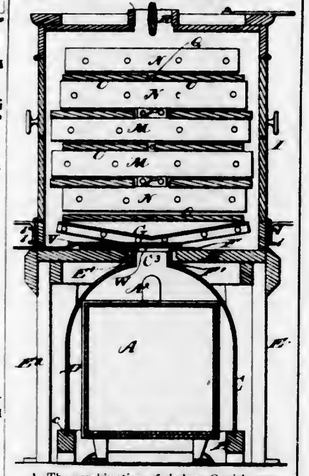
199,745. GATES. M. Kelter and P. Leickem, McHenry, Ill. [Filed Feb. 6, 1877.]



1. The combination of the gate A, having extended inclined braces B, and the perforated bar *b*, connected by a pivot to the bridge between the gate posts C D, substantially as herein set forth.

2. The combination of the posts C D, the stop *b'*, the gate A, with notched lower rail, the sliding bar *b*, and slotted swivel E, all constructed substantially as and for the purposes herein set forth.

199,746. FRUIT-DRIERS. Thos. R. Kendall, Palmyra, Mo. [Filed Feb. 10, 1877.]

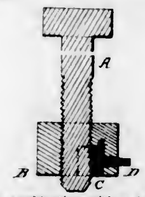


1. The combination of shelves O with separating blocks P, supporting-blocks M and N, pins or studs Q, and casing I, substantially as and for the purpose set forth.

2. The combination of deflector F, rim O^2, shield F' F', and a cut-off slide, substantially as and for the purpose set forth.

3. The combination, with heater A, of hot-air chamber C, recessed supporting frame B, drying chamber H, and a valve at the top thereof, substantially as and for the purpose set forth.

199,747. NUT-LOCKS. J. D. Kennard, New Sharon, Iowa, assignor to A. H. Vickers and T. C. Vickers, same place. [Filed Feb. 8, 1877.]



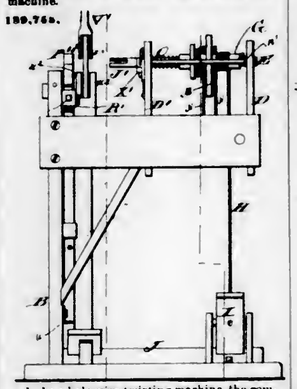
1. The combination, with a bolt, A, of a nut, B, having an interior movable lock-piece, C, inserted from the outer face of the nut, and extending around one-half of the bolt, about one-half the thickness of the nut, and a screw-bolt, D, as and for the purposes herein set forth.

2. The combination of the nut B, provided with the recess *a*, the lock-piece C, having recess *b*, and the screw-bolt D, tapering smaller toward the head, substantially as and for the purposes herein set forth.

199,748. BALE-TIE-TWISTING MACHINES. B. B. Kilmer and I. A. Kilmer, Howe's Cave, N. Y., assignors of one-half their right to Aug. Kilmer, same place. [Filed Feb. 3, 1877.]

Brief.—A treadle rotates a loose sleeve on the axle of the twisting-jaw. The sleeve rotates the axle by a ratchet-and-pawl connection. A coiled spring rotates the loose sleeve backward to give its ratchet a new hold. The twisting-axle is prevented from rotating backward with the loose sleeve by a second spring-pawl mounted on one of the standards. On releasing the treadle which operates the clamping-jaws, it raises a detaching-finger, which throws the twisted bale-tie from the machine.

199,748.



1. In a bale-wire-twisting machine, the combination of a rotating twisting-shaft with a sleeve turning thereon, a ratchet-and-pawl connection between said sleeve and shaft, and a spring for throwing said sleeve backward, substantially as and for the purpose set forth.

2. In a bale-wire-twisting machine, the combination of a rotating shaft with a relatively-fixed vise and screw for adjusting the vise to wires of different sizes, substantially as and for the purpose set forth.

3. The combination of treadle I, adjustable limiting-screw K, cord H, sleeve G, and twisting-shaft E, substantially as and for the purpose set forth.

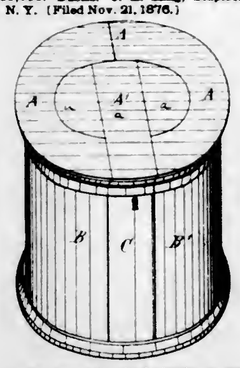
4. The combination of sleeve G with a spring for throwing said sleeve backward, and guide-rods for said spring, substantially as and for the purpose set forth.

5. The combination of treadle U^1 and spring U^2 with reciprocating bar U, lifting-arm V, and finger V', adapted to bend upward but not downward, substantially as set forth.

6. The combination of vise-clamping cam S' and lifting-finger V', with reciprocating bar U, which operates both of them, substantially as set forth.

7. The combination of lifting-arm V slotted at its rear end, with pivoted upward-bending finger V', a fixed guiding-stud which sets in said slot, and a vertically-reciprocating bar and treadle, substantially as set forth.

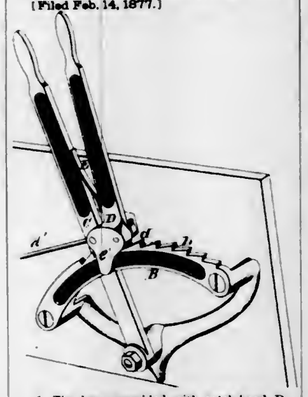
199,749. DESKS. C. H. King, Stapleton, N. Y. [Filed Nov. 21, 1876.]



1. The herein-described circular or many-sided desk, provided with the interior compartments, substantially as set forth.

2. In combination with the above-described desk, the panel or door C and central part A', substantially as set forth.

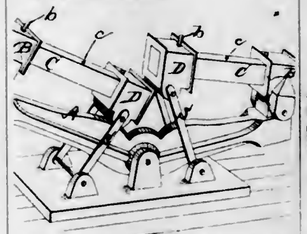
199,750. WAGON-BRAKE LEVERS. Jno. F. Klingensmith, St. Louis, Mo., assignor of one-half his right to C. Farner, same place. [Filed Feb. 14, 1877.]



1. The lever provided with catch-head D, pivots *e e*, and detent *d*, substantially as described.

2. The lever provided with catch-head D, pivots *e e*, and detent *d*, in combination with lever C, brake-rod *d'*, and ratchet-sector B, substantially as described.

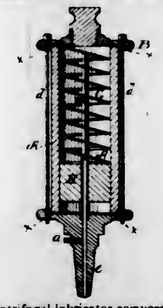
199,751. VARIABLE-POWER-WINDLASS BEAMS. David Knowlton, Camden, Me. [Filed Nov. 22, 1876.]



1. The pivoted sockets B B, in combination with the levers C C, having holes or orifices *c* and pins *b b*, substantially as described, for the purpose specified.

2. The pivoted sockets B B, levers C C, and fulcrum-sockets D D, in combination with the windlass-beam A, substantially as described, for the purpose specified.

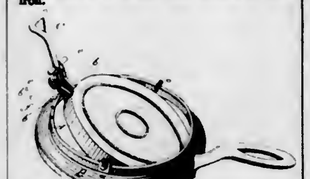
199,752. LUBRICATORS. J. C. Lamb, Middletown, Conn., assignor to himself, W. Rackliff, B. Douglas, Jr., and L. B. Deming, same place. [Filed Feb. 19, 1877.]



A centrifugal lubricator composed of a cylinder, A, a nozzle, *s*, a central tube, *m*, with its mouth extending close to the outer head B, a spring, *g*, and weight H, all constructed and arranged to operate substantially as set forth.

199,753. WAFFLE-IRONS. J. T. Lambert, Detroit, Mich., assignor to the Detroit Iron and Brass Manufacturing Company. [Filed Jan. 13, 1877.]

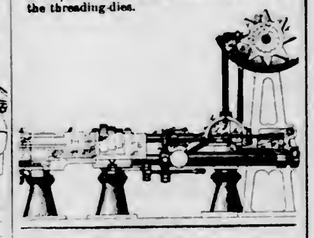
Brief.—The handle may be used either to lift the lid or to reverse the position of the iron.



The lever C, provided with the cross-bar *e*, and pivoted between the slotted hinge-lugs of a waffle-iron, substantially as and for the purpose set forth.

199,754. MACHINES FOR THREADING METAL SCREWS. H. S. Lansdell, Brooklyn, N. Y., assignor to J. A. Kernochan, Pittsfield, Mass. [Filed Mar. 2, 1877.]

Brief.—A notched wheel for lifting the blanks from the hopper and presenting them (one at a time) to the drop-tube, and a sector-shaped vibrating carrier provided with a notch, for receiving one blank from the tube and depositing it in a box in line with the longitudinally-moving plunger, which forces it into the hollow revolving chuck-carrying mandrel. A centering device or tumbler is brought to bear upon the point of each screw-blank, to center it in the chuck relatively to the threading-dies.



1. The combination of the rotating screw-blank lifter E having a series of duplicate radiating teeth or prongs, *e*, with the basin and its hood G and grooved guide F, all constructed and arranged to operate in connection with the drop-tube, substantially as described.

2. The combination of the oscillating carrier I, constructed with a cavity, *f*, for receiving the screw-blanks or screws in an upright or nearly upright position, and the carrier-box L, containing the said carrier, and having a cavity, *h*, into which the blanks or screws are delivered in a horizontal or nearly horizontal position, substantially as herein described.

3. The combination of the plunger *m*, the supply-tube K to the chuck J, the box L, having a screw or blank-receiving cavity, *h*, and the screw or screw blank carrier I, essentially as described.

4. The combination of the sliding mandrel O, which carries the plunger *m*, the arm P, secured on said mandrel, the bell-crank Q, and the rotating screw or screw-blank lifter E, whereby the movement of the said mandrel for forcing the blanks into the chuck is made to operate the said lifter, substantially as herein described.

5. The combination of the sliding mandrel O, the arm S, the bar *w*, and the toe *k* of the carrier I, essentially as described.

6. The combination, with the chuck J, which holds the work to be threaded, of a centering-tumbler, B', constructed to operate substantially as and for the purposes herein set forth.

7. The combination, with mechanism for holding and threading the screw-blanks of the centering-tumbler B', substantially as herein described.

8. The combination of the slide C', with the pivoted centering-tumbler B', the switch *f'*, the fixed guide *g'*, and the lever-catch *h'*, having a stud or pin, *i'*, essentially as and for the purpose herein set forth.

GRAPHIC CO. N.Y.

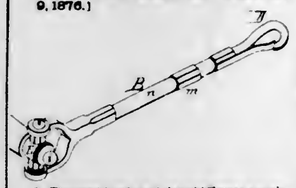
THE GRAPHIC CO. N.Y.

9. The combination of the fixed guard or projection D', with the pivoted centering-tumbler B' constructed with a bearing or resting surface, *c'*, substantially as described.

10. The die-holders G' G', in combination with the plate H', constructed to concentrically enter said die-holders, essentially as described.

11. The combination of the cone or wedge J' with the pivoted or swinging die-holders G' G', having reduced portions *s'*, and the frame E', in which said die-holders slide, substantially as specified.

189,755. HARNESS-CONNECTIONS FOR VEHICLES. F. Leclere, Detroit, assignor to W. L. Bancroft, J. Goulden, and N. S. Boynton, Port Huron, Mich. [Filed Oct. 9, 1876.]



1. The combination of the whiffletree or pole of a vehicle with a rod, B, having at one end a hook, D, and connected at the other end to said whiffletree or pole by a universal joint, as set forth.

2. The combination of the swivel E, pivoted to the whiffletree or pole, with the rod B, having a forked end pivoted to said swivel, as set forth.

189,756. TOBACCO-STICKS. M. M. Ledford, Asheville, N. C. [Filed Oct. 14, 1876.]

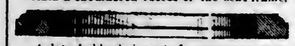
Brief.—Wires are held upon the upper corner of a triangular stick, and hold the tobacco-leaves so that they hang upon each side.



Tobacco-stick A, recessed at *a'*, in combination with spring B, having bend *b*, and with wires C C and staples *c c*, substantially as set forth.

189,757. CHAIR-SEATS. J. Lemman, Cincinnati, Ohio. [Filed Apr. 6, 1877.]

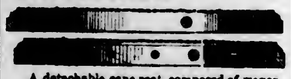
Brief.—A sheet of woven cane is glued to a hoop, and the latter is secured, by screws, within a shouldered recess of the seat-frame.



A detachable chair-seat of woven cane, composed of a bent strip or frame, and cane-cloth which is stretched over the same, lapping around the bottom of the strip, and is secured thereto by gluing, the seat thus made being adapted to fit a shouldered recess of the seat-frame of chairs, substantially as and for the purpose specified.

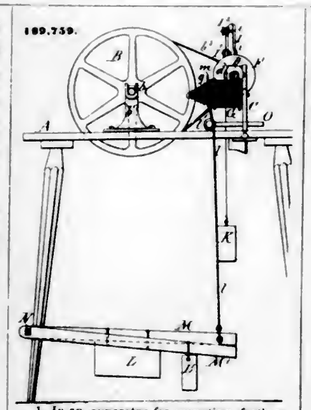
189,758. CHAIR-SEATS. J. Lemman, Cincinnati, Ohio. [Filed Apr. 6, 1877.]

Brief.—A sheet of woven cane is glued to a hoop, the latter being adapted to fit within the frame of the seat, to which it is secured by screws passing laterally through the hoop. An inner hoop may be placed within the splint, to which the cane is fastened, and the two be secured together by screws. By removing the screws the seat may be taken out and a new one substituted.



A detachable cane seat composed of woven cane or cane-cloth, stretched over a continuous bent strip or frame, and permanently secured thereto by gluing, the whole being adapted to be placed within, and detachably secured to, a surrounding frame, in the manner and for the purpose set forth.

189,759. MACHINES FOR MOUNTING FLOWERS, &c., UPON WIRE STEMS. Louis Liebmann Lewinsohn, Berlin, Prussia. [Filed Oct. 26, 1876.]



1. In an apparatus for mounting feathers and other objects, the wire upon which such objects are mounted, held immovably stretched by means of counterbalancing weights acting directly upon the wire on one end, and upon the bobbin containing such wire upon the other end, substantially as described.

2. In combination with the wire upon which the objects are mounted, the weight K, and bobbin G upon which said wire is wound, and the differential grooved disks *g*, of the cord *l*, levers M M', and weights L L', substantially as described, for the purpose specified.

3. The combination of the grooved differential disks *g* and bobbin G, the cord *l*, levers M M', and the weights L L', with the pulleys P and shaft P mounted upon an adjustable bar, O, and the plate C, substantially as described, for the purpose specified.

4. The combination of the cord *l*, from which the levers M M' and weights L L' are suspended, the differential disks and bobbin G, with the pin *m*, to hold said cord *l* in position upon its disk, substantially as described.

5. The combination of the thread-bobbin E, held in frictional contact with the disk F, from which it receives motion through the medium of the driving-wheel B, and a band or cord, said wheel and disk being mounted upon a hollow shaft, *d*, with said hollow shaft *d* and short tube *d'*, the block D, plate C, and the wire upon which the object is to be mounted, substantially as described.

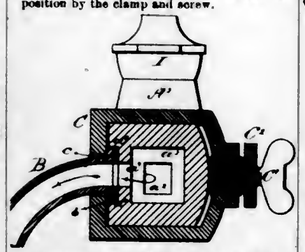
6. The standard H, in combination with the wire, and the binding devices, substantially as above claimed and described.

7. The combination, with the wire, of the arm I, and pulleys I' P, and the weight K, substantially as described.

8. In an apparatus for mounting feathers or similar objects, the devices, substantially as above described, by means of which the wire upon which such objects are mounted is kept at an unvarying tension by regulating said tension according to the decrease of the diameter of the wire-containing bobbin, substantially as described.

189,760. BEER-FAUCETS. P. Lyons, Hartford, Conn., assignor of one-half his right to A. J. Benner, same place. [Filed Jan. 27, 1877.]

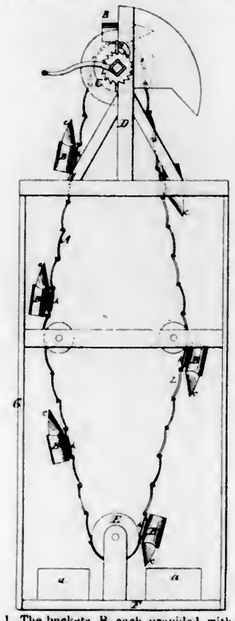
Brief.—The adjustable nozzle is held in position by the clamp and screw.



Adjustable nozzle B, having flange *b*, in combination with clamp C, clamping-screw C', and faucet-tube A, substantially as and for the purpose set forth.

189,761. WATER-ELEVATORS. Christian B. Lykke, Grand Island, Nebr. [Filed Feb. 24, 1877.]

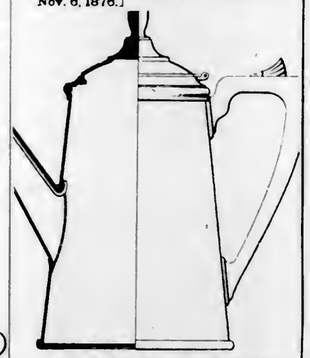
Brief.—The buckets are each provided with loops on the back, through which the links are passed for the purpose of securing the buckets to the chain. A weighted platform in the bottom of the well serves to hold the chain taut.



1. The buckets B, each provided with the transverse loop *h*, in combination with the detachable link-chain, as shown and described.

2. In combination with the bucket-chain and shaft E, the stand F, provided with boxes *a* to receive weights, as and for the purpose specified.

189,762. TEA AND COFFEE POTS. Edward B. Manning, New Haven, Conn. [Filed Nov. 6, 1876.]

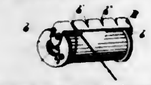


1. In tea and coffee pots constructed from sheet metal, coated with a vitreous material, a metallic tip, inclosing the outer end of the spout, substantially as described.

2. In tea and coffee pots constructed from sheet metal, coated with a vitreous material, a metallic tip, inclosing the outer end of the spout, and secured by a wire extending from the tip through the spout and turned onto the inside of the body, substantially as described.

3. In tea and coffee pots constructed from sheet metal, coated with a vitreous material, a metallic tip, inclosing the outer end of the spout, combined with a strainer over the inner end of the spout, and a wire connecting the said tip and strainer through the spout to secure both, substantially as described.

189,763. THREAD-CUTTERS. T. Masac, Philadelphia, Pa., assignor of one-half his right to E. V. Machette, Jr., Agent, same place. [Filed Feb. 27, 1877.]

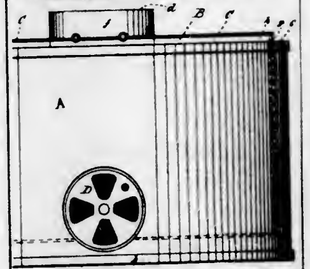


The thread-cutter herein described, consisting of the plate B, having clamping-ends *b b* and notched at *b'*, and adapted to be readily applied to, and removed from, a spool, substantially as and for the purpose set forth.

189,764. FLAVORING AERATED BEVERAGES. John Matthews, New York, N. Y. [Filed Apr. 4, 1877.]

The process herein described for flavoring carbonated beverages, which consists in charging the carbonated liquid with the essential oils, and then adding the syrup to sweeten them when bottled or otherwise drawn off, substantially as set forth.

189,765. WASH-BOILER. Wm. McIlvain, Philadelphia, Pa. [Filed Mar. 6, 1877.]



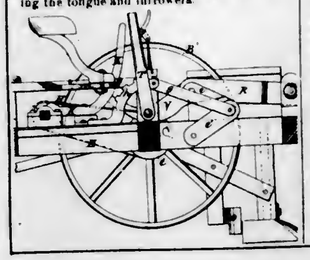
1. The case A, having openings *a*, *d*, and *g*, and a smoke-collar, *f*, in combination with the boiler B and the top plate of a cooking-stove, the boiler being so arranged within the case as to form a space or flue between their bottoms and around the sides of the boiler, for the circulation of the products of combustion in their passage to the smoke-pipe, substantially in the manner and for the purpose set forth.

2. In combination with the case A and wash-boiler B, the register D, substantially in the manner and for the purpose set forth.

3. The combination of the register D with the case A, substantially in the manner and for the purposes set forth.

189,766. CORN-PLANTERS. H. Wm. Meyerhoff, Waverly, Iowa. [Filed Jan. 24, 1877.]

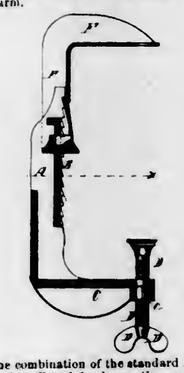
Brief.—To the rear end of the tongue is pivoted a curved extension, that passes between the seat-supports, to prevent lateral play. To the tongue and central beam are pivoted toggle-arms, that are connected to the lever by a link, for elevating or depressing the tongue and furrowers.



In a corn-planter, the combination of the frame and tongue pivoted on the upper side of the front bar thereof, the toggle-arms *e e*, link *g*, pawl-lever T, rack-bar h, and the curved pivoted extension V of the tongue, working in guides, as shown and described, to operate as and for the purpose specified.

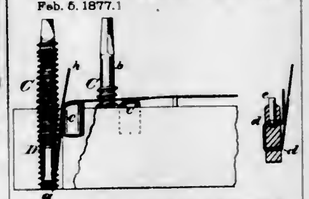
189,767. CLAMPS. J. G. Mole, Batavia, Ill. [Filed Feb. 9, 1877.]

Brief.—The upper jaw is longitudinally adjustable upon the main arm, and secured at any desired point by means of an upper flanged toe gearing into serrations upon the said arm.



The combination of the standard A, having serrations B and fixed arm C, provided with the threaded orifice *c*, with the set-screw D, and adjustable jaw F, all constructed to operate as shown and described, and for the purpose set forth.

189,768. DEVICES FOR STRINGING PIANOS. Gerry Morgan, Andover, N. H. [Filed Feb. 5, 1877.]



1. The tuning-screw C, having a portion, *b*, of its shaft between the threaded part and the wrench-shank adapted to enter the female screw *a* without injuring the threads of the same, when used substantially as and for the purposes set forth.

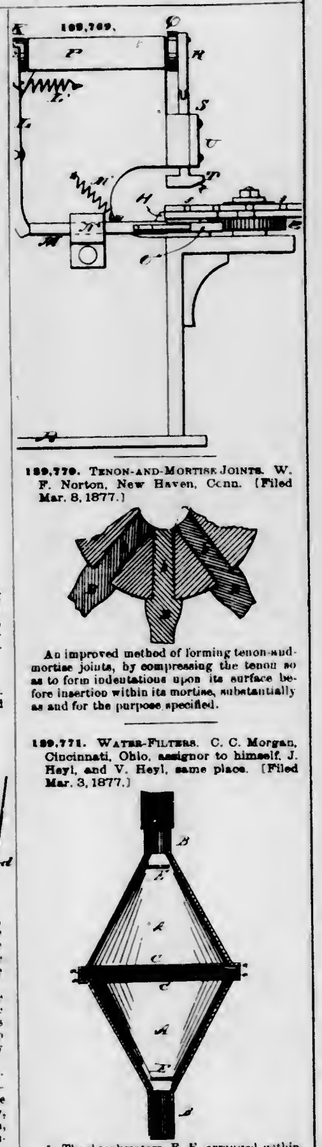
2. The tuning-screws C C, arranged in the frame A at right angles to the plane of the strings B B, in combination with string-bends D D, disconnected therefrom, but arranged to operate in connection therewith, substantially as herein set forth.

3. In combination with a tuning-screw engaging a female screw in the frame, a piano-string and a suitable head attached to the string, but unconnected with the tuning-screw, a glass saddle, *c*, for the string to rest upon, when all constructed and arranged substantially as herein set forth.

4. The head D, provided with a cross-hole, *d*, and a vertical or longitudinal hole in connection therewith, and a plunger, *e*, arranged to rest in the latter hole and to clamp the string, substantially as set forth.

189,769. MACHINES FOR FINISHING HORSE-SHOE-NAILS. S. S. Mortimer and J. R. Robinson, Woonsocket, R. I. [Filed Feb. 10, 1877.]

The combination, with the ratchet-wheel E, having drum K' and stud *s*, and the blank-carrying disk F, having recesses *f* and perforation *e*, of the sliding bar M, pawl O, lever L, cam-faced collar K, driving-shaft I, sleeve P, crank-wheel Q, pitman R, plunger S, springs L' M', and former T, substantially as described, and for the purpose set forth.



189,770. TENON-AND-MORTISE JOINTS. W. F. Norton, New Haven, Conn. [Filed Mar. 8, 1877.]

An improved method of forming tenon-and-mortise joints, by compressing the tenon so as to form indentations upon its surface before insertion within its mortise, substantially as and for the purpose specified.

189,771. WATER-FILTERS. C. C. Morgan, Cincinnati, Ohio, assignor to himself, J. Heyl, and V. Heyl, same place. [Filed Mar. 3, 1877.]

1. The breakwaters E E, arranged within the filtering-case A A, for the purposes herein set forth.

2. The combination of the case A A with tubes B B, the perforated diaphragm C C, and D *d*, and breakwaters E E, all substantially as and for the purposes herein set forth.

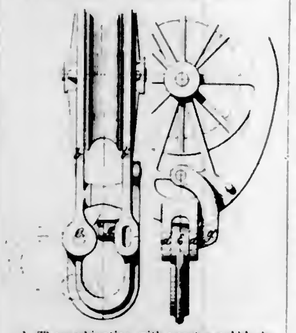
189,772. MILL-PICKS. J. Norman, Springfield, Mo. [Filed Nov. 2, 1876.]

In a millstone-pick, the stock enlarged about the blade-socket, which tapers gradually from said enlargement, as shown, and is provided with key-seat and key B at one side, the whole being arranged so that the blade shall have a square or unbroken bearing at top, and be held in place by the said key, in the manner and for the purposes herein before explained.



189,772.

189,773. TACKLE-BLOCKS. J. W. Norcross, Boston, Mass. [Filed Dec. 9, 1876.]



1. The combination, with a cast-metal block, of the hinged loop E, arranged to be secured to both sides of the block-frame, substantially as and for the purpose described.

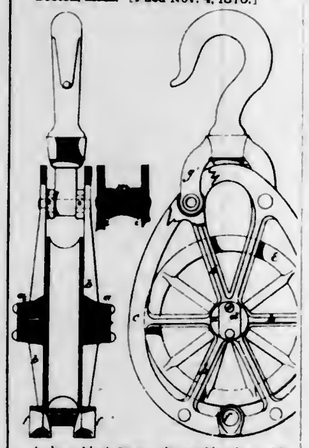
2. The combination, with a cast-metal block-frame, of the hinged loop E and locking-hook *f*, substantially as and for the purpose specified.

3. In a cast-metal block, the combination, with the locking hook or bolt, of the spring-pressed bolt *g*, substantially as and for the purpose set forth.

4. In a cast-metal snatch-block, the axle K, provided with shoulders, and arranged to support the cast-metal sides, substantially as and for the purpose described.

5. A cast-metal snatch-block, in which one of the side frames is provided with an eye and a staple, and the other with a hinged portion arranged to be locked by a hook, substantially as and for the purpose specified.

189,774. TACKLE-BLOCKS. J. W. Norcross, Boston, Mass. [Filed Nov. 4, 1876.]



1. In a block-frame, the combination, with the central hub *a*, of the radial arms *b b*, tapering from the hub toward the rim, and the rim *c*, arranged substantially as and for the purpose described.

2. The combination, with the open cast-metal block-frame *a b c*, of the becket-holes *f f*, arranged in the sides of the frame, substantially as described.

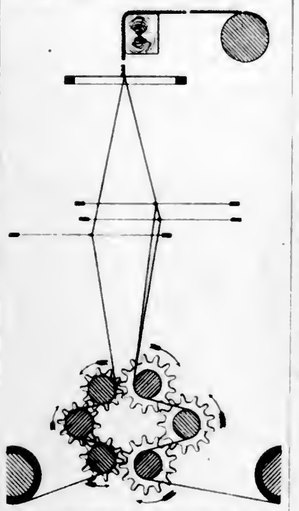
3. The combination, with the open cast-metal block frame, substantially as described, of the stirrup *g'*, arranged for a single block, and secured within the bosses *i i*, substantially as described.

4. The combination, with the partition-frame of the double block, of the square recessed bosses arranged so as to maintain the stirrup *g* in its proper position, and also relieve the pin, bolt, or rivet from part of the strain, as described.

5. A block consisting of the sheave E, one or more of them, the sides or frames having an egg-shaped outline and rim, and radial arms connecting the central hub with the rim, and arranged so that all the strain exerted on the sheave is distributed substantially as described, so as to secure great strength with the least material.

189,775. WARP-REGULATORS. W. Oothout, Brooklyn, E. D., N. Y., assignor to himself and G. L. Kelty, same place. [Filed Feb. 14, 1877.]

Brief.—The rollers of the figure or pile warps are geared together, as well as the rollers of the ground-warps, and the two sets of gears are also connected. The gears of the figure or pile rollers are provided with a less number of teeth than the gears of the other set of rollers, in order that the pile-warps may be let off faster than the ground-warps. The ordinary mechanism for operating the let-off may be connected to the shaft of one of the rollers.



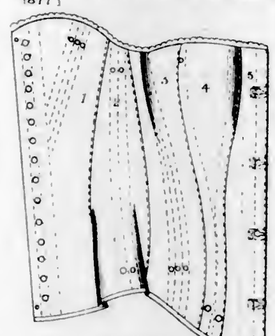
In a warp regulator, the combination of two groups of rollers, one for the surface-warps, and the other for the foundation or back warps, and differential gearing for connecting the rollers and determining the relative speeds of movement of the warps, substantially as set forth.



189,776. WARDROBE-BEDSTEADS. C. Pabst, Philadelphia, Pa. [Filed Dec. 13, 1876.]

As a new article of manufacture a wardrobe bedstead, consisting of the partitioned case A and the longitudinally-folding bedstead F G, provided with folding supports I, filling piece M, and weighted end L, adapted to fold within the compartment B, as set forth.

189,777. CORSETS. L. A. Palmer, Boston, Mass., assignor of one-half his right to C. A. House, same place. [Filed Feb. 1, 1877.]



A two-part corset each half of which is composed of the pieces 1, 2, 3, 4, and 5, each piece being cut in the form described and shown, for the purposes set forth.

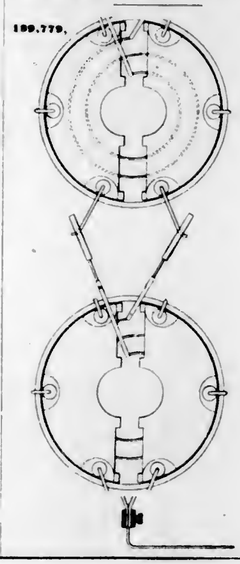
189,778. GAGE-GLASSES. J. J. Paquette, New Orleans, La. [Filed Feb. 20, 1877.]



1. A gage glass having a cast-metal joint, substantially as described.

2. The method herein described of forming gage-glasses, the same consisting in heating the glass, placing it within a heated mold, and casting molten metal around the glass, substantially as described.

189,779.

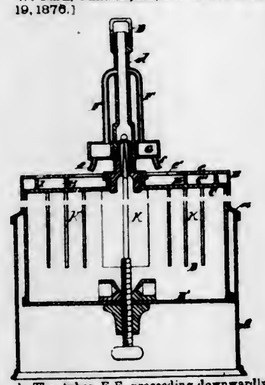


189,779. GALVANIC BATTERIES. Myron W. Parrish, Jackson, Mich. [Filed Jan. 11, 1877.]

1. In a galvanic battery composed of several cells, the combination of a double connection with the positive element of one cell and the negative element of the succeeding cell, substantially as and for the purpose shown and described.

2. The combination, with the jar of a galvanic battery and with the positive element contained therein, of a negative element made in two sections, substantially as and for the purpose set forth.

189,780. HYDROCARBON-GAS LAMPS. R. W. Park, Philadelphia, Pa. [Filed Sept. 19, 1876.]



1. The tubes F F, proceeding downwardly from the burner-stem, and serving to conduct gas to form jets for heating the top of the fount or reservoir, in combination with the fount located below said burner, substantially as set forth.

2. In combination with the downwardly-extending gas tubes F F, the expansion-chamber G, having the exits *f f* for the issuance of jets for heating the top C, substantially as shown and described.

3. In combination with the tubes F F and the fount B, having the top C, the ribs H H, for receiving the impingement of the gas heating-jets, substantially as shown and described.

4. The hydrocarbon gas-lamp fount, having a top, C, constructed substantially as described, to form a trough or pan for the reception of liquid, as and for the purpose set forth.

5. In combination with the fount B and heating-tubes F F, the cap E, forming a chamber, C', substantially as and for the purpose specified.

6. In combination with the fount B, the heating-pendants K K, hanging from the top C, or passing through the latter, substantially as shown and described.

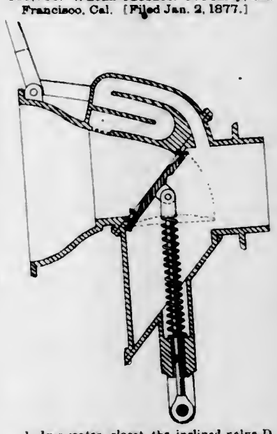
7. A hydrocarbon-vapor apparatus, having a burner provided with jet-apertures, and a reservoir arranged in relation thereto, substantially as shown and described, so that the jets shall heat the top thereof either directly or through the ribs H H or cap C', as and for the purpose specified.

189,781. SPRING SHADE-FIXTURES. Phineas W. Phillips, Salem, Mass. [Filed July 19, 1876.]



In a curtain-fixture in which the roller is provided with an internal spring for automatically winding up the shade, the combination therewith of a support for the roller in its bracket, and a clutch constructed in parts, arranged in relation to the roller and its supports, the said roller being adapted to move to and fro on its supports, substantially as set forth, whereby the clutch is disengaged by a downward pull of the shade against the spring in the roller and engaged by the action of the said spring, as set forth.

189,782. WATER-CLOSETS. F. Pobley, San Francisco, Cal. [Filed Jan. 2, 1877.]



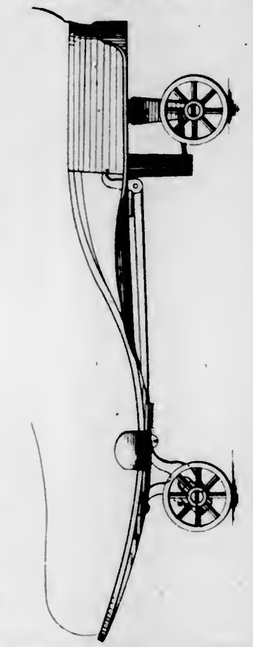
1. In a water-closet, the inclined valve D, mounted upon the horizontally-moving stem F, said stem being provided with the guides H, and the operating-spring I for closing the valve, substantially as herein described.

2. In combination with the inclined valve D, with its stem F and spring I, the operating-lever K M and the connecting-rods J, substantially as herein described.

3. The lever K M, for operating the valve D by means of the stem F and rods J, said lever having a supplemental arm, N, to simultaneously open a valve in the water-supply pipe O, substantially as herein described.

4. In combination with the pipe B of a hermetically-closed water-closet, the overflow P and the trap Q, with its partitions R, the whole constructed and operating substantially as herein described.

189,783. PARLOR-SKATES. John W. Post, New York, N. Y. [Filed Apr. 4, 1877.]



1. The lateral strengthening ribs, formed on the foot-supporting plate by the downwardly-projecting flange or flanges along the forward part of the plate, and the upwardly-projecting flanges along the rear part of the same, substantially as described.

2. The combination, with the heel-clamp and engaging screw, of the independent fulcrum-plate, the latter having notched sides engaging with the double rack-side of the foot-supporting-plate slot, in which it is longitudinally adjustable, substantially as described.

3. The downwardly turned flange or flanges, in combination with the sole-clamp plates, the latter having grooved faces, in which the flanges are seated, so as to secure the clamps against transverse displacement, while the same are adjustable by an ordinary stud-and-slot engagement, substantially as described.

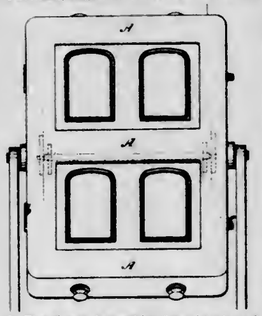
4. The front standard, formed of a metallic piece directly secured to the main plate, and having the bifurcated arm extremity, in combination with a roller axle, the latter seating in a rocking bearing between the said bifurcated arms, and connected thereto by a single engaging pin, the said standard having elastic cushions or springs on either side of its pivotal center, on which the axle directly bears, substantially as described.

5. The combination of the rear standard and the foot-supporting plate, the two connected by the countersunk wall of the annular slot seating in the globular bearing of the standard, the said standard carrying the U-formed lever-arm, upon the free extremity of which the guiding-stem has a sleeve bearing as it rotates, in its fixed socket, substantially as described.

6. A skate-roller the rim of which is made of one continuous piece of metal, and the spokes of which are made tubular, substantially as described.

7. The combination, with a skate-roller, of the inner tapering axle-shoulder and the loose outer conical sleeve, whereby lost wear is taken up by the tightening of the ordinary washer-nut, in connection with an oscillating axle pivoted to the standards of a roller-skate, arranged to operate substantially as described.

189,784. PICTURE-EXHIBITORS. F. Prince, Patcham, England. [Filed Feb. 20, 1877.]



1. The case A, in combination with the rod *f* and pieces C C, working in a slot, m, substantially as described, so that, upon turning the case A over, the mounts or cards D may change one after the other, as specified.

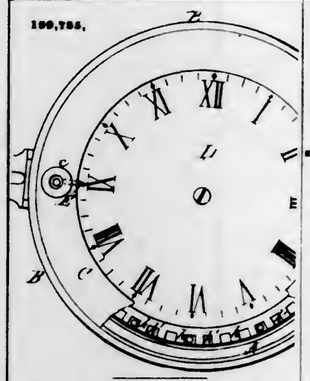
2. The cards or mounts D, with thickness-pieces *g g*, for the purposes set forth, substantially as described and represented.

189,785. WATCHMEN'S TIME-DETECTERS. Joseph A. J. Redier, Paris, France. [Filed Feb. 1, 1877.]

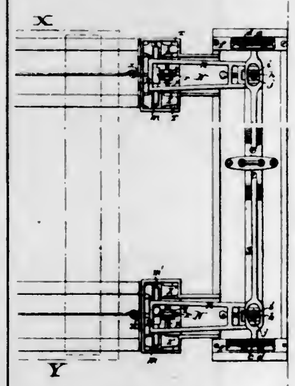
1. In a watchman's time-detecter, a wheel, H, recessed in the center to receive the dial, and having its periphery toothed and provided with an annular flanged plate to form a series of revolving receptacles or chambers, substantially as described, for the purpose specified.

2. The main arbor of a clock-movement, the wheel H having a series of chambers formed around its periphery, and a recess for the reception of the dial, the dial L, lid B, having a flange or rim C, provided with a perforation or aperture, *a*, and a stationary hand affixed to said flange C, all combined, constructed, and operating substantially as described, for the purpose specified.

199,785.



199,786. PLATFORM-SCALES. I. Rigdon, Cincinnati, Ohio. [Filed Aug. 21, 1875.]



1. The combination of the vertical multiplying-lever No. 1 and the multiplying and equalizing lever No. 2, substantially as and for the purposes set forth.

2. The combination of the vertical multiplying lever No. 1, and the multiplying and equalizing lever No. 2, and the horizontal multiplying-lever No. 3, substantially as and for the purposes specified.

3. The multiplying-lever No. 1, made open or hollow for the reception of pivot and pivot-bearing, whereby the double loop S r is supported.

4. The multiplying and equalizing lever No. 2, made open or hollow for the reception of pivot and pivot-bearing, whereby the double loop S r is supported.

5. The combination of the seat R, provided with guiding-studs T T, and the bearing l, substantially as and for the purposes set forth.

6. The box N or Q, provided with seats R and guiding-studs T T, for the reception and maintenance of the bearing l, substantially as and for the purposes set forth.

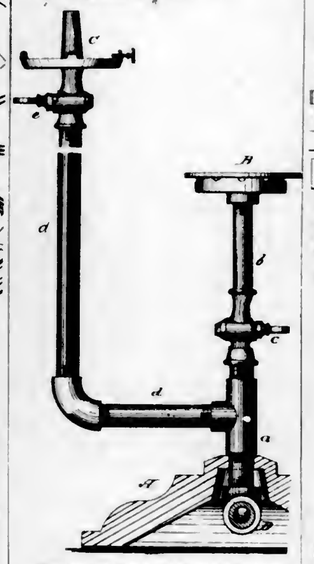
7. The combination of the multiplying-lever No. 1, and the multiplying and equalizing lever No. 2, and the cross-piece J, substantially as and for the purposes specified.

8. The double loop S r, in combination with the loose bearing resting upon the multiplying-lever No. 1, or the multiplying and equalizing lever No. 2, as and for the purposes set forth.

9. The arrangement of the platform within the frame cross-pieces J, and within the suspension-loops, substantially as and for the purposes set forth.

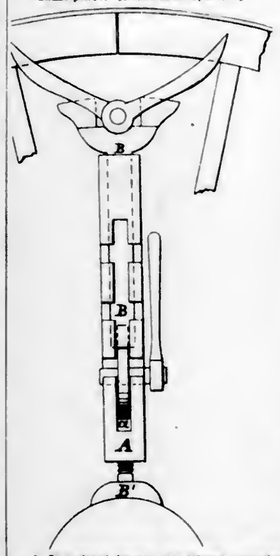
10. The combination of the box N or Q and the sill of the platform, the box being mortised or sunk in the said sill, so that the top of the box is flush with the top of the sill, substantially as and for the purposes set forth.

199,787. NURSERY GAS AND HEATING STOVES. S. Rothschild, Jr., Brooklyn, N. Y. [Filed Jan. 2, 1877.]



The combined heater or stove and burner, consisting of the base A, pipes *a* and *d*, heater B, burner C, detachable pipe *b*, and turn cocks *c* and *e*, substantially as and for the purpose set forth.

199,788. TIRE-TIGHTENERS. W. F. Rowe, Lyons, Iowa, assignor to E. S. Gibbs, same place. [Filed Mar. 2, 1877.]



1. In a tire-tightener, the jointed spreader E, substantially as and for the purposes described.

2. The spoke-drawing devices, consisting of the clip G and rod K, in combination with the standard A, follower B, and cam C, substantially as described.

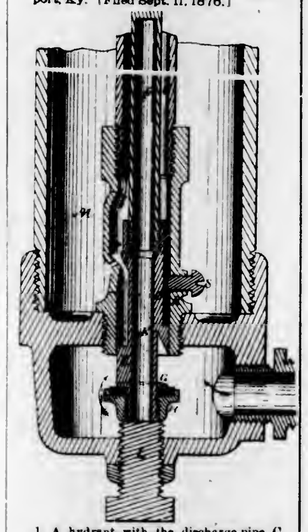
199,789. FIRE-BARS FOR FURNACES. E. Rowland and G. E. Rowland, Manchester, assignors of one-half their right to Robt. Harlow, Heaton-Norris, England. [Filed Sept. 20, 1876.]

Brief.—The oscillating bars are journaled on projections cast upon the sides of the stationary bars, and operated by link-and-lever mechanism.



The combination of the bell-crank shaped oscillating fire-bars *b b* with the ordinary fixed fire-bars, carrying snugs C C, when mounted, operated, and arranged substantially as and for the purpose described.

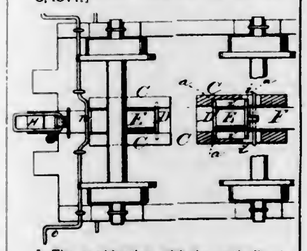
199,790. HYDRANTS. Jos. K. Rugg, Newport, Ky. [Filed Sept. 11, 1876.]



1. A hydrant with the discharge-pipe C, valve-stem E, and annular plug or deflector O, arranged in relation to each other in such manner as to deflect the water to the side or sides of the discharge-pipe, as set forth.

2. The hollow valve-rod F, and valve-stem E, forming an air-chamber to cushion the valve G in closing against the pressure of the water, substantially as set forth.

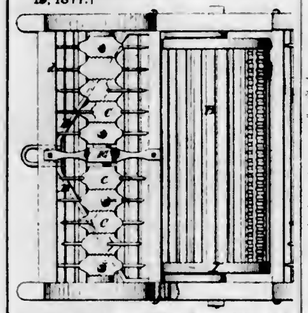
199,791. CAR-COUPLINGS. A. C. Rumble, Lima, Ohio, assignor of one-half his right to C. B. Phinney, same place. [Filed Mar. 3, 1877.]



1. The combination, with the vertically-vibrating barbed draw-bar F, of the blocks C, having slots *i*, the draw-spring E, compressor-plates D D', draw-rod *d*, and pin *e*, entering said slots and connecting-rod *b* and draw-bar F, substantially as specified.

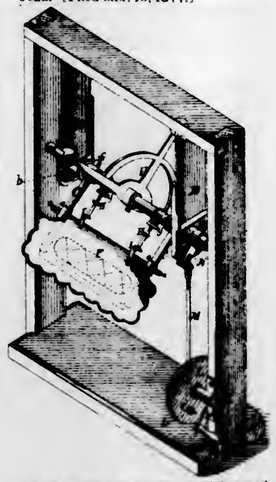
2. The combination, with a vertically-vibrating endwise-movable draw-head, of the draw-spring E, the rearwardly-movable compressor-plate D, the forwardly-movable plate D', the cheek blocks C C, having grooves *f f'* and slots *i i*, and the connecting-rod *b*, substantially as specified.

199,792. HARROW-CULTIVATORS. A. Saur and J. Wilson, Franklin, Ind. [Filed Feb. 19, 1877.]



One or more harrows in a frame, formed of a series of collars, C C, having serrated faces, and arranged upon a shaft, said collars being provided with teeth *d d*, as and for the purpose set forth.

199,793. FANS. J. G. Schmidt, Memphis, Tenn. [Filed Mar. 10, 1877.]



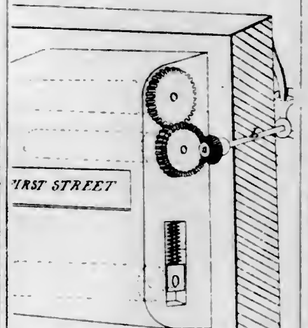
1. The stretcher-frame for receiving and sustaining the fan F, consisting of the arms C secured radially upon the shaft A, the rod D having its ends *d* contained within the outer ends of said shaft, and the bar E provided with the sleeves *e* extending between and encircling said shaft, and provided with the set-screws *e'*, said parts being combined with each other and with said fan, substantially as specified.

2. In combination with the shaft A, bar E, and fan F, the loops G, nuts *g*, rods H, and hooks *l*, substantially as and for the purpose shown.

3. In combination with the fan F and its supporting-frame, the balls O secured upon the radial arms of the frame P, and said frame attached to or upon the shaft A, substantially as and for the purpose set forth.

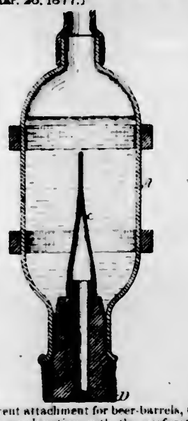
4. The hereinbefore-described device, in which the shaft A, stretcher-frame C, D, *d*, E, and *e*, the fan F, the stretcher-rods G, *g*, H, and *l*, the shaft K, disk L, crank-pin *l*, connecting-bar M, and crank N are constructed and combined to operate in the manner and for the purpose substantially as shown and described.

199,794. STATION-INDICATORS. John P. Schmitz, San Francisco, Cal. [Filed Feb. 12, 1877.]



In combination with the slotted case, the apron bearing the names of streets or stations, the rollers, meshing-gears, notched wheel, and spring-stop, as and for the purpose specified.

199,795. VENT ATTACHMENTS FOR BEER-BARRELS. Fridrich Schulte, Chicago, Ill. [Filed Mar. 26, 1877.]

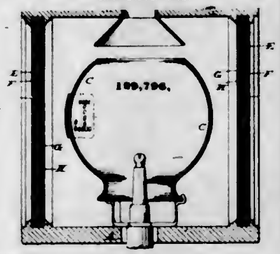


1. In a vent attachment for beer-barrels, the bulb A, in combination with the perforated stopper B, substantially as and for the purpose set forth.

2. In a vent attachment for beer-barrels, the perforated stopper B, in combination with the tube C and bulb A, substantially as and for the purpose set forth.

3. In a vent attachment for beer-barrels, the perforated stopper B and perforated cap D, in combination with the bulb A, substantially as and for the purpose set forth.

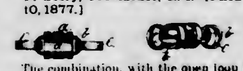
4. In a vent attachment for beer-barrels, the perforated stopper B, provided with the tube C, in combination with the bulb A, provided with the cap D, all constructed to operate substantially as and for the purpose set forth.



199,796. ILLUMINATING-SIGNS. Chas. H. Seawell, St. Louis, Mo. [Filed Feb. 13, 1877.]

The illuminating-sign having the combination in its face or faces of the outer transparent pane E, the lettered and perforated plate F, the semi-transparent pane or plate G, and inner transparent pane H, substantially as set forth.

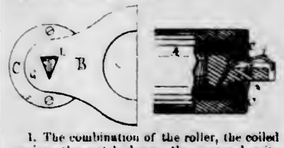
199,797. ORNAMENTAL CHAIN-LINKS. H. F. Seery, Providence, R. I. [Filed Feb. 10, 1877.]



The combination, with the open loop *b* and connecting-rings *c c*, of the sleeve *a*, made in a single piece, substantially as and for the purpose set forth.

199,798. CURTAIN-FIXTURES. Ai B. Shaw, Medford, assignor to A. B. Russell, D. Low, and J. F. Almy, Salem, Mass. [Filed Dec. 9, 1876.]

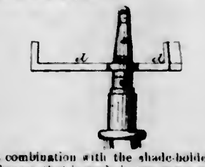
Brief.—A locking spring is attached to the spindle, and arranged to enter notches in the roller-cap, when the roller is removed from the bracket, so as to prevent the spring in the roller from uncoiling.



1. The combination of the roller, the coiled spring, the notched cap, the grooved spindle, and the spring-lock, substantially as specified.

2. The combination of the roller, the coiled spring, the notched cap, the grooved spindle, the spring-lock, and the bracket, substantially as specified.

199,799. SHADE-HOLDERS AND GAS-BURNERS. F. S. Shirley, New Bedford, Mass. [Filed Mar. 21, 1877.]



In combination with the shade-holder *d*, a gas-burner that is made in two parts, *a e*, the holder being fastened to one of the said parts, so as to cause it to turn around, and thereby control the flow of gas, substantially as shown and described.

199,800. MANUFACTURE OF GLASS. Frederick Siemens, Dresden, German Empire. [Filed Mar. 13, 1877.]

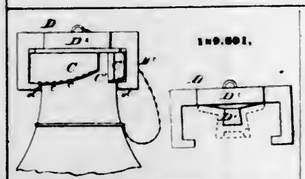


In an apparatus for continuously fining and working out glass from glass-tank furnaces or pots, consisting of a boat or vessel adapted to float in the molten glass, said boat being provided at one end with apertures, through which the glass flows from a point just below its level in the tank, the partition between the two compartments being provided with holes near its bottom, from which the glass flows to the final compartment, substantially as and for the purpose specified.

199,801. BOTTLE-STOPPERS. Jos. Slim, Lockport, N. Y. [Filed Feb. 24, 1877.]

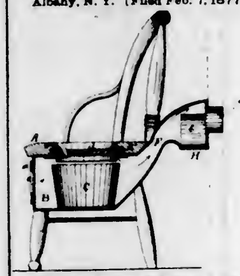
Brief.—When the clamp is turned in the proper direction, the depending plug expands the rubber stopper.

Clamp D, having plug D', in combination with tapering screw or rim-pieces C C, having corrugations *c c*, and a hollow rubber stopper, substantially as and for the purpose set forth.



189,801.

189,802. CHAMBER-CLOSETS. B. Smith, Albany, N. Y. [Filed Feb. 7, 1877.]



The combination of the seat A, chamber B, flue F, and heating-chamber H, as and for the purpose herein specified.

189,803. BURGLAR-ALARMS. W. J. Smith, Dayton, Ohio. [Filed Mar. 6, 1877.]



1. The herein-described combined burglar-alarm and window-catch, composed of the plate C, with its bearing-ears, and the spring-hammer D, with its nipple *g*, pivoted thereto, when constructed as described, and operated by pins E, substantially as and for the purpose described.

2. The annulus *b*, in combination with the plate C and hammer D, as and for the purpose specified.

3. The combination, with the hammer of a burglar-alarm, of the adjustable and removable arm F, constructed and applied as shown, whereby the device may be applied to a door, as and for the purpose specified.

189,804. HAIR-CRIMPING PINS. Albert M. Smith, Brooklyn, assignor of one-half his right to James B. Colt, New York, N. Y. [Filed Jan. 5, 1877.]



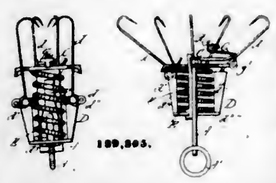
1. The slotted and funnel-shaped crimping-pin slide B, substantially as and for the purpose set forth.

2. In combination with the crimping-pin A, the slotted funnel-shaped slide B, substantially as and for the purpose set forth.

189,805. FISH AND OTHER TRAPS. Benj. F. Smith, Philadelphia, Pa., assignor of one-half his right to Wm. K. Bowman, same place. [Filed Aug. 10, 1876.]

1. The combination, with the pivoted hooks *d*, connected to a snapping spring, of a suitable bait-holder, latch, and dog, which will retain said spring and hooks when the trap is set, substantially as described.

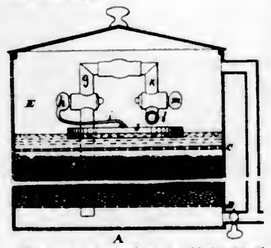
2. The combination of shank A, disk B, latch C, crown D, hooks *d d*, spring E, dog F, and bait-holder G, the several parts being constructed and arranged for operation substantially as shown and described.



189,805.

189,806. WATER-FILTERS. W. S. Snook, Oakland, Cal. [Filed Feb. 16, 1877.]

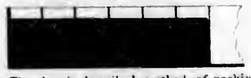
Brief.—The inlet-pipe passes through and supplies water underneath the filtering material. The filtered water is collected in a reservoir above the filtering material. When this receptacle is full, the supply of water is stopped by means of a float-valve connected with the inlet-pipe.



A

The open-top vessel A, provided with the chamber I below the body of filtering material, and a reservoir or chamber, E, above it, and having the water-pipe *g* arranged to pass vertically down through the chamber E and filtering material, so as to deliver the water below the filtering material, in combination with the cock *h*, rod *i*, and float J, substantially as and for the purpose above specified.

189,807. METHODS OF PUTTING UP CONFECTIONERY. H. H. Snow, New Haven, Conn. [Filed Nov. 11, 1876.]



The herein-described method of packing caramels and like confectionery, consisting of the interposition between adjoining pieces of slips having a wax surface, and forming individual compartments for each article, substantially as described.

189,808.

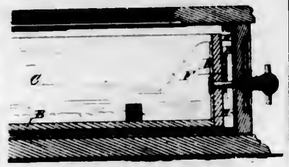


189,809. TOY DANCERS. Benjn. F. Speyd, Philadelphia, Pa. [Filed Nov. 17, 1876.]

The combination of the base D and the bent wire rod *a* and its handle with the figure A and the rod B, the lower end of which is bent to embrace the said rod *a*, as described.

189,809. BURIAL-CASKETS. C. F. Spencer, Rochester, N. Y. [Filed Mar. 22, 1877.]

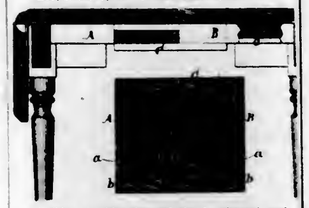
Brief.—The coffin opens at one end, and a folding cooling-board has its head-piece removably secured to the said end.



1. The combination, with a coffin having an open end, as described, of the dead-board B, constructed with hinged sides C, and having the pivoted pawls F, adapted to recesses in the coffin-body, for confining the dead-board in position, substantially as described.

2. In combination with the dead-board, adapted to be secured in the casket, as described, the cover and screw-bolt for confining the same against the open end of the casket, for the purpose of hermetically closing the casket, substantially as set forth.

189,810. EXTENSION-TABLES. J. E. Spraker, Homer, Ill. [Filed Mar. 1, 1877.]

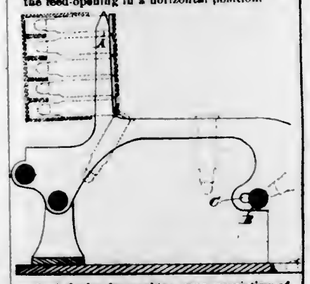


1. The combination of the L-shaped end slides A B and the central supporting slide C, having grooves *a a* to receive the said end slides, and the lower sides of which are extended, substantially as and for the purpose described.

2. The combination of stops or rails D D and grooves *c c*, having counter-stops *d*, with L-shaped end slides A B and the central supporting-slide C, substantially as and for the purpose described.

189,811. FEEDERS FOR MACHINE-GUNS. J. P. Taylor, Carter Depot, Tenn. [Filed Apr. 4, 1877.]

Brief.—When the cartridges are placed upon the bars or grate, the bullet ends drop through the spaces, and they are suspended by their flanges. A cross-bar arranged at a suitable distance from the inclined end catches the bullet ends as they are fed along, and trips them, so that they are delivered to the feed-opening in a horizontal position.



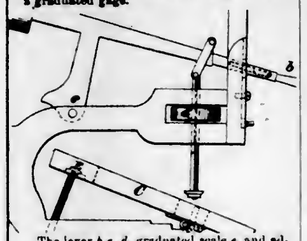
1. A feeder for machine-guns, consisting of a series of parallel bars, with spaces, as shown and described, for the automatic arranging or assembling of the cartridges, with their points in corresponding position, preliminary to their introduction into the breech or charge-chamber.

2. The blades A', constructed and arranged substantially as described, for drawing cartridges by their flanges from cases in which they are packed.

3. The trips B, placed at such a point as to operate in combination with the blades or bars, substantially as and for the purposes set forth.

189,812. MOLDING-MACHINES. Albert W. Stossmeister, Cincinnati, Ohio, assignor to himself and F. W. Kamping. [Filed Aug. 26, 1876.]

Brief.—The cutter can be readily brought to or from the work, and its relative position to the hinged table accurately ascertained by a graduated gage.



The lever *b c d*, graduated scale *e*, and adjustable notched gage *f*, in combination with a hinged table, C, as and for the purpose specified.

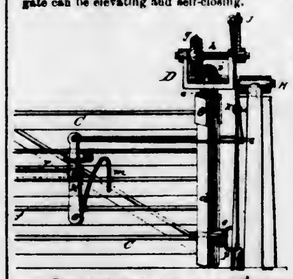
189,813. WRITING-FLUIDS. J. M. Taylor, Indiana, Pa. [Filed Jan. 10, 1877.]

Brief.—A permanent or indelible writing-fluid, consisting of a solution of non-resinous gum or glue and liquid silicate of soda or potash.

In a permanent or indelible writing fluid or ink, the composition consisting of a solution of non-resinous gum or glue and liquid silicate of soda or potash, substantially in the proportion herein described.

189,814. GATES. G. J. Tinsley, Kane, Ill. [Filed Feb. 8, 1877.]

Brief.—The gears that serve to swing the gate are held in a rocking bracket, so that the gate can be elevating and self-closing.



1. The combination of the bracket D, shaft A, gears *g i*, shaft H, lever *j*, and the gate C, as set forth.

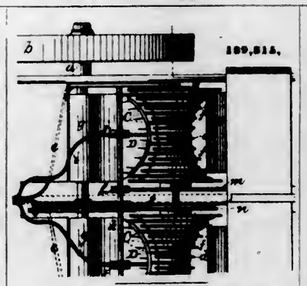
2. A gate, C, having lower hinge *c p*, in combination with a bracket, D, having a turning-shaft, H, and suitable gears *g i*, as set forth.

189,815. COTTON-PICKERS. James Tripp, Coldwater, Mich. [Filed Feb. 27, 1877.]

1. The recessed or concaved toothed cylinder B, having a series of circumferential grooves, in combination with the bowed fingers C C, the upper ends of which enter the said grooves, substantially as and for the purpose set forth.

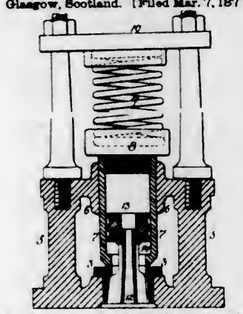
2. The rake D, connected by an eccentric or crank to a shaft, disposed contiguous to the cylinder B, substantially as and for the purpose set forth.

3. In combination with the picking-cylinder B, the fan or blower E, attached to a shaft arranged in proximity with the said cylinder, and driven by gearing, &c., substantially as and for the purpose set forth.



189,815.

189,816. SAFETY-VALVES. Alex. Turnbull, Glasgow, Scotland. [Filed Mar. 7, 1877.]

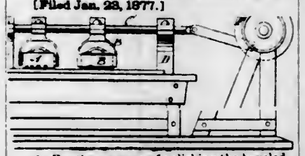


1. The combination, in a safety-valve, of the spring 9 and valve-seat 3 with the hollow valve 7, having a contraction 14 near the lower end, as and for the purpose described.

2. The combination of the valve-seat and the central tube 12 with the loaded hollow valves 7, having a contraction, 14, near the lower end, as specified.

3. The combination of the valve-seat and loaded hollow valve with the central tube 12 and the annular block 13, resting on, but unconnected with, the said tube, as set forth.

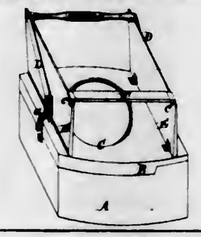
189,817. STONE AND GLASS POLISHING MACHINES. Alex. Vogeley, Brooklyn, N. Y. [Filed Jan. 23, 1877.]



1. For the purpose of polishing the beveled edges of glass plates, the combination of the loose polishers A A, the sliding shaft C, and the holders B B, substantially as shown and described.

2. The construction of the loose polishers A A or holders B B with oblique or beveled ends for the purpose of causing a diagonal lateral motion to be imparted to said polishers to avoid streaking the polished surface of the glass, substantially as shown and described.

189,818. CHAMBER-CASES. G. Vorrath, Hoboken, N. J. [Filed Mar. 22, 1877.]



1. A chamber-case having a door for the introduction and removal of a chamber-pot, a seat, B, and a hinged bail or handle, D, substantially as and for the purpose described.

2. The combination, with the chamber-case A and its door and seat, of hinged trap-doors or covers E E, and a brace for holding said doors in an elevated position, substantially as and for the purpose described.

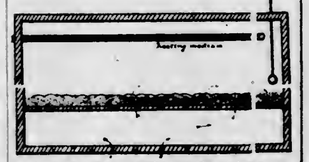
189,819. BOOTS AND SHOES. W. J. Watkins, Mahanoy City, Pa., assignor of one-half his right to Jos. Hughes, same place. [Filed Oct. 17, 1876.]



1. In combination with a boot or shoe, the brass tip D, with flange *a*, the bottom steel plate E, and rivets or screws passing through the sole and said metal parts, as and for the purposes herein set forth.

2. The horseshoe-shaped heel-plate G, formed of sheet metal, with the flange *h*, to extend across the breast of the heel, and provided with sprigs *d*, as and for the purposes herein set forth.

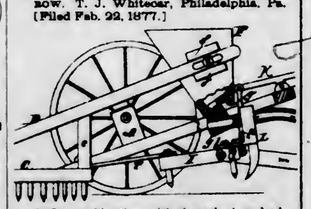
189,820. INCUBATORS. C. C. Weston, Laurel, Md. [Filed Mar. 10, 1877.]



1. An incubator having a bed consisting of a suitable non-conducting material, in which the eggs are partially embedded, substantially as described.

2. The process of artificial incubation herein described, the same consisting in submitting eggs to artificial heat, the lower portions of the eggs being protected from access of the heat, substantially as described.

189,821. COMBINED SEED-DRILL AND HARROW. T. J. Whitecar, Philadelphia, Pa. [Filed Feb. 22, 1877.]



1. In combination with the axle A and adjustable harrow-frame C, the bars D D, resting on said axle, and the handles F E, separate from the bars D D, and rigidly secured to the axle, and arranged, as described, for raising and lowering the harrow, substantially as set forth.

2. In combination with the frame C, the frame I, hinged thereto, and sustaining tines L, substantially as shown and described.

3. In combination with the harrow-frame supporting-bars D D, the hopper F, secured to said bars by blocks *f*, forming ways or guides, permitting the detachment of said hopper by merely sliding it off, as set forth.

4. The seed-tubes G, formed with heads *g*, which operate as valves to close the openings in the hopper-bottom, substantially as described.

5. The hopper-bottom F', recessed at *g'*, to form seats for the heads or valves *g* on the seed-tubes G, substantially as shown and described.

6. The tines L, bifurcated at their upper extremities, to form forks for the reception of the tubes G, substantially as shown and described.

7. The flukes L, formed in two parts, one part being vertically adjustable upon the other, substantially as set forth.

8. In combination with the tubes G, the frame I, supporting the flukes L, arranged and operating substantially as described, so as that when said frame is raised the said tubes will be swung out of registry with the seed-openings in the hopper and the flow of seed stopped.

9. In combination with a seeding-machine, the scraper M, formed of a strip or bar of corrugated metal, arranged for operation substantially as shown and described.

10. The rod *k* and lever K, in combination with the supplementary harrow-frame and the attached scraper and flukes, substantially as described.

189,892. DOOR-CHECKS. C. S. Whipple, New London, Conn., assignor to himself and G. W. Goddard, same place. [Filed Feb. 20, 1877.]

Brief.—As an improvement on Patent No. 185,466, December 19, 1876, the T-catch is neck-shaped, and not rotary, but so fastened to the door as to be immovable relatively thereto. The support-piece, in which the slotted arm is loosely pivoted or hinged, is provided with a back stop. When the door is closed, the T-catch receives and laps on the slotted arm at right angles, the T-catch comes into engagement, and determines the extent to which the door may be opened.



1. The T-catch A, provided with the recess *a*, arranged in it, as and for the purpose set forth.

2. The support-piece C, provided with the back-stop *k*, in combination with the slotted arm B, pivoted to such support-piece, and arranged with the said back-stop, as shown.

3. The combination of the T-catch A, provided with the recess *a*, with the slotted arm B and its pivotal support-piece C, provided with the back-stop *k* for such arm, all arranged, constructed, and operating substantially as described and shown, for the purpose specified.

189,893. DOOR-CHECKS. C. S. Whipple, New London, Conn., assignor to himself and G. W. Goddard, same place. [Filed Feb. 20, 1877.]

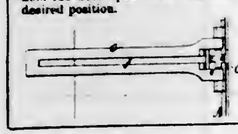
Brief.—As an improvement on Patent No. 185,466, December 19, 1876, instead of the rotary catch, a slide-bolt with T-shaped head engages with a suitable slotted arm, and there is provided a rotary latch with two notches, pivoted near the free end of the arm, which, when turned down upon the head of the T-catch, serves to hold the door open in either of two positions.



The combination of the rotary latch E, having notches *f g*, with the slotted arm C and the T-piece to operate therewith, substantially as set forth, and for the purpose specified.

189,894. DOOR-CHECKS. C. S. Whipple, New London, Conn., assignor to himself and G. W. Goddard, same place. [Filed Feb. 20, 1877.]

Brief.—As an improvement on Patent No. 185,466, December 19, 1876, in place of the rotary catch, an ordinary lock case and beveled latch-bolt is constructed with a T catch, attached to and made part of the beveled latch, and this is combined with a peculiar catch-plate, having a lateral passage leading out of its bolt-receiving orifice; this compound latch-bolt, in its lock case, operating as an ordinary beveled latch, until a suitable slotted arm is swung at right angles, and enters into engagement with its T-catch, to hold the door open within certain limits in desired position.



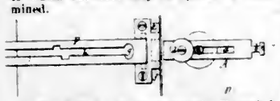
1. The beveled latch bolt G, constructed with the T-shaped catch *c d*, attached to and made part thereof, and arranged therewith as set forth.

2. The latch-bolt catch-plate A, provided with the lateral passage *a*, leading out of its bolt-receiving orifice, as set forth.

3. The combination of the T-catch and the latch-bolt G, connected and arranged as described, the bolt catch plate A, provided with the lateral opening *a*, and the slotted arm C, pivoted to such plate or the door-casing, all substantially as described and shown, for the purpose specified.

189,895. DOOR-CHECKS. C. S. Whipple, New London, Conn., assignor to himself and G. W. Goddard, same place. [Filed Feb. 20, 1877.]

Brief.—As an improvement on Patent No. 185,466, December 19, 1876, the place of the rotary catch is supplied by a T-headed rotating bolt, which is slotted longitudinally, and works upon a pivotal screw projecting from the door. This rotating bolt is combined with a slide-bolt receiver, and a slotted arm loosely hinged or pivoted thereto, and when the T-head is brought into engagement, the extent to which the door may be opened is determined.

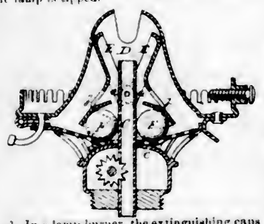


1. The bolt A, provided with the T-catch *b c* and the pivotal slot *a*, arranged as set forth, for the purpose specified.

2. The combination of the slide bolt receiver E, and the slotted arm F pivoted thereto, with the bolt A, provided with the T-catch *b c* and the pivotal slot *a*, and arranged on and so as to turn upon the pivot *e*, projecting from the door D, all substantially as described and shown, for the purpose specified.

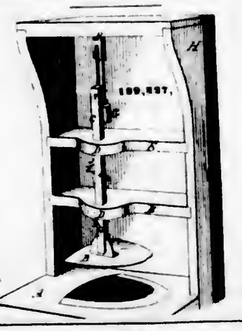
189,896. AUTOMATIC LAMP-EXTINGUISHERS. Wm. T. Wood, Mount Juliet, Tenn. [Filed Dec. 16, 1876.]

Brief.—The balls located under the extension-guards operate the extinguisher when the lamp is tipped.



1. In a lamp-burner, the extinguishing caps E, having the extension-guards *b* near the burner-floor, curved or bent laterally, to form, with the wick-tube, inclosures for the actuating balls F, substantially as specified.

2. The combination of the double-branched lever G with the caps E, having pivot-arms *a* and the extension-guards *b*, said lever passing on each side of the wick-tube, and engaging under the pivot-arms, substantially as specified.

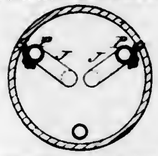


189,897. APPARATUS FOR CEMENTING RUBBER BOOTS AND SHOES. R. S. Woodford, Naugatuck, Conn. [Filed Jan. 20, 1877.]

In a machine for cementing portions of rubber boots or shoes, the combination, with a vertically-reciprocating shaft, arranged in suitable guides or slots, and a work-supporting table, of a pattern plate attached to the end of the shaft, with its plane surface at right angles thereto, so that the cut stock may be held in position while the cement is applied to the marginal surface, all substantially as shown and described.

189,898. DAMPING-ROLLERS FOR LITHOGRAPHIC PRINTING. Wm. H. Woodcock, Williamsburg, N. Y. [Filed May 9, 1874.]

Brief.—Within the revolving tubular and perforated damping-roller are arranged stationary perforated feed-pipes and cloth wipers, which supply the water to the roller, and distribute it over the inner surface thereof.

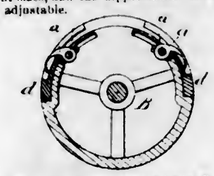


1. A revolving perforated damping-cylinder, E, in combination with stationary perforated pipes I' and feed-pipes J, substantially as described.

2. Wipers *g* combined with stationary pipes I' and revolving perforated damping-cylinder E, substantially as described.

189,899. PRINTING-PRESSES. William H. Woodcock, Williamsburg, N. Y. [Filed May 9, 1874.]

Brief.—The rocking impression-cylinder has removable sections, so that the extent of its surface may be adjusted to sheets of different sizes, and the nipper-shafts are laterally adjustable.

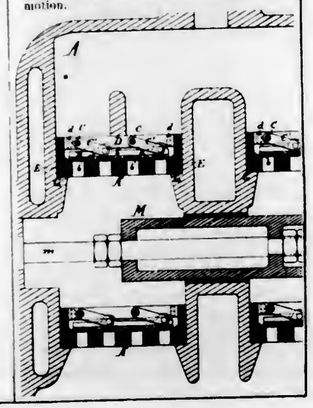


1. The rocking impression-cylinder B, having removable impression-sections *d*, applied to it for the purpose described.

2. The combination of adjustable gripers *a* with sections *d*, removably applied to the cylinder B, substantially as described.

189,900. PUMP-VALVES. W. E. Worthen, New York, N. Y. [Filed Mar. 26, 1877.]

Brief.—Gridiron valves rise and sink on a gridiron-seat, and are controlled in parallel motion.



1. The links C', turning on the fixed centers C, and guiding a gridiron-valve working to and from a gridiron-seat, as and for the purposes specified.

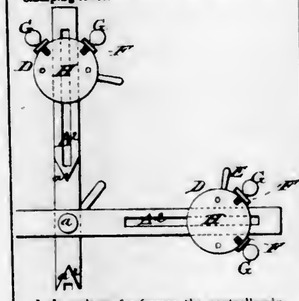
2. The links C' and shafts C in combination with the gridiron-valve B and with the bars D, performing the double functions of bearings and stops, as herein specified.

3. The deflectors *a* in the gridiron-seat between the bars *b* of a gridiron-valve, rising and sinking thereon, as herein specified.

4. The wedges E and soft-metal envelopes G, matched in recesses between a removable valve-seat and the body of a pump, as and for the purposes herein specified.

189,901. CLAMPS FOR MAKING FRAMES. J. Zimmerman, Brunswick, Mo. [Filed Nov. 4, 1876.]

Brief.—Picture-frames of different sizes can be clamped and firmly held, while drying, by means of two centrally-pivoted slotted and graduated arms, and four adjustable flanged metal disks provided with wooden shields, and having threaded bolts attached to their under side, which pass through the slots in the arms, and are secured in position by a clamping-lever.



1. In a clamp for frames, the centrally-pivoted slotted arms A A', in combination with the disks D, having flanges F F, and set-screws G G, said disks being adapted to slide in their slots, and also to be rotated on their axes, and held in any desired position, substantially as described.

2. In a clamp for frames, plate D, provided with screw-tapped flanges F F, and clamping thumb-screws G G, arranged and operating substantially as and for the purpose set forth.

REISSUES.

7,606. MEDICINE-GLASSES. T. G. Bogue, Philadelphia, Pa. Patent No. 85,203, dated Dec. 22, 1868. [Filed Mar. 23, 1869.]

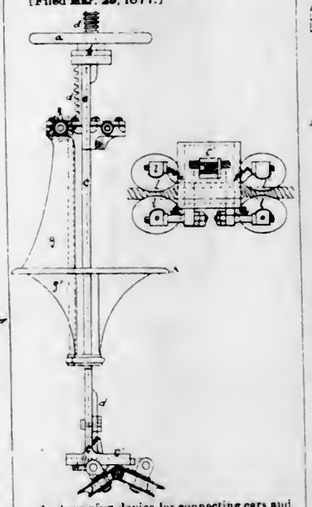


1. A cover for medicine glasses, consisting of a plate of glass, or similar vitreous substance, roughened, by grinding or other analogous method, upon its top surface, so as to adapt said cover to be written upon, substantially as described.

2. A cover for medicine-glasses, having a ground or roughened surface, as herein described, and upon the same surface words and other markings, arranged substantially as and for the purpose specified.

3. The combination of the above with a graduated medicine-glass, for the purposes described.

7,607. GRIPING ATTACHMENTS FOR ROPEWAYS. A. S. Hallidie, San Francisco, Cal. Patent No. 129,130, dated July 16, 1872. [Filed Mar. 29, 1877.]



1. A griping device for connecting cars and other vehicles with an endless moving rope, consisting of griping jaws or pulleys attached to the lower end of a vertical shank, *c*, said jaws or pulleys being operated by means of suitable mechanism, substantially as above described.

2. A griping device for connecting cars and other vehicles with an endless moving rope, provided with pulleys *l' l'*, mounted at an angle to each other for the purpose of dropping and picking up the cable at pleasure, substantially as above described.

3. In a device for griping an endless-moving rope, and connecting said rope with a car or other vehicle, the pulleys *l l'*, for holding the rope when the car stops its motion temporarily, in order to obviate the complete dropping of the rope, substantially as above specified.

4. The adjustable sliding stem or plate *c*, with its L-shaped foot or block, substantially as and for the purpose above described.

5. The spring-pulleys *l l' l'*, when attached to the oppositely-operating slides *k* and *k*, for the purpose specified.

6. The jaws *h'* and *k'*, and pulleys *l l' l'*, when secured to the oppositely-moving slides *k* and *k*, for the purpose specified.

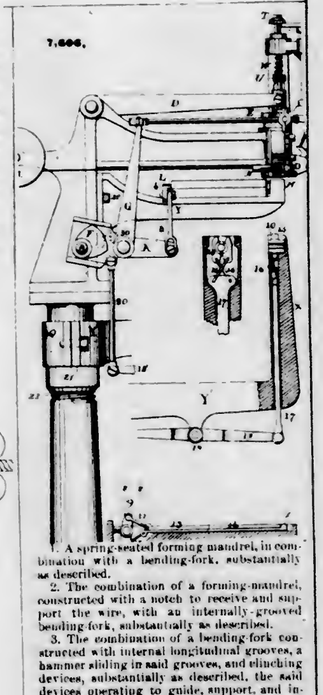
7. The jaws *h'* and *k'*, when secured to the oppositely-moving slides *k* and *k*, for the purpose specified.

8. The sliding bar *d*, operated by the hand-wheel *a*, and having the wedge *f* secured at its lower end, in combination with the oppositely-moving slides *k* and *k*, substantially as and for the purpose above described.

9. Operating griping-jaws *h' k'*, and guide-pulleys *l l' l'*, or either of them, from the deck of the vessel or floor of the vehicle, by means of the sliding rod *d* and wedge *f*, substantially as described, and for the purpose specified.

7,608. MACHINES FOR FORMING AND INSERTING WIRE STAPLES IN PAPER BOXES. H. R. Heyl, Philadelphia, Pa., assignor to the Novelty Paper Box Company. Patent No. 176,457, dated Mar. 28, 1876. [Filed Sept. 26, 1876.]

7,609.



1. A spring-seated forming-mandrel, in combination with a bending-fork, substantially as described.

2. The combination of a forming-mandrel, constructed with a notch to receive and support the wire, with an internally-grooved bending-fork, substantially as described.

3. The combination of a bending-fork constructed with internal longitudinal grooves, a hammer sliding in said grooves, and clinching devices, substantially as described, the said devices operating to guide, support, and insert a staple through the material, and clinch down its protruding ends.

4. The combination of an overhanging arm and the staple forming and inserting mechanisms with a bracket extending from the supporting-pedestal and staple-clinching mechanism, substantially as shown and described.

5. The work-supporting arm or bracket Y, constructed in bent or horn form, and provided near its end with clinching mechanism, substantially as and for the purpose described.

6. In combination with the work-supporting bracket Y, the supporting-screws 22 and adjusting-screw 20, substantially as described.

7. In combination with the work-supporting bracket, the clinching-jaws 1 1, hung and rotated upon a common center, substantially as described.

8. The combination, with staple-inserting mechanism, of two rocking-shafts, provided near their extremities with clinching-jaws, to engage with and bend the staple-legs toward each other onto the work, substantially as described.

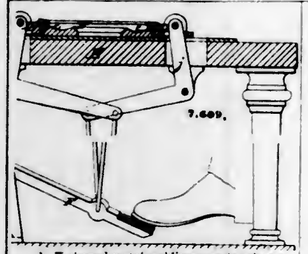
9. In combination with the staple-inserting mechanism, the clinching-jaws fixed to shafts, automatically rocked to close the said jaws and bend down the staple-legs toward each other, substantially as described.

10. In combination with a staple-inserting mechanism provided with internal guiding-grooves, clinching-jaws operated by means substantially as described, so that their faces shall stand in angular positions and bend the staple-legs toward each other as said legs bear against the said jaws in the process of being inserted through the material, and then be moved to press the said legs onto the material, substantially as described.

11. The combination of a pivoted spring-seated forming-mandrel with a bending-fork, substantially as described.

12. The work-supporting arm or bracket, constructed so as to be adjustable vertically, by means substantially as described, to fixed working positions relative to the staple-inserting mechanism.

7,609. MOLDING SHEET METAL. H. Miller, New York, N. Y., assignee, by mesne assignments, of M. H. Destouy, administratrix of A. Destouy, deceased. Patent No. 43,979, dated Aug. 3, 1864. [Filed Mar. 8, 1877.]



1. T-shaped metal moldings, made substantially as and for the purpose specified.

2. The jaws B or D D', either straight or curved, and tool C, constructed and operating substantially as herein set forth, for the purpose of imparting to the moldings the final touch, before they are applied to the article to be ornamented.

3. The combination, with a table having a stationary jaw or anvil, of movable jaws, operating as shown and described, to compress the bent metal against said stationary jaw.

4. The combination, with a table having a stationary jaw or anvil and movable jaws, as described, of treadles connected with said movable jaws by levers, substantially as and for the purposes herein set forth.

7,610. REVOLVING FIRE-ARMS. D. Moore, Brooklyn, N. Y., assignor to Merwin, Hurlbert & Co., New York city. Patent No. 187,860, dated Dec. 16, 1874. [Filed Mar. 30, 1877.]

Brief.—The barrel is partly rotated on the center-pin, then drawn forward, drawing the cylinder after it, leaving the extractor and the cartridge-shells behind.



1. In a revolving fire-arm, the combination of a barrel, a cylinder, a forwardly-projecting combined slide-rod and center-pin, and an extractor, substantially as shown, whereby a partial rotation of the barrel on said center-pin permits the sliding forward longitudinally of the barrel and cylinder on said combined slide-rod and center-pin, and extracts the cartridge-shells, as specified.

2. In a revolving fire-arm, a longitudinally-sliding barrel, a cylinder, and a frame-strap, constructed substantially as described, in combination with an extended slide-rod center-pin, as and for the purpose specified.

3. The combination, in a revolving fire-arm, of the center-pin F, provided with the transverse and longitudinal slots *k* and *k'*, the spring-catch L, and the bracket G, as and for the purpose specified.

4. The combination, in a revolving fire-arm, of the center-pin F, the stop-pin *f*, the sleeve E, extractor D, and cylinder B, in which the extractor is permitted to move a little distance forward on the center-pin, away from the recoil-shield *s*, in the act of withdrawing the cartridge-shells, as and for the purpose specified.

5. The combination, in a revolving fire-arm, of the bracket G and the barrel A with the center-pin F, provided with the flattened key-bits *e e'* and the key-bolt J, as and for the purpose specified.

7,611. SCREW HOISTING-PULLEY APPARATUS. Louis T. Fyott, Philadelphia, Pa., assignor, by mesne assignments, to Matthias Pennypacker, same place. Patent No. 171,855, dated Jan. 4, 1876. [Filed Mar. 20, 1877.]

Brief.—The central case is made in two parts, with gudgeons at the shaft-bearings, and collars to hold them in place. A main central bolt, provided with clutch devices and nuts at the ends, causes the side sheaves and central worm-wheel to revolve together.



1. A screw hoisting-pulley apparatus, constructed with sheaves C C of same diameter, located on opposite sides of the central box inclosing the worm-wheel, in combination with a double chain, D, as and for the purpose set forth.

2. A screw hoisting-pulley apparatus, having a central box, I, forming bearings for the worm-wheel, as and for the purpose set forth.

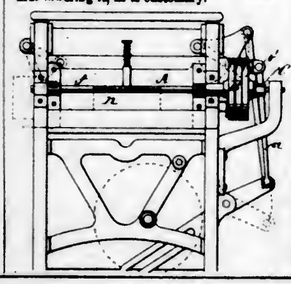
3. A hoisting-machine, constructed with a central worm-wheel, inclosed in a tight case or box, and with sheaves C C projecting on both sides of the said case or box for receiving the hoisting-chains, substantially as described.

4. The combination of a worm-wheel, A, and sheaves C C, provided with clutch-connections G G, and secured together by a bolt, H, as and for the purpose set forth.

5. The box L, constructed with gudgeons *l l*, and secured to the worm-wheel A by collars *l' l'*, all combined and arranged as and for the purpose set forth.

7,612. PAPER-CUTTING MACHINES. Erhard Schlenker, Buffalo, N. Y., assignor of one-half interest to Rufus L. Howard. Patent No. 182,230, dated Sept. 12, 1876. [Filed Mar. 12, 1877.]

Brief.—The knife and clamp descend together, and when the latter strikes the paper it is arrested, and, by reason of its driving friction-clutch, a steady pressure is induced, which firmly holds the paper while the knife acts. The clamp has a vertically operating gage, whereby the paper can be set or graduated with relation to the knife-edge without first lowering it, as is customary.



1. A frictional device, B, arranged to operate in combination with the clamp-bar of a paper-cutting machine, so as to move said clamp against the paper to be cut, and hold the same with uniform pressure, and then be released from further pressure of the actuating mechanism, so that the increased pressure may be exerted upon the cutting-knife without affecting the clamp, substantially as set forth.

2. A frictional device, C, arranged to operate in combination with the clamp-bar of a paper-cutting machine, so as to raise and suspend the same above the paper, and then be released from further pressure of the actuating mechanism, so as not to interfere with or use up the power required to operate, the other parts of the machine, substantially as set forth.

3. The combination of the clamp A with the shaft *f* and connecting-rod *e*, and with the frictional clutch mechanisms B and C, substantially as and for the purpose specified.

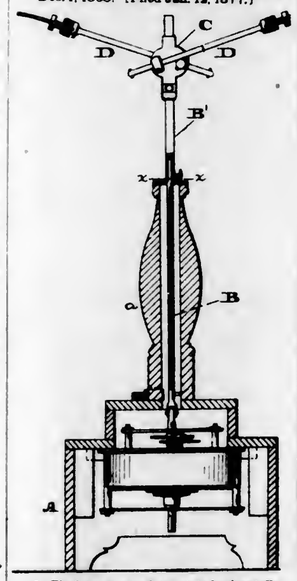
4. The plates *b*, *c*, *g*, and *l*, arranged to operate in combination with the shaft *f* and clamp A, substantially as and for the purpose specified.

5. The disk or plate *b*, washer *o*, and jam-nut *m*, arranged to operate in combination with the shaft *f* and clamp A, substantially as and for the purpose specified.

6. In combination with the clamp A, shaft *f*, and plate *l*, the plates *c* and *g*, clamped together by means of adjusting-screws *g'*, so as to vary the pressure on the clamp A, substantially as set forth.

7. The indicator *n*, constructed substantially as described, and arranged to operate in combination with the clamp A, for the purpose specified.

7,613. FLY-FANS. Wm. R. Fowler, Baltimore, Md., assignor to S. W. Lambeth, Philadelphia, Pa., and W. B. Lafourcade, Beverly, N. J. Patent No. 40,746, dated Dec. 1, 1863. [Filed Jan. 12, 1877.]



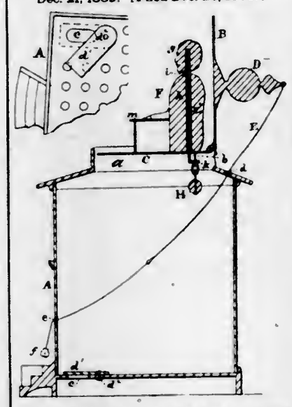
1. Fly-fans arranged to rotate horizontally, and having their edges or narrow sides presented to the course of rotation, substantially as set forth.

2. The sleeve C adjustably fitted to the rotating shaft of the fly-fan arms, substantially as and for the purpose set forth.

3. The combination, with the rotary shaft of a fly-fan, of the projecting-pin F and the movable stop G, substantially as and for the purpose set forth.

4. The stand A with clock-work, the sectional shaft B B', adjustable sleeve C, and arms D, combined and operating substantially as and for the purpose set forth.

7,614. TOY MONEY-BOXES. J. Hall, Watertown, Mass. Patent No. 98,055, dated Dec. 21, 1869. [Filed Dec. 27, 1876.]



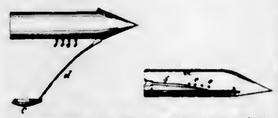
1. A toy bank provided with a mechanical figure, representing a cashier adjusted to receive and deposit money in the bank, substantially as described.

2. A toy bank provided with a mechanical figure, having a movable head, operated by mechanism, substantially as and for the purposes described.

3. A toy bank having an opening, *c*, door B, platform C, and balance D, and provided with a mechanical figure, F, having a movable head, *g*, and tablet *m*, operated by means of knob and cord or wire E *f*, pendulum H *h*, and rod *i*, substantially as and for the purposes described.

4. A toy bank provided with an opening, *c*, and an adjustable cover, d^3, attached by a screw, d^3, for removing deposits from the bank, substantially as described.

7,615. SEWING-MACHINE SHUTTLES. R. H. St. John, Springfield, Ohio. Patent No. 171,879, dated Jan. 4, 1876. [Filed Feb. 9, 1877.]



1. An external latch adapted to shut against the side of the shuttle-case, in combination with the shuttle-case and a stud or projection to prevent the thread which passes beneath the said latch from slipping back on the shuttle.

2. The combination, with a shuttle-case, of a plate or arm permanently hinged thereto, and guided in a plane perpendicular to the surface to which it is attached, and carrying a heel-piece to close the rear end of the case.

3. In a sewing machine shuttle-case, one or more tension-pins, *s*, on the upper side of the shuttle, in combination with a latch, *d*, perforated to receive the ends of the said pins, substantially as set forth.

4. In a sewing-machine shuttle-case, the latch *d*, in combination with the beveled heel-piece *c*, hinged thereto, substantially as and for the purposes set forth.

5. In combination with a shuttle-case having a longitudinal slot, *b*, one or more tension-pins, *s*, and latch *d*, as and for the purpose set forth.

7,616. CORN-SHELLERS. J. B. Lewis, Worcester, Mass. Patent No. 178,536, dated June 13, 1876. [Filed Mar. 26, 1877.]

1. The combination of the cap E, interacting pivoted centering-arms F, and springs G, substantially as and for the purposes set forth.

2. The combination of the supporting-frame A, ring-gear C having laterally and downwardly projecting annular flanges C' and C², and cap-piece E, having downwardly-projecting annular flange E', substantially as set forth.

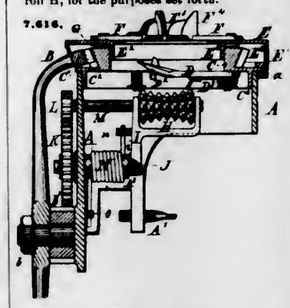
3. The shelling-arms D, when constructed with curved sides *d*, and studs or projections D^3, said arms being pivoted to the operating ring-gear C, for combined and uniform action, substantially as set forth.

4. The combination, substantially as set forth, of the shelling-arms D, ring-gear C, pressure-springs D^3, and bearing-studs *g*, said arms being pivoted to the ring-gear C C^3, the springs D^3 pressing against the studs *g* on said arms, as herein described, and for the purposes stated.

5. The combination, with the feeding-rolls H, of the arms I J, journaled in projecting bearings A^3, pressure-springs N pressing against lugs or pins *n* and *o*, and the stop-pins I, said parts being constructed and arranged for operation as shown and described.

6. In combination, substantially as described, the driving-gear B, having a pinion, B', the intermediate gear K, supported on the arm-journal J, the pinion L, shaft M, and feed-roll H, for the purposes set forth.

7,616.



7,617. MECHANICAL MOVEMENTS. J. Edwin Lewis, Worcester, Mass. Patent No. 178,536, dated June 13, 1876. [Filed Mar. 26, 1877.]

Brief.—The levers have a simultaneous movement though the power be applied to a single one.



The mechanical movement described, consisting of the pivoted levers, having coacting surfaces C, D, and F, whereby they are made to act simultaneously, substantially as and for the purposes set forth.

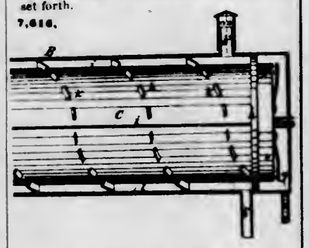
7,618. APPARATUS FOR DRYING GROUND WHEAT. C. S. Fuller, La Fayette, Ind., assignor to C. R. Knickerbocker, Jackson, Mich. Patent No. 162,910, dated May 4, 1875. [Filed Feb. 28, 1877.]

1. The combination, with the outer stationary cylinder B, of the revolving steam-drum C, provided on its outer surface with ribs *i* for elevating the material, substantially as hereinbefore set forth.

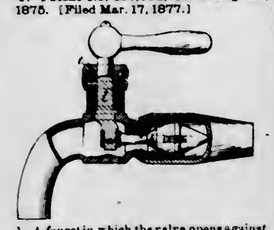
2. The combination, with the outer stationary cylinder B, of the revolving steam drum C, provided with the longitudinal ribs *i* and interrupted spiral plate *k*, substantially as and for the purpose set forth.

3. The herein-described method of purifying middlings, by subjecting to the action of artificial heat, and then removing the impurities by means of air currents, substantially as set forth.

7,616.



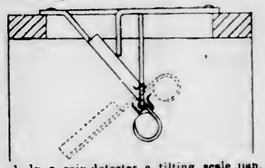
7,619. FAUCETS. A. Fuller, Brooklyn, N. Y. Patent No. 167,092, dated Aug. 24, 1875. [Filed Mar. 17, 1877.]



1. A faucet in which the valve opens against and closes with the pressure, having the nut or rear part of the valve made conical or tapering, substantially as shown and specified, for the purposes set forth.

2. In a faucet having a stuffing box for the accommodation of the spindle, passing from the handle to the interior of the body, the combination, with the box containing the stuffing, and threaded on its exterior, of a gland and cap composed of two cylindrical portions, *t* and *s*, the combination being and operating as and for the purposes set forth.

7,620. COUNTERFEIT-COIN DETECTERS. William Painter, Baltimore, Md. Patent No. 35,834, dated July 8, 1862. [Filed Mar. 7, 1877.]



1. In a coin-detecter, a tilting scale pan, adapted to receive the coin flatwise for testing, and to discharge the same automatically after testing, substantially as and for the purpose set forth.

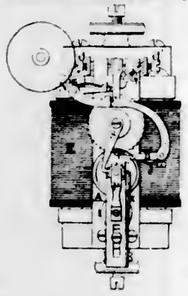
2. The combination, with a suitable standard or frame, of a scale which is tilted by the coin lying flatwise on its pan, and which, when tilted, permits the coin to slide and fall therefrom, substantially as described, whereby its sounding quality may be tested, as set forth.

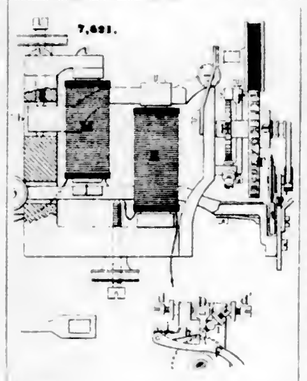
3. The combination, with a scale which is tilted by the coin lying flatwise thereon, of a stationary guide-plate, substantially as described, whereby a coin moved flatwise on the plate may be placed upon the scale-pan without inducing a tilting action other than that due to the weight of the coin, as set forth.

4. The combination, with a scale-pan which is tilted by coin lying flatwise thereon, of a guide-plate and gage for testing the diameter of the coin, substantially as described.

5. In a coin-detecter, the combination, with a tilting scale having a flat-faced pan and guiding-plate, of gages which test the diameter and thickness of the coin, substantially as described.

7,621. PRINTING-TELEGRAPHS. F. L. Pope, Elizabeth, and T. A. Edison, Menlo Park, N. J., assignors, by mesne assignments, to the Gold and Stock Telegraph Company. Patent No. 102,320, dated Apr. 26, 1870. [Filed Mar 21, 1877.]





1. The method, substantially as herein specified, of operating a printing-telegraph by first moving the type wheel into any required position by the action of alternate positive and negative currents of short and uniform duration, and then locking the type-wheel in such position and at the same time causing the printing to be effected by prolonging the duration of the current last sent, irrespective of its polarity.

2. A type-wheel actuated or controlled by the to-and-fro movements of a polarized armature, under the influence of alternate positive and negative currents of short duration, in combination with an impression device actuated or controlled by a neutral armature, when the arrangement is such that the type-wheel may be locked at any required character, and the neutral armature brought into action to effect the printing of such character, by prolonging the normal duration of one of the said alternate currents, whether positive or negative.

3. The combination of the safety-stops *d d'* with the stops *i i'* and armature-lever D, substantially as and for the purpose specified.

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DECISIONS OF THE COURTS.

SUPREME COURT OF THE UNITED STATES.

WILLIAM F. COCHRANE, WILLIAM WARDER, RODNEY MASON, W. S. COX, *et al.*, APPELLANTS, *vs.* JOSIAH W. DEENER, GEORGE W. CISSELL, JAMES H. WELCH, *et al.*

[*Appeal from the Supreme Court of the District of Columbia.—Decided October term*, 1876.]

The powers of the supreme court of the District of Columbia, in patent cases, are the same as those of the circuit courts of the United States.

Upon a bill in equity for the infringement of a patent it is a matter of discretion, and not of jurisdiction, whether a case shall be first tried at law; and in this matter, the courts of the United States, sitting as courts of equity in patent cases, are much less disposed than the English courts are to send parties to a jury before assuming to decide upon the merits.

The jurisdiction of the circuit courts in cases arising under the patent and copyright laws is not changed by the Revised Statutes, and consequently the original cognizance of the circuit courts sittings as courts of equity in patent cases is retained.

Where it is discretionary with a court of equity whether it will first send a case to be tried at law, and it exercises its discretion to decide the case upon its merits without the aid of a jury of any sort, such action is not a ground of appeal.

But if the appellate court were convinced that the case was not properly decided, and could not be properly decided without such a reference, it might, in the exercise of its own discretion, remand it to the court below for that purpose.

It does not detract from the validity of a patent that the inventions of others are made use of in carrying out the patented invention. One invention may include within it many others, and patents for each and all be valid at the same time, but in such case each inventor would be precluded from using the inventions made and patented prior to his own, except by license from the owners thereof.

A process is a mode of treatment of certain materials to produce a given result, an act or a series of acts, performed upon the subject-matter to be transformed and reduced to a different state or thing, and if new and useful it is patentable.

The patentability of a process is entirely independent of the instrumentalities employed, and it is immaterial whether or not the machinery pointed out as suitable to perform the process be either new or patentable.

The process requires that certain things should be done with certain substances and in a certain order; but the tools to be used in doing this may be of secondary consequence.

In the language of the patent law a process is an art.

One device may be the equivalent of another in the general combination with other elements, and yet, when taken by themselves as separate pieces of machinery, they may not be the same, and the use of one not the infringement of a patent for the other.

While the parts of machinery which go to make up a combination could not when separately considered be regarded as identical or conflicting with those described in a patent, yet having the same purpose in the combination, and effecting that purpose in substantially the same manner, they are the equivalents of each other in that regard.

A foreign patent in order to invalidate an American patent must antedate the invention patented.

[*R. Mason and Chas. F. Blake*, for complainants.
A. L. Merriman and Howard C. Cady, for respondents.]

Mr. Justice BRADLEY delivered the opinion of the court:

This is a suit in equity, instituted in the supreme court of the District of Columbia for injunction and relief against an alleged infringement of various patents belonging to the complainants. The bill was dismissed, and the complainants have appealed.

The patents sued on are six in number, originally five granted to the appellant Cochrane on the 13th of January, 1863, and numbered respectively 37,317, 37,318, 37,319, 37,320, and 37,321. They all related to an improved method of bolting flour, the first being for the general process, and the others for improvements in the different parts of the machinery rendered necessary in carrying on the process. Three of the original patents, Nos. 37,317, 37,318, and 37,321, were surrendered, and reissues taken in 1874, which reissues were numbered 5,841, 6,029, and 6,030, the first being for the process, and the other two for portions of the machinery. Reissue 6,029, being in place of the original patent numbered 37,321, was also subsequently surrendered, and two new reissued patents substituted therefor, numbered 6,594 and 6,595.

The case has been mainly argued on the question of infringement, the defendants using a bolting apparatus constructed according to letters patent issued to Edward P. Welch, in April, 1873, for improvements upon machines patented to Jesse B. Wheeler and Ransom S. Reynolds, which, as well as the process employed, they contend, are radically different from the apparatus and process of Cochrane.

A preliminary question is raised with regard to the jurisdiction of the court below to hear the case on a bill in equity, before a determination of the rights of the parties in an action at law.

The powers of the supreme court of the District of Columbia, in patent cases, are the same as those of the circuit courts of the United States. (See Revised Statutes relating to the District of Columbia, sections 760, 764.)

The circuits courts were first invested with equity jurisdiction in patent cases by the act of February 15, 1819, which declared that these courts should have "original cognizance, as well in equity as at law, of all actions, suits, controversies, and cases, arising under any law of the United States, granting or confirming to authors or inventors the exclusive right to their respective writings, inventions, and discoveries; and upon any bill in equity, filed by any party aggrieved in any such cases, should have authority to grant injunctions, according to the course and principles of courts of equity, &c."

This law was substantially re-enacted in the 17th section of the patent law of July 4, 1836, and the 55th section of that of July 8, 1870, special powers to assess damages in equity cases being also conferred by the latter act.

Before the act of 1819 was passed, the circuit courts had cognizance of actions at law brought to recover damages for the infringement of patents, but not of

suits in equity in relation thereto unless the parties happened to be citizens of different States. (Phillips on Pat., 379; *Livingston* vs. *Van Ingen*, 1 Paine, 54; *Sullivan* vs. *Redfield*, do., 447.) Under that act and the subsequent acts in which it became incorporated, bills in equity for injunction, discovery, and account have constantly been sustained, frequently without any previous action at law. As said by Mr. Justice Grier, in a case decided at the circuit, "It is true that in England the chancellor will generally not grant a final and perpetual injunction in patent cases, when the answer denies the validity of the patent, without sending the parties to law to have that question decided. But even there the rule is not universal; it is a practice founded more on convenience than necessity. It always rests in the sound discretion of the court. A trial at law is ordered by a chancellor to inform his conscience, not because either party may demand it as a right; or that a court of equity is incompetent to judge of questions of fact, or of legal titles. In the United States the practice is by no means so general as in England." (*Goodyear* vs. *Day*, 2 Wall. C. C. R., 296.) Subsequently, in the case of *Sickles* vs. *Gloucester Manufacturing Co.*, 3 Wall. C. C. R., 196, the same judge said: "The courts of the United States have their jurisdiction over controversies of this nature by statute, and do not exercise it merely as ancillary to a court of law." And after quoting the statute, he proceeds: "Having such original cognizance * the courts of the United States do not, in all cases, require a verdict at law on the title, before granting a final injunction, or concede a right to every party to have every issue as to originality or infringement tried by a jury."

The position of Justice Grier is undoubtedly true, that, whether a case shall be first tried at law is a matter of discretion, and not of jurisdiction; and, in this matter, the courts of the United States, sitting as courts of equity in patent cases, are much less disposed than the English courts are to send parties to a jury before assuming to decide upon the merits.

But the counsel for the defendants suggest that the Revised Statutes have not preserved, in entirety, the previous enactments on this subject; but have omitted the vesting of original cognizance in the circuit courts sitting as courts of equity in patent cases. From a careful consideration, however, of all the sections of the Revised Statutes on the subject, we think that no intention is evinced to make any change in the law. The original enactments are separated into distinct parts, and somewhat condensed; but the substance of them is retained. By section 629, the circuit courts are invested with jurisdiction, among other things, "Ninth, of all suits at law or in equity arising under the patent or copyright laws of the United States." And by section 4,921, it is declared, that "the several courts vested with jurisdiction of cases arising under the patent laws shall have power to grant injunctions according to the course and principles of courts of equity, &c.," following precisely the language used in the act of 1870, the last previous revision of this branch of the law. The grant of jurisdiction is as broad and general as it could well be, and the mode of exercising it is prescribed in precisely the same terms as in previous statutes.

In the present case, we see no special reason for sending the case to a court of law, or to a jury, for trial. There are no such issues depending upon the credibility of witnesses, or on the intricacy of machinery, as to make the case susceptible of easier solution or greater certainty as to the truth, before such a tribunal, than it admits of when presented to the consideration of a chancellor. It would, perhaps, be desirable if all cases of this sort could be referred to a commission of intelligent experts and practical men to report their opinion thereon with their reasons, for the final action of the court. A proceeding of this kind was probably in the mind of Congress in passing the act of February 16, 1875, authorizing a reference to a jury of five persons. Neither courts nor ordinary juries are perfectly adapted to the investigation of mechanical and scientific questions. The court below, however, exercised its discretion to decide the case upon its merits without the aid of a jury of any sort, and their action is not a ground of appeal. If we were convinced, however, that the case was not properly decided and could not be properly decided without such a reference, we might undoubtedly, in the exercise of our own discretion, remand it to the court below for that purpose. But we see nothing in the questions raised which require that such a course should be adopted.

The principal patent sued on in this case was granted on the 21st of April, 1874, being a reissue of a patent granted to William F. Cochrane on the 6th of January, 1863. The original patent was numbered 37,317, and the reissue 5,841. The alleged invention is for a process in manufacturing flour. The patentee in his specification says:

> The object of my invention was to increase the production of the best quality of flour; and my improvement consisted in separating from the meal first the superfine flour, and then the pulverulent impurities mingled with the flour-producing portions of the middlings-meal, so as to make "white" or "purified" middlings, which, when reground and rebolted, would yield pure white flour, which, when added to the superfine, would improve the quality of the flour resulting from their union, instead of deteriorating its quality, as had heretofore been the case when the middlings was mingled with the superfine.

The process employed for producing the result here indicated is then described. It consists in passing the ground meal through a series of bolting-reels clothed with cloth of progressively finer meshes, which pass the superfine flour and retard the escape of the finer and lighter impurities; and, at the same time, subjecting the meal to blasts or currents of air introduced by hollow perforated shafts furnished with pipes so disposed that the force of the blast may act close to the surface of the bolting-cloth; the bolting-chest having an opening at the top for the escape of the air, and of the finer and lighter particles therewith, through a chamber where the particles are arrested, while the floor and sides of each compartment of the chest are made close so as to prevent the escape of the air in any other direction than through the said opening. By this means the superfine flour is separated, and the fine and light specks and impurities, which ordinarily adhere to the middlings and degrade the flour produced therefrom, are got rid of, and when the middlings are now separated from the other portions of the meal, they are white and clean, and capable of being reground and rebolted, so as to produce superfine flour equal in quality, and even superior, to the first installment.

This is the process described; but the patentee claims that it is not limited to any special arrangement of machinery. He admits the prior use of currents of air in the interior of the reels, introduced by means of hollow perforated shafts, for the purpose of keeping back the speck and increasing the quantity of superfine flour; but not for purifying the middlings preparatory to regrinding. His improvement, therefore, does not consist in using drafts and currents of air, but in the process as a whole, comprising the application of the blast, and the carrying off of the fine impurities whereby the middlings are purified preparatory to regrinding after being separated from the other parts.

The defendants deny that they use this process. They purify the middlings of the flour, as before stated, by means of machines constructed according to letters patent issued to Edward P. Welch, in April, 1873, for improvements upon machines patented to Jesse B Wheeler and Ransom S. Reynolds.

In this process reels are not used for purifying the middlings, but a flat and slightly inclined vibrating screen or sieve is used for the purpose, over which the ground meal is passed, and while passing is subjected to currents of air blown through a series of pipes situated close underneath the screen, which currents pass up through the screen and through an opening at the top of the chest into a chamber, carrying with them the finer and lighter impurities, whereby the middlings are rendered clean and white, and capable of being reground into superfine flour. The bolting-chest is made tight and close on all sides except the opening at the top, so that the currents of air may be forced to escape by that exit.

Now, except in the use of a flat sieve or screen in place of reels, it is difficult to see any substantial difference between these two methods. The defendants use, in addition, brushes which revolve on the under side of the screen, so as to keep the meshes thereof constantly clean and free; but this is merely an addition, which does not affect the identity of the two processes in other particulars. We have substantially the same method of cleaning the middlings preparatory to regrinding by means of currents of air passed through them while being bolted, and while being confined in a close chest or chamber, said chamber having an opening above for the escape of said currents of air and the impurities with which they become loaded. The middlings being thus purified are reground and rebolted producing a superfine flour of superior grade, a new, useful, and highly valuable result.

The use of a flat screen instead of a revolving reel for bolting and cleaning the middlings is a mere matter of form. It may be an improved form, and, perhaps, patentable as an improvement. But it is at most an improvement.

The forcing of the air-currents upward through the screen and film of meal carried on it and against the downward fall of the meal, instead of forcing them through the bolting-cloth in the same direction with the meal, is also a mere matter of form, and does not belong to the substance of the process. The substantial operation of the currents of air in both cases is to take up the light impurities and bear them away on the aggregate current through the open fine and thus to separate them from the middlings. This, too, may be an improvement on Cochrane's method, but it is only an improvement.

The defendants admit that the process has produced a revolution in the manufacture of flour; but they attribute that revolution to their improvements. It may be, as they say, that it is greatly due to these. But it cannot be seriously denied, that Cochrane's invention lies at the bottom of these improvements, is involved in them, and was itself capable of beneficial use, and was put to such use. It had all the elements and circumstances necessary for sustaining the patent, and cannot be appropriated by the defendants, even though supplemented by, and enveloped in, very important and material improvements of their own.

We do not perceive that the patent of Cogswell and McKiernan, if valid at all as against Cochrane, (a point which will be more fully considered hereafter,) affects the question in the least. That patent is not at all for the process which Cochrane claims. If valid, and if, in using his process, Cochrane is obliged to use any device secured to Cogswell and McKiernan, it does not detract in the slightest degree from his own patent. One invention may include within it many others, and each and all may be valid at the same time. This only consequence follows, that each inventor is precluded from using inventions made and patented prior to his own except by license from the owners thereof. His invention and his patent are equally entitled to protection from infringement as if they were independent of any connection with them.

That a process may be patentable irrespective of the particular form of the instrumentalities used, cannot be disputed. If one of the steps of a process be that a certain substance is to be reduced to a powder, it may not be at all material what instrument or machinery is used to effect that object, whether a hammer, a pestle and mortar, or a mill. Either may be pointed out, but if the patent is not confined to that particular tool or machine, the use of the others would be an infringement, the general process being the same. A process is a mode of treatment of certain materials to produce a given result. It is an act, or a series of acts, performed upon the subject-matter to be transformed and reduced to a different state or thing. If new and useful it is just as patentable as is a piece of machinery. In the language of the patent law, it is an art. The machinery pointed out as suitable to perform the process may or may not be new or patentable, while the process itself may be altogether new, and produce an entirely new result. The process requires that certain things should be done with certain substances and in a certain order; but the tools to be used in doing this may be of secondary consequence.

The machine patents come next to be considered.

As to No. 6,030, which is a reissue of the original patent No. 37,318, the defendants clearly infringe, at least the last claim, which is in these words:

> In combination with the screen incased in a chest, the perforated blast-pipe and the suction-pipe, arranged to operate on opposite sides of the screen, substantially as set forth.

As to the patent next in order, namely, the original patent No. 37,319, which relates specially to the use of what the patentee calls the *pump* for introducing the meal into the chest and reels, while the valve arrangement used by the defendants may be an equivalent in the general combination with the said pump described by Cochrane, yet, taken by themselves, as separate pieces of machinery, they are not the same, and the use of the one is not an infringement of a patent for the other. (Curtis, sec. 332; *Foster* vs. *Moore*, 1 Curtis C. C. R., 279.) Nor can we perceive that the defendants infringe the next patent, No. 37,320, which is for certain combinations of machinery, including the bolting-reels, dead-air chambers therein, slotted shaft, and reciprocating-board for discharging the meal, &c., which it is unnecessary to describe more particularly.

The two remaining patents, numbered 6,594 and 6,595, being reissues of original patent No. 37,321, are for combinations of essential parts of the machinery required for bolting flour and purifying the middlings according to the general process described in the first patent. The principal claim of the original patent was for the condensing or collecting chamber, through which the currents of air on leaving the bolting-chest make their escape, and where they leave the fine particles with which they become loaded. This claim, it is said, was found to be too broad, inasmuch as a collecting-chamber somewhat similar had been used in another connection, though not in the combinations presented in Cochrane's bolting process. The original patent, therefore, was surrendered, and the two patents now under consideration were issued in place thereof, claiming the use of the collecting-chamber in combination with the various material parts of the bolting apparatus. The reissue, No. 6,594, contains three claims, and No. 6,595 one claim.

The first claim of reissue No. 6,594 is for the collecting-chamber (used for the purpose aforesaid) in combination with the bolter, air-pipes, and valves for feeding and delivering the meal without allowing the air to pass therewith. Now, although the defendants use a flat bolter instead of a reel, and use different kinds of valves for feeding and delivering the meal without allowing the air to pass, yet they employ the combination of devices described in this claim. They use the collecting-chamber for the same purpose as that pointed out in the patent, and use it in connection with a bolter, air-pipes, and valves for feeding and delivering the meal without allowing the air to pass therewith, each effecting the same separate purpose, and all combined effecting the same general purpose, which the like parts are intended to accomplish in Cochrane's bolting apparatus. Though some of the corresponding parts of the machinery, designated in this combination are not the same in point of form in the two bolting apparatuses, and, separately considered, could not be regarded as identical or conflicting, yet having the same purpose in the combination, and effecting that purpose in substantially the same manner, they are the equivalents of each other in that regard. The claim of the patent is not confined to any particular form of apparatus, but (in regard to the valves for example) embraces generally any valves for feeding and delivering the meal without allowing the air to pass through. We are of opinion, therefore, that the combination here claimed is infringed by the apparatus used by the defendants.

It is unnecessary to make a separate examination of the other claims embraced in the two patents under consideration. They are all susceptible of the same observations which we have made with regard to the first claim. In our opinion the defendants do infringe them.

But a question is raised with regards to Cochrane's priority of invention. A patent was granted on the 12th of June, 1860, to Mortimer C. Cogswell and John Mc-

Kiernan for improvements in ventilated bolting-chests, which, it is contended, antedates and nullifies Cochrane's apparatus as patented to him in the original patent 37,321, and in the two reissues thereof before mentioned. This patent (of Cogswell and McKiernan) we have examined and find that it does contain five of the elements embraced in those reissues, namely, (besides the bolting-chest and bolter which are always used,) it contains the perforated air-pipe extending inside of the bolting-reel, the fan for producing a blast of air therein, and a collecting-chamber for arresting the flour carried off by the blast. The purpose was simply to cool the meal and keep the bolting cloths dry. The flour which collected in the chamber was returned to the chest. The parts contained in this apparatus are those which are patented in combination in Cochrane's reissue 6,595, which was separated, it is said, from reissue 6,594 on account of this patent of Cogswell and McKiernan. The combinations patented in reissue 6,594 embrace other parts not contained in Cogswell and McKiernan's patent, and the defendants contend that this reissue is void as not being sustained by the original patent 37,321.

The latter position we think is untenable. Cochrane's apparatus, as exhibited in his model, and described in his original patent, and in the series of patents taken out at the same time, all having relation to the same general process, and referred to in patent 37,321, contained all the parts which go to make the combination claimed in reissue No. 6,594. We see no reason, therefore, why such reissue was not properly granted to him by the Patent Office—the claim being, in fact, a much narrower one than that of the original patent.

The same observations apply to reissue No. 6,595. But, as to that, as before stated, the particular elements of the combination claimed in it are found in Cogswell and McKiernan's machine; and if this is entitled to the precedency over Cochrane's, reissue No. 6,595 is void. He contends that it is not entitled to such precedency; but that, in fact, Cogswell and McKiernan surreptitiously obtained a patent for his invention. We have examined the evidence relating to this matter and are satisfied that the improvement claimed by Cochrane was his invention; that Cogswell and McKiernan obtained their knowledge of it from him; and that there is nothing connected with their patent which ought to invalidate the reissued patent in question.

A French patent dated 27th of September, 1860, granted to one Perigault, is also referred to as anticipating the combinations in these patents. But it being shown that Cochrane's invention was actually made before that date, the point was not pressed in the argument. By the act of 1870 a foreign patent, in order to invalidate an American patent, must antedate the invention patented.

Our conclusion is that the patent for the process being reissue No. 5,841, and the several reissued patents for combinations of mechanical devices, numbered respectively 6,030, 6,594, and 6,595, are valid patents, and are infringed by the defendants; and that the other two patents named in the bill of complaint, numbered respectively 37,319 and 37,320, are not infringed by the defendants.

The decree of the court below is, therefore, reversed, and the cause is remanded with directions to enter a decree for the complainants and to proceed therein in conformity with this opinion.

Mr. Justice CLIFFORD dissenting.

I dissent from the opinion and judgment of the court in this case, for the following reasons:

1. Because the mechanical means employed by the respondents to effect the result are substantially different from those described in the complainant's patent.

2. Because the process employed by the respondents to manufacture the described product is materially and substantially different from the patented process employed by the complainants.

3. Because the respondents do not infringe the combination of mechanism patented and employed by the complainants. (*Prouty* vs. *Ruggles*, 16 Pet., 341; *Vance* vs. *Campbell*, 1 Black, 428; *Gill* vs. *Wells*, 22 Wall., 26.)

4. Because the respondents do not infringe the process patented by the complainants, the rule being that a process, like a combination, is an entirety, and that the charge of infringement in such a case is not made out unless it is alleged and proved that the entire process is employed by the respondents. (*Howe* vs. *Abbott*, 2 Story C. C., 194; *Gould* vs. *Rees*, 15 Wall., 193.)

I concur in this dissent.—STRONG, *J.*

APPLICATIONS FOR EXTENSION.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., April 24, 1877.

On the petition of Erastus T. Bussell, of Indianapolis, Indiana, praying for the extension of a patent granted to him on the 29th day of November, 1853, numbered 10,280, extended for seven years from the 29th day of November, 1867; reissued on the 13th day of December, 1870, and numbered 4,202, for an improvement in combined rubber and spiral steel spring. This application having been authorized by act of Congress approved March 3, 1877:

It is ordered that the testimony in the case be closed on the 10th day of July next; that the time for filing arguments and the Examiner's report be limited to the 20th day of July next; and that said petition be heard on the 25th day of July next.

Any person may oppose this extension.

ELLIS SPEAR,
[tf] *Commissioner of Patents.*

DEPARTMENT OF THE INTERIOR,
U. S. PATENT OFFICE,
Washington, D. C., March 10, 1877.

On the petition of HENRY VOELTER, of Heidenheim, Germany, praying for the extension of a patent granted to him August 10, 1858, antedated August 29, 1856, extended for seven years from August 29, 1870, reissued June 6, 1871, and numbered 4,418, for an improvement in reducing wood to paper pulp, this application having been authorized by act of Congress approved March 3, 1877:

It is ordered that the testimony in the case be closed on the 29th day of May next; that the time for filing arguments and the Examiner's report be limited to the 8th day of June next; and that said petition be heard on the 13th day of June next.

Any person may oppose this extension.

ELLIS SPEAR,
[tf] *Commissioner of Patents.*

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date April 24, 1877.]

9,919.—Dress-Fringe.—MAX BLAU, New York, N. Y. Application filed March 28, 1877. Term of patent 3½ years.

9,920 and **9,921.—Carpet.**—EUGÈNE DANIEL, Paris, France, assignor to the ROXBURY CARPET COMPANY, Boston, Mass. Applications filed April 10, 1877. Term of patents 3½ years.

9,929 to **9,931**, inclusive.—**Carpeting.**—JAMES L. FOLSOM, Brooklyn, N. Y., assignor to HARTFORD CARPET COMPANY, Hartford, Conn. Applications filed April 10, 1877. Term of patents 3½ years.

9,932 to **9,935**, inclusive.—**Carpeting.**—OTTO HEINIGKE, New Utrecht, N. Y., assignor to HARTFORD CARPET COMPANY, Hartford, Conn. Applications filed April 10, 1877. Term of patents 3½ years.

9,936 to **9,940**, inclusive.—**Carpeting.**—HENRY HORAN, East Orange, N. J., assignor to HARTFORD CARPET COMPANY, Hartford, Conn. Applications filed April 10, 1877. Term of patents 3½ years.

9,941.—Locket.—FRANK KELLER and CHARLES FREY, New York, N. Y. Application filed March 28, 1877. Term of patent 3½ years.

9,942 and **9,943.—Carpeting.**—GEORGE W. PIGGOTT, New York, N. Y., assignor to HARTFORD CARPET COMPANY, Hartford, Conn. Applications filed April 10, 1877. Term of patents 3½ years.

9,944 to **9,946**, inclusive.—**Carpeting.**—JOHN E. ROLLINGS, New York, N. Y., assignor to HARTFORD CARPET COMPANY, Hartford, Conn. Applications filed April 10, 1877. Term of patents 3½ years.

9,947.—Woven Borders for the Ends of Towels, &c.—RICHARD T. WEBB, Randallstown, Ireland. Application filed April 14, 1877. Term of patent 3½ years.

9,948.—Pocket-Book Fasteners.—LOUIS PRAHAR, New York, N. Y. Application filed March 13, 1877. Term of patent 7 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date April 24, 1877.]

4,569.—Flour.—NATHAN BROOKE, Philadelphia, Pa. Application filed April 4, 1877.
"The word-symbol 'REDSTONE.'"

4,570.—Flour.—NATHAN BROOKE, Philadelphia, Pa. Application filed April 7, 1877.
"The initials 'N. B. & Co.,' arranged in the form of a monogram."

4,571.—Safety-Pins.—WILLIAM A. BUTLER, New York, N. Y. Application filed March 21, 1877.
"The figure of a star, as represented.

4,572.—Purified and Condensed Milk.—S. W. CANFIELD, Piermont, N. Y. Application filed April 6, 1877.
"The word-symbol 'OSPREY.'"

4,573.—Olive-Oil.—CASWELL, HAZARD & Co., New York, N. Y., and Newport, R. I. Application filed April 11, 1877.
"The representation of a hat commonly known as a bishop's miter, colored gold, black, and white, upon a white ground."

4,574.—Extract-of-Beef Compounds.—CHARLES DELACRE, Brussels, Belgium. Application filed April 4, 1877.
"The word-symbol 'LA PLATA' and the representation of a bullock reclining."

4,575.—Wines and Spirits.—LUYTIES BROTHERS, New York, N. Y. Application filed March 16, 1877.
"The word-symbol 'VERITAS.'"

4,576.—Base-Balls.—LOUIS H. MAHN, Jamaica Plain, Mass. Application filed March 16, 1877.
"The word-symbol INTERNATIONAL ASSOCIATION."

4,577.—Organs.—E. P. NEEDHAM & SON, New York, N. Y. Application filed April 3, 1877.
"The word-symbol 'EXPRESSION.'"

4,578.—Stoves.—CHARLES NOBLE & Co., Philadelphia, Pa. Application filed April 7, 1877.
"The arbitrary words 'IRON KING.'"

4,579.—Cigarettes.—CHARLES B. PEEKINS, Boston, Mass. Application filed April 10, 1877.
"The word-symbol 'THE CLUB.'"

4,580.—Medical Preparation.—CHARLES H. PHILLIPS, New York, N. Y. Application filed April 9, 1877.
"The arbitrarily-formed word-symbol 'PHOSPHO-NUTRILINE.'"

4,581.—Sickle-Grinders.—POWELL & STEVENS, Waukegan, Ill. Application filed April 10, 1877.
"The word-symbol 'Boss.'"

4,582.—Soap.—SCHULTZ & Co., Zanesville, Ohio. Application filed April 20, 1877.
"The German word-symbol 'VATERLAND.'"

4,583.—Ribbons.—A. SOLELIAC & SONS, New York, N. Y. Application filed April 5, 1877.
"A monogram formed of the initial letters 'A. S.'"

4,584.—Plug Chewing-Tobacco.—THE DAUSMAN and DRUMMOND TOBACCO COMPANY, Alton, Ill. Application filed April 7, 1877.
"The figure of a horseshoe."

4,585.—Gloves.—TREFOUSSE & Co., Chaumont, France. Application filed April 3, 1877.
"The word-symbol 'Gaston.'"

4,586.—Gloves.—TREFOUSSE & Co., Chaumont, France. Application filed April 3, 1877.
"The word-symbol 'DANTON.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date April 24, 1877.]

1,038.—Title: **"Unbolted Wheat Flour from Selected Grain."**—NATHAN BROOKE, Philadelphia, Pa. Application filed April 4, 1877.

1,039.—Title: **"The Electro Magnetic Anodyne."**—NATHAN HAAS, Dayton, Ohio. Application filed April 16, 1877.

1,040.—Title: **"The Patent Machine-Made Metallic Brush."**—BENJAMIN POLAND, Arlington, Mass. Application filed April 14, 1877.

INDEX OF INVENTIONS PATENTED APRIL 24, 1877.

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Anvil, cast iron, C. Fisher	60	189,892
Awl, G. P. Harley	16	189,934
Bale tie, J. M. Pollard	7	190,076
Barrel hoop, wooden, McEachern and Burrell	40	189,869
Barrels, manufacture of, R. M. Munroe	40	190,063
Bed bottom, J. J. Lucas	62	189,943
Bedstead, W. J. Myers	62	190,064
Bedstead, W. J. Myers	62	190,065
Bee hive, J. Coates	9	189,923
Beer forcing apparatus, J. S. Von Nieda	19	190,103
Belt fastener, J. Bachmann	81	189,988
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Blind slat adjuster, J. G. Broemser	24	189,995
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Boiler heads, machine for flanging, Miller and Boldon	136	189,870
Boiler setting, K. M. Jarvis	148	189,862
Boot and shoe nailing machine, L. R. Blake	16	189,835
Boot and shoe nailing machine, L. R. Blake	16	189,836
Boot and shoe nailing machine, L. R. Blake	16	189,837
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Boot and shoe nailing machine, H. P. Fairfield	16	189,851
Boot and shoe uppers, machine for crimping, E. Corbett	16	189,845
Boots and shoes, manufacturing nailed, L. R. Blake	16	189,834
Bottle stopper, C. Sedgwick	1	189,906
Box scraper, J. P. Tierney	29	189,967
Bracket, E. H. Bates	62	189,833
Breech loading fire arm, H. Updegraff	18	189,973
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Broom heads, machine for making, D. Squier	174	190,095
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Cake cutter, H. Erzinger	88	190,018
Calendar, A. C. Adams	146	189,838
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Gas retort chargers, apparatus for filling, T. F. Rowland, (reissue)	66	7,631
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Lamp chimney, W. H. Mason	90	189,945
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Lamp, student, J. Kirby, Jr	90	190,049
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Ore washer, H. E. Taylor	3	189,882
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Paper box, E. Morgan	109	189,898
Paper box, E. Morgan	109	189,899
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Plow, J. A. Olson	114	190,070
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Post office box, W. H. Bramble, (reissue)	146	7,624
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Pump, J. C. Wright	118	189,983
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Sewing machine, J. L. Follett	134	189,931
Sewing machine, F. Jacob	134	190,047
Sewing machine, W. F. Thomas	134	190,098
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Sheet metal can, L. V. Sone	136	190,094
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Stove pipe damper, N. C. Whitcomb	154	190,106
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Toy money box, F. W. Smith	143	189,907
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Truck, hand, H. R. Ferris	31	190,090
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Wagon, spring, J. D. Brunner	31	190,000
Wagon, steam road, G. W. Wade	31	189,977
Wagon, top, H. W. Calderwood	31	189,840
Wash board, J. Poole	91	189,876
Wash boiler, H. Gotthardt	91	190,029
Wash bowl, W. H. Cloke	8	189,844
Washing machine, H. Carpenter	91	189,841
Watchman's time detecter, J. H. Marvil	36	190,058
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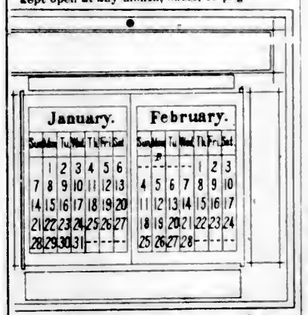
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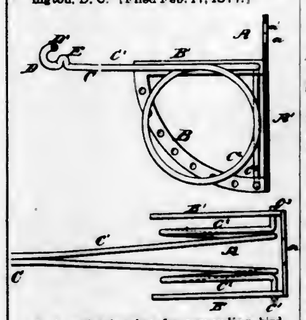
189,869. CALENDARS. A. C. Adams, Cambridge, Mass. [Filed Feb. 20, 1877.]

Brief.—As the leaves are not severed from each other after use, the calendar remains intact for future reference. The slots *a* and *b* hold the leaves so that the calendar can be kept open at any month, sheet, or page.



As a new or improved article of manufacture, the calendar, substantially as described, composed of the slotted advertising card or plate and the calendar-book or series of leaves fixed to such card or plate, and arranged with its slots essentially in the manner and for the purpose therewith, as explained.

189,883. BRACKETS. E. H. Bates, Washington, D. C. [Filed Feb. 17, 1877.]



1. A spring-bracket for suspending bird-cages, in combination with devices for adjusting the tension of the spring, substantially as and for the purpose set forth.

2. The combination of spring C, having bent ends C^2 C^3, with segmental adjusting-plate B^3, substantially as and for the purpose set forth.

3. Spring C, having hook D, stop E, arm C^1, coils C^2 C^3, and bent rear ends C^4 C^5, substantially as and for the purpose set forth.

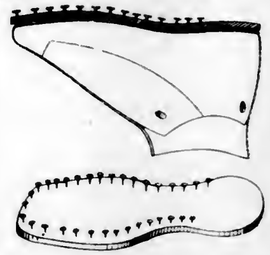
4. Bracket A, provided with back plate A^1, arms B^1 and B^2, perforated at *b b*, upward extension *a*, having a key-hole-shaped slot, *a'*, and segmental plates B^3 B^3, having perforations *b' b'*, substantially as and for the purpose set forth.

5. A bracket or base, A, provided with segmental adjusting-plates B^3 B^3, having perforations *b'*, for regulating the tension of the spring C, substantially as described.

6. In a bracket for suspending bird-cages, the hook D, having the side projections or stops E E, for the purpose of preventing a rotary motion to the cage, substantially as described, and for the purpose set forth.

189,884. PROCESSES OF MANUFACTURING NAILED BOOTS AND SHOES. L. R. Blake, Boston, Mass. [Filed Dec. 27, 1876.]

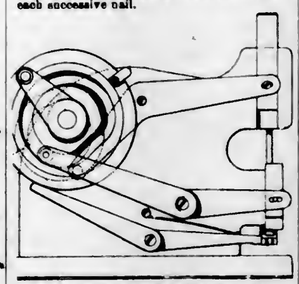
189,954.



The improved method or process herein described of uniting the soles and uppers of boots and shoes with metallic fastenings, consisting in supplying the outer sole with partially-driven fastenings, then applying the sole (molded to the shape of the lasted shoe, and so studded with metallic fastenings) to the lasted shoe, and driving the said fastenings held in the outer sole down through the outer sole, upper, and inner sole, all substantially as described.

189,955. NAILING-MACHINE FOR BOOTS AND SHOES. L. R. Blake, Boston, Mass. [Filed Dec. 28, 1876.]

Brief.—The nail or metallic fastening is only partially driven into the stock. The undriven portion, in connection with the feed device, operates to feed the stock forward for each successive nail.



A support for the stock and a driver adapted to descend to a position above the surface of the stock equal to the distance it is desired the head of the partially-driven nail shall project above the stock, in combination with a nail-tube adapted to descend below the lowest position of the driver to guide the nail and to be lifted to uncover the head of the partially-driven tack or nail, to permit the stock and partially-driven tack to be moved or fed, substantially as described.

189,956. NAILING-MACHINE FOR BOOTS AND SHOES. L. R. Blake, Boston, Mass. [Filed Dec. 28, 1876.]

Brief.—The nails are but partially driven by this machine. The nail-tube, which rests upon the face of the stock, is slotted at the side to admit of the lateral passage of the nail as the stock is moved for the setting of successive nails.

1. The combination, with the support for the stock, and the driver, of a nail-tube provided with a lateral passage for the head of a partially driven tack or nail as the stock is moved, substantially as described.

2. The support for the stock, and a presser and driver, in combination with a tube adapted to bear upon the stock, and slotted at its side for the passage of a tack or nail, substantially as described.

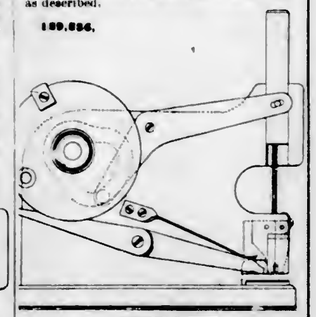
3. The support for the stock, driver, and side-slotted nail-tube, in combination with a tack or nail centering device, adapted to operate substantially as described.

4. A nail-tube, and a driver adapted to rest, at its downstroke, above the lower end of a tack centering device, in combination with a centering device connected with the nail tube, and adapted to hold the head or upper end of the tack or nail after the driver reaches the limit of its downstroke, and then, by its separation, permit the lateral passage of the nail from the centering device, substantially as described.

5. A nail-tube adapted to permit the lateral passage from it of the head of a partially-driven tack or nail, and a support for the sole, in combination with a driver and mechanism to operate it to cause the driver to terminate its descent above the bottom of the nail-tube in accordance with the distance it is desired that the head of the tack or nail remain above the sole, substantially as described.

6. The combination of a stationary nail tube, adapted to bear upon the surface of the stock, with a driver adapted to terminate its downstroke above the lower end of the nail-tube a distance corresponding with the distance it is desired the head of the tack or nail to project above the surface of the stock, substantially as described.

189,956.



189,957. BOOT AND SHOE NAILING MACHINE. Lyman R. Blake, Boston, Mass. [Filed May 5, 1876.]

Brief.—Machine specially adapted to partially drive tacks into the soles preparatory for attachment to a boot or shoe.

1. A tack or nail tube and driver, in combination with a guideway to sustain and direct nails into a rotating carrier, a rotating carrier, and a transferrer to remove a nail from the carrier into the nail-tube to be driven therefrom by the driver, substantially as described.

2. A nail-tube and driver, in combination with a slotted support for the sole, and mechanism to automatically lock and release it, whereby the support is held rigidly during the time the nail is being driven partially into the sole, and is then released to prevent the nail being further driven, leaving the head of the nail projecting above the sole, substantially as described.

3. A slotted or grooved support, and mechanism to lock and release it, in combination with a guide-rod to prevent the support being turned, whereby the groove of the support is always retained in the same position with relation to the feed and edge-gage, substantially as described.

4. A support for the sole, in combination with a feeding device adapted to engage a partially driven tack or nail, and move the sole, substantially as described.

5. A tack or nail tube and a carrier, provided with cells 6, and with grooves 17, in combination with a reciprocating transferrer to engage the side of the nail next the center of the carrier, and move it laterally from the cell into the tube to be driven by the driver, substantially as described.

6. In combination, a nail-carrying box adapted to discharge headed nails at inter-

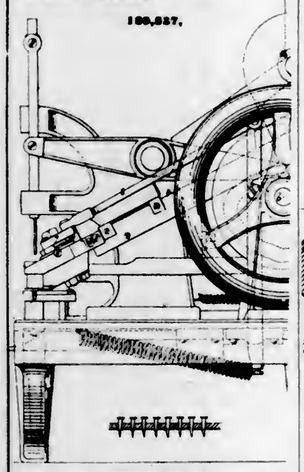
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vals into a slotted guideway, a slotted guideway, a rotating carrier adapted to carry the nails singly from the guideway to a position opposite the nail-tube, and a transferrer to remove the tacks or nails laterally into the tube to be driven by the driver, substantially as described.

7. The sole support slotted to receive the points of the nails, in combination with an edge-gage attached to and moving with the support.

8. The combination, with a nail-tube and driver, of a support for the sole and mechanism to hold it pressed upward against the under side of the sole while the tack is partially driven, and then to release it to prevent the tack being driven its whole length, substantially as described.

189,837.



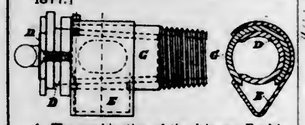
189,838. SLASHERS. J. M. Briggs, J. F. Greene, and J. Radiklin, Providence, R. I. [Filed Jan. 13, 1877.]

Brief.—A board or scraper, pivoted to arms at side of box, rests upon and extends lengthwise of the immersing-roll, to prevent the foam and excess of size from passing back over the roll.



In slashers for sizing cotton-yarn for warps to be used in weaving, a flask-board, H, in combination with the immersing-roll C, whereby the excess of size, which falls back from the yarn, is deflected toward the ends of the immersing-roll, substantially as described, and for the purpose specified.

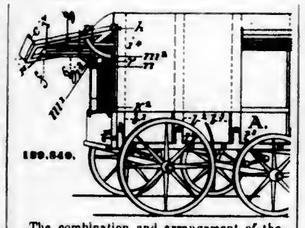
189,839. DRIP-CUPS FOR FAUCETS. Fred. Brigham, Warren, Mass. [Filed Mar. 23, 1877.]



1. The combination of the drip-cup E with the revolving spigot D, substantially as shown and described.

2. The combination of the protecting drip-cup E with the outer shell and mouth of the faucet G, substantially as shown and described.

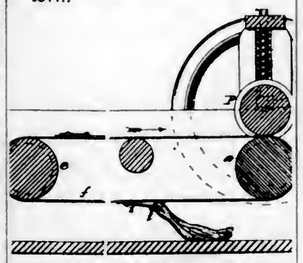
189,840. WAGON-TOPS. Hugh W. Calderwood, Wilkinsburg, Pa. [Filed Aug. 23, 1876.]



189,840.

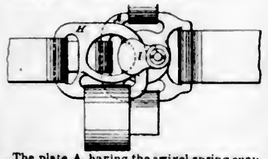
The combination and arrangement of the frame *f*, curtain *c*, supports *g*, guides *m*, loops *n*, springs *k*, hinge *h h'*, and bed A, substantially in the manner and for the purpose specified.

189,841. WASHING-MACHINES. H. Carpenter, Plain City, Ohio. [Filed Jan. 17, 1877.]



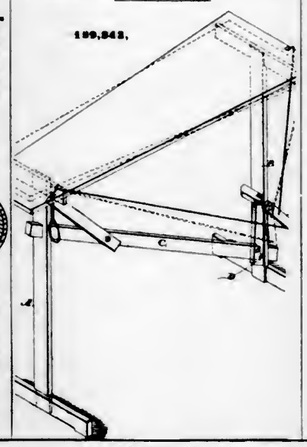
The concave roller P, in combination with the convex rollers *a* and *e*, connected by the belt *f*, which is furnished with the loop *i* and sliding bar *l*, substantially as shown and described.

189,842. DEVICES FOR ATTACHING HORSES TO VEHICLES. H. E. Chadwick, Providence, R. I. [Filed Mar. 13, 1877.]



The plate A, having the swivel-spring snap-hook I, arranged to operate in combination with the looped plate H, substantially as and for the purpose specified.

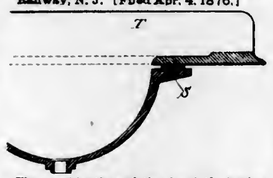
189,843.



189,843. IRONING-TABLES. David Choate, New York, N. Y. [Filed Nov. 6, 1876.]

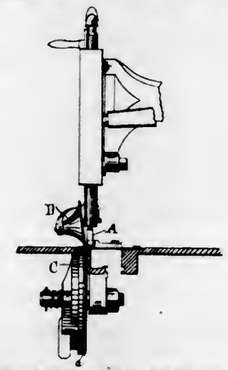
The two vertical mortised bars, A and B, the notched connecting-bar C, and bracket D, as set forth.

189,844. WASH-BOWLS. Wm. H. Cloke, Rahway, N. J. [Filed Apr. 4, 1876.]



The combination of the bowl C, having groove S, the packing T, with the slab it.

189,845. MACHINES FOR CRIMPING BOOT AND SHOE UPPERS. E. Corbett, Boston, assignor of one-half his right to J. E. Wheeler, Lynn, Mass. [Filed June 16, 1876.]



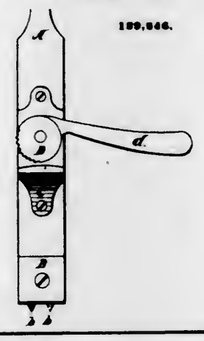
1. In combination with a work-support a vertically-reciprocating knife or chisel arranged to cut or slit at right angles to the line of the feed the edge of a vamp or upper, substantially as described.

2. In combination with a vertical reciprocating cutting-tool arranged to cut or slit the edge of a material at right angles to the line of feed, a work-support, and feeding mechanism arranged to feed and crease the work, substantially as and for the purpose described.

3. The combination of the vertically-reciprocating knife or chisel with a work-support, and guiding and gaging mechanism, substantially as described.

4. The feed-roll C, beveled as shown, and provided with the groove *a*, in combination with the presser D, and vertically-reciprocating knife A, substantially as described.

189,846.



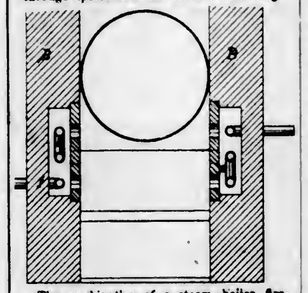
189,846. WIRE-STRETCHERS. M. Davenport and M. H. Hicks, Groton, N. Y.; said Hicks assignor to W. W. Hare, same place. [Filed Feb. 29, 1876.]

1. In a portable wire-stretcher, the combination, with a revolving self-adjustable fulcrum-block, B, provided with spurs *b b*, of a lever, A, provided with a wire-clamping device, substantially as and for the purpose described.

2. A portable wire-stretcher, consisting of the lever A, self-adjustable fulcrum-block B, provided with spurs *b b*, plate C, and eccentric clamp D, substantially as and for the purpose specified.

189,847. FEED-WATER HEATERS FOR BOILERS. A. T. Denison, Mechanics Falls, Me. [Filed July 7, 1876.]

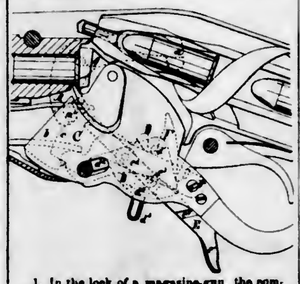
Brief.—The feed-water pipes are located in chambers formed in the sides of the furnace. Said pipes receive the action of the heat through apertures in the brick-work setting.



The combination of a steam-boiler, fire-place, and water-heater, the said heater being located in a chamber in the sides or ends of the brick-work setting, said chamber forming no part of the smoke-flue, and communicating with the fire-place by apertures through the division-wall, separating the said chamber from the fire-place, all substantially as and for the purpose described.

189,848. LOCKS FOR MAGAZINE FIRE-ARMS. George F. Evans, Mechanics Falls, Me. [Filed Jan. 15, 1877.]

Brief.—The invention is designed to permit the arm to be charged by hand, while the magazine is held in reserve, and is an improvement upon Patent No. 119,020, dated September 19, 1871.



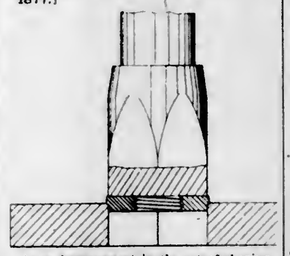
1. In the lock of a magazine-gun, the combination, with the bell-crank lever A, which actuates the cartridge-feeding fluted column of the magazine, of the bar C, having a longitudinal motion in the breech-block, as and for the purpose specified.

2. The combination, with the pivoted breech-block, of the lever D, having the arm *d'* and exposed finger-piece *d''*, as and for the purpose specified.

3. In the breech-block of a magazine-gun, the combination, with the hammer F, of the bar E, having a longitudinal movement in the breech-block, and pivoted to said hammer, as and for the purpose specified.

4. In the breech-block of a magazine-gun, the combination, with the hammer F and its pivoted bar E, having transverse slot *e'*, of the lever D, with its rib *d'*, as and for the purpose specified.

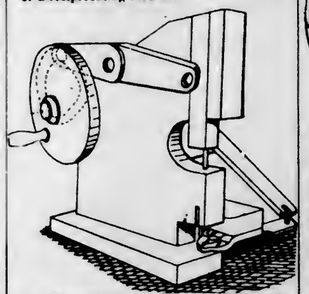
189,849. METHODS OF SHAPING AND FINISHING ARTICLES IN METAL. G. F. Evans, Mechanics Falls, Me. [Filed Feb. 16, 1877.]



As an improvement in the art of shaping and finishing articles of iron and other hard metals, first reducing the metal approximately to the shape and size required, but somewhat larger, and then pushing or forcing the same while cold, by means of a closely-fitting punch, into a hole in a hardened block of metal, said hole being of the exact shape and dimensions required for the finished article, and the edge of whose walls are somewhat rounded at the entering side, in virtue of which the metal so operated on, instead of being drawn out or extended, will be condensed and smoothed, and the excess pinched or drawn off, substantially as set forth.

189,850. NAILING-MACHINES FOR BOOTS AND SHOES. H. P. Fairfield, Boston, Mass. [Filed Dec. 28, 1876.]

Brief.—An auxiliary nail guide, composed of separable jaws, is located immediately below the nail-tube, and permits the partially-driven tack to be moved laterally by means of a reciprocating feed-bar.



1. The combination, with a nail tube and driver, of an auxiliary nail-guide, adapted to receive the nail from the nail-tube and permit its discharge laterally therefrom, substantially as described.

2. The combination, with a nail tube, driver, and work-support, of an auxiliary nail-guide, adapted to rise and fall according to the thickness of the stock, and to permit the movement of the partially-driven nail or tack laterally from the guide, substantially as described.

3. A driver, to partially drive a nail or tack, and an auxiliary nail-guide, in combination with a feeding device adapted to move the sole after each nail or tack is driven, and move a previously partially-driven nail or tack laterally from between the jaws of the guide, substantially as described.

4. The combination, with an auxiliary nail guide or holder for a partially-driven nail or tack, of a feeding device arranged to be reciprocated with relation to the jaws of the guide, and to engage a nail previously partially driven, and move it from between the jaws, thereby moving the sole for another nail, substantially as described.

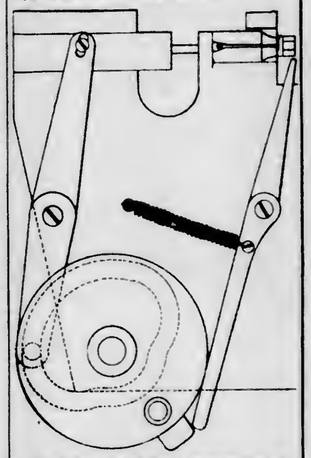
5. The combination, with a nail or tack support and driver, of a vertically-yielding guide, constructed in two parts, adapted to be separated or parted to permit the passage laterally, from between the guide, of a tack or nail partially driven into a sole, substantially as described.

6. A nail-guide, in combination with a feeding device, adapted to enter between the spring-held jaws of the nail or tack guide, separate the guide, for the lateral movement of the partially-driven tack, and then to engage and move the sole, by pressure, against the driven nail or tack.

7. A separable tack or nail guide, arranged between the end of the nail-tube and the surface of the stock, to guide a tack or nail and permit its removal laterally therefrom before driving another nail, substantially as described.

189,851. NAILING-MACHINES FOR BOOTS AND SHOES. H. P. Fairfield, Boston, Mass. [Filed Dec. 28, 1876.]

Brief.—Attached to the nail tube, and forming the lower portion of it, is a spring centering device, which holds the nail in proper position until it is forced out by the descent of the driver. The tube does not extend to or rest upon the stock, so that the nail is only partially driven by the machine.



1. In combination, a work-support, a nail-tube, and a driver, the nail-tube being arranged with its lower end above the surface of the stock to permit the lateral movement of the partially-driven nail from under it, and the driver to descend far enough to remove the head of the nail out of the nail-tube and only partially drive the nail, thereby leaving its upper end projecting above the surface of the stock, substantially as described.

2. A shortened nail-tube and driver and a support for the stock, arranged with relation to each other as described, so that the end of the nail-tube and driver are elevated above the stock, as set forth, in combination with a presser, to hold the stock upon the support, substantially as described.

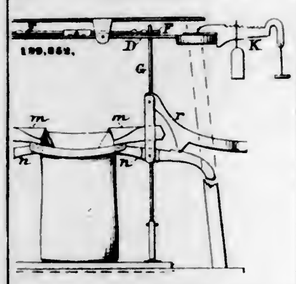
3. The combination, with a shortened nail-tube, a driver, and a work-support, of a nail-centering device, arranged in connection with the nail-tube, having its lower end placed at a distance above the surface of the stock, as described, and adapted to hold and direct the tack or nail while it is partially driven into the stock by the driver, the latter terminating its downward thrust at a distance above the surface of the stock, to prevent driving the head of the tack or nail down completely to the surface of the stock, substantially as described.

4. A shortened nail-tube and driver, constructed as described, and a work-support and centering device, in combination with a feeder, to move the stock and partially-driven tack or nail laterally from under the path of the driver, substantially as described.

189,852. SACK-SCALES. Calvin Flanders, Bronson, Mich. [Filed Jan. 26, 1877.]

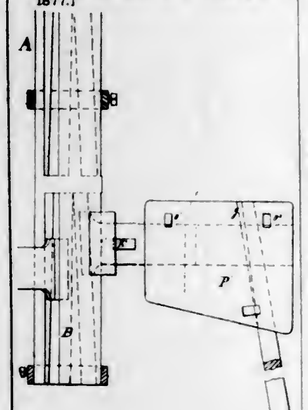
1. Adjustable sack-holders, consisting of the fixed jaws *n*, the pivoted jaws *s*, and the levers *r*, all adjustable at any required height on the rods G, substantially as described.

2. The combination of the frame D, center piece E, having fixed bar F, rods G, platform H, beam K, and adjustable sack-holders *n s r*, substantially as and for the purposes described.



189,852.

189,853. TRIPODS FOR ROCK-DRILLS. T. B. Ford, Newburg, N. Y. [Filed Mar. 7, 1877.]

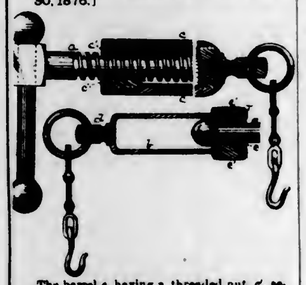


1. In a tripod, a round vertical bar, A B, provided with longitudinal undercut grooves H, in combination with arms F, movable therein, and radially-adjustable weights P and points G, substantially as specified.

2. In a tripod, the radial arms F, vertically adjustable in undercut slots, in combination with the radially adjustable and reversible weights P, with adjustable swinging points G, as specified.

3. In a tripod, a single vertical round bar, A B, with longitudinal undercut grooves, in combination with a horizontal bar, substantially as specified.

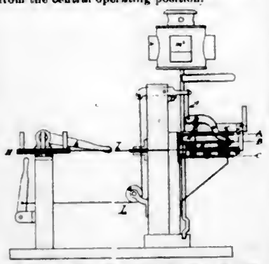
189,854. DRAW-COUPLINGS FOR BOATS, &c. S. M. Fulton, Pittsburg, Pa. [Filed Dec. 30, 1876.]



The barrel *c*, having a threaded nut, *c'*, secured in one end, the stem *c'* of a connecting device in the other, in combination with shaft *a*, swiveled block *c*, and stirrup *b*, substantially as set forth.

189,855. RAILROAD-SWITCHES. Justin J. Golden, Toronto, Ontario, Canada. [Filed Jan. 16, 1877.]

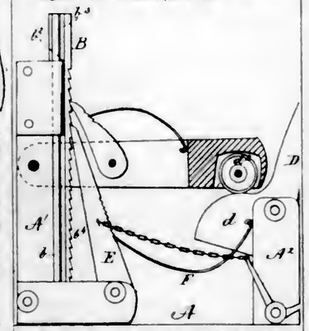
Brief.—The switches at both ends of the siding are operated from a central position, by means of an endless rope attached to and passing around a capstan, and from thence to an arm on an upright cranked axle, to which the ordinary switch-gear is attached. The arm to which the endless rope is attached works between semicircular bars, in which are placed the locking device; said locking device being operated by a lever and rope from the central operating position.



1. The combination of the pulley H with handle *h*, endless cable I, semicircular bars A B C, pulleys b^2, springs b^3, stops *a'*, slots b^1, bracket *e* on arm E, attached to cable I, as shown and described, and for the purposes set forth.

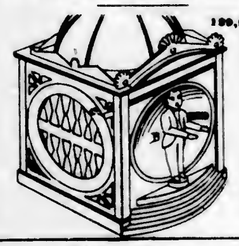
2. The combination, with the pulley H with handle *h*, endless cable I, semicircular bars A B C, pulleys b^2, springs b^3, stops *a'*, slots b^1, bracket *e* on arm E attached to cable I, of the handle K, cable L, pulley *w*, for locking and unlocking the arm E by means of the levers D D^1, link d^3, and semicircular bar B, with springs b^3, and stops *a'*, as specified and described, and for the purposes set forth.

189,856. LIFTING-JACKS. F. Griscom, Dolington, Pa. [Filed Apr. 6, 1877.]



The combination, with a standard A^1, provided with a vertical groove or guide, *b*, and plates or guides b^1 b^2, and a lifting-bar, B, having guides or grooves b^2 b^4 and teeth b^5 of a weighted pivoted lever-arm, C', carrying a driving-lever, C, the said arm C' being operated by a cam or extension, *d*, from a lever-arm, D, the whole being constructed and operated substantially as shown and described.

189,857.



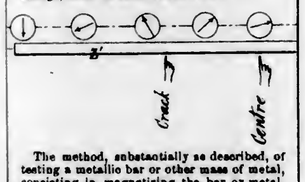
189,857. TOY MONEY-BOXES. John Hall, Watertown, Mass. [Filed Oct. 31, 1876.]

Brief.—The toy figure of a cashier receives the money with open arms, and, upon a spring being pressed, deposits it in the slot at one side.

The lever C, having arm *c*, in combination with the rod *d*, attached to the movable figure B, all constructed and arranged to operate substantially as and for the purposes described.

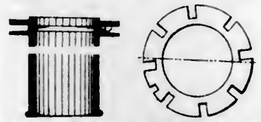
189,858. MODES OF DETECTING DEFECTS IN RAILROAD-RAILS, &c. A. Herring, Cohoes, N. Y. [Filed Feb. 5, 1877.]

Brief.—For the purpose of ascertaining "where latent or hidden defects, such as cracks, flames, imperfect welds, and molecular change, occur in metallic structures."



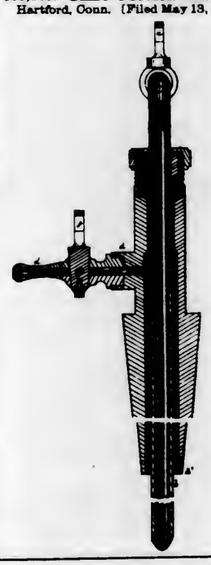
The method, substantially as described, of testing a metallic bar or other mass of metal, consisting in magnetizing the bar or metal, and passing a magnetic compass or dipping-needle or other like magnetic indicator along the bar or metal in contact with its surface, or nearly so, for the purpose set forth.

189,859. UMBRELLA-RUNNERS. J. J. Higgins, New York, N. Y. [Filed Dec. 21, 1876.]



An umbrella runner or notch, having the head, to which the stretchers or ribs are attached, formed of two flat annular disks or rings of metal secured to the barrel, and separated from each other by an interposed bead, circlet of wire, or other suitable projection, substantially as described.

189,860. DRAFT-FAUCETS. Mat. Hogan, Hartford, Conn. [Filed May 13, 1876.]



1. In combination, the tubular plug *a*, the sliding draft-tube *b*, and the stuffing-box *c*, all substantially as described, and for the purposes set forth.

2. In combination, the tubular plug *a*, sliding draft-tube *b*, and pressure-tube *d*, all substantially as described, and for the purpose set forth.

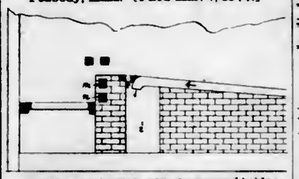
189,861. BARBED FENCES. Geo. G. Hunt, Bristol, Ill. [Filed Feb. 5, 1877.]



1. As a new article of manufacture, short sections of wire folded in the middle and twisted, and having a hook provided with barbs at one end and an open loop or eye at the other end, when such sections are made substantially in the manner and for the purpose herein before specified.

2. A barbed wire for fences, when such wire is made of short sections, made in the manner and hooked together in the manner herein specified.

189,862. BOILER-SETTINGS. K. M. Jarvis, Peabody, Mass. [Filed Mar. 7, 1877.]



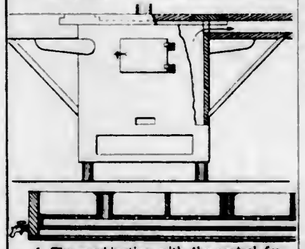
1. The combination, with the side and bridge walls, of ducts leading from the passages in the side walls into and out from the bridge-wall and into the side wall and combustion-chamber, to heat the air passing through such bridge-wall ducts, substantially as described.

2. The ducts m n in the bridge-wall, in combination with the duct *p*, and opening in the side wall opposite the combustion-chamber, substantially as described.

3. The ducts in the back of the wall, substantially as at *e*, in combination with the tapering pipes or flues, substantially as described.

4. The side wall, provided with its air-passages, and the back wall and its ducts *e*, in combination with tubes or flues *h* leading into the chamber *i*, all to heat and discharge air into the combustion-chamber, substantially as described.

189,863. FOOD-STEAMERS. A. Johnson, Cumberland, Ohio. [Filed Jan. 5, 1877.]



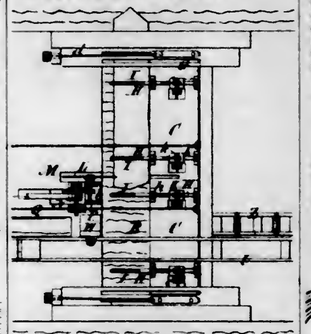
1. The combination, with the central furnace, of auxiliary heating-leaves hinged, respectively, to either side thereof, substantially as described.

2. The combination, with the furnace-chamber, of heating-leaves, having horizontal draft-connection therewith, and supported by detachable braces, substantially as described.

3. The combination, with the steam-chest, of the double perforated plate, the latter having upright steam-pipes corresponding, respectively, to compartments formed in the same by detachable partitions fitting in grooved sides of the chest, substantially as described.

189,864. APPARATUS FOR BUTTING AND DRESSING TIMBER. W. H. Knight, Quebec, Canada. [Filed Feb. 12, 1877.]

Brief.—A channel is formed in a roofed and inclosed floating pontoon, into which the logs to be "butted" are introduced, and provided with a feed-piece having a series of projecting dogs, which grips the log and hold it firmly while being fed to a saw mounted in bearings on the opposite side of the channel, which performs the operation of "butting," after which the feed-piece is drawn backward and the log released. The timber to be dressed is conducted into another channel formed in said pontoon, and raised onto a carriage by which it is fed to a cutting-knife, which dresses all four sides of the timber as it is run backward and forward under said knife.



1. A pontoon or floating chamber having formed in it one or more channels, into which the timber to be butted or dressed is introduced, as herein set forth.

2. The combination, substantially as specified, of the feed-piece C and the floating channel B, in which it is automatically moved forward and backward.

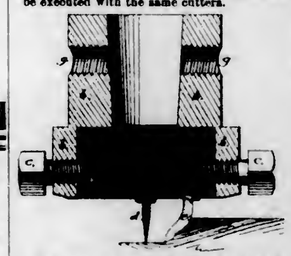
3. In combination with the feed-piece C, the dogs H, arranged in bearings so as to revolve, and drawn back by means of weights and ropes I, set at right angles to the standards K, all substantially as and for the purposes herein set forth.

4. The circular saw L, placed in recess M, and driven by gearing set in dry chamber N, all as herein described.

5. In combination with a carriage carrying the log to be dressed, and advancing at a regulated speed, a cutting-knife, as herein described, moving in guides in a vertical standard, and actuated by the piston-rod of a cylinder, all substantially as and for the purposes set forth.

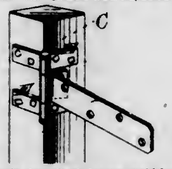
189,865. CUTTER-HEADS. Olof Lindblad, Jamestown, N. Y. [Filed Feb. 10, 1877.]

Brief.—The cutters are laterally and angularly adjustable in a transverse slot formed in the face of the head by means of a series of metallic blanks of suitable size, secured in position by set-screws passing through apertures in a shoulder formed on the head, so that any desired size of surface-molding may be executed with the same cutters.



The combination of the cylindrical head *b*, having shoulder *b'*, threaded apertures *g g*, the transverse slot S, and vertical slot *x* with the cutters *d e e*, metallic pieces *f f f*, and set-screws *c c*, all constructed to operate as shown and described, and for the purpose set forth.

189,866. HINGES. D. W. Long, Parkersburg, W. Va. [Filed Oct. 14, 1876.]

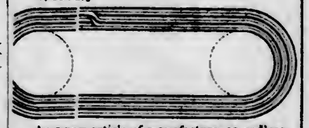


The herein-described sheet-metal hinge, consisting of the angular wings E E, having drive flanges and knuckles *e e* at their intersections, each set of wings and knuckle being made in one piece, and the angular wings d^2 d^2 made in one piece, and provided with a knuckle at their junction, for the reception of the common pintle C, substantially as and for the purpose set forth.

189,867. PROCESSES FOR BLEACHING AND IMPROVING COTTON-SEED OILS. R. Macdonald, New Orleans, La. [Filed Oct. 16, 1876.]

The process herein described of bleaching cotton-seed oil and improving its quality, the same consisting in heating it to about 300° Fahrenheit, and maintaining it at that temperature for about three hours, substantially as described, and for the purpose set forth.

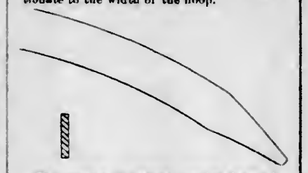
189,868. BLANKETS FOR CALICO-PRINTING. C. McBurney, Boston, Mass. [Filed Apr. 7, 1876.]



As a new article of manufacture, an endless blanket for printing-machines, composed of layers of cloth coated on one and on both sides with rolled layers of vulcanizable gum, thicker than the cloth, and arranged with relation to each other, and to present a fibrous face for the outer surface, and vulcanized, all substantially as set forth.

189,869. WOODEN BARREL-HOOPS. J. D. McEachern, Galt, Ontario, Canada, and D. H. Burrell, Little Falls, N. Y. [Filed Mar. 17, 1877.]

Brief.—A barrel-hoop, formed from veneers of wood of suitable size, in bent edgewise until its curvature or the length of its edges corresponds with the difference in the distance around the tapering part of a barrel proportionate to the width of the hoop.



The process of forming wooden hoops by bending them edgewise after being cut from the sheet of veneer, in the manner and for the purpose hereinbefore specified.

189,870. MACHINES FOR FLANGING BOILER-HEADS. C. Miller and Jos. Boldon, Pittsburg, Pa. [Filed Feb. 15, 1877.]

Brief.—The disk is clamped upon and moves with the revolving table, while the flanging-rollers are raised by the toothed segments. The rollers are adjusted to and from the table for different sizes of disks, and to connect the gearing for raising the roller-frame with that for turning the table an adjustable gear-wheel is employed.

1. The revolving table B in combination with shaft B' and the rolls L L', all constructed and operating as described, for the object set forth.

2. The rolls L L, frame K, segments M M, carriage J, and revolving table B, all combined, constructed, and operating as described, for the object set forth.

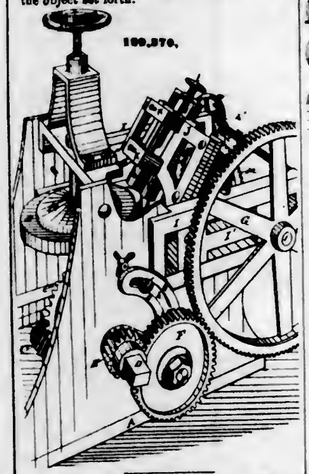
3. In combination with the segments M M, the pinions P P, gear-wheels E F G, as described, and for the object set forth.

4. The adjustable support O in combination with the revolving table B and the rolls L L, for the purpose of supporting the edge of the disks, when being flanged, which are of greater diameter than can be supported by the table, as described.

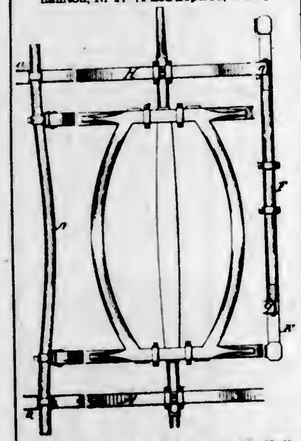
5. The sliding blocks I' I', adjusting-screws g g, shaft m, wheels i h i h, and crank n, in combination with the carriage J, constructed and operating as described.

6. The combination of table B, upright shaft B', wheels C C', main shaft D, wheels E F G, arm H, carriage J, frame K, rolls L L', segments M M, shaft N, supporting-post O, pinions P P, slides I I, adjusting-screws f g, all constructed and operating as described, for the object set forth.

189,670.



189,671. PLATFORM-SPRINGS FOR VEHICLES. J. Milks and E. H. Watson, Binghamton, N. Y. [Filed Sept. 15, 1876.]

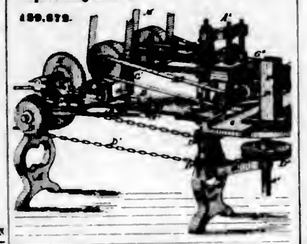


The combination of the springs B H E, cross-bars A F, and pivotal ears a a, adapted to receive and support the pole or thills, substantially as set forth.

189,672. MACHINES FOR MAKING PARQUETRY. F. Newhouse and M. H. Allen, Toledo, Ohio. [Filed July 10, 1876.]

Brief.—The board or strip is fed intermittently through a swiveled and flanged guide-plate by a pair of feed-rolls arranged upon said plate, while the channels are formed by means of a revolving cutter, consisting of a series of horizontal blades and a pair of circular saws, and a circular saw or router arranged in front and at the side of the revolving cutter, both mounted in a reciprocating carrier. The prepared pieces of wood are placed in a feed-box attached to one end of the swiveled guide-plate, and are forced into the channels of the strip of board by a sliding feed-plate attached to a sliding bar connected by a rod to the crank which operates the reciprocating carrier.

189,672.



1. The combination, with the cutter-head K and bed-plate B, of the guide-plate c, capable of adjustment so as to regulate the angle of the channels for the reception of the ornamental strips or blocks, substantially as described.

2. A carrier, A', constructed with a revolving cutter, K, and router Q, arranged one in front and at the side of the other, substantially as and for the purpose described.

3. The feed-box P, formed of the base-plate O', provided with the channel O', and of the vertical plate P' P', having the flanges p p, substantially as and for the purpose stated.

4. The combination, with a feed-box, P, and the operating mechanism of a parquetry machine of a slide, O, so arranged as to feed a block into a previously-formed channel, substantially as described.

5. The combination, with the pivoted guide-plate a and feed-rollers F F', of the pinions E E', index-wheel E', and stop S, substantially as set forth.

6. The combination, with the feed-rollers F F' and index-wheel E', and stop S, of a cam, T, sliding bar T', levers T' T', spring-arm T', cam T', and sliding bar N', substantially as described.

7. The combination, with the bed-plate B, pivoted guide-plate c, and feed-rollers F F', of the shaft c', pulleys D' D', arm S', pulleys D' D', chain D', and friction-pulley D E, substantially as set forth.

8. The combination, with the guide-plate a and feed-rollers F F', pinions E' F', and intermediate wheel F', of the intermediate wheel F', and pivoted arm F', substantially as and for the purpose set forth.

189,673. GAS-MACHINES. F. W. Ofeldt, Newark, N. J., assignor to himself and C. C. Coats, same place. [Filed Dec. 28, 1876.]

Brief.—Oil is supplied to a gas-generating pump, where the oil is vaporized by heat applied below. The expansion of the oil-vapor raises a large piston having spring-valves, admitting air, and at the same time operating a pump supplying a further quantity of oil to be vaporized. The quantity of gas supplied to the burner under the generator and size of flame are regulated by the expansion and contraction of a metallic rod acting upon a spring-valve in the lamp.

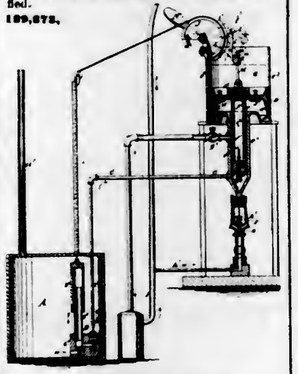
1. A gas-machine effected by the combination of a gas-generating-pump, D, and an oil-supply pump, B, with a supply-tank, A, the supply-pump B being operated by the movements of the generating-pump D, thus acting as a feed-pump to the latter, which again is operated by the expansion of the vapor of the oil thus supplied, the vaporization being continually promoted by heat from the burning of gas derived from said generating-pump, substantially as specified.

2. The feed-pump B, constructed of the combination of the valve-chest b' and stationary piston b' with the sliding cylinder b', in combination with the generator D of a gas apparatus, substantially as and for the purpose specified.

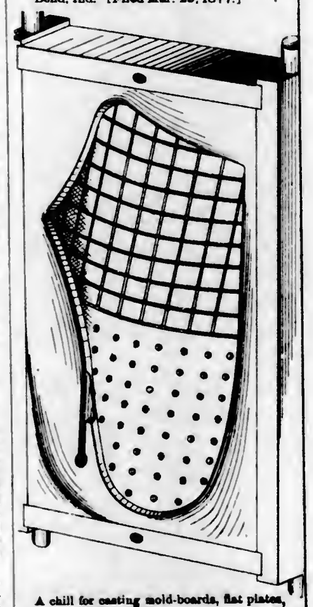
3. The generating-pump D, consisting of the piston F, (formed of the two main parts f' and f', with their respective valves d' and d',) in combination with the pump-barrel E, formed of the two parts e' and e', the latter being provided with the stops or trip-pins e' e', substantially as specified.

4. The arm K, provided with the pawl L, and the arm M, provided with the set-screw a', in combination with each other, and with the piston F and segment-wheel J, for operating the feed-pump B, substantially as specified.

189,673.



189,674. CHILLS FOR CASTING MOLD-BOARDS FOR PLOWS. Jas. Oliver, South Bend, Ind. [Filed Mar. 29, 1877.]

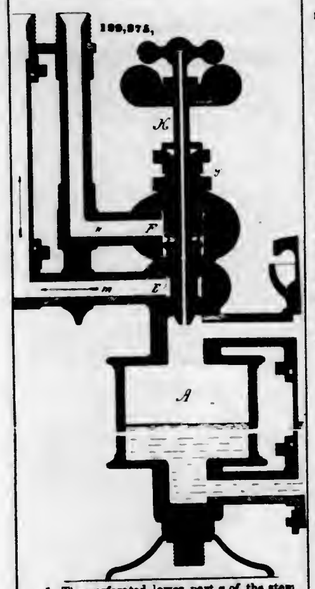


A chill for casting mold-boards, flat plates, &c., provided with a series of grooves or depressions of any form, sufficiently wide and deep to permit the molten metal to enter the same, forming thereby cleats or braces, whereby the casting is prevented from warping while cooling, and serving also as a means of ventilation, substantially as and for the purpose described.

189,675. LUBRICATORS FOR STEAM-ENGINES. W. R. Petrie, New Haven, Conn., assignor to himself, J. D. Payne, and L. P. Woodworth, same place. [Filed Mar. 7, 1877.]

Brief.—When the valves allow, the water-column in the pipe a forces the oil into the steam-chest through the steam-pipe m.

189,675.

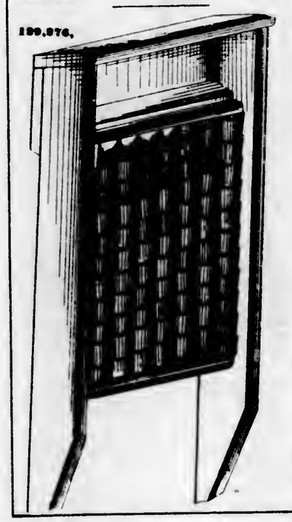


1. The perforated lower part x of the stem K, its lower end forming a valve, its upper end forming a valve-seat connected to the upper perforated part y by the cap z, having the hole i, in the way described, substantially as set forth.

2. The stem K, herein described, consisting of two parts, a perforated upper part, y, provided with the thumb-screw c, for the purpose described, its lower end having a shoulder, t, and forming a valve, and a perforated lower part, x, the lower end of which forms a valve and its upper end a valve-seat, and the two parts connected together by the cap z, having the hole i, in the way described, the whole substantially as shown and set forth.

3. In a lubricator, the cylindrical chambers E and F, the larger chamber F being uppermost, arranged above the reservoir A, the pipes m and a respectively communicating with the same, substantially as shown and described.

189,676.



189,676. WASH-BOARDS. J. Poole, Cleveland, Ohio. [Filed Jan. 3, 1877.]

1. A wash-board plate formed with the screw-like elevations or corrugations C, substantially as and for the purpose described.

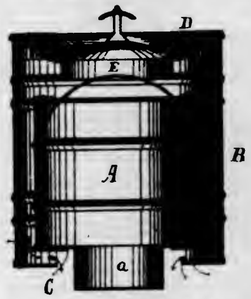
2. In a wash-board plate, the screw-like elevations or corrugations C C C, arranged in parallel rows or columns, substantially as and for the purpose described.

3. In a wash-board plate, the screw-like elevations or corrugations C C C, arranged in parallel rows or columns, and with corrugated grooves c between said rows, substantially as and for the purpose described.

4. In a wash-board plate, the screw-like elevations or corrugations C C C, each gradually tapering from its upper to its lower end, and arranged in parallel rows or columns, substantially as described.

5. In a wash-board plate, the screw-like elevations or corrugations C C C, each gradually tapering from its upper to its lower end, arranged in parallel rows or columns, parallel with the sides of the wash-board, and with the corrugated grooves c between said rows, substantially as and for the purpose described.

189,677. CULINARY BOILERS. I. A. Robinson, De Kalb, Ill., assignor of one-half his right to J. F. Glidden, same place. [Filed Jan. 29, 1877.]



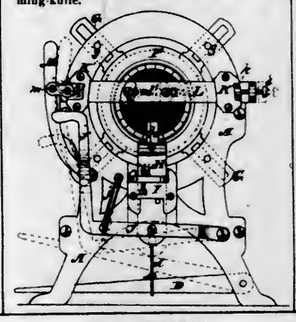
1. The exterior vessel or casing B, having a central opening, b, in its bottom, and provided with a false bottom or diaphragm, C, having apertures c around its outer edge, substantially as described.

2. The interior vessel A, in combination with the exterior casing B and perforated diaphragm C, all constructed and operating substantially as and for the purpose set forth.

3. The sectional cover, composed of the annular part D, depressed from the outer edge, as described, and the central portion E, substantially as and for the purpose set forth.

189,678. CROSING AND HOWELING MACHINES. John A. Seaman, Chicago, Ill. [Filed Dec. 9, 1876.]

Brief.—The barrel to be worked is clamped between a disk loosely pivoted to a sliding drive-shaft and an adjustable ring having a shoulder to bear on the truss-hoop. A movement of a hand-lever to the right and left operates, respectively, the crosing and howeling tools, and a third lever operates the trimming-knife.



1. The reciprocating drive-shaft B, having a clamping-plate, E, mounted on its forward end, substantially and for the purpose set forth.

2. The reciprocating shaft B, in combination with the slide C adjustably connected thereto, spring c', and lever D, substantially as and for the purpose set forth.

3. The drive-shaft B in combination with the clamping-plate E, mounted loosely on one end thereof, so as to have a vibratory or yielding movement thereon, substantially as and for the purpose set forth.

4. The holding-ring F, provided with an interior perpendicular flange or shoulder, f, against which the truss-hoop abuts when the barrel is put in the machine, substantially as and for the purpose set forth.

5. The ring F, having an interior flange or shoulder, f, in combination with the reciprocating shaft B, and yielding clamp E, mounted thereon substantially, as described.

6. The slide H, provided with the inclined cutter h, and hinged to the lever J, substantially as and for the purpose set forth.

7. The slide H having the inclined cutter h on its upper end, in combination with the adjustable stop f, lever J, and spring j, substantially as described.

8. The reciprocating bar L, provided with an adjustable stop, s, at one end, and a fixed stop at the other, in combination with the howeling and crosing tools N and O, mounted thereon, the holding-ring F, and lever M, substantially as described.

189,679. CIGAR-LIGHTERS. Geo. Selden, Erie, Pa., and J. L. Keep, Jersey City, N. J.; said Keep assignor to said Selden. [Filed Feb. 7, 1877.]

Brief.—The star-wheel passing through a slot in the spring-hammer operates it, and also moves the percussion-tape over a yielding guide-plate.



1. The star-wheel h, in combination with the yielding apron f, over which the igniting or percussion tape is fed, substantially as and for the purpose described.

2. The arrangement of the star-wheel h relatively to the nose-piece e and hammer spring d', whereby the force of the blow of the hammer is received by the wheel, as described.

3. The combination, with the lighter case or frame, of the star-wheel h, hammer d, and yielding feed-apron f, arranged and operating substantially as described.

189,680. CHURN-DASHERS. J. H. Starnes, Asheville, N. C., assignor of one-half his right to J. M. McEntire and W. N. Ownbey, same place. [Filed Mar. 7, 1877.]

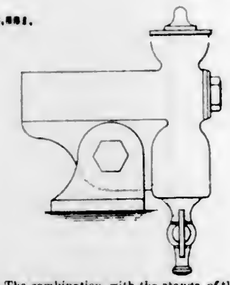


1. A dasher consisting of the angular paddles and the grooved angular-shaped pegs attached to the dasher-head, substantially as and for the purpose specified.

2. In combination with the angular paddles, grooved pegs, and dasher-head, the handle or hand-hold attached to the top of the staff, substantially as described.

189,681. JOURNAL-BOXES. E. F. Sturtevant, Boston, Mass. [Filed Jan. 10, 1877.]

189,881.



1. The combination, with the stands, of the bearing portion, pivoted to the stand, and adapted to be clamped rigidly and immovably to the stands when the bearing portion is placed in line, substantially as described.

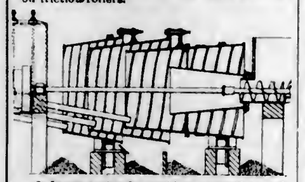
2. The combination, with the stands, of the pivoted bearing portion, provided with the oil-receptacle *f*, passage *g*, and discharge-outlet *k*, substantially as described.

3. A pivoted bearing portion and stands, substantially as described, and a locking device to secure the bearing portion and stands, in combination with an end plug to stop up one end of the bearing, substantially as set forth.

4. The bearing portion stopped at its outer end, and provided with an opening at its inner end for exit of oil, in combination with an oil-supplying reservoir, and an oil-receiving reservoir, provided with a discharge-outlet to remove the oil, substantially as described.

189,889. ORE-WASHERS. H. B. Taylor, Chester, England. [Filed Feb. 5, 1877.]

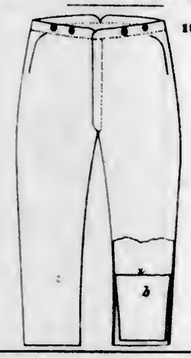
Brief.—A series of conical drums projecting into each other, provided with internal screw-threads, varying in pitch and depth, and each supplied by a pipe with water for washing the minerals to be sized. The whole revolves on friction-rollers.



1. In apparatus for washing, separating, and sizing mineral and other substances, the combination of two or more conical drums having internal screw-threads of varying pitch and depth, one drum being arranged to deliver within the other, substantially as and for the purpose specified.

2. The combination of two or more conical drums having internal screw-threads of varying pitch and depth, one drum arranged to deliver within the other, and a device or devices, substantially as specified, for supplying a stream of water to each drum of the series, substantially as and for the purpose specified.

189,892.

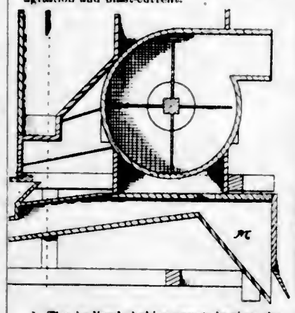


189,892. PANTALOONS. S. L. Thompson and Levi M. Thompson, Kingfield, Me. [Filed Mar. 6, 1877.]

A pair of pants provided with tubular lining-pieces *b*, suspended within the pants-legs, of uniform size therewith, loose at their lower ends, and lying close against the inside of the legs throughout their length, and secured to the body fabric at the upper edges only, all as set forth.

189,894. GRAIN-SEPARATORS. Grant B. Turner, Cuyahoga Falls, Ohio. [Filed Jan. 23, 1877.]

Brief.—Novel construction and combination of parts, for giving material preliminary screening, and subsequently subjecting it to agitation and blast-current.



1. The inclined shaking-spout, having the transverse roughened incline or hog-back, in combination with a fan for inducing an air-current through the spout, substantially as specified.

2. In combination with a grain-separator the vibrating or shaking spout having the transverse incline or hog-back, and means for inducing an air-blast through the same, all substantially as and for the purpose specified.

3. In combination with the shaking-spout the transverse inclines or hog-back, substantially as and for the purpose specified.

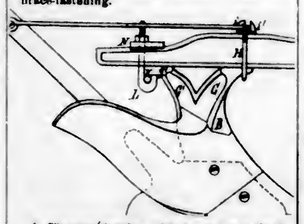
4. In combination with the shaking-spout the incline or hog-back and the valve located over the hog-back, substantially as and for the purpose specified.

5. In combination with the shaking-spout the incline or hog-back, and the receiving and deflecting shelf, substantially as and for the purpose specified.

6. The inclined shaking-spout, having the hopper M, in combination with a fan for inducing an air-blast through the spout, substantially as and for the purpose specified.

189,895. PLOWS. Geo. Wiard and C. W. Hough, East Avon, assignors to the Wiard Plow Company, Batavia, N. Y. [Filed July 17, 1876.]

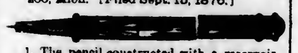
Brief.—Devices for adjusting the beam longitudinally, laterally, and vertically. Movable brace-fastening.



1. The combination, with the rear standard D', cast with the transverse rib K, of the beam A, formed with two or more holes, *m*, adjustable hook-bolt L, and interposed wedge N, all arranged as shown, so that the beam can be adjusted longitudinally, laterally, and vertically from the same standard, as herein-before set forth.

2. The combination, with the standard B and beam A, made longitudinally adjustable, of the U-shaped clamp H and strap k, provided with hooks *i i'* for holding the handle-brace I, substantially as and for the purpose herein-before set forth.

189,896. PENCILS. O. M. Allen, Kalamazoo, Mich. [Filed Sept. 16, 1876.]

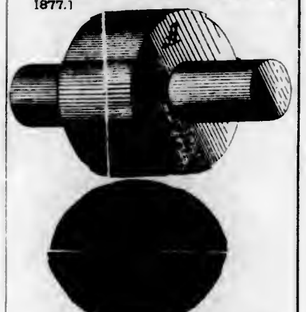


1. The pencil constructed with a reservoir crayon-chamber, forming a single shell case, and adapted to automatically feed its crayons into the tip of the pencil, substantially as described.

2. In a pencil provided with loose leads or crayons, the combination, with a chamber adapted to receive two or more longitudinal series of said leads or crayons, of a small auxiliary feed-cylinder for presenting them singly for use, substantially as and for the purpose described.

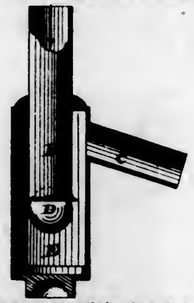
3. The combination, with the stock of a pencil case adapted to hold several layers of loose crayons, of a feed-tube constructed funnel-shaped at its inner extremity for readily presenting a single crayon to the close-fitting bore at the working end of the tube, substantially as described.

189,897. ROLLS FOR PULVERISING-MILLS. E. S. Blake, Pittsburg, Pa. [Filed Jan. 4, 1877.]



A pulverising-roll having its convex surface formed in alternate stripes of chilled and unchilled iron, said stripes running in the direction of the axis of the roll, substantially as and for the purpose described.

189,898. SEWER-GAS TRAPS. B. P. Bowers, Cleveland, Ohio. [Filed Feb. 12, 1877.]



A sewer-gas trap consisting in a chamber having an eduction-pipe leading therefrom, and an induction-pipe extending downwardly below the line of standing water in said chamber, the lower end of said pipe constituting a valve-seat, which latter is closed by a valve, that acts by its floating-pressure to close the valve-seat, substantially as and for the purposes described.

189,899. EXPANDING SCREW-TAPS. J. B. Douglass, Philadelphia, Pa., assignor to Morris, Tasker & Co., (limited,) same place. [Filed Mar. 3, 1877.]

1. In a screw-threaded tap, thread-cutting jaws F, adapted to be both radially projected by an eccentric, C, and radially retracted by springs *f*.

2. In a screw-cutting tap, thread-cutting jaws F, set radially through the shell D, in combination with springs *f*, and with an eccentric, C, provided with crests *c* and hollows *c'*, as and for the purposes set forth.

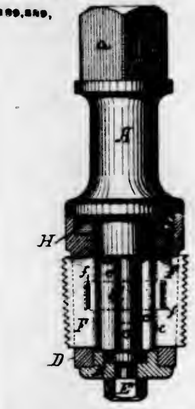
3. In combination with the shell D, lugs H on the stock A to limit the throw of the shell, substantially as and for the purposes set forth.

4. In combination with the shell D reamer-cutters G, set so as to project beyond the thread-cutting jaws F when the latter are retracted, (and in such relation adapted to ream in a direction the reverse of the cutting of the jaws,) and to be within the cutting-line of said jaws when the latter are projected, substantially as specified.

5. A screw-cutting tap, provided with both fixed reamer-cutters and thread-cutting jaws, and thereby adapted to be used as both a tap and a reamer, substantially as shown and described.

6. The combination of the jaws F and their springs *f* with the stem C, having hollows *c'*, the springs adapted to retract the jaws into the hollows, and the hollows to receive the jaws, substantially as described.

189,899.



189,900. SPINNING-FRAMES. W. F. Draper, Hopedale, Mass. [Filed Oct. 2, 1876.]

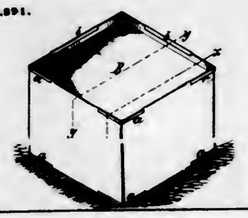
Brief.—A bobbin provided with a bearing at the upper end in, at its lower end, engaged by a whirl. The journal at its upper end, or the bearing-surface therefor, is grooved, so as to form bearing-surfaces and spaces alternately.



1. A whirl, and a bobbin adapted to be moved by the whirl, in combination with a top piece and a guide-surface therefor, the top piece and guide-surface being constructed with projecting bearing-points and intervening spaces for the yarn, to steady the bobbin and to permit the yarn to slip from one to the other space when the yarn is being wound upon the bobbin, substantially as described.

2. In combination, a bobbin and a top piece, and a guide-surface or wall constructed to afford projecting bearing-surfaces and spaces at intervals, as described, and having a slot leading to such spaces, substantially as described.

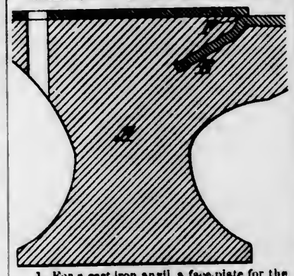
189,901.



189,901. SHEET-METAL CANS. Francis C. Fleming, New York, N. Y. [Filed Apr. 3, 1877.]

A can in which the edges of the head and body are mutually interlocked and overlapped, substantially as and for the purpose set forth.

189,902. CAST-IRON ANVILS. C. Fisher, Trenton, N. J. [Filed Mar. 21, 1877.]

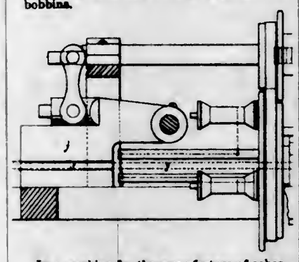


1. For a cast-iron anvil a face-plate for the horn or beak, provided with an internally-projecting tongue adapted to be embedded in the cast metal of the body, substantially as and for the purposes set forth.

2. As a new article of manufacture, the cast-iron anvil, the horn of which is provided with and anchored by a face-plate projected into the body of the anvil, substantially as shown and described.

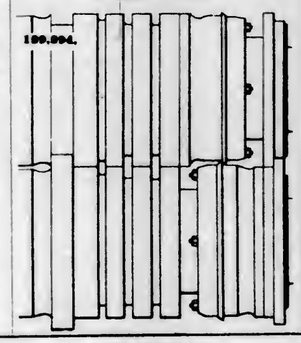
189,903. MACHINES FOR MAKING ASBESTUS PACKING. H. W. Guest, New London, Conn., assignor to the Asbestos Packing Company, Boston, Mass. [Filed Sept. 22, 1876.]

Brief.—The asbestus is laid upon a fibrous strip in a groove, and compressed by means of intermittingly-acting jaws. The strand or rope is then wound with cord or thread passing from a revolving carriage provided with bobbins.



In a machine for the manufacture of asbestus packing strands or ropes, the combination, with the intermittingly-acting compressing-jaw *j*, and a grooved box, *l*, of the carriage and bobbins, adapted to wind the fibrous strands about the asbestus to make a packing rope or strand, substantially as described.

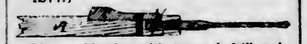
189,904.



189,904. MODES OF REDUCING OLD RAILS AND FAG-ENDS OF RAILS TO BARS. J. C. Hill, A. C. Pillmer, and Wm. Williams, Oakfields Works, Parish of Llanternam, England. [Filed Mar. 31, 1877.]

The production of billets or bars from rail-ends and old rails by the combined processes of rolling to reduce the flanges, then dividing longitudinally, and afterward rolling on edge, substantially as hereinbefore described.

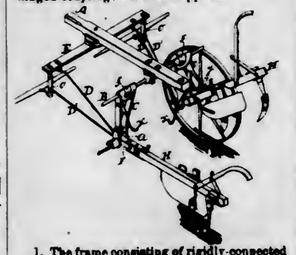
189,905. DRILLING MECHANISMS. Oren S. Hosmer, Boston, Mass. [Filed Feb. 26, 1877.]



The combination, with a round drill and socketed holder or arbor, of a latch, pivoted at right angles to such holder or arbor, and provided with a lip to engage a notch or shoulder of the drill shank, the adjacent surfaces of the lip and notch being flat and (when the drill is locked within its socket) close together, and the whole being so arranged that the latch serves not only to retain the drill in place within the socket, but to prevent turning of such drill in said socket, essentially as and for purposes stated.

189,906. CULTIVATORS. J. M. Long, Hamilton, Ohio. [Filed May 31, 1876.]

Brief.—The axle-arm supports are pivoted upon the axle-shaft, and are held at any desired lateral adjustment by sliding collars or sleeves provided with set-screws. Said supports are connected with the double-tree or evener by draft and stay bars, thus allowing a forwardly and rearwardly vibrating motion to the plow-beams, which are connected by hinged couplings with the supports.



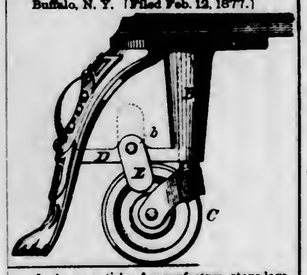
1. The frame consisting of rigidly-connected parts A B, in combination with flexibly-connected parts C B D' O and stay D, substantially as and for the purpose described.

2. The combination of the draft-bar D' and stay D with coupling O and double-tree E, as and for the purpose specified.

3. The hinged coupling-block F, in combination with pivoted axle-arm supports C, draft-bar D', stay D, double-tree E, and plow-beam H, as and for the purpose described.

4. In combination with the upper branches of pivoted axle-supports C and shaft B, the collar *f*, with its set-screw for laterally adjusting the plows and carrying-wheels, in the manner and for the purpose specified.

189,907. STOVE-LEG CASTERS. A. Moy, Buffalo, N. Y. [Filed Feb. 12, 1877.]

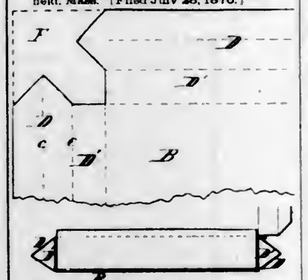


1. As an article of manufacture, stove-legs having a socket, B, bridge-piece or bearer D, two catches, E, pivoted to said bearer D, and a caster-wheel, C, substantially as hereinbefore set forth and stated.

THE GRAPHIC CO. N.Y.

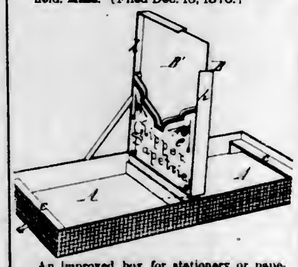
2. In furniture having three or more legs, casters having sockets provided with bearing pieces carrying pivoted catches arranged to engage both faces of the caster-wheels, said sockets being, with their appurtenants, so placed that the locking of the wheels is effected when their lines of travel radiate from a common center, substantially in the manner and for the use and purpose hereinbefore set forth and described.

189,898. PAPER BOXES. E. Morgan, Springfield, Mass. [Filed July 28, 1876.]



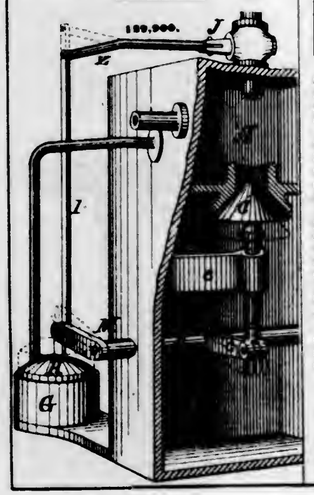
A box made from a blank, B, having its corners cut away at F, and folded to form the brace D upon the outside edges, substantially as set forth.

189,899. PAPER BOXES. E. Morgan, Springfield, Mass. [Filed Dec. 13, 1876.]



An improved box for stationery or paperteries, consisting of the combination of the two parts A A, each having the stop *e*, and the double pocket B, provided with the inclosing-band *h*, hinged to said parts A, substantially as herein described.

189,900.

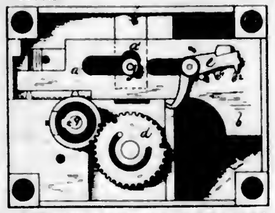


189,901. FIRE-KINDLERS. T. Park, Brooklyn, N. Y., assignor of one-half his right to W. C. Boone, same place. [Filed Jan. 22, 1877.]



A fire-kindler consisting of a wrought metal rod, A, attached to a cylinder of asbestus inclosed in a net of reticulated wire-gauze wrapped around the cylinder to protect it from abrasion, substantially as set forth.

189,902. COMBINATION-LOCKS. O. E. Pillard, New Britain, Conn., and E. M. McPherson, Boston, Mass. [Filed Mar. 9, 1877.]



1. The gears *d*, gears *e* on shaft *j*, and bolt *b*, provided with straight mortise *a*, combined and so arranged that, in operation, the said gears are constantly in mesh, substantially as described.

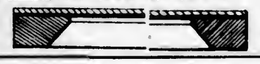
2. The gears *e*, provided with notches *e'*, bolt *b*, bearing pin *i*, and pivoted dog *c*, having inclines c^1 c^2, combined and so arranged that, in operation, the dog must lock into the notch when the bolt is shot out or in, substantially as described.

3. The gears *e* on shaft *j*, and the bolt *b*, provided with straight or horizontal mortise *a* and vertical mortise *a'*, combined and so arranged that the gears *e* can be lifted to unmesh from gears *d* when the bolt is in, substantially as described.

4. Gears *e* on shaft *j*, lever *k*, disk *n*, bearing torn-post m^2, and the spring pawl *s*, all combined substantially as described.

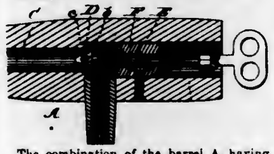
5. The key disks *h* bearing different letters at the same relative points on the perimeters, substantially as described, and for the purpose set forth.

189,903. METHODS OF MOUNTING SHOW-CARDS, MAPS, &c. Wm. J. Quarry, Cincinnati, Ohio. [Filed Sept. 1, 1874.]



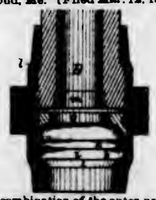
In combination with a card, map, chart, print, or other like article mounted upon a stretcher, with its face inward, so as to be surrounded by the projecting frame, a sheet of stiff straw, tar, or other board glued or cemented to the back of said mounted article, substantially as and for the purpose set forth.

189,904. FAUCETS. L. A. Rebass, Lockport, N. Y., assignor to F. C. Lillis and N. B. Badgie, same place. [Filed Mar. 23, 1877.]



The combination of the barrel A, having the straight way C and enlarged bore H, with the fixed nut F, screw-stem E, and plug D, all arranged, constructed, and operating as shown, and for the purpose set forth.

189,905. HOSE-COUPLINGS. W. A. Rideout, Richmond, Me. [Filed Mar. 12, 1877.]



1. The combination of the outer part A with the inner part B, the packing C being arranged to adjust itself to the bevel and grooves of the inner part B, substantially as described.

2. The combination of the inner part B with the wedge-flange *s s* and corresponding parts in the outer part, substantially as described.

3. The combination of the two parts with the tapering pin *d*, substantially as described, and for the purposes specified.

189,906. BOTTLE-STOPPERS. C. Sedgwick, New York, N. Y., assignor to H. W. Putnam, Bennington, Vt. [Filed Apr. 9, 1877.]



The arms of the bottle-stopper yoke arranged in the eyes of the neck-wire, and having the cam-lever pivoted to them below the neck-wire, and in the described relation thereto, for the purpose and in the manner substantially as specified.

189,907. TOY MONEY-BOXES. F. W. Smith, Bridgeport, Conn. [Filed Mar. 18, 1876.]

1. The toy money-box constructed, substantially as hereinbefore set forth, in the form of an image or figure having movable parts, limbs, or features, automatically operated by the direct action of the coin after it is inserted through an opening in the box.

2. The toy money-box hereinbefore set forth, consisting of the combination of the fixed trunk or body of an image or figure, the channel therein for the passage of a coin, and the counterpoised head rocking on a pivot in the image, whereby the head is rocked by the direct action of the coin as it passes into the box.

3. The combination, substantially as hereinbefore set forth, in a toy money-box, of the body or trunk, the pivoted channel therein, through which the coin passes, the head pivoted on the trunk or body, counterpoised eyes pivoted in the head, and links connecting the channel and eyes, whereby the direct action of the coin causes the head to bow and the eyes to roll.

4. The combination, substantially as set forth, in a toy money-box, of an image or figure having a fixed body, and movable limbs, parts, or features, a channel for the passage of the coin pivoted in or upon said body, and link-connections between said channel and the movable parts of the image, whereby the passage of the coin through the channel causes the vibration of the latter, and the consequent movements of the image.

5. The combination, substantially as set forth, in a toy money-box, of the body of the image, movable parts or features mounted thereon, the channel pivoted within the body, the independent supplementary channel pivoted therein, and link-connections, substantially such as described, connecting the channels and parts or features, respectively, whereby the direct action of the coin, in its passage into the body, causes the parts to move, as set forth.

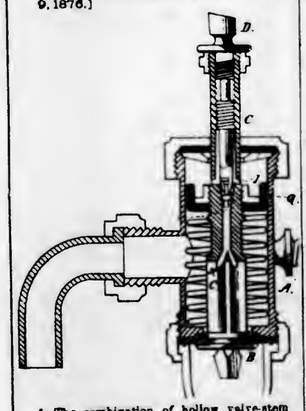
6. The combination, substantially as hereinbefore set forth, in a toy money-box, of a fixed body, the head pivoted thereon, eyes pivoted in the head, the hinged jaw, the vibrating channel through which the coin passes, and the links connecting the channel, the head, the jaw, and the eyes, substantially as set forth, whereby the bowing of the head produces the movement of the eyes and jaw, as set forth.

7. The combination, substantially as set forth, in a toy money-box, of a vibrating channel, pivoted eyes and jaw, link-connections, and the retracting-spring, whereby the parts are restored to the normal position after the passage of the coin.

189,907.



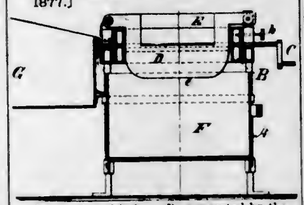
189,908. WATER-CLOSET VALVES. R. J. Thomas, Milwaukee, Wis. [Filed Sept. 9, 1876.]



1. The combination of hollow valve-stem O, valve-regulator D, screwed into valve-stem O, and projecting out of the cock so that the valve may be adjusted without opening the cock, valve H, the stem of which slides into the adjuster D, and valve-seat I, substantially as described.

2. Valve-stem C, valve B, piston-head Q, openings K, adjuster D, and valve H, in combination with case A and valve-seat I, substantially as described.

189,909. VEGETABLE-SLICERS. Joseph H. Alfred, Rosbach, Iowa. [Filed Feb. 3, 1877.]

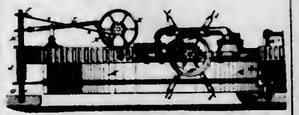


1. A series of knives, D, supported by the frame E, the pivoted frame B, and the supporting-frame A, constructed and combined substantially as herein shown and described.

2. The combination of the removable receptacle G, frame A, box F, knives D, and rods *c*, and their supporting-frame, substantially as herein shown and described.

3. The combination of the crank C, pin *b*, and pivoted frame B, substantially as herein shown and described.

189,910. STEAM ICE-BOATS. Juan Arnao and Juan Arnao, Jr., Brooklyn, N. Y. [Filed Jan. 9, 1877.]



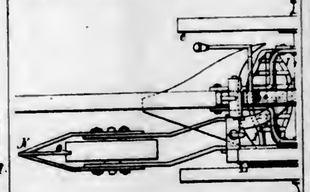
1. The combination of the boat A, shafts H H', with springs *d d'*, and rocking runners G G', as and for the purposes set forth.

2. The combination of the runner G, shaft H, spring *d*, lever J, cords or chains *e e*, and windlass or steering apparatus K, substantially as and for the purposes set forth.

3. The combination of the runners with their shafts, the levers L, cords or chains *h h*, pulleys *i i*, and windlass K, substantially as and for the purposes herein set forth.

189,911. POTATO-DIGGERS. L. A. Aspinwall, Albany, N. Y. [Filed Feb. 22, 1877.]

Brief.—The spade and separator are supported at one side of the machine, and a dividing and lifting apparatus are used at the same side as the spade and separator, so as to allow vines and weeds to pass at the other side of the machine.



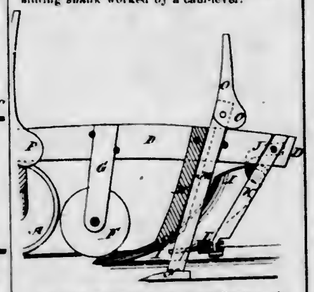
1. The revolving separator I, made of the blades *c*, extending as bows, one at each side of the shaft *d*, and connected with the ring *e*, and provided with fingers *f* between the blades *c*, in combination with the spade D, for the purposes and substantially as set forth.

2. The revolving separator I, in combination with the bracket-bearing *g* at one side only of the separator, and the spade D, substantially as set forth.

3. The combination, in a potato-digger, of the divider N and fence O at one side, and the spade D and the revolving separator I, supported at the same side of the machine as the divider N, so as to allow the vines and weeds to pass through at the other side of the machine, substantially as set forth.

189,912. PLOWS. C. Atkinson, Monterey, Ill. [Filed Feb. 17, 1877.]

Brief.—A link-connection between the plow-beam and axle allows the former to be raised by a cam-lever. Subsoiler with a vertically-sliding shank worked by a cam-lever.

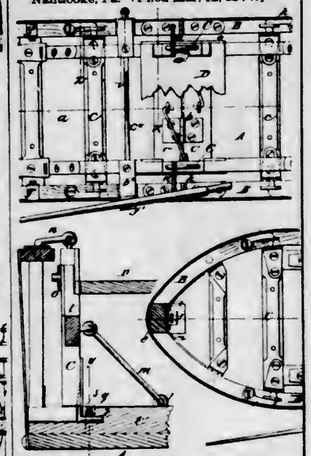


1. The combination of the following elements: the double plow I, to turn opposite furrows, the rolling colter F, to divide the same, and the subsoiler M N, having cam O, all regulated in working depth by the cam-lever P raising the plow-beam upon the axle B, substantially as shown and described.

2. The combination of the eccentric lever O with the subsoil-standard M and the plow-beam D, substantially as herein shown and described.

3. The combination, with the mold-boards I, of the braces J K and bar L, constructed and arranged substantially as and for the purpose specified.

189,913. FOLDING BOATS. Jno. H. Bates, Nanticoke, Pa. [Filed Mar. 12, 1877.]



1. The combination, in a folding boat, of the centrally-hinged bottom A, having cleats *c c'* *n*, the hinged ribs *d d'*, posts *e*, hinged rails B, and water-proof covering E, substantially as herein shown and described.

2. The combination of the standard C, having hooks *l m n*, slot *p*, and ears *o*, braces *t*, seat D, and the bottom and rail of a folding boat, substantially as herein shown and described.

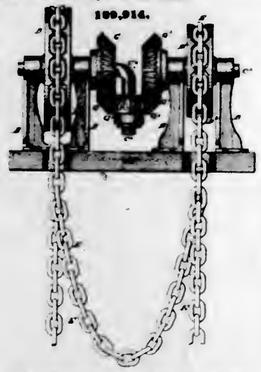
3. The rod *e'*, slotted blocks b^1, and forks f^1, in combination with the rail B, having the stud e^1, substantially as herein shown and described.

189,914. ELEVATORS. Wm. W. Blakeslee, Spring Lake, Mich. [Filed Oct. 31, 1876.]

Brief.—Two differential pulleys, each on a separate standard, have bevel wheels facing one another on their axial line—one fixed to its pulley-axis, the other to its standard. Between the bevel-wheels there is a pinion on

the crank of a shaft passing through the latter wheel. This pinion rolls on one to operate the other. The chain while being wound on one is unwinding from the other.

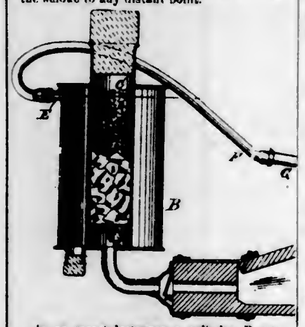
189,914.



The combination of the bed A, with standards B B, the shaft C, with crank C' and chain-wheel D, the shaft C', with chain-wheel D' and gear-wheel G', the stationary gear-wheel G, the gear-wheel G' on the crank C', and the chain E, passed around the chain-wheels D D', all substantially as and for the purposes herein set forth.

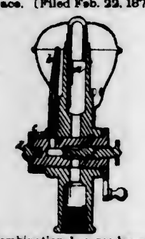
189,915. FUMIGATORS. Geo. T. Blanchard, Plymouth, Ms. [Filed Mar. 3, 1877.]

Brief.—A fumigator consisting of a bellows, and a fire-chamber for containing the fumigating material, and a flexible tube for carrying the smoke to any distant point.



In an insect-destroyer, a cylinder, B, provided near the top with tubing E F G, in combination with an internal side-perforated tube C, and removable grate *s d*, said tube being connected at the lower end with a bellows, as and for the purpose specified.

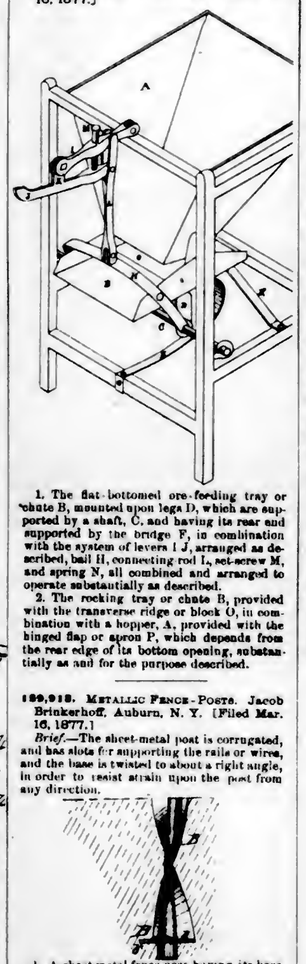
189,916. GAS-BURNERS. F. T. Bliss, New Haven, Conn., assignor of two-thirds his right to J. W. S. Peck and C. A. Chase, same place. [Filed Feb. 22, 1877.]



1. The combination, in a gas-burner, having a main and an auxiliary jet, of a plug-cock which controls only the main jet, and a screw-plug within the main plug, substantially as described.

2. The combination in a gas-burner, with the tapered plug-cock and its spring, of a cap which is connected to the plug, and incloses its projecting end and its spring, substantially as described.

189,917. ORE-FEEDERS FOR STAMPS. M. P. Boss, Virginia City, Nev. [Filed Feb. 16, 1877.]



1. The flat-bottomed ore-feeding tray or chute B, mounted upon legs D, which are supported by a shaft, C, and having its rear end supported by the bridge F, in combination with the system of levers I J, arranged as described, ball H, connecting-rod L, set-screw M, and spring N, all combined and arranged to operate substantially as described.

2. The rocking tray or chute B, provided with the transverse ridge or block G, in combination with a hopper, A, provided with the hinged flap or apron P, which depends from the rear edge of its bottom opening, substantially as and for the purpose described.

189,918. METALLIC FENCE-POSTS. Jacob Brinkerhoff, Auburn, N. Y. [Filed Mar. 16, 1877.]

Brief.—The sheet-metal post is corrugated, and has slots for supporting the rails or wires, and the base is twisted to about a right angle, in order to resist strain upon the post from any direction.

1. A sheet-metal fence-post having its base gradually twisted, substantially as and for the purposes herein set forth.

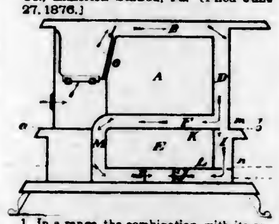
2. A sheet-metal fence-post having its base twisted, and provided with one or more longitudinal corrugations extending the entire length of the base, substantially as herein set forth.

3. A sheet-metal fence-post having a twisted base, and provided with one or more longitudinal corrugations through the post and base, substantially as and for the purposes herein set forth.

4. A sheet-metal twisted fence-post having one or more longitudinal corrugations, and a series of slits or slots in one or both of its edges, substantially as and for the purposes herein set forth.

5. A sheet-metal fence-post provided at the lower end of its base with lips *b' b'*, projecting outward in opposite directions, as set forth.

189,919. RANGES. J. Brownback, Limerick Station, and M. Towers, Jr., Phœnixville, assignors to March, Brownback & Co., Limerick Station, Pa. [Filed June 27, 1876.]



1. In a range, the combination, with its upper and lower ovens, of an intermediate flue, F, and damper G, substantially as and for the purpose set forth.

2. In a range, the combination with the upper and lower ovens of the flues B, D, F, I, J, and M, and damper G, substantially as and for the purpose specified.

3. In a range, the combination with an upper and lower oven and upper intermediate and lower distributing flues, of an exit-flue formed on the side of the range, having openings communicating with the intermediate and lower flue, and a damper located in the intermediate flue, and adapted to govern an opening in the exit-flue, substantially as and for the purpose set forth.

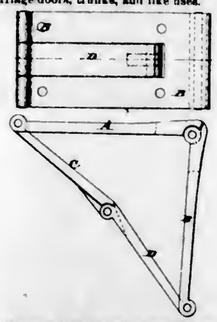
4. In a range, the combination of the perforated plates *m* and *n* with the lower oven E, substantially as and for the purpose specified.

5. The combination of the jointed rods or levers *h i* with the swinging damper G and the stop *k*, substantially as and for the purpose set forth.

6. The combination, with the flues J and H, of the flue-plates *m* and *n*, substantially as and for the purpose set forth.

189,920. STOP-HINGES FOR CARRIAGE-DOORS, &c. C. W. Butler, New York, N. Y. [Filed Mar. 10, 1877.]

Brief.—The wings or plates forming the body of the hinge are longitudinally slotted to receive, when folded in, two bars, which are hinged to each other at their inner ends, and at their outer ends are hinged to the outer ends of the slotted plates, thus forming a convenient double-folding stop-hinge for carriage-doors, trunks, and like uses.



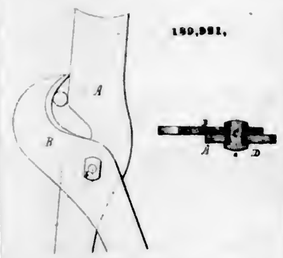
The bars C D, hinged to each other at their inner ends, and at their outer ends hinged to the outer edges of the slotted plates or wings A B of a hinge, substantially as herein shown and described.

189,921. PRUNING IMPLEMENTS. J. Chase, Orange, Mass. [Filed Feb. 17, 1877.]

Brief.—An auxiliary tube or sleeve, forming a tubular pivot, is provided, through which the rivet or bolt passes, and is secured by nut or otherwise; the construction serving, in pruning or other shears, to prevent unequal wear, and maintain the original position of the blades with respect to each other.

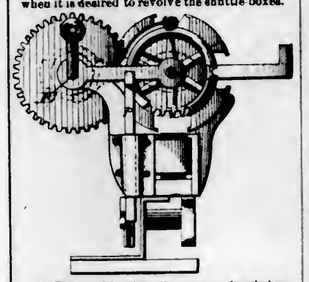
The auxiliary sleeve or tubular pivot D, in combination with the rivet or bolt C and blades A B, substantially as and for purposes stated.

189,921.



189,922. SHUTTLE-BOX MECHANISMS FOR LOOMS. F. Christen, Homestead, Iowa. [Filed Feb. 21, 1877.]

Brief.—A rotary shuttle-box is adapted to be used on a loom in which the shuttle is actuated by a carriage permanently secured to a positively-reciprocated carrier. The cylinder-shaft is provided with a series of gear-wheels, each being secured to said shaft, and each provided with a blank space corresponding to a shuttle-box. There are as many wheels as there are chambers. A shaft parallel to the cylinder-shaft has the same number of gear-wheels loosely mounted upon it. Clutches, operated by pivoted levers controlled by the jacquard, connect the last-mentioned gears to their shaft. The cylinder-shaft is journaled in pivoted bearings or arms, and mechanism actuated by a rack on the carriage lifts the said arms, thereby raising the cylinder out of the way of the carriage when it is desired to revolve the shuttle-boxes.



1. The combination of a rotary shuttle-box cylinder with a series of shuttles and a carriage, the latter permanently secured to a positively-reciprocated carrier, substantially as and for the purpose set forth.

2. In a loom wherein the shuttle is actuated by a positively-reciprocated carriage, the combination, with the shuttle-carriage and rotary shuttle-box cylinder, of mechanism, substantially as described, whereby the carriage, in its travel, serves to raise or lower said cylinder, substantially as and for the purpose set forth.

3. In a loom wherein the shuttle is actuated by a positively-reciprocated carriage, the combination, with the shuttle-box cylinder, journaled in vibrating bearings, and mechanism for operating the cylinder, of the shuttle-carriage, provided with a rack, and a toothed sector, and mechanism arranged to impart vertical movement to the shuttle-box cylinder, substantially as and for the purpose set forth.

4. The combination, with the shuttle-box cylinder and supporting-arms, pivoted upon the driving-shaft, of the shuttle-carriage, rack, toothed sector, rock-shaft, cam, levers, and sliding bars, substantially as and for the purpose set forth.

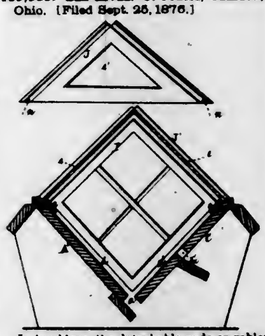
5. The combination, with the driving-shaft having gears loosely mounted upon the same, and sliding clutches adapted to lock said gears to the shaft, of the cylinder-shaft, provided with sectional gears, and clutch-levers adapted to throw the gears on the driving-shaft in or out of gear with the sectional gears on the cylinder-shaft, substantially as and for the purpose set forth.

6. The combination, with the loose gears on the driving-shaft, of sectional gears and collars on the cylinder-shaft and clutch-levers pivoted to said collars, substantially as and for the purpose set forth.

7. The combination, with the cylinder-shaft and mechanism for vertically moving the same, of the sectional bearing for its inner end, whereby the weft-thread may pass from the journal when the shuttle leaves the box, substantially as and for the purpose set forth.

8. The combination, with a positively reciprocated shuttle-carriage and a rotary shuttle-box, the same adapted to be raised and lowered by the shuttle-carriage, of mechanism, substantially as set forth, whereby the cylinder may be actuated to bring any one of its boxes in line with the shuttle-race, substantially as and for the purpose set forth.

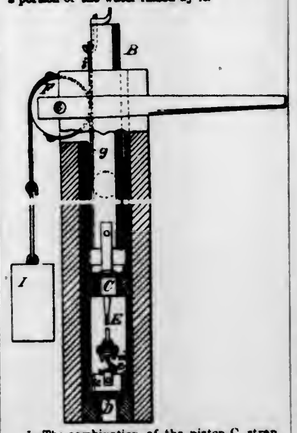
189,923. BEE-HIVES. J. Coates, Camden, Ohio. [Filed Sept. 25, 1876.]



In bee-hives, the detachable ends or gables J J, provided with grooves *n n*, for the admission and removal of the glass covering *c*, in combination with the sides A' C of the hive, frames I, and roof B, in the manner substantially as set forth, and for the purpose specified.

189,924. PUMPS. M. Cook, West Le Roy, Mich. [Filed Feb. 10, 1877.]

Brief.—The hoop fits the bore of the stock loosely, and is provided with two weighted levers having points which engage the side of the pump-stock, when the levers are allowed to drop toward the hoop, and retain the hoop and valve. A strap connected to the surface of the drum is connected to a rod that extends down, and is connected to a weight, which balances the weight of the piston, and a portion of the water raised by it.

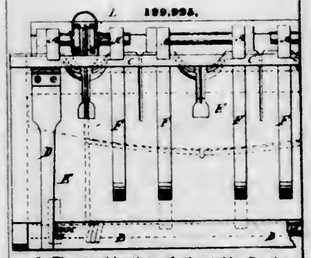


1. The combination of the piston C, strap E, levers *c d*, hoop *e*, and valve D, substantially as herein shown and described.

2. The combination of the counter-weight I, drum F, straps *g i*, and piston-rod B, substantially as herein shown and described.

189,925. CORN-STALK PRESSES. Edgar P. Davis, James R. Davis, and John Fisk, Orete, Nebr. [Filed Mar. 12, 1877.]

189,926.

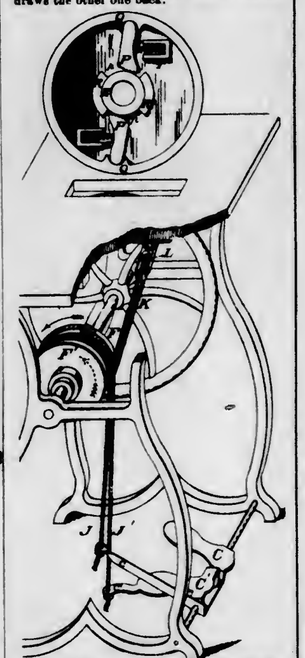


1. The combination of the table B, the cover D R F, bar I, follower J, rope K, guide-pulleys L, and crank-shaft N, with each other and the frame A, substantially as herein shown and described.

2. A fuel formed of corn-stalks and similar material, pressed into bundles of suitable size to enter a stove, and bound with wire bands, substantially as herein shown and described.

189,926. TREADLE-MOVEMENTS. Napoleon Du Brul, Cincinnati, Ohio. [Filed Feb. 2, 1877.]

Brief.—The notice of the driving-clutch draws the other one back.

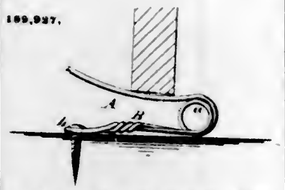


In combination with the pair of alternately-acting treadles C C' and the thongs or cords J J' K and idler L, the pair of wheels or pulleys F F', each provided with eccentric pawls P P', occupying sockets Q and cheeks R, which operative parts in each wheel are separated from those in the other wheel or pulley by the annular plate G, as and for the purposes set forth.

189,927. DOOR-CHECKS. Jas. B. Everest, Yonkers, N. Y. [Filed Mar. 12, 1877.]

Brief.—A single piece of spring-wire is bent into a T-shaped loop, the parallel extremities forming coils, then twisted together, and terminates in eyes, for screw attachment; the device, placed underneath a door, constituting a convenient and inexpensive check to hold it in desired position.

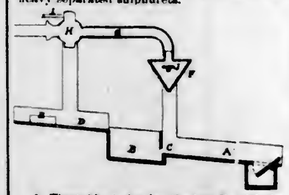
189,927.



A door-holding device consisting of a single piece of spring-wire formed into a loop, A, coils *a a*, and part B, having eyes *b*, substantially as herein shown and described

189,928. ORE SLUICES AND CONCENTRATORS. Geo. R. Evans, Carson City, Nev., assignor of three-fourths of his right to E. E. Scott, D. N. Brule, and A. Tremblay. [Filed Dec. 11, 1876.]

Brief.—The ore fed in upon the head-piece is equally distributed over the table in passing through the apertures of the bridge or dam, and flows thence along the sluice to the end, while subjected to the sheet-water shower falling from above. A tail-trap catches the heavy separated sulphurets.



1. The table A, having the box B, with the distributing-opening C, and the head-box D, with the V or other suitably shaped pieces E, to secure an even discharge upon the table, substantially as herein described.

2. The water-receiver F, supported upon journals, and provided with a spreader, J, whereby the water received from the central pipe G flows equally from the entire length of the box through a suitable opening, substantially as described.

189,929. FILTER-RACKS. B. Fenner, Westfield, N. Y. [Filed Mar. 12, 1877.]



1. A filter-rack, consisting of a main part of spiral wire, having suitable devices for being attached to top and bottom of funnel, substantially as and for the purpose herein specified.

2. A filter-rack, made of a spirally-coiled wire, having outer hooks, and of a jointed center link with lower hook end, substantially as herein shown and described.

189,930. STEAM-BOILERS. P. Fitzgibbons, Oswego, N. Y., assignor of one-half his right to R. E. Stone, same place. [Filed Feb. 21, 1877.]

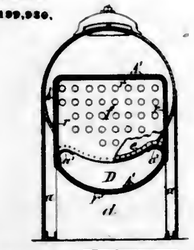
Brief.—The rivet-joints of the boiler are made stronger by strengthening-bands.

1. The throat D, having the shape of an inverted arch, formed by the bottom portion of the shell of the boiler proper at the top, the curved top portion *a'* of the water-leg *a* at the sides, and a segmental or crescent-shaped top of the throat-sheet *d* at the bottom, and the rear smoke-box A', having a correspondingly-curved bottom, all constructed and combined substantially in the manner specified, for the purposes set forth.

2. The back flue-sheet *f*, extended in width to cause its side edges to coincide with the sides of the throat D, and attached to the bottom portion of the shell of the boiler proper and to the curved top portion *a'* of the water-leg *a*, by means of the angle iron or L-shaped band *e*, extended across the bottom portion of the boiler-shell, and over the curved top portion *a'* of the water-leg, substantially as described and shown, for the purpose specified.

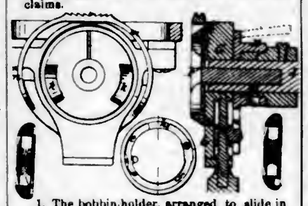
3. The flue-sheet *f* and the throat-sheet *d*, having the rearward-projecting flange *r* forming one continuous flange, and the smoke-box A' attached with its top and sides to the exterior of the flange on the flue-sheet, and with its semicircular bottom to the interior of the flange on the throat-sheet, substantially in the manner and for the purpose shown and described.

189,930.



189,931. SEWING-MACHINES. J. L. Follett, New York, N. Y. [Filed Jan. 22, 1877.]

Brief.—Improvements on Patent No. 162,374, April 26, 1875, fully set forth in the claims.



1. The bobbin-holder, arranged to slide in a recess in the cloth-plate support, in combination with a spring which tends to force it toward the bobbin, and is contained in a recess between the cloth-plate support and the cloth-plate above, substantially as shown and described.

2. The sliding bobbin-holder and its spring, arranged between the cloth-plate support and the cloth-plate, as described, in combination with the adjustable flanged plate or stop on bobbin-holder, substantially as set forth.

3. The rotary hook, formed with a rearwardly-projecting annular rim, in combination with a back plate or standard, provided with a corresponding groove to receive said rim.

4. The double reversible rotary hook and the back plate formed with pockets or recesses, these parts being combined to jointly operate substantially in the manner set forth.

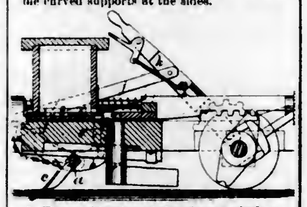
5. The bobbin-thread tension, consisting of a tension-spring in a groove on the back of the bobbin-case, in combination with the adjustable block or presser, held and movable in said groove, for the purpose of regulating the working-length of the spring, substantially as described.

6. The feed, consisting of an arch or curved branches carrying the feed-surface, and united with a hub mounted on an eccentric, as described, in combination with the spring engaging the upper part of the hub, and the adjusting-pin, movable between the diverging arms or tail-pieces of said hub, as set forth.

7. In combination with the cloth-plate and the cloth-plate support, the standard or back plate, attached to the cloth-plate support, and arranged as described, to afford a central bearing for the cloth-plate and the hook, as set forth.

189,932. CORN-PLANTERS. R. Fox, Deerfield, Iowa. [Filed Feb. 8, 1877.]

Brief.—The cross-beam to which the plow-standards are secured is journaled in adjustable curved supports at the sides.



1. The combination of the plows *c*, shaft *a*, adjustable supports *b*, levers *i* and *k*, and the connecting-rods *j*, substantially as herein shown and described.

2. The plow-shaft *a*, journaled in bars *b*, pivoted at one end and slotted near the other, as set forth, to allow said bars to be clamped at different altitudes.

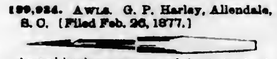
189,933. OSCILLATING CHAIRS. H. Geise, Philadelphia, Pa. [Filed Jan. 26, 1877.]

Brief.—The seat-frame is hinged at each side to the base-frame by a double hinge, between the plates of which an elastic cushion-block is held by a central pin, which latter forms the pivot. The block is recessed at its front and rear edges, to prevent the packing of the rubber, and permit the free oscillation of the chair.



The combination, with a chair-seat and its standard, of double-rule hinges D K, and elastic blocks G, the latter provided with central openings, and recessed ends, whereby they are adapted to be centrally secured between the parts of the hinge, and serve to cushion the forward and backward movement of the chair-seat, substantially as and for the purpose set forth.

189,934. AWLS. G. P. Harley, Allendale, S. C. [Filed Feb. 26, 1877.]



An awl having a recess and hook back of the point, and tapering side channels running from the recess to the point, substantially as shown and described, for the purpose set forth.

189,935. TALKING AND CRYING DOLLS. W. A. Harwood, Brooklyn, N. Y. [Filed Feb. 26, 1877.]

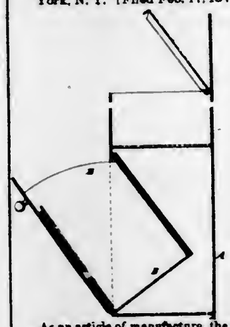
Brief.—To make the sounds "papa," &c., (heretofore caused by the pressure of air to fill a partial vacuum,) by direct blast of the breath of the nurse or tender applied to the mouth of the reed-pipe C.



1. A tube containing a reed, and having a flanged end provided with lugs, substantially as herein shown and described.

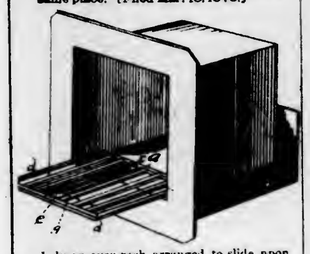
2. A tube containing a reed, and having a flanged end provided with lugs, and also with points for attaching the same to the doll-body, substantially as herein shown and described.

189,936. CARD-HOLDERS. H. J. Herbert, London, England, and E. R. Wilbur, New York, N. Y. [Filed Feb. 17, 1877.]



As an article of manufacture, the card-holder, formed of the case A, the weighted and hinged receptacle B, having an opening in its front side, and provided with a projection on its inner side, as shown and described, for the purpose specified.

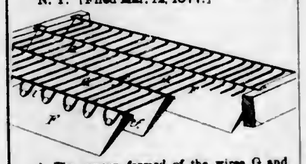
189,937. OVEN-RACKS. J. F. Houghton, Boston, Mass., assignor to S. D. Balkam, same place. [Filed Mar. 13, 1876.]



1. In an oven-rack arranged to slide upon the bottom of the oven the combination of the button *c*, attached to the oven or stove-bottom, and rack *d*, provided with flanges *g g*, and opening *e*, said opening being large enough to allow the head of said button to pass through it, all arranged and constructed substantially as herein set forth.

2. In an oven-rack, bars constructed as described, so as to present sharp edges to the oven-bottom, substantially as set forth.

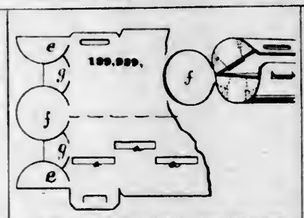
189,938. GRAIN-SEPARATORS. T. J. Hubbell, Yountville, Cal., assignor of one-half of his right to J. A. Boylan, Canaseraga, N. Y. [Filed Mar. 12, 1877.]



1. The screen formed of the wires G and inclined transverse slats F, formed with feather-edges at the under side, and with saw-kerfs at their upper edges, to receive and project above the wires, substantially as herein shown and described.

2. The adjustable slotted lever *h*, pivoted to its frame at its lower end, in combination with the pitman *d*, attached to crank-head *c*, and shoe D, provided with pin *h*, as and for the purpose described.

189,939. COIN-HOLDERS. H. G. Huested, Bridgeport, Conn. [Filed Sept. 19, 1876.]

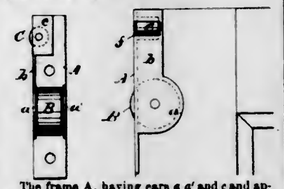


1. The coin-holder herein described, composed of two semi-cylinders jointed together and constructed with oblong slots arranged alternately in two rows, with intermediate connections between the slots, as shown.

2. The coin-holder, having at each end a circular closing flap, *f*, in combination with the semicircular flaps *e e* and the intermediate portions *g g*, as shown and described.

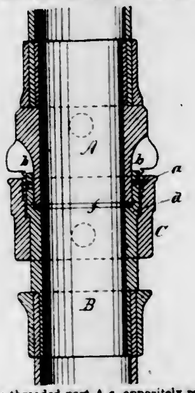
189,940. SASH-HOLDERS. Luther Jones and Jas. Stroud, New York, N. Y. [Filed Mar. 19, 1877.]

Brief.—Two rollers are arranged in a case or shell, at right angles to each other, the larger being the ordinary sash-roller, while the smaller one has a face bearing at right angles thereto; the construction being specially adapted for attachment to the upper corner of omnibus or street-car windows, to prevent binding.



The frame A, having ears *a a'* and end apertures *e f*, in combination with the rollers B C at right angles to each other, substantially as herein shown and described.

189,941. HOSE-COUPLINGS. Wm. B. Kilbourne, Auburn, Me. [Filed Feb. 17, 1877.]



The threaded part A *a*, oppositely recessed at *b*, and the flanged part B *d*, oppositely ingged at *c*, in combination with a revolving screw-sleeve, C, that slides back as well as forward, to allow the parts to be slid together without hinderance.

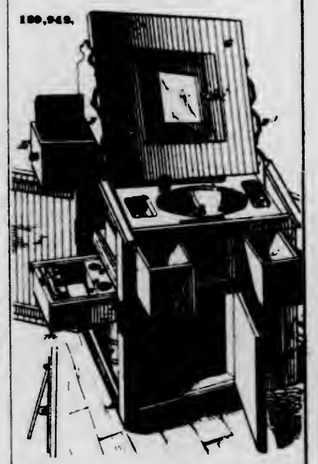
189,942. COMBINED DESK, WASH-STAND, AND BLACKING-CASE. A. O. Kirkwood, Yonkers, N. Y. [Filed Dec. 30, 1876.]

1. The end pieces D D', supporting shelves *f f'*, and one of said end pieces being cut out to admit the sliding reservoir E, as shown and described.

2. In a combined desk, wash-stand, and blacking-case, the drawer m, having the block *s* and the hinged foot-rest P, constructed and arranged substantially as shown and described.

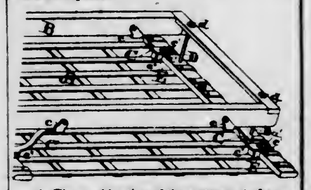
3. The button *i*, provided with projecting ears, in combination with the hinged mirror H, substantially as and for the purpose shown and described.

189,943.



189,943. BED-BOTTOMS. J. J. Lucas, Belleville, Ill. [Filed Feb. 10, 1877.]

Brief.—The mattress is connected with the supporting base-frame by arms or levers, pivoted to the base-frame at one end, and provided at their opposite ends with bearing-shoulders to receive the transverse end rails of the mattress, between which and the bearing-shoulders suitable springs may be interposed. Vertical adjusting-bolts also connect the mattress with the base-frame, whereby the tension of the fabric forming the mattress can be adjusted.

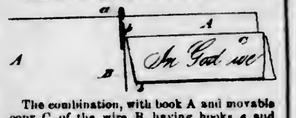


1. The combination of the mattress A, frame B, arms C C C C, and bolts D D D D, substantially as described.

2. The arms C C C C, having the shoulders *c'' c'' c'' c''*, in combination with the end rails *s s*, and springs E E E E, substantially as described.

3. The combination of the end rails *s s* and the pivoted supports C C C C, having the bearings *c' c' c' c'*, the former being movable upon the latter, substantially as described.

189,944. COPY-BOOKS. Jno. W. Manning, Cambria, N. Y. [Filed Jan. 19, 1877.]

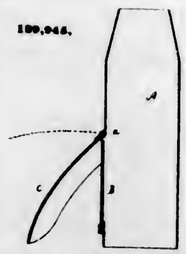


The combination, with book A and movable copy C, of the wire B, having hooks *a* and threads *b*, substantially as and for the purpose specified.

189,945. LAMP-CHIMNEYS. W. H. Mason, Plantsville, Conn. [Filed Mar. 9, 1877.]

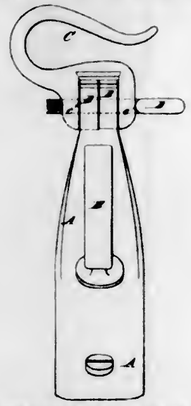
The herein-described lamp-chimney, consisting of the metal body A, with a transparently closed opening, B, and shade C, all substantially as described.

189,945.



189,946. HARNESS-SADDLE TREES. James McCormick, Glidden, Iowa. [Filed Mar. 19, 1877.]

Brief.—The tree is made in two parts, with their upper pivoted ends overlapping, and provided with teeth, which mesh into grooves or notches in the base of the water-hook; are held at any desired angle by a set-screw, which serves as a pivot for holding all the parts in position.

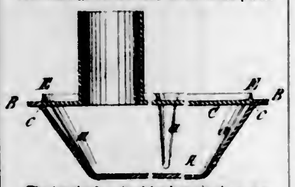


1. A saddle-tree, made in two parts, A, having legs B formed upon their upper ends, halved to each other, and provided with teeth to mesh into teeth formed upon the under side of the base of the water-hook C, substantially as herein shown and described.

2. The screw D, provided with a loop upon its rear end, in combination with the lugs *d* formed upon the ends of the base of the water-hook C and with the legs B of the parts A of the saddle-tree, substantially as herein shown and described.

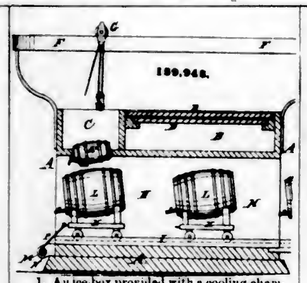
189,947. SERVICE-BOXES FOR WATER-CLOSETS. B. Mitchell, Montreal, Quebec, Canada. [Filed Jan. 31, 1877.]

Brief.—A rib on the cover is melted down onto a flange on the body to unite the parts.



The herein described lead service-box, composed of body A formed with rim B, and cover C formed with rib E, the body and cover being fused together, all substantially as and for the purpose specified.

189,948. ICE-BOX ATTACHMENTS FOR SETTLING AND COOLING ALE AND BEER. J. J. Moloney and I. S. Schuyler, Brooklyn, N. Y. [Filed Feb. 17, 1877.]



1. An ice-box provided with a cooling chamber, H, below the ice-chamber, and at one side of the latter with keg-compartments C, a track, F, with movable hoisting apparatus being arranged above, all as shown and described.

2. The detachable extension J of the tracks I upon the outside of the ice box, to receive a truck and cask, substantially as herein shown and described.

3. The combination of the crank-shaft M and rope P with the ice-box A, for moving the trucks K upon the tracks I, substantially as herein shown and described.

189,949. ICE-CREEPERS. A. T. Moore, Cadis, Ohio, assignor of one-half his right to J. L. Conwell, same place. [Filed Feb. 14, 1877.]

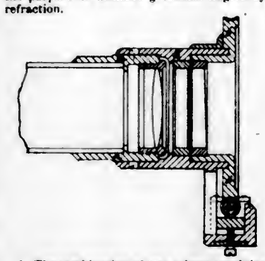


1. The combination, with the boot-heel *f*, constructed with a recess, *g*, of a plate, *a*, constructed with the vertical lug a^1, and calk *c*, hinged to the lug a^1, adapted to be raised to a vertical position, or turned down against the plate *a*, and within the recess *g*, substantially as and for the purpose set forth.

2. The ice-creeper, constructed of the base-plate *a*, having lugs a^1 a^2, calk *c*, and folding plate *d*, arranged and operating substantially as set forth.

189,950. TELESCOPES. Adolph Moser, Aix la Chapelle, Prussia. [Filed Oct. 10, 1876.]

Brief.—Applies two prisms to telescope, for the purpose of measuring minute angles by refraction.



1. The combination of two prisms revolving in the manner described, so that their power may be increased from zero to the sum of the powers of the two prisms, substantially as set forth.

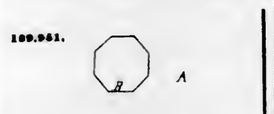
2. A dioptric instrument, provided with two prisms revolving in the manner described, in combination with a micrometer, substantially as set forth.

189,951. MARKING PLUG-TOBACCO. Geo. S. Myers, St. Louis, Mo. [Filed Feb. 26, 1877.]

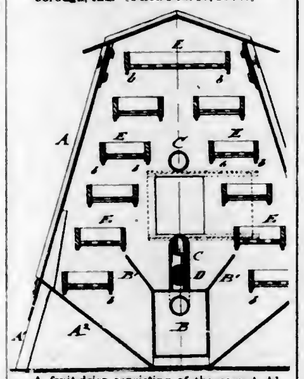
1. The transparent plate B, in combination with the label D, both being impressed into a plug of tobacco, substantially as set forth.

2. The method of attaching trade-marks to plug-tobacco, consisting of superposing a transparent or translucent plate above the mark or design, and then pressing it into the tobacco, carrying with it the design, which may readily be discerned through the plate, substantially as hereinbefore set forth.

189,951.



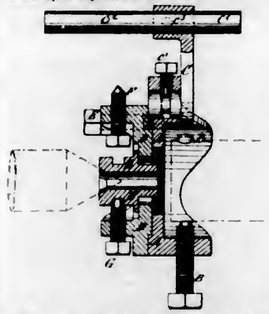
189,952. FRUIT-DRIERS. S. Myers, Adamsborough, Ind. [Filed Feb. 17, 1877.]



A fruit-drier consisting of the case A A', central heater B, having deflectors B', the rear-closed perforated tube D, having register *a*, and the drawers E, arranged at some distance from the sides of the case, and relatively supported on rods *b* as shown and described.

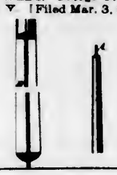
189,953. COMBINED CENTER AND CARRIER FOR LATHES. C. A. Nisbell, Scranton, Pa., assignor to himself and P. Frans, same place. [Filed Mar. 3, 1877.]

Brief.—For gas-pipe centers, for cutting off riser on shafts, for facing pipes, and as a chuck upon any kind of a lathe.



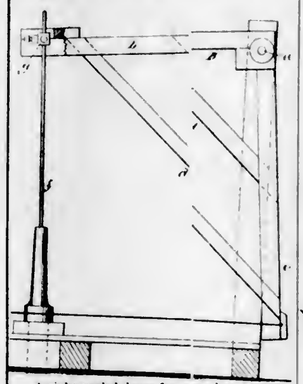
The combination of the flanged or lugged ring-plate A, provided with the screws B, the crank C, and the adjustable driving-pin *a*, the lugged ring-plate D, provided with the two sets of screws G and F, and the flanged or shouldered center guide H, with each other, substantially as herein shown and described.

189,954. WHIPS. George P. Overin, New York, N. Y. [Filed Mar. 3, 1877.]



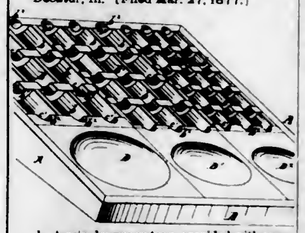
A whip, having a gut-core surrounded by rattan sections, substantially as shown and described.

189,955. PUMPING APPARATUS. W. F. Plockross, Fagundus, Pa. [Filed Apr. 2, 1877.]



A right-angled lever for pumping apparatus, consisting of the horizontal arm *b*, vertical arm *c*, and braces *d a*, pivoted at *a*, and having the roller-pin *g*, for receiving the pumping-rod, substantially as shown and described.

189,956. COIN-DRAWERS. James A. Read, Decatur, Ill. [Filed Mar. 27, 1877.]



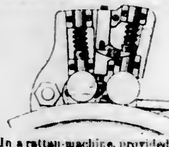
1. A coin-drawer or tray, provided with separate compartments or pockets, having the horizontal arrangement shown and described, and the end walls or partitions, adapting each compartment to contain a fixed amount, as specified.

2. A coin-drawer or tray, provided with several series of horizontal compartments or pockets of different sizes, adapted to coins of different values or denominations, arranged substantially as and for the purpose specified.

3. The coin-drawer A, provided with the several series B B^1 B^2 of horizontal pockets or compartments *b*, separated by notched or grooved end walls or partitions b^1, and with the change-receptacles D D^1 D^2, all arranged substantially as and for the purpose specified.

189,957. MEASURING MECHANISMS FOR RATTAN-MACHINES. N. H. Richardson, Fitchburg, Mass. [Filed Mar. 3, 1877.]

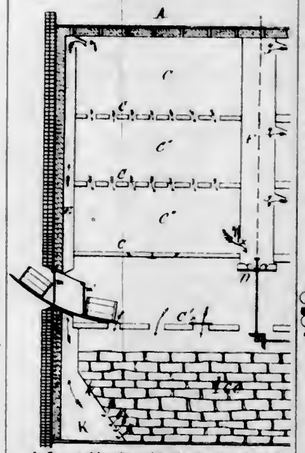
Brief.—The wheel *d'* is separated from the brake by the thickness of the rattan, and is also brought into contact with said brake by the automatic action of shaft *m* and lever *k*.



1. In a rattan-machine, provided with a registering mechanism, the combination of a measuring roll and a brake, which are automatically separated by the strand to be measured, and brought together again upon the exit of the strand, substantially as described.

2. In a rattan machine, the combination of a registering mechanism and a brake, provided with a receding spring, and operated by a wheel auxiliary to the measuring-roll, substantially as described.

189,958. REFRIGERATOR-BUILDINGS. C. L. Riker, New York, N. Y. [Filed Nov. 18, 1876.]



1. In combination with the ice-chamber of a refrigerator-building, the compartment K, of relatively larger size than the air-flues E F, communicating with it, the said compartment being separated from the ice-chamber by perforated walls, substantially as described.

2. In combination with a refrigerator-building, an ice-chamber having sloping walls, the same being perforated only at or near the bottom, as and for the purpose described.

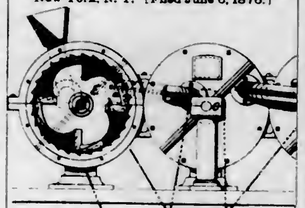
3. The chute G, having doors *m m'*, as and for the purpose set forth.

4. In combination with the building A, the chamber C', into which the air passes from the storage-chambers, as and for the purpose described.

5. The combination of the flue F, fan D, and chambers C', K, E, and C'', substantially as described.

6. The method herein described of regulating and controlling the melting of the ice, the same consisting in diverting the current of air from those portions of the ice-chamber where the ice is most melted, substantially as described.

189,959. APPARATUS FOR REDUCING CEREALS INTO FLOUR. Van Buren Ryerson, New York, N. Y. [Filed June 6, 1876.]



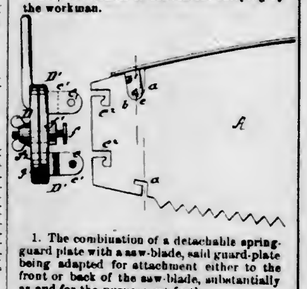
1. In a machine for reducing cereals into flour, or other substances into powder, substantially as described, the combination of a circular case, the interior periphery of which is provided with a succession of abrupt faces, as described, with a revolving disk having radial beaters, and provided with sections of rims, having also a succession of abrupt faces, as described.

2. The combination, with the circular case of a milling machine, as described, of a revolving disk having radial beaters, as described, and provided with sections of a rim, as described

3. The combination of machinery, substantially as described, for reducing cereals to flour, substantially as described, with suitable machinery, as described, for bolting flour, whereby the flour is discharged from the mill under blast-pressure directly into the bolt, substantially as specified.

189,960. ATTACHING HANDLES TO CROSS-CUT-SAWS. Chas. A. Sands, Burlington, Kans. [Filed Jan. 29, 1877.]

Brief.—The saw is attached to angularly-adjustable handles by means of disk-shaped plates having pins, which fit in holes in corresponding base-plates, provided with parallel lugs having cross-pins, which look into L-shaped slots in the end of the saw, and clamped by a headed bolt carrying a screw-nut, and passing through both plates, and secured in position by a thumb-nut. The saw is provided with a detachable spring guard-plate, which serves to stiffen the back of the saws, protect the teeth of the saw when not in use, and admits of convenient carrying by the workman.

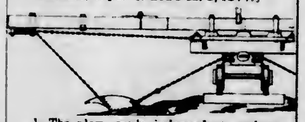


1. The combination of a detachable spring-guard plate with a saw-blade, said guard-plate being adapted for attachment either to the front or back of the saw-blade, substantially as and for the purpose set forth.

2. The combination of the adjustable handle-plate D and the attaching-plate D', having lugs *c'*, pins *s*, bolt f^1, and nut *f*, with the saw-blade having L-shaped end slots e^1, substantially as and for the purpose set forth.

3. The combination of crosscut-saw A and plate D', clamped at right angles to saw-blade, and provided with holes *g'*, with adjustable handle-plate D, having pin or pins *g*, and with clamping bolt f^1 and clamping-nuts *f* and f^2, to set the handle at any position to saw-blade, substantially as specified.

189,961. STEAM PLOWING AND SCRAPING ATTACHMENTS TO CARS. S. T. Shankland, Laramie, Wyo. [Filed Feb. 3, 1877.]



1. The plow, made independent, and arranged in advance of scraper, to work longitudinally with track, substantially as and for purpose set forth.

2. A scraper for railroad-grading, receiving a back and forward motion from slides fastened to front and working in back car, substantially as and for the purpose specified.

189,962. DRAWING BROKEN PILES OUT OF THE GROUND. J. P. Sheldon and C. F. Graves, San Francisco, Cal. [Filed Jan. 27, 1877.]

Brief.—There is lowered onto the sunken pile a tubular casting open at both ends, the upper portion being a socket for the end of a round beam fastened by a bolt through slots in the socket. An outside flange near the bottom of the tube holds in place the noose of a chain, its other end being tightened along the beam. The whole being dropped on the pile, and the noose slipped onto it, the device is withdrawn and the pile raised.

1. A pile drawing machine, constructed as described, and consisting of the shaft D, socket E, and tube A, provided near its lower end with the annular projection B, in combination with the catcher C, and watch-tackle F, all constructed to operate substantially as set forth.

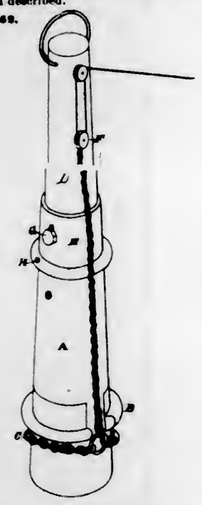
2. The perforation H, with its connecting-chambers, substantially as and for the purpose set forth.

3. The slotted holes through which the bolt G passes, as and for the purposes herein set forth.

4. The tube A, provided with the annular projection B near its lower end, and with the socket E at its upper end, in combination with the shaft D and bolt G, substantially as set forth.

5. The method of placing and fixing chains upon broken or submerged piles, the same consisting in guiding and forcing down the noose of the chain by means of a tube, A, and a suitable tackling device constructed to operate substantially as and for the purpose herein described.

189,962.



189,963. TOOTH-BRUSHES. Saml. Stevens, Boston, Mass. [Filed Feb. 14, 1877.]

Brief.—The central row in the brush is made of tucum fiber, and the outer row of bristles.



1. A tooth-brush made of bunches of tucum fiber, surrounded by bunches of hairs or bristles, substantially as and for the purposes set forth.

2. The bunches of tucum fiber *a*, connected to the brush-head *b* by the wire *c*, and secured in a folded condition by the binding wires or threads *d*, as and for the purposes set forth.

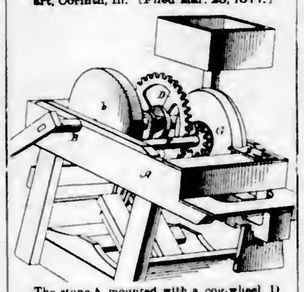
3. In combination with the central row of folded fiber, secured by the wire *c*, and sewing at *d*, the rows of fiber at *i*, and outside rows of hairs or bristles *h*, substantially as set forth.

189,964. FOLDING CHAIRS. Cassius L. Stevens and Isabella Wallace, Pittsburg, Pa. [Filed Jan. 2, 1877.]



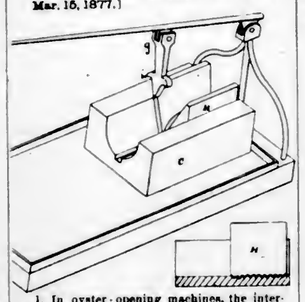
In a folding chair having a stationary seat-frame and seat, a leg-rest, hinged at the front of the seat, and provided with a rigid frame that is finished for use upon both surfaces, so as to be used as a leg-rest when unfolded and as a seat when folded, substantially as set forth.

189,965. GRINDING-MACHINES. T. R. Stewart, Corinth, Ill. [Filed Mar. 23, 1877.]



The stone *b*, mounted with a cog-wheel, D, on a crank shaft, B, and running at a low velocity, in combination with the bevel-faced stone G, running at a higher velocity than stone *b*, and pinion E on shaft F, and frame-work A, all constructed, arranged, an operated as set forth

189,966. OYSTER-OPENING MACHINES. T. W. Temple, Los Angeles, Cal. [Filed Mar. 15, 1877.]



1. In oyster-opening machines, the interchangeable blocks C H, for holding oysters of different sizes, constructed and arranged as described.

2. In combination with the hand-lever, the suspended dart, having a short thick wedge form for opening the shells quickly, and projections *i*, so that the dart cannot too deeply enter the shells.

189,967. BOX-SCRAPERS. Jno. P. Tierney, Sacramento, Cal. [Filed Jan. 29, 1877.]

Brief.—A roller is placed in a longitudinal concavity formed in the lower portion of the knife, to prevent the scraper from becoming clogged with shavings.



An improved box-scraper, formed of the hopper-shaped knife-box A, the handle B, the knife C, the bolt D, and the roller E, substantially as herein shown and described.

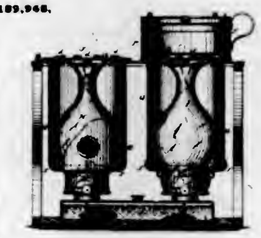
189,968. NURSERY COOKING-RANGES. Lyman Tobey, Naples, N. Y. [Filed Mar. 1, 1877.]

1. The annular grate J, slotted radially around its inner edge to form a series of lips, *d*, that are bent alternately upward and downward, substantially as and for the purposes herein set forth.

2. The combination, with an ordinary removable lamp-burner and glass chimney, of the cylinder G, base I, and grate J, all constructed and arranged substantially as and for the purposes herein set forth.

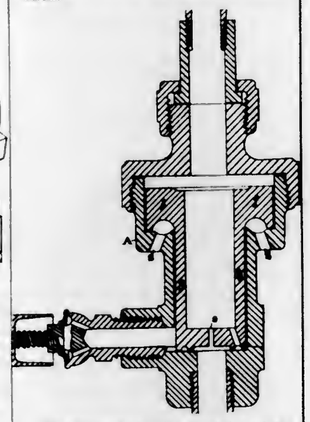
3. The combination, with a lamp-burner and chimney, of the cylinder G, base I, grate J, cooking-vessel L, and covering-case P, substantially as and for the purposes herein set forth.

189,969.



189,969. PNEUMATIC SIGNALING APPARATUS. A. N. Towne, San Francisco, Cal. [Filed Mar. 1, 1877.]

Brief.—The lower end of the pipe is connected with a reservoir of compressed air, and the upper end is provided with a stop-cock. When the stop-cock is opened the excess of pressure below the valve lifts the latter, thereby opening a passage through which the compressed air is admitted to the whistle. When the stop-cock is closed, the valve descends by its own gravity, and closes the passage leading to the whistle as soon as sufficient air has passed through an opening in the valve to equalize the pressure above and below.



The double-seated valve, consisting of the enlarged head *f* and stem *g*, with its limited passage O, in combination with a cage, A, constructed to correspond with the shape of the valve, and within which said valve operates, said cage being provided with the opening or openings S and a whistle or other pneumatic signal, substantially as and for the purpose specified.

189,970. WATER-WHEELS. T. Tripp, East Stoughton, Mass. [Filed Mar. 26, 1877.]

Brief.—This wheel has an annular or register-gate, whole or in section, and, in connection with such gate and the corresponding openings in the wheel-case, a series of interposed independent pads, balanced or practically balanced to the outside pressure of water. There is provided, between the outer termini of the chutes and the wheel-case and gate, a space for the reception of a large body of water, under its original head or pressure, in order to bring such water, under such pressure, as close as possible to the buckets of the wheel before directing it into the chutes, while the latter are as short as possible consistent with imparting proper direction to the water as it proceeds to the buckets of the wheel.

1. In a register-gate for water-wheels, the independent balanced pads or valves O O, substantially as and for purposes stated.

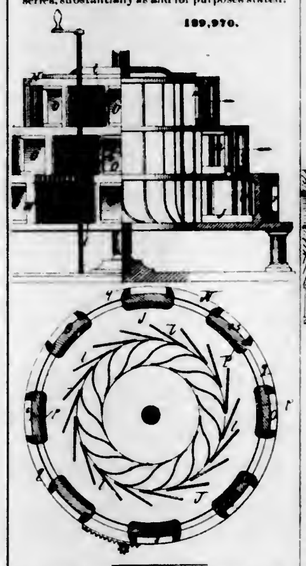
2. The area or space J surrounding the chutes *l l*, substantially as and for purposes stated.

3. The combination, with a turbine-wheel and case of varying capacities, as stated, of the annular or register gate, with its balanced pads or valves, substantially as and for purposes stated.

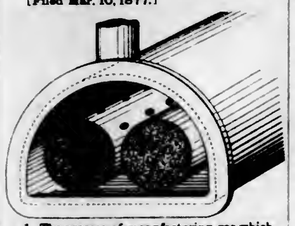
4. The recessions p in the wheel-case, to permit access of water to the inner side of the pad O, substantially as and for purposes stated.

5. In a water-wheel case having two or more independent series of water-approaches, an independent annular or register gate to each series, substantially as and for purposes stated.

189,970.



189,971. MANUFACTURING ILLUMINATING-GAS. Wm. H. Tupper, New York, N. Y., assignor to Amos N. Titus, same place. [Filed Mar. 10, 1877.]



1. The process of manufacturing gas which consists in distilling in the same retort cotton or woolen waste containing oil or grease, and sawdust or similar poor gas-yielding substance, substantially as described.

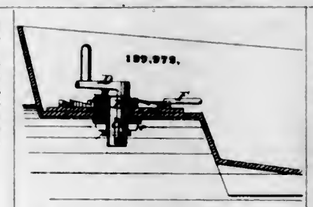
2. In the manufacture of illuminating-gas from cotton or woolen waste, the method of preventing the inflammation of the waste, which consists in inclosing said waste in a cartridge having closed sides, substantially as set forth.

3. In the manufacture of illuminating-gas, a charge for the retort composed of cotton or woolen waste containing oil or grease, and sawdust or similar material yielding poor gas by distillation, inclosed in a metallic cartridge, substantially as set forth.

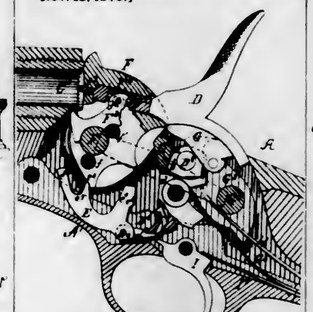
189,972. STEERING-PROPELLERS. Clemens Uller and Jasper N. Bennett, Columbus, Ohio. [Filed Mar. 19, 1877.]

An improved propelling and steering apparatus for vessels, consisting of a revolving shaft with alternately-swinging horizontal paddles placed at right angles to each other, in combination with the cam of a sleeve, and adjusting-lever turning in opposite direction to the shaft to steer and propel the vessel in either direction without stopping the engine, substantially as and for the purpose herein specified.

189,973.



189,973. BREECH-LOADING FIRE-ARMS. H. Updegraff, Smithfield, Ohio. [Filed Nov. 18, 1876.]



1. In a breech-loading fire-arm a gravity locking-shoulder, constructed substantially as hereinbefore described with a solid head-piece and extended wing pivoted to the frame in rear, above the center of motion, and having a vertical movement independent of the hammer, substantially as and for the purposes set forth.

2. The hammer, provided with a shoulder, *d*, adapted to lift the locking-shoulder free from the breech-block before the movement of the latter is commenced, substantially as set forth.

3. The combination, with the hammer D, of a pivoted rocking cam, D^4, adapted to engage and elevate the locking-shoulder G clear of the breech-block, substantially as set forth.

4. The combination with the hammer D, having the extension D^4, of a pivoted forked sear adapted to engage with and open and close the breech-block, and operate the extractor, substantially as set forth.

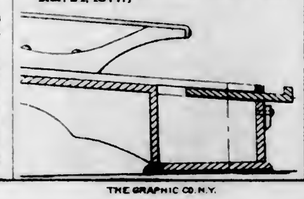
5. The combination, with the breech-block F, having the chamber F^2 and firing-pin F^3, constructed as described, of the pivoted extractor F^5, substantially as and for the purposes set forth.

6. The combination, with the hammer D, provided with extension D^4, and pivoted sear E, having the bearings e e^1 and arm e^2, of the spring e^3, breech-block F, and bearing A' on the frame A, for the purposes specified.

7. The hammer D, provided with a shoulder or cam, d^3, arranged and adapted to engage the stud g on the locking-shoulder, for the purpose set forth.

8. The combination of the locking-shoulder G having a solid head, G^1, and rear wings G^2 G^3 and stud g pivoted to the frame, and the hammer D constructed with the shoulder d and recess d^3, and the rocking cam D^3, arranged and operating substantially as and for the purpose set forth.

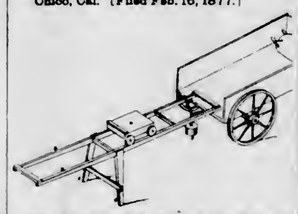
189,974. KNIFE AND FORK CLEANERS. A. E. Van Horn, Sebewaing, Mich. [Filed Mar. 24, 1877.]



1. A knife and fork cleaner, composed of an inclined scouring-table, with side rims and till or receptacle at the lower end for the polishing-powder, and with a fork-shaped support or carrier for a fork cleaning leather strap attached to the table, substantially in the manner described, and for the purpose herein specified.

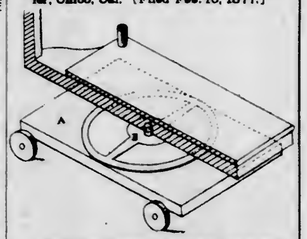
2. A knife and fork cleaner, having an inclined scouring-table, with side rims and powder receptacle or till at the lower end, closed or opened by a sliding lid, substantially as herein specified.

189,975. WAGON-LOADERS. J. J. Verckler, Chico, Cal. [Filed Feb. 16, 1877.]



The double track B, mounted upon the legs C C, at some point between its middle and one end, and having the weight F suspended from the extremity of its long end in combination with the car D, substantially as and for the purpose described.

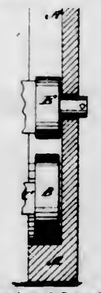
189,976. PLATFORM-SCALES. J. J. Verckler, Chico, Cal. [Filed Feb. 16, 1877.]



1. The truck A provided with the turn-table B, in combination with a weighing-scales, C', substantially as and for the purpose described.

2. The stakes or standards G G, in combination with the platform of a weighing scale, substantially as and for the purpose described.

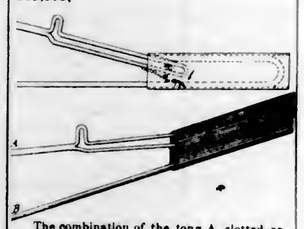
189,977. STEAM ROAD-WAGONS. Geo. W. Wede, Clam Lake, Mich. [Filed Mar. 3, 1877.]



The combination of flanged track-wheels A, shaft C, having wheels B, the axle E, having rod F, the platform having slotted standards G, frames H I, having wheel J, and the track-wheel K, all constructed and arranged as shown and described, to form a steam road-wagon.

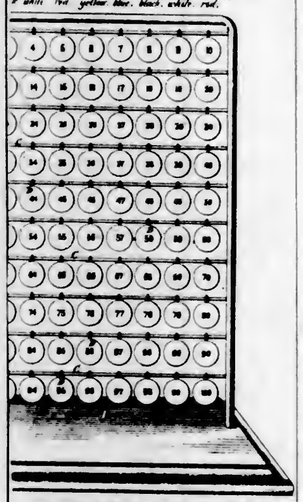
189,978. SHOVELS AND TONGS. Geo. W. Whelan, Sun Prairie, Wis. [Filed Oct. 21, 1876.]

189,978.



The combination of the tong A, slotted as described, and provided with a guard or thumb-piece, G, the shovel B, having a spring, *d*, and the handle D, having a bolt or rivet, *e*, substantially as and for the purpose set forth.

189,979. ARITHMETICAL TOYS. L. Wieser, Washington, D. C. [Filed Feb. 10, 1877.]



The arithmetical toy herein described, consisting of the base, the frame, and parallel horizontal or cross wires, the latter provided with the sliding and serially-numbered disks, arranged in columns of colors, substantially as set forth.

189,980. PICTURE-EXHIBITORS. O. Williamson, Covington, Ohio. [Filed Mar. 23, 1877.]



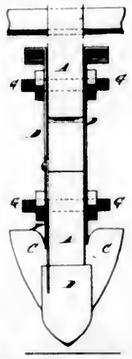
The cabinet or case A, provided with openings *a a*, in combination with the mat *d* and mat holders *c c*, provided with the handles *b b*, all constructed to operate substantially as and for the purpose described.

189,981. PLOWS. J. F. Wilson and R. L. Wilson, Calhoun, Ga. [Filed Mar. 3, 1877.]

Brief.—A shovel-plow with side wings attached to slotted bars, which slide up and down upon the standard.

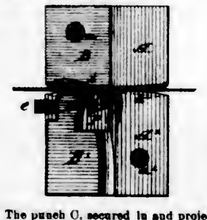
The combination of the adjustable wings C, the slotted sliding bars D, and the bolts G, with the plow-standard A, and the plow-plate B, substantially as herein shown and described.

189,981.



189,982. TOOLS FOR MAKING BARBED FENCE-RAILS. L. M. Woodcock, Auburn, N. Y., assignor to Empire Wringer Company, same place. [Filed Mar. 24, 1877.]

Brief.—The dies are formed in two parts, embracing shanks, which carry a punch and a forming-lip in the male and female dies, respectively.

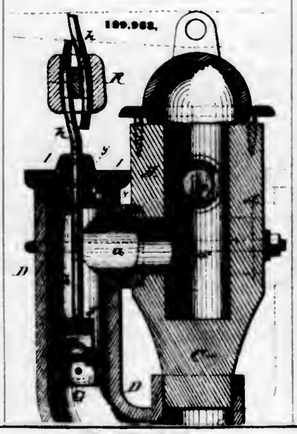


1. The punch C, secured in and projecting from the face of the male die A A, in combination with the female die A′ A′ B′, having lip D, for cutting and bending the barb in a metal fence, substantially as and for the purpose set forth.

2. The plate B, with its lip D, arranged in the female die A′ A′, as described, in combination with the punch C, having the groove *i* in its back edge, for forming the longitudinal corrugations in the barb at the same time as the barb is cut and bent, substantially as herein set forth.

3. The combination of the male die A A, formed with the beads *d d*, and provided with the punch C, having groove *i*, and the female die A′ A′, formed with the grooves *d′ d′* and recess *b*, and provided with the lip D, all substantially as and for the purposes herein set forth.

189,982.



189,983. PUMPS. Jos. C. Wright, Cincinnati, Ohio. [Filed Feb. 22, 1877.]

Brief.—The cylinder-head has an annular recess, with packing to make a tight joint with the upper end of the cylinder. The rods are in two parts, and connected by a coupling-block, which has a longitudinal opening for the passage of the two ends of the two parts of the rod, and a transverse slot for the passage of the key, thus enabling the operator to adjust the rod as required.

1. The combination of the cylinder D, head I, with packed recess *y* on its under side, the piston-rod A, and the sliding plate P with projecting hub *p*, substantially as and for the purposes herein set forth.

2. The longitudinally and transversely slotted coupling-block K, in combination with the two parts of the rod A and the key S, substantially as and for the purposes herein set forth.

189,984. NUT-LOCKS. Joseph C. Wright, Philadelphia, Pa. [Filed Mar. 3, 1877.]

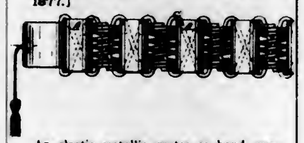


The combination of a nut having annular recess in upper face communicating with tap-hole, a screw-bolt, and an annular tamped packing of soft metal, substantially as and for the purpose specified.

189,985. FUEL COMPOSITION. Charles M. Adams, Ashland, Mass. [Filed Feb. 8, 1876.]

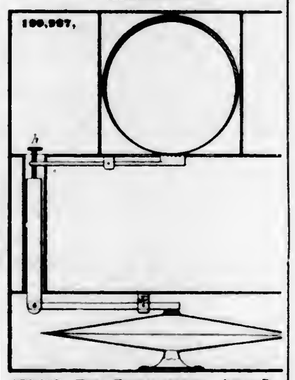
A composition for fuel, consisting of coal-screenings, kerosene-oil, quicklime, and water, combined in the proportions hereinbefore set forth.

189,986. COIL-SPRING BANDS. F. Armstrong, Bridgeport, Conn. [Filed Apr. 6, 1877.]



An elastic metallic garter or band, composed of a series of alternate short metal tubes and coiled-wire springs, strung together as described, and provided, at each end, with a hook or other fastening device, substantially as described.

189,987.

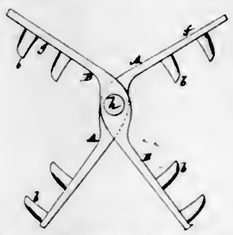


189,987. FIRE-EXTINGUISHERS. Amos S. Austin, Philadelphia, Pa. [Filed Apr. 12, 1877.]

Brief.—The space between the two diaphragms is filled with sulphuric ether. When a fire breaks out, the expansion causes the upper diaphragm to act on the levers, thus breaking the acid-globe.

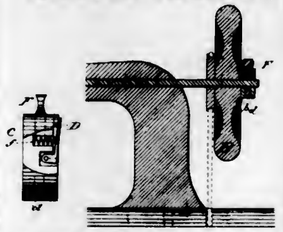
The combination, in a fire-extinguishing apparatus, of a friable vessel containing sulphuric acid, a chamber containing carbonate of lime, an object which will readily expand under the influence of heat, and devices, substantially as described, whereby the movement of the said object, when expanded, is caused to fracture the vessel, all substantially as set forth.

189,988. BELT-FASTENERS. Johann Bechmann, Nurnberg, Germany. [Filed Feb. 22, 1877.]



The cross or double-clamp fastening, composed of hinged sections A B, each of which has one or more tongues, *f g*, projecting beyond the joint-pin of the hinge on the opposite side of said pin to that on which the body of the same section projects, the bodies and tongues of said sections being provided with intermediately-arranged teeth *b*, all substantially as shown and described.

189,989. SEWING-MACHINE CLUTCHES. F. A. Barr, Hester, Mo. [Filed Mar. 3, 1877.]



The clutch attachment for sewing-machines herein described, consisting of the collar or box C, set-screw *d*, segmental cam D, having ball or catch E, spring *f*, and thumb-screw F, having cam *g*, all constructed and combined so as to operate in the manner and for the purpose substantially as herein set forth.

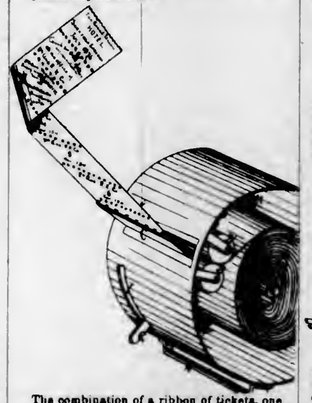
189,990. REFRIGERATORS. John J. Bate, Brooklyn, N. Y. [Filed July 7, 1876.]



1. The combination of the cooling-chamber *g*, an air distributing and circulating chamber of nearly equal horizontal dimensions, situated above, and separated from it by a perforated partition, *i*, an ice-chamber having an upper air-inlet extending its entire width, or nearly so, and a lower air-outlet communicating with an air exhausting and forcing device, substantially as and for the purpose set forth.

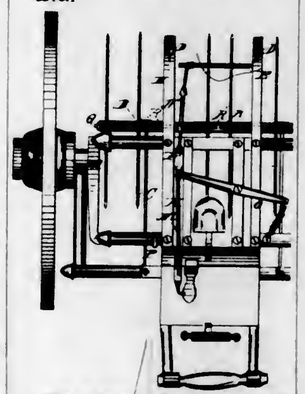
2. The cooling-chamber *g*, and the circulating-chamber *r* in the upper part thereof, separated by the partition *s*, that is perforated throughout, in combination with an ice-chamber and a blower, which latter causes a continuous circulation of air throughout the cooling and ice chambers, substantially as set forth.

189,991. TICKET-REELS. Wm. W. Bierce, Memphis, Tenn., assignor of one-half his right to John C. Spencer, New York city. [Filed Sept. 14, 1876.]



The combination of a ribbon of tickets, one or more, but not all, of which are redeemable for a designated value, an inclosing-box for receiving such ribbon, and a set of intermittently-operating feed-rolls, for projecting the tickets one by one from the box, the parts being arranged to operate substantially as and for the purpose set forth.

189,992. REVOLVING HORSE-RAKES. L. Russell, Ghent, Ohio. [Filed Sept. 16, 1876.]



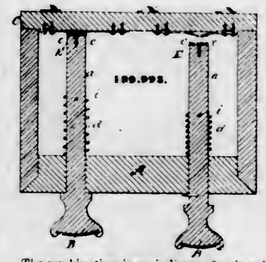
1. The above described arrangement and combination of the [illegible] e B, brace-rods D, slotted arms E, drag-r[illegible] C, and elevating-lever F, substantially as [illegible] for the purpose set forth.

2. The hollow rake-head, in combination with the perforated rods E F′, having burrs Q, for the purpose of fastening the rake-teeth, substantially as set forth.

189,993. INDICATORS FOR ELECTRIC BURGLAR-ALARMS. A. Bradford, Amsterdam, N. Y. [Filed Jan. 20, 1877.]

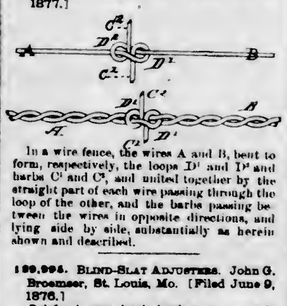
Brief.—For indicating the point where an entrance is attempted. When the proper knob is pulled, the point assailed is indicated by the cessation of the alarm, the circuit to which is through springs controlled by the knobs.

189,993.



The combination, in an indicator for electric alarms, the box A C D, with knobs B E B B, rods *a a a a*, springs *d d d d*, pin *b′*, groove *b*, springs *c c c c c c c c*, with the necessary electric connecting-wires, substantially as and for the purpose herein set forth.

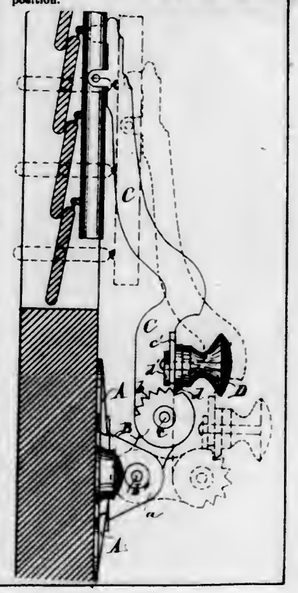
189,994. BARBED-WIRE FENCES. A. H. Bronson, Chicago, Ill. [Filed Jan. 19, 1877.]



In a wire fence, the wires A and B, bent to form, respectively, the loops D^1 and D^2 and barbs C^1 and C^2, and united together by the straight part of each wire passing through the loop of the other, and the barbs passing between the wires in opposite directions, and lying side by side, substantially as herein shown and described.

189,995. BLIND-SLAT ADJUSTERS. John G. Broemser, St. Louis, Mo. [Filed June 9, 1876.]

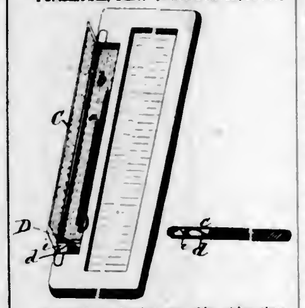
Brief.—A turn-knob having an eccentric disk and stop is combined with a peculiarly-shaped rod connecting with the slat-bar, and with a pivoted rocking arm, suitably notched, and attached to a face-plate, the construction permitting the ready adjustment of the blind-slats, or the locking of them in any desired position.



1. A blind-slat adjuster consisting of the rod C, having bearing at c' carrying the knob D, the eccentric disk d, and stop d', in combination with rod C, the notches b of the pivoted arm B, and plate A, said parts being combined, arranged, and operating substantially in the manner and for the purpose set forth.

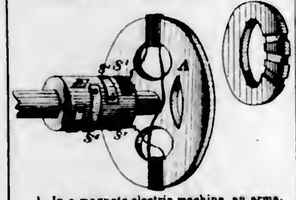
2. The turn-knob D, the eccentric disk d, and stop d', in combination with rod C, the notches b of the pivoted arm B, and plate A, said parts being combined, arranged, and operating substantially in the manner and for the purpose set forth.

189,996. SLATES. Carl N. Brombacher, Portsmouth, Ohio. [Filed Feb. 12, 1877.]



A slate-frame having one side wider than the rest, and provided with the cloth-lined recess b, the partition D, the spring d, and the hinged cover C, having knob or projection c, all constructed and arranged substantially as set forth.

189,997. MAGNETO-ELECTRIC MACHINES. Chas. F. Brush, Cleveland, Ohio. [Filed Nov. 11, 1876.]



1. In a magneto-electric machine, an armature of iron or other magnetic substance in the form of a ring or endless band, of any convenient form of cross-section, provided with a series of grooves or depressions at right angles with the magnetic axis or circumferential length of the armature, for the reception of the insulated wire with which armatures are wound, substantially as described.

2. In a magneto-electric machine, an armature of iron or other magnetic substance in the form of a ring or endless band of any convenient form of cross-section, provided with a series of grooves or depressions on the sides at right angles with the axis of the armature and with its circumferential length or magnetic axis, for the reception of the insulated wire with which armatures are wound, substantially as described.

3. In a magneto-electric machine, an armature of iron or other magnetic substance in the form of a ring or endless band, of any convenient form of cross-section, provided with a series of grooves or depressions at right angles with its magnetic axis, and with sections or bobbins of wire wound in said grooves around the armature, substantially as described.

4. In a magneto-electric machine, an armature of iron or other magnetic substance in the form of a ring or endless band of any convenient form of cross-section, provided with a series of grooves or depressions at right angles with its magnetic axis, and with sections or bobbins of wire wound in said grooves around the armature, the first or last ends of diametrically opposite sections joined together, and their remaining ends to diametrically-opposite segments, substantially as described.

5. In a magneto-electric machine, a commutator-cylinder, consisting of a cylinder of insulating material, provided with metal strips or segments, constituting a series of commutators or conductors, arranged by pairs placed diametrically opposite each other, each pair occupying a different position longitudinally on the cylinder from any other pair, their ends separated a sufficient distance to prevent the current of an active bobbin or bobbins from escaping through an idle bobbin or bobbins while the latter are at and near the neutral points, substantially as described.

6. In a magneto-electric machine, a grooved armature, provided with sections of wire, in combination with a commutator-cylinder, substantially as described.

7. In a magneto-electric machine, an armature of iron, in the form of a ring or endless band, with or without grooves, and provided with bobbins or sections of wire, in combination with a cylinder-commutator and brushes or conductors, the latter so placed with regard to the strips or segments of said cylinder-commutator and their respective bobbins on said armature as to take off the current generated in the bobbins continuously, except when the said bobbins or sections of wire are at and near the neutral points of the armature, substantially as described.

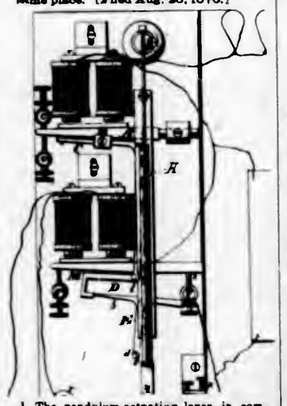
8. In a magneto-electric machine, a grooved armature, provided with sections of wire, the first or last ends of diametrically-opposite sections connected together, in combination with the commutator-cylinder E, to diametrically-opposite segments of which the remaining ends of said sections are attached, substantially as described.

9. In a magneto-electric machine, a grooved armature of iron or other magnetic substance of any convenient form of cross-section, provided with sections of insulated wire, in combination with the magnetic pole-pieces N N and S S, so arranged as to present a magnetic surface simultaneously to two sides of its magnetic axis, substantially as described.

10. In a magneto-electric machine, an armature of iron or other magnetic substance in the form of a ring or endless band, of any convenient form of cross-section, and provided with sections or bobbins of wire wound around the armature at right angles to its circumferential axis, the ends of each section connected to diametrically-opposite segments of the commutator-cylinder, substantially as described.

11. In a magneto-electric machine, an armature of iron or other magnetic substance in the form of a ring or endless band, of any convenient form of cross-section, and provided with sections or bobbins of wire, wound around the armature at right angles to its circumferential axis, one end of the wire of each bobbin being connected to the diametrically opposite segment of the commutator-cylinder through the coils of the diametrically-opposite section, substantially as described.

189,998. ELECTRIC CLOCKS. C. F. Brush, Cleveland, Ohio, assignor of one-half his right to the Telegraph Supply Company, same place. [Filed Aug. 28, 1876.]



1. The pendulum-actuating lever, in combination with the clutch or dog E, provided with springs e and pin d, substantially as and for the purpose herein shown and specified.

2. The combination, with the pendulum, of the angular pendulum-actuating lever C D, and angular clutch E, and spring e, substantially as and for the purpose described.

3. The clutch or dog E, provided with spring e and pin d, substantially as and for the purpose described.

4. In an electrical clock, the combination, with a magnet and armature-lever, of adjusting mechanism and contact-surfaces s, the latter carried on the shorter arm of the armature-lever, and the whole constituting the relay, substantially as and for the purpose described.

5. The combination of the relay, pendulum H, break-piece, and a battery of low electromotive power, substantially as and for the purpose described.

6. In an electrical clock, the combination, with a relay, of a condenser and main battery, substantially as set forth.

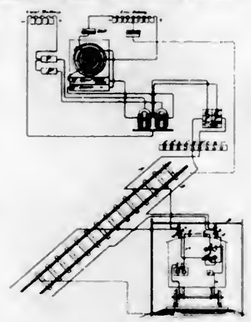
7. In an electrical clock, the combination, with relay, of a condenser and secondary clocks, substantially as and for the purpose described.

8. The combination of a light battery-circuit, embracing break-piece and relay, with a battery-circuit embracing condenser, secondary clocks, and electro-magnets B, said magnets B operating, through intermediate mechanism, to vibrate the pendulum H, substantially as and for the purpose described.

9. The combination of a light battery-circuit, embracing break-piece and relay, with a battery-circuit embracing condenser and secondary clocks, said light battery-circuit made or broken by the vibration of the pendulum H, substantially as and for the purpose described.

189,999. ELECTRO-MAGNETIC RAILROAD-SIGNALS. H. Brundin, Jonkoping, Sweden. [Filed Aug. 26, 1876.]

Brief.—Shows an engine and at terminal stations progress of train. Rings alarm-bell at station and on locomotive, when two trains come within a certain distance of one another, and also within certain distance from station. Apparatus on trains for communicating with one another and with station, when stopped at one of the circuit-closers along the line.



1. The clock-works H H', insulated from each other by bone plates f, or in any other suitable manner, having hand-spindles e e', arranged one within the other, in the manner described, and for the purpose set forth.

2. The combination of clock-works H H' and electro-magnets P P', operating the spindles e e', respectively, substantially as and for the purpose shown and specified.

3. The dial K, having metal rings i i' i'', connected by wires to the negative and positive poles of the line-battery, respectively, substantially as and for the purpose shown and specified.

4. The combination of rings i i' and staples i² i³, they being in metal contact by a connecting-strip, k, substantially as and for the purpose shown and specified.

5. The dial K, having metal staples i² i³ and rings i i' i'', in combination with the hands I I', substantially as and for the purpose herein shown and specified.

6. The hand I, consisting of two hinged parts, having springs k' k², and insulating bone plate, carrying the hinged staple K', the whole carried by the hollow spindle e of the upper clock-work H, substantially as and for the purpose herein shown and specified.

7. The hand I', constructed like the hand I, and carried by the spindle e' of the clock-work H', substantially as and for the purpose herein shown and specified.

8. The alarm-bell Q, operated by an electro-magnet, I⁸, the winding of which is formed by or connected to the negative wire of the line-battery, before its connection to rings i i and staples i² i³ of dial K, substantially as and for the purpose herein set forth.

9. The dial K, having rings or plates i³ connected to the positive pole of the line-battery, and rings i i and staples i² i³ united by strip k, and connected to the negative pole of the line-battery, hands I I' having insulated staples K' K' and contact-springs k² k², clock-works H H', having spindles e e', through which they are in metal connection with hands I I', respectively, relays O O², one end of the windings of which are connected with the clock-works H H', respectively, and the other end with the plates E E' of reversing appliance D, all constructed, combined, and arranged to operate in conjunction with the recording mechanism operated by relays O O² when the line-circuit is closed, substantially as and for the purposes herein shown and specified.

10. The combination of the parts H H' e e' K i i' i'' i³ i³ I I', forming the apparatus for automatically reversing the line-current, with the electro-magnetic alarm-signal Q, the electro-magnet for which, I⁸, is embraced in the line-circuit, as described, and with the electro-magnets P P' embraced in the local circuit, the electro-magnets P P' being arranged to operate the hands I I' whenever the local circuit in which they are embraced is closed by the closing of the line-circuit, substantially as and for the purposes herein shown and specified.

11. The record-cylinder N, having time-sheet O', relays O O² embraced in the line-circuit, metal framing 49, springs O² O², armatures O¹ O¹, and markers p p¹ p² affixed in the latter, so as to operate when the local circuit is closed by the closing of the line-circuit, the whole forming part of and operating in conjunction with the station apparatus of my improved railway-signal apparatus, as and for the purpose shown and specified.

12. The clock-work M, brackets M² M², rod m² m², cylinder N, carrying time-sheet O', pinion n, gear-wheel n', operated by a coiled spring in box n², relays O O² and markers p¹, all combined and arranged to operate in conjunction with the remainder of my improved apparatus, substantially as described, for the purpose specified.

13. The connection, through wire 50, between the metal body of the clock-work H' and one end of the winding of the electro-magnet O², the other end of which is connected to the station apparatus rail E' of the reversing appliance D, and the similar connection of clock-work H, through wire 54, with one end of the winding of relay O, the other end of which connects to rail E of the reversing appliance, substantially as herein shown and specified.

14. The train-indicating apparatus, consisting of the dials R S, having rotating hand r and vibrating hand s, arranged, with their operating mechanism, within box S⁸ in the engineer's cab on the locomotive, substantially in the manner and for the purpose shown and specified.

15. The shaft U, having projections w' w' for operating the wheel V, and arm or bracket W, in combination with the shaft W', having conical circumferential projection w', and spring X, substantially as and for the purpose shown and specified.

16. The device for returning the hand r of dial R to zero, by pressing upon button r' on the outside of box S⁸, consisting of shaft U having bracket W, shaft W' having conical circumferential projection w', and spring X, wheel V, arranged upon the hand-spindle of clock-work T, and having sidewise-projecting-pin v, all combined and arranged to operate in conjunction with clock-work T and electro-magnet T', substantially as and for the purpose herein shown and specified.

17. In combination with the polarised relay X', keeper x, and vibrating spindle x', having upward-projecting arm Y, the alarm-bell Z', and pivoted lever Z, having spring z, and hammer z', arranged to sound bell Z', when the hand s of dial S, by the action of the electric current and the operating mechanism, is pointed to the division of dial S, marked "block," thus warning the engineer that his train is approaching a station, or is in a dangerous position, substantially in the manner and for the purpose herein shown and specified.

18. The reversing or regulating appliance in the conductor's van, consisting of the six metallic plates 8 9 10 14 15 23, arranged around the central pin 16, upon which turn the two springs 17 and 18, independent of, but in metal contact with, each other, substantially in the manner and for the purpose shown and specified.

19. The connection, through wire t', between the upper central plate 8 in the conductor's van, and the contact-screw 1 on box S⁸, and through it with the apparatus in the box, substantially as and for the purpose described.

20. The wire connection between plate 10 and the train-telegraph apparatus 11, the earth-line of which is established by a wire, 12, leading to a spring, 13, pressing upon the axle of the car, substantially as described, for the purpose specified.

21. The free insulated plate 9, plate 8, connected with the train apparatus in box S⁸, plate 10, connected with the train telegraph apparatus; plates 14 and 15, connected with one of the train-contacts d, and plate 23, connected with the remaining train-contact d, and the springs 17 18, the latter operated automatically by forked lever 19, all combined and arranged to operate in conjunction with my improved railway-signal apparatus, substantially as described, for the purposes herein-before set forth.

22. The forked lever 19, having its fulcrum at 20, and operating with its upper forked end the spring 18, and having its lower end arranged to engage with the track mechanism, substantially in the manner and for the purpose herein shown and specified.

23. The arrangement upon a railroad-track of two crescent-shaped bars, 28 28, for correcting the position of lever 19 upon the train, substantially as described, for the purpose specified.

24. The cam 29, arranged upon a railroad-track, beyond bars 28 28, and operated by suitable mechanism, for the purpose of adjusting the position of levers 19 of passing trains, thus putting the signaling mechanism of each train into proper working order, substantially as described, for the purpose specified.

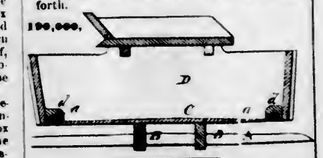
25. The mechanism for operating the cam 29, which slides vertically in guides or standards 30 30, consisting of shaft 31, having eccentric 32 and ratchet wheel 33, spring-pawl 34, engaging with ratchet wheel 33, and operated by vertical bar 35, to which it is bolted, coil-spring 36, arranged upon bar 35, and forcing it up against a slanting pivoted bridge, 38, all combined and arranged to operate substantially in the manner and for the purposes herein shown and specified.

26. The herein-described electric railway-signal apparatus, consisting, besides two lines of telegraph-wires and contact-points, arranged substantially as described, of three principal parts, viz., the "station apparatus," the "road apparatus," and the "train-apparatus," the first consisting essentially of an automatic current-reversing device, operated by electro-magnets in the local circuit, and so constructed as to reverse the current of the line-circuit, and thus, by intermediate mechanism give signals to the train and station officials whenever a train approaches a station or is in danger of collision; and a recording mechanism, by which the time of arrival and departure of trains and their passing certain given points is automatically registered; the second, (the "road apparatus,") consisting essentially of devices for automatically regulating the train-apparatus and putting it in communication with the proper telegraph-line wire; and the third, (the train-apparatus,) consisting essentially of indicating devices, by which the engineer is informed of the exact position of his train, and signal devices, by which he is informed of his approach to a station, or of "danger ahead," and of a current regulating and reversing device by which a train may be placed in telegraphic communication with another train, or with a station, all constructed, combined, and arranged to operate in conjunction with each other, substantially as described, for the purposes shown and specified.

190,000. SPRING-WAGONS. J. D. Brunner, Doylestown, Pa. [Filed Oct. 31, 1876.]

1. The combination, with a carriage-body, D, of the spring-slats C C, cross-bars B B, and side spars A A, substantially as and for the purposes herein set forth.

2. The combination of the spring-slats C, the half-round cross-bars a a, and the body D, with grooved cross bars or cleats d d, substantially as and for the purposes herein set forth.

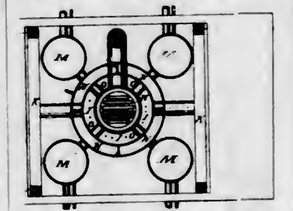


190,001. NECK-TIE RETAINERS. Wm. T. Buckner, Berea, Ohio. [Filed Mar. 12, 1877.]



The neck-tie attachment consisting of the bowed plate or frame A, and flanges or projections a a, all made in one and the same piece, and having the button-slot, substantially as set forth.

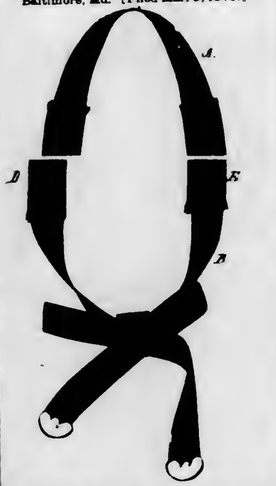
190,002. CAR-HEATERS. Le Roy Osgron, Akron, Ohio. [Filed Feb. 20, 1877.]



1. The combination of the tanks M and N, the cylindrical fire-chamber H, and the intervening annular hot-air chamber I, having openings for the admission of air, substantially as and for the purpose described.

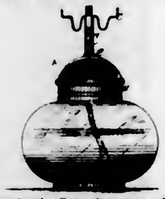
2. The combination, with the cylindrical fire-chamber H, of the annular tanks N N, pipes O O, auxiliary tanks M, and pipes O' O', substantially as and for the purpose described.

190,003. NECK-BANDS. Noah W. Caughy, Baltimore, Md. [Filed Mar. 9, 1876.]



The neck-band A B provided with slide-bands D E, arranged to operate substantially as and for the purpose specified.

190,004. LAMPS. Geo. Chappel, Brooklyn, N. Y. [Filed Mar. 28, 1877.]

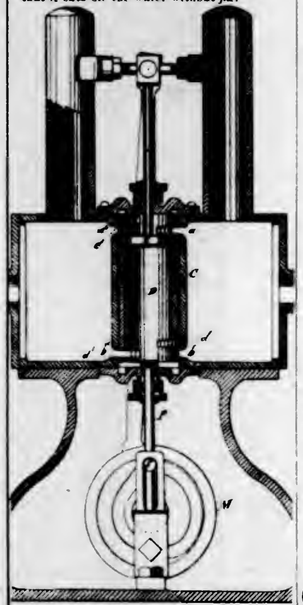


1. The wick-tube C, having arms c for supporting the chimney or globe, in combination with the collar B, having the opening *b*, and provided with a movable cap, said cap having its axis on the wick-tube C, substantially as described.

2. In combination with collar of the lamp, provided with a dome-shaped top, having an opening therein, the rotating cap secured on the top of the collar, and the wick-tube passing through said cap, and secured to the dome-shaped top, said tube having supporting-arms formed in one piece therewith, and a shoulder for confining the cap in place, substantially as herein set forth.

190,005. HYDRAULIC ENGINES. Wm. H. Clark, Chicago, Ill. [Filed Mar. 19, 1877.]

Brief.—The valve-sleeve inside of the cylinder is actuated by the cam-wheel and rod from below, while the piston is worked from above. The operation of the valve is such that it cuts off the water without jar.

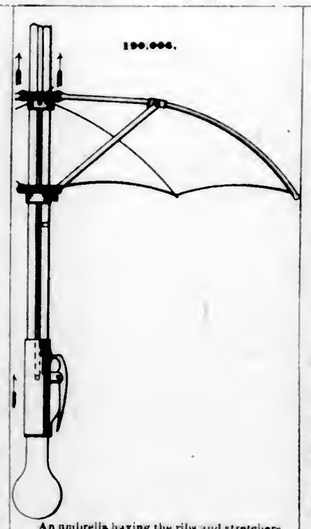


1. In a hydraulic engine, the cylinder C, provided with inlet-openings *a b* and outlet-openings *a' b'*, the sliding sleeve D, provided with corresponding openings *c d c' d'*, in combination with passages for the inlet and outlet of water, and devices for operating the sleeve D, substantially as and for the purposes specified.

2. The cylinder C and sleeve D, in combination with the rod P and cam-wheel M, and passages for the inlet and outlet of water, all constructed and operating substantially as and for the purposes specified.

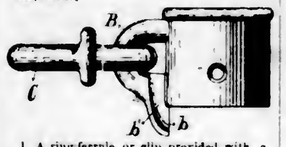
190,006. UMBRELLAS. A. B. Cohn, Philadelphia, Pa., assignor of one-half his right to E. S. Simon, same place. [Filed Feb. 9, 1877.]

190,006.



An umbrella having the ribs and stretchers, the fixed collar, sliding collar and stick, and a sliding sleeve, with attached rods connected to the sliding collar, all combined and arranged to operate substantially as and for the purpose set forth.

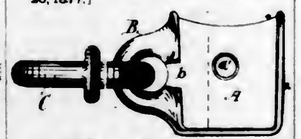
190,007. WHIFFLETREE HOOKS AND CLIPS. J. C. Coonley, Chicago, Ill. [Filed Mar. 26, 1877.]



1. A ring-ferrule or clip provided with a closed loop cast in one piece therewith, and having grooves or depressions *b'* upon both sides thereof, at its junction with the inner ends of the ferrule or clip, in combination with a trace-hook, C, the ring of which is provided with an opening, *c*, thereby adapting the hook and loop to be coupled and uncoupled, substantially as described.

2. The loop B, cast in one piece with a clip or ring-ferrule, and provided with a grooved projection, *b*, extending beyond the ferrule or clip at one end, at the inner edge of which the grooves *b'* commence, so that the entrance to the latter is closed when the ferrule or clip is attached to the whiffletree, substantially as and for the purpose set forth.

190,008. WHIFFLETREE HOOKS AND CLIPS. J. C. Coonley, Chicago, Ill. [Filed Mar. 26, 1877.]

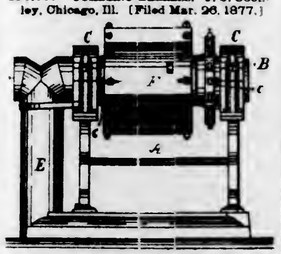


1. A whiffletree clip, A, constructed with a solid ring, B, in combination with a hook thu ring of which is divided by an opening about as wide as the thickness of the clip, the two parts being adapted to couple and uncouple readily when detached from the whiffletree, but permanently connected together by inserting the clip in the whiffletree, substantially as described.

2. The flanged whiffletree-clip A, constructed with a solid ring, B, and provided with recesses or openings *b* in the flanges *a*, adjacent to the ring, substantially as and for the purpose set forth.

3. The flanged clip A, constructed with a solid ring, B, and recesses *b* in the flanges *a* adjacent thereto, in combination with the hook C, having an opening, *d*, in the ring end thereof, substantially as and for the purpose set forth.

190,009. TUMBLING-BARRELS. J. C. Coonley, Chicago, Ill. [Filed Mar. 26, 1877.]



1. The close tumbling barrel A, in combination with tubular journals B communicating with the interior of the barrel, and a suction-pipe, E, leading out of the room and connected to one of the tubular journals, while the other is left open, substantially as and for the purpose set forth.

2. The tumbling-barrel A, in combination with the tubular journals B, and conical perforated caps D, substantially as and for the purpose set forth.

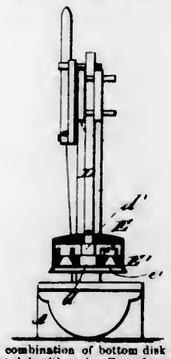
3. The conical cap D, constructed with its exterior surface stepped, as described, and provided with a series of perforations through each segment or section, substantially as set forth.

4. The cover F, having recesses *f'* in its ends, in combination with the pivoted bolts G and nuts H, substantially as and for the purpose set forth.

5. The friction-rollers c on the standards C, in combination with the tumbling-barrel A, provided with a guideway, against which the rollers rest, substantially as and for the purpose set forth.

6. The closed tumbling barrel A, in combination with the tubular journals B, conical perforated caps D, constructed as described, and the suction-pipe E, substantially as and for the purpose set forth.

190,010. CHURNS. Geo. W. Crosby, Bradford, Ark. [Filed Feb. 3, 1877.]

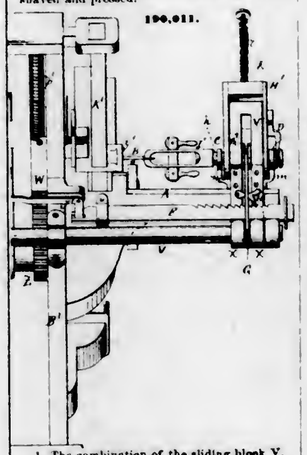


The combination of bottom disk E', perforated at *e' e'*, with casing E, perforated at *e' e'*, and cap-piece E', with dasher-rod D, having enlargements *d d'*, substantially as and for the purpose set forth.

190,011. MACHINES FOR MAKING HORSE-SHOE-NAILS. E. M. Cummings, Nashua, N. H. [Filed Apr. 7, 1877.]

Brief.—The feeding device, which is located upon an arm projecting from the frame, consists of a spring-clamp upon a shaft hung in a yoke, reciprocated, to clear the plate in turning, by means of cams upon the said shaft, which cams turn upon ledges on a frame sliding upon the projecting arm. A pawl and a reciprocating rack cause this frame to advance toward the cutter. Side by side with the projecting arm is a reciprocating shaft, on which the rack for turning the nail-plate and clamp is hinged. The blank, having been cut and thrust through the die by those that follow, is pushed by the cleaner between the rolls, and thence delivered through guides, and by means of spring fingers, upon the anvil, to be shaved and pressed.

190,011.



1. The combination of the sliding block V, yoke H', carrying the shaft *h*, with plate-clamp I', the rod *k*, and spring *i*, substantially as and for the purposes herein set forth.

2. The combination of the vibrating yoke H', the shaft *h*, carrying the plate-clamp I', the pinion *f*, rack G', arm G, and rocking shaft U, all constructed and arranged to operate substantially as and for the purposes herein set forth.

3. The combination of the arm A, the sliding block V, with collars X X, rocking shaft U, rack-bar F, and pawl H, substantially as and for the purposes herein set forth.

4. The spirally-grooved collar E and guide D, in combination with the rocking shaft *h*, carrying the plate-clamp I', substantially as and for the purposes herein set forth.

5. The cams C C, attached to the rocking shaft *h*, in combination with the yoke H' and sliding block V, with ledges *m m*, substantially as and for the purposes herein set forth.

6. The combination of the longitudinally-grooved guide-bar K', the clearer Y, and sliding block Y', operated by means of the rack-bar W, cogged segment Z, and spring *p'*, substantially as and for the purposes herein set forth.

7. The spring-fingers L L, provided with the jaws *s s*, and attached to the sliding block Y', to operate substantially as and for the purposes herein set forth.

8. The combination of the sliding block Y' with clearer Y, the guide-bar K', rollers T T, guide M, and spring-fingers L L, with jaws *s*, all constructed substantially as and for the purposes herein set forth.

9. The presser K, in combination with the die J and the spring *t*, substantially as and for the purposes herein set forth.

10. The combination of the reciprocating cutter I and the stationary die J with spring-presser K, substantially as and for the purposes herein set forth.

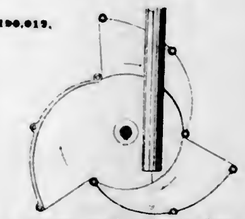
11. The combination of the plunger S, with adjustable cutters O O, the plunger R, with adjustable presser T, and the former N, substantially as and for the purposes described.

12. The spring-fork P, attached to the plunger S, and operating as and for the purposes herein set forth.

190,012. WATER-WHEELS. Luigi d'Auria, Gaetano, Italy. [Filed Mar. 12, 1877.]

Brief.—The floats of this wheel are constructed on an involute curve, and the stream of water that strikes them causes the working-surface of the floats to receive the force of the impelling fluid always in a normal direction, in whatever position the wheel may be.

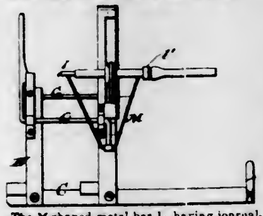
190,012.



1. A water-wheel having its floats so curved that their inner surfaces will form involutes, and so arranged that the water will strike their inner surfaces normally in every position of the wheel, substantially as described.

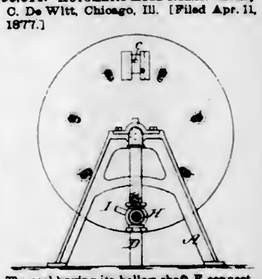
2. In combination with a water-wheel having involute floats, a tube, or its equivalent, so arranged as to discharge the water normally to the inner curves of the floats, substantially in the manner set forth.

190,013. HARVESTER-REELS. J. J. Dewey, Red Wing, Minn. [Filed Feb. 10, 1877.]



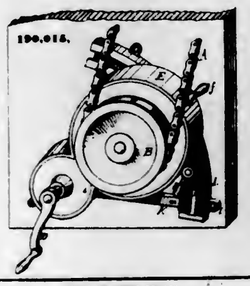
The Y-shaped metal bar L, having journal-bearings *l l'*, V-shaped brace M, and crank-shaft O, in combination with the vertically-vibrating reel and its operating mechanism, substantially as and for the purpose set forth.

190,014. AUTOMATIC HOSE-REELS. Henry C. De Witt, Chicago, Ill. [Filed Apr. 11, 1877.]



The reel having its hollow shaft E connected to the supply-pipe D, and provided with the adjustable or sliding sleeve *e*, in combination with the stop-cock B, provided with the arm I, all constructed and arranged to operate substantially as described.

190,015.



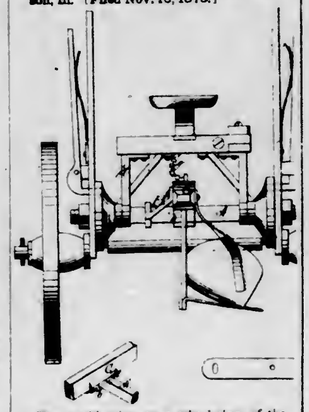
190,015. FIRE-ESCAPES. Charles Dwight, Brookline, Mass. [Filed Mar. 9, 1877.]

1. In a hose-elevator, the combination, with the endless chain A, of the pulley B, operated by a crank, and the case E, of the form substantially as shown, inclosing the operating mechanism, when the said case is pivoted at one end, and adjustably secured at its opposite end, substantially as described, for the purposes set forth.

2. In combination with the frame E, having projecting lugs F and G, the frame K having hub *i*, and segmental rim L, when constructed and arranged substantially as described, and for the purpose specified.

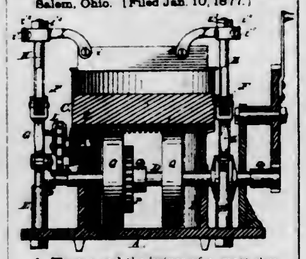
3. In combination with the pulley B, spindle *b*, gear-wheel C, pinion *c*, spindle *d*, and crank D, arranged within a box-frame, K, having lugs F and G, the wall-frame K, having hub *i*, and rim L, substantially as described, and to operate in the manner specified.

190,016. PLOWS. Wm. L. Edwards, Ellison, Ill. [Filed Nov. 16, 1876.]



The combination, in a wheel-plow, of the square axle A, the beam G, supported on top of the same, and held thereto by the clip *b*, and the brace H, connected to the beam, and having a square loop to pass around the axle, thereby providing for lateral adjustment of the beam on the axle, all constructed substantially as and for the purposes herein set forth.

190,017. MEAT-CHOPPERS. M. L. Edwards, Salem, Ohio. [Filed Jan. 10, 1877.]



1. The tub and the knives of a meat-chopping machine, the downwardly-bent knife-carrying arms I, adjustably attached to the reciprocating cross-head extensions H, the cross-head or cross-heads F, and their guide-posts E E, arranged and adapted for operation at the side and outside of the tub, substantially as herein set forth.

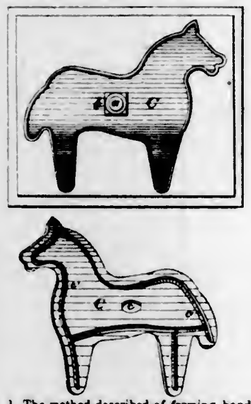
2. The combination, with the tub feeding and knife-operating connections, of the crank-shaft D, its balance-wheels Q Q, the tub C, and its segmental supports B B, the several parts being organized, supported, and adapted for co-operation, substantially as herein set forth.

3. The arms I, having split clamps *i'* at their outer ends, and brackets *i* for the knives at their inner ends, and the external side cross

head connections H and guide-posts E, for adjustment and support, all constructed and arranged for operation substantially as herein set forth.

4. The meat-chopping machine comprising the feed device, consisting of the pinion K, ratchet-wheel L, ratchet M, counter-shaft N', and gears O P, with the tub C and knife-operating connections, all constructed and adapted for co-operation substantially as herein set forth.

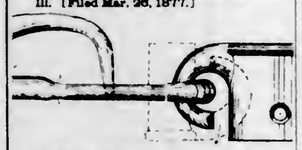
190,018. CAKE-CUTTERS. Henry Ersinger, Amana, Iowa. [Filed Mar. 1, 1877.]



1. The method described of forming hand-cutters for confectioners' use, consisting of molding the strip which forms the cutting-edge around a pattern-block, and soldering it to the cutter-plate as each part of the strip is brought in contact therewith successively, as specified.

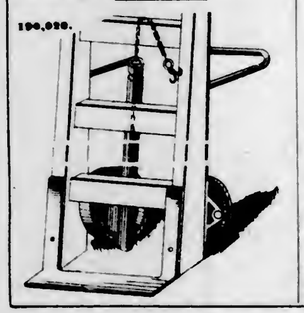
2. An apparatus for the manufacture of cake-cutters, the same consisting, essentially, of a supporting-block and a design-pattern, with mechanism for clamping a main-plate blank between the two, substantially as described.

190,019. WHIFFLETREE HOOKS AND CLIPS. W. D. Ewart and J. C. Coonley, Chicago, Ill. [Filed Mar. 26, 1877.]



A ring ferrule or clip provided with a loop having a narrow opening at one end, in combination with a trace-hook, the ring of which is depressed at some one point, to adapt it to be passed through the opening in the loop for coupling and uncoupling, substantially as and for the purpose described.

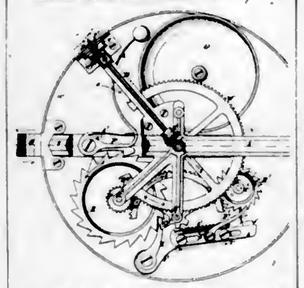
190,020.



190,020. HAND-TRUCKS. Hiram R. Ferris, Cleveland, Ohio. [Filed Feb. 13, 1877.]

The combination, with a hand-truck, of a single chain-receptacle, a chain having a spring or weight secured to one end and a hook to the opposite end, and an automatic chain-clamp, substantially as and for the purpose set forth.

190,021. PASSENGER-REGISTERS. Jno. W. Fowler, D. F. Lewis, W. H. Smith, and L. Fischer, Brooklyn, N. Y.; said Smith and Fischer assignors to said Fowler and Lewis. [Filed Mar. 10, 1877.]



1. The feed-pawl and hammer F, arranged and operating as described, in combination with the ratchet-wheel R, bell or gong G, spring-retracted slide S, and pawl and hammer spring s^2, for rotating the trip-hand shaft, and subsequently sounding an alarm, at each actuation of said slide, in the manner herein set forth.

2. The slide S^3 carrying the feed-pawl F^3, and constructed with the shoulder p, in combination with the ratchet-wheel R^3 on the shaft of the hundreds-dial, the wheel W^3 and its pin p^1, and the retracting-spring s^3, substantially as shown, for moving the hundreds-shaft instantly when the permanent hand reaches zero.

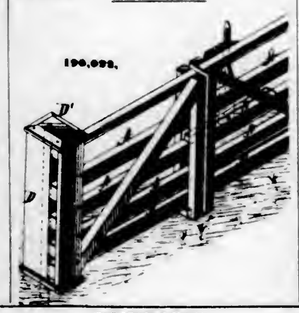
3. The combination of the inclined pin or flange f, notched crown-flange n, lever r, and spring s^2, with the slide S^3, and ratchet-wheel R^3, substantially as shown, for locking and unlocking the hundreds-shaft, in the manner set forth.

4. The bevel-gears b b', the shaft D having the notched flange c, and the stop-spring s^4, engaging with said flange, in combination with the hub of the trip-hand, for turning the latter by key, and stopping the same at zero, as herein set forth.

5. The guard-pawl or pawls g g^1, arranged with reference to the key-hole k, as described, in combination with the key K, and the shaft D adapted to be operated by said key, the object of the same being to insure turning the trip-hand backward to zero when it is reset.

6. The combination of the shafts A B C, gearing P W W^2, ratchet-wheels R R^3, spring-retracted slides S S^3, the feed-pawl and hammer F, and the feed-pawl F^3, with the trip-hand H, permanent hand H^3, hundreds-dial H^3, and bell or gong G, for simultaneously registering units on two dials, sounding an alarm after the registration of each unit, and actuating the hundreds-dial instantaneously at the proper moment in the manner herein set forth.

190,022.

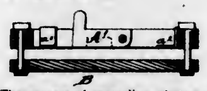


190,022. SWINGING GATES. H. B. Freeman, Charleston, Ill. [Filed Jan. 20, 1877.]

Brief.—The gates are removable from the posts, and can turn on them at any point of elevation, and the pivots are protected from the rain.

In combination with the stationary posts G G, having tenons a a, the gates A A, each provided with a hollow post, D, with closed tops D', which envelope the posts G and revolve on the same, substantially as set forth.

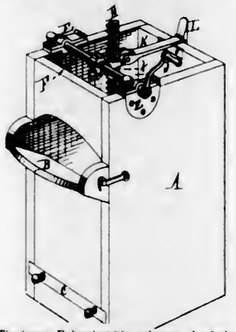
190,023. PROCESSES OF ENAMELING PHOTOGRAPHS. M. R. Freeman, Detroit, Mich. [Filed Mar. 10, 1877.]



1. The process of enameling photographs, consisting in flooding the picture with a gelatine solution, while firmly held in a frame, then in pressing upon it a plate of glass, coated as described, so as to expel the air from between their faces, then in drawing off the surplus gelatine, and finally in leaving the said devices to dry, substantially as and for the purpose set forth.

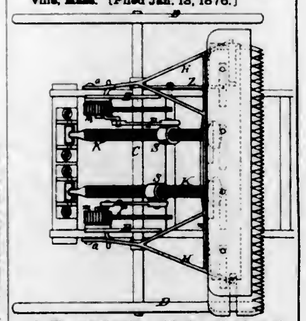
2. Frame A, provided with outlet a, valve or gate A', rests or fastening-plates a^1 a^2, base-board B, and suitable clamping devices, substantially as and for the purpose set forth.

190,024. BUTTER-WORKERS. D. A. Frick, Ottawa, Ohio. [Filed Jan. 13, 1877.]



The boxes E, having hinged caps, the forked guide-bar K, and spring-latch L, in combination with the box A, shaft F, and rack-bar H, as and for the purposes set forth.

190,025. MOWERS. E. L. Gilman, Somerville, Mass. [Filed Jan. 13, 1876.]



1. The combination, with the cutter-bar, of the rock-screw K, its reciprocating traveler S, and the mechanism whereby the latter is operated, substantially as specified.

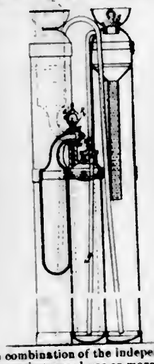
2. The combination, with the cutter-bars and their racks, of the rock-screws, their pinions and reciprocating travelers, the driving-gear, and the shaft of the driving-wheels, substantially as specified.

3. The combination, with the sickle and its pivoted arms H, of the oblique swiveled driving-screws k, and the lifting-lever Z, whereby the sickle is detached from its mechanism and raised simultaneously, substantially as specified.

4. The combination, with the slotted cutter-bars and swiveled driving-screws k, of the sickle base-plate, its abutment-bearing b, bolts c, and arms H, substantially as specified.

190,026. FIRE-EXTINGUISHERS. Charles F. Girard, Paris, France. [Filed Mar. 26, 1877.]

Brief.—The cylinder numbered 1 acts as a generator. Receptacle No. 2 contains a solution of the triple sulphate of alumina, of soda, and of ammonia, neutral, acting, first, on the excess of bicarbonate coming from the generator. The third cylinder is designed to hold a solution of sulphur and alkaline silicate. The acid contained in the revolving bottle is preferably sulpho-glyceric. The liquids of these receivers are all extinguishing liquids, but the reactions resulting from their mixture augment the extinguishing properties.

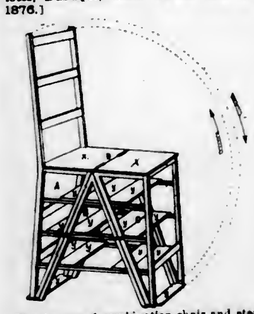


1. The combination of the independent and separate generator and one or more receivers, connected one to the other in succession by plunger-tubes, substantially as set forth.

2. The combination, with the generator, of the acid containing bottle or receptacle arranged outside of the generator and communicating with the same through a two-way cock, through which also the acid-containing bottle is filled, substantially as set forth.

3. The combination, substantially as set forth, of the external acid-containing bottle or receptacle, the generator and one or more receivers connected one to another in succession, the combination being and acting as set forth.

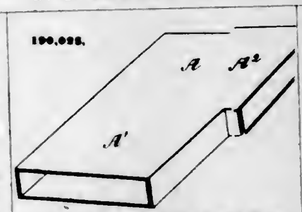
190,027. STEP-LADDER CHAIRS. H. Goffette, Dubuque, Iowa. [Filed May 16, 1876.]



The improved combination chair and step-ladder herein described, consisting of three sections, A B C, having steps y y and seat x x, all hinged together at D, substantially as and for the purpose herein shown and specified.

190,028. FRAME-CORNERS. J. E. Goodrich, Sycamore, Ohio. [Filed Aug. 19, 1876.]

190,028.

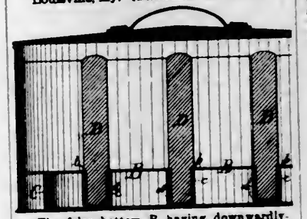


1. A tubular, rectangular, metallic frame-corner having the sockets A^1 A^1, substantially as described, and for the purpose set forth.

2. The tubular metallic frame-corner A, constructed by bending over the blank B, made out of a single piece of sheet metal, substantially as described, and for the purpose set forth.

3. The blank B, having recesses B^1 B^2 B^3 and rectangular slots or cuttings B^3 B^3, substantially as set forth.

190,029. WASH-BOILERS. H. Gotthardt, Louisville, Ky. [Filed Mar. 20, 1877.]



The false bottom B, having downwardly-projecting rim or flange C and perforations b b, and provided with downwardly-projecting perforated flanges c, in combination with the detachable plugs or staffs D D, arranged to operate substantially in the manner and for the purpose herein shown and specified.

190,030. EXHAUST-VALVES FOR AIR-BRAKES. A. F. Gue, Boston, Mass., assignor of one-half his right to G. F. Field, same place. [Filed Sept. 19, 1876.]



1. In exhaust-valves for air or steam brakes, the combination, with a suitable valve chamber, of a weighted double-ended valve, provided with a convex head and a single concave flange, and so arranged that the action of the air or steam in passing through the valve will cause the induction and eduction ports to be automatically opened and closed for the purpose of supplying air or steam to the cylinders, or of exhausting the same, substantially as set forth.

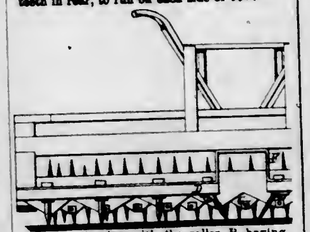
2. The valve-flange K, constructed with a concave upper surface, substantially as and for the purpose set forth.

3. In combination with the valve-chamber, provided with seat L and eduction-port D, the weighted valve E, constructed with flange K, stem F, and the convex head, as described, for the purpose of closing said port by mere abutment.

4. The combination of spindle H and valve E, provided at its lower end with slots O, as set forth.

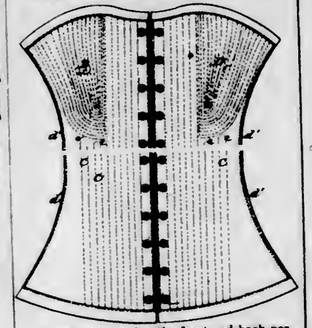
190,031. CULTIVATING-HARROWS. Robert Hamilton, Franklin, Ind. [Filed Mar. 15, 1877.]

Brief.—A cultivating straddle-row harrow, with toothed roller in front, and two pivoted teeth in rear, to run on each side of row.



In combination with the roller B, having teeth arranged thereon each side of a central space, the rear bar D, having bridge F, and provided with two angular pivoted harrow-teeth, G G, all substantially as set forth.

190,032. CORSETS. Maggie M. Harriman, Kansas City, Mo. [Filed Apr. 7, 1877.]



1. A corset having the front and back portions cut as described, so that when united the sides will be straight between the points d' d', substantially as shown, and for the purpose specified.

2. In a corset, the combination of the back-stiffeners C, terminating at e, and the quilted shoulder portions D, of the configuration shown, the whole being arranged as and for the purpose specified.

190,033. ADJUSTABLE GUN-STOCKS. H. Hartley, Pittsburg, Pa. [Filed Feb. 1, 1877.]



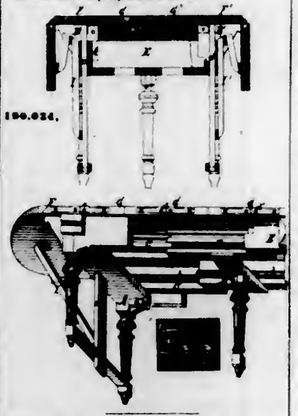
In combination with a pistol gun-stock, the metallic casing C C, provided with the dovetailed slot F, the covering-piece D, the key-slide E, secured by the screws d' d', and pivoted ant h', and screw g', or their equivalents, substantially as and for the purpose herein-before set forth.

190,034. EXTENSION-TABLES. Geo. Hess, New York, N. Y. [Filed Mar. 1, 1877.]

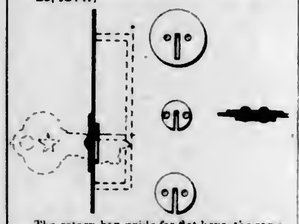
1. The combination, in an extension-table, of rising and falling end sections F F^1 and two sets of hinged leaves, G G^1, each set of leaves being connected to one of the end sections by hinge-joints, substantially as and for the purpose herein shown and described.

2. The combination, with the extension-rails C D E, of cylindrical sockets *a* and correspondingly cylindrical guides *b*, substantially as and for the purpose set forth.

190,034.



190,035. KEY-GUIDES FOR LOCKS. Louis Hillebrand, Philadelphia, Pa. [Filed Mar. 23, 1877.]



The rotary key-guide for flat keys, the same consisting of a slotted flat disk fitted in the circular opening of the face plate of the lock, and rotatingly secured to said plate by means of disks, which overlap the wall of said opening on opposite sides, the several disks being formed of sheet metal, substantially as and for the purpose set forth.

190,036. ICE-MACHINES. Danl. L. Holden, Covington, Ky. [Filed Jan. 31, 1877.]

Brief.—The horizontal cylindrical refrigerator-case contains a revolving pipe-coil, through which, by means of suitable axial connections, the brine or other non-congealable liquid is forced. From this coil the cold brine passes to a trough in a case above the congealer, and trickles through perforations in the bottom of the trough, and over wire-gauze screens, and has its temperature transmitted to a blast of air, which is forced in constant circulation through these screens, and through the congealer, in which the water-pans are placed on rollers, and have counterbalanced deflecting-plates swinging above. The brine is drawn from the bottom of the air-cooling case, and pumped back into the revolving brine coil, which dips in the ether or other volatile liquid, and is cooled by the evaporation thereof. This evaporation takes place to fill a vacuum produced by pumps of peculiar construction. The gas then passes to an ordinary condenser, and from thence in a liquid form to a receiver, from which the gas that may have escaped from the condenser passes to a superimposed dome, which is cooled by the evaporation of a volatile fluid contained in the space between said dome and a surrounding one. From the dome or "purger" the air is allowed to escape through a pipe and stop-cock, and the liquefied gas is precipitated to the receiver, from which the passage of the volatile liquid to the refrigerator-case is regulated by an interposed float-valve.

1. The refrigerator, consisting of an outer case, a rotary shaft, having hollow ends communicating with a supply and exhaust pipe, and a set of pipes, chambers, or passage-ways for the fluid to be refrigerated communicating with the hollow ends of the rotary shaft, and arranged to revolve with the latter, substantially as and for the purpose described.

2. The combination, with the case A for a volatile liquid and gas, and the rotary shaft journaled in the same, of the stuffing-boxes *d*, and the water-sealing boxes *e*, as and for the purpose described.

3. The purger, consisting of the dome O, having a direct communication with the receiver, and a blow-off pipe and cock, and the outer dome O', forming a closed annular chamber about O, and having a communication, *q*, with the receiver, and a connection, *r*, for an exhausting apparatus, substantially as and for the purpose described.

4. The combination, with the refrigerator-case A, and the receiver J, of a communicating-pipe, *s*, provided with an automatic float-valve, *t*, as and for the purpose described.

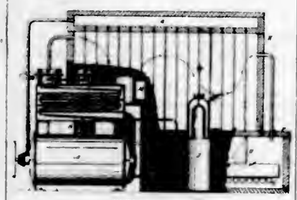
5. The air-refrigerating case K, consisting of the distributing-pan Q for the non-congealable liquid, having its bottom perforated in rows, and combined with subjacent vertical partitions of gauze-wire or fibrous netting, arranged edgewise beneath the rows of perforations, and separated by baffle-plates, as and for the purpose described.

6. The congealing-case P, having doors at both ends, and supporting rollers or ways for the pans, in combination with the counter-balanced deflector-blades U, substantially as and for the purpose described.

7. The combination of the refrigerator A, pumps H, condenser I, and receiver and purger J, substantially in the manner and for the purpose set forth.

8. The combination, with refrigerator A, pumps H, condenser I, and receiver and purger J, of the air-refrigerating case K, the circulating-pump L, the congealing-case P, and the blower N, as and for the purposes specified.

190,037.



190,037. LAMPS. C. T. Holloway and W. H. H. Stineman, Baltimore, Md., assignors to D. H. Flack, same place. [Filed June 26, 1876.]

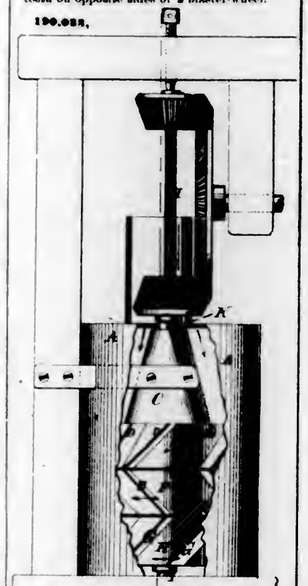


A lamp-wick of round woven material, filling the body of the lamp, in combination with an ordinary lamp-wick inserted therein at one end, leading through the wick-tube, substantially as set forth.

190,038. TURBINE WATER-WHEELS. Jos. Hough, Buckingham, Pa. [Filed Nov. 4, 1876.]

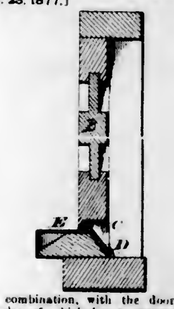
Brief.—Two turbines are placed in a single incasement, and revolving in opposite directions, the water being delivered at right angles to the buckets of the upper wheel by means of a series of fixed chutes, and discharged from the buckets of said upper wheel upon and at right angles with the buckets of the lower turbine wheel, the shaft of the aforesaid upper turbine wheel being hollow, and inclosing the shaft of the said lower wheel, the opposite rotary motions of the said shafts being converted into rotary motion in a single shaft by means of gears meshing into the teeth on opposite sides of a master-wheel.

190,039.



The combination of the incasement A, the support C, and inclined chutes D, carried by said support, with the turbine wheel F, having the inclined chutes E, and keyed to the sleeve K, and the wheel H, having the inclined chutes G, and keyed to the shaft I, for operating the master-wheel, the whole being constructed and arranged to operate substantially as herein shown and described.

190,040. WEATHER-STRIPS. Geo. Howver, Mansfield, Ill., assignor of one-half his right to John Clouser, same place. [Filed Mar. 23, 1877.]

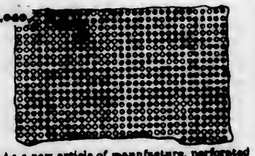


The combination, with the door B, the lower edge of which has a rectangular recess, C, formed thereon, of the swinging weather-strip D, secured to the edge of the door by staples, and metallic plate E, said weather strip being of sufficient width to rest in direct contact with the angular face of the door-sill, substantially as and for the purpose set forth.

190,040. LEATHER FOR ORNAMENTATION. Henry Huck, Baltimore, Md. [Filed Mar. 16, 1877.]

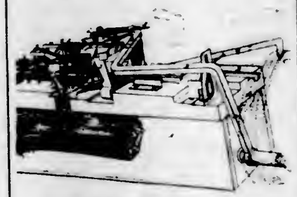
Brief.—Leather is reduced to a proper consistency, and perforated finely and regularly, so as to be adapted for purposes of embroidery or thread ornamentation.

190,040.



As a new article of manufacture, perforated leather prepared in sheets for use in the arts of embroidery and thread ornamentation, the perforations being regularly spaced and shaped, and closely cut, as specified.

190,041. GRAIN-BINDERS. H. Hull, West Exeter, N. Y. [Filed Feb. 28, 1877.]



1. The combination of the carrying-pinchers *b*, the looping-pinchers *c*, the tying-pinchers K, the gripers E, and the knife T, substantially as and for the purpose described.

2. The combination, with the tying-pinchers K, of a catch, *m*, arranged to hold the loop while it is being formed, and to be withdrawn into the limits of the loop to allow the same to slip off when the pinchers are closed, as and for the purpose described.

3. The combination, with the tying-pinchers K, of the gripers E, composed of independent pivoted hooks *g* and *d*, arranged to clamp the cord, to move together in line with pincher-jaws, and backward into the same, substantially as described, and for the purpose set forth.

4. The fulcrum-bar C, carrying looping-pinchers, and having a compound motion, in combination with the slotted guide D^2, having a spring leading tongue or switch, d^2, substantially as and for the purpose described.

5. The combination of cam-trigger H, connected with bar C, the horizontal spring-arm I, or its equivalent, as described, and thread plate F, as and for the purpose specified.

6. The combination, with the tying-pinchers, of a hook, L^2, for drawing the knot down to the bundle, substantially as described.

7. The combination of slide D, having pins *i* and i^1, the spring-latch Q, sliding plate R, spring arm L, and rock-arms *r s*, as and for the purpose described.

8. The combination of the cam-trigger H with the releasing-latch *f*, and the pivoted spring-actuated gripers E, substantially as described.

9. The tension-arm A, in combination with the gripers E, tying-pinchers K, and looping-pinchers *c*, for the purpose described.

10. The combination, with the tying-pinchers K, of the looping-pinchers *c*, having lug *i*, and a forked arm, *j*, for the purpose of placing the loop around the tying-pinchers, as described.

11. The link *l*, in combination with the forked arm *j*, the spring-arm I, and the cam-triggers H, as and for the purpose described.

12. The combination, with the pivoted spring-actuated gripers, of the lever-catch *o* and the cam-trigger H, having hook *n*, substantially as and for the purpose described.

13. The slide-arm *m*, moving with slide D, and having a pivoted cam or dog, *o*, and hook *p*, in combination with the carrying-pinchers *b*, having lug *x* and hook *v*, together with the spring-actuated cord-slide N, carrying tension a^1 and arm *y*, substantially as described, and for the purpose set forth.

14. The sliding knife T, having a cam upon its under surface, and moving in a stationary guide-standard, combined with, and located between, the carrying-pinchers *b* and the gripers, substantially as and for the purpose described.

15. The combination, with the knife, the tying-pinchers, and its adjuncts, of the sliding arm M, the latch-detent O, the base-slide P, and the notched base-frame, as and for the purpose described.

16. The combination with the spring-actuated tying-pinchers K, of the pivoted cam-bar k^1, arranged upon the slide D to open the tying-pincher jaws, as described.

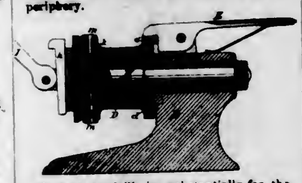
17. The gripers E, having arm k^1, in combination with the lever-catch *o*, having pin *i*, and the detent d^2, which holds open the tying-pincher jaws, for the purpose described.

18. The notched setting-bar d^2, pivoted to the slide D, and combined with the griping devices, to set the same against the tension of the springs, substantially as described.

19. The slide D, having pendent pin d^1, in combination with the spring-arm I, having flange f^1, as and for the purpose set forth.

190,042. WORK-HOLDING DEVICES FOR DRILLING-MACHINES. A. Hard, Yonkers, N. Y. [Filed Feb. 21, 1877.]

Brief.—A central stud, of diameter exactly equal to the shaft upon which the work to be drilled is finally placed, is rigidly secured in the gig or holder. The holder is secured in the desired position by a spring-latch, which enters one of a series of notches cut on its periphery.



1. A rotary drill-gig, substantially for the purpose described.

2. A rotary drill-gig, substantially as described, combined with an angular index and stop-latch to determine the proper angular movement of said gig.

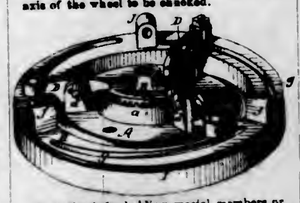
3. A rotary drill-gig, D, combined with a clamping device to hold the blank rigidly, as set forth.

4. A rotary drill-gig, D, provided with peripheral notches *e*, and holding-latch E, combined with the clamp-rod H and cam I, as set forth.

5. A rotary drill-gig, D, with drill-guide holes *k* and removable thimbles *m*, adapted to various sizes of drills, as described.

190,043. CHUCKS. A. Hard, Yonkers, N. Y. [Filed Feb. 21, 1877.]

Brief.—The curved grooves traversed by the screws in the ends of the griping-levers are formed in a ring that is somewhat convex on its under side, and that lies in an annular groove in the chuck-plate, that is somewhat concave, and the grooves first named have inclined bottoms, and are eccentric to the axis of the wheel to be chucked.



1. A chuck for holding special members or devices, provided with a central seat adapted to receive and hold such special member, combined with self-adjusting holding levers or jaws, to grip and hold said member, substantially as set forth.

2. A clutch provided with a conical seat, *a*, having three bearing-points, *a'*, combined with levers D, actuated by a ring, H, having inclined spiral grooves, whereby the points of said levers are advanced and depressed by a single movement of said ring.

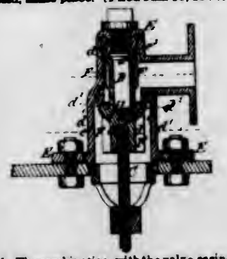
3. The cam-ring H, provided with inclined spiral grooves *g*, seated in the concave rim I, whereby it is capable of self-adjustment, as set forth, combined with the radial levers D, having pins P entering said grooves, whereby said levers are simultaneously advanced and adapt themselves to unequal surfaces, as set forth.

4. The levers D, constructed with longitudinal slots for the fulcrum-pins *c*, combined with a cam-ring provided with spiral grooves, having inclined bottoms, as set forth.

5. A chuck having automatic levers or jaws D D for griping and holding the object to be bored, and the seat *a*, to receive and support said object, combined with a hub at the back and a truly-axial guide-hole, *m*, therein, to receive and guide the point of the boring-tool, as set forth.

6. The teeth *e e e*, constructed on the constructed on the convex surface of the chuck-plate *a*, substantially as set forth, and for the purpose described.

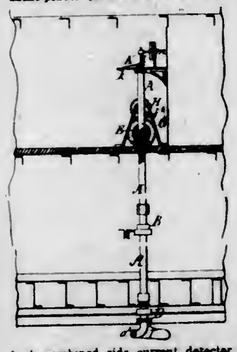
190,044. WATER-FEEDERS FOR STEAM-BOILERS. D. Ilfland, Hamburg, Germany, assignor of one-half his right to E. Hadenfeld, same place. [Filed Jan. 16, 1877.]



1. The combination, with the valve-casing E, having annular seats e^1 e^2, of the cylindrical valve, having annular faces d^2 d^3, an enlarged base, d^1, and shank *d*, said base being provided with ports *f*, and the guides F, all constructed and operating substantially as described, for the purpose specified.

2. The cylindrical double-seated valve D, the threaded recess *i*, adapted to receive a valve-lifter, in combination with the casing E, having an opening in its head, substantially as described, for the purpose set forth.

190,045. SPEED AND CURRENT INDICATORS. D. Ilfland, Hamburg, Germany, assignor of one-half his right to E. Hadenfeld, same place. [Filed Jan. 16, 1877.]



1. A combined side current detector and speed-indicator for vessels, consisting of a hollow or tubular connection, open at both ends, between an index traveling over a suitably-graduated horizontal scale on one of the decks of the vessel, and a rudder or wing below the keel of said vessel, the hollow connection being adapted to rotate under the action of the rudder, and a rigid connection between a float within said tubular connection and an index traveling over a suitably-graduated vertical scale, all combined, constructed, and arranged to operate substantially as described.

2. The sleeve B and bosses C, having annular groove *b* and annular projection *c*, or their equivalents, the set-screws *c'*, and the pipe A, all combined, constructed, and operating substantially as described, for the purpose specified.

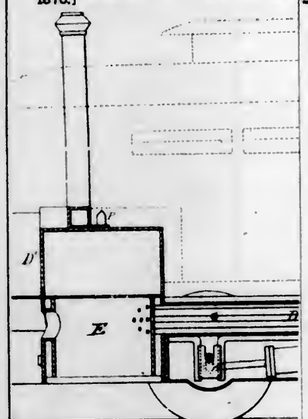
3. The pipe A, having a screw-thread at or near its upper extremity, the bevel-pinion E, having its hub threaded to fit the thread on pipe A and mounted thereon, the bevel-pinion F, and gear-wheel G, mounted on shaft *f*,

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the pinion B, mounted on shaft A, and the crank A', all combined, constructed, and operating substantially as and for the purpose specified.

4. The bevel-pinion K, having the inner periphery of its hub threaded, and its lower face provided with an annular projection, *a*, in combination with the grooved sleeve B and the threaded pipe A, all constructed and operating substantially as and for the purposes specified.

190,046. STEAM STREET-CARS. J. D. Imbodsen, Richmond, Va. [Filed Dec. 23, 1876.]



1. An engine truck-frame, carrying the engine and boiler, having at one end the engineer's cab, and having the rest of its surface level and free for the reception of an independent car-body, substantially as specified.

2. The under truck, carrying the boiler and engine, having a pivotal connection for the car in front, and receiving its weight upon a traverse track or bearing, substantially as specified.

3. In a truck-frame, a horizontal boiler having at each side a horizontal parallel cylinder-heater, at one end a transverse smoke-box, connecting said boiler and heaters, and at the other end the steam-dome and furnace, substantially as specified.

4. The combination, with the flattened elliptical boiler, to economize space under the car, of the parallel lateral cylinder-heaters, connected thereto, substantially as specified.

5. In a truck-frame, the combination, with a horizontal-tubed boiler, of lateral-tubed heaters connected thereto, transverse smoke-box, and vertical furnace and steam-chamber, substantially as specified.

6. In a car-motor, the combination, with the transverse fixed double-chambered steam-cylinder bearing K, of the oscillating cylinders, having head-bands encircling said bearing, and receiving and discharging steam through the ports in said head-bands, substantially as specified.

7. The combination, in a truck-frame, of the horizontal boiler D F' F' and the oscillating engines, arranged thereunder, substantially as specified.

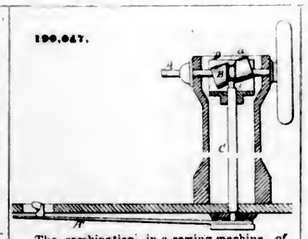
8. In a truck-frame, the combination of the longitudinal horizontal boiler, and, arranged thereunder, the oscillating engines, the ends of which bear on a fixed cylinder provided with double steam-passages, substantially as specified.

9. In a car-motor consisting of a truck, a boiler arranged therein, and an engine arranged under the boiler, the combination of the piston-cylinders and their transverse bearing, the throttle and reversing and stopping valves, and the closed safety-valve, substantially as specified.

190,047. SEWING-MACHINES. F. Jacob, Newark, N. J. [Filed Jan. 31, 1877.]

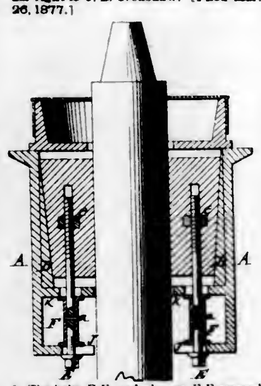
Brief.—The rotation of the horizontal shaft causes a reciprocatory rotation or rocking of the upright shaft, and lateral displacement of the upright shaft is prevented by its projection working in the groove in the inclined cylinder.

190,047.



The combination, in a sewing-machine, of the shaft A, the inclined cylinder carried by said shaft, the vertical shaft C, carrying a box, D, inclosing the cylinder, arranged directly below the shaft A, and provided with a projection, *i*, adapted to a groove, *a*, in the cylinder as set forth.

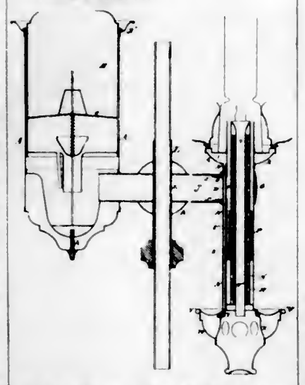
190,048. MILL-BUSHES. R. T. Jennings, Sr., Richmond, Va., assignor of one-half his right to J. B. Crenshaw. [Filed Mar. 26, 1877.]



1. The bolts E E, and sleeves F F secured to same, in combination with the blocks C C and their nuts *e e*, as and for the purpose set forth.

2. The combination of the case A, wedges D D, bush-blocks C C, bolts E E, the flanged sleeves F F, secured to the bolts by the pins *a*, and the nuts *e e*, all constructed substantially as and for the purposes herein set forth.

190,049. STUDENT-LAMPS. J. Kirby, Jr., Cincinnati, Ohio, assignor to Post & Co. [Filed Mar. 2, 1877.]



1. A reservoir or cylinder, A, having a flaring flange, *a'*, to receive any oil that may escape from the reservoir B while being removed or placed in position, substantially as specified.

2. The combination of feed-tube J and smaller slide-tube L, united at the intersection, and covered by globe or ornament K, substantially as and for the purpose specified.

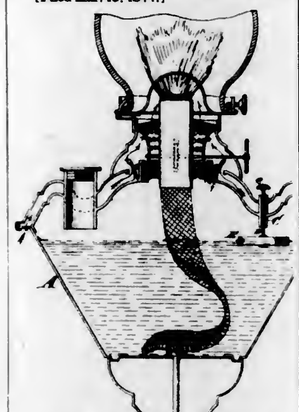
3. The collar O 5 *e*, in combination with the burner-tube P and feed-tube J, substantially as before set forth.

4. The drip-tube N, leading from the receptacle A to the aperture *e*, or through said aperture to the drip-cup W, substantially as described.

5. An interior draft-tube, T, constructed so as to form an enlargement at the top, to admit of the expansion of the air before it reaches the flame, said enlarged upper end being wholly within and surrounded by the wick-tube, substantially as and for the purpose set forth.

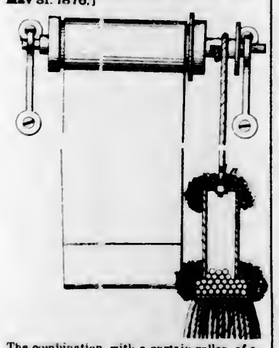
6. The wick-adjusting flange V, in combination with the interior draft-tube T, screw-tube S, slotted tube R *i*, and wick-sleeve U S, substantially as and for the purpose specified.

190,050. LAMPS. J. Kirby, Jr., Cincinnati, Ohio, assignor to Post & Co., same place. [Filed Mar. 19, 1877.]



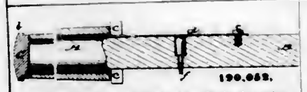
The vessel A C and float D E *e*, combined substantially as and for the purpose specified.

190,051. CURTAIN-TASSELS. S. H. La Rue, Frenchtown, N. J., assignor of one-half his right to A. Brink, same place. [Filed May 31, 1876.]



The combination, with a curtain-roller, of a cord and tassel, the latter having a hollow metallic body adapted to serve as a receptacle for shot or sand, said cord having at its end a metallic screw-threaded tip constructed to enter and be secured in the aperture through which the shot is introduced, as and for the purpose set forth.

190,052. HUB-ATTACHING DEVICES. Jas. Lathrop and F. H. Allen, Norwich, Conn., assignors to J. Lathrop and J. E. Warner, same place. [Filed Feb. 21, 1877.]



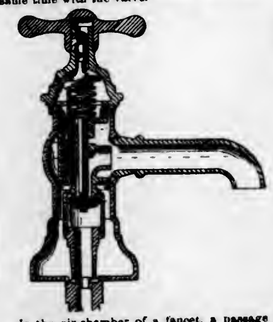
190,052.

1. In combination with the axle A, the tube C, provided with the flange *b*, locking-lugs *a*, and openings *i*, as described, and for the purpose specified.

2. In combination with the axle A and tube C, the spring *d* and rod *f*, all arranged and operated as and for the purpose specified.

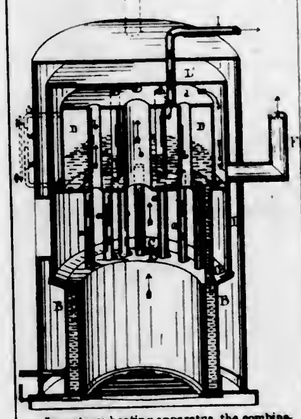
190,053. FAUCETS. H. B. Leach, Boston, Mass. [Filed Mar. 1, 1877.]

Brief.—There is a passage way between the water-inlet and the air-chamber. The latter is supplied with air through an air-valve, opened by means of the main valve-stem, and at the same time with the valve.



In the air-chamber of a faucet, a passage leading from the main inlet water-way of the faucet into the air-chamber, combined with an air-supplying valve, substantially as shown and described.

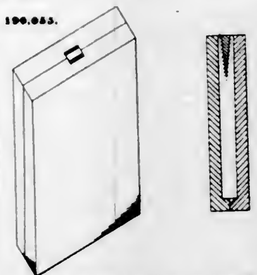
190,054. STEAM-HEATING APPARATUS. C. Le Bosquet and J. Le Bosquet, Haverhill, Mass. [Filed Mar. 28, 1876.]



In a steam-heating apparatus, the combination and arrangement of a reservoir, D, surrounded by a chamber, through which the products of combustion are caused to descend and circulate, and which is separated from the combustion-chamber by means of a flange, *c*, the water-chamber B, the pipes *a a*, and tubes *b b*, the flue F, arranged as described, the steam-pipe I, and the casing L and cover L', all constructed and operating substantially as set forth.

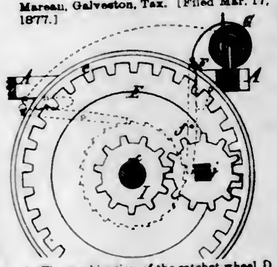
190,055. MANUFACTURE OF SHOVEL-BLANKS. Albert Maltby, Pittsburg, Pa. [Filed Nov. 18, 1876.]

190,055.



A steel shovel-blank cast in one piece, having lugs C C, and a cavity for the reception of the lower end of the handle, the inner walls of the lugs being wrought-iron, substantially as herein described, and for the purpose set forth.

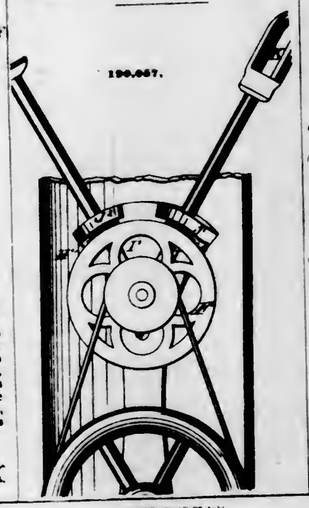
190,056. CAR BRAKES AND STARTERS. W. Marean, Galveston, Tex. [Filed Mar. 17, 1877.]



1. The combination of the ratchet-wheel D, the disk E, having an inner gear, *e*, and a pawl-lever, F, the spring G, the horizontal sliding wheel J, and the driving-wheel I, all for the purpose of unwinding the spring G and starting the car-wheel, substantially as set forth.

2. The ratchet-wheel D and disk E, provided with an inner gear, *e*, a clutch, *e'*, and pawl-lever F, and the axle C', having a straight-sided key, *c*, in combination with the sliding driving clutch-wheel I, the intermediate wheel J, which slides longitudinally upon the axle *j*, and the independent operating-levers, whereby both the starting and checking of the car are effected, substantially as described.

190,057.

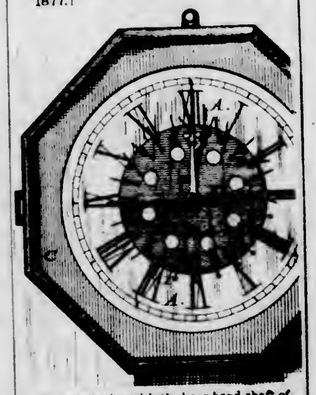


190,057. PEG FLOATS OR CUTTERS. Thos. C. Maris and S. M. Hart, Marietta, Ohio. [Filed Oct. 14, 1876.]

1. The combination of the rotating shaft I with cutter K, having knife-edge side k^1 and serrated side k^2, substantially as set forth.

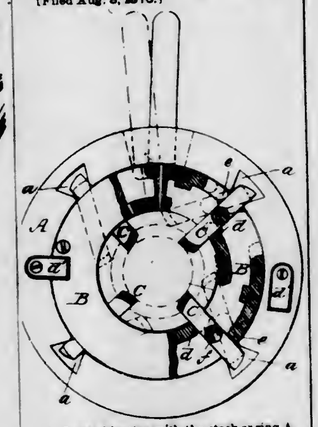
2. The combination, with a rotating cutter, consisting of an elongated bent blade, of fixed shield, shaped like a cylinder open below and tapering to a point in front.

190,058. WATCHMEN'S TIME-DETECTORS. J. H. Marvil, Laurel, Del. [Filed Mar. 21, 1877.]



In combination with the hour-hand shaft of a clock or other time-piece, a rotating disk carrying a series of pointers adapted to pass at stated intervals a key-hole or key-holes in the glass face of the door of the clock, and to be operated by means of a key in the possession of the watchman, the door of the casing of the clock being provided with a locking device, under control of the superintendent or other person in charge, to prevent the fraudulent change of the pointers by the watchman, substantially as described.

190,059. SCREW-CUTTING DIES. Saml. W. Martin, Springfield, Ohio, assignor of one-half of his right to F. P. Mast, same place. [Filed Aug. 3, 1876.]



1. In combination with the stock or ring A, and the case or holder B mounted therein, the reversible pivoted dies or cutters C, constructed and arranged substantially as shown, that they may be turned end for end, as described.

2. In combination with the stock A, having the internal recesses *a*, the ring or case B mounted therein and provided with the pivoted die C, and with the shoulders *d* and *e* to sustain the same when in action.

3. A tool for cutting both right and left hand screw threads, consisting of an annular stock, A, a rotary reversible case or holder, B, mounted therein, and a series of pivoted reversible dies, C, mounted in said case and provided each with right-hand threads on one end, and left-hand threads on the other, as described.

4. In combination with the stock A, the hollow annular case or holder B, provided with the conical pivots *g* on its two inner sides, and the flat dies or cutters C, provided with the recesses *f* in their edges, and mounted in the case upon the pivots, as shown.

5. In combination with the stock or head A, provided with recesses *a*, a ring, B, provided with external studs *c*, and internal recesses *a'*, whereby the stock is enabled to hold die-cases of different sizes.

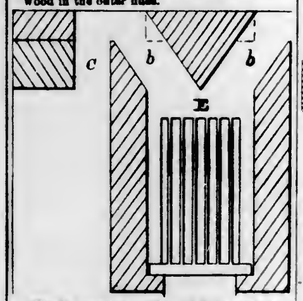
6. In combination with the annular case or ring B, and the dies C pivoted therein, the internal sliding guard-plate or shield G mounted therein, as shown.

7. In combination with the stock A, rotary case B, and pivoted dies C, the hand-lever E attached to the case for the purpose of turning the same within the stock to operate the dies.

8. A tool for cutting both right and left hand threads, consisting of dies having right and left hand threads on opposite ends, and a body or holder adapted to permit the reversal of the dies end for end therein, and to hold them in position for rotating and cutting either to the right or the left as occasion may require, substantially as shown and described.

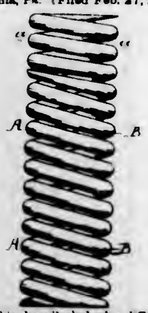
190,060. BRICK-KILNS. E. R. McDougal, Indianapolis, Ind. [Filed Oct. 18, 1876.]

Brief.—Coal may be used on the grate and wood in the outer fires.



The fire openings or fires C C, in combination with the fires *b b* of the furnace E, with imperforate side walls, constructed as described, so that the fires C C can be used either separately or in conjunction with fires *b b*, to give a greater or less degree of heat, substantially as and for the purpose set forth.

190,061. CAR-SPRINGS. Allen Middleton, Philadelphia, Pa. [Filed Feb. 27, 1877.]



1. The within-described duplex differential spiral, consisting of the coil A, having different pitches, and the shorter coil B, having a pitch corresponding with that of a portion of the coil A, all substantially as set forth.

2. The combination of the duplex differential spiral, with one or more re-enforcing internal spirals, as set forth.

190,062. SAWS. W. P. Miller, New York, N. Y. [Filed Feb. 27, 1877.]

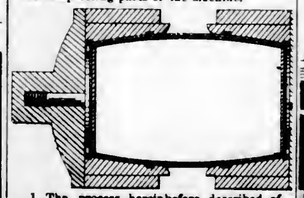


1. The tooth C, provided with the projection on its front *e*, in combination with the saw-plate A, having an inclined hook, *f*, forming a support for the bottom of the tooth, substantially as set forth.

2. The clamp B, having a circular tongue, *m*, in combination with the plate A and soft-metal joining-piece, substantially as and for the purpose specified.

190,063. MANUFACTURE OF BARRELS. R. M. Munroe, Edgewater, N. Y. [Filed Apr. 11, 1876.]

Brief.—A complete double barrel, having a suitable amount of lubricating substance introduced between the two cylinders, is formed at one operation. The head is held in position, while the barrel is being formed, by means of a yielding head-holder arranged within the compressing parts of the machine.



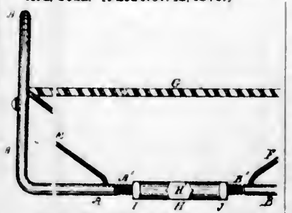
1. The process herein before described of forming a double barrel, consisting of the introduction of a proper amount of lubricating substance between the two cylinders which form the barrels, and then compressing them, while at the same time the head is placed in position, so that a complete barrel is formed in one operation.

2. In combination with barrel-making machines such as described, the movable head-holder, constructed for operation substantially as shown and described.

3. The combination, in a barrel-machine, of the following elements, viz: a movable head-holder, a compressing mechanism, and a spring, all arranged for operation substantially as herein shown and set forth.

4. The combination of a barrel-making machine, such as herein described, with two plate head-holders, which are equal in thickness to the chines of the barrel, so that the inner barrel is forced to take a central position with reference to the outer barrel, substantially as shown and described.

190,064. BEDSTEADS. W. J. Myers, Hartford, Conn. [Filed Nov. 13, 1876.]



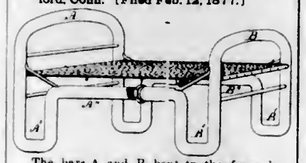
1. The combination of the bars A and B, bent to the form described, the braces E and F, and a central coupling device, H, with an elastic web G, substantially as herein described.

2. The right and left screw-coupling H, in combination with the side bars of a bedstead-frame of the construction described, for the purpose of adjusting the longitudinal tension of the web, substantially in the manner herein set forth.

3. The combination of the set-nuts I J, with the coupling H, and the bars A B, having the threads A' B', substantially as and for the purpose herein described.

4. A bedstead frame consisting of two bent metallic tubular end sections, as set forth, and connected by central-screw couplings adapted to adjust the tension of the elastic webbing of the bed-bottom, substantially as described.

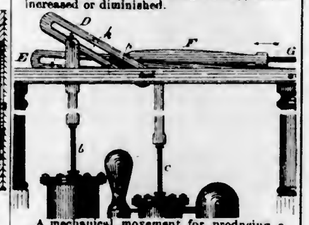
190,065. BEDSTEADS. W. J. Myers, Hartford, Conn. [Filed Feb. 12, 1877.]



The bars A and B, bent to the form described and shown, in combination with an elastic bed-bottom and a central fastening, substantially as herein set forth.

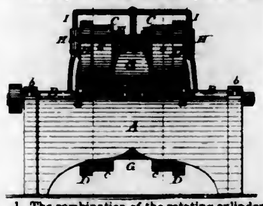
190,066. MECHANICAL MOVEMENTS. Nils Nilson, Minneapolis, Minn. [Filed June 16, 1876.]

Brief.—The adjusting-screw, through the bent lever, operates the slides, whereby the stroke of the rod for working a pump, &c., is increased or diminished.



A mechanical movement for producing a reciprocating motion and regulating the same, consisting of the slotted levers D IV E, bent rod F, and adjusting-screw G, all arranged and combined to operate substantially in the manner and for the purpose herein shown and specified.

190,067. ROTARY ENGINES. Nils Nilson, Minneapolis, Minn. [Filed Apr. 16, 1877.]

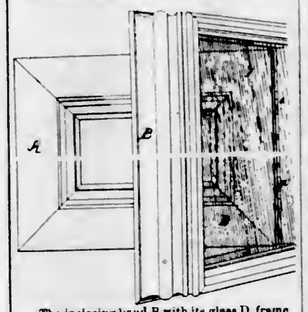


1. The combination of the rotating cylinder C, having steam-chambers C', and sliding abutments E, with the interiorly-arranged guide-plate G, having segmental recesses *g*, substantially as and for the purpose herein shown and specified.

2. The combination of the rotating cylinder C, constructed as herein described, with the disks D, having perforations *h* and *h'* for the induction and escape of the steam or other motive power, steam-chests H, induct-pipe I, and escape-pipe L, all arranged, combined, and operating substantially as and for the purpose herein shown and specified.

3. The rotary steam, water, or air engine herein described, consisting of the rotating cylinder C, having circumferential steam-chambers C', and sliding abutments E, in combination with the stationary guide-plate G, stationary disks D, steam-chests H, adjustable slide-valves *i*, induct-pipe I, and escape-pipe L, all constructed and combined for operation substantially in the manner and for the purpose herein shown and specified.

190,068. PICTURE-FRAMES. F. Odenbaugh, Springfield, Ohio. [Filed Aug. 3, 1876.]



The inclosing band B with its glass D, frame A, and back C, having their auxiliary connecting and fastening devices upon the back thereof only, the said band B adapted to be operated independently of frame A (to which it is hinged) when the latter is suspended by cord *e'*, substantially as described and set forth.

190,069. LAMPS. Leverett H. Olmsted, Brooklyn, N. Y. [Filed Mar. 21, 1877.]

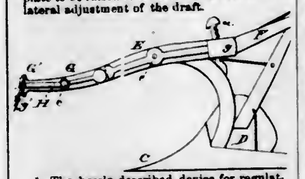


1. The flange *g* formed to fit within or around the cap *c*, in combination with the base *a*, provided with the arms *f*, for supporting the open-bottomed chimney with its bottom at or near the top of the wick-tube, substantially as and for the purpose specified.

2. The base *c*, constructed with an elastic flange or like elastic griping device fitting within or around the cap *a*, and provided with arms for sustaining the open-bottomed chimney, substantially as and for the purpose herein set forth.

190,070. PLOWS. J. A. Olson, Vasa, Minn. [Filed Mar. 6, 1877.]

Brief.—The land-side handle is pivoted to the plow-beam, and extended forward to engage with the arm of the clevis. This handle is vibrated vertically, and locked by a spring-pawl and ratchet, causing the clevis-plate to be raised or lowered. Devices for the lateral adjustment of the draft.



1. The herein-described device for regulating the set of a plow, consisting essentially in the combination of the plow-beam A, having segmental ratchet *a*, with the engaging or coupling lever-arms G E, operating-handle F, and spring-catch *f*, substantially as and for the purpose shown and specified.

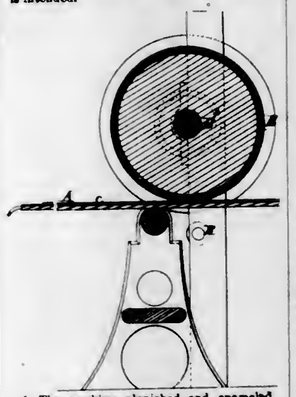
2. The combination of the plow-beam A, having bolt *c*, arm G, having clevis G', swinging bracket H, and bolt I, substantially as and for the purpose herein shown and specified.

3. The adjustable clevis-plate herein described, consisting of an upper plate, *s*, having pin or screw *q*, a correspondingly-shaped lower plate *o*, having perforation *r*, pin L, having step or shoulder *u*, and bolt or screw *z*, all constructed and combined to operate substantially in the manner and for the purpose herein set forth.

4. The combination of plow-beam A, swinging and adjustable arm E, having handle F, pivoted arm G, having clevis G', bracket H, bolt I, parallelogram K, and clevis-plate *n o*, all constructed and combined to operate substantially in the manner and for the purpose herein set forth.

190,071. PREPARING SHEET-ZINC. Andrew O'Neill, Ansonia, Conn. [Filed Sept. 8, 1876.]

Brief.—The transparent enamel is applied to the polished nickel-plated surface, to protect the same in transportation, and when manufactured into articles for which the sheet is intended.



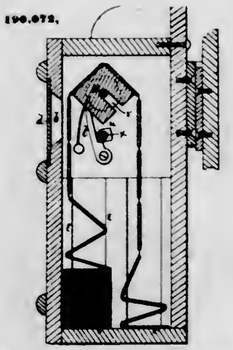
1. The machine planished and enameled compound sheet of zinc and nickel herein described, as a new article of manufacture.

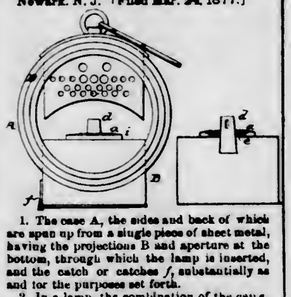
2. The process of preparing sheet-zinc for the market and for use by cold-rolling the sheet, and buffing, nickel plating, and again buffing one or both sides, and finally coating the polished surface or surfaces with transparent enamel, substantially as herein set forth.

3. The process of preparing nickel-plated sheet-zinc for ship-sheathing, bath-tubs, and other purposes, consisting in cold-rolling the sheet after it is electroplated, as herein specified.

4. In combination with a rotary buff, B, the buffing-cased A, having a covering of sheet-copper, to cause sheet-zinc to adhere thereto by friction during the buffing operation without other means of attachment, as herein set forth.

190,072. POCKET-LANTERNS. G. B. Parker, Newark, N. J. [Filed Mar. 24, 1877.]





1. The case A, the sides and back of which are span up from a single piece of sheet metal, having the projections B and aperture at the bottom, through which the lamp is inserted, and the catch or catches *f*, substantially as and for the purposes set forth.

2. In a lamp, the combination of the cap *a*, having an oblong opening, *b*, with the flange *c*, tube *d*, and packing *e*, substantially as and for the purposes set forth.

190,073. SASH-FASTENERS. C. W. Penfield, New Britain, Conn. [Filed Apr. 6, 1877.]

Brief.—The shell is formed with two radial slots within its opposite sides, and an oblong end slot. A bolt loosely fitted, for longitudinal movement, has upon its inner end a central stud, for holding a spiral spring, and bifurcated arms extending inwardly in a line with the body of the bolt, each arm provided at its edge with a lug, that extends outwardly into the contiguous slots. The arms are bent sufficiently inward for the lugs to pass through the end slot, and then outward until the lugs are in place, thus serving the double office of guides and stops, dispensing with the end rivets, and simplifying the construction.



As an improvement in sash-fasteners, the casing A, provided with the peripheral screw-head *a*, and slots *a'* and *a''*, the bolt B, having the prong *b*, arms *b'*, lugs *b''*, and arm *b'''*, and the spiral spring C, and parts being constructed and combined in the manner and for the purpose substantially as specified.

190,075. FARE-BOXES. J. D. Pierce, Milwaukee, Wis., assignor of one-half his right to Dutcher, Voss & Adams, same place. [Filed Feb. 9, 1877.]

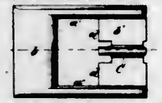
1. Applied to a street-car or vehicle, a conductor's or driver's change-box, consisting of a permanently fixed receptacle or pocket and a removable money box adapted to and carried therein.

2. A driver's change-box, consisting of the permanent case and a removable interior cash-box, provided with a cover adapted to be turned down to elevate the front side of said cash-box, to permit hand access, for the purpose described.

3. A driver's or conductor's change-box, consisting of the permanent case, the removable change-box, and the push-knob lock, for use as described.

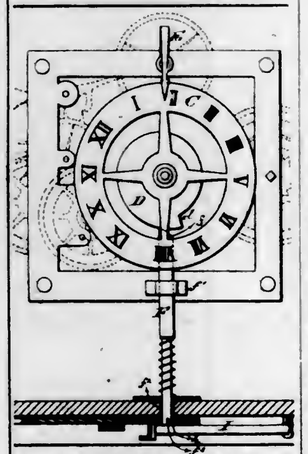
190,075

190,076. BALE-TIES. J. M. Pollard, New Orleans, La., assignor to himself, Wm. L. McNeely, same place, and J. D. Milburn, Memphis, Tenn. [Filed Feb. 24, 1877.]



In a bale-tie buckle, a bar, *b'*, provided with cleat C and shoulders *d d*, the cleat being flush with the shoulders for securing the slotted band when the cleat is not used, substantially as specified.

190,077. CHRONOMETRIC GOVERNORS FOR VARIOUS PURPOSES. Edward H. Randall, Poultney, Vt. [Filed Feb. 8, 1877.]



1. The combination of a clock-movement having a cam on its center arbor with a detent-rod and a spring-operated slide, substantially as and for the purpose set forth.

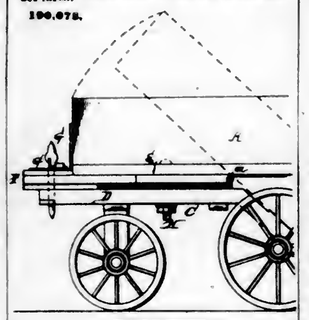
2. The combination of clock-movement B with snail-cam D, dial C, pointer E, and spring-operated detent-rod F, beveled at both ends, and spring-operated slide H, having perforation *h* and beveled slot *h'*, substantially as and for the purpose set forth.

190,078. DUMPING-WAGONS. L. Rodenbaeser, Philadelphia, Pa. [Filed Feb. 9, 1877.]

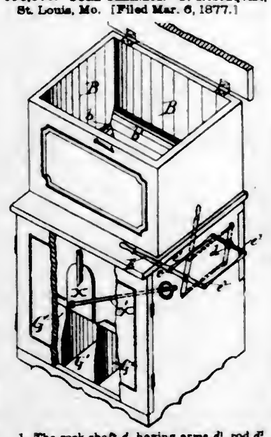
1. The combination of the dumping-wagon body A and reaches C with the sill-pieces B, which extend forward of the hinged joint *a*, provided with fastening device G, ledge F, and rotary platform or wheel D, substantially as and for the purpose set forth.

2. The rotating platform or wheel D, formed of one part having a plain surface, and of another part with alternate elevations and depressions, substantially as and for the purpose set forth.

190,078.



190,079. COAL-CABINETS. G. Rosenqvist, St. Louis, Mo. [Filed Mar. 6, 1877.]



1. The rock-shaft *d*, having arms d^1, rod d^2, series of grate-bars D^1, in combination with the hand-lever attachment, to operate in the manner and for the purpose set forth.

2. The rock-shaft *d*, having arms d^2, rod d^3, series of grate-bars D^2, in combination with the hand-lever attachment, as and for the purpose set forth.

3. The combination of rock-shaft *d*, having arms d^1 d^2, rods d^3, carrying the series of grate-bars D^1 D^2, and the operating-lever attachment, as shown and described, to operate as and for the purpose set forth.

4. The rock-shaft *d*, its arm *f*, connecting-rod f^1, and slide f^2, in combination with hand-lever attachment and bottom C', having outlet c^2, to operate as and for the purpose set forth.

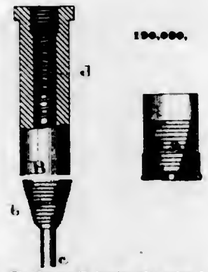
5. The combination of the rock-shaft *d*, its arms d^1 d^2, rods d^3, grate-bars D^1 D^2, arm *f*, rod f^1, slide f^2, bottom C, having outlet c^2, and the hand-lever attachment, to operate in the manner and for the purpose set forth.

6. The slide X, pivoted, and the hand-lever X', in combination with the outlet c^2 of a coal-cabinet, as and for the purpose set forth.

7. The chambers G G^1 G^2, the bottom C', the operating grate, as herein shown and described, and coal or fuel chamber B, all said parts being constructed and combined to operate in the manner and for the purpose set forth.

190,080. CARTRIDGE-BAGS FORMERS. G. P. Salisbury, New Haven, Conn., and C. L. Hunt, St. Louis, Mo. [Filed Mar. 7, 1877.]

190,080.



1. The former B, having the point *b* made up of a series of constantly-enlarging ridges, substantially as and for the purpose described.

2. The combination of the former B and the movable spindle *a*, substantially as described.

3. The combination of the former B, spindle *a*, and spring *d*, substantially as described.

190,081. BARBED-WIRE FENCES. Chas. W. Scarlett and Wm. Scarlett, Aurora, Ill. [Filed Aug. 17, 1876.]

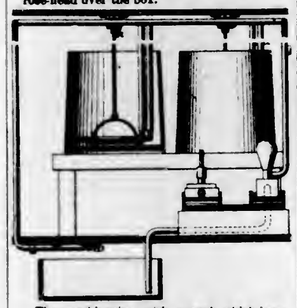


1. The thorns described, matched together in pair, formed with points *a a* and slots *b b*, and bent, as shown, to embrace and be secured to a main wire, as specified.

2. In the thorn formed of two parts applied together, as shown, the locking projection *b'*, and the recess *c*, adapted to engage together and confine the whole firmly to the wire M, as herein specified.

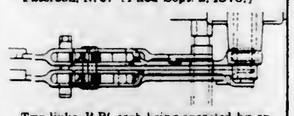
190,082. APPARATUS FOR COOLING LIQUIDS. Herman B. Scharmann, Brooklyn, N. Y. [Filed Apr. 4, 1877.]

Brief.—The pump draws the water from the ice-box beneath, and forces it through the coils, returning the water to said box in the form of spray. The spray is formed by the rose-head over the box.



The combination, with a tank which contains the liquid to be cooled, of a double acting pump, a coil, which is situated in the tank, and a rose-head, which is situated in or over an ice-reservoir, all connected and operating substantially as and for the purpose herein shown and described.

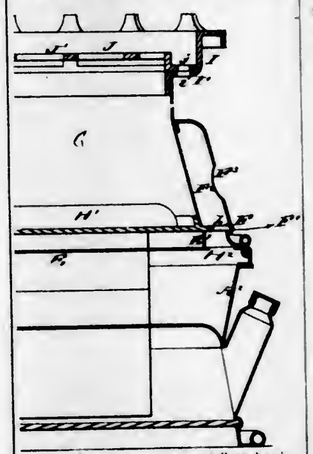
190,083. VALVE-GEARS. Theo. Scheffler, Paterson, N. J. [Filed Sept. 2, 1876.]



Two links, B B', each being operated by an eccentric-rod, and connecting the two links together through a projection of their respect

ive pins *a a'*, by which the eccentric-rods are attached to said links, and arranged to operate the main valve and the expansion-valve, substantially in the manner and for the purpose described.

190,084. OIL-BURNING STOVES. James H. Shaut, Hornellsville, N. Y. [Filed Mar. 24, 1877.]

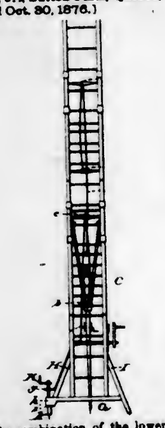


1. The combination, substantially as herein described, of the hinged cap F, the central portion of which is open to receive the stove-body G, and provided with a shoulder, F^1, and a series of openings, F^2, and the stove-bottom H, having draft-openings *h* near its circumference, the said stove-body G and cap F forming a space, F^3, as and for the purpose set forth.

2. The combination, with the casting H and perforated cap or casing F, of stove-body G and perforated disk or partition E, having raised rim E', substantially as and for the purpose set forth.

3. The combination of top piece I, having openings *i*, with damper J, having raised grate J', and openings *j*, substantially as and for the purpose set forth.

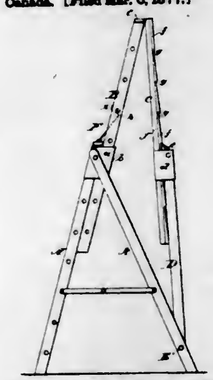
190,085. FIRE-ESCAPES. Obadiah Sherwood, Jr., Sutton Flats, Quebec, Canada. [Filed Oct. 30, 1876.]



1. The combination of the lower section C of an extension-ladder with the spiked beam I, cross-brace G, and beam H, the latter having brackets *g h*, in which operate the set-screw K and sliding spiked beam *k*, substantially as and for the purpose herein before set forth.

2. The improved extension-ladder herein described, consisting of sections A B C, windlass D, cables E F, pulleys *e d*, pivoted bracket *m m*, sliding beam O, having pulley *s* and windlass P, and braces G I E, the latter having brackets *g h*, in which operate sliding beam *k*, and set-screw K, all combined and arranged to operate substantially in the manner, and for the purpose herein shown and specified.

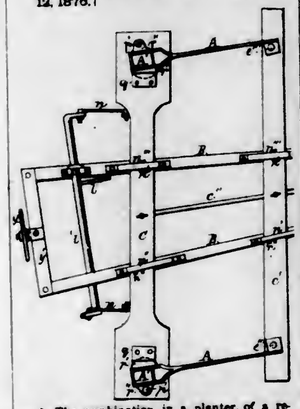
190,086. STEP-LADDERS. O. Sherwood, Jr., Sutton Flats, Quebec, assignor of three-fourths of his right to G. W. Kendall, P. Roddy, and A. D. Cable, Montreal, Canada. [Filed Mar. 6, 1877.]



1. The combination of the lower ladder-section A, having props or supports A', pivoted cross-brace E, prop D, mortised into cross-brace E, and having sleeve *d* and dog *s*, extension section B, having hinged prop C, and bail F, all arranged and operating substantially in the manner and for the purpose herein shown and specified.

2. The sliding prop C, having a metal plate, *f*, secured upon one of its sides, and said plate provided with notches *g*, arranged at a distance from each other corresponding to the distances at which the steps of the ladder are placed apart, substantially as and for the purpose herein shown and specified.

190,087. CORN-PLANTERS. F. W. Shellabarger, Miami County, Ohio. [Filed Apr. 12, 1876.]



1. The combination, in a planter, of a recessed dropper-plate and a cut-off, consisting of two plates, *r r*, arranged to operate independently, but both simultaneously, in relation to the same hole, as and for the purpose set forth.

2. The combination of the plate *p*, the recessed dropper-plate S, and the two plates *r r*, pivoted side by side to the plate *p*, and arranged to operate simultaneously in relation to the same hole, as set forth.

3. A rotary dropper-disk, S, constructed with an even number of holes, *s*, and an odd number of angles, *i*, in combination with a three-pronged or trident-shaped fork-plate, F, for operating the same, substantially as and for the purpose specified.

4. Trident-plate F, with its prongs G G G', and their accessory parts, consisting of push-pawl *k*, catch-pawl *k'*, and stops *d''* and *d'''*, adapted to operate the rotary disk S, and arrest the motion of the same, as shown and described, for the purpose hereinbefore set forth.

5. The combination of the fork-plate, the disk S, operated thereby, the sliding plate *b'*, and a latch, or its equivalent, whereby the two plates may be connected or disconnected, for the purpose set forth.

6. Latch *c*, with its holes *c' c''*, in combination with plate F and slide-lever *b'*, with their pins *c'' c'''*, as and for the purpose specified.

7. The independent or detachable slide-lever *b'*, having its ends lapped over on itself, with a hole, *w'*, in the overlapped part for the insertion of the end of the hand-lever *b* for operating it, and provided with a pin, or equivalent, for connecting it to the fork-plate of the dropper by latch *c*, substantially as shown and described, for the purpose set forth.

8. In combination, lever *b*, slide-lever *b'*, latch *c*, plate F, with its groove *j*, prongs G G G', and their accessories, disk S, plate *p*, cut-offs *r r*, as described and set forth.

9. Flange-plates *f f*, in combination with groove *g* of a pivoted dropper-tube or shoe-post, and the cross-bar C, as and for the purpose specified.

10. In a two-horse corn-planter, with furrowing-shoes attached to its front section, as shown and specified, the pivoted shoe-post A' and shoe A, in combination with the pivoted cross-bars C and *c'*, operated substantially as set forth.

11. Draft-rod *c''*, in combination with main cross-bar C, double-tree c''', tongue-block b''', and tongue-bars B, as and for the purpose hereinbefore set forth.

12. Draft-rod *c'''*, in combination with cross-bar *c'*, tongue-block b''', draft-rod *c''*, and tongue-bars B, as and for the purpose hereinbefore set forth.

13. The long open stirrups *n'* and *n''* and tongue-bars B, in combination with cross-bars C and *c'*, with their pins n''', for the purpose of allowing side motion to said cross-bars when operated, as shown and specified.

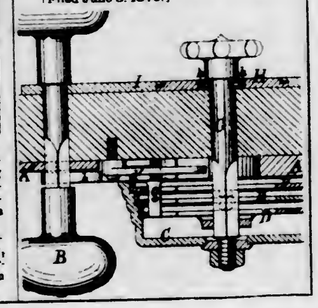
14. The combination of the cross-bar C and the crank-lever *l'*, turning in bearings on the bars B, connected flexibly with the bar C by links *n*, and operating with said bar, substantially as and for the purpose specified.

15. In combination with the shoe-post A', the retaining-plates *q*, flanges *r'* and *r''*, and cross-bar C, as shown and specified, for the purpose herein before set forth.

16. The T-shaped coupling-iron formed in one piece, with its central stem extending backward beneath and secured to the coupling-bar D, (by ring-bolts,) and with its lateral arms pivoted at the ends to the bars B B, connecting the bars B and D, all as and for the purpose specified.

17. The forked coupling-bar D, bolted upon the top of the axle, and connected, by the braces *m'*, with the rear of the same, as a means of strengthening this part, as herein before set forth.

190,088. COMBINATION-LOCKS. P. Shellenback, Hamilton, Ohio, assignor to Jos. A. Morris and W. B. Dreyer, same place. [Filed June 8, 1876.]

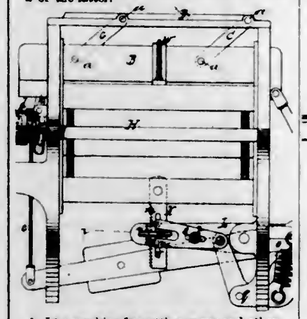


1. The combination of the bolt A with the tongue *g*, the notched rings D E F, and the catch *d'*, for limiting the outward movement of the bolt, substantially as shown and described.

2. The combination of the bolt A, knobs and spindle B B, disk A', case C, rings D E F, knob and spindle G, movable dial H, and dial-plate I, constructed and arranged to form a combination-lock, and operating in the manner substantially as described.

190,089. MACHINES FOR CUTTING PAPER. **E. R. Sheridan** and **Theo. W. Sheridan**, Brooklyn, N. Y. [Filed Mar. 28, 1877.]

Brief.—The clamp descends upon the paper to be cut by gravity, after which it receives a pressure commensurate to the resistance which the knife has to overcome in cutting, by means of lever F, which has a movable fulcrum, *b*, resting on lugs *c*, and fitted in the lever L, which latter, in its downward movement, together with slide *s*, throws the locking mechanism into gear, and thus induces the aforesaid pressure. Projection *l* on the knife trips the clutch mechanism, and the knife also elevates the clamp by striking hook *w* of the latter.

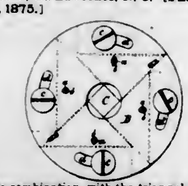


1. In a machine for cutting paper and other materials, the combination, with the knife, the clamping-frame, and with the levers which impart motion to said knife and clamping-frame, of a movable fulcrum, *b*, which rises when the knife begins to bear upon the material to be cut, and causes the clamping-bar to bear upon the material to be cut with a pressure commensurate to the resistance to be overcome by the knife, substantially as herein shown and described.

2. The combination, with the knife, the clamping-bar, the levers imparting motion to the same, and the movable fulcrum *b*, of a locking mechanism, consisting of a rack-bar, K, and dog *n*, substantially as and for the purpose set forth.

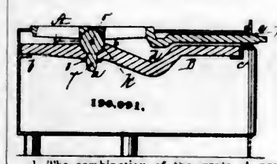
3. The combination, with the knife B and platform H, driving-shaft *f*, clutch *i*, and clutch-lever *j*, of a pin or projection, *k*, secured in the knife, and a releasing-lever, *k*, all constructed and operating substantially as and for the purpose set forth.

190,090. CHUCKS. **H. H. Siler** and **T. A. Brooks**, St. Lawrence, N. C. [Filed Oct. 26, 1875.]



The combination, with the triangular slides A, having studs *a*, and arranged to move tangentially, as described, of the rotary adjustable face-plate D, having slots *b b*, together with the clamping and guiding screws *c* arranged in slots *d*, and adapted to hold the plate to the frame carrying the slides, as set forth.

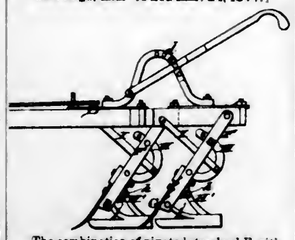
190,091. GRATES FOR STOVES, FURNACES, &c. **R. Simpson**, Boston, Mass., assignor to the **Highland Foundry Company**, same place. [Filed Feb. 19, 1877.]



1. The combination of the grate A, provided with the central lugs, bar B having hole with enlarged portion 6, and pin *a* having the enlarged upper portion pivoted to the grate, and pin 7 for securing pin *a* to the bar B, the several parts constructed and arranged to operate in the manner herein shown and described.

2. A grate pivoted at its center, in combination with a supporting bar or axle extending lengthwise through the ash-pit, and having a crooked portion or depression, *d*, to allow of the grate being tipped down in front, substantially as and for the purpose specified.

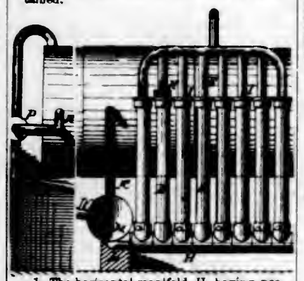
190,092. PLOW-STOCKS. **N. J. Skaggs**, Talladega, Ala. [Filed Mar. 24, 1877.]



The combination of pivoted standard F with brace-bar I and curved pivoted bar H, having a series of holes near its upper end, substantially as and for the purpose set forth.

190,093. STEAM-BOILERS. **C. D. Smith**, Boston, Mass. [Filed Dec. 12, 1876.]

Brief.—Horizontal manifolds having projections cast thereon, into which vertical pipes are fitted. Said manifolds are located on each side of the furnace, and connected to a drum at the bridge-wall, which, in turn, is connected by pipes to another manifold at the rear of the boiler. Said manifolds are connected by pipes to the top and bottom of the water-space of the boiler, through which pipes circulation of the water in the boiler is maintained.

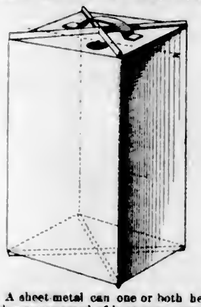


1. The horizontal manifold H, having projections *e* and vertical columns D, in combination with the drum *m*, manifold P, connected with the drum, and pipes R and K', connecting the manifolds P and H with the top and bottom of the boiler, whereby a circulation of the water is maintained through said manifolds and drum, substantially as and for the purpose described.

2. The combination, with the drum M and manifold P at the rear of the boiler, of pipes N, connecting said drum and manifold together, the said manifold communicating with the steam-space of the boiler, substantially as described.

3. The combination of the fire-bridge wall and drum M, the manifold H, vertical columns D, pipe L, connecting the bridge-wall and manifold, and pipe A', connecting the bridge-wall and boiler, substantially as described.

190,094. SHEET-METAL CANS. **L. V. Sone**, New York, N. Y. [Filed Apr. 5, 1877.]

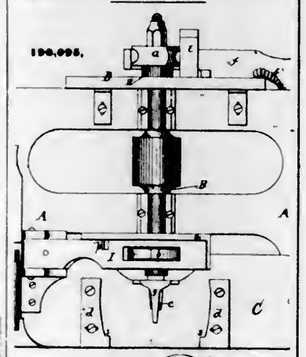


1. A sheet-metal can one or both heads of which are composed of bent-over parts of the blank or blanks which form the body, the edges of the bent-over parts being united into lock-seams traversing the face of the head, substantially as set forth.

2. A sheet-metal can both heads of which are composed, either wholly or in part, of bent-over parts of the blank or blanks which form the body, the edges of the bent-over parts being united into seams traversing the face of the heads, substantially as and for the purpose set forth.

3. A sheet-metal can the head or heads of which are composed of a blank or blanks the edges of which are united into upright seams, or seams which stand out substantially at right angles with the surface of the heads, as set forth.

190,095.



190,095. MACHINES FOR MAKING BROOM-HEADS. **D. Squier**, Battle Creek, Mich., assignor of one-half his right to **J. Scott**, same place. [Filed Dec. 14, 1876.]

Brief.—Blanks of suitable size to form wooden blocks for "broom-heads" are placed in a swivel-clamp, the side of which is held against a vertical table attached to the side of the main frame, and provided with an L-shaped guard-arm, through which and the said table the blank is fed to a concave cutter, which forms the outside of the head. The blank is then secured in a hinged locked box, placed on a slotted hinged table, and fed to a circular saw, which hollows it out. The box is

then fed on a horizontal table, under a guard, to a routing-cutter, which forms a hole in the "head." The blank is then turned and its face fed to the router, for dressing the inside and finishing the "broom-head block." A mandrel carrying an emery-wheel and a hollow auger, for forming broom-handles, is mounted in a frame attached to the upper part of the main frame.

1. The combination of the table D, mandrel B, with cutter *a*, guide-arm *s*, and spring-bar *f*, substantially as and for the purposes herein set forth.

2. The combination of the table C with adjustable guide plates *d d*, having notches *s s*, and the router-cutter *a*, substantially as and for the purposes herein set forth.

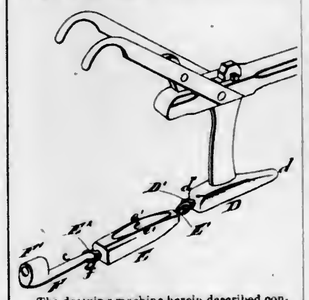
3. The combination of the slotted spring-bar I with stop *p* and the rotating saw *b*, substantially as and for the purposes herein set forth.

4. The swivel-clamp H H', constructed and used substantially as and for the purposes herein set forth.

5. The lock-box L L', provided with spring-catch *k*, handles *m m*, and pins *n n*, substantially as and for the purposes herein set forth.

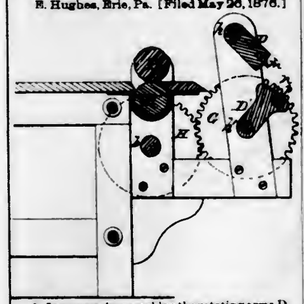
190,096. DITCHING AND DRAINING MACHINES. **Almon Swift**, East Elmore, Vt. [Filed Jan. 27, 1877.]

Brief.—A mole-plow, an enlarging-block of particular construction, and a second block to receive and hold lead pipe while it is being drawn into the ditch.



The draining-machine herein described consisting of the plow D, having the eye D', the drag E, made larger than the plow, and provided with the hook E', eye E', cutting-edges *e' e'*, and recess *e*, and the pipe-laying attachment F, having a small cylindrical shaft, *c*, with a front hook, *f*, and a rear perforated block, F', the whole constructed, arranged, and operating in the manner and for the purpose set forth.

190,097. PAPER-BAG MACHINES. **Reuel H. Thayer**, Buffalo, N. Y., assignor to **Ellen E. Hughes**, Erie, Pa. [Filed May 26, 1876.]



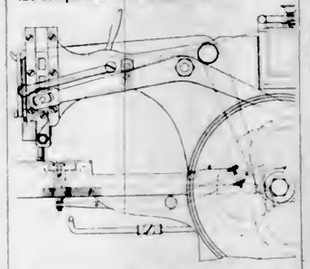
1. In a paper-bag machine the rotating arms D D', carrying the cutting-blade *n*, surface-blade *s*, and griping-piece *p*, as described, and so arranged that they will not come in contact with each other except at the point of severing the tube, substantially as herein set forth.

2. The combination of the driving-shaft *b* with cog-wheel H, the shafts *h h'* geared together, the cog-wheels E E, the arms D D'

carrying the cut-off mechanism, constructed substantially as herein shown and described, and the cog-wheel G placed on the shaft *h'*, and meshing with the wheel H on the driving-shaft, substantially as and for the purposes herein set forth.

190,098. SEWING-MACHINES. **William F. Thomas**, London, England. [Filed Jan. 16, 1877.]

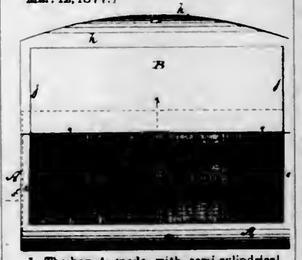
Brief.—A cam on the main driving-shaft operates, through the medium of a spring-retracted lever and an upright bar having an extension or button on its upper end, to nip the shuttle-thread against the under side of the bed-plate at certain intervals.



1. The combination of the sliding spindle F, lever G, spring K, and operating-cam H with the cloth-plate of a sewing-machine, substantially as and for the purpose described.

2. The segmental shuttle D, constructed with an open outer portion, in combination with the flat side *d*, hinged to the shuttle, and forming a lid to such open side, as and for the purpose described.

190,099. SPOOL SHOW-BOXES. **R. Trautmann**, New York, N. Y., assignor to himself and **G. J. Browne**, same place. [Filed Mar. 12, 1877.]

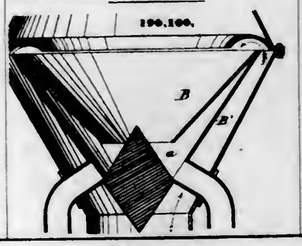


1. The box A, made with semi-cylindrical front and back *a b*, and with inwardly-projecting ledges *c c* at the ends, to partly cover its contents, substantially as herein shown and described.

2. The combination of the box A, having semi-cylindrical front and back, with the lid B, having the curved front lap *h*, substantially as herein shown and described.

3. The combination of the box A, having semi-cylindrical front and back, with the lid B having curved front lap *h*, and with the catch *i*, which is attached to the lower part of the curved front, substantially as herein shown and described.

190,100.



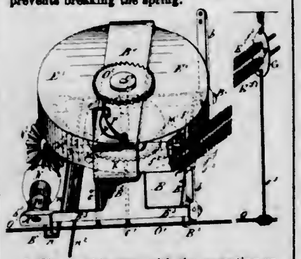
190,100. SPARK-ARRESTERS. **W. T. Urie**, Warrensburg, Mo., assignor to himself and **A. Bettes**, same place. [Filed Apr. 13, 1877.]

1. In a spark-arrester, an annular deflecting ring or flange, a two-part hopper, a cone, and conveying-tubes, combined as shown and described.

2. In a spark-arrester, the combination of the cone with the two-part funnel-shaped hopper B B' and conducting-tubes, substantially as shown and described.

190,101. CAR-STARTERS. **J. S. Van Pelt**, Jr., Evergreen, Va., assignor of one-half his right to **A. H. Greene**, Brooklyn, N. Y. [Filed Feb. 22, 1877.]

Brief.—The coiled spring which gives motion to the starting devices is attached to a spring, the yielding of which releases the mechanism by which the coiling is done, and prevents breaking the spring.



1. The combination, with the operating or starting mechanism, and one of the drive-wheel axles, of the frame B, having arms B' B', one end of which is hinged to supports or hangers *b*, the other end being provided with flexible or yielding bearings *b'* for said wheel-axle, all constructed and operating as and for the purposes specified.

2. In a spring-motor, a flexible or yielding connection with one end of the main or motive spring, substantially as and for the purposes described.

3. The mainspring E and its shaft C, in combination with an auxiliary spring or springs, substantially as and for the purpose specified.

4. The auxiliary spring or springs, in combination with the outer end of the mainspring C, and a yielding bearing to permit said auxiliary spring or springs to more readily follow the movement of the mainspring C, to operate the throwing-out mechanism, substantially as described.

5. The winding mechanism, consisting of the bevel-pinion N or N', loosely mounted on the wheel-axle, in combination with the bevel-pinion M or M', and the bevel-pinion M', mounted on the counter-shaft D, the bevel-wheel K, shaft C, and spring F, and the yielding supporting-frame, all constructed and operating substantially as described.

6. The winding mechanism above described, and suitable throwing-in and throwing-out mechanism for the same, in combination with the main or motive spring and its yielding connection or auxiliary spring or springs, so arranged that the mainspring, when fully wound up, will automatically throw the winding mechanism out of gear, substantially as described.

7. The winding mechanism above described, the clutch-pulley O, shifting-rod O', having arm *o*, the mainspring E, and its yielding connection, and the lever O', all arranged, combined, and constructed to operate substantially as described, for the purpose specified.

8. The winding mechanism, the clutch-pulley O, and shifting-rod O', and its connection *o'*, the plate G, auxiliary springs E' E', and the mainspring, and its shaft or arbor, all combined, constructed, and operating substantially as described, for the purpose specified.

9. The mainspring and its shaft, the winding mechanism, the throwing-in and throwing-out mechanism above described, and the ratchet-wheel O' and spring-pawl P *p*, all constructed and operating substantially as described, for the purpose specified.

10. The reversing-gear, consisting of the clutch-lever a *a'*, constructed as described, in combination with the bevel-pinion N or N', the pinion M', and bevel-pinion M or M', the bevel-wheel K, and spring-shaft and spring

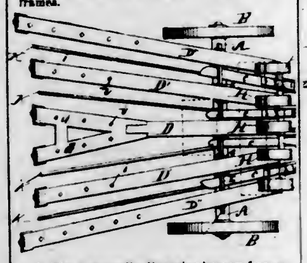
E, all arranged, constructed, and operating substantially as and for the purposes specified.

11. The carrying-frame B, having a shelf or ledge, B^1, in combination with the spring-casing E^1, and its inclosed spring and shaft C, and the winding and shifting mechanism, all constructed and operating as described.

12. The mainspring E, coiled springs E^1, rods F, and swinging plate G, all combined and constructed to operate as set forth.

190,102. HARROWS. J. J. Vinton, Sharon, Pa. [Filed Feb. 28, 1877.]

Brief.—The harrow frames or bars, each being independently pivoted to the axle, are arranged rearwardly diverging, and are provided with rods for clearing the harrow-teeth, and cam-levers for raising or lowering said frames.



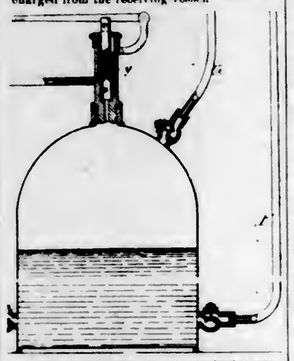
1. The rearwardly-diverging harrow frames or bars D D^1 D^2, each being independently pivoted to the axle A, so as to have a free vertical and independent motion, as and for the purpose described.

2. The independently-pivoted harrow frames or bars D D^1 D^2, operating in combination with the cam-levers H, axle A, and wheels B, substantially as and for the purpose specified.

3. In combination with the axle A and wheels B, and with the pivoted harrow-frames having independent motion, as described, the cam-levers H and rods or bars K, operating substantially as and for the purpose specified.

190,103. BEER-FORCING APPARATUS. Jos. S. Von Nieda, Philadelphia, Pa. [Filed Mar. 29, 1877.]

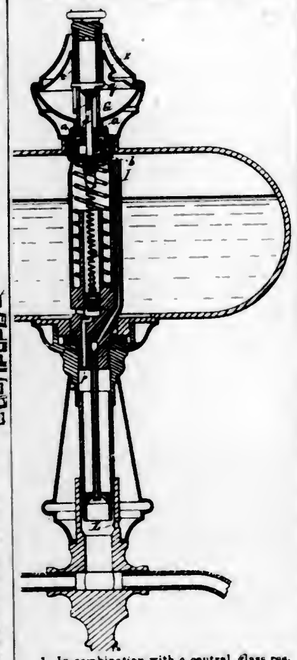
Brief.—Application of the pressure to the barrel itself is avoided, the liquor being discharged from the receiving vessel.



1. The combination, in a liquor-forcing apparatus, of a barrel, A, with a vessel, D, communicating with the barrel to receive the liquor therefrom, and furnished with a pipe, F, for the discharge of the liquor, and the pipe G, through which pressure is applied, as set forth.

2. The combination of a vessel, D, in which liquor is received, and from which it is discharged by compressed air, of a piston or valve, K, which will yield to the pressure of air in the vessel, and will, through the medium of the appliances herein set forth, serve the twofold purpose of venting the barrel or vat from which the liquor is drawn, and of permitting the unduly-compressed air to escape, all substantially as set forth.

190,104. VACUUM-LAMPS. H. Wellington, Brooklyn, N. Y. [Filed Mar. 13, 1877.]



1. In combination with a central glass reservoir, supplying oil to one or more lateral burners, the upper and lower valves, operated by springs, and adapted to govern the inlet and outlet ports, substantially in the manner and for the purposes explained.

2. In an automatically-regulated feeding-lamp, the combination of the upper and lower valves, adapted to govern the inlet and outlet ports, as specified, the same being simultaneous in their motion, and movable directly and bodily from their seats, as hereinbefore set forth.

3. The combination, with the valve mechanism in an automatically-feeding lamp, of the hand-piece E, carrying the cam faces *c*, and the cross-key *g*, movable within the central tube, for the purpose of operating the valve, substantially as shown and described.

4. In an automatically-feeding lamp of the character herein specified, the air-pipe I, conducting air from the vent L upwardly through the oil-tube, and thence to the top of the closed reservoir, substantially as set forth.

5. In combination with the central tube, slotted to receive and hold the cross-key, and to afford a passage for oil to the central reservoir, the cup G, located above the air-vents, for the purpose of directing the inflowing oil, in the manner shown and described.

6. In combination with the pipe conducting oil to the central reservoir from the filling-orifice, the movable collar *e*, affording an air-passage between it and the outer tube, as and for the purposes explained.

7. In combination with a central glass reservoir, supplying oil to one or more lateral burners, a central pipe running therethrough and sustaining above said reservoir mechanism, substantially such as described, for operating the valves within, and affording a chamber within which said valves and their closing-springs are located, substantially as shown and described.

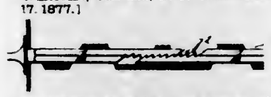
8. In combination with the oil-inlet at the top of a reservoir in an automatically-feeding lamp, a vertically-adjustable valve, held to its seat by the spring S, and adapted to operate substantially as shown and described.

190,105. ORNAMENTAL CHAINS. H. Wezel, East Attleborough, Mass. [Filed Sept. 9, 1876.]



As an improved article of manufacture, a double-curb chain formed of the links *a*, bent or twisted into the shape described and shown, and united together without the employment of solder, substantially as specified.

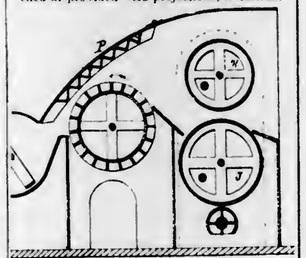
190,106. STOVE-PIPE DAMPERS. N. C. Whitcomb, Oak Hill, N. Y. [Filed Mar. 17, 1877.]



The combination, with a stove-damper, of two adjustable rod-sections, provided with interlocking teeth *d*, and held together by a spring, and having shoulders for pressing against the outside of a stove-pipe, substantially as and for the purpose set forth.

190,107. MACHINES FOR OPENING AND CLEANING COTTON. Wm. E. Whitehead, Miles Platting, England, and A. T. Atherton, Lowell, Mass. [Filed Mar. 3, 1877.]

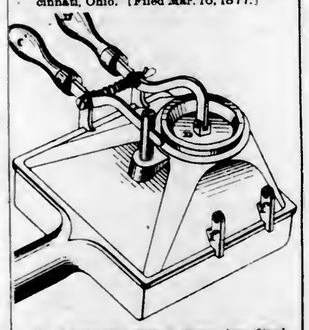
Brief.—For removing dust, &c., a cylinder having a roughened surface is located between the beater and collecting cages. The cover over said cylinder may also be roughened or provided with projections, if desired.



1. The cleaning cylinder M, having a roughened surface, in combination with the beater B and wire collecting-cages H and J, substantially as herein set forth.

2. The covering P of the frame A, provided with under projections, in combination with the cleaning-cylinder M, the beater B, and wire collecting-cages H and J, all substantially as set forth.

190,108. TUYERES. Charles A. Wolff, Cincinnati, Ohio. [Filed Mar. 16, 1877.]

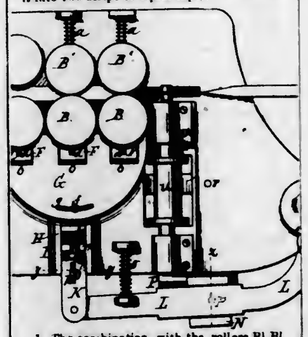


In combination with a tuyere-iron fitted with valves C and D, as described, the levers

C^1 and D^1, journaled between standards *f*, and pressed between the sides of said standards and the washers *e* by the spring E, for the purpose of retaining the valves in any desired position, as specified.

190,109. MACHINES FOR SAWING RATTAN. Edmund F. Woodbury, Rochester, N. Y. [Filed Jan. 31, 1877.]

Brief.—The object is to split rattan tapering for whips. The stock is fed to the saw by adjustable pressure-rollers, whereby, during the process of sawing, it is gradually carried from one face to the other, thus dividing it into two strips of equal taper.



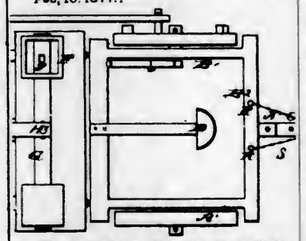
1. The combination, with the rollers B^1 B^1, pressed up by springs against the feeding-rollers B B, of the outer roller B^2, pressed out by a spring in the opposite direction, to open the throat for the entrance of the rattan, and connected with suitable mechanism to be closed upon the rattan, as shown and described, and for the purpose specified.

2. In a machine for sawing rattan, the combination, with the feeding-rollers B B B, of segment G, capable of a swinging or turning movement to vary the position of the rollers, as shown and described, and for the purpose specified.

3. The combination of the carriage H, slide K, and the rock-lever L with the segment G, for producing a motion of the feeding-rollers B B B at right angles to the cut, and allowing lateral adjustment of said rollers, as shown and described, and for the purpose specified.

4. The combination, with the rock-lever L, of the pivoted block N, through which the rock-lever moves freely, and the carriage O, for adjusting the block, as shown and described, and for the purpose specified.

190,110. CHECK-ROWERS AND DROPPERS. S. H. Worth, Memphis, Mo., assignor of one-half his right to A. Snyder. [Filed Feb. 10, 1877.]



The recessed block N, having the bar O pivoted thereto, in combination with the pivoted extension P, carrying the guide-wheel Q, and provided with the perforations *p p*, bracing-chains S S, and rear cross-bar B^2, having studs R R, substantially as described, and for the purpose set forth.

190,111. INDICATORS FOR ELEVATORS. T. S. Young, New York, assignor to E. A. Nichols, Yonkers, N. Y. [Filed Mar. 19, 1877.]

1. The combination, with the indicator rod or cord C, attached to an elevator, of a weighted chain passing over one or more pulleys, and serving to indicate the position of the elevator, substantially in the manner herein shown and described.

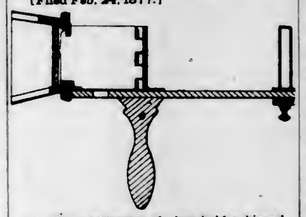
2. The combination, with the indicator rod or cord C, attached to an elevator, of a weighted chain passing over one or more pulleys, and serving to indicate the position of the elevator, substantially in the manner herein shown and described.

190,111.



REISSUES.

7,022. STEREOSCOPES. John Ardito, New York, N. Y., assignee, by mesne assignments, of Antonio Quirolo, same place. Patent No. 52,744, dated Feb. 20, 1866. [Filed Feb. 24, 1877.]



1. The combination of a lens-holder, hinged to the bed-plate of a stereoscopic instrument, with a diaphragm hinged to the said bed-plate, substantially as described.

2. In combination with a stereoscope and its bed-plate, a movable adjustable sliding picture-holder, and a separate friction clutch or clamp, substantially as described.

3. In combination with a stereoscope and its bed-plate, a movable adjustable sliding picture-holder, and an adjustable clutch, consisting of a set-screw or equivalent mechanism, substantially as described.

4. In combination with a stereoscope and its bed-plate, a movable adjustable sliding picture-holder, and a handle, whereby said picture-holder may be readily adjusted, substantially as described.

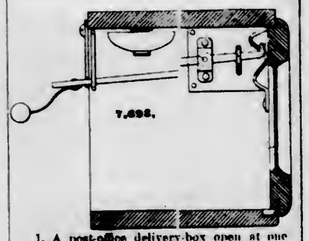
5. In combination with a stereoscope and its bed-plate, a movable adjustable sliding picture-holder, a handle, and an adjustable friction clutch or clamp, substantially as described.

6. In combination with a stereoscope and its bed-plate, a movable adjustable sliding picture-holder, a handle, and the vertical picture-supporting wires N, substantially as described.

7. The combination, in a stereoscopic instrument, of a movable lens-holder, a movable diaphragm, and a sliding picture-holder, whereby the stereoscope can readily be packed in a narrow compass for transportation, substantially as described.

7,023. POST-OFFICE BOXES. J. H. Beidler, Lincoln, Ill., assignor to T. F. Keating, Pittsburg, Pa.; said Keating assignor to the Yale Lock Manufacturing Company, Stamford, Conn. Patent No. 57,464, dated Aug. 28, 1866. [Filed Mar. 28, 1877.]

7,023.



1. A post-office delivery-box open at one end for the insertion of mail-matter, and closed at the other by a door secured by a key-lock, substantially as and for the purposes described.

2. The combination of a post-office mail-delivery box, open at one end for the insertion of mail-matter, and closed at the other end by a door provided with a key-lock, and a fastening device, by means of which the post-office officials on the inside can permit or prevent access to the interior of the box from the outside at will, without the use of a key, substantially as described.

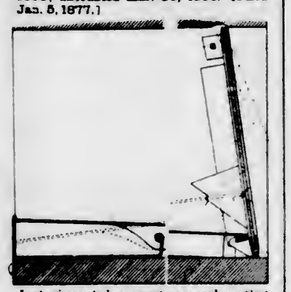
3. In combination with a post-office lock-box, a locking-lever capable of being operated by a key from without, pivoted to the box and extending to the rear, so as to be readily reached and operated by the postmaster from within, and a corrugated locking-plate secured to the inside of the box-door, whereby the postmaster can open the door without the use of a key, and can prevent it from being opened by a key from without, substantially as set forth.

4. In combination with a post-office lock-box, a locking-lever capable of being operated by a key from without, pivoted to the box and extending to the rear, so as to be readily reached and operated by the postmaster from within, and an inclined face or projection, substantially as described, on the inside of the box-door, against which the locking-lever strikes to start the door open, substantially as set forth.

5. In combination with a post-office lock-box, a locking-lever capable of being operated by a key from without, pivoted to the box and extending to the rear, so as to be readily reached and operated by the postmaster from within, and an alarm-bell, the whole so arranged that the turning of the key to unlock the door will cause the bell to be struck by the lever, substantially as set forth.

6. In combination with a post-office lock-box, a locking-lever capable of being operated by a key from without, pivoted to the box and extending to the rear, so as to be readily reached and operated by the postmaster from within, and a vibrating tag for indicating to the postmaster the box that has been unlocked, substantially as set forth.

7,024. POST-OFFICE BOXES. W. H. Bramble, Decatur, Ill., assignor to the Yale Lock Manufacturing Company, Stamford, Conn. Patent No. 53,562, dated Apr. 3, 1866; antedated Mar. 30, 1866. [Filed Jan. 5, 1877.]



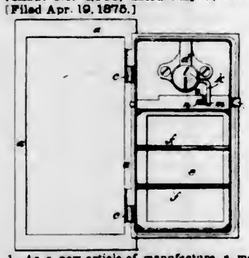
1. A pigeon-hole open at one end, so that letters may be deposited in it, and provided at the other end with a glazed door mounted on proper hinges, so that the letters which are in the box may be delivered or taken out of that end to which the door is applied when such door is open, the construction being substantially such as described.

2. In combination with a pigeon-hole open at one end, and provided at the other end with a glazed door mounted upon proper hinges, a latch or fastening contrivance, substantially such as described, whereby the door may be held shut on the inside, thus preventing the renter of the box, or other person, from opening the same and taking out letters until the postmaster from the inside unlatches the door.

3. In combination with a pigeon-hole open at one end, and provided with a sash-door at the other end, as described, the contrivance by which the postmaster can open the door from the inside.

4. In combination with a pigeon-hole open at one end, and closed by a sash-door at the other end, both a latch or fastening contrivance, and a contrivance substantially as described, for partially opening the door from the inside, the combination being substantially such as herein specified.

7,626. POST-OFFICE BOXES. S. N. Brooks, Chicago, Ill., administrator of L. Yale, Jr., deceased, assignor to the Yale Lock Manufacturing Company, Stamford, Conn. Patent No. 119,212, dated Sept. 19, 1871; reissue No. 4,963, dated July 9, 1872. [Filed Apr. 19, 1875.]



1. As a new article of manufacture, a metallic front for post-office lock-boxes, consisting of a frame and door suitably hinged together, and provided with a lock for controlling said door from the outside, the said front being adapted to fit and close one end of a box, the other end of which is open for the insertion of mail matter, substantially as specified.

2. The combination, substantially as specified, of several door-frames and doors with post-office boxes, whereby a continuous metallic frontage is formed.

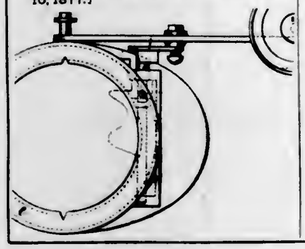
3. The combination, substantially as specified, of two or more metallic frames and doors with post-office boxes, said frames having flanges which protect and inclose the front edges of the pigeon-hole.

4. The combination, substantially as specified, of two or more metallic frames and doors with post-office boxes, the frames connected together by means of rivets passing through them and through the wood-work of the pigeon-holes.

5. The combination, substantially as specified, of a metallic door, provided with a glass panel and a metallic pigeon-hole frame to which the door is hinged.

6. The combination of a post-office box, open at the rear end, and a metallic frame secured to the front end of it, substantially as specified.

7,625. WATER-CLOSETS. Wm. S. Carr, New York, N. Y., assignor to C. M. Keller and C. F. Blake, trustees; said C. F. Blake being surviving trustee. Patent No. 80,708, dated Aug. 4, 1868; reissue No. 5,866, dated May 12, 1874. [Filed Jan. 10, 1877.]



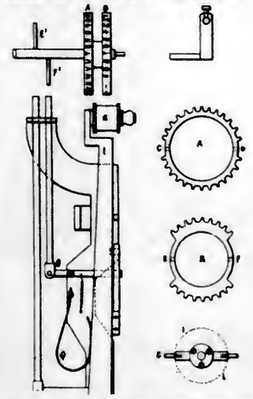
1. A water-closet receiver, adapted to support the basin, and having a flange or top plate with an opening, a portion of which is of less diameter than the pan, and another portion is of larger diameter than the pan, in combination with the removable pan that may be inserted or withdrawn through said opening, substantially as set forth.

2. A water-closet made with a receiver having a top plate or flange with an opening, shaped substantially as set forth, for passing the pan, in combination with such pan, and a separate axis inserted from outside through a hole in the receiver, and connected to such pan, substantially as set forth.

3. In combination with a water-closet pan, a divided axis, constructed substantially as set forth.

4. A slotted link, s, interposed between and acting in combination with the pull and the pan lever, substantially as described.

7,627. PRINTING-TELEGRAPHS. Pierre A. J. Dujardin, Lille, France, assignor to the Gold and Stock Telegraph Company, New York city. Patent No. 82,502, dated Sept. 29, 1868. [Filed Nov. 20, 1876.]



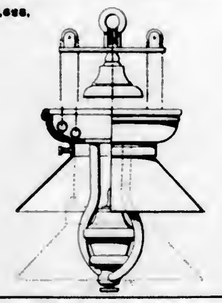
1. The combination, with the printing-lever and two type-wheels, of mechanism for shifting the impression from one type-wheel to the other at certain positions of the type-wheels, substantially as set forth.

2. The impression-pad and shifting-pins F' E', in combination with the two type-wheels A B and printing-lever, substantially as set forth.

3. In a printing-telegraph, two adjacent type-wheels, an impression-pad, and shifting mechanism under the control of the printing-magnet, for changing the impression from one type-wheel to the other.

4. In a printing-telegraph, one or more type-wheels, an electro-magnet and its armature, acting by alternate positive and negative currents to set the type-wheel, in combination with a separate electro-magnet included in the main line, its armature, and the printing mechanism, which are brought into action by cessation in the reversal of the currents, substantially as set forth.

7,628.

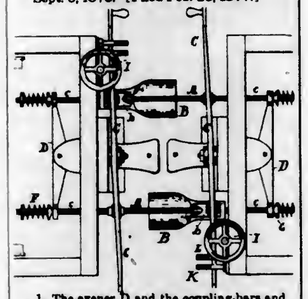


7,629. EXTENSION-LAMP FIXTURES. J. A. Everts, West Meriden, Conn., assignor to the Bradley & Hubbard Manufacturing Company. Patent No. 183,913, dated Oct. 31, 1876. [Filed Apr. 12, 1877.]

1. The combination, in an extension-lamp fixture, of the shade-ring, a device for removably securing the shade to the ring, the lamp attached to said shade-ring, the ring-shaped weight and shade-ring, connected by chains or cords over a support above, substantially as described.

2. The combination in an extension-lamp fixture, of the shade-ring, a device for removably securing the shade to the ring, a shade constructed at its upper edge for attachment to said shade-ring, and engagement with said securing device, the lamp attached to said shade-ring, the ring-shaped weight and shade-ring, connected by chains or cords over a support above, substantially as described.

7,629. CAR-COUPLINGS. R. A. Kelly, Manchester, Iowa. Patent No. 161,947, dated Sept. 5, 1876. [Filed Feb. 26, 1877.]



1. The evener D and the coupling-bars and draw-heads A and B, attached to the ends thereof, so as to vibrate with the evener, as and for the purposes specified.

2. The draw-bars and coupling-heads A and B, connected to a car, making a double coupling, and suspended from a vibrating cross-piece for raising and lowering their front ends, substantially as specified.

3. The combination of the weighted angle-backed washers with the springs, evener, and coupling-bars and draw-heads, as shown and described, for the purpose specified.

4. The combination of the levers C, the coupling-bars, and draw-head supported therefrom, the sliding and rotating rod I, having arm e and wing f, and the bracket K, constructed with hook and shoulder, as shown and described, for the purpose specified.

7,630.



7,630. MEASURING COAL AND FEEDING IT TO RETORT-CHAMBERS. T. F. Rowland, Green Point, Brooklyn, N. Y. Patent No. 137,467, dated Apr. 1, 1873. [Filed Dec. 18, 1876.]

Brief.—The capacity of the chambers of the revolving meter is increased or diminished by movable plates and fillings, for the purpose of supplying different quantities of coal to retorts of different capacity. Steel knives are secured to the revolving cylinder for cutting through the coal passing from the hopper to the meter-chambers. Swinging valves direct the coal into different spouts for filling different charging-scoops, and delaying devices are secured in the main tunnel, for preventing the shock of falling coal.

1. A revolving meter arranged to receive and deliver a charge or charges of coal, having one or more chambers, combined and arranged with a removable filling or fillings, whereby the capacity of the chambers may be altered, substantially as described.

2. In combination with the revolving meter D, the removable partitions D^1 D^1, adapted to be introduced and removed by a longitudinal motion, as herein specified.

3. In combination with the meter D, hopper B, casing A, spouts E^1 E^1, and movable valves e^2 e^2, the levers F^1 F^1, links G^1 G^1, and cams H^1 H^1 arranged for joint operation, as herein specified.

4. In combination with the hopper B, the revolving meter D, provided with the angular steel knives d mounted in the meter, and adapted to facilitate the division of the pieces of coal which stand across the mouth, as and for the purposes specified.

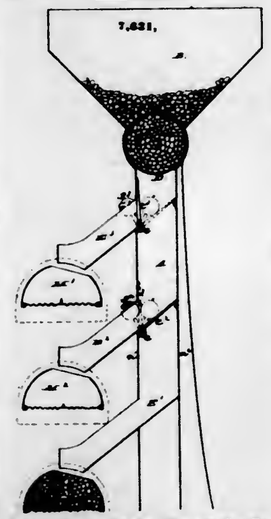
5. In combination with the meter D and several spouts E^1 E^1, mounted at different levels in the casing A, the deflectors I J, arranged as shown, and adapted to retard the descent of the coal to the lower spout or spouts, substantially as and for the purposes herein specified.

6. A revolving meter arranged to receive and deliver a charge or charges of coal, having one or more chambers, which chamber or chambers have a movable side, so that the capacity of the chambers may be altered by altering the position of the side or sides, substantially as described.

7. A revolving meter or coal-receiver, combined with a separate cutting-edge, not formed of the body of the meter itself, so that any substance tending to prevent its revolution is sheared off or crushed, substantially as described.

8. The combination of a retarder or series of retarders with the tunnel or hollow guide of a scoop-charging machine, which apparatus is effectual in diminishing the velocity of the falling coal or the shock or jar of the coal against the coal-scoop, substantially as described.

7,631.



7,631. APPARATUS FOR FILLING GAS-RETORT CHARGERS. Thomas F. Rowland, Green Point, Brooklyn, N. Y. Patent No. 134,399, dated Dec. 31, 1872. [Filed Dec. 18, 1876.]

Brief.—The opening in the cylindrical meter extends slightly helically from end to end, so that the edge of the cylinder will, by a shearing action, more readily cut through the mass of coal in the hopper, in the act of filling the meter, and so that the coal will be discharged gradually, thus preventing the shock caused by the whole mass falling at once into the conducting-spouts. Hinged weighted valves direct the coal into different spouts.

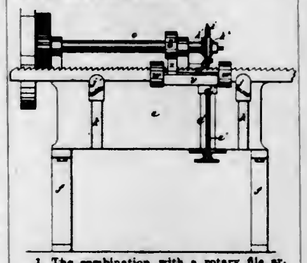
1. The weights G^2 G^2, fixed, as shown, on arms from the valves e^2 e^2, and serving relatively to the valve e^2 e^2, spouts E^1 E^1, and the gas-retort charges, as herein specified.

2. A cylindrical measure or meter, D, consisting of a revolving barrel or cylinder, having an opening for the reception and discharge of coal and arranged to be revolved completely around its axis, in combination with the hopper B, and one or more guides for measuring and transferring coal into the retort-chargers, substantially as described.

3. A cylindrical measure or meter, D, consisting of a revolving barrel or cylinder, having an opening for the reception and discharge of coal, the said opening being spiral in the surface of the revolving barrel, in combination with the hopper B, and one or more spouts for measuring and transferring coal, substantially as described.

7,632. SAW FILERS AND SETTERS. Thos. L. Shaw, Omaha, Nebr. Patent No. 112,970, dated Mar. 21, 1871. [Filed Mar. 23, 1877.]

Brief.—The saw-clamp is automatically opened while the saw is fed forward, and closed while being filed and set.



1. The combination, with a rotary file arranged to cut always in the same plane, as described, of a feeder arranged spirally in the arc of the filing-edge, substantially as described, and for the purpose set forth.

2. The combination of a rotary file arranged to cut always in the same plane, as described, and a feeder arranged spirally in the arc of the file, with a guideway and clamp adapted to hold the saw during the process of filing, substantially as described.

3. The combination, with a feeder and a clamp for holding the saw, of a bar arranged to vibrate at right angles to the line of saw-feed, and provided with faces upon the opposite side of the line of said feed, adapted to strike against the teeth of the saw to set the same, substantially as described.

4. The rotary annular file i, in combination with the spiral feeder-plate l, as specified.

5. The rotary annular file, made in sections, as and for the purpose described.

6. The rotary annular file, made in sections, and provided with independent means for adjusting them outwardly to produce an increasing radius.

7. The file i, made in sections, loosely held by screws x^1, and adjusted outwardly by set-screws.

8. The file i, made in sections, and combined with the clamp-plate F^1, having a flange and the set-screws x^1, arranged in said flange to adjust the sections outwardly, as and for the purpose described.

9. The reciprocating saw-set n, in combination with the adjustable wrist-pin q and disk r, as described.

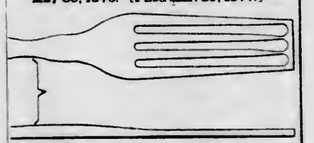
10. The vibrating block v, in combination with the arms s and eccentric b^1, as set forth.

11. The vibrating block v, in combination with the plate y and adjustable block s^1, as explained.

12. The improved saw filing and setting machine, formed by the combination of rotary file i, saw-set n, vibrating block v, and the parts connected therewith, for operating upon and feeding a saw, as set forth.

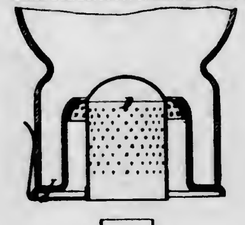
13. The combination, with the rotary file and the spiral feeder-plate, arranged in the arc of the file, of a set-screw, m, adapted to adjust the inclination of the feeder-plate to the different-sized teeth of different saws, substantially as described.

7,633. MANUFACTURE OF TABLE-FORKS AND SPOONS. Le Roy S. White, Waterbury, Conn., assignor to Brown & Brothers, same place. Patent No. 178,218, dated May 30, 1876. [Filed Mar. 29, 1877.]



The improvement in the art of manufacturing forks and spoons, consisting in cutting out a blank with a lateral swell in the shank, or with the shank of a width greater than is required for the finished article, and subsequently condensing or hardening the metal in the shank by pressure applied in a direction transverse to the direction of the pressure produced in the rolling of the blank, and of the sheet from which it has been cut, substantially as and for the purpose herein described.

7,634. LAMP-BURNERS. G. H. Chinnock, New York, N. Y. Patent No. 96,200, dated Oct. 26, 1869. [Filed Mar. 14, 1877.]



1. A detachable translucent or transparent holder or base for supporting means for inducing a draft of air to a burner, provided with a tubular portion and a laterally-extending flange, one end fitting around the outer circumference of the air inlet or distributer of a burner, and the other extending outward beyond the said air inlet or distributer, whereby it serves to establish a connection between the latter, and the means for inducing the draft without casting shadows, and without additional parts of transparent or translucent material.

2. A detachable translucent or transparent holder or base, adapted to support means for inducing a draft of air to a burner, provided with a cylindrical tubular portion, a flange extending laterally therefrom, and fitting at the end farthest from the latter around the outer circumference of the air inlet or distributer of a burner.

3. A detachable translucent or transparent holder or base, adapted to support means for inducing a draft of air to a burner, provided with a tubular portion, a flat flange extending laterally therefrom, and fitting at the end farthest from the latter around the outer circumference of the air inlet or distributer of a burner.

4. A detachable translucent or transparent holder or base, adapted to support means for inducing a draft of air to a burner, made separate from the air inlet or distributer of the burner, independent of any deflector-tip, and provided with a tubular portion, partly of convex shape, and a flange extending laterally therefrom for supporting the means for inducing the draft to the burner.

5. A detachable translucent or transparent holder or base, adapted to support means for

inducing a draft of air to a burner, made separate from the burner independent of any deflector-tip, and provided with a tubular portion, a flange extending laterally from the latter, and a rim extending from said flange in the direction of the length of said holder or base.

6. A detachable translucent or transparent holder or base, adapted to support means for inducing a draft of air to a burner, made separate from the burner, independent of any deflector tip, provided with a rim formed in the same piece with and extending in the direction of the length of said holder or base, and fitting at the end farthest from said rim around the outer circumference of the air-distributor or inlet.

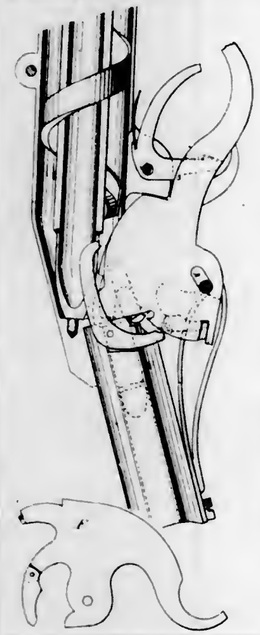
7. The combination, with a burner, of a translucent or transparent holder or base, fitting at one end around the outer circumference of the air inlet or distributer, and at the other extending out laterally beyond the same, means supported thereon to induce a draft of air to the burner, both being capable of adjustment on and removal from the burner without separation.

8. The combination of a translucent or transparent holder or base, fitting at one end around the outer circumference of the air inlet or distributer of a burner, and at the other extending laterally beyond the same, and means supported thereon both contributing to induce a draft of air to a flame issuing from a burner.

9. The combination, with a burner, of a translucent or transparent holder or base, provided with a tubular portion, fitting around the outer circumference of the air inlet or distributer of a burner, and a flange extending laterally beyond the air inlet or distributer, and means extending from the air inlet or distributer of the burner to retain it in place.

7,635. MAGAZINE-GUNS. W. R. Evans, Thomaston, Ma., assignor, by mesne assignments, to the Evans Rifle Manufacturing Company. Patent No. 119,020, dated Sept. 19, 1871; antedated Sept. 16, 1871. [Filed Mar. 8, 1876.]

Brief.—The revolving magazine-tube is turned a quarter-revolution by a bell-crank lever connected to the breech-block. The extractor is attached to the breech-block, and a projection at one end moves in a slot in the frame, to give a suitable motion to the hook for extracting the shell.



1. The hammer, having the notch R, tongue T, and point S, all made to operate as and for the purpose described.

2. The combination of the fluted cylinder B, the spiral coil C, and the breech-block E, with the mechanism described, intermediate the said block and cylinder, whereby the said cylinder is rotated by the movement of said breech-block, all constructed to operate as and for the purpose described.

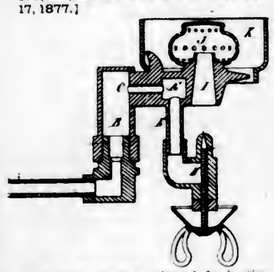
3. The combination of the lever D, the breech-block E, provided with the projection *h'*, and the rotating fluted cylinder B, as and for the purposes described.

4. The breech-block E, composed of two walls, with the space between them, and having the slotted hole *i* and the notch *x''*, as described.

5. The cartridge-extractor E, pivoted to the breech block, and provided with a pin or projection, *a*, made to work in the slot *p* in the inner face of the lock casing, as and for the purpose described.

6. The combination of the hammer F, the breech-block E arranged therein, as described, and trigger W, mainspring *u*, and lever *f*, as and for the purpose specified.

7,636. GAS-HEATERS. Chas. H. Prentiss, Cleveland, Ohio, assignor, by mesne assignments, to Martin L. Hull. Patent No. 196,383, dated Mar. 4, 1873. [Filed Mar. 17, 1877.]



1. In a vapor-burner adapted for heating purposes, the combination, as before set forth, of an enlarged bell or crown perforated as explained, a short tube leading thereto, and a heater-plate surrounding said tube and operating to conduct heat to the other portions of the burner, substantially as and for the purposes explained.

2. In a vapor-burner adapted for heating purposes, the combination, as before set forth, of an enlarged bell or crown having a flat bottom and perforated, as explained, a short tube leading thereto, and a gas-jet orifice located below the mouth of said tube and controlled by a needle-valve, the arrangement being substantially such as described, and for the purposes set forth.

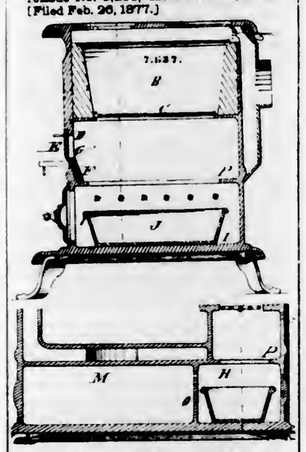
3. In a vapor-burner adapted for heating purposes, the combination, as before set forth, of a support for cooking utensils, an enlarged bell or crown, perforated as explained, a short tube leading thereto, and a gas-jet orifice located below the mouth of said tube and controlled by a needle-valve, for the purposes described.

4. In a vapor-burner adapted for heating purposes, the combination, as before set forth, of an enlarged bell or crown having a flat bottom, and perforated as explained, a short tube leading thereto, a gas-jet orifice located below the mouth of said tube and controlled by a needle-valve, and an oil or fluid reservoir having a contracted inlet and outlet, for the purposes explained.

5. In a vapor-burner adapted for heating purposes, the combination, as before set forth, of a support for cooking utensils, an enlarged bell or crown, perforated, as explained, a short tube leading thereto, a gas-jet orifice located below the mouth of said tube, and controlled by a needle-valve, and an oil or fluid reservoir having a contracted inlet and outlet, for the purposes set forth.

6. The chambers B and E, outlet C, jet-point G, and screw-valve H, combined with the tube I, burner J, and cup K, the several parts being constructed and arranged, as and for the purposes specified.

7,637. COOKING-STOVES. N. A. Boynton, New York, N. Y., assignor to himself, H. A. Richardson, and H. T. Richardson. Patent No. 66,499, dated Feb. 2, 1869; reissue No. 5,203, dated Dec. 24, 1872. [Filed Feb. 26, 1877.]



1. The extension of the ash-pit under the oven, in combination with the warming-chamber or supplementary oven at the back or side of the ash-pit, separated therefrom by a perforated or other partition, substantially as and for the purpose specified.

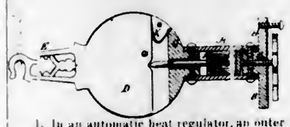
2. The perforated division plate O, which separates the ash-pit H from the supplementary oven M, substantially as described.

3. A cooking-stove constructed with a baking-oven, a warm-closet, M, beneath it, a deep ash-pit, H, separated from the warm-closet by a partition, O, and a deflecting-plate, (or plates,) P, placed above the ash-pit and below the grate, substantially as and for the purposes set forth.

4. The balance-door E, provided with a shoulder, G, which forms its point or line of support, and a tail-piece, F, which aids in operating the door, substantially as described and shown.

7,638. REGULATORS FOR HOT-AIR FURNACES. A. C. Norcross, Boston, Mass. Patent No. 148,132, dated Mar. 3, 1874. [Filed Apr. 17, 1877.]

Brief.—The force of expansion is exerted in a direct line. The head in which the lever is pivoted, and which keeps the latter in one plane, is attached to the expansible tube, which incloses the non-expansible bar. An adjusting-screw, with pointer attached, moving over a dial, bears against an end of the bar.



1. In an automatic heat regulator, an outer expansible tube or shell, a bar of less expansibility inclosed therein, and a lever pivoted to a head, C, in connection with said inner bar and tube for automatically controlling the heat in a furnace or other heating device, substantially as set forth.

2. The combination of the expansible tube A, rod B, lever D, the interior bar F, of less expansibility, and the adjusting-screw G, and nut or threaded opening, X, substantially as and for the purposes herein set forth.

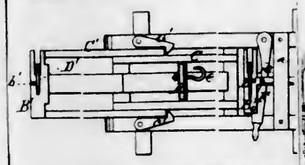
3. In an automatic heat regulator, having an outer expansible tube, an interior bar of less expansibility, and a lever, a dial, and adjusting-pointer combined therewith, substantially for the purposes herein set forth.

4. The combination, with expander A, rod B, and lever D, of the non-expansible bar F, pointer-headed screw G M, and dial base B, as and for the purpose described.

5. The bent C, having a lever, D, in combination with the tube A, rod F, and adjusting-screw and pointer M G, all substantially as and for the purposes herein set forth.

7,639. MACHINES FOR TWISTING HAY FOR FUEL. James S. Foster, Yankton, Dak. Patent No. 181,160, dated Aug. 15, 1876. [Filed Dec. 9, 1876.]

Brief.—The strand of hay is twisted by means of a stationary and a rotating head. An extensible frame carries the fixed head and the device for locking one end of the strand, the other end being secured in the rotating head by like means. After the hay has been twisted, its end in the fixed head is released, and the strand passed into a hook located near its middle. The free portion thereof is then wound around the tense portion, which is left between the hook and rotating head. The ends of the strand are secured by the loop, which is formed during the twisting.



1. In a machine for twisting hay for fuel, the combination of the extensible frame C C', twisting-heads B B', and the adjustable rotating hook *e*, substantially as and for the purpose set forth.

2. In a machine for twisting hay for fuel, the combination of the extensible frame C C', twisting-heads B B', upright pins *b b'*, and latches D D', substantially as specified.

3. In a machine for twisting hay for fuel, the combination, with the rotating head B, having shoulder *g*, of the lever F, substantially as specified.

4. In a machine for twisting hay for fuel, the combination, with a rotating head, B, of a rotating hook, *e*, substantially as specified.

5. The method of putting up hay in fagots, which consists in forming a continuous strand, which has its free part wound around a tense portion that has its end looped, and then in passing said free part through said loop, substantially as specified.

6. In a machine for twisting hay for fuel, the combination, with a rotating head having a looper-pin, *b*, of a latch adapted to hold the strand upon the pin, substantially as specified.

7,640. DEVICES FOR MUSICAL INSTRUCTION. R. S. Hill, Ipava, Ill. Patent No. 185,532, dated Dec. 19, 1876. [Filed Apr. 14, 1877.]

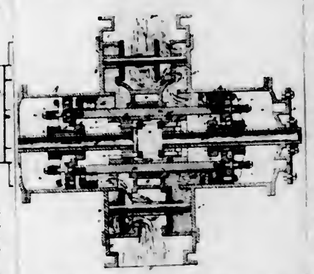
Brief.—The board is covered with finely-reticulated net-work, in the meshes of which the movable notes are hung by means of a pointed hook or claw upon the back of said notes.

The frame A, having reticulated fabric B, and strips C, in combination with suspended blocks or plates D, substantially as and for the purpose herein set forth.





7,641. COMPOUND HIGH AND LOW PRESSURE STEAM-PUMPS. Arthur J. L. Loretz, Brooklyn, N. Y. Patent No. 139,071, dated May 20, 1873. [Filed June 24, 1876.]



1. The arrangement of the pistons G^1 G^2, in their cylinders A and B, connected by tubular piece H, the partition Q of the vacuum and pump chamber C, the steam chest I^1 I^2, and chambers N^1 N^2, M^1 M^2, and L^1 L^2, all constructed to operate substantially as and for the purpose set forth.

2. The combination of the double valve R^1, its packing-rings and springs, the tubes J^1 J^2, with the cylinder N^1 N^2 and M^1 M^2, all arranged substantially as shown, and for the purpose specified.

3. The combination of the annular valve U, provided with packing-rings, with the double valve R^1, arranged substantially as shown, and for the purpose described.

4. The combination of the steam-chest I^1 I^2, having grooves P^1 P^2, and packing, with the double valve O, tappets Y, connecting tube H, tubes J^1 J^2, secured to cylinders A and B and suitable valve-openings, substantially as and for the purpose described.

5. The cylinders A B, bolted with flanges D^1 D^2 to the chamber C, containing the suction and delivery valves, in combination with the pistons G^1 G^2, passages S^1 S^2 T^1 T^2, tube H, double valve R^1, annular valve U, steam-chest I^1 I^2, valve O, and tubes J, all arranged substantially as and for the purpose specified.

6. A steam-valve, R^1, in combination with the means, substantially as specified, whereby it is moved by three forces, the movement of the engine, the force of the steam upon its surface, and the action of a compressed spring, the blow of the engine upon the valve being cushioned by means of a spring, and the valve moving slower than it would without the intervention of the spring, substantially as described.

7. The combination of a double valve, R^1, acting as main valve and auxiliary piston and valve O, acting as a main and auxiliary valve, with a spring acting to start the double valve R^1, and move the same toward one of its seats, with the assistance of the steam admitted by valve O, in addition to the functions of cushioning the actions of the tappets Y of valve O against the valve R^1, and cushioning the action of the valve on one of its seats, substantially as described.

8. A compound valve-piece, R^1, in combination with and acting as the connecting valve between a high and low pressure cylinder, and as the exhaust-valve for a low pressure cylinder, combined with and carried in the piston of the high or low pressure cylinder, substantially as described.

9. A compound valve-piece R^1, in combination with and acting as the connecting valve between a high and low pressure cylinder, and as the exhaust-valve for a low pressure cylinder, and being actuated by the pressure of steam upon its surface, the said valve admitting the steam which acts upon it in the low-pressure cylinder, substantially as described.

10. The combination of a steam valve and a spring, which spring serves to cushion the action produced by the blow between a tappet and the valve, and to aid in arresting the movement of the valve, substantially as described.

11. The combination of a steam valve and a spring, which spring serves to cushion the action produced by the blow between a tappet and the valve, and to aid in arresting the movement of the valve, and also to act at the proper time to move the valve, substantially as described.

12. A compound steam-engine arranged with a steam-chest in the center of the system, so that the steam passes into the engine in a space between two high-pressure pistons, the valve of the said steam-chest being operated entirely by forces within the cylinder, and there being no valve-stem or other controlling mechanism connected with motive power outside of the cylinder, in combination with the valves of a low pressure cylinder, substantially as described.

13. The combination of a water-cylinder, two water-pistons, and a set of suction and delivery valves surrounding the water-cylinder, the said valves and their communicating ports being set between the two pistons, whereby direct passages between the water chambers and the suction and delivery pipes are obtained, substantially as described.

14. The combination of a steam-pump with a packing-ring, which serves to close a sliding joint, and which is packed by means of the continuous pressure of the delivery-water upon its back, substantially as described.

15. The combination of a main valve, an auxiliary valve, and a tappet, concentric with each other and moving on the same central axis, whereby direct action of all the parts on each other is obtained, substantially as described.

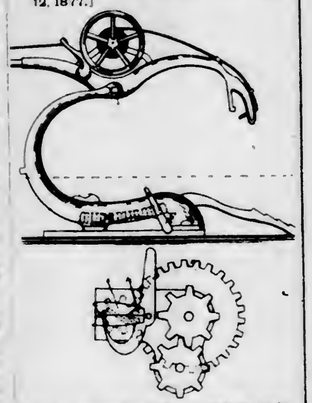
16. The combination of a main valve, an auxiliary valve, an auxiliary piston and a tappet, concentric with each other and moving on the same central axis, whereby direct action of all the parts on each other is obtained, substantially as described.

17. The combination of a main valve, an auxiliary valve, and a tappet, concentric with each other and moving on the same central axis with a spring, which serves to arrest the movement of the main valve, substantially as described.

18. The combination of a main valve, an auxiliary valve, an auxiliary piston and a tappet, concentric with each other and moving on the same central axis with a spring, which serves to arrest the movement of the main valve, substantially as described.

19. The combination of an auxiliary valve and tappet formed of one piece of metal, with a steam-valve and spring, which serves to arrest the movement of the steam-valve, arising from the impact between the tappet and the valve, substantially as described.

7,642. GRAIN-BINDERS. Henrietta L. McCormick, Chicago, Ill., assignee, by mesne assignments, of A. J. Smith. Patent No. 61,272, dated Jan. 15, 1867. [Filed Mar. 12, 1877.]



1. A reciprocating twister, supported independently of the binding-arm, and moved back and forth in the same path in combina-

tion with mechanism whereby said pinion is rotated by its reciprocation, substantially as described.

2. A reciprocating twister, supported independently of the binding-arm, and traveling back and forth in the same path, in combination with a rack, by means of which the twister is rotated as it is reciprocated, substantially as described.

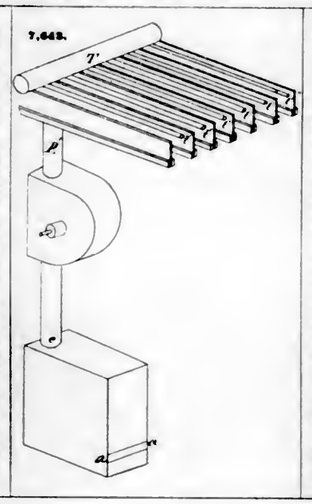
3. A reciprocating twister, in combination with a vibrating wire-carrier, the end of which is carried down around the bundle to place the wire in the twister, and travels with the latter during the twisting of the band, substantially as described.

4. A reciprocating head or block, K, mounted upon ways, on which it is free to move back and forth, in combination with a twister and gearing for rotating the latter, mounted on said carrier-block, substantially as described.

5. A reciprocating block, K, moving on ways, in combination with a twister, h, and driving-pinion m, mounted on its upper side, and a driving-pinion, n, supported on its under side, and connected with the upper pinion m, substantially as and for the purpose set forth.

6. A twister traveling back and forth in the same path, in combination with an independent binding-arm or wire holder and cutter, either or both, moving bodily with the twister, and cams or stops, whereby the holder or cutter is operated by the reciprocation of the carrier, substantially as and for the purpose set forth.

7,643.



7,643. AIR COOLING AND DISTRIBUTING APPARATUS. Moses J. Kelly, Chicago, Ill. Patent No. 44,731, dated Oct. 18, 1864; antedated Oct. 6, 1864. [Filed Jan. 4, 1877.]

1. In an air-cooler or apparatus for cooling carcasses, &c., the combination of a fan-blower, or its equivalent, an ice-chest, or equivalent, and one or more pipes or conduits, which equably distribute the air within the place or apartment to be cooled, substantially as and for the purpose herein set forth.

2. In an air-cooler or apparatus for cooling carcasses, &c., the combination, with the ice-chest, of one or more perforated distributing or equalizing tubes or conduits, substantially as and for the purpose herein set forth.

3. In an air-cooler or apparatus for cooling carcasses by a forced current of air, &c., the ice-chest having an oblong opening at or near its bottom, and extending nearly or quite across the width of the ice-chest, substantially as represented in Fig. 1, for the purpose specified.

4. In an air-cooler or apparatus for cooling carcasses, &c., an ice-chest having an internal partition which is arranged with reference to its inlet *c* and outlet *c*, substantially as shown in Fig. 2, for the purpose specified.

5. In an air-cooler or apparatus for cooling carcasses, &c., the combination of the fan-blower or fanners F, the system of tubes T T', &c., and the ice chest or depository in either of said forms, as and for the purpose shown and represented.

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NOTICE.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., May 9, 1877.

C. MAXWELL BUELL, of New York, having been found guilty of "gross misconduct" is, under authority of sec. 387, Revised Statutes, and with the approval of the Secretary of the Interior, hereby debarred from practicing as an attorney before this Office.

ELLIS SPEAR,
Commissioner.

COMMISSIONER'S DECISIONS.

HENRY GROSS.—*Motion for rehearing.*

[*In the matter of the application of Henry Gross, filed August 9, 1873, for* "IMPROVEMENT IN PERMUTATION LOCKS."—*Decided December 18, 1876.*]

An improvement of an existing device rendering its parts more adjustable in a manner well known, and by the exercise of mechanical skill and judgment alone, is not patentable.

The change of location of an element in a combination, where that change produces in substance no new combination nor a new operation, is not patentable.

[*W. C. Dodge & Son*, for applicant.]

DOOLITTLE, *Assistant Commissioner:*

This application was rejected by the Examiners-in-Chief and the Commissioner in 1874. A reconsideration of the case has recently been requested and the request granted by the Commissioner.

The claim made by applicant is as follows:

In combination with the notched disk or tumbler K, the yoke A, having the fly B attached thereto, and the pin E arranged to project through holes in the disk K, and serve the twofold purposes of a transfer and of changing the combination, as set forth.

This claim was regarded by the Office as being substantially answered by the patent of W. B. Dodd, No. No. 46,858, of March 14, 1865, that of MacNeale, of July 5, 1874, and that of L. Yale, of September 15, 1868.

The Board of Examiners in-Chief in their decision state the case clearly, as follows:

It is admitted on the part of applicant that a yoke adjustably attached to the main part of the tumbler with the connecting-pins projecting through the tumbler, and arranged to strike the adjacent tumbler, is shown in the patent of Dodd. It is also clear that the fly adapted to serve exactly the same office as that contemplated by applicant, and in all essential respects the same in construction, is shown in the patent of MacNeale and in that of Yale. The two forms of adjustable tumblers being thus shown to be old, the position of the Examiner is that applicant has done no more than transfer the fly from one old form of tumbler to another without new result.

The sole advantages, so far as I can ascertain, claimed by applicant over the devices of Yale and MacNeale, are thus stated by his attorney:

In both Yale's and MacNeale's the fly is mounted on a hub surrounding the center of the tumbler, and the bearing surface is so large and the friction so great that quite frequently the fly does not move separately at all; but instead, when struck by the pin of the adjoining tumbler the fly and tumbler are both moved together, thus destroying or preventing entirely the effect which the fly is designed to accomplish.

On the contrary, applicant's fly, being made light and small, and being pivoted on a small pin near the extremity of the yoke away out near the edge of the disk, cannot possibly act in this manner. The slightest touch of the pin of the adjoining tumbler moves the fly its full distance before the disk is stirred at all. Here, then, is an important difference in results—due entirely to the difference in construction and arrangements of parts.

It will be seen by these remarks that a combination new in principle does not constitute the distinction between the cases, but that applicant has simply rendered a device more adjustable; has, in short, *improved* its operations by the exercise of mechanical skill and judgment.

The change of location of an element in a combination, where that change in location produces in substance a new combination and a new operation, is patentable; but here the combination is not changed, but the operation of the mechanism is simply perfected. (*Gallahue et al.* vs. *Butterfield*, 6 Fish., 203.)

Admitting this to be such a combination as comes within the definition laid down in the case of *Birdsell* vs. *McDonald et al.*, 6 OFFICIAL GAZETTE, 683, on which applicant relies, still the doctrine there inculcated relating to the colorable changes made by the defendant as against the patentee is applicable here. The court held:

Any change merely colorable, involving no new idea, requiring not invention, but only mechanical skill, to make it, a change which retains the idea of the patentee and the substance of his invention, notwithstanding the different drapery in which that substance is clothed, cannot avail to protect a party charged with infringement.

In view of the thorough manner in which this case was discussed by the Board of Appeals and the Commissioner, I deem it unnecessary to say anything more at this time.

The former action of the Office in rejecting this claim is, therefore, affirmed.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—DISTRICT OF NEW JERSEY.

THE AMERICAN SHOE TIP COMPANY *vs.* THE NATIONAL SHOE TOE PROTECTOR COMPANY.

[*In equity.—Before* NIXON, *J.—Decided March* 27, 1877.]

Long public acquiescence in the complainant's patent, together with the adjudications in favor of its validity, are *prima facie* sufficient reasons for the grant of a preliminary injunction when the infringement is palpable.

A disclaimer limiting the actual invention of the patentee, the result of an error or mistake on the part of the Office, may be omitted in a reissue.

OPINION OF THE COURT.

NIXON, *J.*:

The application in this case is for a preliminary injunction; and it is founded upon long public acquiescence in the complainant's patent, and on adjudication in other courts in favor of its validity.

The existence of these facts is, *prima facie*, a sufficient reason for the court to interfere, by the injunction, pending the litigation, only in those cases where the infringement is palpable. If any reasonable doubt exists upon that point, and especially, if the defendant is acting under the authority of a patent, there should be no interference by the court until after the examination and decision in regard to the claims of the conflicting patents, upon the merits of the case.

Much controversy was had on the argument concerning the scope of the invention owned by the complainant. The original patent, No. 26,329, was for a new article of manufacture, and was granted to James M. Allen, the assignee of Newman Silverthorn, the inventor, on the 29th of November, 1859, for an "improved boot and shoe tip." In the specification and claims it was limited to a shoe-tip made of manufactured rubber or gutta-percha. The invention expressly disclaims leather tips or metallic tips, and he enters into a long argument to show why the rubber tips are different, and how they are superior.

> I am aware [he says] that the leather tips have been known and used for a long time; and that metallic tips have been made and patented. I lay no claim to either of these things. I make a tip that is more ornamental than the leather, which it resembles very much, and much more durable than leather. Both the leather and the metal are difficult to crimp, fashion, or form, so as to make a neat covering for the toe of the shoe. But the prepared rubber may be molded, fashioned, or formed with great care and perfection, and with a finish equal to the best patent leather. So also may the gutta-percha be molded into form, the nature of the materials of which my tips are composed being such that it can be readily put into any form or shape and retain its enduring properties, while they admit of a high degree of polish, that adds greater market value to the shoe than the leather or metal tips do. "Patent leather," as it is termed, is exceedingly difficult to crimp or tree into shape for a boot or shoe tip; but a prepared rubber or gutta-percha tip can be molded or formed into the required shape with the greatest facility, and finished to bear the greatest resemblance to patent leather, while it is much cheaper, more enduring, and much more readily secured to the boot or shoe—thus, in every essential making a better article than either the leather or metal tips heretofore used.

The complainants insist that notwithstanding this broad disclaimer of leather and metal tips, the invention of Silverthorn, in fact, covers them, and that the disclaimer was the result of a mistake or error in the officers of the Patent Office, which was subsequently corrected.

It appears from a record submitted on the argument, that on the 16th of May, 1856, Silverthorn filed a caveat in the confidential archives of the office, claiming that he had "made certain improvements in the mode of constructing boots and shoes," and was then "engaged in making experiments for the perfecting the same, preparatory to his applying for letters patent therefor." He therein describes the nature of his invention to consist—

> In providing the upper on the toes of boots and shoes with fenders of copper, brass, india-rubber, gutta-percha, or *any other substance*, for the purpose of protecting against grasses, &c., cutting or wearing out the uppers on the toes of boots and shoes, which fender is required to be made so as to fit upon the toe, previous to putting on the outsole, and to extend beneath the outsole far enough to receive the pegs, which are to fasten it on, &c.

He claimed as his invention—

> The application to the toe of boots and shoes, in the manner (therein) described, of *any substance* that would protect the upper from being cut or worn out by the long grasses, &c., as herein described.

With this caveat pending, on the 16th of December following, one George A. Mitchell filed an application for letters patent for a metallic tip. After describing the mode of making and attaching it to the boot and shoe, he claimed as his invention—

> The application of a thin plate to the toes of children's, boys', and men's boots and shoes, so as to prevent them from wearing out; using for that purpose the aforesaid metal, or compounds, or any other, substantially the same, which will produce the intended effect.

An interference being declared between them, a large amount of testimony was taken, and the Commissioner of Patents, on the 6th of November, 1857, decided in favor of the priority of the Mitchell invention and granted to him letters patent for the same.

Silverthorn then withdrew his application, with the condition, however, annexed, that he should not be debarred at any future time from testing the validity of the patent granted to Mitchell.

On the 7th of December, 1858, Mitchell, having surrendered his patent, obtained a reissue with an additional claim for the metallic tip, described in his specification as a "new article of manufacture."

On the 13th of July, 1859, the application of Silverthorn was renewed, limiting the claim to a shoe-tip of india-rubber or gutta-percha, disclaiming the metallic tip; and the above-recited letters patent No. 26,329, dated November 29, 1859, were issued to James M. Allen, his assignee.

On the 12th of December, 1860, Mitchell surrendered his reissue patent, and applied for a reissue thereof under the broad claim for a protecting tip of any materials for the toes of boots and shoes. The Commissioner allowed the claim and ordered the reissue, but before it was taken from the Patent Office Silverthorn's assignee surrendered his patent, and on the 14th of February, 1861, applied for a reissue, with a claim as broad as Mitchell's, and in direct conflict therewith.

An interference being again declared, the controversy between the appellants went from the Examiners to the Commissioner, who again decided in favor of Mitchell. The assignee of Silverthorn appealed to the supreme court of the District of Columbia. The court on the 4th of August, 1862, by Chief Justice Dunlop, reversed the decision of the Commissioner of Patents, and held (1) that the two surrenders and applications for reissues opened the claims of both parties for re-examination as if they had been original applicants, and enable the former errors in the patent to be corrected; (2) that Silverthorn was the original and first inventor of the invention claimed; (3) that the design of Congress in authorizing a reissue was to confer on inventors the full benefit and extent of their whole invention, and (4) that the assignee of Silverthorn should have reissued to him the letters patent for the shoe-tip, as claimed.

A reissue was accordingly made on the 2d of September, 1862, to George Goodyear, who has become the assignee of Allen by letters patent No. 1,339, which, being assigned to the complainant corporation, was again surrendered and reissued August 4, 1868, by letters patent No. 3,070. The patent expiring November 29, 1873, the Commissioner extended the same for seven years from that date, and the suit is brought on these extended letters patent.

Having described the invention, in the specification of the last reissued patent, it is stated—

> That the claim of invention is not confined to the particular material, of which the tip is or may be made; nor yet to the manner or process by which the same is or may be produced or applied, but what is claimed as the invention of the said Newman Silverthorn is, a formed tip, substantially as described, as an article of manufacture.

The controversy between Silverthorn and Mitchell as to the priority of the invention of the boot-tip generally, as an article of manufacture, closed more than fourteen years ago, and so far as the knowledge of the court extends the public has generally acquiesced in the decision in favor of Silverthorn.

It is too late to open the inquiry on a motion for a preliminary injunction, and if the shoe-tip, as an article of manufacture, which the defendants acknowledge to have made and sold, infringes the claim of the Silverthorn patent a *prima facie* case is revealed that warrants and demands the interference of the court until the final hearing.

The defendants frankly produce the article of which complaint is made, and describe the process of manufacturing. It is a very ingenious and useful contrivance, and it has some features, I am inclined to believe, which render it more valuable than the complainant's device.

But it is a formed shoe tip, nevertheless, and is an article of manufacture made and sold separate from the shoe. It is a toe-protector, and although it does not cover the upper leather of the boot it is inverted and fastened around the toe, substantially as the complainant's tip, and performs the same useful functions of protecting it against wear. I do not see how it can be used without infringing the central idea of the complainant's patent, to wit, the protection of the toe of the boot or shoe; and although it may be an improvement, it is nevertheless an infringement; and an injunction must be ordered to restrain the defendants until the further order of the court, and it is ordered accordingly.

U. S. CIRCUIT COURT—SOUTHERN DISTRICT OF NEW YORK.

LEWIS J. MULFORD *et al. vs.* THOMAS D. PEARCE *et al.*

[*In equity.—Before* SHIPMAN, *J.—Decided February* 21, 1877.]

The infringement being of a patent for an improved chain composed of alternate closed links and open spiral links formed of one or more coils of gold tubing, the distinctive feature of the invention consisting in the construction of the open spiral links from a specified material—viz., gold tubing—the damage sustained is not the advantage derived from the use of open links or open spiral links of gold tubing over what would have ensued from the use of closed links of tubing or open spiral links of solid gold, as the two elements of utility and novelty which the new article possesses do not exist in a soldered chain of tubing, or in a chain made of split gold rings of solid wire.

The patented and unpatented articles are entirely distinct from each other, and the result which is found in the former cannot be obtained from the latter; therefore the principle decided in *Mowry vs. Whitney* is not applicable.

[*B. F. Lee*, for complainants.
Henry Baldwin, Jr., for defendants.]

STATEMENT OF THE CASE.

[The facts of this case fully appear in the opinion of the court on final hearing, (9 OFFICIAL GAZETTE, p. 204.]

The patent had two claims—

1. An ornamental chain for necklaces, &c., formed of alternate closed links A and open spiral links B, substantially as shown and described.
2. The open spiral link B formed of coils of tubing, substantially as shown and described.

Upon the accounting it appeared that the defendant had made certain chains constructed precisely as described in the first claim of the patent, and certain other chains composed entirely of the open spiral link claimed in the second claim of the patent. Upon these chains the master awarded as damages the entire profits which the complainants would have made on the sale of the entire chains, deducting, of course, the cost of manufacturing, selling, &c.

The defendants made certain other chains, in which open spiral links were used to connect a series of several closed links joined together in the usual manner. Upon these chains the master awarded as damages the profits which the complainants would have made on the spiral links alone in said chains.

OPINION OF THE COURT.

SHIPMAN, *J.*:

The defendants except to the master's report in regard to the amount of damages found to have been sustained by the plaintiffs by reason of the infringement of their patent.

The principal exception is stated in two forms: That, inasmuch as the defendants had a right to make chains of alternate links, and to use tubing for one link, provided it was soldered so as to make that link closed, the question to be determined by the master was, first, what advantage was derived by the defendants from using the open links over what they would have had in using closed links made of tubing? Or, second, what advantage have the defendants gained by reason of having used open spiral links of gold tubing over what would have ensued from the use of open spiral links of solid wire?

The patented article was a new ornamental chain or necklace, a new article of manufacture, and the first claim has been held by this court to be a claim for a chain composed of alternate closed links, and open spiral links formed of one or more coils of gold tubing. (9 OFFICIAL GAZETTE, p. 204.) The distinctive feature of the invention, it was held, did not consist in the fact that the link was spiral, but did consist in the construction of the open spiral link from a specified material—viz., gold tubing. The two elements of utility and novelty, which the new article possesses, are described in the opinion, in which it was shown that these elements did not exist either in a soldered chain of tubing, which could not be taken apart, and which re-

quired finishing and polishing after it was put together, or in a chain made of split gold rings of solid wire. It was said that the difference between the latter article and the patented chain was clearly marked, and was a difference in kind.

The patented and the unpatented articles are entirely distinct from each other. By the use of closed or soldered links of tubing, or links of solid wire, the manufacturer cannot obtain the result which is found in the patented invention, and therefore the principle which was decided in *Mowry* vs. *Whitney*, (14 Wall, 620,) and which is invoked by the defendants, is not applicable. That was a case of a new process of manufacture, and the court says that the proper inquiry was, What was the advantage in bringing the article by the patented process to a state of perfection, over bringing it to the same state by other processes open to the public, and which would be equally beneficial?

In this case the links of a chain which are open to the public cannot, from their nature, make a chain which is like the patented article in its peculiar characteristics. The master might as well undertake to estimate the advantage which the patented article possesses over any other gold chains, as over those which the defendants have selected.

The master seems to me to have observed in this case the rules which have heretofore been sanctioned by the circuit and supreme courts. The cases of *Burke* vs. *Hermann*, (1 Blatch., C. C. R., 398;) *Pitts* vs. *Hall*, (2 Blatch., C. C. R., 229;) *Cowing* vs. *Rumsey*, (8 Blatch., C. C. R., 36;) *Livingston* vs. *Jones*, (2 Fisher's Patent Cases, 207;) *Seymour* vs. *McCormick*, (16 How., 480,) are in point.

In regard to the motion for treble damages, I do not perceive any adequate reason which calls upon the court to exercise its discretionary power to increase the actual damages.

The master's report is confirmed, and the exceptions are disallowed. The motion to increase damages is denied.

APPLICATIONS FOR EXTENSION.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., April 24, 1877.

On the petition of Erastus T. Bussell, of Indianapolis, Indiana, praying for the extension of a patent granted to him on the 29th day of November, 1853, numbered 10,280, extended for seven years from the 29th day of November, 1867; reissued on the 13th day of December, 1870, and numbered 4,202, for an improvement in combined rubber and spiral steel spring. This application having been authorized by act of Congress approved March 3, 1877:

It is ordered that the testimony in the case be closed on the 10th day of July next; that the time for filing arguments and the Examiner's report be limited to the 20th day of July next; and that said petition be heard on the 25th day of July next.

Any person may oppose this extension.

ELLIS SPEAR,
[tf] *Commissioner of Patents.*

DEPARTMENT OF THE INTERIOR,
U. S. PATENT OFFICE,
Washington, D. C., March 10, 1877.

On the petition of HENRY VOELTER, of Heidenheim, Germany, praying for the extension of a patent granted to him August 10, 1858, antedated August 29, 1856, extended for seven years from August 29, 1870, reissued June 6, 1871, and numbered 4,418, for an improvement in reducing wood to paper pulp, this application having been authorized by act of Congress approved March 3, 1877:

It is ordered that the testimony in the case be closed on the 29th day of May next; that the time for filing arguments and the Examiner's report be limited to the 8th day of June next; and that said petition be heard on the 13th day of June next.

Any person may oppose this extension.

ELLIS SPEAR,
[tf] *Commissioner of Patents.*

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date May 1, 1877.]

9,949.—Handles for Dinner, Tea, and Toilet Sets.—EDWIN HAVILAND, of Plainfield, N. J., assignor to CHARLES FIELD HAVILAND, Paris, France. Application filed March 21, 1877. Term of patent 3½ years.

9,950 and **9,951.—Fancy Cassimeres.**—THOMAS HOLMES, Brooklyn, N. Y. Applications filed April 13, 1877. Term of patents 3½ years.

9,952 and **9,953.—Fancy Cassimeres.**—HORACE A. KIMBALL, Pascoag, R. I. Applications filed April 23, 1877. Term of patents 3½ years.

9,954.—Woven Borders for the Ends of Towels.—RICHARD T. WEBB, Randallstown, Ireland. Application filed April 11, 1877. Term of patent 3½ years.

9,955.—Necklace.—HENRY W. WOODS, Brooklyn, N. Y. Application filed April 2, 1877. Term of patent 3½ years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date May 1, 1877.]

4,587.—Perfumery.—GEORGE JÁQUES, Roston, Mass. Application filed March 19, 1877.

"The words, 'THE RIVAL OF LUBIN'S.'"

4,588.—Champagne Wine.—KUNKELMANN & Co., Rheims, France. Application filed February 14, 1877.

"The words and letters 'H. PIPER & Co., KUNKELMANN & Co., SUCCESSEURS.'"

4,589.—Champagne Wine.—KUNKELMANN & Co., Rheims, France. Application filed March 23, 1877.

"The words and letters 'H. Piper & Co., successors to Heidsieck.'"

4,590.—Cigarettes.—WILLIAM S. KIMBALL & Co., Rochester, N. Y. Application filed March 21, 1877.

"The words 'Vanity Fair' arranged in a curved line, a representation of the obverse and reverse of the Vienna medal of merit, and a fac-simile of our signature, all applied in black upon a red ground, as shown."

4,591.—Twine, Warp, Yarn, &c.—EZRA W. KEELER, Yardville, N. Y. (Re-registration.) Application filed April 8, 1871.

"The word 'Clarence,' and of the representation of a cross, as shown."

4,592.—Fishing-Lines.—PRATT & FARMER, New York, N. Y. Application filed September 8, 1876.

"The representation of a fish, as shown."

4,593.—Pen and Pocket Knives.—JOHN RUSSELL CUTLERY COMPANY, Turner's Falls, Mass. Application filed April 7, 1877.

"The diamond-shaped figures, and the letter 'R.'"

4,594.—Medicines.—J. T. REED & Co., Boston, Mass. Application filed March 10, 1877.

"A pentagonal figure, within which is a triangular figure, and within the triangle is a circle with a horizontal line or band drawn nearly across it. Outside the triangle, within the pentagon, are the words 'Reed's East India Remedies.'"

4,595.—Harvesters and Mowers.—JOHN F. SEIBERLING, Akron, Ohio. Application filed February 2, 1877.

"The word-symbol 'EMPIRE.'"

4,596.—Railroad-Spikes, Fish-Plates, Bolts, and Nuts.—ST. LOUIS RAIL FASTENING COMPANY, St. Louis, Mo. Application filed February 24, 1877.

"A finished fish-plate, railroad-spike, track-bolt, and nut, so arranged that the spike and bolt cross the fish-plate in the center, and also cross each other at right angles, as shown."

4,597.—Fence Strips and Caps.—CYRUS L. TOTLIFF, Brooklyn, N. Y. Application filed April 24, 1877.

"The representation of a cat."

4,598.—Baking-Powder.—C. C. WARREN & Co., Toledo, Ohio. Application filed March 28, 1877.

"The word-symbol 'SNOW-FLAKE.'"

4,599.—Cigars.—DANIEL WHALEN, New York, N. Y. Application filed December 19, 1874.

"The word-symbol 'ROMEO & JULIET.'"

4,600.—Remedial Agent.—JULIA BLANKMAN, New York, N. Y. Application filed April 10, 1877.

"The word-symbol 'MAGNETIC.'"

4,601.—Soap.—ANDREW T. CRAWLEY, Chelsea, Mass. Application filed April 2, 1877.

"The word-symbol 'BURDED.'"

4,602.—Cleansing Preparation.—EUGENE M. COFFIELD, Philadelphia, Pa. Application filed April 11, 1877.

"The word-symbol 'METROPOLITAN,' and the representation of a servant, apparently in the act of cleaning marble steps with my preparation."

4,603.—Ale.—ISAAC COOK & Co., Boston, Mass. Application filed January 4, 1877.

"The title 'COOK'S.'"

4,604.—Sugar, Molasses, and Sirup.—DE CASTRO & DONNER SUGAR REFINING COMPANY, New York, N. Y. Application filed March 30, 1877.

"The word-symbol 'WINDSOR.'"

4,605.—Sugar, Molasses, and Sirup.—DE CASTRO & DONNER SUGAR REFINING COMPANY, New York, N. Y. Application filed March 30, 1877.

"The word-symbol 'EMPIRE.'"

4,606.—Coffee.—DAVIS, SACKER & PERKINS, Boston, Mass. Application filed April 13, 1877.

"The figure of a female carrying a waiter or tray on which is a coffee-pot with steam issuing from the spout, a cream-mug, and a cup and saucer. Around the figure of the female is an ornamental border, having in the upper edge, over the female figure, the word 'VIENNA,' and in the lower edge, the word 'Breakfast,' as shown."

4,607.—Mixed Paints.—A. H. HOLDEN & Co., Chicago, Ill. Application filed April 7, 1877.

"The letters 'C. E. P. W.' in the form of a monogram, and the firm-name 'A. H. HOLDEN & Co.'"

4,608.—Paints.—HARRISON BROTHERS & Co., Philadelphia, Pa. Application filed March 14, 1877.

"A black surface containing a shield-shaped figure of contrasted color, the latter embodying one or more tints of color."

4,609.—Paints.—HARRISON BROTHERS & Co., Philadelphia, Pa. Application filed March 14, 1877.

"A black surface containing a polygon of contrasted color, the latter embodying one or more tints of color."

4,610.—Picture-Frames.—LEWIS PATTBERG & BROS., New York, N. Y. Application filed April 12, 1877.

"The word-symbol 'FAVORITE.'"

4,611.—Soap.—ROBINSON BROS. & Co., Boston, Mass. Application filed June 9, 1876.

"The fanciful words 'GOLD DOLLAR.'"

4,612.—Manufactured Tobacco and Snuff.—DOHAN, CARROLL & Co., New York, N. Y. Application filed April 10, 1877.

"The fanciful words 'EMPRESS OF INDIA.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date May 1, 1877.]

1,041.—Title: **"Barbour's No. 12, 10 Cent Ball, Best Irish Flax."**—THOMAS BARBOUR, Paterson, N. J. Application filed April 23, 1877.

1,042.—Title: **"Beam's Domestic Medicines."**—JOSEPH C. BEAM, Johnstown, Pa. Application filed April 23, 1877.

1,043.—Title: **"Dr. N. Weaver's Concentrated Extract Fireweed or Scrofula Cure."**—JAMES LESTER BELDEN, Geddes, N. Y. Application filed April 23, 1877.

1,044.—Title: **"Empress of India."**—DOHAN, CARROLL & Co., New York, N. Y. Application filed April 9, 1877.

1,045.—Title: **"Economy Baking Powder Manufactured by H. and J. Menown."**—H. and J. MENOWN, Kansas City, Mo. Application filed April 25, 1877.

1,046.—Title: **"Highland Spring India Pale Ale."**—RUETER & ALLEY, Boston, Mass. Application filed April 19, 1877.

1,047.—Title: **"A Card for Business Men, by Council Wood."**—COUNCIL WOOD, Dadeville, Ala. Application filed April 21, 1877.

INDEX OF INVENTIONS PATENTED MAY 1, 1877.

	Class No.	No. of Patent.
Air into vessels containing liquids, machine for forcing, J. F. Hess	12	190,215
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Bark mill, W. H. Barber	92	190,182
Basket, folding, J. J. Pesinger	169	190,360
Bedstead, folding, Kibby and Hall	62	190,338
Bedstead, sofa, C. Kade	62	190,335
Beer cooler, A. Kunkle	19	190,340
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Billiard chalk cup, H. W. Collender	143	190,285
Binder, temporary, W. P. Bissell	15	190,269
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Boiler feeder, A. I. Sternberg	148	190,383
Boiler furnaces, grate bar for, P. J. Schmitt	139	190 377
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Boot and shoe heels, manufacture of, W. B. Arnold	16	190,113
Boot and shoe sole buffer, F. Winslow	16	190,174
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Bottle and stopper, J. H. Parker	1	190,358
Bottle stopper fastening, F. Schlich	1	190,254
Bottles, locking device for, E. M. Deey	1	190,292
Brick kiln, H. Dickson	20	190,132
Brick kiln furnace, A. W. Duty	20	190,201
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Can, J. W. Masury	136	190,347
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Candle holder, C. Kirchhof, (reissue)	90	7,652
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Car coupling, B. Rowell	122	190,375
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Cartridge, metallic, J. H. Gill	32	190,208
Cartridge, metallic, Glover and Budd, assignees of executrix of E. Allen, deceased, (reissue)	32	7,647
Cartridge, signal, E. W. Very	32	190,263
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Churn, reciprocating, J. J. Curd	45	190,288
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Clothes pounder, W. T. Robertson	91	190,372
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Coffee roaster, A. Jungclas	154	190 334
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Draft regulator, T. Baker	148	190,181
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Electro voltaic belt, J. Bryan	50	190,279
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Faucet, F. Messmer	167	190,350
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Grain distributer, J. W. Lewis	57	190,229
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Health lift, A. W. Lozier	143	190,150
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Metallic surfaces, process and apparatus for stippling, R. Dimes, (reissue)	100	7,657
Metallic surfaces, process and apparatus for stippling, R. Dimes, (reissue)	100	7,658
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Pipe tongs, A. H. Jarecki	100	190,330
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Sleeve or cuff button, C. H. Rose	23	190,161
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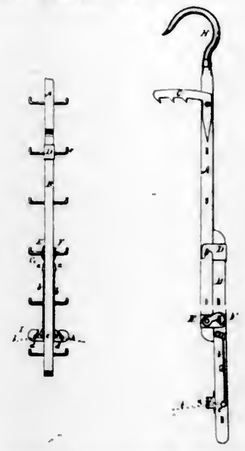
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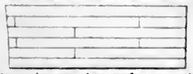
190,112. LADDERS. J. W. Allen, Republic, Ohio. [Filed Apr. 7, 1877.]



1. The hook C, braces *b b*, plate I, and clasps *a a*, substantially as and for the purposes set forth.

2. The combination of the hook C, braces *b b*, plate I, clasps *a a*, sections A B, with rounds bent up near the ends, bands D E, hooks F G, and grappling-hook H, substantially as and for the purposes described.

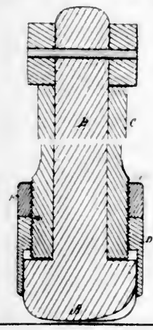
190,113. MANUFACTURE OF HEELS FOR BOOTS AND SHOES. W. B. Arnold, North Abington, Mass. [Filed Feb. 20, 1877.]



1. As an improved manufacture, a heel-lift composed of a series of peripheral pieces dovetailed together, and a filling arranged between or with them, all substantially as shown and described.

2. As an improved manufacture, a heel made as specified—viz., with each of its outside lifts of a single piece of material, and each of its intermediate lifts composed of a series of peripheral pieces dovetailed together, and a filling, as explained, and arranged to break joints with the next adjacent composite lift or lifts, all as set forth.

190,114. PEG-FLOATS. Wm. B. Arnold, North Abington, Mass. [Filed Mar. 21, 1877.]



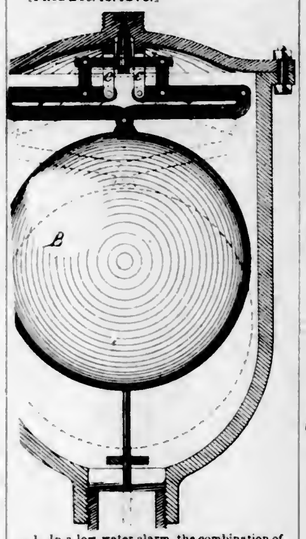
The combination of the adjustable gage D, its check-nut E, and screw *a* with the rotary peg-rasper A, and its arbor B, and the carrier C thereof, all being arranged substantially as set forth.

190,115. DENTAL TOOLS. S. Babcock and C. E. Mason, Springfield, Ill. [Filed Nov. 29, 1876.]



A dental polishing or grinding tool, formed of thin soft metal, in which diamond-dust is permanently embedded by pressure, all as described.

190,116. LOW-WATER ALARMS. T. Bingham and T. J. McTighe, Pittsburg, Pa., assignors of five-eighths their right to J. L. Lewis and Wm. J. Lewis, same place. [Filed Dec. 18, 1876.]

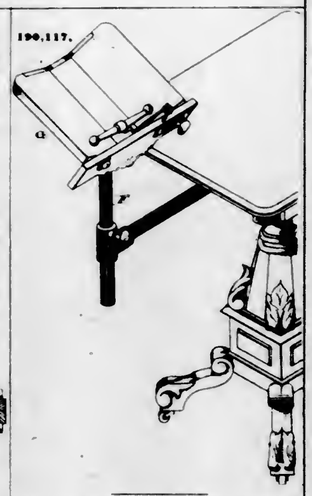


1. In a low water alarm, the combination of the following elements, to wit: a longitudinally-reciprocating valve, a float, and a duplicate system of independent levers, independently connecting the valve and float together, arranged and operating substantially as shown and described.

2. The combination, with the valve, the cross-bar carrying the same, and the combined pivot-bearings, and slotted guides depending from the cap, and constructed substantially as shown, so as to form fulcra for the levers, as set forth.

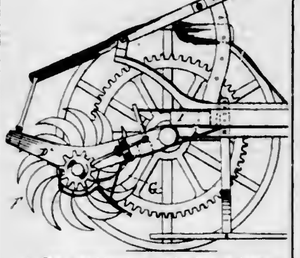
3. The combination, with the float B, of the cross-bar *d*, carrying the valve *e*, the independent levers *g*, and the links *f*, respectively and independently pivoted to the cross-bar and levers, substantially as set forth.

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190,118. CORN-STALK CUTTERS. Jonathan P. Brower, Cornstalk, Ind. [Filed Nov. 9, 1876.]

Brief.—Curved rotary knives, with reversed spiral arrangement, operating to pick up the stalks from the ground, and to carry them forward to be cut against the curved stationary knives.



1. The combination, with the stationary knives G, of the curved rotating knives F, operating to pick up the stalks from the ground, and to carry them forward and cause the same to be cut against said knives G, as described.

2. The curved rotating gathering-knives F, having the reversed spiral arrangement whereby they are made to cut in pairs, as described, in combination with the curved stationary knives G, arranged substantially as described.

3. In a corn-stalk cutter, the combination of the curved rotating gathering-knives F and curved stationary cutters G with the vibrating adjustable cutter-frame D, for adapting said cutters to be set nearer to or farther from the ground, as described.

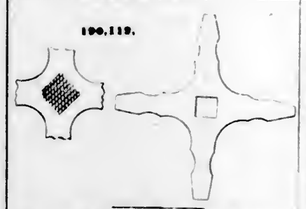
190,119. SCREW-DRIVERS. Bern L. Budd, Fairfield, Conn. [Filed Mar. 17, 1877.]

Brief.—A screw-driver formed of a flat piece of metal, and having four blades of different sizes, is provided with a perforation in its center, adapted to be used as a wrench.

As a new article of manufacture, a screw-driver consisting of a flat piece of metal provided with three or more uniformly diverging blades of different sizes, and having an enlarged central portion, and a perforation in said central part adapted to serve as a wrench, constructed to operate as shown and described, and for the purpose set forth.

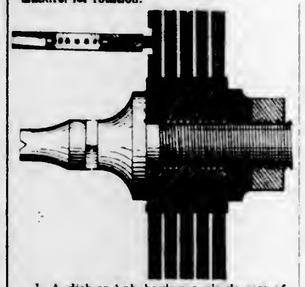
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190,119.



190,120. BRUSHES. B. L. Budd, Fairfield, Conn. [Filed Mar. 21, 1877.]

Brief.—A wheel-brush made of a series of disks, each having a row of bristles in its periphery, and the said disks secured on a mandrel for rotation.



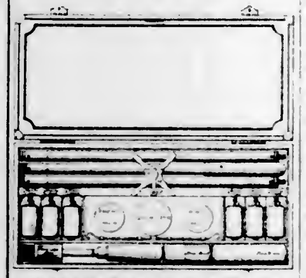
1. A disk or hub having a single row of radial perforations and provided with a series of independent knots set in said perforations, substantially as and for the purpose described.

2. The combination of a series of disks, each having a row of radial perforations and provided with fixed and independent peripheral knots with a mandrel and suitable clamping devices, substantially as described.

3. The combination of a series of disks, each provided with peripheral knots, with a mandrel upon which they may be individually rotated or changed in relative position, and with clamping devices, whereby they may be held positively in reference to each other when adjusted, substantially as described.

4. The combination of a series of disks, each having peripheral knots, with a shouldered mandrel, whereupon their relation to each other may be altered, which is adapted to be held at one end against rotation, and at the other end having a nut, whereby the disks may be clamped and held in position, substantially as described.

190,121. GUN-CLEANING CASES. B. L. Budd, Fairfield, Conn. [Filed Mar. 22, 1877.]



1. In a gun-cleaning case provided with compartments, the combination, with a division-strip, of the pivoted clasp for holding the screw-driver, whereby the contents of the compartment are held in place, all substantially as set forth.

2. In a gun-cleaning case, the combination, with the body of the case provided with compartments, of an intermediate cover, and an outer cover provided with corner metallic holders, all substantially as and for the purpose described.

3. A gun-cleaning case, having an outer cover provided with corner metallic holders, adapted to hold in place an intermediate cover, and also protect the edges of the cover from unnecessary wear, all substantially as set forth.

4. In a gun-cleaning case, the arrangement, substantially as described, of the receptacle in the lid, the longitudinal compartment in the body for the jointed cleaning-rod, with overlying clasp for the screw-driver, whereby the lengths of the rod are held in position, the lateral compartments for the cleaning and polishing implements, the medium compartments for the compounds and lubricating material, and the longitudinal compartments for the special instruments, as set forth.

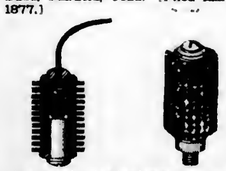
5. A gun-cleaning case, the body of which is divided into compartments, and provided with the clamp for holding the screw-driver, which is adapted to hold the rods in place, in combination with an intermediate cover held in place by suitable fastening devices attached to the outer cover, all substantially as shown and described.

6. A gun-cleaning case, consisting of a body divided into compartments, an intermediate cover, and an outer cover provided with the metallic swinging corner holders, whereby the intermediate cover is held in place, all arranged and constructed substantially as shown and described.

190,122. COMPOSITION PARAVASELINE PASTE. Bern L. Budd, Fairfield, Conn. [Filed Mar. 23, 1877.]

A composition of vaseline and paraffine, substantially as and for the purpose specified.

190,123. GUN-CLEANING BRUSHES. B. L. Budd, Fairfield, Conn. [Filed Mar. 19, 1877.]



1. In a gun-cleaning implement, the combination of a series of disks provided with peripheral knots with a mandrel and suitable clamping devices, substantially as described.

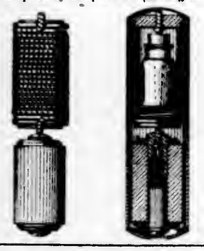
2. In a gun-cleaning implement, the combination of a series of disks provided with knots alternating with disks of thin hard felt with a mandrel and suitable clamping devices, substantially as described.

3. In a gun-cleaning implement, the combination of a series of disks provided with peripheral knots, with a mandrel adapted to be secured to a suitable holder and with clamping devices, whereby the disks may be clamped and held in any desired adjustment in relation to each other, substantially as and for the purpose described.

4. In a gun-cleaning implement, the combination of a series of disks having peripheral knots with a mandrel headed at one end, and adapted to be held against rotation, and at the other having a thumb-nut, whereby the disks may be clamped in position, the said mandrel terminating in a screw suitable for adjustment in a handle, or in one of the joints of the ordinary gun-cleaning rod, or perforated to receive a cord, substantially as and for the purpose described.

190,124. FIELD-WIPERS FOR GUNS. Bern L. Budd, Fairfield, Conn. [Filed Mar. 16, 1877.]

Brief.—A pocket gun-wiper and attachments specially adapted to sporting-arms.



1. The field-wiper consisting of the swab, the string, and the weight inclosed in a close-fitting case, all constructed substantially as described.

2. The combination of the swab, the string, and the cylindrical weight, constructed substantially as described, and adapted for inclosure within a close-fitting cylindrical case, as set forth.

3. The cylindrical weight adapted to serve as a spool, upon which the cord connecting it with the swab may be wound, in combination with the said swab and cord, as and for the purpose described.

4. The cylindrical weight flanged at its ends, and with a notch cut in one of the said flanges next to the point of attachment of the cord, substantially as and for the purpose described.

5. The cylindrical weight attached to the swab, and having an internal receptacle for a bottle of oil, and suitable means for opening and closing said receptacle, substantially as described.

6. The cylindrical weight having a removable bottom or end, to which is attached a vessel of oil, substantially as described.

7. The kit herein described, consisting of the felt swab, the metal shank, the cord, the cylindrical weight, and the inclosed vessel of oil, and their close-fitting cylindrical case, substantially as and for the purpose described.

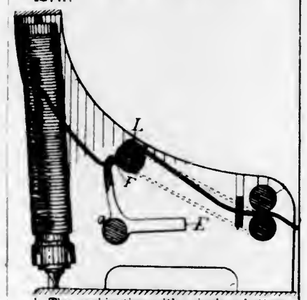
190,125. COMPOSITION EMERY-PASTE. B. L. Budd, Fairfield, Conn. [Filed Mar. 14, 1877.]

A composition of emery and vaseline, substantially as and for the purpose specified.

190,126. COMPOSITION ROUGE-PASTE. B. L. Budd, Fairfield, Conn. [Filed Mar. 14, 1877.]

A composition of the oxide of iron and vaseline, substantially as and for the purpose specified.

190,127. ELECTRIC STOP-MOTIONS FOR DRAWING-FRAMES, &c. John Bullough, Accrington, England. [Filed Mar. 23, 1877.]



1. The combination, with a single or bottom roller, of the system of levers threaded on a shaft, the combination being such that the cotton or thread shall pass between any given lever and the roller, and prevent a metallic connection, substantially as and for the purpose set forth.

2. The levers described, adapted to be threaded upon a shaft, and provided with a spur, E, nose F, and slit H, all substantially as and for the purposes set forth.

3. The rollers provided with a longitudinal rib or ribs, L, and operating in combination with the levers, to lift and drop them suddenly, as and for the purpose set forth

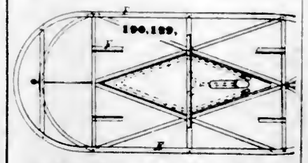
190,128. PROCESSES OF PRESERVING MEAT IN TRANSIT. Jas. Campbell, Chicago, Ill. [Filed July 29, 1876.]

The herein-described process for preserving meats in transit, which consists in packing packages of meat between layers in the following order: first, a layer of sawdust; then a composition of salt, sal ammoniac, niter, and sulphate of soda; then a layer of ice; then a package of meat; then sawdust again, and so on, substantially as described.

190,129. CONSTRUCTION OF BOATS AND VESSELS. A. Crosby, New York, N. Y., assignor to Central Propelling Company, same place. [Filed Feb. 8, 1877.]

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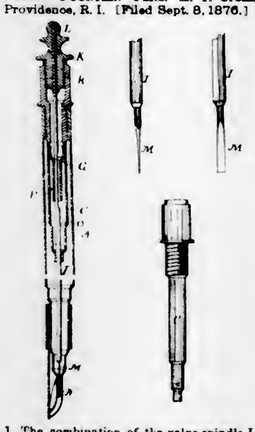
190,129.



1. The combination of the bilge-keel C with the metal frame-work and wooden planking, when the bilge-keel is made an integral part of the strength of the internal frame, and also of the outer skin of the vessel, as herein shown and set forth.

2. A composite boat having a metal frame and wooden planking, in which the frames *a* of the bow and stern are set radially to the curve of contour, as herein shown and described.

190,130. FOUNTAIN-PENS. A. T. Cross, Providence, R. I. [Filed Sept. 8, 1876.]



1. The combination of the valve-spindle I, air tube C, and case A, each part, respectively, being contained within the other, and made separately removable, substantially as described.

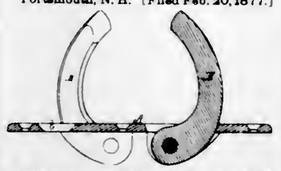
2. The nut K and check-nut L, for regulating the simultaneous opening or closing of the air-vent and the lower valve in fountain-pens.

3. The short annular capillary chamber O, combined with an upper air-chamber having a greater area in its cross-section.

4. The air-tube C, divided into upper and lower chambers by means of the tube F and flange G, forming the inverted annular space P in the lower chamber.

5. The flattened needle M, combined with the tube N, substantially as described.

190,131. ROWLOCKS. Peter A. Danielson, Portsmouth, N. H. [Filed Feb. 20, 1877.]

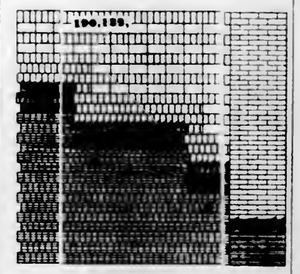


The base A, provided with the recesses *b b*, in combination with the two horns B B, pivoted to the said base, and to operate with respect to each other and the said recesses, all substantially as set forth.

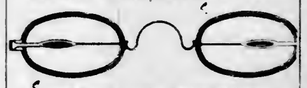
190,132. BRICK-KILNS. H. Dickson, Homestead, assignor to himself and W. S. Colwell, Pittsburg, Pa. [Filed Oct. 7, 1876.]

In a brick-kiln, a series of arches, A B C, increasing in depth from the outside to the center of the kiln, substantially as herein described, and for the purpose set forth.

190,133.



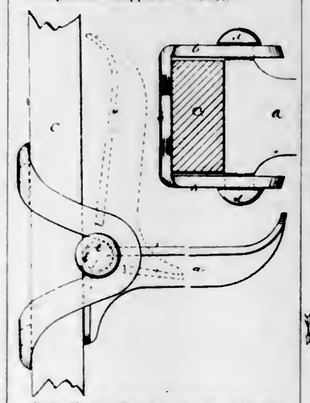
190,133. SPECTACLES. I. B. Doten, Bristol Station, Ill. [Filed Oct. 2, 1876.]



In combination with a spectacle-frame, a revolving secondary frame, *e*, carrying glasses provided with sections having different foci, substantially as and for the purposes specified.

190,134. STILTS. J. B. Ebert, New York, N. Y. [Filed Nov. 9, 1876.]

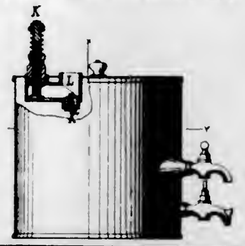
Brief.—The foot-rest is pivoted to the staff-clamp by lugs, which interlock therewith, and has a cam arranged to crowd against the staff when pressure is applied to the rest.

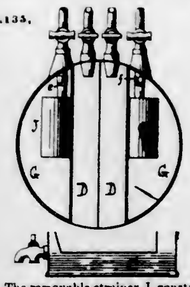


In a stilt, the foot-rest *a*, eccentrically pivoted to the three-sided clamp-piece *c* by means of the projections *d d*, and adapted to form with the staff a readily-adjustable clamp, substantially as set forth.

190,135. TEA AND COFFEE POTS. Robt. A. Gardner, Providence, R. I. [Filed Mar. 13, 1876.]

Brief.—One valve admits water to the vessel, and the other allows escape of steam.



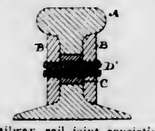


190,135.

1. The removable strainer J, constructed as described, to constitute also a reservoir for the filtered or strained liquid, in combination with the outlet or spout of a tea or coffee urn, substantially as specified.

2. In an apparatus for making tea or coffee, the combination of the following instrumentalities: a water space or boiler, C, for generating steam, a steam chest or space, D, connecting with the boiler, and provided with valves K K' to control the pressure of the steam, and a chamber or receptacle, O, in which the tea or coffee is steeped and retained, receiving its heat from the steam-chest, substantially as described.

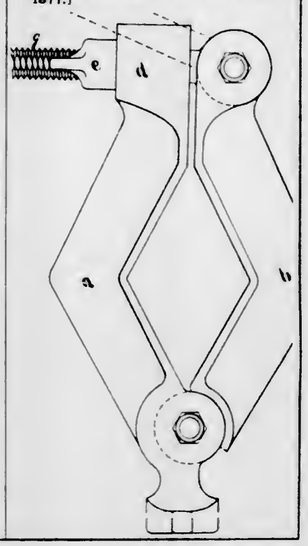
190,136. RAILROAD-RAIL JOINTS. Geo. H. Grant, Richmond, Ind. [Filed Oct. 21, 1876.]



1. A railway-rail joint consisting of the threaded blocks C, threaded fish-bars B, and screw-bolts D, threaded throughout their length, operating in combination with the rails A A, substantially as and for the purpose specified.

2. The combination of the rails A A and threaded bolts D with threaded fish-bars B B, having outwardly curved or bent ends, operating substantially as and for the purpose specified.

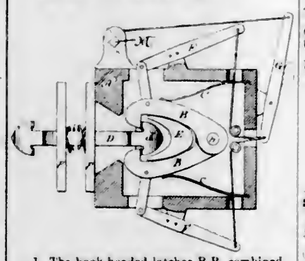
190,137. CARRIERS FOR LATHE-WORK. G. Harman, Philadelphia, Pa. [Filed Apr. 2, 1877.]



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The combination of arms a and b with screw g and nut e, when arranged in the manner described, for the purpose set forth.

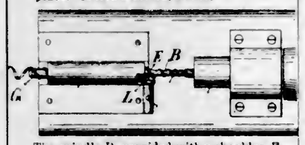
190,138. CAR-COUPLINGS. M. Heines, Fort Sill, Ind. T. [Filed Apr. 10, 1877.]



1. The hook-headed latches B B, combined with the operative shaft M and the connecting mechanism, consisting of levers F F and G, with the connecting cords or chains, as described.

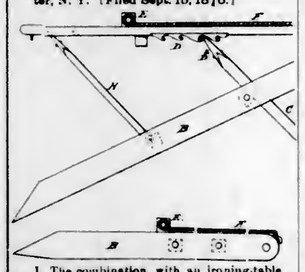
2. The hook-headed latches B B, actuated by springs C C, combined with the draw-bar D, provided with the buffer-plates *p p* and springs, wound one over the other in opposite directions, substantially as set forth.

190,139. WIRE-COILING MACHINES. A. D. Hoffman, Chicago, Ill., assignor to J. E. Whittlesey and J. W. C. Peters, same place. [Filed Mar. 22, 1877.]



The spindle B, provided with a shoulder, E, in combination with a roller, L, for feeding the coil from a smaller to a larger circumference, substantially as specified and shown.

190,140. IRONING-TABLES. B. C. Hotchkiss, Buffalo, and C. W. Hebard, Rochester, N. Y. [Filed Sept. 15, 1876.]



1. The combination, with an ironing-table, of a bosom-stretcher, when one end of table is made to form part of such stretcher, in combination with a device, as set forth, for griping the end of the garment, and stretching, substantially as and for the purpose shown.

2. The additional support H, as shown, combined with the cross-legs B C, and notches I I I.

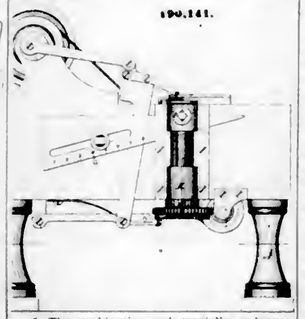
3. The bar E in combination with the cord F, and the ring G, substantially as and for the purpose set forth.

4. The ratchets formed by the hawksbills D, and in combination with the leg C, having metal tips D'.

190,141. MACHINES FOR MANUFACTURING SAWS. Jas. A. House, Bridgeport, Conn. [Filed Apr. 11, 1877.]

Brief.—The machine comprises a vertical slot or guideway, in which is located a tapering and adjustable plate for supporting a saw-blank plate placed edgewise upon it; a pair of rolls operated by ratchet and pawl, for feeding the blank plate forward; a reciprocating cutter operating in the plane of the plate, to cut teeth upon the edge of the plate; and a rotating cutting-disk that shears the toothed ribbon from the plate as the tooth-cutting progresses.

190,141.



1. The combination, substantially as hereinbefore set forth, of a guideway for the saw-blank, and a reciprocating chisel operating upon the edge of the blank, and automatically thrown into and out of operation at intervals, to form series or different sets of teeth with intervening untoothed spaces, whereby a number of blades are toothed at a single traverse of the blank.

2. The combination, substantially as hereinbefore set forth, of the reciprocating chisel and the saw-blank-feeding rollers by which the blank is presented to and firmly held against the thrust of the chisel reciprocating at an acute angle to the edge of the blank above the rollers, to successively cut the teeth thereon, as set forth.

3. The combination of the saw-blank clamping and feeding rollers, the cutter for severing the blank longitudinally into strips to form saw-blades, and the reciprocating chisel for toothing the blank edge, these members being constructed and operating substantially as hereinbefore set forth.

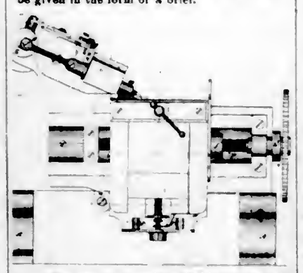
4. The adjustable end-wise-moving anvil for supporting and adjusting the saw-blank, substantially as set forth.

5. The combination, substantially as hereinbefore set forth, of a guideway, in which the blank is traversed, a chisel operating upon the edge of the blank, and reciprocating above in the same plane as and at an inclination to the blank, and an anvil adjustable in the blank guideway, and supporting the blank.

6. The combination of the chisel reciprocating above the traversing saw-blank, the rocking lever, to one end of which the chisel is secured, the vibrating arm, to which said lever is pivoted at its opposite end, and a cam operating upon said vibrating arm, these members being constructed and operating substantially as hereinbefore set forth, to automatically throw the chisel into and out of operation.

190,142. ART OF MANUFACTURING SAW-BLADES. J. A. House, Bridgeport, Conn. [Filed Apr. 11, 1877.]

Brief.—The claims in this case afford a clearer description of the invention than could be given in the form of a brief.



1. The hereinbefore-described improvement in the art of manufacturing saw-blades, which consists in forming the teeth successively by cutting the saw-blade from the edge inward toward the center or back at an acute angle, and pressing out the teeth sidewise alternately to the right and left, substantially in the manner set forth, to cut and set the teeth simultaneously.

2. The hereinbefore-described improvement in the art of manufacturing saw-blades by machinery, which consists in cutting the teeth upon the blank by successive cuts of a chisel operating in the plane of the blank, reciprocating in a path at an acute angle to that traversed by the blank, and acting upon its edge to displace or force up the metal thereof to form the teeth, substantially in the manner described.

3. The combination, substantially as hereinbefore set forth, of a saw-blank carrier traversed step by step in a fixed path, and a chisel reciprocating at an acute angle to and in the plane of the blank, whereby the teeth are formed by forcing up or displacing the metal at the edge of the blank by cutting from the edge inward, as set forth.

4. The combination, substantially as hereinbefore set forth, of a traversing saw-blank carrier, a reciprocating chisel, and the blank-severing cutter, whereby a strip to form a saw-blade is gradually severed from the blank as the teeth are being cut on its edge by the chisel.

5. The combination, substantially as hereinbefore set forth, of a traversing saw-blank carrier, a reciprocating chisel acting upon the edge of the blank to cut the teeth, and the adjustable chisel-carrying frame automatically elevated and depressed to throw the chisel out of operation at the ends of the blank, and hold it in working position to cut the teeth centrally upon the blank.

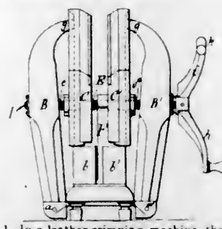
6. The combination, substantially as hereinbefore set forth, of the supporting-frame, the blank-carrier traversing endwise thereof, and in which carrier the blank is clamped and adjusted, the chisel for cutting the teeth, and the cutter for shearing the blades from the blank above the carrier.

7. The combination, substantially as hereinbefore set forth, of the blank-carrier, the reciprocating chisel, and mechanism, substantially such as described, for axially oscillating the chisel in its guideway, to alternately press the teeth in opposite directions as they are cut in the edge of the blank, as set forth.

8. The combination, substantially as hereinbefore set forth, of the pivoted chisel-carrying frame, the chisel reciprocating therein, the pitman connected with the chisel-holder by a swiveling joint, the vibrating arm actuated by a cam on the driving-shaft, and the universal-joint connection between said arm and an arm on the chisel-holder, whereby the chisel is reciprocated and rocked axially, and its frame left free to be elevated and depressed to throw the chisel out of and into operation.

190,143. LEATHER-CRIMPING MACHINES. A. J. F. Howard, Milford, Mass. [Filed Mar. 19, 1877.]

Brief.—The clamping-plates and levers are operated together by a compound right-and-left screw. The plates have each a notch, by which they are loosely connected with nuts that are adjustable on a central screw-rod, whereby the plates may be readily thrown out of parallelism with each other.



1. In a leather-crimping machine, the combination of the jaws or clamp-plates C C' and levers B B' with the compound screw-shaft E and nuts D D' and H H', the arrangement being such that the upper ends of the levers act upon the upper portions of the jaws simultaneously, or thereabout, with the action of the nuts D D' upon the central portion of such jaws, substantially as and for purposes stated.

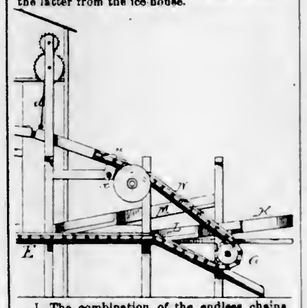
2. In a leather-crimping machine, the compound screw-shaft E, as formed with the twin pairs of right and-left screws *e f* and I I', in combination with and adapted for operating the jaws C C' and levers B B', substantially as and for purposes stated.

3. In a leather-crimping machine, the combination of the clamp-plates C C', screw-shaft E, and nuts D D' and H H', as arranged, so that the position of one or both pairs of nuts, with respect to each other and to said plates, may be varied upon the screw, to adjust the relative vertical positions of the said plates, essentially as and for purposes stated.

4. In a leather-crimping machine, the combination of the compound screw-shaft E and nuts D D' and H H', substantially as herein described, whereby the relative positions of the nuts upon their respective screw-threads may be varied, essentially as and for purposes stated.

190,144. ICE-CONVEYERS. Aug. Hunt, Philadelphia, Pa. [Filed Apr. 4, 1877.]

Brief.—The object of this invention is to readily move ice from a vessel into the ice-house, or from a vessel into wagons, or into the latter from the ice-house.



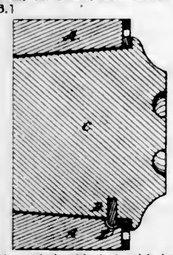
1. The combination of the endless chains and their cross-bars with the inclined guide N and inclined chute K.

2. The combination of the inclined chute L with the platform E, traversed by the endless chains.

3. The combination of the inclined chutes K and L and switch n with the endless conveying-chains and platform E.

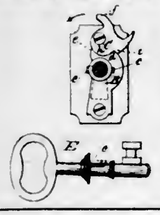
4. The combination of the endless chains and cross-bars with the inclined guide N, inclined chute M, and switch *q*.

190,145. STOVE-FLUE THIMBLE-TILES. W. Kendall, St. Louis, Mo. [Filed May 15, 1876.]



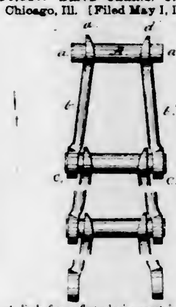
The burned clay block A, with its stopper-hole B and locking-groove E, in combination with the stopper C and its lock-spur D, as and for the purposes herein described.

190,146. KEY-FASTENERS. L. W. Kennedy, Oakland, Cal. [Filed Feb. 10, 1877.]



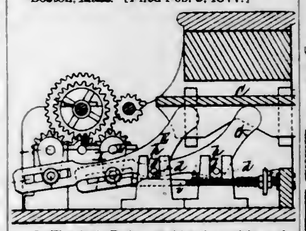
The cover B, formed with opening a, notch *b*, curved seat *d*, and cam *e*, in combination with the plate C, formed with shoulder *h*, stop *i*, lever *f*, and the key E, with shoulders *c*, substantially as and for the purpose set forth.

190,147. DRIVE-CHAINS. J. F. Kingwill, Chicago, Ill. [Filed May 1, 1876.]



A link for a flat chain, cast in one piece and consisting of the cross-bar A, with flanges *d d'* and projecting ends *a a'*, and the draw-bars *b b'*, eyes or hooks *c c'* at their inner ends, formed as described, to adapt them to receive the projecting ends of an adjacent link, substantially as and for the purpose set forth.

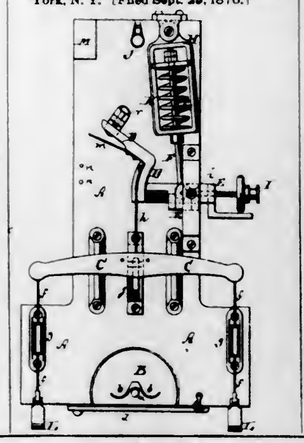
190,148. EMBOSSING-PRESSES. D. Koenig, Boston, Mass. [Filed Feb. 9, 1877.]



1. The bed C, in combination with, and raised by, the four levers E E G G, upon which it bears at four separate and independent points, substantially as and for the purpose set forth.

2. The wedges *i*, connected together and operated simultaneously by the screw *u*, in combination with the bearing-blocks *d* and levers E E G G, substantially as and for the purpose described.

190,149. HEALTH-LIFTS. A. W. Lozier, Orange, N. J., assignor, by mesne assignments, to Mrs. J. de la M. Lozier, New York, N. Y. [Filed Sept. 29, 1876.]



1. In a lifting apparatus, the combination of the lever C, carrying the friction-roller *b*, with the weighted bar F, having the toe *h*, substantially as specified.

2. The combination of the vibrating lever C with the trigger *i* and hammer *j*, substantially as and for the purpose set forth.

3. The adjustable weight G, made with hollow ends, and provided with gates *n*, as specified.

4. In a health-lift, the chain-lock, composed of the chamber *o*, and latches *q* and *r*, substantially as specified.

5. The combination of the lifting-machine handle with the adjustable rings *u u*, as specified.

1. In a health-lift, the combination of the bed-plate A with the vertically-adjustable heel-plate B and screw *a*, substantially as specified.

2. The adjustable heel-plate B, combined with the recessed bed-plate A, substantially as described.

3. In a health-lift, the combination of the horizontally-movable equalizer-bar C with the handles L L, cord A, and segmental lever D, substantially as specified.

4. The combination of the segmental lever D with the adjustable slide E and spring-plunger F, substantially as described.

5. In combination with the lever D of a health-lift, and with the vibrating clapper *m*, the fixed pin *n*, all arranged to constitute an alarm attachment, substantially as specified.

6. In combination with the segmental lever D and adjustable slide E, the adjustable stop *r*, substantially as specified.

7. The chain-fastener composed of the L-shaped recess *t* and gate *u*, substantially as specified.

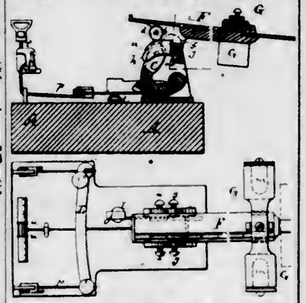
8. The handle L, in combination with the adjustable block *w*, over which the chain is placed, substantially as specified.

9. In the handle L, the combination of the rigid gripe-bar *c* with the upper elastic and flexible pad *y*, substantially as specified.

10. In the handle L, the combination of the rigid gripe-bar *c* with the upper elastic and flexible pad *y* and adjustable clamp or fastener *z*, substantially as specified.

11. The vertically-adjustable time-glass J, arranged on a supporting-rod, in combination with a health-lift, substantially as described, and for the purpose specified.

190,150. HEALTH-LIFTS. A. W. Lozier, Orange, N. J., assignor, by mesne assignments, to Mrs. J. de la M. Lozier, New York, N. Y. [Filed Sept. 29, 1876.]



1. In a health-lift, the combination of the lever C, carrying the friction-roller *b*, with the weighted bar F, having the toe *h*, substantially as specified.

2. The combination of the vibrating lever C with the trigger *i* and hammer *j*, substantially as and for the purpose set forth.

3. The adjustable weight G, made with hollow ends, and provided with gates *n*, as specified.

4. In a health-lift, the chain-lock, composed of the chamber *o*, and latches *q* and *r*, substantially as specified.

5. The combination of the lifting-machine handle with the adjustable rings *u u*, as specified.

190,151. EXERCISING-MACHINES. A. W. Lozier, New York, N. Y., assignor, by mesne assignments, to Mrs. J. de la M. Lozier, same place. [Filed Feb. 8, 1877.]

1. The combination of the bed-plate A with the curved lever B, which, by its pivoted member *d*, connects with the tension spring or device D, said spring being contained within the hollow of the curved lever, and interposed between the operating-bar and the pivot *b*, substantially as specified.

2. The combination of the curved lever B with the adjustable box C, which connects with the resisting spring or weight D, substantially as herein shown and described.

3. The combination of the curved lever B with the adjustable box C, spring D, and pivoted plate *h*, substantially as herein shown and described.

4. The wedge *t'*, combined with plate *h*, for the purpose of shortening or lengthening the spring, and securing it when so adjusted, substantially as shown and described.

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5. The curved lever B, having its portion *d* made corrugated or roughened, and combined with the sliding box C, set-screw *f*, and elastic friction plate *e*, substantially as specified.

6. The combination of the curved lever B, and operating-handle E, with the stop *x*, which is applied at or near the pivoted end of said lever, substantially as herein shown and described.

7. The combination, in a health-lift, of the segmental portion *d* of curved lever B with the hollow box F, containing the ball *q*, substantially as specified.

8. The combination, in a health-lift, of the operating chain *j*, with the handle-shank *l*, the shank having the locking wedge *m*, and friction spring *n*, substantially as shown and described.

9. In a health-lift, the combination of the curved lever B, with the sliding index *u*, and chain or cord *t*, substantially as specified.

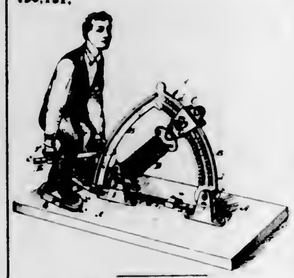
10. In a health-lift, the foot-support G, constructed of a layer of felt, *a'*, and a layer of rubber, *b'*, substantially as herein shown and described.

11. The surrounding frame *d'*, combined with the felt layer *a'*, and the rubber layer *b'*, substantially as specified.

12. In a health-lift, the combination of a curved lever, B, having a graduated scale and a sprig, with the pivot-pin *z'*, to which the curve of said lever is concentric, substantially as described.

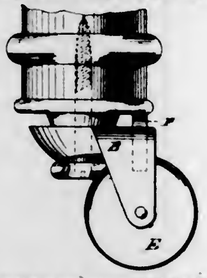
13. The handle E, made with the central threaded projection I' for connection with the threaded shank *l*, and combined with the sliding handles *g' g'*, that have sockets, and are fastened by set-screws, substantially as specified.

190,151.



190,152. FURNITURE-CASTERS. Alex. C. Martin, Hamilton, Ohio. [Filed Sept. 16, 1876.]

Brief.—The frame, which carries double caster-wheels and a single friction-wheel, oscillates by means of an elliptical bearing, and thus adapts itself to irregularities of the floor.



A furniture-caster composed of the following elements: the floor-wheels E E, the anti-friction pivot-wheel F, the housing B, the elliptical housing-opening, or its mechanical equivalent, and the rocker-formed collar-bearing, or its mechanical equivalent, all combined so as to allow the floor-wheel axis to oscillate horizontally, substantially as and for the purpose specified.

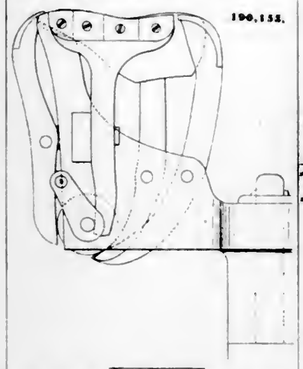
190,153. PROCESSES OF MAKING SHOES. G. McKay, Cambridge, Mass. [Filed Dec. 11, 1876.]

1. In the manufacture of boots and shoes, first lasting the upper over the last and inner sole by means of a lasting-machine, and then applying to the lasted shoe while in the lasting-machine a sole set or studded with nails, and then further driving the nails into the outer sole and into the upper and inner sole, substantially as described.

2. In the manufacture of boots and shoes, the process of applying a sole, loaded or set with nails, as described to a lasted shoe having its upper held in position by the lasting devices of a lasting-machine, and then driving the nails held by the outer sole into the upper held by the lasting devices, or into the upper and inner sole, substantially as set forth.

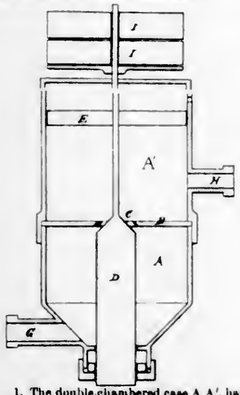
3. In the manufacture of boots and shoes, the described process of attaching the outer sole to the upper and inner sole by a series of nails or metallic fastenings held by, and partially driven into, the outer sole, from which they are subsequently driven into the upper and inner sole, while the lasting devices hold the upper about the last and inner sole, substantially as described.

190,154.



190,154. WATER-GOVERNORS. C. Neeb, Indianapolis, Ind. [Filed Feb. 26, 1877.]

Brief.—When the valve is loaded so as to hold it down, and leave the opening clear open under a minimum pressure, it will be raised by any increasing pressure acting on the plunger, thereby diminishing the opening in proportion to the increased pressure, and, consequently, the flow of the water.

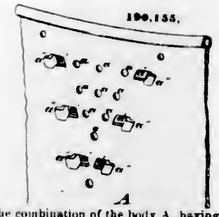


1. The double chambered case A A', having the partition B with its opening C, and having connections G H with the service-pipe, as shown, in combination with the valve D and plunger E, arranged and operating substantially as and for the purpose set forth.

2. In combination with the chamber A, piston E, and weights I, the valve D, extending through the bottom of chamber A, as and for the purpose described.

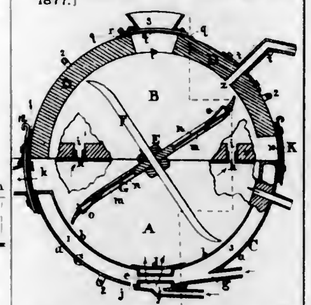
190,155. LIPS AND STRAINERS. Fredk. G. Niedringhaus and Wm. F. Niedringhaus, St. Louis, Mo. [Filed Apr. 2, 1877.]

190,155.



The combination of the body A, having the perforations *a a* and *a' a'*, and the flanges *a'' a''*, and the lip B, having the flanges *b b*, substantially as described.

190,156. FEATHER-RENOVATING MACHINES. M. L. Palmer, Trivoli, Ill. [Filed Mar. 28, 1877.]



1. The hollow circular sides or heating-chambers on each side of the feather-chamber, with pipes *w h*, separable in the middle horizontally, and respectively clamped against an intermediate ring composed of two half-cylinders, the whole inclosing a central feather-chamber, substantially as and for the purposes described.

2. The four hollow half-sides A B A B, or heaters, inclosing a central feather-steaming chamber and stirrer, with steam-ducts *w h*, in combination with the segmental or semi cylinders C D, the lower one made hollow to receive steam as a heater, substantially as and for the purposes described.

3. The hollow half-sides A B, with steam-pipes *w* and connecting-pipes *h*, (acting also as connecting-pins or nipples, to unite the adjoining half-sides,) arranged with segmental half-cylinders C D and their four openings K *p k d* into the feather-chamber, and induction-pipe *f''* and eduction-pipe *t* into and from said chamber, substantially as and for purposes described.

4. The hollow segmental or semi cylinder C, with steam-pipes *g s*, screen *d*, in combination with and clamped between the lateral chambers A A, provided with flange 8, substantially as and for the purposes described.

5. The upper semi-cylinder D, with opening *p* for feathers, and eduction *s t t'* for steam, extending entirely through it into the feather-chamber, in combination with lateral half-sides B B and clamps 2.

6. The combination, with the shell A B C D, the sliding spout *J* and its screen *l* and door 12, and the sliding hopper *s*, its screen *q* and door *r*, and the door K and screen 10, substantially as described.

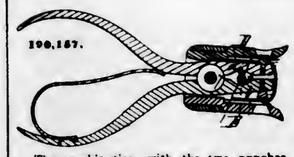
7. The combination, with the hollow chamber C, the sliding door *f*, pierced with induction-pipe *f''* to feather-chamber, substantially as and for the purposes described.

8. The stirrer having large openings *m* in each arm G, filled with sliding slats *n*, for the purpose of forming or constituting a convertible feather-stirrer and blower or fan, substantially as and for the purposes described.

9. The stirrer F G E, having large openings *m* in two of its arms G, closable by means of movable slats *n*, followed by narrower arms F, all the arms being curved in the direction of rotation when used as a stirrer, substantially as and for the purposes described.

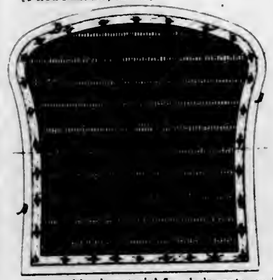
190,157. TICKET-PUNCHES. C. E. Parks, North Somerville, Mass. [Filed Feb. 23, 1877.]

190,157.



The combination, with the two punches consisting of the jaws *a b* D E, provided with male and female dies, of mechanism adapted to operate substantially as described, whereby one punch may be rendered inoperative without changing its position while the other is in use, as and for the purpose specified.

190,158. CHAIR-SEATS. J. N. Provensano and S. de Gaetano, New York, N. Y. [Filed Jan. 26, 1877.]



The combined material for chair-seats, and for similar purposes, herein described, consisting of an outer facing of woven rushes or matting, of the character herein designated, and a backing of canvas or other textile material, arranged and combined substantially in the manner and for the purposes set forth.

190,159. NON-CONDUCTING FELT. Squires Radcliffe, Little Falls, N. J. [Filed Nov. 13, 1876.]

The felt hereinbefore described, composed of the fiber of cat-tail flag and hair, and having a portion of its thickness made either of hair alone, or having a greater proportion of hair mixed with the fiber of cat-tail flag than that contained in the remainder of its thickness, substantially as hereinbefore set forth.

190,160. STEREOSCOPES. M. J. Rice, Boston, Mass., assignor to himself and J. L. Bates, same place. [Filed Feb. 27, 1877.]



1. In combination with the stereoscope A and its handle E, the screw *d* (projected from the latter,) and the piece C, fixed to the instrument and provided with a socket, *b*, to receive the projection *c* of the hinge-arm D, and with a female screw to receive the screw *d* extended from the handle.

2. The arm D, hinged to the stand B, and provided with the tenon *c*, in connection or for use with the piece C, provided with the tenon-socket *b*, having the screw *d* of the handle E applied to it, as set forth.

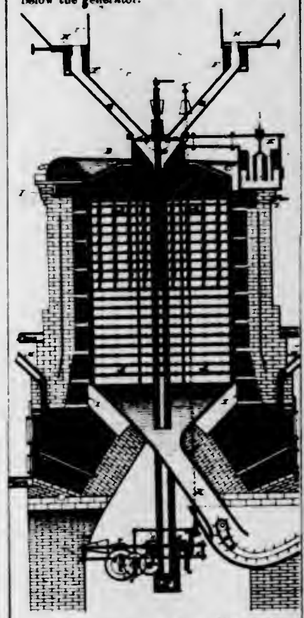
190,161. SLEEVE OR CUFF BUTTONS. Chas. H. Rose, Providence, R. I. [Filed Nov. 25, 1876.]



The combination, substantially as set forth, of the button-body and the bar or plate beneath, provided each with a hook, and joined together by the shank of the button-body hook as a pivot, the combination being and acting substantially as specified.

190,162. GAS-GENERATORS. T. S. Stewart, Philadelphia, Pa. [Filed June 13, 1876.]

Brief.—Fine coal is spread in thin layers, by a distributing device, upon successive series of "louvers" or pivoted plates, forming generating-beds, where it is rapidly distilled, the gas passing into an inclined heated hydraulic main, having condensing and delaying plates, where the volatile vapors of the tar are given off and mixed with the gas. The coke remaining after distillation falls into a water-sealed chamber, from which it is removed by an endless carrier, and fed to the fire-boxes below the generator.



1. The gas-generating beds or floors A, &c., formed by combination of ranges of pivoted louvers U, &c., placed in vertical tiers surmounted above each other, forming compartments of any required size, number of tiers, or of any horizontal sectional form, inclosed in an outer gas-tight case or retort, T, with mechanism for operating the same, substantially as hereinbefore described and shown, for the purposes set forth.

2. The adjustable chutes or directors of the flow of coal, formed by the pivoted vertical louvers B', placed around the circumference of the horizontal revolving box or case B, whether operated with the full circle of louvers, or of any segmental part thereof, substantially as hereinbefore described and shown, for the purposes set forth.

3. The combination of the adjustable chutes or directors B', with the revolving box, inclosed horizontal revolving disk-wheel B (Figs. 12 and 13) hopper D, coal feed-regulating valves V, with mechanism for operating the same, substantially as hereinbefore described and shown, for the purposes set forth.

4. The series of projecting check ribs forming the evaporatora C, fixed in inversely-inclined order upon the bottom plate inside of the inclined hydraulic main C'', substantially as hereinbefore described.

5. The oblique vertical deflecting condensers C', formed and arranged in V-shaped series on the inside of the hydraulic main C, substantially as hereinbefore described.

6. The combination of generating-beds A, distributer B, feed-valves V, conduits G, hydraulic connections F, weighing-bins H, with the mechanism for operating and effecting the self-charging and discharging of each louver-formed generating-bed in succession, substantially as hereinbefore described and shown, for the purposes set forth.

7. The combination of numerous ranges of louver formed carbonizing-bed A, automatically worked within the sealed gas-tight case or retort T, receiving their charge of coal and discharging it when coked without opening said retort, or the admittance of atmospheric air, with mechanism for operating the same, substantially as hereinbefore described and shown, for the purposes set forth.

8. The combination, throughout the interior of the inclined hydraulic main C'', placed over and heated by the hot-air flues I, of a series of condensers, C', and evaporatora C, for the recovery by distillation and evaporization of the liquid hydrocarbons condensed and carried down by the tar, &c., substantially as hereinbefore described and shown, for the purposes set forth.

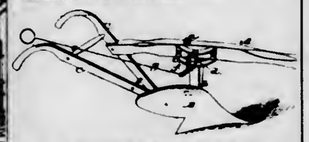
190,164. CHECK-HOOKS FOR HARNESS. S. W. Stickney, Buffalo, N. Y., assignor to Pratt & Letchworth, same place. [Filed Mar. 17, 1877.]



The hook A, formed with the transverse cross-bar C, stud *c*, and rear loop D, whereby the strap is laced and secured, substantially as hereinbefore set forth.

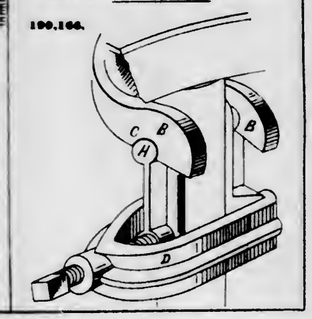
190,165. PLOW-CLEANING ATTACHMENTS. Jas. H. Storm, Mitchellville, Iowa. [Filed July 25, 1876.]

Brief.—The cleaner held against the front and land side of the standard by a spring drawn front and toward the furrow by a handle attached to its horizontal arm.



As an improved article of manufacture, a plow-cleaning attachment, composed of the bent and pivoted weed-catcher *b*, having an elbow-form branch, *f*, and handle *g*, the skeleton bracket *c*, and the spring *d*, substantially as and for the purposes shown and described.

190,166.



190,166. TIRE-TIGHTENERS. F. T. Stone, Greenfield, Wis. [Filed Mar. 16, 1877.]

1. The lever A, provided with the bifurcation shown, and the eccentrics H H and bearings C C, substantially as specified.

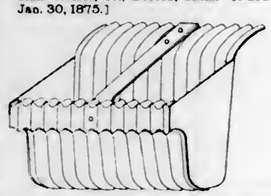
2. The combination of lever A, jaws F and G, constructed with round pivotal projections H H, and clamp D, constructed as described, and provided with screw E, as and for the purposes specified.

190,167. BARBED FENCE-WIRES. Danl. C. Stover, Freeport, Ill. [Filed Jan. 6, 1877.]



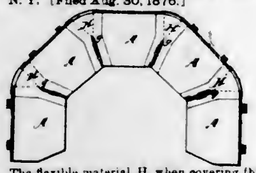
The barb B, having the single turn or wrap *a* around the main wire, and the locking quarter-turns *b* and shoulders *c*, in combination with the main wire A, substantially as and for the purposes specified.

190,168. GUTTERS AND MOLDINGS. Herman Strater, Jr., Boston, Mass. [Filed Jan. 30, 1875.]



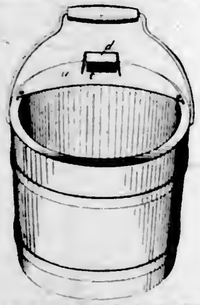
A gutter constructed of corrugated sheet metal, the corrugations of which shall be transverse to it, and a cross-section of the gutter shall form an ogee or similar molding, as shown and specified.

190,169. SETTEES. A. Taylor, New York, N. Y. [Filed Aug. 30, 1876.]



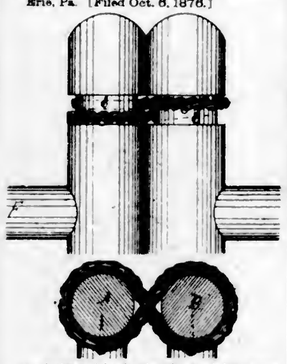
The flexible material H, when covering the angular spaces between the settees, in combination with the sections A A, hinged together, substantially as described, and for the purpose set forth.

190,170. STRAINER-PAILS. W. H. Thrift, Newton, Iowa. [Filed Jan. 4, 1877.]



As an improved article of manufacture, a wooden bucket having a combined straining and pouring device, *a c d*, rigidly attached and tightly joined by embedding the metallic flange *b* in the top edges of the wooden staves, substantially as and for the purposes specified.

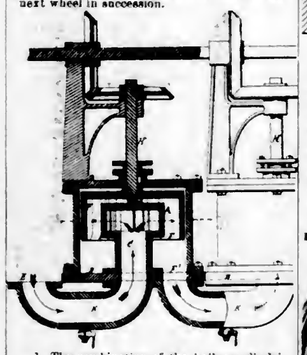
190,171. CLOTHES-DRIERS. G. S. Walker, Erie, Pa. [Filed Oct. 6, 1876.]



A clothes-drier having its upright posts united by a flexible metallic loop passing around each post, and crossed upon itself between said posts, to which it is secured by nails, or equivalent devices, all as and for the purposes described.

190,172. COMBINING AND OPERATING A SERIES OF TURBINE WATER-WHEELS. J. T. Welham, Philadelphia, Pa., administrator of T. Welham, deceased, assignor to R. Burr, same place. [Filed Oct. 9, 1876.]

Brief.—A hollow cylindrical head provided with chutes and openings in the sides, for directing the water onto the buckets, and a vertical conduit at the bottom of the supply, is placed in the interior of each wheel, and is inclosed with the wheel in an air-tight casing. The wheel and the head are elevated above the bottom of the casing, and the supply-water, after passing onto the buckets, is discharged at the lower part of the wheel, and, falling into the bottom of the casing, flows from thence through a suitable conduit to the next wheel in succession.



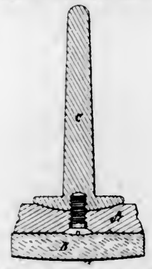
1. The combination of the hollow cylindrical head A, turbine wheel F, and hollow column C, with the bed-plate D, provided with induction and eduction openings, and horizontal return-bends or conduits E and E′, substantially as shown and described.

2. The combination of the hollow column C, head A, turbine wheel F, pivot and step *d*, and vertical spindle H, substantially as shown and described.

190,173.



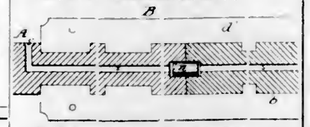
190,174. BOOT AND SHOE SOLE BUFFERS. F. Winslow, Salem, Mass., assignor to himself, J. W. Rogers, and S. W. Winslow, same place. [Filed Mar. 21, 1877.]



1. The rotary shoe-sole buffer, substantially as described, composed of the supporting wooden conic frustum A and the felt disk or conic frustum B and its abrasive covering *a*, arranged and applied essentially as set forth.

2. The combination of the shank C, the wooden frustum A, the felt frustum B, and the abrasive covering *a*, all arranged and applied substantially as shown and described.

190,175. CAR-AXLES. W. Winslow, Lowville, N. Y. [Filed Mar. 21, 1877.]



1. The combination of the sections A A′, their annular grooves, recesses, and channels *s s′*, the box B divided longitudinally, and adapted and applied to the axle and secured by transverse bolts, as set forth, and the pin *n*, fitting coinciding recesses in both sections, all as described.

2. The box consisting of the sections *d d′*, adapted to the axle, its projections and grooves, each section having longitudinal ribs *s* and transverse ribs *s′*, as set forth.

190,176.



190,178. PRUNING-SHEARS. H. T. White, Buford, Ohio. [Filed Jan. 19, 1877.]

Brief.—A hook of peculiar construction is removably attached to the fixed blade or jaw of the ordinary pruning-shears.

In combination with the stationary blade of pruning-shears, the detachable hook H, secured by a bolt and lug, K, in the holes in said stationary blade, the hook-edge for cutting on upper side, all as and for the purposes set forth.

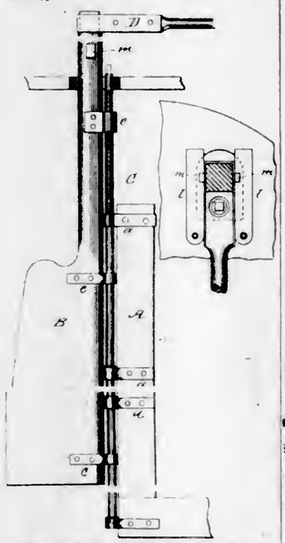
190,176. THANSOM-OPENERS. J. F. Wollensak, Chicago, Ill. [Filed Mar. 17, 1877.]

Brief.—As an improvement on the three several Patents Nos. 136,801, 148,538, and 184,125, dated, respectively, March 11, 1873, March 10, 1874, and November 7, 1876, the operating-rod is adapted both to slide vertically and to partially rotate, and there is also provided, in combination with the crank-connections, a vertically-engaging pin and plate, coacting with the set-screw at the lower end of the rod, to form a double locking device; the construction, when the set-screw is released, permitting the opening or closing of the transom laterally by partial rotation of the rod, or locking and unlocking by vertical movement of the same.

1. The combination of the rod R, the crank-connection *r s* of the transom, and the vertically-engaging pin *n* and plate *m*, whereby the transom is locked or unlocked by the vertical movement of the rod, and opened or closed by the partial rotation of the rod, substantially as described.

2. The combination of the rod R and crank-connection *r s* of the transom, locking or unlocking by the vertical movement of the rod, with the set-screw at the lower end of the rod, whereby the lock is prevented from being operated from the outside, substantially as described.

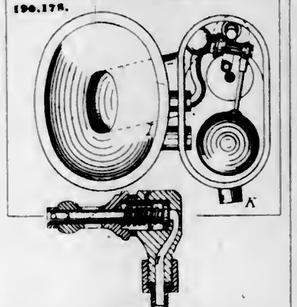
190,177. STEERING APPARATUS. Edward L. Young, Norfolk, Va. [Filed Mar. 29, 1877.]



1. The rudder B, with shoulders *m*, in combination with the pivoted or swinging bars *l*, substantially as and for the purpose specified.

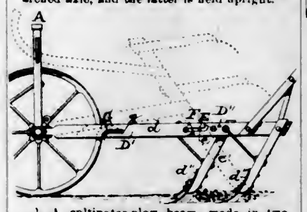
2. The rudder B, secured to the stern post A by gudgeons *a c* and screw-rod C, with screw sleeve *e*, in combination with shoulders *m* upon the rudder, and the swinging bars *l*, substantially as and for the purpose set forth.

190,178.



190,179. CULTIVATORS. R. W. Alexander, Galesburg, Ill. [Filed Nov. 9, 1876.]

Brief.—Plow-beams in two parts—one sliding into the other. The rear part is drawn back and held rigid for work by means of curved slots and studs. When pushed forward the rear part turns up, and forms a runner for holding the plows elevated, and transporting the machine from place to place. The handles are provided with rests upon the arched axle, and the latter is held upright.



1. A cultivator-plow beam, made in two parts, D′ D″, the latter made to slide back and forth within the former, as described, and having its forward end formed as a shoe or runner, substantially as and for the purpose specified.

2. The plates *d d*, having slots G and bolt F, arranged to operate with the beam D″, having slot E and studs *g*, substantially as described, and for the purpose specified.

3. The hook *a* on the side of the axle A, combined to operate with the hinged plow-beams D D, substantially as described, and for the purpose specified.

190,179. WATER-CLOSETS. J. Zane, Boston, Mass., assignor of one-half his right to F. Roach, same place. [Filed Feb. 17, 1877.]

Brief.—The shape of the outlet-pipe allows of sufficient inclination without making the seat of undue height.

1. In a reservoir water-closet, the combination of reservoir B with the bowl A, by means of the inclined outlet C of less vertical than horizontal measure, and fitted and formed to receive the bowl A, substantially as described.

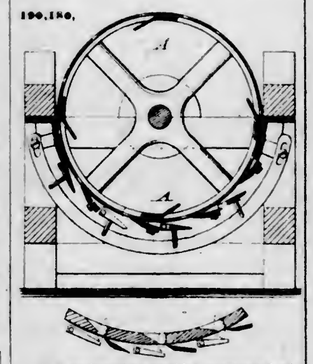
2. The described means of ventilating the reservoir B and bowl A by the communication I between the reservoir and bowl, and the communication K from the reservoir to a ventilating-flue, substantially as described.

3. The spring compression-cock herein described, in which the valve is compressed to the seat against the flow of the water solely by an independent spring, and the spring pressure is relieved and the valve raised by single-acting screw-cams rotated against the pressure of the spring by a short-handled ball deeply immersed, and with very slight power of flotation.

4. In a reservoir water-closet, the combination of the covered reservoir B, automatically supplied with water discharged into the bowl, and regulated in quantity by mechanism in the reservoir, and having a gas-escape, I, provided between the reservoir and bowl, with a soil-pipe, D, whose capacity for discharge is sufficiently in excess of the water-supply to create a draft through said communication I during the discharge of bowl, substantially as and for the purpose described.

5. The combination of the stench-trap *c*, with the cock *h*, provided with a hole for the escape of water into the top of the stench-trap, when the cock is open, whereby the water-seal in the stench-trap is prevented from being broken by evaporation, substantially as and for the purpose described.

190,180.

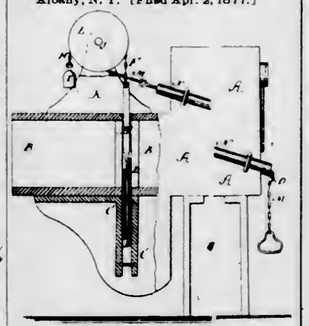


1. A grain-cutting machine constructed of an inclined revolving cylinder or reel, having exit holes for the grain, of adjustable guard-plates, and of fixed cutting-knives, all arranged and operated substantially as and for the purpose specified.

2. The combination of the pivoted guard-plates, having fixed rods or lugs, with the arc-shaped adjusting plate or band, secured by clamp-screws at the slotted ends, to regulate distance of guard-plates from cylinder for cutting different grades of meal, substantially as herein specified.

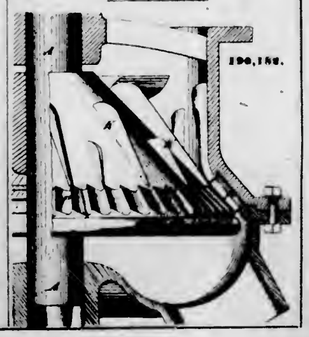
3. The revolving cylinder A, having exit perforations with straight ends toward the cutting-knives, and countersunk or tapering ends at the opposite sides, for the purpose herein specified.

190,181. DRAFT-REGULATORS. T. Baker, Albany, N. Y. [Filed Apr. 2, 1877.]



The combination of the open-bottomed case C, the damper, bar, and chain, D E F, the weight and chain I H, the pulleys and shaft G L J, and the chain, guard, and pin M N O, with each other and with the flue B of a furnace, A, substantially as herein shown and described.

190,182.



190,180. GRAIN-REDUCING APPARATUS. O. Bailey, Akron, Ohio. [Filed Mar. 24, 1877.]

Brief.—Revolving cylinder, provided with perforations countersunk on inside, feeds the grain-kernels to fixed knives, which present their cutting-edges close to the outer periphery of the cylinder. The length of the projecting kernel portion to be sliced off is regulated by adjustable guard-plates, thus providing for the manufacture of different grades of meal in the same apparatus.

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190,182. BARK-MILLS. Wm. H. Barber, Allentown, Pa. [Filed Jan. 29, 1877.]

Brief.—Clamps the toothed segments in their seats by means of dovetailed tenons and mortises.

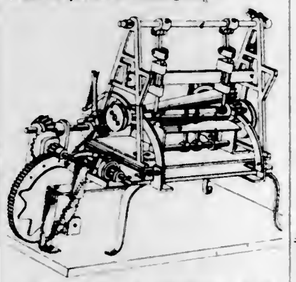
The combination, in a bark-mill, of detachable grinding-segments P, having dovetail tenons, with an external casing and a revolving wheel, having dovetail grooves or seats to receive said segments, substantially as and for the purpose set forth.

190,183. PAINT COMPOSITION FOR ROOFS. A. Blaisdell, Nashua, N. H. [Filed Mar. 10, 1877.]

The roof paint composed of gas-tar, wood-tar, naphtha, and solution of iron, substantially as above described.

190,184. QUILTING-MACHINES. A. Beck, New York, N. Y., assignor to L. Dryfoos and J. Dryfoos, same place. [Filed Feb. 27, 1877.]

Brief.—The cloth is fed forward by means of feed-rolls actuated by a peculiar clutch arrangement, set forth in the claims, and the frame carrying the needles is moved laterally by a pitman and eccentric, and similar clutches on the shaft carrying the eccentric, actuated one in one direction by a cam-plate on one side of the pattern-wheel, and the other in the reverse direction by another cam on the opposite side of the pattern-wheel, said cams being removable from said wheel. Also an improved presser-foot arrangement.



1. The combination, substantially as set forth, with a series of vertically-reciprocating needles, of a like number of vertically-yielding and elastic annular presser-feet, one for each needle, each presser-foot surrounding its needle, and attached to and moving with the needle bars or holder, and rising from the cloth-plate when the feed takes place.

2. The combination of the laterally-reciprocating sewing-frame and independent forward feed with a series of needles carried by said sewing-frame, and a like number of vertically-yielding annular presser-feet, one for each needle, each presser-foot surrounding its needle, and attached to and moving with the needle bar or holder, as shown and set forth.

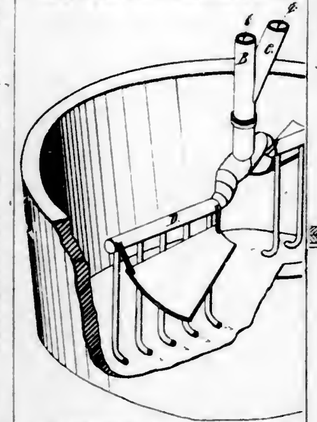
3. The described mechanism for operating the feed, consisting of a friction-clutch, clasping the feed-shaft, in combination with a vibratory pivoted lever, supported on one end of the clutch, and having one of its arms overhanging, but not attached to, the other and free end of the clutch, substantially as set forth, so that the movement of said lever shall cause the clutch first to close upon the shaft, and then to rotate the same, as set forth, and this I claim whether the said mechanism be used to operate the forward or the lateral feed.

4. The combination of the friction-clutch, the feed-shaft embraced by the same, and the vibratory lever, provided at that end which acts on the clutch with means of adjustment, whereby the lost motion of the lever may be increased or decreased at pleasure, to regulate the length of the feed.

5. The combination, with the sewing-frame, of the pattern-wheel and removable pattern-cams, one set on each face of the wheel, the one set designed to move the sewing-frame in one direction, the other set in the other direction, each set acting alternately on the frame, and both being removable to allow different sets of pattern-cams to be interchangeably used on the same wheel.

6. The pattern-wheel, with removable pattern-cams, one set on each face of the wheel, in combination with friction-clutches and their operating-levers, one set for each set of pattern-cams, and a rock-shaft, on which said clutches are mounted, connected with and imparting a laterally-reciprocating movement to the sewing-frame, substantially as herein shown and set forth.

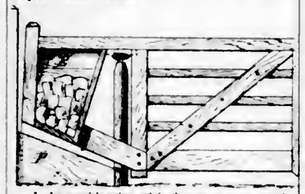
190,185. MASHING-MACHINES. J. Brandenburg, Oxford, Ohio. [Filed Oct. 9, 1876.]



The combination, in a tubular mash-rake, of the two inlets B and C, communicating with the horizontal tubes D D, with the curved tubes E E E open at their curved ends only, and delivering steam, air, or water near the bottom of the mash-tub only, and in a nearly horizontal direction, substantially as described.

190,186. SWINGING GATES. Jno. R. Brott, Seneca, N. Y. [Filed Feb. 21, 1877.]

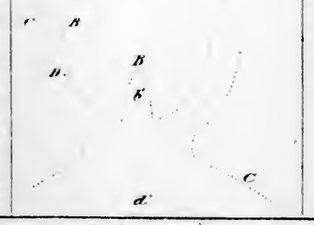
Brief.—The weighted end of the gate is braced at an angle and astride of the post upon which it turns.



1. In combination with the gate proper and the upper beam thereof, the weight-receptacle, secured to said beam, and provided with braces at its lower end, straddling the standard upon which the gate is pivoted, and secured to the lower portion of the gate proper, substantially as herein set forth.

2. In combination with the weight-receptacle of a gate and the supporting-standard and fence post, the board P, for preventing the accumulation of snow or dirt below the receptacle, or the passage of small animals under the same, substantially as set forth.

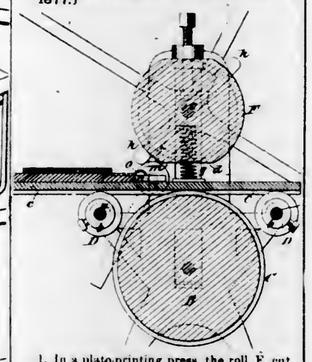
190,187.



190,187. WATER-CLOSET PROTECTORS. B. R. Brown, Petersburg, Va. [Filed Jan. 13, 1877.]

A sheet of paper provided with two circles or lines, B C, of punctures, forming a ring, D, having an inwardly-projecting narrow flap, *b'*, and an outwardly-projecting wide flap, *d'*, substantially as herein shown and described.

190,188. PLATE-PRINTING PRESSES. H. W. Browne, Philadelphia, Pa. [Filed Mar. 3, 1877.]

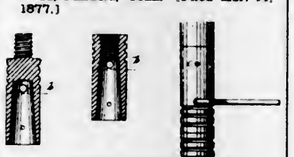


1. In a plate-printing press, the roll F, cut away or flattened at two opposite sides, to permit of making two impressions by one revolution of the roll, in combination with the disk H, having arc-slot *j* and arms *k k*, substantially as herein shown and described.

2. The combination of the disk H, having the slot *j*, the arms *k*, screw *l*, roll F, wheel *m*, slotted plate *n*, and table E, substantially as herein shown and described.

3. The combination of the bed E, having the central groove *c*, the roll B, having the collar C, and the wheels D, substantially as herein shown and described.

190,189. GUN-CLEANING RODS. Bern L. Budd, Fairfield, Conn. [Filed Mar. 14, 1877.]



1. A gun-cleaning rod made in parts, each part bearing a male or female screw coupling, riveted thereto, and having an aperture, *c*, extending through the coupling between the end of the rod and the bottom of the tapered hole in the coupling, substantially as described.

2. A gun-cleaning rod-coupling, having the perforations *c* for rivets or pins, and a perforation, *b*, for a wrench, substantially as and for the purpose set forth.

3. A jointed gun-cleaning rod, which has upon the surface of the couplings circumferential grooves or rings, which vary and correspond in number at and designate the mating-joints, substantially as and for the purpose described.

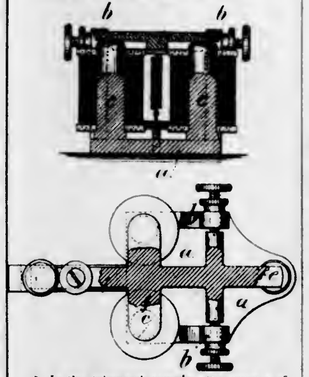
190,190.



190,190. CARTRIDGES. B. L. Budd, Fairfield, Conn. [Filed Oct. 12, 1876.]

A cartridge-shell having fine circumferential grooving or chasing immediately above the portion which receives the explosive material, substantially as and for the purpose described.

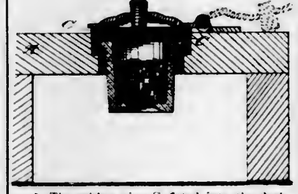
190,191. TELEGRAPH-SOUNDERS. Jesse H. Bunnell and Miles W. Goodyear, New York, N. Y. [Filed Mar. 6, 1877.]



1. In the telegraph-sounder, the cores *c* of the electro-magnet, and the frame *a* and standards *b*, made in one piece of malleable cast-iron, substantially as set forth.

2. The armature-lever, armature, and axis of the telegraph-sounder, made in one piece of malleable cast-iron, substantially as set forth.

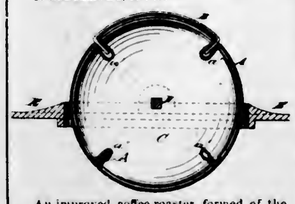
190,192. INKSTANDS. H. H. Burrington, Providence, R. I. [Filed Feb. 16, 1877.]



1. The rubber ring C, fitted into the desk A, and projecting above the mouth of the ink-well, substantially as and for the purposes set forth.

2. The india-rubber bumper E, in combination with the hinged covers, substantially as specified.

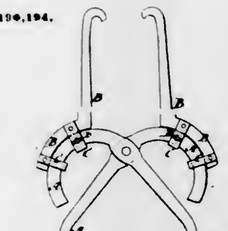
190,193. COFFEE-ROASTERS. J. A. Caldwell and A. F. Pleitz, Brownsville, Tenn. [Filed Mar. 24, 1877.]



An improved coffee-roaster, formed of the rim or ring E, provided with the bearings F, the shaft D, the body A, having long inwardly-projecting loops or flanges *a'* formed upon it, the sliding doors B, the convex ends C, and the locking-nuts *d'*, constructed and combined with each other substantially as herein shown and described.

190,194. LIFTING-TONGS. J. T. Campbell, Rockville, Ind. [Filed Apr. 2, 1877.]

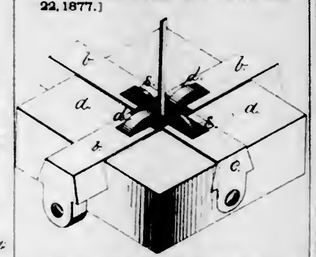
190,194.



1. A lifting tongs in which the handles B are connected with the shanks of the jaws A with an adjustable and reversible joint, substantially as herein shown and described.

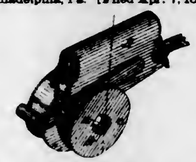
2. The combination of the jaws A, having their shanks bent outward upon a true curve, the handles B, having their inner ends bent upon the same curve as the shanks of said jaws A, the loops or bands C, and the set-screws D, with each other, substantially as herein shown and described.

190,195. WIRE-DRAW PLATES. James W. Cameron, Providence, R. I. [Filed Mar. 22, 1877.]



The combination, with the plate *a*, of the adjustable slides *b b b* and *c*, and the disks *d d* and *e e*, arranged and operating substantially as and for the purpose described.

190,196. CIGAR-LIGHTERS. I. N. Clawson, Philadelphia, Pa. [Filed Apr. 7, 1877.]



The device, substantially as hereinbefore described, for securing and packing the tinder in cigar-lighters, consisting of a drum upon which to wind and pack the tinder, having an annular disk at one end to prevent the escape of the tinder, and which serves as a shield thereto, and as the means for operating the device.

190,197. HORSE-DETACHERS. W. A. Clark, Jacksonville, Ga. [Filed Feb. 16, 1877.]

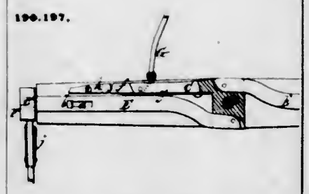
1. In combination with the pins B' on the ends of the single-tree, the arms E E, having the cuffs F F, and slots *a*, guided by pins *b* on the single-tree, the said arms being constructed to move horizontally with the single-tree when operated by the lever C, and caused to remain horizontal with the single-tree when latched, substantially as described.

2. The combination of the strap G, operated as specified, spring-catch *f*, latching-piece *h*, lever-arms E E, cuffs F F, and single-tree, substantially as and for the purpose described.

3. The combination of the trace provided with a spring, *j*, and oblong slot, and the U-shaped cuffs F of the arms E, substantially as described.

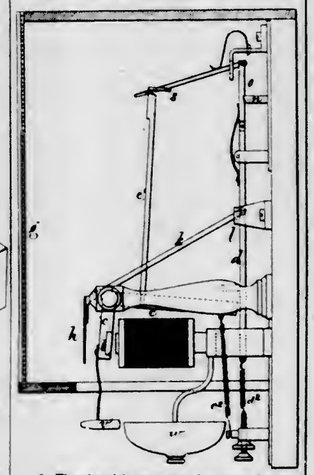
4. The angular lever C, having a hinged latching portion on its long arm, substantially as and for the purpose described.

190,197.



190,198. ELECTRIC STATION-INDICATORS FOR RAILWAYS. J. I. Conklin, Jr., New York, assignor to himself and C. A. Dresser, Brooklyn, N. Y. [Filed June 2, 1876.]

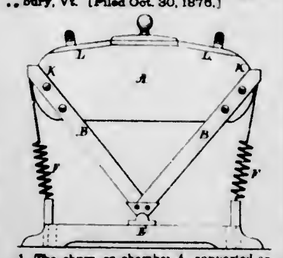
Brief.—For indicating whether or not section of track in front of station is occupied, the position of indicator in station being controlled by circuit passing through signals at each end of section.



1. The signal A upon the lever-arm *h*, pivoted to the sliding bar *b* and passing through the fulcrum-plate *l*, in combination with the armature *k*, electro-magnet *a*, catch *e*, and armature-lever *c c'*, substantially as set forth.

2. The signaling-instruments at A B C and circuit-connections, arranged as specified, in combination with the track-circuit closers at A and C, operated by the passing train, substantially as set forth, whereby the signals at A and B are operated simultaneously and remain visible until the train reaches C and closes a reversing-circuit, as set forth.

190,199. CHURNS. O. W. Davis, Waterbury, Vt. [Filed Oct. 30, 1876.]

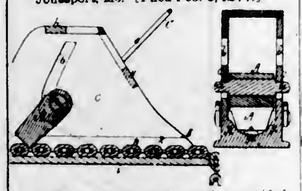


1. The churn or chamber A, supported on a vibrating frame, which has its pivotal bearings in a stationary frame, said chamber having no internal appliances to break or interrupt the currents, and having not only a flat bottom and curved ends K K, but also the two upward inclines L L at the top, made continuous with such curved ends, the whole operating to give to the cream a continuous and

overturning course, as and for the purposes set forth.

2. In combination with the churn A, having the upward inclines at its top and the curved ends and flat bottom, as shown and described, the supporting frame or braces B B, the base upon which the braces are pivoted and swung, and springs F F, directly connecting the ends of the churn with such bed or base, the whole operating as and for the purposes set forth.

190,200. CABLE-STOPPERS. J. P. Dorr, Jr., Jonesport, Me. [Filed Feb. 6, 1877.]

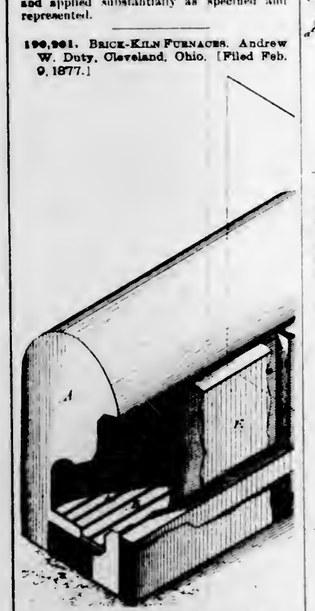


1. The combination of the pawl A, provided with the journals *a a*, with the carrier B, slotted and recessed in its opposite standards, as set forth.

2. The combination of the tripper C with such journaled pawl A, and with the carrier B, slotted and recessed in its standards, as shown and described.

3. The combination of the inclined guides *k k* with the slotted and recessed carrier B and the journaled pawl A, all being arranged and applied substantially as specified and represented.

190,201. BRICK-KILN FURNACES. Andrew W. Duty, Cleveland, Ohio. [Filed Feb. 9, 1877.]



The air chambers F and G, flue I, and openings *a* and *b* arranged in relation to each other and in combination with the furnace A, substantially as herein described, and all adapted to a brick kiln, as set forth, and for the purpose specified.

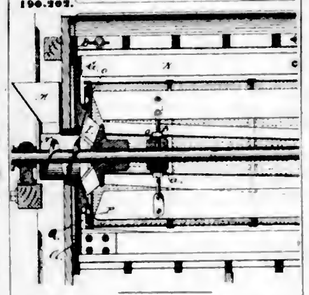
190,202. FLOUR-BOLTING MACHINES. Ferdinand Feistel, Berlin, Prussia. [Filed Mar. 31, 1877.]

1. The combination, in a flour-dressing machine, of an inner distributing and separating cylinder, an outer bolting-cylinder, an inner set of revolving beaters, and an outer set of beaters revolving around the inner cylinder or within the bolting-cylinder, substantially as and for the purpose set forth.

2. The combination of the revolving shaft E, end plate G, having hub portion H, with openings I therein, and the outer set of beaters B, attached to said end plate, with the bolting-cylinder B, inner separating-cylinder D, and feeding-hopper M, as and for the purpose set forth.

3. The combination of the ring-brush O P with the end plate G and the inner cylinder D, having end cap Q, substantially as and for the purpose set forth.

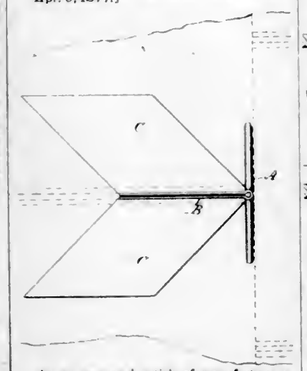
190,203.



1. The combination of knobs a^1 on the pail, loop-straps a^2, and spring D, with the cross-bar C attached to the upper side of the cover, as and for the purpose set forth.

2. The combination, with the spring D, of the cross-spring E, pivoted loop-handle e^1, straps e^2, and double-pointed tacks a^3, as shown and described.

190,204. SNOW-GUARDS FOR ROOFS. G. F. Folsom, Boston Highlands, Mass. [Filed Apr. 9, 1877.]



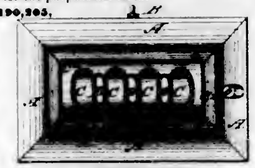
As an improved article of manufacture, a snow-guard for roofs, consisting of an L-shaped strip of sheet metal, having two equal arms, the same being bent to form the square A, brace B, wings C, and slit to form prongs *c*, all as herein shown and described.

190,205. STEAM-RADIATORS. W. M. Fuller, New York, N. Y. [Filed Apr. 7, 1877.]

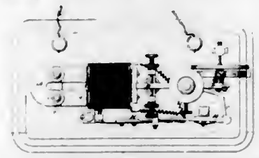
1. A series of alternate steam-tubes, connecting with the steam-chamber, and air-tubes connecting with the air-chamber, both steam and air series cast in one piece with each other and with passage C', no screw-threads being used to connect the pipes and base, substantially as specified.

2. The combination of the steam-tubes C, air-tubes D, passage C', and base A with register B, all constructed substantially as and for the purpose set forth.

190,206.



190,206. ELECTRO-MAGNETIC MOTORS. W. W. Gary, Huntingdon, Pa. [Filed Oct. 3, 1876.]



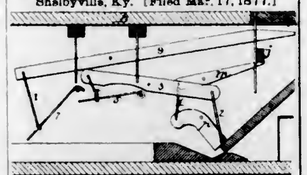
1. The combination, in an electric motor, of two permanent magnets, A B, and an electro-magnet, C, connected with a pole-changing device, and arranged to vibrate between the permanent magnets, substantially as described and shown.

2. The combination of two permanent magnets, arranged with their reverse poles opposite to, but separated from, each other, and a reciprocating electro-magnet connected with an automatic pole-changing device, substantially as shown and described.

3. The combination, in an electric motor, of a reciprocating electro-magnet, connected with an automatic pole-changing device, and two compound permanent magnets, arranged on opposite sides of the electro-magnet, each consisting of a series of thin magnets, united in such manner that the series may be increased or diminished in number, at will, for the purpose of increasing or diminishing the power of the motor.

4. In combination with the magnets A B and the vibrating electro-magnet C, the beam D, provided with the tappet *e*, and the arm H, provided with the fingers *d* and *c*, moving upon the plates *f f*, as shown.

190,207. ANIMAL-TRAPS. G. W. Gibson, Shelbyville, Ky. [Filed Mar. 17, 1877.]



1. The combination of the platform *f*, guide-posts, connecting-rod *g*, lever *h*, and trigger *i*, whereby the trap is sprung when constructed, and arranged substantially as shown.

2. The combination of the door *c*, spring *k*, lever *j*, trigger *i*, and post *l*, substantially as described.

3. The combination of the door *c*, levers *j m*, rod 1, and latch *p*, substantially as set forth.

4. The combination of the door *c*, rod 2, lever 3, rod 4, and gate 5, substantially as specified.

5. The combination of the gate 7, rod 8, lever 9 *j*, trigger *i*, door *c*, and spring *k*, substantially as shown and described.

190,208. METALLIC CARTRIDGES. J. H. Gill, Philadelphia, Pa. [Filed Feb. 19, 1877.]

1. A metallic cartridge-shell, having longitudinal corrugations formed in its body, and having its front end left smooth and cylindrical, substantially as shown and described.

2. The anvil I, composed of the dome-shaped central body *r*, and the arched and laterally-projecting arms *t*, three or more in number, substantially as shown and described.

190,208.



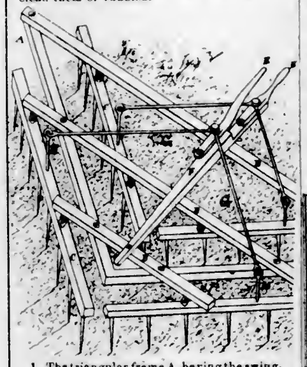
190,209. SLEEVE-BUTTONS AND STUDS. A. Goll, Frankfort-on-the-Main, Prussia, Germany. [Filed Feb. 3, 1877.]



A sleeve-button or stud having an elastic piece of metal, C, doubled or open-slotted, and attached to a flat pivot at the end of its bent shank, as and for the purpose specified.

190,210. HARROWS. J. B. Greene, Elliott, Cal. [Filed Dec. 4, 1876.]

Brief.—Teeth holding bars hinged to a supplemental frame on opposite sides of the center, and diagonally to the line of travel, and provided with rods connecting the opposite pairs of harrows with an operating-lever, for alternately inclining the teeth rearward to clean them of rubbish.

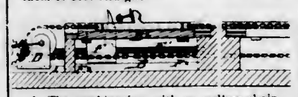


1. The triangular frame A, having the swinging harrows C hinged to it in pairs on opposite sides of the center, and diagonally to the line of travel, said harrows having suitable operating levers by which alternate sections are inclined backward, either singly or in pairs, so that they are cleaned of dirt and rubbish, substantially as herein described.

2. In combination with the triangular frame A, having the harrows C hinged to it in pairs, and diverging upon each side of a central line, the standards H and connecting-rods G, uniting the opposite pairs of harrows with the operating lever E, so that the harrows are alternately inclined backward to clean them of dirt and rubbish, substantially as herein described.

190,211. APPARATUS FOR CARRYING RAILROAD-RAILS. A. J. Gustin, St. Albans, Vt. [Filed Mar. 3, 1877.]

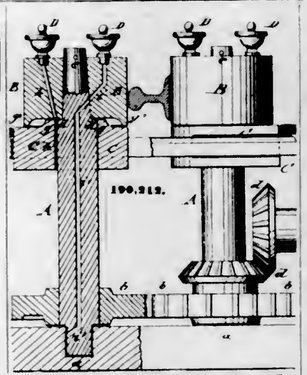
Brief.—This apparatus takes up the rails when deposited upon a central platform, and conveys them to the cooling-bed; said rails having had imparted to them, by means of bending-rolls, the proper camber to enable them to cool straight.



1. The combination, with an endless chain, B, subject to expansion by hot rails, of a pulley, *b*, arranged in a slide-bearing, D, held by a movable weight, as shown and described.

2. The combination of the guides F' with the screws, dogs, and latches for carrying the rails *en masse*, and operated substantially in the manner described.

190,212. CARRIER-ROLLS FOR RAILROAD-RAILS. Andrew J. Gustin, St. Albans, Vt. [Filed Mar. 3, 1877.]

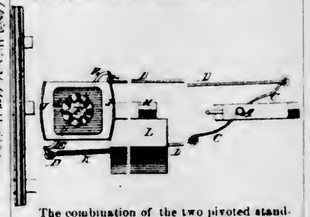


1. The combination of the top bearing C, having raised collar *g* around center shaft A, with the concaved base or bottom of top roll, having circumferential nose, for preventing water and impurities from getting into bearings, substantially as specified.

2. The combination of the top roll B, having lubricating-cups D and ducts *h* and *i*, with the upper bearing C, having communicating duct *h'*, with shaft A, having center duct *i'*, and with lower bearing *a*, substantially as and for the purpose shown and described.

190,213. RAILROAD-SIGNALS. Chas. Haise and Frank Haise, Atlanta, Ill. [Filed Jan. 19, 1877.]

Brief.—The device serves as both day and night signal, and is operated by hand.



The combination of the two pivoted standards A F, the two equal-armed levers C K, the two connecting-wires D D, the hand-lever B, the flag K, and the box or cover L, with each other, substantially as herein shown and described.

190,214. SASH-FASTENERS. Joseph Hatzl, Spades, Ind. [Filed Apr. 2, 1877.]

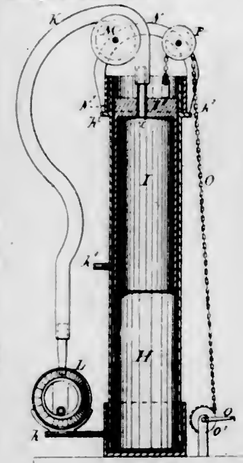
Brief.—A sliding, double-end spring-actuated bolt, having a suitably notched or recessed face-plate, is arranged between the guide-strips of the window-casing, there being also a longitudinal groove in the casing, provided at intervals with socket-holes. The operating knob or handle fits into notches of the face-plate, to hold the bolt in three positions, for locking, guilding, or readily removing the sash, as may be desired.

1. The combination of a sash, having sliding and adjustable guide and lock bolts B, with a longitudinal groove, D, of the window-casing, having socket-holes *b* at suitable distances apart, substantially in the manner shown and specified.

2. The combination of the guide-socket C of the sash-holder, having face-plate with recesses *a a a*, with the sliding guide and lock bolt B, having handle B' fitting into the recesses to retain the bolt in drawn-back position, or when thrown into the guide-groove, substantially in the manner specified.

190,215. MACHINES FOR FORCING AIR INTO VESSELS CONTAINING LIQUIDS. J. F. Hess, Massillon, Ohio. [Filed June 30, 1876.]

Brief.—The tank, being filled with water, and the compressor raised and filled with air, will, by its weight, descend (when the chain is loosened) and force the air into the barrel through the flexible tube.



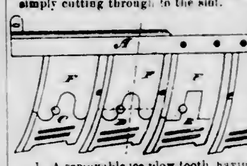
1. The herein-described apparatus for compressing air, consisting of the water tank H, the air-compressing tank I, the flexible tube K, chain O, and pulleys M P, substantially as set forth.

2. The water-tank H, provided with supports h^2, in combination with the ring N' and arch N, substantially as set forth.

3. The water-tank H provided centrally with the overflow-pipe h^1, the upper part of the tank serving as a support for pulleys M P, substantially as set forth.

190,216. ICE-PLOWS. C. A. Hiles and T. L. Hiles, Chicago, Ill. [Filed Nov. 29, 1876.]

Brief.—When the points of the tooth become worn off, new ones are provided by simply cutting through to the slot.



1. A removable ice-plow tooth having slots *f* and tongue *e*, substantially as and for the purpose specified.

2. The combination, in an ice-plow, of the beam A, base or socket F, and removable tooth C, provided with slots *f* and tongue *e*, substantially as and for the purpose set forth.

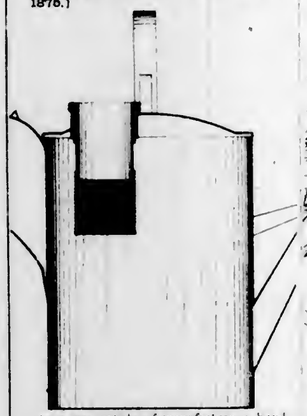
190,217. REVOLVING ORE-ROASTERS. J. Howell, Benton, Cal. [Filed Jan. 19, 1877.]

Brief.—Provides a secondary furnace at the fume-discharging end of the roasting cylinder, to effect a more complete dechlorinizing action. Constructs the supporting friction-rollers in sliding bearings, to adjust the inclination of the cylinder.



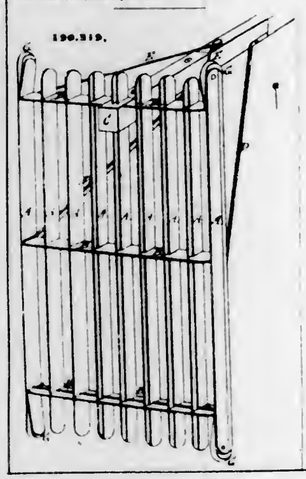
The combination, with the revolving tube, of the furnace at the receiving end, having the chambers D and Q, and the furnace at the lower end, having the pit E, substantially as specified.

190,218. GARDEN WATERING-POTS. Edw. Hunter, Norwich, Conn. [Filed June 11, 1876.]



As a new article of manufacture, a hand garden watering-pot provided with a filter, sieve, or strainer at the opening where the water is introduced, to strain out solid matter from the water and insure its free discharge at the rose-head, substantially as and for the purpose specified.

190,219.



190,219. CURD CUTTERS AND AGITATORS. M. P. Jackson, Boonville, N. Y. [Filed Feb. 10, 1877.]

Brief.—Double-edged blades of lapping sheet metal at right angles to and through transverse blades of greater width. A straight handle, nearly perpendicular to this cutter, is secured at one end.

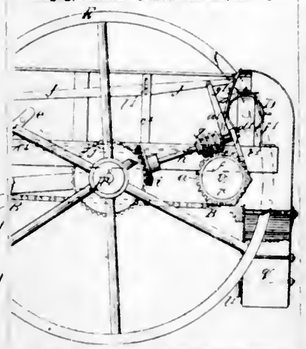
1. The bladed braces D, interposed between the blades A and handle C, and constructed of wire, with a strip of metal locked around said wire, so as to present a projecting cutting-edge to the curd, substantially as set forth.

2. The blades A, provided with cushions G, projecting beyond the intermediate blades, to keep said blades from contact with the curd-vat, substantially as set forth.

3. The cutting-blades A A, each constructed of two strips or pieces of tin or other metal, lapped and joined or locked together in the center in such manner as to form one solid blade with two cutting-edges, each edge being of a single thickness of the material used, substantially as described.

4. The combination of longitudinal and horizontal blades, the ends of the longitudinal blades being extended beyond the horizontal blades, so as to form cutting-edges.

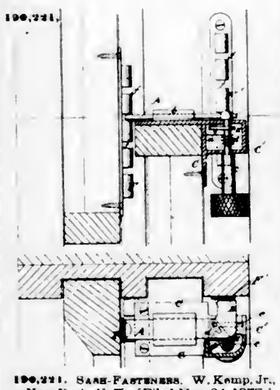
190,220. MANURE-SPREADERS. J. S. Kemp, Magog, Canada. [Filed Feb. 28, 1877.]



1. The yielding toothed roller D, in combination with the spring *f'*, coupling *g'*, and spring *z*, substantially as and for the purpose set forth.

2. The spring-lever J, connected to the gearing operating the slatted belt or bottom B C, in combination with the spring *z*, coupling *g'*, roller D, pivoted bearing *d'*, and spring *f'*, substantially as and for the purpose set forth.

190,221.

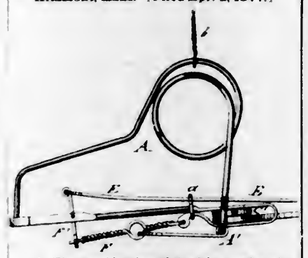


190,221. SASH-FASTENERS. W. Kemp, Jr., New York, N. Y. [Filed Mar. 24, 1877.]

Brief.—A right-angled bolt, arranged in suitable case on the upper corner of the meeting-rail, has a slotted arm and downwardly projecting spring encircled spindle, a half-turn of which actuates the double bolts. There are also two notched or slotted bars—one attached to the rail of the upper sash, and the other to the window-jamb, with which the ends of the bolts engage, to hold the sash in desired position.

The right-angled bolt A, having the pin *a*, L-shaped support C, spindle *c*, having the slotted arm E, spring *d*, and slotted bars F F' in combination, substantially as herein shown and described.

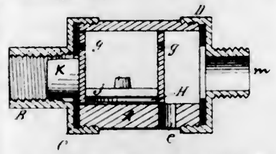
190,222. SPRING FISH-HOOKS. J. O. King, Altamont, Kans. [Filed Apr. 2, 1877.]



1. The combination of the fulcrumed grab-hooks, having U-shaped extensions back of the fulcrum, with the encircling loop of an actuating spiral spring, to open or close the grab-hooks, substantially as shown and specified.

2. The combination of the fulcrumed and spring-acted grab-hooks E with a swinging trip-lever, F, connected with the actuating spring-loop A' of the hooks, and with the latch-piece F' of the sliding bait-hook E, substantially in the manner specified.

190,223. RELIEF-VALVES FOR AIR-BRAKES. S. R. Kneeland, Boston, Mass. [Filed Mar. 2, 1877.]

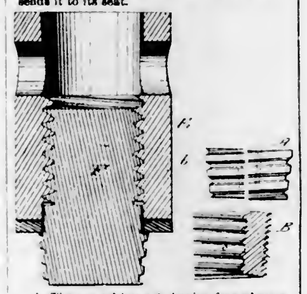


1. The combination, with the case A, having port *e*, and caps C D, and valve J, constructed substantially as described, of the plate H, substantially as and for the purpose specified.

2. The combination, with the case A, having port *e*, and caps C D, seek B, and plate H, of the valve J, having the arm K, substantially as and for the purposes specified.

190,224. BUNGS AND BUNG-INSERTERS. W. Kromer, San Francisco, Cal. [Filed July 28, 1876.]

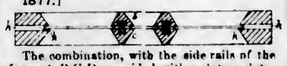
Brief.—The bung has flat threads, and when it is placed in the bush, a short turn sends it to its seat.



1. The conical bung A, having formed upon its exterior flat screw-threads *b*, in combination with the bushing B, with flat screw-threads *c*, substantially as and for the purpose set forth.

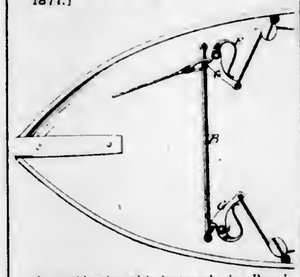
2. The combination, with the standard or tubing E, having screw-threads upon its interior, of the screw-threaded plug F, when constructed to operate substantially as and for the purpose described.

190,225. WINDOW-SASHES. L. Landeker, San Luis Obispo, Cal. [Filed Mar. 15, 1877.]



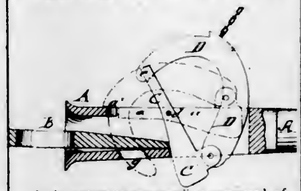
The combination, with the side rails of the frame A B C D, provided with a slot or slots, *h*, of the dovetailed grooved mullions *b c* and double-headed bars *f*, substantially as and for the purpose specified.

190,226. TRAVELERS FOR JIB-SHEETS. H. S. Lawson, Baltimore, Md. [Filed Apr. 7, 1877.]



In combination with the traveler-bar B and traveler-ring C, the spring-catch G, pivoted to a standard adjacent to the traveler-bar, substantially as and for the purpose described.

190,227. CAR-COUPLINGS. G. D. Lease, Jeffersonville, Vt. [Filed Mar. 3, 1877.]



1. An automatic car-coupling composed of a slotted draw-head, A, coupling-link B, fulcrumed lever-bar C, and curved or hook-shaped pin D, pivoted to the rear end of the lever-bar C, all arranged and operated substantially as and for the purpose set forth.

2. The combination of the draw-head A, having top slot *a*, front extension or recess *a'*, and bottom pin-hole *g*, with the notched end of the fulcrumed lever-bar C, and with curved or hook-shaped pin D, having projection *h*, to throw the pin forward for coupling on entrance of link, substantially in the manner and for the purpose specified.

3. The combination of the slotted draw-head A, and of the fulcrumed and weighted lever-bar C, having notched front end, with the curved or hook-shaped coupling-pin pivoted to the weighted rear end of lever C, to be retained in uncoupled position, substantially as described.

190,228. REED-ORGAN ACTIONS. R. E. Lotton, Quincy, Ill. [Filed Oct. 18, 1876.]

Brief.—For holding down any key pressed by the finger after removal of the finger therefrom.

1. In an organ or other analogous wind-instrument, a pivoted jack having a stud, which, when the jack is depressed, is, and when elevated is not, beneath a device capable of vertical movement, substantially as specified

2. In an organ or other analogous wind-instrument, a pivoted jack, through the end of which the sticker-pin has a free movement, and provided with a stud to engage the key, substantially as set forth.

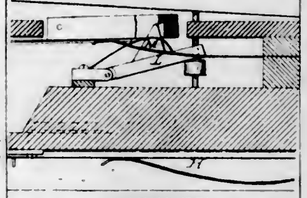
3. The action-frame N, provided with the recess *h*, substantially as set forth.

4. The action-frame N, pivoted to the case of the instrument, and provided with a spring arranged to give it an upward tension, substantially as set forth.

5. The jack L, forked at its rear extremity, pivoted at its front extremity, and provided with the stud M on its upper surface, as set forth.

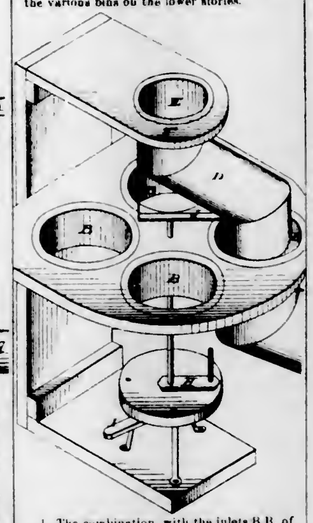
6. The jack L, provided with the stud M, and having an aperture at its end to receive the sticker-pin, substantially as set forth.

190,228.



190,229. GRAIN-DISTRIBUTERS. John W. Lewis, Scipio Township, Seneca County, Ohio. [Filed Oct. 9, 1876.]

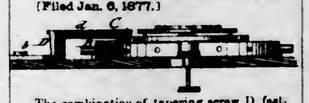
Brief.—The main pipe swings around and distributes the grain from the elevator into the various bins on the lower stories.



1. The combination, with the inlets B B, of the revolving elbow D, shaft K, arm H, pedal I, stop-pin P, and perforated table G, constructed as described, and for the purpose set forth.

2. The elbow lined with sole leather to prevent the destruction thereof, constructed as described, and for the purpose set forth.

190,230. HAIR-SPRING STUDS FOR WATCHES. F. M. Martin, Cambridge, Ill., assignor to himself and J. A. Hart, same place. [Filed Jan. 6, 1877.]



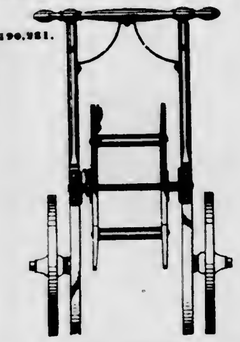
The combination of tapering screw D, fastened into the watch-plate and outside of the balance-wheel, and the downwardly projecting jaws B C, the jaw B being rigidly fixed to the end of bridge A, and the movable jaw C being attached to a sliding arm, *d*, arranged in a longitudinal recess in the upper side of bridge, as shown and described.

190,231. HOSE-CARRIAGES. I. W. McGaffey, Chicago, Ill. [Filed Feb. 24, 1877.]

1. The hose-carriage, constructed of two side pieces, braced together by the cross handle and a rigid shaft, which latter serves as a pivot for the reel, and provided with feet or extensions, and with wheels that are journaled upon axles projecting from the side pieces, the reel and parts being relatively arranged and constructed substantially as specified.

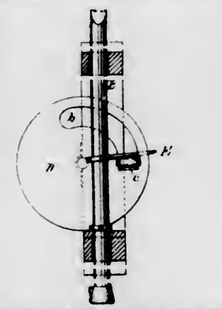
2. The malleable-metal holder attached to the reel, in combination with the inteposed spring, substantially as specified.

190,231.



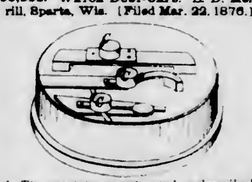
190,232. ROCK-DRILLING MACHINES. A. J. Mershon, Warsaw, Ind. [Filed Apr. 9, 1877.]

Brief.—As the disk is rotated, the arm projecting from the drill-shaft is carried upward by the roller in the slot, thereby raising the drill-shaft, and at the same time turning it through part of a revolution. As the roller passes beyond the line vertical to the disk's shaft, the arm is released, and with the drill-shaft falls.



The disk D, having the slot *b*, the roller *c*, arm E, and drill-rod B, in combination, substantially as herein shown and described.

190,233. WATCH DUST-CAPS. L. D. Merrill, Sparta, Wis. [Filed Mar. 22, 1876.]



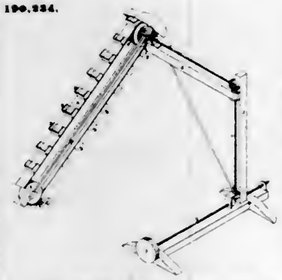
1. The regulator, constructed as described, in combination with the dust-cup, substantially as described, and for the purposes set forth.

2. The combination of the glass plate with holes for winding and regulating, dust-cups C, winding-post, and regulator, substantially as described, and for the purposes set forth.

190,234. DEVICES FOR ELEVATING EARTH. Geo. B. Milliken, Los Angeles, Cal. [Filed Mar. 1, 1877.]

Brief.—The elevating-buckets can be turned in any direction, owing to the universal joint connecting it with the crane arm.

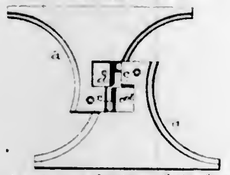
190,224.



1. The endless elevator-belt A, with its frame B, mounted so as to turn about the axis F, in combination with the vertical axis E, the gears D and I, and the shaft L, the whole designed to allow a universal movement of the elevator without deranging its action, substantially as herein described.

2. The elevator A, having a universal joint motion at its upper end, in combination with the crane-arm G, horizontal and vertical driving-shafts L N O, and bevel connecting-gears, the whole constructed to operate substantially as herein described.

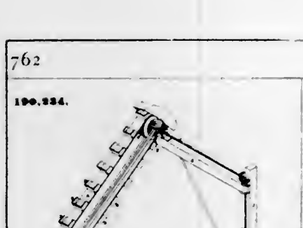
190,225. STOVE-PLATES. H. Miner, Albany, N. Y. [Filed Mar. 31, 1877.]



1. A center-piece for stoves, that is formed in two or more pieces, a, each one of which has a portion of its inner end formed to both rest upon the top, and pass under the end of the adjoining piece, whereby each piece is made to support the other, substantially as shown.

2. A center plate for stoves, which is made in two or more pieces, each piece having a projecting corner, c, and a recess, d, formed on its inner end, substantially as specified.

190,226. GRATES. Jno. A. Moffitt, Boston, Mass. [Filed Mar. 26, 1877.]



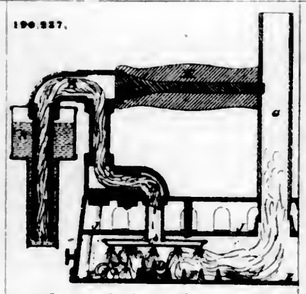
1. A reciprocating grate, composed of movable sections e k, each provided with a series of alternate and independently-removable bars, connected with and operated by a longitudinally-divided shaft, whereby the alternate grate-bars are adapted to move in opposite directions, substantially as and for the purpose described.

2. The longitudinally divided shaft B, cross-rods k, and independently-removable bars i of the sectional reciprocating grate C, with its frame D, and fire-box A, in combination with a single or double shaking lever or handle, E, substantially as and for the purpose set forth.

3. The transverse pieces G, with the cleat r and pin s, in combination with the grate-frame D and a series of independently-removable bars, i, constructed substantially as described, for the purpose set forth.

190,227. FLAT-IRON HEATERS. Oscar F. Monfort, Burlington, Iowa. [Filed Feb. 21, 1877.]

190,227.

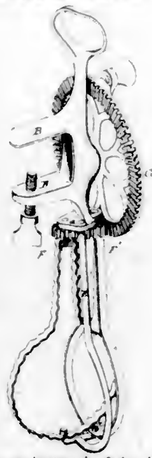


1. The combination of the reservoir A, wick-tube B, and gas-generator C in a flat-iron heater, substantially as described.

2. The combination, in a flat-iron heater, of the gas-generator C, supplied with oil or other fluid, as described, the cap D, and the points F.

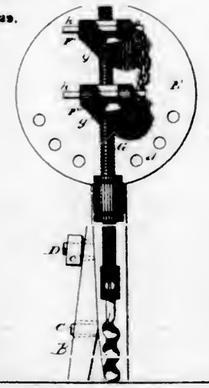
3. The combination of reservoir A, tube B, generator C, cap D, base E, having the points F, chimney G, plate J, with the chamber above it, and non-conducting handle K.

190,228. EGG-BEATERS. Jas. F. Monroe, Fitchburg, Mass. [Filed Nov. 13, 1876.]



In an egg-beater, the frame B, provided with the clamp D, cog-wheel G, pinions F F', bolts *b b*, beaters C C, and support E, the several parts constructed and arranged to operate substantially as described.

190,229.



1. A reciprocating grate, composed of movable sections e k, each provided with a series of alternate and independently-removable bars, connected with and operated by a longitudinally-divided shaft, whereby the alternate grate-bars are adapted to move in opposite directions, substantially as and for the purpose described.

2. The longitudinally divided shaft B, cross-rods k, and independently-removable bars i of the sectional reciprocating grate C, with its frame D, and fire-box A, in combination with a single or double shaking lever or handle, E, substantially as and for the purpose set forth.

3. The transverse pieces G, with the cleat r and pin s, in combination with the grate-frame D and a series of independently-removable bars, i, constructed substantially as described, for the purpose set forth.

190,229. MINING-DRILLS. T. J. Morgan, Plymouth, Pa. [Filed Apr. 10, 1877.]

Brief.—The drill may be applied in any direction by changing the position of the disk, which revolves for that purpose.

1. The combination of the expansible stock A B, substantially as described, with a drill for coal-mining, and the like.

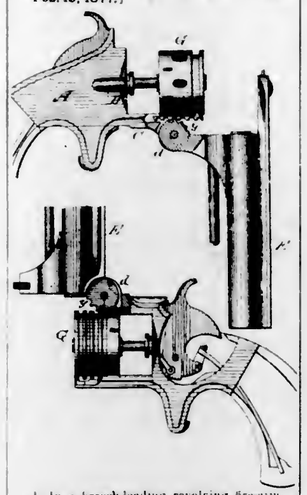
2. The expansible stock A B, provided with toes *a b* and a drilling mechanism, substantially as and for the purpose described.

3. The combination of an expansible stock, a rotary disk or turn-table, and a drilling mechanism, substantially as and for the purpose described.

4. The combination of the rotary disk or turn-table, the bearing-lugs F F', bearing pieces *g*, pin *h*, and feed-screw G, all arranged and operating substantially as described.

5. The combination of the expansible stock A B with a rotary table, E, having a series of holes *d*, lug F, having shank *f*, and set-screw *e*, substantially as shown and described.

190,240. REVOLVING FIRE-ARMS. Daniel Moore, Brooklyn, assignor to Merwin, Hulbart & Co., New York, N. Y. [Filed Feb. 19, 1877.]

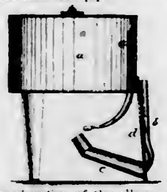


1. In a breech-loading revolving fire-arm, the hinged barrel E, having the lug *d*, that forms part of the hinge, provided with a series of cogs, *y*, for operating the revolving cylinder longitudinally, substantially as and for the purposes herein set forth.

2. The many-chambered revolving cylinder G, provided with a rack, in combination with the hinged barrel E, having lug *d* and cogs *y*, substantially as and for the purpose set forth.

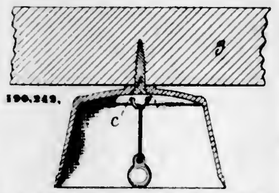
190,241. COMBINED SPIRIT-LAMP AND BLOW-PIPE. S. Needles, Holden, Mo., assignor to I. Nichols and B. F. Metzler, same place. [Filed Jan. 8, 1877.]

Brief.—The wick contained in the elbow-pipe is supplied with alcohol from the main cup by the small feed-pipe.



The combination of the elbow *c* with the supply-tube *b* and the leg *d*, all connected with the main cup *a*.

190,242. SHELLS. Wm. H. Nichols, East Hampton, Conn. [Filed Feb. 12, 1877.]

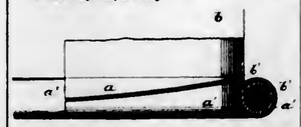


190,243.

1. A bell all in one piece, and having the two sets of holes *b c* in the top for the attachment of the tongues, substantially as described.

2. A bell all in one piece, having the two sets of holes *b c* in the top for the tongue-wires, and the central screw-hole *e*, for the attaching-screw, substantially as described.

190,244. JOINTS OF VESSELS OF ENAMELED SHEET-IRON WARE. F. G. Niedringhaus and Wm. F. Niedringhaus, St. Louis, Mo. [Filed Apr. 2, 1877.]



In a sheet-iron vessel, the herein-described joint consisting of the flange *a'* and end *b'* upturned into a double hollow bead, substantially as set forth, the end *b'* forming a complete circle and meeting the side of the vessel.

190,245. URINALS FOR INVALIDS. Richard H. Olmstead, Napa City, Cal. [Filed Oct. 21, 1876.]

Brief.—The urinal is of rigid material, of such form as to fit between the limbs of a female when lying in bed, and provided with an abrupt inwardly-projecting flange, to prevent any drip or overflow.



A hard-rubber or rigid elongated urinal of the shape shown, provided with the inwardly-inclined flange B and discharge-opening C, substantially as and for the purpose above described.

190,246. VALVE-MOTION AND CUT-OFF. E. O'Neill, Oakland, Cal. [Filed Mar. 15, 1877.]

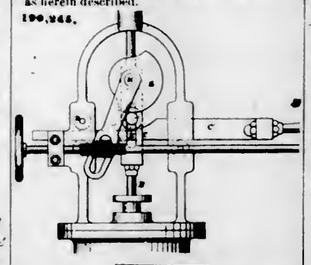
1. The reciprocating operating-bar, having its two levels C and C' connected by the inclined curve F, so formed that the valve shall be started from its seat by a slow movement, and its opening completed by a more rapid movement, substantially as herein described.

2. The cam G, with its offset or curve, the cam being attached to, and moving with, the valve-stem B, in combination with the independent inclined curved face F of the operating-bar, said cam being so placed as to allow the valve to be opened and closed, substantially as herein described.

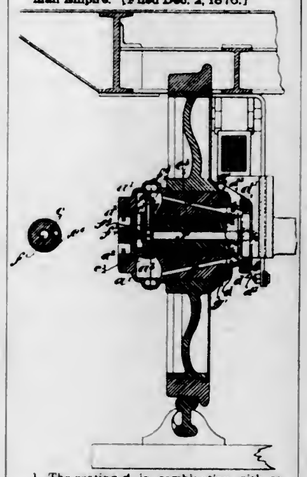
3. The valve-stem B, having the longitudinal slots made in its sides transversely to each other, in combination with the bar C and the rollers E, so that the valve-stem and rollers may be moved independent of the bar and of each other, substantially as herein described.

4. The bar C, with its inclined curved face F, in combination with the cam G, attached to the valve-stem, and the independently-moving roller E, which supports the cam until the valve is opened, and is then released by it to allow the valve to close, substantially as herein described.

190,246.



190,246. RAILWAY-WHEELS. J. A. Oesenbruck, Hemelingen, near Bremen, German Empire. [Filed Dec. 2, 1876.]



1. The coating *c'*, in combination with an axle, *c*, an internal filtering-chamber, *f*, one or more passages, *c'*, and oil-chamber *e'*, substantially as set forth.

2. The coating *c'*, in combination with the ring or bush *i*, disk *c'*, ring *g'*, and hard blocks *g' g'* for keeping the nave in place on the axle shaft or stud, and taking the axial end thrust or wear of one against the other, substantially as set forth.

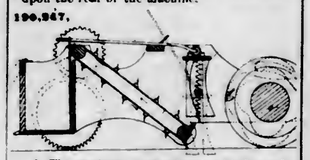
3. The boss or nave of a wheel revolving loosely on its axle, and formed with a chamber, *e'*, pockets *a'*, and catch-basin *f'*, chamber *d*, and one or more slanting communicating passages, *c*, in combination with a catch-tube, *f*, fastened to the axle shaft or stud, a passage, *f'*, a filtering-chamber, *f*, and passage or passages *c'*, communicating with the upper journal wearing-surface, substantially as set forth.

4. The pockets *a'*, formed or fitted in a revolving nave, and the catch-basin *f'*, in combination with a pipe or passage for leading the oil from the basin *f'* to the journal, substantially as and for the purposes set forth.

190,247. STRAWBERRY AND VEGETABLE CULTIVATORS. Wm. Pierce, Stoneham, Mass. [Filed May 5, 1876.]

Brief.—The cultivator is mounted on wheels, and upon each side of the frame is a cutting device, to trim off the running vines. A series of cultivator-teeth dig up the ground between the wheels, and an endless apron, with projecting points, picks up the severed vines, and conveys them into a receptacle upon the rear of the machine.

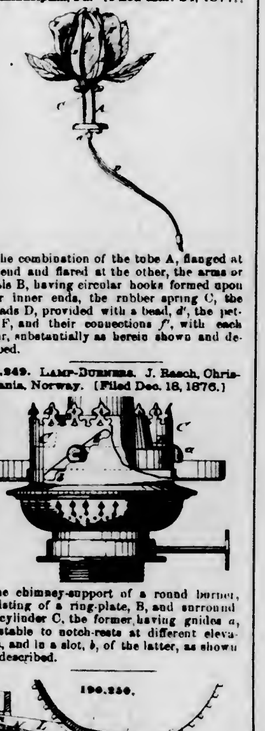
190,247.



1. The stationary and vibrating blades and cam-grooved roller, in combination with the belt to pick up, and the box to contain, the vines severed from the row, substantially as described.

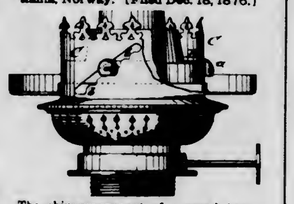
2. In combination, the vibrating vine-cutting blades, the cultivator, the toothed belt, and the box or receptacle *s* to contain the vines, substantially as described.

190,248. ARTIFICIAL FLOWERS. S. Potts, Philadelphia, Pa. [Filed Mar. 24, 1877.]



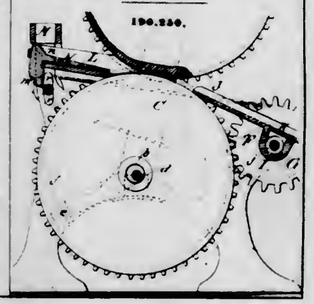
The combination of the tube A, flanged at one end and flared at the other, the arms or sepals B, having circular hooks formed upon their inner ends, the rubber spring C, the threads D, provided with a bead, *d'*, the petals F, and their connections *f'*, with each other, substantially as herein shown and described.

190,249. LAMP-BURNERS. J. Rasch, Christiania, Norway. [Filed Dec. 18, 1876.]



The chimney-support of a round burner, consisting of a ring-plate, B, and surrounding cylinder C, the former having guides *a*, adjustable to notch-rests at different elevations, and in a slot, *b*, of the latter, as shown and described.

190,250.



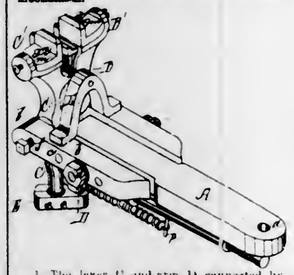
190,250. GRAIN-CRUSHERS. Joseph Reid and Robert Reid, Philadelphia, Pa. [Filed Nov. 11, 1876.]

1. The combination of shaft F, pinion G, and plate H, with the chambered boss I, and valved chute J, the plate H being provided with notch *e* and rim *f*, as set forth.

2. The combination, with chute I, of hopper M, having double bottom N, with notched lug *n*, spring *o*, and bar *p*, for the purpose specified.

190,251. FEEDING MECHANISMS FOR CUT-NAIL MACHINES. B. F. Rice, East Waymouth, Mass. [Filed Feb. 12, 1877.]

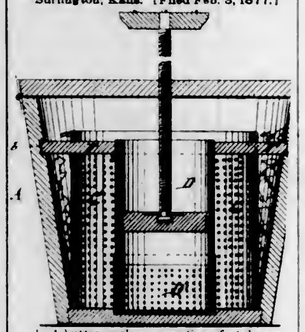
Brief.—The lever of the movable jaw is connected by a link to an arm operated by the push-rod, said arm being pivoted on the same shaft on which the jaws vibrate, and between them the levers of the griping-jaws are pivoted in a frame which is adjustable on and independently of the bar supporting the feed mechanism.



1. The lever D and arm D, connected by the link E, in combination with the lever B, push-rod I, and springs a J, constructed to operate substantially as and for the purpose set forth.

2. The levers B C, hung in a frame, *b*, in combination with the bar A and screw-shaft *c*, substantially as and for the purpose described.

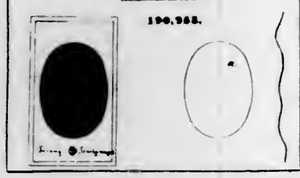
190,252. BUTTER-WORKERS. C. A. Sands, Burlington, Kans. [Filed Feb. 3, 1877.]



1. A butter-worker, consisting of a tub, perforated screen, interior cylinder with lower perforated part, and sliding follower, the whole constructed and operated substantially as and for the purpose set forth.

2. The combination of the interior cylinder D, recessed screen C, and tub A, having L-shaped recesses with a detachable locking-bar, F, seated in the recesses of screen and tub, and encircling the inner cylinder, to admit ready taking out and cleaning of parts, substantially as specified.

190,253.



190,253. PHOTOGRAPHIC-PRINTING APPARATUS. O. Sarony, Scarborough, England. [Filed July 28, 1876.]

A photographic-printing apparatus, provided with a short tube having outer tissue-paper *s* and inner ground glass *f*, substantially as shown and described, to form a cap, as specified.

190,254. BOTTLE-STOPPER FASTENINGS. F. Schlich, New York, N. Y. [Filed Sept. 11, 1876.]



The lever *b*, having a slot, and the yoke *c*, passing through the slot of the lever, in combination with the bottle-stopper *a b*, bearing *c*, and fulcrum projection upon the stopper for the end of the lever, substantially as set forth.

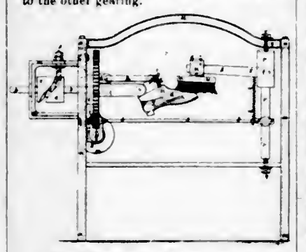
190,255. FARE-BOXES. John B. Slawson, New York, N. Y. [Filed Aug. 14, 1876.]



In combination with a fare-box provided with two or more slides running in opposite directions to each other, and supported on the side walls of the box, a door, E, and lock, for the purposes set forth.

190,256. BOOT-CLEANERS. C. H. Southall, Leeds, England. [Filed Mar. 26, 1877.]

Brief.—An expansible last is attached to a horizontal sliding bar, which is operated by gearing and a worm-wheel. The brush is operated by a lever and rocking bar connected to the other gearing.

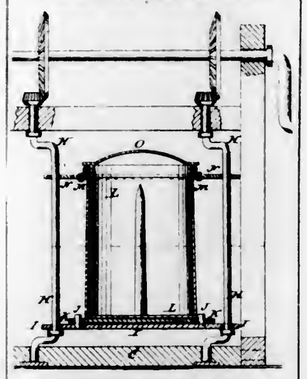


1. The sliding shaft *b*, in combination with the revolving shoe-holder and polishing-brush, substantially as set forth.

2. The combination, in a boot or shoe polishing machine, of an expansible last, *d*, revolving holder, and polishing-brush, substantially as set forth.

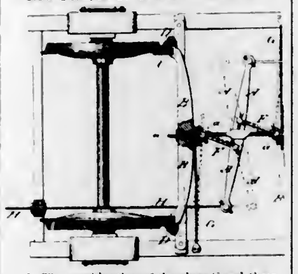
3. In the boot or shoe polishing machine, the combination, with the holder, of the rocking shaft *r*, arm *s*, brush *u*, and mechanism for rocking the shaft *r*, as set forth.

190,257. POWER-CHURNS. W. H. Sterns, Humboldt, Nebr. [Filed Feb. 26, 1877.]



The combination, with the churn L, of lugged ring N M, pin bar J I, apertured bar K, and crank-shafts H H, substantially as and for the purpose specified.

190,258. CAR-BRAKES. John Stephenson, New York, N. Y. [Filed Oct. 19, 1876.]



1. The combination of the clogs C and their bars B with the actuating horizontal lever A, all being suspended at the inner sides of the car-wheels, and the clog-bars connected with said lever by short connecting-rods F, having free joints at both ends, so that the power may be transmitted by a push motion through the connecting-rods to the clog-bars and clogs, substantially as described.

2. The combination of the lever A with the clog-bars B by connecting-rods F, having free joints at both ends, substantially as described.

3. The combination of the clog-bars and connecting-rods with adjustable eyebolts, substantially as set forth.

4. The combination of the clog-bars with diagonal stays, arranged to connect the clog-bars with the bottom of the car-body, to deprive the clog-bars of end motion, substantially as described.

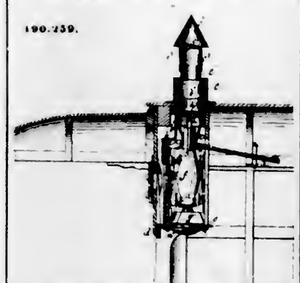
5. The combination of the lever A, connecting-rods F, adjustable eyebolts *a*, diagonal stays G, clog-bars B, and clogs C, suspended between the two pairs of wheels of a street-car, the whole forming an efficient system of car-brakes.

6. The combination of the chain-rods H with the lever A, connecting-rods F, adjustable eyebolts *a*, diagonal stays G, clog-bars B, and clogs C, suspended between the two pairs of wheels of a street-car, the whole forming an efficient system of car-brakes.

190,259. CAR-LAMP HOUSES. John Stephenson, New York, N. Y. [Filed Jan. 5, 1877.]

Brief.—A draft through the lamp-chamber, independent of the air in the car, is maintained in such manner as to clear the chamber of vapors, and keep the reflectors cool.

190,259.



1. In combination with the lamp-chamber M of a lamp-house, a street-car provided with one or more ducts, channels, or openings, leading from the atmosphere outside of the car to the space around the lamp on the interior of the lamp-chamber, substantially as and for the purposes set forth.

2. In combination with the lamp-chamber M of a lamp-house, a street-car provided with one or more ducts, channels, or openings, *d*, arranged to lead from the external atmosphere to the space around the lamp on the interior of the lamp-chamber, at or near its floor-line, substantially as and for the purpose described.

3. A lamp-house provided with a smoke-stack for carrying off the gases generated by the lamp, in combination with a car provided with one or more ducts, channels, or openings leading from the atmosphere outside of the car to the space around the lamp on the interior of the lamp-chamber, in the manner substantially as and for the purpose set forth.

4. A lamp house of a street-car, the bottom of which is constructed with a tight concavity, extending below the floor-line, to form a suitable lodgment for the lamp and provide space for use, in connection with the lamp, of a chimney of proper height to insure thorough combustion, substantially as described.

5. A lamp-house of a street car, provided with a cavity in its door, and a dish or receptacle for catching the oil drip from the lamp, substantially as set forth.

6. A lamp-house provided with a lamp and a lens, glass, or other transparent device, through which the light from the lamp may be projected beyond the car for signaling purposes, and a smoke-stack for exhausting the lamp-chamber of the gases generated by the lamp, in combination with a car provided with one or more ducts, channels, or openings, which lead from the atmosphere outside of the car to the space around the lamp on the interior of the lamp-chamber, in the manner substantially as and for the purposes set forth.

7. A lamp-house provided with a lamp and mirrors arranged to reflect the light within the car, and with a smoke-stack for carrying off the gases generated by the lamp, in combination with a car provided with one or more ducts, channels, or openings, which lead from the atmosphere outside of the car to the space around the lamp on the interior of the lamp-chamber, in the manner substantially as and for the purposes set forth.

8. A street-car provided with one or more ducts, channels, or openings for supplying air to the lamp-house from the external atmosphere, in combination with a lamp-house constructed to admit the air to its interior from these openings at a point in the rear of the reflectors, for the purpose of keeping them cool, substantially as set forth.

9. A lamp-house arranged within the car, and constructed to prevent atmospheric communication between the lamp-chamber M and the interior of the car, save when the door is incidentally or intentionally opened, in combination with a car provided with one or more ducts, channels, or openings, *d*, arranged, substantially as described, to lead from the external atmosphere to the space around the lamp on the interior of the lamp-chamber, for the purposes set forth.

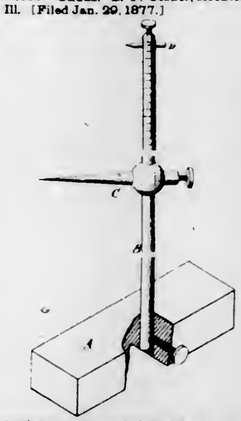
10. A lamp-house of a street car, in which the space around the lamp on the interior of the lamp-chamber M is supplied with air drawn from the outside of the car by means of one or more ducts or channels formed in the wall or walls of the car, in combination with a smoke-stack enlarged between the lamp-chamber and its discharge-opening, and in which enlargement is located a shield, A, of suitable shape, such as an inverted dish, to prevent downward rush of air to the lamp-chamber, substantially as set forth.

11. In combination with the chimney or smoke-stack of the lamp-house of a car, a cap-piece, c^1, provided with a series of small openings, and with a curved or cone-shaped supplemental cap, c^4, substantially as and for the purpose set forth.

12. A lamp-house provided with a shield, A, and a cap-piece, c^3, having a cover, c^5, provided with a number of small openings, and with a convex or conical cap-piece, c^4, substantially as set forth.

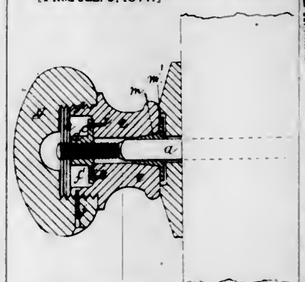
13. A lamp-house of a street-car, provided with pendent fingers *e*, to steady the top end of the glass chimney, and with a tight concavity in its bottom, to hold the lamp in place and catch the oil as it drips therefrom, substantially as set forth.

190,260. GAGES. B. F. Stoner, Rockford, Ill. [Filed Jan. 29, 1877.]



An instrument consisting of head A, notated rod B, adjustable in said head, and the adjustable fingers C D, substantially as shown and described.

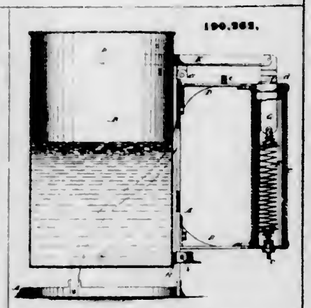
190,261. ATTACHING KNOBS TO SPINDLES. Wm. Sutherland, Manchester, England. [Filed Jan. 9, 1877.]



1. The combination, with the base *e*, having a screw-threaded projection, *f*, and cavity *f'*, of the flanged nut *c d*, adapted to be lodged and secured in such cavity, the spindle *a'*, and the threaded knob or handle *g*, as and for the purpose set forth.

2. In combination, the parts *e*, *g*, *c*, *d*, *i*, and *m m'*, constructed and applied to each other substantially as shown and described.

190,262.



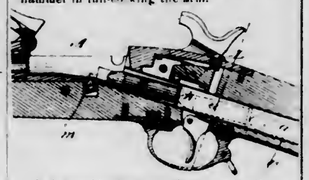
190,263. SIGNAL-CARTRIDGES. E. W. Very, Annapolis, Md. [Filed Feb. 14, 1877.]



A percussion-capped signal cartridge or shell, having a charge of gunpowder, and being provided with two or more signal-balls, directly ignited by the flame of the burning gunpowder, and showing their light from the time they leave the cartridge-case and pistol until they are entirely consumed, substantially as and for the purpose specified.

190,264. MAGAZINE FIRE-ARMS. Wm. W. Wetmore and T. G. Bennett, New Haven, Conn. [Filed Feb. 24, 1877.]

Brief.—After the empty shell is thrown out a new cartridge is released from the magazine by pressing a stud, which operates a stop. Said stud may be pressed by hand or by the hammer in full-cocking the arm.



1. In combination with the magazine C, arranged as described, the lever D, with the spring-hook A, and thumb-piece L, constructed to operate substantially as and for the purpose set forth.

2. The lever E, provided with the stud *m*, and arranged to operate in connection with the lever D, substantially as described, whereby said stud is depressed as the cartridge moves forward from the magazine and is returned to position to throw out the empty shell as the latter is ejected from the chamber of the gun.

3. In combination with a magazine, C, the spring-hook A, with its stop or stirrup *f*, arranged to operate substantially as described.

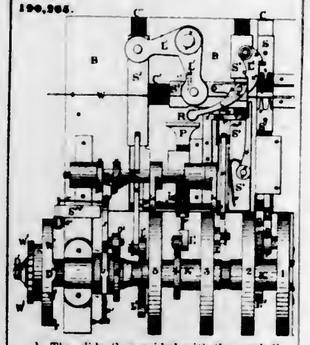
4. In combination with the receiver A, having the magazine-opening through its rear end, a detent for holding and releasing the cartridges of the magazine, said detent being arranged to be operated substantially as described.

190,265. WIRE-DOUBLING MACHINES. O. D. Woodbury and E. C. Woodbury, New York, and S. H. Cole, Brooklyn, N. Y.; said O. D. and E. C. Woodbury assignors to said Cole. [Filed Apr. 12, 1875.]

Brief.—Serpentine or zigzag folds of wire for corsets are made by finger-shaped dies, alternately interlocking endwise, the wire being fed along between the intervals of contact, and at proper and regulated distances longer loops are made, to serve as hooks or

eyes for use when the corset is worn. The long loops are made by the engagement and disengagement of hook levers, which cause a longer and shorter throw to be imparted to the dies.

190,266.



1. The slide S, provided with the comb G, arranged and operating in the manner shown and described.

2. The slides S and S¹, provided with the combs G G, as shown and described, in combination.

3. The slide S², provided with the clamp L, and operating in the manner and for the purposes set forth, in combination with the parallel bar P and the cam No. 4.

4. The slide S², clamp L, and parallel bar P, operating in the manner shown and described, and in combination.

5. The slides S and S¹, arranged and operating to grasp and form the wire at the forward side of the loop, in combination with the slide S², arranged and operating to grasp, carry, form, and release the wire at the rear side of the loop, as set forth.

6. The combination of the slides S and S¹, the slide S², and griping-clamp L, and the plunger P', all operating in the manner and for the purposes described.

7. The slide S⁴, provided with and carrying the plunger P', and the feeding-lever L², each operating alternately in the order and manner shown and described.

8. The combination of ratchet and pattern wheels W² and W¹, and the thrusting-slide S³, when arranged and operated to alter the throw of clamp and plunger slides S² and S⁴.

9. The slide-rods H H, provided with upper and lower sockets O and O', arranged to take on the rolls N N', placed on the rock-shaft arms L³ L⁴ at different distances from the center of motion, as shown.

10. The spring-stop T, in combination with the wedge X, so placed on the clamp-slide S² as to take on and elevate the spring-stop when the slide S² makes its long motion to take up a long length of wire.

11. The subordinate rock-shaft K', provided with the arms and studs shown and described, in combination with the slide-rods H H and the carriers V V.

190,266. FOUNTAIN-PENS. H. Berlin and F. X. Lamboley, New York, N. Y. [Filed Apr. 13, 1877.]



1. The combination of the elastic chamber, the reservoir A, and the supplemental chamber, having a tube for carrying the ink to the pen, substantially as described.

2. The combination, with the reservoir A, of the plunger M, the rod C, having the groove B, the elastic tube D, the supplemental chamber E, and the tube H, having the vent-opening L, substantially as described.

190,267. PRUNER AND FRUIT-PICKER. A. L. Bevans, Flushing, N. Y. [Filed Mar. 16, 1877.]

Brief.—Implement adapted to pruning with knife or rod, and to picking fruit.

1. The stock *d*, provided with the hook *r* and guide lips *i i*, in combination with the plate *n*, saw *v*, rod *e*, and pole *a*, substantially as set forth.

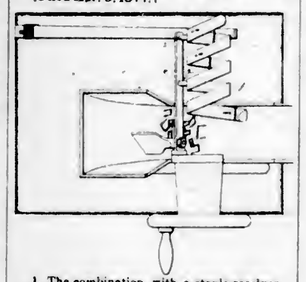
2. The stock *d*, hook *r*, lips *i i*, handle *s*, and screw-rod *e*, constructed substantially as set forth, so as to be adapted to receiving either the sliding cutter *g*, or the sliding plate *u*, of the saw *r*, substantially as set forth.

3. In the pruning instrument, the holes in the stock for the hooks *l* of the removable bag, and the ring *t* upon the handle *a* for the wire-bow *k*, substantially as and for the purposes set forth.

190,267.



190,268. MECHANISMS FOR AUTOMATICALLY SELECTING AND PRESENTING STAPLES. J. W. Bicknell, Boston, Mass., assignor to Boston Machine Company, same place. [Filed Apr. 9, 1877.]



1. The combination, with a staple-receiver, of a picking-up device adapted to automatically pick up staples from a mass of staples, and present them upon the receiver, substantially as described.

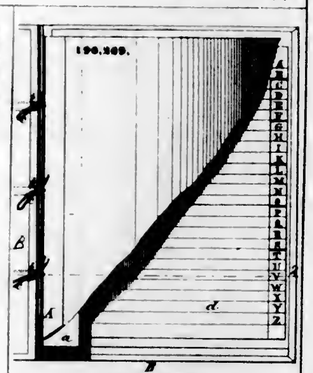
2. The shaft *e*, revolved in a circular path, in combination with its attached picking-up device, made as a coil, and adapted to pick up and move a staple laterally and discharge it, substantially as described.

3. The hopper, the shaft *e*, the picking-up device *f* attached thereto, and the agitator, in combination with the receiver, all substantially as described.

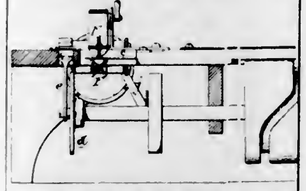
190,269. TEMPORARY BINDERS. W. P. Bissell, Richmond, Va. [Filed Jan. 31, 1877.]

As a new article of manufacture, the invoice or bill file herein described, consisting of a stub, A, having a number of stob ends, *a*, and at suitable intervals between said stub ends the alphabetized index-leaves *d*, the stub being attached to a removable cover, B, by strings, cords, or bands engaging with loops or rings *b* on the cover.

190,269.



190,270. STRAW-SEWING MACHINES. F. Blackburn and V. Moeslein, Philadelphia, Pa., assignors to themselves, H. Friedberger, H. L. Strouse, and B. Strouse, same place. [Filed Jan. 25, 1877.]

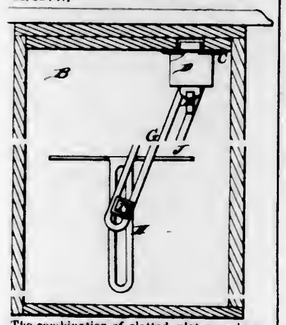


1. The combination, in a sewing-machine, of the fluted rollers F and F', for feeding and crimping the material, with the needle *c*, attached to its needle-bar, and having a reciprocating motion in and out of the said material, as set forth.

2. The combination of the crimping and feeding rollers F and F' with the reciprocating needle *c* and shuttle mechanism, substantially as described.

3. The combination of the reciprocating needle *c* with the notched crimping-roller F, having rigid bearings, and the roller F', having yielding bearings, as set forth.

190,271. LAMP-BRACKETS. C. Bliven and Geo. D. Parker, Norfolk, Va. [Filed Mar. 31, 1877.]



The combination of slotted plates or bars C G H, casing B, block D, lamp-support J, and clamping screws and bolts, substantially as and for the purpose set forth.

190,272. CAR-AXLE LUBRICATORS. John W. Boltman and John G. Ernst, Baltimore, Md. [Filed Mar. 3, 1877.]

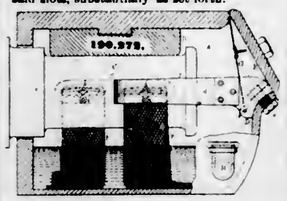
I. In combination with a car-axle box, spring supporting-arms for holding the wicks, the said arms being of unequal lengths, as described, whereby the wicks are held against different parts of the journal, substantially as and for the purpose specified.

2. Spring-arms of unequal lengths for holding the wicks, combined with a removable bar, forming the base of the said arms, and suitable locking devices for securing the said bar to the axle-box, substantially as described.

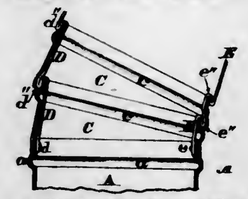
3. Spring-arms of unequal lengths for supporting the wicks, provided at their free ends with serrated slots for receiving the said wicks, thereby admitting the oil to flow freely, as specified.

4. The free ends of the spring-supports for the wicks, slotted substantially as described, and provided with the projecting lips and hinged locks for holding the wicks within the said slots, substantially as set forth.

190,273.



190,273. PIPE-ELBOWS. Wm. Borrman, Cincinnati, Ohio. [Filed Feb. 21, 1877.]



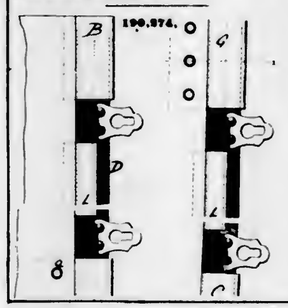
1. A sheet-metal pipe-elbow consisting of two end pieces A *a* B and a series of readily-detachable intermediate sections, C *c*, which end pieces and sections are connected by means of slip-joints, and are united together with one or more internal binders, said binder or binders being locked to one or more of the slip-joints of the elbow, substantially as herein described, and for the purpose set forth.

2. A sheet-metal pipe-elbow consisting of two end pieces, A *a* B, and a series of intermediate detachable sections, C *c*, which end pieces and sections are united together by an internal binder, D, riveted to end piece A *a* at *d*, and clinched to end piece B at *d'*, substantially as herein described, and for the purpose set forth.

3. A sheet-metal pipe-elbow consisting of two end pieces, A *a* B, and a series of intermediate detachable sections, C *c*, which end pieces and sections are united together by an internal binder, D *d d'*, having crimps *d''*, located at one or more joints or laps of said elbow, substantially as herein described, and for the purpose set forth.

4. A sheet-metal pipe-elbow consisting of two end pieces, A *a* B, and a series of intermediate-detachable sections, C *c*, which end pieces and sections are united together by one internal binder, D *d d' d''*, extending along the extrados of the curve, and another internal binder *R e e' e''*, extending along the intrados of said curve, substantially as herein described, and for the purpose set forth.

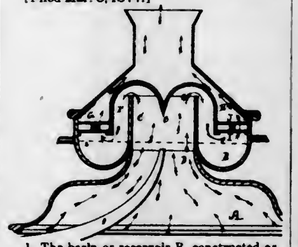
190,274.



190,274. CORSETS. M. P. Bray, Birmingham, Conn. [Filed Mar. 17, 1877.]

The combination, in a corset, of the end pockets B C, one or more flaps, G, and with the intermediate pockets L, substantially as described.

190,275. SPARK-ARRESTERS. R. Brayton, D. June, and O. S. French, Fremont, Ohio. [Filed Mar. 3, 1877.]



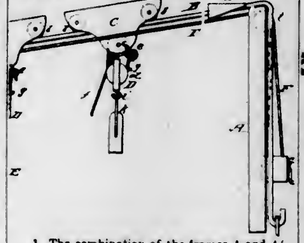
1. The basin or reservoir B, constructed as shown, and fine C made or cast in one piece, in combination with the base A, substantially as and for the purpose set forth.

2. The base A, consisting of one piece of metal, in combination with the reservoir or basin B, constructed as shown, fine C, and shell E, as herein described, and for the purpose specified.

3. The perforated plates I and J, constructed and arranged in relation to each other, and in combination with the reservoir B, substantially as described, and for the purpose set forth.

190,276. HOISTING APPARATUS. D. Brobston, Chicago, Ill. [Filed Aug. 9, 1875.]

Brief.—Two parallel wire track-ropes are supported by a derrick at each end. A carriage on each track is drawn by a rope, which passes to the end, and downward over, at each turn, two grooved drums in a frame, winding at one side and unwinding at the other, to pass upward to the other carriage. Each carriage suspends, by fall-tackle, a basket, which latches itself by a hook, and is released by a stop on the end of the track.

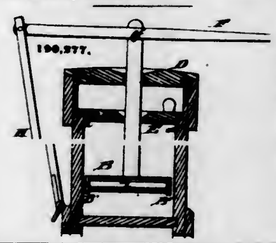


1. The combination of the frames A and A' and traveling-ropes B B with the carriages C C, single rope F, and windlass G, for carrying and returning by the same movement, substantially as specified.

2. The combination of the hook *g* and stop *k* with the carriage C, sheave *c*, pulley-block D, and rope F, having its ends attached to the carriage, substantially as described.

3. The combination of the windlass G with the frames A A' and rope F, for operating the hoisting apparatus in either direction, substantially as set forth.

190,277.

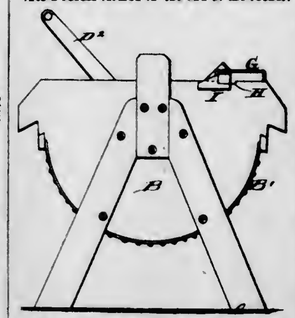


190,277. RECIPROCATING CHURNS. A. F. Brooking, Milton, Ill. [Filed Mar. 31, 1877.]

The combination of churn-box A and dasher B, having end pieces B' B' and two rows of cross-bars, *b*, with rod C, lever F, detachably-hinged standard H, and perforated or slotted covers D and E, substantially as and for the purpose set forth.

190,278. WASHING-MACHINES. James H. Brown, Stewartsville, Mo. [Filed Mar. 10, 1877.]

Brief.—To insert the clothes between the curved rocker and the bottom of the wash-box, one end of the said rocker is tipped above the top of the box, and the stop-bar is slid into a recess formed in the end of the rocker.



The combination of wash-box B, having recesses H and guide-staples G, with rocker D, having recesses F, and stop-bar E, having blocks I I on its ends, substantially as and for the purpose set forth.

190,279. ELECTRO-VOLTAIC BELTS. James Bryan, New York, N. Y. [Filed Aug. 26, 1876.]

Brief.—Relates to method of securing the battery-plates together and to the conducting-plates; also, to means for securing the terminal plates to the belt.



1. In an electro-voltaic and magnetic appliance, the battery-leaves hinged at one end, and having the other end disconnected and overlying the contiguous leaves throughout the battery, substantially as and for the purpose herein set forth.

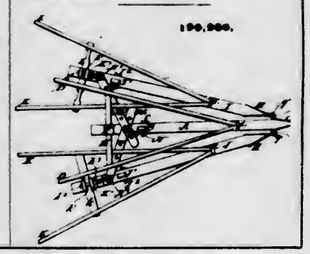
2. In an electro-voltaic and magnetic appliance, the combination of the narrow oblong conductors with the overlying battery-leaves, hinged at one end to said conductors, substantially as and for the purpose herein set forth.

3. The conductor-lipped caps, in combination with the loop-eyed fastenings and the battery, as and for the purpose herein set forth.

4. The terminal plates *d d'*, provided with the edge lips *d''*, adapted to fit one within the other, in combination with the battery, the covers, and the clamp-screws, substantially as and for the purpose herein set forth.

5. The combination, with the terminal plates, constructed as described, of the pads and clamp-screws, whereby all the parts are united by the same screw.

190,280.

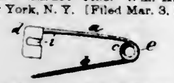


190,280. CULTIVATORS. A. Busenger, Mill Brook Depot, Va. [Filed Mar. 17, 1877.]

Brief.—A shovel-plow having three beams, to be used in combination, or separated and used as single-shovel plows, each beam being provided with a set of handles.

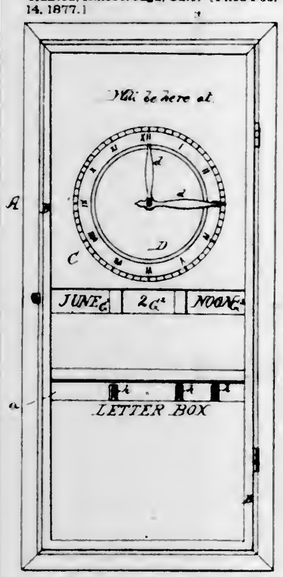
The plow-beam A, constructed as described, and provided with the handles D, in combination with the plow-beam J, provided with the eye L, perforated plate H, of plow-beam J, and upright K', hinged to the beam J at F, whereby the cultivator may be transformed into a double-shovel plow with a single pair of handles, and the upright K' folded down on its plow-beam out of the way, substantially as described.

190,281. SAFETY-PINS. Wm. A. Butler, New York, N. Y. [Filed Mar. 3, 1877.]



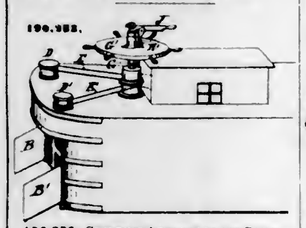
In a safety-pin, the re-enforcing-ring *c*, placed and fastened in the bent portion of said pin, substantially as and for the purpose specified.

190,282. OFFICE-INDICATORS. James R. Clinton, Hillsborough, Ohio. [Filed Feb. 14, 1877.]



In an office-indicator having a dial, D, with hands *d*, the endless belts G^1 G^2 G^3 guided and separated by the cleats *m*, the rollers G G G arranged on a line with each other, and provided with operating wheels *h*, and the slotted shield J, all constructed as described, and inclosed within a case, A B, substantially as and for the purposes herein set forth

190,283.

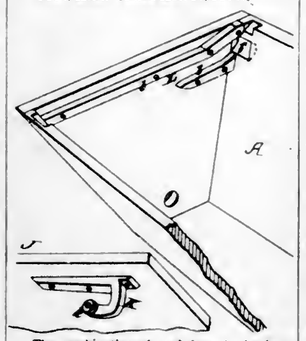


190,283. STEERING APPARATUS FOR CANAL-BOATS. B. R. Cole, Buffalo, N. Y., assignor of one-half his right to D. P. Dobbins, same place. [Filed Apr. 6, 1877.]

Brief.—The shaft of the steering-wheel bears a fast and a loose pulley, which may be locked together in one position, so that both rudders are operated together by chains from the wheel; or, by operating the wheel and locking lever, both rudders may be turned back against the stern of the boat.

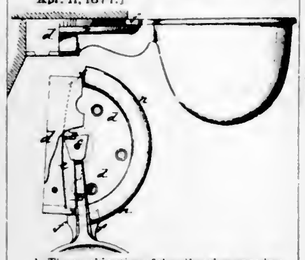
The steering-wheel G', provided with the lever J, shaft G, and rod H', in combination with the chains E E', or their equivalents, pulleys D D', and rudders B B', for the purposes described.

190,284. BROADCAST-SOWERS. L. Coller, Flint, Mich. [Filed Mar. 17, 1877.]



The combination of seed-box A, having guideways L, upwardly inclined at the rear, and recess *f*, with a sliding cover, J, having arm K, rounded at its lower end, and stud *k*, substantially as and for the purpose set forth.

190,285. BILLIARD CHALK-CUPS. Hugh W. Collender, New York, N. Y. [Filed Apr. 11, 1877.]



1. The combination of the vibrating or swinging chalk-cup, provided with a bearing-lug, *f*, with the plate *d*, to which the arm is pivoted, formed with a depressed flange or lip, *s*, at its outer circumference, substantially as described.

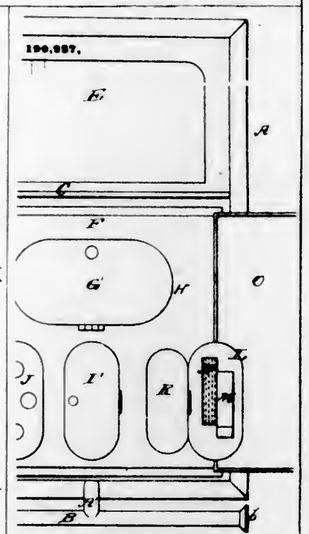
2. In combination with the swinging chalk-holder device, and the stand or fixture to which it is pivoted, means, substantially as described, for effecting the movements of the vibratory arm toward and its retention in the several positions in which the chalk-cup will be exposed for use, or held in an out-of-the-way position, as herein before set forth.

190,286. PIPES AND CIGAR-HOLDERS. Jno. T. Connolly, New York, N. Y. [Filed Feb. 5, 1877.]



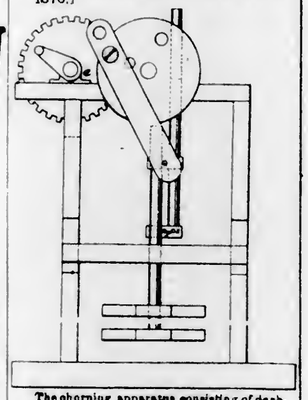
A pipe-stem and filtering chamber, *a b*, with diaphragm *l*, and packing material *m*, with extension *g*, adapted to receive a cigar or connect with a pipe-bowl, substantially as described.

190,287. TOILET-CASES. G. H. Crain, Morrisville, N. Y. [Filed Feb. 24, 1877.]



As a new article of manufacture, a toilet-case consisting of the frame A, towel-rack B, shelf C, mirror E, casing F, having compartments G and I, pin-cushion J, door L, match-holder M, friction-surface N, and cover O, substantially as described, and for the purpose set forth.

190,288. RECIPROCATING CHURNS. John J. Curd, Rockfield, Ky. [Filed Dec. 23, 1876.]



The churning apparatus consisting of dashers arranged to advance toward, and recede from, each other vertically, the rods of the same being adjustably connected to pitmen operated by mechanism above, attached to the main frame, the piston-rods passing through a vertically-adjustable cross-beam, which permits the entrance and rests upon the top of churn-vessels of different degrees of height, substantially as specified.

190,289. SEWING-MACHINE SHUTTLES. D. A. Daly, Detroit, Mich. [Filed Sept. 11, 1876.]

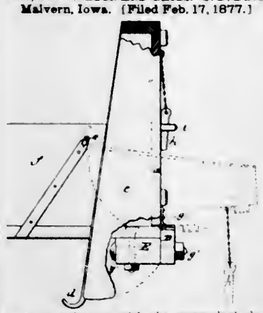
Brief.—To the upper side of the shuttle-case is hinged a gate, provided on its inner side with a pair of tension-disks, adjustable, to vary the tension, by means of a spring on the inside, operated by a screw extending to the outside of the gate.

The combination, with the shuttle-case A, of the gate A', hinged to the top side of the said case, the leaf spring C, secured to the inside of the said gate by the screw *d*, and the tension-disks *c*, whereby the tension is changed without removing the shuttle from the race, constructed and arranged substantially as described and shown.

190,289.

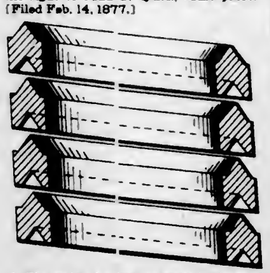


190,290. WAGON END-GATES. S. D. Davis, Malvern, Iowa. [Filed Feb. 17, 1877.]



In combination with the wagon-body having the slotted projecting arms i, side lugs c, and end sill E, the hinged end-gate, having the end piece *b* and extended sides c, provided with curved arms *d*, the detachable bar D, and screw-bolts *g'*, all as shown and described.

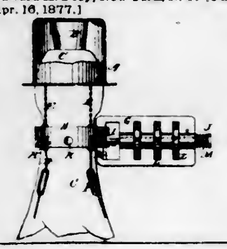
190,291. COILED SPRINGS. Aug. B. Davis, Philadelphia, Pa., assignor of one-third of his right to John B. Quirk, same place. [Filed Feb. 14, 1877.]



1. The spring having the opposite faces of each convolution formed with a centrally-coincident projection and depression, and coincident shoulders or bearing-faces, substantially as and for the purpose set forth.

2. A spring having upon its respective faces a projection and a depression, and bearing-shoulders upon each face, whereby the face of each convolution enters the face of the adjacent convolution, and is supported therein on both sides and restrained by the bearing-shoulders, substantially as and for the purpose set forth.

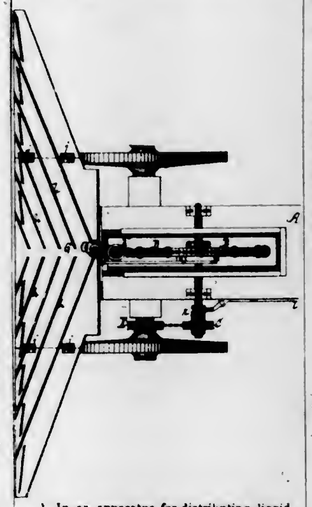
190,292. LOCKING DEVICES FOR BOTTLES. Edward M. Deey, New York, N. Y. [Filed Apr. 16, 1877.]



1. The combination of the cap A, the pendent chains E and links F, the suspended hasp or collar D, and lock G, substantially as specified.

2. The bolt J, the spring M, the disks I, the frame G, and the hasp or collar D, combined and arranged substantially as specified.

190,293. APPARATUS FOR DISTRIBUTING LIQUID MANURE. Julius d'Heureuse, Schmetsdorf, Prussia, assignor to R. d'Heureuse, New York, N. Y. [Filed Apr. 4, 1877.]



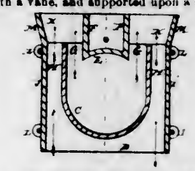
1. In an apparatus for distributing liquid manure, the combination of an endless bucket-chain, D, tube K, chute G, and box A, substantially as and for the purpose herein set forth.

2. In an apparatus for distributing liquid manure, the combination of a swivel-spout, F, with the endless bucket-chain D, tube K, and box A, substantially as and for the purpose described.

3. In an apparatus for distributing liquid manure, the combination of a chute, G, having slats *h*, and made in sections, with a wagon-box, A, and with a pumping mechanism, all constructed and operating substantially as and for the purpose herein set forth.

190,294. VENTILATORS FOR CHIMNEYS. J. Drake, New York, assignor of one-half his right to A. Van Horn, Brooklyn, N. Y. [Filed Mar. 23, 1877.]

Brief.—The ventilator is to be surmounted with a vane, and supported upon a spindle.



1. The combination of the U-shaped vertical smoke-pipe C with the deflector E, having its sides F within the mouth of the U, and extending beyond the same to the end of the case or box, as and for the purposes set forth.

2. The combination of the U-shaped vertical smoke-pipe C and deflector E, having side walls F, as described, with the side plates I and J of a square box, and air-passage-ways H between them and the sides of the vertical smoke-pipe, as and for the purposes set forth.

3. The combination of the horizontal slats N, side walls F of deflector E, slots G of vertical smoke-pipe, and atmospheric-air passage-ways H, all arranged and operating as and for the purposes described.

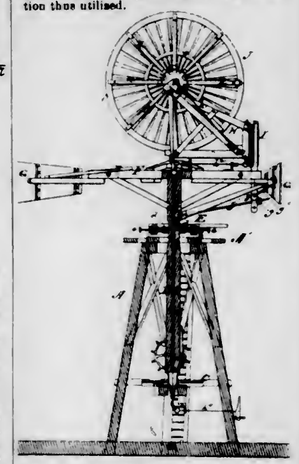
190,295. FAUCETS. Paul E. Dummer and Peter E. Malmstrom, New York, N. Y. [Filed Mar. 22, 1877.]



In combination with the spigot A and faucet-body or shank B, the cushion *b*, spring *c*, and adjusting screw *d*, the whole arranged to operate substantially as described.

190,296. WINDMILLS. E. H. Earle, Cameron, Mo., assignor of one-half his right to Wm. Hollington, same place. [Filed Feb. 10, 1877.]

Brief.—The shaft has its bearings in the overhanging portions of a frame, which is suitably pivoted to an upright, which is located at that end of the horizontal beam nearest to the wind-blade. The upright extends both above and below the beam, and it is pivoted to the latter, so that it can be adjusted by means of nuts on brace rods, and thus a wagging of the wheel-frame is prevented. By means of rods the rotary motion of the wheel can be transmitted to various kinds of machines, and the power of the wheel in motion thus utilized.



1. In a self-regulating windmill the slotted frame E, on platform C, adjustable, as described, and provided with adjustable half-boxes *d d*, in combination with the main shaft D, substantially as set forth.

2. The upright I, adjustable on the beam F, as described, in combination with the horizontally-swinging frame H, and with the movable weight *w* and rope *i*, substantially as described.

3. The arm K, pivoted to a frame, H', springing from beam F, and provided with an adjustable weight, *w*, in combination with the vibrating wheel-frame H, substantially as described.

4. Wheel J, having its blades secured to a flanged hub, *n*, and also to loops *o*, in combination with dished or bracing spokes K, and radial braces *q*, all put together as described and shown.

5. In combination with the vibrating wheel-carrying frame H and its loaded governing-arm K the wind blades or vanes G G' applied to the beam F, substantially as described.

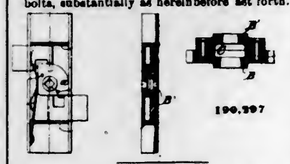
190,297. LOCKS FOR DRAWERS, &c. Frederick Egge and Friend W. Smith, Bridgeport, Conn. [Filed Mar. 26, 1877.]

1. The stamped lock hub or cam, constructed of separately-made and rigidly-united sections, with the hollow trunnions B B', formed by the metal displaced at and around the opening for the key, as set forth.

2. A sectional lock hub or cam composed of two or more main parts stamped out of sheet metal, recessed upon their inner sides or con-

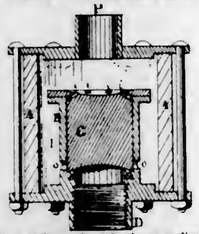
tignous surfaces to form a central chamber, and secured together by riveting or otherwise, as set forth.

3. The combination of the trough-like lock-back, the cap or covering plate, having ends which project through, and are headed against the lock back, and the cam or hub mounted in said back and plate and operating upon the bolts, substantially as hereinbefore set forth.



190,297

190,298. SAFETY-VALVES. Wm. M. Ernst, New York, N. Y. [Filed Nov. 6, 1876.]



1. In a safety-valve, the inner cylinder B, provided with orifices *o o* and valve-seat *s*, in combination with piston-valve C and outer cylinder A, provided with outlet P in the cover of said cylinder, all arranged and operating together, as shown and described.

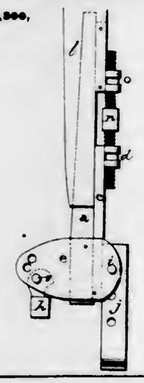
2. The valve C, provided with the orifices *i i*, in connection with the inner cylinder B, provided with the orifices or outlets *o o*, and outer cylinder A, provided with outlet P, as herein shown and described.

190,299. TUBS, PAILS, CASKS, &c. Henry W. Farley and Marcius C. Richards, Oswego, Ill. [Filed Mar. 14, 1877.]



The combination, with a vessel, A, having an annular groove, *b'*, and the bottom or head having a beveled edge, *a*, adapted to be received in said groove, of the metallic shield applied upon the inside of said bottom or head, and formed or spun over upon the said beveled edge, substantially as specified.

190,300.



190,301. TIRE-TIGHTENERS. Oscar F. A. Faulkner, Mount Pleasant, Iowa. [Filed Apr. 4, 1877.]

1. The combination of the clasp *e* and removable cam *h*, whereby the machine is held in position, substantially as shown.

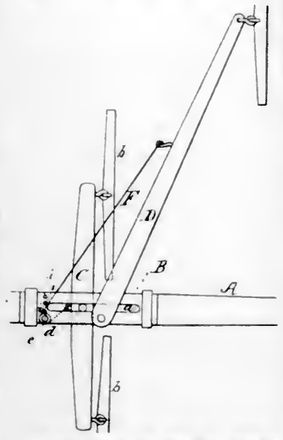
2. The post *j*, provided with a series of holes, in combination with the bar *a*, whereby the machine can be lengthened or shortened, substantially as set forth.

3. The combination of the bar *a*, jack *l*, screw *n*, clasps *e*, and cam *h*, substantially as shown.

190,302. PAINT COMPOSITIONS. J. Fetzer, Rolla, Mo. [Filed Mar. 20, 1877.]

A paint composition consisting of calcined clay, plaster of paris, borax, calcined magnesia, alum, hydrochloric and sulphuric acid, shellac, carbonate of soda, glue, tragacanth gum, linseed and castor oil, and water, in the proportions substantially as herein set forth and described.

190,303. DRAFT-EQUALIZERS. John M. Forney, Victor, Iowa. [Filed Mar. 10, 1877.]



1. In combination with the pole A, having bridge-strap B, provided with slot *a*, the double-tree C, having plate *c* and spur *d*, substantially as specified.

2. The combination of the pole A, having the longitudinally-slotted bridge strap B, provided with pulley *e*, with the third-horse lever D, and the rope or chain passing over said pulley, and secured at its ends, respectively, to the double-tree and lever, substantially as specified.

3. The laterally-adjustable pulley *e* and cord F, in combination with the vibrating lever D, and the vibrating and front and rearwardly movable double-tree C, substantially as specified.

4. The longitudinal bridge-strap B, having slot *a*, in combination with the double-tree *c*, having a projecting spur working in said slot, substantially as specified.

5. The combination, with a vibrating lever, D, a draft-pole, A, and a vibrating and front and rearwardly movable double-tree, of the bridge-strap B, having spaced perforations *i*, the pulley *e*, the pin *f*, and rope or chain F, substantially as specified.

190,302. TICKET-PUNCHES. J. S. Foster, Auburn, N. Y., assignor to himself and D. M. Dunning, same place. [Filed Feb. 14, 1877.]

1. In a ticket-punch having a main punch for perforating the ticket, and an auxiliary punch for perforating a paper tape, the main punch made in two parts, G G', and the part G' also forming the auxiliary punch *h*, and the two parts having the shoulders *w w*, constructed and arranged as described, so that the resistance of the ticket against the part G' of the main punch will cause the auxiliary punch *h* to perforate the tape, substantially as herein set forth.

2. The combination of the slide D, the main punch G G', made in two parts, the part G being fastened in the slide, and the part G' loosely passed through the same, and extended to form the auxiliary punch *h*, and the collar *f*, fastened on said auxiliary punch, substantially as and for the purposes herein set forth.

3. The stationary pin or stop *k*, in combination with the slide D, auxiliary punch *h*, and collar *f*, substantially as and for the purposes herein set forth.

4. The passages *x* and *y*, made through the part D' of the slide D, and through the case A and handle C, substantially as and for the purposes herein set forth.

5. The cam *s* upon the hammer I, in combination with the inclined flange *r* thereon, and the pin *t*, for the purposes set forth.

6. The operating-slide made in two parts, H and H', the plate H carrying the devices for sounding the alarm and operating the register, and the plate H' carrying the device for winding the tape, substantially as herein set forth.

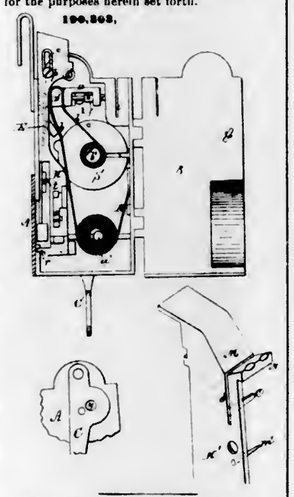
7. The plate H', provided with the finger-piece M, having the finger projection N, for the purposes herein set forth.

8. The sword O, attached to the plate H', and operating in the ticket-slot *s*, for the purposes herein set forth.

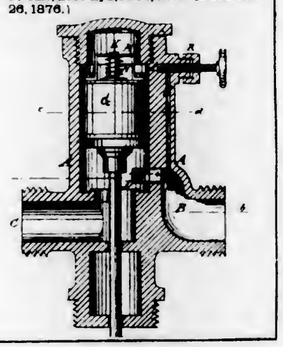
9. The pin *a'*, attached rigidly or stationary to the plate H', for operating the tape winding mechanism, as herein set forth.

10. The combination of the cap *b'*, slotted and slitted as described, with the ratchet-wheel T, having hollow hub *d'*, with lug *i'* on its side, and the disk S, substantially as and for the purposes herein set forth.

190,303.

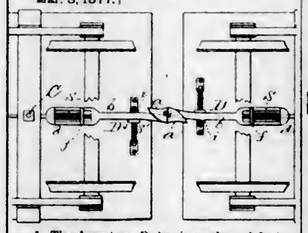


190,304. VALVES FOR WATER-CLOSETS. M. F. Gale, Brooklyn, E. D., N. Y. [Filed Oct. 26, 1876.]



The combination, with the casing A, having the passage S, of the plug-valve L, spring N, hollow stem K, having one or more openings or outlets, P, and the cylinder G, as and for the object specified.

190,305. CAR-COUPLINGS. F. Gibford and L. C. McCormick, Newton, Iowa. [Filed Mar. 3, 1877.]



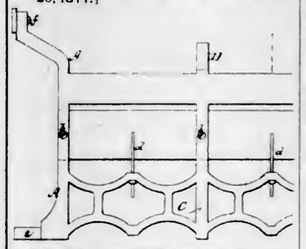
1. The draw-bars D, having enlarged locking heads *e*, provided each with a longitudinal central groove, *c*, in front, adapted to receive the shank *b* of the other between its flanges *r*, and having the plane rear shoulders *t*, each adapted to bear on the other across the shank, combined, substantially as specified.

2. The combination, with a car-body, its truck and king-bolt, of the bar E, having an eye, *h*, adapted to receive said bolt C, the draw-bar D, having enlargement *d'*, provided with oblong slot *e*, the non-rotating slide-nut *f*, and spring S, substantially as specified.

3. The combination, with a horizontally-vibrating draw-bar, D, of the stirrup F, having slot *i*, carrying a non-rotating slide-nut, *j*, the rod *l*, and spring S', substantially as specified.

4. The combination, with a car-body, its truck and king bolt, of the draw-bar attached directly to said bolt, and a brace secured at one end to said bolt, and at the other to the car-body, substantially as specified.

190,306. UPRIGHT-PIANO ACTION-FRAMES. P. Gmehlin, New York, N. Y. [Filed Apr. 20, 1877.]



1. In combination with the metallic action-frame and wooden hammer-rail, the tension-bolts *d d*, substantially as and for the purpose described.

2. In combination with the metallic action-frame A B C, the horizontally-projecting pivot-pins *e* at or near the foot of the uprights A B, substantially as specified.

3. The uprights A B of a metallic action-frame, bent or extended laterally outward, and provided at their upper ends with screws *f f*, by which they can be fastened to the piano-case, substantially as specified.

4. The uprights A B of a metallic action-frame, provided at their lower ends with projecting pivot-pins *e*, and bent or extended laterally ontward at their upper ends, to be fastened by screws *f* to the piano-case, substantially as specified.

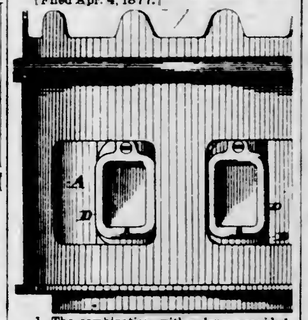
190,307. REAMERS. A. Goddard, Essex, Conn., assignor of one-half his right to E. A. Goddard, New York city. [Filed Feb. 5, 1877.]

As a new article of manufacture, a reaming-tool of which the bit portion is constituted of a series of longitudinal projections or ribs, starting from the body of the stock, and extending, with a spiral inclination from the right toward the left, to the end of the same, the right salient angles of said ribs severally being the cutting angles, as described and shown.



190,307.

190,308. OIL AND GAS STOVES. Dexter W. Goodell, Florence, Mass., assignor to Florence Machine Company, same place. [Filed Apr. 4, 1877.]



1. The combination, with a drum provided with a free side opening, of a chimney having a door or movable window opposite the said opening, substantially as described.

2. The combination, with one or more chimneys inclosed by a drum, having free openings in its wall, of doors or movable windows, provided with mica lights, and corresponding to the said openings, substantially as described.

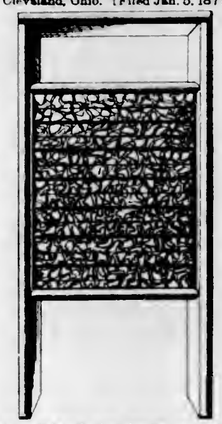
3. The combination, with a chimney provided with a swinging door or window, of a drum having a corresponding side opening, the same constructed as described, whereby the said door or window swings out through the side opening beyond the circular plane of the drum, substantially as described.

4. The combination, with the swinging door or window frame, provided with a mica light, of the independent guard plate and loose pivotal engaging device, substantially as described.

5. The combination, with the door or window, provided with a locking-finger, of a supporting-frame made with the finger-engaging stud, substantially as described.

6. The combination, with the door or window provided with a mica light, of the loose guard-plate, made with the upper slotted extension, and the clamping screw or pin passing through the latter, substantially as described.

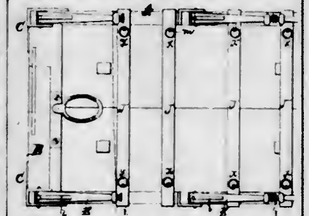
190,309. WASH-BOARDS. J. M. Gorham, Cleveland, Ohio. [Filed Jan. 5, 1877.]



A wash board plate having the ordinary main crimps, and an irregularly-nodnled or morocco finished surface, substantially as described.

190,310. COOLING-BOARDS. T. H. Graves, Granville, Ohio. [Filed Sept. 9, 1876.]

Brief.—The frame is composed of two parallel side rails, connected by end rails, each of which is made in two pieces, sliding together, so as to make the frame adjustable in width. The corners are secured by corner-plates, constructed with top and bottom loops, to receive the legs and pail-posts. Said legs and posts are pivoted in the sockets, and secured in position by spring catches. The bottom of the frame is formed by movable doors, secured to the side rails by hinges, and held in position by catches.

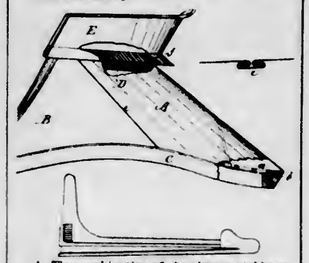


1. A cooling-board the frame of which is adjustable sidewise, having hinged doors G G, forming the bottom of the same, and a series of detachable cross-straps, J, for supporting the corpse, substantially as herein set forth.

2. The combination, in a cooling-board, of the metallic plate C at each corner of the same, having top and bottom loops *a a*, the hinged folding legs D D, and hinged folding posts E E', the legs and posts having spring-catches *h*, and capable of being folded independently of each other, all substantially as and for the purposes herein set forth.

3. The combination, in a cooling-board, of the laterally-adjustable frame A B, the doors G G, connected to the same by the slotted hinges *d d*, and the latches *f f*, all constructed substantially as and for the purposes herein set forth.

190,311. METAL WAGON-BODIES. S. P. Graham, London, Ontario, Canada. [Filed Oct. 16, 1876.]



1. The combination of the sheet-metal boot A, having the inward-turned flange *b* around its lower edge, with the plate *c* and the screws or bolts passing through the sill C, and confining the boot by clamping the flange upon the upper side of the sills, as shown and described, for the purpose specified.

2. The L-shaped brackets, provided with a groove, as shown, in combination with the sides of the body, as and for the purpose specified.

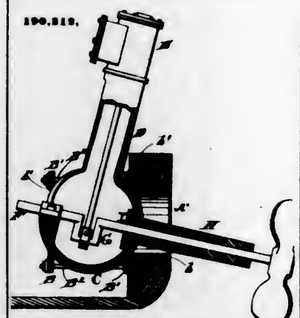
3. The carriage-body formed of the sheet-metal back or boot A and side pieces B, united by the lock-joints *c*, as and for the purpose specified.

190,312. COMBINED ADJUSTABLE ENGINE AND SCREW-PROPELLER. E. N. Gray and G. E. Noyes, Washington, D. C. [Filed Mar. 31, 1877.]

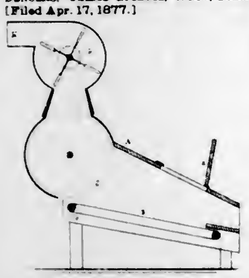
1. A propeller-shaft and propelling mechanism attached directly to a ball and socket joint, whereby water is excluded, but both vertical and lateral motion of the propeller allowed, substantially as and for the purpose set forth.

2. The combination of metal socket frame B, ball C, engine-frame D, cylinder E, propeller-shaft F, and sleeve H, substantially as and for the purpose set forth.

190,312.

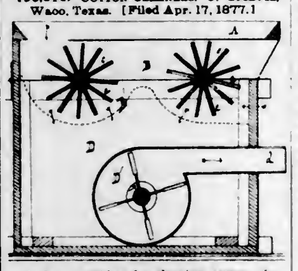


190,313. COTTON CLEANERS AND CONDENSERS. James Greaves, Waco, Texas. [Filed Apr. 17, 1877.]



1. In a cotton-condenser, the combination of an endless apron, a revolving screen, and a fan-blower, all arranged substantially as described.
2. In combination with the screen C, the apron B, having slotted bearings *b*, substantially as described, and for the purpose set forth.
3. The case A, having lid *a*, in combination with the apron B, screen C, and fan G, substantially as described.

190,314. COTTON-CLEANERS. J. Greaves, Waco, Texas. [Filed Apr. 17, 1877.]

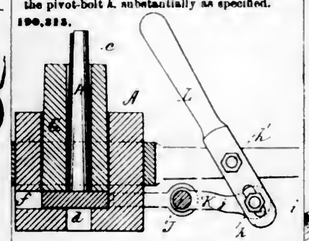


1. In a machine for cleaning cotton, the combination of a series of pickers, to agitate and whip the lint, a screen over which the lint is carried, and a fan-blower, to induce a current of air through the screen, arranged substantially as described.
2. The pickers *c c*, in combination with the curved screen B' and fan D', all arranged as set forth.
3. The combination of the hopper A, pickers *c c*, screen B', and fan D', all arranged substantially as described.

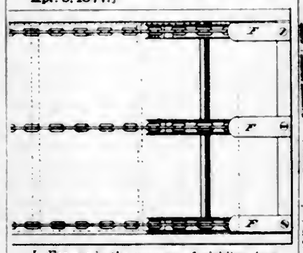
190,315. FORMERS FOR MAKING FOLLOWER-PLATES FOR DRAW-HEADS. John Green, Sunbury Pa., assignor of one-half his right to J. M. McKee, same place. [Filed Mar. 24, 1877.]

1. The combination, with the die-box A, having slot F, slideways *b b'*, the punch-aperture, and exit-slot *f*, of the die G, having a central orifice, *c*, registering with the orifice *d* aforesaid, substantially as specified.
2. The combination, with a die-box, A, having an exit-slot for the struck-out plate, of the pusher-rods I and the cross-head J, connecting said pushers, the connecting-rod K, and a vertically-vibrating lever, L, substantially as specified.
3. In combination with a die-box, the yoke B, embracing said box, and provided with a handle and set-screws, substantially as specified.
4. In combination, the die-box A, having exit-slot *f*, the spaced pushers I, the cross-head J, its connecting-rod K, having an eye, *j*, the furcated lever L, having oblong slots *i*, and the pivot-bolt *k*, substantially as specified.

190,315.



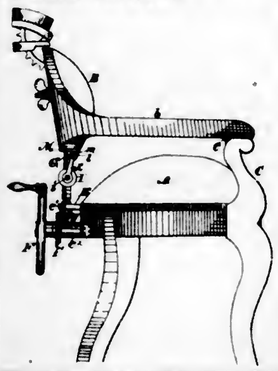
190,316. APPARATUS FOR PICKLING SHEET-IRON. J. D. Grey, Baltimore, Md. [Filed Apr. 5, 1877.]



1. For use in the process of pickling iron, the acid-tank, traveling chains, and cross-shafts, combined as shown and described.
2. For use in the process of pickling iron, the combination of the inclines F with the tank and endless chains, as shown and described, for the purpose specified.

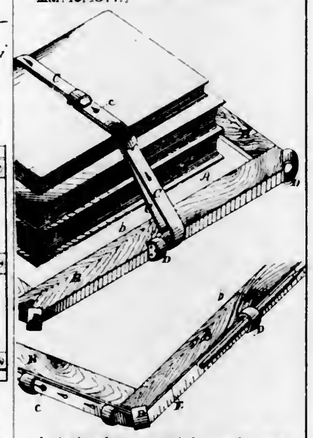
190,317. BARBERS' CHAIRS. J. Griendling, Sr., Philadelphia, Pa. [Filed Dec. 22, 1876.]

Brief.—A bracket attached to the rear of the seat-frame supports a horizontal shaft and a vertical adjusting screw, connected together by bevel-gears, and operated by a hand-wheel. A nut having trunnions and traveling on the adjusting-screw is connected by links with the rear of the chair-back, which, being pivoted at the front end of the arms to the front standards, can be adjusted by the means above described.



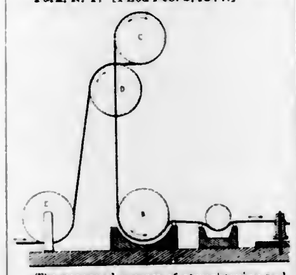
1. The bracket E, having flange *e'* and stud or boss *e''*, the latter forming a socket or bearing for the shaft *f* and step for the screw-spindle G, substantially as shown and described.
2. The combination, with the shaft *f*, having its bearing in the stud *e''*, of the screw-spindle G, having bevel-gear *g*, located below the flange *e* of the bracket E, and meshing with the wheel *f'* on said shaft *f*, substantially as shown and described.
3. The combination of the screw-spindle G, nut I, having trunnions *i i*, swiveled arms K K, and plates M M, secured to the chair-back B, substantially as shown and described.
4. The chair A, having back B, hinged to standards C, in combination with bracket E, formed with flange *e'* and boss *e''*, shaft *f*, having gear *f'* and hand-wheel F, screw-spindle G, secured to gear-wheel *g*, and nut I, having trunnions *i i*, swiveled arms K K, and plates M M, constructed and arranged for joint operation, substantially as shown and set forth.

190,318. COMBINED SLATS AND BOOK-CARRIER. John Haggerty, Corry, Pa. [Filed Mar. 19, 1877.]



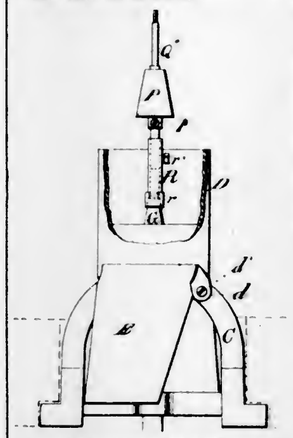
1. A slate-frame provided upon its outer edge with the loops D, or their equivalents, arranged to receive and retain the removable strap C, substantially as and for the purposes described.
2. A slate-frame having the loops D, or their equivalents, arranged as described, the mortises *b*, and the strap C, substantially as and for the purposes mentioned.
3. A slate-frame having the loops D, or their equivalents, arranged as described, the mortises *b*, and the strap C, having measures of length thereon, substantially as and for the purposes mentioned.

190,319. PROCESSES OF STRAIGHTENING AND COATING WIRE. J. L. Haigh, New York, N. Y. [Filed Feb. 5, 1877.]



The improved process of straightening and coating steel wire by conducting it under tension from the last bath or heater in a substantially vertical direction, and maintaining it in that direction through a sufficient distance to permit the wire to be cooled, as set forth.

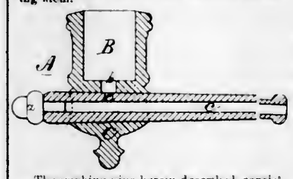
190,320. FEED-REGULATING DEVICES FOR MILLSTONES. N. Hamer, Hooversville, Pa. [Filed Jan. 13, 1877.]



1. The combination of the conveyer D, provided with the arched bottom block F, inclined diverging chutes E E, and perforated lugs *d*, with the arched balance-rynd C, substantially as described, and for the purpose set forth.
2. A conoidal damsel, provided with an extensible shank, substantially as and for the purpose set forth.
3. The combination of the damsel P with tapering solid shank Q and sleeve R, having socket *r* and clamping-screw *r'*, substantially as set forth.

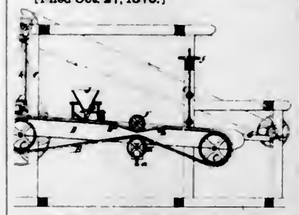
190,321. TOBACCO-PIPES. H. D. Haraden, Hartford, Vt., assignor of a part of his right to A. L. Pease, same place, and P. B. Smith, Lebanon, N. H. [Filed Feb. 17, 1877.]

Brief.—The base of the bowl has a horizontal opening filled by the removable tapering stem.



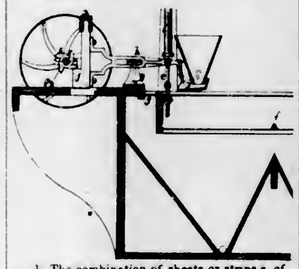
The smoking-pipe herein described, consisting of the bowl A, having the chamber B, the transversely-perforated body portion C, and perforation *b*, and the removable stem D, having the opening *c* and detachable end plug *z*, substantially as specified.

190,322. FRUIT-DRYING APPARATUS. Wm. Hooper, Ticonderoga, N. Y., assignor to New York Ore Separator Company. [Filed Oct. 27, 1876.]



1. The combination of the roller F and rolls *b b*, forming a depression in the sluiced apron B, with said apron, its two supporting-rollers, C C, and the shoe, substantially as described.
2. The combination of suspended links *d*, jointed bars *e*, connecting-rods G, cranks *c*, crank-shaft H, and springs O (one or more) with the shoe D and sluiced apron B, substantially as and for the purpose described.

190,324. TROUGH-JIGS. William Hooper, Ticonderoga, N. Y., assignor to New York Ore Separator Company. [Filed Oct. 27, 1876.]



1. The combination of sheets or strips *g*, of india-rubber or other flexible material, with a jig hinged at one end, and connected at its opposite end to a tossing mechanism and with a tank, which contains the jig, and supports its hinged end, substantially as and for the purpose set forth.
2. The combination of a shoe, F, hinged to a hopper, with a tossing mechanism, and with a jig, which is situated in a tank, to which it is hinged at one end, its opposite end being connected to the same tossing mechanism, which imparts motion to the shoe, whereby the supply of ore to the jig is adapted to the demand, substantially as shown and described.

190,326. PROCESSES OF SEPARATING SLUDGE FROM IRON ORES. Wm. Hooper, Ticonderoga, N. Y., assignor to New York Ore Separator Company. [Filed Oct. 27, 1876.]

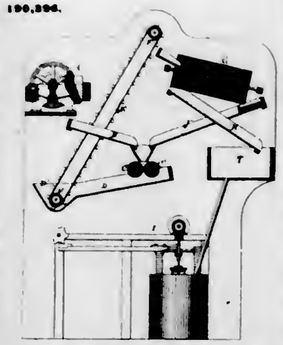
The within-described process of removing sludge from iron ore by exposing the ore, while being subjected to the action of the crusher, the rolls, and the separating sieves, to a current of air produced by suction, substantially as herein set forth.

190,325. APPARATUS FOR BRUSHING, GRINDING, AND SEPARATING ORE. Wm. Hooper, Ticonderoga, N. Y., assignor to New York Ore Separator Company. [Filed Oct. 27, 1876.]

Brief.—The crusher, grinding-rolls, separating sieves, and jig are arranged in such relation to one another that the material passes automatically and successively through each, without the necessity of handling.

The combination, in an apparatus for treating ore, of an ore-crusher, A, inclined sieve B, crushing-rollers C C', inclined chute D, and well D', elevator E, rotary sifter G, chutes H J, and separator I, the whole being constructed and operating substantially as described.

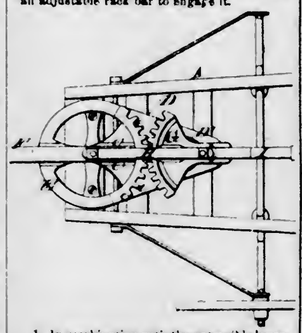
190,327. GRAIN-SEPARATORS. R. J. Horton, Massena, N. Y. [Filed Mar. 20, 1877.]



1. The fan with curved blades A, in combination with adjustable wind-guides B, substantially as described.
2. The reversible sieve-box D, consisting of the coarse screen *a*, the finer screen *c*, and the intermediate chute-board *d*, dividing the space between the sieves into two compartments having separate discharge-outlets, substantially as described.
3. In combination with the screen and the casing having grooves M, the rod *p*, formed with journals or spindles at the ends, substantially as and for the purpose set forth.
4. In combination with the long sieve Z and fan, the shaff-divider P below the tail-board, working in grooves *r* in the pivoted arms, substantially as described.

190,328. CULTIVATOR ATTACHMENTS. W. P. Hubbard and J. W. Robinson, Farmland, Ind. [Filed Jan. 6, 1877.]

Brief.—A horizontally-pivoted tongue operated by a horizontally-pivoted lever, each having cogged segments, and both turning on the same bed-plate. An extensible lever and an adjustable rack-bar to engage it.

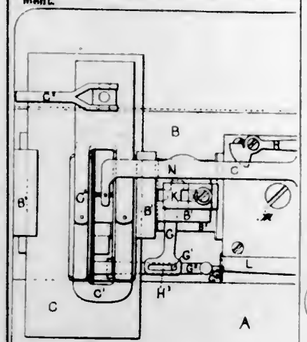


1. In combination with the extensible lever I and adjustable rack-bar J, the plate D and the tongue and lever gears E G, substantially as described, and for the purpose set forth.

2. In a wheel cultivator, the supporting-plate D, with its extension D', made in one piece, and attached to the transverse brace of the wooden frame A, in combination with the pivoted tongue F, having gear E, and the pivoted lever I, having gear G, whereby the gears are supported by said plate, always held in engagement with each other, and shielded from obstructions from below, substantially as described, and for the purpose set forth.

190,329. BUTTON-HOLE ATTACHMENTS FOR SEWING-MACHINES. Thos. S. Huntington, New York, N. Y. [Filed Feb. 5, 1877.]

Brief.—The material in which the button-hole is to be made is fed either forward or back, or allowed to remain without longitudinal motion, (the sidewise reciprocation continuing as long as the machine is in operation,) by means of a rack and pinion operated by a double clutch on the shaft of the pinion, the motion being governed by the movement of an adjusting-lever, which, as desired, throws an operating-bar into contact with either or neither toe of the clutch to feed in either direction, or cause the longitudinal feed to cease entirely while barring the button-hole. The same adjusting-lever, by the same adjustment, determines which side of the button-hole shall come into position under the needle. The movement of the clamp sidewise is caused by an eccentric on the main shaft of the attachment.



1. The combination, with the bed-plate of the attachment, and the mechanism for clamping the material, of a friction-clutch and pawl constructed substantially as described, and operating mechanism, whereby the material being operated on may be fed in opposite directions, or be brought to a state of rest, essentially as described.

2. The combination, with the sleeve E^1 and pinion-shaft E^2, of the double pawl E, pivoted in said sleeve, and provided with toes, as described, whereby the said shaft may be revolved in either direction by pressing upon either of said toes, as and for the purposes set forth.

3. The combination, with the sleeve E^1, pinion-shafts E^2, and double pawl E, pivoted in said sleeve, as described, of the tripping-piece G^3, sleeve G, and operating mechanism, whereby either of the projections or the said tripping-piece may be brought in contact with its appropriate toe on the double pawl, and thereby revolve the pinion-shaft in either direction, as and for the purposes set forth.

4. The combination, with the tripping-piece G^3 and slide G^4, of the lever G^2, connected with said tripping-piece, as and for the purposes set forth.

5. The combination, with the mechanism for clamping the material, the pinion-shaft E^2, and the friction-clutch and pawl for operating the same, of the tripping-piece G^3, levers G^2 and G^4, cam H, and spring H^1, whereby the proper motions are imparted to the said clamping mechanism, as and for the purpose set forth.

6. The combination, with the actuating-lever G^1 and tripping piece G^3, of the spring-gage L, as and for the purposes set forth.

7. The combination, with the clamping mechanism and the slide B^1, for carrying the same, of the slide B_1, adapted to be reciprocated in suitable guides, of a mechanism interposed between said slides for adjusting the position of the button-hole with respect to the stitch-forming mechanism, as and for the purposes set forth.

8. The combination, with the slides B^1 and B^2 and gage or key G, constructed as described, of the actuating-lever G^1 and spring-gage L, as and for the purposes set forth.

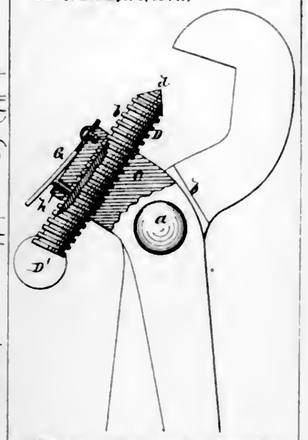
9. The combination, with the slides B^1 B^2 and the gage or key G, constructed as described, of the adjustable steps K and K', whereby the amount of lateral movement of the clamp may be varied without moving said gage or key, as and for the purposes set forth.

10. The combination, with the slides B^1 B^2, gage or key G, and tripping-piece G^3, of the lever G^2 and spring-gage L, whereby the button-hole is brought in the proper relative position to the stitch-forming mechanism for stitching its sides and barring its ends, and the foot at the same time is adjusted to move the proper direction, or be brought to a state of rest, as and for the purposes set forth.

11. The combination, with the slide B^2, provided with the projection P^1, of the spring presser-foot N, whereby it is caused to rest upon the material during the time that the needle is in said material, as and for the purposes set forth.

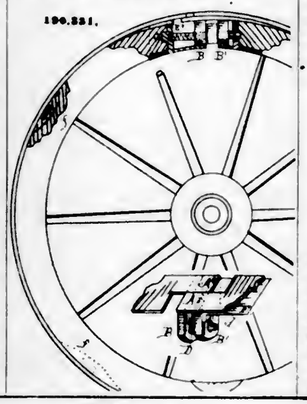
12. The combination, with the slide B^2 and spring presser-foot N, of the lever R, for raising the said spring presser-foot from the material, as and for the purposes described.

190,330. PIPE-TONGS. A. H. Jarecki, Erie, Pa. [Filed Apr. 6, 1877.]



The spring G, with pin A, in combination with the head C and the bolt D, having longitudinal groove i, and thumb-piece D' on the lower end of same, substantially as and for the purposes herein set forth.

190,331.



190,332. TIRE-TIGHTENERS. C. H. Jacobs, Winnebago, Ill. [Filed June 5, 1876.]

1. A wagon-wheel tire having the lateral laps A A^1, terminating in the perforated sod screw tapped lug B, and the perforated lug B' having a dust-guard, F, in combination with the bolt D having a tenon, *d*, and so arranged that by forcing the lugs apart the tire may be tightened, all substantially as described and shown.

2. In combination with a wagon-wheel tire, having the lateral lapped ends A A^1 and lugs B B' and *f*, the screw-bolt D, and the sockets E E', fastened to the meeting-ends of the felly, substantially as described and shown.

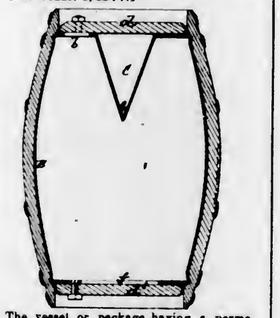
190,333. DRILL-BITS. M. John, Pittston, Pa. [Filed Mar. 12, 1877.]

Brief.—The drill is adapted for mining coal, and to admit of readily sharpening.



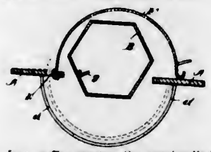
As a new article of manufacture, a drill bit consisting of a blade, *a*, and parallel ribs *b* at both edges and on both sides of said blade, the lower ends of the ribs being formed into sharp-edged lips *c*, and the end of the blade being sharpened, and projecting beyond said lips, as set forth.

190,333. REFRIGERATING OYSTER-PACKAGES. James C. Jones, New York, N. Y. [Filed Mar. 6, 1877.]



The vessel or package having a permanent or irremovable metal lining, B, provided with one or more ice-chambers, C, at one end of the vessel, and with a filling-opening, *b*, at said end, in combination with a removable head, *d'*, which covers and closes an enlarged discharge-opening, *f*, in said lining at the opposite end of the vessel, substantially as specified.

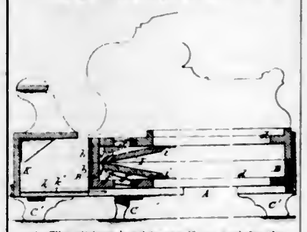
190,334. COFFEE-ROASTERS. A. Jungclas, Dayton, Ohio. [Filed Mar. 6, 1877.]



1. In a coffee-roaster, the semi-cylindrical shiftable shield F, arranged to cover the revolving coffee-receptacle, or be interposed between it and the fire, substantially as and for the purpose specified.

2. The herein-described coffee-roaster, consisting of the prism B, with its door *e* and strip *g*, and axial spindles D, mounted upon the friction-rollers C, that are supported in bearings on the plate A, and the shield F and rods *d d*, the whole constructed and united substantially as and for the purpose specified.

190,335. SOFA-BEDSTEADS. C. Kade, St. Louis, Mo. [Filed Feb. 23, 1877.]



1. The sliding head-frame K, as and for the purpose set forth.

2. The combination of the upper and lower sections A B and D E with the hinges G and sliding head-frame K, substantially as set forth.

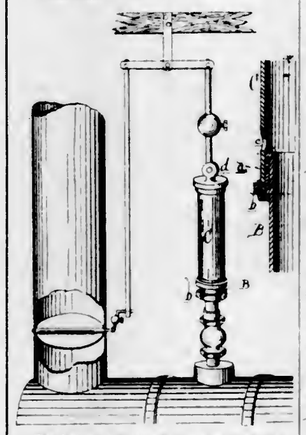
3. The pillow-boards I, hinged to the frames A B D E, in combination with the springs J and sliding head-frame K, as and for the purpose set forth.

4. The pillow-boards I, hinged to the frame A B D E, springs J, and anti-friction roller *j*, in combination with the sliding head-frame K, as and for the purpose set forth.

5. The hinges G, having long arms H and enlargements or heads h, in combination with the top and bottom frames A B C D, as and for the purpose set forth.

6. The combination of the sliding head K, having guide-rails *k* and kerfs *k'*, with the rails A, having metallic slide-plates L, as and for the purpose set forth.

190,336. DAMPER-REGULATORS FOR STEAM-BOILERS. D. C. Kellam, Detroit, Mich. [Filed Sept. 11, 1876.]



The hollow cylinder B, provided with the packing-ring *a*, mounted upon the discharge-opening of a safety-valve, and the sleeve C, combined therewith for operating a draft-regulator, substantially as described.

190,337. HAY-ELEVATORS. Chas. S. Kershaw, Sherburne, N. Y. [Filed Feb. 17, 1877.]

1. The carriage constructed and arranged as herein described, having detaching-hooks centered on the journals of the grooved rollers *b b'*, forming bearings thereof, and hooking onto the studs *a a'*, as and for the purposes specified.

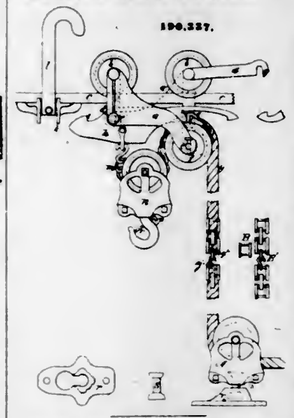
2. The hook-fastening *p*, consisting of a straight bolt passing diagonally through the shank of the hook to close its throat, as above specified.

3. The flexible shackles or fastenings B for the rope-splicing, constructed and affixed as herein described.

4. The slotted foot-piece *r*, constructed as described, and the spherical-headed swivel-pin *s*, for connecting therewith the block A, combined and arranged as and for the purpose specified.

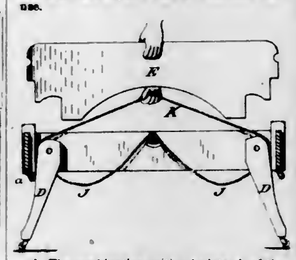
5. The stop-piece *k* combined with the rod *c*, and hook *l* for supporting it, substantially in the manner and for the purpose described.

190,337.



190,338. FOLDING BEDSTEADS. Frank M. Kibbey, Mayfield, Ky., and John C. Hall, Cincinnati, Ohio; said Hall assignor to said Kibbey. [Filed Jan. 22, 1877.]

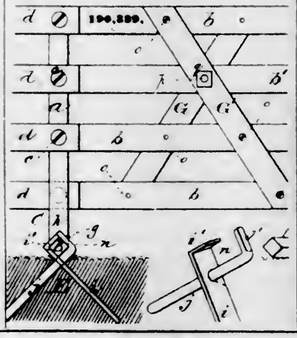
Brief.—Pockets are formed at the head and foot of the bedstead, between the head and foot rails and corresponding interior rails, into which the legs are folded when the bedstead is not in use, and the detachable head and foot boards have recesses formed in them, to engage with the upper ends of the legs, and hold them open when the bedstead is in use.



1. The combination, with a bedstead, of the supplementary legs D, capable of being locked to their extended position by means of the head and foot boards B within the pockets L, or of being folded within said pockets in the manner explained.

2. In combination with the folding supplementary legs D, the cords or thongs J K, as and for the purpose designated.

190,339.



190,339. FENCES. P. Kirby, Seneca Falls, N. Y. [Filed Mar. 3, 1877.]

Brief.—The horizontal part of the post is held in place and to the ground by two drive-spikes, having angular ends, one passing through the other.

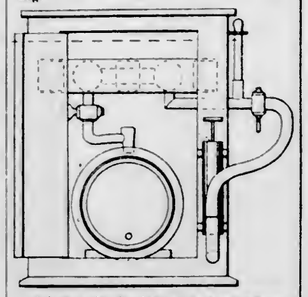
1. In a portable fence, the combination of the angular drive-plate *i i'*, having a perforation, *l*, and the angular drive-spike *j j'*, with the edgewise-arranged sill B, substantially as specified.

2. The fence-panel consisting of the uprights *a a'*, the spaced horizontal rails *b b'*, the crossed inclined braces G G', having pivot-bolt *p* and fixing-bolts *n*, whereby they are secured in position, the sills B, inclined braces *k*, the angular drive-plates *i i'*, and the angular drive-spikes *j j'*, substantially as specified.

3. An anchor for a portable fence, consisting of the angular perforated drive-plate *i i* and the angular drive-spike *j*, adapted to enter the perforation in said plate, and to form with it an eye, *n*, substantially as specified.

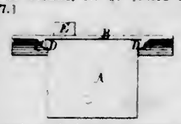
190,340. BEER-COOLERS. Adam Kunkle, Bellaire, Ohio, assignor of one-half his right to W. L. Tripp, same place. [Filed Mar. 30, 1877.]

Brief.—The cold air in the chest is pumped into the air-chambers, and thence into the keg.



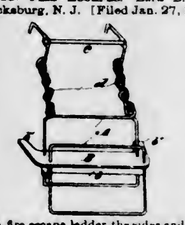
A beer-cooler having two or more communicating cold-air chambers, forming, in connection with a frame to which they are attached, an ice-shelf, in combination with an air-pump, substantially as and for the purpose set forth.

190,341. LOCK-CASES. Chas. H. Lambkin, Mount Vernon, N. Y. [Filed Apr. 12, 1877.]



The body A of a lock-case, constructed with externally-tapering projections D D, in combination with the face-plate B, having the claws C C, adapted to slide over the said projections, said face-plate being rigidly fixed in an oblique plane to the body of the lock-case, as and for the purpose described.

190,342. FIRE-ESCAPES. Ezra B. Lake, Bricksburg, N. J. [Filed Jan. 27, 1877.]



1. A fire-escape ladder the sides and step or round supports of which are formed of metal frames A A, adapted to slide or fold upon one another, and to support and rest upon the steps lengthwise of the latter, so as to avoid shortening of the foot-surface as the ladder extends upward, substantially as set forth.

2. A fire-escape ladder having steps or rounds made of cast metal, with flat surfaces, and formed or provided with feet or projections *b'*, cast in one piece with the steps, which serve to prevent said ladder from hugging the wall too closely.

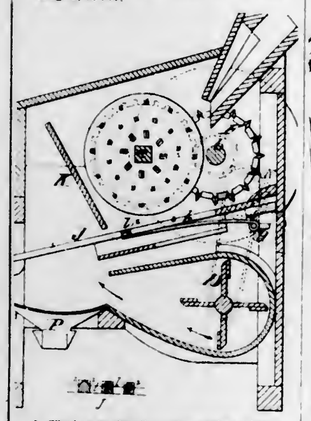
3. In a fire-escape ladder, the plates B, having ribs *b* to strengthen the same and stiffen the frames A, composing the sides and step or round supports, as set forth.

190,343. HINGES. J. S. Lash, Philadelphia, Pa. [Filed Dec. 22, 1876.]



As a new article of manufacture, a hinge having a ribbed or roughened back, substantially as set forth, to facilitate the facing of the wood to which such hinge is secured, and to partially relieve the fastening-screws of lateral and downward strain, as specified.

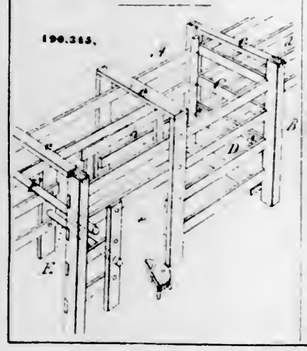
190,344. CORN-SHELLING MACHINES. Jas. Lippincott, Jr., Mount Holly, N. J. [Filed Aug. 5, 1876.]



1. The longitudinally-reciprocating riddle J, having longitudinal bars *s*, beveled upward on each side, and the transverse stop or connection *l*, having shoulders or corners *x* on each side of said beveled bars, substantially as specified.

2. The inclined longitudinally-reciprocating riddle J, having longitudinal bars beveled on each side, and the transverse stop or connection *l*, in combination with the guide board K, terminating near said stop, and the shelling mechanism, substantially as specified.

190,345.



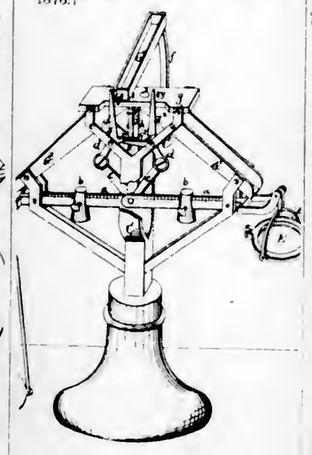
190,345. CAGES FOR RESTRAINING COWS WHILE BEING MILKED. Benj. B. Mann, Hiawatha, Kans. [Filed Feb. 17, 1877.]

1. The combination, with the pen-walls A B, of the hinged end gate C, having a vertically-vibrating trough, D, adapted to lock the gate, substantially as specified.

2. The combination, with the main line of fence A, having aperture *a* and sliding door *b*, of the parallel fence-section B, having milking-opening *c*, and the gate C, having hinged trough D, adapted to be thrown into a horizontal position for locking the gate, substantially as specified.

3. The milking-pen A B C, having an anti-kicking bar, E, a removable anti-backing bar, F, the sucking-aperture *a*, the sliding door *b*, closing the latter, and the milking-aperture *c* on the pasture side of the pen, substantially as specified.

190,346. SACK-SCALES. Edwin A. Martin, Licking County, Ohio. [Filed Aug. 13, 1876.]

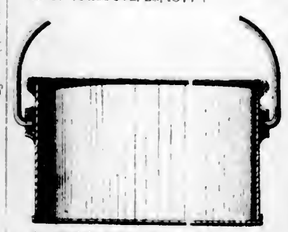


1. The pivoted levers J J, each formed with three arms or fingers, *d d' d''*, and connected to the scale-beams *a a*, for operating the spout G and latch *i*, substantially as and for the purposes herein set forth.

2. The combination of the scale-beams *a a*, provided with weights *b b*, and bag-holders E E, the connecting-links *c c*, three-armed levers J J, and spout G, with pin *l*, substantially as and for the purposes herein set forth.

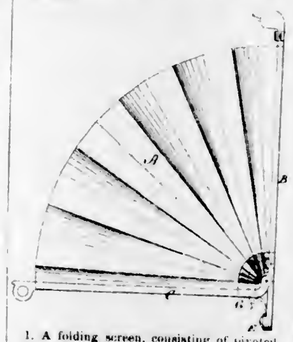
3. The combination of the spout G, cap-board *g*, latch *i*, spring *m*, and arms *d''* of the levers J, operated by the scale-beams *a*, all substantially as and for the purposes herein set forth.

190,347. CANS. J. W. Masury, New York, N. Y. [Filed Feb. 28, 1877.]



An air-tight package or can, consisting, essentially, in the combination, with a can or package having an upper wired edge, of a soft-metal top soldered to the outer surface of the rim, substantially as and for the purpose set forth.

190,348. CAR-SCREENS. Wm. De Courcy May, Baltimore, Md. [Filed Mar. 21, 1877.]



1. A folding screen, consisting of pivoted bars B C, the body A, and a locking device, combined substantially as shown and described.

2. In combination with the slotted keeper, the pivoted folding screen, said parts being constructed and arranged as shown and described, whereby the inclination of the screen may be changed as required.

3. The combination of the arm G with the bars B C and the blades composing the body A of the screen, said blades having enlarged slots, through which the arm passes, as shown and described, for the purpose specified.

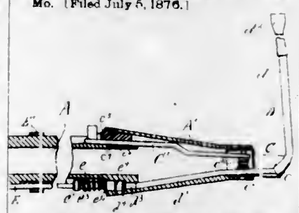
4. The combination, with the pivot-bar B and folding bar C, of the spring-arm G, having a notch or shoulder to adapt it to act as a catch or locking device, as specified.

190,349. METAL-COVERED KNOBS. Robt McManus and R. B. Colburn, Ansonia, Conn. [Filed Mar. 30, 1877.]



As an article of manufacture, the herein described knob consisting of the non-conducting body located within a metallic shell formed in a single piece of sheet metal, and closed upon the said body, substantially as described.

190,350. FAUCETS. F. Mesmer, St. Louis, Mo. [Filed July 5, 1876.]



1. The shoulder *c'*, upper and lower packing *c'' c'''*, rod C', in combination with faucet A, as and for the purpose set forth.

2. The rod C', coiled spring *c''*, bearing *c'''*, slide C, faucet shank A', combined to operate as and for the purpose set forth.

3. The combination of a hollow slide, C, rubber hose D, faucet shank A', by means whereof the folding of the hose in the slide is accomplished, in the manner described and shown, as and for the purposes set forth.

4. The combination of a hollow slide, C, hose D, rod C', and faucet A, to operate in the manner shown, and for the purpose set forth.

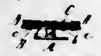
5. The tube *d'*, having shoulder *d''*, in combination with hose D and faucet A, having valve *e'*, as and for the purpose set forth.

6. The sleeve *e*, its shoulder *e'*, washer *e''*, spring *e'''*, packing *e''''*, in combination with rod E and faucet A, as and for the purpose set forth.

7. The rod E, its sleeve *e*, having shoulder *e'*, washer *e''*, packing *e''*, spring *e'''*, the sleeve *e''''*, its shoulder *e'''''*, hose D, all said parts being in combination with a faucet, A, having vent *d''*, to operate as and for the purposes set forth.

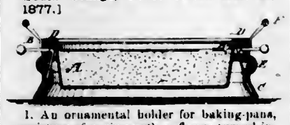
8. The sliding collar E', rod E, and faucet A, as and for the purposes set forth.

190,351. SLEEVE-BUTTONS. J. W. Miller and I. M. Miller, Newark, N. J. [Filed Mar. 16, 1877.]



The collar D, provided with rivets *c c*, in combination with disk B, stem *a*, lower disk A, and plate C, provided with pins *b b*, substantially as described.

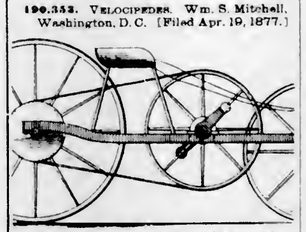
190,352. DISH-HOLDERS. H. C. Milligan, South Orange, N. J. [Filed Mar. 21, 1877.]



1. An ornamental holder for baking-pans, consisting of a ring with a flange turned inward within said ring, and from the top, or thereabout, and having fastenings adapted to catch and hold the pan, when inserted under said flange, said ring being deeper than the pan to hold it above the table, substantially as described.

2. The combination of the pan A, having a flange, B, or other projections, and the ring C, having the inwardly projecting flange D, and fastenings E, adapted to catch and hold the pan up in the ring above the table, substantially as described.

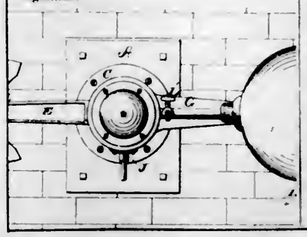
190,353. VELOCIPEDES. Wm. S. Mitchell, Washington, D. C. [Filed Apr. 19, 1877.]



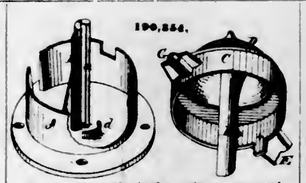
In a three-wheel velocipede, the front steering-wheels and steering mechanism, with the single rear propelling-wheel, having pulleys to which motion is imparted by the fly-wheel through the medium of endless belts or chains, said fly-wheel being provided with foot cranks or treadles, substantially as described.

190,354. AUTOMATIC DRAFT-REGULATORS FOR STEAM-BOILERS, &c. A. C. Norcross, Boston, Mass. [Filed Apr. 14, 1877.]

Brief.—Air is compressed in a vessel by the pressure of water from the boiler. The vessel is located on one end of tilting beam, balanced by a fixed weight on the other end, and adjusted to any given pressure by an adjustable weight on the graduated beam. The conduit-pipe serves as a sensitive flexible joint, and the apparatus swings upon knife-edges, so that any increase or decrease of pressure in the boiler will be felt by corresponding pressure in the air-vessel, by the pulsating action of the water from the vessel to the boiler, and vice versa; said action being conveyed to the dampers by which the draft of the furnace is regulated.



190,354.



1. An automatic draft-regulator, operated by water forced from the boiler into an air-chamber, and returned by the expansive force of the compressed air, constructed substantially as herein set forth.

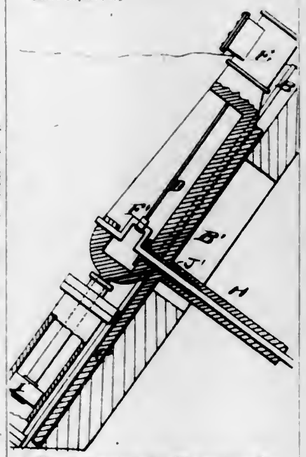
2. The coil I, arranged within the casing A, and forming a flexible oscillating conduit-joint, substantially as set forth.

3. The combination of the casing A, with grooved arm B, rim C, cap D, with arm B', having knife-edges *b b*, and the overlapping projections or flanges *d d*, substantially as and for the purposes herein set forth.

4. The curved pipe K, extending from the arm G to the bottom of the air-chamber H, in combination with the said chamber, arm, and the coil I, substantially as set forth.

5. The combination of the tilting rim C, beam E, with weights, flexible-joint conduit-pipe I, hollow arm G, and air-chamber H, substantially as and for the purposes herein set forth.

190,355. COMBINED ADJUSTABLE ENGINE AND SCREW-PROPELLER. Geo. E. Noyes, Washington, D. C., assignor to himself and Edwin N. Gray, same place. [Filed Mar. 31, 1877.]



1. The combination of a slide carrying the propeller-shaft, and engine-frame, with a slotted guideway, a water-cylinder, and a plunger working therein, substantially as and for the purpose set forth.

2. The combination of engine-frame and its steam-cylinder, slide C, guideway B, plunger I, sleeve H, and propeller-shaft F, substantially as and for the purpose set forth.

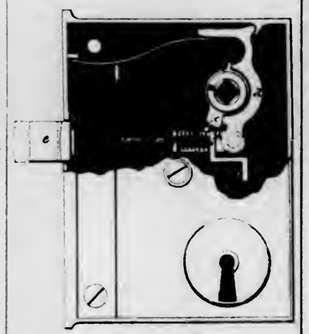
3. The combination of slide C, or engine-frame D, with sleeve H, rigidly attached thereto, and propeller-shaft F, substantially as and for the purpose set forth.

4. A vertical engine-frame, steam-cylinder, and propeller, raised and lowered bodily by hydraulic pressure, the engine-frame, steam-cylinder, and hydraulic engine being arranged in the same vertical plane, substantially as and for the purpose set forth.

190,356. REVERSIBLE KNOB-LATCHES. N. O'Brien, Branford, Conn. [Filed Mar. 17, 1877.]

The combination of the hub, provided with the auxiliary arm *c'*, the hub-lever, the bolt hinged to the said lever through the link *h*, the stop *i*, and spring between the said stop and the end *g* of the link, substantially as described.

190,357. SEWER-TRAPS. H. A. Palmer, Rochester, N. Y. [Filed Apr. 11, 1877.]



1. The valve B, provided with the offset hanger-hooks *h*, in combination with the inclined bearing-face of the ledges *c*, substantially as shown and described.

2. In combination with an open-hinged automatically-acting valve for sewer-traps, a guard, *a*, substantially as and for the purposes set forth.

190,358. BOTTLES AND STOPPERS. Jas. H. Parker, Newark, N. J. [Filed Feb. 23, 1877.]



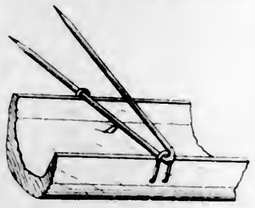
1. In combination with a bottle or jar provided in its throat or neck with the spiral recesses *e e*, connecting with the vertical grooves *f f*, and having a shoulder, *b*, the loose packing disk or disks applied to rest upon such shoulder and to cover the opening in the neck, substantially as shown and described.

2. The stopper for glass and other bottles, made as described—that is, with a cylindrical body, having two nibs, *g g*, which jointly serve not only to hold the stopper in place within the bottle-neck, but also, when turned, operate to fasten the stopper in a tightened position by compressing a loose sheet or disk packing between the lower end of the stopper and a shoulder in the bottle-neck.

3. In combination, the bottle, having in its neck the vertical and spiral recesses and the base or shoulder, as described, the stopper provided with projecting nibs, and a water-proof or other disk or sheet packing applied,

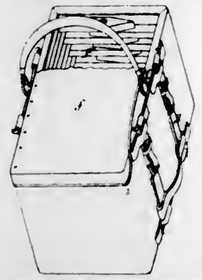
as shown, to cover the mouth of the neck below the stopper, the combination being and operating as and for the purpose set forth.

190,359. GUTTER-HANGERS. C. M. Peet, Waverly, Ill., assignor of one-half his right to Wells & Riggin, same place. [Filed Mar. 21, 1877.]



The combination, with an eaves-trough having eyes or loops, as described, of the supporting rods or wires D, bent to form a triangle having the end of one of its arms turned at right angles to the main portion, and adapted to be driven into the roof, while the other arm is driven under the eaves of the building, as and for the purposes set forth.

190,360. FOLDING BASKETS. J. J. Pesinger, Brooklyn, N. Y. [Filed Mar. 19, 1877.]



1. A compressible basket body or crate, consisting of a frame having inwardly-folding ends and a removable bottom, with a flexible jacket or covering for the frame, substantially as herein shown and described.

2. A detachable handle for a compressible basket, in combination with a pair of yokes to which the handle is attached in central position, and a pair of straps extending from the yokes beneath the bottom of the basket, said straps being adapted to serve as means for securing the compacted basket after the handle is detached.

3. A supplemental handle for a compressible basket, in combination with a pair of straps, each consisting of two parts, and each part provided with a buckle, said straps being threaded through loops at the ends of the said supplemental handle, and adapted to serve as means for securing the compacted basket, and attaching the supplemental handle thereto in convenient position, and also to serve in combination with a detachable main handle when the basket is opened or expanded.

190,361. METAL COMPOSITIONS. Francis Porter, Ticonderoga, N. Y., assignor to the New York Ore Separator Company. [Filed Oct. 27, 1876.]

A metal composition consisting of No. 3 and No. 5 pig-iron, white pig-iron, and cast-steel, all melted together, in about the proportions set forth.

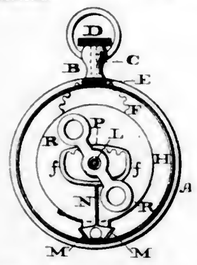
190,362. TOY WATCHES. John G. Powell, Philadelphia, Pa. [Filed Nov. 9, 1876.]

1. The toy watch having a stem-winding rod, in combination with a centrally-arranged pinion connected by the power-spring to the pallet-cap, substantially as and for the purpose set forth.

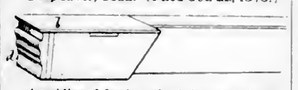
2. The case G, with turned-up lips *a*, in combination with the cap-pinion K, the spring J, and cap H, substantially as and for the purpose set forth.

3. The elastic arm N, intermediate of the pallets M, and toothed segment P, substantially as and for the purpose set forth.

4. The case G, cap H, spring J, pallets M, toothed segment P, and balance R, in combination with the pinion K, pinions E F, and stem-rod C, substantially as and for the purpose set forth.



190,363. PIANO-FORTE KEYS. U. Pratt, Deep River, Conn. [Filed Oct. 22, 1875.]



A molding, *d*, for the ends of piano-forte keys, composed of celluloid, glass, porcelain, or other similar material capable of being cast or molded in a plastic state into the desired shape, substantially as herein shown and described.

190,364. THREE-HORSE EQUALIZERS. J. Pratt, Jr., Princeville, Ill., assignor of two-thirds his right to J. A. Pratt and O. S. Pratt. [Filed Feb. 16, 1877.]

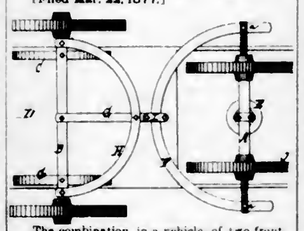


1. A draft-equalizer, consisting of a shaft, B, turning in supports on a bar, A, and provided with short end arms *c c* and long central arm *d*, extending in opposite directions, as set forth.

2. The combination of the shaft B, its arms *c c d*, and the bar A, with its straps *a a'* supporting the shaft at the rear of the bar, as described.

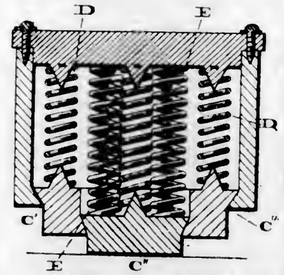
3. The shaft B, provided with arms *d c c*, and turning in supports at the rear of the bar A, as set forth.

190,365. RUNNING-GEAR FOR VEHICLES. Frederick A. Presko, New York, N. Y. [Filed Mar. 22, 1877.]



The combination, in a vehicle, of two front wheels mounted on a common axle, A, a spring, C, connecting the axle with the body D, a segmental plate, F, which is detachably fastened to the outer ends of the axle A, and a reach, G, extending from the rear axle, and provided with a guide-box, I, for the segmental plate F, as and for the purpose described.

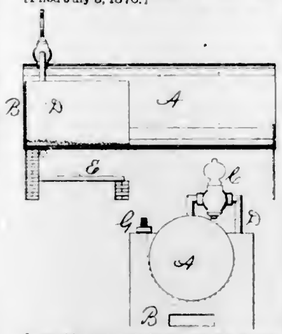
190,366. CAR-SPRINGS. J. B. Quirk, Philadelphia, Pa., assignor of one-half his right to A. B. Davis, same place. [Filed Feb. 14, 1877.]



1. A case with two or more followers fitted thereto telescopically, and projecting beyond each other and beyond the case, in combination with springs which are successively brought into action by successive action of the different followers, substantially as and for the purpose set forth.

2. The case A, with one or more telescopic followers and stop-ledge C'', in combination with the short-range springs D and the long-range spring or springs E, substantially as and for the purpose set forth.

190,367. DEVICES FOR FEEDING STEAM TO FURNACES. Wm. Ramsey, Dayton, Ohio. [Filed July 5, 1876.]



In combination with the steam-boiler A and furnace B, the pipe D, provided with stop-cock C, issuing from the top of the boiler, and passing under and in close contact with the same through furnace B, the pipe D being provided with perforations, through which jets of steam may be forced, obliquely, upon the burning fuel, the force of said jets being regulated by stop-cock C, substantially as and for the purpose herein shown and specified.

190,368. AUTOMATIC FRUIT-DRIERS. Asa Q. Reynolds, Chicago, Ill. [Filed Apr. 2, 1877.]

1. In combination with a series of fruit-drying trays, located one above the other, a second or supplementary series smaller than the first, and adapted to operate as and for the purposes explained.

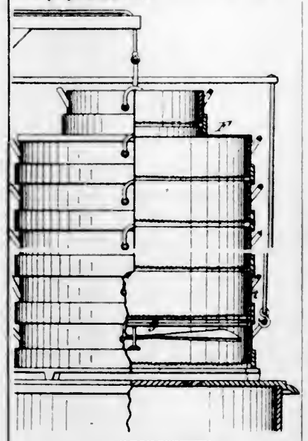
2. The plate F, adapted to cover the flue formed by the lower series of trays, and to receive and hold the upper series, the whole being arranged and combined substantially as set forth.

3. In combination with a fruit-drying tray, a fan-wheel operated by the ascending currents of heated air, movable independently of said tray, and adapted to equalize the currents of air, in the manner set forth.

4. In combination with a fruit-drier, the outer wall of which is made up of the frames of the several trays, as explained, a suspending device, operating substantially as described, and supporting said drier from a point in or on the lowermost tray thereof, for the objects named.

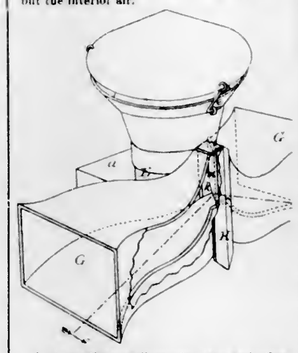
5. In combination with a fruit-drier adapted to be elevated, in the manner described, and

suspended above a stove or furnace, a suspending device, substantially as shown, provided with a swivel-connection, as and for the purposes set forth.



190,369. VENTILATORS FOR VEHICLES. J. E. Richard, New York, N. Y. [Filed Sept. 16, 1876.]

Brief.—A suction-tube having an inclined spiral wall or walls, opening by a mouth or mouths in the direction of motion, whereby the centrifugal action of a whirling current or eddy of external air is utilized to draw out the interior air.



1. A suction-ventilator for cars and other vehicles, having a spiral draft-passage, an induct, and an exit-spout communicating centrally with the induct and tangentially with the draft-passage, substantially as specified.

2. A suction-ventilator consisting of the body portion, having an induct, *a*, annular diaphragm *c*, flanged central opening *a'*, and lateral opening *l*, the guarded exit-spout, the draft-mouth G, and the valve *m*, substantially as specified.

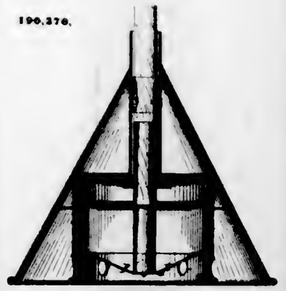
3. The combination, with the exit-spout, induct *a*, and tangential draft-mouths G, of the body E, having the annular flanged diaphragm *c*, and the lateral valved opening *l*, substantially as specified.

4. The combination, in a ventilator, of the spiral exterior draft-flues and the central induct, through which the exterior air is drawn by the whirling motion of the external air passing through said draft-flues, substantially as specified.

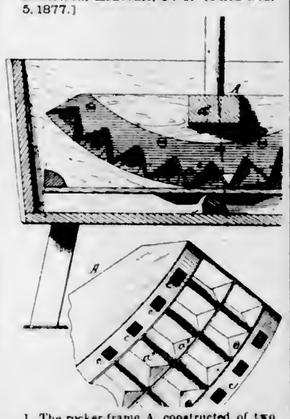
190,370. CLOTHES-POUNDERS. Wm. T. Robertson, Asheville, N. C. [Filed Mar. 28, 1877.]

In combination with outer shell, consisting of a cone or a truncated cone, the inner cylindrical shell and reciprocating plunger, provided at its bottom with radial wires, substantially as and for the purposes set forth.

190,370.



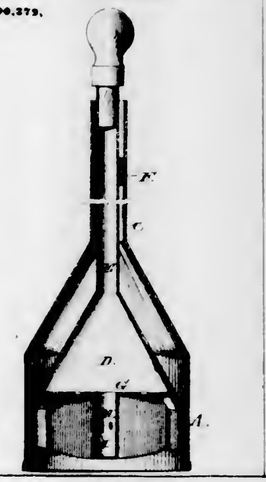
190,371. WASHING-MACHINES. Harvey G. Robertson, Asheville, N. C. [Filed Feb. 5, 1877.]



1. The rocker-frame A, constructed of two parallel side pieces, having in their under edge a series of air spaces or recesses, *c c*, and an intermediate fluted section, a^3, the said rocking frame adapted to operate in a tub or tank, substantially as and for the purpose described.

2. In combination with the segmental rocker, provided with air-spaces on its under side, and the tank or tub in which said rocker is operated, the removable slotted bottom, adapted to operate substantially as described.

190,372.



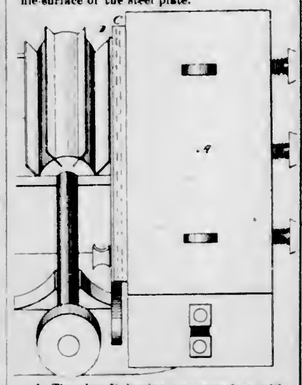
190,372. CLOTHES-POUNDERS. Wm. T. Robertson, Asheville, N. C., assignor of one-half his right to Jas. W. Cheek, same place. [Filed Feb. 5, 1877.]

1. The combination, with the outer shell A and its tube C, of the inner shell D, constructed with the horizontal perforated partition G, depending perforated tube I, and partitions H, radiating from said tube, the inner shell being provided with the operating-rod E and packing F around the same, all substantially as and for the purpose described.

2. The outer shell A and its tube C, in combination with the inner shell D, having the operating-rod E, provided with the surrounding packing F, and the inner shell being constructed with the horizontal perforated partition G and radial partitions H, having rounded lower edges, substantially as described.

190,373. MACHINES FOR DRESSING THE FLY-BARS OF PAPER-MILL ROLLS. Jas. H. Robinson, Christiana, assignor of one-half his right to Chas. Arthur, New London Township, Pa. [Filed Apr. 5, 1877.]

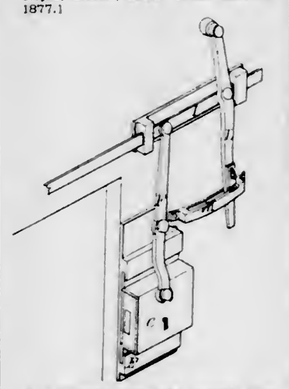
Brief.—Of two box like frames, one within the other, the inner one is adjustable vertically, and is covered at top by a steel plate, of which the upper surface is concave, and also serrated after the manner of a file. Journal-bearings are affixed to the outer frame, to accommodate the shaft of the roll, which latter is so located that the edges of the fly-bars shall pass across and against the file-surface of the steel plate.



1. The plate D, having a concave face, with serrations or file-like grooves *g*, substantially as and for the purpose set forth.

2. The concave plate D in combination with the box C and frame A, said box being adjustable as and for the purpose described.

190,374. LOCKS FOR CELL-DOORS. George Lopes, Boston, Mass. [Filed Mar. 28, 1877.]



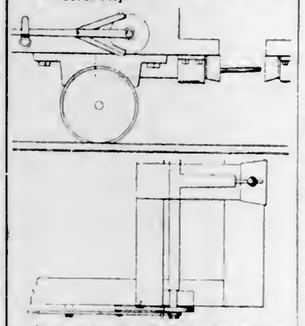
1. A door-lock supported in suitable bearings or supports, and susceptible of lateral shifting movements to and fro in such sup

ports with respect to the door, substantially as and for purposes stated.

2. A series of door-locks capable of shifting movements, connected each with a common bar or rod by a lever, substantially as and for purposes stated.

3. The combination of the lock C, lever F, bar I, and lever L, under the arrangement and for operation substantially as and for purposes stated.

190,378. CAR-COUPLINGS. B. Rowell, West Sparta, assignor of one-half his right to Geo. M. Osgoodby, Nunda, N. Y. [Filed Feb. 16, 1877.]



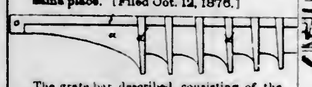
In a car-coupling, the combination of the lever and pivoted V-shaped pawl, the T rock-shaft, the ratchet or toothed link fixed on the end thereof, and the coupling-pin and draw-head, all constructed and arranged as shown and described, to operate as specified.

190,376. POSTAGE AND REVENUE STAMPS. Jas. Sangster, Buffalo, N. Y., assignor of one-half his right to Robert Dunbar & Co., same place. [Filed Mar. 17, 1877.]



A postage or other stamp, one surface of which is provided or printed with a series of fine lines or dots in a colorless material, soluble in water, and over or on which rests the desired design, printed in ordinary printer's ink, whereby such portions only of the printing-ink lines composing such design, which rest upon the lines of the soluble material, may be removed by the application of a liquid, and rubbing with a force sufficient to remove, or partly remove, the ink which may be used in the cancellation of the stamp, substantially as and for the purposes described.

190,377. GRATE-BARS FOR BOILER-FURNACES. P. J. Schmitt, Chicago, Ill., assignor of one-half of his right to P. Fish, same place. [Filed Oct. 12, 1876.]

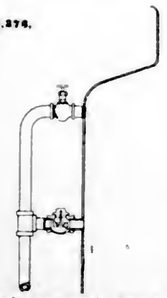


The grate-bar described, consisting of the top flanges *b*, shaped substantially as shown, the spacing-lugs *c*, the web *a*, and the vertical ledges *d*, projecting below the said web, and increasing in length toward the rear end of the bar, the several parts being constructed and arranged as and for the purposes set forth.

190,374. MODES OF RELIEVING HIGH-PRESSURE ENGINES. T. Shaw, Philadelphia, Pa. [Filed Mar. 3, 1877.]

Brief.—The invention consists in locating a check-valve in communication with the steam-pipe leading to the cylinder and the boiler; also, in locating it between the throttle-valve and the cylinder, in order that, when the valve of the cylinder is reversed, the air which is drawn in through the exhaust-port may be utilized by being forced into the boiler, and, by so doing, preventing accident to the cylinder and connecting parts by the compression of such air.

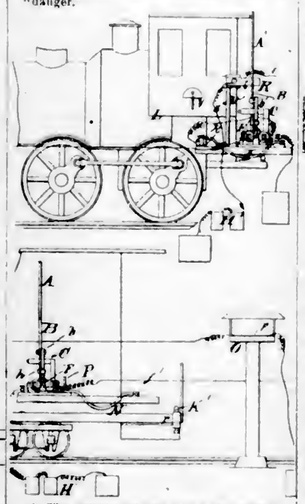
190,376.



As an improvement in steam-engines, a check-valve in communication with the steam-pipe and the boiler, and located between the throttle-valve and the engine, in the manner described, for the purpose set forth.

190,379. ELECTRO-MAGNETIC RAILROAD-SIGNALS. C. S. Shivler, New York, N. Y. [Filed Feb. 12, 1877.]

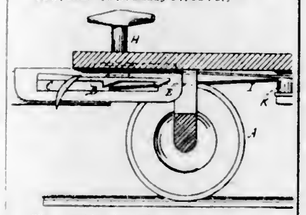
Brief.—Circuit normally closed, holding signals in "safety" position. Train, on entering section, breaks the circuit, allowing signal at each end of section to move to "danger." On leaving section, train mechanically sets signal to "safety," a circuit-closer upon the signal completing the circuit, whereby signal at entrance end of section is reset to "safety," and both signals are held at "safety" until passage of a train again breaks the circuit. Alarm on locomotive operated when train approaches within certain distance of signal set to "danger."



1. The entrance-signal A' and the exit-signal A, placed at the ends of a railway-section, in combination with a battery, the conductor or conductors of an electric circuit, and two magnets, F F', for operating said signals; a circuit-closer, I, placed at the entrance of a railway-section, and operated to open the circuit by a lifter on the locomotive, and closing automatically when the locomotive has passed the same; a circuit-closer, *h*, so arranged at the exit of said railway-section that the movement toward the exit-signal operating magnet F of its armature-lever shall close the circuit; two armature-levers, *b b'*, having armatures *d d'*, and connected with the levers of the signals A A'; a lever, F', rigidly connected with the armature lever *b'*; and a lifting device, N, operated by a lifter placed on the last car of the train, substantially as and for the purposes set forth.

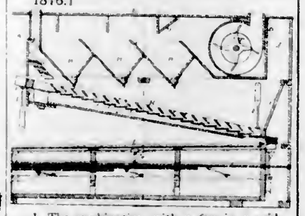
2. The combination, with exit and entrance-signals operated by a battery and electro-magnets, of the plates *p p* placed parallel to each other and the line of a railway-section, in advance of the entrance-signal thereof, and forming part of the circuit of an electric current, generated by a separate battery, H'; a circuit-closer, R, closed by the action of the lever B, in assuming the position of danger; the lever B of said signal, and a circuit-closer, V, attached to the locomotive, to act upon the plates *p p*, for closing the circuit of a sound-signaling apparatus carried by the locomotive, substantially as and for the purpose described.

190,380. CAR-STARTERS. D. Shoup, Warsaw, Ind. [Filed May 17, 1876.]



The combination of the ratchet wheel A, spring pawls B, cross-bar C, horizontal beam C, chain I, pulley K, and windlass H, all operating together as and for the purposes described.

190,381. MIDDLINGS-SEPARATORS. C. N. Smith, Dayton, Ohio. [Filed Sept. 16, 1876.]



1. The combination, with a fan in a middlings-purifier, of the vacuum-chambers B, the riddles I, the intermediate slatted shaker H, and the flues *d d'*, substantially as specified.

2. A middlings-purifier, having the vacuum-chambers B B, and valves *c*, a shaker, and a riddle, in combination with the end flues *d d'*, fan-box, and valves D D, substantially as specified.

3. The shaker H, having the closed bottom *e*, a lower series of carrying-slats, *f*, and above these a series of fine-slats, *g*, reversely inclined, substantially as specified.

4. The riddle-knocker M in combination with the slotted anvil-plates K, substantially as specified.

5. The combination, with a reciprocating riddle, of the vibrating automatic gravitating knockers M suspended therefrom and having V-bearings thereon, substantially as specified.

6. The elastic supporting-arms I, having the cylinder-heads *g'* and slotted socket-plates K', substantially as specified.

7. The combination, with an endwise-moving riddle or shaker, of elastic supporting-arms I, having cylindrical journal-head *g'* working in the cylindrically-recessed bearing-plates K' on the under side of the riddle aforesaid, substantially as specified.

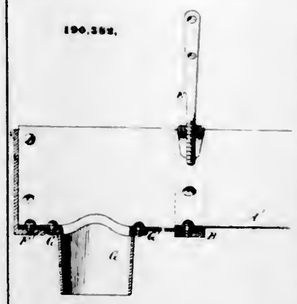
190,382. EAVES-TROUGHS. Peter Snyder, Louisville, Ky. [Filed Mar. 27, 1877.]

1. An eaves-trough having the plates connected by screws passing through the overlapping plates and held in encircling metallic band B, substantially as set forth.

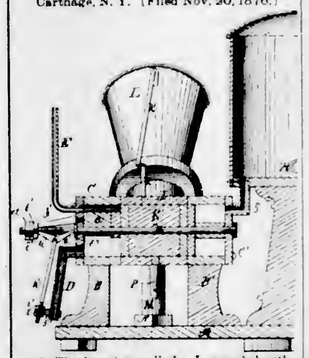
2. In combination, the brace D, secured by screws passing through the plate to the band B, and the adjustable hanger E, substantially as set forth.

3. A sheet-iron eaves-trough, in which the sheets A and A' are connected to the bands B and flanges F and G' by screws passing outwardly into threads formed in the said attachments, which form the connections for the section ends and spout, substantially as set forth.

190,383.



190,383. BOILER-FEEDERS. A. I. Sternberg, Carthage, N. Y. [Filed Nov. 20, 1876.]



1. The barrel or cylinder I, provided with central partitions *k*, flanged projections J J, water-vessels L L, steam-pipes K K, and ports A A, *i i*, and *m m*, in combination with the heads C C' and their respective ports, substantially as and for the purposes herein set forth.

2. The combination of the tank G with pipes R *f*, the head C' with ports *e e*, rocking cylinder I with water-vessels, steam pipes and ports, as described, and the head C with ports *b d*, steam pipe E, and discharge-pipe D, substantially as and for the purposes herein set forth.

3. The combination of the oscillating cylinder I with its water-vessels, the arm P, rods O O, adjustable cushioned standards M M, and springs *s s*, and nuts *t t*, as and for the purposes herein set forth.

4. The combination, with the heads C C' and oscillating cylinder I, of the central rod *n*, with nuts *b' d'* and washer *e'*, the levers *a'*, rod *h'*, with nuts *t' t'*, and the stationary collar *f'* on the expansible discharge-pipe D, substantially as and for the purposes herein set forth.

190,384. HAY-ELEVATORS. H. C. Stouffer, Canfield, assignor of a part of his right to L. T. Foster and U. A. Andrews, Youngstown, Ohio. [Filed Apr. 5, 1877.]

Brief.—In the adjustment of the fork for elevating hay the tines are in an inclined position, with the hooks out and up, so as to hold the hay thereon. When the hay is brought to the place for unloading, the tines are caused to hang within the supplemental tines, whereby the hooks are covered and permit the hay to slide off.

1. In a hay elevator and carrier, a fork having hooked tines, in combination with a supplemental fork pivoted to the hooked tines, and adapted to uncover and cover the hooks of said tines in elevating and discharging the hay therefrom.

2. A hay elevating and carrying fork, *l*, having hooks *m* rising from its tines, and a supplemental fork, *n*, constructed and adapted to form a back, *n'*, for said hooked fork to hold and carry the hay and present smooth tines, to disengage and discharge the hay from and over the hooked tines.

3. The combination, with a fork having hooked tines and supplemental pivoted fork opening and closing therewith, of a locking and tripping device adapted to hold the hooked and supplemental tines to carry the hay, and to automatically withdraw said hooks from holding positions when said locking device is tripped.

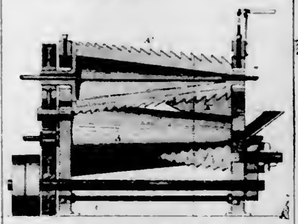
4. The combination, with the hooked and supplemental forks, pivoted to operate as described, of the pivoted arm or link *q* and its coupling *s*, uniting the heel-ends of the fork, the draft-rope coupling *r*, its pivoted catch *t*, the fixed eye *u*, and the pivoted detent *v*, adapted for co-operation to hold the hooked ends of the fork up for action, and the supplemental fork in proper relation thereto.

5. The locking and tripping device of a hay elevator and carrier, having the pivoted catch *t*, the couplings *r* and *s*, the pivoted detent *v*, and the fixed eye *u*, arranged in relation to each other and the pivoted fork-tines, to bring said catch automatically in position to receive the detent in adjusting the hooked tines to catch into the hay.

190,384.



190,385. MACHINES FOR SQUEEZING PUDDLERS' BALLS. E. Buckow, Buffalo, N. Y. [Filed Feb. 12, 1877.]



1. As an improvement in the process of squeezing puddlers' balls, the application of pressure, and simultaneous compound rotary and rectilinear motion to the ball by the action of rollers having peripheral spiral grooves or ribs, arranged substantially as described.

2. The standards B B', having the bearings for the rollers, and in combination therewith a series of rollers provided with spiral projections, and arranged to revolve all in the same direction for operating upon a puddler's ball, in the manner and for the use and purpose stated.

3. The combination, with the rollers A A', of the auxiliary roller E, arranged below said rollers, substantially as stated.

4. The combination, with the roller A'', of the sliding bearing *a*, the forward one being arranged with capability of automatic and independent adjustment, as described, for the object stated.

5. The combination, with the rollers A A', of the shields K, as described.

6. An improved puddlers' ball-squeezer, consisting, essentially, of rollers, combined substantially as described, and designed to operate, as stated, in virtue of the arrangement of them and their peripheral V-shaped spiral grooves or ribs.

7. An improved puddlers' ball-squeezer, consisting, essentially, of rollers, combined substantially as described, and designed to operate as stated, in virtue of the arrangement of them and of their peripheral spiral ribs or projections, the leading sides of which are at, or nearly at, right angles to the axis of the rollers.

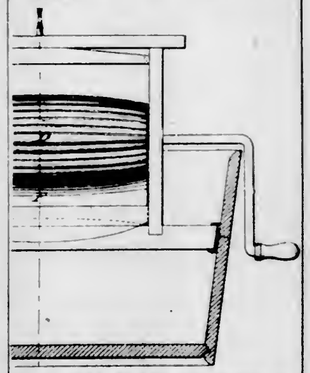
8. An improved puddlers' ball-squeezer, consisting, essentially, of rollers, combined substantially as described, and designed to operate, as stated, in virtue of the arrangement of them and their peripheral spiral ribs or projections of varying depth, as set forth.

9. An improved puddlers' ball-squeezer, consisting, essentially, of rollers, combined substantially as described, and designed to operate, as stated, in virtue of the arrangement of them and their spiral ribs or projections of varying pitch, as set forth.

10. An improved puddlers' ball-squeezer, consisting of a combination of spirally-ribbed rollers, the ribs of each varying in pitch from those of the other rollers, substantially as described.

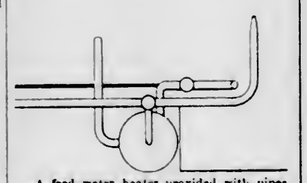
11. An improved puddlers' ball-squeezer, consisting, essentially, of rollers, combined substantially as described, and designed to operate, as stated, in virtue of the arrangement of them and their scored or notched spiral ribs or projections, as set forth.

190,386. WASHING-MACHINES. Robt. Talmadge, Coshocton, Ohio. [Filed Oct. 20, 1874.]



In a washing-machine, the combination of an upper convex fluted roller, D, and a lower smooth concave roller, F, substantially as described, for the purposes specified.

190,387. MEANS FOR UTILIZING EXHAUST STEAM. W. H. Thomas, Wilmington, Cal. [Filed Feb. 17, 1877.]



A feed-water heater provided with pipes and valves to convey and direct the uncondensed steam either to the chimney or to the vessel containing the feed-water supply.

190,389. CHAIRS. T. Toetsvin, Council Bluffs, Iowa. [Filed Apr. 25, 1877.]

1. In a chair having supporting side posts or standards, a continuous elastic back and seat, as and for the purpose described.

2. A chair having an elastic supporting-frame, combined with a suspended elastic back and seat, formed in one piece, as set forth.

3. A chair formed of a wooden or metallic frame, the posts and rear legs and the arms and front legs being each formed in one piece, bent inwardly, and united beneath the seat, as and for the purpose set forth.

4. A chair having the spring-connection *f*, uniting the extremities of the side posts, with or without the suspended back and seat formed in one piece, as and for the purpose set forth.

5. The legs B, having a re-enforce at their point of junction, to distribute the elasticity over the upper and lower parts of the chair-frame, as set forth.

6. In combination with the leg frame, the cross-braces C C, and side braces D D, said braces being fastened to each other at the point *m*, and their lower ends connected with the legs at *d*, by the bolt which enters and secures the side braces, as set forth.

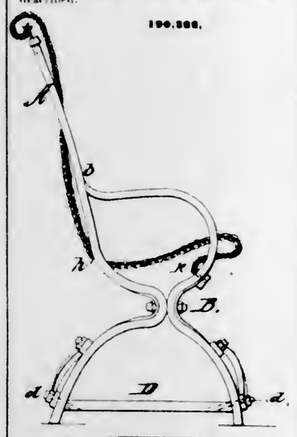
7. In combination with the frame F and F, the spring-support *f*, and bar *e*, adapted to the furnish the supports for the fabric of the back and seat, substantially as specified.

8. A chair composed of the elastic frame F F', spring-bar *f*, and supporting-bar *e*, secured to the extremities of the part F', as and for the purpose set forth.

9. A chair having a seat composed of an elastic fabric, doubled upon itself at *i*, and bent, as shown at *k*, to adapt it to be secured to the frame, as and for the purpose set forth.

10. A chair having an elastic supporting-frame, consisting of the elastic side posts, bent forward and brought under the seat, with the arm-pieces and front legs formed in a similar manner, the two being united at B, in the manner and for the purpose shown and described.

190,388.



190,389. MACHINES FOR GRINDING ORES. H. Trumbull, Ticonderoga, N. Y., assignor to New York Ore Separator Company. [Filed Oct. 27, 1876.]

Brief.—The rubber cushions allow the rollers to give slightly. The guide-rods serve to keep the axis of the rollers always parallel.

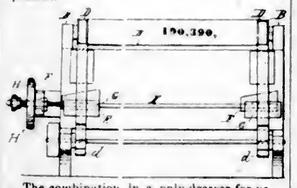


The combination, with crushing-rollers A B, their axles C D, standards E K G, and guide-rods H I, of elastic cushions I, situated between the standards G and K, substantially as and for the purpose set forth.

190,390. PULP-DRESSERS FOR PAPER-MACHINES. W. C. Tuttle, Worcester, Mass., assignor to Rice, Barton & Fales Machine and Iron Company, same place. [Filed June 10, 1876.]

Brief.—The screen pulp-box, through which, upon its being raised, the pulp is sucked into the main pulp-box below, is hinged to the latter, and caused alternately to rise and fall by means of the contact between cam-wheels and projecting side arms upon the screen-box. The height of the screen-box with relation to the main box—that is, the depth to which it is to dip, and the consequent suction—is regulated by vertically-sliding standards on the main box, which are adjusted simultaneously and uniformly by blocks having inclined or wedge-shaped upper edges, the said blocks sliding horizontally in grooved ways, and being connected together by a shaft having screw-threaded end, fixed bearings, and an operating crank-wheel, by turning which to the right or left the blocks are moved forward or back, and the standards supporting the screen pulp-box are, consequently, elevated or depressed.

190,390.



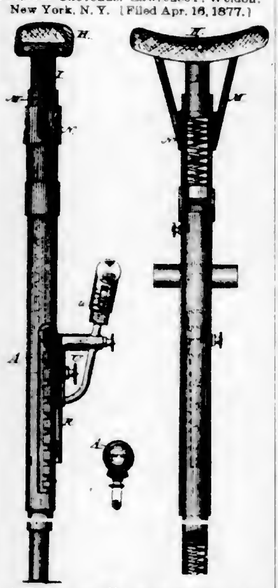
The combination, in a pulp-dresser for paper machines, with the screen pulp-box A B' B'' and cam-wheels *d d*, of side-arms D, standards *b b*, and regulating mechanism, consisting of the blocks F F, shaft F', and its operating crank-wheel H, substantially as and for the purposes set forth.

190,391. LIGHTNING-RODS. N. Van Loon, St. Cloud, Minn. [Filed Feb. 24, 1877.]



The combination of the core A, consisting of the central galvanized-iron rod *a*, intertwisted with the surrounding galvanized-iron rods *a'*, and soldered together with the inclosing copper strips B, soldered to the core, and having intervening spaces *b* between them, substantially as described, and for the purpose set forth.

190,392. CRUTCHES. Lawrence F. Weldon, New York, N. Y. [Filed Apr. 16, 1877.]



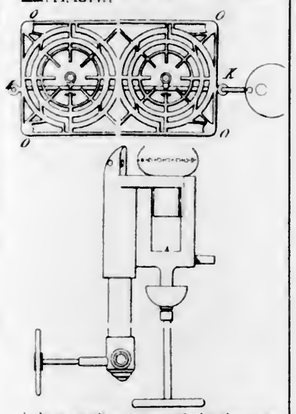
1. The arm-rest H, having the stem I, inclined braces M, and collar N, in combination with the staff A, provided at its upper end with a spring, K, as and for the purpose described.

2. The combination, with the staff A, having on its side the dovetailed feather E, of the laterally-projecting hand-hold, having a dovetailed recess adapted to the feather E, and a set-screw for fastening it in any adjusted position, substantially as described.

3. The combination, with the upper end of the crutch, of an arm-rest provided with a slotted collar adapted to slide upon said upper end, and the slot sitting over a lug on the latter, for the purpose of preventing the arm-rest from turning, substantially as set forth.

4. The combination, in a crutch, of the two telescoping sections, their fastenings, a yielding arm-rest and foot-piece, and a yielding hand-hold, all constructed and arranged to operate together substantially as and for the purposes set forth.

190,393. GASOLINE COOKING-STOVES. H. Wellington, Brooklyn, E. D., N. Y. [Filed Mar. 14, 1877.]



1. In a gasoline burner of the character herein specified, the combination, with the removable cone of the extended portion of the oil-pipe elevated above the cone-seat and perforated to permit the passage of the auxiliary heating-jets from said cone, substantially as shown and described.

2. In a gasoline-burner of the character herein specified, the combination of the removable cone, having a feather or rib, r, and the slotted or grooved frame which forms a portion of the burner and a seat for the cone, substantially as and for the purposes set forth.

3. In combination with the supply-pipe of a gasoline cooking-stove, conducting oil to two or more burners, the herein-described T-joint, adapted to attach said burners to the supply-pipe and afford a passage for the oil thereto, the same being provided with a valve-stem socket and seat, and otherwise constructed and arranged as shown and described.

4. In combination with the frame of the top plate for gasoline cooking-stoves, constructed substantially as shown and described, the removable open-work top plates, provided with projecting ribs adapted to engage with corresponding slots in the frame, substantially as shown.

5. In an open-work top plate for gasoline cooking-stoves, the combination of the rings R R and radial pieces R' R', the former being indented, as shown, and the two being of about equal horizontal section, as and for the purposes explained.

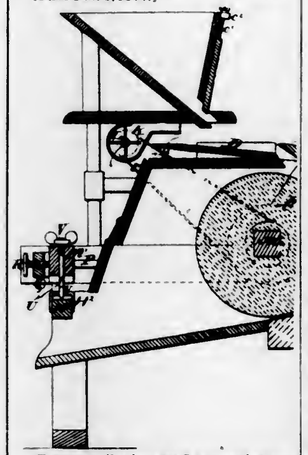
6. In combination with the open-work top plate of a gasoline cooking-stove, the wooden legs adapted to support the whole metallic structure, as set forth.

7. In combination with the open-work top plate of a gasoline cooking-stove, cast with corner-sockets O O, and screws depending therein, the wooden legs L secured in the manner set forth.

8. In combination with the top plate of a gasoline cooking-stove, the lugs K K cast therewith and adapted to secure and hold the supply-pipe D, in the manner shown and described.

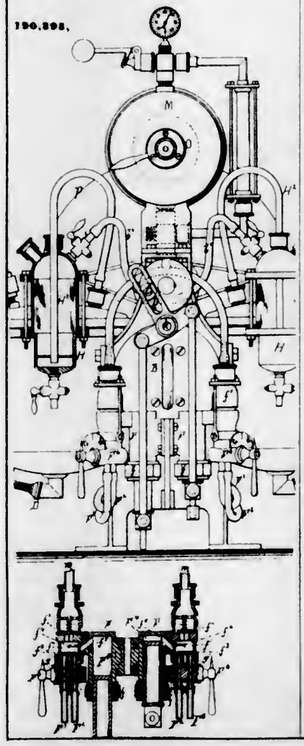
9. In combination with the elevated reservoir of a gasoline cooking-stove, the perforated supply-pipe D, terminating within said reservoir and abutting against the top plate thereof, for the purpose of rigidly supporting said reservoir, in the manner shown and described.

190,394. ADJUSTING DEVICES FOR GRINDING-MILLS. H. F. Wescott and R. O. Randall, Gadsden, Ala., assignors to the Gadsden Grange Mill Company, same place. [Filed Feb. 3, 1877.]

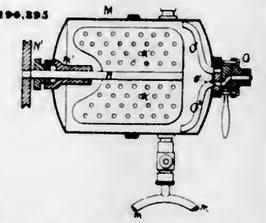


The suspending-hangers S, arranged on opposite sides of the case E, and provided with the inwardly-extending lower flanges *s*, and outwardly-extending perforated upper flanges *s'* and adjusting-screws S' S', in combination with the inclined blocks T T, attached to the frame, stirrup H', rod U, and thumb-nut V, substantially as described, and for the purpose set forth.

190,395.



190,395.



190,395. SODA-WATER APPARATUS. Fred. W. Wiesebrock, Brooklyn, N. Y. [Filed Nov. 15, 1876.]

Brief.—From the generators the gas passes through washers to the equalizing-chamber, the latter having a water-supply. The gas and water, under uniform pressure, pass from said chamber to the pumps, and in a uniform given quantity. By the cocks the quantity of each can be regulated. Thus the beverages can be charged with a given quantity of gas, and uniformly. From the valve-chambers the liquid and gas is forced up to the agitating-vessel. If gas has escaped in filling a fountain, the desired pressure may be obtained by turning the slide-cock so as to register with the gas-pipe of the agitator.

1. In a soda-water apparatus, an equalizing-chamber by means of which both water and gas are fed to the pump at a uniform pressure, irrespective of the pressure in the generator, substantially as described.

2. In a soda-water apparatus, the valve-chamber f^1, connected with the chamber F^4 of the pump F by an inclined channel, f^3, and valves f^2 f^5, located as described, the whole constructed and arranged to operate substantially as described.

3. In a soda-water apparatus, the agitating-vessel M, provided with a sliding cock, O, said cock so constructed as to connect with either the gas-pipe O^1 or the water-pipe O^2, substantially as described.

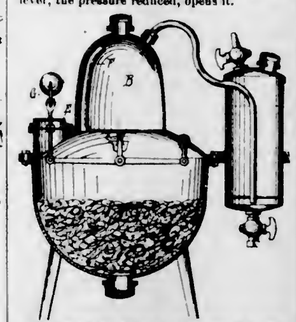
4. In a soda-water apparatus, the combination of the generator A, provided with perforated paddle *b*, spindle *c*, and pulley F^5, with the acid-chamber C, valve d^2, pipe D^1, ball-valve d^3, and discharge-valve D, substantially as described.

5. In a soda-water apparatus, the combination of the generator A, constructed as described, purifying-cylinder H, constructed as described, equalizing-chamber B, having float-valve b^2, and pipes H^1 b^2 b^4, substantially as described.

6. In a soda-water apparatus, the combination of the generator A, purifying-cylinder H, equalizing-chamber B, pump F, constructed as described, agitating-vessel M, constructed as described, and pipes F^2 F^3 H^1 b^2 b^4 m, substantially as described.

190,396. AUTOMATIC CARBONIC-ACID-GAS GENERATORS. F. W. Wiesebrock, Brooklyn, N. Y. [Filed Nov. 9, 1876.]

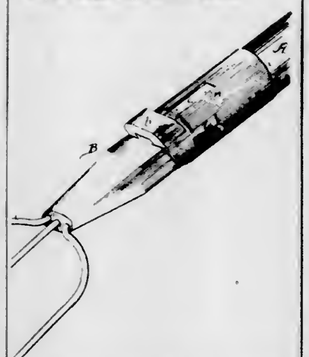
Brief.—The acid is automatically supplied as the gas-pressure upon the diaphragm operates to close the valve, while the weighted lever, the pressure reduced, opens it.



In a carbonic-acid-gas generator, the combination of the acid-chamber B, valve *c*, valve-lever D, flexible diaphragm E, weighted lever G, equalizing-pipe F, and generator A, substantially as described.

190,397. COMBINATION TOOLS. J. L. Williams, Jessups Junction, Ga. [Filed Dec. 19, 1876.]

Brief.—A cross-piece connects the two sides of the slotted handle. A slotted sliding and revolving sleeve, with rear inclined edge, secures the pivoted arm in a longitudinal position, or at right angles to the handle.

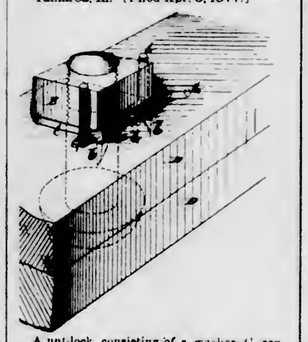


1. The combination of the handle or shank A, the pivoted arm B, the sliding and rotating slotted sleeve C, and the locking device whereby the sleeve is retained when in its forward position, all as set forth.

2. The combination of the slotted handle or shaft A, pivoted arm B, and sleeve C, having a slot, *s*, and inclined rear edge *x*, as specified.

3. The combination of the shank A, pivoted arm B, sleeve C, and cross-piece *b*, for the purpose specified.

190,398. NUT-LOCKS. Frank L. Williams, Tamaroa, Ill. [Filed Apr. 3, 1877.]



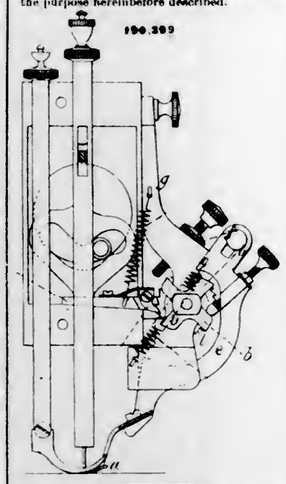
A nut-lock consisting of a washer, C, constructed with one or more pointed projections or spurs, *b*, and a wire, G, placed crosswise under the washer, and having its end bent up or out, for use in relation with the nut, substantially as shown and described.

190,399. RUFFLING OR PLAITING ATTACHMENTS FOR SEWING-MACHINES. Newton Wilson, High Holborn, England. [Filed Feb. 6, 1877.]

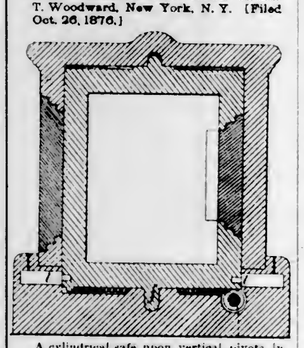
Brief.—A pin on a frame attached to the head of the machine enters a slot in the arm which carries the ruffling-blade, and which moves on the pin to the extent of the slot. The blade is moved forward and downward by springs, and held up and back by a series of tappets on a shaft, which is intermittingly rotated by a ratchet-wheel and pawl-lever, the latter being operated by the needle-bar and a retracting-spring.

1. The frame *g*, adapted to be secured to the side of the needle-arm of a sewing-machine, and carrying the lever *e*, to which the ruffling or plaiting blade *a* is attached, cams *b*, ratchet *l*, and pawl-lever *n*, arranged to be operated by the needle-bar, all as set forth.

2. The slotted lever *e*, with its moving fulcrum at *f*, the bar or blade *a*, and adjustable screw or finger *k*, in combination with the revolving tappets, cams, or wipers *b*, ratchet-wheel *l*, pawl-lever *n*, the spring *p*, and adjustable stop-screw *q*, all arranged to operate together, substantially in the manner and for the purpose hereinbefore described.

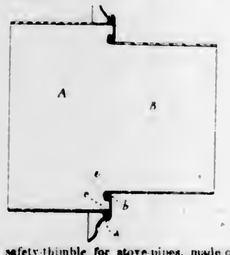


190,389. BURGLAR-PROOF SAFES. Arthur T. Woodward, New York, N. Y. [Filed Oct. 26, 1876.]



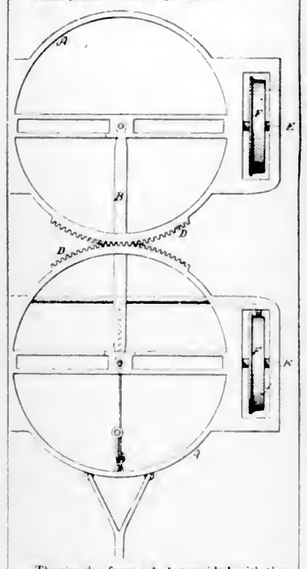
A cylindrical safe upon vertical pivots, in combination with a burglar-proof casemate and base, surrounding the safe and fitting the same closely, the gearing for revolving the safe, and the bolts *l* in the base for holding the safe, substantially as set forth.

190,401. STOVE-PIPE SAFE-THIMBLES. A. F. Wright, Cleveland, Ohio. [Filed Jan. 31, 1877.]



A safety-thimble for stove-pipes, made of sheet metal, and consisting of two sections of pipe, A B, of unequal diameters, in combination with a ring, C, to which said sections are connected by lap-joints or seams *a* and *b*, as herein described, and for the purpose specified.

190,402. STREET-CARS. Geo. S. Clements, Indianapolis, Ind., assignor of two-thirds of his right to S. I. Lovett and E. S. Field, same place. [Filed Apr. 21, 1877.]



The circular frames A A, provided with the toothed bars D D, in combination with the coupling B, wings C C, short axles E, and wheels F, all constructed to operate substantially as and for the purpose set forth.

190,403. EYEGLASSES. S. Oppenheimer, Washington, D. C. [Filed Apr. 21, 1877.]



1. Eyeglasses provided with nose-clamps, which are each connected with the glass-frame by means of a spiral spring, substantially as and for the purpose specified.

2. A rubber nose-clamp for eyeglasses, having one of its sides adapted to bear upon or against the nose, and its opposite side formed with an enlargement or rib, which is fitted to be embraced by a metal clasp or back, substantially as and for the purpose shown.

3. The combination of the glass-frames A, springs C, clasps D, and nose-pads E, substantially as and for the purpose set forth.

REISSUES.

7,644. FURNACES FOR HEATING STEEL IN TEMPERING. John B. Armstrong, Guelph, Ontario, Canada. Patent No. 170,430, dated Nov. 30, 1875. [Filed Feb. 28, 1877.]

Brief.—The retort may be of fire-clay, fire-brick, or of cast or wrought iron. The flues are formed by flanges which are a part of the retort.

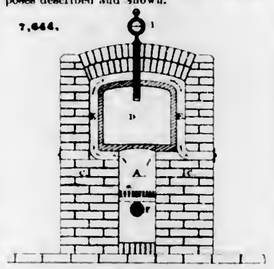
1. In a furnace for heating steel in tempering, the retort D, formed at intervals around its entire length with partitions E′, to form narrow passages or flues E, said flues being arranged or opening alternately, first on one side and then on the other, so that they take the draft from and deliver it at alternate sides of the furnace, thus equalizing the distribution of the heat over the whole surface of the retort, substantially as described.

2. The blast-pipe F, consisting of the inner pipe F′, perforated with the spirally-arranged holes *f*′, in combination with the outer pipe F², perforated with the holes *f*, arranged and operating substantially as described, and for the purpose specified.

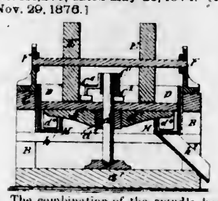
3. The doors H, consisting of the frames H′, constructed to leave a margin of brick-work between the inner edge of the furnace and retort openings, and the iron door H², fitted in with fire-brick *h*, arranged and operating substantially as described, and for the purpose specified.

4. The combination and arrangement, in a furnace for heating steel in tempering, of furnace A C, retort D, constructed with alternate opening and discharging flues E E′, blast-pipe F F′ F², and doors H H′ H², composed of iron and fire-brick, all constructed and adapted to operate substantially as and for the purposes described and shown.

7,644.



7,643. CLAY AND ORE CRUSHERS. T. Clifford and J. Clifford, Pittsburg, Pa. Patent No. 151,275, dated May 26, 1874. [Filed Nov. 29, 1876.]



1. The combination of the spindle having its bearings below the cross-shaft, the revolving pan, and independent rollers E, loosely mounted on a cross-shaft supported above the spindle and pan by sliding boxes, substantially as set forth.

2. The revolving pan D, provided with perforated plates outside the track of the roller E, in combination with the scrapers C′ and C², stationary circular trough H A², and wings *d*², fixed to the bottom of pan D, substantially as and for the purpose specified.

7,646. MANUFACTURE OF GAITERS, BOOTS, AND SHOES. P. Fischer, New York, N. Y., assignor of one-half interest to H. Lange, Jr. Patent No. 179,779, dated July 7, 1876. [Filed Apr. 23, 1877.]



As an improved article of manufacture, a gaiter, boot, or shoe the quarter, the vamp, the leg, and the button-piece of which are made out of one piece, said button-piece being formed from that portion of the material opposite the vamp, so that the finished gaiter, boot, or shoe has but a single seam situated on the opposite side to that occupied by the button-piece, as shown and described.

7,647. METALLIC CARTRIDGES. S. Glover and B. L. Budd, Fairfield, Conn., assignees of S. E. Allen, executrix of E. Allen, deceased. Patent No. 47,693, dated May 16, 1865. [Filed Apr. 23, 1877.]

7,647.



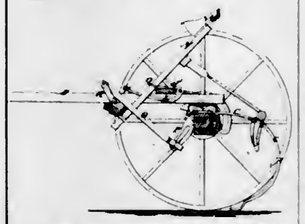
1. A cartridge-shell the base of which is provided with an opening to receive a cap, and with a powder-tube extending inwardly from the anvil toward the center of the explosive charge, whereby the fire is first communicated to the powder in the tube, and is then radiated from the center of the charge, substantially as described.

2. A cartridge-shell having a grooved or roughened inner surface, adapted to bite into the edges of and hold the wad against chance displacement, substantially as described.

3. In a cartridge-shell, the base B, grooved to form an anvil for the cap, and having powder-tube *b* prolonged toward the interior of the explosive charge, substantially as described.

4. A cartridge-shell composed of the cylindrical case A and the base B, provided with three flanges, *a*, *b*, and *c*, substantially as described.

7,648. HORSE HAY-RAKES. H. H. Hathaway, Clockville, N.Y. Patent No. 181,337, dated Aug. 22, 1876. [Filed Feb. 20, 1877.]



1. The rake-teeth C, provided with S-shaped bends at the rear side of the axle B, substantially as herein shown and described.

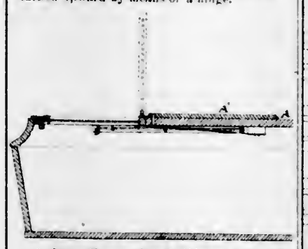
2. The rake-teeth C, having their lower ends bent downward, forward, and upward to form runners to slide upon the ground, substantially as herein shown and described.

3. A flexible rake-tooth loosely attached to axle and having bends that support it against axle in heavy work, but drop in gleaning or other light work, as set forth.

4. The downwardly-projecting axle-arm P, slotted and combined with bars Q R and cross-bar *d*², as and for the purpose set forth.

7,649. COFFINS. F. H. Hill, Chicago, Ill. Patent No. 63,964, dated Nov. 10, 1868. [Filed Jan. 5, 1877.]

Brief.—A glass face-plate slides beneath the lid when open, or may be drawn forward and turned upward by means of a hinge.



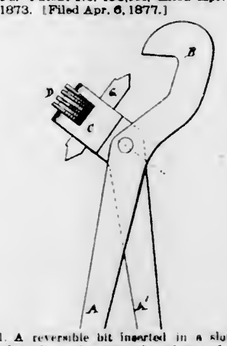
1. In a coffin or casket, the lid A, constructed so as to be in substantially the same horizontal plane, in combination with an independent face-glass, loosely fitted in the lid, so as to slide back to open the coffin, and a supplementary cover, A′, arranged immediately above the lid, and adapted to be moved over the face-glass and permanently close the casket, substantially as described.

2. The coffin-lid A, in combination with a movable face-glass, supported in the opening in the lid, the two parts being constructed and arranged so that the glass may be depressed and moved back beneath the lid, substantially as described.

3. The coffin-lid A, in combination with a face-glass hinged to the lid, whereby the face-glass may be swung upand down to open and close the coffin, substantially as described.

4. The coffin-lid A, in combination with a hinged reciprocating face-glass, which may be either slid back or swung upward on its hinges to open the coffin, substantially as described.

7,650. PIPE-TONGS. A. H. Jarecki, Erie, Pa. Patent No. 138,161, dated Apr. 22, 1873. [Filed Apr. 6, 1877.]



1. A reversible bit inserted in a slotted head made at the extremity of one of the handles of pipe-tongs, for the purpose set forth.

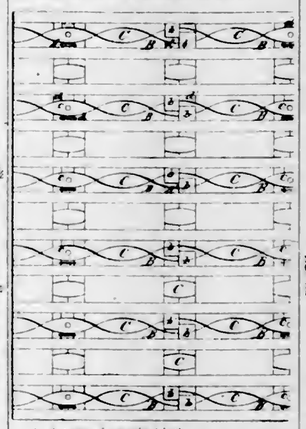
2. The head C on one of the handles, having a slot or mortise extending through the same, in combination with a detachable and reversible bit inserted in the slot, and in combination with a hook, B, on the other handle, substantially as and for the purposes herein set forth.

3. The combination, in pipe-tongs, of a forked head on one of the handles, a reversible and detachable bit movable through a mortise in such head, and a device in the forked head for operating the bit, for the purposes set forth.

4. The bit G, pointed and sharpened on both ends, serrated on one face, and operated by the worm-wheel D, as and for the purposes herein set forth.

5. The combination of the handles A A′, hook B, forked and mortised head C, worm-wheel D, and reversible and serrated bit G, all constructed and arranged substantially as and for the purposes herein set forth.

7,651. METALLIC LATHING. J. W. Kensett, Troy, N. Y. Patent No. 181,851, dated Sept. 5, 1876. [Filed Mar. 7, 1877.]



1. A twisted or spiral lath.

2. A twisted or spiral lath of tin or sheet metal.

3. The combination of a twisted or spiral lath with a surface to receive plaster.

4. The combination of a corrugated surface with one or more laths arranged longitudinally in the corrugations.

5. The combination of a twisted or spiral metallic lath, C, with the depressions B and clamp or chair fastenings *b b*, as and for the purpose described.

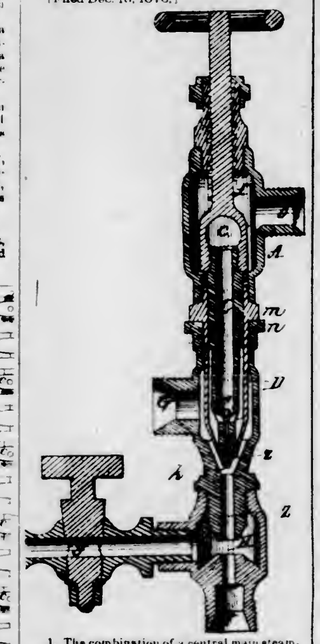
6. The combination of a twisted or spiral metallic lath, C, with a corrugated metallic holder for the plaster, substantially as described.

7,652. CANDLE-HOLDERS. Chas Kirchhof, Newark, N. J. Patent No. 72,506, dated Dec. 24, 1867; reissue No. 6,805, dated Dec. 14, 1875. [Filed Mar. 8, 1877.]



As an improved article of manufacture, the candle-holder *e*, in combination with the hook *a b* and rod *d*, arranged to connect with a suitable weight, *f*, in the manner and for the purposes substantially as described.

7,653. INJECTORS OR EJECTORS FOR STEAM-ENGINES. Geo. H. Little, Peabody, Mass. Patent No. 163,876, dated June 1, 1875. [Filed Dec. 16, 1876.]



1. The combination of a central main steam-tube, C, having a central discharging-bore, constructed substantially as shown, and lateral outlets with a nozzle, D, receiving its steam only from such outlets, substantially as and for the purpose set forth.

2. The combination, in an injector, of the steam-tube C, the nozzle D, the nut *n*, and channel *z*, these tubes being adjustable together or independently of each other, and

adapted to be locked to position by such single nut relatively to the channel *z*, substantially as and for the purpose set forth.

3. The combination of an inlet, G, steam-nozzle D, inner steam-tube C, constructed substantially as shown, the nut *a*, channel *x*, chamber H, and an outlet, I, substantially as and for the purposes set forth.

4. The described construction, consisting of the main steam-tube C, having the small outlet *k*, and the openings into the outer tube D, and through which it is supplied with steam, in combination with such outer tube, the one tube being adjustable relatively to the other, as set forth, and whereby, when the tubes are seated together, the letting on of steam will draft water without moving any of the parts, and the unseating of these tubes from each other will force the drafted water into the boiler.

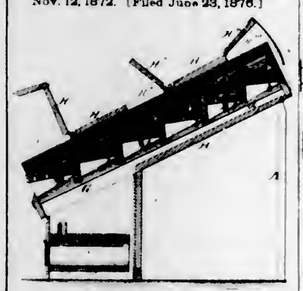
5. The main and central steam-tube C, provided with side steam-outlets, and with the small orifice *k* in its end, adapting it for drafting water when seated, in combination with nozzle D, and adapted, when unseated, to permit the steam passing through the orifice to assist the steam in nozzle D to force the water into the boiler.

6. The combination of the longitudinally adjustable nozzle D, and the central and longitudinally-adjustable steam-tube C, provided with small outlet *k*, and lateral outlets for supplying steam to nozzle D, whereby the admission of both water and steam may be regulated.

7. The combination, with the inner steam-tube C, adapted to supply steam to the outer or surrounding tube or nozzle D, of said nozzle D, and a lever-handle, L, connected to, and serving to slide, one of these tubes telescopically relatively to the other.

8. In combination, the inner steam-tube C, the outer tube D, the regulating nut or nuts, the overflow cock, having a full-sized opening, the overflow chamber, and the outlet I, these parts being arranged and operating substantially as shown and described.

7,654. FRUIT-DRIERS. B. L. Ryder, Chambersburg, Pa. Patent No. 133,060, dated Nov. 12, 1872. [Filed June 23, 1876.]



1. In a fruit drier, the combination of an upper and a lower inclined hot-air chamber or flue and a series of perforated trays, constituting the partition between the two inclined flues, substantially as set forth.

2. In a drier, the combination of an upper and a lower inclined hot air chamber or flue and a series of perforated trays, each tray forming a short vertical flue leading from the lower to the upper inclined flue, substantially as specified.

3. In a drier, the combination of a lower and an upper inclined hot-air chamber or flue, the lower communicating with the upper by passages formed in each of a series of trays, which separate the two inclined flues, the whole adapted to convey heated air through the contents of the trays, and then discharge it directly into a flue connecting with the open air.

4. The construction and arrangement of the series of trays and isolated flues A B C D E F, in combination with the inclined box H, said flues and trays being placed between the air-supply passage G and the escape-passage G', substantially as described.

5. The inclined box or flue H, divided or separated by the trays and flues A B C D E F into a lower air-supply passage and an upper escape passage, substantially as set forth.

6. In a drier, a series of sliding trays, in combination with the inclined box or flue, H, substantially as and for the purposes set forth.

7. The inclined chamber or box H, in combination with the perforated fruit trays or screens and a stove or hot-air-supply chamber or passage, substantially as specified.

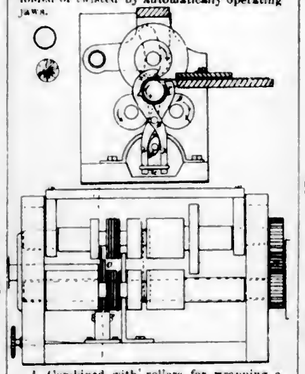
8. The tray B for drying fruit, constructed with beveled ends *a' b*, close sides and ends, and slat bottom *c c c*, substantially as and for the purpose described.

9. A series of flues, formed substantially in the manner described, for dividing the general supply-current of hot air, thus directing each smaller current to a separate parcel of fruit upon a perforated tray or screen, substantially as set forth.

10. A series of trays arranged in contact on an inclined slide or slides, and adapted to be moved, one after the other, over the same track, the lowest tray pushing the others before it, substantially as set forth.

7,655. MACHINES FOR PATCHING BULLETS. S. W. Wood, Cornwall, N. Y. Patent No. 136,352, dated Feb. 25, 1873. [Filed Oct. 4, 1875.]

Brief.—The bullets are placed between revolving cylinders, by which they are rotated. They are moistened, to cause the patch to adhere, by means of a disk or wheel, which rotates in the moistening substance, and supplies the latter to one of the revolving cylinders, by which it is imparted to the bullet. The patch is fed through a curved guide, and, after being rolled upon the bullet, that part which projects over the base of the bullet is folded or twisted by automatically operating jaws.



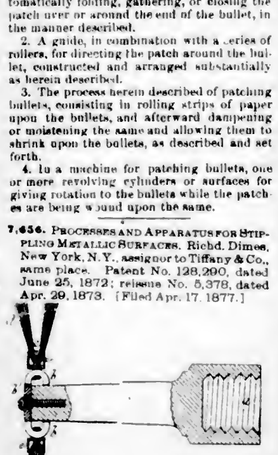
1. Combined with rollers for wrapping a patch around a bullet, substantially in the manner herein set forth, folding jaws for automatically folding, gathering, or closing the patch over or around the end of the bullet, in the manner described.

2. A guide, in combination with a series of rollers, for directing the patch around the bullet, constructed and arranged substantially as herein described.

3. The process herein described of patching bullets, consisting in rolling strips of paper upon the bullets, and afterward dampening or moistening the same and allowing them to shrink upon the bullets, as described and set forth.

4. In a machine for patching bullets, one or more revolving cylinders or surfaces for giving rotation to the bullets while the patches are being wound upon the same.

7,656. PROCESSES AND APPARATUS FOR STIPPLING METALLIC SURFACES. Richd. Dimes, New York, N. Y., assignor to Tiffany & Co., same place. Patent No. 128,290, dated June 25, 1872; reissue No. 5,378, dated Apr. 29, 1873. [Filed Apr. 17, 1877.]



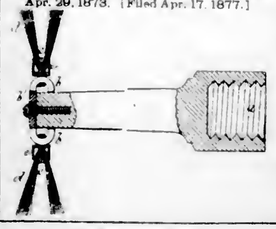
1. Combined with rollers for wrapping a patch around a bullet, substantially in the manner herein set forth, folding jaws for automatically folding, gathering, or closing the patch over or around the end of the bullet, in the manner described.

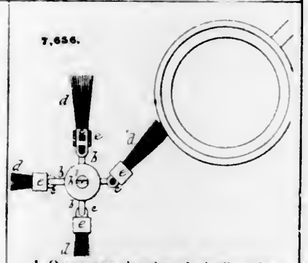
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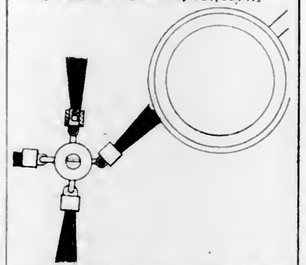
1. One or more bunches of stippling-wires, loosely connected to a revolving chuck or mandrel, substantially as described.

2. The combination of one or more bunches of stippling-wires with links loosely connecting said bunches to loops on the chuck or mandrel, substantially as described.

3. The combination of the link *c*, cap *e*, and stippling-wires *d*, substantially as described.

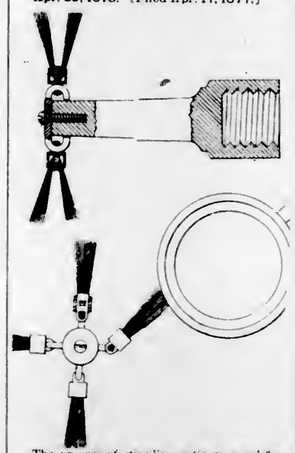
4. The chuck-head *b'*, carrying the loops *b*, substantially as described.

7,657. PROCESSES AND APPARATUS FOR STIPPLING METALLIC SURFACES. Richd. Dimes, New York, N. Y., assignor to Tiffany & Co., same place. Patent No. 128,290, dated June 25, 1872; reissue No. 5,378, dated Apr. 29, 1873. [Filed Apr. 17, 1877.]



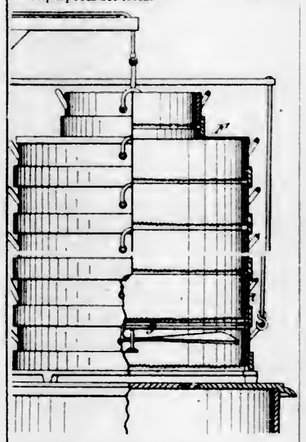
A metallic surface, stippled or satin-finished, substantially as described.

7,658. PROCESSES AND APPARATUS FOR STIPPLING METALLIC SURFACES. Richd. Dimes, New York, N. Y., assignor to Tiffany & Co., same place. Patent No. 128,290, dated June 25, 1872; reissue No. 5,378, dated Apr. 29, 1873. [Filed Apr. 17, 1877.]



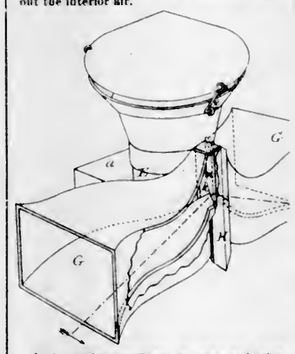
The process of stippling satin or pearl finishing by the impingement upon the surface required to be finished, without interference with each other, of the points of a number of fine wires, substantially as described.

suspended above a stove or furnace, a suspending device, substantially as shown, provided with a swivel-connection, as and for the purposes set forth.



190,369. VENTILATORS FOR VEHICLES. J. E. Richard, New York, N. Y. [Filed Sept. 16, 1876.]

Brief.—A suction-tube having an inclined spiral wall or walls, opening by a mouth or mouths in the direction of motion, whereby the centrifugal action of a whirling current or eddy of external air is utilized to draw out the interior air.



1. A suction-ventilator for cars and other vehicles, having a spiral draft-passage, an induct, and an exit-spout communicating centrally with the induct and tangentially with the draft-passage, substantially as specified.

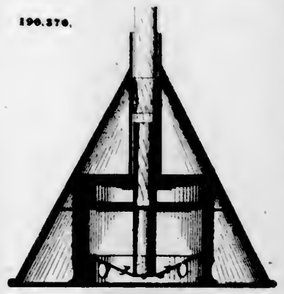
2. A suction-ventilator consisting of the body portion, having an induct, *a*, annular diaphragm *c*, flanged central opening *a'*, and lateral opening *l*, the guarded exit-spout, the draft-mouth G, and the valve *m*, substantially as specified.

3. The combination, with the exit-spout, induct *a*, and tangential draft-mouths G, of the body E, having the annular flanged diaphragm *c*, and the lateral valved opening *l*, substantially as specified.

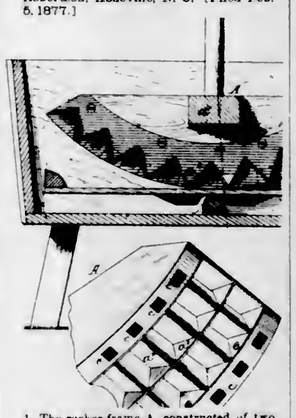
4. The combination, in a ventilator, of the spiral exterior draft-flues and the central induct, through which the exterior air is drawn by the whirling motion of the external air passing through said draft-flues, substantially as specified.

190,370. CLOTHES-POUNDERS. Wm. T. Robertson, Asheville, N. C. [Filed Feb. 28, 1877.]

In combination with outer shell, consisting of a cone or a truncated cone, the inner cylindrical shell and reciprocating plunger, provided at its bottom with radial wires, substantially as and for the purposes set forth.



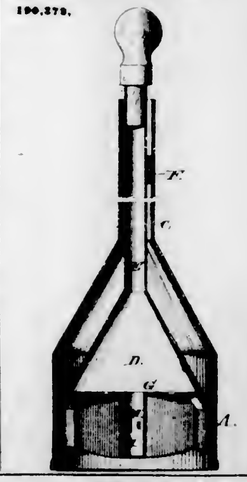
190,371. WASHING-MACHINES. Harvey G. Robertson, Asheville, N. C. [Filed Feb. 5, 1877.]



1. The rocker-frame A, constructed of two parallel side pieces, having in their under edge a series of air spaces or recesses, *c c*, and an intermediate fluted section, *a'*, the said rocking frame adapted to operate in a tub or tank, substantially as and for the purpose described.

2. In combination with the segmental rocker, provided with air-spaces on its under side, and the tank or tub in which said rocker is operated, the removable slotted bottom, adapted to operate substantially as described.

190,372.



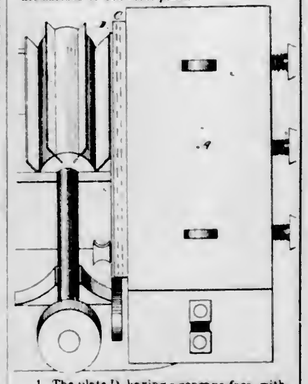
190,373. CLOTHES-POUNDERS. Wm. T. Robertson, Asheville, N. C., assignor of one-half his right to Jas. W. Cheek, same place. [Filed Feb. 5, 1877.]

1. The combination, with the outer shell A and its tube C, of the inner shell D, constructed with the horizontal perforated partition G, depending perforated tube I, and partitions H, radiating from said tube, the inner shell being provided with the operating-rod E and packing F around the same, all substantially as and for the purpose described.

2. The outer shell A and its tube C, in combination with the inner shell D, having the operating-rod E, provided with the surrounding packing F, and the inner shell being constructed with the horizontal perforated partition G and radial partitions H, having rounded lower edges, substantially as described.

190,375. MACHINES FOR DRESSING THE FLY-BARS OF PAPER-MILL ROLLS. Jas. H. Robinson, Christiana, assignor of one-half his right to Chas. Arthur, New London Township, Pa. [Filed Apr. 5, 1877.]

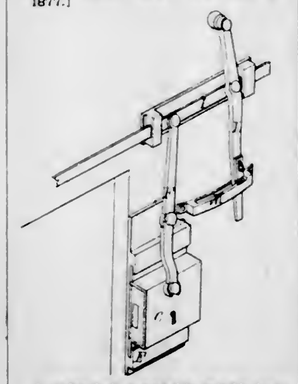
Brief.—Of two box-like frames, one within the other, the inner one is adjustable vertically, and is covered at top by a steel plate, of which the upper surface is concave, and also serrated after the manner of a file. Journal-bearings are affixed to the outer frame, to accommodate the shaft of the roll, which latter is so located that the edges of the fly-bars shall pass across and against the file-surface of the steel plate.



1. The plate D, having a concave face, with serrations or file-like grooves *g*, substantially as and for the purpose set forth.

2. The concave plate D in combination with the box C and frame A, said box being adjustable as and for the purpose described.

190,374. LOCKS FOR CELL-DOORS. George Ropes, Boston, Mass. [Filed Mar. 28, 1877.]



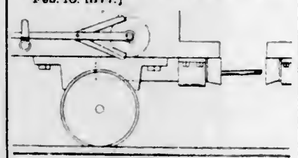
1. A door-lock supported in suitable bearings or supports, and susceptible of lateral shifting movements to and fro in such sup

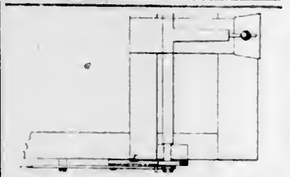
ports with respect to the door, substantially as and for purposes stated.

2. A series of door-locks capable of shifting movements, connected each with a common bar or rod by a lever, substantially as and for purposes stated.

3. The combination of the lock C, lever F, bar I, and lever L, under the arrangement and for operation substantially as and for purposes stated.

190,278. CAR-COUPLINGS. B. Rowell, West Sparta, assignor of one-half his right to Geo. M. Osgoodby, Nunda, N. Y. [Filed Feb. 16, 1877.]





In a car-coupling, the combination of the lever and pivoted V shaped pawl, the T rock-shaft, the ratchet or toothed link fixed on the end thereof, and the coupling-pin and draw-head, all constructed and arranged as shown and described, to operate as specified.

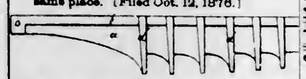
190,276. POSTAGE AND REVENUE STAMPS. Jas. Sangster, Buffalo, N. Y., assignor of one-half his right to Robert Dunbar & Co., same place. [Filed Mar. 17, 1877.]





A postage or other stamp, one surface of which is provided or printed with a series of fine lines or dots in a colorless material, soluble in water, and over or on which rests the desired design, printed in ordinary printer's ink, whereby such portions only of the printing-ink lines composing such design, which rest upon the lines of the soluble material, may be removed by the application of a liquid, and rubbing with a force sufficient to remove, or partly remove, the ink which may be used in the cancellation of the stamp, substantially as and for the purposes described.

190,277. GRATE-BARS FOR BOILER-FURNACES. P. J. Schmitt, Chicago, Ill., assignor of one-half of his right to P. Fish, same place. [Filed Oct. 12, 1876.]

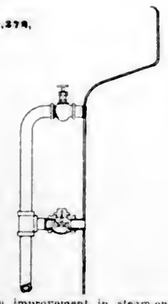


The grate-bar described, consisting of the top flanges *b*, shaped substantially as shown, the spacing-lugs *c*, the web *a*, and the vertical ledges *d*, projecting below the said web, and increasing in length toward the rear end of the bar, the several parts being constructed and arranged as and for the purposes set forth.

190,274. MODES OF RELIEVING HIGH-PRESSURE ENGINES. T. Shaw, Philadelphia, Pa. [Filed Mar. 3, 1877.]

Brief.—The invention consists in locating a check-valve in communication with the steam-pipe leading to the cylinder and the boiler; also, in locating it between the throttle-valve and the cylinder, in order that, when the valve of the cylinder is reversed, the air which is drawn in through the exhaust-port may be utilized by being forced into the boiler, and, by so doing, preventing accident to the cylinder and connecting parts by the compression of such air.

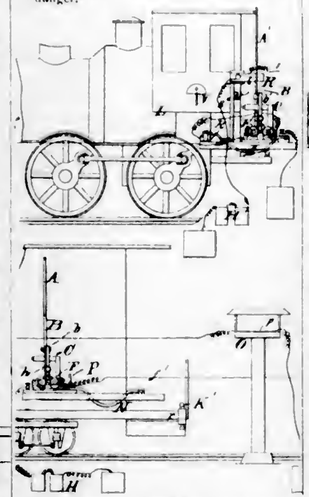
190,278.



As an improvement in steam-engines, a check-valve in communication with the steam-pipe and the boiler, and located between the throttle-valve and the engine, in the manner described, for the purpose set forth.

190,279. ELECTRO-MAGNETIC RAILROAD-SIGNALS. C. S. Shivler, New York, N. Y. [Filed Feb. 12, 1877.]

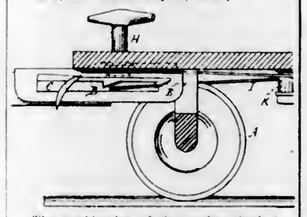
Brief.—Circuit normally closed, holding signals in "safety" position. Train, on entering section, breaks the circuit, allowing signal at each end of section to move to "danger." On leaving section, train mechanically sets signal to "safety," a circuit-closer upon the signal completing the circuit, whereby signal at entrance end of section is reset to "safety," and both signals are held at "safety" until passage of a train again breaks the circuit. Alarm on locomotive operated when train approaches within certain distance of signal set to "danger."



1. The entrance-signal A' and the exit-signal A, placed at the ends of a railway-section, in combination with a battery, the conductor or conductors of an electric circuit, and two magnets, F F', for operating said signals; a circuit-closer, I, placed at the entrance of a railway-section, and operated to open the circuit by a lifter on the locomotive, and closing automatically when the locomotive has passed the same; a circuit-closer, *h*, so arranged at the exit of said railway-section that the movement toward the exit-signal-operating magnet F of its armature-lever shall close the circuit; two armature-levers, *b b'*, having armatures *d d'*, and connected with the levers of the signals A A'; a lever, P, rigidly connected with the armature-lever *b*; and a lifting device, N, operated by a lifter placed on the last car of the train, substantially as and for the purposes set forth.

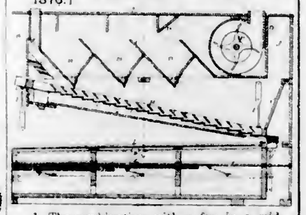
2. The combination, with exit and entrance-signals operated by a battery and electro-magnets, of the plates *p p* placed parallel to each other and the line of a railway-section, in advance of the entrance-signal thereof, and forming part of the circuit of an electric current, generated by a separate battery, H'; a circuit-closer, K, closed by the action of the lever B, in assuming the position of danger; the lever B of said signal, and a circuit-closer, V, attached to the locomotive, to act upon the plates *p p*, for closing the circuit of a sound-signaling apparatus carried by the locomotive, substantially as and for the purpose described.

190,280. CAR-STARTERS. D. Shoup, Warsaw, Ind. [Filed May 17, 1876.]



The combination of the ratchet wheel A, spring-pawls B, cross-bar C, horizontal beam C, chain I, pulley K, and windlass H, all operating together as and for the purposes described.

190,281. MIDDLINGS-SEPARATORS. C. N. Smith, Dayton, Ohio. [Filed Sept. 16, 1876.]



1. The combination, with a fan in a middlings-purifier, of the vacuum-chambers B, the riddles I, the intermediate slatted shaker H, and the flues *d d'*, substantially as specified.

2. A middlings-purifier, having the vacuum-chambers B B, and valves *c*, a shaker, and a riddle, in combination with the end flues *d d'*, fan-box, and valves D D, substantially as specified.

3. The shaker H, having the closed bottom *e*, a lower series of carrying-slats, *f*, and above these a series of flue slats, *g*, reversely inclined, substantially as specified.

4. The riddle-knocker M in combination with the slotted anvil-plates K, substantially as specified.

5. The combination, with a reciprocating riddle, of the vibrating automatic gravitating knockers M suspended therefrom and having V-bearings thereon, substantially as specified.

6. The elastic supporting-arms I, having the cylinder-heads *g* and slotted socket-plates K', substantially as specified.

7. The combination, with an endwise-moving riddle or shaker, of elastic supporting-arms I, having cylindrical journal-head *g* working in the cylindrically-recessed bearing-plates K' on the under side of the riddle aforesaid, substantially as specified.

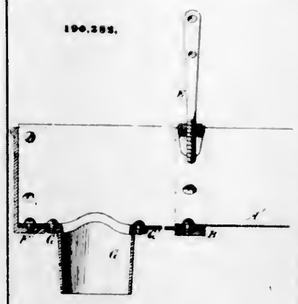
190,282. EAVES-TROUGHS. Peter Snyder, Louisville, Ky. [Filed Mar. 27, 1877.]

1. An eaves-trough having the plates connected by screws passing through the overlapping plates and held in encircling metallic band B, substantially as set forth.

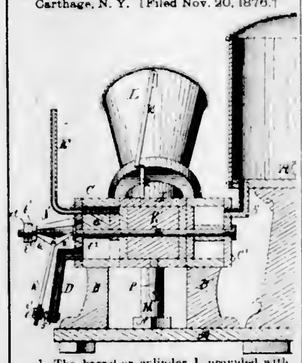
2. In combination, the brace D, secured by screws passing through the plate to the band B, and the adjustable hanger E, substantially as set forth.

3. A sheet-iron eaves-trough, in which the sheets A and A' are connected to the bands B and flanges F' and G' by screws passing outwardly into threads formed in the said attachments, which form the connections for the section ends and spout, substantially as set forth.

190,283.



190,283. BOILER-FEEDERS. A. I. Sternberg, Carthage, N. Y. [Filed Nov. 20, 1876.]



1. The barrel or cylinder I, provided with central partitions *k*, flanged projections J J, water-vessels L L, steam-pipes K K, and ports A A, i i, and *m m*, in combination with the heads C C' and their respective ports, substantially as and for the purposes herein set forth.

2. The combination of the tank G with pipes R *f*, the head C' with ports *e e*, rocking cylinder I with water-vessels, steam pipes and ports, as described, and the head C with ports *b d*, steam-pipe E, and discharge-pipe D, substantially as and for the purposes herein set forth.

3. The combination of the oscillating cylinder I with its water-vessels, the arm P, rods O O, adjustable cushioned standards M M, and springs *s s*, and nuts *t t*, as and for the purposes herein set forth.

4. The combination, with the heads C C' and oscillating cylinder I, of the central rod *n*, with nuts *b' d'* and washer *e'*, the levers *a'*, rod *h'*, with nuts *i' i'*, and the stationary collar *f'* on the expansible discharge-pipe D, substantially as and for the purposes herein set forth.

190,284.



190,284. HAY-ELEVATORS. H. C. Stouffer, Canfield, assignor of a part of his right to L. T. Foster and U. A. Andrews, Youngstown, Ohio. [Filed Apr. 5, 1877.]

Brief.—In the adjustment of the fork for elevating hay the tines are in an inclined position, with the hooks out and up, so as to hold the hay thereon. When the hay is brought to the place for unloading, the tines are caused to hang within the supplemental tines, whereby the hooks are covered and permit the hay to slide off.

1. In a hay elevator and carrier, a fork having hooked tines, in combination with a supplemental fork pivoted to the hooked tines, and adapted to uncover and cover the hooks of said tines in elevating and discharging the hay therefrom.

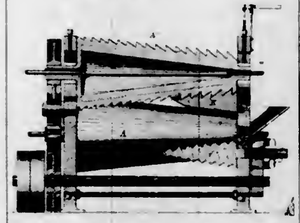
2. A hay elevating and carrying fork, *l*, having hooks *w* rising from its tines, and a supplemental fork, *n*, constructed and adapted to form a back, *n'*, for said hooked fork to hold and carry the hay and present smooth tines, to disengage and discharge the hay from and over the hooked tines.

3. The combination, with a fork having hooked tines and supplemental pivoted fork opening and closing therewith, of a locking and tripping device adapted to hold the hooked and supplemental tines to carry the hay, and to automatically withdraw said hooks from holding positions when said locking device is tripped.

4. The combination, with the hooked and supplemental forks, pivoted to operate as described, of the pivoted arm or link *q* and its coupling *s*, uniting the heel-ends of the fork, the draft-rope coupling *r*, its pivoted catch *t*, the fixed eye *u*, and the pivoted detent *v*, adapted for co-operation to hold the hooked ends of the fork up for action, and the supplemental fork in proper relation thereto.

5. The locking and tripping device of a hay elevator and carrier, having the pivoted catch *t*, the couplings *r* and *s*, the pivoted detent *v*, and the fixed eye *u*, arranged in relation to each other and the pivoted fork-tines, to bring said catch automatically in position to receive the detent in adjusting the hooked tines to catch into the hay.

190,285. MACHINES FOR SQUEEZING PUDDLERS' BALLS. E. Buckow, Buffalo, N. Y. [Filed Feb. 12, 1877.]



1. As an improvement in the process of squeezing puddlers' balls, the application of pressure, and simultaneous compound rotary and rectilinear motion to the ball by the action of rollers having peripheral spiral grooves or ribs, arranged substantially as described.

2. The standards B B', having the bearings for the rollers, and in combination therewith a series of rollers provided with spiral projections, and arranged to revolve all in the same direction for operating upon a puddler's ball, in the manner and for the use and purpose stated.

3. The combination, with the rollers A A', of the auxiliary roller E, arranged below said rollers, substantially as stated.

4. The combination, with the roller A'', of the sliding bearing *a*, the forward one being arranged with capability of automatic and independent adjustment, as described, for the object stated.

5. The combination, with the rollers A A', of the shields K, as described.

6. An improved puddlers' ball-squeezer, consisting, essentially, of rollers, combined substantially as described, and designed to operate, as stated, in virtue of the arrangement of them and their peripheral V-shaped spiral grooves or ribs.

7. An improved puddlers' ball squeezer, consisting, essentially, of rollers, combined substantially as described, and designed to operate as stated, in virtue of the arrangement of them and of their peripheral spiral ribs or projections, the leading sides of which are at, or nearly at, right angles to the axis of the rollers.

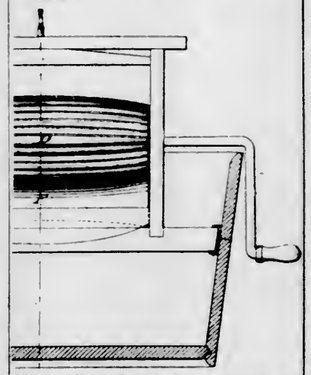
8. An improved puddlers' ball-squeezer, consisting, essentially, of rollers, combined substantially as described, and designed to operate, as stated, in virtue of the arrangement of them and their peripheral spiral ribs or projections of varying depth, as set forth.

9. An improved puddlers' ball-squeezer, consisting, essentially, of rollers, combined substantially as described, and designed to operate, as stated, in virtue of the arrangement of them and their spiral ribs or projections of varying pitch, as set forth.

10. An improved puddlers' ball-squeezer, consisting of a combination of spirally-ribbed rollers, the ribs of each varying in pitch from those of the other rollers, substantially as described.

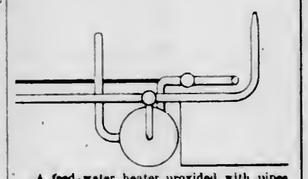
11. An improved puddlers' ball-squeezer, consisting, essentially, of rollers, combined substantially as described, and designed to operate, as stated, in virtue of the arrangement of them and their scored or notched spiral ribs or projections, as set forth.

190,286. WASHING-MACHINES. Robt. Talmadge, Coshocton, Ohio. [Filed Oct. 20, 1874.]



In a washing-machine, the combination of an upper convex fluted roller, D, and a lower smooth concave roller, F, substantially as described, for the purposes specified.

190,287. MEANS FOR UTILIZING EXHAUST STEAM. W. H. Thomas, Wilmington, Cal. [Filed Feb. 17, 1877.]



A feed-water heater provided with pipes and valves to convey and direct the uncondensed steam either to the chimney or to the vessel containing the feed-water supply.

190,288. CHAIRS. T. Tostevin, Council Bluffs, Iowa. [Filed Apr. 25, 1877.]

1. In a chair having supporting side posts or standards, a continuous elastic back and seat, as and for the purpose described.

2. A chair having an elastic supporting-frame, combined with a suspended elastic back and seat, formed in one piece, as set forth.

3. A chair formed of a wooden or metallic frame, the posts and rear legs and the arms and front legs being each formed in one piece, bent inwardly, and united beneath the seat, as and for the purpose set forth.

4. A chair having the spring-connection *f*, uniting the extremities of the side posts, with or without the suspended back and seat formed in one piece, as and for the purpose set forth.

5. The legs B, having a re-enforce at their point of junction, to distribute the elasticity over the upper and lower parts of the chair-frame, as set forth.

6. In combination with the leg-frame, the cross-braces C C, and side braces D D, said braces being fastened to each other at the point *m*, and their lower ends connected with the legs at *d*, by the bolt which enters and secures the side braces, as set forth.

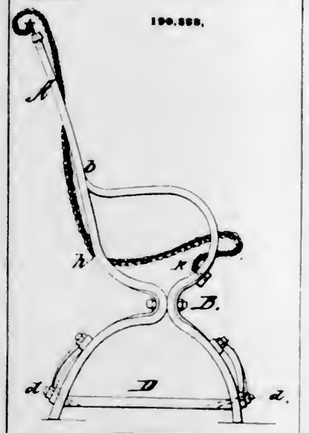
7. In combination with the frame F and F', the spring-support *f*, and bar *e*, adapted to the furnish the supports for the fabric of the back and seat, substantially as specified.

8. A chair composed of the elastic frame F F', spring-bar *f*, and supporting bar *e*, secured to the extremities of the part F', as and for the purpose set forth.

9. A chair having a seat composed of an elastic fabric, doubled upon itself at *i*, and bent, as shown at *k*, to adapt it to be secured to the frame, as and for the purpose set forth.

10. A chair having an elastic supporting frame, consisting of the elastic side posts, bent forward and brought under the seat, with the arm-pieces and front legs formed in a similar manner, the two being united at B, in the manner and for the purpose shown and described.

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190,289. MACHINES FOR GRINDING ORES. H. Trumbull, Ticonderoga, N. Y., assignor to New York Ore Separator Company. [Filed Oct. 27, 1876.]

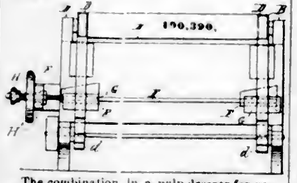
Brief.—The rubber cushions allow the rollers to give slightly. The guide rods serve to keep the axis of the rollers always parallel.



The combination, with crushing-rollers A B, their axles C D, standards E K G, and guide-rods H I, of elastic cushions L, situated between the standards G and K, substantially as and for the purpose set forth.

190,290. PULP-DRESSER FOR PAPER-MACHINES. W. C. Tuttle, Worcester, Mass., assignor to Rice, Barton & Fales Machine and Iron Company, same place. [Filed June 10, 1876.]

Brief.—The screen pulp box, through which, upon its being raised, the pulp is sucked into the main pulp box below, is hinged to the latter, and caused alternately to rise and fall by means of the contact between cam wheels and projecting side arms upon the screen box. The height of the screen-box with relation to the main box—that is, the depth to which it is to dip, and the consequent suction—is regulated by vertically-sliding standards on the main box, which are adjusted simultaneously and uniformly by blocks having inclined or wedge-shaped upper edges, the said blocks sliding horizontally in grooved ways, and being connected together by a shaft having screw-threaded end, fixed bearings, and an operating crank-wheel, by turning which to the right or left the blocks are moved forward or back, and the standards supporting the screen pulp-box are, consequently, elevated or depressed.



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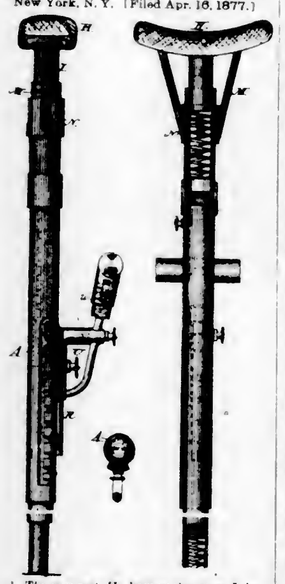
The combination, in a pulp dresser for paper machines, with the screen pulp-box A B' B'' and cam wheels *d d*, of side arms D, standards *b b*, and regulating mechanism, consisting of the blocks F F, shaft F', and its operating crank-wheel H, substantially as and for the purposes set forth.

190,291. LIGHTNING-RODS. N. Van Loon, St. Cloud, Minn. [Filed Feb. 24, 1877.]



The combination of the core A, consisting of the central galvanized-iron rod *a*, intertwisted with the surrounding galvanized-iron rods *a'*, and soldered together with the inclosing copper strips B, soldered to the core, and having intervening spaces *b* between them, substantially as described, and for the purpose set forth.

190,292. CRUTCHES. Lawrence F. Waldon, New York, N. Y. [Filed Apr. 16, 1877.]



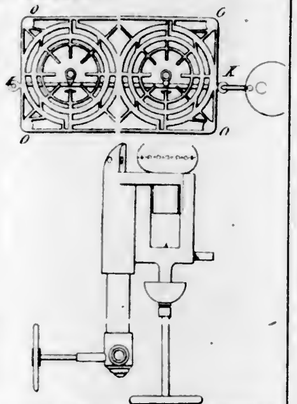
1. The arm-rest H, having the stem I, inclined braces M, and collar N, in combination with the staff A, provided in its upper end with a spring, K, as and for the purpose described.

2. The combination, with the staff A, having on its side the dovetailed feather R, of the laterally-projecting hand-hold, having a dovetailed recess adapted to the feather R, and a set-screw for fastening it in any adjusted position, substantially as described.

3. The combination, with the upper end of the crutch, of an arm-rest provided with a slotted collar adapted to slide upon said upper end, and the slot sitting over a lug on the latter, for the purpose of preventing the arm-rest from turning, substantially as set forth.

4. The combination, in a crutch, of the two telescoping sections, their fastenings, a yielding arm-rest and foot-piece, and a yielding hand-hold, all constructed and arranged to operate together substantially as and for the purposes set forth.

190,293. GASOLINE COOKING-STOVES. H. Wellington, Brooklyn, E. D., N. Y. [Filed Mar. 14, 1877.]



1. In a gasoline-burner of the character herein specified, the combination, with the removable cone of the extended portion of the oil-pipe elevated above the cone seat and perforated to permit the passage of the auxiliary heating-jets from said cone, substantially as shown and described.

2. In a gasoline-burner of the character herein specified, the combination of the removable cone, having a feather or rib, *r*, and the slotted or grooved frame which forms a portion of the burner and a seat for the cone, substantially as and for the purposes set forth.

3. In combination with the supply-pipe of a gasoline cooking-stove, conducting oil to two or more burners, the herein-described T joint, adapted to attach said burners to the supply-pipe and afford a passage for the oil thereto, the same being provided with a valve-stem socket and seat, and otherwise constructed and arranged as shown and described.

4. In combination with the frame of the top plate for gasoline cooking-stoves, constructed substantially as shown and described, the removable open-work top plates, provided with projecting ribs adapted to engage with corresponding slots in the frame, substantially as shown.

5. In an open-work top plate for gasoline cooking-stoves, the combination of the rings R R and radial pieces R' R', the former being indented, as shown, and the two being of about equal horizontal section, as and for the purposes explained.

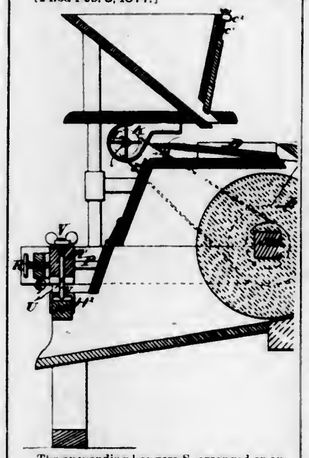
6. In combination with the open-work top plate of a gasoline cooking-stove, the wooden legs adapted to support the whole metallic structure, as set forth.

7. In combination with the open-work top plate of a gasoline cooking-stove, cast with corner-sockets O O, and screws depending therein, the wooden legs L secured in the manner set forth.

8. In combination with the top plate of a gasoline cooking-stove, the lugs K K cast therewith and adapted to secure and hold the supply-pipe D, in the manner shown and described.

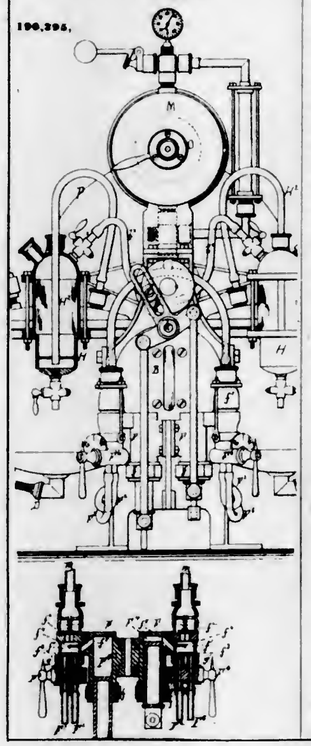
9. In combination with the elevated reservoir of a gasoline cooking-stove, the perforated supply-pipe D, terminating within said reservoir and abutting against the top plate thereof, for the purpose of rigidly supporting said reservoir, in the manner shown and described.

190,294. ADJUSTING DEVICES FOR GRINDING-MILLS. H. F. Wescott and R. O. Randall, Gadsden, Ala., assignors to the Gadsden Grange Mill Company, same place. [Filed Feb. 3, 1877.]

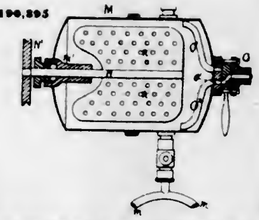


The suspending hangers S, arranged on opposite sides of the case E, and provided with the inwardly-extending lower flanges *s*, and outwardly extending perforated upper flanges *s'* and adjusting screws S' S', in combination with the inclined blocks T T, attached to the frame, stirrup H', rod U, and thumb-nut V, substantially as described, and for the purpose set forth.

190,295.



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190,296. SODA-WATER APPARATUS. Fred. W. Wiesebrock, Brooklyn, N. Y. [Filed Nov. 15, 1876.]

Brief.—From the generators the gas passes through washers to the equalizing-chamber, the latter having a water supply. The gas and water, under uniform pressure, pass from said chamber to the pumps, and in a uniform given quantity. By the cocks the quantity of each can be regulated. Thus the beverages can be charged with a given quantity of gas, and uniformly. From the valve-chambers the liquid and gas is forced up to the agitating-vessel. If gas has escaped in filling a fountain, the desired pressure may be obtained by turning the slide-cock so as to register with the gas-pipe of the agitator.

1. In a soda-water apparatus, an equalizing-chamber by means of which both water and gas are fed to the pump at a uniform pressure, irrespective of the pressure in the generator, substantially as described.

2. In a soda-water apparatus, the valve-chamber *f*, connected with the chamber F' of the pump F by an inclined channel, *f'*, and valves *f*' *f*', located as described, the whole constructed and arranged to operate substantially as described.

3. In a soda-water apparatus, the agitating-vessel M, provided with a sliding cock, O, said cock so constructed as to connect with either the gas-pipe O' or the water-pipe O', substantially as described.

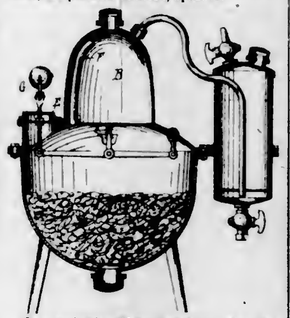
4. In a soda-water apparatus, the combination of the generator A, provided with perforated paddle *b*, spindle *c*, and pulley F', with the acid-chamber C, valve *d*', pipe D', ball-valve *d*', and discharge-valve D, substantially as described.

5. In a soda-water apparatus, the combination of the generator A, constructed as described, purifying-cylinder H, constructed as described, equalizing-chamber B, having float-valve *b*', and pipes H' *b*' *b*', substantially as described.

6. In a soda-water apparatus, the combination of the generator A, purifying-cylinder H, equalizing-chamber B, pump F, constructed as described, agitating-vessel M, constructed as described, and pipes F' F'' H' *b*' *b*' *m*, substantially as described.

190,296. AUTOMATIC CARBONIC-ACID-GAS GENERATORS. F. W. Wiesebrock, Brooklyn, N. Y. [Filed Nov. 9, 1876.]

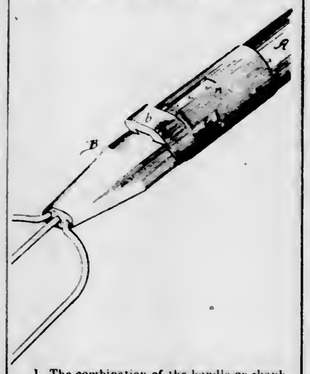
Brief.—The acid is automatically supplied as the gas-pressure upon the diaphragm operates to close the valve, while the weighted lever, the pressure reduced, opens it.



In a carbonic-acid-gas generator, the combination of the acid-chamber B, valve *c*, valve-lever D, flexible diaphragm E, weighted lever G, equalizing-pipe F, and generator A, substantially as described.

190,297. COMBINATION TOOLS. J. L. Williams, Jesups Junction, Ga. [Filed Dec. 19, 1876.]

Brief.—A cross-piece connects the two sides of the slotted handle. A slotted sliding and revolving sleeve, with rear inclined edge, secures the pivoted arm in a longitudinal position, or at right angles to the handle.

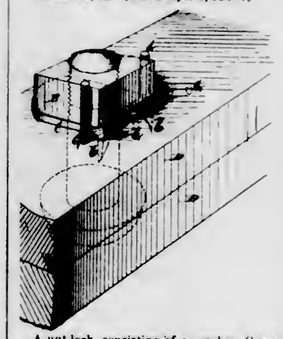


1. The combination of the handle or shank A, the pivoted arm B, the sliding and rotating slotted sleeve C, and the locking device whereby the sleeve is retained when in its forward position, all as set forth.

2. The combination of the slotted handle or shaft A, pivoted arm B, and sleeve C, having a slot, *n*, and inclined rear edge *x*, as specified.

3. The combination of the shank A, pivoted arm B, sleeve C, and cross-piece *b*, for the purpose specified.

190,298. NUT-LOCKS. Frank L. Williams, Tamaroa, Ill. [Filed Apr. 3, 1877.]



A nut-lock consisting of a washer, C, constructed with one or more pointed projections or spurs, *b*, and a wire, G, placed crosswise under the washer, and having its end bent up or out, for use in relation with the nut, substantially as shown and described.

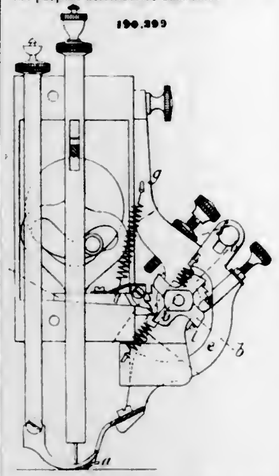
190,299. RUFFLING OR PLAITING ATTACHMENTS FOR SEWING-MACHINES. Newton Wilson, High Holborn, England. [Filed Feb. 6, 1877.]

Brief.—A pin on a frame attached to the head of the machine enters a slot in the arm which carries the ruffling-blade, and which moves on the pin to the extent of the slot. The blade is moved forward and downward by springs, and held up and back by a series of tappets on a shaft, which is intermittingly rotated by a ratchet-wheel and pawl-lever, the latter being operated by the needle-bar and a retracting-spring.

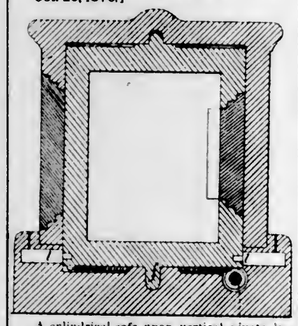
1. The frame *g*, adapted to be secured to the side of the needle-arm of a sewing-machine, and carrying the lever *e*, to which the ruffling or plaiting blade *a* is attached, cams *b*, ratchet *l*, and pawl-lever *n*, arranged to be operated by the needle-bar, all as set forth.

2. The slotted lever *e*, with its moving fulcrum at *f*, the bar or blade *a*, and adjustable screw or finger *k*, in combination with the revolving tappets, cams, or wipers *b*, ratchet-wheel *l*, pawl-lever *n*, the spring *p*, and adjustable stop-screw *q*, all arranged to operate together, substantially in the manner and for the purpose hereinbefore described.

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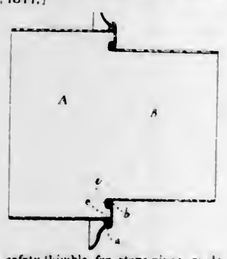


190,400. BURGLAR-PROOF SAFES. Arthur T. Woodward, New York, N. Y. [Filed Oct. 26, 1876.]



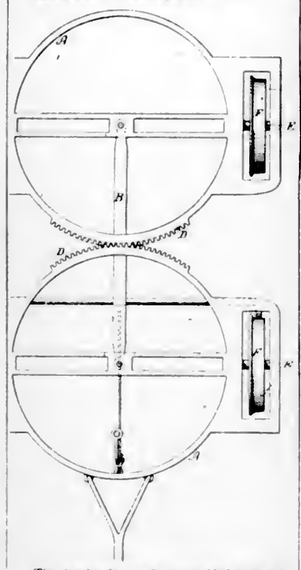
A cylindrical safe upon vertical pivots, in combination with a burglar-proof casemate and base, surrounding the safe and fitting the same closely, the gearing for revolving the safe, and the bolts *l* in the base for holding the safe, substantially as set forth.

190,401. STOVE-PIPE SAFE-THIMBLES. A. F. Wright, Cleveland, Ohio. [Filed Jan. 31, 1877.]



A safety-thimble for stove-pipes, made of sheet metal, and consisting of two sections of pipe, A B, of unequal diameters, in combination with a ring, C, to which said sections are connected by lap-joints or seams *a* and *b*, as herein described, and for the purpose specified.

190,402. STREET-CARS. Geo. S. Clements, Indianapolis, Ind., assignor of two-thirds of his right to S. I. Lovett and E. S. Field, same place. [Filed Apr. 21, 1877.]



The circular frames A A, provided with the toothed bars D D, in combination with the coupling B, wings C C, short axles E, and wheels F, all constructed to operate substantially as and for the purpose set forth.

190,403. EYEGLASSES. S. Oppenheimer, Washington, D. C. [Filed Apr. 21, 1877.]



1. Eyeglasses provided with nose-clamps, which are each connected with the glass-frame by means of a spiral spring, substantially as and for the purpose specified.

2. A rubber nose-clamp for eyeglasses, having one of its sides adapted to bear upon or against the nose, and its opposite side formed with an enlargement or rib, which is fitted to be embraced by a metal clasp or back, substantially as and for the purpose shown.

3. The combination of the glass-frames A, springs C, clasps D, and nose-pads E, substantially as and for the purpose set forth.

REISSUES.

7,644. FURNACES FOR HEATING STEEL IN TEMPERING. John B. Armstrong, Guelph, Ontario, Canada. Patent No. 170,430, dated Nov. 30, 1875. [Filed Feb. 28, 1877.]

Brief.—The retort may be of fire-clay, fire-brick, or of cast or wrought iron. The flues are formed by flanges which are a part of the retort.

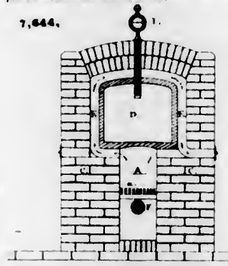
1. In a furnace for heating steel in tempering, the retort D, formed at intervals around its entire length with partitions E', to form narrow passages or flues E, said flues being arranged or opening alternately, first on one side and then on the other, so that they take the draft from and deliver it at alternate sides of the furnace, thus equalizing the distribution of the heat over the whole surface of the retort, substantially as described.

2. The blast-pipe F, consisting of the inner pipe F', perforated with the spirally-arranged holes *f'*, in combination with the outer pipe F', perforated with the holes *f*, arranged and operating substantially as described, and for the purpose specified.

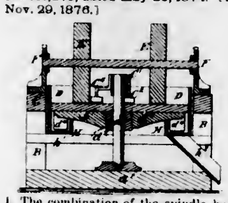
3. The doors H, consisting of the frames H', constructed to leave a margin of brick-work between the inner edge of the furnace and retort openings, and the iron door H², fitted in with fire-brick *h*, arranged and operating substantially as described, and for the purpose specified.

4. The combination and arrangement, in a furnace for heating steel in tempering, of furnace A C, retort D, constructed with alternate opening and discharging flues E E', blast-pipe F F' F², and doors H H' H², composed of iron and fire-brick, all constructed and adapted to operate substantially as and for the purposes described and shown.

7,644.



7,645. CLAY AND ORE CRUSHERS. T. Clifford and J. Clifford, Pittsburg, Pa. Patent No. 151,276, dated May 26, 1874. [Filed Nov. 29, 1876.]



1. The combination of the spindle having its bearings below the cross-shaft, the revolving pan, and independent rollers E, loosely mounted on a cross-shaft supported above the spindle and pan by sliding boxes, substantially as set forth.

2. The revolving pan D, provided with perforated plates outside the track of the roller E, in combination with the scrapers C² and C³, stationary circular trough H A', and wings *d'*, fixed to the bottom of pan D, substantially as and for the purpose specified.

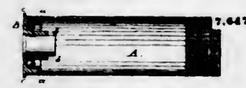
7,646. MANUFACTURE OF GAITERS, BOOTS, AND SHOES. P. Fiecher, New York, N. Y., assignor of one-half interest to H. Lange, Jr. Patent No. 179,779, dated July 7, 1876. [Filed Apr. 23, 1877.]



As an improved article of manufacture, a gaiter, boot, or shoe the quarter, the vamp, the leg, and the button-piece of which are made out of one piece, said button-piece being formed from that portion of the material opposite the vamp, so that the finished gaiter, boot, or shoe has but a single seam situated on the opposite side to that occupied by the button-piece, as shown and described.

7,647. METALLIC CARTRIDGES. S. Glover and B. L. Budd, Fairfield, Conn., assignees of S. E. Allen, executrix of E. Allen, deceased. Patent No. 47,688, dated May 16, 1865. [Filed Apr. 23, 1877.]

7,647.



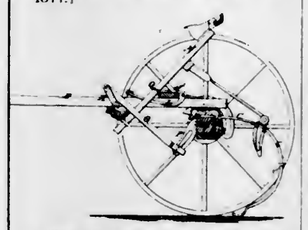
1. A cartridge shell the base of which is provided with an opening to receive a cap, and with a powder-tube extending inwardly from the anvil toward the center of the explosive charge, whereby the fire is first communicated to the powder in the tube, and is then radiated from the center of the charge, substantially as described.

2. A cartridge-shell having a grooved or roughened inner surface, adapted to bite into the edges of and hold the wad against chance displacement, substantially as described.

3. In a cartridge-shell, the base B, grooved to form an anvil for the cap, and having powder-tube *b* prolonged toward the interior of the explosive charge, substantially as described.

4. A cartridge shell composed of the cylindrical case A and the base B, provided with three flanges, *a*, *b*, and *c*, substantially as described.

7,648. HORSE HAY-RAKES. H. H. Hathaway, Clockville, N. Y. Patent No. 181,337, dated Aug. 22, 1876. [Filed Feb. 20, 1877.]



1. The rake-teeth C, provided with S-shaped bends at the rear side of the axle B, substantially as herein shown and described.

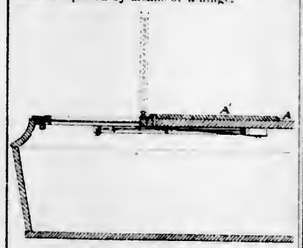
2. The rake-teeth C, having their lower ends bent downward, forward, and upward to form runners to slide upon the ground, substantially as herein shown and described.

3. A flexible rake-tooth loosely attached to axle and having bends that support it against axle in heavy work, but drop in gleaning or other light work, as set forth.

4. The downwardly-projecting axle-arm P, slotted and combined with bars Q R and cross-bar *q*, as and for the purpose set forth.

7,649. COFFINS. F. H. Hill, Chicago, Ill. Patent No. 83,964, dated Nov. 10, 1868. [Filed Jan. 5, 1877.]

Brief.—A glass face-plate slides beneath the lid when open, or may be drawn forward and turned upward by means of a hinge.



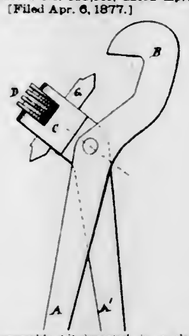
1. In a coffin or casket, the lid A, constructed so as to lie in substantially the same horizontal plane, in combination with an independent face-glass, loosely fitted in the lid, so as to slide back to open the coffin, and a supplementary cover, A', arranged immediately above the lid, and adapted to be moved over the face-glass and permanently close the casket, substantially as described.

2. The coffin-lid A, in combination with a movable face-glass, supported in the opening in the lid, the two parts being constructed and arranged so that the glass may be depressed and moved back beneath the lid, substantially as described.

3. The coffin-lid A, in combination with a face-glass hinged to the lid, whereby the face-glass may be swung up and down to open and close the coffin, substantially as described.

4. The coffin-lid A, in combination with a hinged reciprocating face-glass, which may be either slid back or swung upward on its hinges to open the coffin, substantially as described.

7,650. PIPE-TONGS. A. H. Jarecki, Erie, Pa. Patent No. 138,161, dated Apr. 22, 1873. [Filed Apr. 6, 1877.]



1. A reversible bit inserted in a slotted head made at the extremity of one of the handles of pipe-tongs, for the purpose set forth.

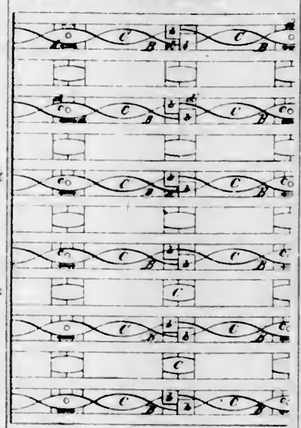
2. The head C on one of the handles, having a slot or mortise extending through the same, in combination with a detachable and reversible bit inserted in the slot, and in combination with a hook, B, on the other handle, substantially as and for the purposes herein set forth.

3. The combination, in pipe-tongs, of a forked head on one of the handles, a reversible and detachable bit movable through a mortise in such head, and a device in the forked head for operating the bit, for the purposes set forth.

4. The bit G, pointed and sharpened on both ends, serrated on one face, and operated by the worm-wheel D, as and for the purposes herein set forth.

5. The combination of the handles A A', hook B, forked and mortised head C, worm-wheel D, and reversible and serrated bit G, all constructed and arranged substantially as and for the purposes herein set forth.

7,651. METALLIC LATHING. J. W. Kensett, Troy, N. Y. Patent No. 181,851, dated Sept. 5, 1876. [Filed Mar. 7, 1877.]



1. A twisted or spiral lath.

2. A twisted or spiral lath of tin or sheet metal.

3. The combination of a twisted or spiral lath with a surface to receive plaster.

4. The combination of a corrugated surface with one or more laths arranged longitudinally in the corrugations.

5. The combination of a twisted or spiral metallic lath, C, with the depressions B and clamp or chair fastenings *b b*, as and for the purpose described.

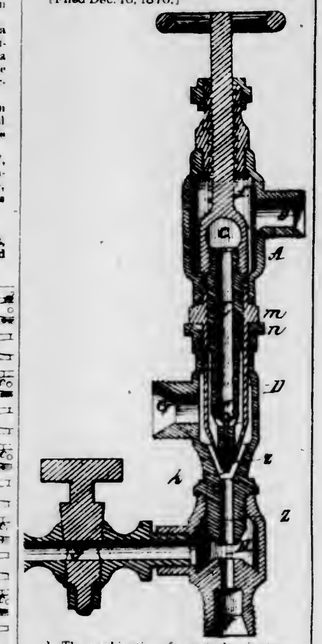
6. The combination of a twisted or spiral metallic lath, C, with a corrugated metallic holder for the plaster, substantially as described.

7,652. CANDLE-HOLDERS. Chas. Kirchhof, Newark, N. J. Patent No. 72,506, dated Dec. 24, 1867; reissue No. 6,805, dated Dec. 14, 1875. [Filed Mar. 8, 1877.]



An improved article of manufacture, the candle-holder *c*, in combination with the hook *a b* and rod *d*, arranged to connect with a suitable weight, *f*, in the manner and for the purposes substantially as described.

7,653. INJECTORS OR EJECTORS FOR STEAM-ENGINES. Geo. H. Little, Peabody, Mass. Patent No. 163,876, dated June 1, 1875. [Filed Dec. 16, 1876.]



1. The combination of a central main steam-tube, C, having a central discharging-bore, constructed substantially as shown, and lateral outlets with a nozzle, D, receiving its steam only from such outlets, substantially as and for the purpose set forth.

2. The combination, in an injector, of the steam-tube C, the nozzle D, the nut *n*, and channel *z*, these tubes being adjustable together or independently of each other, and

adapted to be locked to position by such single nut relatively to the channel *z*, substantially as and for the purpose set forth.

3. The combination of an inlet, G, steam-nozzle D, inner steam-tube C, constructed substantially as shown, the cut *a*, channel *z*, chamber H, and an outlet, I, substantially as and for the purposes set forth.

4. The described construction, consisting of the main steam-tube C, having the small outlet *k*, and the openings into the outer tube D, and through which it is supplied with steam, in combination with such outer tube, the one tube being adjustable relatively to the other, as set forth, and whereby, when the tubes are seated together, the letting on of steam will draft water without moving any of the parts, and the unseating of these tubes from each other will force the drafted water into the boiler.

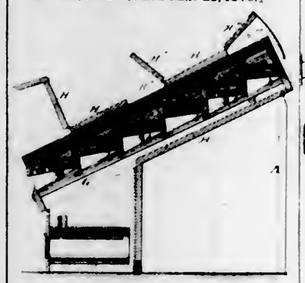
5. The main and central steam-tube C, provided with side steam-outlets, and with the small orifice *k* in its end, adapting it for drafting water when seated, in combination with nozzle D, and adapted, when unseated, to permit the steam passing through the orifice to assist the steam in nozzle D to force the water into the boiler.

6. The combination of the longitudinally adjustable nozzle D, and the central and longitudinally-adjustable steam-tube C, provided with small outlet *k*, and lateral outlets for supplying steam to nozzle D, whereby the admission of both water and steam may be regulated.

7. The combination, with the inner steam-tube C, adapted to supply steam to the outer or surrounding tube or nozzle D, of said nozzle D, and a lever-handle, L, connected to, and serving to slide, one of these tubes telescopically relatively to the other.

8. In combination, the inner steam-tube C, the outer tube D, the regulating nut or nuts, the overflow rock, having a full-sized opening, the overflow chamber, and the outlet I, these parts being arranged and operating substantially as shown and described.

7,654. FRUIT-DRIERS. B. L. Ryder, Chambersburg, Pa. Patent No. 133,060, dated Nov. 12, 1872. [Filed June 23, 1876.]



1. In a fruit-drier, the combination of an upper and a lower inclined hot-air chamber or flue and a series of perforated trays, constituting the partition between the two inclined flues, substantially as set forth.

2. In a drier, the combination of an upper and a lower inclined hot-air chamber or flue and a series of perforated trays, each tray forming a short vertical flue leading from the lower to the upper inclined flue, substantially as specified.

3. In a drier, the combination of a lower and an upper inclined hot-air chamber or flue, the lower communicating with the upper by passages formed in each of a series of trays, which separate the two inclined flues, the whole adapted to convey heated air through the contents of the trays, and then discharge it directly into a flue connecting with the open air.

4. The construction and arrangement of the series of trays and isolated flues A B C D E F, in combination with the inclined box H, said flues and trays being placed between the air-supply passage G and the escape-passage G', substantially as described.

5. The inclined box or flue H, divided or separated by the trays and flues A B C D E F into a lower air-supply passage and an upper escape-passage, substantially as set forth.

6. In a drier, a series of sliding trays, in combination with the inclined box or flue, H, substantially as and for the purposes set forth.

7. The inclined chamber or box H, in combination with the perforated fruit-trays or screens and a stove or hot-air-supply chamber or passage substantially as specified.

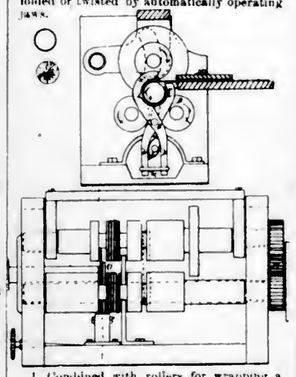
8. The tray B for drying fruit, constructed with beveled ends *a' b'*, close sides and ends, and slat-bottom *c c c*, substantially as and for the purpose described.

9. A series of flues, formed substantially in the manner described, for dividing the general supply-current of hot air, thus directing each smaller current to a separate parcel of fruit upon a perforated tray or screen, substantially as set forth.

10. A series of trays arranged in contact on an inclined slide or slides, and adapted to be moved, one after the other, over the same track, the lowest tray pushing the others before it, substantially as set forth.

7,655. MACHINES FOR PATCHING BULLETS. S. W. Wood, Cornwall, N. Y. Patent No. 136,352, dated Feb. 25, 1873. [Filed Oct. 4, 1875.]

Brief.—The bullets are placed between revolving cylinders, by which they are rotated. They are moistened, to cause the patch to adhere, by means of a disk or wheel, which rotates in the moistening substance, and supplies the latter to one of the revolving cylinders, by which it is imparted to the bullet. The patch is fed through a curved guide, and, after being rolled upon the bullet, that part which projects over the base of the bullet is folded or twisted by automatically operating jaws.



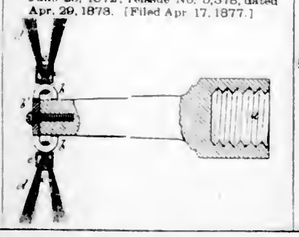
1. Combined with rollers for wrapping a patch around a bullet, substantially in the manner herein set forth, folding jaws for automatically folding, gathering, or closing the patch over or around the end of the bullet, in the manner described.

2. A guide, in combination with a series of rollers, for directing the patch around the bullet, constructed and arranged substantially as herein described.

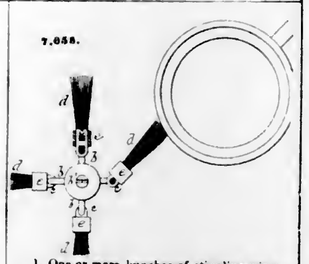
3. The process herein described of patching bullets, consisting in rolling strips of paper upon the bullets, and afterward dampening or moistening the same and allowing them to shrink upon the bullets, as described and set forth.

4. In a machine for patching bullets, one or more revolving cylinders or surfaces for giving rotation to the bullets while the patches are being wound upon the same.

7,656. PROCESSES AND APPARATUS FOR STIPPLING METALLIC SURFACES. Richd. Dimes, New York, N.Y., assignor to Tiffany & Co., same place. Patent No. 128,290, dated June 25, 1872; reissue No. 5,378, dated Apr. 29, 1873. [Filed Apr. 17, 1877.]



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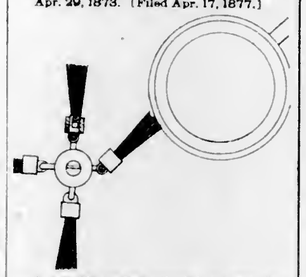
1. One or more bunches of stippling-wires, loosely connected to a revolving chuck or mandrel, substantially as described.

2. The combination of one or more bunches of stippling-wires with links loosely connecting said bunches to loops on the chuck or mandrel, substantially as described.

3. The combination of the link *c*, cap *e*, and stippling-wires *d*, substantially as described.

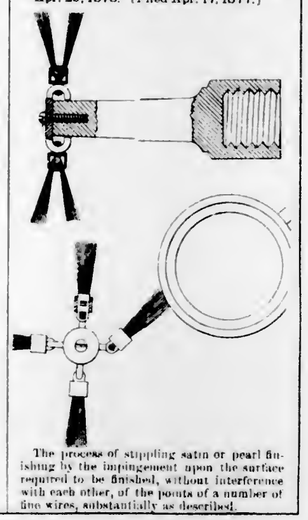
4. The chuck-head *b'*, carrying the loops *b*, substantially as described.

7,657. PROCESSES AND APPARATUS FOR STIPPLING METALLIC SURFACES. Richd. Dimes, New York, N.Y., assignor to Tiffany & Co., same place. Patent No. 128,290, dated June 25, 1872; reissue No. 5,378, dated Apr. 29, 1873. [Filed Apr. 17, 1877.]



A metallic surface, stippled or satin finished, substantially as described.

7,658. PROCESSES AND APPARATUS FOR STIPPLING METALLIC SURFACES. Richd. Dimes, New York, N.Y., assignor to Tiffany & Co., same place. Patent No. 128,290, dated June 25, 1872; reissue No. 5,378, dated Apr. 29, 1873. [Filed Apr. 17, 1877.]



The process of stippling satin or pearl finishing by the impingement upon the surface required to be finished, without interference with each other, of the points of a number of fine wires, substantially as described.

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COMMISSIONER'S DECISIONS.

GROSS *vs.* SARGENT.—*Interference.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the interference between the application of Henry Gross, filed August 28, 1875, and that of James Sargent, filed July 12, 1875, for* "IMPROVEMENT IN TIME AND COMBINATION LOCKS."—*Decided March 14, 1877.*]

It is a well settled principle of law that diligence on the part of the party first to conceive the invention constitutes an essential element of the title of first and original inventor.

A delay of eight years in reducing the invention to practice and giving it to the public unaccompanied by extenuating circumstances, but resulting from indifference toward the invention is not sufficient to defeat the claim of one, who, in the meantime had independently perfected his invention and created a demand for it in the market.

Notice of an adverse claim is to be presumed where one of two rival companies, engaged in the same line of business, having manufactured and introduced a valuable invention, the other suddenly commences to perfect and manufacture the same article which it had previously been solicited to take hold of, but had shown no desire or intention of so doing, until after the other parties had been some time manufacturing.

The case under consideration distinguished from that of *White vs. Allen*, the reasons alleged in excuse of the delay not being analogous.

The theory of the patent law requires that an inventor should be diligent in giving his efforts to the public, and a private corporation cannot be substituted for the public as the recipient of the inventor's efforts.

The law does not look with favor upon a party who withholds the knowledge of his invention from the public by a negligent postponement of his claim until after others have made and introduced the same.

[*W. C. Dodge & Son*, for Gross.
J. L. Norris, for Sargent.]

DOOLITTLE, *Assistant Commissioner:*

The subject-matter involved may be stated as follows:

In combination with a time mechanism and a permutation-lock, a lever or its equivalent connected with the time mechanism, and so arranged as to hold the dog or locking-bar of the lock out of contact with the tumblers of the lock until released by the time mechanism.

The right of priority in this case turns upon the question as to whether reasonable diligence was exercised by the party first to conceive the invention in reducing the same to practice. That such diligence constitutes an essential element in the title of first and original inventor has become a well-established principle of law.

It appears, without doubt, that Gross was the first to conceive of the idea embodied in this structure and now constituting the subject-matter in issue. He alleges having thought of it as early as 1866 or 1867, but his preliminary statement confines him to the latter year. According to his testimony he made sketches of the invention in 1867, and at that time described it to others. This, also, it is asserted, he did in 1869, 1870, and in the spring of 1873. The 1867 and 1869 sketches were lost or thrown aside. They are not produced, and hardly a single witness is able to give any clear or definite statement as to what was communicated to him by Gross prior to 1873.

In the spring of 1873 he, as has been said, made sketches, which are now produced as exhibits, but which he then put away in a trunk where they remained undisturbed for two years or more. The first model which he appears to have made that was preserved, and that others saw, was in April, 1875, and in the summer of that year he sent it to the Howard Watch Company, who finally made the different parts of the device therefrom. Subsequent to July, 1875, he alleges that the parts were put on perhaps two hundred safes.

In 1869 or 1870, he was an employé of the Hall Safe and Lock Company, and engaged in the capacity, among others, of an inventor. He spoke to the leading member of that firm about this invention in 1870, and subsequently showed to him the sketches made in 1873. Mr. Hall, the witness alluded to, admits substantially that the conversation in 1870, and even the sketches of 1873, did not make much impression upon him, or at least he did not then regard the invention as practicable. He cannot remember the dates, and his testimony consists of impressions that were left upon his mind. Gross admits that this company refused to adopt his ideas, and this refusal to adopt and introduce the invention was the cause of his long delay.

This rather uncertain testimony shows a decided indifference on the part of Gross and his employers toward this invention for the period of eight years.

Gross admits that he never solicited any one but the company by which he was employed to take hold of this invention.

Millward, to whom this company submitted inventions before their adoption of the same, for his opinion as an expert, says that Gross spoke to him about this matter and showed a sketch or two of it in 1873 or 1874; but he has no recollection as to the particular object that Gross had in showing him the sketch; nor is he positive as to what the invention was that Gross described to him; nor can he say whether it was in 1873 or 1874.

As early as the spring of 1873, while Gross was engaged in making a few crude sketches, and putting them away in his trunk, Sargent had not only conceived of the invention but had embodied it in a practical working model, which was filed with an application in the Patent Office June 11, 1873, and that application was finally merged into the present one. He followed up this embodiment in practical form, by introducing the public to a knowledge of it in attempts in many directions to induce bankers and others to adopt the device upon their safes, and his efforts in this direction were crowned with success in 1874, in which year numerous banking companies purchased and used the invention.

It seems hardly possible that a rival company, engaged in the same line of manufacture, and anxious to increase their trade, should have been ignorant entirely of these efforts, and I am at a loss to account for the waking up of the Hall Safe and Lock Company from their indifferent conduct toward Gross's alleged invention from 1870 to 1875, to the active interest and prosecution by them of said invention in the summer and fall of 1875, on any other ground than the knowledge by them of their rival's efforts. They present the excuses that in the first place there was no demand for this invention; and second, that it would have interfered with the sale of the lock they were already making. After their opponent had created a demand for it they were not retarded from also prosecuting it by the effect it might have on their previous inventions.

The contrast between the circumstances of this case and the case, for instance, of *White & Allen*, 2 Fish., 440, is sufficient in showing the inapplicability not only of the doctrine in that case, but in several others of a similar kind, that counsel for Gross has relied upon as establishing the validity of such excuses.

In the White & Allen case, the patentee, White, invented an improvement as early as the year 1849, and continued to experiment and perfect his invention until 1852, but did not apply for or obtain his patent until 1855. It appeared that during the whole time from 1849 to 1855 he was in the employ of one who held a prior and controlling patent which prevented the use of his improvement; that he delayed his application and was advised to delay it on this account; and it also appeared that his employer had discharged several men for making, or attempting to make, improvements upon such patents or in the line represented thereby.

In the present case Hall was employed for this very purpose, to get up improvements of this sort. The interests of his company, by whom he was employed, and his own, were identical. He not only gave the work of his hands and of his brains to the company, but submitted freely to their control, and he made no practical experiments for years after his discovery.

Now, the theory of the patent law is, that an inventor should be diligent in giving his efforts to the public, and I know of no decision, or any plausible ground upon which it can be urged that a private corporation can be substituted for the public as the recipient of an inventor's efforts.

The sole and admitted reason for Gross's delay of seven or eight years was the benefit to be conferred on the Hall Safe and Lock Company, by its adoption of his invention when convenient, and not the benefit of the public or community at large, which the Supreme Court has held is doubtless the primary object in granting and securing to inventors the monopoly of their discoveries. (*Kendall et al. vs. Windsor*, 21 How., 322.)

Regarding then, as we must, Gross's intention to keep and apply the invention for the profit of his company and himself, and to withhold it from the public until it was convenient for them to bring it forth, the language of the same decision applies to his conduct:

> With a very bad grace [says the court] could such a one appeal for favor or protection to that society which, if he had not injured he certainly had neither benefited nor intended to benefit. Hence, if, during such a concealment, an invention similar to, or identical with his own should be made and patented, or brought into use without a patent, the latter could not be inhibited nor restricted, upon proof of its identity with a machine previously invented and withheld and concealed from the public. The rights and interests, whether of the public or of individuals, can never be made to yield to schemes of selfishness or cupidity; moreover, that which is once given to or is invested in the public, cannot be recalled or taken from them.

Although the court was there speaking of a completed invention which had been operated in secret, yet the principle is equally applicable to a case where an inventor alleges to have the knowledge of a complete invention, but persistently keeps that knowledge from the public.

The exception to this rule of diligence is well stated in the same decision, as follows:

> But the relation borne to the public by inventors, and the obligations they are bound to fulfill in order to secure from the former protection, and the right to renumeration, by no means forbid a delay requisite for completing an invention, or for a test of its value or success by a series of sufficient and practical experiments; nor do they forbid a discreet and reasonable forbearance to proclaim the theory or operation of a discovery during its progress to completion, and preceding an application for protection in that discovery. The former may be highly advantageous, as tending to the perfecting the invention; the latter may be indispensable in order to prevent a piracy of the rights of the true inventor.

It is clear that Gross and his employers have not brought themselves within this exception. They rested for years upon mere theoretical knowledge of the invention, and until a rival and successful inventor had, as we have seen, given the public the benefit of its introduction and use.

Again, say the Supreme Court in the above case—

> An inventor may forfeit his right as an inventor by the wilful or negligent postponement of his claims, or by an attempt to withhold the benefit of his improvement from the public until a similar or the same improvement should have been made and introduced by others.

This doctrine has been reiterated in the very recent case of *The U. S. Rifle and Cartridge Co. et al.* vs. *The Whitney Arms Co. et al.*, 11 OFFICIAL GAZETTE, 373.

If the doctrine of the United States Supreme Court in the cases of *Agawam Co.* vs. *Jordan*, 7 Wall., 583; and *Seymour* vs. *Osborne*, 11 Wall., 516, should be applied strictly to the facts in this case, then Gross did not make this invention until 1875, for it is there held as a settled rule of law, that he is the real inventor, and entitled to the patent, who first brings the machine to perfection and makes it capable of useful operation, although others may have previously had the idea and made some experiment toward putting it in practice. Except in the single fact of the later conception of this invention by Sargent the latter was first to reduce the invention to practice in a working form, and first to apply for a patent, while Gross was not reasonably diligent in any of these matters.

The decision of the Examiners-in-Chief is affirmed.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—EASTERN DISTRICT OF TENNESSEE.

DANIEL W. VAUGHN *vs.* THE EAST TENNESSEE, VIRGINIA, AND GEORGIA RAILROAD COMPANY.

[*In equity.—Before* BROWN, *J.*]

Since the Revised Statutes a bill in equity will not lie solely to recover damages for the infringement of a patent, but if it pray for an injunction, or for a discovery and account of profits, it will be maintained.

Notwithstanding the repeal of the limitation clause in section 55 of the act of 1870, an action will lie upon a patent expiring before the adoption of the Revised Statutes, if brought within six years after the expiration of the patent.

Acts of limitation will be construed prospectively only, unless a contrary intention clearly appears.

As a general rule a bill in equity will not lie to settle an account on one side only, except when a discovery is prayed, or when the nature of the account is such it cannot be readily investigated in a court of law.

A party who has earned profits by the infringement of a patent is chargeable as trustee for the use of the real owner.

A bill of discovery may be maintained against a corporation, although in order to compel a discovery on oath, the officers of the corporation must be made parties.

[*Mr. Caldwell*, for complainant.
Mr. Baxter, for defendant.]

This was a bill in equity filed September 25, 1876, to recover damages for the infringement of a patent which expired October 5, 1870. After setting forth the patent and the infringement, the bill averred an unlawful use and operation of the patented brakes upon railroad-cars owned by the defendant, but how many such brakes used and operated complainant could not set forth, and prayed that it might be required to make a disclosure and discovery of the full amount thereof. The bill further prayed for an account of all the gains and profits which the defendant realized from the use and operation of such brakes. To this bill defendant demurred upon the grounds, first, that complainant had a complete remedy at law; second, that the cause of action was barred by the statue of limitations.

OPINION OF THE COURT.

BROWN, *J.*, (Eastern district of Michigan:)

Did the first ground of demurrer depend wholly upon the question whether the bill could be sustained after the expiration of the patent, upon the sole ground of infringement, I should feel compelled, in view of the change made in the patent laws by the Revised Statutes, to sustain the objection. By the 55th section of the act of July, 1870, which was itself a re-enactment of a like provision contained in the act of 1836, it is enacted that "all actions, suits, controversies, and cases arising under the patent laws of the United States shall be originally cognizable *as well in equity as at law* by the circuit court of the United States," &c. And as if to apply beyond any question the equitable jurisdiction of such courts to cases where the patent has expired, there is added at the end of the section a proviso that "all actions shall be brought during the term for which the letters patent shall be granted, or within six years after the expiration thereof." In *Nevins* vs. *Johnson*, 3 Blatchford, 80, this section was construed as conferring jurisdiction in equity upon the circuit court, irrespective of the right of the plaintiff to an injunction, or of his demand for one. The bill in this case, like the one under consideration, was filed after the plaintiff's patent had expired, and prayed for a discovery and an account, but not for an injunction, and was sustained apparently upon the ground that the section gave complete jurisdiction in equity as well as law. Although the question was not directly passed upon whether such suit would lie, irrespective of the prayer for a discovery and account, the doctrine here laid down seems to have passed unchallenged until the enactment of the Revised Statutes.

In the revision the section above quoted was incorporated into sections 629, 711, and 4,921. The first of these confers upon the circuit courts original jurisdiction (9th) "of all suits at law or in equity arising under the patent or copyright laws of the United States." The second makes such jurisdiction exclusive of the courts of the several States. The third provides that "the several courts vested with jurisdiction of cases arising under the patent laws shall have power to grant injunctions *according to the course and principle of courts of equity*," and further reiterates in substance the language of section 55 of the act of 1870, but by a singular omission leaving out all reference to the final litigation clause above quoted. There is an obvious distinction between the words used in the act of 1870, that "all actions, &c., arising under the patent laws, &c., shall be originally cognizable as well in equity as at law," and the words above quoted from the Revised Statutes, that "the circuit courts shall have original jurisdiction, &c., of all suits at law and in equity arising under the patent laws," &c.

The first evidently contemplated an exception, in favor of patent suits, to the general rule that a bill in equity will not be maintained where there is a complete and adequate remedy at law. The latter vests the jurisdiction subject to this general principle. Not only is a bill in equity to recover damages for an infringement of an expired patent obnoxious to this principle, but also to the express language of section 723, which inhibits suits in equity where such remedy may be had at law.

But I think the bill in this case may be sustained upon the prayer for a discovery and account. Admitting to the fullest extent the rule that a bill will not lie to settle an account upon one side only, it is subject to two important exceptions: First, where a discovery is prayed. (1 Story's Equity, sec. 458.) Second, where the nature of the account is such it can not be readily investigated in a court of law. (1 Story's Equity, 452, 455; *Corporation of Carlisle* vs. *Wilson*, 13 Ves., 278; *Fowle* vs. *Lawrason*, 5 Peters, 495.)

In this last case it is said "in all cases in which an action of account would be the proper remedy at law

and in all cases where a trustee is a party, the jurisdiction of a court of equity is undoubted." A party who has earned profits by the infringement of a patent is chargeable as trustee for the use of the real owner, and is so denominated in several cases. (*Birdsall* vs. *Coolidge*, 10 OFFICIAL GAZETTE, 750.)

Bills in equity for the infringements of patents have been repeatedly sustained upon these grounds. In *Sickles* vs. *The Gloster Manufacturing Co.*, 1 Fisher, 222, the patent expired after suit commenced, but before the hearing, and it was contended that courts of equity entertain jurisdiction of patent and copyright cases only for the purposes of injunction; that the equity for an account is strictly incident to an injunction, and that, therefore, if an injunction for any reason cannot be decreed, an account can not be given, but the plaintiff must resort to a court of law. While admitting this proposition as a correct statement of the general rule as settled in England, Mr. Justice Grier observes, "the bill needs only to pray a discovery for the purpose of an account, and it will be sustained for the account only." (2 Eden on Injunctions, 245.)

* * * * * * *

"The proposition, it is said, can not be maintained, that a court of equity will not interfere to direct an account when *indebitatus assumpsit* will lie at law; nor is the converse of the proposition true that equity will decree an account in all cases where an action for money had and received, or *indebitatus assumpsit*, may be brought."

"But whenever the subject-matter can not be as well investigated in those actions, a court of equity exercises a sound discretion in decreeing an account;" citing *Carlisle* vs. *Wilson*, 13 Ves., 514. In the subsequent case of *Saunders* vs. *Logan*, 2 Fisher, 167, the same judge expressed a doubt whether a court of equity had jurisdiction when the bill exhibited a case where neither an account nor injunction were proper remedies, but only a decree for a certain sum of money with interest as fixed actual damage. The opinion apparently contains a negative pregnant, that if the bill prays for an account the jurisdiction may be sustained. The case of *Imlay* vs. *The Norwich & Worcester R. R. Co.*, 4 Blatch., 227, was similar to that of *Sickles* vs. *The Gloster Manufacturing Co.*, and the district court of Connecticut quoted and followed the ruling in that case in *Perry* vs. *Corning*, 6 Blatchford, 134. The bill contained no special allegation that a discovery was necessary, and had no special interrogatories annexed to it, but contained the usual general prayer for an answer and an account of profits. A demurer was interposed because it did not pray either for a discovery or an injunction, but the court held that under the 93d rule it should be considered as a bill for a discovery and account, and the jurisdiction was sustained. (See also *Hill* vs. *Whitcomb*, 5 OFFICIAL GAZETTE, 430; *Hoffheins* vs. *Brandt*, 3 Fisher, 220.)

We are cited to no authority sustaining the proposition that a bill for a discovery will not lie against a corporation, although in order to compel a discovery on oath, the officers of the corporation must be made parties, otherwise the answer is put in under the common seal. (2 Story's Equity, sec. 1501; 1 Daniels' Chancery Practice, 134; Story's Equity Pleadings, sec. 235; Angel & Ames, sec. 676.) While there are few cases adjudicating directly that a bill of discovery may be maintained against a corporation, such bills are frequently filed, and the absence of any decision that they will not lie leads strongly to the inference that the practice generally accepted is correct. *Bevans* vs. *Turnpike Co.*, 10 Barr, 174.

Admitting to its fullest extent that a bill for an account can not be sustained in every case where an action of assumpsit will lie, we do not think it follows that such a bill may not be filed where this action will also lie in cases where the accounting is such that it cannot readily be had before a jury. An account of profits made by the infringement of a patent, requiring, as it usually does, a careful investigation of defendant's books, and inquiries into collateral matters, is eminently of this description.

The bar of the statute of limitations is not available as a defense here. Granting that the limitation imposed by the act of 1870 was repealed by the adoption of the Revised Statutes, sec. 5597, which repeals all prior acts, "any portion of which is embraced in any section of said revision," we think the action in this case is saved by sections 5597 and 5599, the former of which provides that the repeal of prior acts shall not affect any right accrued before the repeal, but all rights under the repealed acts shall continue and may be enforced in the same manner as if said repeal had not been made. It is believed to be a general rule that acts of limitation will be construed to operate prospectively only, unless the contrary intention clearly appears. (*Harrison* vs. *Metz*, 13 Mich., 377; *Watkins* vs. *Wright*, 18 Johns, 138; *Murray* vs. *Gibson*, 15 How., 421.) In this view it is unnecessary to discuss the mooted question, whether, in the absence of federal legislation, an action for the infringement of a patent is barred by the State statute, or is subject to no limitation at all.

An order will be entered overruling the demurrer.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date May 8, 1877.]

9,956.—Telegraph-Insulators.—JAMES M. BROOKFIELD, Brooklyn, N. Y. Application filed April 14, 1877. Term of patent 14 years.

9,957.—Carpets.—EUGÈNE DANIEL, Paris, France, assignor to ROXBURY CARPET COMPANY, Boston, Mass. Application filed April 27, 1877. Term of patent 3½ years.

9,958.—Organ-Cases.—LEVI K. FULLER, Brattleborough, Vt. Application filed March 7, 1877. Term of patent 14 years.

9,959.—Fringe.—EDMUND GREASLY, Philadelphia, Pa. Application filed February 8, 1877. Term of patent 7 years.

9,960 to 9,968, inclusive.—Monument.—JAMES MORGAN, Brooklyn, N. Y. Applications filed April 27, 1877. Term of patents 7 years.

9,969.—Clock-Case.—HERMANN J. MÜLLER, New York, N. Y. Application filed April 27, 1877. Term of patent 7 years.

9,970.—Ornamenting Writing-Paper, Cards, and Envelopes.—ALMON S. ALFRED, Brooklyn, N. Y. Application filed March 26, 1877. Term of patent 7 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date May 8, 1877.]

4,613.—Violins, Tenors, and Violoncellos.—LOUIS LOWENDALL, Dresden, Germany. Application filed March 29, 1877.

"The shield-shaped symbol and the words 'LOWENDALL'S CELEBRATED.'"

4,614.—Lubricating Compounds.—SAMUEL E. MANDEL, New York, N. Y. Application filed April 4, 1877.

"The representation of the eagle in connection with the words 'Eagle Car Box Lubricator Co.'"

4,615.—Dry Hop-Yeast.—F. H. MASON & Co., Quincy, Ill. Application filed April 14, 1877.

"The word-symbol 'ROYAL' and the crossed spears encircled by hop-vines and surmounted by a crown."

4,616.—Illuminating-Oil.—WILLIAM L. TETER, Philadelphia, Pa., assignor to JAMES H. PLATT, Jr., Va., and CHARLES P. RAMSDELL, Petersburg, Va. Application filed February 22, 1877.

"A red color applied to lamp-oil."

4,617.—Tablea.—LAMBIE & SARGENT, New York, N. Y. Application filed February 14, 1877.

"The word-symbol 'UTILITY.'"

4,618.—Fertilizers.—BALDWIN & Co., New York, N. Y. Application filed April 30, 1877.

"The word 'GEORGIA' and the portrait of Oglethorpe.'"

4,619.—Mineral Water Known as Vichy.—SARATOGA VICHY SPRING COMPANY, Saratoga Springs, N. Y. Application filed March 16, 1877.

"A monogram composed of the letters 'V. S.' and the words 'THE SARATOGA.'"

4,620.—Plug-Tobacco.—FORER & Co., Louisville, Ky. Application filed March 3, 1877.

"The word 'FORER'S' and the representation of a tobacco-leaf, as shown."

4,621.—Starch.—GLEN COVE STARCH MANUFACTURING COMPANY, Glen Cove, N. Y. Application filed November 11, 1876.

"The figures of the Maryland Institute, American Institute, London, and Paris prize-medals, arranged in the corners of the labels, as represented."

4,622.—Starch.—GLEN COVE STARCH MANUFACTURING COMPANY, Glen Cove, N. Y. Application filed November 11, 1876.

"A laundry scene, comprising a stove, wash-tubs, ironing-table, and several women engaged in washing and ironing clothes, as represented."

4,623.—Lager-Beer.—E. ANHEUSER CO.'S BREWING ASSOCIATION, St. Louis, Mo. Application filed March 26, 1877.

"The capital letter A and the figure of an eagle standing on the American shield, as represented."

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date May 8, 1877.]

1,048.—Title: **"Chocolated Tablets of Chlorate Potass."**—GEORGE P. BROOKS, Boston, Mass. Application filed April 25, 1877.

1,049.—Title: **"Asiatic Insect Destroyer."**—JAMES J. CASSIDY, Boston, Mass. Application filed April 27, 1877.

1,050.—Title: **"Canker Cure Bitters."**—WILLARD C. COLLINS, Bucksport, Me. Application filed February 24, 1877.

1,051.—Title: **"Ph. Dornbusch's Champagne of Herbs."**—PHILIPP DORNBUSCH, Nashville, Tenn. Application filed April 21, 1877.

1,052.—Title: **"The Dressmaker's Square."**—CALEB HENRY GRIFFIN, of Lynn, Mass. Application filed April 19, 1877.

1,053.—Title: **"Dr. Ira J. Haskins' What is It? Cures Neuralgia, Catarrh in the Head, &c."**—IRA J. HASKINS, Belvidere, Ill. Application filed April 26, 1877.

1,054.—Title: **"United States Steam Feed Co."**—GEORGE L. JOHNSON, Boston, Mass. Application filed April 27, 1877.

1,055.—Title: **"French Imperishable Oil Photo."**—S. Ross, Louisville, Ky. Application filed April 30, 1877.

1,056.—Title: **"Wright's Sure Cure for Rheumatism."**—EDWARD A. WRIGHT, FREDERIK NIELSEN, and EDWARD W. HODGES, Pent Water, Mich. Application filed April 27, 1877.

CATALOGUES AND CIRCULARS RECEIVED.

[Inventors, manufacturers, and dealers in engines, machines, tools, and manufactured articles are respectfully requested to send duplicate copies of catalogues and circulars issued by them to the Commissioner of Patents, Washington, D. C. Where such publications have a permanent value, other than as mere advertisements, their receipt will be acknowledged in the OFFICIAL GAZETTE.]

Tables and Information Appertaining to the Use of Wrought Iron.—CARNEGIE BROTHERS & Co., Union Iron Mills, Pittsburg, Pa.

APPLICATIONS FOR EXTENSION.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., April 24, 1877.

On the petition of Erastus T. Bussell, of Indianapolis, Indiana, praying for the extension of a patent granted to him on the 29th day of November, 1853, numbered 10,280, extended for seven years from the 29th day of November, 1867; reissued on the 13th day of December, 1870, and numbered 4,202, for an improvement in combined rubber and spiral steel spring. This application having been authorized by act of Congress approved March 3, 1877:

It is ordered that the testimony in the case be closed on the 10th day of July next; that the time for filing arguments and the Examiner's report be limited to the 20th day of July next; and that said petition be heard on the 25th day of July next.

Any person may oppose this extension.

ELLIS SPEAR,
[tf] *Commissioner of Patents.*

DEPARTMENT OF THE INTERIOR,
U. S. PATENT OFFICE,
Washington, D. C., March 10, 1877.

On the petition of HENRY VOELTER, of Heidenheim, Germany, praying for the extension of a patent granted to him August 10, 1858, antedated August 29, 1856, extended for seven years from August 29, 1870, reissued June 6, 1871, and numbered 4,418, for an improvement in reducing wood to paper pulp, this application having been authorized by act of Congress approved March 3, 1877:

It is ordered that the testimony in the case be closed on the 29th day of May next; that the time for filing arguments and the Examiner's report be limited to the 8th day of June next; and that said petition be heard on the 13th day of June next.

Any person may oppose this extension.

ELLIS SPEAR,
[tf] *Commissioner of Patents.*

INDEX OF INVENTIONS PATENTED MAY 8, 1877.

	Class No.	No. of Patent.
Agricultural boiler, T. S. Dobbs	59	190,424
Air and gas engines, piston for, G. B. Brayton	2	190,411
Anti incrustation compound, E. L. Hurd	148	190,436
Bag holder, A. Johnson	57	190,494
Bale tie, H. C. Stouffer	7	190,641
Bale ties, crimping tool for fastening, H. C. Stouffer	7	190,642
Band or cord for driving machinery, &c., S. Townsend	81	190,455
Bed bottom, spring, Smith and Beverstock	62	190,633
Bedstead, sofa, H. Compes	62	190,556
Bee hiving apparatus, R. B. Oldt	9	190,509
Beer measure, J. McInnes	19	190,607
Bessemer steel ingot, J. Reese	85	190,448
Blacksmiths' tongs, J. H. Gregory	60	190,487
Booms, &c., self adjusting sheave for, J. Edson	138	190,425
Boot and shoe, H. Brossel	16	190,412
Boot and shoe, H. White	16	190,655
Boot and shoe edge burnishing machine, G. A. Fullerton	16	190,485
Boot and shoe sole fastening, L. Goddu	16	190,575
Boot and shoe sole trimming machine, Forster and Tolles	16	190,482
Boot cleaner, D. H. Laurie	16	190,598
Boot jack, J. Niver	16	190,508
Boots and shoes, edge ball compound for, C. L. Jones	16	190,495
Boots and shoes, treating leather for heels and soles of, J. J. Sawin, (reissue)	16	7,667
Box and box holder, J. A. Cotten	174	190,471
Boxes, making wooden, W. Huey	174	190,590
Brake lever, E. H. Wheeler	31	190,458
Brass cleaning and polishing compound, W. H. Bertram	70	190,407
Brick machine, T. McNicholas	20	190,505
Bridge, W. Irelan	21	190,437
Bridge, truss, R. H. Davies	21	190,562
Bridle bit, A. C. Tickner	72	190,646
Burial casket, H. Sander	39	190,625
Can opener, L. Cutting	88	190,560
Capstan, C. Rogers	79	190,623
Car axle box, E. L. Colman	122	190,468

	Class No.	No. of Patent.
Car coupling, C. M. Carnahan	122	190,418
Car coupling, A. S. Albright	122	190,532
Car spring, W. P. Hansell	122	190,582
Car, tank and freight, H. G. Brooks	121	190,542
Cars, machinery for propelling, G. T. Beauregard, (reissue)	122	7,669
Carbureters, float for, J. Clingman	27	190,419
Card board for perforating, process of finishing, Dreyfuss and Sachs	54	190,477
Carriage king bolt, J. H. Combs	31	190,555
Carriage top, G. F. Canniff, Sr	31	190,549
Carriages, shifting rail for, A. M. Whipple, (reissue)	31	7,665
Churn, S. Bair	45	190,406
Churn, W. C. Burton	45	190,466
Churn, reciprocating, R. E. Grimes	45	190,578
Churn, rotary, H. L. Gordon	45	190,576
Churn, rotary, C. I. Hale	45	190,581
Cigar lighter, automatic, M. L. Ross	90	190,450
Cigarette machine, H. H. Bromwell	160	190,541
Cigarette machine, C. Palatini	160	190,613
Clasp for wristbands, A. V. Sanford	23	190,626
Clevis, W. S. Weir	114	190,653
Clock alarm, R. Sayer	36	190,518
Cloth spreader, &c., C. A. Luther	37	190,600
Clothes drier, G. B. Stephenson	91	190,524
Coal box, G. M. Church	154	190,553
Coal hod, W. S. Potwin	154	190,514
Coffee huller, J. H. Pendleton	57	190,614
Coffee hulling and polishing apparatus, H. B. Stevens	57	190,453
Collar and toy money box, combined, Mack and Cook	143	190,504
Compound engine, Archbold and Haug	150	190,534
Corn gatherer, M. P. Brown	75	190,546
Cotton press, A. Baldwin	7	190,405
Cradle, rocking, I. Bushong	62	190,417
Cultivator, T. W. McDill	43	190,606
Cups, securing handles to, C. S. S. Baron	136	190,537
Curling iron, C. Maggi	161	190,602
Curtain fixture, H. Broom	62	190,544
Curtain fixture, Williams and Kerr	62	190,656
Decanters, &c., stopper lock for, E. H. Guild	1	190,579
Dental engine, C. M. Curtis, (reissue)	46	7,670
Door bolt, F. Davis	24	190,561
Drawer pull, G. W. Tucker	24	190,527
Drier, W. Pickhardt	48	190 616
Drying cylinder, C. C. Butterworth	48	190,548
Dust pan I. S. Laubach	62	190,499
Egg beater, J. H. Scofield	88	190,628
Egg crate, W. J. H. Kappe	62	190,440
Eggs, desiccating, W. O. Stoddard	48	190,640
Envelope, W. S. Holding	109	190,588
Envelope, J. A. S. Simonson	109	190,630
Exercising machine, A. W. Lozier	143	190,503
Fare register, A. E. Post	42	190,617
Feed water heater, J. Eckersley	148	190,567
Fence, Sumpter and Brown	52	190,643
Fence, portable, S. G. Burke	52	190,547
Fences, post for wire, S. Reynolds	52	190,621
Fire escape, (hydraulic,) Gerard and Turnbull	118	190,573
Flax, hemp, &c., machine for treating, N. De Landtsheer	78	190,476
Flower stand, C. F. Hall	63	190,580
Food, composition, J. T. Cragin	58	190,472
Frost and steam upon store windows, device for preventing the accumulation of, Anthony and Manheim	166	190,533
Fruit conductor, I. W. Curtis	63	190,559
Fruit jar, T. G. Otterson	58	190,612
Galley support, P. A. Kelly	117	190,497
Garbage sink, T. X. Walsh	110	190,649
Garter, F. Armstrong	38	190,535
Gas burner, J. Halstrick, Jr	64	190,431
Gas, process and apparatus for generating and purifying, M. W. Kidder	66	190,498
Gear cutting machine, G. H. Corliss	100	190,470
Grain binder, F. W. Randall	74	190,515
Grain conveyer, A. J. Emlaw	79	190,427
Grain drill, M. M. Fitzgerrell	133	190,480
Grain gatherer and binder, R. Eickemeyer	74	190,426
Gun, machine, J. P. Taylor	105	190,645
Gutters, machine for making wooden, J. Dole	173	190,565
Halter clamp, D. A. Wilson	72	190,657
Hame fastener, A. A. Phillips	72	190,513
Hame fastening, S. A. Woodard	72	190,661
Hame for harness, G. E. Fletcher	72	190,570
Hoe, A. Schwehr	141	190 520
Horse collar pad, A. Foley	72	190,428
Horse detacher, Amidon and McKimm	31	190,461
Horse hay rake, W. Adriance	77	190,531
Horse hay rake, W. S. Archer	77	190,462
Horse hay rake, C. C. Bradley	77	190,410
Hot air engine, Hook and Martin	2	190,490
Hydrocarbon oil to water under pressure, apparatus for supplying, W. Major	167	190,603
Indicator, G. W. Daniels	42	190,474
Iron molding, J. Hursh	4	190,492
Ironing apparatus, P. O'Thayne	91	190,444
Ironing apparatus, P. O'Thayne	91	190,445
Labels, attaching, C. L. Pond	146	190,446
Lactometer, L. Heusner	45	190,587
Lamp chimney, R. R. Crosby, (reissue)	90	7,659
Lamp extinguisher, M. Waterbury	90	190,650
Lamp, pocket, J. Kutscher	90	190,597
Lamp, safety, D. R. Harder	90	190,432
Lantern, C. J. Rogers	90	190,449
Laundry apparatus, G. C. Bovey	91	190,409
Leather staining compound, G. S. Wolff	92	190,660
Letter sheet and envelope, combined, L. Ehrlich	146	190,478
Life preserving dress, C. Grin	138	190,577
Lifting jack, D. W. Brown	79	190,413
Liquid heater, N. M. Simonds	154	190,631
Lock for cell doors, J. Sargent	93	190,627
Lock, seal, J. Dewe, (reissue)	93	7,666
Locks, tumbler for permutation, T. Fox	93	190,571
Loom shuttle, L. Dumas	95	190,566
Lubrication of ice machines, F. V. De Coppet	87	190,423
Lubricator, J. Gates, (reissue)	87	7,661
Lubricator, J. Gates, (reissue)	87	7,662
Lubricator, J. Gates, (reissue)	87	7,663
Map, mounted, A. McNally	146	190,608
Middlings separator, A. Fulton	57	190,572
Milk cooler, J. Maloney	45	190,604
Mill spindle bush, H. T. Ashworth	57	190,463
Millstone driver, Burt and Whitney	57	190,414
Millstone driver, W. Johnson	57	190,439
Mineral waters, artificial production of, C. Beyschlag	1	190,464
Motion, device for converting, Long and Lyon	67	190 601
Musical instruments, mouth piece for, C. G. Conn	102	190,558
Nut lock, W. C. Harner	14	190,583
Nut lock and washer, Mercer and Pownall	14	190,443
Oils, apparatus and process for the separation and treatment of, H. Frasch	47	190,483
Ore washer, D. D. Hendrick	3	190,585
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Paper bag machine, J. P. Raymond	109	190,618
Paper bag machine, J. P. Raymond	109	190,619
Paper box, C. F. Taylor	109	190,454
Paper feeding machine, E. H. Johnson	117	190,596
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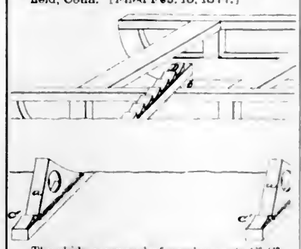
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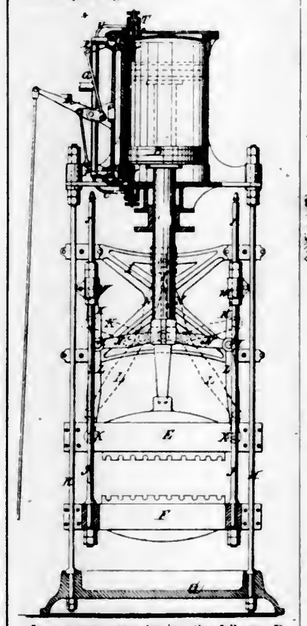
190,404. SKIDS. Wm. S. Babcock, Plainfield, Conn. [Filed Feb. 15, 1877.]



The skids composed of wooden parts C¹ C², toothed racks D D, chocks *a a*, and lips *b b*, substantially as and for the purpose set forth.

190,405. COTTON-PRESSES. A. Baldwin, New York, N. Y., assignor to S. Sheldrake & Co., same place. [Filed Sept. 4, 1876.]

Brief.—The upper toggle arms are connected to the movable lifters of the lower follower, instead of being attached to fixed supports. The two followers approach each other on pressing.

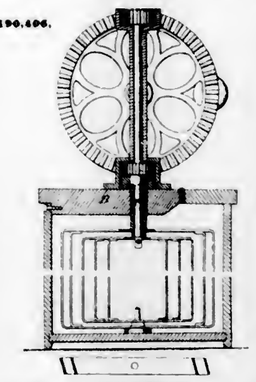


In a steam-press, having the follower E coupled to the piston rod by the toggle-jointed bars K L and the links N, the bars K, jointed to lifters J, in combination with a secondary follower, F, attached to said lifters, substantially as described.

190,406. CHURNS. S. Bair, Spencerville, Ind. [Filed Feb. 23, 1877.]

The combination, in a churn, of the concentric frames carrying thin blades driven edgewise, the outer ones being slightly inclined to induce circulation, in combination with mechanism, substantially such as described, for causing their rapid rotation.

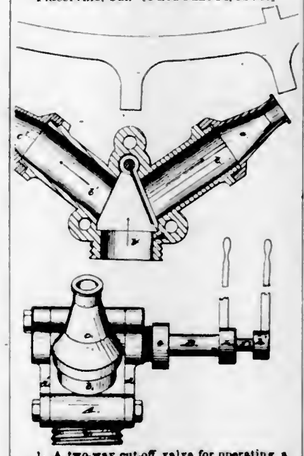
190,406.



190,407. COMPOUNDS FOR CLEANING AND POLISHING BRASS. William H. Bertram, Boston, Mass. [Filed Oct. 18, 1876.]

The hereinbefore-described compound for cleaning and polishing metals, consisting of white Tripoli, lard-oil, rotten-stone, bromide of potassium, and water, substantially in the proportions above set forth.

190,408. CUT-OFF VALVES. F. A. Bishop, Placerville, Cal. [Filed June 14, 1876.]

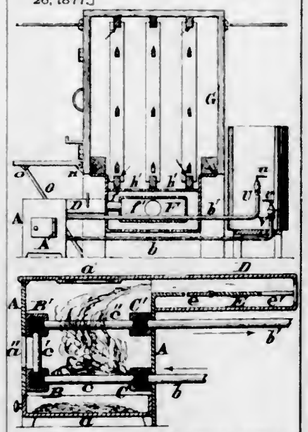


1. A two-way cut-off valve for operating a percussion water-wheel in either direction on its axis, consisting of the triangular case A, with an inlet-opening, *y*, in the bottom, and outlet-openings *b b'*, directed toward the buckets on the periphery of the wheel, causing the water through the nozzles to strike the same bucket on either face agreeably to the direction required, the said openings *y* and *b b'* being in the same plane of the wheel, all arranged substantially and for the purpose as above described.

2. The hollow stem B and wing *f*, in combination with the case A, the stem C, and wing *g*, one or both stems arranged and operated by the levers *h h'*, substantially as above described.

3. The two stems B and C and wings *g* and *f* as a solid, in combination with the case, A, to be used singly for reversing purposes, without cutting off the entire stream, substantially and for the purpose as above set forth.

190,409. LAUNDRY APPARATUS. George C. Bovey, Chillicothe, Ohio. [Filed Jan. 26, 1877.]



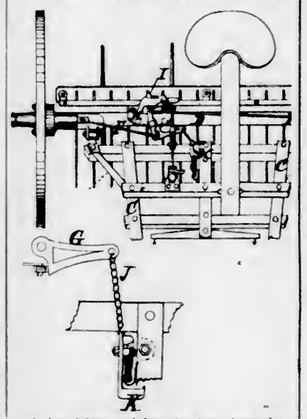
1. The combination, in a laundry apparatus, of stove A, coil B B' C C' *c c' c''*, circulating-pipes *b b'*, drying-apartment G, drum F H, and washing appliances S T, arranged and adapted to operate substantially as herein described, and for the purpose set forth.

2. In combination with stove A, washing appliances S T, and circulating-pipes *b b'*, the coil B B' C C' *c c' c''*, substantially as herein described, and for the purpose set forth.

3. The extension D, connecting stove A, with drum F *f*, said extension being provided with a partition, E *e'*, and a regulating-damper, *e*, substantially as herein described, and for the purpose set forth.

4. In combination with coil B B' C C' *c c' c''*, circulating-pipes *b b*, and washing appliances S T, the branches U *u u'* and V *v v'*, arranged substantially as herein described, and for the purpose set forth.

190,410. HORSE HAY-RAKES. C. C. Bradley, Syracuse, N. Y. [Filed Mar. 18, 1876.]



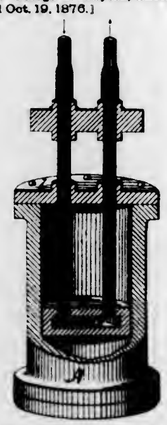
1. In a lifting and dropping horse hay-rake the combination of the foot-lever K, chain J, crank G, yoke H, spring-lever I, and hook catch L, to throw the dogs in bite with the ratchets, substantially as described.

2. In a lifting and dropping horse hay rake the combination of yoke H, hook-catch L, spring Q, and connecting-link N, to throw the dogs out of bite with the ratchet, substantially as described.

3. The combination of the ratchet hub-plates A, sliding dogs E, connecting-rods F, spring-lever I, yoke H, crank G, chain J, foot-lever K, hook-catch L, spring Q, and link N, the whole forming a foot-operating automatically releasing mechanism for lifting and dropping the teeth of a horse hay-rake, substantially as described.

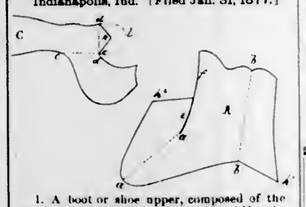
4. In a horse hay-rake braces B E extending from a point on the shaft between the oscillating axle and whiffletree to a point on the axle in close proximity to the wheel, and bearing in hinges which connect the draft-frame with the axle, to stay the axle and thill framework, substantially as shown and described.

190,411. PISTONS FOR AIR AND GAS ENGINES. George B. Brayton, Exeter, N. H. [Filed Oct. 19, 1876.]



The combination, with a piston having an interior chamber, of two separate hollow piston-rods, communicating directly with the chamber of the piston, one of which piston-rods is connected with a water-supply, whereby a continuous stream of water can flow through the piston for cooling the same, substantially as described.

190,412. BOOTS AND SHOES. H. Brossel, Indianapolis, Ind. [Filed Jan. 31, 1877.]



1. A boot or shoe upper, composed of the parts A and B, with the points b' and b^2, united at b, substantially as shown and specified.

2. The pattern for uppers, composed of the parts A and B, as herein shown and described.

3. A sole and heel for a boot or shoe, composed of the outer sole C, the lift E, the block of filling F, the metal plate D, and the inner sole G, as herein shown and described.

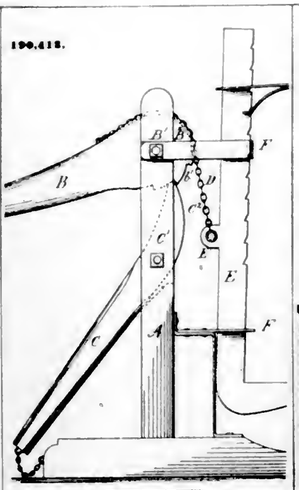
4. The pattern C for boot or shoe soles, having the point k, substantially as herein shown and specified, and all substantially as herein set forth.

190,413. LIFTING-JACKS. D. W. Brown, New Comerstown, Ohio. [Filed Mar. 30, 1877.]

A lifting-jack, consisting of a frame, A, having guides F, lever B, having head B^2, groove b, and teeth b', pawl C, having the extension or arm c^2, lifting-bar F, having lug E', and chain or rope D, all arranged and operating substantially as herein set forth.

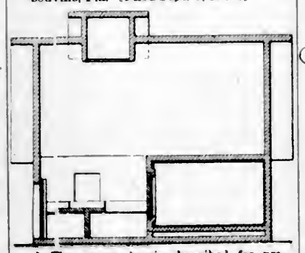
190,414. MILLSTONE-DRIVERS. Francis J. Burt and Joshua S. Whitney, Rochester, Minn. [Filed Dec. 27, 1876.]

Brief.—A bearing-block of rubber fixed between the lugs of the driving-block and the heels of the balance-rynd.



The combination of the balance-rynd B, the driving-block C, which sets on the square of the spindle, and the lugs of which bear against the balance-rynd, the rubber cushions D fitted in slots cut for their reception in the driving-block, and the runner A, as and for the purposes described.

190,415. PROCESSES OF PRESERVING FRUIT. J. L. Burst, Jr., and C. M. D'Autrey, Jacksonville, Fla. [Filed Sept. 7, 1876.]



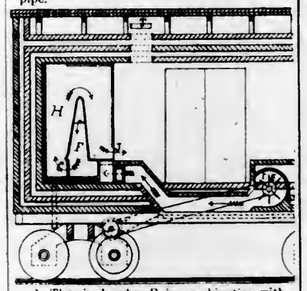
1. The process herein described for preserving fruit for shipping purposes, consisting of first preparing the fruit by sweating, by which the acid is extracted from the rind, and the pores of the same are opened; then sprinkling the same with a solution of water, Rochelle salts, saltpeter, lime, and carbolic acid, in about the proportions set forth, and finally drying and packing the same, substantially as herein set forth.

2. The curing room, provided with a double floor, lined with felt or like material, made air-tight, and capable of being hermetically sealed, for the purposes set forth.

3. A solution for the preservation of fruit, composed of water, Rochelle salts, saltpeter, lime, and carbolic acid, in about the proportions set forth.

190,416. REFRIGERATOR-CARS. Robt. Burrows, Chicago, Ill. [Filed Dec. 11, 1876.]

Brief.—The air is forced by a fan-blower, which receives power from the car-axle by means of friction-pulleys, into a flat tapering air-chamber within the ice-chamber, where it is partially cooled, and then forced out through an opening in the bottom of the other side, and passes up over the air-chamber and through the ice, down on the other side, and out through an opening just above the inlet-pipe.

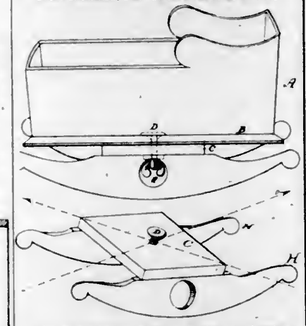


1. The air-chamber F, in combination with the ice-chamber H, the air-chamber being within the ice-chamber, and serving to cool the air before it passes in contact with the ice, substantially as specified.

2. The combination of the air-chamber F within the ice-chamber and the front of the ice-chamber, provided with the opening J at or near its bottom, so that the air is forced to pass up over the air-chamber through the ice before reaching the preserving-chamber, substantially as specified.

3. The combination of the flexible wheels M and N, the hinged frame O, spring P, and fan E in a refrigerator-car, as specified and shown.

190,417. ROCKING-CRADLES. I. Bushong, New Holland, Pa. [Filed Mar. 2, 1877.]



In combination with a cradle, A, having ventilating perforations and a long central slot in the bottom B, the rockers H, connected by a central platform, C, and the screw-bolt and binding-nut D, the whole substantially as and for the purpose specified.

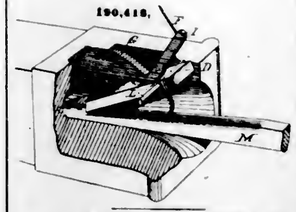
190,418. CAR-COUPLINGS. C. M. Carnahan, Utica, Pa. [Filed Apr. 2, 1877.]

1. In a car-coupler, the bell-crank F, in combination with the jack D, substantially as set forth.

2. A car-coupler provided with the slot B, oscillating jack D, and bell-crank F, having arms G I, substantially as expressed.

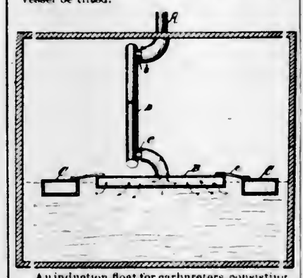
3. The combination of the jack D, bell-crank lever F, and connecting-link M, substantially as specified.

190,418.



190,419. FLOATS FOR CARBURETERS. Jno. Clingman, Dayton, Ohio, assignor of one-half his right to D. N. Kelley and C. H. Ware, same place. [Filed Mar. 21, 1877.]

Brief.—The air-induction pipe leading to the float is not only jointed to permit of rise and fall of the float with the varying height of the oil, but is also provided with a swivel-joint, so that the float will be maintained in a horizontal position, though the containing-vessel be tilted.



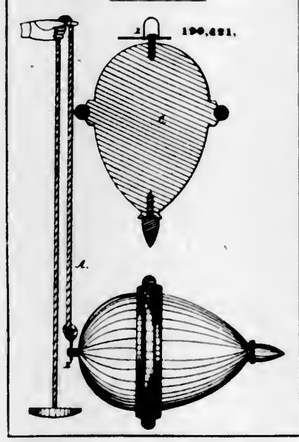
An induction-float for carburetors, consisting of the perforated disk B and float C, united to the induction-pipe A by the hinged connections b and c, and the swivel-jointed pipe D, whereby the float will always adjust itself to the surface of the liquid independent of the position of the containing-tank, substantially as and for the purpose specified.

190,420. WEATHER-STRIPS. Frank Davis, North Adams, Mass. [Filed Mar. 12, 1877.]



In a weather-strip consisting of a strip of sheet metal and a strip of elastic material, the strip of metal having the hem s, against the edge of which the edge of the elastic material comes, the prongs a, cut in and turned up from the sheet metal, passed through the elastic material, and clinched, substantially as shown and described.

190,421.



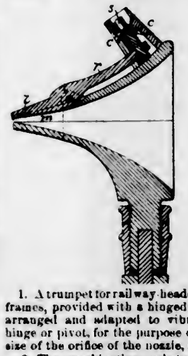
190,421. SPINNING-TOPS. A. J. Davis, Pittsburg, Pa., assignor of one-half his right to J. J. Johnston, Columbiana, Ohio. [Filed Oct. 26, 1876.]

Brief.—The spinning cord is secured to the top by a swivel, to allow the top to be held up thereby without twisting the cord.

The top C, provided with a swivel, B, and cord A, attached permanently thereto, substantially as described, whereby, when the top is spun, it can be supported in a horizontal position with relation to the cord, and is at all times under control, so as to be moved about or made to assume various positions, as set forth.

190,422. TRUMPETS FOR RAILWAY-HEADS AND DRAWING-FRAMES. P. C. Dawson, Providence, R. I. [Filed Mar. 2, 1877.]

Brief.—The orifice of the nozzle is adjustable by means of a pivoted lip arranged to vibrate upon said pivot. The lip is provided with a lever, which extends back toward the top of the trumpet, where it is raised or lowered by a screw passing through its end, thus widening or contracting said mouth or orifice. The gateway of the nozzle is re-enforced at its sides with metallic plates for making close joints.



1. A trumpet for railway-heads and drawing-frames, provided with a hinged or pivoted lip, arranged and adapted to vibrate upon its hinge or pivot, for the purpose of varying the size of the orifice of the nozzle, as set forth.

2. The combination, substantially as set forth, with the main portion of the trumpet, of a hinged or pivoted vibratory lip, forming part of the nozzle, and means, substantially as described, for vibrating said lip on its hinge or pivot, and maintaining it in the desired position of adjustment.

3. The combination, substantially as set forth, with the main portion of the trumpet, of the hinged and vibratory lip, the lever or arm r, and the adjusting-screw s.

4. The combination, substantially as set forth, of the main portion of the trumpet, the hinged vibratory lip l, the lever or arm r, the adjusting-screw s, and the cap c.

5. A trumpet for railway-heads and drawing-frames, in which the sides of the gateway of the nozzle are provided with metallic plates m, set into an incision for the purpose of making a close joint, substantially as described, said plates working in connection with the lip l, substantially as set forth, and for the purpose specified.

190,423. LUBRICATION OF ICE-MACHINES. Francis V. De Coppet, New Orleans, La. [Filed Oct. 7, 1876.]

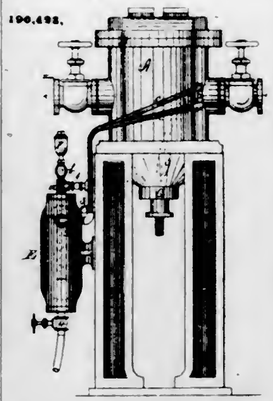
Brief.—The lubricant is, by exhaustion, drawn from out the reservoir into the pump at top, and simultaneously that which has by gravity reached the bottom is drawn again to the top. The lubricant which is deteriorated by use is drawn into the reservoir by the creation of a vacuum therein, and let out below.

1. The arrangement of a relief-pipe, d, and stop-cock 2, in combination with the pump A and lubricant-vessel E, as described, and for the purpose set forth.

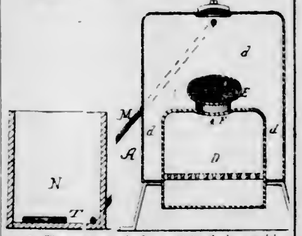
2. The lubricant-vessel E, provided with dip-tube a, charging-cup F, and discharge-valve 4, in combination with the pump A, relief-pipe d, and feed-pipe c, as described, and for the purpose specified.

3. The combination, with the stuffing-box G, of a pipe, g, connecting it with the receiving side of the pump A, and of a pipe, e, arranged in connection with the vessel E, as described, and for the purpose specified.

190,424.



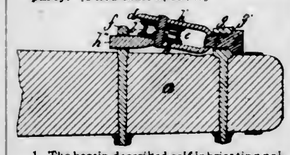
190,424. AGRICULTURAL BOILERS. Thos. S. Dobbe, Lexington, Ohio. [Filed Mar. 3, 1877.]



1. The water-tank d, as set forth, in combination with the pipe M and horizontal coiled pipe T, which is provided with apertures, and situated in the food-tank N, substantially as set forth.

2. The heater A, provided with furnace D, horizontal smoke-flue E, and water-tank d, in combination with the pipe M and food-tank N, furnished with the horizontal coiled pipe T, provided with suitable apertures for emitting steam, substantially as set forth.

190,425. SELF-ADJUSTING SHEAVES FOR BOOMS, &c. J. Edson, Boston, Mass., assignor of one-half his right to Jas. Baker, same place, trustee for Bakers & Humphrey. [Filed Mar. 9, 1877.]



1. The herein-described self-lubricating pulley b, with its annular hollow chamber d and inlet-tube e.

2. The herein-described self-adjusting sheave, having its bearings f g arranged in a line that is oblique to the center line of the pulley b, substantially as and for the purpose set forth and shown.

3. The herein-described oscillating sheave, having the side wings or stops h'' h''' on its shield or protector h, as set forth.

4. The combination, with the shield or protector h, of the pin or bolt h''' and its bearing f, and the conical or tapering head i', with its conical or tapering bearing g g', as set forth and described.

190,426. GRAIN GATHERERS AND BINDERS. R. Bickemeyer, Yonkers, N. Y. [Filed Mar. 1, 1877.]

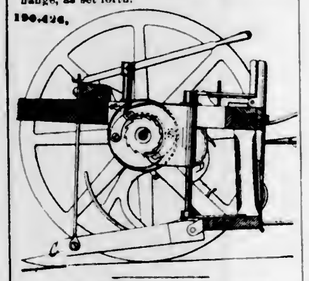
1. The combination, with a horse-rake, of a lifting-arm, a clamping-arm, and a separator, substantially as described, whereby, while the lifting and clamping arms are operating, the

separatnr prevents the grain, as it is accumulated on the rake, from moving to the rear thereof, as set forth.

2. The combination, with bundling apparatus, of the rake-teeth secured to a bar hinged to the frame of a horse-rake, and arranged at their front ends to float upon the surface of the ground, and a lifting-lever and hook, substantially as described, whereby the rake may be elevated for passing obstacles, and while the rake is being conveyed from place to place, as set forth.

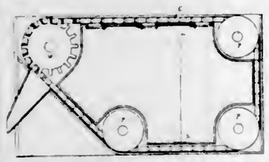
3. The combination, with the axle and its ratchet, of a shaft for operating a lifting-arm, having a flanged collar provided with two spring pawls, oppositely located thereon, and a spring-lever provided with a semicircular flange, which always maintains control of one or the other of the pawls, whereby said shaft may be driven but one-half of a revolution by the release of a pawl from the semicircular flange, as set forth.

190,426.



190,427. GRAIN-CONVEYERS. Andrew J. Emlaw, Grand Haven, Mich. [Filed Oct. 16, 1875.]

Brief.—The device may be used for distributing grain in loading a vessel, as well as for conveying the grain from distant parts in the vessel to the foot of the elevator-leg in unloading.

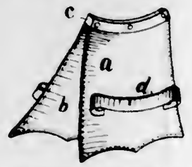


1. The endless chain C, in combination with the upper and lower casings, each provided with valves, as described, and operated by means of the cog-wheel W and friction-pulleys P P P, substantially as described, and for the purpose set forth.

2. The lower casing, provided with valves *z z*, in combination with the endless chain C, elevator and discharge-pipe S, for the purpose of discharging the grain at the foot of the elevator-leg, substantially as described.

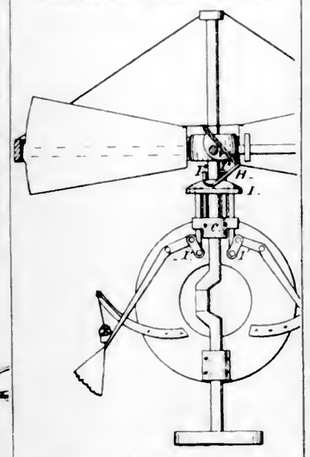
190,428. HORSE-COLLAR PADS. A. Foley, Atlantic, Iowa, assignor of two-thirds his right to J. J. Harding and J. A. McWaid, same place. [Filed Feb. 3, 1877.]

Brief.—The two flexible pads are united at their top edges by a rigid concave metallic strip or binding.



As an improved article of manufacture, a horse collar pad having two uniform flexible sides, *a b*, formed concave at their top edges, said edges being joined together by a rigid metallic clamping plate, *c*, substantially as and for the purposes set forth.

190,429. WINDMILLS. William D. Griffith, Vincennes, Iowa. [Filed Mar. 17, 1877.]

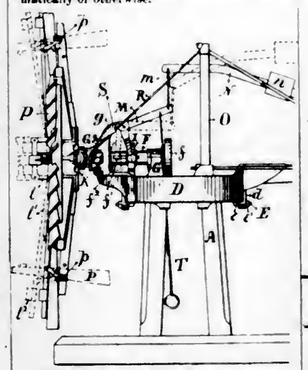


1. The wind-wheel, with pivoted vanes, combined with the arms H and a regulating-block, I, substantially as set forth.

2. The wind-wheel, having two lever-vanes to guide the wheel to the wind, combined with a regulating-block, I, substantially as set forth.

190,430. WINDMILLS. D. Halladay, Batavia, Ill. [Filed Mar. 6, 1877.]

Brief.—This wind-wheel has a sliding rod supported within the main shaft, which is made tubular for this purpose, and connected at its outer end to the mechanism for throwing the sails into and out of the wind, and provided with a cap fitting over the outer end of the shaft for protection; also, in constructing the central portion of the main shaft with a fluted surface, and combining therewith an external sliding collar, attached to the inner end of the sliding rod, and also connected to devices for reciprocating the latter either automatically or otherwise.



1. The bed piece B, constructed with an upright flange, *b*, in combination with the turn-table D, provided with outside and inside flanges *d d'*, substantially as and for the purpose set forth.

2. The turn-table D, provided with an outer flange, *d*, extending below the bed-piece, in combination with the bed-piece B and bolt E, having an elongated flattened head, *e*, substantially as described.

3. The tubular main shaft F, slotted as described, in combination with the sliding rod H, arranged within the shaft, and sliding collar I, arranged upon the main shaft between its bearings, and rigidly connected with the sliding rod, substantially as described.

4. The shaft F, constructed with ribs upon its surface, over which the collar I is to slide, substantially as and for the purpose set forth.

5. The shaft F, in combination with the hub J at its outer end, provided with a flange or sleeve, *j*, extending back over the end of the shaft, substantially as and for the purpose set forth.

6. The tubular main shaft F, mounted on the turn-table, in combination with the wheel-hub K, sliding rod H, provided with hub J on its outer end, bell-crank levers L, connecting-rods *l P*, and pivoted sails P, all arranged and operating substantially as described.

7. The sails P, constructed with the pivot-pins *p'*, arranged on the rocking bars *p*, forward of the center of said bars, and nearly in line with the center of gravity of the sail, substantially as and for the purpose set forth.

8. The guard or cap S, arranged on the outer bearing G, for the protection of the shaft and collar between the bearings of the former, substantially as described.

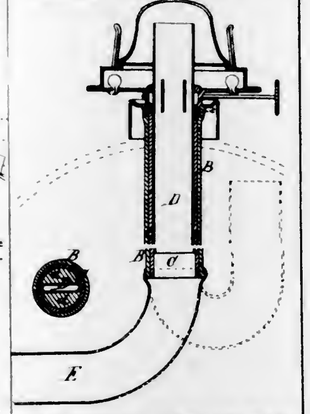
9. The sliding rod H, arranged within the tubular main shaft F, and provided with a hub, J, upon its outer end, in combination with the bell crank levers L, connecting-rods *l P*, pivoted sails P, collar I, bell-crank lever M, connecting rod *m*, and counterpoise-lever N, substantially as described.

190,431. GAS-BURNERS. J. Halstrick, Jr., Boston, Mass. [Filed Dec. 22, 1876.]



A combination of the gas-check C, provided with the slots *e e* and gage-lines *g*, and the sliding cap D, the whole constructed and operating substantially as and for the purpose described.

190,432. SAFETY-LAMPS. D. R. Harder, Chicago, Ill. [Filed Mar. 30, 1877.]



1. The combination, with the lamp-tube B, of the wick-tube C *d*, which has only a wick-passage, D, through it, and is made from the lamp-collar to its lower end of a diameter which fits snug to the interior surface of the lamp-tube all around, substantially in the manner shown and described.

2. In an oil-lamp, the combination of the lamp-tube B, wick-tube C, and flexible tube E, substantially as set forth.

190,433. SHOES. Asa H. Herring, Haverhill, Mass. [Filed Mar. 30, 1877.]

As an improved article of manufacture, a shoe having its quarters cut with curved branches *b b*, extending over and upon and secured to the instep-tongue, all substantially as shown, for the purpose set forth.

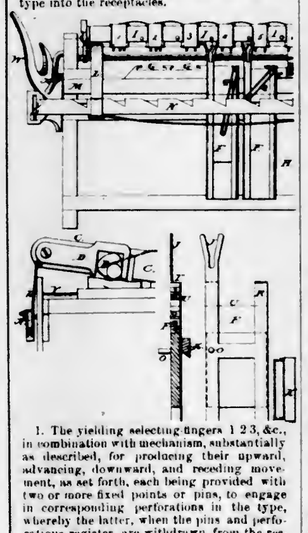
THE GRAPHIC CO N.Y.

190,422.



190,434. TYPE-DISTRIBUTING MACHINES. J. M. Howe, San Francisco, Cal. [Filed Dec. 2, 1875.]

Brief.—The dead matter is held in the intermittently-moving reservoirs, while the four-motion selecting-fingers draw the proper type into the receptacles.



1. The yielding selecting-fingers 1 2 3, &c., in combination with mechanism, substantially as described, for producing their upward, advancing, downward, and receding movement, as set forth, each being provided with two or more fixed points or pins, to engage in corresponding perforations in the type, whereby the latter, when the pins and perforations register, are withdrawn from the reservoirs F at each receding reciprocation of the said selecting fingers.

2. The plate or apron, Fig. 8, in combination with the selecting-fingers 1, 2, 3, &c., constructed and arranged as set forth, to assist in delivering the type from the reservoirs F into the receptacles G and V, substantially as shown and described.

3. In combination with the cams B, the bars C, arms D, and bar E, constructed and arranged to operate conjointly, substantially in the manner set forth, for the purpose of providing the bar E with an alternate, vertical, and horizontal reciprocation.

4. The detachable flange-edged receptacle G, constructed as shown and described, in combination with the selecting-fingers 1 2 3, &c., for the purpose set forth.

5. The guide-pins I on the bar E, Figs. 1 and 2, in combination with guides J on the reservoirs F, for the purpose of securing the exact registration between the reservoirs F and receptacle G.

6. The traveling-reservoirs F, provided with ledges or stops T, and cut-away portions U, substantially as shown, for the purposes set forth.

7. The combination of the cam W, notched bar N, and traveling-reservoirs F, when operating conjointly, substantially in the manner and for the purpose set forth.

8. The vibrating type-setter *a*, in combination with the receptacle H, operating substantially as and for the purpose set forth.

190,435. NECK-YOKES. George W. Hurd, Ionia, Ill. [Filed Sept. 2, 1876.]

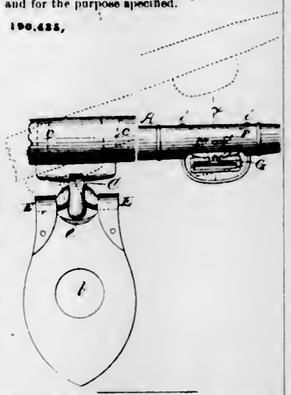
1. The neck-yoke ring or plate B, having loops E E and rubber pad *e*, in combination with the axial bolt D, eyebolt *c*, and neck-yoke A, substantially as and for the purpose specified.

2. The plates G, pivoted at *f'''* on the curved projecting surfaces *f'''* of the socket F, and combined with the neck-yoke A, substantially as described, and for the purpose specified.

3. The plates G, having slotted tongue *g*, combined with the pin *f*, projections *f'''*, bearings *g''*, and neck-yoke A, substantially as described, and for the purpose specified.

4. The plate G, having guards *h*, combined with the projecting parts *f'''* of the socket F and neck-yoke A, substantially as described, and for the purpose specified.

190,435.



190,436. ANTI-INCRUSTATION COMPOUNDS. L. Ell Hurd, Cincinnati, Ohio, assignor of one-half his right to J. G. Ellis, same place. [Filed Nov. 8, 1876.]

The compound for prevention and removal of scale in steam-boilers, composed of the ingredients hereinbefore designated in substantially the proportions named, viz: Best English soda-ash, one hundred and fifty pounds; sal-ammoniac, fifteen pounds; wood charcoal, gum-catechu and linseed oil cake, each ten pounds; oak bark, five pounds—all ground fine and thoroughly mixed together.

190,437. BRIDGES. W. Irelan, Oak Springs, Iowa. [Filed Oct. 27, 1876.]

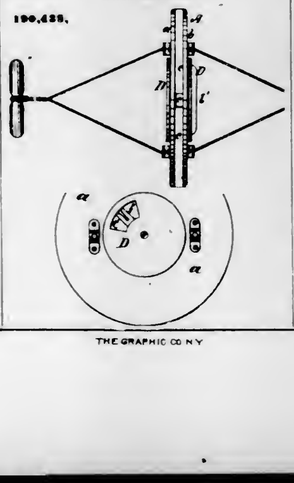


1. In the construction of a bridge, the vertical stay-blocks *b b*, the transverse bolts *c c*, and the crossing bolts *d d*, arranged and combined with the ends of the four pieces *a*, substantially as and for the purposes shown and described.

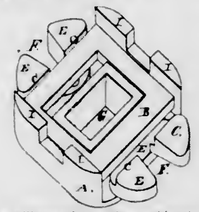
2. The beam or chord *a a*, the vertical post *g*, the series of parallel braces *h* and J, and the series of single minor braces *l m n*, arranged and combined substantially as and for the purposes shown and described.

3. The chord *a a*, the braces *h J l m n*, the binding-plates *r*, the binding-joists *s*, and the rods *t*, all arranged and combined substantially as and for the purposes shown and described.

190,438.



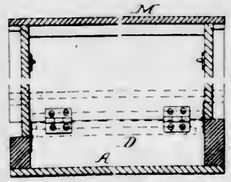
190,439. MILLSTONE-DRIVERS. W. Johnson, Milwaukee, Wis., assignor of one-half his right to J. Kelner, same place. [Filed Dec. 26, 1876.]



1. In a millstone-driver, the combination of the frame A, having the flanges on two of its edges to hold the other parts in position, the pivoted blocks C, link B, and cap D, for holding the parts together, substantially as shown.

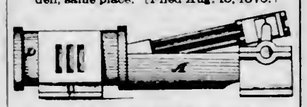
2. The pivoted blocks C, having the openings F, to catch over the bail, and shoulders, between which the link B lies, substantially as set forth.

190,440. EGG-CRATES. Wm. J. H. Kappe, Quincy, Ill. [Filed Nov. 17, 1876.]



The cover M, provided with the inlet-spring catch V, and the loop P, in combination with the bottom A, provided with the cleats D, having the notch X and pin T, substantially as specified.

190,441. STEAM-ENGINES. W. J. F. Liddell, Charlotte, N. C., assignor to F. Liddell, same place. [Filed Aug. 15, 1876.]



In an engine in which the cylinder and journal-block are cast on the engine-frame, the combination of the cylinder, having the partition E, the connected pistons G G', and the compensating connecting-rod J, removably secured between extended bearings formed on the piston G', substantially as and for the purpose set forth.

190,442. AUTOMATIC WATER-PIPE PRESSURE CUT-OFFS. F. McLoughlin, Peoria, Ill., assignor of one-half his right to P. Fraser, same place. [Filed Mar. 12, 1877.]

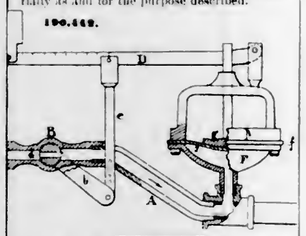
Brief.—The weighted diaphragm is so regulated that the water-pressure upon it partially or wholly closes the cut-off valve, according to the adjustment of the weights automatically.

1. The combination, with the cut-off cock or valve B, of the adjustable link *e*, or adjustable connection with the weighted and graded lever D, the link or stem *h* of disk *g*, the disk *g*, the diaphragm *f*, and diaphragm chamber F, substantially as and for the purposes described.

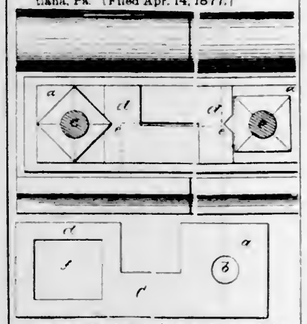
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2. The combination with the water-service pipe A, cock or valve B, arm or lever *b*, rod *c*, weighted lever D, disk *g*, diaphragm *f*, and chamber F, opening from said pipe, substantially as and for the purpose described.

190,442.



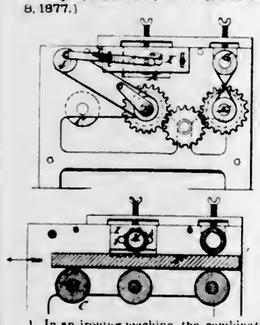
190,443. NUT-LOCKS AND WASHERS. E. A. Mercer and Jos. D. C. Pownall, Christiana, Pa. [Filed Apr. 14, 1877.]



1. A nut-locking device, consisting of the plates C, having washers *a* and opening *b*, and the short plate *d*, said plates sprung over each other, substantially as and for the purpose specified.

2. The plates C, having washers *a* and holes *b*, and the ends or plates *d*, with openings *f*, said plates *d* sprung over the nuts, substantially as and for the purpose set forth.

190,444. IRONING APPARATUS. Patrick O'Thayne, New York, N. Y. [Filed Feb. 8, 1877.]

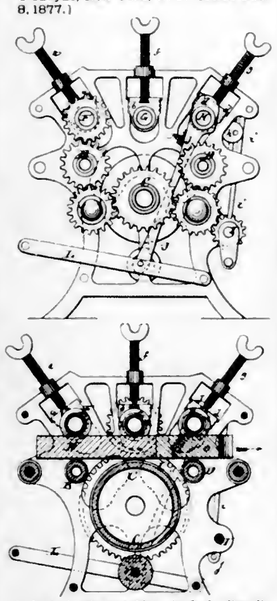


1. In an ironing-machine, the combination of the movable ironing table F with the horizontally-reciprocating ironing roller or plate H, which moves partly in the same direction and partly in the reverse direction as the ironing-board, substantially as specified.

2. The combination of the reciprocating ironing roller or plate H with the vertically-adjustable boxes I I, which have horizontal slots *b b*, in which the roller or plate H moves and is supported, substantially as and for the purpose herein shown and described.

3. The ironing-board F, made with one or more grooves, *f*, on its upper surface, and combined with one or more ironing-rollers, which extend laterally over such grooves without entering the same, substantially as and for the purpose set forth.

190,445. IRONING APPARATUS. Patrick O'Thayne, New York, N. Y. [Filed Feb. 8, 1877.]



1. In an ironing-machine, the feed-rollers B D, combined with the ironing-board or apron and with the larger feed-roller C, and with moving mechanism which will cause all three rollers to have equal circumferential motion, substantially as specified.

2. The combination of two or more feed-rollers, B C, with a movable ironing-board, N, and with the ironing-rollers F and G, the roller G revolving faster than the roller F, substantially as herein shown and described.

3. In an ironing-machine, the ironing-roller H, combined with mechanism *h i j*, and with an apron or board, all arranged so that during the operation of the machine the roller H will be rocked backward and forward over the surface of the garments, substantially as herein shown and described.

4. The combination of the rotary ironing-roller G with the oscillating ironing roller H and with the lower feed or moving devices, substantially as specified.

5. The combination of one or more ironing-rollers, F G, &c., having concave surfaces, with a rectilinearly-moving ironing board, N, having a convex surface, and with two or more supporting or feed rollers, B C, substantially as herein shown and described.

6. The oscillating ironing-roller H, hung in links that connect with the treadle L, and combined with the moving mechanism *h i j*, whereby it is oscillated independently of its treadle motion, substantially as specified.

7. The ironing-board N, made with sectional or removable bosom-piece *o*, which is on both sides flanked along its entire length by pieces projecting from the body of the board, substantially as shown.

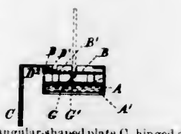
8. The feed-rollers B C, made with guide-grooves *l*, and combined with the reciprocating ironing board having the guide-rib *m*, substantially as specified.

9. The ironing-rollers F G, made with grooves *n* for admitting hems and forming beads in the fabric, and combined with the smooth movable ironing-board or apron, substantially as and for the purpose set forth.

190,446. ATTACHING LABELS. C. L. Pond, Buffalo, N. Y. [Filed Mar. 19, 1877.]

Brief.—The bottom of box is hinged to the rear edge of the removable cover, and is turned up in a vertical position, to serve as a handle when applying stamps. The inner surface of the bottom, as also that of the spring-presser-plate, is faced with india-rubber, to prevent moisture affecting the stamps.

190,446.

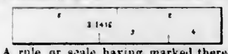


1. The angular-shaped plate C, hinged at D, as described, in combination with the box A, adapted to form either a cover or handle, as specified.

2. The cover B, provided with a spring, B', in combination with the cover C, hinged joint D, formed as shown at D^1 D^2, for the purpose of holding the cover in the position shown in Fig. 1, so that it can be withdrawn or held shut, as in Fig. 3.

3. The box A, to receive and hold the stamps, having a narrow flange, A', surrounding the bottom, a removable plate, F, provided with springs H, and rubber pad or plate G, in combination with a removable cover arranged above said spring-plate F, for the purposes specified.

190,447. SCALE-MEASURES. Jno. Putnam, Fitchburg, Mass. [Filed Jan. 29, 1877.]



A rule or scale having marked thereon a series of divisions of unequal length, each of which is the measure of the "pitch" of a gear-wheel having a given number of teeth to the inch of the diameter, and also having stamped or otherwise marked thereon a series of numbers, each of which represents the number of teeth to the inch of the diameter, of which the division opposite to or in which it is placed is the pitch.

190,448. BESSEMER-STEEL INGOTS. Jacob Reese, Pittsburg, Pa. [Filed Mar. 9, 1877.]

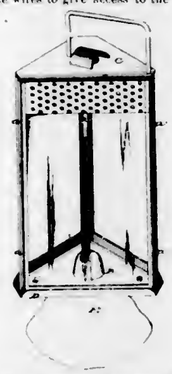
Brief.—Places wrought-iron or soft-steel center (heated or not) in mold. Pours such Bessemer steel, as is described, on each side of center. When centers are cold, should be pickled and cleaned. Rolls the ingot into plate, from which makes mold-boards for plows.

1. An ingot having a center of iron or soft steel and faces of Bessemer steel, practically free from manganese, and containing from 0.50 to 1.25 per cent. of carbon, as and for the purpose set forth.

2. The ingot having the faces of hard steel and the sectional center of iron or soft steel, substantially as and for the purpose set forth.

190,449. LANTERNS. C. J. Rogers, Norwich, Conn., assignor of one-half his right to J. M. Brewer, same place. [Filed Jan. 2, 1877.]

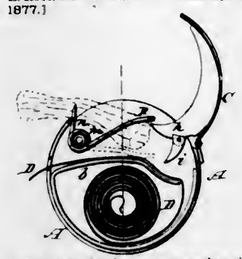
Brief.—The frame carrying the glass slides upon the wires to give access to the interior.



1. In combination with the lamp E, the triangular base D, having wire uprights and corner-posts, as described, and for the purpose specified.

2. In combination with the triangular base D and corner-posts, the sliding frame *a a a*, with removable cap C, as described, and for the purpose specified.

190,450. AUTOMATIC CIGAR-LIGHTERS. M. L. Roes, New York, N. Y. [Filed Apr. 19, 1877.]

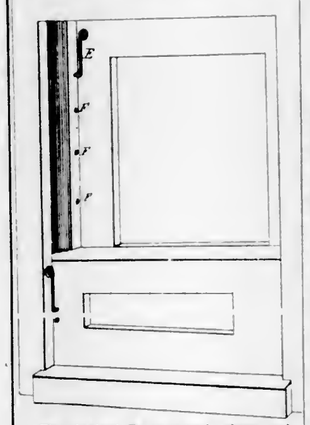


1. In a cigar-lighting apparatus, the coiled spring *m*, having one end forming the fuse-holding point *n*, and the other end the cap-exploding arm *p*, substantially as herein set forth.

2. The combination of the case A B with interior partition *b*, plate C with hook *h* and dog *i*, the spring *m* with point *n* and arm *p*, the percussion-tape D, and fuse G, all substantially as and for the purposes herein set forth.

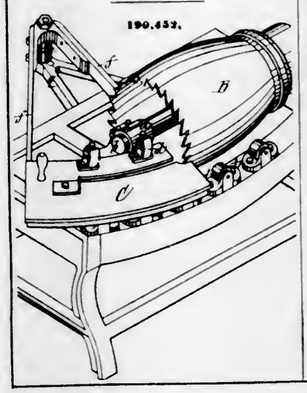
190,451. SASH-FASTENERS. J. H. Schlott, Freeport, Ill. [Filed Nov. 1, 1876.]

Brief.—Claim and part of Figure 1, which shows the hook, describe invention fully.



The wire hook E, constructed and arranged as specified, in combination with a sash or casing provided with the apertures F, substantially as shown and described.

190,452.

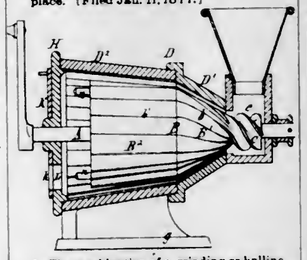


190,453. MACHINES FOR SAWING STAVES. G. C. Stevens, West Townsend, assignor to himself and Mary B. Stevens, Ayer Junction, Mass. [Filed Mar. 6, 1877.]

Brief.—The bolt of wood from which the staves are to be sawed is placed upon a swinging curved and slotted carriage, provided with adjustable gages and an end stop, and having one or more adjustable radial arms and an adjustable pivot, and moving on a curved support having friction-rolls, while fed to a cylinder-saw, which cuts the stave. The path of the carriage corresponds exactly with the curvature of the saw.

In a machine for sawing staves, the combination, with a barrel or cylinder saw, B, of a swinging curved and slotted table or carriage, C, having one or more adjustable radial arms, *f*, and an adjustable pivot, *m*, whereby the path of the carriage can be adjusted to the axial curvature of the saw, substantially as herein shown and described.

190,453. APPARATUS FOR HULLING AND POLISHING COFFEE. H. B. Stevens, Buffalo, N. Y., assignor to Geo. L. Squier, same place. [Filed Jan. 11, 1877.]



1. The combination of a grinding or hulling drum, having the taper or angle of its grooved surface decreasing from its feed end toward its discharge end, with a similarly-inclined concave, the drum being made axially adjustable, so that the space between the drum and concave can be increased or lessened near the feed end without materially changing the space near the discharge end, substantially as and for the purpose set forth.

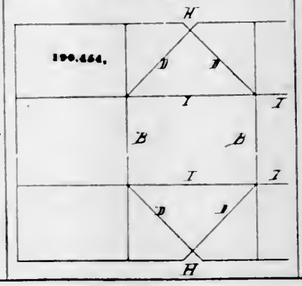
2. The combination, with a grinding or hulling drum, composed of two or more sections decreasing in angle or taper toward the discharge end, of a surrounding case or concave composed of a corresponding number of similarly-inclined sections, so constructed that the spaces between the corresponding sections of the drum and concave increase in width from the feed end toward the discharge end of the machine, substantially as and for the purpose hereinbefore set forth.

3. The combination, with the concave D, of the fixed tail-plate H, provided with curved slot L, and adjustable plate K, provided with opening *k*, substantially as and for the purpose hereinbefore set forth.

4. The combination, with the drum B and feed-screw C, of the concave D, tail-plate H, slot L, adjustable plate K, and opening *k*, substantially as and for the purpose hereinbefore set forth.

5. The grinding-drum B, composed of the conical grinding or hulling portion B^1, provided with spiral grooves *b*, and polishing or kneading portion B^2, made less tapering, and provided with straight grooves b^2, substantially as hereinbefore set forth.

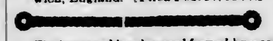
190,454.



190,454. PAPER BOXES. Chas. F. Taylor, Springfield, Mass. [Filed Apr. 18, 1877.]

A paper box made from the above-mentioned blank, with the excavated or semi-cut kerfs B R, D D, and I I_1, and the y-shaped openings H on opposite borders thereof, substantially as set forth.

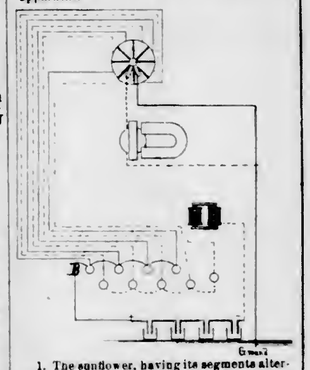
190,455. BANDS OR CORDS FOR DRIVING MACHINERY, &c. S. Townsend, East Dulwich, England. [Filed Feb. 17, 1877.]



The improved band or cord formed by means of endless skeins, twisted one part on the other, or two or more skeins on each other, leaving an eye or loop at the end or ends, and held by other binding cord or cords, in manner and for the purpose stated.

190,456. PRINTING-TELEGRAPHS. Ernest P. Warner, Chicago, Ill. [Filed Aug. 28, 1874.]

Brief.—In printers of general type of Gray's, makes connections through key-board and sun-flower, so, as latter automatically acts as the reverser, dispensing with special rheotrope apparatus.



1. The sunflower, having its segments alternately connected through the key-board to the + and − poles of battery, substantially as specified.

2. The key-board, with each alternate key connected to the positive and the others to the negative pole of battery, and all connected in regular succession to the segments of the sunflower, substantially as specified.

3. The sunflower, having its segments alternately connected through the key-board to the + and − poles of battery, in combination with the two spring-drags of the leader-instrument resting upon segments of opposite polarity, said drags being insulated from each other and connected, one to line through the verge-actuating magnet and the other to ground, substantially as specified.

4. The stationary permanent magnet or magnets, in combination with the pivoted electro-magnetic armature and a pole-changer operated by the vibration of the said pivoted electro-magnetic armature, substantially as specified.

5. The combination of the sunflower, having alternate positive and negative segments, the two spring-drags resting upon segments of opposite polarity and carried by the type-wheel shaft, the said type-wheel shaft, the verge-pinion and verge, the electro-magnetic armature, and permanent magnet all connected and operating substantially as specified.

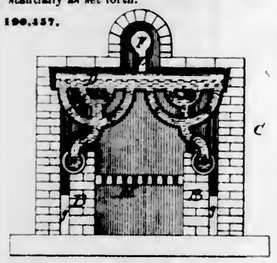
190,457. SECTIONAL STEAM-BOILERS. T. Weston, Hingham, Mass. [Filed Mar. 6, 1877.]

Brief.—The parallel water-legs, the transverse upper chamber, with their intermediate suspended connections, and the steam-dome, are cast in one piece, the water legs being protected from the heat of the fire by side walls.

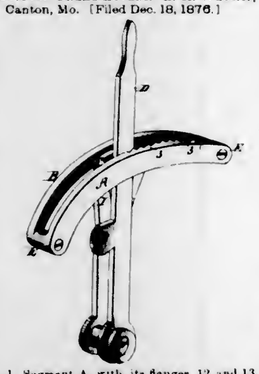
1. In combination with a combustion-chamber, the boiler described, consisting of two parallel sectional tubes, A, converging tubes C, either with or without the auxiliary tubes c, the transverse horizontal tubes D, and the sectional steam-drum F, having vertical tubes E, all arranged in relation to the furnace, substantially as set forth.

2. In combination with a combustion-chamber, one or more detachable tubular arches, each consisting of two horizontal tubes, A, partial wall B, for protecting tubes A from the flames, as described, two converging tubes, *b*, with or without the branching tubes *c*, the transverse tube D, and the sectional steam-drum F, having vertical tube E, and adapted to be united with a parallel section by the flanges on tubes A and steam-drum F, substantially as set forth.

190,457.



190,458. BRAKE-LEVERS. E. H. Wheeler, Canton, Mo. [Filed Dec. 18, 1876.]



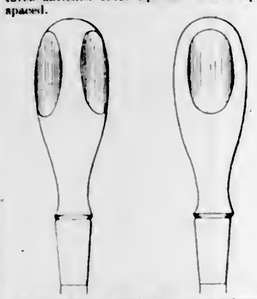
1. Segment A, with its flanges 12 and 13, and ratchet-teeth 3 3 upon the inner side surface of the flange 13 at its forward end, in combination with segment B with its flanges 11 11.

2. The shuttle F, in combination with segments A and B, and lever D.

3. The spring S, in combination with segments A and B, lever D, and shuttle F.

190,459. SCREW-DRIVER HANDLES. Henry Wilkinson, Collinsville, Conn. [Filed Mar. 24, 1877.]

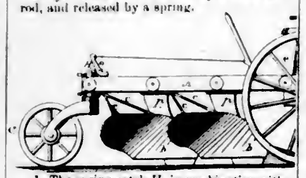
Brief.—The knob at the upper end of a screw-driver handle is somewhat larger in diameter than is common, and provided with three flattened sides equidistant and equi-spaced.



A screw-driver handle having an enlarged and round-ended head, provided with three flattened sides equidistant and equal-spaced, as shown and described.

190,460. GANG-PLOWS. Geo. H. Wilson, Davenport, Iowa. [Filed Apr. 19, 1876.]

Brief.—Caster-wheel locked by a lever and rod, and released by a spring.

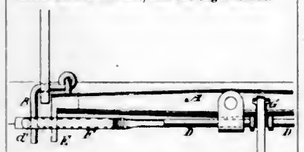


1. The spring-catch H, in combination with the caster-wheel C, substantially as specified.

2. In combination with the frame A, a caster-wheel that is allowed to swing freely around, and that can be locked rigidly in position for the purpose set forth, substantially as specified.

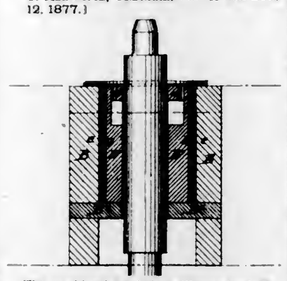
190,461. HORSE-DETACHERS. Moses Amidon and Edgar N. McKimm, Lathrop, Mo. [Filed Apr. 9, 1877.]

Brief.—The pivoted hook B is held in place by the hook *d'* and spring F. When the strap H is pulled, the rod D is turned, the pivoted hook thrown forward, and the tug released.



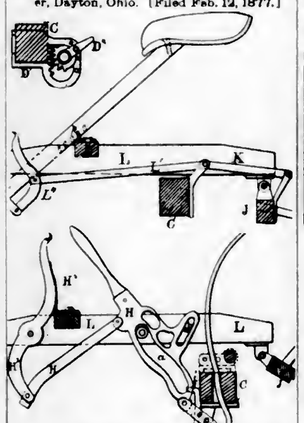
The combination of the pivoted hooks B, the rod D provided with hooks *d'* at its ends, the plates or arms E, the springs F, the arm G, and the strap H, with each other, and the whiffletree A, substantially as herein shown and described.

190,462. MILL-SPINDLE BUSHES. Harvey T. Ashworth, Chatham, Va. [Filed Mar. 12, 1877.]



The combination of the millstone-bush B, having radial supporting-blocks B^3, and the followers B^3, having rubber cushions *d*, with the spindle inclosed by the elastic dust-cap described, substantially as shown and set forth.

190,463. HORSE HAY-RAKES. W. S. Archer, Dayton, Ohio. [Filed Feb. 12, 1877.]



1. In a horse hay-rake, the combination of the oscillating rake-head or axle C, spindles B, located at each end of the head or axle, ratchet-plates D, and levers D^3, or their equivalents, the parts being constructed and arranged to operate substantially as and for the purpose specified.

2. The hand-lever H, having the slots *a* and *b*, when adjustably connected to an oscillating rake-head, substantially as and for the purpose set forth.

3. The combination of an oscillating rake-head or axle and an oscillating bar, carrying clearing-fingers, which have a simultaneous motion with the teeth of the rake, between which they pass, but which move at a less rate of speed than do said teeth, substantially as and for the purpose set forth.

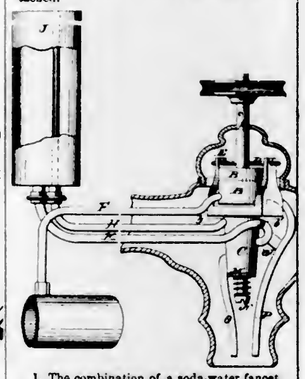
4. The combination of the oscillating rake-head or axle C, the oscillating bar J, the rod or connections K and L', with the lever L'', the parts being arranged to operate substantially as and for the purpose set forth.

5. The combination of the oscillating rake-head or axle, the oscillating bar J, the lever L'', connections L' and K, and the lever H, rod H^3, and lever H^4, the parts being arranged to operate for the purpose of controlling the movements of the rake-head or axle and for retaining them in position, substantially as described.

6. The combination of the oscillating finger-bar J, the rod K, link L', and lever L'', they being arranged to operate as and for the purpose set forth.

190,464. ARTIFICIAL PRODUCTION OF MINERAL WATERS. O. Beyschlag, Indianapolis, Ind. [Filed Jan. 20, 1877.]

Brief.—By a quarter-turn of the wheel, both the soda-water and a measured quantity of mineral water solution is discharged. The lower faucet carries a shoe, actuated by the pin on the stem, to which the wheel is attached.



1. The combination of a soda-water faucet, B, and the mineral-water-solution faucet C, pipes F, H, K, O, and P, forks E, bar D, and wheel A, with can J and pipe O therein, substantially as and for the purpose specified.

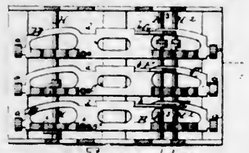
2. The combination of wheel A, forks E, and bar D, which enables a simultaneous operation on soda-faucet B and mineral-water-solution faucet C, all substantially as and for the purpose specified.

190,465. SWITCH-SIGNALING APPARATUS. Wm. Buchanan, Yonkers, N. Y. [Filed Mar. 7, 1877.]

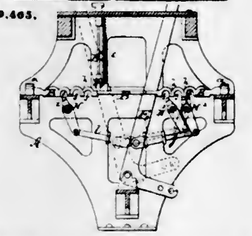
Brief.—The switch cannot be opened until the danger-signal is first set, and after the switch is opened the signal cannot be reversed until after the switch has been closed.

1. The combination of the switch or signal lever with the oscillating bar B, having two or more notches, *f g*, and intervening stop or stops *h*, and with the rock-shaft having the projecting toe or stop *i*, substantially as herein shown and described.

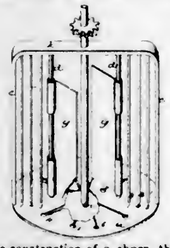
2. The stop *i*, applied to the rock-shaft H, for combination with the notched rocking-bar B, said stop being made L-shaped, so that its shank is not directly in line with the notched part of the bar B, substantially as specified.



190,465.

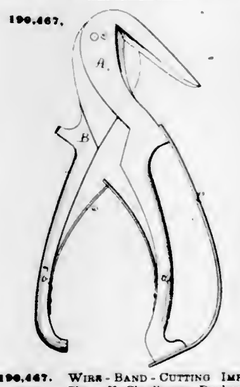


190,466. CHURNS. Wiley C. Burton, Des Moines, Iowa. [Filed Jan. 4, 1877.]



In the construction of a churn, the disk *a*, the shaft *b*, the beater-frame *c c k*, the two series of fixed vertical blades 1 2 3, and the hinged gathering devices *g*, arranged and combined to operate substantially as and for the purposes shown and described.

190,467.

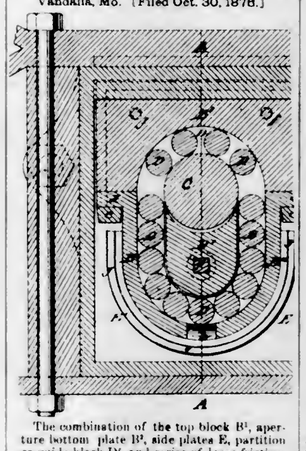


190,467. WIRE-BAND-CUTTING IMPLEMENTS. Chas. H. Chadbourn, Rochester, Minn., assignor, by mesne assignments, to himself and Jas. M. Williams, same place. [Filed May 29, 1876.]

Brief.—One of the blades is hook-shaped, projecting outwardly from near the pivot, and the other an ordinary elliptical cutting blade, there being the usual spring plier-handles, and preferably a leather bow-guard, adapting the implement for use with one hand, the construction being such that the hook is available in catching and lifting a bundle of grain by the binding-wire thereof, and the wire drawn down against the elliptical blade is readily severed by closing the handles.

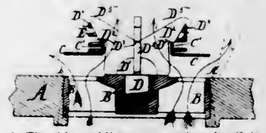
The wire-band-cutting implement, composed of the curved handles *a b* pivoted at *c*, the hooked blade A upon the handle *a*, and the elliptical blade B upon the handle *b*, the parts being constructed substantially as and for the purposes set forth.

190,468. CAR-AXLE BOXES. E. L. Colman, Vandalia, Mo. [Filed Oct. 30, 1876.]



The combination of the top block B^3, aperture bottom plate B^3, side plates E, partition or guide-block D^3, and series of loose friction-rollers D with the external casing or box A and journal, substantially as and for the purpose set forth.

190,469. PUMP-VALVES. Geo. H. Corliss, Providence, R. I. [Filed Oct. 13, 1876.]



1. The thin and light concentric valve C, in combination with the seat-rim B, seat-hub B', and ribbed guide $D D^3$, as herein specified.

2. The overhanging arms D^3, provided with hooks or notches D^4, in combination with the ribbed guide D^3, with its stops D^5, and with the valve C C' and helical spring E, as here in specified.

190,470. GEAR-CUTTING MACHINES. Geo. H. Corliss, Providence, R. I. [Filed Mar. 27, 1877.]

Brief.—Improvements on patent to G. H. Corliss of March 10, 1849. The guide-bar for tool-slide is joined to the frame in line with the axis of the arbor by a universal joint, to give it lateral movement to a limited extent, as well as a vertical movement. To accommodate the lateral movement, the rack upon the driving-gear is provided with swivel teeth. The index-wheel is provided with clamps for fixing it firmly when set for work, and also with an adjustable stop and slotted hook, capable of being clamped upon the pin in the periphery of the wheel.

1. The guiding bar or trunk B, jointed to the framing in line with the axis of the arbor X, in combination with mechanism for taking hold of and guiding said bar at its opposite extremity, as herein specified.

2. The bar or trunk B and cross-shaft *e*, crossing each other at the center of the universal joint T^1 T^2, in combination with the quadrant A^1 A^2, as herein specified.

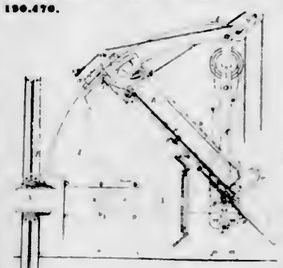
3. The rack D^1, having the swivel-teeth *d'*, in combination with the operating-shaft, tool-carrier D, and its guiding mechanism, with the arbor X, supporting the wheel to be cut, as herein specified.

4. The grooved arbor X, supporting the index-wheel Z, and adapted to hold the wheel to be cut, in combination with the operating-pinion Y, and with the reciprocating tool *d* and its operating means, guided by the adjustable bar or trunk B, as herein specified.

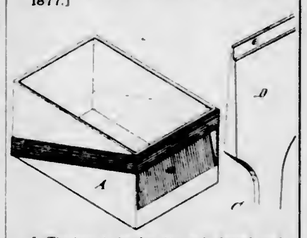
5. The adjustable stop R, in combination with the pin Q on the index-wheel Z, and with means for turning the latter, as herein specified.

6. The hooked piece U, in combination with the stop R, wheel Z, and with suitable gear-cutting mechanism, as herein specified.

190,470.



190,471. BOX AND BOX-HOLDERS. Jos. A. Cotten, Thomaston, Ga. [Filed Mar. 24, 1877.]



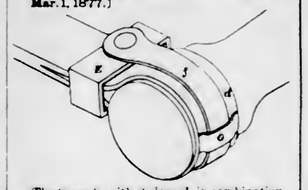
1. The box A, having its end slotted and bent inwardly and supported by the strengthening-band *d*, the whole being adapted to engage with the grapple or lifter D C, as and for the purpose set forth.

2. A goods-box lifter, consisting of the staff C, having a widened head adapted to engage with a box having one end so constructed as to lock with said lifter, as and for the purpose set forth.

190,472. COMPOSITION FOOD. Jas. T. Cragin, Melrose, assignor of one-fourth his right to Henry C. Hayden, Newton, Mass. [Filed Feb. 8, 1877.]

As a new article of manufacture, prepared food consisting of freshly drawn blood, common salt, pulverized sage, pepper, allspice, pluck, and oatmeal, substantially as described.

190,473. TRACE-FASTENERS. Charles S. Crittenden, San Francisco, Cal. [Filed Mar. 1, 1877.]

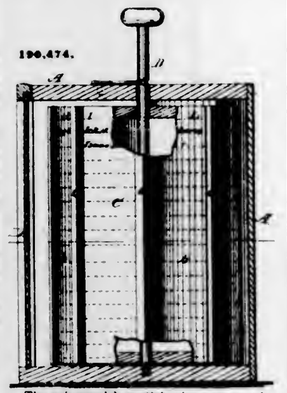


The trace A, with its loop *d*, in combination with the sliding loop E, provided with suitable fastening devices for the strap *f*, substantially as and for the purpose described.

190,474. INDICATORS. George W. Daniels, Lexington, Ohio. [Filed Mar. 24, 1877.]

THE GRAPHIC CO. N.Y.

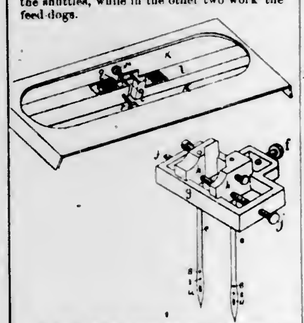
190,474.



The polygonal drum C, having corner strips *a*, the removable shaft D, and the case A, having a removable glass front, H, in combination, substantially as herein shown and described.

190,475. SEWING-MACHINES. W. A. Dawson, San Francisco, Cal., assignor of one-half his right to R. D. Burrowe, same place. [Filed Dec. 19, 1876.]

Brief.—On the needle-bar of the sewing-machine is secured, by means of a set-screw, a rectangular frame, on which are mounted two followers, which are adjustable by means of a right-and-left-hand screw, and to which are secured the needles. The two shuttle-races are divided by a ridge, in each side of which are cut two slots, in two of which, on opposite sides, work adjustable plates, to throw the loops of the needle-threads in the paths of the shuttles, while in the other two work the feed-dogs.



1. The frame attachment *g*, having the slides or followers *h h*, operated by the right-and-left hand screw *j*, in combination with the needles *e e* and needle-bar D, substantially as and for the purpose described.

2. The ridge *l*, which separates the shuttle-races *k k*, provided with the opposite slots *o o*, in each of which an adjustable follower, *q*, is arranged to be moved by a screw, in combination with the shuttles *e e*, and adjustable needles *e e*, substantially as and for the purpose described.

3. The combination of the intervening ridge *l*, having the slots *b b*, feeding-dog, divided into two parts, *a a'*, devices *x* and *x'*, cams or eccentrics *d d'* upon the driving-shaft, and thumb-screw *x'*, the several parts constructed and arranged to operate in the manner herein shown and described.

190,476. MACHINES FOR TREATING FLAX, HEMP, AND OTHER SIMILAR PLANTS. N. De Landtsheer, Paris, France, assignor to C. Couture, same place. [Filed Sept. 2, 1876.]

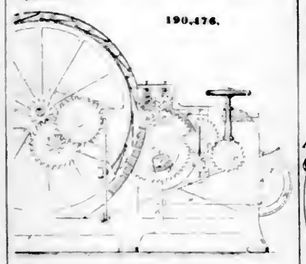
1. The combination of fluted rolls D D', having a double-reciprocating motion, with a scutching-drum, having beaters *d*, and an adjustable grating *h*, as and for the purpose described.

2. The grating *h*, constructed as described, and made adjustable with respect to the scutching-drum, as and for the purpose set forth.

3. The blades *d*, fixed at *d'*, made flexible, and placed at an inclination to the periphery of drum, as and for the purpose specified.

4. The combination of the disk T, rod H, lever G, eccentric sleeve V, wheels F' and F, wheel E, and fluted rolls D, substantially as specified.

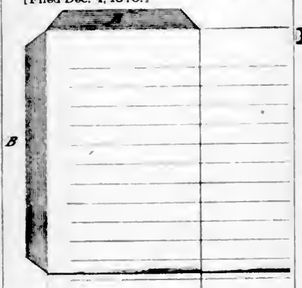
190,476.



190,477. PROCESSES OF FINISHING CARD-BOARD FOR PERFORATING. B. Dreyfuss and S. Sachs, New York, N. Y. [Filed Mar. 10, 1877.]

The process of finishing card-board by coating it with a mixture of finely-divided metallic zinc, glue, starch, and wax, and afterward calendering it, as herein set forth.

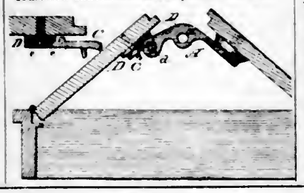
190,478. COMBINED LETTER-SHEET AND ENVELOPE. Leo Ehrlich, St. Louis, Mo. [Filed Dec. 4, 1876.]



A letter-sheet having the gum-flaps B B, forming an angle at one corner, and extending to half the length and breadth, thus enabling the sheet to be folded in the middle both longitudinally and transversely, and the open edges to be all brought under the gum-flaps, as shown and described.

190,479. SHUTTER BOWERS AND FASTENERS. W. H. Fitz Gerald, Brooklyn, N. Y. [Filed Oct. 31, 1876.]

Brief.—A swinging perforated arm, varying but little from the ordinary construction, engages with the upwardly-projecting pin of a suitable staple or bracket, and is held in place by a pivoted drop hung on a shoulder of the staple. There is also a projection formed on the body of the staple, which engages with a hook on the swinging arm, to prevent undue movement, the construction serving as a combined shutter-bower and positive fastener.

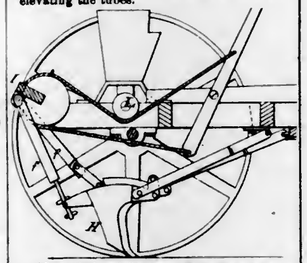


1. The drop C, hung upon the shoulder *c* on the staple D, in combination with the perforated arm A and pin *d*, substantially as and for the purposes herein set forth.

2. The shoulder or projection *c*, formed on the body of the staple D, in combination with the hook *i*, formed on the arm A, substantially as and for the purposes herein set forth.

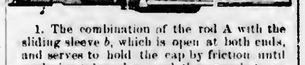
190,480. GRAIN-DRILLS. M. M. Fitzgerrell, Bald Hill Township, Jefferson County, Ill. [Filed Nov. 29, 1876.]

Brief.—To the rear forked projections of the drill-tubes are pivoted rings, to which one end of the lifting-bars are attached, the opposite ends being secured to the rock-shaft for elevating the tubes.



The tubular drill-plows H, provided with forked projections *d*, in combination with pivoted rings *e*, lifting-bars *f*, rock-shaft I, and its operating devices, substantially as and for the purpose specified.

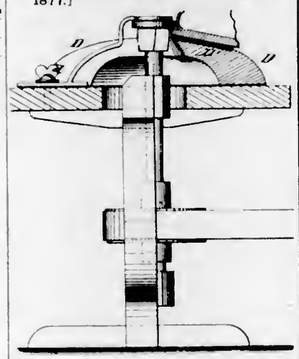
190,481. TOY CAP-EXPLODERS. Wm. G. Fischer, Brooklyn, N. Y. [Filed Apr. 16, 1877.]



1. The combination of the rod A with the sliding sleeve *b*, which is open at both ends, and serves to hold the cap by friction until explosion takes place, and then recede to release and expose the cap to contact with the object against which the instrument is propelled, substantially as specified.

2. In a toy cap-exploder, the combination of the rod A, having the pin *d*, with the slotted sliding sleeve *b*, which embraces one end of said rod, substantially as specified.

190,482. BOOT AND SHOE SOLE TRIMMING MACHINES. Wm. E. Forster and W. C. Tolles, Nashua, N. H. [Filed Apr. 2, 1877.]

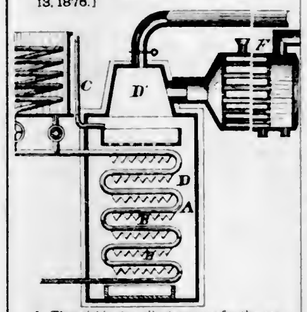


1. A machine for trimming the soles and heels of boots and shoes, consisting essentially of a convex table, horizontally-revolving cutter, and suitable gage device, substantially in the manner and for the purpose set forth.

2. The convex table D, having straight or concaved throat or rest plate D', substantially as specified.

3. The combination of a horizontally-revolving cutter with a detachable and adjustable convex rest-table, substantially in the manner and for the purpose set forth.

190,483. APPARATUS AND PROCESSES FOR THE SEPARATION AND TREATMENT OF OILS. H. Frasch, Philadelphia, Pa. [Filed Dec. 13, 1876.]



1. The within-described process for the separation and treatment of oils, consisting in causing them to pass in thin films over pipes or other heated surfaces, and at the same time exposing them to a confined draft of air, substantially as and for the purpose described.

2. The process for the separation and treatment of oils, consisting of causing them to pass in thin films over heated pipes or other surfaces in contact with an air-draft in an air-flue, and passing the said draft and separated light oils afterward through suitable condensers and receivers, substantially as and for the purpose described.

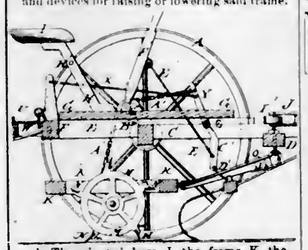
3. The apparatus for the treatment of oils, consisting of a series of horizontal heating-pipes, whose lower edges are respectively provided with serrated drip-plates and a feed-pipe, the same being relatively arranged within an air-flue having a draft-opening at either extremity, as described, whereby the liquid under treatment may be subjected to a confined draft of external air, substantially as and for the purpose described.

4. The apparatus for the treatment of oils, consisting in the combination, with a vertical series of horizontal heating-pipes, the latter constructed with drip-plates, as described, of an upper feed-pipe, constructed to distribute the liquid over the length of the said series of pipes, and an air-flue, having a draft-opening at either extremity, within which latter the former parts are exposed to a vertical draft of air, substantially as and for the purpose described.

5. The combination, with the serrated pipes A, the feed-pipe C, and the air-flue D, of one or more condensers and receivers, F, substantially as described.

190,484. COMBINED STALK-CUTTER AND HAY-RAKE. Wm. W. Fuller, Elmira, Ill. [Filed Feb. 3, 1877.]

Brief.—The cutter-frame is attached to the carriage by pivoted bars, and provided with a spring-rod to prevent tilting, (while allowing it the necessary freedom of movement,) and devices for raising or lowering said frame.

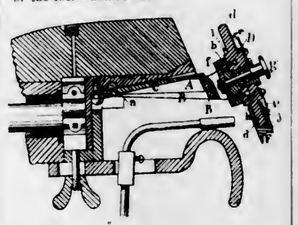


1. The pivoted bars J, the frame K, the cutters L M N, and the spring-rod O, in combination with the front cross-bar D of the carriage, substantially as herein shown and described.

2. The combination of the chains A', attached centrally to the cutter-frame, the pulleys B', the arms and shaft Y C' Z, the rod E', and the lever F', with the frame K of the cutters L M N, the spring-rod O, and the carriage, substantially as herein shown and described.

190,485. EDGE-BURNISHING MACHINES FOR BOOTS AND SHOES. G. A. Fullerton, Boston, Mass., assignor to Geo. H. P. Flagg, same place. [Filed Mar. 23, 1877.]

Brief.—The tool has a hollow shank, and is loosely held in position by a supporting pin embraced by the shank of the tool, and by a spring having its detached end bent into a groove in the shank of the tool. The spring is adjusted so as to permit the free oscillation of the tool when in use.



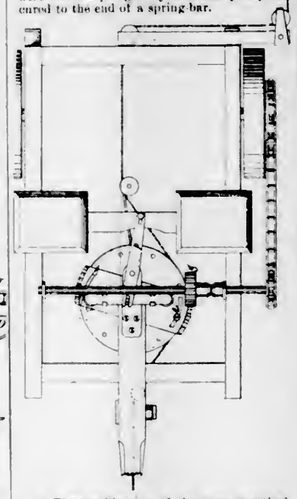
1. In a burnishing-machine, the device above described for sustaining the tool, consisting of the pin *d* and spring *e*, mounted substantially as described.

2. The tool-holder D, provided with one or more pins, *d d*, and mounted, as shown, upon the journal or boss *b*, in combination with catch *f* and plunger *g*, as and for the purpose specified.

3. The tool F, formed with a hollow shank, *h*, and with a notch, *j*, on the shank, adapted to operate, in combination with the spring *e*, as and for the purpose specified.

190,486. SEED-PLANTING MACHINERY. W. Gilman, Chicago, Ill. [Filed Mar. 8, 1877.]

Brief.—On an extension of the tongue is journaled a grooved wheel, around which the operating-rope is placed, that has its ends secured at opposite sides of the field. On the wheel is secured a plate, at each end of which is a segment, that is caused, by the forward movement of the machine, to engage with a bevel-wheel on a transverse shaft, that receives motion from the ground-wheel through the medium of sprocket-wheels and chain. Motion is imparted to the seed-slide through the medium of a bar having friction-rollers, that are struck alternately by a cam on the bar secured on the rope-wheel and connecting-rod. The rope is guided off the wheel, and held uniformly tight by a stress-pulley secured to the end of a spring-bar.



1. The combination of the rope stretched across the field, to determine, by its action upon the machine, the points at which the seed is to be dropped, with the operating machinery, substantially as described, or its equivalent, for dropping the seed at said points by means of power derived from a traction-wheel running upon the ground, substantially as described.

2. The combination of the connected segments *c c*, pulley-wheel A, and bevel-wheel *g* with the cam *d*, to operate the dropping machinery, substantially as shown and described.

3. The combination of the wheel A, revolved by the passage of the rope B, with the segments and bar C, for the purpose of carrying said segments *c c* to and in contact with the bevel-wheel *g*, substantially as shown and described.

4. The combination of the sprocketed wheels G H, chain-belt I, and bevel-wheel *g* with pulley A and segmental gears *c c*, for operating the seed-dropping mechanism of the planter, substantially as shown and described.

5. The combination of the stress-pulley J and spring, or equivalent device, with the check-row cord, the pulley having segmental gears, and driving-pinion *g*, substantially as shown and described.

190,487. BLACKSMITHS' TONGS. James H. Gregory, Columbia, Tenn. [Filed Mar. 19, 1877.]

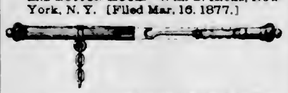
Brief.—Two or more sets of jaws—one of which is rigidly secured to, and the others adjustable on, a cross-bar having an adjustable handle. False jaws are secured adjustably to the main jaws.



1. An improved tongs, formed by the combination of the bar A, the stationary jaw B, provided with the set-screw *b'*, the detachable jaw C, provided with the set-screw *c'* and the keeper *c²*, and the handle D, provided with the keeper *d'* and the set-screw *d²* with each other, substantially as herein shown and described.

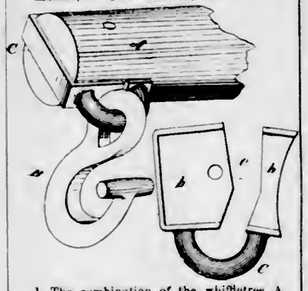
2. The combination of the false jaws E, provided with the keepers *e'*, with the jaws B C of the tongs A B C D, substantially as herein shown and described.

190,488. COMBINED WATCH-CHAIN BAR AND BUTTON-HOOK. Wm. S. Hicks, New York, N. Y. [Filed Mar. 16, 1877.]



A combined watch-chain bar and button hook, constructed substantially as described.

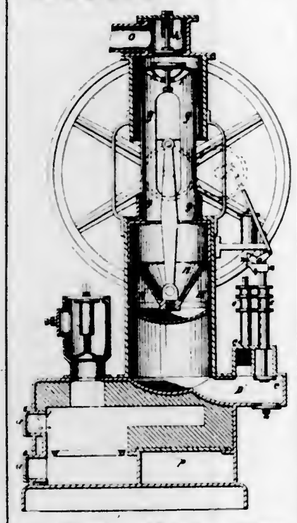
190,489. WHIFFLETREE-HOOKS. H. H. Hill, Moline, Ill. [Filed Mar. 2, 1877.]



1. The combination of the whiffletree A, the hook B, and the eye C, provided with the web *b* and slit *c*, substantially as shown.

2. The eye C, provided with a slotted or open web, *b*, through which the trace-hook may be slipped into place, substantially as shown and described.

190,490. HOT-AIR ENGINES. Julius Hock and Louis P. Martin, Vienna, Austria. [Filed Sept. 8, 1876.]



1. The combination of the governor Q and cold-air regulator O', having slide-valves i, with the openings i' and i², grate and heating-chamber P', and regulating air-discharge valve i³, substantially as and for the purpose set forth.

2. The combination of the hot-air cylinder F, channels D D', and alternately-operated hot-air valves e e', arranged outside of furnace and cylinder, with the governor-shaft, substantially in the manner and for the purpose set forth.

3. The combination of the governor Q and cold-air regulator O', having valve i and air-discharge valve i³, with the heating-chamber P' and furnace A, to regulate pressure of air in furnace, substantially as specified.

190,491. SPOOL-STANDS. W. S. Hotchkiss, Southington, Conn. [Filed Apr. 13, 1877.]



1. In a spool-rack, the cylindrical spindles *d*, formed on the upturned ends of the arms *c*, and provided with an oval-shaped enlargement at their upper ends, substantially as described, and for the purpose set forth.

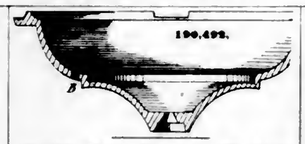
2. In a spool-rack, the hub B, provided with dovetailed recesses *h* at its edge, and the arms *c*, bearing a correspondingly-beveled base at their inner ends, and spool-bearing spindles at their outer ends, substantially as described, and for the purpose specified.

3. The combination of the hub B, recessed as described, the arms *c*, fitted therein, and the cap *k*, secured thereto, substantially as described, and for the purpose specified.

4. The base A, provided with shaft *a* and screw *b*, in combination with the revolving hub B, carrying spool-spindles, the cup-shaped rose C, block D, and cushion E, substantially as described, and for the purpose specified.

190,492. IRON MOLDING. Joseph Hurab, New York, N. Y. [Filed Apr. 16, 1877.]

The combination of the cap C with the male screw B, to protect the screw from the sand, substantially as herein shown and described.

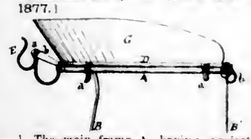


190,493. STRAP-FASTENERS. W. Hyre, Collins, Ind. [Filed Apr. 2, 1877.]



The flat wedge-shaped case B and the wedge C, provided with the points *c'*, constructed and combined with each other, to adapt them for use for fastening a strap, substantially as herein shown and described.

190,494. BAG-HOLDERS. Abel Johnson, Northumberland, Pa. [Filed Mar. 23, 1877.]



1. The main frame A, having projecting strap E, in combination with the clamping-frame D, provided with hinge-bolt *b*, constructed and arranged for the purpose described, and substantially as set forth.

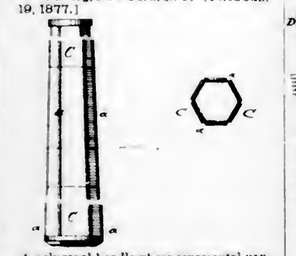
2. The main frame A, in combination with the directly superposed clamping-frame D, having the spring-arms *d d* and spring-loop *h*, for the purpose set forth, and substantially as described.

3. In a bag-holder, the combination of the clamping-frame D, having the hopper G, spring-arms *d d*, and spring-loop *h*, with the main frame A, having the two rigid rear legs B B and hinged front leg B', by means of the strap E and bolt *b*, constructed and arranged as and for the purpose set forth.

190,495. EDGE-BALL COMPOUNDS FOR BOOTS AND SHOES. C. L. Jones, Stoughton, Mass. [Filed Nov. 27, 1876.]

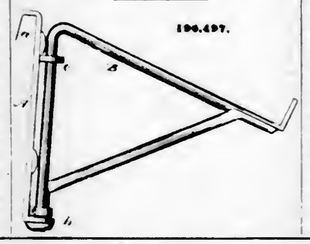
The above composition of bayberry tallow, paraffine, white wax, and gum-arabic, substantially as described, and for the purpose set forth.

190,496. UMBRELLA-HANDLES. F. Julius Kaldenberg, New York, N. Y. [Filed Jan. 19, 1877.]



A polygonal handle whose ornamental panels C are held on tapering sections by tapering guide-strips *a*, together with a button at one and a collar at the other end, substantially as and for the purpose specified.

190,497.

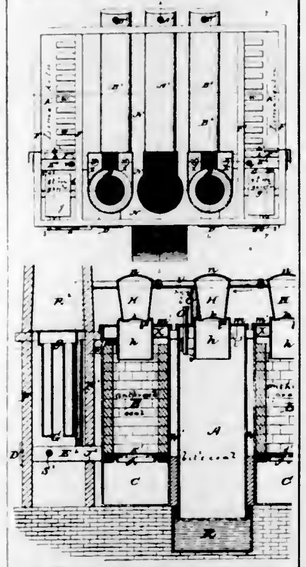


190,497. GALLEY-SUPPORTS. P. A. Kelly, Baltimore, Md. [Filed Apr. 23, 1877.]

The bracket B, having the lip *d* and stop *e*, and the frame A, having hooks *a* and ears *b c*, in combination, substantially as shown and described.

190,498. PROCESSES AND APPARATUS FOR GENERATING AND PURIFYING GAS. M. W. Kidder, Boston, assignor to himself and P. Noyes, Lowell, Mass. [Filed Nov. 27, 1876.]

Brief.—Central hydrocarbon and side water-gas generators, the former exteriorly heated by combustion of gas generated by inner combustion within the latter; also coal-fire under fixing-retorts of both kinds of generators. After so heating hydrocarbon-gas generators, remainder of water gas is diverted downward through incandescent coal, and thence through fixing-retorts to a holder, or from generators through ash-pit, &c., to be mixed with and dilute vapors from hydrocarbon-vapor generators. Mixture thence passed downward through a heated passage along side of vapor-generator and through fixing-retorts. Products of fire under fixing-retorts burn lime in two side kilns. Steam-generators in the two chimneys.



1. The process herein described for producing illuminating-gas, first, by raising anthracite coal or coke to a lively state of combustion by the free admission of air, then excluding the air or the oxygen and nitrogen thereof, as explained, then passing steam into the burning coal, and then immediately and continuously passing the mingled products through incandescent charcoal, all substantially as set forth.

2. The process for producing illuminating-gas from bituminous coal and non-illuminating gas, which consists in distilling the vapors from such coal at a low temperature, as described, and mingling with such coal-oil vapors, purified water-gas, and immediately and continuously heating the mixture and finally subjecting the same to a fixing heat, as set forth.

3. The process for producing illuminating-gas from bituminous coal, hydrocarbon oils, and non-illuminating gas, which consists in distilling the vapors from such coal and hydrocarbon oil dropped upon such coal at a low temperature, as described, and mingling with such coal and oil vapors purified water-gas, or carbonic oxide and hydrogen when purified, and continuously heating the mixture, and finally subjecting the same to a fixing heat, as set forth.

4. The combination, in a gas-generating apparatus, of a vertical coal-distilling chamber, A, closed at both ends, an inclined retort, A^1, and a passage, E^2, and trunk A^1, as the connecting mechanism for the conveyance of mingled gases and vapors from the chamber A to the retort A^2, substantially as described.

5. The combination, in a gas generating apparatus, of a vertical coal-distilling chamber, A, closed at both ends, an inclined retort, A^1, and passage E^2, and trunk A^1, as the connecting mechanism for the conveyance of mingled gases and vapors from the chamber A to the retort A^1, the latter provided with gas-diverting plates l', substantially as described.

6. The sealing-trough R for water, in combination with, and receiving, retaining, and sealing, the lower ends of the chamber A and trunk A^1, substantially as described.

7. The combination of the oil-pipe O, sealed and externally heated chamber A, aperture E^2, trunk A^1, and retort A^2, substantially as and for the purpose described.

8. The pipe O', in combination with the trunk A^1 and aperture E^2, substantially as and for the purpose described.

9. In a hydrogen-gas-generating apparatus the combination of grate *f*, steam-pipe S^1, coal-combustion chamber B, smoke trunk X, valve X^1, and pipe X^2, with the gas trunk E and valve E^1, vertical trunk B^1, grate f^1, ash-pit C^1, steam-pipe S^2, and retort B^2, all operating substantially as and for the purpose specified.

10. The trunk X with its valve X^1, and the pipe X^2 with its orifice X^3, in combination with, and as a conveyance for, combustible gases from the hydrogen-generating chamber B to the corridor or fire-chamber, substantially as and for the purpose described.

11. The combination of the trunk E with its valve E^1, the chamber B^1, and ash-pit C with and as a conveyance for gases from the hydrogen-generating chamber B to retort B^2, substantially as and for the purpose specified.

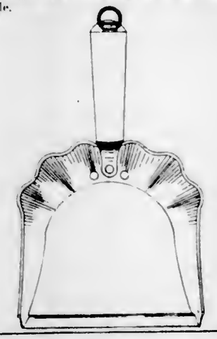
12. In a gas-generating apparatus the combination of the coal or oil distilling and gas-producing series, consisting of the chamber A, trunk A^1, retort A^2, passage E^2, pipe O', and trough R, with the hydrogen-generating apparatus, consisting of the combustion-chamber B, vertical trunk B^1, ash-pit C^1, trunk E, valve E^1, pipe V, steam-pipe S^2 S^3 S^4, the latter introducing steam in its passage to the hydrogen generator, and the latter generator being additionally heated externally by the fire and heat in the corridor or fire-room, substantially as and for the purpose described.

13. In combination with a gas-generating apparatus, the lime-kiln K, constructed, as described, with double inclined-fenders in and an opening for heat beneath them, a covered inlet, R^1, for introducing lime, and an outlet, L, for removing the latter, all arranged in the manner and for the purpose described.

14. The combination of the combustion-chamber B and its connected vertical trunk B^1, both having ash-pits and grates for supporting coal in the first in a state of partial combustion, and in the latter incandescent with, and surrounded by, the fire-room N and corridor N^1, as shown and described, and so as to prevent the escape of heat from the coal in the chamber B, and to induce and support incandescence of the charcoal in the trunk B^1 by heat from the fire-chamber and the corridor, and from the chamber B, substantially as and for the purpose described.

190,499. DUST-PANS. Isaac S. Laubach, Chicago, Ill. [Filed Sept. 21, 1876.]

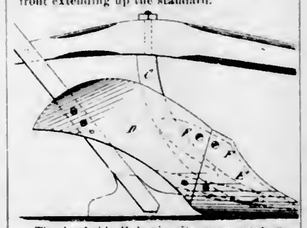
Brief.—The back and sides are wired or hemmed when the metal is flat, and then corrugated, so as to turn them up to the desired angle.



As a new article of manufacture, a dust-pan having the body thereof made circular at the back, and from a single piece of sheet metal hemmed or wired at its upper edge, said wired or hemmed edge portion being corrugated with the rest of the back, substantially as and for the purpose specified.

190,500. PLOWS. Anton Lauer and Julius Hartmann, Louisville, Ky. [Filed Mar. 3, 1877.]

Brief.—The joint and mold-board concave, the edge of the former being a coulter or cutting-edge. A low land-side with a branch in front extending up the standard.



The land-side F, having its upper part extended upward upon the standard as high as the mold-board, and having an upward and outward curve, to cause its forward edge to coincide with the land-side edges of the mold-board D and concave point E, in combination with the said mold-board and point, and with the standard C, substantially as herein shown and described.

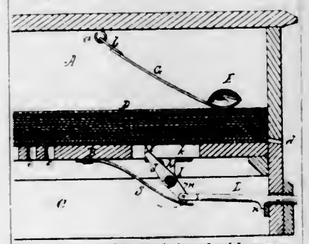
190,501. ORNAMENTING TEXTILE FABRICS. Remy Le Roux, New York, N. Y. [Filed Mar. 16, 1877.]

Brief.—A narrow band of material is threaded into a needle; lay the end of the band upon the fabric; take a stitch through and back, laying the portion of the band on the under side thirty degrees, or thereabout, out of parallel to that on the upper side; then lay the band across the loose end, and take another stitch through and back at a like angle; then pass the needle and band under the band that looks down the first end cut off.



The method of dotting textile fabrics, which consists in passing a narrow band of suitable material through the fabric, crossing it upon itself and locking down the ends, all in the manner hereinbefore set forth.

190,502. TICKET-CASES. S. W. Lloyd and W. L. Coakley, Washington, D. C. [Filed Apr. 10, 1877.]



1. A mechanism consisting of rod L, arm *m*, rock shaft I, and arms J, provided with points *i*, for automatically withdrawing envelopes, bill-heads, &c., from pigeon-holes, boxes, or other receptacles for same, substantially as set forth.

2. The arm G, provided with the weights E, and loop *b*, and hung on a hook, *a*, in combination with a mechanism for automatically withdrawing the envelopes, &c., one by one, from the bottom of the pile, substantially as and for the purposes herein set forth.

3. In combination with a receptacle, A, having a slot, *d*, in its front and slots *k* in the bottom, the rocking shaft I, arms J, having points *i*, arm *m*, and rod L, substantially as and for the purposes herein set forth.

4. The combination with the rock-shaft I, having arms J *m*, and the rod L, the spring S, and the stop *n* on the rod, substantially as and for the purposes herein set forth.

190,503. EXERCISING-MACHINES. A. W. Lozier, New York, N. Y., assignor, by mesne assignments, to Mrs. J. de la M. Lozier, same place. [Filed Feb. 8, 1877.]



1. In an exercising-machine, the combination of the handles with the rope or chain E, and with the weighted lever D, which has the eccentric segment *d*, substantially as and for the purpose specified.

2. The combination of the weighted lever D with the sliding box J, which carries the weighted cross-bar H and fastening-screw *g*, substantially as and for the purpose specified.

3. The combination of the transverse roller or ball *i* with the box J, and with the weighted lever D, substantially as and for the purpose specified.

4. The weighted lever D, provided with the downwardly-projecting leg *b*, as set forth.

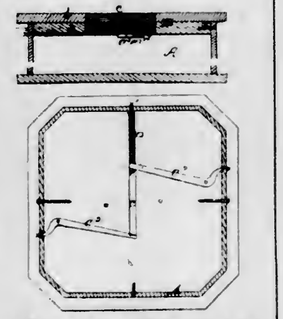
5. The combination of the weighted lever D with the string or chain *j*, and with the expansion-weight L, as and for the purpose set forth.

6. The handle G, provided with notched face, and combined with the sliding sleeve M and catch *n*, as and for the purpose set forth.

7. The platform A of the lifting apparatus, provided with loops *o o*, for receiving the handles in position of rest, as specified.

190,504. COMBINED COLLAR AND TOY MONEY BOX. E. E. Mack and F. Cook, Albany, N. Y.; said Cook assignor to said Mack. [Filed Feb. 12, 1877.]

Brief.—A paper collar-box adapted to serve also as a money-box.

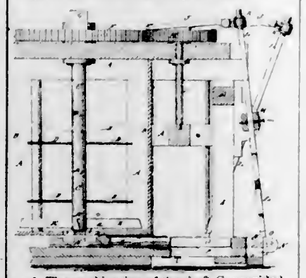


1. The combination, with the body A of a packing-box, of the cover B, provided with concealed fastenings adapted to secure said cover in place, and an opening, *c*, adapted to admit an instrument to said fastenings, in the manner and for the purpose set forth.

2. The combination, with the body A of a packing-box, and a cover secured to said body by concealed fastenings, of the slot *c*, adapted to admit the passage of coin, and all operating, when desired, to convert the box into a toy savings-bank, as and for the purpose set forth.

190,305. BRICK-MACHINES. T. McNicholas, Memphis, Mo., assignor to himself and T. Walker, same place. [Filed Feb. 26, 1877.]

Brief.—The molds are fed in under the hopper by means of the sliding pushers, actuated by rods, pitmen, and gear-wheels. Sliding covers shut off the supply of clay from the tops of the molds when they are filled.

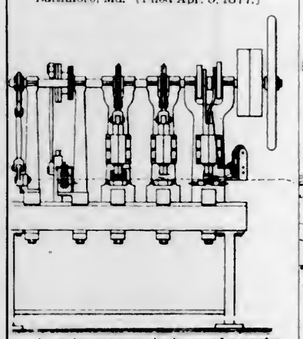


1. The combination of the shaft C, provided with the arms and scrapers D E, the gear-wheels F H, the connecting-rods and sockets J K, the levers and rock-shafts L M, and the pushers O, with the mud-box B, the frame A, and the way-bars P, substantially as herein shown and described.

2. The combination, with brick-machine mold-covers, of the stationary scraper R, arranged to keep the top of mold-covers clean, and prevent adhering clay from being pushed over into the molds.

3. The combination of the rollers N with the pushers O and the levers L, substantially as herein shown and described.

190,306. TAG-MACHINES. H. D. Mentzel, Baltimore, Md. [Filed Apr. 5, 1877.]



As an improvement in the art of manufacturing shipping-tags, the method of re-enforcing the same during the process of manufacture, as follows, viz: by cutting a piece of sheet metal from a ribbon, and affixing the piece to the tag by perforating the said piece and the tag by one stroke of the perforating-instrument, and by clinching the introverted burr forced through the tag, the whole operation being continuous and completing the tag, substantially as herein described.

190,307. PIANO-FRAMES. W. Muth, Montreal, Canada. [Filed Jan. 31, 1877.]

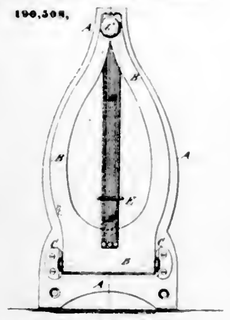


The metallic plate A and A', B and B', C and C', the flange *b*, and its supporting-brackets b^1 b^2 b^3, constructed and arranged as and for the purpose set forth.

190,308. BOOT-JACKS. J. Niver, Sherman, N. Y. [Filed Oct. 7, 1876.]

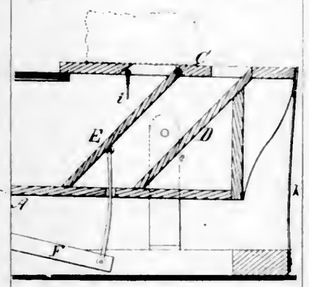
The combination of back A, hinged foot-piece B, elastic strap D, and strap E, the latter being fastened at one end to the upper part of back, then passed through staple as well as hole of foot-piece, and finally attached under said foot-piece, as shown and described, whereby the spring is enabled of itself to hold the foot-piece in any desired position.

190,309.



190,309. BEE-HIVING APPARATUS. Reuben B. Oldt, New Berlin, Pa. [Filed Feb. 26, 1877.]

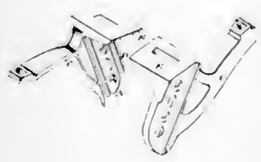
Brief.—The hive containing the bees about to swarm is placed over the forward, and the empty hive over the rear opening formed in the top of the pivoted casing. When the bees come down the hinged inclined step, their weight changes the center of gravity of the casing, so that the forward end thereof is tilted down, by which means the long end of the lever is thrown up and the hinged inclined step raised, which closes the opening above, and admits the bees between it and the bottom of the casing, so they can ascend the stationary inclined step into the empty hive.



1. The pivoted casing A, having the slotted top C and fixed inclined step D, the hinged inclined step E, lever F, and spring *k*, in combination substantially as herein shown and described.

2. The mica door *i*, in combination with the slotted top C and hinged step E, substantially as herein shown and described.

190,310. COLTER OR JOINTER SUPPORTERS FOR PLOWS. J. Oliver, South Bend, Ind. [Filed Apr. 18, 1877.]



1. In combination with a plow, a colter or jointer supporter adjustably secured to the plow-beam and rigidly connected to the plow-standard, substantially as and for the purpose described.

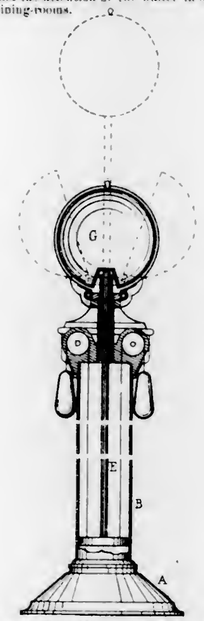
2. In combination with a plow, a colter or jointer supporter having an arm or brace rigidly secured to the plow-standard, and provided with a slotted plate by which, through the medium of a bolt which freely passes through the slot of said plate, the supporter is secured to the plow-beam, and which slot permits a lateral adjustment of the beam relative to the supporter, substantially as described.

3. A colter or jointer supporter consisting of a holder, D, provided with a slot or openings to permit a vertical adjustment of the colter or jointer, a slotted plate, E, and a brace, C, substantially as described.

4. A colter or jointer supporter, consisting of a holder, D, provided with a slot or openings to permit a vertical adjustment of the colter or jointer, a slotted plate, E, adjustably secured to the plow-beam, and a brace, C, rigidly connected to the plow standard, substantially as described.

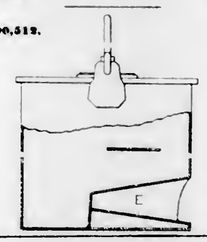
190,311. WAITER CALLS OR SIGNALS. G. R. Osborn, East Orange, N. J., and B. A. Drayton, New York, N. Y. [Filed Mar. 2, 1877.]

Brief.—The ball is elevated on its rod to attract the attention of the waiter in saloons or dining-rooms.



The portable sight waiter call or signal, consisting, essentially, of the base A, standard B, elevating-rod E, and vertex signal object G, operated by suitable mechanism, substantially as and for the purposes shown and described.

190,312.

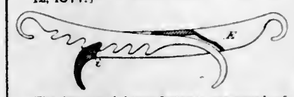


190,313. PORTABLE PUMPS. W. H. Paulding, New York, N. Y. [Filed Apr. 5, 1877.]

Brief.—To the tank is attached a hand force-pump, which may, when in use, be held firmly in position by the pressure of the operator's foot within the recess formed in the tank.

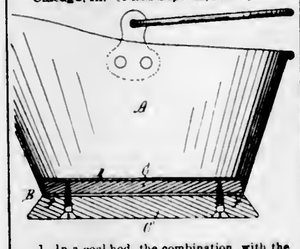
A tank or reservoir provided with a recess or receptacle, E, substantially as described, and for the purpose set forth.

190,313. HAME-FASTENERS. A. A. Phillips, Philadelphia, Pa., assignor to himself and Wm. N. Martin, same place. [Filed Feb. 12, 1877.]



The improved hame-fastener composed of the slotted link E, provided with the sharpened catch *i* within or at the end of the slot, and the ratchet-arm D, all arranged and operating substantially as and for the purpose set forth.

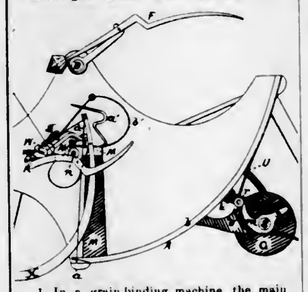
190,314. COAL-HODS. William S. Potwin, Chicago, Ill. [Filed Sept. 21, 1876.]



1. In a coal-hod, the combination, with the bottom B, consisting of the parts C and C', of the sheet-metal lining D, having its edge turned over the periphery of the part C, and compressed between the part C and the body of the hod by the screws or rivets uniting the parts C and C', substantially as and for the purpose specified.

2. In a coal-hod, the combination, with the bottom B, consisting of the parts C and C', of the body A, provided with the flange *f*, adjusted to fit between the parts C and C', substantially as and for the purpose specified.

190,315. GRAIN-BINDERS. F. W. Randall, Burlington, Mich. [Filed Jan. 3, 1877.]



1. In a grain-binding machine, the main driving-shaft S, provided with a crank, H, crank-wheel G, and double cam 9 *m*, in combination with the pitmen I and J, swing-bar Q, weighted lever T, and gathering-arm F, spring U, pivoted elbow L, segmental swing-bar V, pivoted swing-bar 3, with pitman 2, crank 1, shaft O, bracket M, rod *s*, notch-bar *y*, grabber W, U-shaped arm X, compressing-cord Z, forked head K, and knot-tier P.

2. Crank H, slotted pitmen I and J, weighted lever T, in combination with the slotted swing-bar Q, studs *c* and *d*, U-shaped arm X, compressing-cord Z, gathering-arm F, rib *b*, and grain-table A.

3. The pivoted elbow L, rod 4, hook 5, arm 7, in combination with the bracket 8, notch-bar *y*, and grabber W.

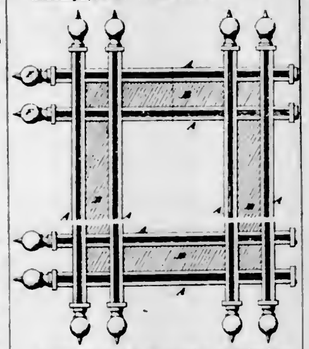
4. The knot-tier P, segmental swing-bar V, flanges *h* and *i*, and wheel-crank G, friction-roller K, stud *x*, in combination with swing-bar 3, pitman 2, crank 1, shaft O, lever *w*, and grabber W.

190,316. SUSPENDERS. L. V. Richmond, Sand Lake, N. Y. [Filed Mar. 3, 1877.]



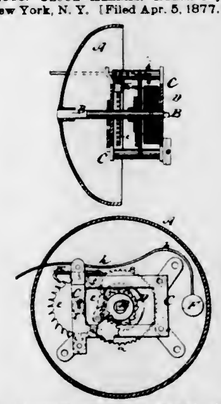
A suspender having front straps A, side straps B, connecting-straps C, and dorsal strap D, combined and arranged as shown and described, for the purpose specified.

190,317. PICTURE-FRAMES. S. Sargeant, Brooklyn, N. Y. [Filed Apr. 9, 1877.]



A frame formed of metal tubes A, halved to each other, and secured to a back frame or board, B, by screws C passing through said back frame or board B, through the inner sides of the said tubes A, and screwed into pieces of wood D, placed within said tubes A, substantially as herein shown and described.

190,318. CLOCK-ALARMS. Rudolf Sayer, New York, N. Y. [Filed Apr. 5, 1877.]

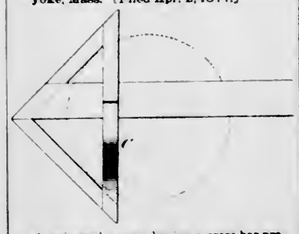


1. An alarm apparatus composed of the frame C, arbors B *d*, wheels *a b c*, anchor E, spring D, and clapper-wire A, all combined with the gong A, and embraced by said gong to be protected and covered by the same, substantially as herein shown and described.

2. The gong A, placed upon the arbor B of a clock-alarm, which arbor connects with the winding-spring, substantially as herein shown and described.

3. The rotary gong A firmly mounted upon the spring-arbor B of an alarm mechanism, so that the gong is revolved in winding and unwinding the spring, substantially as specified.

190,319. SQUARES. Chas. A. Schrier, Holyoke, Mass. [Filed Apr. 2, 1877.]



A universal square having a cross-bar provided with a raised or curved portion, C, in front of the central edge of the tongue, to admit the drawing of a continuous line along the tongue, substantially in the manner and for the purpose set forth.

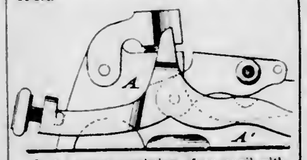
190,320. HOES. A. Schwebr, Sandusky, Ohio. [Filed Mar. 29, 1877.]



A hoe having a malleable-iron or cast-steel eye, provided with a flange, C, and projections D, the flanges and projections welded to the blade, substantially as described.

190,321. SAW-SETS. William H. Smerdon and Bayliss F. Phillips, Taunton, Mass. [Filed Mar. 24, 1877.]

Brief.—The saw supporting-plate rests upon the front part of the hinged gage, and is adjusted simultaneously therewith to the desired inclination with respect to the anvil. A long rod passes freely through a guide-hole of the supporting-plate, and is attached, at its U-shaped end, by a screw to the saw-blade. An arm or apron of the supporting-plate is turned outwardly (serving as an additional bearing) when the teeth of wide saws are to be set.



1. A saw-set consisting of an anvil with pivoted and spring-acted set-piece, and of gage and bevel-plate, jointly adjustable, substantially in the manner and for the purpose set forth.

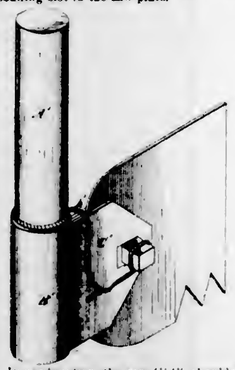
2. The combination of the forked gage.

pivoted to the front arm of the anvil-block, and of a bevel plate, pivoted to supporting-block A, with fixed anvil to produce simultaneous adjustment of gage and bevel to saw-teeth, substantially as set forth.

3. The bevel-plate having pivoted arm or apron, that may be folded inward or thrown outward, as required, substantially as specified.

190,322. ATTACHING HANDLES TO CROSS-CUT-SAWS. C. F. Spooner, New Bedford, Mass., assignor of one-half his right to J. O. Sherman, same place. [Filed May 18, 1876.]

Brief.—The saw is attached to the handle by means of a metallic socket provided with slotted ears, between which the saw is placed and secured in position by a key passing through the slots in the ears, and a corresponding slot in the saw-plate.



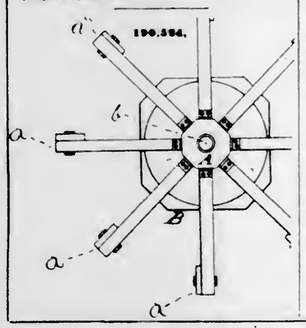
In combination, the ears C' C', shoulder A', and K², all constructed and operating as and for the purpose specified and described.

190,323. PIPE-TONGS. C. States and H. I. Cook, Topeka, Kans. [Filed Mar. 24, 1877.]



The two jaws A A, rigidly connected by studs a, and provided with oblique notches *b*, in combination with an intermediate single jaw, B, having side pins *d d*, as and for the purpose specified.

190,324.



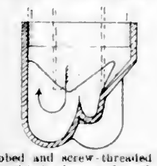
190,325. SPINNING-MACHINES. G. E. Taft, Whitinsville, Mass. [Filed Feb. 12, 1877.]

Brief.—The spindle is provided with a holder-carrier, for rotating the holder positively, and with a locking device for retaining said holder fixedly upon the spindle when doffing the paper, leather, or other light bobbin.



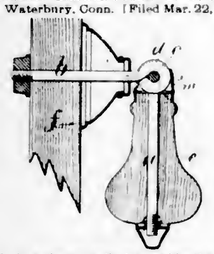
In a ring-spinning machine, the combination, with the spindle and bobbin-holder and bobbin, substantially as described, of a locking device to retain the holder on the spindle when doffing the bobbin, and a holder-carrier to rotate the holder positively with the spindle, all substantially as and for the purposes described.

190,326. CAPS FOR WATER-TUBES. R. P. Thompson, Philadelphia, Pa., assignor to E. H. Graham. [Filed Apr. 6, 1877.]



The lobed and screw-threaded cap, constructed with its bottom formed up into a hollow cone, whose axis shall coincide with the center of the inner tube, and whose inner surface shall curve outward and upward, and blend with the sides of the cap, said cap being rigidly attached to, and a continuation of, the outer tube, substantially as and for the purpose set forth.

190,327. DRAWER-PULLS. G. W. Tucker, Waterbury, Conn. [Filed Mar. 22, 1877.]



1. In a drawer-pull, the combination, with the attaching screws, of link-joints formed by the two eyes, substantially as set forth.

2. The combination, with the link-joint *c d* and attaching screws *a b*, of the handle *e*, and the metallic cap *m* at the end of the handle, covering the link-joint, substantially as set forth.

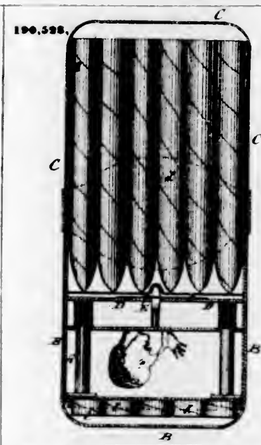
190,328. TOY CIGAR-CASES. FRANZ Waldschmitt, New York, N. Y. [Filed Mar. 24, 1877.]

Brief.—A jack-in-the-box is covered by a false cap, resembling ends of cigars, and may be set free by pressure of a concealed spring.

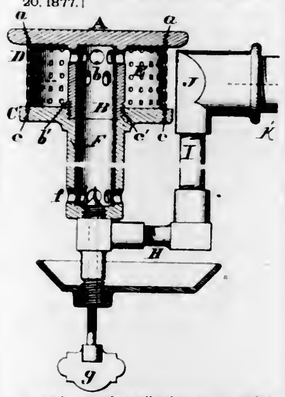
The cigar-case A, open at both ends, and combined with a false bottom or partition, D, with a figure or jack-in-the-box supported thereon, and with the two separate covers B and C, substantially as herein shown and described.



190,328.



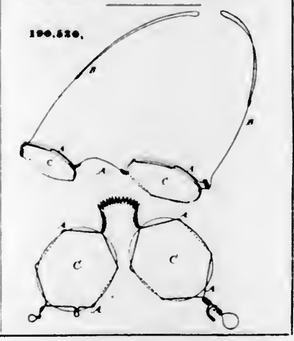
190,329. VAPOR-BURNERS. H. W. Wilson, West Covington, Ky. [Filed Apr. 20, 1877.]



1. An improved gasoline burner, consisting of a perforated disperser, D, clamped between two heads, A *a* C *c*, by means of perforated tube B *b* and couplings *b' c'*, which perforated tube communicates with the chimney F, substantially as herein described, and for the purpose set forth.

2. An improved gasoline burner, consisting of heads A *a* C *c*, pierced tube B *b*, perforated disperser D, chimney F *f*, and connections H I J K, the elbow or bend J being located in close proximity to said perforated disperser D, substantially as herein described, and for the purpose set forth.

190,520.

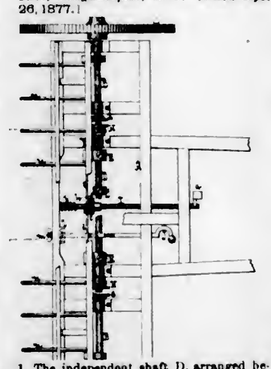


THE GRAPHIC CO. N.Y.

190,320. SPECTACLES. C. Yocco, San Jose, Cal. [Filed Mar. 12, 1877.]

Frames for spectacles and eyeglasses formed of a wire bent into hexagonal shape, with side bends at the angles to form seats A for the lenses, having their middle part bent or coiled to form the nose-bridge, and having lugs or small loops formed upon the outer parts of the lens-seats to serve as catches or handles, or to receive the side bars or temples B, substantially as herein shown and described.

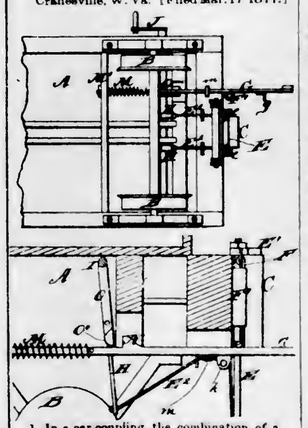
190,321. HORSE HAY-RAKES. W. Adriance, Poughkeepsie, N. Y. [Filed Apr. 26, 1877.]



1. The independent shaft D, arranged between, and in line with, the separate axles B B, and provided with the arms E, supporting the rake head F, in combination with the clutches G H on the axles B and shaft D, respectively and rods *s*, disks *c*, having pin A, and the pin *g* on the shaft D, substantially as and for the purpose described.

2. The combination, with the rake head F, independent shaft D, axles B B, clutches G H, and hand lever J, of an adjustable stop, *e*, attached to the rear part of the frame A, substantially as and for the purpose shown and described.

190,322. CAR-COUPLINGS. A. S. Albright, Cranesville, W. Va. [Filed Mar. 17 1877.]

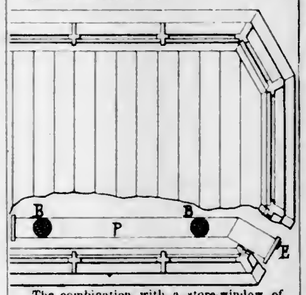


1. In a car-coupling, the combination of a sliding bar, G, having stop piece *g*, with locking-pin F, sash E, and devices for raising said sash, substantially as and for the purpose set forth.

2. In a car-coupling, the combination of a sliding bar, G, having lug N and spring M, with rock-shaft I, arms O H H, cord or chain E², and sash E, carrying coupling-pin D, substantially as set forth.

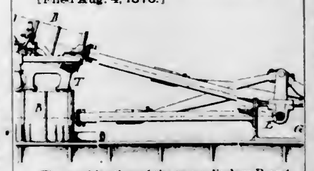
3. In a car-coupling, the combination of crank J with rock-shaft I, arms H H, chain or cord E², sash E, sliding bar G, and pins D F, substantially as and for the purpose set forth.

190,323. DEVICES FOR PREVENTING THE ACCUMULATION OF FROST AND STEAM UPON STORE-WINDOWS. Charles S. Anthony and J. Manheim, Taunton, Mass. [Filed Feb. 16, 1877.]



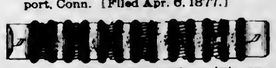
The combination, with a store-window, of the air-supply pipe P, having branches B, covered with wire-netting, and supply-regulating slide E, substantially as and for the purpose shown and specified.

190,324. COMPOUND ENGINES. S. Archbold and John Haug, Philadelphia, Pa. [Filed Aug. 4, 1876.]



The combination of the two cylinders B and D, arranged, in respect to each other, as set forth, with a connecting-frame, T, the bearings G G of the crank-shafts, and the cross-head guide bars, extending from the said cylinder to the said bearings, all substantially as set forth.

190,325. GARTERS. F. Armstrong, Bridgeport, Conn. [Filed Apr. 6, 1877.]

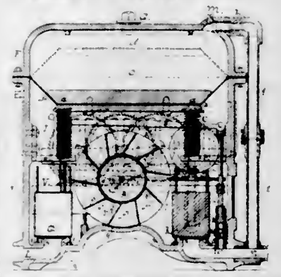


1. A metallic garter, band, or belt, composed of alternate tubes of sheet metal and non-compressible coiled wire, laced together and provided with suitable hooking or securing devices at either end, substantially as described.

2. In combination with a series of short tubes of sheet metal or wire strung together to form a garter, a flat metal hook, secured as shown, whereby the hook end may be secured at any point between the ends of the band, substantially as hereinbefore set forth.

3. In combination with a series of tubes or coils arranged to form a garter or band, two flat metal hooks, one at either end, and arranged in reverse directions, substantially as and for the purposes set forth.

190,326. WATER-METERS. A. R. Arnold, Newark, N. J. [Filed Sept. 30, 1876.]



1. The combination, in a water-meter, of a series of superimposed chambers of water and air, producing an automatic equalizing pressure, whereby the loss of pressure by the flow of water, under any head or draft, shall be fully compensated for by the atmospheric pressure, and a constant uniformity of action shall be produced, substantially as and for the purposes set forth.

2. The case E, having the removable cover F, the supply-opening L, service-opening s, air-opening K, and water-line gage *d*, substantially as and for the purposes specified.

3. The cover F, having the hole with its stopple G, and connection with the pipe I, and fitted to be screwed down on the top of the case, binding the rubber edges A of the diaphragm, thus forming above the diaphragm a close water chamber, substantially as specified.

4. The diaphragm composed of rubber A and plates B, suspended by its edges between the cover and the top of the case, and steadied and graduated in its action by the rods *a* and spiral springs C, substantially as and for the purposes specified.

5. The chamber J, formed by the sides and bottom of the case, and by the diaphragm containing the operating mechanism, and provided with the water-supply pipe L and the air-supply pipe K, by which it is filled with an equalizing pressure of water and air, in combination with the water-chamber above the diaphragm, substantially as and for the purposes set forth.

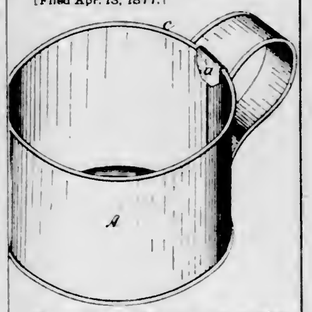
6. The pipe I, forming a connection, by the service-pipe s, with the lower part of the chamber J—that part containing water—and, through the cover F, with the chamber below it, thus establishing a free communication between the said chambers, to assist in equalizing the pressures upon the meter, and having the cock H and vent-screw *m*, substantially as and for the purposes set forth.

7. The inlet float-valve Q, the outlet float-valve R, or its equivalent, and the balance-pressure float-valve R', in combination with the supply-pipe L and service-pipe s, substantially as and for the purposes specified.

8. In combination with the valve R, the vacuum-valve *w*, operated by the float e through the lever S, substantially as set forth, and for the purposes specified.

9. The wheel B', having the buckets A' with the air-grooves S', and provided with the adjustable plates C', and having, in connection with its shafts C', an operating mechanism for registering the amount of water drawn, substantially as specified.

190,327. MODES OF SECURING HANDLES TO CUPS. Chas. S. S. Baron, Bellaire, Ohio. [Filed Apr. 13, 1877.]

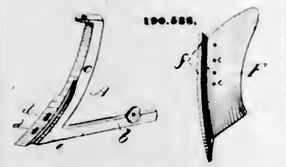


The handle secured to a tin cup or other vessel by means of a tongue, *a*, of the upper part of the handle, which is curled over the bead of the cup, and shoulders *b*, which bear against the cup underneath said bead, the whole being soldered as described, the lower part of the handle being fastened by rivets, or in any suitable manner.

190,328. PLOWS. M. M. Beard and G. W. Purcell, Black Hawk, Miss. [Filed Dec. 13, 1876.]

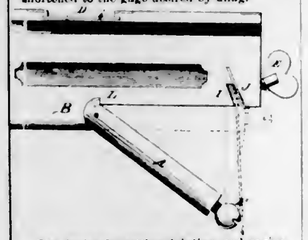
The frame-piece A, consisting of flat bottom piece *b*, forming the land-side, and curved upright *c*, the latter having slots *d d* and rabbet *e*, in combination with the plow attachment F, having perforations *i* and flange *f*, the latter projecting so as to form the point *t*, substantially as and for the purpose shown and specified.

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190,838. DEVICES FOR SETTING, JOINTING, AND GAGING THE TEETH OF SAWS. Levi H. Bigelow, Fremont Centre, Mich. [Filed Jan. 10, 1876.]

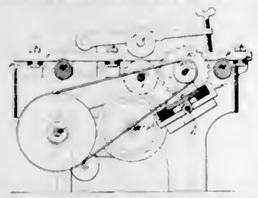
Brief.—The tooth is clamped in a slanting notch by a spring-plate and screw, and the angle to which it shall be set is determined by a gage-arm, that abuts against the saw-blade when the outer end of the device is depressed. When the device is used as a jointer, a flat file is placed in a longitudinal groove, and the device reciprocated back and forth on the saw-blade until the file has reduced all the teeth to a uniform length. The device is also provided with a central slot to receive a clearing tooth, and with a recess on each side thereof, to receive the cutting-teeth. Should the clearing-tooth be of the same length as the adjacent cutting-teeth, its point will project through the slot, and can be shortened to the gage desired by filing.



The device for setting, jointing, and gaging saw teeth, consisting of an L-shaped plate, B, having the hinged arm A, edge slot I, set-screw E, spring plate J, a file groove, C, the recesses G, and open slot D, as shown and described.

190,840. SAWING-MACHINES. C. Bliven, Norfolk, Va., assignor of one-half his right to Wm. B. Rogers, same place. [Filed Feb. 24, 1877.]

Brief.—The saw-arbor is provided with saw-holding devices at each end. The stuff is fed to the saws by means of rollers numbered in the main frame, between a series of slotted bars upon which a suitable guide-bar is laterally adjustable; a feed roller journaled in a swinging and pivoted frame, one end of which is screw tapped; and a fluted roller mounted on an arbor immediately under said roller.



1. The combination, with the frame F, provided with the screw-tapped lug *f'*, and saw-arbor B^1, and the screw-threaded rod G, having the crank G', of the double collars F^2 F^3, nuts e^2, and saws E^2, substantially as described, and for the purpose set forth.

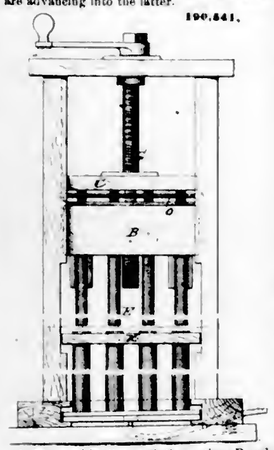
2. The combination of the feed-roller shaft J', with pivoted bearings M M', standard A^3, and adjusting screw N, substantially as shown and described.

3. The adjustable guide-bar O, slotted cross-bars P, and fastening-bolts, in combination with rollers I and J_1 substantially as and for the purpose set forth.

190,841. CIGARETTE-MACHINES. Henry H. Bromwell, Chicago, Ill. [Filed Apr. 16, 1877.]

Brief.—The plungers and upper tubes are operated to and from each other by a right-and-left-hand screw, so that as the upper tubes are drawing from the lower ones, the plungers are advancing into the latter.

190,841.

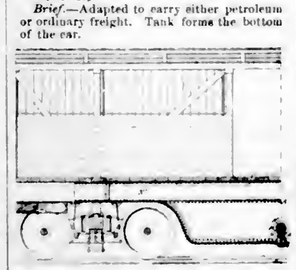


1. The combination, with the sections B and C, the tubes and plungers E and F, and mechanism for positively moving the sections toward each other, of the lower fixed tubes I, substantially as and for the purpose described.

2. The combination of the sections B and C, tubes and plungers E and F, right-and-left hand screw G, and fixed tubes I, substantially as described.

190,842. TANK AND FREIGHT CARS. Horatio G. Brooks, Dunkirk, N. Y. [Filed Nov. 14, 1876.]

Brief.—Adapted to carry either petroleum or ordinary freight. Tank forms the bottom of the car.



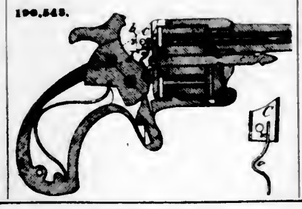
1. The tank A, forming the sills or bottom frame work of a car, as herein set forth.

2. The tank A constituting the base-frame of a box-car, constructed with a central portion dropped between the trucks, for the combined purpose of constituting a portion of the truss-frame, adding carrying capacity, and lowering the center of gravity of the load.

3. The intermediate sills S^3, employed to sustain the draft and thrust, in combination with a tank located in the base of the car or projecting down between the trucks, as set forth.

4. A tank constructed with an open space or spaces between the intermediate sills, to accommodate the draw-head fixtures.

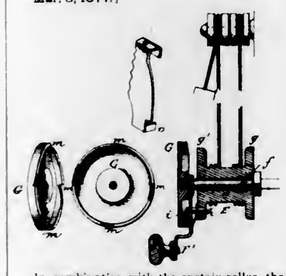
190,843.



190,843. REVOLVING FIRE-ARMS. John Brooks and Thos. W. Bearcock, Wyoming; said Bearcock assignor to F. Balcom, Pittston, Pa. [Filed Mar. 26, 1877.]

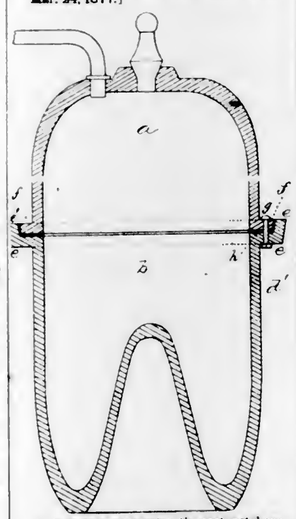
In a revolving fire-arm, having recess *b*, the removable slotted plate C, for holding spring *a*, substantially as and for the purpose hereinbefore set forth.

190,844. CURTAIN-FIXTURES. H. Broom, Cambridge, Ohio, assignor of one-half his right to H. B. Huffman, same place. [Filed Mar. 3, 1877.]



In combination with the curtain roller, the brackets at its ends, the cords attached to said brackets, and the pulleys over which the cords pass, the drum E, mounted on the stud F, the crank-handle F', pivoted on the stud *f*, and connected with the drum by projection *h* and slot *i*, the flat spring *e* between the crank-handle and drum, and the cap-plate G, attached to the end of the stud, and having on its inner side the notches *m*, substantially as and for the purpose described.

190,845. STEAMERS FOR COOKING FEED. Alvia K. Brown, Newton, Iowa. [Filed Mar. 24, 1877.]

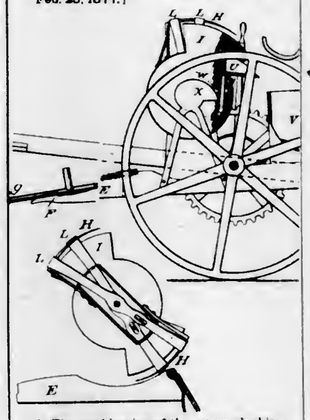


1. In a steam-generator, the cast-metal sections *a b*, having flanges *e f*, and provided with the interposed packing and bolt *g*, adapted to be forcibly clamped together, substantially as specified.

2. The section *b*, having annular flange *e*, and lip *e'*, in combination with the section *a*, having flange *f*, adapted to be received inside of said lip on flange *e*, a packing-ring, and suitable clamps, substantially as specified.

3. The boiler, consisting of two sections having clamping-flanges, whereby they are secured together, and the lower section having a central conical rise, extending upward nearly half-way to its clamping-flange, and cast in one piece, substantially as specified.

190,846. CORN-GATHERERS. M. P. Brown, Lexington, assignor of one-half his right to W. M. Jordan, La Fayette, Mo. [Filed Feb. 23, 1877.]



1. The combination of the rotary plucking-teeth H and vibratory snappers L, for the purpose set forth.

2. The combination of the rotary plucking-teeth H and the concentric concave and channeled gathering-fingers E, as and for the purpose set forth.

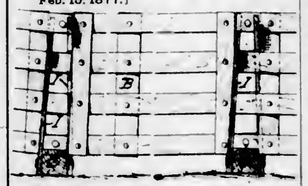
3. The sliding sheaths or extensions *g*, as and for the objects stated, in combination with the guards of a corn-gatherer.

4. The automatically-vibrated hod U, in combination with the rotary pluckers H and the receiving-chutes V.

5. The hod U, pivoted to the plucking cylinder, and automatically vibrated by means of the wrist W, stationary cam X, and retracting-spring Y.

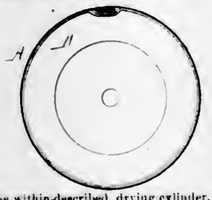
6. The combination of double-ended snappers L with the double series of pluckers H on a single rotary cylinder, I, as set forth.

190,847. PORTABLE FENCES. S. G. Burke, La Fayette, Ala., assignor of one-half his right to Benj. L. Dyer, same place. [Filed Feb. 15, 1877.]



In combination with the panels of a portable fence, the panel-support consisting of the V-notched sill C and notched lock-braces I I, arranged substantially as shown, and for the purpose described.

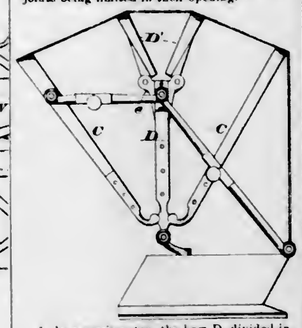
190,848. DRYING-CYLINDERS. C. C. Butterworth, Philadelphia, Pa., assignor to himself and J. Butterworth, same place. [Filed Apr. 7, 1877.]



The within-described drying cylinder, consisting of the body A of tinned sheet iron, with internally-projecting double-lapped joint, the internal re-enforcing rings D, recessed at the edges to receive the said joint, and the heads B, all being combined as set forth.

190,849. CARRIAGE-TOPS. G. F. Canniff, Sr., Cleveland, Ohio. [Filed Apr. 17, 1877.]

Brief.—The invention consists in supplemental bows jointed to the center bows, the joints being limited in their opening.

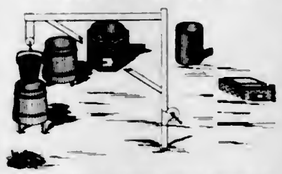


1. In a carriage-top, the bow D, divided in its vertical portions into two supplemental bows, D', said bows being suitably jointed or hinged to the bow D, substantially as and for the purposes described.

2. The combination of the bows C D D', substantially as and for the purposes described.

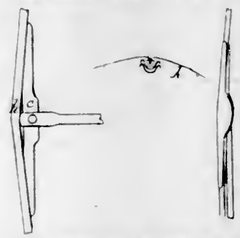
3. In combination with the bows D D', a connecting joint limited in its opening movement, substantially as and for the purposes described.

190,850. PROCESSES OF UTILIZING TIN-SCRAP. C. A. Catlin and G. F. Wilson, Providence, R. I. [Filed June 7, 1876.]



The process of utilizing tinned scrap or of separating adherent tin from other metals, which consists in sprinkling the scrap with dry chloride of sodium or potassium and nitrate of sodium or potassium, and then immersing it in a caustic alkaline solution until the tin is entirely dissolved, whereby the two metals previously united are separated from each other, and can afterward be used in the arts, substantially as herein set forth.

190,851. UMBRELLAS. Emile Charageat, Paris, France. [Filed Oct. 2, 1876.]



1. The umbrella-frame, consisting of the ribs jointed to the cammed or eccentric headed stretchers, in combination with the metal sheaths, arranged as described, for automatically retaining the umbrella in an open or closed position, substantially as set forth.

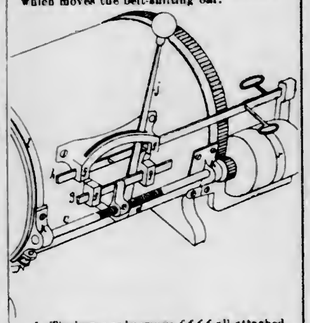
2. The concentric metal sheath and the opening and closing spring, combined and arranged to operate substantially as set forth.

3. In an umbrella-frame, composed of a series of ribs, h^1, of the form described, in transverse section, the arrangement of said ribs with the open side outward, and so as to receive the seams of the covering, substantially as described.

4. The combination of the fixed nut *s*, socket-sleeve *t*, socket *u*, constructed with the shoulder *w'*, spring *q*, cap *x*, and shoulder *y*, substantially as described.

190,852. WASHING-MACHINES. R. Chartrey, San Francisco, Cal. [Filed Jan. 27, 1877.]

Brief.—A bar, attached to a nut which travels on a screw-thread on the drum-shaft, operates, after a fixed number of revolutions of the latter, by means of pins upon it, to throw over its center a lever, the weight of which moves the belt-shifting bar.

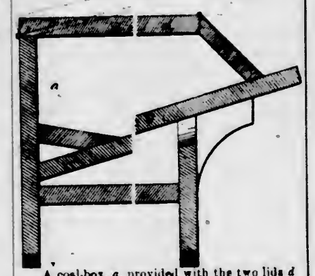


1. The boxes or bearings *f f f f*, all attached to a single frame-casting, I, which is secured to the side of the case, and to which the lower end of the weighted bar *j* is also pivoted, substantially as and for the purpose described.

2. The improvement in connecting the boxes K K with the bands or hoops I, consisting in attaching one end, N, of each hoop to one end of the casting by means of a lug, O, on said casting, and inserting their opposite ends underneath the opposite ends of the box-casting, and securing the whole by a screw, *s*, which passes into the wood underneath, substantially as and for the purpose described.

3. The shaft C, provided with the screw-section *d*, for operating the automatic belt-shifter, and having the fixed pulley *r* and loose pulleys *s s* mounted on its end, substantially as and for the purpose described.

190,853. COAL-BOXES. Geo. M. Church, Rogersville, Pa. [Filed Mar. 30, 1877.]

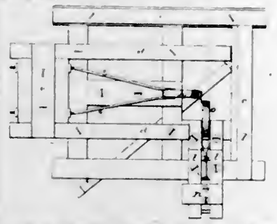


A coal-box, *a*, provided with the two lids *d e*, an inclined bottom, *g*, and a compartment under the bottom for holding the shovel and tongs, substantially as specified.

190,854. MACHINE FOR CLAMPING AND SQUARING SASHES. J. Collins, Reynoldsville, Pa. [Filed Nov. 4, 1876.]

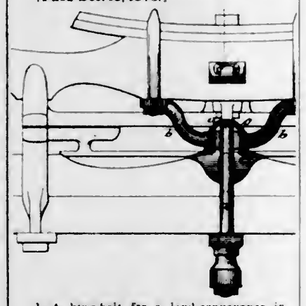
Brief.—Sashes of different sizes can be clamped and squared at the same time by means of two clamps sliding at right angles to each, in grooved ways upon a suitable frame, and attached by screw-rods to segmental wheels connected to a foot-treadle, by which the clamps are operated, in connection with two bars secured upon the top of the frame at right angles to each other.

190,554.



In a machine in which the sash is both squared and clamped at the same time, the construction and arrangement, with the beams c d l, of the clamping devices, consisting of slides e a, rods r g, and segmental wheels operated directly by the treadle rods, as and for the purpose set forth.

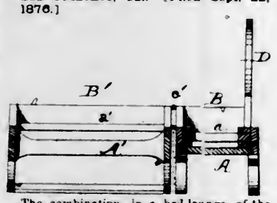
190,555. CARRIAGE KING-BOLTS. John H. Combs, Stamford, assignor of one-half his right to Bryan A. Treat, Naugatuck, Conn. [Filed Dec. 13, 1876.]



1. A king bolt for a land conveyance, in which the clip upon the axle is interlocked with the clip upon the head-block and combined with a centering-pin, substantially as described.

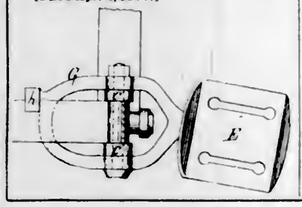
2. A king bolt for a carriage, consisting of the parts *a*, *b*, and *c*, combined and arranged substantially as described.

190,556. SOFA-BEDSTEADS. H. Compes, San Francisco, Cal. [Filed Sept. 22, 1876.]



The combination, in a bed-lounge, of the frames A A', hinged together, the head-frame divided into the hinged parts B B', the upper part being adapted to turn over and rest upon the floor, the slats a a', and the stationary side D, constructed and arranged substantially as described and shown.

190,557. STEPS FOR PLATFORM-WAGONS. Caleb Conderman, Hornellsville, N. Y. [Filed Apr. 4, 1877.]



The tread E, provided with the bifurcated shank F secured to the spring-coupling, and extension G and hook h, engaging, respectively against the under and upper side of the spring, substantially as and for the purpose hereinbefore set forth.

190,558. MOUTH-PIECES FOR MUSICAL INSTRUMENTS. Chas. G. Conn, Elkhart, Ind. [Filed Mar. 22, 1877.]

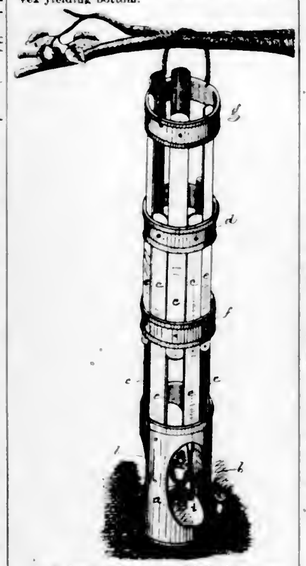


1. A mouth-piece for musical instruments, constructed with a rim of rubber or other vulcanizable gum secured within a recess or recesses in the face, substantially as shown.

2. The improved mouth-piece herein described, provided upon its face with a coating of hard rubber or other vulcanizable gum, substantially as set forth.

190,559. FRUIT-CONDUCTORS. I. W. Curtis, Wilton, N. H. [Filed Jan. 31, 1877.]

Brief.—An extensible fruit-conductor composed of slats lined with soft material, the slats of one section sliding between those of another. Said conductor is provided with an end piece having lateral openings and a convex yielding bottom.



1. A fruit-conductor provided with a telescopic tube, composed of sections constructed of slats arranged so that the slats of one section shall slide between those of another, substantially as described.

2. The combination of an end piece, *a*, a hoop, *d*, and slats, *c*, with slats *e*, and hoops *f g*, forming sections of a telescopic tube for fruit-conductors, substantially as described.

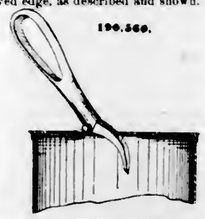
3. The combination, with the slatted telescopic tube of the end piece *a*, having the openings *b b*, and convex yielding bottom *i*, substantially as described.

4. The tube of a fruit-conductor, constructed of slats faced with cloth, or other soft material, substantially as and for the purpose described.

190,560. CAN-OPENERS. L. Cutting, San Francisco, Cal. [Filed June 26, 1876.]

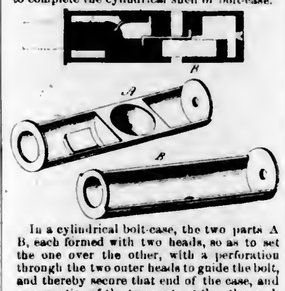
As a new article of manufacture, a can-opener composed of a cast-iron handle, with bolsters and a steel sickle-shaped blade, all cast together, the sickle-shaped blade being beveled wholly on the right-hand side of its curved edge, as described and shown.

190,560.



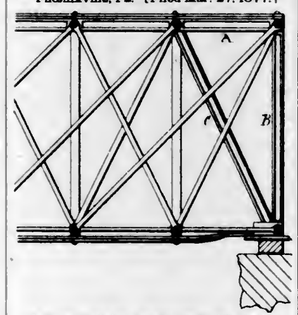
190,561. DOOR-BOLTS. F. Davis, North Adams, Mass., assignor of one-half his right to H. B. Ives, East Haven, Conn. [Filed Mar. 30, 1877.]

Brief.—Two half cylinders—one of which is constructed with a full end piece to form the face plate, and the other with a corresponding head to fit within the same, each being ring-shaped at the outer end to guide the bolt—are fitted so as to set one over the other, and secured together by a single end screw, to complete the cylindrical shell or bolt-case.



In a cylindrical bolt-case, the two parts A B, each formed with two heads, so as to set the one over the other, with a perforation through the two outer heads to guide the bolt, and thereby secure that end of the case, and a connection of the two parts at the other end, substantially as described.

190,562. TRUSS-BRIDGES. R. H. Davies, Phœnixville, Pa. [Filed Mar. 27, 1877.]



In a truss-girder constructed with vertical intermediate posts and diagonal tie-rods, the combination of the extension A of the upper chord, the end posts B and C, and two sets of end tie-rods, when arranged as herein described.

190,563. RAILWAY-TRACK CLEARERS. A. Day, Detroit, Mich. [Filed Feb. 17, 1877.]

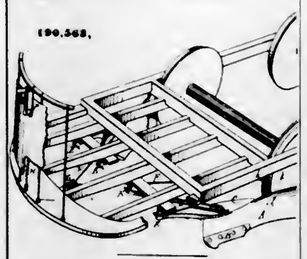
1. The adjustable brackets E, in combination with the leader C and brace D, and scraper, substantially as and for the purposes described.

2. The eye and clamp G, provided with slot s and key *p*, substantially as and for the purposes set forth.

3. The barrel M, made in two parts, and recessed, as described, in combination with the chain H, shaft N, crank R, and standard P, substantially as and for the purposes specified.

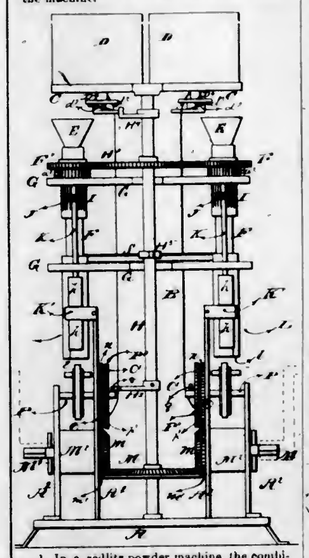
4. In combination, the eye and clamp G, chain H, rods F, chain A, block *k*, and scraper A, substantially as and for the purposes described.

190,563.



190,564. MACHINES FOR PUTTING UP SEDLITZ POWDERS. Charles R. Doane, Brooklyn, N. Y. [Filed Apr. 14, 1877.]

Brief.—The two powders are fed from separate hoppers into rotating tubes. Into these tubes papers are rolled automatically, and when filled they are folded and passed out of the machine.



1. In a sedlitz-powder machine, the combination of two distinct and separate mechanisms, operated alternately from or by devices attached to a central shaft having a reciprocating rotary motion, whereby the alkaline and acid powders are put up in papers and alternately deposited outside of the machine, substantially as herein set forth.

2. In a sedlitz-powder machine, a stationary hopper, an interior intermittently-rotating feeding-disk, with a device for regulating the weight of the powder, and an intermittently-rotating powder-tube, for conducting the powder to the paper, all combined substantially as herein set forth.

3. An intermittently-rotating powder-tube arranged within a stationary slotted sleeve or casing, for winding the powder-paper around the tube, as herein set forth.

4. The combination, with a powder-tube having the paper wound around it, of a pair of griping jaws for carrying the paper down, a folder for folding the bottom, a pair of rolls for pressing the paper, and a folder for folding the top, substantially as herein set forth.

5. The combination of the perforated feeding-disk D^1, shaft D^2, disk D^3, with studs d^3, and the bifurcated arm D^4, with spring-catch d^5, substantially as and for the purposes herein set forth.

6. The arms H^4 H^4, provided with studs h^4, and attached to the reciprocating rotating shaft H, in combination with the bifurcated arms D^4 D^4, for alternately operating the feeding-disks in the hoppers D D, substantially as herein set forth.

7. The combination, with the intermittently-rotating feeding-disk D^1, of the post D^4, with radial arms d^3, and the rotary fan D^7, as and for the purposes herein set forth.

8. The adjustable spring *i*, attached to a block, *c*, and regulated by a set-screw, *g*, in combination with the perforated rotating feeding-disk D^1, substantially as and for the purposes herein set forth.

9. In combination with the perforated rotating feeding-disk D^1, the adjustable spring *i* and the stationary spring *x*, both arranged to operate substantially as and for the purposes herein set forth.

10. The combination of the shaft H, having a reciprocating rotating motion, and provided with the spur-wheel H^1, the sleeved pinions F^7 F^7, the tubes F F, and funnels E E, the pinions and tubes being connected by pawl-and-ratchet devices, substantially as and for the purposes herein set forth.

11. The combination of the tube F, with cogs 1, the shafts K K, with pinions J J, and rollers *k k* and *k'*, and the stationary sleeve L, having slots or openings *e l'*, substantially as and for the purposes herein set forth.

12. The spring K^7, in combination with the lower roller *k*, slotted casing L, and tube F, substantially as and for the purposes herein set forth.

13. The combination of the jaw P^2, having blade p^3, and the jaw Q^2, having rubber filled box q^3, substantially as and for the purposes herein set forth.

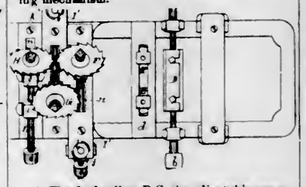
14. The combination of the jaws P^2 Q^2, shafts P Q, with gear-wheels P^1 Q^1, loose wheel O, spring-catch O', pins *p q*, and the arm H^3 on the shaft H, all substantially as and for the purposes herein set forth.

15. The combination of the cam R, pin *r*, shaft R^2, folder R^3, and spring R^4, all substantially as and for the purposes herein set forth.

16. The combination of the arms S, with hammers T and points *s*, the springs U, and the collar H^3, with horns h^3 on the shaft H, substantially as and for the purposes herein set forth.

190,565. MACHINES FOR MAKING WOODEN GUTTERS. J. Dole, Bangor, Me., assignor to himself and H. H. Fogg, same place. [Filed Aug. 25, 1876.]

Brief.—Wooden gutters for buildings are formed by means of one beveling and two grooving saws, each mounted on a shaft which is vertically, laterally, and angularly adjustable upon the main frame; a reducing-cutter attached to a vertically-adjustable head; two vertical feed-rollers laterally adjustable, and two horizontal feed-rollers, the upper of which is vertically adjustable; and suitable operating mechanism.



1. The feed-rollers B C, the adjustable gage-rollers E E, and the two grooving-saws F G, arranged as shown, in combination with the saw-shafts K L, mounted in pivoted and adjustable bearings, and extending downward and crossing each other, as represented, whereby a piece of timber, while being sawed by such saws, becomes grooved on its lower side, and the saws are relieved by gravity from the pressure of the strip while it may be in the process of removal from the stick by them, (the said saws.)

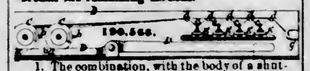
2. The feed-rollers B C, the reducing-cutter-cylinder D, and the gage-rollers E E, arranged as shown, in combination with the beveling-saw H and the grooving-saws F G, and with their shafts K L, mounted in pivoted and adjustable bearings, and extended downward and crossing each other, as represented.

3. The combination for effecting the adjustment, as described, of each saw and its shaft, such consisting in the slotted plate I' or K', and the furcated screws *i k* and their clamping devices or nuts *l m*, and the boxes *f g*, pivoted to such screws, all being substantially as specified and represented.

190,566. SHUTTLES FOR LOOMS. L. Dumas, Paterson, N. J. [Filed Mar. 14, 1877.]

Brief.—The shuttle carries two or more bobbins. The object of the invention is to prevent imperfections in the fabric caused by the shuttle continuing to deliver weft after one of the threads has broken, or a bobbin has become empty. Each thread passes through an eye on a pivoted bar, and while it is unbroken lifts its bar from contact with the brake-lever. Should the thread fail the corresponding bar immediately falls, thereby depressing the brake-lever. The brake stops the further revolution of the bobbins, and breaks the remaining threads.

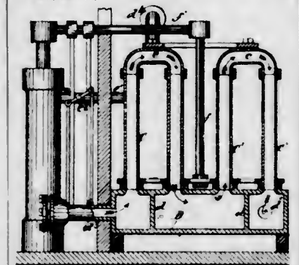
190,566.



1. The combination, with the body of a shuttle, having two or more bobbins, of a brake adapted to be operated by the action of the filling threads, for arresting the motion of the several bobbins when one of the said threads breaks or winds off, substantially as and for the purpose described.

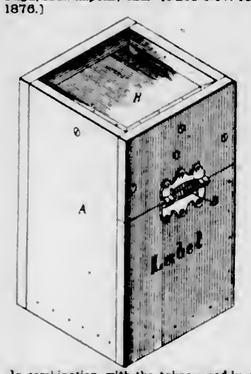
2. The combination, with the body of a shuttle having two or more bobbins, of the breaking-lever D, weighted at one end, and the swinging arms E, having eyes through which the threads of the different bobbins pass, the whole being adapted to operate substantially as described, and for the purpose set forth.

190,567. FEED-WATER HEATERS. James Eckersley, Philadelphia, Pa. [Filed Feb. 27, 1877.]



The combination, with the feed-water heater herein described, composed of the bases or cylinders D D^1, &c., and pipes C C^1, &c., said bases having transverse diaphragms *d d*, and connecting branches d' d^2, and the pipes C C^4, &c., being united in pairs, having their legs arranged with reference to the diaphragms *d d*, of the boiler feed-pipe d^4, communicating with the upper part of the heater, substantially as shown and described.

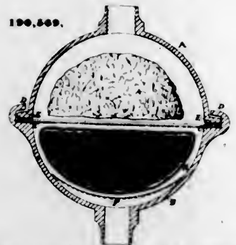
190,568. TOBACCO-CADDIES. L. M. Fitzhugh, Indianapolis, Ind. [Filed Nov. 16, 1876.]



In combination with the tobacco caddy A, provided with the top follower B, as described, the front C, hinged to the body by the exterior spring-hinge D, for the purpose of keeping the door closed, as set forth.

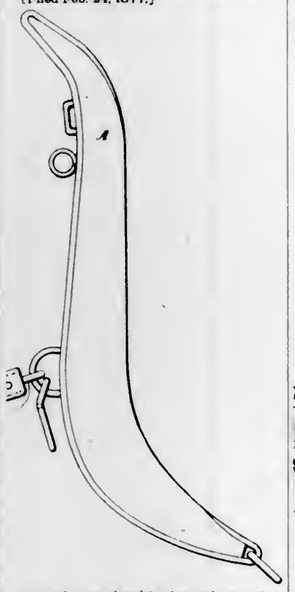
190,569. WATER-FILTERS. W. S. Fleming and A. Burns, San Francisco, Cal. [Filed Mar. 17, 1877.]

190,569.



The water-filter herein described, consisting of the case A B, having the inclined locking and uniting flanges D and E, with the annular grooved seat G, gauze or perforated bottom F, purifier H, and sponge I, as and for the purpose specified.

190,570. HAMES FOR HARNESS. Geo. E. Fletcher, Fillmore, N. Y., assignor of one-half his right to S. W. Lowell, same place. [Filed Feb. 24, 1877.]



As an improved article of manufacture, the hame A, wedge-shaped in cross-section, as shown, and adapted for use upon either side of a collar, as set forth.

190,571. TUMBLERS FOR PERMUTATION-LOCKS. T. Fox, Bay City, Mich., assignor of one-half his right to J. J. Fitzgerald. [Filed Sept. 26, 1876.]



The tumbler-wheel n, provided with the cogged hub, in combination with the carrier-plate A, having internal cogs and a projecting finger, substantially as described.

190,572. MIDDLINGS-SEPARATORS. A. Fulton, Olney, Ill. [Filed Mar. 26, 1877.]

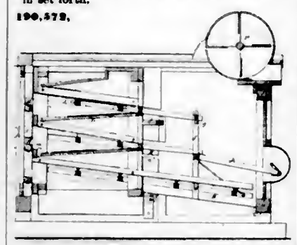
1. The combination, in a middlings-purifier, of a series of sieves and a series of reciprocating set of brushes or wipers, operated from a single shaft when such sets are adjustable up and down independently of each other, substantially as herein set forth.

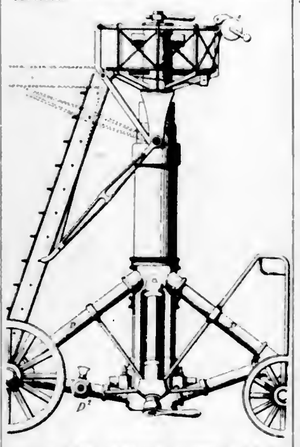
2. The combination of the sets of brushes or wipers a, cross-bars G, slide-bars I, with pins x, frame J, having vertical slots y, and operated by the crank-shaft L and pitman K, the adjustable ways H, cams m, and shafts n, all substantially as and for the purposes herein set forth.

190,573. FIRE-ESCAPES, (HYDRAULIC.) J. Gerard and A. Turnbull, New Britain, Conn. [Filed Mar. 17, 1877.]

Brief.—The trunnions are adjustable by means of a force-pump. A ladder is hung to the gallery, which can be raised to a horizontal position, to serve as a fire-escape. The steps of ladder turn so as to form a floor when raised. The ladder is elevated by means of a windlass attached to gallery. The gallery revolves.

190,572.





1. In a fire apparatus, consisting of a telescopic column carrying a gallery at the top, and mounted on a truck, the brace-tubes D, combined with the adjustable braces D', substantially as and for the purpose described.

2. In a fire apparatus, consisting of a telescopic column carrying a gallery at the top, and mounted on a truck, the brace-tubes D, combined with the adjustable braces D', and a clamping device to secure the braces, substantially as described.

3. In a fire apparatus, consisting of a telescopic column carrying a gallery at the top, and mounted on trunnions, so that the said column may be turned into a substantially horizontal position, the combination, with the said trunnions, of vertically-movable bearings, with a follower arranged in vertical cylinders beneath, and means, substantially such as described, for forcing water into the said cylinders, substantially as and for the purpose specified.

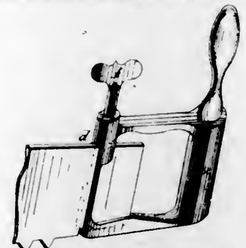
4. In a fire apparatus, consisting of a telescopic column carrying a gallery at the top, and mounted on a truck, the combination, with the said column and truck, of the two disks C' C', eccentrically hung respectively to the base and to the bottom of the column, and concentrically connected for the vertical adjustment of the column, substantially as described.

5. In a fire apparatus, consisting of a telescopic column carrying a gallery at the top, and mounted on a truck, the combination of the gallery and a ladder hinged thereto, and means, substantially such as described, for adjusting the elevation of the ladder relative to the plane of the gallery, substantially as described.

6. In a fire apparatus, consisting of a telescopic column carrying a gallery at the top, and mounted on a truck, the combination of the gallery and a ladder hinged thereto, and means, substantially such as described, for adjusting the elevation of the ladder relative to the plane of the gallery, and the steps of the said ladder hinged between the sides of the ladder, substantially as and for the purpose described.

190,574. CROSSCUT-SAW HANDLES. Peter Gerlach, Cleveland, Ohio. [Filed Mar. 19, 1877.]

Brief.—The saw is attached to a suitable handle by means of an open metallic frame having an outer tubular part to receive a wooden handle; an inner slotted part, through which the saw-blade passes, and which is provided with an enlarged upper and interiorly-threaded part; a lower grooved bar having a projection on its inner end, fitting in a notch in the lower edge of the saw-blade; and a set-screw passing through the threaded part of the frame, and projecting into a notch formed in the upper edge of the blade.



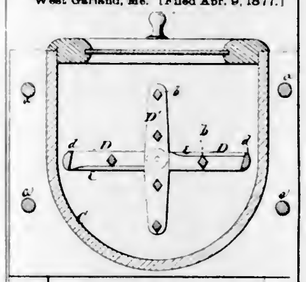
The combination, with a saw provided with notches s s', of a handle provided with groove g, projection g', slot d, and tightening-screw f, substantially as described.

190,575. SOLE-FASTENINGS FOR BOOTS AND SHOES. L. Goddu, Winchester, assignor to the American Cable Screw Wire Company, Boston, Mass. [Filed Apr. 11, 1877.]

1. A continuous length of distinct nails or tacks, each having a head formed of stock taken from the preceding nail and projecting beyond the diameter of the wire forming the continuous length of tacks or nails, as set forth.

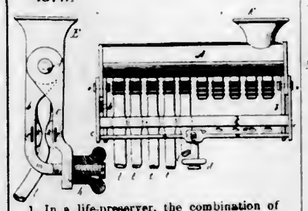
2. A continuous length of distinct nails or tacks, each having a tapering point narrower than the diameter of the wire, and a head formed of stock taken from the entering end of the preceding nail, projecting from and beyond the diameter of which they are formed, as set forth.

190,576. ROTARY CHURNS. H. L. Gordon, West Garland, Me. [Filed Apr. 9, 1877.]



The churn-dasher herein described, consisting of the long and short cross-arms D D', the long arms D, having their front edges e beveled, the diamond-shaped beaters b, set so as to alternate, and the slab-shaped strips d, set on an angle, all substantially as and for the purposes herein set forth.

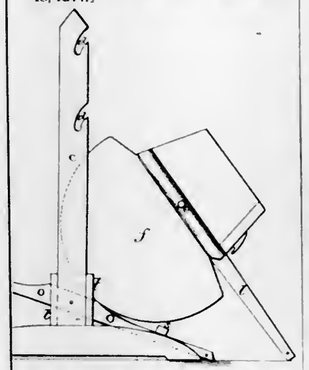
190,577. LIFE-PRESERVING DRESSES. Camille Grin, Paris, France. [Filed Feb. 5, 1877.]



1. In a life-preserver, the combination of the independent air-tubes a, the cylinder A, connected by an independent tube to each of said air-tubes and mechanism, substantially such as described, to simultaneously open or close said independent passages and isolate the said air-tubes, substantially as described.

2. In a life-preserver, the combination of the cylinder A, mouth-piece E, independent tubes t, tringles e e, inclosed in india-rubber tubes k k, and clamping-screw, substantially as described.

190,578. RECIPROCATING CHURNS. Royal E. Grimes, Rutland, Ohio. [Filed Mar. 13, 1877.]



The churn-body f, provided with the groove r, in combination with the board t and lever l, whereby the body can be taken from its journals and tilted forward, as shown.

190,579. STOPPER-LOCKS FOR DECANTERS, &c. Edgar H. Guild, New York, N. Y. [Filed Apr. 12, 1877.]



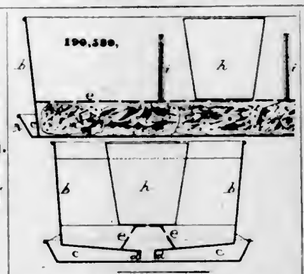
A stopper for bottles or other vessels, constructed of a series of disks, (one or more of which being composed of an elastic substance,) secured and adjusted upon a rod by means of an adjusting device connected to said rod, and arranged within a recess formed in the upper disk, whereby said adjusting device or lock is inaccessible except to an instrument especially fitted to engage therewith, substantially as described.

190,580. FLOWER-STANDS. Chas. F. Hall, West Troy, N. Y. [Filed Apr. 17, 1877.]

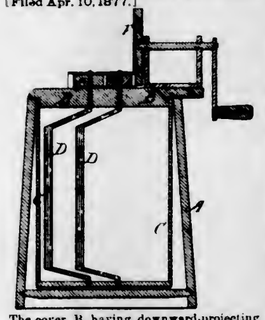
Brief.—A flower-pot vase having a perforated cone filled with sponge or other absorbent material extending across its base, upon which one or more pots, with small holes in the bottom, may be placed.

The combination of pan a, vase b, flanges d, cone c, partitions i, and pots k, substantially as shown and described, the cone and flanges being filled with sponge or other absorbent material, so as to supply each plant with the exact amount of water required, and no more.

190,580.

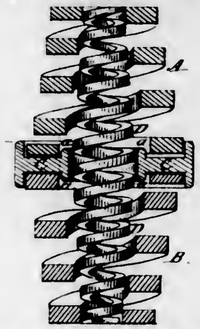


190,581. ROTARY CHURNS. C. I. Hale, Bethany, Ill., assignor of one-half his right to David N. Ashmore, same place. [Filed Apr. 10, 1877.]



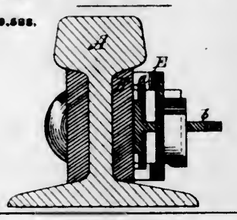
The cover B, having downward-projecting rectangular frame C, pivoted beaters D, provided with pinions a and operating cog-wheel F, in combination with the churn-body A, substantially as and for the purpose herein shown and specified.

190,582. CAR-SPRINGS. W. P. Hansell, Pittsburg, Pa., assignor of one-third of his right to B. R. Hansell, same place. [Filed Oct. 13, 1876.]



The combination of two helical springs, A and B, their division bearing-plate C, provided with a central opening, and an interior spring or springs, D, substantially as described.

190,583.



190,583. NUT-LOCKS. Wilson C. Harner, Pittsburg, Pa. [Filed Feb. 27, 1877.]

1. The within-described nut-lock, consisting of slotted anchor-plate a, perforated for the bolts, and made of sheet metal, T-headed post b, slotted as shown, and detachable from plate a, lock-plate E, and key c, in combination with a fish-plate of ordinary construction, all combined and operating substantially as shown and described.

2. The slotted lock-plate E, having its ends bent inwardly, as shown, in combination with the anchor-plate a, key-post b, and a fish-plate of ordinary construction, substantially as described and shown.

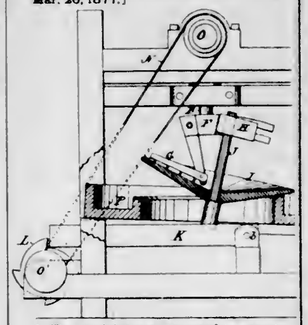
190,584. TEA-CADDIES. L. W. Hemp and S. Knight, St. Louis, Mo.; said Knight assignor to said Hemp. [Filed Dec. 8, 1876.]



1. As a new article of manufacture, the improved caddy constructed with inclined back G, glass F, inclined partition I, extension b, and door D, as and for the purpose set forth.

2. The combination, with the caddy, of the inclined show case having a sliding bottom or back, G, to allow the discharge of the contents into the main cavity of the caddy.

190,585. ORE-WASHERS. D. D. Hendrick, Calumet, Mich., assignor of one-half his right to H. B. Rogers, same place. [Filed Mar. 26, 1877.]



1. The receiving-pan, arranged to operate with a continuously-tilting movement combined with an up and down movement, substantially as described.

2. The combination, with the continuously-tilting pan, of a rake or stirrer, arranged to be always upon the high side of said pan, as and for the purpose set forth.

3. The combination, with the pan I, its shaft J, and the cross-head F, attached to the driving shaft, of the box H, made adjustable in guideways in the cross-head to increase or diminish the tilt of the pan, as described.

4. The combination, with the pan I, its shaft J, and the cross-head attached to and rotated by the driving-shaft, of the adjustable box H, and the adjustable rake G, as and for the purpose described.

5. The combination of the wiper-wheel L, jigger-lever K, the pan I, having its shaft stepped in said lever, and the rotating cross-head F, carrying the upper end of the pan-shaft upon one side of its axis, and a rake upon the other, substantially as described, and for the purpose set forth.

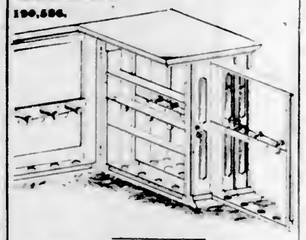
190,586. SHOW-CASES. Peter Henrichs, Erie, Pa. [Filed Mar. 29, 1877.]

1. In a sectional show-case, the combination of two or more stationary sections, B, united by top and bottom pieces at suitable distances

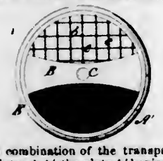
apart, one or more movable sections, A, sliding between the stationary sections, and two hinged side sections, C C, all constructed as described, whereby access may be had to any section separately, substantially as herein set forth.

2. The beaded pins l, having grooves *x* in their heads, and the wires J playing in said grooves, substantially as and for the purposes herein set forth.

190,586.



190,587. Lactometers. Louis Heusner, Barmen, Prussia. [Filed Feb. 17, 1877.]

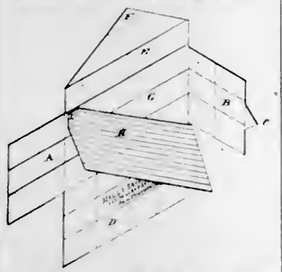


1. The combination of the transparent attached plates A A′, the plate A′ having in or on it lines or figures *a c*, and a partition, B, dividing the space between said plates into chambers, the one for holding the liquid to be tested, and the other for holding the standard substance with which said liquid is to be compared, substantially as and for the purpose specified.

2. The combination of the attached transparent plates A A′, the partition B, dividing the space between said plates into chambers *b b′*, and the permanent filling contained in the chamber *b′*, substantially as and for the purpose specified.

3. The combination, with the plates A A′, separated by the partition B, of the ring-stopper E, for closing said chambers, substantially as and for the purpose set forth.

190,588. Envelopes. W. S. Holding, San Francisco, Cal. [Filed Aug. 24, 1876.]



The combination, in an envelope, of the body G, end flap A, end flap B, with perforated projection C, bottom flap D, top flap E, with perforated projection F, and the slip H, with perforated corner I, all constructed as shown and described.

190,589. Machines for Printing and Embellishing Lead-Pencils. H. B. Horton, Ithaca, N. Y. [Filed Mar. 22, 1877.]

1. In a machine for embossing and ornamenting lead-pencils, the combination of a pressing surface with a raised design or printing surface, whereby the pencil is caused to move, or is rolled between the printing and pressing surfaces, by the action or movement of the parts, and the design imparted or printed thereon, substantially as described.

2. In a machine for embossing or ornamenting lead-pencils, the pressing cylinder or surface *n*, substantially as and for the purposes described.

3. In combination with the pressing cylinder or surface *n*, the bed-plate *k*, substantially as and for the purposes described.

4. In combination with the pressing cylinder or surface *n*, the design-plate k^1, substantially as and for the purposes described.

5. The combination, in a machine for embossing and ornamenting lead-pencils, of pressing-surface *n*, bed-plate *k*, and design-plate k^1, as and for the purposes described.

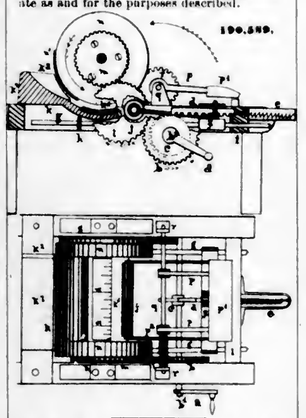
6. In combination with the presser *n* and design k^1, the leaf-applying pad p^1, substantially as and for the purposes described.

7. The combination, in a machine for embossing and ornamenting lead-pencils, of pressing-surface *n*, bed-plate *k*, design-plate k^1, and suitable leaf-applying mechanism p^1, substantially as and for the purposes described.

8. In combination with the leaf-applying mechanism or pad p^1, the roller *j*, rack *d*, and spring *e*, whereby the sizing or gum and leaf or embellishing materials are automatically applied to the design-plate, substantially as and for the purposes described.

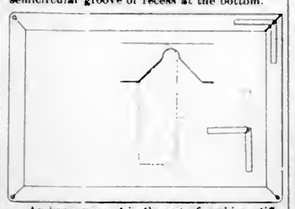
9. The combination, in a machine for embossing and ornamenting lead-pencils, of pressing-surface *n*, design-plate k^1, gum-applying mechanism *j d*, leaf-applying mechanism *p* p^1, and suitable driving mechanism *e b l r*, all constructed, arranged, and adapted to operate as and for the purposes described.

190,589.



190,590. Making Wooden Boxes. Wm. Huey, Fredersiaburg, Md. [Filed Apr. 16, 1877.]

Brief.—The joints in the strip of wood which is to form the sides and ends of the box are formed by cutting upon the strip transverse channels, having straight angular sides converging toward each other, and a semicircular groove or recess at the bottom.



An improvement in the art of making stiff wooden boxes, &c., which consists in forming in the wood a curved groove at the bottom of an angular channel, and then bending the board at such point to form a corner-joint, substantially as described, and for the purpose specified.

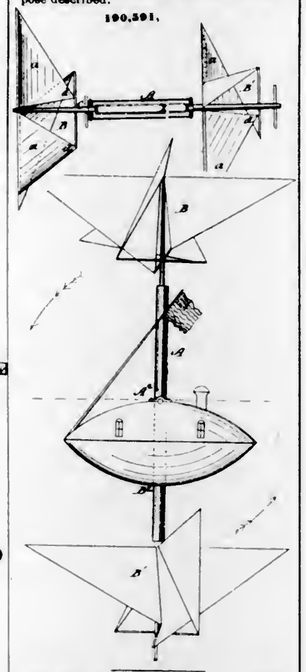
190,591. Toy Aerostats. Wm. S. Hull, Hinds County, Miss. [Filed Nov. 7, 1876.]

Brief.—A rubber spring within a light tube is secured to the axes of two oppositely-moving propeller-wheels—one at each end of the tube. Sufficient torsion of the spring causes the tube to ascend into the air.

1. The improved aerostat, consisting of the two propellers B B^1, constructed as described, and arranged upon independent shafts for revolution in different directions, in combination with the interposed tubular frame A, and a suitable driving-power connected with the propeller-shafts through the tubular frame, substantially as and for the purpose described.

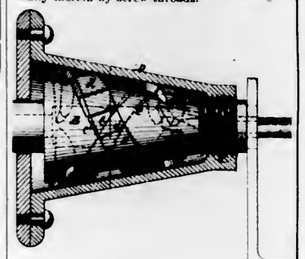
2. The combination, with the reversely-arranged propellers B B^1 and the tubular frame A, of the interposed elastic strips contained in said frame and connecting the two propeller-shafts, substantially as and for the purpose described.

190,591.



190,592. Machines for Making Twist-Drills. C. F. Jacobson, New York, N. Y., assignor to himself, J. C. Jones, and G. E. Maltby, same place. [Filed Mar. 29, 1877.]

Brief.—A hollow conical die-holder having longitudinal spiral slots, in which are fitted sectional dies of irregular lengths, (in conformity with the varying diameter of their conical holder,) in order that they may project equally within the holder, and properly act upon the drill-blank as it is forced longitudinally through the same. Heads on the dies prevent them from passing wholly through into the holder and form backs, against which pressure may be exerted, to keep the dies up to their work, by a hollow outer case surrounding the holder, and adjustable longitudinally therein by screw-threads.

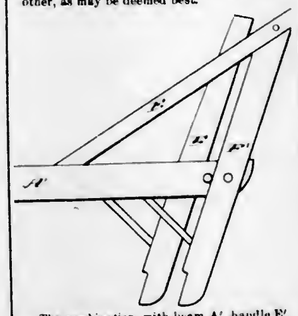


1. The spirally-slotted hollow die-holder, in combination with two or more sectional dies, fitted to enter within said slots, essentially as and for the purpose herein set forth.

2. The combination of an outer and longitudinally-adjustable hollow case or cone, D, the conical and spirally slotted hollow die-holder B, and the sectional dies C C, substantially as specified.

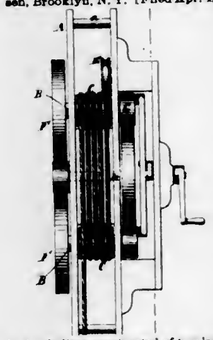
190,593. Plows. J. R. Jackson, Coldwater, Miss. [Filed Mar. 31, 1877.]

Brief.—A double-shovel plow constructed with devices to place both shovels parallel with each other, or to place one before the other, as may be deemed best.



The combination, with beam A′, handle E′, and fixed standard F′, of beam A, having perforations *a* a^1 a^2 a^3, brace I, standard F, having perforations *f f′*, and handle E, having perforations *e e′*, substantially as and for the purpose set forth.

190,594. Portable Windlasses. D. Janssen, Brooklyn, N. Y. [Filed Apr. 4, 1877.]



1. A windlass constructed of two independent sheaves, C C, mounted on shafts B B, which are geared together, a pressure-roller, E, and a frame, A, the whole being combined and adapted to operate substantially as described.

2. The combination, with the two independent sheaves C C and their shafts B B, of a supplemental shaft, H, and friction-wheels J F F, substantially as and for the purpose described.

190,595. Turbine Water-Wheels. Wm. R. Jenkins, Jr., Bellefonte, Pa. [Filed Apr. 9, 1877.]

Brief.—This wheel has a center extending the entire height of the same, whose exterior form is that of an inverted truncated cone. The upper edge of the center has a narrow horizontal flange, and from this flange the sides of the center slope inwardly to the bottom.

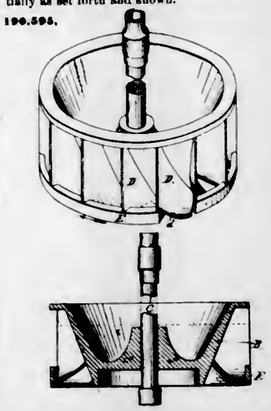
1. In a turbine water-wheel, the combination of the conical center B, extending the entire height of the wheel, with the buckets D placed at an angle to the said center, and reaching downwardly only to the lower periphery of the said center, substantially as described and shown.

2. In a turbine water-wheel, the combination, with the conical center, of the triangular buckets D, placed at an angle to the said center, inclining in the direction of motion, so that both the top and bottom edges of said buckets are tangential to the circle formed by the lower periphery of such center, substantially as described and shown.

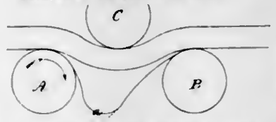
3. In a turbine water-wheel, the buckets D, receiving the force of the water at right angles, having the cut-away portion *d*, the turned-up portion d^2, and obliquee side d^3, constructed and arranged substantially as described and shown.

4. The combination, with the conical center B, extending the entire height of the wheel, of the triangular buckets D, inclined as described, and reaching downwardly only to the lower periphery of the said center, and the ring E, all constructed and arranged substantially as set forth and shown.

190,595.



190,596. Paper-Feeding Machines. B. H. Johnson, Brooklyn, assignor of one-half his right to Griffith & Byrne, New York, N. Y. [Filed Dec. 13, 1876.]



1. In a paper-feeding machine, the roller A, applied beneath the pile of sheets, substantially as described, and so operating thereon as to draw or push back the edge of the sheet against which it acts, and pass the edge around its periphery until, by the elasticity of the sheet, it springs forward on the side of the roller opposite the side on which it acts on the pile of sheets, substantially in the manner described and specified.

2. The combination, with the friction-roller A, of the pressure-bar C, for depressing the pile of sheets at a point behind the roller A, whereby the surface of contact between the roller and the sheet is increased, substantially in the manner described and specified.

3. In a paper-feeding machine, the combination of the rollers A and B, applied beneath the pile of sheets, substantially as described, and so operating as to draw the two extremities of the sheet against which they act together, without breaking the sheet, and pass its edges around their peripheries until, by the elasticity of the sheet, the ends spring apart, and the sheet thus freed on the side of the rollers opposite the side on which they act on the pile, substantially in the manner described and specified.

4. In combination with the friction-rollers A and B, the pressure-bar C, for depressing the sheets between said rollers, substantially in the manner described and specified.

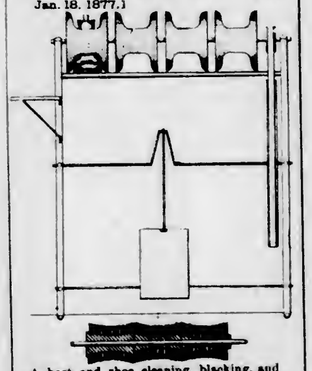
190,597. Pocket-Lamps. J. Kutscher, New Haven, assignor of one-half his right to L. Kutscher, Bridgeport, Conn. [Filed Mar. 30, 1877.]

The combination of the two cylinders *a c*, wick-tube *s* in one cylinder, and covered aperture in the other cylinder, substantially as described.

190,597.

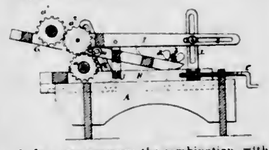


190,598. Boot-Cleaners. David H. Laurie, Montreal, Quebec, Canada. [Filed Jan. 18, 1877.]



A boot and shoe cleaning, blacking, and polishing apparatus, composed of a series of rotary brushes mounted on a single shaft, the brushes being all of like size exteriorly, but the stocks being of varying sizes, so that, by reason of the different lengths of bristles, the brushes will be of different stiffness, and better adapted to the several purposes of cleaning, blacking, and polishing.

190,599. Saw-Gummers. R. M. Leftwich and J. W. Crossley, Lithonia, Ga. [Filed Apr. 9, 1877.]



1. In a saw-gummer the combination, with the bed-frame A of the sliding frame B, carrying the shaft D with one burr, and operated by the crank-screw C, and the inclined frame G, carrying the shaft D′ with the other burr, said frame G adjustable at different angles on the frame B, substantially as and for the purposes herein set forth.

2. The combination, with the frames H and G, of the bolts *h*, thumb-nuts *d*, the pivoted slotted standards H, and the bolts *b′*, with thumb-nuts *d′*, substantially as and for the purposes herein set forth.

3. The combination, with the shafts D D′ and cog-wheels *a a′* thereon, of the intermediate cog-wheel a^2, lever I with slot *s*, rocking-shaft J with arm J′, and the slotted standard L, bolt *k*, and thumb-nut *i*, all substantially as and for the purposes herein set forth.

190,600. Cloth-Spreaders, &c. Chas. A. Luther, Providence, R. I. [Filed Feb. 26, 1877.]

Brief.—End cams, adjustable at variable angles, carry a chambered band, from which the spreading-blocks are actuated. The cams are supported by swinging center blocks, and adjusted by a screw working in a pivoted nut.

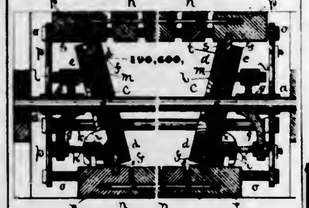
1. The combination of the adjustable cam, consisting of the jointed sides *d e*, with the chambered ring *f* arranged upon its periphery, substantially as shown and described.

2. The combination, with the cam *d e*, of the angular stationary arm *g*, bar A, and a connection, *l*, whereby the cam may be adjusted to any required angle, in the manner and for the purposes substantially as set forth.

3. The block *i*, arranged to operate in slotted projections upon the cam *d c*, as shown, in combination with the stationary arm *g* and connecting-bar *h*, for the purpose of affording an immovable fulcrum on which the cam may swing in assuming its various positions, substantially as described and shown.

4. The block *m*, arranged to operate in a grooved chamber in the cam, in combination with the arm *g*, and screw *l*, substantially in the manner and for the purposes described.

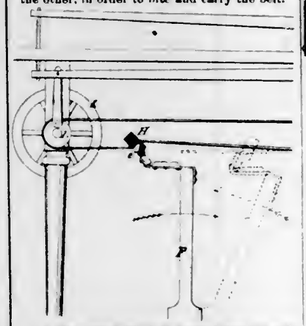
5. In combination with cam *d s*, adjustable at different angles upon the shaft *a*, the sectional sliding strips *n*, provided with lugs *s*, substantially as described and shown.



190,600.

190,601. DEVICES FOR CONVERTING MOTION. E. Long and L. E. Lyon, Iowa City, Iowa. [Filed Apr. 3, 1877.]

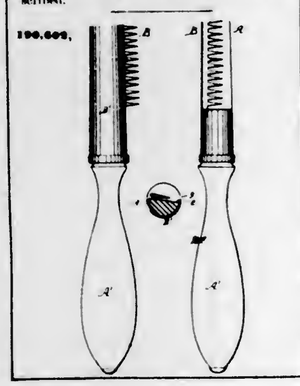
Brief.—The throat of the reciprocating snatch-block is made smaller at one side than the other, in order to bite and carry the belt.



1. The snatch-block H, having throat *e*, and connected with its driving bar or lever, through two pivots or bending-points outside the belt, so as to be reciprocated and turned, as described, in combination with the belt passing through said throat, as and for the purpose described.

2. The combination, with the belt, of the snatch-block H, provided with a simple throat or perforation, and arranged to turn in its reciprocation so as to gripe the belt when moved in one direction, and to be free from the same when moved in the opposite direction, substantially as and for the purpose described.

190,602.

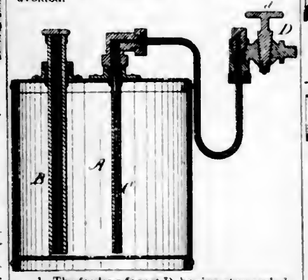


190,602. CURLING-IRONS. C. Maggi, Allegheny, assignor of a part of his right to C. A. Murray and J. Fahey, Pittsburg, Pa. [Filed Nov. 27, 1876.]

A hair-curler composed of the heater A, having a comb, B, pivoted thereto, in combination with the sheath B' having an aperture, *g*, and inward-projecting flange *e*, substantially as herein described, and for the purpose set forth.

190,603. APPARATUS FOR SUPPLYING HYDROCARBON OIL TO WATER UNDER PRESSURE. W. Major, Copenhagen, Denmark. [Filed Apr. 7, 1877.]

Brief.—When the feed-pump or injector is operated, the suction will raise the valve, thus causing the oil to flow with the water into the boiler. The flow is regulated by raising or lowering the cap. The water is purified by the oil, and incrustation and priming are avoided.

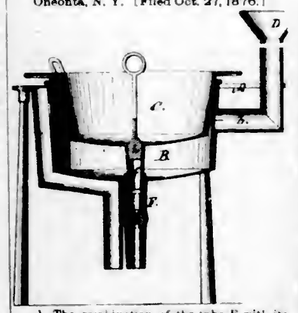


1. The feeding faucet D, having stop-cock *d*, valve *a*, having stem *c*, and screw-threaded cap or cover G, having recess *e* and coiled spring *f*, substantially as and for the purpose shown and specified.

2. The combination of the tank A, having filling-pipe B and draw-off pipe C, with the feeding-faucet D, herein described, substantially as and for the purpose set forth.

3. The apparatus herein described for supplying petroleum or other hydrocarbon oil to water while under heat and pressure for purification purposes, consisting of the storing-tank A and feeding-faucet D, both constructed and arranged to operate substantially as herein described, for the purposes shown and specified.

190,604. MILK-COOLERS. John Maloney, Oneonta, N. Y. [Filed Oct. 27, 1876.]



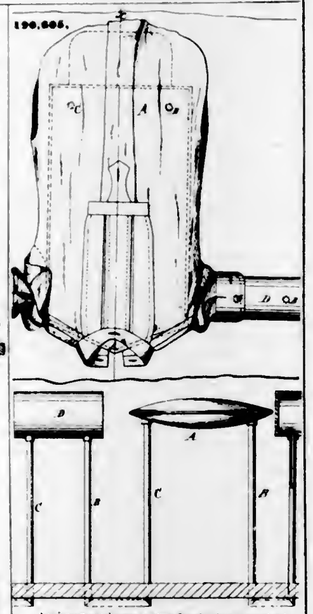
1. The combination of the tube F with its stop-cock *g* secured to the cooler B, and the tube *f* with its stopper *h*, the same fitting the pipe F, so that both the water and the milk may be discharged separately through the same tube, substantially as herein shown and described.

2. The vessel C seated in the vessel B, and adapted to revolve by means of rollers upon the frame A, as and for the purposes described.

190,605. SHIRT-DRYING APPARATUS. Jno. McCartan, New York, N. Y. [Filed Apr. 16, 1877.]

Brief.—Steam enters a cylinder, over which a cuff or sleeve is drawn and passes to the hollow metal plate, over which the body of the shirt is drawn, and out of the other cylinder.

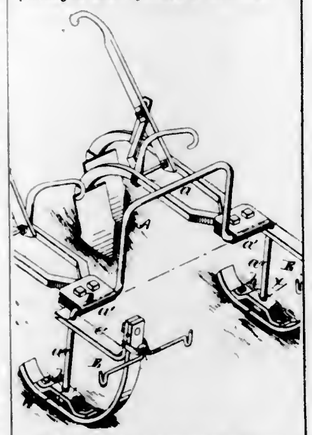
190,606.



An improved apparatus for drying starched shirts, formed of the hollow metal plate A, the hollow metal cylinders D, and the steam-pipes B C, substantially as herein shown and described.

190,606. CULTIVATORS. Thos. W. McDill, Batavia, Iowa. [Filed Apr. 7, 1877.]

Brief.—The construction of the arch, and pivoting its ends or journals in the runners.



The beam-yoke A of a tongueless cultivator, constructed substantially as described, with an elevated central portion, *a*, horizontal portions *a'* for the attachment of the plow-beams, and vertical portions *a''*, to which the runners E may be directly hinged or journaled, substantially as described, and for the purpose specified.

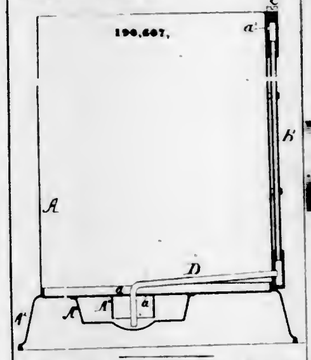
190,607. BEER-MEASURES. John McInnes, Jersey City, N. J. [Filed Dec. 30, 1876.]

1. The sub-case A^1, communicating, through one or more limited apertures, *a*, with the interior of the measure, and put in free communication, by the pipe D, with the gage-tube B, as and for the purposes herein specified.

2. The hanging lip A^1, in combination with the sub-chamber A^2, measure A, gage-tube B, and connecting-passage D, as herein specified.

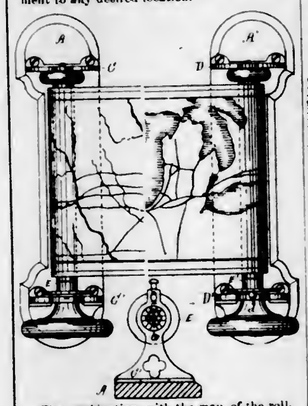
3. The screw-plug C, arranged in line with the gage-tube B, and adapted to serve therewith, as herein specified.

190,607.



190,608. MOUNTED MAPS. A. McNally, Chicago, Ill., assignor to Rand, McNally & Co., same place. [Filed Dec. 18, 1876.]

Brief.—The brackets and their cleats upon one side are not connected with those upon the other side, to accommodate their attachment to any desired location.



The combination, with the map, of the rollers E E', brackets C C' and D D', and cleats A A', substantially as and for the purpose specified.

190,609. YARN-DRYING MACHINES. M. P. Meissner and H. B. Romer, Chemnitz, Saxony, and F. R. Anka, Oelsnitz, assignors to C. H. Weisbach, Chemnitz, Saxony. [Filed Feb. 12, 1877.]

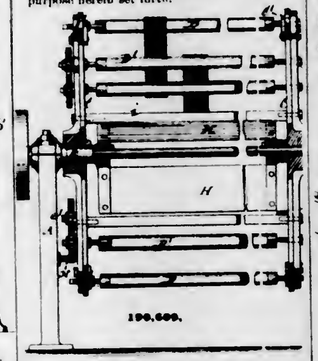
Brief.—The rotating reel is provided with an inner and outer series of bars, adjustable in relation to each other, for accommodating hanks of different lengths. One of said series of bars revolves, so as to expose the hanks throughout their length while being dried. A reversely-rotating fan or blower may be arranged within the reel to assist in drying the yarn.

1. In a machine for drying yarns in hanks, the combination, in a rotating reel, of an inner series of bars, D', and outer series of bars D, adjustable in relation with each other, and independently supported by center-pins or spindles in the heads of the reel, to facilitate the placing and removal of the hanks, substantially as specified.

2. The combination, with the radial arms C, carrying the inner series of reel-bars D', of the slotted, obliquely-arranged extensions C', and the adjustable blocks E, carrying the outer series of reel-bars D, essentially as described.

3. The combination of a rotating fan or blower, H, with the reversely-rotating reel, having inner and outer series of reel-bars, substantially as specified.

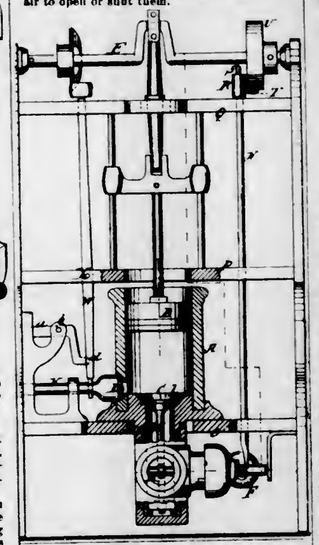
4. The combination, in a rotating drying-reel, of an inner series of reel-bars, with an outer series thereof, and means for intermittently rotating on their axes one of either series of said bars, essentially as and for the purpose herein set forth.



190,609.

190,610. AIR-PUMPS. C. F. Moll and J. H. Altheide, Quincy, Ill. [Filed July 15, 1876.]

Brief.—The valves are positively acting, producing a practically perfect vacuum in the receiver. Valves of any desired weight can be used, without regard to the ability of the air to open or shut them.



1. The part *f* of the chamber *s*, extended up into the pump-cylinder A above the rim *g*, in combination with eduction-valve D, substantially as specified.

2. The stuffing-box L, arranged on the side of the pipe J, in combination with rock-shaft K, arm I, and valve-stem H, substantially as specified.

3. The valves made of a conical portion, *l*, and cylindrical face *m*, in combination with corresponding shaped seats, substantially as specified.

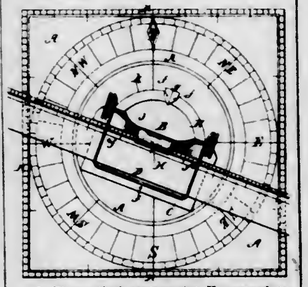
4. The piston B, formed of the washer *c*, provided with the flexible material *b'*, forming chambers around its edge, the padded washer *b² b³*, and the upper washer b^4, provided with the flexible material b^5, forming a cap, the said washers being of a diameter a little greater than that of the washer *c*, substantially as herein shown and described.

5. The valve-stem H, inclosed arm I, rock-shaft K, exterior weighted lever M, and lifting-rod N, combined and arranged substantially as specified.

6. The lifting-rod N, cross-head R, guide-rods S, roller T, and cam U, combined with weighted lever M, rock-shaft K, arm I, and valve-stem H, substantially as specified.

7. The cam Z on the driving-shaft, roller Y, lever W, weighted lever *a*, and valve-stem V, combined and arranged substantially as specified.

190,611. PROTRACTORS. Robt. T. Osgood, Orland, Me. [Filed Sept. 5, 1876.]



1. The vertical center-point H, secured to the gage B, and extending down through the semicircular central opening of the rotating disk E, substantially as described.

2. The horizontal gage-plate C, with spring D, in combination with the rotary disk E and base A, substantially as described.

190,612. FRUIT-JARS. Thos. G. Otterson, Philadelphia, Pa. [Filed Apr. 12, 1877.]



1. The combination, with a fruit-jar cap or cover which is screw-threaded, and provided with a lower flange for engagement with an elastic gasket on the shoulder of the jar, of a yielding disk or lining, secured within the upper portion of the cap or cover, substantially as and for the purpose set forth.

2. The combination, with a fruit-jar cap or cover, of a glass or porcelain disk or lining, secured to the cap in a yielding manner, substantially as and for the purpose set forth.

3. The combination, with a fruit-jar cap or cover, of a disk or lining, made of glass or equivalent material, and a spring interposed between the cap and disk or lining, substantially as and for the purpose set forth.

4. The combination, with a fruit-jar cap or cover, of a disk or lining of glass or equivalent material, and a spring interposed between the disk and cap, said cap being provided with a continuous rib, or two or more depressions, for holding the lining in place, substantially as and for the purpose set forth.

190,613. CIGARETTE-MACHINES. C. Palatini, New York, N. Y. [Filed Mar. 23, 1877.]

Brief.—The plunger that releases the gate when the tobacco is packed operates with a guide that depresses the apron, to receive the charge to be rolled into a cigarette.

1. A cigarette-machine provided with a reservoir, A, an outlet-tube, A', permanently closed at the end, packing-plunger *p*, sliding to and from said end, knife *r*, and gate *v* at the bottom of the tube, near the closed end, substantially as set forth.

2. The combination, with the apron *m*, rolls *j l*, bars *k k' a'*, of the plungers *u t*, the tube A', closed at the end, and its gate *v*, all as set forth.

3. The combination of the apron *m*, its rollers and bars, feed-rolls E E, knife G, paste-reservoir I, and reciprocating paste-carrier I', as specified, all arranged and operating as and for the purpose described.

4. The arrangement, in respect to the feed-rolls E E, apron *m*, the plungers *t u*, and

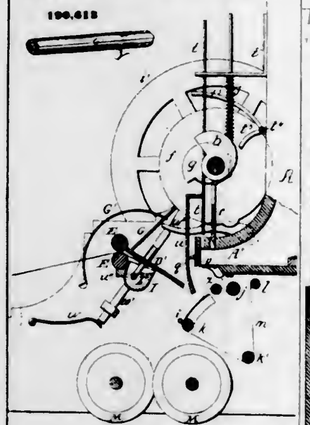
knives r G, of a single shaft, 3, carrying cams operating directly on said plungers and knives, as set forth.

5. The combination of the shaft i, provided with disks, apron m, the rollers and bars, and paper feeding, cutting, and fastening devices, operating as specified.

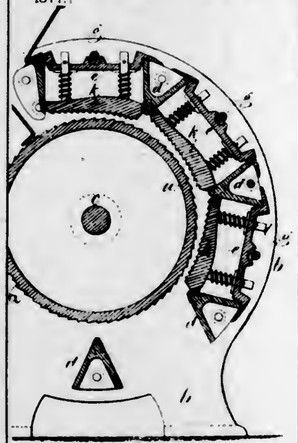
6. The combination of the rollers *j l*, apron m, stationary bar *x*, reciprocating bar *k*, the segments *h*, adapted to pinions on one of the rollers, and the coiled spring n, attached to the journal of the other rollers, all constructed, arranged, and operating as set forth.

7. As a new article of manufacture, a cigarette consisting of a filling of fine cut tobacco and a wrapper made from an oblong section of tobacco, cut from the leaf between the veins, rolled round the filling, and gummed at the edge, forming a longitudinal seam, *o'*, as described.

190,613.



190,614. COFFEE-HULLERS. J. H. Pendleton, Brooklyn, assignor to himself and A. H. Tiers, New York, N. Y. [Filed Apr. 3, 1877.]

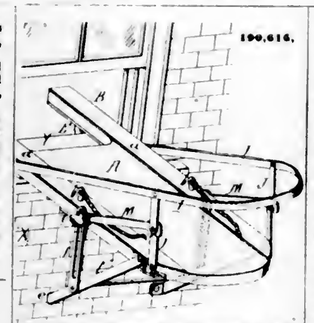


1. The combination, with the cylinder a and plates *b*, of the V-shaped cross-pieces *d*, blocks *e*, and elastic rubbers *i*, substantially as set forth.

2. In a coffee-hulling machine, the combination with the cylinder *a*, side plates *b*, and V-shaped cross-pieces *d*, of the blocks *e* and yielding rubbers, held in place by the cross-rods *g*, substantially as set forth.

190,615. WINDOW-JACKS. D. M. Pfautz, Philadelphia, Pa., assignor of one-half his right to Leopold Sternberger, same place. [Filed Apr. 16, 1877.]

190,616.



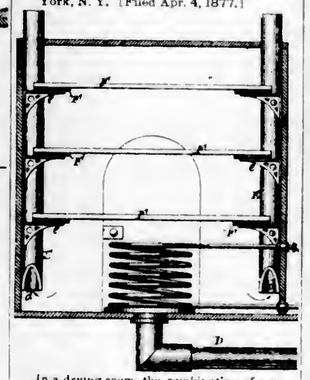
1. The combination of the platform A and its strips F, with the separate sliding plates D D' and their jaws E E', as set forth.

2. The combination of the platform A, with a back, I, formed of a single bent strip of metal, pivoted at its opposite ends to the platform, as set forth.

3. The combination of the pivoted strip I, the jointed strips J, and the hooked bar M, as described.

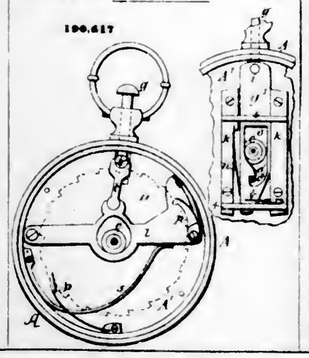
4. The combination of the pivoted strips F, the pivoted and slotted bar *f*, and the thumb-screw i, as specified.

190,616. DRIERS. Wm. Pickhardt, New York, N. Y. [Filed Apr. 4, 1877.]



In a drying-room, the combination of a series of horizontal trays, F, an air-supply pipe, D, leading into the room through the door, a steam-coil arranged vertically directly over the mouth of the air-supply pipe for heating the fresh air as it is introduced, and one or more air-discharge pipes, E, having their lower ends formed obliquely and from near the floor, extending out through the drying-room into the external atmosphere, as and for the purpose herein set forth.

190,617.



190,617. FARE-REGISTERS. A. E. Post, Syracuse, N. Y., assignor of one-third his right to A. E. Spencer, same place. [Filed Feb. 10, 1877.]

1. The combination and arrangement of the casing A, having the central diaphragm A', forming two separate and distinct compartments, respectively, for the registering mechanism and alarm mechanism, and the said mechanisms connected with each other and with the actuating plunger *g* by the screw or pin *i*, substantially as described and shown, for the purpose set forth.

2. In a circular case, A, having diaphragm A', the combination of the wheel *a*, supported by stud *c* on A', the lever *l*, extending across the case, and pivoted at one end to the case, and provided at its free end with spring-pawl *p*, the toggle *t*, pivoted to the lever *l* and to the plunger *g*, and the spring *s*, the lever and spring being located between wheel *a* and diaphragm A', substantially as described and shown, for the purpose set forth.

3. The combination and arrangement of the ratchet wheels *a a' a²*, rotated in succession at the ratio of twenty revolutions of one wheel to one revolution of its contiguous wheel, and each provided with a hand or pointer, *h*, and the dial *d*, having three series of numbers, indicating either the number of fares collected or the amount of money received for same, all constructed, combined, and arranged with the case A, substantially in the manner described and shown, for the purpose specified.

4. The combination and arrangement, with the ratchet wheels *a a' a²*, of the pawls *p' p²*, pivoted, respectively, to the wheels *a a'*, and provided at their forward or free end with the pin *i*, and held disengaged by the spring bars *b' b²*, attached at one end to the rear of the pawls, and at the other end movably in the studs *c c* on the said wheels *a a'*, and the bar *f*, extended centrally across the top of the ratchet-wheels, and secured at its ends to the case, and provided on its under side with the cam-shoulders 2 and 3, all constructed substantially in the manner specified and shown, for the purpose set forth.

5. The combination of the registering-wheels *a' a²*, each having a series of twenty recesses, *r*, in its top surface, and the semicircular springs *s' s²*, attached at their center to the under side of the bar *f*, and having spurs on their free ends, engaging with the recesses *r*, substantially in the manner and for the purpose described.

6. The combination and arrangement of the plunger *g*, pin or screw *i*, toggle *t*, lever *l*, extended across the case, pivoted at one end to the same, and at the center to the toggle *t*, and carrying on its free end the spring pawl *p*; spring *s*, attached at one end near the pivoted end of the lever *l* to the case, extended and bearing upon the free end of said lever; spring *b*; registering wheels *a a' a²*, each having twenty ratchet-teeth, *n*, and each of the last two having a series of twenty recesses, *r*; the pivoted pawls *p' p²*, provided, respectively, with springs *b' b²*, movably attached to posts *c*, and with pins 1 at their free ends; the bar *f*, having attached to its under side the cams 2 and 3 and springs *s'* and *s²*; the dial *d*, having three series of numbers, indicating either the number of fares collected or amount of money received for same, respectively; and the hands or pointers *h h' h²*, all constructed, combined, and arranged to operate substantially in the manner specified, for the purpose set forth.

7. The alarm-actuating mechanism, consisting of the push-bar *g'*, having cam-hook *o'* formed in aperture *o*, and its free end beveled on the side opposite the cam-hook, and sliding between guides *k k*; the spring *w*, pressing upon the edge of the push-bar at the rear of the cam-hook *o'*; a wedging block or pin in front of the beveled end of the push-bar, for throwing the cam-hook off its connection with the bell-hammer; and the spring *v*, pressing against the pin Z on the under side of the bell-dart or hammer, all constructed and operating substantially as described, for the purpose set forth.

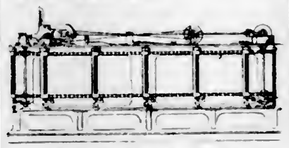
8. The combination of the plunger *g*, pin or screw *i*, push-bar *g'*, having cam *o'* in aperture *o*, and its free end beveled on the side opposite the cam, guides *k k*, having bridges 4 4, with guide-slots for the bell-dart, spring *w*, a wedging block in front of the beveled end of the push-bar, spring *v'*, and the bell-dart *r'*, having spring *r* on tongue 5, and provided with pin *o²* and check pin Z, all constructed and combined to operate substantially as described, for the purpose set forth.

9. The combination and arrangement of the central stud *c*, having an axial orifice, with a screw in one end attaching the bell thereat.

and communicating with the bearings of the registering-wheels at the opposite end, substantially as and for the purpose described.

190,618. PAPER-BAG MACHINES. James P. Raymond, Cincinnati, Ohio. [Filed Dec. 16, 1875.]

Brief.—The bag tube, with its end spread into the "diamond fold," is placed in the slot in the table, and held by the clamp S until the gripers on the chain are brought into position to seize the tube. It is then carried under the presser-plate to the pasting devices, thence to the side folders, and, finally, to the guides and rolls which make the "packing fold," and delivered.



1. In a machine for making paper bags, the combination, substantially as specified, of the griper-belt for feeding the blank, and the table, or its equivalent, for supporting the blank while operated upon.

2. The combination, in a machine for making satchel-bottom bags, of the griper-belt or chain, and the pasting devices, operating substantially as and for the purpose specified.

3. The combination, in a machine for making satchel-bottom bags, of the griper-chain or griper-belt for carrying the blank tube, and the folding mechanism for folding the side laps for the bottom of the bag, substantially as and for the purpose specified.

4. The combination, in a machine for making satchel-bottom bags, of the griper-chain or griper-belt for grasping and feeding the blank, and the pressure roller for pressing the bottom flaps of the bag after they have been fastened and folded.

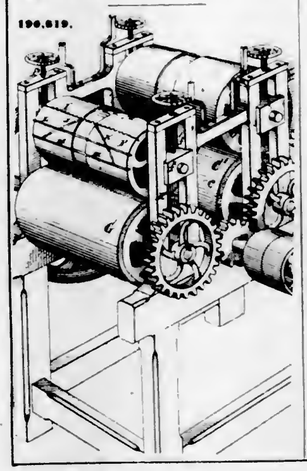
5. The combination, in a machine for making satchel-bottom bags, of the griper-chain or griper-belt for carrying the blank through the machine, and the folders, by which the bottom flaps, after pasting, folding, and pressing, are folded together for passage through the discharge-rollers.

6. The combination, substantially as specified, of the slotted table and the reciprocating plate, for confining and holding the blank until griped by a nipper on the endless feed-belt.

7. The combination, substantially as specified, of the paster, the table, and the yielding pressure-rollers, located in transverse slots in the table.

8. The combination, substantially as specified, of the drums for discharging the completed bag, the nipper, and the cam for opening the nipper.

190,619.

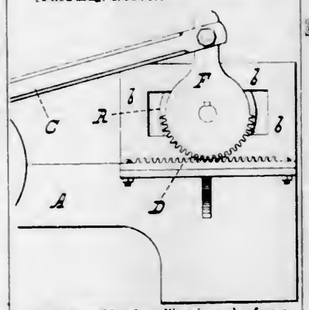


190,619. PAPER-BAG MACHINES. James P. Raymond, Cincinnati, Ohio. [Filed May 11, 1875.]

1. In combination with the rubber-faced roller G, the roller F, having a knife, I, whose cutting-edge is in a single plane, and made zigzag by the formation of V-shaped notches in the sides of the knife.

2. In combination with the roller F and rubber-faced roller G, the creasing-knives J K L M, operating substantially as and for the purpose specified.

190,620. MACHINES FOR ROLLING ARTICLES OF METAL. Abram Reese, Pittsburg, Pa. [Filed Aug. 4, 1876.]

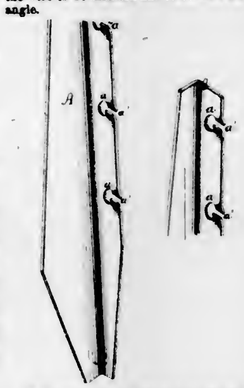


1. In a machine for rolling irregular forms in metal, the combination of the adjustable die-bed *g*, wedge *w*, reciprocating roll R, toothed segments F provided with crank-arms for the application of power, stationary racks D, and pitman or link connections C for communicating power to operate the roll, substantially as described.

2. A machine for rolling irregular forms in metal, embracing the following instrumentalities, to wit: the main frame A, adjustable bed *g*, wedge *w*, duplicate housings *b b*, reciprocating roll R supported in said housings at both ends of its shaft, toothed segments F, provided with crank-arms for the application of power, and means, substantially as described, for communicating power on both sides of the machine to the roll, as and for the purpose set forth.

190,621. POSTS FOR WIRE FENCES. Silas Reynolds, Sugar Grove, Ill. [Filed Oct. 27, 1876.]

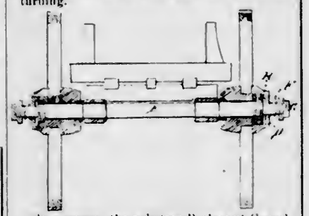
Brief.—The upper and lower edges of the metal that form the walls of the horizontal slot are turned in opposite directions, so that the wire to be inserted has to be turned to an angle.



As an improved article of manufacture, the fence-post A, constructed of or from metal plate, and provided within one of its edges with horizontal openings *a*, for the reception of wires and laterally inclined connecting slots *a'*, that are formed by the lateral inclination in opposite directions of the metal immediately above and below said slots, substantially as and for the purpose specified.

190,622. WAGONS. J. W. Rittenberry, Cloverdale, Tenn., assignor of a part of his right to W. A. Bell and A. B. Colwell, same place. [Filed Jan. 26, 1877.]

Brief.—Wheels and axles are connected by clutches, so that both revolve in the forward movement of the vehicle. The clutch is arranged so that any of the wheels may revolve more slowly, or turn back upon the axle when turning.



In a wagon, the axle-tree B, the nut G, and the spring F, in combination with the fixed clutch E, gearing with the clutch D, the clutch D being provided with a chamber on its inner end for the reception of the nut H, and with a square hole in its center, to fit the squared part of the axle-tree between the nut H and the nut G, substantially as described, and for the purposes set forth.

190,622. CAPSTANS. Chas. Rogers, Allegheny, Pa. [Filed Mar. 24, 1877.]



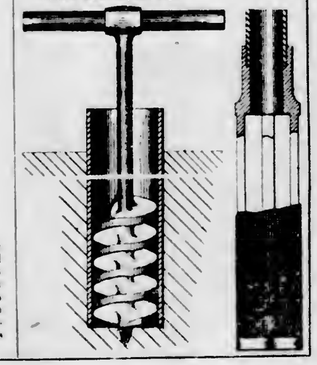
1. In a capstan, the combination of an upright drum and a single horizontal shaft passing through the base, and provided on each side of the capstan-center with devices, substantially as described, whereby every motion of the shaft effects the rotation of the drum in the same continuous direction.

2. The combination of base B and horizontal shaft D, provided with means, substantially as described, for converting the motion from reciprocating to rotary, with the drum A, having its bottom formed with an annular ratchet, all constructed and operating substantially as described.

3. The combination, specifically, of the horizontal shaft D, cranks *c*, pawls *i*, and drum A, substantially as set forth.

4. The combination, substantially as described, of the cranks *c*, inclined pins *e*, and curved pawls *i*, having the described bearings, whereby the pawls, throughout their path, will lie at right angles to a diameter and follow a circular path.

190,624. BORED WELLS. Robt. A. Ryrie, Camden, N. J., assignor of one-half his right to John W. Donges, same place. [Filed Feb. 15, 1877.]



1. The method of constructing wells by boring the earth from the inside of a larger sized tube, sinking the tube upon the excavation thus made, inserting a smaller permanent pipe, furnished with a strainer, within the tube, and then removing the outer tube, substantially as herein described.

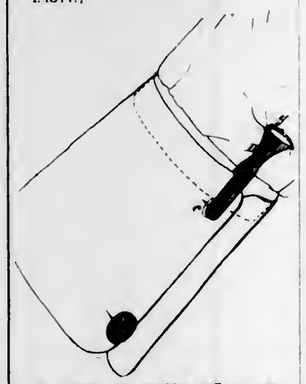
2. In combination with the permanent pipe of a bored well, the strainer consisting of the cage of rods covered with gauze, constructed substantially as and for the purpose described.

190,625. BURIAL-CASKETS. Henry Sander, Baltimore, Md. [Filed Mar. 26, 1877.]



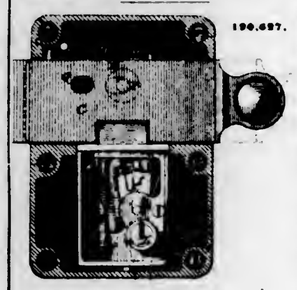
In the construction of burial-caskets, a joint at the angle of the same, one member or part to be joined being grooved, and the other having a tongue placed one-sided, as shown, to receive a fastening-screw from the inside of the casket, the said tongue and groove forming a flush connection at the inside and outside of the casket, and being united by screws sunk in cavities cut in the inside of the tongued member of the joint, as shown and described.

190,626. CLASPS FOR WRISTBANDS. A. V. Sanford, Binghamton, N. Y., assignor to Clara S. Sanford, same place. [Filed Mar. 1, 1877.]



In a device for attaching cuffs to wristbands, the combination of the plate A, having the stud *c*, with the plate D, having a rim, *g*, said plates A and D being pivoted together, substantially as described, and all constructed and arranged to operate as herein shown and described.

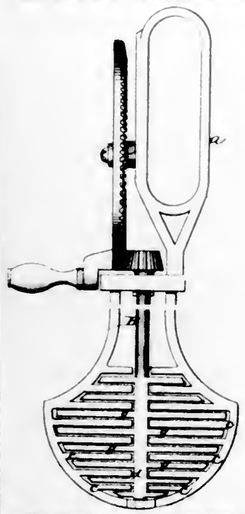
190,627.



190,627. LOCKS FOR CELL-DOORS. James Sargent, Rochester, N. Y. [Filed Feb. 5, 1877.]

The combination, with the main spring-bolt of a lock for cell and other doors, adapted to be held in a retracted position by means of a dog, pawl, or catch, and be released by the action of the door in riding past the end of said bolt, of a tumbler-lock having a spring-bolt which, when locked, connects with and holds the main bolt in a locked condition, and when unlocked admits of the main bolt being retracted, substantially as and for the purposes set forth.

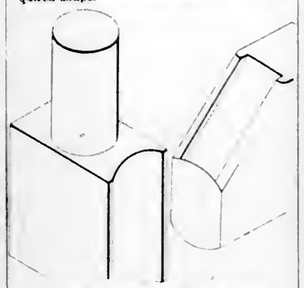
190,628. EGG-BEATERS. Jas. H. Scofield, New York, N. Y. [Filed Apr. 25, 1877.]



The frame constructed in one piece, with a handle, *e*, for supporting the crown-wheel and the vertical shaft, and with a series of parallel horizontal arms, substantially as herein set forth.

190,629. DEVICES FOR SHAPING CLIP-YOKES. M. Seward, New Haven, Conn. [Filed Apr. 12, 1877.]

Brief.—The blank, of the required size and length, is supported in the recess in the bed-die, against a rest whose outer surface corresponds to the shape to be given to the yoke, and the cutting-die forced down upon it, clipping off the angles and imparting the required shape.



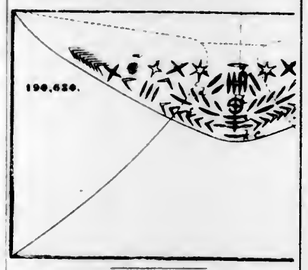
The device for shaping carriage-clip yokes, constructed substantially as shown and described.

190,630. ENVELOPES. J. A. S. Simonson, Brooklyn, N. Y. [Filed Apr. 3, 1877.]

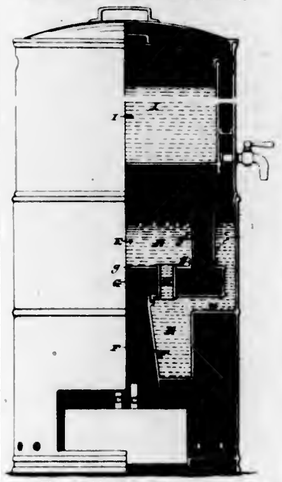
1. An envelope having its upper or outer flap constructed with perforated embossments, substantially as and for the purpose herein described.

2. The upper or outer flap of an envelope, constructed with embossments which are cut, as described, whereby certain edges of the cut portions present salient angles, substantially as and for the purpose set forth.

190,630.



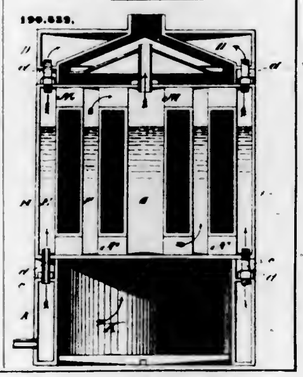
190,631. LIQUID-HEATERS. N. M. Simonds, St. Louis, Mo. [Filed Jan. 19, 1877.]



1. The combination of burner C, chimney F, drum G, surrounded by liquid, and chimney or chimneys *g'*, discharging into chamber E above the liquid or water line in said chamber.

2. The combination of burner C, chimneys F and *g'*, drum G in chamber E, and containing tube or tubes H, and the vessel I, sustained in chamber E, and surrounded upon every side by the vapor, &c., in the upper portion of said chamber.

190,632.

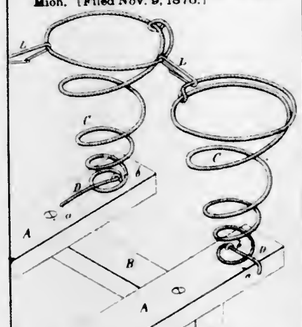


190,622. STEAM-GENERATORS. Charles S. Smith, Westfield, Mass., assignor to Henry J. Bush and Geo. L. Laffin, same place. [Filed Mar. 19, 1877.]

1. The combination of sections K H, having the concentric reservoirs E, F, G, and D, and heads M N, connected together, for the purpose specified.

2. The section H, cast in one piece, with the concentric reservoirs and connecting-heads M N, in combination with sections K D, when all arranged substantially as shown, and connected by lock-nipple nuts *d d*, recessed in pockets *c c* from the outer wall of the generator, substantially as described.

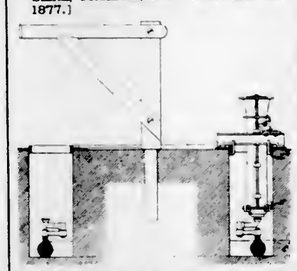
190,623. SPRING BED-BOTTOMS. Chas. E. Smith and Edwin J. Beverstock, Allegan, Mich. [Filed Nov. 9, 1876.]



1. The spring C, formed with an arm, D, having hook *a* at its lower end, which arm crosses the lower coil of the spring, and acts as a lever to bind down the spring to the slats, for the purposes herein set forth.

2. The combination of the arm D, having hooks *a* crossing the lower coils of the springs C, the slats A, cross-bars B, links L, and staples *b*, substantially as and for the purposes herein set forth.

190,624. PIPE-MOLDING MACHINES. H. R. Smith, Columbus, Ohio. [Filed Mar. 30, 1877.]



1. The hereinbefore-described improvement in the art of molding and casting pipe, &c., which consists in drying the mold by heat generated within it by burning gas-jets, the flames of which act directly upon the inside of the mold.

2. A molding and casting pit provided with a supply-pipe, and a series of perforated heating-pipes detachably and adjustably connected therewith, substantially as set forth.

3. The combination, substantially as hereinbefore set forth, with a pit or flask support, of a supply-pipe, a flask suspended above the supply-pipe, and a perforated heating-pipe extending from the supply-pipe up into and lengthwise of the flask to dry the mold.

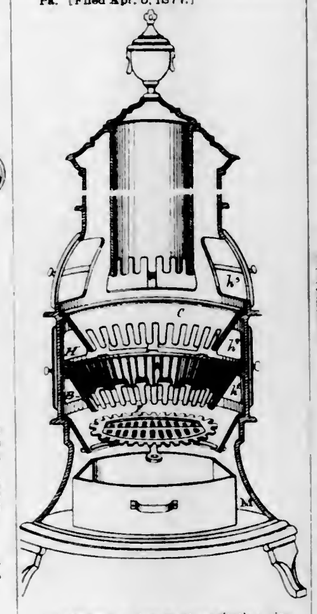
4. The combination, substantially as hereinbefore set forth, of a series of flasks suspended in a pit, a supply-pipe at or near the bottom of the pit, and a series of adjustable perforated heating-pipes, provided with regulating valves, and passing into the flasks.

5. The combination, substantially as hereinbefore set forth, of the pit, the series of sectional hinged flasks, each detachably and adjustably suspended in the pit by one section, while leaving the remaining section free to be swung upon its hinged connection with said fixed section, the supply-pipe, and a series of adjustable heating-pipes.

6. The combination of the flask and its supporting-bracket, by which to suspend it in position, as set forth.

7. The combination, substantially as hereinbefore set forth, with the pit, of the flasks, their suspending-frames, and clamps by which to adjustably and removably secure the frames in position upon the pit-plates.

190,625. STOVES. J. Spear, Philadelphia, Pa. [Filed Apr. 5, 1877.]

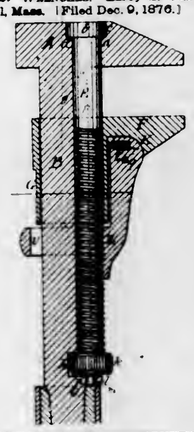


1. In a stove or heater, the agitating-ring A, in combination with a fire-pot projecting below the bottom of the ring.

2. The upper and lower fire-pots C and B and agitating-ring A, placed within the fire-pot B, for the purpose herein described.

3. The agitating-ring A within the fire-pot B, in combination with the free space H between the upper and lower fire-pots.

190,626. WRENCHES. Leroy S. Starrett, Athol, Mass. [Filed Dec. 9, 1876.]

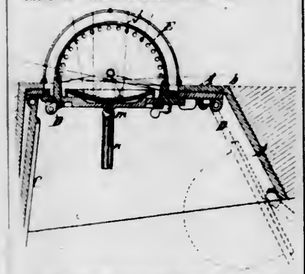


1. In a stove or heater, the combination, with a jaw-bar having a concave inner face in line with a shouldered aperture in the head of the same, and a bearing-lip at the handle end of said bar, of the working-screw, having a journal-head seated in said aperture flush with the surface of the wrench-head, a shank partly embedded in the concave inner face of the bar, a bearing in said lip, and a rose next the same, substantially as specified.

2. The combination, with a jaw-bar, recessed in its face, and a rigid perforated head, A, of a headed operating-screw, E, passing through the jaw-head A, and partly embedded in the face recess, a movable jaw, and pivoted thereto a swinging spring-brace, having a half-nut, *z*, engaging with the projecting portion of said screw, and a loop, *r*, surrounding the jaw-bar, substantially as specified.

190,627. ILLUMINATING APPARATUS FOR OVENS. H. A. Stadler, New York, N. Y. [Filed Apr. 17, 1877.]

Brief.—The gas-cock is arranged to automatically diminish the supply of gas when the illuminating-door is opened. A separate door, oppositely hinged, closes the entrance to the oven when it is filled with smoke.

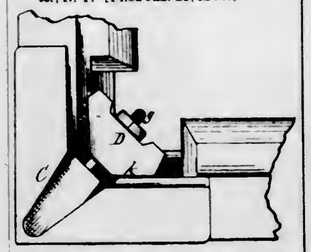


1. The combination, with the oven door D, of the lantern E, closed toward the interior of the oven, but provided with draft holes or passages for the entrance of external atmospheric air and the exit of the gases of combustion, substantially as and for the purpose specified.

2. The combination, with the door D and the door C, opening in opposite directions, of the latch-bar *p*, arranged to act against the front edge of one door or the rear edge of the other door, to hold either of said doors closed, substantially as and for the purpose specified.

3. The combination, with the lantern carrying door D and the door casing A, of the swing-joint gas-cock *m*, substantially as and for the purpose set forth.

190,628. SHOW-CASES. S. Stein, Rochester, N. Y. [Filed Jan. 29, 1877.]



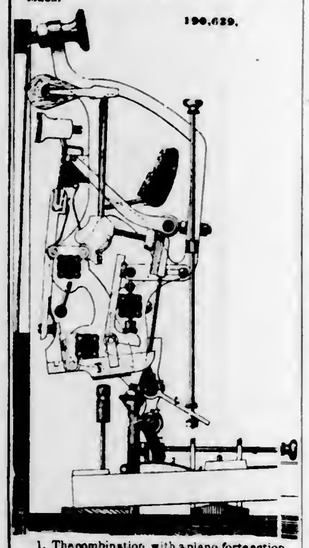
1. In a show-case, the combination, with the corner-piece C, provided with the screw-stem *g*, of the washer D, resting on said screw-stem and fitting said moldings, and pressed up to clamp the moldings by a nut, or equivalent, in the manner and for the purpose specified.

2. In a show-case, the washer D, constructed with angular sides *k k*, to fit the moldings, and the arm *p*, to fit the post, the angular sides and arm having the sharp-pointed lugs *l l*, to enter the wood, in the manner and for the purpose specified.

190,629. PIANO-FORTE ATTACHMENTS. A. Steinway, New York, N. Y. [Filed Apr. 25, 1877.]

Brief.—The attachment makes a dumb keyboard, as far as musical sound goes, of the ordinary piano, at the will of the player, and the key-board is also made adjustable as to touch.

190,639.



1. The combination, with a piano-forte action and with its keys, of an attachment for throwing the action out of gear with the keys, constructed and arranged to operate substantially as herein shown and described.

2. The combination, with a piano-forte action and with its keys, having an attachment for throwing the action out of gear with the keys, of an attachment for regulating the weight or resistance of the keys, substantially as and for the purpose specified.

190,640. PROCESSES OF DESICCATING EGGS. William O. Stoddard, New York, N. Y. [Filed Mar. 4, 1876.]



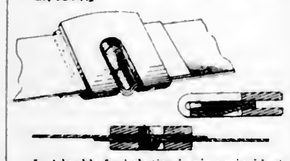
1. In the process of desiccating egg substance by means of forcible blasts or currents of air, the method of preventing deleterious chemical change in the material, consisting in the artificial production and preservation of a temperature in the desiccating apparatus below that which would set free the oil of egg not held in suspension or emulsion, substantially as described.

2. In the process of desiccating egg substance by means of forcible blasts or currents of air, the method of preventing deleterious chemical change in the material, consisting in the retention, during desiccation, of the oil of egg not held in suspension or emulsion, substantially as described.

3. In the process of desiccating egg substances in which the same is subjected to the influence of forcible currents or blasts of air without liberation of the oil of egg act held in suspension or emulsion, the method of eliminating the oil held in suspension or emulsion prior to desiccation, or set free during such process, consisting in the active agitation of the material during the aeration or ventilation, substantially as described.

4. In the process of desiccating egg substance, the method of eliminating the oil held in suspension or emulsion, or set free during the drying operation, consisting in subjecting the granular or mealy product of said drying operation to active agitation during its aeration or ventilation, substantially as described.

190,641. BALE-TIES. H. C. Stouffer, Canfield, assignor of a part of his right to O. H. Andrews, L. T. Foster, and U. A. Andrews, Youngstown, Ohio. [Filed Apr. 21, 1877.]



1. A buckle for bale ties, having coincident openings in its lapped sides, for use as described.

2. A buckle for bale-ties, having coincident openings in its lapped sides, in combination with the bulge made in the lapped ends of the hoop, in the manner set forth.

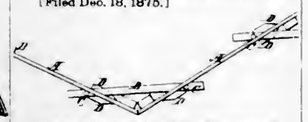
3. An open-side enveloping buckle, having coincident openings, the end or ends of one of which forms a sidewise lock with the bulge, whereby said buckle is prevented from working or being drawn off sidewise.

190,642. CRIMPING-TOOLS FOR FASTENING BALE-TIES. H. C. Stouffer, Canfield, assignor of a part of his right to C. H. Andrews, L. T. Foster, and U. A. Andrews, Youngstown, Ohio. [Filed Apr. 25, 1877.]



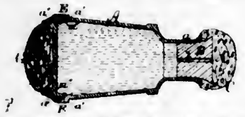
A crimping-tool for fastening bale-ties, consisting of the hooked bearing-jaw for the buckle, and the cam-shaped narrow crimping-jaw for the hoop, operated by the lever-handles, as herein set forth.

190,643. FENCES. Samuel W. Sumpter and Hiley Brown, Bowling Green, Ky. [Filed Dec. 18, 1875.]



The combination of the panel-sections A, having stop-blocks D, with the locking-bars B and vertical rods C, as and for the purpose set forth.

190,644. SLATE-CLEANERS. E. M. Swift, Windham, Conn. [Filed Mar 3, 1877.]

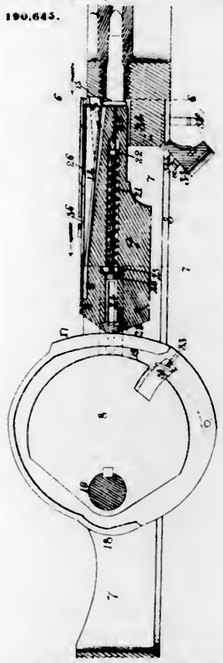


As a new article of manufacture, the hereinbefore-described slate cleaner and eraser, consisting of the reservoir A, provided with the neck *a*, the stopper B, having a central opening, *b*, the sponge C, secured upon the outer end of said stopper, the cap E, fitted upon the threaded and conical portions *a'* and *a''*, respectively, of said reservoir, and the pad F and flexible covering G, placed over the end of the latter, and secured in place by said cap, substantially as and for the purpose specified.

190,645. MACHINE-GUNS. Jas. P. Taylor, Elizabethton, Tenn. [Filed Sept. 10, 1875.]

Brief.—A series of eccentrics, corresponding with the number of barrels, are mounted on a transverse shaft, by the rotation of which the reciprocating plungers or breech-closers are operated. A slide, with an opening for the cartridge to drop through, is arranged above the receiver of each barrel, and is connected with the plunger, so that by the operation of the latter the receiver is alternately opened and closed, to allow the cartridges to be fed in at proper intervals. Said eccentrics also retract spring firing-pins within the plungers, and are so arranged as to release them when the breech is fully closed. A flanged guide is arranged above the feed-opening of each barrel, by which the cartridges are held by their flanges in a horizontal position, and are allowed to feed down to the openings by their own gravity.

190,645.



1. The combination of the breech-block 2, the series of barrels 1, arranged in a horizontal plate, the sliding locks or plungers 9, and the cams or eccentrics 8, carried by a shaft, 10, transverse to the barrels, and actuating the locks or plungers in succession, substantially as set forth.

2. The cam 8, constructed with concentric front and rear portions, to cause a dwell of the plunger at each extremity of its stroke, for the purposes set forth.

3. The cocking cam carried by the eccentric cam 8, and adjustable to regulate the stroke of the firing-pin, as described.

4. The breech-frame constructed with removable longitudinal bars 7, as and for the purposes set forth.

5. The bars 7, formed with recesses 11 and grooves 12, in combination with the switch-bars 13, plungers 9, and extractors 14, substantially as and for the purposes set forth.

6. The combination of the plunger 9, with the lug 30, the firing pin 20, with the lug 25, and the operating cam 8, revolved on an axis transverse to the stroke of the plunger, and carrying eccentric flanges 19 and 31, for operating the said plunger and firing-pin, in the manner explained.

7. The combination, with the sliding lock 9, of the extractor 14, provided with lugs 15, and the switch-bars 13, to elevate and release the said extractor, as described.

8. The top-plate 26 of the plunger, constituting a guiding flange, and formed with a slot, 36, to receive the retracting latch or arm of the hopper-valve, as described.

9. A feed-plate constructed with flanged grooves or guides, adapted to receive and draw the cartridges from the cases in which they are packed, and convey them to a feed opening or openings of suitable character, substantially as set forth.

10. A hopper or feeder constructed with flanges or grooves for the reception of the cartridges, and divergent throats to conduct them to the breech-chambers, substantially as set forth.

11. The hopper-floor 47, constructed with T-shaped apertures to support the cartridges and drop them when drawn back.

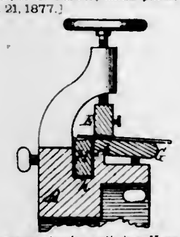
12. The combination, with the hopper-floor 47, perforated as stated, of the valves 38, deriving longitudinal motion from the plungers 9, and operating to transfer the cartridges from the hopper to the troughs in rear of the barrels, as explained.

190,646. BRIDLE-BITS. Arvin C. Tickner, Syracuse, N. Y. [Filed Apr. 7, 1877.]



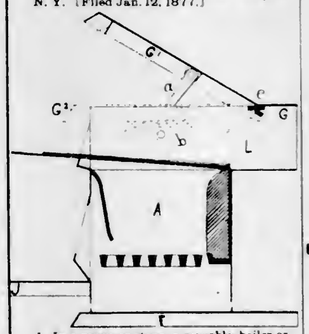
The combination, with the hollow perforated bit A, of the bars C and D, the latter having spurs registering with the perforations, and the loops B, all substantially as shown, for the purpose set forth.

190,647. SAW-SETS. C. H. Turver, Rochester, N. Y., assignor, by mesne assignments, to S. Turver, same place. [Filed Mar. 21, 1877.]



In a saw-set, having a die-bar, H, and clamp-bar E, the tilting table G, provided with a groove, *d*, near its inner edge, resting upon a rounded bearing, *b*, all in combination, as shown and described, and for the purpose specified.

190,648. COOKING-STOVES. J. S. Van Buren, West Troy, and R. Z. Liddle, Albany, N. Y. [Filed Jan. 12, 1877.]



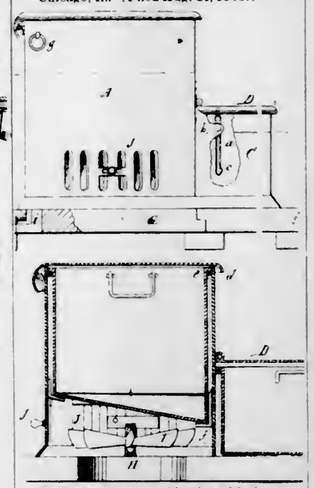
1. In a range or stove, a movable boiler or top plate, G^1, which may be adjusted to form the top casing of the fire-box A, or elevated to increase vertically the opening above said fire-box, combined with a stationary top plate, G, which forms the top casing of the gas and smoke flue L, leading from the said fire-box, substantially in the manner and for the purpose herein described.

2. The combination of the adjustable boiler or top plate G^1, enlarged vertical opening *e*, fire-box A, and flue L, as and for the purpose herein described.

3. The combination of the adjustable boiler or top plate G^1, closing-plate *e'*, enlarged vertical opening *e*, fire-box A, and flue L, as and for the purpose herein described.

4. The combination, in a range or stove, of an adjustable boiler or top plate, G^1, hinged or otherwise attached, as at *e*, to a stationary flue top plate, G, with the pawl *a* and ratchet *b*, substantially as and for the purpose set forth.

190,649. GARBAGE-SINKS. T. X. Walsh, Chicago, Ill. [Filed Aug. 31, 1876.]



1. The case A in combination with the tray F and ventilator J, substantially as specified.

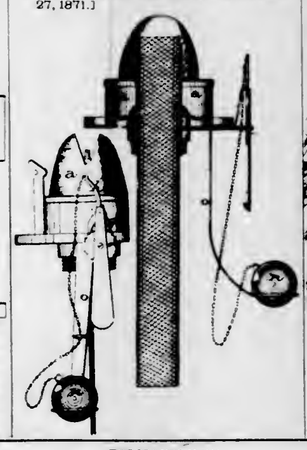
2. The case A, ventilator J, and fan-wheel I with the man-hole or opening H, substantially as described.

3. The cases A C, arranged at different heights, so as to form steps, substantially as set forth.

4. The hinged loop or slotted bar *a*, having the enlargement *c*, in combination with the fixed pin *b* and hinged cover or lid D, substantially as specified.

5. The hook *i* in combination with the pivoted hook *j*, handle *k*, and case A C, substantially as described.

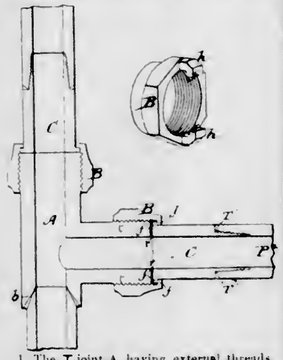
190,650. LAMP-EXTINGUISHERS. M. Waterbury, Mason City, Iowa. [Filed Jan. 27, 1871.]



1. The combination of the shaft for operating the wick, ratchet, dog, lever, and a weight connected thereto, substantially as set forth.

2. The combination of the shaft, ratchet, dog, lever, stop-pin, and a ball and chain, substantially as described.

190,651. COUPLINGS FOR LEAD PIPES. G. H. Webster, Boston, Mass. [Filed Feb. 28, 1877.]



1. The T-joint A, having external threads *t t*, combined with the flanged nuts B and the flanged coupling-sections C, the latter being adapted to be permanently connected to the lead pipe, as set forth.

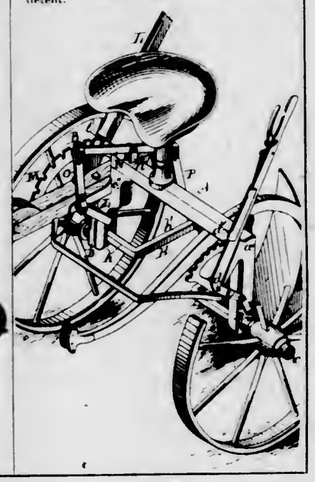
2. The coupling-sections C, having the shoulders S and tapering threaded portions E, combined with the lead pipes P^1 P^1, having the bevels T T^1, as set forth.

3. As a new article of manufacture, a branch coupling for lead pipe, composed of the T-joint A, having external threads *t t*, the flanged nuts B B, and the flanged sections C C, having shoulders S and tapering threaded portions E, as set forth.

4. A coupling-nut, B, having hooks *h h*, combined with a threaded pipe or section, onto which said nut is screwed, and a detachable pipe or section, C, having a flange on its end, (or a cap, K, having substantially the same diameter as said flange,) which flange (or cap) is adapted to be inserted between the hooks *h* by a lateral movement, and, when so inserted, is adapted to be clamped tightly against the end of the threaded pipe or section, or against an interposed packing-ring, by turning the nut B, as set forth.

190,652. SULKY-PLOWS. Wm. S. Weir, Monmouth, Ill. [Filed Jan. 13, 1877.]

Brief.—The compound lifting-lever; the adjustable wheel-arm held by a bolt having a detent.

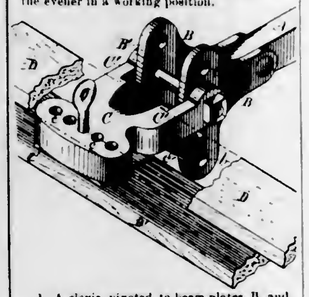


1. In combination with the axle A and yoke H, to which the plow is secured, the double-elbow lever L, link O, lever N, and link P, the lever N being pivoted to the axle, and the whole arranged in close proximity thereto, substantially as and for the purpose specified.

2. The bolt F, having a detent, f'', arranged to operate with the sliding plate D', constructed as described, and with the perforated plate d'', substantially as and for the purpose specified.

190,653. CLEVISES. Wm. S. Weir, Monmouth, Ill. [Filed Jan. 13, 1877.]

Brief.—Shoulders or lugs are formed upon the horizontal plate of the clevis, which prevent it from dropping below a level, and hold the evener in a working position.

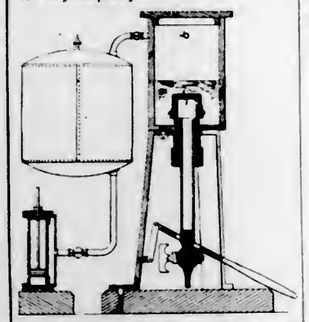


1. A clevis, pivoted to beam-plates B, and provided with lugs c', or their equivalents, which impinge against the forward faces of said plates B, and hold the clevis from dropping below a horizontal, or nearly horizontal, position, substantially as described, and for the purpose specified.

2. A clevis, C, having a broad flattened forward end and rear ends, having lugs c', arranged to operate with double-tree D D' and plates B, substantially as described, and for the purpose specified.

190,654. PROCESSES AND APPARATUS FOR MOLDING PAPER-PULP. Seth Wheeler, Albany, N. Y. [Filed Feb. 28, 1876.]

Brief.—A sufficient quantity of pulp is introduced to the pulp-chamber, through an opening in its top, to fill the chamber about half full, after which the opening is securely closed. The adjustable hollow form, to which is attached a tube having a cock and lever at its lower end, is then lowered into the pulp by means of said lever, and air under pressure is admitted through a pipe to the space above the pulp. The cock is then opened, thus allowing the water to escape as the pulp collects upon the form. After the form has collected a sufficient quantity of pulp it is elevated to the air-chamber, where the pulp is partially dried. The form is then removed from the chamber, and set away to allow the pulp upon it to dry completely.



1. The process herein described of making hollow articles of pulp, consisting in immersing forms or molds in pulp under pressure, and rapidly removing these forms from the pulp into an air-chamber above for removal of moisture, substantially as set forth.

2. The combination of the forming and pressure reservoir, the hollow form and its stem, and a drip and pressure-regulating cock, substantially as described.

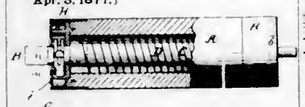
3. The combination of the pressure and forming reservoir, the upper part being made to serve as a drying-chamber above the pulp taking position of the form, and the hollow perforated form, made adjustable within the reservoir, for the purpose of drying, or partially drying, the articles in the pressing-chamber, substantially as described.

190,655. BOOTS AND SHOES. H. White, Chicago, Ill., assignor of part of his right to C. H. Fargo, J. Benham, C. E. Fargo, and S. M. Fargo, same place. [Filed Aug. 5, 1876.]



A boot or shoe having a shortened vamp and upwardly-turned inner sole, in combination with the sole-leather tip E united thereto, as described, said tip E being made of a single piece of sole-leather and adapted to perform the function of both a protector and box-toe, substantially as set forth.

190,656. CURTAIN-FIXTURES. J. L. Williams and A. Kerr, Harrison, N. J. [Filed Apr. 3, 1877.]

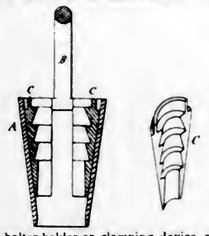


1. In a spring-fixture for curtains, the vertically-sliding pawl or catch *m*, secured to the stationary center-bar B by the headed pin *n*, or its equivalent, in combination with the head-piece G, fastened on the end of the curtain-roller, and provided with the flange A, having slot *i*, substantially as and for the purposes herein set forth.

2. The combination, with the curtain-roller A, of the interior rod C, spring D, bar B, with sliding pawl or catch *m*, the headed pin or set-screw *n*, and the head-piece G, with circular flange A, having slot *i*, substantially as and for the purposes herein set forth.

3. The sheet-metal caps or ferrules H, in combination with the curtain-roller A, and the fixtures in the ends thereof, substantially as herein set forth.

190,657. HALTER-CLAMPS. D. A. Wilson, Glens Falls, N. Y. [Filed Mar. 26, 1877.]

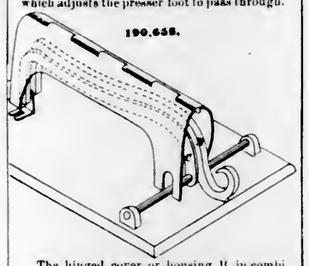


The halter-holder or clamping device, consisting of the sleeve A, provided with a bail, B, and adapted to receive the serrated wedges C C, all substantially as shown, and for the purposes described.

190,658. SEWING-MACHINE HOUSINGS. T. A. Wilson, Grayson, Cal. [Filed Jan. 15, 1877.]

Brief.—The housing or cover is pivoted to the stationary arm of a sewing machine, and is hinged at its top, so as to allow the front to be thrown back. A slot is cut for the lever which adjusts the presser foot to pass through.

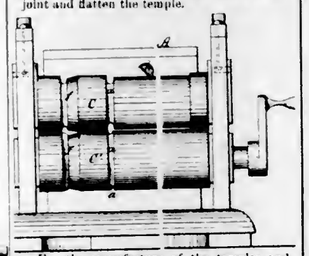
190,658.



The hinged cover or housing B, in combination with a sewing-machine arm, substantially as and for the purpose described.

190,659. MANUFACTURE OF SPECTACLE TEMPLES AND JOINTS. D. C. Winans, New Haven, Conn. [Filed Jan. 4, 1877.]

Brief.—An ingot, having in cross-section the shape approximately of the completed article, is rolled to perfect the shape of the joint and flatten the temple.

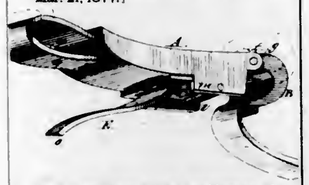


For the manufacture of the temples and joint-pieces of spectacles, the rolls having the circumferential grooves *a a*, and the plain separated surfaces *d d'*, as shown and described.

190,660. LEATHER-STAINING COMPOUNDS. Geo. S. Wolff, Philadelphia, Pa., assignor to T. Franklin Cooper, same place. [Filed July 22, 1876.]

The black leather stain compounded of blue aniline, yellow aniline, red aniline, naphthaline, and alcohol, combined in or about the proportions substantially as specified.

190,661. HAME-FASTENINGS. Samuel A. Woodard, Hornellsville, N. Y. [Filed Mar. 21, 1877.]



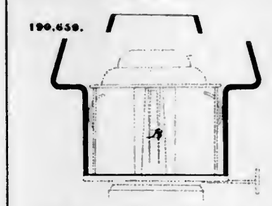
In a hame fastener, the combination of a frame, A, a hook, B, pivoted to one end of said frame, and having toes *i* projecting in rear of the pivot, the sliding plate C, the spring D, and the strap E, arranged, as described on the frame to form a loop, *s*, all substantially as and for the purposes described.

REISSUES.

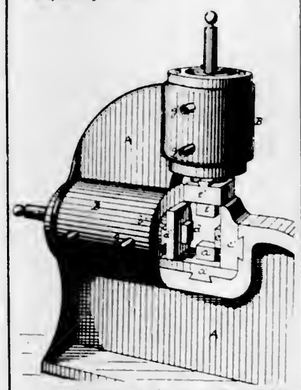
7,659. LAMP-CHIMNEYS. Robt. R. Crosby, Boston, Mass., assignor to F. S. Shirley. Patent No. 79,968, dated July 14, 1868. [Filed Apr. 6, 1877.]

A lamp-chimney having an abrupt or nearly right angled enlargement on, or nearly on, a level with the flame, in combination with the conical sides and contracted opening at the top, substantially as set forth.

190,659.



7,660. MANUFACTURE OF ELLIPTIC SPRINGS. A. French, Pittsburg, Pa., assignor to A. French & Co., same place. Patent No. 186,999, dated Feb. 6, 1877. [Filed Mar. 29, 1877.]

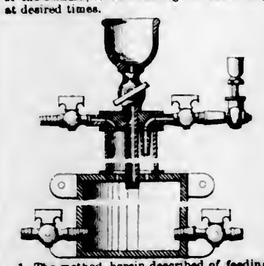


1. An improvement in the art of compressing bands onto leaf-springs by subjecting the heated bands, after being slipped loosely onto the springs, to the action of dies simultaneously operative on the four outer faces of the band, whereby the top and bottom sides of the band are by one pair of dies caused to hold the leaves tightly together, and the other two sides of the band are by the other pair of dies caused to engage or lock on the edges of the leaves of the spring, substantially as set forth.

2. Two fixed dies, *a c*, and two moving dies, *d e*, arranged to form the four sides of an open-ended die-box, in combination with pressure-cylinders B B', arranged to operate the movable dies simultaneously in compressing spring-bands, substantially as set forth.

7,661. LUBRICATORS. J. Gates, Portland, Oreg. Patent No. 107,478, dated Sept. 20, 1870. [Filed Aug. 26, 1876.]

Brief.—A water-column extending above the body of the oil, causing the same, by hydrostatic pressure, to expel the oil to parts to be lubricated, and controlling the movement of the column, so that feeding will occur only at desired times.



1. The method herein described of feeding oil for lubricating purposes, consisting, essentially, in employing a water-column, extending above the body of the oil, causing the same, by hydrostatic pressure, to expel the oil to the part to be lubricated, and controlling the movement of the column, substantially as and for the purposes set forth.

2. In a lubricator, the combination of the following elements: an elevated water-pipe, having a regulating-cock controlling its discharge-opening, an oil-reservoir, and a discharge-pipe leading to the part to be lubricated, substantially as and for the purpose set forth.

7,662. LUBRICATORS. J. Gates, Portland, Oreg. Patent No. 107,478, dated Sept. 20, 1870. [Filed Nov. 23, 1876.]

Brief.—Method of feeding in connection with a boiler or steam-space of a water-column extending above the body of the oil, formed from the condensation of steam, for expelling, by its hydrostatic pressure, oil into a cylinder or like steam-space, to be supplied with lubricating material.

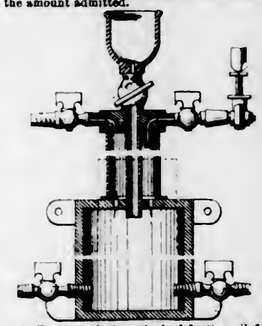


1. The described method of feeding oil for lubricating purposes, consisting, essentially, in the employment, in connection with a steam-space, of a water-column extending above the body of oil, and formed from the condensation of steam, for expelling, by its hydrostatic pressure, oil into a steam-space to be supplied with lubricating material, substantially as described.

2. In a lubricator, the combination, with a steam-space, of an elevated condensing-pipe, having a regulating-cock, an oil-reservoir, and an eduction-pipe discharging into the steam-space to be supplied with lubricating material, substantially as described.

7,663. LUBRICATORS. J. Gates, Portland, Oreg. Patent No. 107,478, dated Sept. 20, 1870. [Filed Nov. 23, 1876.]

Brief.—Method of feeding oil for lubricating purposes, by employing a column of water for expelling, by hydrostatic pressure, the oil, delivering the water to the top of the oil in a transparent vessel, causing the same to pass through the oil in drops, and controlling the amount admitted.



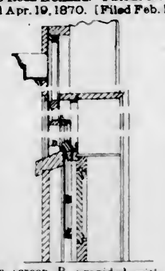
1. The described method of feeding oil for lubricating purposes, consisting essentially in employing a water-column higher than the oil, causing the same to expel, by hydrostatic pressure, the oil from a transparent vessel, and controlling the movement of the water-column in accordance with observations made of the movement of the oil within the vessel, substantially as described.

2. The described method of feeding oil for lubricating purposes, consisting essentially in employing a column of water for expelling, by hydrostatic pressure, the oil, delivering the water to the top of the oil in a transparent vessel, causing the same to pass through the oil in drops, and controlling the amount admitted, substantially as described.

3. A lubricator, consisting of the following elements: A transparent oil-reservoir, an eduction-pipe, and an elevated induction water-pipe, having a cock controlling its discharge-opening, the construction being such that the movement of the oil within the reservoir may be observed, and the rate of feed consequently properly controlled, substantially as described.

4. A lubricator, consisting of the following elements: A transparent oil-reservoir, an eduction-pipe, and an elevated induction water-pipe, adapted, by means of a proper cock and discharge end, to deliver the water into the top of the reservoir in drops, substantially as described.

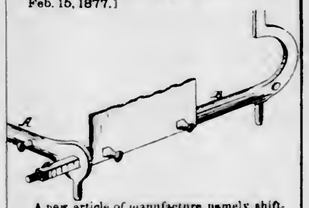
7,664. WINDOW-SCREENS. R. Hochkofer, (guardian of Geo. Reed, insane,) Wm. C. Hoagland, and J. J. Newsom, Brooklyn, Cal.; said Hoagland and Newsom assignors to Ross Holland. Patent No. 109,154, dated Apr. 19, 1870. [Filed Feb. 13, 1877.]



1. The screen B, provided with an independent frame, and arranged to slide in a box or recess below the lower sash of the window, when said screen is provided with a catch, E, for attaching it to the lower rail of the lower sash, or detaching it therefrom at pleasure, substantially as and for the purpose described.

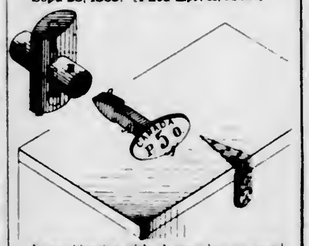
2. The combination, with a double sash window, of the top screen A, lower screen B, and guard-strip C, constructed and arranged as herein described.

7,665. SHIFTING-RAILS FOR CARRIAGES. A. M. Whipple, North Adams, Mass. Patent No. 176,764, dated May 2, 1876. [Filed Feb. 15, 1877.]



A new article of manufacture, namely, shifting-rails for carriage-tops, made in sections, the back rail adjustable upon the end rail, and both connected together at or near the corner of the seat by means of the prop block support upon the back rail B passing through a mortise formed upon the extremity of the end rail A, substantially as described.

7,666. SEAL-LOCKS. J. Dewe, Ottawa, Ontario, Canada. Patent No. 95,204, dated Sept. 28, 1869. [Filed Apr. 11, 1877.]



In combination with a hasp, a key arranged to pass inward through the same, and have its inner end engaged by detents, and provided at its outer end with a seal, which is outside of and bears against the outer face of said hasp, whereby the latter is locked in place while said seal is unbroken, substantially as and for the purpose specified.

7,667. TREATING LEATHER FOR HEELS AND SOLES OF BOOTS AND SHOES. J. J. Sawin, Natick, Mass. Patent No. 163,948, dated June 1, 1876. [Filed Apr. 16, 1877.]

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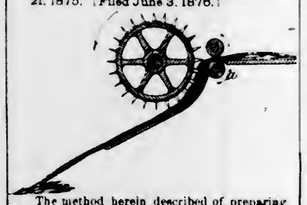


1. In the process of manufacturing heels, soles, and fillings from curried and oiled leather, the immersion of the oiled leather to form said articles in naphtha or other volatile hydrocarbons, substantially as described.

2. The process of treating oiled leather with naphtha or other volatile hydrocarbons, for the purpose of extracting the oil from the same, substantially as specified.

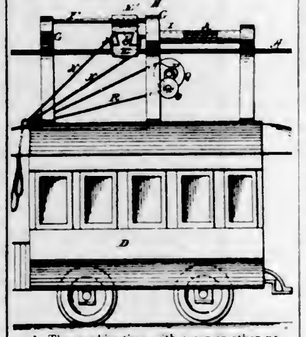
3. As a new article of manufacture, a heel-blank made from lifts or layers of scrap upper leather with the oil extracted, substantially as described.

7,668. PROCESSES FOR PREPARING VEGETABLE FIBER FOR UPHOLSTERING. Jas. S. Cutter, Brooklyn, N. Y., assignor to Jos. M. Davis. Patent No. 171,357, dated Dec. 21, 1875. [Filed June 3, 1876.]



The method herein described of preparing palmetto or other vegetable fiber for upholstering by reducing the same into strips while in a sufficiently moist condition, and then crimping the fiber by machinery, and drying the same by heat sufficiently to set the crimp, substantially as set forth.

7,669. MACHINERY FOR PROPELLING CARS. G. T. Beauregard, New Orleans, La. Patent No. 97,343, dated Nov. 30, 1869. [Filed Apr. 12, 1877.]



1. The combination, with a car or other vehicle, and a constantly-moving rope, &c., A, suspended above or at the side of the car or vessel to be propelled, of the reciprocating block E, clamping slides E E, right and left threaded screw L, piston H, and spring K, substantially as specified.

2. The combination, with the rope A and clamping-jaws, of the elevating-roller O, crank-shaft P, and operating cord R, substantially as specified.

3. The combination, with the clamping-jaws E and operating-screw L, of the pulley M and operating cord, arranged substantially as specified.

4. The arrangements of the suspending-brackets C and the bracket G, for carrying the clutch above the cord, substantially as specified.

5. In a griping device for propelling cars and boats, the slides or jaws E E, constructed to move laterally in opposite directions, in combination with a moving cord or rope, A, substantially as and for the purposes herein set forth.

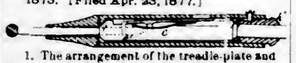
6. The laterally-moving jaws or slides E E, detachably connected to the reciprocating block E', substantially as and for the purposes herein set forth.

7. The combination of the shifting guide-roller O with the griping jaws or slides E E, substantially as and for the purposes herein set forth.

8. The cord N, operating wheel M, turning the right and left threaded screw L, in combination with the oppositely moving slides E E, substantially as described.

9. The bracket G, so bent that it carries the clutching device clear of the pulley B, when the position of the latter is between the propelling-rope and the vehicle, substantially as specified.

7,670. DENTAL ENGINES. Chas. M. Curtis, Philadelphia, Pa., assignor, by mesne assignments, to M. M. Johnston, New York city. Patent No. 138,318, dated Apr. 29, 1873. [Filed Apr. 23, 1877.]



1. The arrangement of the treadle-plate and pitman on opposite sides of the standard, said pitman and plate being connected by an arm of the latter intersecting the standard, substantially as described.

2. The combination of the wheel H, bearing B, shaft K, and spring l, substantially as set forth.

3. The combination of the shaft K and slotted sleeve-coupling k and k', as shown and described.

4. The combination of the coupling M N with the staff L, or the extensions thereof, the branches being attached to said staff L, or to a collar or sleeve, by suitable springs P P, as set forth.

5. In combination with the shaft K, the curved arm S, bent spring U, and short shaft T, as set forth.

6. The flat spring X, in combination with arm S and rod V.

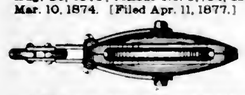
7. In a hand-piece for dental engines, the combination, substantially as set forth, of a case provided with reversed conical bearings, and a tool-carrying spindle, held within the case, and provided with corresponding conical journals, which are received and supported in said bearings.

8. The combination, in a hand-piece for dental engines, of a tool-carrying spindle, provided with reversed conical journals, and a surrounding case provided with corresponding conical bearings, one of which is adjustable to take up wear, substantially as set forth.

9. In a hand-piece for dental engines, the combination of a tool-carrying spindle, provided with reversed conical journals, a surrounding case provided with a front conical bearing to receive the front conical journal of the spindle, and a rear bearing-sleeve, encircling the spindle, adjustably and detachably connected with the case, and provided at its inner end with a conical bearing to receive the rear conical journal of the spindle, substantially as set forth.

10. The combination, in a hand-piece for dental engines, of a rotary tool-carrying spindle, a positive tool-interlocking mechanism, carried by, and revolving with, the spindle, preventing longitudinal and rotary movement of the tool independently of the spindle, and a surrounding case, which contains and supports the spindle, and is formed with an aperture or opening, through which the interlocking mechanism can be manipulated to release the tool, substantially as set forth.

7,671. PULLEY-BLOCKS. G. A. Ford, Cleveland, Ohio. Patent No. 142,095, dated Aug. 26, 1873; reissue No. 5,784, dated Mar. 10, 1874. [Filed Apr. 11, 1877.]



1. In a pulley-block, the concavo-convex cheeks A B, of metal, substantially as and for the purpose described.

2. In a pulley-block, the concavo-convex cheeks A B, with projections A^1 B^1 thereon, substantially as and for the purposes described.

3. In a pulley-block, the metallic cheeks A B, having ribs A^1 upon the inside of same, substantially as and for the purposes described.

4. The cheek-pieces A B, formed with lips or swells A^2, substantially and for the purpose set forth.

5. In a pulley-block, the sheave, provided with the long hub and the webs or spokes c', substantially as and for the purpose described.

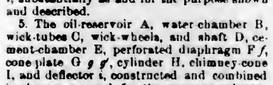
6. The combination in a pulley-block of concavo-convex metallic cheeks and a sheave, the cheeks and sheave constructed relatively to each other, so that the hub of the sheave shall embrace, substantially, the whole length of the spindle between the cheeks, substantially as and for the purposes described.

7. The pulley-block, composed of concavo-convex cheeks A B, with projections A^1 B^1, a sheave, and supporting-strap with screws or bolts F, substantially as and for the purposes described.

7,672. COMPOSITIONS FOR PRESERVING ANIMAL AND VEGETABLE SUBSTANCES. Geo. Henry, Hamilton, Ontario, Canada. Patent No. 186,903, dated Mar. 27, 1877. [Filed Apr. 28, 1877.]

The composition for preserving animal, vegetable, and other articles, consisting of *Baptisia tinctoria* (wild-indigo shrub) root bark and sulphur, in about the proportions above described, and for the purposes set forth.

7,673. PIPE-COUPLINGS. J. Old, Pittsburg, Pa., assignor, by mesne assignments, to Martha J. Old. Patent No. 142,142, dated Aug. 1, 1865. [Filed Apr. 6, 1877.]

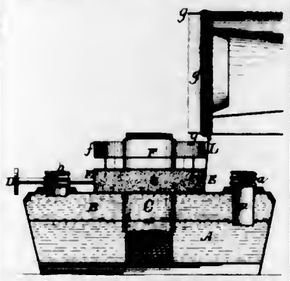


1. The metallic tube or pipe, having the section of a screw-coupling united thereto by means of a fine screw in the pipe or tube and coupling, and solder around the pipe or tube and coupling, substantially as specified.

2. The combination of the metallic tubes, having shoulders or flanges, and a sleeve or coupling, substantially as and for the purpose specified.

3. An externally longitudinally grooved or ribbed sleeve or coupling threaded internally, substantially as and for the purpose specified.

7,674. COAL-OIL STOVES. J. A. Frey, New York, N. Y., assignor, by mesne assignments, to C. Riessner & Co. Patent No. 118,358, dated Aug. 22, 1871. [Filed Apr. 7, 1877.]



1. In combination with the cone plate G, a flange, g, which extends from the edge of said plate downward inside of the flange f, substantially as and for the purpose shown.

2. In combination with the cone plate G, having a downward-projecting annular flange, g, and with the upward-projecting flange f, that receives and contains said flange g, the hinge L, which is secured to and connects together said parts, substantially as and for the purpose specified.

3. In a coal-oil stove, a chamber located between the cone-plate and oil-reservoir, arranged to inclose the wick-wheels and their shafts, and filled with a non-conductor of heat, substantially as and for the purpose set forth.

4. The combination of the cone-plate G g', cylinder H, chimney or cone I, and deflector i, substantially as and for the purpose shown and described.

5. The oil-reservoir A, water-chamber B, wick-tubes C, wick-wheels, and shaft D, cement-chamber E, perforated diaphragm F f, cone-plate G g g', cylinder H, chimney-cone I, and deflector i, constructed and combined in the manner and for the purpose substantially as specified.

6. In combination with the heat-producing mechanism described, the stove-top M, provided with the pot-holes m, covers m', exit-flue N, and legs O, substantially as and for the purpose shown.

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NOTICES.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., May 16, 1877.

The attention of inventors and their attorneys is called to paragraph 100 of the Rules of Practice, which is as follows:

In every case where it is desired that the patent shall issue to an assignee, the assignment must be recorded in the Patent Office at a date not later than the day on which the final fee is paid.

This rule will be strictly enforced, and hereafter no assignment intended to affect the issue will be received after payment of the final fee.

ELLIS SPEAR,
Commissioner.

THE Decisions of the Commissioner of Patents for the year 1876, and the Decisions of the Courts in patent cases for the same year, are being printed, and will soon be ready for delivery. Both will be bound in one volume in full law binding, and the price will be $1.50.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—SOUTHERN DISTRICT OF NEW YORK.

JOHN J. SCHILLINGER *vs.* HERMAN A. GUNTHER.

The construction of a concrete pavement in sections by forming each section against the adjoining one, and while the material is still soft inserting a trowel to make a joint between them, is an infringement of the patent granted to J. J. Schillinger, May 2, 1871, for an improved concrete pavement.

The patentee forms his joints by the permanent interposition of some material between the blocks, which material also serves in some degree to make a tight joint, while the defendant forms a joint by the insertion of a cutting instrument between the blocks, and then removing the instrument, leaving the joint an open one for the time.

The improvement effected by the patentee consisted in dividing the pavement into blocks, so that one block might be removed and repaired without injury to the rest of the pavement.

The inventor entered a disclaimer to that portion of his specification referring to the omission of the tar-paper and the formation of the blocks without interposing anything between their joints, and further disclaimed "the forming of blocks from plastic material without interposing anything between the joints while in the process of formation:" *Held*, that this disclaimer left the patent for a pavement wherein the blocks were formed by the interposition of some separating material between the joints, and in the specification the patentee has described tar-paper or its equivalent.

A liberal construction is to be given to the language of all patents and specifications, so as not to limit the actual invention of the patentee.

[*Edward Fitch and John Van Santvoord*, for plaintiff.
Arthur Von Briesen, for defendant.]

SHIPMAN, *J.*:

This is a motion for an attachment for contempt of court by reason of the alleged violation of an injunction order.

Reissued letters patent dated May 2, 1871, were issued to the plaintiff for an improved concrete pavement. The specification, including the portions subsequently disclaimed, and which are inclosed in brackets, states that the invention—

Relates to a concrete pavement which is laid in sections, so that each section can be taken up and relaid without disturbing the adjoining section. With the joints of this sectional concrete pavement are combined strips of tar-paper, or equivalent material, arranged between the several blocks or sections in such manner as to produce a suitable tight joint, and yet allow the blocks to be raised separately without affecting the blocks adjacent thereto.

After describing the composition of the concrete the specification continues:

While the mass is plastic I lay or spread the same on the foundation or bed of the pavement, either in molds or between movable joists of the proper thickness, so as to form the edges of the concrete blocks *a a*, one block being formed after the other. When the first block has set I remove the joists or partitions between it and the block next to be formed, and then I form the second block, and so on, each succeeding block being formed after the adjacent blocks have set, [and since the concrete in setting shrinks, the second block when set does not adhere to the first, and so on,] and when the pavement is completed, each block can be taken up independent of the adjoining blocks. Between the joints of the adjacent blocks are placed strips *b*, of tar-paper or other suitable material in the following manner: After completing one block, *a*, I place the tar-paper *b* along the edge where the next block is to be formed, and I put the plastic composition for such next block up against the tar-paper joints, and proceed with the formation of the new block until it is completed—in this manner I proceed until the pavement is completed, interposing tar-

paper between the several joints, as described. The paper constitutes a tight water-proof joint, but it allows the several blocks to heave separately from the effects of frost, or to be raised or removed separately whenever occasion may arise, without injury to the adjacent blocks. * * * * [In such cases where cheapness is an object the tar-paper may be omitted, and the blocks formed without interposing anything between their joints, as previously described. In this latter case the joints soon fill up with sand or dust, and the pavement is rendered sufficient tight for many purposes, while the blocks are detached from each other and can be taken up and relaid, each independent of the adjoining blocks.]

The claims are—

1. A concrete pavement laid in detached blocks or sections, substantially in the manner shown and described.
2. The arrangement of tar-paper, or its equivalent, between adjoining blocks of concrete, essentially as and for the purpose set forth.

On February 2, 1875, the plaintiff disclaimed the portions included in brackets, and in his disclaimer also said: "Your petitioner hereby disclaims the forming of blocks from plastic material without interposing anything between the joints while in the process of formation."

In April, 1875, the bill in equity of the plaintiff against the defendant, alleging an infringement of said letters patent, and praying for an injuction and an account was heard upon the pleadings and proofs by this court.

It was clearly proved that the defendant had made and laid the pavement described in the patent, except that he had substituted tin-foil between the joints in lieu of tar-paper. An attempt was made to show that the invention had been anticipated by other manufacturers of concrete pavement in this country, which attempt was unsuccessful.

The American patent of Horace P. Russ, dated March 14, 1848, and the English patent of John Little, dated April 29, 1864, were also relied upon by the defendant as anticipatory of the plaintiff's invention. The Russ invention consisted of a foundation pavement of concrete, which was afterward to be covered with ordinary stone flagging. This subpavement of concrete was divided in places where it covered a sewer or drain into panels, by bars of iron forming crosses united by an eyebolt with a ring in the head of each bolt. When repairs were to be made upon the sewer the panel could be lifted without injury to the rest of the concrete, by suitable appliances attached to the ring.

The Little patent was for a metallic frame-work, filled in with concrete blocks. Neither device had substantial similarity to the pavement of the plaintiff.

As the novelty of the plaintiff's invention was not disproved, and as the infringement was manifest, a decree was rendered directing an injunction and an accounting before a master.

The plaintiff has now filed a motion for attachment claiming that the defendant is violating the injunction and the patent by the construction of the pavement which is hereafter described.

As the parties were at issue upon the manner in which the pavement was constructed, a reference was directed to a master to find the facts, who has reported as follows:

The ground was prepared by grading to four inches below the final and completed surface of such pavement. Upon the surface of the ground so graded were placed wooden frames or mold-boards four inches in height or thickness. In such frames or mold-boards were first formed the one-half of the proposed diamond-shaped blocks, the said frames were then removed back, so that their points of separation rested against and accorded with the points of the half blocks of pavement already laid, then making, by means of the sides of the two completed half blocks and the two sides of the frames or mold-boards, the shape for the diamond-shaped block to be made by the next operation. The materials used and the manner of using them were as follows: A lower course upon the ground, as graded, was laid, composed of one part of cement, three parts of sand, and two parts of gravel or broken stone, (none of the particles of gravel or broken stone exceeding two inches in diameter.) This lower course was laid to the depth of three inches and tamped down. Before the second block is then laid, in its lower course, the lower course of the first block is allowed to become "well set." After the lower layer has been thus laid to within one-inch of the final surface, the upper layer is then put on, which upper layer consists of one part of cement and one part of fine sand, such upper layer being put upon the first formed block first, and shortly after such first block had been made with the bottom layer thereon. The top layer of cement and sand was then placed upon the bottom layer of the second block up to and against the top layer of the first block, and the laying of the pavement was then continued. After the laying of the two adjoining blocks, and while the upper material for the second block was in a soft or plastic state, a trowel or other similar instrument was inserted between the top layers of the first and second block through the upper layer for the purpose of making a separation or joint between them, thus making what is commonly known and designated as a block pavement. It is conceded that this description of the method in which the pavement is made is correct.

The question at issue between the parties is whether a pavement constructed in the manner described is an infringement of the patent. That the defendant's pavement is constructed of separate layers of coarse and fine cement I do not regard as material. The upper layer is divided into blocks by the insertion of a trowel after the separate sections have been made in the frame, and while the concrete of the second block is still plastic. The defendant thus makes a block pavement, which can be taken up, so far as the blocks into which the top layer is divided are concerned, without injury to the adjoining blocks. The pavement possesses the advantages of the plaintiff's invention.

The plaintiff forms his joints by the permanent interposition of some material between the blocks, which material also serves in some degree to make a tight joint. The defendant forms a joint by the insertion of a cutting instrument between the blocks, and then removing the instrument, leaving the joint an open one for the time.

The question between the parties becomes one of construction of the patent. Is the patent confined to the making of the joints by the permanent interposition of some material between the blocks, or does it embrace the making of the joints by the temporary interposition of a cutting material, while the pavement is in process of formation? For the purpose of determining this question, it is necessary to ascertain the actual invention of the patentee.

It was manifest upon the former hearing of this case that the old methods of laying cement or concrete pavements were in sections between joists or frames without any attempt to divide the pavement into blocks. The pavement was a uniform surface of concrete subject to contraction and expansion from natural causes, and when it became cracked through the agency of frost was not easily repaired. *The improvement and the invention consisted in dividing the pavement into blocks, so that one block might be removed and repaired without injury to the rest of the pavement.* Although this improvement, however effected, whether by the insertion of a trowel or by the permanent interposition of some other means of separation between the blocks, now appears to have been a simple invention, yet it was one which the history of the arts shows to have been previously unknown, and to have been of practical importance and to have been received with much favor by the public.

The plaintiff supposed that his invention included a block pavement in which the blocks were formed either with or without the interposition of something between the joints. He subsequently ascertained that he was mistaken, and that the pavement was not divided into blocks without the interposition of some material to form joints. The discovery of this fact led to his disclaimer, wherein he disclaimed the forming of blocks from plastic material without interposing anything between the joints. This disclaimer left the patent for a pavement wherein the blocks were formed by the interposition of some separating material between the joints and in the specification he has described tar-paper or its equivalent.

A strict construction of the patent would limit the patented invention to the permanent interposition of the equivalent material, but such a construction would be a limitation of the actual invention. The method adopted by the defendant accomplishes the substantial results of the plaintiff's invention in substantially the same way in which they are attained by the plaintiff. The difference in method is that the material is not permanently interposed between the blocks, and this leads to the only difference and result, which is that the defendant's method leaves an open joint instead of the tight joint of the plaintiff, which is not the material part of the plaintiff's invention. The material part was to make a cement pavement separated into blocks by joints. This was the end to be accomplished by each party.

Inasmuch then as the plaintiff's actual invention is substantially reproduced by the defendant, and there is substantial identity in the means by which the material portion of the result is accomplished, I am of opinion that the mode of operation which the defendant has adopted is within the proper limits of the patent and is included within the first claim.

The well-known and just principle of the courts of this country is that a liberal construction is to be given to the language of all patents and specifications, *ut res magis valeat quam pereat.* In pursuance of that rule "the technical claims of a patent are to be construed with reference to the state of the art, so as to limit the patentee to, and give him the full benefit of, the invention he has made." (*Estabrook* vs. *Dunbar*, 10 PATENT OFFICE GAZETTE, 909.)

It was well understood by both parties upon the argument that the object of the motion was not to mulct the defendant in damages, but to obtain a decision in regard to the extent to which the plaintiff was to be protected in the enjoyment of his patent, which had been decided to be valid and to have been infringed. I am of opinion, from all circumstances which are disclosed in the affidavits and the testimony before the master, that there has been a studied attempt on the part of the defendant to obtain the benefit of the plaintiff's invention. But I am not disposed to impose a severe fine in view of the fact which has been stated.

The motion is granted, and a nominal fine of fifty dollars, in addition to a sum equal to the fees of the master upon this reference, is imposed upon the defendant, to be paid to the plaintiff as partial indemnity for his expenses.

U. S. CIRCUIT COURT—NORTHERN DISTRICT OF NEW YORK.

PAUL DENNIS *vs.* WALDEN EDDY AND ABRAM REYNOLDS, SURVIVORS OF SAMUEL LANGDON.

[*In equity.—Before* JOHNSON, *Cir. J.—Decided March* 22, 1877.]

DECREE.

JOHNSON, *Cir. J.:*

This cause coming on to be heard upon the pleadings and evidence, and it being suggested that the defendant Langdon has died since this action was commenced, and after hearing E. F. Bullard, counsel for the complainant, and E. Cowen, counsel for the defendants, and the court having duly considered the same, and being of the opinion that the complainant was the first and original inventor of certain new and useful improvements in shovel-plows, not known or used before, as described and claimed in his patent bearing date June 19, 1866, adjudges and decrees that the defendants, and each of them have infringed the said patent in making and vending shovel-plows with wings, embracing the invention and improvement covered by said letters patent.

And it is further adjudged that the wings upon the mold-board of the plow, made by the defendants and marked "complainant's exhibit T—Dennis," and referred to in the complainant's evidence, are in substantial accordance with the specifications annexed to said patent, and are an infringement of the rights secured to the complainant by said patent dated June 19, 1866, referred to in said complaint.

And it is further adjudged and decreed that the said defendants, their agents, and servants, and each and all of them, be restrained and enjoined from making, vending, or using, or in any manner disposing of shovel-plows, or mold-boards for such plows, embracing the inventions and improvements described in said letters patent.

And it is further adjudged and decreed that this cause be referred to E. W. Paige, of Schenectady, as a special master, to ascertain and report the number of shovel-plows made, and the number sold by the defendants, or either of them, with steel wings of the form mentioned in said "Exhibit T—Dennis," or substantially of the form covered by the said patent, and the damages the complainant has sustained, and the profits derived by the defendants, or either of them, by reason of such infringements.

And, upon the coming in and confirmation of the said report, that said complainant have a decree and execution for the amount found due him, and also for the costs of this suit to be taxed.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date May 15, 1877.]

9,971.—Shade-Rings.—LEWIS J. ATWOOD, Waterbury, Conn., assignor to the PLUME & ATWOOD MANUFACTURING COMPANY, same place. Application filed April 3, 1877. Term of patent 7 years.

9,972.—Cassimeres.—GEORGE C. BURNS, Burrillville, R. I. Application filed May 2, 1877. Term of patent 3½ years.

9,973 and 9,974.—Coffin-Handle Ears.—RUSSELL H. BURR, West Meriden, Conn., assignor to C. ROGERS & BROTHER, same place. Applications filed May 7, 1877. Term of patents 7 years.

9,975 to **9,987**, inclusive.—**Wall-Paper.**—CHRISTOPHER DRESSER, London, England, assignor to WILSON & FENIMORES, Philadelphia, Pa. Applications filed March 17, 1877. Term of patents 3½ years.

9,988.—Overshoes.—ALEXANDER S. HUBBARD, New Haven, Conn., assignor to L. CANDEE & Co., same place. Application filed April 21, 1877. Term of patent 7 years.

9,989.—Lamp-Brackets.—ALBERT D. JUDD, New Haven, Conn. Application filed April 4, 1877. Term of patent 7 years.

9,990.—Fancy Cassimeres.—CHARLES KIMBALL, Mohegan, R. I. Application filed May 2, 1877. Term of patent 3½ years.

9,991.—Glass Jar.—STEPHEN R. PINCKNEY, New York, N. Y. Application filed March 22, 1877. Term of patent 3½ years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date May 15, 1877.]

4,624.—Agricultural Implements.—WM. FRANKFURTH & Co., Milwaukee, Wis. Application filed March 23, 1877.

"The word-symbol 'WISCONSIN FARMER.'"

4,625.—Steel Pens.—JOSEPH GILLOTT & SONS, Birmingham, Great Britain, and New York, N. Y. Application filed March 1, 1877.

"The number 303."

4,626.—Thread.—HADLEY COMPANY, Boston, Mass. Application filed April 2, 1877.

"The symbolic word 'Egyptian.'"

4,627.—Thread.—HADLEY COMPANY, Boston, Mass. Application filed April 2, 1877.

"The heraldic shield, as shown and described, used in connection with the words 'Stewart's Organzine.'"

4,628.—Washing-Crystal.—FRIEDERICKE HOFMANN, Jersey City Heights, N. J. Application filed April 19, 1877.

"The designation 'LITTLEWOOD & Co.'s' and the figure of a crown, the former in a red field or stripe above the crown."

4,629.—Washing-Crystal.—FRIEDERICKE HOFFMANN, Jersey City Heights, N. J. Application filed April 19, 1877.

"The designation 'HOFFMAN & Co.'s' and the figure of a crown, the former in a red field or strip above the crown."

4,630.—Water-Closets.—ANDREW G. MYERS, New York, N. Y. Application filed May 2, 1877.

"The word-symbol 'LATRINE.'"

4,631.—Stencil-Plates.—ANSELM NEUWALL, Chicago, Ill. Application filed April 23, 1877.

"A symbol representing a number of interchangeable stencil-plates, connected together at their edges with a single stencil-plate placed at or near one end of said plates in position to be connected therewith."

4,632.—Plated Ware.—ROGERS & BROTHER, Waterbury, Conn. Application filed October 30, 1871.

"The name or designation 'ROGERS & BROTHER.'"

4,633.—Medical Compound.—CATHARINE SAWYER, Rockland, Me. Application filed February 8, 1877.

"The words 'MISS SAWYER'S.'"

6,634.—Smoking-Tobacco.—SPAULDING & MERRICK, Chicago, Ill. Application filed May 3, 1877.

"The letters 'T & J,' and the words 'TOM & JERRY SMOKING' in connection with the figures of the bowl and men."

4,635.—Pens, Pencils, Pen-Holders, and Rubber Erasers.—THE JOSEPH DIXON CRUCIBLE COMPANY, Jersey City, N. J. Application filed April 3, 1877.

"The word-symbol 'METRIC.'"

4,636.—Pens, Pencils, Pen-holders, and Rubber Erasers.—THE JOSEPH DIXON CRUCIBLE COMPANY, Jersey City, N. J. Application filed April 3, 1877.

"The word-symbol 'SATIN.'"

4,637.—Jewelry and Watches.—TIFFANY & Co., New York, N. Y. Application filed April 17, 1877.

"The name or designation 'TIFFANY' & Co."

4,638.—Bronzes.—TIFFANY & Co., New York, N. Y. Application filed April 17, 1877.

"The name or designation 'TIFFANY & Co.'"

4,639.—Silver and Plated Ware.—TIFFANY & Co., New York, N. Y. Application filed April 17, 1877.

"The name or designation 'Tiffany & Co.'"

4,640.—Licorice-Paste.—ZURICALDAY & ARGUIMBAU, New York, N. Y. Application filed April 18, 1877.

"A horizontally-elongated diamond, with a ball or circle on the right angle, and another ball or circle on the left angle thereof. The word 'Pilar' is inserted in the diamond, the letter 'Z' in the left ball or circle, and the letter 'A' in the right ball or circle."

4,641.—Leaf-Tobacco.—JOSEPH J. ALMIRALL, Brooklyn, N. Y. Application filed April 2, 1877.

"The fanciful words 'FLOR DE LAS VEGAS.'"

4,642.—Medical Compound.—GEORGE C. BARCLAY, Brooklyn, N. Y. Application filed April 20, 1877.

"The figure of a North American Indian, used in connection with the words 'BARRY'S PAIN RELIEF.'"

4,643.—Specific for Skin Diseases.—ISABELLA DUNLOP and ELLEN M. DOUBLEDAY, Brooklyn, N. Y. Application filed March 6, 1877.

"The word-symbol 'DAISY,' used in connection with the word 'Cream.'"

4,644.—Pianos.—EHRICH & Co., New York, N. Y. Application filed April 23, 1877.

"The word-symbol 'THE PEARL.'"

4,645.—Brooms.—RICHARD W. ENGLISH, Buffalo, N. Y. Application filed September 27, 1876.

"A black band having a gilt ring both at the top and bottom thereof, arranged on the handle of the broom at or near where the brush is attached, as shown."

4,646.—Grain-Seeding Machines.—FARMERS' FRIEND MANUFACTURING COMPANY, Dayton, Ohio. Application filed April 13, 1877.

"The word-symbol 'Centennial,' used in connection with the word 'Medal.'"

4,647.—Manufactured Tobacco.—G. W. GAIL & AX, Baltimore, Md. Application filed April 12, 1877.

"The fanciful words 'LITTLE JOKER.'"

4,648.—Cigars.—HANTSCH & CROUSE, Reading, Pa. Application filed April 18, 1877.

"The letters and character 'H. & C.' in monogram form."

4,649.—Shaving-Soap.—HOWARD & BREWSTER, Unadilla, and New York, N. Y. Application filed April 5, 1877.

"The words 'HOWARD'S MAGNETIC,' used in connection with the words 'Shaving Soap.'"

4,650.—Seed and Grain Drills.—JOSEPH INGELS, Irvington, Ind. Application filed February 28, 1877.

"The word-symbol 'HOOSIER,' which is used in connection with the word 'DRILL.'"

4,651.—Cigarettes.—WILLIAM S. KIMBALL & Co., Rochester, N. Y. Application filed April 21, 1877.

"The word-symbol 'HERMIT.'"

4,652.—Rubber Syringes.—MACDONALD & SUTTON, New York, N. Y. Application filed April 13, 1877.

"The word-symbol 'FAVORITE.'"

4,653.—Medical Preparation.—GEORGE PIERCE & Co., Boston, Mass. Application filed March 7, 1877.

"The name 'Dr. GEO. PIERCE'S' and the portrait of the late Dr. Geo. Pierce, used in connection with the words 'Indian Restorative Bitters.'"

4,654.—Collars, Cuffs, and Bosoms.—REVERSIBLE COLLAR COMPANY, Boston, Mass. Application filed March 31, 1877.

"The word-symbol 'TELEPHONE.'"

4,655.—Extract of Malt.—TROMMER EXTRACT OF MALT COMPANY, Fremont, Ohio. Application filed April 19, 1877.

"The words 'Improved Trommer's,' the figure of Ceres inclosed in the wreath of barley, and the Latin words 'Ceres ubere pleno nutrit fovetque infantes.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date May 15, 1877.]

1,057.—Title: **"The K Imperial Viennese Purgative Blood Purifying Specifics."**—CAROLINE BIEDENFELD, New York, N. Y. Application filed March 15, 1877.

1,058.—Title: **"For the Hair."**—ANNA CONNELLY, New York, N. Y. Application filed April 4, 1877.

1,059.—Title: **"Notice."**—DUNDAS DICK, New York, N. Y. Application filed May 8, 1877.

1,060.—Title: **"Chemical Spirit Gas."**—C. E. FLAGG, Cleveland, Ohio. Application filed May 2, 1877.

1,061.—Title: **"Hayes and Holcomb's Condensed Washing Blue."**—CHARLES W. HAYES and AMANDA E. HOLCOMB, Hartford, Conn. Application filed May 7, 1877.

1,062.—Title: **"King's Good Samaritan Cough Syrup."**—GEORGE W. KING, Wilmington, Del. Application filed April 7, 1877.

1,063.—Title: **"Sweet Cathartin."**—HERMAN SCHROEDER, Quincy, Ill. Application filed May 8, 1877.

1,064.—Title: **"Self-Indexing Scrap Book."**—E. H. SMITH, New York, N. Y. Application filed May 7, 1877.

APPLICATIONS FOR EXTENSION.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., April 24, 1877.

On the petition of Erastus T. Bussell, of Indianapolis, Indiana, praying for the extension of a patent granted to him on the 29th day of November, 1853, numbered 10,280, extended for seven years from the 29th day of November, 1867; reissued on the 13th day of December, 1870, and numbered 4,202, for an improvement in combined rubber and spiral steel spring. This application having been authorized by act of Congress approved March 3, 1877:

It is ordered that the testimony in the case be closed on the 10th day of July next; that the time for filing arguments and the Examiner's report be limited to the 20th day of July next; and that said petition be heard on the 25th day of July next.

Any person may oppose this extension.

ELLIS SPEAR,
[tf] *Commissioner of Patents.*

DEPARTMENT OF THE INTERIOR,
U. S. PATENT OFFICE,
Washington, D. C., March 10, 1877.

On the petition of HENRY VOELTER, of Heidenheim, Germany, praying for the extension of a patent granted to him August 10, 1858, antedated August 29, 1856, extended for seven years from August 29, 1870, reissued June 6, 1871, and numbered 4,418, for an improvement in reducing wood to paper pulp, this application having been authorized by act of Congress approved March 3, 1877:

It is ordered that the testimony in the case be closed on the 29th day of May next; that the time for filing arguments and the Examiner's report be limited to the 8th day of June next; and that said petition be heard on the 13th day of June next.

Any person may oppose this extension.

ELLIS SPEAR,
[tf] *Commissioner of Patents.*

When a patent has been allowed, and the application has not been forfeited by delay of six months, if the final fee of twenty dollars is paid before 12 o'clock on Friday, the patent will issue and bear date the following Tuesday.

THE illustrated portion of the Patent Office Report for 1869 and for 1871 has recently been completed, and can be had, by those having the remaining volumes for those years, by applying to the Commissioner of Patents.

Letters Patent of the United States do not reach the patentee or owner until about two weeks from the day of their date. The letters, nevertheless, have the force of patents from the time they are signed and sealed.

The "Rules of Practice" are furnished gratis on personal or written application to the Commissioner of Patents.

The "Rules of Practice" contain full instructions, forms, &c., for making applications for patents.

As 12 o'clock on Friday is the latest hour that a final fee can be received in order to get a patent into the "issue" of the following Tuesday, applicants are earnestly requested to make the final payment before Friday, if possible, so that the proper entries may be made on the books of the Office before closing the "issue."

The Patent Office prefers that applicants should furnish their own drawings. Where drawings are defective, or cannot be otherwise obtained, the Office will cause a formal drawing to be made from the model at the actual cost of making it.

Patent Office coupons, which purchase a copy of any drawing which has been photolithographed, are sold singly by the Chief Clerk at twenty-five cents each, or twenty coupons at one time for two dollars.

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Clarke, G. B., Plow	190,826
Clarkson, F. A., Hoisting and conveying apparatus	190,742
Cliff, J., Construction of disks for screwed stamper shanks	190,668
Clinedinst, J., Reciprocating churn	190,705
Closterman, H., Jr., Folding chair	190,827
Cochrane, T. A., and J. Hendy, Blowing machine	190,828
Colby, C. L., H. H. Bowman, and S. H. Franklin, Heating stove	190,813
Colby, C. L., H. H. Bowman, and S. H. Franklin, Heating stove	190 814
Cole, D., and H. Kelly, Fruit drier	190,685
Coleman, H. S., Circulating device for steam boilers	190 743
Cook, L. C., Blower and smoke consumer for furnaces	190,706
Cornish, O. S., and D. W. Curtis, Butter worker	190,707
Costantino, F., Fireman's belt	190,829
Coverdill, E. R., Mechanism for operating doffer combs	190,744
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Crowninshield, M. B., Darning last	190,745
Cunningham, W. R., Attachment for corn planters	190,830
Curtis, D. W., and O. S. Cornish, Butter worker	190 707
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Dancel, C., Machine for sewing boots and shoes	190,709
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Dinnan, J. J., and P. O'Connor, Spring air gun	190,893
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Dobbs, J., Barbed fence wire	190,836
Dodge, J. R., Jr., Fruit drier	190,748
Dopp, H. W., Hydrocarbon liquid attachment for gas burners	190,673
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Du Brul, N., Safety valve	190,711
Du Brul, N., Relief valve	190,712
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Foote, W., Vehicle spring	190,841
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Franklin, S. H., C. L. Colby, and H. H. Bowman, Heating stove	190 814
Fuller, L. K., Organ case	190 843
Furness, A. E., Quilting frame and clothes bar	190,844
Gaines, G. B., Hominy mill	190,675
Gamble, T., and J. Wagner, Water elevator	190,845
Gandolfo, J., Bone black revivifier	190 676
Gasper, S., Refrigerator	190,846
Gaylord, H., Blind slat adjuster	190,847
Gearhart, J. E., Car pusher	190 848
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Gilliland, W., Binding books	190,677
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Hall, C. H., Lozenge machine	190,754
Hall, L. H., Steam engine	190 851
Hamilton, H. N., Fountain pen	190,755
Hammer, G. F., Automatic cylinder cock	190,680
Hanger, J. E., Baling press	190,852
Hardenbergh, F., and H. L. Holmes, Top roll support for spinning machines	190,756
Hartman, J. M., Automatic relief for steam cylinders	190,757
Harvey, C. A., Car starter	190,853
Hatfield, J. T., Ventilating pillow	190,854
Hanersperger, P., Stove leg	190,716
Heberling, G. P., and G. Schott, Vent apparatus	190,910
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Hendy, J., and T. A. Cochrane, Blowing machine	190,828

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Henry, J., Sky light	190,856
Hermann, C. F., Form of sealing wax or rosin for use, the same being in drops or disks	190,681
Herreshoff, J. B., Water tube steam generator	190,857
Heaselbom, E. M., Straw cutter	190,758
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Hilger, J., Hoof parer	190,682
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Hull, N. A., Table leaf support	190,717
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Jenney, W. P., Process of treating sludge and sludge oil	190,684
Jennison, C. R., Galvanic battery	190,869
Johnson, E. A., Screw driver handle	190,718
Johnson, I. D., Lifting jack	190,764
Johnson, W., Washing machine	190,763
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Jolly, T. J., Shot bag and charger	190,870
Jones, H. M., Pump	190,871
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Kelly, H., and D. Cole, Fruit drier	190,766
Keyser, J. H., Basin	190,767
Keyser, J. H., Urinal or water closet basin	190,768
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Kirley, T., Steam trap	190,769
Kiesele, A., Composition for casting ornamental figures	190,720
Kleinert, I. B., Ear slipper	190,872
Knowlton, H. C., Chair back and seat	190,874
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Kuchinka, J., Vegetable slicer	190,876
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Lafferty, R. M., Pump, (reissue)	190,686
Lasar, G. H., Tailor's measure	190,877
Lawrence, E. C., Lamp burner	190,771
Lee, A., Machine for punching and shearing metal	190,878
Lester, J. S., Hoe	190,687
Letton, R. E., Coupler for organs, &c	190,879
Leware, J. H., Safety collar for lamps	190,880
Littlin, J., Bob sled	190,881
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Makepeace, L. O., Boot and shoe crimping machine, (reissue)	190,772
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Martin, G. W., Combined lamp chimney, shade, and globe	190,883
Marvil, J. H., Fruit crate	190,688
Mathewson, S. W., Culinary dish	190,884
Maurel, S. J., and C. L. Truel, Safety valve	190,885
McCray, J. A., Nut lock	190,721
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Mesick, G. V., and E. P. Monteith, Harness saddle loop	190,775
Middleton, E. B., Car coupling	190,890
Mildren, E. J., Bottom for Bessemer converters	190,887
Miller, C. A., Claw bar	190,889
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Miller, H., Sheet metal can, (reissue)	190,888
Miller, H., Soldering machine	190,776
Mongeau, O., Door stop screw	190,891
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Morrison, J. B., Dental chair, (reissue)	190,892
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Myers, J. H., Harvester rake	190,727
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Porter, N. T. and T., Sewing thimble	190,897
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Randall, H. R., Process of manufacturing malt extract, (reissue)	7,688
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Reimers, C. A., and J. C. Branch, Stove mat	190 901
Remsen, G. W., Conveyance of liquids	190,902
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Ridler, G., Butter worker	190,692
Robbins, C. F., Rear sight for fire arms	190,782
Robinson, M. W., Washing machine	190,723
Rodier, E., Bung and bush, combined	190,905
Roemer, W., Belt buckle	190,906
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Roettgerr, W. C. A., Artificial fuel	190,724
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Schlaf, C. H., Loom temple	190,783
Schott, G., and G. P. Heberling, Vent apparatus	190,910
Schnitze, H. F., Cigar cutter	190,784
Scowden, L. A., Water regulator	190,911
Scudder, A. L., and J. L. Wayer, Rotary steam engine	190,785
Seyl, P., Fare register	190,912
Sharp, J., Machinery for stretching leather	190,693
Shave, L., and S. Y. Reams, Hand saw	190,914
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Simonson, F., Sawing machine	190,787
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Small, J. W. and E., Hay loader	190,725
Smith, H. S., Reclining chair	190,788
Smith, J., Converting motion	190,917
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Smith, W., Water meter or engine	190,920
Smith, W. and R. H., Gas holder	190,918
Smyth, G. M., Liquid diffuser	190,789
Snyder, J. H., Truss bridge	190,921
Snyder, W., and D. Evans, Gang edger	190,840
Snyder, W. P., Pressure gage	190,790
Spake, I. H. and J. D., Crimping apparatus for the uppers of boots and shoes	190,922
Sparks, W. E., Closet latch	190,792
Sparrow, T. F., Rotary engine	190,923
Spelman, W., Rowlock	190,793
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St. John, R. H., Sewing machine shuttle	190,925
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Stuart, D. J., Ice floor for refrigerators	190,928
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Tanner, H., Casing for car stoves	190,929
Teal, A. E., and C. E. Nelson, Thill support	190,727
Temme, C., Metallic sign letter	190,695
Templeton, S. E., J. C., and J. H., Hop drier	190,794
Thomass, H., Toy wagon	190,795
Thompson, G. M., Car starter	190 930
Thompson, G. M., Car coupling	190 931
Tilley, J. R., Cultivator	190,796
Towers, W. M., Plow	190,932
Travis, D. W., Horse hay rake	190,696
Truel, C. L., and S. J. Maurel, Safety valve	190,884
Turton, W., and J. H. Keyser, Waste way plug	190,768
Underwood, J. K., Gage	190,933
Van Sickle, G., Hay elevator, (reissue)	7,681
Vaughan, G. W., Carpenter's gage	190,934
Velie, H. C., Horse hay rake	190 935
Wade, N. K., Blackwashing device	190,697
Wager, J. L., and A. L. Scudder, Rotary steam engine	190,785
Wagner, J., and T. Gamble, Water elevator	190 845
Walker, C. A., Grain binder	190 936
Ware, E., Pantograph	190,797
Warrick, S., and G. S. Brush, Steam engine	190,938
Warwick, J., and W. S. Marshall, Windmill	190,937
Watson, N., Pipe cutting machine	190,798
Webber, I. J., Door check	190,939
Weber, T. A., Hermetically closing jar cover	190 940
Wendt, F., Safety pocket	190,799
Wheeler, J. C., Nursery chair	190,800
White, O., Change box	190 942
Whiting, J. L., Machine for making brush handles	190,941
Whiting, J. R., Composition hop extract	190,801
Wilbraham, J. W., Blowing machine	190,943
Williams, L. E., Corn planter and cultivator	190,944
Williams, W. A., Windmill	190 802
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Wolf, H. L. R. and O., Paper box	190,945
Woods, G., Reed organ action	190 698
Wyeth, H. M., Double acting anti freezing force pump	190,946
Zimmerman, N., Bee hive	190,947

TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED MAY 15, 1877.

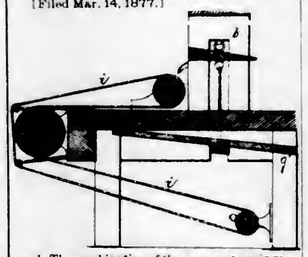
190,662. BLACKBOARD-ERASERS. Herbert L. Andrews, Chicago, Ill. [Filed Mar. 1, 1877.]



1. A blackboard-eraser, consisting of a block having strips of felt *a*, or other similar material, glued to the block, and a strip, *b*, of the same material extending across the ends of the strips, all so arranged as to have channels *c* between the several strips, the channels being closed at their ends, substantially as and for the purposes specified.

2. A reversible blackboard-eraser, consisting of the block A, having strips of felt *a a'*, or other similar material, and strips *b b'*, glued to opposite sides thereof, and so arranged as to leave channels *c c'* between the strips, in combination with the block B, all constructed and operating substantially as described.

190,663. BAG-MACHINES. Wm. P. Arnold and George Quigley, Fredericksburg, Va. [Filed Mar. 14, 1877.]



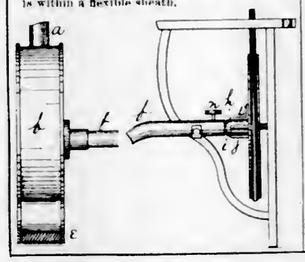
1. The combination of the presser *d*, springs, treadle *g*, and guides *b* with an endless band, *i*, or other equivalent mechanism, for carrying the bags away when finished, substantially as specified.

2. The combination of the presser *d*, springs *e*, treadle *g*, and guides *b*, substantially as set forth.

3. The presser *d*, beveled away at its front edge, so that the paper can be folded back over it while it is holding the bag, substantially as described.

190,664. MOTORS FOR SEWING-MACHINES. A. D. Black, Portland, Me. [Filed Dec. 11, 1876.]

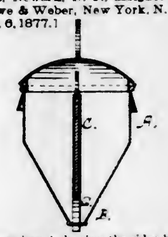
Brief.—To the axis of a small overshot wheel, set to any point where water-pressure is available, there is attached a flexible shaft formed of spirally-coiled wire, the other end being, by means of tines, affixed to the hub of a wheel on the sewing-machine. The shaft is within a flexible sheath.



1. The combination of the flexible tube *f*, having within it the coiled wire *g*, with the head *h*, having the parts *i j k*, and bent piece *l*, and brake *n*, as herein set forth, and for the purposes described.

2. The combination of the box *b*, the wheel, the pipe *a*, flexible tube *f*, coiled wire *g*, head *h*, with parts *i*, *j*, and *l*, to be attached to a sewing-machine, as herein set forth.

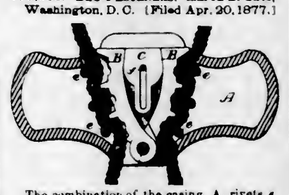
190,665. LUBRICATORS FOR JOURNALS. J. H. Burnett, Newark, N. J., assignor to Chard, Hawe & Weber, New York, N. Y. [Filed Apr. 6, 1877.]



1. The case or box A, having the sides beveled at the lower end B, and fitted with an opening, D, through which the grease is to be fed to the journal by one of feeder-plates C, substantially as and for the purpose specified.

2. The metal plate C, having the feeders G working vertically in and through the box A, to have a bearing on a journal to be lubricated, substantially as and for the purpose set forth.

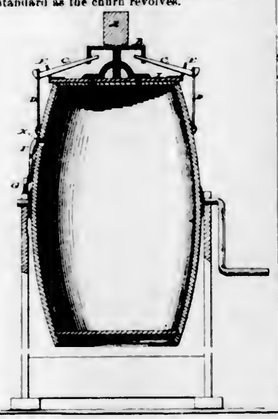
190,666. BAG-FASTENERS. Aaron B. Cate, Washington, D. C. [Filed Apr. 20, 1877.]



The combination of the casing A, rivets *e*, pivoted arms B B, having shoulders *d*, and wedge C, substantially as shown and described.

190,667. CHURNS. D. C. Chadwick, Meadville, Pa. [Filed Sept. 7, 1876.]

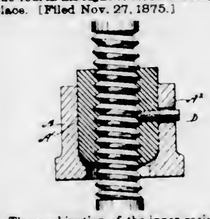
Brief.—The cover is held in place by means of levers, links, a cap, and screw. A vent-valve is operated by the handle striking the standard as the churn revolves.



1. The combination, on a revolving churn, of the links D, levers G, follower B, screw A, bail H, and fulcrums E, for the purpose of making the cover I water tight on the top of the churn, when made as and for the purpose specified.

2. The valve F and trip G on a revolving churn, when made and operated as described, and for the purpose set forth.

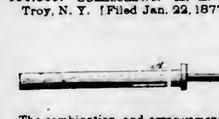
190,668. CONSTRUCTION OF DISKS FOR SCREWED STAMPER-SHANKS. Jas. Cliff, Sandhurst, Colony of Victoria, assignor of one-fourth his right to A. Harkness, same place. [Filed Nov. 27, 1875.]



1. The combination of the inner casing A^1, outer casing A, and retaining-pin D, substantially as described.

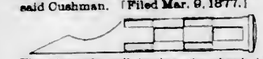
2. In combination with the pin D, fixed in the inner casing, the outer casing having the slotted opening A^2, whereby it is adapted to move in a vertical direction, as described.

190,669. CORKSCREWS. M. L. Crannell, Troy, N. Y. [Filed Jan. 22, 1877.]



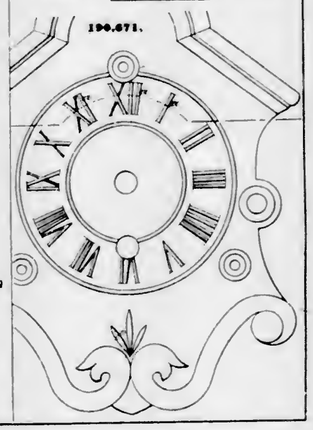
The combination and arrangement, with a corkscrew, of the sleeve or tubular cover A, having spurs or equivalents to grasp and hold the cork while being pierced by the screw-point.

190,670. SHOE-NAILS. H. S. Cushman and J. S. Brigham, Milford, Mass., assignors to said Cushman. [Filed Mar. 9, 1877.]



The shoe-sole nail having the shank indented or cellulated, in the manner as represented, and provided with a point and a ridge to the clinching slope thereof, all arranged as specified.

190,671.



THE GRAPHIC CO. N.Y.

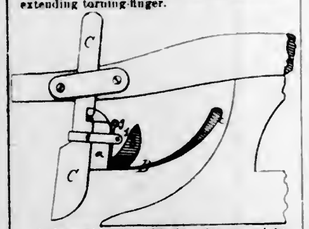
190,671. CLOCK-DIALS. Henry J. Davies, Brooklyn, N. Y. [Filed Feb. 27, 1877.]

1. A clock-dial made of pressed glass, substantially as herein described.

2. A pressed glass clock-dial having its numerals integral with it, substantially as herein described.

190,672. PLOW-JOINTERS. Jay Densmore, Tonawanda, N. Y. [Filed Mar. 7, 1877.]

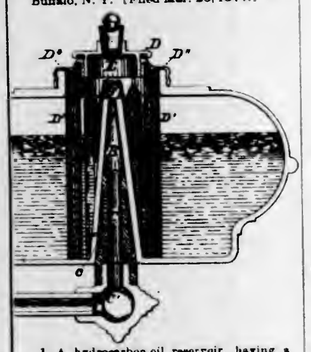
Brief.—A pointer clamped to the rear of a colter, having a cutting share with its outward end curved upward, and a rearward-extending turning-finger.



1. In combination with the colter or upright piece C, the jointer D, constructed with the upright post *a*, the curved cutting-shear *b*, and the long elevating-bar *c*, substantially as hereinbefore specified.

2. In combination with the colter C and jointer D *a b c*, the lips *d d*, the band *e*, bolt *f*, and key *g*, for the purpose of attaching and adjusting the jointer, substantially as specified.

190,673. HYDROCARBON-LIQUID ATTACHMENTS FOR GAS-BURNERS. H. W. Dopp, Buffalo, N. Y. [Filed Mar. 26, 1877.]



1. A hydrocarbon-oil reservoir, having a gas-burner in its cap, provided with a series of pendant metallic strips attached to said burner, and surrounded by a liquid absorbent, whereby the oil is rapidly vaporized within said reservoir, substantially as hereinbefore set forth and described.

2. The combination, with a hydrocarbon-oil reservoir, of a common gas-burner and a liquid-evaporating device, arranged to effect the vaporization of the liquid within by means of conductors leading the heat from the flame to the said evaporating device, substantially in the manner and for the use and purpose specified.

3. The combination, with the cap D provided with a burner-tip, of the metallic heat-conductors D', surrounded with a liquid absorbent, whereby the heat from the burner is conducted into the reservoir, to accelerate and increase the evaporization of the hydrocarbon liquid within, in a manner as and for the purpose heretofore stated.

4. The combination, with the tube B, of the cap B', as described, said tube or cap being corrugated, to prevent the liquid from entering said tube when the reservoir is filled without interfering with the escape of the gas from said tube B, as stated.

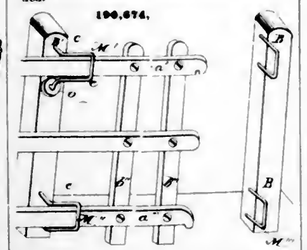
190,674. FARM-GATES. Henry N. Dunbar, Mentor, Ohio. [Filed Mar. 13, 1876.]

1. In combination with the post B', the gate-hanger M', formed of metal, with right-angled arms, the lower one of which is depressed, so that the elevated arm *e* forms a shoulder, which will correspond in height with the top of said roller, substantially as and for the purpose specified.

2. In combination with the post B', the gate-hanger M'', formed of metal, with right-angled arms secured to the post and setting off therefrom, in the manner and for the purpose specified.

3. In combination with the notched end of the boards *a' a''*, the catch M''', formed of metal, with right-angled arms inserted in the inner face of the post B, substantially as specified.

190,674.



190,675. HOMINY-MILLS. Geo. B. Gaines, Indianapolis, Ind., assignor of one-half his right to John E. Sanders, same place. [Filed Mar. 20, 1876.]

1. The cylinder A containing the stirrers F, having an opening at one side, and a door, B', adapted thereto, and hinged at the upper edge, and provided at that part not occupied by the door with a steam-jacket, B, as set forth.

2. The beater-shaft composed of the square shaft L, and angle-iron wings E, arranged in the manner shown, for the purposes specified and described.

3. The beating-knife F, formed with a hollow-ground blade, sharp at the edge *a*, and broad at the back *b*, and with a shank, Y, which is provided with a screw-thread and nuts, H H, as shown, for the purposes set forth and described.

4. The stud G, formed with a groove, G', in the head, and a screw-threaded shank, J, and nuts K K, in combination with the beater-knives F, and angle-iron wings E, for the purposes set forth and described.

190,676. BONE-BLACK REVIVIFIERS. Jos. Gandolfo, Brooklyn, N. Y. [Filed Feb. 21, 1877.]

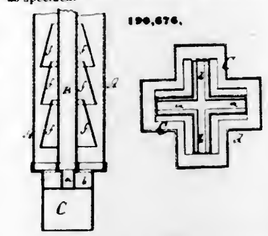
Brief.—Hollow frustums of cones are placed one above the other within the retorts, for carrying off the gases from the bone-black. The retort is cross-shaped in transverse section, thus having longitudinal grooves for providing a greater heating surface.

1. The socket C, constructed with two hollow bridges, *a* and *b*, which cross each other in the socket, in combination with the retort A and inner pipe B, substantially as herein shown and described.

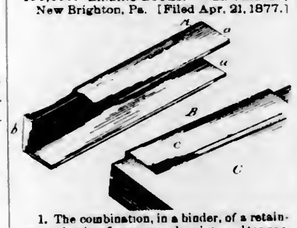
2. The revivifying-retort A, constructed with the external upright channels *d d*, substantially as and for the purpose herein shown and described.

3. The hollow funnels *f f*, placed in a row within the chamber *e* of a revivifying-retort, against the solid wall of said retort, all arranged so that the funnels discharge the ascending gases into one another, substantially as specified.

190,676.



190,677. BINDING BOOKS. Wm. Gilliland, New Brighton, Pa. [Filed Apr. 21, 1877.]



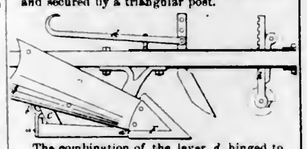
1. The combination, in a binder, of a retainer, A, having flanges *a* and an internal tongue, *c*, and a pocket, B, formed upon a packet, C, of the papers to be secured, all substantially as set forth.

2. The packet C with its pocket B, adapted for attachment to a tongue, *c*, of a retainer attached to the cover, substantially as specified.

3. The retainer, carrying a tongue, *c*, arranged to be parallel with the back of the book, and adapted to be inserted in a pocket on the packet of leaves, as specified.

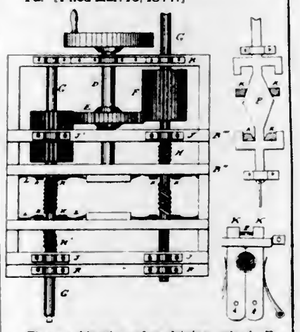
190,678. REVERSIBLE PLOWS. Jno. Gogel, Toledo, Ohio. [Filed Mar. 3, 1877.]

Brief.—Colter of a side-hill plow shifted laterally by a lever pivoted only to the colter, and secured by a triangular post.



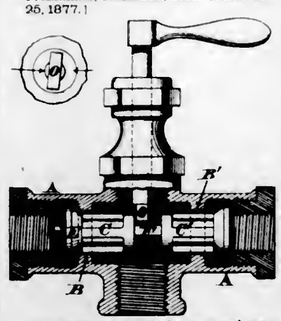
The combination of the lever *d*, hinged to the colter, with the angular standard *e*, for adjusting the colter to the right or left of the beam, as described.

190,679. SCREW-GEARINGS. H. Hackman, Jr., Pequea Township, Lancaster County, Pa. [Filed Mar. 16, 1877.]



The combination of a driving-wheel, E, moved by the power applied in a continuous direction, and imparting motion to the long or traversing cogged wheel F, supported on the right and left handed screw shaft G, the divided nuts K, opened and closed to reverse and give the alternate motion back and forth of the shaft, by means of a shifting device, P, substantially arranged and operating as and for the purpose specified.

190,680. AUTOMATIC CYLINDER-COCKS. G. F. Hammer, Cincinnati, Ohio. [Filed Apr. 26, 1877.]



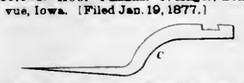
1. In combination with barrel A and seats B B' of an automatic cylinder-cock, a pair of adjustable and loosely-coupled reciprocating valves, substantially as herein described, and for the purpose set forth.

2. An automatic cylinder-cock, consisting essentially of barrel A, seats B B', and reciprocating valves C C', one of said valves being furnished with an adjustable stop, E, and a longitudinal bore, D, which bore is traversed by the stem F of the other valve, substantially as herein described, and for the purpose set forth.

190,681. FORM OF SEALING-WAX OR ROSIN FOR USE, THE SAME BEING IN DROPS OR DISKS. Chas. F. Hermann, St. Louis, Mo. [Filed Mar. 22, 1877.]

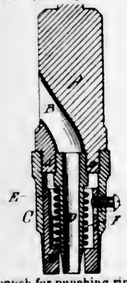
As an article of manufacture, sealing-wax or rosin in round, oblong, or flat drops, substantially as and for the purpose specified.

190,682. HOOF-PARERS. J. Hilger, Bellevue, Iowa. [Filed Jan. 19, 1877.]



The tool A, having slot S and set-screw B, butteris-blade C, held in lug D by the pin E, brace-head E', and pin F, in combination with the upper-tongs, substantially as and for the purpose described.

190,683. PUNCHES FOR LEATHER, &c. C. Jenkins and A. B. Jenkins, Boston, Mass. [Filed Mar. 6, 1877.]



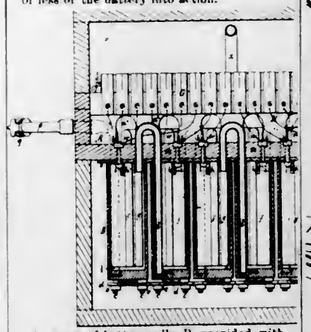
1. In a punch for punching rings and washers, the combination of a detachable outer punch, a hollow removable central punch, and an automatic diaphragm surrounding the central punch, all arranged and operating as described.

2. In combination with a stock, A, provided with the hole B and projection *a*, the removable punches C and D, cylinder E, provided with diaphragm E' and spring F, substantially as shown and described.

3. In combination with a hollow circular punch, D, opening into the outlet B in the stock, with a yielding diaphragm, E', surrounding the same, substantially as described.

190,684. GALVANIC BATTERIES. C. R. Jennison, Boston, assignor to himself and E. K. Hall, Needham, Mass. [Filed Mar. 13, 1877.]

Brief.—For filling and emptying the battery cells, and for bringing at pleasure more or less of the battery into action.



1. A set of battery-cells, B, provided with induct and educts *l o n*, arranged with such cells, substantially as set forth.

2. A set of battery-cells, B, provided with wells *m* and inducts and educts *l o n*, arranged with such cells, substantially as set forth.

3. Two or more sets of battery-cells, B, provided with wells *m* and inducts *l o n*, and one or more connection-hoses, *g*, arranged with such cells, substantially as set forth.

4. The combination of the liquid supply and extractive vessel C and its air and flexile pipes *s w e* with a set of battery-cells, B, provided with inducts and educts *l o n*, all being arranged substantially in manner to operate as set forth.

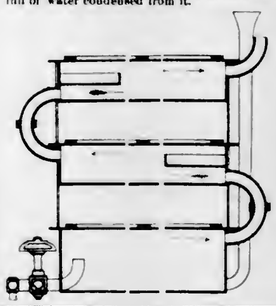
5. The combination of the suppport-board *a* and the india-rubber packing *b* with the series of open battery-cells B and mechanisms for clamping the cells to the packing and board, substantially as set forth, such being the said bolts *c*, cross-bars *d*, and nuts *e*, arranged as represented.

6. The slide O, provided with wires *g'*, or such and a metallic strip, *f''*, arranged substantially as set forth, in combination with the two ranges F G of springs, the auxiliary springs K L and the battery-cells, and the positive and negative elements electrically connected with such ranges of springs, all being arranged essentially in the manner, and to operate as specified and represented.

7. The combination of the air and gas escape conduits *w x* and their valves *y z* with the battery-cells, their positive and negative elements, and fluid-supply inducts and educts, arranged substantially as specified.

190,685. FRUIT-DRIERS. Hampton Kelly and David Cole, East Portland, Oreg. [Filed Mar. 27, 1877.]

Brief.—The pans are intended to deflect the incoming currents of steam, and to be kept full of water condensed from it.



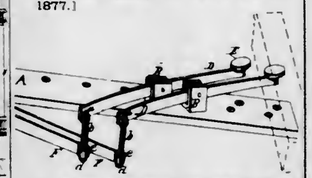
The combination, in a fruit and vegetable drying machine, substantially as described, of a succession of flat hollow boxes of thin metal, one above another, with a boiler, steam and feed pipes, and pans to prevent burning.

190,686. TAILORS' MEASURES. G. H. Lasar, St. Louis, Mo. [Filed Jan. 29, 1877.]



The combination of the fixed arm A, adjustable slide B, and guide C, one of the elements being provided with a spring holding-tongue, *s*, forming an integral part of the same, as and for the purpose set forth.

190,687. COUPLERS FOR ORGANS, &c. R. E. Letton, Quincy, Ill. [Filed Feb. 19, 1877.]

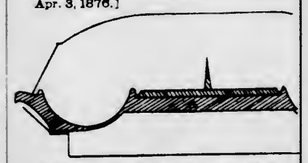


1. A coupler for keyed instruments which is sustained in single detachable pivot-stands B, placed on opposite sides of the pivot-board, substantially as shown and described.

2. A hinged coupler for keyed instruments, the two levers of which are connected by a thong, and are pivoted on opposite sides of the pivot-board, substantially as shown and set forth.

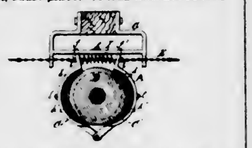
3. The lever D, thong *b*, and lever F, in combination with the stands B and pivot-board A, all arranged substantially as set forth.

190,688. CULINARY DISHES. S. W. Mathewson, Narragansett Pier, R. I. [Filed Apr. 3, 1876.]



In a culinary dish, the combination of the platter and gravy sink or sinks with the removable carving board, substantially as and for the purposes described.

190,689. CAR-BRAKES. Isaac R. Oakford, Philadelphia, Pa., assignor to S. L. Garrett, same place. [Filed Oct. 26, 1876.]



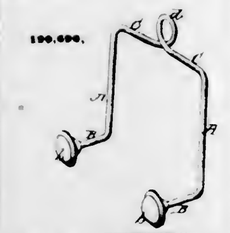
1. In combination with the chain E, and end *f f* of the clamp A, the hangers G G', secured to the under side of the car-body over each axle, adapted to support the chain and receive and guide the free ends of the clamp, substantially as set forth.

2. The combination of the free ends *f f*, of the semicircular clamp A, chain E, pins or stops *i* and *i'*, and spring I, with the slot and cross-bar *h*, of the hanger G, substantially as set forth.

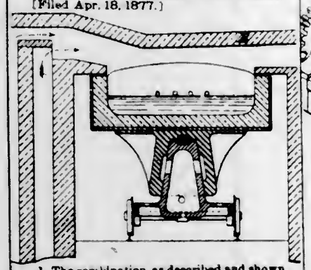
190,690. PICTURE-HANGERS. Isaac Piles, Yankton, Dak. [Filed Jan. 25, 1877.]

A picture-hanger formed of a single piece of wire, having vertical arms A A, arms C C, loop *d*, and arms B B, provided with supplemental knobs *b b*, substantially as set forth.

190,690.



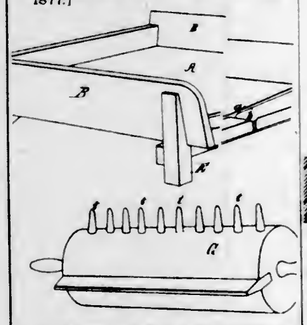
190,691. REMOVABLE-HEARTH METALLURGIC FURNACES. A. Ponsard, Paris, France. [Filed Apr. 18, 1877.]



1. The combination, as described and shown, with a stationary furnace, of a movable sole or hearth capable of revolution upon an inclined pivotal axis, and provided with tuyeres arranged as shown and described, whereby a blast of air, gas, or other matter is admitted either into or over the molten metal according to the position of the said hearth with reference to the axis, substantially as herein shown and set forth.

2. The combination, with a stationary furnace, of a movable hearth or sole, an inclined hollow pivotal axis upon which the hearth is mounted, and may revolve, and blast conveying device, as set forth, the arrangement of the parts being such that the blast of air or gas can be forced into the interior of the converting-chamber through the hollow axis, substantially as shown and set forth.

190,692. BUTTER-WORKERS. Geo. Ridler, Rickardsville, Iowa. [Filed Mar. 23, 1877.]



1. The curved slab A, having grooves or channels *a* and *b*, the inclined sides B B, rear plate F, and legs E E, braced as explained, the whole being constructed and united as set forth.

2. The herein-described butter-working apparatus, consisting of the table A B, elevated as shown, and provided with channels *a b*, and the roller G, having blade I and teeth *t*, as set forth.

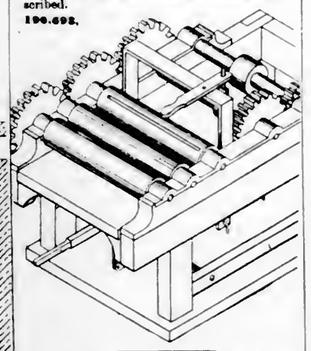
190,693. MACHINERY FOR STRETCHING LEATHER. Jos. Sharp, Cincinnati, Ohio. [Filed Feb. 14, 1877.]

1. The combination, in a leather-stretching machine, of the horizontal series of parallel rolls with a centrally-pivoted self-adjusting pressure bar, arranged for operation substantially as described.

2. In a leather-stretching machine provided with a series of parallel rolls, substantially as described, the combination of a centrally-pivoted self-adjusting pressure-bar with a system of levers for operating the same, substantially as and for the purpose specified.

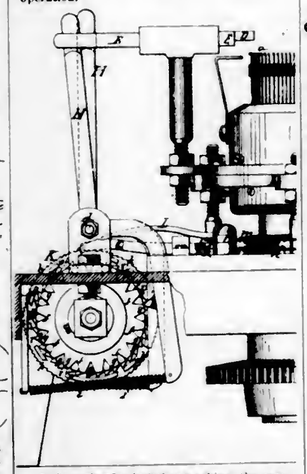
3. In a leather-stretching machine, the self-adjusting pressure-bar, centrally pivoted below a pair of rolls, in combination with its operating-levers and treadle, for straightening and equalizing the texture of the side or piece of leather being stretched, substantially as described.

190,694.



190,694. KNITTING-MACHINES. James M. Slack, Bristol, Pa., assignor to Julia M. Slack, same place. [Filed Dec. 21, 1876.]

Brief.—Lace-wheels, by intervening levers, actuate the thread-guides, and are governed by ratchet-wheel and pawl, whose action is permitted or suspended by another ratchet-wheel, having sectional side flanges overhanging the teeth of the first ratchet-wheel. The spaces between the flanges permit the first ratchet-wheel and pawl to operate. The flanges come between them, and suspend their operation.

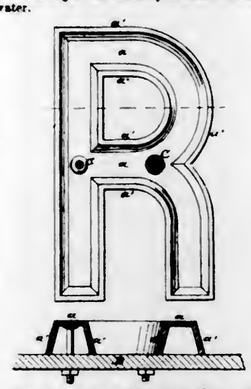


1. In a circular knitting machine, the combination of two or more shifting yarn-carriers, D E, actuating-levers H H, cam-wheels I I, flanged pattern-wheel K, ratchet-wheel P, and pawl Q, for automatically knitting goods in colors according to a predetermined pattern, substantially as and for the purpose herein specified.

2. In combination with the cam-wheels I I and a ratchet-wheel, P', and pawl Q, actuated by a cam on the revolving needle-cylinder, a flanged ratchet pattern-wheel, K, and pawl L, constructed and operating to actuate the shifting yarn carriers, substantially as and for the purpose herein specified.

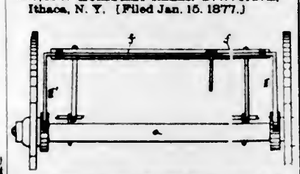
190,695. METALLIC SIGN-LETTERS. Christian Temme, St. Louis, Mo. [Filed Feb. 25, 1876.]

Brief.—The letters, being hollow or shell like, are enabled to be more readily fitted to whatever object it is desired to attach them, and to make a tight joint to exclude water from their interior, thus avoiding "rust-drips." Being hollow, they are easily manipulated in attaching them. Their top, bottom, and side edges are inwardly inclined to shed water.



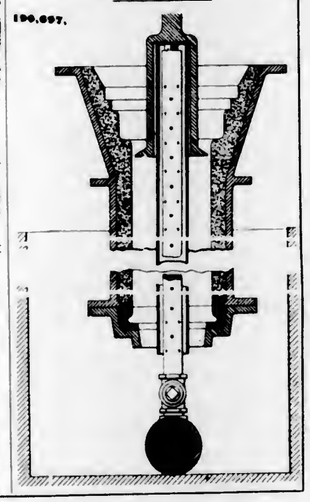
The sign-letter, having front plate a and inclined side, top, and bottom plates *a'*, in combination with the bolts C, arranged as described, and for the purpose set forth.

190,696. HORSE HAY-RAKES. D. W. Travis, Ithaca, N. Y. [Filed Jan. 16, 1877.]



The rod *f*, lying longitudinally upon and attached to the rider-bar, and having pawl-arms *g* rigidly attached to its ends, in combination with ratchets upon the wheel-hubs, and with an operating-lever, or suitable connections to independent dumping apparatus, substantially as described.

190,697.



190,697. BLACKWASHING DEVICES. N. K. Wade, Columbus, Ohio, assignor to H. R. Smith, same place. [Filed Mar. 30, 1877.]

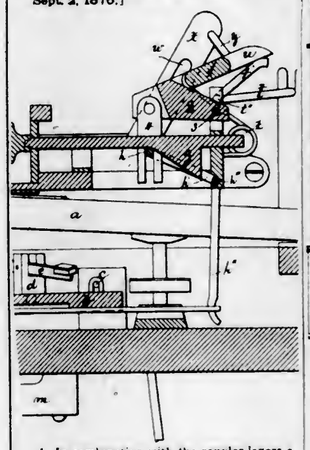
Brief.—A sleeve incases the perforated drying-tube as a guard when the mold is blackwashed.

1. The hereinbefore-described hollow dasher or blackwash-deflector, adapted to fit over and be supported by the pipe which passes through the flask and mold, as set forth.

2. The hereinbefore-described covering pipe, in combination with the perforated pipe in the center of the flask and mold, as set forth.

3. The combination, substantially as hereinbefore set forth, of the flask, the jet-pipe therein, the covering-pipe, and the dasher.

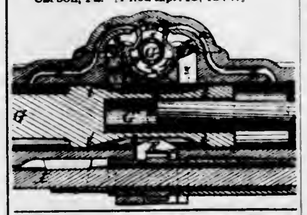
190,698. REED-ORGAN ACTIONS. George Woods, Cambridgeport, Mass. [Filed Sept. 2, 1876.]



1. In combination with the coupler-levers *e e'* and the keys *a a'*, the forked bearings *d d'*, provided with the circular projection *d''*, and secured to the coupler-board *b*, substantially as and for the purpose described.

2. The combination of the cross-bar 1, the toggle-joint *t c e w y*, and its connecting mechanism with the knee-pedal *m*, as and for the purpose herein shown and described.

190,699. ROCK-DRILLS. R. Allison, Port Carbon, Pa. [Filed Apr. 19, 1877.]



1. The oscillating or rocking valve D, provided with ports *a a*, exhaust-cavities *e e*, and lugs *d d*, as described, and turning on the hollow bolt G', having openings *x*, substantially as and for the purposes herein set forth.

2. The oscillating valve D, constructed as described, in combination with sliding blocks *m* and inclined piston-heads *i i*, substantially as and for the purpose set forth.

190,700. HYDRAULIC MOTORS. J. M. Bois, Salamanca, N. Y. [Filed Apr. 2, 1877.]

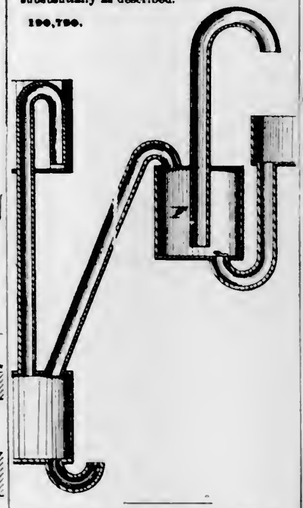
Brief.—As the water flows from the supply-tank into the lower chamber, the pressure in the latter forces air into the upper chamber, the pressure from which forces the contained water out of the delivery-pipe.

1. The hydraulic motor consisting, essentially, of an intermittently-flowing siphon, a final-discharge pipe, and an intermediate air-pressure chamber, with suitable connecting mechanism, substantially as described.

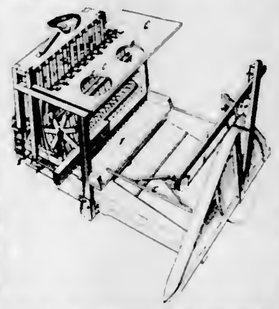
2. The combination of the intermittently-flowing siphon, water pressure chamber, and intermediate-connecting air-pressure chamber, the said chambers being provided with respective waste and feed water mechanism, substantially as described.

3. The combination, with the intermittently-flowing siphon and respective air and water pressure chambers, of a final-discharge pipe, the latter being adapted to operate a water-wheel or similar power-actuating mechanism, substantially as described.

190,700.



190,701. HAND-BINDERS. Jas. O. Brown, Massillon, Ohio, assignor of a part of his right to E. Bayliss, P. F. Hodges, and F. T. Lomont, same place; said Hodges assignor to said Bayliss. [Filed Aug. 9, 1876.]



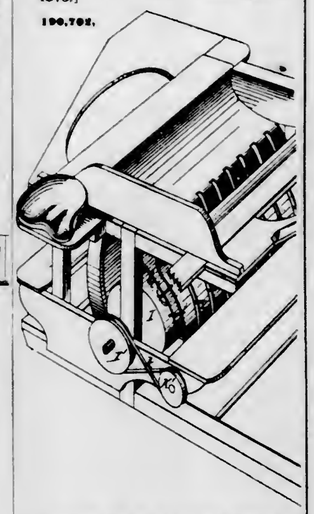
1. The binders' platform F, and binders' tables G arranged upon the grain side of the drive-wheel elevator and grain-receptacle, in combination with the driver's-seat support located inside the vertical face of the drive-wheel, substantially as and for the purpose described.

2. The platform apron or carrier, and the apron L arranged in the described relation to each other and to the binders' stand F, and operating to deliver the grain between the elevator slats, as set forth.

3. The overhung reel T, supported at the outer or grain side of the platform, in combination with the actuating-belts and pulleys arranged at the same side and operated from the grain-wheel, whereby said supports and driving mechanism are removed out of the way of the binders located at grain side of the elevator and drive-wheel, as described.

190,702. HAND-BINDERS. Jas. O. Brown, Massillon, Ohio, assignor of a part of his right to E. Bayliss, P. F. Hodges, and F. T. Lomont, same place; said Hodges assignor to said Bayliss. [Filed Aug. 9, 1876.]

190,702.



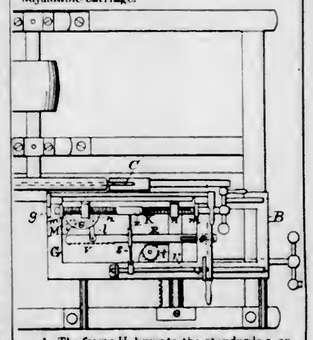
1. The series of curved strips *a*, fastened at their upper ends to the concave grain-receptacle, and at their lower ends to a sill or bar at the inner end of the platform apron or carrier, in combination with the toothed roller I, the teeth of which protrude between the strips, substantially as and for the purpose set forth.

2. The combination, with the concave grain-receptacle, of the slotted surfaces or two series of parallel strips, *a a'*, and the rollers I K, arranged and operating substantially as described.

3. The toothed elevating-drum I, in combination with the strips *a a'*, between which the grain is elevated, arranged at the platform or grain side of the elevating-drum, as described.

190,703. MACHINES FOR SAWING SHINGLES. Byron C. Brown, Clinton, Iowa. [Filed Feb. 10, 1877.]

Brief.—The shingle-bolt is held, while being fed to a circular saw, by means of pivoted dogs attached to a swinging frame, which is mounted on a horizontal frame, longitudinally adjustable upon suitable ways on a laterally-adjustable carriage.



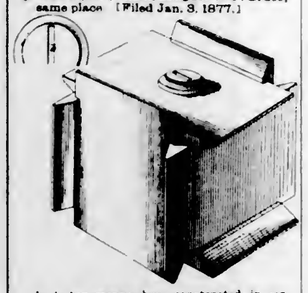
1. The frame H, hung to the standards *g*, on carriages G, in combination with slide-blocks *h*, carrying the dogs 1, substantially as and for the purposes described.

2. The dogs I, pivoted in recesses to the slide-blocks h, in the swinging frame H, in combination with the adjusting-bar K, substantially as and for the purposes described.

3. In combination with the carriages B C, the swinging frame H, pivoted dogs 1, and adjusting-bar K, all constructed and operating as shown and described.

4. The feeding devices, consisting of the combination of the adjustable bar B, having teeth v, lever y, on plate w, connected with the bar by a rod, l, wheel t, pinion u, and rack x, substantially as shown and described.

190,704. TOY MONEY-BOXES. W. Bruce, Minneapolis, Minn., assignor to F. Bruce, same place. [Filed Jan. 3, 1877.]

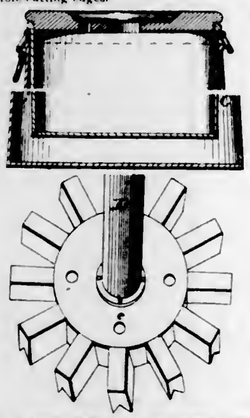


1. A toy money-box, constructed in six pieces, of wood or other suitable material, each piece provided with the grooves *a a*, and the whole adapted to be held firmly together without glue metallic or other fastening, substantially as described.

2. In combination with the subject-matter of the preceding clause, a movable button fitting an opening in the box, and having a slot or other aperture for admitting the deposit, as set forth.

190,705. RECIPROCATING CHURNS. Jacob Clinedinst, Gordonsville, Va. [Filed Mar. 24, 1877.]

Brief.—Two independent cans, in which is a dasher with radial arms, that may be adjustable to any angular inclination having double cutting-edges.



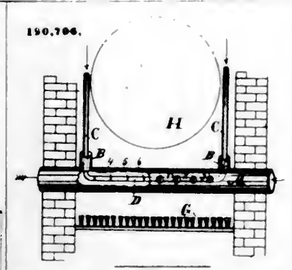
1. A double-shell churn constructed with two independent vessels or cans, the same being readily detachable, substantially as described.

2. The dasher, consisting of the perforated disk, provided with detachable radial arms, which latter may be adjusted at any desired angular inclination thereto, the said arms having double cutting-edges of unequal vertical length on their respective working faces, substantially as described.

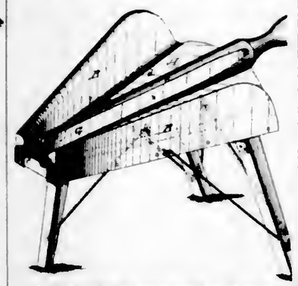
190,706. BLOWERS AND SMOKE-CONSUMERS FOR FURNACES. L. C. Cook, Ottumwa, Iowa. [Filed Feb. 1, 1877.]

In a boiler-furnace, the open-ended tube A, having open-ended branches B B opening into the furnace, and a series of intermediate openings, 1 2 3, the steam conveying, superheating, and distributing tubes C, C, and D, constructed and arranged and combined relative to the furnace-walls E E, and grate G, and the boiler H, substantially as and for the purposes shown and described.

190,706.



190,707. BUTTER-WORKERS. O. S. Cornish and D. W. Curtis, Fort Atkinson, Wis. [Filed Apr. 25, 1877.]

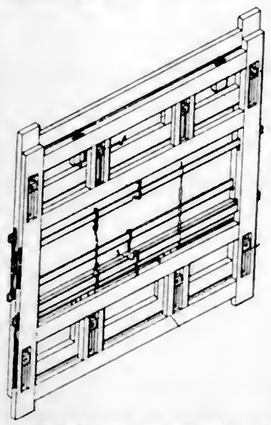


1. The roller G, constructed as described, and pivoted at *f*, in combination with the tapering inclined table or bed A, provided with the grooves *d d* and sides B, all constructed substantially as and for the purpose set forth.

2. The tapering roller G, constructed as described, to show in a cross-section the convexities *m* and *p* and the straight inclined sides *s s*, substantially as herein set forth.

190,708. HEDDLE-FRAMES. G. Crompton, Worcester, Mass. [Filed Mar. 7, 1877.]

Brief.—The heddle-frames are provided with extensions at the top and bottom, whereby the frames can be made much thinner and lighter than usual, and the same are guided and prevented from catching one upon the other. The heddle-frames are provided, also, with connections, whereby two adjacent frames are held together. The heddles are separately removable.



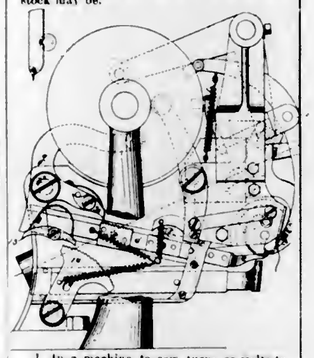
1. The combination, with the main portion of the heddle-frame, of extensions at the top and bottom thereof, whereby the said heddle-frame is adapted to remain in contact with an adjacent heddle-frame at both its highest and lowest position, to prevent the adjacent frames catching one against the other when raised or lowered to form the shed, substantially as described.

2. The combination, with the frame and heddle-holding bar made movable toward the other bar of the frame, of a heddle and hook, whereby the heddle may be removed from the frame or be secured therein, substantially as described.

3. The combination, with two heddle-frames provided with extensions, of heddle-retaining connections, to hold them together, substantially as described.

190,709. MACHINES FOR SEWING BOOTS AND SHOES. C. Dansel, New York, N. Y. [Filed Nov. 27, 1876.]

Brief.—A lip-holder very nearly resembling a short awl enters the lip or "between substance," and prevents the tearing out thereof by the needle or the thread while making the stitch. The awl is pivoted to its holder, and has a limited movement thereon, to give it a movement when entering the material somewhat similar to the awl in hand-sewing. The welt and back guides are moved a certain distance from the shoe, (while the feed takes place,) no matter how thick or irregular the stock may be.



1. In a machine to sew turns or welts to uppers and insoles, the combination, with stitch-forming mechanism, of a lip-holder, to penetrate the lip of the sole transversely to the path of the awl or needle, so as to hold the lip and sole in its place for the formation of the stitch, substantially as described.

2. The combination, with the welt-guide, of mechanism to impart to it an intermitting motion away from the shoe, substantially as and for the purpose described.

3. The combination, with the welt guide, of mechanism to move it away from the shoe a uniform distance, irrespective of variations in the thickness of the upper, substantially as and for the purpose described.

4. In combination, the lever *g*, pawls 30 and 13, and a toothed block, and segmental lever 14, substantially as described, to lock and release the back or edge and welt guides, as set forth.

5. The awl-carrying lever, in combination with the awl, pivoted thereto, substantially as described, to permit the point of the awl to be elevated, substantially as shown and described.

190,710. RING-SPINNING FRAMES. W. F. Draper, Hopedale, Mass. [Filed Sept. 22, 1876.]

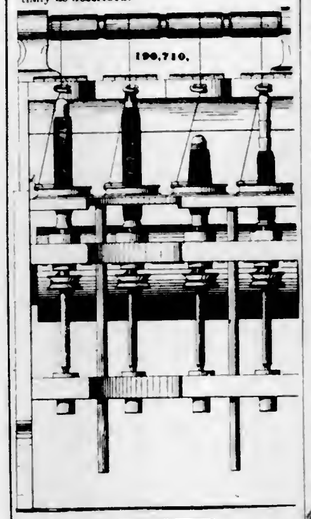
Brief.—The top of the bobbin is notched and extended up to the guide-wire, whereby the spinning of the yarn takes place between the guide-wire and the rolls, instead of between the guide-wire and the traveler. This strengthens the yarn as soon as it leaves the rolls, and lessens the liability of its breaking. The notches serve to engage and retain the yarn at the upper end of the bobbin, and cause it to revolve therewith. These notches serve to make the twist more positive, the yarn slipping from one notch to the adjacent one as the yarn is wound upon the bobbin.

1. The combination, with the traveler, guide-wire, and front roller, of a bobbin extended up to or near the guide-wire, and adapted to bear against the yarn being spun or twisted, and to force the twist from the end of the bobbin to the front roll, substantially as described.

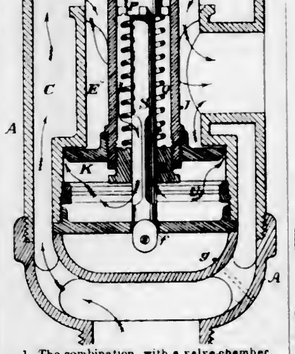
2. A bobbin notched or roughened at its upper end to engage the yarn, substantially as described.

3. The combination, with the bobbin, of a removable top piece or extension, substantially as described.

190,710.



190,711. SAFETY-VALVES. N. Du Brul, Cincinnati, Ohio. [Filed Mar. 6, 1877.]



1. The combination, with a valve-chamber, E, of the concentric shell A, forming a steam-jacket, C, as and for the purpose set forth.

2. The combination of double-headed valve I J K, chamber E, and concentric shell A, forming steam-jacket C, as and for the purpose set forth.

190,712. RELIEF-VALVES. N. Du Brul, Cincinnati, Ohio. [Filed Feb. 16, 1877.]

Brief.—The spring is adjusted to the desired pressure, and when the pressure exceeds this limit, the puppet-valve opens and allows the water to escape.

1. The combination of the double puppet-valve I I' J and the small auxiliary pressure-valve M, governing the passage K, connecting the chambers C and H above and below the said valve I I' J, respectively, said chambers having simultaneous communication with the return-passage E F between the heads I and I' of said puppet-valve, substantially as and for the purpose designated.

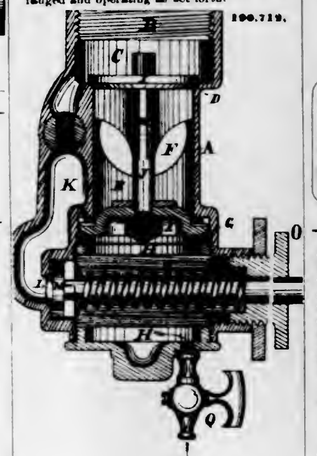
2. The combination of the following elements, to wit: first, a double puppet-valve, of two unequal disks, I I', united by a rigid stem, and of which the smaller disk is in permanent contact with the confined fluid; second, a side passage, K, closed by a spring-valve, M, of relatively small area, and which opens, with any excessive pressure, into a compartment beneath the larger disk, substantially as set forth.

3. The return-chamber E, separated from the discharge-chamber C by port D, guarded by the smaller member I of a double puppet-valve, I I' J, whose larger member I' opens and guards port G of chamber H beneath said puppet-valve, said chamber C having communication with said chamber H by side passage K, whose port L is guarded by valve M, of smaller area than member I, and which is held closed by a spring, N, capable of graduation by gland O to any desired maximum pressure, as and for the purpose set forth.

4. In combination with the double puppet-valve I I' J and conduits C, E, H, and K, the cock P, or its equivalent, for operation in the manner indicated.

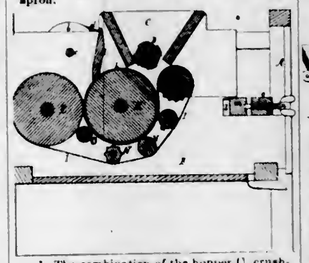
5. In combination with the double puppet-valve I I' J and auxiliary passage K, with their described accessories, the stop S, arranged and operating as set forth.

190,713.



190,713. CIDER-PRESSES. S. M. Ellis, East Andover, N. H. [Filed Nov. 13, 1876.]

Brief.—The elastic bands on the large expressing-cylinder bear against the endless apron.



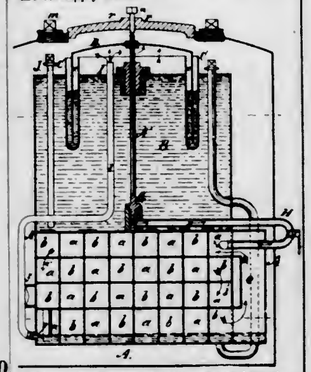
1. The combination of the hopper C, crushing-roller D, the expressing-cylinder K, its elastic bands *h h*, the endless apron I, and its end and intermediate carrying and expressing rolls E F G H N O, arranged substantially as represented.

2. The combination of the scraper L with the hopper C, crushing-roller D, the adjustable expressing-cylinder K, its elastic peripheral bands *h h*, and the endless apron and its end and intermediate rolls, arranged with the said roll K and the hopper C, as and to operate therewith, as set forth.

3. The combination of the scrapers I and L with the hopper C, crushing-roller D, the expressing-cylinder K, the elastic bands *h h*, and the endless apron I, and its end and intermediate rollers, arranged and to operate with the cylinder K, substantially as specified and represented.

190,714. GAS-CARBURETERS. Charles A. Enggren, Brooklyn, N. Y. [Filed Aug. 18, 1876.]

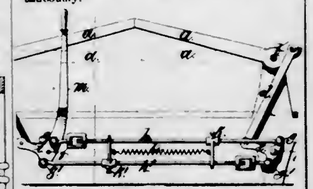
Brief.—A floating holder, resting in an annular seal within the oil-reservoir, is operated by the pressure of gas from the carbureter, to open a valve through which oil is fed to the carbureter. When the oil is reduced to a low level in the carbureter it permits gas to flow through a pipe into the float, for operating the oil-supply valve.



The valve G, automatically actuated by the pressure of the gas admitted through the pipe I, the body A of the carburetor underneath, the actuating device D, to which the stem A' of the valve G is attached, the whole arranged in relation with the liquid-inlet pipe H of the carbureter, substantially as described, whereby, when the liquid hydrocarbon in the body A is diminished below a certain point, the gas is transmitted under pressure to lift the valve G, for the purpose set forth.

190,715. AUTOMATIC GATES. J. E. Goldsworthy, Central Falls, R. I. [Filed Feb. 11, 1876.]

Brief.—Two vertically-swinging gate-bars are supported by standards, one on each side of the road, these bars being connected by mechanism, so as to open and close simultaneously.



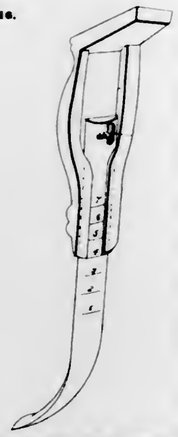
1. The combination, substantially as specified, of the two vertically-swinging bell-crank gate-bars *a a*, by means of the connecting-rods *d d*, bell-crank levers *e e*, one or more rods, *h h*, and the spring L, arranged to operate substantially as and for the purpose set forth.

2. In combination, substantially as specified, with the vertically-swinging bell-crank gate-bars *a a*, by means of the connecting-rods *d d*, bell-crank levers *e e*, the adjustable rods *h* and *h'*, and spring L, arranged to operate substantially as and for the purpose set forth.

3. In combination, substantially as specified, with the vertically-swinging gate-bars *a a*, the connecting-rods *d d*, bell-crank levers *e e*, and rods *h* and *h'*, the shaft or shafts connecting the bell-crank levers *e e*, so that, when power is applied to open or close either gate, uniformity of action will be observed in all the gates so connected.

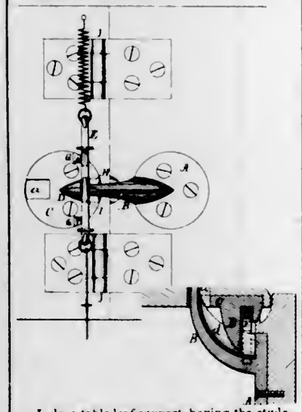
190,716. STOVE-LEGS. P. Hauersperger, Homer, Ill. [Filed Mar. 31, 1877.]

190,716.



The combination, with a stove-leg, of a sliding graduated extension, the latter adjustably secured to the stove-leg by a set-screw, substantially as and for the purpose specified.

190,717. TABLE-LEAF SUPPORTS. N. A. Hull, Peru, Ind., assignor to the Indiana Manufacturing Company, same place. [Filed Mar. 1, 1877.]



1. In a table-leaf support, having the studs B D, the bar E, having the wedge-shaped stop I, all combined as and for the purposes set forth.

2. The table-leaf support, consisting of the circular plate A, having the projection B, provided with the slot *d*, the circular plate C, having the cavity *a*, provided with stud D and lugs G G H, the bar E, having the wedge-form stop I, in connection with the butts J J, when constructed and combined as hereinbefore set forth.

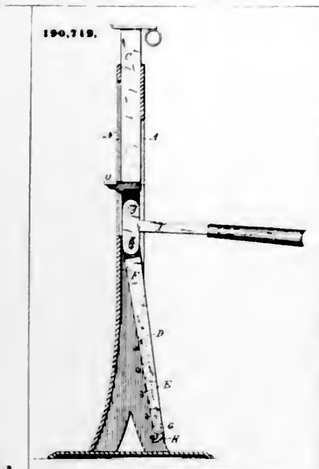
190,718. LIFTING-JACKS. I. D. Johnson, Kennett's Square, Pa. [Filed Mar. 7, 1877.]

1. The adjustable fulcrum F, provided with the round trunnion-pin G and hook H, in combination with the cross-bars K E and frame A, having the niches D D, substantially as and for the purpose described.

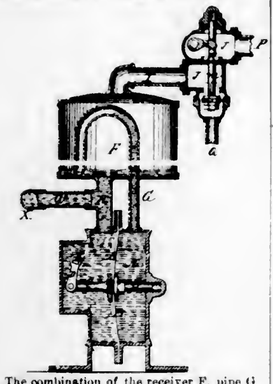
2. The frame A, having the pin-hole R near its top to allow the connection to be made between the lower end of the supporting bar C and the short arm of the lever I by means of the pin T, substantially as described.

3. In combination with the frame A, having the slot N, the supporting-bar, and the bracket O, provided with the guide-faces X, which slide on the frame A and keep the supporting-bar C strictly in line with the frame A.

190,719.

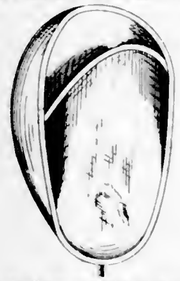


190,719. STEAM-TRAPS. Timothy Kieley, New York, N. Y. [Filed Feb. 7, 1877.]



The combination of the receiver F, pipe G and pipe H, chamber A, interposed diaphragm B, valves K and L, and mechanism for connecting the diaphragm and valve, substantially as and for the purpose set forth.

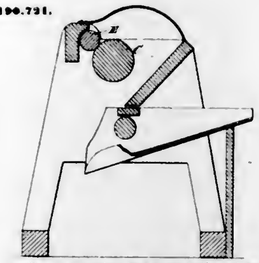
190,720. EAR-SLIPPERS. I. B. Kleinert, New York, N. Y. [Filed Apr. 7, 1877.]



An ear-slipper consisting of an outer piece of the desired size and form to cover the ear, and an inner or fastening piece, which latter is arc-shaped and secured to the outer piece above the middle portion of the same, substantially as and for the purpose set forth.

190,721. CORN-SHELLERS. E. S. McEwen, Lisbon, Ill. [Filed Jan. 27, 1877.]

190,721.

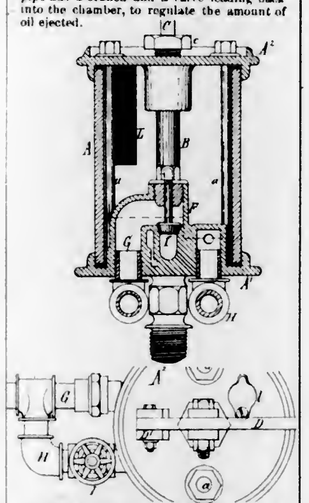


1. The combination, in a corn-sheller, of the cylinder E and the shelling-cylinder C, the two revolving in the same direction, and being so constructed and arranged that the shelling-cylinder C carries and shells the ears of corn against the revolving surface of E, substantially as and for the purposes set forth.

2. In a corn-sheller, the combination of one or more auxiliary cylinders on a shelling-cylinder, all the cylinders being parallel, or nearly so, and rotating in the same direction, the auxiliary cylinder or cylinders being so arranged as to form a channel in combination with said shelling-cylinder, and to rotate the ears of corn and prevent them from wedging as they pass along said channel while being shelled by the shelling-cylinder.

190,722. LUBRICATING DEVICES FOR STEAM-ENGINES. William Moses, Buffalo, N. Y. [Filed Oct. 3, 1876.]

Brief.—A cylindrical glass chamber, in which a plunger is worked by attachment to some moving part. A suction and ejection port, and valve in the bottom. The ejection-pipe has a branch and a valve leading back into the chamber, to regulate the amount of oil ejected.



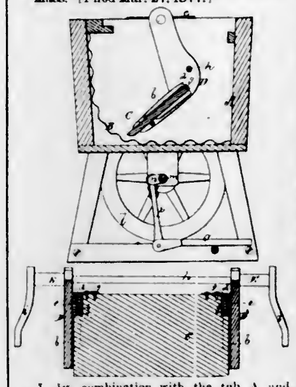
1. The combination, with the oil-receptacle and discharge-pipe of a lubricating-pump, of a return-pipe provided with a suitable cock or valve for regulating the amount of oil ejected from the discharge pipe by the action of the pump, substantially as hereinbefore set forth.

2. The combination, with the oil-receptacle A and pump B C, arranged therein, of the discharge-pipe G and return-pipe H, provided with regulating-valve I, arranged as and for the purpose hereinbefore set forth.

3. The combination, with the glass vessel A, of the metallic top A^1 and metallic bottom A^1, cast with the pump-barrel B and chambers E F, the parts being secured together by bolts *s*, as and for the purpose hereinbefore set forth.

4. The combination, with the oil-vessel A A^1 A^2, of the force-pump B C, discharge pipe G, return-pipe H, valve I, lever D, and actuating-rod D', substantially as and for the purpose hereinbefore set forth.

190,723. WASHING-MACHINES. M. W. Robinson, East Somerville, assignor to himself and O. P. Prescott, South Boston, Mass. [Filed Mar. 27, 1877.]



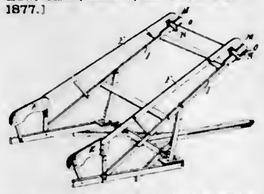
1. In combination with the tub A and its wash-board or corrugated lining B, the notched dasher C and its recessed support ing-arms D D, springs *e e*, and stops *g g*, arranged and applied essentially as set forth.

2. In combination with the tub A and its wash-board or corrugated lining B, and with the dasher C and its recessed supporting-arms D D, springs *e e*, and stops *g g*, arranged as set forth, the crank *i i*, connecting-rods *k k* fly-wheels *l l*, cranked shaft *m*, and the pedal *o*, arranged as specified.

190,724. ARTIFICIAL FUEL. W. C. A. Rettgerr, Brussels, Belgium. [Filed Dec. 4, 1874.]

The artificial fuel described, consisting of pulverized and sifted coal or coke dust, or similar carbonaceous material, united by a cement composed of ferruginous lime prepared with soluble silica having an excess of alkali, the compound being formed into blocks, as and for the purpose described.

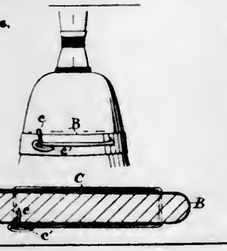
190,725. HAY-LOADERS. J. W. Small and Edw. Small, Aurora, Ill. [Filed Mar. 8, 1877.]



1. In combination with the fixed or stationary side boards E E, located as described, the movable side boards F F, affixed to the side beams I I of the carrier-frame, and extending from near the place or position assigned for the wheels to the end of the frame, the combination being and operating substantially as and for the purpose described.

2. In combination with the side beams I I of a hay-loader, the ratchets M M, ratchet-boxes N N, connected by a cross-rod and the plugs or wedges O, as and for the purposes described.

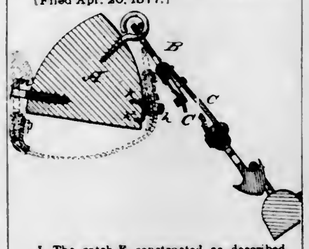
190,726.



190,726. BROOMS. A. Stephen, Clinton, Iowa. [Filed Apr. 19, 1877.]

The combination of the band B, having a lap-joint at the ends of the band, and the staple C, having prongs *c c'*, adjusted and fastened on the broom, substantially as and for the purposes described.

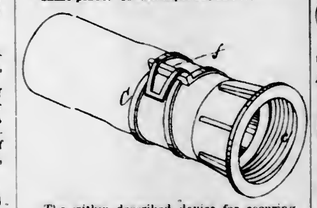
190,727. THILL-SUPPORTS. A. E. Teal, Greenfield, and C. E. Nelson, Cicero, Ind. [Filed Apr. 20, 1877.]



1. The catch K, constructed as described, with lip *k'* and inclined spring-flanges *k k*, substantially as and for the purposes herein set forth.

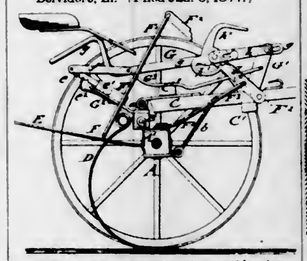
2. The catch K, with lip *k'* and spring-flanges *k*, in combination with the buckle B, and strap C, substantially as and for the purpose set forth.

190,728. STRAPS OR DEVICES FOR SECURING HOSE TO COUPLINGS. S. Adlam, Jr., Boston, Mass., assignor to J. A. Caldwell, same place. [Filed Apr. 19, 1877.]



The within-described device for securing hose to couplings, consisting of the metallic looped strap C, provided with a cross-bar, *f*, constructed as herein shown and described, whereby one end may be passed through and bent over the other end, substantially as set forth.

190,729. HORSE HAY-RAKES. J. Badger, Belvidere, Ill. [Filed Jan. 6, 1877.]



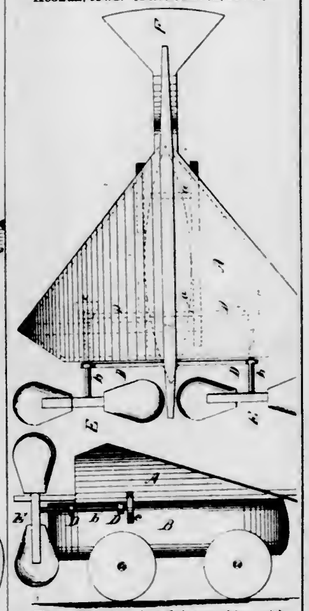
1. In a horse hay-rake, the combination, with the axle of the rake, of a rake-head pivoted above and back of the same, and of thills hinged to the rake-head and connected by braces to the axle, to produce flexible connection of axle, rake-head, and thills, substantially as and for the purpose set forth.

2. The combination, in a horse hay-rake, with the axle of the rake, of a rake-head swinging in brackets on the axle above and back of the same, and of thills hinged to the top of the rake-head, substantially as specified.

3. The combination of clearer-bar F, having rods F^1, with levers F^2, pivoted to thills C, and lever-arms F^3, secured to axle and furnished in adjustable manner to perforations of levers F^3, to control extent of motion of clearer-bar, substantially as set forth.

4. The combination, with axle, of rake-head B, clearers D, traversing clearer-bar F, double-acting levers F^2 F^3, and compound lever G, to produce simultaneous operation of rake-teeth, clearers, and lateral clearer-bar, substantially as set forth.

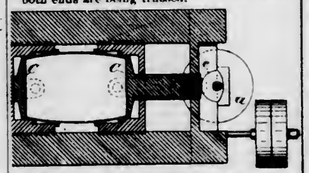
190,730. FLYING-MACHINES. F. Barnett, Keokuk, Iowa. [Filed Mar. 12, 1877.]



The combination, in a flying-machine, with the horizontal sustaining-sail A and guiding-tail F, of the body B, provided with front propellers E, whose shafts *b b* are journaled in lateral arms D, as and for the purpose specified.

190,731. BARREL-TRUSSING MACHINES. W. Bayley, Wilmington, Del., assignor to E. and B. Holmes, Buffalo, N. Y. [Filed Sept. 23, 1876.]

Brief.—Barrels are held, leveled, and trussed by means of one or more movable trussing-heads operated by a crank, and one or more leveling-heads provided with cams for moving and timing their movements, so that a barrel may be held in position while both ends are being trussed.

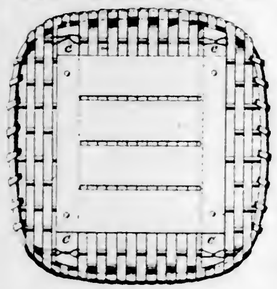


1. In a barrel-truss hoop-driving machine, the combination, substantially as specified, of two reciprocating drivers, which move toward and from each other over the opposite ends of the barrel, a driving-shaft, and intermediate mechanism for simultaneously and uniformly actuating said drivers.

2. In a barrel-truss hoop-driving machine, the combination, substantially as specified, of a reciprocating truss-hoop driver and a leveling-head, which is forced against the barrel before the driver begins to act on the hoop, and then remains stationary until the hoop has been driven.

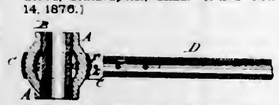
3. The screw-gearing a^1 a^2, trussing-heads A, lever sling-heads C, cams *c*, and center-guides G G, all arranged and combined for joint operation, substantially as and for the purposes specified.

190,723. VERMIN-TRAPS. J. M. A. Berger, Charleston, S. C. [Filed Mar. 19, 1877.]



A vermin-trap formed of a willow-ware frame and face-boards, attached to cross-strips in close proximity to the frame, and having suitable interstices between each other, substantially as specified.

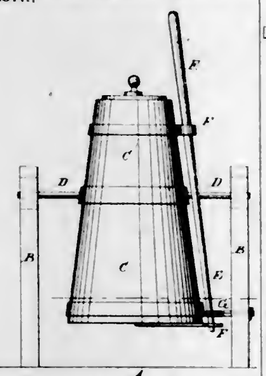
190,724. PITMAN-CONNECTIONS. Jos. W. Blood, Minneapolis, Minn. [Filed Oct. 14, 1876.]



1. The box A, concaved on the inside about its middle, and fitted tightly at each end about a straight laterally-perforated tube, B, as and for the purpose set forth.

2. The combination, with box A, of the strap C and pitman D, the former passing around the convex middle of box, and clamping the pitman with concave arms, as and for the purpose specified.

190,724. RECIPROCATING CHURNS. Eliza Brough, Greenville, Mich. [Filed Apr. 2, 1877.]

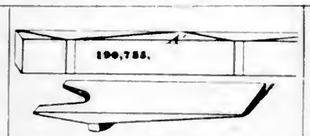


The churning apparatus, consisting of the pivots D, the bar E, the sockets F, and the spring G, with the churn-body C and the standards B, attached to a platform, A, substantially as herein shown and described.

190,725. METHODS OF FORMING BLANKS FOR BOOT-JACKS. H. A. Brown, Toledo, Ohio. [Filed Feb. 17, 1877.]

Brief.—A continuous strip of wood of suitable length, and of the width and thickness of the main piece of the common boot jack, is cut alternately at suitable oblique angles, so as to produce separate pieces with tapering ends, and a thick intermediate seat for the cleat.

The method of forming a boot-jack blank by sawing timber into pieces whose thickness is equal to the contemplated height of boot-jack blank, and the width to the desired breadth thereof, as shown and described.



190,726. NUT-LOCKS. A. Brown and A. G. Huey, Bloomington, Ill., assignors of one-third their right to B. N. Curtiss, same place. [Filed Mar. 24, 1877.]

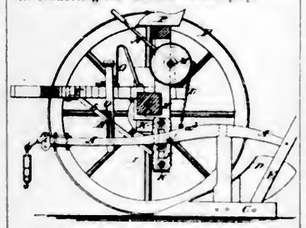


1. The combination, with the bolt F and nut G, of the lock-bar provided with a slot, *a*, having an offset, *a'*, in which the key rests while the nut is being tightened, and a key, *b*, which can be moved freely within said slot *a a'* when the lock-bar is secured in position, the several parts constructed and arranged in the manner substantially as and for the purpose herein shown and described.

2. The combination, with the rail, fish-plates, and bolts and nuts C D, of the bolt and nut F G, lock bar E, having slot *a* and and offset *a'*, and key *b*, the several parts constructed and arranged in the manner herein shown and described, whereby the several nuts are secured in position, as specified.

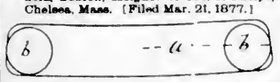
190,727. SULKY ATTACHMENTS FOR PLOWS. W. K. Bushnell, Burlington, Wis. [Filed Mar. 24, 1877.]

Brief.—The slotted hangers with inside slotted guide-plates for the plow beam laterally adjustable, and in which the plow and its connecting-bolt has free vertical play.



The combination of the parallel slotted uprights H, the three bolts K I K, the slotted plates J, and the keeper *a'*, with the wheels and axle F G, and the plow-beam A, substantially as herein shown and described.

190,728. SUSPENDER-STAYS. Geo. Butterfield, Boston, assignor to Jas. T. Phelps, Chelsea, Mass. [Filed Mar. 21, 1877.]



1. As a new article of manufacture, a waistband-stay, formed with an elastic bar or ribbon, *a*, and the studs *b b* secured thereto, to serve as suspender-buttons, substantially as described and shown.

2. In combination with the waistbands of pantaloons, an elastic stay or spreader, *a*, arranged relatively to the suspender-buttons, substantially as described and shown.

190,729. RAILROAD-TIES. A. H. Campbell, Liberty, Ind. [Filed Apr. 16, 1877.]



1. A metallic railroad cross-tie made of double T-shaped cross-section, whose bottom flange is cut away at both sides of the central part of the tie, substantially as and for the purpose described.

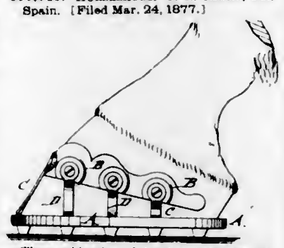
2. The combination of a metallic cross tie, having end sockets and central bottom wedges, with wooden rail-bearing blocks driven therein, substantially as and for the purpose described.

3. The combination of a metallic cross-tie, having end sockets and central bottom wedge, with wooden filling-blocks and a central locking-key, substantially in the manner and for the purpose specified.

4. The combination of a metallic cross-tie, having end sockets, central bottom wedge, angular sides, and inclined ends, with wooden filling-blocks of corresponding shape and a central locking-key, substantially as and for the purpose specified.

5. The metallic cross-tie A, having sockets B, whose ends are recessed or cut away below the rails to prevent the rails from bearing thereon on settling of filling-blocks, substantially as specified.

190,740. HORSESHOES. J. R. Cancio, Pol. Spain. [Filed Mar. 24, 1877.]



The combination of the shoe A and band B, connected with each other by front and lateral straps C D, which are riveted to the calks and secured by eyes and fastening-screws at their upper ends to the band, substantially as described.

190,741. STOP-MOTIONS FOR LOOMS. F. Christen, Homestead, Iowa. [Filed Feb. 26, 1877.]

Brief.—The weft-stop is independent of the ordinary swell-stop. The pivoted fingers in the shuttle are acted upon by the weft, to operate the cam mounted upon the common axis. The cam holds the three-armed lever in the proper position for withdrawing the slide, and thereby uncovering the recess in the side of the shuttle. Should the weft break, or otherwise fail, the cam would cease to act upon the lever, and a spring would force down its horizontal arm, thereby pushing the slide over the aforesaid recess. A plate-spring mounted upon the outside of the shuttle is provided with a lug on its inner side opposite to the recess, and adapted to enter the same when uncovered. This plate-spring, when rigid, operates the auxiliary swell and stops the loom.



1. The combination of the fixed wires r, the wires s, shaft t, cam u, lever v, spring *d'*, and slide *p* with the shuttle-body B, substantially as herein shown and described.

2. The combination of the spring *l*, having the lug *n*, the slide *p*, and mechanism for operating the same, with the shuttle-body B, having the rabbet *m* and recess *o*, substantially as herein shown and described.

3. The combination of the fixed wires r, movable wires s, cam u, lever v, spring *d'*, slide *p*, and shuttle-body B, having the rabbet *m* and recess *o*, with the spring *l*, substantially as shown and described.

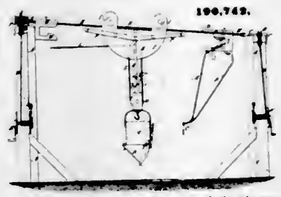
4. The combination of the auxiliary box-swell *d* and main box-swell *a* with the shuttle A, stop-rod *h*, swell-finger *g*, and dagger *j*, as and for the purpose set forth.

5. The combination of the shuttle B, having the spring *l*, provided with lug *n*, recess *o*, and slide *p*, and mechanism for operating the same, with the auxiliary binder *d*, substantially as herein shown and described.

190,742. HOISTING AND CONVEYING APPARATUS. F. A. Clarkson, Black Brook, N. Y. [Filed Feb. 26, 1877.]

Brief.—The carrier runs down the incline, and is drawn back by the hoisting-rope.

190,742.



1. The combination of the two timber-bents A A of unequal height, and provided with pulleys B at the ends of their top bars, and with windlasses E upon their outer posts, the chair C, the chair F, provided with a pulley, G, the three shifting-ropes D and the wire-track rope H with each other, substantially as herein shown and described.

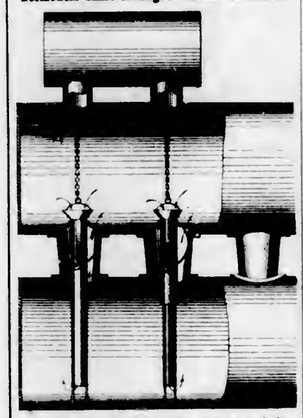
2. The combination of the carriage I, provided with the pulleys I J K, the pivoted loop-latches P P, and the suspended pivoted bail O, the hook N, provided with the pulley M, and the pivoted arm X, and the hoisting-rope L with each other, with the wire-track H, and with the catch-hooks W Y, substantially as herein shown and described.

3. The combination of the hinged arm Z and the dumper A' B' C' with the hook-catch Y, the carriage I, and the bucket Q, substantially as herein shown and described.

4. The combination of the drop-catch D' and the pivoted catch E' with the upper and lower arms of the hook-catch Y, to enable the carriage and bucket to be manipulated by operating the hoisting-rope L, substantially as herein shown and described.

190,743. CIRCULATING DEVICES FOR STEAM-BOILERS. Henry S. Coleman, Chelmsford, England. [Filed Mar. 12, 1877.]

Brief.—Circulating tubes are telescopically located, one within the other, and raised and lowered by means of chains winding round a horisontal shaft arranged within the boiler.



1. The circulating-tubes, constructed in parts fitted to slide telescopically one in the other, as and for the purpose specified.

2. The combination of a rotating shaft, located within the upper shell of the boiler, and suitable suspending-chains, with the circulating-tubes, for raising them simultaneously, substantially as specified.

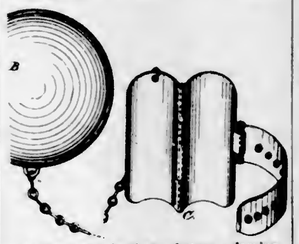
190,744. MECHANISMS FOR OPERATING DOFFER-COMBS. E. R. Coverdill, Darby, Pa. [Filed Feb. 2, 1877.]

Brief.—Vibratory motion is given to the comb-shaft by means of a yoke secured thereto, and provided with right-angled arms, said arms being operated upon by a revolving elliptic-shaped cam.



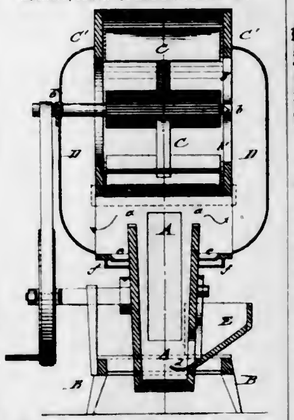
The combination of comb-shaft C, yoke H, and elliptical cam E, as described, and for the purpose specified.

190,745. DARNING-LASTS. Mary B. Crowninshield, Washington, D. C. [Filed Mar. 17, 1877.]



As a new article of manufacture, a darning device consisting of the ball B and clasp C, substantially as and for the purpose set forth.

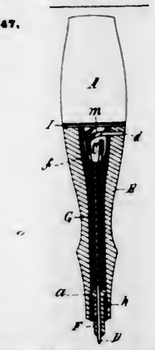
190,746. GRAIN-SEPARATORS. L. V. Davis, Elkader, Iowa. [Filed Dec. 18, 1876.]



1. The combination, with trunk A, of horizontal fan C, casing C', and air-passages D, said fan being arranged directly above said air-trunk, so that its casing may serve to deflect and divide the ascending current, as set forth.

2. The combination, with air-trunk A, horizontal fan C, case C', and the air-passage D, of the settling-chambers at bottom of said air-passages, as set forth.

190,747.

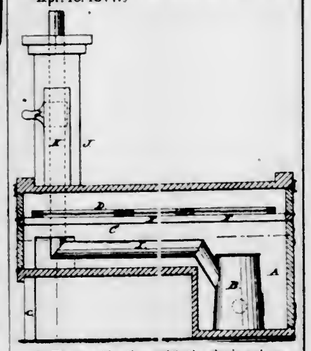


190,747. AWL-HAFTS. N. B. Dit Lepine, Wayland, Mass., assignor to Wm. Hammond, same place. [Filed Feb. 26, 1877.]

Brief.—The upper section of the haft is solid, and provided with downwardly-projecting spring-fingers, which embrace the shank of an elongated awl, and have a spiral groove, which receives a stud upon the interior of the lower section, which is hollow and provided with a circular stop in its lower end, through which works a spring-retractor, for assisting to withdraw the awl from the work.

The combination of the part A, provided with fingers C, having the spiral groove *m*, and part B, provided with the spring G, retractor F, stop h, and stud *d*, and the awl D, the several parts constructed and relatively arranged as herein shown and described.

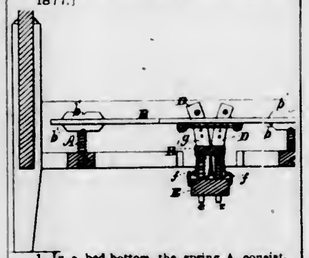
190,748. FRUIT-DRIERS. J. R. Dodge, Jr., Normal, Ill., assignor of one-half his right to Wm. T. Shurtleff, same place. [Filed Apr. 16, 1877.]



1. The combination, with the drying-chamber C, having the heating device B and the doors, as shown, of the independent exhaust-shaft J, arranged outside of the drier, and the inclined exhaust-pipe K, provided with slide or cut-off *d*, the several parts constructed and relatively arranged in the manner herein shown and described.

2. The combination, with the chamber A, heating device B, chamber C, exhaust-pipe K, and exhaust-shaft J, of the flue or pipe I, extending longitudinally through the chamber C, and vertically through exhaust-shaft J, substantially as herein shown and described.

190,749. BED-BOTTOMS. C. Eade, Honesdale, Pa., assignor of one-half his right to H. J. Tarble, same place. [Filed Mar. 17, 1877.]

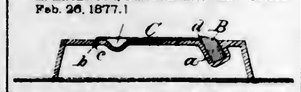


1. In a bed-bottom, the spring A, consisting of two tubular wire coils, *a a*, in combination with, and encircling, pins or studs *b b*, and having their uniting-wire *a'* supporting the slats B B, substantially as and for the purpose set forth.

2. In combination with the spring A, having the wire coils *a a*, encircling pins or studs *b b*, and connected together by a wire, *a'*, the slat B, having blocks *b' b'*, provided with grooves to receive said wire *a'*, substantially as and for the purpose set forth.

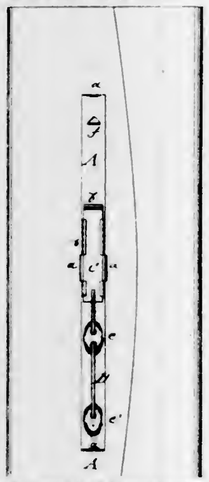
3. The truss or support, consisting of the parallel bars or boards E E', one provided with pins or studs *s s*, entering apertures in the other, and encircled by springs *f f*, and the whole suspended beneath the slats of the bed bottom, substantially as and for the purpose set forth.

190,750. ENGRAVING-MACHINE TABLES. A. E. Ellenwood, Garrettsville, Ohio. [Filed Feb. 26, 1877.]



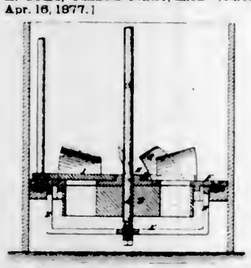
A table for an engraving-machine, having the slot *b*, groove *a*, and elastic strip B, for holding the patterns C, substantially as herein shown and described.

190,751. SAFETY ATTACHMENTS FOR POCKET-BOOKS. Thos. Ferguson, Parkersburg, Iowa. [Filed Feb. 26, 1877.]



A safety attachment for pocket-books, consisting of the base-plate A, provided with raised guard-sockets *c c'*, and a slide having straight pin D, that enters said sockets, substantially as and for the purpose specified.

190,752. TURBINE WATER-WHEELS. N. H. Gould, Oakfield Centre, Mich. [Filed Apr. 16, 1877.]



The flat smooth deck or throat-plate F, having the inclined guides G attached at one edge of the outlets, the gate I, having radial fan-shaped blades and resting on the deck, the wheel A, shaft, and step-bar, all combined as shown and described, to operate as and for the purpose specified.

190,753. BOOTS AND SHOES. T. J. Greenwood, Warren, Ill., assignor to himself and T. D. Thornton, same place. [Filed Mar. 24, 1877.]

1. A seamless-back shoe made of a quarter, A, having symmetrical front sections B, spread or sprung forward, and a back tongue, D, all of one piece, in connection with a correspondingly-shaped top quarter, C, stitched thereto, substantially in the manner set forth.

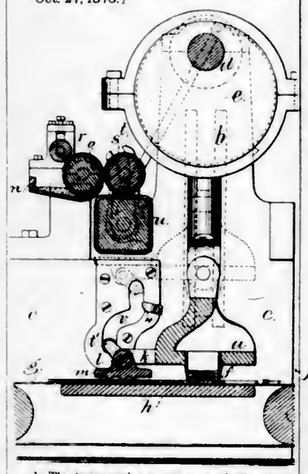
2. A quarter for seamless-back shoes, cut from a continuous blank on the lines *a b*, as shown and described, and with holes *d*, to form symmetrical front sections that may be spread or sprung out from points near the highest part of the instep, substantially as specified.

3. A quarter for seamless-back shoes, cut from one continuous blank along the lines *a b*, as shown and described, and with holes *d*, to form symmetrical front sections, and an upwardly-extending back tongue, substantially as described.

190,754.



190,755. LOZENGE-MACHINES. C. H. Hall, Brooklyn, E. D., assignor to himself and F. P. Tarbell, New York, N. Y. [Filed Oct. 27, 1876.]



1. The type-carrier *m*, set upon a horizontal axis, *l*, in combination with the crank *t'*, slotted plate *e*, punch *f*, and reciprocating platen *a*, substantially as set forth.

2. The combination, with the reciprocating lozenge-cutter, platen, type-holder, and reversing mechanism, of the prismatic inking-roller *s*, fountain *s*, and supply-rollers, substantially as set forth.

190,756. FOUNTAIN-PENS. H. N. Hamilton, White Plains, N. Y. [Filed Apr. 9, 1877.]

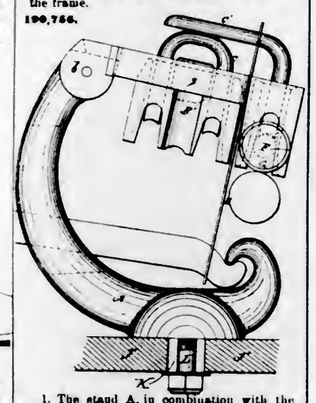


The adjustable perforated tongue D, having its front end pointed and curved inwardly and its stem bent outwardly, in combination with the sliding ring F and stationary pen B, as shown and described.

190,756. TOP-ROLL SUPPORTS FOR SPINNING-MACHINES. F. Hardenbergh and H. L. Holmes, Providence, R. I. [Filed May 11, 1876.]

Brief.—The stand or support and cap-bar serve to hold the top rolls, and the saddles press them down upon the lower rolls by means of a weight suspended from the outer saddle. A roll having but one bearing in the middle is used, being held down upon the lower roll by means of the cap-bar and saddles pressing upon this single bearing. The stand may be turned upon an axis, and moved forward or backward by means of a slot in the frame.

190,756.



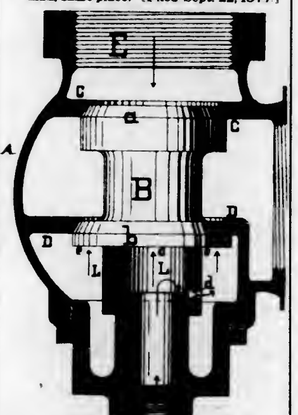
1. The stand A, in combination with the pivoted cap-bar B and the roll G F G, substantially as described.

2. The pivoted cap-bar B, with the adjustable sliding cap-piece B', for holding the middle and back rolls.

3. The combination of the top roll G F G, having a single intermediate bearing, with the pivoted cap-bar B and a weighted saddle, substantially as described.

4. The stand A, carrying the top roll G F G, and made adjustable around an axis, l, which may be moved horizontally in the slot K, substantially as described.

190,757. AUTOMATIC RELIEF-VALVES FOR STEAM-CYLINDERS. John M. Hartman, Philadelphia, Pa., assignor to Tawa & Hartman, same place. [Filed Sept. 22, 1874.]



1. A relief-valve consisting of a shell, A, with seats C D and a sleeve, L, and a double-beat valve, B, which presents its lesser area to the pressure caused by the water of condensation in the steam-cylinder, and its greater area to the pressure of steam from the steam-chest, or other suitable place, substantially as described.

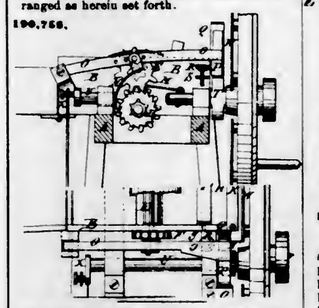
2. A relief-valve in which a steam-cushion is formed on the under side of the unbalanced double-beat valve B, to moderate the concussive force caused by the sudden opening of the valve, as herein shown and described.

190,758. STRAW-CUTTERS. E. M. Hesselbom, Riceford, Minn. [Filed Jan. 6, 1877.]

The combination of the longitudinal and pivoted lever O, having a front cross-head, P, and carrying a pawl, N, with the cutter-

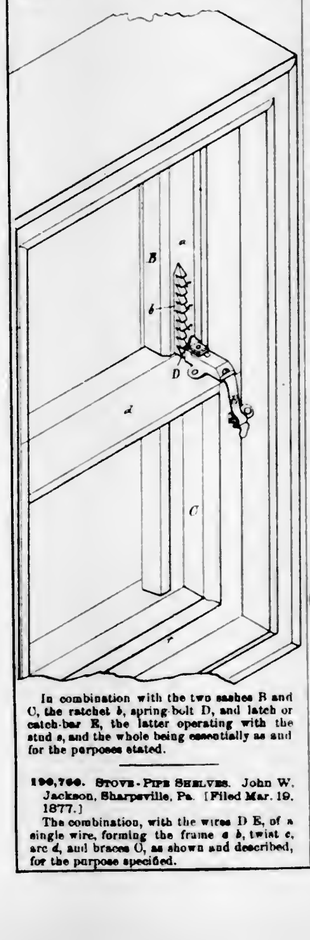
frame, having guides Q for the cross-head, the cutter-wheel shaft, provided with a cam, T, the geared feed-rollers E, and ratchet-wheel L, all constructed and relatively arranged as herein set forth.

190,758.



190,759. SASH-FASTENERS. C. E. Hicks, Chelsea, Mass. [Filed Apr. 9, 1877.]

Brief.—A spring-bolt, automatically engaging with a ratchet-bar attached to the lower sash, holds the upper sash in desired position, and combined with this is a downwardly extending vibratory spring-catch, arranged to engage with a suitable stud on the window-frame, to prevent the raising of the two sashes together when the upper one is open.

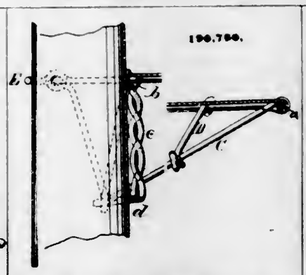


In combination with the two sashes B and C, the ratchet *b*, spring-bolt D, and latch or catch-bar E, the latter operating with the stud *s*, and the whole being essentially as and for the purposes stated.

190,760. STOVE-PIPE SHELVES. John W. Jackson, Sharpsville, Pa. [Filed Mar. 19, 1877.]

The combination, with the wires D E, of a single wire, forming the frame *a b*, twist *c*, arc *d*, and braces C, as shown and described, for the purpose specified.

190,760.



190,761. PAINTS. W. P. Jenney, Brooklyn, N. Y. [Filed Oct. 28, 1876.]

1. The new manufacture or paint herein described, and possessing, substantially, the properties or qualities herein described, composed of a vehicle consisting in whole or in part of oxidised sludge-oil and a suitable solid substance or base, as herein described and set forth.

2. The new manufacture or copper paint herein described, and possessing, substantially, the qualities or properties herein described, composed of a vehicle consisting in whole or in part of oxidized sludge-oil, and a suitable body containing copper, as herein described and set forth.

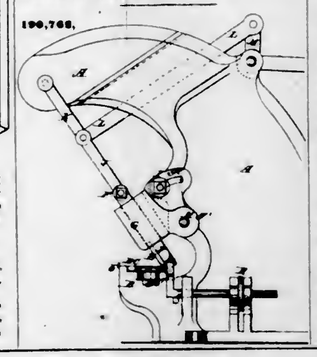
190,762. PROCESSES OF TREATING SLUDGE AND SLUDGE-OIL. W. P. Jenney, Brooklyn, N. Y. [Filed Oct. 28, 1876.]

Brief.—The sludge is washed with naphtha to remove objectionable oils, which rise to the surface and are drawn off. The sludge (acid residuum) is gently heated in a tank having a steam coil, (at temperature of 75° to 150° Fahrenheit.) The contained sulphuric acid is decomposed, forming sulphurous-acid gas, which escapes, and oxygen, which unites with the sludge-oil. Other oxidizing agents may be used to assist the action of the acid. After treatment with acid, the sludge is decomposed by water, reducing the gravity of the acid to 50° Baumé, upon the subsidence of which it is drawn off. If the oxidized oil is too viscid, it is thinned with naphtha, aided by heat, so that it may be purified as follows: In a lead-lined, closed tank, having a condensing-worm, it is showered with hot water, while steam is blown through to agitate it. The washing is continued till the acid is removed, and upon subsidence of the water it is drawn off. The oil is then agitated with 5% of a solution of caustic soda, to neutralize remaining traces of acid. The oil is then distilled at temperature of 400° to 500° Fahrenheit, to remove volatile oil, water, &c., and its drying properties increased by the addition of 1% to 3% of oxide of lead or manganese.

1. The process of manufacture herein described for producing from sludge or sludge-oil the manufacture or substance herein described, and possessing the properties or qualities, substantially as described, by oxidizing the sludge-oil by sulphuric acid, substantially as herein described and set forth.

2. The new substance or manufacture herein described, being partially oxidized fluid sludge-oil, possessing the properties or qualities herein described.

190,763.



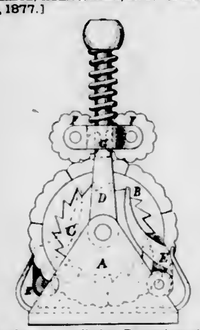
190,765. MACHINES FOR SHEARING BOILER-PLATES. J. W. Johnston and R. Johnston, Ferrysburg, Mich. [Filed Mar. 12, 1877.]

Brief.—Holder of movable blade reciprocates in a hinged guide-socket, which may be adjusted to cause said blade to cut the plate at the desired angle. Lower blade is secured to bed-plate by screws, and held against outward pressure by a wedge.

1. The guide-socket G, hinged and secured adjustably to the standard A, in combination with the holder F, of the movable blade E, substantially as herein shown and described.

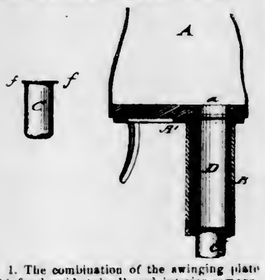
2. The combination of the adjustable guide-bar P and the adjusting hand-nut R with the blades E C and the standard A, substantially as herein shown and described.

190,764. WASHING-MACHINES. William Johnson, Lambertville, N. J. [Filed Feb. 26, 1877.]



The frame A, cylinder B, ratchet-wheels C C, and pawls E E, in combination with the movable arms or levers D D and corrugated rollers F F, combined in the manner and for the purpose substantially as shown and described.

190,765. SHOT-BAGS AND CHARGERS. T. J. Jolly, Etna, Mo. [Filed Apr. 9, 1877.]



1. The combination of the swinging plate A', fixed guide-tube B, and interior removable charger D, with the shot-bag A, having bottom exit-hole *e* and encircling cut-off plate *g*, substantially as and for the purpose set forth.

2. The combination, with the shot-bag A, having exit-hole, the swinging plate A', and guide-tube B, having bottom seat or flange, of the flanged closing-plug C, and the removable charger D, resting thereon, for the purpose of lifting the charger when filled, and preventing the escape of shot through the tube when the charge is removed, substantially as herein set forth.

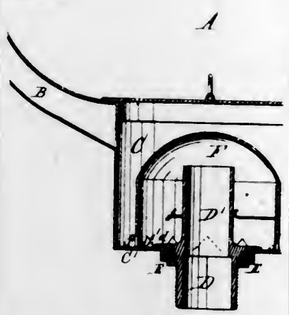
190,766. BASINS. John H. Keyser, New York, N. Y., assignor to Fred. A. Palmer, same place. [Filed Oct. 19, 1876.]

1. A wash-basin constructed with the bell-trap chamber C, and with a removable bottom section, *c*, substantially as and for the purpose described.

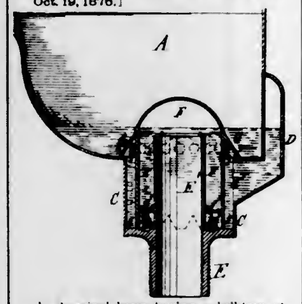
2. The combination of the wash-basin A, bell-trap chamber C, and overflow-passage B, substantially as and for the purpose described.

3. The combination of the coupling-collar D, waste-pipe D', removable bell-cover F, bell-trap chamber C, and basin A, substantially as and for the purpose described.

190,766.



190,767. URINALS OR WATER-CLOSET BASINS. J. H. Keyser, New York, N. Y., assignor to F. A. Palmer, same place. [Filed Oct. 19, 1876.]

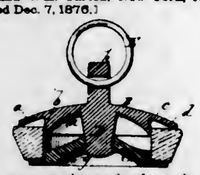


1. A urinal-basin having a bell trap attached to its bottom, so that the bell-cover thereof may be lifted out through the bottom of the urinal without disconnecting any of the fixtures of the urinal, substantially as set forth.

2. A urinal-basin, A, in combination with the joint-connection E, having a flange, *c*, and a tubular exit, E', a chamber, C, and bell F, having base-openings *f*, and a perforated rim, G, substantially as set forth.

3. A urinal-basin, A, in combination with a bell-trap, C E' F, and the overflow-pipe D, substantially as set forth.

190,768. WASTEWAY-PLUGS. J. H. Keyser and Wm. Turton, New York, N. Y. [Filed Dec. 7, 1876.]



1. A wasteway-plug made of a cork ring, A, and shouldered plates B and C, all clamped together, substantially as and for the purpose described.

2. The plates B and C, constructed with shoulders *a b* and *c d*, and united together upon a yielding ring by a central rivet or its equivalent, substantially as described and shown.

3. The shouldered plates B and C, hollowed out as described, and clamped upon a yielding ring, which keeps them slightly separated on the inside of the ring, substantially as shown and described.

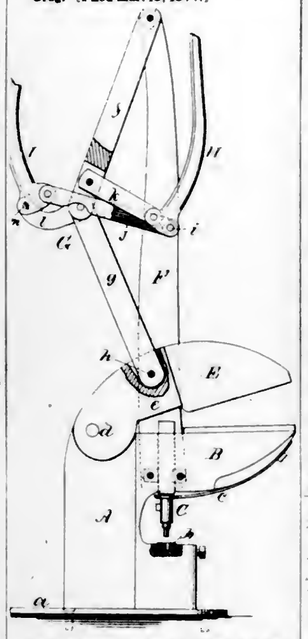
190,769. COMPOSITION FOR CASTING ORNAMENTAL FIGURES. A. Kissels, New York, N. Y. [Filed Mar. 3, 1877.]

A composition for casting, consisting of paraffine and stearine and pulverized sugar, in about the proportions substantially as and for the purpose described.

190,770. COMPOSITIONS FOR REMOVING INCRUSTATION. H. H. Kreamer, Reading, Pa. [Filed Feb. 22, 1877.]

The boiler-cleaning compound consisting of a solution of slippery-elm bark and water, extract of hemlock-bark, or equivalent astringent, and aqua-ammonia, and sugar, substantially as set forth.

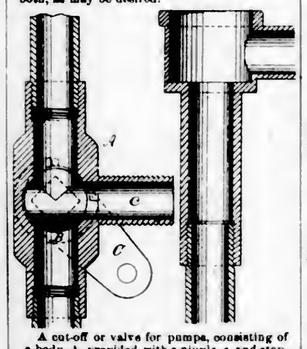
190,771. MACHINES FOR PUNCHING AND SHEARING METAL. A. Lee, Forest Grove, Oreg. [Filed Mar. 19, 1877.]



The combination of the jaws E and B, follower C, standards A and F, toggle G, levers H I, and the connecting-links *j k i*, substantially as herein shown and described.

190,772. OUT-OFFS OR VALVES FOR PUMPS. Job Manoir, Richmond, Me. [Filed Feb. 3, 1877.]

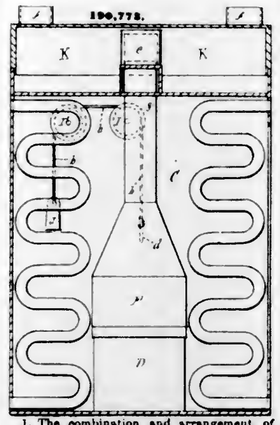
Brief.—By means of the cut-off, connection is made with either of two branch pipes, or both, as may be desired.



A cut-off or valve for pumps, consisting of a body, A, provided with a nipple, *c*, and stop-pin *f*, the plug *d*, having the segmental portion B and flange *e*, substantially as herein shown and described.

190,773. HOT-AIR FURNACES. W. McFarland, Trenton, N. J. [Filed Mar. 2, 1876.]

190,773.

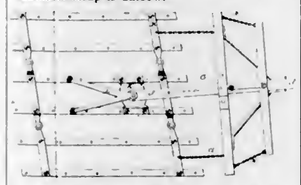


1. The combination and arrangement of air-chambers C and K and air-pipes M, substantially in the manner and for the purpose set forth.

2. In a hot-air furnace, the air-chamber K, having a central flue, *e*, for the passage of the products of combustion, in combination with the chimney L and the fire-place D, having a hood, F, substantially in the manner and for the purpose set forth.

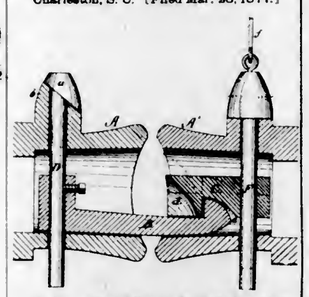
190,774. HARROWS. D. McIlreavy, Riceville, Iowa. [Filed Apr. 2, 1877.]

Brief.—A harrow-frame with narrow sections, and tongue fastened with plate and hammer-strap to harrow.



The combination of the draw-bar H and its chains G, the tongue J and its plate K and hammer-strap L, and the double-tree M and its chains N, with the sections of the harrow-frame, substantially as herein shown and described.

190,775. CAR-COUPLINGS. E. B. Middleton, Charleston, S. C. [Filed Mar. 28, 1877.]

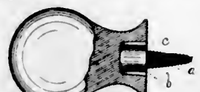


1. In a car coupling, a draw-head, a hook fitted on a rod adapted to slide vertically, and having an oblique shoulder or head, and a correspondingly-shaped projection on the draw-head, all combined substantially as shown and described, to operate as specified.

2. In a car coupling, the rigid hook B and its vertically-sliding rod D, the two being rigidly connected, in combination with the catch having bevel *d*, and recess with shoul-

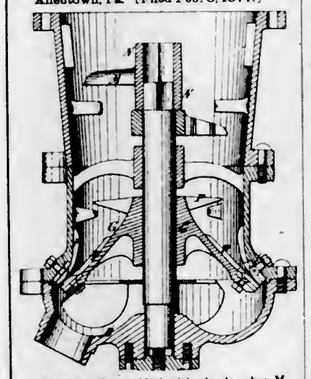
der *e*, the rod F, and the draw-heads A A', all as shown and described, whereby, when the draw-head A' is raised above the other, the said hook will maintain the same position relative to rod D and the catch, as specified.

190,776. DOOR-STOP SCREWS. O. Mongeau, Torrington, Conn. [Filed Mar. 9, 1877.]



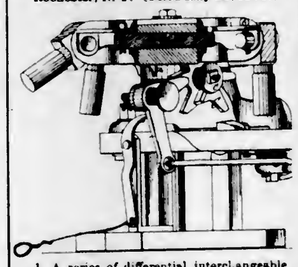
The screw *a*, having cast upon it a head, *b*, with wings *c*, and combined with a knob having a hole to receive said head, substantially as shown and described.

190,777. BARK-MILLS. Wm. F. Mosser, Allentown, Pa. [Filed Feb. 3, 1877.]



A bark-mill provided with the breaker M, arranged on a collar, N, of its shaft, as and for the purpose specified.

190,778. HARVESTER-RAKES. J. H. Myers, Rochester, N. Y. [Filed May 20, 1876.]



1. A series of differential interchangeable star-wheels, provided with tripping-spurs adapted to act directly on the switch-gate lever for controlling the cam-switch and the path of the rake and reel arms, as described.

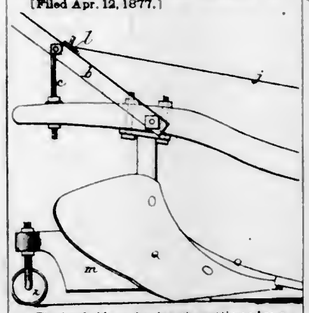
2. The combination, with the rake-cam switch or gate, of a star-wheel, having two or more tripping-spurs for giving a direct positive movement to said cam-switch or gate, and controlling the path of the rake and reel arms, as described.

3. The arrangement of the star tripping wheel or wheels, in combination with the rotating rake-head, whereby said tripping-wheels are adapted to be operated directly by the rake-head without the interposition of gearing.

4. The rake-head, provided with radial webs or flanges, in combination with the wheel or wheels for tripping the rake-cam switch or gate, as described.

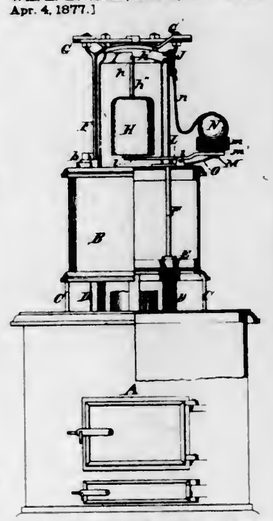
5. The pin which unites the rake and reel arm with the rotating rake-head, in combination with the key for holding the pin stationary relatively to said rake-head, substantially as and for the purpose set forth.

190,779. PLOWS. H. Opp, Belleville, Ill. [Filed Apr. 12, 1877.]



The land-side m, having the cutting-edge *o*, flange *r*, shoulder *s*, slot *t*, and point *u*, and having its rear end supported upon the wheel *x*, substantially as set forth.

190,780. RAILROAD-CAR STOVES AND FIRE-EXTINGUISHERS. William D. Pegram and Wm. H. Hotchkiss, Moberly, Mo. [Filed Apr. 4, 1877.]



1. The combination of the reservoir B, pipes D D D D, valves E E E E, stems F F F F, and frame G, substantially as described.

2. The combination of the stems F F F F, frame G G', pendulum H, arms A A A' A', gimbal I, frame J, and supports K K K, substantially as described.

3. The combination of the stems F F F F, frame G G', pendulum H, and arms A A A' A', substantially as described.

4. The combination of the frame G G', pendulum H, and arms A A A' A', substantially as described.

5. The combination of the pendulum H, having the projection P, and the locking lever L, substantially as shown.

6. The combination of the pendulum H, projection P, lever L, cup M, weight N, and spring O, substantially as described.

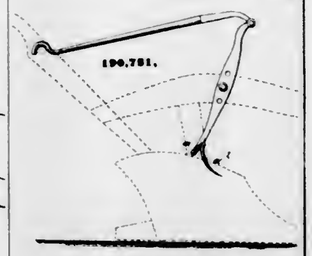
7. The combination of the lever L, and the cup M, having the adjustable wall *m*, substantially as and for the purpose specified.

190,781. STUBBLE-GUARDS FOR PLOWS. B. F. Phillips, Lowden, Iowa, assignor to N. Henry, same place. [Filed Apr. 2, 1877.]

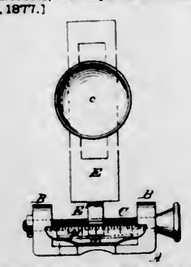
Brief.—The construction and shape of the hooks or cleaners at the lower end of the bar A.

A plow-cleaner constructed with arms *a' a²*, shaped, arranged with respect to each other, and applicable as shown and described.

190,781.



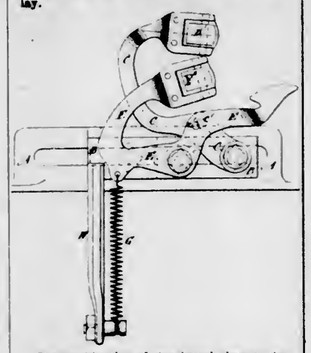
190,782. REAR SIGHTS FOR FIRE-ARMS. C. F. Robbins, Brooklyn, N. Y. [Filed Apr. 28, 1877.]



The cross-shaped piece A, having ears B, the spring D, micrometer-screw C, scale F, and slotted bar E, in combination, substantially as shown and described.

190,783. LOOM-TEMPLES. C. H. Schlaf, Rockville, Conn. [Filed Apr. 2, 1877.]

Brief.—The improvement relates to the class of jaw and nipper temples. The lay strikes the inner arm of the upper temple, thereby advancing it upon the cloth to take a fresh hold. Simultaneously with this movement the lower temple is forced outwardly by means of the cam-slot and pin, thereby stretching the web at the fell. The spiral spring reverses the action upon the retraction of the lay.



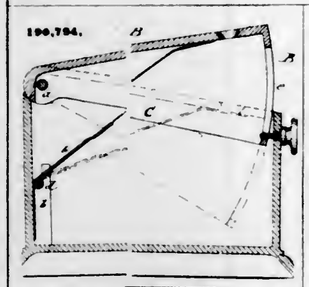
The combination of the slotted plate A, the adjustable block B, the pivoted stretchers C E, provided with the catches D' F', and the foot I, and connected together by the pin and slot *c' c'*, the spiral spring G, and the arm H, substantially as herein shown and described.

190,784. CIGAR-CUTTERS. H. F. Schultze, Philadelphia, Pa. [Filed Apr. 2, 1877.]

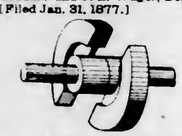
Brief.—A spring in the box has a cutting forward edge, and is caused to slide over perforations in the hinged cover as it is depressed to cut off the tip of a cigar.

A cigar-cutting device composed of a receiving-box or storage-receptacle, swinging and guided lid B, with gage-holes in it for the points of the cigars, and an interior spring-knife, C, passing over the gage-holes on depressing the lid, substantially in the manner and for the purpose set forth.

190,784.



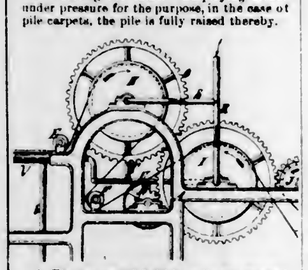
190,785. ROTARY STEAM-ENGINES. A. L. Scudder and J. L. Wager, Deposit, N. Y. [Filed Jan. 31, 1877.]



The combination, in a rotary steam engine, substantially as described, of double cylinders and pistons with a reciprocating slide, which acts alternately in either cylinder as an abutment for the steam, as and for the purpose set forth

190,786. FINISHING WOVEN FABRICS. Jas. Short, East New Brunswick, N. J. [Filed Oct. 17, 1876.]

Brief.—Sizes the cloth for market by moistening the size remaining in the warp-threads and resetting the same. Employing steam under pressure for the purpose, in the case of pile carpets, the pile is fully raised thereby.



1. The process of finishing pile carpets and other woven fabrics, wherein the dressing applied to the composeat threads is allowed to remain after weaving, by moistening said dressing and effecting the resetting thereof, preferably without the addition of other stiffening substance.

2. In the above process of finishing pile carpets and other woven fabrics, wherein the dressing applied to the component threads is allowed to remain after weaving, moistening the latter, preferably without the addition of other stiffening substance, by escaping steam or other vapor, and subsequently resetting the stiffening substance and calendering the fabrics, substantially as and for the purposes set forth.

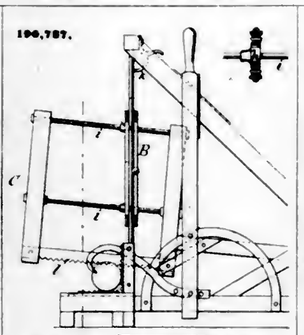
3. The combination of the pipes B, covering G, of canvas, drain V *b*, rotary drying-cylinder H, reversely-rotating calendering-cylinder I, pipes R S T U, feed and delivery roller J, gear-wheels, and guide-rollers, substantially as and for the purpose set forth.

190,787. SAWING-MACHINES. F. Simonson, Round Grove, Ill. [Filed Mar. 12, 1877.]

Brief.—The saw-frame is provided with two metal rods, which operate through a vertically-adjustable guide formed of two metallic side pieces, to which are attached semi-circular pieces embracing vertical rods, and having between them perforated boxes for receiving the saw-frame rods, and curved plates and rivets for holding the several parts of the guide firmly together.

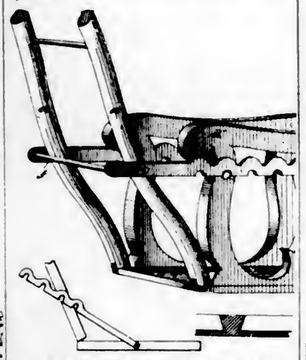
The combination of the saw-frame C, having rods *i* and carrying the saw *l*, with the guide B, rods *a*, and catch *k*, substantially as herein shown and described.

190,787.



190,788. RECLINING-CHAIRS. H. S. Smith, Brooklyn, N. Y. [Filed Sept. 7, 1876.]

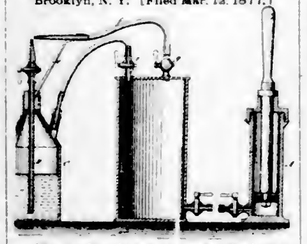
Brief.—The link-bars connecting the hinged back with the arms of the chair have a series of flaring notches in them, which engage with correspondingly-shaped pins on the arms. The links are connected, in the rear of the back, by a transverse rod, by which they can be lifted and the inclination of the back adjusted.



1. In a reclining-chair having a hinged back, the combination of the links provided with flaring notches, and the catch-pins, of a similar shape to the notches, substantially as and for the purposes set forth.

2. The combination, in a reclining-chair, of a swinging hinged back, notched links, catch-pins, and a bar, *f*, connecting the links, so that they move together, substantially as set forth.

190,789. LIQUID-DIFFUSERS. G. M. Smyth, Brooklyn, N. Y. [Filed Mar. 12, 1877.]

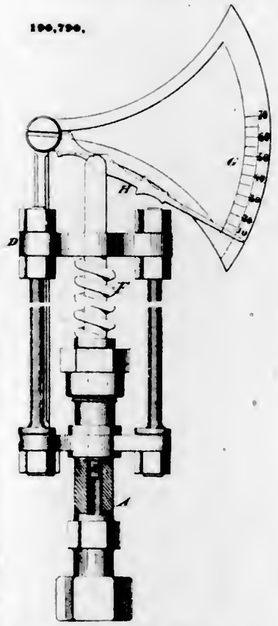


The combination of the receptacle C, pipe D, nozzles *c d*, pipes *f h*, stop-cocks *i g*, and the air-compressor A, substantially as herein shown and described.

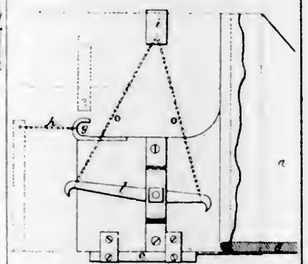
190,790. PRESSURE-GAGES. W. T. Snyder, Catasauqua, Pa. [Filed Mar. 12, 1877.]

The combination, in a pressure-gage, of the cylinder A, piston *d*, spring F, adjustable cross-bar D, index H, and the graduated arc G, substantially as herein shown and described.

190,790.



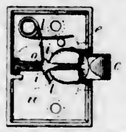
190,791. END-BOARDS FOR WAGONS. T. Stevens, Cameron, Mo. [Filed Apr. 16, 1877.]



1. The combination of the sides *a*, gate *d*, hooks *g*, and chains *h*, substantially as shown.

2. The combination of the sides *a*, gate *d*, hooks *i*, chains *o*, and lever *l*, substantially as described.

190,792. CLOSET-LATCHES. W. E. Sparks, New Britain, Conn., assignor to P. & F. Corbin, same place. [Filed Feb. 22, 1877.]

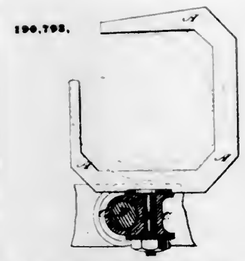


The bolt *c*, having flanges *f* upon its stud *o*, in combination with the plate *a*, having a mortise that is enlarged at one end for the passage of such flanges, and the spring *l*, substantially as specified.

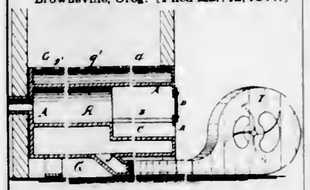
190,793. ROWLOCKS. W. Spelman, Portland, Me. [Filed Apr. 2, 1877.]

The combination, with pin D, attached to boat and oar-lock A, having the journal B, of the pin-block C, having the hole for journal B a little at the inside of the hole for the pin D, as and for the purpose specified.

190,793.

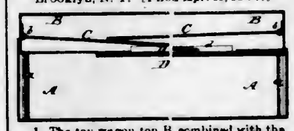


190,794. HOP-DRIERS. S. R. Templeton, J. C. Templeton, and Jos. H. Templeton, Brownsville, Oreg. [Filed Mar. 12, 1877.]



The improved hop-drying apparatus, consisting of the hollow cylinder G, having the apertures *g'* in its upper side, the smaller concentric furnace A, having grate B, ash-pit C, and door D at one end, and flue F at the other end, a fan-blower, I, and air-conducting tube J, all combined and arranged with the receiver for the hops, as shown and described.

190,795. TOY WAGONS. H. Thomass, Brooklyn, N. Y. [Filed Apr. 11, 1877.]

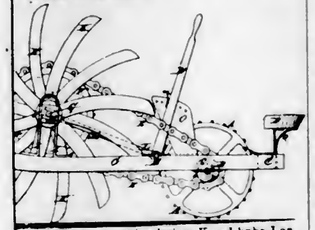


1. The toy-wagon top B, combined with the four wires C C, which are directly hinged to the top by loops or eyes *b b*, and arranged to be folded under the top, substantially as specified.

2. The combination of the toy-wagon body A, having sockets *a* with the toy top B, hinged wires C, and hinged wings or flaps D, substantially as herein shown and described.

190,796. CULTIVATORS. John R. Tilley, Demerara, British Guiana, South America. [Filed Oct. 7, 1876.]

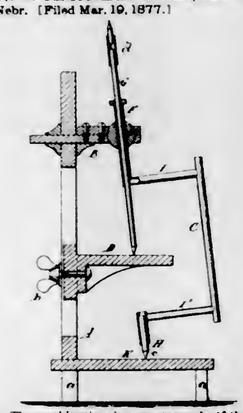
Brief.—Long cutting-knives on hubs, the shaft or axle of which is free to rise or fall in slotted bearings. Lever rigid on a rock-shaft, which has rigid arms that span the cultivator-axle and raise it from the ground, or secure it at the desired height. A chain with wheels on the shaft and main axle imparts a second motion to the knives.



1. The long cutting-knives K and hubs J on shaft G, having large chain-wheel F, and made free to rise and fall in slotted bearings, in combination with the small bearing-wheels A and axle B, having the small chain-wheel D and the endless chain E, whereby the knives are given a slow rearward motion beside that caused by the forward progress of the machine.

2. The combination of lever N, rock-shaft M, and slotted arms L L with the shaft G, that carries the plows, sliding bearings H, slotted brackets I, and the frame C, substantially as herein shown and described, for the purpose specified.

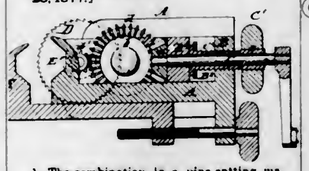
190,797. PANTOGRAPHS. H. Ware, Omaha, Nebr. [Filed Mar. 19, 1877.]



1. The combination, in a pantograph, of the bar C having horizontal arms I I' and vertical tubes or point-holders F H', with the frame A, supporting-bracket B, ball J, and tables E D, arranged one above the other, substantially as and for the purpose set forth.

2. The combination of the table E, slotted standard A, adjustable table D, bracket B, ball J, lever consisting of the tube F, bar C, arms I I', and holder H, and the pointed rod G, substantially as herein shown and described.

190,798. PIPE-CUTTING MACHINES. Nehemiah Watson, Arcadia, R. I. [Filed Apr. 23, 1877.]



1. The combination, in a pipe-cutting machine, of an adjustable clamping-frame, with a longitudinally-feeding and revolving circular cutting-saw, substantially in the manner set forth.

2. The combination of the main frame, attached by clamp-jaws and thumb-screws to the pipe to be cut, with a circular revolving saw applied to a longitudinally-sliding and guided section, A', of the main frame, and moved by a feeding thumb-screw, C', substantially in the manner specified.

3. The combination of the sliding and guided bar A' of frame A, carrying cutting-saw, operating gear, and crank-shaft, with a feeding-thumb-screw, C', around crank-shaft, cross-bar B', and collar-plate B', substantially as and for the purpose described.

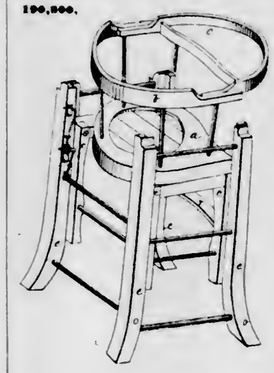
190,799. SAFETY-POCKETS. Fred. Wandt, Utica, N. Y. [Filed Mar. 24, 1877.]

A safety pocket for garments, composed of a main pocket with a top flap, in connection with a supplementary pocket at the upper part of the open portion or lining of the pocket, substantially constructed and arranged to operate as described and shown.

190,800. NURSERY-CHAIRS. J. C. Wheeler, Baldwinsville, Mass., assignor to Thompson, Perley & Walbe, same place. [Filed Jan. 31, 1877.]

The chair-holding frame provided with the grooved corner-posts *a* and a locking device, in combination with the child's chair *a b c*, having its legs fitted within such frame, and adapted to be adjusted therein to form a high or a low chair, substantially as described.

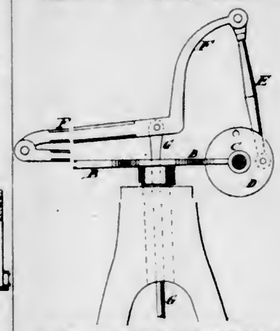
190,800.



190,801. COMPOSITION HOP-EXTRACT. J. R. Whiting, New York, N. Y. [Filed May 3, 1877.]

The composition hop-extract, consisting of extract of hops and pure sugar, substantially in the proportions specified, forming a solid substance, substantially as described.

190,802. WINDMILLS. Wm. Ap Williams, Cambria, Wis. [Filed Apr. 23, 1877.]



The curved lever F and the connecting-rod E, in combination with the turn-table B, the pump-rod G, and the crank D of the wheel-shaft C, substantially as herein shown and described.

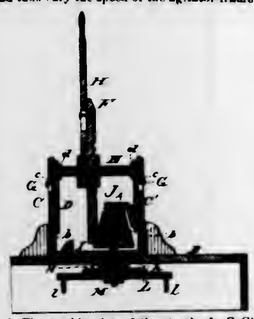
190,803. PAPER BOXES. C. M. Arthur, Ansonia, Conn., assignor of one-half his right to R. R. Colburn, same place. [Filed Apr. 12, 1877.]



The herein-described box-blank for paper boxes, consisting of the bottom and two sides, each side having a projection to interlock with the corresponding projection from the other side, and the bottom with ends and flaps to turn up against the said side projections, over and down into the box, substantially as shown and described.

190,804. WASHING-MACHINES. R. G. Baldwin and A. J. Parkhurst, Oskaloosa, Iowa; said Baldwin assignor to said Parkhurst. [Filed Mar. 17, 1877.]

Brief.—The vertical shaft of the agitator-frame is provided with pinions of different diameters, and the driving gear-wheel is laterally adjustable on its shaft, and also vertically, whereby it may mesh with either pinion, and thus vary the speed of the agitator-frame.



1. The combination of the standards C C', having slots *s s*, slides D D, adjustable by thumb-screws G, shaft E, having its bearings in slides D D, drive-wheel F, adjustable upon shaft E, and vertical shaft J, having two or more conical pinions, *j k*, of different sizes, all combined and operating substantially in the manner and for the purpose herein shown and specified.

2. The improved washing-machine herein described, consisting, essentially, of the tub A, cover B, standards C C', vertically-adjustable shaft E, having laterally-adjustable cog-wheel F, casting 1, having collar *h*, shaft J, having two or more pinions, *j k*, disk K, having collar N and lugs *m m*, and cross-frame L, having pegs *l l*, all combined, arranged, and operating substantially in the manner and for the purpose herein shown and specified.

190,805. GRATE-BARS. A. E. Barthel, Detroit, Mich. [Filed Apr. 20, 1877.]

Brief.—The bars are made to interlap at their ends, and provided with spacing-studs, to prevent said ends from fusing under extreme heat.



1. The grate-bars A A' A', provided with small studs *h* at their free and interlapping ends, for the purpose of preventing such ends from fusing together while such bars are expanding longitudinally, substantially as described.

2. In combination, the grate-bars A A' A', with interlapping ends, provided with studs *h*, and the supporting-bars C, arranged under such interlapping ends, substantially as described.

190,806. HORSESHOE-BARS. A. Barton, Nevada City, Cal. [Filed Apr. 3, 1877.]

190,806.



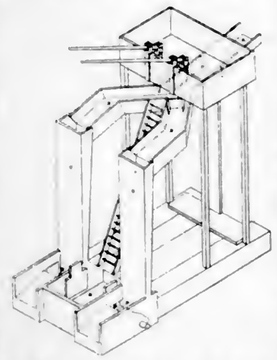
The iron bar A having the steel strip or portion B welded upon it, so as to leave the ledge or shoulder *s*, substantially as and for purpose described.

190,807. HANDLES FOR TEA AND COFFEE POTS. A. Bayley, Newark, N. J. [Filed Feb. 7, 1877.]



The within-described improvement in making sheet-metal handles, the same consisting in first cutting a blank with a recess, *y*, and curved edges *x x* at one end, and with a projection, *y'*, and curved edges *x' x'* at the other, and then forming said blank into a tube and bending until the ends are on the same plane, as set forth.

190,808. ORE-WASHERS. D. Beaumont, Sacramento, Cal. [Filed Apr. 3, 1877.]

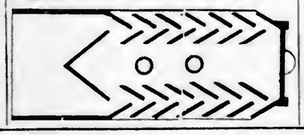


1. The flume or sluice A, with its branch sluices B B, each of which connects with the pen-stock C, the lower end of which terminates in a box or receptacle, D, in which a body of quicksilver is contained, in combination with the partition *l*, substantially as and for the purpose described.

2. In combination with the alternately-operated sluices B B, pen-stocks C C, and quicksilver-boxes D, the intermediate box G, with its side openings or doors H, arranged to communicate with the boxes D, substantially as and for the purpose described.

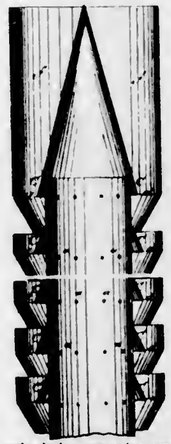
3. In combination with the alternately-operated sluices B B, pen-stocks C C, and quicksilver-boxes D D, arranged as described, the elevated water tank or reservoir with its plugs or valves K K, substantially as and for the purpose described.

190,809. APPARATUS FOR CURING GRAIN. H. H. Beach, Rome, N. Y., assignor to W. H. Smith, Urbana, Ill. [Filed Nov. 7, 1876.]



A grain-cooling apparatus the sides of the trunk of which are formed of plates arranged at different angles, constituting deflectors through which the grain descends, leaving an air-space in the interior of the trunk, through which passes a series of perforated pipes closed at one end, and with their open ends passing into the trunk of an exhaust-fan, substantially as and for the purpose shown and described.

190,810. APPARATUS FOR CURING GRAIN. H. H. Beach, Rome, N. Y., assignor to W. H. Smith, Urbana, Ill. [Filed Nov. 7, 1876.]

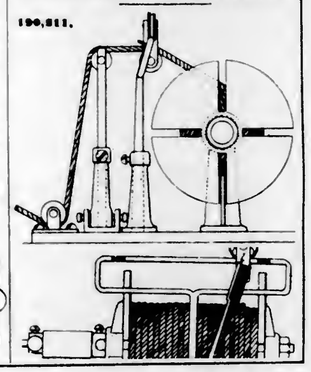


1. A grain-drying apparatus constructed with a fixed vertical perforated pipe, with a series of deflectors secured thereto, the deflectors so secured being surrounded by a second series of deflectors, the angles of one series of deflectors being reverse to the angles of the other series, substantially as and for the purpose described.

2. In a grain-drying apparatus, a fixed vertical perforated pipe, closed with a conical cap at its upper end, and constructed with a gate at its lower end, and provided with a series of deflectors, which are surrounded by a second series of deflectors, the angles of one series of deflectors being reverse to the angles of the other series, substantially as and for the purpose described.

3. In a grain-drying apparatus, a fixed vertical perforated hot-air pipe, combined with a series of deflectors, the angles of one series of deflectors being reverse to the angles of the other series, constructed and affixed in the manner described, so as to permit the grain to descend from one deflector to another in strata of varying thicknesses, which strata, together with the deflectors and vertical pipe, form spaces in which the heated air passes from the perforations into the vertical pipe, substantially as and for the purpose described.

190,811.



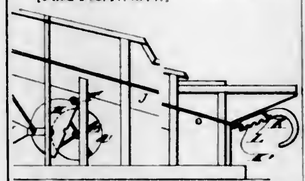
190,811. MECHANISMS FOR WINDING AND REELING ROPE OR CORDAGE. Benj. Bevelander, Boston, Mass. [Filed Nov. 27, 1876.]

Brief.—The rope is led under the sheave, near the pivotal point of the vibrating leader, over the sheave at top of said leader, and over the sheave of the traversing guide to the reel.

1. The combination, with the reel and traversing guide, of the vibrating leader, adapted to move with and present the rope to the sheave of the guide, substantially as described.

2. The combination, with the reel, traversing guide and leader, of a pulley, located at or near the pivotal point of the leader, to operate substantially as described.

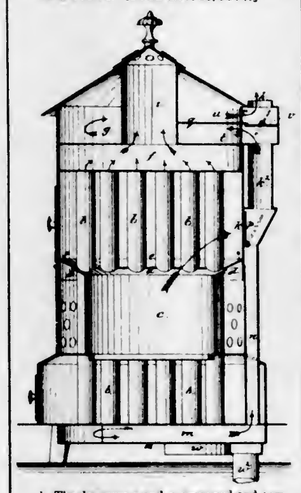
190,812. BLAST-REGULATORS FOR THRASHING-MACHINES. W. Boren, Ashland, Ohio. [Filed Feb. 17, 1877.]



1. In a thrashing-machine, the combination of a fan with weighted or spring-pressed shutters and an operating cord extending to the feed-board, substantially as and for the purpose set forth.

2. The combination of weighted shutters H H with cord J, hook K having rack K', and locking staple or loop L, substantially as and for the purpose set forth.

190,813. HEATING-STOVES. H. H. Bowman, S. H. Franklin, and C. L. Colby, Osage, Iowa. [Filed Mar. 31, 1877.]



1. The dampers *p* and *r*, arranged and combined with the flues *a*, *k²*, and *k*, and the top-chamber openings *r s*, to give perpetual communication of the indirect flues *j j* with the exit-pipe *k*, whether the direct-fine damper *p* is opened or closed, as described.

2. The combination, in a surface-burner and base-heater, of the direct and indirect flues *k k²* and *j j* and the base-chamber *a* of a top chamber, *g*, the smoke-pipe *k*, and the dampers *r* and *p*, constructed and arranged substantially as and for the purpose herein set forth.

3. The top chamber *g*, its angular horizontal and vertical division-plate *s' q r'*, forming the upper and lower openings *r s*, the direct and indirect flues *k j j*, the dampers *r p*, and the exit-pipe *k*, constructed, combined, and adapted for use, as set forth.

4. The air-chamber *f*, its central outlet-flue *i*, and the air-inlet tubes *b*, arranged and combined with the top chamber *g*, its inlet and outlet openings *s r*, the fire-chamber *c*, and the flues *a*, *k²*, and *k*, all constructed and arranged as set forth.

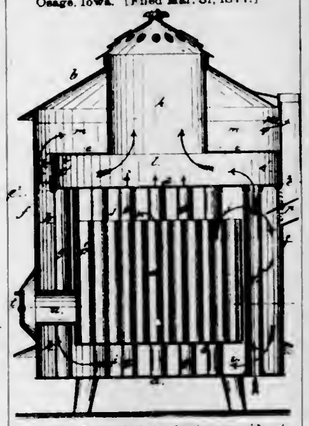
5. The sectional lining *e*, in combination with the flanged fire-pot and the air-conductors, said lining and flange being constructed and adapted to fit said conductors, and close the space at the junction therewith and with the flange, as described.

6. The cold-air duct *w*, arranged beneath the base-chamber *a* and at the junction thereof with the descending and ascending flues *j j*, and combined with said flues and the air-tubes *b*, whereby said cold-air duct is subjected to the direct heat of said flues, as set forth.

7. The direct and indirect draft openings *k j j*, arranged in an open space between the air-tubes *b*, and combined with the top chamber *g*, the bottom chamber *a*, and the exit-pipe *k*, as set forth.

8. The angular division-plate of vertical and horizontal sides *s' q r'* of the top chamber, arranged to divide said chamber vertically with its central pipe *i*, and horizontally with its inlet and outlets *s r*, forming upper and lower openings, and combined with the flues *a k² k*, as set forth.

190,814. HEATING-STOVES. H. H. Bowman, S. H. Franklin, and C. L. Colby, Osage, Iowa. [Filed Mar. 31, 1877.]



1. The fire-pot lining *c*, having one side, *c'*, extending from the bottom to the top of the fire-chamber, to form, with the outer case, the ascending flue *k*, and an open-top diving flue, *j*, over the other portion of said fire-box lining, as and for the purpose herein set forth.

2. The rimmed plate *c*, forming the hot-air chamber *l*, flattened on one side to form a continuation of the indirect ascending flue *k*, in combination with the combustion and top chambers, substantially as herein set forth.

3. The fire-box side *c'*, closed, and the sides *c* open at top, the flues *k* and *j*, the air-tubes *g*, hot-air chamber *l*, base-chamber *i*, and the casing *f*, all constructed and combined for use as herein set forth.

4. The hot-air chamber *l*, formed by the rimmed plate *c*, with one side flattened, in combination with the grooved seat *c'* in the top plate of the fire-box, substantially as herein set forth.

5. The combination, with the direct and indirect flues *j* and *k*, of the valve *p* and the top chamber *m*, having the opening *n* into the smoke-pipe, in the manner and for the purpose herein set forth.

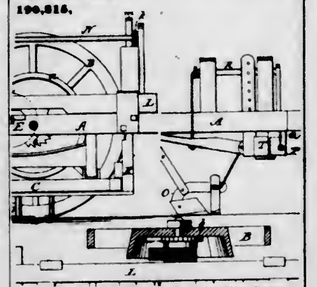
6. The removable closed oven *r*, the hot-air chamber *l*, the combination-chamber, and the stove-case, combined for use substantially as herein set forth.

7. The rimmed plate *c c'*, forming the hot-air chamber *l*, having the raised portion *a*, in combination with the closed oven *r*, adapted thereto like a drawer, substantially as herein set forth.

190,815. COMBINED COTTON CHOPPER AND SCRAPER. B. C. L. Bridges, Brick Church, Tenn., assignor to J. A. Lee, same place. [Filed Apr. 11, 1877.]

Brief.—A horizontal frame carries the choppers. It slides laterally in guides, and is oscillated by a crank shaft, operated from the axle and bearing-wheels. The frame in which they are carried is raised and lowered by crank-pinion and ratchet. A lever moves the chopping mechanism forward or back upon the main frame. The scrapers are attached to a block, which slides laterally, and is moved by foot-treadles.

190,815.



1. The combination of the vibrating frame, carrying the hoes or choppers, and working in guides of frame K, the crank-shaft G, cross-shaft E, ratchets *b*, and transporting-wheels B, as shown and described.

2. The combination of vibrating chopper-frame C and vertically-adjustable frame K, as shown and described.

3. The combination of vibrating frame C, carrying the chopping-hoes, and horizontally-sliding frame L, as shown and described.

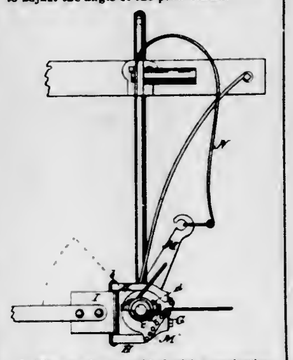
4. The combination of vibrating chopper-frame C, vertically-adjustable frame K, and horizontally-sliding frame L, as shown and described.

5. The combination of crank-shaft N, gears *k k*, rack-bars *l l*, frame K, and vibrating chopper-frame C, as shown and described.

6. The combination of scraper O, sliding block P, strap Q, rock-shaft R, and treadle-levers, as shown and described.

190,816. COUPLINGS FOR CULTIVATORS. W. P. Brown, Zanesville, Ohio. [Filed Apr. 6, 1877.]

Brief.—The cultivator-coupling has an attachment to a spring upon the frame, to balance and assist in raising the plow-beams. It also provides for attaching the draft to the coupling, so as to elevate or depress the plows. The coupling and axle-sleeve are corrugated, to adjust the angle of the plow-beams.

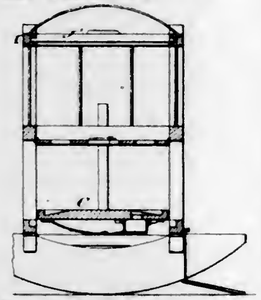


1. The pipe-box provided with a projection adapted to co-operate with a spring, weight, or the draft, to rock the said pipe-box against or with the weight of the rear cultivators or plows, substantially as and for the purpose described.

2. The combination, with the crank axle and the gangs or plows, of the pipe-box, having arm M, the spring N, attached to the main frame, the head I, and the stirrup O, or its equivalent, having brackets H and pivot bolt *h*, and fastened to the pipe-box, substantially as and for the purpose described.

3. The pipe-box E, having longitudinal ribs, combined with the stirrup G, having corresponding grooves and a clamping device, substantially as described.

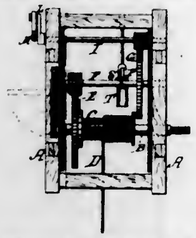
190,817. CRADLES. J. L. Butler, Osceola, Iowa. [Filed Mar. 24, 1877.]



The combination of cradle-bottom C with springs for supporting the same, and rods and screws for adjusting its height, substantially as and for the purpose set forth.

190,818. MOTORS. J. C. Butler, Greenton, assignor of one-half his right to J. E. Shotwell, Lexington, Mo. [Filed Mar. 13, 1877.]

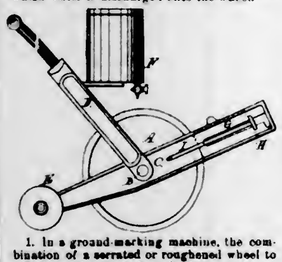
Brief.—The motor may be applied to any light machinery, though shown applied to fans.



The combination of the supporting-frame A, the shaft B, journaled in the same, the drum O, mounted on said shaft, and provided with a cord or chain, D, and weight D', the wheels E and G, and pinions with which they gear, the shafts I and F, and crank L, the pivoted lever P, its brake S, and weight T, the whole constructed and arranged to operate substantially as set forth.

190,819. MACHINES FOR MARKING GROUND. Frederick W. Byrne, Liverpool, England. [Filed Mar. 9, 1877.]

Brief.—The frame is mounted upon wheels revolving on the axle that extends beyond the frame. Journaled centrally in the frame is a wheel having a roughened periphery, for grinding off pigment held in a box, and pressed against the wheel by a sliding spring. Above the wheel is attached a fluid-reservoir, from which water is discharged onto the wheel.

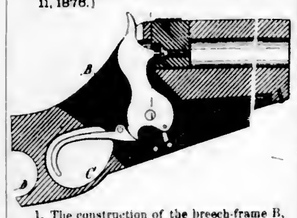


1. In a ground-marking machine, the combination of a serrated or roughened wheel to travel on the ground, a fluid-reservoir arranged to discharge its contents upon the periphery of the wheel, and a device, H, adapted to present a solid pigment against the periphery of the wheel, said elements being constructed and arranged substantially as shown and described.

2. In a ground-marker, the combination of a serrated or roughened wheel, A, a fluid-reservoir, F, and a sliding spring-presser, H, adapted to force a pigment, J, against the wheel, substantially as shown.

3. The combination of the frame C, wheels A E E, handle D, can F, presser H, and springs I.

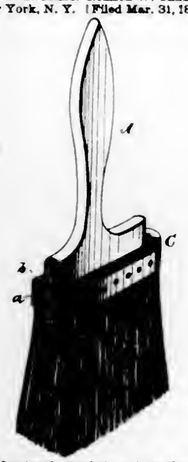
190,820. BREECH-LOADING FIRE-ARMS. H. W. Chapman, Newark, N. J. [Filed Oct. 11, 1876.]



1. The construction of the breech-frame B, guards C and D, gripe E, and stock H, cast in one piece, substantially as specified.

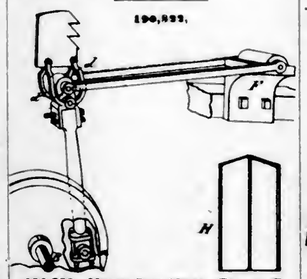
2. In a fire-arm, the breech-frame, stock, and guards, formed in a single piece, substantially as set forth.

190,821. BRUSHES. Remick W. Champion, New York, N. Y. [Filed Mar. 31, 1877.]



The flat brush consisting of the ferrule C having the continuous wall *a*, perpendicular to its upper slotted face *b*, and handle A, of uniform thickness and wedge-shaped at its lower end, substantially as described, and for the purpose set forth.

190,822.



190,823. MULEY-SAW MILLS. Thomas B. Chandler, Indianapolis, Ind. [Filed Apr. 14, 1877.]

Brief.—The mill is relieved from the difficulty caused by the heating and wear of the lower slides, arising from the shortness of the pitman required, by means of two radius-bars, the outer ends of which are pivoted to a bracket on the inside track-timber, and the opposite ends secured to a pin oscillating in a journal-box in the upper end of the pitman; two bifurcated saw-straps, which connect the saw to the pitman; two vertical guides, which embrace the lower part of the saw; and two upper inclined guides, which act as dust-shields.

1. The bifurcated saw-straps *d*, constructed and operating substantially as shown and described.

2. The bifurcated saw-straps *d*, in combination with pitman, radius-rods, and bracket F, as and for the purpose set forth.

3. The iron frame A and guide-frame H, constructed as described, in combination with the vertical guides *g* and inclined guides *i*, as and for the purpose specified.

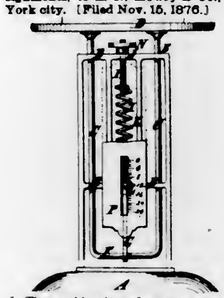
190,824. METHODS OF SPLICING WIRE-ROPE. H. Channon, Chicago, Ill. [Filed Feb. 10, 1877.]

Brief.—The strands of the broken rope are unlaid at opposite ends, interlocked or intertwined, and fastened by inserting the ends in the core of the rope.



The method of forming a splice in wire-ropes having a hempen heart or core, consisting in unlaying the strands of opposite ropes in interlocking them and fastening the ends by inserting them in the heart of the ropes, substantially as set forth.

190,824. SPRING-SCALES. G. H. Chinnock, Brooklyn, N. Y., assignor, by mesne assignments, to L. N. Mowry & Co., New York city. [Filed Nov. 15, 1876.]

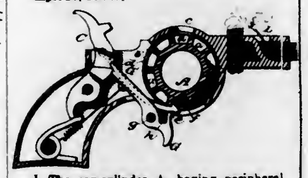


1. The combination of a scale-pan, means for guiding it vertically, a counter-balance for said scale-pan, connected therewith without the intervention of levers, and an index, substantially as and for the purpose herein set forth.

2. The combination of the pedestal A, scale-pan D, guides and rods B C for the latter, spring counter-balance H, connected to the latter and to the bridge J, and an index and index-plate, substantially as set forth.

3. The combination of the scale D, guides and rods B and C therefor, spring counter-balance H connected therewith, bridge J, adjustable support I N, and an index, substantially as set forth.

190,825. TOY PISTOLS. R. W. Churchill, Bridgeport, Conn., assignor of one-half his right to C. B. Alvord, same place. [Filed Apr. 17, 1877.]



1. The cap-cylinder A, having peripheral cells or cap-chambers *a*, in combination with the chamber B and shell *b*, substantially as described.

2. The combination of the revolving cylinder A, having peripheral cells *a*, with the hammer of a toy pistol, and the spring-pawl *s*, substantially as described.

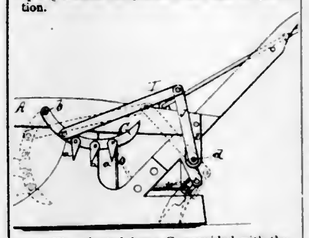
3. The combination of the cap-cylinder A, the hammer C, pawl *e*, spring tail-piece G', and trigger G, substantially as described.

4. In a toy pistol barrel from which fire-crackers are shot butt foremost, the opening L and a punk or lighter receptacle, K, substantially as described.

5. A toy-pistol constructed with a cap-exploding mechanism, a punk-receptacle, and a barrel adapted to shoot fire-crackers, substantially as described

190,826. PLOWS. G. B. Clarke, Leonardsville, N. Y. [Filed Mar. 31, 1877.]

Brief.—Self-operating cleaner. When the rod is drawn backward, it thrusts a spur downward into the ground, and the forward movement of the team operates the cleaner. A spring returns the parts to their former position.



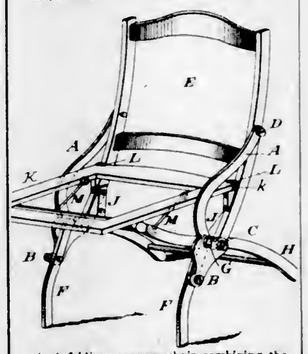
1. The pivoted lever G, provided with the pivoted clearing teeth or points *a*, in combination with a spur, arranged to be forced into the ground, whereby the draft of the team causes said lever to be thrown forward and upward, substantially as herein set forth.

2. The combination of the lever G with clearing-points *a*, connecting-bar I, shaft *d*, with arms J P, the spur S, and pin *p*, substantially as and for the purposes herein set forth.

3. The combination of the rod R, loose lever L, slotted spur S, and shaft *d* with arm P, having pin *p*, substantially as and for the purposes herein set forth.

4. The combination of the lever G with clearing-points *a*, connecting parts I J, shaft *d*, with arm P, having pin *p*, the spur S, connecting-wire *w*, and the spring O, all constructed and arranged to operate substantially as and for the purposes herein set forth.

190,827. FOLDING CHAIRS. Henry Closterman, Jr., Cincinnati, Ohio. [Filed Mar. 29, 1877.]



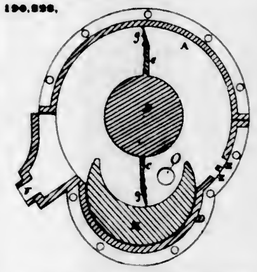
1. A folding or camp chair combining the following elements, to wit, the pair of scroll-formed members A, secured to the back E, front legs F, and cross-piece H, by bolts B C D and pivots G, and to each other by the seat-supporting stretcher I, in the manner and for the purpose set forth.

2. In combination with the members A B C D E F, having pivoted connection G with the member H, the rear hinged seat-K L, connected by links M with said member H, and supported by stretcher I and lugs J, as and for the purpose set forth.

190,828. BLOWING-MACHINES. T. A. Cochrane and J. Heady, San Francisco, Cal. [Filed Mar. 29, 1877.]

Brief.—The rotary vanes are constructed in two parts, and are so hinged as to allow for any irregularity of motion. An opening is made in the end of the small semi-cylindrical case, to prevent the rotary abutment from carrying any air around with it.

190,829.



1. The cylinder B of a rotary pressure-blower, provided with flexible or hinged vanes *c g*, in combination with the rotary recessed abutment H, the whole mounted in a single shell or case, A E, substantially as and for the purpose described.

2. The combination, with the rotary recessed abutment H, of the cylindrical shell A, provided with opening O, substantially as and for the purpose specified.

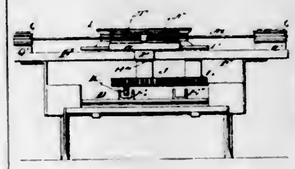
190,830. FIREMEN'S BELTS. F. Constantino, Philadelphia, Pa. [Filed Mar. 20, 1877.]



A fireman's belt escape attachment, consisting of a belt, A, provided with eye *b* and pockets *c d*, and a coil of rope having knots at intervals, and a snap-hook at one end for engagement with said eye *b*, and at the other a spike, as and for the purpose described.

190,830. ATTACHMENTS FOR CORN-PLANTERS. W. R. Cunningham, La Fayette, Ind. [Filed Apr. 7, 1877.]

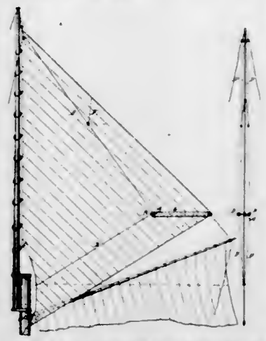
Brief.—Upon the seed-slide are secured trough-plates of different sizes, for the reception of a transferable wrist-pin attached to one of two gear-wheels of different sizes, for vibrating the seed-slide at varying rates of speed.



1. The combination, with the gear-wheels J L, of different diameters, and provided with the transferable wrist-pin K, of the seed-slide D, having the trough-plates E E', pulley I, and rope M, substantially as and for the purpose set forth.

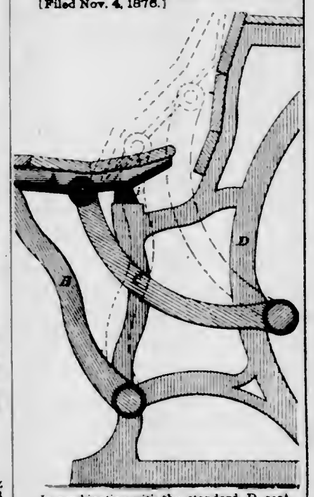
2. The combination, with the gear-wheels J L, of different diameters, and provided with the transferable wrist-pin K, and the seed-slide D, having the trough-plates E E', of the grooved pulley I, having an extended lower flange, I', pulleys Q Q N N, and rope M, substantially as described.

190,831. MEANS FOR CLEWING UP GAFF-TOPSAILS. W. H. Dare, Whitestone, N. Y. [Filed Nov. 24, 1876.]



As a means of clewing up gaff topsails, the combination of the grommet-hole A, located as described, and provided with bull's eyes B B, or their equivalents, connected by a strap, the preventor rope or band G, the double buntlines D D, and the additional block at the head of the sail, all constructed and arranged substantially as described.

190,832. FOLDING SEATS FOR SCHOOL-DESKS. O. Davis, Battle Creek, Mich. [Filed Nov. 4, 1876.]



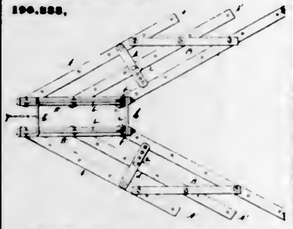
In combination with the standard D, seat-arm A, and front brace B, arranged substantially as described, the rear brace C, pivoted to the seat-arm A and to the standard D, the latter pivot-point being in a plane below the plane of the former, substantially as and for the purposes herein set forth.

190,833. HARROWS. F. M. Davison, Rose Hill, Iowa. [Filed May 7, 1877.]

Brief.—The front coupling-bar of the couplings which connect the wings of the harrow

has a draft-chain attached centrally thereto, and stops are arranged under the rear coupling-bar, to limit the upward and downward movement of said wings.

190,823.

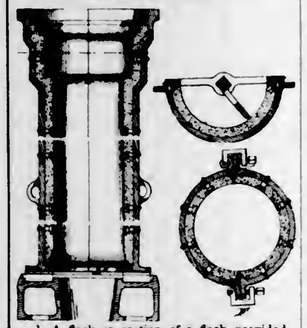


The couplings C and C', bolts *b*, and stops *f*, in combination with the wings A, having cross-bars B and B', the latter constructed with shoulders *a*, substantially in the manner and for the purpose set forth.

190,824. FIRE-PROOF METALLIC ROOFING. Alfred C. de la Martelliere, Paris, France. [Filed Apr. 21, 1877.]

The process of rendering metallic plates for roofing fire-proof, by first covering their surfaces with a coating of lead and tin, immersing these plates so covered in a bath of chloride of zinc and hydrochlorate of ammonia, and subsequently depositing thereon a covering of zinc, substantially as herein set forth.

190,825. MOLDING AND CASTING PIPE. J. K. Dimmick, Newport, Ky., assignor of one-fourth his right to F. A. Stine, same place. [Filed Sept. 20, 1876.]

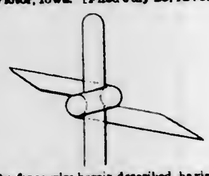


1. A flask or section of a flask, provided with inwardly-projecting lips or flanges at the parting, and also with inwardly-projecting tapering or headed studs at different points of the interior surface, substantially as and for the purposes specified.

2. In combination with a flask having two or more parts, the hinged screw-clamps F, connected and operating substantially as and for the purpose specified.

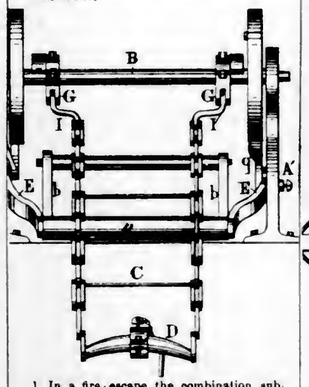
3. The combination, substantially as specified, of the flask, the sweep, and the sweep-frame, whose interior contour corresponds to the inner lines of the mold at the parting, so that the edges of the mold are protected thereby.

190,826. BARBED FENCE-WIRE. J. Dobbs, Victor, Iowa. [Filed July 20, 1876.]



The fence-wire herein described, having the interspaced surface-grooves *a* running spirally around the wire, into which grooves the barb-wires are coiled or twined, substantially as specified.

190,827. FIRE-ESCAPES. Michel Durand, Montreal, Quebec, Canada. [Filed Jan. 15, 1877.]



1. In a fire-escape, the combination, substantially in the manner shown and described, of a drum, B, and a flexible ladder, C, connected thereto in such manner that the drum may turn forward, but not backward, without winding the ladder thereon.

2. The combination of the drum B and the flexible ladder C, connected thereto by means of the loose sleeves G and dogs N, substantially as shown.

3. In combination with the drum B and ladder C, the sleeves G and curved links I, as and for the purpose described.

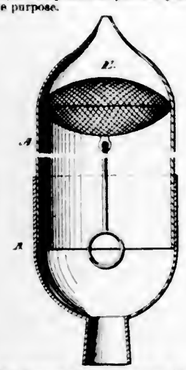
4. A pendent fire-escape ladder, provided at its lower end with a rotary curved or eccentric round, D, adapted to operate in connection with a fixed arm or bearing, to hold the foot of the ladder, as described and shown.

5. The combination of the frame A, drum B, brake-shoe *q*, arm E, and the hand-lever A', arranged to depress the arm and lock into a recess in the frame, as shown.

6. In combination with the drum B and flexible ladder C, the arm or lever E, provided at one end with the brake-shoe *q*, and sustaining at the other end the ladder-supporting roll *p*, whereby the ladder is caused to apply a variable pressure to the brake-shoe, as and for the purposes described.

190,828. INSECT-DESTROYERS. Charles H. Emerson, Waltham, Mass. [Filed Apr. 10, 1876.]

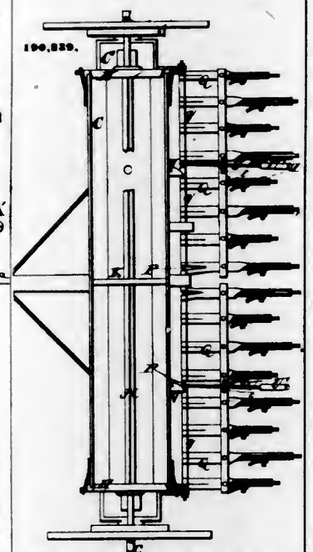
Brief.—The apparatus may be used for burning noxious substances, and applying the vapors thus produced to the destruction of insects, or as a poisonous powder-ejector for the same purpose.



The chamber A B, in combination with the spheroidal strainer E, constructed and operating in the manner and for the purpose substantially as herein described.

190,829. SEED-SOWERS AND CULTIVATORS. E. Emmert, Franklin Grove, Ill. [Filed Feb. 24, 1877.]

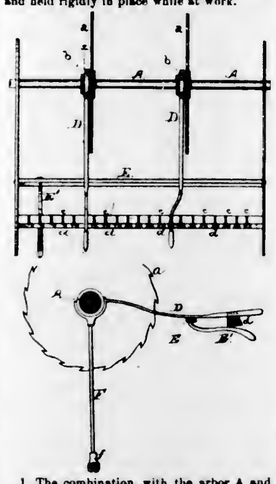
190,829.



The combination of bottom piece C', having front and rear rims C² and guide-strips C³, with perforated side pieces I, partition K, having lugs *j j*, and pieces H, having flanges H¹ H² H³ and hooks H⁴, substantially as shown and described.

190,830. GANG-EDGERS. David Evans and Wm. Snyder, Salmon Creek, Cal. [Filed Sept. 18, 1876.]

Brief.—A gang of circular saws for edging lumber can be adjusted to any desired width, and held rigidly in place while at work.

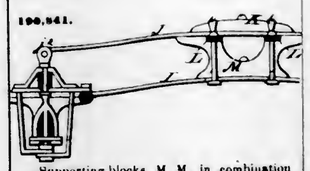


1. The combination, with the arbor A and gang of saws *a a*, of the index-bars D, the eccentric bar E, and the lever E', constructed and arranged substantially as described and shown.

2. The combination, with the arbor A and gang of saws *a a*, of the shaft G, the rods F, the index-bar D, the scale or index *d*, the eccentric bar E, and lever E', all constructed and arranged substantially as described and shown.

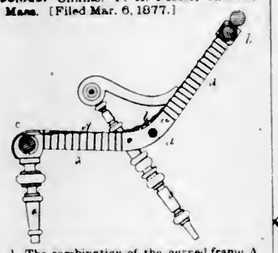
190,831. VEHICLE-SPRINGS. Wm. Foote, Fillmore, N. Y. [Filed Sept. 9, 1876.]

190,841.



Supporting-blocks M M, in combination with equalizing-bars I, L, lower springs I I, and upper springs J J, pivotally attached to the rear axle and head-block, as described, the springs I I being arranged under the sides of the body and inside the springs J J, as and for the purpose set forth.

190,842. CHAIRS. F. H. Foster, Chelsea, Mass. [Filed Mar. 6, 1877.]



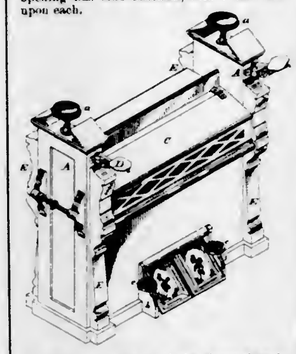
1. The combination of the curved frame A and its front legs *e e* with the back legs or levers *f f*, arranged obliquely to the seat and extended up and secured, as described, to the arms *g g*, arranged with and fastened to the frame A, all being substantially as set forth.

2. The frame A, provided with the longitudinal and transverse grooves *i k* arranged in it, substantially as represented.

3. The frame A, provided with the longitudinal and transverse grooves *i k* arranged in it, as described, in combination with the cord or cords *l* laid in such grooves and across the frame and interwoven, essentially in manner as shown and explained.

190,843. ORGAN-CASES. Levi K. Fuller, Brattleborough, Vt. [Filed Mar. 9, 1877.]

Brief.—The case is double-faced, the lamp-brackets especially well placed, and the pedal-opening has side brackets, with a foot rest upon each.



1. The combination of the elevated ends A A with the supporting-strip B and lid C, as and for the purposes substantially as set forth.

2. The combination of the elevated ends A A, constructed as shown, the stands *a a* fixed thereon, and the lower central portion of the case which contains the action, when arranged in the manner set forth.

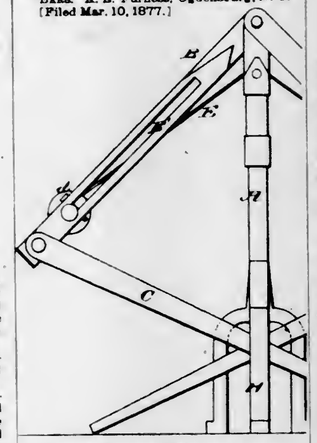
3. The elevated ends A A, raised above the central part containing the action, provided at their front edges, at a point above the action, with hinged lamp-stands, as shown, as and for the purposes specified.

4. The combination of the foot-rests *c c* with the pedal-brackets *b b*, when arranged substantially as and for the purpose set forth.

5. The combination, in an organ-case, of the two elevated ends A A, provided with handles F F, stands *a a*, and like corner-posts E E on opposite edges, with the lower central portion of the case containing the action, all arranged substantially as herein set forth.

6. An organ-case with elevated ends A A, provided at their rear edges with posts E E, in combination with a lower central portion containing the action, and provided with an open-work strip, G, the same being for the purpose of permitting the sound to escape, and, at the same time, enhance the appearance of the rear of the organ, all as and for the purpose set forth.

190,844. QUILTING-FRAMES AND CLOTHES-BARS. A. E. Furness, Ogdensburg, N. Y. [Filed Mar. 10, 1877.]

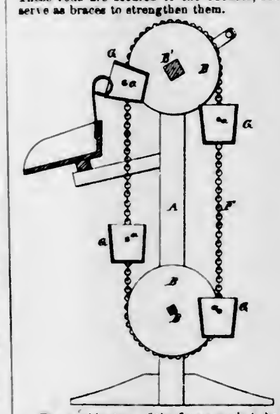


1. The combination of standards A A, having tripod-supports H H, with arms B B and props C C, adapted to be folded transversely to form a clothes-rack, substantially as and for the purpose set forth.

2. The combination of standards A A with slotted and perforated arms B B, props C C, rollers D D, crank-shaft F, and belt-gearing, substantially as and for the purpose set forth.

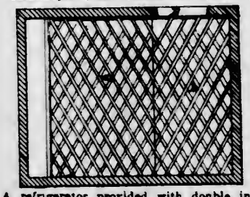
190,845. WATER-ELEVATORS. Thos. Gamble and Jere. Wagner, Martinsville, Ill. [Filed Mar. 7, 1877.]

Brief.—The ends of the rods project beyond the ends of the buckets, and have bearings in the links or loops made for them in the chains. On the ends of the rods are buttons, to prevent them drawing out of their bearings. These rods are secured to the buckets, and serve as braces to strengthen them.



The combination of the frame-work A, having an upper and lower shaft, B', each provided with grooved pulleys B, the two endless chains F, and tapering buckets G G, pivoted thereto by the headed rods at points above their horizontal centers, all substantially as set forth.

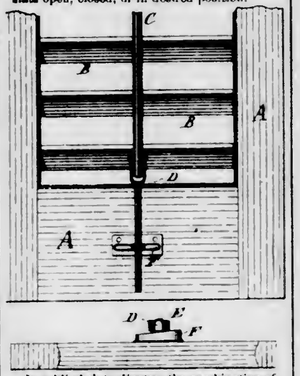
190,846. REFRIGERATORS. Simon Gasper, Indianapolis, Ind. [Filed Oct. 4, 1876.]



A refrigerator provided with double inclined shelves for holding the ice-supply, immediately beneath which is a cold air chamber into which the cold air and drip-water flow from the shelf, the inlet openings to the ice-chamber and outlets from the cold-air chamber being opened and closed from communication with the main chamber by means of suitable slides co-operating through, connecting-levers, with the entrance-doors, substantially as shown and described.

190,847. BLIND-SLAT ADJUSTERS. Homer Gaylord, Oskaloosa, Iowa. [Filed Apr. 9, 1877.]

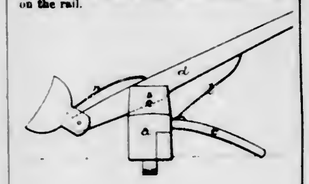
Brief.—A slotted wedge sliding laterally on the loop, connecting a forked and notched arm with the operating-rod, serves to tighten the loop in the notches, and thus hold the blind slats open, closed, or in desired position.



In a blind-slat adjuster, the combination of the movable slats B, operating-rod C, forked and notched arm D, loop E, and slotted wedge F, all arranged and operating substantially as and for the purpose herein shown and described.

190,848. CAR-PUSHERS. Jos. E. Gearhart, West Decatur, Pa. [Filed Apr. 26, 1877.]

Brief.—The clamp *g* firmly holds the pusher on the rail.



1. The combination, in a car-starter, of the base *a*, brace *c*, lever *d*, two griping-jaws, and spring *i* with the spring *l* and shoe, substantially as specified.

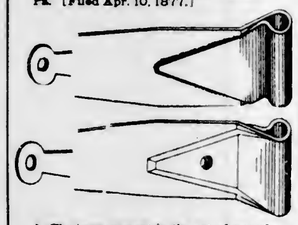
2. The base *a*, having a recess in its lower part, in combination with the two griping-jaws and spring *i*, substantially as set forth.

190,849. CIGARS. M. Golston, East Haddam, Conn. [Filed Jan. 25, 1877.]



As a new article of manufacture, a cigar having a tapering tip filled with straight cuttings of tobacco leaf, as set forth.

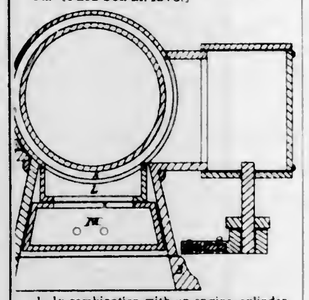
190,850. MANUFACTURE OF HINGES. L. B. Gusman, Upper Dublin, assignor of one-half his right to C. E. Burk, Philadelphia, Pa. [Filed Apr. 10, 1877.]



1. The improvement in the art of manufacturing hinges, consisting in stamping or pressing the lap or end bent to form the eye into the strap or leaf, substantially as shown and described.

2. As a new article of manufacture, a metal hinge having a cavity or recess formed in the strap or leaf, and the lap or end bent to form the eye pressed therein, substantially as shown and described.

190,851. STEAM-ENGINES. L. H. Hall, Erie, Pa. [Filed Oct. 21, 1876.]



1. In combination with an engine-cylinder from which the exhaust steam is discharged between the walls of the engine frame or bed, a heater located between, and supported by, the said walls of the bed or frame, as and for the purposes mentioned.

2. A steam-engine having the following arrangement of parts: a cylinder which has a surrounding shell, which terminates between the walls of the frame in an extension, L, which extension connects with the heater M, which is located between, and supported by, the walls of the said frame, said parts being connected with the piston-chamber of the cylinder by a steam-chest located in a depression of the side of the frame, at a point low enough to admit of the free flow of condensation from the piston-chamber into the exhaust-chamber of the valve, thence into the extension L, and thence into the heater M, said arrangement of parts being substantially as and for the purposes set forth.

190,852. BALING-PRESSES. J. B. Hanger, Richmond, Va. [Filed Apr. 11, 1877.]

1. The combination of the wheels I I, the flexible bands J J, surrounding the wheels and having their ends attached to pins *b b'*, the forked and slotted levers H H, the revolving double crank shaft *d*, and the springs K K, all substantially as and for the purposes herein set forth.

2. In a baling press, a reciprocating follower, arranged to advance the entire length of the stroke at an angle, causing one part of the material to be pressed first, then, at the completion of the stroke, tilting to an opposite angle to press the other part of the material, and then recede at said latter angle back to the rear end of the box, by the means substantially as and for the purposes herein set forth.

3. The combination, with the rotating double crank shaft *d*, of the slotted and forked levers H H, flexible bands J J, wheels I I, pivot *a*, stem G', and follower G, having its lower edge beveled, all constructed substantially as and for the purposes herein set forth.

4. The head L, provided with the teeth *i*, and attached to the pivoted side bars L', in combination with the follower G and bent lever *m*, substantially as and for the purposes herein set forth.

5. The triangular lugs *h*, attached to the pivoted frame M, in combination with the follower G, stem G', and lever N, with pin *s*, substantially as and for the purposes herein set forth.

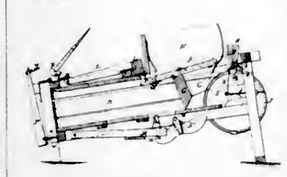
6. The hopper-bottom D D', constructed as described, and acting as a feeder, by making one-half a revolution at each backward stroke of the follower, substantially as herein set forth.

7. The combination of the hopper-bottom D D', having longitudinal grooves *x* in its side bars, the pins *p p*, and the reciprocating follower G, formed with the shoulders or offsets *e*, and provided with the friction-rollers *s*, substantially as and for the purposes herein set forth.

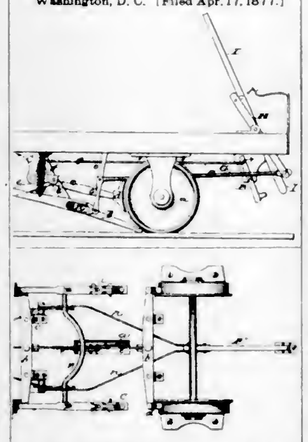
8. The combination of the hinged door or gate C, the hinged lever P, with loop *w*, and the scale-beam R, having hook *y*, with weight and the pin *z*, substantially as and for the purposes herein set forth.

9. The bottom D D', constructed and operating as described, to act as a bottom for the hopper, a feeder for feeding the material from the hopper to the bale-box, and also as part of the top of the bale-box, to hold the material down in front of the follower, substantially as herein set forth.

190,853.



190,853. CAR-STARTERS. C. A. Harvey, Washington, D. C. [Filed Apr. 17, 1877.]



1. The combination of the pinch-bars D D, hung below the platform, their operating devices connected to the lever H, the brake-shoes *d*, their operating devices connected to the lever B, and the hand-lever I, arranged to bear both on the lever B and on the lever H, substantially as set forth.

2. The combination, with the toggles attached to the brake-bars of an arm, *f*, interposed between the toggles and the platform, pivoted at one end, and having a sliding bearing at the other, substantially as set forth.

3. The pinch-bars D, their links *h h*, in combination with the devices, substantially as described, for applying the power to elevate and depress the bars to the joints *j*, as set forth.

4. The combination of the bars D, their links *h h*, cross-rod E, lever F, and toggles *o'*, operated from a lever on the platform, as specified.

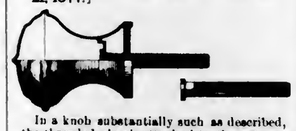
190,854. VENTILATING-PILLOWS. Jas. T. Hatfield, Hoboken, N. J. [Filed Mar. 13, 1877.]



1. A pillow constructed of the end pieces *a a*, connecting-rod *b*, and fabric *d*, substantially as herein shown and described.

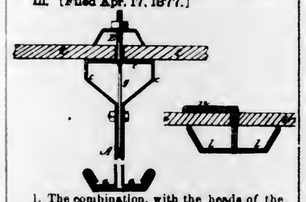
2. A folding pillow constructed of the end pieces *a a*, connecting-rod *b*, and fabric *d*, the end pieces being hinged to the connecting-rod, substantially as specified.

190,855. METAL KNOBS. A. B. Hendryx, Ansonia, Conn., assignor to Hendryx & Bartholomew, same place. [Filed Apr. 21, 1877.]



In a knob substantially such as described, the threaded shank attached to the outer or ball portion of the knob, to prevent them from turning one upon the other, combined with the base seated upon the ball portion, and the nut forming a part of said base, threaded to correspond with the thread of said shank, all substantially as described.

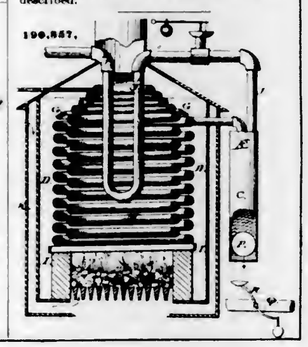
190,856. SKYLIGHTS. J. Henry, Chicago, Ill. [Filed Apr. 17, 1877.]



1. The combination, with the heads of the skylight bar or rafter A—said heads being formed in one piece—of the bolts E having the shoulders *h*, all arranged as shown and described, whereby the latter abut the under side of the flat top of the heads, and support the same in the manner described.

2. The double gutter-joint, formed of a single plate of sheet metal, having the two gutters *l l* and bent-top flange *n*, as shown and described.

190,857.

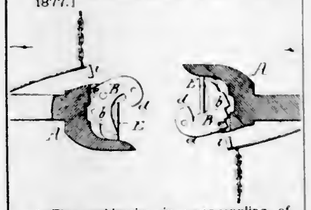


190,857. WATER-TUBE STEAM-GENERATORS. J. B. Herreshoff, Bristol, R. I., assignor to himself and Sarah L. Herreshoff, same place. [Filed May 3, 1877.]

1. In combination with a coil-boiler and separating-vessel, a steam-trap adapted to trap out the water from such separating-vessel, as herein specified.

2. The combination of the trap P, vessel C, and coil A' with a device, R, for regulating the quantity of water fed to the coil, as herein specified.

190,858. CAR-COUPLINGS. P. Hien, Rock Island, Ill., assignor to Sarah Hien and B. D. Buford, same place. [Filed Feb. 16, 1877.]

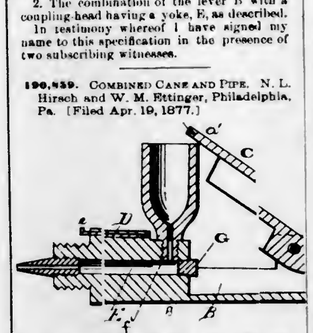


1. The combination, in a car-coupling, of the head A and the pivoted lever B, having the jaw *d* and the arm *b*, adapted to a recess in the said head, with the block *i*, adapted to the recess *e* between the lever B and the draw-head, substantially as shown and described.

2. The combination of the lever B with a coupling-head having a yoke, E, as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

190,859. COMBINED CANE AND PIPE. N. L. Hirsch and W. M. Ettinger, Philadelphia, Pa. [Filed Apr. 19, 1877.]



1. The pipe cane with a bowl-receiving chamber, B, in combination with the covering-cap C, connected to the cane, and constituting an integral portion thereof, substantially as and for the purpose set forth.

2. In a pipe cane, a bore formed in the cane, whereby the cane constitutes the stem of the pipe, substantially as set forth.

3. The bore E, formed with the passage *f*, and communicating with the chamber B of the cane, substantially as and for the purpose set forth.

4. The cane with chamber B, in combination with the cap C, having a toogue, *a*, substantially as and for the purpose set forth.

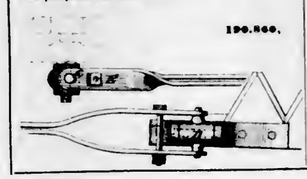
5. The cane with bore E and passage *f*, in combination with the cap C, having tongue *a'*, substantially as and for the purpose set forth.

6. The cane with chamber B and cap C, in combination with the fastening-rod D, substantially as and for the purpose set forth.

7. The plug G, in combination with the bore E and chamber B, substantially as and for the purpose set forth.

8. The removable cane-head F, inclosing the mouth-piece J, substantially as and for the purpose set forth.

190,860.

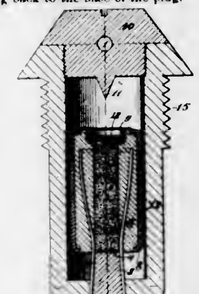


190,860. PITMEN. H. L. Hopkins, Manchester, Iowa. [Filed Apr. 24, 1877.]

A pitman, substantially such as described, composed of two separate bars, bent to form forks at the ends, where they are connected together, so that the bars can independently adjust themselves to compensate for deviations in the alignments of the journals and bearings.

190,861. PERCUSSION-FUSES. Benjamin B. Hotchkiss, New York, N. Y. [Filed Jan. 31, 1877.]

Brief.—The plunger is held from forward movement and from rotation by the wires extending back to the base of the plug.

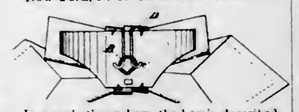


1. The combination of the fuse-case, plunger, and two detent wires or legs, 3 3, substantially as described.

2. The combination of the plunger, detent-wire 3, and fuse-case, provided with a socket, 21, substantially as described.

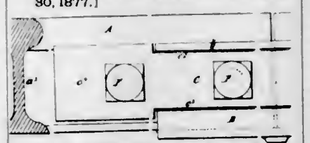
3. A percussion-fuse, consisting of a case and plunger, carrying powder, provided with devices, substantially as described, which prevent the rotative movement of the plunger within the case.

190,862. NECK-TIE RETAINERS. L. Hussey, New York, N. Y. [Filed Mar. 24, 1877.]



In a neck tie or bow, the herein-described combination of the curved laterally elastic metallic guide D with the elastic loop B, all arranged substantially as and for the purpose herein set forth.

190,863. RAILROAD-RAIL JOINTS. A. B. Ibbotson, Florence, Italy, and Fred. J. Talbot, Sheffield, England. [Filed Mar. 30, 1877.]



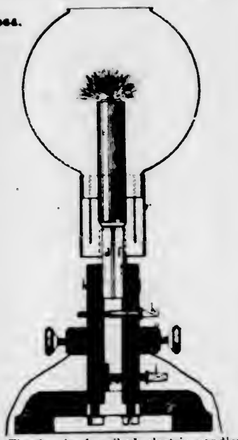
1. The combination, with the rails A and clip B, embracing said rails, of the elongated fish-plates C, having the projecting ends *c'*, constructed to be connected with the rails beyond the ends of the clip B, and, bearing against the rails at such places, support the same in position, substantially as and for the purpose described.

2. The clips B, constructed at their base portions with one or more openings, for discharging sand or dust collecting between the ends of the rails, substantially as and for the purpose described.

3. The fish-plates C C, constructed with the ends *c'* of a greater width than the central portion of such fish-plates, in combination with the rails A and clip B, substantially as and for the purpose specified.

190,864. CARBONS FOR ELECTRIC LIGHTS. Paul Jablochkoff, Paris, France. [Filed Dec. 30, 1876.]

190,864.



1. The herein-described electric candles, composed of two sticks of coal arranged in a suitable case, and separated from each other and from the case by an isolating fusible powder or material, substantially as described.

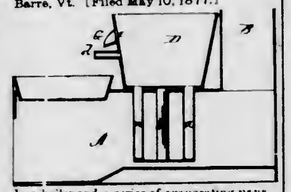
2. The support for such candles, consisting of the pair of adjustable jaws *h j*, arranged with non-conducting base, and substantially as specified.

190,865. COMPOSITION SEALS FOR BOTTLES AND JARS. C. M. Jacob, Paris, France. [Filed Oct. 24, 1876.]

Brief.—Immerse the corked bottle in the compound; may then coat with varnish and with an alkaline silicate.

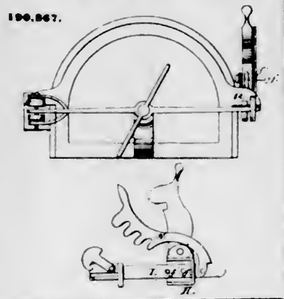
A seal for bottles, jars, &c., consisting of a composition of pyroxyline or gun-cotton, mixed with alcohol or a similar solvent, applied to the vessel after the same has been corked or closed, substantially as described, whereby the same is hermetically sealed, as set forth.

190,866. SOAP-BOILERS. J. M. Jackman, Barre, Vt. [Filed May 10, 1877.]



In a boiler and a series of evaporating-pans used in the manufacture of soap, the boiler D, provided with a series of vertically-depending tubes, the receiving-pipe *b*, and exit-pipe *d*, and also the opening *e* and ledge G, for conducting the overflow to the first exit-pan, in combination with the evaporating-pans, the furnace A, and chimney B, as heretofore described, and for the purposes set forth.

190,867.



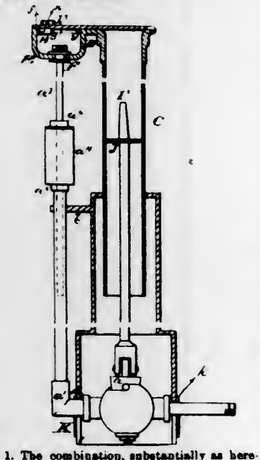
190,867. FASTENINGS FOR GAS-RETORT LIDS. Nicolaus Jamin, New York, N. Y. [Filed Apr. 12, 1876.]

1. In retort-lid fastenings, the adjustable latch-carrier I, provided with holes *f'*, in combination with the slotted guide-box H and pin *g'*, substantially as specified.

2. The supplementary multi-toothed latch N, in combination with the latch carrier I, substantially as described.

190,868. CUT-OFFS FOR GAS AND WATER PIPES. Fredk. Jarecki, Erie, Pa. [Filed Mar. 24, 1877.]

Brief.—The street-washer has an extensible water-pipe and an extensible cut-off casing. Both can be adjusted together, and can be adapted to the depth of water pipe below the surface of the ground.



1. The combination, substantially as hereinbefore described, of a street-washer, having extensible water-pipe and an extensible cut-off casing, whereby the street-washer pipe and casing can be adjusted together simultaneously.

2. A street washer or hydrant, provided with a vertical extension water-pipe, which is adapted to be lengthened or shortened at will, and communicating with the main pipe, substantially as and for the purpose set forth.

3. Cut-off rod I, having collar J and flat-tened upper and I', in combination with cock a and cylinder C, substantially as and for the purpose set forth.

4. The combination of cover G, having button H, with cap E, having lip *f*, plate D, and tube C, substantially as set forth.

190,869. SCREW-DRIVER HANDLES. E. A. Johnson, East Haven, Conn., assignor to himself and J. J. Tower, Brooklyn, N. Y. [Filed Apr. 20, 1877.]

Brief.—The handle of the driver is grooved longitudinally, to enable the workman to grasp and turn it without unnecessary strain or exertion.

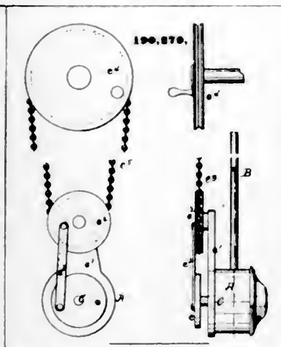


As a new article of manufacture, a wooden tool-handle with longitudinal grooves in the surface thereof, as set forth.

190,870. PUMPS. Henry M. Jones, West Meriden, Conn. [Filed Mar. 6, 1877.]

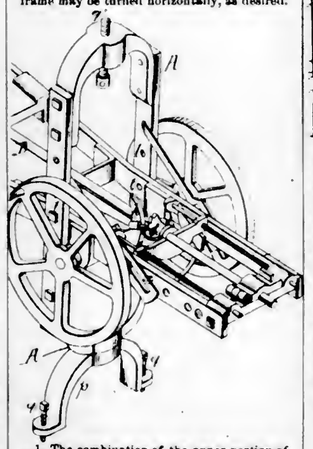
Brief.—The pump-barrel and its contained operative valves are immersed in the water at the bottom of the well, and are operated by suitable gear, extending upward to the surface of the ground.

In combination with the shaft C, carrying valve-arms *e* and *e'* in a submerged pump-box, A, having valve partition D, suspending pipe B, and opening *e*, the wheel *g*, chain-pulley *d'*, rod *c'*, hand chain-pulley *c'*, and chain *d'*, all arranged as described, to operate as and for the purpose specified.



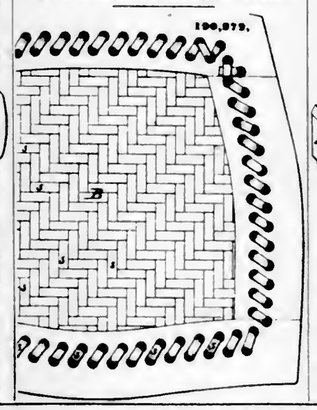
190,871. ROCK-DRILLING MACHINES. O. B. Keeley and J. Fleming, Spring City, assignors to themselves and E. S. Shantz, Philadelphia, Pa. [Filed Mar. 19, 1877.]

Brief.—The standard carrying the drill-frame may be turned horizontally, as desired.



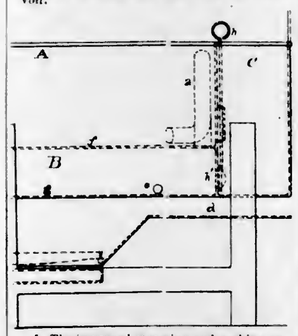
1. The combination of the upper portion of the standard A, and the drill carrying frame pivoted to said upper portion, with the lower portion *p* of the standard pivoted to the upper portion at *w*, as set forth.

2. The combination of the upper portion of the standard A, carrying the drill-frame, and provided with a central screw, *q'*, at the top, with the lower pivoted portion *p*, as specified.



190,872. STEAM FEED-COOKING APPARATUS. C. Kramer and W. Kramer, Upshur, Ohio. [Filed Apr. 24, 1877.]

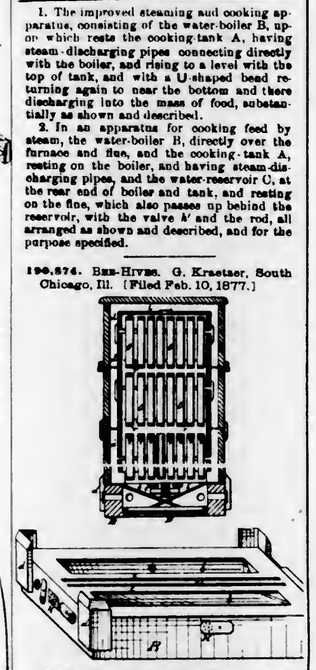
Brief.—By means of the valve the water-boiler is supplied with water from the reservoir.



1. The improved steaming and cooking apparatus, consisting of the water-boiler B, upon which rests the cooking-tank A, having steam-discharging pipes connecting directly with the boiler, and rising to a level with the top of tank, and with a U-shaped head returning again to near the bottom and there discharging into the mass of food, substantially as shown and described.

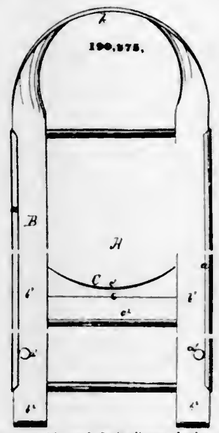
2. In an apparatus for cooking feed by steam, the water-boiler B, directly over the furnace and flue, and the cooking-tank A, resting on the boiler, and having steam-discharging pipes, and the water-reservoir C, at the rear end of boiler and tank, and resting on the flue, which also passes up behind the reservoir, with the valve *h'* and the rod, all arranged as shown and described, and for the purpose specified.

190,874. BEE-HIVES. G. Kraetzer, South Chicago, Ill. [Filed Feb. 10, 1877.]



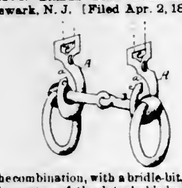
The moth-trap for bee hives, described, consisting of the frame B having the ventilating-holes H, the inclined glass plates *b b* with a space between their lower edges, the sliding bottom D extending the whole length of the said frame, and the stiles C *c c*, all constructed and arranged substantially as described and shown.

190,875. VEGETABLE-SLICERS. Jos. Kuchinka, Cleveland, Ohio. [Filed Dec. 29, 1876.]



A vegetable and fruit slicing device, having the table A mounted on frame B, composed of arms *b'* and handle *b*, and provided with the cutter C, composed of knife-edge *c*, depressed lip *c'*, and transverse inclined plate *c'*, as described.

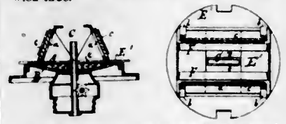
190,876. BRIDLE-BITS. F. B. Kuehnhold, Newark, N. J. [Filed Apr. 2, 1877.]



The combination, with a bridle-bit, B, jointed at the center, of the detachable hooks A contracted at *c*, substantially as and for the purposes set forth.

190,877. LAMP-BURNERS. E. C. Lawrence, Chicago, Ill. [Filed Feb. 8, 1877.]

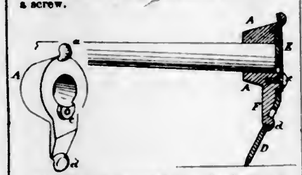
Brief.—The plate prevents the rising of air at the edges, and permits it at the sides of the wick-tube.



In a lamp-burner, the plate E', arranged above the air-distributer C, and provided with the opening through which the wick-tube passes, the side walls thereof adjusted to fit against the edges of the wick-tube, and forming the openings *e e* on the sides of the wick-tube, substantially as and for the purpose described.

190,878. HOES. J. S. Lester, Atlanta, Ga. [Filed Mar. 26, 1877.]

Brief.—A reversible hoe, the blade being secured to a metallic head, with two projecting lugs, and a light strap fastened across with a screw.



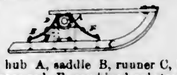
The head A, provided with the lugs *a*, *c*, and *d*, and constructed substantially as represented, in combination with the blade D, the strap E, and screw *e*, as and for the purpose set forth.

190,879. SAFETY-COLLARS FOR LAMPS. J. H. Lewars, Philadelphia, Pa., assignor of two-thirds his right to D. McCarty and S. A. Collins, same place. [Filed Mar. 31, 1877.]



For combination with the fixed collar of the oil-chamber of a lamp, the independent collar *c*, provided with a vent-hole, *c'*, and valve *d*, the latter made of an elastic piece of sheet metal, and operating as described, the whole constructed as specified, for the purpose set forth.

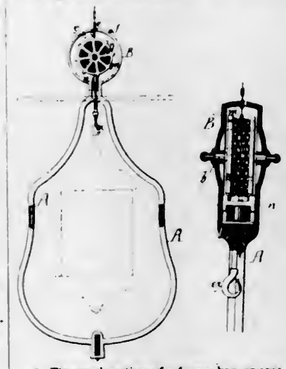
190,880. BOB-SLEDS. Johan Littfin, Oshkosh, Wis. [Filed Feb. 7, 1877.]



The hub A, saddle B, runner C, bolts D', and brace-rod E, combined substantially as shown and described, for the purpose specified.

190,881. BIRD-CAGE SUPPORTS. Francis W. Long, Philadelphia, Pa. [Filed Mar. 30, 1877.]

Brief.—A wheel revolved to the right by the action of a spring located near its axis is journaled in a frame, and has a chain extending around it, said chain passing through a slot in the frame up to and through a staple in the ceiling, and hence again to the frame, where it is fastened to a hook. The wheel has stops arranged upon its circumference, which engage with a spring-acted pawl, thereby preventing the revolution of the wheel. The pawl may be disengaged from the stop on the wheel by pressure upon the lower end of the sliding bar, which carries it, allowing the wheel to revolve and pay out the chain, thus bringing the cage closer to the floor.



1. The combination of a frame, bar, or case, from which the cage or other article is suspended, a cord or chain, *d*, a spring-drum, D, and devices for locking and releasing the said drum, all substantially as set forth.

2. The combination of the suspension-cord *d*, the spring-drum D, and its projection *m*, and the spring-bolt *n*, as specified.

3. The combination of the cord or chain *d* with the casing B, its drum D, openings *e* and *e'*, and hook *f*, as set forth.

4. The combination of the spring-drum D and spring-locking bolt *n* with the frame A, made in two parts, one of which controls the movement of the bolt, as specified.

190,882. COMBINED LAMP CHIMNEY, SHADE, AND GLOBE. G. W. Martin, Chelsea, Mass. [Filed Feb. 10, 1877.]

1. The combined lamp chimney, shade, and globe, consisting of the bulb A, with its reflecting-surface, connected by shoulder *c* with conical portion *d*, also provided with reflecting-surface, and arranged substantially as specified.

2. The combined lamp chimney, shade, and globe, consisting of the base-bulb A, surmounted by a conical portion, *d*, the base of which has a horizontal re-entrant portion, *e*, at right angles, or nearly so, to the walls of the conical portion, which latter is of greater horizontal and vertical dimensions than the globe, and connected to the globe by a concave neck, *b*, substantially as specified.

3. The combined lamp chimney, shade, and globe, consisting of the base-bulb A, surmounted by the conical reflecting-wall *d*, the base of which is connected to the neck of the globe by a transparent shoulder, *e*, through which the light passes from the interior reflecting-surface of said wall, substantially as specified.

190,883.



190,883. FRUIT-CRATES. Joshua H. Marvil, Laurel, Del. [Filed Jan. 22, 1877.]

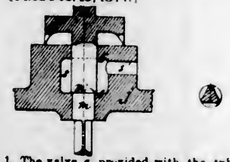


1. A barrel or crate for shipping fruit, consisting of staves A, attached to the bottom, and connected at their upper ends to the interior and exterior hoops *c* and *d*, said staves being expanded at their central portion, and held in such position by an exterior hoop, *e*, connected with the staves by nails, substantially as and for the purpose described.

2. A crate composed of a series of staves, expanded at their center to create spaces *m*, perforated bottom and head, and bottoms *s*, provided with recesses *t*, attached to the same, substantially as described.

3. The combination, in a crate, of the staves, expanded at their center to create intervening air-spaces, and held in such position by a hoop or band, the perforated head and bottom, and a central flue or flues within the crate, constructed to ventilate the central portion of the latter, substantially as described.

190,884. SAFETY-VALVES. S. J. Maurel and Chas. L. Truel, Marseilles, France. [Filed Feb. 19, 1877.]



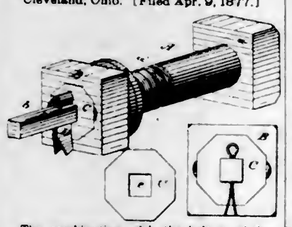
1. The valve *a*, provided with the tubular stem *k*, the two concentric annular projections *b* and *c* on its under side, and the annular projection *i* on its upper side or face, as shown and described.

2. The box *f*, provided with double seatings *d* and *e*, adapted to the annular projections *b* and *c* of the valve, and with an annular chamber, *g*, communicating with and having its outlet in the discharge-nozzle *k*, as shown and described.

3. In combination with the rod *m*, constructed with the cylindrical and triangular portions, as described, the cover *j*, with its chamber *s*, having the lateral discharge *s'*.

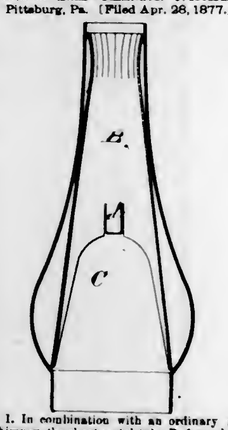
4. The central rod *m*, subdivided in cylindrical and triangular-shaped sections 1 to 2, 2 to 3, and 3 to 4, with its lower and upper knife-edged disks *n* and *o* and weight *r*, for the purposes stated.

190,885. NUT-LOCKS. Joseph A. McCray, Cleveland, Ohio. [Filed Apr. 9, 1877.]



The combination, with the bolt A, of the nut B, provided with an angular recess in its face, the angular plate C in said recess, and spring-key D, substantially as described and shown.

190,886. LAMP-CHIMNEYS. J. McMurtry, Pittsburg, Pa. [Filed Apr. 26, 1877.]



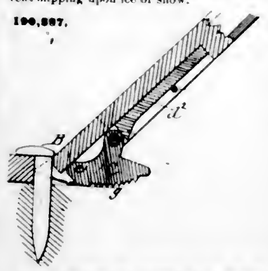
1. In combination with an ordinary glass chimney, the sheet metal tube B, formed with slits *a* and tongues *b* at its upper end, substantially as and for the purpose described.

2. In combination with an ordinary glass chimney, the sheet metal tube B having slits *a* and tongues *b* at its upper end, and one or more openings, C, at its lower end, with lips *d* above such openings, substantially as and for the purpose described.

190,887. CLAW-BARS. C. A. Miller, Marshalltown, Iowa. [Filed Mar. 26, 1877.]

Brief.—The claw-bar is provided with a longitudinal slot in its under side, near the claw, in which is secured an abutting-bar, the lower end of which bears against the tongue of a pivoted segmental fulcrum-piece, provided with corrugations in its lower surface, to prevent slipping upon ice or snow.

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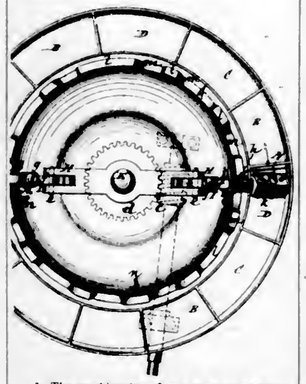


1. The abutting bar, adapted to be removed and cut off to assume a corresponding place in the shortened claw-slot, and for the changed position of the fulcrum-piece, for the purpose of dressing, as herein set forth.

2. The combination, in a claw-bar, of the lever A, having the claw B and longitudinal slot *a*, with the abutting bar d^2 and fulcrum-piece C, constructed to operate as shown and described, and for the purpose specified.

190,888. SOLDERING-MACHINES. H. Miller, New York, N. Y. [Filed Apr. 26, 1877.]

Brief.—Rotates horizontally a central hub and spokes, to which the can-holders are pivoted, to rise and fall vertically as they pass over a sinuous stationary track. Thus the cans are dipped successively into a flux, a solder, and a cooling bath; then each holder is tripped, and revolved on its axis a quarter-turn, to present another side of the can to a second series of baths. The furnace and its overhead baths may be rotated about the central stand to bring any bath under any can, and to cause the cooling bath to be skipped, if desired. A brush may be fitted to the acid-tank, to rub the flux onto the tin-plate. The series of baths may be in a right line, and the cans reciprocated over them.



1. The combination of one or more traversing can-carriers, having also an intermittent rising and falling motion, with one or more series of troughs, into which the cans or vessels to be soldered are successively dipped, and from which they are successively removed, by said rising and falling motion during the traversing motion of the carriers, substantially as specified.

2. The combination, with one or more traversing can-carriers and one or more series of troughs, of a sinuous track or device, organized to project the can to be soldered into each trough in succession, and to remove it therefrom while passing from one trough to another, essentially as described.

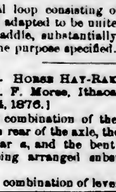
3. The combination, with means for communicating to the traversing can-carriers an intermittent rising and falling motion as they successively pass through or over and from a series of troughs, of means for turning or rotating the chucks which hold the cans, substantially as specified.

4. The combination of the circular sinuous track G, with the rising and falling can carriers I, arranged to rotate on and around said track, the inclined shafts *g*, provided with clasps or chucks for holding the cans, and two or more series of troughs, B, C, D, substantially as and for the purposes herein set forth.

5. The skimmer N, in combination with the traversing and rising and falling can-carriers I, and the troughs through which the cans are successively traversed by said carriers, essentially as described.

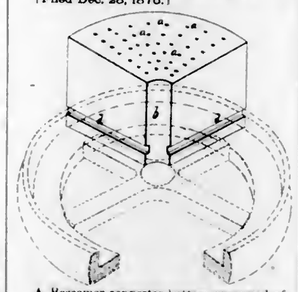
190,889. CHAIN-PUMP BUCKETS. S. Miller, Macon City, Mo. [Filed Apr. 17, 1877.]

Brief.—When it is desired to expand the rubber disk, the groove receives the bulk of the rubber as it expands from the center, thus causing the periphery of the disk to expand without getting hard.



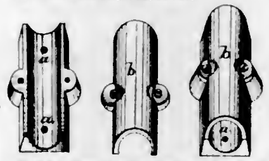
The rubber disk for chain-pump buckets herein described, consisting of cup-shaped body C, having flat surface *d* and circumferential groove *d'*, substantially as and for the purpose herein shown and specified.

190,890. BOTTOMS FOR BESSEMER CONVERTERS. E. J. Mildren, Black Lick, Pa. [Filed Dec. 28, 1876.]



A Bessemer converter bottom composed of a series of sector section pieces, the sections being perforated vertically for the equal distribution of the blast, and provided with radial face grooves or channels for securely interlocking them in place, substantially as herein set forth.

190,891. HARNESS-SADDLE LOOPS. E. P. Monteith and Geo. V. Mesick, Plainwell, Mich. [Filed Sept. 16, 1876.]



A metal loop consisting of the two parts A B, and adapted to be united and attached to a gig-saddle, substantially in the manner and for the purpose specified.

190,892. HORSE HAY-RAKES. Ben Morse and E. F. Morse, Ithaca, N. Y. [Filed Oct. 24, 1876.]

1. The combination of the grooved bar *c*, hinged in rear of the axle, the bar *b*, attached to the bar *c*, and the bent rake-teeth, said parts being arranged substantially as described.

2. The combination of lever *k*, stop or catch *s*, or its equivalent, and lever *j*, to which a power is applied for the purpose of automatically adjusting the teeth to the ground, and to assist in raising them, substantially as set forth.

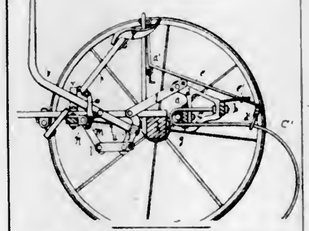
3. The combination of stop *t* on arm *m* with stop or hanger *s*, substantially as and for the purpose specified.

4. The combination of stop *n* on lever *j* with lever *k*, for the purpose specified.

5. The combination of seat-lever *p*, lever *j*, lever *k*, and catch *v*, substantially as and for the purpose specified.

6. The bent rods *a' a'*, rigidly attached to cleaner-bar *c*, and hinged to standards *b' b'*, in combination with the movable arms *c' c'*, as and for the purpose specified.

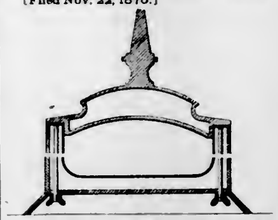
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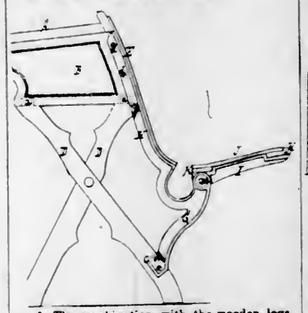


190,895. WATER-URNS. E. A. Parker, West Meriden, Conn., assignor of one-half of his right to Jno. E. Parker, same place. [Filed Nov. 22, 1876.]



The herein-described improvement in double-walled vessels, consisting of the base, the outer shell, and inner vessel, each constructed independent of the other, but seated one upon the other, and the three parts secured together by a connection between the inner vessel and the base, substantially as specified.

190,896. SCHOOL-DESKS. J. Peard, Brooklyn, N. Y. [Filed Apr. 18, 1877.]



1. The combination, with the wooden legs D, the end pieces B, the top A, and back E, of seat-supporting standards G, provided with flanges at their bottom ends, and with flanged arms H extending upward, substantially as and for the purpose set forth.

2. The combination, in a school-desk, of the veneer back E, top A, and rails F L, substantially as and for the purpose shown and described.

3. The combination, with the veneer seat J and seat-supporting arms I, of rails K, for connecting the seat and the arms, substantially as set forth.

190,897. SEWING-THIMBLES. Nathan T. Porter and Thos. Porter, New York, N. Y. [Filed Apr. 10, 1877.]



1. A sewing-thimble constructed with a top which is parallel with its base, and having one or more flat indented sides.

2. In a thimble with cylindrical sides, a top parallel with its base.

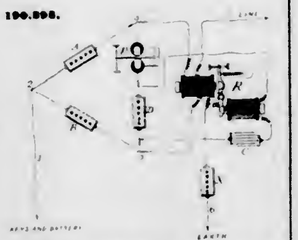
3. In a thimble, one or more flat indented sides extending from at or near the base of the thimble to the upper edge of the same, the flat sides being integral with the body of the thimble, substantially as and for the purpose described.

190,898. LAMPS. L. H. Olmsted, Brooklyn, N. Y. [Filed May 1, 1877.]

The chimney-holder composed of an elastic device, *g*, for clasping the wick-tube, the base-plate *e*, and the upwardly-projecting fingers *f*, the whole combined and arranged for use substantially as described.

190,899. QUADRUPLEX TELEGRAPHS. Geo. B. Prescott, New York, N. Y. [Filed Apr. 22, 1876.]

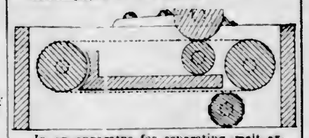
190,898.



1. A receiving-instrument composed of a differential magnet whose opposing coils are respectively included in the circuit of the main and of the artificial line, in combination with an auxiliary magnet, so arranged as to be operated by the charge or discharge of a condenser.

2. A receiving-instrument provided with two electro-magnets acting upon the same armature-lever, one a differential magnet, whose opposing coils are respectively included in the circuit of the main and of the artificial line, and the other so arranged as to be actuated by the charge or discharge of a condenser, in combination with a rheostat inserted in the bridge-wire, to effect the charging of said condenser, substantially as and for the purpose herein specified.

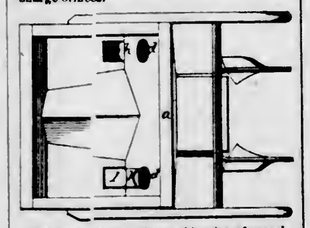
190,899. APPARATUS FOR SEPARATING MALT EXTRACT FROM THE HUSKS OR REFUSE OF BREWERS' MASH. H. R. Randall, Brooklyn, N. Y. [Filed May 9, 1877.]



In an apparatus for separating malt extract or solution of glucose or dextrine from husks or refuse of mash, the combination of an endless revolving foraminous apron, a pair of pressure-rollers and a brush for cleaning the meshes of the apron, and a suitable receptacle for collecting and securing, for a commercial purpose, the liquid portion which constitutes the malt extract, substantially as described.

190,900. CORN-PLANTERS. J. Rand, Red Banks, Miss. [Filed Feb. 29, 1876.]

Brief.—The hopper is centrally divided by a partition inclining each way. Feeders carry the seed up the inclined hopper-back to discharge-orifices.



In a corn-planter, the combination of a seed-box, E, constructed with two compartments, partially separated by a doubly-inclined partition, *f*, and with an inclined back, *a*, having seed-dropping cavities *d d* through the same, two inclined alternately-reciprocating plungers, I I, constructed with backwardly-inclined seed-holding tops or concavities, *h h*, and a conveyer, H, all arranged and operating substantially as and for the purpose herein specified.

190,901. STOVE-MATS. C. A. Reimers and Jno. C. Branch, Davenport, Iowa. [Filed Apr. 14, 1877.]

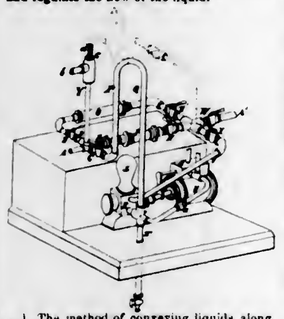
The combination of the wire with the body A of the mat, and zinc cover B, having the bead *d*, substantially as shown and described, for the purpose specified.



190,901.

190,902. CONVEYANCE OF LIQUIDS. G. W. Ramsen, Brooklyn, N. Y. [Filed Mar. 7, 1877.]

Brief.—To the system of pipes, provided with spring-cushion and pulsometer, a motor or pump is connected, to keep up the velocity and regulate the flow of the liquid.



1. The method of conveying liquids along pipes or conduits by successively imparting to it at intervals additional impulse without tanking and retanking, or exposure to the atmosphere.

2. The method, in the conveyance of liquids through pipes or conduits, of causing it to fill the said pipes or conduits by establishing opposing currents therein at intervals in its transit.

3. The combination, with a pipe or conduit for the conveyance of liquids, of a series of motors, for successively imparting fresh impulse thereto at intervals, without exposing it to the atmosphere or introducing additional liquid into the said pipe or conduit.

4. The combination, with a pipe or conduit for the conveyance of liquids, of a series of pumps, communicating therewith at intervals, to successively take in the liquid, and force it out again under fresh impulse without exposure to the atmosphere, tanking or retanking it, substantially as set forth.

5. The combination, with a pipe or conduit for the conveyance of liquids, and a pump for imparting impulse to liquid therein, of a device forming spring-cushion for receiving the impact of the flowing liquid, yielding to obviate the undue straining of the pipe or conduit, and reacting on the liquid previous to its entrance into the pump, substantially as and for the purpose set forth.

6. The combination, with a pipe or conduit for the conveyance of liquids and a pump or motor for imparting impulse to liquid therein, of an adjustable spring-cushion, adapted to be adjusted and set to yield only at a certain pressure.

7. The combination, with a pipe or conduit for the conveyance of liquids, of a pump or motor for imparting impulse to liquid therein, and a spring-compensator receiving the impact of the liquid in its flow and correcting irregularities therein.

8. The combination, with a pipe or conduit for the conveyance of liquid, and a pump or motor for imparting impulse to liquid therein, of a spring-compensator, receiving the impact of the liquid in its flow, and capable of adjustment so as to correct irregularities however slight or great.

9. The combination, with a pipe or conduit for the conveyance of liquid, and a pump or motor for giving impulse to liquid therein, of a reversible compensator for correcting irregularities in the flow.

10. The combination, with a pipe or conduit for the conveyance of liquids, and a pump or motor for imparting impulse to liquid therein, of a double-acting pulsometer for correcting irregularities in the flow of the liquid.

11. The combination, with a pipe line or conduit for the conveyance of liquids, and a series of pumps or motors for successively imparting fresh impulse thereto, of switches or relays arranged to connect the sections of the pipe line or conduit intercepted by the pumps or motors, substantially as described, whereby any one pump or motor may be stopped at pleasure without necessarily stopping the transit of the liquid, and the greatest amount of work may be obtained from each pump or motor.

12. The combination, with a pipe line or conduit for the conveyance of liquids, and a switch and relay, of means, substantially as described, capable of being manipulated for establishing or severing communication between the same and the main line or conduit, to impart the action of the pump or motor to the liquid, or remove it therefrom.

13. The combination, with a pipe line or conduit for the conveyance of liquid, of a switch and relay and means, substantially as described, for enabling the same to serve as an elastic cushion for yielding, to relieve the main line, whereby it can contain a larger volume of liquid and accompanying air and gases, and the latter, through their elasticity, are enabled to form an elastic cushion and compensator.

14. The combination, with a pipe line or conduit for the conveyance of liquids, of a switch and relay embodying a section or portion of a larger diametrical capacity than the main line or conduit.

15. The combination, with a pipe line or conduit for the conveyance of liquid, of a switch and relay, and means, substantially as described, for providing for closing the latter at a considerable distance from the outlet, whereby air and gases may be made to serve as a compensator for correcting irregularities in the flow of the liquid through the main line.

16. The combination, with a pipe line or conduit for the conveyance of liquids, of an upright or elevated section leading from a regulating pulsometer to the motor employed, to give impulse to liquid in said pipe line or conduit.

17. The combination, with a pipe line or conduit for the conveyance of liquid, of a siphon leading from the main line to a pump or motor for giving impulse to liquid in said main line or conduit.

18. The combination, with a pipe line or conduit for the conveyance of liquid, of a well between the same and a pump or other motor for giving impulse to liquid therein, whereby greater continuity and uniformity in the transit of the liquid is insured.

19. The combination, with a pipe line or conduit for the conveyance of liquid, of a combined siphon and well between the pipe line or conduit, and the pump or motor for giving impulse to liquid therein, whereby great continuity and uniformity, with increased velocity in the transit of the liquid, is insured.

20. The combination, with a pump for effecting the transit of liquids, of a siphon leading to the inlet of said pump.

21. The combination, with a pump or motor for effecting the transit of liquids and an inlet thereto, of a well for equalizing and rendering uniform the supply to the pump or motor.

22. The combination, with a pump or motor for effecting the transit of liquids, of a combined siphon and well for equalizing and rendering uniform the supply to the pump or motor.

23. The combination, with a pipe line or conduit, and a pump or motor for giving impulse to liquid therein, of means, substantially as described, for yielding from, and reacting upon, the liquid in opposite directions, whereby all irregularities in the transit of the liquid are corrected and the same rendered uniform and continuous.

24. The combination, with a pipe line or conduit, of a compensator, a compensating switch and relay, and a siphon establishing communication between the main line or conduit and a pump or motor for giving impulse to liquid therein.

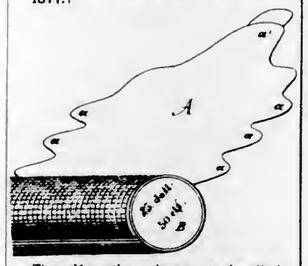
25. The combination, with a pipe line or conduit, and a pump or motor for giving impulse to liquid therein, of an elevated or upwardly-inclined outlet section, forming a well for assisting in maintaining a regular and uniform transit of the liquid.

26. The combination, with the valve-chest of a pumping cylinder, of a conduit for steam or other motive agent thereto, whereby provision is afforded for moving the valve in case the ordinary means for working the same shall prove ineffectual.

27. The combination, with the valve-chest of a pumping cylinder and inlet thereto, of a conduit for the steam or other motive agent, whereby provision is afforded for moving the valve through the medium of the liquid when the ordinary means, substantially as described, for working it may be ineffectual.

28. The combination, with the inlet of a pump or other motor for oils, of means for transmitting from the steam supply-pipe of the motor to the inlet-pipe sufficient heat to liquefy the oils before their entrance into the pump, substantially as set forth.

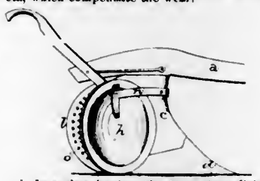
190,903. COIN-WRAPPERS. G. Rettig, Chicago, Ill., assignor of one-half his right to F. Benninger, same place. [Filed Apr. 16, 1877.]



The self-counting coin-wrapper described, consisting of the flap A, having the scalloped and gummed edges *a a'*, and the stiff end pieces B, constructed and arranged substantially as described and shown.

190,904. PLOWS. S. G. Reynolds, Bristol, R. I. [Filed Apr. 19, 1877.]

Brief.—Two revolving disks for the mold-board and land-side of the plow. Cogs on the inner side of the circumference of the disks engage with each other. Tapering journals project inwardly, and work in tapering sockets, which compensate the wear.



1. In a plow having the two rotary disks *h i*, the journals *o* made to cross each other, the bearings being cast in one piece, substantially as described.

2. The two rotary disks *h i*, having their journals *o* arranged to cross each other, one journal being horizontal and the other inclined downward so as to cause the land side to set in opposition to the mold-board, substantially as set forth.

3. The concave-disk mold-board *h*, with conical journals *o*, and provided with cogs *o'*, in combination with convex land-side disk *i*, also provided with conical journal, and with cogs that engage with the cogged mold-board, substantially as set forth.

190,905. BUNG AND BUSH COMBINED. B. Rodier, Hunter's Point, N. Y. [Filed Apr. 18, 1877.]



1. A bung having an upwardly-projecting screw-nipple, B, a screw-cap or valve, C, and adjustable radial arms D D, for locking said bung within a bush, as described.

2. The combination of a bung having an upwardly-projecting screw-nipple, B, a screw-cap or valve, C, and adjustable radial arms D D, with a bush having a seat for the bung, and inclined shoulders or grooves *s*, substantially as and for the purpose described.

190,906. BELT-BUCKLES. Wm. Roemer, Newark, N. J. [Filed Apr. 4, 1877.]



A belt-buckle consisting of the frame A, having the rear cross-bar B, with the tongue C pivoted thereto, said frame being provided on its under side with braces *b b*, which extend from the rear to the front cross-bar, substantially as and for the purpose specified.

190,907. LOCKS FOR SATCHELS, &c. Wm. Roemer, Newark, N. J. [Filed Apr. 4, 1877.]



1. The combination of the lock-case A, having the inner transverse braces *b b*, with the removable bottom plate B, which closes the case between the two braces, but not that between the braces and the ends A of the case, substantially as herein shown and described.

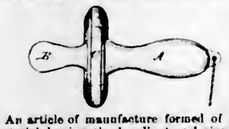
2. The lock-case A, constructed with upright ends *a a*, upright braces *b b*, and with the perforated parts *d d* between said ends and braces, substantially as herein shown and described.

3. The lock-case A, constructed with the perforated parts *d*, for receiving the fastening screws or rivets, said parts *d* being raised above the plane of the bottom plate of the lock, to leave a hollow beneath them, substantially as herein shown and described.

4. The lock-case A, made in one piece with the bars *g g*, which serve as staples for attaching a handle or strap, substantially as herein shown and described.

5. The combination of the lock-case A with the projecting bars or bridges *g g*, and perforated lugs *h h*, substantially as herein shown and described.

190,908. TESTING-NIPPLES. C. H. Rogers, La Crosse, Wis. [Filed Nov. 27, 1876.]



An article of manufacture formed of hard material, having the handle A and nipple B, smooth, round, and tapered toward the intermediate guard C, as and for the purpose specified.

190,909. CAR-STARTERS. L. Russell, Otsego, Mich., assignor of one-half his right to C. A. Russell, same place. [Filed Nov. 18, 1876.]



1. In combination with the axle C, having a ratchet-wheel keyed thereon, the vertically-vibrating arm D, having pawl *d*, with arm *r*, the vertically-vibrating rod E, having pulley *e* in its front end, the endwise-movable draft-rod, having inclined or beveled shoulder *i*, chain G, and inclined pulleys *m m*, substantially as specified.

2. The combination, with the lever D, vibrating vertically on a car-axle, and the ratchet-wheel *a*, of a pawl mounted in the said lever, and a vibrating lever, E, adapted to throw the said pawl into engagement with the ratchet-wheel, substantially as specified.

3. In a car-starting mechanism, the jointed vertically-vibrating lever D, having a pawl, *d*, mounted thereto, adapted for use substantially as specified.

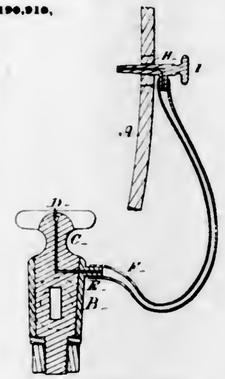
4. In a car-starting apparatus, the arm D, having a pawl, *d*, and composed of jointed sections *b' b* and a heel, *p*, on the former, at right angles to its length, combined with a chain secured to the lower end of the heel, passing over pulleys *m m*, and secured to the rear end of the endwise-movable draft-bar, substantially as specified.

190,910. VENT APPARATUS. Geo. Schott and George P. Heberling, Warsaw, Ill. [Filed Mar. 17, 1877.]

Brief.—If desired, the liquid may be allowed to flow without admitting air through the vent.

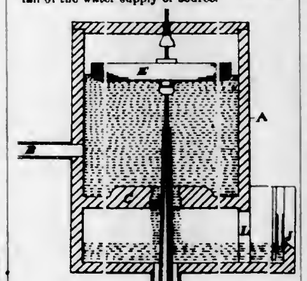
The faucet having air-vent to be closed by the thumb, constructed with the fluid-passage through the whole diameter of the turning, and the air passage into the plug from the faucet on only one side, arranged so the plug may be turned two ways to permit the escape of the fluid, and only one way for admission of air, substantially as set forth.

190,910.



190,911. WATER-REGULATORS. Leo A. Soowden, San Francisco, Cal. [Filed Oct. 14, 1876.]

Brief.—The object of the invention is to maintain the flow of water constant and unvarying under the fluctuations or rise and fall of the water supply or source.



1. The combination of a conical or tapering rod, F, with a float, E, for automatically regulating the area of a water passage or opening, *d*, so as to preserve a fixed, permanent, and uniform discharge of water through said opening, independent of the fluctuation in the height of the water, substantially as and for the purpose above described.

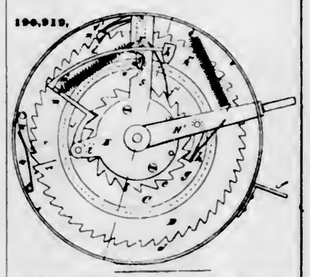
2. The box or tank A, provided with the ingress-passage B, and having the partition C with its opening or water-passage *d*, and also provided with an outlet-passage, *l*, below the partition, in combination with the tapering rod F, suspended from a float, E, so as to automatically regulate the area of the water in the tank, and thus preserve a uniform discharge of water from the upper into the lower compartment of the tank, substantially as above specified.

190,912. FARE-REGISTERS. P. Seyl, Chicago, Ill., assignor of one-half his right to J. C. Haines, same place. [Filed Jan. 17, 1877.]

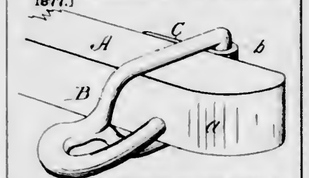
1. The stop *v*, provided with a notch, v^1, in combination with the ratchet-disk D, and projection v^2 on one of the teeth *d*, substantially as and for the purpose described.

2. In a fare-register, the combination, with the case A, of the operating-lever H, the ratchet-disks C D, rotating in opposite directions, the hammer *k*, actuated by the ratchet-disk C, arm *q*, with pawl *n*, and the stop *v*, all constructed and arranged to operate substantially as and for the purposes herein set forth.

190,913.



190,913. WHIFFLETREE-HOOKS. Nathan Y. Shaw, Freehold, N. Y. [Filed Mar. 20, 1877.]

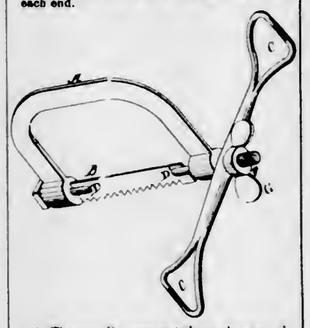


1. The combination of the single-tree A, having the rounded end *a*, the hook B encircling the whiffletree and having the straight vertical bearing *b*, and the plate C, attached to the rear side of the single-tree, and clasping closely around the bearing or pivot of the hook, as and for the purposes shown and described.

2. The hook B, provided with the laterally-curved nose and having its rear end adapted to encircle the single-tree, and provided with the straight vertical journal *b*, in combination with the plate C, closely embracing the latter, as shown and described, and for the purpose set forth.

190,914. HANDSAWS. L. Shave and S. Y. Reams, Austin County, Tex. [Filed Nov. 11, 1876.]

Brief.—The saw-blade is provided with teeth beveled upon their top surfaces, and provided upon either side with alternate deep and shallow semicircular grooves, which form the cutting-edges. The saw is attached to a frame, formed of a single piece of metal, by means of bolts passing through sockets in the ends of the frame, and strained by a nut upon one of said ends, and is operated by a beam, perforated in its middle, and having a handle at each end.



1. The saw B, constructed as shown and described.

2. The combination of the saw B, with the bolts D D', frame A, handle-beam, having the handles C C and orifice F, and thumb-nut G, constructed to operate as shown and described, and for the purpose specified.

190,915. REGENERATIVE GAS-FURNACES. C. W. Siemens, Westminster, England. [Filed Nov. 15, 1876.]

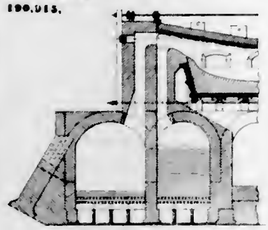
1. A regenerative furnace in which a series of air-flues are arranged behind a series of gas-flues, each air-flue overlapping the gas-

flue in front thereof, as and for the purposes described.

2. A regenerative furnace in which a series of air-flues rise from their regenerator behind, and discharge into the furnace above, a corresponding series of gas-flues, the top of each air-flue being wider than the gas-flue in front thereof, as and for the purposes described.

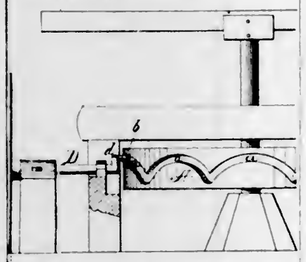
3. In a system of regenerative chambers arranged beneath the furnace-hearth, and having a central cave or tunnel communicating with the hearth-bottom, through which air-currents may circulate, as and for the purposes described.

190,915.



190,916. MACHINE-GEARING. M. T. Singleton and Jos. S. Wingfield, Atlanta, Ga. [Filed Apr. 27, 1877.]

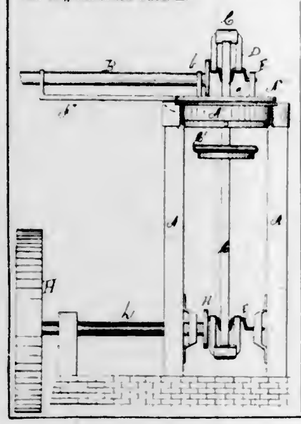
Brief.—As the wheel revolves, the roller on the crank-shaft is forced around the cycloidal grooves, each groove causing the shaft to make a complete revolution.



The combination of the wheel A, provided with cycloidal grooves or flanges *a*, with the shaft D, provided with crank *d* on its end, having a friction-roller, *b*, operating in the grooves or flanges of the wheel, whereby the shaft is given a rotary motion, as set forth.

190,917. CONVERTING MOTION. J. Smith, Horicon, Wis. [Filed Mar. 17, 1877.]

Brief.—No matter in what direction the revolving shaft B is turned, a rotary motion will be given to the wheel H.

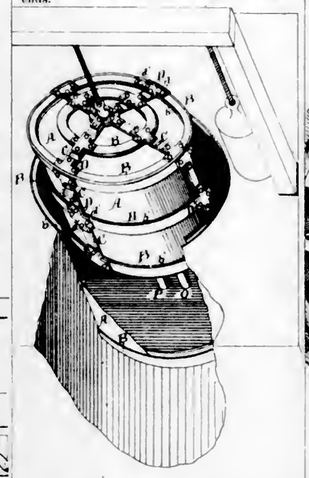


1. The compound cranks E E, pitman G having swivel *g*, and double pitman C having disks C' and C², and yoke D, as and for the purpose described and shown.

2. The turn-table A², shafts B and A, wheels *b* and D', yokes D, cranks E, pitmen C and G, when combined, arranged, and operated as shown and described, and for the purposes specified.

190,918. GAS-HOLDERS. Wm. Smith and Roland H. Smith, Pittsburg, Pa. [Filed Oct. 12, 1876.]

Brief.—The sheet-metal plates forming the holder are set into segmental and straight grooved jointing-strips, and packed with cement, for making tight joints without the use of rivets. Binding-pieces are placed at the angles of the jointing-strips for securing their ends.

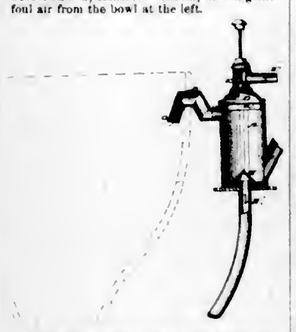


1. A gas holder or tank constructed of sheet-metal plates A A, united together by means of the segmental-grooved jointing-pieces B B, and the straight-grooved jointing-pieces C C, and the cement filling between the grooved jointing-pieces and the plates, substantially as set forth.

2. The binding-pieces D D, in combination with the jointing-pieces B C, and plates A, substantially as and for the purposes herein set forth.

190,919. EFFLUVIA-EJECTORS FOR WATER-CLOSETS. W. Smith, San Francisco, Cal. [Filed Oct. 20, 1876.]

Brief.—The water, in passing through the device shown, creates a vacuum, drawing the foul air from the bowl at the left.

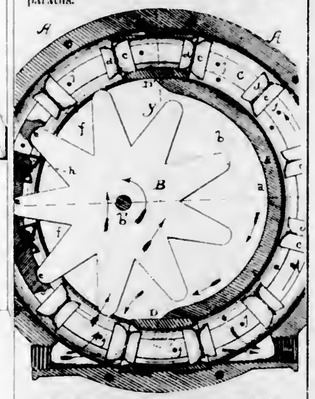


1. In combination with a water-closet, the receiver A, provided with a perforated diaphragm, D, so that water can be received through a cock or valve into the body of the receiver, and create a vacuum to draw the effluvia or foul air into, and eject or force it out of, the receiver, substantially in the manner as herein set forth and specified.

2. The receiver A, provided with a cock or valve, E, perforated diaphragm D, inlet and outlet air and water pipes H' F G B, when constructed and operating substantially in the manner and for the purpose herein set forth and specified.

190,920. WATER METERS OR ENGINES. W. Smith, San Francisco, Cal. [Filed May 22, 1876.]

Brief.—The flexible cup-shaped pistons, (attached to a ring,) in their rotation, pass through cylinders of different diameters, that nearest to inlet being larger than the other. The water flowing through this cylinder gives motion to the ring, and as the pistons pass through the smaller cylinder they are compressed. The ring gives motion to the wheel in the interior of the case, which actuates the registering apparatus.



1. A fluid meter or engine constructed of a series of flexible and collapsing pistons, arranged in a circle within a partitioned inclosing-case having an exhaust and a pressure side, and having cylinders of different diameters within it, after the manner shown and described, so that the pressure of the fluid, in passing through the inlet and outlet passages provided in the case, will at the same time force the pistons through one cylinder and draw them through the other, and thus give motion to the ring and its motion-wheel, as and for the purpose set forth and specified.

2. In a fluid meter or engine, constructed as described, a series of expanding and collapsing pistons, *c c d d*, of different diameters, arranged in pairs, and united together by the segments C C, combined with cylinders D D', of different diameters, in the manner and for the purpose set forth and specified.

3. In a fluid meter or engine, constructed as described, the segmental cylinders D D', one of larger diameter than the other, arranged within the case, and combined with the piston-ring, in the manner and for the purpose substantially as set forth and specified.

4. In a fluid meter or engine, the combination, with the piston-ring C, of the motion-wheel B, constructed and arranged with it and with the inclosing-case A, in the manner and for the purpose described and shown.

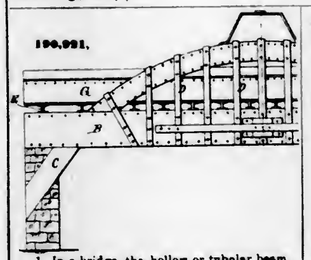
5. The circular case A, with its channel, and the partition *a*, dividing it into pressure and exhaust chambers, with inlet and outlet passages E F, and with a bearing, *a'*, for the axis of the motion-wheel B, all constructed and arranged as described and specified, for the purpose set forth.

6. The combination, with the case A, of the two cylinders D D', of different diameters, connecting the exhaust with the pressure side of the case, in the manner and for the purpose described and specified.

7. The segmental cylinders D D', constructed in two parts, in the manner shown and described, and having the same length as the distance between any two of the pistons *c c* or *d d*, for the purpose set forth.

190,921. TRUSS-BRIDGES. Jno. H. Snyder, Richmond, Va., assignor of one-fourth his right to D. N. Walker, same place. [Filed Apr. 6, 1877.]

190,921.

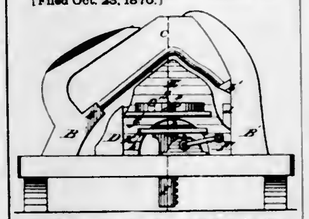


1. In a bridge, the hollow or tubular beam B, hollow arch C, and the bars D, passed over the arch and down on both sides, and riveted to the arch and beam, substantially as and for the purposes herein set forth.

2. The combination of the hollow longitudinal beams G G and the rails I with the bars E E, all substantially as and for the purposes herein set forth.

3. The combination of the hollow beams B B, hollow arches C C, bars D, flanged bars E, and the hollow flanged beams G G, with the rails I I, all said parts being riveted together, substantially as and for the purposes herein set forth.

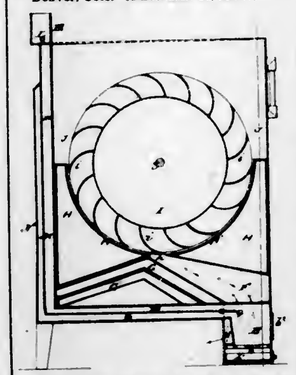
190,922. CRIMPING APPARATUS FOR THE UPPERS OF BOOTS AND SHOES. Isaiah H. Spake and Joseph D. Spake, Bluffton, Ind. [Filed Oct. 23, 1876.]



1. The combination of posts B B' and guide-piece D with crimping-jaws E E, plate K, ratchet I, and operating-pinion H, all arranged upon a suitable bed-plate, substantially as and for the purpose set forth.

2. The combination of the crimping-jaws E E, plate K, and operating-ratchet I, substantially as and for the purpose herein shown and described.

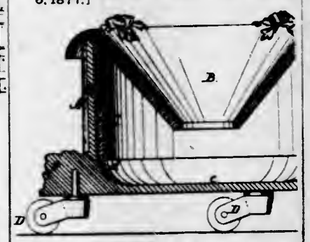
190,923. ROTARY ENGINES. T. F. Sparrow, Denver, Colo. [Filed Mar. 31, 1877.]



1. In a rotary engine, the wheel I, water-compartment J, and guide-casings H, slotted at *h*, combined with the furnace B, provided with double walls, and V-shaped flues G G', substantially as described, and for the purpose set forth.

2. In a rotary engine, the combination of furnace B, with connected flues M N, bottom passages O P, V-shaped or bent passages G G', and damper or cut-off Q, substantially as and for the purpose set forth.

190,924. SPITTOONS. Pierre C. Ste. Marie, Montreal, Quebec, Canada. [Filed Mar. 6, 1877.]



1. The combination, with the body or reservoir A, having the rounded shoulder *d*, of the funnel-shaped top B, having the rim or flange C pendent within the part A, and concentric with the inner side of the same, as and for the purpose specified.

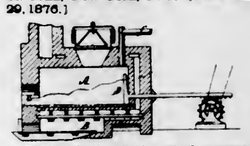
2. In combination with body A and base-rim *a*, having the bosses or projections *g*, the casters D, having pivots fixed in sockets formed in said projections, as shown and described.

190,925. SEWING-MACHINE SHUTTLES. R. H. St. John, Springfield, Ohio. [Filed Jan. 31, 1877.]



The combination, with a shuttle-case having an excavation, F, of the latch D, having a hinge-plate, E, adjustable by a set-screw, G, within said excavation.

190,926. MANUFACTURE OF IRON. Wm. H. St. John, New York, N. Y. [Filed Jan. 29, 1876.]



1. The herein-described method or process of manufacturing iron free from sulphur and phosphorus, by first separating from the coal its purer hydrocarbon gases, and then, by continued distillation, eliminating the impurities from the coke, the separate purification of the purer hydrocarbon gases aforesaid, and the storage of the same in a gasometer, and the subsequent combined and simultaneous use of the purified coke and the purified gases in the blast-furnace, the whole being conducted in the manner substantially as herein set forth.

2. In the manufacture of iron, the decarbonizing of the carbureted hydrogen by passing the same through a retort filled with incandescent mineral materials, and the subsequent passage of the purified hydrogen to the blast-furnace, in conjunction with a suitable inflow of air, substantially as and for the purpose herein set forth.

3. The herein-described combination of a retort or coking-oven, a gas-purifying apparatus, a fan-blower, or its equivalent, a gasometer, and a blast-furnace, the whole arranged for conjoint use and operation, substantially as and for the purpose herein set forth.

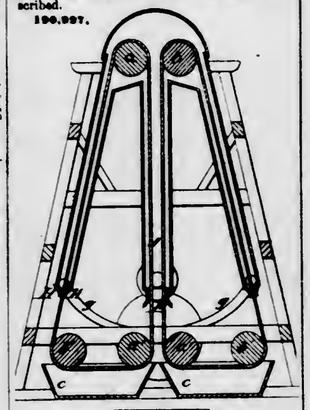
4. In the manufacture of iron, the retort A, constructed with a plunger or plungers, D, actuated from without by a rack and pinion, substantially as and for the purpose herein set forth.

190,927. APPARATUS FOR DESICCATING EGGS. Wm. O. Stoddard, New York, N. Y., and Henry Flint, St. Louis, Mo. [Filed Jan. 4, 1877.]

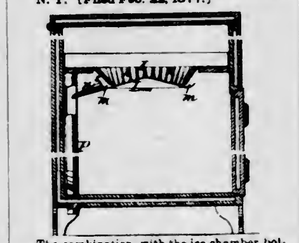
1. In an apparatus for desiccating egg or other substance, the combination, with the drying chamber, of a suction-blast, said chamber and blast apparatus being constructed and arranged substantially as described, whereby the desiccated material is withdrawn and discharged through and by means of the suction-blast.

2. In an apparatus for desiccating egg or other substance, the combination, with the drying-case and endless belt or moving apron, of the jaws H H, constituting scrapers to remove the material from the apron, as described.

190,927.

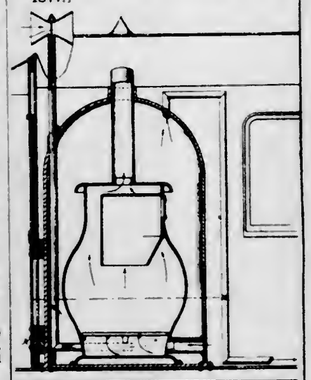


190,928. ICE-FLOORS FOR REFRIGERATORS. D. J. Stuart, Brooklyn, assignor of one-half his right to P. McGill, Williamsburg, N. Y. [Filed Feb. 22, 1877.]



The combination, with the ice-chamber bottom, having the opening I, surrounded by the conductors *k*, of the receiver L, having the gutter *m*, and the attached conductor *n*, discharging into the conductor P, substantially as and for the purpose specified.

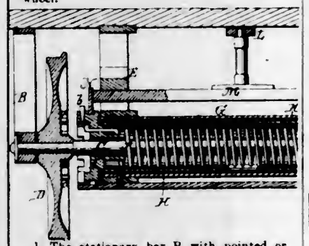
190,929. CASINGS FOR CAR-STOVES. H. Tanner, Buffalo, N. Y. [Filed Jan. 31, 1877.]



The combination of the isolating casing with the sides, end, and bottom of the car, in the manner substantially as described, to strengthen the same.

190,920. CAR-STARTERS. G. M. Thompson, Boston, Mass. [Filed May 1, 1877.]

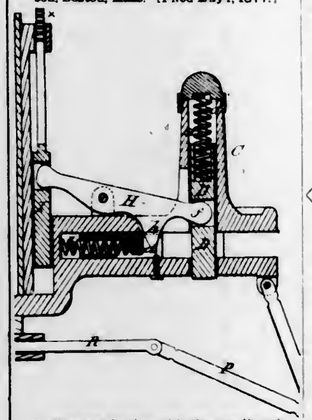
Brief.—The end of bar P prevents the clutch not engaged with wheel from turning, and thereby sliding into connection with the other wheel.



1. The stationary bar P, with pointed or tapering ends *d*, in combination with the radial pins *b* on the clutches I, for the purposes herein set forth.

2. The combination, with the axle C and wheels D, having pins *a*, as described, of the casing G, tubes H, clutches I, with pins *b*, spring J, bar P, and operating mechanism K L M N, all constructed and arranged to operate substantially as and for the purposes herein set forth.

190,921. CAR-COUPLINGS. G. M. Thompson, Boston, Mass. [Filed May 1, 1877.]



1. The combination, with the coupling-pin D placed in a tube, C, and actuated by a spring, *a*, of the pivoted lever H, with straight arm or prong *f*, the rack-slide I, and cogged lever L, substantially as and for the purposes set forth.

2. The slide G actuated by the spring *b*, and provided with the slot *d* in its front end, in combination with the prong A on the lever H, for the purposes herein set forth.

190,930.

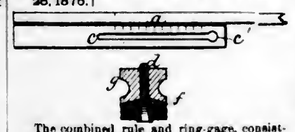


190,949. PLOWS. Wm. M. Towers, Rome, Ga. [Filed Apr. 3, 1877.]

1. As a means for combining the mold-board I, land-side K, and plow-point L with each other, and with the plow-foot B, the block H, provided with the recess *h'*, and constructed in the manner substantially as specified.

2. In combination with the rear end of the beam A, provided with the vertically-elongated slot *a*, and with the handles M, the bolt *m*, arranged to pivot their lower forward ends upon said beam, the straps N, encircling said handles, and the bolt O, passing horizontally through the latter, said straps, and said slot *a*, substantially as and for the purpose set forth.

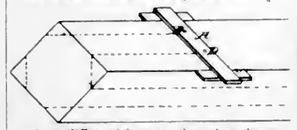
190,935. GAGES. J. K. Underwood, Geneva, N. Y., assignor of one-half his right to W. J. Morse, same place. [Filed Nov. 28, 1876.]



The combined rule and ring-gage, consisting of the strip A, made of spring metal, so as to preserve its circle when coiled and extend itself when released, and provided at one end with a longitudinal slot, *e*, with an enlargement, *e'*, and at the other with a screw, *d*, so arranged that when the strip is coiled the screw passes through the slot, and is secured by the nut *g* and washer *f*, the whole combined to operate as and for the purpose specified.

190,934. CARPENTERS' GAGES. George W. Vaughan, Covington, Ky. [Filed Mar. 3, 1877.]

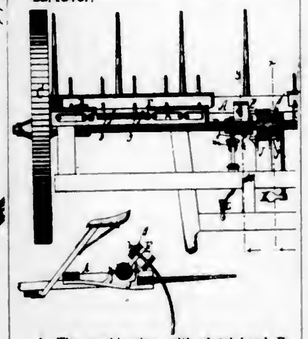
Brief.—The gage is adapted for readily marking a quadrangular beam or piece of timber for conversion into octagonal form.



1. A differential gage adapted to be applied to a surface having tapering or parallel sides, constructed substantially as herein shown and described.

2. A gage-bar provided with pivoted blocks and markers, substantially as described, and for the purpose set forth.

190,925. HORSE HAY-RAKES. Henry C. Vells, Poughkeepsie, N. Y. [Filed Aug. 22, 1876.]



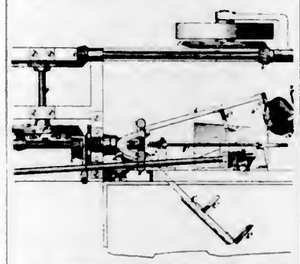
1. The combination, with clutch-head E, rake-head F, axle B, and clutch-sleeve I, of a dog, *j*, and cam *k*, for controlling automatically the position of the clutch-sleeve, and causing the rake to drop immediately after its contents have been dumped, substantially as set forth.

2. The combination, with mechanism for automatically raising the rake from the ground, and with a lever which serves to depress the rake, of a stirrup, which embraces said lever and enables the same to raise the rake, substantially as described.

3. The combination, with the clutch-head E and rake-head F, provided with a toe, l, of the lever I and stirrup *m*, for raising the rake or keeping it upon the ground, substantially as described.

4. The combination, with the rake-head F, clutch-head E, and clutch-sleeve I, of the guard-plate J, provided with standards supporting the spring-dogs *j*, for the purpose of preventing the grass from catching between the clutch-teeth, and from interfering with the operation of the dogs, substantially as set forth.

190,936. GRAIN-BINDERS. G. A. Walker, Dane's Hill, near Retford, England. [Filed Apr. 9, 1877.]



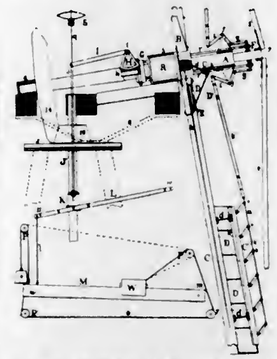
1. The combination of the arms G G^1 with their attached gripers G^2, and the jointed pin or hinged tooth *h'* of the rotating griping devices, the rotating disk or plate F, and mechanism actuated thereby for opening and closing the gripers, and the bevel-pinion *b* and segment *c'* for rotating the gripers, substantially as and for the purposes hereinbefore described.

2. The combination, with the rotating band-twister N and the gripers G^2, of the vibrating cranked fork M arranged for operation across the sheaf in the gripers and relatively to the rotating band-twister, essentially as and for the purposes herein set forth.

3. The combination of the intermittently-rotating gripers *g'* with the reversely-rotating band-twister N and the band-tucker R, substantially as shown and described.

190,937. WINDMILLS. J. Warwick, Medo, Minn., and Wm. S. Marshall, Batavia, Ill. [Filed Apr. 2, 1877.]

Brief.—Improvement in the devices for controlling the tendency to backlashing, as also means for controlling and regulating automatically the sails of the windmill.



1. The combination of the connecting-rods *b'*, reversing-rods and cranks *a k*, with reversible sails D, as and for the purpose set forth.

2. The combination of the arms C, intermediate arms E, auxiliary arms C', and reversible sails D, as described and shown.

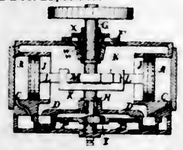
3. The combination of the sliding heads F G, connecting-rods *r r*, racks *h k*, segment-levers H I, elbow-levers E, connecting-rods *g b'* *a*, sail D, and enlarged journal R, as described and shown.

4. The traveling controlling-weight W, in combination with the lever M, with its operative cord and pulleys, collar K, lever L, and shaft J', and segment levers H I, as described.

5. The combination of the traveling weight W, lever M, and weight 16, for stopping the rotating of the wind-wheel, as set forth.

6. The auxiliary arm C', in combination with the intermediate arm E, for supporting sails in front of planes of radial arms C, as described and shown.

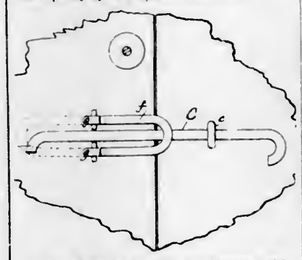
190,938. STEAM-ENGINES. S. Warwick and G. S. Brush, Montreal, Quebec, Canada. [Filed Dec. 22, 1876.]



The combination of the two single-acting cylinders A A, surrounded by the exhaust-receiver E, the double piston J J, open guides L L, eccentric N, and sliding box M, substantially as described.

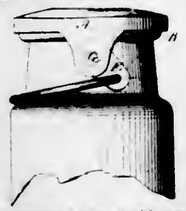
190,939. DOOR-CHECKS. Ira J. Webber, Salem, Mass. [Filed Apr. 11, 1877.]

Brief.—A hinged loop is secured to the door, and a staple or hook driven into the door-jamb, and in these loosely plays a detachable rod or bar, hooked at either end, which serves, when in place, to hold the door partially open, or, when the door is closed, may act as a bolt thereto. As an alternate form, a link may be substituted for the hooked bar, in which case the hinged loop must be detachably secured to the door, so that the link can be readily engaged or disengaged, and serve to hold the door partly open, in desired position.



The rod, bar, or link C, in combination with the staple *c*, and hinged loop or staple *f*, substantially as and for the purpose described.

190,940. HERMETICALLY-CLOSING JAR-COVERS. T. A. Weber, New York, N. Y., assignor to Rachel Runyan, Wm. S. Runyan, and Fred. F. Runyan. [Filed Mar. 31, 1877.]

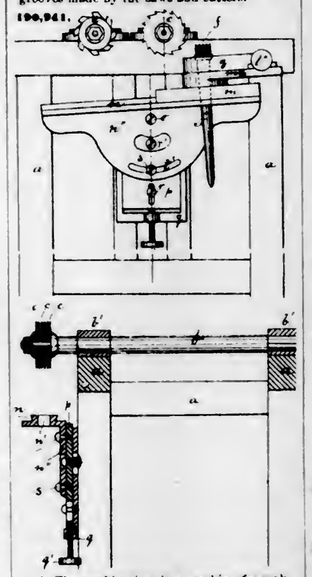


The combination of cap A with attached eccentric levers E E', acting against jar-rim B, to press the rubber ring C tightly against the top surface of the jar-mouth, as and for the purpose specified.

190,941. MACHINES FOR MAKING BRUSH-HANDLES. J. L. Whiting, Boston, Mass. [Filed Jan. 15, 1876.]

Brief.—Brush-handles are formed by means of a series of circular saws mounted upon an arbor, with a space between each successive saw; a series of milling-cutters mounted in advance of the saws; and a clamp attached to a head-stock, sliding forward and backward on an oscillating and vertically-adjustable bed, for regulating the depth of the grooves made by the saws and cutters.

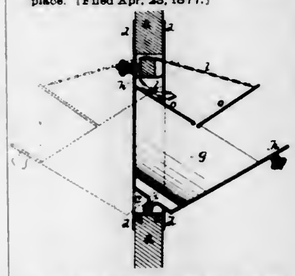
190,941.



1. The combination, in a machine for making brush-handles, of the series of saws *c*, the series of mills or cutters *e*, and their shafts *b d*, with the clamp *g g' m* and screw-shaft *l*, all constructed and arranged to operate substantially as described.

2. In combination with the series of saws *c* and the series of mills or cutters *e*, the clamp *g g' m* and its operative gear, the slotted bed *x*, head-stock *m'*, and frame *p*, all constructed and arranged to operate substantially as described.

190,942. CHANGE-BOXES. O. White, Detroit, Mich., assignor of one-half his right to A. Lovett and A. H. Fieldman, same place. [Filed Apr. 23, 1877.]



1. The box *g*, provided with the lids *o* and the chains *l*, substantially as specified.

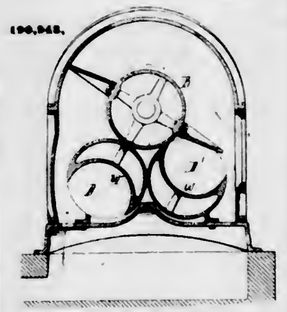
2. The combination of the door *a*, having an opening, *c*, through it, plate *d*, flange *e*, box *g*, lids *o*, and chains *l*, substantially as shown and described.

190,943. BLOWING-MACHINES. J. W. Wilbraham, Philadelphia, Pa., assignor to himself, T. Wilbraham, and J. Wilbraham, same place. [Filed Sept. 2, 1876.]

Brief.—The two slotted cylinders have their webs so constructed that the vanes extend beyond the centers. The webs prevent the waste of air.

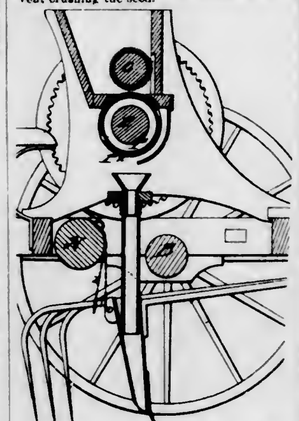
The cylinder B and its vanes, combined, as described, with segmental webs *w w* on the cylinders D D', so that the said webs will permit the vanes to extend to or beyond the centers of the cylinders, as set forth.

190,945.



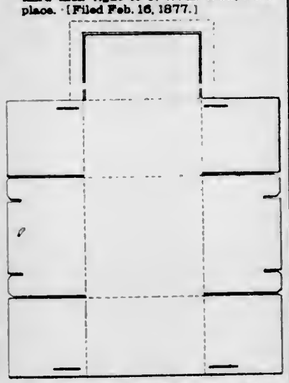
190,944. CORN-PLANTERS AND CULTIVATORS. Levi E. Williams, Manquin, Va. [Filed Feb. 10, 1877.]

Brief.—The seed-cylinder is provided with an elastic sheath having seed-pockets to prevent crushing the seed.



The feed-cylinder P^1, provided with an elastic sheath, P^2, having seed-pockets *p*, to prevent crushing the seed while delivering the same, substantially as described.

190,946. PAPER BOXES. H. L. R. Wolf and O. Wolf, Dayton, Ohio, assignors of one-third their right to J. W. A. Wolf, same place. [Filed Feb. 16, 1877.]

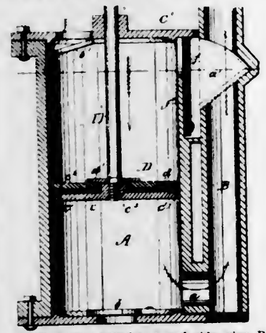


The herein-described rectangular paper or straw-board box, cut from a single piece, and whose body is composed of nine rectangular subdivisions, two of which contain tongues *m*, and four (4) slits, *b*, the tongues and slits being so located that when the box is made up

they occupy positions at the upper corners, and are covered by the lid *s*, which is a part of one of the sides, and is secured by tapes *p*, the whole constructed and arranged substantially as and for the purpose specified.

190,945. DOUBLE-ACTING ANTI-FREEZING FORCE-PUMPS. H. M. Wyeth, Richmond, Ind. [Filed Mar. 2, 1877.]

Brief.—The pump and side pipe are cast in a single piece, with the greatest portion of the pipe offset from the periphery of the cylinder, so as to leave a space between. The ends of both cylinder and pipe open.

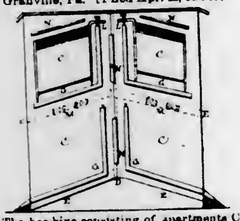


1. The pump-cylinder A and side pipe B, offset as described, and both cast in one piece with their opposite ends open, as and for the purpose described.

2. The valve *f* and its seat *f'*, made together removable, and combined by means of guideways with cylinder A and pipe B, and held in place by the cylinder-head, substantially as and for the purpose described.

3. The disk *c* of the piston, having circumferential groove *c'* and central boss *c²*, with screw-threaded perforation, in combination with the packing-ring *c³*, the disk *d*, having perforation corresponding to the boss, and the piston-rod D, having screw-threaded end and a washer, *d'*, as and for the purpose set forth.

190,947. BEE-HIVES. N. Zimmerman, Granville, Pa. [Filed Apr. 11, 1877.]



The bee-hive consisting of apartments C C C C, with separate and oblique movable angular honey frames G G G G on swivel wire hinges L L, and having moving flat covers N N over the honey-frames G, and the half-doors B B B B, dividing a whole colony of bees into four swarms, when constructed and arranged substantially as described.

REISSUES.

7,675. CASING-SPEARS. F. J. FOX, St. Petersburg, Pa., assignor to J. M. Robinson and W. Z. Blakslee, same place. Patent No. 154,195, dated Aug. 18, 1874. [Filed Apr. 9, 1877.]

Brief.—Upon inserting the device into the well-tubing, when at the point desired for catching within the same, it is "jarred," whereby the serrated catches are released, and are caused to press outwardly against the inner surface of the tubing. The friction-disk secured to the lower end of the plunger assists in this disengagement, as also afterward in effecting a release of the device from the tubing in extricating the device when desired.

1. A casing-spear composed of parts arranged to be expanded by a movement upon each other, and having upon one of said parts a frictional device adapted to bind with the walls of the well-tube or casing, to permit the adjustment necessary to gripe and release the same, as described.

2. A casing-spear having expansible griping-slides, combined with a frictional device adapted to bind with the walls of the well-tube, substantially as described, and for the purpose set forth.

3. A casing-spear composed of parts arranged to be expanded by a movement upon each other, and having upon one of its parts an elastic friction-disk of greater diameter than the spear, for the purpose described.

4. The stem or case A, having inclined grooves D and slots E, in combination with the sliding griping-plates C, and the plunger B, connected with said plates, and carrying upon its end a frictional disk, G, adapted to bind with the well-tube, as and for the purpose described.

5. The catch *f*, connected with the griping-plates through the plunger, and moving with the same, in combination with the case A, and the nut F having a notch, *d*, as and for the purpose described.

6. The hollow nut F having groove *c*, and exteriorly-threaded sleeve attached to and swiveling in the case A, in combination with the plunger B having catch *e*, for the purpose of permitting the device to be reset, substantially as described.

7. The plunger having catches *e* and *f*, in combination with the case A, and the swiveling-nut having notch *d* and groove *c*, as and for the purpose described.

7,675.



7,676. PUMP-VALVES. R. M. Lafferty, Toledo, Ohio, assignor to Smith & Lafferty. Patent No. 127,173, dated May 28, 1872. [Filed Feb. 8, 1873.]

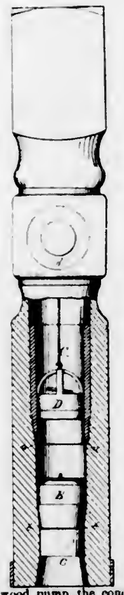


The construction and arrangement of valve D, provided with the hooks *b* at the lower ends of its wings, and an eyebolt, *c*, at its top, in combination with the valve-case C, substantially as and for the purpose set forth.

7,677. PUMPS. Robert M. Lafferty, Toledo, Ohio, assignor to Smith & Lafferty. Patent No. 127,173, dated May 28, 1872. [Filed Jan. 21, 1873.]

Brief.—A short metallic cylinder is introduced from the top, with an equal interior bore. The cylinder does not extend down to the check-valve or seat. The cylinder is secured to the stock by a screw-thread.

7,677.

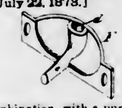


1. In a wood pump, the combination, with the stock A, of the short metallic cylinder C, whose interior diameter is the same throughout its length, inserted into the bore of the stock from the top, and not extending down to the check-valve seat, substantially as and for the purposes set forth.

2. In a wood pump, the combination, with the stock A, having the upper part of its bore enlarged, of the short metallic cylinder C, inserted from the top of the stock, and held therein by a screw-thread, substantially as and for the purposes set forth.

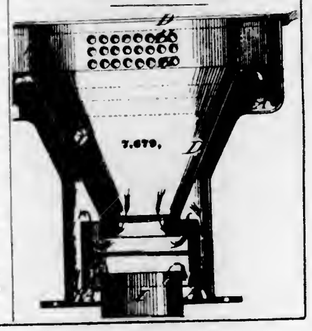
3. The combination, with the stock A of a wood pump, of the short screw-threaded metallic cylinder C, inserted from the top of said stock, the contraction *b* in the bore of the pump below such cylinder, and the enlarged opening *c* to form a wood joint with the tubing, substantially as described.

7,678. PUMPS. Robert M. Lafferty, Toledo, Ohio, assignor to Smith & Lafferty. Patent No. 127,173, dated May 28, 1872. [Filed July 22, 1873.]



The combination, with a pump-head, of the cast-metal fulcrum-ears F, each provided with the horizontal socket *d* and stud *e*, substantially as described and shown.

7,679.



7,679. SLOP-HOPPERS. Jno. Marquis, San Francisco, Cal. Patent No. 57,742, dated Sept. 4, 1866. [Filed Oct. 16, 1876.]

1. The stationary hopper E E and movable hopper D D, constructed and arranged together in the manner described, substantially as and for the purposes herein set forth and specified.

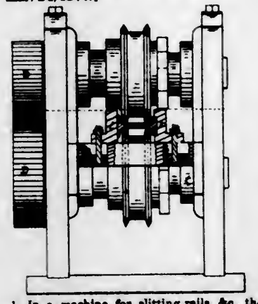
2. The combination, substantially as specified, of the pan G, the outer hopper, the exit-pipe thereof, and the inner hopper.

3. The trap formed by the rim J J, and the lower portion of the movable hopper D D, substantially as described, and for the purposes herein set forth and specified.

4. A slop-hopper having a perforated movable receptacle, substantially as described, and for the purposes herein set forth and specified.

5. A slop-hopper having a trap, A, near the top, substantially as and for the purpose specified.

7,680. MACHINES FOR SLITTING RAILROAD-RAILS. J. Reese, Pittsburg, Pa. Patent No. 180,373, dated July 26, 1876. [Filed Mar. 24, 1877.]



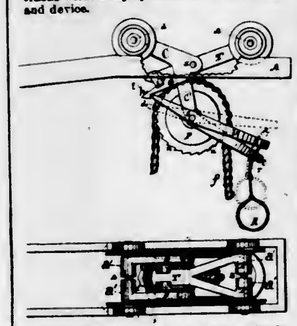
1. In a machine for slitting rails, &c., the combination of the bevel-edged adjustable and detachable cutters, one above the other, for cutting the metal simultaneously on the two opposite sides, substantially as specified.

2. In a machine for slitting railroad-rails, the combination of the rolls, provided with adjustable cutters, and the adjustable rail-guide, substantially as and for the purpose specified.

3. In a machine for slitting railroad-rails, the combination of the two slitting-rolls with the rail-guide, substantially as and for the purpose specified.

7,681. HAY-ELEVATORS. G. Van Sickle, Shortsville, N. Y. Patent No. 148,009, dated Feb. 24, 1874. [Filed Mar. 9, 1877.]

Brief.—The jointed coupling allows the weight carried, and the strain on the rope carrying it, to press the brake against the rope and hold the load. The sleeves forming bearings for the axles are tapered from each side to the middle, to afford the axles free oscillation, and thus enable the wheels to pass over obstructions on the track, or run on curved tracks without injury or strain to the wheels and device.



1. A hay or grain elevator having a brake constructed and adjusted to be moved into position to bear upon and hold the hoisting-rope from running back on the pulley by the forward movement of the car and the weight of the load, substantially as described.

2. The car-couplings C C T, having a joint forming a longitudinal flexure, substantially as and for the purposes described.

3. The car-axles *a*, adjusted to oscillate and allow play for the wheels, substantially as and for the purposes described.

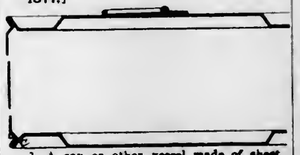
4. The detent-levers L, having ring R attached to their lower part, in combination with the detent-shoulders *d* on the plates O, fastened to the rails of the track, substantially as and for the purposes described.

5. The pulley P, provided with ratchet-teeth *n*, in combination with the pawls *b*, brake *t*, having corrugations *s*, and hoisting-rope *f*, substantially as and for the purposes described.

6. The cross-bar *i*, in combination with the inclined guides *h*, for releasing the hoisting-rope, substantially as described.

7. The extended arms *e e*, adjusted to form guides for the hoisting-rope, substantially as described.

7,682. SHEET-METAL CANS. H. Miller, New York, N. Y., assignor, by mesne assignments, to the Combined Patents Can Company of New York. Patent No. 38,974, dated June 23, 1863. [Filed Mar. 30, 1877.]

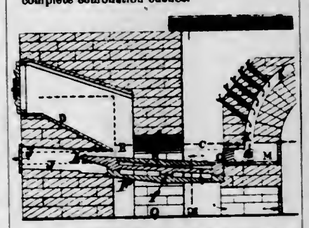


1. A can or other vessel made of sheet metal, in which the top or bottom is joined to the sides by a double-recessed clamping lap-joint, substantially as described.

2. A can or other vessel made of sheet metal, in which the top or bottom is joined to the sides by a clamping lap-joint, which is capable of being soldered by dipping, substantially as described.

7,683. SMOKE-CONSUMING FURNACES. J. C. Baum, Cincinnati, Ohio. Patent No. 128,526, dated July 2, 1872. [Filed June 23, 1876.]

Brief.—The gases from a coking-furnace pass with the flame under a boiler, where an additional supply of air is furnished, whereby complete combustion ensues.



1. The combination, substantially as specified, of the coking-chamber, the combustion-chamber, the grate-surface, the partition dividing the said chambers and descending to near the grate-surface, and the passages for supplying air to the gases ascending from the incandescent fuel.

2. In combination with fire-box B, combustion-chamber C, and arch A, the pivoted and rearwardly-inclined grate H, whose pivot *f* is located about under the center of said arch, as described.

3. The combination of arch A, inclined feed-channel D, and grate H, substantially as and for the purpose specified.

4. The recess J, in combination with channel D, grate H, and chambers B and C, substantially as and for the purpose specified.

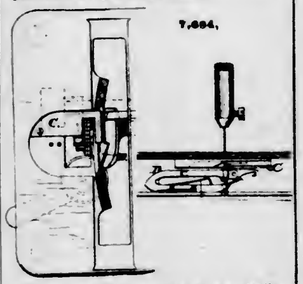
5. The combination of hot-air chamber M, channel K, and orifices L L L, &c., substantially as and for the purpose specified.

6. The combination of chambers B and C with hot-air chamber M, flues S S, channel K, and orifices L L L, &c., substantially as and for the purposes set forth.

7,684. SEWING-MACHINES. B. Bouscay, Jr., Norwalk, Ohio. Patent No. 127,145, dated May 28, 1872. [Filed Dec. 29, 1876.]

Brief.—Makes a peculiar knotted or twisted loop stitch by a needle and a looper carried loosely, as a shuttle is carried. The take-up is located in the head of the machine, and is operated, while taking up the thread, by a spring, which holds the lever against a peripheral cam on the forward end of the upper horizontal main or driving shaft, said contact with the cam giving the let-off motion in opposition to the pull of the spring.

7,684.



1. A looper, D, composed of two rigidly-connected parts, C and D, the former being provided with a hook, and constructed and operating substantially as described.

2. The combination of the latch *e*, with its heel projecting through the bar *c* of the looper, with a projection-operating to open such latch, as described.

3. The movable latch-opener, combined with the looper, and operated by the feeding device, as and for the purpose set forth.

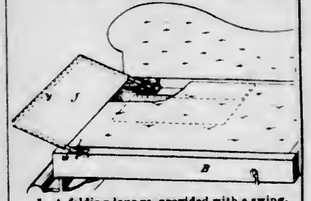
4. In a machine wherein the rotary driving-shaft extends forward to the head of the machine, the combination, with a cam secured to the forward portion of said rotary driving-shaft, of a take-up mechanism held in direct contact with said cam by a spring, the cam operating to let off the thread, while the take-up is effected by the spring, substantially as set forth.

5. The combination, with a cam attached to the rotary driving-shaft and needle-bar, actuated by a pin or roller secured to the face of the cam, of a take-up mechanism held in direct contact with the periphery of the cam by a spring, the cam operating to let off the thread, while the take-up is effected by the spring, substantially as and for the purpose described.

6. The combination, with a cam secured to the rotary driving-shaft, of a take-up mechanism, which latter consists, essentially, in a lever pivoted below the cam, and a spring adapted to hold one end of the lever against the cam, whereby the cam operates to let off the thread, while the take-up is effected by the spring, substantially as and for the purpose described.

7. The combination, with a cam secured to a rotary driving-shaft, of a take-up mechanism held in direct contact with the cam by a spring, the vibrating arm of the take-up having its extreme upper end bent at right angles to its length, to project through the slotted face-plate, substantially as described.

7,685. FOLDING LOUNGES. H. S. Carter, Chicago, Ill. Patent No. 156,121, dated Oct. 20, 1874. [Filed Apr. 27, 1877.]



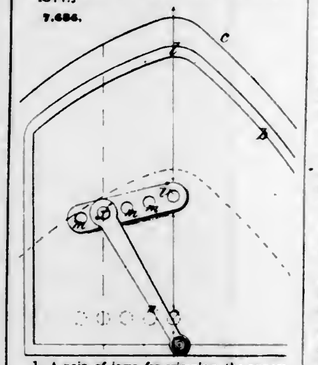
1. A folding lounge, provided with a swinging bolster, substantially as and for the purpose set forth.

2. The combination of the pivot R, cam T, bolster J, and the folding part B, having the seat I, as and for the purpose set forth.

7,686. BOOT AND SHOE CRIMPING MACHINES. L. O. Makepeace, Worcester, Mass., assignor, by mesne assignments, to J. S.

Perkins, same place. Patent No. 131,268, dated Sept. 10, 1872. [Filed Apr. 30, 1877.]

7,686.



1. A pair of jaws for crimping the uppers of boots and shoes, adapted to have the bolt or clamping device located or thrown more or less on the toe side of the instep angle of the follower or apex of the jaws, substantially as and for the purpose set forth.

2. The jaws *a* and *b*, provided with one or more holes, *m*, located on the toe side of a vertical line, *l*, dropped from the instep angle of the follower *c*, substantially as described, and for the purpose set forth.

3. A pair of crimping-jaws, having their clamping bolt or device made adjustable laterally, substantially as shown and described.

4. In combination with the pair of jaws, having their clamping-bolt made adjustable laterally, the laterally-adjustable set-screw *i*, substantially as described.

7,687. DENTAL CHAIRS. Jas. B. Morrison, Brooklyn, N. Y. Patent No. 82,542, dated Sept. 29, 1868. [Filed Nov. 23, 1876.]

1. In combination with the stand or support for a dental chair, uprights or guides, secured directly to said stand in such manner that they can be inclined or adjusted substantially as and for the purpose set forth.

2. The combination, in a dental chair, of a stand or support, the uprights or guides, and a locking or clamping device for securing said uprights or guides at any desired angle, substantially as described.

3. The combination, in a dental chair, of a stand or support, the uprights or guides, a locking or clamping device for securing said uprights or guides at any desired angle or inclination, and an elevating mechanism for raising and lowering the body of the chair, substantially as described.

4. A chair having its body arranged to be adjusted vertically, and having the operating mechanism, by which it is thus adjusted, arranged at the back or outside of the periphery of the seat instead of under the seat, substantially as described.

5. The combination, in a dental chair, of a back, vertically adjustable in reference to the seat, with a vertically-adjustable head-rest, substantially as set forth.

6. The combination, in a dental chair, of a back, vertically adjustable in reference to the seat, with a laterally-adjustable head-rest, substantially as described.

7. The combination, in a dental chair, of a back, vertically adjustable in reference to the seat, with a vertically and laterally adjustable head-rest, substantially as set forth.

8. A chair, having its arms attached to the body, substantially as described, whereby they can be adjusted vertically independent of the adjustment of the body, substantially as set forth.

9. The vertically-adjustable arms, provided with a clamping device, whereby they may be secured at any desired height.

10. A head-rest support, capable of a vertical and a lateral adjustment within the back of the chair, substantially as described.

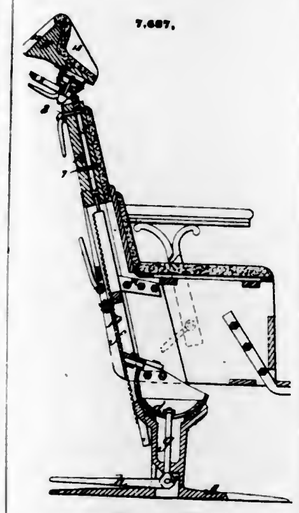
11. The slotted bar I, arranged to slide vertically and swing laterally on the pin 7, substantially as shown and described.

12. In combination with the adjustable back B, the cams *s*, or their equivalent, for securing said back in the desired positions, substantially as described.

13. The slotted bar I, arranged within the back of the chair, so that it can be moved vertically and swung laterally, in combination with the head-rest, provided with a universal joint, whereby the head-rest can be adjusted, substantially as described.

14. A head-rest, provided with two cushions or head supports, 12 and 13, substantially as described.

7,687.



7,688. PROCESSES OF MANUFACTURING MALT-EXTRACT. H. R. Randall, Brooklyn, N. Y. Patent No. 187,313, dated Feb. 13, 1877. [Filed May 9, 1877.]

The process of manufactoring malt-extract from raw or unmalted grain or starch-bearing material for brewers' use, the same combining the successive steps of first reducing the grain or other starch-bearing material by grinding to a comminuted condition, then eliminating the starch therefrom at a comparatively high temperature, substantially as described, and subsequently subjecting such eliminated starch to the action of malt at a lower temperature, for converting it into dextrine and glucose or a malt-extract.

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DECISIONS OF THE COURTS.

SUPREME COURT OF THE UNITED STATES.

JOHN ROBERTSON, CHARLES C. MARTIN, AND AUSTIN H. SMITH, APPELLANTS, *vs.* ELI W. BLAKE. ELI W. BLAKE, APPELLANT, *vs.* JOHN ROBERTSON, CHARLES C. MARTIN, AND AUSTIN H. SMITH.

[*Appeals from the Circuit Court of the United States for the Eastern District of New York.—Decided October term*, 1876.]

The patent granted to Eli W. Blake for a stone-breaker, June 15, 1858, reissued January 9, 1866, and extended June 15, 1872, is not anticipated by the earlier patent to Hobbs and Brown for "improvements in the application of well known mechanical means for the purpose of crushing ice," and to Hamilton for "crushing and grinding quartz or other substances," they not containing any of the essential elements of Blake's invention.

The substitution for one part of the operating mechanism, of a combination the equivalent of that omitted, does not avoid an infringement.

When an original machine and an improvement upon it are both patented, neither patentee can use what does not belong to him without the requisite authority from the owner.

The complainant was found entitled to nominal damages only, the burden of proof being upon him, and it appearing that the proof was meager and indefinite, but four machines made, no established license fee, the profits made being due in part to inventions covered by other patents, and no distinction made between profits accruing from the use of complainant's invention, and that from the other inventions and manufacturers' profits.

Mr. Justice SWAYNE delivered the opinion of the court:

These are cross-appeals in the same cause. Both involve questions in mechanics. These being determined, the legal propositions which apply are so well settled as to admit of no controversy.

A patent was granted to Blake on the 15th of June, 1858, by the United States, for a stone-breaker. On the 9th of January, 1866, the same authority reissued the patent to him, with amended specifications. It was extended on the 15th of June, 1872. The bill in this case is founded upon the latter patent. It charges infringement.

The answer avers that the machine described is of no practical utility, denies the novelty of the invention, and also the alleged infringement.

The description in the specification sets forth three things as the essential characteristics of the machine:

(1) Two jaws within which the stones are to be broken. Their faces are to be so nearly in an upright position that the stones will descend between them automatically. The jaws are to be so far convergent that the interspace at the top will be sufficient to receive the stones, and that at the bottom only such as will allow the fragments to escape when broken of the required size.

(2) A revolving shaft driven by steam or other motive power, imparting to one of the jaws a continual vibratory movement, causing it alternately to approach toward and recede from the other jaw, through a short and definitely-limited space, so that when a stone is put in the movable jaw will advance and crush it, then receding liberate the fragments, which again descend, and, if too large, are rearrested and crushed again, and so on until the fragments have passed out through the open space at the bottom. The distance between the jaws is to be adjustable at pleasure, so that the stone can be broken of any desired size.

(3) A fly-wheel is combined with the revolving shaft and movable jaw for the purpose of rendering the strain upon the power more equal.

The claim is for—

A combination of a stone-breaking machine of upright converging jaws with a revolving shaft and mechanism imparting a definite reciprocating movement to one of the jaws from the revolving shaft, the whole being and operating as set forth.

The combination in a stone-breaking machine of the upright movable jaw with the revolving shaft and fly-wheel, the whole being and operating as set forth.

In combination with the upright converging jaws and revolving shaft, imparting a definitely limited vibration to the movable jaw, so arranging the jaws that they can be set at different distances from each other at the bottom, thus producing fragments of every desired size.

A moment's glance at the model furnishes a sufficient answer to the objection of the want of practical value. It would be passing strange if a machine of that character could have gone through the severe conflicts of litigation which this patent has encountered and have come forth victorious from every contest. It has proved equal to every ordeal to which it has been subjected. The number sold by the complainant, as shown by the record, is conclusive upon the subject.

The patent to Hobbs & Brown of the 4th of September, 1849, and the patents to Hamilton of the 30th of January, 1854, and the 5th of January, 1855, antedate the patent to Blake. It is insisted that each of them is for a machine substantially the same with the one described in Blake's patent, and that they are fatal to his claim of the requisite novelty of his alleged invention.

The machine for Hobbs & Brown is for—

> Improvements in the application of well-known mechanical means for the purpose of crushing ice. * * * The improvements consist in applying a hopper with one diagonal fixed side and two parallel sides to contain the ice, and compressing the ice by a movable fourth side, the fixed diagonal side and moving side having within them dental projections cut or cast on, to operate downward and prevent the ice from rising in the hopper when compressed, and also to enter and split the ice.

The machine is operated "by the combination with these parts of a lever fitted with an eccentric or cam-formed point."

There is in this description neither of the ingredients nor the compound of the Blake machine. Every element and the combination are both wanting. There is no mention of the converging adjustable jaws, of the revolving shaft, nor of the fly-wheel. The differences are as marked in the mode of operation as in the structural elements of the machine.

The Hobbs & Brown machine does its work by the downward and sweeping movement of the jaw and the grasping and splitting by the teeth. The motive power is supplied and applied by a hand-lever, which gives a motion irregular and varying with the varying exigencies of the ice during the process to which it is subjected.

The Blake machine performs its functions by the short, regular, and unvarying vibrations of the smooth-faced adjustable jaw driven without intermission by the revolving shaft.

It is obvious that the Hobbs & Brown machine could not be applied with effect to the purpose of breaking stones without essential changes of principle and details.

Hamilton's machine was "for crushing and grinding quartz or other substances."

In the specification annexed to his original patent, he says:

> My invention consists in the use of a cylindrical nut or pestle in a similarly-formed basin, the pestle having a partial rotary and crushing motion communicated to it by means of a lever attached thereto.
>
> A is a basin, the lower part of which is made circular, and the sides parallel to each other. *b b* are flat ends or heads secured to the basin by bolts. C is the shaft carrying the cylindrical pestle *d*. E is a lever attached to or formed with the pestle *d*, the upper end being connected by a joint, 2, to a pitman, passing to a crank, eccentric, or other suitable mechanical contrivance to give the arm E an oscillating movement, and the pestle a partial rotary motion on its shaft C.

The claim of this patent is for—

> The means herein described and shown for crushing and grinding metallic ores, consisting of the cylindrical pestle *d*, provided with grooves in its upper part to crack the lumps of ore and set a shaft, C, on which it has a partial rotary motion, and operating in connection with the basin A, in which said pestle moves to grind the ore into powder by the gradual approach of the sides of said basin to the cylindrical pestle, said pestle being also provided with a scraper or agitator, 5, in its lower surface to operate as specified.

The second patent is declared to—

> Consist in providing means for keeping the pestle down with sufficient force to pulverize the material operated on, and also to prevent the pestle from grinding too finely, *i. e.*, to furnish material for simply cracking the ore or other material into small lumps of any desired size instead of grinding the same to a powder, thereby adapting the machine to different characters of metallic ores or other substances.

We have here no reflex or embodiment of either of the ideas that found expression in the Blake machine. The converging jaws, the revolving shaft, and the fly-wheel, are all wanting, as in the Hobbs & Brown machine. Instead, there is a cylindrical nut or pestle, having a partial rotary and crushing motion communicated to it by means of a lever attached thereto. The pestle rotates on a central axis within an eccentric concave. The work is done by this pestle. There is nothing of the vibratory motion of a movable jaw, alternately advancing and receding, as in the Blake invention.

The difference is not that of mere mechanical equivalents. It is radical and goes to the essence of the organisms. These considerations are so obvious that further remarks upon the subject are unnecessary.

The proofs show that but two of the Hamilton machines were ever made. Practically the invention was abandoned.

This brings us to the question of infringement.

There are numerous points of similarity, and, indeed, of identity, in the respondent's machine, which are not controverted. It is for breaking stone. It has two upright jaws for this purpose, one fixed and the other movable. The jaws converge. The breaking is effected by the convergence. The movable jaw alternately approaches toward and recedes from the fixed one. This movement is produced by a short and powerful vibratory motion communicated by a revolving shaft with a fly-wheel upon it. There is an opening at the upper end of the jaws where the stones are received, and one below where they are discharged.

The only point of diversity insisted upon by the respondents is that the vibratory movement in the Blake machine is limited and unvarying, while in the machine of the appellants it is not of this invariable character.

In the Blake machine the movable jaw receives its movement from the revolving shaft through iron rods and levers. In the respondents machine it is communicated from the revolving shaft through a confined column of water.

In the appellant's model the revolving shaft is not shown. In their machine it works the plunger of the pump from which the water is conveyed to a cylinder behind the movable jaw, whence it is applied to that jaw by means of a ram, the ram taking the place of the piston in an ordinary engine. Thus the vibrating arm, the toggle, the toggle-joint, and the pintles in the Blake machine are dispensed with, and their place supplied by the hydraulic arrangements we have described.

What is so employed in the appellant's machine is the obvious and exact equivalent of what is so dispensed with in the Blake machine. The liability of the packed joints to leakage is a serious objection to such use of water. Any considerable leakage would stop the machine. It could not be used while that condition existed. Constant care and vigilance are necessary in such cases to prevent the frequent occurrence of this evil. Water does not escape from a safety-valve with the same celerity or effect as steam.

The Blake machine has a decided advantage in the greater simplicity and cheapness of its equivalents.

It is difficult to resist the conclusion that the change had no motive or purpose but evasion.

If there be no extraneous obstruction, the vibratory motion will be exactly the same in both cases. If there be such obstruction, the safety-valve in the appellant's machine might possibly be brought into use with good effect. But if this were so, the valve would be only an addition and an improvement of the machine. The valve, therefore, is, in any view, quite immaterial to the inquiry we are pursuing.

Where an original machine and an improvement upon it are both patented, neither patentee can use what does not belong to him without the requisite authority from the owner. The appellants having embodied all the ideas of Blake's invention in their machine, the valve which supplemented it, whether good or bad, is outside of the case, and cannot affect the result.

We think the infringement is clearly made out.

It remains to consider the question of damages. A few remarks upon that subject will be sufficient.

The proof is meager and indefinite.

The infringers made but four machines.

No license fee charged by the complainant is shown. The burden of proof rests upon him. Damages must be proved; they are not to be presumed. The complainant made a profit of forty dollars an inch on the width of the jaws of the numerous machines he had sold.

But inventions covered by other patents were embraced in those machines. It was not shown how much of the profit was due to those other patents, nor how much of it was manufacturer's profit. The complainant was, therefore, entitled only to nominal damages. This the court gave him. It was all the state of the evidence warranted. It would have been error to give more.

The decree of the circuit court is affirmed.

The costs of each appeal are adjudged against the party taking such appeal.

U. S. CIRCUIT COURT—DISTRICT OF MASSACHUSETTS.

CHARLES E. ASHCROFT *vs.* WILLIAM HOLLINGS.

[*In equity.—Before* SHEPLEY, *J.—Decided April* 13, 1877.]

The patent for a lamp, can, or barrel, packed in part with an absorbent or finely granulated material, and over them a body of wire-gauze or perforated thin plate, either rolled up like paper scrolls or put flat together like book-leaves, is not infringed by the use of a lamp containing cotton covered with a layer of asbestus or porous fire-proof cement, and covered with one thickness of wire-gauze.

The invention patented to Wm. Beschke, August 14, 1866, includes as a necessary ingredient wire-gauze or perforated thin plate in the form of scrolls or of layers like the leaves of a book.

OPINION OF THE COURT.

SHEPLEY, *J.*:

The defense in this case is based upon the alleged want of novelty in the invention described in the letters patent granted to William Beschke and others, August 14, 1866, No. 57,245, "for an improved method of using explosive fluids for the production of light and heat," and also upon a denial of any infringement of the Beschke patent. The question of infringement depends upon the construction to be given to the Beschke patent.

In view of the state of the art at the date of the patent, as well as upon what is clearly described in his specification and claimed in his claims, it appears to be clear that the invention of Beschke is described and claimed as consisting in a lamp, or can, or barrel, packed in part with an absorbent or finely granulated material, (excluding sand and including saw-dust, cotton, beads, shot, gravel, asbestus, and their equivalents,) and over them "a body of wire-gauze or perforated thin plate, either rolled up like paper scrolls or put flat together like book-leaves."

The defendant sells a lamp for heating purposes, manufactured under letters patent issued to Thomas W. Houchin, May 4, 1875, called Houchin's patent pocket cook-stove. The lamp is made of metal, and is filled with cotton covered with a layer of asbestus, or of porous fire-proof cement of which asbestus is an ingredient. The upper opening is covered with one thickness of wire-gauze. There is no tube as distinguished from the body of the lamp, and there is no "body of wire-ganze or perforated thin plate, either rolled up like paper scrolls or put flat together like book-leaves."

Wherever in the Beschke patent wire-gauze or perforated thin plate is allnded to, it is in the form of a scroll or of layers, like the leaves of a book, and after constantly repeating this description throughout the patent, and never using the words without some description of a scroll or layers, except in one instance, and then "wire-gauze combined and shaped as mentioned," the patentee adds, "I disclaim also the simple use of mere wire ganze or perforated thin plate not rolled up like paper scrolls or put flat together like book-leaves." The wire-ganze or perforated thin plate, described in the claim of the Beschke patent, must be construed as referring to wire-gauze or perforated thin plate rolled up like paper scrolls, or put flat together like book-leaves, as described in the specification, and upon this construction of the claim in the patent the defendant does not infringe.

Bill dismissed with costs.

APPLICATIONS FOR EXTENSION.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., April 24, 1877.

On the petition of Erastus T. Bussell, of Indianapolis, Indiana, praying for the extension of a patent granted to him on the 29th day of November, 1853, numbered 10,280, extended for seven years from the 29th day of November, 1867; reissued on the 13th day of December, 1870, and numbered 4,202, for an improvement in combined rubber and spiral steel spring. This application having been authorized by act of Congress approved March 3, 1877:

It is ordered that the testimony in the case be closed on the 10th day of July next; that the time for filing arguments and the Examiner's report be limited to the 20th day of July next; and that said petition be heard on the 25th day of July next.

Any person may oppose this extension.

ELLIS SPEAR,
Commissioner of Patents.

[tf]

DEPARTMENT OF THE INTERIOR,
U. S. PATENT OFFICE,
Washington, D. C., March 10, 1877.

On the petition of HENRY VOELTER, of Heidenheim, Germany, praying for the extension of a patent granted to him August 10, 1858, antedated August 29, 1856, extended for seven years from August 29, 1870, reissued June 6, 1871, and numbered 4,418, for an improvement in reducing wood to paper pulp, this application

having been authorized by act of Congress approved March 3, 1877:

It is ordered that the testimony in the case be closed on the 29th day of May next; that the time for filing arguments and the Examiner's report be limited to the 8th day of June next; and that said petition be heard on the 13th day of June next.

Any person may oppose this extension.

ELLIS SPEAR,
[tf] *Commissioner of Patents.*

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date May 22, 1877.]

9,992.—Font of Printing-Types.—WILLIAM F. CAPITAIN, Chicago, Ill., assignor to MARDER, LUSE & CO., same place. Application filed April 17, 1877. Term of patent 7 years.

9,993.—Clock and Mirror Frames.—HENRY J. DAVIES, Brooklyn, N. Y. Application filed May 2, 1877. Term of patent 7 years.

9,994 to 9,997, inclusive.—**Carpets.**—JOHN HAMER, Dutchess County, assignor to FALCONER & CARROL, Matteawan, N. Y. Applications filed May 11, 1877. Term of patents 3½ years.

9,998.—Rugs.—JOHN HAMER, Dutchess County, assignor to FALCONER & CARROL, Matteawan, N. Y. Application filed May 11, 1877. Term of patent 3½ years.

9,999.—Carpets.—JOHN HAMER, Dutchess County, assignor to FALCONER & CARROL, Matteawan, N. Y. Application filed May 11, 1877. Term of patent 3½ years.

10,000.—Pumps.—OTTO HEINIGKE, New York, assignor to WILLIAM S. BLUNT, Bay Ridge, N. Y. Application filed April 3, 1877. Term of patent 3½ years.

10,001.—Shoes.—GEORGE W. MEADER, Woonsocket, R. I. Application filed April 28, 1877. Term of patent 7 years.

10,002.—Carpets.—JOHN NEIL, New York, N. Y., assignor to THE BIGELOW CARPET COMPANY, Clinton, Mass. Application filed May 9, 1877. Term of patent 3½ years.

10,003.—Lace Fabric.—JOSEPH ROBINSON, Brooklyn, N. Y., assignor to ABRAHAM G. JENNINGS, same place. Application filed January 31, 1877. Term of patent 7 years.

10,004.—Card-Racks.—PETER ROSENBACH, New York, N. Y. Application filed May 7, 1877. Term of patent 7 years.

10,005.—Carpet.—THOMAS J. STEARNS, Boston, Mass., assignor to THE ROXBURY CARPET COMPANY, same place. Application filed May 8, 1877. Term of patent 3½ years.

10,006.—Business-Directory Boards.—WILLIAM H. THACKERAY, Pittsburg, Pa. Application filed March 19, 1877. Term of patent 14 years.

10,007.—Sheet-Metal Boxes.—WILLIAM WILKINSON, Philadelphia, Pa., assignor to C. B. PORTER & Co., same place. Application filed March 17, 1877. Term of patent 7 years.

10,008.—Castors.—AUGUST H. WIRZ, Philadelphia, Pa. Application filed May 4, 1877. Term of patent 7 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date May 22, 1877.]

4,656.—Plug-Tobacco.—ALLEN & CO., New York, N. Y. Application filed May 10, 1877.

"The pictorial representation of a human figure supporting a plug of tobacco."

4,657.—Flax Thread.—THOMAS BARBOUR, Paterson, N. J. Application filed April 23, 1877.

"The representation of a bound lion."

4,658.—Zephyr Wool.—BAUER, TOBRINER & CO., San Francisco, Cal. Application filed April 7, 1877.

"The representation of two (2) globes, having the words 'Berlin' and 'San Francisco' inserted thereon, and the medallions at each end, the whole being inclosed in a suitable ornamental border, as shown."

4,659.—Cigarettes, Cigars, and Cheroots.—JOHN BLAKELY, Jersey City, N. J. Application filed May 14, 1877.

"The word-symbol 'REFORM' used in connection with the word 'Segarette.'"

4,660.—Fertilizing Compound.—BOYKIN, CARMER & CO., Baltimore, Md. Application filed April 5, 1877.

"The word-symbol 'HOME,' used in connection with the word 'Fertilizer.'"

4,661.—Cement.—EDMUND J. BRAMHALL, Jersey City, N. J. Application filed April 12, 1877.

"The figures of the knight and the two hemispheres, used in connection with the words 'New Discovery—Harris' Cement.'"

4,662.—Corn and Bunion Cure.—EDMUND J. BRAMHALL, Jersey City, N. J. Application filed April 12, 1877.

"The female figure, used in connection with the words 'Dr. Harris' Corn and Bunion Cure.'"

4,663.—Medicines.—Dr. A. W. CHASE, SON & CO., Toledo, Ohio. Application filed January 22, 1877.

"A druggist's mortar and pestle, and the letter 'C,' which is the initial letter of Dr. Chase's surname, the broad or back part of said letter being ornamented with floriated work or stippling, and across this ornamentation of the letter 'C' are the titles of the four of the medicines which this mark is designed to distinguish."

4,664.—Salt.—EXCELSIOR DAIRY SALT COMPANY, Syracuse, N. Y. Application filed April 9, 1877.

"The word-symbol 'EXCELSIOR.'"

4,665.—Ladies' and Children's Shoes.—GEORGE D. HILL & Co., Baltimore, Md. Application filed April 19, 1877.

"The word 'TACKLESS.'"

4,666.—Cotton Sheetings.—JANESVILLE COTTON MANUFACTURING COMPANY, Janesville, Wis. Application filed April 26, 1876.

"The monogram embracing the letters 'J. M. Co.'' and the words Badger State."

4,667.—Flour.—ISAAC G. JENKINS and JOSEPH HOVER, Oswego, N. Y. Application filed January 13, 1877.

"The title or designation 'MOFF'S.'"

4,668.—Medicinal Preparation.—AUGUSTUS KIEFER, Indianapolis, Ind. Application filed March 15, 1877.

"The monogram 'J. H. B.,' used in connection with the words 'Expectorant Syrup.'"

4,669.—Cigarettes.—WILLIAM S. KIMBALL & Co., Rochester, N. Y. Application filed March 21, 1877.

"The word-symbol 'VANITY FAIR.'"

4,670.—Enameled Sheet-Metal Ware.—LALANCE & GROSJEAN MANUFACTURING COMPANY, New York, N. Y. Application filed May 10, 1877.

"The word-symbol 'AGATE IRON.'"

4,671.—Enameled Sheet-Metal Ware.—LALANCE & GROSJEAN MANUFACTURING COMPANY, New York, N. Y. Application filed May 10, 1877.

"The word-symbol 'PORCELAIN IRON.'"

4,672.—Flannels Made of Cotton.—LAWRENCE MANUFACTURING COMPANY, Lowell, Mass. Application filed February 26, 1877.

"The representation of a bull's head."

4,673.—Cotton Goods.—FIELD, LEITER & CO., Chicago, Ill. Application filed March 9, 1877.

"The figure or representation of a lion."

4,674.—Cut Tobacco.—CHRISTIAN H. LILIENTHAL, New York, N. Y. Application filed April 25, 1877.

"The word-symbol 'NEPTUNE.'"

4,675.—Perfumery.—EMILE MEYER & Co., Paris, France. Application filed August 29, 1876.

"The representation of the basket of flowers and the words 'A LA CORBEILLE FLEURIE,' placed in the inside of a ring or circle, and the words 'Ed. Pinaud, Paris,' placed in a space formed between this inner and an outer ring or circle."

4,676.—Woolen Yarn Known as "Germantown Wool."—MIDNIGHT YARN COMPANY, Philadelphia, Pa. Application filed April 18, 1877.

"The monogram composed of the letters 'M. Y. Co.' used in connection with the words 'Germantown Wool.'"

4,677.—Yarn Known as "Cashmere Yarn."—MIDNIGHT YARN COMPANY, Philadelphia, Pa. Application filed April 18, 1877.

"The monogram composed of the letters 'M. Y. Co.' used in connection with the words 'Cashmere Yarn.'"

4,678.—Spool-Cotton.—SAMUEL B. NICHOLS, Brooklyn, N. Y. Application filed March 30, 1877.

"The word-symbol 'THE HOME.'"

4,679.—Salve or Ointment for the Piles.—JOHN F. OATES & Co., Providence, R. I. Application filed March 26, 1877.

"The word-symbol 'CORSICAN BUTTER,' used in connection with the words, 'for the piles.'"

4,680.—Chewing-Tobacco.—CHRISTIAN PEPER, St. Louis, Mo. Application filed February 21, 1877.

"The figure of a tooth-pick and the word-symbol 'TOOTH-PICK.'"

4,681.—Leather Belting and Lace-Leather.—CHARLES A. SCHIEREN, Brooklyn, N. Y. Application filed April 23, 1877.

"The representation of a bull's head."

4,682.—Salt.—J. B. SPEED & Co., Louisville, Ky. Application filed April 16, 1877.

"The words 'Louisville Salt Elevator' and the figure of the black star."

4,683.—Compound for Fining, Purifying, and Mellowing Spirituous Liquors.—WILLIAM & PATRICK THOMPSON, New York, N. Y., and Dublin, Ireland. Application filed March 31, 1876.

"The word-symbol 'PRUNE WINE.'"

4,684.—Fence Strips and Caps.—CYRUS L. TOPLIFF, Brooklyn, N. Y. Application filed May 16, 1877.

"The word-symbol CAT."

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date May 22, 1877.]

1,065.—Title: **"Steele's Pain Eradicator."**—CRANE & BRIGHAM, San Francisco, Cal. Application filed May 12, 1877.

1,066.—Title: **"Fairbrother's Venetian Ointment and Emolient Salve."**—HELEN F. FAIRBROTHER, New Bedford, Mass. Application filed May 3, 1877.

1,067.—Title: **"Camphorated Tar Paper."**—ROBERT LAUTENBACH, Baltimore, Md. Application filed May 11, 1877.

1,068.—Title: **"Wyeth's Dialysed Iron."**—JOHN WYETH & BROTHER, Philadelphia, Pa. Application filed May 11, 1877.

1,069.—Title: **"Physician's Sample. Wyeth's Dialysed Iron."**—JOHN WYETH & BROTHER, Philadelphia, Pa. Application filed May 11, 1877.

1,070.—Title: **"Derby Table Sauce."**—MARY S. GREENWOOD, Grantville, and SUSAN K. COMPTON, Boston, Mass. Application filed May 14, 1877.

1,071.—Title: **"Mead's Infallible Pile Cure."**—HENRY MOORE, Orange, N. J. Application filed April 26, 1877.

1,072.—Title: **"Wright's Cod Liver Oil and Cream of Tar."**—THOMAS D. TOY & Co., Norfolk, Va. Application filed April 2, 1877.

SALE OF SPECIFICATIONS AND DRAWINGS.

Photolithographic copies of the drawings of all patents issued since November 26, 1867, have been produced, and will be sold to the public at 25 cents per patent, or, where twenty or more copies are ordered at one time, at 10 cents per patent.

Coupon-books, to the amount of $2 or more, can be purchased from the Chief Clerk of the Patent Office; the coupons, for 10 cents each, may be filled out at any time, and, on presentation, will entitle the holder to a photolithographic copy of *any* drawing which has been reproduced.

The specifications of all patents issued since July 1, 1871, are in print, and will be furnished with the drawing without extra charge. In some cases the specifications of patents issued prior to July 1, 1871, are in print, and where such is the case the Office will furnish them with the drawings, but the Office will not undertake to reprint copies of patents which have been exhausted.

In addition to the above, the Office has reproduced, and offers for sale at the price mentioned above, all drawings in the following classes, embracing patents granted from 1790 to date. The classes are those of the Examiners.

Apparel.	Paper manufactures.
Boats.	Printing.
Bookbinding.	Projectiles.
Bridges.	Railways, (Cars and Interior Fittings.)
Carding.	Railways, Exterior
Carriages and Wagons.	Mountings and Fittings.
Cloth.	Sewing-machines.
Cordage.	Ships, construction.
Crinoline and Corsets.	Ships, propulsion.
Driers and Kilns.	Signals.
Electricity.	Silk.
Felting and Hats.	Spinning.
Fire-arms.	Stationery.
Harvesters.	Stoves and Furnaces.
Knitting and Netting.	Thrashing.
Lamps and Gas-fitting.	Umbrellas and Fans.
Mills.	Weaving.
Ordnance.	
Paper-making.	

And the subdivisions of—

Bench-planes.	Buttons and Machines.
Bale-ties.	Combs, &c.

About sixty other classes are in progress, and it is hoped that all the drawings remaining, some forty thousand in number, may be completed during the fiscal year.

The total number of patents of which drawings are complete and offered for sale as above will approximate one hundred and fifty thousand.

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Zweidinger, J. C., and W. L. Buttler, Shutter worker	191,105

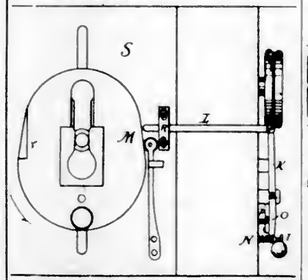
TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED MAY 22, 1877.

190,945. STOP MECHANISMS FOR SEWING-MACHINES. H. D. Baker, Lynn, Mass., assignor to W. D. Pool, same place, trustee of the Machine Tender Association. [Filed Aug. 11, 1876.]

Brief.—The clamp is notched on one side, so that the notch will, at the finish of the button-hole, be in position to receive a spring-acted stop-lever, connected by mechanism (as specified in the claims) to the driver of the machine, which action stops the machine. The stop-lever is adjustable, to stop the machine sooner or later, as desired.

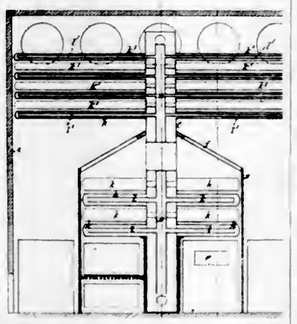


1. In combination with the notched clamp-base M, and the treadle lever mechanism operated in one direction by a spring, H, the arm L, lever K, spring N, catch I, and rod G, constructed and arranged to operate together and relatively to each other, substantially as and for the purposes specified.

2. In combination with wheel E, brake P, rods G and O, and spring H, arranged to operate together, substantially as and for the purposes specified.

3. The combination of bed S, notched clamp-base M, hinged reciprocating arm L, and adjustable guide R, substantially as and for the purposes specified.

190,949. COMBINED BOILER AND STEAM-HEATER. G. W. Blake, New York, N. Y. [Filed Sept. 7, 1876.]

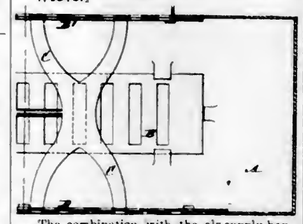


1. The combination, with the furnace B and its fire-place *d*, of the upright trunk C and inner duct D, one or more intersecting draft-passages, *s*, the outlet *e*, the tubes *k* closed at their outer ends and connecting at their inner ends with the trunk C on opposite sides of the latter, and the tubes *l* open at both ends, arranged within the tubes *k*, and connecting at their inner ends with the duct D, essentially as described.

2. The combination, with the outer case or hot-air chamber A, of the furnace B, its boiler E, and the steam heater or radiator G composed in part of an upright trunk, C, and inner duct D, forming an extension of the boiler above the furnace, and the inner and outer branch tubes *k' l'*, constructed and connecting, respectively, with the trunk C and duct D, substantially as specified.

3. The combination of the furnace B and its fire-place *d*, the upright trunk C, and inner duct D, the tubes *k k'*, closed at their outer ends and connecting with the side of the trunk C, and the open-ended tubes *l l'* within the tubes *k k'*, and connecting at their inner ends with the duct D, substantially as specified.

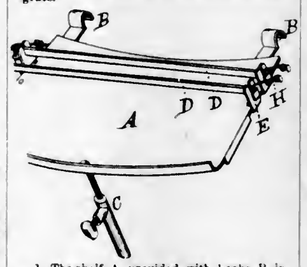
190,950. AIR-BOXES FOR RADIATORS. G. W. Blake, New York, N. Y. [Filed Sept. 7, 1876.]



The combination, with the air supply box A, the valve D, and duplicate valves B B', connected by the yoke C and elbow *c*, said valve and duplicate valves being arranged to operate simultaneously and control respectively, and in inverse relation with each other, as regards their opening and closing actions, communication with the external air and air of the compartment, substantially as described.

190,951. GRATE-SHELVES. J. Boorom, Mason, Ohio. [Filed Jan. 22, 1877.]

Brief.—To be applied at the front of an open grate.

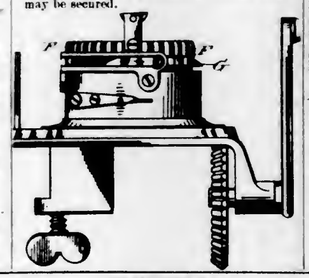


1. The shelf A, provided with hooks B, in combination with the adjustable leg C, as and for the purpose specified.

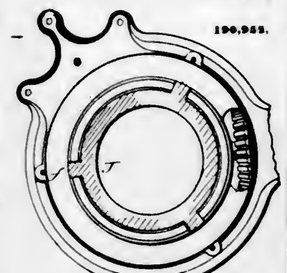
2. The removable slats or bars D, supported by slotted studs E, and hooks H, or their equivalents, in combination with the vertically-adjustable shelf A, in the manner and for the purposes specified.

190,952. KNITTING-MACHINES. J. L. Branson, Chicago, Ill. [Filed Dec. 14, 1876.]

Brief.—The lands project above and upon the sliding bar, and hold it down in place. Upon the bed-plate is arranged a removable annulus, to which cylinders of various sizes may be secured.



190,953.



1. The sliding bar G, in combination with the needle-cylinder, having projections F overhanging said bar, the cam-cylinder, and thread-carrier, substantially as and for the purpose set forth.

2. The combination, with the bed-plate, of the annulus J, formed with one or more projections upon its periphery, whereby it is supported upon the upper face of the bed-plate, and adapted to receive and hold needle-cylinders of different diameters, to the full diameter of the annulus and its projections, substantially as and for the purpose set forth.

190,954. PAINT COMPOSITIONS. C. Brown, Meadville, Pa. [Filed Oct. 2, 1876.]

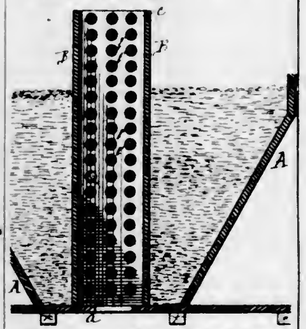
A water-proof paint consisting of pine-pitch, pine-tar, iron ore, and gutta-percha, in the proportions substantially as set forth, and for the purpose specified.

190,954. EXPLOSIVE COMPOUNDS. Otto Burstenbinder, Humboldt, Mich. [Filed June 30, 1876.]

1. The process herein described of preparing an explosive compound, which consists in inspissating vegetable substances with glycocole or chondrin and saltpeter, then soaking them in nitro-glycerine, and granulating and drying them, all in the manner described.

2. The explosive compound or powder herein described, consisting of vegetable substances, glycocole or chondrin and saltpeter, as specified.

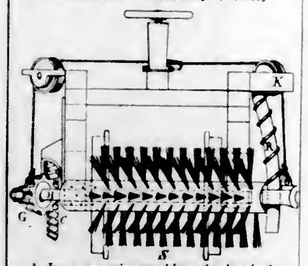
190,955. VENTILATORS FOR GRAIN. H. Y. Cahill, Darton, Ohio, assignor of one-half his right to W. A. Weinreich, same place. [Filed Nov. 24, 1876.]



The combination of the grain-bin A, having an aperture, *a*, in the bottom thereof, and a vertical perforated flue, B, extending above the top of the bin, covered with wire-gauze *c*, open at its top and bottom, and arranged over the aperture in the bottom of the bin, said flue acting as a conduit to carry off the warm vapor from the mass of grain, and introduce dry and pure air therein, substantially as and for the purpose specified.

THE GRAPHIC CO. N.Y.

190,956. STREET-SWEEPERS. N. Campbell, Brooklyn, N. Y. [Filed July 5, 1876.]



1. In a sweeping-machine, the herein-described method of attaching the reeds or brushes to the brush-head, by inserting them in the manner of a staple in holes in the brush-head, and retaining them in position by a shaft running through the brush-head, substantially as described.

2. In a sweeping-machine, the combination of the sweeper S and yoke Y with a support, F, independent of the axle X, substantially as and for the purpose described.

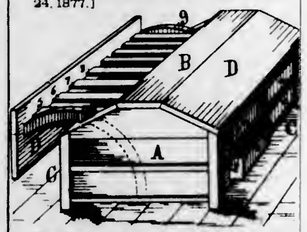
3. In a sweeping-machine, the combination of the axle X, constructed with the projecting end and the cog-wheels C and G, substantially as and for the purpose described.

4. In combination with the frame-work A of a sweeping-machine and the cog-wheel G, the shield-plate M, substantially as and for the purpose described.

5. In a sweeping-machine, the combination of the block K with the hanger E, projecting therefrom, substantially as and for the purpose described.

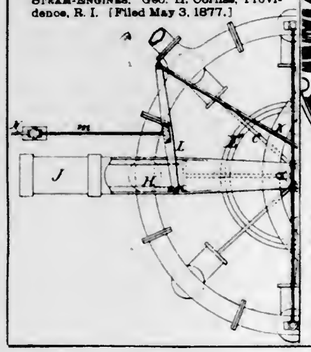
6. The combination of the arm V and spring Q with the sweeper S, substantially as and for the purposes described.

190,957. WARDROBE-BEDSTEADS. Robert Cleland, Bevington, Iowa. [Filed Feb. 24, 1877.]



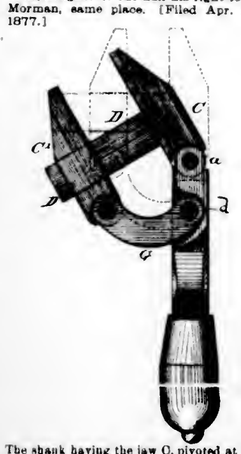
The frame and case A B C, single or double, having a series of drawers, 1 2 3 4, and curved grooves or bearings h in its ends, and a movable cover and side-board, D, carrying the runners g, and bed-bottom 5 6 7 8, arranged and combined to operate substantially as and for the purposes shown and described.

190,958. AIR-PUMP CONNECTIONS FOR STEAM-ENGINES. Geo. H. Corliss, Providence, R. I. [Filed May 3, 1877.]



In combination with the steam-cylinder J and connecting-rod l, the horizontally-vibrating lever L, its link K, and crank for communicating motion through the connection m to the air-pump lever N, substantially as specified.

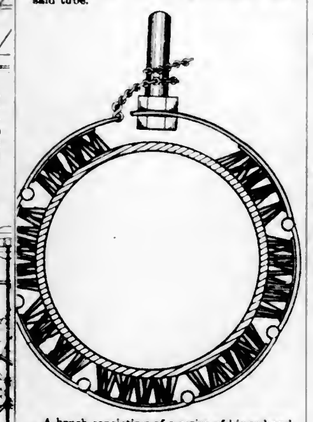
190,959. WRENCHES. H. Davis, Berlin, Wis., assignor of one-half his right to H. Morman, same place. [Filed Apr. 12, 1877.]



The shank having the jaw C, pivoted at its outer end at a, and the curved links G, pivoted at d between the end of the shank and the handle, and the jaw C being provided with the bar D, arranged to stand at an angle to the handle, in combination with the pivoted slotted jaw C', constructed and arranged as and for the purpose set forth.

190,960. BRUSHES FOR CLEANING BOILER-FLUES. Joseph H. Davis, Sewickly, Pa. [Filed Nov. 23, 1876.]

Brief.—A brush for cleaning the flues of boilers is made in curved section, the sections being joined by hinged joints. These, being placed around the flue, are drawn together, and at the same time, a reciprocating motion being given, the brush is made to pass slowly along the flue, thus removing the deposit upon said tube.



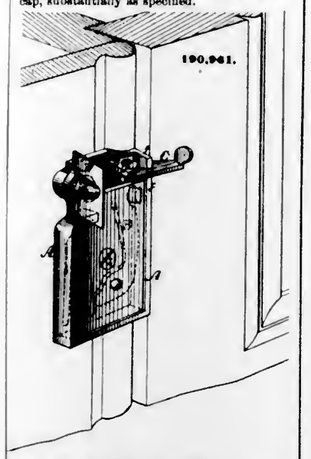
A brush consisting of a series of hinged and curved sections, the end sections furnished with a lever and coupling-chain, substantially as hereinbefore described, and for the purpose set forth.

190,961. BURGLAR-ALARMS. W. J. Decker, New York, N. Y. [Filed Apr. 20, 1877.]

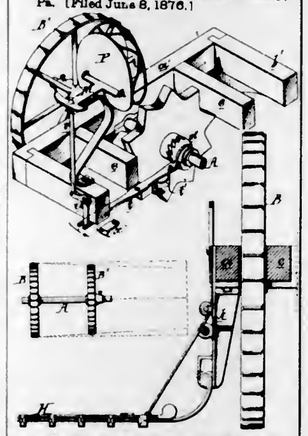
1. In a burglar-alarm, the combination of the shell A, having nipple d and ledge f, with the lever B which carries the hammer a and pivoted catch C, and with the spring b, all arranged to operate substantially as herein shown and described.

2. The conical nipple d, made with a flat face, to be used in connection with a paper cap, substantially as specified.

190,961.



190,962. MOWERS. Rudolph Dirks, Marlborough Township, Montgomery County, Pa. [Filed June 6, 1876.]



1. The combination of the frame H with the hangers k, their boxes n, and rubber blocks s.

2. The combination of the shaft A and its wheel B with the smaller wheel B', laterally adjustable on the shaft, as set forth.

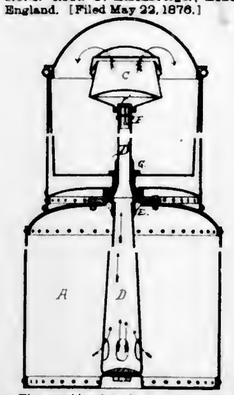
3. The combination of the spring-seat P, rod r, bell-crank lever u, spring-lever t, and sliding-clutch d, as set forth.

190,963. THILL LOOPS OR SUPPORTERS. T. Eaton, Jr., Brunswick, Me. [Filed June 10, 1876.]



The thill-loop A, made of cast metal, and provided with the lugs a^1 a^2 and the pins a^3, to adapt it to be attached to a saddle-strap, substantially as herein shown and described.

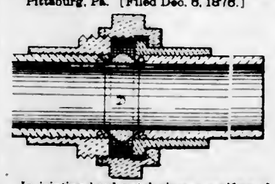
190,964. APPARATUS FOR MAKING INFUSIONS. Robt. U. Etsensberger, London, England. [Filed May 22, 1876.]



1. The combination, in an apparatus for making infusions, of the adjustable receptacle C, with its impervious sides and false bottom and top, with the upper flow-pipe D', its non-return valve F', adjustable joints F and G, in connection with the lower flow-pipe D, by means of the perforated cone-joint E, substantially as set forth, and for the purpose specified.

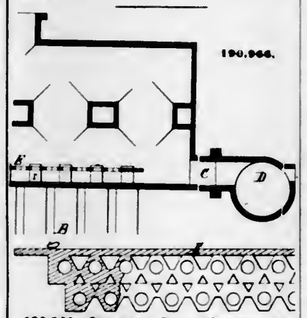
2. In an apparatus for making infusions, the combination of the steam-jacket, its exhaust-valve M, and perforated cone-joint E, with the steam-space of the lower vessel A, for the better regulating of the action of the apparatus and the equalization of temperature, as set forth in the foregoing specification.

190,965. PIPE-JOINTS. A. W. Foster, Jr., Pittsburg, Pa. [Filed Dec. 6, 1876.]



In jointing hard metal pipes, a coniformed reamed-out mouth at the end of each pipe, an intermediate metallic conically-ended packing-ring, and coupling devices, rigidly attached to, or made on, the pipe, substantially as set forth.

190,966.

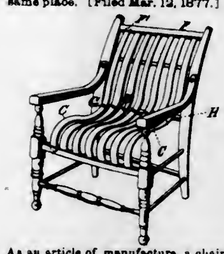


190,966. SECTIONAL STEAM-BOILERS. E. H. Graham, Philadelphia, Pa. [Filed Apr. 6, 1877.]

Brief.—The circulating-plate is cast to the tank, and provided with holes for the circulation of water. The tank is also provided with a nozzle, to which is attached a sediment-collecting chamber, and through which the feed-water is fed to the boiler. The body of said chamber is located on a plane below the horizontal line of the bottom of the tank.

The improved sectional boiler-tank, having the baffle-plate cast thereto and in one piece, said plate being provided with openings E, in combination with tube B and the bottom plate, and the extension or nozzle C and pipe D, constructed and arranged substantially in the manner and for the purpose set forth.

190,967. CHAIRS. J. Hess, Buffalo, N. Y., assignor of one-half his right to L. White, same place. [Filed Mar. 12, 1877.]

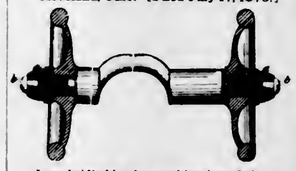


As an article of manufacture, a chair having a spring-seat, and a back formed of a series of single bent stripe, C, having their ends fastened to the cross-bars D and F, substantially as specified, and secured to the cross-bar H by screws G, as described.

190,968. STOVE-POLISH. J. W. Hill, Lynn, Mass., assignor of one-half his right to W. N. Munroe, Providence, R. I. [Filed Apr. 10, 1877.]

As a new article of manufacture, the improved polish described, consisting of plumbago, lamp-black, soap, alum, molasses, and water, in the proportions and compounded and prepared substantially in the manner set forth and specified.

190,969. BRIDLE-BITS. Walter M. Hutton, Cleveland, Ohio. [Filed July 17, 1876.]



In a bridle-bit, the combination of the recessed or curved bar, the revolving slotted cheek-pieces, the nuts a, and the screws b, all arranged substantially as shown and described, and for the purpose set forth.

190,970. WATER-WHEELS. W. T. Reaser, Waupun, Wis. [Filed May 7, 1877.]

Brief.—The combination, with a horizontal wheel having arms or buckets upon its periphery, of an inclosing-case having two or more side feed-openings in the bottom of the case, near the outer skirt or periphery thereof. It further consists of an annular gate surrounding the case; and it finally consists in the combination, with the case, of an outer removable ring, whereby the wheel can be adapted to flumes or as a portable wheel.

1. The combination, with a wheel having arms or buckets upon its periphery, of an inclosing-case having two or more side feed-openings, and two or more discharge-openings arranged in the outer or skirt portion of the bottom of the case, substantially as and for the purpose described.

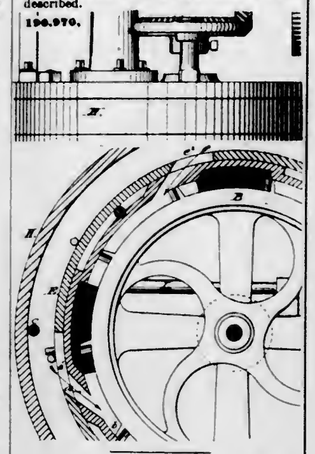
2. An inclosing-case, having the discharge-openings arranged in the outer or skirt portion of the bottom of the case, and flaring outwardly, substantially as and for the purpose herein shown and described.

3. An annular gate, provided with the opposite openings s and s' of the same size, and the opposite openings s^2 and s^3 differing in size from each other, and from the openings s and s', substantially as and for the purpose described.

4. The combination, with a water-wheel and inclosing case, of a removable ring, H, whereby the wheel can be adapted to flumes, or as a portable wheel, substantially as specified.

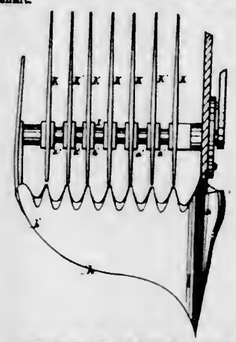
5. A portable water-wheel, consisting of the wheel B, having arms or buckets b, inclosing-case, provided with two or more feed and discharge openings, c d, annular gate E, and outer ring H, all combined and arranged to operate substantially as herein shown and described.

190,970.



190,971. POTATO-DIGGERS. D. M. King, Mantua Station, Ohio. [Filed Feb. 26, 1877.]

Brief.—The fingers are arranged alternately in respect to height, and fastened with gain-blocks, grooved and riveted through rock-shaft. The side standard has its dividing-edge directly in line with the inner side of the share. Suitable machinery operates the rock-shaft.



1. The fingers K and K' and pin m, in combination with the shaft I and grain-blocks e', substantially as described, and for the purpose set forth.

2. The standard E, arranged in relation to the dividing-edge s of the share G, so that the inner side of said standard shall be in a right line with the dividing-edge s, as described, and for the purpose specified.

3. The sifting-fingers K and K', arranged in an alternating relation to each other in respect to height, and projecting from each side of the shaft I, as herein set forth, and for the purpose specified.

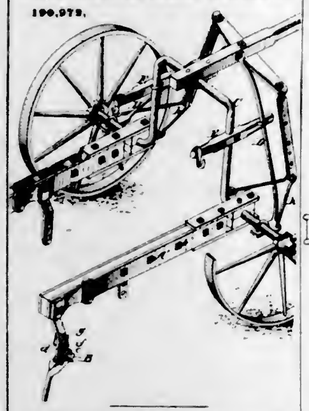
190,972. WHEEL-CULTIVATORS. E. M. Kissell and M. L. Kissell, Springfield, Ohio. [Filed Nov. 11, 1876.]

Brief.—The safety break-joint in the standards. The construction of the frame.

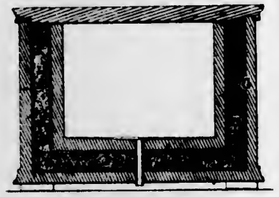
1. The safety break-joint B, pin c, slot d, gutta-percha blocks f f, or their equivalents, shields f f, screw-bolts y y, substantially as described and shown.

2. Hitch-bars E, arched axle C, and brace-rods D, in combination with the beams and tongue of a cultivator, constructed and arranged substantially as shown and described.

190,973.

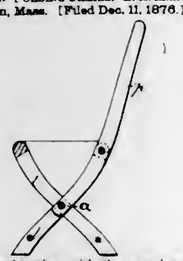


190,974. LININGS FOR REFRIGERATORS. G. H. Levis, Philadelphia, Pa. [Filed May 8, 1877.]



A packing or lining for refrigerators, coffee-urns, and other hot or cold air receptacles where an even temperature is required, composed of laminæ of paper, center filling of plaster-of-paris, and a coating of soluble glass or similar substance, substantially as and for the purpose set forth.

190,974. FOLDING CHAIRS. B. H. Mahoney, Boston, Mass. [Filed Dec. 11, 1876.]



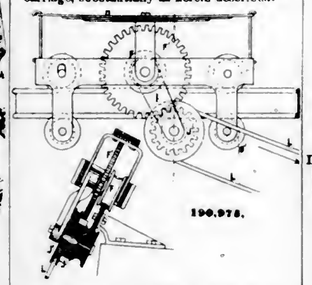
The combination, with the cross-legs *l*, of the back-frame A, the side posts *p* of the back-frame being rigidly secured to the back-rail *s* of the seat at the upper ends of the front legs, and connected to the cross-legs at their points of intersection by a pin, *a*, which forms a pivot for the legs, as set forth and described.

190,975. MEANS FOR PROPELLING CANAL-BOATS. Bernard H. Muehle, Buffalo, N. Y. [Filed Sept. 26, 1876.]

1. The tow-line L, consisting of an endless rope or chain, by means of which power is communicated from a steam-engine or other motor on the canal-boat to be propelled to a truck or carriage on a rail or rails, through the medium of a train of multiplying-gearing upon said carriage, substantially as and for the purpose herein described.

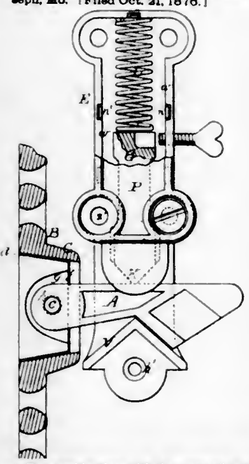
2. A truck or carriage, moving upon a rail or rails, and having a traction-wheel, F, and spur-wheel F′ on a main shaft, and the pinion J and pulley J′ on a counter-shaft, power being applied to said pulley J′ by means of the endless rope or chain L, which forms the only connection between the carriage and a steam-engine or other motor on the canal-boat to be propelled.

3. In a propelling carriage, which is set in motion by means of an endless rope or chain, forming the only connection between said carriage and a motor on board the canal-boat, the arm I, in combination with the traction-wheel F, spur-wheel F′, pinion J, and pulley J′, as a means of reversing the motion of the carriage, substantially as herein described.



190,975.

190,976. GATE-LATCHES. J. Neill, St. Joseph, Mo. [Filed Oct. 21, 1876.]



1. The combination, with the recessed catch-plate E, having the A-shaped foot-flange and the ribbed face-plate P, of the slide G and spring L, substantially as specified.

2. The latch-plate B, having the central recess *d*, in combination with the latch A and the journal-seat blocks, adapted to be inserted in said recess, substantially as specified.

190,977. MACHINES FOR MOLDING CLAY TOBACCO-PIPES. Jos. G. Oliver, Philadelphia, Pa. [Filed Nov. 3, 1876.]

Brief.—A rotary cylinder or table is provided with molds, hinged thereto, to open and close automatically. A clamp holds the molds during the operation of filling and molding. An injecting filling-plunger operates through the hopper and its spout adjacent to the bowl portion of the mold. The molding-plunger and the stem-borer are adjustable.

1. The combination, with a rotary cylinder or table, of one or more automatically opening and closing molds, which are hinged thereto and operated by sliding arms, which embrace and engage with the sides of the molds, substantially as and for the purpose set forth.

2. The hopper provided with a spiral conveyer and plunger, substantially as and for the purpose set forth.

3. An injecting-filling plunger, in combination with molds, substantially as and for the purpose set forth.

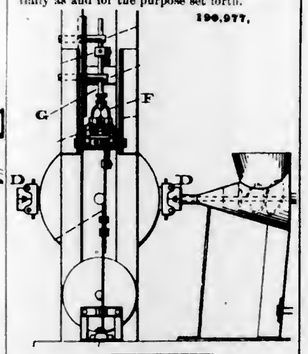
4. The combination, with the sectional molds D, of the clamp F, substantially as and for the purpose set forth.

5. The plunger made transversely adjustable by means of the movable bearings or guides T, substantially as and for the purpose set forth.

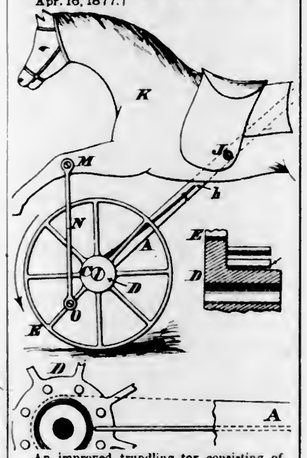
6. The plunger G, made adjustable angularly, horizontally, and vertically, substantially as and for the purpose set forth.

7. The boring-wire M, made adjustable angularly, horizontally, and vertically, substantially as and for the purpose set forth.

190,977.



190,978. TRUNDLE TOYS. H. P. Plum, Cincinnati, Ohio, assignor of one-half his right to H. Doane, same place. [Filed Apr. 16, 1877.]



An improved trundling toy, consisting of shaft A, driving-wheel C D E, connecting-rod N O, and imitation animal K, the latter being pivoted to said shaft at J, and having two apertures, L L′, for optional engagement of coupling device M, substantially as herein described, and for the purpose set forth.

190,979. FLOATING SIGNAL-LIGHTS. Richard Pintsch, Berlin, Prussia. [Filed Jan. 23, 1877.]

1. The combination of a buoy or floating recipient for compressed illuminating-gas with a lamp and a regulating apparatus, for reducing the pressure of the gas as it passes from the recipient to the burner, substantially as herein described.

2. An illuminating apparatus for floating lights, consisting of a recipient for compressed illuminating-gas, with charging-inlet closed by a valve, combined with a regulator and gas-burner, arranged and operating substantially as herein described.

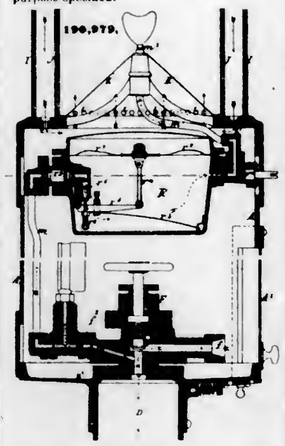
3. In a lantern for floating lights, the combination of the two concentric cylinders which surround the burner with the wind-guard *l*′ and perforated reflector K, substantially as and for the purpose specified.

4. In lanterns for floating lights, the concentric glass cylinders I J, secured with caoutchouc packing *k* in metal rings G H, having holes Z for the inlet of air, in combination with the hinged cover T and chimney S, arranged and operating substantially as herein described.

5. In illuminating apparatus for floating lights, the lantern H G I J, with burner *m*′, in combination with the closed casing A, containing the regulator K and charging-inlet F, communicating with the tube D, substantially as herein described.

6. In a lantern for floating lights, the combination of chimney S, and its conical piece and cap, with the wind-guard and the burner and its chimney, substantially as and for the purpose specified.

190,979.

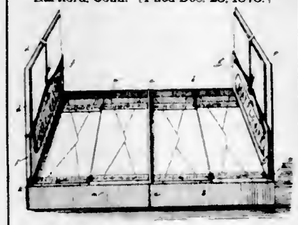


190,980. PAPER-BOXES. L. B. Plimpton, Hartford, Conn. [Filed Mar. 26, 1877.]



As a new article of manufacture, a box or package to contain paper and envelopes, consisting of a box, *a b*, for the envelopes, and a lid, *c*, provided with an interior pocket, *e*, made to contain sheets of paper, the sides or edges forming the pocket being adapted to enter within the sides of the box, and the outer portions of the lid beyond the edges 5 of the pocket to rest upon the walls of the box when closed, all being adapted to operate with relation to each other substantially as described.

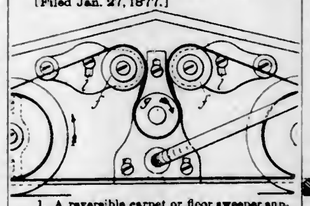
190,981. PAPER-BOXES. L. B. Plimpton, Hartford, Conn. [Filed Dec. 23, 1876.]



1. As a new article of manufacture, a portfolio-box for paper and envelopes, consisting of portions *a b*, centrally hinged together at *c*, and provided with lids *d e*, having pockets *f g* for the reception of sheets of paper, the lids and portions *a b* being arranged to operate together, and to fold at three places, substantially as described.

2. The combination, with the hinged boxes *a b*, of a hinged lid provided with an internal pocket, to operate substantially as described.

190,982. CARPET-SWEEPERS. E. T. Prindle, Aurora, Ill., assignor of one-half of his right to S. W. Thatcher, same place. [Filed Jan. 27, 1877.]



1. A reversible carpet or floor sweeper supported and carried upon four similar noiseless end wheels, each pair of which, by means of an endless belt passing over both wheels of such pair, and around a pulley at each end of the brush-shaft, operates to drive the brush, as shown and described.

2. The combination, in a reversible sweeper, having a dust-pan both at front and rear, of two pairs of rubber-tired wheels, which severally serve to support the box, and also as drivers to a brush located midway of such wheels, the tires avoiding noise, the brush and pans being adapted to perform their duties in either direction of the propulsion of the sweeper or revolution of the brush, and each pair of wheels transmitting power to the brush by means of a belt passing over both wheels of such pair, and around a pulley at the adjacent end of the brush-shaft.

3. The combination, with a carpet-sweeper running on four wheels, of two endless belts, each passing over two similar wheels, over intermediate guide-pulleys, and around a pulley on the brush-shaft.

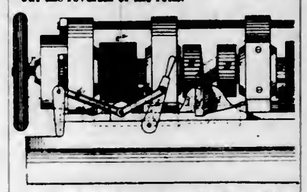
4. In combination with a carpet-sweeper, the belt-tightening and guide-pulleys *f*, each hung upon a slotted and pivoted adjustable plate, *i*, as shown and described.

5. The combination, with the vertically-adjustable roller-brush, of the four vertically-adjustable supporting-wheels.

6. The combination, with the vertically-adjustable roller-brush, of the vertically-adjustable supporting and driving wheels, and the adjustable belt-tightening pulleys, substantially as and for the purpose described.

190,983. MACHINES FOR ROLLING AND STRAIGHTENING CYLINDRICAL BARS OR TUBES. J. Reese, Pittsburg, Pa. [Filed Apr. 6, 1877.]

Brief.—By means of the hand-lever, and through the inclined slide under the rest, the operator is enabled to reverse the feed without the reversal of the rolls.



1. The combination of the conical disk-rolls, the movable rest, provided with guides, and the coupled movable inclines, substantially as described.

2. The combination of the conical disks E E′, provided with shafts journaled so as to be capable of end motion, with the screw F, bearing upon the ends of the shaft, and with the movable rest H, substantially as and for the purpose described.

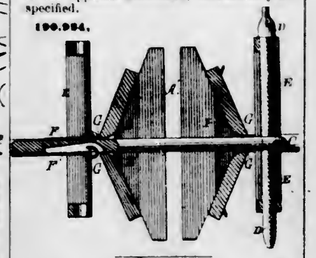
190,984. CAR-COUPLINGS. John D. Ross, Macon, Ga. [Filed Feb. 13, 1877.]

1. In a car-coupling, the draw-heads A′, consisting of the vertical sides and inclined central parts B B having curved edges G G, and provided with the rods I I, and rear frame provided with openings E E and coupling-pin D, in combination with the flat link A having an opening, C, at one end, and springs F at the opposite end, the several parts being constructed, arranged, and combined to operate, substantially as and for the purpose specified.

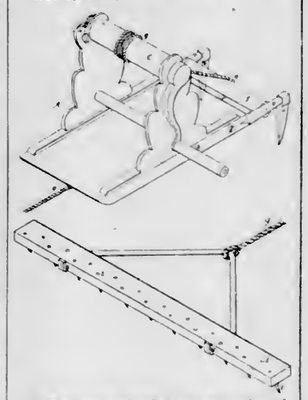
2. The flat link A, provided with the opening C at one end and the springs F F F at the opposite end, substantially as and for the purpose described.

3. The combination of the link A, provided with the springs F at one end and the openings C at the opposite end, with the jaws B B of one draw-head and the coupling-pin D of the opposite draw-head, substantially as specified.

190,984.



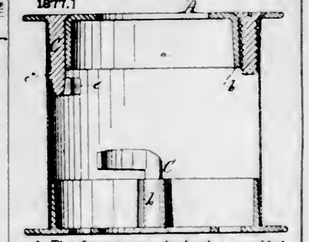
190,985. CARPET-STRETCHERS. Alonzo T. Safford, Pompey Centre, N. Y. [Filed Dec. 5, 1876.]



1. The combination, in a carpet-stretcher, of the frame A, arms *c c*, teeth *e e*, roller *f*, drum C, pawl and ratchet, and cord *g*, passing from the drum around the roller and beneath the frame to the griping-bar, as set forth.

2. The arms *c c*, carrying studs *e e*, and projecting rearward beyond the edge of the frame, to permit access to the edge of the carpet, as specified.

190,986. STOVE-PIPE THIMBLES. S. Selden, M. Griswold, Jr., and O. P. Hanchett, Erie, Pa.; said Hanchett assignor to said Selden and Griswold. [Filed Mar. 24, 1877.]



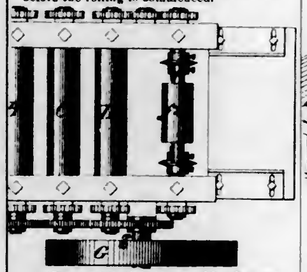
1. The flanges *a* on the head A, provided with the notches or semicircular indentations *b*, for the reception of the holding devices, for connecting the sleeve or cylinder with the head, substantially as and for the purpose described.

2. The flanges *a*, provided with the notches *b*, and sleeve or cylinder B, in combination with the pin C, or equivalent device, for holding said parts in position, substantially as described.

3. The pin C, provided with the spur or cam *c'*, in combination with the annular flange *a* on the head A, for the reception of the sleeve or pipe B, substantially as described.

190,987. SHEET-METAL-SEAMING MACHINE. John F. Starr, Jr., Camden, N. J. [Filed Mar. 21, 1877.]

Brief.—Series of press-rolls, arranged in pairs closer together from first to last pair. Adjustable feed-table and adjustable trimming-cutters, which may be arranged to trim before the rolling is commenced.



1. The combination, in a machine for seaming sheet metal, of a receiving-table and two or more pairs of press-rolls, whereby the sheets to be seamed are passed directly from one pair of rolls to the next, the rolls of each pair being placed relatively closer together in the direction of the feed of the sheets, substantially as set forth.

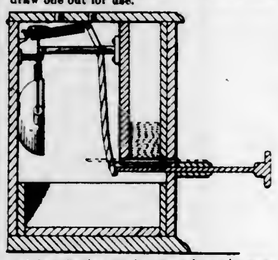
2. The combination, in a machine for seaming sheet metal, of a receiving-table, side guides adjustable transversely thereon, and a series of press-rolls, through which the sheets to be seamed are directly passed, substantially as set forth.

3. The combination, in a machine for seaming sheet metal, of a series of press-rolls, through which the sheets to be seamed are directly passed, and cutters adjustable transversely upon rotating shafts, substantially as set forth.

4. The combination, in a machine for seaming sheet metal, of rotating cutters, adjustable transversely upon their shafts, and a receiving or discharge table provided with adjustable side guides, substantially as set forth.

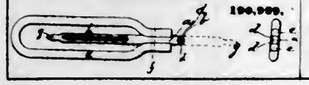
190,988. CHECK-REGISTERS. A. Stewart and Louis Von Hoven, Philadelphia, Pa. [Filed Aug. 22, 1876.]

Brief.—Check-boxes in a closed case have at their bottoms sliding rods, which push one check into the case as a record before they draw one out for use.



A box, having a plunger or lever, in combination with a check or ticket receptacle having outlets on opposite sides, and a passage for an engaging portion of the plunger or lever, whereby each check or ticket released will be registered by a counterpart check or ticket, substantially as and for the purpose set forth.

190,989.



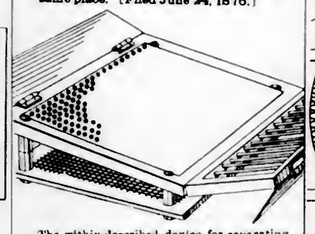
190,989. FINGER-NAIL CUTTERS. Richard W. Stewart, Boston, Mass. [Filed Feb. 10, 1877.]

1. A nail cutter, consisting of the metallic rod *a*, with its perforation *b*, beveled end *s*, and cutting-edges *d d*, as set forth and described.

2. The combination, with the metallic rod *a*, perforation *b*, end *c*, and cutting-edges *d d*, of the cleaner *g* and file *h*, as and for the purpose set forth.

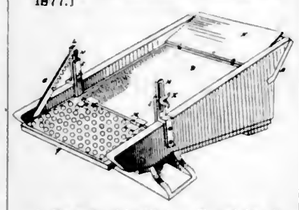
3. In combination, the hinged cutter-bar *a b c d d*, the cleaner *g h*, and the spring-wire handle *e*, as set forth.

190,990. GRAIN-SEPARATORS. C. A. Weed, Racine, Wis., assignor to J. I. Case & Co., same place. [Filed June 24, 1876.]



The within-described device for separating grain, seed, &c., consisting of the feed-board, the sieve, the tailings grate, and the tailings-chute, all hinged together in the order named, substantially as set forth.

190,991. GRAIN AND SEED SEPARATORS. C. A. Weed, Racine, Wis., assignor to J. I. Case & Co., same place. [Filed Mar. 12, 1877.]



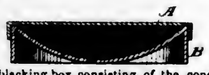
1. Sieve B, with tail-sieve F, rack-bar G, standards H and I, and pin L, all in combination, substantially as and for the purpose described.

2. Shoe A, sieve B, standards H and I, and nut K, all in combination, substantially as described.

3. The combination of sieves B and C, tail-sieve F, ratchet G, shoe A, standards H H and I I, and side-board N, substantially as and for the purpose described.

190,992. BLACKING-BOXES. J. H. Weeks, Lowell, Mich. [Filed Oct. 14, 1876.]

Brief.—The cavity that holds the blacking is concave, and is supported by the outer flange, which extends downward for the purpose.



A blacking-box consisting of the concave or rounded receptacle A, the rim or flange B secured to the edge of receptacle A, whereby the box has its sole support on the lower edge of the flange, substantially as and for the purpose set forth.

190,993. GRAIN-BINDERS. N. Werts and J. G. Gilmer, Concordia; said N. Werts assignor of one-fourth interest to G. W. Werts, Beloit, Kans. [Filed June 8, 1876.]

1. The twister F, consisting of a grooved cone, having the orifices of its grooves provided with cams *h h* and springs *i i*, substantially as shown and described, and for the purpose set forth.

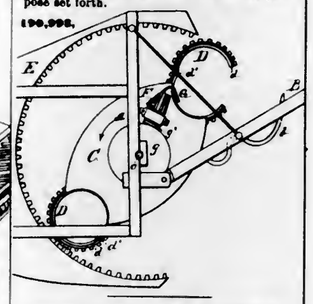
2. The twister F, composed of the double grooved cone and bow G, attached to a casing, *f'*, encircling the cone, substantially as and for the purpose set forth.

3. The disk C, having the cogged clamps D D, rotated by and in combination with the toothed or cogged segment E, substantially as and for the purpose set forth.

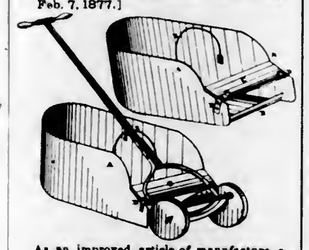
4. The disk C, having the cogged clamps D D and cogged or toothed segment E, in combination with the table B, having the curved lever or hook *b*, operating in conjunction with the disk C, substantially as and for the purpose set forth.

5. The twister F, having its axis provided with a gear-wheel, *g'*, cog-wheel *g*, and axis or shaft *c*, in combination with the disk C, having the cogged clamps D D and toothed segment E, substantially as and for the purpose set forth.

190,994.



190,994. LAWN-MOWER ATTACHMENTS. Alonso H. Wood, Toledo, Ohio. [Filed Feb. 7, 1877.]



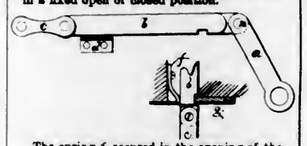
As an improved article of manufacture, a receptacle for cut grass, consisting of the sides A, bail E, bulk-head B, and dash-board C, provided with hooks D D, the several parts being constructed, arranged, and adapted for use in connection with a lawn-mower, substantially as specified.

190,995. PROCESSES FOR BLEACHING BEES-WAX. Homer T. Yaryan, Richmond, Ind. [Filed Apr. 3, 1877.]

The process of bleaching bees-wax, which consists in dissolving it by any of the volatile products of petroleum, or other known solvents, and exposing the same to sunlight in glass vessels, or in shallow vessels covered with glass, until the color is discharged, and then volatilizing by heat the solvent used.

190,996. SHUTTER-WORKERS. M. M. Zellers, Kent, Ohio. [Filed May 26, 1876.]

Brief.—The pointed or pivoted sliding bars attached to the shutters, and extending through the window-frame, are suitably notched, and provided with a spring, which is secured within the opening in the frame, and serves to automatically lock the shutter in a fixed open or closed position.



The spring *f*, secured in the opening of the window-frame, in combination with the shutter and links *a e*, notched link *b*, and catch *g*, whereby the spring serves to automatically lock the notched link *b* to the catch *g*, and thereby secure the shutter in a fixed open or closed position, substantially as and for the purpose specified.

190,997. PROCESSES OF ORNAMENTING CARD-BOARD. A. Adams and A. Bott, Albany, N. Y. [Filed Apr. 9, 1877.]

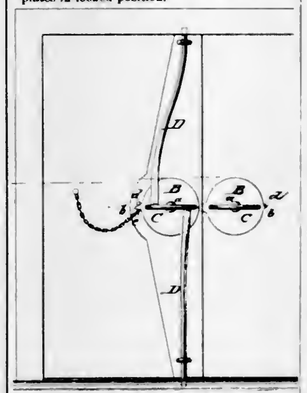
1. The process herein described of ornamenting card-board in imitation of the embossed card-board of commerce, consisting in printing thereon any desired design with a transparent or semi-transparent varnish in lieu of the colors or inks usually employed, substantially as and for the purpose specified.

2. The process of producing ornamental designs on card-board, consisting in first providing the surface or surfaces with a coating composed, essentially, of blanc fixe, Creamits white, and glue, or their equivalents, then printing the desired design in a transparent or semi-transparent varnish, and, finally, subjecting the surface so printed to the action of polishing-brushes, substantially as described.

3. As a new article of manufacture, ornamental card-board of any desired tint or ground color, having a design on its surface printed with a transparent or semi-transparent varnish in representation and imitation of embossing, substantially as described and shown.

190,998. DOOR-FASTENINGS. C. R. Arnold, Bloomingdale, N. Y. [Filed Oct. 23, 1876.]

Brief.—As an improvement on Patent No. 175,899, April 11, 1876, the barn-door fastening-disks are provided with eccentrically-pivoted sliding bolts, suitably guided, and projecting upward and downward to lock the inner of a pair of doors firmly in position. There are also suitable stop-pins and fastening devices to hold the lip or tongue of the disk-plates in locked position.



1. The combination of front and rear plates B, having handles or buttons C, and turning on a connecting center-bolt, *a*, passing through the door, with eccentrically pivoted and sliding lock-bolts D D, operated by the plates from either side of the door, substantially as and for the purpose set forth.

2. The combination of the turning front and rear plates B of a door, having handles or buttons C and lip or tongue extensions *b*, with fixed stop-pins *c d* and suitable fastening devices, substantially as set forth.

190,999. BRUSH-MACHINES. J. D. Baker, Burlington, Vt. [Filed Feb. 23, 1877.]

Brief.—Bristles, tampico, and analogous materials are carried forward upon a feeding-belt to a drum and wheel, and held and dressed by rotating combs and movable butters.

1. The feeding-wheels F and F', with corrugated peripheries, one of them revolving in stationary bearings, while the other is vertically adjustable, substantially as and for the purpose specified.

2. The combination of the vertically-adjustable feed-wheel F' with a bifurcated adjusting-lever, in the manner and for the purpose described.

3. In a machine for dressing tampico or other similar material, the combination of the feed-wheels, having corrugated peripheries, with a longitudinally-ribbed endless feed-belt, substantially as set forth.

4. The peripherally-corrugated feed-wheels and the longitudinally-ribbed feed-belt, in combination with the delivery-belt R and table S, as and for the purpose specified.

5. The combination, with a peripherally-grooved and vertically-swinging tension-pulley, of a centrally-ribbed feeding-belt, H, as and for the purpose set forth.

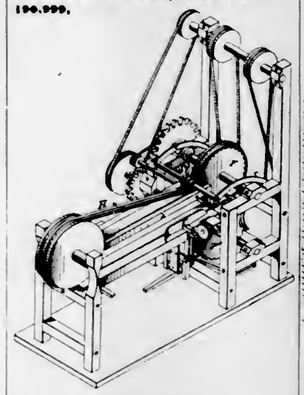
6. The feed-wheel F, in combination with the grooved and swinging tension-pulley K and feed-belt H, as and for the purpose described.

7. The horizontally-vibrating butters, provided with the pivoted pendants *m*, in combination with the cam A and its operating mechanism, as specified.

8. The horizontal lever *w*, in combination with the butters and their operating devices, as and for the purpose set forth.

9. In a machine for dressing tampico or other fibrous material, the combination of the following instrumentalities, viz: a feeding table, a centrally-ribbed feed-belt, the vibrating and movable butters, rotating scutchers, the peripherally-corrugated feed-wheels, the swinging tension-pulley, and a delivery-belt and table for taking away the dressed product of the machine, all the parts being constructed and arranged substantially as set forth.

191,000.



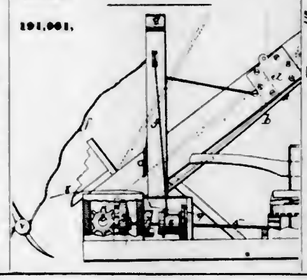
191,000. OIL-CAN SPOUTS. H. C. Campbell, Allegheny, Pa. [Filed Aug. 31, 1876.]

Brief.—Employs felting in a groove in flange of spout to insure a tight joint.



In combination with the head of a can, the spout C, having flange *c*, with the fastening device D, extending partly about the pouring-orifice, and having a recess adapted to receive the flange of the spout, and the covering-plate B, as and for the purpose shown and described.

191,001.

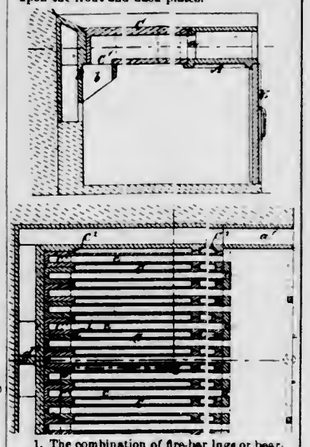


191,004. HAY-STACKERS. J. Chase, Langworthy, Iowa. [Filed Apr. 3, 1877.]

The combination of the driving-shaft 5, clutch 7, sliding drum 6, hay-fork r, ropes *f* 8, and the endless belt *b* and its driving-pinions 2 3, whereby the fork can be operated at the same time and by the same power as the belt *b*, or thrown out of gear at will, substantially as described.

191,002. FURNACE-GRATES. Casimir Deguine, Boulogne-sur-Mer, France. [Filed Apr. 11, 1877.]

Brief.—Air passes through a front hollow dead-plate into hollow grate-bars registering therewith; thence through said bars, the rear ends of which are closed, but open downward into the ash-pit through a rear divided chamber, also communicating with side flues, through which an additional supply of air is admitted. The ends of the grate-bars rest upon the front and back plates.

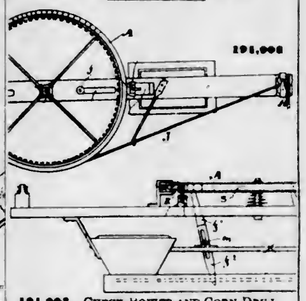


1. The combination of fire-bar lugs or bearers A B, having openings *a b*, and the hollow fire-bars C, receiving air at their front ends by the openings *a*, and terminating in downward openings C' at their rear ends, communicating by the openings *b* with the ash-pit, substantially as set forth.

2. The combination, substantially as hereinbefore set forth, of the ash-pit, the hollow fire-bars delivering the air downward into said pit at their rear ends, the side flues and the back flue by way of which the heated air passes to the ash-pit beneath the fire-bars.

3. The combination of the ash-pit, the side flues, and the rear flue, having a central partition and apertures at the sides of partition, to direct the heated air to the ash-pit in divided currents, substantially as set forth.

191,003



191,003. CHECK-ROWER AND CORN-DRILL. S. De Veaux and J. Rosser, La Fayette, Ind.; said De Veaux assignor to said Rosser. [Filed Jan. 20, 1877.]

Brief.—The operating-rope is passed around and held against the horizontal sheave by small grooved sheaves turning in spring bearings. The levers are each made in two parts, and each provided with slots for adjustment

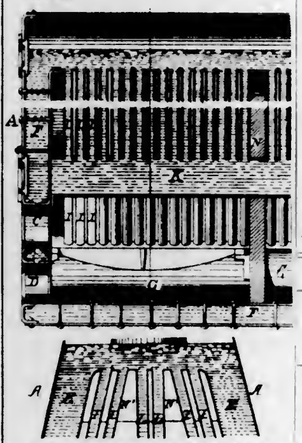
in length, the bolt that fastens them together forming the fulcrum. The upper end of each lever is provided with a roller, that is struck by cams on the horizontal sheave as it is revolved for actuating the seed-slide.

1. The combination of the horizontal sheave A of a check-rower, the rope J passing completely round the same, and the grooved sheaves P turning in spring-bearings and revolving in contact with the rope at opposite sides of the sheave A, as set forth.

2. The combination of the sheave A, fulcrum-bolts m, and levers, consisting of bars f f, having coinciding slots receiving the bolts m and clamped thereto, as and for the purpose set forth.

191,004. STEAM-GENERATORS. J. Firmenich and G. Firmenich, Buffalo, N. Y., assignors of one-third their right to F. Firmenich, same place. [Filed Apr. 4, 1877.]

Brief.—An auxiliary heating-chamber connects with the two water ends of the boiler, and connected to the crown-sheet by a series of tubes. The water-legs are provided with inner projecting protuberances, also connected with the crown-sheet, through which connections a free circulation of the water is provided for.



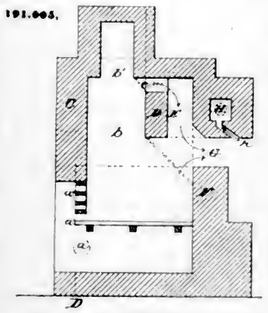
1. A steam-generator consisting of an exterior shell, A, having inwardly-protuberating parts, G, and a double series of straight heating-tubes, I, arranged obliquely, and connecting the parts G with the crown-sheet of the interior shell E, as set forth and described.

2. A generator in which the interior shell E is provided with an auxiliary heating-tube, K, attached to the front and back heads of the interior shell, and connected with the crown sheet thereof by a series of heating-tubes, L, as described, for the object stated.

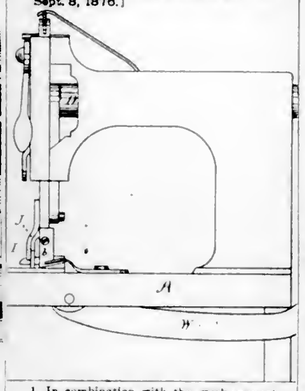
3. A steam-generator consisting of an exterior shell, A, an interior shell, E, having longitudinal inwardly-protruding parts G, connected with the crown-sheet by a double series of heating-tubes, I, and a heating-tube, K, also provided with heating-tubes L, the whole arranged as described, for the use and purpose stated.

4. A steam-generator consisting of an exterior shell, A, an interior shell, E, having longitudinal inwardly-projecting parts G, connected with the crown-sheet by a double series of heating-tubes, I, a heating-tube, K, provided with heating-tubes L, as described, said interior shell being divided by the wall or walls N N' into combustion-chambers, the rear one of which is in communication with the exterior through the flue P, the whole constructed and arranged as described, for the use and purpose set forth.

191,005.



191,006. MACHINES FOR CUTTING AND FOLDING LEATHER. John W. Lufkin and Richard H. Lufkin, Chelsea, Mass. [Filed Sept. 8, 1876.]



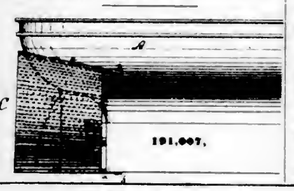
1. In combination with the work-supporting bed A and vertically reciprocating cutter *b*, arranged with the line of its edge at right angles to the line of feed, the shearing block T, arranged relatively to the cutter, as described, whereby the path of the cutter is coincident with the vertical face of the block, and the material is cut by the shearing action of the block and cutter, all substantially as described and shown.

2. In combination with a work-supporting bed, A, and a vertically-reciprocating cutter, *b*, of the reciprocating feed-bar J and presser-bar I, arranged to operate above the work, and to alternately act upon and recede therefrom, whereby it is alternately fed forward by bar J, and held in position by bar I for the action of the cutter, substantially as described and shown.

3. In combination with a cutting-blade, *b*, and a feeding and retaining mechanism, as described, of the folding-block U, and reciprocating fold-presser W, when arranged to operate relatively to and conjointly with each other, substantially as described and shown.

4. In combination with a vamp cutting and folding mechanism, an elastic or yielding reciprocating fold-presser, substantially as described and shown.

5. In a vamp cutting and folding machine, and in combination with mechanism for cutting, feeding, and folding the work, a device for automatically applying an adhesive material to the edge to be folded, substantially as and for the purposes specified.

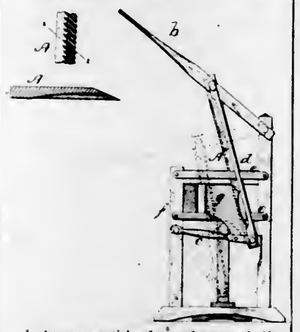


191,007. ADJUSTABLE GUARDS FOR SCREW-PROPELLERS. A. Marschall, New York, N. Y. [Filed Mar. 10, 1877.]

1. The combination of a propeller, B, with the perforated encircling shield C, which is entirely smooth on its inner side, substantially as and for the purpose herein shown and described.

2. The adjustable shield C, herein described, fastened to the body of a vessel, A, by means of rods *a* and eyes *b*, substantially as specified.

191,008. STRAW-CUTTERS. T. E. Marable, Petersburg, Va., assignor of one-half his right to J. C. Blake, same place. [Filed Mar. 30, 1877.]



1. As a new article of manufacture, a knife adapted for hay and straw cutting machines, having a wide thin blade, with one side flat and serrated and the other side beveled and smooth, and provided with means for attaching it at both ends to operating arms or levers, substantially as described.

2. The combination of the knife and operating arm *b* with the stiff rod or bar *d*, arranged outside of the knife-blade, substantially as described.

3. The combination of the knife A and the levers *b* and *c*, articulated to their supports on opposite sides of the knife, substantially as described.

4. The combination of the knife, levers *b* and *c*, and stiff bar *d*, substantially as described.

5. The combination of the levers *b* and *c*, the knife, the bar *d*, and the gage *g*, arranged between the bar *d* and the knife, substantially as described.

191,009. SLATE-FRAME ATTACHMENTS. K. F. Meyer, Auburn, N. Y. [Filed Apr. 2, 1877.]

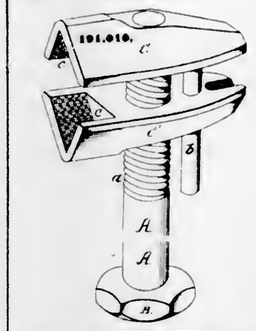


As a new article of manufacture, a slate-frame attachment consisting of a flat serrated base-plate, C, provided with a loop, *c*, the said plate and loop being made in one piece, and otherwise constructed substantially as described.

191,010. WRENCHES. J. P. Mitchell, New Bedford, Mass. [Filed June 15, 1875.]

As an improved article of manufacture, an adjustable wrench, consisting of the handle A, with disk B and screw-thread *a*, jaws C C', the latter being threaded and both having grasping-surfaces at each end, and provided severally with recesses *c d*, and the rod *b*, connected to the jaw C and passing through the jaw C', substantially as and for the purpose set forth.

191,010.



191,011. FENCE-BARBS. Aaron J. Nellie, Pittsburg, Pa. [Filed Mar. 15, 1877.]

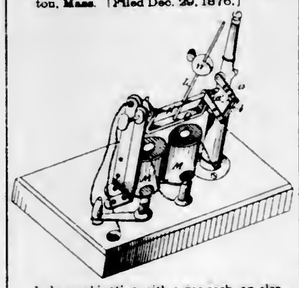
Brief.—The barb has a central opening, from which two lateral points extend, and can be placed upon a flat fence-rail, and made to grasp it by its spring-shoulders.



1. A spring-clamp fence-barb of flat, elastic metal, substantially as and for the purpose specified.

2. In combination with a fence rail or strip A, a detachable elastic metal spring-clamp barb B, substantially as and for the purpose specified.

191,012. OPENING AND CLOSING GAS-COCKS BY ELECTRO-MAGNETISM. D. M. Smyth, East Northwood, N. H., assignor of one-half his right to G. L. Ward, Boston, Mass. [Filed Dec. 29, 1876.]



1. In combination with a gas-cock, an electro-magnet, and a weight moved by said magnet, and operating to effect the opening and closing of the gas-cock by the force of the momentum which the weight acquires by its movement, substantially as and for the purpose set forth.

2. The combination, with the gas-cock, of the electro-maguet, the swinging armature, having the weighted arm, or its equivalent, attached thereto, and operating to move the cock, as described, and a device for breaking the circuit when the armature is fully attracted, and establishing the connections for giving reverse movement to the mechanism, substantially as and for the purpose set forth.

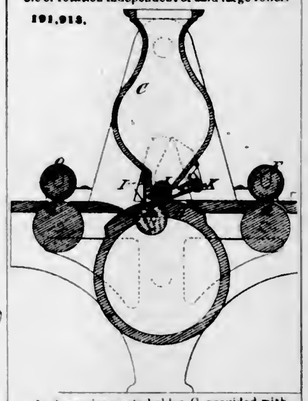
3. The combination, with the gas-cock, of the weighted arm and a lever attached to the gas-cock, substantially as and for the purpose set forth.

4. The combination, with the gas-cock, of the arm *a*, link *b*, arm *a'*, shaft H, arm I, adjustable weight W, armature O, electro-magnet M M, contact-arm *f*, circuit breaking and changing device, and the electric connections, substantially as and for the purpose set forth.

191,013. BAG-MACHINES. Edwd. Stanley, Brooklyn, N. Y. [Filed Dec. 30, 1876.]

Brief.—The bottom flap of a bag is pasted and creased by means of a creasing blade, paste-roller, and detaching-plate, all of which are secured to, and move with, the paste-reservoir, said creasing-blade acting against the periphery of a rubber roller located within a large revolving drum or roller, and being capable of rotation independent of said large roller.

191,013.



1. A moving paste-holder, C, provided with the paste-roller J, and the roller H, coupled to move coincidently, combined with a creasing-blade, I, attached to said holder C, and an elastic surface, L, attached to said roller H, but capable of motion corresponding with said blade, and independent of the motion of roller H, substantially as described.

2. A moving paste-holder, C, with the paste-roller J, combined with the detaching-plate K, pivoted to the outer side of said holder, and actuated in one direction by a spring, and in the opposite direction by contact with the roller H, substantially as set forth.

3. An automatic detaching-plate, K, pivoted to the paste-holder, and provided with an opening through which the paste-roller can protrude without touching.

4. The oscillating paste-holder, in combination with the detaching-plate K, pivoted to blocks on the outer side of the paste-holder, and the actuating-spring *e*, substantially as and for the purpose set forth.

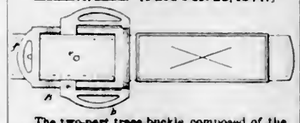
5. The oscillating paste-holder, in combination with the creasing-knife I, and elastic roller L, mounted within the periphery of roller H, substantially as and for the purpose set forth.

6. The creasing-blade I, in combination with the elastic roller L, substantially as and for the purpose set forth.

7. The creasing-blade I, in combination with the detaching plate K, elastic roller L, and main roller H, substantially as and for the purpose set forth.

8. The oscillating paste-holder C, in combination with the creasing-blade I, detaching-plate K, elastic roller L, and main roller H, substantially as and for the purpose set forth.

191,014. TRACE-BUCKLES. W. B. Walker, Mankato, Minn. [Filed Feb. 26, 1877.]

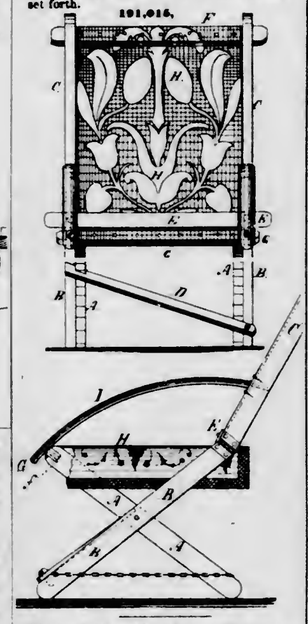


The two-part trace buckle composed of the hame-tog frame part A, having the cross-bars *a* and *c* and the side loops *b b*, with the interlocking part B shaped as shown, having at one end a cross-bar with the downwardly-projecting lug *d*, and at the other end a cross-bar and loop, *f*, the two parts co-operating and connected with the trace, as shown and described.

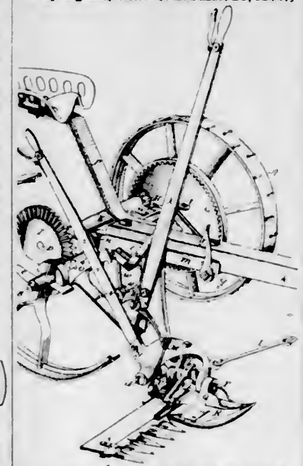
191,015. FOLDING ARM-CHAIRS. Wm. A. Webb, Brooklyn, N. Y. [Filed Sept. 29, 1876.]

The folded chair, comprising the pivoted crossed legs A B, the hinged back-bars C, the oblique leg-brace D, the cross-bar or top brace F, the brace E, the flexible fabric H, and front cross-bar G, and spring-arms I, arranged to spring into the socket H in the hinged side bar C of the back, the whole constructed and combined for use and operation substantially as and for the purpose herein set forth.

191,015.



191,016. MOWERS. William N. Whiteley, Springfield, Ohio. [Filed Mar. 26, 1877.]



1. The inner shoe B and inverted shoe M, united by a longitudinal joint coincident with the axis of the crank-shaft, combined with said crank-shaft, whose crank is in line with the cutting apparatus, and united with the cutters by a pitman, substantially for the purpose set forth.

2. The inverted frame or shoe M, connected with the shoe B by a longitudinal joint coincident with the axis of the crank-shaft, and to the frame of the machine by a transverse joint in the same plane as the longitudinal joint, but in rear thereof, combined with the vibrating frame of the machine, substantially for the purpose set forth.

3. The cutting apparatus and inner shoe R, jointed to and connected with the frame of the machine by means of the inverted frame or shoe M, having the transverse and longitudinal joints, as described, combined with the short crank shaft L, provided at its rear end with the universal or gimbal joint, as described, and for the purpose set forth.

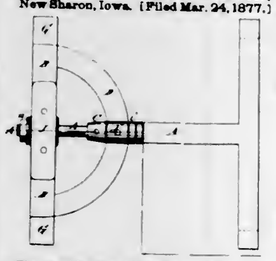
4. The vibrating frame, as set forth, and bifurcated at its free end to form the transverse joint with the inverted shoe M, and permit the universal or gimbal joint W to be placed and to operate in the line of the axis of said transverse joint, as set forth.

5. In combination, a crank-shaft in two parts, united by a universal joint W, and with the crank upon the shoe, in line with the cutter-bar, and inverted shoe or frame M, secured to the cutting apparatus by a joint concentric with the axis of crank, and to the vibrating frame *f* by a joint coincident with the transverse axis of the joint W, and a stripping-lever, N, and pivoted holding rack O, whereby the points of the cutters will rise or fall in an arc whose center is in rear of the finger-bar, and without a backward or forward movement during said rise or fall.

6. The cutting apparatus and vibrating frame, severally connected with the inverted shoe M by transverse and longitudinal joints, which coincidently intersect the intersection of the cross-axes of the universal joint W, combined with the tilting lever N and folding lever X, whereby said cutting apparatus is tilted upon an axis coincident with the intersection of the cross axes of the universal joint W, and folded upon the axis of the crank, and either of said movements effected without stopping the cutters.

7. The vibrating frame and foot-plate m, jointed together as shown and described, combined with the foot-lever u, and automatic latch r directly in front of said foot-lever, as and for the purpose set forth.

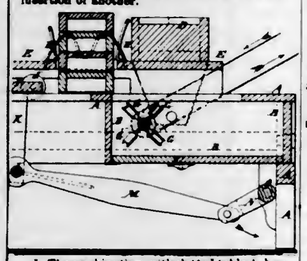
191,017. RUNNING-GEARS. M. Atwood, New Sharon, Iowa. [Filed Mar. 24, 1877.]



The combination of the rounded forward part of the reach A, the head-block B, the fifth-wheel D F, the forward axle G, the king-bolt H, the brace I, the collar C, and the saddle J with each other, in substantially the manner herein shown and described.

191,018. MACHINES FOR SANDING BRICK-MOLDS. S. W. Babcock, Haverstraw, N. Y. [Filed Sept. 2, 1876.]

Brief.—The bottom one of a pile of inverted molds is struck by the push-block into a chamber, where it is sanded by a revolving fan, and afterward struck out simultaneously with the insertion of another.

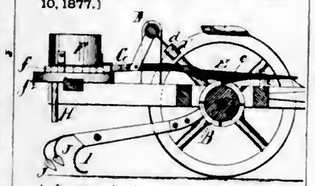


1. The combination, with slotted table A, box B, spouts C, bottom-inclined hopper D, and platform E, of the push-block I, provided with mechanism K L M N O, as shown and described.

2. The combination of the slotted mold-table A and a sand-box shaft, F, having paddles that pass during their rotations into said slots, as and for the purpose set forth.

3. The hopper D having its bottom inclined from the middle to a hole on each side, and connected by spouts C with the apertured sand-box B, to enable the sand to flow automatically from the former into the latter, as specified.

191,019. CORN AND SEED PLANTERS. H. F. Baker, Centreville, Ind. [Filed Mar. 10, 1877.]

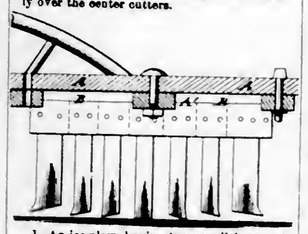


1. In a seed-planter, the combination of the axle B, carrying the ratchet-wheel *b* and the notched lever E, with the pawl G and rock shaft D, carrying the weighted lever *d*, as and for the purpose set forth.

2. The seeding mechanism, consisting of the hoppers F, revolving perforated bottom *f*, fixed perforated bottom *f'*, and spout H, in combination with the operating mechanism *b* E and D G, and opening and covering mechanism I J J, as set forth.

191,020. ICE-PLOWS. J. F. Behm, Omaha, Nebr. [Filed Mar. 19, 1877.]

Brief.—Two parallel rows of cutters symmetrically arranged with relation to the center cutter, and having handles pivoted directly over the center cutters.



1. An ice-plow, having two parallel rows of cutters, arranged symmetrically with relation to the center cutters, so as to cut two furrows in either direction the plow may be moving, without turning, substantially as specified.

2. An ice-plow, having two or more parallel rows of cutters, which are arranged symmetrically with relation to the center cutters, and are of decreasing length toward the end cutters, said cutters being provided with outwardly-inclined cutting-edges for gradually cutting the required depth of furrows, substantially as specified.

3. The combination, with the lateral cross-pieces of an ice-plow, of a centrally-pivoted beam, and the fastening end bolts, whereby the handles may be swung and secured to either end without reversing the plow, substantially as and for the purpose specified.

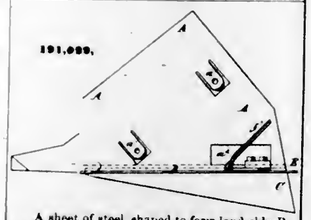
191,021. MILK-COOLERS. E. D. Bennett, Allegany, N. Y. [Filed Apr. 9, 1877.]



As an improvement in milk-coolers, a water-vat supporting a number of milk-pans on cross-stripes, and being provided with one or more detachable partition-strips, substantially in the manner and for the purpose set forth.

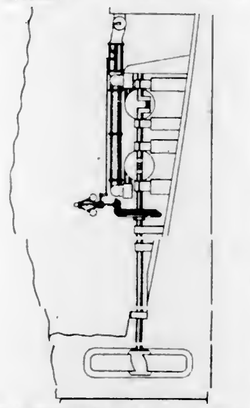
191,022. PLOWS. J. D. Bowen, Roseburg, Oreg. [Filed Sept. 16, 1876.]

Brief.—A sheet of steel shaped to form a share, land-side, and land-side share.



A sheet of steel, shaped to form land-side B and shares A C, the whole adapted to be connected with parts D E F G, substantially as shown and described.

191,023. MARINE-ENGINE GOVERNORS. W. A. Brice, London, England. [Filed Dec. 12, 1876.]

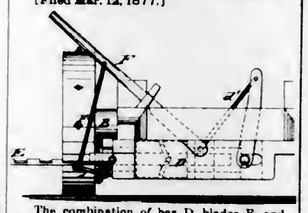


In a marine-engine, the combination of a two-part steam-pipe, or its equivalent, with a steam-valve, governor, and screw-shaft, with intermediate connecting and driving mechanism, substantially as described.

191,024. PROCESSES OF PREPARING AND PRESERVING CLAMS. H. W. Buttles, New York, N. Y. [Filed Mar. 2, 1877.]

The process of preparing and preserving clams by reducing them when fresh to a pulp in their own liquor, and desiccating the product, substantially as and for the purpose herein set forth.

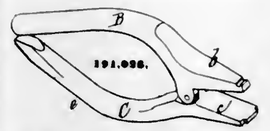
191,025. MOWERS. J. H. Cain, Cana, N. C. [Filed Mar. 12, 1877.]



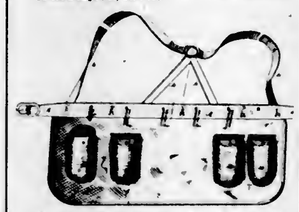
The combination of bar D, blades E, and hand-lever F, one of said blades being hinged to pin of bar D, and one connected by bail *d* with the hinged brace F', as and for the purpose specified.

191,026. TOOLS FOR TIGHTENING AND FASTENING STRAPS FOR SECURING HOSE TO COUPLINGS. J. A. Caldwell, Boston, Mass. [Filed Apr. 19, 1877.]

The within-described tool for tightening and fastening metallic straps used in securing hose to couplings, consisting of the levers B C, pivoted together, and having jaws *b c*, one being provided with a groove or projection and the other provided or not with a projection, constructed to operate substantially as described.

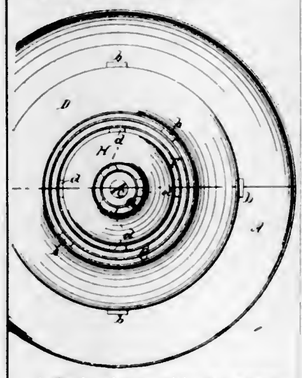


191,027. GAME AND CARTRIDGE BELTS. A. A. Case and E. W. Bedell, Chetopah, Kans. [Filed Apr. 2, 1877.]



The game and cartridge belt A, with the suspending-straps *b* and the hooks *a c* attached, and having the detachable flap A' suspended therefrom, provided with the ammunition-pockets B, substantially as herein shown and described.

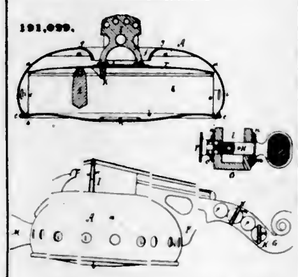
191,028. CLOTHES-WASHERS. J. W. Cheek, Asheville, N. C. [Filed Apr. 2, 1877.]



1. The funnel A, containing the perforated flaring part D, and the part E, the cylinder C, and piston F, having the perforated flaring-piece H and flange *f*, in combination, substantially as herein shown and described.

2. The removable handle I, having the flanged ferrule J, the spring K, piston F, cylinder C, and funnel A, having the tube B, in combination, substantially as herein shown and described.

191,029.



191,029. MUSICAL INSTRUMENTS. Michael H. Collins, East Medway, Mass. [Filed Apr. 30, 1877.]

Brief.—The instrument is of the violin class, and the changes are radical throughout. The screws have set-clamps. The body is circular. The sound-board has the grain of its wood running radially, and is free from the outer case, touching only the bridge and the back.

1. The sounding-board B, composed of the dome or top *r* and its annular supporter *e*, arranged as represented and described.

2. The circular case A, dome-shaped, and provided with the mouth or bridge-hole, and elevated around the same, all substantially as set forth.

3. The sounding-board top, composed of sectors or sections *s*, in whole or in part, as shown arranged, and having the grain of the wood of each disposed lengthwise, as described.

4. The sounding-board top, composed of a series of sectors or sections, *s*, arranged as shown, and provided with the disk or bridge-rest *t*, as explained.

5. The combination of the circular and dome-shaped case A with the sounding-board B, composed of the top *r* and the annular supporter *e* thereof, all arranged as set forth.

6. The disk-bottom *b* of the case, provided with the flange *c* and groove *d*, in combination with the dome-shaped top, and with the sounding-board, arranged with and applied to such bottom, substantially as represented.

7. The voicer L, arranged and combined with the sounding-board, as set forth.

8. The bridge composed of three layers, *w r w*, of wood, having their grain arranged substantially as explained.

9. The neck D, provided with the auxiliary hand-rest E, arranged between the head G and the main hand-rest F of each neck, as set forth.

10. The neck D, open at its lower end, and arranged to project over and rest upon the case-dome, and chambered, as represented.

11. The elongated chin-rest M, having its upper and lower edges substantially parallel, as set forth.

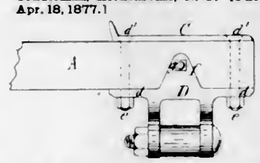
12. The head G, provided with the cross-braces *z*, arranged in its chamber *l*, and with reference to the straining-pins, all substantially as explained.

13. The straining-pin H, provided with the shoulder *m*, disk *o*, washers *n n'*, and clamp-screw *p*, and the head G, arranged as specified.

14. In combination with the dome-shaped top of the sounding-board, the curved brace K, arranged in the direction of, and under, the bass-string, as set forth.

15. The dome-shaped case, provided with the transverse braces *a' a'*, arranged in the crown and on opposite sides of the mouth of the dome, as described and shown.

191,030. PLATFORM-WAGON STEPS. C. Conderman, Hornellsville, N. Y. [Filed Apr. 18, 1877.]



1. The spring-coupling D, provided with horizontal flanges *d* and vertical flanges *f*, and secured to the bar A by bolts *e* and *g*, arranged at right angles to each other, substantially as and for the purpose hereinbefore set forth.

2. The combination, with the bar A, of the tread C and spring-coupling D, arranged respectively on the upper and lower sides of the bar A and connected thereto by the same bolts *e*, having their heads countersunk in the tread, substantially as and for the purpose hereinbefore set forth.

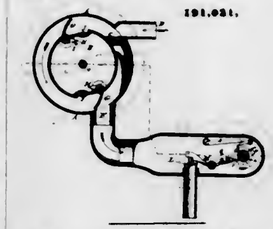
191,031. WATER-METERS. John H. Connell, Kanawha C. H., W. Va. [Filed Sept. 9, 1876.]

Brief.—The valve is opened wide by a sudden impulse, giving a full supply of water to the piston and buckets. The piston, with its hinged valves or buckets, is regulated by stationary and cushioned abutments.

1. The combination of the piston B, hinged valves G, cushions J, and stationary abutment C, as and for the purpose set forth.

2. The combination of the recess *a* with the pivoted valves G, arms H, and stop I, as set forth.

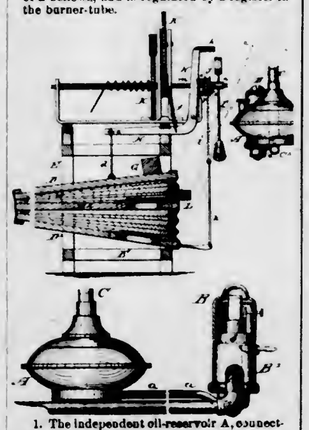
3. The combination, with the meter A B D E G, of a discharge-valve, L, opened by a sudden impulse, as explained, so as to prevent the retention of the valve in a slightly-open position.



191,031.

191,032. PNEUMATIC LAMPS. G. W. Cook, Chicago, Ill. [Filed Apr. 3, 1877.]

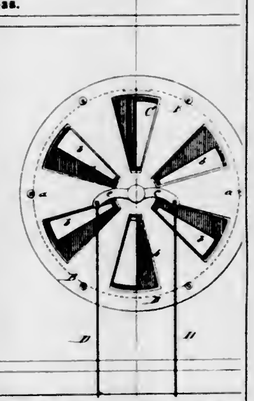
Brief.—Air is forced to the burner by means of a bellows, and is regulated by a register in the burner-tube.



1. The independent oil-reservoir A, connected to the burner B by means of pipe *e*, in combination with the air-pipe, C C', chamber B', and cut-off *b*, all constructed substantially as and for the purpose set forth.

2. The combination of the bellows D D', rod *d*, elbow-lever H, with stop *h*, pulley J, chain *i*, pendulum-lever I, clutch *p*, and gearing K, all constructed and arranged to operate substantially as and for the purposes herein set forth.

191,033.



191,033. VENTILATORS. Chas. E. Darling, Lewiston, Me., assignor of two-thirds his right to H. Free and J. E. Lydston, same place. [Filed Apr. 30, 1877.]

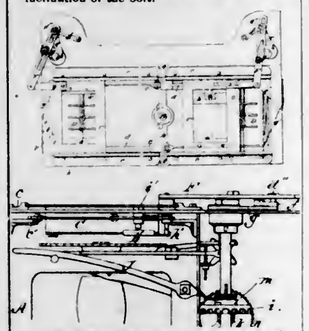
Brief.—This ventilator has radially-recessed face-disks clamped to the glass-frame, and having an intermediate pivoted disk, with corresponding recesses, that are set by a crank-lever and cords into a closed position.

1. The combination of radially-recessed face-disks, clamped to the glass pane with a correspondingly recessed inner disk that is centrally pivoted and adjusted between the same, to open or close the ventilator, substantially as described.

2. The combination of the recessed face-disks B, clamped to the pane, and inner disk C, having central pivot and crank arms, and operating-cords D, substantially as specified.

191,034. MACHINES FOR SAWING SHINGLES. Thos. H. Delaney, Angelica, Wis. [Filed Dec. 2, 1875.]

Brief.—The shingle-bolts are held by suitable dogs (one of which is automatic) in two carriages, (either of which may be thrown out of action independent of each other,) alternately reciprocating in shouldered guides supported in the top of the main frame. While being fed to a circular saw attached to a vertical arbor, the upper part of which is mounted in a rocking bridge-tree, the carriages have a rapid movement forward and a slow movement backward, and cease motion for an instant when at the outer ends of the frame, to allow the blocks which are then released to drop upon a tilting table, for changing the inclination of the bolt.



1. In a shingle-machine, a saw-arbor, B, having its lower end mounted in an adjustable bar, *a*, and its upper end mounted in a rocking bar, *b*, as shown.

2. In combination with the main frame, having its top cast in a single continuous piece, the shouldered carriage-guides *c*, applied to the top of the frame, with their shoulders *d* bearing against the inside of the same, as shown, whereby a solid unyielding support is provided for the carriages.

3. In combination with the sliding carriage C, the slotted vibrating arm F, crank *e*, eccentric A, eccentric yoke *g*, and swinging arm *f*, provided with the pivot pin or stud *g''*.

4. The combination, substantially as shown and described, of a sliding carriage, a crank and slotted arm for moving said carriage, and an eccentric arranged to move the fulcrum of the arm to and from the axis of the crank, for the purpose of advancing the carriage rapidly and retracting it rapidly.

5. The combination of the driving-shaft I, provided with the pinions *k*, the carriage-operating shafts G, provided with the loose wheels *i* and clutches *m*, and the two hand-levers J, arranged as shown, so that either carriage may be thrown out of action at will by the operator, standing at his post, without stopping the machine.

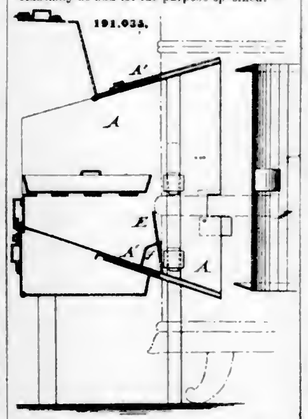
6. In combination with the cam *t*, the tipping table D, provided with the rigid arm *t'* and hinged arm *u*, connected by the screw *w*, as shown.

7. In combination with the sliding carriage D, provided with the studs *t'*, and the sliding dogs *b'*, provided with the studs *h'*, the pivoted bars *c'*, provided with the spring ends, slots *d'*, and inclines *e'*, and connected with each other by links *g'*.

191,035. BAKERS. L. Drew, Irving, Wis. [Filed Mar. 3, 1877.]

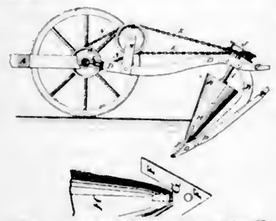
1. A baker or hose inclined bottom A' is provided with a deflecting-plate, E, connected therewith by side arms *f*, as and for the purpose set forth.

2. The detachable cover F, fitted by top, side, and bottom flanges to the baker, substantially as and for the purpose specified.



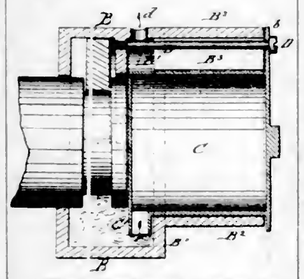
191,036. REVOLVING CONICAL MOLD-BOARDS. Chas. V. Dyer, Hallsville, Tex. [Filed Dec. 28, 1874.]

Brief.—Shovel-plow points, above which are fitted revolving conical mold-boards, set nearly vertical. They are geared from the axle, and revolved by the forward movement of the machine.



The combination of the endless chains K and N and the chain-wheels J L O with the spindles I of the cones H, with the plow-beams D, and with the axle B and wheels C, substantially as herein shown and described.

191,037. CAR-AXLE BOXES. R. B. Eason, New York, N. Y., assignor to himself and S. A. Allen, same place. [Filed Apr. 2, 1877.]



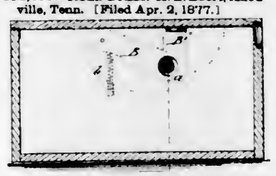
1. The combination, with a car-axle box, having cylindrical guide-extensions, of a revolving oil-receptacle, having exit-spout at its lower end in contact with the packing of the box, substantially in the manner and for the purpose specified.

2. The combination of the car-axle box B, having cylindrical extensions B' B³ and top channel B³ with a flanged revolving oil-receptacle C, having exit-spout C', passing in through the top channel, substantially in the manner and for the purpose specified.

3. The combination of the car-axle box B, having extensions B' B³ and top channel B³, with the extension-flange *b* of the oil-receptacle and fastening bolt D, to lock the oil-receptacle securely in position, substantially as specified.

4. The combination of the car-axle box, having extension B' B³ and top channel B³, with entrance-hole *d* of a revolving oil-receptacle, C, having exit-spout C', to admit filling of the same on withdrawing of fastening-bolt, substantially as specified.

191,038. CIGAR-BOXES. A. E. Ebert, Knoxville, Tenn. [Filed Apr. 2, 1877.]



1. The combination of a cigar-box, having a perforation in one of its sides for the insertion of the ends of the cigars, with a cutting-knife, B, operated by the cover, substantially as specified.

2. The combination of a cigar-box, having perforation and knife-guiding recess, and operated by the hand or cover, with a pivoted and spring-acted cigar-cutting knife, retained by a stop-pin in the recess, substantially in the manner set forth.

3. The pivoted and spring-acted cutting-knife B, arranged in a cigar-box, and having extension, with bent top or shoulder for depressing knife by finger or lid, substantially as described.

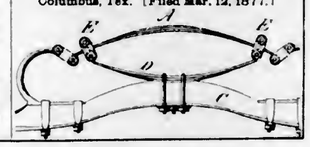
191,039. CLAMPS OR DEVICES FOR ATTACHING HOSE TO COUPLINGS. David T. Ellis, Ware, Mass., assignor to the Belknap Manufacturing Company, Bridgeport, Conn. [Filed Apr. 7, 1877.]



1. A hose-clamp consisting of a main strip with apertures in its ends, in combination with an auxiliary strip adapted to pass through the apertures of the main strip, with its ends projecting therefrom, to afford bearings for an instrument by which the clamp is applied, the ends of the auxiliary strip being bent over to lock the clamp in place, substantially as described.

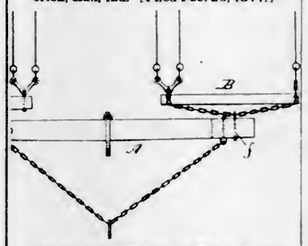
2. The combination, substantially as hereinbefore set forth, of the hose or pipe, a coupling or splice inserted therein, and a clamp to securely connect the hose and coupling together, consisting of a main strip with apertures in its ends, and an auxiliary forcing-strip passing through the apertures in the main strip, and having its ends bent over to lock the clamp in place.

191,040. VEHICLE-SPRINGS. F. W. Faber, Columbus, Tex. [Filed Mar. 12, 1877.]



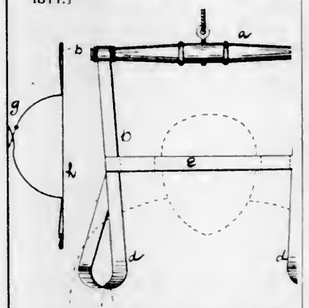
The combination of the spring D, yokes E, and the ordinary suspended spring A, substantially as herein shown and described.

191,041. DRAFT-EQUALIZERS. L. W. Frederick, Hall, Ind. [Filed Feb. 26, 1877.]



The combination of the whiffletree B, chain *e*, hook-bolt *f*, and main bar A, substantially as herein shown and described.

191,042. RESPIRATORY BRACES. George F. French, Portland, Me. [Filed Apr. 5, 1877.]



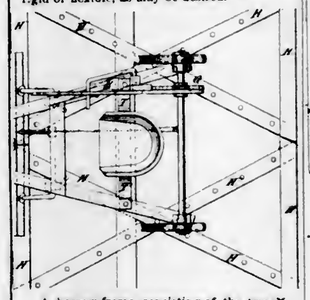
1. A respiratory brace or rest for invalids or others, as herein described, in which the body is supported in an upright posture by bands passing under the arms or armpits and around the head, the same being attached to a bar suspended over the user, as herein described.

2. The combination of the bar *a*, braces *b*, having loops *d* and cross-piece or head-band *e*, with an opening formed by the parts *g h*, the said cross-piece or head-band being adjustable on the braces *b*, as set forth.

3. The combination, with the bar *a*, of the elastic braces *b*, elastic or non-elastic cross-piece or head-band *c*, made adjustable to the wearer's head, and also to the braces *b*, as herein set forth.

191,043. SULKY-HARROWS. G. M. Furman, Laclede, Mo. [Filed Mar. 19, 1877.]

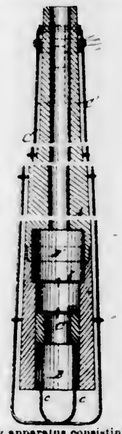
Brief.—A wheel-barrow having a frame divided into two parts, X-shaped, and united together with bolts and hinges, to be either rigid or flexible, as may be desired.



A harrow-frame, consisting of the two X-frames H H, rear-hinged at *h'* and bolted at the front through plate *h'*, as shown and described.

191,044. PUMPS. J. F. Furnas and W. W. Furnas, Dysart, Iowa. [Filed Sept. 16, 1876.]

Brief.—The piston is worked from the bottom of the pump by external rods, connecting with a hand-lever fulcrumed at the top of the pump.



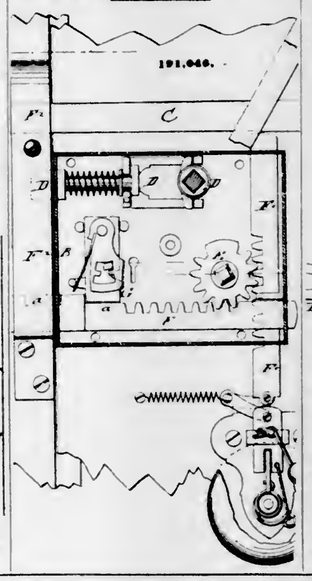
A pumping apparatus consisting of the cylinder A, having barrel B and chamber B', valved piston, the rods *c*, the outer rod C', and the lever D, all constructed and arranged as shown and described.

191,045. BUTTER-MOLDS. S. Giles, Patten, Me. [Filed Mar. 21, 1877.]



The improved butter-mold composed of the four end and side boards or plates A A B C, arranged and hinged together, and having handles *a a*, and a locking-tongue, D, and a hole, *c*, for its reception, all being substantially as set forth.

191,046.

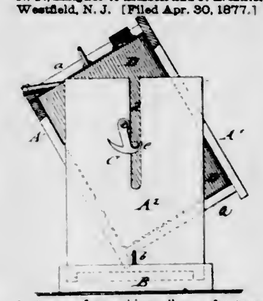


191,046. ALARM-LOCKS. G. W. Graham, Grand Junction, Tenn. [Filed Apr. 16, 1877.]

1. The combination of toothed bolts F F', arranged at right angles to each other, with an operating cog-wheel, E, and cross-bar C, for simultaneously withdrawing or locking bolt F and raising or lowering cross-bar C, substantially as and for the purpose set forth.

2. The combination of the toothed bolt F, having recess *a*, and toothed upright bolt F', with a key-bolt, G, intermeshing cog-wheel E, and cross-bar C, to retain lock and cross-bar in open or closed position, substantially as specified.

191,047. OIL-CANS. J. Graves, New York, N. Y., assignor to himself and J. L. Miller, Westfield, N. J. [Filed Apr. 30, 1877.]



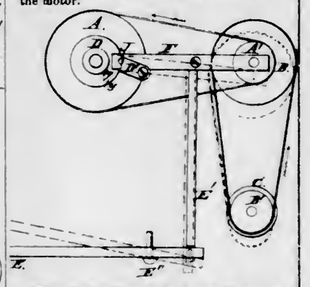
1. A case for packing oil-cans for transportation, consisting of an inner section, A', attached by top cross-strips to can, of a detachable outer section, A³, and of a lid, B, substantially in the manner described, and for the purpose specified.

2. The combination of the case A, having guide slots and pivot-hooks C, with side trunnions of the can to support the same in raised position for tilting, substantially as specified.

3. The combination of the can D, having side trunnions, outer section A³, having side slots, and pivot-hooks C, inner section A' attached to can, and lid B having staples for entrance of locking-hooks to secure case firmly to can, substantially as specified.

191,048. BROOM-WINDING MACHINES. J. Gray, Schenectady, assignor of one-half his right to Chas. E. Toll, Scotia, N. Y. [Filed Oct. 27, 1876.]

Brief.—A tilting frame carrying a shaft and the intermediate pulleys on its outer end can be raised at will to connect the mandrel with the motor.



The combination of the barrel H, having thereon pulley A, with pulley A' and belt X, pulleys B and B', and belt X', oscillating frame F, treadle E, and stem E', substantially as and for the purposes shown and set forth.

191,049. APPARATUS FOR ELEVATING LIQUIDS. Thomas Hanson, New York, N. Y. [Filed Oct. 9, 1876.]

Brief.—The admission of the liquid or motive agent is regulated by the float in the main cylinder acting upon the valve.

1. The combination of a main cylinder or vessel provided with induction and eduction passages, a float-piston or float and piston, and a valve controlled by said float-piston or float and piston, and regulating the admission of the motive agent, substantially as set forth.

2. The combination, with a main cylinder provided with induction and eduction passages, and a float-piston or float and piston, and valve controlled by the latter to regulate the admission of the motive agent, of a push-piece for completing the throw or stroke of said valve, substantially as set forth.

3. The combination, with a main cylinder provided with induction and eduction passages, and a float-piston or float and piston, and valve controlled by the latter to regulate the admission of the motive agent, of a stop for such valve, substantially as set forth.

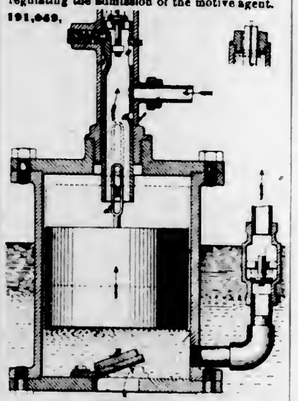
4. The combination, with a main cylinder provided with induction and eduction passages, and a float-piston or float and piston, and valve controlled by the same for regulating the admission of the motive agent, of a vent and a valve therefor, substantially as set forth.

5. The combination, with a main valve for regulating the admission of the motive agent to the main cylinder, of a guide for retaining its port in proper position, substantially as set forth.

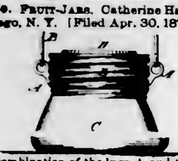
6. The combination, with a push-piece and stop for the main valve regulating the admission of the motive agent, of an adjustable and removable bearing-piece, substantially as set forth.

7. The combination, in an apparatus, substantially as described, for elevating liquids, of the slotted rod on the float-piston, and the pin with which it engages on the main valve regulating the admission of the motive agent.

191,049.



191,050. FRUIT-JARS. Catherine Hastings, Oswego, N. Y. [Filed Apr. 30, 1877.]

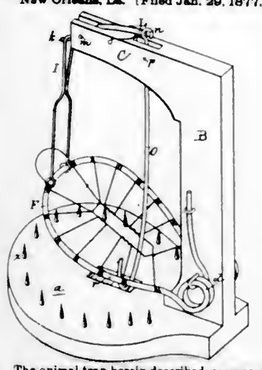


The combination of the lugs A and the wire bail B with the metallic screw-band E, that secures the glass cover D to the glass jar C, substantially as herein shown and described.

191,051. HARNESS-TUGS. C. Hauff, Ashland, Ohio. [Filed Apr. 9, 1877.]

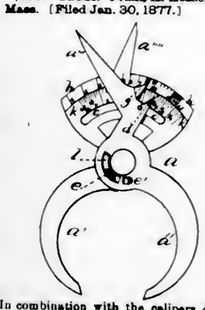
The combination, in a thill-carrier, of the ring A, strap B, and the wedge C, as shown and described, for the purpose specified.

191,052. ANIMAL-TRAPS. P. A. Herbert, New Orleans, La. [Filed Jan. 29, 1877.]



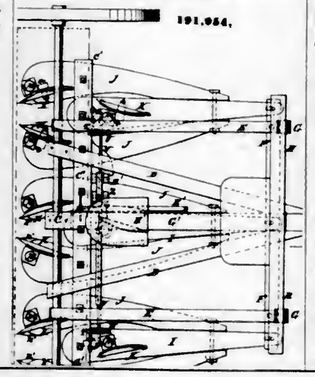
The animal-trap herein described, composed of a spiked platform, *a*, provided with a recess, *r*, and with an upright stem, B, on each side of which is secured the spring ends *d e* of a wire frame, F, which is furnished with a link, I, for engaging one end of a lever, L, that is pivoted in the beam C, so as to be operated by a trigger, O, as described, and for the purpose set forth.

191,053. GAGES. Frank K. Heese, Boston, Mass. [Filed Jan. 30, 1877.]



In combination with the calipers *a' a'' a''' a''''*, provided with the index-finger *d* and graduated scale *k*, the wire-gage *e e'*, attached to the legs *a' a''*, the former projecting through the slot *l*, the index-finger *g*, and graduated scale *h*, all combined and arranged substantially as and for the purpose herein described.

191,054.

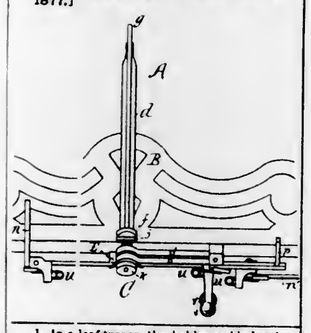


191,054. CORN-PLANTER AND GRAIN-DRILL. John L. Hill, Climax, Kans. [Filed Feb. 26, 1877.]

1. The combination of the recessed cylinders S, the gear-wheels T U, the rod V, the ratchet-wheel W, the push and the pull pawls X Y, the bar Z, and the lever A', as herein shown and described.

2. The combination of the seed-boxes M, the slides Q R, the brushes O, and the springs P, with the recessed hubs of the concaved rotary cutters K, and with the beams I J, substantially as herein shown and described.

191,055. LEAF-TURNERS. D. W. G. Humphrey, Chelsea, Mass. [Filed Mar. 31, 1877.]



1. In a leaf-turner, the holder or binder A, constructed with the binding-bar *g*, the pivoted back *d*, and the yielding pivoted support *e*, substantially as described and shown.

2. The leaf-turning device consisting of the pivoted arms *o o'*, the hinged leaf-guards P, and the weighted finger-bars *n*, all constructed and arranged to operate substantially in manner as described and shown.

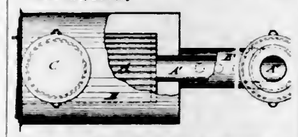
3. The combination of binder A, rack B, pivoted guards *n n'*, for securing the idle leaves, and the turning device, all substantially as described and shown.

4. In combination with the binder, as described and shown, the idle-leaf guards *n n'* and the leaf-turning device, as described and shown.

5. In a music or leaf turner, a series of weighted arms, *o o'*, when arranged to operate substantially as described and shown.

6. In a leaf or music turner, the combination of the series of weighted arms *o o'* and leaf-forks *p p'*, constructed and combined to operate substantially in manner as described and shown.

191,056. CAR-HEATERS. H. O. Huntington, Saginaw City, Mich., assignor to himself and S. S. Perkins, same place. [Filed Mar. 24, 1877.]



The case B, with apertures *a*, and the pipe B', with apertures *b*, each provided with a drum, C, in combination with a car furnace, A, having pipe A', as and for the purpose specified.

191,057. STONE-DRILLING MACHINES. F. Johnson, Toledo, Ohio. [Filed Mar. 3, 1877.)

Brief.—The cylinder carrying the drill-shaft is raised, turned, and dropped by means of the crank-shaft and the connecting mechanism. A pawl is used to hold the drill in an elevated position when desired. The upper end of the drill-shaft carries a weight, to increase the force of the stroke.

1. The combination of the bed-frame A, supported on adjustable feet *a*, and having perforated lugs *b*, with an adjustable truck-frame, B C, and locking cross pin *b'*, substantially as and for the purpose specified.

2. The combination of the guide-latch D D' of the bed-frame, formed of a fixed and an

opening bracket, having guide rollers *d d'*, with the drill shaft I, to guide the same and admit of its being taken out, substantially as shown and described.

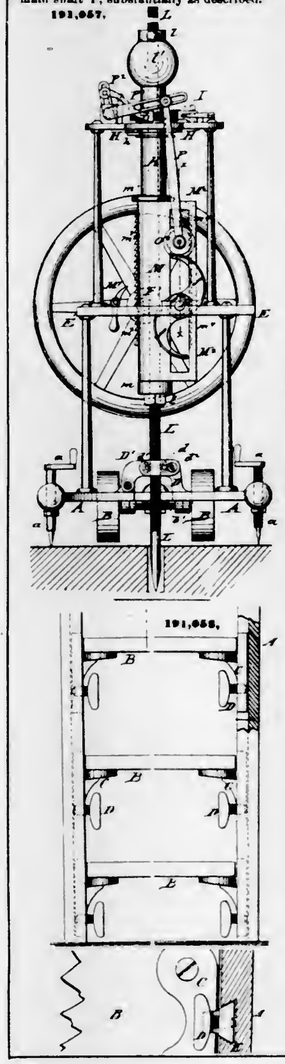
3. The combination of the drill-shaft I, inclosing cylinder K, and sleeve M, with adjustable lifting and axially-revolving mechanism, substantially as and for the purpose set forth.

4. The sleeve M, having slotted guide-frame M^3, with inner rack m^4, in combination with the trap-block O, lateral shaft O^1, having rollers O^2, swinging ratchet N, and with revolving cams *f*, to lock sleeve M for lifting the drill-shaft, substantially as specified.

5. The combination of revolving cams *f*, guide-frame M^3, having interior rack m^4, trap-block O, lateral roller-shaft O^1, swinging pawl N, pitman P, and slotted rock-shaft P^1 P^2, with fixed ratchet I of cylinder K, and pawls I^1 I^2, to revolve drill-shaft simultaneously with lifting of the same, and adjust number of strokes for each revolution, substantially in the manner and for the purpose set forth.

6. The trap-block having cushioning bottom block, to prevent concussion in dropping on main shaft F, substantially as described.

191,057.



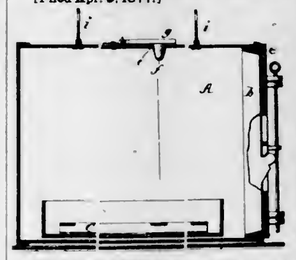
191,058. DEVICES FOR SUPPORTING SHELVES. F. G. Johnson, New York, N. Y. [Filed Nov. 24, 1876.]

Brief.—Each end of each shelf is provided with a metallic plate having a projecting vertical dovetail bar, adapted to slide up and down in a correspondingly vertical dovetail groove in the upright supports of the shelves. Thumb-screws hold the shelves in position.

1. The dovetail bar E, arranged to slide in the corresponding vertical and continuous groove in the upright A A, and provided with suitable projection C, to which the shelf B can be fastened, substantially as set forth.

2. The combination of the thumb set-screw D with the dovetail bar E, for securing the bar E at any desired point in the corresponding groove of the upright, substantially as described.

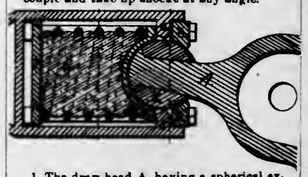
191,059. BAKING-PANS. Charles I. Kagey and Fred W. Stoneburner, Arcola, Ill. [Filed Apr. 9, 1877.]



The sheet-iron body A, having the rings *i* and ventilating-aperture *e*, the cast-iron frame *b* and door *c*, and the hinged cap *g*, having the projection *f*, in combination, substantially as shown and described.

191,060. CAR-COUPLINGS. S. N. Keith, Providence, R. I. [Filed Mar. 7, 1877.]

Brief.—The head has a universal joint, to couple and take up shocks at any angle.

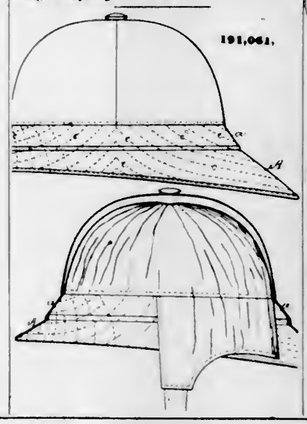


1. The draw-head A, having a spherical extension, B, forming a ball-and-socket joint, seated within the casing of, and bearing against, the spring S, substantially as and for the purpose described.

2. A draw-head having a ball-and-socket connection with a car-frame, to admit of coupling at any angle whatever.

191,055.

191,061.



191,061. HATS. H. Kuhlman, Boston, Mass. [Filed Mar. 21, 1877.]

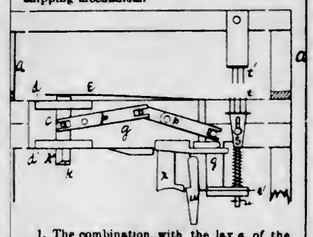
Brief.—The brim is strengthened and caused to maintain its normal position by running the rows of stitching crosswise instead of lengthwise and parallel with its edge. By reason of the short vertical rise or offset *a* of the brim A the latter may be readily turned up in front, rear, or entirely around, and retain itself in either position.

1. As an improved manufacture, a waterproof hat, as described, having the offset or rise *a* arranged or formed in its brim, such being substantially as and for the purpose specified.

2. A hat formed with an offset or rise, *a*, in its brim A, and with rows *c* of stitching arranged in such brim to cross the said offset, all substantially as explained.

191,062. FILLING STOP-MOTIONS FOR LOOMS. J. M. Linscott, West Buxton, Me. [Filed Feb. 6, 1877.]

Brief.—The fingers feel for the weft at each pick, and if it is present the carrier and its arm or pin are prevented from rising far enough to unlock the dagger. Should the weft be absent, the spring carries the fingers up between the upper series, and the carrier rises, and by its arm or pin releases the latch of the dagger. The latter then falls, and on the forward stroke of the lay operates the shipping mechanism.

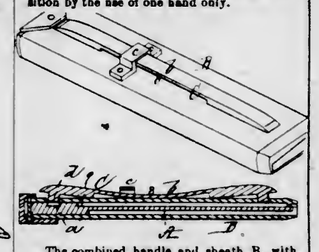


1. The combination, with the lay *a*, of the vertical spring rod or bar *c*, having faces *k* and *k'*, vibrating spring-arm *j*, toggle *p*, frame *q*, carrier *s*, pin *u*, arm *v*, hook *w*, catch or button *x*, and bent spring-arm *z*, as and for the purposes herein described.

2. The combination of the frame *q*, and mechanism for operating the same, with slotted carrier *s* and fingers *t* and *t'*, substantially as herein described.

191,063. COMBINED HANDLE AND SHEATH FOR POCKET-KNIFE BLADES, &c. D. Manuel, Readville, and Wm. T. Whitehouse, Boston, Mass. [Filed Sept. 26, 1876.]

Brief.—The claim very fairly points out the degree of invention—the tilting double spring-catch, held at or near its middle, allowing the blade to be slid in or out of the handle, serving as a sheath, and to be locked in either position by the use of one hand only.



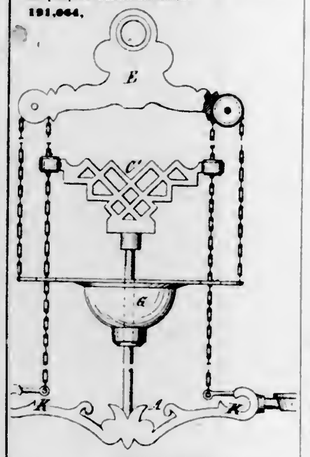
The combined handle and sheath B, with its double spring-catch C, held by a bridge, *c*, at or near the middle, so as to tilt each way, and provided at or near each end with a projection, *d*, engaging with the hole *a*, or its equivalent, in the blade A, constructed and operated substantially in the manner and for the purpose set forth.

191,064. ADJUSTABLE CHANDELIERS. R. Marsh, Flushing, N. Y. [Filed Mar. 14, 1877.]

1. The weight G, in combination with an adjustable chandelier having the guide-rod C and cross-bar C', substantially as and for the purpose herein set forth.

2. The adjustable chandelier having a guide-rod, C, rising up from the body A, its cross bar C', and weight G, and cross head E, when arranged and operated substantially as and for the purpose herein set forth.

191,064.



191,065. TOY MONEY-BOXES. Edward J. McLoughlin, New York, N. Y. [Filed Apr. 2, 1877.]



The flexible index *c*, secured to the shaft *a*, in combination with the dial E, having the pins *d*, substantially as shown and described.

191,066. BUNG-CUTTING MACHINES. P. Medart, St. Louis, Mo., assignor of one-half his right to F. Medart, same place. [Filed Jan. 17, 1877.]

Brief.—The squared blanks are held in a hopper formed of metal rods, having a light metallic casing at the top and bottom, and are fed by means of a double feed-slide formed in two parts, and connected together to a die having removable sleeves while being cut by a cylindrical cutter, the edge of which is provided with two projecting lips, which give a shearing cut with the grain of the wood.

1. The die D, having removable sleeves D^2, in combination with the cutter C, substantially as and for the purpose set forth.

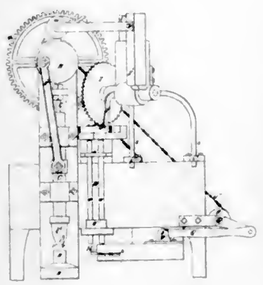
2. The feeding-slides F H, having a motion independent of each other, substantially as set forth.

3. The driving-shaft A, pulley *a*, chain G^1, and pulley *g*, in combination with the crank-shaft G^1, pitman G, and feed slide F H, substantially as and for the purpose set forth.

4. The hopper E, formed of bars *c*, substantially as and for the purpose set forth.

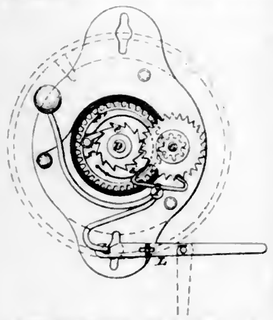
5. The vertical blank hopper E, having a cut-off saw, I, arranged at its upper end, and a feed-slide, F, at its lower end, in combination with the cutter C and die D, substantially as set forth.

191,067.



191,067. BURGLAR-ALARMS. Hiram J. D. Miner and Danl. T. Seeley, Dunkirk, N. Y. [Filed Apr. 23, 1877.]

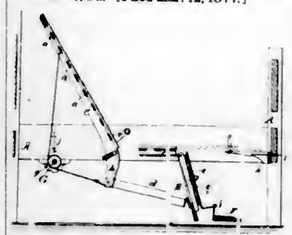
Brief.—The operating-lever is jointed, so that when the alarm is not to be used the jointed end may be turned back ont of the way of the door or window to which the alarm is attached.



1. The combination, with the bell and the main frame, of the shaft D, having detachable screw-threaded thumb-pieced, the threaded tubular sleeve *b*, and the nuts *c c*, substantially as and for the purpose described.

2. The combination, with the bell, the hammer-rod, and the pallet, in an alarm mechanism, of the hooked lever L, provided with a jointed section, arranged to be bent in one direction out of the way and to be rigid in the other, so as to permit the releasing of the alarm devices, substantially as described.

191,069. INVALID-BEDSTEADS. C. T. Moore, Renovo, Pa. [Filed Mar. 12, 1877.]

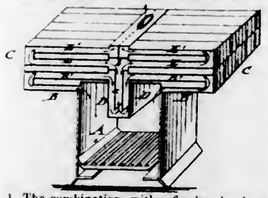


1. The combination, in an invalid-bedstead, of the pivoted frame C, having slats *a*, shaft G, drums *g*, notched wheels, and retaining-bolt *j*, substantially as herein shown and described.

2. The combination of the bedstead-frame A, fixed section B, pivoted frame D, step F, frame E, rods *d*, and frame C, substantially as herein shown and described.

3. The combination of the brackets *k*, cords *l m*, frame D, and bedstead-frame A, substantially as herein shown and described.

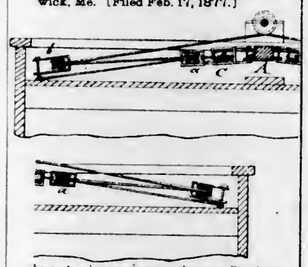
191,068. HEATING-FURNACES. S. W. Morgan, Winona, Minn. [Filed Apr. 16, 1877.]



1. The combination, with a fire-box having a number of primary radiating-pipes extending at both sides therefrom, of a smoke re-heating box at the interior of the fire-box, and of a supplementary series of heating-pipes back of or above the primary pipes, substantially in the manner and for the purpose set forth.

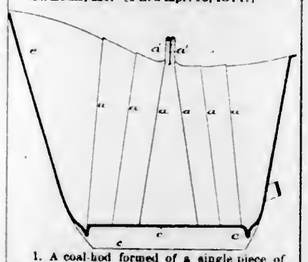
2. The combination of fire-box A, primary pipes B B', connected by pipes C', central re-heating-box D, having conducting or deflecting partitions, and supplementary exit-pipes E E', substantially in the manner and for the purpose set forth.

191,070. SURGE-RELIEVERS FOR STEERING APPARATUS. Robt. M. Mountfort, Brunswick, Me. [Filed Feb. 17, 1877.]



In a steering apparatus, the case C', pivoted between head A and blocks *a*, and connected by a central rod, *c*, with the tackling-block, in combination with a spring, *g*, arranged substantially as and for the purpose specified.

191,071. COAL-HODS. Edwd. F. O'Toole, St. Louis, Mo. [Filed Apr. 16, 1877.]



1. A coal-hod formed of a single piece of sheet metal, having the crimps *a a a*, substantially as described.

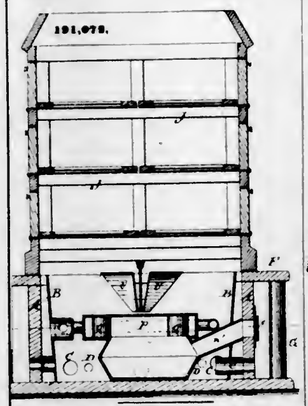
2. A coal-hod formed of a single piece of sheet metal, having the crimps *a a a a* and *c*, substantially as described.

3. A coal-hod formed of a single piece of sheet metal, having the crimps *a a a* and rectangular bottom *c'*, substantially as described.

191,072. FRUIT-DRIERS. W. S. Plummer, Portland, Oreg. [Filed Feb. 17, 1877.]

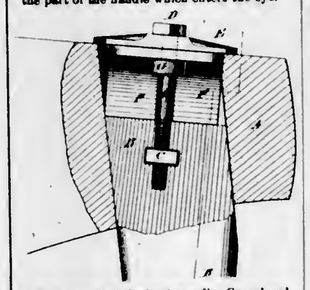
The combination of the fire-box N, drum P, pipes Q, and coil S with the lower case A, provided with the lining B, pipes C, and holes D, the continuous platform F, the upper case H, provided with the posts I, the slides J, and the doors L, and the cover M, substantially as herein shown and described.

191,073.



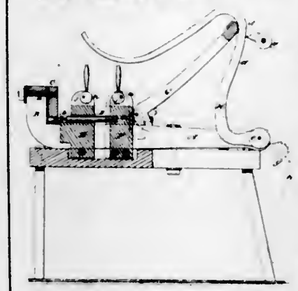
191,073. TOOL-HANDLES. L. H. Roberts, Morley, Mich. [Filed Mar. 19, 1877.]

Brief.—The tool is attached to the handle by means of a slotted wedge having a rabbeted cap-plate, through which passes a screw-bolt provided with a rigid collar, which works in an enlargement of the slot in the wedge, and a nut loosely fitted in a transverse mortise in the part of the handle which enters the eye.



The screw-bolt D, having collar G, and end nut C, in combination with the handle B and wedging device E F, constructed as shown and described, for the purpose specified.

191,074. MACHINES FOR PUNCHING METAL. A. Robertson, Blanchardsville, Wis., assignor to himself and H. B. Mason, same place. [Filed Oct. 30, 1876.]

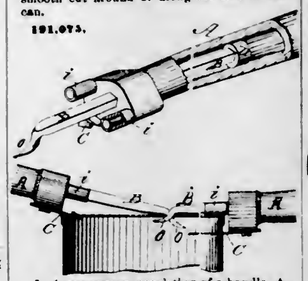


The combination of the curved lever H, cam-lever G, friction-roller *g*, movable block F, follower D, guide E, and bed A, substantially as shown and described.

191,075. CAN-OPENERS. R. H. Rose, Liverpool, England. [Filed May 2, 1877.]

Brief.—A cutting-blade is arranged parallel with the axis of the handle, and there is a sliding rod with curved point, which serves as the pivot, the rod being telescoped within the handle. There are also upon either side of the cutting-blade friction-rollers, serving as guides to bear upon the top of the can, the construction permitting the cutter to approach or recede from the pivot, and thus cut circles or openings of various sizes with a true and smooth cut around or along the side of the can.

191,075.

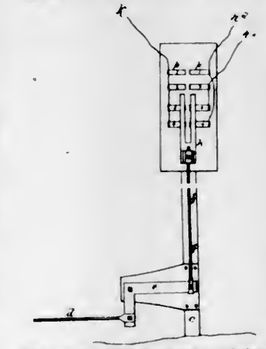


1. A can-opener, consisting of a handle, A, provided with the loose rod B, having a curved point, *o*, and a cutting blade, C, all combined to operate substantially as described.

2. In combination with the handle A, provided with the curved point *o*, the blade C, arranged in a plane parallel with the handle, whereby said blade may be made to operate on the side of the can, while the point *o* rests in the top thereof, substantially as shown and described.

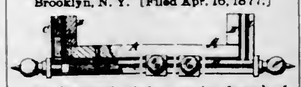
3. A can-opener provided with the rollers *i*, or their equivalents, arranged to operate as guides to the blade in the act of cutting, substantially as set forth.

191,076. CIRCUIT-CLOSERS FOR ELECTRO-MAGNETIC RAILWAY-SWITCH SIGNALS. H. N. Rowell, Concord, N. H. [Filed Mar. 22, 1877.]



The combination of the switch *a*, switch-rod *b*, connecting-rod *d*, post *c*, crank *e*, rod *f*, circuit-closer *k*, plates p^1 p^2 p^3 p^4, battery-wire *k*, and signal-wires a^4 and a^5, adjusted and operating as and for the purposes above set forth.

191,077. WINDOW-CORNICES. S. Sargeant, Brooklyn, N. Y. [Filed Apr. 16, 1877.]



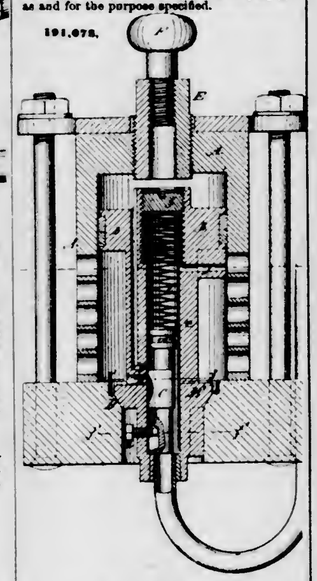
An improved window-cornice formed of horizontal metal tubes C and vertical metal tubes E, halved to each other and secured to the foundation-boards A B by screws passing through the said boards, through the inner sides of said tubes, and into blocks or strips of wood driven into the tubes, said tubes being provided with knobs F on some or all of their ends, substantially as herein shown and described.

191,078. SAFETY-VALVES. Frank B. Scovell, Waterford, Ontario, Canada. [Filed Apr. 23, 1877.]

1. The combination of sliding valve C and tube, having piston head *d*, with the tubular stem *c*, having vertical and lateral passages *g h*, opening interiorly at contiguous points, to admit of communication with the valve, the piston B, valve B', spring *e*, and laterally-perforated cylinder A, all as shown and described, to operate as specified.

2. The combination of the adjustable tubular screw E and its removable plug F with the cylinder and the piston B, as shown and described, for the purpose of facilitating access to, and adjustment of, the screw-plug *f*, as and for the purpose specified.

191,078.

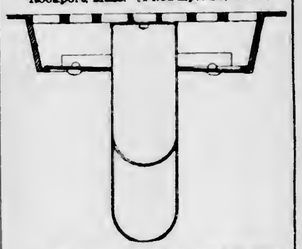


191,079. NUT-LOCKS. Edwin R. Shepard, Philadelphia, Pa. [Filed Oct. 2, 1876.]



A nut-locking device consisting of a metal washer, A, provided with a socket to receive the nut C, and having seats to receive and support the corners of the nut, and with a central recess for the elastic washer, B, in combination with an elastic washer, B, arranged in said recess, and of such thickness that it may be compressed by the screwing up of the nut, substantially as set forth.

191,080. HOT-AIR REGISTERS. L. B. Smith, Rockport, Mass. [Filed Apr. 24, 1877.]



1. The combination of the hot-air register with an evaporator fixed to it, and extended up within it and between its valves, all substantially as set forth.

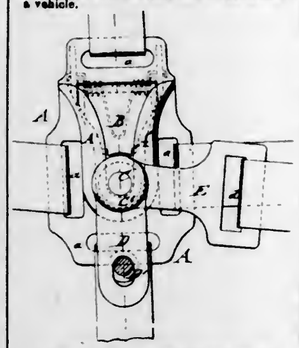
2. The combination of a hot-air register with an evaporator fixed to it, and extended

up between its valves and aside of their operative slide, all being essentially as shown and described.

3. A hot-air register provided with valves and intermediate bearings for another valve, and with an evaporator extended up within the said register and between its valves, all substantially as explained and represented.

191,081. APPARATUS FOR ATTACHING HARNESS TO THE SHAFTS. W. C. Smith, New Haven, Conn. [Filed Mar. 24, 1877.]

Brief.—The socket, in connection with the spring-acted locking-dog, is adapted to readily receive and securely hold a button that is connected, by a metal trace piece, to the trace, and by a loosely-swinging link to the shaft of a vehicle.

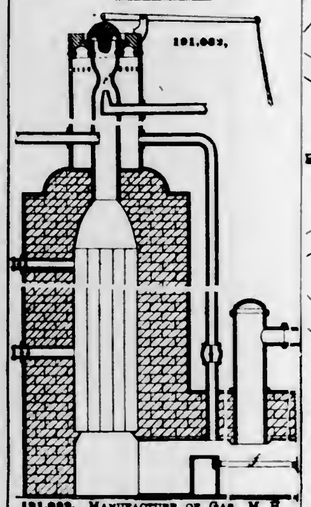


1. The combination, with a socket and locking spring dog attached to the harness, of a button connecting with a trace and the shaft of a vehicle, as shown, for the purpose and in the manner set forth.

2. The combination of a socket, having open and spreading top part, and a hinged and spring acted dog, fitting into the open part, with a hitching-button, of a trace-jointing piece, and with a loose pivot-link of the shaft, substantially in the manner specified.

3. The combination of trace-jointing piece E, having button C, stud *b*, and head C', with loosely turning and swinging link D, and bolt D', of shaft, to form connection of shaft and trace ready for hitching, substantially as set forth.

191,082.

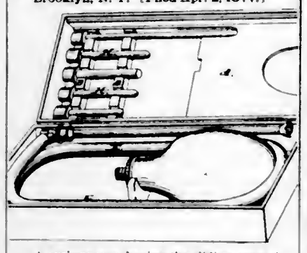


191,082. MANUFACTURE OF GAS. M. H. Strong, Brooklyn, N. Y., assignor to L. W. Serrell, trustee for said Strong, S. Cornell, H. M. Pierson, and W. B. Lawton. [Filed July 26, 1876.]

Brief.—The oil to be decomposed is fed upon the fire-clay tubes placed vertically in the retort, and heated to a decomposing temperature. The gas produced here (nearly pure hydrogen) is passed over the fire-grate and through the hopper above, both containing bituminous coal, where it is carbureted and fitted for illuminating purposes. When the retort becomes cooled below a decomposing temperature, the oil is shut off, the drafts opened, and air admitted, producing combustion of the deposited carbon, thus consuming it, and reheating the retort to a decomposing temperature, when the process is repeated.

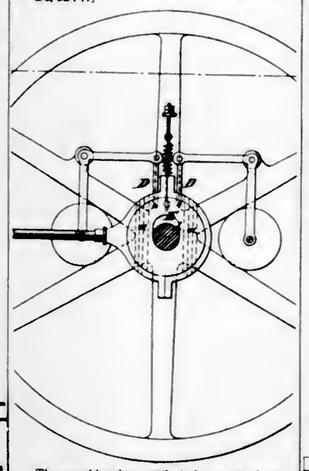
The herein-described process of manufacturing illuminating-gas, which consists in subjecting the hydrocarbon to a high degree of heat, whereby the carbon will be deposited within the retort, and carbureting the resulting gas by passing it through incandescent carbon, and, subsequently, to make the process continuous, reheating the retort by the combustion of the carbon deposited from the liquid and the incandescent coke, substantially as set forth.

191,083. SYRINGE-CASES. B. F. Sutton, Brooklyn, N. Y. [Filed Apr. 2, 1877.]



A syringe-case having the sliding cover A, moving in grooves within the box, and, when closed, holding the tubes H H in place, substantially as described.

191,084. GOVERNORS FOR STEAM-ENGINES. H. Tabor, Corning, N. Y., assignor to B. W. Payne & Son, same place. [Filed Mar. 24, 1877.]

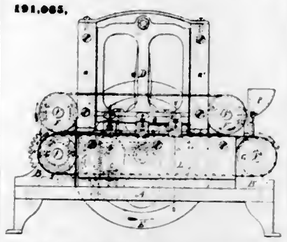


The combination, with balance-wheel, eccentric, and links D, of the spiral spring, arranged between links, and attached directly to the eccentric at one end, and to balance-wheel at the other, as shown and described, in order that lost motion may be avoided by dispensing with a yoke or other intermediate connection.

191,085. MACHINES FOR STRAIGHTENING SEWING-MACHINE NEEDLES. R. Thompson and P. M. Beers, Bridgeport, Conn. [Filed Apr. 30, 1877.]

Brief.—The surface of the long anvil-block is slightly convex transversely, straight or level along the edge next to the carrying-belt, but curved convexedly along the opposite edge. It thus presents a twist, greatest at the end upon which the needle first enters, but diminishing toward the other end, and terminating there in a flat level surface; and of this anvil-surface the surface of the reciprocating hammer-block is but the counterpart. The needles, extending across and between these two blocks, are slowly carried by the chain, and at the same time rotated by the belt.

191,085.



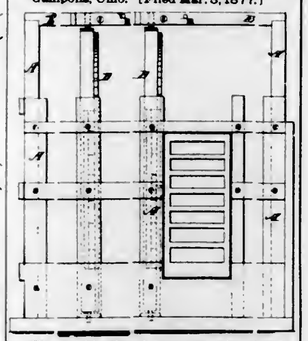
1. The combination of the convex block M, mechanism for transferring the needle-blades over and along the working-surface of said block from end to end, and a reciprocating hammer-drop, substantially as described, for the object set forth.

2. In combination with the reciprocating frame D and straightening-block M, the block O, secured to the lower edge of said frame, and having the working-surface concave in form, and gradually diminishing in concavity from one end to the other, so as to conform to the convex working-surface of said straightening-block, and operating substantially as described, for the object set forth.

3. In combination with the feed-belt *g*, belt *h*, rest *i*, shafts *f f'*, and gear-wheels K K', the ratchet-wheel I, lever H, and cam J, all arranged substantially as shown, for the purpose of feeding and intermittently revolving the needle-blades over the working-surface of the straightening-block, for the object set forth.

4. The combination of the straightening-block M, block O, reciprocating frame D, feed-belt *g*, belt *h*, rest *i*, shafts *f f'*, gear-wheels K K', ratchet-wheel I, lever H, cam J, and driving-shaft *b*, all constructed and arranged substantially as shown, and for the object set forth.

191,086. CATTLE-STALLS. E. H. Waddell, Gallipolis, Ohio. [Filed Mar. 3, 1877.]

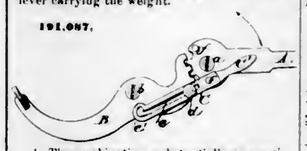


The combination, in a cow-stable, of the frame A, pivoted side gates D, cross-beam E, and floor-steps, the gates being pivoted in cross-beam and steps, and between the front and rear ends of the stalls, substantially as and for the purpose specified.

191,087. LIFTING-LEVERS FOR HARVESTERS, &c. H. Wells and H. L. Wells, Manchester, Iowa, assignors to H. L. Hopkins, same place. [Filed Apr. 24, 1877.]

Brief.—Two levers act on each other by means of a connecting-link permanently pivoted to one of the levers at a point some distance from the fulcrum, and adapted to engage the other when the sweep of the one to which the power is applied is about being completed, so that the return stroke of the latter will continue the lifting action of the lever carrying the weight.

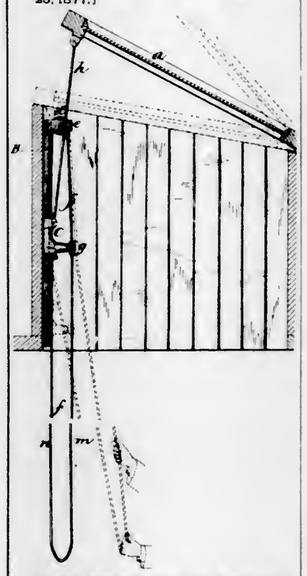
191,087.



1. The combination, substantially as specified, of two levers acting on each other, and a link permanently and eccentrically pivoted to one of the levers and adapted to engage the other eccentrically also.

2. The combination, substantially as specified, of lever A, provided with stud *f*, lever B carrying stud *d*, and the slotted link C *e e'*, pivoted to lever A.

191,088. SKYLIGHT LIFTER AND LOCK. J. F. Wollensak, Chicago, Ill. [Filed Apr. 23, 1877.]



1. The sliding block C, carrying the spring locking-bolt *g*, in combination with the fixed guide-bar B, connecting rod or rods A, and the operating cord or cords *f*, substantially as described, for the purpose specified.

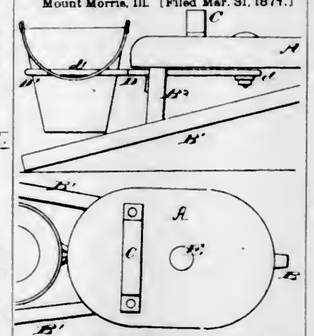
2. The combination of the operating cord *f* with the spring locking-bolt *g* and the sliding block C, to which the sash is connected, arranged as described, so that the act of pulling the cord backward shall disengage the locking-bolt from the bar B, and a continued downward pull upon the same cord shall raise the sash, substantially as described.

3. The combination of the pulley *d* with the fixed guide-bar B, and the operating-cord *f*, connected to the sliding block C, and passing downward through the locking-bolt *g*, substantially as described, for the purpose specified.

191,089. CASE-HARDENING MALLEABLE-IRON CASTINGS. A. F. Andrews, New Haven, Conn. [Filed Nov. 8, 1876.]

The within-described process of preparing steel-surfaced malleable-iron castings, which consists in treating iron castings, at high temperatures, first with hydrogen, and then with bones saturated with cyanide of potassium, or with sal-ammoniac, as herein specified.

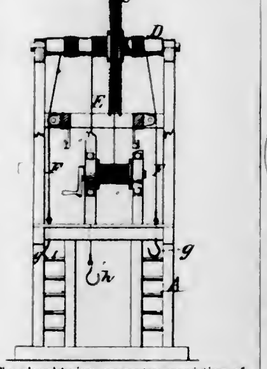
191,090. MILKING-STOOLS. Elijah Avey, Mount Morris, Ill. [Filed Mar. 31, 1877.]



1. The milking-stool herein described, consisting of the seat A, provided with the handle C, leg B, having attached thereto the inclined diverging legs B', transverse slotted block B', and pivoted pail-holder D, substantially as and for the purpose set forth.

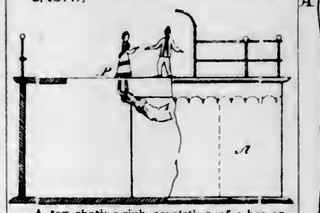
2. The combination, with a milking-stool, of holder D, having grooved ends *d'*, and bar F, having several adjusting-holes, *f*, substantially as and for the purpose set forth.

191,091. HOISTING-GEARS FOR SLAUGHTERING CATTLE. W. H. Axford, Jersey City, N. J. [Filed Mar. 2, 1877.]



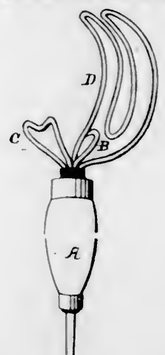
The slaughtering apparatus consisting of the hoisting and spreading ropes F F, provided with hooks *g*, the spreading-rollers *i*, the wheel and axle C and D, and the suspending-rope E, having the hook *h*, said wheel and suspending-rope being arranged on the one axle between the said spreading-ropes, substantially as and for the purpose specified.

191,092. TOY SKATING-RINKS. Sophie E. Bachmann, New York, N. Y. [Filed Jan. 2, 1877.]



A toy skating-rink consisting of a box or frame, A, having a paper top or cover, P, and provided with a side opening or hand hole, for insertion and application of the magnet to cause the gliding movements of the figures, as shown and described.

191,093. BOTTLE-OPENERS. E. Bacher, Findlay, Ohio. [Filed Apr. 12, 1877.]

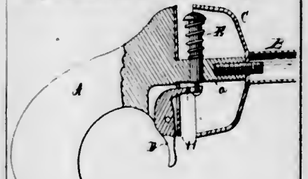


1. The bottle-opener herein described, composed of the handle A, hook B, brace C, and guard D, substantially as and for the purposes set forth.

2. In a bottle-opener, the guard D, substantially as and for the purpose set forth.

191,094. TOY PISTOLS. Chas. A. Bailey, Cobalt, Conn. [Filed Jan. 20, 1877.]

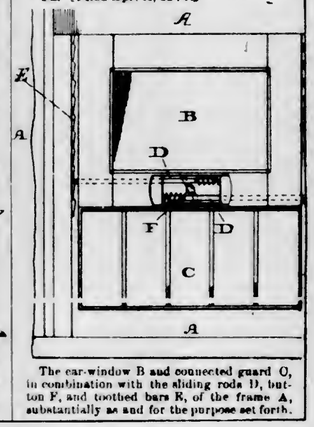
Brief.—Instead of a revolving cylinder, the pistol is provided with a gong-bell, which is rung at pleasure by pulls upon the trigger.



1. A toy pistol provided with one or more bells that are caused to ring by the trigger, substantially as and for the purposes herein set forth.

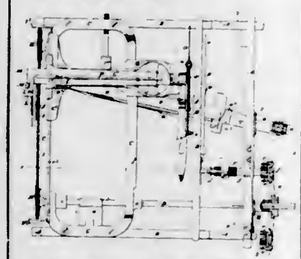
2. The combination of the butt A, having arm *a* and screw-tenon, the barrel B, with gong or bell C, the spring-clapper E, and trigger D, all constructed substantially as and for the purposes herein set forth.

191,095. CAR-WINDOWS. Albert S. Barker and Harry J. Shill, Jr., Philadelphia, Pa. [Filed Apr. 11, 1877.]



The car-window B and connected guard C, in combination with the sliding rods D, button F, and toothed bars E, of the frame A, substantially as and for the purpose set forth.

191,096. GRAIN-BINDERS. Wm. R. Baker, Chicago, Ill., assignor to C. H. McCormick and L. J. McCormick, same place. [Filed Jan. 31, 1877.]



1. The combination, substantially as hereinbefore set forth, of the fixed frame, the adjustable binder-frame, the hinged yoke pivoted thereto, the laterally-adjustable screw-shaft working therein, its spur-gear, and the concentric driving-gears between which it works, and with which it alternately engages, when desired to reverse the direction of adjustment of the binding mechanism.

2. The combination of the single overhung sprocket-wheel mounted directly on a driving-shaft, a corresponding overhung adjustable sprocket-wheel, a single driving-chain, its pin, the slotted intermittently-rotating crank, its pitman, the rock-shaft, and the wire carrying arm mounted thereon, these members being constructed to operate in combination, substantially as hereinbefore set forth.

3. The combination, substantially as hereinbefore set forth, of a vibrating binding-arm, a traversing slotted intermittently-rotating crank, a spring-latch pivoted thereon, a pin on the traversing-chain which locks the crank, and releasing stops or wipers at each end of the frame, for the purposes specified.

4. The combination, substantially as hereinbefore set forth, of the vibrating binding-arm, a vibrating compressor pivoted eccentrically thereto, and an intermediate spring-rod connecting the compressor directly with an extension or heel of the binding-arm, whereby the compressor is actuated directly from the binding-arm.

5. The combination, substantially as hereinbefore set forth, of the frame C, the binding-carriage traversing thereon, and an adjustable elastic stop, to limit the backward movement of the binding-carriage.

6. The combination, substantially as hereinbefore set forth, of the traversing-carriage, a radius-bar pivoted thereto at its inner end, and sustained at its outer end by a support on the fixed frame of the machine, the lower or connecting wire spool mounted on the outer end of said bar, a supplementary shorter radius-bar to which the wire passes, pivoted to the carriage, extending parallel with the long radius-bar and automatically vibrated at intervals independently of said bar, to draw the wire from the spool and supply slack, for the purpose specified.

7. The combination, substantially as hereinbefore set forth, of a traversing binding-carriage, a radius-bar pivoted thereto, a supplementary radius-bar supported on said carriage, pulleys on the respective bars, around which pulleys the wire passes, a latch acting on the supplementary radius-bar, and a stop carried by one of the bars and acting on the latch.

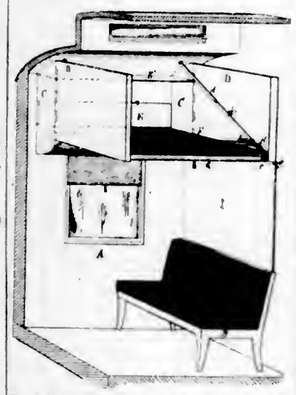
191,097. GRASSHOPPER-DESTROYERS. J. V. Barger, Rockport, Mo. [Filed Mar. 26, 1877.]

Brief.—The horse is hitched to the front ends of the wings, which have their rear ends attached to the front end of the main frame, and as the machine is moved forward by means of said wings, a hinged apron, and the hood, the insects are "scooped" upon the carrying-apron, in the rear of which is a crushing-roller and receptacle.



The hood L, hinged apron S, and wings K, in combination with the carrying-apron G, crushing-roller A, and receiving-box I, all substantially as and for the purposes herein set forth.

191,098. CAR SLEEPING-BERTHS. A. E. Barthel, Detroit, Mich. [Filed May 18, 1876.]

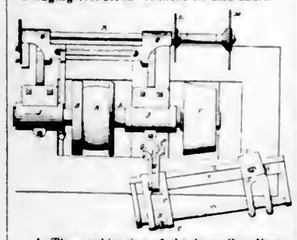


1. In combination in a sleeping-car, and constituting the upper berth thereof, a flexible woven-wire bottom and folding brackets, which, when extended, support the bottom in use as a bed, and form the head and foot of the bed, substantially as described.

2. In a sleeping-car, substantially as described, the locker C C C', provided with the shelves E E' and doors D D, in combination with the rolling berth-bottom and folding brackets, substantially as and for the purpose set forth.

191,099. MACHINES FOR MAKING KITS AND BUCKETS. J. P. Blood and S. N. Blood, Athens, Pa. [Filed Sept. 23, 1876.]

Brief.—The staves forming the kit are firmly held on an overhanging bunk rotated by frictional gearing, while being cut to the proper length by two adjustable circular saws of different diameters, secured upon an arbor mounted in swinging bearings. The kit or pail is simultaneously chamfered, howeled, and crozed by means of right and left hand side cutters secured to a turning cutter-head, longitudinally adjustable by an eccentric sleeve actuated by a lever, and mounted on a shaft in the rear of a laterally adjustable table, provided with a rest or guideway for the cutters to travel on. The outside of the pail is finished by an adjustable turning chisel, secured in a swinging tool-stock mounted on said shaft.



1. The combination of the laterally-adjustable table T, the shaft W, the guide-rest X, and the tool-stock P S, all constructed substantially as and for the purposes herein set forth.

2. The swinging saw-mandrel K, with saws L M, in combination with the overhanging bunk C, for the purposes herein set forth.

3. The combination of the main shaft A, bunk C, friction-pulleys D and E, and the swinging saw-mandrel, with saws, substantially as and for the purpose herein set forth.

191,100. MACHINES FOR DRAWING AND STRAIGHTENING METAL RODS OR BARS. A. Brankman and L. Brightman, Cleveland, Ohio. [Filed Apr. 16, 1877.]

1. The combination, in one machine, of appliances for drawing and straightening bars or rods of metal, substantially as described.

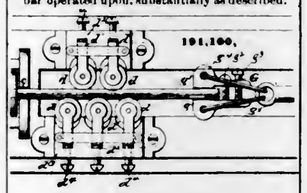
2. The combination, with suitable drawing mechanism, of a series of straightening-rolls, the latter arranged in alternately-opposite succession along the line of the drawing action, substantially as described.

3. In a metal drawing and straightening machine, the combination, with a suitable die, of a series of grooved rollers, a part of said series arranged opposite the remaining part in the same plane, the grooved peripheries thereof operating on the metal drawn between the same, substantially as and for the purpose described.

4. The combination of the grooved rollers *d*, arms d^1, grooved frame d^2, and adjusting-screws d^4, substantially as described.

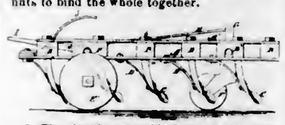
5. In a metal drawing and straightening machine, the grappling device G, consisting of the jaws *g* and g^1, screws g^2 and g^3, openings g^4, and links g^5, substantially as and for the purpose described.

6. The combination, with the drawing mechanism, of straightening-rolls whose opposite series are supported on independent frames, the latter adapted to be, respectively, swung from the line of drawing action, so as to release the rolls from contact with the shaft or bar operated upon, substantially as described.



191,101. CULTIVATORS. Nathan T. Brewster and A. D. Neher, Roseville, Cal. [Filed Apr. 11, 1877.]

Brief.—A double frame of bars having blocks between, the teeth having shanks with nuts to bind the whole together.



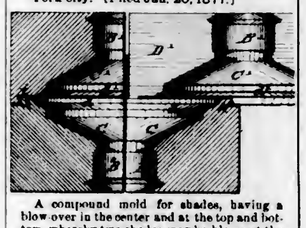
1. The double separable frame A A', combined with the detachable blocks B and the cultivator-teeth C, having reduced shanks passing through the said blocks and bars, to be secured above the same, and provided with braces D, substantially as and for the purpose set forth.

2. The combination, with the double frame A A', of the detachable blocks B^1, held by the shank of the cultivator-tooth, and the axle of the transporting-wheel, arranged in bearings in said blocks, as and for the purpose described.

191,102. MOLDS FOR GLASS SHADES, &c. H. Brooke, New York, N. Y., assignor to B. B. Schneider, same place. [Filed May 14, 1877.]

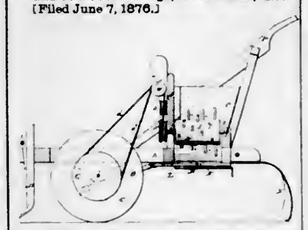
A compound mold for shades, having an inward projection or surface, *d*, in the center, and blow-overs at the top and bottom, whereby the two shades may be blown at the same time and afterward easily separated, substantially as herein set forth.

191,103. GLASS-MOLDS FOR SHADE-HOLDERS AND SHADES. H. Brooke, Brooklyn, N. Y., assignor to B. B. Schneider, New York city. [Filed Jan. 20, 1877.]



A compound mold for shades, having a blow-over in the center and at the top and bottom, whereby two shades may be blown at the same time and afterward easily separated, substantially as herein set forth.

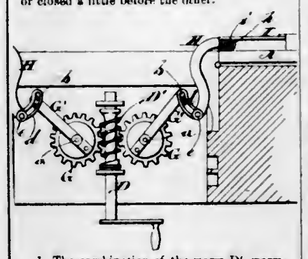
191,104. SEED-PLANTERS. W. A. Bryant and G. W. D. Partridge, Good Water, Ala. [Filed June 7, 1876.]



In combination with the frame A and hopper C, provided with longitudinal slot in its bottom, and the laterally-adjustable plates J J, the longitudinally-placed spiked cylinder I, having pulley H, pulleys *f f*, endless cord *d*, and the driving-wheel E, provided with pulley G, all constructed substantially as and for the purposes herein set forth.

191,105. SHUTTER-WORKERS. Wm. L. Buettler and J. C. Zweidinger, Pittsburg, Pa. [Filed Apr. 28, 1877.]

Brief.—A shaft provided with a worm is chambered in the window-sill, and there are two cog-wheels horizontally placed, one on either side, there being on the upper surface of each wheel a short arm having an upwardly-projecting pin, which enters a slot in a curved arm above the window-sill, connecting with the shutter. A crank-handle inside the room operates the worm and wheels, and the two arms being arranged at slightly different angles from the shaft, one shutter will be opened or closed a little before the other.



1. The combination of the worm D', worm-wheels G G, and arms G' G', set at different angles with the axes of the worm for operating window-shutters, whereby one shutter will be opened or closed before the other, substantially as herein set forth.

2. The combination, with the shutters A A, of the worm D, worm-wheels G, with arms G', having pins *b*, sleeves *d'*, with slotted arms *d*, and S-shaped arms H, having friction-rollers *h*, and the frames I, all constructed substantially as and for the purpose described.

191,106. COFFEE-MAKING APPARATUS. A. G. Buzby, Philadelphia, Pa. [Filed Jan. 3, 1876.]

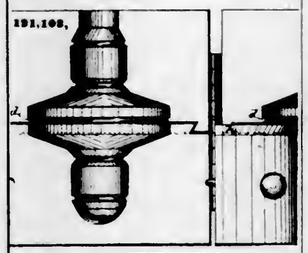
1. In a coffee reservoir, the coffee-holding section A, open at both ends when detached, and supported solely by the lower section B, having a detachable strainer or strainers, as described.

2. The combination of the section B and the concavo-convex plate *d*, having large openings, with the disk *b* having smaller openings, as and for the purpose set forth.

3. The combination of the coffee-reservoir with the ring *i* and its arms *u*, as and for the purpose specified.

4. The combination of the reservoir A and vessel H, with the boiler G, on which the vessel rests, and with the steam section *q*, arranged substantially as described.

191,108.



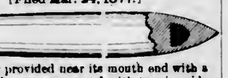
191,107. NAPKIN-HOLDERS. M. Campbell, Chicago, Ill. [Filed Mar. 27, 1877.]



1. Part A, having a scroll at E, and the part B, having the end at G turned up to form, in connection with the scroll, a clamp for the napkin, substantially as set forth.

2. In combination with the part B, having a projecting lip at C to support the end of part A when a ring is formed of the two parts, the projection L on the part A, and the recess or concavity on the elastic end of part B for holding the two parts in conjunction, substantially as set forth.

191,108. CIGARS. Jas. H. Campfield, Ottawa, Ill. [Filed Mar. 24, 1877.]



A cigar provided near its mouth end with a porous substance saturated with tannic acid, as and for the purpose specified.

191,109. MORTISING-MACHINES. H. Carter, Aylmer, Ontario, Canada, assignor of one-half his right to D. Stewart, same place. [Filed Mar. 24, 1877.]

Brief.—The bit is caused to bore vertically to a limited extent, and cut horizontally a mortise from end to end, by means of a gate vertically adjustable upon suitable ways in the main frame; a frame carrying a hollow shaft, which incloses the bit-holder and supports a belt-drum; a rock shaft provided with calipers, which vibrate a pawl pivoted to a vertical plate, in which said shaft is mounted, and which supports a double-ratchet bar, vertically adjustable upon said plate by means of the pawl and calipers referred to; and suitable operating mechanism.

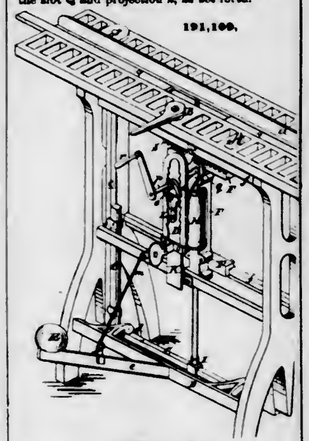
1. In a mortising-machine, a gate, C, having vertical movement, and a frame, F, having horizontal movement, each alternately operating a rotary bit-holder, J, whereby the bit is caused to bore vertically and cut horizontally, intermittently with its penetration, as set forth, for cutting a mortise.

2. In combination with a bit-holder in a frame, F, moving horizontally, a gate, C, connected to a tilting frame, D, operated by rod-connection m, with a ratchet-bar, L, pawl s, and a rock-shaft, p, provided with adjustable calipers o, whereby the gate is dropped step by step intermittently with the horizontal movement of the frame F, as set forth.

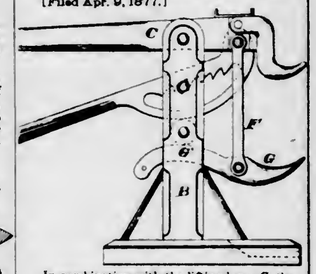
3. In combination with a gate, C, having an intermittent motion vertically, a frame, F, carrying a rotary bit-holder, J, having reciprocal motion horizontally, operated by a rock-shaft, p, pinion q, and rack-bar S, as set forth, whereby the frame is moved horizontally at each intermittent motion of the gate, as described.

4. In combination with the frame F, having horizontal motion, and the gate C, having vertical motion, the hollow shaft G, provided with belt-drum H, and inclosing a bit-holder, J, having sliding motion therein, by means of the slot Q and projection A, as set forth.

191,110.



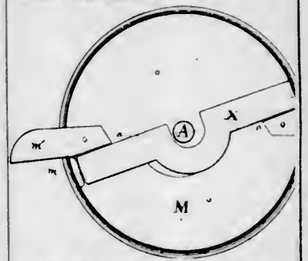
191,110. LIFTING-JACKS. Thos. J. Case, Granger, and C. C. Case, Cleveland, Ohio. [Filed Apr. 9, 1877.]



In combination with the lifting-lever C, the swing F, hook G, and slotted standard B, substantially as and for the purposes described.

191,111. MACHINES FOR COMPRESSING THE ENDS OF BLIND SLATS. E. Cather, Baltimore, Md., assignor of one-half his right to J. R. Trimble, same place. [Filed Dec. 23, 1876.]

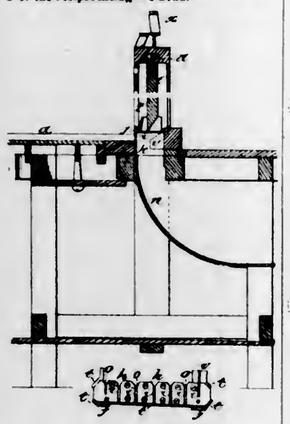
Brief.—In compressing the ends of blind-slats, in order to facilitate their insertion into the mortises in the stiles, the splinters broken from the slats, as each slat enters a beveled recess in one of two recessed disks, are thrown out by a metallic bar having about the same cross-section as the bottom of one of the recesses, and provided with a slot in the middle, in order to embrace the central shaft.



The combination, with the disk M, having the spurs *m' m'*, of the clearer X, as and for the purpose set forth.

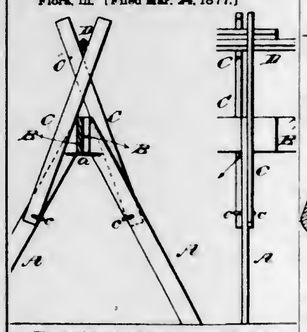
191,113. MACHINES FOR CUTTING OUT PASTEBOARD EGG-CARRIER BLANKS. A. Chase, Weare, N. H. [Filed Nov. 11, 1876.]

Brief.—As the sheet of paper-board is fed in, the blanks are struck out the required shape and size by a reciprocating die-head, which conforms to a stationary die located on a line with the table *a*. Slots are formed in the blanks, from one side toward the center thereof, by knives which enter the openings O of the reciprocating die-head.



The reciprocating die *a*, provided with plates or knives *i* and *i'*, in combination with the stationary knives *r*, *j*, and *t*, and the table *a*, substantially in the manner and for the purposes set forth.

191,114. PORTABLE FENCES. A. S. Chaney, Flora, Ill. [Filed Mar. 24, 1877.]



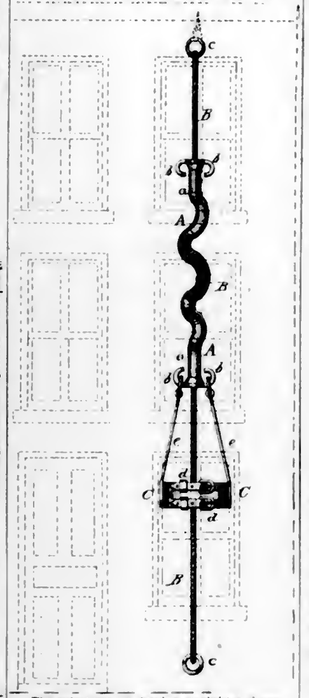
The combination of the inverted V-shaped lower supports A with X-shaped upper supports C, linked thereto, rails B, and riders D, substantially as and for the purpose set forth.

191,114. GATES. A. G. Cherry and A. T. Elliott, Sturgis, Mich. [Filed Mar. 19, 1877.]



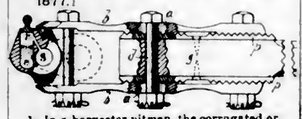
An adjustable gate constructed as described, and operated by the lever provided with the sliding block, whereby the gate has vertical movement upon the swinging supporting-post, the two latter being secured together by lower tenon and mortise engagement, and the upper metallic sliding clasps, substantially as described.

191,115. FIRE-ESCAPES. Alfred L. Clark, Dubuque, Iowa. [Filed May 10, 1877.]



The spiral tube A, having straight end portions *a*, and hooks *b*, in combination with the rope or cord B, and body-band C, constructed and arranged substantially as and for the purpose set forth.

191,116. PITMEN. O. Coolsy, Brockport, N. Y., assignor to the Johnston Harvester Company, same place. [Filed Jan. 15, 1877.]

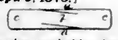


1. In a harvester-pitman, the corrugated or furrowed straps *b* and plates *p*, substantially as shown and described, and for the purpose set forth.

2. In an adjustable harvester pitman, the furrowed straps *b*, provided with the slots *a*, substantially as shown and described, and for the purpose set forth.

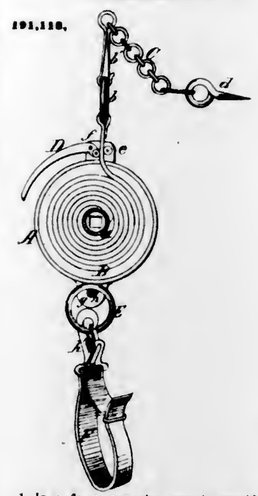
3. A pitman provided with an oil-chamber closed at its bottom, and communicating at or near its top with the crank or wrist bearing, substantially as shown, whereby the oil is prevented from escaping when the pitman is at rest, but caused to feed from the chamber to the bearing when the pitman is in action.

191,117. TAGS. E. Culver, Mason, Mich. [Filed Sept. 9, 1876.]



A rectangular tag-holder, having the holding-points *a* cut from the edge of the rectangle, with base-connections toward opposite ends of the same, and the transversely-folding portion *c*, extending along the body of the holder from spur to spur, substantially as specified.

191,118. FIRE-ESCAPES. J. F. Dartt and J. W. Post, New York, N. Y. [Filed May 15, 1877.]

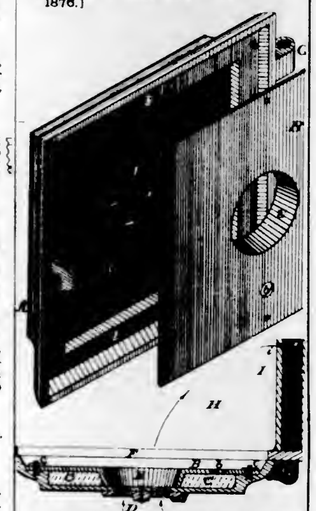


1. In a fire-escape, the case A, provided with a friction-roller, *e*, and a pivoted brake-lever, D, having a friction-roller, *f*, arranged substantially as shown and herein specified.

2. The combination of the case A, provided with a friction-roller, *e*, and pivoted brake-lever D, having a friction-roller, *f*, with a metal strap, B, chain C, and eye-screw *d*, arranged substantially as shown, and for the purpose described.

3. A portable fire-escape, consisting of the case A, friction-roller *e*, brake-lever D, friction-roller *f*, with a metal strap, B, swivel-chain C, eye-screw *d*, ring E, snap-hook *h'*, and sling F, all constructed and arranged as shown, and for the purposes described.

191,119. OVENS AND OVEN-DOORS. W. C. Davis, Cincinnati, Ohio, assignor to W. C. Davis & Co., same place. [Filed Dec. 27, 1876.]

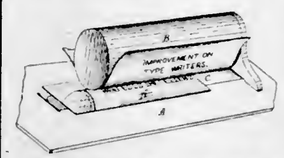


1. A door for ovens of stoves and ranges composed of two thicknesses of metal, A, inclosing a cavity or chamber, *a*, which is filled with plaster-of-paris C, or equivalent non-conductor.

2. An oven door composed of the registered and perforated plates A *a a'* D and B *b* E, inclosing a filling of plaster-of-paris or equivalent non-conductor.

3. The described combination of composite and registered oven-door A *a a'* D B *b* E, oven H, and perforated rear oven-plate I *i*, for the purpose designated.

191,120. TYPE-WRITERS. P. Deming, Albany, N. Y. [Filed Apr. 18, 1877.]

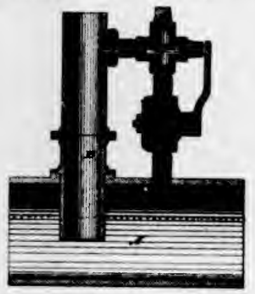


1. In type-writing machines wherein the letter-impressions are made at or near the bottom of the paper-holding cylinder B, and are thereby hidden from the eye of the operator, a reflector, D, arranged between the type and the paper, as herein described, for the purpose of reflectively showing the line of letters, as herein specified.

2. In type-writing machines, a reflector, D, having its reflecting surface turned upward, interposed between the paper-holding cylinder B and ink-ribbon C, as and for the purpose herein specified.

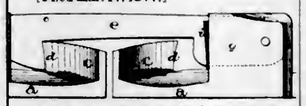
191,121. DIP-PIPES FOR GAS APPARATUS. Justus Dittmar, Williamsport, Pa. [Filed Apr. 9, 1877.]

Brief.—The horizontal and vertical parts of the by-pass pipe are each provided with a screw-plug, which may be readily removed for cleaning out the tar from its interior.



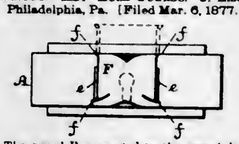
The by-pass described, with a horizontal and a vertical portion, each portion provided with screw-plugs, substantially as and for the purposes set forth.

191,122. CAR-COUPLINGS. Charles Dobbs and Samuel L. Robinson, Millwood, Tex. [Filed Mar. 17, 1877.]



In a car-coupling, the combination of the projection *c* on top of the front end of the head *d*, flanges *g*, hooks *e*, and bolts *i*, the head being cut away between the projection *c* and flanges *g*, so that the links or hooks can slip off sidewise, substantially as shown.

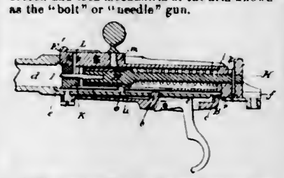
191,123. KEY-HOLE GUARDS. C. Eisele, Philadelphia, Pa. [Filed Mar. 6, 1877.]



The guard F connected to the case A by a dovetail-joint, and lips *f* turned up on both sides of opposite ends of the guard over adjacent shoulders of the case, substantially as and for the purpose set forth.

191,124. BREECH-LOADING FIRE-ARMS. E. Engel, St. Petersburg, Russia. [Filed Sept. 22, 1875.]

Brief.—The improvements relate to the breech and lock mechanism of the arm known as the "bolt" or "needle" gun.

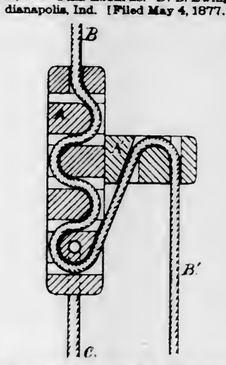


1. The combination, in a breech-loading fire-arm, of a trigger and the spring B, having the two projections *b* and *c*, with the spring needle bar or rod H, its projection *a*, and the catch *r*, as set forth.

2. The within described needle-bar H, provided with the projection *a* and the two slots H' H', as and for the purpose set forth.

3. The combination of the breech piece E with the detachable head K and the spring-pin *q'*.

191,125. FIRE-ESCAPES. D. B. Ewing, Indianapolis, Ind. [Filed May 4, 1877.]



The fire-escape composed of the brake A, strap or rope C, and rope B, constructed, arranged, and operated substantially as set forth.

191,126. TOBACCO-CUTTERS. Jno. Farrar, Montreal, Quebec, Canada, assignor of one-half his right to H. Earle, Jr., same place. [Filed Jan. 31, 1877.]

Brief.—The plug is laid in one of the openings in the case, and is fed forward gradually by a plate in the rear, operated by a screw upon the shaft that carries the cutter.



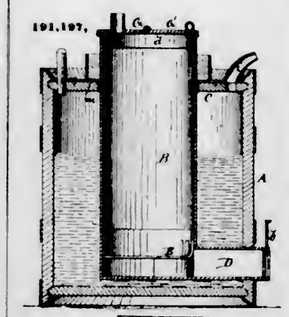
1. The tobacco-cutter, consisting of case A, having one or more chambers, B, and a central rotating screw, C, carrying a feed-plate, G, and at its onter end a rotating cutter, substantially as and for the purpose specified.

2. The tobacco-cutter, consisting of the case A, having chambers B B and H I, and a central screw-shaft carrying a feed-plate, G, and a cutter, substantially as and for the purpose specified.

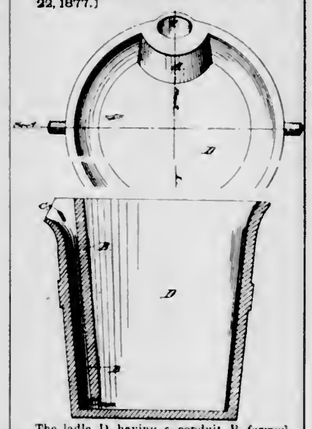
191,127. AGRICULTURAL STEAM-COOKERS. F. Farley and Jos. B. Blackwood, Knoxville, Iowa. [Filed Mar. 29, 1877.]

The combination of the barrel A, cylinder B, draft-flue D with damper *b*, the removable basket-grate E, having high sides *s*, and the removable cover G, provided with hinged door G', collar *a*, and rim *d*, all substantially as and for the purposes herein set forth.

191,107.

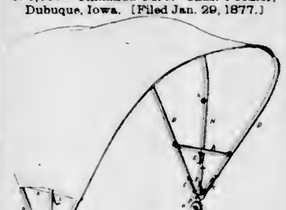


191,128. LADLES FOR METAL-FOUNDING. Wm. Fawcett, Omaha, Nebr. [Filed Feb. 22, 1877.]



The ladle D, having a conduit, B, formed in the side thereof, and opening into the bottom of the ladle, substantially as and for the purpose described.

191,129. CARRIAGE-TOPS. Chas. Fockler, Dubuque, Iowa. [Filed Jan. 29, 1877.]

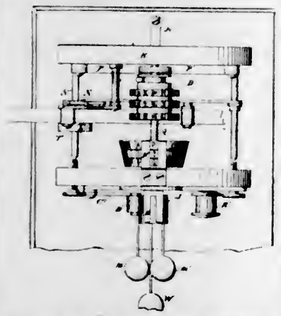


1. In combination with a seat, A, the bent arms B B projecting beyond the sides of the seat, the toothed disk G, with legs *x x* firmly secured to said arms, and the adjustable toothed disk F carrying the entire top, and fastened by means of the screw O and thumb nut P, substantially as and for the purposes herein set forth.

2. The combination, with the adjustable disk F, of the arm E projecting therefrom, the knee-jointed bow-irons C C, the bows H and D D, and the jointed brace K with hook L, and the eye N, all constructed as described, with the joints and adjustments all on the inside, substantially as herein set forth.

191,120. METRICAL TELEGRAPH SYSTEM, Theo. M. Foote, Brooklyn, N. Y. [Filed Nov. 28, 1876.]

Brief.—Paper perforated at distances corresponding with the distances between the characters upon the type-wheel of a "translating-instrument" used at the receiving-station. Transmitter and receiver run synchronously. Message received on chemically-prepared paper, which, after receiving the message, is passed over the driving-drum of the translating-instrument, the drum being keyed to the axis of the type-wheels, and of such a size that the occurrence of a mark on the paper in line with a fixed pointer will correctly indicate the presence of the character or letter required in position to be printed by hand-operated printing-pads.



1. The method of transmitting telegraphic messages by means of a perforated slip or fillet of paper, having perforations relatively to the letters on the type-wheel of a translating-instrument, in such manner that the dots or dashes recorded on the chemically-prepared slip will be found in proper relation to the characters on said type-wheel to indicate the proper letters to be printed upon the slip of paper which finally receives the message, as herein described.

2. The combination, in a telegraphic instrument, of two or more type-disks mounted upon a common shaft, and a corresponding number of indicating-wheels, each type-wheel being engraved with a portion of the letters of the alphabet, and the indicating-wheels marked, respectively, to correspond with the same, with the driving-drum of the instrument, the whole arranged to operate in connection with the chemically-prepared paper or other medium which receives the signals from the transmitting-instrument, substantially as described.

3. In combination with one or more type-wheels marked with the characters of the alphabet, one or more type-wheels marked with numerals, and a corresponding number of indicating-wheels, marked, respectively with characters and numerals to correspond, and a driving-drum, the whole arranged to operate in connection with the slip of paper or other medium which receives the signals from the transmitting-instrument, substantially as described.

4. The combination, with the type-wheels, of the translating-instrument and a corresponding number of indicating-wheels of different diameters, marked to correspond with the characters of the type-wheels, and a corresponding number of interchangeable driving-drums of different diameters, the whole arranged to be operated in connection with the prepared strip or other medium which receives the signals from the transmitting-instrument, substantially as described.

5. In combination with the chemically-prepared slip or other medium upon which the signals are recorded, a driving-drum of a determinate size, and the type-wheel of a translating-instrument, a printing-lever and a key-lever for operating the same, for printing from said type-wheel the characters indicated by the recording-signals on the prepared slip, substantially as described.

6. In combination with the recorded slip, a driving-drum of a determinate size, and the type-wheels of the translating instrument, one or more key-levers for shifting the type-wheels, substantially as described.

7. In combination with the interchangeable driving-drums, a self-adjusting lever, carrying the drum for guiding the chemically-prepared paper, and a friction-roller for pressing the paper to the drum, for the purpose of adapting driving-drums of different sizes to be used with the same apparatus, substantially as described.

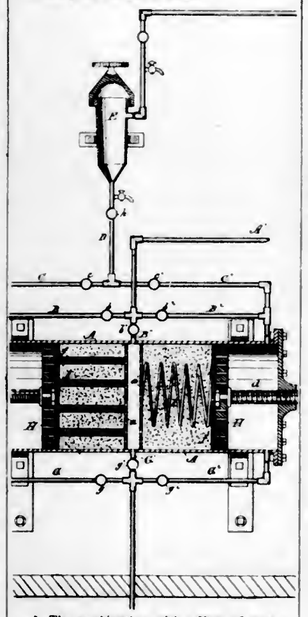
8. The combination, with the indicating wheel or wheels and the driving-drum of the apparatus, of suitable guides for indicating the positions which the indicating and type wheels assume when the chemically-prepared paper is arrested, with the record thereon appearing at the guides and the type-wheel in position to be printed upon, substantially as described.

9. The combination, with a driving-drum of a determinate size, the type-wheels of the translating instrument, the printing-pad, and the key levers, of a lever and pawl for operating the drum which carries the strip of paper to be printed, substantially as described.

10. In an apparatus for translating or copying telegraphic messages, the combination of the driving-roller, the indicating-wheel, and a type-wheel or wheels, to be operated in connection with a recorded slip and the key-levers for shifting the type-wheel and printing the letters of the message, substantially as described.

191,121. FILTERING APPARATUS. J. Gainey, Augusta, Ga. [Filed May 3, 1877.]

Brief.—The filter is provided with an adjustable plunger for compressing the filtering material, to adapt the device to filter under varying pressures. The filter is cleaned by reversing the current of water.



1. The combination, with a filter, of an expansible spring arranged in the filtering material, for the purpose of loosening the same, as described.

2. A filter provided with an adjustable plunger, and having an inlet supply-pipe arranged upon the side thereof, communicating, as desired, with either end of the filter through valves, and having also a muddy-water discharge-pipe and a clear-water discharge-pipe, with controlling-valves, substantially as and for the purpose described.

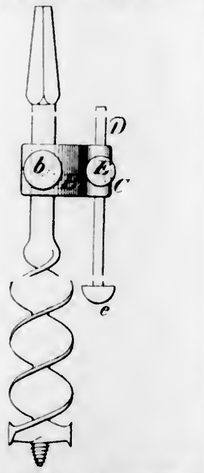
3. The combination of the filter A, the spring l, the perforated head f, and the adjustable plunger H, substantially as and for the purpose described.

4. The filter A, provided with two adjustable plungers, H, and perforated partitions a a', in combination with the pipes C C', the pipes B B^1 B^2 and G G^1 G^2, having valve-connection and communicating with the filter, substantially as described.

191,139. PROCESSES OF MANUFACTURING GLUE. O. O. Garrison, New York, N. Y. [Filed Mar. 30, 1877.]

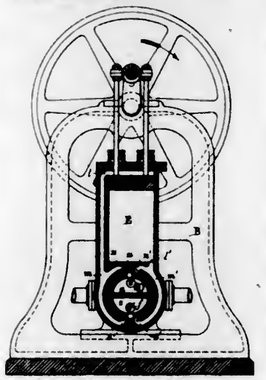
The process of manufacturing glue, consisting in treating bone, horn-pith, or other gelatinous substance, with phosphoric acid, and then subjecting the same to the action of lime-water, substantially as described.

191,122. GAGES FOR BITS. R. Gardiner, Olneyville, R. I. [Filed Apr. 4, 1877.]



The gaging attachment for bits herein described, consisting of the removable and adjustable jaws B B', guide C, the removable and adjustable rod D having convex head e, and the set-screws E and b, constructed and adapted for use as specified.

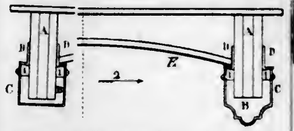
191,123. OSCILLATING STEAM-ENGINES. S. Gibson and D. C. Eberhart, Shrewsbury, Pa., assignors to said Eberhart. [Filed Apr. 27, 1877.]



The steam-cylinder E, having the opening for the insertion of the fixed trunnion D, and provided with the passages a, a', o, and o', connecting the said opening indirectly with the interior of the said cylinder, in combination with the said fixed trunnion D, having the partitions a and g, dividing the same into the steam-chest F and the compartments b and c, the said compartments having the ports b' c' placed in an angular or inclined position with reference to the center line of the said cylinder, and the reversing-valve I, adapted to be partially revolved within the said steam-chest, for the purpose of changing the direction of the steam to and from the said compartments, substantially as herein shown and described.

191,135. FIRE-PROOF CEILINGS. J. Gilbert, Chicago, Ill. [Filed Nov. 7, 1876.]

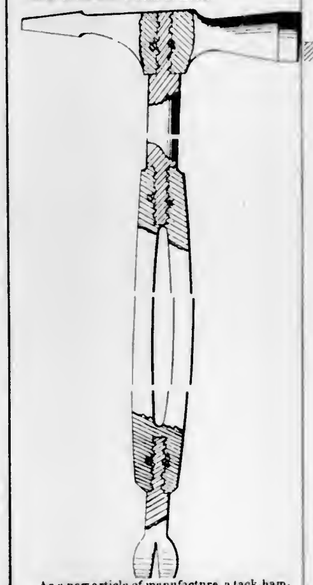
Brief.—The wooden floor-beams are protected beneath by sheet-iron casings filled with fire-proof material. Angle-irons are attached, resting on strips within the casings, from which corrugated iron arches are sprung from beam to beam, in the usual manner, and filled in above with fire-proof material, the whole forming a fire-proof ceiling with wooden beams, above which a fire-proof floor may be laid.



The joists A A, angle-irons D, strips 1 1, plaster or concrete B, corrugated arch E, and casing C, as and for the purpose set forth.

191,136. TACK-HAMMERS. F. R. Glascock, Hillsborough, Ohio. [Filed July 12, 1876.]

Brief.—An open cast-iron hammer-handle is provided at one end with a steel claw for drawing tacks, and at its other end with a wrought-iron neck, upon the outer end of which is secured a tack-hammer.

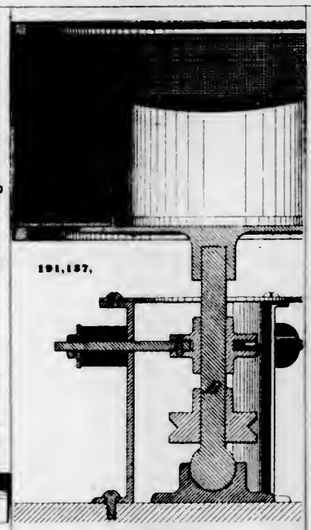


As a new article of manufacture, a tack hammer consisting of the cast head A, wrought-iron neck B, cast handle C, and steel claw D, substantially as herein set forth.

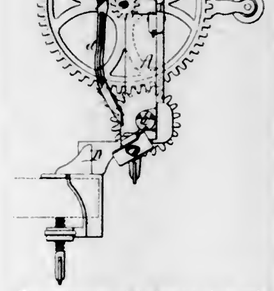
191,137. CENTRIFUGAL MACHINES. A. A. Goubert, New York, N. Y. [Filed Apr. 12, 1877.]

1. In combination with the basket of a centrifugal machine, mounted upon a vertical shaft having yielding bearings, a chamber concentric with the basket, and a liquid or granular substance contained in such chamber, substantially as and for the purpose set forth.

2. The method of effecting the counterbalancing of centrifugal machines herein described, to wit, by means of a suitable quantity of liquid or granulated material contained in a chamber concentric with the basket, and of such dimensions that the quantity of liquid required to counterbalance an overweight in the basket will have room to arrange itself against the side of the chamber radially opposite the overweight in the basket, under the influence of the centrifugal forces generated by the rotation of a centrifugal machine upon a vertical axis mounted in yielding bearings.

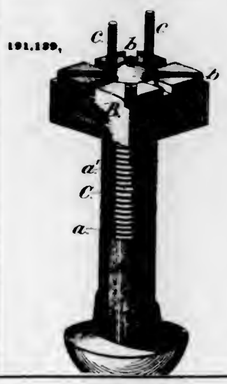


191,138. APPLE-PARERS. W. M. Griscom, Reading, Pa. [Filed Apr 4, 1877.]



The combination of the frame A of an apple-paring machine with the clamping-frame D, secured to that end of the frame A which is adjacent to the fork-shaft, all substantially as specified.

191,139.

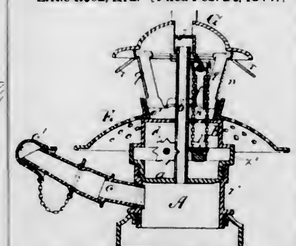


191,140. BRACELETS. W. A. Hammond, G. P. Hammond, and W. Krymer, Brooklyn, N. Y. [Filed May 7, 1877.]



A bracelet provided with transverse depressions to give it sufficient elasticity to be placed over the wrist or arm of the wearer, and yet enable it to have an apparently thick, heavy, or massive appearance, substantially as described.

191,141. LAMP-BURNERS. B. Hempstead, Little Rock, Ark. [Filed Feb. 24, 1877.]

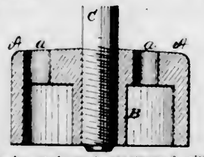


1. The lamp-burner consisting of the base A, having wick-tube b, the detachable cap B, carrying the extinguisher C, the detachable chimney-supporter E, and detachable tip or flame-former G, combined, arranged, and operating substantially as specified.

2. In a lamp-burner, the combination of the base A, having wick-tube b, with spurs f, the detached cap B, and chimney-supporter E, with the tip-plate G, having L-shaped slots p, engaging with the said spurs, substantially as specified.

3. The lamp-burner consisting of the base A, having tube b, the cap B, chimney-supporter E, and tip G, detachably secured together, substantially as specified.

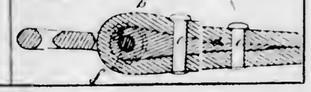
191,142. RECIPROCATING CHURNS. Abram Heartsill, Louisville, Tenn. [Filed Mar. 26, 1877.]



The inverted cup A, constructed with vertical sides, and convex on its top, and provided with the perforations a, and with the hollow downwardly-projecting hub B, having interior screw-threads, in combination with the dasher-rod C, screwed into said hub, substantially as herein shown and described.

191,148. COCKEYE AND TRACE CLIPS. J. W. Hoffman, Newton Falls, Ohio. [Filed Mar. 3, 1877.]

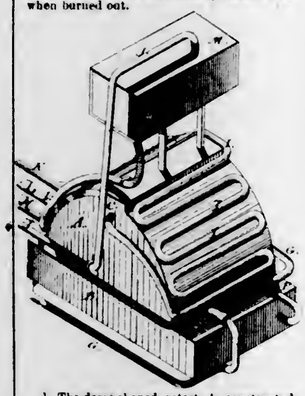
Brief.—A metallic clip made in one piece, with tubular sleeve embracing a loop of a cockeye or buckle, provided with a tapering tongue projecting centrally therefrom, the whole, when in use, enveloped by a loop of leather.



The combination, with a cockeye or buckle, of a metallic harness-clip made in one piece, with tubular end sleeve *g*, embracing a cross-bar, *f*, and provided with a solid tapering tongue, *d*, extending from said sleeve, said clip being surrounded and enveloped by a loop of leather, *b*, and provided with spaced perforations and rivets *e*, substantially as specified.

191,144. HYDROCARBON-BURNERS AND GAS-GENERATORS. C. Holland, Chicago, Ill. [Filed Apr. 3, 1877.]

Brief.—Oil-vapor and steam are generated in separate chambers of the retort, and are burned under the retort, issuing from separate pipes. Oil-vapor generated in a separate chamber of the retort is converted into a fixed gas in a coil of pipe upon the outside of the retort. The perforated steam-pipe projecting below the retort is united to a pipe above the retort by a union-coupling, so that it may be readily removed and replaced by another one when burned out.

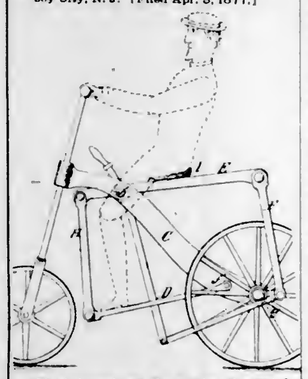


1. The dome-shaped retort A, constructed as described, and provided with the coiled pipe I, arranged on the top and ends of the retort, and communicating with the gas-receiver M, substantially as and for the purpose specified.

2. The dome-shaped retort A, in combination with the induct-pipes K L N, steam-pipe G, coiled pipe I, gas-receiver M, having outlet-pipe J, pipe H, having burner *s*, and the upper burner O, the several parts being constructed, arranged, and operating, substantially as and for the purpose specified.

3. The steam-pipe G, arranged as shown, and perforated on its upper surface, and provided with the union joints or couplings P, substantially as and for the purpose described.

191,145. VELOCIPEDES. J. L. Hornig, Jersey City, N. J. [Filed Apr. 3, 1877.]

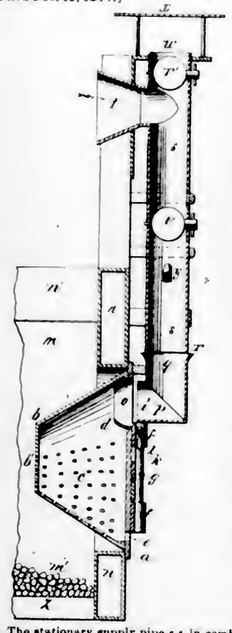


The balance beam E, carrying the seat I and pivoted near the front end of the reach C, and the rod F pivoted to the rear end of the beam and connected to the crank *g* of the driving-wheel, the rod H pivoted to the front end of the beam, and the treadle D pivoted to the lower end of the rod H and to the reach C, the whole being combined for operation substantially as shown and described.

191,146. METAL ALLOY FOR COMMERCIAL COIN. W. W. Hubbell, Philadelphia, Pa. [Filed Apr. 4, 1876.]

The alloy coin metal of gold, silver, and copper, substantially in the proportions and for the purpose described.

191,147. FURNACE-DOORS OF LOCOMOTIVES. W. W. Hubbell, Philadelphia, Pa. [Filed Feb. 15, 1877.]



1. The stationary supply-pipe *s s*, in combination with the elbow-pipe *p*, having an expanded mouth, *r*, and attached to the door, conical perforated chamber *d*, bell-mouth *t*, valve *v'*, and valve *v*, to force and regulate the supply of air, substantially as described.

2. In combination with a furnace-door provided with a conical perforated chamber, *d*, and bevel collar *o*, the elbow-pipe *p*, secured to the door, and stationary pipe *s s*, the collar *o*, forming with the end of elbow-pipe *p* an annular space, as and for the purposes described.

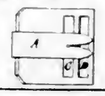
3. In combination with a furnace-door, provided with an elbow-pipe, *p*, having a flaring curl, *q*, the pipe *s s*, having mouth *w* and bell-mouth *t*, as and for the purposes set forth.

4. In combination with a furnace-door provided with chamber *d* and elbow-pipe *p*, the pipe *s s*, having bell-mouth *t*, mouth *w*, and valves *v v'*, as and for the purpose set forth.

5. The pipe *s s*, cover *x*, mouth *w*, and furnace-door, provided with elbow-pipe *p*, and chamber *d*, all combined as and for the purpose set forth.

6. In combination with a furnace-door provided with elbow-pipe *p* and chamber *d*, the stationary pipe *s s* and steam-jet pipe *y*, all arranged to operate together as and for the purpose set forth.

191,148. NAPKIN-HOLDERS. R. W. Huston, Brooklyn, N. Y., assignor of one-half his right to J. G. Auld, Washington, D. C. [Filed May 5, 1877.]



1. A napkin-holder made of wire or of sheet metal, and provided with the spring-steel hook A and the slots C and D, substantially as described, and for the purposes set forth.

2. A napkin-holder made of wire or of sheet metal, and provided with the spring-steel hook or holder A, the slots C and D, and the shield E, substantially as described, and for the purposes set forth.

191,149. EYEGLASSES. F. P. Iannarone, Washington, D. C. [Filed Dec. 6, 1876.]



1. The clamps C, adapted to be secured to the edges of the glasses A, substantially as and for the purposes hereinbefore set forth.

2. In combination with the securing-clamps C, the glasses A, provided with two recesses in the edges thereof, on opposite sides of the horizontal diameter, and adapted to receive the ends of the clamps, substantially as and for the purpose hereinbefore set forth.

3. The glasses A, formed with a recess on either side of the horizontal diameter, substantially as and for the purpose described.

191,150. VEHICLE-SPRINGS. H. L. Isham, Plattsburg, N. Y. [Filed Mar. 10, 1877.]



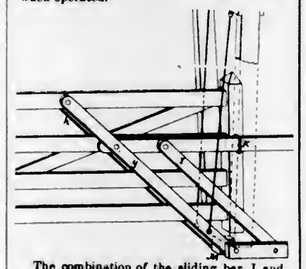
1. The spring *a*, secured to the vehicle-body and resting upon the strap or thorough-brace *b*, connected to the axle or bolster and the said spring, substantially as and for the purpose set forth.

2. In combination with the spring *a*, resting upon the strap or thorough-brace *b*, the threaded bolt *d d'*, as and for the purpose set forth.

3. The spring *a*, in combination with, and connected to, the thorough-brace or strap *b*, by the loops or eyes *c c'* and threaded bolt and nut *d d'*, substantially as and for the purpose set forth.

191,151. GATES. I. D. Jewett, St. Omer, Ind. [Filed Nov. 22, 1876.]

Brief.—The levers to which the gate is attached are pivoted, one to the gate and the other to a horizontal bar in a loop, in order to steady the gate and keep it from tipping when operated.

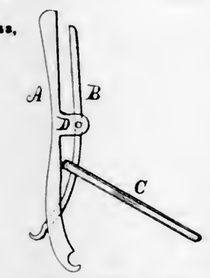


The combination of the sliding bar J and guide K with the gate and its supporting-bars *g* l, the latter being pivoted in the manner shown and described.

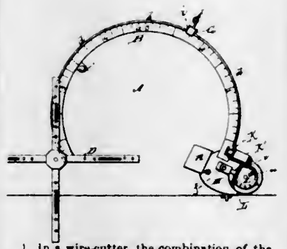
191,152. GARMENT-HOLDING DEVICES. C. E. Johnson, Indianapolis, Ind. [Filed Apr. 28, 1877.]

In a clasping device for holding garments, the jaws A and B, pivoted at D, in combination with the ring or link C, adapted to operate the jaws so as to clasp or unclasp the fabric, as herein shown and described, and substantially as herein set forth.

191,153.



191,154. WIRE-CUTTERS. J. Johnson, Marshalltown, Iowa. [Filed Apr. 21, 1877.]



1. In a wire-cutter, the combination of the graduated frame B with head H and the adjustable reel D E, the whole fastened to a bench or table by the reel staff C at one end, and the link *m* and hook *n* at the upper end, substantially as set forth.

2. The headed spring-bolt K, arranged to operate in combination with the cutting-chisel I J, substantially as and for the purpose described.

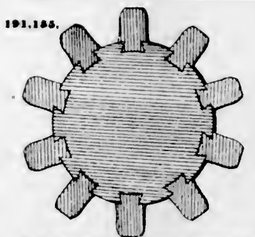
3. The combination, with the wire-cutter herein described, of the registering-disks L L', arranged as shown, and operated by the spring-pawl *l* attached to and actuated by the spring-bolt K, substantially as and for the purpose described.

4. The open box O case R arranged in combination with the head H, chisels I J, and spring-bolt K, as and for the purpose described.

191,155. GEAR-WHEELS. David Jones, Youngstown, Ohio. [Filed Mar. 27, 1877.]

Brief.—Places wrought-iron or steel teeth (heated or not) in the mold, and pours molten iron around their shanks.

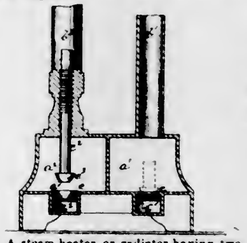
191,155.



A pinion or gear-wheel provided with wrought-iron or steel teeth, said teeth secured to the body of the pinion in the process of casting the latter, substantially as described.

191,156. STEAM-RADIATORS. R. L. Karnochan, Titusville, Pa. [Filed Apr. 6, 1877.]

Brief.—Either one or more of the sections may be used, according as more or less heat may be required.



1. A steam heater or radiator having two or more sections or rows of tubes, each section or row provided with its own steam-chamber, valved inlet, and an outlet, substantially as and for the purpose specified.

2. In a steam heater or radiator having two or more independent sections, the hollow base divided by a partition or partitions to form corresponding independent steam-chambers, substantially as specified.

3. The combination, in a steam heater or radiator, of the independent sections, and the base composed of a series of independent steam-chambers, each of said chambers provided with an inlet-valve, substantially as and for the purpose specified.

4. In a steam-heater having an inlet and valve for closing the same, the independent valve-seat tapped into the steam-chamber or hollow base at the mouth of the steam-inlet, substantially as specified.

5. In a steam-radiator, the combination, with a series of independent steam-chambers and corresponding sections, of the trap and exit or dip pipes, substantially as specified.

6. In a steam heater or radiator, the combination, with a series of independent steam-chambers, of the steam-inlet and branches leading to said chambers, substantially as and for the purpose specified.

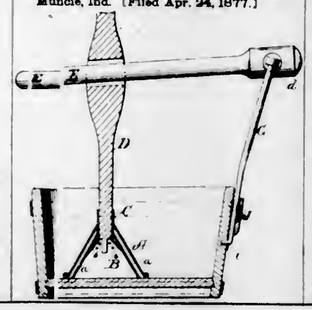
7. In a steam heater or radiator having a steam-chamber or hollow base, and radiating tubes or sections, the steam-inlet valve located within the base or steam-chamber, substantially as specified.

191,154. PENS. H. S. Johnson, Jersey City, N. J. [Filed Apr. 10, 1877.]



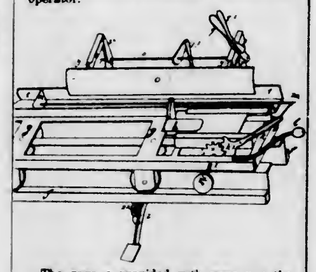
A gold pen constructed with corrugations in its nib, substantially as shown and described, for the purpose of definitely graduating said pen as to stiffness.

191,157. CLOTHES-WASHERS. A. Kimber, Muncie, Ind. [Filed Apr. 24, 1877.]



191,158. MACHINES FOR SAWING STAVES. Andw. Knipper, Cleveland, Ohio. [Filed Apr. 21, 1876.]

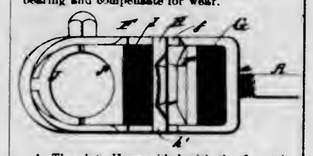
Brief.—The gage which determines the thickness of the stave is adjusted by the foot of the operator.



The gage *o*, provided with arms *y y*, the rock-shaft *s*, having arms *s'*, the handle *g*, provided with the catch-lever *g'*, the foot-lever *z*, arms and link *s'*, and spring *s*², all combined, arranged, and operating substantially as and for the purpose specified.

191,159. PITMAN-BOXES. Edw. M. Krum, Chatham, N. Y. [Filed Apr. 7, 1877.]

Brief.—To give the pitman-rod an elastic bearing and compensate for wear.



1. The plate H, provided with the four triangular corner-pieces *h'* and central socket *h*, substantially as described, and for the purpose set forth.

2. The plate H, having the corner-pieces *h'* and socket *h*, in combination with the pitman-box F, provided with recesses *f* and pitman A, substantially as described, and for the purpose set forth.

3. The combination of pitman-box F, having recesses *f* and rubber packing, with nut F' and plate H, having corner-pieces and central socket, substantially as and for the purpose set forth.

4. The combination of recessed pitman-box F, plate H, with triangular corner-pieces, and socket-nut F', pitman A, springs G I, and sectional bearings J J', provided with lug *j* and recess *j'*, substantially as described, and for the purpose set forth.

191,160. PROCESSES OF MANUFACTURING ALUMINIC SULPHATE AND ALUM. Charles Lennig, Philadelphia, Pa. [Filed Aug. 7, 1876.]

The process of dissolving the alumina contained in clay or kaolin by subjecting the clay or kaolin to the action of sulphuric acid under pressure in a closed vessel, substantially as described.

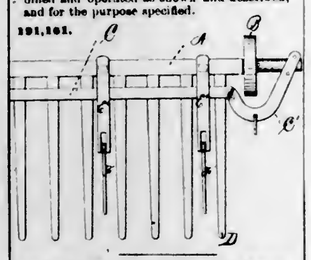
191,161. HORSE HAY-RAKES. D. Martin, Brookston, Ind. [Filed Apr. 4, 1877.]

1. The wheel-guard, formed by the bend O in the bar O, as and for the purpose shown and described.

2. The rake head A, supported by wheels B, uprights E, having arms E' and strippers F, as and for the purpose described and shown.

3. The rake-head A, supported by wheels B and teeth D, strengthened by the bar C, having the bend C', upright E having the rigid arms E' and strippers F, arranged and combined and operated as shown and described, and for the purpose specified.

191,161.



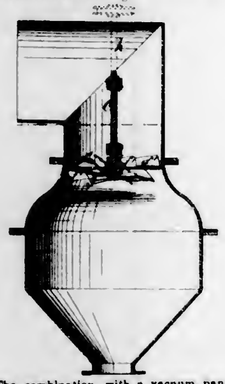
191,160. BUREAU-DRAWERS. I. Mason, Brooklyn, N. Y. [Filed Apr. 9, 1877.]



1. The two slides C D, in combination with the draw B, adapted to be closed by contact with the back A' of the body of the bureau, as herein specified.

2. The partitioned drawer B B', lined with yielding material *b*, in combination with a sliding cover in two parts, D C, grooved guides B', and arranged to be closed by contact with a stop, A', to insure the closing of the covers during the shutting of the drawer, as herein specified.

191,162. APPARATUS FOR COLLECTING AND SAVING PARTICLES OF SUGAR-LIQUOR RISING WITH THE STEAM FROM VACUUM-PANS. Franz O. Matthiessen, Irvington, N. Y. [Filed Mar. 3, 1877.]



The combination, with a vacuum pan, of a wheel composed of a system or systems of inclined or curved blades, vanes, or fans affixed to a central shaft, mounted in vertical bearings within the neck of the pan, and made to rotate by the force of the current of steam generated in the pan, whereby fine particles and drops of sugar-liquor carried upward with the steam are caught upon the rotating blades and thrown therefrom by centrifugal force against the wall of the neck in favorable position to make their way back under the influence of their own gravity into the body of sugar-liquor in the bottom of the pan.

191,164. TAMPING-TOOLS. Ira W. Mead, Falls Village, Conn. [Filed Mar. 24, 1877.

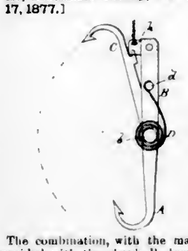
191,164.



1. A tamping-tool consisting of a blade and tubular handle removably secured together, substantially as specified.

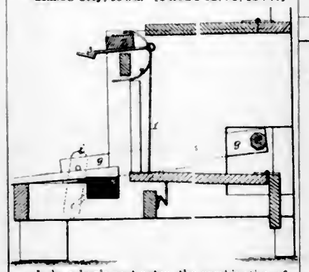
2. In a tamping-tool, the blade *a*, having a screw-threaded rabbet, *c*, and the tubular screw-threaded handle *b*, having prismatic enlargement *s*, combined substantially as specified.

191,165. SNAP FISH-HOOKS. Geo. C. Miller, Albemarle County, Va. [Filed Mar. 17, 1877.]



The combination, with the main hook A, provided with the shank B, having latch *h* pivoted to its end, of the auxiliary hook C with projecting pin *i*, the pivot-pin *a* with stud *b*, and the coiled spring D, all constructed and arranged as described, whereby the spring D may be wound up more or less by turning the auxiliary hook one or more times on its pivot, for the purposes set forth.

191,166. HEN'S NESTS. H. B. Morrison, Mason City, Iowa. [Filed Feb. 10, 1877.]



1. In a hen's nest entry, the combination of the bar *e*, lever *g*, crank *j*, and a door for closing the end of the entry, substantially as shown.

2. The combination of a hinged floor, spring connecting-rod, pivoted rocking-bar, and the catch, whereby the door is held shut and released, substantially as described.

3. The rocking-bar, connected to the floor, and provided with a catch for holding the door and a device for pushing the door open, substantially as set forth.

191,167. BLOCKS FOR DESIGNING INLAID WORK. Johann U. Mueller, Detroit, Mich. [Filed Apr. 5, 1877.]

Brief.—Useful as toy blocks for kindergarten use, or, in sober earnest, for forming various ornamental patterns.

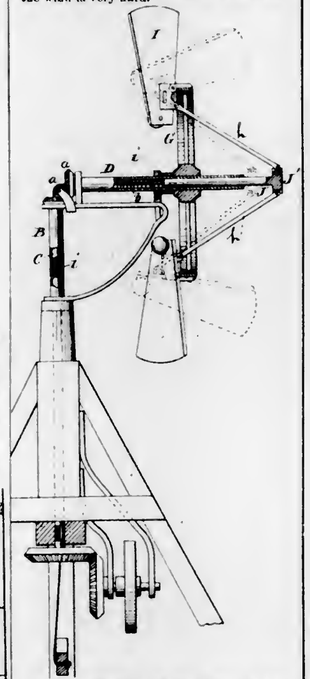
191,167.



The apparatus for designing mosaic or inlaid work, consisting of square blocks or tablets having marked on one or more of their sides or surfaces, in varying shades, tints, or colors, divided isosceles triangles, so as to form two triangles of unequal sides, substantially as described and shown, for the purpose set forth.

191,168. WINDMILLS. J. Nesbitt, Prairie Ronde, Mich. [Filed Apr. 28, 1877.]

Brief.—This wind-wheel has no vane, and the wheel hangs behind the center-post, the wind holding the mill facing the wind at all times. It is self-regulating. When the wind blows hard, it increases the motion, and the motion opens the fans, so that they catch less wind, and hence the wheel will have the same motion all the time, and does not stop when the wind is very hard.



1. In a windmill, a series of separate fans, hung to a rotating wheel, and having their position or angle regulated by the centrifugal force, substantially as herein set forth.

2. The combination of the hollow shaft D, with interior spring *b*, the wheel G, fans I I, braces *h k*, and rod J', with head J', all substantially as and for the purposes herein set forth.

3. The combination of the hollow wind-wheel shaft D, bevel-gears *a a*, hollow upright shaft C, and the hollow center-post B, of the derrick, as and for the purposes herein set forth.

191,169. GAME APPARATUS. F. E. Nutting, Florence, Mass. [Filed Feb. 20, 1877.]

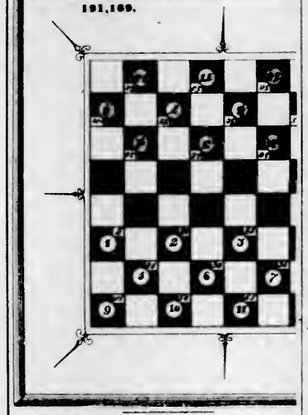
1. A game apparatus consisting of a checker-board having one or more rows of its playing-squares numbered, and of checker-men also numbered, substantially as described.

2. A game apparatus consisting of a checker board and men, a portion of the playing-squares of the board being, respectively,

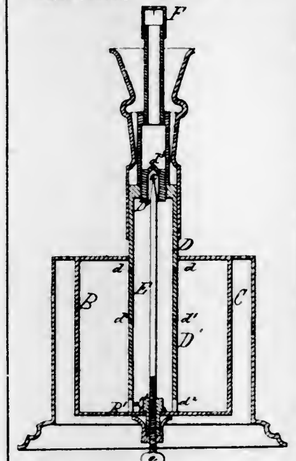
marked with numbers having a common divisor, and the checker-men being marked, respectively, with numerals such that each number on the board-squares is divisible under the common divisor by one of the numbers on the checker-men, substantially as described.

3. The combination, with a check-board equal portions of whose squares on either opposing side are numbered in a constantly-increasing series, having a common factor, of checker-men corresponding to each of said opposing sides, and numbered so that each one of the checker-men may, under multiplication of said common factor, equal the number stamped upon the respective squares, substantially as and for the purpose described.

191,169.



191,170. HYDROCARBON-VAPOR BURNERS. Robt. W. Park, Philadelphia, Pa. [Filed Sept. 6, 1876.]

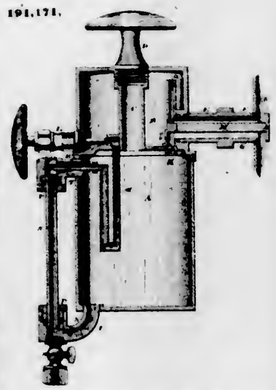


1. In a hydrocarbon-vapor burner, the retort D, formed or provided with an extension, D', in combination with the reservoir B, said retort and reservoir being relatively arranged, substantially as described, so that the liquid contents of the latter may come in contact with the walls of the former, so as to secure ready vaporization of the oil, substantially as shown and set forth.

2. In combination with the reservoir B, the retort-extension D' projected downwardly into said reservoir, and provided with openings *d* for the passage of the vaporized oil or gas, substantially as shown and described.

191,171. LUBRICATORS. C. H. Parshall, Detroit, Mich. [Filed Mar. 29, 1877.]

191,171.



1. The side-supporting stem, having its steam and oil ducts communicating with their respective chambers by independent passages, the passage from the oil-chamber into its corresponding duct being provided with a check-valve, substantially as described.

2. A lubricator divided into steam and oil chambers, which are secured directly to each other, the steam or condensing chamber formed with a T division-plate, with which is connected the supporting-stem, the latter being provided with independent steam and oil passages or ducts, substantially as set forth.

3. A lubricator divided into steam and oil chambers, directly secured to each other, the steam or condensing chamber formed with an inwardly-projecting screw-threaded socket, which latter has steam and oil passages leading from its sides, in combination with a supporting-stem, the same being provided with independent steam and oil passages, substantially as set forth.

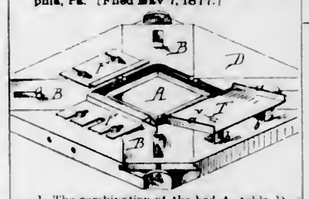
4. The side-supporting stem, having independent steam and oil ducts, whose partition-piece is provided with the right-angular crossguard, made in the same piece therewith, substantially as described.

5. A lubricator provided with independent steam and oil chambers, the bottom of the steam-chamber provided with two openings at right angles to each other, one opening serving as a valve-seat, while the other is screw-threaded, for the attachment of a water-seal pipe, substantially as set forth.

6. The combination, with the oil and condensing chambers, directly secured to each other, of a water-seal pipe, the upper end of which connects with the condensing-chamber, while the lower portion of the pipe depends into the oil-chamber, and the lower end connects directly with a glass indicator, the ends of which have free communication with the oil-chamber, substantially as and for the purpose set forth.

7. The condensing-chamber, constructed with independent openings in its bottom for the separate passage of water and oil, the openings provided, respectively, with a water-seal and a check-valve, substantially as described.

191,172. SHEET-METAL-CAN MACHINES. G. H. Perkins, Philadelphia, Pa., assignor to himself, J. Le Comte, New York city, and Atlantic Refining Company, Philadelphia, Pa. [Filed May 7, 1877.]

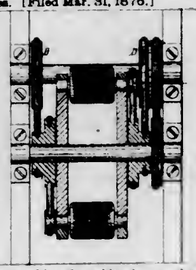


1. The combination of the bed A, table D, and dies B of a can jointing machine with a plate or plates, F, arranged adjacent to the edge of the opening in the table, substantially as set forth

2. The plate F, provided with flanges *a*, whereby it forms a guide for directing the bottom of the can onto the bed A, as set forth.

3. The plate F, connected to the table by an elastic support, so that it can yield vertically at the front end, as specified.

191,173. MACHINES FOR WHITENING AND BUFFING LEATHER. W. A. Perkins, Salem, Mass. [Filed Mar. 31, 1876.]



In a machine for whitening or dressing leather, one or more cylindrical tools attached to the periphery of a wheel, each of the cylindrical tools having a positive rotative movement on its own axis imparted to it, and is brought into contact with the leather to be dressed by the revolution of the wheel to which it is attached, substantially as herein described.

191,174. MANUFACTURE OF TABLETS, SIGNS, &c. H. Pfeil, Philadelphia, Pa. [Filed Nov. 3, 1876.]

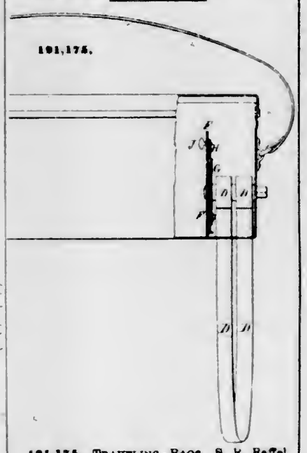
1. The mode herein described of preparing paper for receiving designs to be imparted by printing, painting, or otherwise—that is to say, first impregnating the paper with drying-oil, and then varnishing the back, all substantially as set forth.

2. The mode described of preparing paper for printing or painting, or both—that is to say, impregnating the paper with drying-oil, varnishing the back of the paper, and painting the front, as set forth.

3. The mode described of making an imitation of prepared canvas—that is to say, by impregnating paper with drying-oil, varnishing the back, and subjecting the paper to pressure while in contact with wire-gauze, as specified.

4. The mode described of manufacturing signs, tablets, pictures, &c.—that is to say, first impregnating paper with drying-oil; then varnishing the back; then imparting the design to the face or to a coating of oil-color on the face; and, finally, uniting the varnished side of the sheet to a varnished backing, as set forth.

191,175.



191,175. TRAVELING-BAGS. S. S. Raffel, Hartford, Conn. [Filed Mar. 14, 1877.]

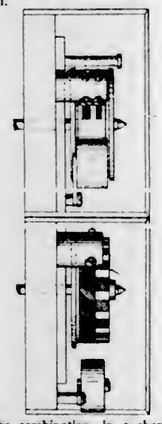
Brief.—Straps pass through holes in the bottom of the bag, and are wound upon drums on the inside. Suitable mechanism is provided to tighten the straps, and thus hold a roll or bundle without the aid of buckles.

I. A traveling-bag having the ratchet and paw! G H, and the releasing-knob J, arranged between a partition, F, and the end of said bag, for the purpose of holding and operating a strap for securing a roll or bundle to the bottom of the bag, substantially as herein described.

2. The straps D, or their equivalents, and a winding and retaining mechanism, in combination with a traveling-bag, substantially as and for the purpose herein described.

191,176. CHEMICAL TELEGRAPHS. Charles A. Randall, Brooklyn, N. Y. [Filed Oct. 16, 1876.]

Brief.—Records in Roman characters, using single line-wire. Transmitter and receiver revolve synchronously. Receiver consists of revolving wheel, bearing Roman characters in metal, through which current passes to ground. Transmitter of ordinary form, paper being perforated with perforations, the distances between which correspond to the distances between the successive letters to be recorded.



1. The combination, in a chemical telegraph, of a suitable transmitting apparatus with a single line-wire, and a receiving-drum composed of a circuit-wheel, the metallic sections of which represent the letters of the alphabet, so that by a single impulse of electricity any desired letter can be recorded upon chemical paper passing over the type-circuit wheel, substantially as set forth.

2. The combination, in a chemical telegraph, of a circuit-wheel, the metallic sections of which represent the letters of the alphabet, with a transmitting-strip provided with perforations, the distances of which from each other correspond to the distances between the successive letters to be recorded, substantially as described.

3. The method herein described of splitting up the electric current in the receiving-station by combining a series of receiving-pens connected to one and the same line wire with the type-circuit wheel, substantially as set forth.

4. The combination, with a transmitting apparatus and with its line-wire, of a recording apparatus, which, after having received an electrical impulse of one polarity from the transmitting-station, produces automatically an electrical impulse of the opposite polarity, substantially as described, and shown in Fig. 5.

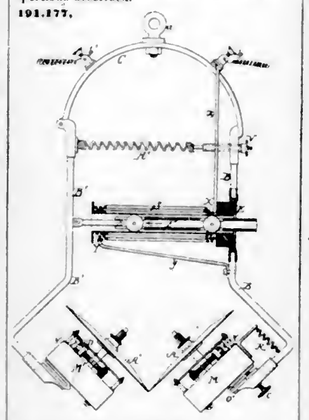
5. The combination, with a type-circuit wheel, of an induction-coil and a battery in the receiving-station, the induction-coil being connected to the line-wire, the battery, the stylus, and the circuit-wheel, substantially as described, and shown in Fig. 11.

191,177. ELECTRIC LIGHTS. N. H. Reynier, Paris, assignor to C. B. M. Du Breil, Quimerch an Bannalec, France. [Filed Mar. 29, 1877.]

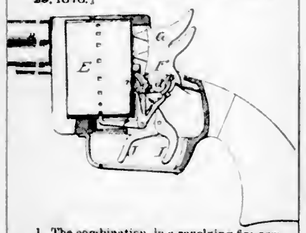
1. The combination, in an electric lamp, of the arms B and B', carrying the carbons, with the spring F', and with the solenoid S connected to one arm, and the soft-metal bar to the other, as set forth.

2. A carbon disk for an electric lamp, the said disk being formed of a compound of carbon, sugar, and iron filings, in about the proportions described.

191,177.



191,178. REVOLVING FIRE-ARMS. C. H. Richardson, Philadelphia, Pa. [Filed Dec. 29, 1876.]

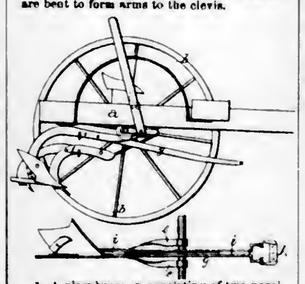


1. The combination, in a revolving fire-arm, of the following elements, namely: a barrel, B, with two bores, a revolving chambered cylinder, D, a revolving chambered ring, E, and two independently-operating hammers, F and G, as set forth.

2. The combination of the cylinder D, provided with ratchet and recesses, with the bell crank lever *f*, and the hammer F, having a finger, *e*, and the cam *m* on one side, constructed and operating substantially as set forth.

191,179. CULTIVATORS. Wm. J. Robertson and Philip Knight, Jasper County, Mo. [Filed Apr. 13, 1877.]

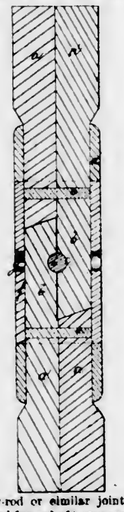
Brief.—A wheel cultivator, the beam consisting of two plates or bars that run parallel, separated at suitable distances with small interposed plates, and at the rear parting to form the braces to the land-side and the mold-board of the plow. The front ends of the bars are bent to form arms to the clevis.



1. A plow-beam, *g*, consisting of two parallel plates, the end of one being fastened to the inside of the mold-board, and the other to the inside of the land-side, in combination with the interposed plates *i* and the plates *c*, for connecting the beam to the axle, substantially as shown.

2. The plow-beam *g*, consisting of two parallel plates that are separated by the interposed plates *i*, and which have their front ends turned outward at right angles, so as to receive the clevis *h*, substantially as set forth.

191,180. SUCKER-RODS. Luman Rogers, Pittsburg, Pa. [Filed Nov. 8, 1876.]

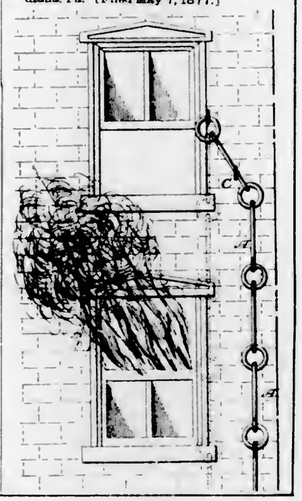


1. The sucker-rod or similar joint section, having a lap, and formed of two or more pieces secured by a pin or key and collar, substantially as and for the purpose specified.

2. The pump-rod or similar connection, consisting of the lap-joint, the key or pin and sleeve or keeper, the motion of the keeper being restricted by the fixed collars, substantially as and for the purpose specified.

3. In a joint or connection for sucker-rods and similar shafting, the combination of the lap-joint, the pin or key, the sliding sleeve or keepec, and the annular spring-washer, substantially as and for the purpose specified.

191,181. FIRE-ESCAPES. Edwd. Row, Indiana, Pa. [Filed May 7, 1877.]



1. The combination of the two parts A A', hinged together as described, of the loops attached to said parts, and the legs B B', connected with the loops, the whole arranged as and for the objects hereinbefore set forth.

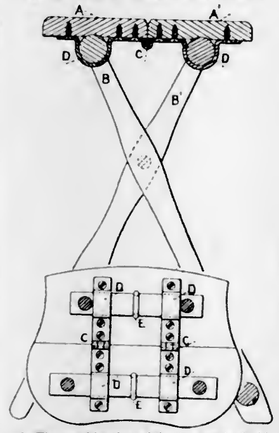
2. The hinges C, with loop D, in combination with the seat and legs of a camp-stool, substantially as described, and for the purpose set forth.

3. The grooves on the under side of the seat A and A', in combination with the loop D or staple E, substantially as described, and for the purposes set forth.

1. A fire-escape composed of a series of alternate links and rings, A, provided with a suitable device for attaching the same to the place desired, as set forth.

2. A fire-escape composed of a series of alternate links and rings, and provided with a suitable device for attaching the same to the place desired, in combination with an auxiliary point and arm, substantially as and for the purpose set forth.

191,182. CAMP-STOOLS. Edw. M. Sammis, New York, N. Y. [Filed Oct. 26, 1876.]



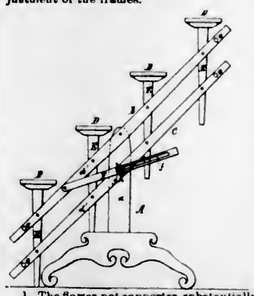
1. The combination of the two parts A A', hinged together as described, of the loops attached to said parts, and the legs B B', connected with the loops, the whole arranged as and for the objects hereinbefore set forth.

2. The hinges C, with loop D, in combination with the seat and legs of a camp-stool, substantially as described, and for the purpose set forth.

3. The grooves on the under side of the seat A and A', in combination with the loop D or staple E, substantially as described, and for the purposes set forth.

191,183. FLOWER-POT SUPPORTERS. W. F. Sampson, Norway, Me., assignor to himself and N. C. Sampson; said N. C. Sampson assignor to A. L. F. Pike, same place. [Filed Dec. 11, 1876.]

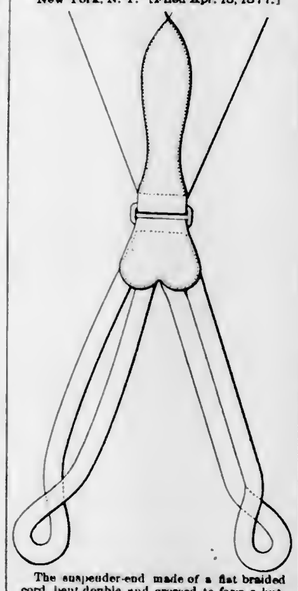
Brief.—Shelves are attached to the upper ends of legs pivoted vertically to two parallel frames, which are pivoted to a stand. The legs retain their vertical positions at any adjustment of the frames.



1. The flower-pot supporter, substantially as described, composed of the stand A, the two pivoted frames B C, the series of shelves D, and legs E attached thereto, arranged and combined essentially in manner and to operate as shown and explained.

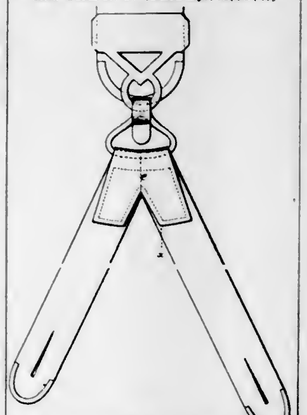
2. The combination of one or more slotted bars, F, and a clamp-screw, *g*, and nut *h* therefor, as described, with the flower-pot supporter, composed of the stand A, the pivoted frames B C, the series of shelves D, and legs E, all being arranged and combined, substantially as and to operate as set forth.

191,184. SUSPENDERS. Abraham Shenfield, New York, N. Y. [Filed Apr. 13, 1877.]



The suspender-end made of a flat braided cord, bent double and crossed to form a button-hole at the end, and the cord secured together at the crossing by stitches, substantially as set forth.

191,185. SUSPENDERS. Abraham Shenfield, New York, N. Y. [Filed Apr. 13, 1877.]



The suspender-end formed of two separate and independent woven webs, each having a button-hole near one end, and connected at the other end by a folded piece of leather to the loop or ring of the buckle, substantially as set forth.

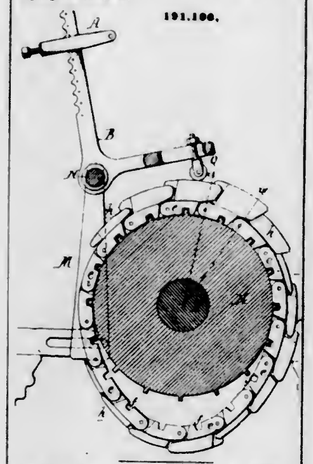
191,186. KNITTING-MACHINES. J. Sibson, Philadelphia, Pa. [Filed Sept. 18, 1876.]

Brief.—The standards supporting the guide-bar-actuating lever are adjustable to and from the chain. The yoke is also adjustable on the lever. The above adjustments co-operate with that of the roller on the chain, to make the action of the guide on the chain steady and accurate.

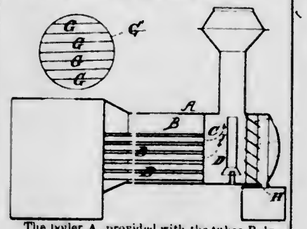
1. The combination of the pattern-chain with a lever, B, and adjustable yoke A, attached to the guide-bar of a knitting-frame.

2. The combination of the drum H, the pattern-chain, and adjustable standards M, carrying the lever B.

191,188.

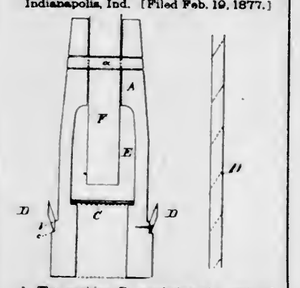


191,187. SPARK-ARRESTERS. I. B. Smith, Hornellsville, N. Y. [Filed Mar. 6, 1877.]



The boiler A, provided with the tubes B, in combination with a series of deflecting-plates connected to a removable rim, G', arranged within the chamber C, beyond the course of the natural draft and the opening leading to the smoke-stack, for the purposes described.

191,189. PUMP-PISTONS. J. M. Springer, Indianapolis, Ind. [Filed Feb. 19, 1877.]



1. The packing D, consisting of a strip of suitable material cut with beveled edges, as shown and for the purpose specified.

2. The combination of the cylinder A, having recesses *b* and *c*, packing D, independent valve C, and rod F, all as herein shown and described, and as and for the purpose specified.

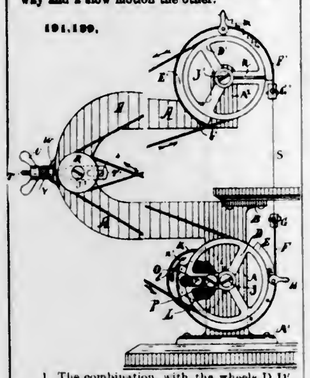
3. The rod F, in combination with a pump-sucker, as shown, used as a stop for the valve C, as herein shown and described.

191,190. JIG-SAWS. L. T. Stanley, Indianapolis, Ind. [Filed Mar. 16, 1877.]

Brief.—The saw is attached to two segmentally-flanged wheels, provided with eccentric binders to retain the belts on the wheels,

mounted on the upper and lower arms of a C-shaped frame, and having a uniform motion given to each in the same direction by means of an equalizing belt passing over the wheels, and a double-grooved and adjustable sheave mounted in the rear of the frame. The upper band-wheel is provided with a fan-wing, attached to one of the spokes, for blowing the sawdust from the work. The lower wheel receives power from a crank-wheel, provided with a wrist-pin operating in a slotted spoke of the same, by means of which it is partially rotated on its axle with a quick motion one way and a slow motion the other.

191,189.



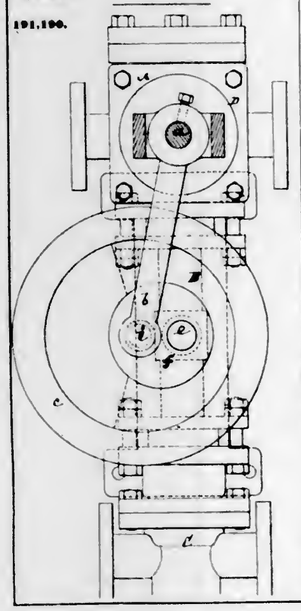
1. The combination, with the wheels D D', provided with segmental flanges E E, of a jig-saw device, of the eccentric clamps H H, for adjusting the bands F F on the wheels, as specified.

2. The wheels D D' of a jig-saw device, carrying the bands and saw, in combination with the crank-wheel L and its pin P, adapted to a radial slot in the wheel D, as set forth.

3. A jig-saw device consisting of the frame A, wheels D D', crank wheel L, wrist pin P, clamps H, sheaves R, and endless ropes or belts x and F, constructed and arranged to operate as shown and described.

4. The spring-slide T, screw T, and nut U, combined with the double sheave R, belts x and F, wheels D D', carrying the belt and saw, as specified.

191,190.

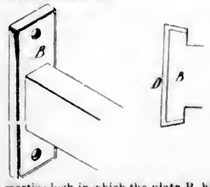


191,190. DONKEY ENGINE AND PUMP. Jos. Stannah, Southwark, England. [Filed Mar. 21, 1877.]

Brief.—A disk is loosely pivoted to the valve-arm and to the piston rod. As said piston-rod reciprocates, it causes the disk to rotate on both pivots, which throws the valve-arm pivot from side to side to oscillate the valve.

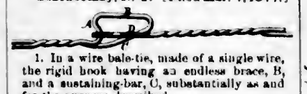
The combination of the rotating disk or pendulum weight *c*, the concentric pin *i* on or with which said disk or weight rotates, the valve-spindle *a*, the pendulous rod *b* connecting said valve-spindle and pin *i*, and the eccentric pin *e*, attached to the reciprocating piston-rod F, and connected with the rotating and swinging disk or weight *c*, substantially as specified.

191,191. FACE-PLATES FOR LOCKS. A. Stewart, Philadelphia, Pa., assignor to himself and W. H. Matteson, same place. [Filed Jan. 16, 1877.]



A mortise-lock in which the plate B, having all four edges beveled, is combined with a brass strip, D, having four flanges adapted and compressed to the said beveled edges of the plate, all as set forth.

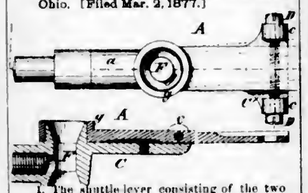
191,192. WIRE BALE-TIES. L. Stewart, Schenectady, N. Y. [Filed Mar. 7, 1877.]



1. In a wire bale-tie, made of a single wire, the rigid hook having an endless brace, B, and a sustaining-bar, C, substantially as and for the purpose described.

2. The wire bale-tie, having a loop, D, formed at one end of the tie, with a hook, A, made of a single wire and provided with a brace, B, and a sustaining-bar, C, all constructed and operating substantially as herein set forth.

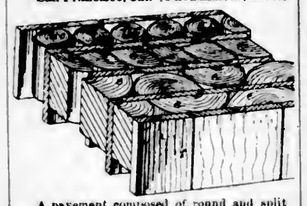
191,193. SHUTTLE-LEVERS FOR SEWING-MACHINES. R. H. St. John, Springfield, Ohio. [Filed Mar. 2, 1877.]



1. The shuttle-lever consisting of the two members *a b*, relatively adjustable on their common axis, as and for the purpose set forth.

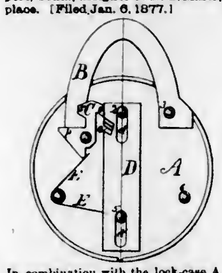
2. The compound lever A, constructed with an arm, C, having ears or lugs *c*, between which the free end *b* of said lever is held by set-screws D, as and for the purpose set forth.

191,194. WOOD PAVEMENTS. H. M. Stow, San Francisco, Cal. [Filed Mar. 14, 1877.]



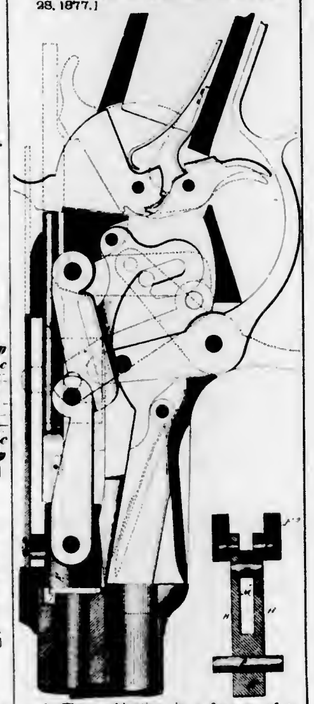
A pavement composed of round and split blocks of wood, placed in separate rows or together, and held to their places by an intermediate row of thinner and longer blocks, as and for the purpose described.

191,195. PADLOCKS. R. Thompson, Bridgeport, Conn., assignor to N. G. Miller, same place. [Filed Jan. 6, 1877.]



In combination with the lock-case A, hasp B, and catch C, the parallel tumblers D, constructed with the slots *d* and *d'*, so as to pass over and be retained in position by the rivets 2 and 5 of said case, and with the notches *e* in one of the sides of the same, to receive the projection *o* of said catch when the hasp is unlocked, and arranged to operate in locking and unlocking said hasp, substantially as shown and specified.

191,196. MAGAZINE FIRE-ARMS. Frank W. Tiesing, New Haven, Conn. [Filed Feb. 28, 1877.]



1. The combination, in a fire-arm, of a breech-piece moving longitudinally in the frame to open and close the barrel, mechanism for imparting a reciprocating motion to the said breech-piece, a spindle in connection with said breech-piece, so as to have longitudinal play between the breech-piece and said spindle, a firing-pin arranged relatively to the said spindle, so as to receive the blow of the hammer through the spindle, and a cartridge-extracting hook attached to said spindle and independent of the breech-piece, substantially as described.

2. The combination, in a fire-arm, of a breech-piece moving longitudinally in the frame to open and close the barrel, mechanism for imparting a reciprocating motion to the said breech-piece, a spindle in connection with said breech-piece, and swinging forward and downward to release the breech-piece; a lever in connection with said breech-piece, and operating first to release the locking-shoulder, then to open the breech-piece, and the said lever also constructed with a bearing-surface to support the said locking-shoulder when fully closed, substantially as described.

3. In a breech-loading fire-arm, the combination of the following elements: a breech-piece arranged to swing backward and downward in the arc of a circle in opening the breech; a locking-shoulder hung in rear of said breech-piece, and swinging forward and downward to release the breech-piece; a lever in connection with said breech-piece, and operating first to release the locking-shoulder, then to open the breech-piece, and the said lever also constructed with a bearing-surface to support the said locking-shoulder when fully closed, and an auxiliary lever working between the said lever and locking-shoulder, and operated by the said lever to bring the said lever and locking-shoulder into connection in the act of closing, substantially as described.

4. The combination, in a magazine fire-arm, of a breech-piece moving longitudinally in the frame to open and close the barrel, and mechanism for imparting a reciprocating motion to the said breech-piece, with the carrier M, an arm from which extends through a vertical slot in the lever-arm H, and hung in the rear of said lever-arm, the lever-arm provided with a pin, *a*, to impart to the said carrier a vertical reciprocating movement, substantially as described.

5. The combination, in a fire-arm, of a breech-piece moving longitudinally in the frame to open and close the barrel, duplicate links F^1 F^2, one pair hinged to the breech-piece, the other pair to the frame in the rear, and the two pairs intermediately hinged together, the three joints being in a horizontal plane with the axis of the barrel, the frame of the arm constructed with a bearing, F^3, for the links, substantially as described.

191,197. BREECH-LOADING FIRE-ARMS. F. W. Tiesing, New Haven, Conn., assignor to E. Whitney, same place. [Filed Jan. 16, 1876.]



1. In a breech-loading fire-arm, the combination of the following elements: a breech-piece arranged to swing backward and downward in the arc of a circle in opening the breech; a locking-shoulder hung in rear of said breech-piece, and swinging forward and downward to release the breech-piece; a lever in connection with said breech-piece, and operating first to release the locking-shoulder, then to open the breech-piece, and the said lever also constructed with a bearing-surface to support the said locking-shoulder when fully closed, substantially as described.

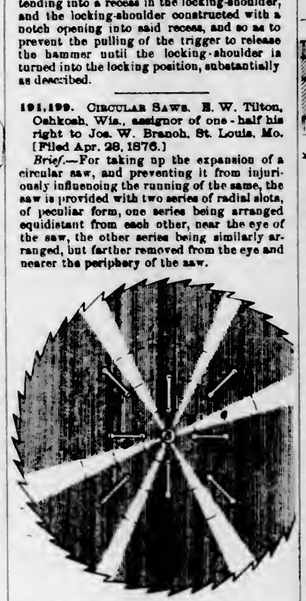
2. In a breech-loading fire-arm, the combination of the following elements: a breech-piece arranged to swing backward and downward in the arc of a circle in opening the breech; a locking-shoulder hung in rear of said breech-piece, and swinging forward and downward to release the breech-piece; a lever in connection with said breech-piece, and operating first to release the locking-shoulder, then to open the breech-piece, and the said lever also constructed with a bearing-surface to support the said locking-shoulder when fully closed, and an auxiliary lever working between the said lever and locking-shoulder, and operated by the said lever to bring the said lever and locking-shoulder into connection in the act of closing, substantially as described.

3. In a breech-loading fire-arm, the combination of the following elements: a breech-piece arranged to swing backward and downward in the arc of a circle in opening the breech; a locking-shoulder hung in rear of said breech-piece, and swinging forward and downward to release the breech-piece; a lever in connection with said breech-piece, and operating first to release the locking-shoulder, then to open the breech-piece, and the trigger extended into connection with the locking-shoulder, so as to form an auxiliary support for the locking-shoulder at the time of firing, substantially as described.

5. In a breech-loading firm-arm, the combination of the following elements: a breech-piece arranged to swing backward and downward in the arc of a circle in opening the breech; a locking-shoulder hung in rear of said breech-piece, and swinging forward and downward to release the breech-piece; a lever in connection with said breech-piece, and operating first to release the locking-shoulder, then to open the breech-piece; a hammer for the discharge of the arm, and the trigger extending into a recess in the locking-shoulder, and the locking-shoulder constructed with a notch opening into said recess, and so as to prevent the pulling of the trigger to release the hammer until the locking-shoulder is turned into the locking position, substantially as described.

191,198. CIRCULAR SAWS. E. W. Tilton, Oshkosh, Wis., assignor of one-half his right to Jos. W. Branch, St. Louis, Mo. [Filed Apr. 28, 1876.]

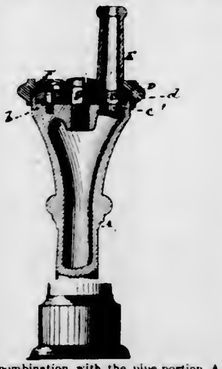
Brief.—For taking up the expansion of a circular saw, and preventing it from injuriously influencing the running of the same, the saw is provided with two series of radial slots, of peculiar form, one series being arranged equidistant from each other, near the eye of the saw, the other series being similarly arranged, but farther removed from the eye and nearer the periphery of the saw.



1. A circular saw provided with openings between the eye and periphery to prevent the warping or buckling of the saw when expanded by heat, substantially as described.

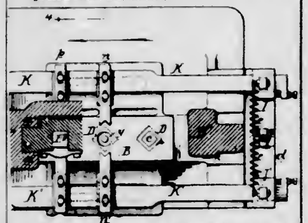
2. A circular saw having two sets of radial slots or holes cut through it, one set being farther removed from the eye than the other set, substantially as described, for the purposes specified.

191,199. HOSE AND PIPE NOZZLES. E. R. Tomlinson, Bridgeport, Conn., assignor to himself and the Eaton, Cole & Burnham Company, same place. [Filed Apr. 26, 1877.]



The combination, with the pipe portion A, having a flaring outer closed end and the aperture *c'*, of the flexible flanged disk B, having the eccentric aperture *c*, lateral projection *b*, for preventing the disk turning, and the turning flanged disk D, secured to the flaring end of the pipe by set-screw *g*, and provided with jet-tube E and spraying device F, substantially as and for the purposes set forth.

191,200. MACHINES FOR MAKING NUTS. Samuel S. Townsend, Philadelphia, Pa. [Filed Nov. 24, 1876.]



1. The combination, in a nut-machine, of the following elements, namely, first, a reciprocating plunger and stationary die for severing a crude nut-blank from a punched bar simultaneously with the shaving of the said blank; second, a chamfering plunger and die; third, a reciprocating plunger and stationary die for final shaving; and, fourth, transferring mechanism, substantially as described, whereby the above elements are made to co-operate, all substantially as set forth.

2. The combination of the bars K K', having jaws *a a'* and *p p'*, with mechanism for imparting to them the two movements herein described, so as to operate in conjunction with the three plungers and three dies in the manner described.

3. The combination of the intermittently-reciprocating slides I I and I^1 I^1 with the intermittently-reciprocating bars K K' adapted to the slides and having adjustable jaws *a a'* and *p p'*.

191,201. MACHINES FOR BENDING, UPSETTING, AND CUTTING TIRES. L. W. Tyler, Thetford, N. Y. [Filed Apr. 7, 1877.]

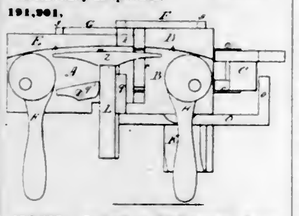
Brief.—The movable bending-jaw is pivoted upon the stationary bed, and operated by the same lever that draws the movable to the stationary bed for upsetting or cutting.

1. In a tire-upset, the combination, with the jaws A B, having the respective upsetting-buttresses D E, of the convex guard Z, beveled guide-strip *q*, and adjusting-cam *q'*, substantially as specified.

2. The combination, with the sliding upset-jaws A B, their operating-lever C, and pivoted connecting-rods *c*, of the fixed bending-jaw I, the vibrating lever O, carrying the convex bending-jaw K, the transverse arm *o* engaging lever C, and a separating-spring, P, substantially as specified.

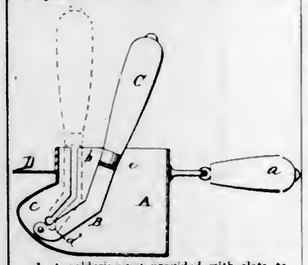
3. The combination, with the beds A and B, each carrying an upsetting and shearing jaw, of the removable guard Z and the chock *k*, substantially as specified.

191,201.



191,202. SOLDERING APPARATUS. Saml. Uhlich, Mansfield, Ohio. [Filed Apr. 16, 1877.]

Brief.—The wire is inserted in the holes through the slot, and the clamp pushed forward to cover the latter when the handle is raised, so that the solder in the pot will cover the joint.



1. A soldering-pot provided with slots, to allow the wire to be inserted in the pot in a position for soldering the joint without bending the wire, substantially as and for the purposes set forth.

2. A soldering-pot having a slot on each side, made to terminate in a round hole to receive the wire, substantially as set forth.

3. A soldering-pot provided with a clamp for soldering the wire in place, in combination with slots *b*, substantially as and for the purposes set forth.

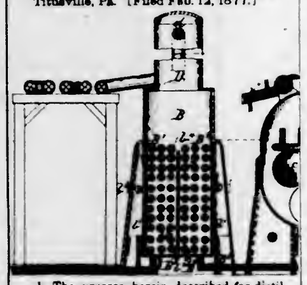
4. A soldering-pot provided with a clamp having arms B, with notch *d*, pivoted to the sides of the pot, and made to cover the slots, substantially as set forth.

5. The soldering-pot provided with a projection, *c*, to be inserted in the opening of a furnace, substantially as and for the purposes set forth.

6. The soldering-pot provided with an apron, D, in combination with the projection *c*, substantially as and for the purpose set forth.

7. The soldering-pot provided with projection *c*, in combination with slots *b*, substantially as described.

191,203. CONTINUOUS DISTILLATION AND APPARATUS THEREFOR. S. Van Syckel, Titusville, Pa. [Filed Feb. 12, 1877.]



1. The process herein described for distilling hydrocarbon oils, which consists in heating the contents of the still uniformly throughout, and delivering the oil to be distilled into the chamber near the surface of the contained oil, after the incoming oil has acquired the temperature of the body of oil in the still, whereby the body of the oil in the still remains undisturbed, and the distillation may be conducted at low temperatures, substantially as specified.

2. In the continuous distillation of hydrocarbon oils, the process for removing light products and uncondensable gases herein described, which consists in vaporizing from one-third to one-half of the contents of the crude-oil still, and condensing and returning to said still all of the distillate below 30° Baumé, substantially as specified.

3. The combination, with the primary or crude-oil still having the vertical partition, of a series of stills, the whole arranged for continuous distillation, the governor or regulator interposed between the still and the storage or supply tank, whereby only the heavier products pass to the succeeding stills, substantially as and for the purpose specified.

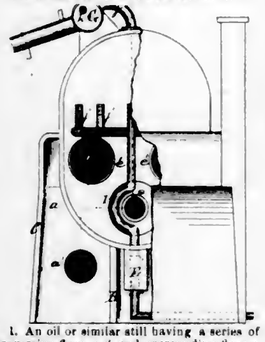
4. In a system of stills arranged for continuous distillation, the combination of two or more stills having heating-flues which surround and traverse the stills, the stills being connected by oil-supply pipes which pass through their lower parts and deliver the vapor into the vapor-spaces and the oil below the surface of the oil of the respective stills, substantially as and for the purpose specified.

5. The combination, with the crude-oil still, of the condenser, the return-pipe, and the water-trap arranged on the return-pipe, substantially as and for the purpose specified.

6. The combination of the condenser, the gasoline-tank and vertical condenser arranged thereon, and the steam-jet, with the primary still, substantially as and for the purpose specified.

7. The still B, provided with induction and delivery pipes, and divided by a vertical partition or diaphragm into receiving and discharging chambers, substantially as and for the purpose specified.

191,204. OIL-STILLS. Saml. Van Syckel, Titusville, Pa. [Filed Feb. 12, 1877.]



1. An oil or similar still having a series of traversing flues, *c c'*, and surrounding flues *a b b'*, which extend to the height of the oil within the still, substantially as and for the purpose specified.

2. In combination with the still and its goose-neck, the preliminary condenser, arranged upon the still, substantially as and for the purpose specified.

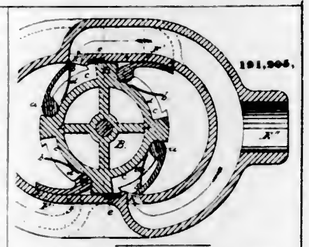
3. In combination with an oil or similar still, having surrounding and traversing flues which extend to the height of the oil within the still, a supply-pipe which rises within the still from a point at or near the bottom of the still and delivers just below the liquid-level, and having branch pipes for the escape of the vapor, substantially as and for the purpose specified.

191,205. FLUID-METERS. C. M. Van Tine, Matteawan, N. Y., assignor to A. Van Tine, same place. [Filed Feb. 27, 1877.]

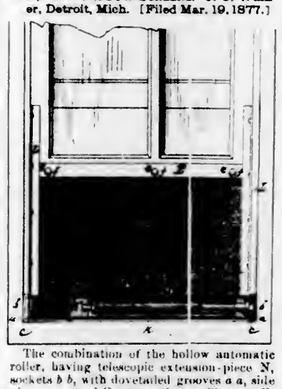
1. A liquid-meter the casing of which is oval in cross-section, and having the piston located in the center, forming measuring-sections on each side thereof, into both of which the fluid is admitted through induction-ports arranged on opposite sides of the piston, and educted through ports correspondingly arranged, substantially as set forth.

2. The piston B, provided with rings *c* and wings *b*, and having water-spaces *d*, with springs therein, for both equalizing the pressure and forcing open the wings, substantially as set forth.

191,206.

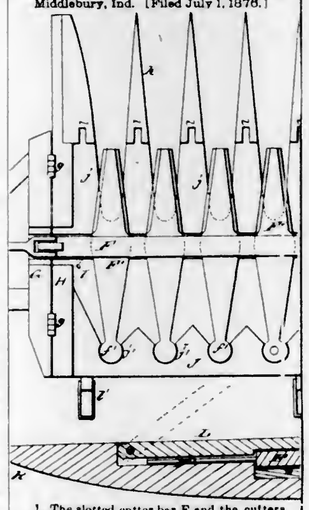


191,206. WINDOW-SCREENS. J. C. Walker, Detroit, Mich. [Filed Mar. 19, 1877.]



The combination of the hollow automatic roller, having telescopic extension-piece N, sockets *b b*, with dovetailed grooves *a a*, side plates *c c*, rod G, screen I, metallic strip E, having openings *f*, sash H, having hooks *e*, and metallic strips L, the several parts constructed and arranged to be applied to a window-frame, substantially as herein shown and described.

191,207. HARVESTER-CUTTERS. A. Walter, Middlebury, Ind. [Filed July 1, 1876.]



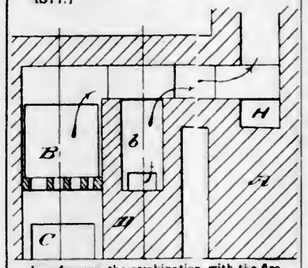
1. The slotted cutter-bar F and the cutters F', having disks *f'*, in combination with the finger-bar I, plate J, having circular recesses for the reception of the disks, and hinged guards L, whereby the cutters can readily be removed from their seats for sharpening or other purposes, substantially as described.

2. The combination of fingers K K and hinged guards L L, adapted to be raised at will, or to be locked down, substantially as set forth.

191,208. ROOFING MATERIALS. CYRUS M. Warren, Brookline, Mass. [Filed Mar. 22, 1876.]

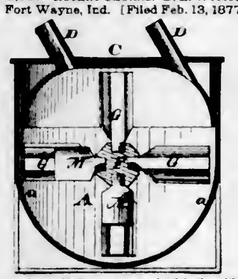
In the construction of roofs, a protecting layer of native bitumen, or mixture of native bitumens, or a compound of which this is an ingredient, in combination with a bottom layer of paper or felt and a top layer of gravel, sand, broken stone, or other fire-proof substance, substantially as set forth.

191,209. METALLURGIC FURNACES. Wm. M. Watson, Tonica, Ill. [Filed Feb. 17, 1877.]



In a furnace, the combination, with the fire and hearth chambers, of a series of intermediate flues or passages and a hollow fire-bridge, situated below and in direct communication therewith, the arrangement of parts being such that air admitted through the hollow bridge is commingled with the divided currents of gas and flame prior to their entry into the hearth-chamber, substantially as shown and described.

191,210. ROTARY CHURNS. D. L. Westcott, Fort Wayne, Ind. [Filed Feb. 13, 1877.]



A churn-dash, constructed with the oblong radial arms, whose two sides are wide plane surfaces, and whose edges are narrow double-grooved surfaces, substantially as described.

191,211. LINKS FOR ENDLESS-CHAIN HORSE-POWERS. J. Westinghouse, Schenectady, N. Y. [Filed Mar. 22, 1877.]



1. The combination of linings of steel, or other suitable hard substance, with the eyes *a* of a link, A, said eyes being provided with segmental recesses for the reception of the linings, substantially as and for the purpose shown and described.

2. The combination, with the segmental linings *c* and with the eyes *a*, of spurs *d*, for retaining the linings in position, substantially as set forth.

191,212. SAW SHARPENING AND SETTING MACHINES. S. Whitesides, West Depere, Wis. [Filed Mar. 10, 1877.]

Brief.—The rotary sharpener is adjustable lengthwise of its shaft, and can be swung out of the way of the reciprocating sharpener. A saw-set is attached, to be used by hand.

1. The carriage D, of a U shape, having flanges to enter grooves in the frame C, and a handle or gage-post, *s*, and provided with a rock-shaft, I, having a set-screw, F, substantially as and for the purpose set forth.

2. The file holder E *g g'*, having the handle *m* and rod *h*, in combination with the carriage D *d*, having the handle *e* and rock-shaft *l*, with set-screw F, substantially as and for the purpose set forth.

3. The bifurcated rotary bar or rod I, having the lever K, in combination with and bearing in the support *i*, having a segment, *i*, provided with gages *s s*, substantially as and for the purpose set forth.

4. The support *i*, having the plate *i'*, provided with the hollow block or head *i²*, having a movable jaw, *i³*, and set-screw *i⁴*, substantially as and for the purpose set forth.

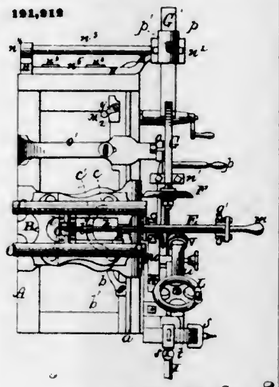
5. The support *i*, having the set-screw *k*, and clamping device *w u v c*, in combination with the rails *j* of the frame A, substantially as and for the purpose set forth.

6. The gummer-shaft *n*, in combination with and bearing in the box *n¹*, pivoted to the upright H, substantially as and for the purpose set forth.

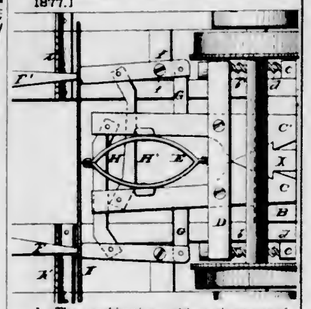
7. The gummer-shaft *n*, having its bearings or boxes *n¹ n²*, attached to and in combination with the bar or plate G, supported upon the standard *o o'*, and in the eye P, having a set-screw, P', upright H, having slots and set-screws *n⁴ n⁵*, and pivot or axis *n³*, substantially as and for the purpose set forth.

8. The elevator 2 3, in combination with the screw M *y* and rod N, substantially as and for the purpose set forth.

191,213.



191,214. CAR-COUPLINGS. G. W. Wilson, Chicago, Ill., assignor of one-half his right to F. Emery, same place. [Filed Apr. 4, 1877.]



1. The combination, with spring-pressed jaws C C' and yielding cross-bar D, of the horizontally-arranged levers F, (one or more,) pivoted below the car-frame, and connected to said jaws by links, substantially as and for the purpose set forth.

2. The combination, with spring-pressed jaws C C' and yielding cross-bar D, of the horizontally-arranged levers F, (one or more,) said levers connected to the long arms of jaws C C', and ratchet-bars *h h'*, arranged above said levers, substantially as and for the purpose set forth.

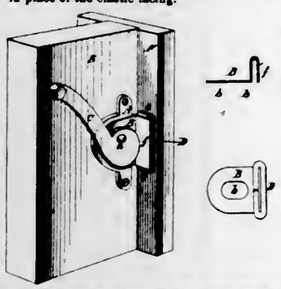
3. The combination, with jaws C C', and yielding cross-bar D, of the horizontally-arranged levers F connected to the long arms of said jaws *c c'*, ratchet-bars above said levers, and a supporting-rod located below the same, substantially as and for the purpose described.

191,215. COMBINED CUPOLA-FURNACE AND HOT-BLAST OVEN. A. Wilson, Sheffield, England. [Filed Dec. 27, 1876.]

The combination, with a cupola-furnace having an air-heating chamber situated above its mouth, of a series of horizontal detachable pipe-sections or annuli, arranged one above another within said chamber, of alternately-varying diameter, and secured together by suitable cup flange joint, the arrangement of parts being such that the air-blast of the furnace circulates through the pipe-sections, and is preheated by the escaping combustion-products prior to discharge into the furnace at the tuyeres, substantially as herein shown and described.

191,915. SASH-HOLDERS. L. R. Witherell, Davenport, Iowa, assignor of one-half his right to W. Downs, same place. [Filed Mar. 30, 1877.]

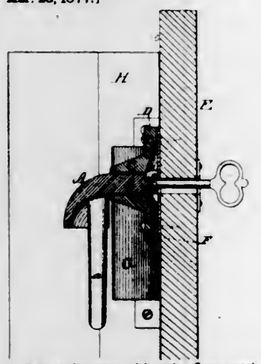
Brief.—A strip of rubber or other elastic facing is notched and folded so as to permit of its ends being forced into a recess formed by a right-angle bend and fold of the pressure-plate, the general construction being that of the ordinary eccentric lever and slotted pressure-plate, and the novelty mainly confined to the peculiar method of attaching and securing in place of the elastic facing.



1. The pressure-plate B, bent and folded, as shown at *f*, to form a recess for the ends of the notched and folded elastic facing D, substantially as shown and described, for the purpose specified.

2. The improved sash-holder herein described, consisting of the sliding, bent, and folded pressure-plate B, provided with the notched and folded elastic facing D and elongated slot *b*, the body-piece A, and the eccentric lever C, all constructed, arranged, and operating substantially as and for the purpose set forth.

191,919. LATCHES FOR DOORS, &c. A. C. Woolman, Bellefontaine, Ohio. [Filed Mar. 28, 1877.]



1. The combination, with socket C and catch G, of the latch or locking device A, having the rounded smooth exterior surface, and provided with the arm or handle *a* and journal *b*, projecting from diagonally opposite sides thereof, as shown and described.

2. The combination of locking-plate F with the socket C, the device A, and the journal *b*, having a circumferential groove, as shown and described.

REISSUES.

7,689. HOLLOW AUGERS. C. S. Bonney, Philadelphia, Pa., assignor to Lloyd, Supplee & Walton, same place. Patent No. 106,899, dated Aug. 2, 1870. [Filed Mar. 12, 1877.]

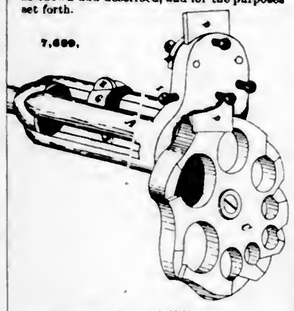
1. The combination of the revolving disk C with the hollow-auger body A, substantially as and for the purposes specified.

2. The disk C, revolving upon a screw as its axis, and constructed with a series of dies for forming different-sized tenons, substantially as, and as herein specified.

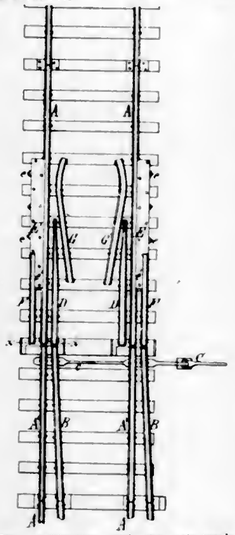
3. An adjustable stop, consisting of the combination of the stop-piece F, the strap or clamp-piece G with each other, and the operating screw H, substantially as herein shown and described, and for the purpose set forth.

4. The combination of the recessed cutter-seat of the body A of a hollow auger with the cutter D, and the supporting bar or strap E, as shown and described, and for the purposes set forth.

7,690.



7,690. RAILWAY-SWITCHES. C. L. Cooke, Buffalo, N. Y., assignor of one-half interest to Wm. V. Kish, same place. Patent No. 121,168, dated Nov. 21, 1871. [Filed Apr. 10, 1877.]



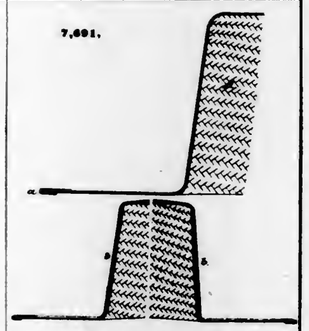
1. The combination, with the main-track rails A A and switch-rails B B, of the flange-supporting blocks E E, secured to the outer side of the main rails, and rail-sections F F, connecting the flange-supporting blocks with one or the other of the outer switch-rails, substantially as and for the purpose hereinbefore set forth.

2. The combination, with the main-track rails A A and switch-rails B B, of the flange-supporting blocks E, secured to the outer side of the main rails, and provided with inclined lips *a'* and rail-sections F, points D, and guide-rails G, arranged as shown and described, substantially as and for the purpose hereinbefore set forth.

3. The combination, with the main-track rails A, pointed rails D, guide-rails G, and rail-sections F, all constructed of rails, of the flange-supporters E, constructed of wood, and provided with a covering of plate-iron, substantially as and for the purpose hereinbefore set forth.

7,691. HATS. F. P. Flanagan, Springfield, Mass. Patent No. 38,895, dated June 16, 1863. [Filed May 1, 1877.]

7,691.

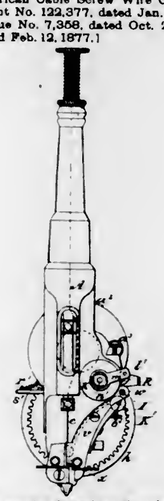


1. A hat-body made of strips of palm-leaf or other similar material having the cut or trimmed edge of its brim covered with a binding-strip of muslin or other woven fabric, cemented thereto for the purpose of confining the ends of the strips of palm-leaf or other similar material of which the body is composed, thereby insuring a smooth edge, and giving greater firmness to the brim, substantially as described.

2. The combination, with a coating of hatter's varnish to secure a covering of felt, cloth, plush, or other woven fabric, to a hat-body made of palm-leaf or other material of similar character, of a coating of india-rubber solution applied to the body preparatory to the application of the hatter's varnish, substantially as and for the purpose herein specified.

3. The binding-strip *a* cemented over the edge of the brim preparatory to the application of, and in combination with, the covering *b*, substantially as and for the purpose herein specified.

7,692. MACHINES FOR NAILING BOOT AND SHOE SOLES. L. Goddu, Boston, Mass., assignor, by mesne assignments, to the American Cable Screw Wire Company. Patent No. 122,377, dated Jan. 2, 1872; reissue No. 7,358, dated Oct. 24, 1876. [Filed Feb. 12, 1877.]

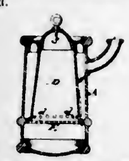


1. A machine for tacking the soles of boots and shoes to their uppers, constructed and organized with a fixed upright frame, tack feeding and driving mechanism under the control of the operator, without removing the work from the guide-nose, and an unobstructed downwardly-projecting guide-nose tube, adapted to enter the channel in the sole of a boot or shoe when presented by the hands of an operator, and allow of the free manipulation of the work in all directions to receive the tack or tacks, substantially as herein set forth.

2. In a machine for driving tacks or nails in the soles of boots and shoes, the combination, with the tack or nail feeding, cutting, and driving mechanisms, of treadle-power mechanism for operating these elements, and an unobstructed guide-nose tube adapted to receive a boot or shoe at the hands of an operator, all substantially as and for the purpose described.

7,693. TOBACCO-PIPES. B. Lorillard, Rhinebeck, N. Y. Patent No. 172,463, dated Jan. 18, 1876. [Filed May 1, 1877.]

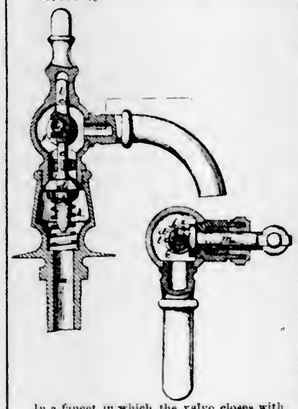
Brief.—The removable bowl that holds the tobacco is constructed to permit the same to feed freely. The smoke is not drawn through the tobacco, but away from the same at the burning end.



1. The combination, with the bowl or chamber in which the tobacco is burned and the smoke-outlet or draft-tube, with which the stem or mouth-piece of the pipe connects, of a smoke duct or chamber arranged to connect said smoke outlet or draft tube and said bowl at the firing end of the latter, and in closer proximity to the burning surface of the tobacco than to the remaining portion or body of it in the bowl, whereby the smoke is drawn through and from the fire of the burning tobacco without passing through the unburnt body or portion of the tobacco, substantially as specified.

2. A smoking-pipe in which are combined an outer shell, A, constructed to form a smoke-duct or chamber, and provided with a smoke-outlet or draft-tube, an inner chamber or bowl, D, and a grate, E, essentially as herein described.

7,694. SELF-CLOSING FAUCETS. Henry C. Meyer, New York, N. Y. Patent No. 179,717, dated July 11, 1876. [Filed Feb. 28, 1877.]



In a faucet in which the valve closes with the pressure, the combination, with the valve-stem, of means, substantially as described, for guiding or holding the stem near each end, to insure a perfectly central movement of the valve in the water-way, as set forth.

7,695. CORN-PLANTERS. S. J. Miller and L. Wright, Economy, assignors to F. B. Hunt, Richmond, Ind. Patent No. 154,507, dated Aug. 25, 1874. [Filed Oct. 12, 1876.]

1. A corn-planter having a seed-dropper with cells in its periphery placed in rear of a single front wheel, and revolving upon a horizontal axis, and driven from said wheel by means of a longitudinal shaft, substantially as set forth.

2. A revolving seed-dropper having cells in its periphery, in combination with a seed-hopper having a curved inclined bottom, whereby the grain is directed into the cells, substantially as set forth.

3. In combination with frame A, and a seed-hopper having a curved inclined bottom, a revolving seed-dropper and tube, E, substantially as set forth.

4. In combination with a seed-hopper having a curved inclined bottom, the revolving dropper and tube E, arranged in rear of tooth F, substantially as set forth.

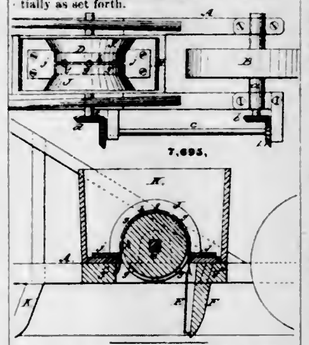
5. In combination with a seed-dropper having a groove and cells in its periphery, a seed-hopper having a curved inclined bottom, whereby the grain is directed into the cells, substantially as set forth.

6. In combination with the frame and revolving seed-dropper, a hopper with a curved inclined bottom tooth, F, and tube E, substantially as set forth.

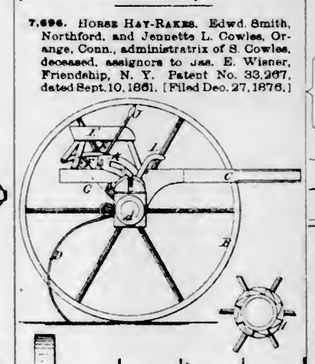
7. The seed-hopper attached to the frame A, in combination with a revolving seed-dropper having a groove and cells in its periphery, grain-tube E, and covering-blades K, substantially as set forth.

8. In combination with the frame A, tooth F, tube E, revolving dropper, and a seed-hopper having a curved inclined bottom, covering-blades K, substantially as set forth.

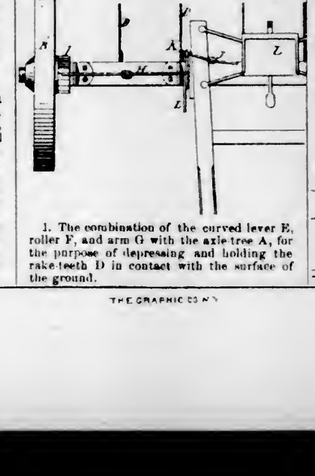
9. A seed-dropper revolving upon a horizontal axis, and having cells in its periphery, in combination with frame A, ground-wheel B, hopper with curved inclined bottom tooth F, tube E, and covering-blades K, substantially as set forth.



7,695.



7,696. HORSE HAY-RAKES. Edwd. Smith, Northford, and Jennette L. Cowles, Orange, Conn., administratrix of S. Cowles, deceased, assignors to Jas. E. Wisner, Friendship, N. Y. Patent No. 33,267, dated Sept. 10, 1861. [Filed Dec. 27, 1876.]



1. The combination of the curved lever E, roller F, and arm G with the axle-tree A, for the purpose of depressing and holding the rake-teeth D in contact with the surface of the ground.

2. The combination of the bell-crank lever J with the levers K and H, pawl L, and ratchet wheel I, for the purpose of elevating the rake-teeth from the ground, and for holding them when so elevated, as herein described.

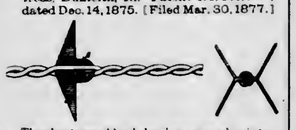
3. In a wheeled horse hay-rake, the combination of a tilting main axle, rake-teeth attached directly to said axle, so as to be raised and lowered by the tilting thereof, a ratchet fixed to the draft-wheel hub, and a pawl or dog attached to the tilting-axle, and adapted to lock with the ratchet, whereby the forward movement of said wheel, when the ratchet and pawl or dog are engaged, tilts the axle and discharges the hay, substantially as and for the purposes set forth.

7,697. WIRE-FENCE BARBS. H. N. Frentress, Dunleith, Ill. Patent No. 171,008, dated Dec. 14, 1875. [Filed Mar. 30, 1877.]



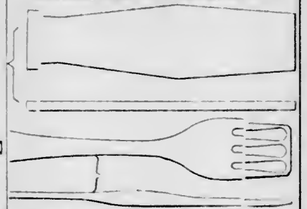
The barbs A, formed by cutting thin sheet metal into diamond form, slitting them from the acute angles nearly to the centers, and bending the prongs at each end at an angle with each other, to adapt them to be twisted into a two-strand wire cord, substantially as specified.

7,698. WIRE-FENCE BARBS. H. N. Frentress, Dunleith, Ill. Patent No. 171,008, dated Dec. 14, 1875. [Filed Mar. 30, 1877.]



The sheet-metal barb having several points, which are bent in several directions, in combination with a wire-fence cord, into which the barb is fastened by the twist of the cord, substantially as set forth.

7,699. SPOONS AND FORKS. L. R. S. White, Waterbury, Conn., assignor to Brown & Brothers, same place. Patent No. 180,403, dated July 25, 1876. [Filed Apr. 3, 1877.]



1. The improvement in the art of manufacturing forks, spoons, and other like articles of table use, by condensing the metal in its shank by pressure in a direction perpendicular to the face of the fork, spoon, or blank after the latter has been bent, substantially as specified.

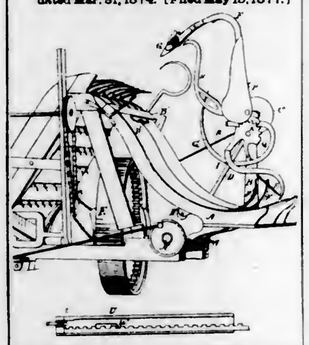
2. The method herein described of condensing or hardening the metal in the shank of a fork, spoon, or other like article of table use, by first applying pressure to the shank in a direction transverse to the plane or face of the blank before bending, and subsequently condensing the metal in the shank after bending, by pressure applied in a direction perpendicular to the face of the blank, essentially as and for the purpose or purposes herein set forth.

7,700. TABLE-FORKS. L. R. S. White, Waterbury, Conn., assignor to Brown & Brothers, same place. Patent No. 180,403, dated July 25, 1876. [Filed Apr. 3, 1877.]



A fork blank the profile of the face of which presents a series of alternately-reversed tapers, substantially as herein described.

7,701. GRAIN-BINDERS. S. D. Locke, Hoosick Falls, N. Y. Patent No. 149,233, dated Mar. 31, 1874. [Filed May 15, 1877.]



1. In combination with the binding-arm F and vibrating compressor I, and the segment-gears by which the latter is actuated, the compressor H and the extra gears O N, whereby said compressor H is advanced faster than the binding-arm, substantially for the purpose set forth.

2. In combination with the binding-arm F and the vibrating compressor I, the stops Q R, to limit the vibrations of said compressor, as set forth.

3. The pointed hollow shell *g*, formed to receive the base-plate of the shield *h*, which supports the twisting and cutting devices, and partially incloses said twisting and cutting devices, as set forth.

4. In combination with the main shaft D, for giving motion to the operative mechanism of an automatic binder, the ratchet and pawl *g' e'*, to hold said binding mechanism from retrograde motion when the same may be uncoupled from the driving mechanism.

5. In combination with the gathering-arm F, the ledge D upon the cradle A, to hold the grain in position while said arm passes through and separates the gavel.

6. In combination with the vibrating compressor I, the tension-spring E, stretched across the curve of said arm, substantially as set forth.

7. The cradle A, provided with the retaining-springs F', substantially as and for the purpose set forth.

8. In combination with the laterally-adjustable binding attachment, the stationary windboard K', attached to the frame of the harvester, but unattached to said binder.

9. In combination with the revolving compressor and binding arms and cradle of an automatic binder, the stationary fender-rod G', as set forth.

10. The holding-plate V, combined with the cutting nipper T, which is provided with studs *e* and *f*, to be operated by cam-surfaces *u'' t''* in the rack box.

11. In combination with the twisting-pinion S and operative mechanism of the binding-head, the vibrating nipper and cutter T and holding-plate V *s*, as set forth.

12. The cutting-nipper T, constructed with a shoulder, *q*, for the purpose set forth.

13. In an automatic binding-harvester, a grain-delivery apparatus, combined with a receptacle to receive the grain therefrom and support it in a free state, adjustable transversely and bodily along the end of said delivery apparatus, for the purpose set forth.

14. In an automatic binding-harvester, a grain-delivery apparatus, combined with a receptacle to receive and support said grain in a free state, and a binding mechanism attached thereto, adjustable along the end of the delivery apparatus, for the purpose set forth.

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DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—NORTHERN DISTRICT OF ILLINOIS.

HERMAN VOGLER *vs.* EDWARD SEMPLE.

[*In equity.—Before* BLODGETT, *J.*]

The claim in a patent must be for something described in the specification, so that any person of ordinary mechanical skill, or skill in the art covered by the patent, can, from the specification, make a mechanism which will contain the claim.

The purpose of a reissue is to enable one to secure what he was entitled to in his original patent but, through inadvertence or mistake, did not obtain; but it cannot be made the means of covering anything which was not in the original invention.

The novelty of a patented invention is not impeached by a prior patent which did not originally describe the invention, but has since been enlarged by reissue so as to include it.

Any device which secures substantially the same results as the patentees, by the same or equivalent mechanism, is an infringement.

[*Munday & Evarts*, for complainant.
N. C. Gridley, for defendant.]

BLODGETT, *J.*:

This is a bill in equity for an injunction, and an account of profits and damages for an alleged infringement of a patent granted by the United States to the complainant, January 11, 1867, for an "Improvement in Trunks," being a reissue of an original patent to the same substantial purport, dated October 6, 1874.

The answer denies the infringement, and also denies that complainant is the original and first inventor of the device set forth and claimed as new in his original and reissued patent.

Complainant's patent is for a removably hinged tray in the body of a trunk; the parts being so arranged and combined as to admit of the ready removal of the tray from the trunk, and yet so adjusted as to allow the tray to be turned up on its hinges, into, or against, the cover or top. This is accomplished by the peculiar form of the hinge—one leaf of which is permanently fastened to the tray, and the other so arranged as to be inserted in sockets, which are firmly fixed to the back wall of the trunk; the whole being so arranged as to admit of a ready removal of the hinged tray from the trunk, and so adjusted as to allow it an up-and-down play.

Three obvious advantages are obtained by this hinged removable tray: First, the ready removability of the tray from the trunk when desired; second, such a combination or arrangement as shall make the tray removable by a straight vertical lift, so as not to disarrange the contents; third, the free up-and down play or movement of the tray, so that it will readily adjust itself to the pressure from the contents above or below—this latter is accomplished by giving such length to the loose or free leaf of the hinge as may be necessary to attain the result.

There is no evidence in the case that any one had ever so hinged a tray in the body of a trunk as to permit of its removal, or to give a tray the peculiar characteristics of complainant's device.

In 1866, one Plumer obtained a patent for a tray removably hinged in the lid of a trunk. His original device, however, had none of the peculiar characteristics of complainant's tray. His claim was—

* * Attaching the tray C to the upper portion of the trunk by means of slots and pins, substantially as described.

He does not describe a device capable of being applied to the body of a trunk, so as to produce a removably hinged tray like complainant's.

Between the issuing of the patent sued on and the commencement of this suit, one Romadka (who is defendant's vendor, and, as it was stated on the trial and not denied, is defending this suit) obtained an assignment of the Plumer patent, and has had a reissue. And in this reissue, dated March 21, 1876, he is allowed two claims:

1. A trunk provided with a removably hinged compartment tray.

2. A trunk and in combination therewith, a compartment-tray removably hinged by means of socket-bearings D, attached to the trunk, and pins attached to the compartment-tray, substantially as herein described, and for the purpose set forth.

The hinge described in the reissue patent is the same as in the original. And while the first claim allowed in the reissue is for "a trunk provided with a removably hinged compartment-tray," yet there is no description or specification by which we are taught how to place a removably-hinged tray in the body of a trunk. The whole description refers to placing the tray in the lid, and nowhere else.

It is well understood by all patent lawyers that the claim must be for something described in the specifications, so that any person of ordinary mechanical skill, or skill in the art covered by the patent, can, from the specification make a mechanism which will contain the claim. Now, here is nothing in this Plumer reissue which tells how to put a removably-hinged tray in any part of the trunk, except the lid. It does not describe how it could be adapted to the body, nor any provision for any other hinge than the pintle and socket hinge. The general principle involved in all reissues is, that there can be nothing given in the reissue which was not in the original specifications or drawings, although some minor amendments have been at times allowed in the original specifications or drawings, for the purpose of more accurate and specific description—that is to say, the reissue cannot be made to cover anything which was not in the original invention. The only purpose of a reissue is to enable one who has, by a mistake or inadvertence, not taken what he was entitled to in his original patent to obtain it. The reissue was only intended to cover omissions of the Patent Office, or of the inventor, in not claiming that to which he was entitled as an inventor. It therefore seems very very clear to me that the defendant takes nothing for the purposes of this case by his reissue. Indeed, it is hard for me to understand how the broad claim, number one, could have been allowed under the specifications in the original or reissued patent, it being manifest that Plumer only intended to describe and patent a device for hinging a tray in the top of the trunk by his particular pintle and socket hinge. This being all the proof as to prior use, I have no difficulty in arriving at the conclusion that the defense, for want of novelty, is not made out.

As to the question of infringement, the proof shows that defendant has sold a trunk with a removably-hinged tray in the body of the trunk. His tray responds in a degree to all the peculiar qualities of complainant's tray—that is, it is removably hinged, so as admit of being taken out by a straight vertical lift, and is adjustible, in a degree, to the contents of the trunk above or below. He does not use the specific form of hinge described by complainant, but complainant does not confine himself to any particular form, reserving the right to adopt any hinge which will give the substantial results claimed for his device.

The question is, Does complainant's patent protect him in the exclusive right to hinge a tray in the body of a trunk so as to secure the results obtained by his device, or is he limited to the special mechanical devices by which those results are obtained?

I am of opinion that, as there is no evidence that any one ever made a removably-hinged tray in the body of a trunk, complainant is entitled to the broad claim allowed him in his patent, for—

1. In a trunk, and in combination therewith, a tray, removably hinged in the body of the said trunk, substantially as and for the purposes set forth.
2. In a trunk, a compartment-tray, provided with the strap hinges in combination with sockets attached to the back and inside of the trunk-body, substantially as described, for the purpose of removably hinging the tray.

That is to say, any device which secures substantially the same results as complainant's, by the same or equivalent mechanism, is an infringement on complainant's patent. The defendant does not use Vogler's strap hinge and socket, but in place of it he uses a hook and socket, or roller and socket—not the pintle and socket of Plumer, but a hook attached to the back wall of the trunk, and a roller fastened to the back and upper edge of the tray, so as to engage with and rest upon the hook, the two when in juxtaposition making a hinge which performs the substantial functions of complainant's hinge, except that for lack of the elongated strap it is more readily disengaged; but when the parts are together, it operates in all essential particulars as the equivalent of complainant's strap-hinge. I am, therefore, of opinion that defendant's tray is, in all its material features as a removably-hinged tray, an infringement of complainant's patent.

The defendant's hinge is, as above stated, a roller hook or bar, projecting from the back of the tray, and lying parallel therewith, and a socket-like lip or catch fastened to the back wall of the trunk. The bar drops upon the lip to make the hinge. It will be readily understood, that upon lifting the tray the parts of this hinge are separated at once, while in Vogler's strap-hinge, the parts remain engaged until the strap is lifted entirely out of the socket. It is in effect the same as the Vogler, if you should cut off the Vogler strap very short. So that I can have no doubt that the defendant's method of hinging the tray is a method substantially equivalent to the Vogler method. And while Vogler may not be in a position to invoke the broadest doctrine of equivalents, yet he is in a position to invoke the doctrine to this extent, at least, that he is entitled to the method of hinging the tray in the body of a trunk by his mechanism, or any mechanism operating substantially like his, and which produces the same results.

The doctrine of equivalents in this respect has been elucidated very fully and clearly by the Supreme Court in the tuck-creaser cases recently decided, and which went up from his Honor Judge Drummond. The extent to which a patentee is entitled to invoke the doctrine of equivalents, is there very ably and clearly discussed, and I think I am entirely within the rule in that case, when I say that I have no doubt but that the defendant in this case has infringed upon the Vogler patent by the adoption of the hinge which is now before me.

There will be a decree for the complainant, with a reference to the master to take proof and report as to damages.

U. S. CIRCUIT COURT—DISTRICT OF CONNECTICUT.

RICHARD P. BRUFF, TRUSTEE, *vs.* WILLIAM A. IVES.

[*In Equity.—Before* SHIPMAN, *J.*:—*Decided April* 12, 1877.]

The invention secured to James Swan in his reissued patent of October 21, 1873, consisting of the method and means for forming auger-lips thus described is not anticipated by the patent to Ransom Cook, inasmuch as the former bends and swages or draws out the lips, while the latter merely twists or bends them.

Swan's invention consists, generally, in the combination of the two sets of dies holding and forming, so that the action of the rotating forming-dies upon the lips clamped by the griping-dies may upset and form the lips.

Claims are to be construed in connection with the specification, and in view of the actual invention, and of the state of the art.

Although the patented dies might be used in connection with a previous machine, that fact does not permit their unauthorized use, the dies being new in themselves.

[*Thomas L. Livermore* and *Benjamin F. Thurston*, for plaintiff. *Charles R. Ingersoll* and *John S. Beach*, for defendants.]

SHIPMAN, *J.*:

This is a bill in equity, charging an infringement by the defendant of reissued Letters Patent No. 5,624, dated October 21, 1873, which were issued to Richard P. Bruff, assignee of James Swan, for an improvement in machinery for manufacturing curved or gage-lip augers. The original patent was issued to said Swan on June 9, 1868. Since the suit was brought the patent has been assigned by the plaintiff and no injunction is now asked.

In the manufacture of augers the end of the bit-blank is first cut out into a trident-like shape, and the body of the blank is then twisted into the form of an auger. The central prong at the end of the blank becomes the pivot of the auger, and the two other prongs become the floor-lips or cutting-edges. Formerly, these cutting-edges were formed by hand. The operation of bringing or drawing the cutting-edges so as to start from the base of the screw, and to continue in a line with the axis of the thread upon the pivot of the auger, was a difficult one and required skilled labor. The patentee describes the object and nature of his invention as follows:

In making augers or bits of the above description, [viz., curved or gage-lip augers,] it is necessary to leave a sufficient thickness of metal at the bit to admit of the point or screw being formed, after which the lips require to be reduced and brought to a knife-like edge at their cutting parts, which process is termed upsetting, and has hitherto been done by hand; but the most skilfull workman can scarcely obtain a perfect form of cutters, and perfect uniformity in the two lips is rarely ever obtained. In my invention I employ griping or clamping jaws that grasp and firmly hold the auger blank just above the lip, the jaws being fitted to receive the helical threads of the auger blank, and, in connection with these jaws, swaging or drawing dies, to which is imparted a rotative movement while they are in contact with the lips of the blank, such rotative movement upsetting the auger-lips and forming them to shape against the griped dies.

The machine consists, in general, of two jaws, connected at one end by a pivot, which have dies inserted in their opposite ends, to receive and hold the screw portion of the auger while its cutters or lips are being operated upon. The specification describes the dies as follows: "The upper surfaces of the dies B B are grooved or hollowed out to conform to the desired shape of the lips or cutters, as shown at C C." An arbor is fitted upon the socket of a curved standard, which arbor rotates and moves longitudinally to and from the auger or bit. To the lower end of the arbor the swaging or drawing dies are fitted. These dies act upon the lips or cutters of the bit when the arbor is moved, and the lips are drawn out to a thin edge against the ends of the jaws by the rotative and forward action of the swaging-dies. The mechanism by which the various parts are operated is fully described in the specification; but a sufficient description has been here given for the purposes of this case.

The first two claims of the patent are alleged to have been infringed. These are—

1. The combination of clamping-jaws, having dies formed to receive the screw-thread of an auger, with a rotative die for upsetting the auger-lips, the jaws and die acting in conjunction to draw the lips, and the combination being substantially as shown and described.
2. The described method of forming or drawing the lips of augers, the auger blank being first clamped in jaws formed to receive the auger-screw, (the lips extending beyond the jaws,) and the lips being then upset and drawn against the ends of the jaws by the rotative and forward action of a die, the ends of the jaws being formed to shape the lips under the action of the die.

Infringement by the defendant of these two claims is not denied. The defense which was relied upon at the trial was want of novelty of the patented machine, resulting from the public use prior to the date of the invention of a machine made by Ransom Cook, and known as the Cook machine.

After the end of the blank had been cut or stamped into a trident-like shape, and after the body of the blank had been twisted, the Cook machine receives the bit-blank in clamping-dies, which fasten into the twist of the auger. A die, called upon the trial a forming-die, and by the mechanics who operated the machine called a wringer, being a transverse bar with a cavity in the center, and with a spiral incline outside of the center, was then brought forward in contact with the end of the central prong of the bit and rotated, by which rotation the two outside prongs were twisted, so that they were very nearly at right angles with the axis of the blank. At this point the parties were at variance upon a question of fact, the defendant contending that, by this rotating and forward motion of the forming-die or winged bar, the lips or cutting-edges were substantially formed as in the Swan machine, and that the floor-lip was drawn out abreast of the central prong in a line with the thread upon the pivot of the anger. It was agreed that in the Swan machine, by the action of the swaging-dies upon the bit held in the clamping-dies, the floor-lips were drawn or rolled out or plated out and spread into their proper shape, and the cutting edges were brought into line with the thread of the pivot. The plaintiff insisted that the action of the Cook wringer was nothing more than a twisting of the lips, and that subsequently the metal must be drawn into proper shape, and the proper position must be given to the lips by a hand operation, which required at least one or two reheatings and careful labor.

I am satisfied from all the testimony that the primary object of the rotating action of the wringer was to twist the external prongs into a position from which lips could thereafter be formed, and that incidentally this rotating action upon the heated metal might have drawn the metal to a limited extent; but that, as a rule, it was necessary to take the blank from the machine, and complete the drawing-out operation and the spreading of the metal and the adjustment of the lips in line, with a hammer upon the horn of an anvil, and that previously to this hand operation an additional twist was sometimes given to the lip with a pair of tongs after the blank had been taken from the machine, and that these hand operations were not resorted to merely to "true up" or to remedy occasional incompleteness in the effect produced by the wringer, but were resorted to in order to accomplish what the Cook machine was, from its construction, not able to accomplish.

It will be remembered that it is necessary to draw the metal out in order to form a floor-lip, and that the cutting-edge must start from the base of the screw and continue in a line therewith. It is, therefore, necessary that the thin places at the root of the screw where the

metal has been cut out must be corrected. This drawing process is effected in the Swan machine by the two dies coming in contact with the metal upon its opposite sides and the swaging and rolling action of the swaging-die. The under side of the metal rests on the holding-die, and the upper side is pressed upon by the rotating die, and the heated malleable iron is plated out and forced into shape by these two opposing surfaces acting together. In order to draw the metal forward into proper shape the under side of the lip should rest upon a beveled surface, and be supported by that surface, and there must be an opposing pressure upon the upper side, as well as a simultaneous forward movement. The Cook machine did not draw forward the lips, because there was no adequate support on the under side. The forming-die or wringer twisted the lips, but did not press them against an opposing surface, and by the simultaneous rotary motion draw forward the malleable metal. The superiority of the Swan machine consists in the form of the surfaces of the dies, against which the rotating dies press the metal. If the Swan dies were substituted for the Cook dies in the latter machine the plating out process could be accomplished, although it is very probable that the machine would not be practically successful. It thus appears that the Cook machine was not, in fact, an anticipation of the Swan invention.

But the defendant insists that, inasmuch as the first claim of the Swan patent is for a combination of clamping-jaws, having dies formed to receive the screw-thread of an auger, with a rotative die for upsetting the auger-lips, the jaws and die acting in conjunction to draw the lips, and, inasmuch as the dies upon the clamping-jaws are not particularly described, the claim is broad enough to include any dies which will draw or give shape to any portion of the lips, and that such dies have been clearly proved to exist in the Cook machine, which coact to some extent in giving shape to the lips.

The object of the invention is stated in the patent to reduce and bring the lips by machinery to a knife-like edge at their cutting parts. The invention consists, generally, in the combination of the two sets of dies, so that the action of the rotating dies upon the lips clamped by the griping-dies may upset and *form* the lips. It is plain, from the description, that the rotating dies are to act upon the metal upon the upper surfaces of the griping-dies, which upper surfaces are grooved or hollowed out, so as to conform to the desired shape of the lips or cutters.

The first claim should be construed in connection with the specification, and in view of the actual invention and of the state of the art, and is for a combination of clamping jaws with the described dies and a rotative die, the two sets of dies so acting in conjunction as to draw—that is, to form into shape—the lips, and shaped relatively to each other, substantially as shown. The essential feature of this claim is that the described combination should so coact that the actual and necessary result should be to draw the lips, which result is to be attained in substantially the same way in which it is accomplished by the patented machine, which is the drawing of the lips against the ends of the jaws by the rotative and forward action of a die, the ends of the two sets of dies being formed relatively to each other, so as to shape and not merely to turn over the lips under the action of the rotating die. If the jaws and die are shaped relatively to each other, so as to accomplish this result, they are within the patent, notwithstanding a variation in form from that which is described. The patent is not, therefore, broad enough to include the Cook mechanism, because the result of the coaction of the Cook dies is not to form into shape or plate out the lips, but is generally to twist the lips into a position from which they can subsequently be drawn out into the proper shape.

And although the Swan dies in the Cook machine might accomplish the drawing-out result, that fact does not permit their unauthorized use in the combination, because the Swan dies were unknown, and did not apparently exist previously to their invention by Swan.

If the plaintiff is the exclusive owner of the mechanism described in the first claim, it is not denied that he has an exclusive right to the process described in the second claim.

Let there be a decree in favor of the plaintiff for an accounting, and a reference to a master.

APPLICATIONS FOR EXTENSION.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., April 24, 1877.

On the petition of Erastus T. Bussell, of Indianapolis, Indiana, praying for the extension of a patent granted to him on the 29th day of November, 1853, numbered 10,280, extended for seven years from the 29th day of November, 1867; reissued on the 13th day of December, 1870, and numbered 4,202, for an improvement in combined rubber and spiral steel spring. This application having been authorized by act of Congress approved March 3, 1877:

It is ordered that the testimony in the case be closed on the 10th day of July next; that the time for filing arguments and the Examiner's report be limited to the 20th day of July next; and that said petition be heard on the 25th day of July next.

Any person may oppose this extension.

ELLIS SPEAR,
[tf] *Commissioner of Patents.*

DEPARTMENT OF THE INTERIOR,
U. S. PATENT OFFICE,
Washington, D. C., March 10, 1877.

On the petition of HENRY VORLTER, of Heidenheim, Germany, praying for the extension of a patent granted to him August 10, 1858, antedated August 29, 1856, extended for seven years from August 29, 1870, reissued June 6, 1871, and numbered 4,418, for an improvement in reducing wood to paper pulp, this application having been authorized by act of Congress approved March 3, 1877:

It is ordered that the testimony in the case be closed on the 29th day of May next; that the time for filing arguments and the Examiner's report be limited to the 8th day of June next; and that said petition be heard on the 13th day of June next.

Any person may oppose this extension.

ELLIS SPEAR,
[tf] *Commissioner of Patents.*

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date May 29, 1877.]

10,009.—Carpets.—FRANK E. ALLEN, Yonkers, N. Y., assignor to THE ROXBURY CARPET COMPANY, Boston, Mass. Application filed May 16, 1877. Term of patent 3½ years.

10,010 and **10,011.—Fancy Cassimeres.**—FREDERICK S. BOSWORTH, Providence, R. I., assignor to THE WEYBOSSET MILLS, same place. Applications filed May 9, 1877. Term of patents 7 years.

10,012.—Carpet.—JOHN CAMPBELL, London, England, assignor to THE BIGELOW CARPET COMPANY, Clinton, Mass. Application filed May 9, 1877. Term of patent 3½ years.

10,013.—Fancy Cassimeres.—FRANCIS CARPENTER, Glendale, R. I. Application filed May 10, 1877. Term of patent 3½ years.

10,014 to **10,017**, inclusive.—**Spirit-Levels.**—LEONARD L. DAVIS, Springfield, Mass. Applications filed May 15, 1877. Term of patents 7 years.

10,018.—Cigar-Pipes.—WILLIAM DEMUTH, New York, N. Y. Application filed March 22, 1877. Term of patent 7 years.

10,019.—Drinking-Fountains.—JOSEPH W. FISKE, New York, N. Y. Application filed February 10, 1877. Term of patent 7 years.

10,020.—Ornamental Chain.—GEORGE F. GLEASON, Newark, N. J. Application filed May 2, 1877. Term of patent 3½ years.

10,021.—Tassels.—GEORGE S. HENSEL, Philadelphia, Pa., assignor to himself, CHARLES D. COLLADAY, and STEPHEN B COLLADAY, same place. Application filed April 18, 1877. Term of patent 7 years.

10,022.—Font of Ornamental Printing-Types.—JULIUS HERRIET, New York, N. Y., assignor to DAVID WOLFE BRUCE, same place. Application filed May 7, 1877. Term of patent 14 years.

10,023 and **10,024.—Monument.**—JAMES MORGAN, Brooklyn, N. Y. Applications filed April 27, 1877. Term of patents 7 years.

10,025.—Billiard-Tables.—CHARLES SCHULENBURG, Detroit, Mich. Application filed April 11, 1877. Term of patent 3½ years.

10,026.—Bracelet.—MOSES STERNHEIMER, New York, N. Y. Application filed December 9, 1876. Term of patent 3½ years.

10,027.—Cook-Stoves.—NICHOLAS S. VEDDER and FRANCIS RITCHIE, Troy, assignors to RUSSELL WHEELER, Utica, N. Y. Application filed February 6, 1877. Term of patent 7 years.

10,028.—Show-Cards.—JOSEPH C. WHITE, New York, N. Y. Application filed May 11, 1877. Term of patent 7 years.

10,029.—Door-Knobs.—LOUIS WIDMAYER, New Britain, Conn., assignor to P. & F. CORBIN, same place. Application filed April 25, 1877. Term of patent 14 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date May 29, 1877.]

4,685.—Medicinal Preparation.—SILAS E. ASHLEY, New Bedford, Mass. Application filed December 11, 1876.

"The initials 'S. E. A.,' as represented."

4,686.—Laundry-Soap.—JOSEPH BIRCHELE, Canton, Ohio. Application filed April 28, 1877.

"The letters 'A B C.'"

4,687.—Paper Collars.—CLEVELAND COLLAR COMPANY, Cleveland, Ohio. Application filed April 27, 1877.

"The fanciful words 'SEA BREEZE.'"

4,688.—Baking-Powder.—DUNHAM, PECKHAM & Co., St. Louis, Mo. Application filed March 19, 1877.

"The word-symbol 'ORIENTAL,' and the representation of the flags of Turkey, Prussia, and the Siamese nation, and the representation of the rising sun."

4,689.—Whisky.—M. DURNER & Co., Cincinnati, Ohio. Application filed May 4, 1877.

"The word-symbol 'HIGH LIFE.'"

4,690.—Liniment.—WILLIAM M. GILES & Co., New York, N. Y. Application filed March 10, 1877.

"The representation of the griffin used in connection with the words 'Giles' Iodide Ammonia Liniment.'"

4,691.—Whisky.—WILLIAM W. JOHNSON, Cincinnati, Ohio. Application filed February 22, 1877.

"The word-symbol 'DAVE JONES.'"

4,692.—Soap.—CHARLES F. KOPITZSCH & SON, Pottsville, Pa. Application filed April 27, 1877.

"The letters 'C. F. K. & Son,' arranged as a monogram."

4,693.—Bitters.—CHARLES THIET, St. Louis, Mo. Application filed April 26, 1877.

"The inscription 'Modoc of Maag Bitter,' and the two monograms composed of the initial letters 'C. T.' and 'M. o. B.,' as shown."

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date May 29, 1877.]

1,073.—Title: **"Collar & Matthews' $1.00 Catarrh Cure."**—ALEXANDER COLLAR and HENRY J. MATTHEWS, Wayne, Mich. Application filed May 23, 1877.

1,074.—Title: **"Dr. Limerick's Hog Cholera Cure and Preventive."**—MARSHALL, LAMAR & Co., Aurora, Ind. Application filed May 21, 1877.

1,075.—Title: **"Jas. R. Millner's Extra Golden Twist."**—JAMES R MILLNER, Cascade, Va. Application filed May 18, 1877.

1,076.—Title: **"Schermerhorn's Tonic Extract of Wine."**—GEORGE W. SCHERMERHORN, Philadelphia, Pa. Application filed May 19, 1877.

1,077.—Title: **"Hawthorne Chesterfields."**—TINGUE, HOUSE & Co., New York, N. Y. Application filed May 8, 1877.

1,078.—Title: **"Wright's Improved American Anti-Pest."**—GEORGE S. WRIGHT, Racine, Wis. Application filed May 21, 1877.

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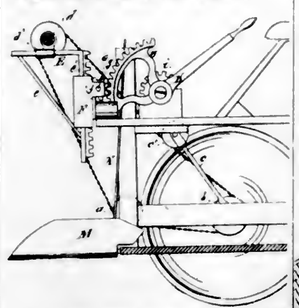
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Kuhns, B., C. Scholz, and D. Y. Kuhns, Seed drill and fertilizer	191,443
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Lane, I. G., and A. F. Barry, Chimney cowl	191,297
Langham, W., Fence post	191,445
Lawrence, W. S., Plow	191,446
Leggo, W. A., and F. C. Ireland, Roller skate	191,350
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Lewis, D. L., Oil or other deep well pump	191,448
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Magee, J., Hot air furnace, (reissue)	7,710
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Whitney, H. A., Gas burner	191,498
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Willis, A., Manufacture of cigarettes	191,501
Wing, D. S., Combined truck and bag holder	191,502
Wiseman, P. S., Grain tally	191,503
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Wright, E. A., and E. P. Lynch, Cultivator	191,451
Wyman, H., and G. Crompton, Shedding or harness operating mechanism for looms	191,317
Young, B. C., Buckle, (reissue)	7,712
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Zacharias, M., Stud fastening	191,394
Zoellner, I., Pantaloons	191,505
Zoller, A., Barrel washer	191,506

TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED MAY 29, 1877.

191,917. HARVESTER-REELS. H. A. Adams, Sandwich, Ill. [Filed Apr. 14, 1877.]



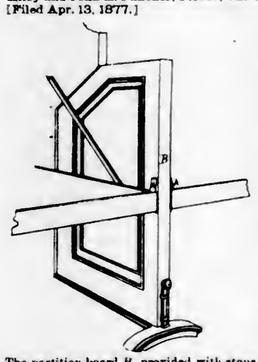
1. The right-angled adjustable brackets E, provided with racks, as described, in combination with the reel-shaft *b* mounted thereon, pinions *g*, and shaft G, supported in fixed bearings on the machine, substantially as and for the purpose set forth.

2. The combination of the reel-shaft *d*, brackets E, provided with racks, pinions *g* on the shaft G, segmental rack H, and lever K, substantially as described.

3. A pivoted divider or grain-guard, M, adjustable at the pleasure of the driver, independently of the adjustment of the reel, substantially as described.

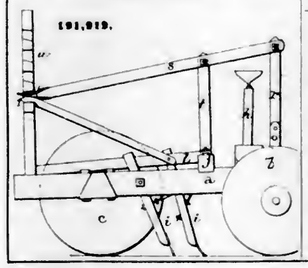
4. The combination of the pivoted guard or divider M, rod N, notched at its upper end, and catch *n'*, substantially as described.

191,918. SLEEPING-CAR BERTHS. EZRA H. Alley and John H. Fancher, Toledo, Ohio. [Filed Apr. 13, 1877.]



The partition-board B, provided with stops A, as a means of preventing both the upward and longitudinal movement of sleeping-car berths, substantially as above described.

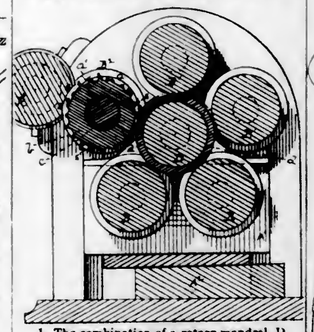
191,919.



191,919. COTTON-CHOPPERS. George W. Banks, Hardin County, Tenn. [Filed May 18, 1877.]

The combination of the frame *a*, supported at its rear end by the gear-wheel *c*, and at its front end by the wheels *b*, which are attached to the sash *o*, the standard *r*, lever *s*, and notched standard *n*, the lever being provided with the two springs 1, for the purpose of holding the front of the frame at any desired height, all the parts being arranged to operate substantially as shown.

191,920. MACHINES FOR CORRUGATING PIPE-SOCKETS. M. Blakey, Etna, Pa., assignor to J. L. Robertson and G. A. Chalfant, same place. [Filed Apr. 19, 1877.]



1. The combination of a rotary mandrel, D, an annular die or equivalent die-roll, having a roughened, ribbed, or toothed surface, and made capable of motion toward and from the mandrel, and suitable devices for giving to such movable die or die-roll a quick, positive motion toward the mandrel, and a quick release, substantially as described.

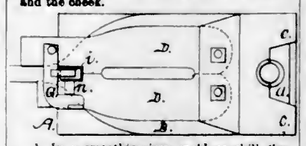
2. An annular die, *b*, working loosely on its shaft, in combination with collared roll R and mandrel D, substantially as described.

3. The roll B', as one of the series of rolls described, made with working ends *a* to work the socket ends, a reduced shaft, *a'*, in combination with loose die *b* thereon, substantially as described.

4. The combination of a revolving ribbed die and a revolving mandrel, suitably arranged for the ribbing of the socket while on the mandrel, substantially as described.

191,921. SMOOTHING-IRON CHILLS. J. F. Bless, Newark, N. J. [Filed Dec. 11, 1876.]

Brief.—The drag is solid, and provided with an upward projection at each end, which keep the cheek in place, and one of which also has in it a portion of the gate. The cheek in one piece has a recess for the molten metal, hinged to which are the parts of the cope, provided with a latch, which locks the cope-sections and the cheek.



1. In a smoothing-iron mold or chill, the bed A, having the post *a* and ridge C, in combination with the part B, substantially as and for the purposes specified.

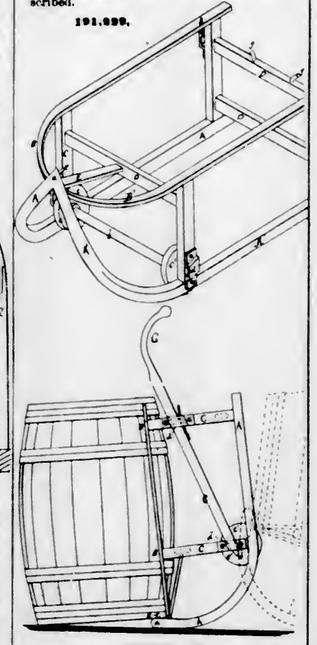
2. The divided top D, with the sections pivoted to the part B, and the hook G and knob *a*, in combination with the stud *i*, for holding the parts in position, substantially as specified, and for the purposes named.

191,922. BARREL-TRUCKS. H. E. Blinn, Minneapolis, Minn. [Filed Apr. 13, 1877.]

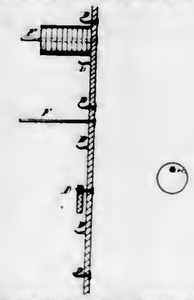
1. The frame consisting of the runners A A', rails or fenders B B', bent upward and inward, and connected together at *a*, in combination with the wheels *c c'*, arranged and operating substantially as specified.

2. The frame A B and wheels *c c'*, in combination with the handles G G', arranged and operating substantially as shown and described.

191,923.



191,923. GAME APPARATUS. W. H. Briggs, Chicago, Ill. [Filed Apr. 12, 1877.]



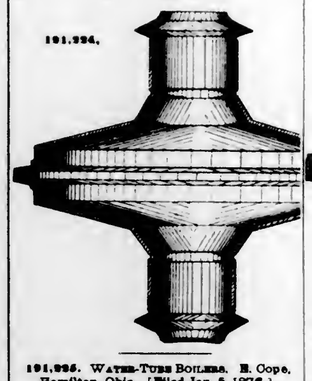
The combination of a checker or chess board, having hooks or pins D and spindles F, with checker or chess men provided with eyeleted or other holes on both sides, so as to be reversed and hung on the pins or hooks, as set forth.

191,924. PROCESSES FOR THE MANUFACTURE OF GLASS SHADES. H. Brooke, Brooklyn, N. Y., assignor to B. B. Schneider, New York city. [Filed Jan. 23, 1877.]

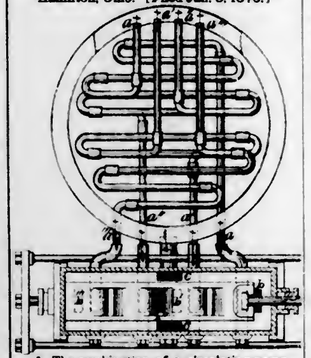
An improvement in the process of manufacturing shades and globes by molding the same in parts in reverse form, bringing the two extended parts together, and having a blow-over in the center and at each end, substantially as herein set forth.

THE GRAPHIC CO N Y

191,224.



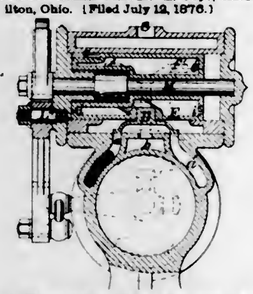
191,225. WATER-TUBE BOILERS. E. Cope, Hamilton, Ohio. [Filed Jan. 5, 1876.]



1. The combination of a circulating-pump and a coiled tube boiler with the series of independent circulating-pipes *a a' a'' a'''*, having no connection whatever, whereby water is circulated through each pipe separately, substantially as shown and described.

2. The combination of a circulating-pump, divided into two double-acting cylinders, with a coiled-tube boiler for supplying water to each coil of the boiler separately, substantially as shown and described.

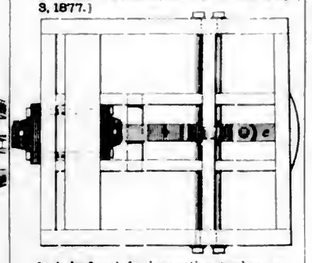
191,226. STEAM-VALVES. E. Cope, Hamilton, Ohio. [Filed July 12, 1876.]



1. The combination of the main valve D and the valve-piston E, the latter having a spiral slot, F, into which a lug upon the main valve enters, whereby the oscillation of the valve-piston causes the main valve to move forward, substantially as described.

2. The main valve D, having a lateral extension, D', on one side, forming an auxiliary valve, in combination with the ports *a a'* in the main-valve seat, leading to the ends of the auxiliary cylinder, the auxiliary exhaust-cavity *b* in the main valve, and the valve-piston E, with its diagonal groove for giving the valve a longitudinal movement, substantially as shown and described.

191,227. DRAFT-RODS FOR TENDERS. W. R. Cross, Piedmont, W. Va. [Filed May 3, 1877.]

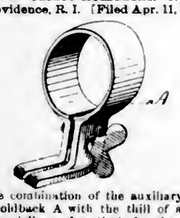


1. A draft-rod for locomotive-tenders, unyieldingly secured to the rear bolster only, and extending forward through the front bolster, substantially as described.

2. A draft-rod for tenders, extending through the front bolster, in combination with castings on the rear of the frame, and rods connecting said castings, whereby said draft-rod is unyieldingly secured to said frame, substantially as described.

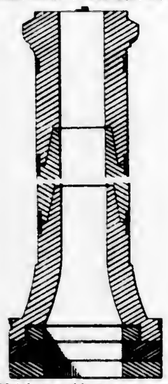
3. A draft-rod for tenders, provided with a stop, and combined with a wedge or key and the front bolster, substantially as described.

191,228. SAFETY-HOLDBACKS. C. H. Dow, Providence, R. I. [Filed Apr. 11, 1877.]



The combination of the auxiliary adjustable holdback A with the thill of a vehicle, substantially as described, for the purposes specified.

191,229. CHIMNEY-TOPS. L. K. Dutton, Oskaloosa, Iowa. [Filed Apr. 10, 1877.]



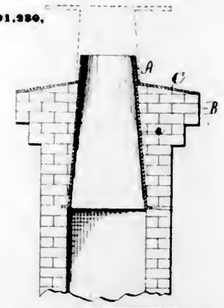
An artificial-stone chimney-top, constructed in sections, each section being provided with strengthening-bands at the bottom and top, as shown, and having a tapering end, provided with lugs *d d*, and a tapering recessed end provided with L-shaped recesses *d' d'*, for the reception of lugs *d*, all constructed, arranged, and operating as shown and described.

191,230. CHIMNEY-TOPS. T. B. Entwisle, Washington, D. C. [Filed Apr. 26, 1877.]

1. The chimney-top described, consisting of the conical casting A, having the square base and flange *a'* projecting downward into the chimney-top B far enough to properly protect the top, and be firmly held thereby, and up above the upper surface of the same, to discharge the products of combustion at a point removed therefrom, as described.

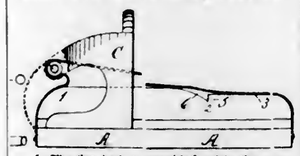
2. In combination with a top, B, and a casting, A, set into the chimney, as described, the cement coating C, as described.

191,230.



191,231. CIGAR-MACHINES. F. W. Felgner, Baltimore, Md. [Filed May 1, 1877.]

Brief.—The pocket in the bed has a convex entrance, and in rear thereof the bed is depressed to facilitate the working of the apron.

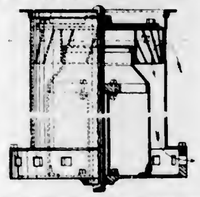


1. The flat bed A, provided with the convex portion 6, wall 5, and reduced surface 3 at the rear of said wall, as and for the purposes set forth.

2. In combination with the belt, and with the carriage C and its roller, applied and arranged to be both traversed in right lines, the bed A, having the convex rise 6, merging into its horizontal portion, and connecting with the wall 5 to form the pocket, as and for the purpose set forth.

191,232. AIR-COOLING APPARATUS. Edw. Fixary, New Orleans, La., assignor of one-half his right to A. C. Janin, same place. [Filed Feb. 6, 1877.]

Brief.—An inner closed cylinder contains the refrigerant material. The outer cylinder has openings at top and bottom. A turbine wheel in the top of the space between the cylinders draws the air through the upper openings in the outer cylinder, forces it down through the purifying-chamber, made by an enlargement of the outer cylinder, and containing a purifying mixture, and out through the lower openings.



1. The combination, within the cooling-chamber, of the refrigerator, the enveloping radiating jacket or cylinder, and the air-forcing apparatus, these elements being arranged for joint operation, as set forth.

2. The combination, within the cooling-chamber, of the inner refrigerating-cylinder, the outer radiating-cylinder with air-openings at top and bottom, and the intermediate turbine with helicoidal vanes for taking the air from the chamber, forcing it through the passage between the cylinders in contact with the refrigerating surfaces, and returning it again to the chamber, substantially as set forth.

3. The purifying-chamber, in combination with the inner and outer cylinders and the air-forcing apparatus, substantially as set forth.

191,233. CANOPY-TOPS FOR CHILDREN'S CARRIAGES. C. E. Foxburgh, Louisville, Ky. [Filed Feb. 10, 1877.]



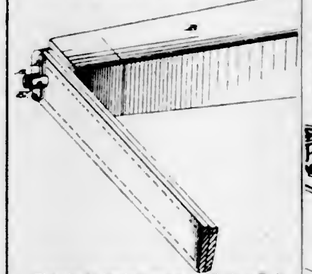
The hollow opening case C, in combination with its cover D, rollers E E, and curtains F and G, substantially as herein described, and for the purpose set forth.

191,234. ANIMAL-TRAPS. J. M. Gleichman, Stuart, Iowa, assignor of one-half his right to R. Conner, same place. [Filed Mar. 24, 1877.]



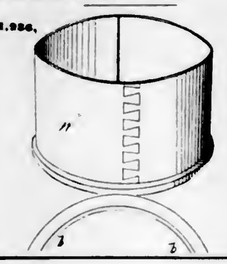
The box A B, having the open end C, and partition D and its gate *a*, the cage I having the fixed bottom H, the falling platform J and its operating mechanism *c d g k m n*, the hinged door *s*, and the looking-glass *r*, all arranged and combined to operate substantially as and for the purposes shown and described.

191,235. WHIFFLETREE-FASTENINGS. S. M. Hamblin, Mattapoisett, assignor of one-half his right to Geo. F. Tucker, New Bedford, Mass. [Filed Jan. 31, 1877.]



The pin A, having ears *a a* and rivet R, in combination with the wedge-shaped fastening-slide D, provided with a coil, *b*, substantially as and for the purpose described.

191,236.



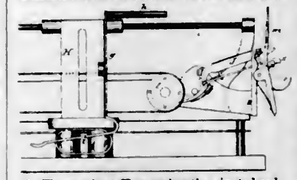
191,236. WOODEN BOXES. G. Harrington, Springfield, Mass. [Filed Feb. 14, 1877.]

Brief.—The top and bottom of a wooden box having cylindrical sides is formed of blocks of wood having grooves to receive the wall of the box.

In combination with the compressible and elastic wall W of a cylindrical wooden box, the top or bottom provided with the circular groove *b* turned therein for receiving and binding the said wall when sprung into the groove, as set forth.

191,237. ALARMS FOR CARDING-MACHINES. W. A. Hathaway, Wickford, assignor of one-half his right to J. Maglone, Belleville, R. I. [Filed Dec. 20, 1876.]

Brief.—When the roving breaks, the arm pivoted to the horizontally-sliding carriage strikes the finger and forces it outward, thus causing the pivoted lever to fall. To the short arm of this lever is pivoted the hammer-rod, the curved end of which, upon the fall of said lever, is brought into contact with a series of pins on the roller by means of a spring. This contact of the spring acted curved end of the hammer-rod with the pins upon the roller causes the hammer to strike the bell and sound the alarm.

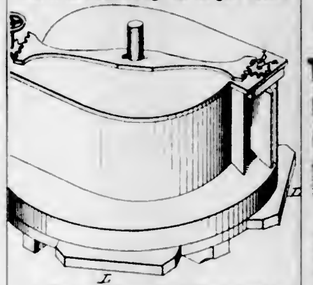


1. The carriage H, carrying the pivoted rod *g*, said rod having curved guide *i* and pin *k*, in combination with lever J, finger *m*, hammer *s*, and bell *r*, substantially as and for the purpose set forth.

2. The combination, with the carriage H, carrying pivoted rod *g*, having guide *i* and pin *k*, of the lever J, hammer *s*, upright bar *k*, finger *m*, bell *r*, and roller I, with pins *j*, substantially as and for the purpose specified.

191,238. TURBINE WATER-WHEELS. Barrack D. Holmes, Bucyrus, Ohio. [Filed Apr. 13, 1877.]

Brief.—To the lower surface of the casing of the flume the followers are movably secured, and they are provided with elongated guide-slots to receive the set-screws, which permits the followers to be moved horizontally, so that they can be adjusted closely to the wheel, preventing any loss of motion or lateral motion. The flume is circular on two opposite sides, and on its remaining sides are provided the openings, which are constructed on a tangent to the arc of the circle of the flume, and provided with centrally-pivoted gates, the pivots of which are furnished on the upper surface of the flume-casing with the gear-wheels.



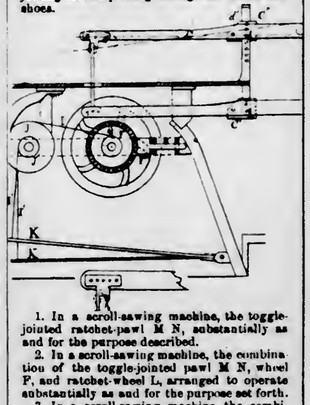
1. The wheel B, provided with the band or periphery H and plates I, the band being scalloped on its lower edge, and the plates I being concave and their sides nearer the solid center of the wheel slightly elevated above the opposite sides, substantially as shown and described.

2. In a water-wheel a follower for preventing lateral motion, and forming an adjustable casing around the wheel, substantially as set forth.

3. The followers L, provided with slots M, and suitable set-screws, substantially as described.

191,239. SCROLL-SAWING MACHINES. Jno. H. Hopkins, Reynoldsville, Pa. [Filed Nov. 8, 1876.]

Brief.—The saw is operated by means of two alternate reciprocating treadles, connected by straps to wheels mounted on a shaft immediately under the table, and which, by belts, operate the driving-shaft, upon which are two bevel-gear spool-wheels, having in their inner sides a toggle-jointed ratchet-pawl, connected to a flat bar, and provided upon its middle part with a ratchet-wheel, and upon one end with a balance-wheel carrying the pitman, and a bevel-pinion gearing into the spool-wheels, and having its bearings in the rear part of the frame, which supports said wheels. The saw-frame is vertically adjustable by means of pivot-rods, which support the vibrating levers in perforated metallic shoes, one of which is secured between perforated standards rigidly attached to the table, the other to pendent brackets under the table, and adjusting-screws passing through the levers and shoes.



1. In a scroll-sawing machine, the toggle-jointed ratchet-pawl M N, substantially as and for the purpose described.

2. In a scroll-sawing machine, the combination of the toggle-jointed pawl M N, wheel F, and ratchet-wheel L, arranged to operate substantially as and for the purpose set forth.

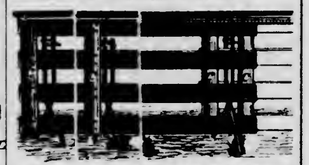
3. In a scroll-sawing machine, the combination of the toggle-jointed pawl M N, ratchets L L, wheels F F, and pinion F', all substantially as and for the purpose herein described.

4. The combination of the toggle-jointed pawl M N, ratchet-wheels F F, pinion F', wheels J J, straps I I', and treadles K K, substantially as shown and described.

5. The saw-frame lever C, supported and pivoted in a shoe having means of vertical adjustment, substantially as and for the purpose shown and described.

6. The saw-frame having a horizontal adjusting-screw, *d'*, and pivoted in the shoe C'', substantially as and for the purpose described.

191,240. FENCES. K. S. Johnson, Town Line, N. Y. [Filed Apr. 9, 1877.]



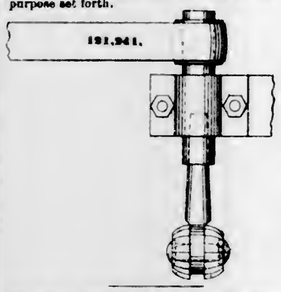
A fence composed of panels, each consisting of horizontal slats and vertical end and middle pieces, retained in position by pairs of rods, bent to transverse one another between two adjacent horizontal slats, whereby the said panels are carried upon the intersecting portions of said rods, as hereinbefore set forth and described.

191,241. TOOLS FOR SHAPING AND DRESSING STONE. H. A. Kimball, Philadelphia, Pa., assignor of one-third his right to Alice E. Miller, Moorestown, N. J. [Filed Jan. 27, 1877.]

One or more cutting-disks or toothed wheels pivoted to a spindle or shaft, with the pivots in a different line or lines of axis to that of the spindle, in such a manner that the revolutions of the spindle or shaft shall revolve

the disks, and cause their cutting edges to bite the stone in rapid succession, as the disks perpetually roll thereon during the revolutions of the spindle, substantially as and for the purpose set forth.

191,241.



191,242. HORSESHOE-NAILS. A. W. Kingeland, Chicago, Ill. [Filed Apr. 24, 1877.]



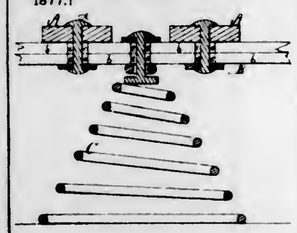
As a new article of manufacture, a horseshoe nail beveled at its point upon one side and both edges, so as to be substantially triangular in cross section, substantially as and for the purpose set forth.

191,243. CARTRIDGE-SHELLS. Israel Kinney, London, Ontario, Canada. [Filed Oct. 24, 1876.]



The cup-shaped base B, provided with internal screw-threads, as described, in combination with the paper shell A, the two being secured together by screwing the end of the tube into the base, substantially as specified.

191,244. SPRING BED-BOTTOMS. Herman W. Ladd, Chelsea, Mass. [Filed Feb. 27, 1877.]



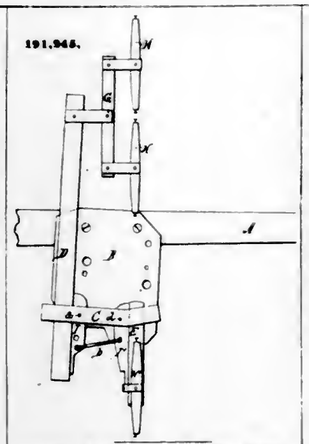
The combination of the slats A and each range of supporting helical springs C, with a compound bar, B, substantially as described, disposed between them, and so connected to them as to admit of each of its bars *b* bending and moving independently of, or lengthwise upon, that or those next to it, all being essentially as and for the purpose explained.

191,245. THREE-HORSE EQUALIZERS. W. McClelland, Fowler, Ill. [Filed Oct. 2, 1876.]

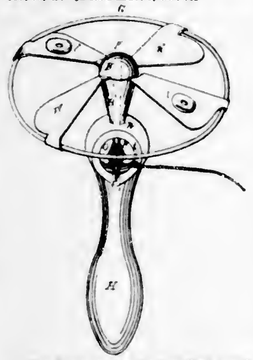
Brief.—An improvement on Patent No. 161,632, of April 6, 1875.

In a draft-equalizer, the combination of the tongue A, the plate B, having a strap, C, for the purpose of forming the pivots *a d*, lever D, double and single trees G H, lever E, castings I I', and connecting-rod *b*, the said castings having slots or enlarged openings for their pivots to pass through, substantially as shown and described.

191,246.



191,246. FLYING TOPS. E. Meta, Rochester, N. Y. [Filed Mar. 1, 1877.]

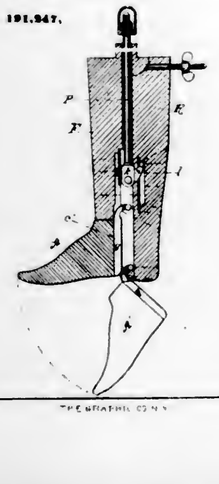


1. The flying top herein described, consisting of the bisected conical body B B', held together by the stem *p*, forming the pintle *p'*, and the wings W, all constructed and arranged substantially as set forth.

2. The flying top, having body B B' *p* and wings W, in combination with handle H, having orifice O, perforation *s*, socket S, and groove *t*, substantially as set forth.

3. The flying top, having wings W, provided with the reed or whistle *l*, in combination with the rim G, as and for the purposes described.

191,247.



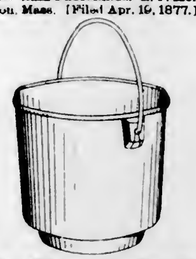
191,247. BOOT-TREES. J. Miller, Rochester, N. Y., assignor to J. Dufner, same place. [Filed Mar. 1, 1877.]

1. In a boot-tree, the leg portions F and R, in combination with the swinging foot A, provided with a tongue, *g*, having a cross-shaped shank cast therewith, and adapted to slide vertically in the groove or recess *c'*, all substantially as and for the purpose set forth.

2. The lever-rod P, provided upon its lower end with the cross-headed lever *l*, in combination with the leg portions F and R, provided with grooves or recesses in which the cross may slide vertically, all substantially as shown, and for the purposes set forth.

3. The combination of the rod P, with the knuckle-jointed lever attached thereto, and adapted to slide vertically in grooves or recesses, as shown, with the leg portions F and R and swinging foot A, all substantially as shown, and for the purposes set forth.

191,248. BAIL-FASTENINGS. E. P. Morong, Boston, Mass. [Filed Apr. 19, 1877.]



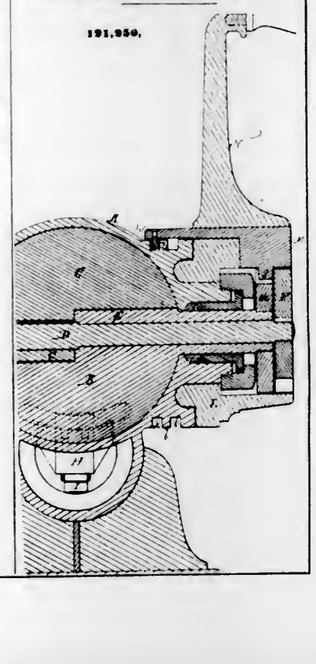
1. The bail-fastening described, the same consisting of a boss having a cavity, *a*, to receive the bail end, and a wedge-shaped recess opening from said cavity, for the reception of a locking device, substantially as shown.

2. The combination of a boss having an interior cavity, *a*, and a recess, *b*, opening into the same from the exterior of the boss, with the bail *d* and plug *c*, substantially as described.

191,249. CEMENT FOR STEAM-JOINTS. S. Otley, Grand Haven, Mich. [Filed Nov. 29, 1876.]

The cement for steam-joints herein described, consisting of mineral paint, yellow ocher, Paris white, plumbago, brick-dust, and litharge, combined with fine-cut hemp and boiled linseed-oil, substantially as set forth.

191,250.



191,250. ROTARY ENGINES. M. Nordmann, Jr., Boston, Mass. [Filed Apr. 11, 1877.]

1. A rotative engine, substantially as described, composed of the case A, with its induct *a* and educt *b*, the two notched pistons B C, their concentric shafts D E, and the stop H, and the spring I, all constructed and arranged essentially in manner and to operate as set forth.

2. The combination of the notched disks F G, rotary head or sleeve L, slide-bolt M, tripper K, and the crossed grooves *i k* with the rotative engine, substantially as described, composed of the case A, with its induct *a* and educt *b*, the two notched pistons B C, their concentric shafts D E, and the stop H and spring I, all being constructed, arranged, and applied substantially in manner shown and described.

191,251. BOTTLE-STOPPER FASTENERS. J. H. Parkhurst, Chicago, Ill., assignor of one-half his right to Geo. C. Hutchinson. [Filed Apr. 17, 1877.]

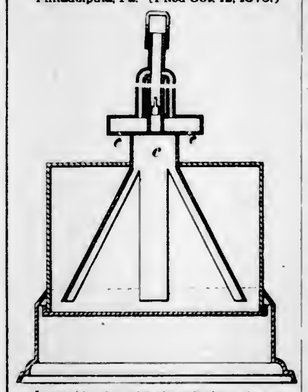


1. The combination, as shown in Fig. 1, of the crank-wire B, constructed as shown and described, with the bail-wire A, constructed as shown and described.

2. The bail-wire A, in combination with the crank-wire B and the cork C, in the manner shown and described, and for the purpose set forth.

3. The combination of the crank-wire B with the bail-wire A, stopper C, and bottle K, in the manner shown and described, and for the purpose set forth.

191,252. VAPOR-BURNERS. R. W. Park, Philadelphia, Pa. [Filed Oct. 12, 1876.]



In combination with the cylinder *c*, the gas-orifices *e e*, affording means for heating said cylinder, substantially as shown and set forth.

191,253. PANTOGRAPHS. Eugene T. Pearl, Hartford, Conn. [Filed Apr. 23, 1877.]

1. The points D E, each provided with a base-flange, *f*, having an open slot, *f'*, and projection *h*, for rendering the points interchangeable, substantially as hereinbefore set forth.

2. The combination, with a pantograph, of a projecting sight, *i*, attached to the outer bar A^2, for sketching from nature, substantially as hereinbefore set forth.

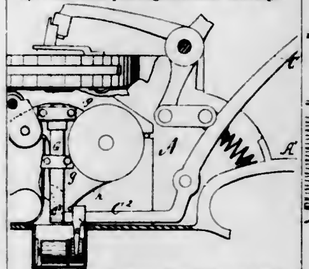
3. The combination, with a pantograph provided with a sight, *i*, of a drawing-board having a fixed sight, *k*, substantially as and for the purpose hereinbefore set forth.

191,254.



191,254. TICKET PRINTING AND RECORDING DEVICES. B. C. Pole, Washington, D. C. [Filed Apr. 3, 1877.]

Brief.—Rings are provided with duplicate printing characters upon opposite sides of one half, and reading-dial and ratchet upon opposite sides of other half. Ink-ribbon, intermittently fed, passes over both printing-surfaces. Recording-paper strip is held upon reels, and intermittently fed at each impression. Compound levers carrying impression-pads press simultaneously a ticket upon the upper printing-surfaces, and the recording-paper strip upon the lower printing-surface of the rings.



1. In a ticket printing and registering device, a ring provided with duplicate printing devices on its opposite flat surfaces, a reading-dial, and a ratchet and operating handle, substantially as and for the purposes set forth.

2. In a ticket printing and registering device, the combination of a ring or rings with printing-characters on their opposite flat surfaces, a reading-dial, and a ratchet and operating handle, of a tape or band and a compound lever so arranged as to press simultaneously a ticket on one flat printing-surface, and a tape or band on the reverse flat surface of the printing ring or rings, substantially as and for the purposes set forth.

3. In a ticket printing and registering device, the combination, with a ring provided with printing-character on its opposite flat surfaces, a reading-dial, and a ratchet and operating-handle, of a recording tape or band, an inking tape or surface, and a compound lever operating double pressing-surfaces to force a card or ticket and a recording tape simultaneously into position to be similarly printed, substantially as and for the purpose set forth.

4. In a ticket printing and registering device, the combination, with a series of rings, each provided with printing-surfaces on the opposite flat sides, a reading-dial, and a ratchet and operating-handle, of a single inking or marking ribbon or tape passing through the rings and over the printing or marking surfaces, and conducted to rollers on the under side or side of the register, substantially as shown and described.

5. The combination of a removable drawer, carrying the register-tape and said tape-actuating mechanism, with a printing-register, substantially as and for the purposes set forth.

6. The combination, in a removable register-drawer, of the ratchet friction-wheels and the reel, provided with a break-spring, all in combination with a compound lever, substantially as and for the purpose set forth.

7. In a ticket printing and registering device, the combination, with a compound lever, provided with pressing-surfaces adapted to simultaneously press a ticket and register strip against opposite printing-surfaces, of a ratchet-pawl actuating an inking-ribbon, substantially as and for the purposes set forth.

8. A ticket printing and registering device embracing in its construction the case A, having printing and punching mechanism, and provided with lever-actuating handles O and A', and punch-actuating handle N, the latter being located above the former, substantially as and for the purposes set forth.

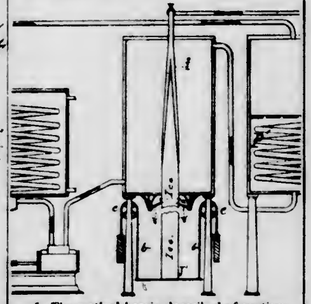
191,255. MANUFACTURE OF WOVEN FABRICS. Ernest Posselt, Bradford, England. [Filed Jan. 22, 1877.]

Brief.—A fabric having a thread interwoven consisting of vegetable or animal fiber loosely spun, and wound with a metal covering, the metal and fiber being compacted together by passing between pressure-rollers.

1. The described metal-wound thread for introduction, by weaving, into the body or selvages of woven fabrics, made as set forth—that is, with the fibrous material of such thread spun soft, and with very little twist, then wound or wrapped with the flattened metallic thread, and the whole then passed through a press or rollers, to drive or press the metal into the fibrous body of the elastic thread, as and for the purposes set forth.

2. The described fabric, composed, in part, of the metal-wound thread or threads described, having a slight twist and much elasticity, as stated, and adapted to be dyed or finished, after being woven, without bronking such metal-wound threads or visibly contracting the fabric.

191,256. MANUFACTURE OF ICE. Carroll L. Riker, New York, N. Y. [Filed Feb. 19, 1876.]



1. The method herein described of continuously forming a prism or cylinder of ice of any desired length, the same consisting in withdrawing the frozen mass gradually from the open end of the mold of an ice-machine, and gradually filling the space thereby left empty with water to be frozen, substantially as described.

2. The combination of the chamber S, mold I, and floor J, as set forth.

3. In combination with the mold I, the catches *r r*, substantially as described.

4. The mold I, having a cylindrical or prismatic portion and a tapering portion, as and for the purpose set forth.

5. The method herein described of releasing the ice from the molds, the same consisting in forcing in the feed-water under pressure, substantially as described.

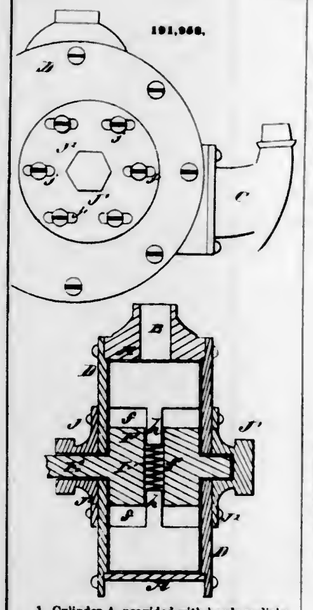
191,257. PROCESSES OF PRESERVING WOOD AND OTHER VEGETABLE MATTER. H. N. Rogé, E. Porst, P. H. Baffoy, and P. S. E. Dupré, Paris, France. [Filed Dec. 21, 1876.]

The method herein described of preserving wood or other vegetable matter by saturating the same with a solution of a soluble salt of lead, which becomes insoluble on coming in contact with the fiber of the wood or other vegetable matter, substantially as specified.

191,258. ROTARY PUMPS AND ENGINES. S. D. Simmons, Brooklyn, N. Y., assignor of one-half his right to A. L. Wood, New York city. [Filed Sept. 30, 1876.]

Brief.—When the piston-cylinder rotates, it touches said cylindrical casing so closely on one side that it makes an air-tight contact between said casing and said cylinder, forcing the pistons inward into recesses and tubular connecting passage as said pistons reach this part of their revolution. While one of the pistons is thus being forced inward the other piston is thrust outward by the action of the spring. As the outwardly-thrust piston revolves, it touches the inside of the casing, and sweeps the water before it around from the induction-pipe to the discharge-pipe. It is then forced inwardly again, while the other piston carries the water around. The water is drawn from the induction-pipe by means of the vacuum produced by the rotation of piston-cylinder and pistons.

191,258.



1. Cylinder A, provided with heads or disks D D, having eccentric oblong apertures, substantially as set forth.

2. Bearings J J', having oblique slots $j' j'$, substantially as and for the purpose set forth.

3. Bearings J J', in combination with cylinder-heads D D, fastening-screws $j j$, and shaft C, substantially as set forth.

191,259. BRUSHES. G. S. Snell, St. Louis, Mo. [Filed Apr. 20, 1877.]

Brief.—A brush with a hollow handle for containing a tooth-wash, and a valve and passages for the flow of the wash to the bristles.

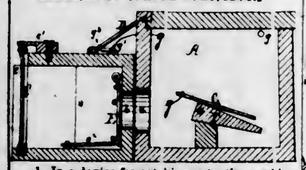


1. The herein-described tooth-brush, consisting of the brush A, handle B, having the chamber b, and the shank B', having the passage b' and b'' b''', substantially as described.

2. The combination of the brush A, hollow handle B, perforated shank B', and valve C, substantially as described.

3. The perforated shank B', perforated plug B, valve C, and seat D, combined substantially as described.

191,260. ANIMAL-TRAPS. La F. Stevens, Elmira, N. Y. [Filed Dec. 20, 1876.]

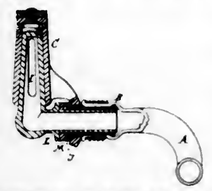


1. In a device for catching rats, the combination, with the bait or feed chamber A, having the entrance-port a, of the trap-chamber B, having the port b, when the said chamber B is hinged upon the chamber A, over the port a, and is so arranged that, the trap being sprung, the chamber B will fall, and be securely held beside the chamber A, and the port b will be coincident with the port a, as described, and for the purpose specified.

2. In a device for catching rats, the gate E, hung in the port b, and constructed with the frame e', covering the said port, and the frame e^2 at an angle thereto, and resting on the floor of the trap, together with the studs or side pieces e, as and for the purpose specified.

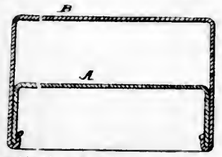
3. In a device for catching rats, the bait-chamber A, having port a, the hinged trap-chamber B, having port b, the gate E, the ball D, and its locking-groove d, the hinged platform F, the bar G, cord g, loop g', and pins g^2 and g^3, arranged to operate as and for the purpose specified.

191,261. AIR OR VACUUM BRAKES. Wm. J. Stevens, New York, N. Y. [Filed Sept. 30, 1876.]



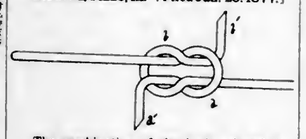
The combination, in brakes operated by vacuum or by air-pressure, of the cocks O C, provided with inlets and outlets, and arranged to be turned, and opened or closed, and be held with the pipe A, with sleeves B B, and arranged to be detached by the motion and separation of the adjoining car, substantially as and for the purpose herein set forth.

191,262. BOILER-COVERINGS. Francis B. Stevens, Hoboken, N. J. [Filed Oct. 26, 1876.]



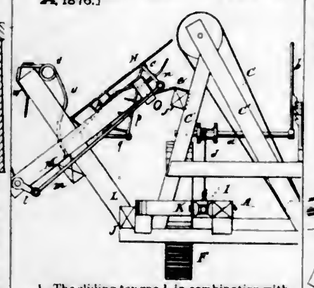
The combination of a boiler-covering made of hollow sections of metal, formed by the inner flanged plate A, secured to the outer flanged plate B by the lips O O.

191,263. BARBED-WIRE FENCES. John F. Steward, Plano, Ill. [Filed Jan. 25, 1877.]



The combination of the barbs a' and b', bent as shown, with the knot formed of the interlocked loops a and b, for the purpose described.

191,264. GRAIN-BINDERS. J. F. Steward, Plano, assignor to B. H. Gammon and Wm. Deering, Chicago, Ill. [Filed Oct. 24, 1876.]



1. The sliding tongue I, in combination with and attached to a binder-frame, carrying a binding mechanism, for adjusting such mechanism to the length of the cut grain, substantially as specified.

2. The carrier B and elevator C, having a fixed position in relation to the main frame, in combination with the adjustable tongue, having a fixed position in relation to the binding mechanism, for regulating the delivery of the grain for binding, substantially as described.

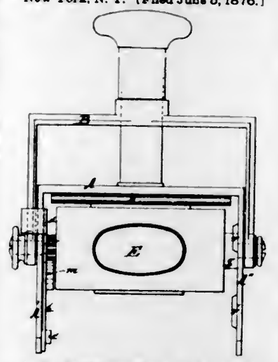
3. The combination of the sliding tongue I, bent bar K, and bar J, supporting the receiver, with the pin g, slot h, chain d, shaft a, lever b, and rack c, substantially as specified.

4. The combination of the sliding arms p and crank-shaft q with the tilting receiving-platform H, having openings for the teeth of the arms p, all constructed and operating substantially as described.

5. The combination of the toothed arms p, slotted receiving platform H, and the fixed spring-arms u r, for compacting the gavels, substantially as specified.

6. The separate plate W, having slot W', attached to the frame, in combination with the needle arm, whereby the needle arm is cleared from straws on its upward movement, substantially as described.

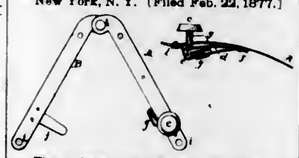
191,265. HAND-STAMPS. B. L. Tarbox, New York, N. Y. [Filed June 5, 1876.]



1. In a hand-stamp, the rack m, attached to a hinged lever, h, or its equivalent, arranged to operate substantially in the manner and for the purpose described.

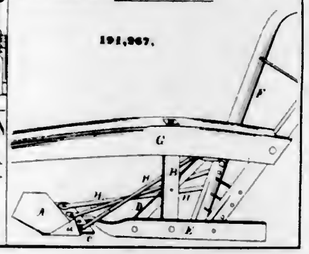
2. The square guiding-block g on one side of the die-block E, in combination with the separated guides e and e' on the inner side of the leg A'' of a hand-stamp, in the manner and for the purpose substantially as set forth.

191,266. GLOVE-FASTENERS. H. Texier, New York, N. Y. [Filed Feb. 22, 1877.]



The spring-button c d, combined with the parts e g g, attached to the plate A, and the part f, attached to the plate B, the whole forming a fastener contructed and operating substantially as shown and described, and for the purposes set forth.

191,267.



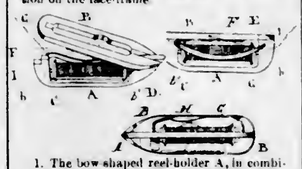
191,267. PLOWS. J. W. Thom, Minneapolis, Kans. [Filed Dec. 18, 1876.]

Brief.—To a cross-plate, secured to a curved land-side bar and brace, a share having cutter is attached.

The combination, in a sod plow, of the share A, having cutter a, the curved land-side bar E, the curved brace D, and plate c, all arranged and secured together substantially as described.

191,268. SHUTTLES FOR SEWING-MACHINES. Geo. H. Thomas, Bowmanville, Ontario, Canada, assignor of one-half his right to W. J. McMurtry and C. Tod, same place. [Filed Feb. 19, 1877.]

Brief.—The shuttle is composed of two skeleton-frames, hinged together, one forming the face and the other carrying the bobbin, the bobbin being held in its bearings by a projection on the face-frame.



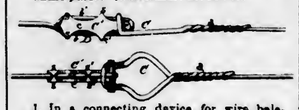
1. The bow-shaped reel-holder A, in combination with the slotted plate B, hinged together and forming a skeleton-shaped shuttle, substantially as and for the purpose specified.

2. The cap D, attached to the slotted plate B, in combination with the pivot b' and reel-holder A, arranged substantially as and for the purpose specified.

3. The combination, substantially as described, of the plate B, spring notched plate E, and wire F, as and for the purpose set forth.

4. The combination of the plate A, guard-plate G, and thread-spring H, substantially as shown and described.

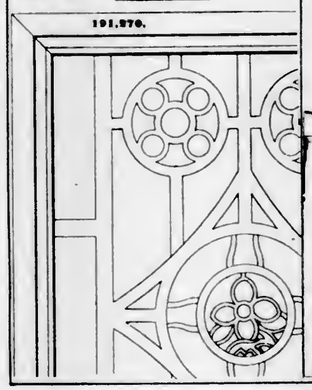
191,269. WIRE BALE-BAND CONNECTIONS. S. L. Thorne, Albany, N. Y., assignor to C. Van Derzee; said Van Derzee assignor of one-half his right to D. H. Mathias, same place. [Filed Mar. 21, 1877.]



1. In a connecting device for wire bale-bands, the combination, with the body c, having an attaching-piece adapted to engage with a loop, of the clinching or binding lips s s and s' s', employed in pairs, with a groove or recess between, and adapted to receive the limbs of a hook, and being bent over to clinch down or bind on said limbs, as and for the purpose set forth.

2. The combination, with hook D, of the connecting device C, constructed with the parts described, and secured to the said hook, as set forth, and adapted to engage with a loop made with the opposite end of the wire from which hook D is made, substantially as and for the purpose set forth.

191,270.

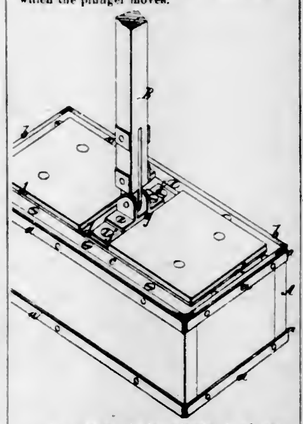


191,270. ORNAMENTED WINDOW-GLASS. Robt. M. Tudor, Philadelphia, Pa. [Filed Jan. 25, 1877.]

As a new manufacture, an ornamented glass window-pane, consisting of a plate of ordinary window-glass, in combination with a paper on which there is printed, painted, or stained opaque lines and transparent colored figures in representation and imitation of the leaden sash and colored glasses in stained windows, substantially as set forth.

191,271. PUMP-PLUNGERS. H. H. Tuttle, San José, Cal., assignor of one-half his right to F. Field, same place. [Filed Apr. 29, 1876.]

Brief.—A box plunger, rectangular in form, has sides rigid from top to bottom, its upper and lower edges provided with strips of packing material, which keep the plunger steady and free from oscillation. The top edge of the plunger has a cup-shaped packing, the outer edge of which turns up beyond the top of the plunger, thereby presenting a yielding surface against the inside of the chamber in which the plunger moves.



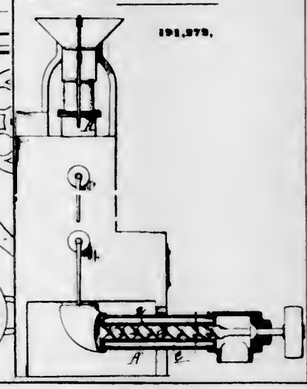
1. In a pump, the box-plunger A, of rectangular form, divided by a single partition, A', into compartments, in combination with the supply-passage M at the base of the pump, substantially as shown and described.

2. The long stiff box-plunger A, having its sides rigid from top to bottom, the said sides having their upper and lower exterior edges provided with projecting strips a, in combination with an upwardly-extended packing, b, substantially as described.

3. The binding-plate c, stamped out of a single piece of metal, in the form shown, in combination with the packing b, for the purpose set forth.

4. The rigid rectangular box-plunger, constructed with the projecting strips a, the yielding packing-strip b, and binding-plate c, substantially as described.

191,272.



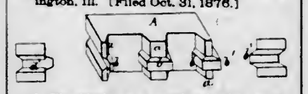
191,273. AMALGAMATORS. Thos. Walker, Philadelphia, Pa., assignor to T. Walker, J. W. Bancroft, and S. H. Safford, same place. [Filed Sept. 18, 1876.]

Brief.—The porous section allows the expansion of the air without increase of tension. The ore drops down from the retort, and is carried away by the screw-conveyer. It is cooled on its passage.

1. The retort A, provided at or near its upper end with a porous section, F, as set forth.

2. The combination of the retort A with the annular extension A', having double walls, forming an annular chamber, a, and with means, substantially as described, for conveying the ore through this extension, as set forth.

191,275. PAVEMENTS. Z. Waters, Bloomington, Ill. [Filed Oct. 31, 1876.]



1. The blocks A A, made of brick, artificial stone, or other equivalent material, and provided on one or more sides with projections a, which bear against the side of adjoining blocks, and form spaces between the blocks, substantially as and for the purposes herein set forth.

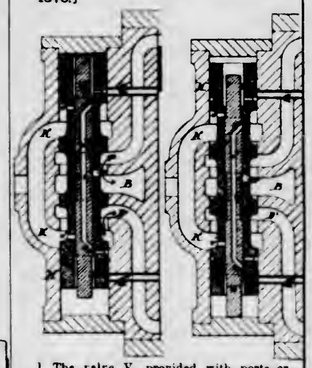
2. The block A, constructed as described, with projections a, lugs b b', and grooves or recesses d d', substantially as and for the purposes herein set forth.

3. The blocks A A, of brick or artificial stone, having projections a, lugs b b' and recesses d d', and saturated with coal-tar, pitch, or asphalt, or a mixture of the same, cementing the blocks firmly together, when combined and used for the purposes herein set forth.

191,274. CLOTHES-WRINGERS. J. Young, Amsterdam, N. Y. [Filed Oct. 13, 1876.]

The combination, in a wringer having notched levers, of the weight L, operating substantially in the manner and for the purpose specified.

191,276. VALVES FOR STEAM-ENGINES. J. F. Allen, New York, N. Y. [Filed May 5, 1876.]

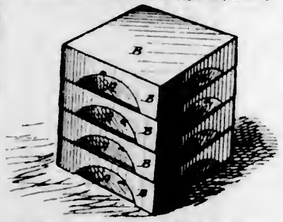


1. The valve V, provided with ports or passages a a', e e', and w, in combination with an auxiliary valve, W, adapted to move independently and in advance of the main

valve V, when arranged to operate in combination with auxiliary passages G G', passing from the cylinder into the steam-chest and the steam-passage K, substantially in the manner described, and for the purpose set forth.

2. The combination of the valve V, auxiliary valve W, central passage J, ports *m m'*, central port *n*, recesses *x x'*, port *w*, and exhaust-passage B, in the manner substantially as set forth, and for the purpose described.

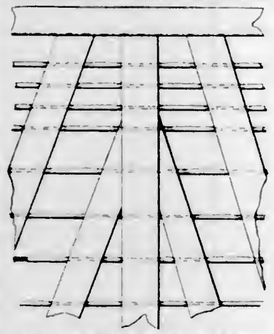
191,976. PAPER BOXES. M. Backes, Wallingford, Conn., assignor to Geo. Parsons, Brooklyn, N. Y. [Filed Apr. 23, 1877.]



1. The combination of the flexible pasteboard box A with the rigid metallic cover B, whose sides extend down as far as the bottom of the box, so that the closed box will have a flexible bottom and rigid top and sides, substantially as herein shown and described.

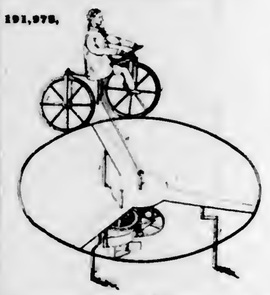
2. The combination of the flexible pasteboard box A with the rigid metallic cover B, the sides of said cover extending down to the bottom of the box, and being provided with the notches or recesses *s s* at their lower edges, substantially as herein shown and described.

191,977. HOOP-SKIRTS. Alfred Benjamin, New York, N. Y. [Filed Mar. 29, 1877.]



As a new article of manufacture, a hoop-skirt having hoops formed with cords secured to one or both edges of the same by the braid, a portion of the threads of which pass between the cord and spring, said hoops being secured to the skirt by stitches passing through said corded edge or edges, substantially as and for the purpose set forth.

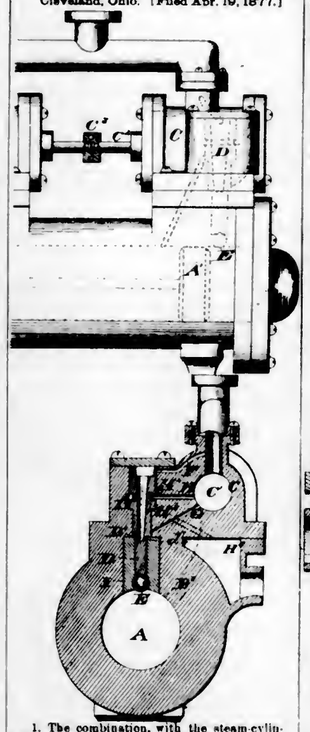
191,978.



191,979. TOY VELOCIPEDES. J. B. Conklin, Seneca Falls, N. Y. [Filed Feb. 7, 1877.]

A toy velocipede consisting of the wire hoop *a*, having legs *j*, the shaft *c*, driving-bar *d*, the figure of a rider, the carriage, provided with grooved wheels *f*, and the clock-work driving mechanism, all constructed and arranged to operate as described.

191,979. STEAM-VALVES. Samuel Curtis, Cleveland, Ohio. [Filed Apr. 19, 1877.]



1. The combination, with the steam-cylinder A, independent valve-chambers C, and valves C', the latter connected to move in unison with each other, of the hollow double-seated lift-valves D, steam-conduits *d'* G, and exhaust-conduits H, H', and H², substantially as and for the purpose set forth.

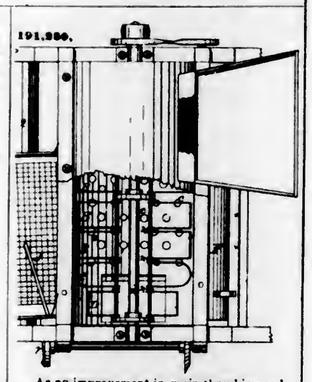
2. The combination, with cylinder A, piston A', independent valve-chambers C, and valves C', of the lift-valves D, provided with suitable steam and exhaust ports, as described, and ball E, the latter arranged to project slightly within cylinder A, substantially as and for the purpose set forth.

3. The combination, with valves C', of the hollow double-seated lift-valve D, steam passages *d'* G leading to one end of the valve-chamber C, and exhaust-passages H, H', and H², connecting with the upper portion of valve D, substantially as and for the purpose set forth.

4. The combination of the valve D, ball E, and piston A', substantially as and for the purposes described.

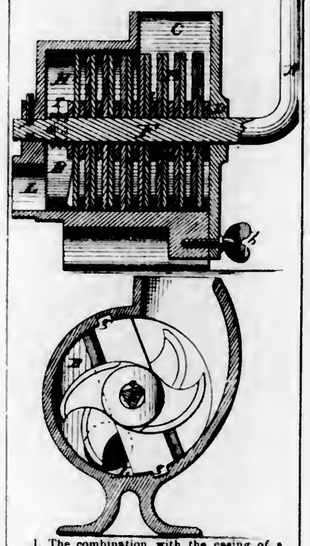
5. The combination, with a main steam cylinder, and two valves located in independent valve chambers, each of which govern separate steam and exhaust ports leading to the ends of the main cylinder, of independent lift-valves located outside of the main valve chambers, and steam and exhaust ports connecting the lift-valves with the outer ends of the main valves, the exhaust-ports being open to the atmosphere while the piston is traveling between the lift-valves, substantially as and for the purpose described.

191,980. THRASHING-MACHINES. Rufus Durand, Canandaigua, N. Y. [Filed Oct. 18, 1876.]



As an improvement in grain-thrashing cylinders, the swinging clevis or U-shaped teeth or beaters, constructed substantially as and for the purposes shown and described.

191,981. MEAT-CUTTERS. Albert R. Gillis, Salem, Ohio. [Filed Dec. 7, 1876.]



1. The combination, with the casing of a meat-cutter, having a hopper formed on one end of said casing, of a detachable cylinder-head, which serves to form a removable side of the hopper, substantially as and for the purpose set forth.

2. The combination, with the discharge-orifice of a meat-cutter, of a screw, located in a hub surrounding said orifice, said screw arranged to restrict or enlarge the opening of said orifice, substantially as and for the purpose set forth.

3. The combination, with the casing of a meat-cutter, of the removable head, constructed with open slots *a a*, and notches or depressions *c c* and set-screw *b*, substantially as and for the purpose set forth.

4. The combination, with the revolving shaft, constructed with angular faces, of revolving knives secured to said shaft, and stationary knives, the ends of which are secured to the casing, said stationary knives provided with openings to allow of the free rotation of the shaft therein, substantially as and for the purpose set forth.

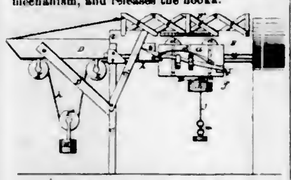
5. The combination of the stationary knives with the casing, having a discharge-orifice

below its center, and provided with grooves located at one side of a perpendicular line drawn through the center of the casing, substantially as and for the purpose set forth.

6. The combination, with the series of knives, of a spiral or other spring located on the shaft, and adapted to impart a yielding pressure to the knives, substantially as and for the purpose set forth.

191,982. HAY-ELEVATORS. G. Herseman, Herseman, Ill. [Filed Apr. 9, 1877.]

Brief.—The cross-bar operating the pivoted hooks is provided with a loop, through which the draft-rope passes, carrying the chain, which, on arriving at the loop, depresses the bar by means of the strain on the hoisting mechanism, and releases the hooks.

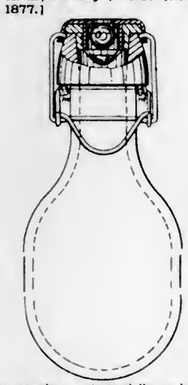


1. The combination, with the stationary ridge-beam B, having tracks *a a*, of the detachable beam B', with tracks *a' a'*, detachable braces C C', and the detachable beam D, with braces D' and pulleys E E', substantially as and for the purposes herein set forth.

2. The combination of the car G with its wheels *d d*, the pivoted hooks H H, springs *d'*, cross-bar I, with loop or bend *f*, and the lugs *e e*, substantially as and for the purposes herein set forth.

3. The combination, with the car G, of the hoisting-rope J, chain *m*, cross-bar I, connecting the hooks H, the pulley K, and the annular weighted guide L, suspended from the pivoted bail M, all substantially as and for the purposes herein set forth.

191,983. BOTTLE-CLOSING DEVICES. Wm. H. Hicks, Brooklyn, N. Y. [Filed Apr. 14, 1877.]



1. A cap-piece, substantially as hereinbefore described, plain upon its upper surface, but having an opening through it, having on its under side a chamber, the bottom of which is nearly covered by a deflecting plate or shield, and provided with means, substantially as described, to connect to a closing leverage, all arranged substantially in the manner and for the purposes forth.

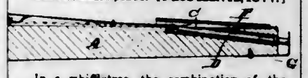
2. In a bottle-closing mechanism the combination, substantially as hereinbefore described, of a cap-piece, plain on its upper surface, but having an opening through it, having on its under side an angularly-projecting flange surrounding said opening, an annular packing-piece surrounding said flange within the walls of said flange, having an annular valve-seat surrounding said opening, and a stopper or valve contained in the chamber formed by the inner walls of said flange above a deflecting and supporting shield, with a lifting and closing mechanism, substantially as described, all arranged to operate substantially in the manner and for the purposes set forth.

3. The combination, substantially as hereinbefore described, of annular packing-piece grooved or recessed on its inner walls, with a flanged cap-piece, which it surrounds, having or provided with openings through its thickness to communicate with said grooves or recesses, all arranged to operate substantially as and for the purposes set forth.

4. In a bottle-closing device a deflecting plate or shield placed beneath a chamber on the under side of a cap-piece, to close, or nearly close, said chamber at its bottom, but leaving an opening to said chamber at its lower circumference, substantially as and for the purposes set forth.

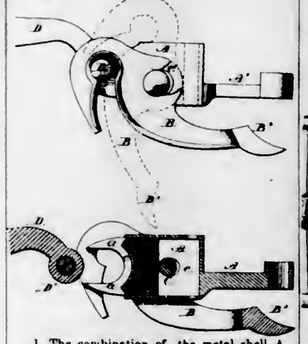
5. The combination, substantially as hereinbefore described, of a lever-wire or metallic piece, curved or bent at its central portion, having bearings or eyes about equidistant from its center, and at its ends arranged to joint to or in bearings attached to a bottle, with a wire or metallic piece bent or curved at its central portion, pivoting in bearings in said lever-wire, and arranged to be attached to a cap-piece of a bottle, all arranged to operate substantially as and for the purposes set forth.

191,984. HORSE-DETACHERS. G. A. Hildebrand, Asheville, N. C., assignor to T. D. Carter, same place. [Filed Mar. 12, 1877.]



In a whiffletree, the combination of the draw-bars D, contained in suitable recesses in the end of the tree, the rubber band C, the guard or band C, the guard or cover F, and the L-shaped piece G, all constructed and adapted to operate in connection with the traces, in the manner and for the purpose specified.

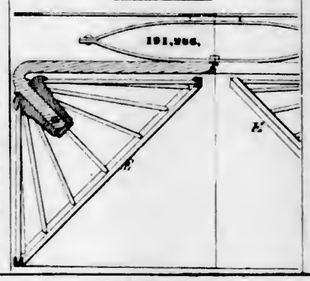
191,985. THILL-COUPLINGS. C. C. Hinkley, Rockford, Ill., assignor to himself and J. D. Tanner, same place. [Filed Sept. 1, 1876.]



1. The combination of the metal shell A and bifurcated hooked bail B, having the thumb-piece B' attached thereto, substantially as described, and for the purpose set forth.

2. The combination of the rubber C, having the metal facing C' inclosed within the shell A, the bifurcated hook B, shell A, and thill-iron D, arranged and operating substantially as described, and for the purpose set forth.

191,986.

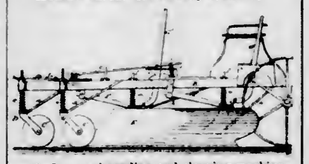


191,986. WHEELS AND AXLES. Jas. Humphrey, Boston, Mass. [Filed July 17, 1876.]

1. A dished wheel for vehicles, in which the spokes are set at an angle of about forty-five degrees with its axis, so that the rim will travel beneath the body of the vehicle, substantially as shown and described.

2. In combination with the dished wheel, as described and shown, the axle E, having its spindle bent, substantially as shown and described.

191,987. ROAD-SCRAPERS. L. F. Jefferson, Monmouth, Ill. [Filed May 8, 1877.]



1. In a road grading and cleaning machine, the side pieces B and B', one of them shorter than the other, for the purpose described, in combination with the cross-pieces *a* and platform *b*, as set forth.

2. The trailing or caster wheels C and C', carried by the adjustable vertical screw-threaded standards D, with springs *e*, in combination with the side pieces B and B' of the machine-frame and flexible supports *d*, as and for the purposes set forth.

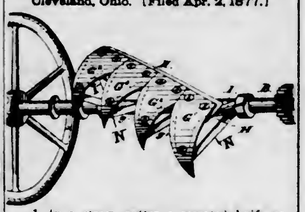
3. The rocker-bar I, provided with guides *s*, in combination with the tongue L, fifth-wheel or circle, and lever P, provided with the cross-bar *h* and pins *s'*, for securing and releasing the tongue, as specified.

4. The scraper E, in combination with the supporting-links *h'*, guide-rods *i*, and springs *m*, as and for the purposes set forth.

5. The scraper E, in combination with the levers F and F', guide-rods and springs *m*, links *i*, hand-levers G and G', and rack-guides *k*, all constructed and arranged substantially as and for the purpose specified.

6. A road-scraper consisting of the frame B B', supported on wheels A' A' and spring caster-wheels C C', constructed and arranged substantially as set forth.

191,988. STRAW-CUTTERS. Wm. Kachin, Cleveland, Ohio. [Filed Apr. 2, 1877.]



1. In a straw-cutter, a serrated knife or cutter curved to correspond with the surface of the section of a cylinder taken diagonally across its axis, said knife suitably attached to a shaft, substantially as and for the purpose described.

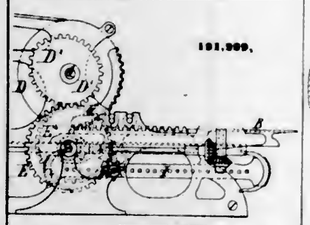
2. In a straw-cutter, a serrated knife or cutter curved to correspond with the surface of the section of a cylinder taken diagonally across its axis, the cutting edges of the knife diverging equally from a vertical plane at right angles to the axis of the shaft to which said knife is suitably attached, substantially as and for the purpose described.

3. In a straw-cutter, a serrated knife or cutter curved to correspond with the surface of the section of a cylinder taken diagonally across its axis, in combination with bar H, rods I, arms N, and shaft B, substantially as and for the purpose described.

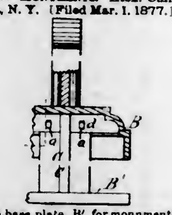
191,989. PRINTING-PRESSES. C. Potter, Jr., Plainfield, N. J. [Filed May 27, 1876.]

The bed B, reciprocated with a uniform movement, in combination with gear wheels, having concentric portions D' E' for communicating a corresponding motion to the drum D during the time while the impression is being taken, and eccentric portions D' E' for communicating a variable slower motion to the cylinder during the time they are out of gear, substantially as herein specified.

191,289.

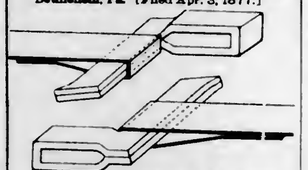


191,290. MONUMENTS. Alex. Smith, Palmyra, N. Y. [Filed Mar. 1, 1877.]



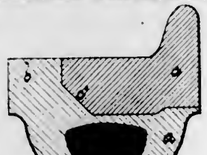
A sub-base plate, B', for monumental headstones, provided with one or more vertical standards, C, adapted to be detachable secured to the base B by a key or keys, *a*, substantially as and for the purposes set forth.

191,291. BALE-TIES. D. A. Tompkins, South Bethlehem, Pa. [Filed Apr. 3, 1877.]



A bale-tie buckle composed of two pieces, each of which is an angled piece, with one end formed into a loop or hook, and the other to pass through the fold in the tie, the looped end of each piece to receive the other end of its corresponding piece, substantially as described.

191,292. CAR-WHEELS. N. Washburn, Hartford, Conn. [Filed Mar. 19, 1877.]



A cast-iron car-wheel having the comparatively unused portion of the tread *b* of cast-iron, and the remaining portion *c*, including the flange, of steel, welded or fused to the iron in the process of casting, substantially as shown and described.

191,293. CAR WHEELS AND AXLES. N. Washburn, Hartford, Conn. [Filed Dec. 14, 1876.]

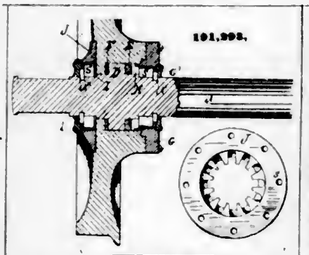
Brief.—One of the wheels is loose upon the axle, the other being of the ordinary construction. The loose wheel is retained in place by a flange on the axle and collars secured to the hub. Loose washers and packing-chambers are provided.

1. The cap-flange G, provided with the radial packing-chambers.

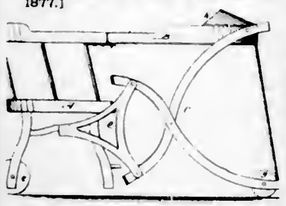
2. In combination, axle A, provided with groove A', wheel C, cap-flange G, and plate T.

3. In combination, axle A, provided with grooves A' A'' and fixed flange D, wheel C, having cup in the hub to receive flange D, loose collars E F, cap-flanges G J, and plates T T.

191,293.



191,294. NURSERY-CHAIRS. L. I. Adams, East Templeton, Mass. [Filed Apr. 9, 1877.]



1. The chair A, support C, toy-box B, and triangular pieces *e*, in combination, substantially as herein shown and described.

2. The toy-box B, having the cover *h*, substantially as shown and described.

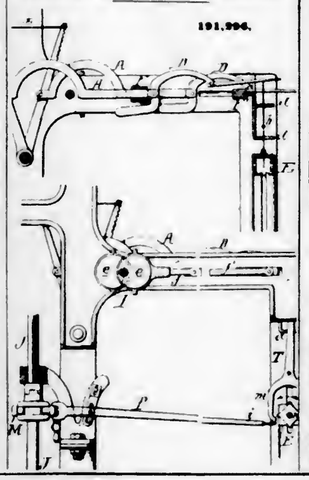
3. The combination of the wheels *e g* with the chair A and support C, substantially as herein shown and described.

191,295. STOPPER ATTACHMENTS. Barnard Arnold, Foster Centre, R. I. [Filed Dec. 4, 1876.]



The combination of the screw A, having the eye *b*, the elastic band B, and the slides *c c'*, substantially as herein shown and described.

191,296.



191,296. SHEDDING MECHANISMS FOR LOOMS. J. S. Ashworth and J. J. Hanson, Philadelphia, Pa. [Filed Mar. 16, 1877.]

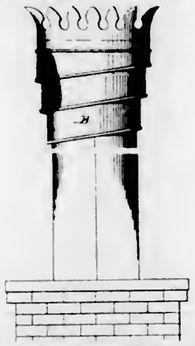
Brief.—The jacks are provided with pivoted levers, and the latter have weighted extensions, adapted to counterbalance the outer ends of the levers. The jacks are further provided with shoulders, which bear against the lifter-bar. By this construction the levers are free from the strain of the heddles when the former are acted upon by the needles of the jacquard mechanism. When the clutch of the shedding shaft is thrown out of gear, the action of the clutch-lever through an intermediate lever reverses the position of the clawkers, in order that the pattern-chain may be turned back when the shedding mechanism is reversed to find the true shed.

1. The combination of the card-cylinder E and its needles *b* with the counterbalanced levers D, jacks A, for operating the heddles, and mechanism for reciprocating said jacks, as set forth.

2. The combination of the reciprocating bars F and F', with the levers D and jacks A for operating the heddles, and passing through openings in said bar F, and provided with shoulders, as described.

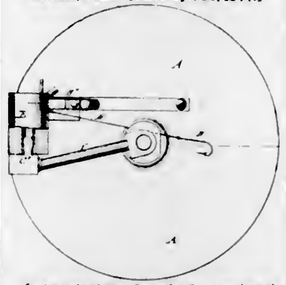
3. The combination of the card-cylinder E, forked lever T, the driving-shaft J and its clutch M, with the lever P, arranged and operating as herein described.

191,297. CHIMNEY-COWLS. Andrew F. Barry and Ira G. Lane, New York, N. Y. [Filed May 5, 1877.]



A chimney cowl or ventilator, consisting of the strip B, bent into a spiral form, and having spaces between the successive convolutions of the spiral, substantially as shown and described.

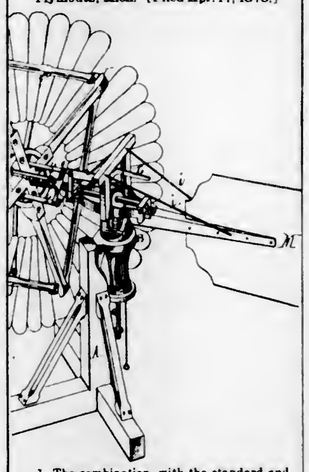
191,298. ANIMAL-TRAPS. E. B. Beach, West Meriden, Conn. [Filed Apr. 30, 1877.]



1. An animal-trap formed of a gun-barrel with spring-hammer, of a circularly-moving piston at the end of a pivoted arm, and of a bait-hook and wire connected to the spring-hammer, substantially in the manner and for the purpose set forth.

2. The combination of a base-disk, A, gun-barrel B, having spring-hammer B', piston C' at the end of pivoted arm C, and bait-hook and wire D' D, attached to spring-hammer, to release hammer on pulling of bait and shoot piston, substantially as set forth.

191,299. WINDMILLS. Lewis H. Bennett, Plymouth, Mich. [Filed Apr. 17, 1876.]

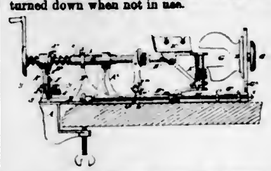


1. The combination, with the standard and ring-brackets B B, of the truncated cone or sleeve C and turn-table D, having boxes at the ends thereof, and all cast in one piece, and to which the tail-vane and shaft of the wind-wheel are secured, substantially as herein shown and described.

2. The combination of the standard A, ring-brackets B, truncated cone or sleeve C, turn-table D, having boxes at the opposite ends thereof, wheel-shaft E, tail-vane M, truss-rods *i*, and hog-frame *j*, the several parts constructed and arranged to operate in the manner herein shown and described.

191,300. APPLE PARING AND CORING, AND PEACH PARING AND STONING MACHINES. Geo. Bergner, Washington, Mo. [Filed Feb. 3, 1877.]

Brief.—A projection on the spring-lever engages the worm on the fork-shaft, which causes the same, upon being revolved, to move back, carrying the rack rod, which engages the toothed segment of the knife support, with it until the projection on the fork-shaft comes in contact with the curved end of the spring-lever, which disengages the projection thereon from the worm, leaving the whole free to be moved forward by the hand, which throws the knife back to its normal position, so it will not obstruct the operation of the slicing and coring device and the attachment of a fresh apple or peach. The slicing device may be turned down when not in use.



1. In peach and apple parers, the combination of the fork-shaft, having end screw, with a detachable and interchangeable fork, having a central screw-socket, substantially as and for the purpose set forth.

2. The combination of the fork-shaft B, having fixed lug *a*, with the curved top extension a^2 of the swinging and spring-acted fork-shaft holder F, to throw the same out of gear with worm of fork-shaft, substantially as described.

3. The combination of the swinging and spring-acted fork-shaft holder F, having lug or arm *f* and sliding pivots d^1, with standard having recess f^1 of standard A^1, to retain the holder securely when in or out of gear with worm, as set forth.

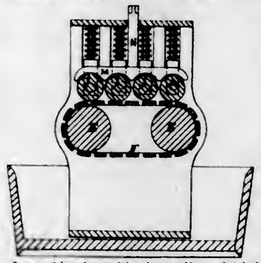
4. The combination of sliding rack-rod D, having hook-shaped end *g'*, with the swinging and spring-acted fork-rod holder F, having sliding pivots *d*, to throw the holder into gear with worm by the forward movement of fork-rod, substantially as described.

5. The combination of base-frame A, having guide-supports i^2, with slide-rod H, having adjustable screw-nuts i^3, and swinging knife-standard G^1, substantially as and for the purpose described.

6. The combination of base-frame A, having supports i^2 and guide-rail *i*, with slide-rod H and flanged base-frame of knife-standard G^1, substantially as set forth.

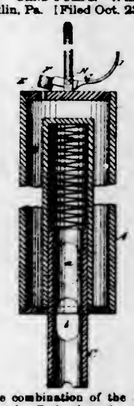
7. The combination of the slicing-knife G, having base-plate *h* and screw *h'*, with the slotted standard G^1 and convex clamping-knob G^3, substantially as described.

191,301. WASHING-MACHINES. D. Best, Auburn, Oreg. [Filed Mar. 15, 1877.]



In combination with the endless slat-belt F, mounted as described, the series of pressing-rollers I I, each of which is mounted in independent slides *j j*, and pressed downward by a spring, K, and the brake-bar M, applied to said rollers by means of the lever L, and connecting-bar N, substantially as and for the purpose described.

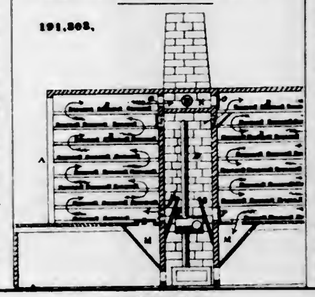
191,302. SAND-PUMPS. William H. Birge, Franklin, Pa. [Filed Oct. 23, 1876.]



1. The combination of the pump-body A, capped tube B, having the opening *a*, the valve C, having the opening *b*, and the spring D, substantially as shown and described.

2. The combination of the lever G, having the enlarged end I, the valve F, and the pump-body A, provided with the air-aperture E, substantially as shown and described.

191,303.



191,303. FRUIT-DRIERS. R. B. Blowers, Woodland, Cal. [Filed Apr. 3, 1877.]

1. The heating-chamber D, with its air-passages M N, and the drying-rooms A, with their tiers of trays or other materials, in combination with the doors P and O, the passage N, and the uptake or chimney E, substantially as and for the purpose herein described.

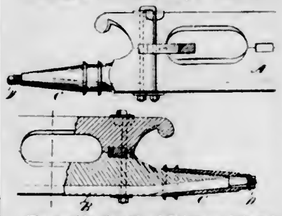
2. The heating-chamber D and the drying-rooms A, having the upper and lower passages N and M, with their respective connecting-doors O P and J L, in combination with the draft-chimney E, whereby a current of heated air may be caused to pass through the drying-rooms in either direction at will, without the aid of any other apparatus for producing a draft, substantially as herein described.

191,304. WIRE SCREWS AND NUTS. John T. Bruen, Brooklyn, N. Y. [Filed Apr. 2, 1877.]



The method of forming a nut for wire screws by slotting a loose tube over the grooves of the screw, inserting in said slots wires that project into said grooves, and setting the metal of the tube down around the wire, as described.

191,305. WAGON-AXLES. W. F. Buckelew, Shreveport, La. [Filed Apr. 7, 1877.]



The combination of rod B, bent and threaded at the ends, the end countersunk shells C, and the bevel-faced nuts D, to hold the shells securely to the axle A, as shown and described.

191,306. FIRE-EXTINGUISHING COMPOUNDS. Friedrich Budy, Leipsic, Saxony, Germany. [Filed Mar. 3, 1877.]

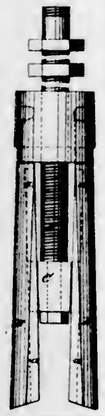
A fire-extinguishing compound consisting of chlorate of potash, rosin, nitrate of potash, and oxide of manganese, moistened with a solution of silicate of soda, and compressed into a block, the latter being surrounded by a fire-proof wrapper and provided with a fuse, as set forth.

191,307. EXPANDING ROCK-DRILLS. W. R. Burt, East Saginaw, Mich. [Filed Apr. 9, 1877.]

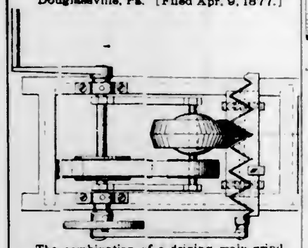
Brief.—The band holds the arms in their hinged sockets. The sliding wedge is operated by the screw-shaft to contract or expand the hinged arms. The device is for use in enlarging the lower part of salt, oil, and Artesian wells.

The combination of the hinged expanding-arms, having interior guide-grooves, with a vertically-sliding wedge-piece guided therein, and an operating screw-shaft, turning in the head of the arms and in the wedge-piece, substantially as specified.

191,207.

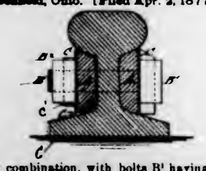


191,209. GRINDSTONE SHARPENING ATTACHMENTS. H. F. Bush and M. L. Bush, Douglassville, Pa. [Filed Apr. 9, 1877.]



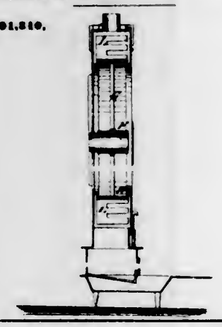
The combination of a driving main grindstone with a second revolving grindstone, turning in bearings of a swinging frame, centered to shaft of main grindstone, and with a reciprocating knife-supporting bar or plate, substantially as and for the purpose herein specified.

191,209. NUT-LOCKS. Samuel Caldwell, Greenfield, Ohio. [Filed Apr. 2, 1877.]



The combination, with bolts B' having recessed heads, nuts B², and fish-plates A, of the washers C extended over the top and bottom of fish-plates, and having one or more upturned flanges, C', substantially as and for the purpose specified.

191,210.



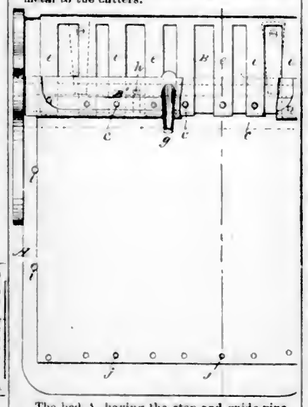
191,210. TIRE-HEATERS. Philip W. Cassil, New Athens, Ohio. [Filed Apr. 16, 1877.]

Brief.—The inner rim is provided with slotted plates, which serve as racks to receive and support tires of different sizes.

The combination of the racks L with the revolving inner rim H of a tire-heating chamber, substantially as herein shown and described.

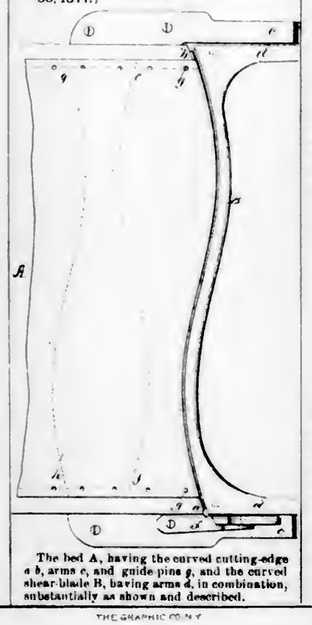
191,211. DEVICES FOR PUNCHING SHEET METAL FOR PIPE-ELBOWS. G. Choate, East Saginaw, Mich. [Filed Apr. 30, 1877.]

Brief.—A gang of punches supported separately by springs; a series of holes corresponding thereto in the table beneath, and a rock-bar operated by a lever to force the punches through the sheet of metal; and guide-pins for properly adjusting the sheet of metal to the cutters.



The bed A, having the stop and guide pins *h i j*, the dies *a*, guide B, punches *c*, bar B', and lever *g*, in combination, substantially as shown and described.

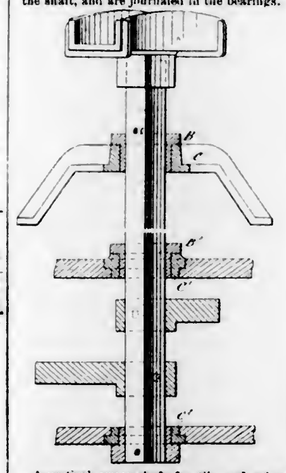
191,212. DEVICES FOR CUTTING SHEET METAL FOR CURVED PIPE-ELBOWS. G. Choate, East Saginaw, Mich. [Filed Apr. 30, 1877.]



The bed A, having the curved cutting-edge *a b*, arms *c*, and guide-pins *g*, and the curved shear-blade B, having arms *d*, in combination, substantially as shown and described.

191,213. TILE-MACHINES. G. S. Clark and W. M. Pursell, Piqua, Ohio, assignors to said Clark and John O'Ferrall & Co., same place. [Filed Mar. 12, 1877.]

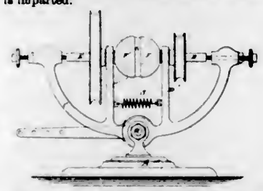
Brief.—The collars are secured by pins on the shaft, and are journaled in the bearings.



A vertical sweep-shaft for tile and other machines, having between itself and its bearings C C' C² the flanged collars B B' B², as and for the purpose specified.

191,214. FRICTION-CLUTCHES. Wm. H. Clark, Chicago, Ill. [Filed May 12, 1877.]

Brief.—The two hemispherical cups inclose an elastic ball, and when the cups are drawn in close contact with the ball friction motion is imparted.



The cups F F' and intermediate ball G, in combination with spindles D E, the latter having its bearings in a frame, C C', which is pivoted at *a*, and acted on by a spring, S, substantially as described.

191,215. SCREW-THREAD COUNTERS. C. C. Coleman, Honolulu, Hawaii. [Filed Mar. 17, 1877.]

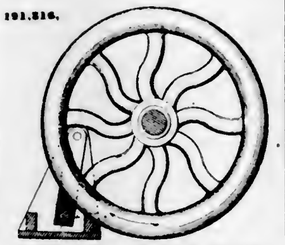


1. The notched or serrated plates C, for the purpose of determining the number of threads upon bolts, nuts, dies, taps, &c., substantially as herein described.

2. The serrated plates C, for indicating the number of threads to an inch, said plates being united at D, so as to form a case or book of indicators of different sizes, substantially as herein described.

191,216. DEVICES FOR PREVENTING BACK MOTION OF SEWING-MACHINES. Geo. M. Conover, Cleveland, Ohio, assignor of one-half his right to G. R. Tuttle, same place. [Filed May 2, 1877.]

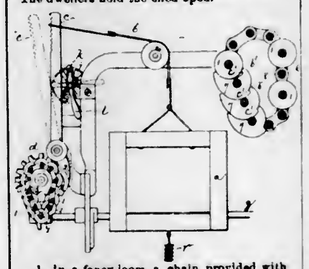
191,216.



The combination, with the fly-wheel of a sewing-machine, of a swinging frame having a friction-pad secured thereto, and a guard and a stop secured relatively to the swinging frame, in the manner described, and thereby serving to limit the movement of the pad in either direction, substantially as described.

191,217. SHEDDING OR HARNESS-OPERATING MECHANISMS FOR LOOMS. G. Crompton and H. Wyman, Worcester, Mass. [Filed Feb. 27, 1877.]

Brief.—The invention comprehends the special arrangement of the shedding mechanism pointed out in the claims. Further, a device is provided for leveling the warps, and for shifting the levers relatively to the pattern-chain, whereby the pattern may be changed without increasing the length of the chain. The chain is of peculiar construction, being provided with elevators, dwellers, and spaces. The dwellers hold the shed open.



1. In a fancy-loom, a chain provided with elevators, dwellers, and spaces, substantially as described, adapted to indicate the pattern to be woven, substantially as set forth.

2. In a fancy-loom, a chain provided with elevators and spaces, and mounted upon a cylinder rotating in stationary bearings, and adapted to indicate the pattern to be woven, in combination with vertical levers connected with the harness-frames by cording, and with springs to depress the harness-frames, the chain being adapted to operate against the short ends of the levers, substantially as described.

3. A lifting-arm to move the vertical levers, connected by cording with the harness frames, away from the pattern-surface, in combination with a duplex pattern-surface, and with a shifter to move the levers laterally with reference to the pattern-surface, substantially as described.

4. The crank shaft, its worm-gear *p*, worm-toothed wheel, and pattern-surface, in combination with the short upright levers, provided with ends 2, against which said pattern-surface acts, and with harness-frames, connections *b*, and springs *r*, all substantially as described.

5. The levers *c*, shaft *d*, and lever *f*, in combination with the shifter *j* and lifting-arm *k*, substantially as described.

6. The combination, with levers, connected harness-frames, springs, and pattern-surface, of a lifting-arm to move the levers not acted upon by the pattern-surface, whereby the connected harness-frames are lifted and the warps evened, as set forth.

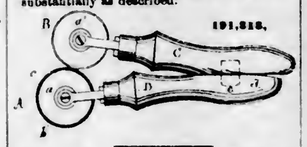
191,218. GRAINING-MACHINES. J. R. Cross, Cleveland, Ohio. [Filed May 14, 1877.]

1. The roller A, constructed with a hard interior, an elastic body, *a*, a flexible lining or secondary cover, *b*, and a hard exterior cover of sized braided cord wound thereon, substantially as specified.

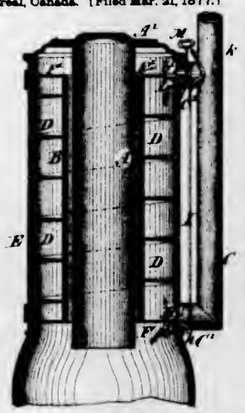
2. The roller B, constructed with a hard interior, a flexible body, *a'*, and a flannel covering, in combination with the roller A, substantially as and for the purposes specified.

3. The handles C D, one or both having a curved or bended side, in combination with the blade or pin *e*, so that the rollers may be brought in contact or separated as the handles are grasped in front or rear of the blade, substantially as described.

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191,219. STOVES. Chas. Dion, Chambly Basin, Quebec, assignor of one-twentieth part of his right to R. A. R. Hubert, Montreal, Canada. [Filed Mar. 21, 1877.]



1. The combination, substantially as specified, of the fire-chamber, the coal-reservoir, the annular flue surrounding the same, the encircling spiral flue covered by heads at bottom and top, the stove-pipe, having branches C' and C², and valves for controlling openings in the heads of the spiral flue and the branches of the stove-pipe.

2. In combination with the spiral chamber D, the doors H and I, rod I, cranks *h* and *l*, and lever K, all as and for the purposes herein set forth.

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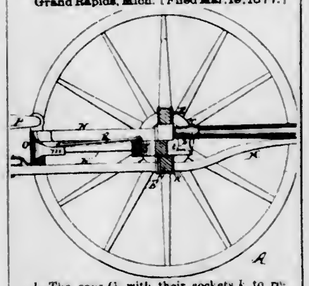
191,220. POST-HOLE DIGGERS. T. S. Dieston, Philadelphia, Pa., assignor to Henry Dieston & Sons, same place. [Filed Mar. 16, 1877.]

Brief.—Three circular blades are pivoted to a handle, which has a central rod to operate the shovels by extending or compressing the same, as may be desired.

1. The combination, in a post-hole digger, of the hinged digging blades D with the lever M and devices, substantially as described, whereby the said lever can be used to both move the blades inward and lock the blades when the latter are open, as set forth.

2. The combination of the blades D and their arms *e* with the rod H and grooved collar G, as described.

191,221. VEHICLE RUNNING-GEAR. J. W. Drew, W. J. Drew, and W. M. Robinson, Grand Rapids, Mich. [Filed Mar. 19, 1877.]



1. The caps G, with their sockets *k*, to receive braces, and with tubes *h* for holding the two bolsters a certain distance apart, substantially as shown and described.

2. The wheel-hub A, formed with a hollow rim, *d*, on its inner end, said rim being provided with the beads *x*, in combination with the wheels *a* and chair C, substantially as and for the purposes herein set forth.

3. The tubular chair C, provided with the grooved head C' and arms D D, with pivots *f f*, as and for the purposes herein set forth.

4. The combination of the wheel A, having hollow rim *d* on the inner end of its hub, the axle B with block *e*, pivoted chair C, wheels *a*, and balls *b*, all constructed and arranged substantially as and for the purposes herein set forth.

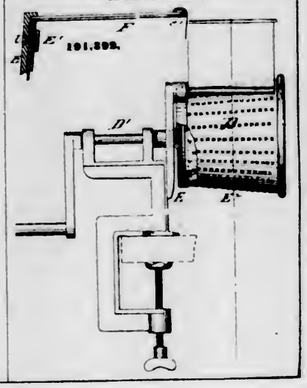
5. The combination of the tongue-bracket O with arms *m m*, tongue P, crossed braces R R, lever S, straps *n n*, and pivoted chairs C C, substantially as and for the purposes herein set forth.

6. The combination of the levers S S, having slotted arms *t t*, the reach I, sleeves T T, with pins *p p*, and the brackets K K, substantially as and for the purposes herein set forth.

7. The combination of the parallel front braces H H and H' H', sleeve I, and tongue-bracket O, substantially as and for the purposes herein set forth.

8. The combination of the bolster-caps G, braces H and J, reach-brackets K, with sockets, and the center braces M, substantially as and for the purposes herein set forth.

191,222.



191,322. VEGETABLE SLICERS AND GRATERS. John P. Dunwald, New York, N. Y. [Filed Jan. 19, 1877.]

1. The combination of the tubular slicer or grater D, having a rim or flange at one end, with a head-plate, E, and an interior clamping-ring attached by fastening-screws, substantially as specified.

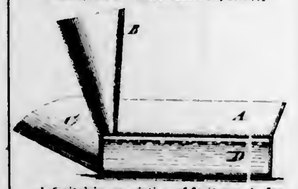
2. The combination of the detachable knives F with the tubular body D, having outer rim with recessed knife-seats, and with the flanged head-plate binding on the opposite ends, substantially as shown and described, for the purpose specified.

191,323. FURNITURE-SPRINGS. J. H. Dustan and D. W. Akin, Spartanburg, Pa. [Filed Oct. 30, 1876.]



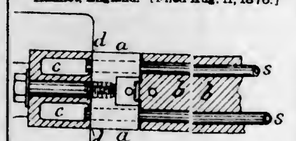
A bed-bottom consisting of longitudinal plate-springs A that have ends meeting, lapping, and fastened together subjacently, their continuity enabling them to sustain the spiral springs C, as shown and described.

191,324. FRUIT-DRIERS. W. M. Eddelman, Wahoo, Nebr. [Filed Mar. 19, 1877.]



A fruit drier consisting of fruit-pan A, funnel B, guard C, and water-chamber D, constructed and arranged as shown and described, so that it may be used upon any ordinary stove, as specified.

191,326. EXPANSION-JOINTS FOR TUBULAR WATER FIRE-BARS. Fred. R. Ellis, Liverpool, assignor to G. Haworth, St. Michael's Hamlet, England. [Filed Aug. 11, 1876.]



The intervening link *a*, combined with and located between the end of the grate-bar and the water-head or bearer *c*, by which the joint between the pipes *s s* and the water-head at *d* is prevented from breaking by the expansion or warping of the bar.

191,326. BOILERS. R. Exsell, Chicago, Ill. [Filed Mar. 24, 1877.]

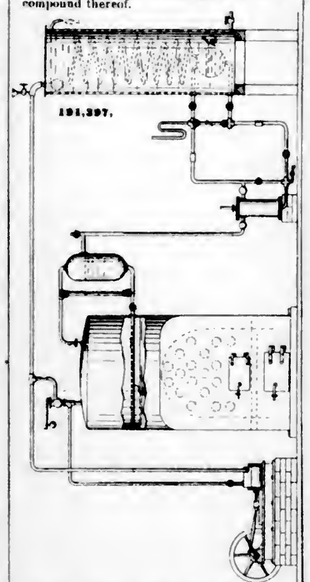


The combination of the arched pipes F and the longitudinal pipe G with the inner shell of the boiler A, and with the circulator D, substantially as herein shown and described.

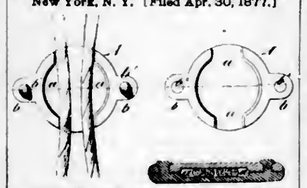
191,327. METHODS OF UTILIZING BISULPHIDE OF CARBON AS A MOTIVE POWER. T. M. Fell, Brooklyn, and H. B. Bumster, New York, N. Y., assignors to themselves and W. G. Smith. [Filed Nov. 9, 1876.]

The herein-described method of utilizing bisulphide of carbon as a motive power, viz., by bringing it in contact, in a boiler or suitable receptacle, with heated glycerine or a compound thereof.

191,327.

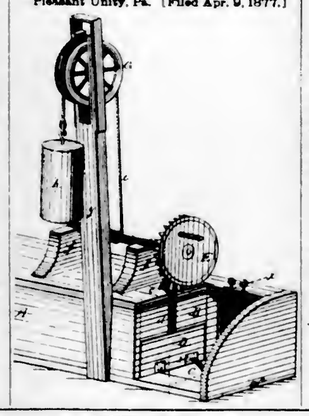


191,328. METALLIC SEALS. F. A. Ferris, New York, N. Y. [Filed Apr. 30, 1877.]



A metallic seal, composed of two semi-sections or shells of corresponding shape, provided with recesses at the inner sides, and united at points sidewise of the strings, substantially in the manner and for the purpose set forth.

191,329. ANIMAL-TRAPS. S. B. Fisher, Pleasant Unity, Pa. [Filed Apr. 9, 1877.]



1. The trap-box A, having fly-door D, partitions K L, and tilting board M, substantially as and for the purpose herein set forth.

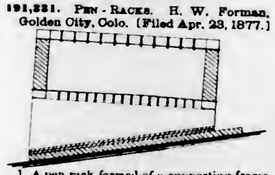
2. The improved animal-trap herein described, consisting, essentially, of the trap-box A, having trap-door C, fly-door D, the shaft of which, *d*, is provided with a pinion, *e*, shaft F, having cog-wheel E, upright *g*, having pulley G, cord *s*, and weight *h*, all combined, arranged, and operating substantially in the manner and for the purpose herein shown and specified.

191,330. BUCKLES. John Fenton, Indianapolis, Ind. [Filed Apr. 2, 1877.]



A buckle consisting of the perforated plate A, provided with a transverse slot at each end to receive the free end of a strap, and the eccentric C, corrugated as shown, and provided with a handle, all substantially as set forth.

191,331. PEN-RACKS. H. W. Forman, Golden City, Colo. [Filed Apr. 23, 1877.]

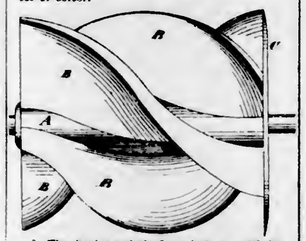


1. A pen-rack formed of a supporting-frame with upper wire frame having large guide spaces or meshes, and of a lower wire frame with closer holding spaces or meshes, substantially in the manner and for the purpose set forth.

2. A pen-rack made of a supporting-frame with top wire frame having large guide spaces or meshes, of a lower wire frame with closer spaces or meshes, and of a blotting-pad or other absorbent material at the bottom of the frame, substantially in the manner and for the purpose set forth.

191,332. ROTARY PLOWS. Wm. Freeborn, San Francisco, Cal. [Filed May 17, 1876.]

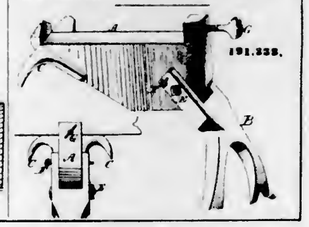
Brief.—A rotary plow whose spiral blades extend straight from the shaft at first, and then assume a concave shape in their outer portions; also, combined with a vertical cutter or colter.



1. The horizontal shaft or hub A, with its circular colter or land-side disk C and spiral mold-boards B B, said spiral mold-boards being continuous, so as to form a rotary plow, substantially as described.

2. The offset D, arranged between and in combination with the spiral concavo-convex mold-board and hub A, as and for the purpose described.

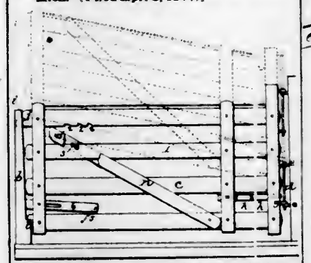
191,333.



191,333. ROOFING-SCAFFOLDS. J. A. Goodnough, Mount Pleasant, Iowa. [Filed Mar. 24, 1877.]

An improved device for supporting roofing-scaffolds, consisting of the clamp A, having set-screw G, and provided at its front with spurs or hooks C, in combination with the arm H, having claws D D, and adjustable at different angles through the medium of the pin F, engaging with the holes in the sides of the clamp A, substantially as described.

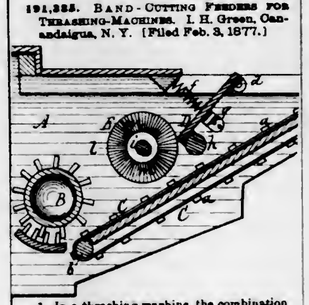
191,334. GATES. H. W. Goodwin, Ionia, Mich. [Filed Apr. 3, 1877.]



1. The combination of the gate *c*, strut *a*, hinges that allow the gate to be raised vertically upward, and the catch 6 for catching in the notch *i* in the top of the post *b* when the end of the gate is raised upward, substantially as shown.

2. The gate *c*, provided with the strut *a* and hinges *d e g*, in combination with slide *h* for catching over the top of the lower hinge, and supporting the gate in an elevated position, substantially as set forth.

191,335. BAND-CUTTING FEEDERS FOR THRASHING-MACHINES. I. H. Green, Canandaigua, N. Y. [Filed Feb. 3, 1877.]



1. In a thrashing machine, the combination of the endless apron C, the spring-presser D, and the cutters E E E, the presser standing directly in the rear of the cutters to hold the bundles while the bands are being cut, as shown and described, and for the purpose specified.

2. The combination, with the circular cutters E E E, of the spring-presser D, pivoted at *d d'* at the upper end, standing in an inclined position, with its lower edge resting closely to the cutters, and serving to compress the bundle close to the cutters, to enable the latter to cut the band, as shown and described, and for the purpose specified.

191,336. COIN-HOLDERS. Edgar H. Guild, New York, N. Y. [Filed May 15, 1877.]

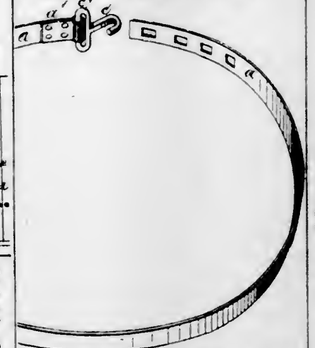
Brief.—Adapted to hold coin of different denominations.



1. A receptacle for holding coins, consisting of a hollow cylinder or a tube, A, of unequal diameters, constructed with inwardly-turned flanges *a a*, extending partly around said cylinder or tube, in combination with the yielding disks B B, constructed and arranged to operate substantially as described.

2. A receptacle for holding coin, consisting of a seamless hollow cylinder or tube, A, having flanges *a a*, movable disks B B, and spring C, substantially as described.

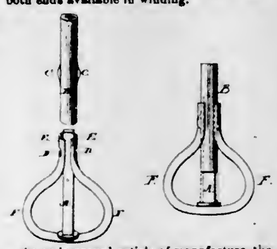
191,337. BALE-TIES. T. D. Hannon, Tuscaloosa, Ala. [Filed Nov. 20, 1876.]



In a bale-tie, the hook *c*, the shank of which is connected to one side of a loop, *c'*, in combination with the band *a*, having its unslotted end passed through and over the opposite side of said loop *c'*, and riveted to the band *a*, substantially as described, for the purpose specified.

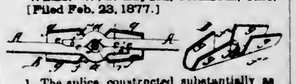
191,338. WATCH-KEYS. Geo. W. Harris, Sturgis, Mich. [Filed Jan. 20, 1877.]

Brief.—The stem or key proper can be removed from the recessed spring-jaws, making both ends available in winding.



As an improved article of manufacture, the hereinbefore-described watch-key, consisting of the spring-handle F, having jaws E, provided with slots D, square standard A, adapted to receive the reversible sliding stem B, having lugs C, the several parts being arranged and combined to operate substantially as and for the purpose described.

191,339. SPLICING FENCE AND TELEGRAPH WIRES. W. B. Hayden, Columbus, Ohio. [Filed Feb. 23, 1877.]



1. The splice, constructed substantially as herein described, for the purpose set forth.

2. The clasp-piece B, tapered from its center toward its respective ends to form a reversely-tapering socket, in combination with the wires A, substantially as described.

3. The clasp B, cut away as at *f f*, for the purpose set forth.

4. The clasp B, with the projection or tent *f* formed on it, substantially as and for the purpose set forth.

5. The wires A, bent and flattened at their splicing ends, substantially as described.

6. The combination of the solder with the clasp and wires, substantially as and for the purposes set forth.

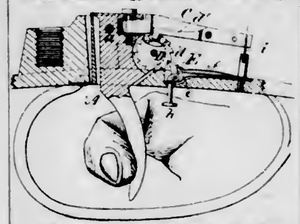
191,340. SAD-IRON HEATERS. W. H. Haylock, Jonesville, N. Y., assignor to himself and J. Higgins, same place. [Filed Apr. 2, 1877.]



The combination, with burners, of chimney C, seat C', corner-pieces *a*, and arms A A', arranged substantially as and for the purpose specified.

191,341. TRIGGERS FOR FIRE-ARMS. Max Heuser, New York, N. Y., assignor to himself, Emil Welte, and C. Otto, Jr. [Filed Mar. 19, 1877.]

Brief.—The trigger has a pivoted arm, which is shifted from one side to the other by the action of a wheel with cam-lugs on its periphery, which is also mounted in the trigger, and is held by a spring-pawl, so as to rotate the wheel when the trigger is released after firing.



1. The combination, in a lock of a gun having two or more barrels, of a single trigger, and a pivoted arm, and a cam for moving the said pivoted arm to strike the dogs of the lock in alternation, substantially as herein shown and described.

2. The roller D, having the cam-logs *e* and ratchet *d*, the trigger A, pivoted arm C, the spring-tappets *d'*, and the pawl E, in combination, substantially as herein shown and described.

3. The combination of the pawl E, springs *e f*, and pin *h*, for shifting the arm C from one side of the lock to the other at will without discharging the gun, substantially as herein shown and described.

4. The pivoted plate *i* and pin *l*, in combination with the pivoted arm C, substantially as and for the purpose herein shown and described.

191,342. SULKY-PLOWS. Frank A. Hill, San Leandro, Cal. [Filed Mar. 1, 1877.]

Brief.—Reversely-operating cranks and levers to raise the plows, the lever of the right-hand crank being thrown forward, and that of the left-hand crank moved backward. A sectional plow-beam, to provide for using one or two plows. Wedge and other devices, to secure the plowshare.

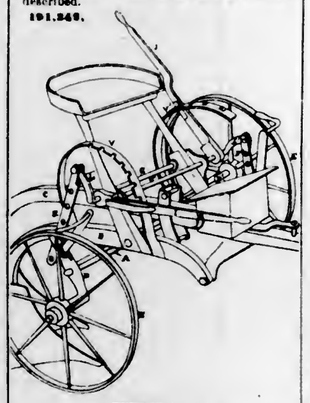
1. The combination, in a wheel plow, of the wheels E E', oppositely-inclined crank-axles D D', extension-arms F F', supplement-shafts G G', reversely-operated levers I J, and racks V V', the several parts constructed and arranged to operate in the manner substantially as herein shown and described.

2. In combination with the beam B, diagonal brace *b*, and axle A, of the sectional beam C, having both parts secured by the bolts of

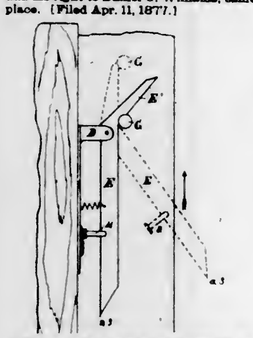
the brace b, adapting the frame to the use of one or two plows, substantially as herein shown and described.

3. The mold-board X and land-side, formed in one piece, and provided with the block Y and extended brace Z, in combination with the share V', with its grooved projection q, the two parts being secured by a bolt and key or wedge, i, substantially as and for the purpose described.

191,342.



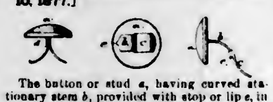
191,343. BURGLAR-ALARMS. Israel Hogeland, Indianapolis, Ind., assignor of one-half his right to Daniel G. Williams, same place. [Filed Apr. 11, 1877.]



1. The lever E formed with a beveled end, s^1, and with an angular end, E', and hammer H, and pivoted to the stud D, in the manner and for the purposes specified.

2. In combination, the bed C, lever E, and stud G, arranged and constructed to operate in the manner and for the purposes specified.

191,344. SLEEVE-BUTTONS AND STUDS. J. S. Horton, Jamestown, N. Y. [Filed Feb. 10, 1877.]



The button or stud a, having curved stationary stem b, provided with stop or lip c, in combination with curved sliding section e, having loop d, all combined and arranged in the manner and for the purpose set forth.

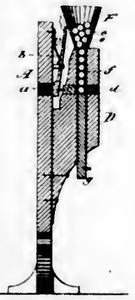
191,345. TARGETS FOR SHOOTING-GALLERIES. D. W. Hoshall, Dallas, Tex. [Filed Mar. 6, 1877.]

Brief.—An opening through the "bull's-eye" allows the projectile to pass through when a center shot is made, and push out the lower ball. The number of balls thus displaced indicates the number of center shots.

1. The combination of structure A, having target B, and perforation a, pivoted lever C, having plunger c, and spring b, substantially as and for the purpose herein shown and specified.

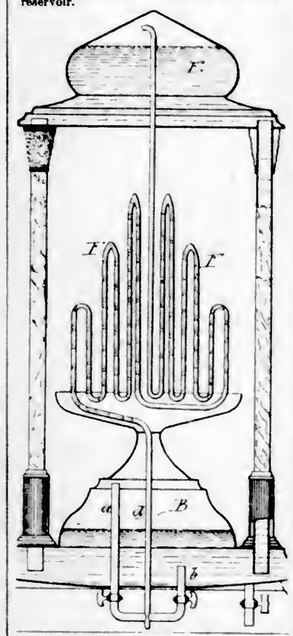
2. The block D, having channels d f, adjustable plug g, and hopper F, in combination with the pivoted lever C, having piston or plunger e, for impelling the balls e e previously placed in hopper F, substantially as and for the purpose herein shown and specified.

191,346.



191,346. AERATED-WATER FOUNTAINS. J. C. Johnson, Philadelphia, Pa. [Filed Apr. 16, 1877.]

Brief.—Water is poured into the top reservoir, and it passes through pipes to the lower reservoir, where the contained air is compressed. The valves are now opened, and an equal amount of air and water is forced through the glass tubes, and discharged into the top reservoir.

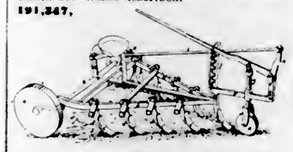


The combination, in an aerated-water fountain, of the elevated reservoir E, compression-chamber B, communicating with the same, the air and water pipes a and b, and fountain F, of the character described.

191,347. CULTIVATORS. John Jones, Stony Point, Cal., assignor of two-thirds his right to Sidney B. Holly and Wm. H. Magoon. [Filed Jan. 15, 1877.]

The combination, with the plow-frame A B, having its rear end mounted upon the axle D, of the beam-extension F, provided with the rack l, spindle g, driving-wheel H, and upward-turned standard I, and secured to the front of the frame, and lever O p pivoted to standard I and spindle g, and connecting-rod J, which passes back over the frame and under the driver's seat, and rod K secured to the rear axle, the several parts constructed and arranged to operate together in the manner herein shown and described.

191,347.



191,348. BARBED FENCES. Lyman P. Judson, East New Market, Md. [Filed Mar. 24, 1877.]

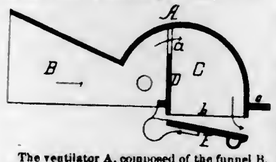
Brief.—The rail is flat, and the barbs are of wire, which pass through it, and are bent to prevent their being withdrawn.



A barbed fence-strip, consisting of perforated metallic strip A a, and the wire barbs b, the latter passing through perforations of the former, and bent to clamp the strip, substantially as shown and described.

191,349. CAR-VENTILATORS. P. T. Kester, Philadelphia, Pa. [Filed Apr. 30, 1877.]

Brief.—The ventilator consists of an open-mouth funnel, which connects with a drum by means of an air-passage formed vertically in the rear part of the diaphragm. The opening or valve-seat for the passage of the air from the drum to the interior of the car is provided with a valve, which can be opened or closed to any desired extent. The attachment of the ventilator to the outside of the car is made by the bolt-lugs, the car being cut away between the roof and the belt-waist, for letting in the projection-flange which forms the seat of the valve opening inwardly.



The ventilator A, composed of the funnel B, drum C, diaphragm D, and the valve E, as shown and described.

191,350. ROLLER-SKATES. Wm. A. Leggo, Montreal, and Francis C. Ireland, Lachute, Quebec, Canada; said Leggo assignor to said Ireland. [Filed Dec. 20, 1876.]



In a roller-skate, the combination, substantially as specified, of the stands, projecting downward from the boot or foot plate, and provided with oblique slots, the angular roller-axles, seated in said oblique slots, and pivoted to the stands, and the springs bearing on the axles.

191,351. ORE-ROASTING FURNACES. H. G. Livermore, San Francisco, Cal. [Filed May 23, 1876.]

1. The inclined floor B, allowing the ore to move over its surface by gravitation, and provided with the interrupting dam or abutments C, in combination with the channels F and the supplemental fire-place E, substantially as described.

2. In combination with the inclined floor B, provided with the interrupting-dams C, of the channels or chambers F, fire-place E, and fire-place D, substantially as and for the purpose specified.

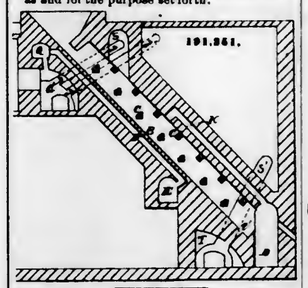
3. The combination, with the chamber B and fire-place D, of the flue K, whereby a current of fresh furnace-flame is introduced into

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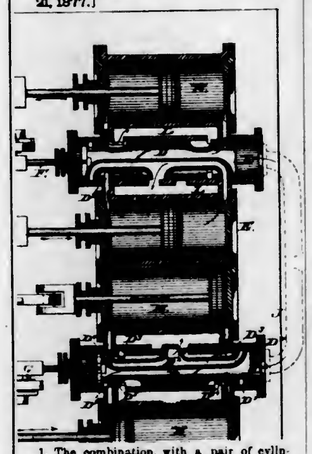
the roasting-chamber midway of its length, substantially as and for the purpose specified.

4. The combination, with the inclined floor B and channels or chambers F, of the fire-place D, fire-place E, and flue K, substantially as and for the purpose set forth.

191,351.



191,352. VALVES FOR TWIN ENGINES. Paul Lohmeyer, Cleveland, Ohio. [Filed Apr. 21, 1877.]

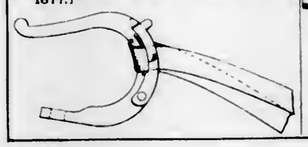


1. The combination, with a pair of cylinders, one of said cylinders provided with an exhaust-chamber with ports leading to the central portion thereof, and the opposite cylinder with a similar exhaust chamber with ports leading to the ends of the same, of an intermediate open-ended valve constructed with steam-ports and central exhaust-passage for one cylinder, and steam and exhaust passages located near the ends of the valve for the opposite cylinder, substantially as and for the purpose set forth.

2. The combination, with a pair of steam-cylinders, constructed with suitable steam and exhaust-ports adjacent to each other, of a hollow valve provided with a central exhaust passage, whereby live steam may be admitted through the valve to the steam-ports located therein, and also exhaust steam may be conducted from the ends of the valve to a central exhaust-port, substantially as and for the purpose set forth.

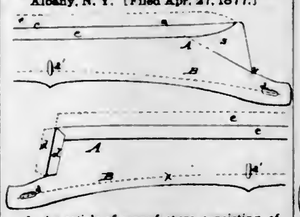
3. The combination, with the four cylinders E, of the open-ended valve D, each constructed with steam-ports D^3, exhaust-ports D^4 D^4, and exhaust-passages D^5, substantially as and for the purpose set forth.

191,353. WATER-HOOKS FOR HARNESS. R. Lowell, Flushing, N. Y. [Filed Apr. 16, 1877.]



The combination of the pivoted keeper B with the hook having the neck or reduced portion a', substantially as and for the purpose specified.

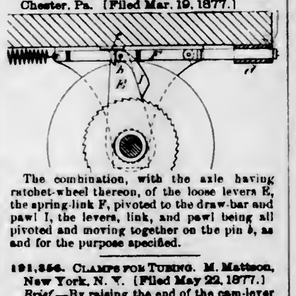
191,354. PAPER COLLARS. Ed Elisha Mack, Albany, N. Y. [Filed Apr. 27, 1877.]



1. An article of manufacture consisting of a standing collar composed of body A, band B, and folding margin piece or flap s, with the latter turned down from the upper margin edge c of body A, substantially in the manner set forth.

2. An article of manufacture consisting of a standing collar composed of portions A B, and margin folding piece s, with button-holes e e and e' set in the band B, on the curve x, and the folding piece turned down from the body A on a curved line greater than the line on which said button holes are set, substantially in the manner set forth.

191,355. CAR-STARTERS. John Marsden, Chester, Pa. [Filed Mar. 19, 1877.]



The combination, with the axle having ratchet-wheel thereon, of the loose levers E, the spring-link F, pivoted to the draw-bar and pawl I, the levers, link, and pawl being all pivoted and moving together on the pin b, as and for the purpose specified.

191,356. CLAMPS FOR TUBING. M. Matteson, New York, N. Y. [Filed May 22, 1877.]

Brief.—By raising the end of the cam-lever the tube is compressed, and the flow of the liquid is prevented.



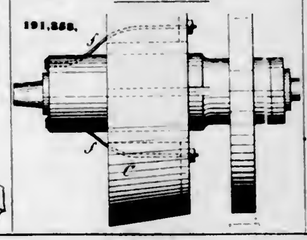
The combination of a strip of sheet metal, a, having a hole, b, through its center for the passage of the tube, and bent into shape so as to form a clamp, with the stirrup s, cam f, and stop e, substantially as shown and described.

191,357. TUBE-HOLDERS FOR SYRINGES. M. Matteson, New York, N. Y. [Filed May 22, 1877.]

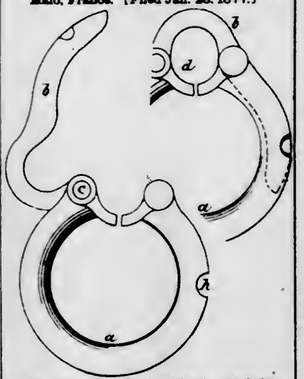


The tube-rest cut from one piece of sheet metal, for supporting and holding in place the rubber tubing of a syringe where it passes over the edge of the vessel out of which water is being drawn, substantially as shown.

191,358.



191,359. SAIL-HANKS. Aime Mehu, St. Malo, France. [Filed Jan. 23, 1877.]



The within-described sail-hank, consisting of the ring a and the arm or clasp b, hinged thereto and locked, as described, the ring and arm being constructed and applied substantially as shown and described.

191,360. INSECT-DESTROYERS. J. C. Melcher, O'Quinn, Tex. [Filed Apr. 26, 1877.]

Brief.—A trench is dug in the ground to receive the combustible material. A hand-bellows drives the smoke through a connecting-pipe into the adjoining air-chamber, which is placed over the ant-hill. The fire-trench is securely covered, and the smoke-chamber has perforated plates, to prevent cinders and other particles from filling up the ant-holes.



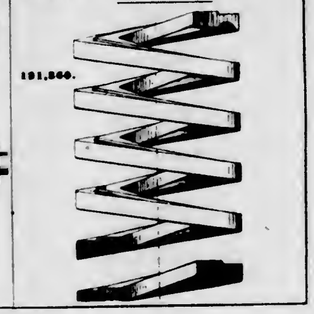
1. The method described of killing ants and insects by building a fire in a trench in the ground, covering the same, and then forcing the products of combustion into a removable smoke-chamber, and thence into the ground, substantially as shown.

2. The removable smoke-chamber h, in combination with the fire-trench a, and an air-forcing device, substantially as set forth.

3. The combination of the perforated plate d and portable smoke-chamber h, as described.

4. The combination of the plate d, smoke-chamber h, and covers g, with the fire-trench and air-forcing apparatus, substantially as specified.

191,360.



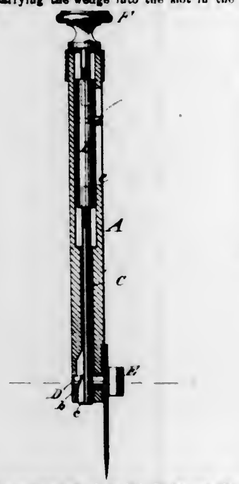
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191,361. CAR-SPRINGS. Allen Middleton, Philadelphia, Pa. [Filed Feb. 27, 1877.]

A car-spring, composed of a coiled bar shaped substantially as described—that is, thickest but lightest at the outer edge—and having the preponderance of metal at or near the inner edge, so that when the spring is under pressure the contact of the coils with each other at and near the inner edge shall be prevented by the contact of the coils at the outer edge, all substantially as set forth.

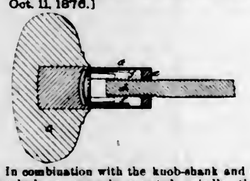
191,362. NEEDLE-CLAMPS FOR SEWING-MACHINES. Joseph V. Morton, Winchester, Ky. [Filed Mar. 19, 1877.]

Brief.—The needle is clamped between one side of the needle-bar and the head of the transverse slotted bolt, the bolt being drawn into the needle-bar by the longitudinal screw-rod carrying the wedge into the slot in the bolt.



The combination of the bolt D, having the slot *b* and head E, the rod C, having the wedge-shaped projection *c*, rod B, and screw F, with the needle-bar A, substantially as herein shown and described.

191,363. ATTACHING KNOBS TO SPINDLES. Joseph Naylor, New York, N. Y. [Filed Oct. 11, 1876.]



In combination with the knob-shank and a notched or properly serrated spindle, the spring dog or dogs *f*, a portion of which projects through the knob-shank, and a tubular sleeve, G, with one or more holes, *i i*, whereby the dogs are confined to secure the knob-shank to the spindle, and its release effected, substantially as hereinbefore set forth.

191,364. TRANSPLANTER AND FERTILIZER. J. H. Nolan and Benj. Fitzpatrick, Chambers County, Ala. [Filed Apr. 23, 1877.]

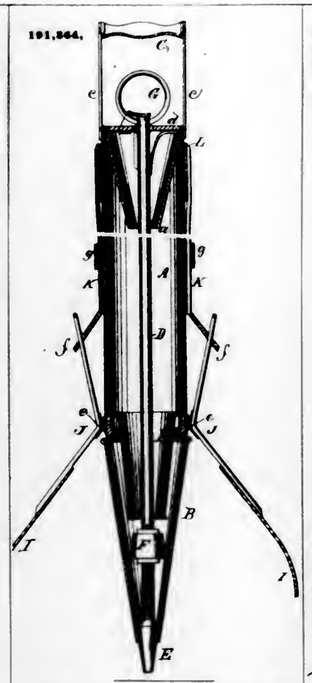
Brief.—A combined transplanter and fertiliser having a tube to hold fertilising fluid, and valves to distribute the same in measured quantities.

1. The tube A, having the conical tubes *a b*, the tube B, and the valves E F, having the common rod D, in combination, substantially as shown and described.

2. The wings I, bent slotted levers J, rods K, having the notched heads *f*, thimble L, and tube A, in combination, substantially as shown and described.

3. The combination of the hook H and tube B, substantially as and for the purpose herein shown and described.

191,364,



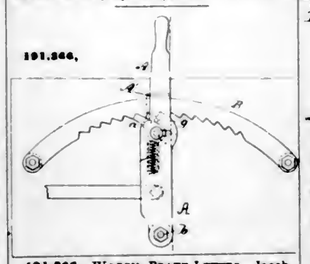
191,365. BOSOM-FORMS. Amasa H. Pike, Chicago, Ill. [Filed Apr. 10, 1877.]



1. A bosom-form wherein are the arms C C each consisting of two flexible, bow-shaped, radial, and concavo-convex ribs, continuous with each other at the lower end of the arm formed by each pair of ribs, the said end of the arms so formed being independent of or disconnected from each other, substantially as and for the purposes specified.

2. A bosom-form consisting of the combination of the flat disk A, the radially-grooved disk B, attached to the disk A, and forming therewith the pockets *a a*, and the arms C C, each consisting of two radial, flexible, bow-shaped, and concavo-convex ribs entering the pockets *a a*, and continuous with each other at the lower ends of the said arms, substantially as and for the purposes specified.

191,366,



191,366. WAGON-BRAKE LEVERS. Jacob P. Outson, Racine, Wis. [Filed Apr. 30, 1877.]

Brief.—Stud *g* on lever A strikes the pawl, and disengages it from the ratchet when it is desired to release the brake.

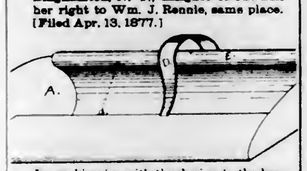
The lever A', carrying the spring-pawl *s*, the slotted lever A, having the stud *g*, and the curved ratchet-bar B, in combination, substantially as shown and described.

191,367. MEAT-HOLDERS. Samuel Poole, Brooklyn, N. Y. [Filed May 3, 1877.]



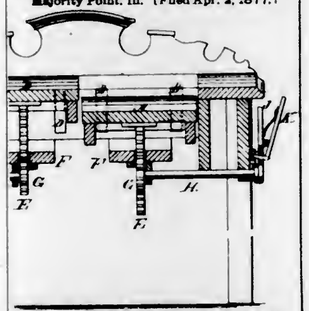
The fork or holder made of the lever *h*, longitudinal bar *g*, handle *a*, rod *b*, prongs or holders *c*, and swinging prongs or holders *f*, connected to the bar *g*, substantially as specified.

191,368. DUST-PANS. Sarah M. Rennie, Binghamton, N. Y., assignor of one-half her right to Wm. J. Rennie, same place. [Filed Apr. 13, 1877.]



In combination with the device A, the handle D, attached on the inside, and forming a brace for the projecting edge E and opening *c*, constructed as herein described, for the purpose set forth.

191,369. DESKS. James R. Richardson, Majority Point, Ill. [Filed Apr. 2, 1877.]

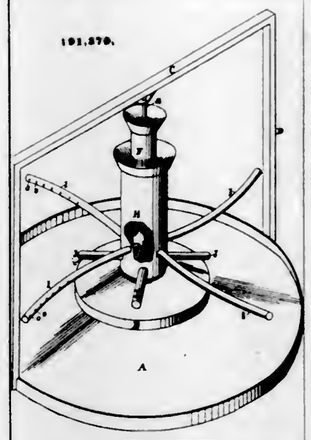


The cranks J, locking devices K, shaft H, toothed sectors G, rack-bars E, and guide-bars F, combined, substantially as described, with the movable portions A B of the desk-top, guided in slots D, for the purpose specified.

191,370. ORE-WASHERS. J. Richards, Battle Mountain, Nev. [Filed Apr. 13, 1877.]

The pan A, with its inclined bottom and raised central portion B, in combination with the concentric cylinders F H, with their perforated arms I J, said cylinders being connected together, and mounted on the vertical shaft *s*, so as to operate substantially in the manner and for the purpose above described.

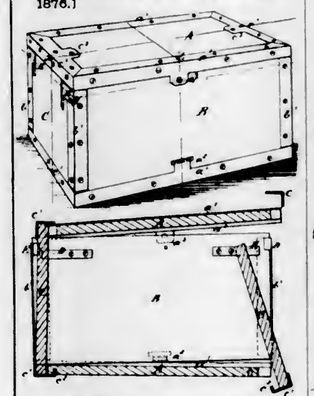
191,370.



Brief.—Two wheels having recesses to catch up the paint are connected by a roller, between which and an upper pressure-roller the lath passes to the adjustable sectional brushes, and is guided between these by side rollers set in spring-frames.

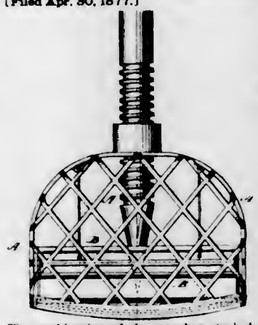
A painting-machine consisting of the paint-reservoir S and the elevator-wheel D, in combination with the spreading-wheels E and F, the brushes X Z, having two or more sets of bristles, and the guide-rollers L, substantially as described.

191,371. FOLDING CRATES. Gilbert Robinson, Jr., New York, N. Y. [Filed Dec. 11, 1876.]



An improved packing-box, formed by the combination of the top and bottom boards A, the side boards B, the end boards C, the angular strips a^1 b^1 c^1, the spring-catches D, the strap-hooks E a^2 c^2, and the lugs a^3 c^3 with each other, substantially as herein shown and described.

191,372. BROOMS. James Roney, Scotland, Mo., and Thomas Roney, Hyde Park, Ill. [Filed Apr. 30, 1877.]



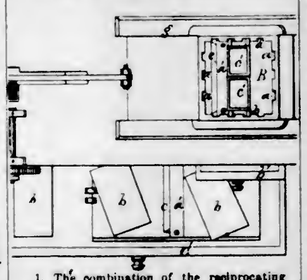
The combination of the seamless stock A, ribbed upon its inner surface, and provided with a screw collar, the movable clamps B, ribbed upon their outer surfaces, and the handle D, made with a conical forward end, and having a screw-thread formed upon it, with each other, substantially as herein shown and described.

191,373. RAWHIDE BELTING-ROPE. Herman Royer, San Francisco, Cal. [Filed Jan. 27, 1877.]

As a new article of manufacture, belting-rope, formed from long threads of prepared rawhide, cemented together, and twisted or plaited into rope, substantially as herein described.

191,374. VEGETABLE-SLICERS. F. Schmitt, Springfield, Ohio. [Filed Feb. 26, 1877.]

Brief.—The division-boards enable different-sized vegetables or different quantities to be suitably held in the sliding box.



1. The combination of the reciprocating slide and the box B, having grooves *a a*, adapted to receive either transverse or longitudinal partitions *b b*, as set forth.

2. The said reciprocating slide and box and movable partitions, constructed, arranged, and adapted to detachable boxes *c c*, as specified.

191,375. BRICK-KILNS. Joseph A. Schultz, Batavia, N. Y. [Filed Apr. 9, 1877.]

1. The kiln or furnace A, constructed with the upper arch B and lower passage B', with ledges *a a*, provided with rails *b b*, and the grooves *d d*, whereby, when the loaded cars are run through the kiln, the lower space will be insulated or cut off from the heat above, as shown and described, and for the purpose specified.

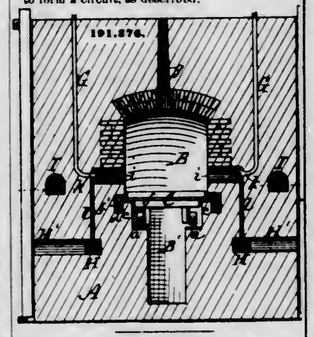
2. In a brick kiln or furnace, the combination, with the side grooves *d d*, provided with a filling of water, sand, or equivalent material, of the cars C, constructed with flanges *f' f'*, resting in the said grooves, and serving to cut off the passage of heat to the space beneath the cars, as shown and described, and for the purpose specified.

3. In a brick kiln or furnace, the combination, with the arch B, of the pipes G, cylinders F, and tanks E, for feeding petroleum or other combustible fluid to the fires, said pipes having nozzles *k*, entering recesses *i* of the arch, as shown and described, and for the purpose specified.

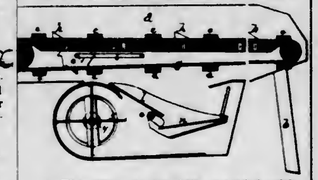
4. In combination with the pipes G and recesses *i*, the cold-air passages H and tubes I, as and for the purpose specified.

5. In combination with the arch-space B, the hot-air flues I, extending longitudinally, and opening at the extremities into said arch, to form a circuit, as described.

191,376.



191,377. GRAIN-SEPARATORS. J. Shilling, Cedar Spring, Pa. [Filed Apr. 23, 1877.]



1. The straw-carrier belt, provided with slats of unequal lengths, in combination with the blocks *h*, the shorter slats being made to pass in between the blocks, and the longer ones to pass over them, so as to shake the grain loose from the straw, substantially as described.

2. The endless apron *i*, arranged under the perforated floor, in combination with the ratchet-wheels 2, and the slats *s* of the carrier, whereby the apron is moved intermittently forward, substantially as specified.

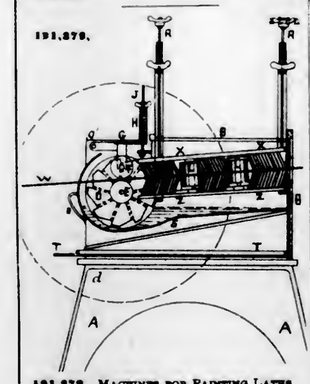
191,378. PROCESSES OF PREPARING COFFEE. Frank Silver, San Francisco, Cal., assignor of one-half his right to Alex. P. Adams, same place. [Filed Jan. 31, 1876.]

The process herein described for preparing coffee, the same consisting in mixing it mechanically with sugar, burned as herein described, and in a granular or mealy state, in the proportions described, and then subjecting the compound to hydraulic or other pressure, substantially as and for the purpose herein described.

191,379. TURBINE WATER-WHEELS. Joe. H. Smith, Athens, Tenn. [Filed Apr. 21, 1877.]

Brief.—The chute plates and gates are so arranged that two important advantages are gained, viz: First, whether the gates be opened much or little, they will throw the water directly into the buckets of the wheel, forming, as they do, with the chute-plates, a funnel, into the curved chute through which the water is admitted to the buckets; and, second, the pressure of the water in the flume within which the turbine is placed will be equal on both sides of the gate, and thus exercise a pressure on the gate-plate from the inside corresponding to the pressure on the inside.

191,379.



191,379. MACHINES FOR PAINTING LATHS. Wm. Roberts, Liverpool, England. [Filed Aug. 11, 1876.]

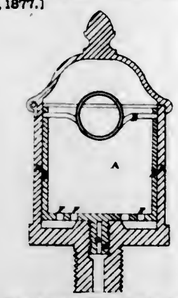
191,879.



1. In a turbine water-wheel, the combination of the chute-plates F F' with the swinging gates G G', so as to form funnels *m*, allowing the water to impinge upon both sides of the gate, whether this is closed or open, or partially open, and thereby at all times exert an equal pressure on both sides thereof, substantially as and for the purpose hereinbefore set forth.

2. As an improvement in turbine water-wheels, the combination of the case A A' E, stationary chute-plates F F', vertically swinging gates G, having segments G' sliding upon the edges of chute-plates F', so as to form water-tight joints therewith, operating-rods *g*, and rotating annular disk H, all constructed and combined to operate substantially as and for the purpose herein shown and described.

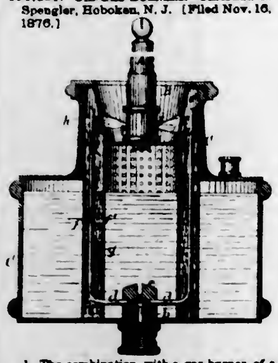
191,880. OIL AND FILTER CUPS. Andrew J. Stevens, Sacramento, Cal. [Filed Mar. 28, 1877.]



1. The filter cup B, having its bottom perforated, as at F, to permit the filtered material to flow into a receptacle beneath, the feed-slot G, and the screw stem D, by which the feed is regulated, substantially as herein described.

2. The filter-cup B, fitted into the exterior cup A, the lower part of which serves as a reservoir for the filtered lubricant, said filter-cup having a screw-stem, D, and feed-slot G, in combination with the friction-catch E, substantially as herein described.

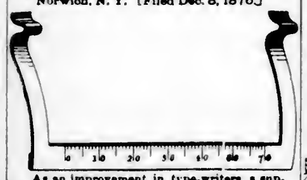
191,881. OIL-GAS BURNERS. Christian G. Spengler, Hoboken, N. J. [Filed Nov. 16, 1876.]



1. The combination, with a gas-burner, of a cistern, C, a heating-cup, B, and a wick-tube, *f f'*, substantially as and for the purpose herein shown and described.

2. The combination of the gas-jets *i* with the burner A, cup B, cistern C, gas-expanding chamber *s*, and vaporizing-chamber *g'*, substantially as and for the purpose set forth.

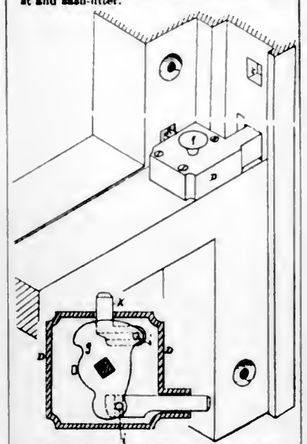
191,882. TYPE-WRITERS. C. H. Stanton, Norwich, N. Y. [Filed Dec. 8, 1876.]



As an improvement in type-writers, a supplemental gage, which corresponds in length and in divisions with the fixed gage, is connected to or with the movable carriage, and is arranged near the paper in close proximity to the line to be printed upon, substantially as and for the purpose specified.

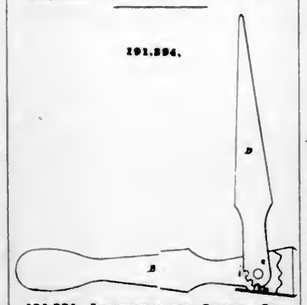
191,883. SASH-FASTENERS. Thos. Stuart, San Francisco, Cal. [Filed Mar. 20, 1877.]

Brief.—Slotted bolts moving at right angles to each other, and connected by plate and pins, and actuated by an upwardly-projecting shaft and thumb screw. A thimble-socket inserted at intervals on inner face of the sash may be utilized for the double purpose of bolt-socket and sash-lifter.



The sash lock and fastener consisting of the case D, with its slotted bolts J K, operated at right angles to each other, in connection with plate *g*, having pins *i i*, and shaft E, with thumb-screw *f*, the several parts arranged to operate substantially in the manner specified.

191,884.



191,884. IMPLEMENTS FOR OPENING OYSTERS. Thomas W. Temple, Los Angeles, Cal. [Filed Mar. 17, 1877.]

Brief.—A fixed blade in the shape of a flattened spoon is provided with an adjustable spear-shaped blade, adapted, by means of notched sector and spring, to stand at or near right angles thereto, or to fold together when closed, the implement being specially designed for opening oyster-shells after they have been split or separated by a splitting-machine.

The above-described implement for opening oysters, consisting of the handle A, fixed blade B, with its oval-shaped point, and the spear-blade D, which is capable of being fixed at a convenient angle to the blade B, substantially as above described.

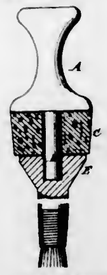
191,885. TOBACCO-PIPES. Saml. H. Thurston, Whitestone, N. Y., assignor to Carl Edelheim, New York city. [Filed Mar. 12, 1877.]



1. A pipe-bowl or cigar-holder formed from pumice-stone, substantially as herein shown and described.

2. The combination, with the bowl or stem of a cigar-holder or pipe, of a lining of pumice-stone, substantially as herein shown and described.

191,886. STOPPERS FOR MUCILAGE-BOTTLES. James Tilghman, New York, N. Y. [Filed May 10, 1877.]



As a new article of manufacture, a combined brush and stopper, consisting essentially of a handle, A, having a stem, B, and a flat end corresponding to the top of the cork, the brush having a flat head, E, corresponding to the bottom of the cork, and the cork C interposed between the said head and end of the handle, and held in place by the central stem B, all combined as shown, and for the purpose described.

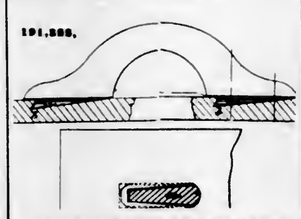
191,887. MANUFACTURE OF BOOTS AND SHOES. Jos. S. Turner, Rockland, Mass. [Filed Apr. 17, 1877.]



In the manufacture of boots and shoes, the within-described method of attaching the outer sole to the welt, consisting in automatically punching the welt and outer sole with a series of coinciding holes, while the outer sole is held in position on the lasted shoe, thereby adapting the welt and outer sole to receive the two threads, which are subsequently passed alternately in opposite directions through each holes by hand, in order to permanently unite the outer sole to the welt, as shown and described.

191,888. BRUSHES. John Waddell, Elora, Ontario, Canada. [Filed Apr. 16, 1877.]

191,888.



A brush-handle attached to its head at each end by a tenon and groove of a bevel, wedge, or inclined shape, whereby a close joint is formed to prevent the play and loosening of the connected parts.

191,889. SPIRIT-LEVELS. F. T. Ward and Thomas Bedworth, Mohawk, N. Y. [Filed Apr. 21, 1877.]

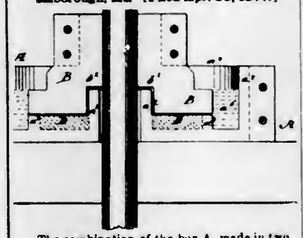


1. The combination of the stock A, hinged casing C having level-glass D, and hinged covering plate G, substantially as and for the purpose set forth.

2. In a spirit-level, the combination of the hinged casing C having level-glass D, with the covering-plate G having set-screw *j*, substantially as and for the purpose shown and specified.

3. The improved spirit-level and plumb herein described, consisting of stock A having brackets B B', hinged casing C having level-glass D, and set-screws *h i*, hinged covering-plate G having set-screw *j*, and latch *s*, all combined and arranged to operate substantially in the manner and for the purpose herein shown and specified.

191,890. BEARINGS AND BOXES FOR VERTICAL SHAFTS. Levi Webber, North Vassalborough, Me. [Filed Apr. 30, 1877.]



The combination of the box A, made in two parts, bolted together, provided with the lugs or flanges a^1, the inner rim a^2, the chambers a^3, to receive the Babbitt metal, the outer rim a^4, the oil-chamber a^5, and the oil-channels a^6, and the bearing B, made in two parts, bolted together, and provided with set-screws b^1 and a countersink, b^2, with each other, to adapt them to be connected with a vertical shaft to support its weight, substantially as herein shown and described.

191,891. CUBE-SUGAR MACHINES. Francis Westermann and Otto Murwch, San Francisco, Cal., assignors to Lauer Hopken, same place. [Filed Mar. 23, 1877.]

Brief.—A reciprocating plate working in the hopper cuts off a mass of sugar of suitable thickness for filling the molds. The molds are then forced up into this mass of sugar, which is thus compressed into them. Another reciprocating plate shaves off the surplus sugar from the top of the molds, and forms the support for the succeeding mass of sugar cut off above. The molds are then moved below stationary perch, and are given an upward movement, by which the cubes are removed.

1. In a machine for the manufacture of cube sugar, the combination of the hopper A, the series of stationary punches G, and reciprocating molds B, arranged to be moved alternately beneath said hopper to be filled, and beneath said stationary punches to be emptied, substantially as described.

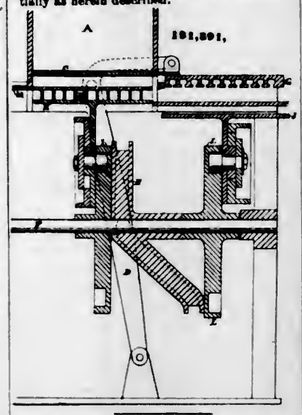
2. The combination, with the hopper A and a series of stationary punches, G, of the reciprocating molds B and mechanism, operating substantially as described, whereby said molds are moved vertically upward into the mass of sugar to be filled, and then depressed and moved beneath said series of stationary punches, and again moved upward, so that the punches will discharge their contents, substantially as specified.

3. In combination with the reciprocating molds B, which are filled by an upward movement into the sugar-receptacle, the cut-off slide C to separate off a portion of the sugar from the main body, and act as a pressure-plate to compress the sugar into the molds, substantially as herein described.

4. The plate H, serving as a temporary bottom for the molds while they are being filled, and the cam I to force the molds upward into the sugar, whereby they are filled and the sugar compressed at one operation, substantially as herein described.

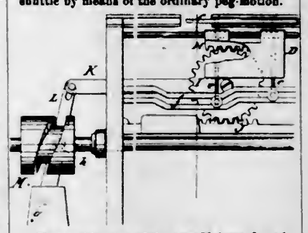
5. The molds B, having the downwardly-projecting edge-plates K, in combination with the plate J and the cam L, whereby the molds are forced upward to the punches, and space is left for the escape of the sugar, substantially as herein described.

191,892.



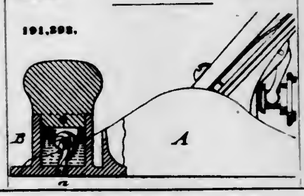
191,892. SHUTTLE-DRIVING MECHANISMS FOR NARROW-WARE LOOMS. William B. Willard, New York, N. Y. [Filed Oct. 7, 1876.]

Brief.—Instead of the pinion being stationary, it is mounted upon the end of a reciprocating rod, and it is revolved by means of a stationary rack. The shuttle-carrier is provided with the usual rack, and actuates the shuttle by means of the ordinary peg-motion.



The combination of the cam M, lever L, rod K, wheel I, racks J and H, and shuttle-carrier D, substantially as herein shown and described.

191,893.



191,893. BENCH-PLANES. Watson Wood, Chelsea, Mass. [Filed Feb. 26, 1877.]

Brief.—An iron or iron-faced plane is provided with an oil or lubricating receptacle in front of the cutting-iron.

The combination of plane A, having hole *a*, and the oil reservoir B, the two connected directly or by tube with each other, substantially as and for the purpose specified.

191,894. STUD-FASTENINGS. M. Zacharias, San Francisco, Cal. [Filed Mar. 30, 1877.]



1. A stud-fastening, consisting of the bent stem or prong *e*, in combination with the crank-lever, consisting of the bent arm *f* and latch-arm *g*, pivoted as described, and arranged to latch on the flange *i* on the stud, substantially as above described.

2. The stud C, with its curved stem or prong *e*, in combination with the pivoted bell-crank lever, consisting of the bent arm *f*, latch-arm *g*, and the stop-arm O, substantially as and for the purpose above described.

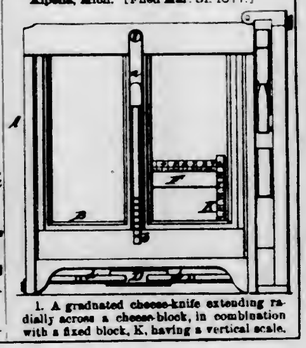
191,895. CARDING-ENGINES. R. F. Barker, Providence, R. I., assignor of five-eighths of his right to G. P. Loring and Theodore Voelcker, of Boston, Mass., and Henry A. Stearns, Pawtucket, R. I. [Filed Dec. 18, 1876.]

Brief.—Alternate combing and cleaning rolls are arranged over main cylinder, there being located at the end of the series, and near doffer, a raising-cylinder and an impurity-roll, for raising and cleaning the fiber after it has passed the said series of combing and cleaning rolls, and before it is taken off by the doffer. There is a small dirt-receptacle located beneath the impurity-roll.

1. The combination, with the cylinder *i* and impurity-roll *k*, of the receptacle *m*, arranged to receive and collect the impurities, substantially as specified.

2. A carding engine provided with alternate combing and cleaning rolls, a raising-cylinder, and impurity-roll, arranged to raise and clean the fiber after the same has passed the combing-rolls, the whole operating in connection with the main cylinder, as and for the purpose described.

191,896. CHEESE-CUTTERS. A. Beamsley, Alpena, Mich. [Filed Mar. 31, 1877.]



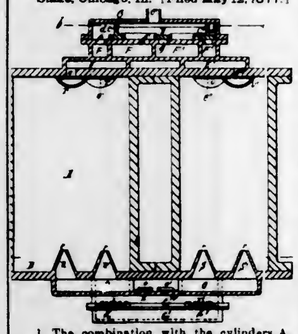
1. A graduated cheese-knife extending radially across a cheese-block, in combination with a fixed block, K, having a vertical scale.

whereby the diameter and thickness of a cheese-cake can be determined, substantially as described.

2. The rotary cheese-block **E**, provided with a central pin, E', concentric graduated circles on its upper face, and a graduated circumference, in combination with the pointer *a*, graduated scale K, and cheese-cutter F, substantially as described, and for the purpose set forth.

3. The combination of sash B, having ratchets *b*, with spring pawl *a* attached to box A, substantially as and for the purpose set forth.

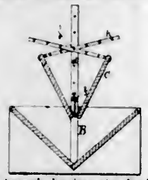
191,397. STEAM VACUUM-PUMPS. Earl S. Blake, Chicago, Ill. [Filed May 12, 1877.]



1. The combination, with the cylinders A A', ducts E E', chambers F F', and the steam-chest C, provided with the ports *f f'* and *g g'*, of the cut-off valve D, arranged to alternately open and close said ports, and having the wings *c* and *c'* arranged to form the chambers *d* and *d'*, substantially as and for the purpose specified.

2. The combination, with the cylinders A A' and cellars G G', as described, of the air-chamber P, ducts K K', N N', and O, arranged substantially in the manner and for the purpose set forth.

191,398. FEED-TROUGHS. Theo. L. Block, Sidney, Ill. [Filed Apr. 16, 1877.]



A hog-trough having standards B, from which the hinged top or cover C suspends by the hooks *e* and pins *f*, and the adjusting-racks *h* and pins *d'*.

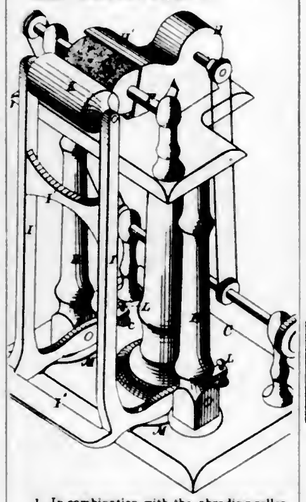
191,399. EXTENSION-CHANDELIERS. John T. Bruen, Brooklyn, N. Y. [Filed Feb. 22, 1877.]

1. The combination, with the movable portion of a chandelier and its fixed suspending-tube, of an internal screw and nut, the one turning upon the other by end thrust, and an automatic stop device operating to prevent such turning of the screw or nut, and thereby to stop the descent of the chandelier, substantially as described.

2. The combination of the internally-threaded suspending-tube B, provided with a projection, *b*, the slotted sliding tube T attached to the chandelier, the box F, the screw or threaded rod A, the cylinder *d* attached to said screw and containing the seat *h*, the stop *i*, the spring *k* which acts upon said stop, and the button *m*, substantially as and for the purpose specified.

3. The combination of the supporting-screw A, the suspending-tube B, and springs E, substantially as and for the purpose specified.

191,400. MACHINES FOR WHITENING AND SHAVING LEATHER. Jno. G. Buzzell, Lynn, Mass. [Filed Nov. 20, 1876.]



1. In combination with the abrading-roller G, the bearing-roller K, the pivoted roller-frame I, I', and I'', the set-screws L, and the springs M, said parts being constructed to operate in the manner and for the purpose substantially as specified.

2. In a machine for shaving and whitening leather, a cylinder or other support for receiving the leather, which is arranged parallel to, and in a plane with, the abrading-roller, and is supported within a spring-yielding pivoted frame, and is capable of being moved toward or from said abrading-roller by the oscillation of said frame, substantially as and for the purpose shown.

191,401. LANTERNS. Evan F. Cash and A. L. Baron, Bellaire, Ohio. [Filed Apr. 17, 1877.]

1. In a lantern, the combination of the air-chamber C^2 between the two globes, the air-chamber C^3 between the double walls of the upper part of the base, and the air-chamber C^1 between the top of the oil-reservoir and the diaphragm above it, said air-chambers being closed except for the entrance of air above the outer globe and for the exit of air into the interior of the cone, substantially as and for the purposes set forth.

2. In combination with the upper base A of a lantern, and the air-chamber C^2 extending around said upper base, the openings J J' in such upper base, substantially as and for the purposes set forth.

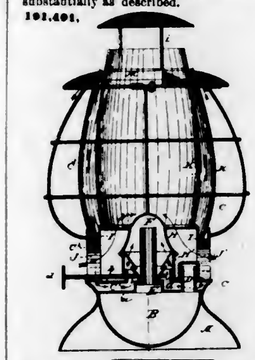
3. In a lantern, the combination of the openings J J' and the perforated disk N, substantially as set forth.

4. In a lantern, the combination of the openings J J', the disk N, and the air-chambers C^1 C^2 C^3, substantially as set forth.

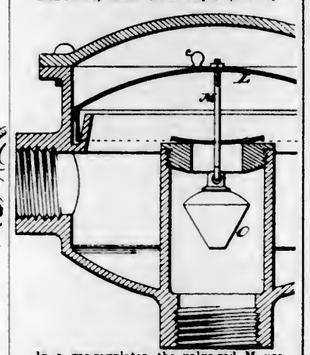
5. In a lantern, the combination of the base A A', the oil-reservoir B, and the opening J, extending through the air-chamber C^2 without openings into said air-chamber, substantially as and for the purposes set forth.

6. The method of counterbalancing the air-currents in a lantern by admitting fresh air taken from above the outer globe, through connecting-chambers exclusively, into the cone, and fresh air through the sides of the base exclusively to points above the cone, the two currents being kept separate and apart, substantially as described.

191,401.



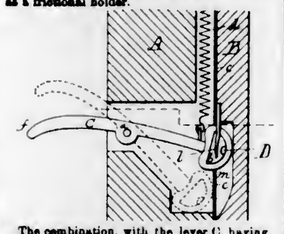
191,402. GAS-REGULATORS. A. F. Chace, Fall River, Mass. [Filed Apr. 7, 1877.]



In a gas-regulator, the valve-rod M, provided with the spring-rod *a*, in combination with the diaphragm L and valve O, as and for the purpose set forth.

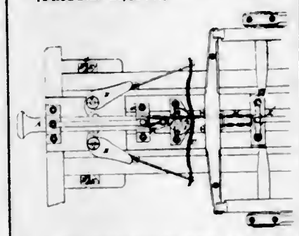
191,403. SASH-FASTENERS. Albert Chamberlin, North Abington, Mass. [Filed Feb. 21, 1877.]

Brief.—A pivoted lever having a rubber face is automatically drawn up by a vertical spring. There is also a stud on the inner end of the lever, and a lip projection on the window-frame, lying across a suitable recess therein, to constitute a positive fastening as well as a frictional holder.



The combination, with the lever C, having cushioned end *b* and spiral spring *d*, of the stud D, lip projection *l*, and recess *m*, and the window and sash frame, as described, for the purpose specified.

191,404. RAILWAY-CAR BUFFERS. Richd. D. Chatterton, Cobourg, Ontario, Canada. [Filed Mar. 31, 1877.]



1. The wedged draw or buffing bar A of a railway-car, in combination with levers B B, bearing upon springs C by intermediate connections, adapted so as to increase their power and range, substantially as above described.

2. The combination of the buffer or draw bar A, levers B B, springs C, supplementary springs D, and intermediate levers E, substantially as set forth.

3. The combination of draw-bar A, sheaves K K', and chain M, for the direct attachment of the brake-beam to the draw-bar, as set forth.

191,405. SOLDERING PROCESSES. George M. Clark and Arthur Harris, Chicago, Ill. [Filed Feb. 19, 1877.]



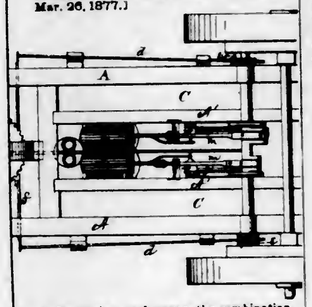
As an improvement in the art of soldering metallic seams, the process herein described, consisting in first heating the joint to be sealed, and then pouring on molten solder, substantially as described.

191,406. OIL-STILLS. John T. Colaman, Baltimore, Md. [Filed Apr. 27, 1877.]



A cylindrical sheet-metal still, divided longitudinally into sections, the said sections being connected together by continuous internal or inwardly-turned flanges, the said flanges having pronounced rounded corners, and connected by rivets, substantially as and for the purposes herein set forth.

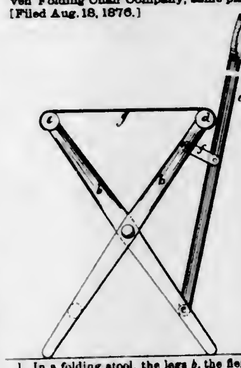
191,407. ROAD-ENGINES. Benj. F. Cornish, French Camp, Miss., assignor of one-half his right to J. L. Power, same place. [Filed Mar. 26, 1877.]



1. In a steam road-wagon, the combination of the bent frame A, with partitions A' A', forming chambers for the tanks C C, the pump E, boiler D, steering-wheel G, and main wheels I, substantially as herein set forth.

2. The treadles h h, with springs *i i*, connecting-rods *f f*, and oscillating crank-rods *d d*, combined and arranged substantially as described, for throwing the clutches *e e* in and out of gear, as herein set forth.

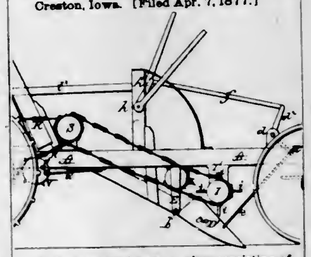
191,408. FOLDING CHAIRS. Isaac N. Dann, New Haven, Conn., assignor to New Haven Folding Chair Company, same place. [Filed Aug. 18, 1876.]



1. In a folding stool, the legs *b*, the flexible seat *g*, back arms *a*, secured to the lower round *c*, and the links *f*, pivoted to the upper portion of the front legs and to said back arms, constructed and arranged to support the back arms away from the top stool-round, as described.

2. The movable brace or link attached at or below the seat of a folding chair, substantially as and for the purpose described.

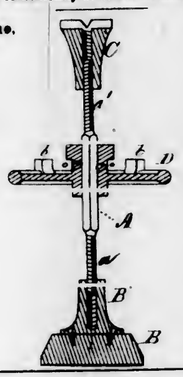
191,409. POTATO-DIGGERS. M. Dargitz, Creston, Iowa. [Filed Apr. 7, 1877.]



1. In a potato-digger, a plow consisting of a series of wide, curved, pointed flat bars, D, connected by a rod, *e*, side pieces D', that serve as side guards, and which are secured to the head *b*, journaled in hangers E, in combination with the operating-levers, that extend back to the driver's seat, by means of which the plow is operated up and down, substantially as shown.

2. The arrangement, with the carrier I *i* and elevator L L', of the chain-wheels O O, chains E E, shaft S', with pulleys S S', and shaft V', with pulleys V V, all as shown and described, whereby the carrier and elevator are operated directly from the chain-wheels by the same chains, substantially as herein set forth.

191,410.

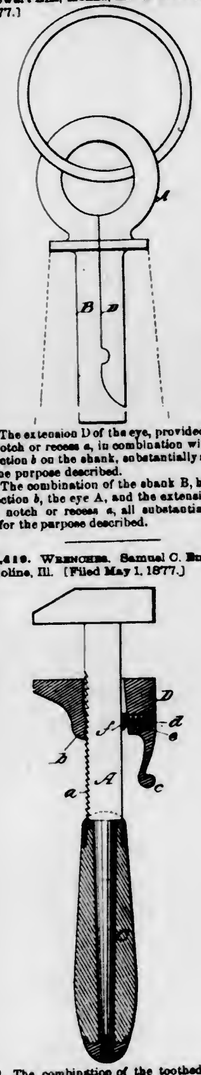


191,410. CARRIAGE-JACKS. C. Duecker, Tamaroa, Ill., assignor to C. B. Gray and A. B. Bowman. [Filed Nov. 11, 1876.]

Brief.—The post is oppositely threaded at top and bottom to work in blocks thereon. Centrally affixed to the post is a horizontal wheel worked by a lever.

The combination, with the shaft A, having oppositely-threaded ends *a a'*, the base B, and cap C, receiving respectively the lower and upper ends of the said shaft, of the wheel D, having a groove, *e*, annularly formed in its hub, and the spaced spurs *b* upon its perimeter, substantially as specified.

191,411. EYEBOLTS FOR WHIFFLETREES. C. Stewart Ella, Moline, Ill. [Filed Apr. 28, 1877.]



1. The extension D of the eye, provided with the notch or recess *a*, in combination with the projection *b* on the shank, substantially as and for the purpose described.

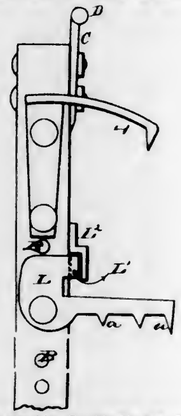
2. The combination of the shank B, having projection *b*, the eye A, and the extension D, with notch or recess *a*, all substantially as and for the purpose described.

191,412. WRENCHES. Samuel C. England, Moline, Ill. [Filed May 1, 1877.]

1. The combination of the toothed bar A, the sliding jaw D, cast complete in one piece, with its toothed arm *b*, arm *c*, and socket *e*, and the spiral spring *f* seated in the socket and arranged to bear directly upon the bar, with its inner end exposed, as and for the purpose described.

2. In combination with the bar A, the sliding jaw D, provided with the socket *e*, to receive a spiral spring, and with the hole *d* to permit the insertion of the spring without removing the jaw from the bar.

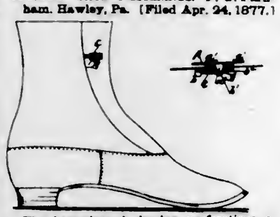
191,413. LADDERS. H. L. Bunce, Liberty Centre, Ohio. [Filed Apr. 28, 1877.]



1. The metal bar C, with side arms D D attached to the top of a ladder, substantially as and for the purpose described.

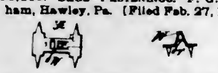
2. The pivoted L-shaped arms L, with teeth *a* and finger L^1, and the pivoted button L^2, applied to a ladder, substantially in the manner and for the purposes herein set forth.

191,414. SHOE-FASTENINGS. F. G. Farnham, Hawley, Pa. [Filed Apr. 24, 1877.]



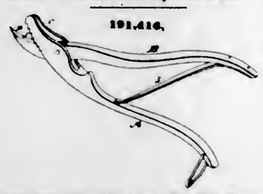
The base-plate A, having perforations *a*, and a central lug, a^2, the stitch-plate a^1, and the spring-key B, constructed as described, in combination with the face-plate C, having a central opening, *c*, attaching-lugs *c'*, and base plate A, as and for the purpose set forth.

191,415. SHOE-FASTENINGS. F. G. Farnham, Hawley, Pa. [Filed Feb. 27, 1877.]



A clip for shoe-fastenings, formed from the blank X, provided with suitable penetrating-points, and having the outer bar W, with a slot, *s*, on one side, and the part *r* cut loose on three of its sides on the other, so that when the parts are bent in shape the piece *r* becomes a brace, substantially as described

191,416.



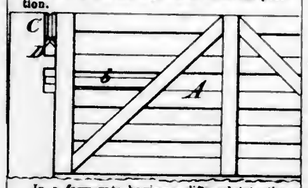
191,416. CAM-OPENERS. David F. Fetter, New York, N. Y. [Filed Apr. 21, 1877.]

Brief.—A pair of spring-pliers has a slotted convex jaw, notched or serrated on either side of the slot, and pivoted therein; a curved blade having concave cutting-edge, terminating in an upwardly-turned point; the handles authoritatively thrown open by a spring, and held together, when not in use, by a wire loop at their extremities.

The can-opener herein described, consisting of the curved blade D, having an upper concave cutting-edge, *d*, terminating in an upwardly-turned point and pivoted to the convex jaw C, serrated on each side of its slot, handles A B, and spring S, substantially as described, and for the purpose set forth.

191,417. GATE AND DOOR LATCHES AND ROLLERS. John T. Foster, Olive Green, Ohio. [Filed Nov. 14, 1874.]

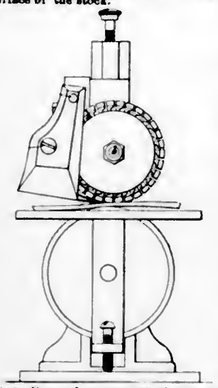
Brief.—The door closes to latch by ascending upon its roller at top a convex curve, and descending a concave grade to its closed position.



In a farm-gate having a lifting-latch, the grooved pulley C having a T-shaped shank, in combination with the pickets *a* fastened in the recesses of the shank, and the guide-support D having the inclined double-beveled edge *i* and concave *j*, substantially as described, and for the purpose set forth.

191,418. SHIVING-MACHINES. Hiphalet J. Foss, Boston, Mass. [Filed Apr. 24, 1877.]

Brief.—The periphery of the feed-wheel is composed of a series of yielding blocks, each having a separate or independent action upon the surface of the stock.



1. A feeding and pressure wheel, composed of a spring and yielding blocks, to operate substantially as described.

2. A feeding-wheel provided with yielding blocks, inclined upon their faces at the front of the wheel, substantially as described.

3. In a shiving-machine, the combination of a feeding-wheel, having its face composed of yielding blocks, with a knife to operate, substantially as described.

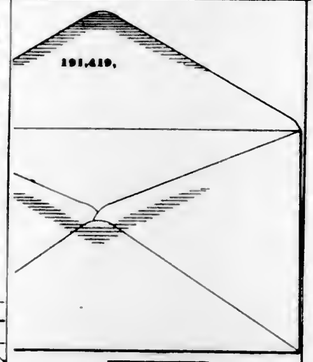
4. In a shiving-machine, a wheel having its periphery composed of yielding blocks, in combination with a supporting-wheel.

5. The feeding-wheel, having its periphery composed of yielding blocks, in combination with a supporting-bed and a knife to skive leather, the feed-wheel operating to hold and move the stock, substantially as described.

191,419. ENVELOPES. Addison C. Fox, Baltimore, Md. [Filed Mar. 23, 1877.]

An envelope having upon its flap a composition which, reacting under the influence of moisture with another composition upon the body of the envelope, into contact with which it comes when the envelope is closed, forms with it an insoluble cement, substantially as described, and for the purpose set forth.

191,419.



191,420. ADHESIVE COMPOSITIONS. Addison C. Fox, Baltimore, Md. [Filed Mar. 23, 1877.]

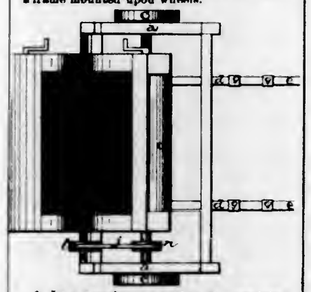
Brief.—The compositions named in the claims are separately soluble in water, but when brought together moist they react chemically, and form an insoluble cement.

1. The compositions herein described, to be used in combination, as set forth, the said compositions consisting, respectively, of chromic acid, ammonia, sulphuric acid, ammonio-sulphate of copper, and paper, and of isinglass and acetic acid, as set forth.

2. An adhesive composition having as ingredients chromic acid and isinglass, dissolved in a suitable acid solvent, substantially as described.

191,421. GRASSHOPPER-CATCHERS. Samuel Godard, Marysville, Mo. [Filed Apr. 26, 1876.]

Brief.—A grasshopper-catching machine, composed of a revolving wire frame, having an opening and hinged door at each end, journaled upon standards which are secured upon a frame mounted upon wheels.

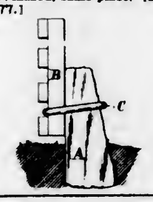


1. In a grasshopper-catcher, the revolving frame *i*, having an opening in each end, and a door for closing the same, substantially as set forth.

2. The combination of the frame *a*, wheels *c*, handles *d*, shafts *e*, and fastening devices *g*, whereby the machine can be moved either by man or horse power, substantially as shown.

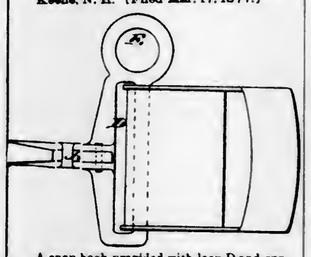
3. The combination of the revolving frame *i*, having an opening at each end, with the standards *h*, frame *a*, wheel *c*, pulleys *l m*, and belt *j*, substantially as described.

191,422. FENCES. Alex. Gosnell, Downeyville, Ind., assignor of one-half his right to Benj. F. Mason, same place. [Filed Mar. 29, 1877.]



The composite fence composed of tapering stone base A, plain metallic link C, and gravitating wooden panel B, substantially as set forth.

191,423. SNAP-HOOKS. Jonathan Hall, Keene, N. H. [Filed Mar. 17, 1877.]



A snap-hook provided with loop D and supplemental loop or eye E, substantially as shown, and for the purpose set forth.

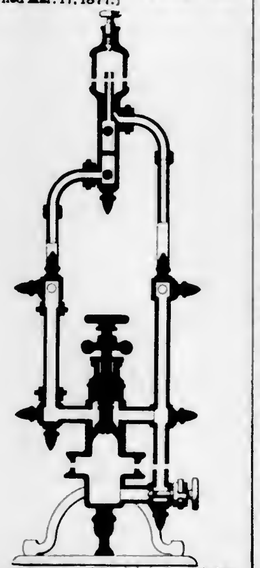
191,424. BOOKS. Jas. M. Harper, El Paso, Ill. [Filed Jan. 20, 1877.]



1. A series of stubs arranged in a book, having the top stub longer than the others, and each succeeding stub longer than the stub below it, so that mucilage or other adhesive substances may be applied to a projecting stub, for the attachment of an invoice or bill, without liability of the stubs below it receiving any of the adhesive material, substantially as set forth.

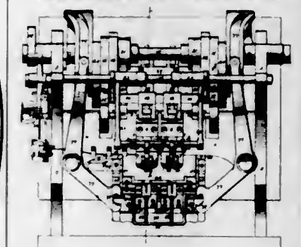
2. The combination of detachable cover A, with stubs B, of graduated length, as shown, and for the purpose set forth.

191,425. LUBRICATORS FOR STEAM-ENGINES. James Harper, Westville, Conn. [Filed Mar. 17, 1877.]



In combination with a lubricator, substantially such as described, a condenser and double connection or passages from the steam-pipe, one passage leading from the steam-pipe to the condenser, thence to the reservoir, the other from the reservoir to the steam-pipe, and a connection or passage between the passage to and from the reservoir, and at a point substantially level with the discharge from the reservoir, substantially as described.

191,426. BOOK-SEWING MACHINES. H. B. Hayl and H. Brehmer, Philadelphia, Pa., assignors to the Novelty Paper Box Company, same place. [Filed Jan. 11, 1877.]



1. Staple presenting and inserting devices, constructed substantially as specified, so as to enter the fold of a partially-opened signature, and present the staple within the same for insertion through the fold.

2. The combination of staple presenting and inserting devices, constructed so as to enter the fold of a partially-opened signature, and present the staple within the same for insertion through the fold, with a work-supporting table, which places the signature in position for the presentation and insertion of the staple, all substantially as specified.

3. The combination of staple presenting and inserting devices, constructed so as to enter the fold of a partially-opened signature, and present the staple within the same for insertion through the fold, with a work-supporting table, which places the signature in position for the presentation and insertion of the staple and clinching devices, all substantially as specified.

4. A support for staple-inserting devices, cut away so as to present the staple within the fold of a partially-opened signature, for insertion through the same, substantially as described.

5. In combination with a bending-fork, grooved plates to receive the staple from the prongs of the fork, and guide and support it while being driven, all substantially as described.

6. In combination with a bending-fork to form the staple, grooved plates to receive the staple from said fork, and guide and support it while being driven, and a staple-driver, all substantially as described.

7. The grooved plates for receiving the staple, and guiding and supporting it while being driven, provided with points to puncture the material, substantially as shown and described.

8. The combination of the staple-driver with the grooved plates, provided with points to puncture the material for the reception of the staple, substantially as described.

9. The clinchers having two motions, first rotating on a common center to bend the staple-legs toward each other, and then moving forward in a straight line to press the bent staple-legs close down upon the material through which they protrude, substantially as specified.

10. The combination of the clincher-plates with the slide that operates them, substantially as specified.

11. The combination of the clincher-plates 68, stud 71, and slide 70, to which said clincher-plates are pivoted, substantially as specified.

12. The combination of the bar 76 with the levers 77, arranged to engage only during the time the clincher-plates are to operate, and at all other times to be detached, substantially as specified.

13. The combination of two slides, 70, with the bar 76, by which they are simultaneously operated, substantially as specified.

14. The combination of two or more independent longitudinally-adjustable staple-inserting devices with an equal number of independent longitudinally-adjustable staple-clinching devices, operating to insert and clinch two or more staples simultaneously, substantially as specified.

15. The combination of staple inserting and clinching devices with a work-supporting table, constructed so as to retain the stapled signature thereon while the next signature is being stapled, all substantially as specified.

16. The combination of staple inserting and clinching devices with a table, 44, and devices to prevent the premature ascent of the table when the downward pressure upon it is removed, substantially as specified.

17. The combination of staple-inserting devices with clamps to hold the tapes or bands at the back of the signature, one clamp being arranged above and another below the line of insertion of the staples, substantially as specified.

18. The combination of the shifting-bar 49 and standards 45 with a swinging bracket, 39, substantially as specified.

19. The combination of a shifting-bar, 49, standards 48, table 44, and clamps 53 57 58 with the staple inserting and clinching devices, whereby the book and tapes are shifted sidewise, causing two or more rows of staples to be inserted into each tape, substantially as specified.

20. In combination with the shifting-bar 49 and standards 48, the cam 60, to automatically shift the bar and standards between each stapling operation, substantially as specified.

21. The combination of the cam 60 with the pawl 64 and clamp 61, constructed and operating substantially as specified.

22. The head-blocks 1, provided with two wire-channels, as and for the purpose specified.

23. The combination, with a staple-driver, 28, of a spring, 34, and a slide, 30, having elongated bearings, substantially as specified.

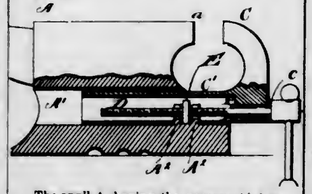
24. The combination of bar 29 with one or more drivers, 28, slides 30, and springs 34, substantially as specified.

25. The combination of bar 14 with one or more bending-forks, 8, substantially as specified.

26. The mandrel 21, bifurcated, combined with the plate 7, through slots in which the bifurcations extend, substantially as specified.

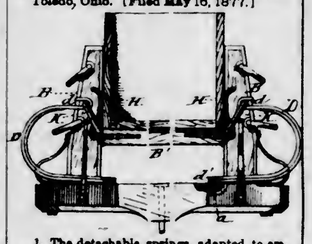
27. The combination of the shaft 23 with one or more mandrels, 21, substantially as specified.

191,427. COMBINED ANVIL AND VISE. P. B. Hillyer, Rochester, Minn. [Filed Feb. 24, 1877.]



The anvil A, having the passage A^1, bearings A^2, and fixed jaw *a* in the plane of the face of the anvil, in combination with the movable jaw C, having the slotted casing C' and passage *c'*, with the operating-screw D and nut E, as and for the purpose set forth.

191,428. VEHICLE-SPRINGS. C. J. Holman, Toledo, Ohio. [Filed May 16, 1877.]



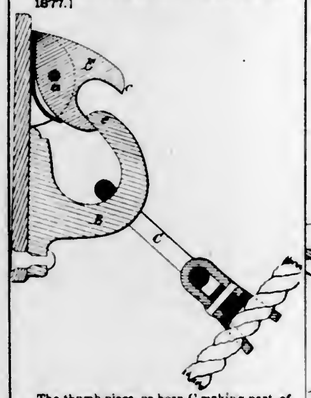
1. The detachable springs, adapted to embrace the standards or stakes of the wagon, and resting upon the bolster thereof, their upper ends supporting the cross-bar on which rests the wagon-body, substantially as and for the purposes specified.

2. In combination with the bifurcated semi-circular springs, provided with hook-shaped upper ends, the cross-bars B', provided with links adapted to engage said hooked ends of the springs, substantially as and for the purposes set forth.

3. In combination with the springs having hooked shaped ends for supporting a wagon-body, the upright curved brackets H, secured to the cross-bars which support the wagon-body, and adapted to rest upon the hooked ends of the springs, substantially as set forth, for the purposes described.

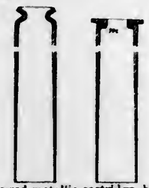
4. The combination, with the semicircular springs D, having hooked ends *d*, of the cross-bars B′, having at each end the brackets H, provided with curved upper ends, and the pivoted links K K, substantially as and for the purposes set forth.

191,429. HORSE-HITCHING DEVICES. Oren S. Hosmer, Boston, Mass. [Filed Feb. 26, 1877.]



The thumb piece or horn C making part of the latch E, and disposed outside of the point or prong *e* of the hook, substantially as and for purposes stated.

191,430. METALLIC CARTRIDGES. Benj. B. Hotchkiss, New York, N. Y. [Filed Sept. 22, 1876.]



1. A flanged metallic cartridge, having the metal near the rear compressed inward, and the extreme rear edge turned outward to form the flange, as and for the purposes specified.

2. A flanged metallic cartridge, having the metal near the rear compressed inward, and the extreme rear edge turned outward, forming a space in the center of the head for the insertion of a primer, as specified.

3. A cartridge-shell formed with the gorge, as specified, and left with the annular space *a* in the head, as and for the purposes specified.

191,431. ANIMAL-RELEASING DEVICES. O. G. House, Aurora, Ill. [Filed Apr. 2, 1877.]



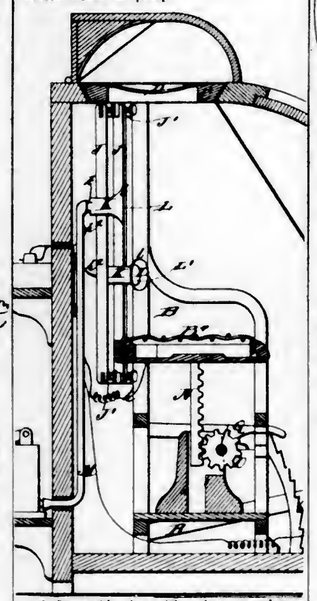
1. The combination, with the spring-bolt and its case, and with the bolt receiver or case B, of the pull-wire J for withdrawing a single bolt, substantially as shown and described.

2. In combination with a series of spring-bolts and bolt-receivers, as described, a series of pull-wires, J, applied severally one for each bolt, and all reaching or extending to the same part of the barn or building, whereby the attendant may, at will, disconnect any given chain or chains from its bolt without disturbing the remainder.

3. In combination with a series of spring-bolts and bolt-receivers, a series of pull-wires severally connected, one to each bolt, and a continuous rod adapted for operating all the bolts simultaneously, permitting the attendant, while standing at a given spot, to release, at option, any one or more or all of the chains or halters, substantially as and for the purposes set forth.

191,432. PNEUMO-ELECTRIC BATHS. Wm. D. Huffman and Sanford W. Huff, Sigourney, Iowa. [Filed Mar. 17, 1877.]

Brief.—The electrode is perforated and connected with an air-pump.



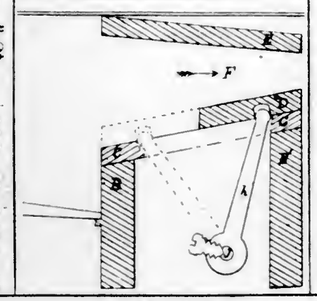
1. In combination with a battery and an air-exhausting apparatus, the chair B, laterally-movable bars J, curved cross-plates J′, perforated blocks K, adjustable on said bars, and provided with cups L, having non-conducting rims *l*, and the central perforated electrode L′ and air-tube M, substantially as and for the purpose set forth.

2. The perforated block K having an extension, *k*, and cups L with non-conducting rims *l*, and central perforated electrods L′, substantially as and for the purpose set forth.

3. A casing or cabinet for a vapor-bath, provided at the top with a detachable frame, having a perforated flexible diaphragm, in combination with a hinged head-rest, substantially as and for the purpose set forth.

191,433. STEAM-BOILER FURNACES. C. F. Hunt, Chicago, Ill. [Filed Jan. 20, 1877.]

Brief.—The throat of the furnace is made tapering, and is increased or diminished in size by a sliding tile operated by a rocker-arm.



1. The tapering passages F F, as constructed in combination with a movable tile, D, which is designed to vary the size of the rear end of the passages, for the purpose specified.

2. The rock-shaft J, in combination with the arm *h*, and movable tile D, and tapering passage F, as and for the purpose specified.

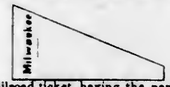
191,434. PACKING FOR ROTARY ENGINES. E. C. Johnson, Williamsport, Pa. [Filed Oct. 7, 1876.]



1. A piston provided with longitudinal flutings or corrugations at its edges, in combination with packing-strips having similar flutings or corrugations on its corresponding face, substantially as set forth.

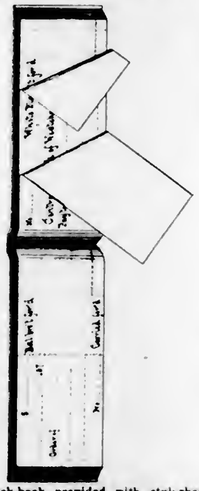
2. The combination of piston-edge B′, having corrugations *b*′, with strips E, having corrugations *e*, and cap C, having the end extensions *c c*, substantially as set forth.

191,435. RAILROAD-TICKETS. E. G. Johnson, Milan, Ohio. [Filed Feb. 12, 1877.]



A railroad-ticket, having the names of the place of departure and of destination both upon the face and back thereof, arranged substantially as described, whereby, when cut or separated into two parts, each part will show the name of the place of departure on one side and that of destination on the other side, as and for the purposes set forth.

191,436. BANK-CHECK BOOKS. Milton C. Johnson, Brooklyn, N. Y. [Filed Mar. 28, 1877.]



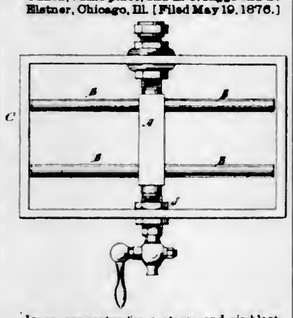
A check-book provided with stub-sheets having stub-blanks on both sides thereof, secured between alternate pairs of two separate check-sheets, the whole being bound together at their ends and adapted to be used substantially as herein described.

191,437. CRANES. Byron Jones, Kendallville, Ind., assignor of one-half his right to Thos. L. Graves, same place. [Filed May 3, 1877.]



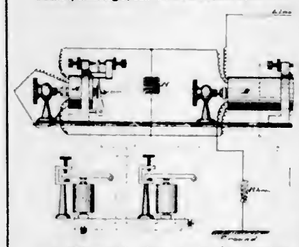
The weighted serrated pawl C, having the arm or handle *f*, provided with a cord or rope, or other suitable medium, *g*, for releasing it, in combination with and suspended directly above the hoisting-rope pulley, substantially as and for the purpose set forth.

191,438. DEVICES FOR SUPPLYING A STEAM AND AIR BLAST TO FURNACES. Evan J. Jones, Indianapolis, Ind., assignor to E. F. Cullen, same place, and L. C. Riggs and D. Histner, Chicago, Ill. [Filed May 19, 1876.]



In an apparatus for a steam and air blast for furnaces, the combination of the main supply-pipe A, perforated branch pipes B, and conical bearings and their couplings working in case C, and located under the grate-bar, substantially as described.

191,439. QUADRUPLEX TELEGRAPHS. F. W. Jones, Chicago, Ill. [Filed Sept. 13, 1876.]

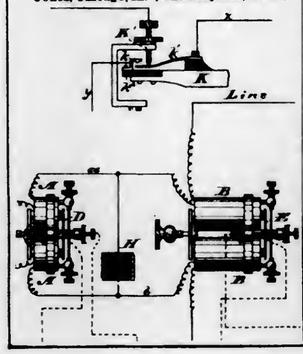


1. A differential relay, A, in combination with a condenser, H, the poles of which are connected respectively to the outgoing ends of the separate convolutions of the relay, substantially as and for the purpose set forth.

2. The combination of the two differential relays A and B and the condenser H, arranged and operating substantially as described.

3. The two differential relays A and B, in combination with the condenser H, arranged between the relays and connected with them as described, and an equating rheostat, substantially as and for the purpose set forth.

191,440. QUADRUPLEX TELEGRAPHS. F. W. Jones, Chicago, Ill. [Filed Sept. 13, 1876.]



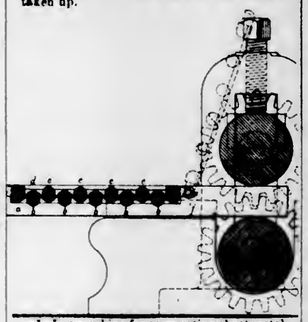
1. The transmitter K, consisting of the centrally-pivoted lever having a contact-spring at each end mounted thereon, but insulated therefrom, and a contact-point, *k*, at one end, insulated from the lever, in combination with suitably-insulated contacts *k*′, the lever being arranged to play beneath and form connection with said contacts, substantially as and for the purpose set forth.

2. The transmitter K, constructed as described, and transmitter I, in combination with the batteries X, Y, and Z, of the proportion of one, two, and three, or nearly so, connected to the transmitters, so that the batteries may be sent to line, substantially as described.

3. The batteries X, Y, and Z, and double transmitters I and K, in combination with a relay system consisting of the two differential relays A and B, armatures D and E, condenser H, and equating rheostat, constructed and operating substantially as and for the purpose set forth.

191,441. MACHINES FOR CORRUGATING SHEET METAL. G. F. Klesam, New York, N. Y., assignor of one-half his right to H. F. Bartlett, Baltimore, Md. [Filed Apr. 17, 1877.]

Brief.—The sheet of metal having been placed between the dies, they are made to pass between the rolls, which impart the corrugation as the dies advance, leaving the plain portion free to be drawn over the corrugating-bars as the length of the sheet is taken up.



1. In a machine for corrugating sheet metal, the combination of a pair of rolls and longitudinally moving upper and lower dies, the transverse bars of which are adapted to interlock and corrugate the sheet metal placed between them in and during their passage through and between the said rolls, substantially as herein set forth.

2. In a machine for corrugating sheet metal, the combination of the lower die composed of the longitudinal bars *a* and transverse bars *b*, and the upper die composed of the connecting pieces or bars *d* and the transverse bars *e*, substantially as and for the purpose herein specified.

191,442. HORSE-POWERS. John Kolling and Henry Kolling, Arlington Heights, Ill. [Filed Apr. 20, 1877.]

Brief.—Two shafts, arranged to revolve at different rates of speed, are provided with coupling extremities, for connecting the one or the other with the tumbling-rod, as may be desired.



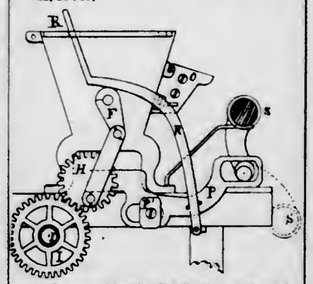
1. In a horse-power, the arrangement of two shafts, B and D, of different velocities, either one to couple with the tumbling-shaft, substantially as shown, and for the purpose specified.

2. The combination of shaft B, having pinion C, and spur-wheel *c*, with shaft D, having pinion *d*, both journaled within the frame A, and provided with projecting squared ends for attaching the tumbling-shaft coupling, substantially as described and shown.

3. In combination with the spider-frame F, brake-lever V pivoted thereto, and the bevel-pinion C, the hub L, hand-lever T, and pin *s*, all arranged as described and shown, and to operate as specified.

4. In a horse-power, the master-wheel I, intermediate wheels H, pinion *s*, shaft B, and bevel-wheels C and *c*, and shaft D, having pinion *d*, all constructed and arranged within a frame, A, in the manner described and shown.

191,443. SEED-DRILL AND FERTILIZER. Benj. Kuhns, C. Scholz, and D. Y. Kuhns, Dayton, Ohio; said Scholz and D. Y. Kuhns assignors to said Benj. Kuhns. [Filed Dec. 12, 1876.]

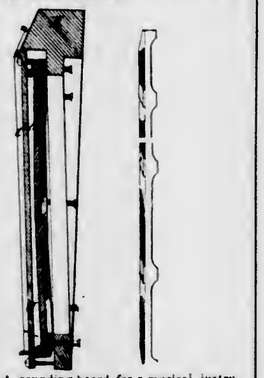


1. In a machine for distributing grain and fertilizers, the lever F, having in it a slot or equivalent means for allowing of the changing of its pivotal point, and arranged to have a horizontal movement imparted to it throughout all of its parts, and a movement through the arc of a circle at its ends, substantially in the manner and for the purpose set forth.

2. The combination of the driving-wheel I, pinion H, lever P, and lever R, the parts being arranged to operate substantially as and for the purpose specified.

3. The combination of the driving-wheel I, pinion H, the lever P, having both a horizontal and partially rotary movement, and the crank-shaft S, having an eccentric in its arm, substantially as and for the purpose set forth.

191,444. PIANO-FORTES. Hallmuth Kranich and Jacques Bach, New York, N. Y. [Filed Dec. 29, 1876.]



1. A sounding-board for a musical instrument, provided with a series of heels or projections along its edges, substantially as set forth.

2. The combination, with a musical instrument, of a sounding-board secured in place at isolated points on both its upper and lower sides, substantially as set forth.

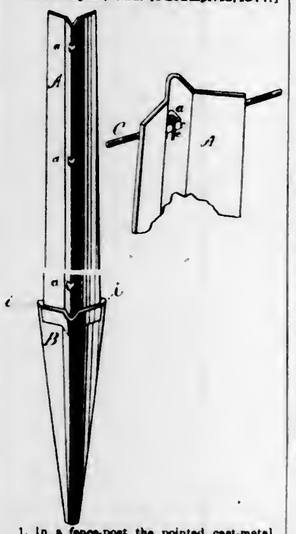
3. The combination, with a fixed iron frame, of a sounding-board provided with heels or projections for bearing against the iron frame, substantially as set forth.

4. The combination, with a fixed iron frame, of a sounding-board provided on one side with heels or projections for bearing upon the former, and on the other with bearing-pieces, arranged farther inward from the edges than the said heel-pieces, and screws impinging against the said bearing-pieces, substantially as set forth, whereby in a very simple and in-

expensive manner provision is afforded for springing and respringing the sounding-board facially at pleasure.

5. The combination, with a stationary iron frame, of a sounding-board provided on one side with heels or projections for bearing against the former, and on the other with metal bearings, of screws for impinging against the latter, and provided with devices for springing and respringing, substantially as set forth.

191,445. FENCE-POSTS. William Langham, Cedar Rapids, Iowa. [Filed Apr. 13, 1877.]



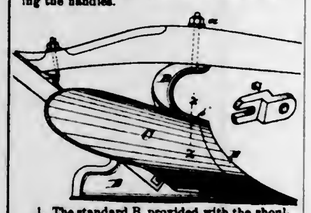
1. In a fence-post, the pointed cast-metal base B and bent metal part A, rigidly secured thereto, and so combined as to afford a driving-shoulder, *i*, substantially as and for the purposes set forth.

2. The combination of post A, having slot *a*, and strip *c*, and staple *d*, adapted to be secured on wire C, substantially in the manner

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191,446. PLOWS. William S. Lawrence, Kalamazoo, Mich. [Filed Nov. 18, 1876.]

Brief.—Construction of the standard, mold-board, and colter. Detachable lugs for securing the handles.



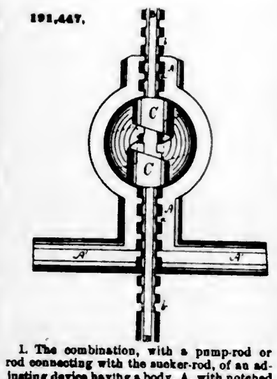
1. The standard B, provided with the shoulder *b'*, in combination with the mold-board C and colter E, extending above the upper edge of the mold-board, flush with the top of the shoulder *b'*, substantially as described.

2. The detachable lugs G G', bent as described, and adapted to be inserted between flanges on the mold-board or land-side, for securing the handles to the mold-board and land-side, substantially as and for the purpose set forth.

3. The handles F, in combination with the detachable lugs G G', constructed as described, the land-side D, and mold board C, substantially as set forth.

191,447. PUMP-ROD ADJUSTERS. Daniel L. Lewis, Lovell's Station, assignor of one-half his right to William Boynton, Petersburg, Pa. [Filed Feb. 22, 1877.]

Brief.—The pump-rod can be removed by turning the hook at right angles to it.



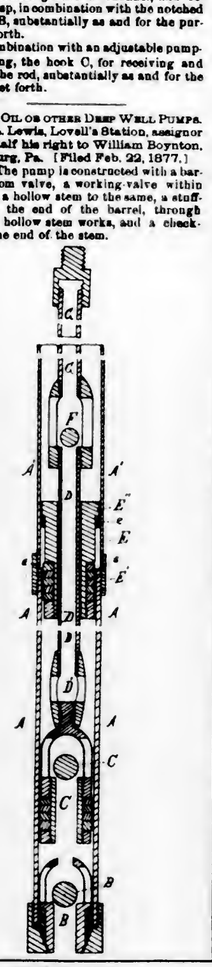
1. The combination, with a pump-rod or rod connecting with the sucker-rod, of an adjusting device having a body, A, with notched vertical groove or channel, for the purposes set forth.

2. The body A, with journal-arms A' A', notched vertical groove or channel, and retaining-clasp, in combination with the notched pump-rod B, substantially as and for the purposes set forth.

3. In combination with an adjustable pump-rod coupling, the hook C, for receiving and retaining the rod, substantially as and for the purposes set forth.

191,448. OIL OR OTHER DEEP WELL PUMPS. Daniel L. Lewis, Lovell's Station, assignor of one-half his right to William Boynton, Petersburg, Pa. [Filed Feb. 22, 1877.]

Brief.—The pump is constructed with a barrel, a bottom valve, a working-valve within the barrel, a hollow stem to the same, a stuffing-box in the end of the barrel, through which the hollow stem works, and a check-valve on the end of the stem.



1. An oil or other deep well pump, having a working-valve, C, and check-valve F, with connecting hollow stem D joining the same, and said valves operating one within and the other without the barrel A, as and for the purposes set forth.

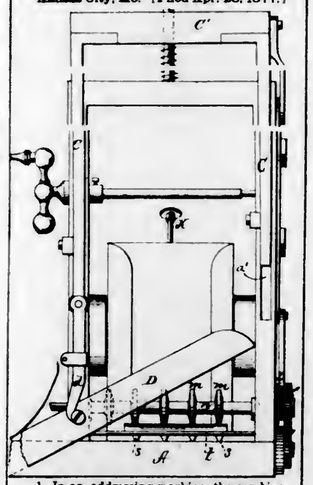
2. An oil or other deep well pump, provided with a hollow piston-stem, D, which has a surrounding plug, E, closing the barrel, and is provided with a working or sucking valve, C, on its lower end, and a check-valve, F, on its upper end, as and for the purposes set forth.

3. Within an oil or other deep well casing or tubing, near the bottom of the same, a chamber filled with an elastic medium, for the purpose of cushioning the vibrations of the column of fluid, substantially as and for the purposes herein set forth.

4. The combination, with a deep-well-pump piston-rod, of the tube G, near the bottom or lower end of the same, filled with air or other elastic substance, substantially as and for the purposes set forth.

5. The combination of the plug E, piston-stem D, and valve B, the piston-stem being of such a length that its upper collar partially seats the plug just before the lower end strikes the valve B to seat or clear it, as set forth.

191,449. ADDRESSING-MACHINES. Abner H. Longley, Jr., Paola, Kans., assignor to Morrison Mumford and M. M. Morrison, Kansas City, Mo. [Filed Apr. 28, 1877.]



1. In an addressing-machine, the combination of the fountain H, having mouth or opening *i*, slide *h*, guide G, and operating set-screw K, substantially as and for the purposes herein set forth.

2. The combination of the bed-piece A, movable frame C C', connecting-bar *d*, pivoted bar D, and spring *e*, substantially as and for the purposes herein set forth.

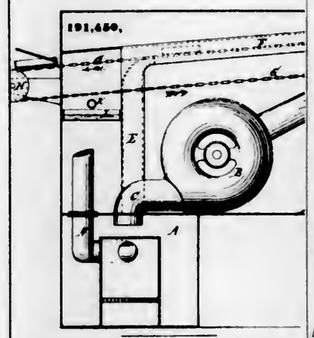
3. The combination, with the roller J and shaft *n*, with its disks *m m*, of the frame C C', pivoted bar D, arm L, with pin *v*, slotted slide O, pawl P, with spring *s*, ratchet R, and gears S S', all constructed and operated substantially as and for the purposes herein set forth.

191,450. APPARATUS FOR DRYING TOBACCO. Cyrus Losee, Brooklyn, N. Y. [Filed Apr. 14, 1877.]

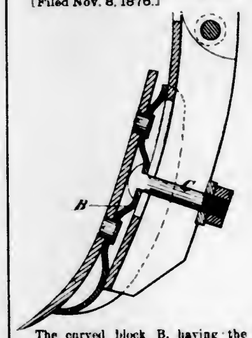
1. The combination of an air-heating chamber, a drying-chamber, a flue which leads from the air-heating chamber into the drying-chamber, an endless chain or apron, which serves to carry the material to be dried through the drying-chamber, and a fan-blower, which draws the air from the drying-chamber and forces it into the heating-chamber, all constructed and operating substantially as shown and described.

2. The combination, with the air-heating chamber A, the drying-chamber F, the flue E, the endless apron or chains G, and the fan-blower B, of an open pan, L, and steam-jet pipe K, substantially as and for the purpose set forth.

191,450.



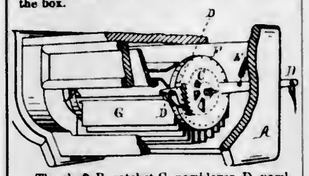
191,451. CULTIVATORS. Edward P. Lynch and Edgar A. Wright, Davenport, Iowa. [Filed Nov. 8, 1876.]



The curved block B, having the transverse slot *x* extended around to one side to permit the bolt C to be shoved forward to bring its round portion in the slot and allow it to be turned therein or shoved out forward, substantially as shown and described.

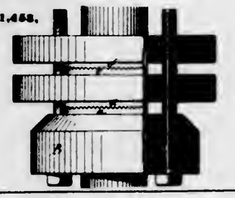
191,452. STATION-INDICATORS. Jas. Mantall, Detroit, Mich., assignor to himself and C. B. Palmer, same place. [Filed Apr. 4, 1877.]

Brief.—The shaft is intermittently rotated by means of a pawl and ratchet. The number of ratchet-teeth corresponds with the number of leaves, and each pull upon the pawl-lever moves the shaft just far enough to release the next succeeding plate, which then drops by its own gravity, and exposes the name of the station through the opening in the box.



The shaft B, ratchet C, pawl-lever D, pawl D', spring E, heads F F, and the leaves G, in combination with the case A, having the ledge *a* over its opening, substantially as and for the purpose set forth.

191,453.

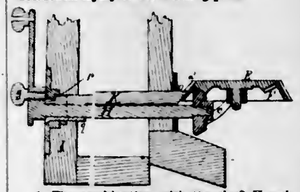


191,455. SECURING AND ADJUSTING ECCENTRICS. James Mason, New Haven, Conn. [Filed Mar. 17, 1877.]

In combination with the roughened-surface collar on the shaft, an eccentric, one or more, provided with corresponding serrations for holding the eccentric in engagement with the collar through the said roughened surfaces, substantially as described.

191,454. SHUTTER-WORKERS. Wm. P. McCobb, Boston, Mass. [Filed May 7, 1877.]

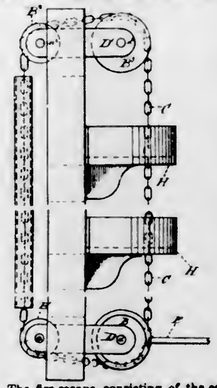
Brief.—As an improvement on Patent No. 187,474, February 20, 1877, there is employed, in combination with the shaft which carries the pinion, a suitable rod, one end of which is adapted to operate with the hinge-plate by frictional pressure thereon, while the opposite end of this rod has a set-screw or other suitable device for advancing or retracting the rod, the construction serving to hold the shutter at any desired point, and to guard against accidental injury to the working parts.



1. The combination, with the shaft H and hinge-plate E, of the rod K, adapted to operate upon said plate with a frictional pressure, substantially as and for purposes stated.

2. The combination, with the plate E, of the shaft H, rod K, with its hub *g*, crank *f*, and screw *g*, whereby a frictional pressure is exerted upon said plate E by means of the end *o* of rod K, substantially as and for purposes stated.

191,455. FIRE-ESCAPES. A. McCambridge, Philadelphia, Pa. [Filed Mar. 9, 1877.]



1. The fire-escape, consisting of the carrying-chain C, pulleys B B' B² B³, having supports D D', the pulley B being provided with a brake-lever, E, substantially in the manner and for the purpose set forth.

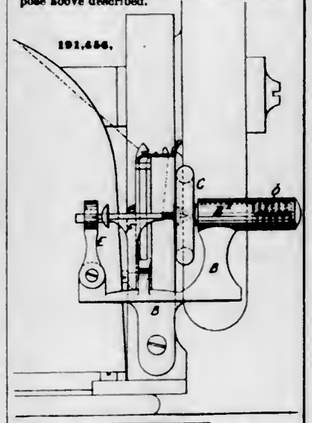
2. The combination of the platforms H, having openings *s*, with the carrying-chain C and supporting-pulleys B, substantially as and for the purpose set forth.

191,456. BOBBIN-WINDERS FOR SEWING-MACHINES. Thomas McGrath, Sheffield, England. [Filed Aug. 31, 1876.]

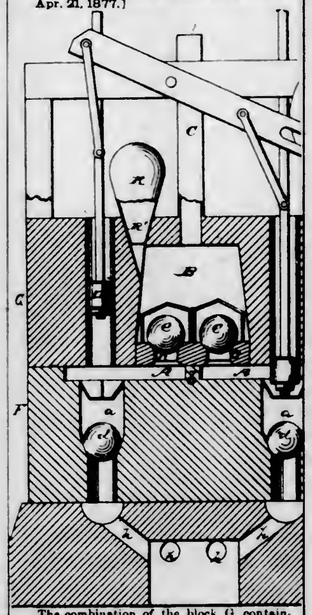
Brief.—A hinged bracket bears upon and guides the thread to the bobbin, and holds a hinged bearing against one end of the bobbin. When, by reason of the increased diameter of the coils of thread when the bobbin is full, the bracket is forced off the hinged bearing, the spring, acting on the friction-wheel shaft, forces said wheel away from contact with the driving-wheel and stops the winding.

The combination, with the pulley C, hinged bearing E, spring *b* in the socket of the frame B, and bobbin *a*, of the catch-piece F for gaging the amount of thread wound upon the reel, and releasing the reel from the winding apparatus, substantially as and for the purpose above described.

191,456.



191,457. FORCE-PUMPS. C. H. McKeehan, Texarkana, Ark., assignor of one-half his right to V. T. Hannon, same place. [Filed Apr. 21, 1877.]



The combination of the block G, containing the exhaust-chamber B, discharge C, and passages *c*, the block F, with divided receiving-chambers A and passages *a*, the air-chamber E, valves, and pistons, all substantially as and for the purpose set forth.

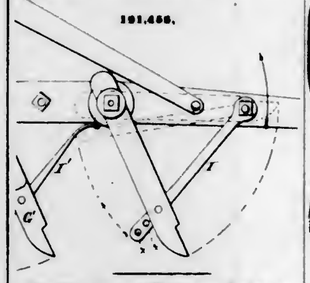
191,458. CULTIVATORS. Thos. F. McNair, Worthville, Ga. [Filed Apr. 23, 1877.]

Brief.—The plow-standards are interchangeable from front to rear, and can be turned up and held out of the way on a line with the beam.

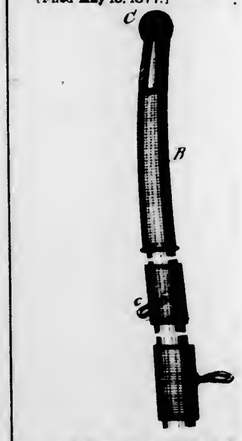
1. The combination, with the beam A and pivoted braces I I, perforated at their rear ends, of the slotted interchangeable plow-feet G G, connected to the beam by the bolt *d*, and capable of being folded on a line with the beam and there secured, substantially as and for the purposes herein set forth.

2. The plow-foot G¹, pivoted to the rear extremity of the beam A, and capable of being thrown upward when not in use, as set forth.

191,458.



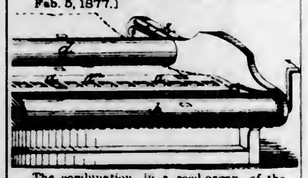
191,459. CARRIAGE THILLS AND POLES. A. Moffitt, Washington, D. C., assignor to himself and C. H. Watson, same place. [Filed May 15, 1877.]



1. A thill or pole provided at its forward end with an elastic cushion, C, covering the end of the thill or pole, substantially as and for the purpose set forth.

2. The combined elastic cushion C and sleeve B, with a thill or pole, substantially as and for the purpose set forth.

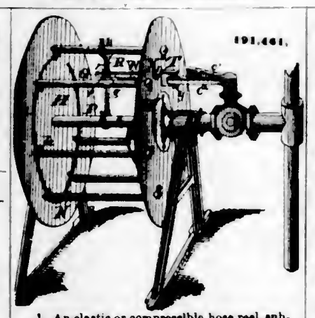
191,460. AUTOMATIC WIND-INSTRUMENTS. E. P. Needham, New York, N. Y. [Filed Feb. 5, 1877.]



The combination, in a reed-organ, of the perforated roll or sheet of paper, acting as a valve to the reeds, with the hinged roller or rollers d and springs E, substantially as and for the purpose described.

191,461. AUTOMATIC HOSE-REELS. Wm. Nerscher, Cleveland, Ohio, assignor of one-half his right to H. B. Piper, same place. [Filed Mar. 7, 1877.]

Brief.—Two disks having slots placed at equal distances. In the slots move rods, which are prevented from falling out by nuts on their ends. Within the space inclosed by the bars are springs, which push the rods outward. Part of the shaft is hollow. From the hollow part extends a curved pipe, to which the hose is attached. The water-cock is opened by means of the lever extending outward from the reel.



191,461.

1. An elastic or compressible hose-reel, substantially as and for the purpose described.

2. The combination of disks or sides provided with radial slots, cross-bars movable in said slots, and spring or springs, so located as to press said cross-bars outward, substantially as described.

3. The combination of lever R, arm G, and spring W, substantially as described.

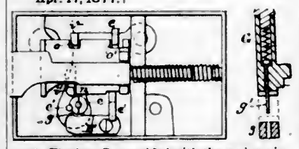
4. The combination of lever R, arm G, spring W, and lever C, substantially as described.

5. In an automatic hose-reel, the water-cock handle or lever C, provided with two or more arms, for the purpose of gradually turning on the water, substantially as described.

6. The combination of hose-reel, hydrant-coupling at the axle, hose attachment within the reel, and yielding arms or supports, substantially as and for the purpose described.

7. The spring provided catch X, in combination with notched arm G, substantially as and for the purpose described.

191,462. LOCKS AND KEYS. A. H. Palmer, Utica, N. Y., assignor of one-half his right to A. D. Barber, Jr., same place. [Filed Apr. 17, 1877.]



1. The key G, provided with the spring-pin g', and detachable piece g, as and for the purposes described.

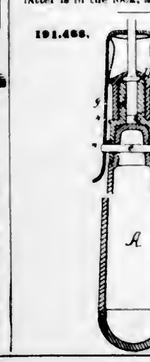
2. The detachable piece g, having groove h, and being formed to match with the shaft of key G, receive the spring-pin g', and connect with the tumbler D within the lock, substantially as set forth.

3. The tumblers D and D', the former having the lug f² and pins e and e', and the latter having the lugs e and f', said tumblers being pivoted and provided with springs, substantially as set forth.

4. The tumbler D, provided with the pins e and e', for entering and retaining the part g of the key G, substantially as set forth.

5. The supplementary key H, provided with projection r, and formed to close with and operate with the detachable piece g when the latter is in the lock, as set forth.

191,463.



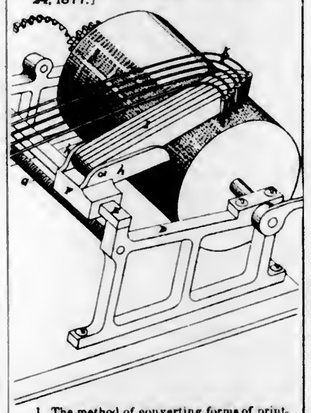
191,463. AWL-HANDLES. Geo. W. Phenix, New Brunswick, N. J. [Filed Dec. 30, 1876.]

Brief.—The awl or tool is secured to a hollow metallic handle, provided with a hinged cover, by means of a cap adapted to be pinned to the handle, and a screw-thimble fitting over the cap, and having an aperture in its top, through which the tool is passed after its tang has been inserted in the cap. A branch gage, fitting over the tool and pinned to the handle, gages the depth of the hole bored.

1. The combination, with the awl-handle A and screw-thimble D, of the cap C, having the rim c and screw-bit d, and the pin e, substantially as specified.

2. The combination, with the awl cap C, pin e, and handle A, of the branched gage E, having the series of perforations s, substantially as specified.

191,464. COPYING-TELEGRAPHS. Loring Pickering, San Francisco, Cal. [Filed Apr. 24, 1877.]

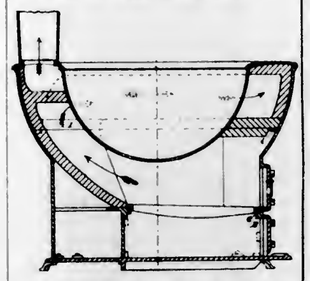


1. The method of converting forms of printing-types into transmitting-plates for telegraphic purposes, consisting in filling between the faces of the types, either in the original form or in a stereotype cast taken therefrom, a non-conducting substance that will, at the same time, insulate the faces of the types and provide a smooth level surface for the contact-points of the wires to pass over, substantially as and for the purpose described.

2. The hinged arms I I I, arranged to carry the points of the wires K K K in their free ends, in combination with the slide F and feed-screw G, substantially as and for the purpose described.

3. The arrangement of the contact-points of the several parallel wires of an automatic telegraph apparatus in an oblique or spiral manner, substantially as and for the purpose described.

191,465. KETTLE-FURNACES. J. F. Prath, Chicago, Ill. [Filed Dec. 26, 1876.]

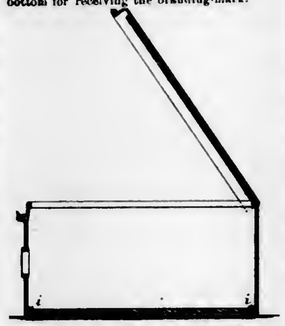


A worm-flue kettle-furnace, wherein the said flue, the fire-pot, and the lining for the outer walls consist of removable fire-proof blocks consecutively arranged and matched together, substantially as and for the purposes specified.

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191,466. CIGAR-BOXES. James H. Preater, Brooklyn, assignor to himself, Anna E. Gillies, and Martin Simons, New York, N. Y. [Filed Feb. 5, 1877.]

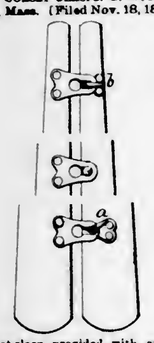
Brief.—The box is of tin, and has flanges that hold a lining of paper, and has a wooden bottom for receiving the branding-mark.



1. The metallic cigar-box having inward flanges o at the bottom of the sides and ends, in combination with the wooden bottom resting upon such inward flanges o and the folded stripe i at the edges of the bottom, and soldered to the metal of the box, substantially as set forth.

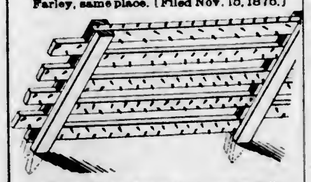
2. A cigar-box constructed of sheet metal and having folded stripe of sheet metal soldered to the inside of the box, and the lining of pasteboard or similar material secured by said folded stripe, substantially as set forth.

191,467. CORSET-CLASPS. G. W. Reynolds, Boston, Mass. [Filed Nov. 18, 1876.]



A corset-clasp provided with an oblique hook, a, at its lower end, constructed and arranged as shown, in combination with a horizontal or direct hook, b, at its upper end, substantially as and for the purpose herein specified.

191,469. BARBED FENCES. M. C. Richards, Oswego, Ill., assignor to himself and H. W. Farley, same place. [Filed Nov. 15, 1876.]

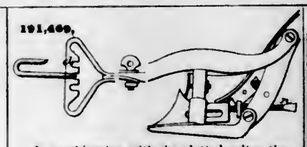


A barbed fence composed of wooden rails, provided with metal barbs pointed at both ends and inserted within, and projecting from, the same, substantially as and for the purpose specified.

191,469. PLOWS. Friedrich Rick, Detroit, Mich. [Filed Apr. 26, 1877.]

Brief.—The horizontal shank of the cutter extends into the plow, and receives a traveling screw, which moves the cutter forward or back.

191,469.



In combination with the slotted colter, the screw s, that is swiveled to the side of the handle, and made to move the colter back and forth, substantially as described.

191,470. RAILROAD-FROGS. John T. Richardson, Harrisburg, Pa., assignor to Pennsylvania Steel Company. [Filed Apr. 23, 1877.]



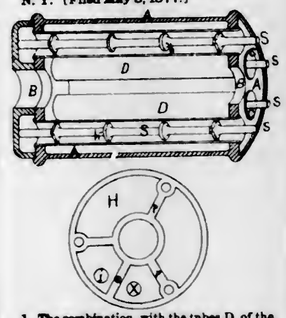
1. The combination of brace-blocks, made to fit and bear against the under side of the head and the base of the rail, and beveled keys driven between and against the blocks and flanged ends of the binding-bars, substantially as and for the purpose set forth.

2. A railway-frog having brace-blocks provided with lugs, in combination with beveled keys and the binding bars and rails of the frog, substantially as and for the purpose set forth.

3. The brace-blocks and beveled keys, having split ends, in combination with the rails and binding-bars, constructed substantially in the manner and for the purpose as shown and described.

4. The brace-blocks and throat-pieces, provided with lugs, in combination with the rails and binding-bars, substantially as and for the purpose set forth.

191,471. HEATERS. Fred B. Rice, Dunkirk, N. Y. [Filed May 3, 1877.]



1. The combination, with the tubes D, of the shell A and heads H, the interior of the heads being divided into spaces by partitions p, and attached to shell A in such a manner as to cause the current of water to be reversed every time it passes through a tube, substantially as and for the purposes set forth.

2. The spindles B, with enlargements or heads A, and projections on said heads, for the purpose of holding the spindles central, in combination with tubes, substantially as described.

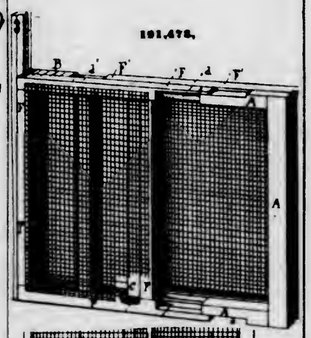
191,472. SNAP-HOOKS. Clark Robinson and Jos. F. Ellis, Eau Claire, Wis. [Filed Apr. 6, 1877.]



As an improved article of manufacture, the hook A, having pivoted within its shank opposite to its point a a wheel, B, provided with an elastic yielding periphery, substantially as and for the purpose specified.

191,473. ADJUSTABLE WINDOW-SCREENS. Samuel Roebuck, Brooklyn, N. Y. [Filed June 17, 1876.]

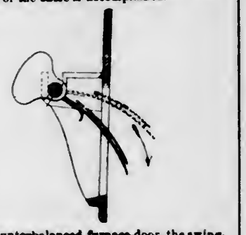
191,473.



The adjustable sections F F', adapted to be applied to window-frames of different widths, and provided with the plungers d, extension f, and guide and stop rails e, having end tenons sliding in grooves e, in combination with the auxiliary frames A B, provided with openings for the reception of the coiled springs s and recesses o, substantially as described, and for the purpose set forth.

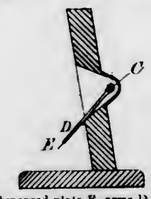
191,474. FURNACE-DOORS. T. W. Rodgers, Boston, Mass., assignor to E. H. Ashcroft, same place. [Filed Apr. 27, 1877.]

Brief.—The air is deflected downward by an inner curve in the door. By this means the gases in the fire-chamber are retarded, by which the air and gaseous material are more intimately mixed, and a more complete combustion of the same is accomplished.



A counterbalanced furnace-door, the swinging plate of which is curved inward in the direction of its greatest length, substantially as and for the purpose set forth.

191,475. PROPULSION OF VESSELS. Thos. S. Seabury, New York, N. Y. [Filed Apr. 23, 1877.]



The submerged plate E, arms D, and rocking shaft C, in combination with the sides of a floating vessel, as and for the purpose substantially as set forth.

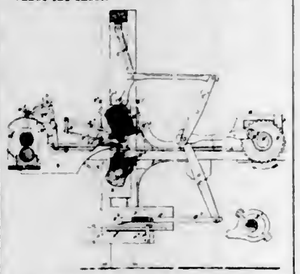
191,476. DEODORIZING, DISINFECTING, AND FERTILIZING COMPOUNDS. H. Seligman, Irvington, N. Y. [Filed Mar. 15, 1877.]

The mineral potash disinfecting, deodorizing, and fertilizing compound herein specified, consisting of the described mineral salt, with a calcareous substance, such as gypsum, and an acid, such as sulphuric acid, in about the proportions set forth.

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191,477. MACHINES FOR CUTTING NAILS. William N. Severance, South Bend, Ind. [Filed Sept. 12, 1876.]

Brief.—Two vertically-reciprocating cutter-stocks, each provided with two sets of reversely-shaped cutters, are caused to oscillate to alternately bring first one set of cutters and then the other into position previous to the cut. The lower cutter-stock is raised and held stationary, while the upper one is descending, by reciprocating camways, which act upon friction-rollers dependent from its sliding journal boxes. Lock bolts on segmental pieces attached to the axles of the cutter-stocks enter recesses just before the stocks meet, and serve to hold them immovable while the cut is being made. Feed-rollers intermittingly advance the sheet.



1. The cutter-stocks F and G, each carrying two series of cutters, brought alternately into action from the same direction on the nail-plate in lines at right angles to the plane of the sheet, substantially as set forth.

2. The cutter-stock G, having an oscillating and also a reciprocating vertical movement, by which it is brought up and held stationary under the sheet while the descending cutters are making the cut, substantially as set forth.

3. The cutter-stock G, having two sets of cutters, and having a vertically-reciprocating movement for the purpose of bringing the cutters under the sheet, and also an oscillating movement for bringing the two sets of cutters alternately into action, substantially as set forth.

4. The cutter-stock F, having two sets of cutters, and having an oscillating and also a constant reciprocating movement for bringing the cutters successively into action, substantially as set forth.

5. The cutter-stock G and arms G^1, provided with lock-bolts G^2, received into recesses to hold the cutter-stocks immovable while the cut is being made, substantially as set forth.

6. The combination of the lock-bolts and plates I P, recessed, and carrying plates P^1, for fixing position of the cutter-stock, substantially as set forth.

7. In combination with the cutter-stock G, hung in sliding boxes, the reciprocating ways adapted to raise the cutter-stock, hold it stationary, and then bring it down alternately, substantially as set forth.

8. In combination, the cutter-stock G and sliding boxes E, reciprocating ways D D^3, arm G^3, lever C^1, and connecting-rod C, substantially as set forth.

9. In combination with the cutter-stock F and sliding-boxes E^1, the stirrups C^4, toggles C^2, rod C^3, lever C^1, and connecting-rod C, substantially as set forth.

10. In combination with the cutter-stocks and arms G^1 F^2, the reciprocating bifurcated rods H, connected by studs and slots to give oscillation to the cutter stocks, and at the same time allowing them a reciprocating vertical movement, substantially as set forth.

11. In combination with the intermittent feed mechanism, the cutter-stocks, having both oscillating and reciprocating movements, and duplicate sets of cutters, each set alternately making a cut before the sheet is fed forward, substantially as set forth.

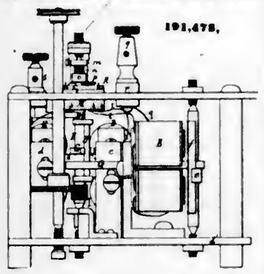
191,478. ELECTRO-MAGNETIC MOTORS. R. J. Sheehy, Boston, Mass. [Filed Feb. 20, 1877.]

Brief.—A coiled spring connects the commutator-spring to the revolving shaft, for the purpose of drawing the commutator-spring over to the next segment of the commutator when the crank has passed the dead point.

1. The four electro-magnets B C D E, their armatures *f*, and the two forks *g*, arranged and applied as described, in combination with the shaft H, its crank *g*, and the current-transferrer K, substantially as specified.

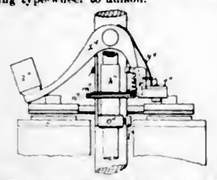
2. The current transferrer composed of the series of inverted segments A, the shaft H, and the arm *p*, connected with each shaft by a helical spring, *s*, as set forth, all being arranged and to operate essentially as specified.

191,479.



191,479. PRINTING-TELEGRAPHS. R. J. Sheehy, Boston, Mass. [Filed Apr. 11, 1877.]

Brief.—Relates to devices for operating type-wheel, and making and breaking main-line circuit; for operating press mechanism; for keeping open circuit of press-magnet while type-wheel is in motion; and for adjusting type-wheel to unison.



1. The combination of the type-wheel b^2, its escapement-wheel c^2, and lever f^2, with the magnet r^2, and its armature h^2, and with the vibratory arm P, the insulated stud s^1, and screw o^2, the switch t^1, buttons r^1 s^1, the electro-motor W, and the series A of keys, and the stop-bar D, all being arranged and applied essentially as set forth.

2. The combination of the slotted lever x^3, the connection-link y^3, pin d^3, and lever x^2 with the press-pad or striker i^2, and the arm s^2 of the armature-shaft f^2, as described, all being arranged and applied substantially as set forth.

3. In combination with the printing-wheel b^2 and its shaft a^2, and the escapement c^2 f^2 for revolving such shaft, the mechanism which keeps open the circuit of the press-magnet w^2 while the type or printing wheel may be in motion, such mechanism consisting of the ratchet-wheel r^2, lever z^2, screw u^2, post v^2, spring y^2, stud x^2, arms a^4 b^4, and springs d^4 d^5, all being constructed and applied and to operate essentially as set forth.

4. The combination of the ratchet-wheel r^2, lever z^2, screw u^2, post v^2, spring y^2, stud x^2, arms a^4 b^4, and their springs, all being arranged and applied as explained, and constituting a mechanism for keeping open the circuit of the press-magnet while the printing wheel may be in motion.

5. The combination for setting or adjusting the type-wheel in unison or due relation with the keys, such consisting of the screw-threaded disk m^4, stud t^4, the lever q^4, teeth r^4, projection s^4, weighted curved lever x^4, and the spring y^4.

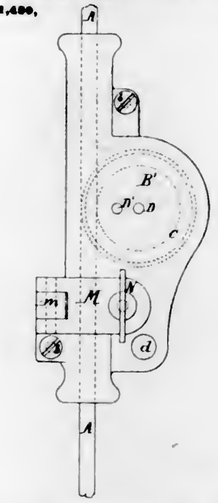
6. In combination with the series A of keys and the type-wheel b^2, provided with mechanism, substantially as described, for revolving and stopping it, as explained, the mechanism for setting or adjusting the type-wheel in unison or due relation with the keys, such mechanism consisting of the screw-threaded disk m^4, the stud t^4, lever q, teeth r^4, projection s^4, weighted lever x^4, and the spring y^4, all being essentially as set forth.

191,480. FIRE-ESCAPES. W. H. H. Sisum, Brooklyn, assignor to H. R. Houghton, New York, N. Y. [Filed May 15, 1877.]

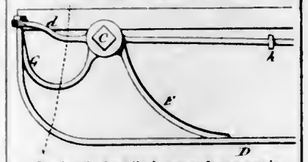
1. The clamp M and screw N, in combination with the stationary wheel or circular part C, grooved as shown, and with a shell or frame having provisions *d* for receiving an attachment to the person, all adapted for use on a rope, A, as a fire-escape, as herein specified.

2. The combination of the rope A, with the parts B^1, B^2, C, D, D', *d*, M, *m*, and N, as and for the purposes specified.

191,480.

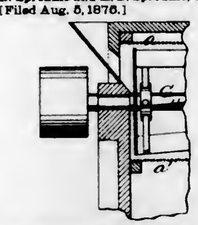


191,481. SLEIGH-RUNNERS. Chas. Smith, New Haven, Conn. [Filed Feb. 20, 1877.]



The herein described runner for converting wheeled vehicles to sleighs, consisting of the tread D, with bifurcated vertical supports E and G, connected to collars *a a*, corresponding to the arm of each axle, and the longitudinal braces *d f*, also connected to the arm of each axle, substantially as specified.

191,482. FLOUR-BOLTING MACHINES. Peter B. Sprenkle and A. B. Sprenkle, York, Pa. [Filed Aug. 5, 1876.]



The combination of the cylinder-screens *a*, the reel-fan provided with the oblique blades and annular guard D, and the feed-hopper delivering into the opening of said annular guard, substantially as specified.

191,483. DUMPING-WAGONS. J. G. Stafford, Washington, D. C. [Filed Apr. 12, 1877.]

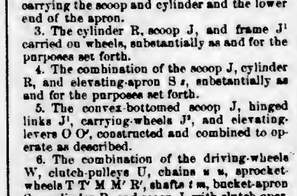
Brief.—The dumping process is performed by the driver raising the lock K, turning the crank-shaft G downward, thus allowing the bottom board to open outward.

1. The combination of the longitudinal winch-shaft I, lock or stop K, bevel-pinions H H', and crank G, for raising the hinged bottom boards, as explained.

2. The transverse crank G, operated by a longitudinal winch-shaft, I, and employed to raise the hinged bottom boards through the medium of double chains E E, as explained.

3. The side or sill beams C, constructed with D shaped brace or bridge-pieces for sustaining the central part of the boards D, and front wheels in turning.

191,483.



191,484. EXCAVATORS. John G. Stafford, Washington, D. C. [Filed Apr. 12, 1877.]

1. The combination of the scoop J and the recessed cylinder R, working within it, constructed and operating substantially as set forth.

2. The frame N, constructed as described, for carrying the scoop and cylinder and the lower end of the apron.

3. The cylinder R, scoop J, and frame J^1 carried on wheels, substantially as and for the purposes set forth.

4. The combination of the scoop J, cylinder R, and elevating-apron S *s*, substantially as and for the purposes set forth.

5. The convex-bottomed scoop J, hinged links J^1, carrying-wheels J^2, and elevating-levers O O', constructed and combined to operate as described.

6. The combination of the driving-wheels W, clutch-pulleys U, chains *u u*, sprocket-wheels T T' M M' R', shafts *t m*, bucket-apron S *s*, cylinder R, and scoop J, with clutch-operating mechanism to impart a simultaneous movement to the excavating and loading apparatus, or throw them out of gear, at the will of the operator.

7. The construction of the frame X', constituting a standard for the support of the upper end of the elevating-apron and its operating mechanism, and a jack to connect the bearings of geared shafts G I, as explained.

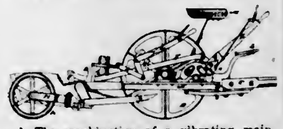
191,485.



1. The metal post A A^1, having ribs *a*, flange *a'*, and connecting-straps C, constructed as described, and provided with braces *c*, substantially as and for the purposes set forth.

2. The post A, having openings B, and connecting straps or pieces C, provided with fence-wire seat *c'* and interior brace or web *c*, substantially as and for the purposes described.

191,486. HARVESTERS. Daniel Strunk, Jonesville, Wis., assignor to Harris Manufacturing Company, same place. [Filed Aug. 1, 1876.]



1. The combination of a vibrating main frame, mounted upon the main axle, a tongue hinged thereto, a cutting apparatus, connected to the main frame by a rolling joint, and devices for adjusting the tongue and main frame, and cutting apparatus and main frame, through the instrumentality of a lever, connected together, but disconnected from the adjusting-lever E, substantially as and for the purpose set forth.

2. The combination of the vibrating main frame mounted on the main axle, tongue C, hinged thereto, angular lever D, linked to the tongue, connecting-rod F, cranked rock-shaft G, carrying the grain-wheel *h*, and cutting apparatus, attached to the main frame by a rolling joint, substantially as described.

3. The combination of the tongue C, hinged to the main frame, lever D, linked thereto, connecting-rod F, rock-shaft G, and independent or disconnected lever E, substantially as described.

4. The combination of the tongue C, hinged to the main frame, rear extension-arm *e*, lever D, link *d*, connecting-rod F, and independent lever E, substantially as described.

5. The combination of the reciprocating connecting-rod F, lever L, link *k*, rake-standard K, and rocking finger-beam I, substantially as described.

191,487.

191,487. SEEDING-MACHINES. Danl. Strunk, Jonesville, Wis., assignor to Harris Manufacturing Company, same place. [Filed Mar. 12, 1877.]

Brief.—Within the feeding case, at the discharge-opening, and on the rigid side of the case, are made corrugations to retard the discharge of the seed. A plate is introduced into the top of the hopper when small seed is to be planted, and extends over a portion of the seed wheel to prevent crushing the seed.

1. A seed case or cup adapted to receive a revolving feed wheel or cylinder, and constructed with a portion of its interior surface corrugated or roughened near the discharge-opening, substantially as and for the purpose set forth.

2. A revolving feed wheel or cylinder, adjustable laterally to vary the quantity of seed discharged, in combination with a seed case or cup having a section of its interior surface corrugated or roughened, substantially as and for the purpose set forth.

3. A revolving feed wheel or cylinder, provided with means for varying the capacity of its seed-discharging receptacles, in combination with a seed case or cup having its discharge-opening elevated somewhat above the lowest point of its interior vertical diameter, and constructed with a portion of its internal surface corrugated or roughened, substantially as and for the purpose set forth.

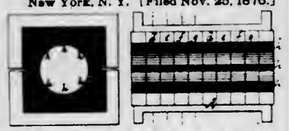
4. The seed case or cup, in combination with a plate or cover, E, adapted to be fitted in the throat of the cup, and extend over a part of the smooth portion of the feed wheel, to reduce friction whenever desired, substantially as and for the purpose set forth.

5. The plate or cover E, constructed with a vertical flange, *e*, at one side, having a curved extension, *e'*, fitting down around the cylinder, and covering the points at the side of the cup, substantially as and for the purpose set forth.

191,488. LUBRICATING COMPOUNDS. G. W. Sweeney, New York, N. Y. [Filed Nov. 25, 1876.]

A lubricating compound made of graphite, collodion, and camphor, mixed together in about the proportion and substantially in the manner herein specified.

191,489. JOURNAL-BOXES. G. W. Sweeney, New York, N. Y. [Filed Nov. 25, 1876.]



A journal-box the bearing-surface of which is formed by the end grains of the pieces of wood which compose its lining, and which is provided with recesses *h*—one or more—for the reception of a dry lubricating compound, substantially as and for the purpose herein set forth.

191,490. LUBRICATING COMPOUNDS. Peter Sweeney, New York, N. Y., assignor to Benjamin Collins, same place. [Filed Nov. 25, 1876.]

A lubricating compound made of graphite and collodion mixed together, substantially in the manner and about in the proportion herein set forth.

191,491. LUBRICATING COMPOUNDS. Peter Sweeney, New York, N. Y., assignor to Benjamin Collins, same place. [Filed Nov. 25, 1877.]

A lubricating compound made of graphite, collodion, and mercury, mixed together in about the proportion and substantially in the manner herein set forth.

191,492. BUTTONS FOR CARRIAGE-CURTAINS. Gregor Trinks and A. Pramann, New York, N. Y. [Filed Apr. 25, 1877.]

The combination, with the shank B, having an attaching-point, *g*, and near its upper end the circular groove *b*, of the hollow head A, having the nipple C, provided with a slot, *a*, the flat spring D, secured in the head, and having its free end resting in the slot *a*, and into the groove of the shank, and the cap F, having the segmental projection *e*, arranged over the nipple of the head, all substantially as and for the purpose described.

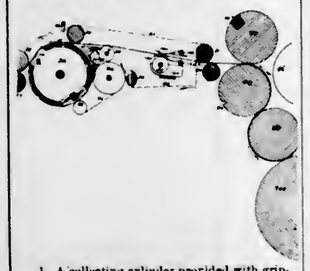
191,492. WRENCHES. Alexander V. Trust, New York, N. Y. [Filed May 10, 1877.]



The combination, in a wrench, of a main jaw, a handle, and a secondary jaw, the main jaw being pivoted to the handle and provided with a mortise, in which the secondary jaw slides, while the secondary jaw engages with a cam-slot in the handle, all constructed and operating substantially as shown and described.

191,494. SHEET-DELIVERY MECHANISMS FOR PRINTING-MACHINES. S. D. Tucker, New York, N. Y. [Filed May 5, 1877.]

Brief.—A web is printed, perforated, and cut into sheets by an automatic progressive operation of rotating devices. The resulting sheets are directed onto a receiving-cylinder, which is supplied with gripers to seize the leading end of each sheet and guide it about the cylinder. This cylinder is supplied with gathering and folding mechanisms. When the gathering mechanism is in action, each sheet is successively carried onto the cylinder, so as to accumulate a body of any desired number thereon, which are delivered in a single mass and piled flat. When the folding mechanism is in action, each sheet received by the cylinder has its center margin delivered before the folding devices, which double and deliver it once folded. The gathering and folding mechanisms may be adjusted for conjoint action, whereby two or more sheets may be collected on the cylinder, and be simultaneously doubled or folded. A pasting apparatus applies a longitudinal or a transverse line of paste to alternate sheets, so that two, when folded, may adhere together upon the desired margins.



1. A collecting-cylinder provided with gripers for seizing and retaining sheets thereon, and with means for propelling said sheets when released from the gripers, all substantially as described.

2. A delivering-cylinder provided with means for collecting many sheets thereon, and with mechanism for folding such sheets, said collecting means and folding mechanism being constructed substantially as described, so that either may be rendered inactive while the other remains operative.

3. The combination, with a revolving carrier supporting a rotating folding-blade, of a flying-cam, for operating said folding-blade at each second or repeated revolution of said carrier, all substantially as described.

4. The combination, with a delivering-cylinder and folding devices, of rocking tapes or rollers 65, all substantially as described.

5. The combination, with a revolving carrier supporting a rotating folding-blade, of interchangeable cam 15 and actuating toothed wheels 18 53, all substantially as described.

6. The combination, with a revolving carrier supporting a folding-blade, of means for automatically rendering the actuating mechanism of the said folding-blade inoperative at any given time or times of the passage of said folding-blade past its co-operating folding device, all substantially as described.

7. The combination, with a delivering-cylinder, provided with means for collecting two or more sheets thereon, and mechanisms for folding the same, of means for propelling the leading end of the sheet or sheets until the desired number are collected, which means is automatically thrown out of action to free said leading end when the body of sheets are folded, all substantially as described.

8. The combination, with a delivering-cylinder, provided with means for collecting two or more sheets laid one upon the other in succession thereon, of means for pasting one or more of said sheets, and means for simultaneously folding the same sheets, all substantially as described.

9. A collecting-cylinder, provided with means for receiving sheets at one point, and with means for delivering sheets at two points, all substantially as described.

10. The combination, with a rotating folding mechanism and a longitudinally-pasting mechanism, of a sheet-guide, for automatically moving the sheet or web into and out of contact with said pasting mechanism, all substantially as described.

11. The combination, with a paste-fountain roller and the delivering-cylinder, of a rotating paste-blade and mechanism for accelerating and retarding the movement of said paste-blade, so that it shall travel with the same speed as the surface of the delivering-cylinder in applying a transverse line of paste to the paper carried by said delivering-cylinder, and be carried into contact with the fountain-roller, so as not to sweep over its face, all substantially as described.

12. The combination, with the delivering-cylinder and paste-fountain roller, of the revolving paste-blade 59, rock-arm 102, and actuating-cam 103, substantially as described.

13. A cylinder provided with a cutting-blade and a perforating-blade, the said perforating-blade being removable, substantially as described.

14. The combination, with the cylinder 30 and sheet-directing tapes 61 62, delivering the sheets directly to the cylinder, of the fixed guides 108, substantially as described.

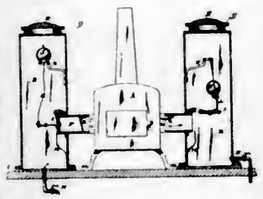
15. The combination with the cylinder 30, sheet-directing switch, and fixed guides 108, arranged together so as to conjointly guide the sheets, substantially as described.

16. The combination of the toothed wheels 18 53 with plates 131, substantially as described.

17. A delivering-cylinder, provided with mechanisms substantially as described, whereby it operates continuously as a collecting-cylinder, and intermittingly as a folding mechanism, all substantially as described.

18. The combination with a rotating folding mechanism, a rotating web-cutting mechanism, and interposed carrying-tapes, which move at a greater surface-speed than the cutting mechanism, all substantially as described.

191,495. FIRE-EXTINGUISHERS FOR CAR-STOVES. J. M. Van Dyke, Mason, Ohio. [Filed Mar. 31, 1877.]



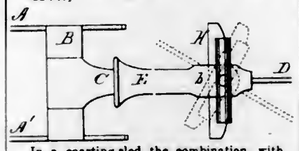
1. The combination, with a car or steamboat stove, of a pair of tanks, B B′, higher than, and on opposite sides of, the stove, with which they communicate by passages F, closed by valves I, having a chain or other flexible connection, K, with a ball or heavy mass, J, supported in annular bracket N, from which said mass is readily displaced by any violent disturbance, substantially as set forth.

2. The combination of elevated annular bracket N and ball J, connected by chain or cord K with an arm, L, extending from a valve, I, that closes the passage F from tank B into a car or steamboat stove, substantially as and for the purpose set forth.

3. In combination with valve I, closing the passage F into a railway stove, the spring M, as and for the object designated.

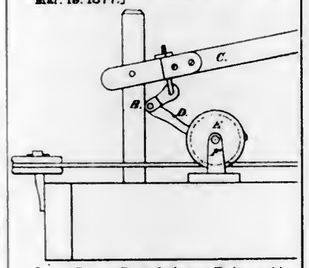
4. The described combination of valves G and I with passage F and automatic releasing mechanism N J K L, for the objects set forth.

191,496. COASTING-SLEDS. Charles R. Van Hoesen, New York, N. Y. [Filed Apr. 4, 1877.]



In a coasting-sled, the combination, with the runners A A′ attached to transverse bar B, the reach bar C, and elevated seat E, of the horizontally-vibrating front supporting-runner D with guide foot-rest H journaled in the free end of said bar, and a handle for operating the same, substantially as specified.

191,497. APPARATUS FOR RAISING AND LOWERING THE REELS OF GRAIN-HEADERS. Clinton A. Weed, Racine, Wis. [Filed Mar. 19, 1877.]



Lever C, arm D, and sheave E, in combination with rope H, substantially as and for the purpose specified.

191,499. GAS-BURNERS. H. A. Whitney, Cincinnati, Ohio. [Filed Apr. 4, 1877.]

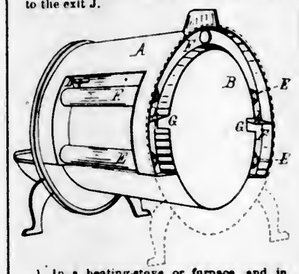


1. A gas regulating or controlling check or strainer, B, attached to or prolonged from the lower end of the tip A, closed at bottom, and having, some distance above the bottom, a series of minute perforations, *b*, whose combined area is less than that of the outlet, substantially as and for the purposes set forth.

2. The gas-tip A, Fig. 3, whose lower portion, within the pillar, is closed at bottom, and communicates with the gas-supply through minute orifices, *b*, in its vertical wall, substantially as set forth.

191,499. HEATING-STOVES. Thos. White, Quincy, Ill. [Filed Mar. 15, 1877.]

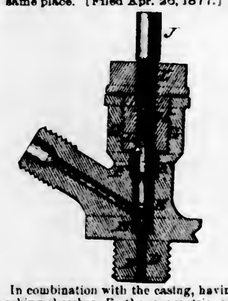
Brief.—Dampers D and I being closed, the draft will be from the rear of the fire-chamber, through the lower flue E to the front, and thence to the rear through upper flue E. Damper I only being closed, the products pass, at D, into the upper flue E, and thence to the exit J.



1. In a heating-stove or furnace, and in combination therewith, and with the fire-box or combustion-chamber and radiating chambers and flues outside said combustion chamber, the system of dampers and openings described, for affording communication between said combustion-chamber and said radiating-chambers and flues, either at the front or rear of the combustion-chamber, substantially as and for the purposes specified.

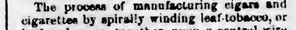
2. In a heating-stove or furnace and in combination therewith, the shell A, fire-box B, outside chambers C C F F, dampers D D I, openings G G, outside flues E E, and plates A A, arranged to operate substantially as and for the purposes described.

191,500. VALVES. S. Lloyd Wiegand, Philadelphia, Pa., assignor to Saml. S. White, same place. [Filed Apr. 26, 1877.]



In combination with the casting, having the packing-chamber F, the concentric screws, turning in opposite directions, and the valve M, having screw-threaded stem J K, substantially as and for the purpose set forth.

191,501. MANUFACTURE OF CIGARETTES. Asa Willis, Brooklyn, N. Y. [Filed Mar. 29, 1877.]



The process of manufacturing cigars and cigarettes by spirally winding leaf-tobacco, or leaf and scrap together, upon a central wire or mandrel, subsequently withdrawing said wire, and cutting the roll so wound into lengths, substantially as and for the purpose set forth.

191,502. COMBINED TRUCK AND BAG-HOLDER. Daniel S. Wing, Rome, N. Y. [Filed Apr. 26, 1877.]

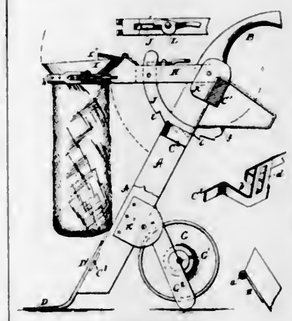
1. The combination, with the main frame, of the shoe or stirrup D, the hinged truck G G′ G², with journals *a*, and the plates or cheek-pieces E′, all constructed substantially as and for the purposes herein set forth.

2. The cross-bar G², formed with the open slot *b* and the slotted arm *d*, in combination with the arm H and the curved ratchet-bar J, all substantially as set forth.

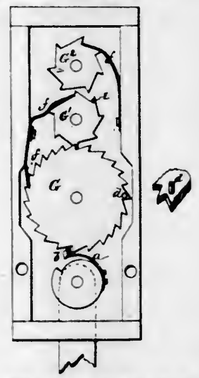
3. The combination, with the truck-frame, of the hinged arm H, carrying the hopper I, the cross-bar G², hinged and curved ratchet-bar J, and the eccentric lever L, all substantially as set forth.

4. The hopper I, provided with top flange I′ and bottom flange *h*, for the purposes herein set forth.

191,503.



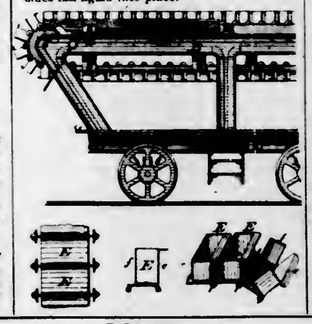
191,503. GRAIN-TALLIES. P. S. Wiseman, Toledo, Ohio. [Filed Mar. 26, 1877.]



The wheel I, cut out on one side, and provided with the spring *a* and lug *b*, in combination with the ratchets G G′, having pins *d e*, the ratchet G², the dials and fingers, and the branched discharge-spout A, having valve C, all constructed substantially as set forth.

191,504. MACHINES FOR MAKING BRICKS, TILES, &c., FROM SLAG OR SCORIA. Jos. Woodward, Bedall, England. [Filed Sept. 1, 1875.]

Brief.—The slag or scoria runs directly from the spout from the furnace into the molds as they pass along, and as each, in advancing, turns over the roller, the sides fall asunder and allow the brick to fall. In returning to an upright position over the other rollers the sides fall again into place.

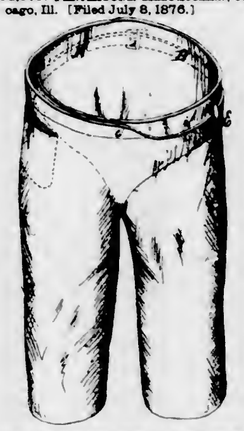


1. In a machine for making bricks, tiles, &c., the combination of the molds E, having the side *f* rigidly attached to the base-plate and the side e hinged to such base-plate, the base-plate of all the molds being joined together to form an endless chain, substantially as described and shown.

2. The construction of the truck or trolley, with the wrought-iron frame supporting the two rollers, substantially as set forth and described.

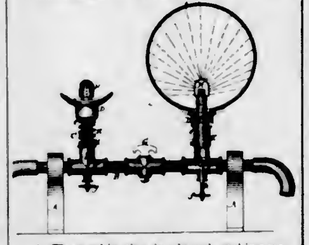
3. The combination and arrangement of the endless chain of molds with the truck or trolley, substantially as and for the purposes set forth and described.

191,505. PANTALOONS. Isaac Zoellner, Chicago, Ill. [Filed July 8, 1876.]



The combination, in a pair of pants or drawers, of the overlapping flaps, extending from the crotch in front to the respective hips, and the extensions of said flaps passing to the rear, and adapted to be secured around the waist at the rear, substantially as herein set forth.

191,506. BARREL-WASHERS. Albert Zoller, Hoboken, N. J. [Filed May 2, 1877.]

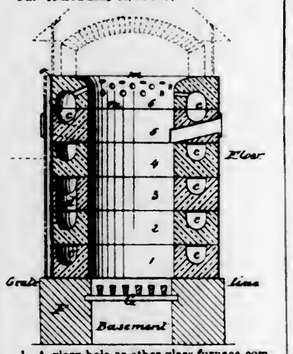


1. The combination, in a barrel washing machine, of a main or supply pipe, a stationary pipe, C, rising from the same and carrying the rose head H, a spring-supported barrel-holder, D, arranged to move upon the stationary pipe C, and a check-valve, F, arranged in the latter, and a rod or rods connected with the check-valve, and adapted to connect with the sliding barrel-holder on the vertical stationary pipe, substantially as and for the purpose described.

2. The combination of two standards, A A, a horizontal supply-pipe, B, two or more vertical stationary pipes, C, having roses H, and rising from the supply-pipe, the spring-supported barrel-holder D, arranged to slide on the stationary pipes C, the check-valves F in the latter, and rods *g* and *h*, connected with the check-valve, and upon which the barrel-holders bear, substantially as and for the purpose described.

3. The combination of a main or supply pipe, B, two or more stationary vertical pipes, C, connected with said main or supply pipe, and a check-valve, G, arranged in the main or supply pipe, substantially as and for the purpose described.

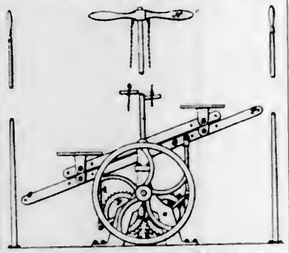
191,507. GLASS-FURNACES. Danl. Bennett, Baldwin Township, Allegheny County, Pa. [Filed May 11, 1877.]



1. A glory-hole or other glass-furnace composed entirely or in part of sections having channels intercommunicating or otherwise equivalently formed, so as to receive air at the bottom and convey the same once or more times around the body of the fire, and discharge the same at the top in a highly-heated state to mingle with the products of combustion, substantially as and for the purposes set forth.

2. In combination with a furnace constructed with intercommunicating circuitous channels, as described, a grate located below the floor at a depth greater than the height of the furnace above the floor, substantially as shown and described.

191,508. MOTORS. Gaston E. B. Bosarian, Paris, France. [Filed May 18, 1877.]

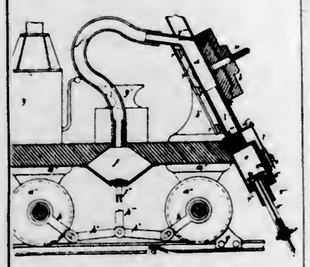


1. A motive-power consisting of balanced levers, in combination with pedals arranged for operation, substantially as herein shown and set forth.

2. In combination with pedals mounted upon balanced levers, of standards or supports, substantially as and for the purposes set forth.

3. Pedals mounted in pairs upon three parallel levers, in the manner shown, or otherwise in equivalently the same manner, whereby the substantial parallelism of the pedals is maintained during the operation, as herein set forth.

191,509. ROCK-DRILLING ENGINES. Wm. H. Elliot, New York, N. Y. [Filed May 11, 1877.]



1. The combination of braces *g*, provided with joints *g''*, or their equivalents, with the gibways and with a car, substantially as and for the purpose specified.

2. The construction of the hollow vertical shaft *d*, provided with flanges, which are fitted to, and combined with, gibways, substantially as and for the purpose specified.

3. The arrangement of the lifting-rope *m*, in connection with shaft *d*, gibway *c*, pulley *m''*, and the axis of the bearing *b''*, substantially as specified.

4. The opening through the piston-rod and the drill-tool, in combination with pump *f* and air-passage *f''*, whereby the same pump is made to operate the rock-drill and to blow out the chips, substantially as and for the purpose described.

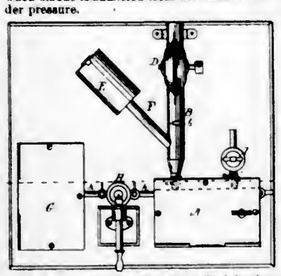
5. The elongation or shank *t* extending up from the rock-drill cylinder, in combination with a guide or way, *d'*, when said guide is made adjustable on axes *x* and *b''*, and supported upon a car, as and for the purpose specified.

6. The strap *r'*, in combination with the screws *r*, provided with elongated heads, with the adjustable gib and with the shaft *d*, substantially as and for the purpose specified.

7. The combination of the crown-wheel and cylinder *s*, points *s'*, slide *s''*, with its pin projecting into the cylinder, and rope *t*, with a rock-drill, whereby the same is supported and fed downward, substantially as specified.

191,510. APPARATUS FOR CURING MEAT UNDER PRESSURE. Nathaniel G. Simonds and E. M. Stevens, Boston, Mass. [Filed Mar. 7, 1877.]

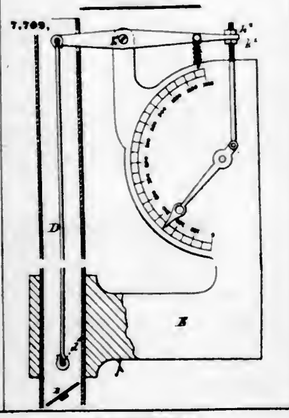
Brief.—Salts and smokes meats in the same vessel, without removal, by creating a vacuum, and then admitting brine under pressure. The brine is drawn off, and a vacuum again formed, when smoke is admitted from the furnace under pressure.



In the preservation of meat by the injection of brine under vacuum, the combination of apparatus consisting of the tanks A and G, connected by pipes and force-pump H, valves *h h*, exhaust-pump I, blower D, furnace E, pipes F and B, and valves *c* and *b*, by which the meat can be preserved by one continuous process.

REISSUES.

7,709.



1. The combination of the check F' and F², as and for the purpose set forth.

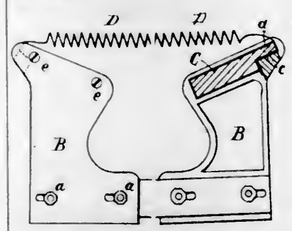
2. The draw-bar B, in combination with the vertical spring B', as and for the purpose described.

3. The draw-bar B having guard E, in combination with check F' and F², as and for the purpose shown and described.

4. The hook A, pivoted on swinging plate A', draw-bar B, bow-spring D, and check F' and F², combined, arranged, and operated, as shown and described, and for the purpose specified.

7,704. BEDSTEAD-FRAMES. J. M. Farnham, Hartford, Conn., assignor to Woven Wire Mattress Company, same place. Patent No. 97,375, dated Nov. 30, 1869. [Filed Mar. 26, 1877.]

Brief.—The inclined position of the end bars allows the fabric to be held securely with but slight contact between them, and the longitudinal adjustment of the end standards provides for the adjustment of the tension of the fabric.



1. The combination of the side bars and end bars and elastic coiled-wire fabric D, attached only to the end bars, with the end bars of the frame elevated above the side bars, so that the fabric will be suspended above the side bars from end to end of the frame.

2. The combination, in a removable bed-bottom or bedstead-frame, of the side bars A, standards or corner-pieces B, end bars C, and the elastic fabric D, combined and arranged substantially as and for the purposes specified.

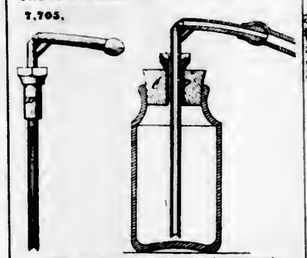
3. The inclined double end bars C of a bedstead-frame, arranged substantially as and for the purpose herein shown and described.

4. The standards B, constructed as described, arranged longitudinally adjustable on the side bars of a bedstead-frame, to permit the inclined end bars to be set a suitable distance apart, as set forth.

7,705. ATOMIZERS. James J. Essex, Newport, R. I. Patent No. 116,286, dated June 27, 1871. [Filed Jan. 24, 1877.]

Brief.—The liquid-tube is embraced by an outer tube, which carries a drip-cup, so that both tubes pass through the same hole in the cork of the bottle.

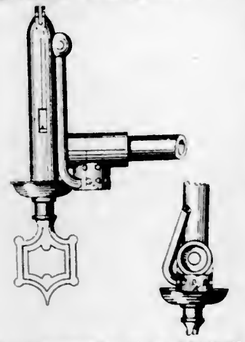
7,705.



1. The combination, with the jet or suction tube of an atomizer, of an attached external vent passing through the same opening in the stopper as the jet or suction tube, substantially as described.

2. The combination, with the suction or jet tube of an atomizer, of an attached external vent passing through the same aperture in the stopper as the said suction or jet tube, and provided with a drip-cup leading into and forming part of the vent-tube, substantially as herein set forth.

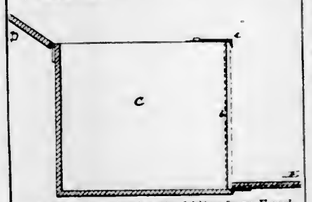
7,706. VAPOR-BURNERS. L. Fischer, Brooklyn, N. Y., assignor to A. H. Watkins, Boston, Mass. Patent No. 88,287, dated Mar. 30, 1869. [Filed Apr. 24, 1877.]



In a vapor-burner, a tube or passage arranged to conduct a portion of the oxygenized vapor from the mixing or gas chamber to a point below its communication with said gas chamber for heating purposes.

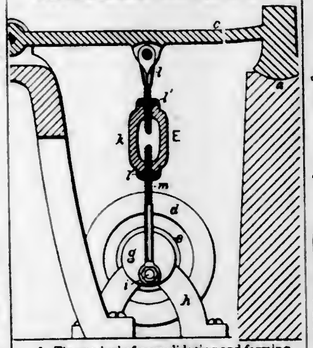
7,707. CIGAR-BOXES. Carl Glund, New York, N. Y., assignor, by mesne assignments, to Lichtenstein Bros. & Co., same place. Patent No. 184,039, dated Nov. 7, 1876. [Filed Apr. 3, 1877.]

Brief.—The front lid of the box is held in place by catches upon the upper edges of the ends, so that it can be operated independently of the cover.



A cigar-box, having the folding front E and folding cover D combined with the pivoted catches *c*, that connect the ends C of the box with the folding front, so that the front cannot be folded down, when locked by said catches, which catches do not interfere with the motion of the cover, substantially as herein shown and described.

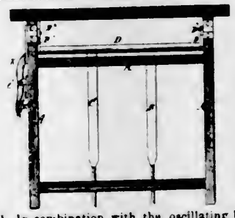
7,708. MACHINES FOR SHAPING HEEL-STIFFENERS FOR BOOTS AND SHOES. John Kimball, Boston, Mass. Patent No. 131,957, dated Oct. 8, 1372. [Filed Mar. 11, 1874.]



1. The method of consolidating and forming heel-stiffeners, in a concave anvil, by the impact of a series of blows of a convex-faced hammer automatically delivered in an unvarying direction relatively to such anvil and stiffener, substantially as described and shown.

2. The heel-stiffener machine, substantially as described and represented, and for the purpose specified, and consisting of the cranked shaft D, connecting-rod E, the helve or shank *c*, convex-faced hammer *b*, and the anvil or post A with its concavity *a*, all combined, arranged, and constructed with a support or frame, C, and provided with suitable pulley, as set forth and shown.

7,709. GRAIN-DRILLS. Benjamin Kuhns, Dayton, Ohio. Patent No. 116,719, dated July 4, 1871; reissue No. 5,432, dated June 3, 1873. [Filed Feb. 5, 1876.]



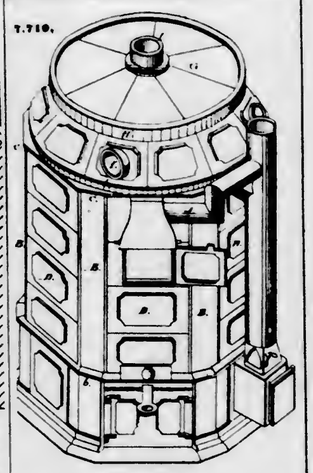
1. In combination with the oscillating bar D, to which the changeable drag-bars are hitched, and its arms D' D', the studs *e* and *e'*, which play through the side beam of the frame, and are retracted and projected by means such as described, or equivalent means, all operating in the manner set forth.

2. In a shifter for grain-drills, the single oscillating bar D, pivoted to stud D², projecting above the main frame, and operated by the handle D², substantially as and for the purpose set forth.

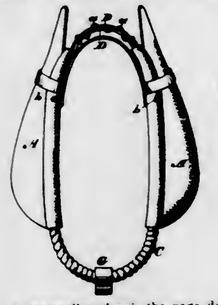
3. In a grain-drill, the combination of an oscillating bar, to which a portion of the drag-bars are attached, and locking bolts or pins, arranged substantially as described, for the purpose of holding the oscillating bars in position, as set forth.

4. The stationary beam A' and drag-bars B, in combination with the oscillating bar D, pivoted to studs D², projecting above the main frame, and the adjustable drag-bars C, substantially as and for the purpose set forth.

7,710.



7,711. HORSE-COLLARS. Marshall Turley, Council Bluffs, Iowa. Patent No. 173,602, dated Feb. 15, 1876. [Filed Mar. 13, 1877.]



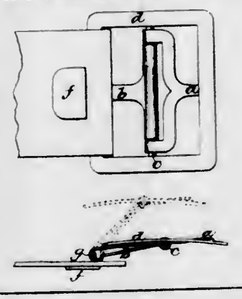
1. A horse-collar wherein the pads do not meet each other at their lower ends, and are combined with a hame-rim having a rope foundation extending between the ends of the pads, for rendering the collar flexible, for the purposes set forth.

2. In a horse-collar, the pads A A, adjustable on a flexible rim, C, for the purposes herein set forth.

3. The combination of the flexible rim C, adjustable pads A A, straps D D, and lacing *a*, substantially as and for the purposes herein set forth.

4. The loop G, in combination with the flexible rim C and adjustable pads A A, for the purposes herein set forth.

7,712. BUCKLES. Barker C. Young, Boston, Mass. Patent No. 162,211, dated Apr. 20, 1875. [Filed Jan. 6, 1877.]



7,713. HOT-AIR FURNACES. J. Magee, Chelsea, assignor to the Magee Furnace Company, Boston, Mass. Patent No. 145,612, dated Dec. 16, 1873. [Filed Feb. 14, 1876.]

1. The combination of the casing formed of removable separate panels of non-conducting material, secured in grooved posts B, with the fire-pot or radiator of a hot-air furnace, substantially as set forth.

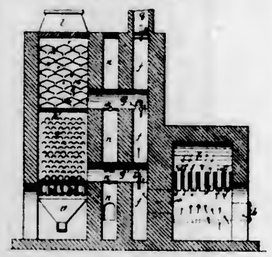
2. The combination of the outer casing formed of the grooved posts B and removable panels D, of soap-stone or other suitable non-conducting material, with the fire-pot A and the intervening casing C, substantially as set forth and shown.

1. A buckle-frame having a central cross-bar, and a tongue pivoted thereto, combined with a hook pivoted at one end to said cross-bar, and at the other end to an attaching-plate, *f*, substantially as and for the purpose specified.

2. A buckle-frame having a central cross-bar, and a tongue pivoted thereto, combined with a hook pivoted at one end to the cross-bar, independently of the tongue, and at the other end to the attaching-plate *f*, having the eye *g* secured at one side thereof, as set forth.

7,713. GRAIN-DRIERS. Lewis S. Chichester, Brooklyn, N. Y., assignor, by mesne assignments, to Geo. H. Nichols and C. W. Mills, New York city. Patent No. 66,793, dated June 18, 1867. [Filed May 18, 1877.]

Brief.—The products of combustion, mingled with heated air, pass horizontally through the grain by means of the open arches or half-tubes extending therethrough.



1. The combination of the chamber or receptacle *k* and the inverted trough extending across the chamber, and communicating at the inner ends with passages leading from a fire-place, and at the opposite ends with a flue or chamber, *s*, whereby the heated gases are passed directly over surfaces formed in the body of the material, and the volatile products are carried directly from the material to the chamber *f*, substantially as specified.

2. The combination, with the shaft or chamber *k* and its transverse troughs, of passages arranged to conduct cold air through the lower series of tubes, substantially as set forth.

3. The chamber above the fire, combined with the inlets for admitting air in large volumes, that it may descend and mingle with the products of combustion, and pass with the same into the shaft or chamber *k*, substantially as and for the purposes specified.

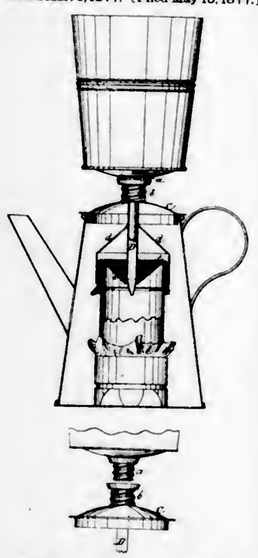
4. The arrangement of the hot and cold air flues *f s*, trunks *g* or *g'*, and valves *l P* and *m m'*, for regulating the temperature of the air passing into the chamber *k*, substantially as specified.

5. A series of half-pipes crossing the chamber *k*, and opening at or near both ends into chambers or flues, as set forth.

7,714. COMPOSITION GLUES. Jas. H. Craig, Philadelphia, Pa. Patent No. 177,474, dated May 16, 1876. [Filed Mar. 19, 1877.]

The adhesive composition herein described, consisting of glue, dry white lead or precipitated chalk, or both, and with or without carbolic acid, in substantially the proportions specified, and in the manner set forth.

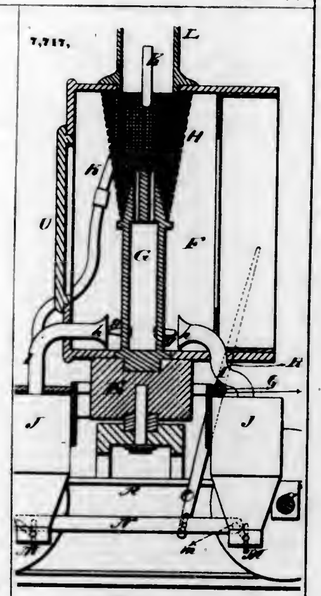
7,716. COFFEE-POTS. R. L. Nelson, Orange Court-House, Va. Patent No. 188,025, dated Mar. 6, 1877. [Filed May 15, 1877.]

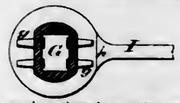


1. The improved process of making coffee beverage, consisting in causing the water to pass through a small orifice, and thereby drip or fall in drops into a receptacle containing the ground coffee, so that it becomes disseminated and percolates slowly through the entire mass, as and for the purpose hereinbefore set forth.

2. The combination of a water-reservoir having a central drip-orifice, D, a coffee-pot, and coffee-holder, all arranged as shown and described, to operate as specified.

7,717. SPARK-ARRESTERS. J. N. Weaver, Waverly, N. Y. Patent No. 188,436, dated Oct. 17, 1876. [Filed Jan. 27, 1877.]





1. A spark-receiver, into which sparks are forced by a jet of steam, located beneath the smoke-box, and provided with suitable openings for the escape of steam, substantially as and for the purpose set forth.

2. The combination of an exhaust-nozzle, a steam-jet, a spark-receiver, provided with openings for the escape of steam, and a pipe between said jet and receiver, substantially as described.

3. Spark-receiver J, in combination with steam-conducting pipe K, smoke-stack L, and exhaust nozzle G, whereby the steam is drawn from said spark-receiver, substantially as set forth.

4. The combination of receivers J J with valves M, crank-arms *n n*, connecting rod or bar N, arm O, rocking sleeve or shaft Q, and operating-lever R, substantially as set forth.

5. The combination, with receivers J, of steam-conducting pipe K, having lower bell-shaped mouth *k* and wire-screen K', and with exhaust-nozzle G and smoke-stack L, substantially as and for the purpose set forth.

7,718. FELT FABRICS. Edward Sealy, Newark, N. J., assignor to P. A. Dailey, New York, N. Y. Patent No. 90,198, dated May 18, 1869. [Filed Apr. 27, 1877.]



1. The process of incorporating with a body of loose fibers or fleece a series of yarns, and then securing the two together solely by felting, substantially as described, forming a fabric in which the felt-fibers and the yarns jointly produce an ornamental face, as specified.

2. The combination, in a felt fabric, of a body of felt and a series of yarns united in a net, inserted in and incorporated with the body solely by felting, and with the body constituting the ornamental face of the fabric, substantially as set set forth.

3. As a new article of manufacture a felt fabric consisting of a body of felt and a series of pattern-yarns incorporated in and with the body, and forming therewith an ornamental face, as set forth.

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COMMISSIONER'S DECISIONS.

C. W. SIEMENS.—*Interlocutory appeal.*

[*In the matter of the application of Charles W. Siemens for Letters Patent for* "IMPROVEMENT IN THE MANUFACTURE OF IRON AND STEEL," *filed August* 11, 1876.—*Decided June* 7, 1877.]

The domestic application for an invention already patented abroad, need not be restricted to precisely the same subject-matter as the foreign grant.

It must, however, be divided if found to conflict with the rule respecting duplex applications.

If the domestic application is for the same subject-matter as the foreign patent, with immaterial variations, the requirement that the patent granted shall be "limited to expire at the same time with the foreign patent" will be strictly followed, and the limitation be made directly upon the face of the instrument.

Where new features are introduced, and are in combination with those contained in the foreign patent, such limitation cannot be made; but in event separate claim is laid to matter set forth in the foreign patent, specific mention by date and number of such patent must be entered in the domestic specification.

A domestic application made up from a number of foreign patents will be divided for the purpose of restricting the term if the subjects-matter separated are not properly in combination.

Section 4887, Revised Statutes, construed as an exception to section 4884, with respect to the term of patent grants, and the language of the section, "so limited as to expire," held to require that the limitation shall appear upon the face of the patent.

[*C. S. Whitman*, for applicant.]

DOOLITTLE, *Acting Commissioner:*

The question herein involved is substantially as follows:

Does our statute contemplate that a foreign patentee should, in making an application for a patent here embracing the same invention, restrict his American application to precisely the same subject-matter covered by his foreign patent, subject, of course, to our rule requiring a division of the application should the foreign patent be duplex?

Section 4887 provides—

> No person shall be debarred from receiving a patent for his invention or discovery, nor shall any patent be declared invalid by reason of its having been first patented or caused to be patented in a foreign country, unless the same has been introduced into public use for more than two years prior to the application. But every patent granted for an invention which has been previously patented in a foreign country shall be so limited as to expire at the same time with the foreign patent, or, if there be more than one, at the same time with the one having the shortest term, and in no case shall it be in force more than seventeen years.

The only restriction here placed upon the patent granted in this country for an invention patented abroad and not in previous use here for more than two years, is the limitation as to the time of its duration. The requirement is not made that the American patent shall be restricted to the same matter covered by the foreign patent; and in view of the wide difference in the modes of examination, especially between England and this country, it would be entirely impracticable, in the majority of instances, to attempt to confine the American patent to the precise matter covered by the foreign patent.

Occasionally the same subject-matter, with immaterial variations, will be included in the domestic application. In such cases the direction of the statute should be followed, and the patent "limited to expire at the same time with the foreign patent."

Where, in the domestic application, new features are added to those of the foreign patent, and in combination therewith, a limitation of the grant cannot be made; but at the same time in such case, as well as in all others of this class, specific mention should be required to be made in the domestic specification, if the matter is separately claimed, of the part patented abroad, particular reference being had to the date and number of said foreign patent. Where the proper restriction in the grant can be accomplished by a division of an application which may be composed of several foreign patents of different dates, such division should be required where the subjects-matter of the separate foreign patents are not used to form a combination in the domestic application.

Section 4887 must be regarded as establishing an exception to the requirement of section 4884, providing that every patent should be for the term of seventeen years.

The act of 1870 did not require, in terms, a limitation of the grant, but simply provided that the domestic patent should expire at the same time with the foreign

patent granted for the same invention. But the Revised Statutes, in requiring that the domestic patent "shall be so limited as to expire," &c., seems to imply that the limitation shall appear upon its face.

It may be contended, as was held in the O'Reilly and Morse case, (15th How.,) that a patent not so limited on its face would not necessarily be invalid, although not exempt from the operation of the statute; still, as the present statute is mandatory in its terms, and its object is the protection of the American public by giving to it a foreign invention no longer monopolized abroad, it is deemed the duty of the Office in all practicable cases to comply strictly with the letter of the law and make the limitation in the grant.

It has been held also that the act of 1870 introduced a new principle as to this matter. Thus, the sixth section of the act of 1839 provided that in all cases of this kind the domestic patent should be limited to the term of fourteen years from *the date or publication of such foreign letters patent*. This proviso was amended by the operation of the sixteenth section of the act of 1861, to the extent that patents thereafter granted and embraced within such proviso should extend for the new term of seventeen years from the date of the foreign patent. But the act of 1870 (and the Revised Statutes) provided that the American patent *should expire at the same time with the foreign patent*, and not in any case exceed a term of seventeen years. (*Weston* vs. *White*, 9 OFFICIAL GAZETTE, 1196.)

In restricting the grant in these cases, calculation should be made of the length of time the foreign patent has to run from the date of its issue here, and the limitation in the title be made accordingly.

To facilitate the proper restriction to be made in the grant where the domestic patent is to be limited, examiners should enter on the file wrapper, upon the allowance of a patent, the fact that a foreign patent has been granted, and the date of the same, or, if more than one, the date of the earliest to expire.

The case in hand will be disposed of in accordance with the above suggestions.

DECISIONS OF THE COURTS.

SUPREME COURT OF THE UNITED STATES.

JOSHUA MERRILL, APPELLANT, vs. DAVID M. YEOMANS AND DANIEL J. GOSS, AS D. M. YEOMANS & GOSS.

[*Appeal from the Circuit Court of the United States for the District of Massachusetts.—Decided October Term*, 1876.]

A patent for a process is not infringed by the sale of an article similar to that produced.

The claims in a patent are to be considered as distinct from the description contained in the specification, and as representing what part of the matter described the patentee *claims* as his invention, and for which he asks protection.

Inventions or discoveries are usually improvements upon some existing article, process, or machine, and are only useful in connection with it. It is necessary, therefore, for an applicant to describe that upon which he engrafts his invention, as well as the invention itself.

When the invention is of a new combination of old devices, it is necessary to describe with particularity all the old devices, and then the new mode of combining them.

While it is essential that the specification should describe such matters, both old and new, as are necessary to an understanding of the invention, the claim must contain a distinct and specific statement of what the applicant claims to be new and of his invention.

One who proposes to secure a monopoly of certain inventions at the expense of the public should set forth with clearness and precision the thing which no one but himself can use or enjoy without paying him for the privilege of doing so.

In a claim to "the above described new manufacture of the deodorized heavy hydrocarbon oils suitable for lubricating and other purposes, free from the characteristic odors of hydrocarbon oils, and having a slight smell like fatty oil, from hydrocarbon oils, by treating them substantially as is hereinbefore described," the word "manufacture" may be used to express the process or the product thereof, but when taken in connection with the words "by treating them substantially as is hereinbefore described," it renders the claim in effect to the *new mode of manufacturing hydrocarbon oils by treating them as hereinbefore described*.

The inventor of an article is entitled to protection therefor, however produced, and there is no reason why an applicant for a patent, if he had in his mind a claim for the article produced, should limit his claim by a description of the process.

The courts are inclined to give a patentee the benefit of a liberal construction of the patent, and when it appears that a valuable invention has really been made, to uphold that which was invented, and which comes within any fair interpretation of the claim; but when there are three inventions described, and but two claims made, each of which is valid and for the invention described therein, the court cannot give effect to the third invention, which the patentee has failed to claim.

The developed and improved condition of the patent law, and of the principles which govern the exclusive rights conferred by it, leaves no excuse for ambiguous language or vague descriptions. The public should not be deprived of rights supposed to belong to it without being told what it is that limits these rights.

The interests of the public demand that the claims in a patent should clearly and distinctly define and limit the actual invention claimed by and secured to the patentee.

Mr. Justice MILLER delivered the opinion of the court:

The appellant in this case, who was complainant in the circuit court, obtained a patent, in May, 1869, for a new and useful invention, which relates to the heavy hydrocarbon oils, and he sued the appellees, who were defendants in that court, for an infringement of his patent.

The defendants were dealers in oils and not manufacturers of them. If the appellant's patent was for a new oil, the product of a mode of treating the oils of that character which he describes in his application, the defendants may be liable, for they bought and sold, without license or other authority from him, an oil which is proved to be almost if not quite identical with the one which he produced. If, however, appellant's patent is only for the mode of treating these oils invented and described by him—in other words, for his new process of making this new article of hydrocarbon oil—then it is clear the defendants have not infringed the patent, because they never used that process, or any other, for they manufactured none of the oils which they bought and sold.

The counsel for appellant here maintain that his patent is for the new article, and is not for the process, though he describes it fully, by which that article is produced. The appellees insist with equal earnestness that the patent is exclusively for the process by which the new oil is made.

The issue thus presented must be decided solely upon a correct construction of the plaintiff's patent, and the accompanying specifications, in which, as required by the act of Congress, he makes the statement of his invention.

No such question could have arisen if appellant had used language which clearly and distinctly points out what it is that he *claims* in his invention.

We use the word claim as distinct from description. It must be conceded that the appellant's specification describes with minuteness and precision both the instrumentality and the process by which he makes the oil in question. And in regard to a part of the apparatus which he uses he makes a distinct claim for its invention, and that is not in dispute here. He also describes with fullness and accuracy the process of distillation by which he produces this oil. He gives the temperature to be used, the mode of heating, the degree of rapidity or delay to be used in distilling, the introduction, and the advantage of that introduction, of superheated steam into contact with the oils to be distilled during the process.

He also describes, though in short terms, the article produced, the main feature of which he declares to be its freedom from the offensive odor which, before his invention, seemed to be an inseparable quality of those oils; and he mentions some of the more important uses to which this deodorized oil is applicable in the arts.

It is fairly to be inferred from this statement that if all which is described as new in these specifications is really so, the inventor has a right to a patent for three inventions:

1. For a modification or improvement in the distilling apparatus.

2. For a new process or mode of distilling heavy hydrocarbon oils, by which they are deprived of their offensive odors.

3. For the product of this new process of distillation, namely, the deodorized heavy hydrocarbon oils fitted for use in the arts.

When a man supposes he has made an invention, or discovery useful in the arts, and therefore the proper subject of a patent, it is nine times out of ten an improvement on some existing article, process, or machine, and is only useful in connection with it. It is necessary, therefore, for him in his application to the Patent Office to describe that upon which he engrafts his invention, as well as the invention itself, and in cases where the invention is a new combination of old devices he is bound to describe with particularity all these old devices, and then the new mode of combining them, for which he desires a patent. It thus occurs that in every application for a patent the descriptive part is necessarily largely occupied with what is not new, in order to an understanding of what is new.

The act of Congress, therefore, very wisely requires of the applicant a distinct and specific statement of what he claims to be new, and to be his invention. In practice, this allegation of the distinct matters for which he claims a patent comes at the close of the schedule or specification, and is often accompanied by a disclaimer of any title to certain matters before described, in order to prevent conflicts with pre-existing patents.

This distinct and formal claim is, therefore, of primary importance in the effort to ascertain precisely what it is that is patented to the appellant in this case.

In this part of his application he makes two separate claims, the second of which relates to a modification of the distilling apparatus, and is not in dispute here. Turning our attention to the first claim, we are compelled to say that the language is far from possessing that precision and clearness of statement with which one who proposes to secure a monopoly at the expense of the public ought to describe the thing which no one but himself can use or enjoy without paying him for the privilege of doing so. It is as follows:

I claim the above-described new manufacture of the deodorized heavy hydrocarbon oils suitable for lubricating and other purposes, free from the characteristic odors of hydrocarbon oils, and having a slight smell like fatty oil, from hydrocarbon oils, by treating them substantially as is hereinbefore described.

The word manufacture in this sentence is one which is used with equal propriety to express the process of making an article, or the article so made. "The manufacture of hydrocarbon oils," means primarily the making of hydrocarbon oils. It may mean the thing made also. Are there other words in the sentence calculated to throw light on the meaning of this one?

I claim the above-described new manufacture of hydrocarbon oils * * by treating them substantially as hereinbefore described.

It seems to us that the most natural meaning of these words is that—

I claim this new mode of manufacturing hydrocarbon oils by treating them as hereinbefore described.

This is the meaning which would first suggest itself to the mind. If the product is meant, the words "by treating them substantially as hereinbefore described" are useless. They are not only useless, but embarrassing, for by the well-settled rules of construing all instruments some importance must be attached to them; and if they are to be regarded at all they must either refer to the process of making the oils for which the applicant is claiming a patent, or they are intended to limit his claim for a patent for the product to that product only, when produced by treating the oils in the manner before described.

The counsel for appellant disclaim this latter construction, and allege that the patent covers the oil described, by whatever mode it may be produced. It is necessary to insist on this view, because it is made to appear in the case that the oils sold by defendants were produced by a process very different from that described by appellant.

We can see no reason why the applicant for the patent, if he had in his mind a claim for the article produced, should have intended so to limit his claim. If the *article* was the discovery which he sought the exclusive right to make, use, and sell, he was entitled to that monopoly, however produced.

If, however, he had in his own mind only a claim for the process of manufacture by which the article was made, then his reference to the mode of treating the oils from which it came was evidently proper and intelligible.

But the language in the specifications aids us in construing the claim. In the sentence next preceding this claim he says:

It will also be evident to those skilled in the art that *my invention* will be used, if the above-mentioned process be worked, to produce the deodorized heavy oils above described from distilled hydrocarbon oils, &c.

It is very clear that what he here calls his *invention*

is a thing which produces the deodorized oils, and not the oil itself. So, again, he says:

From the above it will be obvious that my invention consists *in producing* heavy hydrocarbon oils, suitable for lubricating and other purposes, and free from the characteristic odor, *by distilling from them the volatile matter from which objectionable odors arise.*

Again, he says:

In carrying on my new manufacture of deodorizing heavy oils with this apparatus, I place the oil to be deodorized in the still and heat it by the fire beneath to the required temperature to commence the operation, the steam being shut off from the coil, and the outlet-cock being opened to admit of the expulsion of any water from within the coil.

Here the word "manufacture" is used in the sense of the word "process," a word which could be substituted for it without a shade of change in the meaning. As it can here mean nothing else but process, we have a definition of the meaning to be attached to it in other parts of the same paper, if that meaning were otherwise doubtful.

But apart from these verbal criticisms, all of which are just, and tend strongly to show what was the invention claimed by appellant, it is impossible to read the four printed pages of specifications in which appellant minutely describes his invention without observing that they are almost wholly directed to the apparatus, the mode of using it, and the peculiar process of distillation, by which the more volatile parts of the heavy oils, which contain the offensive odors, are separated from the main body of the oil, pass over in that process, and leave the remainder free from this great drawback in its use in the arts. Why should this be so if the applicant for the patent was only looking to the products as his invention the deodorized heavy hydrocarbon oils? If the oil alone was to be patented, by whatever process made, this elaborate description of one particular process was unnecessary.

A strong appeal is made by counsel to give the appellant the benefit of a liberal construction in support of the patent. Cases are cited in which this court has held that rather than defeat a patent where it appears that a valuable invention has really been made, this court, giving full effect to all that is found in the application on which the Patent Office acted, will uphold that which was really invented, and which comes within any fair interpretation of the patentee's assertion of claim.

We are not disposed to depart from this rule in the present case. There is no question here but that the patent is good for the second claim, for the superheating coil, with its steam-pipe, &c. And we are all of opinion that it is good for the process of distillation described in the specifications, by which the heavy hydrocarbon oils are deodorized. It is, therefore, a valid patent for two important matters well set forth and described. If the patentee is also entitled to a patent for the product of this distillation, and has failed, as we think he has, to obtain it, the law affords him a remedy by a surrender and reissue. When this is done the world will have fair notice of what he claims—of what his patent covers, and must govern themselves accordingly.

The growth of the patent system in the last quarter of a century in this country has reached a stage in its progress where the variety and magnitude of the interests involved require accuracy, precision, and care in the preparation of all the papers on which the patent is founded. It is no longer a scarcely-recognized principle struggling for a foothold, but it is an organized system with well-settled rules, supporting itself at once by its utility, and by the wealth which it creates and commands. The developed and improved condition of the patent law, and of the principles which govern the exclusive rights conferred by it, leave no excuse for ambiguous language, or vague descriptions. The public should not be deprived of rights supposed to belong to it without being clearly told what it is that limits these rights. The genius of the inventor constantly making improvements in existing patents, a process which gives to the patent system its greatest value should not be restrained by vague and indefinite descriptions of claims in existing patents from the salutary and necessary right of improving on that which has already been invented. It seems to us that nothing can be more just and fair, both to the patentee and to the public, than that the former should understand and correctly describe just what he has invented, and for what he claims a patent.

In consistency with these views we are of opinion that the appliant in this case has described and claimed a patent for the process of deodorizing the heavy hydrocarbon oils, and that he has not claimed as his invention the product of that process.

The judgment of the circuit court is affirmed.

Mr. Justice CLIFFORD dissenting.

I dissent from the opinion and judgment in this case upon the ground that the invention, when the claim is properly construed, is an invention of the described new manufacture, and not merely for the process as decided by a majority of the court.

APPLICATIONS FOR EXTENSION.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., April 24, 1877.

On the petition of Erastus T. Bussell, of Indianapolis, Indiana, praying for the extension of a patent granted to him on the 29th day of November, 1853, numbered 10,280, extended for seven years from the 29th day of November, 1867; reissued on the 13th day of December, 1870, and numbered 4,202, for an improvement in combined rubber and spiral steel spring. This application having been authorized by act of Congress approved March 3, 1877:

It is ordered that the testimony in the case be closed on the 10th day of July next; that the time for filing arguments and the Examiner's report be limited to the 20th day of July next; and that said petition be heard on the 25th day of July next.

Any person may oppose this extension.

ELLIS SPEAR,
[tf] *Commissioner of Patents.*

DEPARTMENT OF THE INTERIOR,
U. S. PATENT OFFICE,
Washington, D. C., March 10, 1877.

On the petition of HENRY VORLTER, of Heidenheim, Germany, praying for the extension of a patent granted to him August 10, 1858, antedated August 29, 1856, extended for seven years from August 29, 1870, reissued June 6, 1871, and numbered 4,418, for an improvement in reducing wood to paper pulp, this application having been authorized by act of Congress approved March 3, 1877:

It is ordered that the testimony in the case be closed on the 29th day of May next; that the time for filing arguments and the Examiner's report be limited to the 8th day of June next; and that said petition be heard on the 13th day of June next.

Any person may oppose this extension.

ELLIS SPEAR,
[tf] *Commissioner of Patents.*

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date June 5, 1877.]

10,030 to 10,032, inclusive.—**Embroidery - Pattern.**—EMIL CRISAND, New Haven, Conn., assignor to HENRY ST. JOHN, same place. Applications filed May 18, 1877. Term of patents 3½ years.

10,033.—Lock-Cases for Satchels, &c.—ROBERT FLOCKE, Newark, N. J. Application filed May 22, 1877. Term of patent 7 years.

10,034.—Druggists' Bottles.—JACOB H. HARRISON, Davenport, Iowa, assignor to HARRISON & HOLMAN, same place. Application filed August 9, 1876. Term of patent 3½ years.

10,035 to 10,037, inclusive.—**Carpet.**—HUGH S. KERR, Philadelphia, Pa., assignor to GEORGE D. BROMLEY, THOMAS BROMLEY, and JAMES BROMLEY, same place. Applications filed May 26, 1877. Term of patents 2½ years.

10,038 and 10,039.—Carpets.—THOMAS J. STEARNS, Boston, Mass., assignor to THE ROXBURY CARPET COMPANY, same place. Applications filed May 26, 1877. Term of patents 3½ years.

10,040.—Moldings for Door and Window Casings.—RALPH M. MERRILL and JOHN L. PEARSON, Laconia, N. H. Application filed May 7, 1877. Term of patent 7 years.

10,041 to 10,044, inclusive.—**Oil - Cloth.**—CHARLES T. MEYER and VICTOR E. MEYER, Bergen, N. J., assignors to EDWARD C. SAMPSON, New York, N. Y. Applications filed May 26, 1877. Term of patents 3½ years.

10,045.—Studs and Buttons.—JAMES W. MILLER and ISAAC M. MILLER, Newark, N. J. Application filed May 11, 1877. Term of patent 3½ years.

10,046.—Book-Cases.—JACOBS W. SCHUCKERS, New York, N. Y., assignor to GEORGE B. COLLIER, Philadelphia, Pa. Application filed May 4, 1877. Term of patent 7 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date June 5, 1877.]

4,694.—Soap.—BOWEN & CUNNINGHAM, Leavenworth, Kans. Application filed April 30, 1877.
"The word-symbol 'WATER QUEEN.'"

4,695.—Carriage-Axles.—CLEVELAND AXLE MANUFACTURING COMPANY, Cleveland, Ohio. Application filed April 14, 1877.
"The word 'CLEVELAND' and the symbol of an arrow."

4,696.—Fire - Escape and Life - Preserving Apparatus.—HERBERT R. HOUGHTON, New York, N. Y. Application filed April 27, 1877.
"A monogram formed of the letters 'H. R. H.,' and placed in the center of a seven-pointed star."

4,697.—Caustic Alkali.—PENNSYLVANIA SALT MANUFACTURING COMPANY, Philadelphia, Pa. Application filed May 1, 1877.
"The word-symbol 'SAPONIFIER.'"

4,698.—Wine.—LOUIS ROEDERER, Reims, France. Application filed April 17, 1877.
"The words 'GRAND VIN IMPÉRIAL, LOUIS ROEDERER, REIMS.'"

4,699.—Wine.—LOUIS ROEDERER, Reims, France. Application filed April 17, 1877.
"The words 'REIMS CARTE BLANCHE.'"

4,700.—Porcelain and Other Pottery Wares.—THOMAS C. SMITH & SONS, Green Point, Brooklyn, N. Y. Application filed May 4, 1877.
"The representation of an eagle's head holding in its beak the letter S."

4,701.—Liniment.—SMITH, KLINE & CO., Philadelphia, Pa. Application filed May 2, 1877.
"The fanciful word-symbol 'MAGNETIC.'"

4,702.—Matches.—THE SWIFT & COURTNEY & BERCHER COMPANY, Wilmington, Del. Application filed May 22, 1877.
"A longitudinal parallelogram in red and white, having white letters on a red ground, and red letters on a white ground, the part inclosed by a right line drawn from the upper left-hand corner to the lower right-hand corner, being the lower half, being red, and the other mainly white."

4,703.—Ladies' Hair Goods.—MARY E. THOMPSON, Chicago, Ill. Application filed May 18, 1877.
"The word-symbol 'SARATOGA.'"

4,704.—Stocking - Supporters.—WARNER BROTHERS, New York, N. Y., and Bridgeport, Conn. Application filed January 30, 1877.
"The word-symbol 'DUPLEX.'"

4,705.—Plug Chewing-Tobacco.—DAUSMAN & DRUMMOND TOBACCO COMPANY, Alton, Ill. Application filed May 7, 1877.
"The word-symbol 'PAPER TAG.'"

4,706.—Medicinal Food known as "Imperial Granum."—EDWARD HEATON, New Haven, Conn. Application filed May 7, 1877.
"A border representing infants' or children's heads, as shown."

4,707.—Medicinal Food known as "Imperial Granum."—EDWARD HEATON, New Haven, Conn. Application filed May 7, 1877.
"A central coat of arms, showing an American shield in the center, a blazoned crescent above, and the whole surmounted by a crown and inclosed by a wreath."

4,708.—Cigars.—F. W. MARBURG, Baltimore, Md. Application filed May 4, 1877.
"The letters 'F. W. MARBURG'S POLICY,' used in connection with the word 'Cigar.'"

4,709.—Fine-Cut Chewing-Tobacco.—SPENCE BROTHERS & Co., Cincinnati, Ohio. Application filed April 30, 1877.
"The arbitrary words 'WILD ROSE.'"

4,710.—Fine-Cut Chewing-Tobacco.—SPENCE BROTHERS & Co., Cincinnati, Ohio. Application filed April 30, 1877.
"The arbitrary word 'AMBROSIA.'"

4,711.—Kid Gloves.—TRÉFOUSSE & Co., Chanmont, France. Application filed April 3, 1877.
"The word-symbol 'JOUBERT.'"

4,712.—Kid Gloves.—TRÉFOUSSE & Co., Chanmont, France. Application filed April 3, 1877.
"The word-symbol 'GARIBALDI.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date June 5, 1877.]

1,079.—Title: "Dressing for Ladies' and Children's Boots and Shoes."—J. GUY AMMON, Philadelphia, Pa. Application filed May 28, 1877.

1,080.—Title: "Dr. Church's Vegetable Liver Pills."—W. C. and G. C. FISHER, Paloka, Ind. Application filed May 28, 1877.

1,081.—Title: "Imperial Granum."—EDWARD HEATON, New Haven, Conn. Application filed April 21, 1877.

1,082.—Title: "Imperial Granum."—EDWARD HEATON, New Haven, Conn. Application filed April 21, 1877.

1,083.—Title: "Ingram's Great Radical Rheumatic Remedy."—JOHN INGRAM, St. Louis, Mo. Application filed May 24, 1877.

1,084.—Title: "Yalobusha Tonic."—M. H. THARPE, Coffeeville, Miss. Application filed May 25, 1877.

The GAZETTE is made to bear the same date as the patents to which the claims, briefs, and drawings relate, although it is not actually mailed to subscribers until about two weeks later than its date.

Single copies of the specification and drawing of any patent issued this week may be had from the Patent Office for twenty-five cents, or for a ten cent Patent Office coupon.

As 12 o'clock on Friday is the latest hour that a final fee can be received in order to get a patent into the "issue" of the following Tuesday, applicants are earnestly requested to make the final payment before Friday, if possible, so that the proper entries may be made on the books of the Office before closing the "issue."

The Patent Office prefers that applicants should furnish their own drawings. Where drawings are defective, or cannot be otherwise obtained, the Office will cause a formal drawing to be made from the model at the actual cost of making it.

Patent Office coupons, which purchase a copy of any drawing which has been photolithographed, are sold singly by the Chief Clerk at twenty-five cents each, or twenty coupons at one time for two dollars.

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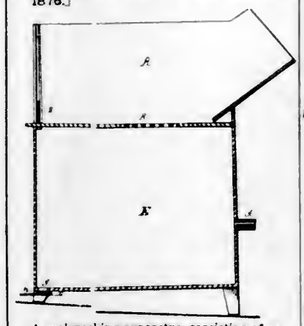
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Tilton, L., Hand stamp	191,623
Tirrell, J. P., Electric railway signal	191,732
Todd, R. L. and N. J., Chicken coop	191,556
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Ward, R. F., Fence	191,627
Warner, R. D., Harvester rake	191,743
Weathers, J., Lifting jack	191,737
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Wild, J., Stop motion for spooling machines	191,738
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Willard, G., Fruit crate	191,739
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Wynne, K. A., Finger guard	191,742
Zinn, W. H., Portable fountain	191,557

TITLES, DRAWINGS, AND CLAIMS

OF

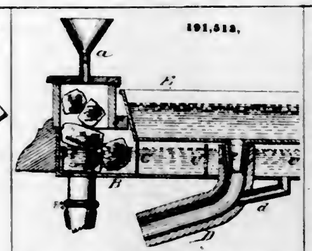
PATENTS GRANTED JUNE 5, 1877.

191,511. COAL AND ORE WASHERS. James M. Bailey, Pittsburg, Pa. [Filed Feb. 20, 1876.]



A coal-washing apparatus, consisting of an upper inclined trough, A, with removable end-gate D, and transverse opening B, and a lower water-chamber, E, provided with suitable inlet *f* and outlet *g*, the several parts being relatively arranged as described, whereby the entering material is buoyed up in a water-bath while subjected to the separating action of water-currents injected from below, substantially as hereinbefore described, and for the purpose set forth.

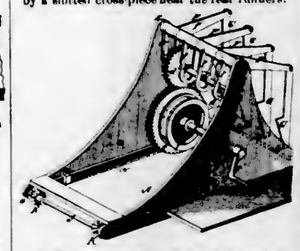
191,512.



The combination of a ship, A, with a ram, D, the sides of which coincide with the bow of the ship, to which it is applied, substantially as specified.

191,513. ICE-CUTTING MACHINES. Charles Obadwick, Hannibal, Mo., assignor of one-half his right to L. P. Munger and Wm. A. Munger, same place. [Filed Apr. 4, 1877.]

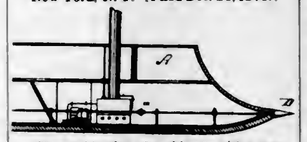
Brief.—A cam upon the main shaft operates an elbow-lever, to which is attached a dog engaging with, and causing to revolve, a ratchet-wheel upon a shaft, which carries also serrated disks, to catch upon the surface of the ice and draw the machine. Upon the main shaft is also a gear-wheel, engaging with another upon a second shaft, which carries cams arranged at different angles. Each cam revolves in a slot in the lower arm of an elbow-lever, which is pivoted upon a shaft above; while from the end of the other or vertically-moving arm is suspended a saw, which is braced and guided by a slotted cross-piece near the rear runners.



1. The combination of the sled A, shaft C, cam L, lever M, dog N, ratchet O, spring P, shaft J, and disks K K, substantially as described.

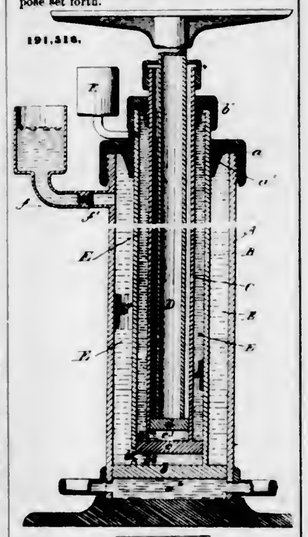
2. The combination of the sled A, shafts C D E J, cams *d d d d*, levers F F F F, saws G G G G, wheels *c c*, cam L, lever M, dog N, ratchet O, spring P, and disks K K, substantially as described.

191,514. MARINE RAMS. N. H. Borgfeldt, New York, N. Y. [Filed Dec. 26, 1876.]



The combination of a ship, A, with a ram, D, the sides of which coincide with the bow of the ship, to which it is applied, substantially as specified.

191,515.



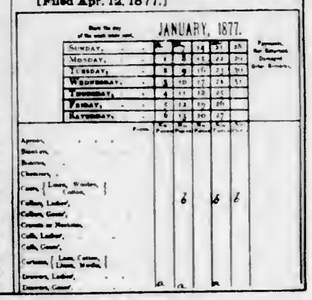
191,516. ICE-CUTTING MACHINES. Charles Obadwick, Hannibal, Mo., assignor of one-half his right to L. P. Munger and Wm. A. Munger, same place. [Filed Apr. 4, 1877.]

Brief.—A cam upon the main shaft operates an elbow-lever, to which is attached a dog engaging with, and causing to revolve, a ratchet-wheel upon a shaft, which carries also serrated disks, to catch upon the surface of the ice and draw the machine. Upon the main shaft is also a gear-wheel, engaging with another upon a second shaft, which carries cams arranged at different angles. Each cam revolves in a slot in the lower arm of an elbow-lever, which is pivoted upon a shaft above; while from the end of the other or vertically-moving arm is suspended a saw, which is braced and guided by a slotted cross-piece near the rear runners.

1. The combination of the sled A, shaft C, cam L, lever M, dog N, ratchet O, spring P, shaft J, and disks K K, substantially as described.

2. The combination of the sled A, shafts C D E J, cams *d d d d*, levers F F F F, saws G G G G, wheels *c c*, cam L, lever M, dog N, ratchet O, spring P, and disks K K, substantially as described.

191,517. COMBINED CALENDAR AND WASHING-LIST. John C. Coombs, Boston, Mass. [Filed Apr. 12, 1877.]



191,518. TELESCOPIC OR HYDRAULIC ELEVATORS. Wm. R. Cominga, New Britain, Conn. [Filed Nov. 3, 1876.]

Brief.—The main power is applied to the main piston, which, acting upon the fluid above it, gives an independent movement simultaneously to the pistons above it. Any waste or loss of the fluid is supplied by the small reservoirs attached to the cylinders.

1. The described method of raising the sections of an elevator, consisting, essentially, first, in the employment of a single main power; second, in the employment of certain independent volumes of an incompressible fluid; third, in applying the main power by the movement of the main piston, through the medium of the fluid volumes, to the auxiliary piston in such manner that each receives simultaneously an independent movement, substantially as described.

2. In an elevator, the combination of the following elements: a primary piston, adapted, substantially as described, to receive movement from the main power, one or more auxiliary pistons, and intermediate means, substantially as described, for communicating, simultaneously and independently, the movement of the primary to the auxiliary pistons.

3. The elevator described, having the primary tube A, one or more auxiliary tubes, B C, having pistons *b c*, piston chambers b^2 c^2, and one or more independent volumes of incompressible fluid, E E, substantially as described.

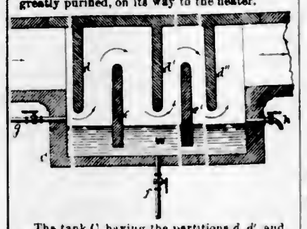
4. In combination with a fluid-chamber, b^2 c^2, substantially as described, an auxiliary supply-chamber, F, substantially as described, adapted to restore the loss by leakage, as set forth.

5. In combination with the annular chambers, the supply-tube and check-valve, as and for the purpose described.

6. A hydraulic elevator, substantially as described, adapted to have its auxiliary sections moved independently and simultaneously by a single main power, as and for the purpose set forth.

191,519. VENTILATION AND DISINFECTION OF BUILDINGS. Wm. H. Bennett, Brooklyn, N. Y. [Filed Apr. 7, 1877.]

Brief.—The outer air, coming through the air-box in the direction of the arrow, strikes the first partition; it is then deflected downward, losing a portion of its suspended matter. When it reaches partition *c* its course is turned upward, then over partition *e*, and along the cold-air box, until it reaches partition d', when its course is again turned downward upon the surface of the fluid. It then loses still more of its suspended matter, and so on until all the partitions are passed, and it enters the box greatly purified, on its way to the heater.



The tank C, having the partitions *d*, d', and d'', with or without partitions *e* and *c'*, or the equivalent of said partitions, hereinbefore set forth, the waste-pipe *f*, supply-pipe *g*, and the escape *h*, in combination with the cold-air box or air-supply pipe of a hot-air furnace or steam-heater, where the method known as indirect radiation is employed, substantially as and for the purpose described.

191,520. MILK-COOLERS. Joseph Bissonett, Jericho, Vt. [Filed Feb. 19, 1877.]

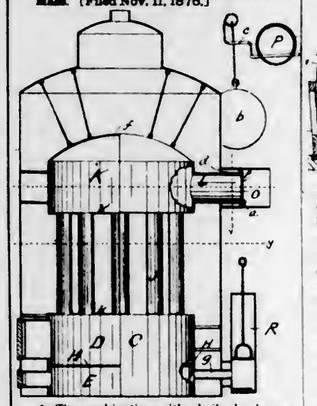
Brief.—The water-vat is provided with a pipe, in the end of which the outlet-pipe from the milk-pan fits. A smaller pipe leads from the vat into the outlet-pipe, to run water through to cleanse it. The pipes can be used without removing the milk-pan.

1. The water-vat B, made of leaded tin, provided with an outlet-tube, D, and the pipe *d*, arranged as described, for the purpose set forth.

2. The water-vat B, provided with an outlet-tube D *c'*, and the pipe *d*, arranged as described, in combination with a removable pan, E, having an outlet-tube, *e*, arranged as described, for the purpose set forth.

A combined calendar and washing-list, in which the columns for receiving the figures indicating the numbers of pieces correspond in number with and are formed on the prolongation of the vertical divisional columns of the calendar, as shown and set forth.

191,619. BOILER-FURNACES AND AIR-SUPPLYING APPARATUS. James H. Orowell, Chelsea, assignor to Albt. Merrill, Boston, Mass. [Filed Nov. 11, 1876.]



1. The combination, with a boiler having an air-tight fire-box, of the air-pump R, smoke-funnel L, valve P, and damper-presser regulating device, constructed and arranged substantially as described.

2. The combination, in a steam-boiler, of the fire-box D, secondary combustion-chamber K, each provided with tube-sheets *k* and communicating flame-tubes J, with the air-pump and pressure-regulating devices, in the manner and for the purpose set forth and described.

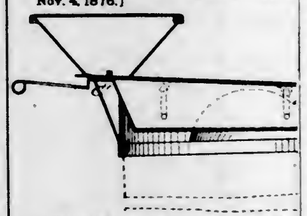
3. The combination, with a steam-boiler, of the pump R, pipe *g*, valve P, and pipe L, valve-crank *c*, and weight *b*, all combined and arranged to operate substantially in the manner set forth.

191,619. SEALING DEVICES FOR BOTTLES, JARS, &c. Catharine L. Darby, Fort Motte, S. C. [Filed Mar. 16, 1877.]



As a new article of manufacture, a sealing device for bottles, jars, &c., consisting of a rubber or elastic cap conforming somewhat to the shape of the bottle neck, and having a contracted and corded lower edge, and a practically spherical central inner projection, adapted to touch only the inner edge or angle of the bottle-neck, substantially as herein specified.

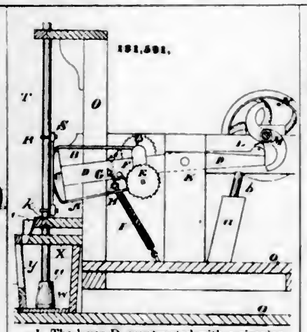
191,620. ASH-SIFTERS. Geo. W. Demond and L. Demond, Brooklyn, N. Y. [Filed Nov. 4, 1876.]



1. The combination of the hopper and casing, having guide-slots, with an extension-plate of the screen forming a partial cut-off to regulate supply of ashes, substantially as described.

2. The extension-plate or cut-off C', having one or more stirrer-pins for the purpose set forth.

191,621. STAMP-MILLS. George Downing, Chicago, Ill., assignor of one-half of his right to Collins Eaton, same place. [Filed Apr. 14, 1877.]



1. The lever D, constructed with a circular-faced cross-piece, C, in combination with the cords A and B and the ratchet-wheels E and Q, in the manner shown and described, and for the purpose set forth.

2. The lever D, constructed with the circular-face cross-piece C, in combination with the cords A and B, the ratchet-wheels E and Q, spring I, and the rod Y, in the manner shown and described, and for the purpose set forth.

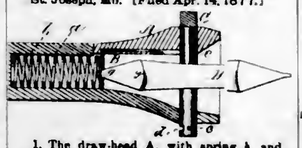
3. The lever D, constructed with the circular-face cross-piece C, in combination with the cords A and B, the ratchet-wheels E and Q, the spring J, spring *b*, and rod T, in the manner shown and described, and for the purpose set forth.

4. The lever D, constructed with the circular-face cross-piece C, in combination with the cords A and B, the ratchet-wheels E and Q, spring I, spring *b*, tappets M, and rod T, in the manner shown and described, and for the purpose set forth.

5. The lever D, constructed with a circular-faced cross-piece, C, in combination with the cords A and B, and shaft T, in the manner shown and described, and for the purpose set forth.

6. The shaft T, constructed with the head U secured or formed thereon, in combination with cords A and B, and lever D, as shown and described, and for the purpose set forth.

191,622. CAR-COUPLINGS. Wm. Duesler, St. Joseph, Mo. [Filed Apr. 14, 1877.]



1. The draw-head A, with spring *b*, and angular plate B, having opening *f* passing through it, in combination with the link or bar D, formed with conical head *g*, and shoulders *g'*, substantially as and for the purpose set forth.

2. The combination, with the angular plate B, having opening *f*, and the spring *b*, of the link or bar D, constructed as described, and the double bolt C, with recesses *d* and pins *e*, to guide said bolt in its movement within the recesses *d*, and also to act as stops, substantially as specified.

191,623. TANK-VALVES. John P. Duncan, Helena, Ark., assignor of one-half his right to D. H. Crebs, same place. [Filed Apr. 10, 1877.]

Brief.—The valve-seat has a removable collar, provided with a strainer which covers the valve-seat, and thereby excludes all sediment from contact with the valve or its seat. The valve has a stem, the upper end of which serves as a guide for the valve. A spring serves to seat the valve, while the lower stem serves as a guide to accurately seat the valve.

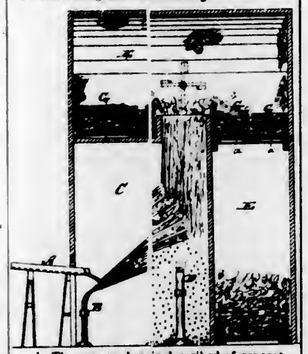
1. In a valve for tanks, the combination, with the valve-seat, of a removable collar, having a strainer rigidly secured thereto, substantially as and for the purpose set forth.

2. In a valve for tanks, the combination, with the valve-seat and removable collar having a strainer rigidly secured thereto, of a valve and a spring, the latter having its upper end resting against the strainer, and the lower end seated on the upper surface of the valve, substantially as and for the purpose set forth.

3. In a valve for tanks, the combination, with a valve-seat and a strainer, located above and around the same, of a valve, the upper stem of which extends upwardly through the strainer, and is provided with a ring for the attachment of a cord for operating the valve.

191,624. PROCESSES AND APPARATUS FOR TREATING MINERAL WOOL. A. D. Elbers, Hoboken, N. J. [Filed Mar. 6, 1877.]

Brief.—The pans are constructed with loose bottoms, and the sheets of wadding formed by compression. Size is mixed with the mineral glue to strengthen the wadding.



1. The process herein described of separating mineral wool from globules by subjecting it to the action of a lateral current, substantially as specified.

2. In an apparatus for making mineral wool, the combination of the conduit A and jet-pipe B with the jet-pipe D, for producing the lateral current, substantially as specified.

3. The combination of the apartment C, containing the trough or conduit A and jet-pipe B, with the compartment E, which communicates with the apartment C, substantially as herein shown and described.

4. The combination, in an apparatus for reducing slag to mineral wool, of the wool-producing mechanism and pans D, arranged to receive the wool as it is formed, and constructed to compress the same, substantially as set forth.

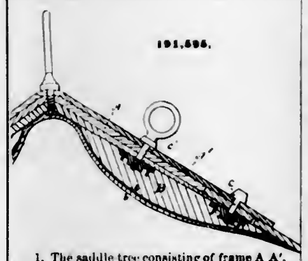
5. The process described of making wadding of mineral wool, consisting in producing the fibers from the liquid slag, conducting them directly, without handling, to, and depositing them in, boxes corresponding in size to the sheets to be produced, and there compressing them, substantially as set forth.

6. As a new article of manufacture, mineral-wool wadding, formed into sheets, substantially as herein specified.

191,625. HARNESS-SADDLE TREES. Wm. L. Frimell, Davenport, Iowa. [Filed May 14, 1877.]

THE GRAPHIC CO. N.Y.

191,626.

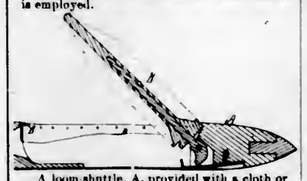


1. The saddle-tree consisting of frame A A', having central slot *a* and holes *a'* and *a²*, all arranged substantially as shown and described, and for the purpose specified.

2. The harness saddle-composed of the frame A A', adapted to hold the sectional housing by means of stitches, pad B, screws *c* and *c'*, and taps *d*, arranged and combined as shown and described, and for the purpose specified.

191,626. SHUTTLES FOR WEAVING DUCK, &c. Walter L. Gilbert, Plymouth, Mass. [Filed Apr. 11, 1877.]

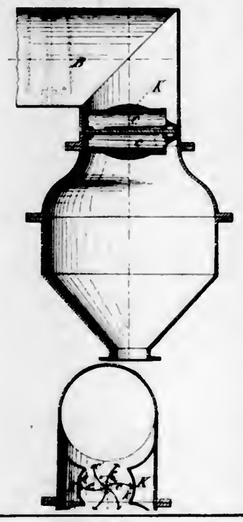
Brief.—The friction-lining prevents the too free delivery of the yarn where a heavy filling is employed.



A loom-shuttle, A, provided with a cloth or friction lining, D, arranged in its bobbin-chamber, substantially as and for the purpose set forth.

191,627. DEVICES FOR COLLECTING AND SAVING PARTICLES OF SUGAR-LIQUOR RISING WITH THE STEAM FROM VACUUM-PANS. Auguste A. Goubert, New York, assignor to Frank O. Matthiessen, Irvington, N. Y. [Filed Mar. 16, 1877.]

Brief.—The particles of sugar-liquor rising with the steam from the vacuum-pan are caught by the curved blades of the revolving wheel in the neck of the pan, and by centrifugal force are carried, in the form of liquor, into the inclined gutters upon the outer edges of the blades, from which the liquor is thrown, so that it will run back into the pan and mingle with the boiling liquor.

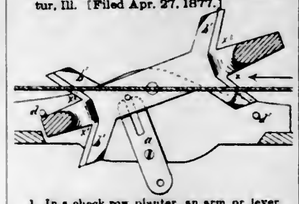


1. A system of radially-arranged curved tapering blades, having a common axis of rotation, in combination with a corresponding system of troughs or gutters respectively affixed to the outer straight edges of the curved blades, substantially as and for the purpose set forth.

2. A wheel composed of the curved blades *c*, provided with the gutters *c'*, in combination with the shields K K, presenting the concave faces *k k*, partially embracing the wheel, and conforming to the shape of the frustum of the cone described by the gutters *c'* in their rotation upon a common axis.

3. In combination with the neck of a vacuum-pan, provided with the shields K K, a wheel, substantially such as described, having its axis of rotation extending across the opening or space in which the wheel is arranged, substantially as shown.

191,628. CHECK-ROW ATTACHMENTS TO SEED-PLANTERS. Geo. D. Haworth, Decatur, Ill. [Filed Apr. 27, 1877.]



1. In a check-row planter, an arm or lever made in a single piece, and adapted to be operated alternately in opposite directions by the direct action of the check-row cord or wire thereon, as explained.

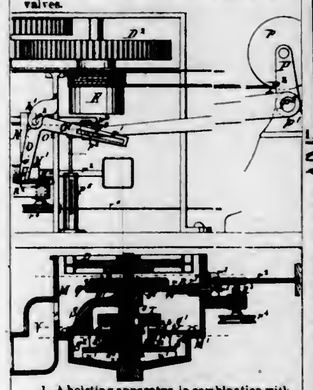
2. The arm or lever B, provided with the recurved and slotted and forked ends, substantially as and for the purpose set forth.

3. The arm or lever B, pivoted midway of its length, and provided with the recurved or slotted ends, and with the diverging arms or forks *b b'*, substantially as described.

4. The lever *a*, through which motion is communicated to the seeding devices, connected directly with, and receiving a positive movement in both directions from, the single vibrating check-row-cord arm or lever B, substantially as described.

191,629. HOISTING-MACHINES, (HYDRAULIC.) Frederick G. Hesse, Oakland, Cal. [Filed Mar. 30, 1877.]

Brief.—A turbine wheel is the motor used to work the elevator, and the ascending and descending weight regulates the speed by means of the centrifugal water-brake and valves.



1. A hoisting apparatus, in combination with a water-wheel, the supply of water to which wheel is regulated by the weight of the load upon the hoisting apparatus, substantially as set forth.

2. A hoisting apparatus, in combination with an automatic centrifugal water-brake, substantially as and for the purpose set forth.

3. The combination of a hoisting apparatus with an automatic centrifugal water-brake and an adjustable friction-stop, substantially as set forth.

4. The combination of the cable X, the levers I^m O', the sliding arm N, and the piston H, having a collar, *h'*, on its piston-rod, substantially as set forth.

5. The combination of the cord *j*, the valve J, having passages j^1 j^2 j^3, the valve-seat J^1, having ports i^1 i^2 i^3, the valve-chamber G^2, and the piston H, substantially as set forth.

6. The combination of the piston H, having a collar, *h'*, and a pin, *h*, and the valve G, substantially as set forth.

7. The valve G, having an opening, g^1, and guide-plates g^2, in combination with the bottom F, having an opening, *f*, and the piston H, substantially as set forth.

8. The wheel B, having pins *b*, in combination with the slotted locking-levers Q^1, the arms Q^2, the pulley Q^3, the shaft Q, and the wheel U, substantially as set forth.

9. The shaft Q, having a wheel, U, in combination with the bottom S^1, the disk S^2, and the valve T, substantially as set forth.

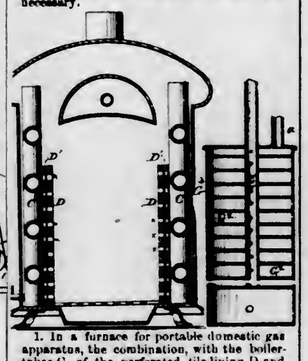
10. The wheel B, having pins *b*, in combination with the locking-levers Q^1, the arms Q^2, the pulley Q^3, having the rims *q* and Q^4, the friction-lever R, pin r^1, and weighted lever r^2, substantially as and for the purpose set forth.

191,630. PROCESSES OF APPLYING OXYGENATED AIR IN BLAST-FURNACES. Charles Hornboetel, Brooklyn, N. Y., assignor to Edward Hornboetel, same place. [Filed May 13, 1876.]

The process herein described of applying oxygen gas to metallurgical operations, and to assist in the combustion of fuel, by conducting a current of air, under pressure, into contact with or through a mixture of black oxide of manganese and sulphuric acid, and from thence to the place of use, substantially as described.

191,631. PORTABLE GAS APPARATUS. D. H. Irland, New York, N. Y. [Filed May 3, 1877.]

Brief.—Gas is generated, scrubbed by means of steam, and is then passed through the condenser and the purifier, and is stored in a holder. The tar is conducted from the steam-scrubber to the furnace, where it is burned. The water-box of the holder has a coil of steam-pipe, by which the water may be warmed when necessary.



1. In a furnace for portable domestic gas apparatus, the combination, with the boiler-tubes C, of the perforated tile-lining D and the sliding perforated dampers D', for the purposes herein set forth.

2. In a gas-retort, a packing or seal, *d*, of isinglass interposed between the lid and the end of the retort, as set forth.

3. In a portable domestic gas apparatus, the hydraulic main and scrubber G^1, having the perforated steam-pipe G^2 and the series of perforated diaphragms G^3, substantially as and for the purposes herein set forth.

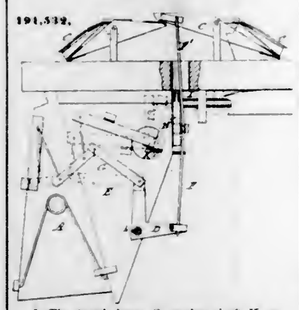
4. In a portable domestic gas-machine, the gas-condenser composed of the partitioned box I, upright pipes I^1, and elbow-connections I^2, the packing *i*, of sponge or similar absorbent material, placed in the elbows, substantially as and for the purposes herein set forth.

191,632. REED-ORGAN SWELLS. George B. Kelly, Boston, and Albt. K. Hobard, Cambridge, Mass. [Filed June 2, 1876.]

Brief.—Relates to reed-organs the swell of which is operated by the action of the bellows, and disconnecting mechanism connected therewith.

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191,532.



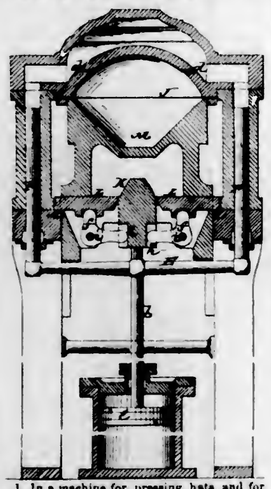
1. The toggle-lever G, rocker-shaft K, angle-lever D, and rod F, all arranged together substantially as described, and interposed between the bellows A and the swell C, so that the toggle-lever can be put into and out of connection with the bellows, to connect or disconnect the bellows and swell, substantially as and for the purpose specified.

2. The slot *n* in angle-lever D, in combination with shoulder or bend *y* of the rod F F', which is connected to the swell through angle-lever H, substantially as described, for the purpose specified.

3. The toggle-lever G, rock-shaft K, angle-lever D, and rod F, in combination with the bellows A, swell C, and a knee-swell lever, substantially as described.

191,533. HYDRAULIC HAT-PRESSING MACHINES. Robert Kent, Brooklyn, N. Y. [Filed Apr. 27, 1876.]

Brief.—A continuous motion of the steam-piston lifts the body to be pressed in the mold, and against the elastic diaphragm, to give the hat or body under operation its required form. An arrangement is also provided to lock the mold in its place.



1. In a machine for pressing hats, and for similar purposes, the combination of the steam-piston C, having one or more attached water-plungers, F, and mold M with the dome I and elastic diaphragm J, substantially as and for the purposes herein set forth.

2. The combination of a mold-locking device with and subject to the control of the same piston, which, by its continuous motion, controls the position of the mold in its relation with the dome and the hydraulic pressure on the back of the elastic diaphragm, essentially as described.

3. The combination of the inclined or conically-constructed bolt operating and tripping wedge K, the bolts L l, the levers *f f*, the mold M, and the piston C, substantially as and for the purposes herein set forth.

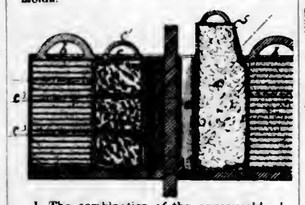
191,534. MANUFACTURE OF GLASSWARE. Charles L. Knecht, Pittsburg, Pa. [Filed Feb. 13, 1877.]



In combination with the article of blown glassware, the pressed handle A, having a continuous strengthening device, *a*, whereby, in the operation of joining the handle to the blown body, the uneven shrinkage between the handle and body is partially compensated by said strengthening device, which is united to the body along its entire length, and acts as a brace to the ends of the handle.

191,535. APPARATUS FOR LIQUORING HARD SUGAR IN CENTRIFUGAL MACHINES. Otto H. Krause, Jersey City, N. J., assignor to F. O. Matthiessen & Wiechers Sugar Refining Company, same place. [Filed Apr. 21, 1877.]

Brief.—Sponge or other absorbent material saturated with water or sugar-liquor, and placed in central molds in a centrifugal machine, evenly distributes the water or sugar-liquor, which, by centrifugal force, is driven through the loaves of hard sugar in the outer molds.



1. The combination of the sugar-molds *b* with the movable molds *c*, for containing an absorbent material.

2. The molds *c*, provided with one or more transverse partitions, *c'*.

3. The molds *c*, constructed with the vertical prolongation *c''*.

191,536. VEHICLE SPRINGS AND AXLES. S. W. Ludlow, Cincinnati, Ohio. [Filed Jan. 13, 1877.]



1. In combination with the axle ends A A' and rigid bar B, the sockets D, for receiving the ends of the spring or guide-bar, or both, substantially as and for the purpose specified.

2. The combination of axle ends A A A', rigid bar B, spring C, sockets D, and guide-bar F, connected and operating substantially as and for the purpose specified.

3. In combination with the axle ends A A', spring C, and bar B, having sockets D, the links E E', substantially as and for the purpose specified.

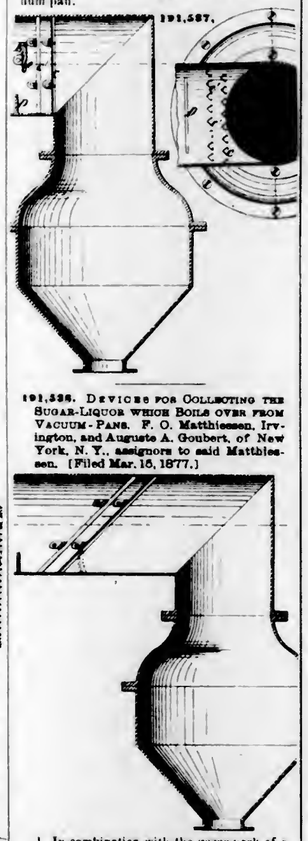
191,537. DEVICES FOR COLLECTING AND SAVING THE PARTICLES OF SUGAR RISING WITH THE STEAM FROM VACUUM-PANS. F. O. Matthiessen, Irvington, and Auguste A. Goubert, New York, N. Y., assignors to said Matthiessen. [Filed Mar. 15, 1877.]

Brief.—The particles of sugar-liquor which rise with the steam from the vacuum-pan are caught by the series of V-shaped deflectors, having gutters at their edges, and by their gravity flow back, in the form of liquor, into the pan.

1. In combination with the goose-neck of a vacuum-pan, two or more series of deflectors, each of such deflectors having one or both of its edges curved, as shown, to form troughs or gutters, substantially as and for the purpose set forth.

2. The vertical wall D, extending transversely across the goose-neck, for the purpose of holding back liquor collected upon the bottom of the goose-neck, and thus preventing such liquor from flowing away from the vacuum-pan.

191,538. DEVICES FOR COLLECTING THE SUGAR-LIQUOR WHICH BOILS OVER FROM VACUUM-PANS. F. O. Matthiessen, Irvington, and Auguste A. Goubert, of New York, N. Y., assignors to said Matthiessen. [Filed Mar. 15, 1877.]



1. In combination with the goose-neck of a vacuum-pan, a series of deflectors, substantially such as shown and described, erected within the goose-neck, and having their upper ends inclined toward the neck of the vacuum-pan.

2. A series of deflectors, substantially such as described, erected within the goose-neck of a vacuum-pan, and having their lower portions curved toward the neck of the vacuum-pan, substantially as described, and for the purpose set forth.

191,539. PROCESSES OF WASHING RAW SUGAR. F. O. Matthiessen, Irvington, N. Y. [Filed Mar. 3, 1877.]

The improvement in the mode of removing impurities from raw sugar herein described, which consists in preparing the raw sugar for washing by mixing it with a sugar-sirup or sugar-liquor, and in then washing the prepared raw sugar in the centrifugal machine, substantially as and for the purposes set forth.

191,540. BIT-STOCKS. James T. Matthews, New Berne, N. C. [Filed Mar. 29, 1877.]

Brief.—The brace is provided with a pivoted head and ratchet at its lower end, for boring holes parallel to flat surfaces while lying upon the same.

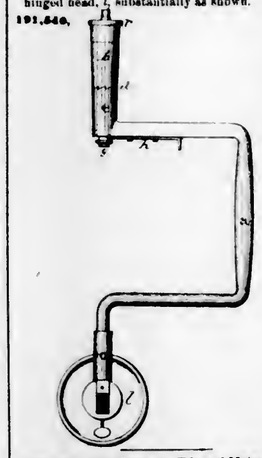
1. The brace *a*, provided with the ratchet *d* at its lower end, and a head, *l*, that is adapted to be opened outward, substantially as shown.

2. The bit-stock *a*, provided with the part *b*, that is made separate therefrom, and operated by means of the ratchet-teeth *d*, in combination with the bolt *g*, spring *i*, and a locking device, substantially as specified.

3. The slide A, in combination with the bolt *g* and part *b*, substantially as specified.

4. A brace, *a*, provided with a pivoted or hinged head, *l*, substantially as shown.

191,640.

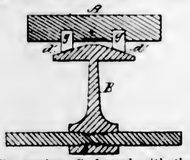


191,641. JAR-COVERS. Edward Meier, Detroit, Mich. [Filed May 17, 1877.]



The combination of the pasteboard *a*, paper *b*, and a fastening-band, *d*, the fastening-band being attached to the paper so as to always be ready for use, substantially as shown.

191,642. ROLLER-SKATES. John Miner, Detroit, Mich. [Filed Apr. 16, 1877.]

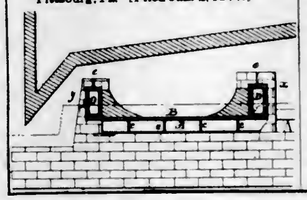


1. The castings B, formed with the laterally-inclined plates *d' d'*, in combination with the heel and sole plate A, with springs *g*, substantially as and for the purpose specified.

2. The combination, with the heel and sole plate A, formed at both ends and upon its under surface with inclines *a*, of the castings B, formed with inclined plates *d' d'* and springs *g*, substantially as and for the purpose set forth.

3. The heel and sole plate A, formed with recesses *e'* and rib *f*, for the reception of the rubber spring *g*, substantially as and for the purpose described.

191,643. CONSTRUCTION OF REVERBERATORY-FURNACE BOTTOMS. P. D. Nicols, Pittsburg, Pa. [Filed Jan. 2, 1877.]



1. The herein-described furnace-bottom, consisting of the top B and bottom A, with the ribs *c c c* and openings S and *f*, as described, and for the purpose set forth.

2. The combination of the bottoms A and B, having the air passage and openings, as shown and described, with the box D, provided with the slotted opening *f* for the admission of air, and the openings *e e e* for its distribution, as shown and described, and for the purpose set forth.

191,644. TOBACCO-PIPES. Nils Peter Oberg, Warren, Pa. [Filed May 10, 1877.]

Brief.—The stem is connected to the bowl by a bayonet-joint, so that it can be removed. The stem is telescopic, in order to shorten it.



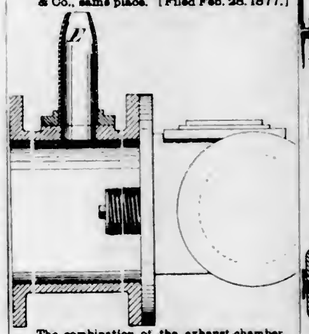
1. The bowl A, provided with the pin or stud *b*, in combination with the stem B, provided with the slot *a*, substantially as and for the purpose set forth.

2. The bowl A, provided with the pin or stud *b*, in combination with the stem B, provided with the opening *c*, substantially as and for the purpose set forth.

3. The stem C, having enlarged head D and packing *d*, in combination with the stem B, provided with a shoulder, *e*, substantially as and for the purpose set forth.

4. The bowl A, in combination with the stem B, provided with slot *a*, opening *c*, and shoulder *e*, and the stem C, having enlarged head D and packing *d*, substantially as and for the purpose set forth.

191,645. EXHAUST APPARATUS FOR STREET-ENGINES. Charles T. Parry, Philadelphia, Pa., assignor to Burnham, Parry, Williams & Co., same place. [Filed Feb. 28, 1877.]



The combination of the exhaust-chamber, exhaust-muffler located therein, and the blast-nozzle E, whereby the noise of the escaping steam is deadened and the force of the blast retained to create draft, substantially as and for the purpose set forth.

191,646. HYDROCARBON-INJECTORS. H. B. Parson, Watertown, N. Y. [Filed Apr. 26, 1877.]

1. In a hydrocarbon-injector, the combination, with the oil-supply pipe located within the injector, and adapted to have an endwise movement therein, of an oil-supply valve and a coupling-piece, the latter provided with an oil-passage, and also with a passage leading to the open air, substantially as and for the purpose set forth.

2. In a hydrocarbon-injector, the combination, with the outer casing, having a plug secured within one end of the same, of a tube removably secured to a screw-threaded boss formed on the inner end of the plug, said tube provided with a conical valve-seat and a contracted nozzle, and an oil-supply pipe, arranged to extend through said plug, the forward end of the oil-pipe having a conical valve formed thereon, substantially as and for the purpose set forth.

3. In a hydrocarbon-injector, the combination, with the outer casing, and oil and steam pipes arranged within the same, of an atomizing-nozzle, formed with a conical deflector, made up of a series of knife-edge deflectors, substantially as and for the purpose set forth.

4. In a hydrocarbon-injector, the combination, with an outer casing having an enlarged chamber formed therein, of an inner steam-tube of practically the same length as the enlarged chamber, and a steam-supply pipe leading to said tube, and an inwardly opening valve, substantially as and for the purpose set forth.

5. The combination, with the outer casing of a hydrocarbon-injector, constructed substantially as shown, and a valve-casing, the upper end of which constitutes a conical valve-seat, of a valve and a spring, which latter is interposed between the valve-stem guide and a pin or nut secured to the valve-stem, substantially as and for the purpose set forth.

6. In a hydrocarbon-injector, the combination, with the outer casing, having an enlarged chamber formed therein, and suitable steam-pipes, of a removable plug, Q', substantially as and for the purpose set forth.

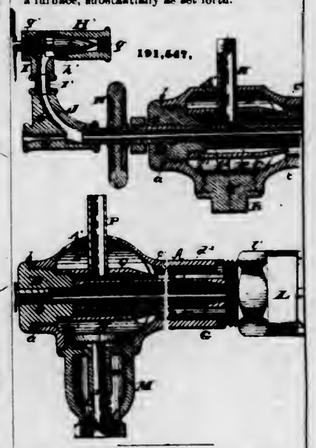
7. In a hydrocarbon-injector, the combination, with casing A, formed with an enlarged portion, A', provided with opening Q, of the steam-pipe P, tubes C D, the several parts constituting the chambers E and F, substantially as and for the purpose set forth.

8. In a hydrocarbon-injector, the combination, with the tubes C and D and steam-pipe P, of the outer casing A, provided with an inwardly-opening valve, constructed with an inclined inner surface, *c'*, in close proximity to the forward end of tube C, substantially as and for the purpose set forth.

9. In a hydrocarbon-injector, the combination, with casing A, having an enlarged portion, A', of the plug B, tubes C D, oil-pipe G, and steam-pipes K P, substantially and as for the purpose set forth.

10. A hydrocarbon-injector constructed with independent steam-chambers and connecting-pipes, the same arranged substantially as set forth, whereby either air and steam, or gas and steam, or oil, air, and steam, may be injected, separately or collectively, into a furnace, substantially as set forth.

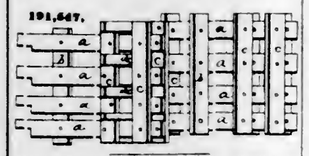
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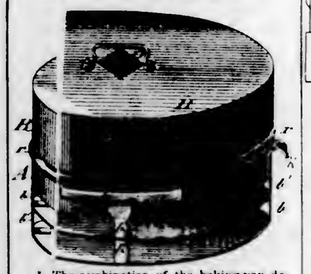
191,647. FENCES. Edgar H. Perry, Exeter, Ill. [Filed Mar. 27, 1877.]

In a removable fence, the combination of two or more panels, *a*, each one of which has the four posts *c* secured to one end, the posts being arranged two on a side, and at an angle to each other, so as to form a double brace with the locking-pins *d*, substantially as shown.

191,547.



191,548. BAKING-PANS. John H. Pitts, San Francisco, Cal. [Filed Jan. 18, 1877.]

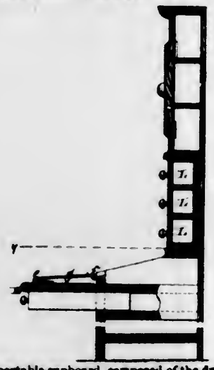


1. The combination of the baking-pan described, provided with radiator P and handles *h h h'*, with the cover B B, provided with metallic-gauze-covered aperture O *g*, substantially as and for the purposes herein set forth.

2. The baking-pan A A, provided with radiating-plate P, arranged in the manner described, substantially as and for the purposes specified.

3. In a baking-pan, as described, the cover B B, provided with aperture O, covered with metallic gauze, substantially as and for the purposes herein set forth and specified.

191,549. CUPBOARDS. William H. Sallada, Monroe, Iowa. [Filed Apr. 7, 1877.]



A portable cupboard, composed of the drawers J K L L, the latter being constructed with upper and lower beveled edges, and adapted to make a tight joint with the correspondingly-beveled ledge, which forms a cover for the upper drawer, the top portion of said cupboard being detachably connected by means of a loop and pin with the lower portion thereof, a reversible kneading-board, E, having a rod, *g*, hinged near one end thereof, the other end being hinged to the meal-receptacle, which is provided with doors having ventilating-openings, substantially as set forth.

191,550. FIRE-PROOF SAFES. Charles A. Saxe and James S. Harding, Philadelphia, Pa. [Filed Sept. 1, 1876.]

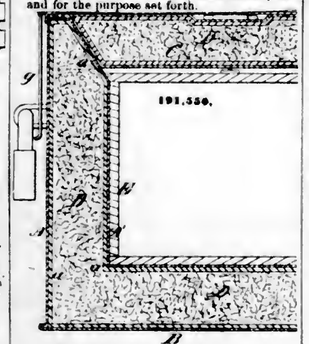
1. A fire-proof box or safe provided with a filling of infusorial earth.

2. A lining for the walls of fire-proof boxes, composed of paper felting saturated with silicate of soda.

3. The lining herein described for the internal chamber of a fire-proof box or safe, the same being composed of wood saturated with silicate of soda.

4. The fire-proof box herein described, composed of the double walls A A', correspondingly-formed bottom and top B C, paper felting *a a'*, infusorial-earth filling D, and wooden lining E, said felting and wood being saturated with silicate of soda, substantially as and for the purpose set forth.

191,550.

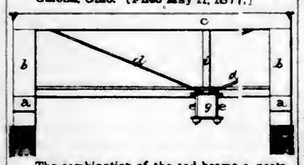


191,551. MOLDS OR DIES FOR FORMING ARTICLES OF PULP. David Scrymgeour, Boston, assignor to W. T. Cook, Foxborough, Mass. [Filed Mar. 24, 1877.]



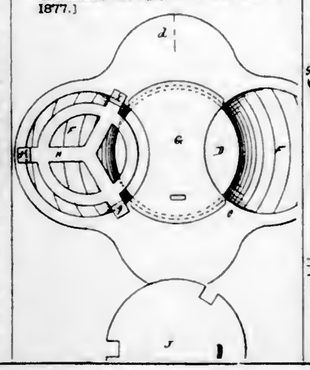
A mold for making hollow articles of paper-pulp, whose interior surface, shaped to conform to the article to be molded, is smooth—that is to say, without water-escape ducts, corrugations, or channels—in combination with a lining of woven wire or other reticulated material, as and for the purposes set forth.

191,552. BRIDGES. Everett S. Sherman, Galena, Ohio. [Filed May 11, 1877.]



The combination of the end beams *a*, posts *b b*, horizontal beams *c*, rod *d*, stirrup *e*, cross-bar *g*, and floor *h*, all constructed and arranged to operate substantially as shown and described.

191,553. COOKING ATTACHMENTS TO COAL-OIL STOVES. N. H. Sherburne and Edwin S. Skinner, Chicago, Ill. [Filed Apr. 30, 1877.]



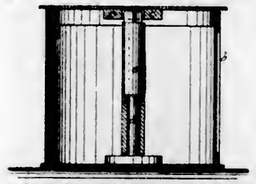
1. The removable top C of a coal-oil stove, cast in one piece, and provided with the central opening D, heating-chambers F F, and removable center-plate G, substantially as and for the purpose specified.

2. The removable top C of a coal-oil stove, provided with the central opening D, and one or more heating-chambers, F F, having the lower wall or bottom thereof curved or inclined inward and downward, substantially as and for the purpose specified.

3. The removable top C of a coal-oil stove, provided with the central opening D, heating-chambers F F, and one or more shelves, *d d*, substantially as and for the purpose specified.

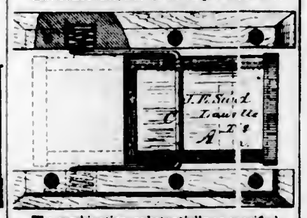
4. The combination, with the removable top C of a coal-oil stove, provided with one or more heating-chambers, F F, of the removable disk H, provided with the arms *f*, for suspending the disk within the chamber, substantially as and for the purpose specified.

191,554. RIBBON-BLOCKS. G. N. Stanton, New York, N. Y. [Filed Apr. 25, 1877.]



A device for packing and receiving ribbons, consisting of a hollow receptacle with a slot formed in its side, and with a spindle fixed within its interior, a sleeve made in two parts fitting upon said spindle, and a cover depending into the receptacle, but provided with an outside projecting edge, and an angular seat fixed to its under side, which seat receives the upper end of the before-mentioned sleeve, substantially as and for the purpose described.

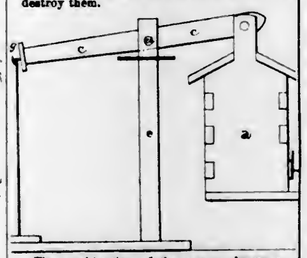
191,555. LABEL-HOLDERS. J. B. Sweetland, Lawrenceville, Pa. [Filed Apr. 20, 1877.]



The combination, substantially as specified, of a tag or card frame, and a spring to which it is pivoted for reversal.

191,556. CHICKEN-COOPS. Robert L. Todd and Nancy J. Todd, Shamrock, Mo. [Filed Apr. 14, 1877.]

Brief.—The coop is attached to a lever, whereby it can be elevated at will, to keep the chickens in it away from animals that would destroy them.

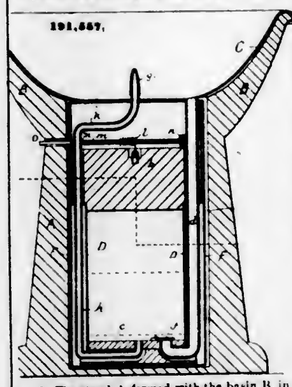


The combination of the coop *a*, levers *c*, standards *e*, bar *g*, and a holding device, substantially as specified.

191,557. PORTABLE FOUNTAINS. Wm. H. Zinn, Boston, Mass. [Filed Nov. 6, 1876.]

Brief.—If water be poured into the basin it flows through the pipe into the receptacle, thus enabling said receptacle to be filled by raising the weighted head, which head, as it falls, drives the water out of the receptacle through the nozzle, and secures the play of the fountain, from which the water falling into the basin is again brought back into the receptacle and used again, as before.

191,557.

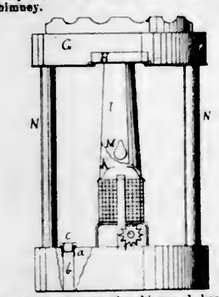


1. The stand A formed with the basin B, in combination with the metallic basin C, arranged in said basin B, as and for the object set forth.

2. The combination of the stand A, formed with the basin B, the basin C arranged in the same, the flexible receptacle D, the pipes *d* and *h* in the receptacle, and the heads *b* and *c* in the upper and lower ends of the flexible receptacle, as and for the purpose described.

191,558. COAL-OIL STOVES. M. H. Barnes, Chicago, Ill. [Filed Apr. 3, 1877.]

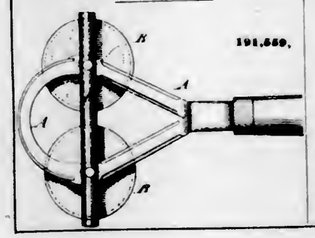
Brief.—The slide by means of which the chimney is secured to the top keeps comparatively cool. The cone is removable with the chimney.



1. In an oil-stove, the chimney I, having in its base the cone or deflector K, and its top fastened to the slide H, by which it is supported in the top G, and by which it is drawn out for cleaning or lighting the wick.

2. A coal-oil stove having the oil-receptacle A, with the top G for the cooking utensils, the two parts connected by the metal strips N N, the top G having a transverse opening, in combination with the slide H and chimney I, substantially as described.

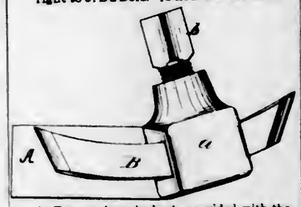
191,559.



191,559. CURRY-COMBS. Thos. D. Bennett and Horace B. Moody, Harrisonville, Mo. [Filed May 12, 1877.]

A curry-comb composed of a supporting-frame, with an arc-shaped stationary front comb, and circular rotary combs back of the same, substantially in the manner and for the purpose set forth.

191,560. LATHE-TOOLS. Edwd. F. Beugler, Williamsport, Pa., assignor of one-half his right to J. Du Bois. [Filed Jan. 31, 1877.]

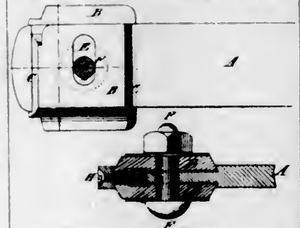


1. The stock or body A, provided with the oblique head *a* and the screw *b*, or its equivalent, substantially as and for the purpose shown and described.

2. The combination of the shank or body A, having the oblique head or socket *a*, with the cutter or tool B secured therein, substantially as shown and described.

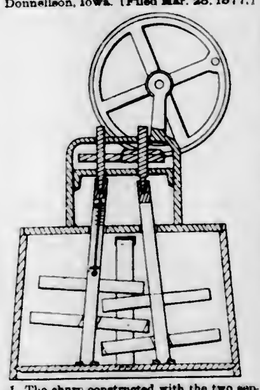
3. In combination with a shank or body, A, having a head or socket, *a*, a curved cutter or tool, B, substantially as shown and described.

191,561. EXPANDING REAMERS. Robt. Blair, San Francisco, Cal. [Filed Apr. 4, 1876.]



The combination of the sliding cutters B, having rack-arms G and slots E, clamping-bolt F, pinion J, and shaft H, with the stock A, having dovetail grooves, as and for the purpose set forth.

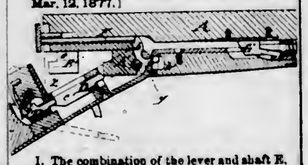
191,562. ROTARY CHURNS. A. J. Borland, Donnellson, Iowa. [Filed Mar. 28, 1877.]



1. The churn constructed with the two separate revolving dashers, as described, and with the water chamber or tube K in the milk-chamber next to the wall, substantially as set forth.

2. The churn having elliptical chamber and two upright revolving dashers within partly separate spaces, constructed with a horizontal hand-crank and gearing arranged to drive the two dasher-shafts in contrary directions, and with a water tube or chamber, substantially as and for the purpose set forth.

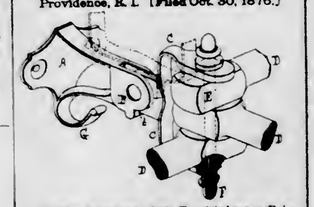
191,563. BREECH-LOADING FIRE-ARMS. Victor Bovy, New York, N. Y. [Filed Mar. 12, 1877.]



1. The combination of the lever and shaft E, having arm *d* and cams *g*, with the sliding double lock-bolt D having recess *d'*, and with the sliding center firing-pins *g'*, for the purpose of withdrawing simultaneously bolt and firing pins for swinging barrels into open position, substantially as and for the purpose specified.

2. The combination of the fixed elbow-piece *b* at end of breech-piece with barrels A having recessed lug G', and with detachable fore-stock C having rear recesses *b' b²*, for the purpose described.

191,564. TOWEL-RACKS. C. A. Brickley, Providence, R. I. [Filed Oct. 30, 1876.]



1. The detachable bolt E, with its nut F, in combination with the clamp C and rods D of a towel-rack, substantially as and for the purpose specified.

2. The hinge B, having a horizontal pivot-pin, and provided with the shoulder *b*, in combination with the bracket A and clamp C, having a vertical pin, E, substantially as and for the purpose specified.

3. The improved towel-rack herein described, consisting of the bracket A, hinge B, clamp C, rods D, bolt E, nut F, and hook G, all combined substantially as described, and for the purpose specified.

191,565. SEED-DRILLS. Hiram L. Brown, Shortsville, N. Y. [Filed May 17, 1876.]

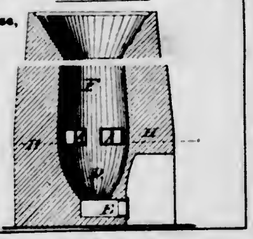
Brief.—To the shaft, at suitable distances, is secured heads, having radial arms that revolve over the discharge-openings. Passing through the heads, near their peripheries, is a longitudinal rod that assists in agitating the material to be sown.



1. The revolving distributers or agitators *o*, constructed as shown and described, and arranged upon the shaft *s*, in combination with the openings C, for the purposes set forth.

2. In combination with the distributers or agitators *o* and distributing-cavities C, the revolving auxiliary agitator *r*, all constructed and arranged to operate conjointly, in the manner and for the purposes set forth.

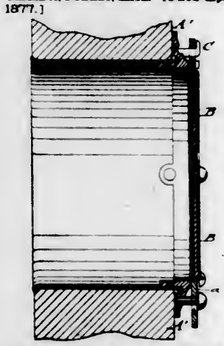
191,566.



191,566. LIMEKILNS. M. Callan, Innerskip, Ontario, Canada. [Filed Sept. 2, 1876.]

In a limekiln having an oval cupola, F, four separate fire-places, A A A' A', arranged in pairs opposite to and in a line with each other, to intersect the cupola at its shortest diameter, in combination with a discharge-channel, E, intersecting the oval-shaped hopper in a line with its longest diameter, substantially as and for the purpose hereinbefore set forth.

191,567. STOVE-PIPE THIMBLES. James Carhartt, Pontiac, Mich. [Filed Apr. 28, 1877.]

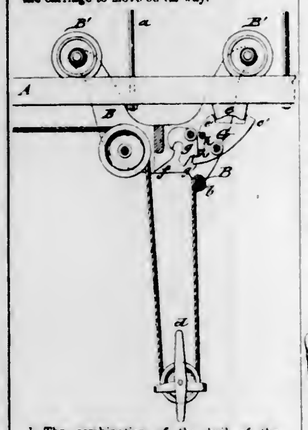


1. The combination, in a stove-pipe thimble, of the face ring or molding A', having lower pivot-pin and top locking catch or hook, with the swinging cover and ventilator B, having slotted bottom and top lugs, substantially in the manner and for the purpose described.

2. The swinging cover and ventilator B, having a slotted bottom lug, *a*, with cam-extended *a'*, to bind tightly on stove-pipe when inserted into the thimble, substantially as specified.

191,568. HAY-ELEVATORS. H. L. Church, Walworth, Wis. [Filed Apr. 16, 1877.]

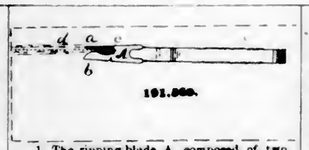
Brief.—The hay is elevated and the pulley-block locked by the grappling-hook, which at the same time releases the catch and allows the carriage to move on its way.



1. The combination of the bail of the sheave-frame of the hay-fork with the stationary guide-hook *f*, the pivoted grappling-hook *g*, and the locking-catch G of the carriage B, substantially as and for the purpose set forth.

2. The combination of the swinging grappling-hook *g*, having shoulder *g'*, tilting catch G, having end lugs or points *e'*, and the carriage B with the fixed stop-block and the track-frame, substantially as and for the purpose specified.

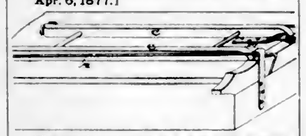
191,569. RIPPING-TOOLS. Geo. D. Clark, Plainville, Conn. [Filed Jan. 26, 1877.]



1. The ripping-blade A, composed of two straight parallel guides, *a b*, set closely together, and having a knife with two converging cutting-edges at the junction of said guides, substantially as described, and for the purpose set forth.

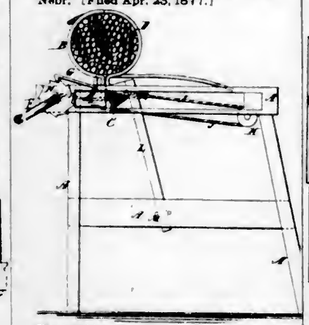
2. A ripping-tool adapted for operation by an endwise pressure, when provided with a smooth-sided sheet-metal handle, B, slightly roughened at its thin edges, substantially as described, and for the purpose specified.

191,570. SKID ATTACHMENTS FOR WAGONS. Charles Crandall, Newport, R. I. [Filed Apr. 6, 1877.]



The combination of the skid C C, having projecting pins D D at the rear, with the springs E E and bars A upon the under side of the vehicle-body, substantially as and for the purpose described.

191,571. MACHINES FOR PRESSING CORN-STALKS, &c., FOR FUEL. Edgar P. Davis, James E. Davis, and John J. Fisk, Crete, Nebr. [Filed Apr. 23, 1877.]



The combination of the two sets of semicircular arms B D, the sliding bar C, the rods or arms N, the crank-shaft E F, and its pawl and ratchet G H, the ropes I and J, the pulley K, and the levers L, with each other, and with the frame A, substantially as herein shown and described.

191,572. FIRE-KINDLERS. John G. Distler, Brooklyn, (Green Point P. O.,) N. Y. [Filed May 12, 1877.]



An improved fire-kindler, formed of a corn-cob, A, steamed, having a number of transverse holes, *a'*, bored through it, dried, dipped in melted white resin, and wrapped in paper, substantially as herein shown and described.

191,573. SKATES. John A. Dodge, Bridgetown, Nova Scotia. [Filed Dec. 16, 1876.]

1. The combination of the lever F and clamp-plates E with the skate-runner, the lever being pivoted to the runner and provided with the obliquely-disposed spurs *d*, and the plates being furnished with the tangential grooves or teeth *e* to operate with the said spurs, and with the notches *f* to receive said spurs and release the plates, the whole being substantially as and for the purposes stated.

2. The combination, with plates E, having eccentric grooves arranged in parallel series, of the lever F, provided with spurs engaging said grooves, the whole being arranged substantially as described, whereby the changes in position of the latter to accommodate soles of varying widths are effected without additional means, essentially as and for the purposes stated.

191,574. LOCOMOTIVE SIGNAL HEAD-LIGHTS. Andw. Dressell, Cleveland, Ohio. [Filed Feb. 26, 1877.]

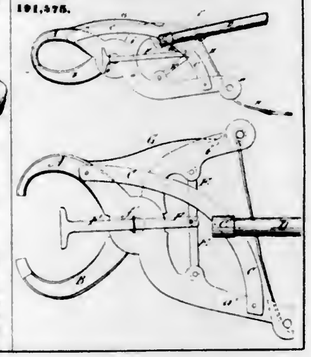
Brief.—Colored glasses are raised at each side and partly in front of the head-light, instead of using separate signal-lanterns.



1. The glass slides H, consisting of two plates of glass, *a o*, one being colored and the other being uncolored and semi-transparent or its equivalent, substantially as set forth and for the purpose specified.

2. A lantern, having one side, E, hinged, to which is attached a tube, E', provided with a glass, F, and having slits therein for the reception and adjustment of sliding frames with colored glasses, substantially as and for the purpose described.

191,575.



191,576. HOG-CATCHERS. Jas. H. Barnes, Emerson, Iowa. [Filed Apr. 30, 1877.]

Brief.—A hinged T-piece, striking against the animal's leg, causes the spring-jaws to close together.

The combination of the pivoted curved jaws A B, provided with shanks *a' b'*, of different lengths, the curved bar C, provided with a socket, *c'*, to receive the handle D, the jointed bar E, the sliding cross or T head trip-bar F, the spring G, and the cord or strap H, with each other, substantially as herein shown and described.

191,576. MATCH-SAFES. John A. Field, Racine, Wis. [Filed Apr. 23, 1877.]



A match-safe the back, top, and front of which are formed from a single piece of sheet metal, and having the opening *a*, hooks *d*, and wire-cloth lighter B, substantially as shown and described.

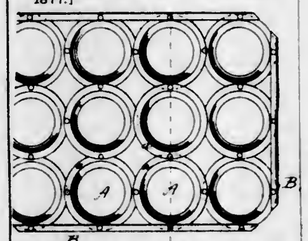
191,577. EASELS. Timothy L. Fisher, Arlington, Mass., assignor to F. S. Frost, same place. [Filed Feb. 5, 1877.]

Brief.—Pertains particularly to the construction of the brace.



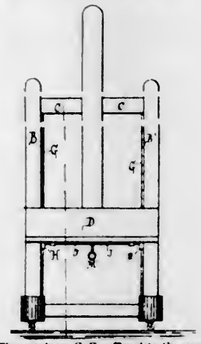
In a tripod-easel having two of its legs framed together, and the other leg hinged to the frame, the brace D and clasp G, constructed as described.

191,578. BAKING-PANS. L. B. Foss, Boston, Mass., assignor to the Dover Stamping Company, same place. [Filed Mar. 7, 1877.]



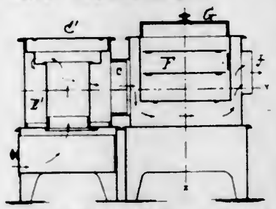
The baking-pan described, the same consisting of the cups A united by their flanges, and the folded binding-stripe B, each of a length sufficient only to bind and stiffen upon one side the projecting flanges of the cups.

191,579. EASELS. Francis S. Frost, Arlington, Mass. [Filed Jan. 28, 1877.]



The ratchets G G, affixed to the posts B B', in combination with the rod J, weighted handle M, and clutches N, affixed to the shelf D, the rod J having pawls H H at its ends to engage with the ratchets G G, as described.

191,580. STOVES. John Gladding, 3d, Bristol, R. I. [Filed Mar. 17, 1877.]



1. The improved summer-stove, consisting of the cylinder A, base B, grate *a*, top piece C, and ash-pan D, in combination with the case E, by which it is made convertible into a parlor stove, substantially as described.

2. The improved kitchen-stove, consisting of the following detachable parts: the cylinder A, bases B B', top piece C', ash-pan D, cases E' E'', oven F, pipe *c*, slide *d*, and rod *e*, with or without the baker G, substantially as specified.

191,581. DEVICES FOR PREVENTING THE UNROLLING OF TAPE, &c., FROM SPOOLS. A. C. Gould, Brookline, Mass. [Filed Apr. 9, 1877.]

Brief.—A piece of wire is bent so that the part which rests over the outer layer of tape is doubled; its ends are bent at right angles and inserted in the opposite sides of the spool. In passing the tape through upper portion of wire loop and returning it under doubled portion it will be held in place on spool and prevented from unwinding, except when necessary.

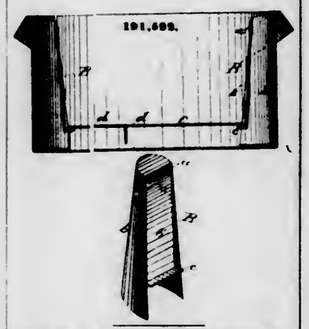


A tape or braid guard consisting of a single piece of wire, C, with the bent ends *d d* and the double loop *a*, as and for the purpose set forth.

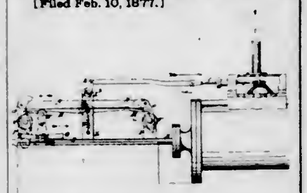
191,582. WASH-BOILERS. Thos. Gunsalus, West Troy, N. Y. [Filed Sept. 25, 1876.]

The detachable conduits B, consisting, each, of a curved back piece, *b*, and a straight front piece, *b'*, having perforations *a*, and projecting shelf or bracket *c* for the false bottom C to rest upon, so as to insure its parallelism to the bottom and prevent displacement, substantially as and for the purpose herein shown and described.

191,583.



191,584. VALVE-MOTIONS FOR STEAM-ENGINES. Henry Haering, New York, N. Y. [Filed Feb. 10, 1877.]

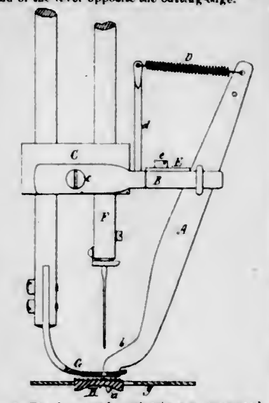


1. The combination of the three-armed bar Q, the levers O, the bar N, and the lever K, with the piston-rod B, and with the valve-stem I of a steam-engine, substantially as herein shown and described.

2. The combination of the lock-bar R, the spring S, the cylinders T, and the pin U, with the levers O, and the three-armed bar Q, substantially as herein shown and described.

191,585. WORK-TRIMMERS FOR SEWING-MACHINES. Harvey H. Hallett, Rockland, Mass. [Filed Mar. 6, 1877.]

Brief.—A lever having a cutting-edge at its lower end is pivoted to an extension on the head of the machine, is held against the work by a spring, so as to move with it as it is fed along, and is moved to trim the goods by the needle bar, on its downward stroke, striking against a cam surface on the side of the lower end of the lever opposite the cutting-edge.



1. The improved work-trimmer composed of the carrier B, separate from the work-support plate *g*, and the lever A, pivoted to such carrier, and provided with the cam or incline *b* and the knife or cutting-edge *c*, all being arranged and applied substantially as described.

2. The combination of the operative spring D with the carrier B, and with the lever A

pivoted thereto, and provided with the incline *b* and cutting-edge *c*, arranged as set forth.

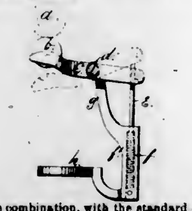
3. The combination of the adjustable stop E with the carrier B, and the lever A pivoted thereto, and provided with the incline or cam and the cutting-edge, all being substantially as set forth.

4. The combination of the spring D and the adjustable stop E with the carrier B, and the lever A pivoted to such carrier, and provided with the cutting-edge and the incline or cam, arranged as set forth.

5. The combination of the needle-bar F, the presser-foot G, and the feeder H of a sewing-machine, with the lever A, not only pivoted to a carrier, B, separate from, and arranged over, the work-support feeder *g*, but provided with the cutting-edge *a* and the incline or cam *b*, and arranged with the needle-bar in manner and to be operated thereby, and to be advanced by and with the material to be cut, all being substantially as specified.

191,586. CLEARER-ROLL SUPPORTS FOR SPINNING-FRAMES. Fredrio B. Hart, Bristol, R. I. [Filed Jan. 20, 1877.]

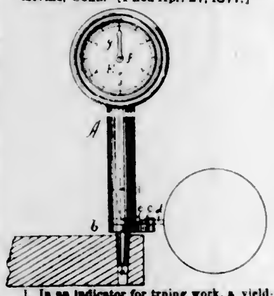
Brief.—The clearer-roll is held to the delivery-roll by hinged or pivoted levers, which are acted upon by connecting-rods and coiled springs. These parts are arranged upon and within a standard or support which is secured to the spinning-frame.



1. The combination, with the standard *g f'*, arranged to support the levers *c*, and contain the coiled springs *f*, with the hinged levers *c*, rods *e*, and springs *f*, all arranged to support the clearer-roll of a spinning-frame, substantially as and for the purpose set forth.

2. The combination, with the standard *g f'*, arranged to support the hinged levers *c*, of the bracket *h*, arranged to secure the standard to the spinning-frame, substantially as and for the purpose specified.

191,587. INDICATORS FOR TRUING WORK IN LATHES. Anson Hatch, New Haven, assignor to himself and Alvin Taplin, Forestville, Conn. [Filed Apr. 27, 1877.]



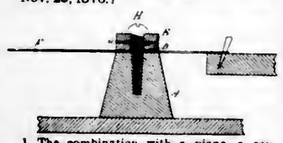
1. In an indicator for truing work, a yielding and reciprocating arm for engagement with the work to be trued, in combination with a reciprocating indicator and their connecting mechanism, substantially as described, and for the purpose specified.

2. In an indicator for truing work, the lever C pivoted to the standard A, one end adapted for engagement with the work to be trued and the other end adapted to carry an indicator, substantially as described, and for the purpose specified.

3. In an indicator for truing work, the combination of the standard A, arm *c*, lever C, bow *h*, shaft *f*, and pointer *g*, substantially as described, and for the purpose specified.

4. In an indicator for truing work, the combination of the pointer *g*, shaft *f*, bow *h*, lever C, angle-lever *k*, and standard A, substantially as described, and for the purpose specified.

191,587. PIANO-FORTE BRIDGES. Joseph Herald, Hamilton, Ontario, Canada. [Filed Nov. 29, 1876.]

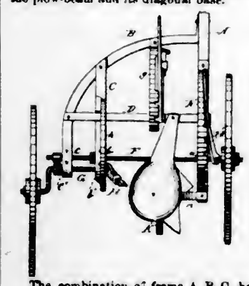


1. The combination with a piano, a cap composed of wooden plate D or its equivalent, and the metallic plate E conformed to the bridges A G, the lower or wooden plate arranged to impinge upon the strings F on the bridges, the whole secured by a screw, H, passing between each pair or trio of strings.

2. A strip of cloth, rubber, or other yielding substance, *a*, when interposed between the plates D and E of a piano sounding-board bridge, substantially as and for the purpose set forth.

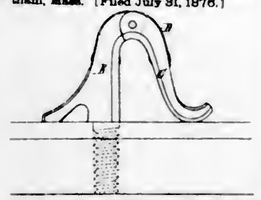
191,588. SULKY-PLOWS. William Henry, Trenton, Mo., assignor of one-half his right to George W. Moberly, same place. [Filed Feb. 19, 1877.]

Brief.—A long and a short axle, each having a rigid lever for turning their cranks; also, rigid hangers, which turn with the axle for the plow-beam and its diagonal base.



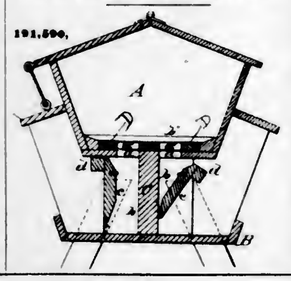
The combination of frame A B C, having bearings *a b c*, long axle F having lever H', and hails or keepers I K rigidly attached thereto, swinging plow-beam K', and pivoted brace L, substantially as and for the purpose herein shown and specified.

191,589. HOLDBACKS. John W. Hight, Waltham, Mass. [Filed July 31, 1876.]



The holdback, consisting of fixed standard B, pivoted S-shaped tongue C, and exterior spring D, fixed to the standard and pressing upon the tongue, all as herein described.

191,590.



191,590. FEED-RACKS. Wm. H. Howard, Albany, Wis., assignor to himself, J. F. Tracy, and Jonathan H. Roberts, same place. [Filed Apr. 2, 1877.]

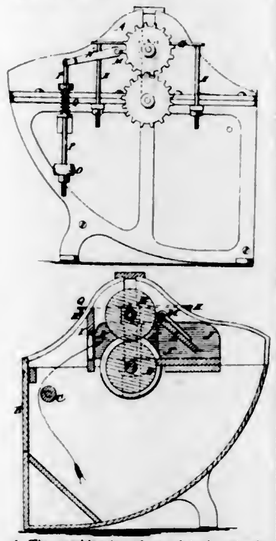
In combination with a supply-hopper, A, having discharge-apertures *a*, and the feed-trough B, having boxes or compartments *b*, the doors or valves *c*, provided with the shoulders *d*, as described, for the purpose of facilitating the feeding of stock, in the manner described.

191,591. HAME ATTACHMENTS. J. Hudson, Detroit, Mich. [Filed Oct. 12, 1876.]



The combination of the sides A, front loop B, center-bar C, back loop D, and hook E, having hole *a*, as shown, all as and for the purposes set forth.

191,592. FULLING-MILLS. James Hunter, North Adams, Mass., assignor to himself and James E. Hunter, same place. [Filed Mar. 19, 1877.]



1. The combination of eye-plate I, extended crimping-box J K, and rolls D E, the extensions K passing along the rolls to eye-plate, and the flange of roll D being arranged inside the said extensions, as and for the purpose specified.

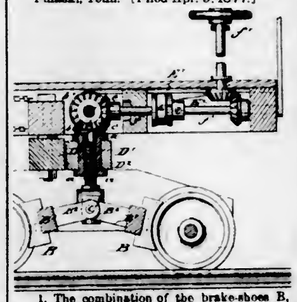
2. The combination, with tongue L attached to shaft M, of the rod P attached to lever N, and having a spring, Q, resting against an adjustable collar, as and for the purpose specified.

191,593. HONEY-BOXES. Geo. F. Johnson and Thos. T. Keeley, Washington, Iowa. [Filed Apr. 2, 1877.]



A box for packing honey, dried fruit, and other substances, composed of thin board top and bottom, connecting metallic corner-strips, and closing sides, and one end of paper or pasteboard and the other end of glass, substantially as specified.

191,594. CAR-BRAKES. Edward S. Jones, Pulaski, Tenn. [Filed Apr. 9, 1877.]

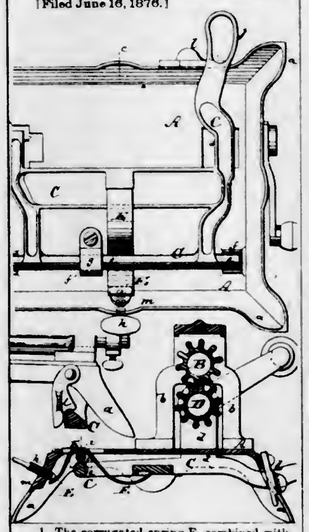


1. The combination of the brake-shoes B, bar B', pivoted to a cross-piece, C, by means of arms B', with upright screw-post D, screw-nut D', and the endless chain for connecting with the locomotive, substantially as and for the purpose set forth.

2. The combination of the lever-acted brake-shoes B attached to a brake-bar, which is pivoted by arms B' to a cross-piece, C, having upright screw-post D, and screw-nut D', substantially as and for the purpose described.

3. The lever E and rod E', the bevel-gear *b'* sliding on shaft *d*, the collar on sliding shaft *f*, the gear *a*, and gear *b*, all combined as shown and described, for the purpose specified.

191,595. FLUTING-MACHINES. Jos. Keller and August Olmesdahl, New York, N. Y. [Filed June 16, 1876.]



1. The corrugated spring E, combined with the table A and frame C, and placed over the fixed pin *i* and against the under side of the frame C, substantially as specified.

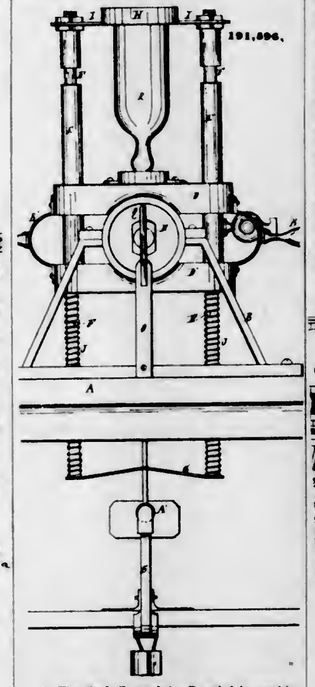
2. The spring E, made corrugated at the part which rests on the supporting-pin *i*, and in combination therewith, substantially as specified.

3. The set-screw *h*, combined with the corrugated spring E and vibrating frame C of a fluting-machine, substantially as herein shown and described.

4. The combination, with the frame C of a fluting-machine and table A, said frame being placed beneath said table, of the catch *l*, constructed and arranged to operate substantially as and for the purpose herein shown and described.

191,596. BOTTLING-MACHINES. William H. Kelley, Cleveland, Ohio. [Filed May 11, 1877.]

Brief.—If the gas-pressure is not sufficient to seat the stopper, air is forced in for the purpose. The supply and escape are through the revolving shaft shown.



1. The shaft C, conduits P and *f*, in combination with the chamber *a'* and screw-plug *r*, substantially as described, and for the purpose set forth.

2. The combination, with the shaft C and conduit P, of the cap or head L and pipe M, in the manner substantially as described, and for the purpose set forth.

3. In combination with the shaft C, screw-plug *r*, and conduit *f*, the cap N and pipe Q, as and for the purpose specified.

4. The hollow standards E, rods F, bar or cross-piece G, springs J, and cap H, in combination with the yokes D and shaft C and standards B, as and for the purpose set forth.

5. In combination with the cross-piece G and rods F, the treadle S and roller A', substantially as and for the purpose specified.

6. The recess *i*, in combination with the head L, pipe M, conduit P, and shaft C, as and for the purpose set forth.

7. In combination with the conduit P, shaft C, head L, pipe B', and faucet L', the air being supplied by a force-pump, for the purpose specified.

191,597. FEED-WATER HEATERS FOR LOCOMOTIVES. Nahum W. Kirby, Indianapolis, Ind. [Filed Apr. 19, 1877.]

1. A feed-water heater located between the forward and rear drivers of a locomotive, and at a point below the low-water line of the tender, whereby water from the tender is heated before reaching the pump, as and for the purposes set forth.

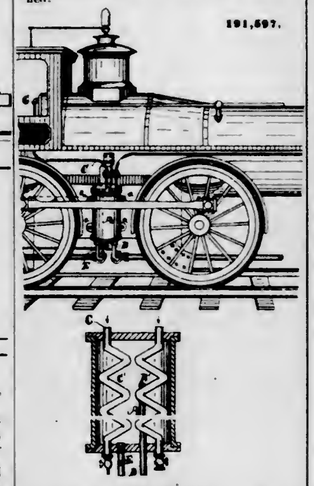
2. The locomotive-engine heater A, with the inlet water-pipe or branch pipe E, the outlet water-pipe or branch pipe D extending its mouth or open end up into the body of the heater, so that the heater shall be filled or partly filled with water before the water shall pass out of the heater through the branch pipe D, and provided, also, with the dead-steam coil B', with a large opening permitting a free exhaust, for heating feed-water for locomotives, substantially as shown.

3. The locomotive-engine heater A, with the inlet water-pipe or branch pipe E, the outlet water-pipe or branch pipe D extending its mouth or open end up into the body of the heater, so that the heater shall be filled or partly filled with water before the water shall pass out of the heater through the branch pipe D, and provided, also, with the live-steam coil C', with a small drip-cock at its lower end, for heating feed-water, substantially as shown.

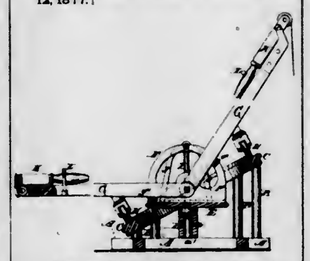
4. A locomotive-engine heater located at a point below the low-water line of the tank, provided with an inlet water-pipe, branching from the main feed-water pipe leading from the tank to the force-pump, an outlet-pipe projecting its open end up into the interior of the heater, and connecting the heater with said feed-water pipe, whereby water from the tender is heated before reaching the pump, as and for the purposes described.

5. The feed-water heater A, provided with the two coils of pipe, the one conducting live steam having a small pet-cock at its lower end where it emerges from the heater, and the other conducting dead steam from the exhaust having a free opening at its lower end, substantially as and for the purposes specified.

191,597.



191,598. HAY DERRICKS AND STACKERS. R. N. B. Kirkham, Kansas, Ill. [Filed May 12, 1877.]



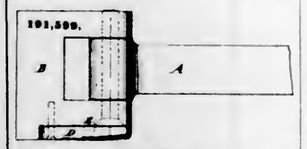
1. The combination of the inclined circular track C and its supporting frame-work A B, the plate F and its pivoting shaft D, the two parallel semicircular plates F, and the levers G and their wheels H with each other, substantially as herein shown and described.

2. The combination of the curved draw-rod or sweep I and its brace J with the circular plate E, the two parallel semicircular plates F, the levers G, and the track C, substantially as herein shown and described.

191,599. THILL-COUPLINGS. J. Kitzmiller, Keedysville, Md. [Filed Apr. 23, 1877.]

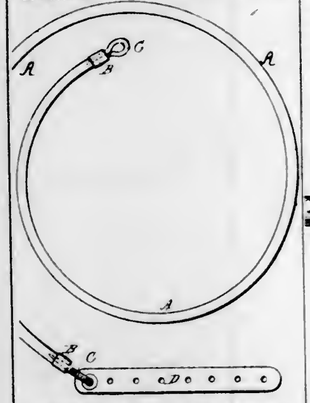
The combination, with the pivoted cap D and the clip-lug having their adjacent edges flush, of the concealed spring-catch E arranged between the pivoted cap and the lug, substantially as and for the purpose described.

191,599.



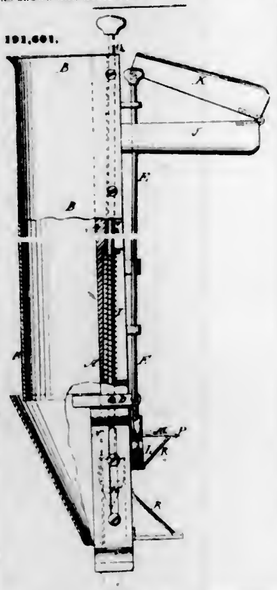
191,600. HARNESS-CORDING FOR POWER-LOOMS. Lucius J. Knowles, Worcester, Mass. [Filed Mar. 2, 1877.]

Brief.—The braided cylindrical cord, in combination with the metallic ferrules, furnishes a firm hold for the screw-threaded shank of the metallic loops. The combination of the braided cord, ferrules, screw-threaded eye-bolts, and adjustable strap constitutes the new article.



A harness-cording, as an improved article of manufacture, the body part A of which is made from braided fibrous material, and provided at its ends with metal ferrules B and metallic loops C, to one of which loops is secured the adjustable strap D, all substantially as shown and described.

191,601.



191,602. TOBACCO-PLANT PLANTERS. Robt. A. Knox, Ghent, assignor to himself and Darnall Brothers, Louisville, Ky. [Filed Mar. 19, 1877.]

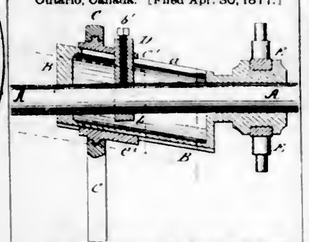
Brief.—A transplanting-machine, so constructed as to open a hole to receive the plant, guide the plant to said hole, and press the soil around it.

1. The combination of the rod G, conical head H, and spring I with the board A, plate B, and hinged plate C, to form a hole to receive the plants, substantially as herein shown and described.

2. The combination of the hinged handle K, the rod L, the pivoted connecting-bars M, the sliding bars N, and the spring O with the stationary handle J, the board A, and the plates B C for pressing the soil around the plant, substantially as herein shown and described.

3. The combination of the pivoted arms D, the rod E, and the spring F with the board A and the semi-conical plate C, for swinging the said plate C back to allow the machine to be raised, substantially as herein shown and described.

191,603. REVERSIBLE EXCENTRICS. Geo. G. Lafayette and Pitt W. Strong, Brockville, Ontario, Canada. [Filed Apr. 30, 1877.]



1. The combination, with the main or countershaft of an engine or other machine requiring an adjustable or reversible eccentric, of a sliding and slotted incline and fixed eccentric or disk, so placed thereon as to be thrown at will to one side of the center of the shaft, or to the opposite side of the same, substantially in the manner and for the purpose set forth.

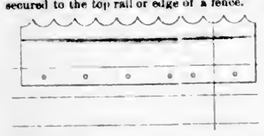
2. The combination of a sliding and slotted incline, placed at a suitable angle to the shaft, with a fixed eccentric or disk and fastening pin or key, secured firmly to axle, substantially as specified.

3. The combination of the shaft A, sliding and slotted incline B, eccentric or disk C, having fixed collar C', and fastening pin or key D, secured firmly to shaft, substantially as set forth.

4. The combination of the shaft A and eccentric or disk C with the pin or key D passing through collar around the shaft, and extending beyond said collar and shaft, and being secured by a set-screw passing through arm of pin and collar, substantially as specified.

191,604. METALLIC FENCE-CAPS. John D. W. Lauckhardt, Brooklyn, N. Y. [Filed Apr. 23, 1877.]

Brief.—A spur-topped cap expanding from its ridge downwardly to its base-line, whence it contracts to the bottom to embrace or be secured to the top rail or edge of a fence.



1. A fence-cap made of a base part with tapering sides and spurred top edge, substantially in the manner and for the purpose set forth.

2. A fence-cap made with a base part and a tapering or oblique top part, forming a pointed central ridge, substantially in the manner specified.

191,605. HARROWS. Hans I. Lund, Charlotte, Iowa. [Filed Apr. 16, 1877.]

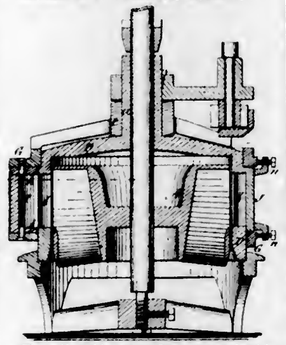
Brief.—An iron harrow with bars crossing each other diagonally. The teeth are set in the crossings, and a strap is riveted across the heads into the cross-bars, uniting them rigidly together.

191,606.



In a harrow, the combination of bars C D and teeth E with bars H, which bear upon the heads of the teeth, and bind together the crossed bars of the frame, substantially as shown and described.

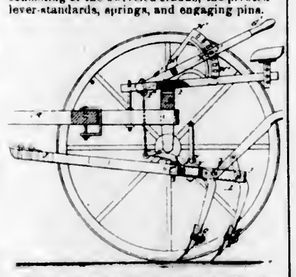
191,607. WATER-WHEELS. Isaac Mallery, Dryden, N. Y. [Filed May 21, 1877.]



The adjustable gates J, constructed with flanges *k k* and set-screws *n n*, and pivoted between the rings of adjustable frame H, in combination with the chute-case D and a wheel, A, substantially as described.

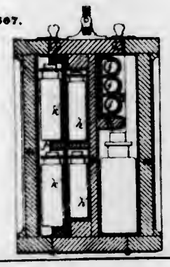
191,608. CULTIVATORS. Austin S. McDermott, Prairie Creek, (Mellersy P.O.,) Iowa. [Filed Jan. 29, 1877.]

Brief.—Devices for lifting the plow-beams, consisting of the swiveled cranks, the pivoted lever-standards, springs, and engaging pins.



The combination of the sockets C', the cranks D', the chains E', the levers G', the pivoted standards H', the keepers and catches I' J', and the pins and springs K' L', with the plow-beams J and the axle B, substantially as herein shown and described.

191,607.



191,609. MEDICINE-CASES. J. C. Millard, Pultneyville, N. Y. [Filed Apr. 30, 1877.]

A box having a middle partition, B, and two covers, *a*, the partitions *c* and *c*, pockets *h*, and tray *j*, having the pockets *k*, all constructed and arranged substantially as shown and described.

191,610. CURRY-COMBS. Peter Miller, Chicago, Ill. [Filed Mar. 6, 1877.]

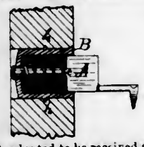
Brief.—The invention relates to a curry-comb; and it consists in the combination of a series of flexible and adjustable rows of teeth with two rigid rows.



The improved curry-comb herein described, consisting of the back A, having a series of adjustable and flexible rows of teeth, C C, arranged between two rigid rows, D' D', substantially as and for the purpose hereinbefore set forth.

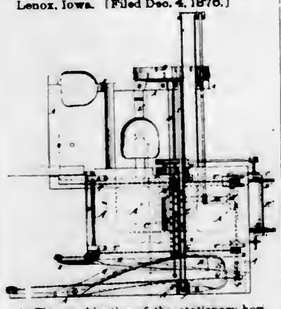
191,611. SASH-FASTENERS. S. G. Monce, Bristol, Conn. [Filed Mar. 8, 1877.]

Brief.—The case which incloses the bolt and spring is cylindrical, and provided with two teeth of peculiar construction, located opposite each other. The case is driven into an auger-hole and given a quarter turn. The teeth or spurs secure it from withdrawal.



The case B, adapted to be received and partially rotated within a cylindrical hole and provided with one or more thin peripheral spurs, substantially of the form shown, and located on the case with reference to the other parts, all substantially as described, and for the purpose specified.

191,612. CORN-HARVESTERS. B. Osgood, Lenox, Iowa. [Filed Dec. 4, 1876.]



1. The combination of the stationary horizontal knife B, the pivoted bar Q, the pitman O', and the curved guide-bar S, with the slotted platform A', for cutting the stalks and throwing them across the said platform, substantially as herein shown and described.

2. The combination of the bars W X, provided with the hooks or headed pins, and the rollers G with the platform A', for husking the ears as the stalks are carried back by the endless chains T, substantially as herein shown and described.

3. The combination of the slotted brackets B', the sliding knives C', the pivoted bars D', and the crank-shaft E', with the frame A, for receiving and cutting up the stalks as they fall from the platform A', substantially as herein shown and described.

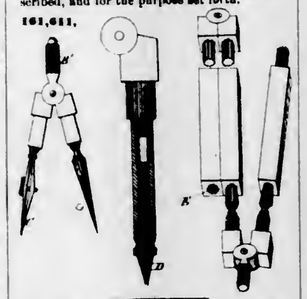
191,613. DRAWING-INSTRUMENTS. John R. Peel, London, Ontario, Canada. [Filed Jan. 13, 1877.]

1. As a new article of manufacture, a foot-rule consisting of a series of hollow bars, *a b c d*, connected by joints of flatted steel, B B', and corresponding sockets E, substantially as shown and described, and for the purpose set forth.

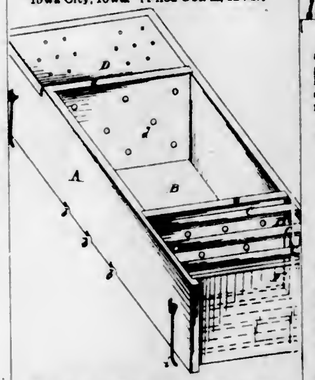
2. The screw pencil-point D, consisting of split cone F and outer tube G, with corresponding threads H I, in combination with a pair of drafting-compasses, substantially as shown and described, and for the purpose set forth.

3. The hollow bars *a b c d*, fluted joints B B', and sockets E, in combination with pen C, pencil D, and points A A', all arranged and operating substantially as shown and described, and for the purpose set forth.

161,611.



191,614. BEE-HIVES. H. F. Poggenpohl, Iowa City, Iowa. [Filed Oct. 11, 1876.]



In a bee-hive, the case A, provided with a large central ventilating and breeding chamber, B, with bee and air entrances, *b*, and provided with end walls *a*, having perforations *d*, leading into end chambers B' B', furnished with comb-frames, having their tops covered by removable sliding plates D, provided with ventilating-holes leading to a similarly constructed case lying over the case A, substantially as described, and for the purposes set forth.

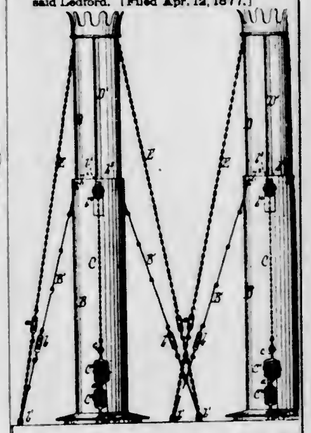
191,615. COMBINED COTTON SCRAPER AND CULTIVATOR. Malachiah Roby, Kosciusko, Miss. [Filed Apr. 30, 1877.]

Brief.—A front and rear cross-bar secured to a center-beam; two beams, with shovels on each side, adjustably attached to the cross-bars; a pair of scrapers clamped to the front end of the inner side beams.



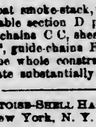
The combination of the cross bars B D, the side beams C and their plows and standards, the bows and yokes E, the scrapers F G, and the bands H with each other and with the central beam A, substantially as herein shown and described.

191,616. STEAMBOAT SMOKE-STACKS. A. L. Rouse, B. A. Ledford, and John O'Brien, Denver, Colo.: said O'Brien assignor to said Ledford. [Filed Apr. 12, 1877.]



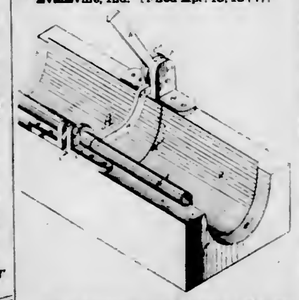
In a steamboat smoke-stack, the stationary section B, movable section D provided with grooves D' D', chains C C, sheaves b^1 b^1, pulley-blocks C' C', guide-chains E E, and link-chains E' E', the whole constructed and arranged to operate substantially as described.

191,615. TORTOISE-SHELL HANDLES. C. W. Schaefer, New York, N. Y. [Filed Apr. 16, 1877.]



The method, consisting of the following consecutive steps, of applying tortoise-shell to handles: first, by uniting the edges by exposure to moisture, heat, and pressure; second, softening the shell in warm water; third, chilling the same; fourth, immersing the same in a bath of soda or salt; and, fifth, mounting on cores or molds.

191,616. GUTTER-HOLDERS. M. Schmitt, Evansville, Ind. [Filed Apr. 13, 1877.]



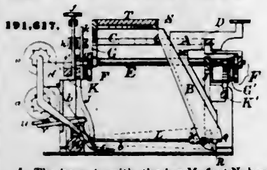
The combination, with a trough, *c*, of a gutter-holder, A, having a brace, *a*, constructed as described, removable bearings *c' c' c' c'*, and a lever-arm, *b*, formed with an eccentric, b^1, adapted to operate on the extension c^1 of the brace *a*, the whole being constructed and operating substantially as described.

191,617. TYPE-WRITERS. D. H. Sherman, Urbana, Ohio. [Filed Apr. 21, 1877.]

Brief.—The keys are supported in a vertical position in two semicircular guide rings, the top one of which is depressed by the operation

of each key. This top ring rests upon connecting-rods fastened to crank-wheels. To these crank-wheels is also connected another rod, bearing a spacing-pawl, in such a manner that each depression of the semicircular ring partially rotates the crank-wheels, thus operating the connecting-rod bearing the space-pawl. The entire operating mechanism is moved at each impression one space, upon guideways provided with a rack, by the operation of the space-pawl. A semicircular glass plate is connected to the top ring, by depressing which the space between words is effected. At the end of each line the space-pawl is thrown out of gear and the carriage run back. The paper rests upon the bed of the machine, and is moved to make the distance between lines by a pawl and ratchet connected to the spring-journaled roller. The ink-ribbon spools are held upon a frame moving on a guide, and operated through connecting-rods from the crank-wheels, in such a manner that the ribbon-frame shall be moved to one side to expose the printing as each key is released.

191,617.



1. The keys A, with the leg M, foot N, heel C, and pin O, in combination with the semicircular bar C, flat semicircular ring L, and type-bars B, operating substantially as shown and described.

2. The type-bars B, with the guide-plates P P', the shoulders Q, and curved arm R, in combination with the key A and the flat semicircular ring L, operating substantially as shown and described.

3. The semicircular bar C, with the notches D, in combination with the semicircular ring S, glass plate T, bell-cranks F F F F, and keys A, operating substantially as shown and described.

4. The semicircular flat ring L, with the apertures 2 2, in combination with the keys A, type-bars B, and frame J J, operating substantially as shown and described.

5. The shafts E E, bell-cranks F F F F, connecting-rods G G', and spring H, in combination with the frame J J and semicircular bar C, operating substantially as shown and described.

6. The semicircular glass spacing-plate T in the semicircular guard-ring S, in combination with the semicircular bar C and type-bars B, operating substantially as shown and described.

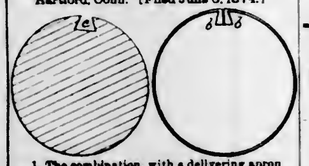
7. The spool-frame *d*, with ribbon guide-pins, slide *e*, thumb-screw *f*, nut *h*, guide-posts *g g*, and lever *k*, in combination with the way K, frame J, and connecting-rod G, operating substantially as shown and described.

8. The pawl Y, with the longitudinal seat upon the lower side, the bent lever X and lever V, in combination with the connecting-rod G', ratchets K', and frame J J, operating substantially as shown and described.

9. The paper-roller *s*, with springs upon the journals, in combination with the bed-plate of the machine, the ratchet-wheel and pawl, key *u*, and lever *v*, operating substantially as shown and described.

10. The frame J J, friction-rollers *x x x x*, in combination with the ways K K', shafts E E, flat semicircular ring L, and the connecting mechanism, operating substantially as shown and described.

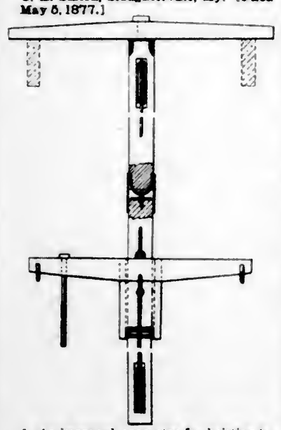
191,618. MANUFACTURE OF PAPER BARRELS. Edwin M. Slayton, Port Byron, N. Y., assignor to Slayton Paper Barrel Company, Hartford, Conn. [Filed June 6, 1874.]



1. The combination, with a delivering apron or belt, of two or more revolving mandrels for forming barrels, casks, or similar packages, from a continuous web of paper stock, said forming-mandrels operating in such respect to the apron or belt as to be brought alternately in action therewith, substantially as described.

2. A jacket or casing provided at its meeting edges with inwardly-projecting lugs *b*, in combination with a mandrel having a longitudinal slot, *c*, substantially as described.

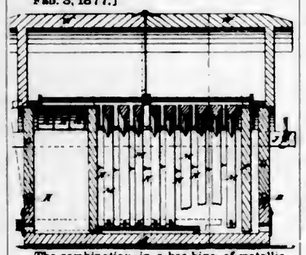
191,619. TOBACCO-HOISTING APPARATUS. C. H. Slaton, Slaughterville, Ky. [Filed May 5, 1877.]



1. An improved apparatus for hoisting tobacco, consisting of a top cross-bar, swiveled and jointed upright, and traveling box and carriage with cross-pieces and stick-supporting hooks, substantially in the manner described, and for the purpose specified.

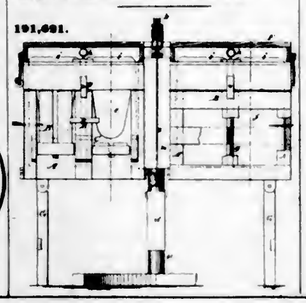
2. The combination, with the suspended and jointed upright, having upper and lower pulley, of a hoisting-rope and traveling carriage with supporting cross-strips, substantially in the manner described, and for the purpose specified.

191,620. BEE-HIVES. Charles J. Sperry and L. Chandler, New London, Minn. [Filed Feb. 3, 1877.]



The combination, in a bee-hive, of metallic strips H with the stationary and movable parts of the sides G, having grooved adjacent edges, as and for the purpose set forth.

191,621.



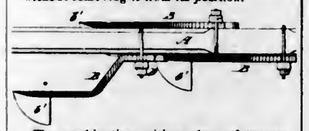
191,621. CHICKEN-COOPS. D. M. Sullivan and T. A. Retallic, Montgomery City, Mo. [Filed Mar. 12, 1877.]

1. A chicken-coop consisting of a frame, A, divided into compartments *e f*, and provided with partitions *g*, slides *i*, doors B C, and removable roof F, all constructed and combined substantially as herein shown and described.

2. The vertically-sliding chicken-coop A, having folding legs G, in combination with the supporting-post *a* and counter-balance device consisting of the pulley *h*, rope *c*, and weight *d*, as and for the purpose set forth.

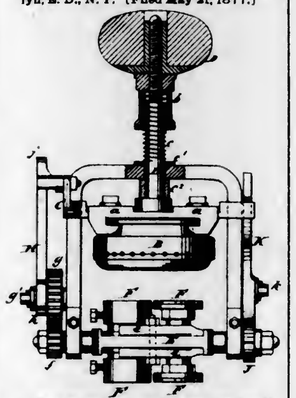
191,622. PLOW-COLTERS. C. R. Thompson, Lebanon, Ky. [Filed Apr. 30, 1877.]

Brief.—Two or more colters or jointers, with cutting-standards and triangular horizontal cutters extending on one side only, and designed to cut the turf loose in narrow strips without removing it from its position.



The combination, with a plow, of two or more colters, B, provided with horizontal triangular cutters *b'* at their lower ends, and with the same beam A, substantially as herein shown and described.

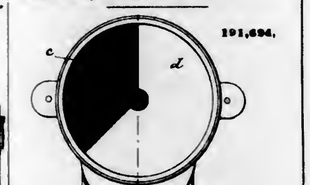
191,623. HAND-STAMPS. L. Tilton, Brooklyn, E. D., N. Y. [Filed May 21, 1877.]



1. In combination with the rotating bar E and the reciprocating inking-pad B, the wheels *f g*, cam A, lifting-hook H, and the stop-wheel J, and lever K, arranged substantially in the manner and for the purposes described.

2. In combination with the rotating stamp-heads F and reciprocating inking-pad B, the adjustable knob D, jam-nut *b*, and spring *c*, substantially as described.

191,624.

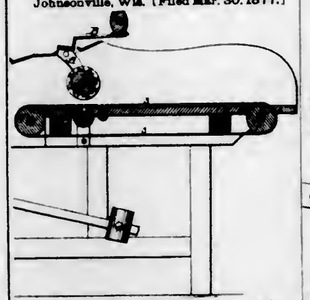


191,624. INDICATORS FOR BELLOWS. Jas. B. Treat, Boston, Mass. [Filed Nov. 20, 1876.]

1. In a bellows-indicator, the employment of one stationary helix-shaped disk in combination with a rotary helix-shaped disk and suitable connecting mechanism from the bellows, as and for the purpose set forth and described.

2. In combination, the disks *c d*, shaft *e*, gear *g*, stop *h i*, pinion *k*, shaft *l m n o*, and pulley *p*, with its cord *r* and weight *t*, substantially as and for the purpose set forth and described.

191,625. STRAW-CUTTERS. A. Vahldieck, Johnsonville, Wis. [Filed Mar. 30, 1877.]

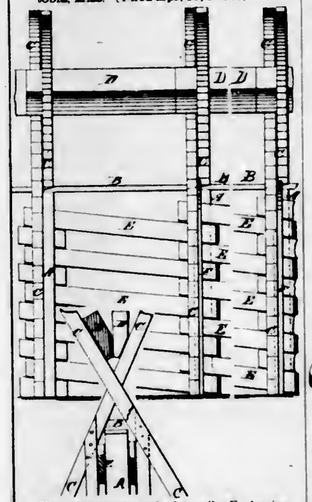


1. In a feed-cutter, the pressure-roller 9, located near the center of the feed-box and made adjustable up and down, as set forth.

2. The combination of an endless belt or apron, *z*, and an adjustable feed-roller, 9, located near the center of the feed-box, substantially as shown.

3. The combination of the roller 9, located near the center of the feed-box, pivoted frame A, arm B, handle C, and an endless belt, *z*, substantially as described.

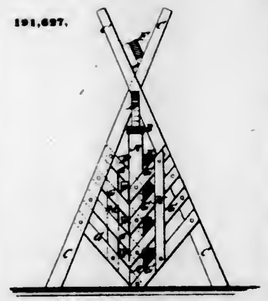
191,626. FENCES. Robert F. Ward, Senatobia, Miss. [Filed Apr. 16, 1877.]



The combination of the rails E, having their ends laid upon the opposite sides of the adjacent posts A, and overlapping each other, and the stakes F, driven into the ground at the opposite sides of the ends of the rails E from the posts A, and having their upper ends nailed to the inclined braces C, with the posts A, the lower riders B, the inclined braces C, and the upper riders D, substantially as herein shown and described.

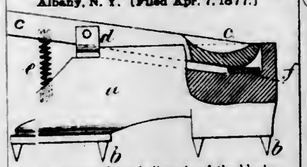
191,627. FENCES. Robert F. Ward, Senatobia, Miss. [Filed Apr. 4, 1877.]

191,627.



The inclined stripe G, having their lower ends notched, and the vertical stripe H, in combination with the rails F, central uprights A, and braces C, substantially as shown and described.

191,628. TRAPS FOR BALLS. Thos. Wilkie, Albany, N. Y. [Filed Apr. 7, 1877.]

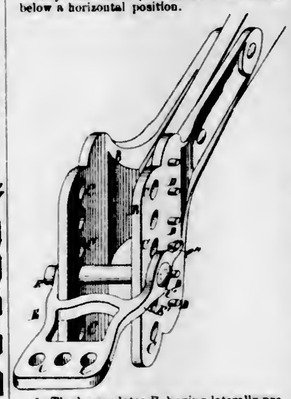


1. The trap for a ball made of the block *a*, with spikes *b* upon the under side, and with the bearings *d* for the lever *e* above the block *a*, substantially as set forth.

2. In combination with the block *a* and lever *e*, the spring *s* and the rubber block *f*, for the purposes and as set forth.

191,629. PLOW-CLEVISES. C. O. Wilder, Monmouth, Ill. [Filed Apr. 7, 1877.]

Brief.—Device to prevent the clevis falling below a horizontal position.



1. The beam-plates B, having laterally-projecting pins or studs D, arranged to operate in combination with a clevis, E, pivoted to the beam-plates, and provided with lugs or projections *e''*, which come in contact with the studs D, substantially as and for the purpose specified.

2. The beam-plates B, having a series of bolt-holes, C, and series of projecting studs or pins, D, arranged to operate in combination with an adjustable clevis, E, having rear lugs or projections *e''*, substantially as and for the purpose specified.

191,630. DEVICES FOR ADJUSTING THE POSITION OF CLOCKS. William F. Wuterich, Meriden, Conn. [Filed Nov. 25, 1876.]

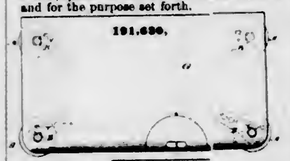
1. The combination of the screw B, with its slot V and the tooth or spur of the plate H working therein, and the flange-nut A and plate H, all substantially as set forth.

2. The combination of the screw B, flange-nut A, and plate H with the supporting stand or board G, as described and shown.

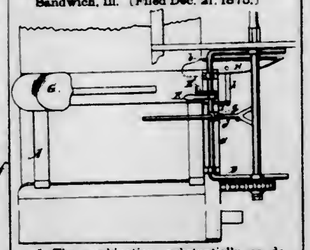
3. The combination of the supporting board or stand G, the screw B, flange-nut A, and spirit level or levels, all as and for the purpose set forth.

4. The combination of the screw B, flange-nut A, spindle or tenon *c*, and caster K, all as and for the purpose set forth.

191,630.



191,631. HARVESTER-REELS. H. A. Adams, Sandwich, Ill. [Filed Dec. 21, 1876.]



1. The combination, substantially as described, of the vibrating frame, reel-shaft, movable bearings, and sliding bar, for the purposes set forth.

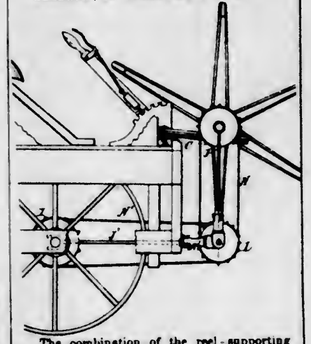
2. The combination, substantially as described, of the sliding bar, guide *d*, and spring S, for the purpose set forth.

3. The inner grain-guard or divider H, pivoted to the supporting-frame so as to be adjustable vertically, substantially as and for the purpose set forth.

4. The combination of a reel, adjustable vertically, and the pivoted divider H, substantially as and for the purpose described.

5. The combination, substantially as described, of the divider H, provided with an arm, k, connecting-rod *i*, and vibrating frame D, provided with an arm, l, for the purposes set forth.

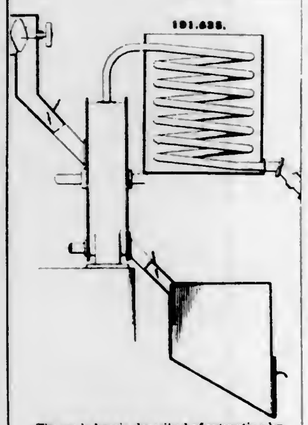
191,632. HARVESTER-REELS. H. A. Adams, Sandwich, Ill. [Filed Dec. 3, 1876.]



The combination of the reel-supporting frame B, hinged to the carrying-frame of the machine, so as to vibrate in a vertical direction, the reel-shaft mounted thereon, a sprocket-wheel on the reel-shaft, a main or driving sprocket-wheel, I, a hinged swinging frame, J J', the sprocket-wheels L M, supported in the swinging frame, and the drive-chains N N', substantially as and for the purpose set forth.

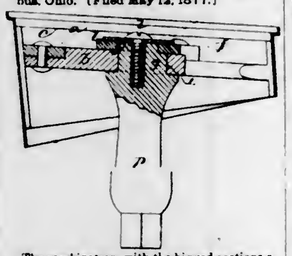
191,633. PROCESSES OF EXTRACTING HYDROCARBONS FROM SUBSTANCES WHICH HAVE BEEN TREATED THEREWITH. Wm. Adamson, Philadelphia, Pa. [Filed Apr. 14, 1877.]

191,635.



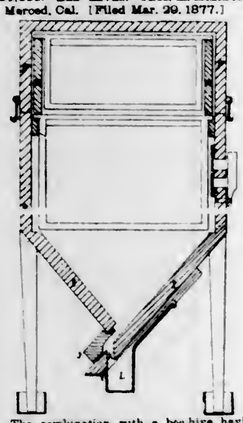
The mode herein described of extracting hydrocarbon from substances treated therewith—that is to say, by subjecting the said substances to disintegration and heat simultaneously, substantially in the manner described.

191,634. EXPANDING-MANDREL. Charles H. Amann and Lewis A. Harker, Columbus, Ohio. [Filed May 12, 1877.]



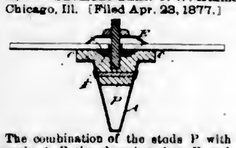
The combination, with the hinged sections *a b*, having, respectively, a hub, *d*, provided with a cylindrical aperture, *e*, and a pivoted arm, *f*, provided with eye *l*, of the shaft P, having a cylindrical rabbet adapted to enter the cylindrical aperture *e* of the hub *d*, and an eccentric adapted to enter the eye *l* of the arm *f*, substantially as specified.

191,635. BEE-HIVES. Thos. A. Atkinson, Merced, Cal. [Filed Mar. 29, 1877.]



The combination, with a bee-hive having the V shaped bottom I, tubes K, and receptacle L, of the blocks J, arranged on each side of the center of the bottom I, and each having a series of grooves, substantially as and for the purpose specified.

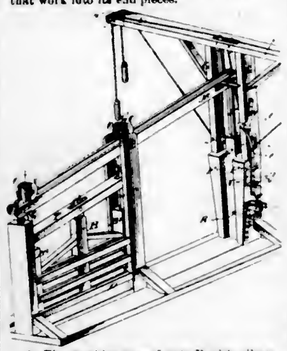
191,636. SKYLIGHT-BARS. J. W. Atkinson, Chicago, Ill. [Filed Apr. 23, 1877.]



The combination of the studs P with the troughs A F, the clamping-plate E, and nut and bolt fastening, as and for the purpose specified.

191,637. GATES. Benj. R. Baker, Northfield, Minn. [Filed Jan. 20, 1877.]

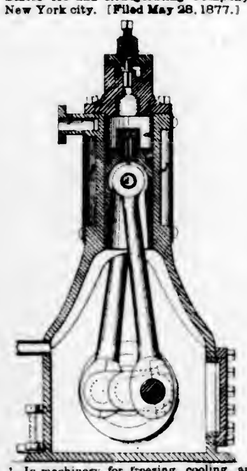
Brief.—The gate, as it closes or opens and descends the incline, is caused to remain horizontal by the pivoted cross-bar, that has rods that work into its end pieces.



1. The combination of gate B with vibrating guideway M, rollers O O, links Q, vibrating bar P, plunger-rods P' P', and hollow posts B^1 B^1, substantially as and for the purpose set forth.

2. The combination of rod R with cord r^1, slide T^1, spring t', catch t, bar V on vibrating track M, and gate B, substantially as and for the purpose set forth.

191,638. ICE-MACHINES. Alex. T. Ballantine, New York, N. Y., assignor to United States Ice and Refrigerating Company, New York city. [Filed May 28, 1877.]



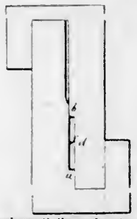
1. In machinery for freezing, cooling, and refrigerating, the combination, substantially as set forth, of a pump for forcing the refrigerating agent, and a chamber, closed to the atmosphere, which surrounds and contains the piston-rod of the pump, and receives and holds whatever matter may escape from that end of the pump-cylinder through which the piston-rod works.

2. The pump, in combination with a chamber which surrounds and contains the piston-rod of the pump, and constitutes a gas-containing receptacle from which the pump draws its supply, substantially as set forth.

3. The combination, substantially as set forth, of these elements: the pump or pumps, the gas-receiving chamber surrounding and containing the pump piston rod or rods, and the rotary crank or driving shaft mounted in bearings in said chamber, the combination being and acting as described.

191,639. DIES FOR SPOOL-BLANKS. H. W. Bassett, Wallingford, Conn., assignor to Hall, Elton & Co., same place. [Filed Mar. 30, 1877.]

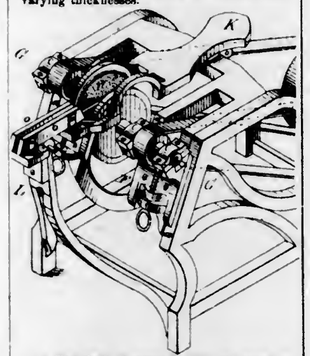
Brief.—The die supports the blank upon its sides, so that pressure decreases its width at the shank and increases the length of the blank.



The dies substantially as herein described, consisting of the shoulder *a* and face *c* on the one part, and corresponding shoulder *b* and face *d* on the other part, and operating together, substantially as specified.

191,640. SANDPAPERING-MACHINES. Jacob P. Peck, Lock Haven, Pa., assignor of a part of his right to G. Kintzing and Carrie V. Richards, same place. [Filed Apr. 24, 1877.]

Brief.—Two independently-rotating disks, vertically adjustable, receive article to be polished between them on a supporting-table, which has adjustable guides to accommodate varying thicknesses.



1. The shaft G, plate *d*, screw-threaded on its periphery, and disk *f*, in combination with the conical nut *h*, to secure the central part of the sand-paper disk, substantially as and for the purpose set forth.

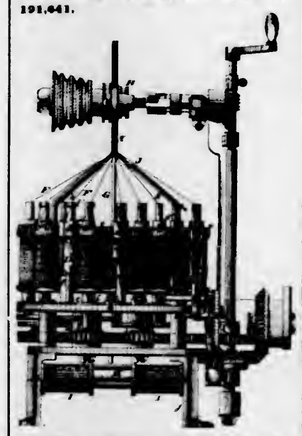
2. The shaft G, plate *d*, and collar *e*, in combination with the disk *f* and nut *h*, all constructed and operating in the manner and for the purpose described.

3. The table K, provided with the adjustable guides *o*, in combination with the sand-paper heads H, mounted upon the independently-adjustable frames F, as and for the purpose specified.

191,641. BRAIDED HOOP-SKIRT SPRINGS AND MACHINES FOR SAME. A. Benjamin, New York, N. Y. [Filed Mar. 29, 1877.]

Brief.—The braiding-machine is of the usual construction, excepting that the feed-tubes which convey the cord to the edges of the spring extend upwardly in a vertical direction to near the tops of the bobbins, and are then bent inwardly in the direction assumed by the threads in braiding, so as to insure even and regular braiding around the cord. The metallic spring is braided over, so as to have on each edge a longitudinal cord, that may be sewed through in securing the spring in place.

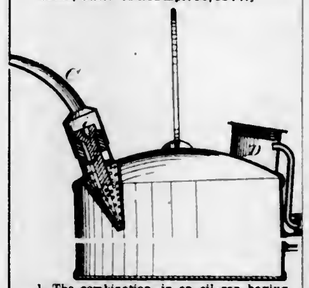
191,641.



1. The combination with a braiding-machine of one or more feed-tubes located between the reversely-traveling spools, said tubes extending upwardly in a vertical direction to about the height of the spindles, and then projecting inwardly on an angle, substantially the same as that assumed by the threads, nearly to the spring to be braided, substantially as and for the purpose set forth.

2. As a new article of manufacture, a braid-covered metallic spring provided with a corded edge or edges of sufficient width to allow of the braid-covered spring being secured by sewing through such corded edge or edges, substantially as shown and described.

191,642. OIL-CANS. Daniel Bennett, Chillicothe, Ohio. [Filed Apr. 10, 1877.]



1. The combination, in an oil-can having the filling-tube D upon its top, of a valve-seat box seated on the handle of said can below the top, a descending tube connecting said box and the upper part of the filling tube, a thumb-valve, and a spring holding said valve upon its seat, substantially as specified.

2. The combination, with an oil-can having a discharge-spout, C, and an automatic drop-valve seated in said spout, of a strainer arranged below the said valve, substantially as specified.

191,643. MORTISING-CHISELS. John Theo. Bowen, Lockport, N. Y., assignor of a part of his right to D. Hoffmeister and Abram Beecue, same place. [Filed Apr. 21, 1877.]

Brief.—A solid chisel, having two opposite bits, is provided with a short center-cutter.

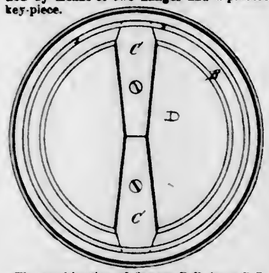
A solid chisel made with two reversed and opposite bits, *c c*, with edges on the four bevels *b*, and a center cutter, D, in the angle, substantially as and for the purpose herein set forth.

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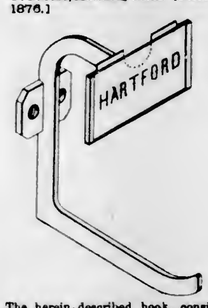
191,644. BARREL-HEADS. G. M. Breinig, Brooklyn, N. Y. [Filed May 16, 1877.]

Brief.—The barrel-head is secured in position by means of two flanges and a pivoted key-piece.



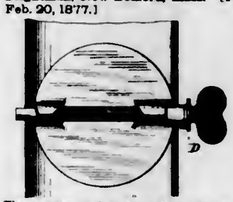
The combination of flanges B B, keys C C, croze E, head D, and shoulder H, operating together substantially as and for the purposes specified.

191,645. LABELED WARDROBE-HOOKS. T. F. Breese, Meriden, Conn. [Filed Nov. 22, 1876.]



The herein-described hook, consisting of the body or base, with the suspending-hook projecting therefrom, combined with a name-plate as a fixed part of the structure, substantially as described.

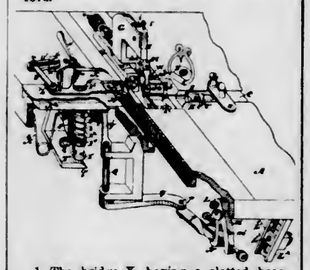
191,646. STOVE-PIPE DAMPERS. Albert Brightman, New Bedford, Mass. [Filed Feb. 20, 1877.]



The notches *a b c*, formed directly in the stove-pipe at the spindle-aperture, in combination with the spindle B of the damper, provided with a lug, D, to engage in said notches, substantially as herein set forth.

191,647. STRAW-BRAID-SEWING MACHINES. S. C. Brown, Philadelphia, Pa., assignor of one-half his right to J. D. Scheets, same place. [Filed Feb. 3, 1877.]

Brief.—The braids of straw are fed in a line parallel to the motion of the needle, being bent below the table, so that the needle will enter them and emerge from them on the same side. The feed, which consists of griping-jaws, the lower having two and the upper four motions, is adjustable as to length of stitch, and sidewise to give a curved line of motion, by devices specified in the claims. The machine is an improvement on that set forth in applicant's former patent, No. 180,538, August 1, 1876.



1. The bridge X, having a slotted base-plate, made adjustable in the direction of the needle-path, in combination with the bed-plate A, substantially as described.

2. The plunger-foot H, formed in two sections, h h^1, the latter being hinged upon the former, substantially as shown and described.

3. The jaw K, having the extension *k* passing through the base-plate A, and provided with an anti-friction roller, k^3, and spring k^4, in combination with the plate T, substantially as shown and described.

4. The feed-carrier K^2, in combination with the jaws K and K^1, the boss k^2 of the said carrier passing through the jaw K^1, and the extension *k* of said jaw K passing through said boss k^2, substantially as shown and described.

5. In combination with the bed-plate A and jaw K^1, the lever U and slotted bar or plate U^1, for adjusting said jaw, substantially as shown and described.

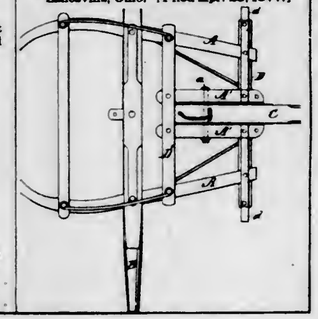
6. In combination with the jaws K K^1, the studs k^5 and k^6 thereon, for causing the simultaneous movement of the jaw K, when the feed is adjusted laterally, substantially as shown and described.

7. In combination with the feed-carrier K^2 and rock-shaft L, the intermediate parts M, N, P, *q*, Q, q', and q'', for conveying a reciprocating motion to said carrier from said shaft, substantially as shown and described.

8. In combination with the jaw K, having the downward extension *k* and rock-shaft S, the bracket T, secured to the arm S^2 of said shaft S, and the connecting mechanism, substantially as described, to raise and lower said jaw K, substantially as shown and described.

9. The combination, with the feed devices, of the rock-shaft L, the arm M, the pivoted lever N, the spring m^1, and screw O, whereby the feed is adjusted as to length of stroke, substantially as set forth.

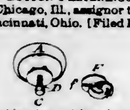
191,648. WAGON-GEARING. W. P. Brown, Zanesville, Ohio. [Filed Apr. 23, 1877.]



1. The combination of the hounds A A A′ A′, the cross-bars D D′, and the tongue C, substantially as and for the purpose described.

2. The combination, with a wagon-gearing having a permanent pivot-bolt, *a*, of the tongue C, having inclined notch *b* and pin *c*, as and for the purpose described.

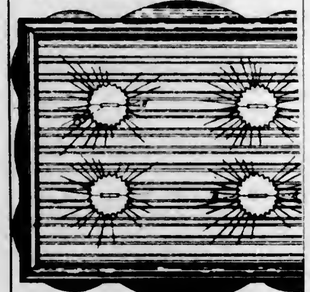
191,649. BUTTON-FASTENINGS. A. Bröckmann, Chicago, Ill., assignor to F. W. Ludwig, Cincinnati, Ohio. [Filed May 4, 1877.]



The combination, with a button having a head, A, neck D, and protuberance C, of the washer F, having a notch, *f*, and the hooked latch or catch-piece, H, pivoted to said washer, substantially as and for the purpose set forth.

191,650. UPHOLSTERING-TUFTS. Robert H. Bryant, Chicago, Ill., assignor to Byron L. Lawyer, same place. [Filed Dec. 16, 1877.]

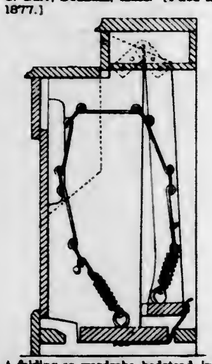
Brief.—Instead of the ordinary thread tuft, a tuft made of leather or other suitable flexible material, and having slits cut therein, is used. The slits extend from opposite points on the edge toward the center, as shown, and may be made with or without enlargements at their inner ends to receive the tufting-thread or loop. By turning up the corners of the tuft it may be inserted under the loop or removed therefrom, as desired.



1. A tuft for upholstering purposes, consisting of a disk of leather or other flexible material, having slits *c* cut in its opposite sides, substantially as and for the purpose set forth.

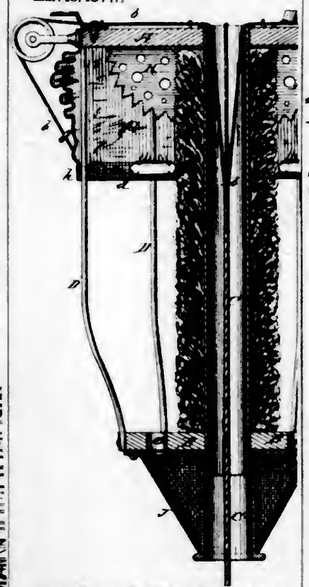
2. An upholstering-tuft consisting of a disk of leather, C, with slits *c* cut in its opposite sides, and enlargements *c′* at the inner ends thereof, substantially as and for the purpose set forth.

191,651. WARDROBE-BEDSTEADS. Sanford S. Burr, Dedham, Mass. [Filed Apr. 21, 1877.]



A folding or wardrobe bedstead, in which a folding bed-frame, that is adapted to first fold over onto itself and then turn up into an upright case, is combined with a flexible bed-bottom suspended from the frame by its ends only under the arrangement described, whereby the ends of the bed-bottom, when the frame is turned up into the case, are carried to the lower part of the case, and the upper part of the case between the side rails of the frame is left unobstructed by the bed-bottom.

191,652. FLY-TRAPS. Frank M. Carroll and John Lamb, Grand Rapids, Mich. [Filed Mar. 13, 1877.]



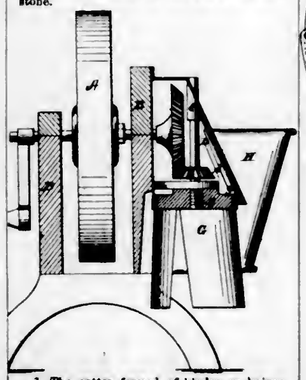
1. In a fly-trap, the disks A B, wire guards D, and curtain G, constructed and arranged to operate substantially as and for the purposes herein set forth.

2. The combination, with the frame A B D, of the curtain G, with elastic band *d* and slide-plates *h*, and the elevating cords *b*, with weighted tassel E, substantially as and for the purposes herein set forth.

3. The combination of the frame A B D, curtain G, and the removable trap I J, all constructed and arranged to operate substantially as and for the purposes herein set forth.

191,653. VEGETABLE-CUTTERS. W. Chapin, Silver Creek, N. Y. [Filed Apr. 12, 1877.]

Brief.—The cutter has flaring knives, and can be used interchangeably, with the pulper in a vertical position on the side of a grindstone.

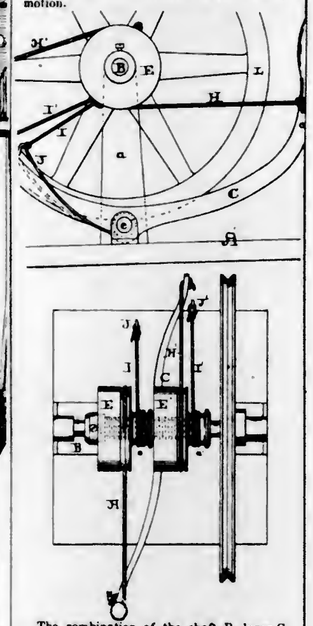


1. The cutter formed of blades or knives *g‴*, head *g*, and ring or band *g″*, said head *g* being provided with a central bore, and constructed and adapted to operate substantially as set forth.

2. In combination with the cutter G, the hopper H, and fly-wheel A, constructed and arranged substantially as and for the purposes described.

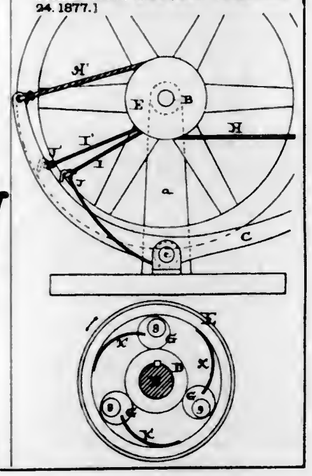
191,654. CONVERTING RECIPROCATING INTO ROTARY MOTION. Chas. Chadwick, Hannibal, Mo., assignor of one-half his right to Peter B. Groat, same place. [Filed Mar. 19, 1877.]

Brief.—To convert reciprocating into rotary motion.



The combination of the shaft B, lever C, spider D, casings E E′, rollers G, cords H H′ I I′, and springs J J′, substantially as described.

191,655. CONVERTING RECIPROCATING INTO ROTARY MOTION. Chas. Chadwick, Hannibal, Mo., assignor of one-half his right to Peter B. Groat, same place. [Filed Mar. 24, 1877.]



The combination of the shaft B, lever C, collars D, casings E E′, cam-wheels G G G, cords H H′ I I′, and springs J J′, substantially as shown and described.

191,656. APPARATUS FOR PUMPING FLUIDS FROM CASKS, &c. Wm. F. Class, Cleveland, Ohio. [Filed May 4, 1877.]



1. The combination of the truncated cone D with check-valve *m*, the flexible disk C, spring H, plate *f*, post A having passage *i* and valve *k*, and the treadle G, substantially as and for the purposes herein set forth.

2. The air-chamber E with bent tube I, check-valve J, and flexible tube K, in combination with the air-pump C D, and its valves and treadle, substantially as and for the purposes herein set forth.

191,657. CLASP-BUTTONS. Louis B. Colin, Jersey City Heights, N. J. [Filed Apr. 12, 1877.]



The combination of the sheet metal casings A B struck up with spurs *a a a a*, the former part A being constructed with the central slot or opening *d* in its upper front edge, and with the flat spring-catch *b*, the free end of which sets in said slot, and the latter part B being constructed with the two downwardly-projecting lips *c c* at the sides of its upper front edge, as and for the purpose described.

191,658. BUNG-CUTTERS. Robert Crichton and G. N. Crichton, Parkersburg, W. Va., assignors of one-third of their right to Jas. Rees, Pittsburg, Pa.; said Robert Crichton assignor to Elizabeth A. Crichton, Parkersburg, W. Va. [Filed Sept. 18, 1876.]

Brief.—Bungs and similar forms are cut directly from planks at one operation by means of a tubular cutting-tool, provided with tapered shoulders upon two opposite sides for strengthening the tool against the pressure of the wood when forced therein, vertical on the remainder of its superficies, and beveled in its interior, in connection with suitable operating mechanism.



1. A tool for cutting designs from a board, provided with tapered shoulders on two opposite sides, vertical on the remainder of its superficies, and beveled on its interior, substantially as set forth.

2. The tool V, provided with the shoulders A′, as set forth.

191,659. SAW-GUIDES FOR CUTTING MITERS, &c. J. B. Currier, Lowell, Mass. [Filed Mar. 22, 1877.]

1. The saw-guide B, provided with arms B′ B′, adapted to receive and hold the saw, substantially as described.

2. The rotating index-plate C, provided with a slot or slots internally, to hold or carry the saw-guide, and with a notch or notches externally, to permit its being set and held in place by the clamp E, substantially as described.

3. The combination of the index-plate C, provided with one or more slots, 1, 2, 3, &c., on its internal surface, and the saw-guide B, provided with one or more corresponding splines, *s s*, substantially as described.

4. A saw-guide holder, D D, pivoted at a point below the saw-guide, substantially as described.

5. In combination with a saw-guide, B, and its holder D D, the link F, substantially as described.

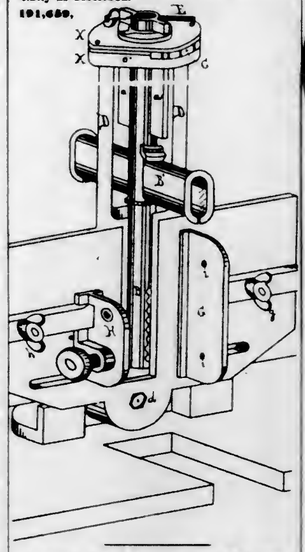
6. In combination with the holder D D and screw T, the saw-guide B, provided with an annular shoulder, *s s*, adapted to strike against the screw-head T, substantially as described.

7. The combination of the saw-guide B, the plate A, and gage-irons G or H, substantially as described.

8. The combination of the saw-guide B, index-plate C, the holder X, cap X′, and adjustable clamp E, substantially as described.

9. The index-plate C, in combination with the saw-guide B, the latter provided with splines or angles *s s*, and a cylindrical portion below the splines, to enable it to be raised in the index-plate until the splines are withdrawn from the latter, and to enable it to be rotated to a new position in the index-plate, substantially as described.

191,660.

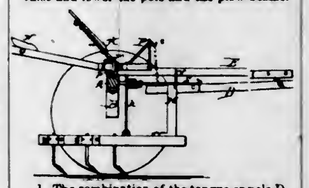


191,661. COMPOSITIONS FOR PRESERVING, DRYING, AND BLEACHING FRUIT. John R. Dodge, Jr., Normal, Ill., assignor of one-half his right to William T. Shurtleff, same place. [Filed Apr. 14, 1877.]

A compound for preserving, drying, and bleaching fruit, consisting of charcoal, sulphur, and alum, substantially as described.

191,662. CULTIVATORS. Willis H. Dewey, Elkhorn, Wis. [Filed Apr. 12, 1877.]

Brief.—The plow-beams connected by arched arms to the draft-pole, which is hung beneath the split tongue, and sustains the draft in front. It is held up at the rear by a chain secured to the seat-bar. The latter rocks upon the axle, and acts as a lever to raise and lower the pole and the plow-beams.

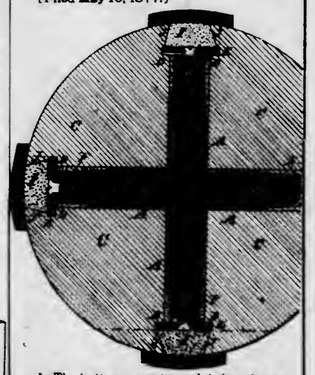


1. The combination of the tongue or pole D, the angular or bent castings or arms H, having transverse slots *x*, the drag-bars I, pivoting-bolts *b*, and adjusting-bolts *d*, all substantially as and for the purposes herein set forth.

2. The combination of the tongue or pole D, angular slotted arms H, pivoted adjustable drag-bars I, and the split or crotched tongue K, secured to the axle A, and attached above the tongue D to the same by the link *e*, all substantially as and for the purposes herein set forth.

3. In combination with the tongue or pole D, carrying the drag-bars, the hinged lever O, carrying the adjustable seat N, the standard P, with hook *l*, and the connecting-chain *v*, all substantially as and for the purposes herein set forth.

191,663. FIRE-PROOF COLUMNS. William H. Drake and Peter B. Wight, Chicago, Ill. [Filed May 10, 1877.]



1. The buttons, countersunk below the surface of the concrete gores C, and having bearing on shoulders D, as and for the purpose set forth.

2. The inclined sided recesses J in a composition column for supporting the concrete I, as specified.

191,664. GAGE-COCKS FOR STEAM-BOILERS. David T. Ellis, Ware, Mass. [Filed May 16, 1877.]



1. The combination, in a try-cock substantially as hereinbefore set forth, of the tube or nipple, the chambered lever pivoted thereto, and the rotating packing, whereby the packing is automatically adjusted to present different portions of its surface to the tube and wear uniformly distributed over the packing.

2. The combination of the weighted lever, constructed as described, with the packing chamber or seat and the packing-wheel detachably mounted in said chamber, substantially as and for the purposes specified.

191,664. HARVESTER-RAKES. Richard Emerson, Syracuse, Ill., assignor of one-half his right to Horatio H. Mason, same place. [Filed Nov. 6, 1876.]

1. The rake-carriage D, made in three parts, hinged together around the axes of the bearing-wheels *d d*, having the rake-arm hinged to the middle section, and the end sections provided with guide-wheels d^1 d^1, for the purpose of enabling said carriage to traverse the rail C, and pass its curves smoothly.

2. The combination of the continuous rail C, formed with ribs along its edges and a depressed center, bent to conform to the contour of the grain platform and inclined elevator-frame, the jointed sectional rake-carriage D, provided with rollers *d d* d^1 d^1, adapted to traverse said rail, as shown, and reciprocating upon the upper surface thereof, and the endless drive-chain G, substantially as and for the purpose set forth.

3. The combination of the rake-carriage D, pitman H, slotted arm A, and endless drive-chain G, substantially as and for the purpose set forth.

4. The rake-carriage D jointed, and rake E hinged thereto, and provided with a tail-stem and guide-roller, *s*, in combination with the rail C, extending along the platform and elevator, and guide-rod F', extending beyond the upper end of inclined elevator, whereby the rake may be carried in its forward movement beyond and clear from the elevator without dropping, substantially as and for the purpose set forth.

5. The combination of the carriage D, rake E hinged thereto, and provided with a rear extension of its arm, the rail C, guide-rods F and F', switch *f*, and endless chain G, substantially as and for the purpose set forth.

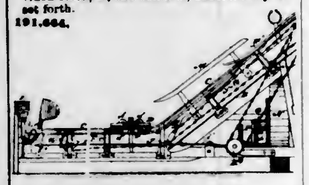
6. The rising and falling reciprocating rake in combination with the grain-guard M at the front side of the elevator-frame, and extending rearward, overhanging the incline, substantially as and for the purpose set forth.

7. The combination of the rear extension of the rake-arm, the sliding rod I, pivoted arm *i*, and spring-clutch I', connected to the sliding rod, substantially as and for the purpose set forth.

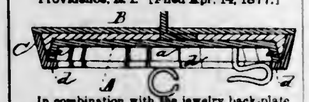
8. The divider or branching grain-guard L in combination with the reciprocating rising and falling rake, substantially as specified.

9. The combination of the platform having ribs *c*, rake E provided with a slotted or divided tooth, d^3, and roller d^3, substantially as set forth.

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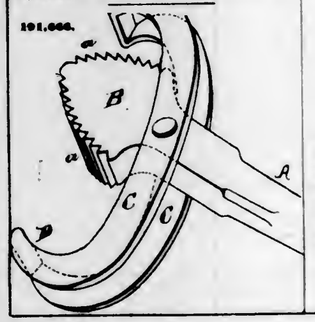


191,665. MANUFACTURE OF PLATED JEWELRY. A. M. English and W. W. Covell, Providence, R. I. [Filed Apr. 14, 1877.]



In combination with the jewelry back-plate A, having a flange, *c*, the ornamental or face plate B, the rim or bezel C, having an inwardly-projecting flange, *d*, overlying the flange *a* of the back-plate, substantially as specified.

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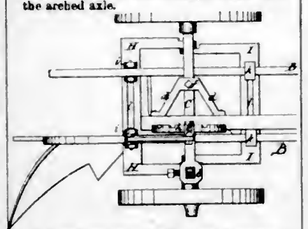


191,666. PIPE-WRENCHES. Geo. Fletcher, Hume, assignor of one-half his right to J. S. Bishop, Fillmore, N. Y. [Filed May 19, 1877.]

In a pipe-wrench, the combination, with the lever or handle A, of the double head B, having transverse teeth or serrations on both its faces *a a*, and the open frame C, straddling the head, pivoted to one side of its center, and having its ends curved to form the jaws D D upon arcs of circles of unequal diameter, substantially as and for the purposes herein set forth.

191,667. SULKY-PLOWS. Albt. A. Fowler, Plano, Tex. [Filed Apr. 13, 1877.]

Brief.—A frame or crank is pivoted to the axle, and extends backward horizontally, bearing studs on which the plow-beams are pivoted. A similar crank extends in front of the axle, having slotted guides, in which the plow-beams work. Both cranks are slotted to move the plow-beams laterally, and the tongue and lever slide correspondingly upon the arched axle.

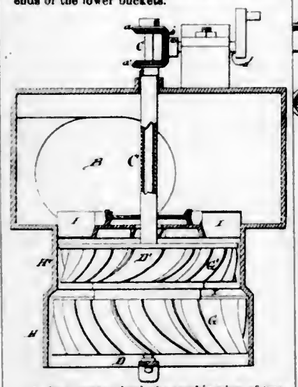


1. The combination of a jointed frame, pivoted to the arch C of the plow, the beams B, studs *i*, and slotted guides *k*, as shown and described.

2. The combination of the plow-beams, the pivot-studs, the vertically-slotted guides, the pivoted parts H I of the vibrating frame, having the parallel slots *l*, all as shown and described.

191,668. WATER-WHEELS. Levi Good, Schuyler Falls, N. Y., assignor of one-third his right to De Witt C. Broadwell, same place. [Filed May 5, 1877.]

Brief.—Two separate and independent wheels rotating in opposite directions, one being located above the other, and having a common axis. The lower wheel is of larger diameter than the upper wheel. They are so arranged that a space will be left between the lower ends of the upper buckets and the upper ends of the lower buckets.



1. In a water wheel, the combination of two separate wheels revolving around a common axis in opposite directions, the lower wheel being made of larger diameter than the upper wheel, for the purposes set forth.

2. The combination of the upper wheel D G', the lower wheel D G of larger diameter, and the surrounding casing made of two parts, H H', of unequal diameter, substantially as and for the purposes herein set forth.

191,669. COMBINED APPLE PARER AND CORER. Wm. M. Griscom, Reading, Pa. [Filed Nov. 1, 1876.]

191,669.



1. The combination of an apple-paring machine with the sliding frame B, the coring-tube and slicing-arms, the chute I and spout J, having an opening, *s*, opposite the coring-tube, as set forth.

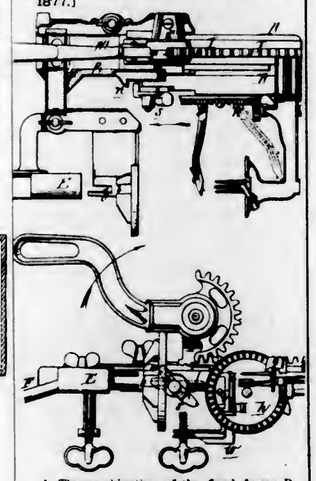
2. The combination of the supplementary paring knife G with the coring-tube *s*, having a recess, *m*, in its front edge.

3. The combination of the fork *s* and a coring and slicing device with cheeks *n n'* arranged on either side of said fork, as set forth.

4. The combination of the frame B and its projection *t* with the rotating table *b*, having a rim, *u*, recessed at *x*, as set forth.

5. The within-described coring and slicing device, consisting of a tube, *c*, made in two or more sections secured together, and the slicing-arms *f*, riveted to the said sections, as set forth.

191,670. APPLE PARERS AND CORERS. Wm. M. Griscom, Reading, Pa. [Filed Apr. 4, 1877.]



1. The combination of the fixed frame B and its projection *n* with the sliding frame D, its lever *s*, and rotating table A, with cam *t*, as specified.

2. The combination of the coring-tube *b* with the tube E and its inclined chute F, for carrying off the cores, as set forth.

191,671. GATES. John T. Guy, Ottawa, Ohio. [Filed Apr. 21, 1877.]

1. A gate secured by one of its upper rails between two friction-rollers, one of which is secured to a gudgeon mounted upon an arm adapted to move in the arc of a circle around the other roller, the gudgeon of which is fixed to a bracket attached to the fence-post, the lower rail of said gate being secured and adapted to travel between friction-rollers mounted upon a movable attachment embracing the lower rail, the whole being constructed and arranged to operate substantially as set forth.

2. A gate-hinge consisting of a bracket provided with a horizontal semicircular plate, having a perpendicular stationary gudgeon, to which is pivoted an arm capable of a movement in the arc of a circle, which is provided with a similar perpendicular gudgeon, both gudgeons being provided with friction-rollers, between which the upper rail of the gate is secured, the whole adapted to operate substantially as set forth.

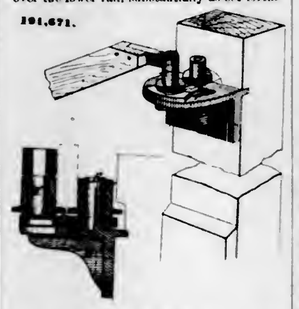
3. In combination with the stationary gudgeon and the plate to which it is attached, provided with a semicircular recess inclining from each end to the center, an arm having a semicircular cam pivoted to said gudgeon, adapted to work in said recess, substantially as and for the purposes described.

4. In combination with the gudgeons of the semicircular plate and pivoted arm swinging thereon, the friction-rollers, provided with flanges at their bases, substantially as herein set forth.

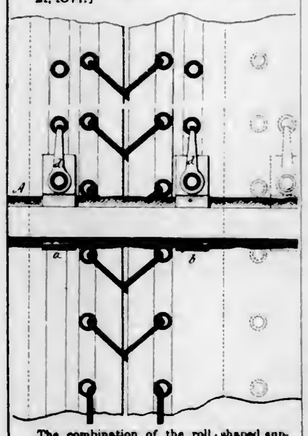
5. In combination with the lower rail of the gate, the movable attachment provided with friction-rollers, between which the lower rail of the gate is retained and adapted to travel, substantially as set forth.

6. The combination, with the movable attachment, of an adjustable bracket hooking over the lower rail, substantially as set forth.

191,671.



191,672. CORSET SKIRT-SUPPORTERS. T. F. Hamilton, New Haven, Conn. [Filed Apr. 21, 1877.]

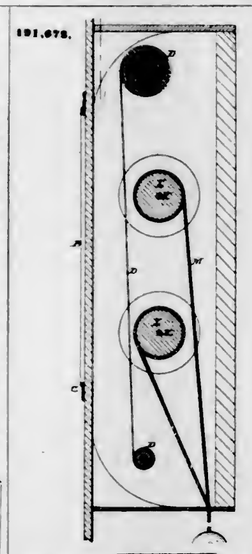


The combination of the roll-shaped supporter A, the loops *a b*, surrounding said supporter, and attached, respectively, one to each part of the corset, substantially as described.

191,673. PICTURE-EXHIBITORS. J. Hannerty, St. Louis, Mo. [Filed Nov. 22, 1876.]

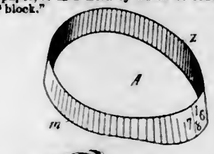
A movable apron, D, carrying pictures, printed matter, or advertisements, and operated by suitable mechanism, in combination with a looking-glass having a transparent portion, B, substantially as set forth.

191,674.



191,674. MEASURING DEVICES FOR HATTERS' USE. Jeremiah A. Harrington, Boston, Mass. [Filed Apr. 5, 1877.]

Brief.—Being composed of a soft non-elastic material, pressing the band downwardly, (aided by a slight lateral pressure at proper points,) will cause it to fit or accommodate itself to the head, so that when it has arrived at the position where the measurement should be taken it will have assumed a shape corresponding with the shape or configuration of the head on the same plane. After the band has been removed from the head it is subsequently used by outlining or tracing the same on paper, or as a mold by which to construct a "block."





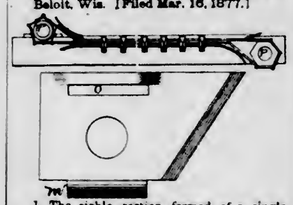
1. A configurator or measuring device for hatters' use, consisting of the endless band A, composed of a soft non-elastic metal or metallic compound, substantially as set forth and specified.

2. The non-elastic metal band A, having its edge *m* longer than its edge *c*, substantially as and for the purpose specified.

3. A configurator for hatters' use, consisting of the flaring non-elastic metallic band A, having its edge or rim *m* concaved, substantially as shown and described.

4. In the art of hat-making, the process of obtaining a block or cast of the hat-supporting portions of the head, by means of the band A applied to the head and subsequently used as a mold, substantially as and for the purpose set forth and specified.

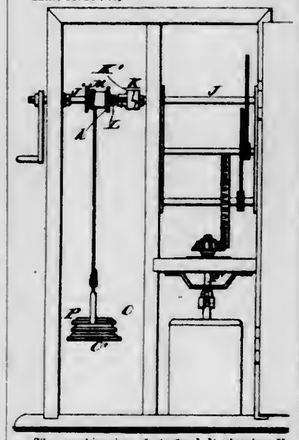
191,675. CUTTING APPARATUS FOR HARVESTERS. H. P. Haskin and J. H. Reigart, Beloit, Wis. [Filed Mar. 16, 1877.]



1. The sickle-section formed of a single piece, with slot O and hook M, for the purposes specified.

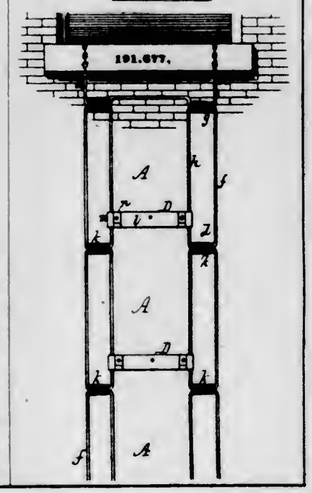
2. The endless sickle, made up of interchangeable sections formed in a single piece, and having slot O and hook M, constructed as described, and for the purposes set forth.

191,676. ROTARY CHURNS. Thos. F. Hatton and John P. Record, Avon, Ind. [Filed Mar. 31, 1877.]



The combination of shafts J J', clutches K K', spring L, drum M, cord or chain O, and weight or weights P with a rotating dasher-shaft and churn-dasher, an operating crank, and suitable connecting-gearing, substantially as and for the purpose set forth.

191,677.



191,677. FIRE-ESCAPES. Leonard Henkle, Rochester, N. Y., assignor of one-half his right to W. H. Moore, same place. [Filed May 4, 1877.]

1. A fire escape ladder, consisting of links or sections A A, made each of a single piece of wire, bent in the manner described, to form double sides *f h*, with loops *d g* at top and bottom to receive the binding-wires *k k*, and with the straight lengths *e j* forming the step, as shown and described, and for the purpose specified.

2. The combination, with the links or sections A A, provided with the double sides *f h*, of the separate binding-wires *k k*, wound over the loops *d g* in the space between said double sides, as shown and described, and for the purpose specified.

3. The combination, with the lengths *e j* forming the step, of the filling-strip *p*, placed over the said lengths, and an inclosing wrapping embracing the whole, said wrapping being riveted to the strip, in the manner and for the purpose specified.

4. The wrapping D, constructed with the central body *l*, the narrow necks *m m*, and the laps *n n* at the ends, for the purpose of folding over and embracing the step, as shown and described, and for the purpose specified.

191,678. FINGER-BARS FOR HARVESTERS. Manchester, Iowa. [Filed Apr. 24, 1877.]

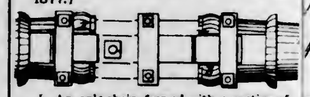


1. The knife-heel plate, having a downwardly-projecting wedge-shaped flange, *e*, substantially as and for the purpose specified.

2. The combination, substantially as specified, of the shoe, the finger-bar, and the knife-heel plate, having a wedge-shaped flange to wedge in behind the edge of the finger-bar.

3. The combination, substantially as specified, of the shoe, the finger-bar, the coupling-bar, and the knife-heel plate, having a wedge-shaped flange to wedge in behind the rear edge of the finger-bar, and a recess in its upper side for the reception of the coupling-bar.

191,679. WAGON-AXLE SKEINS. Hugh L. Hinds, South Bend, Ind. [Filed May 4, 1877.]



1. An axle-skein formed with a portion of its circumference inside the shoulder flat, and with projecting ears or lugs each side of said flattened portion, substantially as herein shown and described.

2. In combination with an axle-skein having a flattened portion and projecting ears or lugs, a horizontal truss-bar with a shoulder at each end, and an interposed cross-bar, substantially as and for the purposes hereinbefore described.

191,680. HINGES AND DOORS FOR BURGLAR-PROOF SAFES. P. F. King, St. Louis, Mo., assignor to Geo. N. Beard and M. I. Beard, same place. [Filed Feb. 2, 1877.]

1. A safe having its door and casing each provided with double screw-threads, substantially as described.

2. The door C, having the independent portion D provided with a screw-thread on its periphery, as and for the purpose described.

3. The combination of the ring, the pintles A A, and adjusting-nuts with the hinge-bars, as described.

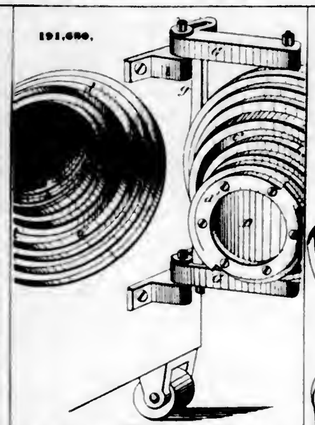
4. The combination of the hinge-bars, the connecting-bar *g'*, the ring, and the adjusting-screw *h'*, as described.

5. The combination of the hinge-bars having elongated slots and the pintles having the bores, as described.

6. In combination with a door which oscillates upon a central vertical axis, the adjusting mechanism for limiting its oscillations, as described.

7. In combination with hinge-bars having slotted bearings, substantially as described, a screw-threaded door, adapted, substantially as described, to move the hinges in their bearings.

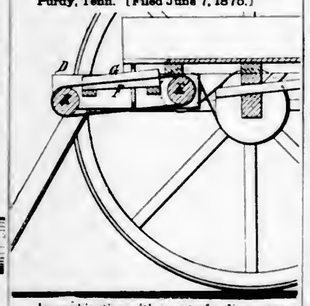
191,680.



191,681. PROCESSES OF PREPARING AN IRON AND STEEL CEMENTATION COMPOUND. J. W. Hoxie, Clintonville, Ill. [Filed Oct. 28, 1876.]

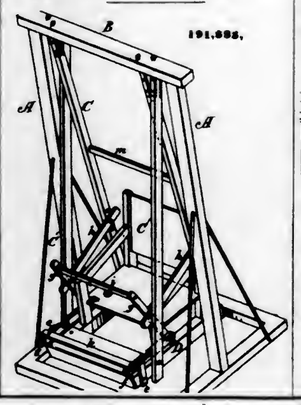
The process of preparing an iron and steel cementation compound, which consists in subjecting the raw material constituting the principal proximation of the Chester Emery mine to a white heat, pulverizing, moistening with sal-ammoniac, and, finally, reheating it, substantially as herein set forth.

191,682. MANURE-DRILLS. Asa C. Hurley, Purdy, Tenn. [Filed June 7, 1876.]



In combination with a cart of ordinary construction, the detachable frame D provided with rollers E E', endless belt G, trough F, and pivoted chute I, the detachable frame D lying under the bottom of said cart, whereby the manure is automatically dropped upon the ground, substantially as described.

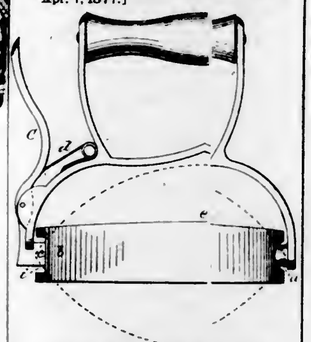
191,683.



191,683. SWINGS. J. J. Janescek, Washington, D. C., assignor of one-half his right to Wm. H. Faulkner, same place. [Filed May 12, 1877.]

The combination, with the frame A B and hanging rods C C', crossed near their tops, and connected by the brace *m*, of the chair D, provided with the levers *e g*, links *f h*, and bars *i k*, substantially as shown and described.

191,684. FLUTING AND POLISHING IRONS. Charles Johnson, Groton, N. Y. [Filed Apr. 7, 1877.]

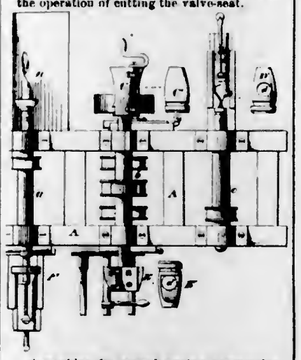


1. A removable handle for sad-irons or fluting rollers, having pivoted lever C, formed with pivotal point *b* and square shoulder *c*, and the spring *d* and pivotal point *a*, substantially as and for the purpose specified.

2. The bed F, having upon both of its faces fluting-grooves *k l*, running at right angles to each other, in combination with a fluting-roller or its equivalent, substantially as and for the purpose set forth.

191,685. MACHINES FOR MAKING VALVE-BUCKETS FOR PUMPS. John N. Kaufholz, Chattanooga, Tenn. [Filed Sept. 30, 1876.]

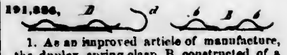
Brief.—The blank from which the valve-bucket is to be formed is longitudinally bored, so as to form a conical bore. It is then submitted to the action of revolving cutters of suitable form for giving the proper contour to the outside of the bucket. It is next bored in cross dimension, then submitted to cutters that form side arches with square bases, after which it is placed upon a shaft provided with a suitable tool for cutting the valve-seat, and given a vibrating motion as said tool performs the operation of cutting the valve-seat.



A machine for manufacturing pump-valve buckets, consisting in the combination, with suitable actuating mechanism, of the tools B, C, D, E, and F, whereby the raw material is respectively bored in length, dressed in exterior, bored in cross-dimension, cut with side arches having square bases, and, finally, formed with a valve-seat, substantially as and for the purpose described.

191,686. SPRING CLASP-HOOKS. John W. Knauss, Jersey City, N. J. [Filed May 15, 1877.]

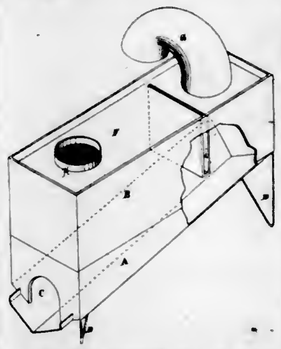
191,686.



1. As an improved article of manufacture, the duplex spring-clasp B, constructed of a single piece of sheet metal or other suitable material, and having its jaws *b b* formed in the margin of the blank A, substantially as and for the purpose described.

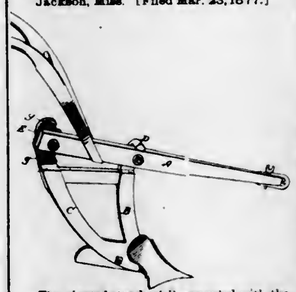
2. The combination of the spring-clasp B and hook *d*, substantially as described.

191,687. QUICKSILVER-CONDENSERS. R. F. Knox, San Francisco, Cal. [Filed Sept. 9, 1876.]



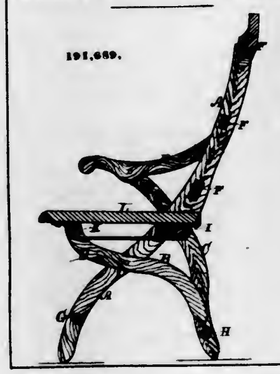
A quicksilver condensing tank, the base of which is of iron and the body of copper, whereby the deleterious action of the fumes is prevented, substantially as set forth.

191,688. PLOWS. La Fayette W. Liles, Jackson, Miss. [Filed Mar. 23, 1877.]



The pivoted standard B, provided with the circular-faced lug D, and the slotted standard C, provided with the grooves *g*, in combination with the beam A, provided with the grooved plate E, all constructed to operate substantially as and for the purpose set forth.

191,689.



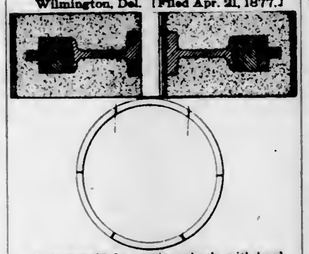
191,689. FOLDING CHAIRS. Benj. F. Little, Norwich, N. Y., assignor to himself and R. B. Prindle, same place. [Filed Feb. 28, 1877.]

1. In a folding chair, the combination of the rails A and C, and the arm D, substantially as and for the purpose specified.

2. The rail A, provided with the shoulder *a*, the rails B and C, the slats F, and the rungs G, H, I, and K, and the seat L, substantially as and for the purpose shown.

3. The herein before-described chair, consisting of the rails A, *a*, B, and C, the arms D, the slats F, the rungs G, H, I, and K, and the seat L, substantially as and for the purpose set forth.

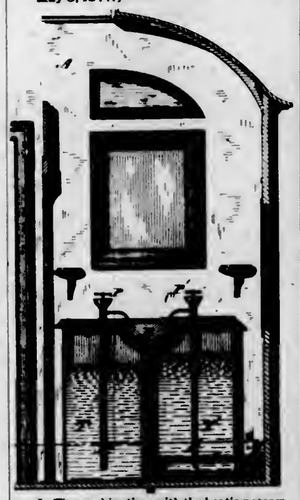
191,690. CASTING PULLEYS. G. G. Lobdell, Wilmington, Del. [Filed Apr. 21, 1877.]



1. In a mold for casting wheels with hardened grooves or recesses, the combination of a chill, A, made in segments, with a continuous ring, B, the chill and ring being made on a taper where they are fitted together, all as set forth.

2. The internal chill D made in segments, one or more of which has beveled ends coinciding with similar ends of adjoining sections, as set forth, for the purpose specified.

191,691. LAVATORY FOR SLEEPING-CARS. Christian H. Lucas, Atlanta, Ga. [Filed May 3, 1877.]

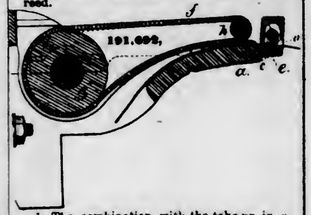


1. The combination, with the heating steam-mains of a railway-car, of a steam-coil placed in the water-tank of the toilet-room, which supplies water to the wash-basin, all as and for the purposes described.

2. In the toilet-stand of a sleeping or parlor railway-car, the combination, with the wash-stand basin B, of the tanks T T', pumps P P', and steam-coil C, connected with the car-heating steam-mains, all constructed, arranged, and operating in the manner and for the purposes set forth.

191,692. TAKE-UPS FOR LOOMS. Jas. Lyall, New York, N. Y. [Filed Feb. 25, 1876.]

Brief.—A range of independent swinging pawls upon a bar, held by spring-pressure upon the cloth above the breast-beam, and acting to retain the cloth as beaten up by the reed.



1. The combination, with the take-up in a loom, of a range of holding-pawls attached to a pawl-bar, and acting to retain the cloth as taken up, substantially as set forth.

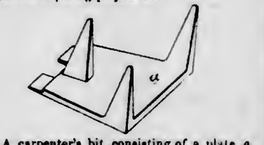
2. The hollow bar *b*, having transverse partitions, in combination with the pivot-rod *e*, pawls *c*, and washers *i*, substantially as set forth.

3. The combination, with the bar *b* and pivoted pawls *c*, of the take-up belt *f* and rollers *g h*, substantially as set forth.

4. A range of swinging holding pawls or points, standing away from the reed, and yielding to the fabric as it is drawn along, in combination with a take-up mechanism that draws along the slack cloth, substantially as specified.

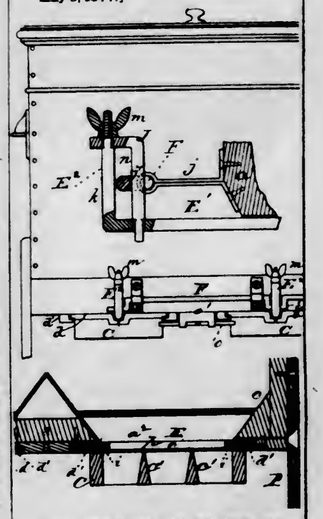
191,693. BENCH-DOGS. William Lyle, Philadelphia, Pa. [Filed May 17, 1877.]

Brief.—The bit is formed of a metallic plate having three downwardly-inclined projections on its under side, and recessed at its front to form two tapering projections.



A carpenter's bit, consisting of a plate, *a*, having tapering projections inclined downward from the front to the rear of the said plate, all substantially as set forth.

191,694. FLOUR BIN AND SIFTER COMBINED. Frank M. Mahan, St. Joseph, Mo. [Filed May 5, 1877.]



1. The combination, with a bin having vertical ends and converging sides and delivering-apertures separated by angular ribs, of a reticulated material, closing said apertures, and reciprocating agitators arranged above said sifters, substantially as specified.

2. In combination with a bin having spaced delivery-apertures and angular ribs between them, of the removable sifter-frames C, having lateral flanges *d*, adapted to be received in slideways of the bin, substantially as specified.

3. In combination with a hopper-bin for ground grain, having delivery-apertures and an angular rib separating the same, and provided with slideways *d'*, the sifter-frames having angular supporting-ribs, adapted to be received in said ways, and the agitators adapted to reciprocate on the sifter-frames, substantially as specified.

4. The combination, with a hopper-bin having spaced sifting devices and metallic slides *d* upon its under side, of the agitators E, seated in the frames of the sifting devices, the angular arms E^1, the slotted extensions E^2, a crank-shaft, and an operating device therefor, substantially as specified.

5. The combination, with a hopper-bin having spaced delivery-apertures and ribs separating the same, and a reticulated material closing the said apertures, of the reciprocating agitating-frames E, the angular slotted arms E^1, the shaft F, having crank-arms engaging said slotted arms, and a mechanism for rotating said shaft, substantially as specified.

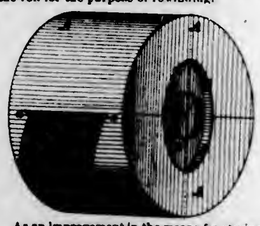
6. The combination, with the stationary sifters, the reciprocating agitator-grates, and the angular arms attached to said grates, of the angular elbow-plates J, removably secured to said arms to form slots *a* for the reception of the cranks of the operating-shaft, substantially as specified.

7. In a mechanism for operating the agitators of a combined flour-bin and sifter, the combination, with the crank-shaft F and the angular arm E^1, of the detachable angular plate J, substantially as specified.

8. The combination, with the angular arm E^1, of the detachable elbow-plate J, forming, with said arm, an oblong slot, substantially as specified.

191,695. CASES FOR STORING AND PROTECTING RIBBON. Albert C. Mason, Galesburg, Ill., assignor to himself, W. O. Douglas, and J. Gilham, Washington, D. C. [Filed May 5, 1877.]

Brief.—The axial block around which the ribbon is wound is fitted at one end into a recess in the cylindrical casing, thus rendering said casing easily handled and compact for storage, and at the same time affording access to sufficient of the projecting axis of the roll for the purpose of rewinding.



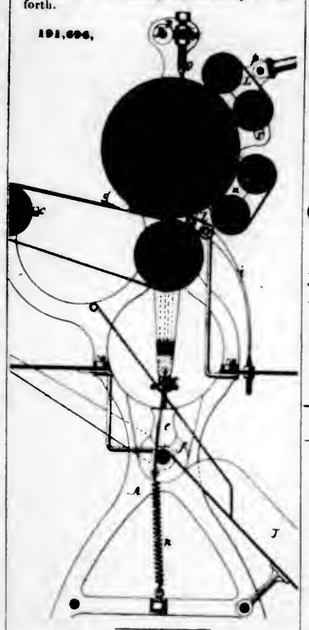
As an improvement in the means for storing and handling ribbons, a cylindrical casing for the reception of an axial block, around which ribbons are to be wound, provided with a recess at one end, at its axial center, for the reception of the projecting end of said axial block, substantially as and for the purpose specified.

191,696. LITHOGRAPHIC-PRINTING PRESSES. Chas. C. Maurice, New York, N. Y. [Filed Nov. 10, 1876.]

Brief.—Two rollers in a portable frame carry an endless apron, on which the ink is distributed by hand on a table when the frame is placed in brackets with the apron in contact with the stone. The sheets are fed on an endless blanket passing over the impression cylinder intermittently revolved by hand, and under the stone cylinder similarly revolved. They thence are delivered, under guide-tapes on rollers in elastic arms, to an inclined box.

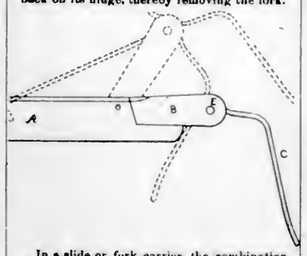
1. The combination, with the revolving cylindrical stone of a lithographic press and the slotted bracket attached to the frame A, of the removable frame *p*, having a handle, *q*, and bearing the rollers *s v*, and the inking-apron L, passing around said rollers, as and for the object hereinbefore set forth.

2. The combination of the endless carrying-apron E, pressing-roller F, cylindrical stone B, tapes *l*, running on rollers supported by elastic arms, and piling-trough J, all constructed and operating substantially as set forth.



191,697. STOP-MOTION FORK-SLIDES. John McCaffrey, Jr., Lawrence, Mass., assignor of one-third his right to S. M. Stedman, same place. [Filed Sept. 20, 1876.]

Brief.—The slide is provided with a carrier hinged thereto, and the fork is pivoted to the carrier. This construction secures the fork from injury in case a shuttle should strike against the tines, the carrier then swinging back on its hinge, thereby removing the fork.



In a slide or fork carrier, the combination of the slide A, arm or carrier B, pivoted thereto, and the fork C, constructed substantially as shown and described.

191,698. PROCESSES OF PRODUCING WROUGHT-IRON AND STEEL FROM COLD-SHORT PIG. Charles C. McCartey, Knoxville, Tenn. [Filed May 28, 1877.]

The process herein described for producing wrought-iron and steel from cold-short pig-iron, consisting in treating such iron with a definite dose, corresponding to the quantity of phosphorus in the iron, of manganese and alkali on the hearth of a puddling or equivalent furnace, with a regulated heat, as described, and the manner of manipulation set forth, all substantially as specified.

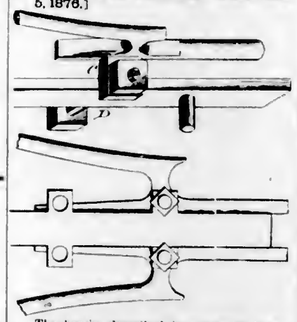
191,699. BARREL-COVERS. David T. McClellan and Thos. J. McBride, Mt. Vernon, Ohio. [Filed May 3, 1877.]

Brief.—The head-fastening is secured in position by means of bolts operated by bevel-gear.



A lid-fastener, consisting of the bars C C and screw-rod D, provided with the rigidly-fixed cog-wheel E, in combination with the vertical shaft G passing through and above the lid, and provided with the bevel-pinion F, all constructed and arranged to operate substantially as and for the purpose set forth.

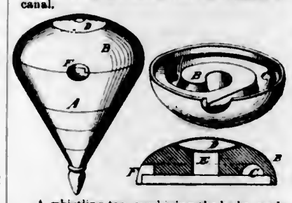
191,700. CARRIAGE-PERCH STAYS. Joseph R. McGuire, Ansonia, Conn. [Filed June 5, 1876.]



The herein-described improvement in attaching stay-ends to carriage-perch plates, consisting in forming the one with a perforated lug, C, and the other with a corresponding bolt, D, substantially as described, whereby the connection is made between the perch-plate and the stay-end independent of the wood.

191,701. SPINNING-TOPS. T. McLaughlin, New York, N. Y. [Filed Apr. 4, 1877.]

Brief.—The whistle is connected with the side orifice by an internal scrolled chamber or canal.



A whistling-top, combining the body, made in sections A B, with the spiral tube C, leading from the opening F to the central chamber E, and the double-acting whistle D, substantially as set forth.

191,702. GRATES. James H. Mearns, Philadelphia, Pa. [Filed Jan. 19, 1877.]

1. The combination of the crank D with the front ends of the grate-bars C, having hooks for holding them in connection with the cranks during the shaking and dumping of the grate, substantially as set forth.

2. The combination of the slip-lever F with the lever E and front crank for supporting the grate in its half-dumped position, substantially as set forth.

3. The box G, for preventing the passage of dust from the ash-pit or cellar into the air-chamber, substantially as set forth.

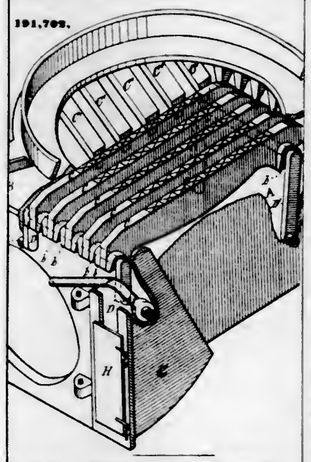
4. The door H, for closing the lower part of the box G to prevent dirt getting therein, and obstructing the working of the lever F, substantially as set forth.

5. The combination of the lever F with the door H, the upper part of the door serving as a stop for the lever when the grate is being raked, substantially as set forth.

6. The combination of the lever E with the front crank and the back plate of the box G, substantially as and for the purpose set forth.

7. The combination of the crank D' with the crank D, and grate-bars C, the arms of the crank D' being longer than those of the crank D, substantially as and for the purpose set forth.

191,703.



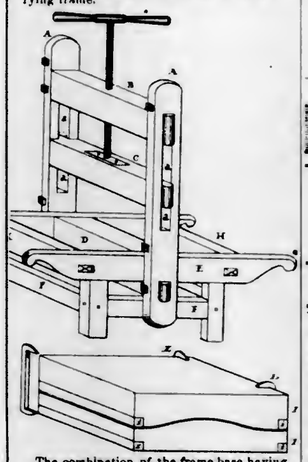
191,703. GRIDDLES. Henry C. Milligan, South Orange, N. J., assignor to Lalance and Grosjean Manufacturing Company. [Filed Nov. 29, 1876.]



A stamped sheet-metal griddle in which the rim A is bent up from the bottom C, and has a turned-down flange, E, extending below the bottom and supporting it, substantially as described.

191,704. WOOD-PRESSING MACHINES. S. L. Nagle, Bernville, Pa., assignor of one-half his right to John Weaver, same place. [Filed Mar. 2, 1877.]

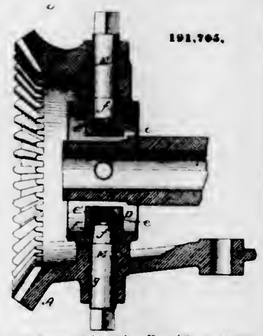
Brief.—The previously-prepared wood is given the desired shape by means of two independent formers supported upon a portable slotted frame, and between which the material is placed, and a slotted frame longitudinally adjustable on the main frame, and carrying a follower vertically adjustable by a screw attached to the upper part of the follower carrying frame.



The combination of the frame-base having side pieces E, handles *e*, cross-piece F, and adjustable block D, with the follower C, screw *s*, frame A A B, the independent formers I J, clamps L L, constructed to operate as shown and described, and for the purpose specified.

191,705. OSCILLATING GEARINGS. N. P. Otis, Yonkers, N. Y., assignor to R. Dutton & Co., same place. [Filed Apr. 25, 1877.]

191,705.



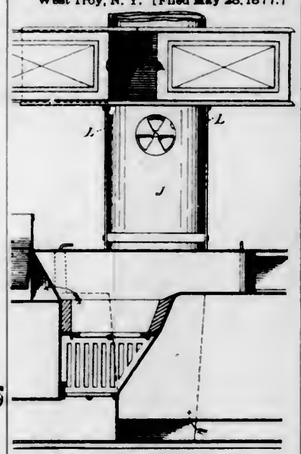
1. A hinge-joint pin, E, with a screw-thread and a conical bearing at its end, fitting into a corresponding seat, in combination with the movable part of said joint, having its bearing upon the body of the pin E, substantially as shown, and for the purpose described.

2. An oscillating gear-wheel, A, combined with the gimbal-ring D and joint-pins E E, having conical ends *f*, and screw-threads to fit corresponding seats *f'*, as and for the purpose set forth.

3. An oscillating gear-wheel, A, and the taper-seated joint-pins E E, combined with the oscillating gimbal-ring D, in which, also, two of said pins are supported to form a joint having universal movements, substantially as and for the purpose set forth.

4. The oscillating gear-wheel A, gimbal-ring D, and taper-seated joint-bolts E, in combination with the main frame of a mowing-machine, substantially as and for the purpose described.

191,706. COOKING-STOVES. Danl. E. Paris, West Troy, N. Y. [Filed May 28, 1877.]



1. In combination with the reservoir, the hot-closet, and the reservoir-case communicating with the fire-chamber and the rear flue, for the purpose of conducting the products of combustion under and around the reservoir and over the hot-closet, whereby the same are simultaneously heated.

2. In combination with the hot-closet, the fire-box and ash-pit below the latter, extending under said hot-closet, for the purpose of heating the lower part of the same without heating the reservoir.

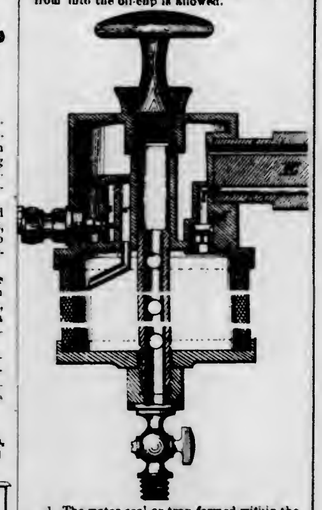
3. The combination of the reservoir, its case, hot-closet, and ash-pit, arranged at one end of the stove or range, for the purpose of heating the said closet above and below, and at the same time heating the reservoir.

4. The draft-openings, arranged one in front and one in the rear of the stove, and provided with doors connected by means of a rod, substantially as described, so as to be operated together, and admit the air simultaneously at both ends of the fire-box, whereby the draft is uniformly supplied to the fire, and the combustion rendered more perfect.

5. The pipe J, provided with the catch *x* and lug *m*, in combination with a closet or shelf and the brackets L L, whereby the closet or shelf is securely supported and heated.

191,707. LUBRICATORS. Chas. H. Parshall, Detroit, Mich. [Filed Apr. 28, 1877.]

Brief.—The water seal trap formed within the body of a condensing-chamber is to prevent the inflow of oil into the latter, while free communication for the water to pass therefrom into the oil-cup is allowed.

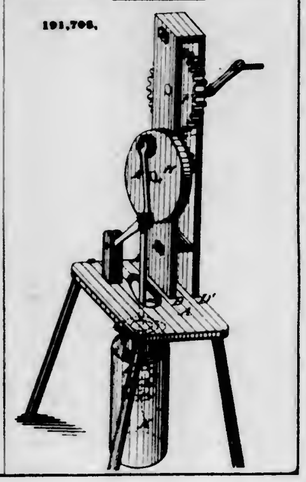


1. The water seal or trap formed within the immediate body of the condensing-chamber, and directly connecting the same with the oil-feeding chamber, substantially as described.

2. The combination, with the water-seal located directly within the condensing-chamber, of the angular discharge-pipe, extending from the same into the oil-cup, substantially as described.

3. The combination, with the auxiliary chamber N, of the central vertical partition *n*, forming the passages *s* and *s'*, the two respectively connecting by immediate openings with the steam-condensing and oil-feeding chambers, substantially as described.

191,708.



191,709. CHURNS. Thos. J. Parrish, Belton, Mo. [Filed Oct. 19, 1876.]

Brief.—The churn being suspended from the bottom of the table enables churns of different lengths to be used.

1. The combination of the bench or table A, having slot *a* and adjustable clamps *c*, with the churn-body, having projecting rim or flange *s*, substantially as and for the purpose shown and specified.

2. In combination with the bench or table A, having adjustable clamps *c* for holding the churn-body during the operation of churning, and operating mechanism, as herein described, the adjustable dasher-staff *k*, having two or more perforations, *v*, substantially as and for the purpose herein shown and specified.

191,710. NEEDLES FOR KNITTING OR SEWING. Samuel Peberdy, Philadelphia, Pa. [Filed Apr. 18, 1877.]

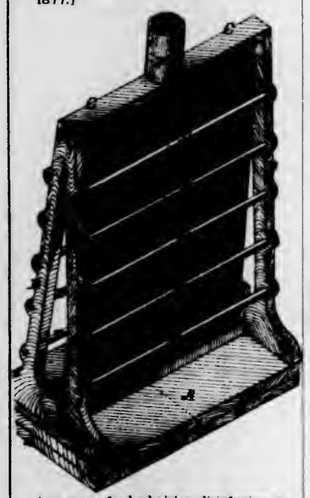
Brief.—A needle which will not "cast-off" on failure of supply of yarn; also, so fashioned as to be adapted to fine work.



1. A knitting-needle in which a lever, D′, composed of two arms, *s* and *s′*, united at a bend, *p*, is combined with and pivoted at the extremity of its shorter arm to a slotted stem, substantially as described.

2. A sewing-needle consisting of a stem pointed at one end, and provided at the other end with the said lever D′, as specified.

191,711. AIR-COOLING APPARATUS. Charls Pfanne, Washington, D. C. [Filed May 2, 1877.]



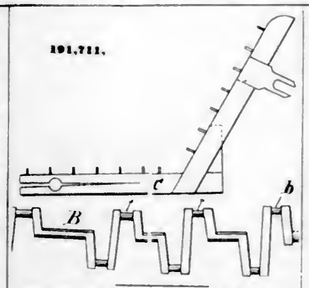
As a means for deodorizing, disinfecting, or cooling a room, a portable screen, covered with absorbent material, and provided with means for supplying liquid to the upper end of the same, and having at its lower end a pan to receive the drip of such liquid, substantially as specified.

191,711. HARVESTERS. William W. Philleo and Albert W. Cox, Hastings, Nebr., assignors, by mesne assignments, to Sandwich Manufacturing Company, Sandwich, Ill., and Theodore L. French, Cedar Falls, Iowa. [Filed Apr. 14, 1877.]

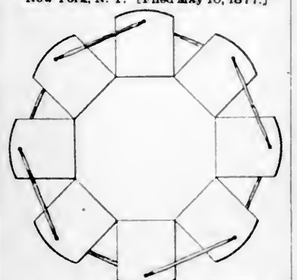
1. The crank-shafts B, constructed with the forward cranks *b* longer than the others on the same shafts, in combination with the vibrating toothed bars C, substantially as and for the purpose set forth.

2. The shafts B, provided with a series of cranks, decreasing in length from front to rear of the machine by a regular gradation, in combination with the vibrating toothed elevator-bars C mounted thereon, substantially as and for the purpose described.

191,711.

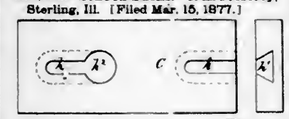


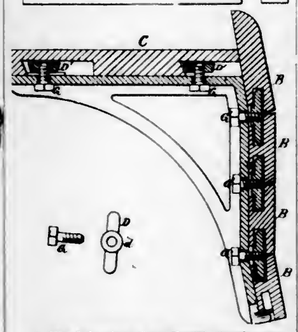
191,712. PAPER BOXES. Pulaski B. Pickens, New York, N. Y. [Filed May 10, 1877.]



In a box, the combination of an open, detached cylinder, a polygonal body, the upper part of which is divided into turn-down flaps, a tape or cord for regulating the position of these flaps, and a cover which fits the polygonal body, substantially as shown and described.

191,713. SCHOOL-DESKS. C. H. Presbrey, Sterling, Ill. [Filed Mar. 15, 1877.]





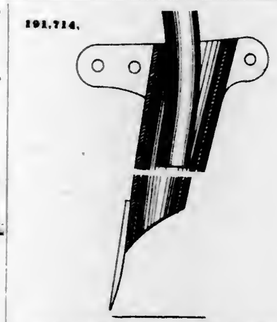
1. The fluke-shaped nut D with circular center *d*, in combination with the slats B, having holes *c* and recesses *b*, and the screws G, substantially as and for the purposes herein set forth.

2. The grooves A in the wood C, having angling or lip sides, in combination with the nuts D′ and screws G, substantially as and for the purposes herein set forth.

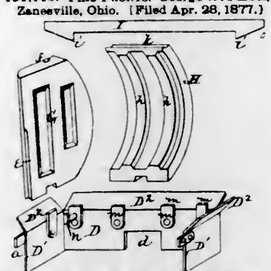
191,714. DRILL-HOES. E. F. Pryor, Dayton, Ohio, assignor of one-half his right to W. H. Nauman, same place. [Filed Aug. 30, 1876.]

In combination with a conducting tube of any material, a drill-hoe or tooth whose interior surface is coated with any polished enamel substantially as and for the purpose specified.

191,714.



191,715. FIRE-FRONTS. George W. Purcel, Zanesville, Ohio. [Filed Apr. 28, 1877.]



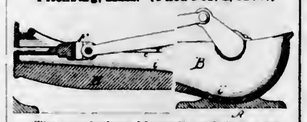
1. The cast-iron base D D′, provided with flanges D², lugs *a*, buttons *m*, and studs *n*, as and for the purposes herein set forth.

2. In a fire-place, the tile-jambs G G and tile-backs H H, constructed substantially as described, and for the purposes set forth.

3. The combination of the cast iron base D D′, tile-jambs G G, tile-backs H H, and top bar I, with books or shoulders *i i*, substantially as and for the purposes herein set forth.

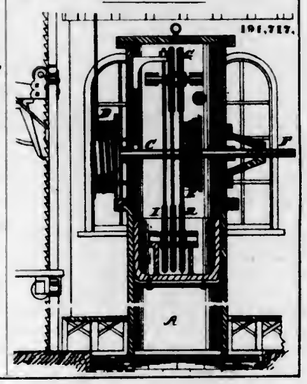
4. The top plates J J, in combination with the bar I, backs H H, and jambs G G, substantially as herein set forth.

191,716. ENGINE-FRAMES. S. W. Putnam, Fitchburg, Mass. [Filed Feb. 2, 1877.]



The trough-shaped frame B, made in one continuous piece, and provided with the strengthening-rib H, in combination with the reversible pedestal A, having its bottom cast to conform to the trough shape of the frame, as and for the purpose set forth.

191,717.

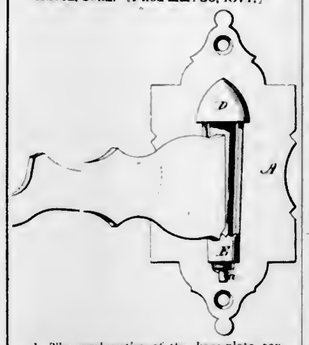


191,717. HOISTING-MACHINES. H. J. Reedy, Cincinnati, Ohio. [Filed Jan. 26, 1877.]

Brief.—The tapering drum, regulated by the screw on the end of the axle, equalizes the pressure as the weight of water varies in the cylinder.

The combination of the vertical cylinder A, sheaves G and I, tapering drum E, shaft C, and screw F, the whole being arranged substantially as and for the purposes hereinbefore set forth.

191,718. BRACKETS. Jos. B. Sargent, New Haven, Conn. [Filed Mar. 30, 1877.]

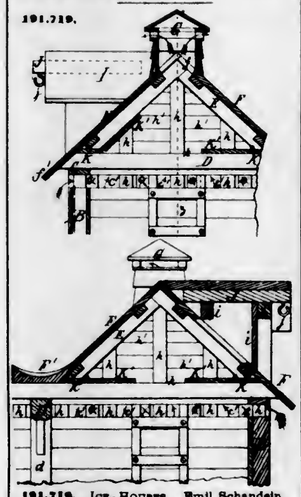


1. The combination of the base-plate, constructed with a vertical slot, through which the bracket-arm is passed from the rear, and a socket at the top, with the bracket-arm constructed to be introduced through said vertical slot, and, with the bearing, to rest in the upper socket, and a bearing against the face of the plate below, substantially as described.

2. The combination of the plate A, constructed with its slot B, through which the bracket-arm is introduced, upper socket D, and lower band E, with the bracket-arm constructed so as to be introduced through said slot B, with a pintle, F, corresponding to the said socket and band, substantially as described.

3. The combination of the plate A, constructed with the slot B, the socket D above, and band E below, with the bracket-arm constructed with a pintle to fit the socket above and the band below, and with a projection, *a*, down on to the surface of the plate, substantially as described.

191,719.



191,719. ICE-HOUSES. Emil Schandein, Milwaukee, Wis. [Filed Feb. 20, 1877.]

Brief.—A double-peaked roof having dormer-windows, through which ice may be hoisted, and having ventilators at each peak, is placed over a single compartment. A flooring just beneath the roof has a narrow opening directly beneath the ventilators, which opening may be enlarged by raising the hinged portion of the flooring on one or both sides. Air enters the building on all sides through openings just below the eaves and overhanging gables, and, passing over the ice to the central floor-openings, rises and escapes through the ventilators.

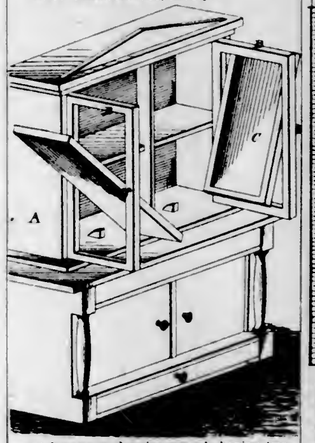
1. In an ice-house, the combination of the walls B, having openings *c′*, and the overhanging gable H of the roof F, substantially as and for the purpose set forth.

2. The combination of the single ventilated ice-chamber of an ice-house and a twin ventilating-roof, whereby the force of ventilation-currents caused by external heating of the roof is augmented, substantially as set forth.

3. The roof having the door I in the dormer-window, the said door forming, practically, a continuation of the door B′ in the body of the ice-house without cutting through the plate or sill on which the roof rests, substantially as and for the purpose described.

4. In an ice-house, a ventilating-roof, as described, having a floor, K and K′, consisting of a stationary part and a movable part hinged thereto, whereby the central ventilating-opening may be made small, to serve as a flue for the passage of air, moisture, and vapor to the ventilators in the roof from below the floor, and the size of the space *k* between said hinged floors for the passage of ice through it may be enlarged at pleasure, substantially as and for the purpose described.

191,720. ADJUSTABLE MIRRORS FOR DRESSING-CASES. Saml. R. Scottron, New York, N. Y. [Filed Nov. 16, 1876.]



A bureau or dressing-case, A, having two hinged skeleton frames, B B, into each of which is pivoted a mirror, C, capable of being placed at any angle, and capable of being revolved on the pivots, so that the mirrors can face on either side of the frame, substantially as and for the purposes herein set forth.

191,721. BREECH-LOADING FIRE-ARMS. John Schudt, New York, N. Y., assignor to himself and Chas. Seeger, same place. [Filed Nov. 24, 1876.]

Brief.—A crank-arm inside the frame is rigidly secured to a transverse shaft or pin, which is operated by an outside lever. When said lever is depressed, the crank-arm presses back the firing-bolt, cocks the gun, and depresses the breech-block to open the breech. A projection on the shaft which carries the crank-arm comes in contact with a downward extension of the extractor below its pivot, and operates it to extract the shell.

1. The combination of the pivoted breech-block B with the pivot-pin *a*, which has the handle *b*, and feather *d*, and with the stock containing the notch *f*′ and segmental groove *f*″, substantially as herein shown and described.

2. The thimble *f*, constructed with a central aperture, a notch, *f*′, extending from said aperture to the edge, and with a segmental groove, *f*″, for the purpose of securing the pin *a*, having feather *d*, substantially as herein shown and described.

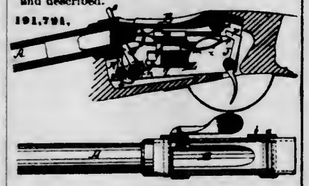
3. The sliding block D, rigidly connected with the firing-pin *h*, trigger spring *i*, arm *j*, and lug *k*, and combined with the breech-block of a fire-arm, substantially as herein shown and described.

4. The combination of the breech-block B with the slide D, and with the slotted barrel E, containing the spring *l*, substantially as herein shown and described.

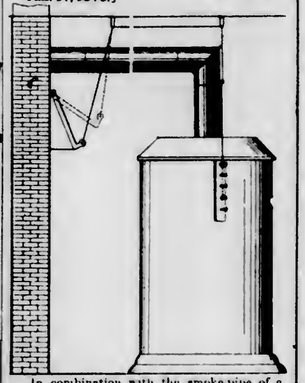
5. The slotted barrel E, made with the transverse shank *m*, and combined with the breech-block B, which is laterally grooved for the reception of said shank, substantially as herein shown and described.

6. The combination of the extractor H and its shaft *s*, having the projection *t*, with the crank F, shaft *a*, projection *w*, and vibrating breech-block, substantially as herein shown and described.

191,721.



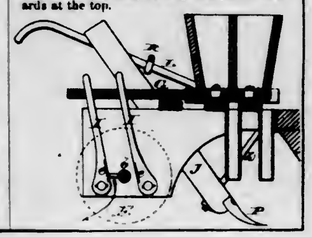
191,722. CHIMNEY-DRAFT REGULATORS. Wm. H. Sears, New Haven, Conn. [Filed Jan. 17, 1876.]



In combination with the smoke-pipe of a heating apparatus, a vertically-inclined check-door arranged in the chimney directly beneath the smoke-pipe, and opening a regulated passage directly into the chimney in the same direction as the smoke enters, all substantially as described.

191,723. CORN-DROPPERS. J. P. Simmons, Cold Spring, Tenn., assignor of one-third his right to J. H. Acuff, same place. [Filed Apr. 21, 1877.]

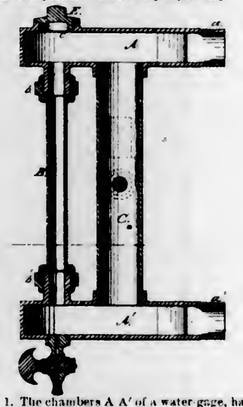
Brief.—Pivoted to one end of the frame are two vertical standards, that pass up through the rear end of the seed-slide, between which revolves the axle of the bearing-wheel, provided with a flange, that strikes, in its revolution, alternately one of the two standards for vibrating the seed-slide. The handles are supported by passing through the plow-standards at the top.



1. The combination of the covering-wheel E, secured on the shaft *b*, the lug or flange *d* on said shaft, the levers I I, pivoted one on each side below the shaft, and the longitudinally-reciprocating slide G, substantially as and for the purpose described.

2. The combination of the marker-shovels P P, standards J J, the handles L L, passing through the upper ends of the standards, and the connecting-rod R, substantially as and for the purpose described.

191,794. WATER-GAGES. Chas. D. Smith, Boston, Mass. [Filed July 12, 1876.]

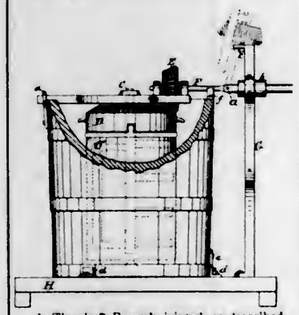


1. The chambers A A′ of a water-gage, having connections *a a′* of greater area than the indicating-tube B, substantially as shown, and for the purpose set forth.

2. The combination, with a water-gage, of the chambers A A′, having connections *a a′* of greater area than the indicating-tube B, connecting-pipe C, opening *c*, and plug E, as and for the purpose described.

191,795. ICE-CREAM FREEZERS. J. Solter, Baltimore, Md., assignor to J. W. Condon. [Filed Apr. 17, 1877.]

Brief.—The horizontal driving shaft is jointed, and has its bearing in an outside frame, so that the inner portion with its bevel-wheel and the top plate of the freezer may be lifted from the tub. The tub is held in place by lugs and catches.



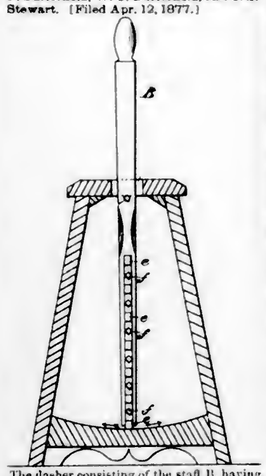
1. The shaft F, made jointed, as described, and having its outer extension arranged in a stationary bearing and its inner section combined with the removable top portion of an ice cream freezer, substantially as and for the purpose described.

2. The frame G, provided with a seat, *c*, combined with the jointed shaft, and arranged to support the removable top portion of the freezer, substantially as described.

3. The frame G, having a single elongated bearing, *b*, combined with the jointed shaft F, for the purpose described.

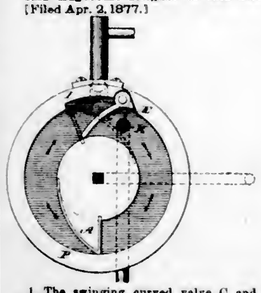
4. The tub, having open bearing *f* and catch *e*, in combination with the driving shaft and the lugs *d d′*, one of which is notched for the reception of the catch, to prevent the turning of the tub, substantially as described.

191,796. RECIPROCATING CHURNS. Henry C. Sperry, Sheldon, Iowa, assignor to C. F. Butterfield, W. C. Butterfield, and C. S. Stewart. [Filed Apr. 12, 1877.]



The dasher consisting of the staff B, having two alternating series of paddles, *c e f*, one rectangular and the other diamond-shape, disposed one above and edgewise with the other, substantially as and for the purpose set forth.

191,797. ROTARY PUMPS. Thos. B. Swan, Minot, and E. F. Edgecomb, Poland, Me.; said Edgecomb assignor to said Swan. [Filed Apr. 2, 1877.]



1. The swinging curved valve C and its catch E, adapted to be used in a rotary pump, substantially as specified.

2. The combination, with a revolving paddle, of the swinging curved valve C and its catch E, substantially as specified.

3. In a rotary pump, the combination, with a swinging valve and catch, of an angular curved paddle, A, substantially as specified.

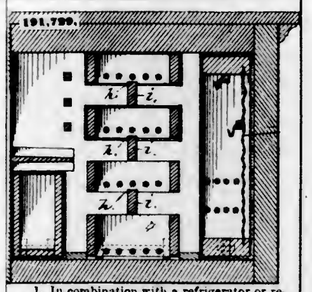
4. The combination, with the barrel P, slotted at *l*, of the swinging curved valve and its catch, and the rotating cylinder, having the curved angular paddle A, substantially as specified.

191,798. PROCESSES FOR REDUCING NICKEL ORE. William B. Tatro, Hartford, Conn. [Filed Aug. 31, 1876.]

1. The process of reducing nickel ore, which consists of melting the ore in contact with a flux consisting of fluor-spar, lime, saltpeter, potash, and common salt, in about the proportions specified, and removing the foreign matters in a molten state, substantially as set forth.

2. The process of reducing nickel matte, consisting in melting the matte in contact with fluor-spar, lime, saltpeter, common salt, and potash, and removing the foreign matter in a melted state, substantially as set forth.

191,799. REFRIGERATORS. Leander Thompson and Benj. E. Parkhurst, New York, N. Y., assignors of one-third their right to Fisher M. Clarke, same place. [Filed Mar. 14, 1877.]



1. In combination with a refrigerator or refrigerating-chamber, a sliding provision stall or cupboard open at both sides, whereby the cool air from the single ice-compartment is permitted to pass across and around the stall, substantially as shown and described.

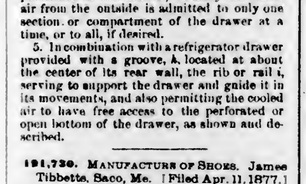
2. In combination with the lower part of a refrigerator or refrigerating-chamber, the water-tight tub or tubs for containing salt meats, &c., the same being provided with one or more rollers at rear end, running on the lower part of the refrigerator, and a roller at the front end resting on the floor of the room, as and for the purpose set forth.

3. In combination with the sliding drawers and their rubber or flexible packing applied to the same near their outer ends, as described, the latches or fastenings operating in the act of fastening to compress such flexible material and tighten the joint, substantially as shown and described.

4. In combination with the sliding drawers, rubber packing, placed around one or more partitions in the drawer, whereby the warm air from the outside is admitted to only one section or compartment of the drawer at a time, or to all, if desired.

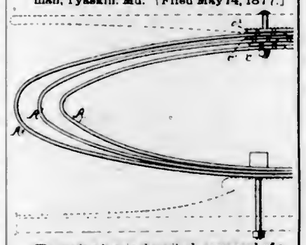
5. In combination with a refrigerator drawer provided with a groove, *k*, located at about the center of its rear wall, the rib or rail *i*, serving to support the drawer and guide it in its movements, and also permitting the cooled air to have free access to the perforated or open bottom of the drawer, as shown and described.

191,730. MANUFACTURE OF SHOES. James Tibbetts, Saco, Me. [Filed Apr. 11, 1877.]



As an improved manufacture, a shoe having its vamp composed of an instep and two side pieces, A B A, and a box-toe or toe-piece, C, formed and arranged in manner and with the quarters, substantially as set forth.

191,731. ELLIPTIC SPRINGS. Noah J. Tilghman, Tyaskin, Md. [Filed May 14, 1877.]

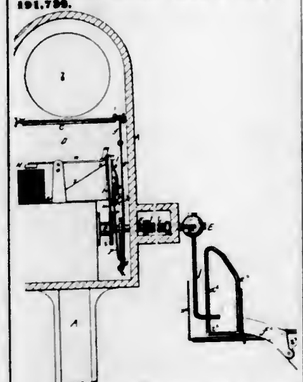


The spring herein described, composed of a series of concentric elliptical plates, A A′ A², formed each of a single piece of metal, bent as described, and having their free ends united in the center, and separated by lap-joint plates *c c′ c²*, substantially as described, and for the purpose set forth.

191,732. ELECTRIC RAILROAD-SIGNALS. J. P. Tirrell, Somerville, Mass. [Filed May 18, 1876.]

Brief.—Locomotive in passing signal mechanically sets signal, at the same time closing one break in the circuit of the electro-magnet whose armature controls releasing detent, and at next signal closes the second break in the circuit of the unsetting-magnet, thus restoring signal previously passed to "safety."

191,733.

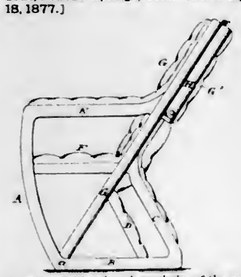


1. Mechanism, substantially such as herein described, for setting and unsetting railroad danger signals, in combination with an electro-magnet G, its armature H, switch *q*, and spring-fingers *s*, *t*, and *u*, connected with electric wires, substantially as herein described, whereby the setting of one signal secures the unset of a previously-set signal by the then release and action of the setting mechanism to such signal through the then attraction of an electro-magnet, all substantially as herein described.

2. The combination, with the danger-signal C, of the crank-arm *f*, the rod *g*, the shaft E, having a crank, *h*, connected with the rod *g*, the spring I around said shaft, and the lever-arm J on the outer end of the same, and with an electro-magnet, armature-fingers *s*, *t*, and *u*, and electric wires at each post A, as and for the object set forth.

3. The combination, with the frame e^2, composed of two hinged parts, f^2 g^2, of the incline d^2, as and for the purpose set forth.

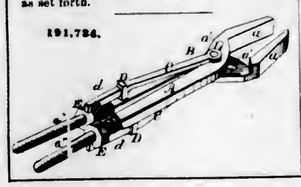
191,734. CONVERTIBLE CHAIRS. James P. True, Ponoha Springs, Colo. [Filed Apr. 18, 1877.]



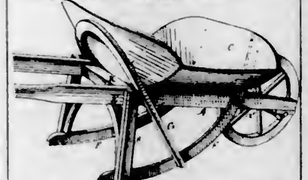
1. The combination, in a chair, of the rockers A, forming at one end, *a*, legs of the easy-chair, the seats D and F, and back G, common to both chairs, substantially as set forth.

2. In combination with the back G, arms C and E, rockers A, and adjustable head-rest, the extension G′, and legs H, substantially as set forth.

191,784.



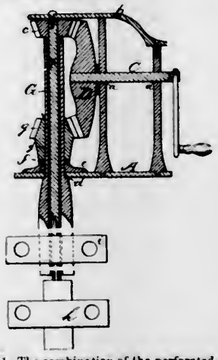
191,735. WHEELBARROWS. E. W. Walker, Goshen, Ind. [Filed May 18, 1877.]



1. The rails A A, provided with longitudinal grooves *a a*, in combination with the floor D and metal rods E, substantially as and for the purpose set forth.

2. The rails A A and legs B B, in combination with the curved supports F F and bow-support G, all constructed to operate substantially as and for the purpose set forth.

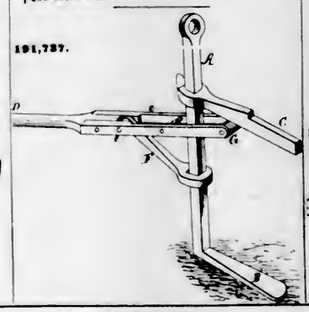
191,736. ROTARY CHURNS. Jas. G. Wallace, Riceville, Tenn., assignor of one-half his right to Edward M. Newton, same place. [Filed May 16, 1877.]



1. The combination of the perforated covering-board A, ring *e* having flange *f*, shaft G, and pinion *g* having sleeve or flange *g′*, substantially as and for the purpose shown and specified.

2. The improved churn-dasher herein described, consisting essentially of the tubular forked shaft G having dasher-blade *i*, shaft F having dasher-blade *h*, ring *e* having flange *f*, pinion *g* having flange *g′*, pinion *c*, and cog-wheel D, all combined, arranged, and operating substantially as described, for the purpose set forth.

191,737.

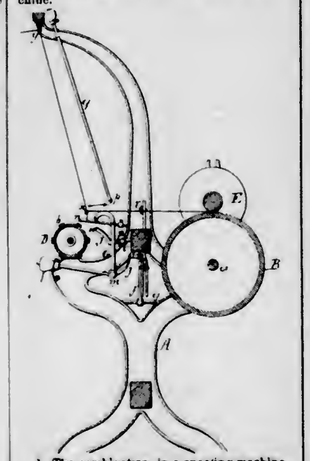


191,737. LIFTING-JACKS. James Weathers, Greensburg, Ind. [Filed May 3, 1877.]

The combination of the standard A, having foot B, the arm C with its opening, the lever D, having jaws *a a*, and bar or roller G on its end, and the bar or bars pivoted to the lever and connected to the standard, all constructed substantially as set forth.

191,738. STOP-MOTIONS FOR SPOOLING-MACHINES. James Wild, Clifton Heights, assignor of one-half his right to E. Hey, Philadelphia, Pa. [Filed Nov. 6, 1876.]

Brief.—The threads pass through a series of eyes variously located. Should a thread break at any point between the bobbin and spool, its eyed finger will fall, and its end lie in the path of the ribbed cylinder. This movement of the finger and cylinder, through the intervening mechanism, consisting of levers, connecting-rods, weighted arms, &c., causes the release of the driving-pulley from the disk on the driving-shaft, and thus stops the machine.



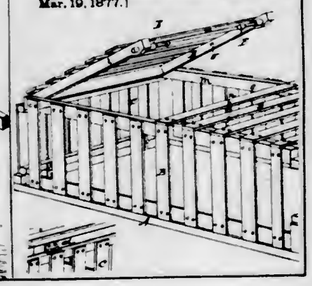
1. The combination, in a spooling-machine, of the ribbed cylinder D or equivalent device, as described, with the arm or arms G, the fingers *a*, and devices, substantially as described, whereby the movement of said arm or arms G is caused to throw the machine out of gear, as set forth.

2. The combination of the ribbed cylinder D, the shaft *w*, its fingers *j*, and arms G having fingers *a*, with the operating rod *f* having spring *h*, and spring-arm *i* arranged to abut against a lug, *i′*, on the frame, as set forth.

3. The combination of the ribbed cylinder D, the arms G, and their fingers *a*, with the levers J and their rod *w*, and a device substantially as described, for operating said levers, as set forth.

4. The combination of the ribbed cylinder D, the arms G and their fingers *a*, the levers J and their finger-supporting rod *w*, the operating-lever F and the cam-plate *s*, all substantially as described.

191,739. FRUIT-CRATES. George Willard, Chicago, Ill., assignor of one-half his right to O. P. Abercrombie, same place. [Filed Mar. 19, 1877.]



A poultry, egg, or fruit carrier, consisting of the solid bottom A, hinged sides B, hinged ends C, and hinged top pieces D D', having strips *l* adapted to fold within and lie against the inner sides of the strips *m*, and provided also with spring-stop E, metal clamps *i*, and hooks or other fastenings for securing the top pieces together, the several parts constructed and arranged as herein shown and described.

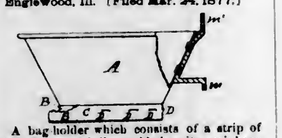
191,740. MILLSTONE-DRESS. Robert S. Williams, Milwaukee, Wis., assignor of one-half his right to Jas. B. Marton, same place. [Filed Apr. 10, 1877.]

Brief.—Unites the two sets of bosom and skirt furrows by the peculiar connection shown, to prevent clogging at the intersection of the radial and tangential furrow.



A millstone-dress, consisting of the tangential furrows A, with the furrows B leading therefrom, upon the bosom of the stone, and both connecting, in the manner described, with the furrows *f* and F upon the skirt, the whole being constructed and arranged as shown, and for the purpose set forth.

191,741. BAG-HOLDERS. Enoch Woods, Englewood, Ill. [Filed Mar. 24, 1877.]



A bag-holder which consists of a strip of thin sheet metal, C, provided on its periphery with a series of projections, D, and reduced serrated ends S S, combined with the lower end of hopper A, so that the serrated ends project outward to admit a bag or sack to be placed above projections D and fastened to the serrated ends S S, as and for the purpose set forth.

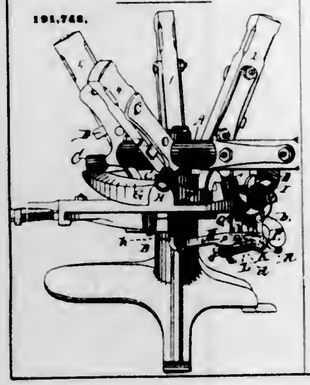
191,742. FINGER-GUARDS. Katie A. Wynne, East Boston, Mass. [Filed May 3, 1877.]



1. A finger-guard, A, closed at one end and provided with an offset, B C, at the other end, as and for the purpose specified.

2. A finger-guard, A, provided with a cavity, D, for holding an emery-cushion, substantially as and for the purpose set forth.

191,743.



191,743. HARVESTER-RAKES. Robert D. Warner, Syracuse, N. Y., assignor to C. C. Bradley, same place. [Filed May 24, 1876.]

1. The ratchet-wheel I, provided with lift-teeth *a a*, in combination with the weight-lever K, the link-piece M, angle-arm N, and the outlet-gate F, for the purpose specified.

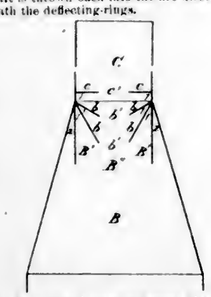
2. The link-piece M, provided with a hole, *f*, in combination with the weight-lever K, provided with the hole *s*, so arranged that when the holes are made to coincide, and a pin passed through both, the free extremity of the lever K will be out of contact with the lift-teeth *a a*, to the end that all the arms may rake.

3. The weight-lever K, provided with the pin *c*, in combination with a link-piece, M, provided with a right-angular slot, R, for the purposes specified.

4. The combination of the balance-weight P, controlled by a cord or chain, the slotted link Q, and the link-piece M, provided with the pin *d*, for the purposes specified.

191,744. REFUSE-BURNERS. William Glue, Muskegon, Mich. [Filed Apr. 30, 1877.]

Brief.—Unburned material carried up by the draft is thrown back into the fire directly beneath the deflecting-rings.



1. In a refuse-burner or furnace, the combination of the ring-plate *c*, having opening *c'*, the exit-pipe C and conical section B, as and for the purposes described.

2. In a refuse-burner or furnace, the combination of the inverted conical ring *b*, having opening *b'*, with the conical section B, as and for the purposes described.

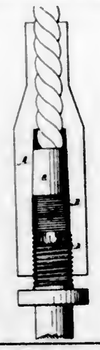
3. The downward-projecting cylinder B', in combination with the conical section B, as and for the purposes described.

4. In a refuse-burner or furnace such as above described, the combination of an annular ring, *c*, having opening *c'*, and inverted conical ring or rings *b*, having opening or openings *b'*, as and for the purpose described.

5. In a refuse-burner or furnace such as above described, the combination of an annular ring, *c*, having opening *c'*, inverted conical ring or rings, *b*, having opening or openings, *b'*, and downwardly-projecting cylinder, B', as and for the purposes described.

REISSUES.

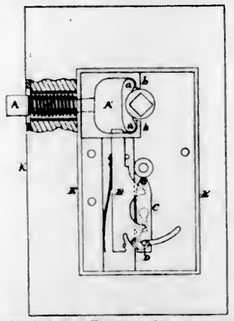
7,719. ROPE-SOCKETS FOR OIL-WELLS. Henry Babcock, Pittsburg, Pa. Patent No. 133,290, dated Nov. 26, 1872. [Filed Mar. 29, 1877.]



1. The herein-described cylindrical socket A for connecting the rope with the drilling-tools employed in oil-wells, the same having its upper end formed with a diameter, and with a bore through which the rope passes, commencing at the upper terminus of the conform bore of the rope-socket, substantially as shown and set forth.

2. In a socket for connecting the rope with the drilling-tools employed in oil-wells, the combination of the cylinder A, tapering sleeve *s*, and screw D, with the wrapped end of the rope, substantially as herein described, and for the purpose set forth.

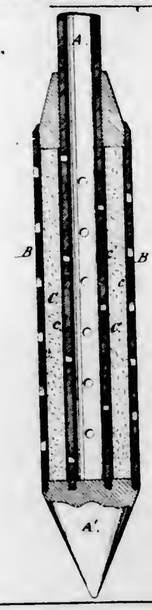
7,720. KEY-HOLE GUARDS FOR LOCKS. Calvin H. Covell, Stockton, Cal. Patent No. 135,502, dated Dec. 19, 1876. [Filed Mar. 29, 1877.]



1. The lock-case E, arranged to be fitted in a corresponding-shaped recess in the side of the door-stile, which recess is made at a distance from the outside edge of the stile, in combination with the enlarged face-plate E', which is arranged to overlap the edges of the case and be secured by screws, which enter the wood opposite the full thickness of the stile, substantially as and for the purpose described.

2. The combination of the locking-bolt B, having the hook-shaped extension *d*, with the operating-pin D of the key-hole guard-plate, to retain the guard-plate in position to close the key-hole, substantially as specified.

7,721.

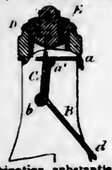


7,721. TUBE-WELLS. T. J. Dean, St. Louis, Mo., assignor to L. M. Rumsey and Moses Rumsey. Patent No. 71,144, dated Nov. 19, 1867. [Filed May 2, 1877.]

1. A tube-well, its lower section consisting of two concentric perforated tubes, one wire-gauze tube surrounding the interior perforated tube, and another lining the exterior perforated tube, a body of filtering material being placed between the two tubes of gauze, substantially as shown and described.

2. In combination with the perforated end of a driven well-tube, a filtering device and a perforated casing, surrounding both the perforated end of the well-tube and the filtering device, for the purpose specified.

7,722. BOTTLE-STOPPERS. Charles De Quillfeldt, New York, N. Y., assignor to Karl Hutter, same place. Patent No. 158,406, dated Jan. 5, 1875. [Filed Apr. 24, 1877.]



1. The combination, substantially as before set forth, of the compound stopper, the yoke, the lever, and the supporting device on the bottle, by means of three pivotal connections, upon which the said members can be turned relatively to each other without disconnecting either one from the other.

2. The combination, substantially as before set forth, of the compound stopper, the lever, and the yoke, by means of two pivotal connections, upon which the said three members can be turned relatively to each other without disconnection, and the pivotal connection of the lever to the bottle, substantially as set forth.

3. In combination with a bottle, the flexible elastic stopper-disk, whose lower surface is larger than the opening in the mouth of the bottle, and which is provided with an upwardly-projecting stem or shank, substantially as before set forth.

4. The combination of a perforated rigid cap-piece, with the flexible elastic stopper-disk, whose lower surface is larger than the opening in the mouth of the bottle, and which is constructed with a stem of reduced diameter, said stem being passed into the perforation of the cap-piece, substantially as before set forth.

5. The combination of the perforated rigid cap piece and the flexible elastic stopper-disk, constructed with a laterally-perforated stem, through which a wire is passed above said cap piece to confine said cap-piece to said disk, substantially as specified.

6. The combination, substantially as before set forth, of the flexible elastic stopper-disk, constructed with a perforated stem, the perforated cap-piece, and the yoke, which is passed transversely through the said stem for the purpose of preventing the withdrawal thereof from the cap-piece.

7. The combination, substantially as before set forth, of the yoke and the lever, which are directly connected one with the other by a pivotal connection, the lever being constructed with end pivots to enable it to be connected pivotally with the supporting device on the bottle.

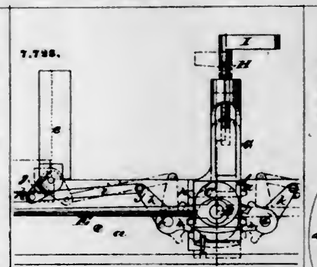
8. The eccentric lever B, made with two pivotal connections, the one joining it to the bottle, the other to the pivoted stopple, so that by vibrating said lever on its connection with the bottle it will carry the stopple toward or away from said bottle, substantially as specified.

9. The combination of the pivoted bottle-stopper with the yoke C, neck-ring *a*, and eccentric lever B, the said yoke and eccentric lever being pivoted together and arranged so that the stopper is forced into the bottle by swinging the handle part of the lever against the side of the bottle, substantially as herein shown and described.

7,723. MACHINES FOR PRESSING AND BUNCHING SHINGLES. Parker Dexter, Clinton, Iowa, assignor to Charles S. Burt and Silas Burt. Patent No. 88,036, dated Mar. 31, 1868. [Filed Aug. 22, 1876.]

Brief.—The bunch of shingles is simultaneously compressed both from above and below by the operation of a single lever.

7,724.



1. In a shingle-bunching machine, the vertically adjustable bars G, or equivalents, provided at their upper ends with hooks or arms projecting over the upper side of the bunch, in combination with mechanism whereby the bars and hooks may be drawn down to compress the bunch from above, substantially as described.

2. In a shingle-bunching machine, the vertically-sliding plates F, or equivalents, extending underneath the bunch, in combination with mechanism whereby the plates may be forced upward to compress the bunch from below, substantially as described.

3. The combination of the adjustable bars G, provided with hooks or arms at their upper ends, sliding plates F, and mechanism, substantially as described, whereby, by the movement of a single lever, the bars and plates may be adjusted vertically, so as to compress the bunch of shingles simultaneously both at the top and bottom, substantially as set forth.

4. The combination of the sliding bars G, having hooks or arms I at their upper ends, shaft B, and eccentric cams C, substantially as and for the purpose set forth.

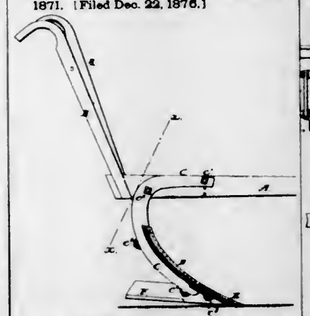
5. The combination of the shaft B, cams D, and sliding plates F, substantially as and for the purpose set forth.

6. The combination of the shaft B, eccentric cams C and D, lever E, sliding plates F, and sliding bars G, having projecting arms at their upper ends, substantially as and for the purpose set forth.

7. The combination of the sliding bars G and swinging adjustable arms I, substantially as described.

8. The combination of the sliding bars G and pivoted swinging end boards J, constructed and operating substantially as set forth.

7,725. PLOWS. Elias Halman, Columbus, Ga. Patent No. 111,055, dated Jan. 17, 1871. [Filed Dec. 22, 1876.]



1. In combination with the beam A, the double adjustable standard C, with the point E, mold-board D, and land-side F arranged thereon, all substantially as shown and described.

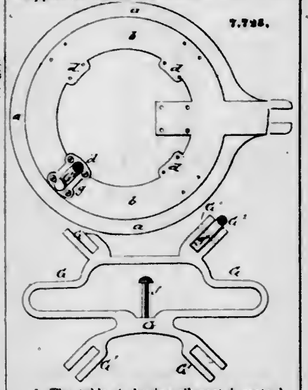
2. The combination of the curved double adjustable standard C and beam A, the standard being pivoted to the beam at *c'* and having its upper portions extended along the beam, all substantially as and for the purpose specified.

3. The arrangement of the plow-point E, mold-board D, land-side F, standard C, and bolts *c'*, *c'*, *c'*, and *c'*, as and for the purpose specified.

7,726. SCROLL-SAWING MACHINES. Jerome H. Plummer, Brooklyn, N. Y. Patent No. 168,920, dated Oct. 19, 1875. [Filed Apr. 16, 1877.]

Brief.—The table is provided with a raised strengthening or rib part at its under side, to which the top plates of the supporting-legs are attached. The legs are connected by a horizontal frame, which is extended to form a support for the balance-wheel.

7,726.

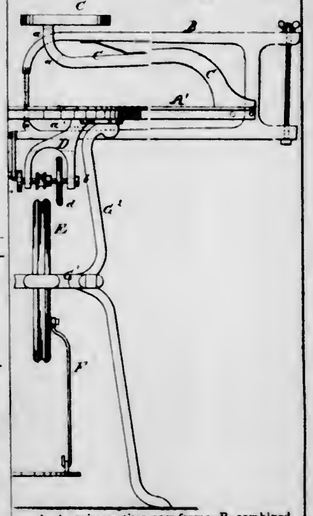


1. The table A, having rib part *b*, seats *d*, and supporting-legs G^2, the latter having lugs and flanged heads, in combination with the connecting-frame having forked socket-arms G^1, as and for the purpose specified.

2. The leg-connecting frame G, having forked socket-arms for legs, curved diametrical extensions, and fixed lateral shafts for balance-wheel, substantially as set forth.

7,726. SCROLL-SAWING MACHINES. Jerome H. Plummer, Brooklyn, N. Y. Patent No. 168,920, dated Oct. 19, 1875. [Filed Apr. 16, 1877.]

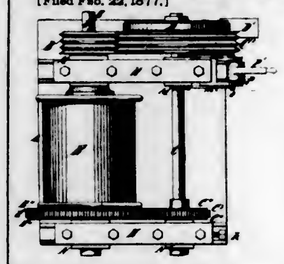
Brief.—The rear table-extension, to which the saw-frame is pivoted, is provided with a curved arm, which supports a shelf for the oilers and wrench, and also with slotted arms, which form a guide above and below the table.



1. A reciprocating saw-frame, B, combined with and pivoted to a table-extension, A', whose slotted arms C D form a guide thereto above and below the table, as and for the purpose set forth.

2. A rear table-extension, A', provided with a curved arm, C, supporting a shelf, C', as and for the purpose specified.

7,727. HOISTING-MACHINES. George H. Reynolds, New York, N. Y., assignor to himself and C. H. Delamater, same place. Patent No. 81,289, dated Aug. 18, 1868. [Filed Feb. 22, 1877.]



1. The combination, with the driving-shaft and drum of a hoisting-machine, of a jack-shaft interposed between the driving-shaft and drum, and geared with the driving-shaft by V-shaped friction-gearing, and means of moving the said jack-shaft into gear with and out of gear from the jack-shaft, substantially as and for the purpose herein set forth.

2. The combination, with a hoisting-machine in which the drum is driven by a jack-shaft interposed between it and the driving-shaft, of a brake-wheel placed upon the jack-shaft, substantially as and for the purpose herein set forth.

3. In combination with the V-shaped friction gear-wheels B' C', applied to a hoisting-machine, one of the said gear-wheels fitted to its shaft with a feather, by which it is rendered self-adjusting to the other of said wheels, substantially as herein set forth.

4. In combination with the shaft C and friction-wheels B' C', the movable box M', links m^3, and eccentric pins O, mounted relatively to the shaft P and handle p, so that the pins o shall come nearly on their dead-points when the friction-wheels B' C' are properly connected, as and for the purposes herein set forth.

5. The combination, with the cog-wheels C^2 and E^2, by which the jack-shaft and drum of the hoisting-machine are geared directly together, of the bearing-rims C^4 and E^4, the peripheries of which are on the pitch-lines of said wheels, substantially as and for the purpose herein set forth.

6. The combination, with the drum E, surrounding but not touching the driving-shaft, of the journal-boxes M N, each containing a larger bearing for one of the gudgeons E^1 of the drum, and a smaller bearing for the driving-shaft, substantially as herein described.

7. The binders H A^1 A^2, constructed and arranged to serve relatively to the shafts B C and their several connections, so as to support the frame A and aid in preventing any spring or displacement of the parts under the strains and vibrations to which they are subjected, as herein set forth.

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ORDER.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., June 19, 1877.

FRANKLIN B. HUNT, of Richmond, Indiana, having been found guilty of gross misconduct, is, under authority of section 487, R. S., and with the approval of the Secretary of the Interior, hereby suspended from practice before this Office.

ELLIS SPEAR,
Commissioner.

COMMISSIONER'S DECISIONS.

CHAMBERS AND MENDHAM *vs.* TUCKER *et al.*—*Interlocutory Appeal.*

[*In the matter of the interference between the applications of Chambers and Mendham, filed March* 13, 1876, *S. D. Tucker, filed March* 18, 1876, *and W. Scott, filed March* 20, 1876, *for* "IMPROVEMENTS IN MACHINES FOR FOLDING PAPER."—*Decided March* 9, 1877.]

Both rotating and vibrating folding blades being old, and it being common to combine them, as well as successive sets of vibrating folding-blades in one machine, held to be a mere duplication of parts, and without invention, to provide a series of rotating folding-blades in their stead.

[*Stansbury & Munn*, for Chambers and Mendham.
Munson & Philipp, for Tucker.
Coburn & Thacher, for Scott.]

SPEAR, *Commissioner:*

This is an appeal taken under Rule 59, from a decision of the Primary Examiner, denying a motion made on the part of Tucker to dissolve the interference. In support of this motion, two reasons for the dissolution were insisted upon: first, that no interference in fact existed between the application of Tucker and those of the other parties, and, second, that the subject-matter declared to be in interference is not patentable.

The Primary Examiner overruled these objections, and it is for a review of his decision that this appeal is taken.

The interfering subject-matter is contained in the fourth claim of Chambers' and Mendham's application, as follows:

"In a paper-folding machine, in which the motions of the folding-blades, as well as of the folding-rollers, are all rotary and continuous, the combination and arrangement of the successive pairs of folding-rollers, with their respective revolving blades at right angles to each other, for the purpose of producing folds at right angles in the sheet, as described."

In their statement of invention they say: "The object of our invention is to provide a machine for the very rapid folding of damp, limp paper, either fed by the hand or received mechanically from the printing press. It consists of improvements and modifications of the machine invented by us, and patented August 5, 1873, No. 141,489. In that machine the first fold only was made by means of an elastic creasing blade, and spring gripers attached to the first pair of folding-rollers, and acting upon the sheet without arresting its motion. All subsequent folds are made in the ordinary manner, by means of a folding-blade acting upon the sheet at rest, above a pair of common folding-rollers. In the machine now about to be described all the folds are imparted to the sheet by rotating folding-blades, and by gripers attached to the folding-rollers, all the movements of the machine being rotary and continuous, thus insuring the highest practicable rate of speed in the performance of its work."

It will thus be seen that the particular invention claimed by these parties consists in the substitution of a rotating folding-blade for the reciprocating blade before employed by them, and the question now to be determined is whether, in view of the state of the art, there was any invention involved in effecting this change.

After a careful consideration of the subject-matter embraced in this interference, I have come to the conclusion that nothing patentable is contained therein, for two reasons: First, because it embraces a mere duplication of parts, not involving invention in its construction, (*Dunbar* vs. *Myers*, 11 O. G., 35,) and second, because the matter claimed merely contemplates the substitution of one known device for another, and "the

change with the existing knowledge of the art involved simply mechanical skill, which is not patentable." (*Stimpson* vs. *Woodman*, 10 Wall., 117.)

Rotating folding devices and their advantages are well known, and it is now sought to limit their use by preventing the owners of such folders from using two or more of them to operate successively in folding paper. The sheet as it is delivered by the first folding devices is transferred by tapes into position to be again operated upon by a second folder.

The folding-machine described in Tucker's patent of December, 1874, is capable of being so used without material change or alteration, skill alone being requisite in arranging the duplicates for co-operation. Moreover, rotating and vibrating folders have heretofore been combined, and successive sets of vibrating folders have in like manner been used, so that the substitution of rotating for vibrating folders in such combination did not apparently call for the exercise of the inventive faculties, it being only necessary to arrange the delivering tapes, so that the folded paper should be properly delivered.

The mere fact that some of the patented folders could not be combined in the manner stated, without material modification and adaptation, does not entitle them to claim all machines which may be so employed.

In such cases the means whereby the machine is adapted and made capable of performing the functions and producing the results incident to the use of other machines, forms the measure of their invention, and is all that they are entitled to claim.

I hold, therefore, that in view of the state of the art, as exhibited to me, there is no invention in the abstract combination of two rotating folding devices, and the claims thereto are rejected, and the Examiner is instructed to notify the parties accordingly.

The decision of the Examiner is reversed, and the interference dissolved.

WILLIAM S. SMOOT.—*Reissue.*

[*Interlocutory appeal from the decision of the Examiner in the matter of the application of William S. Smoot, for the reissue of Letters Patent No. 97,821, dated December 14, 1869, for an* "IMPROVEMENT IN REPEATING FIRE ARMS."—*Division B.—Decided April 17, 1877.*]

The jurisdiction of the Board of Examiners-in-Chief is limited in *ex parte* cases to the adverse decisions of the Primary Examiners. If there appear reasons for refusing the patent other than those alleged by the Examiner, a statement should be made to that effect to the Commissioner.

The objection made to the application was want of novelty, and upon appeal to the Board it reversed the decision of the Examiner as to three of the four claims, but one member of the Board giving it as his opinion that new matter was included, remanded the case to the Examiner for his further consideration: *Held*, that his remanding the case to the Primary Examiner for reconsideration on that point was entirely unauthorized, and without the additional approval of the Commissioner, the reconsideration by the Primary Examiner was also unauthorized.

The rules of the Office have the force of law so long as they remain unrepealed, and are as binding upon its officials as they are upon the general public.

The Commissioner is bound to take notice of an objection to the patentability of a case whenever and however his attention may be called to the subject.

Where, however, the matter is properly cognizable by a lower appellate tribunal, the Commissioner will not interfere except in extraordinary cases, to prevent fraud or remedy an action clearly opposed to some requirement of the law.

An expression of opinion by one member of the Board does not constitute a decision of that tribunal.

Examiners are admonished to be careful in making a thorough examination of all questions affecting an application before final rejection.

[*Warren C. Stone*, for applicant.]

DOOLITTLE, *Assistant Commissioner:*

Four claims of applicant were rejected by the Primary Examiner upon references, and an appeal was taken from his decision to the Examiners-in-Chief. They reversed the decision of the Examiner as to three of the claims, and affirmed him as to the fourth. But in addition to this action one of the Examiners-in-Chief, although regarding the references as to three of the claims not pertinent, yet expressed his opinion that the principal device therein was new matter in the reissue application. He accordingly remanded the case to the Examiner for further consideration and such other action as the Examiner might deem proper.

Rule 43 provides that—

The Examiners-in-Chief will consider the case as it was when last passed upon by the Primary Examiner, merely revising his decisions so far as they were adverse to the appellant. If, however, they discover any reason not given by the Examiner why a patent should not issue, they should make a statement to that effect to the Commissioner.

The Primary Examiner not having alluded to the question of new matter, the Examiner-in-Chief should have confined his action to the making of the statement to the Commissioner, as the rule provides. His remanding the case to the Primary Examiner for reconsideration on that point was entirely unauthorized, and, without the additional approval of the Commissioner, the reconsideration by the Primary Examiner was also unauthorized.

The rules of the Office have the force of law so long as they remain unrepealed, and are as binding upon its officials as they are upon the general public.

The Primary Examiner in his reconsideration of the case held the objection of new matter well taken, and accordingly again rejected the application. The applicant now takes an interlocutory appeal based upon the above points of practice, and asks that, in view of the fact that the Examiner was reversed in his decision upon the references, and that the subsequent action upon the question of new matter having been unauthorized, the patent now issue.

The Commissioner cannot rightfully ignore an objection to the patentability of a case whenever his attention is called to the matter by an Examiner, or the Examiners-in-Chief, before the issue of the patent, although the objections may be made in an irregular manner.

It is hardly necessary, however, in cases of this kind, where the objections go to the merits of the case, and constitute proper matter for appeal from one tribunal of the Office to another, and from thence to the courts, that the Commissioner should take the matter into his own hands and overlook the regular remedy of appeal. Such a course would appear necessary only in extraordinary cases, to prevent fraud, or where, in the Commissioner's opinion, an affirmative action of a lower tribunal was clearly opposed to some requirement of the law.

One member only of the Board having passed upon the question of new matter, it may be said that the expression of his opinion does not constitute a decision by that tribunal, and this not being a case requiring the extraordinary interposition above alluded to, it is preferred that the applicant should pursue the regular course of appeal.

This is another instance illustrating the necessity of a careful observation, on the part of Examiners, of the rules requiring the thorough examination of all questions before final rejection.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—DISTRICT OF MASSACHUSETTS.

AUGUSTUS H. WONSON *vs.* SUMNER A. GILMAN *et al.*

[*In equity.—Before* SHEPLEY, *J.—Decided April* 13, 1877.]

The patent of A. H. Wonson for an improved paint to prevent the fouling of ships' bottoms by the adhesion of barnacles, seaweeds, &c., is for a paint composed of a soluble vehicle or medium, oxide of copper, (of which the other salts of copper are not considered the equivalents,) and such earthy or mineral matters as separate the particles of the oxide and retard its solution, and such patent is not infringed by the use of a paint containing in place of the oxide of copper arsenite of copper.

OPINION OF THE COURT.

SHEPLEY, *J.:*

The patent in this case, so far at least as Division B is concerned, was sustained by the court in the case of *Tarr et al.* vs. *Folsom*, 1 Holmes, 312. It was there decided to be for an improved paint to prevent the fouling of ships' bottoms by the adhesion of barnacles, sea-weeds, and other substances, a paint which can be applied with a brush like ordinary paint, and which is compounded of, first, a suitable vehicle or medium; second, the oxide of copper, yielding a poisonous solution in water; and, third, such earthy and mineral matters as separate the particles of the oxide and retard such solution. That case did not necessarily involve, nor does the present case, any decision as to Division A, for, if the defendants infringe in this case, the infringement is of Division B, as defendants use the suitable vehicle, and also earthy and mineral matters which retard the solution of the poisonous ingredient, and if that poisonous ingredient be an oxide of copper, then they use all the elements of the combination in Division B.

The real question presented in this case is one of infringement only, and the solution of that question is dependent upon the other question, whether the poisonous substance which is used as an ingredient in the defendants' paint can, within the limitations of complainant's patent, and within the terms also of the contracts between the parties, be properly classed as an oxide of copper, or as such an equivalent of the oxide of copper as is not disclaimed in the patent or licensed to be used by the contract between the parties.

Certain agreements between the parties, which are in evidence, contain stipulations that the defendants shall not be prevented thereby from "the making, compounding, using, or vending of any paint wherein metal, copper, or the sulphurets, sulphates or sulphides of copper are ingredients, whether with or without a suitable basis, and whether used alone or with any other preservative ingredients except only the oxide of copper."

By the terms of the patent, and according to the principles upon which the complainant's patent, in view of the state of the art, was sustained in *Tarr et al.* vs. *Folsom*, the patent is limited to the use of oxide of copper, and does not embrace as equivalents for the oxide any of the salts of copper, however poisonous.

The defendants use as the poisonous ingredient in their paint the arsenite of copper, prepared by precipitating the copper from a solution of the sulphate, chloride, or nitrate of copper with arsenite of soda.

Inasmuch as the salt of copper used by defendants, which was generally the sulphate of copper, was a substance composed, according to the old nomenclature in chemistry, of oxide of copper on the one side and sulphuric acid on the other, or, according to the new nomenclature, as sulphuric acid in which two atoms of hydrogen have been replaced by copper, the salt being expressed as one whole, consisting of copper, oxygen, and sulphur, it necessarily results that as oxide of copper, according to the old notation, or oxygen and copper, according to the new, can be found by analysis of the sulphate of copper, so in like manner these same elements can, by analysis, be found in the basic arsenite of copper prepared by precipitating the copper from a solution of the sulphate of copper with arsenite of soda.

Accordingly, we find that several chemists of distinction, examined as experts in the case, find, by analysis of the defendants' paint, oxide of copper; but they admit that the arsenious acid and the oxide of copper were chemically combined. If sulphate of copper were used in the defendants' paint, and such use of sulphate of copper is admissible without infringement, under the license given both by the disclaimer in the patent and the stipulation in the agreements, an analysis of the paint would show the oxide of copper. So after the conversion of the sulphate of copper into arsenite of copper, by the use of arsenite of soda, an analysis of the paint, into which the arsenite of copper enters as an ingredient, will show the presence of copper and oxygen. But these elements, in their new chemical combinations in the new substance, a basic or tribasic arsenite of copper, cannot strictly be said to exist as an oxide of copper, with any more propriety than metallic copper, or arsenic, can be said to exist as such in the sulphate of copper or the arsenite of soda. Nor was arsenite of copper a known equivalent for the oxide of copper, as a poisonous ingredient in a marine paint, at the date of complainant's patent.

Without undertaking to decide upon the different theories respecting chemical combinations maintained by the eminent chemists who have been examined by the respective parties, after a careful examination of all their testimony, I am satisfied that this case must be decided on the practical views above expressed. The conclusion is that the paint of the defendants, manufactured in the manner testified to by Professor Ordway, is not an infringement of the complainant's patent.

Bill dismissed.

APPLICATION FOR EXTENSION.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., April 24, 1877.

On the petition of Erastus T. Bussell, of Indianapolis, Indiana, praying for the extension of a patent granted to him on the 29th day of November, 1853, numbered 10,280, extended for seven years from the 29th day of November, 1867; reissued on the 13th day of December, 1870, and numbered 4,202, for an improvement in combined rubber and spiral steel spring. This application having been authorized by act of Congress approved March 3, 1877:

It is ordered that the testimony in the case be closed on the 10th day of July next; that the time for filing arguments and the Examiner's report be limited to the 20th day of July next; and that said petition be heard on the 25th day of July next.

Any person may oppose this extension.

ELLIS SPEAR,
Commissioner of Patents.

[tf]

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date June 12, 1877.]

10,047.—Buttons or Studs.—OLIVER P. COGGESHALL, Providence, R. I. Application filed February 21, 1877. Term of patent 7 years.

10,048.—Embroidery-Pattern.—ALICE DONLEVY, New York, N. Y., assignor to HENRY ST. JOHN, New Haven, Conn. Application filed May 28, 1877. Term of patent 3½ years.

10,049.—Bracelet.—CHARLES H. GRAEF, Edgewater, N. Y. Application filed May 4, 1877. Term of patent 7½ years.

10,050.—Chair-Frames.—SYLVANUS C. HOPKINS, Boston, Mass. Application filed March 31, 1877. Term of patent 14 years.

10,051.—Pocket-Book Clasps.—LOUIS MESSER, New York, N. Y. Application filed May 24, 1877. Term of patent 7 years.

10,052.—Group of Statuary.—JOHN ROGERS, New York, N. Y. Application filed May 16, 1877. Term of patent 14 years.

10,053.—India-Rubber Erasers.—FERDINANDO STITH, Washington, District of Columbia. Application filed May 21, 1877. Term of patent 14 years.

10,054.—Badge.—ROSCO O. WOOD, Buffalo, N. Y. Application filed May 14, 1877. Term of patent 14 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date June 12, 1877.]

4,713.—Plug Chewing-Tobacco.—DAUSMAN AND DRUMMOND TOBACCO COMPANY, Alton, Ill. Application filed April 20, 1877.

"The word-symbol 'ROYAL SEAL.'"

4,714.—Medical Compound.—DUNDAS DICK, New York, N. Y. Application filed May 8, 1877.

"The arbitrary word 'DOCUTA.'"

4,715.—Ointment or Salve.—HELEN F. FAIRBROTHER, New Bedford, Mass. Application filed May 3, 1877.

"The word-symbol 'ONGENTINE.'"

4,716.—Baking and Yeast Powders and Yeast-Cakes.—JEWETT & SHERMAN CO., Milwaukee, Wis. Application filed January 15, 1877.

"The word-symbol 'KING' and the figure of an elephant."

4,717.—Compressed Yeast.—KRAMER & SEIFERT, Pittsburg, Penn. Application filed May 29, 1877.

"Two heavy parallel bars, the same inclosing the words 'Compressed Yeast.'"

4,718.—Champagne Wine.—KUNKELMANN & Co., Reims, France. Application filed April 30, 1877.

"The word-symbol 'PIPER-HEIDSIECK.'"

4,719.—Medical Compound.—JOHN B. MARCHISI, Utica, N. Y. Application filed May 14, 1877.

"The figure of a woman, as described, and the fac-simile of the signature of John B. Marchisi."

4,720.—White Lead.—SOUTHERN WHITE LEAD COMPANY, St. Louis, Mo. Application filed October 19, 1877.

"The name or designation 'SOUTHERN COMPANY.'"

4,721.—Mixed Gloss-Paint.—J. W. WALKER, BROS. & Co., Cincinnati, Ohio. Application filed March 9, 1877.

"The letters and words 'J. W. Walker, Brothers & Co.' and the figure or symbol of a diamond, inclosing a series of oblique and vertical bands and the small superposed diamond."

4,722.—Shovels, Spades, and Scoops.—OLIVER AMES AND SONS CORPORATION, North Easton, Mass. Application filed May 19, 1877.

"The crossed arrows and letters 'N. E.'"

4,723.—Shovels, Spades, and Scoops.—OLIVER AMES AND SONS CORPORATION, North Easton, Mass. Application filed May 19, 1877.

"The arbitrary symbol or figure of an ace of spades."

4,724.—Shovels, Spades, and Scoops.—OLIVER AMES AND SONS CORPORATION, North Easton, Mass. Application filed May 19, 1877.

"The letters or word-symbol 'ANTRIM.'"

4,725.—Shovels, Spades, and Scoops.—OLIVER AMES AND SONS CORPORATION, North Easton, Mass. Application filed May 19, 1877.

"The letters 'W B' and the representation of an arrow."

4,726.—Shovels, Spades, and Scoops.—OLIVER AMES AND SONS CORPORATION, North Easton, Mass. Application filed May 19, 1877.

"The letters 'I X L.'"

4,727.—Flour.—NATHAN BROOKE, Philadelphia, Pa. Application filed April 4, 1877.

"A symbol formed of the word 'Premium' and the letter 'A,' as shown."

4,728.—Medicines Inclosed in Capsules.—DUNDAS DICK, New York, N. Y. Application filed May 8, 1877.

"The fac-simile signature of Dudas Dick & Co. upon the ornamental background described and shown, the oval containing a coat-of-arms, and the label arranged in five compartments, as shown, the whole being used in connection with the words 'Dundas Dick & Co.'s Machinery Improved Capsules.'"

4,729.—Medicinal-Spring Water.—EARL & GAMAGE, Boston, Mass. Application filed April 18, 1877.

"The figure or outline of a linear representation of a star, with the points of a star alternately overlapping and underlapping a linear representation of a hexagonal band."

4,730.—Dentifrice.—C. EDMOND FOUGERA, Brooklyn, N. Y. Application filed May 11, 1877.

"The word-symbol 'EAU ANGELIQUE.'"

4,731.—Cigarettes.—THOMAS H. HALL, New York, N. Y. Application filed May 11, 1877.

"The arbitrary words 'BETWEEN THE ACTS.'"

4,732.—Toilet-Water.—CHARLES LEDIARD, New York, N. Y. Application filed April 19, 1877.

"The word-symbol 'ZULU,' used in connection with the word 'Water,' both words printed in white upon a black ground, and contained in an ornamented scroll or band, as shown."

4,733.—Whisky.—LILIENTHAL & Co., San Francisco, Cal. Application filed May 4, 1877.

"The words 'Reuben Earley,' in connection with the monogram composed of the letters 'L. & Co.'"

4,734.—Whisky.—LILIENTHAL & Co., San Francisco, Cal. Application filed May 14, 1877.

"The words 'LEO CANBIE,' in combination with the letters 'C. N. D.'"

4,735.—Linen Collars.—MILLER & BINGHAM, Troy, N. Y. Application filed April 24, 1877.

"The arbitrary words 'PAUL REVERE.'"

4,736.—Cigars.—MOORE, JENKINS & Co., New York, N. Y. Application filed April 28, 1877.

"The arbitrary word-symbol 'MODERN TIMES.'"

4,737.—Marbleized Wood and Other Marbleized Fibrous Materials.—MOODY, PUTNAM & Co., Nashua, N. H. Application filed February 22, 1877.

"The word-symbol 'MARBLEOID.'"

4,738.—Cosmetic.—REBECCA F. PAYNE, Philadelphia, Pa. Application filed April 5, 1877.

"An engraved figure representing the head and face of a duchess, with head-dress indicating the insignia of the position of such a personage, printed on my labels immediately underneath the word-symbol 'DUCHESSE,' and above the words 'Centennial Cream.'"

4,739.—Cosmetics.—MARY ANN RUSSELL, New Bedford, Mass. Application filed May 11, 1877.

"The word-symbol 'AMOLINE.'"

4,740.—Pen-Holders.—JOHN A. SWASEY, Boston, Mass. Application filed April 16, 1877.

"The word-symbol 'STAR.'"

4,741.—Cutlery.—THEILE & QUACK, Elberfeld, Germany. Application filed October 11, 1876.

"The designation 'TYLER & Co.'"

4,742.—Effervescent Beverage.—MATHILDE S. VON BERG, Philadelphia, Pa. Application filed April 21, 1877.

"The figure or design representing a portion of a lady's arm and hand, holding a champagne-bottle.

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date June 12, 1877.]

1,085.—Title: **"Malt Mousseux."**—MAGNUS FRANK, New York, N. Y. Application filed June 2, 1877.

1,086.—Title: **Print—"Scene on a Race Course."**—HEPPENHEIMER & MAURER, New York, N. Y. Application filed February 7, 1877.

1,087.—Title: **"Lewis' Hemorrhage Cure."**—PHEBE L. D. THOMSON, Chicago, Ill. Application filed June 4, 1877.

1,088.—Title: **"Tea. Price 50 cts. per pound."**—THOMAS WHITE, Bangor, Me. Application filed May 25, 1877.

CATALOGUES AND CIRCULARS RECEIVED.

[Inventors, manufacturers, and dealers in engines, machines, tools, and manufactured articles are respectfully requested to send duplicate copies of catalogues and circulars issued by them to the Commissioner of Patents, Washington, D. C. Where such publications have a permanent value, other than as mere advertisements, their receipt will be acknowledged in the OFFICIAL GAZETTE.]

Wood-Working Machines and Tools.—RICHARDS, LOUDON, AND KELLEY, Atlantic Works, Philadelphia.

Wood-Conversion by Machinery.—J. RICHARDS, Philadelphia.

Workshop Manipulation.—J. RICHARDS, Philadelphia.

Hicks Meteorological Instruments.—WALTER ALLEN, agent, 633 F st., Washington, D. C.

The Patent Office prefers that applicants should furnish their own drawings. Where drawings are defective, or cannot be otherwise obtained, the Office will cause a formal drawing to be made from the model at the actual cost of making it.

Patent Office coupons, which purchase a copy of any drawing which has been photolithographed, are sold singly by the Chief Clerk at twenty-five cents each, or twenty coupons at one time for two dollars.

INDEX OF INVENTIONS PATENTED JUNE 12, 1877.

	Class No.	No. of Patent.
Air carbureting apparatus, L. Mann	27	191,767
Alkaline wastes, restoring and recovering, W. W. Harding	35	191,759
Animal matter, treating and drying, W. C. Marshall, (reissue)	48	7,742
Ash sifter, Darke and Smith	170	191,754
Auger, hollow, G. N. Stearns	29	191,817
Axle nut, adjustable, O. B. Thompson	14	192,031
Bag fastener, H. Redden, (reissue)	57	7,735
Bag holder, M. B. Hudson	57	191,965
Belting, machinery for stretching leather, J. Brady	81	191,920
Billiard cue, W. Hill	143	192,044
Bills, show cards, &c., apparatus for framing, O. C. Brown	54	191,828
Bit stock, D. Powers	29	191,815
Bit stock, B. S. Parker, administrator of C. B. Rose	29	192,018
Boat, portable folding, C. F. Prentice	13	192,007
Boat, submarine, Ilenis and Pike	137	191,760
Boilers, device for extracting mud from steam, T. Craney	148	191,939
Books, clasp for, Müller and Hilpert	24	191,992
Boot and shoe lasting machine, Copeland, Woodward, and Brock	16	191,937
Boot and shoe soles, machine for shaping, J. Kimball	16	191,764
Boots and shoes, combined counter and lining for, B. J. Stevens	16	191,895
Boots and shoes, machine for uniting the soles to uppers of, G. McKay	16	191,874
Bosom pad, J. C. Tallman, (reissue)	38	7,737
Breech loading fire arm, D. Kirkwood	18	191,862
Brick machine, W. A. Graham	20	191,800
Broom, J. Davidson	22	191,940
Burial casket, A. H. Nirdlinger	39	191,995
Car axle box, L. D. Webster	122	191,786
Car axle box, W. E. Wilcox	122	191,820
Car bumper, A. W. Weikert	122	192,039
Car coupling, D. R. Halter	122	191,850
Car, dumping, H. S. Bower	121	191,827
Car frame, metal, F. J. Kimball, (reissue)	122	7,730
Car starter, A. J. Curtis	122	191,839
Car starter, Hermance and Mott	122	191,801
Car starter, H. Schreiner	122	191,890
Car window, G. S. Roberts	121	192,014
Carbon in retorts, preventing the accumulation of, W. Karr, (reissue)	66	7,739
Carbonic acid gas generator, O. Zwietusch	1	191,912
Carriage body adjuster, L. Wilkins, Jr	31	191,909
Carriage top, removable, J. B. Ashelman	31	191,822
Cartridge, pyrotechnic signal, J. J. Detwiller	158	191,843
Chair brace, J. Collins	62	191,835
Chair, opera, R. H. Ormsby	62	191,774
Chandeliers, slide for, Taylor and Bruen	64	192,030
Check rein, C. A. Haas	72	191,957
Cigar lighter, H. P. Andrews	90	191,794
Cigar machine, W. Broseker	160	191,922
Coffee roaster, Tinsley and Hackman	154	191,900
Corn planter, J. O. Bennett	133	191,915
Corner stake, S. D. Bonner	52	191,919
Corset, skirt supporting, D. H. Fanning	80	191,949
Corset spring, C. Judson, (reissue)	80	7,729
Crank shaft for steam engines, D. A. Woodbury	150	191,790
Cultivator, Messenger and Erwin	43	191,990
Cultivator, O. A. Olmsted	43	191,996
Cultivator, Tartt and Wilson	43	192,029
Cultivator, equalizing, M. Eichholtz, (reissue)	43	7,738
Current wheel, W. J. Perkins	168	192,000
Curry comb, M. Sweet	144	191,784
Curtain fixture, H. E. Sawyer	62	192,019
Cutter head, C. R. Patterson	173	191,878
Dental bracket, C. H. Moseley	62	191,809
Desk, J. I. Stewart	62	191,893
Desk, school, H. H. Elbreg	62	191,846
Door bolt, A. A. Dennett	24	191,844
Dough raiser, J. W. Martin	6	191,986
Drain, G. C. Mesler	51	191,876
Drier, H. D. Ostermoor	48	191,997
Drive cock for water mains, Keegan and Lührs	167	191,804
Druggist's prescription file, C. G. Stromberg	98	191,783
Elevator, endless chain, J. A. Woodward	79	191,911
Embroidery pattern, A. Komp	38	191,978
Engine, electro magnetic, W. E. Sawyer	50	191,781
Engine, pulp, E. Sumner	108	191,898
Engine, traction, G. Rogers, (reissue)	94	7,736
Eyeglass, G. Johnston	157	191,972
Eyeglass holder, S. F. Merritt, (reissue)	157	7,743
Faucet, G. Gorman	167	191,848
Faucet, R. Hathaway	167	191,852
Faucet vent, A. Lührs	167	191,982
Feed steamer, Rice and Gortner	59	192,019
Feed water heater, C. F. Barrett	148	191,747
Feed water heater, W. Lowe	148	191,868
Felted fabric, Daniels and Tuttle	76	191,840
Fence, J. Garrett	52	191,847
Fence, barbed, A. J. Nellis	52	191,993
Fence, barbed, C. L. Topliff	52	191,818
Fence post, H. Delano	52	191,941
Fence post, R. Dewey	52	191,944
Fence strip, barbed hoop iron, W. G. Barnes	52	191,913
Fences, iron post for wire, J. Plane	52	191,881
File holder, W. T. Nicholson	70	191,811
Fire escape, R. Gilchriest	30	191,953
Fire escape, H. Huth	30	191,762
Fire escape, J. C. Peppler	30	191,777
Fire escape, Roch and Colas	30	191,886
Fire extinguisher, J. M. Pollard	118	192,005
Fire extinguisher, chemical, A. E. Hughes	35	191,803
Fire kindler, C. H. Hayden, (reissue)	154	7,740
Fires, extinguishing, C. M. Martin	118	191,872
Fishing line reel, F. J. Philbrook	143	191,813
Fly fan, automatic, J. Baird	165	191,823
Folding machine, S. D. Tucker	117	191,819
Folding machine, S. D. Tucker	117	192,034
Folding machine, S. D. Tucker	117	192,035
Fruit drier, J. Zimmerman	48	192,043
Fruit gatherer, I. Clark	63	191,833
Furnace, Austin and Hosford	154	191,746
Gas and air carbureter, W. H. Winn	27	191,789
Gas apparatus for heating tools, P. Bradley	65	191,921
Gas, apparatus for the manufacture of illuminating, P. W. Mackenzie	66	191,808
Gas, making illuminating, J. M. Leighton	66	191,980
Gas, manufacture of, T. B. Redwood	66	191,883
Gas, manufacturing carbureted hydrogen, J. H. Bowman	66	191,749
Gas, process and apparatus for manufacturing illuminating, M. W. Kidder	66	191,766
Gas regulator, S. S. Jones	64	191,860
Gas works, by pass valve for, P. Munzinger	66	191,877
Gate, J. E. Q. Maddox	52	191,984
Gate, T. B. Piburn	52	192,003
Gate, F. Rau	52	192,009
Glass tool, Zimmerman and Beatty	68	191,793
Grain binder, J. E. Buxton	74	191,928
Grain binder, J. E. Buxton	74	191,929
Grain binder, W. H. Payne	74	191,776
Grain scourer, J. S. Hillyer	57	191,854
Grain separator, J. L. and J. T. Metcalfe	159	191,991
Gun, spring, C. Palatini	55	191,998
Hame, H. Mason	72	191,904

	Class No.	No. of Patent.
Harness saddle, J. F. Best	72	191,917
Harness saddle, Caboone and Teas	72	191,829
Harness saddles, pad for, J. F. Knorr	72	191,977
Harrow, J. W. Greer	73	191,956
Harvester reel, H. S. Harris	74	191,960
Hat, M. J. Nascimento	76	191,772
Heating and ventilating buildings, W. F. Flagg	154	191,952
Horse power, D. K. Hungerford	159	191,858
Horse rake, J. Hunsberger, (reissue)	77	7,745
Horse rake, J. Hunsberger, (reissue)	77	7,746
Horses, toe weight for, S. A. Phelps	144	192,002
Horseshoe, W. M. Temple	60	191,785
Hose nozzle, Clifford and Gielow	167	191,934
Hose nozzle or pipe, C. F. Holloway	167	191,964
Hot air apparatus, C. Pottier	154	191,779
Hydrocarbon burner, W. L. Imlay	149	191,969
Hydrocarbon oils, process and apparatus for the manufacture of deodorized heavy, J. Merrill, (reissue)	47	7,733
Ice creeper, C. A. Kryter	16	191,863
Illuminating scale beams, apparatus for, J. W. Wood	90	191,910
Indexing, D. A. Roberts	15	191,885
Injector, W. H. Newell	148	191,773
Inking apparatus, J. G. Kurtz	117	191,864
Insect powder, blower for, W. F. Brummer	63	191,797
Journal, W. C. Shipherd	87	192,023
Lamp, E. C. McCloy	90	191,987
Lamp burner, J. Cain	90	191,830
Lamp chimney fastening, G. Richards	90	191,884
Lamp extinguisher, G. D. Kilmer	90	191,976
Lamp refractor, Schaeffer and Pfrunder	90	191,888
Lamp shade holder, A. H. Daff	90	191,755
Lantern, R. Hammill	90	191,959
Lathe for cutting screw taps, G. R. Stetson	100	191,894
Leather folding and crimping machinery, Corbett, Coy, and Wheeler	92	191,837
Leather splitting machine, J. Hodskinson	92	191,855
Level, S. Gissinger	157	191,954
Lifting jack, W. J. M. Batchelder	79	191,824
Liquid measure, W. K. Johnston	167	191,971
Lock, door, Keating and Taylor	93	191,861
Lock, latch bolt, J. G. Newell	91	191,994
Locks, hub for, J. Schade	93	192,020
Loom for weaving hair cloth, W. J. Porter	95	192,006
Loom shedding mechanism, H. Wolbold	95	192,040
Loom temple, J. E. Waterbury	95	191,907
Lubricator, A. S. Skinner	87	192,025
Marble, granite, &c., machine for cutting, R. R. Atchison	153	191 821
Mash, preparing, R. D'Heureuse	19	191,942
Mechanical movement, J. I. Ethridge	67	191,948
Mechanical movement, A. F. Harvey	67	191,961
Mercury condenser, Long and Castle	47	191,805
Metal plates on structures, securing, W. G. Hyndman	4	191,763
Milk can, J. D. Tudor	136	191,903
Milk cooler, R. C. Greene	45	191,849
Millstone dressing machine, Cookson and Rastetter	57	191,938
Millstone driver, W. S. Armstrong	57	191,745
Mortising machine, Eddy and Stolzenbach	173	191,947
Motion, friction device for controlling, A. K. Rider	67	192,012
Motive power, R. D. Green	67	191,955
Motor, weight, J. M. Cayce	67	191,930
Mucilage holder, J. V. Browne	146	191,751
Oar blades, protection tip for, M. Britton	13	191,923
Ore stamp, T. Schofield	3	191,889
Organs, reed pipe for, W. A. Johnson	106	191,973
Packing case, W. Carter	88	191,831
Packing for piston rods, &c., C. T. Sleeper	151	191,891
Paper bag machine, A. S. Dennison	109	191,943
Paper pulp from wood, process for the manufacture of, Taylor and Outterson	108	191,899
Pavement, artificial stone, C. Hense	110	191,962
Pen, fountain, A. T. Cross	146	191,798
Pen, fountain, L. Fargne	146	191,950
Pencil, F. Sholes	146	191,816
Pencil or crayon, paint, Holton and Field	146	191,856
Photographic printing frame, Walter and Durrin	111	191,906
Piano forte action, W. Muth	112	191,810
Picture frame, Bowers and Murphy	54	191,795
Pin box, J. Bryan	104	191,925
Pipe joint, G. Matheson	167	191,769
Pipe joint, G. Matheson	167	191,770
Pitcher, C. Moyer	88	191,771
Plaiting machine, L. B. Berrien	38	191,825
Plaiting machine, J. E. Chapin	38	191,832
Plants, raising and transplanting, C. Loskamp	63	191,806
Plow, McNutt and Furman, (reissue)	114	7,732
Plow, combined ditching, gang, and shovel, A. Pirch	114	191,880
Post driver, M. Vaucedol	52	192,036
Potato and corn planter, combined, J. Custer	133	191,838
Potato digger, A. J. Robertson	114	192,013
Potato vines, machine for removing bugs from, J. M. Conrad	63	191,936
Press, household, W. Y. A. Boardman	88	191,918
Printers' inking rolls, composition for, J. Clifford	117	191,933
Pulley block, J. L. Pope	114	191,814
Pulleys, casting grooved, W. W. Lobdell	33	191,981
Pulleys, casting grooved, W. W. Lobdell	33	191,983
Pump, air, E. Burgin	12	191,927
Pump, double acting, T. B. Swan	118	192,028
Pump valve, chain, O. O. Witherell, (reissue)	118	7,744
Pumping machinery, steam, W. E. Worthen	118	192,042
Railway signal, L. B. Carver	120	191,753
Railway signal, electrical, J. I. Conklin, Jr	120	191,836
Railway switch signal, electro magnetic, Hall and Snow	120	191,958
Razor sharpener, roller, Jahne and White	70	191,859
Roll for reducing tubes, W. McKenzie	125	191,875
Rowlock, J. J. Currier	13	191,752
Rule, bevel, J. C. Rorick	157	192,017
Sad iron, T. H. McCaffrey	91	191,873
Sad iron, H. L. Wells	91	191,908
Sad iron holder, J. R. Cluxton	91	191,935
Sash balance, N. J. Skaggs	24	192,024
Saw gage, gang, T. Emery	131	191,799
Saw mill head block, H. Cleghorn	130	191,931
Saw mill head block, A. Rodgers	130	192,015
Saw mills, friction wheel for, A. Rodgers	130	192,016
Sawing machine, scroll, G. E. Lewis	130	191,765
Screw bolts and nuts, forming threads on, Ibbotson and Talbot	151	191,968
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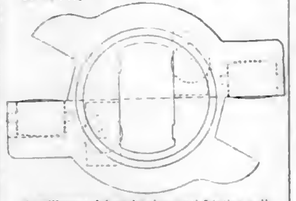
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White, C. H., and W. T. Jahne, Roller razor sharpener	191,859
White, J. C., Twine holder	191,788
Whiton, E. L., Stove polish	191,787
Wilcox, W. E., Car axle box	191,820
Wilkins, L., Jr., Carriage body adjuster	191,909
Wilson, G. F., and P. S. Tartt, Cultivator	192,029
Winn, W. H., Gas and air carbureter	191,789
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Wolbold, H., Shedding mechanism for looms	192,040
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Woodbury, D. A., Crank shaft for steam engines	191,790
Woods, H. E., Steam engine valve	192,041
Woodward, E., M. Brock, and G. W. Copeland, Lasting machine for boots and shoes	191 937
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Wright, E. P., Device for packing tables and other articles	191,792
Zimmerman, G., and G. Beatty, Glass tool	191,793
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TITLES, DRAWINGS, AND CLAIMS

OF

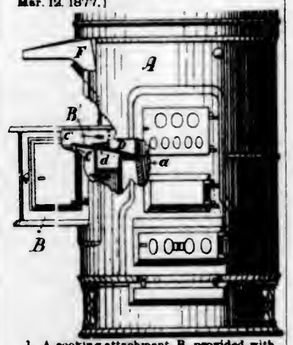
PATENTS GRANTED JUNE 12, 1877.

191,745. MILLSTONE-DRIVERS. William S. Armstrong, La Crosse, Wis. [Filed Apr. 10, 1877.]



A millstone-driver having anti-friction rollers seated in the driving-horns and in the spindle-socket, either or both, for the purpose set forth, and substantially as described.

191,746. FURNACES. Henry W. Austin and William B. Hosford, Chicago, Ill. [Filed Mar. 12, 1877.]



1. A cooking attachment, B, provided with a passage for the circulation of heated gases, in combination with a furnace, to the side of which it is attached, a passage or flue, D, leading directly from the combustion chamber of the furnace into the cook-stove attachment, and a regulating-damper, *d*, arranged in the inlet-flue D, substantially as and for the purpose set forth.

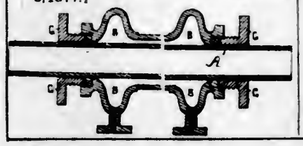
2. A furnace, A, in combination with a cooking attachment, B, constructed with a circulation-passage, *c'*, around the oven, a passage or flue, D, forming direct communication between the combustion-chamber *a'* of the furnace and the passage *c'* in the stove, and a flue, E, connecting the other extremity of the circulation-passage with the back pipe K, substantially as and for the purpose set forth.

3. The cook-stove attachment B, provided with a removable oven, C, in combination with the flue E, leading from the attachment to the back pipe K, substantially as and for the purpose set forth.

4. The damper *d*, placed within the inlet-flue D, in combination with the dampers *g*, the shafts H and I, provided with arms *h* and *i*, and the connecting link J, substantially as and for the purpose set forth.

5. The hood F, arranged over the cooking attachment B, in combination with the discharge-pipe *f* connected to the hood, substantially as and for the purpose set forth.

191,747. FEED-WATER HEATERS. Charles F. Barrett, New York, N. Y. [Filed May 3, 1877.]



The combination of pipe A, jacket E, reservoirs B and B', packing-glands G G, and chamber H, operating together substantially as and for the purposes set forth.

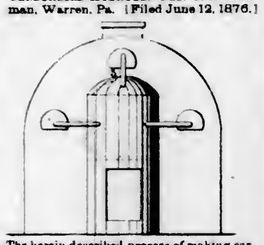
191,748. MACHINES FOR MOLDING STAIR-RAIL WREATHS. John B. Bowden, Zanesville, Ohio, assignor to himself, Wm. H. Griffith, and H. F. Achauer, same place. [Filed Apr. 19, 1877.]

Brief.—The collars which hold the bit may be made of any thickness, so as to regulate the depth of cut.



The combination of the collar and bit, for the purposes described, with an adjustable semicircular table, to accommodate the twist of the stair-rail.

191,749. PROCESSES FOR MANUFACTURING CARBURETED-HYDROGEN GAS. J. H. Bowman, Warren, Pa. [Filed June 12, 1876.]



The herein described process of making carbureted hydrogen gas—that is to say, by passing steam into a heated retort containing iron or other suitable metal, and by passing air into another heated retort containing charcoal, coke, or other suitable carbonaceous material, the gases so generated being then passed from said retorts into a still or suitable chamber and mixed with hydrocarbon vapors there generated, the gases and vapors so united being then passed into and through a third heated retort containing a mixture of carbonaceous material and metal in suitable form, whereby the gases and vapors become chemically and permanently combined in the form of carbureted hydrogen gas, ready for illuminating purposes, substantially as set forth.

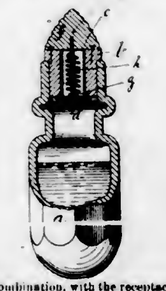
191,750. SEWING-MACHINE TRIMMERS. E. F. Bradford and V. R. Peirce, Boston, Mass. [Filed Mar. 12, 1877.]

Brief.—Improvement on Patent No. 177,371, May 16, 1876, consisting of the construction specified in the claim, and rendering the cutter easily removable from the feed-dog.



The trimmer-bar *g*, constructed with the upwardly-projecting trimmer *f*, and having the pin *i* passing through an opening in the trimmer-bar, and having a knob, *i'*, in combination with the flat spring *k*, attached at one end to the under side of the trimmer-bar, and connected at its other end to the pin *i*, substantially as described, the trimmer-bar being adapted to be connected to the feed-dog of a sewing-machine, for the purpose set forth.

191,751. MUCILAGE-HOLDERS. J. Vincent Browne, New York, N. Y. [Filed Jan. 13, 1877.]



The combination, with the receptacle or bottle *a*, its perforated cork or stopper *b*, and porous sponge *f*, of the metallic tube *c*, with its guide *g*, valve *d*, spindle *e*, and spring *k*, substantially as and for the purpose set forth and described.

191,752. ROWLOCKS. J. J. Currier, Gloucester, Mass., assignor to Israel C. Mayo, same place. [Filed Apr. 30, 1877.]



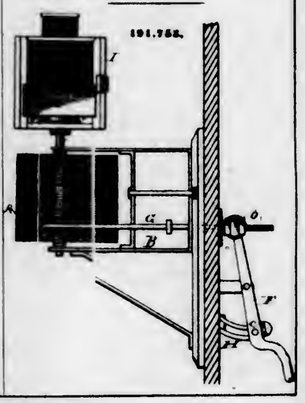
1. The combination of the rowlock and its furcated tenon with the rotary socket-piece and the connection-link, all being arranged and applied substantially as set forth.

2. The combination of the base-plate, the rotary socket-piece, the link and the rowlock, provided with the furcated tenon, all being arranged and applied substantially as set forth.

3. The base-plate and the holding-plates, in combination with the grooved socket piece, arranged therewith, as set forth.

4. The rotary socket-piece, in combination with the rowlock, provided with a tenon to enter such socket-piece.

191,753.



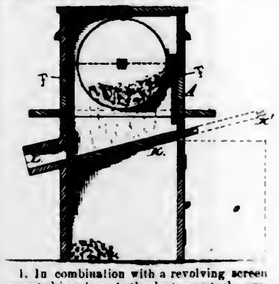
191,753. RAILROAD-SIGNALS. L. B. Cerver, Xenia, Ind. [Filed Apr. 11, 1877.]

Brief.—A day and night signal are mounted on a vertical oscillating shaft, which is operated by a pivoted hand-lever.

In combination with the signals A and I, the lever F, adjustable nut *b*, pintle *c*, thumb-screw *d*, washer *e*, indicator H, and rod G, all arranged and operating substantially as and for the purpose set forth.

191,754. ASH-SIFTERS. John R. Darke and D. S. Smith, South Evanston, Ill. [Filed Nov. 16, 1876.]

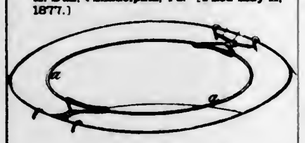
Brief.—Adapts the sifter to barrels by making it with circular cover and box.



1. In combination with a revolving screen mounted in a box, A, the dust-receptacle, provided with mouth L and door O, and slotted to receive the removable inclined plate K, as shown and described.

2. The combination, with the box A, carrying the screen or sifter, and provided with extending cleats F F, of the dust-receptacle, having the removable inclined plate K, mouth L, and door O, arranged to operate substantially as and for the purposes set forth.

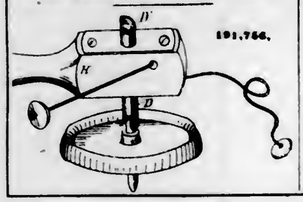
191,755. LAMP-SHADE HOLDERS. Alfred H. Duff, Philadelphia, Pa. [Filed May 11, 1877.]



1. The holder for annular lamp shades consisting of the two wires *a*, curved, crossed, and twisted together, and provided with two diverging ends on each side, as and for the purposes set forth.

2. In combination with an annular lamp-shade, the holder consisting of the wires *a*, bent and united in the manner shown, and having the diverging ends passed through and folded down within the upper edge of the shade, as shown.

3. A holder for annular lamp-shades consisting of wires curved, crossed, and loosely entwined near their ends, and having their extreme ends separated, in the manner shown.



191,756. SPINNING-TOPS. Henry D. Forbes, Cambridge, Mass. [Filed Mar. 13, 1877.]

The combination of the handle H with the quill or tube D D', said quill having a lantern-lock or bayonet-catch at each end, and provided with a reel, K, all arranged to operate together substantially as described, and for the purpose set forth.

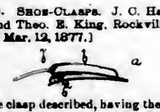
191,757. TOOL-HANDLES. Charles Groth, San Francisco, Cal. [Filed May 5, 1877.]

Brief.—Tools having long tapering shanks are secured to their handles by means of a partial disk fitted in a ferrule in the end of the handle.



The tool-handle A, with its bore B and projecting points D D, in combination with the tool-shank H, with its disk F and partial disk E, substantially as and for the purpose described.

191,758. SHOE-CLASPS. J. C. Hammond, Jr., and Theo. E. King, Rockville, Conn. [Filed Mar. 12, 1877.]



1. The clasp described, having the tongue *b*, pivoted to spring *a*, provided with the fall-back b^1 and the lever end b^2, arranged in the rear of the pivotal point of the tongue.

2. The combination of the tongue *b*, pivoted to spring *a*, having the fall-back b^1 and lever end b^2 in the rear of its pivot, with the bearing-spring *a* and base-plate *c*, substantially as described.

191,759. RESTORING AND RECOVERING ALKALINE WASTES. William W. Harding, Philadelphia, Pa. [Filed Oct. 16, 1876.]

The process herein described for recovering alkali from the waste liquor used in disintegrating paper-stock, in reducing it first to a dry porous or flocculent substance, by exposing the liquid in thin layers to the action of heated cylinders or plates and scraping or brushing and then incinerating the porous mass in the hearth of a reverberating furnace, all substantially as set forth.

191,760. SUBMARINE BOATS. Charles F. Henis and Charles F. Pike, Philadelphia, Pa. [Filed Oct. 6, 1876.]

1. The metallic frame *q*, and water-proof covering *r*, forming the arms *p p'*, in combination with the car, substantially as shown and described.

2. The adjustable legs *w w w w* and levers *x x*, in combination with the car, substantially as and for the purpose set forth.

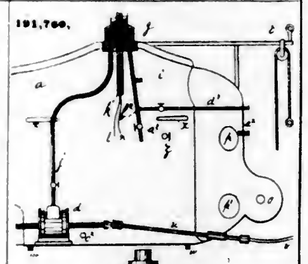
3. The flexible shaft *v* and shaft *u*, provided with means to give it motion, in combination with the car, as and for the purpose set forth.

4. The compartment *y*, valve *z*, pipe b^3, valve a^3, and air-chamber formed by the pipe *g*, in combination with the car, substantially as and for the purpose set forth.

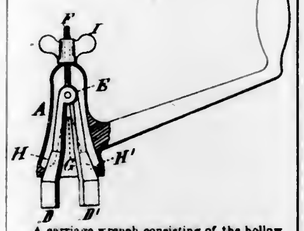
5. The combination of the tube *g* with the spirally-wound wire, substantially as shown and described.

6. The tubes d^2 and e^2, in combination with the car, substantially as and for the purpose set forth.

191,760.

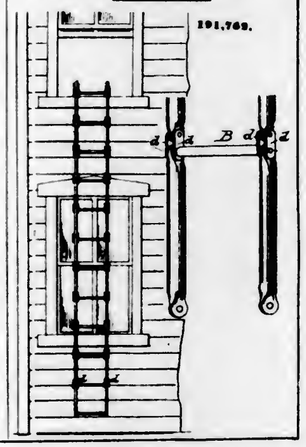


191,761. CARRIAGE-WRENCHES. Eli K. Holley, Lockport, assignor of one-half his right to J. B. Holley, Salem, N. Y. [Filed May 7, 1877.]



A carriage-wrench consisting of the hollow casing A, provided with the handle B C, in combination with the wrench-jaws D D', having the tapering or inclined sides H H', and provided with a joint, E, screw F, thumb-nut I, and spring G, as specified.

191,762.



191,763. FIRE-ESCAPES. H. Huth, Milton, assignor to himself and Jno. H. Schreiner, Philadelphia, Pa. [Filed Apr. 26, 1877.]

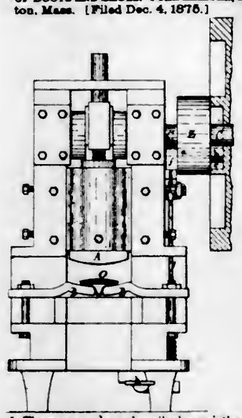
In a folding fire-escape, the double links *d d*, pivoted at one end to the side bars by a pin, and at the other end to the adjoining side bars by the rounds or cross bars B, all constructed and arranged to operate in the manner and for the purpose set forth.

191,764. METHODS OF SECURING METAL PLATES ON STRUCTURES. W. G. Hyndman, Cincinnati, Ohio. [Filed Apr. 26, 1877.]



The method of fastening or securing metallic plates to structures by means of a wrought-metal barbed nail and a concave-convex washer of soft material, substantially as and for the purpose set forth.

191,764. MACHINES FOR SHAPING THE SOLES OF BOOTS AND SHOES. John Kimball, Boston, Mass. [Filed Dec. 4, 1876.]

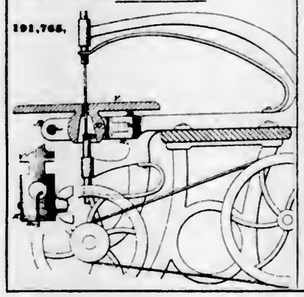


1. The process above described, consisting in flattening the tread of the sole crosswise after it is attached to the upper by subjecting it to heavy pressure between a rounding surface, and a hollowing-surface, all as set forth.

2. The process above described of smoothing the inner surface of the sole after it is united to the upper by inserting within the shoe after it is formed the sole-shaped piece *k* of hard metal, and then compressing the sole between the bed and plunger, as set forth.

3. In combination with the plunger, the bed-piece B, having the narrow slot open at its forward end, in order that the shoe may be readily placed upon the bed-piece and submitted to the action of the plunger without injury to the upper, the whole combination being and operating substantially as and for the purpose specified.

191,765.



191,765. SCROLL-SAWING MACHINES. Geo. B. Lewis, Seneca Falls, N. Y. [Filed Apr. 6, 1877.]

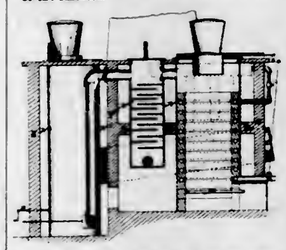
Brief.—The table is angularly adjustable by means of a hollow ball formed on its under surface, and secured in a hinged clamp on the main frame. The saw is held in a slotted and perforated clamp, provided with a guide-pin.

1. The combination of the clamp A B, provided with the pin *x*, screw *w*, and hinge *u*, with the table V, having the hollow ball *c*, constructed as shown and described, for the purpose specified.

2. A saw-clamp, provided with the hole F and slot *m*, in combination with the pin E and screw *n*, constructed, as shown and described, for the purpose specified.

191,766. PROCESSES AND APPARATUS FOR MANUFACTURING ILLUMINATING-GAS. M. W. Kidder, Boston, Mass., assignor to himself and Person Noyes, same place. [Filed May 4, 1876.]

Brief.—Steam is generated and superheated in passages in the wall of the generator, and is admitted to the ash-pit, and thence to the incandescent fuel in the generator, where it is decomposed, forming carbonic oxide and hydrogen, which are purified and stored in a holder, or are passed directly into a heated chamber with steam, where part of the carbonic oxide is converted into carbonic acid, taking oxygen from the steam and setting free hydrogen. These gases are passed through lime purifiers, for removing carbonic acid and sulphur compounds, and are then stored. When the temperature of the coal in the generator is reduced below a decomposing point by the admission of steam, it is revived by the admission of oxygen gas. The water-gas is enriched by admitting it with oil into a heated chamber, where the two are passed over heated plates, or the water-gas is passed up through bituminous coal, distilling at a low temperature, where it combines with the vapors given off, and carries them out and into a reheating-chamber, where a fixed gas is produced, which is washed and purified. The water-gas generator is heated externally as well as by internal combustion. Gas is burned in the fire-box of the furnace.



1. The process for producing illuminating-gas, which consists, first, in heating bituminous coal in a closed chamber or retort sufficiently to expel the hydrocarbon vapors from the coal without decomposing said vapors; and, secondly, in introducing combustible non-luminant gases—such as water-gas, hydrogen, carbonic-oxide or marsh gas—beneath the coal in said chamber, and passing it upwardly through such heated coal, whereby the nascent hydrocarbon vapors are taken up and lifted out from the coal and the non-luminant gases carbureted, the mixed gases and vapors being subsequently superheated, as specified.

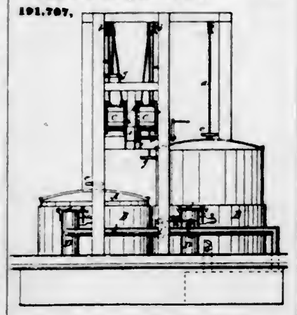
191,767. APPARATUS FOR CARBURETING AIR. Loomis Mann, Ionia, Mich. [Filed May 4, 1877.]

Brief.—Two reciprocating cylinders working in a water-seal are alternately filled with air, by which a continuous supply of air is forced to the carburetor. The pressure of air is regulated by weights, placed either upon a disk on the air-cylinder or on a counterbalance-disk suspended by a cord. Two valves in the air-pipes, leading to the two air-cylinders, are connected by levers, by which one is closed when the other is opened.

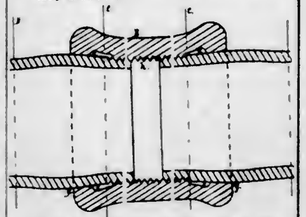
1. The combination of the drums C C and their gear-wheels *p* with the sliding pinion *q* and trip-stop *s*, as and for the purpose specified.

2. The disks *o g*, in combination with the suspending-cord *a* of the air-tank, and counter-cord *k* of the drum C, for the reception of weights, transferable from one to the other, as and for the purpose described.

191,767.



191,768. UNION AND JOINT FOR TUBING. Geo. Matheson, McKeesport, Pa. [Filed May 4, 1877.]

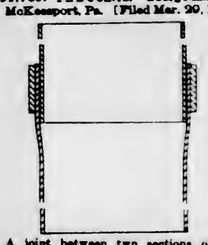


1. In a union or joint for tubing for deep wells, the socket or union made to impinge upon an inclined bearing beyond the screw-threads of the socket and tubing, substantially as herein described, and for the purpose set forth.

2. The socket B, provided with a recess, *e*, and bell-mouth *g*, substantially as herein described, and for the purpose set forth.

3. In a union or joint for tubing, the enlargement of the tube in its outer diameter at or about the part between the lines D C, in combination with the bell-mouth socket B, having recess *e* between said bell-mouth and screw-threads, substantially as herein described, and for the purpose set forth.

191,769. PIPE-JOINTS. George Matheson, McKeesport, Pa. [Filed Mar. 29, 1877.]



A joint between two sections of pipes, formed by making one end of each section bell-mouthed and placing over said bell-mouthed end a ring, whereby the edge of said bell-mouthed end may be caulked by upsetting between the inner walls of the ring and the outer walls of the entering pipe, substantially as herein described, and for the purpose set forth.

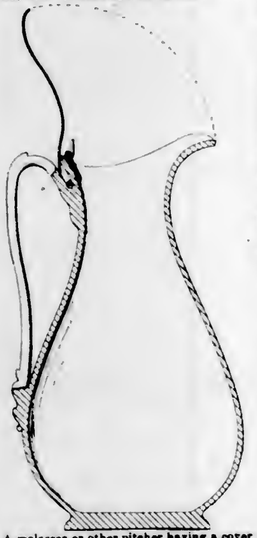
191,770. PIPE-JOINTS. George Matheson, McKeesport, Pa. [Filed Mar. 29, 1877.]

A joint formed between two sections of pipe by making one end of each section bell-mouthed and interposing a lead gasket between the inner wall of the bell-mouth and the outer wall of the entering pipe, and subsequently placing a sleeve over the bell-mouth and caulking the lead gasket, substantially as herein described, and for the purpose set forth.

191,770.

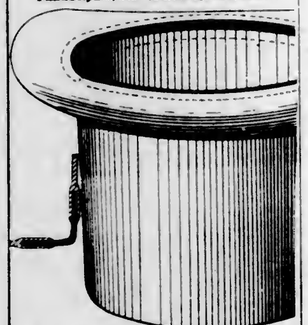


191,771. PITCHERS. Charles Moyse, Trenton, N. J. [Filed Sept. 22, 1876.]



A molasses or other pitcher having a cover secured thereto by an elastic strap passing through perforations in the body of the pitcher and secured to the cover, substantially as specified.

191,772. HATS. Manoel J. Nascimento, Philadelphia, Pa. [Filed Apr. 27, 1877.]

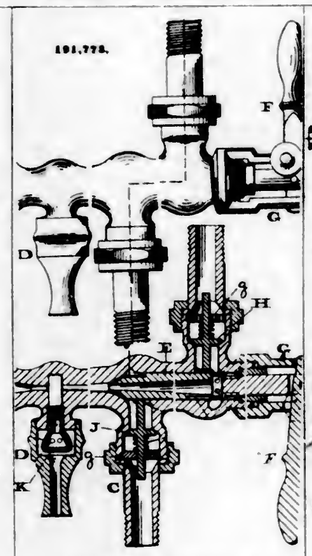


As a new article of manufacture, a hat, the side crown and brim of which are united by a yielding and moisture-proof rubber connecting-piece, substantially as shown and described, and for the purposes set forth.

191,773. INJECTORS. William H. Newell, Philadelphia, Pa. [Filed Nov. 3, 1876.]

Brief.—The spindle opens the steam and water valves by means of cams. The overflow-valve is formed of a plug, with its head perforated, and inclosed by a sleeve, which automatically covers and uncovers the perforations.

191,773.



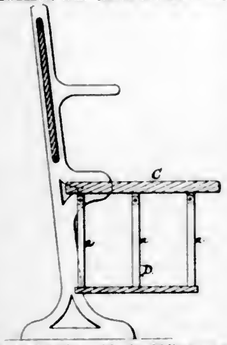
1. In an injector a steam-spindle, with valve-operating cam-faces, substantially as and for the purpose set forth.

2. The rotary yoke G, with lever F, in combination with the spindle E, and valves H J, substantially as and for the purpose set forth.

3. The overflow-chamber D with the plug K and its encircling sleeve L, substantially as and for the purpose set forth.

4. The connections, provided with strainers *g*, in combination with the stems of the valves H J passed through said strainers, substantially as and for the purpose set forth.

191,774. OPERA-CHAIRS. Robt. H. Ormeby, Milwaukee, Wis. [Filed Oct. 28, 1876.]



The combination, with the folding seat C, of the folding shelf D and depending bars *a*, hinged to the seat and shelf, substantially as and for the purpose specified.

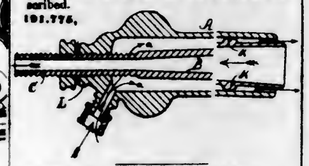
191,775. STRINGS. John S. Parsons, Indianapolis, Ind., assignor of one-half his right to J. H. Yundt, same place. [Filed Sept. 19, 1876.]

Brief.—The inner tube adjusts in the outer by means of a screw-thread.

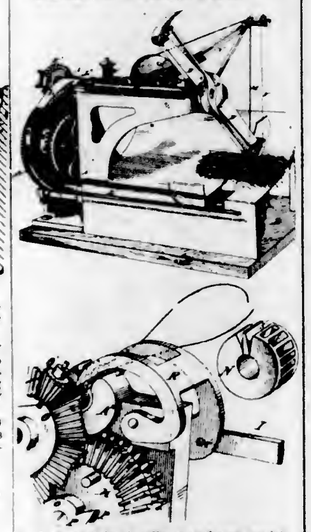
1. The outer tube A of a syringe, formed with its rear end contracted, and provided with a screw-thread in which operates the screw-threaded end C of the inner tapering tube B, in the manner and for the purposes specified.

2. The inner tapering tube B, provided at its large end with lugs K K K to guide said inner tube B in the center of tube A at its nozzle end, and having its small end provided with a screw-thread, C, which operates in the contracted end L of the outer case A, in the manner set forth, and for the purposes described.

191,776.



191,776. GRAIN-BINDERS. Wm. H. Payne, Sandwich, Ill. [Filed Apr. 4, 1876.]



1. A revolving bundler or gatherer, consisting of a main straight arm attached to a drive-shaft and auxiliary arms provided with hooks on their outer ends, and pivoted to the former, in combination with a cam-guide constructed, arranged, and operating substantially as described.

2. The revolving arm D, in combination with the vibrating pieces D', pivoted on opposite ends of the arm D, and provided with hooks at their extremities, the pins *d*' on the inner ends of the pieces D', and the cam *c*, in which both pins travel, substantially as and for the purpose set forth.

3. The bundle-holder L', provided with curved arms P, and vibrating intermittingly away from the binding mechanism, substantially as and for the purpose set forth.

4. The combination of the bundle-holder L', compressing-cord M, and revolving gathering-arm, substantially as described.

5. The combination of the revolving gathering-arm, vibrating bundle-holder L', and band-wire V, substantially as described.

6. An independent wire-carrier, in combination with the notched vibrating placer R, disconnected from the wire-carrier and wire, and twisting-pinion N, substantially as and for the purpose set forth.

7. The twisting-pinion N, constructed with its sides closed flush with all the teeth except one, so as to leave the two spaces on opposite sides of said tooth clear, substantially as and for the purpose set forth.

8. The wheel O and pinion O', for seizing and holding the band-wire, substantially as described.

9. The combination of the wire-holders O O', twisting-pinion N, and band-placer R, substantially as described.

10. The combination of the bevel-wheel O, notched as described, and collar P, provided with projecting tooth *p*, substantially as set forth.

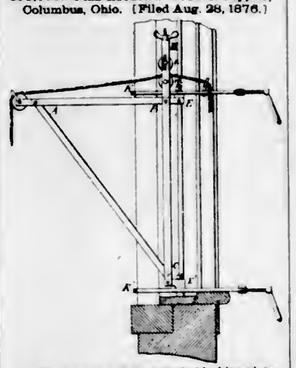
11. The combination of the pivoted band-placer R, reciprocating bar I, provided with a

pin, *i*, and a camway, which moves the pin back and forth, substantially as described.

12. The arm L, loosely journaled on the shaft E, in combination with the bundle-holder L' and the cam *f*' on the wheel F, substantially as and for the purpose set forth.

13. The combination of the arm L, hung loosely on the shaft E, pin or stop *l*, and pivoted dog L', substantially as and for the purpose set forth.

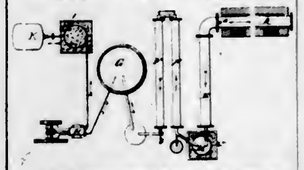
191,777. FIRE-ESCAPES. John C. Peppler, Columbus, Ohio. [Filed Aug. 28, 1876.]



1. The crane A B C, detachably hinged to two clamps, K K', screwed to the side of a window-frame, substantially as described, and for the purpose set forth.

2. The combination of the crane A B C with a pulley-block, H, with two pulleys, *m* and *n*, the upper one, *n*, of elastic material, being adjustable by the thumb-screw *d* to admit of squeezing the rope between the pulleys, so as to let it pass more or less freely, substantially as herein described, and for the purpose set forth.

191,778. MANUFACTURING SULPHUROUS ANHYDRIDE. Raoul P. Pictet, Geneva, Switzerland. [Filed Mar. 9, 1877.]



1. The herein-described method or process of producing and storing fluid sulphurous oxide, and rendering the same pure and anhydrous—that is to say, by heating together sulphur and sulphuric acid alone, and then immediately passing the product successively through a cleansing medium and an anhydrating medium, whereby it is freed from all extraneous matters, including water and the vapor of water, and then immediately condensing the said gas, by pressure, into a fluid, and collecting and storing the same, the entire continuous operation from the beginning to the end being carried on with the atmosphere, and all other extraneous substances excluded from contact with the materials used, and from the resulting gas and fluid, all substantially as described.

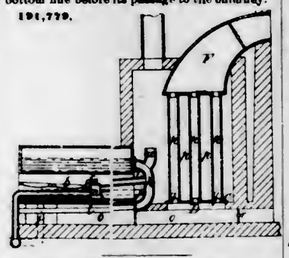
2. The apparatus described for making, purifying, anhydrating, and storing sulphurous oxide, consisting of the heating-retort A, the vessel and pipes for holding and delivering into the retort sulphuric acid, without the admission of atmospheric air, the discharge-pipe E, the inclined pipes F F, the gasometer G, the pump H, the refrigerator I, and the fluid-holder K, with the pipes connecting the several named parts, all constructed and combined to operate substantially as and for the purpose set forth.

191,779. HOT-AIR APPARATUS. Charles Pottiee, London, England, assignor of one-half his right to H. A. V. Le Lubez, same place. [Filed Jan. 9, 1877.]

1. In combination with a steam-boiler, the improved hot-air apparatus, substantially as shown and described, consisting of the series of horizontal and inclined tubes and air-chambers, applied to utilize the waste heat of the boiler, as set forth.

2. The vertical tubes *p p p* in the large air-chamber having direct communication with the bottom flue *a*, and also with the outlet-flue F, and serving to utilize the heat from such bottom flue before its passage to the chimney.

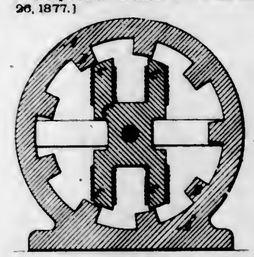
191,779.



191,780. PROCESSES FOR MAKING CAST METAL FROM TINNERS' SCRAP. J. Milton Sanders, New York, N. Y., assignor to J. H. and Chas. H. Covil, same place. [Filed Oct. 12, 1876.]

The process of making cast metal from tinners' scrap, which consists in subjecting the scrap to a temperature of 3000° or 4000°, or sufficient to effect the volatilization of the tin coating, and at the same time fusing the iron base plates to a consistent mass by suitable flux, as described, liquid hydrocarbon being injected during treatment, substantially in the proportions specified, whereby the metal is properly carburized, and its ready flow in casting insured, all substantially as herein set forth.

191,781. ELECTRO-MAGNETIC ENGINES. W. E. Sawyer, New York, N. Y. [Filed Mar. 26, 1877.]



1. In an electro-magnetic engine, a fixed or revolving drum, provided with projections circumferentially equidistant, any adjoining two of which, together with that portion of the circumferential mass of the drum which is between such two projections, forms the armature of an electro-magnet, substantially as shown and described.

2. In an electro-magnetic engine, the combination, with an electro magnet whose poles consist of elongated edges running parallel to each other, of an armature whose ends consist of elongated projections running parallel to each other, and also to the elongated poles of the magnet, the distance between the projections of the armature being the distance between the poles of the magnet, as and for the purpose specified.

3. In an electro-magnetic engine, the arrangement of an electro-magnet with relation to a drum or barrel provided with circumferentially-equidistant projections, any adjoining two of which, together with the circumferential mass of iron between them, constitute an armature, whereby the action of the magnet is such as to cause one of its poles to precede the other in the direction of its revolution, substantially as shown and described.

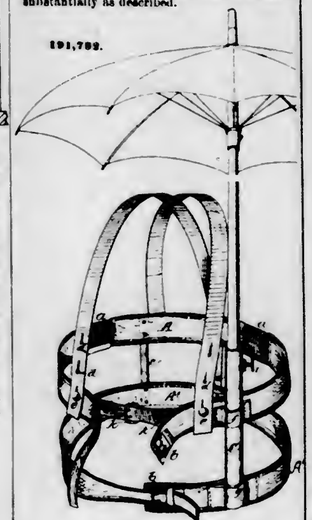
191,782. UMBRELLA-SUPPORTS. B. Burgh Smith, Sr., Theoville Farm, near Greenville, S. C. [Filed Nov. 6, 1876.]

1. An umbrella support in which are combined two belts adapted to be secured around the chest and waist of the wearer, and attached together parallel, or nearly so, with each other, a socketed rod connected with the two belts, and a suitable clamping device for holding the umbrella or parasol handle in the socketed rod, substantially as described.

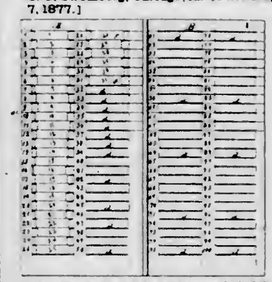
2. The two belts A A', connected by braces or stays *c c*, and each having one or more elastic insertions, *a*, in combination with the vertical socketed rod C, secured to the two belts, and having a clamping device for holding an umbrella or parasol handle in its socket, substantially as described.

3. The combination of the two belts A A', connected by braces *c c*, the socketed rod C, secured at its lower end in a socket in the lower belt, and in a loop on the upper belt, and the diagonal shoulder-straps secured to the latter, and having button-holes adapted to connect with buttons on the upper belt, substantially as described.

191,782.

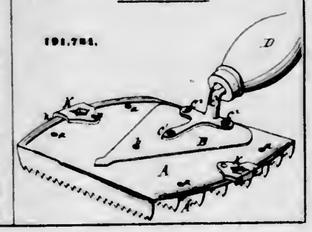


191,783. DRUGGISTS' PRESCRIPTION-FILES. C. G. Stromberg, Chicago, Ill. [Filed May 7, 1877.]



The combination of the parts *a* and *a'* of the leaves A B with one or more series of parallel slits, *d*, and with or without the dividing-leaf C interposed between the parts *a* and *a'*, substantially as and for the purposes specified.

191,784.



191,784. CURRY-COMBS. Miles Sweet, Troy, N. Y. [Filed Nov. 16, 1876.]

1. In combination with the comb-back A and re-enforcing piece B, a malleable-metal grooved shank having the extension C' and two lateral arms or braces, C', provided with rivets or rivet-studs for connecting, by the same operation, the re-enforcing-piece, the back of the comb, and the shank, substantially as and for the purpose described.

2. In combination with the shank of a curry-comb and its handle, the independent and separate wire E fastened at one end through the end of the shank, and bent or looped at the other, where it issues from the handle, substantially as and for the purpose set forth.

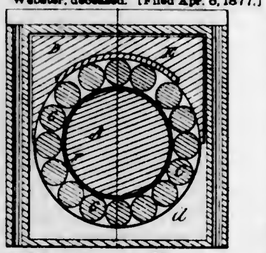
3. In combination with the sheet-metal back of a comb having circular ends, the independent knocker K riveted and flanged to said back in the center of each circular end, substantially as and for the purpose described.

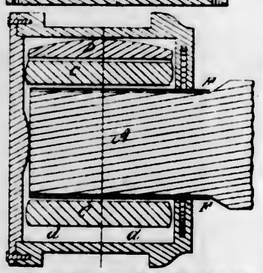
191,785. HORSESHOE. W. M. Temple, Port Dickenson, N. Y. [Filed Apr. 28, 1877.]



The horseshoe A, having a convex or beveled bearing on the entire bearing part of the hoof, constructed in the specific manner herein described and shown, for the purpose set forth.

191,786. CAR-AXLE BOXES. Lewis D. Webster, Chicago, Ill., administrator of Jos. D. Webster, deceased. [Filed Apr. 6, 1877.]





1. The combination, with anti-friction rollers in a railroad journal-box, of a rocking bearing, D, within the box, to secure parallelism between the journal and rollers, substantially as set forth.

2. The rocking bearing herein described, composed of the rocking piece D and the bands *d*, constructed substantially as and for the purpose set forth.

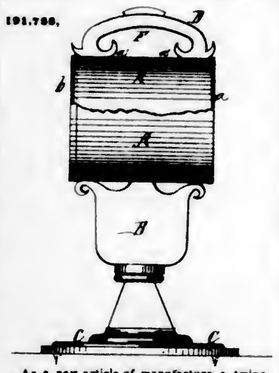
3. The combination, with anti-friction rollers and rocking bearing D, of the removable bearing E, made and operating substantially as described.

4. The combination, with the anti-friction rollers and rocking bearing, of the removable bearing E in said rocking bearing, and the removable sleeve F on the axle or journal, substantially as and for the purposes set forth.

191,787. STOVE-POLISHES. E. L. Whiton, West Stafford, Conn. [Filed Mar. 14, 1876.]

A stove-polish, consisting of gum-arabic and graphite united to form a powder, and in the proportions substantially as set forth.

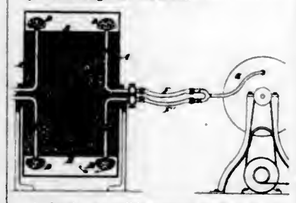
191,788. TWINE-HOLDERS. Jos. O. White, New York, N. Y. [Filed Apr. 11, 1877.]



As a new article of manufacture, a twine-holder, consisting of the holder A, with the fixed head *a* and the movable head *b*, ornamented as described, the standard B, foot-piece C, having screw-holes, bracket F, with the twine-cutter D secured to its upper part, substantially as described, and for the purpose set forth.

191,789. GAS AND AIR CARBURETERS. W. H. Winn, New York, N. Y. [Filed Jan. 11, 1877.]

Brief.—Perforated diaphragms extend across the reversible cylinder near each end, and in each space left between the diaphragm and the head of the cylinder are two perforated bulbs, communicating, through the axes of the cylinder, with flexible tubes, which on one side are inlets from the fan-blower, and on the other outlets for the carbureted air. Air is forced from the lower inlet-bulb up through the saturated fibrous material, and out through the upper outlet-bulb. By means of cocks communication through these tubes is closed, and upon the cylinder being reversed opened through the other set.



1. In the reversible carbureting-cylinder A the perforated or foraminated diaphragms B, at or near its ends, in combination with the duplicate systems of inlet and outlet pipes C C', substantially as and for the purpose herein set forth.

2. The perforated bulbs D, in combination with the duplicate system of inlet and outlet pipes C C', and the central portion of the reversible cylinder A, containing the absorbent material, all substantially as and for the purpose herein set forth.

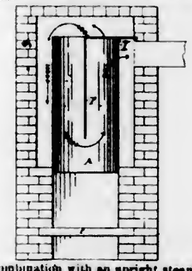
3. The flexible connecting-tubes F, with the duplicate systems of pipes C C within the reversible cylinder A, and the pump G, whereby the gas or air is forced to and through the said cylinder, substantially as and for the purpose herein set forth.

191,790. CRANK-SHAFTS FOR STEAM-ENGINES. Daniel A. Woodbury, Rochester, N. Y. [Filed May 18, 1877.]

As an improvement in that class of crank-shafts which have the crank formed in one piece therewith, and the journals located close to the crank, the enlargement *a* directly in the neck of the crank, and forming part of the journal, substantially as and for the purposes set forth.

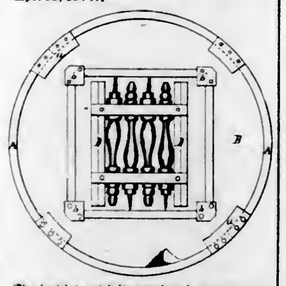
191,791. MODES OF SETTING STEAM-GENERATORS. Enos D. Wood, Utica, N. Y. [Filed Feb. 20, 1877.]

Brief.—The plates so divide the space around the boiler that the smoke is compelled to dive at one side and ascend on the other to reach the exit.



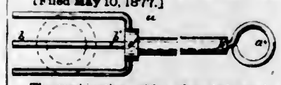
In combination with an upright steam generator or boiler, the plates I and F, constructed and operated substantially as described, for the uses and purposes mentioned.

191,792. DEVICES FOR PACKING TABLES AND OTHER ARTICLES. Ezra P. Wright, Springfield, Ohio, assignor of one-half his right to Justus V. Slater, same place. [Filed Apr. 16, 1877.]



The band A, with its overlapping pieces *a a*, for uniting the ends thereof and clamping together the two table-tops B B, substantially as shown and described, as and for the purpose herein before set forth.

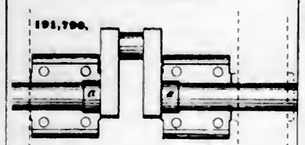
191,793. GLASS-TOOLS. Geo. Zimmerman and George Beatty, Steubenville, Ohio. [Filed May 10, 1877.]



The combination, with a glass fork, *a*, of a rotating prong, *b*, constructed and arranged substantially as and for the purpose set forth.

191,794. CIGAR-LIGHTERS. H. P. Andrews, Boston, Mass. [Filed Mar. 27, 1877.]



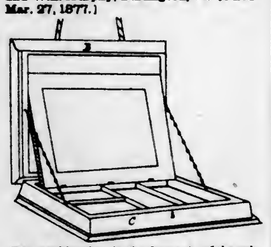


191,795.



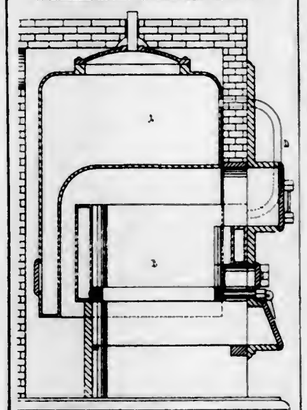
As a new article of manufacture, a pocket cigar-lighting device, consisting of the combination, in the case A, of the movable cap or cover B, the tinder-wick carrier C, the percussion-strip feeder and striker-retractor E, the tinder-wick feeder F, and the striker G, all constructed, arranged, and operating in the manner and for the purpose specified.

191,796. PICTURE-FRAMES. S. A. Bowers and Wm. Murphy, Burlington, Vt. [Filed Mar. 27, 1877.]



The combination, in the frame A, of the subdivisions B C, hinged together, the division C being covered by a lid, the whole constructed to form a frame for a picture, with a receptacle or receptacles to hold writing, toilet, or other articles, and adapted to be suspended against the wall of a room, substantially as described and shown.

191,796. STEAM-HEATERS. R. G. Brown, Waltham, Mass. [Filed Apr. 4, 1877.]



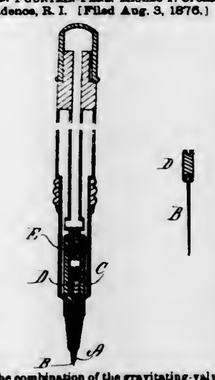
In combination with the boiler A and fire-box B, the inlet and outlet pipes C and D, constructed and arranged substantially as described.

191,797. BLOWERS FOR INSECT-POWDERS. William F. Brummer, Milwaukee, Wis. [Filed Apr. 15, 1876.]



A blower for insect-powder, consisting of the top A and bottom B, flexible covering C, spring *c*, concavo-convex sieve E, and nozzle D, having openings *f*, substantially as and for the purpose specified.

191,798. FOUNTAIN-PENS. Alonzo T. Cross, Providence, R. I. [Filed Aug. 3, 1876.]



1. The combination of the gravitating-valve C, the swivel-needle B, and writing-point A, substantially as described.

2. The combination of the gravitating-valve C, adjusting-screw D, swivel-needle B, and writing-point A, substantially as described.

3. The combination of the gravitating-valve C, needle B, and valve-adjusting screw E, substantially as described.

191,799. GANG-SAW GAGES. T. Emery, Peshtigo, Wis. [Filed Sept. 21, 1876.]

Brief.—The gang of saws is firmly secured in position parallel with each other, and their removal and readjustment rendered easy and convenient by permanently attaching gage-plates to one or both sides of the saws, immediately below the hangers at the top of the saws and directly above the hooks at the bottom of the saws.



The saw-gages C and C, attached to the saw in the manner and for the purpose set forth.

191,800. BRICK-MACHINES. W. A. Graham, Carlisle, Pa. [Filed May 19, 1877.]

Brief.—The molds are reciprocated to receive the clay-press and discharge the bricks. A reciprocating press-plate receives the main pressure, and travels with the mold during such pressure, returning by means of a spring to its former place when the pressure is released. An endless belt carries off the bricks.

1. A bed-plate, *s*, having an intermittent back-and-forth movement, in combination with the pressing and molding devices of a brick-machine, for the purposes set forth.

2. A bed-plate, *s*, having an intermittent back-and-forth movement, in combination with a traveling mold provided with a plunger or piston, substantially as and for the purpose set forth.

3. The combination of a bed-plate, *s*, having an intermittent back-and-forth movement, in the manner substantially as described, with a traveling mold provided with a plunger, *w*, and an actuating cam, U, for the purpose set forth.

4. A bed-plate, *s*, provided with friction-rolls *t*, and having a back-and-forth movement, in combination with the compressing devices of a brick-machine, substantially as and for the purpose set forth.

5. The combination of a bed-plate, *s*, having a back-and-forth movement, and a spring, R, with the compressing devices of a brick-machine, substantially as described.

6. The combination of a bed-plate, *s*, provided with friction-rolls *t*, and having a back-and-forth movement, and a spring, R, with the compressing devices of a brick-machine, for the purposes set forth.

7. The combination of the cam-arm 2, constructed and arranged substantially as described, with a reciprocating or vibrating mold, Q, and its plunger *w*, for the purpose set forth.

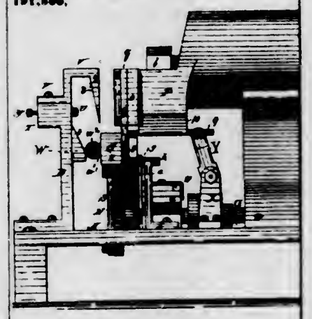
8. The combination of the cam W, as arranged, with a reciprocating or vibrating mold, Q, and its plunger *w*, substantially as and for the purpose set forth.

9. The combination of the cam-arm 2 and cam W, as arranged, with a moving mold and its plunger, substantially as and for the purposes set forth.

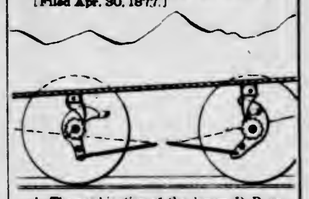
10. The combination of the scraper 9, constructed, arranged, and operated substantially as described, with a traveling-mold provided with plungers, for the purposes set forth.

11. The combination of the elastic disk y^2, adjusting-screw y, disk y^1, and a movable cam-pin, U, with the compressing plunger or piston of a brick-mold, substantially as and for the purpose set forth.

191,800.



191,801. CAR-STARTERS. Lydia W. Hermance and Jas. D. Mott, of Moses Kill, administrators of Charles W. Hermance, deceased, assignors of one-half their right to Albt. S. Burdick, Saratoga Springs, N. Y. [Filed Apr. 30, 1877.]



1. The combination of the levers D D, secured to the axle of the car, and the friction-rollers on the bottom of the car, to operate substantially as and for the purposes described.

2. The combination of the pawl secured to the bottom of the car, and the ratchet-wheel on the axle, to operate as and for the purposes set forth.

3. The combination of the levers with the friction-rollers and pawl secured to the bottom of the car, and the ratchet-wheel attached to the axle, substantially as and for the purposes set forth.

191,802. SKYLIGHTS. Stanton M. Howard, Wheeling, W. Va., assignor of one-fourth of his right to Wm. G. Wilkinson, same place. [Filed Dec. 26, 1876.]

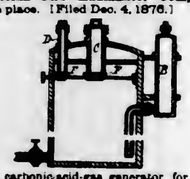
1. As an improvement in skylights the well or light-shaft B C, constructed with outer rim or ledge 1, upon which the glass dome or skylight rests, inner ledge or rim 2, the top

edge of which is made much higher than the outer ledge 1, intermediate gutter E, and downwardly-slanting outlets *a a*, all constructed and arranged as and for the purposes described.

2. In combination with the well or light-shaft B C, constructed with outer lower ledge 1, and top or inner higher ledge 2, the circular elliptical glass dome A, constructed with flange *b* around its base, and fastening-lugs *x*, as and for the purposes described.

191,802.

191,803. CHEMICAL FIRE-EXTINGUISHERS. Alexander E. Hughes, Philadelphia, Pa., assignor, by mesne assignments, to North American Fire-Annihilator Company, same place. [Filed Dec. 4, 1876.]



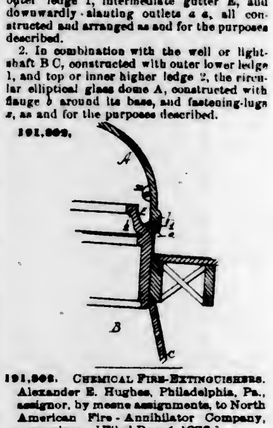
In a carbonic-acid-gas generator for fire-extinguishers, the combination of the acid-reservoir B, the soda-receptacle C, water-tube D with the rock-shaft and valves F F, for the practically continuous generation of carbonic-acid gas for filling the holders M, substantially as and for the purposes set forth.

191,804. DRIVE-COCKS FOR WATER-MAINS. James D. Keegan and Adolph Luhrs, New York, N. Y. [Filed Apr. 16, 1877.]



A drive-cock, the end of which, projecting within the main, is provided with a cross-piece, *b*, arranged wholly within the cock, and with side openings arranged above the cross-piece, as set forth.

191,805.



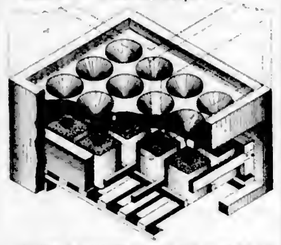
191,806. MERCURY-CONDENSERS. William H. Long and Alex. W. Castle, San Jose, Cal. [Filed Mar. 26, 1877.]

1. A fume or vapor condensing apparatus, consisting of the water-chamber A, with its conveying-pipe B, and the rotary pipe C, having the hollow arms G, substantially as and for the purpose described.

2. A fume or vapor condensing apparatus, consisting of a water vessel or chamber, A, with a conveying-pipe, B, in combination with the rotary pipe C, carrying hollow open-ended arms G, substantially as and for the purpose specified.

3. The rotary hollow shaft C, with its arms G constructed so their rapid rotation in water will form a vacuum and draw the fumes into the water, in combination with the wings I, to prevent an undue movement of the water, substantially as described.

191,806. RAISING AND TRANSPLANTING PLANTS. Conrad Loskamp, East Coldenham, N. Y. [Filed Apr. 21, 1877.]

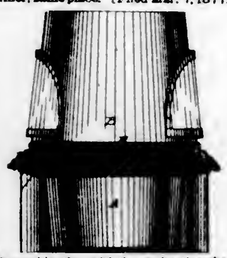


1. The hereinbefore-described method of raising sod transplanting plants, which consists in planting roots, seeds, &c., in earth contained in a series of paper bags, moistening the earth in the bags simultaneously by water supplied centrally thereto, hastening germination, forcing the growth of the plants, and preventing injury to the bags by the circulation of warm air about the outsides of the bags, and finally transplanting the plants with the bags and earth about the roots.

2. The combination, substantially as hereinbefore set forth, of a rack for holding and separating the bags, an open-bottomed frame, in which the rack is supported, and water holders or receptacles for supplying water centrally to the earth in the bags.

3. The frame, constructed as described, with an open end, an open bottom, and a closed top provided with the series of water-holders.

191,807. STOVES. Andrew Lynd, Albany, N. Y., assignor of one-half his right to J. B. Miller, same place. [Filed Mar. 7, 1877.]

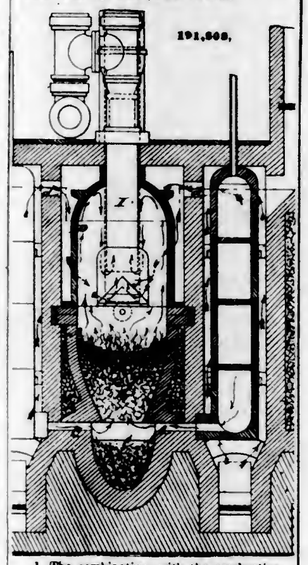


The combination, with the combustion-chamber B, in which the disengaged gases burn above the fuel, of the air-heating chamber E, situated above the plane of the top edge of the fire-pot and concentrically with the same, and composed of two or more compartments, each separated from the other by finely-perforated walls, and from the combustion-chamber by a finely-perforated wall, and the air ducts or ports *e e* leading to the first compartment of the series from without, substantially as and for the purpose set forth.

191,808. APPARATUS FOR THE MANUFACTURE OF ILLUMINATING-GAS. Philip W. Mackenzie, Blauvelt ville, N. Y. [Filed Aug. 16, 1876.]

Brief.—Steam is superheated and passed into the coal at the bottom of the combustion-chamber. The gas and vapors arising from the combustion of the coal with the superheated steam rise into the externally-heated dome of the combustion-chamber, where they are converted into a fixed gas, which passes out through the downwardly-extending eduction-pipe. Coal fed to the combustion-chamber is distributed by cones placed therein.

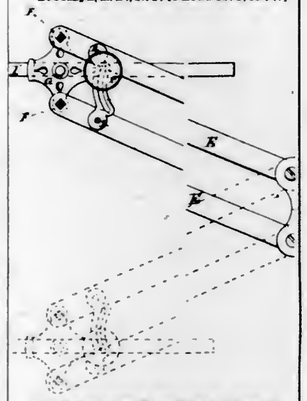
191,808.



1. The combination, with the combustion-chamber A and one or more inlets or tuyeres, *c*, for superheated steam below said chamber, of the externally-heated dome or chamber D, mounted on and in communication with the combustion-chamber, substantially as and for the purposes herein set forth.

2. The combination of the gas-escape dip-pipe I, and one or more distributing-cones, J, with the externally-heated dome or chamber D and the combustion-chamber A of the furnace, essentially as described.

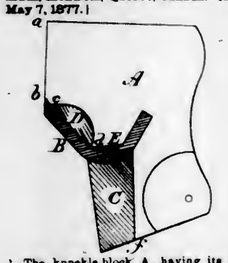
191,809. DENTAL BRACKETS. C. M. Moseley, Brooklyn, E. D., N. Y. [Filed Feb. 3, 1877.]



1. The sector-plate N, nut P, bolt M, clamp G, constructed with the bearings L S thereon, in combination with the outer ends of the parallel bars E, as and for the purposes set forth.

2. The clamping-plate G, when constructed with the three bearings F, F, and L, in combination with the extensible rod I, as and for the purposes set forth.

191,810. PIANO-FORTE ACTIONS. William Muth, Montreal, Quebec, Canada. [Filed May 7, 1877.]

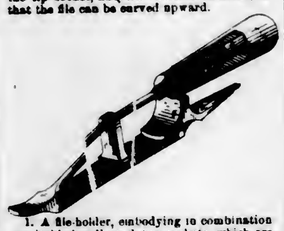


1. The knuckle-block A, having its front face constructed in the form of the line *a b c d e f*, substantially as and for the purpose set forth.

2. The cushions B and C and the backings D E, combined with and attached to the knuckle-block A, substantially as and for the purpose set forth.

191,811. FILE-HOLDERS. W. T. Nicholson, Providence, R. I., assignor to the Nicholson File Company, same place. [Filed Mar. 15, 1877.]

Brief.—The rear socket may be made like the tip socket, and the brace be omitted, so that the file can be carved upward.

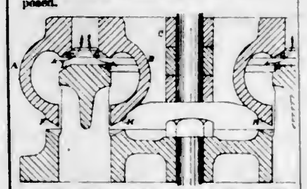


1. A file-holder, embodying in combination a suitable handle and two sockets, which are adjustable with relation to each other, and have recesses therein, which retain the file by abutting contact therewith, substantially as described, whereby a file may be sprung longitudinally, to adapt the curvature of its face to various kinds of work to be dressed, as set forth.

2. The combination, with a suitable longitudinally-compressing file-holder, of a file which is sprung or bent therein, substantially as described.

191,812. ENGINE-VALVES. Eugene O'Neill, San Francisco, Cal. [Filed Apr. 13, 1877.]

Brief.—The valve has upper and lower seats in pairs, and is provided with inner and outer passages for steam or water for each pair of seats, so that by a small lift of the valve a large area for the admission of the fluid is exposed.

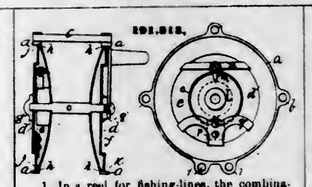


1. A valve, having an outer shell, A, with faces E F, in combination with the inner shell B having faces G H, with their corresponding seats, substantially as and for the purpose specified.

2. In a valve constructed to open and close by its rise and fall, the independent interior and exterior passages, and the corresponding seats, for increasing the area of the steam or water ports, and decreasing the rise and fall of the water, substantially as herein described.

191,813. REELS FOR FISHING-LINES. F. J. Philbrook, Bangor, Me., assignor to Hiram L. Leonard, same place. [Filed May 10, 1877.]

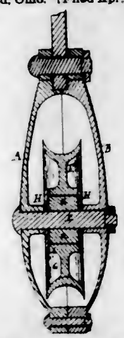
191,813.



1. In a reel for fishing-lines, the combination of the thin metal sides *d d'*, having recesses *e f* struck up therein, with a frame, *a a*, forming flanges or rims *h h* and *k* around said sides, as and for the purposes herein described.

2. In a fishing-reel having a recessed side to contain the click mechanism, the combination of the cross-pieces *n q*, in combination with the block *p*, spring *o*, and dog *m*, arranged substantially as and for the purposes set forth.

191,814. PULLEY-BLOCKS. John L. Pope, Cleveland, Ohio. [Filed Apr. 23, 1877.]

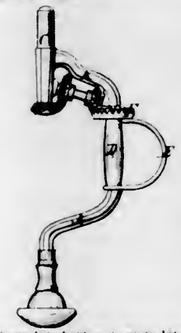


1. In combination with the sheave F, rollers *e*, and cheek-pieces A and B of the block, the washers H, bearing on the hub G of the sheave, substantially as described, and for the purpose specified.

2. In tackle-blocks having roller-bushed sheaves, the interposed washers H, in combination with a hub larger than the bosses, for receiving the lateral strain or pressure, substantially as herein set forth.

191,815. BIT-STOCKS. Daniel Powers, Shelburne Falls, Mass. [Filed May 26, 1876.]

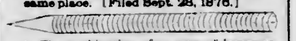
Brief.—The bit is rotated a greater number of times than the handle by forming a socket in the shaft, which has a bearing in the handle, and connected by gearing to a sleeve on said handle, which, while it is held from rotation on its own axis, rotates around the axis of motion of the shaft. A guard is attached to the sleeve to aid in holding the sleeve from rotating on its own axis.



1. A bit-stock to hold and rotate bits and drills, having the socket to hold said bits or drills in a shaft which has a bearing in the lower part of the brace, and is connected to a sleeve upon the handle, which sleeve is constructed to rotate around, but not upon, the axis of motion of said shaft, or a projection thereof, in common with said handle, while the handle rotates in said sleeve, all constructed and operating substantially in the manner and for the purposes herein shown and described.

2. The combination of the brace, the sleeve D provided with guard E, and the socket-shaft C with suitable operative connecting mechanism, substantially as and for the purposes specified.

191,816. PENCILS. Frederick Sholes, New York, N. Y., assignor to D. M. Somers, same place. [Filed Sept. 28, 1876.]

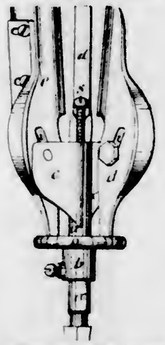


1. The combination of a series of layers or funnels of paper, felt, cloth, wood, or other material, pasted, glued, or pressed compactly together, with a stem or needle of lead, when each layer or funnel is provided with an open seam, substantially as described.

2. The combination of a layer or coating or surface of sand, with one side or surface of each layer or funnel of a lead-pencil case or covering, substantially as described.

191,817. HOLLOW AUGERS. G. N. Stearns, Syracuse, N. Y. [Filed Oct. 26, 1876.]

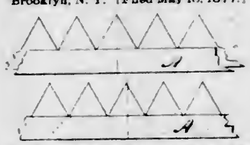
Brief.—Straight and tapering lenons of different lengths and diameters are cut by means of a jaw carrying a laterally-adjustable cutter and two slotted guide-jaws, all pivoted to a metal stock, and adjusted by a hand-wheel attached to a movable sleeve, and provided with cam slots, through which the lower ends of the jaws pass, and a longitudinally-adjustable screw inserted in the top of the stock.



1. The adjusting-jaws *d d*, cutter-carrying jaw *a* provided with the slots *f f f*, in combination with each other, and the stock *a* provided with the wings *c c c* and the screw *s*, substantially as herein set forth and described.

2. The hand-wheel *p* with cam slots having sleeves *b*, held on a stock by screw *s*, in combination with the slotted adjusting-jaws herein described, substantially as and for the purposes specified.

191,818. BARBED FENCES. Cyrus L. Tophff, Brooklyn, N. Y. [Filed May 18, 1877.]

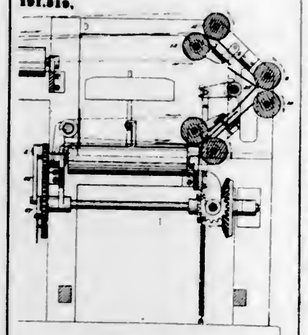


As a new article of manufacture, a fence-cap, consisting of a wooden strip, A, with metallic strips projecting from its upper surface, substantially as described.

191,819. FOLDING-MACHINES. S. D. Tucker, New York, N. Y. [Filed Mar. 21, 1877.]

Brief.—From the rapidly-moving pair of delivery rollers the sheets, alternately directed by a vibrating switch into rigid diverging conductors, pass to two pairs of slow-moving rollers and sets of tapes, carrying them over rollers, between which they are folded by blades oscillated by cranks. One part of each conductor is pivoted, so as to swing aside, and the switch is readily removable.

191,819.



1. The combination, with a pair of delivering-rollers, of diverging rigid conductors, for conveying the sheets in two distinct streams, substantially as described.

2. The combination of the delivering-rollers, receiving rollers, and diverging rigid conductors, substantially as described.

3. The combination of a pair of delivering-rollers driven at high speed with a pair of receiving-rollers driven at low speed, for controlling the movements of the sheet, substantially as described.

4. A pair of delivering-rollers driven at high speed, and a pair of receiving-rollers driven at low speed, said pairs of rollers being separated each a distance that the sheet will enter the latter an instant before leaving the former, and thus be carried onward, substantially as described.

5. The combination, with rollers, as 9 10 and 11 12, of the stationary plate 5, removable plate 7, and switch 26, substantially as described.

6. The combination, with delivering-rollers 9 10 and diverging rigid conductors, of the removable switch, substantially as described.

7. The combination of the switch, fast-running delivering-rollers, and slow-running receiving rollers, substantially as described.

8. The combination of the delivering-rollers, switch, and diverging rigid conductors, substantially as described.

9. In combination with the folding-blade shaft, the rock-arm 66, short connecting-rod 67, and wheel 28, whereby an alternately fast and slow movement is imparted to the folding-blade, substantially as described.

10. The combination, with the folding-blade shaft 3, of the recessed hub 75, pin 1, and spring 65, substantially as described.

191,886. CAR-AXLE BOXES. W. B. Wilcox, Cleveland, Ohio. [Filed Apr. 6, 1877.]



1. The combination of the grooved and collared rollers herein described, grooved axle-journal H, and grooved journal-box, as and for the purpose set forth.

2. The combination of the grooved and collared rollers herein described, radially-slotted rings, grooved axle-journal H, and grooved journal-box, all constructed and arranged to operate substantially as herein set forth.

191,891. MACHINES FOR CUTTING MARBLE, GRANITE, &c. Robert R. Atchison, Boston, Mass. [Filed Apr. 9, 1877.]

Brief.—Tools are rapidly reciprocated within a rotating head by means of pins engaging in a cam-slot. The tools may be of semi-cylindrical, wedge, or other form.

1. The combination, with the rotating head and cam-groove, of chisels or tools and slide-rods, provided with rigid arms, extended into the cam-groove, to operate substantially as described.

2. The rotating head and tools and mechanism to reciprocate the tools, in combination with a vertically-movable slide and mechanism to lower the head into working position, substantially as described.

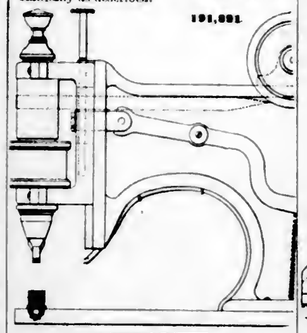
3. The head-carrying slide and the rotary head *c* and its tools *i i*, adapted to be reciprocated, as described, in combination with the lever to move the slide and an adjusting device, *u*, to change the position of the slide with reference to the end of the arm, to govern the descent of the tools and head, according to the thickness of the material and the depth of the cut required therein.

4. The rotating head and reciprocating tools carried thereon, in combination with a support for the material and mechanism to raise and lower the head, substantially as described.

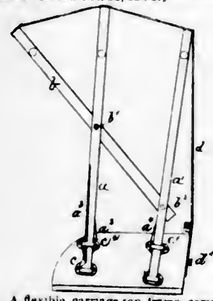
5. The rotating head and reciprocating tools, in combination with a pipe to conduct air to discharge the cuttings from the face of the material, substantially as described.

6. The rotating head and reciprocating tools, in combination with a supporting-surface and a guide and pattern-plate, to operate substantially as described.

191,892.



191,893. REMOVABLE CARRIAGE-TOPS. J. B. Ashelman, Red Wing, Minn., assignor of one-half his right to Frank Ives, same place. [Filed Oct. 16, 1876.]

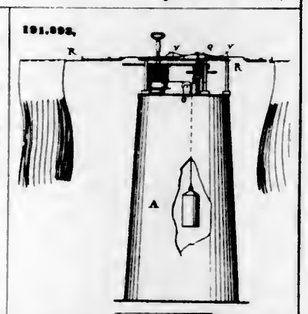


1. A flexible carriage-top frame, composed of two upright bows, and a bracing bow pivoted to both the upright bows, substantially as set forth.

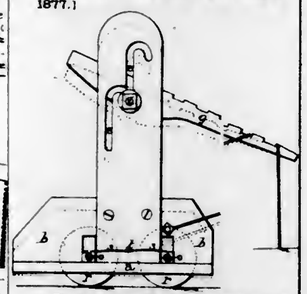
2. The combination, with the socket-piece *c*, of bow *a* and spring-latch a^2, substantially as and for the purpose set forth.

3. The combination, with socket-pieces *c* and c^1, of bow *a*, provided with spring-latch a^2 and shoulder a^3, bow a^2 provided with shoulder a^4, and bow *b*, substantially as and for the purposes set forth.

191,892.



191,894. LIFTING-JACKS. W. J. M. Batchelder, Honey Creek, Ind. [Filed May 11, 1877.]

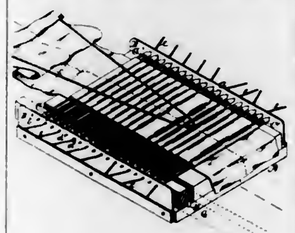


1. The lever *g*, provided with a support at its smaller end, for the purpose of keeping it raised above the ground, substantially as set forth.

2. The combination of the axles *o*, wheels *r*, board *b*, having slots therein, and springs *s*, substantially as specified.

3. A lifting-jack having its frame provided with vertical slots, and which is depressed by the weight applied to the end of the lever, so that the jack will settle down and rest solidly upon the ground, and then rise upward, by means of springs, as soon as the weight is removed, so as to rest upon the wheels, substantially as set forth.

191,895. PLAITING-MACHINES. Leonard B. Berrien, Galesburg, Ill. [Filed Apr. 18, 1877.]



1. In a plaiting-machine, the plaiting-bars constructed with a longitudinal slot, *c*, in each bar, substantially as and for the purpose specified.

2. Longitudinally-slotted plaiting-bars C, having a crank, *c*, on their ends, substantially as described, and for the purpose specified.

3. Longitudinally-slotted plaiting-bars C, having a journal, *d*, on each end, combined to operate with frame-bars B B and a base, A, substantially as and for the purpose specified.

4. The locking-bar G, arranged to operate with the slotted plaiting-bars C, base A, and bars B, in which the bars C are journaled, substantially as described, and for the purpose specified.

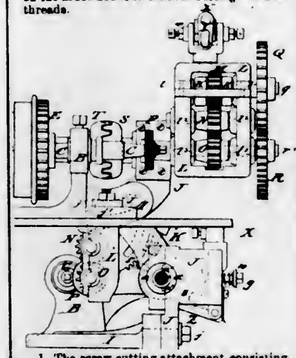
5. In combination with slotted plaiting-bars C and the frame in which they are mounted,

an actuating-bar, G, for rotating them successively, substantially as and for the purpose specified.

6. The actuating-bar G, having fingers *g' g''* and recess *g* at one end, arranged for operation with the pivoted slotted bars C, substantially as described, and for the purpose specified.

191,896. MACHINES FOR CUTTING SCREW-THREADS. Louis Bollmann, Vienna, Austria. [Filed Jan. 3, 1877.]

Brief.—A machine to be attached to the shear of a lathe, and deriving its power from the lathe-pulley through the medium of a universal clutch-joint. The attachment consists of a frame, to which is hinged a lateral arm, that carries hinged to its outer end a pendent frame, in which are journaled two cutter-arbors. This frame is adjustable to different inclinations in relation to the lateral arm by a rack and worm-screw, and the outer end of the arm and with it the arbor-frame are adjustable to different degrees of elevation by a long screw working in swiveled nuts. A spirally-toothed revolving cutter attached to the lowermost arbor cuts threads upon the external surface of a tube or rod attached to the lathe, or a similar, but smaller, cutter placed on the arbor above is used for cutting internal threads.



1. The screw-cutting attachment, consisting of the bed-plate I, main support J, adjustable arm K, movable cutter-carrying frame L, the arm K and frame L being adjusted to the work by a toothed segment, 5, and screw-spindle W, and by universally-jointed crank screw-spindle X, substantially as specified.

2. The combination of supplementary revolving shaft G of lathe, connected by a universally-jointed clutch-wheel mechanism S T, with shaft *r'* and the cutter-shaft-revolving gear-wheels, substantially as and for the purpose described.

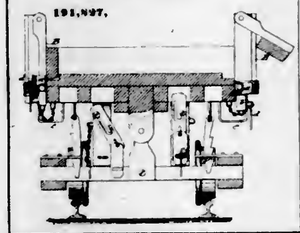
3. The combination of toothed and slotted segment 5 of frame L with screw-spindle W and clamp-screw V, to adjust and lock cutter-carrying frame L, substantially as set forth.

4. The combination of pendent frame L, pivoted arm K, and fixed support J with universally-jointed screw-spindle X, turning in supports of frame L, and support J, to raise or lower arm K and frame L, to work as described.

5. The combination of arm K, having recess 8 at rear part, with locking-key *g* and fastening-screws 10 of support J, to support movable frame for internal work, as described.

6. The combination of arm K with spring-catch Z of support J, to hold arm K and frame L in position against lateral displacement, substantially as set forth.

191,897.



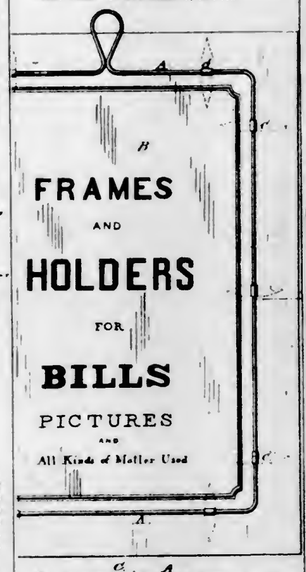
191,887. DUMPING-CARS. H. S. Bowar, Mulberry Grove, Kans. [Filed Mar. 24, 1877.]

1. The combination, with side board B, of the latch *a*, pivoted rest *b*, and cross-pin *d*, as and for the purpose described.

2. The combination, with a dumping car-body supported on central and side posts, of the tilting-bars F, hung to staples *e*, and detachably locked by cross-pins *e'*, as and for the purpose specified.

3. The combination of the car-body, having pendent rack-bars, with the slotted guide-plates of the track-frame, to lock the car in a tilting position for dumping the load, substantially as and for the purpose described.

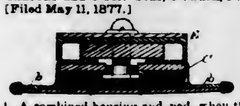
191,888. APPARATUS FOR FRAMING BILLS, SHOW-CARDS, &c. O. C. Brown, Cardington, Ohio. [Filed June 6, 1877.]



1. The method of framing, temporarily for exhibition, bills, show-cards, or pictures, by means of the frame A and spring-fasteners C, constructed and arranged for operation substantially as described.

2. The combination of the frame A with a bill, card, or picture, B, and the flexible or spring-fasteners C, substantially as and for the purpose hereinbefore set forth.

191,889. HARNESS-SADDLES. Edwin R. Cahoone and Noble Teas, Newark, N. J. [Filed May 11, 1877.]



1. A combined housing and pad, when the same is constructed with the housing under the pad, as shown and described.

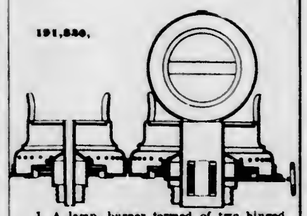
2. In combination with a combined pad and housing, with the housing under the pad, an under plate adapted to permit the terret and screw-nuts to be removed or replaced, all substantially as shown and described.

3. In combination with a pad and housing, in which the housing is below the pad, a tree-frame inside said pad, all substantially as shown and described.

4. The tree E, constructed with edges turned upward, as shown in Figs. 8 and 9, combined with the pad-leather *b e* and plate C, as set forth.

191,890. LAMP-BURNERS. Jas. Cain, Pittsburg, Pa. [Filed May 21, 1877.]

191,890.

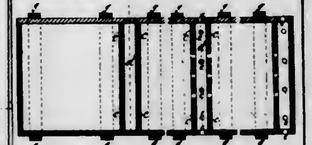


1. A lamp-burner formed of two hinged sections, which are split diametrically and longitudinally through the wick-tube, substantially in the manner described, and for the purpose specified.

2. A lamp-burner made of two hinged sections of equal size, each having a section of the wick-tube which is split through its entire length, as described.

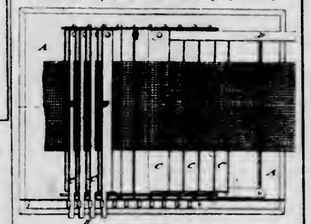
3. A lamp-burner made of two sections, being split diametrically and length-wise through the wick-tube, and with fixed or removable ratchets, and hinged at one side and locked at the opposite side, substantially in the manner described, and for the purpose specified.

191,891. PACKING-CASES. William Carter, Masham, England. [Filed Apr. 7, 1877.]



The packing-case divided up into sections by partitions *c*, and intermediate spaces *d*, and provided with the battens *g*, substantially as set forth.

191,892. PLAITING-MACHINES. J. B. Chapin, New York, N. Y. [Filed May 5, 1877.]

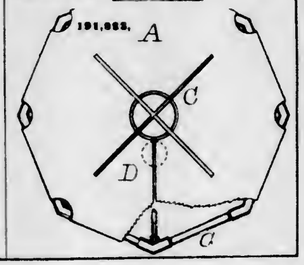


1. The combination of a main board, having hinged folding-plates and needles pivoted to the latter, with a detachable side strip, having needle-locking catches or hooks, substantially as and for the purpose set forth.

2. The combination of the main board A, having a wedge-shaped strip, with the hinged folding-plates C and needles D pivoted to one end of the plates, substantially as specified.

3. The combination of the main board A, having hinged folding-plates C and needles D pivoted thereto, with a spring-actuated tension-rod, E, substantially as and for the purpose specified.

191,893.

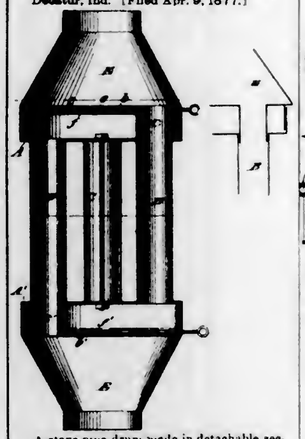


191,833. FRUIT-GATHERERS. I. Clark, Tippecanoe City, Ohio. [Filed June 4, 1877.]

Brief.—The frame is pivoted, and supported by legs of any desired length. The tube in the center, through which the fruit is emptied, is crossed by two divisions of the canvas at right angles, to prevent the fruit approaching from the sides from coming in contact.

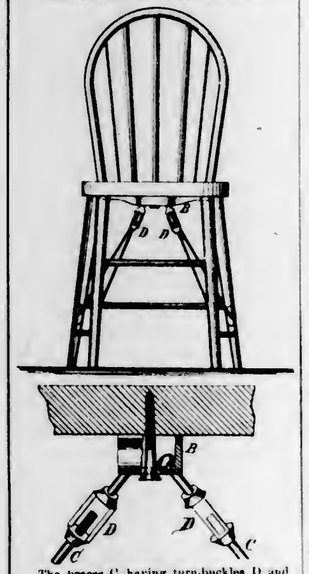
The canvas A, having divisions C, dividing the central tube, in combination with the frame composed of the rods G and couplings B, provided with legs F, substantially as set forth.

191,834. STOVE-PIPE DRUMS. Jacob Closs, Decatur, Ind. [Filed Apr. 9, 1877.]



A stove-pipe drum made in detachable sections, consisting of the heads A A', the pipes B C D, and the conical end-pieces E E, the latter having apertured heads *b b'*, and dampers *f f'*, as shown and described.

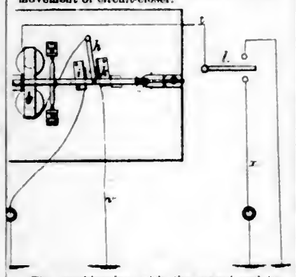
191,835. CHAIR-BRACES. Jas. W. Collins, Laramie City, Wyo. [Filed Jan. 29, 1877.]



The braces C, having turn-buckles D and plates *e*, in combination with the cross-piece B having a central socket for receiving the heads of the said braces, substantially as herein shown and described.

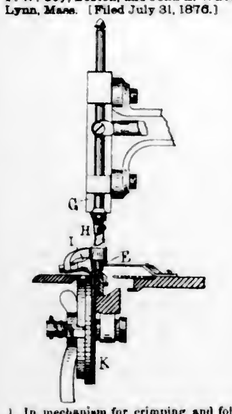
191,836. ELECTRICAL RAILWAY-SIGNALS. Jos. I. Conklin, Jr., New York, assignor to himself and Chas. A. Dresser, Brooklyn, N. Y. [Filed Nov. 14, 1876.]

Brief.—Movement of circuit-closer in one direction closes circuit of opposing battery *m*, thus operating signal, which closes circuit of the other opposing battery *p*. Movement of circuit-closer in other direction breaks circuit of battery *m*, leaving battery *p* free to act, which, in operating signal, breaks its own circuit and closes ground-connection, thus providing path for current from battery *m* on next movement of circuit-closer.



The combination, with the signal and its circuit-changer *h*, of the battery-connections *s* and *x*, ground-connections *r w*, single main line *t*, and circuit-changer *l*, substantially as and for the purposes set forth.

191,837. MACHINERY FOR FOLDING AND CRIMPING LEATHER. Edward Corbett and F. W. Coy, Boston, and John E. Wheeler, Lynn, Mass. [Filed July 31, 1876.]



1. In mechanism for crimping and folding leather and other materials, the work-support A, raised above the the table, curved substantially as shown, and adapted to serve as an anvil for the reciprocating cutter B, in combination with the feeding-rolls I K, whereby the edge of the material to be crimped is turned upward from the table as it feeds and is cut, substantially as described and shown.

2. In a machine for cutting and crimping the edge of leather and other materials, and in combination with the curved cutting block or anvil A, the cutting-tool B, having its cutting-edge formed oblique to its vertical edge-lines, to coincide with the curve of the cutting-block at the point of contact therewith, substantially as described and shown.

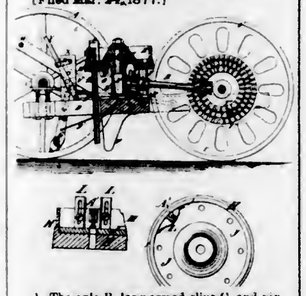
3. In a machine for crimping and folding the edge of leather or other material, the combination of the jaw C, spring D, friction-head E, and hammer H with the table or bed-plate, substantially as shown and described.

4. In a machine for crimping and folding the edge of leather and other material, the combination of the grooved feed-roll K, presser I, constructed and arranged to act in conjunction with said roll K, and vertically-reciprocating slitting-tool B with the folding-jaw C and work-support A, all arranged to feed, crease, slit, and fold the edge of the work, substantially as described and shown.

5. In a machine for crimping and folding the edge of leather and other materials, the combination of work-support A, reciprocating cutter B, folding-jaw C, friction-hammer E, and contact-hammer H, all combined and arranged to operate substantially in manner as described and shown.

6. In mechanism for crimping and folding the edge of leather and other material, the combination of the folding-jaw C, hammer E, head H, and the reciprocating bar or carrier, all constructed and arranged to operate substantially in manner as described and shown.

191,838. COMBINED POTATO AND CORN PLANTER. Joseph Custer, Goshen, Ohio. [Filed Mar. 24, 1877.]

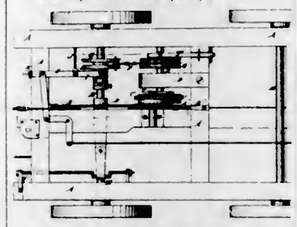


1. The axle B, long-armed clips C, and pivoted braces *b'*, in combination with planter-frame D, pilot-wheel U, and hopper H, substantially as described.

2. The combination, with frame D and sliding hopper H, of the dropping-plate J having bevel-wheel O, the shaft K having gear-wheels Q S, and the concentric wheels T T on the side of ground-wheel U, as and for the purpose set forth.

3. The combination, with hopper H, of the dropping-wheel J, guard L, and knife M, as and for the purpose specified.

191,839. CAR-STARTERS. Andw. J. Curtis, Monroe, Me. [Filed Apr. 9, 1877.]

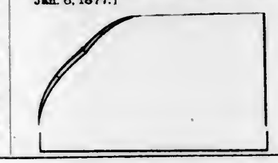


1. The combination of the clutch H, the chain-wheels G Q, the chain P, the coiled spring D, the pawl and ratchet-wheel V, and the gear-wheels U B, with each other, and with the axle E and the frame A of a car, substantially as herein shown and described.

2. The combination of the clutch H, the chain-wheels G Q, the chain P, the coiled spring D, the pawl and ratchet-wheel A, the gear-wheels U B, and the double gear-wheel C C', with each other, and with the axle E and the frame A of a car, substantially as herein shown and described.

3. The combination of the lever-pawl E', the spring F', and the push-pin G', with the gear-wheel B of the axle E, substantially as herein shown and described.

191,840. FELTED FABRICS. A. M. Daniels and S. I. Tuttle, Hartford, Conn. [Filed Jan. 6, 1877.]



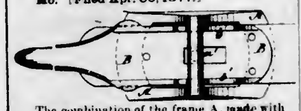
A felted fabric composed of two faces of raw silk with the natural gum remaining in it, and an interior filling of cotton or its equivalent, substantially as herein described.

191,841. MARKING PLUG-TOBACCO. David W. De Forest, Brooklyn, assignor to Buchanan & Lyall, New York, N. Y. [Filed Apr. 26, 1877.]



The herein described improvement in permanently printing or embossing plug-tobacco in the process of its manufacture, consisting in compressing the plugs upon interlaid embossing-plates, that remain between the plugs, after pressure, until the tobacco sets and hardens, so as to produce a permanent and legible mark in the surface of the tobacco, substantially as set forth.

191,842. COMBINED SNAP-HOOK AND BUCKLE. Francis J. Deisz, Pierce City, Mo. [Filed Apr. 30, 1877.]



The combination of the frame A, made with arched side bars and having a rigid tongue, *a'*, attached to its central cross-bar, the plate B, slotted to receive the tongue *a'*, and having inclined flanges formed upon its side edges, and the snap-hook *c' c'* formed upon the forward end of the said plate B, substantially as herein shown and described.

191,843. PYROTECHNIC SIGNAL-CARTRIDGES. Jacob John Detwiller, Jersey City, N. J. [Filed Feb. 26, 1877.]



1. The pyrotechnic signal herein described, consisting of a combustible material formed into a single mass or star capable of emitting one colored stream of light when propelled by an explosive charge of gunpowder, in connection with a primed and charged cartridge-shell adapted for use in an ordinary fire-arm, as and for the purpose set forth.

2. The herein-described endless fuse for pyrotechnic stars or signal-balls, consisting of a thin cotton wick saturated with a combustible fluid or varnish and wound continuously around the signal-ball, as and for the purpose set forth.

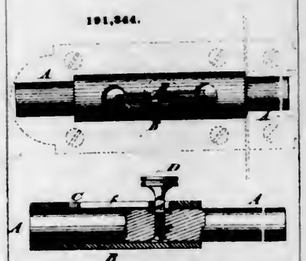
3. The cartridge-shell having projections formed on the end to indicate the color of the signal at night, as herein set forth.

191,844. DOOR-BOLTS. A. A. Dennett, New Britain, Conn. [Filed May 5, 1877.]

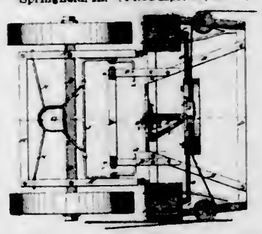
Brief.—The thumb-piece of a sliding bolt is provided with a cross-bar, which, by a half-turn, engages in enlarged openings of the bolt-cases, and serves to lock the bolt either retracted or projected.

The combination of the thumb-piece D, having cross-bar *d* and shank or spindle *e*, with the sliding bolt A and tube B, having openings C C and slot *c*, said thumb-piece being capable of receiving a half-turn in opposite directions, to lock or unlock the bolt, as and for the purpose set forth.

191,844.



191,845. SEED-PLANTERS. M. N. De Vears, Springfield, Ill. [Filed Apr. 19, 1877.]



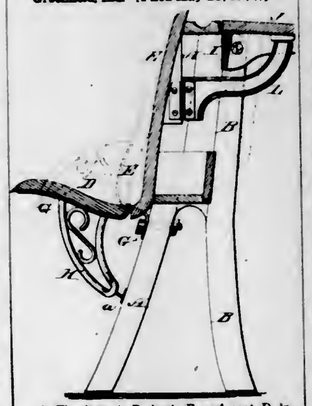
1. In a two-frame seed-planter, the combination of the lever-rod J with the pivoted or flexibly-supported seat G, having its front support on the lever-rod for raising or lowering the front frame, substantially as herein set forth.

2. In a seed-planter, the combination of the rear frame A, the front carriage D, flexibly connected thereto, and having hounds D', with foot-rests *a*, the seat G, with flexible supports H and rigid supports I, and the bent pivoted cross-bars J, having its ends forming the arms *d d*, substantially as and for the purposes herein set forth.

3. The oscillating cogged segmental dropping-slides L L, connected or geared together by the centrally-pivoted pinion *h*, as and for the purposes set forth.

4. The combination of the geared oscillating slides L L, arms *f f*, connecting-bar O, levers V, S, and N, and the cam-wheel P, all constructed and arranged to operate substantially as and for the purposes herein set forth.

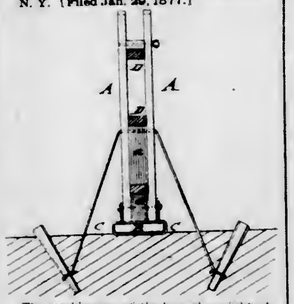
191,846. SCHOOL-DESKS. Henry H. Hibreg, Greenfield, Ind. [Filed May 23, 1877.]



1. The legs A B, back E, and seat D, in combination with the strap-hinges G G' and the brackets H, the brackets being secured to the bottom of the seat, and provided with tenons *b*, and the legs A provided with cushions *a*, substantially as and for the purpose set forth.

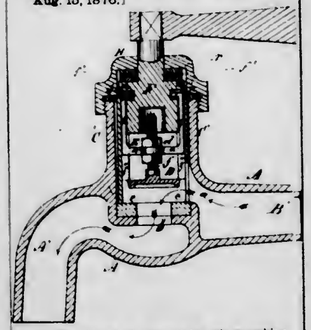
2. The combination, with the back and end pieces of a school-desk, of the desk-top J, with cleat I, and the hinged supporting-arms L L, arranged to swing inward laterally out of the way, allowing the top J to swing downward, constructed and arranged substantially as and for the purpose set forth.

191,847. FENCES. Jas. Garrett, Pembroke, N. Y. [Filed Jan. 29, 1877.]



The combination of the braced uprights A A, intermediate blocks *a*, shoe B, wire link C, and panels D, as shown and described, for the purpose specified.

191,848. FAUCETS. George Gorman, New York, N. Y., assignor of one-half his right to William G. Bent, same place. [Filed Aug. 15, 1876.]



1. The barrel A, comprising the combination of the bib A', the tail B', and the body C', and constructed water-way *b*, and packed or valve-seat *c*, with the internal elastic sleeve G, serving as a guide for the valve D, the hanger E, carrying the said valve, and the actuating-block F, constructed with the cam-groove *g*, the said parts being constructed and arranged, in relation with each other, substantially as and for the purpose herein set forth.

2. The combination of the hanger E, arranged within the body or vertical part C' of the barrel A, and for operation by the actuating-block F, with the nut *d* and screw *f*, substantially as and for the purpose herein set forth.

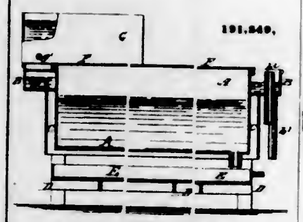
3. The combination, with the barrel A and the actuating-block F, arranged to actuate the valve D by means of the cam-grooves *g*, as set forth, the screw-cap H, the duplicate packing-rings *n*, and the intermediate metallic washer *r*, all substantially as and for the purpose herein set forth.

4. The combination, in a faucet substantially as herein set forth, of the sleeve G and the packed valve-seat *c*, substantially as and for the purpose herein set forth.

191,849. MILK-COOLERS. Rollin C. Greene, Potsdam, N. Y., assignor to himself and N. P. Chaney, same place. [Filed Dec. 18, 1876.]

Brief.—A reservoir surrounded by an air chamber, which also extends beneath it. Beneath this is an independent tank or basin. Near and in line with the top of the reservoir, on all sides, is a continuous tank or trough, projecting horizontally beyond the rest of the apparatus.

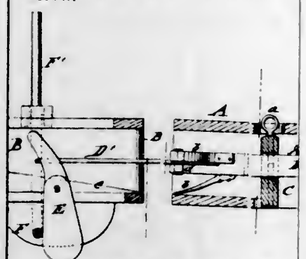
191,849.



1. The combination, with the milk-pan A, of the top water-tank B, and the surrounding air-chamber C, below said tank, substantially as and for the purpose set forth.

2. The milk-pan herein described, consisting of the pan A, top water-tank B, surrounding air-space C, bottom tank E, feed-tank G, and supporting-frame D, as and for the purpose set forth.

191,850. CAR-COUPLINGS. David R. Halter, Lee's Cross Roads, Pa. [Filed May 28, 1877.]

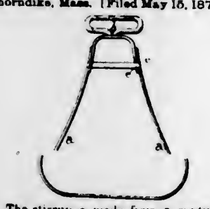


1. The combination of draw-head A, having swinging and spring-acted coupling-link, with the draw-head B, having pivoted and weighted draw-lever E and laterally-sliding coupling and uncoupling pin F, substantially in the manner and for the purposes set forth.

2. The combination of draw-head A, having pivoted guide-frame C, with the adjustable link-stock, having cushioned side and bottom springs, and with the locking-pin *a*, passing through guide-frame and stock, substantially as specified.

3. The combination of link-stock D, having side grooves, with the forward-extending coupling-link D′ and fastening-band *d*, substantially as described.

191,851. STIRRUPS. Sumner J. Harkness, Thorndike, Mass. [Filed May 15, 1877.]



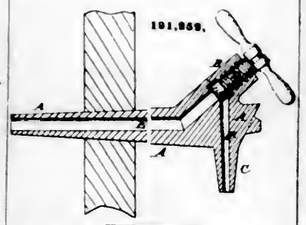
1. The stirrup *a*, made from a continuous sheet of steel, its upper portion being adapted to spring open and become released from the stirrup strap, substantially as shown and described.

2. The stirrup *a*, made from a continuous sheet of steel, and adapted to open outward at its upper portion, in combination with the attachment *b*, having the studs or projections *c* for catching in the openings in the ends of the stirrup, substantially as described.

191,852. FAUCETS. Ralph Hathaway, Memphis, Tenn. [Filed Apr. 2, 1877.]

A faucet for barrels and vessels, containing liquids, consisting of the tube A B, having obtuse-angled channel E, the perpendicular channel F, and the rubber valve on end of screw, all as shown and described.

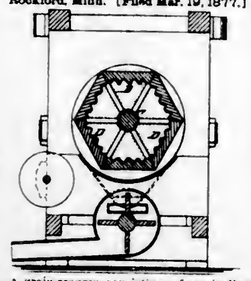
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191,853. PROCESSES FOR TREATING SEWAGE. F. Hille, Chiswick, England. [Filed Nov. 9, 1876.]

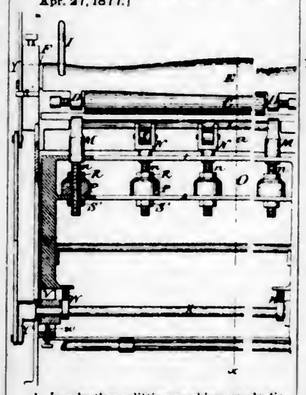
The hereinbefore-described process of clarifying, deodorizing, and purifying sewage, which consists in treating the sewage with a disinfecting compound composed of a mixture of sea-water, or its specified equivalent, lime, and tar, substantially as set forth.

191,854. GRAIN-SCOURERS. Jas. S. Hillyer, Rockford, Minn. [Filed Mar. 19, 1877.]



A grain-scourer consisting of an inclined revolving cylinder, the inner face of which is longitudinally corrugated and covered with a coating of emery, as shown and described.

191,855. MACHINES FOR SPLITTING LEATHER. J. Hodskinson, Salem, Mass. [Filed Apr. 27, 1877.]



1. In a leather-splitting machine, an elastic metal roll, L, supported by end bearings M, and intermediate supports N, which bearings and supports are adapted to yield independently, as set forth.

2. A pressure-roll, L, having an elastic metal body, combined with independently-yielding or elastic bearings and supports, and a rigid bar, adapted to support said yielding bearings and supports, as set forth.

3. An elastic metal roll, L, having independently-yielding bearings and supports, combined with a splitting-knife, B, and an upper roll, C, as set forth.

4. The combination of the rigid bar or frame O, the roll L, the posts *s*, nuts R R′, and springs P, as set forth.

5. The yielding supports N, having friction rollers S, in combination with the roll L, as set forth.

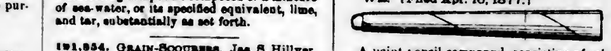
6. The rigid horizontal bar O, supporting the roll L, in combination with means, substantially as described, whereby said bar is adjusted, as set forth.

7. In a leather-splitting machine, a winding-drum, *a*, connected to the driving-shaft through an idle-wheel, *e*, located on a pivoted lever, *f*, which lever is connected to a weighted piece, *m*, in such manner as to be turned on its pivot by the downward movement of the piece *m*, and thus disconnect the wheel *e* from the drum *a*, as and for the purpose set forth.

8. The idle-wheel *e*, combined with the wheels *b c*, lever *f*, weighted piece *m*, and intermediate connections, as set forth.

9. The guard or flange *o*, combined with the connecting-rod *b* and piece *m*, as set forth.

191,856. PAINT-PENCILS OR CRAYONS. W. J. Holton and James H. Field, Milwaukee, Wis. [Filed Apr. 16, 1877.]



A paint-pencil compound, consisting of coloring matter, tallow, and resin, in the proportions specified.

191,857. COMBINED SNAP-HOOK AND BUCKLE. J. R. Hopper, Rochester, N. Y. [Filed Mar. 27, 1877.]



1. A harness-hook having the latch or tongue *y*, and the tongue or lever *t* pivoted on separate axes, as described, and adapted to be operated by the strap without the intervention of a spring, substantially as set forth.

2. In combination with a tongue or latch, *y*, the tongue or lever *t*, having the counter-arm *s*, said latch and tongue being pivoted on separate axes, substantially as and for the purposes set forth.

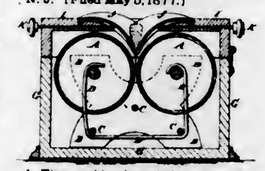
191,858. HORSE-POWERS. D. K. Hungerford, De Witt, Iowa. [Filed May 21, 1877.]



1. In a horse-power, having its endless treadles inclined as described, the shafts C C′, geared to the driving-shaft B by means of pinions *c c′*, and large wheels *b c*, substantially as specified.

2. Inclined treadle-carrying frames K K, adjustable by means of eccentrics *i* on shafts L, substantially as specified.

191,859. ROLLER RAZOR-SHARPENERS. W. T. Jahns and Chas. H. White, Jersey City, N. J. [Filed May 5, 1877.]



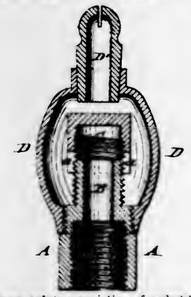
1. The combination of the rollers A, covered with leather and coated with emery flour, the plates B, the rods C, the springs D, the gear-wheels E, and the crank F, with each other, substantially as herein shown and described.

2. The combination, with box G, of the socket L and U-spring M, substantially as and for the purpose specified.

3. The combination of the pivoted, curved, and leather-faced plates J with the slotted cover I and the rollers A, substantially as herein shown and described.

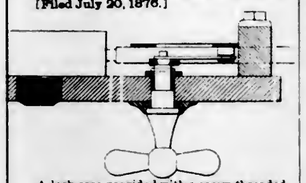
4. The combination of the set-screws K with the slotted cover I and the curved plates J, substantially as herein shown and described.

191,860. GAS-REGULATORS. S. S. Jones, Norristown, Pa. [Filed May 5, 1877.]



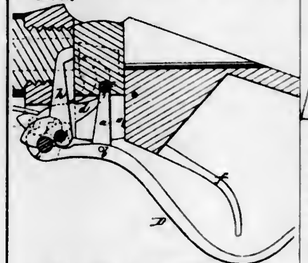
A gas-regulator consisting of socket-tube A, having threaded extension-tube B, side-slotted cap-valve C *a*, adjustable on said extension, and the inclosing-bulb D, the latter connecting with the burner D′, as shown and described.

191,861. DOOR-LOCKS. Thos. F. Keating and Warren H. Taylor, Stamford, Conn. [Filed July 20, 1876.]



A lock-case provided with a screw-threaded escutcheon integral therewith, to pass into and through an aperture in a door for direct attachment of a lock to a door, substantially as described.

191,862. BREECH-LOADING FIRE-ARMS. D. Kirkwood, Boston, Mass. [Filed Mar. 12, 1877.]



1. The ejector A, so constructed and arranged as to be successively acted upon at points on different sides of the center on which it works, and with varying leverage, substantially as and for the purpose set forth.

2. The guard-lever D and breech-block C, connected by a link, *c*, pivoted at one end to the guard-lever, and provided at its opposite end with a stud, *c*, entering a hole in the block, substantially as and for the purpose described.

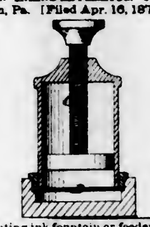
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191,863. ICE-CREEPERS. Chas. A. Kryter, Wheeling, W. Va. [Filed Feb. 9, 1877.]

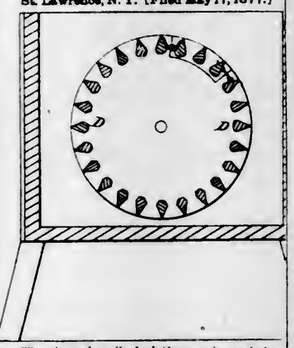
The herein-described ice-creeper, composed of heel-plate A, constructed with ears *a a′*, cross-bar D placed at the ball of the foot, and constructed with ears D′, connecting-bar B fastened to the heel, and ball plates A D, hinged at C, and bent upward to form the bearing C′ for the front of the heel, and fastening heel and foot straps F G, all constructed and arranged to operate substantially as and for the purposes set forth.

191,864. INKING APPARATUS. J. G. Kurtz, Milton, Pa. [Filed Apr. 16, 1877.]



A printing-ink fountain or feeder, composed of a fountain with movable interior piston or pressure plate, bottom feeding cloth or screen, and hermetically-sealing base plate, substantially in the manner and for the purpose set forth.

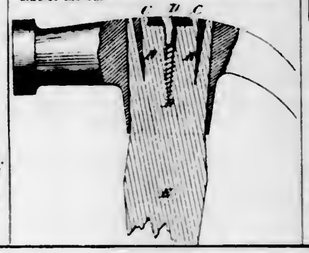
191,865. WASHING-MACHINES. A. P. Ladd, St. Lawrence, N. Y. [Filed May 17, 1877.]



The above-described clothes carrier or hollow cylinder, provided with ribs or beaters D, rounded or blunt on their inner surfaces, for rubbing the clothes, and having sharp edges set radially outward, so as to direct the currents of water inward upon and through the clothes, and acting equally well when the stroke or motion of the machine is reversed, substantially as set forth.

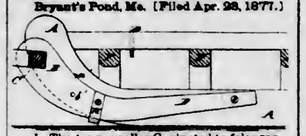
191,866. TOOL-HANDLES. Lazare Landeker, San Luis Obispo, Cal. [Filed Feb. 26, 1877.]

Brief.—Hammers, axes, and similar tools provided with eyes, can be secured to their handles by means of a perforated bar having beveled edges, and fitting in a dovetail groove in the tool, and fastened in position by a screw passing through the bar into the handle. The handle can be tightened by wedges upon either side of the bar.



The combination, with sockets and handle, of the cross-bar C and screw D flush with the end of handle, as shown and described.

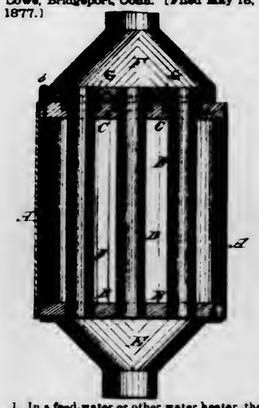
191,867. SLED-BRAKES. E. M. Lawrence, Bryant's Pond, Me. [Filed Apr. 23, 1877.]



1. The tongue-roller C, pivoted to false runners B, the latter being rear-pivoted to runners A, as shown and described.

2. The combination of false runners B, pivoted at the rear to runners A, the said runners A B having, respectively, the holes *a′ b′*, to receive pins, as and for the purpose specified.

191,868. FEED-WATER HEATERS. William Lowe, Bridgeport, Conn. [Filed May 18, 1877.]

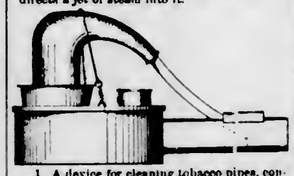


1. In a feed-water or other water heater, the combination of the shell A with heads B and C, the straight tubes D fastened permanently in one head, and passing through the other head loosely, and also through a follower, with packings G surrounding the tubes, substantially as shown and described, whereby the tubes are allowed to expand and contract through said packings, head, and follower, as herein set forth.

2. The combined steam-nozzle and follower F, in combination with the head C, countersinks *c*, tubes D, and packings G, substantially as and for the purposes herein set forth.

191,869. DEVICES FOR CLEANING SMOKING-PIPES. Shubael K. Luce, Attleborough, Mass. [Filed Apr. 26, 1877.]

Brief.—The pipe is placed over a device that directs a jet of steam into it.



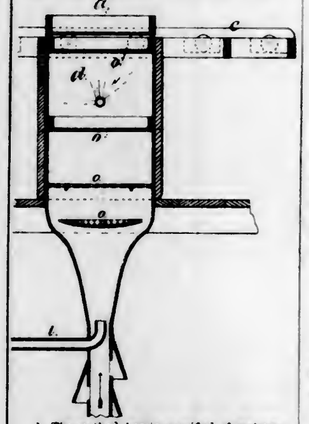
1. A device for cleaning tobacco pipes, consisting of a water-receptacle in which steam is generated, and an outlet for the steam, and a guide for the same, to direct it to the bowl of the pipe or pipe-stem, substantially as and for the purpose set forth.

2. A device for cleaning tobacco-pipes, consisting of a water-reservoir, a trough for receiving the drippings from the pipe, and a packing around the outlet for the steam, substantially as and for the purpose set forth.

3. A device for cleaning tobacco-pipes, consisting of a water-reservoir, a trough for receiving the drippings, a packing around the steam-outlet, and a yielding bail for holding the bowl in position over the steam-outlet, substantially as and for the purpose specified.

191,670. MANUFACTURE OF TOBACCO. D. C. Lyall, Brooklyn, N. Y. [Filed Mar. 24, 1877.]

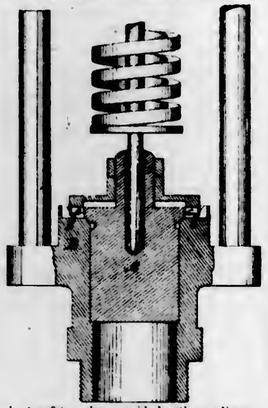
Brief.—The leaf-tobacco in the tray is taken from the drying-house to the steaming apparatus without handling.



1. The method herein specified of moistening tobacco after it has been dried by exposing the same to the direct action of moist steam previous to its removal from the drying-trays, substantially as set forth.

2. The steam-box *d*, provided with air-inlets and equalising-septums *n*, in combination with the slideways *c* and trays *s*, containing the tobacco to be moistened, substantially as set forth.

191,671. STEAM SAFETY-VALVES. Wm. B. Mack, Boston, Mass. [Filed Feb. 17, 1877.]



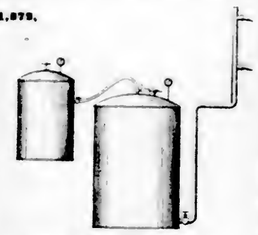
1. A safety valve provided with an adjustable lip, the diameter of which is greater than the diameter of a projecting lip on the valve-seat, which forms a wall to the plane adjacent to the valve, in combination with said plane and lip, substantially as and for the purpose described.

2. A valve-seat having a plane extending from the point of escape of steam, and provided with a projecting lip to direct the steam upward, and an intermediate lip, as and for the purpose set forth.

191,672. METHOD OF EXTINGUISHING FIRES. Chas. M. Martin, New York, N. Y. [Filed Mar. 7, 1877.]

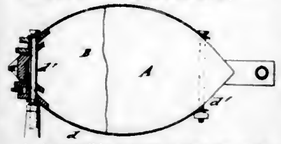
Brief.—The smaller vessel may be an ordinary gas-generator. The larger contains a liquid extinguishing solution. If the propulsive power of the former become exhausted, the latter may still be available to a certain extent.

191,673.



The method of extinguishing fires herein described, consisting in projecting upon the fire an extinguishing compound having a low propulsive power, by means of a fire-extinguishing gas having a high propulsive power, substantially as and for the purpose set forth.

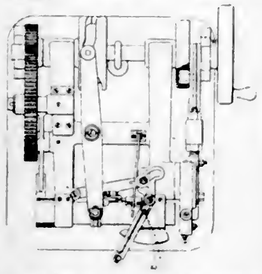
191,673. SAD-IRONS. Thos. H. McCaffrey, Providence, R. I., assignor to himself, H. J. Gorman, and William J. Armstrong, same place. [Filed Apr. 23, 1877.]



1. A reversible sad-iron having one of the cross-bolts *d'* extended to the outside, and provided with a handle, as and for the purpose described.

2. The combination of the sad-irons A B, having connecting end posts, with lateral fastening-bolts and perforated sides, substantially as described.

191,674. MACHINES FOR UNITING THE SOLES TO UPPERS OF BOOTS AND SHOES. Gordon McKay, Cambridge, Mass. [Filed Nov. 11, 1875.]



1. The combination, with a semi-rotating carrier, of a shifting strip-box, substantially as described.

2. A semi-rotating and reciprocating carrier and a locking device, in combination with a shifting strip-carrier adapted to contain nail-strips of different widths, substantially as described.

3. A semi-rotating carrier and shifting strip-box, provided with two passages to contain nail-strips of different widths, and mechanism for shifting it, in combination with nail-cutting mechanism and a nail-driver, adapted to cut a nail at will from either strip and drive it before another nail is cut from the strip.

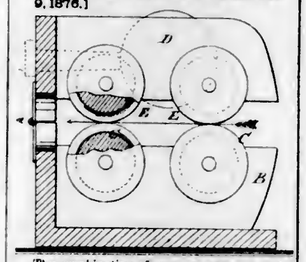
4. A strip-box and friction devices to engage the strip, in combination with a gage to determine the forward position of the strip and the width of the nail to be cut, and with cutters adapted to hold the strip as the strip-box moves from the cutters, substantially as described.

5. A rotating carrier and a shifting strip-box, in combination with mechanism adapted to shift the strip-box to insure the presentation of the nail-strip to the cutters, to sever a nail from the strip with the head or enlarged part of the nail next to be driven upermost, substantially as described.

6. A shifting nail-strip box and nail-cutting mechanism, combined with the head or cutter-housings, provided with passages for the reception of the nail-strip not being acted upon by the cutter, substantially as described.

7. A nail-receiving groove or chamber adapted to receive the end of a nail-strip, in combination with cutters and a gage to determine the position of the strip and the width of the nail to be cut, substantially as described.

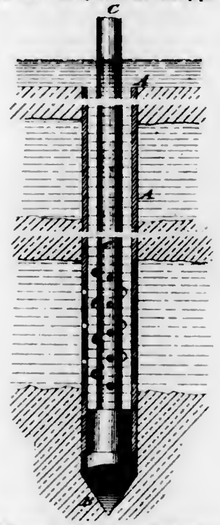
191,675. ROLLS FOR REDUCING TUBES. W. McKenzie, New York, N. Y. [Filed Dec. 9, 1876.]



The combination of two or more grooved rollers, C E, the fixed support B, and the hinged frame D, substantially as herein shown and described.

191,676. DRAINS. Geo. C. Mesier, Dunellen, N. J. [Filed May 12, 1877.]

Brief.—The inner pipe perforated at the bottom, and extending above the surface of the water to be drained, allows the air to escape from the lower porous stratum and the water to flow freely down the outer pipe.



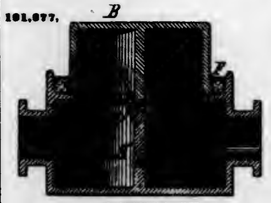
The drain-tube A, having a drive-end, B, and central air-pipe C, the latter extending with its open end above that of the former, and both perforated near the bottom, as and for the purpose specified.

191,677. BY-PASS VALVES FOR GAS-WORKS. Peter Munsinger, Philadelphia, Pa., assignor to Morris, Tasker & Co., (limited,) same place. [Filed Oct. 10, 1876.]

Brief.—The surfaces of the cap and its seat which come in contact are ground and polished to form a tight joint, and a liquid seal is used to prevent leakage of gas in case of excessive pressure.

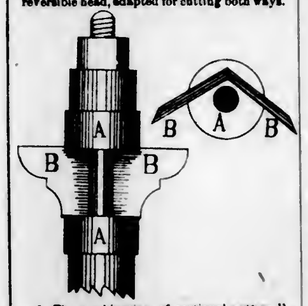
The combination, in a by-pass valve for gas-works, of the pivoted cap B with the liquid-seal F, substantially as described.

191,677.



191,678. CUTTER-HEADS. C. R. Patterson, Pittston, Pa. [Filed Feb. 24, 1877.]

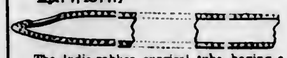
Brief.—Two adjustable flat or curved knives are secured between grooved collars upon a reversible head, adapted for cutting both ways.



1. The combination of sectional cutters B B with collars A A, arranged to cut both ways, substantially as and for the purpose described.

2. A reversible cutter-head, with adjustable straight knives, constructed and operating substantially as shown and described.

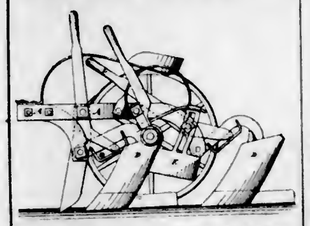
191,679. INDIA-RUBBER SURGICAL TUBES. Edward Pfarre, Brooklyn, N. Y. [Filed Apr. 7, 1877.]



The India-rubber surgical tube having a rounded point, and an opening or eye having rounded polished edges, as a new article of manufacture.

191,680. COMBINED DITCHING, GANG, AND SHOVEL PLOW. August Piroh, Denver, Colo. [Filed May 21, 1877.]

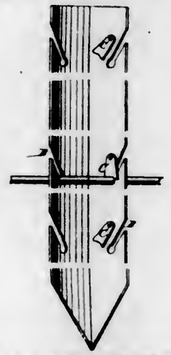
Brief.—Two front plows, side by side, turning furrows from each other, and two rear plows cutting furrows outside the former, each plow raised by its own lever; surface-scrapers to throw outward the earth from the center plows, the latter adjusted automatically with the crank-axles. The rear plow-beams adjust laterally, and may be removed, or the plows removed from one side and the other rear plow shifted to form a gang-plow.



1. In a sulky-plow adapted for ditching purposes, the combination and arrangement, with the frame A, of the plows D, each plow being separately adjustable, the adjustable scrapers E, and the levers L O, for raising the plows, substantially as described.

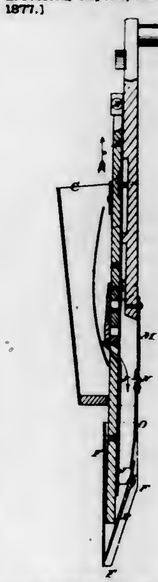
2. In combination with the frame A, the cross-rods R R, arranged to support the rear plows and their lifting-levers, and adjust the same laterally thereon, so that by a removal of the front and rear plows on one side the remaining rear plow can be shifted, so as to adapt the machine for a gang-plow.

191,681. IRON POSTS FOR WIRE FENCES. John Plane, Belvidere, Ill. [Filed Mar. 24, 1877.]



A wire-fence post having the oblique notches B and the buttons C, the latter pivoted with respect to said notches, as shown and described, for the purpose specified.

191,682. HAND SEED-PLANTERS. Francis B. Preston, Fayette, Mo. [Filed Apr. 2, 1877.]



1. The combination, with plates M N, of spring O, hinged plate P, and plate F, forming the rear side of the passage, as and for the purpose specified.

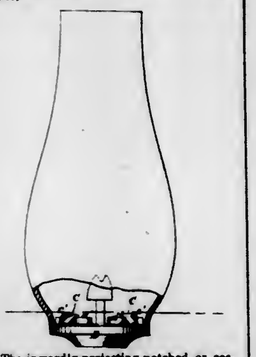
2. The plate M, provided with a toe, as and for the purpose described.

191,683. PROCESSES FOR THE MANUFACTURE OF GAS. Thomas B. Redwood, Fairlawn, Finchley, England. [Filed Aug. 28, 1876.]

1. The herein before-described process of manufacturing coal-gas, which consists in distilling coal and leading the gas so obtained, with vapors generated with it, into contact with copper or an alloy of copper, kept in a highly-heated state, and arranged so as to expose a large extent of surface, substantially as set forth.

2. The herein before-described process of manufacturing gas, which consists in distilling coal, passing a stream of water-gas through the retorts during the distillation of the coal therein, and leading the combined products into contact with copper or an alloy of copper, kept in a highly-heated state, and arranged so as to expose a large extent of surface, substantially as described.

191,684. LAMP-CHIMNEY FASTENINGS. Geo. Richards, Flatbush, N. Y. [Filed May 21, 1877.]



1. The inwardly-projecting notched or sectional flange *c'*, formed around the lower edge of a lamp-chimney to receive springs attached to the top plate of the burner, substantially as herein shown and described.

2. The springs C, attached to the top plate of a lamp-burner, and having outwardly-projecting lugs *c'* formed upon their ends to overlap an inwardly-projecting flange of a lamp-chimney, substantially as herein shown and described.

191,685. INDEXING. David A. Roberts, Columbus, Ohio. [Filed Apr. 23, 1877.]

Brief.—Book is opened at any desired page by placing a blade (provided with a shoulder to bear against the edges of the closed leaves) upon the first leaf, when a slight pressure and a downward movement cause the blade to pass through consecutive slits until a point is reached opposite the desired page-number, seen upon a movable or fixed marginal index.



A book having one slit in each leaf, each succeeding slit being cut a little lower down than the preceding one, as shown and described, to adapt a book to be posted in the manner described.

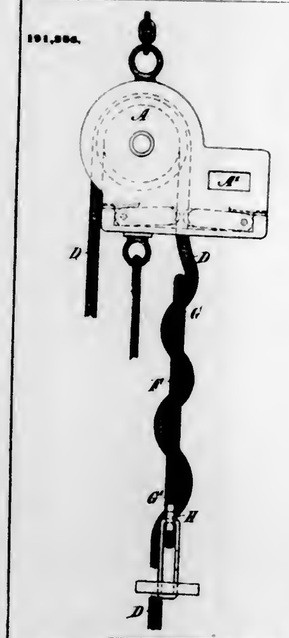
191,686. FIRE-ESCAPES. Joseph Booh and Jules Colas, Montreal, Quebec, Canada. [Filed Oct. 12, 1876.]

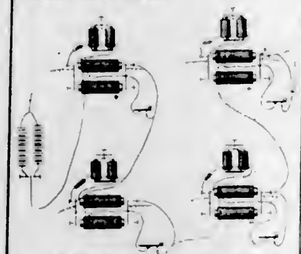
1. The combination, in a fire life-preserving apparatus, of a pulley carried in a box having extensions, in which are pivoted clips or dogs, holding between them a cord, passing over the sheave or pulley, substantially as and for the purposes herein set forth.

2. The combination of the pulley or sheave C, box A, with extension A', line D, clips or dogs E, and bar F, with rings G G', and extensions H H, all substantially as herein set forth and for the purposes described.

191,887. DUPLEX TELEGRAPHS. Charles H. Rudd, Chicago, Ill. [Filed Jan. 20, 1876.]

Brief.—Pole-changer rapidly reversing line-currents. Line-currents pass through armatures and back stops of two polarised relays, one responding to +, other to — currents, which serve to still further subdivide pulsations. By depressing key in shunt around back stop of relay the intermittent currents of the polarity necessary to operate that relay are sent to line without this subdivision, and are then of sufficient length to operate the corresponding polarised relay-armature at receiving end, and give signal.





1. In combination with a relay, the armature of which and its insulated back-stop screw form a part of the main circuit, a key connected in a wire running from the armature to the back-stop screw, substantially as and for the purpose set forth.

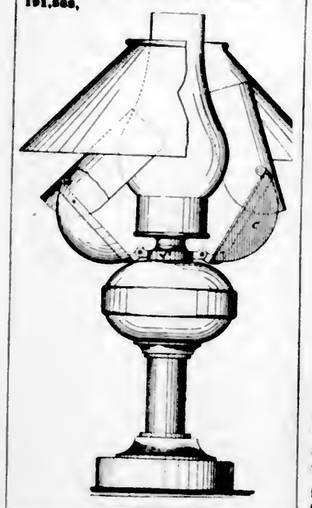
2. A relay consisting of two straight electro-magnets arranged parallel to each other, having helices connected in the same circuit, and wound in the same direction, and having two magnetic armatures at opposite ends of the relays, respectively, in combination with a sounder and local circuit connected through the contact-points of one armature and a key placed in a shunt connecting the other armature to a line, substantially as and for the purpose set forth.

191,889. LAMP-REFRACTORS. A. Schaeffer and A. Pfrunder, Louisville, Ky. [Filed Apr. 30, 1877.]

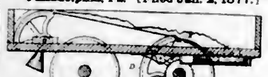
1. The combination, with a lamp, of one or more adjustable refractors, having pivoted and self-adjusting shades, substantially as shown and described.

2. The combination, with a detachable collar fitted to the neck of a lamp, of hinged and adjustable refractors and shades, pivoted to the latter, substantially as described.

191,888.



191,890. CAR-STARTERS. Henry Schreiner, Philadelphia, Pa. [Filed Jan. 2, 1877.]



1. The combination of the sector-lever D, chain H, guide-pulleys I I, double sector J J', and draft-chain L, substantially in the manner and for the purpose set forth.

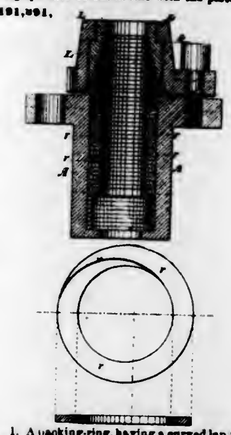
2. The soundless strip K, connected with the under side of the pawls G G, substantially as and for the purpose set forth.

3. The weighted sector N, having a rope, P, in combination with the sector-lever D, for giving a reverse movement to the lever, substantially as set forth.

191,891. PACKING FOR PISTON-RODS, &c. Charles T. Sleeper, Chicago, Ill., assignor of one-half his right to Mary E. Otis; said Otis assignor to George G. Benedict, same place. [Filed Mar. 20, 1876.]

Brief.—The packing-rings are provided with curved lap-joints, to enable them to be contracted as they are forced into the cone. The lateral movement of the cone allows it to adjust itself to the piston-rod should the packing-cylinder be out of line with the piston.

191,891.



1. A packing-ring, having a curved lap-joint, the faces being curved, substantially as shown and described.

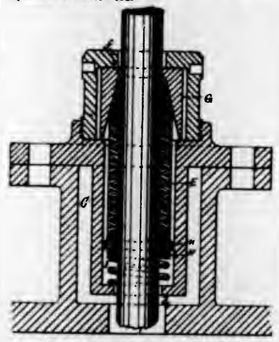
2. A packing-ring, having a curved lap-joint, the curve being eccentric to the ring, substantially as described.

3. The combination, with the cylinder A and laterally-movable cone C, as described, of the series of packing-rings r, adjusted within the cylinder and cone, substantially as specified.

4. The combination, with the cylinder A, cone C, and the series of packing-rings r, of the cone L, having the shoulder e adjusted to bear against a corresponding shoulder on the cone C, substantially as and for the purpose specified.

191,892. STUFFING-BOXES FOR STEAM-ENGINES. Charles T. Sleeper, Chicago, Ill., assignor of one-half his right to George G. Benedict, same place. [Filed Feb. 19, 1877.]

Brief.—The inclined shoulder on the sleeve allows the packing as it is worn to slide up its surface, while at the same time it prevents the packing from being forced into the chamber of the sleeve by the pressure of steam against the followers.

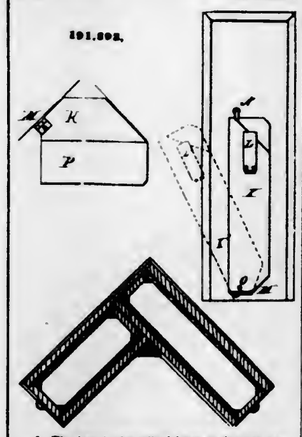


1. The combination, with the stuffing-box C and series of packing-rings E, adjusted within the stuffing-box, of the sleeve G, having the conical chamber to receive the packing-rings as the same are forced from the stuffing-box, and provided with the curved or angular retaining-shoulder f, substantially as and for the purpose specified.

2. The combination, with the stuffing-box C and series of packing-rings E, of the followers H H' and spring J, substantially as and for the purposes specified.

191,893. DESKS. Jos. I. Stewart, Boston, Mass. [Filed May 28, 1877.]

191,894.



1. The herein-described base or drawer section for a corner-desk, the same being made up of the two tiers of drawers at right angles to each other, and adapted to receive and hold the desk proper, or mirror-section, in the manner set forth.

2. In combination with the base-section, composed of two tiers of drawers of unequal lengths located at right angles to each other, the mirror-section having hinged central mirror and writing shelf or leaf attached, substantially as and for the purposes set forth.

3. In combination with the hinged door H, the writing-leaf K P, hinge M, pivoted as at O, and the hinged prop L, the whole being adapted to operate substantially as set forth.

191,895.

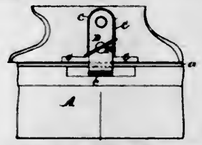


1. As a new article of manufacture, a combined lining and heel-stiffener for boots and shoes, constructed in one piece, substantially as and for the purpose set forth.

2. The combined lining and heel-stiffener for boots and shoes, constructed in one piece, and provided with projection B upon the inner side, substantially as and for the purpose set forth.

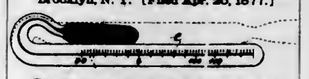
3. In a boot or shoe, the combined lining and heel-stiffener, constructed in one piece, substantially as and for the purpose described.

191,896. WAGON-SEAT LOCKS. Charles B. Stone, Salisbury Mills, Mass. [Filed Apr. 30, 1877.]



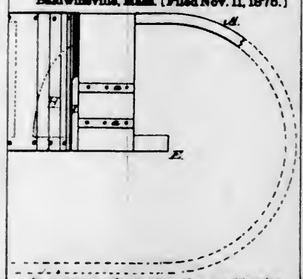
A wagon-seat lock provided with the bevelled nib e, on the lower end of swiveled plate D, the same being arranged to enter a groove in the side board A, and catch under the iron strip a, as shown and described.

191,897. THERMOMETERS. F. A. Stohlmann, Brooklyn, N. Y. [Filed Apr. 26, 1877.]



The thermometer, having a return-bend between the bulb and the index, and having a register in the index portion of the tube, substantially as set forth.

191,898. PULP-ENGINES. Edwin Sumner, Baldwinsville, Mass. [Filed Nov. 11, 1876.]

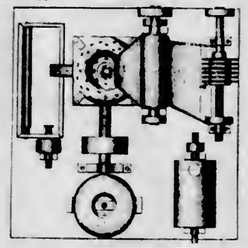


In a paper-pulp engine, the combination with the grinding-roll, the curb A, and the midfallow E, of an inclined transversely arranged chute, adapted to receive the watery pulp thrown up by the roll, and to effect a homogeneous mixture of the stock, substantially as described, and for the purpose set forth.

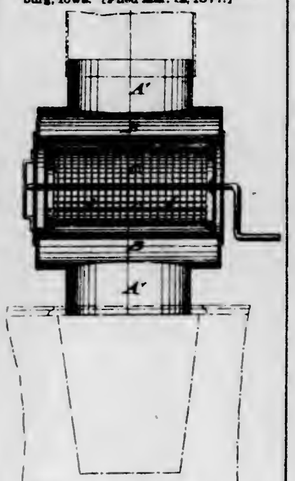
191,899. PROCESSES FOR MANUFACTURE OF PAPER-PULP FROM WOOD. James Taylor, Luzerne, and James T. Outterson, Palmer Falls, N. Y. [Filed Mar. 2, 1877.]

The process for preparing wood-pulp, consisting essentially of cutting the wood crosswise of the grain, crushing it endwise of the grain, then picking it, and then subjecting it to the action of steam-pressure, substantially as herein set forth.

191,900.



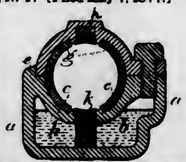
191,900. COFFEE-ROASTERS. George W. Tinsley and Amanda Hackman, Blakesburg, Iowa. [Filed Mar. 12, 1877.]



1. A coffee-roaster, consisting of a drum with pipes A', an interior cylinder with detachable heads, and within the latter a wire-cloth cylinder, arranged substantially as shown and described.

2. The combination of the interior heating-cylinder, having detachable heads, with the revolving roasting-cylinder, whose shaft is supported in center bearings of the heads, and resting against stop-plate of outer head, substantially as herein described.

191,901. BOXES FOR SHAFTING. Joseph B. Tomlinson, Black Hawk, Colo., assignor to himself and Gibbons L. Kelty, Brooklyn, N. Y. [Filed May 7, 1877.]



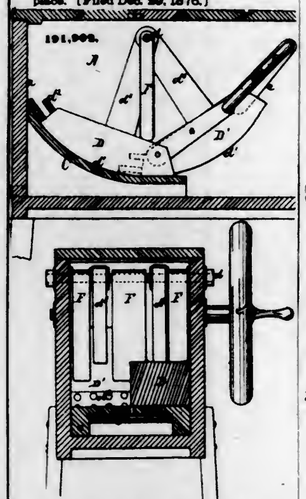
1. The combination, in the journal-box, of the upper bearings g g, pad h between such bearings, the lower bearings e e and pad k between said bearings, the oil-chamber b in the bottom of the shell a, and the spring cut-off plates m n in the recesses at the ends of boxes, substantially as specified.

2. The combination, in the journal-box, of the oil-chamber b, spring-pad k between the bearings e e, and the spring cut-off plates m n, and thin recesses at the ends of the journal-box, substantially as set forth.

191,902. WASHING-MACHINES. John St. Tonge, Williamstown, Mass., assignor of

one-half his right to Jos. St. Tonge, same place. [Filed Dec. 29, 1876.]

191,903.



In a washing-machine having the frame or tank A, the combination of the perforated upwardly-curved concave clothes-board and guideway C, the suspended alternately-reciprocating hammers or beaters D D' having the curved or convex under faces d', and the pins or pegs d^2 set in the upper ends thereof, together with the hinged partition-pieces F, all arranged to operate as and for the purpose specified.

191,904. MILK-CANS. Joseph D. Tudor, Philadelphia, Pa., assignor of one-half his right to W. B. Hamm, same place. [Filed Feb. 23, 1876.]

Brief.—The handle is pivoted in the cover, so that it can be held firmly in the hand, when the can is revolved on its lower edge, to remove it from place to place.



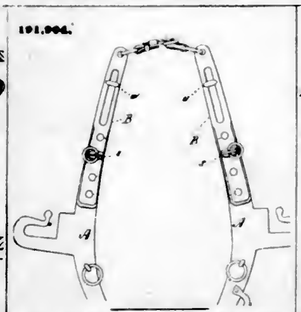
1. The combination, with the lid or cover A, of the revolving handle B, having the spindle C' and plate D, substantially as described.

2. The combination of the revolving handle B, having the spindle C', with beaded plate D, and the cover A, having the grooved plate F, substantially as described.

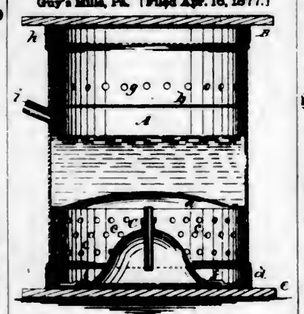
191,905. HAMES. Hiram Mason, Nelsonville, Ohio. [Filed May 19, 1877.]

The hame-branches A, having the end lugs a, in combination with the slotted extensions B and clamp-screws s, substantially as specified.

191,906.



191,906. VAPOR-BATHS. Geo. W. Walker, Guy's Mills, Pa. [Filed Apr. 16, 1877.]



A vapor-bath consisting of the cylinder A, having the head a, the centrally-perforated head b, the perforations g e, the nozzle i, and the cage d A, the latter having the wooden cover B, all constructed and arranged substantially as herein shown and described.

191,906. PHOTOGRAPHIC PRINTING-FRAMES. Harvey L. Walter, and Reuben Durrin, Manchester, Iowa. [Filed Feb. 22, 1877.]



1. The combination of the support-frame A, the negative-frame D, and tinting-frame D', whereby both the negative-frame and tinting-frame can be brought over the support-frame, for the purposes herein set forth.

2. The negative-frame D and tinting-frame D', connected to the support-frame A by means of double-acting hinges h h, whereby said frames D D' may be turned on top of or beneath the frame A, substantially as and for the purposes herein set forth.

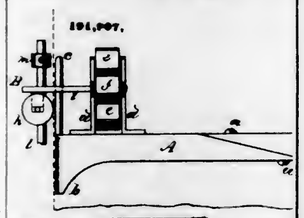
191,907. LOOM-TEMPLES. Jas. E. Waterbury, Rensselaerville, N. Y. [Filed Apr. 16, 1877.]

Brief.—The temple is adapted to be used in the weaving of tubular fabrics. The temple-bar is provided with rollers at its outer ends, and with projecting rods, about which the filling is looped. A spring-bar is secured to the framing of the loom at each end of the breast-beam. This bar carries two rollers, one above the other, below the fabric, which work between the rollers of the bar. A guide-roller bears against each end of the bar. A bracket attached to the lathe operates the spring-bar and moves the temple.

1. The bar A, provided with rollers s and rods e, adapted to be placed in a tubular fabric, in combination with a roller-guide for guiding and moving the bar A, substantially as shown and described.

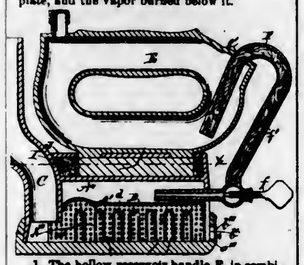
2. The spring B, carrying rollers f g h, in combination with the rod i, having collars m and bracket C, adapted to be secured to the lathe for moving and guiding the bar A, substantially as shown and described.

191,907.



191,908. SAD-IRONS. Harvey L. Wells, Burlington, Iowa. [Filed Apr. 18, 1877.]

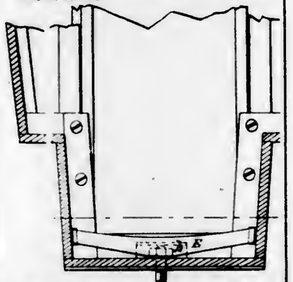
Brief.—The fluid is vaporized above the plate, and the vapor burned below it.



1. The hollow reservoir-handle E, in combination with the pipe F, chamber A', and plate D, substantially as described, and for the purpose specified.

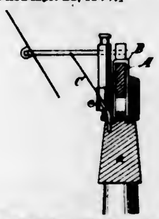
2. In combination with the chambers A'' A''', diaphragm D, and pipe F, leading from a gasoline-reservoir, an air-regulating valve, b''', substantially as described, and for the purpose specified.

191,909. CARRIAGE-BODY ADJUSTERS. I. Wilkins, Jr., Green Point, N. Y. [Filed May 5, 1877.]



The bar E, provided with an adjusting device, in combination with the sill of a carriage-body, substantially as herein shown and described.

191,910. APPARATUS FOR ILLUMINATING SCALE-BEAMS. Joshua W. Wood, Loami, Ill. [Filed Apr. 23, 1877.]

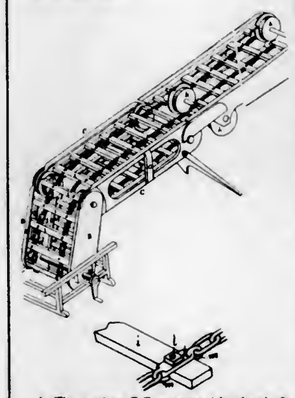


1. In combination with the scale-beam, a device for throwing light on the same, said device being adapted to be moved along the beam, substantially as and for the purpose specified.

3. In combination with the scale-beam A, the reflector C and sliding loop B, substantially as and for the purpose specified.

191,911. ENDLESS-CHAIN ELEVATORS. Jno. A. Woodward, San Francisco, Cal., assignor of two-thirds his right to I. W. Gates and S. A. Sanderson, same place. [Filed Apr. 19, 1877.]

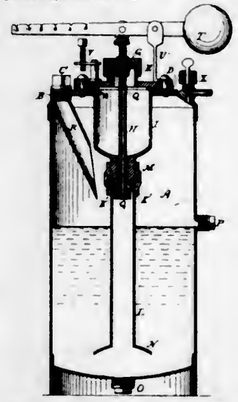
Brief.—The elevator can be used to transfer grain or freight from one vessel to another or to the wharf.



1. The sections B C, connected by the shaft E, and provided with the side rails O, in combination with the flanged wheels h, substantially as and for the purpose described.

2. An endless-chain elevator consisting of the slats i, plates h, having hooks or eyes formed upon their ends, and attached to the slats transversely of their length by bolts l, and the links j, substantially as herein shown and described.

191,912. CARBONIC-ACID-GAS GENERATORS. Otto Zwietusch, Milwaukee, Wis. [Filed Apr. 26, 1877.]



1. In a carbonic-acid-gas generator, the coupling M between the chamber I and acid-leading pipe L, as described.

2. In a carbonic-acid-gas generator, in combination with diaphragm E and screw-nut F, the curved or hollow washer G, for the purpose set forth.

3. In a carbonic-acid-gas generator, the acid-chamber I and pipe L, in combination with the automatic valve K and channel Q in rod H.

4. In a carbonic-acid-gas generator, in combination with diaphragm E, rod H, and lever T, the bail, and set-screw r.

5. In a carbonic-acid-gas generator, the generating-chamber A, provided with inlet C, and the incline transfer-pipe R, substantially as and for the purpose set forth.

6. The diaphragm E, in combination with the rod H, having the channel Q, and provided at its lower end with a valve fitting in the valve-seat K'.

7. In a carbonic-acid-gas generator, the diaphragm E, in combination with rod H, acid-chamber I, and acid-leading pipe L, provided with the coupling M, all constructed to operate substantially as and for the purpose set forth.

8. In a carbonic-acid-gas generator, a combination of the diaphragm E and the rod H, provided with the channel Q, substantially as and for the purpose set forth.

9. In a carbonic-acid-gas generator, the combination of a closed acid-chamber having a hollow valve-rod within, and a leading-pipe attached at the lower end extending near to the bottom of the generating-chamber, the whole adapted and arranged that all the gas used as equalizing pressure must pass through the purifying solution in the generating-chamber before it is drawn off.

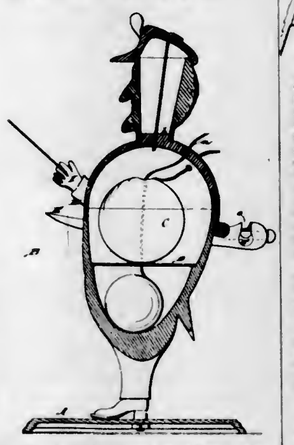
10. In a carbonic-acid-gas generator, the diaphragm E and rod H, provided with the channel Q, in combination with the pipe L, valve K, and catch N, substantially as and for the purpose set forth.

191,913. BARBED HOOP-IRON FENCE-STRIPS. Walter G. Barnes, Freeport, Ill. [Filed Apr. 17, 1877.]



A barbed fence-strip, A, having its barbs or spurs cut from the edges, and strengthened by a continuous or broken corrugation along its middle line, substantially as and for the purpose herein set forth.

191,914. TWINE-HOLDERS. A. Beauvoleil, Alpena, Mich. [Filed Apr. 26, 1877.]

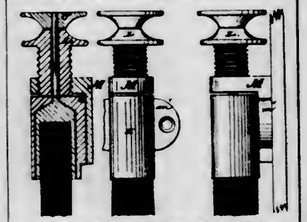


1. The body B of the figure, adapted to receive one or more balls of twine, and provided with a diaphragm, D, a twine-cutter, and a card-rack, substantially as described, and for the purpose set forth.

2. The twine-holder, having the body B, arms H H, and sword E, slotted as described, and provided with the removable blade d, substantially as and for the purpose set forth.

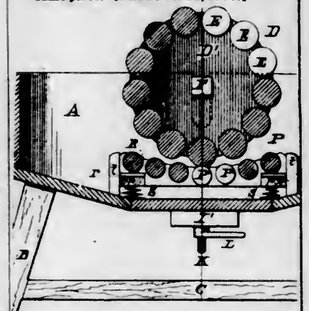
3. As an article of manufacture, the within-described twine-holder, consisting of the platform A, body B, head C, arms H H with hands I I, and sword E with blade d, all constructed substantially as and for the purposes described.

191,915. CORN-PLANTERS. J. O. Bennett, Urbana, Ohio. [Filed Dec. 11, 1876.]



In a corn-planter, the cut-off brush-holder having the screw-stem n', the socket I, having a dovetail projection on its side, the nut or button o', the tubular screw L, having a circumferential flange, and the angular bracket M, all constructed and arranged as shown and described, whereby the brush may be adjusted up or down and held in any adjustment, as specified.

191,916. WASHING-MACHINES. George W. Benton, Canaseraga, N. Y., assignor of one-half his right to Jonathan Garwood, same place. [Filed Feb. 26, 1877.]



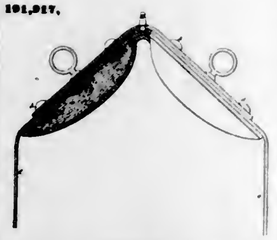
1. In washing-machines, a revolving cylinder composed of a series of solid round rods placed between metal disks having depressions of more than a half-circle and less than a whole, so that part of said rods project over the periphery of said disks, said rods having a space between them, to allow ready draining of the cylinder, and being clamped between the disks by a collar on one end and a nut on the other end of an angular shaft, and prevented from moving out of said recesses by their walls embracing more than one-half of the circular circumference of said rods, substantially as hereinbefore set forth and described, for the purpose stated.

2. The hereinbefore-described washing-machine, consisting of a rectangular tub, A, revolving cylinder D, composed of disks D' having circular depressions to retain solid cylindrical rods E, as described, concave rubbing-bed P, guides t, conical volute springs S, and the tensioning device consisting of the rods K, guide-blocks I fastened to the tub A, followers F, springs N, and handle-nuts L, the whole constructed and arranged substantially as described.

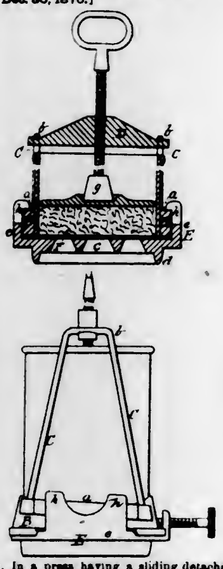
191,917. HARNESS-SADDLES. Jas. F. Best, Galva, Ill. [Filed Mar. 19, 1877.]

In a harness-saddle, the skirts or straps c c, having a series of apertures adapted to register with screws d d, and the terret-screws for the purpose of rendering said skirts or straps adjustable vertically, substantially as and for the purpose set forth.

191,917.



191,918. HOUSEHOLD-PRESSES. William Y. A. Boardman, Boston, Mass. [Filed Dec. 30, 1876.]



1. In a press having a sliding detachable base, the thumb-screw *e* for starting the same, substantially as specified.

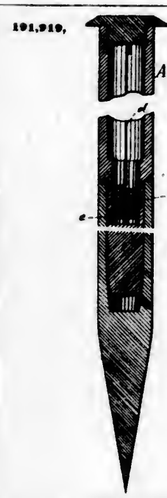
2. A press-cylinder, having a marginal casting at its lower end, and parallel inclined ledges *a*, substantially as specified.

3. A press-cylinder, having a marginal casting at its lower end, forming a bearing for the hooks of the detachable base, and, furthermore, provided with looped arms extending from said marginal casting above the mouth of the cylinder for the attachment of the cross-head, substantially as and for the purpose specified.

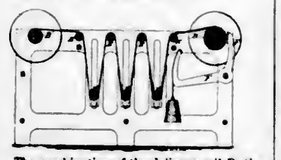
4. The base E, having the parallel flanges or arms A, the central grating, and the tapped leg *l* for the starting-screw, substantially as specified.

5. The combination, with the cylinder and its marginal casting, having ledges *a* and loops O, of the cross-head and follower-screw, and the base, having connecting flanges or arms parallel with each other, substantially as specified.

191,919.

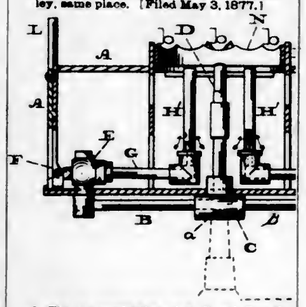


191,920. MACHINERY FOR STRETCHING LEATHER BELTING. James Brady, Brooklyn, N. Y. [Filed May 2, 1877.]



The combination of the delivery-roll B, the receiving-roll B', the flexion and reflexion rollers E E', and the brake F, substantially as and for the purpose described.

191,921. GAS APPARATUS FOR HEATING TOOLS. Peter Bradley, Philadelphia, Pa., assignor of one-half his right to Jas. Bradley, same place. [Filed May 3, 1877.]



1. The gas-conducting pipes B and G and intermediate cocks F, in combination with the central branch C, main jet D, and auxiliary jets H, substantially as and for the purpose set forth.

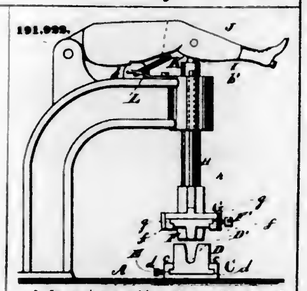
2. The combination, with the pipes B G and cocks F, of the perforated screw-plugs F', substantially as and for the purpose set forth.

3. The combination, with the jets D H, of the band N, substantially as and for the purpose set forth.

191,922. CIGAR-MACHINES. Wm. Brosseker, Baltimore, Md., assignor of two-thirds his right to A. J. La Fleur and Jos. Turner, same place. [Filed Mar. 24, 1877.]

Brief.—The molds are removable, and the upper one is held away from the lower by a spring-prop, that is overcome when pressure is applied to it.

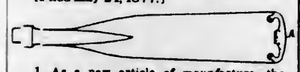
191,923.



1. In a cigar-machine, the combination of the upper mold-die F, the vertical shaft H, connected with operating-lever J by means of doubly-pivoted link-bar L, the prop K, pivoted at its lower end between lugs *k* and spring L, substantially as shown and described.

2. In a machine for the manufacture of cigars, the combination of bed-piece A, standard B, boxes C and G, mold-sections D and F, plunger H, prop K, and operating-lever J, substantially as and for the purpose set forth.

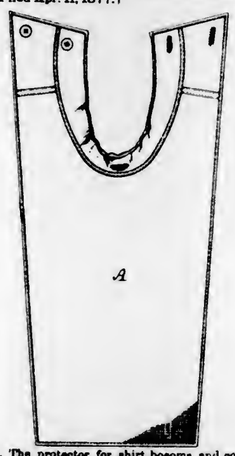
191,924. PROTECTION-TIPS FOR OAR-BLADES. Mason Britton, Wauseon, Ohio. [Filed May 24, 1877.]



1. As a new article of manufacture, the metal protection-tip for boat-oar blades, pressed or stamped from sheet metal into shape for receiving the end of an oar-blade, having bifurcated ends *a*, substantially as shown and described.

2. The improvement in boat-oars consisting of the metal protection-tip A, with bifurcated ends *a*, substantially as shown and described, fitting over and secured to the end of the oar-blade, for the purpose specified.

191,924. SHIRT BOSOM AND COLLAR PROTECTORS. Wm. F. Brown, Newark, Ohio. [Filed Apr. 11, 1877.]



1. The protector for shirt bosoms and collars, consisting of a dickey, A, with collar B made from material having a linen or textile body, and re-enforced upon one side with rubber or other coating impervious to moisture, substantially as and for the purpose set forth.

2. The collar B, made of the material named, and in one piece, and cut diagonally, as shown at *b*, substantially as and for the purpose set forth.

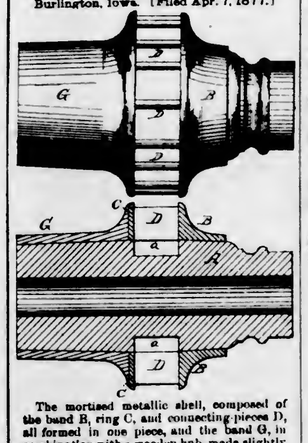
191,925. PIN-BOXES. John Bryan, Birmingham, assignor to the Star Pin Company of Shelton Town, Huntington, Conn. [Filed Mar. 31, 1877.]

191,926.



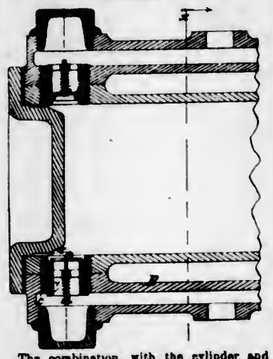
The pin-case herein described, consisting of the paper bottomless box A, with a closed top, *a*, the sides of the box adapted to extend below the points of the pins, and provided with the cover B, substantially as and for the purpose set forth.

191,926. VEHICLE-HUBS. M. C. Buffington, Burlington, Iowa. [Filed Apr. 7, 1877.]



The mortised metallic shell, composed of the band B, ring C, and connecting-pieces D, all formed in one piece, and the band G, in combination with a wooden hub, made slightly tapering from the center, and provided with a circumferential groove or series of mortises, and the shell and band forced toward each other from opposite ends of the hub, and then fastened together, substantially as and for the purposes herein set forth.

191,927. AIR-PUMPS. Emil Burgin, New York, N. Y. [Filed May 7, 1877.]



The combination, with the cylinder and jacket of an air-pump, of sockets *c c* for the reception of the valve-boxes, inserted into and forming a tight joint between the cylinder and jacket, substantially as herein described.

191,928. GRAIN-BINDERS. John E. Buxton, Owatonna, Minn. [Filed Apr. 7, 1877.]

1. In a grain-binding machine, the arms D mounted upon independent shafts, and rotating upon each side of the wire-arm to preserve a clear space for said arm, and so bent as to have their outer ends concentric, or nearly so, with their shafts, to hold the bundle against the compressor, substantially in the manner described.

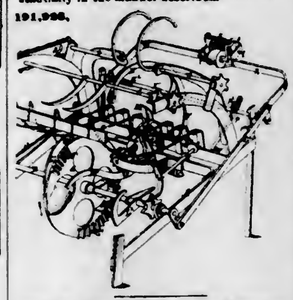
2. In a grain-binding machine, the vertically-sliding hook M, to carry down the upper end of the wire, and hold it with the lower end, until it is cut off and twisted, by means of its operating lever and cam, and raised to its normal position by the weight *m'*, substantially as and for the purposes described.

3. The rods *s* attached to the rock-shaft P, in combination with rock-shaft E', and slotted connecting-rod *p*, for removing the binding-wire from the twisting-wheel, and discharging the bundle of grain, substantially as described.

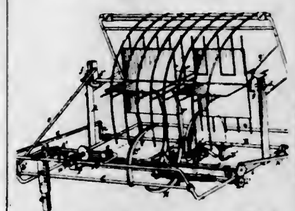
4. The bent arm or bail R, pivoted to the opposite sides of the frame, controlled by a spring that forces it away from the arm E, and carrying the spool of wire, said bail by its operation taking up the slack of the binding-wire, substantially in the manner described.

5. In a grain-binding machine, an adjustable pressure-controlling rubber roller, in combination with spring *g'* and wire spool, to secure a uniform tension upon the wire, substantially in the manner described.

191,929.



191,929. GRAIN-BINDERS. John B. Burton, Owatonna, Minn. [Filed Oct. 9, 1876.]



1. In combination with a grain-receiver, D, revolved periodically, and a shield hinged above it to guide the falling grain from the first receiver, D, to a second receiver, the compressor H and its sleeve H', mounted loosely upon a shaft, G, to which it is connected by a spring, G', substantially as and for the purposes described.

2. In combination with a grain-receiver, D, shield K, compressor H, and wire twisting wheel L, a forked wire-receiver, I, holding block I' connected rigidly to the frame and clamping-arm, substantially as described.

3. In combination with the twisting-wheel L and pinion *m*, the segment crown-wheel M and spring-cog *n*, substantially as and for the purposes described.

4. In a grain-binder, substantially as set forth, and combined therewith, the take-up weight Q and carriage P for the binding wire spool, and the tension-spring *s*, all substantially as and for the purposes set forth.

191,930. WEIGHT-MOTORS. John M. Cayce, Franklin, Tenn. [Filed May 31, 1877.]

Brief.—The weights operate a rocking frame, which turns the driving-wheel, by peculiar mechanism.

1. Two weighted levers, geared together, and combined with a pivoted frame, substantially as described, whereby the aggregate weight of the levers is transmitted to the frame, and the levers made to counterbalance each other, to permit their transfer from side to side with a power less than that represented by their actual weight.

2. Two weighted levers, combined with a pivoted frame, and geared together to permit the shock or momentum of one to be met and neutralized by the shock or momentum of the other, substantially as described.

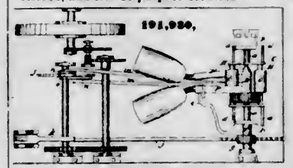
3. The pivoted frame, having stop-bars H with elastic cushions, in combination with the weighted levers, arranged upon opposite sides of said stop-bars, and geared together, as described.

4. The combination of the weighted levers, geared together, as described, the pivoted frame C, having stop-pins *d d*, and the supporting-standards B, substantially as and for the purpose described.

5. The combination, with the weighted levers, geared together so as to counterbalance each other, of a fork, *s*, cog-wheel *g*, guide-roller *l*, rack-bar *i*, rod *j*, and hand-lever *k*, substantially as described, and for the purpose of operating said weighted levers.

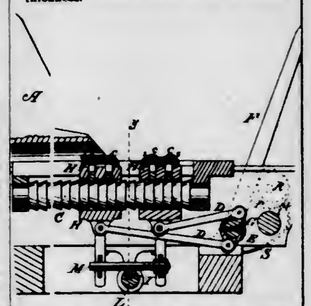
6. The diametrically-arranged arms *a a'*, carrying pawls *o o'*, in combination with the enlarged ratchet-wheel J, the rocking frame O, and with the two pitmen *m m'* pivoted at one end to the rocking frame, and at their others to the bars *a a'* between the pawls and the center of the wheel, substantially as described, and for the purpose set forth.

191,930.



191,931. HEAD-BLOCKS FOR SAW-MILLS. Hugh Clegborn, Muskegon, Mich. [Filed Dec. 27, 1876.]

Brief.—The setting mechanism is positive in its action, moving the log a certain specified distance at each reciprocation of the setting-lever, causing the lumber to be of uniform thickness.



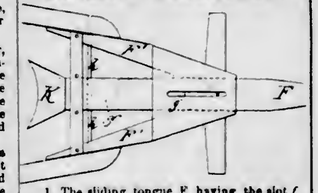
1. In head-blocks for saw-mills, the round rack C, constructed substantially as and for the purpose shown and described.

2. The combination of the rack C, pawl-sleeves H, with their vertically-moving pawls *s*, connections D, and rock-shaft E, substantially as and for the purpose set forth.

3. The reciprocating pawl-sleeves H and pawls *s*, in combination with their lifting devices, consisting of the stirrups O, bar M, eccentric L, and shaft I, as and for the purpose specified.

4. The variable stop devices, consisting of the notched disk P, eccentric R, and spring-pawl S, in combination with the setting-lever F and devices for moving forward the setting-jacks, as set forth.

191,932. WAGON-BRAKES. Martin Clifford, East Lemon, Pa. [Filed Apr. 26, 1877.]



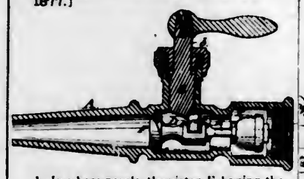
1. The sliding tongue F, having the slot *f* and plate K, as and for the purpose described and shown.

2. The brakes A, pivoted to bar B, lever E, and tongue F, having plate K, when combined, arranged, and operated as shown and described, and for the purpose specified.

191,922. COMPOSITION FOR PRINTERS' INKING-ROLLS. John Clifford, Cambridge, Mass. [Filed Apr. 5, 1877.]

A composition for printers' inking-rolls, consisting of glue, glycerine, sugar-house sirup, water, castor-oil, and olive-oil, compounded in about the proportions herein set forth.

191,924. HOSE-NOZZLES. John Clifford and John Gielow, Chicago, Ill. [Filed Apr. 7, 1877.]



1. In a hose-nozzle, the piston F, having the stem D, and provided with the spiral grooves *e e*, substantially as and for the purpose set forth.

2. In a hose-nozzle, the valve E, in combination with the stem D and piston F, the latter provided with the spiral grooves *e e*, and all constructed to operate substantially as and for the purpose set forth.

3. In a hose-nozzle, the stem D, provided with the valve E and spirally-grooved piston F, and having the guides *d d*, in combination with the spindle *b*, provided with the eccentric pin *a*, all constructed to operate substantially as and for the purpose set forth.

4. In a hose-nozzle, the stem D, provided with the valve E and spirally-grooved piston F, in combination with the spindle *b*, provided with an eccentric pin, *a*, substantially as and for the purpose described.

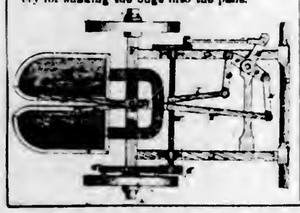
191,925. SAD-IRON HOLDERS. J. B. Cluxton, Hillsborough, Ohio. [Filed Apr. 17, 1877.]



The within-described sad-iron holder, consisting of the longitudinally-bisected wooden tube D, with legs E and shield G, the tube being surrounded by a leather covering, *c*, forming a hinge for the tube, and the wire staples *d* attached to the shield G, all constructed substantially as and for the purposes herein set forth.

191,926. MACHINES FOR REMOVING BUGS FROM POTATO-VINES. James M. Conrad, Cuba, N. Y. [Filed Apr. 17, 1877.]

Brief.—A push-carriage bearing two pans in the front, which pass on either side of the potato-row, and beaters, with suitable machinery for shaking the bugs into the pans.

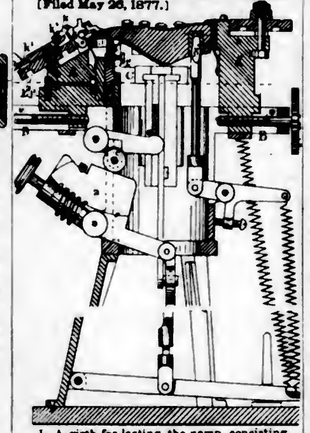


1. The combination of beaters M and L with pans R and S, substantially as described, whereby the beaters are adapted to vibrate in opposite directions, and over the pans alternately.

2. In a machine for destroying potato-bugs, the levers I and K carrying beaters, in combination with the T-lever H and connecting-links and rods, with the crank-shaft E, operating-wheel D, and adjustable pans, substantially as described.

3. The pans R and S, in combination with the slotted arms P and Q, pivoted upon the axle, as described, for the purpose set forth.

191,927. LASTING-MACHINES FOR BOOTS AND SHOES. G. W. Copeland, Malden, and Braxton Woodward and Matthias Brock, Boston, Mass., assignors to said Copeland. [Filed May 26, 1877.]



1. A girth for lasting the vamp, consisting of two series of unyielding straps connected or disconnected, rigidly secured at one end to the fingers of the vamp-lasting apparatus, and at the other and to a set of springs or weights on the opposite side of the machine, substantially as described.

2. In combination with an elastic heel-pad, embracing and supporting the quarters of the shoe, and with reciprocating folding-plates of the spring-rods p' p^2, all arranged and operating substantially as described.

3. A spring toe stretching and smoothing pad having a vertical motion, and also adapted to move against the upper at the toe in combination with suitable devices for folding the upper over upon the sole, substantially as shown and described.

4. For toe-lasting devices, the combination of wrinkle-sweeping fingers with oscillating turning and smoothing finger-plates moving in unison therewith, substantially as described.

5. In a lasting-machine the right and left screws, as shown in combination with gears operating to bring the shoe, without regard to its size, into the proper position, with reference to the girth, for the purpose, and operating substantially as described.

6. The automatically-acting heel and toe supports, consisting of a post resting upon a cam or wedge, the cam or wedge being actuated at the commencement of the upward rise of the girth-carrying cross-head, substantially as and for the purposes described.

7. In a lasting-machine the combination of a girth composed of unyielding straps rigidly secured at one end to the pivoted and adjustable fingers of a vamp-lasting apparatus, and at the other end to a set of springs or weights, with toe and heel lasting mechanism, automatically adjustable with reference to the girth while moving to clamp the boot or shoe, substantially as and for the purposes described.

8. The combination of the cam *a*, adjusting-screw *s*, and arc *s*, with the secondary lever of the train actuating the girth-carrying cross-head, substantially as and for the purposes described.

9. In combination, the vibrating toe-rest, post, and set-screw, substantially as described.

10. The vibrating or oscillating toe-rest, in combination with the toe-lasting mechanism, substantially as shown and described.

11. The combination with reciprocating toe-lasting plates of a reciprocating toe-clamp arranged to operate between such plates, acting alternately, substantially as shown, and for the purposes described.

12. The automatically removable toe-clamp, forming an abutment for the toe of the boot or shoe to rest against when adjusted in place, and also serving as a clamp to prevent the boot or shoe from rising when acted upon by the girth, substantially as shown and described.

13. In combination with the cam or other actuating mechanism, the folding-plates provided with an oscillating or rocking motion, for the purposes substantially as set forth.

14. In a lasting-machine, oscillating plates for lasting the heel or toe, provided with fingers controlling the position of the wrinkles or folds, substantially as described.

15. In a lasting-machine, oscillating finger-plates provided with fingers for sweeping the wrinkles or folds into the desired position, substantially as and for the purposes described.

16. The combination with oscillating finger-plates of the reciprocating toe-clamping device, substantially as shown and described.

17. In a lasting-machine the combination of the arm h^1, the spring h^2, wedge or cam h, spring h^3, post g, and oscillating toe-support g^1.

18. In a lasting-machine the combination of the lever j, arm j^1, combined arm and slide j^2, rack j^3, gear i^2, crank i^3, and toe stretching and smoothing pad i.

19. In a lasting-machine, the combination of the right and left screw *s e*, and shaft *f*, suitably geared to produce motions of the heel and toe lasting mechanism, substantially as and for the purposes described.

20. In a lasting-machine, the combination of the toe-clamp k, connection k^1, nut k^2, slide k^3, and cam-path k^5.

21. In a lasting-machine, the combination of the finger-plates l^1, oscillating-plates l, barrels n, carriages w^1, levers w^2, and cam-paths k^5.

22. The tapering square spindle, in combination with a last mortised or bored for the reception of the spindle at right angles with a line across the tread of the toe portion of the last, for the purposes shown and described.

191,928. MILLSTONE-DRESSING MACHINES. Jno. O. Cookson and Louis Rastetter, Fort Wayne, Ind., assignors to John Orff, same place. [Filed Mar. 31, 1877.]

Brief.—The tool-holder is reciprocated longitudinally, and is automatically carried across the bed-plate, and depressed by an arm working in a slot. The extension of the bed-plate affords additional resting-surface for steadying the device. It is an improvement on devices embraced in Patent No. 185,125, dated December 5, 1876.

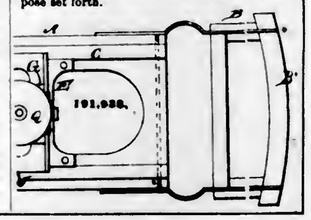
1. In a millstone-dressing machine, the bed-plate A, provided with the extension B, having the curved flat plate B', flush with the lower face of the bed-plate, substantially as described, and for the purpose set forth.

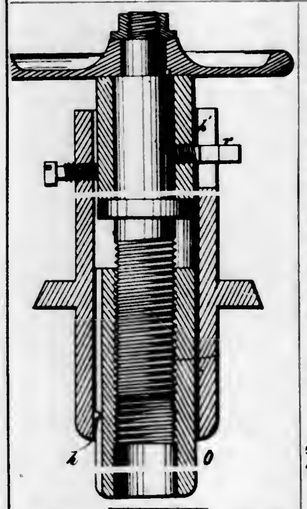
2. The combination of cylinder H, having guide-stud *h*, grooved screw-threaded tool-holder O, adjusting-rod P, provided with the arm R, having roller *r*, and guideway S, substantially as and for the purpose set forth.

3. The combination of cylinder H, having guide-stud *h*, grooved screw-threaded tool-holder O, adjusting-rod P, arm R, guideway S, and clamping-screw U, substantially as described, and for the purpose set forth.

4. The combination of cylinder H, having guide-stud *h*, with grooved screw-threaded tool-holder O and adjusting rod or shaft P, substantially as and for the purpose set forth.

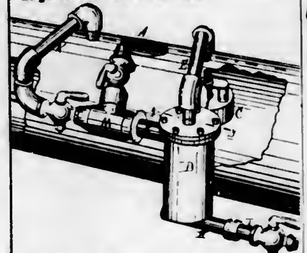
5. In a millstone-dressing machine, the combination of the lower guideway pivoted at one end, with a cam-shaft journaled across the bed-plate below the other end of said guideway, substantially as and for the purpose set forth.





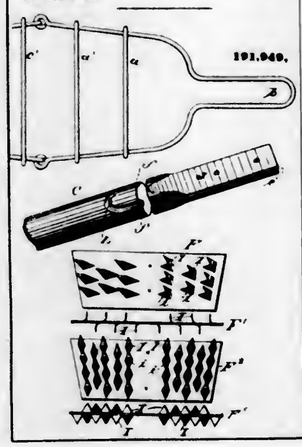
191,929. DEVICES FOR EXTRACTING MUD FROM STEAM-BOILERS. THOMAS CRANEY, Bay City, Mich. [Filed Feb. 19, 1877.]

Brief.—The cup-shaped float slides up and down on a pipe, thus adjusting itself to the height of the water in the boiler.



1. In combination with a steam-generator, A, the cup-shaped float C, supported by and sliding on the pipe B, as and for the purposes described.

2. In combination with a steam-generator, A, the pipe B, cup-shaped float C, settling-chamber D, and return-pipe K, substantially as described.



191,940. BROOMS. Jas. Davidson, Kalida, Kans. [Filed Feb. 26, 1877.]

Brief.—A wire folding-clasp, between which are placed plates with triangular tongues to hold the broom-corn; also, a grooved and split handle, on which the clasp is held by rings.

1. The combination of the clasp A, having contracted portion *b*, with the handle C, having grooves L *f f*, substantially as and for the purpose set forth.

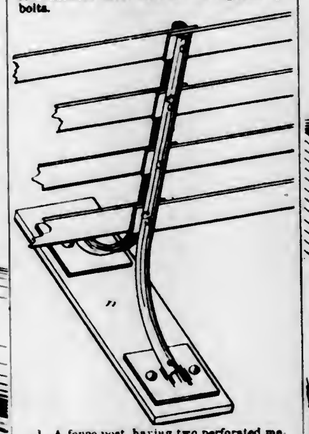
2. In combination with a wire broom-clasp, constructed substantially as herein described, the handle C having grooves L, substantially as and for the purpose herein set forth.

3. The wicker plate or plates F F' F², having sharp triangular tongues I, substantially as and for the purpose set forth.

4. The combination of the handle C, having flat split portion *d* and grooves *f* L, with the wicker plate or plates, and clasp A, herein described, substantially as and for the purpose herein set forth.

191,941. FENCE-POSTS. Howard Delano, Syracuse, assignor to himself and Ralph Dewey, Otto, N. Y. [Filed Dec. 29, 1876.]

Brief.—The post is in two sections, which have biting-edges, that are made to clamp the rails between them when drawn together by bolts.



1. A fence-post having two perforated metallic sections with biting or clamping edges, in combination with independent clamping-bolts and wooden panels or rails.

2. A fence-post consisting of the vertical bisected metallic biting or clamping sections secured to the panels by screw-bolts, and having foot-flaring extensions secured to a base, substantially as herein set forth.

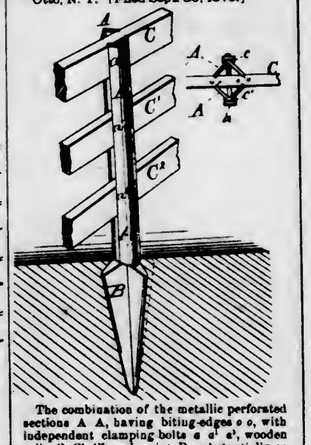
191,942. PAPER-BAG MACHINES. Albert S. Dennison, Watertown, N. Y. [Filed May 5, 1877.]

Brief.—To secure the seams of paper bags, the metal securing-strip, together with the end of the paper tube, is forced down between the open clamping-jaws by a descending blade, which is retarded by a spring. This gives the metal strip a V shape, and it is then securely clamped upon the tube by closing the clamping-jaws upon it.

1. The combination of the crimping-blade O and griping-jaws A A', as set forth.

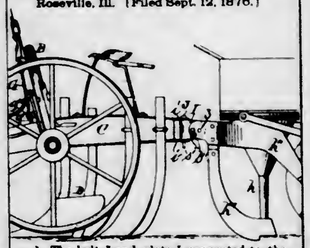
2. The jaws A A', in combination with the folding-blade, the latter being mounted upon vertical rods, and operating as set forth.

191,944. FENCE-POSTS. Ralph Dewey, Otto, N. Y. [Filed Sept. 30, 1876.]



The combination of the metallic perforated sections A A, having biting-edges *o o*, with independent clamping-bolts *a* a^1 a^2, wooden rails C C^1 C^2, and point B, substantially as described.

191,945. SEEDING-MACHINES. S. Dixson, Roseville, Ill. [Filed Sept. 12, 1876.]



1. The bolt J and plate I connected to the beam C by plate *i* and slotted plate *i'*, to allow oscillation of the beam C and its plows, substantially as described and for the purpose specified.

2. The plate I constructed as described, and connected to the frame h'', having series of holes, by a bolt, *s'*, and combined to operate with the plow-carrying frame and seeding-frame, substantially as described and for the purpose specified.

3. The elongated staple *g'*, combined with chain G, axle B, beam C, and devices connecting it to the frame h'', substantially as described and for the purpose specified.

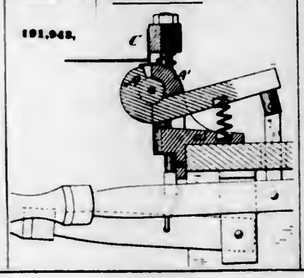
191,946. SEEDING-MACHINES. S. Dixson, Roseville, Ill. [Filed Jan. 13, 1877.]

Brief.—The seed is forced from the holes in the oscillating feed-plates by grooved disks secured to a rock-shaft, one point of which projects into a seed-hole, and is struck by a pin on the feed-plate as it oscillates, thus forcing one out and the other in.

1. The rock-shaft N, having disks *n* and *n''* operating in combination with seed-cup plate M, having passages *m* and projecting pins *m'''*, substantially as and for the purpose specified.

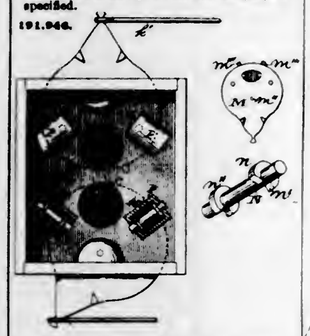
191,949. PROCESSES OF PREPARING MASH. Rudolph D'Heureuse, New York, N. Y. [Filed Aug. 15, 1876.]

The process of preparing mash from mixtures of malt, wort, or extract of malt and unmalted grain, or from malt alone, which consists in subjecting the mashing preparation to a temperature ranging from 140° to 175° Fahrenheit, or thereabout, and to a pressure above the atmospheric pressure of fifteen pounds per inch, whereby the saccharification of the starch is expedited without injuring the diastase of the malt, substantially as set forth.



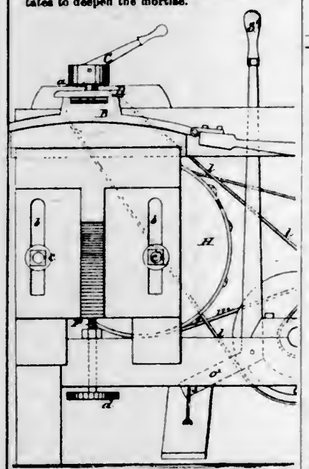
2. The combination of seed-hopper H and oscillating seed-cup plates M, having the passages m and pins m'', with the rock-shafts N having disks n and n'', and with the housings P, substantially as and for the purpose specified.

191,946.



191,947. MORTISING-MACHINES. Alfred D. Eddy and H. J. Stolsenbach, Tiffin, Ohio. [Filed Apr. 2, 1877.]

Brief.—The material to be mortised is clamped upon a reciprocating concave table, connected by a tongue and groove to a convex bed, by means of a cam-lever pivoted to the head of a post fixed in said table, and acting upon a bar hinged to the side of the table. The tool is adapted, by means of opposite grooves and a notch in its cutting end, to be sharpened without decreasing the diameter of the tool at that point. The tool is mounted in a sliding mandrel, and advances as it rotates to deepen the mortise.



1. The mortising-tool *e*, having opposite lengthwise semicircular grooves and a curved or semicircular notch in its cutting end between the rounded cutters, whereby said tool is adapted to be sharpened by deeping the notch, without thereby decreasing the diameter of the tool at that point, as set forth.

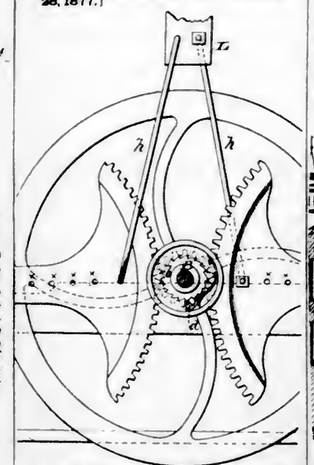
2. In a mortising-machine, the combination of the convex bed and reciprocating concave table, the two being connected by a tongue and groove, a device for clamping the work upon the table, and a mandrel revolving in fixed bearings, all constructed and arranged as shown and described, to operate as and for the purpose specified.

3. In a mortising-machine, in combination with the reciprocating table B, the bar D, hinged at the outer side thereof, the post *a*, fixed in the table and projecting through said bar, the cam-lever C, pivoted to the top of the post, and the spring, arranged as shown and described, for the purpose described.

4. In a mortising-machine, the combination of the cam-wheel H, the reciprocating bar I, having arms or pins for embracing the periphery of said wheel, the mandrel G, carrying tool *e*, the connecting-bar *f*, and spring *g*, the reciprocating bar and mandrel being arranged parallel, all as shown and described, to operate as and for the purpose specified.

5. In a mortising-machine, the cam-wheel proper, having the peripheral plate, provided with slots and secured by clamp-screws, whereby the throw of the cam may be raised by adjusting the said plate, as set forth.

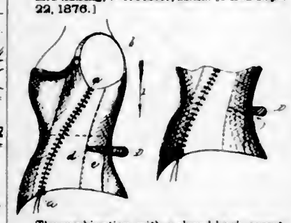
191,948. MECHANICAL MOVEMENTS. Jos. I. Etheridge, Mishawaka, Ind. [Filed Apr. 26, 1877.]



1. The combination, with the shaft B and its pinions, ratchets, and casings, as described, of the pivoted cogged segments G G, having radial series of holes *x*, the adjustable connecting-rods A A, and the vertically-reciprocating pitman L, substantially as and for the purposes herein set forth.

2. The combination of the stationary clutch R', the revolving shaft B with clutch R, and the adjusting-screw P, substantially as and for the purposes herein set forth.

191,949. SKIRT-SUPPORTING CORSETS. D. H. Fanning, Worcester, Mass. [Filed Sept. 22, 1876.]



The combination, with a closed back corset, of a self-adjusting skirt-supporter, D, arranged to fall or incline down from the points at which it is permanently secured to the corset, for giving support to the back of the wearer, substantially as shown and described.

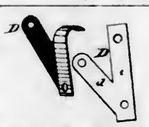
191,950. FOUNTAIN-PENS. Leon Fargue, Paris, France. [Filed Feb. 27, 1877.]



A pen having a plain open concavity, provided with a quantity of solidified ink prepared with an adhesive substance, substantially as described, and adapted to be partially dissolved to render the pen self-supplying by dipping in water, as set forth.

191,951. WINDOW-BLINDS. John F. W. Fawcett, Cedar Springs, Mich. [Filed Mar. 20, 1877.]

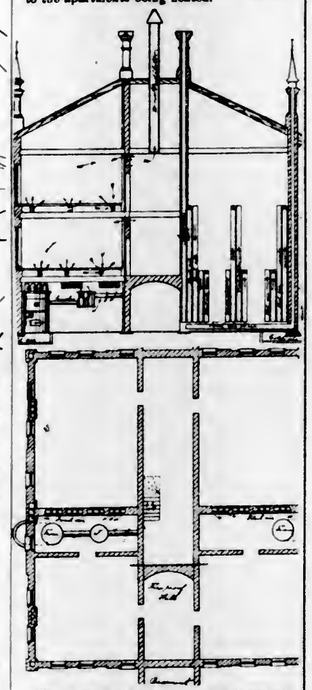
191,951.



The fastener D, herein described, consisting of curved body-plate *c* and ear or bracket *d*, the latter bent at a right angle to the former, substantially as and for the purpose set forth.

191,952. HEATING AND VENTILATING BUILDINGS. William F. Flagg, Bloomington, Ill. [Filed May 26, 1877.]

Brief.—Heated air is passed from the furnace direct to the room or apartment being heated, and returned to the furnace-chamber, where the foul air is discharged into the open air, while the better portions of the air are subjected to radiated heat, and again returned to the apartments being heated.



The method herein shown and described for heating and ventilating buildings, consisting in passing the fresh heated air from the furnace direct to the room or rooms being heated, and returning it to the furnace-room, from which the foul air is discharged into the open air, while the better portions of the air are subjected to radiated heat, and again returned to the room or rooms being heated, substantially as specified.

191,955. FIRE-ESCAPES. Robert Gilchriest, Louisville, Ky. [Filed Mar. 10, 1877.]

1. In combination with a tilting platform, the adjustable transverse braces d^3 of the truck-frame, substantially as specified.

2. The combination, with a truck, having a vibrating platform journaled therein, of a gear-wheel on the journal of the platform, a worm-screw journaled in the truck engaging therewith, and an actuating device for the screw, substantially as specified.

3. The combination, with a sub-platform and an upper platform, vibrating thereon horizontally, a master-wheel upon the under side of the latter, a gear-wheel upon the former meshing therewith, and supporting rollers between the platforms, substantially as specified.

4. The combination of the inclined end braces E^3, having extension-arms E^5, and adjustable supporting-legs F^1, with the carrier-platform and the vibrating and adjustable sub-platform supporting the carrier, substantially as specified.

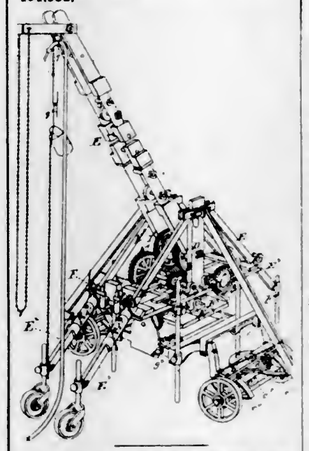
5. The combination, with a ladder-platform and a tilting sub-platform carrying the same, of the inclined end braces, the detachable and sections socketed into the ends thereof, the sockets upon the lower ends of said sections, the adjustable rods or casters fitting in said sockets, and adjusting set-screws, substantially as specified.

6. The combination, with a ladder-truck, a tilting platform journaled therein, and a horizontally-vibrating ladder-carrying platform mounted thereon, of a king-bolt extending through both platforms, and secured to the tilting or lower one, substantially as specified.

7. In combination with the standards D, ladder E, and shaft g^1, the lateral gears I^1 I^1, secured to said shaft and side rails of the ladder, the worm-screws I^2 at each side thereof, the shaft K having, bevel-gears *k*, and an actuating mechanism for rotating said shaft, substantially as specified.

8. The reel I, sliding laterally on shaft g^1, and the winding-drum P, laterally adjustable on its splined shaft, in combination with the ladder-sections, having laterally-adjustable sheaves or pulleys, substantially as specified.

191,953.



191,954. LEVELS. Samuel Gissinger, Pittsburg, Pa., assignor of one-half his right to B. W. Swentzel, same place. [Filed Nov. 27, 1876.]



1. A plumb, level, and clinometer pendulum, constructed in two parts, with a joint below the primary center of oscillation, for the purpose of breaking up the vibrations of the pendulum and quickly bringing it to a state of rest, substantially as described.

2. In combination with pendulum *e c*, the adjustable ball or weight *d*, substantially as and for the purposes explained.

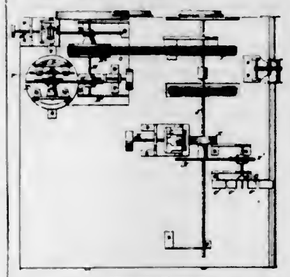
191,956. MOTIVE POWERS. Robt. D. Green, Columbus, Miss. [Filed May 29, 1877.]

1. A series of engines, or trains of gearing, each provided with an independent winding apparatus, and each operated independently of the others by a rubber strap, belt, or band, and all connected to and operating a common main shaft, substantially as and for the purposes herein set forth.

2. The combination of the conical drum C, cog-wheel D, connected with the gearing E, link-chain G, clamps *b*, and rubber straps or bands G', substantially as and for the purposes herein set forth.

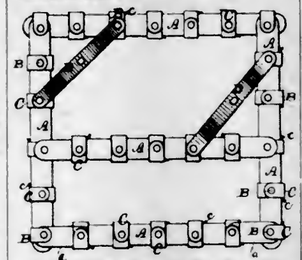
3. The pivoted frame L', carrying the pinion d^3, and operated by the set-screw M, in combination with the train of gearing E, substantially as and for the purposes herein set forth.

4. In combination with the main shaft J, the gear-wheels N N', and the fly composed of the wheel O, with centrally-pivoted and adjustable wings O', substantially as and for the purposes herein set forth.



191,936. HARROWS. J. W. Greer, Prince of Wales, Ky. [Filed Apr. 30, 1877.]

Brief.—The harrow-tooth is set in the center of the beam, and passes through the perforated arms of two clips, which overlap each other, and are fastened with a wedge on the side. The beams are secured at the corners with bars bent around the sides, and held by the teeth. The two bars are double, the ends fastened in the teeth above and below the beams, and riveted together in the center. The harrow is adjustable, and may be given different forms.

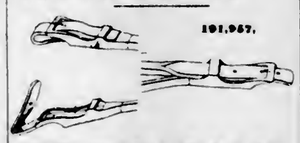


1. The tooth-clamping mechanism, consisting of the clips C C, in combination with and embracing the beam A, and having their horizontal arms or portions overlapping each other, and provided with apertures and wedge *e*, substantially as and for the purpose set forth.

2. The plates *a a*, in combination with the beams A A, having the teeth B B and clips C C, between the overlapping and underlapping portions of which are inserted the ends of the said plates, also having apertures for the passage of the said teeth, substantially as and for the purpose set forth.

3. The braces D D, consisting each of concavo-convex plates or bars united together, and provided with apertures, in combination with the beams A A and teeth B B, substantially as and for the purpose set forth.

191,957.



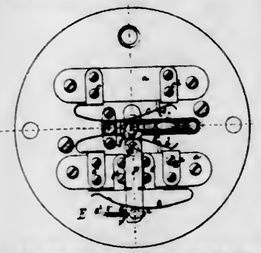
191,957. CHECK-REINS. Charles A. Haas, Delmar, Iowa. [Filed Jan. 6, 1877.]

Brief.—A square check-rein is formed from a flat strap in such manner that the stitching is entirely concealed.

As an improved article of manufacture, a square check-rein constructed as herein before described, and combined with the buckle K, having the tubular end, substantially as and for the purpose specified.

191,958. ELECTRO-MAGNETIC RAILROAD-SWITCH SIGNALS. Thos. S. Hall and G. H. Snow, West Meriden, Conn., assignors to the Hall Railway-Signal Company. [Filed Oct. 11, 1876.]

Brief.—Movement of switch-rails from main to side track causes one circuit to be closed and opened again, and another circuit to be opened and left open. In putting switch-rail back to main line the circuit left open will be closed and remain so, and a third circuit will be closed and opened again.



1. The combination, with the switch-rails of a railroad-track, and a signal adapted to be operated by an electric current, the circuit of which is closed by a passing train or otherwise, of three circuit-closers controlled by the movement of the switch-rails, substantially as described.

2. The combination of the sliding plate P and buttons p^2 J with circuit-closers *c d e*, and with the switch-rails of a railroad track, substantially as shown and described.

3. The combination of the projection p^3, pin *s*, and spring *s'*, with the sliding plate P, buttons p^2 J, circuit-closers *c d e*, and with the switch-rails of a railroad track, substantially as specified.

4. The combination of the arm K and centralizing spring L with the sliding plate P, buttons p^2 J, circuit-closers *c d e*, and with the switch-rails of a railroad track, substantially as specified.

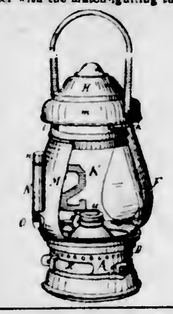
5. The combination of the cams *g g'* with the sliding plate P, buttons p^2 J, circuit-closers *c d e*, and with the switch-rails of a railroad track, substantially as specified.

6. The combination of the cam-lever G, carrying the cams *g g'*, with the sliding plate P, buttons p^2 J, circuit-closers *c d e*, and with the switch-rails of a railroad-track, substantially as set forth.

7. The combination of the sectional connecting-rod G^1 G^2, with the cam-lever G, sliding plate P, buttons p^2 J, circuit-closers *c d e*, and with the switch-rails of a railroad-track, substantially as described.

191,959. LANTERNS. Richd. Hammill, Chicago, Ill. [Filed Feb. 17, 1877.]

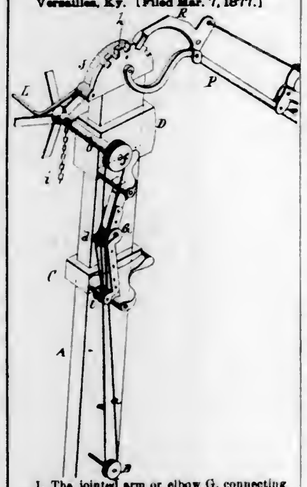
Brief.—The sliding shield covers the exposed part of the globe when desired. In it is a funnel-shaped opening, which can be made to register with the match-igniting tube.



1. In a lantern, the combination with the globe of the tube G, having a slanting end, the leaf-spring secured within the tube, the file-cut spring *g*, and the funnel-shaped boss O in the sliding shield, all constructed and arranged substantially as described and shown.

2. The combination, in a lantern, of the oil-reservoir A, ring D, metallic half-globe F, glass half-globe K, sliding shield M, and hinged dome H, all secured together, constructed, and arranged substantially as described and shown.

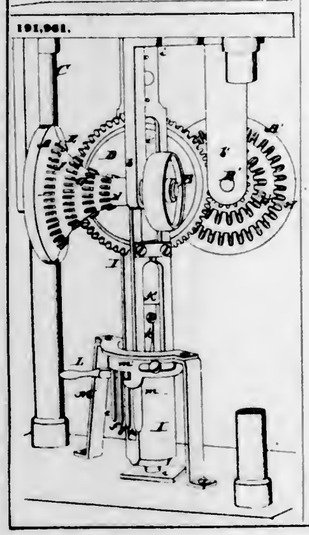
191,960. HARVESTER-RAKES. H. S. Harris, Versailles, Ky. [Filed Mar. 7, 1877.]



1. The jointed arm or elbow G, connecting the movable head-block D, carrying the reel, with a stationary point on the reel-staff, and provided with the pulleys *d* and *e*, as described, in combination with the chain *a*, driving pulley B, and pulley *f*, on the reel-shaft, substantially as and for the purposes herein set forth.

2. The combination, with the reel-staff A, of the stationary head-block C, the movable head-block D, carrying the reel-shaft and reel, the pulleys *d*, *e*, *f*, and B, jointed arm G, chains *a i*, arm L, lever P, notched segment *h*, and paw] R, all substantially as set forth.

191,961.



191,962. MECHANICAL MOVEMENTS. A. F. Harvey, Kirkwood, Mo. [Filed May 17, 1877.]

1. The herein-described mechanism for effecting changes in the speed of machinery, consisting of the concave pulleys A A′ and the wheel D, substantially as described.

2. In combination with the pulleys A A′, the wheel D, having movable bearings *d′ d′*, for the purpose of moving the wheel into and out of the plane of the shafts of the pulleys, substantially as described.

3. The combination of the pulleys A A′, wheel D, and post I, substantially as described.

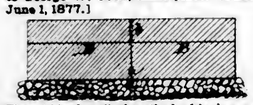
4. The combination of the pulleys A A′, the wheel D having the movable bearings *d′ d′*, and the post I, substantially as described.

5. The combination of the wheel D, post I, rod K *k*, and lever L, substantially as described.

6. The combination of the guide *m*, lever L, post I, rod K *k*, and wheel D, substantially as described.

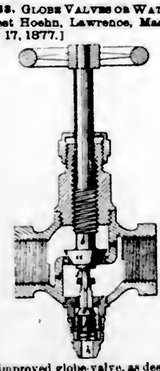
7. The combination of the lever L, guide *m*, and lock *m′*, substantially as described.

191,963. ARTIFICIAL-STONE PAVEMENTS. Chas. Hense, Washington, D. C., assignor to George W. Cook, same place. [Filed June 1, 1877.]



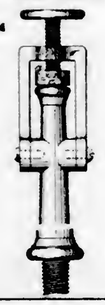
The within described method of laying artificial-stone pavements, by first dividing the road-bed into sections, then laying the foundation of alternate sections and cutting through the same at proper intervals, then putting on the top-dressing and pressing the the same down into the cuts, and, when these alternate sections have become hard, then laying the other sections in the same manner, substantially as herein set forth.

191,965. GLOBE VALVES OR WATER-COCKS. Ernest Hoehn, Lawrence, Mass. [Filed May 17, 1877.]



The improved globe-valve, as described, provided not only with the waste-educt and valve and a closing-spring, arranged as shown, but having to its main-valve stem *b* and the cap of the case screws, as shown, for operating such main valve and stem, all being as represented.

191,964

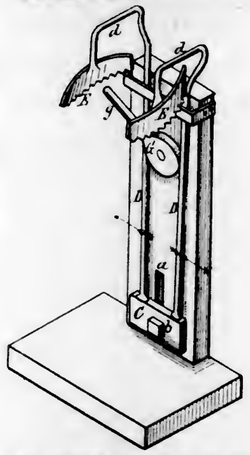


191,964. HOSE NOZZLES OR PIPES. Charles T. Holloway, Baltimore, Md. [Filed Apr. 28, 1877.]

Brief.—This hose-pipe is intended for fire-extinguishers containing carbonic or other gas, and is provided with a valve, which has its seat on the outer end of the pipe, and moves at right angles to the axis of the pipe.

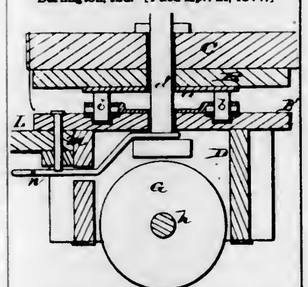
A hose pipe or nozzle, A, provided with a pivoted or swinging lever and valve, B, with suitable packing *c*, and an adjusting-screw, *i*, or equivalent device, constructed and arranged substantially as shown and described.

191,965. BAG-HOLDERS. Miller B. Hudson, Canandaigua, N. Y., assignor of one-half his right to Henry F. Sterling, same place. [Filed May 7, 1877.]



The attachment consisting of the spring-arms D D and sliding block C, connected together to form one device, in combination with the pivoted cam G, resting between the arms, for the purpose of expanding them at any adjustment, as herein shown and described.

191,966. TRUCKS FOR MOVING BUILDINGS. Henry C. Hulet and James D. Murphy, Darlington, Ind. [Filed Apr. 21, 1877.]



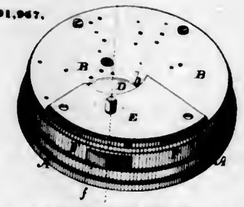
1. In a house-moving truck, the single wheel or roller G, mounted in a housing, D, having the bolster B′ with rollers *b* attached to it, in combination with the upper bolster B, having circle *a*, and the king-bolt *d*, substantially as and for the purpose described.

2. The adjustable sliding brace J J′, in combination with the single-roller truck herein described, for the purpose set forth.

3. The combination of the stationary bolster B with plate *a*, bolster B′ with rollers *b*, housing D, roller G, adjustable brace J J′, king-bolt *d*, hitching device *n*, and shafts or tongue L, all constructed substantially as and for the purpose described.

191,967. DUST-CAPS FOR WATCHES. Geo. Hunter, Elgin, Ill. [Filed Apr. 2, 1870.]

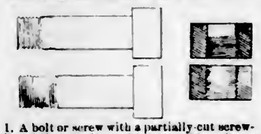
191,967.



1. In combination with the open recess *b* of the top plate B, the barrel-bridge E, extending across said recess, and provided with a lip, *e*, which incloses the outer edge of the same, has its lower edge flush with the lower face of said plate, and forms a continuation of the line of the edge of the latter, substantially as and for the purpose specified.

2. In combination with the pillar-plate A, the recessed top plate B *b*, and with the barrel-bridge E, having the downward-projecting lip *e*, the dust-band F, arranged to extend from said pillar-plate to said top plate, and to embrace the edges of the latter and of said lip, substantially as and for the purpose shown.

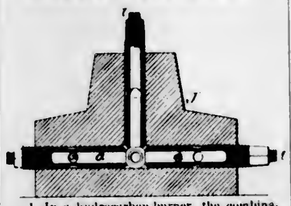
191,968. FORMING THREADS ON SCREW BOLTS AND NUTS. Alfd. B. Ibbotson, Florence, Italy, and Frederick J. Talbot, Sheffield, England. [Filed May 28, 1877.]



1. A bolt or screw with a partially-cut screw-thread thereon, in combination with a plate or nut having a bolt-hole properly or fully tapped with a screw-thread made harder than the uncut or uncrewed portion of the said bolt, so that in screwing the said bolt or screw into the said tapped or threaded hole the formation of the thread on the said bolt or screw will be completed, in the manner set forth, and for the purpose specified.

2. A bolt or screw with the thread fully or properly cut thereon, in combination with a plate or nut having a hole therein, and formed of metal softer than the said bolt or screw, and with the thread only partially cut therein, so that the thread in the said hole or nut is completed by the forcing of the said bolt or screw into the same, in the manner above set forth, and for the purpose specified.

191,969. HYDROCARBON-BURNERS. Wm. L. Imlay, Camden, assignor to D. Smith, Burlington, N. J. [Filed May 9, 1877.]



1. In a hydrocarbon-burner, the combination of the block J and its passages with tubular stems adjustable from and toward a central discharge-opening, as set forth.

2. The combination of the block J with the tubular stems, having longitudinal openings, and plugs *i* closing the outer ends of said openings, as described.

191,970. SINKS. George Jennings, London, England. [Filed May 19, 1877.]

1. The sink A, suitably lined, having compartment or chamber A″, provided with an outlet or escape passage or opening and separated from the main sink chamber A′ by perforated partition B, substantially as and for the purposes set forth.

2. In the sink A, the partition B, adapted in position to allow outlet from chamber A′ into chamber A″, the valve D D′, operating in seat *e*, and cover C, all combined substantially as and for the purposes set forth.

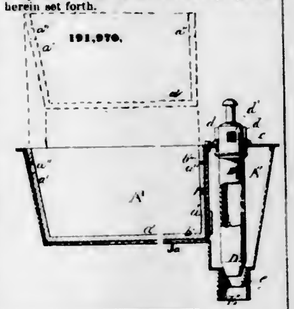
3. The valve D, having hollow stem D′ with port *d′*, and provided with webs *d*, and combined with boss *c* of cover C having notches *c′*, substantially as and for the purposes set forth.

4. In combination with a sink, A, having chambers A′ A″ and partition B and valve D D′, constructed as described, the reticulated cover C, constructed as shown, substantially as and for the purposes set forth.

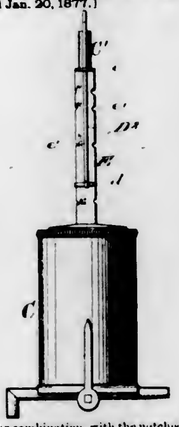
5. In a sink, substantially as herein described, the partition B, adapted to be moved in cleats or guides *b*, and having finger-projection, or flange *b‴*, substantially as described.

6. In the sink A A′ A″ *a′*, having perforated and removable partition B, the valve D, having conical ends and hollow stem D′, provided with webs *d d* and having port *d′*, and adapted to seat *e* and exit E, as described, its upper part working in cover C, the several parts combined and adapted to operate substantially in the manner and for the purposes herein set forth.

191,970.



191,971. LIQUID-MEASURES. Wm. K. Johnston, Cordova, Ill., assignor of one-half his right to C. L. MAXWELL, Princeton, Iowa. [Filed Jan. 20, 1877.]



1. The combination, with the notched or serrated indicating plate E, of the measuring-vessel C, float D, guide-tube C′, rod D′ D², and index *d*, substantially as described, and for the purpose set forth.

2. The combination of a notched or serrated indicating-plate, E, with a pointer, *d*, substantially as and for the purpose set forth.

191,972. EYEGLASSES. George Johnston, Detroit, Mich. [Filed Jan. 15, 1877.]



1. The combination, with the bows A A′ of a pair of eyeglasses, of the spring C, of the form shown, secured to each of the said bows at two points, by means of the studs *a b*, constructed and arranged substantially as described.

2. In a pair of eye or nose glasses, the combination and arrangement of the frames A A′, handle B, and springs C D, when constructed and secured together substantially as herein specified.

191,973. REED-PIPES FOR ORGANS. Wm. A. Johnson, Westfield, Mass., assignor to Johnson & Son, same place. [Filed May 21, 1877.]



1. An organ reed stop pipe, constructed with a gradually-increasing interior diameter from the bottom of the escballot *a* to the top of the tube A, substantially as and for the purpose set forth.

2. The combination of the bottom tube D, the lower portion B′ of the block, the tapering escballot *a*, reed *a′*, wedge *c*, and spring *d*, substantially as set forth.

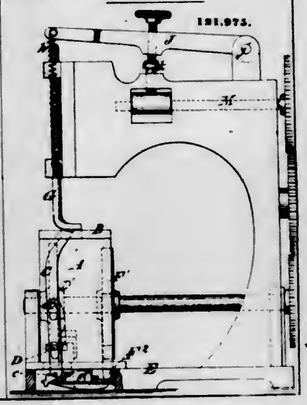
3. The combination of the bottom tube D, spring *d*, escballot *a*, block-pieces B′ B, wedge *c*, reed *a′*, and tube A, substantially as set forth.

191,974. WASH FOR INGOT-MOLDS. Wm. R. Jones, Braddocks, Pa. [Filed Apr. 4, 1877.]

Brief.—Coats the mold freely with whitewash, so that the ingot may slip easily therefrom.

The herein-described mold-wash, consisting of water and caustic lime or oxide of calcium, substantially as and for the purposes set forth.

191,975.



191,975. SEWING-MACHINES. John Keats, Wood Green, England. [Filed Dec. 16, 1876.]

1. The combination of the vertical feed-bar C, the levers F, F', and D, the cams F' D', and the spring *s*, substantially as herein described.

2. The combination, with the presser of a sewing-machine, of two springs or sets of springs, both of which, in their normal condition, act upon the presser to hold it down upon the work, and an automatic lifting or relieving device, applied to one of said springs or sets of springs to take its pressure from the presser without interfering with the pressure of the other spring or set, substantially as herein described.

3. The combination of the presser-rod G, the spring or springs *g g*, the spring or springs *h h*, the lever J, and the cam M, substantially as and for the purpose herein set forth.

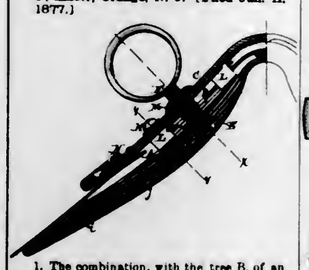
191,976. LAMP-EXTINGUISHERS. George D. Kilmer, Wilmington, Del. [Filed Mar. 17, 1877.]

Brief.—The figure shows the extinguisher closed, as when the light is to be extinguished. The wick-tube (not shown) is embraced by the jaws. They are operated from their base by a forked lever, which embraces the wick-tube.



The longer jaw B and shorter jaw B', provided with perforations *a a*, in combination with the removable bent rod *b*, wick-tube A^3, and slotted cap A^4, substantially as described and for the purpose set forth.

191,977. PADS FOR HARNESS-SADDLES. J. F. Knorr, Orange, N. J. [Filed Jan. 11, 1877.]



1. The combination, with the tree B, of an independent pad-plate, A, of equal width to the pad, and having its ends projecting beyond the ends of the tree to form an extended bearing for the saddle, as set forth.

2. A pad-plate, A, having the shoulders *a a*, to form a seat for the saddle tree, substantially as described.

3. The combination of tongues *c c* with the opening D, substantially as and for the purpose described.

4. A pad-plate, A, having the loops J J for receiving the screw-burrs, substantially as described.

5. The combination of a sleeve, M, with the terret-burr E, to protect the screw-shank of the terret, substantially as described.

191,978.

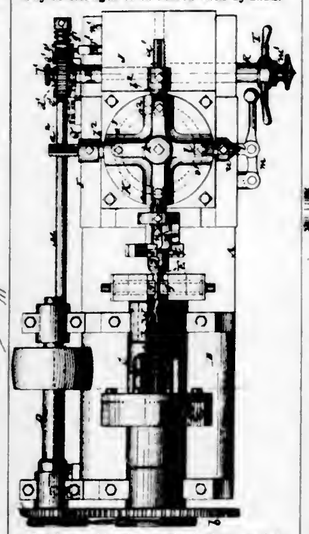


191,979. EMBROIDERY-PATTERNS. A. Komp, New York, N. Y. [Filed May 23, 1877.]

An embroidery-pattern composed of a perforated sheet of paper or card-board, with designs or characters which are raised above the surface of the body of said sheet, substantially in the manner and for the purpose shown and described.

191,979. MACHINES FOR TURNING, DRILLING, AND TAPPING SUCKER-ROD CONNECTIONS. Albert D. Laws, Bridgeport, Conn. [Filed Apr. 17, 1877.]

Brief.—The connection is centered and clamped near both ends by devices within the main spindle, with all of which it rotates to be operated upon successively by the tools. The feed-screw is loose on its shaft, and adapted to be engaged by a clutch splined to said shaft. When unclutched at the proper time by a projection on the carriage, this feed-screw serves to lock the carriage in its place. By means of a hollow cross-shaft, rod passing through the same, loose worm-wheel of the feed device, nut and hand-wheel, the carriage may be arranged to be turned back by hand.



1. The combination of the hollow rotating main spindle C, constructed to carry the sucker-rod connection concentrically and longitudinally within it, with a center mandrel, G, rotating with the spindle, and upon which the split end of the sucker-rod connection rests, and a device for automatically centering the split end of said sucker-rod connection, substantially as described.

2. The combination of a hollow cone or female centering device, H, with the inner mandrel G and outer hollow main spindle C, essentially as described.

3. The combination, with the hollow main spindle C, constructed to carry the sucker-rod connection concentrically and longitudinally within it, of a chucking or clamping device for centering and holding the split end of said sucker-rod connection within the main spindle, and a separate chucking or clamping device for centering and holding the forward end of said connection, substantially as and for the purpose described.

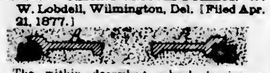
4. The loose feeding-screw *d'* and its half-clutch *f'*, in combination with the adjustable half-clutch *f*, the feed-operating shaft M, the carriage J, the worm-wheel Q, by which motion is communicated from the screw to the carriage, and means controlled by the motion of the carriage for throwing the screw out of gear and locking the carriage, substantially as specified.

5. The combination of the hollow cross-shaft R, the loose worm-wheel Q of the carriage-feeding devices, the carriage J, geared with and for operation by the shaft R, the friction-clutch S, and the tightening and releasing rod *k'* with its adjusting-nut *m'*, essentially as and for the purposes herein set forth.

191,980. PROCESSES FOR MAKING ILLUMINATING-GAS. James M. Leighton, Rochester, N. Y., assignor to himself, John T. Salter, Geo. W. Dyer, and T. S. Sprague. [Filed Mar. 14, 1877.]

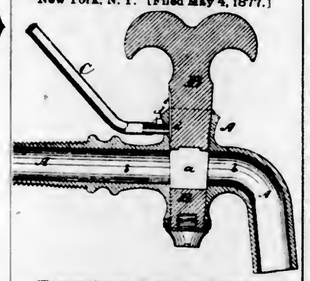
The process, in making illuminating-gas from wood and fluid hydrocarbons, of injecting such hydrocarbons, under air or gravity pressure, through a pipe into a retort, and spraying such hydrocarbons as they leave the pipe by a jet of steam introduced into such pipe in the same line of direction with a column of wood gas flowing in behind such sprayed hydrocarbons, so that such wood gas shall take up such sprayed hydrocarbons and sweep them out of the retort, substantially as described.

191,981. CASTING GROOVED PULLEYS. W. W. Lobdell, Wilmington, Del. [Filed Apr. 21, 1877.]



The within-described wheel, having a grooved rim, made in two parts, secured together and chilled at the groove only, as set forth.

191,982. VENT-FAUCETS. Adolph Luhrs, New York, N. Y. [Filed May 4, 1877.]



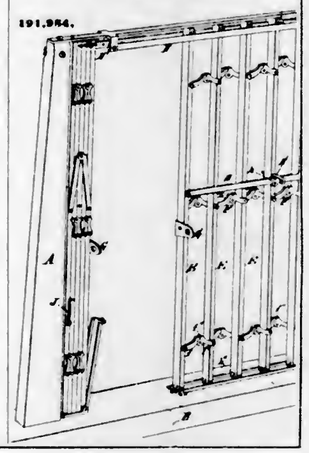
The combination of the case A, its flange *d* and opening *c'*, the plug B, its opening *a* and groove *e*, and the pipe C communicating with the openings *c'* in the flange, all as set forth.

191,983. CASTING GROOVED PULLEYS. W. W. Lobdell, Wilmington, Del. [Filed Apr. 21, 1877.]



The chills B B', adapted to the inner circumference of the rim of a grooved pulley, for the purpose of chilling the groove on the outer circumference of the pulley, as set forth.

191,984.



191,984. GATES. James B. Q. Maddox, Cincinnati, Ohio. [Filed Apr. 14, 1877.]

1. The grating or gate for hallways or doorways, composed of expanding bars E, joined together by knuckle stop-joints F *f f' f''*, substantially as and for the purpose specified.

2. In combination with the sliding bars E and connecting devices F, the hinged gutter-plate I, substantially as and for the purpose specified.

3. In combination with the folding bars E and pieces F, the hinges P at the sides and the side bars N, one of which, at N', permits of the swinging of the gate when in a folded condition, substantially as and for the purpose specified.

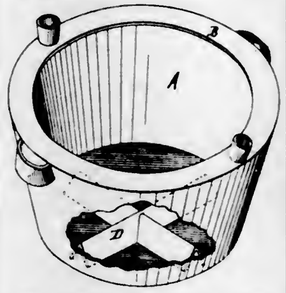
191,985. FEEDERS FOR THRASHING-MACHINES. Enoch J. Marsters, Stockton, Cal. [Filed Mar. 13, 1876.]



1. In a feeder for thrashing-machines, the combination, with the feed-box A B, of the reciprocating pushers C, sliding in guides attached to the said feed-box, the crank-shaft F, journaled in the upper end of the feed-box and having the series of quarter-bends, and the pitman E, connecting the cranks directly to the said pushers, constructed and arranged substantially as and for the purposes set forth.

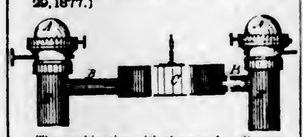
2. The combination, with the pushers C, working in the alternation specified, of the two sets or series of teeth attached, respectively, to the lower end and the middle portion of said pushers, as and for the purpose set forth.

191,986. DOUGH-RAISERS. Jno. W. Martin, Alliance, Ohio, assignor of one-half his right to Geo. Burgert, same place. [Filed Oct. 28, 1876.]



The combination of the exterior metallic vessel A, provided with ribs D on its bottom and at the top with the inwardly-projecting flange B, and the interior metallic vessel C, having at the top the outwardly-projecting flange *c*, all substantially as and for the purposes herein set forth.

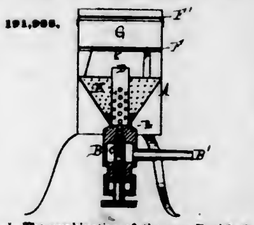
191,987. LAMPS. Eli C. McCloy, Norwalk, Ohio, assignor to himself and B. A. F. Greer, Mount Vernon, Ohio. [Filed Jan. 29, 1877.]



The combination with the annular oil reservoir or receiver C of the series of connecting or feeding tubes B, and the series of wick-tubes E, arranged outside of the circumference of the annular reservoir or receiver, substantially as herein shown and described.

191,988. GAS-STOVES. William McKenzie, Detroit, Mich., assignor of one-half his right to Jos. H. Berry, same place. [Filed Jan. 15, 1877.]

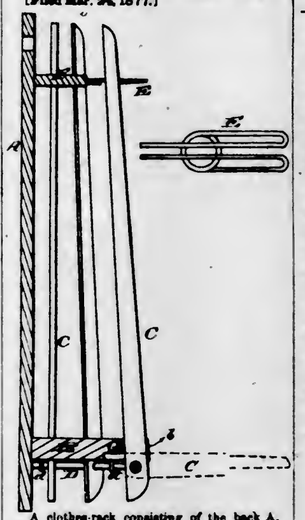
191,988.



1. The combination of the cage E with the burner-tube, case, and one or more perforated plates above said burner, substantially as described.

2. The combination of the case A, expansion-chamber B, valve C, tube D, cage E, and perforated plates F F, substantially as and for the purpose set forth.

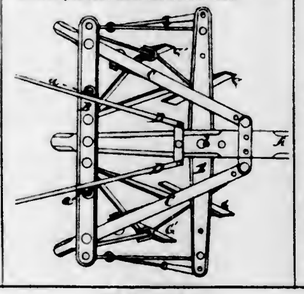
191,989. TOWEL-RACKS. Wm. H. Merritt and Frank A. Bokenfels, Manistee, Mich. [Filed Mar. 24, 1877.]



A clothes-rack consisting of the back A, having the upper bracket F, provided with the spring wire clamps E, made in one piece, bent spirally at their middle parts with straight projecting ends, and the lower bracket B, having recess *b*, shoulders G, and bent rod D, to which the bars C are pivoted, the whole constructed, arranged, and operating in the manner and for the purpose set forth.

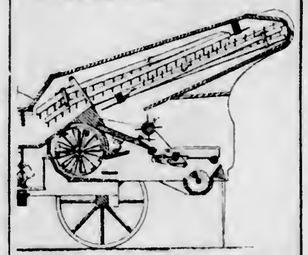
191,990. CULTIVATORS. Nelson Messenger and Jas. Erwin, Newark, Ill. [Filed Sept. 29, 1876.]

Brief.—The shovel-standards are braced both to the frame and to each other. The draft is pendent from the double-tree.



The combination, with the pole A, stationary cross-bar B, and pivoted double-tree E, of the V-shaped brace O, draft-rod K, link L, rod or chain M, and hook or clevis N, all constructed and arranged substantially as and for the purposes herein set forth.

191,991. GRAIN-SEPARATORS. John L. Metcalfe and John T. Metcalfe, Quincy, Pa. [Filed Feb. 6, 1877.]



1. The combination of the wind-register of the fan-wheel with the ball-governor and adjusting-weight, substantially as described.

2. The combination of the upper rakes I, actuated at their feed end by a multiple crank-shaft, and sliding in guides at their opposite end, with their lower rakes J actuated in a similar manner at their discharge end, and sliding in guides at their feed end, the two sets of rakes overlapping throughout nearly their entire length, and having teeth on their proximate faces, substantially as described.

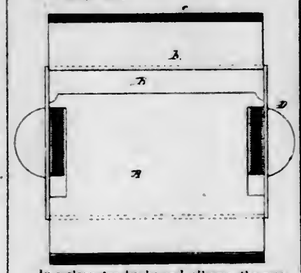
3. The rake-bars, arranged with their upper surfaces horizontal, and each bar set throughout its entire length with staggered teeth, substantially as described.

4. The combination of the toothed feed-roller N with the smooth incline, and with the comb or teeth a extending horizontally from the incline, the roller being arranged over the lower end of the incline, and the comb projecting from a point above said lower end, substantially as described.

5. The combination of carding-rollers, having both peripheral and longitudinal grooves, with the combs, having teeth that enter the peripheral grooves, substantially as described.

6. The combination of the elevator, the screen arranged in the bottom thereof, the sliding buffers, operating against the under surface of the screen, and the lever Q, by which the buffer is operated from the pulley of the lower rake-shaft, substantially as described.

191,992. CLASPS FOR BOOKS. Julius Muller and Edwd. Hilpert, Berlin, Prussia. [Filed Mar. 10, 1877.]



In a clasp for books and albums, the combination, with the hinged or stationary plate A, provided with projections *f*, and the shell or case B, provided with the pins *g* and hook *c*, of the springs D, all constructed as shown and described, and operating substantially as set forth.

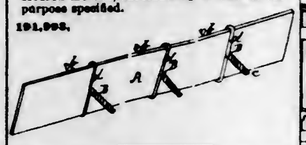
191,993. BARBED FENCES. Aaron J. Nellis, Pittsburg, Pa. [Filed Mar. 15, 1877.]

Brief.—The wire that forms the loop is plain, and projecting laterally in opposite directions are the barbs. The flat fence-rails have these barbs strung on them.

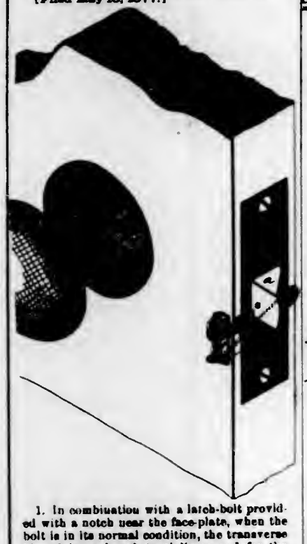
1. The looped wire or metallic fence-barb *b c d*, substantially as and for the purpose specified.

3. In combination with a metallic fence rail or strip, A, the twisted and looped barb *b c d*, secured thereon, substantially as and for the purpose specified.

191,993.



191,994. LATCH-BOLT LOCKS. J. G. Newell, New Haven, Conn., assignor of one-half of his right to L. G. Currier, same place. [Filed May 18, 1877.]



1. In combination with a latch-bolt provided with a notch near the face-plate, when the bolt is in its normal condition, the transverse hinged lever *b*, substantially as and for the purpose described.

2. In combination with a latch-bolt provided with a notch near the face-plate, when the bolt is in its normal condition, the transverse hinged lever *b*, and the stop *f*, substantially as and for the purpose described.

191,995. BURIAL-CASKETS. Albert H. Nirdlinger, Rochester, N. Y., assignor to the Stein Manufacturing Company, same place. [Filed Mar. 19, 1877.]

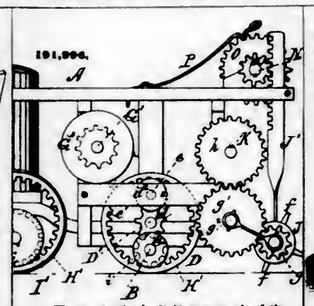


The combination, with the slots *b b* and the inclined back hooks *f f*, of the depressed channels or ways *d d*, located in the rear of, and outside of, the slots, and centering to the same, whereby the operator, by drawing on the end of the lid, without lifting, can release it from its engagement with the casket, as shown and described, and for the purpose specified.

191,996. CULTIVATORS. Oliver A. Olmsted, Santa Rosa, Cal. [Filed Mar. 14, 1877.]

Brief.—The rims of the main wheels are not secured to spokes or axle, but kept in position by the inside pinion and toothed wheels, that gear into the cogs of the large wheels. The tire is wider than the rim to give a broad tread, and is made removable. The cultivating-cylinder is raised in gear with its driving-pinions by a vertical rack and pinion operated by a hand-wheel upon the shaft, and held in position by a spring-pawl. The traction and cultivating mechanism are driven by separate engines.

191,996.

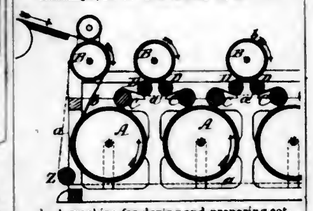


1. The track-wheels D D', composed of the internally-toothed rings *c'*, having removable tires H' of broader tread than said rings, the edges of the said tire extending out beyond the adjacent edges of the rings, substantially as specified.

2. The track-wheel D, having a raised toothed ring, *c'*, in combination with the lantern-wheels *a a'*, the driven pinion *d*, its shaft D', the clutch-pinion E', pinions F F, and gear-wheel F', the driving-pinion G, and driven shaft G', substantially as specified.

3. The rotary cultivator-cylinder J, journaled in the lower ends of the vertical guided racks J', in combination with the pinions *m*, engaging said racks, a hand-wheel, O, and shaft N, operating said wheel, and a spring-pawl, P, holding said pinion against backward rotation, substantially as specified.

191,997. DRYING. Henry D. Ostermoor, Brooklyn, N. Y. [Filed May 11, 1877.]



1. A machine for drying and preparing cotton-felt, consisting of an upper and a lower row of hollow cylinders, heated by steam, an intermediate row of rolls, C, a series of pairs of rolls, D, adapted to hold the felt to the hollow cylinders, a carrying-apron, and compressing and calendering rolls, all constructed, arranged, and operating substantially as herein set forth.

2. The fixed supply and escape pipes and their branches, arranged upon opposite sides of the machine, in combination with hollow revolving cylinders, having hollow journals, as set forth.

3. The spur gear J and pulleys M, arranged upon the hollow journals of the revolving steam-drying cylinders, and the lower intermediate pinions K and pulleys L, in combination with the driving-pulley and the drying-cylinders, as set forth.

4. The endless carrying-apron *a*, arranged, as described, to pass forward, under, around, and in contact with the lower cylinders A, under and without touching the upper cylinders B, and held away, at its returning side, from said lower cylinders by the end rolls Z Z, as set forth.

191,998. SPRING-GUNS. C. Palatini, New York, N. Y. [Filed May 4, 1877.]

Brief.—The device is for the purpose of throwing a projectile, to which a cord or line is attached, into a window or over the roof of a burning building, to afford means for drawing up ladders or other means of escape from the outside by those in the building.

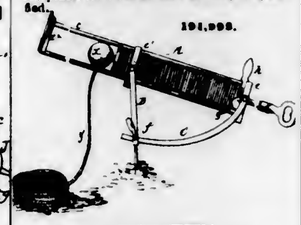
1. A spring-gun consisting of the open frame A, a spring-acted piston and devices, substantially as described, for retracting, holding, and releasing said piston, the whole adapted for use in the manner and for the purpose set forth.

2. In a spring-gun, the barrel, consisting of the rods *c c c* and rings *c' c'*, the latter being broken at *z* for the purpose as set forth.

3. The combination of the piston-frame A, the piston and devices for retracting the piston and releasing it at any point, all as set forth.

4. The projectile provided with a stem or receptacle for a coil of cord or wire, as specified.

191,999.

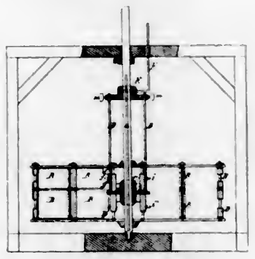


191,999. COMPOUNDS FOR ARTIFICIAL STONE. C. B. Peirce, McPherson, Kans. [Filed Feb. 20, 1877.]

The artificial stone described, consisting of glue, potassa, molasses, copperas, sulphuric acid, marble dust, lime, cement, and water, prepared and compounded in about the manner and proportions described.

192,000. CURRENT-WHEELS. William J. Perkins, Cedar Falls, Iowa, assignor of one-half his right to J. G. Wallace, same place. [Filed Nov. 11, 1876.]

Brief.—This wheel has horizontally-vibrating floats journaled in its arms in tiers, one above the other, and a vertically-movable non-rotating collar on the main shaft, having spaced spurs, adapted to look one or more of the said floats against swinging down stream, whereby the power of the wheel may be utilized fully, in part, or not at all.



1. In combination with a water-wheel having horizontally-vibrating floats B B, with notches *j j'* and *g*, the vertically movable collar C, having locking-spurs *i i'*, adapted for use substantially as specified.

2. In combination with a horizontally-rotating water-wheel, its notched vibrating floats, and the vertically movable spurred collar C, the rods D D, sliding collar E, clamp-screws *m*, and the lifting-rod F, substantially as specified.

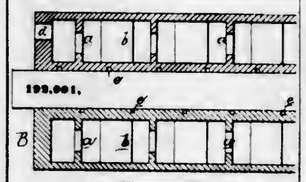
3. In combination with shaft A and a vertically-movable current-wheel rotating therewith, the vertically-movable sleeve C, connecting-rods D, the vertically-adjustable grooved collar E, set-screws M, and a rod for raising the said collar, substantially as set forth.

4. In combination with the inner-tiered floats B of a current-wheel, having each a heel, *p*, projecting therefrom outward, and adapted to be locked against swinging down stream, the outer vibrating floats adapted to lock with the heels of the inner ones, substantially as specified.

192,001. WOOD-DRYING APPARATUS. P. Pfeffer, New York, assignor to G. W. Read, Brooklyn, N. Y. [Filed May 14, 1877.]

A press plate, the working-face of which is provided with grooves, which extend to the edges of said working-face, so as to form passages for the discharge of the vaporized moisture from the wood.

192,001.



192,002. TOE-WEIGHTS FOR HORSES. S. A. Phelps, Syracuse, N. Y. [Filed Apr. 23, 1877.]

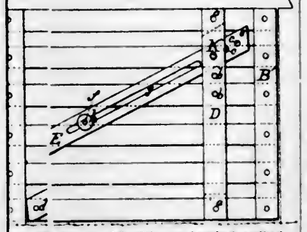


1. The toe-weight herein described, provided with a hinged tenon, substantially as shown and specified.

2. The combination of the weight *w* and hinged tenon *c* with each other and the securing-straps, substantially as specified.

192,003. GATES. Thomas B. Piburn, Brooklyn, Mo. [Filed Jan. 13, 1877.]

Brief.—The invention consists in the improved construction of the main brace.



The improved flexible gate herein described, having on each side of the pivoted gate-bars the oblique slotted braces E, pivoted at their lower ends to the lower rail, the rabbeted and perforated guards D, through which the free ends of said braces pass, the coupling-bolt *f*, its washer *h*, and the locking-pins K, all constructed and arranged as specified.

192,004. AUTOMATIC SUGAR-PURGING APPARATUS. Chas. Plagge, New York, N. Y. [Filed Nov. 14, 1876.]

Brief.—The green sugar is conducted into molds, after which it is treated with purging-sirup, which is admitted at the top of the mold upon a perforated plate. As the sirup percolates through the sugar, it drips into a vessel, which forms part of an apportioning device for automatically regulating the amount of sirup admitted. The molds are secured to a revolving cover-plate, by which each one is brought successively into contact with the sugar-filling pipe.

1. The combination of the fixed plate C, having the passages *e* and *g*, the mold-carrying cut-off plate F, having the passages *h* formed therein, and the molds K, substantially as and for the purpose described.

2. The combination, with the fixed plate C, the plate F, and molds K, all constructed substantially as described, of an automatic counterpoised apportioning apparatus, arranged to receive the purging-sirups after passing through the molds, and control their flow, substantially as and for the purpose set forth.

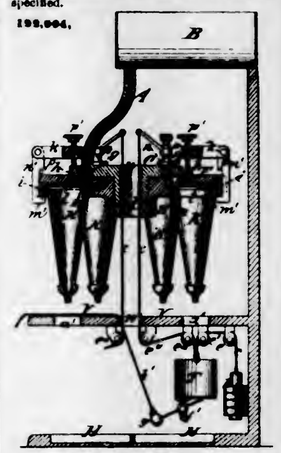
3. The combination of the receiver B and pipe A with the fixed plate C, mold-carrying cut-off plate F, and molds K, all constructed and arranged substantially as and for the purpose set forth.

4. The combination of the mold-carrying cut-off plate, the molds K, and a clamping device for attaching said molds to said plate, substantially as and for the purpose specified.

5. The combination of the pipe A, the plate C, having passage *g*, and the plate F, having passages *h*, the strainers *i*, and the short tubes *m* attached to the latter, and arranged to form a continuous passage from the receiver B when the said parts are brought into relation with each other, substantially as and for the purpose described.

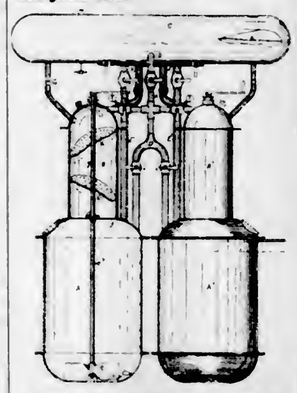
6. The combination, with the revolving plate F and the molds K, of the strainers *i*, constructed and arranged to allow green sugar to flow into the mold for filling said mold, and purging-sirups to subsequently pass into said molds for purging the contained sugar, substantially as and for the purpose specified.

192,005.



192,005. FIRE-EXTINGUISHERS. James M. Pollard, New Orleans, La. [Filed May 8, 1877.]

Brief.—The bicarbonate being introduced into the generator, hot water or steam is let in, expelling the air and moistening the soda, also maintaining a high temperature. When the soda is sufficiently moistened a stream of acid is introduced. The gas is kept below the steam-pressure, and the steam constantly agitates the mass at the bottom of the generator. The steam and gas escape together, the former imparting heat to the latter, which is thus made to occupy a larger space and produce greater effect.



1. The process, herein described, of expelling the air from the generators of chemical fire-extinguishers, and preventing the crystallization of the sulphate of soda, the said process consisting in the introduction into the generators of currents of steam or hot water, substantially as described.

2. The process herein described for expelling the air, along with a portion of the gas contained in the carbonate, by means of a current of steam, a portion of the steam escaping with the gas, and expanding or increasing its volume by imparting its heat to the gas as the steam is condensed, and a portion of the steam condensing in and moistening the carbonate preparatory to the introduction of the acid, so that the direct use of a volume of water is avoided, and the carbonate converted to the sulphate with the use of but one equivalent of water.

3. The method of agitating and mingling the chemicals previous to and during the admission of the acid, the same consisting in the admission into the generator of a current of steam, substantially as described.

4. The process of agitating and mingling the chemicals in a fire-extinguisher, the same consisting in admitting a portion of the diluted acid to the bottom of the generator, whereby the gases thus liberated produce the desired effect, substantially as described.

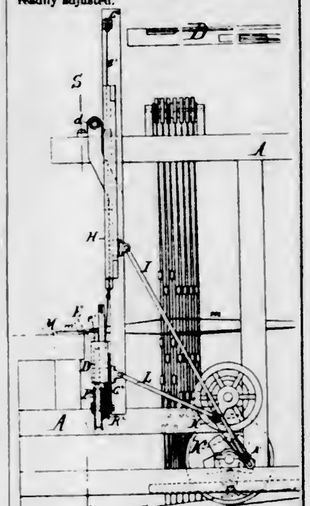
5. In a fire-extinguisher, a generator, A, provided with dome B, in which is operated an independent set of beaters, h, for the purposes set forth.

6. In combination with the generators of a fire-extinguisher, an agitating-screw, *e*, arranged to operate in but one direction, as described, and for the purpose set forth.

7. The combination of the vertical generators A A', with domes B B' surmounted with cylinders C C', the whole connected by the system of pipes D, E, F, G, *h*, and K', as shown and described, and for the purposes set forth.

192,006. LOOMS FOR WEAVING HAIR-CLOTH. Wm. J. Porter, New York, N. Y. [Filed Oct. 13, 1876.]

Brief.—The weft-inserting hook moves in a curved groove upon the extension of the lay. This motion of the hook causes its point to travel toward the reed as the latter advances toward the breast-beam, thereby drawing the hair into the warps in a line substantially parallel to the fell. This prevents bending the hair. The shuttle-driving mechanism receives motion from the crank-shaft through the intervention of a primary and secondary crank-pin, whereby the throw of the hook can be readily adjusted.



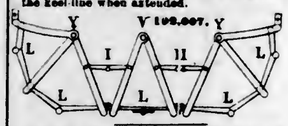
1. The lay D, having a curved way or guide, *d*, in combination with the carriage E and attached hook *a*, as and for the purposes herein set forth.

2. The combination of the primary crank-pin K, secondary crank-pin *k*, arm K', rod I, hook *a*, and connecting mechanism, adapted to serve as and for the purposes herein specified.

192,007. PORTABLE FOLDING BOATS. C. F. Prentice, New York, N. Y. [Filed May 25, 1877.]

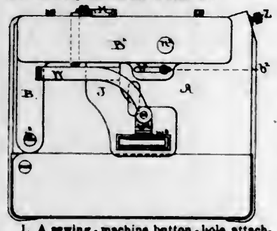
1. In an extensible portable boat, the ribs jointed at their termini and at their tangential points, and provided with jointed longitudinal braces I and vertically-folding foot-braces L, substantially as and for the purpose set forth.

2. The ribs of an extensible portable boat, constructed substantially as described, arranged in planes with the cross-section of the boat, and at angles other than right angles to the keel-line when extended.



192,006. BUTTON-HOLE ATTACHMENTS FOR SEWING-MACHINES. Wm. Randel, Troy, N. Y., assignor of one-half his right to J. W. Cipperley, J. C. Cole, and T. B. Haslehurst, same place. [Filed Jan. 2, 1877.]

Brief.—The mechanism for automatically feeding the material, so that, first, one side of the button-hole will be made, second, the material will be carried over to bring the other side under the needle, and, third, the feed will be reversed to make the other side, is all contained in the recessed portion of a vibrating arm, all the motions being derived from the vibratory movement of said arm.



1. A sewing-machine button-hole attachment, consisting of a vibrating arm, B, provided with the button-hole clamp, and with automatic reversible feeding mechanism, and with automatic laterally-shifting mechanism, whereby the forward feed on one side, the switching over to the other side, and the reverse feed on the other side of the button-hole is effected by the vibrations of said arm B, as set forth.

2. The combination of the plate A, provided with a stud, s^2, with the vibrating arm B and slotted arm T, for the purpose of imparting motion to the feeding device, in the manner herein specified.

3. The combination of the guide-bar C, provided with the cross-bar c^2, spring-pawl D, and lever H, with the clamping device herein described, for the purpose set forth.

4. The feeding device herein described, consisting of the combination of the rack L, pinion N, ratchet-wheel O, arms P and Q, double pawl E, and springs S, as and for the purpose specified.

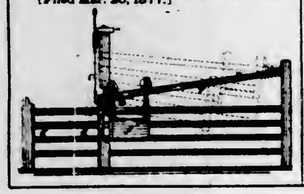
5. The combination of the guide-bar C, slide f^2 provided with projections f^3, with the spring-pawl D, rod E, adjustable stop F, and spring I, as and for the purpose herein specified.

6. The combination, with the adjusting-screw Z, of the sliding block s^1, held laterally in a fixed position in the bottom plate A, stud s^2, and slotted arm T, as and for the purpose set forth.

7. The combination, with the slide f^2 and brake-lever U, of the arm Q and pawl R, as and for the purpose specified.

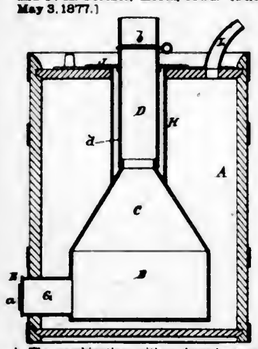
8. The combination of the sliding clamp-plate with mechanism, substantially as described, for automatically changing the position of said clamp laterally, and mechanism, substantially as described, for automatically reversing the motion of said clamp laterally, whereby the material is so fed with relation to the needle that the button-hole is stitched on both sides, as set forth.

192,009. GATES. Fredk. Rau, Albia, Iowa. [Filed Mar. 20, 1877.]



The sliding gate G, having catch or projection *d*, in combination with the pivoted bar F having boat spring D, provided with the catch *c*, substantially as and for the purpose herein set forth.

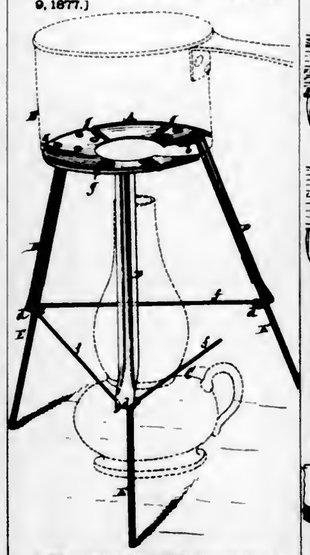
192,010. FEED-STRAINERS. Robert M. Rice and F. M. Gortner, Keota, Iowa. [Filed May 3, 1877.]



1. The combination, with a barrel, A, of the furnace B with flue G, having damper *a* and conical top C, the smoke-pipe D, having damper *b*, surrounding sleeve H, and cold-air chamber *d* between the sleeve and smoke-pipe, substantially as and for the purposes herein set forth.

2. The combination, with the furnace B C, of the sleeve H, annular plate I, smoke-pipe D, and flanged four-armed spider J, substantially as and for the purposes herein set forth.

192,011. PORTABLE LAMP-STOVES. M. T. Richardson, Brooklyn, N. Y. [Filed Apr. 9, 1877.]



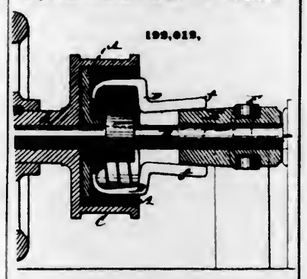
1. The combination, with the annular or open cap A, of the detachable legs D, the screw-rod extensions E, and the hooking-braces *f*, substantially as specified.

2. The annular or open cap A of the stove, constructed with a depressed or dished upper surface, and provided with upper grooves or perforations *g* extending through the outer edge of the cap, essentially as and for the purpose herein set forth.

192,012. FRICTION DEVICES FOR CONTROLLING MOTION. Alex. K. Rider, Walden, N. Y. [Filed Nov. 23, 1876.]

Brief.—A spiral coil cut from a hollow cylinder open at one end is by the other end attached to the shaft. The coil is within a hollow drum, also open at one end, and connected to a hub loose on the shaft, which becomes fixed thereto by the expansion of the spring, to produce frictional contact with the drum.

192,012.

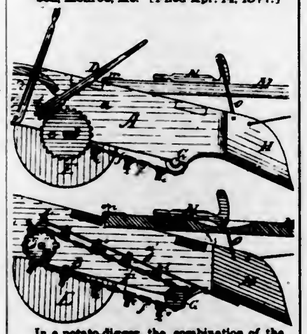


1. The combination, in a friction-coupling, of a spiral or helical coil, fast at one end to a rotating shaft or carrier, a friction hub or box, and means for positively engaging and disengaging said coil with and from said box or hub, substantially as specified.

2. The expanding-yoke D, in combination with the coil A and the shaft or carrier B, essentially as described.

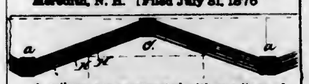
3. The cone E, in combination with the expanding-yoke D, the coil A, the shaft B, and the friction hub or box C, substantially as specified.

192,013. POTATO-DIGGERS. A. J. Robertson, Monroe, Me. [Filed Apr. 14, 1877.]



In a potato-digger, the combination of the screen-bars *k k*, attached to the rear end of the scoop H, and having downwardly-curved free rear ends, in combination with the elevator F arranged underneath, and having cross-bars *s s*, which, by striking against the rear ends of the screen-bars *k k*, impart to them a trembling or vibrating motion, substantially as described, for the purpose shown and specified.

192,014. CAR-WINDOWS. Geo. S. Roberts, Meredith, N. H. [Filed July 31, 1876.]

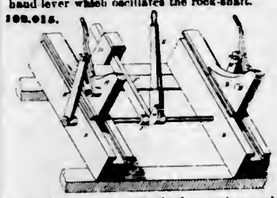


A railway-car constructed with two lines of alternating posts, *a a* and *a a*, for the insertion of windows in oblique or zigzag positions, and for forming bays or recesses in the sides of the car, opposite to the several seats thereof, substantially as and for the purpose herein specified.

192,015. HEAD-BLOCKS FOR SAW-MILLS. Alex. Rodgers, Muskegon, Mich. [Filed Dec. 28, 1876.]

Brief.—One of the setting-jacks can be adjusted in advance of the other, when such adjustment is rendered necessary by the taper of the log being cut, by means of a link pivoted to the side of the jack, and provided with a handle and with a peculiarly-formed slot, in which works a pin upon the upper end of a vertical arm in a rock-shaft passing through the blocks. The jacks are retracted after a log has been sawed by a weighted lever connected to the rock shaft by a sleeve provided with a projection, which engages with the hand lever which oscillates the rock-shaft.

192,015.



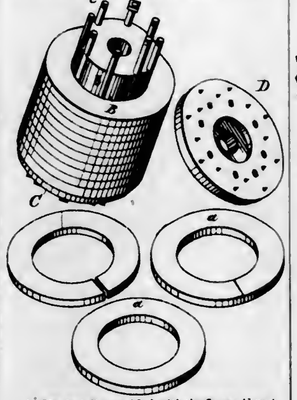
1. In connection with the log-carriage and head-blocks of a saw-mill, the links I, constructed as and for the purpose specified.

2. The setting-jacks B', in combination with the links I, arms B', rock-shaft D, and hand-lever E, as and for the purpose set forth.

3. The weighted lever F, provided with the sleeve F' and projection *e*, in combination with the lever E, rock-shaft D, and the devices by which it is connected with the setting-jacks of a saw-mill carriage, substantially as and for the purpose specified.

192,016. FRICTION-WHEELS FOR SAW-MILLS. Alex. Rodgers, Muskegon, Mich. [Filed Dec. 28, 1876.]

Brief.—To obviate the frequent renewing of the paper rings forming the working-surfaces of friction-wheels for saw-mills, the wheels are formed of a series of concentric paper or mill board rings impregnated with suitable abrading material, placed upon a hub having a flange at one end, and provided with longitudinal grooves flush with its periphery, and mounted upon a shaft provided with a corresponding flange, the whole held in place by suitable bolts passing through the flanges and grooves, and fastened by nuts at outer ends.



1. The hub B, provided with the flange C and grooves *b* for the reception of the bolts *c*, as and for the purpose shown and described.

2. The hub B, provided with the flange C and grooves *b*, in combination with the rings *a*, follower D, and bolts *b*, substantially as and for the purpose specified.

3. In a friction-wheel, as described, the rings *a*, impregnated or interleaved with emery or other abrading material, as and for the purpose set forth.

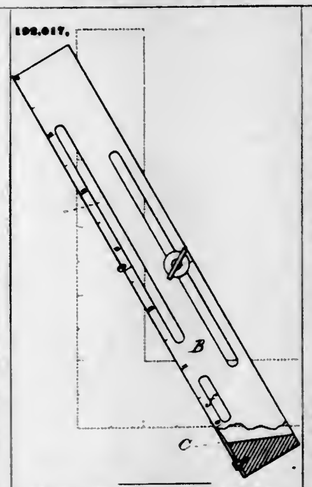
192,017. BEVEL-RULES. John C. Rorick, Wauseon, Ohio. [Filed Mar. 24, 1877.]

Brief.—Slide slotted so that it can be used with the ordinary square, and removes the necessity of slotting the square.

1. The slide for a bevel-square, having an oblong view-slot or slots, a clamp and clamp-slot, and a longitudinal slot for a try-square, substantially as specified.

2. A slide for a try-square, having a removable adjustable finger, C, substantially as specified.

192,017.



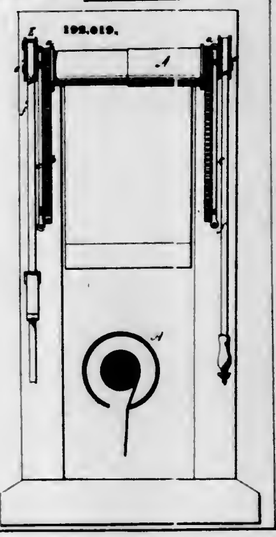
192,018. BIT-STOCKS. Clemens B. Ross, Miller's Falls, Mass.; Bowdoin S. Parker, administrator. [Filed Oct. 26, 1876.]

Brief.—The bit is securely held in the stock by means of a cylindrical head having recesses, in which are pivoted two expanding pawls, provided with pins, which enter cam-slots in the under side of a regulating-cap secured to the top of the head; an annular shouldered ratchet casing surrounding the head, pawls, and upper end of the stock, and provided with lugs in its upper part, which engage with the pawls when the latter are thrown into position for such engagement.



Recessed disk B, in combination with pivoted dogs or pawls C C, having pins *c' c'*, and springs D D, substantially as set forth.

192,019.

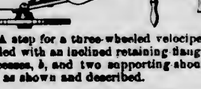


192,019. CURTAIN-FIXTURES. Hilliard E. Sawyer, South Meriden, Conn., assignor of one-half his right to D. P. Sawyer, same place. [Filed Mar. 30, 1877.]

1. The combination, in a curtain-fixture, of the longitudinally-slotted tube A and a curtain arranged therein through said slot, with means for winding the same, the pinions *a*, stationary racks *b*, and a device for raising or lowering the said tube while in connection with said racks, substantially as described.

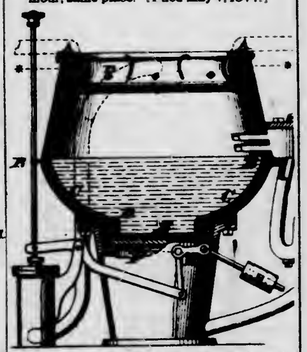
2. The combination, in a curtain-fixture, of the slotted tube A, pinions *a*, stationary racks *b*, and a device for raising or lowering the said tube while in connection with said racks, a roll for the curtain within the said tube, and a cord and pulley outside said tube in connection with said roll, for winding the curtain within the tube, substantially as specified.

192,020. HUBS FOR LOCKS. John Schade, Stamford, Conn. [Filed Mar. 13, 1877.]



The combination of the revolving hub or roll-back and the wire inserted longitudinally in its slot to form a projection therein, substantially as set forth.

192,021. WATER-CLOSETS. A. B. Seymour, Portsmouth, Ohio, assignor to Ida M. Seymour, same place. [Filed May 7, 1877.]

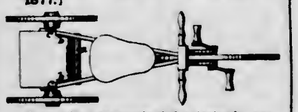


1. A water-closet basin, having an outward flare from its extreme upper margin A to the junction B, with concave bottom C, which latter converges from all sides to the outlet D, substantially as herein described, and for the purpose set forth.

2. The wash-pipe O, applied near the top of a water-closet basin, and passing completely around within the same, said pipe being furnished with a continuous slot or vantage, Q, for discharging an unbroken sheet of water against the walls of the basin, substantially as herein described, and for the purpose set forth.

3. The combination, with the continuously-slotted wash-pipe, of a water-closet basin, the bolts R and nuts *r* for adjusting the area of said vantage, substantially as herein described, and for the purpose set forth.

192,022. STEPS FOR VELOCIPEDES. John Shaller, New York, N. Y. [Filed May 10, 1877.]



A step for a three-wheeled velocipede, provided with an inclined retaining-flange, *a*, two recesses, *b*, and two supporting shoulders, *c*, all as shown and described.

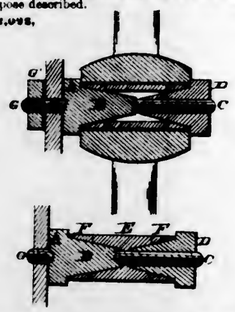
192,023. JOURNALS. William O. Shipherd, Cleveland, Ohio, assignor of two-thirds his right to J. J. Brooks and B. K. Davis, same place. [Filed Feb. 27, 1877.]

1. The combination of a bolt, A, provided with conical stem B and cylindrical stem C,

with the nut D, provided with the conical stem D', and the cylindrical packing E F, substantially as and for the purpose described.

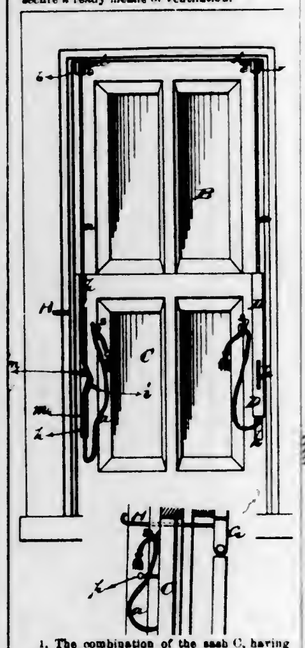
2. In connection with the double conical compensating bolt and nut and the cylindrical packing, the stud or shank G, with or without the nut G', substantially as and for the purpose described.

192,021.



192,021. SASH-BALANCES. N. J. Skaggs, Talladega, Ala. [Filed May 5, 1877.]

Brief.—A slight novelty in the combination and arrangement of old devices, and the addition thereto of a stop so manipulated as to secure a ready means of ventilation.



1. The combination of the sash C, having grooves h and inclined recesses i, the cords a, rollers s, with handles p, slotted covering strips D, and pulleys w, all substantially as and for the purpose set forth.

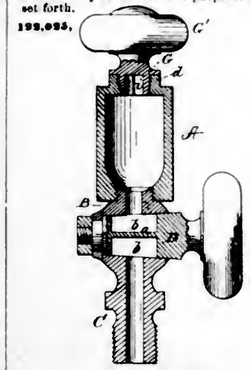
2. The stop G and handle H, arranged in combination with the top sash B and suitable balancing devices, as and for the purpose set forth.

192,023. LUBRICATORS. Albert S. Skinner, Hastings, Mich. [Filed Apr. 28, 1877.]

1. The screw-plug G, hollow at its lower end, and provided with longitudinal slots i i, in combination with the tapering mouth d, having interior screw-threads, whereby vent is given to the reservoir, and the plug is prevented from becoming loose or disengaged by jarring, substantially as and for the purposes herein set forth.

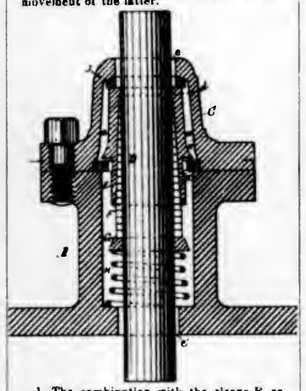
2. The combination of the reservoir A, open at both ends, and provided with screw-threads in each opening, the removable screw-plug G, with slots i i, and the removable barrel B, having tapering plug-valve D, with partition a, and hollow screw-stem C, all constructed substantially as and for the purposes herein set forth.

192,025.



192,025. STUFFING-BOXES FOR STEAM-ENGINES. Chas. T. Sleeper, Chicago, Ill., assignor of one-half his right to G. G. Benedict, same place. [Filed Apr. 26, 1877.]

Brief.—An annular ring is fitted into a recess in the end of the cap adjacent to the stuffing-box, upon which rests a shoulder formed around the sleeve, to prevent the sleeve from being moved inward against the pressure of the spring should the packing in the sleeve wedge against the piston-rod in the backward movement of the latter.



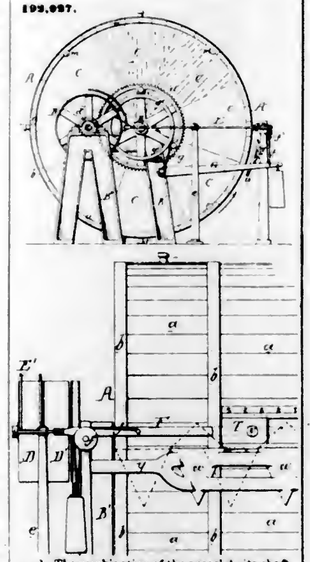
1. The combination with the sleeve E, arranged to admit of a lateral movement with the piston-rod, and provided with the shoulder K', of the cap C and rings J and K, substantially as and for the purpose specified.

2. The combination with the sleeve E, fitted within the cap C and stuffing-box A, and having the conical cavity provided with the curved retaining-shoulder d, and having the external shoulder K', of the ring K, series of packing-rings F, follower G, and spring H, substantially as and for the purpose specified.

192,027. WASHING-MACHINES. Leopold Sternberger, Philadelphia, Pa. [Filed Mar. 19, 1877.]

Brief.—The cylinder is divided into compartments by means of removable slatted partitions extending from the staves to the central shaft, the compartments being provided with sliding doors at one end of the cylinder and sliding drain-valves operated by cams. The belt-shifter is provided with a weighted bell-crank lever, which operates the friction-brake, when the power is removed, for the stopping of the machine. A funnel passing through a recessed ring surrounding the shaft allows washing-fluids and soap to be introduced into the cylinder.

192,027.



1. The combination of the vessel A, its shaft B, and friction-brake, and the shaft c and its fast and loose pulleys D and D', with the belt-shifting lever E and friction-brake lever G, all substantially as described.

2. The combination of the bar F with the weighted brake-lever G, strap *f*, and pulley *f'*, as set forth.

3. The combination of the bar F, its ratchet-teeth, and the pawl h with the weighted brake-lever G, operated by the bar F, as described.

4. The combination of the vessel A, its shaft B, and partitions G' with sheathing and retaining strips i i' and *j j*, as described.

5. The combination of the shaft B and partitions G' with the strips i i' and *j j*, the latter being secured to the shaft so as to be readily detachable, as set forth.

6. The combination of the partitions G' with the detachable strips m, as specified.

7. The body of the vessel, consisting of staves a combined with ends composed of triangular strips, the latter having the grain of the wood running radially from the center to the periphery of the vessel, as set forth.

8. The combination of the end of the vessel and its curved guides n n with the sliding doors I, as described.

9. The combination of the vessel A, having in its periphery openings covered with screens, with sliding valves T.

10. The combination of the vessel and its valves with an adjustable cam or cams for operating said valves.

11. The combination of the end of the vessel A with the stationary ring J, having a recess or opening, t, as and for the purpose set forth.

12. The combination of the ring J with the trough M, as specified.

192,028. DOUBLE-ACTING PUMPS. Thomas B. Swan, Mechanics Falls, Me. [Filed May 19, 1877.]

Brief.—The pump-cylinder has a valve opening upward at its lower end, and a piston working therein. A hollow piston-rod extends through the said piston, and has a valve opening upward at its upper end. A supplemental pipe or conduit communicates at its lower end with the feed or suction tube, and with the pump-cylinder at its upper end. A pump-barrel communicates with the cylinder by means of a valve opening upward.

1. In a pump, the combination, with a cylinder A and its piston C, of the hollow rod D extending through said piston and the valve F closing its upper end, substantially as specified.

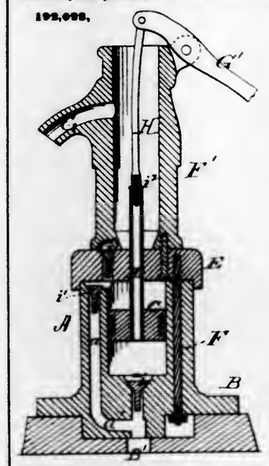
2. The combination, with the cylinder A having valve f at its lower end, and the piston C having a hollow rod closed at its upper

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end by a valve, F, of the supplemental conduit a, opening at its lower end into the feed-pipe below its valve *i*, and communicating by means of a valve, f', with the cylinder at its upper end, and the pump-barrel F' having valve f', substantially as specified.

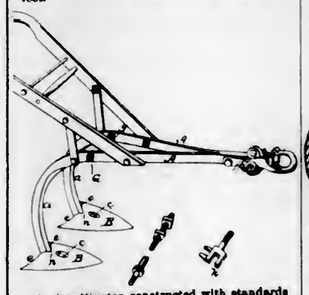
3. The combination, with the barrel F' having valve f', and the cylinder having valve *i*, of the piston having hollow rod D with valve f', and the supplemental conduit a having valve f' and opening into the feed-pipe, substantially as specified.

192,029.



192,029. CULTIVATORS. Pembroke S. Tartt and Geo. F. Wilson, Wingo's Station, Ky. [Filed Nov. 13, 1876.]

Brief.—Standards with cutting-edges, and horizontal shovels with sharp edges on all sides; devices for fastening shovels and plow-feet.



1. A cultivator constructed with standards a a, sharpened on their front edges, and provided with horizontal flat feet b b, combined with shovels B B, slightly convex transversely, and with edges on a horizontal plane, as and for the purpose set forth.

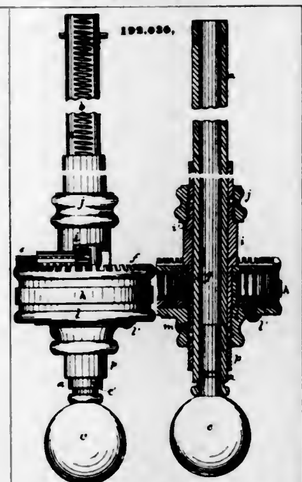
2. The shovels B B, of the form described and shown, with sharp rear edges c c, as and for the purpose set forth.

3. The horizontal flat feet b b, having depressions or cells in the upper surfaces, with tapped screw-holes in said cells, combined with the shovels B B, having projection on the under side to fit said depressions, and cells on the upper side to receive the flush heads of the holding-bolts e e, whereby both upper and under surfaces are smooth and unobstructed, and the bolts e e are relieved of all shearing strains.

192,030. SLIDES FOR CHANDELIERS. Chas. Y. Taylor and John T. Bruen, Brooklyn, N. Y. [Filed Dec. 20, 1876.]

Brief.—When the pipe having a rack or teeth cut in its outer surface is pulled down, the horizontal shaft carrying a cog-wheel and pinion is turned, and motion communicated to the disk-wheel, which closes the coil-spring.

192,030.



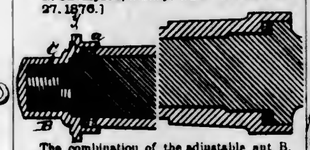
1. The combination of pipe-boot i with its attachments of adjusting-collar *l*, spring-box k, and spring g, the spring-power resting upon said pipe-boot, and from thence acting upon the gearway of the movable pipe a by means of the disk-wheel *f*, pinion e, cog-wheel d, and gearway b in the movable pipe a, substantially as described, and for the purpose herein set forth.

2. The combination of gearway b, cog-wheel d, pinion e, and disk-wheel with tangential cogs *f*, by means of which the power of spring g is controlled and acts in a rigid manner upon the movable tube a, substantially as described, and for the purpose herein set forth.

3. The ball-plug or swivel handle to drop-light basket.

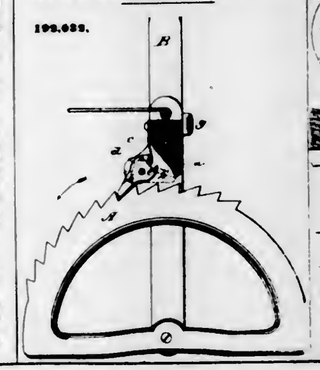
4. The combination of the racked pipe, the disk-wheel with tangential cogs, the pipe-boot, the spring and spring-box, with adjusting-collar and the ball-plug, or their equivalent, for the purpose set forth.

192,031. ADJUSTABLE AXLE-NUTS. Orrin B. Thompson, Jersey, Ohio. [Filed Nov. 27, 1876.]



The combination of the adjustable nut B, having the recess y, with an axle having a screw, C, in the end of the spindle, substantially as shown and described; all constructed, arranged, and operating so that the nut shall inclose the screw C.

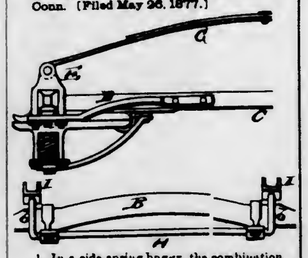
192,032.



192,032. WAGON-BRAKE LEVERS. Poul Thomsen, Atchison, Kans. [Filed Apr. 21, 1877.]

The combination of the segmental ratchet A, brake-lever B and swinging pawl-box C, the latter having lugs *f g*, pawl h, and operating-spring c, substantially as and for the purpose herein shown and specified.

192,033. SIDE-SPRING VEHICLES. Monroe Throop and Wm. H. Doyle, Bantam Falls, Conn. [Filed May 26, 1877.]

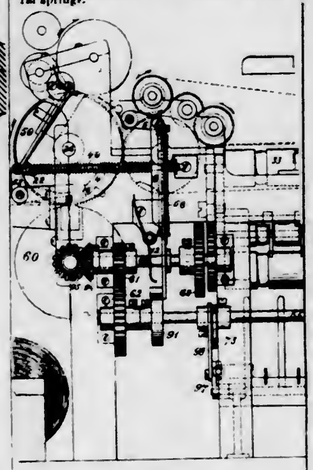


1. In a side spring baggy, the combination, with the head-block A and hind axle B, of the side springs G G, the stationary jacks k k on the head-block, and the shaft H under the hind axle, provided with arms b b and jacks I I, substantially as and for the purposes herein set forth.

2. The combination of the block A, hind axle B, reaches C C, braces D D, jacks E E, springs G G, and the shaft H with arms b b and jacks I I, substantially as and for the purposes herein set forth.

192,034. FOLDING-MACHINES. S. D. Tucker, New York, N. Y. [Filed Dec. 2, 1876.]

Brief.—One of the cutting-cylinders carries also a blade, which folds the sheet into spring-gripers on the other cutting-cylinder. Connected with the latter are two delivery-cylinders, which, by the aid of a rocking switch, receive alternate sheets and pass them over two sets of rollers, where oscillating blades make the cross-fold. The sheets are then brought together by endless tapes and delivered before the fly. The sheets may be perforated instead of cut, when vibrating guides will break them from the web. The oscillating folding-blades are connected together and to the operating-crank by rods made up of two parts sliding together, and connected by spiral springs.



1. A pair of cylinders provided with cutting mechanisms and with a folding blade and co-operating nipping devices, in combination with a delivering-cylinder, substantially as described.

2. The combination, with a pair of cylinders provided with sheet-folding devices, of two

delivering-cylinders and a device for directing the sheets alternately to said delivering-cylinders, all substantially as described.

3. In combination with mechanism imparting to a sheet its first fold, a cutter for dividing it into two sheets, mechanism for subsequently folding said sheets, and devices for collecting said sheets together and delivering the same, all substantially as described.

4. The combination of the guiding-fingers with the cutter and its carrier, whereby the parts of the web are torn asunder on the partially-severed line, substantially as described.

5. The combination, with a folding-blade and an actuating device vibrating said blade positively in both directions, of an interposed yielding mechanism, which is provided with means for adjusting its resistance so that the said yielding mechanism shall operate when the ordinary movements of the folding-blade are obstructed, all substantially as described.

6. The combination of folding-cylinder 50, delivering-cylinders 80 90, and switches 2, substantially as described.

7. The combination, with the folding-blades, of rods provided with adjustable elastic portions, connecting the said blades together, or either of them, with the actuating mechanism, all substantially as described.

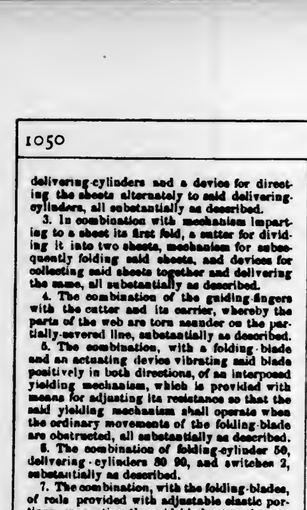
8. The combination with the pairs of folding-rollers 32 33, of the delivering-rollers 38 and connecting tapes, substantially as described.

9. The combination of a rotating carrier supporting a single sheet-folding device with means for delivering the sheets it carries into co-operating folding devices alternately at two or more points, all substantially as described.

10. The combination, with a rotating carrier supporting a sheet-folding device, of the co-operating sheet-receiving cylinders, one of which cylinders is provided with a recess, as 107, all substantially as described.

192,026. FOLDING-MACHINES. S. D. Tucker, New York, N. Y. [Filed Dec. 1, 1876.]

Brief.—A rotating cylinder carries a blade, which is radially projected by fixed eccentrics, to fold the sheet into a pair of rollers mounted in an oscillating frame, to which is attached an oscillating blade, making the second fold into a pair of rollers mounted in the same frame, whence, through inclined guides, the twice-folded sheet is delivered to receiving-rollers supported in fixed bearings.



1. A pair of folding-rollers, as 5 6, mounted in an oscillating or swinging frame, which moves them to and fro to approach, engage, and pass a folding-blade in combination therewith to double or fold a sheet, substantially as described.

2. The combination of a revolving folding-blade carrier with a pair of folding-rollers mounted in an oscillating or swinging frame, substantially as described.

3. The combination of a revolving carrier, a folding-blade reciprocating therein, and a pair of folding-rollers mounted in an oscillating or swinging frame, substantially as described.

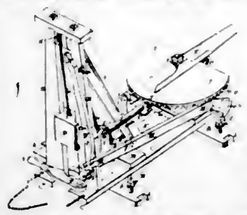
4. The combination of a folding-blade mounted in a moving carrier with the folding-rollers 5 6 7 8 and vibrating folding-blade 23 supported in an oscillating or swinging frame, substantially as described.

5. The combination, with a single stationary sheet-nipping device, of a pair of sheet-delivering rollers carried by a frame, which oscillates or swings to and from said sheet-nipping device, all substantially as described.

6. The combination of a vibrating frame, rollers 7 8, angular or inclined conductor 45, and rollers 37 38, all substantially as described.

7. The combination, with rollers 7 8 and rollers 37 38, of a frame oscillating or swinging to carry the rollers 7 8 to and from the rollers 37 38 to deliver the sheets to the latter, as and for the purpose described.

192,034. POST-DRIVERS. Madison Vandedol, Ivanhoe, Mo. [Filed Mar. 29, 1877.]



1. The drum-shaft i, having pinion i', and supported by pivoted lever L, in combination with the latch-lever N and driving-gear J, as and for the purpose described.

2. In a post-driver, the latch-lever N, having a handle, s, so as to enable it to be disengaged by hand from lever M when desired, for the purpose set forth.

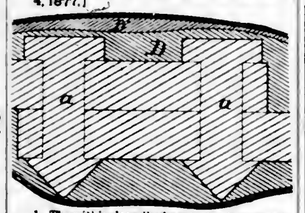
3. The operating segment-gear J and handle K, in combination with dog s, and recessed plate O for holding the lever at any desired position, as set forth.

4. The semicircular plate O, having two of its recesses, o^2 o^3, provided with removable sliding bottom o^1, as and for the purpose set forth.

5. The main frame A B C, in combination with a pivoted post-holder, P, having notched or scalloped inner edge, as and for the purpose set forth.

6. The driving-gear J, pinion i', winding-drum I, and rope G, in combination with the idler-drum L', pulley H, and hammer D, all constructed and arranged as and for the purpose set forth.

192,027. COMPOSITION SHEATHING FOR VESSELS. Frederic P. Warren, Southsea, and Edward Field, Adelphi, Great Britain, assignors to said Edward Field. [Filed Jan. 4, 1877.]



1. The within described protector to prevent incrustation, corrosion, &c., on surfaces of vessels, consisting in an external covering of paper, and an intermediate layer of cement, as and for the purpose specified.

2. The layer or coating of cement, the layer of paper, the coating of size, and the coating of paint, all arranged and combined as specified, for the purpose set forth.

192,028. SPOOL-CASES. Nathl. Waterbury, Baltimore, Md. [Filed Apr. 13, 1877.]

1. The box or case A, having a number of compartments conforming in shape to and receiving spools of thread, in combination with, and held down therein by, elastic straps or bands B B, substantially as and for the purpose set forth.

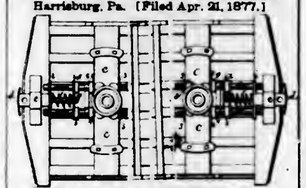
2. The box or receptacle A, having the plate or knife *b*, in combination with the cover C, having the elastic material *c*, which, when the cover is closed, will be wedged in between the said plate and cover, and thus fasten the latter in place, substantially as set forth.

3. The box or receptacle A, having a number of compartments to receive spools of thread, and elastic straps or bands B B, directly through which the thread is passed, substantially as and for the purpose set forth.

192,029.

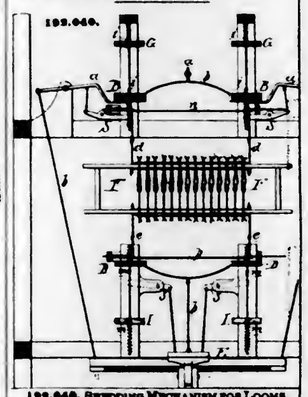


192,039. CAR-BUMPERS. Alvin W. Weikert, Harrisburg, Pa. [Filed Apr. 21, 1877.]



The combination of the draw-head *d*, having the bolt *g* projecting from its rear end, two sliding plates, *i*, having the spring 1 placed between them, and draft-irons 2, that are fastened directly to the bolster, the various parts being secured together by means of keys, and adapted to operate substantially as shown and described.

192,040.



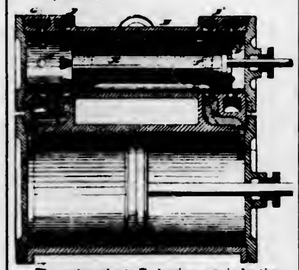
192,040. SHEDDING MECHANISM FOR LOOMS. Henry Wolbold, Philadelphia, Pa. [Filed Apr. 7, 1877.]

Brief.—The heddles are provided with knot-cords above and below, each series of the latter being under the control of a separate jacquard mechanism. The heddles are positively raised and lowered against the tension of springs, the latter being connected to the suspension-boards. In order to preserve the parallelism of the suspension-boards with the knot-boards at the forming of the shed, the former are connected at each end by rods or wires to compensating levers, which are operated by the heddles. The levers draw down the suspension-boards in connection with the cords and prevent all twisting of the said boards.

1. The combination of the heddles, their cords *d* and *e*, and selecting mechanism with the operating-bars B and D and the spring-plates G and I, as specified.

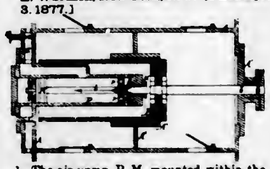
2. The combination of heddle-operating mechanism, substantially as described, with spring-plates G and compensating-levers S, as set forth.

192,041. STEAM-ENGINE VALVES. Horace H. Woods, Rock Island, Ill. [Filed May 10, 1877.]



The valve-chest B, having an induction-port, and the surrounding annular chambers D D' and G G' at its ends, and constructed with the trapezoidal ports F, communicating with the cylinder of the engine and the chambers D D', and the ports H H', communicating with chambers G G', and eduction ports I I', in combination with the hollow valve-stem K, having at its ends the pistons L L', substantially as and for the purpose described.

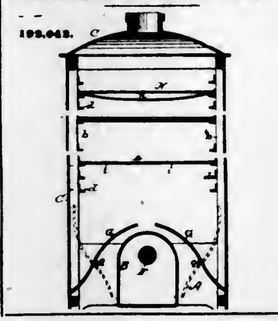
192,042. STEAM PUMPING MACHINERY. W. E. Worthen, New York, N. Y. [Filed Apr. 3, 1877.]



1. The air-pump P M, mounted within the main casing A, and main plunger B, operated by a direct connection, *b*, as herein specified.

2. The main casing A A^1 A^2 A^3 A^4, hollow plunger B *b*, air-pump barrel P, exhaust-steam passage E, delivery passages *p*, and air-pump piston M, operated by the connection *m*, all combined and arranged for joint operation in a steam-pumping machine as herein specified.

192,043.

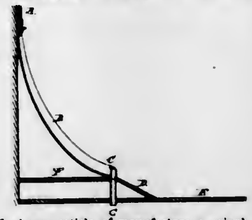


192,044. BILLIARD-CUES. Warren Hill, Boston, Mass. [Filed Aug. 8, 1874.]



The cue-tip C, provided with the threaded shank B, the tip and its shank being composed of leather in one piece, in combination with the threaded socket *a* for attaching the tip, substantially as specified.

192,045. URINALS. John Walter Osborne, Washington, D. C. [Filed Mar. 15, 1877.]



1. As an article of manufacture, a urinal, consisting of the plate or back B, provided with raised edges, and inclined or curved downward and outward to the point C, over and across which the user can conveniently stand, furnished also with the service-pipe for water A, and the waste-pipe G, substantially as shown and described.

2. The method of insuring the catching of the drip, and thereby preventing the offensive odor which usually attends the use of urinals, by means of the incline and platform, so relatively arranged that the user of the urinal will preferably assume the position in relation to the trough which is necessary to secure the object set forth.

3. In combination with a urinal, the inclined surface D and platform F, arranged substantially as shown, and for the purpose described.

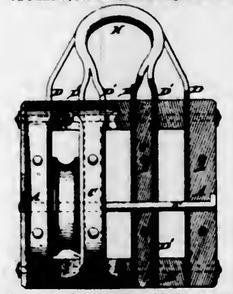
192,046. FRUIT-DRIERS. John Zimmerman, Mansfield, Ohio. [Filed May 12, 1877.]

1. The dampers G G of the curvilinear shape shown, in combination with the furnace A B and drying-chamber, substantially as described.

2. In a fruit drier, the galvanized sheet-metal cover C, substantially as and for the purpose set forth.

REISSUES.

7,728. TACKLE-BLOCKS. Jos. F. Harcourt, Cincinnati, Ohio. Patent No. 78,663, dated June 9, 1868. [Filed Sept. 25, 1876.]



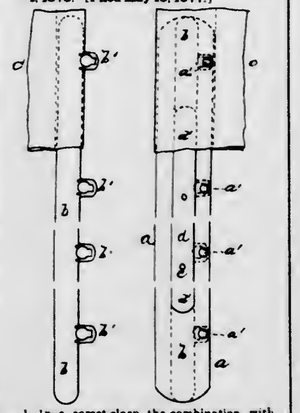
1. An inside iron strap-block constructed with a wooden partition, in which the intermediate metal strapping is embedded, the thickness of the wooden partition being in excess of the thickness of the said metal strapping, substantially as and for the purpose specified.

2. In a two or more sheave block, the partitions C, provided with grooves G G' in the sides, the depth of the grooves being at least equal to the thickness of the strap, but not extending entirely through the partition, substantially as specified.

3. In a two or more sheave block, the partitions C, extending in one piece from side to side of the block, and provided with grooves G G' in the sides, the depth of the grooves being at least equal to the thickness of the strap, but not extending entirely through the partition, substantially as specified.

4. The eye H, ending in forks or straps D', separated in passing through the partitions, substantially as and for the purpose specified.

7,729. CORSET-SPRINGS. O. Judson, Newton, Mass. Patent No. 7,084, dated Apr. 4, 1876. [Filed May 15, 1877.]

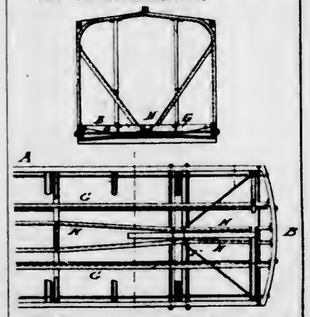


1. In a corset-clasp, the combination, with the busk *a*, of the short strengthening steel *d*, said steel *d* being fastened or fixed to the said busk upon each side of the waist portion or center of the busk, and having its ends free, as and for the purpose herein specified.

2. In a corset-clasp, a busk or spring, having its studs or fastening devices placed near the edge farther from that side of said busk or spring over which the fastening-spring is brought to be attached to said busk or spring, thus causing the said fastening-spring to lie upon said busk or spring near its center or farther edge, for the purpose set forth.

3. In a corset-clasp, the herein described springs *a d b* and studs *a'*, arranged so that, when clasped, the spring *b* lies centrically over and upon the springs *d* and *a*, thus constituting a pile of three springs, as and for the purpose above described.

7,730. METAL CAR-FRAMES. Frederick J. Kimball, Philadelphia, Pa., assignor to the Empire Transportation Company, same place. Patent No. 183,856, dated Oct. 31, 1876. [Filed Feb. 10, 1877.]

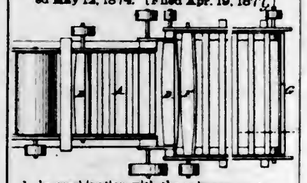


1. The combination of the side and end bars A B and connecting knee-pieces D with the longitudinal and transverse bars G, H, and I, substantially as specified.

2. The arched channel-standards and wooden corner-pieces, as shown and described.

3. The middle longitudinal bars H, having the outward bow or set, and provided with suitable stays H', as and for the purpose described.

7,731. THRASHING-MACHINES. W. M. Leyde, Newport, Minn. Patent No. 150,694, dated May 12, 1874. [Filed Apr. 19, 1877.]



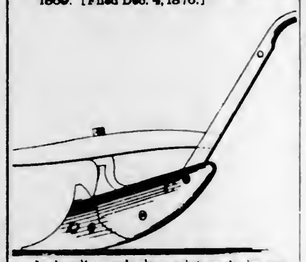
1. In combination with the primary carrier A and secondary carrier G, the picker D, provided with the convex-edged blades or flanges *d*, substantially as and for the purpose shown.

2. In combination with the primary carrier A, the secondary carrier G, the sides of which project over the main body of the machine, substantially as and for the purpose shown.

3. The combination of the primary carrier A, picker D, and beater or agitator F, each provided with convex-edged blades, with secondary carrier G made of a width greater than the primary carrier A, substantially as described.

4. The combination of the secondary carrier G made of a width greater than the primary carrier A, of the beater or agitator F, picker D, primary carrier A, and picker B, the several parts constructed and arranged to operate in the manner substantially as and for the purpose set forth.

7,732. PLOWS. Jas. C. McNutt, Blairsville, and Alonso B. Furman, Strattonville, Pa., assignors, by mesne assignments, to Jas. Oliver. Patent No. 96,261, dated Sept. 28, 1869. [Filed Dec. 4, 1876.]



1. A colter and plow-point made in one piece, the same having a curve like or nearly like unto that of the mold-board of the plow to which it is attached, substantially as and for the purpose described.

2. A plow the colter-point and mold-board of which are given the same or nearly the same curve, substantially as and for the purpose shown.

3. The groove *c'* formed in the part of the mold-board that is covered with a plow-point and colter, substantially as and for the purpose described.

7,733. PROCESSES AND APPARATUS FOR THE MANUFACTURE OF DEODORIZED HEAVY HYDROCARBON OILS. Joshua Merrill, Boston, Mass. Patent No. 90,284, dated May 18, 1869. [Filed May 25, 1877.]

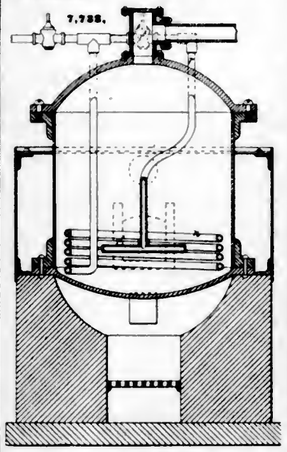
Brief.—Produces a distillate deodorized heavy hydrocarbon oil, suitable for lubricating and other purposes, free from the characteristic odors of hydrocarbon oils, and having a slight smell like fatty oil, by distilling, at a low heat, from the oil treated (if an oil which has already been distilled) the volatile matters from which the objectionable odors arise, leaving inodorous oil behind. If the oil under treatment is a crude oil, distills off the light products, and then carries over the heavy oil for use at a temperature below that at which objectionable products are formed by decomposition.

1. The above-described heavy hydrocarbon oil, suitable for lubricating and other purposes, free from the characteristic odors of hydrocarbon oils, and having a slight smell like fatty oil.

2. The above-described mode of manufacture of deodorized heavy hydrocarbon oils, which, when finished, are distillates suitable for lubricating and other purposes, free from the characteristic odors of hydrocarbon oils, and having a slight smell like fatty oil, by distilling from them the volatile matters from which the objectionable odors arise, and preventing the formation of such matters by keeping the temperature of the oil in the still below that at which these matters form by decomposition of the oil, substantially as described.

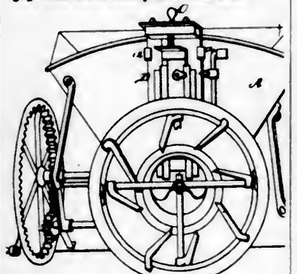
3. In combination with a still suitable for distilling oils, the superheating-coil, with its steam-pipe, outlet-pipe, and open return-pipe, and their stop-cocks, arranged substantially as described.

7,733.



7,734. SEED-SOWERS. Jonathan Pearce, Shelbyville, Ky. Patent No. 186,214, dated Jan. 16, 1877. [Filed May 19, 1877.]

Brief.—Adjustable ribs in revolving mouthpiece for distributing the seed. The main gage-slide has auxiliary slide with index.

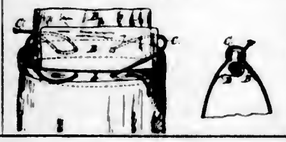


1. In a centrifugal seed-sower, a series of adjustable ribs arranged within the mouthpiece, for the purposes herein set forth.

2. In a centrifugal seed-sower, a series of stationary ribs, and a series of adjustable ribs, both series arranged within the mouth-piece, for the purposes set forth.

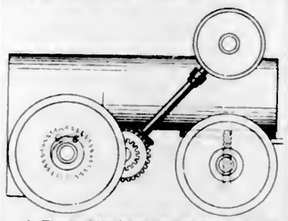
3. The combination of the main slide D, having apertures *b* and F, and guides *d d*, the auxiliary slide E, provided with the index-finger G, and the adjusting-screw O, all constructed and arranged in guides *a* on the hopper A of a seed-sower, substantially as and for the purposes herein set forth.

7,735. BAG-FASTENERS. Henry Redden, New York, N. Y., assignor to Andrew M. Underhill. Patent No. 186,673, dated Mar. 20, 1877. [Filed May 26, 1877.]



A grain-bag provided with apertured hem *a b*, folding apron B, and running cords C, the apron being fastened on the inside near inner edge of hem, while the cord runs parallel to hem, as shown and described, to allow the bag to be fastened quickly without sewing, and opened without cutting.

7,736. TRACTION-ENGINES. Geo. Rogers, Mount Vernon, Ohio. Patent No. 173,498, dated Feb. 15, 1876. [Filed May 28, 1877.]



1. The combination of the driving-shaft and the rear axle, having truck-wheels adapted to be loosely or rigidly secured to it, with the supplemental shaft, provided with cog-wheels, gearing with wheels on the rear axle, and the intermediate connecting-shaft, engaging at one end the driving-shaft and at the other end the supplemental shaft, as herein shown and set forth.

2. In a traction-engine, a boiler supported so as to be capable of oscillatory movement upon its power-driven axle as an axis, and means for so moving said boiler, in combination with a rotary supplemental shaft, which derives its rotary movement from the driving-shaft of the engine, is carried by said partakes of the movement of the boiler, and gears with wheels on said axle, substantially as shown and set forth.

7,737. BOSOM-PADS. John C. Tallman, New York, N. Y. Patent No. 185,362, dated Dec. 12, 1876. [Filed May 26, 1877.]

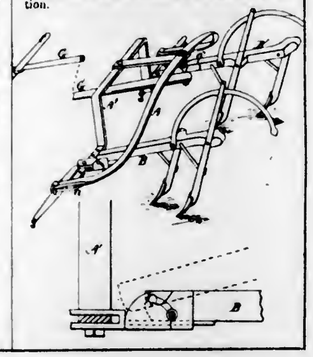


1. The combination, in bosom-pads, of the crossing or radial stripe or plates and the intervening gores, substantially as and for the purposes set forth.

2. The combination, with two bosom pads, of a flexible and adjustable connection, substantially as and for the purposes set forth.

7,738. EQUALIZING-CULTIVATORS. Mathias Biohholts, Troy, Ohio, assignor, by mesne assignments, to Henry H. Pattee, James H. Pattee, and Ithamar P. Pillsbury, Monmouth, Ill. Patent No. 88,557, dated Apr. 6, 1869; reissue No. 6,009, dated Aug. 11, 1874. [Filed May 26, 1877.]

Brief.—Beam-yoke sustains plow-beams, and is also itself sustained in an upright position.



1. The combination of two plow-beams and a beam-yoke, connected together by joint-pieces so that the yoke sustains the beams in upright working position without their being connected together in rear, and is itself supported in an elevated position, the beams having also lateral and vertical motion, substantially as and for the purpose specified.

2. Two plow-beams, B B', connected together by an elevated beam-yoke, A, so that either may operate in advance of the other while both are drawn forward in the line of progression, the attachment of the plow-beams to said yoke being by joints, which sustain the plows in an upright working position without rear connections or other support, and permit of their being freely moved independently in a lateral direction, and in a limited vertical direction, permitting the necessary vertical movement of the plows, and sustaining the beam-yoke in an elevated position, combined and operating substantially as and for the purpose specified.

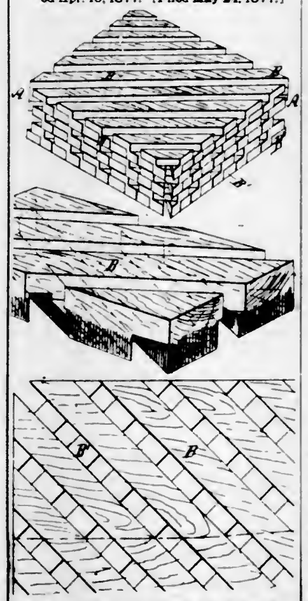
3. The guide or sustaining pole G, loosely connected to the beam-yoke A, and combined with said yoke and the plows B B', substantially as and for the purpose specified.

7,739. PROCESSES FOR PREVENTING THE ACCUMULATION OF CARBON IN RETORTS. Watson Karr, Frostburg, Md. Patent No. 187,866, dated Feb. 27, 1877. [Filed May 16, 1877.]

Brief.—Semi-bituminous coal, which, upon distillation, evolves light carbureted hydrogen, is placed in the rear end of the retort, forming from one-tenth to one-fifth of the charge, and the charge is completed with bituminous coal. Light gas generated at the back end of the retort combines with and carries off the heavy carbonaceous tarry vapors distilled from the bituminous coal, thus preventing the deposit of carbon upon the interior of the retort.

In the manufacture of illuminating gas, the process of preventing the accumulation of carbon in retorts by combining bituminous and semi-bituminous coals, substantially in the manner described.

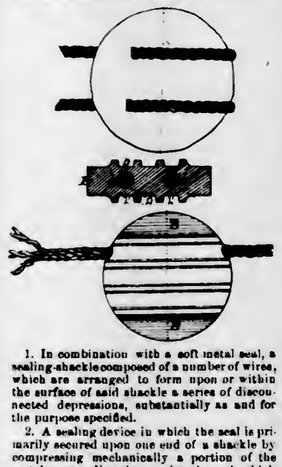
7,740. FIRE-KINDLERS. Chas. H. Hayden, Columbus, Ohio. Patent No. 189,310, dated Apr. 10, 1877. [Filed May 24, 1877.]



1. A fire-kindler consisting of a board, A, cut into two series of obliquely or otherwise arranged sticks B B', united intact at their intersections, and having intermediate passages for the promotion of combustion, substantially as and for the purposes specified.

2. A kindling-pile constructed of two or more pieces of board, A, each cut into a series of obliquely or otherwise arranged sticks, B B', united intact at their intersections, said pieces A being united together, leaving passages for the promotion of combustion, substantially as specified.

7,741. METALLIC SEALS. Edwd. A. Locke, Boston, Mass. Patent No. 187,396, dated Feb. 13, 1877. [Filed May 31, 1877.]



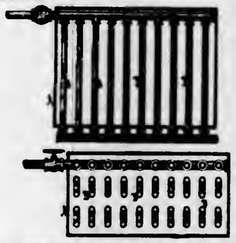
1. In combination with a soft metal seal, a sealing-shackle composed of a number of wires, which are arranged to form upon or within the surface of said shackle a series of disconnected depressions, substantially as and for the purpose specified.

2. A sealing device in which the seal is primarily secured upon one end of a shackle by compressing mechanically a portion of the metal surrounding the opening through which said shackle end passes, substantially as and for the purpose shown.

3. A sealing-disk provided upon one or both of its sides with a groove or grooves to receive the rearward-turned ends of the shackle, substantially as and for the purpose set forth.

7,742. TREATING AND DRYING ANIMAL MATTER. Wm. C. Marshall, New York, N. Y. Patent No. 137,699, dated Apr. 8, 1873. [Filed May 31, 1877.]

Brief.—First, the within-described process of treating animal matter by exposing the same to action of heating-coils arranged in a closed chamber, substantially in the manner set forth; second, the combination of a series of heating-coils B, at suitable distances apart, with a closed chamber, A, substantially in the manner and for the purpose herein shown and described.



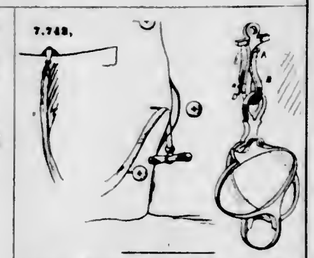
1. The within-described process of treating animal matter by exposing the same to the action of heating-coils arranged in a closed chamber, substantially in the manner herein set forth.

2. The combination of a series of heating-coils, B, at suitable distances apart, with a closed chamber, A, substantially in the manner and for the purpose herein shown and described.

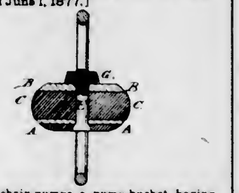
7,743. EYEGLASS-HOLDERS. E. F. Merritt, Springfield, Mass. Patent No. 58,807, dated Oct. 16, 1866. [Filed June 4, 1877.]

As a new article of manufacture, an eyeglass-holder, consisting essentially of the shank A, spring snap-hook B, and pin D, constructed and arranged to operate substantially as and for the purpose described.

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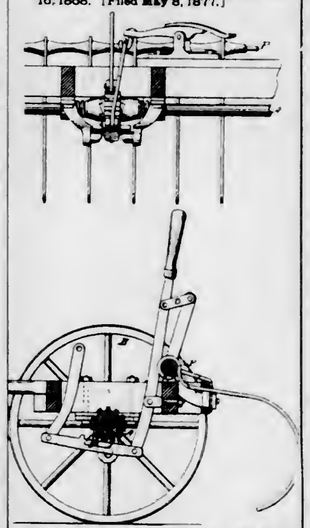
7,744. CHAIN-PUMP VALVES. O. O. Withersell, Lewiston, Me., assignor to Lewis M. Rumsey and Moses Rumsey, St. Louis, Mo. Patent No. 83,117, dated Oct. 13, 1868. [Filed June 1, 1877.]



1. In chain pumps a pump-bucket, having a solid body of rubber of sufficient thickness to sustain the pressure of water, in combination with the links and beads by which the chain is formed.

2. In combination with a pump-bucket, having a solid rubber block, C, the metal heads A B, screw or bolt E, and nut G, constructed substantially in the manner and for the purposes specified.

7,746. HORSE-RAKES. Jonathan Hunsberger, Worcester Township, Montgomery County, assignor to Reuben Hoffhains, York, Pa. Patent No. 78,969, dated June 16, 1868. [Filed May 8, 1877.]



1. The divided shaft A A and the wheels B B, secured thereto, combined with the rake-shaft P and connecting mechanism, whereby said shaft P may, at the will of the driver, be coupled with said revolving shafts A, to cause a rotation of said rake, substantially as set forth.

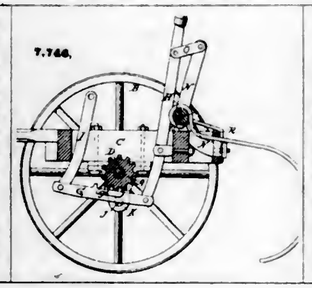
2. The wheels B B, secured, severally, to the free ends of the divided axle A A, and the rake-shaft P, combined with plates or disks secured to the proximate ends of said axles, and an intermediate device engaging with

said disks, whereby the motion of said axles may be transmitted to said rake head, for the purpose set forth.

3. The wheels B R, severally secured to the ends of the divided axle A A, and the rake-shaft P, combined with movable plates or disks on the proximate ends of axles A A, said plates being sustained by springs with an elastic pressure against an intermediate device engaging with said disks, whereby said disks become self-adjusting, to transmit the motion of one or both of said axles to said rake-head, as set forth.

7,746. HORSE-RAKES. Jonathan Hunsberger, Worcester Township, Montgomery County, assignor to Reuben Hoffheins, York, Pa. Patent No. 78,969, dated June 16, 1868. [Filed May 8, 1877.]

7,746.



1. An axle divided in the center, so that the parts may turn independently combined with a toothed rack and cog-wheel connected with the parts of said axle, substantially as herein shown and described, for the purpose of operating the rake-teeth to discharge the collected hay.

2. The combination of the foot-lever L, toothed rack G, cog-wheel D, sliding spring-clutches E, and levers H and N, with each other, and with the axle A, frame C, and pivoted bar R, substantially as herein shown and described, and for the purpose set forth.

3. The combination of the arms K and blocks J with the flanges g', formed upon the side edges of the toothed rack G, substantially as herein shown and described, and for the purpose set forth.

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COMMISSIONER'S DECISIONS.

SARGENT *vs.* BURGE.—*Interference.*

[*Appeal from the Board of Examiners-in-Chief in the matter of the interference between the patent and the reissue application of James Sargent and the original and reissue applications of John Burge for* "IMPROVEMENT IN TIME-LOCKS."—*Decided May* 27, 1877.]

The faultiness of claims which, for the purpose of securing an interference with an adverse party, enumerate important elements of a combination only in the most general language, commented upon and deemed a sufficient warrant to dismiss an appeal.

The mere fact that devices cited as references have little commercial value is of no significance in determining their pertinency.

An applicant as against an interfering patentee must show that his invention was complete, not simply for experimental but for successful practical use, prior to the invention of his adversary.

Such successful use involves not only the successful mechanical operation of the invention in the single instance or, in a number of instances, but its actual utility in every other respect.

Where devices in interference differ from each other in important particulars of construction, the successful use of one cannot be inferred from that of the other, which is established.

An applicant whose machine was tested experimentally only, then laid aside and not revived until after the successful introduction of that of his contestant, is concluded as to its lack of perfection and reduction to a useful practicable form.

In order to defeat a patent, a prior machine must have some commercial value, be worth manufacturing for public sale, and worth buying for practical use.

A machine which is abandoned by its inventor, tested only experimentally by his assignee, and declined by the public, is conclusively of no value.

[*James L. Norris and J. J. Coombs*, for Sargent.
Marcus B. Hopkins and E. L. Stanton, for Burge.]

SPEAR, *Commissioner*:

The interference is between the letters-patent of Sargent, No. 165,370, granted July 3, 1875, and his application for reissue of letters patent No. 165,878, granted July 20, 1875, on the one hand, and on the other two applications of Burge, one an original application, filed the 21st day of August, 1876, and the other an application for a reissue of letters-patent, No. 166,255, granted August 3, 1875.

The Board of Examiners-in-Chief, in their decision in this matter, called my attention, under Rule 59, to the claims in the reissue application of the Burge patent which was put in the interference, and expressed their opinion to the effect that the subject-matter included in those claims was not sustained by the patent of Burge. Counsel for Sargent also raise an objection against the claims in interference in the original application of Burge, (the 4th and 5th,) on the ground, as they allege, that these claims do not embrace a practically operative combination. I have, therefore, to consider, before proceeding to the discussion of the testimony, as bearing more particularly upon the issue and relating to the question of priority of the invention stated in the issue, the preliminary question whether the claims set up by Burge could properly be allowed him in these applications.

The problem which the inventor had to solve in constructing what may be called a time-lock—that is to say, a lock incapable of unlocking from the outside, and only self-unlocking from within—was first to provide some means for obstructing the bolt or bolts to prevent retraction, and to provide also means for removing such obstruction after a lapse of time measured by the internal clock-work; but this was not the solution of the problem, for it was necessary to set the clock-mechanism for a given hour, and to arrange the obstruction for the bolt or bolts, under the conditions named above, with the door open. But the bolt-work being thrown forward and obstructed, the door could not be closed. It was necessary, therefore, in the second place, to provide some other expedient by which the clock-mechanism, together with the mechanism for obstructing the bolt-work, could be set for operation while the bolt-work was thrown back; so that, after the door was closed, the bolt-work could be thrown forward to lock the door and be blocked by the dogging mechanism automatically, not to be released except through the operation of the clock-mechanism after the determined lapse of time. It is clear, therefore, that simply a clock-mechanism, and what has been called the dogging-mechanism, by which the bolt-work is held in the locked position, do not constitute an operative combination. This has been recognized by the parties to this interference and by inventors long before them, and these

parties, as well as the prior inventors, have, in their various forms of time-locks, shown both elements, namely, the self-locking and the time-unlocking mechanisms; but the distinctions have not always been kept in view in making the claims.

The validity of the objection would be manifest if an applicant should have come to the Office omitting from his invention, as well as from his claim, the provision for automatic locking, so that the time-lock shown by him could not be set for use. But although the mechanism is, in all these cases, provided for successful operation in this respect, it is not the less necessary to keep in view the distinction, for the reason that the mechanisms are so widely different that, while it is possible to predicate claims on one lock in respect to the automatic unlocking which should cover all the mechanisms, it might not be possible to make such a broad claim as would include all the mechanisms necessary to the successful operation of the lock.

These criticisms refer in part to the first, second, and third claims in the original application of Burge, but I do not discuss them more particularly here since they are not in interference, and the consideration of them would be an *ex parte* matter. The fourth and fifth claims, however, are in the interference, and are as follows:

4. In a time-lock the combination by means of suitable connecting mechanism, substantially as set forth, of the notched curvilinear revolving bolt isolated from the time-mechanism, and stationary except during the brief intervals when locking or unlocking is being effected, the connecting-link for controlling the same, and the time-mechanism for determining the time when said bolt shall be turned on its pivot to unlock.

5. In a time-lock for application on a safe or vault door the combination by means of suitable connecting devices of the time-mechanism, and a notched curvilinear bolt or dog, isolated, substantially as described, from the time-mechanism, and stationary except during the brief intervals when either locking or unlocking is being effected, and adapted to be turned on its pivot for unlocking at a time determined by the time-mechanism.

In relation to these claims it may be said, first, that the combinations claimed are manifestly inoperative. Putting only the elements named in the claims into a time-lock, the apparatus could be set only with the door open, and after it was set the door could not be closed. Further than this, in the fourth claim the statement is incorrect. The connecting-link is there represented as controlling the revolving-bolt, whereas in the lock itself and in the specification it plainly appears that the revolving-bolt is controlled in every part of its movement by independent clock-mechanism, and the connecting-link is simply a part of means of communication between the springs of the clock-mechanism and the revolving-bolt.

In the fifth claim all this important matter of moving the revolving-bolt consisting of the same elaborate independent clock-mechanism, and which, as we shall see when considering in this connection the state of the art, constitutes the most essential part of Burge's improvement in this application, is covered under the phrase "by means of suitable connecting devices," so that the main elements of the combination are made to appear to be the time-mechanism, and the "notched curvilinear-bolt" isolated from the time-mechanism. This phraseology makes the claim more plainly applicable to Sargent's invention than to that of Burge.

What are called suitable connecting devices are, in fact, not connecting devices, but operating devices. The time-lock on which these claims are based acts directly upon a secondary clock-mechanism, and this secondary clock-mechanism acts upon the rotating-dog. The secondary clock-mechanism must be wound up and set in proper position in order properly to operate the circular-dog. When thus wound up and set ready for operation, it is held by the primary clock-mechanism through suitable connection, and, at the appointed moment, the primary clock-mechanism releases the secondary, which immediately operates the dog to unlock the door. Now in the patent of Sargent there is no such intermediate clock-mechanism, and if a claim cannot be based on this lock of Burge that will cover the Sargent lock without the omission of an element so vital as this, then the two inventions are generically distinct, and alike only in result, and, if patentable at all, are patentable separately and independently of each other.

The case of *Gill* vs. *Wells*, 22 Wall., p. 1, cited by counsel for Sargent, is exactly in point here.

I am aware that it may be said—I think it was urged at the hearing—that the lock shown in the original application of Burge may be used in connection with the tongue-piece shown by Sargent, which tongue-piece is so connected to the bolt-work that the bolt-work may slip back on the tongue-piece in order to close the door, and that, if used in this connection, that part of its mechanism which provides for the first movement of the revolving bolt, namely, that which is to dog the bolt-work, may be dispensed with. This may be true, and yet it appears to me not just, even if we leave out of consideration the state of the art, to allow Burge to make such claims upon this lock as necessarily require a part of Sargent's invention, and require also a reorganization of his own. For it would not be necessary simply to leave out some part of this mechanism called the secondary clock-work which operates the revolving-bolt, but to reorganize it.

I dismiss these claims for the present, but shall have occasion to refer to them hereafter in considering the state of the art in connection with the claims in the reissue application of Burge.

I remark only in passing that I do not regard as essential a distinction which appears to have been studiously observed between the application of Burge, which I have been discussing, and the application for reissue, which remains to be considered. This distinction relates to the tongue-piece and the independent bolt-work. The same distinction was somewhere insisted on in relation to the Sargent application, in which the present invention of Sargent was involved. Where the notched bolt is shown, its adaptation to the common bolt-work and to the ordinary tongue-piece is so manifest, and this bolt-work and tongue-piece are so well known, that it is not necessary to show them in an application. It is enough to show the notched bolt and its method of adaptation to receive the pressure in various positions of the tongue-piece on the independent bolt-work. The distinction is necessary to be observed only where two such diverse constructions are shown as this under consideration and that shown and described in the patent of Burge.

The claims in the application for reissue of this patent I now proceed to consider. They are as follows:

4. The combination, substantially as before set forth, of the following elements adapted as combined to be attached to the door of a safe or vault and to secure and release the bolt-work of said door, viz., (1) a tongue-piece adapted to be attached to the bolt-work of the door, (2) a pivoted turning unlocking device, and (3) the clock-work for determining the time when, by means of suitable connecting mechanism, said unlocking device shall be turned to release the tongue-piece; whereby the bolt-work may remain in the retracted position for closing the door, and be automatically locked after the door is closed, and be so retained until a time determined by the operation of said clock-work.

5. The combination upon a safe or vault door, substantially as before set forth, of a time-lock and an automatic dogging-mechanism, adapted to be attached to the bolt-work of the door, for connecting the time-lock with said bolt-work, whereby the bolt-work may remain in the retracted position for closing the door, and, when thrown after the door is closed, be automatically locked until released by the operation of the time-lock.

It will be observed that in the enumeration of elements the fourth claim specifies three particular things, a tongue-piece, pivoted turning unlocking device, and clock-work. The tongue-piece is a well-known element in combination locks. It is a rigid stud connected directly or indirectly to the bolt-work, and bearing, when the door is locked, against the periphery of what is termed the pivoted locking device, or, when the door is unlocked, is thrown backward into a recess in said locking device.

Now if, in the apparatus shown in Burge's patent, this tongue-piece be, as it ordinarily is, a rigid tongue-piece, (and that is all the claim calls for,) then the mechanism is not operative, for the mechanism must be set with the door open, and the bolt-work thrown forward under the condition supposed. Then, of course, the door cannot be shut, so that the terms of the claim in that part which specifies the elements of the combination, in the ordinary and rightful use of the language, are not consistent with the description in the concluding clause, for there is nothing in the element stated which would justify the assertion that the bolt-work may remain in the retracted position for closing the door, and be automatically locked after the door is closed.

If the first element specified were a pivoted tongue-piece adapted to drop down behind the stud (which is fixed upon the back plate of the lock-case) when the bolt is thrown forward, and to be lifted out of line with the stud by the "pivoted turning unlocking device," then the claim would be consistent with itself, but would be inapplicable to the Sargent lock.

These remarks apply with equal force to the fifth claim. In that are specified a time-lock and bolt-work with an automatic dogging-mechanism attached to the bolt-work for connecting the time-lock with the said bolt-work. But this, as applied to the lock in the Burge patent, is not true. The automatic dogging-mechanism does not connect the bolt-work with the time-mechanism, but connects the bolt-work with a fixed stud which holds the bolt against retraction until the automatic dogging-mechanism is removed through the action of secondary clock-work and the lever, on substantially the same principle as in the first lock under consideration, which is known in this controversy as the "Hubbell" lock.

These two claims are open to the criticism made upon those considered before, that they are more applicable to Sargent's lock than to that of Burge. I might dismiss the case here, but, in order to terminate the controversy, it is better, perhaps, to consider, first, whether any other general statement can be made which would include the locks of Burge and those of Sargent; and, second, whether that broad statement could be sustained as a claim in view of the state of the art. In proceeding to discuss these points, which relate, of course, more directly to the merits of the actual subject-matter involved, it has been found convenient to merge the two separate issues in interference as declared upon by the Primary Examiner, and to dispose of both at one time. They do not differ so materially from each other as to prevent this course being taken, and as the great bulk of the testimony adduced and the arguments of opposing counsel apply with equal force to each issue in controversy, to preserve the line of distinction contributes neither to clearness nor brevity. The broadest statement which I can frame, applicable to the locks of both parties, and true of all, is something like this: A time-lock for a safe-door consisting of ordinary bolt-work, of a time-mechanism adapted at a given hour to permit the bolts to unlock, and of connection between the two adapted to lock automatically when the bolts are thrown forward, and to be unlocked by the time-mechanism at the prescribed hour. This borders very closely upon mere statement of result, and is so general in its terms as to be open to that objection; but I do not see how it can be made narrower and yet be true as a statement of any one of the locks, and, at the same time, include them all.

The question here arises, whether the state of the art would justify the issue of such a claim. There has been more or less controversy in regard to the patentability of these matters within the Office. As I understand the record, the Examiner has, at some time or other, objected to claims, in view of prior patents no broader than this, or than the claims that I have been discussing.

My attention has been called to the English patent of Rutherford, No. 6,105, of 1831. This is one of the patents cited by the Examiner as a reference. It contains a tongue-piece adapted to be attached to the bolt-work of the door. I quote the terms used in the fourth claim of Burge's reissue application:

Second, a pivotal turning unlocking device; and third, the clock-work for determining the time when, by means of suitable mechanism, said unlocking device shall be turned to release the tongue-piece.

There is no difference between the combination of Rutherford and that described in the said fourth claim of Burge. In respect to the first element of that claim it might be stated even more explicitly that the tongue-piece is pivoted to permit the setting of the clock-work while the bolt is retracted, and still be applicable alike to the lock of Burge and that of Rutherford. There is a difference in the construction and mode of operation of the two locks in respect to the second element in this, that the "pivotal turning unlocking device" in Rutherford's lock turns constantly from the time when it is set until the recess is brought into line with the time-piece, which is not the case with any of the others. It is not the case in the lock of Burge's patent, for the reason that there is no recess to be brought in line, and the "pivotal turning unlocking device" is a totally different mechanism, but this difference is not called for by the terms of the claim. In addition to this English patent there is another patent, that of Derby, granted by this Office November 2, 1858, also cited by the Examiner. It shows a bolt-work and automatic dogging-mechanism, which answers well enough the description of the second element of the fourth claim, and an independent time-mechanism, which, at a pre-determined time, releases

the bolt-work, and allows the same to be thrown back to unlock the door. There is every element, or the equivalent for the element, specified in the claim above referred to, and it answers the description in the fifth claim of the reissue application more exactly and clearly than it answers the fourth. This lock of Derby permits the time-mechanism to be set with the bolt-work thrown back and the door to be shut, and when the door is shut and the bolt thrown forward the dogging-mechanism operates automatically to lock the bolt, and is removed by the clock-work, after a definite lapse of time. In general principles, the two locks, that of Burge's patent and that of Derby, are alike.

What I have said in relation to the state of the art has been in connection with the lock shown in the Burge patent called the Geer lock. The terms of the claims in interference in the original application relating to the Hubbell lock do not so distinctly include either the mechanism shown by Rutherford or that shown by Derby.

The Rutherford patent is excluded by what is probably a substantial distinction, namely, the fact that the revolving bolt in the Hubbell lock is "stationary except during brief intervals when locking or unlocking is being effected." In the Rutherford lock the continuous motion which is given to the locking-bolt might cause a constant friction between the clock-work and the end of the bolt or the tongue-piece. In the Derby lock, however, this is provided for. The dogging-mechanism does not move and is in no way connected with the time-mechanism until the prescribed moment. The dogging-mechanism is not a "notched curvilinear revolving bolt," but appears to be an equivalent of it. It is a pivoted bar isolated from the clock-mechanism, and swinging on a fixed pivot just as Burge's circular bolt swings.

There is, then, nothing in the circular bolt to give patentability to the combination, and, more than this, both the circular revolving bolt in Rutherford's combination and the pivoted bar in Derby's were old when Burge made his combination, so that one was, at that time, a known equivalent of the other, and either in exact terms, or in known equivalents, the Derby lock answers Burge's fourth claim in the application, and the fifth differs from the fourth so little that the same may be said of it.

I am aware that it has been urged heretofore that the locks shown in these patents are not of any practical value, and if it be meant by this that they are not, in the precise form in which they are made, available for manufacture and sale to those having need of time-locks, it may be admitted to be true. There is a distinction which must be kept in view in distinguishing what is old from what may be patented as new, between that which is mechanically operative and that which is commercially valuable. That the inventor who comes later into the field and improves upon that which an earlier inventor had given to the public by patent or published description, is not entitled thereby to claim broadly what the earlier inventor showed, because the later makes the improved article of commercial value, is familiar doctrine. The law requires that the inventor of improvements shall distinguish between his improvements and that upon which they are based, because whatever may be the commercial value of the earlier invention, it must be taken as the basis of the improvement, and the improver must be supposed to start where the earlier inventor left off.

These patentees referred to gave to the world the benefit of their inventions. They succeeded or failed in securing a reward for their inventions in proportion to the practical value of the same; but what the public received in the way of information is the same whether the inventors were rewarded or not, and the claims of all subsequent inventors of improvements must be bounded by that knowledge. I am of the opinion therefore, that the claims in controversy in both applications presented by Burge in this interference are bad in form, and are too broad in view of the state of the art, and cannot be allowed, and that if properly restricted, in view of the state of the art, there is no conflict between Burge and Sargent.

These matters which I have thus far considered relate to the patentability of the devices claimed by Burge, (for the claims of Sargent are not broad enough to raise an issue,) and are directly appealable from my decision.

It remains for me, therefore, in order to complete the discussion of the whole matter, so far as it relates to this Office, to consider the claims of the parties as set up in the issue declared by the Examiner, or on any basis or interpretation which would bring them into conflict.

As to the standing of Sargent in the matter, there is no dispute. The Examiner and the Board find that the date of his invention may be set down as some time in June, 1873.

The claims of Burge, as has been stated, are based upon two locks made at different dates and by different workmen, and from them called, one the Hubbell lock, and the other the Geer lock.

In considering the question of priority of invention, supposing the subject-matter claimed to be properly in conflict, it is essential to keep the two applications of Burge distinctly separated. He has taken steps to give the public the benefit of this invention as embodied in the Geer lock, whatever that benefit may be, and in this respect stands on the same ground as Sargent. Some question was raised as to whether the patent on this Geer lock was properly granted, for the reason that an imperfect model and drawing were first filed, and subsequently a more elaborate model and drawing, on which the patent finally issued. It does not seem necessary to go into any consideration of this matter, for the reason that it could only affect Burge's standing in that proceeding, and not the question of priority of invention; and, further, because the other objection raised by counsel for Sargent appears to me to be much more serious. I refer to the question whether he has any claim whatever to be considered the inventor of the Geer lock. He admits that the lock was made by the workman, Geer, but asserts that Geer acted only as a skilled workman under his instructions. The evidence which he produces as to any conception or description or illustration of the peculiar mechanism of the Geer lock before his communication with Geer is very slight indeed. There is no model or drawing or sketch produced, and no account of any intelligible description. His main reliance is his own testimony, and in this he is flatly contradicted by his own witness, Geer. If Geer were asserting any claim for himself, or appeared to have any adverse interest, his testimony, taken in connection with the fact that he sold three of the locks which he made to Burge for a not very large sum of money, might be viewed with suspicion. But as his testimony tallies with the circumstances, which I need not here set forth, there is certainly room for grave doubt whether the conclusion reached by the Examiner and by the Board is not correct, and that the lock was in reality the invention of Geer, and not of Burge. However this may be, the date which could be set up for it is clearly subsequent to that established by Sargent.

In the second division of this interference, in which the Hubbell lock is in controversy, Burge does not stand in the same relation to Sargent as when the Geer lock was under consideration, for he is not here in the attitude of a patentee, but as an applicant for a patent, seeking to overthrow a patent where the invention in controversy has not only been patented by an opponent, but put into the market as an article of sale, and subjected to the test of actual use in a large number of instances prior to his application. Here the presumption is altogether against him. He must remove all doubt as to his alleged invention, and show that it was complete, not simply as an experiment and for temporary and experimental use, but that it was actually reduced to such form as to be capable of successful use prior to the invention of his adversary. The successful use of the invention involves not only its successful mechanical operation in the single instance, or in a number of instances, but its actual utility in every other respect.

Now were the two locks, namely, that of Sargent and this Hubbell lock, precisely or even substantially the same in details, the question would be easy of solution.

If, in 1872, Burge had made a lock in the form shown by Sargent, which has gone into a successful use, and which thus amounts to an absolute demonstration of its utility, then the amount of success obtained by Sargent would be the exact measure of the utility of Burge's lock; but, as I have said, the locks are not alike in detail, even admitting that they are alike in principle. It appears, on a moment's inspection, that the mechanism of Burge's lock is much more complicated, and, therefore, more expensive to make and more liable to get out of order. Therefore, the success of Sargent's lock cannot be any certain indication of the success that would have been attained by Burge had his lock been placed upon the market. Without the demonstration of public sale and practical use no man can safely say that the Hubbell lock is of any commercial value—that is to say, of any utility to the public. If, as I have said, there were no difference between the two, then the question of successful invention on the part of Burge could not arise any more than on the part of Sargent. But this difference may make one a successful invention and the other a failure, though both involve the same principle. Now what proof does Burge offer for the solution of this question? By what evidence does he seek to show that in the lock of 1872 the public had, or might have had, without further invention, a useful practical lock containing the elements of the combination in dispute? The lock of 1872 has been preserved by Burge and is submitted in the case. A duplicate of it was made by the Yale Lock Company in 1876, placed upon the door of the safe, and Stockwell, witness for Burge, testifies that its operation was successful, but he also admits that the use was simply experimental. This is substantially the same sort of use which was shown at the hearing, where the lock was placed upon a door, was set in motion, and the mechanism appeared to move in its proper order. All this demonstrates that the lock will operate for the purpose intended, experimentally. But so far as appears, not one of these locks had been offered for sale or manufactured for sale. There has been no trial of them by the public such as has been made of the Sargent lock, and I am not satisfied that this Hubbell lock is a demonstrated success as a practical useful lock, or that it would be safe for a lock-manufacturing company to invest their capital in it.

Is this amount of proof as to practical utility sufficient to defeat a patent? In the case of *Coffin* vs. *Ogden*, (18 Wall., 120,) the Erbe lock, by which the patent of Kirkham was defeated, and which was used only experimentally, was in all the essential particulars precisely the same as that of Kirkham, the patentee. If the one lock was practically successful, it was manifest that the other was also. There was no question as to the identity of the two devices in this respect. The test of the Erbe lock was held in that case to be complete; but, because the test is sufficient by experimental use in one case, it does not follow that experimental use would be sufficient in another.

The experimental use of the sewing-machine of Hunt in the case of *Howe* vs. *Underwood* (1 Fish., 160) was not sufficient to defeat the patent, nor does it appear that the case would have been different had the experimental machine been preserved entire. The court did not inquire whether the machine of Hunt existed in the memory of the witnesses and could be reproduced. The machine contained the main elements of the Howe machine, and worked experimentally, but only experimentally, and did not go into any other use. It was laid aside until the introduction of Howe's machine. This is precisely the case with the Hubbell lock. Burge certainly laid it aside. Neither he nor any one ever sought to offer it for sale or to patent it till after the introduction of the Sargent lock, and the conclusion, as to lack of perfection and reduction to useful practicable form, is as reasonable in the one case as in the other. The court concluded that failure to go into practical use, as the Howe machine had done, implied fatal differences between the Hunt and Howe machines. The same failure on the part of the Hubbell lock must be attributed to the manifest differences from Sargent's, which differences make it impracticable.

In *Parker* vs. *Hulme* (1 Fisher, 44) it was held that in order to defeat a patentee's right, it must be shown, not only that a machine like that patented had been made, but that it had been used. Not that there was anything in the use itself which made that patentable which otherwise would not be patentable, but that in order to defeat a patent the proof of utility must be complete, and that in that case no proof short of successful practical use could be complete.

I do not understand that in order to defeat a patent a prior machine should have the same amount of commercial value as that patented, but that it should be of some commercial value; that if not as valuable an invention as that of the patent in all respects, it should

yet be of such value as to be worth manufacturing for public sale, and worth buying for practical use. This is the only conclusive evidence that an invention is successfully made and practically useful, and this proof is not offered by Burge.

The attitude of the inventor and the public and the manufacturers toward this Hubbell lock has been uniformly the same, and entirely inconsistent with the theory of its practical success as a time-lock. Burge, after many efforts to introduce it, abandoned it. He either sought, as Geer says, to improve it, which supposes that it was imperfect, or, as Burge himself represents, he dropped it and invented another, a fact equally significant of his opinion of it. The public, although, as Burge says, it has frequently been brought to their notice, appear to have declined it, and the Yale Lock Manufacturing Company, to whom the alleged invention has been assigned, have, as I have said, never manufactured it for sale, never made any except for mere experiment. The only conclusion I can reach is, that the lock was of no value except as a basis for claims which may cover locks already in use.

The burden of proof was upon Burge to show beyond reasonable doubt that the Hubbell lock was complete, and capable practically, not experimentally simply, of producing the result contemplated. This he has not done to my satisfaction. I must, therefore, affirm the decision of the Board of Examiners-in-Chief, awarding priority of invention to Sargent as to whatever patentable matter may be found common to the locks of both parties.

MILLWARD *vs.* BARNES AND BARNES.—*Interference.*

[*Appeal from the Board of Examiners-in-Chief in the matter of the interference between the application of Frank Millward, filed May 15, 1876, and the patent to W. F. and J. Barnes, dated March 21, 1876, for* "IMPROVEMENT IN FOOT-POWER."—*Decided March 13, 1877.*]

In determining the matter of priority of invention the Office observes the same rules as are followed by the courts in investigating the same subject.

The rule reiterated that he is the prior inventor who first reduces the invention to practice, unless another who was first to conceive of the invention used reasonable diligence in perfecting the same.

Neither a model nor a drawing can be regarded as a reduction to practice or complete invention.

The diligence required of the one first to conceive, in order to make out a superior title to the invention as against one first to reduce the same to practice, is an absolute and not a relative matter, and must be shown to be reasonable under the circumstances.

[*B. F. J. Ells*, for Millward.
Baldwin, Hopkins & Peyton, for Barnes & Barnes.]

SPEAR, *Commissioner:*

The invention included in this interference consists essentially in the application of the velocipede movement as a foot-power for operating various machines. The facts appearing in the case are briefly as follows: Millward conceived of the invention and made a drawing thereof in December, 1873, made working drawings in 1874, and a model in April, 1876. His application was filed May 15, 1876. During the time which elapsed between the making of the first drawing and the filing of his application, he explained the invention to several persons. There is no satisfactory evidence that during this period he exercised diligence in putting his ideas in practicable form. The only effort made in that direction was in ordering patterns for a machine for exhibition at a fair, and, upon finding that they could not be completed in time, he allowed the matter to rest. It would appear from this that, had he been so disposed, he could readily have completed these machines. Want of time is the only excuse which he offers; but it is not shown that he would necessarily have had to devote any considerable length of time, or that he could not have spared what time was required for the purpose. The nature of the improvement is not such as to require a great outlay of time or money, and the burden of proof is upon him to establish reasonable diligence. He has never completed a machine or tested the operativeness of his devices.

Barnes and Barnes claim to have conceived the invention in dispute as early as October, 1873. They described it to one Gerber in January, 1875, made and operated a machine in January, 1876, filed their application March 8, 1876, upon which the patent was granted them March 21, 1876. Upon this state of facts, and assuming that the testimony of Barnes and Barnes that they conceived the idea in October, 1873, is unworthy of belief, Millward claims that the drawing in December, 1873, is such an exposition of his invention as to entitle him to a judgment of priority.

There seems to be an impression among some persons that it is the duty of this Office to view the question of priority of invention from a different standpoint than that taken by the courts, and to regard proof manifestly insufficient in law to sustain a claim as sufficient to warrant the grant of a patent to one whose invention the courts would consider as having been made subsequent to that of the party to whom a patent was refused, and would adjudge the patent invalid for that reason. It is claimed that the Office should regard a drawing or a model as constituting such evidence of priority as to warrant judgment to that effect in an interference proceeding, whereas the courts would not regard it as sufficient to establish the same fact in any proceeding before them.

The statute recognizes the first and original inventor as alone entitled to a patent, and whether it be an interference to determine priority or a defense to a suit for infringement, alleging that the patentee is not the inventor whom the law was designed to protect, the question resolves itself down to the same point exactly, viz, who is the original and first inventor? Obviously there can be but one person legally entitled to that appellation, and it is for the purpose of discovering which of two or more parties is the inventor of the matter claimed that these proceedings are instituted.

The kind and character of the evidence necessary to establish this fact may vary with the circumstances under which the investigation is conducted, the situation of the parties, and the presumptions of law; but what constitutes a person the prior inventor remains the same in every instance.

Now the rule is too well established to need the citation of authorities, either from the decisions of the courts or the Office, that he is the prior inventor who first reduces the invention to practice, subject, however, to the qualification that if another, first to conceive of the invention, used reasonable diligence in perfecting the same, he, as against the one first to reduce to practice, is entitled to the patent, being recognized in law as the original and first inventor.

What constitutes a reduction to practice within this rule has been discussed at some length in this case, and I do not see any good reason for departing from what I understand to be the practice of the courts in this respect, or the plain meaning of the terms.

In considering the effect of an application as a matter of evidence to establish priority of invention, it was said in the case of the *Lyman Ventilating and Refrigerating Co.* vs. *Chamberlain*, (10 OFFICIAL GAZETTE, 588,) that—

Although the description may be so full and precise in the application for a patent as to enable one skilled in the art to which it appertains to construct what it describes, it does not attain the proportions or the character of a complete invention until it is embodied in a form capable of useful operation.

If an application, such as is here referred to, consisting of specification, drawing, and model, is not evidence of complete invention, certainly a drawing alone cannot be considered better or of greater effect.

Respecting the matter of diligence, as bearing upon the question of priority, I do not regard it as comparative, or, as it is sometimes termed, a "race of diligence," where one was first to conceive and the other to reduce to practice. If the second to conceive is the first to reduce to practice, his claim is founded upon that fact, and derives no support whatever from previous efforts, and whether he has been more or less diligent from the time of the conception of his invention to its maturity, he stands in exactly the same position. The fact that being an original inventor he did actually first reduce the invention to practice is all that we are to look for, or that he can base his claim to priority upon. Not so, however, with the one first to conceive. He must show affirmatively that he was reasonably diligent from the time of his conception of the invention until its completion. His diligence is not to be compared with that of his competitor, but must stand as an independent fact. It is for him to show that, under the circumstances, he used reasonable diligence, in order that he may connect the two events, conception and completion, and so establish a superior title to the invention. Diligence is thus made one of the elements necessary to his title as prior inventor, and without it his title would be defective, and could not prevail as against one claiming under the title of the first to reduce to practice.

Even disregarding the testimony of W. F. and J. Barnes, that they conceived of the invention in October, 1873, as too indefinite for the purpose of establishing the fact, it is clear that, being the first and only ones to reduce to practice, they are entitled to judgment of priority.

The decision of the Board of Examiners-in-Chief is affirmed.

PETER R. GOTTSTEIN.—*Reissue.*

[*In the matter of the reissue application of Peter R. Gottstein, filed December 18, 1876, of Patent No. 101,857, April 12, 1870, for an* "IMPROVEMENT IN STEARINE CANDLES."—*Decided April 11, 1877.*]

Great care is to be exercised in not allowing new matter to be incorporated into a reissue application in cases where there is neither model nor drawing; but where the ambiguity in the patent is explained in a manner not inconsistent with the original invention, and the patent is clearly inoperative by reason of such ambiguity, the discretion reposed by law in the Commissioner should be exercised in favor of the patentee upon the production of satisfactory evidence that the matter to be introduced was part of the original invention.

[*Geo. H. Lathrop*, for applicant.]

DOOLITTLE, *Assistant Commissioner:*

The applicant in his patent claimed, "as a new article of manufacture," the within described candle for miners' "use." The entire description of its formation was embraced in this single paragraph.

To furnish a light which, while superior in brilliancy and duration, shall cause neither smoke nor unpleasant odors, is the object of my invention, which consists in forming a candle of stearine by the process known as "dipping," by which means an article is produced that is firmer in texture, and will last from one to two hours longer, than any candle of an equal size heretofore furnished for miners' use, while at the same time costing but little more than those.

From this description it would naturally be inferred, that the ordinary process of "dipping" was practiced in producing the article, and that the novelty consisted alone in the fact that a stearine candle had for the first time been made by this common process.

But, now, under the last clause of Sec. 4916, Revised Statutes, which provides that—

When there is neither model nor drawing, amendments may be made upon proof satisfactory to the Commissioner that such new matter or amendment was a part of the original invention, and was omitted from the specification by inadvertence, accident, or mistake, as aforesaid—

applicant sets forth by his affidavit, supported by that of one other person, that the process of dipping alluded to in the patent is not the usual and well-known process, but quite another, and that, in fact, the candle claimed was not and could not be produced by the ordinary process of dipping; that, by reason of inadvertence &c., the description of the process was omitted, and his patent rendered inoperative by such omission.

It would need no proof, however, to establish the fact that the patent was invalid if it were construed as covering alone the making of a stearine candle by the common process of dipping. It having been an old and well-known art to form candles from tallow by dipping, nothing patentable would arise by applying the same process to stearine, both the process and the properties of the latter-named article being well known.

The real discovery, then, if any, made by the patentee, consisted in peculiarities of the process he adopted. Applicant states that, owing to the rapid and unequal cooling of the stearine, and its liability to crack in cooling when used in the same manner as tallow for dipped candles, it has hitherto been considered impracticable to make stearine candles otherwise than by molding.

His process is as follows:

In carrying out my invention the room in which the candles are made should be kept at a temperature of from 75° to 100° Fahrenheit, from the time the wicks are first dipped until the finished candles become thoroughly hardened.

As many wicks as desired are then dipped in a vat of hot stearine until they are covered with stearine until they are about one-quarter of an inch thick, and then allowed to become entirely cool. Then the workman is to take such a number of blocks of wicks, dipped and cooled as aforesaid, as he can dip in succession so rapidly that they will not harden between dips, and dip them in succession rapidly until the candles attain the desired size. I have found, by experience, that four or six blocks of wicks are all that should be taken at once.

He claims both the process and the article produced thereby.

I am aware that great care should be exercised in

allowing new matter to be incorporated in a reissue application in cases of this kind; but where, as here, the ambiguity is explained in a manner not inconsistent with the original invention, and where the patent is clearly inoperative by reason of such ambiguity, it is but just that the discretion reposed by the law in the Commissioner should be exercised in favor of the patentee upon sworn statements of the character herewith filed.

The proof of the new matter as being part of the original invention is satisfactory, and the examination of the case will proceed upon its merits.

THE GOODYEAR RUBBER COMPANY.—*Interlocutory Appeal.*

[*Appeal from the decision of the Examiner of Trade-Marks in the matter of the application of the Goodyear Rubber Company, for* REGISTRATION OF A TRADE-MARK, *filed December 28, 1876.—Decided April 25, 1877.*]

A trade-mark consisting of words which are merely descriptive of the quality of the goods to which the mark is to be applied will not be registered.

"Crack-proof," as a trade-mark for rubber goods, held to be descriptive of quality and not entitled to registration.

[*Pollok & Bailey*, for appellant.]

DOOLITTLE, *Assistant Commissioner:*

[The trade-mark must be distinctive in its original signification, pointing to the origin of the article, or it must have become such by association. And there are two rules which are not to be overlooked. No one can claim protection for the exclusive use of a trade-mark or trade-name which would practically give him a monopoly in the sale of any goods other than those produced or made by himself. If he could, the public would be injured rather than protected, for competition would be destroyed. Nor can a generic name, or a name merely descriptive of an article of trade, of its qualities, ingredients, or characteristics, be employed as a trade-mark, and the exclusive use of it be entitled to legal protection. As was said in the well-considered case of *The Amoskeag Manufacturing Company* vs. *Spear*, 2 Sandford's Supreme Court, 599, (quoted *supra* in the preceding page):]

Applicant desires to register the term "Crack-Proof," applied to rubber goods. When found on a pair of rubber shoes, or a rubber coat, the term would indicate to purchasers generally a very desirable quality, viz, that the articles are proof against cracking, in the same sense that the term water-proof would indicate that the goods to which it should be applied were impervious to water. If, after a trial, it should be discovered that the goods actually did crack, it would very naturally be inferred that the term was deceptive. But it cannot be presumed that applicant intends to deceive the public by applying to his goods a term denoting a quality it does not possess.

Before the process of vulcanization invented by Goodyear, the difficulties which rendered the use of caoutchouc, or India-rubber, unsuccessful in the arts, were chiefly that, in hot weather, the rubber became soft and clammy, and in cold weather hard and stiff. These objections were overcome, but whether the article was also rendered proof against cracking does not appear in Goodyear's patent. I cannot doubt, however, that the latter quality would be allotted it, in language at least, by the adoption as a trade-mark of the term "Crack-Proof." If it does indicate a quality actually possessed in a greater or less degree, all other manufacturers of rubber goods have the same right to use the term; and the doctrine of the courts, as above cited, is that no manufacturer can monopolize words denoting quality.

The owner of an original trade-mark has an undoubted right to be protected in the exclusive use of all the marks, forms, or symbols that were appropriated, as designating the true origin or ownership of the article or fabric to which they are affixed; but he has no right to the exclusive use of any words, letters, figures, or symbols, which have no relation to the origin or ownership of the goods, but are merely meant to indicate their means or quality. He has no right to appropriate a sign or a symbol, which, from the nature of the fact it is used to signify, others may employ with equal truth, and therefore have an equal right to employ for the same purpose. (*Vide Wolfe* vs. *Goulard*, 18 Howard's Reports, 64; *Fetridge* vs. *Wells*, 4 Abbott's Practice Reports, 144; *Town* vs. *Stetson*, 5 Id., N. S., 218; *Phalon* vs. *Wright*, 5 Phillips, 464; *Singleton* vs. *Bolton*, 3 Douglas, 293; *Perry* vs. *Truefitt*, 6 Beavan, 66; *Canham* vs. *Jones*, 2 Vesey & Beames, 218; *Millington* vs. *Fox*, 3 Milne & Craig, 388; *Canal Company* vs. *Clark*, 13 Wallace, 311.)

In striving to put myself in applicant's place, and imagine the term a fanciful arbitrary symbol when applied to the articles in question, I find it necessary to do violence to the plain meaning of the two words which are here compounded.

That the term has been coined adds nothing to its value, invention not being necessary in the adoption of a trade-mark, and the coined term having no unusual signification.

The decision of the Examiner of Trade-Marks is affirmed.

APPLICATION FOR EXTENSION.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., April 24, 1877.

On the petition of Erastus T. Bussell, of Indianapolis, Indiana, praying for the extension of a patent granted to him on the 29th day of November, 1853, numbered 10,280, extended for seven years from the 29th day of November, 1867; reissued on the 13th day of December, 1870, and numbered 4,202, for an improvement in combined rubber and spiral steel spring. This application having been authorized by act of Congress approved March 3, 1877:

It is ordered that the testimony in the case be closed on the 10th day of July next; that the time for filing arguments and the Examiner's report be limited to the 20th day of July next; and that said petition be heard on the 25th day of July next.

Any person may oppose this extension.

ELLIS SPEAR,
[tf] *Commissioner of Patents.*

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date June 19, 1877.]

10,055.—Center-Piece.—AUGUST CARLEWITZ, Newark, N. J. Application filed April 20, 1877. Term of patent 7 years.

10,056.—Cassimeres.—CHARLES F. HARRISON, New York N. Y. Application filed June 4, 1877. Term of patent 3½ years.

10,057.—Stair-Carpet Tacks.—MORITZ KRICKL, New York, N. Y., assignor to KRICKL, GOULD & CO., same place. Application filed June 2, 1877. Term of patent 14 years.

10,058.—Fancy Cassimeres.—PATRICK MCGEE, Blackstone, Mass., assignor to CHARLES F. MASON and A. L. MASON, Providence, R. I. Application filed June 5, 1877. Term of patent 14 years.

10,059.—Picture-Frame.—ROBERT C. MITCHELL, Aurora, Ind. Application filed September 30, 1876. Term of patent 14 years.

10,060.—Cooking-Ranges.—THEODORE H. ROBERTS, Detroit, Mich., assignor to MICHIGAN STOVE COMPANY, same place. Application filed May 23, 1877. Term of patent 7 years.

10,061.—Stucco Center-Piece.—PAUL A. STOUT, Allegheny, Penn. Application filed May 21, 1877. Term of patent 7 years.

10,062.—Trimming.—ROBERT WERNER, Hoboken, N. J. Application filed June 4, 1877. Term of patent 7 years.

10,063.—Tobacco-Bags.—WILLIAM J. CUSSEN, Richmond, Va. Application filed June 1, 1877. Term of patent 14 years.

10,064 to **10,066**, inclusive.—**Oil-Cloth.**—CHARLES T. MEYER and VICTOR E. MEYER, Bergen, N. J., assignors to EDWARD C. SAMPSON, New York, N. Y. Applications filed June 9, 1877. Term of patents 7½ years.

10,067.—Flower-Stands.—HENRY P. ROBERTS, Tunkhannock, Pa. Application filed May 22, 1877. Term of patent 7 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date June 19, 1877.]

4,743.—Cigars.—DAVID HIRSCH & CO., New York, N. Y. (Re-registration.) Application filed October 14, 1870.
"The word-symbol 'BIG THING.'"

4,744.—Cigars.—DAVID HIRSCH & CO., New York, N. Y. (Re-registration.) Application filed October 14, 1870.
"The word-symbol 'FALSTAFF.'"

4,745.—Cigars.—DAVID HIRSCH & CO., New York, N. Y. (Re-registration.) Application filed October 14, 1870.
"The word-symbol 'GULLIVER.'"

4,746.—Cigars.—DAVID HIRSCH & CO., New York, N. Y. (Re-registration.) Application filed October 14, 1870.
"The word-symbol 'LONE STAR.'"

4,747.—Cigars.—DAVID HIRSCH & CO., New York, N. Y. (Re-registration.) Application filed October 14, 1870.
"The word-symbol 'LION.'"

4,748.—Cigars.—DAVID HIRSCH & CO., New York, N. Y. (Re-registration.) Application filed October 14, 1870.
"The word-symbol 'MEPHISTO.'"

4,749.—Cigars.—DAVID HIRSCH & CO., New York, N. Y. (Re-registration.) Application filed October 14, 1870.
"The word-symbol 'UNIVERSAL STANDARD.'"

4,750.—Cigars.—DAVID HIRSCH & CO., New York, N. Y. (Re-registration.) Application filed October 14, 1870.
"The word-symbol 'JUPITER.'"

4,751.—Cigars.—DAVID HIRSCH & CO., New York, N. Y. (Re-registration.) Application filed October 14, 1870.
"The word-symbol 'DEFIANCE.'"

4,752.—Cigars.—DAVID HIRSCH & CO., New York, N. Y. (Re-registration.) Application filed October 14, 1870.
"The word-symbol 'SUCCESS.'"

4,753.—Cigars.—DAVID HIRSCH & CO., New York, N. Y. (Re-registration.) Application filed October 14, 1870.
"The word-symbol 'FASHION.'"

4,754.—Cigars.—DAVID HIRSCH & CO., New York, N. Y. (Re-registration.) Application filed October 14, 1870.
"The word symbol 'EAGLE.'"

4,755.—Cigars.—DAVID HIRSCH & CO., New York, N. Y. (Re-registration.) Application filed October 14, 1870.
"The word-symbol 'LEGAL TENDER.'"

4,756.—Cigars.—G. FALK & BRO., New York, N. Y., assignors to D. HIRSCH & CO. (Re-registration.) Application filed August 3, 1872.
"The word-symbol 'CURLS.'"

4,757.—Soap-Making Preparation.—LAFE GRAFF, New York, N. Y. Application filed May 21, 1877.
"The representation of a clock-dial."

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date June 19, 1877.]

1,089.—Title: **"Holman's Ague and Liver Pad."**—HOLMAN LIVER PAD COMPANY, New York, N. Y. Application filed June 11, 1877.

1,090.—Title: **"Holman's Fever, Ague, and Liver Pad."**—HOLMAN LIVER PAD COMPANY, New York, N. Y. Application filed June 11, 1877.

1,091.—Title: **Print—"Sacred to the Memory of"**—J. WESLEY WEBBER, New York, N. Y. Application filed June 9, 1877.

The Patent Office prefers that applicants should furnish their own drawings. Where drawings are defective, or cannot be otherwise obtained, the Office will cause a formal drawing to be made from the model at the actual cost of making it.

Patent Office coupons, which purchase a copy of any drawing which has been photolithographed, are sold singly by the Chief Clerk at twenty-five cents each, or twenty coupons at one time for two dollars.

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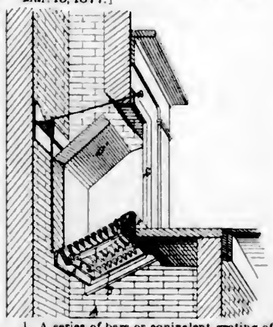
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TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED JUNE 19, 1877.

192,046. FIRE-PLACES. Jas. Adair, Aleppo Township, Allegheny County, Pa. [Filed Mar. 15, 1877.]



1. A series of bars or equivalent grating of a fire-grate, extending transversely across from side to side of a fire-chamber, with their side faces oblique to the natural line of draft and sloping from front to rear, whereby the ascending flame, smoke, and ashes are, by the incoming air, deflected or projected obliquely from a vertical direction, substantially as described.

2. In combination with a fire grate, a rocking-bar, single or double, having the journals r r, and having at one end a poker-slot, substantially as described.

3. In combination with a fire-grate, a rocking-bar, single or double, having the journals r r, and having at one end a poker-slot and stop-pin, substantially as described.

4. An inclined stationary frame, B, having a beveled front, and with its stringers notched or cut away to gain a bearing on the hearth-stone, substantially as described.

5. A flanged grate-frame hung on trunnions, having seats or bearings front and rear, for the gudgeons or journals of the comb-grates and rocking-bar, and with a fore-plate provided with a poker-hole, and a hinged pawl thereat, substantially as described.

6. A mantel frame having its lower ends or feet connected by a cross-bar made in one piece therewith, in combination with a low-down grate, substantially as described.

7. The stationary frame B and the ornamenting and protecting cross-bar R at its front end, and a non-conducting packing-space between them, combined substantially as described.

8. The combination of the stationary frame, downwardly inclined from front to rear, and the grate frame tilting thereon, the center of rotation extending from side to side of the fire-chamber, substantially as described.

9. The combination of a grate-frame, a rocking-bar, and a grate resting on the bar and hinged at one side of the center line of the frame, within which it vibrates, substantially as described.

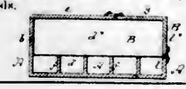
10. The combination of a rocking-bar and a grate resting thereon and pivoted off the center, substantially as described.

11. The combination of a rocking-bar, the comb-grates resting thereon, the grate-frame, and inclined stationary frame, substantially as described.

12. The rocking-bar I, carried wholly by the tilting grate-frame E, and accessible only through or over the grate frame, for the purpose of agitating the grate-bars, the combination being substantially as set forth.

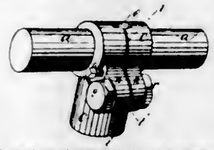
192,047. CIGAR-BOXES. Benjamin Ash, New York, N. Y. [Filed Mar. 8, 1877.]

Brief.—The box is made in two sections, so that when fastened together they constitute a complete box, and when the top is removed the bottom forms a receptacle for displaying the goods.



A cigar-box constructed of a lower section, A, and of an upper removable section, B, the section A being composed of the bottom *a*, back *b*, top *e*, front *l*, and sides *d*, and the section B made of the front 1°, top *g*, and sides *d*° *d*°, but without any back, all arranged to constitute a box, substantially as specified.

192,048. ADJUSTING-CLAMPS. J. S. Atkinson, Pittsburg, Pa., assignor to Jones & Laughlins, same place. [Filed May 28, 1877.]



1. A perforated open sided solid adjusting-clamp, the walls of the hole or perforation extending almost or entirely around, and, at least, more than half way around, the piston or sucker rod, and adapted to be sprung into a griping contact with the rod by the partial or complete closing together of the sides of the slit or open side, substantially as set forth.

2. In a sucker-rod coupling or clamp, the combination of piece *c*, having a hole, *e*, for the reception of the rod, and slit *i*, with lugs *n*, bolt *o*, and nut *r*, substantially as set forth.

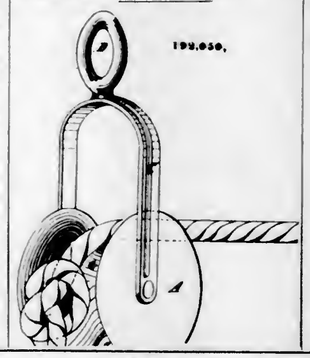
192,049. CHAIN-PUMP BUCKETS. Ira Avery, Tunkhannock, Pa. [Filed Mar 13, 1877.]



1. A chain-pump bucket composed of a link of common pump chain, with a broad zinc disk or valve-seat cast around the middle part thereof, a thin disk of rubber, slightly broader than the diameter of the tubing to be used, slipped over the upper end of said link and laid upon the zinc disk, or upon other thin rubber disks of smaller diameter, no two of said disks being of the same size, as and for the purposes substantially specified.

2. The combining of tubing of two sizes of bore, (the difference being about one-eighth of an inch in the diameter,) so that there shall be no appreciable friction between the bucket and the tubing that is above the first or lower section, and that the additional amount of water to be raised by reason of such slight enlargement shall also be unappreciable in amount, substantially as set forth.

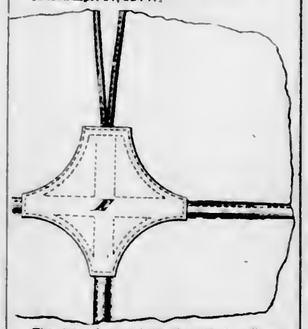
192,050.



192,050. PULLEYS. Marcus Bloch, Herman Bloch, and David Bloch, New York, N. Y. [Filed Apr. 9, 1877.]

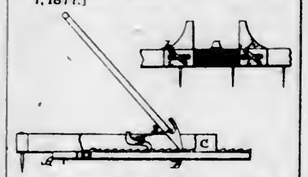
A new article of manufacture, consisting of a pulley, A, made of wood, and having a wide deeply-grooved periphery, and a long narrow shackle, D, made of metal, strengthened externally with longitudinal ribs C, and provided with a suspending device, substantially as and for the purposes set forth.

192,051. RE-ENFORCING SHIELDS FOR SEAMS. Albert Borchardt, Hoboken, N. J. [Filed Apr. 17, 1877.]



The fastening and barring leather E, arranged over a seam or seams on the inner side of a garment, and adapted to operate as a shield to prevent the seams from irritating the skin of the wearer, substantially as herein shown and described.

192,052. CARPET-STRETCHERS. Theodore H. Brumfield, Geddes, N. Y. [Filed May 7, 1877.]



1. The combination of the toothed head A, ratchet-bar B with slotted projections *i i*, and the screw cams or eccentrics *h h*, substantially as and for the purpose herein set forth.

2. The slotted bar C, with spike *e*, pawl D, and bail E, in combination with the ratchet-bar B, toothed and perforated head A, with notch and an operating-lever, substantially as and for the purposes herein set forth.

192,053. FENCE-POSTS. Ezekial W. Bullard, Barre, Mass. [Filed Jan. 31, 1877.]



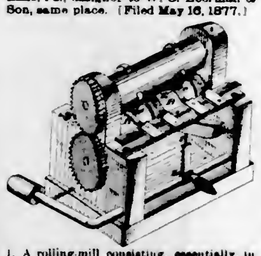
1. The post described, consisting of two or more parts driven into the ground at diverging inclinations, and having their upper parts in upright position, and secured together bold-

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ing the fence between them, substantially in the manner and for the purposes above set forth.

2. The barbed post described, having barbs formed of the ends of the wires E E, making the binders or withes, substantially as and for the purposes described.

192,034. ROLLS FOR THE MANUFACTURE OF SUCKER-ROD JOINTS. John Cain, Sandy Lake, Pa., assignor to W. S. Eberman & Son, same place. [Filed May 16, 1877.]



1. A rolling-mill consisting, essentially, in a system of rolls, one of which has a raised working-face extending only partially around the roll, and the other a grooved working-face bordered by collars extending above the plane of the roll, one of said collars extending only partially around the roll, whereby the blank may be inserted between the rolls while in motion, and by imparting lateral movement to the blank the same may be inserted between the working-faces of the opposite rolls, substantially as described.

2. In a rolling mill, the combination with a roll having an eccentric rib formed thereon, the same extending only partially around the roll, of an opposite roll provided with a working-face bordered by collars extending above the plane of the roll, one of said collars extending only partially around the roll, substantially as described.

3. In a rolling mill, the combination, with a roll having an eccentric rib provided with a convex working-face, said rib extending only partially around the roll, of an opposite roll provided with a working-face bordered by collars extending above the plane of the roll, one of said collars extending only partially around the roll, substantially as described.

4. In a rolling-mill, the combination, with a roll provided with an eccentric rib having a convex working-face, said rib extending only partially around the roll, of an opposite roll provided with a concave working-face bordered by collars extending above the plane of the roll, one of said collars extending only partly around the roll, substantially as described.

5. The combination, with a roll provided with the eccentric ribs extending only partly around the roll, of a roll having flat and concave working-faces, each face of which is bordered by a pair of collars, one of the pair extending only partly around the roll, substantially as described.

6. The combination, with a pair of rolls, one of which is provided with eccentric ribs extending only partly around the roll, while the other is provided with working-faces bordered by collars, one of the collars adjacent to each working face extending only partly around the roll, of a laterally-moving guide, a portion of which is located between the plain surfaces on the rolls, substantially as described.

7. A pair of rolls, one having eccentric ribs extending only partly around the roll, and the other provided with working-faces bordered by collars, one of the collars adjacent to each working-face extending only partly around the roll, in combination with a laterally-moving guide, and a rock-shaft having a treadle and weighted arm or lever secured thereto, substantially as described.

192,035. WHEELS FOR TRUCKS, CASTERS, &c. Geo. P. Clark, Windsor Locks, Conn. [Filed Mar. 17, 1877.]

Brief.—Two metallic disks clamping an elastic tire

1. A wheel for hand-trucks, casters, &c., composed of two compressing-disks, each of which is provided with a peripherical flange, an annular shoulder, and a section of hub, in combination with an annular rim of vulcanized rubber or other non-sounding material, substantially as described.

2. The combination, with an annular compressible rim, of two metallic disks, each of which has an annular shoulder for supporting the rim, and an annular flange, which is beveled inward from its periphery to said shoulder, substantially as described.

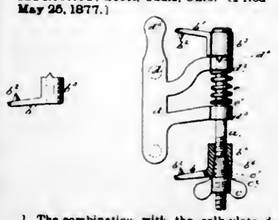
192,055.



192,056. COMPOSITION VEHICLES FOR PAINTS, &c. H. C. Crowell, New London, Conn. [Filed Oct. 4, 1876.]

A composition of matter for admixture with vegetable or animal oils or liquid hydrocarbons, for lubricating purposes or as a vehicle for paint, consisting of salts of tartar, caustic lime, carbonate of magnesia, and water, substantially as set forth.

192,047. ICE-CREEPERS. Charles P. Dewey and Robert P. Scott, Cadiz, Ohio. [Filed May 26, 1877.]



1. The combination, with the calk-plate *d* supported on a rod, *a*, of the adjustable jaws *b b'*, for the purpose set forth.

2. The combination, with the bolt *a* and the sliding jaw *b*, constructed with the recess b^2, of the nut *c*, having the elongated end c^1, and shoulder c^2, for the purpose set forth.

3. The combination, with the calk-plate *d*, having the lugs d^2 d^3, and notches or recesses d^4, of the jaw *b'*, constructed with the cam or projection b^1, and spring *e*, substantially as and for the purpose specified.

192,058. EMERY-WHEELS. William Esty, Fitchburg, assignor to Vitrified Wheel and Emery Company, Ashland, Mass. [Filed Jan. 9, 1877.]

Brief.—Moistens mixture with gum-water, or soar beer or water; sifts, molds, dries, and bakes.

A porous stone for grinding or polishing purposes, composed of emery, corundum, or other sharp gritty substance reduced to grains or kernels of suitable fineness, mixed with about an equal quantity of the fine flour of the same material, and a quantity of broken glass, slate, or other vitreous substance, the whole being cemented into a cohesive mass by heat, substantially as described.

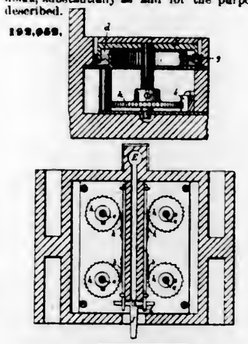
192,059. KILNS FOR BAKING EMERY-WHEELS. William Esty, Fitchburg, assignor to Vitrified Wheel and Emery Company, Ashland, Mass. [Filed Jan. 9, 1877.]

1. In combination with the combustion-chamber of a furnace or kiln, one or more circular disks or platforms sunk in suitable recesses formed for the purpose in the floor of said combustion-chamber, and adapted to be automatically rotated about a vertical axis, substantially as and for the purpose described.

2. In combination with the combustion-chamber of a furnace or kiln the disk G, provided with the downwardly-projecting annular rib *g*, the annular trough *d*, and a packing of dry sand, powdered soapstone, or other granulated material nearly filling the trough *d*, and surrounding the lower edge of the rib *g*, substantially as and for the purposes described.

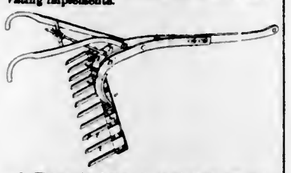
3. The combination with the combustion-chamber of a furnace or kiln of one or more disks G, mounted upon vertical shafts, one or more ratchet-wheels k, one or more reciprocating bars *f*, one or more pawls k, and a single operating-lever, I, all arranged and co-operating, as set forth, to impart an intermittent rotary motion to any object placed upon said disks, substantially as and for the purposes described.

192,060.



192,060. CULTIVATORS. Jas. J. Faulkner, Louisville, Ky. [Filed Sept. 30, 1876.]

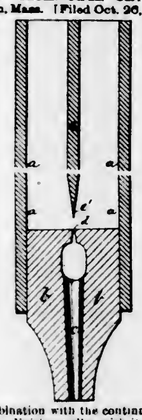
Brief.—A short beam adjustable forward and back upon the other, and details of construction to adapt the frame for various cultivating implements.



1. The main beam A, having the curved rear arm B and two sets of perforations, the one in rear of the other, in combination with the branch beam C, having a single set of perforations, whereby the branch beam is adjustable longitudinally, and the whole adapted to receive either a tare-plow, cultivator-shovels, or a clod-cutter, substantially as and for the purpose described.

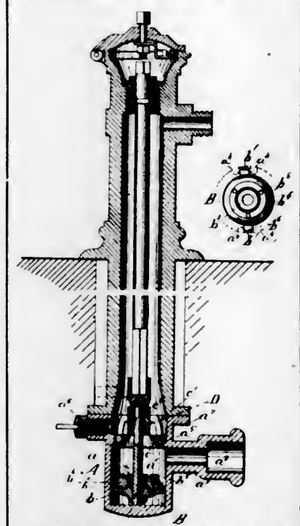
2. The combination of the main beam A, having a curved standard, B, the longitudinally adjustable branch beam C, having a like standard, B', the harrow-beam m, provided with spaced teeth t, having their shanks at right angles to their cutting blades, and the curved arms *s*, corresponding to the curvature of the standards B B', substantially as specified, and for the purpose set forth.

192,061. ORGAN-PIPES. Carl Fogelberg, Boston, Mass. [Filed Oct. 26, 1876.]



In combination with the continuous pipe *a*, having the division-wall *z*, with its projecting sharp edge *c'*, the mouth-piece *b*, having channel *c* and slit or opening *d*, substantially as described.

192,062. HYDRANTS. Wm. T. Garratt, San Francisco, Cal. [Filed Apr. 14, 1877.]

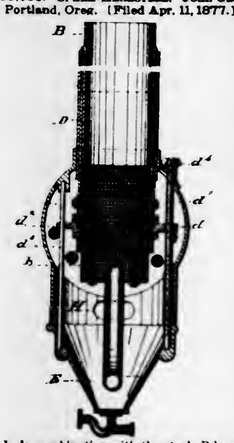


1. The valve described, consisting of the disk B, having ears b^1 and projection b^2, rubber ring b^3, having an extended portion, *x*, to pack the spindle, and clamping-ring b^4, with bolts b^5, as described.

2. In combination with the section A, having the portion a^2, the removable valve-seat *c*, having arms c^1 and socket c^2, as described.

3. In combination with the valve held from revolution by the part A, the spindle D and the seat *c*, having the socket c^2, as described.

192,063. SPARK-ARRESTERS. John Gates, Portland, Oreg. [Filed Apr. 11, 1877.]



1. In combination with the stack B having the perforated portion *b* and the conical chamber E, the damper D, adapted to shut down upon the conical portion and close the draft.

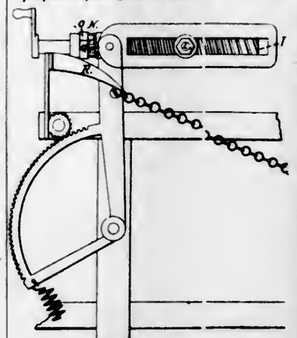
2. In combination with the perforated smoke-stack and the sliding damper, the chamber E having the water-pipe G, as described.

3. In combination with the perforated smoke-stack and the chamber E having the exhaust-pipe, the goose-neck and pipe G, as and for the purpose set forth.

4. In combination with the perforated smoke-stack and the damper D having ears d^2, the vertical rod d^3, the vertical screw-rod d^4, having bevel-wheel d^5 and horizontal rod with bevel-wheel d^6, as described.

192,064. SPINNING-MULES. Saml. George, Lowell, Mass. [Filed Aug. 31, 1876.]

Brief.—The point of the cop is shaped by the nose peg, which is attached to the sleeve, and projects from it through the slotted arm. Said nose-peg is traversed by means of a stud projecting from the sleeve and working in a screw of variable pitch, so that, by turning the screw equal amounts at each return of the radial arm to an upright position, the proper shape is given to the cop.



1. The combination of the screw I, formed with a varied pitch in different parts of its thread, the studded sleeve K, and the nose-peg L, substantially as and for the purpose herein specified.

2. The combination of the screw I, the nose-peg L, the ratchet N, the pawl P, the lever O, and the incline R, as and for the purpose described.

192,065. HATS. Delos W. Gitchell, Orange, N. J. [Filed Nov. 28, 1876.]



A wool felt hat having a napped and curled surface, substantially as herein described.

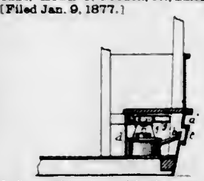
192,066. MACHINES FOR SHEARING HATS. Delos W. Gitchell, Orange, N. J. [Filed Nov. 28, 1876.]

Brief.—The cone-blocks are mounted on pivoted segmental frames, adjustable in their pivots toward and from the cutter. They are also capable of adjustment on said segmental frames, longitudinally of their shafts, by means of screws at the rear ends of their shafts.



The combination of the adjustable swiveling carrier B, having an attached bearing, *m*, the cone-block A or A', the rotating and longitudinally-adjustable spindle *b*, carrying said block, the screw block or holder *a*, and the rotating cutting-cylinder D, and fixed cutting-blade *g*, substantially as shown and described.

192,067. APPARATUS FOR HEATING VEHICLES. Abner C. Goodell, Jr., Salem, Mass. [Filed Jan. 9, 1877.]



1. In combination with the seat of a vehicle, a lamp-stove, placed between the seat and the floor, provided with a filling-tube, *b*, and with longitudinal flues *e g*, hung near the seat, substantially as and for the purpose described.

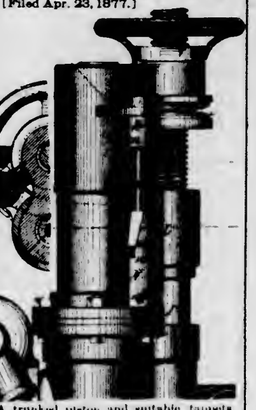
2. In combination with the lamp-stove, placed between the seat and the floor of a vehicle, and provided with a filling-tube, *b*, the aperture through the side of the car surrounding said filling-tube *b*, and provided with the removable cap *c*, substantially as and for the purpose described.

3. In combination with a street-car or omnibus, a lamp-stove placed between the seat and the floor, flues *e g* and *j*, and screen *d*, substantially as described.

4. In combination with the body of a car or omnibus, a seat having heating flues *e g* hung between it and the floor, a lamp also placed beneath it, and discharging its products of combustion into said flues, and a discharging-flue, *j*, communicating with the atmosphere, substantially as described.

5. In combination with the seat of a vehicle, a lamp-stove, the boxing *k*, projecting from the side of the vehicle and opening into the vehicle beneath the seat, and designed to partially surround the lamp-stove, substantially as and for the purpose described.

192,068. ROCK-DRILLS. A. A. Goubert, New York, and N. W. Pratt, Brooklyn, N. Y. [Filed Apr. 23, 1877.]



1. A trunked piston and suitable tappets reciprocating therewith, in combination with a valve operated by the tappets, and adapted to admit live steam to the upper and smaller area of the piston during the whole of the working stroke, and at the conclusion of the working stroke to open communication between the opposite ends of the cylinder, and thus admit the steam which has effected the working stroke to the lower and larger area of the piston for the purpose of effecting the return stroke, substantially as described.

2. A reciprocating valve, the stem of which is provided with shoulders or collars, in combination with a reciprocating tappet, and with a double-acting yielding spring-stop, two of the collars acting to receive and transmit to the valve-stem the reciprocating motion of the actuating tappet, and similar collars serving to receive and transmit to the valve-stem the thrust of the yielding spring stop, whereby, if the valve overruns, it is made to follow back the actuating-tappet on the reverse stroke, and return to one of its two normal positions, where it holds the ports respectively wide open.

3. In combination with a steam-cylinder provided with a trunk piston, substantially such as described, wherein the live steam which is used for effecting the working stroke is whipped around to the opposite side of the piston to effect, by its expansion, the return stroke, the reciprocating valve C and the ports *d* and *f*, whereby, when the piston overruns, the valve motion is prolonged sufficiently to open the live steam port, and thus admit live steam in front of the piston, to form a steam-cushion to arrest the blow of the piston, and whereby the live-steam port is closed immediately after the commencement of the return stroke of the piston.

4. The feeding cam N, composed of the two parts, n' and n², keyed to the opposite ends of the rock-shaft M, substantially as shown, and for the purpose set forth.

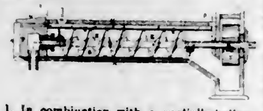
5. A reciprocating tool-stock provided with a male screw thread which engages a reciprocating nut, whereby the tool-stock is fed longitudinally by the rotation of a wheel which is loosely keyed to the tool-stock, in combination with a vibrating friction-clutch, whereby such wheel may be rotated any part of a revolution within the range of motion of the vibrating friction-clutch.

6. A rocking cam for operating the actuating-pawl of the feed wheel, provided, first, with a short and sharply-inclined face or tappet, by means of which the cam is suddenly rocked in one direction during the latter part of the downward stroke of the tool-stock, and, secondly, with a longer and less sharply inclined face or tappet, by means of which the cam is more gradually rocked in the opposite direction during the return stroke of the tool-stock, substantially as and for the purpose described.

7. The cam N and the reciprocating wedge which actuates it, in combination with a friction-pawl and feed-wheel, for effecting the longitudinal feed of a reciprocating tool-stock, substantially as set forth.

8. A device for operating the feed, which consists of a tappet, which gives a quick movement during the latter part of every working stroke of the tool-stock, and of a second tappet, which gives a slower motion in the opposite direction to feed the tool-stock more or less during every return stroke, the amount of such feed for each successive blow being automatically governed by the extent to which the tool, at the preceding blow, has penetrated the material operated upon, substantially as set forth.

192,069. GRAIN CONVEYERS AND DRIERS. William H. Higbie, Peoria, Ill. [Filed Oct. 30, 1876.]



1. In combination with a partially-hollow conveyer-shaft and its spiral flange or flanges, a spiral steam-pipe following the line of the flange or flanges, and receiving its steam from said shaft, and discharging it again into said shaft, for the purpose of heating said flange or flanges and the trough to dry the passing grain, substantially as described.

2. The combination, in a grain-conveyer, of the steam-chest C, shaft-journal F with a partially hollow shaft D, provided with the spiral steam-pipe E, having openings into said shaft by which to receive and discharge steam to heat the flange or flanges and dry the conveyed grain, substantially as and for the purposes described.

3. The combination with the trough A, provided with a spiral steam-pipe around the shaft, of the cover C having ventilating-holes *p*, as described.

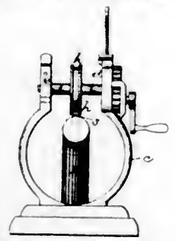
4. The combination of the cover C and the air-regulating block G, substantially as described, when used in connection with and in combination with the trough A and shaft D, as described.

192,070. FURNACE-GRATES. M. G. Imbach, Brooklyn, N. Y. [Filed Dec. 6, 1876.]



I claim as my invention the grate provided with a girder composed of alternate, single, furcated, and double sections, as shown, and for the purpose specified.

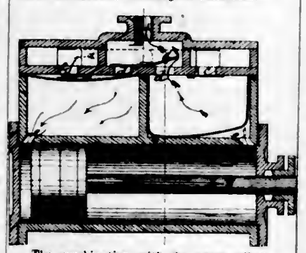
192,071. MACHINES FOR GROOVING SHEET-METAL PIPES. Frank M. Irons, Greenville, Mich., assignor of one-half his right to J. H. Milor, same place. [Filed May 21, 1877.]



The combination of the arm *r*, having the roller *s* journaled in its end, grooved wheel A, shaft *i*, vertically-adjustable box *d*, pivoted box *e*, regulating-screw, and frame *c*, all combined, and arranged to operate substantially as shown and described.

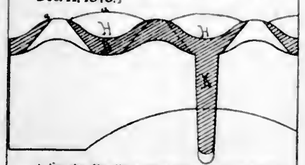
192,073. PUMPS. H. A. Jamieson, Brooklyn, N. Y. [Filed Dec. 8, 1876.]

Brief.—One or more chambers are arranged between the inlet and outlet valves and the pump-cylinder. A flexible diaphragm is applied to the chamber, whereby, on charging the pump-cylinder, and in case of duplicate interposed chambers, with any suitable liquid, such as oil or water free from gritty impurities, the motion of the piston is transmitted, through the interposed liquid, to the flexible diaphragm, which is expanded and contracted within the interposed chamber to first fill said chamber with the water being pumped, and subsequently discharge it therefrom.



The combination, with the pump-cylinder, its piston or plunger, and the inlet and outlet valves of the pump, of one or more interposed chambers and flexible diaphragms, substantially as and for the purposes herein set forth.

192,072. FURNACE-GRATES. Alvin Lawrence, Lowell, Mass., assignor to himself and J. K. Foster, Philadelphia, Pa. [Filed Dec. 11, 1875.]

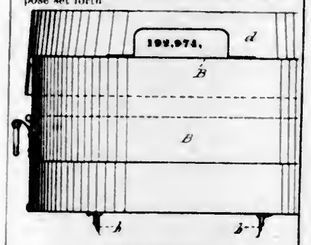


A longitudinally-corrugated furnace grate, constructed as described, with ash-receiving valleys H between rising ridges or swells *a*, which are perforated through their highest surfaces, substantially as and for the purpose described.

192,074. PANS FOR ROASTING AND BAKING MEATS. Amalie A. Lehnert, Philadelphia, Pa. [Filed Sept. 14, 1876.]

1. The hinged bars *b b*, in combination with the bottom of a baking and roasting pan, substantially in the manner and for the purpose set forth.

2. The elevated cover B, having on its top the receptacle *d* for the reception of fuel, substantially in the manner and for the purpose set forth



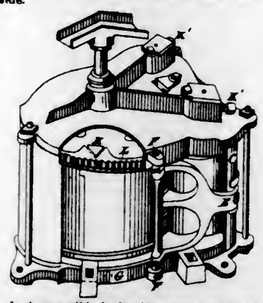
192,075. BRUSHES. Henry Lumbard, Chicago, Ill. [Filed Mar. 24, 1877.]



The elongated metal band B, which is constructed to hold the bristles at one end and receive the handle A at the other end, the handle and bristles both being inserted in the band, in combination with a partition plate, D, soldered fast to the band, and extended into a slot in the handle and into the bristles, and the handle and bristles being secured by rivets, as and for the purpose set forth.

192,076. CANE-MILLS. Abraham G. Munn, Charles T. Clark, and Thomas Brennan, Louisville, Ky. [Filed Mar. 24, 1877.]

Brief.—Mill is geared to reverse motion; feed-guide is adapted to operate upon either side.



1. A reversible feed-guide constructed with journals and a device for locking it in position, in combination with a cane-mill having bearings on both sides thereof to receive said feed-guide, substantially as and for the purpose described.

2. A cane-mill provided with bearings F F on both sides, in combination with a reversible feed-guide and mechanism for securing the same in position, substantially as specified.

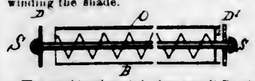
3. A reversible feed-guide constructed with feed-openings *b*, tables *c* therefor, a tongue,

E, and journals *a*, in combination with a cane-mill, substantially as described.

4. The main or driving roller of a cane-mill, constructed with open V-shaped lugs K, having perfectly vertical plane sides, in combination with a gear-wheel, L, having correspondingly-shaped recesses *l*, constituting a rigid connection, whereby said roller and wheel are so firmly held together as to prevent the latter from rising, and the mill be thus rendered capable of operation in either direction.

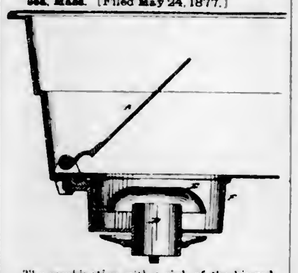
192,077. CURTAIN ROLLERS AND BRACKETS. Edwin F. McComas, Erie, Pa., assignor of one-half his right to Jno. H. Silderis, same place. [Filed Apr. 25, 1877.]

Brief.—The spring both winds up the shade and causes the roller to press against the bracket with a force proportional to the tension of the spring produced in winding or unwinding the shade.



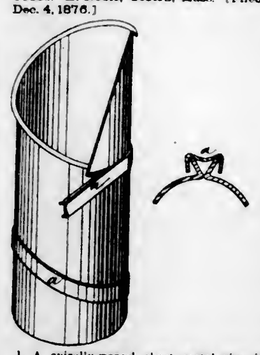
The combination of the hangers D D', shaft S, and cylinder B, said cylinder having a rotary action between said hangers and upon said shaft, and a lateral action against one of said hangers, as and for the purposes set forth.

192,078. SINK-TRAPS. John Magee, Chelsea, Mass. [Filed May 24, 1877.]



The combination with a sink of the hinged or removable strainer-plate B, stationary convex cup E, provided with arm *e*, dish F and pipe D, the several parts constructed and relatively secured together and to the sink, substantially as herein shown and described.

192,079. SPIRALLY-WOUND SHEET-METAL TUBES. H. Noble, Boston, Mass. [Filed Dec. 4, 1876.]



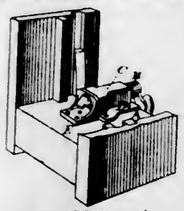
1. A spirally-wound sheet-metal pipe in which the seam or joint is re-enforced by a strip of metal, *a*, clinched down thereon, substantially as and for the purpose described.

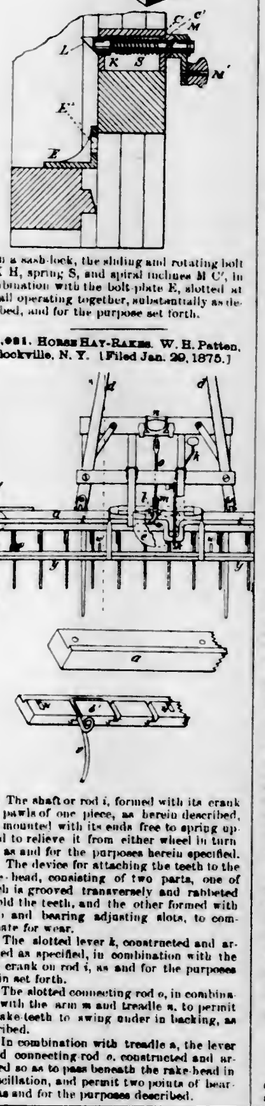
2. A spirally-wound sheet-metal pipe, constructed with a joint formed by turning and abutting the edges of the metal, and uniting or locking them together by means of a re-enforcing strip, *a*, substantially as set forth.

192,080. FASTENERS FOR MEETING-RAILS OF SASHES. Ephraim Parker, Boston, Mass. [Filed Apr. 18, 1877.]

Brief.—A sliding and rotating spring-bolt, with beveled nose, is arranged to engage automatically with an elongated slot in the keeper or bolt-plate, and, at the same time, by spiral inclines and partial rotation, to draw the draw the meeting-rails together and prevent rattling.

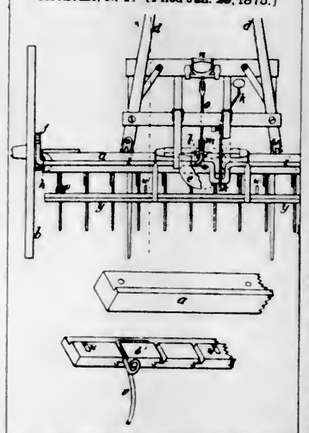
192,080.





In a sash-lock, the sliding and rotating bolt L K H, spring S, and spiral inclines *h* C', in combination with the bolt-plate E, slotted at E', all operating together, substantially as described, and for the purpose set forth.

192,081. HORSE HAY-RAKES. W. H. Patten, Clockville, N. Y. [Filed Jan. 29, 1875.]



1. The shaft or rod *i*, formed with its crank and pawls of one piece, as herein described, and mounted with its ends free to spring upward to relieve it from either wheel in turning, as and for the purposes herein specified.

2. The device for attaching the teeth to the rake-head, consisting of two parts, one of which is grooved transversely and rabbeted to hold the teeth, and the other formed with a lip and bearing adjusting slots, to compensate for wear.

3. The slotted lever *k*, constructed and arranged as specified, in combination with the crank-crank on rod *i*, as and for the purposes herein set forth.

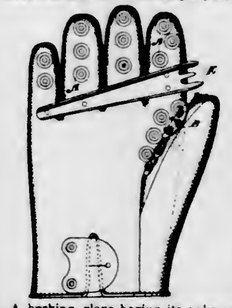
4. The slotted connecting-rod *o*, in combination with the arm *m* and treadle *n*, to permit the rake-teeth to swing under in backing, as described.

5. In combination with treadle *n*, the lever *m* and connecting-rod *o*, constructed and arranged so as to pass beneath the rake-head in its oscillation, and permit two points of bearing, as and for the purposes described.

6. The center bearing *l*, with its oblique opening above to hold the rod *i* steadily when in place, and to readily release it, as described.

7. The oblong bearings *h*, in combination with the rod *i*, and pawls rigidly affixed thereto so as to allow the rod *i* to rise to free the pawl from the ratchet, in the manner and for the purpose described.

192,082. CORN-HUSKING GLOVES. James Peters, Chicago, Ill. [Filed May 17, 1877.]



1. A husking-glove having its palm and digits protected by leather disks A fastened in place by rivets, substantially as described.

2. The group of shoe-rivets B upon the thumb of a husking-glove, in combination with the prongs E of the husking-pin, substantially as and for the purpose specified.

192,083. FIRE-EXTINGUISHERS. Henry O. Peters, Hoosick Falls, N. Y. [Filed Mar. 14, 1877.]

1. The combination of the weight D, rest or support C, tube or conductor B, and gate-lever E, the combination operating so that the weight displaced from the support by the inclination of the tube shall be conducted by the latter so as to operate the lever, substantially as and for the purpose described.

2. The combination of the weight, support, conductor B, gate-lever E, and gate or valve F, the combination operating so that the falling of the weight shall open the valve, substantially as and for the purpose described.

3. The combination, in a railroad car, of the following elements: a stove or furnace, reservoir, and weight, with suitable connecting mechanism, substantially as described, the combination operating so that the inclination of the car, when displaced from the track, as in accidents, shall unseat the weight, that, falling, shall open the reservoir and let its contents upon the fire, substantially as and for the purpose described.

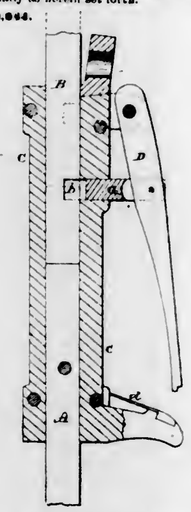
4. The combination of the tube or pipe B with conical chamber A, the cross-piece C, stationary inside chamber A, the lever E, connecting with valve F, inside reservoir G, which is placed on the stove by connection with opening H, at the top of which is placed the valve F, together with the connecting-pipe I at the top of the reservoir G, for the purpose of carrying off the steam through the stove-pipe, all substantially as shown and described.

192,084. COUPLINGS FOR WELL-AUGER SHAFTS. D. N. Root, Parkersburg, Iowa, assignor to O. T. Hodges, same place. [Filed Dec. 7, 1876.]

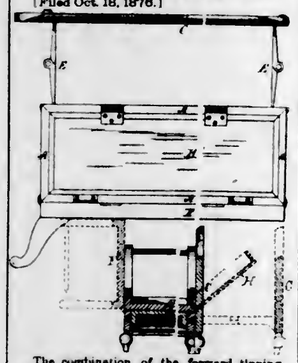
The rectangular box or coupling C, provided with the hinged lever D, pivoted key G, and spring *d*, in combination with the shaft-

section A, secured permanently in the coupling, and the shaft-section B, provided with the notch *b*, and fastened by the key, substantially as herein set forth.

192,064.



192,065. BED-LOUNGES. Alexander Rothschild and Thos. S. Birch, Hartford, Conn. [Filed Oct. 18, 1876.]



The combination of the forward-tipping seat F and the backward-folding part H with the rectangular frame A, the bars E, and the back C, substantially as herein described.

192,066. TOOL-HANDLES. Edwd. H. Sears, Collinsville, Conn., assignor to the Collins Company, same place. [Filed Feb. 12, 1877.]

Brief.—A blade and handle, formed of one piece of metal, is provided with an end piece having a tang.

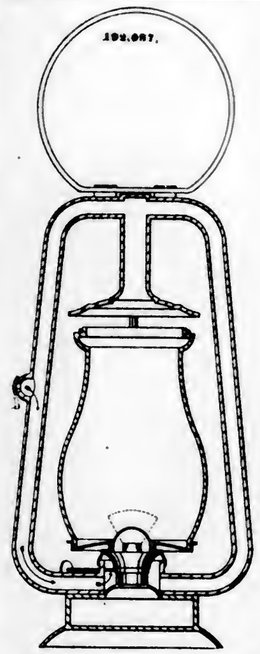


The end piece *c*, provided with the tang c^1, in combination with the hollow handle *b*, provided with blade *a*, in the manner and for the purpose specified.

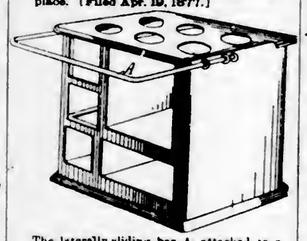
192,067. LANTERNS. Daniel Sherwood, Lowell, Mass., assignor to Fredk. Diets, New York, N. Y. [Filed Apr. 11, 1877.]

In combination with one of the tubes of a tubular lantern, the tube or mouth-piece D, connected to the air-space around the flame of the lamp, substantially as described.

192,067.



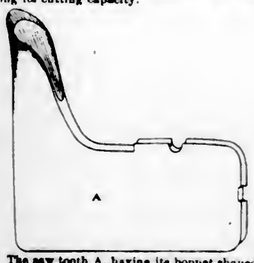
192,068. STOVES. Robert Simpson, Boston, Mass., assignor, by mesne assignments, to the Highland Foundry Company, same place. [Filed Apr. 19, 1877.]



The laterally-sliding bar A, attached to a stove, substantially as described.

192,069. SAW-TEETH. N. W. Spaulding, San Francisco, Cal. [Filed Mar. 15, 1877.]

Brief.—The edges of the bonnet-shaped cutting-point of the tooth are spread by a suitable tool, which flares or upsets the entire semi-circular cutting-rim of the same, for giving it the proper amount of clearance and increasing its cutting capacity.



The saw tooth A, having its bonnet-shaped or convex cutting rim upset or expanded, substantially in the manner and for the purpose described.

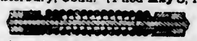
192,070. SAW-TEETH. N. W. Spaulding, Oakland, Cal. [Filed June 21, 1876.]

Brief.—The tooth is made of gouge shape, so as to cut in front and at the sides.



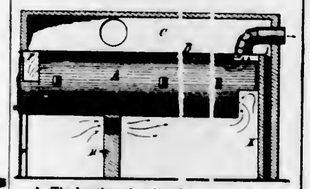
A channel-faced saw-tooth having its main cutting-point convexed so as to form a continuous or bonnet-shaped cutting-point, said point being formed on circular lines and inclined toward the throat *f* of the tooth, substantially as described.

192,071. SPRING-HINGES. James Spruce, Waterbury, Conn. [Filed May 8, 1877.]



The inner knuckles of a sheet-metal spring-hinge, having short tubes made of separate pieces, secured thereto by brazing, welding, swaging, or in any equivalent manner, in combination with a spiral spring, the end coils of which have bearing on said tubes, while the extreme ends of the spring rest upon the leaves of the hinge, substantially as and for the purpose set forth.

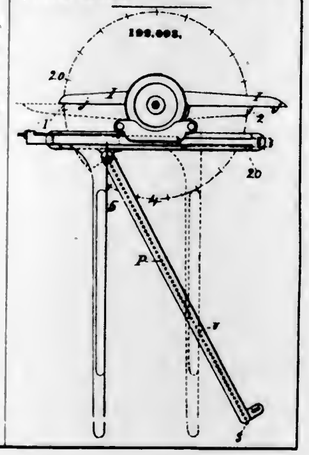
192,072. HEATING-FURNACES. C. Stewart, Worcester, Mass. [Filed Nov. 2, 1876.]



1. The heating chamber C, having the space I I surrounding the walls K and a metal plate, B, between it and the flues F F, in combination with the boiler A and the flues F F over it, constructed and operating in the manner and for the purposes described.

2. The arches G G over the openings in the wall H, in combination with the chambers on each side of the wall H and boiler A above the opening, whereby the flame after contact with the boiler is depressed, and, passing under the arches, comes again in contact with it, with an eddy or curling motion, mingling with the air of the second chamber, as and for the purposes set forth.

192,073.



192,092. CIRCLE-DIVIDING INSTRUMENTS. Myron G. Stolp, Aurora, Ill. [Filed Jan. 15, 1877.]

1. A circle dividing instrument in which a rule adapted to turn upon a center actuates a shifting square, substantially as and for the purpose set forth.

2. In combination with the bed or support, the wheel F and the bar I, affixed thereto and adapted to revolve therewith, and having a straight marking-edge coinciding with the diameter of the wheel, substantially as and for the purpose described.

3. In combination with the bed, a sliding T square, adapted to be held thereto, and to be shifted in right lines thereon, substantially as shown and described.

4. In combination with the bed, the sliding T square, wheel F, and strape connecting the wheel and square, substantially as and for the purpose set forth.

5. In combination, the bed, T square, and graduated bar P, substantially as and for the purpose set forth.

6. The graduated perforated bar P, having its zero point adapted for connection with the bed, and at its other extremity adapted to be secured to a table, and provided with a projection or pin, *z*, substantially as shown and described.

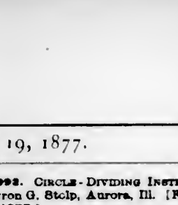
7. In combination with the wheel, T square, and strape, adjusting devices for adjusting the tension of the strape, substantially as shown and described.

8. In combination with the bed, the wheel F, and bar I, the centering-pin *n*, whereby the wheel may be centered and retained in position.

9. In combination, the bed, T square, and their connecting devices, bar I, and graduated bar P, substantially as and for the purpose set forth.

192,094. HARROWS. C. R. Taylor, South Bend, Ind., assignor of one-half his right to John Grant, Chicago, Ill. [Filed June 5, 1877.]

Brief.—Flat coiled springs of any desired number are used, and fastened on the rear side of the harrow-beam to be in line with the draft. The springs coil more closely and with increased pressure upon the teeth.



1. The flat adjustable blade G, attached to a coiled spring, and forming a harrow-tooth, as herein set forth.

2. The combination of the coiled spring C, shoe D, and adjustable blade G, substantially as and for the purposes herein set forth.

192,095. PROCESSES OF TREATING HORN FOR THE MANUFACTURE OF COMBS. Stephen A. Tisdale, Leominster, Mass. [Filed Feb. 23, 1877.]

The improved process of treating horn for the manufacture of combs, consisting in first cutting and splitting the horn as specified, then immersing it in boiling water, afterward in melted tallow, and finally pressing it between the plates of press-irons heated by steam, as and for the purpose set forth.

192,096. EARTH-CLOSETS. E. W. Thompson, Brooklyn, N.Y. [Filed Feb. 14, 1876.]

1. The portable hopper *b*, provided with curved chute *b'*, and at its lower extremity legs *c*, also a valve, *f*, with handle and stem f^1, the said stem having coiled spring *g* connected therewith and with side of the hopper or its chute, and arranged to throw back the valve *f* automatically as the power of the hand is removed, in combination with the portable pail or vessel *a*, connected to the hopper *b* by bolt or rod *k*, permitting its removal when desired, the whole constructed and combined to operate substantially as shown and described.

2. The combination of coiled spring *g* with stem f^1 of valve *f*, and side of hopper or chute *b* and *b'*, for the purpose of constituting the valve self-closing, as described and set forth.

3. The portable vessel *a*, provided with aperture a^2 to receive the chute *b'*, in combination with hopper *b*, connected therewith by bolt or rod *k*, substantially as shown and described.

192,096.



192,097. SWINGS. Enoch K. Thomas, St. Louis, Mo. [Filed Jan. 22, 1877.]

The lever D, operated by the cord F running over the pulley E, with the connecting-cord H attached to the swinging bars P P, substantially as above described, and for the purposes set forth.

192,098. PLAITING-MACHINES. M. Toohey, Syracuse, N. Y. [Filed May 26, 1876.]



1. In a plaiting-machine, the plaiting-rods *g*, provided with beads *l*, substantially as and for the purpose set forth.

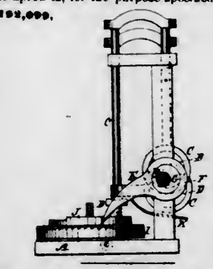
2. A plaiting-machine, provided with the removable strip *i*, in combination with the base-board *a*, and plaiting-rods *g*, having beads *l*, substantially as described and shown, and for the purpose set forth.

192,099. MEAT-CHOPPERS. H. Van Doren, South Branch, N. J. [Filed Apr. 3, 1877.]

I. The shafts *c c d d*, with knives B and sleeves C, and the pawl E, with sleeve F, in combination with the driving-shaft *g* and eccentrics G D, and the rotating table I, substantially as and for the purpose set forth

2. In a meat or vegetable chopper, the table I, with band or hoop J, in combination with the apron K, for the purpose specified.

192,099.



192,100. SPRINKLERS. Edward K. Walker, Exeter, N. H., and Thos. Roddick, Stranraer, Scotland. [Filed Apr. 23, 1877.]

Brief.—The automatic valves are to facilitate the filling of the bulb.



The herein-described sprinkler, consisting of the combination, with the bulb *a*, of the T-pipe *b*, having perforations *c c c* and automatic valves *d d d*, as and for the purpose set forth.

192,101. RAILROAD-JOINTS. William M. Watson, Tonica, Ill. [Filed Apr. 2, 1877.]

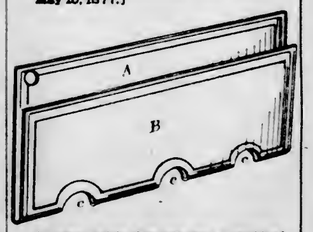


1. In combination with a railroad-rail, a joint-plate, one end of which is attached firmly to the rail, substantially as described.

2. In combination with a railroad-rail and joint-plate, a clamp-bolt, *c*, substantially as described.

3. In combination with railroad-rail joint-plate and clamp-bolt, a clamp-plate, D, substantially as described.

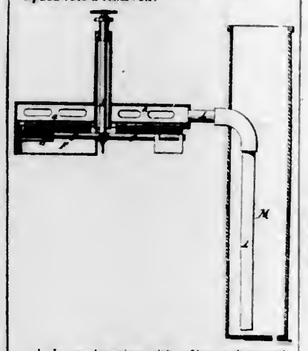
192,102. PAPER FOLDERS AND CUTTERS. A. W. Watrins, Cambridge, Mass. [Filed May 15, 1877.]



As a new article of manufacture, a combined paper folder and cutter, consisting of a folded plate, having the back A, the front B, and one or more holes, C, upon the line of the fold, substantially as described.

192,103. FILTERS. Henry W. Watson, New York, N. Y. [Filed Feb. 22, 1877.]

Brief.—The filter is placed in a stream of running water, which operates the revolving brushes. The filtered water is drawn by a siphon into a reservoir.

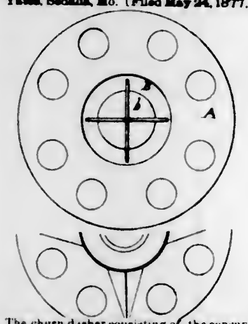


1. In combination with a filter submerged in running water, revolving or removable brushes B B, operated by the water in which they are submerged, substantially as and for the purpose herein specified.

2. In combination with a submerged filter, a cistern or reservoir, M, extending below the same, and a drawing-off pipe, L, extending from the filter nearly to the bottom of the said cistern or reservoir, substantially as and for the purpose herein specified.

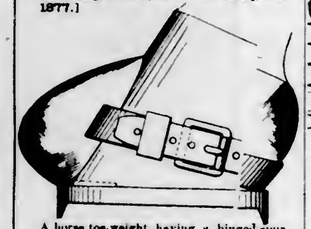
3. In combination with a filter submerged in running water, and clearing brushes operated by the motion of the water, a break-water, F, arranged and operating substantially as and for the purpose herein specified.

192,104. RECIPROCATING CHURNS. Samuel Yates, Sedalia, Mo. [Filed May 24, 1877.]



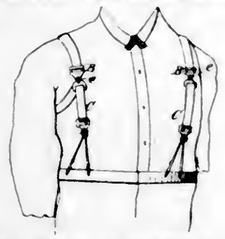
The churn-dasher consisting of the concave disk A attached by angular braces to the tubular shaft D, having an enlarged air-chamber, B, provided with a flat metallic valve, *b*, to conduct the air through the chamber into the cream under the disk, substantially as described.

192,105. TOE-WEIGHT ATTACHMENTS. Q. M. Youngs, Utica, N. Y. [Filed Apr. 18, 1877.]



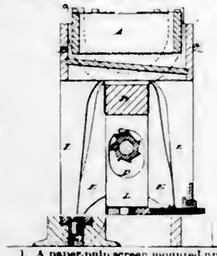
A horse toe-weight having a hinged spur, so as to be adjustable to the varying shapes of horses' feet, substantially as specified.

192,106. SHOULDER-BRACES. A. Adamson, Washington, D. C. [Filed July 6, 1876.]



The combination and arrangement of the detachable elastic front intermediate suspender-straps C C, their slides B B, and cast-off hooks *c c*, with the front shoulder portions of the braces, substantially as shown and described.

192,107. PAPER-PULP SCREENS. William Blizzard and Edmund Mather, Harrisburg, Pa. [Filed Jan. 20, 1877.]

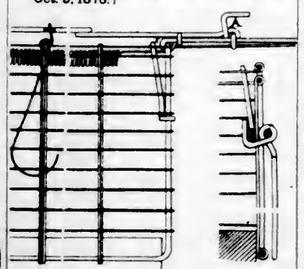


1. A paper-pulp screen mounted upon a central stem as its sole support, and guided as described, whereby an equal vertical motion is imparted to all its parts by the operating mechanism, substantially as set forth.

2. The paper-pulp screen A, provided with the screen-supporting stem P L, located centrally thereunder, and guided as described, in combination with the tappet-gear C C' and wedge M, regulated by screw V and nut Q, all operating jointly, substantially as and for the purpose set forth.

3. The paper-pulp screen A, provided with standards O, bridge-tree W, central stem P L R, in combination with guides E E, stand K, tappet-gear C C', and wedge M and its adjusting-devices V Q *n*, all arranged and operating substantially as and for the purpose set forth.

192,108. ANIMAL-TRAPS. E. I. Braddock, Lowell, Mass., assignor to Samuel Sewall, Jr., and G. A. Marden, same place. [Filed Oct. 5, 1876.]

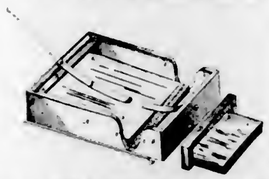


1. As a fastening or lock for traps, automatic swinging hooks arranged upon the door of the trap, in combination with detents or fastenings upon the body of the trap, substantially as and for the purpose set forth.

2. In combination with the swinging hooks, a swinging arm or handle, arranged to operate substantially as and for the purpose set forth.

3. In combination with the arm or handle attached to the swinging hooks, a bar which overrides the end of the handle when the trap is set, substantially as and for the purpose set forth.

192,109. TEMPORARY BINDERS. Bloomfield Brower, New York, and John F. Adams, Irvington, N. Y. [Filed Apr. 17, 1877.]



1. A letter file consisting of a holder having vertical recesses, as 6, and a series of leaves held in a binding-back, which is capable of introduction and removal vertically from said holder, substantially as described.

2. The detachable binding back, consisting of a frame-work supplied with means, substantially as described, for holding the index-leaves and providing for their vertical adjustment.

3. The combination, with a pack of sheets or index-leaves, held at one end in a holder or file, of a swinging spring, S, attached to said holder or file so as to bear upon the free ends of said sheets to hold them or swing away to release them, substantially as described.

4. The combination of the swinging spring S with the holder provided with vertical recesses, as 6, and the removable binding-back D, substantially as described.

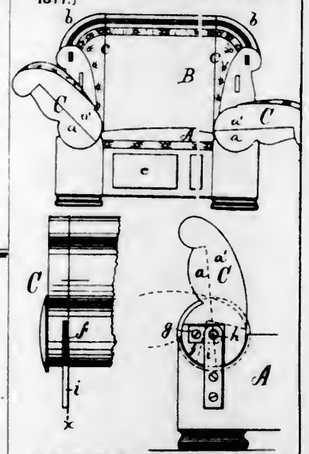
5. The combination of the swinging spring T with the cover B, the holder A, and the index-leaves, substantially as described.

6. The binding-back D, consisting of plates *m n u* and rods *t*, substantially as described.

7. An associated pack of index-leaves, having its outside leaf provided with the binding cord or band *c* attached thereto, and adapted for operation substantially as described.

8. The combination of the spring E with the cover B and the holder A, substantially as described.

192,110. SOFA-BEDSTEADS. John C. Christinger, Bristol, Conn. [Filed Feb. 10, 1877.]



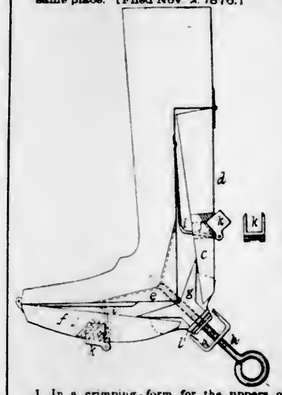
1. In a sofa-bed, the arms C C, concentrically hinged in the sockets of the seat, and divided into hinged halves *a a'*, substantially as described, and for the purpose set forth.

2. In a sofa-bed, the back B, hinged to the seat A, and provided at each end with wings *b b*, hinged for folding outward at right angles to the back, substantially as described, and for the purpose set forth.

3. The combination of the arms C C, divided into hinged halves, the seat A, and back B, provided with wings *b b*, substantially as described, and for the purpose set forth.

4. In a sofa-bed, the plate *g*, bearing the pin or pivot *h*, and the strap *i*, hung on said pivot, in combination with the arm C, having semicircular base and slotted at *f*, and the seat A, having semicircular socket at the end, the parts *g*, *h*, and *i* being applied wholly back of the front face of the arm, all operating together, substantially as described, and for the purpose specified.

192,111. CRIMPING-FORMS FOR BOOT-UPPERS. J. B. Clair, Oldtown, Me., assignor of one-half his right to Jas. W. Waldron, same place. [Filed Nov. 2, 1876.]



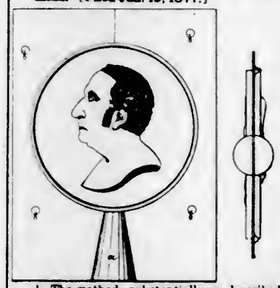
1. In a crimping-form for the uppers of boots, the combination of the form *a*, spring-jaws *d f*, angle-iron *g*, screw *k*, and clamps *l m* and *k k*, all operating as set forth, for the purposes specified.

2. In a crimping-form for the uppers of boots, substantially as herein described, the eccentrically-pivoted leg and foot clamps *k k*, as and for the purposes set forth.

3. The springs *i i*, in combination with the leg and foot clamps *k k* eccentrically pivoted thereto, as and for the purposes described.

4. A crimping-form for the uppers of boots in which the leg and foot portions of said front are retained in place on the form by elastic fastenings, substantially as described, for the purposes specified.

192,112. ART OF MAKING MOLDS AND THEIR COUNTERPARTS. Wm. B. Closson, Boston, Mass. [Filed Jan. 19, 1877.]



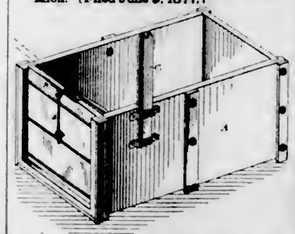
1. The method, substantially as described, of making a mold from an object, such consisting in the employment of divisional plates therewith, and depositing on their opposite surfaces and those of the object, by means of the electroplating process, a coating of metal, and subsequently separating such coating at, or removing it from, the edges of the plates, as set forth.

2. The method, substantially as described, of making a mold with a sprue or filling passage, such consisting in the employment of divisional plates and sprue-formers, as described, therewith, and depositing on their opposite surfaces and those of the object, by means of the electroplating or electrotyping process, a coating of metal, and subsequently separating such coating at, or removing it from, the edges of the plates and outer ends of the sprue-formers, all as set forth.

3. The method, substantially as described, of producing a fac-simile from such mold, such consisting in covering the surface of the matrix with a very thin coating of wax, and filling such coating with a re-enforce of plaster, or other suitable material, and subsequently applying powdered graphite to the waxen coating, and depositing thereon, by the electroplating or electrotyping process, a thin coating of metal.

4. As a new manufacture, a mold made, in the manner described, with projections and corresponding cavities to the parts about its matrix, to enable the said parts to be readily adjusted to each other, so as to bring the opposite parts of the matrix in their true relations to each other, as set forth.

192,113. FEATHERING OR COMMINUTING COPPER OR OTHER METALS. J. B. Cooper, Franklin Township, Oakland County, Mich. [Filed June 9, 1877.]



1. The within-described method of feathering copper and other metals, which consists in pouring the molten metal onto an inclined plane and projecting against the metal a flattened stream of water, substantially as and for the purpose set forth.

2. The tank A, provided with the adjustable board B and standard C, substantially as described.

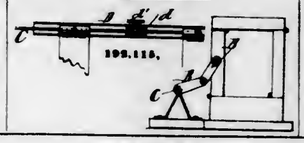
192,114. CASTING BRASS AND OTHER METALS. J. B. Cooper, Franklin Township, Oakland County, Mich. [Filed June 9, 1877.]

Brief.—Produces flame with gas, oil, or alcohol. May be inflamed by heat of molten metal or otherwise. Fibrous material may be used in the fuel-supporting device.



1. The within process of casting brass and other metals, which consists in creating and maintaining at the mouth of the mold a flame that will encircle or partially encircle the molten metal during the whole time that the mold is being filled therewith, so as to expel air from the mold and carry off the vapors evolved from the metal, thereby preventing their condensation within the mold, as well as preventing the oxidation of the molten metal, substantially as set forth.

2. A mold for casting brass and other metals, provided with a device for maintaining a reducing flame at the mouth of the mold, substantially as set forth.

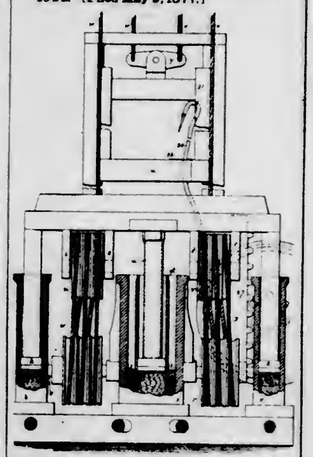


192,114.

192,115. LANDAU-CARRIAGE TOPS. Robert Dunn, South Bend, Ind. [Filed Dec. 19, 1876.]

The spring C, as described, when held in the rest D, and the stop *d*, in combination with the braces B, substantially as and for the purpose set forth.

192,116. HYDRAULIC ELEVATORS. Karl Fletcher, Boston, Mass., assignor to himself and D. N. Pickering, Marshalltown, Iowa. [Filed May 9, 1877.]



1. The cross-head, its central and two end pistons, the sheaves *a e* placed between the auxiliary and end pistons, and the auxiliary piston surrounding the central piston, in combination with the central and the two end cylinders, and the auxiliary cylinder, and the two sets of sheaves *q r*, located between the end and auxiliary cylinders, all arranged to operate as and for the purpose described.

2. A rotating water-supplying drum and hose, in combination with and operated by the cross-head as it is raised and lowered, substantially as described.

3. The combination, with the chest, of the main and auxiliary valves connected with a rock-shaft, and adapted to be operated, substantially as described, by means of a single rope, to admit water under the main and auxiliary pistons, as set forth.

4. The valve *o'* and its connected rock-shaft and arm *q'*, in combination with the valve *r'* and the slotted link 8, so that movement of the rock-shaft will raise first one and then the other valve, substantially as described.

5. The chest provided with the receiving-chamber 13, passage 11, supplying-chamber 14 and passages leading from it to the main cylinders, auxiliary supplying-chamber 17 and passages 12 *e'* leading into and from it, and exhaust-passages 21 25, in combination with valves *o' r' p' t'*, substantially as described.

6. The combination, with the lever 35, of links *y'*, *w'*, and the rock-shafts operated by them to open and close the main and auxiliary valves and the exhaust-valves, substantially as described.

192,117. BOTTLE-STOPPERS. H. N. Gale, Bristol, Conn. [Filed May 16, 1877.]

Brief.—The lock-plate, being pushed down to the stopper-cap, prevents any considerable movement of the bail or stopper.

1. The jointless link and cap-plate D *a*, in combination with the yoke of a bottle-stopper, substantially as described, and for the purpose specified.

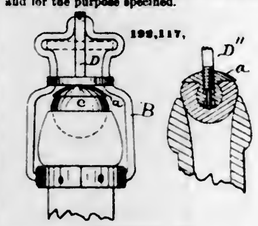
2. The combination of the following four elements, to wit: first, a cap-plate and cushion; second, a link for pressing the cap-plate and cushion into the mouth of the bottle or jar; third, a yoke or bail, attached by a joint at one end to said link and at the other and to the neck of the bottle or jar; and, fourth, an additional device for locking the bail and link by engagement with both of said parts, substantially as described.

3. In a bottle-stopper, or fruit-jar, the yoke B, having the bearing and shoulders for the

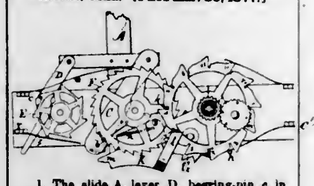
upper end of the link, the widened portion to allow the lock-plate to pass between the yoke-arms without engagement, and then a contracted portion for engagement with the ends of the lock-plate, substantially as described, and for the purpose specified.

4. In a bottle-stopper, the combination of the swinging yoke or bail, a swinging link attached by a joint to the upper end of said yoke or bail, a cap-plate and cushion, and an adjustable device for changing the length of the link and cap-plate, so that more or less pressure may be imparted to the cushion through the medium of said link, substantially as described, and for the purpose specified.

192,117.



192,118. CALENDAR-CLOCKS. D. J. Gale, Bristol, Conn. [Filed Mar. 30, 1877.]



1. The slide A, lever D, bearing-pin *c*, in combination with post *r*, and day-of-the-week wheel E, substantially as described, and for the purpose specified.

2. The combination of the day-of-the-week wheel E, day-of-the-month wheel F, and pins *c b*, both connected to the same operating mechanism, substantially as described, and for the purpose specified.

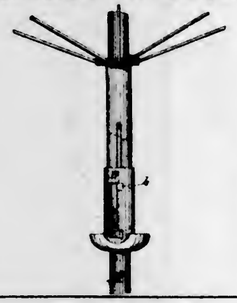
3. The lever which operates the month-wheel, provided with the vertical shoulder *d*, and hung to turn freely on the slide A, in combination with the axle which acts as a guide to impart the peculiar motion to the engaging-point *b* of said lever, substantially as described, and for the purpose specified.

4. The short-month lever K, hung on a stationary axis, and provided with the arms *l* and *n*, and the flange *s*, substantially as described, and for the purpose specified.

5. The combination of the pattern-wheel J, short-month lever K, wheel F, bearing-pins *k* and *o*, and the lever C'A, operating together substantially as described, and for the purpose specified.

6. The combination of the month-of-the-year wheel G, arranged on an independent axis, so as to be rotated in either direction, with pattern-wheel J, short-month lever K, wheel F, bearing-pins *g*, *k*, and *o*, the lever C, and slide A, all operating together substantially as described, and for the purpose specified.

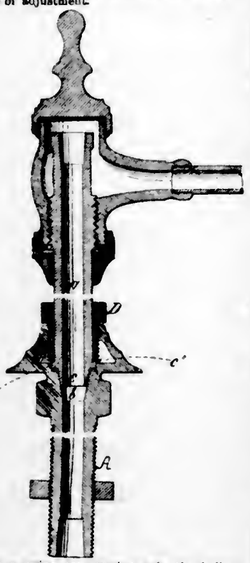
192,119. UMBRELLAS. Thomas G. Hojer, New York, N. Y. [Filed Dec. 21, 1876.]



In combination with an umbrella-runner and an umbrella tip-cup fastener, a lug, *b*, attached to the former, and a slotted tube or sleeve, D, attached to the latter, constructed and arranged substantially as herein described, and for the purpose set forth.

192,120. BASIN-COCKS. John K. James, Cambridge, Mass., assignor to C. Harrison, New York, N. Y. [Filed May 21, 1877.]

Brief.—The valve-neck is connected with its base by means of a friction-nut for the purpose of adjustment.



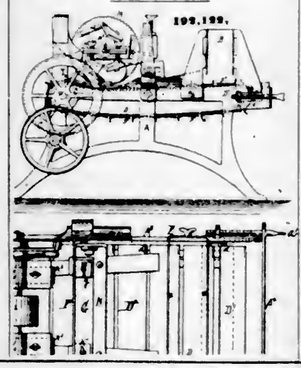
In a swing compression-cock, the hollow neck C, provided with the tapered lower end *c*, and the annular shoulder *c'*, in combination with the hollow nut D, and the hollow bolt A, provided with the hollow conical seat *b*, as and for the purposes set forth.

192,121. BARS FOR TUBS, &c. Andrew J. Johnson, Cleveland, Ohio. [Filed Mar. 29, 1877.]



As an article of manufacture, the slotted plate A, provided with penetrating or attaching points, and the loop D, substantially as and for the purpose described.

192,122.



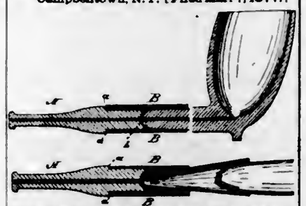
192,123. MACHINES FOR CROZING, CHAMFERING, AND EQUALIZING STAVES. Saml. F. Maxwell, Clifton, W. Va. [Filed Nov. 25, 1876.]

Brief.—The staves are equalized, crozed, and chamfered by means of two circular saws, two crozing and two chamfering tools, attached to opposite ends of the same shaft, which has its bearings in a frame above an endless belt, carrying plates upon which the staves are placed and fed to the aforesaid tools, and suitable operating mechanism.

I. In a stave-machine, the combination of the frame A, endless belt D, provided with slots *d'*, plates D^2, provided with flanges *d*, pulleys C, provided with studs *c'*, shaft *b*, shaft D^1, pressers N^1, springs n^2, pulley m^1, shaft L^1, saws M, and tools $m\,m^1$, substantially as described.

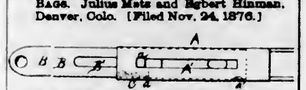
2. In a stave-machine, the combination of the frame A, endless belt D, plates D^2, pulleys $C\,m^1$, shaft *b*, shafts $D^1\,L^1$, pressers N^1, springs n^2, saws M, tools $m\,m^1$, screws *a'* K^1, and receptacle E, substantially as described.

192,125. SMOKING-PIPES. Edward S. May, Campbelltown, N.Y. [Filed Mar. 7, 1877.]



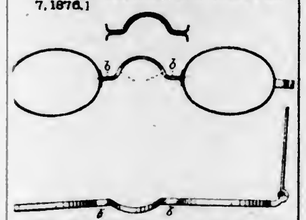
As an article of manufacture, the spring pipe gripe or holder herein described, consisting of the mouth-piece A, having annular shoulder *a* and conical recess *b*, and spring-tube B, substantially as described, for use interchangeably with a pipe or with a cigar-holder, in the manner and for the purpose set forth.

192,124. FASTENING DEVICES FOR MAIL-BAGS. Julius Metz and Egbert Hinman, Denver, Colo. [Filed Nov. 24, 1876.]



In a combined needle and clasp for mail-pouches, the sheath or case A provided with a slot, A', and holes *a*, *a'*, and needle B, provided with a slot, B', pin *a*, and spring-catch C, the whole constructed and arranged to operate substantially as described.

192,126. SPECTACLE-FRAMES. William H. Peckham, Jersey City, N. J. [Filed June 7, 1876.]



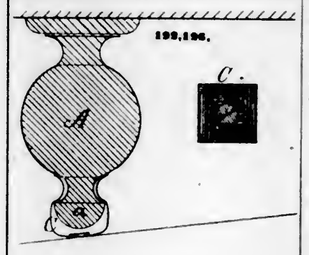
In spectacle-frames, the nose-piece *b*, made in two pieces, suitably connected together through the body and detached at the ends, so as to form a spring for the lens-frame, substantially as and for the purpose set forth.

192,196. DOOR-CHECKS. Deon B. Peck, Burlington, and Deon C. Peck, Winsted, Conn. [Filed May 22, 1877.]

Brief.—Made with two outwardly-curved ends. Is secured by a secured by a single screw in the middle, and with this spring the projecting knob or button of an ordinary door-bumper automatically engages, the construction being such that the curved ends of the spring act upon the rounded shoulders of the bumper, while the projecting button is clasped and held as against jarring or slight pressure.

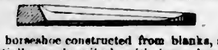
THE GRAPHIC CO. N.Y.

192,186.



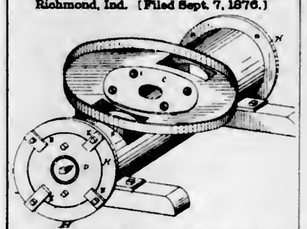
The button *a*, fixed upon an enlarged globular base—as the end of knob A—in combination with the sheet metal spring C, having outwardly-curved ends, which act upon the rounding shoulders of said globular base, all substantially as and for the purpose set forth.

192,127. HORSESHOES. Chas. H. Perkins, Providence, R. I. [Filed Dec. 18, 1876.]



A horseshoe constructed from blanks, substantially as described, with inner beveled edges A—that is to say, almost perpendicular upon the inside at the toe, while at the heel it presents a broad and gentle slope, as set forth.

192,128. TILE-MACHINES. Benj. P. Perry, Richmond, Ind. [Filed Sept. 7, 1876.]



1. The base of the pug-mill cast as an integral part of a cylindrical plunger-chamber, said chamber being bored out, and having a reciprocating plunger turned and fitted thereto, substantially as set forth.

2. In a tile mill, a cylindrical plunger-chamber, having a reciprocating plunger fitted thereto, and having the base of the pug-mill and the flanges H cast thereto, substantially as set forth.

3. A cylindrical plunger-chamber, having the flanges H cast as an integral part thereof, in combination with the die D, recess F, buttons E, and screws G, entering the flanges to retain the die in place, substantially as set forth.

4. In combination with a cylindrical plunger-chamber, having a reciprocating plunger fitted thereto, the detachable plate C, substantially as and for the purpose specified.

192,129. METAL-WORKING LATHES. S. W. Putnam, Fitchburg, Mass. [Filed Sept. 12, 1876.]

1. In combination with the tail-stock of a lathe, the gussets *e e* and tie-bolts *e' e'*, substantially as and for the purpose set forth.

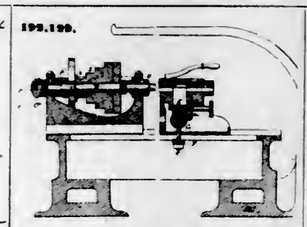
2. In combination with the eccentric or crank shaft *f*, tie-piece F, and tie bolts *e' e'*, the gear G and worm-screw *g*, substantially as and for the purpose described.

3. In combination with the bearing *m* of the slide *z*, the setting-over bolts *i i*, arranged within the tail-stock, substantially as and for the purpose set forth.

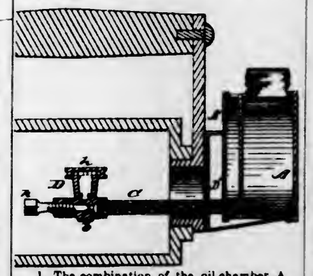
4. The combination, with the eccentric back-gear, of the slotted shell *a''* and the ring *a'''*, as and for the purpose set forth.

5. The combination, with the live spindle of a turning-lathe provided with two straight journals, and with shoulders, as described, of the conical boxes O and O', the cap V, and nuts *r* and *s*, as and for the purpose set forth.

192,130.



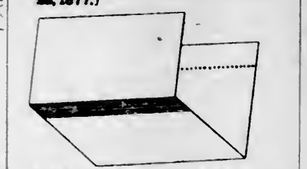
192,130. LAMPS FOR HEATING A TAILOR'S GOOSE. Jas. Reekie, Martling, Mo. [Filed Apr. 2, 1877.]



1. The combination of the oil-chamber A, air-chambers A' and D', tube C, adjustable valve and burner, with a tailor's goose, all constructed, arranged, and operating as shown and described.

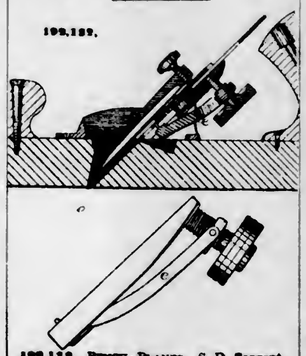
2. The tube *b*, adjustable valve *d*, slit *e*, and core *f*, in combination with a deflector, *h*, substantially as shown and described.

192,131. LETTER-SHEETS AND ENVELOPES. L. H. Rogers, New York, N. Y. [Filed Jan. 23, 1877.]



A sheet of paper or card board, formed with a sealing-flap, a line of perforations between the flap and the body of the sheet, and mucilage on the back of the sheet, placed in such position that the flap will fold onto it, substantially as set forth.

192,132.

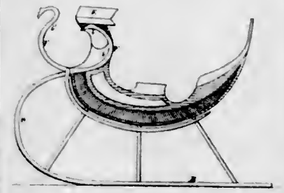


192,132. BENCH-PLANES. S. D. Sargent, New Britain, Conn., assignor to The Stanley Rule and Level Company, same place. [Filed Nov. 4, 1876.]

Brief.—The plane-bit is adjustable by means of a forked link, one end of which is pivoted to a threaded nut upon a screw working in a fixed internally-threaded stud upon the under side of the frog, and the opposite end, provided with a thin projection engaging with grooves in the under side of the bit, lies loosely in a longitudinal slot formed in the frog.

In a device for adjusting plane-bits, the link *c*, constructed to operate substantially as shown and described, for the purpose set forth.

192,133. SLEIGHS. Georg Schaffner, Albany, N. Y. [Filed May 14, 1877.]



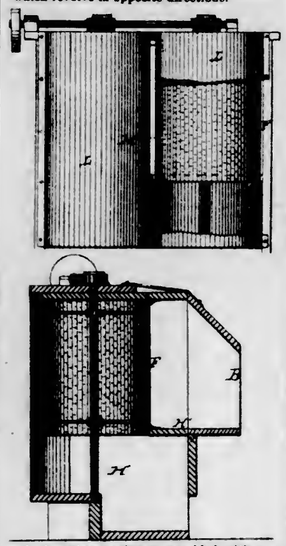
1. In a sleigh, the combination of the circular frame F, consisting of parts *b* and *b'*, with the runner B, substantially as and for the purpose set forth.

2. In a sleigh, the combination of the driver's seat E with the part *b* of the circular frame F, substantially as and for the purpose set forth.

3. In a sleigh, the combination of the driver's seat, the circular frame F, consisting of parts *b* and *b'*, and the runner B, substantially as and for the purpose set forth.

192,134. COTTON CLEANERS AND CONDENSERS. Ferdinand S. Smith, Prattville, Ala. [Filed Mar. 9, 1877.]

Brief.—Two vertical perforated and hollow cylinders, with lower open ends, allow the dirt to be conveyed by the air-blast within the cylinders and fall below, while the cotton is conveyed in a bat between the cylinders, which revolve in opposite directions.



1. A cotton-condenser provided with upright perforated cylinders, closed above and open below, substantially as set forth.

2. In a cotton-condenser, the casing L, which covers the entire rear superficies of, and conforms to, the cylinders, and is provided with the slot M, substantially as set forth.

3. The combination of the fine B, upright cylinders F, and air-chamber H, substantially as shown and described.

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199,133. BIAS-MEASURES. J. Kirk Somes, Springfield, Mass., assignor to himself and L. R. White, same place. [Filed May 28, 1877.]



1. In a bias-measure, the combination of a long bar, A, a bias bar at an acute angle thereto, provided with the common English metric or equivalent scale of linear measure, and a bar, E, at right angles to bar A, also provided with such scale, substantially as described.

2. As an article of manufacture, the bias-measure herein described, consisting of the two parallel bars, A D, bias bars B C at either end, respectively, with scale on both sides, cross-bars E, with scale, and bar F uniting one end of bar A with extended end of bar D.

199,136. DEVICES FOR SECURING AND PROTECTING TAPES. William H. Stafford and Simeon S. Cook, Woonsocket, R. I. [Filed Apr. 26, 1877.]

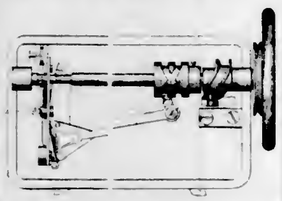
Brief.—The tape or other narrow fabric is secured upon the spool by means of a curved wire spring, made by bending the wire and inserting its ends in the center of the spool upon opposite sides. The spring presses upon the periphery of the coiled tape as it is drawn off, and also protects the sides from bulging or falling outward.



The combination, with the spool *a*, of the curved wire spring *b*, pivoted directly to the spool, arranged to support the sides of the tape roll and to press upon the periphery, substantially as and for the purpose described.

199,137. SHUTTLE-DRIVING MECHANISMS FOR SEWING-MACHINES. Samuel M. Stewart, New Harrisburg, assignor of one-half of his right to J. M. Perdue and Wm. F. Faas, both of Minerva, Ohio. [Filed Dec. 4, 1876.]

Brief.—On the main shaft of the machine are two cams, one single-grooved for driving the needle-arm, and the other a double-grooved switch-cam for driving the shuttle. By means of this cam the shuttle is quickly thrown in one direction, has a rest at the end of the stroke, and is quickly returned and has another rest, and so on, making, in connection with the needle, a stitch at each forward and each backward movement.

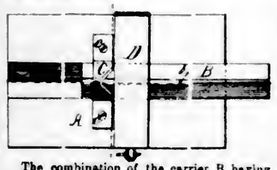


1. The combination, substantially as specified, of the needle-arm, the cam for driving it, the L-shaped shuttle-carrying lever, and the double-grooved cam for driving it, the said cams being timed for operating relatively, as set forth.

2. The combination, substantially as specified, of the double-pointed shuttle, the L-shaped lever carrying it, and the double-grooved cam for driving said lever.

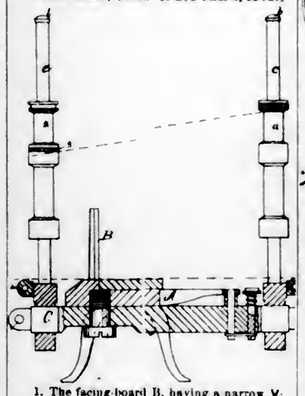
199,138. WORKING RATTAN. Thomas P. Thorpe, New York, N. Y., assignor of one-half his right to C. E. Atwood, same place. [Filed May 28, 1877.]

Brief.—A platform having a V-shaped longitudinal groove, in which is placed a diamond-shaped carrier, having a tapering groove at the top. Over said groove is placed a V-shaped knife, and in advance of which is an adjustable guide-piece.



The combination of the carrier B having groove *b* with knife C, holder D, and platform A having groove *a*, all substantially arranged as and for the purpose set forth.

199,139. MITER-BOXES. Justus A. Traut, New Britain, Conn. [Filed Jan. 8, 1875.]



1. The facing-board B, having a narrow V-sided slot, the widest part or top of which V is on the rear side of said board, in combination with the swing-beam C, having its axis of motion located centrally with the said slot from right to left, and in the same vertical plane with the face of the facing-board, substantially as described, and for the purpose specified.

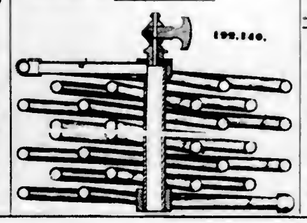
2. In a miter-box, the T-shaped frame, carrying only one pair of guiding-rollers, *a a*, and secured within the clamping-socket at the ends of the swing-beam, substantially as described, and for the purpose set forth.

3. In a saw-guide for a miter-box, the shaft *c c*, provided with caps *b b*, in combination with the rollers *a a*, counterbored, as described, whereby the rollers are allowed to rise above the ends of the shaft, but are prevented from becoming accidentally detached or slipped off, as set forth.

4. The combination of the rollers *a a*, having grooves *o o*, with the removable connecting-bars *s*, all substantially as described, and for the purpose set forth.

5. The rollers *a a*, having grooves *o o*, in combination with the connecting-bar *s* and series of washers *w*, substantially as and for the purpose set forth.

199,140.



199,140. STEAM-RADIATORS. Jas. R. Worswick and J. A. Prindle, Cleveland, Ohio. [Filed Sept. 10, 1875.]

Brief.—The coil of pipes is put in a case with walls of non-conducting material. Flanges on the inside of the wall of the case deflect air among the coiled pipes. The whole device is to be suspended beneath the floor of a room to be warmed.

The series of tubular coils herein specified, more or less in number, in combination with the shell or case C and spiral flanges H G, substantially in the manner as set forth, and for the purpose specified.

199,141. TRUSSES. John R. Alexander, Montreal, Quebec, Canada. [Filed Jan. 31, 1877.]

Brief.—This invention consists of details of construction fully shown by claims and Figures 1, 3, and 5 of drawing.



1. A truss or abdominal support the band of which is composed of two untempered metal straps, (not springs,) hinged together at one end and adjustably connected together at the other end, substantially as and for the purpose specified.

2. In any truss or abdominal support, the combination, with the junction-piece K, of the pieces A A, received therein and secured by springs *s*, substantially as described.

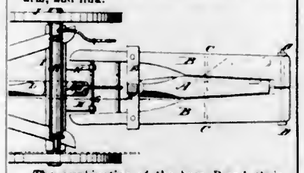
3. In any truss or abdominal support, the combination, with the side pieces A A, each provided with a pin and screw, of the piece B, hinged and perforated, and the plates H, with or without pads I, all substantially as herein set forth, and for the purposes described.

4. The combination, substantially as specified, of the pad L, the central pin M, fixed thereto, the fastening-ring O O', the flanged sleeve N, secured to said ring, and the spring Q.

5. The combination, with the band A and junction-piece K, of the abdominal support B, secured thereon by pins S and nut S', and provided with springs for pressure, substantially as herein described.

199,142. WHEEL-PLOWS. A. A. Amonett, Wrightsborough, Tex., assignor to himself and Jas. E. Wells, same place. [Filed Apr. 23, 1877.]

Brief.—Plow-beam, at its center, pivoted on a horizontal bolt in the frame-bars; its front end adjusted up and down on a vertical bolt; the whole raised by a lever, rock-shaft, a rigid arm, and link.

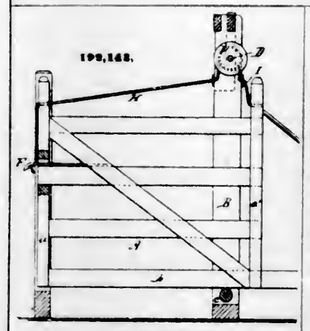


The combination of the bars B and their cross-bar E and bolts C D F, the cross-rod G, and the eyebolts H, with the plow-beam A and the wheels and axle J I, substantially as herein shown and described.

199,143. GATES. Daniel Barrett and Jas. F. Quinn, Wilmington, Ill., assignors to said Quinn. [Filed Apr. 23, 1877.]

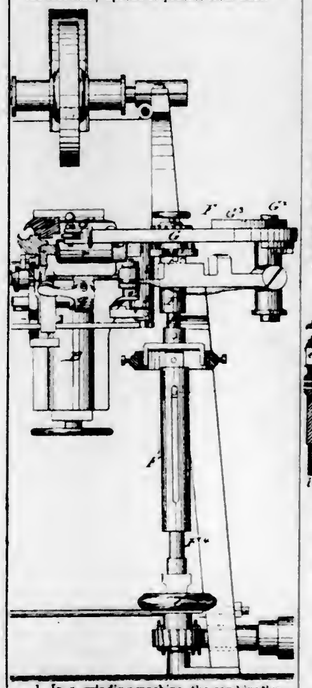
The gate A, having the extended rail *b* and stiles *a a'*, the spring-latch F, and ropes H I, in combination with the shaft D, having cranks E, and carrying the drum *i*, substantially as shown and described.

199,144.



199,144. GRINDING-MACHINES. Louis Bollmann, Vienna, Austria. [Filed Sept. 1, 1876.]

Brief.—A three-part grinding-table on a vertically-adjustable support is moved from side to side by means of a crank-arm and compound biting-levers, with interposed coiled springs. The upper part is moved from front to rear by a crank-arm provided with a curved elliptical rack, against the adjacent sides of which a continuously-rotating pinion alternately engages. The intermediate part or carriage raises and lowers by four friction-rollers, and inclines by the respective movements of the upper part; an elastic hood over the grinding-wheel; shower-bath under the tool-rest; aprons to protect from dust.



1. In a grinding machine, the combination of the supports of the emery-wheel with a projecting hood, applied to elastic spring bars or springs to take up the shock of a bursting wheel, substantially as described.

2. The combination of the slide-rest C, having friction-rollers, with the bed B', having inclines, whereby the table is adapted to be raised and lowered, as shown and described.

3. The combination of the toothed segment-lever G with the continuously-revolving gear-wheel F and the adjustable toothed section G', to lengthen or shorten the stroke of the slide-table, substantially as specified.

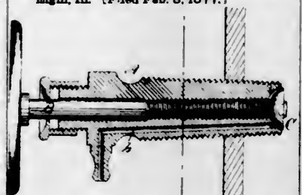
4. The combination of the gear-wheel F with the universal joint and double transmitting-shaft to follow the up-and-down motion of slide-rest, substantially as described.

5. The combination of the slide-rest with the friction-pallets and lever mechanism, arranged to operate in both directions to produce automatic side motion of slide-rest, as herein described.

6. The combination of the slide-rest C, having end rollers with weighted covering-aprons to protect the mechanism below against dust, substantially as set forth.

7. The combination, in a grinding-machine, of a vertically-sliding support, B, a swinging bed, B', seated thereon, and rising-and-falling slide-rest, and a reciprocating slide-table for the work, substantially in the manner and for the purpose set forth.

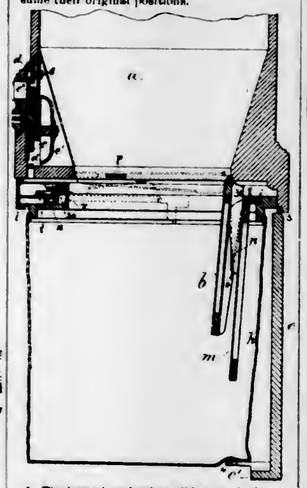
199,145. GAGE-COCKS. Henry Lee Borden, Elgin, Ill. [Filed Feb. 3, 1877.]



A gage-cock for steam-boilers consisting of a body, A, bored longitudinally and threaded internally, and provided with the passage *b* and valve-seat, as described, a threaded spindle, B, that extends through the body, and a valve, C, attached to the inner end of the said spindle, substantially as herein set forth.

199,146. LETTER-BOXES. Mario Bragaldi, New York, N. Y. [Filed Feb. 9, 1877.]

Brief.—A letter-box with double swinging bottom flaps, the lower one being secured by a lock or dog, combined with a time-dial indicating the time for collections, the inner flap being opened by the insertion of the pouch-frame, which is slid into grooves in the box-frame, said inner flap being connected to the pouch-flap in the act of insertion, so they fall together, when released, by pushing in the pouch-frame, thereby allowing the contents of box to fall into pouch. The act of withdrawing pouch causes said connected flaps to assume their original positions.



1. The letter-box having slides at the bottom, with bolts for the swinging flap *b*, that are withdrawn by the frame of the pouch as it is inserted into the slides, in combination with the pouch-frame, flap, and bolts, that are operated by projections on the box, substantially as set forth.

2. The flaps *b*, and *m*, in combination with the connecting-flanges *n o* and frame *i*, substantially as set forth.

3. The bolts *p*, dogs 17 and *r*, in combination with the letter-box, flap *b*, frame *i*, and supporting-slides *i*, substantially as set forth.

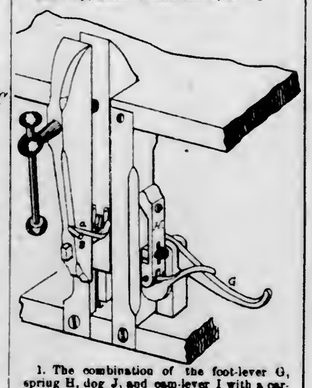
4. The combination, with the letter-box, pouch-frame, pouch, and flap *m*, of the bolts *t*, pinions, and racks 21, substantially as and for the purposes set forth.

5. The bolt *t*, pinions 19 and 20, and locking-bolt *c*, connected to the pouch-frame *i*, in combination with the rack 21 and incline 23 on the letter-box, substantially as set forth.

6. The covering-flap or bottom *c*, in combination with the letter-box and locking bolt or dog *d*, substantially as set forth.

7. The combination, with the locking-bolt *d* and cam-wheel *e*, of the dial *d'* and opening in the letter-box, whereby the time of delivery is indicated by the movement of the wheel *e* in opening the lock, as set forth.

199,147. BENCH-VISES. E. H. Brower, Carson City, Mich. [Filed Jan. 3, 1877.]



1. The combination of the foot-lever G, spring H, dog J, and cam-lever I with a carpenter's vise, the several parts being constructed and arranged to operate substantially as and for the purpose specified.

2. A carpenter's vise provided with the ratchet-bar K, dog *b*, and lever *c*, substantially as described, and for the purpose set forth.

199,148. MORTISING-CHISELS. Geo. Buttler, New Brunswick, N. J. [Filed June 4, 1877.]



A mortising-chisel concaved upon its back and edge, substantially as herein shown and described.

199,149. COMPOUND FOR THE MANUFACTURE OF PORCELAIN ADAPTED FOR DENTAL PLATES, TEETH, &c. Almon B. Cady, Kenton, Ohio, assignor of one-half his right to Willis S. Walker, same place. [Filed Oct. 20, 1876.]

Brief.—The ingredients are mixed, and then incorporated by the addition of rain or distilled water, and in a pasty mass is to be molded and subjected to heat in the usual manner.

In the manufacture of porcelain especially adapted for dental plates and teeth, the above-described composition or compound, consisting of Delaware spar, silex, asbestos, mica, titanium, and kaolin, substantially as set forth.

199,150. GRAIN-BINDERS. Edwin Chapman, Rochester, Minn., assignor to Chapman Binder Company, same place. [Filed Feb. 16, 1876.]

1. The wire-carrier arm *e*, made with a metal plate at the end thereof passing edgewise through the narrow slot *b'* of the grain-receiving platform *b*, in combination with the hinged tongue 50, fork *w*, twisting-wheel *o*, rock-shaft *o'*, and actuating mechanism, substantially as set forth.

2. The combination, with the wire-carrier arm and its rock-shaft, of the stop-motion

wheel *g g'*, crank *d*², connecting-rod *d*³, and arm *d*⁴ upon the rock-shaft *c'*, substantially as specified.

3. The fingers *c*⁴ upon the rock-shaft *c'*, and connected by the cross-bar *c*⁵, in combination with the wire-carrier arm *e*, substantially as set forth.

4. The friction-plates *n*, with grooves in their surfaces, and the cones 17 for centering the spool or reel of wire, in combination with the spring and frictional adjusting-screw 18, as specified.

5. The sliding rod 21, sheave 20, and spring 22, in combination with the wire-holding spool *m* and wire-carrying arm *e*, for the purposes and as set forth.

6. The frictional pinion *k* upon the driving-shaft *l* and the chain-wheel *l'*, in combination with the stop-motion wheels and binding mechanism, substantially as set forth.

7. The combination, with the grain-receiver *b*, of the hinged side boards *p* and adjusting mechanism, substantially as and for the purposes set forth.

8. The combination, with the twisting mechanism, of the springs *y* upon the surface of the platform, for the purposes set forth.

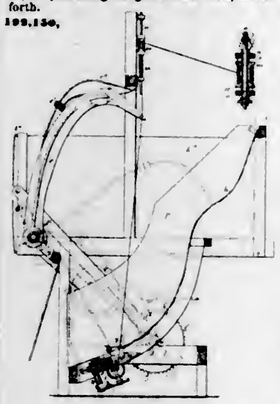
9. The polygonal holding and cutting jaws *t*, constructed of steel plates, and operating substantially as set forth.

10. The combination, with the polygonal holding and cutting jaws *t*, of the revolving twisting-wheel *o* and its clamp *o'*, substantially as set forth.

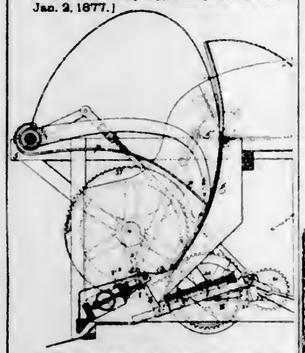
11. The rock-shaft 39 and its actuating mechanism, in combination with the revolving holding jaws *t*, the twisting-wheel, and the clamping-plate *o*, substantially as specified.

12. The combination, with the grain-binding mechanism, of the inclined platform or receiver and a canvas or equivalent inclosure, *b*²⁸, for protecting the grain from wind, as set forth.

199,130.



199,131. GRAIN-BINDERS. Edwin Chapman, Rochester, Minn., assignor to Chapman Binder Company, same place. [Filed Jan. 2, 1877.]



1. The platform *g* and ribs *i*, curved in an arc of a circle from the center of the shaft 5, and having an upward curved ledge, 15, and an opening for the wire-carrying arm *k*, in combination with said wire-carrying arm *k*, shaft 5, spring gathering-arms *p*, and the wire-twisting mechanism that is beneath the ledge 15, substantially as set forth.

2. The pushers *s* below the platform, and passing through slots in the platform, and also acting as stops, in combination with the ledge 15, gathering-arms *p*, and wire-carrying arm *k*, substantially as set forth.

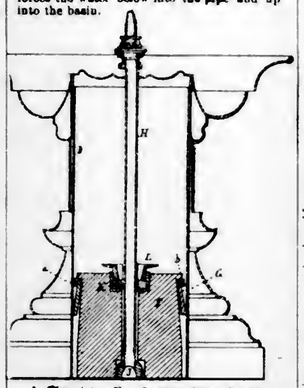
3. In a grain-binder, the combination, with the wire-carrier and twisting mechanism, of the pushers *s*, that pass through slots in the platform and act as stops, as and for the purposes set forth.

4. The pushers *s*, fitted to slide upon the bar *s'*, and the compressing-spring 28, in combination with the actuating-crank 21, shaft 22, and stop-motion gearing, substantially as set forth.

5. In combination with the wire-twister *t*, the adjustable knives or cutters *v v'*, actuating-levers *r r'*, and rod *r*², substantially as set forth.

199,132. FOUNTAINS. William J. Clark and William H. Clark, Salem, Ohio. [Filed Dec. 16, 1876.]

Brief.—The piston is adjusted in the cylinder, with the jet-pipe projecting through the cap and the nozzle attached thereto. Water is then poured into the basin until it and the cylinder are both filled. The water flows into the cylinder through an opening in the cover, around the jet-pipe. The piston is then pulled upward by the jet-pipe until it is felt to touch the cap of the cylinder. The jet-pipe is then pushed down to its former position. The piston, being made of lead, will descend in the cylinder of its own gravity, and, in so doing, forces the water below into the pipe and up into the basin.



1. The piston F and expansive valve G, secured thereto in the manner as described, in combination with the cylinder D, substantially as herein set forth, and for the purpose specified.

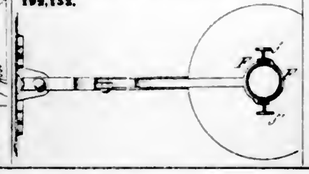
2. The movable jet-pipe H, constructed and arranged to operate in combination with the piston F and cylinder D, substantially in the manner described, and for the purpose herein specified.

3. The packing *c* or its equivalent, in combination with the jet-pipe H and piston F, substantially as herein set forth, and for the purpose specified.

4. In combination with the jet-pipe H, the foot J or its equivalent, substantially as herein described, and for the purpose specified.

5. The combination of the piston F, the valve G, the packing *c*, the jet-pipe H, the cylinder D, and basin A, substantially as herein described, and for the purpose specified.

199,133.

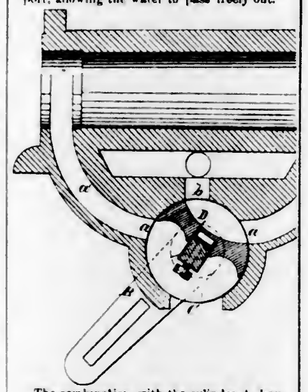


199,138. LAMP-SHADE HOLDERS. Partrick J. Clark and Joseph Kintz, West Meriden, Conn. [Filed Oct. 23, 1876.]

The lamp-shade holder or ring F, constructed of two sections, having overlapping ends, and held together by screws *f f'*, in combination with an attaching-arm and a shade, having a neck to receive the holder, as and for the purpose set forth.

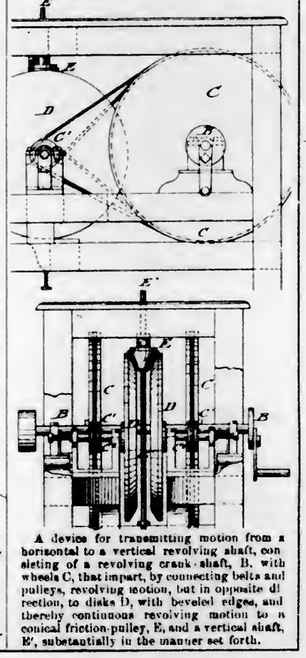
199,134. HYDRAULIC ENGINES. J. Coates, Erie, Pa. [Filed Apr. 23, 1877.]

Brief.—The rocking valve is grooved on the back, so that it moves clear of the exhaust-port, allowing the water to pass freely out.



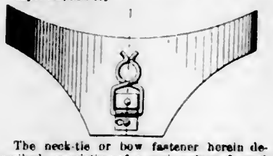
The combination, with the cylinder A, having chest B C, ports *a a b*, and passages *a' a'*, of the back grooved rocking valve D, operating as shown and described, so that the valve may move clear of the exhaust port, and allow the water to pass out freely without interrupting the valve.

199,136. DEVICES FOR TRANSMITTING MOTION. P. Derkum, Richmond, Ind. [Filed Mar. 12, 1877.]



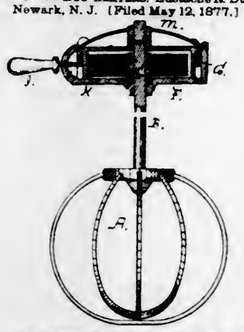
A device for transmitting motion from a horizontal to a vertical revolving shaft, consisting of a revolving crank-shaft, B, with wheels C, that impart, by connecting belts and pulleys, revolving motion, but in opposite direction, to disks D, with beveled edges, and thereby continuous revolving motion to a conical friction-pulley, E, and a vertical shaft, E', substantially in the manner set forth.

199,156. CLASPS FOR HOLDING NECK-TIES. Alvin H. Dodd, New York, N. Y. [Filed Apr. 23, 1877.]



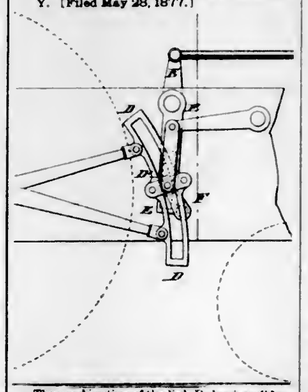
The neck-tie or bow fastener herein described, consisting of a spring-clasp formed from a single piece of wire, bent into loop-shape, to receive an attaching-plate, having an eye for the reception of the collar-button, and provided with outwardly-branching ends, to facilitate the entrance and removal of said button, as and for the purpose set forth.

199,157. EGG-BEATERS. Eustache R. Dulje, Newark, N. J. [Filed May 12, 1877.]



The beaters A on the shaft B, to which is secured the barrel D supporting the spring F, and the cord G having the handle I, in combination with the case K and cap *m*, substantially as and for the purpose specified.

199,158. LINK-MOTIONS FOR STEAM-ENGINES. Frederick Fischer, New York, N. Y. [Filed May 28, 1877.]



The combination of the link D, having slide-pin D', slotted rocker-arm E, having slide-pin E', and swinging crank-arm F, connecting both slide-pins by pivot-pin, substantially in the manner and for the purpose specified.

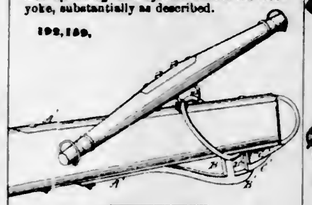
199,159. VEHICLE-POLE TIPS. Benj. Folts, Rockford, Ill. [Filed Mar. 19, 1877.]

1. The combination of the vehicle-pole, the upper strap-iron, the under strap-iron, the boldback-post, the guard B', the permanent lug C, and the pivotal locking latch, all arranged and operating substantially as described and set forth.

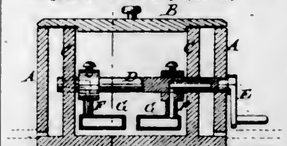
2. In a vehicle-pole having the upper and lower strap-iron, the combination of the boldback-post, the permanently secured lug for use in the forward draft, and the spring-latch for securing purposes, all arranged and operating substantially as described, and for the purpose set forth.

3. The combination of the tongue, tongue-iron A', boldback B, tip B', recessed lug C, latch C', and spring *c*, all these parts arranged and operating in conjunction with the neck-yoke, substantially as described.

199,160.



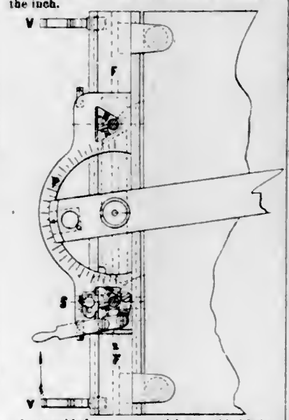
199,160. OIL-BOXES FOR LOCOMOTIVE-ENGINE CYLINDERS. Wm. A. Foster, Fitchburg, Mass. [Filed May 5, 1877.]



The combination of the tubular shaft D, provided with the crank E, the tubular arms F, and the buckets G, with the oil-box A B divided into three compartments by the partitions C, substantially as herein shown and described.

199,161. PARALLEL RULERS. Jos. Gardam, Brooklyn, N. Y. [Filed May 9, 1877.]

Brief.—A parallel ruler moved by a lever-arm, in combination with an adjustable index-stop, to draw any desired number of lines to the inch.

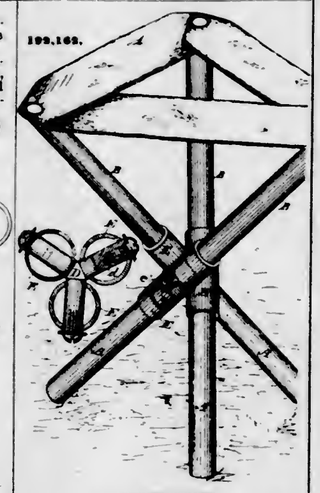


1. A guided protractor with movable blade propelled by a linked lever, in conjunction with two toggles or keys, to produce the parallel motion of the blade, substantially as shown and described.

2. The graduated index-stop S, as required for the purpose set forth.

3. The combination of the springs V V with the frame F, for the purpose of supporting scales of either trapezoidal or triangular section, substantially as specified.

199,162.

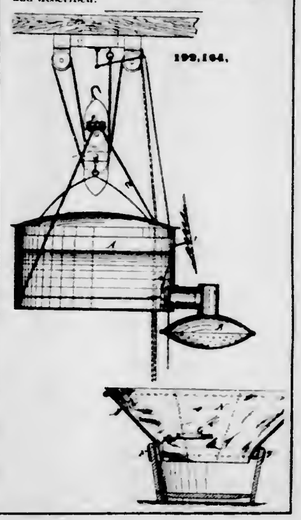


199,163. RELIEF APPARATUS FOR ROLLING-MILLS. E. C. Hegeler and F. W. Matthiessen, La Salle, Ill. [Filed May 5, 1877.]

Brief.—The nuts in which work the adjusting screws are fitted loosely in the housings, and held down against the pressure of the rolls by powerful springs bolted above them. Excessive pressure on the rolls compresses the spring and prevents breakage.

The combination, in a rolling-mill, of the plate B, nut C, screw D, disk H, spring composed of rubber disks *a* and metallic disks *b*, plate I, and bolts J, substantially as shown and described.

199,164.



199,169. CAMP-STOOLS. Ernest W. Gourd, Franklin, N. H. [Filed Apr. 11, 1877.]

1. The tri-pivot having longitudinal holes in each of its branches provided with female screws, substantially as described.

2. The combination of the tri-pivot and the double sockets, secured together by screws, substantially as described.

3. In a pocket camp-stool, the combination of the detachable sectional legs A and B and the tubular metallic sockets E, substantially as described.

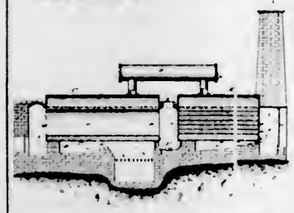
192,164. BATHING APPARATUS. W. J. Hill, Matteson, Ill. [Filed Apr. 28, 1877.]

1. The covered reservoir A, having the nipple *w*, the valve *s*, and sprinkler B, in combination substantially as herein shown and described.

2. The funnel-shaped frame D, having the movable part E, and hooks *q*, and the waterproof covering N, in combination substantially as shown and described.

3. The bracket F and seat G, in combination substantially as and for the purpose set forth.

192,165. COMPOUND STEAM-BOILERS. R. R. Hind, Kohala, Hawaii, Hawaiian Islands. [Filed Jan. 29, 1877.]



The combination of the single flue boiler C and the tubular boiler E, placed end to end, with a space between them, and connected together by the steam drum D and the circulating pipe F, with each other and with the furnace and chimney, substantially as herein shown and described.

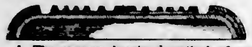
192,166. DEVICES FOR COATING CAKES WITH COCOA-NUT, &c. Danl. M. Holmes, New York, N. Y., assignor to The Van Derveer & Holmes Biscuit Company, New York city. [Filed May 28, 1877.]

Brief.—Water is poured in at E until the rubber sheet containing the grated cocoa-nut, sugar, &c., floats in a horizontal or slightly-convexed position. The pan containing the cake to be coated is then inverted within the rubber bag, which will yield and bring the material in contact with the cakes. To withdraw the water from the tank A the pipe E is turned down.



The water-tight box A, provided with a flexible water-proof sheet, B, a water-pipe, E, and air passages *a'*, to adapt it to be used for coating soft cakes with cocoa-nut, sugar, &c., substantially as herein shown and described.

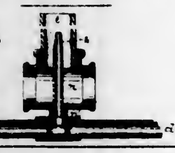
192,167. METHODS OF ORNAMENTING METALLIC SURFACES FOR JEWELRY. Edward Huguenin, Philadelphia, Pa. [Filed Apr. 30, 1877.]



1. The process herein described of ornamenting jewelry by applying on a bottom plate of greater thickness a number of thinner plates of variously colored metal, soldering or heating them together, and rolling them to the required thickness, to be finally engraved according to the desired colors and designs, substantially in the manner and for the purpose set forth.

2. As an improved article for jewelry, a blank or plate of solid metal formed of a bottom plate or backing of greater thickness and of a number of superimposed plates or layers of variously-colored metal, substantially as specified.

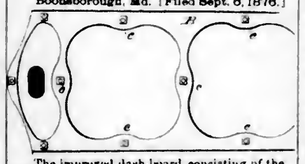
192,168.



192,169. DEVICES FOR AIDING COMBUSTION IN STEAM-BOILER AND OTHER FURNACES. Wm. S. Hutchinson, Chicago, Ill. [Filed Mar. 20, 1877.]

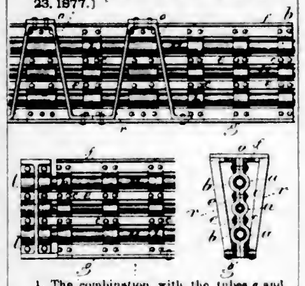
The combination of thimble *c*, T coupling *s*, jet-tube *s*, T-coupling *s'*, and pipe *d*, as a device complete for being built into the wall of the chamber D, arranged for the injection of air and steam into the furnace, substantially as set forth.

192,169. DASH-BOARDS. Geo. H. Hutton, Boonsborough, Md. [Filed Sept. 6, 1876.]



The improved dash-board, consisting of the frames or plates A B, formed with their inner surfaces plain and flat, and having the swell or enlargement *c*, for the purpose specified.

192,170. TUBULAR GIRDERS AND BEAMS. Job Johnson, Brooklyn, N. Y. [Filed May 23, 1877.]



1. The combination, with the tubes *a* and truss-plates *b*, of the angle-iron bars *f* and *g*, forming the top and bottom chords of the truss or girder, substantially as set forth.

2. The combination, with the chords *f* and *g*, tubes *a*, and truss-plates *b*, of the braces *r* and plates *s s*, as and for the purposes set forth.

192,171. BULK-HEADS AND PIERS. Job Johnson, Brooklyn, N. Y. [Filed Apr. 25, 1877.]

1. In combination with the metallic tubular piles, the foundation-blocks *a*, with holes through them for such piles, and the metallic caps *c*, resting upon such blocks, substantially as set forth.

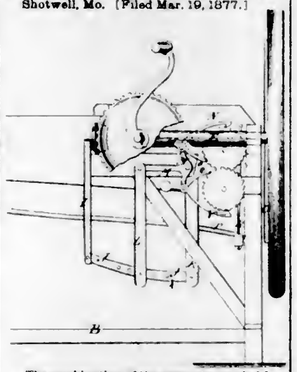
2. The combination, with the tubular metallic or other piles and foundation-blocks, of the tubular or other girders *k*, cap-pieces *g*, and braces *f l*, substantially as set forth.

3. The combination, with the tubular girders and piles, of the yielding fenders and the supporting-plungers *u*, that pass into the ends of the girder-tubes, substantially as set forth.

4. The combination, with the yielding fenders and pier, of the sliding plunger *u*, guides t^2, and the levers t^1, and weights t^3, substantially as set forth.

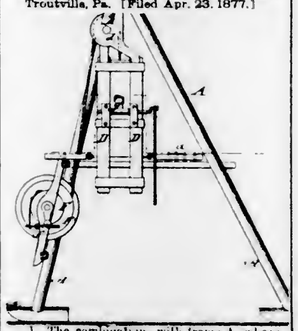
5. The fenders for piers and bulk-heads, made of the vertical guides c^2 and rollers c^3, substantially as set forth.

192,172. STRAW-CUTTERS. Geo. M. Keller, Shotwell, Mo. [Filed Mar. 19, 1877.]



The combination of the connecting-rods I L, the pivoted lever J, the three-armed lever M, and the pawls N O N O, with the ratchet-wheels attached to the journals of the feed-rollers and with the driving-gearing of the machine, substantially as herein shown and described.

192,173. POST-DRIVERS. W. Kindermann, Troutville, Pa. [Filed Apr. 23, 1877.]



1. The combination, with frame A, whose cross-rods are provided with pins *a*, of the guide-frame D, having perforated arms *b*, as and for the purpose described.

2. The combination, with a cord from a ram, a guide-frame having pulley *d*, a shaft having socket-pulley F, and a spring-clutch, F', of a plate and shoulder, *f*, arranged as and for the purpose specified.

192,174. MACHINES FOR STUFFING HORSE-COLLARS. John M. Lichliter, Luray, Va., assignor to B. F. Grason, Jr., same place. [Filed May 21, 1877.]

1. The combination of the carriage K, hopper L, endless toothed belt M, rollers N, and the stationary forked rod U with the frame B, substantially as herein shown and described.

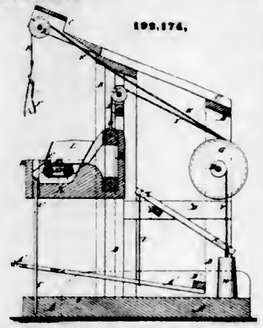
2. The combination of the pulley O, the pawl-and-ratchet wheel P, the strap Q, the spring R, the armed segment S *s'*, and the stop T with the feed belt and rollers M N, the carriage K, and the frame B, substantially as herein shown and described.

3. The combination of the rope and pulley I J, the pulley and shaft G H, and the rope and weight V W with the carriage K and the frame B, substantially as herein shown and described.

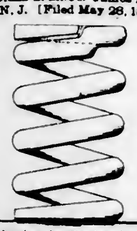
4. The combination of the pulley, rope, and hook D E F with the pulley and shaft G H, the rope and weight V W, and the frame B, substantially as herein shown and described.

5. The combination of the lever X, the rope Z, and the treadle A' with the weight W and the frame B, substantially as herein shown and described.

192,174.

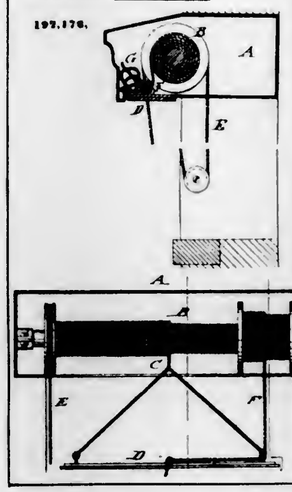


192,175. COILED SPRINGS. James Ludlum, Pompton, N. J. [Filed May 28, 1877.]



A spring having in the terminal coil an offset to receive the end of the rod of which the spring is formed, substantially as shown and described.

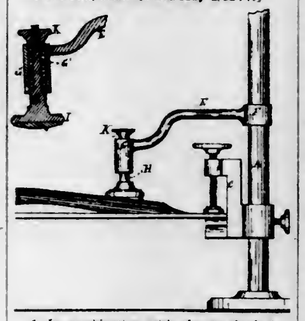
192,176.



192,176. FIRE-ESCAPES. R. J. Macdonald, New York, N. Y. [Filed May 5, 1877.]

A fire-escape consisting of cornice A, roll B, rope ladder C, seat D, cords E F, and pulley *d*, arranged substantially as shown and described.

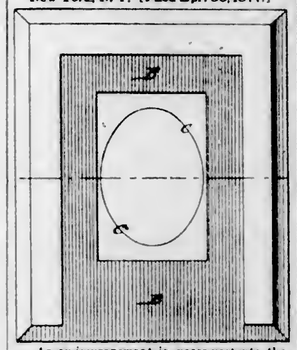
192,177. BOOK-SUPPORTS. E. L. Marshall, Cleveland, Ohio. [Filed May 4, 1877.]



1. In combination with the standard A, arm E, and sleeve G, the stem H, nut K, and spring G', in the manner substantially as described, and for the purpose set forth.

2. In combination with the standard A and screw-clamp C, the sliding horizontally-movable arm E, substantially in the manner as herein described, and for the purpose specified.

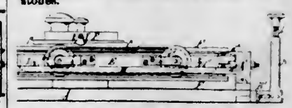
192,178. PICTURE-FRAMES. Edward Maux, New York, N. Y. [Filed Apr. 30, 1877.]



As an improvement in passe-partouts, the combination, with the usual frame, of a backing having an opening corresponding to the size of the picture to be framed, and placed back of the face-lining of the glass, substantially in the manner and for the purpose set forth.

192,179. MILLSTONE-DRESSERS. Jno. McD. McIntyre, Lockport, N. Y., assignor of one-third his right to Wm. Duncan, same place. [Filed Apr. 10, 1877.]

Brief.—The carbon point is secured in the tool-stock, which is so mounted as to enable the point to operate at any desired angle and inclination. The centering-screw engages with the end of the spindle, or in the recess of a temporary center-piece, in dressing millstones.



1. In a millstone-dresser, the combination, with the frame A and centering-screw *b*, of the angle-piece B', made laterally adjustable on the frame, and bracket or screw-bearing B, made longitudinally adjustable on the angle-piece, substantially as and for the purpose hereinbefore set forth.

2. The combination, with the frame A and tool-stock bar E, of the end pieces A', provided with segmental recesses C, and adjustable segmental blocks D, provided with ways d^2 for adjusting the inclination of the tool, substantially as hereinbefore set forth.

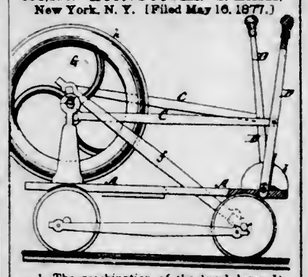
3. The combination, with the bar E, of the guide-bars F F F', pivoted near their outer ends to the bar E at *f*, and made vertically adjustable at their inner ends by the set-screw *g* and bolt *f'*, passing through the slotted hole in the bar E, substantially as and for the purpose hereinbefore set forth.

4. The combination, with the frame A, provided with ways d^2, and bar E sliding therein, of the feed-screws H H', provided, respectively, with pulleys e^1 e^2 and e^3 e^4, constructed as described, and endless band e^5 for feeding both ends of the bar E, either with the same speed or with different speeds, substantially as hereinbefore set forth.

5. The combination, with the feed-screws H H' and cross-piece M, of the pivoted bearings I and pivoted plates *m*, substantially as and for the purpose hereinbefore set forth.

6. In a millstone-dresser, the combination, with the tool-stock F, of the carbon-point holder composed of the split sleeve *r*, provided with a conically enlarged lower end, and screw and nut r^1 r^2, and inclosing-cylinder S, substantially as and for the purpose hereinbefore set forth.

192,180. MOTIVE POWERS. S. Mellins, New York, N. Y. [Filed May 16, 1877.]



1. The combination of the hand-lever D, having pins *a*, with the frame A and cheek-pieces *b b*, the cheek-pieces serving to hold the pins *a* to the frame and to guide and steady the lever, substantially as herein shown and described.

2. In a propelling vehicle, the combination of the platform A having uprights with the axle B carrying the fly-wheel G, and with the operating rods C and weighted hand-levers D, which are pivoted to the platform A and guided between the cheek-pieces *b*, substantially as and for the purpose herein shown and described.

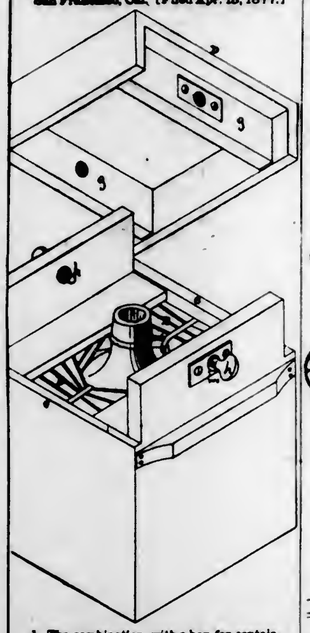
192,181.



192,181. STOVE-PIPE SAFE AND REGISTER. Horatio B. Morrison, Mason City, Iowa. [Filed May 10, 1877.]

The combination of the horisontally-moving ring, projections, and hinged doors with operating devices, whereby the doors may be opened from above or below, substantially as specified.

192,182. DEMIJOHN-CASES. C. Newman, San Francisco, Cal. [Filed Apr. 13, 1877.]



1. The combination, with a box for containing bottles and demijohns, the upper end of which is of the same size as the body of the box, and provided with the side pieces C C, of the flat removable top or cover D, provided with the bars *g g* and screws *h h*, substantially as herein shown and described.

2. The combination, with a square-top box for inclosing and protecting bottles and demijohns, and provided with one or more low sides *a*, of a flat-top cover, D, which is supported above the top of the bottle or demijohn, and secured by screws or other fastening which pass through the sides of the box and cover, substantially as herein shown and described.

3. The combination, with the box and cover, of the screw provided with the shank K between the head and screw-portion, pin-hole *i*, and wire, and the plate m, substantially as and for the purpose specified.

192,183. GATHERING AND PLAITING ATTACHMENTS FOR SEWING-MACHINES. L. Onderdonk, Adams' Station, N. Y. [Filed Mar. 10, 1877.]

Brief.—The slides carrying the ruffling-plates are attached to an extension of the presser-foot, and are moved, through the medium of a cog or pinion on a rock-shaft, by a lever attached to the needle-bar. Provision is made for adjusting the device for different widths of plaits, for automatically reversing the direction of the movement of the slides, and folding in opposite directions alternately to form box plaiting.

1. The presser-foot A, with extensions a^2, a^3, and a^4, substantially as shown and described.

2. The combination, substantially as described, of the lever B, provided with the slot E, and the rock-shaft C, having a crank, *c*, for the purposes set forth.

3. The combination, substantially as described, of the cog-wheel D, provided with the pin d^2, shifting-plate A', provided with projection D', shaft C, and adjustable arm G, for the purposes set forth.

4. The cog-wheel D, in combination with plate B', the dogs *i i*, with their spring *d* and the shifting-plate A', substantially as shown and described.

5. The combination, substantially as described, of the slides E^1 and F, the latter being provided with an extension, F', hinged to the former, as and for the purposes set forth.

6. The combination, substantially as described, of the slides E^1 and F, with their extensions E^2 and F', and of the plate G', as and for the purposes set forth.

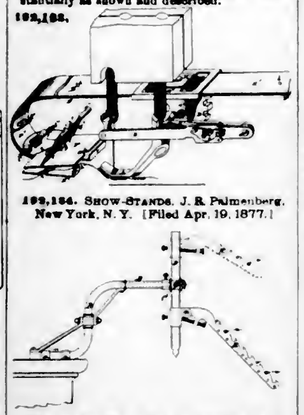
7. The combination, substantially as described, of the cog-wheel D and slides F and E^1, said slides being connected by slots and pins, as set forth, whereby the motion of the slide F is communicated to the slide E^1, as described.

8. The combination, substantially as described, of the rectangular-shaped extension E^2, provided with the lip *r* and the plate G', provided with a reversely-bent lip, r^2, for the purposes set forth.

9. The plate G', in combination with the slides E^1 and F, substantially as shown and described.

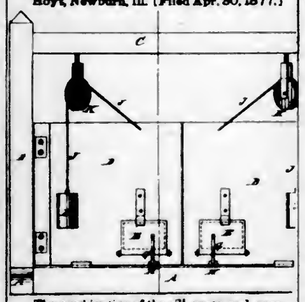
10. The presser-foot A, and its extensions a^3, a^2, and a^4, in combination with the tension-spring H and the slides E^1 and F, substantially as shown and described.

192,184. SHOW-STANDS. J. R. Palmenberg, New York, N. Y. [Filed Apr. 19, 1877.]



The combination of the bracket B, rod C, bar D, hinged brackets E, and cross-bars *w w*, arranged to operate substantially as and for the purpose herein described.

192,185. GATES. J. T. Piggott and A. W. Hoyt, Newburn, Ill. [Filed Apr. 30, 1877.]

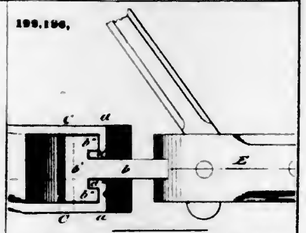


The combination of the sill, posts, and cross-beam A B C, the hinged gates D, the trap-doors E, the stop-hooks F, the latch-hooks G, the catches H, and the weights, ropes, or chains, and swiveled pulleys I J K, with each other, substantially as herein shown and described.

192,186. THILL-COUPLINGS. J. T. Pomeroy, Edgerton, Wis. [Filed Apr. 23, 1877.]

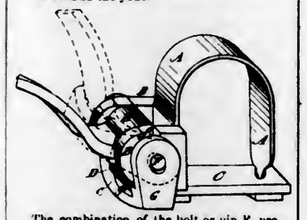
The side pieces *a a*, connected by rivet C, and having ribbed flanges a' a'', in combination with the plate B, having bar *b*, and grooved ribbed head b' b'', as and for the purpose specified.

192,187.



192,187. THILL-COUPLINGS. Chas. B. Post, New London, Ohio. [Filed Feb. 10, 1877.]

Brief.—The axial bolt has a lug to fit the slot in ear, and the bail-retainer has a recess to fit around the yoke.



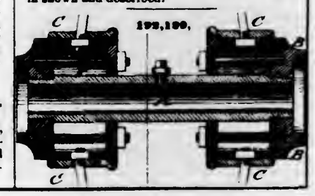
The combination of the bolt or pin F, provided with the stop *f'*, the U-shaped recessed fastener G, and the rubber block D, with the hooks B formed upon the forward arm of the clip A, and with the forwardly-projecting end of the yoke C, substantially as herein shown and described.

192,188. CLOTHES-LINE HOLDERS. Richard Raby, Jr., Loudonville, Ohio. [Filed Apr. 2, 1877.]

1. The grooved disks A *a*, rod *b*, notched disk C, standard A, and arms B, having hooks *d*, substantially as shown and described.

2. The hooks D and oblong eyes E, in combination with the arms B, substantially as herein shown and described.

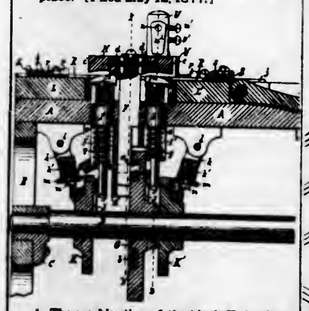
192,189.



192,189. VEHICLE-WHEELS. De La Fayette Remington, Silverton, Oreg. [Filed Feb. 26, 1877.]

The slide sleeves C, adjusted by means of the rings and screw-bolts with respect to the collars B, as and for the purpose specified.

192,190. MACHINERY FOR FORMING BOX-TOES FOR BOOTS AND SHOES. Davis B. Reynolds, Brookton, Mass., assignor of one-half his right to W. L. French, same place. [Filed May 12, 1877.]



1. The combination of the block H, having formed upon opposite ends thereof two male dies, *e e*, and adapted to be moved vertically and horizontally, two vertically-yielding followers, I^2 I^3, the fixed female die I, and horizontally-reciprocating female die L', all arranged and adapted to operate substantially as and for the purposes described.

2. The combination of the rod F, mounted in fixed bearings and adapted to be moved only in a vertical direction, and the block H, having formed on either end thereof a male die, *e*, and secured to the upper end of said rod F, and adapted to move vertically therewith and horizontally thereon, substantially as described.

3. The combination of the rod F, die-block H, and one or more springs, *d*, all arranged and adapted to operate substantially as and for the purposes described.

4. The combination of a vertically-reciprocating male die, a horizontally-reciprocating female die, adapted to engage with said male die, a toggle-joint connected to said female die and some fixed portion of the machine, and adapted to impart to said female die a reciprocating motion, and a cam connected by suitable rods or levers to the knuckle of said toggle, and adapted to impart motion thereto, substantially as and for the purposes described.

5. The combination of the rod F, provided with the truck *a*, the cam G, adapted to impart to the rod F a vertical reciprocating motion, and the die-block H, secured to the rod F, and adapted to be moved vertically therewith and horizontally thereon, substantially as described.

6. The combination of a male die adapted to be moved vertically and horizontally, a follower or clamping-jaw fitted to and adapted to be moved vertically in fixed bearings, a spring adapted to force said follower upward, and an intermittently-acting cam adapted to draw said follower away from said male die, substantially as and for the purposes described.

7. In combination with a vertically-reciprocating male die, a vertically-moving follower or clamping-jaw, and a fixed or horizontally-reciprocating female die, a reciprocating feed-plate adapted to receive the blank and automatically feed it between the male die and its follower, substantially as described.

8. In combination with the die-block H and follower I^3, the feed-plate R, lever-frame *k k'*, truck *m*, and the cam K or K', all arranged and adapted to operate substantially as and for the purpose described.

9. In combination with the horizontally-reciprocating feed-plate R, one or more register-ing-gages, *p p*, secured thereon, all arranged and adapted to operate substantially as and for the purpose described.

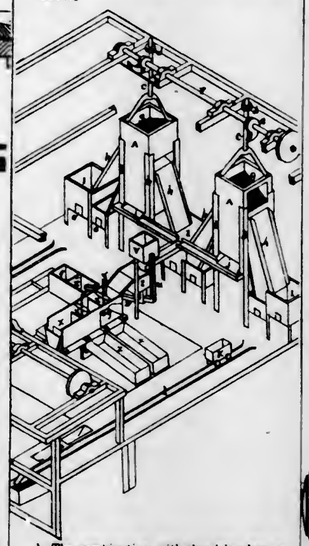
10. In combination with the feed-plate R, the spring *r*, arranged and adapted to operate substantially as and for the purpose described.

11. In combination with a vertically-reciprocating male die and a fixed or movable female die adapted to mold a box-toe, a pair of griping-jaws, adapted to receive and gripe the box-toe as it is moved upward out of the female die, withdraw it from the male die, and discharge it at one side of the machine, substantially as described.

12. The combination, with the feed-plate R, of a toothed rack, *s*, pinion *t*, vertical spindle U, and jaw-plates u^2 and v^2, all arranged and adapted to operate substantially as and for the purpose described.

13. The combination of the vertical spindle U, fixed jaws u^2, tube *v*, rod v^2, jaw-plate v^3, pin v^4, spring *w*, and adjustable cam-block *x'*, all arranged and adapted to operate substantially as and for the purposes described.

192,191. ORE-SEPARATORS. Jos. Richards, Battle Mountain, Nev. [Filed Apr. 13, 1877.]



1. The combination, with the rising box or boxes A, with their graduating-screens *g g* and spout or spouts *j*, of the series of conducting-troughs and the settling-tanks *t x x x*, all constructed and arranged substantially as and for the purpose described.

2. The rising and washing tank *t*, connected by the pipe *u* with the elevated water-reservoir V, in combination with the settling-tanks *x x x*, with their conical-plug openings, and the inclined receiving-tanks *x x*, all combined and arranged substantially as and for the purpose described.

192,193. MACHINES FOR MAKING PLUMBERS' TRAPS. John Robertson, Brooklyn, N. Y. [Filed Apr. 23, 1877.]

Brief.—A sliding plate, with a single orifice, bounds the lead-containing cylinder at top, and above it is the die-holder, having two ducts that lead up to an annular channel at the base of the die or discharge-orifice. Thus, as the chutes are more or less opened to the upflow of the lead, the latter unites in the annular channel under unequal pressure, and so issues from the die. The apparatus is supported on trunnions for the more convenient heating of the parts, and the charging of the cylinder with lead when required.

1. The core-holder E, provided with two passages, *i* and *j*, and with the projecting core proper A, substantially as herein shown and described.

2. The combination of the core-holder E and core A with the outer shell C, forming the constriction-chamber *c*, substantially as herein shown and described.

3. The combination of the movable valve F, having the aperture *l*, with the core-holder E, having the separate passages *i* and *j*, and with the lead-chamber *d*, substantially as herein shown and described.

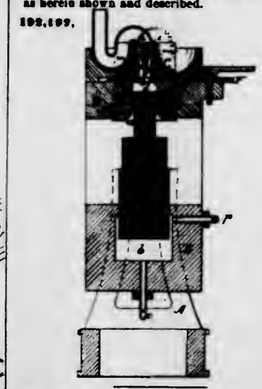
4. The combination of the movable perforated valve F and lead-chamber *d* with a mold, having two passages, *i* and *j*, that lead into an annular constriction-chamber, substantially as herein shown and described.

5. The shell or casing C of the constriction-chamber, said shell having the pockets *m m*, substantially as and for the purpose herein shown and described.

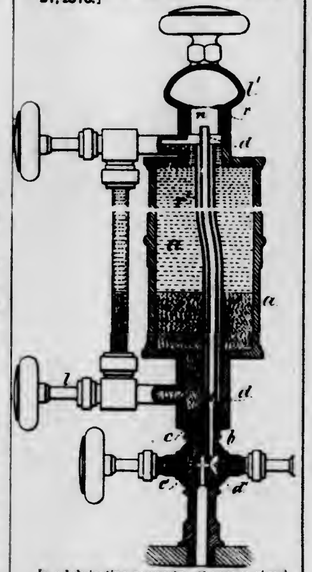
6. The mold B C E, provided with trunnions *a a*, and pivoted in the frame A, so that it can be reversed, substantially as herein shown and described.

7. The combination of the block B, having trunnions *a a*, with the chambers *b d*, ram D, and mold C E, all arranged substantially as herein shown and described.

192,197.



192,198. LUBRICATORS. Saml. Rushworth, New York, N. Y., assignor to himself and J. G. Crawford, same place. [Filed Sept. 27, 1876.]



In a lubricating apparatus, the pipes *r'* and *d*, vessel *a*, and valves *b' o'*, in combination with the hollow condensing-cover P, and pipe *n*, substantially as and for the purposes set forth.

192,194. PRECIPITATORS FOR STEAM-ENGINE BOILERS. Levi Shook, Pittsburg, Pa., assignor of one-half his right to Jas. Rees, same place. [Filed Apr. 13, 1877.]

1. A precipitator for steam-boilers, consisting of an inner casing for collecting the floating precipitation, and provided with a pipe and cock for drawing off such precipitation alone, in combination with an outer casing for containing the sunken precipitation, and also provided with a pipe and cock for drawing off

such precipitation alone, all so arranged that the contents of either or both casings may be simultaneously or separately discharged, substantially as set forth.

2. A precipitator for steam-boilers, provided with an inner casing for collecting the floating precipitation, and encompassed by an exterior casing for collecting the sunken precipitation, substantially as set forth.

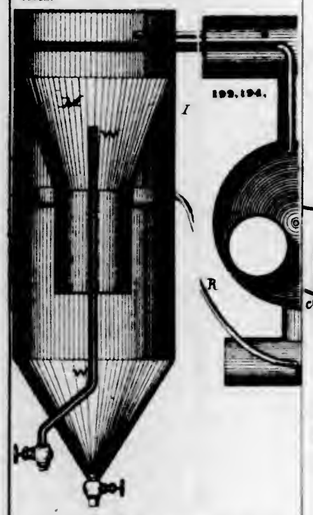
3. A precipitator for steam boilers in which the water is superheated in a pipe led through the boiler, whence it is discharged through apertures in the end of the pipe, which conveys it into the precipitator, and is heated therein by a jet of steam to a degree at which all animal, vegetable, and mineral matter is precipitated, substantially as set forth.

4. A precipitator for steam boilers, consisting of an inner and outer casing, provided with a pipe to draw the pure water between the casings from a point between the floating and sunken precipitation, substantially as set forth.

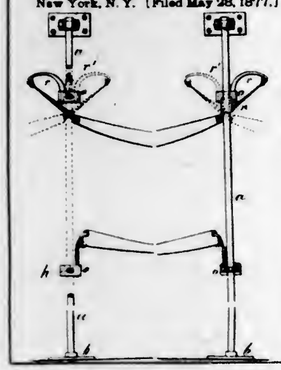
5. The combination of the precipitator or casing I, the interior casing M, and chamber N, substantially as shown and described.

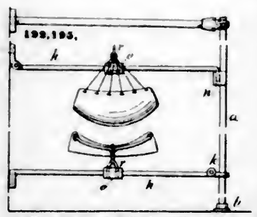
6. The precipitator I, provided with the pipes R and L and pipe F, having the perforations K, in combination with the inner casing M, having pipe W, substantially as set forth.

7. The precipitator I, provided with the casing M, chamber N, and channel P, in combination with the pipe R, substantially as set forth.



192,195. FRAMES FOR HAMMOCKS AND COTS. Henry C. Biller and Charles Biller, Jersey City, N. J., and Chas. H. Dessart, New York, N. Y. [Filed May 28, 1877.]



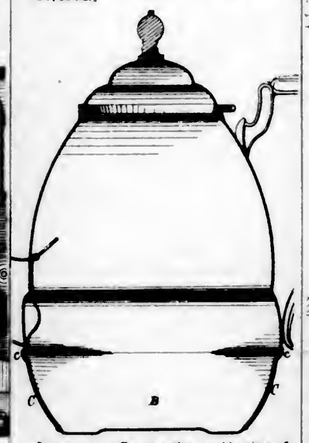


1. The hammock-rails *h*, sliding blocks *o*, and stretcher-forks *r*, in combination with the hammock or cot, substantially as set forth.

2. The movable vertical posts *s* and sockets *b*, in combination with the hammock-rails *h*, blocks *o*, forks *r*, and hammocks, substantially as set forth.

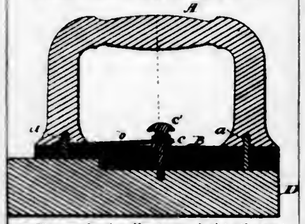
3. The stretcher-forks *r*, arranged to stand in opposite directions for distending the hammocks, substantially as set forth.

192,196. TEA AND COFFEE POTS. Michael Simons, Yalesville, Conn. [Filed Aug. 27, 1874.]



In a tea or coffee pot, the combination of the inner hard-metal bottom section B and the outer soft-metal covering C, substantially as and for the purpose specified.

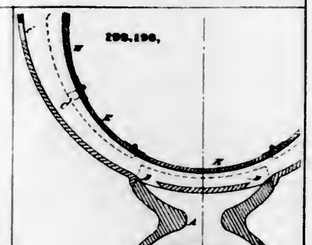
192,197. SAD-IRONS. Francis M. Snively, Bellaire, Ohio. [Filed Feb. 19, 1877.]



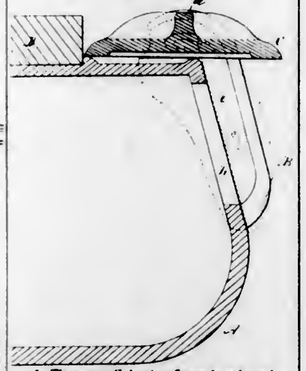
The wooden handle A attached to the seat B, as shown, in combination with the iron D and bolt *c*, said bolt passing vertically through the center of the seat B into an orifice in the bottom of the groove in the iron D, and held therein by a spring, *b*, all constructed and operating in the manner hereinbefore set forth.

192,198. TIRE-HEATERS. Wm. E. Stewart, Xenia, Ohio. [Filed May 5, 1877.]

An improved tire-heater formed by the combination of the hollow base A, the semi-ring trough C, provided with the holes D, and the cap E, made in sections, hinged to each other, and having flanges formed upon their side edges, substantially as herein shown and described.



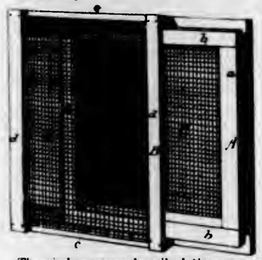
192,199. RAILWAY-AXLE-BOX LIDS. F. C. L. G. Sussmihl and Herbert H. Hewitt, Detroit, Mich. [Filed May 5, 1877.]



1. The cover C, having flanged ends and a central rib, *d*, and provided with the projections *c*, substantially as and for the purpose herein shown and described.

2. The cover C, having projections *c*, in combination with the box A, having formed upon it the grooved ears B, substantially as shown and described.

192,200. WINDOW-SCREENS. Erastus C. Underwood, Boston, Mass. [Filed Apr. 19, 1877.]



The window-screen described, the same consisting of two independent frames, A B, the former being provided with recessed and grooved cross-pieces *b* and the vertical bar *c*, and the latter with the cross-piece *c*, recessed as shown, and the vertical slats *d*, joining the sides of cross-pieces *c* at their ends, as shown, each having the wire or cloth netting C fastened thereto, and arranged to operate as described.

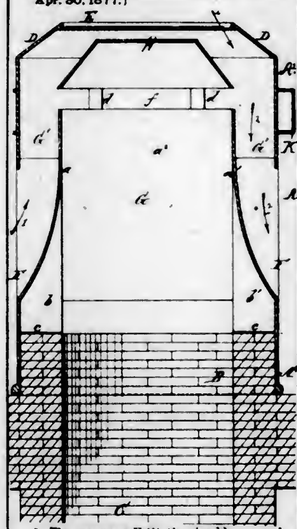
192,201. PROCESSES OF DYEING TISSUE AND BONBON PAPERS. Isabella J. Van Skelline, Brooklyn, E. D., N. Y. [Filed Feb. 13, 1877.]

1. The process herein described of dyeing tissue-papers for bonbons and other like articles, by treating the same with a solution of resine, combined with the salts of tin, lead,

or zinc rendered alkaline, and subsequently with an alkaline alum mordant, substantially as herein described.

2. The application of eosine as the central or main color, which may be substituted by sarine, in whole or in part, as its equivalent, so as to vary the shades, as desired, in the tinting of the edges of bonbon-wrappers or motto-papers, substantially as and for the purposes set forth.

192,202. CHIMNEY-TOPS. Jas. J. Van Wie, Dubuque, Iowa, assignor of one-half his right to Wm. P. Allen, same place. [Filed Apr. 30, 1877.]

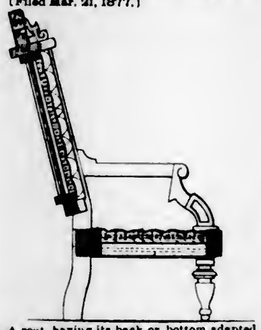


1. The passages F G', the shoulders *c*, and the passage G, formed by plates *a* and *b*, applied to the case A A', which is in form like the chimney C, in the manner and for the purpose described.

2. The chimney cap having a passage, E, through its top, oblique passages F G' in its sides, a central vertical passage, G, a flaring or beveled hood, H, above the upper edge of the walls of the central passage, and a lateral passage, *f*, between the base of the hood and the said walls of the central passage G, substantially as and for the purpose described.

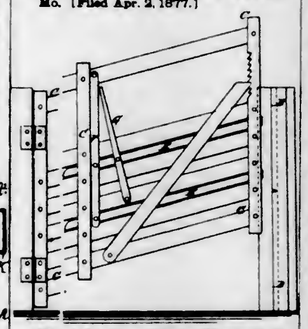
3. The chimney-cap A, having a passage, E, in its top, oblique passages F G' in its sides, a vertical central passage, G, a flaring or beveled hood, H, and a lateral passage, *f*, shoulders *c*, extension A', and beveled surface D, substantially as and for the purpose described.

192,203. SEATS AND BACKS FOR CHAIRS. Harwood Wakeman, New York, N. Y. [Filed Mar. 21, 1877.]



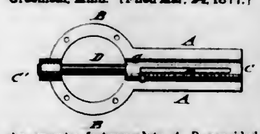
A seat having its back or bottom adapted to receive two frames, one containing cane or open work, and the other upholstered and made changeable, so that either frame and surface can be positioned for use, substantially as set forth.

192,204. GATES. Eli Wayland, Salisbury, Mo. [Filed Apr. 2, 1877.]



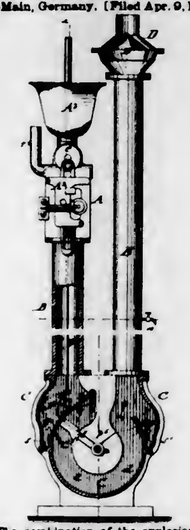
The combination, with the lifting-gate C, having two latches, E E, of the bar F, swinging from a pivot on top-rail and pivoted to both the latches, thus allowing the upper latch-lever G to work both latches, as shown and described.

192,205. OX-BOW FASTENERS. P. Webb, Greenleaf, Minn. [Filed Mar. 24, 1877.]



An ox-yoke fastener-plate, A B, provided with aligned tubes C C', the former having L-shaped slot *s*, and a bolt, D, having side stud that works in said slot, as shown and described.

192,206. ATMOSPHERIC GAS-ENGINES. Jos. Westheim, Bornheim, near Frankfort-on-the-Main, Germany. [Filed Apr. 9, 1877.]



1. The combination of the explosion dome A, siphon-tube B B', paddle-casing C, having valves *b*, *b'*, and *b''*, oscillating paddle C', and the liquid-piston, actuated alternately by the force of the explosion and the pressure of the atmospheric air, substantially in the manner and for the purpose set forth.

2. The combination of the explosion-dome A, having entrance and and ignition openings *d d'*, with a reciprocating slide valve, A', having slot *f* and communicating groove *f'*, to supply the gas-and-air mixture simultaneously through both openings, substantially as and for the purpose set forth.

3. The combination of the explosion-dome and of the reciprocating spring-actuated slide-valve A' with a loose crank-disk, *e*, having recessed hub, and with a driving-pin, e^3, on the revolving crank-disk shaft, to admit rapid downward passage of slide-valve, substantially as set forth.

4. The combination of the explosion-dome A and slide-valve A' with an igniting apparatus, G, composed of a casing, *g*, and of a sliding and spring-actuated cap, *g'*, with barrier and air-supply recesses, substantially as described.

5. The combination of explosion-dome A and slide-valve A' with fixed casing *g*, having interior pivoted deflecting-hood *i*, with sliding and guided spring cap *g'*, having fixed inner rod i^2, burner g^2, and outer stud *l*, and with outer inclined stop *l'* of face-plate A^2, to prepare ignitor for explosion, substantially as specified.

6. The combination of the explosion-dome A and slide-valve A' with fixed casing *g*, sliding and guided spring cap *g'*, having outer pin *m*, and with stop *m'* of face-plate A^2, to open ignitor after explosion, substantially as described.

7. The combination of the explosion-dome, slide-valve, and ignitor, having interior barrier, deflecting-hood, and air-slots, with a fixed gas-pipe that relights the burner after each explosion, substantially as set forth.

8. The combination of the explosion-dome A, siphon-tube B B', paddle-casing C, having valves *b b' b''*, with oscillating paddle C', having recesses with upper and lower pivoted valves p^1 p^2, to work in conjunction with the liquid-piston, substantially in the manner set forth.

9. In a gas-engine, the paddle-casing C, having side pockets *s s'*, with detachable plugs, to collect and remove impurities, substantially as set forth.

10. The combination of the explosion-dome A, siphon-tube B B', paddle, and paddle-casing with return-valve b^2, fulcrumed and spring-actuated lever b^3, valve-rod b^4, and escape-valve *r*, to open or close valve of dome, as required, substantially as described.

11. In a gas-engine, the combination of explosion dome A and siphon-tube B B' with escape-valve *r*, channel r^1 valve r^2, and exit-tube r^3, to admit expulsion of gases of combustion, substantially as set forth.

12. The combination of the explosion-dome, siphon-tube, paddle-case, and oscillating paddle with suitable mechanism, constructed substantially as shown, for changing the reciprocating motion of paddle-shaft into continuous rotary motion, substantially in the manner and for the purpose set forth.

13. In a gas-engine constructed substantially as shown, a siphon-tube having its reservoir-carrying leg extended above the explosion dome, substantially as described.

192,207. SCALE-PANS. Edward M. Whyler, Hays City, Kans. [Filed Mar. 3, 1877.]

Brief.—A rim attached to bottom of scale-pan is provided with a tube to contain small weights for balancing the scales.



A funnel scale-scoop provided with the tube D, as and for the purpose specified.

192,208. GRAIN-REDUCING APPARATUS. J. L. Wilson, Woodstock, Ontario, Canada, assignor to J. Forrest, same place. [Filed May 12, 1877.]

Brief.—Slices the kernels presented by gravity by spring-knives actuated by the fixed stop. Guards prevent the kernels from falling out of the cylinder until sliced. Pivoted agitators play laterally across the faces of the exit-channels to prevent clogging of the same.

1. The combination, in a grain-crushing machine, of the revolving cylinder, to which the grain to be cut is fed from the interior, and

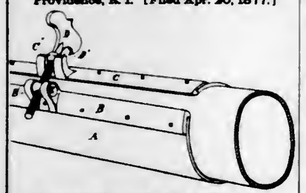
which is provided with grooved and tapering exit-channels, with the intermittently-sliding and spring-acted knives and guards, guided along the circumference of the cylinder, and with a fixed actuating stop-plate, substantially in the manner and for the purpose set forth.

2. The combination of the cylinder A, having grooved and tapering exit-channels for conducting the grain from the interior to the circumference, with the cutting-knives E E and guards F F, attached to pivoted frames F', and operated by pivot-arms e and fixed stop-plate F, substantially as specified.

3. The combination of the exit-channels of the cylinder with pivoted and laterally-moving agitators G, to prevent clogging of channels, substantially as set forth.

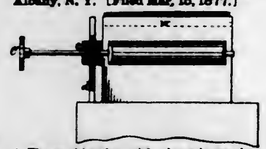
4. The combination of the cylinder A, having tapering and grooved exit-channels b, with the pivoted agitators G, connecting-rods g', spring-rods g, spring-acted knife-frames E', links e', pivot-arms e, and stop-plate F, to work agitators and knives by the contact with stop-plate, substantially in the manner and for the purpose described.

192,208. HOSE-JACKETS. Alanson Work, Providence, R. I. [Filed Apr. 20, 1877.]



In combination with the flexible band A, provided with the metal supports B and C, the screw D and nut E, so arranged that the nut constitutes the pivot upon which the screw is hinged, substantially as shown and described.

192,210. COAL-OIL LAMPS. A. Winterburn, Albany, N. Y. [Filed Mar. 15, 1877.]

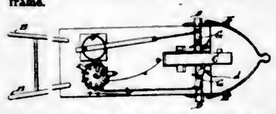


1. The combination, with a lamp-burner having a wick raising and lowering device, of the stop bar d, operated by pinion c, secured to the shaft carrying the wick-raising wheels, and adapted to arrest the movement of the said shaft when the same is revolved in a direction to lower the wicks, substantially as and for the purpose set forth.

2. The combination, with the lamp-burner and a stop-bar, d, adapted to be moved simultaneously with the feeding mechanism in either direction, of the spring-bracket e, substantially as and for the purpose set forth.

192,211. SEED-PLANTERS. James H. Adair, Lynnville, Ky. [Filed May 5, 1877.]

Brief.—Upon laterally-adjustable slides are pivoted arms that are struck by pins on a centrally-revolving wheel, imparting motion to seeding devices by connecting-rods. The slides are adjusted away from contact with the wheel by cam-levers journaled at each side of the frame.

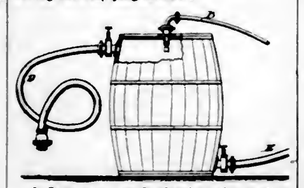


1. In a seed-planter, the combination of a central operating-wheel, provided on both sides with removable pins or cams, and two independently and separately moving slides carrying the operating mechanisms, substantially as set forth.

2. The combination of the wheel C with pins or cams B, the slides D, cam-levers E, and arms G, having springs d, and connected with the dropping apparatus in the hoppers, substantially as and for the purpose described.

192,212. APPARATUS FOR EXCAVATING PRIVY-VAULTS. Axel Ames, Jr., Philadelphia, Pa. [Filed Apr. 14, 1877.]

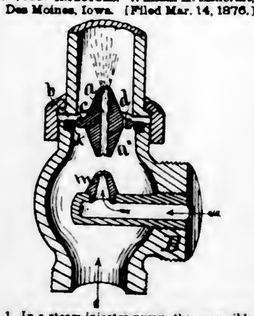
Brief.—By means of a flap-valve, applied to the vault end of the suction-hose, the contents of such hose are retained when the receiver has been filled, thus obviating the necessity of refilling it every time the receiver is filled. The induction and eduction hose are connected to the sides of the receiver, respectively at the top and bottom, for greater convenience in filling and emptying the same.



1. In an apparatus for cleaning privy-vaults, &c., a foot-pipe provided with a flap-valve, and attached to the vault end of the suction-hose, for the purpose hereinbefore set forth.

2. In an apparatus for cleaning privy-vaults, &c., a pump-receiver having the pump-hose B at the top thereof, the suction-hose D connected to the side of the receiver at the top, and the tank-hose B attached to the side of the receiver at the bottom, substantially as shown, and for the purpose set forth.

192,213. INJECTORS. William A. Ashcraft, Des Moines, Iowa. [Filed Mar. 14, 1876.]



1. In a steam-injector pump, the reversible combining-tube *a a'' b c d*, substantially as and for the purposes shown and described.

2. The combining-tube *a a'' b c d*, in combination with the washer *k* and the fixed steam-nozzle *m*, substantially as and for the purposes specified.

192,214. WATER-COIL STEAM-GENERATORS. George H. Babcock, Plainfield, N. J., and Stephen Wilcox, Brooklyn, N. Y. [Filed Nov. 28, 1876.]

1. The combination of two or more distinct coils, mounted at different levels, and each connected independently with a separating-drum, as and for the purposes herein specified.

2. The series of conical coils D^1 D^2, &c., telescoped and inclosed, as and for the purposes herein specified.

3. The baffle-plate O^1 O^2, in combination with the series of conical coils, and with the inclosing case, to induce a downward draft through the conical spaces between the coils, as herein set forth.

4. The intermediate vessel K, in combination with the separating-drum G and a series of coils, D^1 D^2, &c., as and for the purposes specified.

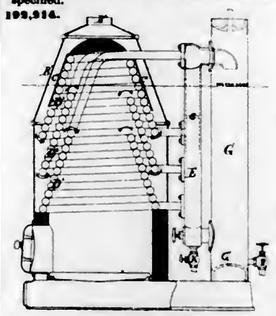
5. The self-acting valve H, in combination with a coil-boiler, and with a separating vessel, to prevent the regurgitation of the water and steam, as herein specified.

6. The valve-controlling means I, in combination with the valve H, and with one or more heating-coils, and with the separating-drum G, as herein specified.

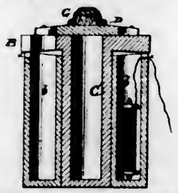
7. In combination with a coil-boiler having a separating-drum, G, and a valve, H, with closing means, as shown, the blow-off valve K, adapted to induce a violent passage of the steam and water through the coils, as and for the purposes herein specified.

8. The mud-space G^1, below the bottom connection in the drum G, in combination with the blow-off cock g, and with provisions for the generation of steam in one or more connected coils, as and for the purposes herein specified.

192,214.



192,215. BOBBIN-HOLDERS. James R. Barlow, Howell, Mich., assignor of one-half his right to Burr R. Smith, same place. [Filed May 3, 1877.]



1. The combination of the cylinder A, having holes *b* arranged in a circle near the outer edge, and each hole having a notch, *x*, and a number on the outside of the case under each notch, with the revolving cap B, having single hole *d*, as and for the purposes herein set forth.

2. The combination of the cylinder A, having central bore *a* and series of holes *b*, the cylindrical needle-case C, and the cap B, with single hole *d*, substantially as and for the purposes herein set forth.

3. The combination of the cylinder A, having central bore *a* and holes *b*, with notches *x*, the cap B, with single hole *d*, the cylindrical needle-case C, and the cap D, with emery pad G, all substantially as and for the purposes herein set forth.

192,216. PLAITING-MACHINES. J. F. Barrow and John Solter, Baltimore, Md., assignors to the American Machine Company, Philadelphia, Pa. [Filed Apr. 5, 1877.]

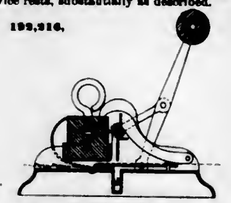
1. In a plaiting-machine, the combination of a folder moving practically in a vertical line, a horizontally-moving gatherer, and a lever or series of levers provided with a handle, and attached to the said folder and gatherer in such manner as in the forward and backward motion of the handle to cause the alternate operation of the same, substantially as and for the purpose herein specified.

2. In a plaiting-machine, a gatherer and a folder connected to act reciprocally as described, and adapted to be operated or moved alternately in the plaiting operation, by means of a handle, substantially as herein set forth.

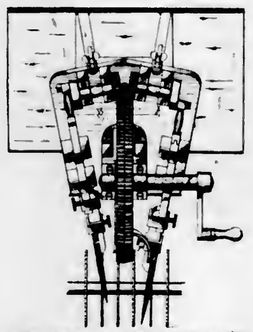
3. The folder and gatherer herein described, provided with adjustable stops or gages to limit their reciprocating movement, substantially as and for the purpose herein specified.

4. In a plaiting-machine, a reciprocating gatherer, adapted to be operated by means of a handle, in combination with a smoothing device having a practically flat smoothing surface, and adapted to be elevated by the entrance of the said gatherer between the said smoothing surface and that portion of the machine upon which the said smoothing device rests, substantially as described.

192,216.



192,217. GIN-SAW-FILING MACHINES. M. McP. Beard, Canton, Miss. [Filed May 1, 1877.]



1. The combination with the supporting-frame, adjustable in a vertical plane, of the bed-plate secured thereon, and adapted to be held at different distances to and from the saw, substantially as described.

2. The combination, with the main actuating gear-wheel provided with the double-beveled cogs, of the pinions engaging therewith at right angles, respectively, with the bevels of the cogs, and revolving in planes diagonally intersecting that of the said main gear, substantially as described.

3. The combination, with the angularly-adjustable supporting-frame, of the independent adjustable metallic bed-plate, the latter having bearings for the pinion gears, and file-rods cast in the same piece therewith, substantially as described.

192,218. FEED-CUTTERS. Leander Becker, York, Pa. [Filed May 26, 1877.]

1. In a feed-cutter, the combination, with the broad sides F of the box, of its yielding or hinged bottom H, and spring, substantially as specified.

2. The combination, with the broad sides and spring bottom, the pressure-head P and pressure-bar *g*, of the angular knife V, rigidly secured to the frame, substantially as specified.

3. The combination, with the feed-board E and the bottom-board H, having a hinge-joint connection therewith, of their respective abutments or bearings, and the spring *s*, substantially as specified.

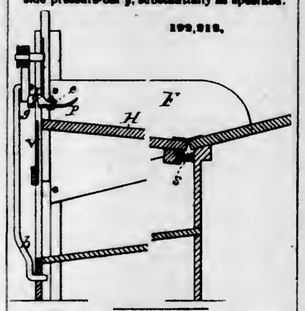
4. The pressure-head P, having the outside pressure-bar *g*, supported by the notched or bent arm h, substantially as specified.

5. The combination, with the slide-gate, having the slotted legs *s* projecting inward, of the adjustable pressure-head and its clamp-nuts and screws, substantially as specified.

6. The combination, with the yielding bottom, fixed sides, and fixed knife, of a rising-and-falling pressure-head and pressure bar, substantially as specified.

7. The combination, with the yielding bottom H and angular fixed knife V, of the rising-and-falling pressure-head P and its outside pressure-bar *g*, substantially as specified.

192,216.



192,219. BUTTER-WORKERS. Demott S. Bennett, Manchester, Iowa, assignor of one-half his right to Wm. H. Board, same place. [Filed May 15, 1877.]



1. The combination, substantially as specified, of the trough, the roller having fixed journals projecting over the sides of the trough, the lever-handles connected to the journals outside of the trough, and the anti-friction roller running under the bottom of the trough.

2. In a butter-worker, substantially such as described, the chamber at one end of the trough, inclosed by the partition B' and sides higher than the sides of the trough, and adapted to support the roller and lever handles, in the manner and for the purposes specified.

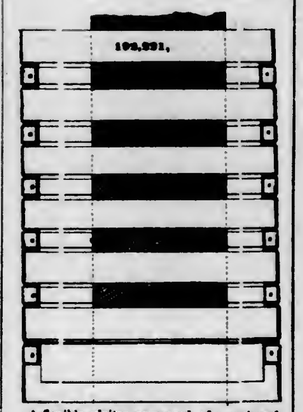
192,220. WAGON-BRAKES. Carl F. J. Beuthin, Flushing, N. Y. [Filed May 16, 1877.]



In a brake mechanism, the lever B having the elongated slot *g*, and pivoted at its upper, and connected at its lower, end to the brake-rod, in combination with the lever A, pivoted at its lower end, and provided between such pivot and its free end with a stud, *f*, resting in the slot *g* of the lever B, substantially as shown and for the purpose described.

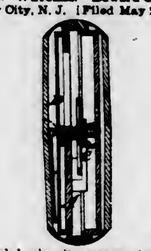
192,221. PLAITING-MACHINES. J. L. Bliss, Lenox, and G. H. Bliss, West Stockbridge, Mass.; said J. L. Bliss assignor to said G. H. Bliss. [Filed Mar. 15, 1877.]

192,221.



A flexible plaiter, composed of a series of slats of different widths, arranged one in advance of the other, and tapes or bands, to which said slats are permanently secured at or near their opposite ends, the whole being constructed to admit of the slats being reversely folded one upon the other into a pile when plaiting the fabric, and of being unfolded to provide alike for the introduction of the latter and for the withdrawal of it, when plaited, without removing the slats, substantially as specified.

192,222. WATCHES. Edward G. Boycott, Jersey City, N. J. [Filed May 2, 1877.]



A watch having its movement placed on a central pivot, on which it is free to oscillate or rotate, substantially in the manner and for the purpose herein described.

192,223. BROWNING-MACHINES. William Braidwood, Mount Vernon, and J. Braidwood, New York, N. Y. [Filed Apr. 12, 1877.]



1. In a browning-machine, the combination, with the single-sheet carrying-cylinder B, of an endless browning-apron, D, its supporting-rollers E E, and a bronze-fountain F, substantially as described.

2. In a browning-machine, the combination of the revolving cylinder B, provided with gripers C, the endless browning-apron D, passing around upper and lower rollers E E, and arranged vertically in contact with the cylinder B, the fountain F, in which said browning-apron revolves, and the wiping-apron G, passing around rollers H H, and

arranged beneath the cylinder B, all substantially as herein shown and described.

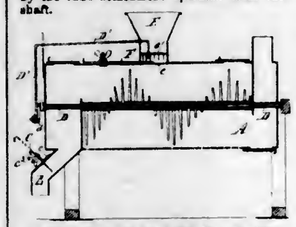
3. The combination, with the cylinder B, the endless brousing-apron D, arranged vertically at the side of the cylinder, the fountain F, in which the bronzing-apron revolves, and the endless revolving wiping-apron G, arranged horizontally beneath the cylinder, of the spring pressure-roller K, arranged at the side and bearing upon the surface of the cylinder, substantially as and for the purposes described.

4. The sheet-carrying cylinder B, having its periphery constructed with a longitudinal rigid raised ridge, N, in combination with the gripers C, pivoted in the recess *a* of the cylinder, the said raised ridge serving to turn the sheet away from the cylinder when released by the gripers, as and for the purpose described.

5. The combination, with the sheet-carrying cylinder B and its ridge N, of a series of strippers or knives, L, when said ridge is provided with openings for the passage of said strippers or knives, substantially as described.

192,224. APPARATUS FOR CLEANING AND POLISHING COFFEE. James H. Brookmire, St. Louis, Mo. [Filed Apr. 6, 1877.]

Brief.—The polishing material is fed from the hopper, and regulated in its discharge into the cylinder by the slide across the perforated bottom, which bottom is kept from clogging by the rake attachment operated from the shaft.



1. The adjustable hand-slide F, in combination with hopper E, having perforated bottom *e*, as and for the purpose set forth.

2. The crank *d*, rod D', and raker *e'*, in combination with hopper E and power-shaft D, to operate as and for the purpose set forth.

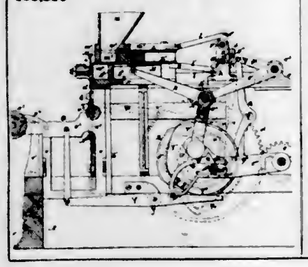
3. The combination of the adjustable hand-slide F, the hopper E, having perforated bottom *e*, the adjustable hand-slide C, the discharge chute B, said parts being arranged with relation to cylinder A, as shown, and by means whereof the discharge of the entered coffee can be regulated so as to be subjected at same time to required polishing action, and as set forth.

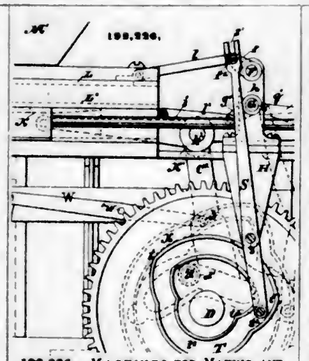
192,223. BARBED-WIRE FENCES, Arthur Burnell, Marshalltown, Iowa. [Filed May 25, 1877.]



A barb for double-strand cable-wire fences composed of two pointed pieces of wire, each of which passes over a strand of the cable, thence between its strands, and reciprocally binds the other wire to the strand of the cable, wherefrom the points of the wires project as from a reuter, substantially as set forth.

192,226





192,225. MACHINES FOR MAKING AND PRESSING BRICKS. J. K. Caldwell, Philadelphia, Pa. [Filed Nov. 3, 1876.]

Brief.—The clay is measured for the molds by means of slides reciprocating in the lower portion of the hopper. After the compression of the bricks, they are carried forward by means of the platens and followers, moving jointly, to be dropped onto the off-carrying endless belt, moving intermittently in the direction of the length of the machine.

1. In a machine for making or pressing bricks or other articles, and in combination with the plunger or plungers thereof, a toggle or toggles having movable fulcra, for operating said plungers, substantially as set forth.

2. In combination with the measuring-boxes and molds of a machine for making or pressing bricks or other articles, cut-off slides L L', arranged and operating substantially as described, the lower slide forming the bottom of said measuring-boxes and part of the top of the molds, and both slides reciprocating alternately, as and for the purpose set forth.

3. In combination with the plunger-impelling device or toggle K', the platen I, connected with the former, substantially as described, so that said platen will be held up to or against the push of the plungers by the force or power by which the latter are advanced toward said platen.

4. In combination with the plungers K K, a toggle, K', arranged and operated, as described, to pass beyond its dead-center, so as to increase the distance between said plungers and the platen after compression, for the purpose specified.

5. A wiper, N, arranged and operated to reciprocate vertically between the platen and plungers, substantially as and for the purposes set forth.

6. In combination with crank-shaft D, the lever or levers C^1, having a cam slot or groove, and operating as set forth, to convert a rotary into a reciprocating motion.

7. In a machine for making or pressing bricks or other articles, a vertically-reciprocating receiving-table extending forward of the platen, and arranged and operated to be elevated to receive the contents of the molds, and to descend with each charge, substantially as set forth.

8. In a machine for making or pressing bricks or other articles, a table having a traveling-band on which the contents of the molds are received, said band having an intermittent forward motion in the direction of the length of the machine, substantially as described.

9. In a machine for making or pressing bricks or other articles, a receiving-table which rises and falls, as described, and is provided with a traveling band or apron having an intermittent forward motion in the direction of the length of the machine, substantially as described.

10. The combination of slides L L', hopper M^1, measuring-boxes m^2, and molds m^4, substantially as shown and described.

11. The combination of plungers K K, slides L L', measuring-boxes m^2, and molds m^4, arranged and operating substantially as shown and described.

12. In combination with the plungers K K and toggle K', the cam-levers C^1, pitman C^2, and crank-shaft D, substantially as shown and described.

13. In combination with the rock-shafts F G and cut-off slides L L', the pivoted levers S V and cams T U, arranged and operating substantially as shown and described.

14. In combination with the platen I and plungers K K, the shaft E, mounted in sliding or movable bearings, and connected with said platen and plungers, substantially as described, so as to move said parts simultaneously, to cause the bricks to be ejected from the molds, as set forth.

15. In combination with the sliding-shaft E, the loose collars e^3, rock-arms e^4, pivoted levers Q, and cams R, arranged and operated substantially as shown and described.

16. In combination with the vertically-moving table O, the levers Y, pivoted at *y*, and operated from the cams Y', substantially as shown and described.

17. In combination with the table O, having rollers o^2 o^4 for the reception of a traveling band, o^3, the levers W Z, pitmen z^1 z^2, crank p^3, ratchets *p* p^1, pawls p^2 p^4, and cam X, as set forth.

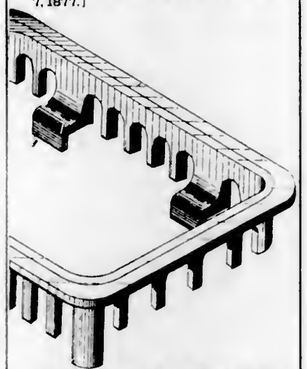
18. In combination with the wiper N, sustained on rods n^1, the levers W, standards or pitmen n^4, and cams X, substantially as shown and described.

19. Plungers K, recessed at k^4 to prevent clay which has worked over the tops of said plungers from being carried back into the molds, said recesses having open tops, as set forth.

20. A machine for making or pressing bricks or other articles, comprising the following instrumentalities: cut-off slides L L', measuring-boxes m^2 m^4, plungers K K, platen I, wiper N, and receiving-table O, said plungers being operated by toggles which open against a shaft, E, connected with said platen, and said table rising to receive the contents of the molds, and descending therewith, and having an endless apron moved intermittently forward, substantially as and for the purpose set forth.

21. The sliding diaphragm M, for varying the sizes or areas of the measuring-boxes, as set forth.

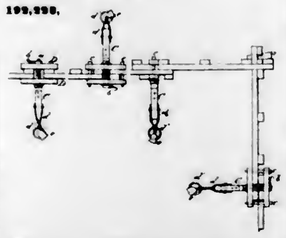
192,227. GRATE-EXTENSIONS FOR STOVES. Sarah C. Call, Boston, Mass. [Filed May 7, 1877.]



1. As a new article of manufacture, the protector for cooking-stoves and ranges, adapted, substantially in the manner specified, to be placed between the top of the fire-box and the removable top plate of the stove or range, to prevent the fuel from getting into the flues, substantially as described.

2. The combination, with the protector, of the leg *s* and lip *f*, to hold the protector up at one side and prevent it moving backward, substantially as described.

192,228.



192,229. PORTABLE FENCES. T. A. H. Cameron, Petra, Mo. [Filed June 14, 1877.]

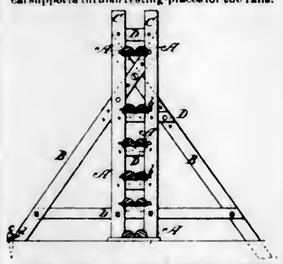
1. The brace C, provided with the pivoted strap *d* and ring d^2, through which the holding-down pin *a* passes for the purpose of securing its lower end, as and for the purpose specified.

2. The brace C, constructed as described, in combination with the fence-panels and clamping-pieces D, as and for the purpose set forth.

3. The clamping-pieces D, provided with guide-pins *c*, bolt *a*, and hand-nut *b*, in combination with the brace C, all constructed and operating as shown and described.

192,229. PORTABLE FENCES. T. A. H. Cameron, Petra, Mo. [Filed June 13, 1877.]

Brief.—The rails are notched near their ends. Transverse perforations are made near the notches to receive the pins by which the rails are connected. Cross pieces secured to vertical supports furnish resting-places for the rails.

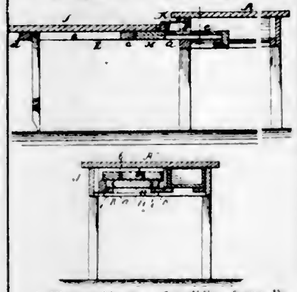


1. The rails A, provided with the notches *a* and perforations to receive the pins *b*, in combination with the vertical supports C and cross-pieces D, substantially as and for the purposes set forth.

2. The rails A, pins *b*, supports C, and cross-pieces D, in combination with the braces B, as and for the purpose specified.

3. The portable fence composed of the rails A having notches *a* near each end, pins *b*, vertical supports C, cross pieces D, braces B, wire loops *d*, and holding pins *e*, all constructed, combined, and arranged in the manner set forth.

192,230. IRONING-TABLES. G. Chellini, Washington, D. C. [Filed June 1, 1877.]



1. The combination of a sliding frame E, independently-sliding carrier H, and board J, with table A, or other suitable support, substantially as and for the purpose described.

2. The combination of the sliding frame E, independently-sliding carrier H, and reversible board J, having perforations at both ends for engaging with studs upon said carrier, substantially as described.

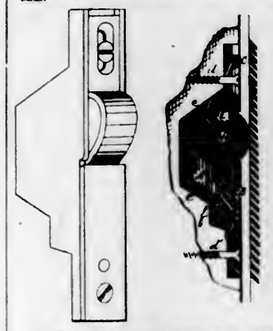
3. The combination of the sliding frame E, independently-sliding carrier H, and reversible board J, with table A, having the stop and catch K, substantially as and for the purpose described.

4. The combination of a sliding frame, E, independently-sliding board J, legs G, and catch K, with a table, A, substantially as described.

5. The sliding carrier H, having studs *b b*, in combination with the board J and its supporting frame and table A, substantially as described.

192,231. SASH-HOLDERS. Geo. W. Clark, Wheeling, W. Va., assignor of one-half his right to John Flading, same place. [Filed May 16, 1877.]

Brief.—A leather-faced rubber cam, preferably formed around a wood or metal core, is formed with a flat spring-piece extending from the side of cam, as an integral part of the same. This spring-piece fits in a recess in the end of the shell or case, and there is an adjustable slide-plate and set-screw for regulating the degree of contact or pressure of the cam.



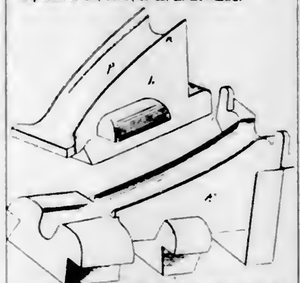
1. In a sash-holder, the leather-faced rubber cam E, having an elongation or spring-piece, *b*, and either with or without a metal or wooden core, H, substantially as herein shown, and for the purpose set forth.

2. In a sash-holder, the leather-faced india-rubber cam E, metallic case A, adjustable slide-plate C, and pivoted face-plate E, substantially as herein shown, and for the purpose set forth.

3. The combination, in a sash-holder, of case A *e*, cam E, spring-piece *b*, adjustable plate C, pivoted plate B, and set-screw *d*, all constructed and arranged substantially as described, for the purpose set forth and shown.

192,232. DIES FOR SHAPING SHOVEL-SOCKETS. Frederick M. Clemons, Seymour, assignor of two-thirds his right to Royal M. Bassett and Theodore S. Bassett, Birmingham, Conn. [Filed May 12, 1877.]

Brief.—Improvement on Patent No. 142,859, September 16, 1873, to H. L. Lowman.



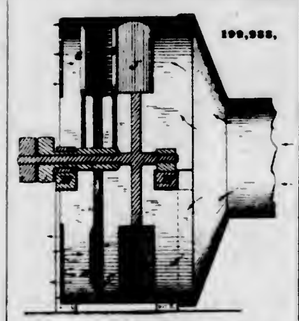
The herein-described dies for shaping sockets of shovels and similar implements, consisting of the two parts K L, their faces or division in a plane parallel to the plane of the implement, and each constructed with a cavity semi-cylindrical in transverse section, and longitudinally the shape of the socket to be produced, one of the parts provided with stops G, substantially as and for the purpose described.

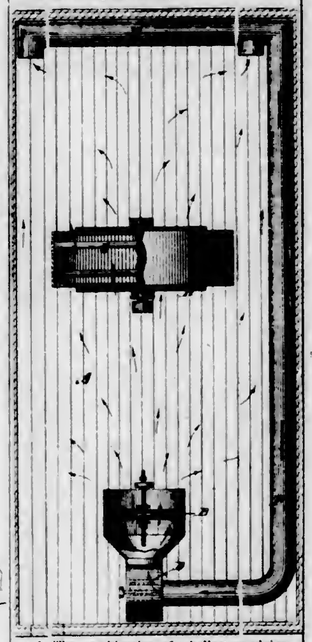
192,233. ICE AND REFRIGERATING MACHINES. Thomas Cook, Philadelphia, Pa. [Filed May 13, 1877.]

1. The combination of scrapers with a refrigerating surface, A, to prevent the accumulation of frost and snow thereon, substantially as described.

2. The combination of brushes with the refrigerating surface to sweep over the latter, substantially as described, for the purpose specified.

192,234. ICE AND REFRIGERATING MACHINES. Thomas Cook, Philadelphia, Pa. [Filed May 17, 1877.]





1. The combination of a hollow revolving refrigerating-wheel with a vessel of incongealable liquid for washing or wetting its surface, and a fan for blowing air against it, substantially as described.

2. The combination of a swinging tank of incongealable liquid with the refrigerating-wheel and the fan, substantially as described.

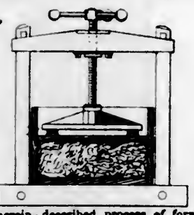
3. The combination of a refrigerating-wheel and wetting apparatus with two fans on opposite sides to blow the air in contrary directions against it, substantially as described.

4. The combination of the revolving refrigerating-wheel B and fan-wheel D blowing air through it, as described, with the closed chamber A and the air-pipe F extending from the suction-opening of the fan-box to the opposite end of the chamber A, substantially as described.

5. The combination, in a closed chamber, A, of the revolving air-refrigerating wheel B and the fan D with a revolving ice-wheel, G, and means for supplying water to be congealed thereon, substantially as described.

192,235. PLASTERING-HAIR BALES. R. S. Craig, Cincinnati, Ohio, assignor to J. A. Morris, same place. [Filed Feb. 14, 1877.]

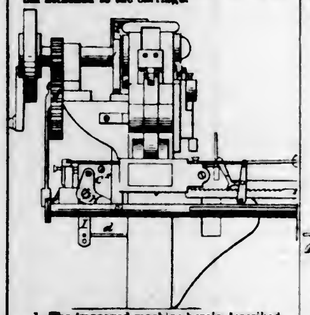
192,884.



The herein-described process of forming plasterers'-hair bales, substantially as specified—that is to say, first pressing the hair in a baling-box by means of a suitable press, then retaining the compressed hair in the baling-box until it sets, and then applying the wrapper.

192,886. HOUSEHOLD-MAIL MACHINES. R. M. Cummings, Nashua, N. H. [Filed May 29, 1877.]

Brief.—The blanks fall upon a bar projecting from beneath the griping-die, which sustains them while being griped and headed, and then recedes and discharges them from the machine. The plate-holders and operating devices are the same as those shown and described in Patent No. 190,011, granted to applicant April 24, 1877. The forward feed is effected by a pawl, which engages with a rack-bar attached to the carriage.

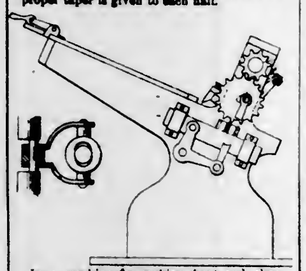


1. The improved machine herein described, constructed and operating in the manner and for the purpose set forth.

2. The combination of the reciprocating die-holder O', arm I, connecting-rod d, and lever J for operating the reciprocating bar O', and arranged to give said bar a longer stroke than the die C, substantially as herein set forth.

192,887. CUT-NAIL MACHINES. R. M. Cummings, Nashua, N. H. [Filed May 29, 1877.]

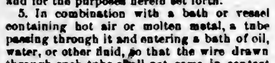
Brief.—The plate-holder is inclined and the plate fed to the cutters by gravity, aided by the weight of the clamp. The cutters are carried by a frame, which oscillates on a vertical pivot after each cut, in virtue of which the proper taper is given to each nail.



In a machine for making boot and shoe nails, the combination of an eccentric shaft, connected by a forked pitman with a swivel on a rocking lever-block, gear-wheels and pitmen connecting the eccentric shaft with a sliding bar, and an oscillating plate carrying the lever-block, and operated by the sliding bar, the oscillating plate and lever-block having the blades or cutters attached to them, substantially as and for the purposes herein set forth.

192,888. CIGAR-CASES. Wm. H. Denney, Philadelphia, Pa. [Filed Dec. 7, 1876.]

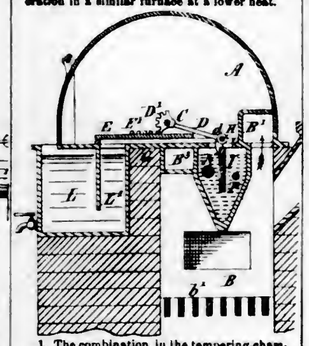
Brief.—The receptacle for cigars slides within an outer case, and in one end of the case is a match-receptacle having a sliding cover.



A cigar-case composed of the case *e*, which has the pouch *d* inserted in one end, and a match-box, *g*, having a cover, *i*, substantially as shown and described.

192,889. APPARATUS FOR TEMPERING AND CONVERTING IRON. Charles Dion, Chambly Basin, assignor of one-half his right to James Baylis, Montreal, Quebec, Canada. [Filed Sept. 22, 1876.]

Brief.—A plate to be hardened is made fast to a hinged plate, and dipped alternately in a hot and a cold bath, without being exposed to the outside air. Hot bath may be of lead or other molten metal, or of heated air only. Cold bath may be oil or water. When one bath is in use the other is closed automatically to prevent either affecting temperature of the other. Wire to be hardened is passed through tube in heating-bath without contact with its contents, and thence directly into oil or water bath, or against blast of air. To convert iron wire into steel, pass it guided through bath of molten iron. May repeat operation in a similar furnace at a lower heat.



1. The combination, in the tempering-chamber A, of the transverse shaft, operating, by means of projecting arms holding the rod, from which hangs the carrying-plate, to dip alternately into a hot-chamber and tank the article to be tempered, as herein set forth.

2. The combination, substantially as specified, of the tempering-furnace A, the shaft C, and the cover-plate E, reciprocated by means of pinions D' and rack C'.

3. The combination, with the tempering chamber A, of the tank L, having diaphragm L', and arranged substantially as and for the purposes set forth.

4. In combination with the furnace-chamber B and tempering-chamber A, the flues B^1, B^2, and B^3, and the heated chamber K, as and for the purposes herein set forth.

5. In combination with a bath or vessel containing hot air or molten metal, a tube passing through it and entering a bath of oil, water, or other fluid, so that the wire drawn through such tube shall not come in contact with the external air, as herein described.

6. The combination of the tube N and rod N^1 with groove N^2, as herein described.

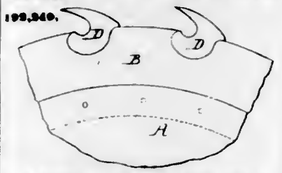
7. In an apparatus for tempering iron and steel, the combination, substantially as specified, of the tempering-bath, the pyrometer, and the damper controlling the draft of the furnace.

8. The combination, with a furnace-chamber and ash-pit, of upper and lower blast-flues, communicating, respectively, with them, and opened and closed automatically by the rise and fall of the temperature of the furnace.

192,890. CIRCULAR SAWS. Henry Disston, Philadelphia, Pa. [Filed Feb. 16, 1877.]

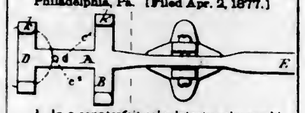
Brief.—The continuous ring for increasing the diameter of a circular saw is provided with insertible teeth. To prevent any distortion of the blade the teeth are inserted in the ring first, after which the ring is fitted to the central disk.

192,890.



A circular saw in which a central disk, A, ring B, and detachable teeth D are combined, substantially in the manner set forth.

192,941. COIN-DETECTORS. Patk. Doherty, Philadelphia, Pa. [Filed Apr. 2, 1877.]



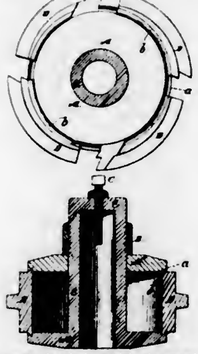
1. In a counterfeit-coin detector, the combination of the resisting-arm E, the arm A, the gage B for testing the diameter and thickness of the coin, and the adjusting-stop c^2, as herein described.

2. The combination of the arm E, the arm A, a gage for detecting the diameter of the coin, and stop c^1, for adjusting the instrument, as herein described.

3. The combination of the arms E A, the gages B and D, and the adjusting-stops c^1 c^2, as herein described.

192,949. CUTTER-HEADS. John Du Bois, Williamsport, Pa. [Filed Aug. 7, 1876.]

Brief.—A series of removable curved cutters having ribs upon their ends, and their outer surfaces curved in the arcs of circles eccentric to the ribs, are secured between two clamping-plates having annular concentric grooves in their inner faces.



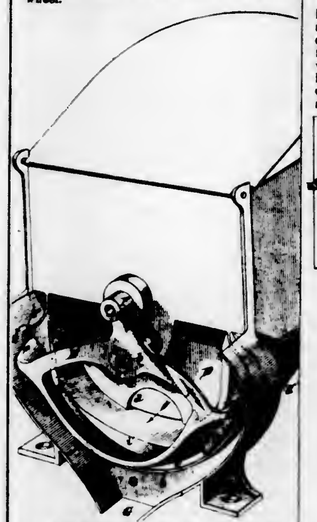
1. A cutter-head, in which the number of bits or cutters may be changed at will, consisting of two clamping-plates, A A', provided with annular-concentric grooves *a*, and thin curved bits or cutters D, having their ends provided with the ribs *b* to enter the grooves *a*, and their outer surfaces curved in the arcs of circles eccentric to the ribs, as shown and described.

2. In a cutter-head for wood-working purposes, the combination of two clamping-plates, A A', provided with annular concentric grooves *a* and thin bits or cutters D, constructed and arranged in the peculiar manner shown and described.

3. The combination of the plate A, provided with the annular V-shaped groove *a*, and the central neck having the exterior screw-thread, the plate A', provided with the annular groove *a*, the nut B, mounted on the central neck and turning loosely against the outside of the plate A', and the cutting plates or blades D, provided with the V-shaped rib *b*, seated in the grooves *a*, and having their outer surfaces curved in the arcs of circles eccentric to the axis of the plates A A', as shown.

192,942. DROPPING ATTACHMENTS TO CORN DRILLS OR PLANTERS. John H. Farmer, Richmond, Ind. [Filed May 5, 1877.]

Brief.—Centrally journaled is a curved feed-plate, having seed-cells near each end for the reception of a single kernel of corn, so that, as the plate is vibrated each way, seed will be carried up and discharged over the flange at each side into the chute. The hopper-bottom is inclined from front to rear, and is provided with a transverse partition having an opening, through which the seed passes to the feed-wheel.



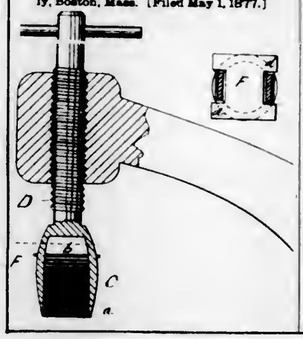
1. A corn-planter having a side plate, D, delivering grain from a hopper through a suitable opening, *s*, and a feed plate or wheel, E, having a vibratory movement, and adapted to deliver seed from a seed-cell or cells formed on its edge over elevated edges or edges *g* or *g'* in the case of the wheel or plate, substantially as and for the purpose specified.

2. The curved plate D and seed wheel or plate E, forming, when united, a throat for collection of seed, gradually contracted, as shown, to guide the seed into the mouth of the cell G', substantially as and for the purpose specified.

3. The seed-cell G', having its side *h* formed so as to flare inwardly in both directions, substantially in the manner and for the purpose specified.

4. The curved plate D and seed wheel or curved plate E, forming, when united, a throat for collection of seed, gradually contracted to guide the seed into the mouth of the seed-cell G', and also forming the seed-cell G' contracted downward, substantially as shown, and for the purpose specified.

192,944. OARS-CUTTERS. Timothy J. Feely, Boston, Mass. [Filed May 1, 1877.]

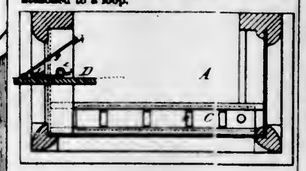


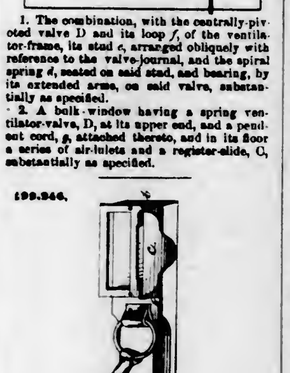
1. The cutter C, attached to the screw D, and adapted to rotate therewith while being forced through the material in order to give a circular and drawing cut, as and for the purposes specified.

2. In combination with a cutter, C, the plate F, arranged for operation substantially as and for the purpose specified.

192,945. VENTILATING BULK-WINDOWS. Matthew W. Ferguson and Jas. Ferguson, Philadelphia, Pa. [Filed Jan. 20, 1877.]

Brief.—The floor of the window has along its front portion a series of air-inlets, which are seated in a register-slideway having the openings to coincide with the said inlets. At the upper part of the window is located the ventilator-valve, which consists of a plate having central journals at its upper and lower ends, upon which it turns by means of a cord attached to a loop.





1. The combination, with the centrally-pivoted valve D and its loop *f*, of the ventilator-frame, its stud *c*, arranged obliquely with reference to the valve-journal, and the spiral spring *d*, seated on said stud, and bearing, by its extended arms, on said valve, substantially as specified.

2. A bulk-window having a spring ventilator-valve, D, at its upper end, and a pendent cord, *g*, attached thereto, and in its floor a series of air-inlets and a register-slide, C, substantially as specified.

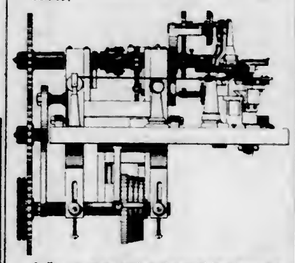
192,946.



192,946. SHAWL-STRAPS. W. P. Ferguson, Brooklyn, N. Y. [Filed Nov. 1, 1876.]

A shawl-strap, consisting of a handled bar in combination with a right-angled lever, *e e*, revolving in raised ears *b b*, and the longitudinal slot having the serrated side *c*, all constructed to operate substantially as hereinbefore set forth.

192,947. ENGRAVING-MACHINES. Charles H. Field, Providence, R. I. [Filed Mar. 23, 1877.]



1. In a rosette-engine, the combination, with a suitable graver-carriage and the vibrating and revolving work-spindle, of a revolving and vibrating pattern-block, substantially as described, whereby portions only of a plate may be machine-engraved, and portions thereof reserved with any desired outline for a plain finish or the introduction of other styles of engraving, as set forth.

2. The combination, with the work-spindle in a rosette-engine, of a vertical vibrating frame which supports the spindle, and a rosette-shaft is centrally pivoted and balanced, substantially as described, whereby the vibratory of the work-spindle is easily and smoothly effected, as set forth.

3. The combination, in a rosette-engine, of a vibrating frame centrally pivoted, a work-spindle mounted in said frame above the pivots, and a rosette shaft mounted in said frame below the pivots, substantially as described.

4. The combination, with a pivoted vibrating frame, of a rosette-shaft adjustably mounted in said frame, substantially as described, whereby said shaft may be located at any desired position with relation to the frame-pivots, and thereby increase or lessen the extent of the vibration of the frame, as set forth.

5. The combination, with a laterally-vibrating work-spindle and a spiral spring which forces said spindle in one direction, of a lever, which, when the frame is vibrated laterally, forces the spindle in the opposite direction, substantially as described, whereby both the longitudinal and lateral reciprocation of the work-spindle are effected simultaneously, as set forth.

6. In a rosette-engine, the combination, with a graver-carriage, a traversing screw, and a traversing block, of a slide in the traversing block which has a movement at right angles to the path of the screw, and to which the graver-carriage is connected by a vertical pivot, substantially as described, whereby the graver-carriage may be moved bodily with the slide in a line at right angles to the path of the traversing block, as set forth.

7. The combination, with the traversing block, its screw, the graver-carriage, and the slide in the block to which the carriage is attached, of the slotted lever and the friction-roller stud which occupies the slot in the lever, substantially as described, whereby, as the traversing block is moved to and fro on its screw, the slide and the carriage are moved bodily at right angles to the axis of the screw, as set forth.

8. The combination, with the traversing block, its slide, to which the graver-carriage is attached, and the slotted lever which is connected to the block and its slide, of a lever which is connected at one end to the traversing block, and carries at its opposite end a stud and roller occupying the slot in the lever which is connected with the slide, substantially as described, whereby the slide and the graver-carriage are moved easily and rapidly, as set forth.

192,948. LIFTING-JACKS. John U. Fiester, Winchester, Ohio. [Filed Apr. 7, 1877.]

1. The combination, with the axially-open bearing-post A, having the alternate side

steps *c* and passages *e* at the ends of the same, communicating with the axial opening, of the vertical adjustable fulcrum-rod C, having the bearing-toe *d*, and adapted to be adjusted from one step to another by half-turns, substantially as specified.

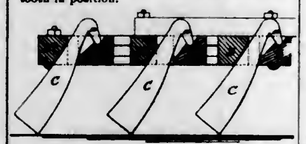
2. The link-hook attachment E, having at one end a hook or projection, *h*, and at the other a loop, *i*, the breadth of which is at right angles to said hook or projection, as specified.

192,246.



192,249. HARROWS. Samuel J. Franklin, Fair Mount, Ga. [Filed May 5, 1877.]

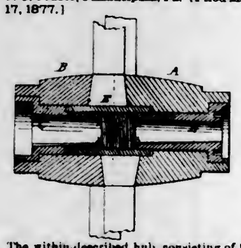
Brief.—The harrow is square and rigid. The teeth are made in the form of blades, with a hooked upper end, which blades fit into slits in each of the harrow-beams, between which they are secured, and deflect at an angle of about forty-five degrees. The hook and the slits together alone hold the tooth in position.



1. The harrow-tooth C, made in blade form and provided with a hook, *a*, at its upper end, substantially as and for the purpose described.

2. The harrow consisting of the teeth C, made in blade form, with a hook, *a*, at their upper ends, in combination with the sets of bars, slitted as described, to receive said teeth, substantially as and for the purpose set forth.

192,250. VEHICLE HUBS AND BOXES. Jas. J. C. Fraser, Philadelphia, Pa. [Filed May 17, 1877.]



The within-described hub, consisting of the mortised sectional wooden hub A B, the interior sectional box C D, and the screw-sleeve E connecting the sections C D and forming the oil-chamber *x*, all constructed substantially as and for the purposes herein set forth.

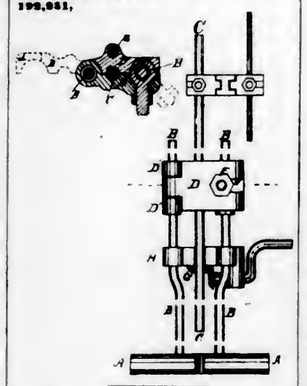
192,251. PUMP-ROD ADJUSTERS. Hiram Freeman, Parker's Landing, assignor to Jarecki Manufacturing Company, Erie, Pa. [Filed Apr. 23, 1877.]

1. The combination, with the journal-arms A A and uprights B B, of the hinged clamp D D', substantially as and for the purposes mentioned.

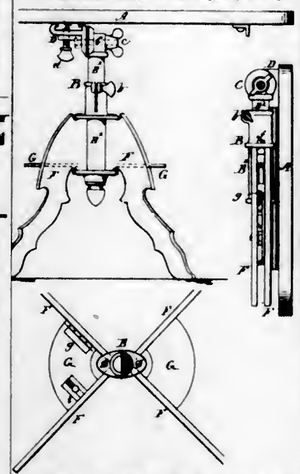
2. The combination, with the journal-arms A A and uprights B B, of the clamp D, D', arranged to slide upon the said uprights, as and for the purposes mentioned.

3. In combination with the pump-rod C and a clamping device for holding the same, the adjusting mechanism G G', or its equivalent, for adjusting said rod up and down, for the purposes mentioned.

192,321.



192,252. FOLDING-TABLES. Geo. W. Gates, Worcester, Mass. [Filed Apr. 3, 1876.]



1. In combination with the table-top A, an adjustable rotating supporting-column, provided with hinged feet or legs, and having a laterally movable and adjustable connection with the table-top and a hinged head or adjusting-joint device, C, whereby the column, legs, and top can be folded or closed together, substantially in the manner described.

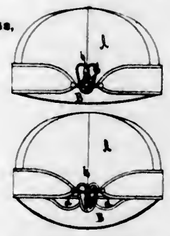
2. The combination, with the standard B and hinged legs F, of the hinged segments G, substantially as and for the purpose set forth.

3. In combination, substantially as described, the standard B' B', hinged legs F, segments G, adjusting-head C, slide D, plate E, table-top A, spring H, and clamp devices *b c d*, for the purposes set forth.

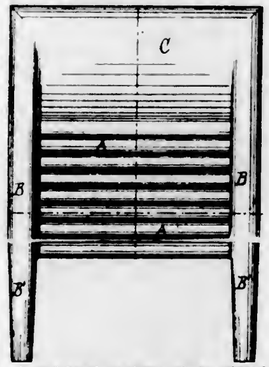
192,253. CAPS. Leonhard Girbardt, New York, N. Y., assignor to Adolph Schwarz and Brother, same place. [Filed May 23, 1877.]

The combination, with the crown A and front B, hinged to said crown, of the vertically-arranged slide C, constructed with the slit *a*, and adapted to engage buttons *b c* for holding the hinged front up or down, substantially as and for the purpose described.

192,322.



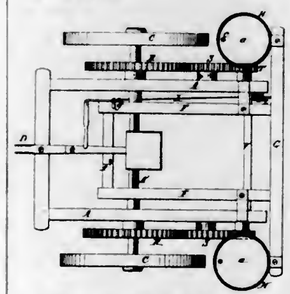
192,254. WASH-BOARDS. John Graves, New York, assignor to himself and Henry W. Shepard, Brooklyn, N. Y. [Filed Apr. 11, 1877.]



A wash-board consisting of the crimped body, the top C, and the side pieces B B, all stamped from a single piece of sheet metal, as and for the purpose specified.

192,255. CORN-PLANTERS. Jas. B. Greene, Coatesville, Ind., assignor of one-half his right to Nelson Greene, same place. [Filed Mar. 16, 1877.]

Brief.—The seed-hopper and opener are mounted on an angle-arm that is secured to the supplemental frame. Motion is imparted to the seed-disk through the medium of a bevel gear secured to the bottom, and engaging with bevel-wheel secured to a cog-wheel, which forms one of a series that receives motion from the axle.



1. The supplemental frame F hung upon the axle A', the hoppers H, their dropping disks *a*, pinions *e*, and drill-tubes I arranged at the outer ends of said frame-bar G, in combination with the draft-frame A, having the operating-gearing R S T U arranged outside of both frames, and between the outside frame and the hoppers and their dropping devices, as and for the purpose described.

2. The seed-dropping devices arranged upon the outer rear corners of the supplemental frame F, outside of the operating-gearing, and in rear of and in line with the supporting roller-wheels, said supplemental frame being

adapted to be raised and lowered upon the axle to put its planting devices in or out of gear without regard to the operating-gearing, substantially as herein set forth.

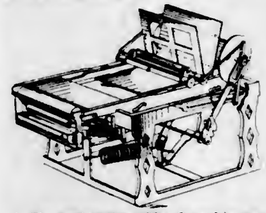
3. The angle-irons J combined with the supplemental frame F, the dropper-disks *a*, the drill-tubes I, and the operating-gearing, as described, and serving as the supports for the dropper-disks, their ring-plate bearings *d*, bevel-pinions *e*, and drill-tubes I, substantially as herein set forth.

4. The combination, with the revolving disk-dropper *a* and its attached bevel-pinion *e*, of the ring-plate bearing *d* and the drill-tube I, as and for the purpose stated.

5. The supplemental frame F, hung upon the axle so as to extend in front thereof, as described, in combination with the operating-gearing for the dropper-disks and the tongue D of the machine, whereby the weight of the rear portion of the supplemental frame is relieved from the short axles of the operating-gear of the draft-frame, as described.

192,256. PRINTING-PRESSES. William A. Harp, Covington, Ga., assignor of one-half his right to Enoch Steadman, same place. [Filed Nov. 2, 1876.]

Brief.—The flat bed is stationary. At its side are ways, over which the impression-cylinder is rolled by slotted arms rocked by a treadle. The ways are lifted and lowered on arms of shafts rocked by the engagement of flanges on the cylinder with crank-arms on the shafts. Swinging levers, fulcrumed on the cylinder-shaft, are linked to the inking-roller carriage, and their free ends engage guides on the sides of the frame.



1. The combination, with a flanged impression-roller and a type-bed, of a roller-track mounted on levers, connected with rock-shafts which are provided with arms or levers at their ends, lying in the path of the roller flanges, substantially as and for the purposes specified.

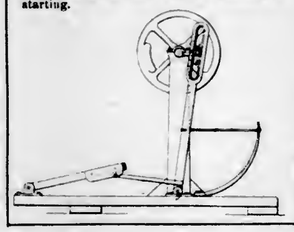
2. The combination, with the flanged roller, type-bed, vertically-moving track, its rock-shafts and levers, of vertically-adjustable studs or stops beneath the track, substantially as and for the purposes specified.

3. The combination, with a weighted or spring treadle and an impression-roller, of a rock-shaft and slotted levers, connected with the treadle and roller, substantially as and for the purposes specified.

4. The combination, with an impression-roller which moves over a stationary type-bed, and an inking-roller frame or carriage, of levers pivoted on the axis of the roller, links connecting the upper ends of said levers and the carriage, and parallel guiding-rods which control the lower ends of the levers, substantially as and for the purposes specified.

192,257. TREADLE MECHANISM FOR OPERATING MACHINERY. William A. Harp, Covington, Ga., assignor of one-half his right to Enoch Steadman, same place. [Filed Nov. 2, 1876.]

Brief.—The treadle oscillates a lever which has a slot, in which the crank-pin works. A spring leaves the lever in proper position for starting.



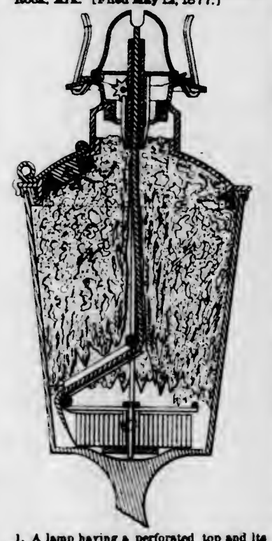
The combination, with a treadle, crank, and slotted lever, of a counterweight or spring, substantially as and for the purposes specified.

192,258. PENCIL-SHARPENERS. Peter R. Hansbury, Philadelphia, Pa. [Filed Apr. 21, 1877.]



The combination, with a slate-frame, having an angular notch formed therein, of the inclined file-plates *a a'* and the spaced parallel bars extending across the said notch, substantially as specified.

192,259. LAMPS. Beall Hempstead, Little Rock, Ark. [Filed May 12, 1877.]

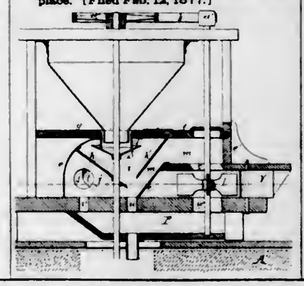


1. A lamp having a perforated top and its body partly or wholly filled with an absorbent material, and the wick passing through the absorbent material, substantially as specified.

2. The combination, with a lamp filled with absorbent material, of an inside reel, arranged at or near the bottom of the same, and a wick coiled around said reel and extending through the absorbent to the burner, substantially as specified.

3. The combination, with a lamp filled with an absorbent material and a screw cap, of the rods *e*, projecting downward into the said material, substantially as and for the purpose specified.

192,260. GRAIN-SEPARATORS. Justus J. Hendrickson, Bridgeport, Pa., assignor of one-half his right to John Kinzie, same place. [Filed Feb. 12, 1877.]

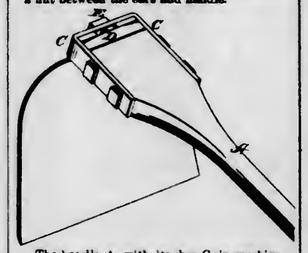


1. The combination of the grain-delivery chamber *i*, air-chamber *j*, fan I, and passages *m* and P, arranged substantially as described, so that the stream of grain in its passage from the chamber *h* to the stones is subjected to the action of two moving columns of air, as set forth.

2. The combination of the discharge-passage of the fan with the loosely-hinged valve V, as specified.

192,261. TOOL-HANDLES. John L. Hudson, Cumming, Ga. [Filed Apr. 12, 1877.]

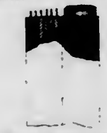
Brief.—The blade is provided with two ears, which are placed in a strap upon the handle, and the tool is secured in position by a set-screw passing through the strap and ears into a nut between the ears and handle.



The handle A, with its bar C, in combination with the implement provided with ears or equivalent, and the nut D and screw E, as and for the purpose specified.

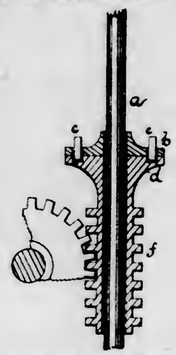
192,262. CORDED-EDGE BRAID. Friedrich W. Huppelsburg, Brooklyn, N. Y. [Filed Mar. 24, 1877.]

Brief.—The flat braid serves as a means of attaching the plaited cord wherever the latter is to be applied.



A braid combined with a plaited cord upon one edge, in one and the same piece, substantially as and for the purpose set forth.

192,263. WINDLASSES. Thomas W. Hyde, Bath, Me. [Filed May 4, 1877.]

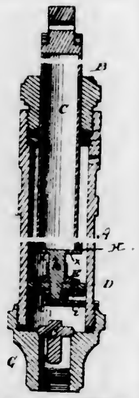


The combination of the screw *f*, which is loose on the shaft *a* and has the ratchet-plate *d*, with the pawl-disk *b*, pawls *c*, and the cap-stan *h*, operating as herein described.

192,264. PUMPS. Evan Jones, Ottumwa, Iowa. [Filed May 17, 1877.]

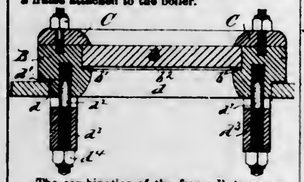
The combination of the tube A with packing-box B and valve G', the hollow removable plunger C, the cap H, with openings *x* and projecting rod A, the piston D, with openings *i*, and sliding valve E, substantially as and for the purposes herein set forth.

192,264.



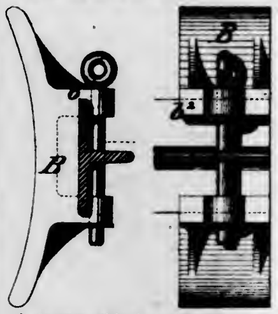
192,264. STEAM-BOILER ATTACHMENTS. Simon Kemper, Hermann, Mo. [Filed May 2, 1877.]

Brief.—To enable the operator to see inside the boiler, a transparent medium is secured in a frame attached to the boiler.



The combination of the frame B, transparent media *b*, packing *b*² *d*³, ring C, arches *d*², and fastening-bolts, all said parts being constructed and arranged as and for the purpose set forth.

192,266. BRAKE BEAMS AND SHOES. F. J. Kimball, Philadelphia, Pa., assignor to Empire Transportation Company, same place. [Filed Apr. 9, 1877.]



1. As a new article of manufacture, a rolled-metal brake-beam for railroad-cars, the said beam having a flange or flanges standing from the body thereof in the direction of the strain to which the beam is subjected, substantially as herein specified.

2. A brake-shoe having an inner bearing-face and upper and lower flanges, one or both of which are provided with a projecting lip for direct attachment to the brake-beam, and which are also perforated for the entrance of a connecting pin, substantially as set forth.

3. The combination of a rolled-metal brake-beam, constructed as described, and a brake-shoe, attached directly thereto by upper and lower flanges, and a connecting-pin, passing through one or more of the flanges of the beam, substantially as set forth.

192,267. CARRIAGE-CURTAIN FASTENERS. James S. Kudar, Tiffin, Ohio. [Filed July 22, 1876.]

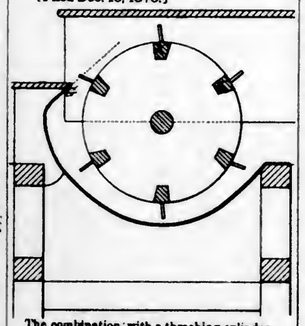
192,267.



1. The rubber button, provided with corrugations of spiral form, and recesses of sufficient width to allow the ribs to lie down therein, constructed as described, and for the purpose set forth.

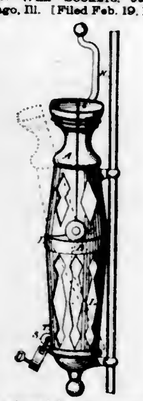
2. The rubber button, having spiral corrugations, substantially as described, in combination with the screw or rivet, as specified.

192,268. THRASHING-MACHINES. Henry Kurtz and Ephraim Kurtz, Richmond, Pa. [Filed Dec. 16, 1876.]



The combination, with a thrashing-cylinder, of the curved deflector *z*, extending across the front of the machine, and having its marginal portion formed into a guide-lip, G, directed rearwardly and obliquely into the thrashing-throat, a little off from the surface of the cylinder and within the sweep of the teeth, substantially as specified.

192,269. WHIP-SOCKETS. James Lowth, Chicago, Ill. [Filed Feb. 19, 1877.]

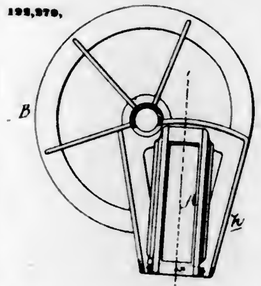


1. The pivoted jaw or throat-piece A, having the rigid extension L, provided with the perforated lug S, the front I having the slot T, and the fixed part of the socket, all combined and constructed as shown and described, whereby the said jaw may be secured by a padlock in the manner specified.

2. The body or fixed portion of the socket, having the slot M, the hinged jaw A, and its rigid extension L, all as shown and described.

192,270. MILLSTONE-DRESSING MACHINES. Thomas McFeely, Marion, Ind., assignor to S. E. Griscom, Pottsville, Pa. [Filed Mar. 21, 1877.]

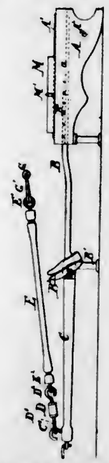
192,270.



1. The combination of the bed-plate B, provided with a projection, *h*, and adapted to the surface of the stone, as described, with the guide-base A, connected to the said projection, all substantially as set forth.

2. The combination of the bed-plate of a millstone-dressing machine with the base-plate A, adapted to be both tilted vertically and adjusted horizontally on said bed-plate, substantially as described.

192,271. EXERCISING-MACHINES. John McLaughlin, New York, N. Y. [Filed May 23, 1877.]



1. The frame A, sliding seat M, foot-rest B², adjusting means B³, and attaching means C' on the frame, or an extension thereof, adapted to serve in combination with the stretchers E and suitable handles thereto, as herein specified.

2. The crener D and attaching means D¹ D², in combination with the sliding seat M, a suitable strong supporting-frame, and the stretchers E, substantially as herein specified.

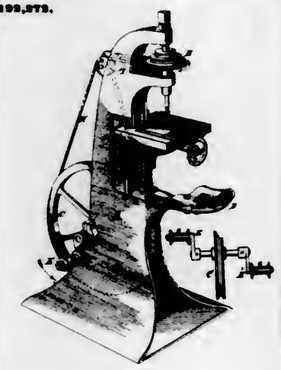
3. In combination with the stretchers E E, with a hook on each, as shown, the sliding seat M, having eyes M', adapted to serve the double functions of a seat in the rowing apparatus and a base or platform in the health-lift, as herein specified.

4. The spring-handles G G', adapted to be strongly and reliably engaged and easily disengaged, in combination with the elastic stretchers E and with the sliding seat M and frame A, to allow of readily changing at will, as herein specified.

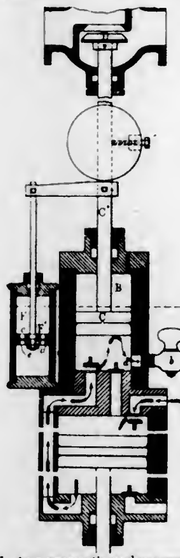
192,272. FOOT-POWERS. Frank Millward, Cincinnati, Ohio. [Filed May 15, 1876.]

The combination of the stationary frame A, carrying a seat, D, projected therefrom, the driving-pulley C mounted in said frame, and provided on each side with opposite foot-cranks E E', the belt H, and the pulley B of the machine to be driven, substantially as and for the purpose specified.

192,273.



192,273. STEAM-ENGINE GOVERNORS. N. B. Nash, Westerly, R. I. [Filed Nov. 20, 1876.]



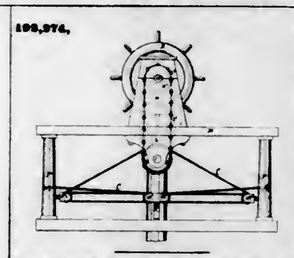
1. As a pneumatic engine-governor, an air-pump and communicating air-cylinder, combined with a supplemental cylinder, the piston of which has a movement common with that of the air-cylinder piston, and operates in a fluid for preventing the too sensitive action of the governor-valve, substantially as herein set forth.

2. In a steam-engine governor, the cylinder B, piston C, and piston-rod C', in combination with the supplemental or regulating cylinder F, the said cylinder F being provided with a piston having perforations therein, the effective sizes of which are variable, the said piston being operated through the medium of suitable mechanism from the piston-rod C', substantially as and for the purpose specified.

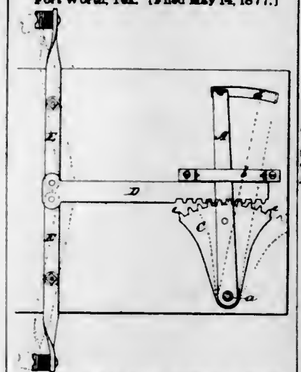
192,274. STEERING APPARATUS. Wm. H. Nelson, Salem, Mass. [Filed May 11, 1877.]

In a steering apparatus for ships, the combination of shaft *a*¹, carrying wheel A and chain-pulley *a*², together with housing *a* on the upper deck M, with the tiller T, having blocks *c c'* and *d d'*, the posts P P', with blocks *e e'* and *d² d²*, respectively, and the cable C, together with the suspended drum B below said deck M, as described, and for the purpose specified.

192,274.

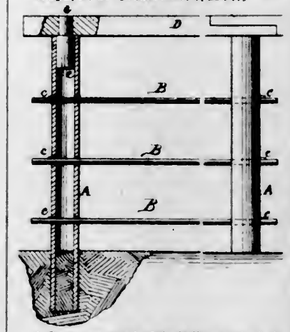


192,275. WAGON-BRAKES. J. M. O'Neall, Fort Worth, Tex. [Filed May 14, 1877.]



The foot-lever A, having an upwardly-curved end, *c*, the toothed sector C, the guide *b*, the sliding rack-bar D, and the pivoted brake-levers E, attached to the under side of a buggy or wagon body, having the slot *d*, all combined, substantially as shown and described, to operate as specified.

192,276. FENCES. John W. Paisley, Randolph, N. Y. [Filed Mar. 7, 1877.]



A fence composed of the hollow posts A A, the rails B B, the wedges *c c*, and the top rail D, with its pins *a a*, all constructed substantially as and for the purpose specified.

192,277. PROCESSES AND APPARATUS FOR MANUFACTURING PAPER LINT OR FELT. Joseph Parker and Joseph H. Greenleaf, New Haven, Conn.; said Greenleaf assignor to said Parker. [Filed June 13, 1877.]

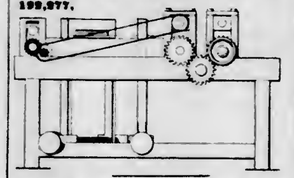
1. The process herein described for the manufacture of paper felt or lint, consisting in subjecting the paper to a breaking or rubbing and breaking process wherein the whole body is softened, substantially as described.

2. In a machine for the manufacture of paper felt or lint, the combination of fluted rolls and vertically-reciprocating breakers, substantially as described.

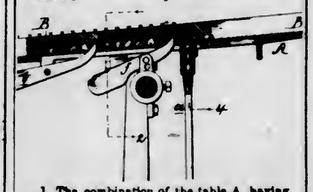
3. In a machine for the manufacture of paper felt or lint, the combination of fluted rolls and reciprocating brakes with feeding mechanism to draw the material through the rubbing and breaking devices, substantially as described.

4. In a machine for the manufacture of paper felt or lint, the combination of reciprocating brakes with the feeding mechanism to draw the material through said rubbers, substantially as described.

192,277.



192,278. FEEDING MECHANISMS FOR NAILING-MACHINES. Geo. H. Perkins and John Bosorth, Philadelphia, Pa. [Filed May 7, 1877.]



1. The combination of the table A, having openings communicating with the nail-holders of a box-nailing machine, with movable nail-carrying plates or strips B, substantially as specified.

2. The table A, having a central recess, *b*, a ledge, *w*, on either or both sides of the same, adapted to receive the movable plates, and means, substantially as described, for reciprocating said plates.

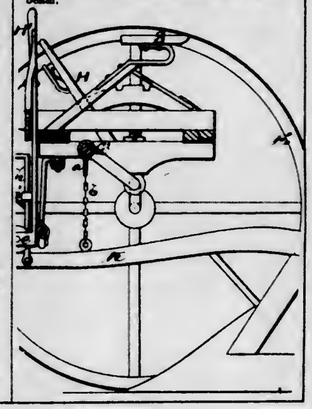
3. The plates B, each provided at one end with a latch, *s*, and at the other end with a pin, *e*, as specified.

4. The combination of the plates B and their racks *s* with the rock-shaft *g*, carrying a pawl, *f*, and governed in its forward movement by a spring, as specified.

5. The combination of the rock-shaft *g*, its collar *m*, and plate *b*, with lug *a*, with the loose lever E and spring *h*.

192,279. SULKY-PLOWS. John R. Porter, Cherokee Station, Kans. [Filed May 12, 1877.]

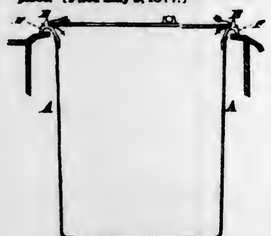
Brief.—The axle has a central crank, to which a lifting-chain from the plow-beam is attached, and a second crank for the furrow-wheel. A lever, rigid upon the axle, raises the plow-beam and adjusts the wheel at the same time. A laterally-acting lever adjusts the level of the plow. A rod yoked to the plow-beam slides vertically in guides upon the lever, and permits free movement of the plow-beam.



1. In a sulky-plow, the axle forming the straight arm G, crank-arm G^1, and center crank G^2, in combination with the wheels E, arm a with chain b connecting with the plow-beam, and the lever H, whereby the plow is raised or lowered and the wheels adjusted with one operation of the same lever, as set forth.

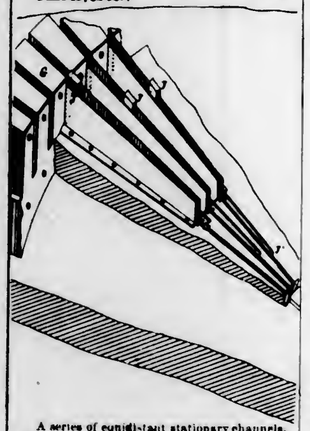
2. The combination of the pivoted lever H^1 with guide i, the sliding rod k, forked at its lower end, and the plow-beam K, substantially as and for the purpose described.

192,920. RESERVOIRS FOR STOVES AND RANGES. Albert J. Redway, Cincinnati, Ohio, assignor to Redway & Burton, same place. [Filed May 5, 1877.]



A reservoir for cooking-stoves, provided at the rim with an elevated ridge, E, and a pendent ridge, F, substantially as and for the purposes specified.

192,921. TYPE-DISTRIBUTING MACHINES. Dexter Reynolds, Albany, N. Y. [Filed June 19, 1876.]



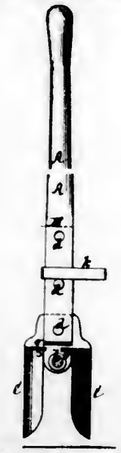
A series of equidistant stationary channels, in combination with a series of equidistant coincident channels, provided with a ratchet, E, actuated by a pawl, F, or their mechanical equivalents, to give them an intermittent movement, so as to cause them to become serially and respectively coincident with the others, each of the channels of the series into which the types are to be distributed being provided with fixed pins, and each of the channels in the other series into which the types are to be placed for distribution constructed for and provided with pushers J, having a movement equal to the length of a line of types in any ordinary column or page, and actuated by a weight, K, attached to a cord, L, or their mechanical equivalents, substantially as described.

192,922. TREE AND POST HOLE DIGGERS. William H. Rhodes, Elyria, Ohio. [Filed Oct. 26, 1876.]

Brief.—A pair of coupling-irons hinged together at their lower extremity, having arms, to which a pair of handles are riveted, and a projecting rim, forming a seat for the curved blades.

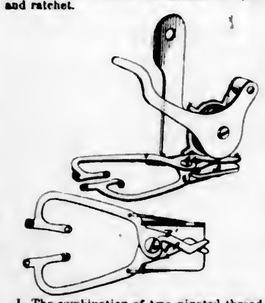
The metal foot-pieces B, to which the half-handles A A are attached, and by which they are jivoted or jointed at b, constructed with curbs f, to which the blades U C are attached, said curbs being mounted by an overhanging top or flange, g, all combined substantially as specified.

192,923.



192,924. EMBROIDERING ATTACHMENTS FOR SEWING-MACHINES. T. M. Rice, Kalamazoo, Mich., assignor to The Davis Sewing Machine Company, Watertown, N. Y. [Filed May 2, 1877.]

Brief.—The attachment consists of two pivoted thread-crossing arms, having cam-shaped ends, and operated by fingers arranged radially on the periphery of a disk, actuated by the needle-bar through the medium of a pawl and ratchet.



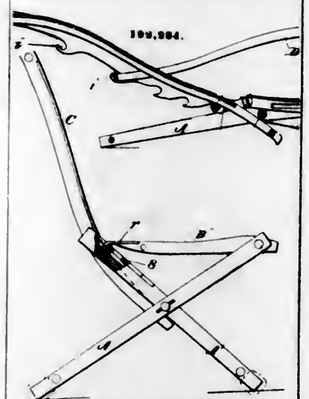
1. The combination of two pivoted thread-carrying arms, formed at one end with cam or inclined surfaces, substantially as described, and intermittently-moving fingers, each of which in turn enters between and spreads apart these cam-like or inclined ends of the arms, substantially as and for the purposes set forth.

2. In an embroidery attachment for sewing-machines, the combination, substantially as set forth, of two horizontally-vibratory thread-carrying arms, with intermittently-moving fingers, each of which in turn enters between and spreads apart the cam or inclined ends of the arms, and a spring or springs by which said arms are returned to their normal position when disengaged from said fingers.

3. The two horizontally-vibratory thread-carrying arms and their spring or springs, in combination with the intermittently-moving fingers and the ratchet, spring-pawl, and lever for actuating said fingers, substantially as set forth.

4. The embroidery attachment for sewing-machines, consisting of the two thread-carrying arms and their spring or springs, the intermittently-moving fingers, the ratchet, pawl, and lever, all mounted on and carried by a frame adapted to be attached to the sewing-machine, and combined and arranged for joint operation, as shown and described.

192,924. FOLDING CHAIRS. J. Richardson, New York, N. Y. [Filed May 26, 1877.]



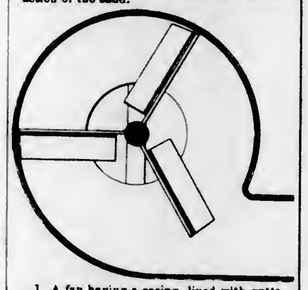
1. A folding chair consisting of the pivoted cross-legs A and A', with the seat B pivoted to the legs at its front edge, and provided at its rear edge with the hooks r, arranged to engage with the plates s, or the equivalent adjusting devices shown in Fig. 1, all constructed and arranged to operate as set forth.

2. In combination with the folding legs and seat, arranged as described, the hinged arms D, connected by the cross-rod n, arranged to engage in the notches or hooks i upon the back, substantially as shown and described.

3. The combination of the pivoted legs A and A', hinged adjustable seat B, and the sliding leg-rest g, all constructed and arranged to operate substantially as set forth, whereby the chair can be converted into a couch, and also be folded up at will, as herein described.

192,925. EXHAUST AND BLOWING FANS. F. Rohrbacher and F. Hormann, Philadelphia, Pa. [Filed May 26, 1877.]

Brief.—The fan-casing is lined with gutta-percha or other yielding material, and the front surface of the blades is covered with the same material, as a protection against the wearing action of the sand.



1. A fan having a casing lined with gutta-percha, leather, or other yielding material capable of resisting the abrasive action of sand impelled against the said casing by the action of the blades or paddles of the fans, as set forth.

2. The combination, with the fan blades or paddles, of gutta-percha or other equivalent yielding material secured to the front of the said blades, all as set forth.

192,926. OVERSHOT WATER-WHEELS. S. L. Rose, Rose Grove, Iowa. [Filed June 12, 1877.]

1. The bucket D, having back d lower than ends and front, and false back b, by which water flowing over the back a will be guided and conducted by false back b into the bucket below, substantially as described and set forth.

2. The rods f f for connecting the links, or heads of buckets as links, in the endless chain of buckets, having projecting ends engaging with the notches upon pulley A for propelling said pulley, substantially as described, and for the purposes set forth.

3. The buckets having the eyes m projecting back from the top and bottom of the heads of the buckets, in combination with the rods f f, passing through said eyes to form the chain, substantially as described, and for the purposes set forth.

4. The tail-race chute H, curved and inclined, as shown, closely confining the water to the lower end of the chain of buckets during its passage around the lower pulley C, substantially as described, and for the purposes set forth.

5. Articulating-arms B, to accommodate the irregular and varied motions of pulley C, substantially as described, and for the purposes set forth.

6. The small pulley C, in combination with and secured to vibrating arms, by which the endless chain of buckets is held vertical and steady to and in the tail-race chute, and emptying-buckets suddenly reversed, as described, and for the purposes set forth.

7. The chamfered pulley C, in combination with chamfered pulley A, constructed as described, by means of which the endless chain of buckets is guided and inclined to its proper position upon those pulleys, as described, and for the purposes set forth.

8. In combination with the chain of buckets, the pulley A, wheels E and F, and pinion X, all so arranged by reason of the greater weight of the power side of the chain that the friction is principally transferred to pinion X, substantially as shown, and for the purposes set forth.

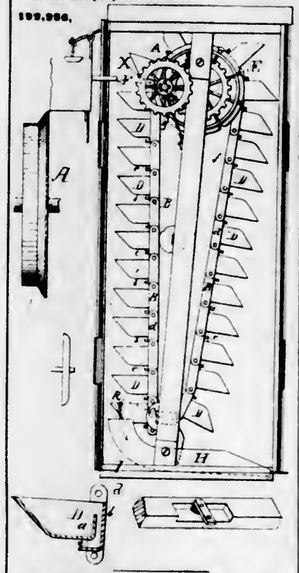
9. In combination with the chain of buckets, two or more power-transmitting pulleys, A, with their trains of gearing, as shown, whereby the power may be taken from different points of the height of the chain without the use of vertical shafting, substantially as described, and for the purposes set forth.

10. The combination, with the flume, the gate opening downwardly, and having the discharge spout attached to its upper part, whereby the water is taken from its highest elevation, substantially as described, and for the purposes set forth.

11. The application and use of the endless chain of buckets as a current-wheel, as described, and for the purposes set forth.

12. The wheel composed of the chain of buckets, constructed as described, having but a single bearing upon the power-transmitting shaft passing through the wall of the building, said shaft having an interior bearing within the building, as shown and described, and for the purposes set forth.

192,926.



192,927. PORTABLE FENCES. J. T. Roundtree, Martinsville, Mo., assignor of two-thirds his right to J. L. Roundtree and W. W. Jeanes, same place. [Filed Apr. 14, 1877.]

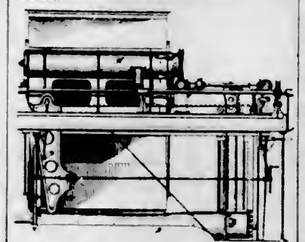


1. In a portable fence, the combination, with the panel A, composed of spaced rails B and uprights C C', of the panel A^1, having extensions a on one end, and an upright, C, and the latch-bar D, pivoted to the lowest extension of the panel, and adapted to be thrown up into a vertical position across the remaining extensions, and to be secured thereto by a pin, substantially as specified.

2. The combination, with the panel A, constructed as described, a panel, A^1, having extensions a beyond its end upright C, and a pivoted lock-bar, D, coupling the said panels, of a pin, d, extending through a rail, B, of panel A, between the upright C' of panel A^1 and the said lock-bar D, substantially as specified.

192,928. RETORT CHARGING AND DISCHARGING APPARATUS. Thomas F. Rowland, Brooklyn, N. Y. [Filed Apr. 13, 1877.]

Brief.—Coal is discharged from a revolving meter, through an adjustable telescopic chute, into the retort-charging scoop having a removable bottom. After the scoop has been projected into the retort the charge of coal is deposited by the withdrawal of its bottom. The coke is removed by a rake. The carriage of the rake and charger run upon wheels, and are traversed upon their rails by endless chains and suitable gearing. An air-engine, placed upon the frame supporting the different machines, traverses the frame on rails in front of the retorts, and operates the different machines.



1. The combination of a revolving meter, M, and a coal-charging apparatus or scoop, D, upon one frame, with intermediate power mechanism whereby each may be operated independently of the other, substantially as described.

2. The combination of a revolving meter, M, a coal-charging apparatus, D, and a coal-discharging apparatus, A, carried upon the same frame, and adapted to be brought opposite the retort to be discharged, substantially as described.

3. The combination of a meter, a coal-charging apparatus, having a removable bottom, and a coal-discharging apparatus, and an engine carried upon the same frame and adapted to be brought opposite the retort to be discharged, substantially as described.

4. The combination of an engine, a coal-measuring, a coal-charging, and coal-discharging apparatus, and a frame carrying them, with apparatus whereby the power of the engine is utilized either in moving the entire apparatus upon supporting-rails into a position to charge or discharge retorts, or in operating the meter, the charging apparatus or the discharging apparatus, or either of them, without interfering with the operation of the others, substantially as described.

192,929. GAS-RETORT CHARGERS. Thomas H. Rowland, Brooklyn, N. Y. [Filed Jan. 29, 1877.]

1. The combination of a scoop, having a removable bottom, with a screw-elevator, whereby the elevation of the scoop is altered to correspond with that of the retort to be charged, substantially as described.

2. The combination of a scoop, having a removable bottom, with apparatus, substantially as described, whereby the bottom is automatically withdrawn when the scoop is in position to deposit the coal in the retort.

3. The combination of a scoop, having a removable bottom, with apparatus for withdrawing the bottom and a stop or tripping device, which throws the bottom-withdrawing mechanism into operation at the right position of the scoop, substantially as described.

4. The combination of a scoop, having a removable bottom, with apparatus for withdrawing the bottom and a latch or locking apparatus which prevents the operation of the bottom-withdrawing apparatus until the latch is tripped, substantially as described.

5. The combination of a scoop, having a removable bottom, with apparatus for causing the withdrawal of said bottom and a lug or equivalent device connected with the bottom and acting at the proper time upon the bottom-withdrawing mechanism to prevent the further removal of the bottom, substantially as described.

6. The combination of a scoop, having a removable bottom, with a bottom-supporting guide or guides and a supporting locking apparatus for the purpose of sustaining the end of said guide, substantially as described.

7. The combination of a scoop-bottom supporting-guide with a locking apparatus, substantially as described, whereby the withdrawn bottom is supported at different elevations, substantially as described.

8. The combination of a scoop, having a bottom-withdrawing mechanism, with a locking apparatus which supports the bottom when in its withdrawn position, and is freed by the return of the scoop, substantially as described.

9. A scoop having a removable bottom and a bottom-supporting guide and locking apparatus, whereby the withdrawn bottom is supported at different elevations, in combination with mechanism whereby the scoop-bottom and guides are elevated or depressed when the scoop is in its withdrawn position, substantially as described.

10. The combination of a scoop, having a removable bottom, with a supporting traveling frame, which carries said scoop, and is itself supported upon two sets of runners or rollers, one set of which travels upon the upper surface of a rail, while the other set travels upon the under surface of a rail, substantially as described.

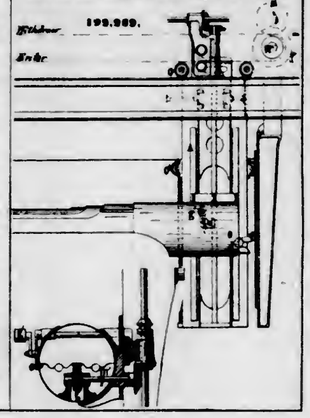
11. The combination of scoop-supporting frame with spring-buffers, whereby the forward and backward movement of the frame is limited, substantially as described.

12. The combination of a scoop and its bottom supporting mechanism with a roughened surface, A, substantially as described.

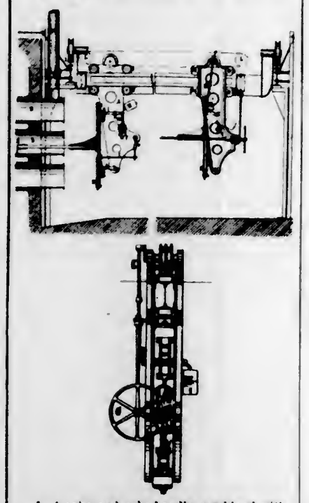
13. A scoop and removable scoop-bottom combined with mechanism, substantially as described, whereby the withdrawn bottom is forced into its original position by the return movement of the scoop.

14. The combination of a scoop, having a removable bottom, with a bottom-supporting guide, which is automatically locked against a supporting-frame by the advance of the scoop, and is automatically detached by the return of the scoop, substantially as described.

192,929.



192,289. GAS-RAKING APPARATUS. Thos. F. Rowland, Brooklyn, N. Y. [Filed Jan. 20, 1877.]



1. A rake and rake-handle combined with mechanism, substantially as described, whereby the rake is swung laterally upon a pivot, so as to rest upon any portion of the bottom of a retort, and thereby entirely clear the retort of the deposited coke.

2. A rake and rake-handle combined with mechanism, substantially as described, whereby the rake is automatically adjusted and compelled to enter the retort at its center, and whereby it is shifted over any portion of the bottom of the retort at the will of the operator.

3. A rake and rake-handle combined with mechanism, substantially as described, whereby the downward position of the rake upon the bottom of the retort is regulated or altered at any point of its travel, while the rake and rake-supporting mechanism advance and retire in the same line, as distinguished from a rake which is laterally adjustable by the lateral movement of its entire supporting mechanism.

4. A rake and rake-handle carried upon a traveling frame, and supported upon two sets of pivots, one of which allows the rake to be swung in a vertical direction, while the other allows it to be swung in a lateral or horizontal direction, substantially as described.

5. The combination of a rake, a vertical screw supporting it, and an advancing and retiring traveler, whereby the vertical position of the rake is altered so as to correspond with the retort to be discharged, substantially as described.

6. A rake, a rake-carrier, and a power-chain, combined with mechanism, substantially as described, whereby the power is first directly applied to elevating the rake, and is then employed in advancing the carrier.

7. The combination of a rake, a rake-carrier, and an air-cylinder, whereby the jar arising from the sudden stopping of the vertical movement of the rake is avoided, substantially as described.

8. The combination of a rake and rake-carrier with spring-buffers, whereby the motion of the carrier may be arrested, substantially as described.

9. The combination of a rake, H, a rake-handle, S, a vertically-pivoted rake-carrier, E, and a controlling-arm, T, whereby the lateral position of the rake can be altered and controlled, substantially as described.

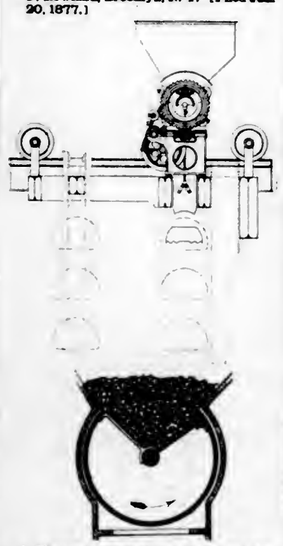
10. The combination of a rake, H, rake-handle S, vertically-pivoted rake-carrier E, controlling-arm T, and guide V, substantially as described.

11. A rake and rake-handle firmly attached to each other, and combined and connected with mechanism, substantially as described, whereby the rake, on its withdrawal from the retort, is forced downward by a positive automatic motion through the coke and against the bottom of the retort, whereby the retort is effectually cleared of the deposited coke, as distinguished from a rake which is allowed to drop by its own weight.

12. A rake-carrier, E, supported on two pivoted links, *k* and *l*, of equal length, whereby the carrier is maintained constantly parallel with itself, substantially as described.

13. The combination of the channeled rod G′, the miter-gears X and Z, the worm-gear J K, and the guide V, substantially as and for the purposes described.

192,291. REVOLVING COAL-METERS. Thos. F. Rowland, Brooklyn, N. Y. [Filed Jan. 20, 1877.]



1. The combination of a revolving coal-meter with an adjustable partition or diaphragm mounted on a central spindle or axis and turning with said axis, whereby the capacity of the meter may be varied, substantially as described.

2. The combination of a revolving coal-meter with a partition or diaphragm mounted on a central spindle and turning with said spindle and mechanism, substantially as described, whereby the partition is firmly set in different positions.

3. A revolving coal-meter combined with a cog-wheel whereby it is revolved, and a worm-wheel or gear whereby the cog-wheel is revolved, substantially as described.

4. The combination of a revolving coal-meter, having an adjustable partition with a cog-wheel attached to it and by which it is revolved, substantially as described.

5. The combination of a coal-meter with an adjustable chute or coal-guide, which chute serves to conduct the coal to the scoop and is variable in length to correspond with the varying position of the scoop, substantially as described.

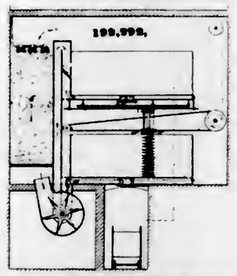
6. The combination of a coal-meter with an adjustable chute, which consists of a series of boxes or guides sliding telescopically over each other, substantially as described.

7. The combination of a coal-meter and an adjustable chute with mechanism, substantially as described, whereby the chute is automatically lowered into the scoop beneath during the passage of the coal, and is automatically raised after its discharge, whereby the scoop is enabled to advance into the retort free of the chute, substantially as described.

8. The combination of a revolving coal-meter, having a cam attached to it, with mechanism, substantially as described, whereby a chute or coal-guide is elevated or lowered at different points in the revolution of the meter.

9. The combination of a revolving coal-meter supported on friction-rollers, with a coal guide or chute, substantially as described.

192,292. MALTING OF GRAIN. J. A. Saladin, Nancy, France. [Filed June 5, 1877.]



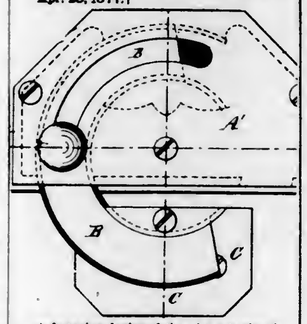
1. The general arrangement herein shown and described, of soaking and germinating tubs and discharge-passage for operation, as set forth.

2. The process of malting, substantially as herein shown and described, the same being divided into two operations, which are effected in separate receptacles placed one above the other.

3. In combination with the malting apparatus, as described, of mechanical stirrers, operating substantially as shown and set forth.

4. In the process of malting, herein described, agitating the mass of grain while subjected to a blast of cold and moist air.

192,293. FASTENING DEVICES FOR FURNITURE. Henry Schaaf, St. Louis, Mo. [Filed Apr. 23, 1877.]



A fastening device of the character herein shown and described, consisting of the casing parts A A′, the bolt B, and ing-plate C, all said parts being constructed and combined to operate substantially as set forth.

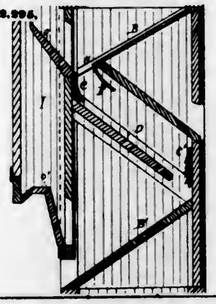
192,294. LAMPS. George Simmonds, San Francisco, Cal. [Filed Mar. 9, 1877.]



1. The hollow bowl, with its central short tube A, substantially as shown and described.

2. A wickless chamber or nursery light, consisting of an open reservoir of oil, supplied with a floating bowl, having in its center a small short tube, A, substantially as shown and described.

192,296.

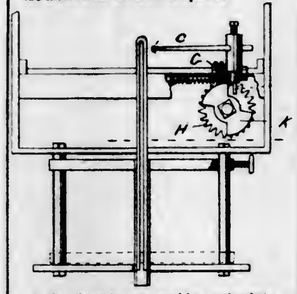


192,295. GRAIN-CLEANERS. C. B. Slater, Blanchester, Ohio. [Filed May 7, 1877.]

The apparatus for cleaning grain, consisting of the screens or riddles, inclined diaphragms of sand or emery stone, the brushes, the certain, and the draft-tube, all combined together as and for the purposes described.

192,296. MACHINES FOR MAKING LOOM-HARNESS. Jos. Sladdin, Lawrence, Mass. [Filed Dec. 12, 1876.]

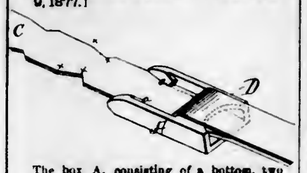
Brief.—Improvement upon the machine covered by reissued Letters Patent of August 8, 1871, numbered 4,509 and 4,510. The machine is adapted to make heddles for fancy looms. The finger is automatically operated by a pattern-cam to withdraw, at the requisite intervals, the length of yarn or twine from the reach of the twister, thereby interrupting the formation of the heddles, while the other parts of the mechanism continue to operate.



1. In a loom-harness machine, such substantially as described, the combination of a finger, C, with mechanism for automatically operating said finger to hold the length of yarn, out of which the heddle-eyes are made, from the twister which makes the eye, as and for the purpose set forth.

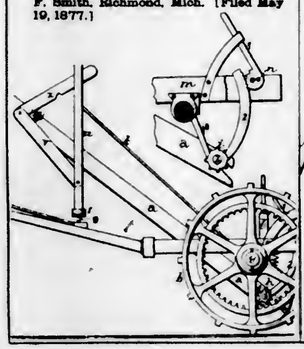
2. The worm-gear G, gear-wheel H, and pattern-cam K, in combination with a finger, C, each and all constructed and arranged substantially as described, for the purpose specified.

192,297. COTTON-BALE TIES. John L. Slocumb, Edwards' Depot, Miss. [Filed Apr. 9, 1877.]



The box A, consisting of a bottom, two side flanges, having interior projections *a a*, and an elevated bridge-piece, D, between the flanges, forming an opening underneath for the free passage of the notched band C, all constructed as and for the purposes set forth.

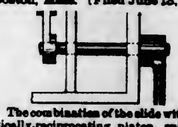
192,298. HAY RAKE AND LOADER. Hiram F. Smith, Richmond, Mich. [Filed May 19, 1877.]



1. The combination of the frame *a*, hinged or pivoted at its upper end, frame *m*, shaft *h*, hanger 10, segmental rack 2, matching gear *c*, and lever *s*, whereby the lower end of the frame *a* can be moved nearer to or farther from the rake-teeth, substantially as shown.

2. The combination of the frame *m*, cross-beam 8, springs 9, standards *u*, beams *v*, levers *x*, and springs *y*, substantially as specified.

192,299. COPYING-PRESSES. G. A. Smith, Boston, Mass. [Filed June 13, 1877.]

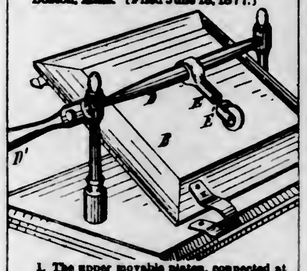


1. The combination of the slide with the lower vertically-reciprocating platen, substantially as and for the purpose set forth.

2. The slide on the reciprocating lower platen B, in combination with the copying-portfolio, secured to and moving with said slide, substantially as described.

3. The slide B′ on the movable platen B, in combination with the inclines *h* or their equivalents, and cars *g* on the portfolio, for the purpose set forth.

192,300. COPYING-PRESSES. G. A. Smith, Boston, Mass. [Filed June 13, 1877.]



1. The upper movable platen, connected at one side or edge with the lower platen or bed-plate by spring-hinges or their equivalent, adapting said platen to be automatically raised at the front or opposite side or edge when the pressure is removed, in combination with the vibrating actuating-arm E, moving back and forth over said platen, substantially as described.

2. The combination, with the upper hinged movable platen B, of the buttons *b*, adapting the lid or cover of the copying-book or portfolio to be attached to and to move with said platen, as described.

3. The combination, with the rock-shaft D, of the arm E, adapted to be vibrated back and forth in the arc of a circle over the platen B, and to depress and release said platen at each swing or movement, as described.

4. The combination, with the vibrating arm E, of the friction-roller, made adjustable in the outer end of said arm or cam, substantially as described.

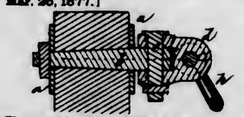
192,301. LEMON-SQUEEZERS. James H. Spencer, Philadelphia, Pa. [Filed Apr. 26, 1877.]

1. A lemon-squeezer, consisting of a concave socket, A, made to accord, or nearly so, with the half of a lemon, and the presser B concave on the under side, the two parts being hinged together and bearing the within-described relation to each other, so as to act on the half of a lemon, in the manner specified.

2. The combination of the presser B with the socket A, having at its enlarged end a grating or discharge-opening, *a*, and partition *m*, which bear such relation to the socket that half a lemon may be deposited in the same, and squeezed by the presser without encroaching on the said grating or flange, all substantially as set forth.

3. The combination of the presser B with the socket A and legs *a d d*.

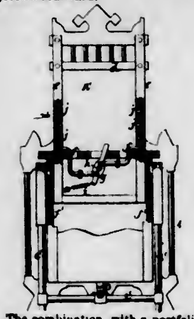
192,302. PEAK-BOLTS FOR MASTS. Melville Stevens, East Gloucester, Mass. [Filed Mar. 26, 1877.]



The combination, with the shackle composed of the two parts or links *d h*, of the peak-bolt *b* and metal band *a*, the several parts constructed and relatively secured together and to the mast-head of a vessel, substantially as herein shown and described.

192,303. PORTFOLIO-STANDS. D. J. Stein, New York, N. Y. [Filed May 16, 1877.]

Brief.—The link connecting the front and rear supports of the easel are made to fold up at every point of adjustment to avoid their projection rearward.



1. The combination, with a portfolio-stand, A, of a sliding frame, E, composed of a horizontal traverse, *d*, and two guides, *e*, which fit into sockets or guideways in the stand A, and which are adapted to engage with a suitable catch or latch, substantially as and for the purpose shown and described.

2. The combination, with a portfolio-stand, A, and a sliding frame, E, composed of a horizontal traverse, *d*, and the guides *e*, of two hooks, *f f*, a lever, *g*, and spring *i*, all constructed and operating substantially as and for the purpose set forth.

3. The combination, with a portfolio-stand, A, and its hinged brace C, of a link-latch, D, composed of a series of hinged sections, and provided with notches *c*, substantially as and for the purpose shown and described.

192,304.



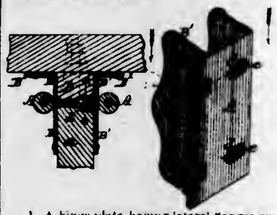
192,304. WATER-WHEELS. Saml. Stearns and Russell R. Ogden, Glen's Falls, N. Y.; said Ogden assignor to Henry F. Peck, same place. [Filed Nov. 4, 1876.]

Brief.—This wheel has tapering and pyramidal buckets arranged on its periphery.

The conical pyramidal buckets B B, arranged on the periphery of the wheel A, for the purposes herein set forth.

192,305. DOUBLE-ACTING HINGES. A. A. Stimson and C. T. Sabin, Montpelier, Vt. [Filed Feb. 12, 1877.]

Brief.—One of the leaves of a double-acting hinge is provided with lateral flanges embracing the jamb, and angular flanges abutting against the door-casing, and in addition thereto one of the leaves or plates is made adjustable by means of perforated ears, slots, and screws, thus varying the distance between the parallel plates, and adapting the hinge to doors of different thicknesses.

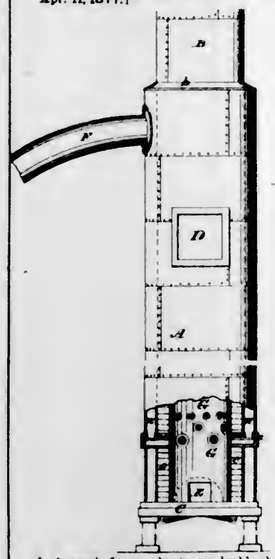


1. A hinge-plate having lateral flanges embracing the jamb and angular flanges abutting against the door-casing, substantially as and for the purpose set forth.

2. In a double-acting hinge, the leaves A A, provided with the fixed flange B and the adjustable flange B', substantially as and for the purpose set forth.

3. The hinge-leaves A A, having the flanges B and B', rendered adjustable by means of the perforated ears c, slots *d d*, and screws *s s*, substantially as set forth.

192,306. CUPOLA-FURNACES. Uriah B. Stribling, Madison, Ind., assignor to himself and Isaac N. Todd, same place. [Filed Apr. 11, 1877.]



1. A cupola-furnace having a double shell extending from the platform or fire-bed C to a point above the charging-door D, a blower-pipe, F, connected with the air-space *a*, as shown, and two or more rows of tuyeres, G G, cut away at *d* to form side inlets, and supported at their outer ends in the outer shell A, all in the manner substantially as set forth.

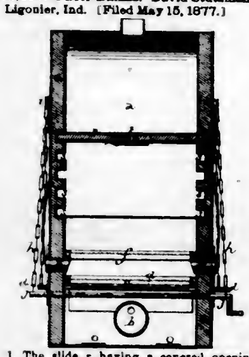
2. In combination with the shells A B, arranged to form a continuous annular air-space, *a*, extending from the fire-bed at C to the ring-cover *b* above the charging-door D, the tuyeres G G, cut away at *d* to form a side inlet, the back ends being supported in the outer shell A, substantially as herein shown and described.

3. In a cupola-furnace, a tuyere provided with an opening in the side to admit the air-blast, and an opening in the outer end to admit of viewing the interior or clearing out the tuyere, substantially as set forth.

4. In a cupola-furnace having a double shell and an air-space, *a*, extending from a point below the tuyeres to a point above the charging-door, a series of tuyeres of different caliber, in tiers, the smallest above and the largest below, the said tuyeres being supported at the outer end in the outer shell, all substantially as herein set forth.

5. The combination of the outer shell A, extending from a point below the tuyeres to a point above the charging-door, inner lined shell B, blower-pipe or pipes F, and tuyeres G G, the latter being of different calibers, having side inlets *d* and openings in the outer ends for viewing, and arranged in tiers, substantially as shown.

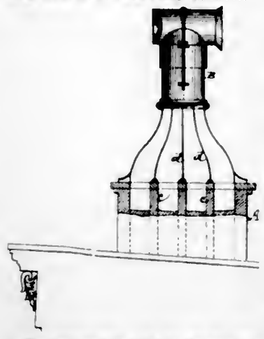
192,307. FRUIT-DRIERS. David Stutsman, Ligonier, Ind. [Filed May 16, 1877.]



1. The slide *r*, having a covered opening through its center, substantially as described.

2. The combination of the house *a*, fire-chamber *b*, sliding rods *d*, mortises *g*, chains *h*, and a winding device, *j*, substantially as specified.

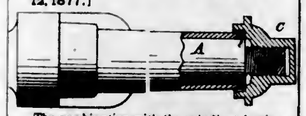
192,308. CHIMNEY-TOPS. John Sutton, New York, N. Y. [Filed May 19, 1877.]



1. The combination, with the flue-dividing walls *c* in the shaft of the chimney, of the terminal flue dividers or conductors *d*, arranged to extend upward from said walls and to converge toward or within a common outlet, substantially as specified.

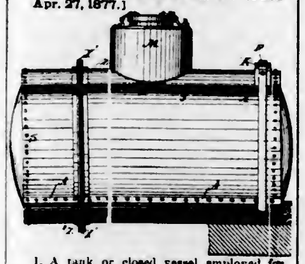
2. The combination, with the shaft A, of the flue partitions or walls *c*, arranged to stop short of the top of said shaft, the cap, cowl, or chimney top or outlet B, and the upwardly-converging terminal flue dividers or conductors *d*, of a lesser thickness than said walls, essentially as shown and described.

192,309. ADJUSTABLE AXLE-NUTS. Orrin B. Thompson, Jersey, Ohio. [Filed Apr. 12, 1877.]



The combination, with the spindle A having screw-tenon *a*, of the closed cap or axle-nut C screwed on said tenon, and the set-screw A screwed into said nut in the same threads, and completely inclosed within the nut, substantially as and for the purposes herein set forth.

192,310. METAL TANKS. Robert Tippett and D. L. Jones, Harrisburg, Pa. [Filed Apr. 27, 1877.]



1. A tank or closed vessel employed for transporting oil or other fluids in bulk on car-platforms, when made of two or more longitudinal sections, outwardly flanged on their edges, and riveted together thereby, wholly on the outside of tank, substantially as and for the purpose set forth.

2. A closed vessel for transporting oil, or other fluids in bulk, composed of two or more longitudinal sections, provided with outwardly-turned flanges on their edges, and riveted together mediately by having interposed between the flanged sheets forming the seam a strip of soft metal for calking the seam, substantially as set forth.

3. A closed tank, as described, composed of sections riveted together by means of outwardly-turned flanged-seams, and soldered or brazed at the seam-crevice to exclude the oil from the rivets, substantially as set forth.

4. The oil-tank provided with raised seams A, as described, in combination with one or more anchoring-ties, F², bearing on tank-body by means of braces K, as and for the purpose set forth.

5. The series of two or more girdling braces, Z' Z', in combination with the adjustable band X X', and applied to an oil-tank, substantially as and for the purpose herein set forth.

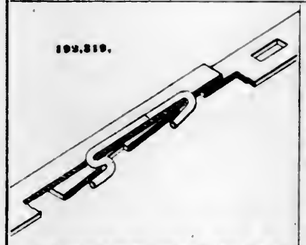
192,311. TREADLES. George H. Truxell, Greensburg, Pa. [Filed May 9, 1877.]



The combination of the double treadle *c c'*, cord *e*, fly-wheel A, shaft *a*, and V-grooved wheel *d*, provided with an adjusting friction-washer and set-screw, substantially as shown, whereby the wheel *d* may be adjusted so as to turn with difficulty, and prevent the jumping of the cord *e*.

192,312. BALE-TIES. John P. Verree, Philadelphia, Pa. [Filed May 31, 1877.]

192,313.



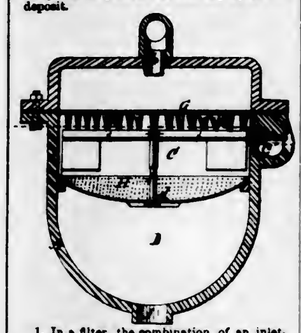
1. The combination, with the band, of the rod inserted through holes therein near one end, and then bent to form two hooks, as described and shown, one at each end of the rod, projecting in the same direction and setting out from the band, to admit of the connection at two points of the other end of the band, as set forth.

2. The combination, as hereinbefore set forth, of the band provided with a series of slots or openings near one end and the rod or wire having its ends passed through the band at or near its opposite end, and bent at both ends to form two hooks projecting in the same direction, as shown and described, whereby the openings may be engaged in pairs with the hooks, in the manner set forth.

3. The combination, with the band, slotted as described, of the rod secured to the band and provided with a double and a single hook, substantially as and for the purpose set forth.

192,315. SELF-CLEANING FILTERS. Henry W. Watson, New York, N. Y. [Filed Feb. 16, 1877.]

Brief.—The water flows through a lateral passage underneath the filtering diaphragm, and rotates a set of brushes bearing against said diaphragm. A partial partition is placed between the water-inlet chamber and the mud-receptacle to prevent the stirring up of the deposit.



1. In a filter, the combination of an inlet-chamber, C, having an oblique or nearly tangential water-inlet, *c*, with a sediment-receptacle, D, substantially as and for the purpose herein specified.

2. In a filter, a partition or diaphragm, H, constructed and operating substantially as described, situated between an inlet-chamber, C, having an oblique inlet, *c*, and a sediment-receptacle, D, substantially as and for the purpose herein specified.

3. In a filter, a revolving brush or brushes, A A A A, operated by the inflowing water, in combination with an upwardly-filtering diaphragm, G, substantially as and for the purpose herein specified.

4. In a filter, a water or fluid inlet, *c*, arranged to introduce the fluid in a laterally-oblique direction, so as to impart a rotary motion to the inflowing fluid in the filter, in combination with a filtering diaphragm or surface, E, arranged to receive the sweeping and cleansing action of the rotating fluid, substantially as and for the purpose herein specified.

192,314. OAR-PROPELLERS. Milton A. Wheaton, San Francisco, Cal. [Filed Apr. 16, 1877.]

1. A double cable constructed and arranged in a railroad substantially as and for the purposes herein described.

2. A griping apparatus constructed and operating substantially as and for the purpose herein described.

3. In a griping device to be used with a double cable, each of the jugs and inclined slots *r r*, by means of which the compound vertical and horizontal movement of the grippers are obtained, substantially as and for the purposes herein described.

4. In combination with a car or dummy and griping device, the swing-bar *f*, substantially as and for the purposes herein set forth.

5. The plates *j*, provided with inclines at the lower ends, in combination with the strips O and *p* having corresponding inclines, substantially as and for the purposes herein set forth.

6. The combination of the strips O and *p* and the plates *j*, all having inclines, as described, with the ratchet-notches for the lever *g*, having their lower parts beveled out so that the passing cable may lift without injury to the griping apparatus when too low, substantially as herein described.

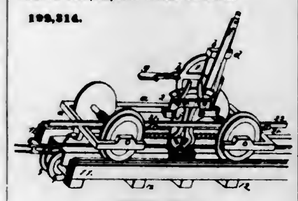
7. The combination of the gripers with the sliding collar *w* and the bumper *s*, substantially as and for the purposes herein described.

8. The combination of the plate *j*, metal collar *l*, and vibrating rod *f*, substantially as and for the purposes herein set forth.

9. The strips O and *p*, in combination with a lever, *m*, substantially as and for the purposes herein set forth.

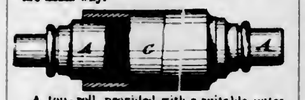
10. The double cable provided with the plates or catches 5, in combination with the strips O *p*, having recesses 8, substantially as and for the purposes herein set forth.

192,316.



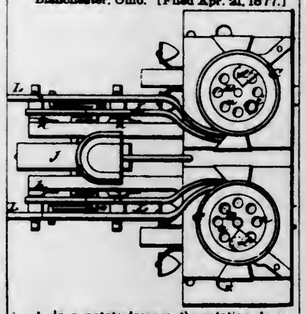
192,316. TOP-ROLLS FOR SPINNING-MACHINERY. S. B. Whittemore and Wm. A. Green, Bristol, R. I. [Filed Mar. 19, 1877.]

Brief.—The covering for the roll consists of an intermediate layer of textile fabric, treated with a solution of gum, beneath and over which is another layer of rubber, all of which are united and to the roll by vulcanization. The outer covering of leather is then applied in the usual way.



A top-roll provided with a suitable outer covering and a foundation composed of textile fabric interposed between two layers of vulcanizable india-rubber, united to each other and to the roll by vulcanization, substantially as described.

192,316. POTATO CUTTER AND DROPPER AND CORN-PLANTER. Zachariah J. White, Blanchester, Ohio. [Filed Apr. 21, 1877.]



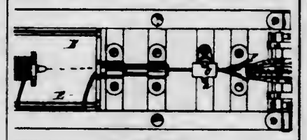
1. In a potato-dropper, the rotating dropping-disk D with circumferential groove *b*, and the stationary knives *d d'* combined therewith, substantially as and for the purpose described.

2. The combination of the grooved rotating dropping-disk D, stationary knives *d d'*, bed A with dropping-holes *a*, coadjustor G with furrow-opener H, and conveyers I, substantially as and for the purpose described.

3. In combination with the rotating dropping-disks D D, the center-wheel J, rod *f* with double crank at each end, the longitudinal slotted dogs L with vertically-slotted arms L', and stationary guide-pins *m*, all substantially as and for the purpose described.

192,317. ROPE-MACHINES. David Whiton, William Thomas, and Charles F. Hough, Hingham, Mass., assignors to Morris F. Whiton, same place. [Filed Mar. 6, 1877.]

Brief.—The rope is twisted between dies pressed together by a spring situated between the chain and the flier, the loose and projecting fibers being thus forced into the body of the rope, producing a smooth, even, and well-rounded surface.





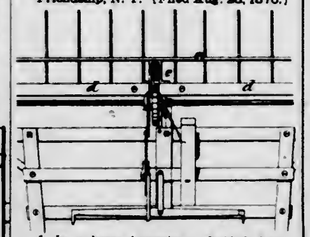
1. In a spinning-jenny for spinning yarn at short ratch, the combination of the chain D and capstan E with the automatically-operating dies *c c'*, arranged upon the standard A, between said chain and capstan to compress that section of the sliver upon which the twist is exerted, so that the entire spinning of the sliver is accomplished under pressure and the loose hair and fibers incorporated, compressed, and twisted into the roving, substantially as described.

2. The combination of the stand A, provided with cross-piece or block B, hinged cap C, and spring *d*, with the removable dies *c c'*, substantially as shown and described.

3. The combination of the stand A, provided with cross-piece or block B, hinged cap C, and spring *d*, with the reversible die-pieces *c c'*, substantially as and for the purpose described.

4. In a rope-machine for spinning yarn at short ratch, the combination of the chain D and capstans E with the mouth-piece F and automatically-operating dies *c c'*, supported on standard A, in relation to the chain and capstan as set forth, all operating substantially as described.

192,318. HORSE HAY-RAKES. J. R. Wimer, Friendship, N. Y. [Filed Aug. 28, 1876.]



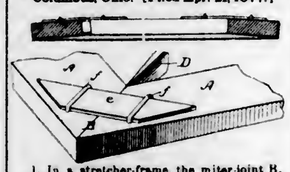
1. In a horse hay-rake a divided head, hinged near the revolving axle, with the lifting mechanism on the revolving axis, moving in the space between the parts, as set forth.

2. The divided head, hinged to the revolving axle at the outer ends, and supported at the inner ends on a casting, through a part of which the said axle passes, as set forth.

3. The casting *c*, formed with a rearward extension, *c'*, for supporting the tooth-board, said extension being recessed to receive the spring, substantially as described.

4. The casting *s* supporting the divided rake-head, and formed with shell or casing *c''* adapted for the reception of the ratchet, as set forth.

199,819. STRETCHER-FRAMES. J. H. Witt, Columbus, Ohio. [Filed Apr. 21, 1877.]



1. In a stretcher-frame, the miter-joint B, having the abutting faces of the strips A cut with a vertical bevel or incline, substantially as and for the purposes described.

2. In a stretcher-frame, A A, the miter-joint B, formed as described, combined with metal strips *e* and staples *f f*, substantially as described.

3. In combination with a stretcher-frame having the abutted faces of strips A in the miter-joint B cut with a vertical incline or bevel and provided with slot B', the metal strip C and wedge D, substantially as and for the purposes set forth.

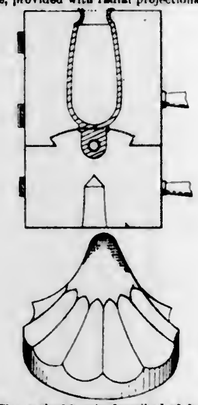
199,900. PROCESSES OF UNITING SEMEMER METAL AND INCREASING THE TENSILE STRENGTH THEREOF. Elias T. Day, Jersey City, N. J., assignor to F. O. Matthiessen, trustee, Irvington, N. Y. [Filed May 16, 1877.]

In the manufacture of merchant bars or rods from steel scrap, the method of improving the tensile strength of the product herein described, which consists in coating steel slabs or fagots with boracic acid, and then forming the slabs into piles, and heating and rolling or hammering the piles into bars or rods, substantially as set forth.

REISSUES.

7,747. METHODS OF MAKING SMOKE-BELLS. Jas. S. Atterbury and Thos. B. Atterbury, Pittsburg, Pa., assignors to Dithridge & Co., same place. Patent No. 57,063, dated Aug. 14, 1866; reissue No. 6,886, dated Feb. 1, 1876. [Filed Mar. 30, 1877.]

Brief.—The article is first blown in a divided mold. The end to be flared of the smoke-bell is reheated and pressed over a tool of conical shape, provided with radial projections.



1. The method herein described of forming the eye or loop of the smoke-bell by projections on the inside of the mold, which, when the latter is closed, extend across the forming cavity.

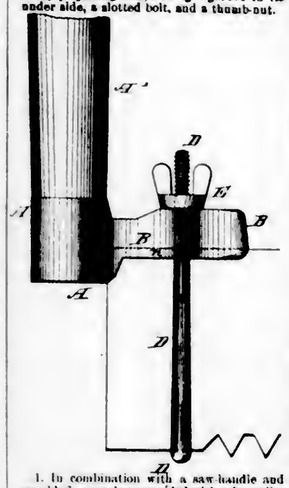
2. The method of flaring glass smoke-bells and other glass articles without external pressure by reheating the end to be flared and pressing it over a tapering or coniform former, substantially as described.

3. The method of crimping or fluting smoke-bells and other glass articles by reheating the end of the article and pressing it over a tapered or coniform former having radially-projecting edges, substantially as described.

4. A tapered or coniform plug or former for flaring and shaping the open end of smoke-bells and other articles, substantially as described.

7,748. SAW-TANGS. Eben M. Boynton, Grand Rapids, Mich., assignor to Wheeler, Madden & Clemson Manufacturing Company. Patent No. 73,227, dated Jan. 14, 1868. [Filed June 1, 1877.]

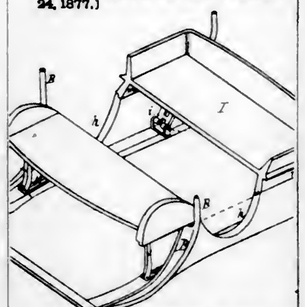
Brief.—The saw-blade is secured to the handle by means of a socket provided with a laterally-projecting arm, having a groove in its under side, a slotted bolt, and a thumb-nut.



1. In combination with a saw-handle and saw-blade, a socket, provided with a laterally-projecting arm, and a clamping bolt, substantially as and for the purpose set forth.

2. The detachable saw-tang, consisting of the socket A, with the arm B, having the groove *a* formed in its under side, in combination with the slotted bolt D and the thumb-nut E, substantially as described.

7,749. SHIFTING-SEAT CARRIAGE. Charles N. Dennett, Salisbury, Mass. Patent No. 173,774, dated Feb. 22, 1876. [Filed Jan. 24, 1877.]



1. A canopy or standing top carriage having its front posts B B secured to the outside of the panels, in combination with a shifting front seat, so that the seat of full width of the body may be turned back, substantially as described and shown.

2. In a canopy-top carriage, the combination of a back jump-seat and a turn-out seat the ends or arms whereof, when so turned down, are flush with the outside of the body-panels, substantially as described and shown.

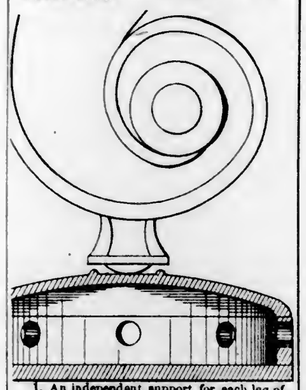
3. In combination with a jump-seat and a cut-down panel in a four-post canopy-top carriage, a turn-down seat the arms or ends whereof fill or curtain the spaces A when the back seat is jumped forward for use as the single seat of the carriage.

4. The combination of a back jump-seat, a single pair of jumping-irons attached thereto at its rear edge, and a front seat of the full width of the back seat, whereby the back seat may be jumped forward and rest upon or above the front seat, substantially as described and shown.

5. The stops *l*, in combination with the single pair of jumping-irons *i* and the back seat *I*, when arranged to act automatically, as and for the purposes specified.

7,750. PIANO ATTACHMENTS. Jas. Fairman, New York, N. Y. Patent No. 189,441, dated Apr. 10, 1877. [Filed May 14, 1877.]

Brief.—Resonant-cups are placed one under each leg of the piano-forte to increase the amount of tone.



1. An independent support for each leg of a piano, consisting of a resonant shell or chamber, constructed with a thin horizontal sheet, upon which the leg is supported centrally, said sheet being supported at its outer edge in such manner as to form an air-chamber immediately below that part upon which the caster rests.

2. A support for a leg of a piano-forte, consisting of a hollow block with an arched top, and a perforated rim, substantially as set forth.

3. A support for a leg of a piano-forte, made with an arched top, a perforated or partly-open rim, and a projecting circular bead on its top, substantially as set forth.

7,751. COAL-OIL STOVES. John A. Frey, New York, N. Y., assignor, by mesne assignments, to C. Riesmer & Co., same place. Patent No. 156,149, dated Oct. 20, 1874. [Filed May 24, 1877.]



1. A coal-oil stove having its wick wheels, wick-wheel shafts, and the entire upper surface of its oil-reservoir covered by a water-reservoir, substantially as and for the purpose specified.

2. A coal-oil stove in which the entire upper surface of its oil-reservoir is protected by a water-reservoir, and its wick-wheels and their shafts are inclosed by means of housings that are within said water-reservoir and below its upper edge, substantially as and for the purpose shown.

3. The combined cap and chimney, consisting of the cap F, provided with kerbs *f* and *f'*, the sheet-metal cylinder G, and the bead H, provided with the openings h and h, and flanges or fine-plates *h'* and *h'*, depending from the sides only of said openings, said parts being constructed and combined to operate in the manner and for the purpose substantially as set forth.

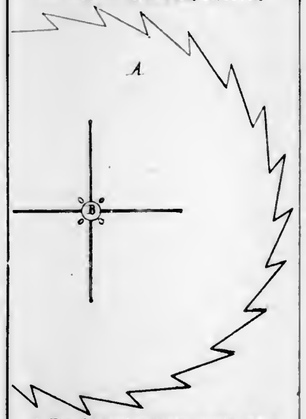
7,752. BAKE-PANS. John Gilbert, Newark, N. J. Patent No. 177,114, dated May 9, 1876. [Filed May 10, 1877.]



1. A pan made with straight sides and ends, and bent or scalloped at the corners, to contract the surplus metal resulting from turning up the sides and ends, substantially as herein shown and described, whereby the pan may be brought into shape by a single pair of dies and at one operation, as set forth.

2. A pan made of one piece of metal struck up to form straight sides, and with corners formed of the surplus metal bent or scalloped, substantially as described.

7,753. ORBICULAR SAWS. Jas. K. Lockwood, Alpena, Mich. Patent No. 70,728, dated Nov. 12, 1867. [Filed May 16, 1876.]



1. The plain and rectilinear circular saw A, constructed with slots having parallel sides, extending from the eye toward the periphery for the purpose of preventing the buckling of the saw by expansion, substantially as set forth.

2. A circular saw constructed with more or less slots, extending from the eye toward the periphery, and terminating in holes punched in said saw, substantially as and for the purposes described.

3. A circular saw constructed with more or less slots, extending from the eye toward the periphery, in combination with the slotted holes near the eye, substantially as and for the purposes specified.

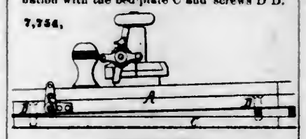
4. A circular saw constructed with more or less slots, extending from the eye toward the periphery, the holes at the termination of the slots, and the slotted holes near the eye, substantially as and for the purposes set forth.

7,754. MILLSTONE-DRESSING MACHINES. Leonard Moore, Cole's Creek, assignor to Saml. E. Griscom, Pottsville, Pa. Patent No. 186,686, dated Jan. 30, 1877. [Filed May 17, 1877.]

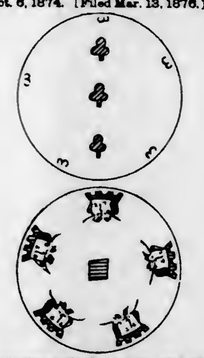
1. The combination, in a millstone-dressing machine, of the following elements, namely, a bed-plate, C, to bear on the stone, a cutter-carriage, and an intermediate plate, through the medium and by the adjustment of which the said cutter-carriage may be tilted, substantially in the manner described.

2. The adjustable guide-plate A, in combination with the bed-plate C and screws D D.

7,754.



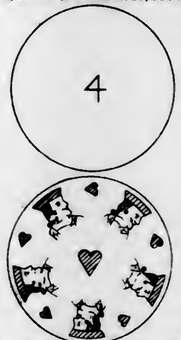
7,755. PLAYING-CARDS. Ivory N. Richardson, Malden, Mass., assignor to Ivory W. Richardson. Patent No. 155,752, dated Oct. 6, 1874. [Filed Mar. 13, 1876.]



1. Playing-cards the face or court cards in each of the suits whereof are distinguished by an indicating color of the regalia or headdress of the effigy or designating character of the card.

2. Playing-cards the suit of the emblematic or spot cards whereof is shown by the indicating or suit color of a numeral or figure, which numeral or figure also shows the size or value of the card, whereby the player, as soon as he recognizes such figure or numeral, can know by the color and character thereof both the suit and size or value of the card, substantially as described and shown.

7,756. PLAYING-CARDS. Ivory N. Richardson, Malden, Mass., assignor to Ivory W. Richardson. Patent No. 155,752, dated Oct. 6, 1874. [Filed Mar. 13, 1876.]



Round playing-cards, each suit whereof is indicated by a distinguishing color, and is also provided with numerals or figures to indicate the size or value of the cards, substantially in manner as described and shown.

7,757. PLAYING-CARDS. Ivory N. Richardson, Malden, Mass., assignor to Ivory W. Richardson. Patent No. 155,752, dated Oct. 6, 1874. [Filed Mar. 13, 1876.]

Playing-cards each suit whereof is indicated by a distinguishing ground color of the face thereof, and provided with numerals or letters to indicate the size or value of the cards, substantially in manner as described and shown.

7,757.



7,758. FLOOR-PROTECTORS FOR STOVES. Fredk. J. Seymour, Wolcottville, Conn., assignor to himself and Phelps, Dodge & Co. Patent No. 183,711, dated Oct. 24, 1876. [Filed June 7, 1877.]



1. The sheet-metal rib for the edge of a floor-protector, strengthened by the edge of the sheet metal, which is folded beneath the rib, and extends from the under side of the rib to the floor, substantially as set forth.

2. The floor-protector for stoves, having a rib around the edge of the sheet metal, double in the top part and outer edge of the rib, and embossed, substantially as set forth.

7,759. COATS. Albert P. Silva, Elmira, N. Y., assignor to Jno. Paret, New York city. Patent No. 184,902, dated Nov. 28, 1876. [Filed June 9, 1877.]



1. A coat having a supplementary collar inside of the neck or ordinary collar, substantially as and for the purpose set forth.

2. The inside openings for the reception of the supplementary-collar ends, substantially as set forth.

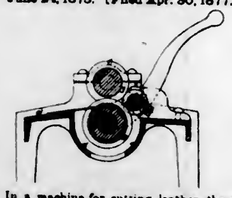
3. A coat constructed, substantially as hereinbefore set forth, with inside openings, the ordinary collar, and a supplementary or inner folding collar, the ends of which, when not in use, are secured in said openings.

4. A coat sleeve constructed, as herein before set forth, with a mitten connected with or forming an extension thereof.

5. A coat constructed, substantially as hereinbefore set forth, with sleeves provided with folding mittens, connected with or forming parts of said sleeves.

6. A coat constructed, as hereinbefore set forth, with a supplementary collar upon the inside of the ordinary collar, and mittens connected to or forming extensions of the sleeves.

7,760. STRAP-MACHINES. A. F. STOWE, Worcester, Mass. Patent No. 125,766, dated Apr. 16, 1872; reissue No. 5,402, dated June 24, 1873. [Filed Apr. 30, 1877.]



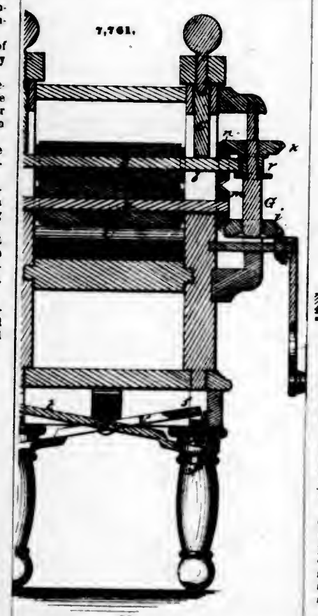
In a machine for cutting leather, the combination, with the main feed-rollers B U thereof, of an auxiliary spring-pressed feed or pressure roller, E, arranged therewith, substantially in manner and to operate as and for the purpose set forth.

7,761. CLOTHES-WRINGERS. N. B. White, South Dedham, Mass., assignor, by mesne assignments, to Empire Wringer Company, Auburn, N. Y. Patent No. 34,618, dated Mar. 4, 1862; reissue No. 2,287, dated June 12, 1866; reissue No. 7,098, dated May 2, 1876. [Filed Apr. 19, 1877.]

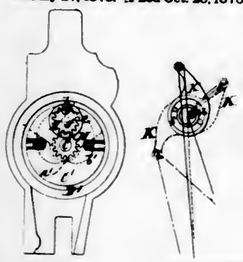
1. In a wringing-machine, the combination of the elastic rollers, impervious to water, and an adjustable spring or springs, and a driving-gear, said gear being arranged to rise and fall with the upward and downward movement of the movable roll, for the purpose set forth.

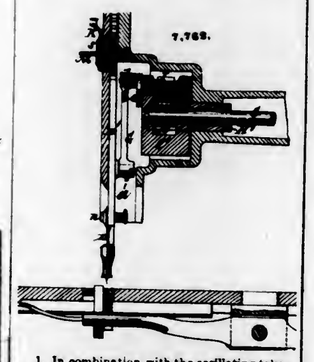
2. In a wringing-machine having rubber rolls, a pinchase cog-wheel mounted upon an independent axis, and connected, by intermediate gearing, with the cogs upon the ends of the roller shafts, for the purpose set forth.

3. In a wringing-machine for wringing clothes, the gear E, having groove r, and the gears a, i, and m, and shafts b and G, arranged substantially as described, in combination with rolls of india-rubber, as set forth.



7,762. SEWING-MACHINES. R. Whitehill, New York, N. Y. Patent No. 166,172, dated July 27, 1876. [Filed Oct. 25, 1876.]





1. In combination with the oscillating take-up K, the stationary bar or pin M, arranged to occupy an eccentric position relatively with the arbor N or axis of oscillation of the take-up, substantially as specified.

2. The combination, with the oscillating take-up arbor N and the mechanism for oscillating the same positively, of the take-up K, movable around said arbor to provide for adjusting it to different thicknesses of fabric, substantially as herein described.

3. The combination of the needle bar or carrier D^1, the actuating-shaft C, the sun and planet gears H I, and means of attaching the planet-gear to the said shaft, the said bar or carrier being placed in front of the said gears, and also in front of the end of the shaft, substantially as and for the purpose herein described.

4. The combination of the actuating-shaft C, the sun and planet gears H I, the eccentric or wrist pin A, the connecting-rod G, and means of attaching the planet-gear and pin A to said shaft, with the needle-bar D^1, placed in central relation with the said shaft, substantially as and for the purpose herein specified.

5. The combination of the actuating-shaft C, the sun and planet gears H I, the wrist or pin A, and the shaft *f*, which carries the planet-gear and pin A, with the bob C^1, containing bearings for the said shaft on the opposite sides of the planet-gear, substantially as herein described.

6. In a sewing-machine in which the needle bar or carrier, actuated by sun and planet gears, is arranged in front of the actuating-shaft C, the combination, with such actuating-shaft and a shuttle-driver, D^2, working parallel therewith, of an upright shaft, B^1, geared at its upper end, by bevel-gears b^1 c^1, with the said actuating-shaft, and having at its lower end a crank connected with the shuttle-driver, for operation of the latter, substantially as specified.

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ORDER.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., July 3, 1877.

The Supreme Court of the District of Columbia having held, by a decision and decree rendered June 19, 1877, in the matter of the appeal in the case of THOMAS J. MAYALL and F. B. WILLIAMS from the decision of the Commissioner of Patents, that the reissue of a patent shall not be withheld by reason of an interference previously declared between such patent and a *junior* applicant, rule 60 of Office Rules of Practice is hereby amended to accord with the said decision of the court

Interferences now pending between reissue applications of prior patents and later patents, or with applications for reissue of later patents, or with subsequent original applications, will be dissolved; but, on motion, the record in the interference proceeding may be amended by the substitution of the reissued patent in place of the original patent.

ELLIS SPEAR,
Commissioner of Patents.

The decree above mentioned is as follows:

IN THE SUPREME COURT OF THE DISTRICT OF COLUMBIA.

[*Patent appeal No. 35.—In the matter of Thomas J. Mayall and Frank B. Williams: Appeal from the decision of the Commissioner of Patents, rendered May 21, 1877.*]

This appeal coming on to be heard upon the record from the Patent Office, and having been argued by A. Pollok, esq., for appellants, and by J. H. Peirce for the Commissioner of Patents, it is thereupon ordered, adjudged, and decreed—

First. That the refusal of the Commissioner to grant the reissue, as prayed for by the appellants, on the ground that an interfering application had been filed subsequently to the date of said patent, and that the grant of said reissue depended upon the question of priority by him to be determined as between said interfering application for patent and the patent of said Mayall, is without authority of law, and therefore void and of no effect.

Second. That the said Thomas J. Mayall and Frank B. Williams are entitled to the reissue as prayed for and as allowed, as the same appears from the indorsement of the file and the actions of the Patent Office, and that the same be issued to them.

Third. That the clerk of this court transmit to the Commissioner of Patents a copy of this decree duly authenticated.

By the court:

A. W.

A true copy.
Test:

[SEAL.] R. J. MEIGS, *Clerk*,
By M. A. CLANCY, *Ass't Clerk.*

AMENDMENT OF THE ABOVE DECREE JUNE 19, 1877.

This decree shall not be understood as requiring the said Commissioner to issue a patent or patents under the claim for reissue if the applicant shall appear not to be so entitled under the law for other reasons than those which may exist by reason of interference with any prior applicant.

True copy.

R. J. MEIGS, *Clerk*,
By R. J. MEIGS, JR., *Assistant.*

COMMISSIONER'S DECISIONS.

C. W. SIEMENS.—*Interlocutory Appeal.—Reissue.*

[*Appeal from the Primary Examiner in the matter of the application of C. William Siemens, filed December 5, 1876, for Reissue of Letters Patent, No. 89,441, granted April 27, 1869, for* "IMPROVEMENTS IN METALLURGICAL PROCESSES AND FURNACES." *Decided March 17, 1877.*]

An inventor will not be permitted to claim in a reissue application matter for which his original patent has expired by limitation from the date of a foreign patent granted to him.

Section 16 of the act of 1861 does not repeal section 6 of the act of 1839, but so modifies it as to extend the life of a patent granted thereunder to seventeen instead of fourteen years.

A joint patent having been granted in England: *Held*, that the oath of single inventorship accompanying an application was sufficient to warrant the issue of a sole patent, in view of the different qualifications in that country and this with relation to joint patents.

[*C. S. Whitman*, for applicant.]

SPEAR, *Commissioner:*

Two of applicant's claims, the third and sixth, have

been rejected upon English patents, numbered respectively 167 of 1861 and 1,320 of 1857, granted, the former to applicant and Frederick Siemens, and the latter to applicant alone.

It is not my purpose, upon an appeal of this kind, to discuss the pertinency of these references, but merely to consider the question which is presented as one of practice as to whether a patentee can be permitted to claim, in an application for reissue, matter shown in a prior foreign patent, which has since expired.

In construing the patent under consideration, reference must be had to the laws in force at the time of its issue, which, as respects the grant, are the acts of 1836, 1839, and 1861. Under the act of 1839, which was amendatory of the act of 1836, patents were limited to fourteen years from the date or publication of foreign patents previously obtained, (*O'Reilly* vs. *Morse*, 15 How., 62;) and section 16 of the act of 1861, which provided "that all patents hereafter granted shall remain in force for the term of seventeen years from the date of issue," has been held, not to repeal, but to so modify section 6 of the act of 1839 as to extend the term to seventeen instead of fourteen years, so that since the passage of said act and previous to the act of 1870, patents granted in this country for inventions previously patented abroad are to be limited in duration to seventeen years from the date or publication of such foreign patents. *Weston* vs. *White*, 9 O. G., 1196.

It would appear, therefore, that in so far as the patent of 1857 is concerned, the matter there described has become public property, the protection given Siemens by his patent having ceased, and his patent therefore expired.

Applicant thus asks the Office to reissue to him that which he has clearly no right to claim. It is neither the policy nor design of the law that this Office should give color to an invalid claim by granting a patent purporting to secure to the patentee a right which it is powerless to confer. *Lex nil frustra facit* is a maxim that is opposed to such an interpretation of the law.

Whenever it clearly appears, therefore, either upon the examination of a reissue or an original application, that the subject-matter claimed could not be protected in the courts, the patent should be refused. No distinction should be made in such cases between reissue and original applications, and I do not apprehend that, in a case like the present, the Office is precluded from considering matters that may have arisen since the original grant which affect the patentee's title to the protection of the law.

It is distinctly provided in section 4916 R. S. that "upon the filing of a reissue application the specification and claim in every such case shall be subject to revision and restriction in the same manner as original applications are," thus giving the Commissioner ample authority for applying the same tests as to patentability as he would if the application were for the first time presented.

The interests of the public are to be looked to as well in the grant of reissues as in original applications, and it is the duty of the Office to prevent, as far as it is within its power, the issuing of invalid patents, which could be made instruments of oppression, "by furnishing means to impose upon the public by false pretenses, and with threats of expensive and ruinous litigation." *Burr* vs. *Duryee*, 1 Wall., 531.

The object of the reissue section was to provide a means for correcting invalid patents, not for granting them, and if the period for which the grant was originally made has expired, the right to claim the invention in a reissue does not exist; nor could the terms of the law be complied with, for as regards this invention there is no "unexpired part of the term of the original patent" for which a reissue could be granted.

An attempt has been made to show that the decision in the case of *Weston* vs. *White* is unsound, and not in accordance with a proper construction of the statute there under consideration. I have considered the arguments presented by counsel, but fail to comprehend wherein the judge in that case has made such a palpable mistake in matter of law as to warrant this Office in disregarding the opinion there rendered; on the contrary, I am disposed to consider his interpretation of the statute both just and reasonable, fully in accord with the intention of the law-makers, and as based upon sound principles of construction.

In view of the fact that the same rules as to joint invention do not prevail in England as are administered in this country, parties being permitted to take out patents jointly who would not be regarded as joint inventors under our laws, I am of the opinion that the present applicant's oath accompanying his application, to the effect that he is the first and original inventor of the matters therein claimed, must be regarded as sufficient to avoid the objection that the English patent of 1861 was taken out jointly by him and Frederick Siemens.

With reference to that portion of the invention which was patented in England in 1861, it is obvious that the applicant's patent therefor has not expired by the limitation of seventeen years from the date of said patent. He may consequently retain in this application claims thereto, but should be required to state in his application the fact that such matters have been patented in England, giving the date and the number of the patent. This is in accordance with the requirements of Rule 91, which applies as well to reissue as to original applications, and, also, when only a portion of the invention claimed is included in such foreign patent. This is necessary in order that the public may know the limits of the monopoly granted.

The decision of the Examiner, in refusing to admit claims for inventions shown in foreign patents, and for which the original patent has expired, is affirmed; and the requirement that the dates of other foreign patents obtained by applicant, and operating to limit the term of the patent, should be stated, is approved; but the decision of the Examiner rejecting the third claim is reversed.

W. W. BIERCE.—*Appeal.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the application of W. W. Bierce for* "IMPROVEMENT IN STRIP OR RIBBON TICKET."—*Decided April* 6, 1877.]

Combining with an old form of ticket a scheme of making one or more of the tickets redeemable, it being old to make all of them redeemable, does not constitute a new article, or amount to a patentable invention.

Doubted, whether a plan or method of transacting business is patentable, under the statute.

[*Samuel A. Duncan*, for applicant.]

SPEAR, *Commissioner:*

The invention which is the subject of this application consists of a strip of paper printed to represent tickets designed for use in collecting fares from passengers upon street railways, one or more tickets of the strip being marked so as to indicate that they are redeemable for value. All the tickets, it is stated, may be numbered consecutively, and may also have the number of the car and the name of the railway. This is made the basis of a number of claims differing in respect to the other elements of the alleged invention, but all containing the element of the number of redeemable tickets.

It appears from the record that strips printed to represent tickets numbered consecutively, and having the name of the railway and like matters also printed upon them, are not new. It also appears that the scheme of making tickets redeemable, so as to induce passengers to call for the ticket, upon payment of the fare, is not new. It seems, therefore, that the applicant has adopted, in connection with an old form of tickets, an old system or plan to induce passengers to call for the ticket upon payment of the fare. I call this expedient for refunding money to the possessor of a certain ticket not essentially an improved device, or article, so much as a plan or method (improved, it may be) of transacting business. I doubt the patentability of such method, it not relating to any art, machine, manufacture, or composition of matter, whether it be considered alone or in connection with mechanical devices. But the plan adopted by applicant appears to be essentially the same as that before known. The only variation which he has introduced from that described in the patent of Stridiron, of 1872, is the element of uncertainty caused by making one of a number instead of all of the tickets redeemable. That is to say, he finds it unprofitable to pay a premium for the return of every ticket, and decides to pay for only a portion. In my judgment, the adoption of this old, although somewhat modified, expedient, in connection with an old form of tickets, does not constitute a new article, or amount to a patentable invention.

The decision of the Board of Examiners-in-Chief is, therefore, affirmed

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COGGIN, KIDDER & CO.—*Trade-Mark.*

[*Appeal from the decision of the Examiner of Trade-Marks in the matter of the application of Coggin, Kidder & Co., for the registration of a Trade-Mark.—Decided February* 21, 1876.]

Registration denied a trade-mark which, although not absolutely identical with, was so close in its resemblance to another in long use as to readily mislead the public.

The addition of an arbitrary symbol to an old trade-mark may not amount to a sufficient difference to warrant registration.

ELLIS SPEAR, *Acting Commissioner:*

It appears, from the records in the case, that the word "Haxall" is the trade-mark, and has been for many years, of the firm of Haxall, Crenshaw & Co. This being the case, I think that the trade-mark sought to be registered by these applicants would be so near that of another firm as to mislead the public. Although in this instance, with the two marks or designs side by side, any one would readily perceive the difference, yet a purchaser having heard of "Haxall flour," and looking for that article in the market, might easily mistake the flour to which this mark is attached for that.

Nor do I think that the addition of the Maltese cross would make any difference. If it means anything, if there be any object whatever in using the term "Haxall," it must be as a distinction of the flour as Haxall flour; but whatever merit there may be in the article so named and known, the original proprietors of that mark are entitled to it.

In the case of the *Amoskeag Manufacturing Co.* vs. *Spear*, (Cox American Trade Mark Cases, p. 87,) the defendants in that case did not use the whole trade-mark of the plaintiffs, and, in fact, made greater change than has been made in the present case, but yet were held to have infringed upon the rights of the plaintiff.

In the case of *Clark* vs. *Clark*, id., p. 206, the trade-mark of the plaintiffs was omitted in part only, the names of the persons and places being changed in the mark used by the defendants, but the difference was held by the court to be merely colorable.

In the case of the *Brooklyn White Lead Co.* vs. *Masury*, 25 Barb., p. 416, it was decided that a mere change of a word could not be sufficient to constitute a new trade-mark.

In my judgment the leading word in the present application would be that to which the attention of the public is called, and, although not designed, perhaps, to do so, might mislead them and give the impression that the article sold was the same as that sold by Haxall, Crenshaw & Co.

For these reasons, I must sustain the decision of the Examiner refusing the registration.

WILLIAM S. KIMBALL.—*Interlocutory Appeal.*

[*Appeal from the decision of the Examiner of Trade-Marks in the matter of the application of William S. Kimball for the registration of a Trade-Mark upon* CIGARETTES.—*Decided May* 3, 1877.]

The law is complied with if but one *fac-simile* mode of using a trade-mark is illustrated.

To multiply illustrations that simply show various modes of applying the mark, different arrangements of non-essential, arbitrary matter, etc., is not only unnecessary, but encumbers the office records and tends to confuse the public as to the scope of the registration.

DOOLITTLE, *Acting Commissioner:*

The trade-mark desired to be registered by applicant consists of the words "Vanity Fair," applied to packages of cigarettes. The applicant, in order to comply with the requirements of the statute, as he thinks, files eight different prints or arrangements of fanciful matter, figures, etc., in connection with, or on which, he uses his trade-mark, to show the modes in which it has been applied and used. The Examiner contends that one *fac-simile* is sufficient to illustrate the mode of using the mark, and that it only encumbers the records of the Office and renders the description of the mark un-

necessarily prolix to allow these many different forms of labels or prints to be described and filed.

I understand the law, in requiring an applicant to describe the mode in which he has used or intends to use a trade-mark, to mean simply the manner in which he has placed or intends placing it upon the goods to which it is to be applied, as whether stamped on the articles themselves, or on packages containing them, or relatively located with respect to some arbitrary matter, etc., and not that he should be compelled to describe every actual and possible matter that can be used in connection with the mark.

The thing of value in the matter of registration is the trade-mark itself. No protection is afforded for the use of scrolls, fanciful figures, or other words which are not an essential part of the mark; and a full description of them in an application of this kind is not only unnecessary, but it would tend to mislead and confuse the public as to the scope and nature of the registration.

If the law required an applicant to show the *different* modes in which he had used or intended to use his trade-mark, there would be good grounds for the present appeal, but I cannot believe it to be the intention of the law that the Office should register as many different modes of applying the same trade-mark as the fancy of an applicant might dictate. If that were so, a third party might use the same trade-mark with impunity, if he could still devise a different mode of applying it. This would be giving to the shadow great value, and to the substance none at all.

The decision of the Examiner is affirmed.

SWIFT vs. PETERS.—*Interference.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the interference between the application of John N. Swift for the registration of a Trade-Mark for* FERTILIZERS; *and a Trade-Mark registered to Winfield Peters, February 29, 1876.—Decided May 8, 1877.*]

A trade-mark interference, unlike those for patentable matters has nothing to do with the question as to who was the first to conceive or suggest the mark, but who was the first to put it into actual practice.

A contestant who acted in the capacity of an agent, and as such received and shipped the goods to which the trade-mark was attached, cannot be said to have put the mark into actual practice.

The title of the registrant of a trade-mark is for the courts, not for the Office to determine.

[*G. H. & W. T. Howard*, for Swift.
Alexander & Mason, for Peters.]

DOOLITTLE, *Acting Commissioner:*

This is an interference between a registrant and an applicant for registration, of the following trade-mark: "The John C. Ragsdale Ammoniated Dissolved-Bone."

The name, "John C. Ragsdale," is that of a gentleman who lived in Georgia in 1874; was the president of an agricultural society there, and whose name was appropriated, by his consent, as a trade-mark, for the purpose of giving to the article local popularity. It does not appear that Mr. Ragsdale had anything to do with the use of the trade-mark, or with the manufacture of the article.

The applicant, residing at the same place, had been deputized by the same society to enter into negotiations of some sort with manufacturers of fertilizers for the purpose of introducing an article in the community direct from the manufacturers. In accordance with this plan he had an interview with Mr. Snowden, of the firm of Snowden & Peters, from Baltimore, dealers in fertilizing materials, and proposed that they should put up an article under the title already described.

This firm agreed to the proposal, and on January 26, 1875, submitted an argument in writing to Swift, the applicant, stating the terms upon which they would ship this and their other brands of fertilizers, and also the commission that would be paid him, &c. Swift accepted the agency on the terms proposed, and the firm in question then commenced the shipping of the fertilizer, using this brand in connection with their own name. February 29, 1876, this trade-mark was registered by Peters, the firm of Snowden & Peters having in the meantime dissolved partnership.

The applicant bases his whole case upon the fact that he was the first to suggest the use of the trade-mark in question, and that it was adopted by Snowden & Peters and placed by them upon the goods sent to him through his instrumentality.

Unlike patentable matters the question of priority in a trade-mark interference has nothing to do with the question as to who was first to conceive the idea or first to describe and propose its use. As was held by the United States Supreme Court in the case of The Canal Company *vs.* Clark, 13 Wall., 311, "words or devices may be adopted as trade-marks which are not original inventions of him who adopts them, and courts of equity will protect him against any fraudulent appropriation or imitation of them by others. Property in a trade-mark, or rather in the use of a trade-mark, or name, has very little analogy to that which exists in copyrights or in patents for inventions. * * * * The office of a trade-mark is to point out, distinctively, the origin or ownership of the article to which it is affixed; or, in other words, to give notice who was the producer. This may, in many cases, be done by a name, mark, or a device well known but not previously applied to the same article.

From this it will be seen that it is of no consequence whatever who was first to suggest and urge the adoption of the trade-mark, but the point is who was first to actually adopt and use the same, for the purpose of indicating the ownership or proprietorship of the articles to which the mark is applied.

Although Swift alleges in his application that he had been using this brand for about two years, yet he used it merely as an agent uses the trade-mark of the firm for whom he sells goods. He did not use it nor pretend to use it as his own mark upon goods or upon packages of goods prepared by him. The mark at no time indicated that he was either the manufacturer of the article itself or one of the firm who sold the article throughout the country. These are the facts that have been found by both the lower tribunals.

The point is made, however, that if the mark does not belong to Swift, neither is it the property of Peters, as the trade-mark was adopted and used by the firm of Snowden & Peters, which firm was dissolved in 1876, and the right to use it thereafter did not remain in Peters.

Whatever may be the rights of Peters & Snowden as to each other in this matter, it is perfectly clear that Swift has not even overcome the *prima facie* case made by Peters. Peters is a registrant, and it is of no avail whatever for this Office to enter into an inquiry as to his right of ownership to the trade-mark in dispute, formerly owned by the firm of Snowden & Peters. The judgment of this Office as to Peters's right of property in the mark, would not affect Snowden's claim in the least. That is a question for the courts, and over which the office has no jurisdiction. It would be unnecessary waste of time, therefore, for the Office to inquire into the respective rights of those parties. It is sufficient for the purposes of this contest to show, that Swift, the applicant, has no right whatever, as against Peters. They are the only parties to this contest, and the judgment must be confined to them alone.

The decision of the Board of Examiners-in-Chief, awarding priority to Peters in the adoption of this trade-mark, is affirmed on the ground that Swift, his opponent, had never adopted or owned it at all in the sense contemplated by the trade-mark law.

JAMES ARKELL.—*Appeal.*

Appeal from the decision of the Board of Examiners-in-Chief, in the matter of the application of James Arkell, for Letters Patent for IMPROVEMENT IN PAPER BAGS, *filed December* 14, 1876.—*Decided June* 7, 1877.

If an applicant seeks to claim in a subsequent application subject-matter which has been rejected by the examiner in a prior one already passed to issue, the examiner would be justified in refusing to consider the renewed claim on its merits, on the ground that it was "*res judicata*."

In such case, if the applicant desires to contest its novelty, he should reissue the prior patent and include the claim therein.

The process of manufacture is of no moment in considering the patentability of the article itself.

Notches or "cutaways" being common in plain-edged paper-bags to facilitate the opening of the mouth, it is mere double use to provide "jagged-edge" bags with the same feature.

J. N. McIntire for appellant.

DOOLITTLE, *Acting Commissioner:*

Applicant claims as a new manufacture,

Paper-bags made with a notch or notches, or cut away portion or portions, in one thickness, of the *jaggedly* cut *mouth;* whereby the *clinching* and tendency to cling together of the edges of the mouth, so cut, is *overcome* and the opening of the mouth of the bag for use rendered easier as set forth.

Applicant filed an application August 14, 1876, showing, describing, and claiming the same article, together with a method of making it. A claim for the article was rejected, and the rejection acquiesced in by the striking out of the claim. A few days before the patent on this application was issued for the process claimed, applicant filed the present application, reiterating his claim for the article.

In view of the Examiner's action upon the former application, he might have refused to consider the second application on its merits, on the ground that the matter claimed, so far as he was concerned, was *res judicata*, and that the article having been shown and described in the patent covering the process, the claim for the article should have been renewed, if at all, upon a reissue application.—*C. B. Cottrell* (9 O. G., 495.)

In addition to these objections the matter now claimed is squarely met by a patent granted to L. C. Crowell, April 8, 1873, No. 137,533. The subject-matter of this application is not there claimed, but it is described in the specification and shown in the drawing. The objection of the applicant to that reference, appears to be, that there is no description in said patent of how the notch in the jagged edge of the bag is made; but as observed by the Board, the process of making this notch is not now under consideration and no reference need be made to it. It is sufficient, as was held by the United States Supreme Court, in the case of Cohn vs. The United States Corset Company, et. al., that the article itself is described—the process not being claimed.

The language of the court is:

Plaintiff claims the manufacture, not a mode of making it, and the important inquiry, therefore, is whether the prior publication described the article. To defeat a party suing for an infringement, it is sufficient to plead and prove that the thing patented to him had been patented or described in some printed publication prior to his supposed invention or discovery thereof.—(Rev. Stat., sec. 4920.)

What is required is a description of the thing patented, not of the steps necessarily antecedent to its production.—(11 O. G., 457.)

It appears necessary to add, that as to the point made by the Examiner and the Board of Examiners-in-Chief, that a notch or equivalent device having been used in paper-bags other than those having "jaggedly cut mouths," for precisely the same purpose for which the notch is now used, viz, to facilitate the opening of the month of the bag, and thereby resulting in simply a double use of an old device, the decisions of these tribunals are also affirmed.

The Commissioner concurs in the views herein set forth.

DECISIONS OF THE COURTS.

SUPREME COURT OF THE UNITED STATES.

HENRY MEVS, APPELLANT, *vs.* JACOB A. CONOVER.

[*Appeal from the Circuit Court of the United States for the Southern District of New York—Decided October Term*, 1876.]

The profits are not all that an infringer made in the business in which he used the patented invention, but they are the worth of the advantage he obtained by such use—or, in other words, they are the fruits of that advantage. (*Mowry* vs. *Whitney*, 14 Wall., 651.)

Thus where no profits actually resulted from the use by reason of the defective mechanism in combination with which the infringed device was employed; yet as the loss was less than it would have been with the infringed device omitted, this benefit is equivalent to an equal gain, and was rightly estimated as a part of the profits for which the infringer was responsible.

The surrender of a patent extinguishes it, and after its surrender pending suits founded upon it fall with its extinguishment.

If a patent is surrendered for reissue after final decree or judgment, the surrender has no effect upon a right passed previously into judgment. The right of the patentee then rests on his judgment or decree, and not on his patent.

Mr. Justice STRONG delivered the opinion of the court:

The only errors assigned in this case are to the confirmation of the master's report, and they relate to the ascertainment of the profits which the defendant had made by his unauthorized use of the plaintiff's invention. That the machine employed by the defendant in splitting wood was an infringement of the plaintiff's patent is established by the decree which sent the case to the master, and no complaint is made of that, but it is contended the master erred in reporting "there was saved to the defendant seventy-five cents per cord in the wood split by him and made into bundles." In the ascertainment of profits made by an infringer of a patented invention, the rule is a plain one. The profits are not all he made in the business in which he used the invention, but they are the worth of the advantage he obtained by such use—or, in other words, they are the fruits of that advantage. (*Mowry* vs. *Whitney*, 14 Wall., 651.) We are not convinced that the rule declared in that case was not followed in this. The patented invention infringed by the defendant was a new and improved machine for splitting kindling wood, and a distinguishing feature of it, perhaps the principal feature, was a device for the automatic feeding of the wood to the reciprocating splitting knives or cutters, by a movable platform or apron carried forward by an endless chain. That device the defendant used, though it is said he used it in another machine, known as Green's. The evidence is full and uncontradicted that an advantage is gained in splitting kindling wood by a machine with that device of at least seventy-five cents a cord over splitting it by hand or without that device. It was in harmony with this evidence the master reported and the court decreed.

It is urged, however, that the Green machine, in which the defendant used the plaintiff's invention, was old and defective, and that no profits were actually received from such an use. But if such be the fact, if the defendant was a loser by splitting wood with the Green machine, his loss was less to the extent of seventy-five cents on each cord split, than it would have been had he not used the patented invention. Such a result was equivalent to an equal gain, and it was rightly estimated as a part of the profits for which the infringer was responsible.

These observations are sufficient for the case. We notice, however, a suggestion made on behalf of the appellant, that since the decree in the circuit court, the patentee has surrendered the patent upon which the decree was founded, and obtained a reissue. This does not appear in the record, and if it did it would be immaterial. We have held that the surrender of a patent extinguishes it, and that after its surrender, pending suits founded upon it, fall with its extinguishment. The patent must remain unsurrendered, not only when a suit upon it is commenced, but at the time of trial and judgment. But a surrender after final judgment or decree can have no effect upon a right passed previously into judgment. After that there is nothing open for litigation. The right of the patentee then rests on his judgment or decree, and not on his patent. The suggestion, therefore, cannot avail the appellant, and the decree of the circuit court must be affirmed.

Decree affirmed.

U. S. CIRCUIT COURT—DISTRICT OF NEW JERSEY.

GEORGE CROUCH *vs.* WILLIAM ROEMER.

[*In equity.—Before* NIXON, *Dist. J.*]

Letters Patent No. 82,606, reissued March 7, 1871, to George Crouch, for a particular construction of strap to "confine a shawl or similar article in a bundle," declared to be void, in consequence of prior knowledge and public use.

In suits for infringement "the patent is *prima facie* evidence that the patentee was the original and first inventor, and any one who controverts this assumes the burden of proof and undertakes to show affirmatively that there was a prior knowledge and use of the invention under such circumstances as to give to the public the right of its continued use against the patentee." (*Crouch* vs. *Spear, et al.*, VI OFFICIAL GAZETTE, 187.)

[*E. B. Barnum*, for complainant.
Arthur V. Briesen, for defendant.]

OPINION OF THE COURT.

NIXON, *D. J.*:

This is an action for an alleged infringement of complainant's Letters Patent No. 82,606, dated September 29, 1868, and reissued March 7, 1871, No. 4,288.

The subject-matter of the patent is on the reissue described to be a strap "to confine a shawl or similar article in a bundle," and termed a shawl-strap. The schedule, attached to and forming a part of the said reissued patent, states that, before the complainant's invention—

Straps had been used to confine a shawl or similar article in a bundle, and a leather cross-piece with loops at the ends had extended from one strap to the other; and above, and attached to this leather cross-piece, was a handle. This leather cross-piece or connecting-strap is liable to bind and allow the straps to be drawn toward each other by the handle in sustaining the weight. Hence, the bundle is not kept in a proper shape, and the handle is inconvenient to grasp.

The invention is then stated to consist of—

A rigid cross-bar beneath the handle, combined with the suspending-straps that are to be passed around the shawl or bundle, such straps passing through loops at the ends of the handle.

No question can be made but that the shawl-straps manufactured and sold by the defendant are infringements of the complainant's reissue. They consist of a metallic cross-bar, with slots at the ends for the reception of the straps, and which also connect the ends of the handle.

Several defenses are set up in the answer, but the only one necessary to consider is the first, to wit, the want of novelty and prior public use.

I had occasion heretofore to inquire into the validity of the complainant's patent in a controversy between the same complainant and *Spear et al.*, reported in VI OFFICIAL GAZETTE, in which, as in this case, the principal defense turned upon the novelty of the invention. A prior public use was alleged, and attempted to be proved.

I there said, and now repeat—

That the patent is *prima facie* evidence that the patentee was the original and first inventor, and that any one who controverts this assumes the burden of proof and undertakes to show affirmatively that there was a prior knowledge and use of the alleged invention under such circumstances as to give to the public the right of its continued use against the patentee.

The defense in this case has brought out many facts in regard to the public use of the rigid cross-bar in shawl-straps, anterior to the date of the complainant's patent, which were not developed in the former suit. There is no evidence, which, in my judgment, affects the honesty of the complainant's claim, or which creates any doubt that he really believed himself to be the original and first inventor; but nevertheless I am constrained to the conclusion, after a most careful examination of the whole testimony, that the proofs show with reasonable certainty that he has been anticipated in the invention, and that his patent is void in consequence of the prior knowledge and public use, and the bill must therefore be dismissed with costs.

U. S. CIRCUIT COURT—DISTRICT OF MASSACHUSETTS.

THE UNION METALLIC CARTRIDGE COMPANY *vs.* THE UNITED STATES CARTRIDGE COMPANY.

[*In equity.—Before* SHEPLEY, *J.—Decided April* 13, 1877.]

A patent for a machine for forming heads on cartridge-shells, in which the shells are carried through a die on the mandrel, and both mandrel and die are moved forward together, forcing the closed end of the shell against a stationary header and squeezing it down to form the flanges, is infringed by the use of a machine in which the die is stationary and the header advanced after the mandrel has carried the shell into position.

The fact that there is an advantage in having the die stationary while the header moves toward it is not alone sufficient to show that the machine is not the equivalent of that patented, all the elements of combination existing alike in both and operating the same in combination.

An inventor, without describing equivalents in his patent, is entitled to be protected in their use and to treat their use by others as an infringement.

Purchasers of patented machines are entitled to repair and perfect them and use the same during the extended term of the patent.

SHEPLEY, *J.*:

The machine for making cartridge-cases, described in the Letters Patent reissued to Ethan Allen, May 9, 1865, and subsequently extended, forms a flange on the head of the cartridge for the reception of the fulminate. A mandrel is advanced and inserted into the shell and pushes the shell into a die which surrounds the shell, with the closed end of the shell projecting beyond the die a sufficient distance to afford metal from which the flange may be formed. The outside of the shell in this position is thus supported by the die, the inside by the mandrel, and the edges of the open end of the shell by a shoulder on the mandrel. The mandrel, die, and shell then advance together, forcing the closed end of the shell against a bunter, and squeezing the end down so as to form the flange of the cartridge. The mandrel then retreats, leaving the headed shell in the die, retained there by the flange on the outside of the die, on that side of the die farthest from the mandrel. The die has a gutter, which is a prolongation of the hole in the die, but open on top, into which gutter the shell is dropped prior to being acted upon by the advancing mandrel. When the mandrel is retracted after the flange has been formed on one shell, a second unflanged shell is placed in the gutter to be entered and forced forward in turn by the mandrel, the advance of this shell on the mandrel driving out the shell which was previously headed and remained in the die; the second shell is then headed as before, and so on in succession. The claims in the patent are for—

1. The mandrel which carries the cartridge-shell in combination with the die which admits the same, and against which the closed end of the cartridge-shell is headed, substantially as described.
2. The die constructing and operating for the heading of cartridge-shells, substantially as described.

In the machine admitted to be used by the defendants are found substantially the same die, mandrel, and bunter operating in the same manner to form the flanged head of the cartridge and to expel the shell after being headed, except that in defendants' machine the bunter moves toward the die to head the shell, while in the Allen machine the die moves toward the bunter to head the shell. The fact as proved that, especially in the case of cartridges of longer sizes, there is an advantage in having the die stationary while the bunter moves toward it, is not sufficient alone to show that this latter form of the machine is not an equivalent of the other, all the elements of the combination existing alike in both, and operating alike in combination.

It is contended on the part of the defendants that the action of the Commissioner of Patents, in requiring a disclaimer of so much of the reissued patent as claimed in specific terms the use of the movable bunter and the stationary die as an equivalent for the movable die and the fixed bunter before granting an extension, is conclusive upon the complainants, but we do not so regard it. The patentee, without describing equivalents, is entitled to use equivalents and to treat the use of equivalents by others as an infringement, and this upon the evidence in the record appears to be a clear case of such a use.

There is evidence of a purchase from the patentees of five machines by the defendants. If they have only repaired and perfected these machines, the use of these machines is not an infringement. But the purchase of these five machines would not, as contended by the defendants, authorize the use of five machines embracing the patented inventions unless they are the identical machines so purchased. The facts with regard to the extent of the infringement can only be determined on the coming in of the master's report. The injunction will be so modified as not to enjoin the use of the original five machines purchased by defendants until the coming in of the master's report.

Decree for injunction and account, and reference to a master.

APPLICATION FOR EXTENSION.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., April 24, 1877.

On the petition of Erastus T. Bussell, of Indianapolis, Indiana, praying for the extension of a patent granted to him on the 20th day of November, 1853, numbered 10,280, extended for seven years from the 20th day of November, 1867; reissued on the 13th day of December, 1870, and numbered 4,202, for an improvement in combined rubber and spiral steel spring. This application having been authorized by act of Congress approved March 3, 1877:

It is ordered that the testimony in the case be closed on the 10th day of July next; that the time for filing arguments and the Examiner's report be limited to the 20th day of July next; and that said petition be heard on the 25th day of July next.

Any person may oppose this extension.

ELLIS SPEAR,
[tf] *Commissioner of Patents.*

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date June 26, 1877.]

10,068.—Casket-Handle Lugs.—CHARLES BARMORE, Cincinnati, Ohio. Application filed June 18, 1877. Term of patent 3½ years.

10,069.—Cassimeres.—OSCAR F. CHASE, Thompson, Conn. Application filed June 16, 1877. Term of patent 3½ years.

10,070.—Tobacco-Bags.—WILLIAM J. CUSSEN, Richmond, Va. Application filed June 1, 1877. Term of patent 14 years.

10,071.—Carpets.—EUGENE DANIEL, Paris, France, assignor to the ROXBURY CARPET COMPANY, Boston, Mass. Application filed June 18, 1877. Term of patent 3½ years.

10,072 and **10,073.—Organ-Case.**—SAMUEL HAYWARD, Boston, Mass., assignor to J. ESTEY & Co., Brattleborough, Vt. Applications filed May 28, 1877. Term of patents 7 years.

10,074.—Covers for Smoking-Pipes.—JOHN KIRSCHBAUM, Waterbury, Conn., assignor to NOVELTY MANUFACTURING COMPANY, same place. Application filed May 3, 1877. Term of patent 7 years.

10,075.—Cradles.—LEVI E. MINOTT, Sheboygan, Wis. Application filed April 3, 1877. Term of patent 3½ years.

10,076.—Group of Statuary.—JOHN ROGERS, New York, N. Y. Application filed June 11, 1877. Term of patent 14 years.

10,077.—Milk-Jugs.—THOMAS C. SMITH, Green Point, Brooklyn, N. Y. Application filed May 4, 1877. Term of patent 14 years.

10,078.—Funereal Ornament.—WILLIAM M. SMITH, West Meriden, Conn., assignor to the MERIDEN BRITANNIA COMPANY, same place. Application filed May 18, 1877. Term of patent 14 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date June 26, 1877.]

4,758.—Salt.—S. ABBEY & SON, Kingston, N. Y. Application filed November 29, 1876.

"The word-symbol 'ASHTON.'"

4,759.—Medicinal Preparation.—GARDNER F. BADGER East Orange, N. J. Application filed May 31, 1877.

"The word-symbol 'VIGORENE.'"

4,760.—Boots and Shoes.—BAY STATE SHOE AND LEATHER COMPANY, New York, N. Y. Application filed April 28, 1877.

"The arbitrary semicircular-shaped symbol shown."

4,761.—Cigars, Cigarros, and Cigarettes.—ROBERT C. BROWN, New York, N. Y. Application filed May 17, 1877.

"The word-symbol 'CZAR.'"

4,762.—Brooms.—PARLEY A. DAILEY, Brooklyn, N. Y. Application filed June 14, 1877.

"The representation or symbol of a yard-measure."

4,763.—Alarm-Clocks.—HENRY J. DAVIES, Brooklyn, N. Y. Application filed May 19, 1877.

"The word-symbol 'PEEP O' DAY.'"

4,764.—Grain-Seeding Machines.—FARMERS' FRIEND MANUFACTURING COMPANY, Dayton, Ohio. Application filed May 26, 1877.

"The word-symbol 'FARMERS' FRIEND.'"

4,765.—Roasted Coffee.—D. FOCHT & Co., Philadelphia, Pa. Application filed May 19, 1877.

"The word-symbol 'TRIUMPH,' and the figure of the female warrior with uplifted spear trampling a dragon."

4,766.—Roasted Coffee.—D. FOCHT & Co., Philadelphia, Pa. Application filed May 19, 1877.

"The word-symbol 'ABOVE ALL,' and the figure of a flying eagle."

4,767.—Cigars.—S. FUGUET & SONS, Philadelphia, Pa. Application filed May 23, 1877.

"The word-symbol 'PRIDE OF KEY.'"

4,768.—Chewing-Tobacco.—BENJAMIN F. GRAVELY, Leatherwood, Va. Application filed April 21, 1876.

"A spread eagle resting upon an imitation of two joined streamers."

4,769.—Chewing-Tobacco.—BENJAMIN F. GRAVELY, Leatherwood, Va. Application filed April 21, 1876.

"The representation of an eagle and shield."

4,770.—Cigars.—ABRAHAM GREENHALL, New York, N. Y. Application filed May 15, 1877.

"The word-symbol 'VULCAN.'"

4,771.—Extract of Ginger.—JAMES K. ISH, Omaha, Neb. Application filed May 16, 1877.

"The symbol of the eagle and mortar, and word 'GOLDEN,' used in connection with the word 'Ginger.'"

4,772.—Ground Mustard and Spices.—PINCKNEY JACKSON & Co, London, England, and New York, N. Y. Application filed May 31, 1877.

"The fac-simile signature of our firm-name—to wit: 'PINCKNEY JACKSON & Co.'—arranged as shown."

4,773.—Cigars.—LEVY BROTHERS, New York, N. Y. Application filed May 25, 1877.

"The word-symbol 'SUNNY SOUTH.'"

4,774.—Medical Compound.—LOREN B. LORD, Burlington, Vt. Application filed May 14, 1877.

"The fac-simile of the autograph of Henry Baxter, M. D., on one side of and in connection with a label, which is inclosed within an ornamental border, and containing a shield formed by four brances, upon which rests the representation of an eagle with extended wings."

4,775.—Hog-Cholera Remedy.—CHARLES R. MARTIN, Sulphur, Ky. Application filed May 10, 1877.

"The representation of a hog and my monogram 'C. R. M.,' substantially as shown."

4,776.—Flour.—S. S. MARVIN & Co., Pittsburg, Pa. Application filed April 21, 1877.

"The word-symbol 'PAN-CAKE.'"

4,777.—Soap.—MONTEATH & Co., Albany, N. Y. Application filed May 31, 1877.

"The word-symbol 'EMPRESS' used in connection with the word 'Soap.'"

4,778.—Caramels and other Confectionery.—POWELL & COLEMAN, New York, N. Y. Application filed May 12, 1877.

"The arbitrarily-selected letters 'U. S. C.'"

4,779.—Wine.—LOUIS ROEDERER, Reims, France. Application filed April 17, 1877.

"The title or designation 'N. H. SCHREIDER.'"

4,780.—Wine.—LOUIS ROEDERER, Reims, France. Application filed April 17, 1877.

"The title or designation 'LOUIS ROEDERER.'"

4,781.—Cigars.—STRAITON & STORM, New York, N. Y. Application filed May 17, 1877.

"The word-symbol 'LUXURY.'"

4,782.—Wines.—ROBERT W. TAILER, New York, N. Y. Application filed May 24, 1877.

"Two diagonal lines crossing a white oblong label, which contains at its center a shield surmounted by a crown, the whole being in imitation of the back of a sealed envelope."

4,783.—Medicinal Preparations for Animals.—JAMES S. TALBOT, Boston, Mass. Application filed May 18, 1877.

"The fanciful words 'OUR DUMB ANIMALS' FRIEND.'"

4,784.—Enameled Sheet-Metal Ware.—THE METAL MANUFACTURING COMPANY, St. Louis, Mo. Application filed August 30, 1876.

"The word-symbol 'STONE-IRON.'"

4,785.—Deodorizing and Disinfectant Preparation.—CROOKS & HATCHER, Zanesville, Ohio. Application filed June 4, 1877.

"The word-symbol 'EMBALSAMAR.'"

4,786.—Smoking-Tobacco and Cigarettes.—F. W. FELGNER & SON, Baltimore, Md. Application filed June 1, 1877.

"The word-symbol 'CLEAR THE WAY.'".

4,787.—Ale.—GALWEY & CASADO, New York, and ALEXANDER D. SHAW, New Brighton, N. Y. Application filed April 19, 1877.

"The sphynx, the pedestal, the letters G. C. S., and the shield."

4,788.—Soap.—HOLME & TULLER, Hartford, Conn. Application filed May 31, 1877.

"The word-symbol 'CHARTER OAK.'"

4,789.—Baking-Powder.—JEWETT & SHERMAN COMPANY, Milwaukee, Wis. Application filed June 1, 1877.

"The word-symbol 'BUFFALO.'"

4,790.—Baking-Powder.—JEWETT & SHERMAN COMPANY, Milwaukee, Wis. Application filed June 1, 1877.

"The word-symbol "MAGIC.'"

4,791.—Soap.—JOHN M. JONES, Jersey City, N. J. Application filed March 2, 1877.

"A shield divided by one perpendicular line through the center, with two chamois (one on each side of said perpendicular line) standing erect on one hind foot, as if in the act of leaping. Beneath the chamois, on the left of the shield, are two horizontal bars surmounted by three half-circles. Beneath the chamois, on right of shield, is one horizontal bar surmounted by one half-circle, and above the chamois, on right of shield, are two horizontal bars. The shield is surmounted by an oblong circle, with a triangle within the oblong circle. Above the circle is the base of a crown, with the head, fore legs, and wings of a winged chamois issuing from the base of the crown, and together forming the shape of a crown. At the sides and center of the crown are crosses on spears, the spears piercing balls, the whole arranged as shown."

4,792.—Fertilizers.—LAKE GUANO AND SHELL FERTILIZER COMPANY, New York, N. Y. Application filed June 4, 1877.

"The pictorial representation of a conch-shell with a cluster of fruits and plants, indicative of the products of the United States, issuing therefrom."

4,793.—Acid Phosphate.—RUMFORD CHEMICAL WORKS, Providence, R. I. Application filed May 28, 1877.

"The word-symbol 'HORSFORD.'"

4,794.—Artificial Stone and Artificial-Stone Pavements.—THE FIRM OF WILLIAM KRAUSE, Philadelphia, Pa. Application filed June 4, 1877.

"The word-symbol 'LITHOGEN.' and the figure of a Maltese cross."

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date June 26, 1877.]

1,092.—Title: **"This Sole is Fastened with Screws."**—BAY STATE SHOE AND LEATHER COMPANY, New York, N. Y. Application filed June 14, 1877.

1,093.—Title: **"Crayon Indestructible, D'Baerri."**—HENRY C. BERRY, Chicago, Ill. Application filed June 15, 1877.

1,094.—Title: **"H. H. Hamer's Soap."**—H. H. HAMER, Careyville, Tenn. Application filed June 2, 1877.

1,095.—Title: **"Self Kindlings."**—JOHN S. PAINE, Providence, R. I. Application filed June 8, 1877.

1,096.—Title: **"Special Hand Sewing Cotton."**—LEON RHEIMS, New York, N. Y. Application filed June 14, 1877.

1,097.—Title: **"Nas. Schlumberger & Cie., Guebwiller."**—LEON RHEIMS, New York, N. Y. Application filed June 14, 1877.

1,098.—Title: **"Reec's Patent Compound Fire Extinguisher."**—ARMIN TENNER, Cincinnati, Ohio. Application filed May 4, 1877.

1,099.—Title: **"Potato Pest Poison."**—THE LODI CHEMICAL WORKS, Lodi, N. J. Application filed June 16, 1877.

1,100.—Title: **Vienna Coffee."**—WEIKEL & SMITH SPICE COMPANY, Philadelphia, Pa. Application filed June 19, 1877.

1,101.—Title: **"Elixir Theobroma Comp."**—C. B. WOODWORTH & SON, Rochester, N. Y. Application filed June 13, 1877.

SALE OF SPECIFICATIONS AND DRAWINGS.

Photolithographic copies of the drawings of all patents issued since November 26, 1867, have been produced, and will be sold to the public at 25 cents per patent, or, where twenty or more copies are ordered at one time, at 10 cents per patent.

Coupon-books, to the amount of $2 or more, can be purchased from the Chief Clerk of the Patent Office; the conpons, for 10 cents each, may be filled out at any time, and, on presentation, will entitle the holder to a photolithographic copy of *any* drawing which has been reproduced.

The specifications of all patents issued since July 1, 1871, are in print, and will be furnished with the drawing without extra charge. In some cases the specifications of patents issued prior to July 1, 1871, are in print, and where such is the case the Office will furnish them with the drawings, but the Office will not undertake to reprint copies of patents which have been exhausted.

In addition to the above, the Office has reproduced, and offers for sale at the price mentioned above, all drawings in the following classes, embracing patents granted from 1790 to date. The classes are those of the Examiners.

Apparel.	Paper manufactures.
Boats.	Printing.
Bookbinding.	Projectiles.
Bridges.	Railways, (Cars and Interior Fittings.)
Carding.	Railways, Exterior
Carriages and Wagons.	Mountings and Fittings.
Cloth.	Sewing-machines.
Cordage.	Ships, construction.
Crinoline and Corsets.	Ships, propulsion.
Driers and Kilns.	Signals.
Electricity.	Silk.
Felting and Hats.	Spinning.
Fire-arms.	Stationery.
Harvesters.	Stoves and Furnaces.
Knitting and Netting.	Thrashing.
Lamps and Gas-fitting.	Umbrellas and Fans.
Mills.	Weaving.
Ordnance.	
Paper-making.	

And the subdivisions of—

Bench-planes.	Buttons and Machines.
Bale-ties.	Combs, &c.

About sixty other classes are in progress, and it is hoped that all the drawings remaining, some forty thousand in number, may be completed during the fiscal year.

The total number of patents of which drawings are complete and offered for sale as above will approximate one hundred and fifty thousand.

THE illustrated portion of the Patent Office Report for 1869 and for 1871 has recently been completed, and can be had, by those having the remaining volumes for those years, by applying to the Commissioner of Patents.

All letters to the Patent Office must be addressed to the Commissioner of Patents.

When a patent has been allowed, and the application has not been forfeited by delay of six months, if the final fee of twenty dollars is paid before 12 o'clock on Friday, the patent will issue and bear date the following Tuesday.

The Government fee on making application for a patent is fifteen dollars. The final fee is twenty dollars. Usually there are no other Government fees unless the application is appealed.

Letters Patent of the United States do not reach the patentee or owner until about two weeks from the day of their date. The letters, nevertheless, have the force of patents from the time they are signed and sealed.

The "Rules of Practice" are furnished gratis on personal or written application to the Commissioner of Patents.

The "Rules of Practice" contain full instructions, forms, &c., for making applications for patents.

Where specifications are in print they are furnished with the drawings without extra charge.

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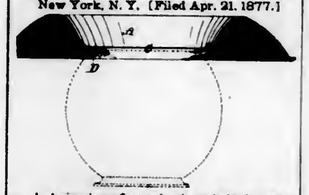
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TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED JUNE 26, 1877.

192,321. REFLECTORS. Henry O. Baker, New York, N. Y. [Filed Apr. 21, 1877.]

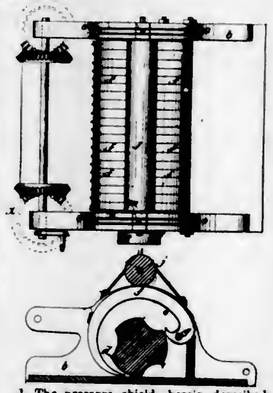


1. A circular reflector, having a hole through its center, and having the edge around the hole turned downward, forming a concavo-convex reflector, as shown, so as to reflect light downward and outward, substantially as specified, and for the purpose described.

2. A concavo-convex ring-reflector that has a hole through its center, and which is provided with the feet or supports D, whereby it can be hung upon the top edge of a globe or shade, substantially as described.

192,322. PLANING-MACHINES. W. W. Brewster, Revere, Mass. [Filed Oct. 27, 1875.]

Brief.—In planers provided with a horisontal rotary or cutting cylinder whose axis is transverse to the machine-bed the lumber, when being planed, is held flat upon the bed, and the tendency of the cutter to draw the lumber toward said cutter or upward from the bed obviated by means of a pressure-shield, formed of a series of crescent-shaped sections pivoted upon a rod passing through the main frame behind the cutter, and pass over the cutter-cylinder near its cutting-edge, and an elastic pressure-roll for producing the requisite pressure of the fingers upon the board, all mounted in a pivoted and vertically-adjustable cylinder-frame.



1. The pressure-shield, herein described, consisting of a series of crescent-shaped sections *f*, which are pivoted behind the cutting-cylinder, and which pass over the cylinder near to its cutting-point, in the manner shown, and for the purposes specified.

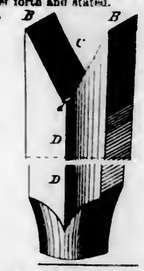
2. In combination with the sectional pressure-shield, the elastic pressure-roll *j* and the pivoted and vertically-adjustable cylinder-frame *b*, constructed to operate substantially in the manner shown and for the purposes specified.

192,323. MORTISE-CHISELS. Edwin Carney, Lockport, N. Y. [Filed Apr. 26, 1877.]

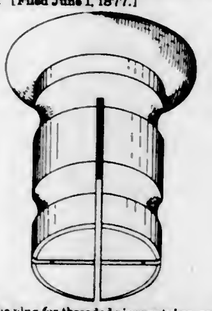
Brief.—A double-edged chisel formed of a solid piece of steel, having a V-shaped excision on its end.

As an improved article of manufacture, a mortise-chisel having two cutting-edges, B B, produced by the excision C, the body of said chisel being made tapering or decreasing in size toward the socket or shank end, and longitudinally swelled along the lines *d* D, the whole constructed and arranged as herein-before set forth and stated.

192,323.



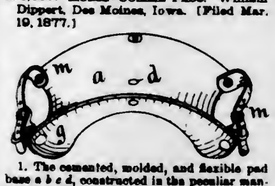
192,324. PIPE-PLUGS. Robert H. Dalzell, Kilbuck Township, Allegheny County, assignor to A. F. Dalzell, trustee, Pittsburg, Pa. [Filed June 1, 1877.]



1. The plug for threaded pipes or tubes, said plug having a head adapted to project beyond the threaded surface, and a compressible and expansible body, substantially as specified.

2. The plug for threaded tubing, having a head adapted to project beyond the threaded surface, and a compressible and expansible body furnished with bearing-rings, substantially as specified.

192,325. HORSE-COLLAR PADS. William Dippert, Des Moines, Iowa. [Filed Mar. 19, 1877.]



1. The cemented, molded, and flexible pad base *a b c d*, constructed in the peculiar manner described, and combined with a flexible cover, *g g*, of corresponding form, by means of adhesive cement, substantially as and for the purposes shown and described.

2. As an improved article of manufacture, a horse-collar pad composed of the riveted, cemented, molded, and flexible base *a b c d*, the flexible cover *g g*, of corresponding form, united with said base by means of adhesive and medicated cement, and the loops *m m*, secured to the corners of the pad by metallic rivets, substantially as and for the purposes set forth.

192,326. BARREL-COVERS. D. F. Dodge, Lowville, N. Y. [Filed Apr. 9, 1877.]

Brief.—The cover is formed of a main hoop having an inwardly-projecting flange on its upper part, a suitable handle, and a glass disk held between rubber packing-rings, and said flange, by a movable supplemental flange, secured to the inside of the main hoop by nails or screws.

192,326.



1. A barrel-cover consisting of the hoop or rim A, handle H, disk of glass C, and packing-rings R R', the disk and packing-rings being retained in place by the supplemental ring D, or its mechanical equivalent, substantially as described.

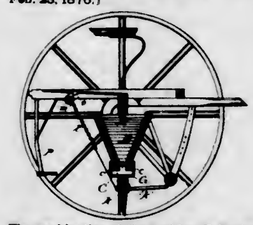
2. A plate-glass barrel-head, C, retained in position and supported by the hoop A, elastic packing-rings R R', and retaining ring D, or their equivalents, as shown and set forth.

192,327. LOCKS FOR SATCHELS, &c. Robert Flocks, Newark, N. J., assignor to R. Neumann & Co., New York, N. Y. [Filed Mar. 22, 1877.]



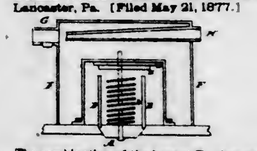
The barrel C, with plate D having an elongation, *m*, acted upon by a suitable spring, *w*, and a projection, J, in combination with the staple or tongue N, arranged to operate in the manner and for the purpose described.

192,328. SEED AND PLASTER SOWERS. Jas. W. Gambis, Aylmer, Ontario, Canada, assignor of one-half his right to Geo. W. Rife and Jonathan White, same place. [Filed Feb. 23, 1876.]



The combination of the seed-box B, having detachable slide C, with the drill attachment, consisting of box G having fixed tubes H, hinged drag-bars K', and drill-tubes *k*, substantially as and for the purpose herein shown and specified.

192,329. SAFETY-VALVE ATTACHMENTS TO UTILIZE WASTE STEAM. W. H. Garrecht, Lancaster, Pa. [Filed May 21, 1877.]



The combination of the bonnet F, when provided with an interior conic tube, H, a horizontal pipe-connection, G J, to a hose-coupling, K, and vertical pipe L, entering the water-tank from above, said bonnet being secured by a simple clamp, lugs, and binding-screw S, disconnected from, but covering, the safety-valve A, cylinder B, and united disks D E, the whole arranged substantially as and for the purpose specified.

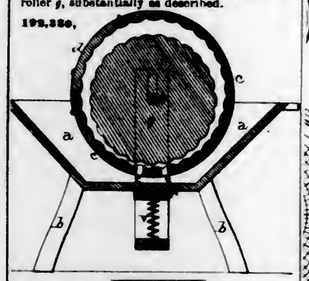
192,330. WASHING-MACHINES. Fred. N. Griffith, Shell Rock, Iowa. [Filed Apr. 13, 1877.]

1. The combination of the box *a*, box *e* fastened therein, and provided with a slot, *o*, in each end, the roller *g*, shaft *i*, uprights *l*, guides *r*, and springs *v*, substantially as set forth.

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2. The uprights *l*, having the shoulders *a* on their inner sides, so as to catch over the top of the box *a*, guides *r*, cross-bar *s*, and springs *v*, in combination with the shaft *i* and roller *g*, substantially as described.

192,330.

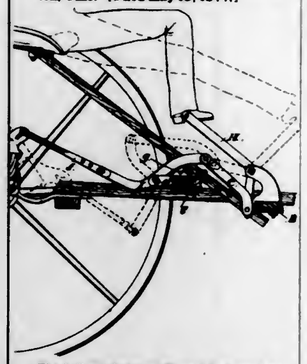


192,331. BOILER-FURNACE GRATE-BARS. R. J. Hancock, Springfield, Mass. [Filed Apr. 10, 1877.]



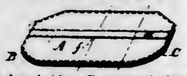
The grate-bars *s s s*, mounted upon the rock-shafts *b b b* to one side of their axis of motion, the under edge of said grate-bars, from near the rock-shaft to the ends of them, being made with a sharp upward pitch, and the bottom edges thereof V-shaped, substantially as and for the purpose set forth.

192,332. HORSE HAY-RAKES. Henry C. Herchelrode and J. H. Schonacker, Dayton, Ohio. [Filed May 19, 1877.]



The bell-crank levers H and I, pivoted upon the cross-bars B and C, and connected to each other and to the rake-head by the links *e* and *f*, whereby the driver can, by the pressure of his foot, hold the teeth to raking position, or cause them to be elevated to discharge the collected hay, substantially as set forth.

192,333. CUFFS. R. S. House, New York, assignor to Strahan, Hodgson & Co., Troy, N. Y. [Filed June 4, 1877.]

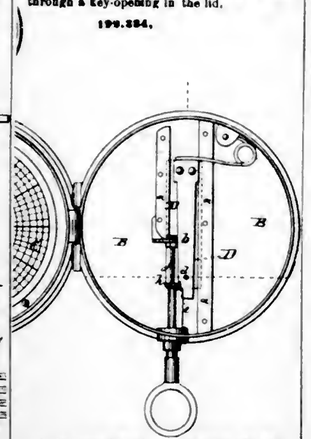


A detachable cuff composed of two or more thicknesses, of which one outside thickness consists of only a single piece, A, having therein a plait, *d*, in which is a slit, *f*, through which the cuff, after being run along all its edges, is turned right side out, and which plait is afterward stitched to the cuff, substantially as described.

192,334. WATCHMEN'S TIME-DETECTORS. Wm. Imbacuser, Brooklyn, N. Y., assignor to Miss Imbacuser, same place. [Filed May 23, 1877.]

Brief.—A sliding hammer-carrier, to which is attached a spring-hammer having suitable marking devices, is operated by a series of keys through a key-opening in the lid.

192,334.

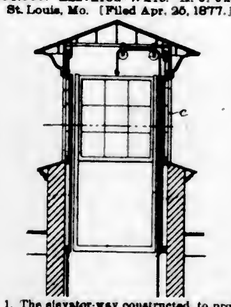


1. In a watchman's time-detecter, the combination of the lid or cover B with the slide D, and with the spring or hammer *b* attached thereto, all arranged to operate substantially as herein shown and described.

2. The combination of the lid B and slide D with the perforated projecting lug *h* and key-arbor *j*, substantially as herein shown and described.

3. The lid B of a watchman's time-detecter, constructed with a groove or guide-rails, *a a*, on its under side, to receive and guide the slide D, that carries the marking-hammer or spring *b*, substantially as herein shown and described.

192,335. ELEVATOR-WAYS. A. J. Judge, St. Louis, Mo. [Filed Apr. 26, 1877.]



1. The elevator-way constructed to project above the the roof of a building, as and for the purpose set forth.

2. The openings above the roof in the elevator-way, controlled by a sliding window and rope attachment, or equivalent automatic-acting device, as and for the purposes set forth.

3. The combination of the windows, automatically controlled, as shown and described, and the elevator-way, said parts being built and arranged above the roof of buildings, as and for the purposes set forth.

192,336. HYDRANTS. Wm. Kaiser, Wilkesbarre, Pa. [Filed Aug. 16, 1876.]

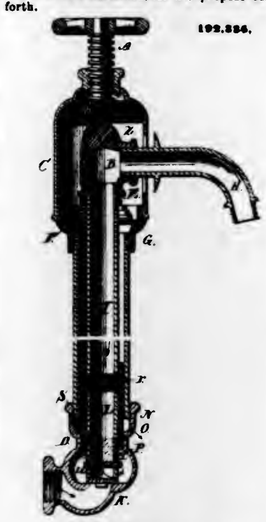
Brief.—By turning the hand-wheel the screw is raised and the L-shaped tube and nozzle are relieved from pressure, allowing the spring to raise the tube, the flange on the prolongation of the lower end of which closes the waste-outlet and allows the free discharge of the water.

1. The quadrilateral portion P and projecting flange *x* of a hollow valve-stem, L, screw-nipple N, its quadrilateral cavity *u* and perforation O, in combination with a valve-casing, K, and pipe-socket *r*, as shown, for the purpose set forth.

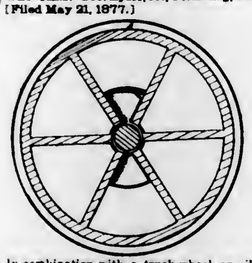
2. The combination, in a valve-casing, K, having contracted portion, and screw-thread D, of enlarged portion S, with a screw-nipple or socket, N, and hydrant casing or tube J, as shown and described, for the purpose set forth.

3. The guide-ring F, cone-spring E, concave cavity Z on bolt A, in combination with the conical casing or cap C, its base G, elbow B, discharge-pipe I, and nozzle H, all arranged as shown and described, for the purpose set forth.

192,336.

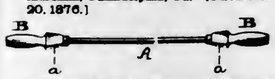


192,337. AXLE-LUBRICATORS FOR RAILWAY-CARS. Geo. Lysle, Jr., Pittsburg, Pa. [Filed May 21, 1877.]



In combination with a truck-wheel, an oil-cup divided into two compartments placed against and on opposite sides of the hub and connected by a groove inside of the hub, into which the said compartments open directly, substantially as and for the purpose described.

192,338. EXERCISING-MACHINES. Wm. M. Marshall, Philadelphia, Pa. [Filed Nov. 20, 1876.]



1. The rod A, made of elastic material, but non-elastic in the direction of its length, and the handles B B, combined and operating substantially as and for the purpose set forth.

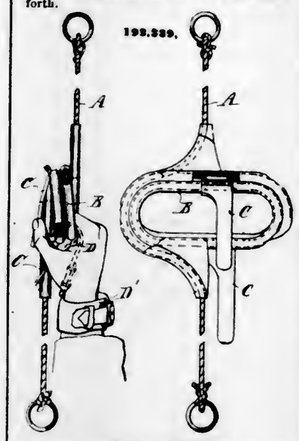
2. The elastic rod A, non-elastic in the direction of its length, in combination with the handles B B, formed with bearing-faces *a a* for the thumbs, substantially as and for the purpose set forth.

192,339. FIRE-ESCAPES. Louis Meyer, St. Louis, Mo. [Filed May 2, 1877.]

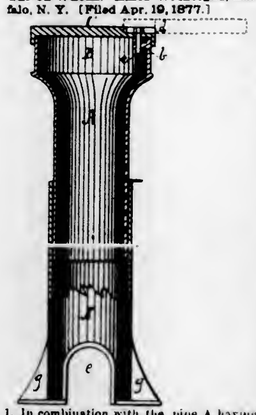
1. The hook D and wristband D', in combination with the hand attachment B, carrying the brake C and the rope A, as and for the purposes set forth.

2. The reversible hand attachment B, provided with two oppositely-positioned brakes, C, all constructed as herein shown and described, in combination with a rope, to operate in the manner and for the purpose set forth.

192,339.



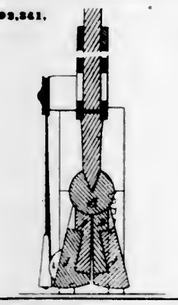
192,340. STREET STOP-COCK BOXES FOR GAS OR WATER. Amos W. Morgan, Buffalo, N. Y. [Filed Apr. 19, 1877.]



1. In combination with the pipe A having the inside lug *b*, the cover C having the countersunk opening, and provided with the vertical brass screw for fastening the same, with the head formed to receive a wrench or key, substantially as and for the purpose specified.

2. In a stop-cock pipe, A, in combination with the pipe openings *e e*, the flanges or shoe *g g*, substantially as and for the purpose specified.

192,341.

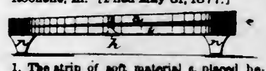


192,341. MACHINERY FOR FORMING BOOT AND SHOE COUNTERS. George F. Moore, Kennebunk, Me., assignor to Mousam Manufacturing Company, same place. [Filed May 28, 1877.]

1. The combination of the convex counter-former with the two rotary concave shapers, arranged to operate therewith, substantially as set forth.

2. The two shaper-carriers, pivoted together and provided with the gears, as described, in combination with the stationary racks and guides therefor, and with the convex counter-former carrier, all being arranged and applied substantially as shown and described.

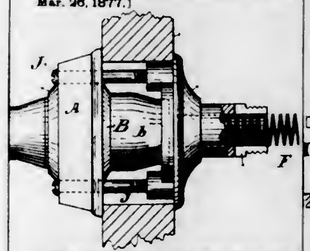
192,342. HORSESHOES. Edward Murraine, Rochelle, Ill. [Filed May 31, 1877.]



1. The strip of soft material *c*, placed between the plate *a* and the shoe *g*, and extending around the rear part of the shoe only, substantially as set forth.

2. The combination of the plate *a*, having the screw-holes *d* and slots *e*, screws *h*, studs *i*, recesses *o*, strips of soft material *c*, that extend around the rear part of the shoe only, and calks *n*, all combined to operate as set forth.

192,343. KNOB-LATCHES. Milton C. Niles and Sidney S. Niles, Oak Park, Ill. [Filed Mar. 26, 1877.]



1. The exterior case A, in combination with the back plate B, provided with a tubular projection, *b*, and spindle C, secured to the case by a screw-thread thereon, substantially as and for the purpose set forth.

2. The case A, in combination with the rose I, back plate B, provided with a tubular projection, *b*, the outer end of which is supported in a bearing in the rose, and the long screws J, extending through the case and door to fasten the several parts together and to the door, substantially as and for the purpose set forth.

3. The spindle C, in combination with the spring F, knob E, and fastening-ring G, all constructed and operating substantially as and for the purpose set forth.

4. The spindle provided with a screw-thread upon its bearing-surface in the lock, in combination with a bearing in the lock, also having a screw-thread, whereby the spindle is fastened to the lock and held in position to operate the bolt, substantially as and for the purpose described.

5. The case A, in combination with the back plate B, provided with a tubular projection, *b*, and the spindle C, having a bearing in both case and tubular projection, and projecting outside of each to form knob-shanks at the ends, substantially as and for the purpose set forth.

192,344. KNOB-LATCHES. Milton C. Niles and Sidney S. Niles, Chicago, Ill. [Filed Jan. 18, 1877.]

1. The knob-shanks D, elongated to enter the lock-case, connected together at their inner ends within the case, and cut away to form a cam at their junction, whereby the bolt is operated, substantially as and for the purpose set forth.

2. The elongated knob-shanks D, provided with shoulders *d* at their inner ends, and connected together by the threaded core *d'*, substantially as described.

3. The case A, in combination with the knob-shanks D, elongated to enter the case within which they are joined at their inner ends and recessed to provide a cam, and an independent tube, B, passing through the case and inclosing the shanks, substantially as and for the purpose set forth.

4. The case A, in combination with the independent tube B, extending through the case and provided with a stop-flange, *b*, arranged to abut against the lock-case within the mortise of the door, and a fastening device, whereby the tube is secured rigidly in position, substantially as and for the purpose set forth.

5. The tube B, in combination with the fixed flange *b*, having a notch, *b'*, and the pin *b''* on the lock-plate, substantially as and for the purpose set forth.

6. A knob-spindle, provided with a central cam, *d*, in combination with the two reciprocating bars E, pivoted lever F, and bolt G, substantially as and for the purpose set forth.

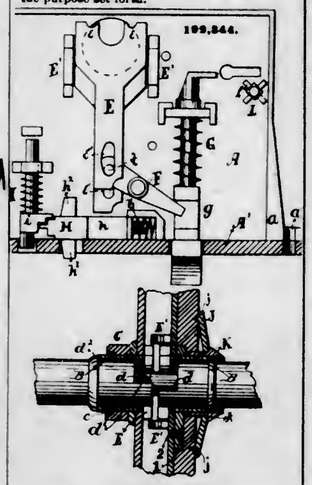
7. The knob-shanks D, in combination with the two reciprocating bars B, and the slide-stop H, provided with recesses *h* and *h'*, substantially as and for the purpose set forth.

8. The sliding spring-stop H, in combination with the spring-catch I, substantially as described.

9. The threaded tube B, provided with a stop-flange, *b*, abutting against the lock-plate, in combination with the independent roses J and the shouldered screw-rings K, all arranged and operating substantially as described.

10. The adjustable block L, provided with flanges *l*, having wards to accommodate keys with different bits, substantially as and for the purpose set forth.

192,344.



192,345. MANUFACTURE OF CRUCIBLES. James Park, Jr., Pittsburg, and Geo. Hay, Allegheny, Pa. [Filed Jan. 9, 1877.]

In the manufacture of crucibles or like articles, composed in whole or in part of plumbago, inclosing the article in a closed receptacle, and enveloping it in a solid or gaseous substance, substantially as specified, which will prevent oxidation of the carbonaceous matter of the crucible during the baking or burning, in the manner set forth.

192,346. SOFT-CENTER INGOTS OR SLABS. James Park, Jr., Pittsburg, Pa. [Filed Oct. 16, 1876.]

Brief.—The ingot is made by casting steel upon one side of a slab of wrought-iron, and welding to the other side a slab of wrought or hammered cast steel.

The soft-center ingot or slab, having hard-steel faces or outer surfaces, one of said outer surfaces being wrought cast-steel and the other cast-steel unwrought, substantially as specified.

192,347. COMBINED LAMP AND GAS LIGHTER. J. A. Plant, Danbury, Conn. [Filed Dec. 21, 1876.]

Brief.—Adapted to light or extinguish either a lamp or gas burner.

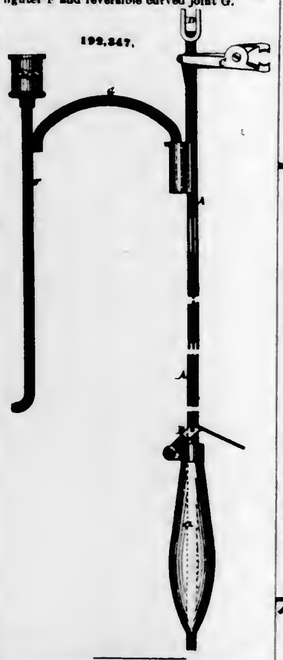
1. The combination of tube A, provided with the finger-piece B and arms C and C', and the lighter F, connected together substantially as described, and for the purpose set forth.

2. The combination of tube A, provided with the finger-piece B and arms C and C' and clamp D, with the lighter F.

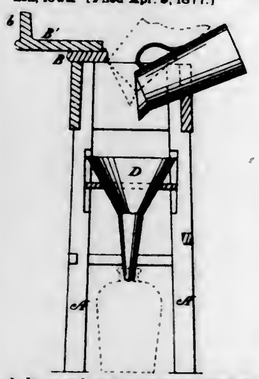
3. The combination of tube A, provided with the finger-piece B and arms C and C' and clamp D, with the lighter F and reversible curved joint G.

4. The combination of tube A, provided with the finger-piece B and arms C and C', connected together by cord or wire *e*, and lighter F and reversible curved joint G.

192,847.



192,848. STANDS FOR HOLDING FUNNELS, MEASURES, &c. Simon M. Preston, Grinnell, Iowa. [Filed Apr. 9, 1877.]

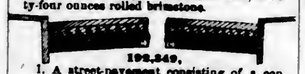


1. In a stand, such as above described, the sliding table C, containing the funnel D, substantially as and for the purpose set forth.

2. The combination in a stand, as above described, of the hinged cover B', having the pendant b, and a sliding table C, having the funnel D securely attached thereto, as and for the purposes described.

192,849. PAVEMENTS. Joseph C. Rock and J. W. Phillips, Washington, D. C. [Filed May 3, 1877.)

Brief.—On a properly-prepared road-bed is placed a course of broken stone or gravel, mixed with a hot solution of chemically-prepared bitumen in the proportion of twenty gallons of bitumen to one cubic yard of stone or gravel, or the following hydraulic-cement concrete, viz., twelve cubic feet broken stone, eight cubic feet gravel, ten cubic feet clean sharp sand, one bushel Portland or other cement. Upon either of the foregoing foundations a two-inch course of finer concrete is placed, into which stone or stone blocks are embedded. Well-warmed fine gravel is then swept over the stones to fill all the interstices, and then into the interstices and over the stones is placed a wearing or top course of the following composition: twenty-four quarts chemically-prepared bitumen, twelve quarts carbojapanis or asphalt, (artificial or natural distilled to the same consistency,) ten gallons dry powdered stone and clay, four ounces sulphuric acid, ten pounds oxide of iron, twenty-four ounces rolled brimstone.

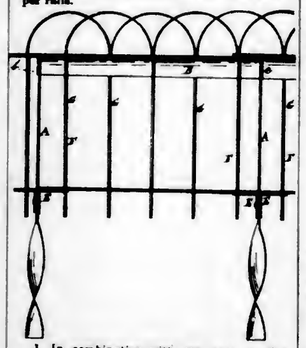


1. A street-pavement consisting of a concrete-base course, *c*, a cushion course or layer of finer concrete, *d*, the layer or course of stone *b*, and top or wearing-surface course *a*, composed of the ingredients herein specified, all constructed substantially as and for the purpose set forth.

2. In a street-pavement, the composition of matter consisting of chemically-prepared bitumen, carbojapanis or asphalt (artificial or natural distilled,) dry powdered stone or clay, (hard limestone, cement-stone, or bituminous shales preferred,) sulphuric acid, oxide of iron, and brimstone, treated in the manner specified, and for the purpose set forth.

192,850. FENCES. Corydon A. Root, Andover, Ohio. [Filed Apr. 23, 1877.]

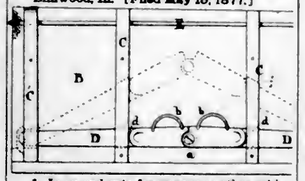
Brief.—The posts and rails consists of thin stripsof metal. The lower rails are secured to the posts by angle-iron. The upper rails are secured in notches in the top of the posts. Pickets pass through the cap-rail on each side of the upper rails, and through the lower rails, thereby preventing lateral deflection of the upper rails.



1. In combination with the post A, the angle-irons E, rails D, and bars or pickets F and G, substantially as herein described, and for the purpose specified.

2. The combination of the posts A, angle-irons E, rails D, rails B C, and bars or pickets F and G, in the manner substantially as described, and for the purpose set forth.

192,851. WAGON END-GATES. H. Rowland, Elmwood, Ill. [Filed May 16, 1877.]

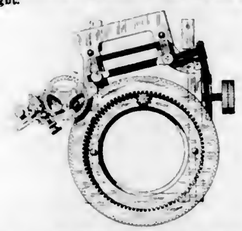


1. In an end-gate for wagons or other vehicles, the bolts D, when constructed to slide loosely in vertical slots on the face of the gate, and mutually confined to an equal extension beyond said gate by means of their respective shoulders or detents *d d*, near their common junction or hinge, substantially as and for the purposes described.

2. The combination, with a gate, B, of the bolts D D, having shoulders or bearings *d d* and guides C C', substantially as and for the purposes described.

192,852. WOOL-COMBING MACHINES. Leonard Smith, Bradford, England. [Filed Mar. 15, 1877.]

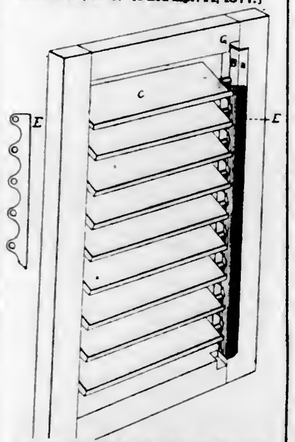
Brief.—In addition to ordinary combing and drawing off mechanism, an auxiliary comb and a transferring-lifter are used, whereby the "noil" remaining in main comb is transferred to auxiliary comb, with the long wool therein presented in proper position for removal. An auxiliary drawing-off mechanism is also used in connection with the auxiliary comb. In some cases it is desirable to heat the auxiliary comb, and it may therefore be hollow or steam-tight.



1. In a wool-combing machine, the combination, with the main combing mechanism and the main drawing-off mechanism, of an auxiliary comb and a transferring-comb or lifter, substantially as described, whereby the noil remaining in the main comb is transferred to the auxiliary comb, with the long wool thereof in a position for its ready removal from the noil, as set forth.

2. The combination, with the main combing and the main drawing-off mechanism, of an auxiliary comb, a transferring-comb or lifter, and an auxiliary drawing-off mechanism, substantially as described, whereby the noil is transferred from the main comb to the auxiliary comb, and the long wool removed from the noil, as set forth.

192,853. WINDOW-BLINDS. T. A. Smits, New York, N. Y. [Filed Apr. 14, 1877.]

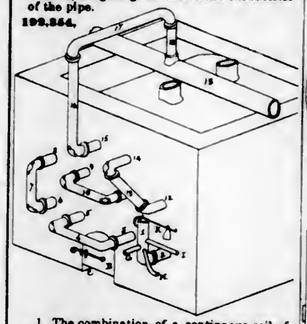


In a window-blind, the slats C, provided with central pivots H and circumferential pivots D formed thereon, in combination with the notched connecting-rod E, substantially as described.

192,854. APPARATUS FOR GENERATING ILLUMINATING-GAS. William W. Upp, Columbia, Pa. [Filed May 8, 1877.]

Brief.—Steam, oil, and liquefied resin are fed together into a coil of pipe, where, under a proper heat, a fixed gas is made. A weighted safety-valve is fitted to the induction end of the coil of pipe, to guard against accident by explosion. Plates are secured over openings in the heads of the coil of pipe, outside of the furnace, for giving access to clean the interior of the pipe.

192,854.

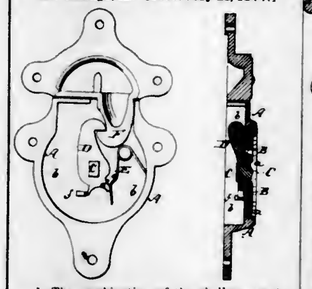


1. The combination of a continuous coil of pipe from the hydraulic main 19 to the external feed-pipe I, with its branch connections, G H I and safety-valve K, the whole arranged substantially as and for the purpose specified.

2. In combination with the sectional pipes, united by rounded elbows, provided with flanged ends and an opening in the turn, the covering plate or cap, L, to close the same, as and for the purpose mentioned.

3. In combination with the feed-pipe 1 and branch or connecting pipes G H I, the safety-valve K, as and for the purpose set forth.

192,855. TRUNK-CATCHES. Herman Vogler, Chicago, Ill. [Filed May 21, 1877.]



1. The combination of the shell or cap A, which has the recess *a* on its outer face and the recess *b* on its inner face, with the handle B, which is placed in said recess *a*, and with the arbor C and catch-bolt D, the handle and bolt being both rigidly united to the arbor, but on opposite sides of the shell A, substantially as herein shown and described.

2. The combination of the shell or cap A, having recess *b* and projecting stop *f*, with the vibrating bolt D, and with the spring E forming shoulder *e*, substantially as herein shown and described.

192,856. HARROWS. Jacob Weber, Allegheny, Pa., assignor of one-half his right to J. M. Stoker, same place. [Filed Mar. 28, 1877.]

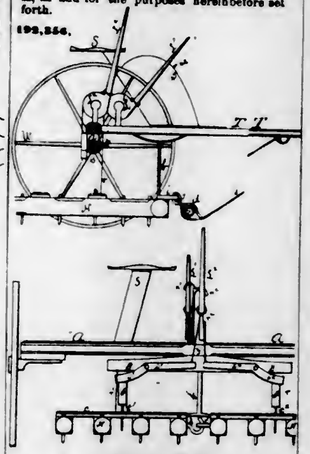
Brief.—A wheel-barrow made in two sections, with a bolster attached beneath the axle, upon which the barrow swings, and with devices to raise it or press it down upon the ground.

1. The combination of the double harrow H, swinging bolster B, levers I^1 I^2, ropes r r^1 r^2, levers L^1 L^2, brace *b*, seat S, tongue T, double-tree *d*, as attached to the sulky-carriage in the manner stated, as and for the purposes hereinbefore specified and described.

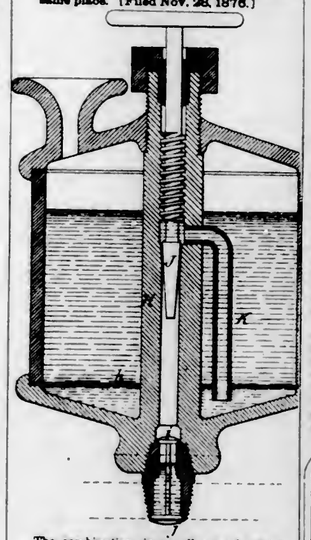
2. The swinging bolsters B, with levers I^1 I^2, ropes r r^1 r^2, iron pins i^1 i^2, collars o^1 o^2, as connected and attached to the levers L^1 L^2, as herein specified and described, and for the purposes set forth.

3. The arrangement of levers I^1 I^2, on the movable or swinging bolster B, with the attachment as connected and attached to the axle A, as and for the purposes hereinbefore set forth.

192,856.



192,857. AUTOMATIC LUBRICATORS FOR STEAM-CYLINDERS. Peter Bloomsburg, Bristol, Pa., assignor to Jonathan Cone, same place. [Filed Nov. 28, 1876.]



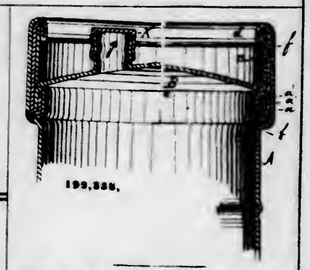
The combination, in an oil-cup, of a tube, H, communicating with the reservoir, and an adjustable valve, J, with the automatic valves *i* and *j* and intermediate chamber, all substantially as and for the purpose set forth.

192,858. CONSTRUCTION OF BARRELS, CASKS, &c. [Filed May 9, 1877.]

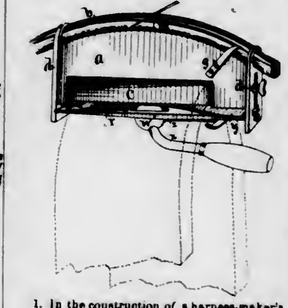
1. As an improvement in metallic barrels, casks, cans, and other like vessels, the shoulder *e*, chine *f*, formed on the edge or end of the barrel by a series of folds or overlaps, *a a' a''* and countersink *b*, substantially as herein shown, and for the purpose set forth.

2. The combination, with the metallic cask A, constructed by means of a series of overlaps or double folds, *a a' a''*, with shoulder *e*, chine *f*, overlap *d*, and countersink *b*, of concavo-convex head B, constructed with rim *c*, outlet *g*, and screw-cap *k*, all substantially as and for the purpose described.

192,859.



192,859. MACHINES FOR HARNESS-MAKERS' USE. Chas. G. Burger and Asel D. Shoup, Newton, Iowa. [Filed Apr. 10, 1877.]



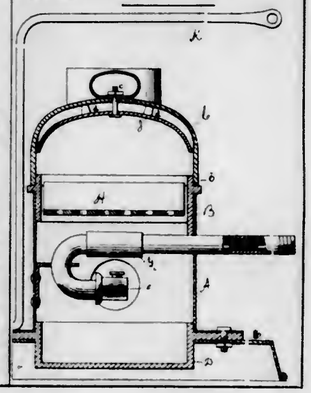
1. In the construction of a harness-maker's work-holder, the block *a*, having a curved and grooved top edge, channel-openers *g*, projecting over said curved edge, and recesses *c* in its side faces, substantially as and for the purposes set forth.

2. The adjustable end pieces *d*, having longitudinal slots and openings or hooks at their top ends to receive rounded work, in combination with the block *a*, substantially as and for the purposes shown and described.

3. The channel-openers *g*, in combination with the block *a*, and the adjustable end pieces *d*, substantially as and for the purposes shown and described.

4. The fulcrum-bar *r*, carrying the latching device *z*, the eccentric *w*, having a lever-handle *x*, and the strut-spring *y*, in combination with the block *a*, and the adjustable end pieces *d*, substantially as and for the purposes shown and described.

5. The block *a*, having a rounded and grooved top edge, the channel-openers *g*, the adjustable end pieces *d*, having hooks at their tops, the eccentric *w*, having a ratchet in its edge and a rigid handle, *x*, the movable bar *r*, carrying the latching device *z*, and the spring *y*, all arranged and combined to operate, substantially as and for the purposes shown and described.



192,360. SOLDERING AND HEATING FURNACES. Josiah Burgess, Zanesville, Ohio. [Filed May 12, 1877.]

1. In a furnace for heating soldering-irons, the hood C, provided with an adjustable deflecting device having lugs *d d*, as shown and described.

2. In combination with a furnace for heating soldering-irons, the combination of a hood, C, deflector I, and a perforated resting-plate, H, substantially as described.

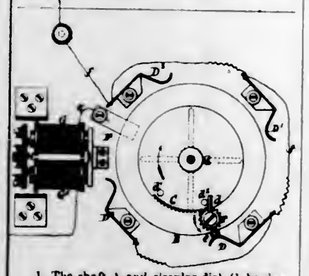
3. In a furnace for heating soldering-irons, a body, B, constructed with flanges *a* and *b*, substantially as described, having a rectangular or round opening, substantially in the manner and for the purpose specified.

4. In a furnace for heating soldering-irons, a water-tank, D, set in a recessed inverted pan, E, in combination with the base A, body B, and hood C, substantially as described.

5. In a furnace for heating soldering-irons, the combination of the hood C, deflector I, body B, perforated resting-plate H, base A, water-tank D, inverted pan E, and handle K, all arranged, constructed, and operating substantially in the manner and for the purpose set forth.

192,361. ELECTRO-MAGNETIC REGISTERING APPARATUS FOR TURNSTILES. B. F. Card, Brooklyn, N. Y. [Filed Mar. 30, 1877.]

Brief.—Motion is communicated from the disk C, fixed to the turnstile-shaft, to the disk B, carrying the circuit-closer, by means of an arrangement of pins and toothed segment on C and pinion and arm on B, permitting a nearly quarter-revolution of turnstile-shaft before movement is communicated to B, thus avoiding registration from accidental movement of the turnstile.



1. The shaft A and circular disk C, having a portion of its periphery cut with cog-teeth and provided with pins d^1 and d^2, in combination with the circular disk B, provided with the pin *d* and pinion wheel *c*, substantially as described.

2. A turnstile consisting of the shaft A and disks B and C, in combination with the magnets G and G′, and connected therewith by means of a current of electricity passing through suitable circuit-closers, and actuating the armature H, pawls O, P, and T, lever L, ratchet-wheel R, and any suitable registering mechanism.

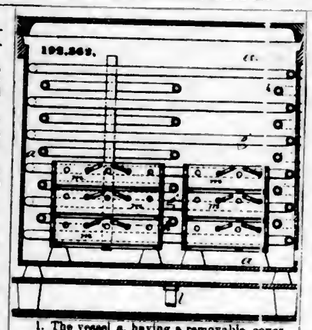
3. A turnstile consisting of shaft A and disks B and C, in combination with the magnets G and G′, and connected therewith by means of a current of electricity passing through suitable circuit-closers, and actuating the armature H, pawls O, P, and T, lever L, ratchet wheel R, index-hand S, and dial-plate S′, substantially as described.

4. A turnstile consisting of the shaft A and disks B and C, in combination with the electro-magnets G and G′, and connected therewith by means of a current of electricity passing through circuit-closers D, D^1, D^2, and D^3, and pin *e* on disk B, and button F, and actuating the armature H, lever L, pawls O, P, and T, ratchet-wheel R, and any suitable registering mechanism.

5. A turnstile consisting of shaft A and disks B and C, in combination with the electro-magnets O and G′, and connected therewith by means of a current of electricity passing through circuit-closers D, D^1, D^2, and D^3, and pin *e* on disk B, and button F, and actuating the armature H, lever L, pawls O, P, and T, ratchet-wheel R, and any suitable registering mechanism.

192,362. DEVICES FOR AND METHODS OF COOKING CEREALS. Lewis S. Chichester, New York, N. Y. [Filed Apr. 20, 1877.]

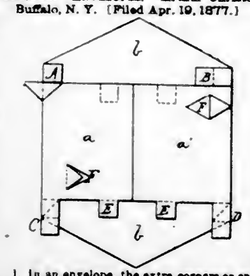
192,363.



1. The vessel *a*, having a removable cover and a steam-jacket, in combination with the ranges of steam-pipes and the removable perforated trays, substantially as and for the purpose set forth.

2. The method herein specified of preparing cereals, consisting in moistening the crushed or ground cereal, spreading the same upon frames or trays, heating the same in a confined chamber or vessel to cook the cereals, drying the same by the action of the heat and a vacuum, and then removing such cereals from the trays, substantially as set forth.

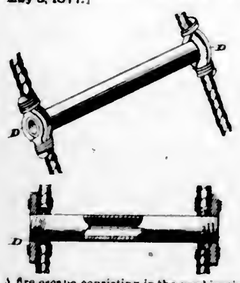
192,364. ENVELOPES. Arthur Christey, Buffalo, N. Y. [Filed Apr. 19, 1877.]



1. In an envelope, the extra corners or supplementary pieces A B C D, attached to or forming part of the envelope, as described, with each piece or extra corner A B C D so folded of itself as to make extra thicknesses and protection at the corners, substantially as specified.

2. The triangular or other shaped pieces F F, formed from the side pieces *a a′*, and bent over and gummed to the flap *b*, substantially as and for the purpose specified.

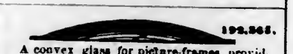
192,364. FIRE-ESCAPES. John P. Duncan, Helena, Ark., assignor of one-half his right to Aurelius F. Mulkey, same place. [Filed May 8, 1877.]



A fire escape consisting in the combination, with the side ropes and tubular rounds, of the flat, solid, metallic clips D, secured to the outer side of the ropes, both the rope and the clips being formed with sockets, through which the rounds pass, substantially as set forth.

192,365. GLASSES FOR PICTURE-FRAMES. Julius W. Fleischmann, Williamsburg, N. Y. [Filed May 31, 1877.]

192,365.



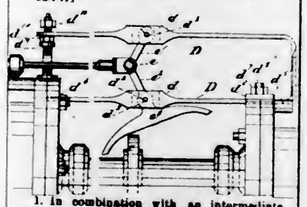
A convex glass for picture-frames, provided at its outer edge with a straight rim or flange, substantially as and for the purposes herein set forth.

192,366. CHEST-PROTECTING GARMENTS. O. A. Fuller, Minneapolis, Minn. [Filed Jan. 23, 1877.]



A chest-protecting garment, as described, consisting of the sleeveless jacket A, provided with the front and back pieces B and C of skin, and connected on the shoulders at *b b* with strips of same, substantially as and for the purpose set forth.

192,367. STEAM-PUMP VALVE-GEARS. Jno. Gates, Portland, Oreg. [Filed May 8, 1877.]



1. In combination with an intermediate valve-piston and toggle-joint, the double spring, adapted to act equally upon each side of the joint, substantially as described.

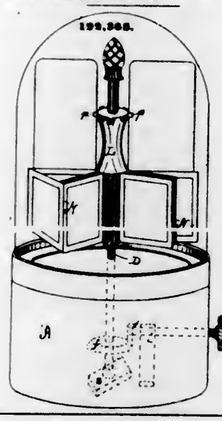
2. In combination with the main piston and its striking-block, the intermediate tappet mechanism, the toggle-joint, and the double spring, adapted to act equally upon each side of the joint, substantially as described.

3. In combination with the double spring, adapted to act equally upon each side of the joint, the standard d^5 and nuts d^{6a} d^{6b}, for adjusting the power and extent of its thrust, substantially as described.

4. The spring D, having the equal parts *d*, in combination with the clamping-plate d^3, the recess d^4, and standard d^5, as described.

5. In combination with the striking-block, the tappet c^3, the toggle c^1 c^2, and the spring D, substantially as described.

192,368.

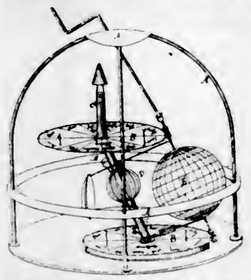


192,368. PICTURE-EXHIBITORS. Henry B. Hezekiah, New Orleans, La. [Filed Feb. 12, 1877.]

The revolving photo-cabinet herein described, consisting of the casing A, shaft D, sleeve L, the latter provided with frames N and lugs *p*, all arranged to operate as described, and for the purpose specified.

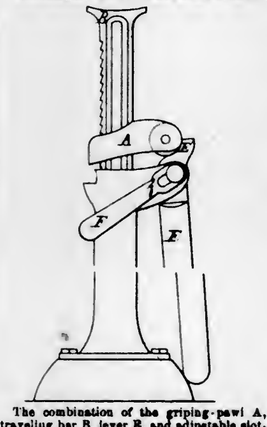
192,369. TELLURIANS. Frederick Howes, Boston, Mass. [Filed May 19, 1877.]

Brief.—The cage upon the central inclined standard, with its reflector, represents the sun.



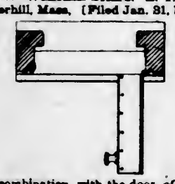
The apparatus above described, consisting of the frame A, dials B and B′, standard C, lantern D, and globe E, arranged to operate together, as described.

192,370. LIFTING-JACKS. Geo. W. Hunter, Washington, D. C. [Filed June 6, 1877.]



The combination of the griping-pawl A, traveling bar B, lever E, and adjustable slotted hanging pawl F, arranged to trip pawl A, as described.

192,371. WEATHER-STRIPS. E. T. Ingalls, Haverhill, Mass. [Filed Jan. 31, 1877.]



The combination, with the door, of a sheet-metal spring-strip attached at one edge only, and adapted to operate between the door and its casing to relieve the door from shock when being closed, substantially as described.

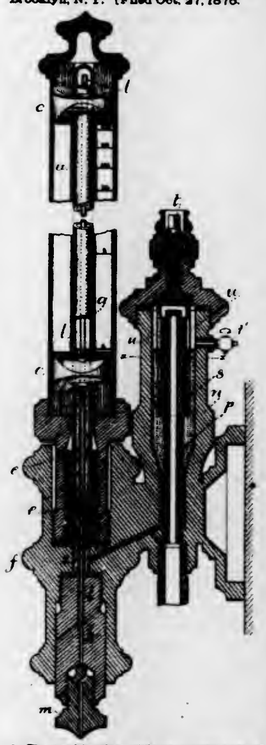
192,372. BUTTER-WORKERS. W. Johnston, Waterloo, Iowa. [Filed May 17, 1877.]

1. The flaring trough A, provided with the slotted roller-standard B, in combination with the reciprocating lever-handle C and ladle D, substantially as shown and described.

2. The arrangement of the flaring trough A, provided with a foot, E, and clutches G G and H, slotted roller-standard B, the angled lever C, and ladle D, the whole forming a butter-worker, substantially as shown and described.



192,373. PRESSURE-GAGES. B. M. Johnson, Brooklyn, N. Y. [Filed Oct. 27, 1876.]



1. The combination, with a pressure-gage, of the tube *l* and valve *u*, substantially as and for the purposes set forth.

2. The chamber *s* and tube *p* within it, in combination with the displacer *s* that is screwed upon the tube *p*, the stem *t*, and prongs *u*, passing into the displacer, substantially as and for the purposes set forth.

3. The combination, in a vacuum or pressure gage, of a glass tube closed at the upper end and a tube, *l*, within the same, open at the upper end above the highest level of the mercury, substantially as set forth.

192,374. GRAIN-BINDERS. J. P. Johnson, Acton, Minn. [Filed May 12, 1876.]

1. The spiral cord-carrier D, constructed and operating substantially as described.

2. The combination of the cord-carrier D, lever E, and wheel C, provided with a cam-groove, *w′*, substantially as set forth.

3. The loop-catcher *f f′*, in combination with the arm *h*, connecting-rod H, lever *i*, and wheel C, provided with the dogs *l k*, substantially as described.

4. The loop-catcher *f f′*, and pivoted bar F, in combination with the cord-carrier D, substantially as specified.

5. The bar or lever G, in combination with the pivoted bar F and wheel C, provided with the cam-groove *w′*, substantially as described.

6. The guard *m*, in combination with the sliding bar M and slotted receiver R, substantially as and for the purpose specified.

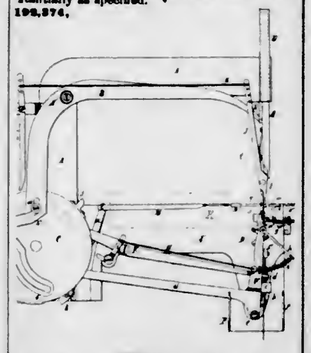
7. The pinchers I, provided with the lever J, in combination with the rod K and lever L, substantially as specified.

8. The pinchers I, sliding bar Q, and guide U, in combination with the bars *V V′*, rod *V′*, and spring *V*, substantially as and for the purpose specified.

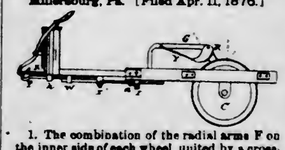
9. The plates *p r*, provided with hooks *o o′*, and spring *g′*, in combination with the operating-rod S, lever T, and upturned end d^5 of the plate *d′*, substantially as and for the purpose specified.

10. The combination of the cord-carrier *d*, the point *a′* on the pivoted bar F, and the loop-catcher *f f′*, with the pinchers I and reciprocating arm B, for tying the knot, substantially as specified.

192,374.



192,375. CAR-STARTERS. Jacob R. Johns, Millersburg, Pa. [Filed Apr. 11, 1876.]

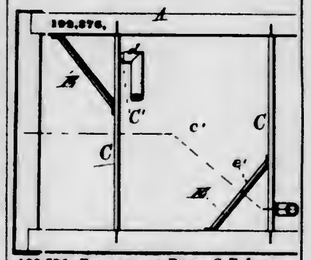


1. The combination of the radial arms F on the inner sides of each wheel, united by a cross-rod, E, and each arm embracing the axle D of the wheels, and having their upper end slotted, supporting an eccentric clutch or pawl, R, and actuating-lever G, combined with the draft pole or rod H in such a manner as to cause said clutch R to gripe the upper surface of the car-wheel and carry it forward on starting, said clutch also held in position by a coiled spring, Y, when released, substantially as and for the purpose specified.

2. In combination with the radial arms F and clutch R, the lever-arms G, elevated above and carried down on each side, and converging to a union with the draft rod or pole H, substantially as and for the purpose set forth.

3. In combination with the central draft rod or pole H, the cross-head *h*, the guide-bars O, and appliances, all substantially arranged as shown and described, for the purpose mentioned.

192,376.



192,376. EVAPORATING-PANS. G. T. Jones, Nashville, Tenn. [Filed Sept. 16, 1876.]

Brief.—The partition-plates of the evaporating-pans have openings at alternate ends,

which openings are fitted with tubes, upon which are sleeved elbow-shaped swinging tubes. The juice is thus caused to flow in a zigzag course through the pan, and the flow may be stopped and re-established by turning the elbow-pipe up and down. The strainer, extending obliquely from the side of the pan to a partition plate, acts as a brace to strengthen the pan, and as a strainer to keep back the scum from the adjoining apartment.

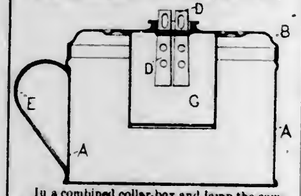
Strainer E provided with downward and outward flange e', and acting as a brace for partition C, substantially as set forth.

192,377. SMOKE-HOUSES. Herman T. C. Kraus, New York, N. Y., assignor to John Matheson and Jas. Jackson, same place. [Filed May 3, 1877.]



The polygonal cast-iron sections *d d*, provided with flanges or laps *e*, and open at one side, and having doors, in combination with the base *a* and cross-bars *o*, substantially as set forth.

192,378. COMBINED COLLAR-BOX AND LAMP. Julius Levine, New York, N. Y., assignor to American Paper Collar Company, same place. [Filed May 31, 1877.]



In a combined collar-box and lamp the combination of the following elements, namely, a box, A, provided with a handle, E, and a cover, B, provided with an oil-fount, C, and wick-tube D, constructed and operating substantially as and for the purposes set forth.

192,379. HYDRANTS. Samuel W. Lewis, Cincinnati, Ohio. [Filed May 16, 1877.]

1. A wasting-hydrant consisting of a moving water-way closing either with or against the pressure, and a duplex or auxiliary valve, which latter is seated only when the main or upper valve is withdrawn bodily, for the purpose described.

2. An improved wasting-hydrant, consisting, essentially, of a suitable valve-chamber, a moving water-way, and an auxiliary or duplex valve, which latter closes automatically and shuts off the supply only when said water-way is withdrawn, substantially as herein described and set forth.

3. In combination with a hydrant-base, a buoyant or floating duplex valve whose upper end is furnished with a ground seat, substantially as herein described, and for the purpose set forth.

4. The combination of valve-chamber D F, buoyant duplex valve G, operating-rod H, and plunger I, the upper end of said valve being provided with a ground joint, substantially as herein described and set forth.

5. In combination with valve-chamber D of a hydrant, the counter-bore E and raised seat *e*, for reception of the controlling-valve *i*, substantially as herein described.

6. A hydrant-lever capable of being secured to the cap or stock in either one of two diametrically-opposite positions by the shiftable fulcrum-bearing T U, so as to locate said handle either to the right or left, substantially as herein described.

7. The combination of hydrant-cap Q *s s'*, sockets R R', retaining devices T *t* T' *t'*, and shiftable fulcrum-bearing U of handle V, substantially as herein described.

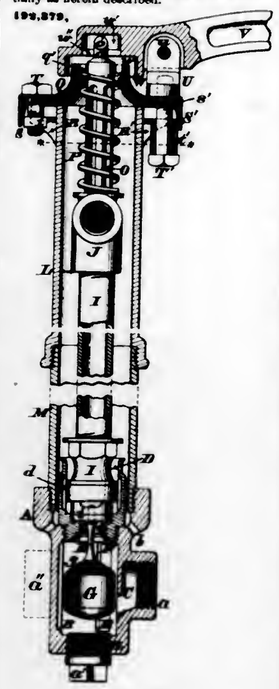
8. The combination of spindle O, neck *o*, T-head *o'*, and chambered hood W *w w' w''* of handle V, substantially as herein described.

9. The combination of spindle O, neck *o*, T-head *o'*, hood W *w w' w''*, handle V, and cap Q *q q'*, substantially as herein described.

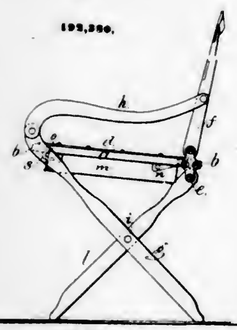
10. The barrier C for deflecting the inflowing current of water toward the bottom of hydrant-base A, substantially as herein described.

11. In combination with the shiftable fulcrum-bearing U and hydrant-handle V, the extension V', pivoted to said bearing, substantially as herein described.

192,379.



192,380.



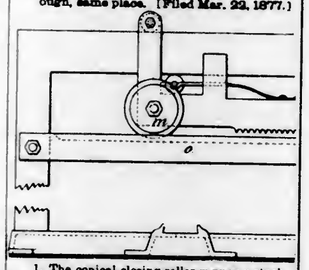
192,380. FOLDING CHAIRS. Wm. Lovell, Jersey City, N. J., assignor to H. P. Tibbals, Brooklyn, N. Y. [Filed Jan. 26, 1877.]

Brief.—By the disengagement of the stops at the upper ends of the back legs from the catches under the front corners of the seat all the parts can be compactly folded. A folding box under the seat forms a portfolio.

1. The folding chair composed of the front legs *l* and back *f*, attached to the seat-frame by the joint-plates *s*, and the back legs *g*, pivoted to the front legs and to the hinged arm-pieces *h*, there being bearing lugs or stops *o* at the junction of the back legs and front part of the seat, substantially as set forth.

2. The seat-frame and folding back and legs hinged to the same, in combination with the portfolio or receptacle, hinged to the seat-frame and closing against the under side of the seat, substantially as set forth.

192,381. SHEET-METAL-SEAMING MACHINES. T. W. McKeever, New York, N. Y., assignor to Benhams & Stontenborough, same place. [Filed Mar. 22, 1877.]

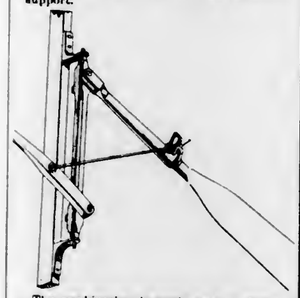


1. The conical closing roller *m* upon a stock fitted to be moved back and forth, in combination with the beveled bar *o*, that is vertical, or nearly so, at one edge and the top at an inclination, upon which the folded edge of the sheet to be closed is supported, substantially as and for the purposes specified.

2. The rectangular form-block *r* upon the adjustable standard *s*, in combination with the flanged closing-roller *n* upon a stock fitted to be moved back and forth, substantially as and for the purposes specified.

192,382. ROWING-GEAR. J. W. Melcher, Oshkosh, Wis. [Filed Feb. 26, 1877.]

Brief.—The rower faces the bow of the boat. The oar is feathered by the play of a pin connected to the draw-rod in a slot in the oar-support.



The combination, in rowing-gear, substantially as described, of a handle and draw-bar, with slot and pin connected with oar, and rolling bar hung to the rail of boat.

192,383. AUXILIARY WAGON-SPRINGS. A. W. McKown, Himbles, Pa. [Filed Apr. 13, 1877.]

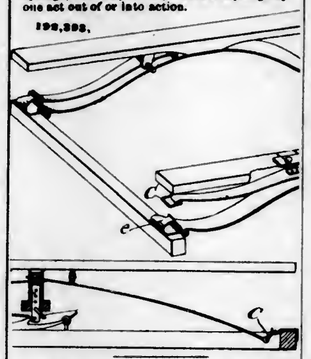
1. The combination, with a wagon-spring having a link detaining or stopping device, of a link, substantially as and for the purpose set forth.

2. In combination with an auxiliary wagon-spring having a link detaining or stopping device, the link C, and a hook, *s*, on the bolster or axle, substantially as shown and described.

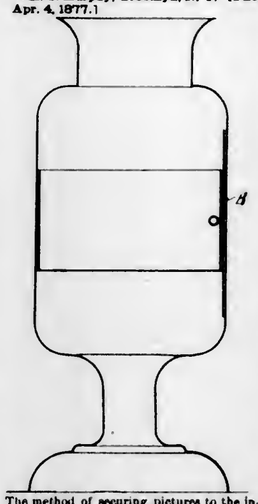
3. Auxiliary wagon-springs, fulcrumed at their rear ends or at a point between their ends, having lifting or lowering devices, substantially as described, adapted to throw or place the springs into or out of action.

4. A lifting or lowering device applied to the rear portions of two or more auxiliary springs, and adapted to place these springs by one act out of or into action.

192,383.



192,384. METHOD OF SECURING PICTURES. Wm. T. Murphy, Brooklyn, N. Y. [Filed Apr. 4, 1877.]



The method of securing pictures to the inside of vases and similar articles, by means of the rubber-spring band B, substantially as and for the purpose set forth.

192,385. MACHINES FOR MAKING PAIL-BOTTOMS AND BARREL-HEADS. G. W. Parker, Gardner, Mass. [Filed Apr. 28, 1876.]

Brief.—The blanks from which the pail-bottoms or barrel-heads are to be formed are placed in an adjustable hopper upon the top of the machine, and fed forward by means of a feeding-piece operated by a longitudinally-reciprocating tongue-piece between vertically-adjustable plates, where the blank is firmly held while the bottom or head is cut and beveled by suitable cutters attached to heads arranged upon a slotted rotating plate, mounted upon the upper part of a vertically-adjustable tubular shaft provided with a pulley, and rotating upon a vertical rod passing through a tubular stand-plate upon a cross-piece in the lower part of the frame.

1. The hopper B'', for holding the blank head-pieces B', constructed from the parts L' L'' N N M M, adjusting arms M'' M''', and adjusting nuts and bolts 20 and 21, combined together, substantially as and for the purposes set forth.

2. The combination, with tubular stand D and tubular rotating shaft E, of adjustable spindle A' and plates D' and F, substantially as and for the purposes set forth.

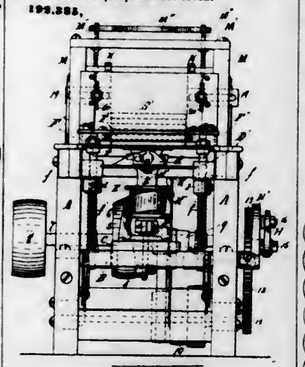
3. The combination, with the rotating plate D' and plates F F' F''', of the cutter-heads *d d*, substantially as and for the purposes set forth.

4. The combination, with tubular standard D and rotating tubular shaft E, of adjusting-nut *s*, substantially as and for the purposes set forth.

5. The combination, with holding-plates F F' and guide-rods F'', of spiral springs *f''*, adjusting-hubs 1, and depressing and elevating lever G, substantially as and for the purposes set forth.

6. The combination, with head depressing and holding plate F' and reciprocating tongue-piece I', to which feed-piece J is secured, of lever G, arm K', and the mechanism for connecting said levers to rocking-shaft G', substantially as and for the purposes set forth.

192,385.



192,386. VENT-BUNGS. Fredrick Pentlarge and Philipp Hirsch, Brooklyn, N. Y., assignors to said Pentlarge. [Filed June 4, 1877.]

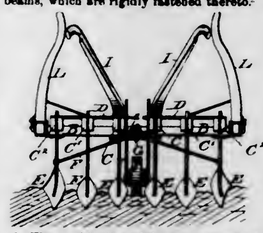


1. The transverse web D in a bung having recesses formed, respectively, upon its inner and outer faces.

2. In a vent-bung, substantially such as described, the recess C on one side of the bung of greater size than the recess B on the other side of the bung, substantially as described.

192,387. WALKING-CULTIVATORS. John Poets, Shakopee, Minn. [Filed Mar. 1, 1877.]

Brief.—The thills are rigid and secured to two cross-bars in front. The cultivator-beams are pivoted upon the front bar and play loosely upon the rear bar, except the two central beams, which are rigidly fastened thereto.

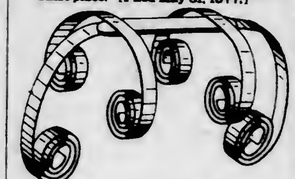


1. The combination of the cross-bars A and B, the rigid beams C, and adjustable beams C' C², provided with the shovels E, the rigid thills L, rigid handles I, and wheel J, as shown and described.

2. In combination with the oblique outside shovels E attached to the swinging beams, the braces F and clamping device G, as shown.

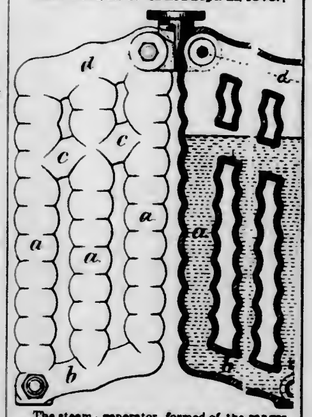
3. In a cultivator, the combination of two cross-bars, A B, having thills L attached, two parallel rigid beams, C, attached to the cross-bars, connected by a bar, *c*, and provided with rigid handles I and outside swinging beams C' C², pivoted to the bar A, and held by the slotted bars D and bolts *e*, as shown.

192,388. PACKAGE HOLDERS OR CARRIERS. Jas. H. Randall, Providence, R. I., assignor of one-half his right to Herbert Phillips, same place. [Filed May 31, 1877.]



As an improved article of manufacture, a package holder or carrier, composed of a suitable handle and paper bands or ribbons, which are secured to the handle, and are provided with means for uniting their ends, substantially as described.

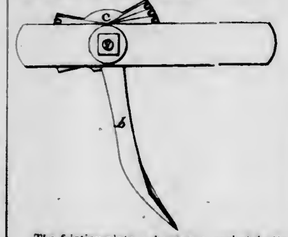
192,389. SECTIONAL STEAM-GENERATORS. John A. Reed, Dunellen, N. J., assignor to Reed's Sectional Safety Boiler Company, New York, N. Y. [Filed Sept. 21, 1876.]



The steam-generator formed of the ranges of vertical tubes *a*, connected in sections by the upwardly-inclined circulating-tubes *b*, downwardly-inclined return circulating-tubes *c*, and steam-tubes *d*, all made as ranges of hollow spheroids, and the sections connected together side by side, substantially as set forth.

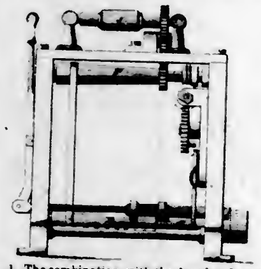
192,390. CULTIVATOR-TEETH. Guilford D. Rowell, Appleton, Wis., assignor to Appleton Manufacturing Company, same place. [Filed May 21, 1877.]

Brief.—The tooth and friction-plate are of equal thickness, the tooth-socket being cut entirely through the plate, and only removable when both are taken out of the beam. The plate has lines and notches as guides for the exact setting of the teeth.



The friction-plate *c* having a socket in its lower-edge through the entire thickness of the plate, which socket is largest at its upper end, to receive the enlarged head of the tooth *b*, whereby the tooth and plate can only be separated by a sidewise movement, substantially as shown.

192,291. COMBINED REGISTER AND STOP-MOTION FOR SPINNING MACHINERY. Benj. Saunders, Nashua, N. H. [Filed Mar. 3, 1877.]



1. The combination, with the drawing-frame and the joint measuring and stop-motion mechanism, of the reverse conical band-pulleys, the main driving-shaft, and the intermediate gearing, all constructed and operating substantially as described.

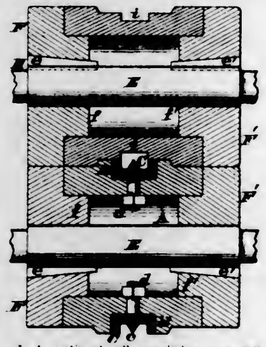
2. The combination, with the drawing-frame and the joint measuring and stop-motion mechanism, of the registering device secured on the outer side of the frame, the same consisting of the double series of cogged disks suitably indexed, and operated by the gear-wheel revolving on the stop-motion shaft, substantially as described.

3. In a drawing-frame adapted to stop with any predetermined measurement of drawing, the combination, with the band-shifter, the sliding collar, and intermediate engaging-stud, of the spring-pressed tripping-lever, substantially as described.

4. In a drawing-frame, the combination, with the joint measuring and stop-motion mechanism, of the tripping-lever, the band-shifter, and the intermediate engaging parts, substantially as described.

5. In a drawing-frame adapted to stop with a predetermined drawing, the combination, with the tripping-lever, the spring-pressed collar, and the band-shifter operated thereby, of the sliding bolt rigidly connected to the said collar, and engaging with the tripping-lever, substantially as described.

192,292. SECTIONAL ROLLS. A. B. Seymour, Portsmouth, assignor to J. Wm. Chesnut, Pomeroy, Ohio. [Filed Nov. 16, 1876.]



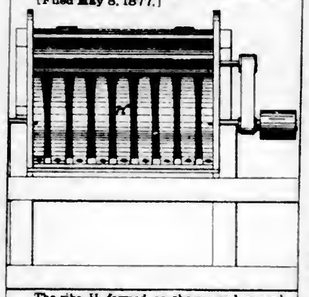
1. A sectional roll, consisting essentially of two heads secured to a driving-shaft, and a cylinder or tube fitted to said heads, the cylinder being armed with two or more removable dies or formers, whose contiguous ends abut, substantially as herein described and set forth.

2. The combination of shaft E, detachable heads F f' F' f', grooved cylinder A B, and retaining devices e e' G g, or their equivalents, substantially as herein described and set forth.

3. The combination of driving-shaft E, detachable heads F f F' f', grooved cylinder A B b, removable dies or formers C D d, and retaining devices e e' and G g, substantially as herein described and set forth.

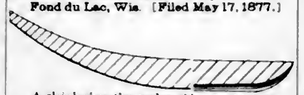
4. In combination with driving-shaft E e e', detachable heads F f F' f', lower cylinder A, and upper cylinder I, the collars J J', shoulders j j', and enlargement K, to prevent either of said cylinders shifting longitudinally in case the head F or F' should become loose, substantially as herein described and set forth.

192,293. COTTON BOLL OR HULL SEPARATORS. James A. Smiley, Prattville, Ala. [Filed May 8, 1877.]



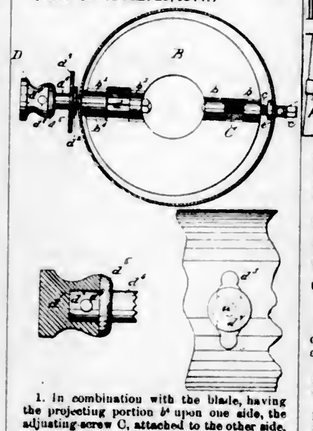
The ribs H, formed as shown, and spaced above and below, for the purposes specified.

192,294. SLEIGH-SHOES. Benj. F. Sweet, Fond du Lac, Wis. [Filed May 17, 1877.]



A sleigh-shoe the under side of which, for a portion of its length from the rear forward, is provided with a groove, diminishing in depth as it approaches the longitudinal center of the shoe, substantially as and for the purpose set forth.

192,295. STOVE-PIPE DAMPERS. Henry B. Todd, West Meriden, Conn., assignor of one-half his right to A. W. Todd, same place. [Filed Mar. 29, 1877.]



1. In combination with the blade, having the projecting portion b^4 upon one side, the adjusting-screw C, attached to the other side, and adapted to determine the amount of friction, substantially as described.

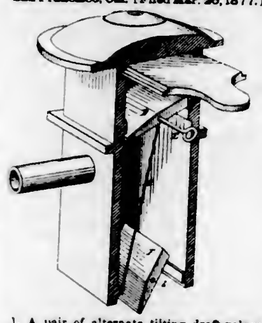
2. In combination with the blade, having the raised projections provided with screw-threads, and the projecting portion b^4, the adjusting-screw C, having the shoulder c^3, as described.

3. In combination with the blade having the angular raised portion, as described, and the stove-pipe having the proper opening, the handle D, having the angular shank d, and also the circular recess d^1, adapted to receive the edge of the stove-pipe opening, as described.

4. In combination with the metal shank d^4, having the flange d^5, the wooden knob d^6, inclosing the metal, as described.

5. The combination of blade B, the adjusting-screw C, and the handle D, substantially as described.

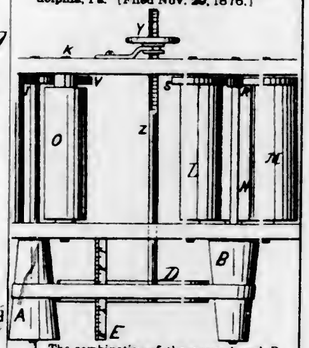
192,296. TUYERES. Isaac S. Van Winkle, San Francisco, Cal. [Filed Mar. 26, 1877.]



1. A pair of alternate tilting draft-valves connected together by rod s, and having the blast-nozzle between them, in combination with a tuyere, substantially as set forth.

2. The valve D near the grate-cap, and the valve F near the open end of the box, in combination with the rod s and handle E, substantially as and for the purpose described.

192,297. DRYING MECHANISMS FOR DRYING-MACHINES. Robert J. Walker, Philadelphia, Pa. [Filed Nov. 29, 1876.]



1. The combination of the cones A and B, fork D, threaded rod Z, and screwed hand-wheel Y with the sizing rollers O K and drying cylinders L M N, substantially as and for the purpose specified.

2. In combination with the cones A and B, fork D, threaded rod Z, screwed hand-wheel Y, sizing-rollers O K, and drying-cylinders L M N, the index E, substantially as and for the purpose set forth.

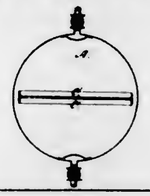
192,298. COMPOUNDS FOR THE MANUFACTURE OF CRUCIBLES. Henry Wile, Philadelphia, Pa. [Filed Apr. 5, 1877.]

Brief.—Lithomarge is mixed with the ingredients commonly used in the manufacture of crucibles.

1. Lithomarge, in combination with the ingredients used in forming compounds for the manufacture of crucibles.

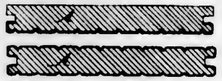
2. A crucible compound composed of black-lead, German clay, sand, ground fire-brick, and lithomarge, in about the proportions given.

192,299. GAS AND AIR CARBURETERS. W. H. Winn, New York, N. Y. [Filed Feb. 2, 1877.]



In a gas or air carbureter dependent for its operation on the forced passage of a current of gas or air therethrough, the pans C C, centrally arranged within the reversible carbureting-cylinder A, substantially as and for the purpose herein set forth.

192,300. METAL-CLAD CEILINGS. William B. Worthen, New York, N. Y. [Filed May 17, 1877.]



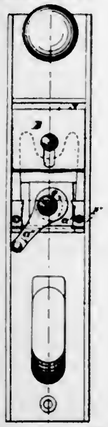
As a new article of manufacture, the before-described metal-clad ceiling, consisting of a core of wood and a sheet-metal clothing therefor, constructed and combined substantially as represented and specified.

192,301. PROCESSES FOR SEPARATING COPPER AND THE PRECIOUS METALS FROM COPPER MATTE. Wm. B. Young, Golden, Colo., assignor to himself, G. Board, and F. H. Everett, same place. [Filed Oct. 18, 1876.]

The process of separating copper and the precious metals from copper matte, which consists in roasting the pulverized matte with common salt, dissolving out the chlorids of copper with water, and smelting the residue with lead ores, to obtain gold and silver bullion, substantially as herein set forth.

192,302. BENCH-PLANES. C. L. Adancourt, Lansingburg, N. Y. [Filed Dec. 15, 1876.]

Brief.—The body of the plane is provided with adjustable extension-sections attached to its ends for the purpose of increasing the length of its bearing-surface. The reversible cutting-bit is attached by a slotted opening to and rests upon a hinged bank supported upon trunnions in the side walls of the plane, and the lower ends of the bank and bit are raised or depressed by means of an adjustable eccentric pivoted to the base of the plane, and provided with a suitable handle.



1. In combination, the center knife or bit section F of a plane, and the extension-section E' E'', to increase the length and base bearing-lines of the plane, as shown and described.

2. In a bench-plane, the hinged bank C, reversible cutting-bit or knife B, actuating-eccentric e, and handle E, arranged to operate as described and shown.

3. In a bench plane, the extension-sections E' and E'', the center or bit section F, the hinged bank C, cutting-bit or knife B, the adjusting-eccentric e, and handle E, arranged to operate as herein described and shown.

192,303. FIRE-ESCAPES. Isaac H. Allen, Black Creek, Ontario, Canada. [Filed May 28, 1877.]

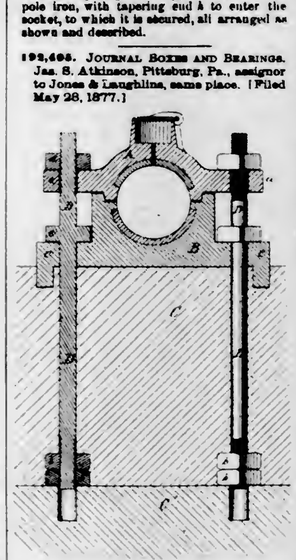
A flexible fire-escape ladder composed of side supports A A for the rounds B, made of tubular webbing, strengthened, substantially as described.

192,304. AUTOMATIC CRADLES. Charles Barlow, Cookshire, Quebec, Canada, assignor to Miller, Barlow & Co same place. [Filed Feb. 3, 1877.]



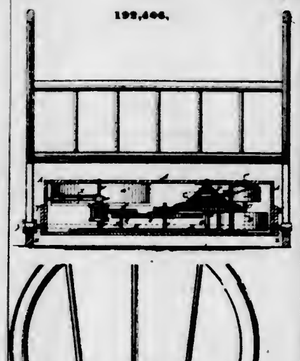
The interchangeable thill and pole coupling, consisting of the clip A, with ears *b* extending, and coupling-piece E, with eye *d'*, through which the coupling-bolt passes, and vertical tapering socket *f*, and the thill or pole iron, with tapering end *h* to enter the socket, to which it is secured, all arranged as shown and described.

192,305. JOURNAL BOXES AND BEARINGS. Jas. S. Atkinson, Pittsburg, Pa., assignor to Jones & Laughlins, same place. [Filed May 28, 1877.]



The combination of box A B, having flanges *a c*, and bolts D, adapted to be tightened on the lower flange by the use of a wrench or like tool applied between the flanges, substantially as set forth.

192,306. TRIP-HAMMERS. Jacob Bowman, Pittsburg, Pa., assignor to himself and Wm. Bowman, same place. [Filed May 28, 1877.]



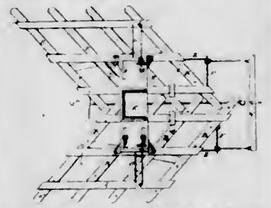
1. The combination of the arm V, the sliding weight W, and the spiral spring X with the chain of gear-wheels driven by the spring B, drum D, cord or chain E, and fusee F, and with the case A, substantially as herein shown and described.

2. The combination of the notched boards Y and the rods Z, provided with the rollers *x'*, with the case A of the apparatus, to adapt it to be applied to the rockers of a cradle, substantially as herein shown and described.

3. The combination of the spring-bar A' and hand-screw B' with the case A and the wheel O of the chain of gear-wheels, substantially as herein shown and described.

192,307. HARROWS. Frank Barnes, Fairmount, Nebr. [Filed Apr. 2, 1877.]

Brief.—A harrow-frame made in two parts, connected in the center, with a rod running through the abutting ends of the tooth-bars; a seat with slotted seat-board and rods to raise the wings of the harrow.



1. The combination of the rods E F with the forward inclined bars B of the parts of the harrow-frame, substantially as herein shown and described.

2. The combination of the tongue I J with the rods E F and the parts of the harrow-frame, substantially as herein shown and described.

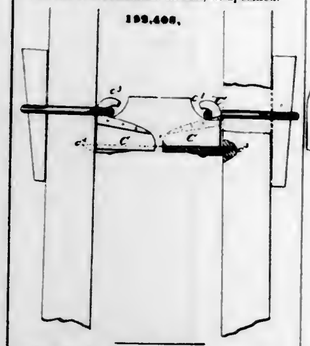
3. The combination of the seat K, the slotted seat-board L, the standards M, and the braces O with the two parts of the harrow-frame, substantially as herein shown and described.

192,308. SHOES FOR SCAFFOLDINGS. Henry Batt, Kentish Town, London, England, assignor to L. G. Tabraham, Boston, Mass. [Filed May 12, 1877.]

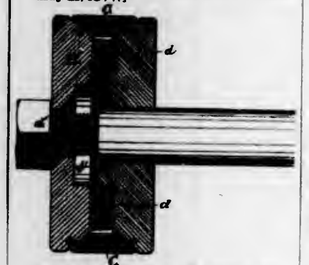
The shoe or box C, provided with the hooks c^2 on the upper corners of its sides, and the teeth c^3 forming an extension of the bottom thereof, as shown and described, whereby the

device is adapted for attachment to a joist or vertical timber, and to receive and support the end of a horizontal timber, as specified.

192,408.

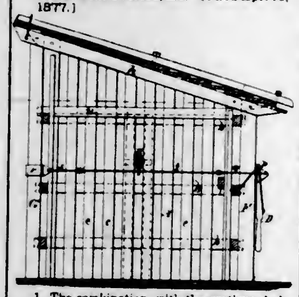


192,409. PISTONS. Robert M. Beck, Westminster, Md., assignor to the Taylor Manufacturing Company, same place. [Filed May 21, 1877.]



The combination of the rigid disk B, having boss *b*, and the loose disk B', having depression *b'*, with the interposed adjusting-washers *d*, arranged upon the boss *b* near the periphery of the piston, and the continuous or jointless expansible metallic packing-ring C, substantially as described, and for the purpose set forth.

192,410. PORTABLE CORN-CRIBS. Benj. F. Bedwell, Overton, Mo. [Filed Apr. 16, 1877.]



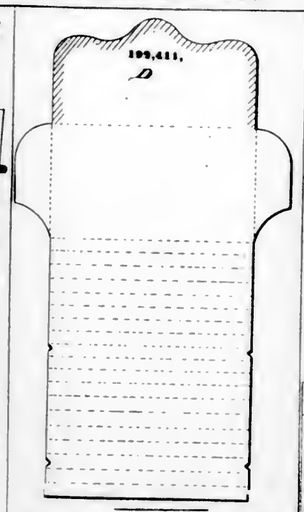
1. The combination, with the sections A A C G, of the bar E and verticals strips *s s*, keyed together, as shown and described, for the purpose specified.

2. The combination, with the posts F G of a crib, constructed as described, of the lever D, loop *g*, rod *t*, link *s*, and strap *r*, substantially as set forth.

192,411. LETTER-SHEET AND ENVELOPE. William T. Berry, Maysville, Ky. [Filed May 12, 1877.]

A combined letter-sheet and envelope, which consists of a letter-sheet having notches or serrations in its edges, short side flaps C, and outer flap D, rectangular in form and gummed on three sides, substantially as described, and for the purposes set forth.

192,411.

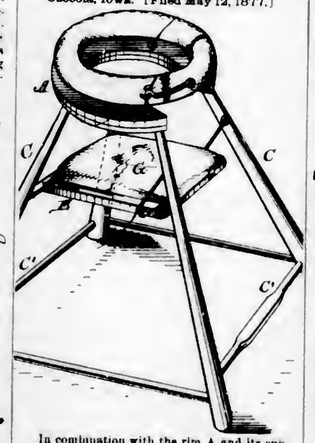


192,412. BUCKLES. De Witt V. Bradley, West Haven, Conn. [Filed Mar. 30, 1877.]



In combination with the plate *a*, the loop *b*, hinged thereto, the hinged side of which is divided, and the ends turned at right angles to the plane of the loop and toward the plate, to form a clamp to engage the strap, substantially as specified.

192,413. BABY-WALKERS. John L. Butler, Osceola, Iowa. [Filed May 12, 1877.]



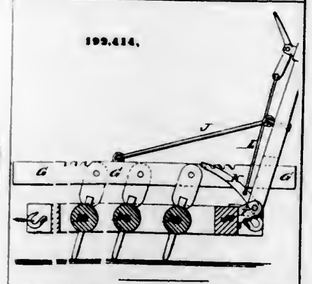
In combination with the rim A and its supporting-legs C C, the folding seat E, having aperture *s*, slide *m*, and sliding cushion G, substantially as and for the purpose described.

192,414. HARROWS. John W. Carpenter, Bridgewater, Va. [Filed May 12, 1877.]

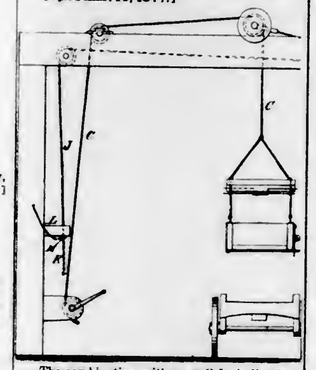
Brief.—The harrow is reversible, and the devices for adjusting the rollers may be attached to either end of the frame to be opposite to the draft.

The combination, with bar G having rack at either end, of the lever and pawl mechanism, connected with said bar by the pivoted brace J, and arranged in a detachable bracket, I, to allow the harrow to be reversed, as specified.

192,414.

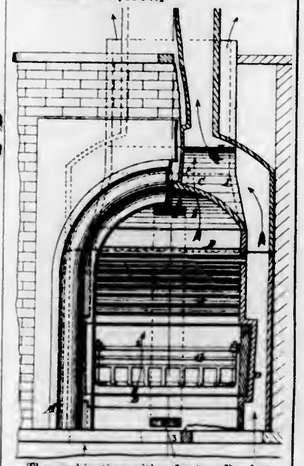


192,415. APPARATUS FOR LOADING AND UNLOADING WAGONS, &c. Jas. W. Castleman, Cumberland Iron-Works, Tenn. [Filed Mar. 10, 1877.]



The combination, with ropes C J winding in opposite directions on the windlass of a loading mechanism, of the hook-chain K, staple L, and the pin M, arranged substantially as and for the purpose specified.

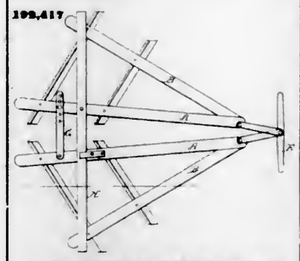
192,416. FIRE-PLACE HEATERS. Columbus M. Coulter, Danville, Ill., assignor to himself and Lysander Johnston, same place. [Filed Feb. 26, 1877.]



The combination, with a fire-box, D, of the tubes E, extended across and entering the air-chamber at the sides thereof, substantially as and for the purpose described.

192,417. ROAD-SCRAPERS. J. T. Currier, Naponset, Ill. [Filed May 26, 1877.]

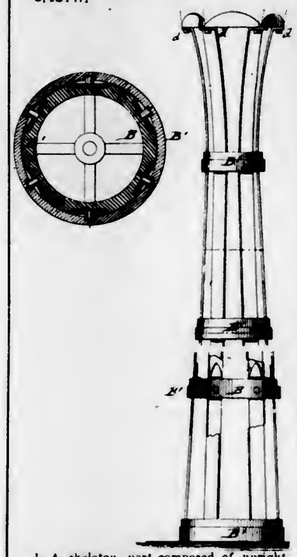
192,417



1. In a road-scraper composed of two sections, the V-shaped sections composed of the beams A B, the inclined and angling bars C C, and the knives D D, the parts being adjustably connected, substantially as and for the purposes herein set forth.

2. The combination of the V-shaped scraper-sections A B O D, chains or bars *a*, double-tree E, perforated adjusting-bar G, lever H, and hook-shaped piece I, all constructed substantially as and for the purposes herein set forth.

192,418. LAMP-POSTS. William De Lany, Cobourg, Ontario, Canada. [Filed Feb. 3, 1877.]



1. A skeleton post composed of upright bars, retained by recessed interior and outer binding rings applied at proper intervals, substantially in the manner and for the purpose set forth.

2. The combination of the perforated bars A with the recessed interior ring B, having tenons *a*, and with the exterior clamping-ring B, having grooves *d'* at the inner circumference, substantially as specified.

3. The combination of the outwardly-curved top parts of bars, having perforated horizontal flanges *d*, with the notched extension-rods of the lamp, substantially as shown, and for the purpose set forth.

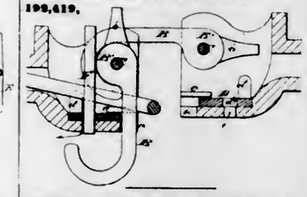
192,419. CAR-COUPLINGS. R. H. Dowling and E. S. Perry, Newark, Ohio, assignors of one-fourth their right to Darwin De Wolf, same place. [Filed Mar. 24, 1877.]

1. The combination of pivoted hook B with draw-head A, having horns or tails *b b* and slide D, substantially as and for the purpose set forth.

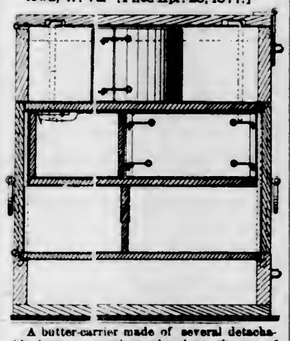
2. The combination of draw-head A, having recess *a*, with pivoted hook B, having sleeve B' and slide D, substantially as and for the purpose set forth.

3. The combination of draw-head A, having hole E, beads *c c*, and recess *a*, with slide D, having hole *d'*, pin F, and hook B, substantially as and for the purpose set forth.

192,419.



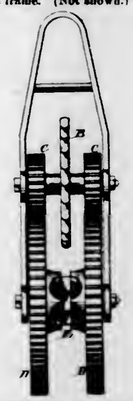
192,420. BUTTER-CARRIERS. William H. Dulaney and Theophilus Dulaney, Peterstown, W. Va. [Filed Apr. 28, 1877.]



A butter-carrier made of several detachable boxes or sections, placed on the top of each other, and being connected by screw-bolts, the lower section or sections having hinge-portions and fastening devices for applying the lid, and forming a carrier of any required size, substantially in the manner and for the purpose specified.

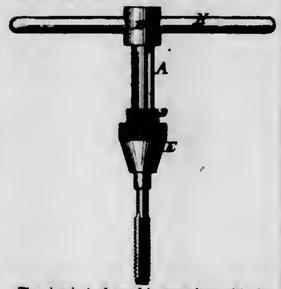
192,421. STUMP-ELEVATORS. August Dannebache and Jacob Linden, Lansing, Mich. [Filed Apr. 16, 1877.]

Brief.—The whole lifting apparatus is hung to a suitable frame. (Not shown.)



The combination of gears D D C C with the sprocket E and ratchet B, when made as described, substantially as and for the purpose set forth.

192,422. TAP-WRENCHES. Chas. Hiterich, New York, N. Y., assignor to himself and Andw. H. Briggs, Jersey City, N. J. [Filed Dec. 27, 1876.]

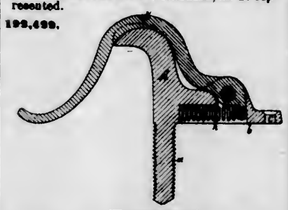


The shank A, formed in one piece with the conical lower end parallel-sided screw-thread D, and the series of parallel slots extending from the conical lower end up through the screw-thread D, in combination with the screw-nut E, having the inner conical end *d*, substantially as described.

192,422. HOLDBACKS FOR VEHICLES. Chas. J. Ellsworth, Fisherville, N. H. [Filed May 28, 1877.]

The improved holdback, constructed substantially as described—viz., with the vertical hooked and grooved standard A, provided with the spring-chamber *b* and spring *d*, arranged in its arm *b* at a right angle to the fastening-screw *a* thereof, and having the tongue B pivoted to the arm, and extended into the said chamber and against the end of the spring, so as, when down, to rest in the groove of the head of the standard, all as represented.

192,423.

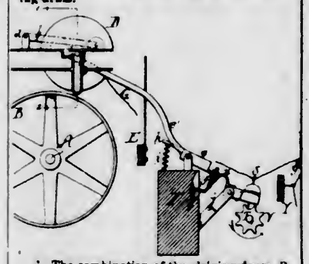


192,423. TAP-WRENCHES. Chas. Hiterich, New York, N. Y., assignor to himself and Andw. H. Briggs, Jersey City, N. J. [Filed Dec. 27, 1876.]

The shank A, formed in one piece with the conical lower end parallel-sided screw-thread D, and the series of parallel slots extending from the conical lower end up through the screw-thread D, in combination with the screw-nut E, having the inner conical end *d*, substantially as described.

192,424. STOP-MOTION ATTACHMENTS FOR SPOOLING-MACHINES. Francis Pearce, Philadelphia, Pa., assignor to Thos. Dolan and R. Williams, Jr., same place. [Filed Jan. 29, 1877.]

Brief.—When a thread breaks, its eyed bell-crank lever falls and engages a fluted roller. Said roller, revolving, presses against said lever, and causes the lever-frame to be turned on its pivot, thereby, through intermediate mechanism, causing the elevation of the long levers, so that they strike the journals of the spool and lift the same clear of the driving-drum.



1. The combination of the driving-drum B and spool D, the fluted roller V, and the pivoted frame J, its levers S and plate P, having a supporting-strip, *s*, with the spring-levers G, adapted to raise the spool, substantially as set forth.

2. The combination of the driving-drum B and spool D with the levers G and their spring-fingers *g*, as described.

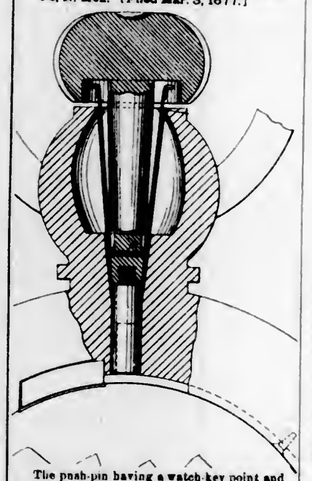
3. The combination of the pivoted frame J, having attached thereto the plate P, which has a supporting-strip, *s*, with the levers G and their adjustable screws *f*, substantially as specified.

4. The combination of the frame J, having openings *r*, with the levers S and plug *t*, as and for the purpose set forth.

5. The combination of the levers S with the frame J and its sliding plate w, substantially as described.

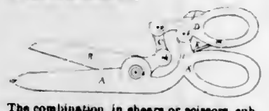
6. The combination of the pivoted frame J, its plate P, and the levers G with the bar F, having shoulder s, as set forth.

192,425. COMBINED PUSH-PIN AND WATCH-KEY. A. A. Fisher and S. H. Lucas, Santa Fé, N. Mex. [Filed Mar. 3, 1877.]



The push-pin having a watch-key point and notched retaining-spring, in combination with the chambered stem of a watch, substantially as and for the purpose herein shown and described.

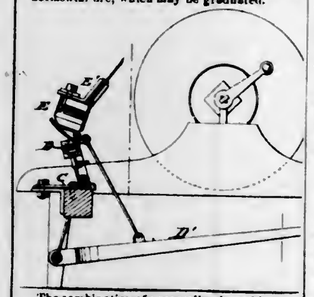
192,426. SHEARS. Daniel A. Folts, New Ringgold, and Aaron Miller, Ringtown, Pa.; said Miller assignor to said Folts. [Filed May 21, 1877.]



The combination, in shears or scissors, substantially as described, of the blades A and B, the handles A' and D, the connecting-bar C, the spring E, and the joints *i*, *h*, *g*, and *f*.

192,427. MOWER AND REAPER KNIFE-SHARPENERS. Zarda Frost, Kinmundy, Ill., assignor to himself and W. H. White, same place. [Filed Mar. 24, 1877.]

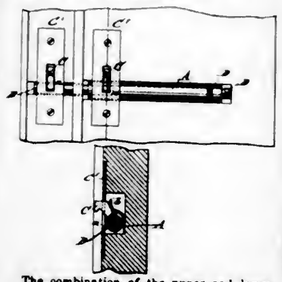
Brief.—The holder-support is thrown toward the stone by a treadle, and from it by a spring. The hinged holder is spring-seated. The holder and its support are adjustable in a horizontal arc, which may be graduated.



The combination of a centrally-pivoted base-plate, C, a swinging spring and treadle acted frame, D, and a hinged vibrating and spring-cushioned supporting-bar, E, substantially as specified.

192,428. SASH-FASTENERS. D. T. Garrish, Lewiston, Me. [Filed Apr. 30, 1877.]

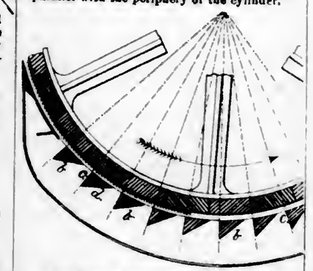
Brief.—Two spring-acted bolts, working one within the other, are provided with locking-catches, and operated by suitable thumb-pieces projecting through the window-casing, the sash being provided with countersunk recesses or sockets to accommodate the peculiar construction of the double bolts.



The combination of the upper and lower sashes of a window, having end recesses or sockets *d*, with a double fastener, composed of two spring-acted bolts, A and B, working one within the other, and having locking-catches C and operating thumb-pieces D, substantially as specified.

192,429. CARD-SCREENS. S. S. Getchell, Woonsocket, R. I. [Filed Apr. 3, 1877.]

Brief.—The bars of the screen are fixed, and their forward faces form a plane on, or nearly on, radial lines from the center of the cylinder. Their upper surfaces are on lines parallel with the periphery of the cylinder.



A card-screen provided with permanently-fixed bars, the forward faces of which form planes on, or nearly on, radial lines from the center of the cylinder, and their upper surfaces are on lines parallel to the periphery of the cylinder, substantially as and for the purpose described.

192,430. BALE-TIES. J. M. Goldsmith, Boston, Mass. [Filed Feb. 24, 1877.]



The combination of the band end A, recessed at a a, and band end B, having a series of pairs of recesses, *b*, and open buckle C, having top plate C^1, recessed, and obliquely slotted, as shown, lugs E, and lips *e*, as and for the purpose set forth.

192,431. BRICK-MACHINES. W. L. Gregg, Philadelphia, Pa. [Filed Apr. 20, 1877.]

Brief.—The top plate, after pressure is given to the brick, is raised above the top of the mold-box, while the plunger also moves upward, carrying the pressed brick out at the top of the mold, from which position it is removed by the ejecting and lubricating device. A passage leads back from the mold-box to the hopper, to allow the escape of superfluous clay.

1. The combination, in a brick-machine, of a mold-box, a plunger adapted to be elevated within the same for pressing and discharging the brick, a pressure-plate, closing the top of the mold-box during the pressing operation, but fitted to be raised during that of discharging the finished brick, and a reciprocating sweep for pushing the brick from the top of the mold-box, substantially as herein set forth.

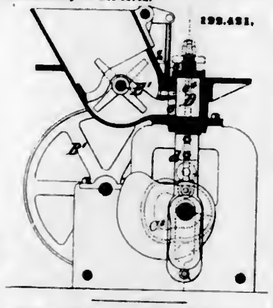
2. The combination, in a brick-machine, of an open-topped mold-box, a reciprocating plunger working therein, a pressure-plate closing the top of the mold-box, a supply-hopper communicating, by a feed-opening, with the mold-box, and a relief passage or passages, connecting the hopper and mold-box between the feed-opening and pressure-plate, substantially as set forth.

3. The combination, in a brick-machine, of an open-topped mold-box, a plunger working therein, an intermittently-moving pressure-plate, which closes the top of the mold-box, and a reciprocating sweep and brush, which remove the finished brick and lubricate the working-surfaces of the pressure-plate and plunger, substantially as set forth.

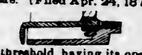
4. The combination, in a brick-machine, of a mold-box, a feed-hopper, communicating by a feed-opening directly therewith, and provided with a shaft carrying a series of agitator-blades, which pass in their rotation between correspondingly-arranged stationary blades in the hopper, and across the feed-opening leading to the mold-box, substantially as set forth.

5. The combination, in a brick-machine, of an open-topped mold-box and a pressing and discharging plunger with an intermittently-moving pressure-plate, a feed-hopper communicating directly with the mold-box, and a series of revolving and stationary agitating or disintegrating blades, situated in the hopper adjacently to the mold-box feed-aperture, substantially as set forth.

192,431.

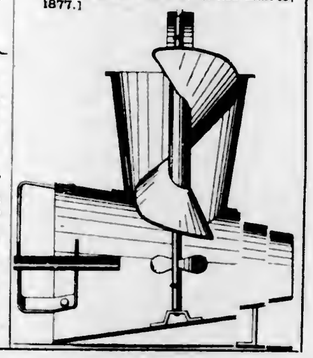


192,432. DOOR-THRESHOLDS. R. B. Hamor, Eden, Me. [Filed Apr. 24, 1877.]



A door-threshold having its open chamber *a* provided with a series of ribs, and a trough arranged as described, in combination with a flanged cover arranged with and applied thereto, and provided with studs to enter elongated cavities in the ribs, as explained.

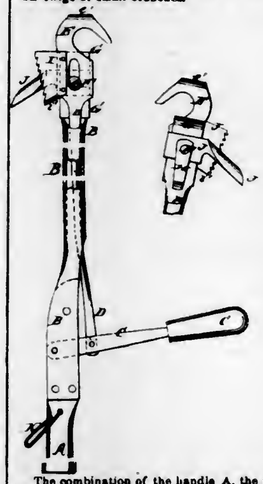
192,433. STEAM FURNACE-BLOWERS. T. J. Hickey, Rondout, N. Y. [Filed Mar. 19, 1877.]



In a device for increasing the draft of furnaces constructed with a horizontal shell and vertical cylinder, the combination of a helical vane within the vertical cylinder, and vanes within the horizontal shell, arranged to revolve by the force of the steam jet, and to permit the helical vane to draw the external air through the vertical cylinder into the horizontal shell and to the furnace, substantially as and for the purpose described.

192,434. PRUNING IMPLEMENTS. Jesse R. Hunter, Orange Springs, Fla. [Filed June 11, 1877.]

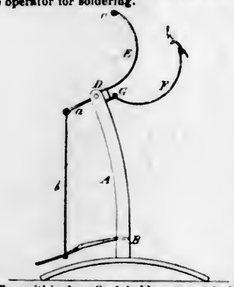
Brief.—A novel combination of old devices, aggregating an unusual number of useful implements, and supplementing the hook with a cutting edge or chisel, and the saw with a downwardly-inclined cutting-edge for lopping off twigs or small branches.



The combination of the handle A, the pipe B, the lever C, the rod D, the slotted hook E, having a cutting-edge or chisel, *e'*, formed upon its top, the screw F, the reversible cutter-plate G, the feed-hook J, and the short tapering saw-plate I, having a cutting-edge, *i'*, formed upon its lower end, substantially as herein shown and described.

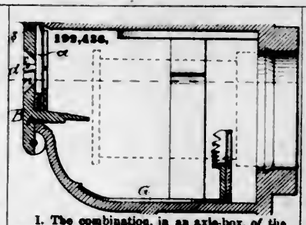
192,435. HOLDERS FOR SOLDERING EAVES-TROUGHS. John Huth, Sandyville, Ohio, assignor to himself and John Voelm, same place. [Filed Apr. 7, 1877.]

Brief.—The trough is secured between the clamping-arms, which are journaled, so that both sides of the trough may be presented to the operator for soldering.



The within-described holder for soldering eaves-troughs, consisting of the frame A B A, with treadle C, rod *h*, arm *a*, and cross-head D, with fixed arms E, pivoted clamp-arms F, and hook *k*, the several parts being arranged and operating substantially as and for the purpose specified.

192,436. AXLE-BOXES. Florens Kelser, Pottstown, Pa., assignor of one-half his right to H. G. Kulp, same place. [Filed Apr. 7, 1877.]



1. The combination, in an axle-box, of the door B, hinged at its lower edge to the front of the box, with a spring-latch, *e*, and packing-strips *s*, as set forth.

2. The combination of the spring-latch *e* and its pin *d*, having an opening, *o*, with the door B, and the enlarged slot *o*, in the same, all as described, for the purpose specified.

3. The combination, in an axle-box, of a detachable plate, G, provided with the teeth for the retention of the absorbent material in the box, as described.

192,437. WIRE STRAIGHTENING AND CUTTING MACHINES. Irving A. Kilmer, Cobleskill, N. Y., assignor of one-half his right to Augustus Kilmer, same place. [Filed May 19, 1877.]

Brief.—A double machine, having duplicate devices at each end, and a mediate carriage for taking two wires, one from each end reel toward the other end of the machine, and straightening and cutting off any desired length of each wire. One wire is passed from one—say the left-hand—reel, through a guide and friction rollers, all adjustable to regulate tension, and between the jaws of a one-way clutch, which is held open, (when closed this clutch prevents a forward movement of the wire,) and on through another one-way clutch, (this clutch prevents a backward movement of the wire,) and thence into a die, under a cutter and in a sliding cross-head; and thence into a clutch on one end of a carriage adapted to reciprocate lengthwise of the machine. This carriage, being moved, draws the wire forward to the right till the carriage strikes the right-hand sliding cross-head, which it presses forward close against the right-hand table. Now, another wire, which has been led from the right-hand reel and put through duplicate guides, wheels, and clutches on the right-hand table, and into a duplicate die in the right-hand sliding cross-head, is, by the repression of the cross-head by the carriage, made to project from the die with enough exposure that it may be, and is, seized by the duplicate clutch of the carriage; also, when the carriage strikes the cross-head it closes the first clutch onto the first-mentioned wire, and so prevents that wire from moving forward, and since the carriage clutches the advance end of the same wire, and advances to repress the sliding cross-head, that wire is straightened (and it may be stretched) between the two clutches. The carriage now starting backward, a spring-hook on the right-hand table opens that clutch of the carriage which holds the advanced end of the first wire, and that end of the first wire drops free, the wire remaining sustained in the die in the left-hand cross-head, and being kept from retrogression by the second clutch on the left-hand table. The carriage, continuing to recede to the left, not only draws the second wire to the left, as before the first wire was drawn to the right, but also, by a cam on it striking a lever, actuates a cutter to cut from the first wire the straightened portion, which falls free from the machine; carriage moves on leftward, takes up the bight of the first wire, goes to the right with it, and on its way cuts a straightened length from the second wire, and so on. Should either wire fail to unwind, its reel moves inwardly, and shifts the driving-belt onto a loose pulley, and so stops the carriage.

1. A wire cutting and straightening machine, operating upon two rolls of wire at the same time by a reciprocating carriage, arranged to pull the wire from one roll while moving in the other direction, substantially as set forth.

2. In a machine for straightening and cutting wire, the combination of a reciprocating carriage and a continuously-rotating right-and-left screw-shaft for operating the same, substantially as herein set forth.

3. In a machine for straightening and cutting wire, a spring-slide carrying the reel for the wire-roll, and connected with the mechanism for throwing the machine in and out of gear, substantially as and for the purposes herein set forth.

4. The combination of the spring-slides B^1, carrying the reels O, connecting-rods *w* *w'*, lever S^1, and slide S with fork K, substantially as and for the purposes herein set forth.

5. The combination of the stationary jaw I and pivoted jaw I^1 with spring *s* and the pivoted lever I^2, substantially as and for the purposes herein set forth.

6. The sliding head K, operated by the springs *p p*, and carrying the dies and cutter L, substantially as and for the purposes herein set forth.

7. The combination of the sliding head K, the sliding cutter L, with stem *r* and nut *e*, the slotted lever M, rod *t*, and spring *s*, substantially as and for the purposes herein set forth.

8. The combination, with the continuously-rotating right-and-left screw-shaft N, of the sliding carriage O and the centrally-hung arm or lever P, having a tooth or projection, P^1, at each end, substantially as and for the purposes herein set forth.

9. In combination with the shaft N, carriage O, and arm or lever P with teeth P^1, the projecting pins P^2 P^3, guides R R, and beveled spring-slides R' R', constructed and arranged to operate substantially as and for the purposes herein set forth.

10. The jaws O^2 O^3, with springs *a'* *a'*, arranged in opposite directions on opposite sides of the carriage O, in combination with the shoulders *b'* *b'* on said carriage, substantially as and for the purposes herein set forth.

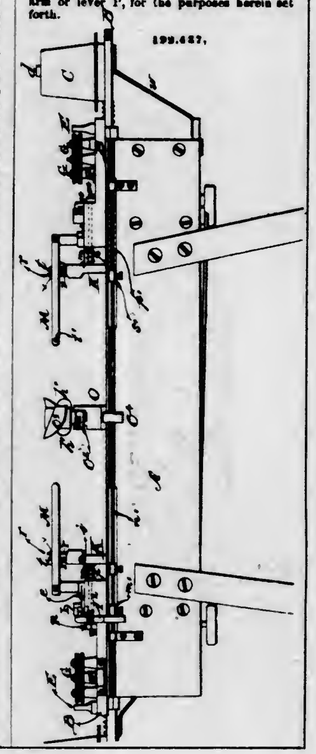
11. The combination, with the carriage O, of the cam-dogs O^4, springs *h'*, and the pins *t'* on the cutter-levers M, substantially as and for the purposes herein set forth.

12. In combination with the spring-jaw I^1 and pivoted lever I^2, the rod *s'*, with spring *p'* and adjustable collars *m' n'*, and the arm O^4 on the carriage O, substantially as and for the purposes herein set forth.

13. The spring-hook A', in combination with the jaw O^2, for the purposes described.

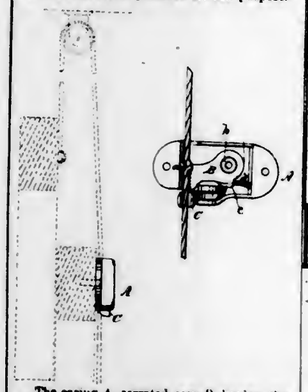
14. The slotted metal bars C, arranged under the platforms B, to operate on the tilting arm or lever I^1, for the purposes herein set forth.

192,437.



199,439. SASH-BALANCES. Adam Kolb and Charles Osberghaus, Sandusky, Ohio. [Filed May 12, 1877.]

Brief.—A suitable box or casing carries a serrated spring-pawl, and is attached at or near the meeting-rail of the sashes. A cord, led over a pulley from the top of the window-frame, passes through, and is clamped automatically, but released by a slight movement of a headed lever provided for this purpose.



The casing A, serrated cam B, having the beveled lug *c*, the spring *d*, and the lever C, in combination, substantially as shown and described.

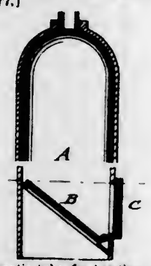
199,439. PEN-HOLDERS. Story B. Ladd, Washington, D. C. [Filed May 24, 1877.]



1. The improved pen-holder, consisting of the handle *a*, constructed substantially as described, and provided with the plug *l*, having the convolute or spiral pen-retaining groove or socket, whereby it is adapted to hold pens of varying sizes and curvatures.

2. An improved pen-holder, consisting of a handle made of wood or other suitable material, with a convolute or spiral pen-retaining groove or socket formed in the end of the pen-holder, substantially as herein described.

199,440. PNEUMATIC TUBES FOR DREDGING. Wm. P. Lewis, Oroville, Cal. [Filed Apr. 23, 1877.]



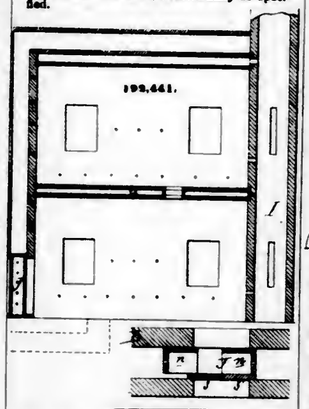
A pneumatic tube for hoisting sand provided with an upwardly-inclined hinge-valve, B, and outwardly-opening door C near the bottom, as shown and described.

199,441. BUILDINGS. Adam W. Louth, Philadelphia, Pa. [Filed Apr. 16, 1877.]

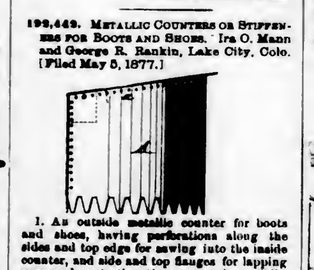
1. A building having double walls or flues, inclosing passages which communicate with the interior of the apartment or apartments in the building, with the windows in the outer wall of the said passages, and with a chimney, I, as set forth.

2. The combination of the chimney I with an apartment having a double ceiling, the interior of which communicates with the apartment and with the said chimney, as described.

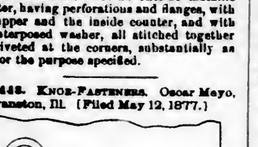
3. The combination of the double-walled building with a door composed of outer sliding sections *a a'* and inner sliding sections *a*, *a'*, of a box-like form, substantially as specified.



199,442.



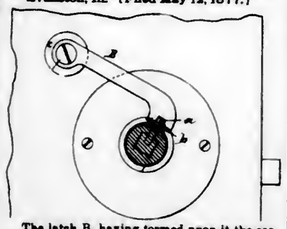
199,443. METALLIC COUNTERS OR STIFFENERS FOR BOOTS AND SHOES. Ira O. Mann and George R. Rankin, Lake City, Colo. [Filed May 5, 1877.]



1. An outside metallic counter for boots and shoes, having perforations along the sides and top edge for sewing into the inside counter, and side and top flanges for lapping over and protecting the seam, substantially in the manner and for the purpose specified.

2. The combination of an outside metallic counter, having perforations and flanges, with the upper and the inside counter, and with an interposed washer, all stitched together and riveted at the corners, substantially as and for the purpose specified.

199,444. KNOB-FASTENERS. Oscar Mayo, Evanston, Ill. [Filed May 12, 1877.]

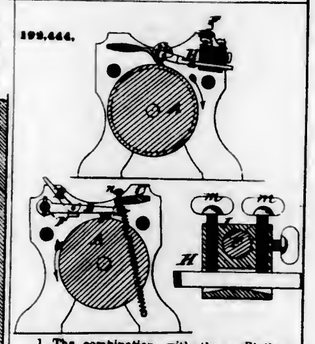


The latch B, having formed upon it the ear *b*, which is perforated to receive a screw, *c*, substantially as and for the purpose herein above and described.

199,445. RULING-MACHINES. J. McAdams, Brooklyn, N. Y. [Filed Nov. 23, 1876.]

Brief.—A rock-shaft, which carries the pen-lifter, provided with the cam-wheel, is also provided with an arm, extending back under the front edge of the pen-bar, and has an anti-friction roller, upon which a set-screw on pen-bar impinges, and by means of which the pressure of the pens upon the paper can be regulated. The rock-shaft also carries a slotted block, through which the pen-lifter passes, and rests upon the bottom of a slot having the form of a double incline plane, whereby, through set-screws, the lifter may be adjusted relative to its pressure upon the cylinder.

199,446.

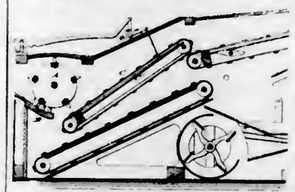


1. The combination, with the oscillating pen-bar C, of the pen-lifter H, and its independent rock-shaft F, and a connection between said pen-bar and rock shaft, substantially as and for the purpose herein described.

2. The combination of the slotted clamping-block I, having the bottom of the slot in the form of a double-inclined plane, the adjusting-screws *n n*, and the pen-lifter H, substantially as and for the purpose set forth.

3. The combination, with the lever L and the pen-bar C, of the friction-roller *r*, the set-screw *s*, and the stop *f*, for the adjustment of said pen-bar, substantially as and for the purpose described.

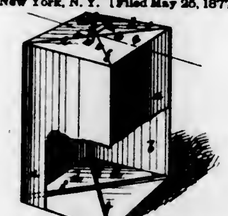
199,447. GRAIN-SEPARATORS. William J. McCulla, Estherville, Iowa. [Filed Mar. 3, 1877.]



1. A separator provided with two carrier-belts, the primary one adjustably inclined with respect to the secondary one, as shown and described.

2. The combination of the thrashing-machinery A B with the carrier C, having its upper end adjustable to and from the top of the casing of the machine, substantially as and for the purpose specified.

199,448. SHEET-METAL CANS. H. Miller, New York, N. Y. [Filed May 26, 1877.]



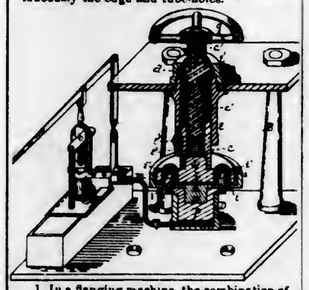
A sheet-metal can in which those portions of the body which are bent over to wholly or partly form either head of the can are united together by inwardly-projecting seams, substantially as described.

199,447. WHIPS. Wm. H. Millikin, Baltimore, Md. [Filed June 13, 1877.]

A whip having a rawhide tip and a rattan stock, and provided also with a wrapping of fabric in strips wound about the whip-body in the reverse direction from the twist of the rawhide, substantially as described and for the purpose set forth.

199,448. FLANGING-MACHINES. David Morgan and William Godley, Pittsburg, Pa. [Filed May 17, 1877.]

Brief.—The upper die having been adjusted in place, the disk is placed upon the lower die, which is raised by the piston flanging simultaneously the edge and tube-holes.

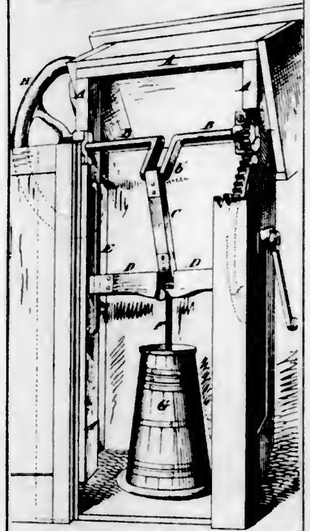


1. In a flanging-machine, the combination of two flanging dies, *a b*, piston P, cylinder D, adjustable block *c*, stem *c'*, and sleeve *s*, substantially as described.

2. The combination of pressure-block *c*, piston P, and two flanging-dies, having one or more studs, *i*, and recesses or holes *i'*, substantially as described.

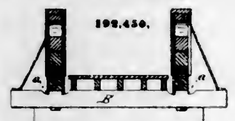
3. In a flanging-machine, the combination of two flanging-dies, one having one or more studs, *i*, and a flange, *z*, the other having one or more recesses or holes *i'*, substantially as set forth.

199,449. RECIPROCATING CHURNS. Alfred F. Morgan, Mason City, Iowa, assignor of two-thirds his right to C. B. Seaberry and Joseph A. Case, same place. [Filed Dec. 27, 1876.]



The frame A, provided with the guide-rods E, in combination with the cross-head D, adjustable dasher-handle F, pivoted bar C, crank-arm B, and fly-wheel H, substantially as described, and for the purpose set forth.

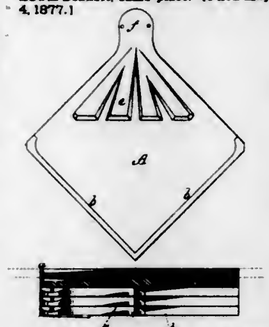
199,450.



199,450. BRIDGES. Thos. Mullin, Millersburg, Iowa, assignor to himself and W. H. Roller, same place. [Filed May 21, 1877.]

In a bridge, the combination of the stringers B with the floor-beams B', having notches *o o* at the junctions of said stringers and beams, as shown, and for the purpose set forth.

199,451. ROOFING-TILES. Philip Pointon, Baltimore, Md., assignor to himself and Edwin Bennett, same place. [Filed May 4, 1877.]



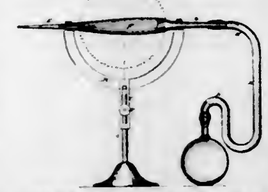
1. A roofing-tile having lips *a* and *b* upon the opposite ends and opposite sides of the same, adapted to couple the adjacent tiles, the outer surface of which lips are upon a level with the plain body portion of the tile, substantially as and for the purpose described.

2. An earthenware tile having the lips *a* and *b*, and provided with an inclined upper face, with a central projecting face or figure raised to the level of the upper lip *a*, substantially as and for the purpose described.

3. The tile having lips *a* and *b* upon opposite sides and ends in the same plane with the opposite plain faces, as described, with the lip *b* extended past the end of the lip *a*, for the purpose described.

4. A roofing-tile provided with a re-enforcing inclined projecting face, *e*, as and for the purpose set forth.

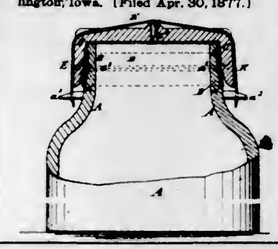
199,452. BLOW-PIPES. Daniel R. Porter, Leon, Iowa. [Filed Mar. 24, 1877.]



1. The combination, with nozzle E, bag F, and tube G, of the rubber tube and ball provided with valves J M, arranged as shown and described, for the purpose specified.

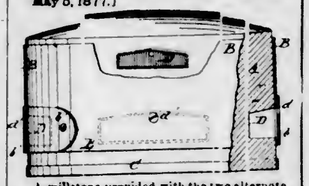
2. The combination of the stand A and the adjustable holder B C D with the nozzle E, rubber bag F, and tube G, substantially as herein shown and described.

199,453. FRUIT-JARS. Hiram Purdy, Burlington, Iowa. [Filed Apr. 30, 1877.]



The combination, with body A, having grooves *a' a'* and lugs *a²*, of the packing B, notched cover, having bead *c'*, and the band E, having holes to receive said lugs, as and for the purpose specified.

199,454. MILLSTONE-BALANCING DEVICES. Luther Read, Henderson, N. Y. [Filed May 5, 1877.]



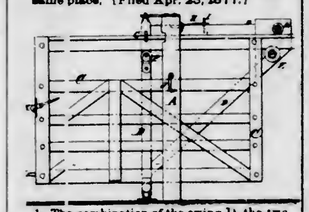
A millstone provided with the two alternate sets of cups D upon its peripheral surface, as described, covered and inclosed by a sheet-metal band, B, having inlet-openings *d'*, as and for the purpose specified.

199,455. ROLLERS FOR SLIDING DOORS. A. K. Rider, Walden, N. Y. [Filed Dec. 16, 1876.]



The loose differential roller B, having duplicate heads or treads *b* at a distance apart outside of the central hub *c*, which is of a diameter less than the heads or treads *b*, for operation in connection with a fixed track, and a hanger, D, attached to a door or gate, and having a bearing-surface resting upon and traveling over the central hub of the loose roller, substantially as described.

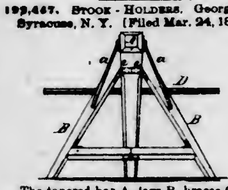
199,456. GATES. William Rinehold, Ari. Ind., assignor to himself and Jacob C. Fair, same place. [Filed Apr. 23, 1877.]



1. The combination of the swing D, the two pulleys E, and the pulley and hook F G, with the gate C and the post A, substantially as herein shown and described.

2. The combination of the brace H and the pin I with the post A, the swing D, and the gate C, substantially as herein shown and described.

199,457. STOOK-HOLDERS. George Sax, Syracuse, N. Y. [Filed Mar. 24, 1877.]



The tapered bar A, legs B, braces C and *e*, rod D, and hinges *c*, combined and arranged substantially as herein shown and described.

199,458. TRACE-FASTENERS. Henry H. Schroeder, New Milford, Conn. [Filed Apr. 30, 1877.]

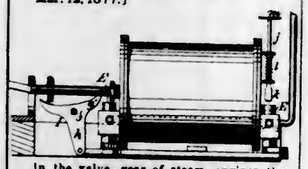
Brief.—The short strap which is used to fasten the trace is attached to the trace itself, instead of to the whiffletree.

A trace for harness having the strap *a'* secured at one end thereof near the eye *a*, and having its free end adapted to pass through an aperture in the whiffletree, substantially as described.



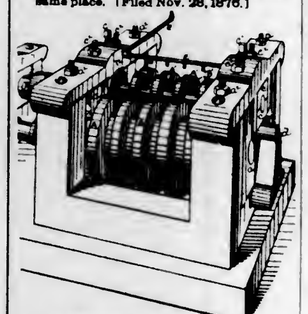
192,458.

192,459. VALVE-GEARS. Albert M. Scott and Jos. J. Roth, Edwardsville, Ill. [Filed Mar. 12, 1877.]



In the valve-gear of steam-engines, the combination of valve E', having square socket in upper end, with the shaft *j*, having squared end, journaled at end of cylinder above valve, and provided with spring *l*, as and for the purpose specified.

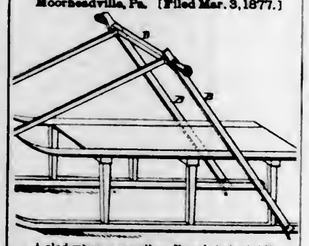
192,460. MACHINES FOR ROUNDING AND STRAIGHTENING RODS. Joseph S. Seaman, Pittsburg, Pa., assignor of two-thirds his right to Jas. B. Young and Robert Sleeth, same place. [Filed Nov. 28, 1876.]



1. In combination with the grooved and collared rolls A A' B B', the end collars *a a*, arranged outside the ends of the working-rolls as a guiding device thereto, substantially as set forth.

2. The hollow guide *d'*, or equivalent guide of like function, as set forth, in combination with a pair of working-rolls, a rest-roll, and a water-supply pipe extending lengthwise of and along the rolls as a means, in connection with the heat of the rod, bar, or shaft, of scaling, finishing, and annealing, substantially as described.

192,461. SLED-PROPELLERS. G. F. Shaver, Moorheadville, Pa. [Filed Mar. 3, 1877.]



A sled whose propellers B and their rigidly-attached handles B' are journaled on extension-end pivots of the cross-bar D, as and for the purpose specified.

192,462. CULTIVATORS. James Sherrill, Harrisburg, Oreg. [Filed Mar. 3, 1877.]

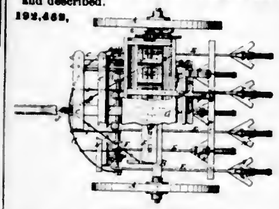
Brief.—Wedge-shaped standard held between bifurcated beam; forward end of plow-beam bent sidewise in U form to receive cross-bar. Curved bar, cross-bar, and parallel bars are secured together, to which the draft is attached.

1. The plow-standard M, pivoted between and at the ends of elastic bifurcations of beam E, and having a wedge-shaped projecting end beyond the pivot, the bifurcations converging from the top downward to hold the standard end, as shown and described.

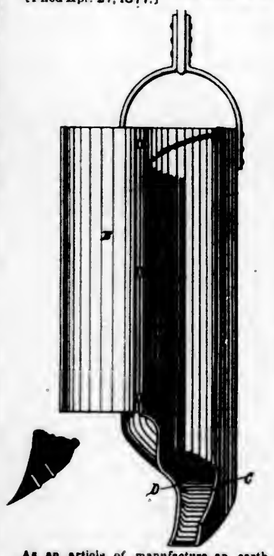
2. The plow-beams E, having their forward ends bent sidewise into U form, to receive the cross-rod F of the draw-frame G H I, substantially as herein shown and described.

3. The draw-frame formed of the cross-rod F, the curved bar G, the cross-bar H, and the parallel bars I, in combination with the plow-beams E, the clevis J, and the adjustable supporting-bars L, substantially as herein shown and described.

192,463.

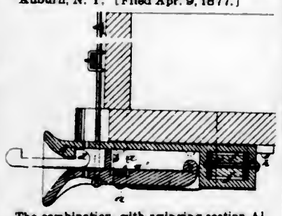


192,462. EARTH-AUGERS. William Shaw, Chicago, Ill., assignor to himself, Benj. L. Honoré, and F. L. Honoré, same place. [Filed Apr. 27, 1877.]



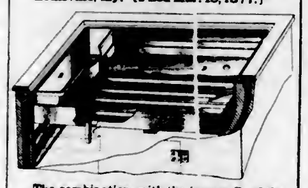
As an article of manufacture, an earth-auger, having the bottom or twist part provided with flanges D C, and the barrel or cylindrical part made and formed of one and the same piece, substantially as shown and described.

192,464. CAR-COUPLINGS. F. P. Shorey, Auburn, N. Y. [Filed Apr. 9, 1877.]



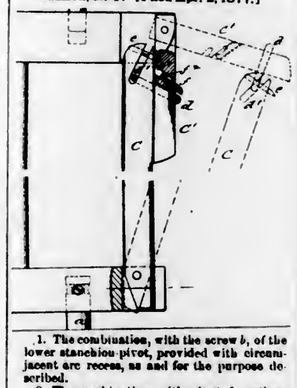
The combination, with swinging section A', of the front guide-band *a*, extended downwardly along its sides, and provided with a cross part extending into recess *a'*, as shown and described, to prevent lateral vibration.

192,465. REFRIGERATORS. H. Siegelsty, Louisville, Ky. [Filed Mar. 13, 1877.]



The combination, with the ice-pan D, of the trough B, which receives the liquid to be cooled, and the pan C, having a tortuous channel formed on its bottom into which the liquid is delivered at one end and discharged at the other through the elevated discharge C', substantially as set forth.

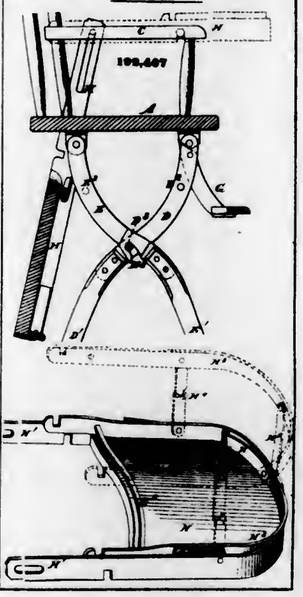
192,466. STANCHIONS. Zalmon W. Smith, Addison, N. Y. [Filed Apr. 2, 1877.]



1. The combination, with the screw *b*, of the lower stanchion-pivot, provided with circumjacent arc recess, as and for the purpose described.

2. The combination, with pivoted sections C C', of the weighted link *c*, working in slot *d'*, the latch *f*, sliding in the inclined slot *f'*, and the stop-pin *f'*, as and for the purpose specified.

192,467



192,467. NURSERY-CHAIRS. A. B. Stevens, Philadelphia, Pa., assignor of one-half his right to Hale & Kilburn Manufacturing Company, same place. [Filed Mar. 29, 1877.]

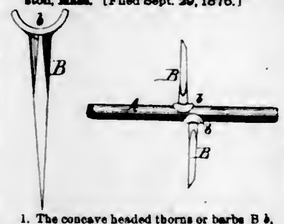
1. In combination with the seat, the crossed legs, supported in the elevated position of the seat by the rod D^2 and hook E^2, and in the lower position by the stops D^3 E^3, substantially as set forth.

2. In combination with the detachable table and means for securing it to the arms or seat, the adjustable frame H^2, hinged to the table so as to permit the adjustment of the latter to form a crib with protecting sides, substantially as set forth.

3. In a nursery or child's chair, the adjustable crossed legs, attached to the seat or seat-frame without a pivot at their intersection, in combination with stops for supporting them at various angles, substantially as set forth.

4. The combination of the table, the arms H^1, forming a rim, the rod H^2, links H^4, frame H^3, and arm H^5, substantially as set forth.

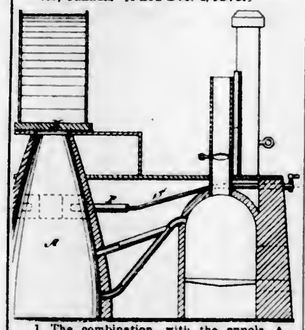
192,468. BARBED FENCE-WIRES. Thomas D. Stetson, New York, N. Y., assignor to himself and Kimball W. Stetson, Kingston, Mass. [Filed Sept. 29, 1876.]



1. The concave headed thorns or barbs B *b*, the part *b* being constructed to conform to the surface of the fence-wire A, as specified.

2. In combination with the fence-wire A, the thorn or barb having a head with a close-fitting surface, matching to the main wire and secured thereto, as herein specified.

192,469. SMELTING-FURNACES. John L. Sturdy and John A. May, Goderich, Ontario, Canada. [Filed Dec. 4, 1876.]



1. The combination, with the cupola A, having the divergent escape-pipes O, of the steam-blast pipes S, converging and discharge pipes P, and dust-chamber Q, the several parts being relatively arranged as described, whereby the furnace gases are oppositely withdrawn by exhaust and discharged together into a common dust and combustion chamber, as herein set forth.

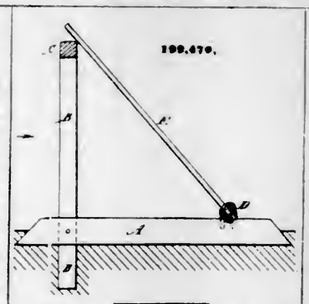
2. The combination of the dust and combustion chambers Q, having the perforated wall R, with the cupola A and outlet-passages O P, as herein set forth.

192,470. FLOOD-GATES. N. J. Sweeney, Wilesborough, Ind. [Filed May 26, 1877.]

Brief.—The gate turns down on the pivoted post when the water rises, so that the "drift" may pass without injuring the gate.

An improved flood-gate, formed by the combination of the sills A, the posts B, the cross-beam C, the pivoted shaft D, and the slats E with each other, substantially as herein shown and described.

192,470.

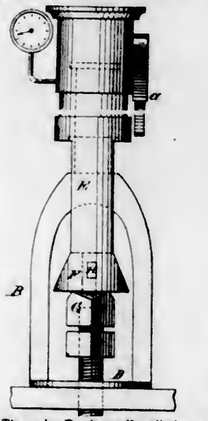


192,471. BARS FOR JAILS, PRISONS, &c. T. J. Tolan, Fort Wayne, Ind. [Filed Mar. 19, 1877.]



An iron bar carbonized only on the surface, substantially as and for the purpose specified.

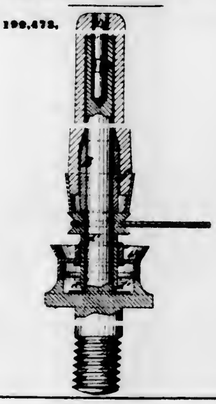
192,472. HYDRAULIC JACKS. D. L. Weaver and George Noble, Hunnewell, Ky. [Filed Apr. 30, 1877.]



1. The yoke B, piston C, cylinder A, bars E, and mortised head F in combination, substantially as herein shown and described.

2. The combination of the socket-nut G and head F, substantially as and for the purpose shown and described.

192,473.



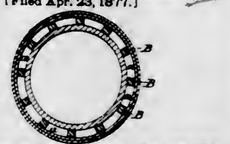
192,473. SPINDLES. Gilbert P. Whitman, Rockport, Mass. [Filed Mar. 12, 1877.]

Brief.—The bobbin is seated in the tapering cup formed on the upper portion of the whirl, and is supported at the upper end by a small spindle, which is loosely inserted in the top of the post.

1. The combination, with bobbin, spindle, and whirl, of the bulged collar guiding the bobbin, holding the whirl in position, and preventing oil from working up, as shown and described.

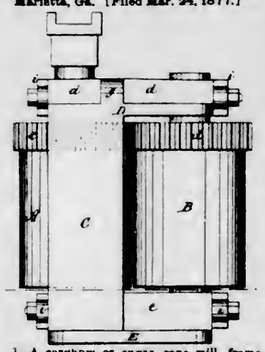
2. The combination of the combined sleeve, whirl, and cup with an oil-cup at the base of the post, and with a lid having a center sleeve drip-cup and oil-returning drip-hole, substantially as specified.

192,474. LAGGING FOR COVERING STEAM-PIPES. George B. Wiestling, Mount Alto, Pa. [Filed Apr. 23, 1877.]



A lagging for boilers, pipes, &c., consisting of longitudinal strips B and straw-board C, substantially as shown and described.

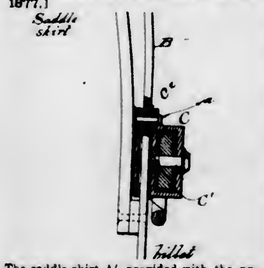
192,475. SORGHUM-MILLS. E. A. Withers, Marietta, Ga. [Filed Mar. 24, 1877.]



1. A sorghum or sugar-cane mill-frame, formed of the standard C and the top and bottom flanges D E, provided with parallel ribs *d d* and *e e*, as shown and described.

2. The improved mill composed of the metallic frame formed of standard C, top and bottom flanges D E, having ribs *d d e e* and cross rib *g*, the rollers A B, the caps and bearings, and the bolts H, all arranged as shown and described.

192,476. COMBINED TUG AND PAD LOOP FOR HARNESS. Henry R. Woodcock, Greene, Iowa, assignor of one-half his right to S. W. Soesbe, same place. [Filed Mar. 24, 1877.]



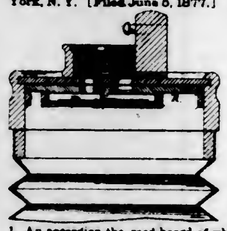
The saddle-skirt A', provided with the upwardly-projecting band B, in combination with the double loop C, having the perforated passages C^1 C^2 at right angles to each other, screw *c*, and pin *a*, substantially as described, and for the purpose set forth.

192,477. BALE-TIES. William A. Wright, Augusta, Ga., assignor of one-half his right to T. R. Porter and Danl. H. Gowing, Syracuse, N. Y. [Filed June 9, 1877.]



The combination of the plain flat double-slotted piece A and a locking-piece, B, having on one edge a curved tongue, *b'*, as described, forming a reversible locking bale-tie, constructed and combined specifically as herein described.

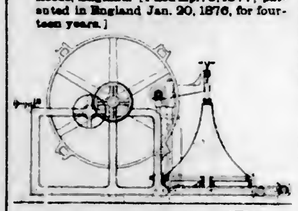
192,478. ACCORDIONS. F. Zogbaum, New York, N. Y. [Filed June 5, 1877.]



1. An accordion the reed-board of which is constructed so as to slide in and out of the body, substantially as described.

2. The combination of the reed-board B, grooved cells, sliding reeds a, and removable side rail S, substantially as described.

192,479. FLESHING-MACHINES FOR HIDES AND SKINS. Thos. Wade Appleyard and Walter K. Appleyard, Hunslet Carr, near Leeds, England. [Filed Apr. 9, 1877; patented in England Jan. 20, 1876, for fourteen years.]



1. In combination with the revolving scraper and curved beam that supports the hide, the swinging arm and clamp to hold the hide at the upper part of the curved beam, substantially as set forth.

2. The combination, with the revolving scraper, of a rotary conoidal support for the hide, the section of which support is a curved line corresponding to the path described by the revolving scrapers, substantially as set forth.

3. The combination, with the scraper in the machine for dealing hides, of a roller in advance of the scraper, and moving with it, substantially as set forth.

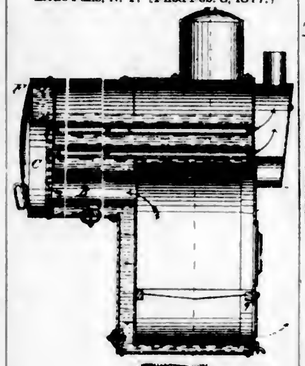
192,480. SCROLL-SAWING MACHINES. John S. Baker, Norristown, assignor of one-half his right to John J. McFaddan, Philadelphia, Pa. [Filed Apr. 18, 1877.]

Brief.—The vibrating saw-arms operate in upper and lower arms, slotted their entire length, and provided with tubular sockets having rear vertical slots communicating with the slots in the saw-arms.

1. The arms *c c'*, slotted their entire length, and formed or provided with tubular sockets E E' at their ends, having vertical slots in their rear sides communicating with the slots in arms *c c'*, for the passage of the vibrating arms or levers F F', substantially as shown and described.

2. The combination of the longitudinally-slotted horizontal arms *c c'*, having the tubular sockets E E' communicating with slots in said arms, levers F F', heads *b b'*, and adjusting-screw G, connecting said levers at their rear ends, substantially as shown and described.

192,481. STEAM-BOILERS. Chas. H. Barber and George A. Porter, Syracuse, assignors to Porter Manufacturing Company, (limited,) same place, and Whitman & Burrell, Little Falls, N. Y. [Filed Feb. 8, 1877.]



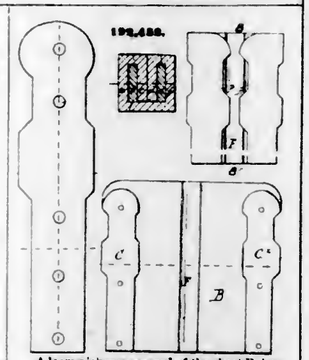
1. In a steam-boiler having an internal fire-box provided with a water-bottom and a removable fire-front, the combination of said fire-box, the large flue B, and its accompanying side tubes *d* with a returning-chamber containing the water-back F, and with the returning-tubes *s*, all constructed and arranged in the manner described.

2. The returning-chamber C, in combination with the central large tube B and side tubes *d* and water-back F, located above and in rear of the water-line of the main boiler, and attached to the shell of the same, in the manner and for the purpose shown and described.

192,482. LOOM-PICKERS. John W. Barlow, Lawrence, Mass. [Filed June 3, 1875.]

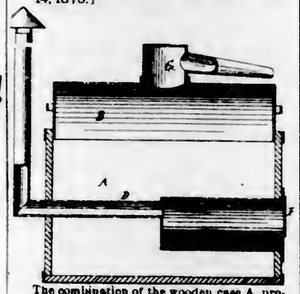
Brief.—Improvement upon the device covered by Letters Patent No. 32,771, July 9, 1861. The covering-sheet is provided with a separate layer at each edge, and with a groove at its center, whereby a more compact picker is secured.

192,483.



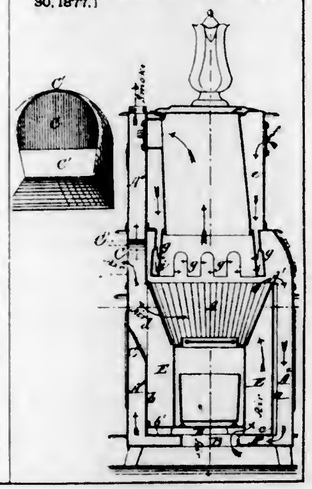
A loom-picker composed of the sheet B, having the central groove F and independent layers C C' attached to the sheet B, and constructed substantially as described, whereby the edges of the layers and the sheet can be doubled over and into the groove F and riveted together, as and for the purpose described.

192,483. APPARATUS FOR BOILING SUGAR-CANE. John Bromley, Macon, assignor of a part of his right to Sarah E. Smith and Jesse M. Ellis, Atlanta, Ga. [Filed Dec. 14, 1876.]



The combination of the wooden case A, provided with door F, heater C, and flue D, and hinged cover B, provided with the removable cap G and pipe, all constructed substantially as and for the purposes herein set forth.

192,484. MAGAZINE HEATING-STOVES. W. P. Brophy, Bloomington, Ill. [Filed Apr. 30, 1877.]



1. The base-draft flue A' A' A' A', the air-heating-chamber E E' E', the center bottom air-inlet B, the back air-outlet C, and the fire-pot, constructed and arranged in a base-burning stove, as herein set forth.

2. The collar C', arranged across the rear sheet-flue A' of the base-draft, combined with the opening *d* in the inner wall *b*, the heating-chamber E E' E', and the exit C in the rear wall, as set forth.

3. The cross-flues E' E' at the ends of the fire-box and above the ash-pit, in combination with the air-heating chamber, the bottom inlet, and the rear exit, substantially as herein set forth.

4. The division *b'* in the base air-heating chamber, in combination with entrance and exit openings and the cross end flues of the fire-box, whereby the air in said chamber is caused to pass up the front, around the fire-box ends, and across the rear portion of said chamber to the outlet.

5. The hollow frame and the hollow fingers depending therefrom, in combination with the magazine, the air-chamber *e*, and the combustion-chamber, constructed for use as herein set forth.

6. The hollow fingers *g*, closed at their lower ends, with open spaces between said fingers, and having openings *i* in their opposite edges, whereby the air is delivered in horizontal streams into the spaces between said fingers, as and for the purpose herein set forth.

7. The hollow fingers *g*, having inner straight and outer rounded sides, with openings *i* in their opposite edges, as and for the purpose described.

8. The plate *a*, corrugated and extending from the top edge of the fire-pot A to the inner bottom plate *c*, and combined with the corrugated fire-pot plate, between which corrugated plates the front portion of the hot-air chamber E is formed, for the purpose set forth.

192,486. BOOTING-JACKS. Jared Bussell, Boston, Mass. [Filed May 17, 1877.]

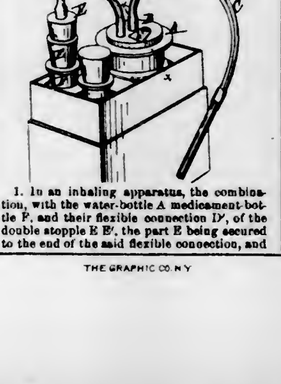
The combination of the rock-shaft C and the tongue or tongues D D with the two bars A A, arranged, connected, and provided with pegs *b b*, as described.

192,486. OIL-CANS. J. F. Coppel, Havana, Ill., assignor to himself and C. H. Long, same place. [Filed May 16, 1877.]

The combination of the can A, having partition B, with a pump provided with a check-valve, and located upon said partition, and the pipes D and E arranged as described, and having the one a valve, *g*, and the other a valve, *f*, with elongated stem arranged in sleeve *f'*, substantially as and for the purpose described.

192,487. APPARATUS FOR AUTOMATICALLY REDUCING OR REGULATING FLUID-PRESSURE. George F. Deacon, Liverpool, England. [Filed June 1, 1877.]

Brief.—The weight or spring assists the auxiliary valve to open the main valve. The auxiliary valve is operated by the float, the rise and fall of which is regulated by the siphons.

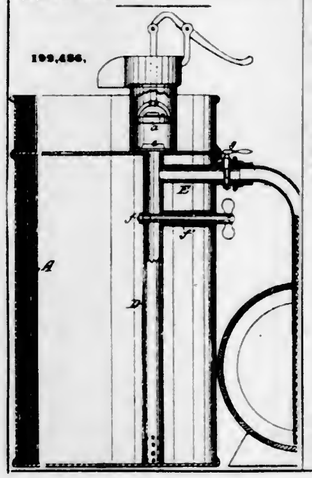


1. The combination, with the double-seated valve-chamber, of the cylindrical equilibrium-valve provided with two annular bearing-surfaces, said surfaces being curved, as described, for the purpose of contracting the water-way at an increasing rate as the valve approaches its seats, whereby shocks are prevented, substantially as described.

2. The combination, with the ram and its weight or spring, of the auxiliary valve and valve-chamber connected with the chamber below the ram, for automatically balancing the pressure on the two ends of the ram, in order to allow the weight or spring to automatically operate the auxiliary valve to open the main valve, substantially as described.

3. The combination, with the chamber K below the ram, of the chambers W W' communicating with each other, the valves *w v* on a common valve-rod provided with a float, Z, the tube Y provided with an opening, *h'*, and the siphon X *x'* leading from the respective cylinders, the whole constructed and arranged substantially as and for the object described.

192,488.



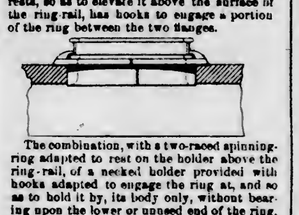
192,488. INHALERS. Joseph S. De Guise, Detroit, Mich. [Filed Jan. 13, 1877.]

Brief.—One of the bottle-stoppers is made in two parts, either of which will stop the bottle. The lower one forms a cup for containing a small portion of the medicament, and the upper one is connected directly to the wash-bottle by a flexible tube.

1. In an inhaling apparatus, the combination, with the water-bottle A medicament-bottle F, and their flexible connection D', of the double stopple E E', the part E being secured to the end of the said flexible connection, and the cup *c*, and notches *e e* in the said stopple, whereby the medicine can be drawn in small quantities from the said cup *c*, or directly from the bottle, substantially as described.

2. The inhaling apparatus described, consisting of the water-bottle A, medicament-bottle F, cork B, having valve *h*, double stopple E E', and flexible tubes C D', constructed and and arranged substantially as set forth and shown.

192,489. CAMP-CHESTS. B. M. Descomtes, Paris, France. [Filed Nov. 13, 1876.]



1. A camp-chest formed in two sections, one of which is composed of the lid and back, and the other of the bottom, front, and ends, the two sections being hinged together, substantially as described, the locking-strap a^9, the straps a^{11} a^{12} a^{13}, and the buckles a^{14}, all combined and operating substantially as and for the purposes specified.

2. The chest A and strengthening-bands *a*, having sockets a^4 a^{10}, the hinged brace-rods a^{11}, in combination with a sectional hinged camp-bed, substantially as described, for the purpose specified.

3. The camp-chest A, having partition a^2 and the hinged sectional ends, substantially as described, for the purpose specified.

4. The camp-chest A, having partition a^2 and hinged sectional ends, to form a compartment, the ledges or shelves a^{15}, and bands *a*, in combination with a folding table-top, to form a second and separate compartment, substantially as described.

5. The camp-chest A, having strengthening-bands *a* inside and outside, in combination with the detachable loops or staples and chains a^{16}, substantially as described, for the purpose specified.

6. A sectional hinged camp-bed, the side-pieces of which are provided with hooked studs b^3, and so constructed as to fold the sections together by means of the double hinged straps b^4 when the bed is not in use, and when in use hold the head section thereof in an inclined position, in combination with the camp-chest having sockets a^4, substantially as described, for the purpose specified.

7. A folding-table, consisting of two leaves hinged together, and provided on their under side with recesses c^3, a locking-lever or locking lever and latches, in combination with the hinged sectional supports, and the slotted locking-plates, and the camp-chest, provided with ledges or shelves a^{15}, to adapt the table, when folded, to form a compartment within the chest for the reception of the supports for such table, substantially as described.

192,490. SPINNING-RING HOLDERS. Wm. F. Draper, Hopedale, Mass. [Filed Apr. 30, 1877.]

Brief.—The holder upon which the ring rests, so as to elevate it above the surface of the ring-rail, has hooks to engage a portion of the ring between the two flanges.

The combination, with a two-raced spinning-ring adapted to rest on the holder above the ring-rail, of a necked holder provided with hooks adapted to engage the ring at, and so as to hold it by, its body only, without bearing upon the lower or unused end of the ring, substantially as described.

192,491. MORDANTING TEXTILE FABRICS. Henry D. Dupee, Boston, Mass. [Filed May 7, 1877.]

1. The art of cementing or mordanting coloring matters upon textile fabrics, substantially as described, by means of gelatine combined with chromic acid, and subjected to the action of steam.

2. A textile fabric having coloring matters fixed upon its fibers by means of gelatine combined with chromic acid, substantially as described.

192,492. PRINTED TEXTILE FABRICS. Henry D. Dupee, Boston, Mass. [Filed June 22, 1877.]

A textile fabric having coloring matters fixed upon its fibers by means of gelatine combined with chromic acid, substantially as described.

192,493. SPINDLES AND BOBBINS. George Draper, Hopedale, Mass. [Filed Mar. 21, 1877.]

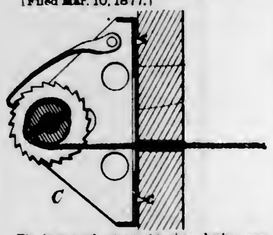
Brief.—The spindle, for some distance above the top of the bolster, is made cylindrical rather than tapering, as usual, whereby the spindle at the top of the bolster is so strengthened that it may be rotated at increased speed without vibration. The bobbin has a single frictional adhesive bearing upon the extreme top of the spindle, increased in size to afford a frictional surface of sufficient extent to drive the bobbin at full speed.



1. The combination, with the bolster, of a spindle constructed substantially as hereinbefore described, it being cylindrical above the top of the bolster for such a distance as to co-operate with the stop, as described, to prevent the bobbin adhering thereto, and it being also of such size and taper at or near its top as to carry the bobbin and its load at full speed, as set forth.

2. A bobbin provided with an internal adhesive bearing at or near its upper end, and an internal re-enforce or stop, substantially as described, adapted to co-operate with the cylindrical portion of the spindle, to prevent extreme lateral movement of the bobbin with relation to the spindle, as and for the purpose set forth.

192,494. FENCE-WIRE TIGHTENERS. Geo. Duffey, De Kalb, Ill., assignor of one-half his right to J. F. Glidden, same place. [Filed Mar. 10, 1877.]

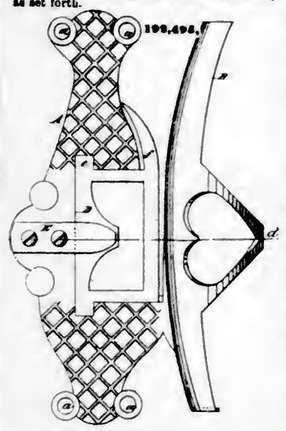


The improved wire-tightening device, consisting of the case C, having spurs *c* for attachment to the post, the windlass and the ratchet-wheel and pawl, all constructed and combined substantially as described.

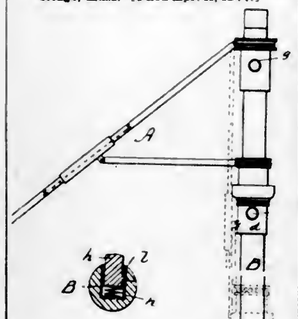
192,495. REIN-HOLDER AND WHIP-SOCKET. Charles T. Ellsworth, Decatur, Ind. [Filed Jan. 13, 1877.]

1. The plate A, with holes *a a*, and the curved whip-socket B having central yoke *d*, all cast in one piece, substantially as set forth.

2. The laterally-movable skeleton-frame D, with curved finger *f*, in combination with the plate A and whip socket B, of one piece of metal, and the flat spring E, all substantially as set forth.

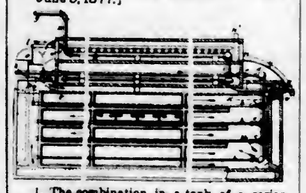


192,496. UMBRELLAS. Henry Falcina, Cambridge, Mass. [Filed Apr. 11, 1877.]



The cane B, provided with plugs *h*, cases *l*, and springs *s*, for operation, in combination with the canopy-frame A, constructed with the top ferrule *e* and sliding sleeve *d*, each having openings *g*, with which the plugs *h* engage, substantially as and for the purpose described.

192,497. ICE-MACHINES. Edward Fixary, New Orleans, La., assignor of one-half his right to A. C. Janin, same place. [Filed June 5, 1877.]



1. The combination, in a tank, of a series of pipes arranged in tabular form, communicating with a forcing and suction pump, so as to cause the gas to be condensed to circulate therein, substantially as herein described, with a water-rose or jet-pipe extending longitudinally the whole length of said condensing-pipe, and a blower located outside but communicating with the interior of the tank, substantially as herein shown and set forth.

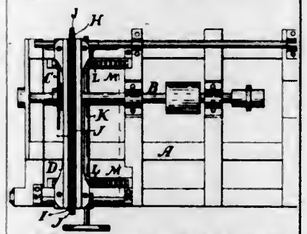
2. In combination with the condensing-tank, its gas-condensing pipes, water-rose, and blower, the liquefying-tank containing two series of pipes, both arranged in tabular form, but one above the other, the former being composed of larger pipes than the latter, but so communicating with the same pump as that the gas to be liquefied shall travel in the two sets of pipes in opposite directions, as herein shown and set forth.

3. The combination, with the condensing-trough and its condensing and jet pipes, and the liquefying-tank and its two sets of condensing and liquefying pipes, of the congealing-tank, containing a series of refrigerating-tubes for the support of or interposition between molds, substantially as herein shown and set forth.

4. The congealing-tank, the same consisting of a series of tables or plates composed of refrigerating-pipes, through which the refrigerating agent is caused to circulate, in combination with a ventilator and valve for withdrawing air from or both forcing the same into and from said congealing-tank, as and for the purpose set forth.

192,498. MACHINES FOR TRIMMING LUMBER. Thomas J. Frazier, Lyons, Iowa. [Filed May 29, 1877.]

Brief.—One of the transfer-chains is mounted directly in the yoke, so that it is always close to the saw, for preventing any unsteadiness or spring in the log when presented to the saw.

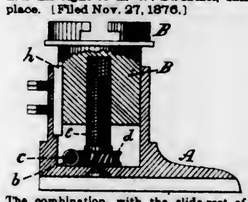


1. The saws C, adjustable laterally, in combination with the yoke or rest D, extending across the frame by the side of the saw and adjustable therewith, and transferring devices for carrying the lumber across the machine, mounted on and moving with the yoke, substantially as and for the purpose set forth.

2. The adjustable yoke or rest D, in combination with the wheels H and I, and transferring-chain J, substantially as and for the purpose set forth.

3. The sliding yoke D, in combination with the shaft K connected thereto, toothed wheels L, fixed on said shaft, and the racks M, substantially as and for the purpose set forth.

192,499. TOOL-HOLDERS FOR LATHES. S. Giesinger, Pittsburg, Pa., assignor of one-half his right to E. W. Swantzel, same place. [Filed Nov. 27, 1876.]



The combination, with the slide-rest of a turning-lathe, of base A, socketed as set forth, shaft *b*, with its worm *c*, wheel *d*, and screw *e*, and the threaded tool-post B, grooved externally and provided with key *h*, all arranged substantially as described.

192,500. FIRE-ESCAPES. Frances E. Goble, St. Louis, Mo. [Filed May 2, 1877.]

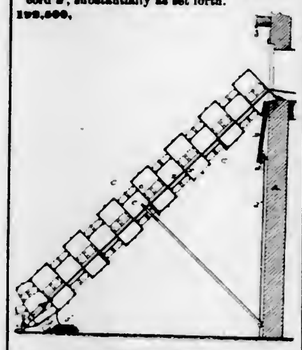
1. The tube C, formed of rings *c* and jointed links *c'*, and secured at the upper end to the house, substantially as and for the purpose set forth.

2. The fire-escape apparatus, composed of the extensible tube C and sled K, substantially as and for the purpose set forth.

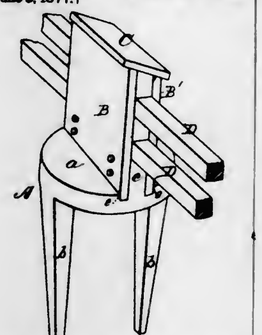
3. The combination, with the tube C and drop-door D', of the weight J and cord J', substantially as set forth.

4. The combination of folding tube C, ball and cord J J', drop-door D', with catch *d* and cord *d'*, substantially as set forth.

192,500.



192,501. PORTABLE-FENCE SUPPORTERS. John B. Gorby, Hiramsburg, Ohio. [Filed June 9, 1877.]



1. The metallic base for the posts of portable fences, consisting of the disk *a*, the drive-spikes *b*, the rib *c*, and the grooves *e* at the base thereof, adapted for use substantially as specified.

2. The combination with the base A, having drive-spikes *b* and a raised transverse rib, *c*, of the side posts or uprights B B', bolted to said rib, and the beveled water-shed C, substantially as specified.

192,502. WINDMILLS. Wm. A. Guseman, Washington, Iowa, assignor to Moses C. Parker and E. H. P. Guseman, same place. [Filed Apr. 16, 1877.]

Brief.—The lower end of the pitman is cranked and enlarged, so as to serve as a swivel, in connection with the plunging-rod of the pump. Through the center, endwise of this cranked or enlarged end of the pitman, a small hole is drilled, through which passes a small rod connected to the chain. This rod continues on down to the ground, and by pulling down on this rod the governor of the mill is worked, and the speed of the mill regulated. To keep the mill at rest, the lower end of the rod must be attached to a pin or cleat on the plunging-rod. The counter-balance is arranged by hinging the weight-bar like a pendulum, which causes little resistance while in a vertical position.

1. The turn-table provided with one arm for supporting the bearings of the wheel-shaft, and another for supporting rigidly the shaft itself, the arms being at right angles to each other, and at one side of the vertical center, as and for the purpose described.

2. A windmill with its vane-shaft G rigidly attached to its turn-table H, and at right angles to the wheel-shaft O, and in front of and parallel with the face of the wheel B, substantially as herein shown and described.

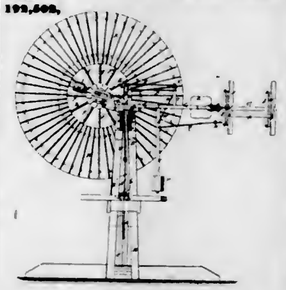
3. The combination of sections J L, constituting the vane, and connected with each other and the weight-bar O by rods K N Q, and projecting arms M R, substantially as described, and for the purpose set forth.

4. The arrangement of the pulley X on the upper end of the bar Y, hinged to the vane-shaft G, and connected by the rod B' to the pulley Z, attached to the upper end of the pitman S, and the chain W, and rod A', traveling with the pitman S, substantially as described, working in the manner and for the purpose named.

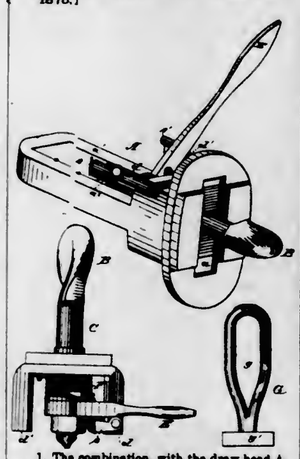
5. The combination, with a solid pitman, having pulley on one end, and connected at the other with swiveled pump-rod, of the chain, passing along its side, and connected with a small rod passing through the perforated swiveled end of pitman, causing the chain, rod, and pitman to travel together, and thus avoid friction, as set forth.

6. The combination of the pitman, counterpoise weight, crank-pin, having anti-friction roller, and slotted lever or walking-beam, the latter pivoted to the turn-table, and having flange to keep the roller in place, as specified.

192,503.



192,503. CAR-COUPLINGS. Chauncey Hall, Washington Township, Macomb County, assignor of one-half his right to Daniel Woodin, Romeo, Mich. [Filed Oct. 1, 1875.]



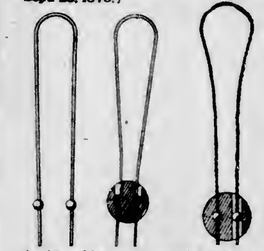
1. The combination, with the draw-head A, having the vertical slot *a* and a space to the rear of the same, of the spiral coupling-hook B and its supporting-frame, when the said hook and frame are adapted to be entirely removed from the draw-head, substantially as described and shown.

2. In a car-coupling, the combination, with the draw-head, of the spiral coupling-hook B, bolt C, lever E, and spring F, substantially as described and shown.

3. The combination, with the spiral coupling-hook, bolt C, and spring F, of the lever E and catch *e*, substantially as described and shown.

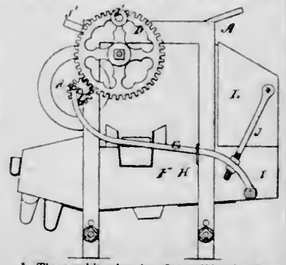
4. The link G, for the purpose set forth, having the oblong body *g*, having an uninterrupted opening extending the whole length of the same, and the rectangular plate *g'*, secured to one end of said body, constructed and arranged substantially as described and shown.

192,504. METALLIC SEALS. Fred C. Hamilton, Brooklyn, assignor, by mesne assignments, to the New York Cording and Sealing Company, New York, N. Y. [Filed Sept. 26, 1876.]



A wire-and-lead seal, provided with beads or fragments of metal applied to the legs of the bow or shackle, for the purpose of securely anchoring the same within the soft-metal disk when the latter is compressed.

192,505. GRAIN-SEPARATORS. Jas. F. Hatfield, Liston, Ind. [Filed May 12, 1877.]



1. The combination, in a fan-mill having the fan B, with disk C and gear-wheel C', provided with wrist-pins *d*, of the curved rods G, spindles I, reciprocating screen-box F, the rods J, chaff-screen frame L, and slotted plates H, substantially as specified.

2. The combination, with the screen-box F and its slideway-brackets F', of the vertically and endwise moving pitmen G and the fulcrum-plates H, substantially as specified.

3. The combination, with the screen-box F and its actuating-pitmen G, of the reciprocating screen-frame L J' and the rods J, rigidly connected with pitmen G, and supporting one end of said frame from the pitmen, substantially as specified.

4. The chaff-screen frame L, having extension J', in combination with the main frame A, having slots *s*, the vertically-adjustable rods J, pitmen G, and the screen-box F, substantially as specified.

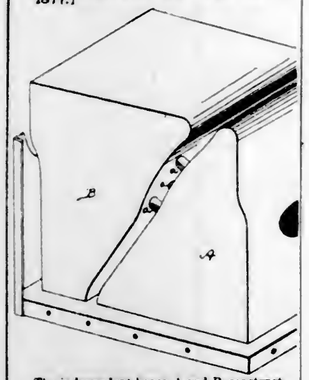
192,506. SHUTTERS. August G. Haumann, Pittsburg, Pa. [Filed Dec. 18, 1876.]



1. A hinged window-shutter provided with one or more glass panels, and one or more sliding or hinged panels on the inside of the same, substantially as set forth.

2. A shutter consisting in the combination, with a shutter-frame, of one or more outer and imperforate hinged doors, and one or more inner hinged or sliding glass panels, as set forth.

192,507. LOCOMOTIVE FIRE-BOXES. John C. Hayward, Selma, Ala. [Filed May 17, 1877.]



The independent boxes A and B, constructed and arranged substantially as represented, and connected together by the flues a a, whereby a water-space is secured around the boxes, as and for the purpose set forth.

192,508. HAIR-DRESSING. N. Halmer, New York, N. Y. [Filed May 5, 1877.]



1. The within-described mode of forming coils of artificial or natural hair—that is, by first forming a weft, A, with braid a at one edge, inserting the weft in the longitudinal slot of a cylinder, B, brushing the fringe round the cylinder, and then removing the weft longitudinally in the form of a coil, as specified.

2. The within-described coil, consisting of the series of wefts, combined to form a heavy, straight braid, a', and fringe b, as and for the purpose set forth.

3. A curling-tool consisting of a cylinder terminating in a square end, having a plain, unobstructed outer face, round which the hair may be wound, and from which it may be slipped longitudinally, and a longitudinal slot, c, extending to one end and communicating with an inner opening, c, adapted to receive the braid, all as set forth.

192,509. TOOLS FOR FORMING LUGS IN THE NECKS OF FRUIT-JARS, &c. Wilhelm Hirt and Joseph Mahler, Pittsburg, Pa.; said Mahler assignor to said Hirt. [Filed June 14, 1877.]

Brief.—A hollow conical head, revolving loosely on the end of a stem, has openings in its sides, which, when the ends of arms pivoted therein are thrust out, form the fourth side of each of three recesses. The arms are operated by the hand-pressure of two springing jaws outside of, and fixed to the bottom of, the stem.

1. The hollow conical shell e and recesses f, in combination with the vibrating arms a a, substantially as and for the purposes set forth.

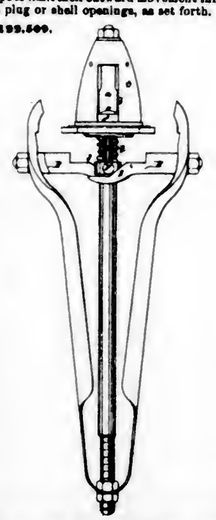
2. In a tool for forming lugs or projections on the insides of glass-jar necks, the arms of the revolving hollow plug or shell, pivoted and arranged therein to form, when thrust out, the fourth side of recesses in the walls of the plug or shell, and to automatically drop inward away from said recesses, when relieved from the action of the thrusting device, to allow of the withdrawal of the tool from the jar-neck over said lugs or projections.

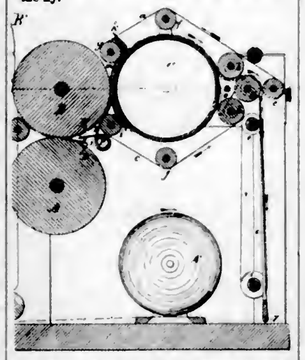
3. The combination, with the pivoted arms a, adapted to form the fourth side of wall-recesses in the conical plug or shell, as described, of the disk H, its connected cross-head F, the spring-arm fingers B B, and the spring t, adapted for co-operation, as set forth.

4. The arms a, provided at their free ends with inclined extensions, whereby to receive the thrusting action of the disk H, and to form stops to limit their outward movement through the plug or shell openings, as set forth.

192,510. DELIVERY APPARATUS FOR PRINTING-MACHINES. Richard M. Hoe and S. D. Tucker, New York, N. Y. [Filed Sept. 7, 1876.]

Brief.—The sheets from the female cutting-cylinder (which is also the second impression-cylinder) are directed by rigid guides to a grooved cylinder, on which they are held by tapes until a determined number are collected, when a switch is rocked into the grooves to throw off the mass which passes down before the fly.





1. The method of delivering sheets of paper by accumulating a number laid one upon another successively on a revolving carrier and then discharging them in a single mass therefrom, substantially as described.

2. A gathering-cylinder or revolving carrier combined with means for directing and retaining many sheets thereon, and means for stripping the accumulated sheets in a single mass therefrom, all substantially as described.

3. The combination of devices for severing a web of paper into sheets with a gathering-cylinder or revolving carrier, devices for directing and retaining many sheets thereon, and means for delivering the accumulated sheets in a single mass therefrom, all substantially as described.

4. The combination of a mechanism for printing a web of paper with a mechanism for severing said web into sheets, a gathering-cylinder or revolving carrier, devices for directing and retaining many sheets thereon, and means for delivering the accumulated sheets in a single mass therefrom, all substantially as described.

5. In combination with a gathering-cylinder or revolving carrier, means for directing and retaining the sheets upon said carrier, and a switch to strip the accumulated sheets from their carrier, all substantially as described.

6. The combination of a gathering-cylinder or revolving carrier, guides for directing and tapes to sustain the sheets upon the carrier, with a switch to strip the accumulated sheets from their carrier, substantially as described.

7. The combination, with a revolving sheet-carrying device, of a switch automatically operated to guide the leading end of a sheet onto and off from said carrying device, substantially as described.

8. The combination of a gathering-cylinder upon which a mass of sheets are accumulated with means for stripping said sheets from the cylinder, and a fly-frame for depositing the same upon the piling-table, all substantially as shown and described.

9. The combination of the guides l and m with the cylinders B and C, substantially as shown and described.

10. The combination of the guides l or m, cylinders B and C, and endless tapes s and e, substantially as shown and described.

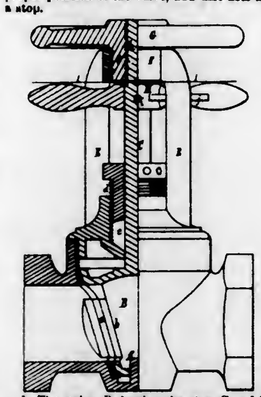
11. The combination of the switch with the gathering-cylinder, substantially as shown and described.

12. The combination, with the revolving sheet-carrying device or gathering-cylinder, of the tapes s and e, the switch O, and guides l and m, substantially as described.

13. The combination, with the revolving sheet-carrying device, of tapes s and e, pulleys b and d, and switch O, substantially as described.

192,511. STOP-COCKS. R. Hoxie, Newburyport, Mass. [Filed Sept. 4, 1876.]

Brief.—The valve is raised from its seat by the combination of a right and left threaded screw, connected to a hand-wheel, and then revolved by a hand-lever, which indicates the proper position of the valve, and also acts as a stop.



1. The valve B, having the stem C and lever H, in combination with the yoke E F, the screws g and h, and hand-wheel G, substantially as hereinbefore specified.

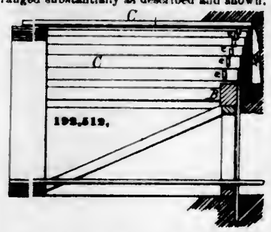
2. The valve B, having the stem C, in combination with the yoke E F, screws g and h, and hand-wheel G, all constructed, arranged, and operated substantially as hereinbefore set forth.

3. The valve B, having the stem C, in combination with the yoke E F and lever H, having the flanges j, substantially as and for the purpose hereinbefore specified.

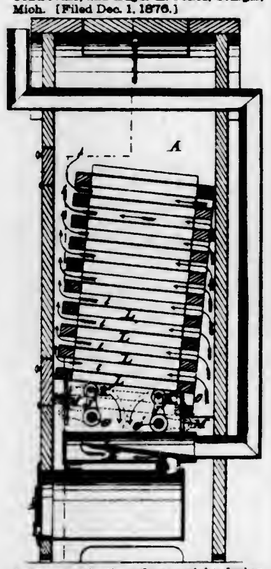
192,512. SHIELDS FOR TUNNELS. T. Joynes, Detroit, Mich. [Filed Apr. 4, 1877.]

1. In a tunnel-shield, the combination of the metal staves C, overlapped in the manner described, and adapted to be advanced bodily independent of each other, constructed and arranged substantially as and for the purposes set forth.

2. The combination, in a tunnel-shield, of the horizontal braced center sill B, overlapped metal staves C, adapted to be advanced separately, and props g, all constructed and arranged substantially as described and shown.



192,513. FRUIT-DRIERS. Chas. W. Jones, Centreville, and Edgar A. Jones, Sturgis, Mich. [Filed Dec. 1, 1876.]



1. The combination of an upright drying-chamber, A, a series of interchangeable trays, L, provided with side cleats l, for forming horizontal passages between them, and suitable supports J J', of unequal height, for sustaining the stack of trays in an inclined position, substantially as and for the purposes set forth.

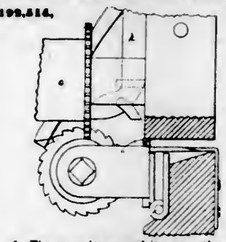
2. The combination, in a drying-apparatus, of a pair of shafts, G G', each furnished with lifting-arms having rollers which bear directly on the tray-frames, in the manner and for the purposes set forth.

3. The self-adjusting slide P, applied on top of the trays to close the air-space at their edge and direct the air-currents through or between them, as explained.

192,514. LET-OFF MECHANISMS FOR LOOMS. Daniel B. Keating, Lowell, Mass., assignor to himself, David Pickman, and Geo. W. Cross, same place. [Filed May 19, 1877.]

Brief.—The supporting-arms of the whip-roll are extended rearward, and upon these extensions are suspended weights. Between the fulcrum-rod and the whip-roll there is secured to one of said arms a vertical rod carrying a catch-pawl. The shaft upon which is the worm and ratchet is mounted in a pivoted frame, held to the loom-framing by a spring-catch. When the aforesaid frame is so held, it is in position to operate the beam. The vertical arm has a projection adapted, when there is an extra strain on the warps, to strike the said catch or latch, and disengage the worm shaft frame, and throw the worm out of operation. The weight holds the whip-roll up against the under side of the warps with an unvarying pressure. The descent of the roll sets the pawl, and the weight operates the said pawl to positively let off the warps.

192,514.



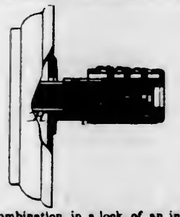
1. The warp-beam and its gear, the shaft a and its worm-wheel, placed at right angles to the axis of the warp-beam and the ratchet on the shaft w, in combination with the whip-roll and the suspended weight and pawl, adapted to operate as described, to move the warp-beam positively to let off the warp as the whip-roll rises.

2. The warp-beam and its operating-gear, the latter supported in a pivoted frame, in combination with devices adapted to disengage the operative-gear from the warp-beam, to release it when the shuttle becomes caught in the shed.

3. The whip-roll, controlled as to its downward position by the strain on the warp, and the leg k connected therewith, in combination with a shaft supported in pivoted bearings, and adapted to operate the warp-beam, whereby, when the strain on the warp is excessive, the warp-beam is left free to rotate, substantially as described.

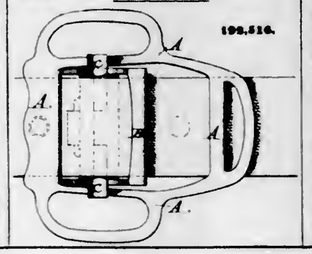
4. The combination, with the lay to beat up the filling and strain the warp according to the diameter of the filling, a whip-roller, and a suspended weight to elevate it in opposition to the strain of the warp after the blow of the lay, of a positively-operating catch-pawl gear and worm, whereby the said mechanism is adapted to move the screw-shaft to operate the warp-beam positively to let off the warp, substantially as described.

192,515. LOCKING-LATCHES. J. J. King, New York, N. Y. [Filed June 14, 1877.]



The combination, in a lock, of an internal stationary cylinder projecting from the lock-case, with a non-rotating external cylinder, adapted to move lengthwise on said internal cylinder, and having an adjusting-screw or other equivalent device for fastening it in place, and with a partially-rotating tumbler-case arranged on the interior of said external cylinder, so as to move therewith, and having a longitudinal shoulder which engages with a segmental arm projecting from the dog of the locking mechanism, substantially as described.

192,516.



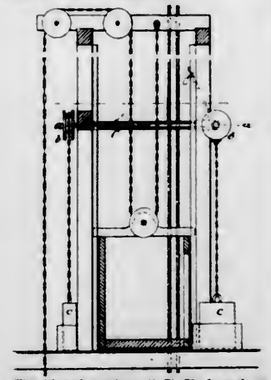
192,516. TUG-BUCKLES. Erastus M. Kinne, Cuba, N. Y. [Filed May 10, 1877.]

1. A tug-buckle, consisting of the frame A, clamping-bail B, and open bail C, having lugs or ears e e, the whole constructed and operating substantially as described.

2. The bail B, provided with the lug b', in combination with bail C, provided with the loop c' and frame A, as and for the purpose set forth.

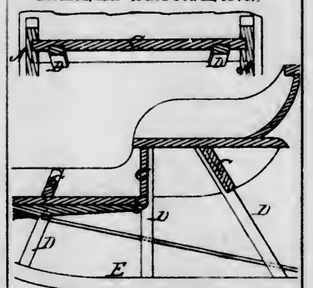
192,517. DAMPERS FOR ELEVATORS. Henry S. Lansdell, Brooklyn, N. Y., assignor to Henry Lansdell and Jno. S. Long, same place. [Filed May 21, 1877.]

Brief.—To prevent fires from spreading, the damper automatically opens and closes the passage when the cage passes.



The hinged sections C C' C², formed, as shown, in combination with weights c, suspended from wheels or arms b on pivot-rods a, substantially in the manner and for the purposes specified.

192,518. SLEIGHS. George H. Lamb, West Lebanon, Ind. [Filed Oct. 21, 1876.]



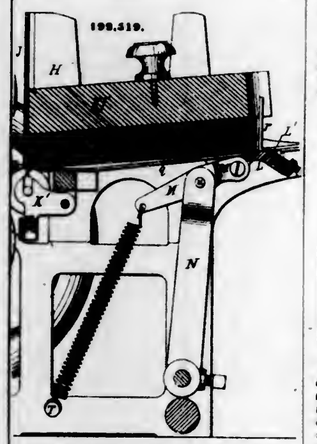
1. The sides A of a sleigh-box transversely grooved at a' to receive the ends of the deep transverse braces C, in combination with the knees D, extending across the said braces let into grooves a formed therein, and rigidly secured thereto, and the inclined tie-rods H secured at their front ends to the runners, and extending through the said braces, substantially as specified.

2. The combination, with the runners E and the cross-bar in front of the bends thereof, of the oblique brace or tie rods running from said cross-bar through the successive knees D to the bends of said runners, substantially as specified.

192,519. POSTMARKING AND CANCELING MACHINES. Thos. Leavitt, Everett, Mass. [Filed Apr. 17, 1876.]

Brief.—A reciprocating slide, jointed on a rocking arm, feeds cards from the bottom of a box into the bite of the printing cylinders, being held to work by a spring. A yielding roller is mounted under the front of the box, and a follower upon the cards extends beyond its rear. The inking roller is oscillated by a cam acting on a lever, connected by an adjustable spring-pin to the lever carrying the roller.

192,519.



1. The combination of the plate J and the yielding roll K, arranged opposite the edge of the plate J, with its bearings in the same plane, and forming therewith a contracted but expansible throat, *x*, for the outward passage of the cards, as specified.

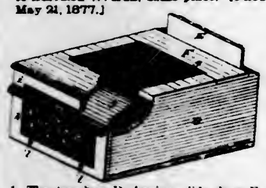
2. The combination of the card-receiver, the bearings *q* below the same, the reciprocating carrier L, and a spring, whereby the carrier is maintained in contact with the lower faces of said bearings, substantially as and for the purpose set forth.

3. The carrier L *L'*, link M, lever N, and spring S are constructed, combined, and arranged relatively to the receiver, substantially as and for the purpose set forth.

4. The combination, with the roll-carrying lever F and actuating cam of the lever F', spring *m*, and adjustable pin *l* for limiting the outward throw of the lever F', as set forth.

5. In combination with the receiver H and a reciprocating feed-plunger, adapted to engage with the rear end of the lower card or letter in the receiver, the follower U having a portion of its width extended beyond the limit of the rearward motion of the carrier, and its under surface in the same plane with the extension, as and for the purposes described.

192,480. BEE-HIVES. John P. Long, Delaware, Ohio, assignor of one-half his right to Harrison W. Huff, same place. [Filed May 21, 1877.]



1. The trap-box D, having slide-door E, wire-gauze top *g*, upward-sloaning entrances *l i*, and wire-gauze front *h*, substantially as and for the purpose herein shown and specified.

2. In combination with the trap-box D, having top opening F covered with wire-gauze *g*, the bottomless hive-box A, substantially as and for the purpose herein shown and specified.

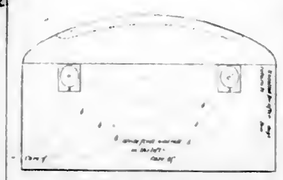
192,521.



192,541. COOK-STOVE DOORS. J. Martin, Tiffin, Ohio. [Filed Apr. 28, 1877.]

The combination, with a stove-door, A, having opening and shoulders *a b*, the transparent plate C, held thereto by the frame D, and the exterior hinged and detachable door G, all constructed substantially as set forth.

192,599. ENVELOPES. Charles K. Marshall, Vicksburg, Miss. [Filed May 23, 1877.]



The new article of manufacture, consisting of a letter envelope having two sets of superscription-lines, as at *b* and *b'*, two postage-stamps for prepayment of postage, as at *c* and *c'*, and two sealing-surfaces on its sealing-flap, as at *d* and *d'*, substantially as and for the purposes described.

192,592. COMBINED SPOOL-HOLDER AND PIN-CUSHION. Jas. M. Montgomery, Jr., Columbus, Ohio. [Filed May 21, 1877.]



In a combined spool-holder and pin-cushion, constructed substantially as described, the thread-cutters C, consisting of brackets or holders c and beveled or triangular cutting-blades *d*, the lower edges of which project slightly beyond holders *c*, so as to be pressed into the wood of the case, substantially as described, for the purpose set forth.

192,594. CAR-AXLE-BOX LIDS. G. W. Morris, Pittsburg, Pa. [Filed May 26, 1877.]



1. The lid or cover of a journal-box for railroad-cars, made of a thin sheet of steel, and having the clamping-spring integral therewith, substantially as described.

2. The lid or cover of a journal-box for railroad-cars, made of a thin sheet of steel, and having its clamping-spring and hinge-extension pieces integral therewith, substantially as described.

3. The combination, in a journal-box for railroad-cars, of a lid or cover, B, having its clamping-spring *b* and hinge-extensions *a a* integral therewith, with a pivot-pintle, *s*, lugs *c c*, and bearing-surface *d* for said spring, substantially as described.

192,595. PROCESSES OF MANUFACTURING CORN-FLOUR. Albt. L. Murdock, Boston, Mass. [Filed Jan. 27, 1877.]

Brief.—Obtains the meal to be compounded by a dry process, and eliminates from the wheat, &c., the bran and fuzz.

1. The within-described process of making flour from maize or Indian corn, consisting, essentially, of the following steps, viz., hulling the corn in a hominy or other suitable machine, separating the hulls and germs from the decorticated kernels, grinding the said kernels, and bolting the ground products down to a grain or flour free from all fibrous and other impurities, adding to the corn-flour thus obtained the glutinous, sugary, starchy, and other food properties obtained from wheat or other grains rich in said properties, substantially as set forth.

2. As a new article of manufacture, the compound flour obtained by the process within described.

192,596. CIRCULAR SAWS. S. N. Pool, Jr., Alpharetta, Ga. [Filed June 1, 1877.]

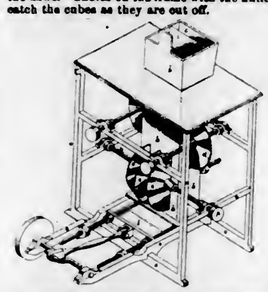
Brief.—The saw has projecting edges formed in the throat and in each side of the blade, which serve as planers.



A circular saw, having teeth B and projecting edges or cutting-blades D D formed in the throat B' and upon both sides of the saw-plate, substantially as herein set forth.

192,597. MACHINES FOR CUTTING SUGAR CUBES. Christopfer Raetz, San Francisco, Cal. [Filed Apr. 16, 1877.]

Brief.—The sugar cake is first divided into slabs by a set of saws, and these slabs are cut at right angles by another set of saws into strips, which are divided into cubes by a double-edged reciprocating knife working below the saws. Tables on the frame with the knife catch the cubes as they are cut off.



1. The combination of the reciprocating tables *l* and *s* and two-edged knife *w* with the circular saws *a a a* and *d d*, substantially as and for the purpose herein described.

2. The combination of the saws *a a a* and *d d*, standing at, or nearly at, right angles to each other and the tube *b*, substantially as and for the purposes herein described and set forth.

3. In a sugar-cubing machine, the combination of a tube having the sharp edge *i* at the upper end of one of its sides with the saws *d*, substantially as and for the purposes herein described.

4. The combination, with the frame *o* and the tube *b*, having sharp edge *i*, the sets of saws *d* and *a*, placed one set above the other, and at right angles to each other and the reciprocating tables *l s*, provided with the two-edged knife *w*, substantially as and for the purposes herein set forth.

192,599. MACHINERY FOR SHAPING AND CREASING LEATHER STRAPS. S. B. Randall, Cincinnati, Ohio. [Filed May 26, 1877.]

1. The combination of the shaping-roller G, shaft F, slotted standard D E, pressure-roller I, shaft H, fulcrumed support C, and adjustable spring or cushion L, substantially as and for the purposes set forth.

2. The standard D, surmounted by the journal-bearing E of the shaping-roller, and slotted at *d* to accommodate the stem *c* of the lever and journal-bearing C *c'* of the pressure-roller, substantially as and for the purpose set forth.

3. The combination, with the principal roller of a leather-creasing machine, of the gravitating and shiftable stripper T f' upon stud S, substantially as and for the purpose set forth.

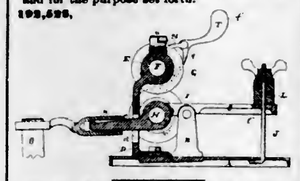
4. The releasable and elastic arm U, hinged at *u* to the frame D E, and having a revolving boss or stud, *v*, which occupies a cavity in the outer end of the shaping-roller, as and for the purpose set forth.

5. The forked lever C *c'*, constituting the journal-bearing of the supporting-roll, in combination with the treadle-strap connection O at its front end, and with the adjustable spring or cushion L, nut K, and rod J at its rear end, substantially as and for the purpose set forth.

6. In combination with the pressure-lever C, the separable socket-extension N, having slot *n'*, for engagement of treadle-strap O, substantially as set forth.

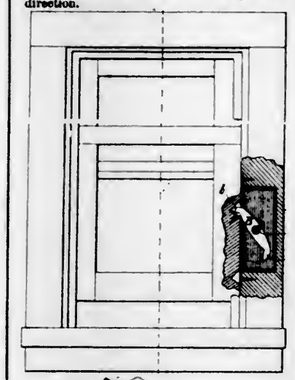
7. The combination of the standard D E, shaft F, pinion Q, and guard or canopy V, as and for the purpose set forth.

192,528.



192,529. SASH-FASTENERS. Stephen Rush, Tyrone, Pa. [Filed May 26, 1877.]

Brief.—A suitable shell or case, formed into two compartments by a division-plate, carries a two-ended catch-bolt or vibrating lever, and a spring to prevent accidental misplacement. The shaft has a cam or projection, on which the spring acts, and a key or handle, partially hidden in a recess, controls the vibration of the lever, and the shaft, rocking in bearings in the casing, carries a plate, between which and the division-plate the spring is confined, the dovetails being reversible, and the construction such that the act of releasing the bolt to permit movement of the sash in one direction will reset and automatically adapt it to prevent movement of the sash in the opposite direction.

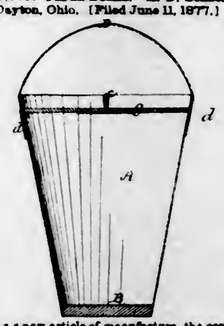


1. The combination of the casing, the division-plate, forming two compartments therein, a vibrating lever or bolt mounted in one of the compartments, and a spring for preventing accidental withdrawal of the bolt, when shot, mounted in the other compartment, substantially as described.

2. The combination, substantially as hereinbefore set forth, of the casing, the vibrating lever mounted therein, either end of which is adapted to constitute a bolt, its shaft, the cam or projection on the shaft, a spring acting on the cam, and a handle or key for controlling the vibration of the lever.

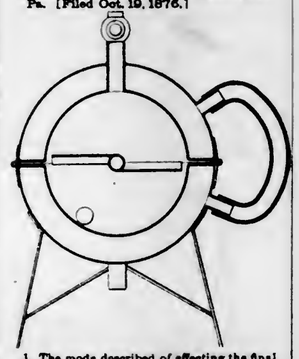
3. The combination of the casing, its division-plate, the shaft rocking in bearings in the casing, the cam mounted thereon, the spring acting on the cam, and a plate carried by the shaft or cam, between which and the division-plate the spring is confined to prevent lateral displacement thereof.

192,530. PAPER BOXES. A. D. Schaeffer, Dayton, Ohio. [Filed June 11, 1877.]



As a new article of manufacture, the conical and cylindrical paper receptacle A, having the textile bail or handle D attached thereto by the glued or pasted disks or strips *d*, the bottom B, with or without a paper lining, and top or cover C, both being adapted to be wedged in place in said receptacle A, substantially as shown and described.

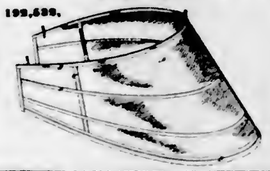
192,531. MANUFACTURE OF SUGAR. Louis H. Schmals, Canton of Berne, Switzerland, assignor of one-half his right to Hibert A. Corbin, trustee, Philadelphia, Pa. [Filed Oct. 19, 1876.]



1. The mode described of effecting the final concentration and crystallization of partly-concentrated saccharine juices or sirups, which mode consists in subjecting the same, when they have reached a density of from about 30° to 36° Baumé, and while protected from the deteriorating influences of the atmospheric air, to heat and agitation, substantially in the manner described.

2. The mode herein described of effecting the crystallization of partly-concentrated sirups, and drying the crystallized mass to the condition of marketable sugar, by a continuous process—that is to say, by subjecting the partly-concentrated juices to heat and agitation while protected from the deteriorating effects of the atmosphere, and drying the crystallized mass by subjecting it to like treatment under the same conditions, as set forth.

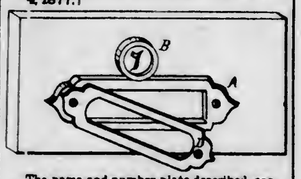
192,532.



192,533. DRESS-TRAIN SUPPORTERS. Gabrl. Schwab, New York, N. Y. [Filed May 12, 1877.]

A combined dress-protector and train-extender, the main body of which is formed of textile fabric supplied with the ordinary dress-protector B, and stiffened and shaped with lateral and cross ribs C, substantially as shown and described.

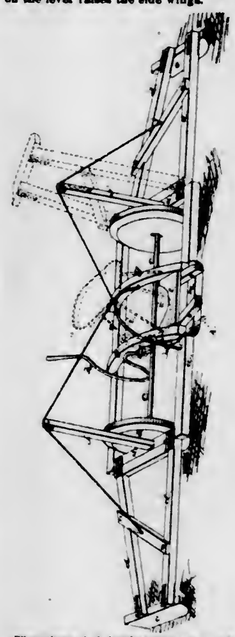
192,533. DOOR AND DRAWER PLATES. F. H. Seymour, Detroit, Mich. [Filed Apr. 4, 1877.]



The name and number plate described, consisting of the plate A, the ring B, and the frame-plate D, constructed and arranged substantially as set forth and shown.

192,534. CORN-MARKERS. Henry C. Sharp and Wm. T. Sharp, Stanton County, Nebr. [Filed Jan. 29, 1877.]

Brief.—The markers are adjustable on the bars and the wheels on the axle. A pressure on the lever raises the side wings.



The wings *d d*, having runners *s s* on their outer ends, hinged to the main frame *o o*, having uprights *j j*, in combination with the levers *h i*, and a cord secured to the lever *i*, and thence passing over pulleys in the uprights *j j*, and secured to the wings *d d*, for elevating said wings, substantially as shown and described.

192,535. SUSPENDERS. James B. Sharp, New York, N. Y. [Filed May 16, 1877.]

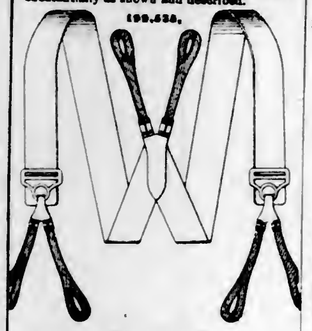
1. A suspender-end made of a flat tape or strip of flexible material, which is bent into a loop or loops, and the parts of which extending up from such loop or loops are laid flatwise upon each other throughout their entire length, and united by stitching through them, substantially as shown and described.

2. The combination of a suspender-end made of a flat tape or strip of flexible material,

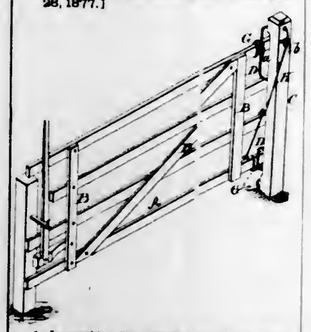
which is bent into a loop or loops, and the parts of which extending up from each loop or loops are laid flatwise upon each other throughout their entire length, and united by stitching through them, with a metallic attaching-piece, having a socket (one or more) for the reception of said suspender-end, substantially as described.

3. A metallic attaching-piece for suspender-ends, formed out of sheet metal, with a hook end with a socket (one or more) for receiving the suspender-end, said socket being provided with barbs, stamped out of the metal composing the same, for retaining the suspender-end, substantially as shown and described.

192,536.



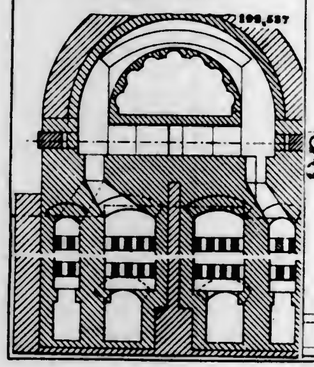
192,536. FARM-GATES. S. S. Sherman and J. G. Sherman, McHenry, Ill. [Filed Apr. 26, 1877.]



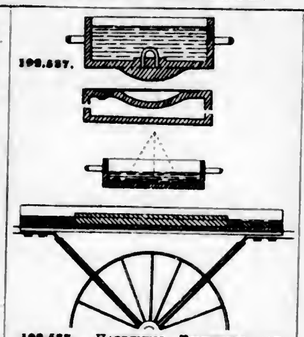
1. In combination with the post C and gate A B, the vertical staples D D and the clasps G G, formed with the hooks or eyes *a a*, substantially as and for the purposes herein set forth.

2. The combination, with the clasps G and staples D, for supporting a gate to the gate-post, of the wire H and pin *b*, substantially as and for the purposes herein set forth.

192,537.



192,537.



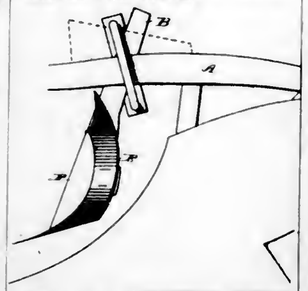
192,537. HARDENING, TEMPERING, AND PRESSING GLASS. Fredk. Siemens, Dresden, German Empire. [Filed Apr. 10, 1877; patented in England, Dec. 3, 1875, for fourteen years.]

Brief.—The glass articles, after having been completely formed, are reheated in a furnace, being supported therein, while rendered plastic, by inclosing them in platinum shells or cups, and then are subjected to pressure in molds having a reduced temperature.

An improved process of hardening and tempering articles of glass by heating the same, after having been completely shaped, until they are in a plastic or semi-plastic state, and, while in this condition, subjecting them to pressure in molds at a lower temperature than the articles, substantially as set forth.

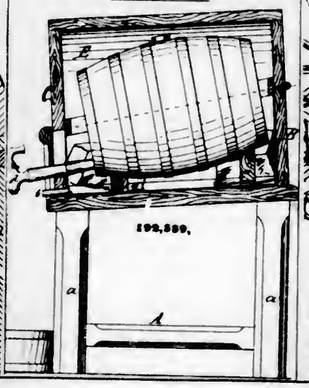
192,538. COMBINED COLTER AND JOINTER, Geo. K. Smith, Freeport, Ill. [Filed June 11, 1877.]

Brief.—A reversible jointer and colter attached to one standard. The latter may be removed and the jointer used alone, set at different angles upon the beam.



The combination of the plow-beam A, standard B, jointer E, and removable colter F, substantially as shown and described.

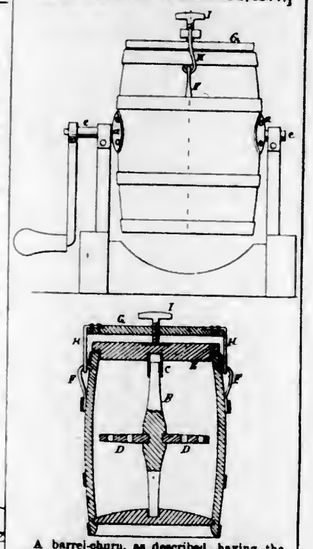
192,539.



192,539. BEER-COOLERS. John Staugler, New York, N. Y., assignor to Albt. Eglau, same place. [Filed June 4, 1877.]

A beer-cooling apparatus, consisting of the frame A, having its front legs *a* shorter than the rear legs, the box B having a top, E, the inclined lined bottom, the supports *c c* for the barrel fixed to the bottom, and the former of which is lower than the latter, and the waste-pipe *b* extending through the box, the whole being combined and arranged to operate as and for the purpose described.

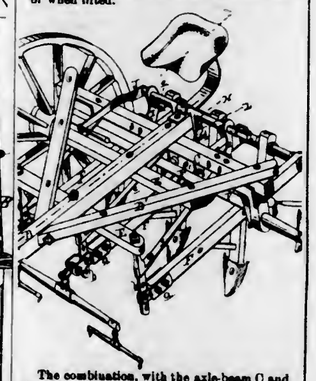
192,540. ROTARY CHURNS. A. J. Stoll, Mechanicsville, Iowa. [Filed June 8, 1877.]



A barrel-churn, as described, having the shaft B, dashers D D, cross-piece G, set-screw I, hooks H, loops F, and top E, constructed and arranged as and for the purpose specified.

192,541. CULTIVATORS. Garry Storm, Portland, Mich., assignor to himself and Jacob M. Benedict, same place. [Filed Jan. 22, 1876.]

Brief.—The rock-shaft, arms, and curved-link attachment to the plow-beams, whereby the lever is self-locking with the plows at work or when lifted.



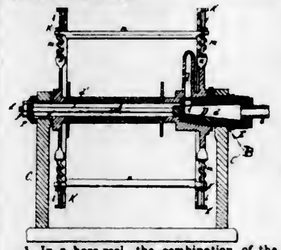
The combination, with the axle-beam C and bar F, of the rock-shaft H, brackets *I*, lever J, arms *d d*, and curved links L, for raising and lowering the shovel-beam and locking the same in either position, substantially as described.

192,542. MANUFACTURE OF VANILLINE. F. Tiemann, Berlin, Germany. [Filed Apr. 26, 1877.]

The process of producing vanilline from oil of cloves, first, by forming an etheric solution of such oil of cloves, adding thereto hydrate of sodium or potassium, and acidulating with sulphuric or hydrochloric acid, eliminating the ether by distillation; second, heating the eugenol so obtained, with the addition of acetic anhydride, adding warm water to the cooled liquid, and permanganate of potassium, eliminating therefrom the manganese dioxide; third, adding an excess of hydrate of sodium to the filtered liquid, and evaporating; and, finally, adding sulphuric or hydrochloric acid to the concentrated solution, agitating the same with an addition of ether, and purifying the vanilline so obtained by any of the known methods.

192,543. AUTOMATIC HOSE-REELS. Chas. W. Tremain, Chicago, Ill., assignor of one-third his right to Carrie B. De Forest, same place. [Filed June 12, 1877.]

Brief.—In unwinding the hose the water is automatically turned on, the springs under the reel-bars compensating for the expanding of the hose in filling.



1. In a hose-reel, the combination of the sleeve A and conical chamber B, together extending entirely across the reel and supported upon the standard-bearings, and the plug D, having a trunnion, *d*, substantially as and for the purposes set forth.

2. In a hose-reel, the sleeve A, having conical chamber B and hose-connecting pipe I, in combination with the plug D, having trunnion *d*, nut E, sleeve *e*, and rod *d'*, all constructed and arranged substantially as described and shown.

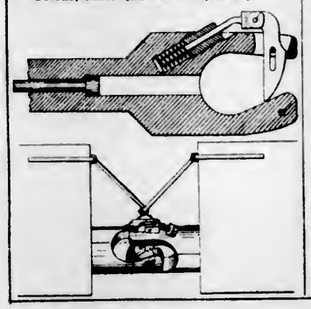
3. In a hose-reel, the combination of the conical chamber B, having flange *g*, the plug D, having trunnion *d* and tooth h, and the standard-bearing O', having hook-latch H, all arranged and operating substantially as described, for the purpose specified.

4. In a hose-reel, the rim K, attached to the hub A by a series of spokes screwed into sockets *a*, and secured in lugs *b* of the rim K, in the manner substantially as described and shown.

5. A hose-reel, having bars *n*, supported each independently by two springs, *m*, so as to yield toward the center of the reel, substantially as and for the purpose described and shown.

6. A hose-reel having T-shaped bars, each guided on the spokes *l* of the reel, so as to yield toward the fulcrum, and being supported by springs *m*, independent of each other, substantially as and for the purpose herein set forth.

192,544. CAR-COUPLINGS. W. J. Trimble, Toledo, Ohio. [Filed Mar. 2, 1877.]



1. The draw-head constructed substantially as hereinbefore set forth, with a horn on one side of both a vertical and horizontal plane passing through the axis of the draw-head, said horn being provided with a slot inclining downward and upward at an angle of forty-five degrees, for the reception of the coupling-pin, as set forth.

2. The draw-head constructed as described, with two horns arranged on opposite sides of both a vertical and horizontal plane passing through the axis of the draw-head, with a slot through at least one of the horns, inclined at an angle of forty-five degrees, for the purposes specified.

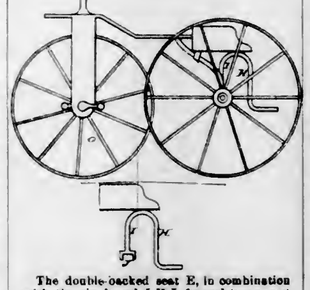
3. The combination, substantially as herein-before set forth, of the draw-head, its diagonally-arranged horn, inclined slot, and a spring-pin moving endwise through one of the horns, for the purposes set forth.

4. The car-coupling hereinbefore described, consisting of the combination of two draw-heads having their coupling-pins arranged at an angle of forty-five degrees, and inclined in directions opposite to each other, whereby their uninterrupted coupling is secured.

5. The draw-head herein before described, consisting of the horn arranged above and on one side of the axis of the draw-head, a slot therethrough inclined inwardly and downwardly at an angle of forty-five degrees, the coupling-pin moving endwise through said slot, and the spring-arm jointed to the coupling-pin.

6. The combination, substantially as herein-before set forth, of the draw-head, its diagonally-arranged horns, the inclined slot therein, the spring coupling pin, the crank-lever, and the link-connection between the crank-arm and spring-pin, whereby the coupling-pin is retracted.

192,545. FOOT-RESTS AND SEATS FOR VELOCIPEDES. Edouard H. Turner, Chicago, Ill. [Filed Jan. 15, 1877.]



The double-backed seat E, in combination with the single rod J H I, formed to support the seat, and terminating in a foot-rest projecting out at the rear of the axle-tree, as and for the purpose set forth.

192,546. PRESSER-FEET FOR SEWING-MACHINES. Charles Turner, Lynn, assignor to M. H. Merriam and B. L. Norton, Boston, Mass. [Filed May 19, 1877.]

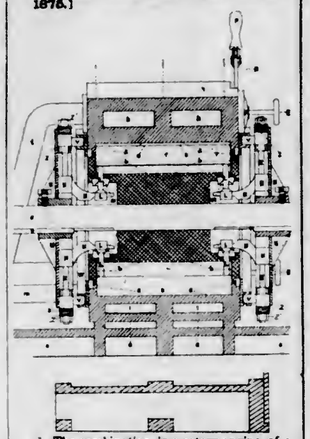
Brief.—The presser-foot has a deep central recession to receive a stay-strip, and the projecting edges of the seam to be covered by the strip, and the sides of such recession are surfaces adapted to rest upon and extend to the edges of, and hold down, the strip, the edges of the strip being guided by side walls.



1. A sewing-machine presser-foot provided at its bottom with a longitudinal recess, *a*, to receive the center of a stay-strip pressed upward therein by the ridge of a seam to which the stay is being applied, and with ledges or faces at the edges of the recess lower than the central recess, to rest upon and extend to the edges of the stay-strip, and with a needle-passage to permit a needle to penetrate the stay-strip between its outside edge and its more elevated central or seam-covering portion, in order that stitches may be formed below the surfaces of the stay-strip, substantially as described.

2. A sewing-machine presser-foot provided with a longitudinal central groove, to receive the center of a stay-strip and allow it to bulge upward therein when applied to cover a seam, and with ledges or faces *g h* at the sides thereof, to bear upon the upper edges of the stay-strip at a lower level than the central portion of the foot, and with edge-guides to guide the outside edges of the strip, substantially as described.

192,547. ROTARY ENGINES. Robert Valla, Auckland, New Zealand. [Filed July 21, 1876.]



1. The combination, in a rotary engine, of a governing-wheel, *u*, the cross-heads H, the rods L attached to the steam-pistons, the rods K, the studs V, and the cam W, substantially as described, whereby sufficient space is provided to give long and free curves to the cam-guide.

2. The combination of the steam-piston, the connections L H K, the stud V, the cam W, and the cushioning device Z, substantially as described, whereby the pistons are kept steam-tight and are readily adjusted.

3. The combination, with the governing-wheel, of the steam-pistons, the cross-head, the stud V, the cushioning device Z, and the adjusting-nuts on the stem K, substantially as described.

4. The combination of the horizontally-divided cylinders *a*, *b*, and *c*, the plates Q, the pistons and abutments, the steam-ports *j j*, and exhaust-passages I, substantially as described.

5. The combination of the hollow steam-valves *h*, the steam-passages *j j*, the exhaust-passages I, the lever O for connecting the valves, by which they are operated to start, stop, and reverse the engines, substantially as described.

192,548. FIRE-ESCAPES. Albin Warth, Stapleton, N. Y. [Filed May 16, 1877.]

Brief.—A flanged friction-ring, to which the rope is wound, is provided with two spouts for guiding the rope to and from the ring. A cross-bar is passed through the ring, to which the body-belt is secured. A flexible sleeve surrounds the rope, and serves as a protection to the hands of the operator.

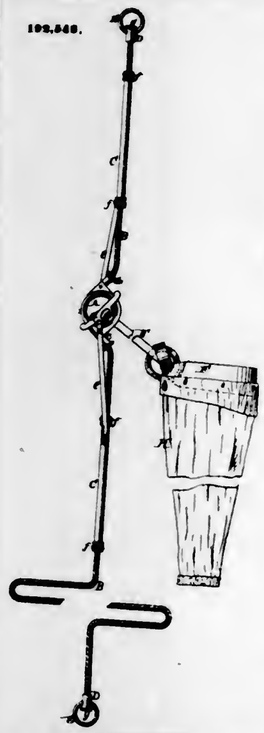
1. The tubular ring A, having spouts *b* and *c*, in combination with the rope B, passing through the tubular ring, and the belt F, having a locking-bar, G, adapted to pass through the ring A, substantially as shown and described.

2. The combination, with the body-belt F, its locking-bar G, the rope B, and the friction-ring A, of a pair of drawers, H, substantially as and for the purpose set forth.

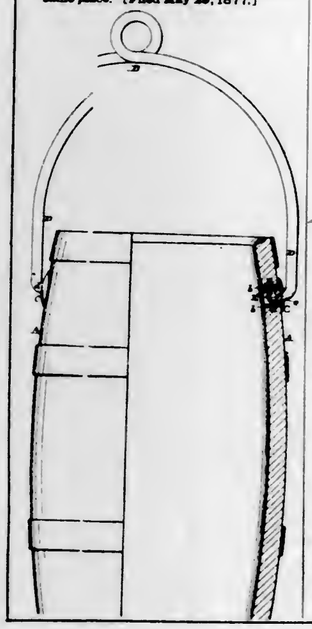
3. The combination of the ring E, having a tapering socket, D, and removable cap *g*, of the rope F, knotted and inserted through the tapering socket, and retained by the removable cap, substantially as described.

4. The combination of the flexible protecting-sleeve C, with the rope B, the tubular ring A, having the spouts *b* and *c*, and a belt for supporting the body, substantially as described.

192,548.

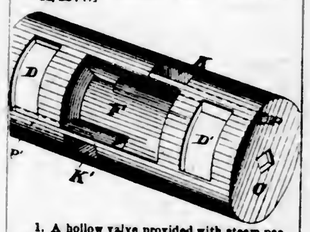


192,649. WELL-BUCKET HARS. J. Wasmer, St. Louis, Mo., assignor to Wm. Brown, same place. [Filed May 29, 1877.]



The ear, composed of the perforated head C and barrel B, in combination with a bucket-bail D, with or without cap E, substantially as set forth.

192,550. STEAM-PISTON VALVES. Geo. M. Weisman, Columbus, Ohio. [Filed Mar. 31, 1877.]

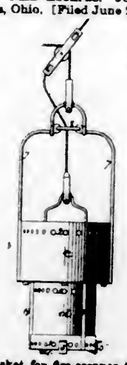


1. A hollow valve provided with steam-passage leading to opposite ends of the valve, and independent exhaust-passages leading from opposite ends of the valve to independent supplemental exhaust-openings, the latter located on opposite sides and ends of the main exhaust-opening, whereby the partial rotation of the valve serves to exhaust steam directly to the main exhaust, and cut off the exit of steam before the valve has reached the limit of its stroke, thereby cushioning the valve, substantially as and for the purpose set forth.

2. A hollow valve constructed with openings H H', steam-passages L L', supplemental exhaust-passages P P' leading to opposite ends of the valve, and independent ports K K', the latter located on opposite sides and ends of the main exhaust-opening F, substantially as and for the purpose set forth.

3. A cylindrical valve provided with steam-ports D D', bridge F, inlet-port G, balance-openings H H', passages P P', supplemental exhaust-ports K K', and grooves L L', substantially as and for the purpose described.

192,551. FIRE-ESCAPES. Joseph Welch, Delphos, Ohio. [Filed June 2, 1877.]



1. A basket for fire-escapes that is formed of two sections, one of which can be closed up within the other, substantially as shown.

2. A basket for fire-escapes made in two sections, each section being provided with a separate rope for operating it, substantially as set forth.

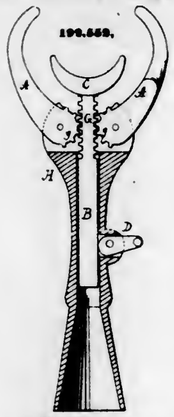
3. A basket for fire-escapes that is made of sheet metal and provided with a double thickness of walls, so as to form an air-chamber around the basket, as described.

192,552. ANIMAL-CATCHERS. J. L. Wiggin, Lyon, Iowa, assignor to himself and Le Roi B. Wadleigh, same place. [Filed June 6, 1877.]

Brief.—A long pole is inserted loosely in the socket, and a strong cord attached to that portion of the dog which projects from the case. The pole, with the device at its end, is held in the right hand, and the animal is struck on the leg, care being taken so that the two arms shall clasp the leg.

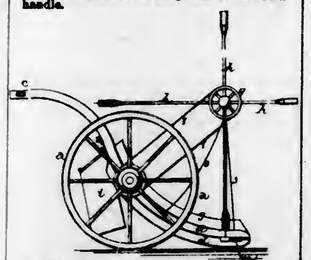
The combination of the case H, bar B, provided with cogs G and plates C, arms A, with cogs *g*, cam-dog D, the whole arranged substantially as and for the purposes specified.

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192,555. GRASSHOPPER-CATCHERS. G. S. Wilson, Malvern, and John Rhode, Tabor, Iowa. [Filed Feb. 23, 1877.]

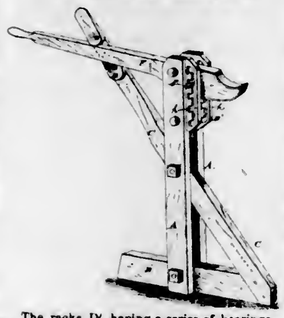
Brief.—A grasshopper-catching machine having a curved floor, to the rear edge of which is secured a receptacle, into which the insects are swept by a reel as the machine is propelled about by pushing from behind on a handle.



1. In a grasshopper-catcher, the combination of a frame that is placed upon wheels, and designed to be pushed from behind, and that is provided with the curved floor *e*, box *i*, lid provided with a flange, 2, and a reel, h, substantially as shown.

2. The frame composed of the two curved timbers *d* between which the floor is clamped, curved flanges *g*, handle *e*, bar *s*, standards 3, and reel h, substantially as described.

192,554. LIFTING-JACKS. John G. Winters, Warren, Ohio. [Filed June 13, 1877.]



The racks D', having a series of bearings, *d*, and vertical guiding and retaining arms *h*, in combination with the two separated standards A, the sill B, the inclined beam C, having notches D, and the elastic lever F, having a pin, E, arranged within the racks, and retained therein by the arm or bar *h*, substantially as and for the purposes described.

192,556. COPYING-PENCILS. C. Walpuski, Yonkers, assignor to Jos. Beckendorfer, New York, N. Y. [Filed Mar. 3, 1876.]



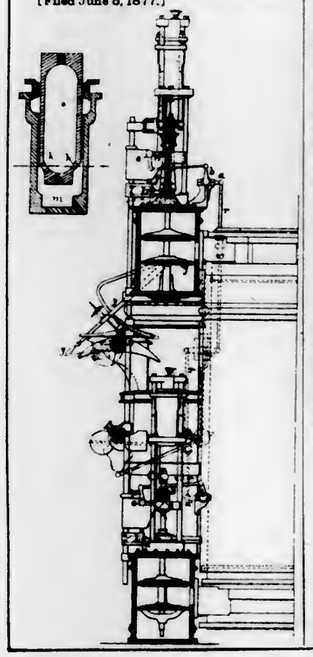
1. An ink-copying pencil having a marking core or slip composed of a soluble coloring-matter whose marks will yield a copy on moist paper in the copying-press, in combination with a suitable base or binding medium, substantially as set forth.

2. The copying-pencil having a marking core or slip composed in the main of an aniline coloring matter, substantially as herein set forth.

3. The within-described composition of matter for marking and copying purposes, consisting of aniline, clay, and gum, in the proportions substantially as set forth.

REISSUES.

7,763. VALVE-GEAR OF STEAM-ENGINES. Edward N. Dickerson, New York, N. Y. Patent No. 68,853, dated Sept. 17, 1867. [Filed June 5, 1877.]



1. The combination of the two lifters on the same lifting-rod, one being fixed to it and the other sliding upon it, and the lever, for the purpose of effecting the reduction of the initial motion of opening steam-valves, substantially as described.

2. The combination of the lever for opening the steam-valve gradually with the fixed and movable lifters, the one being moved by the motion of the lifting-rod, and the other supporting a separate disengaging apparatus, substantially as described.

3. A lever, one end of which is raised by the fixed lifter on the lifting-rod, and by which the steam-valve is pried open gradually, so arranged that it can be adjusted to vary the speed of lifting by shifting the position of the fulcrum on the fixed lifter to which the lifting power is applied, substantially as described.

4. The vibrating tripper, centered upon the lifter itself, which opens the valve, as distinguished from a tripper which is centered on some other part of the machine, substantially as described.

5. The vibrating die for engaging and disengaging the valve-stem to effect a cut-off, so arranged that it will vibrate in an arc whose concave side is presented to the valve-stem, substantially as described.

6. The collar which surrounds the valve-stem, having one or more radial ribs upon it, for the purpose of co-operating with a movable die to effect a cut-off, substantially as described.

7. A dash-pot whose plunger is composed of two cylinders of unequal diameters, the smaller of which is the arresting-plunger, forming the bottom of the larger one, and whose exterior chamber is composed of a cup or secondary reservoir to receive the arresting-plunger, and above it a confining-vessel to guide the larger cylinder of the plunger and to exclude the air, substantially as described.

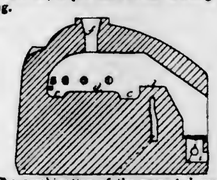
8. The combination, in a rock-shaft, of one false exhaust-toe and one fixed one, by which it is supported, with a stud or prop between them, so arranged that it can be dropped or elevated at pleasure, substantially as described.

9. The vertically-adjustable double bell-crank T, in combination with the two single bell-cranks *b b* and connecting-rods *r r*, for the purpose of actuating trippers to unlatch valve-stems from their lifters, to effect a variable cut-off on steam-engines, substantially as described.

10. For the purpose of engaging and disengaging the valve-stem of a cut-off valve with and from the lifter, a collar surrounding the valve-stem, and armed with projecting ribs arranged on opposite sides of the valve-stem, in combination with a solid die acted on by the tripper, supported by the lifter and surrounding the valve-stem, armed with projecting points corresponding with the ribs of the collar, so that the valve-stem shall be equally supported on both sides of the center in lifting the valve, and, at the same time, have a long surface of contact between the die and collar, to endure the abrasion of tripping when the die is moved, substantially as described.

7,764. GLASS-FURNACES. Geo. W. Foster and C. W. Foster, Boston, Mass., assignors, by mesne assignments, to Mary A. Foster and Amanda B. Foster. Patent No. 120,667, dated July 28, 1872; reissue No. 7,219, dated July 11, 1876. [Filed Mar. 28, 1877.]

Brief.—There is an opening in the roof of the tank, directly over the mound therein, through which the raw material, or "batch," is poured into the tank, or which may be used as a draft to let off heat. The partition between the fire pot or box and the tank is provided with a cooling-space, into or through which air, water, or other cooling substance may be driven, to prevent it from melting or burning.



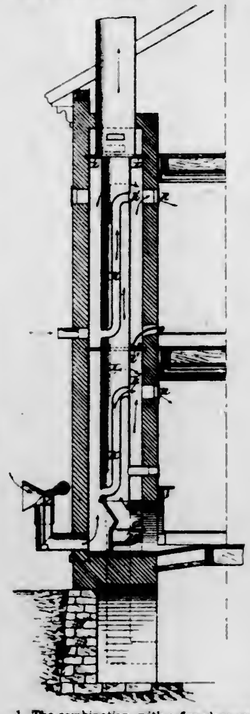
1. The combination of the mound *d*, partition *i*, tank *a*, and tunnel *f*, said mound being placed directly under said tunnel, substantially as specified, and for the purpose herein before described.

2. In a glass-melting tank-furnace, a cooling-space placed between the tank and fire-pot in said furnace, substantially as and for the purpose described.

7,765. PROCESSES OF RESTORING CRAPE, LACES, &c. Aaron J. Shriver, Baltimore, Md., assignor to S. M. Shriver, same place. Patent No. 179,361, dated June 27, 1876. [Filed May 12, 1877.]

That by the herein before described process and solution fixing and preserving the color and texture of all fabrics herein before described, and renovating and restoring the same when defaced or damaged from any cause by first immersing the fabric in a solution consisting of a dye-stuff, alcohol, and a gum soluble in alcohol and insoluble in water, and then subjecting the same to the action of steam, substantially as and for the purposes described.

7,766. COMBINED CHIMNEY AND VENTILATOR. Lovern B. Silver, Cleveland, Ohio. Patent No. 150,265, dated Feb. 2, 1875. [Filed Apr. 10, 1877.]



1. The combination, with a fire-place and a smoke-flue connected therewith, said smoke-flue provided with one or more diagonal pipes, K, of an exterior air-flue, having partitions governed by dampers or valves located therein, said partitions arranged in close proximity to the ceilings and air-registers, substantially as described.

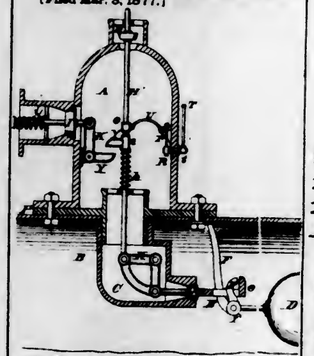
2. The combination, with a fire-place and a smoke-flue connected therewith, of an exterior air-flue, having partitions governed by dampers or valves located therein, said partitions arranged in close proximity to the ceilings of the house, and air-registers leading to the hot-air flue at a point below said partitions, substantially as set forth.

3. The combination, with a fire-place and smoke-flue connected therewith to constitute an air-place around the fire-place and smoke-flue, of an air-pipe leading to the air-flue near the fire-place, a pipe passing diagonally upward through the smoke-flue, and a register located near the ceiling, substantially as set forth.

4. The combination, with a chimney, of an interior smoke-flue, an exterior air-flue partition, *l'*, and valve *F*, substantially as and for the purposes described.

5. The combination, with a chimney, of an interior smoke-flue surrounded by an exterior air-flue, register R, entering the apartment near the ceiling, and ventilators Q Q', leaving the apartment near the floor, and entering the smoke-flue near the top of the building, substantially as and for the purposes described.

7,767. LOW-WATER ALARM AND FIRE-EXTINGUISHER. B. R. Singleton, Highland, Ill., assignor, by mesne assignments, to Henry S. Hopkins and William McCully. Patent No. 128,795, dated Feb. 20, 1872. [Filed Mar. 3, 1877.]



1. The combination of the float D, bent lever L, slotted bar E, projections *a a' a''*, and valves G G G', substantially as and for the purpose described.

2. The combination of the float D, lever L, bar E, bell-cranks K K', valve-stem H', valves H and I, and springs *h* and *i*, substantially as and for the purpose specified.

3. The combination of the float D, lever L, bar E, crank K, stem H', sleeve O, levers or bars U *r*, cam R, shaft *t*, and lever T, substantially as and for the purpose described.

4. The combination of the lever T, shaft *t*, cam R, rod *r*, rod U, sleeve O, stem H', arm Y, crank K, and valve I, substantially as described.

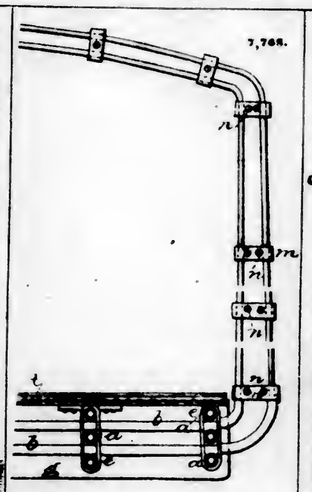
5. The combination of the float D, lever L, rod E, projection *a*, gage-box C, and valve G', substantially as described.

6. The combination of the lever T, shaft *t*, cam R, rods *r* U, sleeve O, stem H', and dome A, substantially as described.

7. The combination of the box C, plate P, bearing *p*, arm Y, valve G', lever K, stem H', and spring *h*, substantially as described.

8. The combination of the levers K K', stem H', arm Y, rod E, lever L, float D, and valve I, substantially as described.

7,768. METALLIC CAR FRAMES AND PLATFORMS. Bernard J. La Motha, New York, N. Y. Patent No. 126,446, dated Dec. 19, 1876. [Filed May 17, 1877.]



1. The metallic car-platform, made of longitudinal and transverse tubes or rods secured together at the intersections by wrought-iron bands, in the manner specified.

2. The combination, in a metallic car-platform, of longitudinal tubes and transverse tubes connected together at the points of intersection, substantially as set forth.

3. The band *c*, for securing the tubes or rods *a* and *d*, made of a strip of sheet metal, wound up and retained at its ends by the band *c'*, as and for the purposes set forth.

4. The plate *g* at the end of the car-platform, retained upon the longitudinal tubes *a* by such tubes being passed through the said plate and spread, in combination with the transverse tubes *b* of the platform, as set forth.

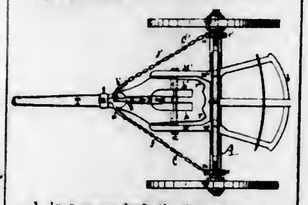
5. The combination, with the draft-bar of a car having a movement limited by the stops 2 and 3, of the spring formed of a circular coil of wire or band metal, and the straps 4 and 5, that pass around the convolutions at opposite sides of the circle, and connect the same together and to the draft-bar and car, respectively, substantially as set forth.

6. The bars or tubes *l*, in combination with the intersection-blocks *m*, of varying length, placed together so that the said bars *l* or tubes *a* converge or diverge, as and for the purposes set forth.

7. The two bars or tubes *n*, passing through between the two bars or tubes *l*, in combination with the intersection-blocks *m*, that are made to receive and sustain such bars or tubes, in the manner and for the purposes set forth.

8. The metallic plate *o*, folded to form double longitudinal ribs *3*, in combination with the flooring-planks *t*, inserted between said ribs and secured, as set forth.

7,769. WAGON HOUNDS AND TONGUES. C. F. Whipple, Grand Rapids, Wis. Patent No. 161,648, dated Apr. 6, 1875. [Filed May 31, 1877.]

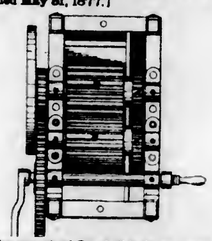


1. In a wagon-draft, the draw-bar D, having a free lateral movement on the tongue, and independent of the tongue, and a longitudinal movement with the tongue, as and for the purpose specified.

2. In a wagon, the combination of the tongue T, the slotted hounds h h' with their beveled ends *r* and *r'*, the large hounds H and H' with their wedges *w* and *w'*, the pin *a*, the pivoted draw bar D, the chains O O', and the hooks *s* *s'* on the axle A, as and for the purpose specified.

3. The combination of the band *c'* with its ling *p*, having an opening in it, through which passes the hooked end *n''* of the band *c'*, forming a hinged joint, the bolt *x*, and the axle A and draw-chain O, as described.

7,770. CIDER-MILLS. Hiram Willson and Samuel McC. Willson, Harrisburg, Pa., administrators of D. T. Willson, deceased. Patent No. 122,506, dated Jan. 2, 1872. [Filed May 31, 1877.]



1. The cog-wheel C and ribbed and grooved roller B, cast with a groove, *e*, between them for the insertion of the hopper sides, whereby the cog mechanism is on the exterior and the crushing mechanism on the interior of said hopper of a cider-mill, substantially as and for the purposes herein set forth.

2. In a cider-mill, one or more grooved and ribbed rollers, B, cast in one piece with the cog-wheel C and intervening groove *e*, the cogs on the wheel C corresponding in number with the grooves and ribs on the roller, substantially as and for the purposes set forth.

3. The cog-wheels outside of the hopper, having as many teeth as there are grooves *e* and ribs *d* on the two lower rolls running with equal velocity.

THE GRAPHIC CO. N.Y.

OFFICIAL GAZETTE

OF THE

UNITED STATES PATENT OFFICE.

VOLUME XII.

JULY 3 TO DECEMBER 25, INCLUSIVE,

1877.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1878.

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ERRATA.

On page 20, No. **192,616,** in title, for "Machines" read *Machinery.*

On page 44, No. **192,793,** number the claim 1, and add the following claim:

2. *The combination, with the table G, provided with rack-bar d, of the feed-shaft I, run from the auger-shaft, the worm H, secured on said shaft, and the hinged bar J, with lever O, for throwing the worm in and out of gear, substantially as and for the purposes herein set forth.*

On page 61, No. **192,828,** first claim, third line, for "plated" read *plate;* second claim, second line, after pointer *c,* strike out "and glass plate *a;*" and after handle C, insert *and.*

On page 66, No. **192,871,** fourth claim, first line, for "G G" read *F F.*

On page 69, No. **192,896,** in claims, strike out all letters of reference and the word "double" in the second claim, second line.

On page 71, No. **192,913,** in claim, second line, after "gluing" insert *the;* after "piece" strike out "to" and insert *together on;* also, seventh line, after "from" insert *the.*

On page 95, No. **4,856,** (trade-mark.) for "Morehead" read *Moorhead.*

On page 133, No. **193,310,** in heading, for "assignor of one-fourth" read *assignor of one-third.*

On page 168, No. **193,188,** assignee's name, for "Wilson" read *Wilcox.*

On page 178, No. **193,572,** in heading, for "assignor of one-half" read *assignor of one-fourth.*

On page 188, first column, thirtieth line, for "L. A. Deane," read *L. Deane.*

On page 201, No. **193,631,** in heading, assignee's name, for "M" read *N.*

On page 202, No. **193,638,** in heading, after "N. Y." insert *assignor to Frederick W. Griffith and George P. Byrne, of New York city.*

On page 212, No. **193,723,** in heading, after residence insert *assignor to James G. English and Edwin F. Mersick, of same place.*

On page 220, third column, for drawing numbered "**193,774**" read 193,775.

On page 239, No. **193,832,** in heading, for "one-half" read *one-third.*

On page 281, No. **194,073,** in claim, fourth line, for "channel" read *chamber.*

On page 281, No. **194,077,** in heading, after "assignor" insert *of one-half his right.*

On page 289, No. **194,126,** second claim, fifth line, after "I," insert *claim:* third claim, second line, after "C" insert *I claim.*

On page 297, No. **194,187,** in heading, for "Kans." read *Missouri.*

On page 297, No. **194,188,** in heading, after residence, insert *assignor to R. Newmann & Co., of New York city.*

On page 307, No. **194,263,** in heading, assignee's name, for "Gemmel" read *Gemmell.*

On page 342, No. **194,457,** second claim, fourth line, for "preserving" read *pressing.*

On page 387, No. **194,727,** in title, for "Medicines" read *Food.*

On page 467, No. **195,160,** for present title read *Draw Bridge Lock and Signal.*

On page 601, No. **195,904,** in heading, after residence insert *assignor to himself, Robt. A. Rogers, D. E. Mead, and H. E. Mead, of same place.*

On page 689, No. **196,379,** for present title read *Glass-Ball Target.*

On page 708, No. **7,924,** reissue, second claim, second line, for "numerous" read *narrow.*

On page 772, No. **196,814,** inventor's name, for "Ara" read *Asa.*

On page 898, No. **197,451,** fourth claim, second line, after "buckets," strike out "in a direction tangent thereto" and insert same sentence after "buckets" on the fourth line of same claim.

On page 998, No. **197,999,** in title, for "Wooden" read *Carriage.*

On page 1022, No. **198,171,** first claim, third line, for "close" read *closed.*

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UNITED STATES PATENT OFFICE.

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[The names of court cases are designated by an asterisk, (*:) decisions in Roman numerals are in THE GAZETTE of October 2, 1877.]

ABANDONED APPLICATIONS.

An application for letters patent having been acted upon for the last time January 27, 1869, by the Board of Examiners-in-Chief, who affirmed a previous rejection of the Primary Examiner, a motion to reopen the case and dispose of it on its own merits was denied, it having been abandoned under the law of 1870, and not pending at the date of the passage of said act.

[John P. Mygatt, 51.

(See Construction of Statutes, 1; Interferences, 4.)

ABANDONED EXPERIMENT.

A person who merely produces articles experimentally by a device—changes the structure of the device itself, and finally does nothing with it until after the grant of a patent to another inventor—has neither perfected the device nor adapted it to successful use. It is an abandoned experiment.

[*Albright *vs.* The Celluloid Harness Trimming Company, 227.

ABANDONED INVENTION.

1. No inference of the abandonment of an individual element made the subject of a distinct claim can arise from the mere fact that the specification states the invention to consist of its *combination* with another feature.

[*Henderson *et al. vs.* The Cleveland Co-operative Stove Company, 4.

2. Under section 4897 Revised Statutes, an applicant who fails to renew his case within two years after its allowance is effectually debarred from doing so, nor can he make the invention the subject of a new application.

[P. J. Hardy, 1075.

3. The cases under this section distinguished from the abandoned applications covered by section 4894, and which may be revived or new applicants filed in their stead under certain conditions. The former have been passed upon and allowed; the latter have never had final action.

[Ibid., 1075.

AGGREGATION.

(See Combinations, 1, 2; Designs, 2.)

ARTICLES OF MANUFACTURE.

Articles new to the trade are not necessarily patentable. Invention must be exercised in their production.

[Thomas Phillips, 311.

CASES COMMENTED UPON.

The case of *Atkinson* vs. *Boardman*, (MS.,) NELSON, J., (Law's Digest, 666,) considered and approved.

[* *In re* Squire, 1025.

(See Construction of Statutes, 5.)

CAVEATS.

It is sufficient if a caveat is signed by only one of two or more joint inventors. As the only object in filing a caveat is to obtain notice of interfering applications, the right of one joint inventor to this notice should not be subject to the control of his co-inventors.

[G. A. Gray, 396.

CLAIMS.

The fact that in one instance a claim is for a single device, and in another for a series of them, does not constitute difference of invention. The state of the art, and the Office latitude in allowing claims, may level the distinction.

[Martin *vs.* Bogle, Runyan, and Patric, 625.

(See Construction of Claims; Construction of Specifications and Patents, 24; Practice in Patent Office, 7.)

COMBINATIONS.

1. A clock-lock and combination or key lock applied independently of each other to the same bolt-work of a safe or vault door held to be a patentable combination.

[Little *vs.* Sargent, 186.

2. Sub-combinations of elements that coact in the production of a perfected joint result can be rightfully claimed in conjunction. They constitute a true combination in the sense of the law, and not a case of juxtaposition.

[*Herring *et al. vs.* Nelson *et al.* Same *vs.* Gage *et al.*, 753.

3. The validity of a unitary combination which contained a lesser number of elements than was stated and claimed in the original patent upheld in the reissue.

[*Ibid, 753.

(See Equivalents, 1.)

CONSTRUCTION OF CLAIMS.

1. Claims to results construed to intend the means by which the results are accomplished. (*Mitchell* vs. *Tilghman*, 19 Wall., 891.)

[*Henderson *et al. vs.* The Cleveland Co-operative Stove Company, 4.

2. Probable advantages arising from particular construction disregarded, the claim being laid broadly, and without apt words of limitation to express them.

[John D. Murray, 187.

3. The words "or in any other convenient manner" construed to mean, by means adapted to the work the machine is intended to perform.

[*The Railroad Companies *vs.* Turrill, 709.

4. To describe the mode of using a device is not ordinarily descriptive of the device itself, and a claim containing a phrase of such character is not limited in scope thereby. It does not state any element in the machine, the leading feature, nor even the general principle upon which the machine is constructed.

[Charles C. Doten, 847.

(See Claims; Construction of Specifications and Patents, 2, 3; Practice in Patent Office, 8.)

CONSTRUCTION OF SPECIFICATIONS AND PATENTS.

1. Reissue Letters Patent No. 3,523, granted J. C. Henderson, June 29, 1869, for "improvement in coal-stoves," reviewed and sustained.

[*Henderson *et al. vs.* The Cleveland Co-operative Stove Company, 4.

2. The patentee having stated that the combination of two certain elements or features must be preserved in whatever form of stove his improvements were applied: *Held*, that separate claim to each of the elements could, nevertheless, be maintained.

[*Ibid., 4.

3. The case distinguished from *Vance* vs. *Campbell*, (1 Black, 427,) in that separate claim is made to each element, as well as to their combination, although the entire improvement is said to consist of their combination alone.

[*Ibid., 4.

4. Letters patent granted Henry A. Adams, October 15, 1872, for "improvement in corn-shellers," sustained, notwithstanding the principal difference from what had preceded it in the art was simply in the reverse revolving motion given to the feed-regulators in the hopper of the machine, it appearing that an improved result was thereby attained.

[*Adams *vs.* The Joliet Manufacturing Company, 93.

5. A patent should never be defeated for a mere technical defect, if it clearly appears what the inventor has described and claimed as his invention.

[*Ibid., 93.

6. Letters Patent No. 119,705, granted to E. A. Heath, October 10, 1871, declared to be void, in view of letters patent granted to Wm. H. Topham, August 2, 1870, for an improvement in spittoons.

[*Ingersoll *vs.* Turner & Turner, 189.

7. Reissue Letters Patent No. 5,155, granted to Andrew Albright, November 26, 1872, for "improvement in dies for finishing rubber-coated harness-mountings," reviewed and sustained.

[*Albright *vs.* The Celluloid Harness Trimming Company, 227.

8. The validity of a patent is not determinable by the degree of novelty or invention displayed, but it is sufficient if there exists some novelty and merit, however slight.

[*The Miller & Peters Manufacturing Company *vs.* Du Brul, 351.

9. The same novelty and merit that will entitle an applicant to a patent entitles him to the judgment of a court upon that point, and the action of the Patent Office in making the grant is *prima facie* proof that the requisite novelty and merit exist.

[*Ibid., 351.

10. Reissue Letters Patent No. 4,418, granted Henry Voelter, June 6, 1871, for "improvement in reducing wood to paper-pulp," declared valid in view of the state of the art, with the exception of the third claim.

[Henry Voelter, 393.

11. The patent of Nathaniel Jenkins for a "self-closing faucet," issued June 27, 1865, is not anticipated by the French patent of Chretien Morand, dated November 14, 1851.

[*Zane *et al. vs.* Peck Bros. & Co., 518.

12. The validity of the Cummings patent, as well as its construction, must be considered as settled by the decision of the Supreme Court of the United States in *Smith* vs. *Goodyear Dental Vulcanite Company.*

[*Goodyear Dental Vulcanite Company *vs.* Davis. Same *vs.* Defendants in sixty-seven other cases, 1.

13. The courts will endeavor to give such construction to a patent as will support the invention, and will not unnecessarily adopt one that would render the patent invalid.

[*Ibid., 1.

14. Where the specification of the original patent suggested no invention save the one contained in the entire combination, the claim in the reissue for a lesser number of elements than it embraced was declared void.

[*Miller & Co. *vs.* Bridgeport Brass Company, 667.

15. The scope of the Cawood patent (1 Wall., 491) more fully defined and its validity sustained.

[*The Railroad Companies *vs.* Turrill, 709.

16. The patent of Isaac Eppinger for "bunch and plug tobacco," granted June 17, 1873, is valid, notwithstanding the essential difference from what preceded it in the art lies solely in the shape or form of the coil of tobacco.

[*Eppinger *vs.* Richey & Boniface, 714.

17. Reissue letters patent, granted John Denchfield, April 20, 1872, examined and sustained.

[*Herring *et al. vs.* Nelson *et al.* Same *vs.* Gage *et al.*, 753.

18. Reissue Letters Patent No. 6,100, granted H. A. Lyman, October 27, 1874, (Thomson Langdon & Co., assignees,) declared to be valid, in view of the previous state of the art and of the invention exercised in producing its subject matter.

[* Thompson *et al. vs.* Jacobs *et al.*, 890.

19. The specification and claim in both of complainants' patents having clearly indicated that certain characteristic features were regarded as of the essence of the invention, the court declined to enlarge the scope of the patents beyond what was thus explicitly set forth.

[* The Keystone Bridge Company *vs.* The Phœnix Iron Company, 980.

20. The courts have no right to enlarge a patent beyond the scope of its claim as allowed by lawful authority.

[Ibid., 980.

21. When the terms of a claim in a patent are clear and distinct (as they always should be) the patentee in a suit brought for infringement is bound by it. (*Merrill* vs. *Yeomans*, 94 U. S., 573.) He can claim nothing beyond it.

[Ibid., 980.

22. Upon suit brought patentees cannot show that their invention is broader than the terms of their claim; or if broader, they must be held to have surrendered the surplus to the public.

[Ibid., 980.

23. Reissue Letters Patent No. 6,660, granted Edgar Huson, September 29, 1875, for improvement in wagon-gearing, examined and sustained.

[*Halsey *vs.* Garlick *et al.*, 1026.

24. A description that sets forth the general theory of a process invention, but fails to disclose some one method of carrying it into effect, is insufficient. So, likewise, is a claim that is not tangible or well defined.

[A. D. Elbers, 1076.

(See Abandoned Invention, 1; Combinations, 3; Infringement, 4, 14, 15, 16; Reissues, 3, 15, 16, 17, 18, 19, 20.)

CONSTRUCTION OF STATUTES.

1. Section 35 of the act of 1870, which declared all applications to be abandoned that had been rejected or withdrawn prior to the date of its passage, and that had neither been renewed nor a new application filed within six months thereafter, construed to be modified by section 111 of the same act, so as not to include applications pending at the date of its passage.

[John P. Mygatt, 51.

2. The word "pending" is used in the section in the same sense as it is applied to a suit—that is, it is pending so long as it remains undecided or in suspense.

[Ibid., 51.

3. The suit in equity authorized under section 4915 R. S. is an original and not an appellate proceeding. It is conducted according to equity rules, and a party contesting his right to a patent thereunder need not be confined to matters existing of record in the Patent Office or in the supreme court of the District of Columbia.

[*In re* Squire, 1025.

4. A motion to appoint a special examiner, under the rules of the court, for the purpose of taking additional testimony, was accordingly granted.

[Ibid., 1025.

5. The statement in *ex parte* Greeley, 6 Fisher, 575, that the suit under the section "is virtually an appeal," construed to mean that the party seeks to obtain a different result from that which had before been allowed, and in such sense alone does he pursue a virtual appeal.

[Ibid., 1025.

(See Reissues, 5, 9, 10.)

DAMAGES.

1. In settling an account for infringement the question is not what profits the infringer has made in his business, or from his manner of conducting it, but what advantage he has derived from the use of the infringed invention.

[*The Railroad Companies *vs.* Turrill, 709.

2. The scope of a patented invention having been defined, and the court having declared that the damages could not exceed the profits arising from the use of the improvement, a failure to show any such profits makes nominal damages alone recoverable.

[*The Gould's Manufacturing Company *vs.* Cowing *et al.*, 942.

(See Profits.)

DESIGNS.

1. In some prints the novelty of the design may consist in the form, outline, or grouping; in others, in the use, combination, arrangement, or harmony of colors; in others, in the combination of some or all of these attributes.

[*Richardson *vs.* Miller *et al.*, 3.

2. Design patents are subject to the general principles of construction applicable to mechanical patents. A combination or aggregation of old designs producing no new appearance is not patentable.

[*Northrup *et al. vs.* Adams, 430.

3. When, in a design of a rectangular provision-safe, the only originality consisted in the use of two vertical panels in each wall, and a familiar molding around the top and bottom, the patent was held invalid.

[*Ibid., 430.

4. Doubted whether it is a proper subject for a design patent to make sleeves with a flare, so that they can be nested one within another; and, if so, the design lacks novelty.

[Adams & Westlake Manufacturing Company *vs.* St. Louis Wire Goods Company, 940.

DIVISION OF APPLICATIONS.

1. Several specific devices embodying the same general features of construction may be retained in a single application, provided a generic claim is made which will cover each, and which is patentable.

[E. O. Howland, 889.

2. A generic claim of such scope and character is indicative of the same basis of invention for each device, and, where it cannot be maintained, there is such diversity as will require a division of the application.

[Ibid., 889.

3. Nothwithstanding they may be all retained, the applicant is not at liberty to make specific claim to more than one of the devices.

[Ibid., 889.

4. A device for opening and closing window-blinds cannot be included in the same application with another for locking and unlocking the blinds, it appearing that there is no community or dependence of operation between the two.

[Henry Law, 940.

5. The fact that the two devices would probably be used together because of their convenience is no test of their right to be included in a single application.

[Ibid., 940.

6. There must be intercommunication of parts or mutual dependence of the distinct devices to entitle them to be thus incorporated.

[Ibid., 940.

7. To size sheets of mineral wool after the wool fibers have been protectively coated according to the invention is not a distinct process in the sense of necessitating a division of the application.

[A. D. Elbers, 1076.

8. The sizing is resorted to as a simple expedient to fit the wool for certain of its uses. There is no departure from the essential invention in suggesting it.

[Ibid., 1076.

(See Joinder of Invention.)

EQUIVALENTS.

1. A combination claim held to be met by the reference cited, where the elements in both were identical in arrangement and also in kind, with the exception of a single one, which, though differing in form, was the same in function and effect as the corresponding element of the reference.

[John D. Murray, 187.

2. The fact that one patent is granted for a cuspadore and the other for a spittoon is of no importance, as the difference is merely of form, and the form itself is old.

[*Ingersoll *vs.* Turner & Turner, 189.

3. Defendant having substituted broad bearing-surfaces for the cutting-edges of complainant's dies, the change held to be colorable as one simply arising from the difference in the material upon which the dies were used without variation in result.

[*Albright *vs.* The Celluloid Harness Trimming Company, 227.

4. The substitution in a patented mixture of an ingredient which, although not precisely the same in its action, produces all the valuable and beneficial results attending that for which it was substituted, and in substantially the same manner, is to be regarded as an equivalent and an infringement of the patent.

[*The Atlantic Giant Powder Company *vs.* Mowbray *et al.*, 111.

(See Infringement, 7, 8, 15, 16; Patentability, 6, 7.)

ESTOPPEL.

1. In order that a former judgment of a court of competent jurisdiction obtained in an action between the same parties shall act as an estoppel in a subsequent suit, it must be certain that the consideration and determination of the particular matter sought to be concluded was necessarily involved in the verdict and judgment.

[*Russell *vs.* Place & Place, 53.

2. If this does not clearly appear from the face of the record, extrinsic evidence consistent with the record may be admitted to establish the fact.

[*Ibid., 53.

3. Where several distinct matters may have been litigated, upon one or more of which the judgment may have passed, and it remains uncertain which of them was thus litigated, and upon which the judgment was rendered, the whole subject-matter of the action will be at large and open to a new contention.

[*Ibid., 53.

4. Complainant having made claim in his patent to an article and to a process in which that article was used, and it being uncertain whether judgment was rendered on one or both of these claims, the defendant in a subsequent suit was not estopped from setting up both the former and new defenses in his answer.

[*Ibid., 53.

5. An agreement with a complainant not to manufacture the device of a certain firm does not work an estoppel, it being a controverted fact as to the identity of such device with that alleged to be infringed.

[*Roemer *vs.* Simon *et al.*, 796.

(See Construction of Specifications and Patents, 12.)

EVIDENCE.

1. Affidavits of adverse parties cannot be received to impeach the patentability of an applicant's invention.

[Anson *vs.* Woodbury *et al.*, 1.

2. A reissue patent being valid on its face, the presumption is that the patentee is the first inventor of that which the patent purports to secure.

[*Herring *et al. vs.* Nelson *et al.* Same *vs.* Gage *et al.*, 753.

3. The presumption is not a mere formal one, but if to be overthrown by parol testimony it must be done upon clear and satisfactory proof. A case of doubt upon the evidence is not enough, for that leaves the presumption operative.

[*Ibid., 753.

(See Foreign Use, 2; Pleadings and Practice, 3, 5; Practice in Patent Office, 1.)

EXTENSIONS.

In an application for extension sufficiency of remuneration is a matter of fact, and not one upon which the judgment of the Commissioner can be informed by expert testimony.

[Henry Voelter, 393.

FOREIGN USE.

1. Proof of prior use in a foreign country will not supersede a patent granted here unless the alleged invention was patented in some foreign country.

[*Roemer *vs.* Simon *et al.*, 796.

2. Proof of such foreign manufacture and use, if known to the applicant for a patent, may be evidence tending to show that he is not the inventor of the alleged new improvement.

[*Ibid., 796.

INFRINGEMENT.

1. A copyrighted design for playing-cards is infringed by the manufacture of cards which, though differing in some respects, exhibit a striking similarity in those distinctive features of the main design wherein the cards registered differ from other playing-cards previously used.

[*Richardson *vs.* Miller *et al.*, 3.

2. It is no answer to the charge of infringement that the whole of the design has not been copied, if those features of it have been appropriated which substantially embrace the novelty of the conception and the value in the application of the art of the designer.

[*Ibid., 3.

3. The doctrine is as applicable to prints and engravings as to books that one cannot take the vital part of another's work, although it may be a small part in quantity, or insert distinct and material portions of one work into the general texture of another, constituting its chief value, without being chargeable with infringement.

[*Ibid., 3.

4. Where an invention is described as consisting of the combination of two elements, and one of them proves defective, or is not used by the infringer, he will, nevertheless, be restrained from using the remaining one, if the patentee has included it in a separate claim.

[*Henderson *et al. vs.* The Cleveland Co-operative Stove Company, 4.

5. To constitute infringement, there must be, first, similarity of design; second, substantial identity of purpose or result.

[*Ibid., 4.

6. Similarity of design being established, an infringement occurs if a result incident to the construction of the device is the same as that of the complainant, even though the primary purpose of the construction is for a different object.

[*Ibid., 4.

7. A change of location of a part in a combination, where there is no new function performed by the changed member in its new location, will not evade a patent.

[*Adams *vs.* The Joliet Manufacturing Company, 93.

8. The fact that it does its work better than in the position occupied in the infringed machine is merely of degree, and makes no difference so long as the result is the same.

[*Ibid., 93.

9. Experimental making and using of a patented invention is a technical infringement that may be restrained.

[*Albright *vs.* The Celluloid Harness-Trimming Company, 227.

10. When a patentee gets his remuneration by patent or license fees, a recovery of the license or patent fee from an infringer, and its payment, authorizes the defendant to use the particular articles for which such recovery had been had.

[*Perrigo *et al. vs.* Spaulding, 352.

11. When a patentee gets his remuneration in the exclusive use of his machine and the sale of its products a recovery will not give the infringer any right to the further use of the infringing machines.

[*Ibid., 352.

12. When a patentee gets his remuneration by the sale of his patented machine for use by others a recovery of profits and damages from the manufacturer of an infringing machine is a full compensation for his injury, and places the patentee in the same position as if he had made and sold the machine himself, and confers on third parties the right to use the machine while it lasts.

[*Ibid., 352.

13. When a full recovery and satisfaction from one party has been had the patentee has obtained all that the law gives him, and the particular article or machine becomes, in effect, licensed by the patentee, and may be used so long as it lasts, free from any further claim by the patentee.

[*Ibid., 352.

14. The Cummings patent for a plate of hard rubber or vulcanite is not infringed by a plate made of celluloid, the product and process being essentially different.

[*Goodyear Dental Vulcanite Company *vs.* Davis. Same *vs.* Defendants in sixty-seven other cases. 1.

15. Cummings' invention includes alone the article or manufacture made by the process described, and is only infringed by using the materials described by him or their known equivalents, in the described process, or such as in the process are mere substitutes of one material for another without change in process or effect, producing thereby a product the equivalent of his in the properties and functions described.

[*Ibid., 1.

16. Nobel's patent for dynamite describes a mixture of nitroglycerine and a substance which possesses a very great absorbent capacity, preferring infusorial earth, rendering the mixture more safe and convenient for transportation, storage, and use than nitroglycerine, without loss of explosive power. These advantages are attained by the defendants by employing, instead of absorbent substances, mica scales, which become coated with the liquid. Although admitted to be an improvement, still it is subsidiary to Nobel's invention and an infringement of this patent.

[*The Atlantic Giant Powder Company *vs.* Mowbray *et al*, 111.

17. Because the invention has been used in an imperfect condition, or altered slightly in one particular without serious loss, it is no proof that it was no invention, or that the use of it in its altered condition was no infringement.

[*The Railroad Companies *vs.* Turrill, 709.

18. The infringement held to be not merely of the new parts or elements, but of the combination of new and old, as a whole.

[*Ruggles *vs.* Eddy & Shaver, 716.

19. That an infringer has added something to the devices combined by a patentee does not enable him to use the combination without being answerable.

[*Herring *et al. vs.* Nesen *et al.* Same *vs.* Gage *et al.*

20. R., the agent of the patentee, authorized the firm of H., C. & N., for a valuable consideration, to construct for use, at their place of business, the device (a furnace) involved in the patent. The defendants, who had acquired all the rights of the firm of H., C. & N., were sued for infringement, because of the use of the device: *Held*, first, that after the transaction with H., C. & N., the patentee had no right or interest with respect to the particular device and its use during the time of his original patent, and acquired none by the extension of his patent afterward; second, that those who *constructed* the device under the authority of the patentee, and the defendants who acquired it of them, have had and still have the right to *use* it at the particular place, clear of any claim of infringement by the patentee or his representatives.

[*Black and Fitzgerald *vs.* Hubbard and North, 842.

21. Although the right to use may not have been acquired by lawful conveyance (according to the statutes) of that right as a subject of conveyance by itself, it was acquired by constructing the device for use, with the consent of the patentee obtained and paid for.

[*Ibid., 842.

22. The swaging of the several parts of the sieve together being an essential element of the invention set forth in plaintiff's patent, a preliminary injunction was refused, it appearing that the defendant accomplished the joining by double-seaming.

[*Adams & Westlake Manufacturing Company *vs.* St. Louis Wire Goods Company, 940.

(See Patentability, 8.)

INJUNCTION.

A motion for injunction against the user of a machine refused, because damages and profits had been recovered for the manufacture and sale of the machine from his vendor.

[*Perrigo *et al., vs.* Spaulding, 352.

(See Infringement, 22.)

INTERFERENCES.

1. In interference controversies, where the adverse party is a patentee, the applicant must show conclusively that he fully reduced the invention to a form or condition capable of standing the test of actual practical use prior to the invention by the patentee.

[Stover *vs.* Clark, 188.

2. An experimental reduction—the illustration of a theory by a model—will not suffice of itself to establish this fact.

[Ibid., 188.

3. A, the successful contestant in an interference proceeding between pending applications, suffered his case to be forfeited subsequently by the non-payment of the final fee. If other parties come into the office thereafter who claim the subject-matter of the award, A can neither be notified nor joined in any new controversy that may arise.

[Practice in Interference Cases, 949.

4. His application is no longer "pending" in the sense of the law, which permits pending applications to be placed in interference.

[Ibid., 949.

5. His former adversaries, however, although debarred by the award from making title in themselves, should, if their cases are still pending, be made parties to the new interference with the subsequent applicants in order to fix the rights and status of the latter.

[Ibid., 949.

6. If such new contest results in favor of the subsequent applicants, a patent should issue, notwithstanding the date of completed invention is later than that found for A.

[Ibid., 949.

7. In event A renews his forfeited application, as provided by law, he will be subject to contest with any new and successful party whose application has been filed in the internal.

[Ibid., 949.

8. It does not follow that because an applicant has proceeded so far in developing an invention as to be entitled to a patent, *ex parte*, he should also receive it as against a contesting patentee who was subsequent in conceiving of the invention. Adequate reduction to practice at the time the adverse patentee made the invention is essential to establish lack of novelty, and to overthrow the patent in court. Proof of this fact failing, a new grant was refused.

[Hallidie *vs.* Paine, 1077.

(See Practice in Patent Office, 4; Priority of Invention, 1, 2, 3, 4.)

INVENTION.

1. A concave flange, coated on its under side with chalk, and applied to a table-leg or similar article, to prevent the march of insects, is lacking in patentable novelty—the peculiar property of chalk being well known, and concave flanges for similar purposes being old in the art.

[Strong *et al. vs.* Cruikshank, 138.

2. It is the exercise of simple intelligence to put the chalk on the under side of the flange, where it is best protected from being rubbed.

[Ibid., 138.

3. A compound paper in which a layer of bleached pulp is superposed upon one of unbleached is anticipated by a paper having layers of fine and coarse pulp correspondingly arranged—the result, a paper of good finish and having the requisites of cheapness and durability, being the same in both cases.

[Thomas Phillips, 311.

4. No invention was necessary to substitute bleached pulp for the light-quality pulp previously employed, the characteristics of the substitute material being well known in the art, and the present use without discovery of any peculiar fitness therefor.

[Ibid., 311.

5. Where the change in the faucet made it more simple and economic, and was not formal, but in a certain degree structural, patentable invention was exercised, notwithstanding the general principle of operation was old.

[*Zane *et al. vs.* Peck Brothers & Co., 518.

6. It was not simply the "carrying forward or new or more extended application of the original thought," and was not "a change only in form, properties, or degree." (*Smith* vs. *Nichols*, 21 Wall., 112.)

[*Ibid., 518.

7. The difference in form being productive of new and valuable results, it could not be said to be a matter of fancy or the exercise of mechanical skill.

[*Eppinger *vs.* Richey & Boniface, 714.

8. Invention is evidenced from the long-existing evil which was thereby remedied, and which would have been cured long since in the art had it depended simply on mechanical skill.

[*Ibid., 714.

9. The utility of the article shown from its extensive sale, and the unanimity with which rivals engaged in its manufacture.

[*Ibid., 714.

10. It requires no invention to wind belt-lacing on a spool, in the manner and for the purpose common to threads, yarns, &c.

[Horatio H. Cook, 1077.

(See Abandoned Invention, 1; Construction of Specifications and Patents, 4, 8, 16; Designs, 2, 3; Infringement, 14, 18, 19; Patentability, —; Substitution of Material, 1, 2.)

JOINDER OF INVENTION.

1. Where claim was made in the same application to a process of manufacture, the article produced, the mechanism employed, and also to certain additional steps in process treatment, together with the modified article thereby obtained, the application was held to be duplex, and the varied process and article required to be expunged.

[A. D. Elbers, 2.

2. Separate independent inventions which are not necessarily connected with the apparatus described, or article naturally produced thereby, but which may be used with other apparatus, and in connection with the article produced in other ways, cannot be included in the same application with them.

[Ibid., 2.

(See Division of Applications.)

JURISDICTION.

(See Construction of Statutes, 3, 4; Reissues, 7, 8.)

LABELS.

1. Arbitrary matter properly constituting a trade-mark must be registered as such before it can be included in a label.

[Jno. D. Park, 2.

2. His legal right to use it as a trade-mark must be first established by the applicant before it can be registered in a label.

[Ibid., 2.

MECHANICAL SKILL.

(See Invention, 5, 7, 8; Substitution of Material, 2.)

NEW MATTER.

(See Practice in Patent Office, 5, 6; Reissues, 1, 2, 4, 12.)

NEW RESULTS AND USES.

1. The right to cover, after discovered uses and results, is upon the assumption that the mechanism for which a patent is granted is invariable, so that there is permanency and certainty in the results accomplished.

[Nicholas Seibert, 268.

2. Doubted whether a result which is not common to all machines constructed under a patent can be appropriated on reissue since it is in its nature special or fugitive.

[Ibid., 268.

NOVELTY.

The novelty of the device for which the patent was granted does not depend upon the question whether the separate instrumentalities are new, but whether any new and useful result is produced by their combination.

[*Albright *vs.* The Celluloid Harness Trimming Company, 227

(See Construction of Specifications and Patents, 9.)

PATENTABILITY.

1. The fact that the prints (cards) may be used by persons to violate the laws against gambling, does not of itself deprive them of the protection of the law.

[*Richardson *vs.* Miller *et al.*, 3.

2. Courts of justice will not lend their aid to protect the authors of immoral works; but before refusing it must be made to appear either that there is something immoral, pernicious, or indecent, in the things *per se*; or that they are incapable of any use except in connection with some illegal or immoral act.

[*Ibid., 3.

3. The advantages of the particular arrangement being clear, from an examination of the previous state of the art, and its patentability having passed unquestioned through numerous contests before the office tribunals, are strongly conclusive facts as to its merits.

[Little *vs.* Sargent, 186.

4. The patentability of the dies established, it appearing that by their use a better article was brought upon the market, at less labor and expense, than had before been produced.

[*Albright *vs.* The Celluloid Harness Trimming Company, 227.

5. The substitution of polygonal shafts and corresponding sleeve-shaped revolving bearings for round shafts and splines on the cylinders of a carding-engine is a patentable one.

[James Greaves, 312.

6. Although the two devices are generally well-known equivalents where the purpose is to impart a revolving and a longitudinal reciprocating motion to the body which the shaft supports, in the present adaptation a new and highly important function is performed, not contemplated nor called for by any of the previous uses.

[Ibid., 312.

7. If no new effect was produced the simple substitution would have been without patentable merit.

[Ibid., 312.

8. That the omission of certain elements in a prior patented machine might enable a mechanic to alter and employ the remnant like the infringed machine, is no test of the patentability of the latter.

[*The Railroad Companies *vs.* Turrill, 709.

9. This is to be determined by the question whether the information necessary to construct and use the latter machine can be read out of the prior specification.

[*Ibid., 709.

(See Article of Manufacture, 1; Combinations, 1; Construction of Specifications and Patents, 2, 3, 4, 8, 9, 16; Designs, 2; Invention; Novelty.)

PATENTS.

(See Construction of Specifications and Patents, 5, 8, 9, 12, 13, 21, 22; Foreign Use, 1; Infringement, 1, 5, 16, 20; Interferences, 8; Patentability, 1, 2; Practice in the Patent Office, 8; Reissues, 15, 19; Rejected Applications, 1.)

PENDING APPLICATIONS.

(See Abandoned Applications, 1; Construction of Statutes, 1, 2; Interferences, 4; Practice in Patent Office, 2, 3.)

PLEADINGS AND PRACTICE.

1. The exceptions to the master's report on extent of infringement and amount of damages declared to be well taken, it appearing that a narrower construction of the patent had been made by him than was warranted.

[*Ruggles *vs.* Eddy & Shaver, 716.

2. After defining the scope of the patent reference was again made to the master to ascertain infringement and damages, with leave to the parties litigant to introduce additional evidence because of the new construction placed upon the patent.

[*Ibid., 716.

3. Where the patent described in the bill of complaint is introduced in evidence, the patentees or assignees are presumed to be the original and first inventors of the described improvement.
[*Roemer *vs.* Simon *et al.*, 796.

4. Having proved the alleged infringement, the burden of proof is cast upon the respondents to show that the patent is invalid unless the patent is materially defective in form.
[*Ibid., 796.

5. Parties defendants sued at law for infringement are not allowed to set up the defense of a prior invention, knowledge, or use of the thing patented, unless written notice thereof is given thirty days before the trial.
[*Ibid., 796.

6. Such notice must state the names of the patentees and the dates of their patents alleged to have been invented, and the names and residences of the persons alleged to have invented, or to have had the prior knowledge of the thing patented, and where and by whom it had been used.
[*Ibid., 796.

7. Since the passage of the act of July 8, 1870, the regulation in equity suits is, that defenses such as are described in section 61 of that act may be pleaded in any equity suit for relief against an alleged infringement, and that proof of the same may be given upon like notice in the answer of the respondent, and with like effect.
[*Ibid., 796.

8. On appeal, questions not involved in the assignment of errors will be passed over without examination.
[*Ibid., 796.

9. The respondents having given due notice of the defense of prior invention and use, stating the names and residences of the persons having the prior knowledge, and where and by whom the alleged invention had been used, added further that it had been known to and used by others to them unknown, and prayed leave that when discovered they might be permitted to insert and set forth their names in the answer; *Held*, that on motion to insert, in accordance with the notice, and no objection made, the court was justified in entering the additional names and residences *nunc pro tunc*.
[*Ibid., 796.

10. Where, in answer to a bill of complaint for infringement, the defendants filed a plea involving three distinct grounds of defense, such plea was held bad for duplicity.
[*Reissner and Fray *vs.* Anness and Blauvelt, 842.

11. The several matters, although relating in a general way to but a single defense—viz., the invalidity of the complainants' patent—were essentially independent of one another, and by their retention destroyed the very office of the plea, which is to secure singleness in the issue.
[*Ibid., 842.

12. The general rule is, that a plea must not contain more defenses than one. It is not limited to one fact. It may embrace various facts; but they must all conduce to a single point on which the defendant rests his defense. (Stor. Eq. Pl., section 654.)
[*Ibid., 842.

13. If there is more than one distinct ground of defense to be urged, the defendant should set the matter forth by way of answer and not by plea.
[*Ibid., 842.

14. The defendants were accordingly permitted, either (1) to set down the pleas that had been filed as an answer, or (2) to elect within a time specified which of the several grounds of defense they would stand upon, and when such election had been made, the other grounds would be overruled.
[*Ibid., 842.

15. It is no compliance with the requirement of the court that the profits arising from the use shall be proven to show that wherever the particular patented improvement was introduced, other kindred devices could not be sold.
[*The Gould's Manufacturing Company *vs.* Cowing *et al.*, 942.

16. The report of the master which gave to such showing the erroneous effect of proof of profit arising from the use and estimated damages accordingly was consequently overruled.
[Ibid., 942.

(See Construction of Specifications and Patents, 9, 13, 19, 20, 21, 22; Construction of Statutes, 4; Estoppel; Evidence; Injunction, 1.)

PRACTICE IN PATENT OFFICE.

1. Matters of public notoriety affecting the right of an applicant to a patent will be taken notice of by the Office in analogy to the practice of the courts in determining the validity of patents.
[Anson *vs.* Woodbury *et al.*, 1.

2. Any case in which judgment has been rendered by a competent tribunal, the parties notified, and no appeal taken or noted, can hardly be regarded as pending.
[John P. Mygatt, 51.

3. The Office rules in force at the time of the passage of the act of 1870 construed to mean that a case was pending only until the decision of an appeal after a second rejection thereon, or until after the party had withdrawn the case from the further consideration of the Office.
[Ibid., 51.

4. The preliminary statement rigidly adhered to, where there was substantial departure therefrom in the interference contestant's testimony.
[Martin, Bogle, Runyan, and Patric, 625.

5. An application primarily for a process invention, but containing matter capable of illustration, was subsequently amended to include such matter instead, a drawing being filed and a description inserted relative thereto. Both were much more minute in detail and feature than was warranted by the language originally employed: *Held*, first, that the amendment was rightly objected to as "new matter," it conforming to no part of the case, as it existed at the time of its filing, (Rule 32, Office Practice;) second, that the clause of Rule 32, Office Practice, permitting the admission of an amendment on satisfactory proof that it is part of the original invention does not apply, because the matter is one capable of illustration by drawing and model.
[Jesse H. Temple, 795.

6. The prohibition in Rule 32 against the introduction of "new matter" is not a mere question of Office fees, but is to limit the power of amendment, so that it is possible to determine when an application is completed.
[Ibid., 795.

7. That a claim is unintelligible is an objection from which interlocutory appeal lies to the Commissioner.
Charles C. Doten, 847.

8. It is the duty of the Patent Office to examine, scrutinize, limit, and make the claim which an applicant is required to present under the law to conform to what he is entitled to.
[*The Keystone Bridge Company *vs.* The Phœnix Iron Company, 980.

(See Abandoned Application, 1; Abandoned Invention; Caveats, 1; Construction of Claims, 2; Construction of Specifications and Patents, 24; Division of Applications, 1; Evidence, 1; Extensions; Interferences, 3, 5, 6, 7, 8; Joinder of Invention; Labels, 1; Reissues, 1, 2, 4, 5, 6, 11.)

PRIORITY OF INVENTION.

1. An applicant who devised an experimental model, which was afterward lost without test as to its practicability, and did nothing further until his contestant had secured a patent, cannot be said to be the prior meritorious inventor.
[Stover *vs.* Clark, 188.

2. The contestant in an interference controversy, who first perfected the operative device, awarded priority notwithstanding his adversary was the first to apply it in series, in the manner designed for use.
[Martin *vs.* Bogle, Runyan, and Patric, 625.

3. The arrangement in series may have been more satisfactory and permitted nicer adjustment of subordinate mechanism, but it proved operativeness no more than the test of the single device itself.
[Ibid., 625.

4. An interference contestant, the first to conceive of the invention and to make a model of the device, failed to reduce it to practice or to file his application for patent until after the grant of a patent to his adversary. There being nothing to excuse the lack of diligence, priority was decided against him.
[Hallidie *vs.* Paine, 1077.

PRIOR USE.

(See Rejected Applications.)

PROFITS.

If the invention, as an entirety, was infringed, then the whole profits are the profits of infringement.
[*Ruggles *vs.* Eddy and Shaver, 716.

(See Damages; Pleadings and Practice, 15, 16.)

REDUCTION TO PRACTICE.

(See Abandoned Experiment, 1; Interferences, 1, 2, 8; Priority of Invention, 1.)

REISSUES.

1. An invention not set forth in the original specification nor fully shown by the original drawings cannot be incorporated on reissue where its existence depends upon the restoration of a missing element to the model in a particular position, it not appearing that such position was necessarily the only one it could have had, and both original specification and drawings failing to indicate its location.
[Stockwell *vs.* Haines, 137.

2. The models and drawings of machine patents can be amended under the law, only each by the other. Affidavits as to the location of a particular element cannot be considered, nor can the Commissioner go outside of the record to ascertain what was the scope or detail of the original invention.
[Ibid., 137.

3. The prohibition of the statute in relation to reissue applications is limited to the adding of new matter to the specifications, and there is no obligation upon the patentee to claim all things in the reissue which were claimed in the original invention. *Carver* vs. *Braintree Man. Co.*, (2 Story, 438.)
[*Albright *vs.* The Celluloid Harness Trimming Company, 227.

4. On reissue, the restoration of a missing element to a model in a manner which would give to it an artificial significance was refused, neither the original drawings nor specification affording any clue as to its position, and all other locations that could be possibly assigned being equally in keeping with the ascribed purpose and function of the element.
[Nicholas Seibert, 268.

5. Under Sec. 4916, R. S., authorising amendments upon reissue, the acceptance and consideration of proof outside the record is limited to those cases which have neither model nor drawing.
[Ibid., 268.

6. Where a patent has both model and drawing, affidavits in support of a proposed amendment are in the nature of proof *aliunde*, which is excluded by the section.
[Ibid., 268.

7. The Commissioner of Patents alone is invested with authority to decide whether a patentee is entitled to a reissue, and after he has exercised this power and granted the reissue it becomes a presumption of law that he has done his duty thoroughly, faithfully, and properly.
[*The Miller and Peters Manufacturing Company *vs.* Du Brul, 351.

8. The action of the Commissioner in granting a reissue is not open for re-examination by the courts, except on the ground of fraud in its procurement.
[*Ibid., 351.

9. The concluding clause of section 4916, Revised Statutes, in authorizing the Commissioner to allow new matter in reissue applications having neither model nor drawing, does not warrant a departure from the original invention.
[A. Dieckerhoff, 429.

10. Its purpose is to correct accidental mistakes, not to permit the setting up of a substantially different invention from the original.
[Ibid., 429.

11. No amount of proof that the proposed new matter was within the knowledge of the inventor at the time of filing his original application can permit its introduction on reissue if it involves a departure from the original invention.
[Ibid., 429.

12. Whether the new matter is a departure or not may be gathered from a consideration of all original papers filed in the case, and from other evidence of official action from which the intentions of the parties can be discovered or their rights determined.
[Ibid., 429.

13. To include on reissue matter which was neither described nor claimed, but what was actually contained in the original invention, is simply the rightful exercise of the remedy.
[C. William Siemens, 626.

14. The failure to describe in the original patent is no bar to doing so in the reissue application within the limits of the invention.
[Ibid., 626.

15. Had it been intimated in the original patent that the lesser number of elements could be used in combination, this would have justified a claim to them on reissue.
[*Miller & Co. *vs.* Bridgeport Brass Company, 667.

16. Without such suggestion the claim is invalid, as a departure from the original invention.
[*Ibid., 667.

17. A reissue patent need not be rigidly confined in description to what was described before. It may include whatever else was suggested or substantially indicated as part of the original patented invention.
[*Herring *et al. vs.* Nelson *et al.* Same *vs.* Gage *et al.*, 753.

18. Differences in the descriptions and claims of the old and new specifications are not the tests of substantial diversity. The description may be varied and the claim restricted or enlarged, provided the identity of the subject-matter of the original patent is preserved.
[*Ibid., 753.

19. The doctrine of *Vance* vs. *Campbell*, 1 Black, that the use of a lesser number of elements than are contained in the patented combination is no infringement because not the same invention does not apply to the practice of reissuing patents. It is true the law requires that reissues shall be for the same invention as the originals on which they are based, but it is no departure to make separate claims to sub-combinations which were originally joined in one.
[*Ibid., 753.

20. If the patentees have not claimed the whole of their invention, and the omission has been the result of inadvertence, the error can be corrected by the remedy of reissue.
[*The Keystone Bridge Company *vs.* The Phœnix Iron Company, 980.

(See Construction of Specifications and Patents, 14, 18; New Results and Uses, 2.)

REJECTED APPLICATIONS.

Assuming its similarity to the Deuchfield (the patentee) device, the rejected application does not make out that the thing described was ever used, nor is such a description a patent or publication within the statute.
[*Herring *et al vs.* Nelson *et al.* Same *vs.* Gage *et al.*, 753.

RESULTS—CLAIMS TO.

(See Construction of Claims, 1.)

SUBSTITUTION OF MATERIAL.

1. The characteristic and valuable feature of both articles being their self-righting quality arising from their weighted bottoms, the invention remains the same, notwithstanding metal may be substituted for *papier mache* in their manufacture.
[*Ingersoll *vs.* Turner and Turner, 189.

2. The substitution of sheet metal for less appropriate material involved no invention, and the construction of the cuspadore in three pieces is but obvious mechanical skill.
[*Ibid., 189.

(See Equivalents, 4; Infringement, 15, 16.)

TRADE-MARKS.

1. A star and crescent applied as a trade-mark to soap is registerably different from a star alone.
[Cornwall *et al.*, 138.

2. Whether a proposed mark deceptively resembles another already registered is a question of judgment, to be determined upon the probabilities of the case. *Ex parte Ambs*, (10 OFFICIAL GAZETTE, 463.)
[Ibid., 138.

3. *Held:* That complainant could not legally enjoy the exclusive right to use a decorated tin pail as a collar-box notwithstanding that he was the first to so employ it, and had registered it as a trade-mark.
[*Harrington *vs.* Libby, 188.

4. A geographical word used as a trade-mark in a fanciful sense, and not fraudulently nor deceptively applied, may generally be registered.
[Cornwall & Brothers, 312.

5. There may, however, be a difference in this regard between foreign and domestic geographical words.
[Ibid., 312.

6. The word "Dublin" registered as a trade-mark for soaps, it not appearing that it was either a descriptive or deceptive term in this connection.
[Ibid., 312.

7. That a trade-mark is consumed with the article to which it is applied is no test of its invalidity.
[Jacob Gordon, 517.

8. If the mark is unessential in the structure of the article, and serves merely to distinguish it, the intimacy of incorporation is immaterial.

[Ibid., 517.

9. A trade-mark must have the *independent and sole* quality of distinguishing the goods as being of a particular manufacture, or as belonging to a particular party.

[Ibid., 517.

10. A strip of leaf-tobacco placed as a wrapper around the mouthpiece or end of a cigarette denied registration, the leaf serving more a mechanical than a distinctive purpose.

[Ibid., 517.

11. The rule in relation to "lawful trade-marks rightfully in use on July 8, 1870," as laid down in India Rubber Comb Company, 8 OFFICIAL GAZETTE, 905, and Rubber Clothing Company, 10 OFFICIAL GAZETTE, 111: *Held*, to apply in excluding the words "Egg Macaroni" from registration.

[Dole Brothers, 939.

12. At the time of their first adoption by applicants' assignor, they were properly descriptive of an article known long before, and, moreover, up to July 8, 1870, it does not appear that the words had been used alone, but in connection with other designating matter. They are not a lawful trade-mark rightfully in use at that time.

[Ibid., 939.

(See Labels.)

UTILITY.

(See Invention, 9.)

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COMMISSIONER'S DECISIONS.

ANSON *vs.* WOODBURY *et al.*—*Interlocutory Appeal.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the interference between the application of Alfred Anson, filed September* 13, 1876, *and seventeen patents for* "IMPROVEMENTS IN PLANING-MACHINE."—*Decided April* 16, 1877.]

Matters of public notoriety affecting the right of an applicant to a patent will be taken notice of by the Office in analogy to the practice of the courts in determining the validity of patents.

Affidavits of adverse parties cannot be received to impeach the patentability of an applicant's invention.

SPEAR, *Commissioner:*

An interference was declared between the application of Anson and a patent granted to J. P. Woodbury, April 29, 1873, at the request of the former, which interference was subsequently dissolved by order of the Commissioner for the purpose of introducing other patents showing the invention. Motion was made before the Primary Examiner for the dissolution of this interference on the ground of notorious public use for more than two years prior to the filing of the application of Anson, and it is from his decision that this appeal is taken under rule 59.

The subject-matter declared to be in interference is—

The employment of a yielding presser bar or bars for holding down the lumber upon the solid bed of a planing-machine, and also in the use of said bar or bars in connection with a rotating planing-cylinder—

as claimed by Anson.

This motion is made on the part of Woodbury, and in support thereof he has introduced a number of affidavits tending to show more than two years' public use prior to the filing of Anson's application. There is no provision of law for, nor do the Rules of Practice contemplate, the consideration of *ex parte* affidavits made by adverse parties to affect the rights of applicants before this office.

It was urged on the part of counsel adverse to Anson that the affidavits were not submitted to show any particular instances of use, but rather to show notoriety of use. In either case the effect would be the same, and in admitting and considering such affidavits as evidence the Office would be adjudicating upon the rights of parties lawfully prosecuting their applications on testimony not taken in accordance with any requirement of law, and of witnesses which the parties in interest had no opportunity to cross-examine. I see, therefore, no reason for departing in this case from the uniform practice of the Office.

But, without reference to affidavits respecting this matter, it seems to me that there are other and very strong reasons for refusing a patent to Anson. It has been determined by the Supreme Court of the United States that in patent matters courts may take judicial notice of matters of public notoriety, and this whether mentioned in the pleadings of the party or not. *Brown* vs. *Piper*, (10 OFFICIAL GAZETTE, 417.) If the courts will thus notice such matters in determining the validity of a patent, I can see no good reason why the Office should not pursue the same course with respect to the novelty of an invention when granting a patent.

It is a matter of public notoriety that presser-bars of the description here claimed have been in public use for upward of twenty years. This will appear by an examination of the various publications during that period relating to this and kindred matters. Reference is made in the *Scientific American* for July 5, 1873, vol. 29, p. 7, and November 20, 1875, vol. 33, p. 25, to the invention in controversy as having been for years in public use.

In addition to this evidence of notorious public use, we find three decisions by Mr. Justice Nelson: *Gibson* vs. *Betts et al.*, (1 Blatch., p. 163,) decided June term, 1846; *Gibson* vs. *Harris*, (1 Blatch., 167,) October term, 1846; and *Gibson* vs. *Van Dresar*, (1 Blatch., 535,) June term, 1850.

In the two former cases the machines used are described as embodying the very invention here claimed, which was held to be substantially the same as that patented to William Woodworth, December 27, 1828, and in the last case mentioned the opinion on this point was reiterated. This affords additional evidence of the

notorious public use, and has a very important bearing upon the question as to the novelty of Anson's invention in view of the patent to Woodworth referred to.

The Examiner admits having such knowledge, and, in fact, it has been a topic of much discussion in this Office, and was particularly about the time of the grant of Woodbury's patent in 1873. Further than this, it appears from the preliminary statement filed by Anson in the first interference, a certified copy of which is here presented, that he constructed, under contract with one Shepard, in Norwich, Connecticut, a machine such as is described in his present application, and put the same in operation in the month of July, 1843, and left that place in November following, leaving it in the shop. This, in connection with the other circumstances above related, affords conclusive evidence to my mind of the public use of Anson's invention for a period of more than two years prior to the filing of his application. While this preliminary statement would not be received as evidence against another, it is admissible as a statement or admission under oath against the party making it.

The discussion which was had respecting the grant of the Woodbury patent and its validity, I do not think necessary to notice here. The patent has been granted, and cannot now be affected by any decision of this Office. The case of Anson is clear. A patent, if granted to him, could not be maintained, and cannot, therefore, be granted.

It having been shown that Anson is not entitled to the patent he applies for, there is no necessity for the continuance of an interference proceeding.

I accordingly dissolve the interference, and direct the Examiner to notify Anson that his application stands rejected.

JNO. D. PARK.—*Label.*

[*Appeal from the Examiner of Trade-Marks in the matter of the application of Jno. D. Park for the* "REGISTRATION OF LABELS," *filed December* 28, 1876.—*Decided March* 26, 1877.]

Arbitrary matter properly constituting a trade-mark must be registered as such before it can be included in a label.

His legal right to use it as a trade-mark must be first established by the applicant before it can be registered in a label.

[*Alexander & Mason* for applicant.]

SPEAR, *Commissioner:*

In this case applicant sought to register as a trade-mark the picture of a "swan" in connection with the name of the firm applied to gin. Two references were cited—one consisting of a figure of a swan, with some other arbitrary matter, and the other of the word "swan," both applied to this article. Applicant now files three applications for registration of labels, each embracing this trade-mark.

It was held in the case of W. Simpson & Son (10 OFFICIAL GAZETTE, 333,) that, if applicant wished to include in his label arbitrary and fanciful words and figures constituting a proper trade-mark in addition to matter properly a label, he should first register the fanciful matter as a trade-mark.

The decision proceeded on the ground that the law having established a distinction between trade-marks and labels, and a difference in the fees to be paid for their respective registration, the Office is bound to clearly define that distinction for its own guidance as well as for the information of the public. It would not only lead to great confusion in the practice of the Office, should no distinction be made, but would work a great injustice in such cases as the present one were applicants, who found themselves anticipated in the use of certain trade-marks allowed to register them as labels, thus holding forth to the public, under a certificate of this Office, that they were the owners of a certain species of property which the records of the Office already showed to be the property of others.

The same distinction made in the Simpson case had before been established in the case of Godillot. (6 OFFICIAL GAZETTE, 641).

I think to entitle the applicant to register the figure of a swan or the words "Our London Swan Gin" as part of their labels, thereby substantially alleging their proprietorship of such figure and words as a trade-mark, they should first establish their right to the trade-mark. This they can do by proof adduced in an interference proceeding, or by showing that they were the assignees or licensees of the previous registrants, or by an adjudication of a court of competent jurisdiction establishing their title to the same.

The decision of the Examiner of Trade-Marks is affirmed.

A. D. ELBERS.—*Interlocutory Appeal.*

[*Appeal from the decision of the Principal Examiner in the matter of the application of A. D. Elbers for letters patent for* "IMPROVEMENT IN THE TREATMENT OF MINERAL WOOL."—*Decided May* 5, 1875.]

Where claim was made in the same application to a process of manufacture, the article produced, the mechanism employed, and also to certain additional steps in process treatment, together with the modified article thereby obtained, the application was held to be duplex, and the varied process and article required to be expunged.

Separate independent inventions which are not necessarily connected with the apparatus described, or article naturally produced thereby, but which may be used with other apparatus, and in connection with the article produced in other ways, cannot be included in the same application with them.

[*A. V. Briesen*, for applicant.]

DOOLITTLE, *Acting Commissioner:*

This is an appeal from the decision of the Primary Examiner requiring a division of the application. The subject of the application consists—

In an apparatus and processes for purifying mineral wool during or after its manufacture, and for preparing it for use in the arts.

The apparatus shown and described consists, first, of a trough or conduit by which a stream of slag is conducted into an apartment where it falls over a pipe, through which a jet of steam is blown against the stream of scoria, and by which a vitrified fine fiber is separated from the heavier shot or sand like constituents of the molten mass, and which ascends toward the upper part of the chamber in the form of spray, while the heavier globular matter falls to the floor.

In this case the mineral current is thrown up in an inclined direction toward the opposite side of the chamber by reason of the angle at which the mouth of the steam-pipe is placed, and upon reaching the opposite side of the chamber the spray is again met by another current of air, steam, gas, or liquid, which blows the fiber through an opening into an upper chamber, where the wool settles into separate receptacles prepared for it upon the floor of the latter compartment.

The receptacles in this case consist of pans or vats, which may be hung on shelves or placed upon the floor of the upper compartment, and pans are constructed of the same length and width as it is desired that the sheets of felting made from the wool should possess. When a sufficient quantity of wool has settled into the pans it is pressed, by means of a lid, into a wadded sheet; or the bottom of the pan is made loose, so that by reversing the pan the bottom may serve as a lid. After a sheet is thus compressed the process is repeated.

Applicant continues his description by adding, that in order to give more compactness to, or to strengthen, the sheets of wool thus made he sizes, paints, powders, or mixes the wool while in the pans, or after the sheets have been taken therefrom, with a simple solution of glue, if the sheets are to be made stiff; but if they are to remain pliable a mixture of glue and glycerine, or equivalent substance, is used.

He also proposes to use bituminous, resinous, or gummy substances in a powdered or liquid state, according to the purpose for which the felting is required, which are placed in the same compartment with the pans, melted, transformed into vapors, and condensed upon or mingled with the mineral wool, &c.

Applicant claims not only the mechanical process described, but the specific apparatus, the article produced, and, in addition to these, the process of treating mineral wool with a bituminous, resinous, or gummy substance, and subjecting the same to heat; also, the new article of manufacture produced by the addition of such substances. The question of novelty as to these various matters is not involved.

I think applicant may describe and claim the mechanical process of producing the mineral wool, also the instrumentalities themselves, of which the pan or vat is one, and also the article which is the natural and necessary product of the machine. It was clearly intimated in the case of Junker & Wolf, (11 OFFICIAL GAZETTE, 110,) that where the machine is specifically adapted for producing a particular material, the material might be claimed as well as the machine. In that case it was found that the machine was capable of operating on many other products than the one attempted to be claimed.

But the claims for the article, treated chemically with bituminous, resinous, or gummy substances, and also the claims for the chemical process indicated, should be stricken out. They cover separate independent inventions, which are not necessarily connected with the apparatus described or article naturally produced thereby, but which may be used with other apparatus and in connection with the article produced in other ways.

The matter to be eliminated is embraced in the sixth and eighth claims.

It may also be added that the fifth claim, which is for "depositing said wool directly and without previous handling in the receptacle in which it is to be compressed," is bad in form, being merely for a function or result.

To the above extent the decision of the Examiner is affirmed.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—DISTRICT OF MASSACHUSETTS.

IVORY W. RICHARDSON *vs.* WILLIAM F. MILLER, *et al.*

[*In equity.—Before* SHEPLEY, *J.—Decided April* 13, 1877.]

A copyrighted design for playing-cards is infringed by the manufacture of cards which, though differing in some respects, exhibit a striking similarity in those distinctive features of the main design wherein the cards registered differ from other playing-cards previously used.

It is no answer to the charge of infringement that the whole of the design has not been copied if those features of it have been appropriated which substantially embrace the novelty of the conception and the value in the application of the art of the designer.

In some prints the novelty of the design may consist in the form, outline, or grouping; in others, in the use, combination, arrangement, or harmony of colors; in others, in the combination of some or all of these attributes.

The doctrine is as applicable to prints and engravings as to books, that one cannot take the vital part of another's work, although it may be a small part in quantity, or insert distinct and material portions of one work into the general texture of another, constituting its chief value, without being chargeable with infringement.

The fact that the prints (cards) may be used by persons to violate the laws against gambling, does not of itself deprive them of the protection of the law.

Courts of justice will not lend their aid to protect the authors of immoral works; but before refusing it must be made to appear either that there is something immoral, pernicious, or indecent, in the things *per se*; or that they are incapable of any use except in connection with some illegal or immoral act.

OPINION OF THE COURT.

SHEPLEY, *J.:*

There can not be a reasonable doubt upon the evidence in this record that the assignor to the complainant had perfected and copyrighted his designs before the defendants had made much progress in their work of getting up their playing-cards.

The contention on the part of the defendants is, that their prints are unlike the cards copyrighted by Richardson and do not infringe the copyright. It is true that there are certain marked differences between the prints of the copyrighted court-cards of Richardson and the court-cards of the defendants. There is much less space in the center of the cards. The faces of the kings and queens are turned in a different direction. There is a difference in the spaces between the heads on the court-cards. There are marked differences in color also, so that the cards of the defendants are easily distinguished from those of the complainant.

On the other hand, there is a striking similarity in those distinctive features of the main design wherein the printed cards of the complainant differ from other

playing-cards previously used. In the court or face cards of both complainant and defendants there is a suit-spot in the center of a circular card, with five similar heads arranged at equal distances from each other around the central suit-spot, with five smaller suit-spots near the outer margin of the circle, at eqnal distances apart and intermediate betwixt each pair of heads. These distinctive features of the main design being thus reproduced in the impressions of the defendants' prints, it is no answer to the charge of infringement that the whole of the design has not been copied, if those features of it have been appropriated which substantially embraced the novelty of the conception and the value in the application of the art of the designer. In a print or an engraving it is easy, by a change in the tint of the ink or paper, to make an impression obviously distinguishable from the copyrighted print or engraving, taken from a block or plate the exact counterpart or *fac-simile* of the one from which the copyrighted print or engraving was produced. So, the material parts of an architectural design, or of an artistic group or figures may be copied, while, by the omission or change of some of the accessories in the picture an impression may be made, in many respects very different from the original copyrighted design, yet reproducing and appropriating all that constituted its novelty and value, and all that the designor was anxious to protect. In some prints the novelty of the design may consist in the form, outlines, or grouping; in others, in the use, combination, arrangement, or harmony of colors; in others, in the combination of some or all of these attributes. In determining the question of infringement or violation of copyright, each case must be determined by ascertaining whether the alleged infringing print contains any substantial repetitions of any material parts which are original and distinctive in the print from which the parts are copied. "The entirety of the copyright is the property of the author, and it is no defense that another person has appropriated a part and not the whole of any property." (Story, justice, in *Folsom* vs. *Marsh*, 2 Story, 116.) The doctrine is as applicable to prints and engravings as to books, that one cannot take the vital part of another's work, although it may be a small part in quantity, or insert distinct and material portions of one work into the general texture of another, constituting its chief value, without being chargeable with infringement. (*Bramwell* vs. *Holcomb*, 3 Mylne & Craig, 737-8; *Saunders* vs. *Smith*, Ib., 711; *Wilkins* vs. *Aiken*, 17 Vesey, 422; *Mawman* vs. *Tegg*, 12 Russell, 385.)

It is also claimed that the complainant's copyright is invalid, for the reason that his prints are not the fit subject of a copyright. Courts of justice will not lend their aid to protect the authors of immoral works. But where there is nothing immoral or improper in the prints themselves, the fact that they may be used by persons to violate the laws against gambling, does not, of itself, deprive them of the protection of the law. To do this it must appear either that there is something immoral, pernicious, or indecent in the things *per se*, or that they are incapable of any use except in connection with some illegal or immoral act. It is not contended that the playing-cards of the complainant are subject to either of these imputations.

Decree for injunction and account.

U. S. CIRCUIT COURT—NORTHERN DISTRICT OF OHIO.

JOSEPH C. HENDERSON, *et al. vs.* THE CLEVELAND CO-OPERATIVE STOVE COMPANY.

[*In Chancery.—Before* BROWN, *J., District Judge of the Eastern District of Michigan.*]

STATEMENT OF THE CASE.

This was a suit for the infringement of a patent. The bill set forth that the complainants were the owners of a patent improvement in coal-stoves, covered by reissued patent No. 3,523, bearing date June 29, 1869, extended seven years from May 9, 1874, and charged that defendants had infringed the several claims of said patent, the 5th, 6th, and 7th of which are in the following language:

5. In combination with a hopper suspended over the fire and separate from the fire-pot, a circulating current of air around the lower end of the hopper, substantially in the manner and for the purposes above described.

6. In combination with the above-described hopper, a chamber, or its equivalent, in the lower end of the same and immediately above the fire, for the purpose of preserving the mouth of the hopper and supplying air to the surface of the fire, substantially as above described.

7. The circulation of a current of air aronnd the lower end or mouth of a supply-cylinder, and entering the combustion-chamber, substantially in the manner and for the purpose above described.

The answer denied that Henderson was the original and first inventor of the improvements claimed in the patent; denied the novelty or utility of the invention, as well as its infringement by defendant; avers that the same device had been patented before, and described in a number of foreign publications. The case was heard upon pleadings and proofs.

Reissne Letters Patent No. 3,523, granted J. C. Henderson, June 29, 1869, for Improvement in Coal-Stoves, reviewed and sustained.

The patentee, having stated that the combination of two certain elements or features must be preserved in whatever form of stove his improvements were applied: *Held*, that separate claim to each of the elements could, nevertheless, be maintained.

No inference of the abandonment of an individual element made the subject of a distinct claim can arise from the mere fact that the specification states the invention to consist of its *combination* with another feature.

Where an invention is described as consisting of the combination of two elements, and one of them proves defective, or is not used by the infringer, he will, nevertheless, be restrained from using the remaining one, if the patentee has included it in a separate claim.

The case distingnished from *Vance* vs. *Campbell*, (1 Black, 427,) in that separate claim is made to each element, as well as to their combination, although the entire improvement is said to consist of their combination alone.

Claims to results construed to intend the means by which the results are accomplished. (*Mitchell* vs. *Tilghman*, 19 Wall., 891.

To constitute infringement, there must be, first, similarity of design; second, substantial identity of purpose or result.

Similarity of design being established, an infringement occurs if a result incident to the construction of the device is the same as that of the complainant, even though the primary purpose of the construction is for a different object.

[*Thos. J. Sprague* and *Esek Cowen*, for complainants.
M. D. Leggett, for defendants.]

OPINION.

BROWN, *J.*:

Many of the defenses set up in the answer were abandoned upon the argument; but it was strennously insisted that the 5th, 6th, and 7th claims could not be supported by reason of their inconsistency with the specifications, which describe a combination of a combustion-chamber, and a circulating-air chamber surrounding the hopper, as the substance of complainant's invention. The material portions of the specifications are as follows:

Stoves have heretofore been constructed, in which the fuel has been placed in the hopper or reservoir over the fire and above the grate, for the purpose of supplying to the fire fresh coal as fast as consumption takes place on the grate.

But hitherto two principal difficulties have attended this method of supplying fuel to the fire, and it is the principal object of my improvement to remedy them: first, the fuel within the hopper is liable to ignite, owing to the great heat surrounding the lower part of the same; and, second, the gases generated pass off without being consumed, because not brought in contact with the surface of the burning solid fuel.

The nature of my said invention consists in suspending a hopper above the fire-pot to receive and supply coal constantly to the surface of the fire in a condition to ignite freely, and over the surface of the fire, and around the mouth or lower part of the hopper, to construct an expanded combustion-chamber for receiving the gases eliminated, and detaining them in contact with the surface of the incandescent coals until consumed.

To prevent ignition within the hopper, I cause a current of air to circulate in a chamber formed around the lower part or mouth of the hopper, as shown in Fig. 1 of the annexed drawings. I also design this circulating current of air to protect the mouth of the hopper by keeping it cool, and also to assist in the combustion of the fuel by supplying a blast of hot or warm air to the surface of the incandescent coal and among the unconsumed gases by confining the gases by means of my combustion-chamber to the space at and immediately above the surface of the incandescent coals, and by supplying that surface with a current of air I am enabled to effect very perfect combustion.

In the accompanying drawings I have represented my hopper as round and conical, and as being directly over the center of the grate K, but I do not propose to confine myself to the exact shape or location of the hopper as represented in said drawing, where the shape and character of the stove to which they are applied require deviation in that respect; but in whatever construction of stove my improvement is to be applied the air-chamber *g*, or its equivalent, and the expanded or conical combustion-chamber *l* above the surface of the incandescent coal and around the lower end of the hopper, must be preserved for the purpose already described.

If, in the construction or application of my improvements to heating and other stoves, it should be thought desirable to substitute fire-brick in the place or stead of my air-space *g*, that may be done by filling the lower portion of said air-chamber between the hopper and the cylinder surrounding it with fire-brick, resting upon the flanges of the lower end of the hopper and cylinder, (shown in the drawings,) and the operation of the stove substantially preserved, as herein represented, by admitting air within the expanded chamber *l* above and upon the surface of the fire by openings in suitable places for that purpose. In such construction the fire-brick would perform the office of my chamber *g*, so far as protecting the fuel within the hopper from combustion, and preserving the mouth of the hopper and the admission of air to the surface of the fire from other suitable openings in the chamber, would promote the combustion of the fuel and gases.

In practice, however, the combustion-chamber seems to have proved useless—at least, it is not claimed to be infringed in this case; but defendants were charged with using the circular air-chamber about the hopper, and the question is presented whether—after setting forth in their specifications that "in whatever construction of stove his improvement is to be applied the air-chamber *g*, or its equivalent, and the expanded or conical combustion-chamber *l* above the surface of the incandescent coal and aronnd the lower end of the hopper, must be preserved"—complainants are at liberty to claim the circular current of air about the mouth of the hopper as a feature separate and distinct from the combustion-chamber. I find great difficulty in disposing of this question, while in the case of *Vance* vs. *Campbell* (1 Black., 427) it is said that, if a patentee declares upon a combination of elements which he asserts constitutes the novelty of his invention, he cannot, in his proofs, abandon a part of such combination and maintain his claim to the rest, nor prove any part of his combination immaterial and useless, it does not cover the case of one who in his specification sets forth a combination as the thing patented, declares that the use of his improvement requires that both elements of the combination shall be preserved, and subsequently claims both these elements separately. Though the specifications describe a combination, there is no doubt that the patentee would be protected in claiming each of the elements of the combination separately, if they were in reality new, had he not added that to make use of his improvement both elements must be preserved. His claims, however, forbid the idea that he intended to abandon the several elements and seek protection only for his combination. A person reading the patent could scarcely be misled as to the intent of the patentee in this regard, constrained, as the court is, to give this patent such a construction as will uphold it if possible, and bearing in mind that specifications and claims are frequently drawn by persons unaccustomed to the use of accurate legal phraseology. I think the court ought to protect the patentee to the full extent of his actual invention. It is true in his specifications he describes his entire improvement as consisting of two elements, both of which must be preserved whatever the construction of the stove to which the improvement is applied; but, in the light of subsequent claims, I think the court is not bound to infer that he intended by his specifications to abandon any portion of that which was really new.

Coal-stoves fed by a hopper, or base-burning stoves as they are commonly known, have been used for anthracite coal many years prior to complainant's invention; but a difficulty had attended this method of supplying soft coal, owing to its liability to ignite within the hopper. To obviate this, complainant constructed his hopper with a double circular wall, introducing air from above between these walls, which, naturally following the draft, descended toward the fire, keeping the hopper itself comparatively cool, and at the same time feeding the fire with fresh air, descending directly upon its surface. The three claims in question were intended to secure protection for this device, and, properly considered, are substantially identical. The fifth is for a combination of the hopper with a circulating current of air around the lower end of the hopper, substantially in the manner and for the purposes above described. The circulating current of air, being a result, cannot be patented; but as it is said to be produced substantially *in the manner described* in the specifications, the chamber *g*, with the inlet *i*, set forth in the specifications, by which this result is produced, must be regarded as the thing patented. *Seymour* vs. *Osborne*, (11 Wall., 576;) *Fuller* vs. *Zeutzer*, (11 OFFICIAL GAZETTE, 551;) *Purham* vs. *The American Sewing Machine Company*, (4 Fish., 468;) *Hitchcock* vs. *Tremaine*, (4 Fish., 508;) *Curtis on Patents, sec.* 242—A.

The seventh is, in its terms, for a result, but a result produced in the manner and for the purposes above described, and, therefore, for the means by which this result is produced, for this claim must also be interpreted by the rule laid down in *Seymour* vs. *Osborne*. In the case of *Mitchell* vs. *Tilghman*, (19 Wall., 891,) this principle is still further expanded, and the rule laid down that in all cases where the claim is for the result it must be construed to mean the means by which the result is produced, whether there is any reference to the specifications in the claim or not. Therefore, the claim must be construed as being one for a combination of the supply cylinder or magazine and the means for producing a circulation of the air around the lower end of the supply cylinder or magazine, which is the

exterior cylinder with the inlet *i* in the complainant's drawing of the patent.

Thus it will be seen that these claims are for the same device in effect, although clothed in different language, and the device is a combination of the supply cylinder or magazine with the air-chamber and the register or inlet *i*.

I do not find complainant's invention to have been anticipated by any of the various devices for which priority was claimed. The English patent to Robertson and the French patent to Ten Brinck were chiefly relied upon to establish such anticipation, while, resembling this so far as introducing a current of air to the surface of the burning coal constitutes similarity, they are lacking in an essential feature of the combination, viz., the hopper suspended over the fire and separate from the fire-pot. I do not overlook the fact in this connection that in his specifications Henderson declares he does not propose to confine himself to the precise shape or location of the hopper, as represented in his drawings, where the shape and character of the stove to which they are applied requires deviation in this respect; but think these words must be construed as limited to a hopper separate from the fire-pot, suspended over it, and surrounded by an air-chamber, though it may not be conical or exactly round, or over the center of the fire. The scuttle or hopper does not project into the furnace, nor does the circulating current of air surround it. These devices scarcely contain suggestion to an ordinary mechanic of complainant's invention. The other devices alleged to be anticipations are still further removed from the Henderson patent, and consist merely of different designs for introducing fresh air to the surface of the fire. Nowhere do the defendants produce, in their list of older patents, the combinations named. Nowhere does Henderson broadly claim the use of air; and where they have shown it applied, in no case does it enter the fire through the walls of a surrounding chamber, and where it protects the mouth of the hopper thus exposed from the additional heat produced by the ignition of the gases excepting from the fuel. I do not regard the suggestion in the specifications that fire-brick, resting upon the flanges at the bottom of the hopper, may be substituted for the air-chamber *g*, the air being admitted into the combustion-chamber upon the surface of the fire by openings in suitable places, as impairing the validity of the three claims in question; while the various devices for admitting air to the surface of the fire might have been anticipations of the 8th and 9th claims, it does not follow that they would anticipate the 7th.

The question of infringement was argued at great length and with much elaboration of detail. To constitute an infringement there must be (1) similarity of design; (2) substantial identity of purpose and result.

It is clear that defendants' stove, known as the Baldwin patent, fulfils the first condition, and in design is an infringement of the three claims in question. It is true the air-chamber *g* does not encircle the whole length of the hopper, but it incloses the lower end, so as to be capable of admitting a current of air to the surface of the fire, and of keeping the mouth of the hopper cool, if the general construction of the stove will admit of it. It differs from the complainant's device chiefly in having the upper part of the magazine or hopper perforated with holes through which air passes into or out of the hopper. These holes play an important part in determining the question of infringement.

Whether this device effects the same result is open to very considerable doubt. That the encircling air-chamber was originally intended for the same purpose, and was supposed to accomplish, practically, the same result, is evident from the language of the orginal patent issued May 8, 1875. The material portions of the specifications are as follows:

f is a diminished orifice through which the gases that may collect in the chamber F are discharged into the combustion-chamber B. The operation of the device is as follows: Fuel contained in the fuel-reservoir E will, when the stove is well heated, emit gases, which said gases will escape into the room and become obnoxious, unless means are provided for their escape or combustion. This is effected by permitting them to escape into the chamber E; thence carried by the draft downward through the diminutive orifice *f*, where they are consumed in the combustion-chamber; and to assist this combustion, and at the same time furnish more oxygen to the flame in the combustion-chamber, a register, H, is provided, whereby external air can be admitted when it is desired to diminish the heat of the stove, and for that purpose quell the combustion in the combustion-chamber B, the damper *i* in the flue I is opened, and the gas in the chamber F permitted to escape directly in the smoke-flue D, instead of permitting them to descend into the combustion-chamber B.

It is claimed, however, by the defendant, that Baldwin, the patentee, was mistaken in his theory, and described erroneously the real operation of his device. This mistake he corrected in three subsequent reissues of his patent, in which he describes its operation as follows:

The operation of the device is as follows: Fuel contained in the fuel-reservoir E will, when the stove is well heated, emit gases in the process of coking the fuel in the magazine. These gases will escape into the room, and not only become obnoxious, but will be wasted until means are provided for their escape or consumption. This desideratum is accomplished by the provisions of the perforations *e*, made through the magazine, whereby the draft, as shown by the arrows in the drawing, is directed from the air-space F into the magazine E, whence it passes down through the fuel, assisting in coking the same before it reaches the fire-pot A. The opening or orifice *f*, at the bottom of the air-chamber F, is not intended at all to facilitate the draft, the only practical function of the opening *f* being to permit the escape of dirt, or the like, that might collect in the chamber F.

The substance of defendant's claim is that the operation of the two stoves is radically different; that the effect of the perforations in their hopper is to create a draft of air from the outer chamber F into the hopper, and down through the coal to the combustion-chamber, and that this is done for the purpose of coking the coal in the hopper and delivering it at the mouth of the hopper free from the gases, the presence of which, unconsumed, in the combustion-chamber, has hitherto proved such an obstacle to the use of soft coal in base-burning stoves. It is further claimed in this connection that the double wall around the mouth of the hopper serves neither to keep the mouth of the hopper cool nor to supply air to the surface of the fire, but merely to permit the escape of the ashes and of particles of coal falling from the perforations when fresh coal is thrown into the hopper.

I have no doubt this theory is true to a certain extent, and that the operation of the two stoves is considerably different. This was shown to my satisfaction by the exhibition of two stoves, one with a solid and the other with a perforated magazine. Kindlings were placed in the two magazines, both of which had been emptied of their contents, and a fire applied. When the covers were placed on the fire in the solid hopper it was at once extinguished, while that in the perforated hopper continued to burn with a downward draft, created by a flow of air through the perforations. Indeed, so far as empty hoppers are concerned, this was practically admitted by complainants' counsel to be the fact. It was claimed, however, that when the hopper was full of coal the air would naturally seek an unobstructed descent through the air-chamber surrounding the hopper, rather than attempt to force its way through the interstices of the coal in the hopper. Indeed, it was insisted that as the coal approached the fire it became viscid, and would operate as an almost total obstruction to the passage of air from above. One important fact, however, seems to be well established, in the operation of defendant's stove, viz: that the coal becomes partly, at least, coked and deprived of its gases before it reaches the mouth of the hopper, and that the hottest part of the stove is in that portion of the hopper just below the perforations, and where the double wall commences. To sustain the fierce combustion at this point, the coal must derive its oxygen from above, since the air ascending from below, instead of finding its way up through the coal in the hopper would naturally seek the surface of the fire, and be carried off into the chimney of the draft.

The theory of defendant, however, presupposes that *all* of the air entering his register H from above passes into the perforations in the hopper and down through the hopper, and that the space between the double walls, around the mouth of the hopper, is substantially a dead-air chamber, and useless either for preserving the mouth of the hopper or supplying air to the surface of the fire, and solely for the purpose of permitting the escape of particles of dust and ashes, falling out of the perforations. I cannot understand, however, why the air which takes a downward draft so freely through the mass of coal in the hopper would not take the same draft through the unobstructed passage around it. In one experiment I witnessed with defendant's stove a lighted swab, saturated with alcohol, was applied inside the chamber F and near the bottom of the perforations. The flame descended and came out of certain large holes left at the top of the outer wall, and although I could not see the peculiar flame coming out of the opening *f* at the bottom of the double wall, I was satisfied that it must have taken that direction. I also examined with as much care as a red-hot coal-stove can be examined, whether in the ordinary operation of the stove, air appeared to descend between the rings through the opening *f* into the combustion-chamber of defendant's stove. The mouth of the hopper was surrounded with a thin sheet of descending flame, apparently not coming from the opening *f*, but inside of it, and directly below the inner ring of the hopper. If fresh air came down through the circular air-chamber this would be the effect produced, since the air itself would not burn, but would communicate its oxygen to the gases coming out of the mouth of the hopper, which would ignite. This was the general result of the experiments conducted with stoves having the circular air-chamber about the mouth of the hopper. Defendant's stove, constructed without the circular air-chamber, and with a hopper having a single solid bottom, showed the same result, though a difference was detected in the fact of the flame coming out of the mouth of the hopper in jets of spurts, instead of surrounding it with a thin sheet of flame, as was observed about hoppers with the double bottom. These spurts of flame were still more plainly observed in a stove constructed with a hopper corrugated at the bottom, showing that the air passed more readily down through the corrugations. These experiments and a careful criticism of the arguments, and the testimony in this case, have satisfied me—

1. That there is a downward draft through the hopper in defendant's stove by which the coal, to some extent, is coked and the gases expelled before the coal reaches the mouth of the hopper.

2. That the air also descends through the unobstructed air-chamber surrounding the mouth of the hopper, supplying a current of fresh air to the surface of the fire.

Now, while the theory of defendant's stove does not require that the lower part of the hopper should be kept cool, this current of air must tend to have that effect, and also to supply fresh air to the surface of the coal in the fire-pot. As these are the results accomplished by complainants' invention, I feel constrained to hold that complainants have made out a case of infringement, notwithstanding the difference in the practical operation of the two stoves.

But in view of the fact that defendant's stove, constructed without the circular air-chamber, and with a single solid wall, appears to operate as perfectly as those constructed with complainant's device, I am inclined to the opinion that the use of this device has been of little or no value to the defendant. These questions, however, with regard to damages will be reserved for the further opinion of the court.

The usual decree will be entered for an injunction and referring it to a commissioner to assess and report the damages.

APPLICATION FOR EXTENSION.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., April 24, 1877.

On the petition of Erastus T. Bussell, of Indianapolis, Indiana, praying for the extension of a patent granted to him on the 29th day of November, 1853, numbered 10,220, extended for seven years from the 29th day of November, 1867; reissued on the 13th day of December, 1870, and numbered 4,202, for an improvement in combined rubber and spiral steel spring. This application having been authorized by act of Congress approved March 3, 1877:

It is ordered that the testimony in the case be closed on the 10th day of July next; that the time for filing arguments and the Examiner's report be limited to the 20th day of July next; and that said petition be heard on the 25th day of July next.

Any person may oppose this extension.

ELLIS SPEAR,
Commissioner of Patents.

[tf]

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date July 3, 1877.]

10,079.—Pendent Gas-Fixtures.—ROBERT C. BAKER, Philadelphia, Pa. Application filed June 23, 1877. Term of patent 3½ years.

10,080 and 10,081.—Gasaliers.—ROBERT C. BAKER, Philadelphia, Pa. Applications filed June 23, 1877. Term of patents 3½ years.

10,082.—Cassimeres.—FREDERICK S. BOSWORTH, Providence, R. I., assignor to the WETBOSET MILLS, same place. Application filed June 23, 1877. Term of patent 7 years.

10,083.—Embroidery-Pattern.—EMIL CRISAND, New Haven, Conn., assignor to HENRY ST. JOHN, same place. Application filed June 19, 1877. Term of patent 3½ years.

10,084.—Heating-Stoves.—JAMES A. LAWSON, Troy, N. Y., assignor to FULLER, WARREN & Co., same place. Application filed June 18, 1877. Term of patent 7 years.

10,085.—Liquor-Flasks.—ERNEST R. LILIENTHAL, San Francisco, Cal. Application filed June 12, 1877. Term of patent 7 years.

10,086.—Match-Safes.—WILLIAM H. MATTHAI, Baltimore, Md. Application filed June 16, 1877. Term of patent 3½ years.

10,087.—Cassimeres.—WILLIAM B. WEEDEN, Providence, R. I., assignor to the WEYBOSSET MILLS, same place. Application filed June 23, 1877. Term of patent 7 years.

10,088.—Monument.—ALONZO M. BUCHANAN, Moberly, Mo. Application filed June 4, 1877. Term of patent 7 years.

10,089.—Cassimeres.—OSCAR F. CHASE, Thompson, Conn. Application filed June 22, 1877. Term of patent 3½ years.

10,090.—Oil-Stoves.—WILLIAM HAILES and JAMES GRAY, Albany, N. Y. Application filed April 27, 1877. Term of patent 3½ years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date July 3, 1877.]

4,795.—Lawn-Mowers.—CARR & HOBSON, New York, N. Y., and Clintonville, Conn. Application filed June 8, 1877.
"The word-symbol 'PRESIDENT.'"

4,796.—Shirt Fronts or Bosoms.—RICHARD O. DAVIES, Trenton, N. J. Application filed June 7, 1877.
"The pictorial representation of an anchor and its cable."

4,797.—Canned Fruits and Vegetables.—ELSTUN, ORANGE & Co., Cincinnati, Ohio. Application filed June 5, 1877.
"The figure of the duck on a wall."

4,798.—Medicinal Compounds.—O. ELLISON, Ironton, Ohio. Application filed June 2, 1877.
"The figures of the mule and lion, and the words and figures 'Ecclesiastes, chap. 9, vers. 11.'"

4,799.—Chewing and Smoking Tobacco, Cigars, and Cigarettes.—DAVID HIRSCH & Co., New York, N. Y. Application filed June 15, 1877.
"The word-symbol 'NONE SUCH.'"

4,800.—Chewing and Smoking Tobacco, Cigars, and Cigarettes.—DAVID HIRSCH & Co, New York, N. Y. Application filed June 15, 1877.
"The word-symbol 'SAMSON.'"

4,801.—Chewing and Smoking Tobacco, Cigars, and Cigarettes.—DAVID HIRSCH & Co., New York, N. Y. Application filed June 15, 1877.
"The word-symbol 'JUDGE.'"

4,802.—Cigars and Cigarettes.—DAVID HIRSCH & Co., New York, N. Y. Application filed June 15, 1877.
"The word-symbol 'NEPTUNE.'"

4,803.—Chewing and Smoking Tobacco, Cigars, and Cigarettes.—DAVID HIRSCH & Co., New York, N. Y. Application filed June 15, 1877.
"The word-symbol 'FEARNAUGHT.'"

4,804.—Chewing and Smoking Tobacco, Cigars, and Cigarettes.—DAVID HIRSCH & Co., New York, N. Y. Application filed June 15, 1877.
"The word-symbol 'PLUCK.'"

4,805.—Spirituous Liquors and Wines.—DAVID HIRSCH, Memphis, Tenn. Application filed June 14, 1877.
"The word-symbol 'FALSTAFF.'"

4,806.—Cigars and Cigarettes.—HOLZMANN & DEUTSCHBERGER, New York, N. Y. Application filed April 11, 1877.
"The representation of a series of triangular figures arranged side by side, as in the points of a backgammon game."

4,807.—Prepared Paints.—HEATH & MILLIGAN, Chicago, Ill. Application filed June 12, 1877.
"The word-symbol 'MAGNETIC.'"

4,808.—Root-Beer.—H. C. LITCHFIELD & Co., Brooklyn, N. Y. Application filed June 11, 1877.
"The letters 'L. & Co.,' inclosed within a diamond-shaped figure, as described."

4,809.—Playing-Cards.—VICTOR E. MAUGER, New York, N. Y. Application filed March 1, 1577.
"The word-symbol 'QUADRANTALS.'"

4,810.—Medical Preparations.—VICTOR E. MAUGER, New York, N. Y. Application filed March 14, 1877.
"The representation of a star, containing a monogram composed of the letters 'A. S. C.'"

4,811.—Cigars and Cigarettes.—M. W. MENDEL & BROTHER, New York, N. Y. Application filed June 8, 1877.
"The word-symbol 'ALASKA.'"

4,812.—Cigars and Cigarettes.—M. W. MENDEL & BROTHER, New York, N. Y. Application filed June 8, 1877.
"The word-symbol 'DICTATOR.'"

4,813.—Cigars, Cigarettes, Smoking and Chewing Tobacco, and Snuff.—MCCOY & Co., New York, N. Y. Application filed April 20, 1877.
"The word-symbol 'DIEGO.'"

4,814.—Watches.—J. EUGENE ROBERT, Hoboken, N. J. Application filed June 4, 1877.
"The word-symbol 'AGASSIZ.'"

4,815.—Cigars and Cigarettes.—JOSEPH SCHMITT, New York, N. Y. Application filed June 11, 1877.
"The word-symbol 'COLIBRI.'"

4,816.—Champagne Wine.—WERLÉ & Co., Reims, France. Application filed April 21, 1877.
"The title or designation 'VEUVE CLICQUOT PONSARDIN.'"

4,817.—Champagne Wines.—WERLÉ & Co., Reims, France. Application filed April 21, 1877.
"The title or designation 'HENRY G. SCHMIDT & Co., NEW YORK, SOLE IMPORTERS FOR THE UNITED STATES AND CANADA,' in combination with the title or designation 'VEUVE CLICQUOT PONSARDIN.'"

4,818.—Soap.—THEODORE CURRAN, Newark, N. J. Application filed April 4, 1877.
"The anchor and the letters 'S' and 'T.'"

4,819.—Medical Compound.—THEODORE CURRAN, Newark, N. J. Application filed April 9, 1877.
"A circular device bearing within concentric circles the words 'Tanner's German Ointment, Jordan, N. Y.,' and the figures '1849,' and within the inner circle a representation of the head and bust of a man, the whole printed, in red ink, on a white ground; and, second, of a representation of an American eagle holding in its beak a ribbon with the motto 'E pluribus unum,' and in its talons a bundle of arrows, &c., and also of the fac-simile of the signature 'John F. Tanner.'"

4,820.—Medical Preparation.—JOHN LINDEN, Cleveland, Ohio. Application filed January 31, 1877.
"The figure of the hand holding the surgical instrument known as 'John Linden's Improved Resuscitator,' and the representation of the vial, the same being used in connection with the words 'J. Linden's Improved Oleum Baunscheidtii,' which are inscribed on said vial."

4,821.—Bustles, Paniers, or Train-Supporters.—LEWIS SCHIELE & Co., New York, N. Y. Application filed June 6, 1877.
"The word-symbol 'PRINCESS.'"

4,822.—Cigars and Cigarettes.—MOORE, JENKINS & Co., New York, N. Y. Application filed June 11, 1877.
"The word-symbol 'TELEPHONE.'"

4,823.—Watches.—L. & A. MATHEY, New York, N. Y. Application filed April 20, 1877.
"The name 'H. L. MATILE,' and a shield or escutcheon, with the leaflet ornaments above the shield."

4,824.—Agricultural Implements.—MANNY & Co., St. Louis, Mo. Application filed February 27, 1877.
"The word-symbol 'GOLD BASIS,' with a circle interposed between them, as shown."

4,825.—Linen Machine-Thread.—ROSS, TURNER & Co., Boston, Mass. Application filed November 17, 1876.
"The diamond-shaped symbol on a green ground, used in connection with the words 'Green Label Thread.'"

4,826.—Lamp-Shade Holders.—RICHARD DOUGLAS & Co., New York, N. Y. Application filed February 9, 1877.
"The word-symbol 'ILLUMINATOR.'"

4,827.—Plug-Tobacco.—THE MERCHANTS' TOBACCO COMPANY, Boston, Mass. Application filed June 12, 1877.
"A pictorial illustration of a tiger."

4,828.—Plug-Tobacco.—THE MERCHANTS' TOBACCO COMPANY, Boston, Mass. Application filed June 12, 1877.
"A pictorial illustration of a dog."

4,829.—Plug-Tobacco.—THE MERCHANTS' TOBACCO COMPANY, Boston, Mass. Application filed June 12, 1877.
"A pictorial illustration of a lion."

4,830.—Roasted Cóffee.—WEIKEL & SMITH SPICE COMPANY, Philadelphia, Pa. Application filed June 8, 1877.
"A symbol composed of the Austrian arms as a center, the same being supported on each side by the figure of a cupid with an uplifted arm upholding a crown above the shield, as shown in the accompanying fac-simile, in connection with which is used the word 'AUSTRIAN.'"

4,831.—Cigar-Boxes.—WILLIAM WICKE & Co., New York, N. Y. Application filed June 14, 1877.
"The word-symbol 'LADY WASHINGTON.'"

4,832.—Salve.—GEORGE DALES, Bloomville, N. Y. Application filed June 23, 1875.
"The word-symbol 'BRANDIN.'"

4,833.—Writing-Paper.—F. H. DUNKINSON & Co., New York, N. Y. Application filed May 31, 1877.
"The letters 'F. H. D. & Co.,' and the word-symbol 'IMPERIAL.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date July 3, 1877.]

1,102.—Title: **"Hermetical Lunch Box."**—BUTTON BROTHERS & Co., New York, N. Y. Application filed June 23, 1877.

1,103.—Title: **"French All Wool Drap D'Ete Cachemire."**—BENJAMIN F. DEWEES, Philadelphia, Pa. Application filed June 25, 1877.

1,104.—Title: **"Extra Fine, Four Ply, 72 Inch Reel Carpet Warp."**—THOMAS EMORY, Syracuse, N. Y. Application filed June 23, 1877.

1,105.—Title: **"Compound Glycerite of Carbolic Acid and Camphor."**—R. B. FERGUSON, Washington, D. C. Application filed June 22, 1877.

1,106.—Title: **"Larabee's Celebrated Wheatmeal Biscuit."**—E. J. LARRABEE & Co., Albany, N. Y. Application filed June 22, 1877.

1,107.—Title: **"Prof. Shaw's Chiropedin or Perfumed Foot Powder."**—LITTLE & SHAW, New York, N. Y. Application filed June 20, 1877.

1,108.—Title: **"Heath & Milligan Perfect Green."**—HEATH & MILLIGAN, Chicago, Ill. Application filed June 12, 1877.

SALE OF SPECIFICATIONS AND DRAWINGS.

Photolithographic copies of the drawings of all patents issued since November 26, 1867, have been produced, and will be sold to the public at 25 cents per patent, or, where twenty or more copies are ordered at one time, at 10 cents per patent.

Coupon-books, to the amount of $2 or more, can be purchased from the Chief Clerk of the Patent Office; the coupons, for 10 cents each, may be filled out at any time, and, on presentation, will entitle the holder to a photolithographic copy of *any* drawing which has been reproduced.

The specifications of all patents issued since July 1, 1871, are in print, and will be furnished with the drawing without extra charge. In some cases the specifications of patents issued prior to July 1, 1871, are in print, and where such is the case the Office will furnish them with the drawings, but the Office will not undertake to reprint copies of patents which have been exhausted.

In addition to the above, the Office has reproduced, and offers for sale at the price mentioned above, all drawings in the following classes, embracing patents granted from 1790 to date. The classes are those of the Examiners.

Apparel.	Paper manufactures.
Boats.	Printing.
Bookbinding.	Projectiles.
Bridges.	Railways, (Cars and Interior Fittings.)
Carding.	Railways, Exterior Mountings and Fittings.
Carriages and Wagons.	Sewing-machines.
Cloth.	Ships, construction.
Cordage.	Ships, propulsion.
Crinoline and Corsets.	Signals.
Driers and Kilns.	Silk.
Electricity.	Spinning.
Felting and Hats.	Stationery.
Fire-arms.	Stoves and Furnaces.
Harvesters.	Thrashing.
Knitting and Netting.	Umbrellas and Fans.
Lamps and Gas-fitting.	Weaving.
Mills.	
Ordnance.	
Paper-making.	

And the subdivisions of—

Bench-planes.	Buttons and Machines.
Bale-ties.	Combs, &c.

About sixty other classes are in progress, and it is hoped that all the drawings remaining, some forty thousand in number, may be completed during the fiscal year.

The total number of patents of which drawings are complete and offered for sale as above will approximate one hundred and fifty thousand.

INDEX OF INVENTIONS PATENTED JULY 3, 1877.

	Class No.	No. of Patent.
Adhesive substance, Long and Drake	98	192,773
Advertising seat and chair, Lacomme, Marville, and Giren	146	192,770
Animal stocks, Bowman and Irving	144	192,672
Animal trap, F. Cowan	143	192,569
Aquarium, Palen and Sexton	54	192,595
Axle box covers, fastening device for, G. S. Winslow	122	192,667
Bag-holder, M. P. Moule	57	192,652
Bale tie, F. M. Blake	7	192,730
Baling cotton, &c., hand power press for, P. C. Ingersoll	7	192,762
Bands, machine for making rectangular, M. Blakey	81	192,615
Barrel head, M. L. Thompson	40	192,664
Bath apparatus, shower, H. J. Bailey	8	192,728
Bed bottom, S. H. Reeves	62	192,790
Bed, cabinet, Green and Williamson	62	192,621
Bedstead, wardrobe, C. Pabst	62	192,711
Bee hive, D. Thompson	9	192,605
Binder, temporary, W. H. Russell	15	192,791
Blowers in forges, mechanical movement for operating, C. Hammelmann	67	192,623
Bobbin holder and bobbin for slubbing and fly frames, Nealon and Higgins	142	192,655
Boiler and superheater, steam, S. N. Carvalho	148	192,678
Boiler cleaner, T. Craney	148	192,741
Boiler flue scraper, G. H. Noyes	148	192,786
Boiler, steam, R. C. Ducheane	148	192,685
Book, shawl, or parcel handle, G. Havell, (reissue)	162	7,778
Boot and shoe, J. Miner	16	192,780
Boot and shoe burnishing machine, J. W. Dodge	16	192,573
Boot and shoe counters, machine for making, J. Kimball	16	192,582
Boot and shoe sole edges, machine for trimming, A. Bolling	16	192,616
Boot and shoe sole trimming machine, B. F. Leon	16	192,585
Box for collars and other articles, with top for games, Green and Tifft	38	192,756
Brick kiln, W. T. Christy	20	192,634
Brick machine, T. James	20	192,763
Brush machine, J. L. Whiting	22	192,802
Buggy top, J. H. and E. M. Keller	31	192,650
Bung extractor, W. J. Wademan	40	192,721
Burglar alarm, J. K. Johnston	24	192,698
Button, S. W. Young	23	192,613
Canal boats, propelling, N. M. Tobey	137	192,606
Candle for miners' use, P. R. Gottstein, (reissue)	90	7,777

	Class No.	No. of Patent.
Canning fruits, vegetables, &c., process and apparatus for, W. A. Wicks	58	192,803
Capstan and propeller attachment for vessels, Churchill and Champlain	137	192,738
Car brake, J. Tarr	122	192,719
Car bumper, S. M. Cummings	122	192,570
Car coupling, G. M. McMahan	122	192,776
Car coupling, C. D. Norman	122	192,710
Car fare box, street, L. Wood	42	192,805
Car mover, D. Pierce	122	192,713
Car spring, spiral, J. Ludlum	122	192,703
Car, street, A. A. Young	121	192,808
Cars, change gate for, J. B. Slawson, (reissue)	42	7,780
Cars, driving gear for street, G. E. Noyes	122	192,785
Carpet stretcher, L. W. Rivers	62	192,599
Carriage curtain fastener, H. P. Elston	31	192,748
Cartridge, D. E. Williams, (reissue)	32	7,783
Cartridge, metallic, J. H. Bullard	32	192,676
Chain coupling, J. C. Dillon	72	192,639
Chair, adjustable rocking, J. R. Bramby	62	192 674
Churn, rotary, L. Budahl	45	192,675
Coal breakers, extractor for the teeth of, S. Broadbent	3	192,734
Coal breakers, teeth for, S. Broadbent	3	192 733
Coal elevator, J. A. Woodward	79	192,610
Cock and valve, J. Powell	167	192,658
Coffee pot, R. L. Nelson	136	192,593
Coloring fruits and vegetables, Lecourt and Guillemare	58	192,771
Core box, Aikin and Drummond	33	192,556
Core box, sand, J. Powell	33	192,657
Corn planter, Christrup and Schneider	133	192,737
Corn planter, M. Gregg	133	192,757
Corn planter, F. A. and J. W. Hartnagel	133	192,694
Corn planter, C. Woods	133	192,612
Corset, Bale and Goldberg	80	192,729
Corset, L. C. Warner, (reissue)	80	7,782
Crucibles and pots, apparatus for molding, R. Taylor	115	192,601
Cut off and filter, combined, J. Hoover	167	192 696
Dental plugger, R. B. Donaldson	46	192,746
Dentist's chair, E. Burritt	46	192,809
Desk, school, Durant and Kane	62	192,641
Digger and weeder, M. Johnson	114	192,697
Dish rack, Bowden and Stewart	88	192,560
Door spring, L. P. Sherman	24	192,602
Drawing frames, stop motion for, J. B. Clarke	142	192,682
Electrode for electrical bath tubs, G. M. Schweig	50	192,601
Engines, applying power in steam, air, or gas, W. R. Comings	2	192,637
Fabrics, device for turning or folding edges of, M. Jonasson	38	192,766
Fan attachment for rocking chairs, &c., C. Krauss	62	192 700
Faucet, vent, A. Lühra	167	192 568
Feathers, treating, C. W. Nichols	62	192,594
Fence, A. A. McAllister	52	192,709
Fence barb, W. Burrows	52	192,736
Fence, flood, W. H. Johnson	52	192,765
Fence, iron, M. G. Freeman, (reissue)	52	7,775
Fence post, metallic, S. Miller	52	192,779
Fences, iron post for wire, Morgan and Landers	52	192,592
Filter, J. Foley	167	192,750
Fire arm, magazine, G. F. Evans	18	192,749
Fire escape, W. Guthrie	30	192 758
Fire escape, S. H. Harrington	30	192,694
Fire escape, Michie and Williams	30	192,778
Fire irons, stand for, B. H. Connor	62	192,618
Fire places, water back for, G. W. Moore	147	192,782
Fish scrap, process and apparatus for drying, L. R. Cornell	48	192,740
Fluting machines, clamping device for, H. Albrecht	38	192,632
Fly trap, J. T. Guthrie	143	192,578
Forks, blank for table, L. S. White	44	192 801
Gate, L. Dickerson	52	192,745
Gearing, safety, E. Parker	67	192 656
Glass, ornamenting, C. J. Cartlisser	68	192,679
Glassware, covered, C. L. Knecht	88	192,769
Globe, educational, E. G. Durant	146	192,640
Grain, band for bundles of, F. Peteler	74	192,789
Grain binder, Gammon, Dixon, and Steward	74	192,575
Grain binder, J. F. Steward	74	192,603
Grain elevator, J. A. Woodward	79	192,611
Grate bar, A. O. Denio	149	192,744
Grate bar, hot blast, H. W. Adams	149	192,630
Grindstone, artificial, A. O. Morgan	70	192,781
Gun, spring, J. L. Follett	55	192,751
Harrow, A. J. Upham	73	192,607
Harrow and cultivator, corn, J. L. Curry	73	192,742
Harvesters, rocking device for, E. Cheney	74	192,681
Hats, attaching sweat bands to, N. A. Baldwin, (reissue)	76	7,771
Hay rack, C. Williams	144	192,804
Heating apparatus, W. Bliss	154	192,559
Hoe, M. Johnson	141	192,764
Hog cholera compound, R. E. and F. M. Madison	35	192 590
Hog elevator, G. Wheeler	79	192,723
Horse power, T. E. Adams	159	192,631
Horseshoe nail blanks, machine for feeding, Wheeler and Coy	60	192,665
Horseshoe nails, machine for making, Wheeler, Loring, and Coy	60	192,666
Ice cream freezer, O. Dexter, Jr	58	192,684
Ice cutter, M. H. Winebrener	58	192,609
Inks, plate oil or varnish for printing, C. Collins	117	192,739
Inking perforated writing, A. E. Hix	117	192,624
Iron, machine for winding, A. J. Moxham	136	192,653
Iron ware, manufacture of enameled, F. G. and W. F. Niedringhaus, (reissue)	85	7,779
Ironing board, T. Ellison	91	192 687
Ironing table, H. Littlefield	91	192,772
Jar holder, T. and H. Hale	88	192,760
Knapsack fire engine, J. W. Douglas, (reissue)	118	7,774
Knife, army or hunting, F. Schwatka	44	192,660
Knife, corn, W. Millapaugh	44	192,704
Knob, hollow metal, Lewis and Lampson	93	192,586
Knobs to metal sockets, attaching glass, J. W. Haines	93	192,759
Lamp, safety derrick, J. Dillen, (reissue)	90	7,773
Lamp, support, R. H. Ryan	90	192,600
Lamps, safety attachment for, L. W. P. Gray	90	192,647
Lard, self raising, T. H. Rosser	26	192,716
Lifting jack, J. P. McGrew	79	192,651
Lightning rod, C. H. Smith	50	192 628
Lightning rod coupling, C. H. Smith	50	192,718
Lock for doors, E. Wike	93	192 724
Lock, hasp, L. H. Sholder	93	192,661
Lock, seal, F. J. Kimball	93	192,767
Lock, seal, F. J. Kimball	93	192,768
Locomotive, J. E. Wootten	94	192,725
Loom, L. J. Knowles, (reissue)	95	7,784
Loom, L. J. Knowles, (reissue)	95	7,785
Loom for weaving looped or pile fabrics, J. Rothwell	95	192,659
Loom shuttles, spindle for, J. Hamilton	95	192,692
Looms, shuttle box mechanism for power, Hickey and Miles	95	192,580
Lumber, machine for manufacturing compound, W. E. Brock	173	192,673
Millstones, feed regulator for, Moir and Ellis	57	192,707
Mower, A. R. Reese	74	192,627
Nut lock, Collins and Grant	14	192 636
Nut lock, J. W. Eaton	14	192 620
Nut lock, J. Hollingsworth	14	192,625
Oil can and package for carrying fluids, G. T. Hunsaker	107	192,581
Oil well tubing, coupling for, J. C. Dickey	124	192 619
Ore mill, H. K. Drake	3	192,747
Ore stamp, T. A. Cochrane	3	192,567
Organ, reed, Koerber and Sheridan	106	192,583
Ornamenting wooden surfaces, process of, O. Barwolff	54	192,558
Packing for oil wells, J. R. Cross, (reissue)	124	7,772
Packing, piston, A. J. Stevens, (reissue)	152	7,781
Pen holder tip, E. W. Giles	146	192,754
Pen, stencil, H. M. Paine	146	192,626
Pencil sharpener, E. W. Frost	146	192,752
Pianos, music leaf retainer for, J. P. Molitor	112	192,591
Picker teeth, machine for making, R. Aldrich	95	192,669
Piston, L. Richner	152	192,715
Plow and cultivator, sulky, Wertenberger and Amiss	114	192,800
Plow brightener, Minor and Woolverton	114	192,708
Plow clevis, W. S. Weir	114	192,608
Pocket book, D. M. Read	146	192,714
Pocket, safety, W. M. Blume	38	192,732
Printing presses, apparatus for delivering sheets from, T. J. Mayall, (reissue)	117	7,786
Projectile, rope or line carrying, T. C. Backus	105	192,670
Propeller, endless chain, W. J. Carroll	139	192,563
Pulley, band, C. R. Bushnell	87	192,562
Pump reel, sand, D. C. Brawley	118	192,561
Pump rod adjuster, Gifford and Abell	118	192,690
Pump valve, N. S. Bean	118	192,633
Punching and shearing machine, M. Gluck	119	192,646
Railway gate, E. W. Moyer	120	192,706
Refining and aging alcoholic liquors, apparatus for, G. Clark	47	192,635
Refrigerator, L. B. Woolfolk	58	192,806
Register, A. Shedlock	42	192,792
Revenue guard for cigar boxes, &c., F. I. Howe	54	192,649
Road scraper, A. Thompson	51	192,720
Rock boring and tunneling machine, H. N. Penrice	124	192,788
Sash balance, W. Casbner	24	192,680
Sash fastener, H. P. Andrews	24	192,614
Saw guide, W. Collins	130	192,683
Saw mill dog, H. Snyder	130	192,795
Saw mills, set gear for, H. Gawley	130	192,576
Saws, guide pulley for band, J. H. Hobson	130	192,695
Sawing machine, band, F. Millward	130	192,810
Sawing machine, scroll, F. Eisendick	130	192,686
Sawing machine, scroll, J. W. Penney	130	192,597
Scales, platform, R. Ebmer	132	192,574
Screws, machine for the manufacture of, Stiff and Bowen	171	192,796
Seal metallic, E. J. Brooks	136	192,735
Sewing machine binder, J. Blasius	134	192,731
Sewing machines, seam stay guide for, Corbett and Harlow	134	192,568
Sheep wash, W. Little	135	192,587
Sheet metal vessel handle, F. G. and W. F. Niedringhaus	136	192,784
Shirt, M. Simon	38	192,794
Show case, W. Shockley	54	192,717
Skate, O. Edwards	143	192,643
Skiving machine, W. S. Fitzgerald	92	192,645

	Class No.	No. of Patent.
Soldering tool, L. Cutting	136	192,743
Spoke socket, J. P. Parkhurst	31	192,596
Stable scuttle and trap, W. M. Watkins	144	192,732
Steam and water cock, Guild and Lewis	167	192,622
Steam radiator, R. S. Gillespie	147	192,755
Stop cock and coupling, combined, J. G. Murdock	167	192,654
Stop cock for elastic and flexible tubing, R. Lapham	167	192,584
Stove, gasoline, F. A. and A. B. Lyman	65	192,589
Stove, heating, E. L. Matteson	154	192,774
Stove, magazine cooking, J. D. Murray	154	192,783
Stoves, attachment for oil or gas cook, O. F. Stedman	65	192,629
Stoves, ranges, &c., grate for, J. H. Mearns	154	192,777
Telegraph signal box, district, L. B. Firman	50	192,644
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Tobacco cutter, C. F. Harlow	160	192,579
Tobacco safe, L. C. Parker	160	192,712
Toilet screen, folding, E. S. Lathrop	161	192,701
Tonsorial compound, W. Clark	161	192,565
Toy boot black, A. Gartner	143	192,689
Turbine water wheel, A. R. Guilder	168	192,691
Turbine wheel, E. M. Hale	168	192 648
Umbrella tip cup, E. Croft	165	192,638
Vase or bouquet holder, compound, C. Heckert	63	192,761
Vehicle axle box, I. N. Camp	31	192,677
Vehicle hub, C. J. Valentine	31	192,799
Ventilating bung, L. H. Lesser	1	192,702
Ventilator, A. Barnum	166	192,557
Ventilator, T. M. Foster	166	192,688
Volute motor spring, D. Carter	31	192,564
Wagon bed, W. J. Kinsey	31	192 699
Wagon end gate rod, J. Genzly	31	192,753
Wagon seat spring, T. Thompson	31	192,797
Wagon spring, auxiliary, A. W. McKown	31	192,775
Wash basin, C. E. Yvelin	8	192,807
Washing machine, S. Needles	91	192,705
Water closet valve, S. Eckert	8	192,642
Water wheel, J. J. Bourgeois	168	192,671
Weaving duck, &c., shuttle for, W. L. Gilbert, (reissue)	95	7,776
Whiffletree, C. D. Smith	31	192,662
Whip, O. Breckenridge	72	192,617
Windmill, W. G. Alexander	118	192,668
Windmill, W. Peck	118	192,787
Windmill, Rhoades and Trickle	118	192,598
Window bracket, J. F. Zimmerman	62	192,727
Window shade roller, J. R. Smyth	62	192,663
Window washer, G. G. Clark	22	192,566
Wire stretcher, W. Z. Dafoe	52	192,572
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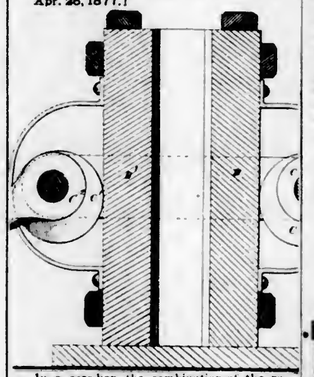
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TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED JULY 3, 1877.

192,556. CORE-BOXES. W. Aikin and W. W. Drummond, Louisville, Ky. [Filed Apr. 26, 1877.]



In a core-box, the combination of the recessed side pieces A A', the intermediate plungers D D', forming the core between the four parts, and the eccentrics C C', for compressing the core, substantially as set forth.

192,557. VENTILATORS. A. Barnum, Green Island, N. Y., assignor, by mesne assignments, to E. E. Rice, Washington, D. C. [Filed Dec. 13, 1876.]



The combination of the tube or shaft A, the spherical enlargement B at the top thereof, and the elevated cone C, substantially as and for the purposes herein set forth.

192,559. PROCESSES OF ORNAMENTING WOODEN SURFACES. O. Barwolff, Berlin, Prussia. [Filed Oct. 7, 1876.]

Brief.—Saturating a pasteboard pattern with salicylic acid to prevent corrosion of the mordant employed.



In the process of ornamenting wooden surfaces, the employment of the pasteboard pattern A when saturated with salicylic acid, substantially as and for the purpose specified.

192,539. HEATING APPARATUS. W. Bliss, Ashleyville, Mass. [Filed Aug. 4, 1876.]

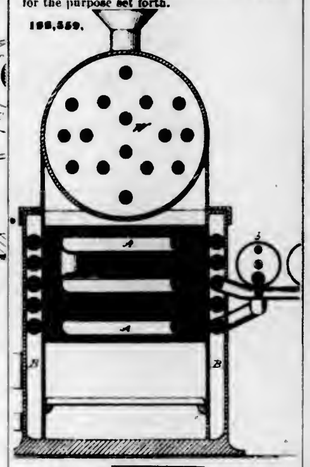
Brief.—For the distribution of heated air for domestic and mechanical purposes in cities and villages.

1. The combination, in a hot-air heating and distributing apparatus, of the air-pumps *b b b*, (actuated by any convenient motive power,) the furnace *c c*, the circulating air-heating pipes A, the hot-air-distributing mains F F, and the sheath I and slides F, substantially as and for the purpose set forth.

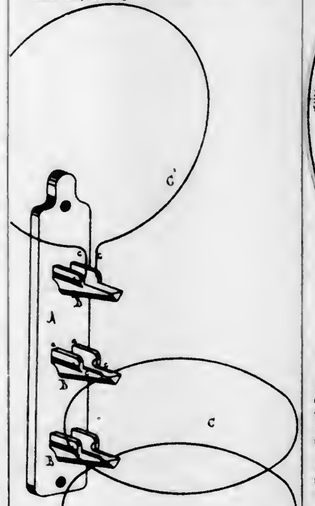
2. In a furnace in a high-pressure hot-air heating and distributing apparatus, the combination of the main fire-box and the auxiliary fire-box M, the air-heating pipes A, perforated furnace-lining L, pipe-circulating space B in furnace-walls, and steam-boiler W, substantially as and for the purpose set forth.

3. In a hot-air heating and distributing apparatus, the combination of the forcing-pumps, air-heating furnace and air-pipes, and the incased distributing-mains, substantially as and for the purpose set forth.

192,559.



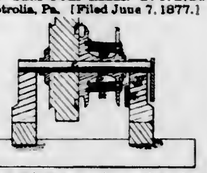
192,560. DISH-RACKS. W. F. Bowden and J. W. Stewart, Lowell, Mass. [Filed Mar. 29, 1877.]



1. A dish-rack consisting of holders provided with projecting pivoted arms supported by the pivots and projecting brackets, substantially as described.

2. In combination with the plate A, provided with brackets B, the pivoted rings or holders C, substantially as described.

192,561. SAND-PUMP REELS. D. C. Brawley, Petrolia, Pa. [Filed June 7, 1877.]



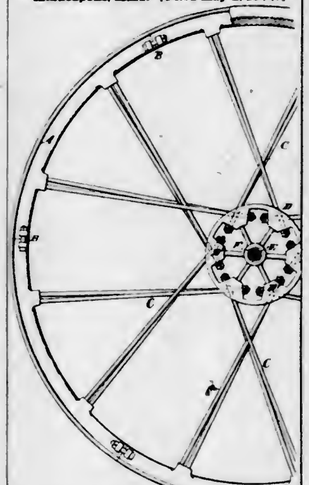
1. In a sand-pump reel, a reeling-drum, mounted loosely on the shaft of a band, belt, or tug wheel, and rotated by being brought and held in friction-contact with the side of the wheel, substantially as and for the purpose described.

2. In a sand-pump reel, the combination of band, belt, or tug-wheel, a drum mounted loosely on the shaft of the same, and having an end movement thereon, and a lever for giving the drum an end movement on the shaft, substantially as and for the purposes described.

3. A reeling-drum composed of a hollow hub, end flanges, and a reeling-surface placed between the flanges and concentric with the hub, substantially as and for the purpose described.

4. The combination of the lever-operated sliding drum and a friction-brake, substantially as and for the purposes set forth.

192,562. BAND-PULLEYS. C. R. Bushnell, Minneapolis, Minn. [Filed May 2, 1877.]



1. The combination of the segments A, tie-bolts B, hub D, and crossed and inclined rods C, forming the spokes, which are drawn down to brace the wheel by nuts on their inner ends bearing against the faces D', substantially as set forth.

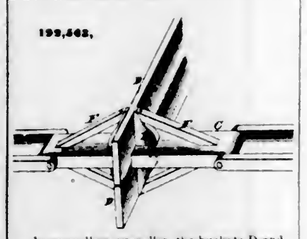
2. A pulley formed in segments, connected with the hub by adjustable wrought-iron spokes, inclined and crossing one another, to brace the wheel, substantially as set forth.

3. In combination with the sectional and segmental rim and spokes, the hub formed in two parts, to receive counterbracing spokes, extending from the same part of the rim, the alternate spokes on each side crossing one another, substantially as set forth.

192,563. ENDLESS-CHAIN PROPELLERS. W. J. Carroll, Natchez, Miss. [Filed Dec. 9, 1876.]

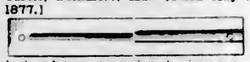
THE GRAPHIC CO. N.Y.

192,563.



In an endless propeller, the buckets D and links C, in combination with the bars E and lateral braces F for supporting the buckets against pressure, substantially as set forth.

192,564. VOLUTE MOTOR-SPRINGS. Durus Carter, Baltimore, Md. [Filed May 7, 1877.]



1. A volute motor-spring, having one or more corrugations tapering from one end to the other, as set forth, to equalize and increase the power of all the coils, as described.

2. The combination, with a volute motor-spring, of hinged arms and a cross-bar, to which the outer end of said spring is hitched, for operation as described.

3. The supplemental spring device in combination with the hinged arms and a volute motor-spring, for operation as described.

192,565. TONSORIAL COMPOUNDS. Wm. Clark, New York, N. Y. [Filed Apr. 21, 1877.]

As a new article of manufacture, a tablet or cake composed of pumice-stone, alkaline salt, and a mucilaginous binding material, combined substantially in the proportions and as hereinbefore specified.

192,566. WINDOW-WASHERS. G. G. Clark, Winterset, Iowa. [Filed Oct. 27, 1876.]

Brief.—The tin vessel is divided into an upper and lower chamber, so that as the water enters the sponge from the upper one it flows into the lower one, from which it can be drawn off.

1. The vessel *a a a*, having the partition *b* and chambers Nos. 1 and 2, the induction and eduction tubes *e* and *d*, the perforated plate *g*, and the open mouth *k*, substantially as and for the purposes shown and described.

2. The mop-holder *m n r*, in combination with the vessel *a a a*, substantially as and for the purposes set forth.

3. The removable block A, having the shoulder and bevel *x z y* and transverse openings 3 4 5, in combination with the flexible plate B and sponge C, substantially as and for the purposes shown and described.

4. The sponge-holder, composed of the parts A B C, in combination with the chamber No. 2 in the vessel *a a a*, and the chamber No. 1 having perforated front *g*, substantially as and for the purposes shown and described.

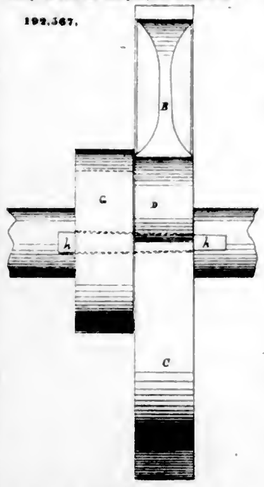
5. As a new article of manufacture, the window-cleaner, composed of the vessel *a a a*, having two chambers, Nos. 1 and 2, and carrying a sponge-holder, A B C, and mop-holder *m n r*, substantially as and for the purposes specified.

192,567. ORE-STAMPS. T. A. Cochrane, San Francisco, Cal. [Filed Apr. 13, 1877.]

1. The cam sections B C, provided with the side extension half-hubs E, in combination with the band or ring G, substantially as and for the purpose described.

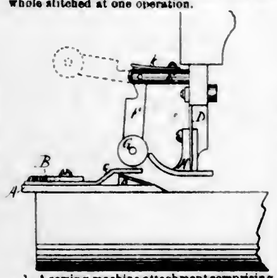
2. The cam-sections B C, each of which is provided with a side extension half-hub, E, with its key-slot O, in combination with the band or ring G and wedge or key *h*, substantially as and for the purpose described.

192,567.



192,568. SEAM-STAY GUIDES FOR SEWING-MACHINES. E. Corbett and C. F. Harlow, Boston, Mass.; said Harlow assignor to said Corbett. [Filed Feb. 23, 1877.]

Brief.—This attachment comprises a guide for the stay-piece, an opener for the seam, and a roller for pressing the seam. The seam is opened and guided, the stay guided, and the whole stitched at one operation.



1. A sewing-machine attachment comprising a device for opening and folding back the edges of a sewed seam, a guide for directing such seam, and a guide for giving a corresponding direction to the stay, substantially as and for the purposes specified.

2. In combination with a feed mechanism of a sewing-machine, a device for separating and folding back the edges of a sewed seam, and guides for directing such seam and a strip of stay material, so that said opened and folded seam and said stay shall, by the action of such feed mechanism, be brought into the desired relation to each other, and properly held and pressed together while being fed along under and past the needle or needles, substantially as and for the purposes specified.

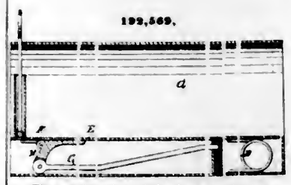
3. In combination with a sewing-machine, a seam opener and folder, *b*, or its equivalent, arranged to operate therewith, substantially as and for the purposes specified.

4. In a sewing machine attachment, folder *b* and stay-guide *a*, combined and arranged to operate substantially as and for the purposes specified.

5. The guides *c c*, folder *b*, and presser G, combined and arranged as and for the purposes specified.

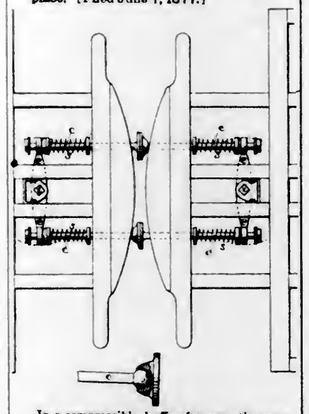
6. The guides *c c*, folder *b*, and adjusting-lever B, combined and arranged to operate substantially as and for the purposes specified.

192,569.



The combination of the horizontal trigger-bar G, and the tunnel-shaped metal pipe *a*, with the trigger E, and the spring-door C swing at opposite ends of the trap, substantially as described.

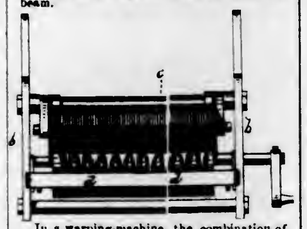
192,570. CAR-BUMPERS. S. M. Cummings, Allegheny, Pa., assignor of two-thirds his right to J. White and J. Marquis, same place. [Filed June 7, 1877.]



In a compressible buffer for cars, the combination of the shanks *c*, having their rear ends connected together by a pivoted equalizing-rod, *e*, springs *s*, and movable and rigid heads K, substantially as described.

192,571. MACHINES FOR WARPING YARN. John Cumnock, Great Falls, N. H. [Filed Feb. 6, 1877.]

Brief.—The yarn, as it is wound upon or off the beams, is relieved from leaf, motes, &c., by means of a brush, which is affixed to pivoted and weighted levers, for keeping it continually pressed against the yarn upon the beam.

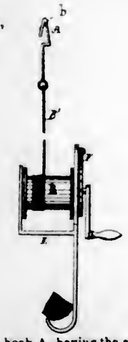


In a warping-machine, the combination of the frame *b*, weighted lever *s*, and brush *d*, or similar devices connected thereto, the several parts being arranged as described, whereby the leaf, motes, &c., are removed from the yarn as it is being wound upon or unwound from the beam *c*, substantially as described.

192,572. WIRE-STRETCHERS. W. Z. Dafoe, Sycamore, Ill., assignor of one-half his right to C. W. Marsh and W. W. Marsh, same place. [Filed June 22, 1876.]

Brief.—A hook of triangular form takes the wire in its bite at any point. A windlass and crank are attached in the rear to a post, and held in the left hand, and operated by the right, leaving the advanced slack of the rope to be disposed of at will, while the fore part is drawn taut.

192,572.

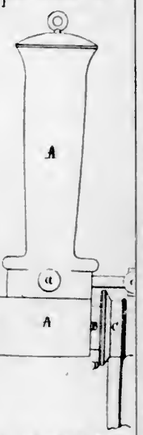


1. The hook A, having the angle or projection *a*, and the opening having a sharp angle, *b*, for holding the wire without winding or bending, substantially as specified.

2. The combination of the hook A and rope B' with the windlass B, as and for the purpose described.

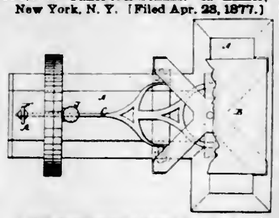
3. The combination of the frame E, having a hook, F', with the windlass B, provided with a crank and ratchet-wheel and pawl, rope B', and hook A, all constructed and operating substantially as and for the purpose set forth.

192,573. BURNISHING-MACHINES FOR BOOTS AND SHOES. J. W. Dodge, Malden, Mass. [Filed Aug. 21, 1876.]



The combination of the rigid shaft F, flexible shaft E, chuck B, tool C, handle A, and guide D, when arranged and operating together, substantially as described.

192,574. PLATFORM-SCALES. R. Ehmer, New York, N. Y. [Filed Apr. 28, 1877.]



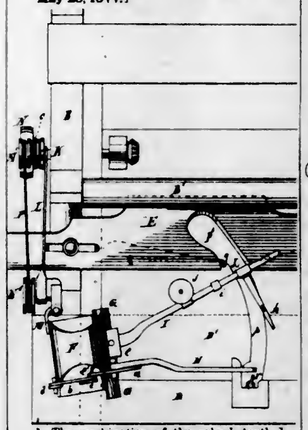
1. The forked guide-screw *d*, combined with the lever C, to guide or lock the same, as required, substantially as specified.

2. The combination of the set-screw F with the slide or yoke E, balance-spring D, and lever C, the screw F being secured in the fixed frame A, and caused to bear directly against the slide or yoke E, substantially as and for the purpose specified.

3. The screw F, made hollow, and combined with the rod *d* and yoke E, substantially as herein shown and described.

4. The combination of the lever C and pivoted link G with the guide-rod *f*, guide-loop *f*, and with the pivoted rack H, substantially as herein shown and described.

192,575. GRAIN-BINDERS. E. H. Gammon, Chicago, and B. H. Dixon and J. F. Steward, Plano, assignors to E. H. Gammon and W. Deering, Chicago, Ill. [Filed May 26, 1877.]



1. The combination of the rake I, tooth J, and slot *l* with the arm H, receiver D, and twister *r*, substantially as specified.

2. The combination of the lever K, bar L, and wheel N' with the wheels N N'', belts or chains O P, and pivoted frame R, for communicating motion to the binder, and keeping the belts or chains in operation when the position of the binding devices is changed, substantially as set forth.

3. The combination of the lever K, connecting-bar L, and pivoted stirrup or frame R with the movable table or receiver D, for changing the position of the table, substantially as specified.

4. The rake I, in combination with a reciprocating needle-arm, H, arranged to descend at the same time the arm I ascends, and take the place of I in holding the bundle in position for binding, substantially as specified.

5. The combination of the rake-arm I, the spool mounted thereon, the binder-arm H, and the twister, substantially as specified.

6. The binding-arm H, supported upon the swinging receiver or table D, in combination with a centrally-located twister and a rake, substantially as described.

7. The rock-shaft G and lever *e'*, in combination with the arms *a b c* and standard *d*, for operating the binding or needle arm H in an opposite direction to the rake-arm, when said rake-arm is rising, substantially as specified.

8. The yielding finger, in combination with the arm I, for preventing the grain from getting above the point of the arm H while being carried forward, substantially as specified.

9. The sliding backboard E, located between the upper elevator-roller and the receiver, in combination with a horizontally-swinging receiving-platform, and a connecting device between said backboard and platform for keeping the slots in line, substantially as specified.

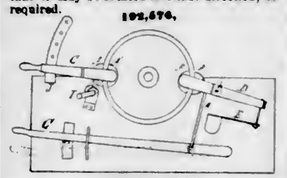
192,576. SET-GEARS FOR SAW-MILLS. H. Gawley, Malden township, Essex county, Ontario, Canada. [Filed Feb. 13, 1877.]

Brief.—The log is set the required distance by means of a flanged friction-wheel, operated by forked levers carrying pivoted blocks, which clamp the flange upon both sides. The wheel is released by depressing a lever operating a cam, which throws up the forked end of the lever.

1. The combination of wheel A, levers C and D, blocks *f' f' f f*, and spring E, for the purpose of setting the log toward the saw in saw-mills, and for holding the same in position when so set forward.

2. The combination of lever G, cam I, and connection K, for releasing the wheel A, so that it may be rotated in either direction, as required.

192,576.



192,577. WRINGER-ROLLS. J. Greacen, Jr., New York, N. Y. [Filed Mar. 20, 1877.]

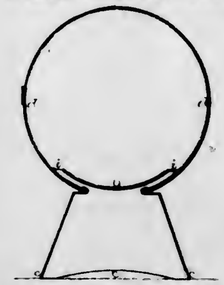
Brief.—The surface of the roller-shaft is cleansed of impurities either by chemical means or by turning it off in a lathe. The rubber is then vulcanized directly upon the metal.



1. The process hereinbefore described of forming rolls for clothes-wringing machines, which consists in preparing a wrought-iron shaft or spindle by freeing it from scale and foreign matters, substantially as described, building up upon the shaft thus prepared a body of vulcanizable rubber compound until the requisite form and thickness is attained, and then vulcanizing the same.

2. As a new article of manufacture, an improved clothes-wringer roll, in which the rubber of such roll is vulcanized directly onto the central iron shaft or spindle, substantially as described.

192,578. FLY-TRAPS. James T. Guthrie, Leesburg, Ohio. [Filed Apr. 18, 1877.]



1. A fly-trap, consisting of a base, *a*, cylinder *d*, door *e*, strips *i*, and gauze *o*, the interior of the cylinder being left unobstructed to facilitate cleaning, substantially as shown.

2. In a fly-trap, a sheet of gauze, *o*, or other transparent material, placed over the opening in the top of the base, and extending upward along the inside of the cylinder, the interior of the cylinder being left unobstructed to facilitate cleaning, substantially as set forth.

192,579. TOBACCO-CUTTERS. C. F. Harlow, Boston, Mass., assignor to J. Kimball, same place. [Filed Mar. 12, 1877.]

Brief.—The cover of the box carries a slide and cutter, that reciprocates in the box, so that when a plug is passed through an opening in the side, the cutter shaves it, and the pieces fall into the box.

1. In a tobacco-cutter, the combination of case A, having opening *a*, and the reciprocating slide B, with its cutter *f*, substantially as described and shown.

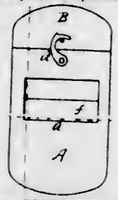
2. A tobacco-cutter having the case A formed in two longitudinal sections or parts, with interning edges to serve as ways, in combination with slide B, substantially as described and shown.

3. A tobacco-cutter formed and provided with an outer case, divided transversely, and with a shearing-edge, in conjunction with an opening through one wall of such case, and a reciprocating slide, provided with a cutting-blade, and arranged to move longitudinally in such case, all so constructed and arranged

that such cutting blade and shearing edge shall, by the reciprocation of the slide, cut the tobacco placed in said opening, substantially as described and shown.

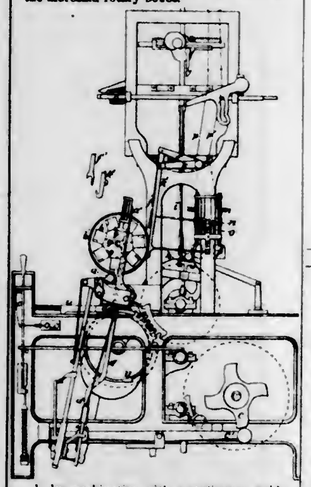
4. Case A, constructed with an opening, a, and shearing-edge e, in combination with slide B, with its cutting-blade f and actuating-spring A, arranged to operate together substantially as and for the purposes specified.

192,579.



192,580. SHUTTLE-BOX MECHANISMS FOR POWER-LOOMS. P. Hickey and C. W. Miles, Auburn, N. Y. [Filed Nov. 27, 1876.]

Brief.—Improvement upon the devices covered by Letters Patent No. 97,106 and No. 31,324. The boxes are mounted in a slide-frame that is adapted to be reciprocated in a stationary frame connected with the main frame of the loom. The series of boxes consists of rotating and non-rotating boxes, the former surmounting the latter, and both secured to the same slide-frame. The invention consists in this special combination, and also in a combination of mechanism for revolving the aforesaid rotary boxes.



1. In combination with a stationary guiding-frame, a sliding frame, a', adapted to work in guides in said stationary frame, and carrying a series of non-rotating boxes, a, surmounted by a series of rotating boxes, b, and mechanism, as described, for raising and lowering said slide-frame and for turning said rotating boxes, the several parts being constructed and arranged as and for the purposes specified.

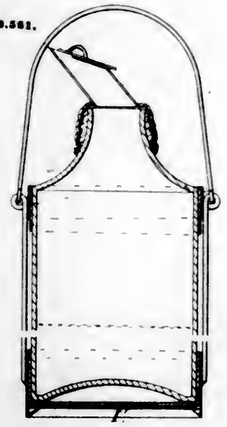
2. The combination, with the rotating cylinder provided with lugs or pins q, of the hooks f^1 f^2, governed by the pattern mechanism and connecting and operating mechanism, as described, whereby the hooks may be brought into engagement with and revolve the cylinder when it is in a state of rest, as and for the purposes specified.

192,581. OIL-CANS AND PACKAGES FOR CARBURETING FLUIDS. G. T. Hunnaker, Carthage, Ill. [Filed June 6, 1877.]

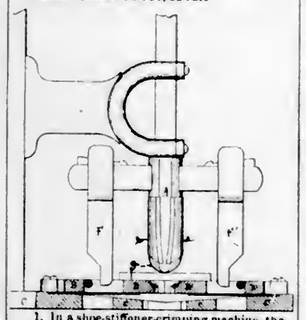
1. An oil-can provided with a detachable flat laterally-extending spout and a slide for closing the same, substantially as set forth.

2. A detachable bottle-holder provided with a bail, and having its top and bottom encircling bands, connected substantially as set forth.

192,581.



192,582. MACHINES FOR MAKING BOOT AND SHOE COUNTERS. John Kimball, Boston, Mass. [Filed Oct. 16, 1876.]



1. In a shoe-stiffener-crimping machine, the combination of plunger A, the divided mold a a' B B', the supporting-springs b b', and the concave bed C, whereby the die-pieces B B' are provided with a free, limited, and positive vertical adjustment at their meeting ends by a pivotal movement upon the fixed fulcrum of their outer ends, all substantially as described and shown.

2. In a shoe-stiffener molding machine, the combination, with a divided female mold or die, of the male plunger A, formed with the solid unyielding face or head f and the parallel elastic cushions e e, arranged in rear of such head, substantially as described and shown.

3. In a shoe-counter-molding machine, the divided female mold B B', provided with a wall or boundary for forming both the sides and the base flange of the stiffener, and the plunger A, also formed with sides corresponding to the curves of the mold and side walls of a stiffener, and with a flattened back corresponding to such base flange, and adapted to mold both the sides and bottom of the stiffener simultaneously as the plunger descends into the mold.

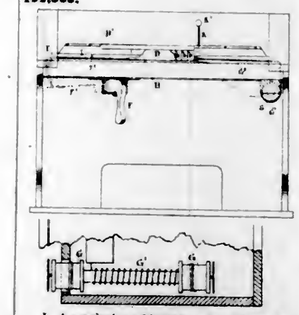
4. In a shoe-stiffener-molding machine, the combination, with the divided female mold B B' and the male plunger A, of devices which automatically open such mold for the entrance of the plunger, substantially in manner as and for the purposes specified.

5. The combination of male mold A, sectional female mold a a B B', cams F F', springs b b', and springs G G', substantially as described.

192,583. REED-ORGANS. A. R. Koerber and J. Sheridan, Toronto, Ontario, Canada. [Filed May 17, 1877.]

Brief.—Midway of the length of the reed-board a horizontally-sliding valve covers a portion of the reed-cells, which portion may be exposed by knee-lever or otherwise, at the pleasure of the operator.

192,583.



1. A musical reed-instrument in which the central portions of the reed-cells are connected with an independent section of the reed-chamber, subdivided to correspond with the central or accompanying notes, and closed by a variable-swell valve, which valve can be operated to open or close one or more or all of the subdivisions of said section at the will of the performer.

2. The combination, with the reed-chamber B, provided with the subdivided central section B', of the variable slide-valves D, substantially as shown and described.

3. The pivoted knee-lever F, cord F', differential roller E, and cords D', in combination with the valves D, substantially as shown and described.

4. The differential spring-roller G^1 and cords G^2, in combination with the valves D, substantially as shown and described.

5. The valves D, with wedge-shaped ends H, in combination with the bass-swell valves I, substantially as shown and described.

6. The indicating-pointer K K', attached to the valve D, substantially as shown, and for the purpose specified.

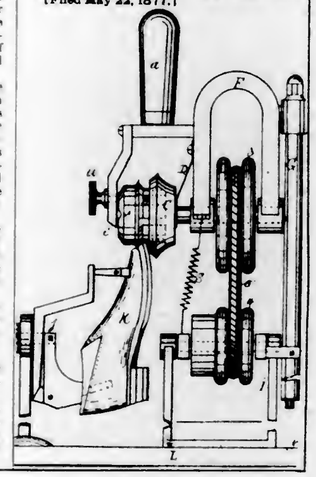
192,584. STOP-COCKS FOR ELASTIC AND FLEXIBLE TUBING. Rufus Lapham, New York, N. Y., assignor to Wm. Platt, Elizabeth, N. J. [Filed Mar. 21, 1877.]

Brief.—When the lever or handle is turned down, the tube or hose is compressed, and the flow of water or other liquid is stopped.



The combination of the case A, the apron e, and cam-lever B, substantially as described, and for the purpose set forth.

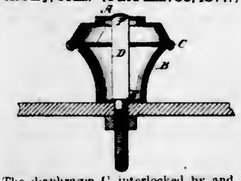
192,585. BOOT AND SHOE SOLE TRIMMING MACHINES. Banford F. Leon, Joliet, Ill. [Filed May 22, 1877.]



1. The combination of the revolving flanged cutter B, eccentric circular guard A, adjustable circular guard C, thumb-screw w, and the adjustable frame F, all arranged and operating substantially as and for the purpose set forth.

2. The combination of the oscillating frame B, adjustable frame F, post G, springs s and D, pulleys 3 and 4, circular guards A and C, revolving cutter B, and handle a, all arranged and operating substantially as and for the purpose set forth.

192,586. HOLLOW METAL KNOBS. C. S. Lewis, Bristol, and E. R. Lampson, Waterbury, Conn. [Filed Mar. 30, 1877.]

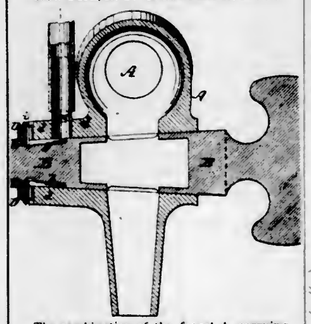


The diaphragm C, interlocked by and between the parts A and B of the shell, in combination with the screw-bolt D, passing through the diaphragm, and provided with the shoulder E, substantially as shown and described.

192,587. SHEEP-WASHES. William Little, Heckington Hall, near Sanford, England. [Filed Feb. 16, 1877.]

The combination of the distilled products from gas-tar, heavier than water, resin-oil, oleate of potash, and solution of soda, substantially in the manner and about in the proportions specified, to make a liquid chemical combination, (and not a mixture in which the compound parts are held in suspension,) mixable in any proportion with water.

192,588. VENT-FAUCETS. Adolph Luhrs, New York, N. Y. [Filed June 11, 1877.]



The combination of the faucet A, carrying the pipe E, and the spigot-bearing d, with the spigot B, having the two grooves g h, and with the rotary washer D, having the two grooves i i, all substantially as herein shown and described.

192,589. GASOLINE-STOVES. F. A. Lyman and A. B. Lyman, Cleveland, Ohio. [Filed Dec. 1, 1876.]

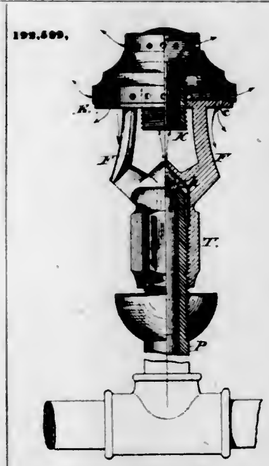
1. In combination with the base E of the mixing-chamber, the screw-threaded tube K, operating through said base, as and for the purposes explained.

2. In combination with the curved arms F, the base E, provided with inclined perforations e, adapted to direct a jet of gas against the sides of said arms, as and for the purpose explained.

3. In a gasoline-stove, the combination, with a vertically-adjustable burner, of an oil-pipe leading thereto, the two forming a gas-generating chamber, which may be enlarged or contracted, accordingly as said burner is elevated or depressed, substantially as and for the purposes explained.

4. In combination with the burner-carrying tube T, perforated, as at o, and screw-threaded, as shown, the correspondingly-threaded tube P, having oil-orifices h, the whole arranged and operating as set forth.

192,592.

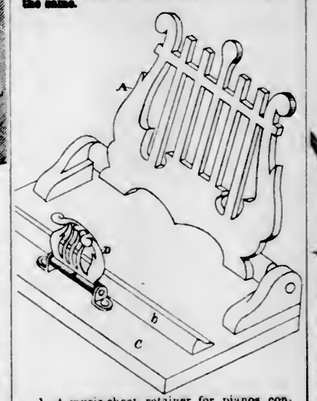


192,592. HOG-CHOLERA COMPOUNDS. R. R. Madison and F. M. Madison, Corning, Iowa. [Filed Apr. 11, 1877.]

The medical compound for the treatment of hog-cholera herein described, composed of arnica-blooms, blood-root, black snake-root, rhubarb, asafetida, saltpeter, mandrake-root, chloride of lime, digitalis (fox-glove) root, balsam of copaiva, sweet spirits of niter, anise-seed oil, santonine, and water, incorporated together in about the proportions and in the manner substantially as set forth.

192,591. MUSIC-LEAF RETAINERS FOR PIANOS. John P. Molitor, Vallejo, Cal. [Filed June 1, 1877.]

Brief.—An attachment consisting of a spring-presser secured to the rail, against which the front lower edge of the book or music-sheet rests, to prevent the forward slip of the same.



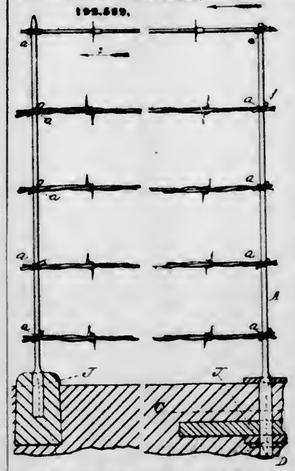
1. A music-sheet retainer for pianos, consisting of the harp D, with its barrel e, in combination with the fixed shaft f and stop-pin f, substantially as and for the purpose described.

2. In combination with the rack A of a musical instrument or music-stand, one or more stop attachments, D, which are held in a vertical position by a spring or springs, and arranged to be pressed down by the closing of the rack A, substantially as and for the purpose described.

192,593. IRON POSTS FOR WIRE FENCES. C. H. Morgan, Worcester, and J. F. Landers, Auburn; said Landers assignor to Washburn & Moen Manufacturing Company, Worcester, Mass. [Filed Mar. 10, 1877.]

Brief.—The post at the lower end is of a trough-like form in cross-section, and at the upper end has a notch on one side, that serves to accommodate a wooden rail.

192,593.



A metallic fence-post, A, provided with a series of slots, a, upon one edge, and a notch, D, at its upper end, and with a curved anchor-point, J, at its lower end, substantially as shown and described.

192,598. COFFEE-POTS. Richard L. Nelson, Orange Court-House, Va. [Filed June 1, 1877.]



1. In an attachment for coffee-pots, a water-reservoir, D, provided with a coffee-receptacle underneath, and the bottom of said reservoir having an orifice, a, with strainers G G', one above and one below the same, substantially as and for the purposes herein set forth.

2. The combination of the water-reservoir D, with concave bottom D', having orifice a and strainers G G', the cylinder H, with top perforations b, and the cap I, with bottom perforations d, and the elevated perforated bottom J, all substantially as and for the purposes herein set forth.

192,594. TREATING FEATHERS. C. W. Nichols, Chicago, Ill. [Filed Dec. 20, 1876.]

Brief.—The application of heat in pressing feathers into form.

1. The process of preparing feathers by passing them between heated surfaces, substantially as described.

2. The process of preparing feathers by passing the feathers between rollers, corrugated or fluted, substantially as specified.

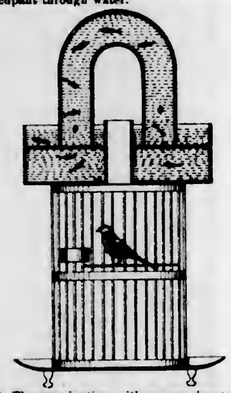
3. The process of preparing feathers for dusters or brushes by removing the inner portion of the stems and passing them between heated fluted rollers, substantially as and for the purpose specified.

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192,595. AQUARIUMS. M. Palen and D. Sexton, San Bernardino, Cal. [Filed Apr. 13, 1877.]

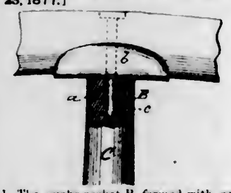
Brief.—The interior of the cage communicates with an elevated chamber in the interior of the aquarium, showing the bird or other occupant through water.



1. The combination, with an aquarium tank or tanks or reservoir, of an elevated communicating chamber, C, in which the water is sustained by atmospheric pressure, and which forms a passage for the fish, substantially as herein shown and described.

2. The open-bottom chamber C, arranged to have its lower open ends submerged in water, and provided with the valve *d* and pump E, or their equivalent, whereby the air in the chamber can be exhausted, so as to fill said chamber with water by atmospheric pressure, substantially as and for the purpose described.

192,596. SPOKE-SOCKETS. Joe. P. Parkhurst, Conklingville, N. Y. [Filed May 23, 1877.]



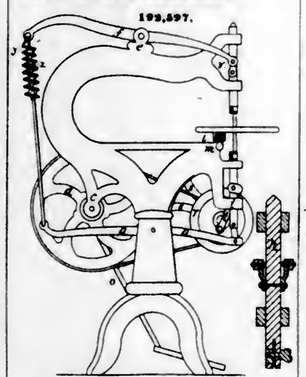
1. The spoke-socket B, formed with corrugations *c*, substantially as and for the purpose set forth.

2. The spoke-socket B, having corrugations *c*, in combination with the spike *a*, for spreading the wood of the spoke outward and into the corrugations, substantially as and for the purpose specified.

192,597. SCROLL-SAWING MACHINES. J. W. Penney, Mechanics Falls, Me. [Filed May 2, 1877.]

Brief.—The levers by which the saw is operated are connected at their rear ends by means of a contractible connector. The table is angularly adjustable by means of a hinged plate on the under side thereof, and set-screws passing through projections formed on the inner lower part of the main frame.

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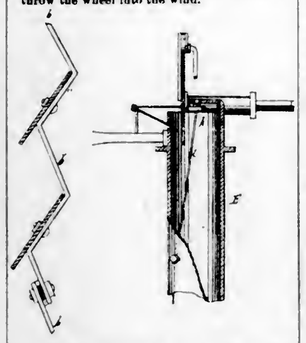


1. In combination with the pivoted reciprocating levers *e f*, the contractible connector *u*, composed wholly or in part of chain *z*, and a spring, *y*, whereby such connector is not extensible when at its full length, but is contractible by the action of spring *y* when the saw *w* is removed, substantially as described and shown.

2. The combination of projections *k k*, formed on frame A, screws *m m*, and the hinged table B, constructed and arranged to operate together, substantially as shown and described.

192,598. WINDMILLS. M. P. Rhoades, Cadis, and J. A. J. Trickle, Clamo, Wis. [Filed May 1, 1877.]

Brief.—The rims to which the wings are attached are made of sheet-metal straps, bent to form inclines for the wings or blades, so that they will be arranged at the proper angle or pitch. A torsion-spring is also provided, and so connected and arranged that it will act to throw the wheel into the wind.



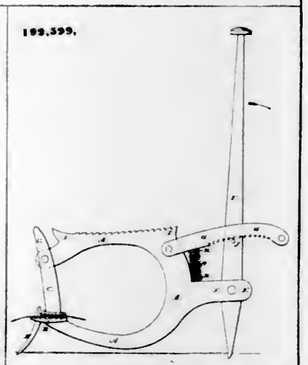
1. The metal sections or rim *b*, provided with inclines *c*, for securing the fans at the proper angle, substantially as specified.

2. In a windmill, the torsion-spring *l*, in combination with the tube E and plate *k*, for throwing the wheel into the wind, substantially as specified.

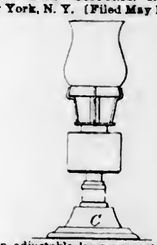
192,599. CARPET-STRETCHERS. Lewis W. Rivers, Salt Lake City, Utah. [Filed Feb. 12, 1877.]

An improved carpet-stretcher, formed of the U-bar A, the stationary jaw B, the pointed feet H, the swinging arm C, the foot-rest I, the lever-bar F, provided with a curved and pointed lower end, and spur J, the slotted arm G with ratchets, the spurs K K, and spring *g*, and the lug or slotted arm E, constructed and operating substantially as hereinbefore described.

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192,600. LAMP-SUPPORTS. R. H. Ryan, New York, N. Y. [Filed May 11, 1877.]



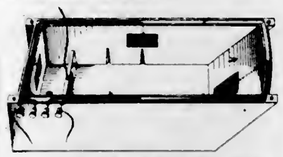
1. An adjustable lamp-support, consisting of a supporting-plate, C, having the vertically-slotted tube *b* attached thereto, the internal rod or tube *a*, provided with the pin *i*, and the external spirally-slotted tube *c*, all combined and arranged to operate substantially as shown.

2. In a lamp support, the combination of the non-rotating tubes *a d*, the former having the pin *i*, the non-rotating slotted tube *b*, and the rotating tubes *c* and *e*, the former having the spiral groove *k*, as shown and described.

3. In an extensible lamp-standard, the combination of a central non-rotating rod or tube to support the lamp, an exterior supporting-tube, an intermediate spirally-slotted tube, and an outside rotating tube, arranged to conceal and operate said spirally-slotted tube, substantially as shown.

192,601. ELECTRODES FOR ELECTRICAL BATH-TUBS. G. M. Schwaig, New York, N. Y., assignor to L. Steinhardt, same place. [Filed May 17, 1877.]

Brief.—The invention consists in the substitution of carbon for copper or other electrodes heretofore employed.

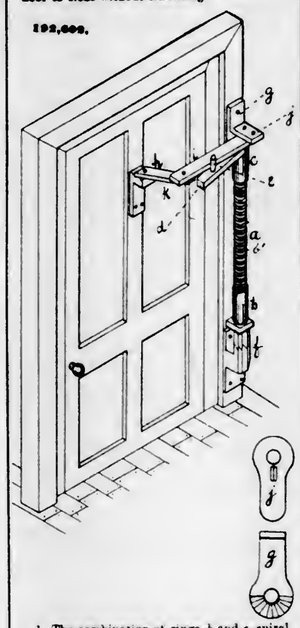


In connection with electric bath tubs made of non-conducting material, and for medical purposes, carbon electrodes affixed to said tub, to a movable foot-board, or to a float, and connected by wires to a battery for the introduction of electric currents, substantially as and for the purpose described.

192,602. DOOR-SPRINGS. L. P. Sherman, Biddeford, Me., assignor of one-half his right to P. M. Berry, same place. [Filed Jan. 22, 1877.]

Brief.—A spiral spring arranged on a metallic rod between an upper and lower ring or sleeve, with notches and serrations to regulate tension, is provided at its upper end with a short arm carrying an anti-friction roll. There are also two arms, secured one to the spring and the other to the door, pivoted in the middle, thus constituting a toggle-lever, the construction being such that the short arm and toggle may be so arranged with reference to each other that when the gate or door is thrown open the roller will pass backwardly to hold it open, and also such as to cause the gate or door to close without slamming.

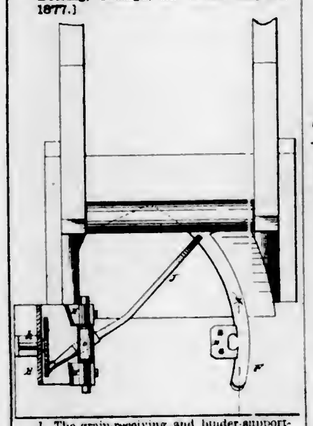
192,602.



1. The combination of rings *b* and *c*, spiral coil-spring *a*, metallic rod *b'*, brackets *f* and *g*, arm *d*, roller *e*, arm *j*, and pivoted arms *h* and *i*, arranged and operating as described.

2. The combination of the brackets *f* and *g*, the latter having corrugations on its upper surface, ring *b*, ring *c*, spiral coil-spring *a*, rod *b'*, arm *j*, roller-arm *d*, and pivoted arms *h* and *i*, arranged, operated, and attached as described.

192,603. GRAIN-BINDERS. J. F. Steward, Piano, assignor to E. H. Gammon and W. Deering, Chicago, Ill. [Filed May 25, 1877.]



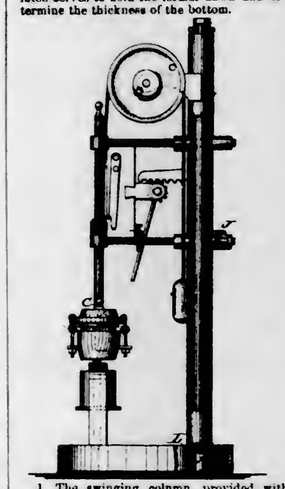
1. The grain-receiving and binder-supporting table horizontally adjustable by swinging on a vertical pivot, substantially as specified.

2. The horizontally swinging receiving-platform F, in combination with the arm J mounted thereon and adjustable therewith, and a twisting device located in reference thereto, so that it will operate in any change of position, substantially as described.

3. The frame or standard H, secured to the rear end of the receiving-table, and having its bearing for the binding-arm arranged above the table, to leave an opening between the table and the pivoted support of the binding-arm, substantially as shown and described.

192,604. APPARATUS FOR MOLDING CRUCIBLES AND POTS. R. Taylor, Philadelphia, Pa. [Filed Apr. 4, 1877.]

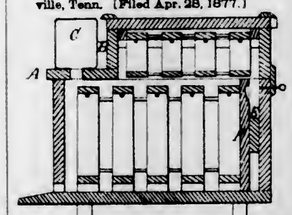
Brief.—A collar fastened by a set-screw on one of the horizontal slides serves to regulate the thickness of the sides of the crucible. A latch serves to hold the former down and determine the thickness of the bottom.



1. The swinging column, provided with stops L and M and a latch, J, bearing the guides and slides for holding the former C in a molding-machine, as set forth.

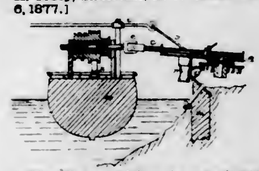
2. The latch N, combined with the vertical slide and former C, for determining the thickness of the crucible-bottom.

192,605. BEE-HIVES. D. Thompson, Nashville, Tenn. [Filed Apr. 28, 1877.]



The combination, with the hive proper, of the supplemental hive or box B, feed-board A, feed-cup C, and key and lever E, all arranged substantially as described and shown.

192,606. PROPELLING CANAL-BOATS. N. M. Tobey, Slaterville, N. Y. [Filed Feb. 6, 1877.]



1. The rail *g* curved from the water inward toward the tow path or bank, with rack or cog teeth on the inside, so as to present on the outside a smooth surface to tow ropes of boats drawn by horses, in the ordinary manner, as set forth.

2. The curved teeth of the driving rag-wheel of the head A, as and for the purposes set forth.

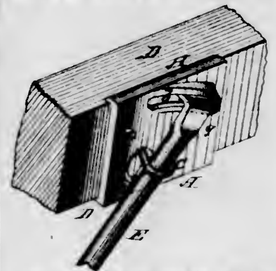
3. The shipping-in post *i* having a hand-lever, and a rod, *j*, connecting it to the driving-head A, in combination with the driving-shaft *c* provided with joint *e*, and the head-brace *h* for sliding the shipping in of the head A, as set forth.

4. The combination of the head A, driving-shaft *c* having the springs *b' b''* in the drum *b*, the friction-band and lever *k*, and the shipping-in post *i*, as set forth.

5. The rear guide-rod *c'* having wheels in the hollow and on the outer curve of the rail *g*, and a hinged brace, *h'*, and springs *b'''* and *b''''*, as and for the purpose set forth.

192,607. HARROWS. A. J. Upham, Sterling, assignor to R. Ellwood, Sycamore, Ill. [Filed Apr. 11, 1877.]

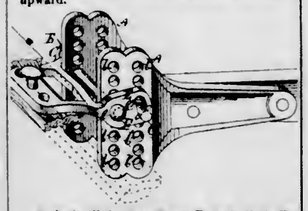
Brief.—The upper end of the tooth is flattened and bent to fit in the slot, which is curved, and has a wall on each side, which increases in thickness toward the upper end. Thus, by means of the bolt below, the tooth may be secured in any desired position.



The plate A, provided with the curved slot *b*, the tooth E, projection *g*, bolt C, and harrow beam D, all constructed and combined substantially as and for the purpose specified.

192,608. PLOW-CLEVISES. Wm. S. Wair, Monmouth, Ill. [Filed Apr. 7, 1877.]

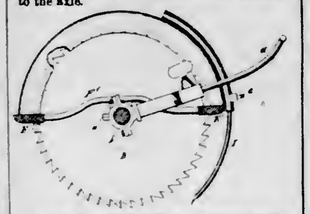
Brief.—The clevis cannot drop below a horizontal position, but has a limited vibration upward.



A clevis, C, having limbs E, each limb E pierced with a circular hole, *e*, and a segmental slot, *e'*, arranged to operate with beam-plates A, having two series of holes, *b b'*, and with journal-bolt F and check-bolt G, substantially as described, and for the purpose specified.

192,609. ICE-CUTTERS. M. H. Winsbrener, Chicago, Ill. [Filed Mar. 22, 1877.]

Brief.—The saws are revolved by any power suitably connected with the axle, and the device is moved to cut vertically, or overturned to cut horizontally, by handles, also attached to the axle.



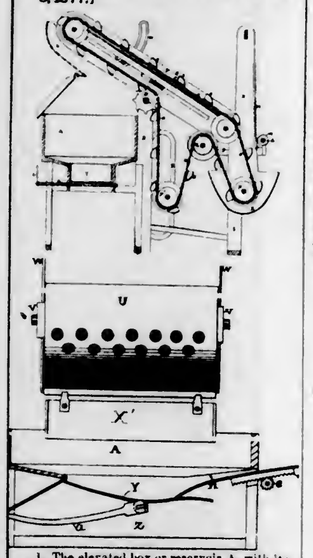
1. The frame E E' F F', in combination with

and resting upon the shafts A, and one or more saws, B, substantially as specified.

2. The adjustable supports I, in combination with the frame, shields, and socket J, substantially as and for the purpose set forth.

3. The combination of the frame E F F F, axle A, and one or more saws B, with the pivoted push handle G, so that the device may be operated either vertically or horizontally, substantially as specified.

192,610. COAL-ELEVATORS. J. A. Woodward, San Francisco, Cal., assignor of two-thirds his right to S. A. Sanderson and I. W. Gates, same place. [Filed May 8, 1877.]



1. The elevated box or reservoir A, with its lever-valve Y and lever-plate h, in combination with the shaft Z, and lever handle a, substantially as and for the purpose described.

2. The elevated box or reservoir A, with its lever-valve Y, and adjustable lever plate h, in combination with the shaft Z, and lever-handle a, substantially as and for the purpose described.

3. The horizontal frame J, with its shaft L and pinions m, arranged to be secured upon the hatch-combings of a vessel, in combination with the vertical frame K, with its racks s and semicircular box or trough R, said frame being combined with an adjustable frame, F, endless belt t, and elevated box or reservoir A, substantially as and for the purpose described.

4. The single vertical frame K, arranged to be lowered into the hold of a ship without disturbing the frame F, and provided with the semicircular box or trough R at its lower end, inside of which the drum P is mounted, in combination with the endless-belt bucket-elevator and a slack take-up device for allowing extension to the belt, substantially as above specified.

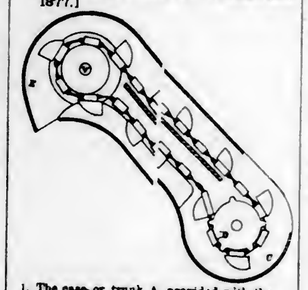
5. The endless slat-belt t, having a plate, T, the ends of which are bent upward to form side pieces secured to the links in front of each bucket, substantially as and for the purpose described.

6. The adjustable belt-carrying frame F, provided with a screening device, U, and arms W at its upper end, substantially as and for the purpose described.

7. The perforated metal-plate screen U, curved as described, and having the side pieces V, said screen being suspended so as to partially surround the upper end of the frame, and rendered adjustable by means of the slotted arms W, rod X and nut, substantially as and for the purpose described.

8. The adjustable and pivoted screen U, with its hinged apron or chute X', in combination with the adjustable frame F, and endless-belt bucket-elevator t t, and elevated box or reservoir, substantially as and for the purpose described.

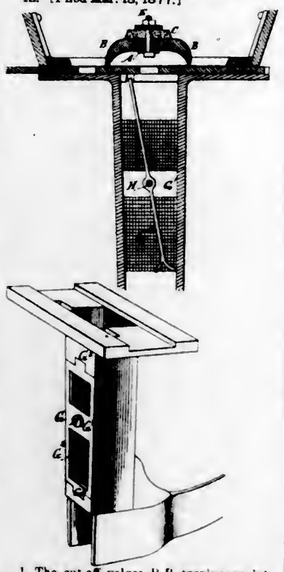
192,611. GRAIN-ELEVATORS. J. A. Woodward, San Francisco, Cal. [Filed May 8, 1877.]



1. The case or trunk A, provided with the enlarged semicircular ends C E, which project upon one side of the trunk, and in which the drums D E are mounted, in combination with the endless-belt elevator B, substantially as and for the purpose described.

2. The connected levers J, pivoted as described, and having the shaft-supporting bars i and cross-bar O, in combination with the adjusting-plate p, with its slot t and screw s, substantially as and for the purpose described.

192,612. CORN-PLANTERS. C. Woods, Springfield, assignor to J. A. Chesnut, same place, and A. M. Dubois, Carlinville, Ill. [Filed Mar. 13, 1877.]



1. The cut-off valves B B, turning on lateral lugs B' B', and normally supported by the intermediate bridge A, in combination with the single spring C and central bolt E, substantially as set forth.

2. In combination with the seed-tubes, the screens and frames G, with lugs to prevent lateral movement, and rod H, passing through the central bar of the frame and the seed-tube, substantially as set forth.

192,613. BUTTONS. S. W. Young, Providence, R. I., assignor to Homogeneous Metal Manufacturing Company. [Filed Oct. 26, 1876.]

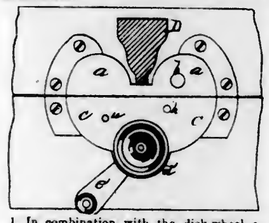


1. The button or stud consisting of the flanged tube A, notched and slitted, as described, in combination with the face B, substantially as and for the purpose specified.

2. The button consisting of the notched and slitted tube A, with its collar or shoulder c, and button B, substantially as shown, and for the purpose specified.

192,614. FASTENERS FOR MEETING-RAILS OF SASHES. H. P. Andrews, Boston, Mass. [Filed May 26, 1877.]

Brief.—A two-part box or casing, arranged to pass around or straddle the mullion of the upper sash, carries a disk-wheel and bayonet catch-bolt, there being suitable pins and grooves or recesses, and a lever or operating-handle, the somewhat complex construction serving to prevent tampering with the device from outside.

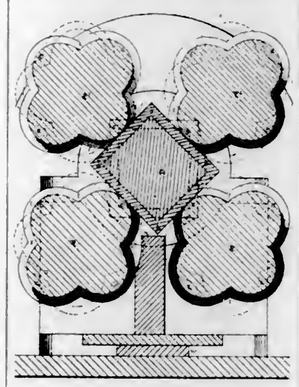


1. In combination with the disk-wheel e, provided with the pin f, the catch-bolt g, turning upon the pin h, and provided with the recessed slot n m, and the recess k, arranged to catch upon the post b, substantially as and for the purpose above described.

2. In combination with the disk-wheel e and pins p and u, the slotted or grooved bayonet-bolt s, arranged to enter the chamber a'' through the opening v, substantially as and for the purpose herein specified.

192,615. MACHINES FOR MAKING RECTANGULAR BANDS. M. Blakey, Etna, Pa., assignor to himself, J. L. Robertson, and G. A. Chalfant, same place. [Filed May 18, 1877.]

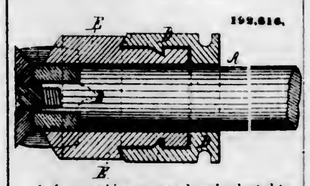
Brief.—The heated blank, of suitable size, fed between the mandrel and one of the lower rolls, is deflected by the guide-block, caught by the opposite lower roll, and made to conform to the shape of the mandrel as the rolls and mandrel turn in opposite directions, the large lobes of the rolls traversing the long, and the small lobes the short, sides of the mandrel.



1. In a machine for making non-cylindrical bands or blanks, the combination of a series of lobed rolls and a mandrel, substantially as described.

2. The combination of a series of lobed rolls, a mandrel, and guide-block, substantially as described.

192,616. MACHINES FOR TRIMMING THE SOLE-EDGES OF BOOTS AND SHOES. Aug. Bolling, Brockton, Mass., assignor of one-half his right to N. D. Morgan, Brooklyn, N. Y. [Filed Aug. 29, 1876.]



1. In a machine arranged and adapted to the trimming of the sole-edges of boots and shoes, the combination of the following elements, viz., an operating-shaft carrying a cutter head provided with a set of cutters radiating from its periphery, and a guide-disk attached to its face, a set of adjustable reciprocating cutters, and an adjustable operating gage, the whole arranged, applied, and operating as and for the purposes substantially as herein shown and set forth.

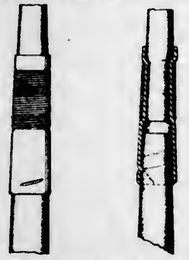
2. The combination, in a machine for trimming the sole-edges of boots and shoes, with a cutter-head provided with a set of cutters radiating from its periphery, of a set of one or more detached auxiliary cutters arranged to be reciprocated between the cutters on the cutter-head, and adjusted to govern the width of the sole-edge to be trimmed, substantially as herein shown and set forth.

3. In a sole-edge-trimming machine, the combination, with shaft A, carrying cutter-head B, provided with cutters a beveled on their forward ends, of guide-disk C, reciprocating cutting-blades E, and sleeve-gage D, the whole arranged and operating substantially as and for the purposes as herein shown and set forth.

4. The combination, with the cutter-head B, having cutters a, of guide-disks C, reciprocating cutter-blades E, rotating sleeve N, and gage-sleeve D, arranged, applied, and operating substantially as and for the purposes as herein shown and set forth.

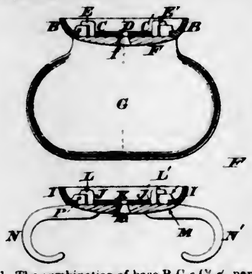
5. The reciprocating cutting-blades E, provided with recesses d and d', arranged, applied, and operating as and for the purposes herein shown and set forth.

192,617. WHIPS. O. Breckenridge, Westfield, Mass. [Filed Apr. 14, 1877.]



A whip-joint coupling or socket, having one or more oblique lengthened projections, c, on the inside, formed as described, substantially as specified.

192,618. STANDS FOR FIRE-IRONS. Benj. H. Connor, Cincinnati, Ohio. [Filed Mar. 16, 1876.]



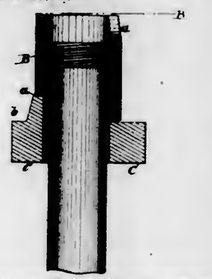
1. The combination of base B C c C' c', pan F G, and hooks E E', as and for the object explained.

2. The combination-head I J J', plate M L L', and hooks N N', as herein described and illustrated.

3. A sectional fire-iron stand, whose pan F G and hooks M N N' are united to shaft A by interlocking devices, substantially as set forth, and are prevented from being unlocked by the screws or nails R R', which secure the stand to the pilaster or other appropriate place.

4. In a fire-stand for attachment to a pilaster or other appropriate place, the shaft A, made semi-tubular or concave at the back, to permit of sections G and M being locked to the shaft by means of hooks and lugs engaging within the concavity, substantially as and for the purposes set forth.

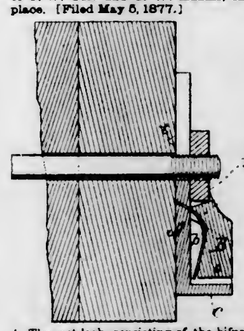
192,619. COUPLINGS FOR OIL-WELL TUBING. Julius C. Dickey, Franklin, Pa. [Filed Dec. 29, 1876.]



1. The coupling B, provided with recesses a, substantially in the manner and for the purpose set forth.

2. The clamp C, having a projection, b, substantially as and for the purpose set forth.

192,620. NUT-LOCKS. J. W. Eaton, Chanute, Kans., assignor of one-half his right to J. W. Cole and G. W. Adams, same place. [Filed May 5, 1877.]



1. The nut-lock, consisting of the bifurcated washer-plate A, having a spring-actuated and pivoted locking-dog, B, and a notch to receive an angle of the nut, substantially as specified.

2. The combination, with a bolt and its nut, of the longitudinally slotted washer-plate A and a spring-actuated and pivoted locking-dog, B, substantially as specified.

3. The washer-plate A, having longitudinal slot b, the raised shoulders c, and the spring s recessed therein, in combination with the vibrating locking dog, having an enlarged head, with notch f, adapted to be sprung down upon the washer-plate for holding a nut against backward rotation, substantially as specified.

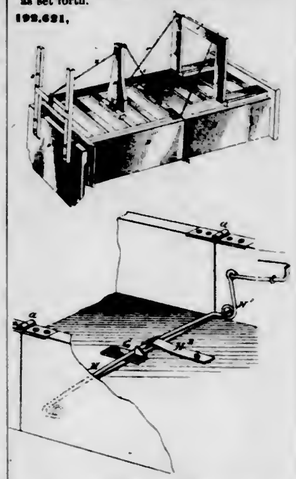
192,621. CABINET-BEDS. W. P. Green, D. A. Green, and J. W. Williamson, Rushville, Ind. [Filed Apr. 2, 1877.]

Brief.—The folding sections are divided with folding legs, which are automatically adjusted by rods as the sections are opened or closed. A spring locking device is located on the interior of the cabinet, to secure the parts in position when unfolded.

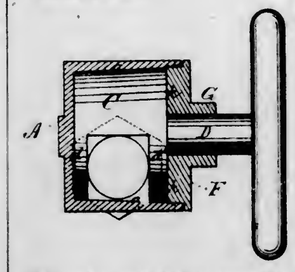
1. In combination with the sections A B of a cabinet-bed, the legs A', D, and B', hinged thereto, and rods E, C, and F, for automatically adjusting the legs as the sections are folded and unfolded, substantially as set forth.

2. In combination with the sections A and B, the locking-rods H H' I and spring H' and catch G, for fastening the sections when extended, and permitting their disengagement without disturbing the mattress, substantially as set forth.

192,621.

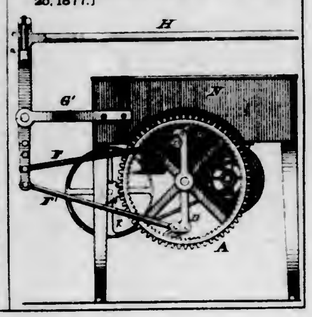


192,622. STEAM AND WATER COCKS. A. Guild and B. S. Lewis, Middletown, Conn. [Filed May 5, 1877.]



In a water or steam cock, the combination with the barrel A, having a conical hollow, and inlet and outlet B B', upon one side of the center of the case, of the tapering plug C, having end disks d d', forming a water-way, e, the rabbeted screw cap F, having the wrench-seat G, and a stem extending through said cap and seat, substantially as specified.

192,623. MECHANICAL MOVEMENTS FOR OPERATING BLOWERS IN FORGES. Chas. Hammelmann, Buffalo, N. Y. [Filed May 26, 1877.]

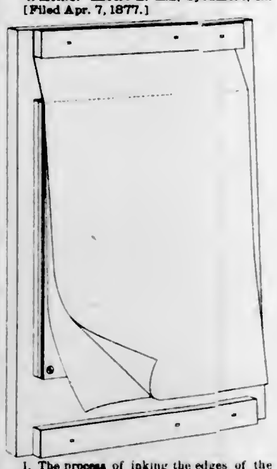


1. The mechanism for operating forges, &c., consisting of the main wheel A, having the serrated annular projection B, and being mounted upon the fixed arbor C, the pendent radius-bar or lever D provided with the two pawls E' E'' pivoted to said radius-bar and engaging with the teeth of the annular projection, the connecting-rod F', and the lever G, the whole constructed and arranged substantially as specified.

2. The combination, with the lever G having the pin *a*, of the handle H provided with the socket *c*, as described, for the use and purpose stated.

3. The combination, with the main wheel A having the serrated projection B, and mounted upon the shaft C, of the radius-bar D provided with the bend *d* and the pivoted pawl E, radius-bar D', having the pawls E' E'', connecting-rods F F', lever G, and handle H, the whole constructed and arranged to operate in a manner substantially as herein-before set forth, for the purpose specified.

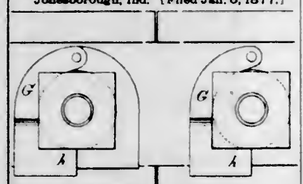
192,624. PROCESSES OF INKING PERFORATED WRITING. Albert E. Hix, Sycamore, Ill. [Filed Apr. 7, 1877.]



1. The process of inking the edges of the punctures in a stencil-writing by forcing the pen through the paper into an ink-pad, and depositing the ink upon its return movement, substantially as specified.

2. An inking-pad, consisting of a sheet of tin or other suitable material placed beneath and folded at the edges upon the ink-holding fabrics, and provided with a guard upon its upper surface, substantially as specified.

192,625. NUT-LOCKS. Jos. Hollingsworth, Jonesborough, Ind. [Filed Jan. 6, 1877.]

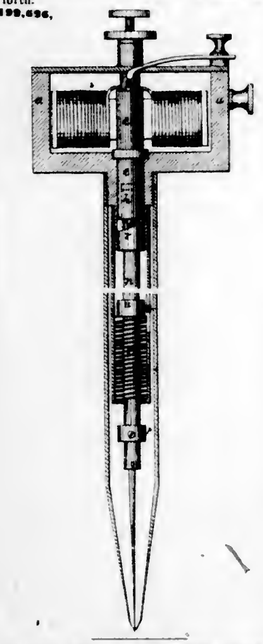


The nut-lock described, having the thin curved arm G, pivoted above the nut, and the angular base-block at its lower end, adapted to embrace a lower corner of said nut, and having a branch, *h*, to fit between the lower face of the nut and the upper surface of the flange of the rail, substantially as specified.

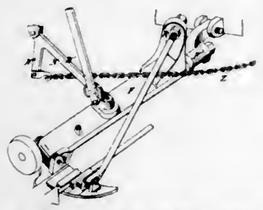
192,626. STENCIL-PENS. Henry M. Paine, Newark, N. J. [Filed Mar. 13, 1877.]

A hand stencil pen or style consisting of magnetic bars *b b*, revolving in an open armature-frame, Figs. 1 and 2, in combination with a cam, *r*, having two or more waves cast or otherwise secured upon the upper end of the bar *a*, within the circumference thereof, and toe *f*, stop *s*, spring *t*, all constructed, arranged, and operating, for stenciling purposes, upon paper or other thin substances, in the manner substantially as above set forth.

192,696.

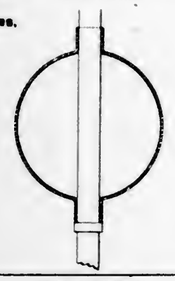


192,627. MOWERS. A. R. Reese, Phillipsburg, N. J. [Filed June 5, 1876.]

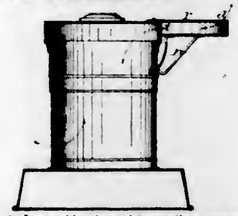


In a front-cut two-wheeled mowing-machine, the combination of the draft-transmitting, lifting, and bracing angle-piece N, pivoted at its angle to and beneath the tubular axle-inclosing frame-work, the brace-bar F, pivoted to the long arm N^1 of said angle-piece, and the chain Z, pivoted to the short arm N^2, and connected with the draft of the machine, substantially as described, and for the purposes specified.

192,628.



192,629. ATTACHMENTS FOR OIL OR GAS COOK-STOVES. O. F. Stedman, Westfield, N. Y. [Filed June 23, 1877.]



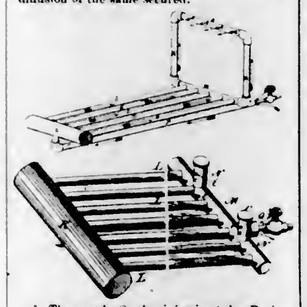
1. In combination with an oil or gas cooking-stove, the hollow heater *r* applied to the top edge of the stove, the stove having the flues *i*, so that the surplus heat can pass into the heater, and the heater having the flues *d* at or near the outer edge or side, so that when the heat has passed through the heater it can escape directly into the air, substantially as shown.

2. In combination with an oil or gas cooking-stove, a hollow detachable heating or warming table or platform, the stove and heater being provided with flues *i d*, so that the surplus heat of the lamp will pass through the heater into the air, substantially as described.

3. The combination of an oil or gas cooking-stove with a heating platform or table, there being left a slight space between the under plate of the heater and the side of the stove, so that a current of cold air will pass up the sides of the stove and prevent it from overheating, substantially as set forth.

192,630. HOT-BLAST GRATE-BARS. H. W. Adams, Philadelphia, Pa., assignor of one-half his right to J. Q. A. Ziegler. [Filed May 1, 1877.]

Brief.—Air is injected through hollow grate-bars by means of nozzles in an upper drum over the fire-door. The air is injected down upon the fire. When used for locomotives, the bars are reversed, and the drum under the tubes is perforated to throw the air-jets in opposite direction from that of the natural draft, by which the gases are retarded and better diffusion of the same secured.



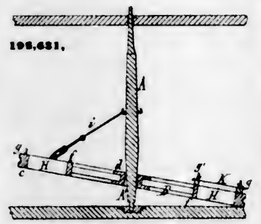
1. The nozzle S, the injection-tube P, the drum K, the hollow bars L, the drum M, the tubes N N, the drum O, and the nozzles Q, when constructed and operated substantially in the manner and for the purposes hereinbefore shown and described.

2. The combination, with the injection-pipe and nozzle Q, of the mixing-drum K, the hollow bars L, and the perforated drum M, substantially as and in the manner set forth and described.

3. The combination of the drum K, hollow bars L, and perforated drum M, cast in one piece, in the manner and for the purpose described.

192,631. HORSE-POWERS. T. E. Adams, North Evans, N. Y. [Filed Feb. 22, 1877.]

192,631.



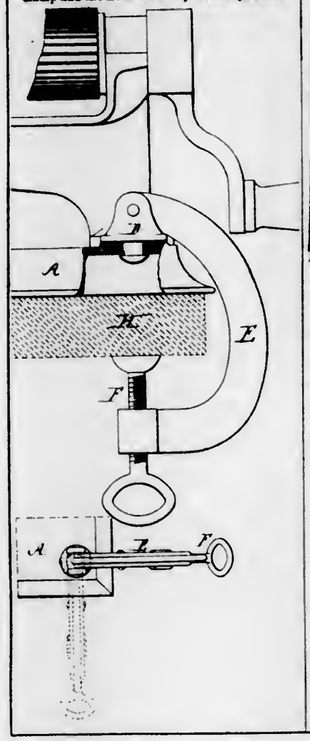
1. In a horse-power, the wheel B, provided with one or more spaces, H, for the draft-animals, and having the draft-staples *g g'*, arranged one in the rim *e*, and one in the brace *f* in a line drawn through the centers respectively of the wheel and the spaces H, so as to apply the draft, substantially as set forth.

2. The combination, with the wheel B, provided with one or more spaces, H, of the U-shaped pusher or draft device K, arranged upon the wheel, and secured with its forward ends respectively to the rim and brace of the wheel at or near the middle of the space H, substantially as and for the purpose hereinbefore set forth.

3. The combination, with the wheel B, provided with square hub *d* and space or spaces H for the draft-animals, of the shaft A, having its lower portion A' made tapering downwardly, and detachable guys *i*, so that either side of the wheel may be lowered to the ground for stepping the animal into the wheel, while the other side thereof is supported by the guys, substantially as hereinbefore set forth.

192,632. CLAMPING DEVICES FOR FLUTING-MACHINES. H. Albrecht, Philadelphia, Pa. [Filed Aug. 30, 1876.]

Brief.—The arm of the clamp is attached to the base of a fluting-machine by a swivel-stud, which permits the adjustment of the clamp and the machine to any desired position.



The stud D, connected to the base A so as to be turned laterally thereon, in combination with the arm E, provided at one end with a screw, F, and hinged at the opposite end to the said stud D, all as set forth.

192,633. PUMP-VALVES. N. S. Bean, Manchester, N. H. [Filed June 6, 1877.]

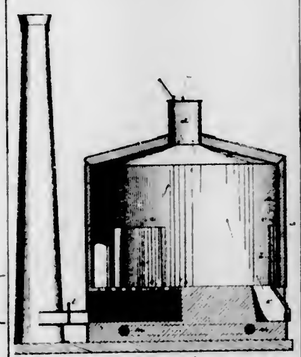
Brief.—A thick flexible disk; on one side a metal disk of equal diameter, with central hollow stem passing through, outside threaded; a smaller disk screwed on end of said pin, each disk having concentric rings pressing into the flexible disk, a pin-guide entering the hollow screw, and a supported spring on the opposite side holding it to duty, the valve-seat being wholly unobstructed when the valve is forced from it.



1. The valve, composed of the plates *j k*, provided with projections *l*, and of an india-rubber block *h*, all combined to operate substantially as described.

2. The valves, composed of india-rubber blocks, and plates, and pins, disconnected from the valve-seats to guide the valves, in combination with the unobstructed valve-seats, to operate substantially as described.

192,634. BRICK-KILNS. Wm. T. Christy, St. Louis, Mo. [Filed Jan. 27, 1877.]



1. The sectional incasement A and the binding-clamps *c a*, combined with the arch skewback-band *d*, as and for the purposes herein described.

2. The sliding valve *u*, in combination with grating S and valve *l*, as and for the purposes herein described.

3. The closed firing-places with balanced doors *b*, combined with the split-bridge U, the cut-off valve-tile *u*, and the clinkering-slot *x*, as and for the purposes herein described.

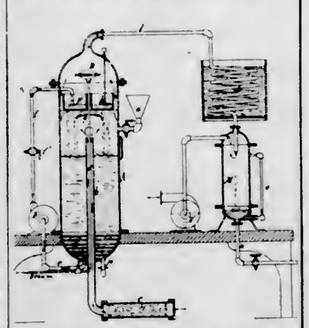
192,635. APPARATUS FOR REFINING AND AGING ALCOHOLIC LIQUORS. Geo. Clark, Buffalo, assignor of a part of his right to F. H. Gatchell, Jas. M. Merritt, and M. Brown, same place, and N. B. Gatchell, Lancaster, N. Y. [Filed May 7, 1877.]

Brief.—The liquor is heated by a steam-coil, and is circulated and sprayed by a pump, connecting-pipes, and a perforated tray. Air, previously strained through cotton, is drawn through the sprays of liquor by an exhaust-pump. Vapors of liquor carried over by the air-currents are condensed in a worm condenser, and the condensed liquor collected in a separate vessel.

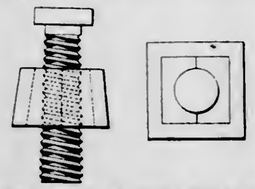
1. The combination and arrangement, with the tank A, of the air-pipe *b*, circulating-pump E, perforated receiver F, condenser L, receiver M, and exhaust device N, substantially as and for the purpose hereinbefore set forth.

2. The combination, with the tank A and exhaust device N, of the air-pipe *b*, arranged vertically within the tank A, and terminating above the liquid-level therein, steam-pipe *d*, and perforated receiver F, arranged above the upper end of the air-pipe *d*, substantially as and for the purpose hereinbefore set forth.

3. The combination, with the tank or still A, of the air-pipe *b*, steam-pipe *d*, provided with steam-chamber D, circulating-pump E, and perforated receiver F, substantially as and for the purpose hereinbefore set forth.

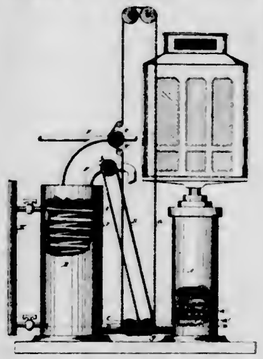


192,636. NUT-LOCKS. J. T. Collins and E. B. Grant, Byesville, Ohio. [Filed June 13, 1877.]



The combination of a bolt, a divided nut, and a cap to fit over the nut, the end of the bolt being made tapering, so as to expand the nut inside of the cap, substantially as set forth.

192,637. METHODS OF APPLYING POWER IN STEAM, AIR, OR GAS ENGINES. Wm. R. Comings, New Britain, Conn. [Filed Dec. 11, 1876.]



1. In an engine in which a piston is moved by an elastic fluid through the medium of a liquid volume, the method of applying the power, consisting in heating the liquid volume to a temperature sufficient to prevent condensation of the elastic fluid, and in applying the power to the elastic fluid expansively, as shown, so that its expenditure may be varied during each stroke of the piston to correspond with the work to be done.

2. In an engine in which a piston is moved by an elastic fluid through the medium of a liquid volume, the method of applying the

power, consisting in controlling the supply and exhaust of the elastic fluid so that its expenditure may be varied during each stroke of the piston to correspond with the work to be done, and in controlling the movement of the liquid volume, so as to prevent its backward flow.

3. In an engine in which a piston is moved by an elastic fluid through the medium of a liquid volume the method of applying the power consisting, first, in heating the liquid volume to a sufficient temperature to prevent the condensation of the elastic fluid; second, in controlling the supply and exhaust, as shown; third, in applying the power directly to the liquid volume without intervening mechanism.

4. In an engine in which a piston is moved by an elastic fluid through the medium of a liquid volume, the described method of preventing condensation, consisting in heating the liquid volume to a temperature sufficient to prevent the condensation of the elastic fluid, substantially as described.

5. The combination of the piston-chamber, the liquid-chamber provided with means for supplying and exhausting the motive fluid, and a valve interposed between the two chambers for controlling the flow of the liquid, said valve and the steam-valve being independently controlled, substantially as described.

6. In a machine in which the piston is moved by steam-pressure transmitted through a liquid body, the check-valve for preventing the return of the liquid to the cylinder, a valve for admitting the required amount of pressure and means for controlling the exhaust, whereby the supply and exhaust may be independently operated.

7. In a machine in which the power is transmitted through a heated liquid, the heating-coil in combination with the liquid-chamber, substantially as described.

8. The combination of the main tank B, the auxiliary tank L, the check-valve *l* between them, and the pipes D *l*, connecting said tanks with the piston-cylinder, the construction being such that the backward flow of the liquid volume is permitted while the steam is exhausting, substantially as described.

9. In a machine in which the piston is moved by the pressure of an elastic fluid, transmitted through a liquid volume, in combination with the cylinder A and tank B, the independent supply and exhaust pipes E and F, having valves *e* and *f*, adapted for independent operation to permit the use of steam expansively, substantially as described.

10. In combination with an intermediate liquid volume, adapted to be acted upon by steam-pressure, a valve for admitting the required amount of pressure, a check-valve for preventing the backward flow of the fluid when acted on by the pressure, and a piston, substantially as described.

11. In combination with the tank B and cylinder A, the connecting-pipe C, having check-valve *c*, and the pipe D, having the valve *d*, as described.

12. In combination with the tank B and cylinder A, the valve *d* controlling the flow in the pipe D, the valve *f* controlling the exhaust, and intermediate means, substantially as described, for connecting and operating the two together.

13. In combination with a tank, a steam-supply pipe having a valve independently controlled, and a delivery-pipe having an automatic check, the construction being such that when steam is admitted to the tank the liquid is caused to flow from the tank without possibility of return, substantially as described.

14. In combination with a tank having a steam supply-pipe with an independently-acting valve, a delivery-pipe having a check-valve, and an inflow-pipe and exhaust-pipe, having valves working in harmony, substantially as described.

192,638. UMBRELLA TIP-CUPS. Ed. Croft, Waterbury, Conn., assignor to Waterbury Manufacturing Company, same place. [Filed June 4, 1877.]

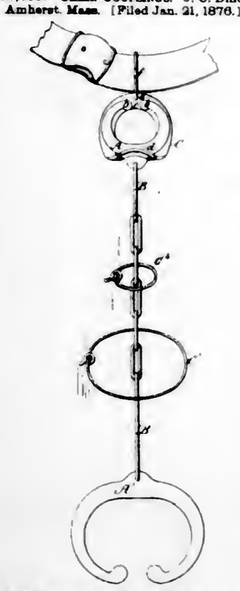


1. The cylindrical tip-cup with the metal at the edge, that comes into contact with the ribs, folded inwardly to strengthen the cup and form an annular recess, substantially as and for the purposes set forth.

2. The cylindrical thimble *a*, flange *b*, and cylindrical guide *c*, in combination with the cylindrical tip-cup *e*, that surrounds and slides upon the cylinder *c*, substantially as specified.

3. The combination, with the cylindrical guide *c* and cylindrical tip-cup *e*, of the helical spring *l*, one end of which passes into the annular recess of the tip-cup, and the other within the cylindrical guide *c*, substantially as set forth.

192,639. CHAIN-COUPLINGS. J. C. Dillon, Amherst, Mass. [Filed Jan. 21, 1876.]

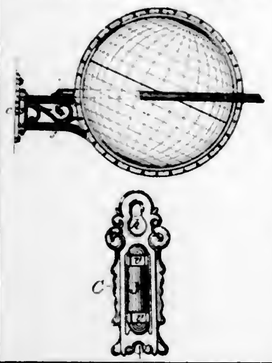


1. The coupling-bar A, with the pivotal eye *a*, and the arms *b b* curved outward from the connecting-link B, all substantially as described, and adapted for use with a link and ring, as set forth.

2. The coupling-ring C, bent upward on the chord of its arc, in manner as set forth, and adapted for use with the coupling-bar A, as specified.

3. The combination of the improved coupling-bar A, the link B, and a plain ring, C', and C², or a coupling-ring, C, bent upward on the chord of its arc, substantially as set forth.

192,640. EDUCATIONAL GLOBES. Edwd. G. Durant, Racine, Wis. [Filed Dec. 4, 1876.]



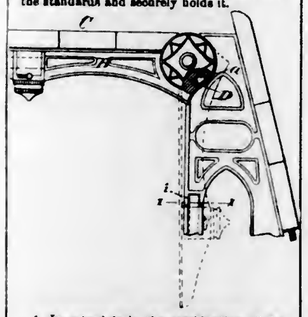
1. A supporting-ring for a globe, said ring being provided with an arm or bracket by which the ring containing the globe may be attached to the wall or desk, substantially as described.

2. The arm or bracket J, attached to the supporting-ring of a globe, and provided with a hinge or joint on which it can be swung or moved laterally, substantially as described.

3. In combination with a supporting ring for a globe, having a bracket or projecting arm connected thereto, the plate C, provided with the slot *h* and notch *i*, substantially as described.

192,641. SCHOOL-DESKS. Edward G. Durant, Racine, Wis., and Thomas P. Kane, Chicago, Ill. [Filed Dec. 16, 1876.]

Brief.—The lid and its pivoted arms are sustained in an elevated position by the spring-bolts. When the lid is lowered, a lock on one of its arms engages with a flange on one of the standards and securely holds it.



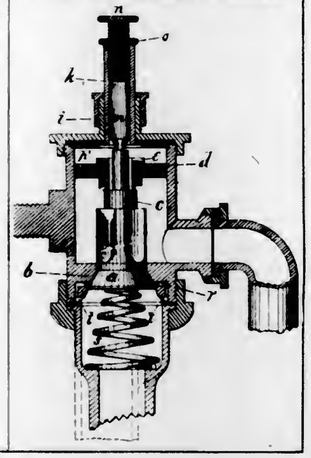
1. In school-desk, the combination of the standards A and pivoted arms B, with the sliding spring-bolts D, and the cord or other flexible connection extending directly from one bolt to the other.

2. In a school-desk, the combination of a hinged falling top, two locking devices, D, located at opposite ends of the same, and a cord or similar flexible connection extending directly from one of said devices to the other, in the manner shown.

3. In a school-desk, the combination of a metal standard, A, a hinged metal lid-arm, B, and the key-lock G, seated in a metal socket, *h*, substantially as shown and described, and serving to fasten the arm down.

192,642. WATER-CLOSET VALVES. Seayrs Eckert, Pittsburg, Pa. [Filed Nov. 16, 1876.]

Brief.—The flow of water is regulated by an adjustable threaded stem, in combination with a threaded cylinder connected with the valve stem. To supply a small steady stream, one or more inlets are constructed in the valve-seat.



1. The combination of an adjustable threaded operating stem, *m*, and a threaded cylinder, *k*, with the valve-stem, whereby a constant stream of any desired size may be admitted to the bowl, substantially as set forth.

2. The combination of nut *o*, screw-stem *m*, cylinder *k*, and nut *i*, substantially as shown.

3. The combination of the valve *a*, and the seat *b*, constructed with inlets *t*, one or more, and with or without groove *r*, substantially as described.

192,643. SKATES. Oliver Edwards, Florence, Mass. [Filed Jan. 16, 1877.]



1. A skate constructed with a strengthening-rib or lateral projection, extending about the outer body of the runner, and increasing in transverse sectional dimension as it approaches the sole-plate, whereby the greatest strength is obtained proportionate to the strain brought against the skate, substantially as and for the purpose described.

2. The standard of a skate-runner, provided with a lateral enlargement or projecting rib, cast on its front and rear transverse sides or edges, substantially as and for the purpose described.

3. The laterally-projecting ribs cast with and along the vertical transverse sides of the standard, and increasing in their cross-sectional dimension from the body of the runner up, substantially as described.

4. The combination of the metallic sole-plate of a skate with the double vertical braces rising in increased transverse dimension from the body of the runner, and connected by a horizontal cross-piece, which latter directly secures the sole-plate by a loose rivet-and-slot engagement, substantially as and for the purpose described.

5. A skate whose runner is cast with double vertical braces or columns united at their upper extremities by a horizontal bracket directly supporting the sole-plate, the said braces individually increasing in transverse sectional measurement from the body of the runner up to the said bracket, substantially as described.

6. A skate-runner provided with an oblong opening about midway between the heel-plate and bottom of the runner, said opening formed on an incline to the length of the skate, whereby the strap, when secured over the instep, will not twist within the strap-opening, substantially as and for the purpose set forth.

7. A skate whose stud-button, having an annular locking-groove, is cast complete with the heel-plate and runner, substantially as and for the purpose described.

192,644. DISTRICT-TELEGRAPH SIGNAL-BOXES. Leroy B. Firman, Chicago, Ill. [Filed Apr. 13, 1877.]



1. The signal mechanism, operated by suitable clock-work, provided with a writing-wheel constructed to give the call or number of the station, and another adjustable wheel, which stands still while the call is being written, and is engaged by the mechanism after the call has been sent, and is caused to turn through whatever space or number of teeth desired by setting the pointer, substantially as specified.

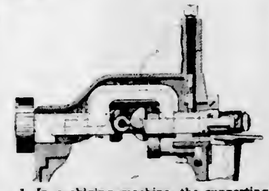
2. The combination of the call-writing wheel, upon the shaft of which is a cogged segment, and the signal-writing wheel, upon the shaft of which is another cogged segment, substantially as specified.

3. The signal-wheel, the dial, the pointer, the call-wheel, and gearing for operating the signal after the call is sent, combined, substantially as specified.

4. The signal-wheel, the call-wheel, and mechanism for operating the same in the manner described, combined with the circuit, the spring contact-fingers, and the automatic shunt, substantially as set forth.

5. The combination, with a call-writing wheel, of a signal-writing wheel, moved by the same power, when the latter is provided with a number of equal-spaced teeth, which write the signal desired by making a certain number of equal-spaced impulses, substantially as specified.

192,645. SKIVING-MACHINES. Walter S. Fitzgerald, Boston, Mass. [Filed Dec. 11, 1876.]



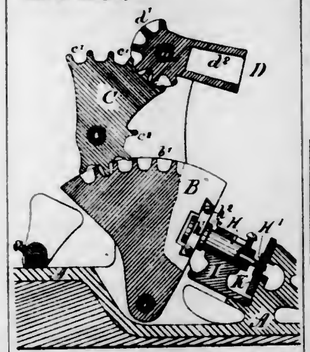
1. In a skiving-machine, the supporting-bed and feeding mechanism, in combination with a cutting blade or knife adapted to be reciprocated in a path or plane intersecting the plane of the surface of the support, substantially as and for the purpose described.

2. An inclined supporting-bed, in combination with a continuously-rotating cylindrical or wheel feeding device, and with mechanism to intermittingly raise and lower the feeding device, so as to move the material being skived forward against a knife, it then acting to cut the material and to release the material when the knife is moving away from the edge-gage, so as to prevent the feed from then moving the material, substantially as described.

3. An inclined supporting-surface, a horizontally-reciprocating knife or blade, and a rotating feeding-surface, in combination with a holder to hold the material when the feeding device is elevated from it, substantially as described.

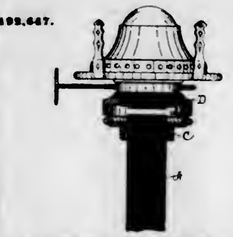
192,646. PUNCHING AND SHEARING MACHINES. Moritz Gluck, New York, N. Y. [Filed May 19, 1877.]

Brief.—The punch guide is adjustable laterally in ways, and the die-plate made adjustable to position the dies relatively to the punch by means of slots in bed and die plates, with bolts for clamping.



In a punching and shearing machine, the punch stock H, with the flange or collar *h*, the guide I, the adjustable die-plate K, in combination with the punch H', bed-plate A, and levers B, C, and D, substantially as and for the purpose set forth.

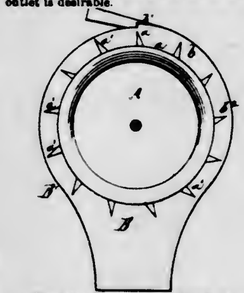
192,647. SAFETY ATTACHMENTS FOR LAMPS. Leonidas W. P. Gray, New Orleans, La. [Filed Apr. 6, 1877.]



The gauze tube A, provided with washer *b*, in combination with the couplings C D and lamp-burner or lamp, as described and for the purpose specified.

192,648. TURBINE WHEELS. Ezra M. Hale, Kansas City, Mo., assignor to Jas. Talley, Jr., same place. [Filed May 24, 1877.]

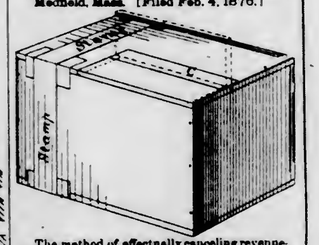
Brief.—The inlet-pipe is connected with the periphery of the casing, and delivers the water into an eccentrically-formed cavity of the chamber. The case is constructed to allow the incoming water to pass along into the cavity or chamber, from which it will be forced to impinge upon two or more of the buckets simultaneously, thereby expending upon the wheel a larger amount of force than could be derived from its discharge upon a single bucket. The outlet is formed in the part of the case opposite to the inlet-pipe, and should be sufficiently large to permit the flow of the water. A considerable excess in the size of the outlet is desirable.



1. The case B', constructed with an eccentrically-enlarged inlet-chamber, *b*, tangentially connected with the chamber B at *b'*, and thence gradually enlarged to the point of inlet at *b¹*, as and for the purpose set forth.

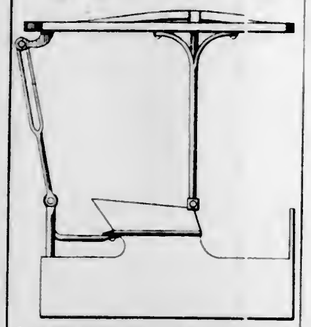
2. The wheel A, having sloping peripheral buckets *a'* and the casing B B', having the tapering inlet-chamber *b*, combined and arranged as described and set forth.

192,649. REVENUE-GUARDS FOR CIGAR-BOXES AND OTHER PACKAGES. F. I. Howe, Medfield, Mass. [Filed Feb. 4, 1876.]



The method of effectually canceling revenue-stamps applied to cigar-boxes, liquor-barrels, or other packages liable to duty, and thereby insuring the certain collection of the Government tax thereon, by means of pieces or strips of textile fabric of greater width than the stamp employed, pasted essentially over all the joints of the box or orifices of the barrel after being filled, and to which strips the stamp is cemented upon its application around the box or upon the package, substantially as described and shown, and for the purpose above set forth.

192,650. BUGGY-TOPS. John H. Keller and Edmond M. Keller, Clyde, Ohio. [Filed May 14, 1877.]

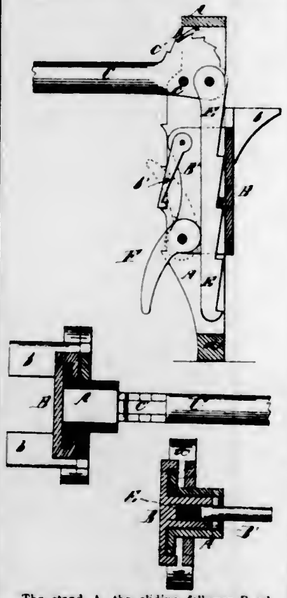


1. The combination, with a canopy-top, of side supports and a rear adjustable and locking brace, the lower end of which is jointed to a standard secured to the buggy-box, substantially as described.

2. The combination, with a canopy-top and intermediate adjusting mechanism, of the central rear standard, engaging with the same at its upper extremity, while its lower end connects by a loose hinge-joint to a stationary standard fastened to the buggy-box, substantially as described.

3. The combination, with the canopy-top and brace-rod secured to its central rear portion, of the clamp and connecting rear standard, the latter provided with the longitudinal slot, in which the said clamp has sliding adjustment, substantially as described.

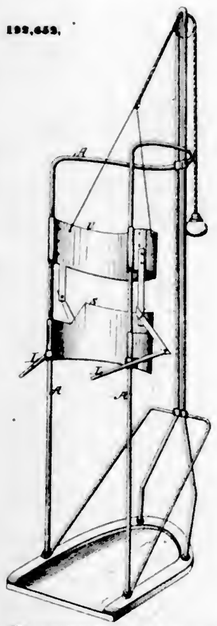
192,651. LIFTING-JACKS. John P. McGrew, Mount Pleasant, Iowa. [Filed Mar. 28, 1877.]



The stand A, the sliding follower B, adjustable as to height by means of the serrated rod E, and corresponding notches on the follower, and the retaining-cam F, the dog b', and the lever C, arranged as and for the purpose set forth.

192,652. BAG-HOLDERS. Moses P. Moule, Spafford, N. Y. [Filed Nov. 11, 1876.]

192,653.

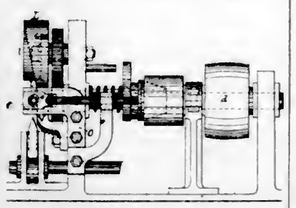


1. The combination, in a bag-holder, of the slides or clamps U S, ways upon which they may be simultaneously raised or lowered, and operating-levers L, substantially as described.

2. The combination, in a bag-holder, of the slides or clamps U S, their operating levers L, the ways A A, pulley, cord, and weight, substantially as described.

192,653. MACHINES FOR WINDING IRON. A. J. Moxham, Louisville, Ky. [Filed Mar. 3, 1877.]

Brief.—A sufficient length of the rod to reach the mandrel having been fed through the movable guide, the end is carried to the bottom of the furcation at the same time and by the same lever that the mandrel is clutched to the driving-shaft. The rod is wound around the mandrel, and made to conform thereto by the roll, of shape corresponding to the shape of the mandrel, and so arranged in relation thereto that their peripheries are always equidistant while in operation, and the coils are crowded off by the inclined or spiral face of the mandrel.



1. A bending or coiling machine, consisting of a rotary mandrel, a spiral-sided bearing roll or rolls, and a traveling feed-guide, all combined and operating substantially as and for the purposes specified.

2. The combination of the mandrel H, guide O, and clutch F, operating together by means of a suitable connection, substantially as and for the purpose specified.

3. The bifurcated mandrel or coil-former H, provided with tapering points, the bottom of the furcation extending up to, but not under, the coil-forming and strain-bearing part of the mandrel, substantially as and for the purpose specified.

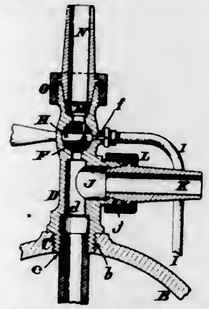
4. The roll L, in combination with a coil-forming mandrel, H, both having irregular contours, as described, so conformed each to each as to remain equidistant while said roll and mandrel are rotated, substantially as and for the purpose specified.

5. The roll L, provided with a spiral side, *l*, in combination with a mandrel or coil former external to said roll, substantially as and for the purpose specified.

6. The beveled bearing-block V, in combination with a rotary mandrel or coil-former and the spiral-sided roll L, whereby the coils of iron wound upon said former are separated and discharged therefrom, and support given thereto, substantially as and for the purposes specified.

7. A coil-forming rotary mandrel, in combination with a bearing roll, L, provided with a cutting-edge or knife, *i*, substantially as and for the purpose specified.

192,654. COMBINED STOP-COCK AND COUPLING. John G. Murdock, Cincinnati, Ohio. [Filed July 1, 1876.]



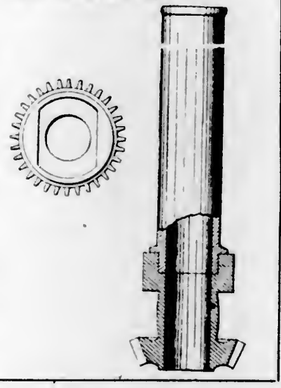
1. The herein-described new article of manufacture, comprising the T-joint D d J, stop-cock F H, and the ends constructed with screw-threads C O, the whole combined, constructed, and arranged substantially as and for the purpose herein set forth.

2. The within-described combined cock and coupling, consisting of a barrel, D d, rotating channeled plug F H, lateral branch J *j* K L, joint M, tail *k*, and coupling O, substantially as herein described, and for the purpose stated.

3. The herein-described new article of manufacture, comprising the T-joint D d, rotating plug F H, and lateral branch J, which branch is not situated in the same horizontal plane as is said plug, as and for the purpose set forth.

192,655. BOBBIN-HOLDERS AND BOBBINS FOR SLUBBING AND FLY FRAMES. Martin J. Nealon and Timothy Higgins, Chester, Pa. [Filed Jan. 18, 1877.]

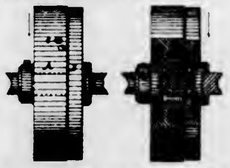
Brief.—The holder has a cornered or eccentrically-shaped recess in its top, into which a similarly shaped (at its bottom) bobbin fits. Old bobbins may be cut away, so as to fit said recess and be used over again.



A bobbin-holder having a cornered or eccentrically shaped recess made in its top, to receive the lower end of the bobbin and rotate the same, and whereby also the ends of old cast-away bobbins can be reshaped to fit this recess, and again be used, substantially as shown and described.

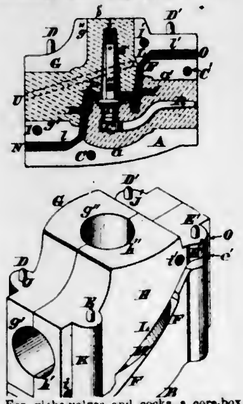
192,656. SAFETY-GEARING. Emery Parker, New Britain, Conn. [Filed Mar. 28, 1877.]

Brief.—When the strain upon the pulley connected to the fixed plate upon the revolving shaft is greater than that which is requisite for driving its shaft and the machinery connected therewith, it will disconnect by displacing the spring-catch, and rotate without revolving its shaft, and act as a loose pulley.



The combination, with a gear or pulley and a driving-plate, of a spring-catch, which rotatively connects the pulley with the plate by the force of its spring, and which, when the pulley is disconnected, permits the pulley to rotate independently of its shaft and as freely as a loose pulley, substantially as described.

192,657. SAND-CORE BOXES. Jas. Powell, Cincinnati, Ohio. [Filed Apr. 12, 1877.]



1. For globe-valves and cocks, a core-box consisting of a duplex drag, a duplex cope, and a detachable inclined diaphragm, the part between said drag and cope being made in the plane of said diaphragm, substantially as herein described and set forth.

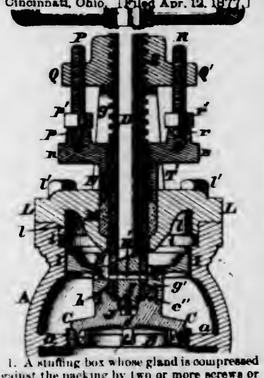
2. For globe-valves and cocks, a core-box consisting of a duplex drag, a duplex cope, and a detachable inclined diaphragm, the part between said drag and cope being made in the plane of said diaphragm, which latter member of the box is provided with two opposite molding-faces, *m m'*, substantially as herein described and set forth.

3. For globe-valves and cocks, a core-box consisting of the duplex drag A *a a'* C C' D D' B *b b' c c'* E E', duplex cope G *g g' g''* I I' J J' H *h h' h''* i i' K K', and detachable diaphragm M *m m'* N *n n'* O *o o'* P *p*, substantially as herein described and set forth.

4. The within-described diaphragm for core-boxes of globe-valves and cocks, consisting of plate M, having opposite molding-faces *m m'*, and perforated partition P *p*, said plate M being adapted to seat in the inclined parting of the box, substantially as herein described and set forth.

5. The within-described core for globe-valves and cocks, consisting of a spherical portion, V, prints *r r' r''*, and two oblique channels, W W', that join the waist X, the two members of the core being anchored together by a bar embedded in the end print *r''* and the vertical print *r'*, substantially as herein described and set forth.

192,658. COCKS AND VALVES. Jas. Powell, Cincinnati, Ohio. [Filed Apr. 12, 1877.]



1. A stuffing box whose gland is compressed against the packing by two or more screws or segmental screws interposed between said gland and suitable abutment, in such a manner as to exercise a thrusting action against the gland, substantially as herein described, and for the purpose set forth.

2. The combination of stuffing-box M, gland N *n*, sockets O O', screws P *p p'* R *r r'*, and threaded abutments Q Q', substantially as herein described, and for the purpose set forth.

3. The combination, in a valve or cock, of screw-threaded stem G *g*, cap I, stuffing-box M, gland N *n*, sockets O O', screws P *p p'* R *r r'*, abutments Q Q', nut S, and yoke T T', substantially as herein described, and for the purpose set forth.

4. A composite valve-stem consisting of an axial rod, D, of hard metal, with an envelope, G, of fusible metal or alloy cast around it, said envelope being provided with an operating screw-thread, *g*, substantially as herein described, and for the purpose set forth.

5. A valve-stem consisting of an axial rod, D, of hard metal, and a surrounding envelope, G *g*, of fusible metal, the upper end of said rod being threaded at *d'* for retaining hand-wheel F, while the lower end of the envelope is furnished with a collar, *g'*, for supporting the valve and its attachments, substantially as herein described, and for the purpose set forth.

6. The combination, in a valve or cock, of the nicked stem *d'''*, loosely-coupled valve O, inverted T-shaped slot J, and removable pin *j*, which latter is capable of insertion in said slot, either vertically or horizontally, substantially as herein described, and for the purpose set forth.

7. The combination, in a cock or valve, of perforated stem D K' and perforated valve-nut or guide H K, when one of said perforations is of relatively greater size than the other one, substantially as herein described, and for the purpose set forth.

192,659. LOOMS FOR WEAVING LOOPED OR PILE FABRICS. John Rothwell, Philadelphia, Pa., assignor to Bridesburg Manufacturing Company, same place. [Filed May 9, 1877.]

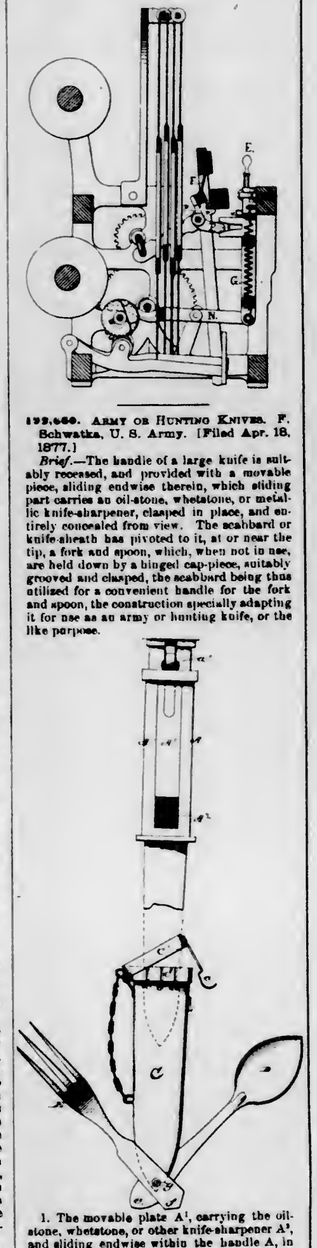
Brief.—The loom is especially adapted to weave Turkish toweling having a looped body or main portion, with borders of plain weaving. The terry-warps, as is usual, are mounted upon a separate warp-beam, which is adapted to give off the warps more freely than the beam carrying the body-warps. The loose reed is automatically locked at regular intervals, the latter being determined by the shape of the cam. When the reed is loose, the wefts are laid in without being driven home; but when the reed is locked the wefts are beaten up, and the warps, being freely drawn off, form loops on both sides of the fabric. To make a plain fabric, the reed is locked by a device under the control of the weaver, and is relieved from the action of the cam.

1. The combination of lever N, bar G with jaw S, arm P, swing-reed F, and mechanism adapted to operate the same automatically, as described, and for the purpose specified.

2. The combination of lever E, pin V, bar G having jaw S, with the loose reed F holding bar and arm P, for the purpose of changing at the will of the weaver from looped to plain fabrics, as described.

192,660. ARMY OR HUNTING KNIVES. F. Schwatka, U. S. Army. [Filed Apr. 18, 1877.]

Brief.—The handle of a large knife is suitably recessed, and provided with a movable piece, sliding endwise therein, which sliding part carries an oil-stone, whetstone, or metallic knife-sharpener, clasped in place, and entirely concealed from view. The scabbard or knife-sheath has pivoted to it, at or near the tip, a fork and spoon, which, when not in use, are held down by a hinged cap-piece, suitably grooved and clasped, the scabbard being thus utilized for a convenient handle for the fork and spoon, the construction specially adapting it for use as an army or hunting knife, or the like purpose.

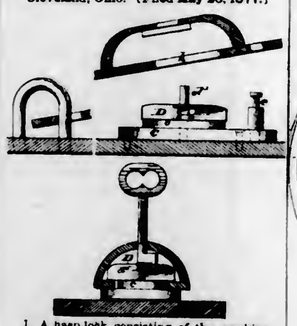


1. The movable plate A', carrying the oil-stone, whetstone, or other knife-sharpener A', and sliding endwise within the handle A, in such manner as to embed and conceal the knife-sharpener, substantially as specified.

2. The scabbard or knife-sheath C, forming, when detached and opened out, a handle for the fork E and the spoon D, pivoted at *g* near its tip, and constructed with grooves *a b c*, and hinged cap-piece C' for retaining the fork and spoon in place when closed, substantially as described.

3. An improved army or hunting-knife consisting of the dirk-knife B and handle A, whetstone or knife-sharpener A', scabbard or knife-sheath C, fork E, and spoon D, all constructed, arranged, and combined together substantially as shown and described, for the purpose set forth.

192,661. HASP-LOCKS. Louis H. Sholder, Cleveland, Ohio. [Filed May 26, 1877.]



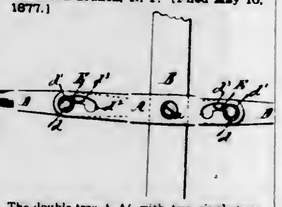
1. A hasp-lock consisting of the combination, with a plate adapted to be secured to a suitable object, a bolt pivoted thereto, and a spring connected to plate and bolt, of a hasp, having a locking-opening, and a casing for the reception of the bolt when locked, the said casing provided with a key-hole, substantially as described.

2. The combination, with a hasp provided with a casing for protecting the locking parts, of a bed-plate, adapted to be secured to the object to be locked, and a bolt pivoted thereto, the said bed-plate formed with a projection having an opening, within which a spring connecting the plate and bolt is secured, substantially as described.

3. The combination, with the plate C, provided with the projection e having a cavity for the insertion of a spring, of the bolt D, spring d^4, and the pin d^5, connecting bolt and plate, and extending above the former to guide the key, substantially as and for the purpose described.

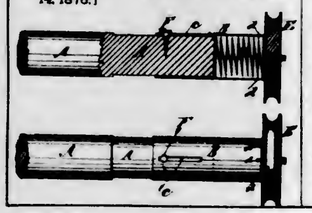
4. In a spring-hasp lock, the combination, with a hasp having a suitable opening or slot in its free extremity, of the pin or stud, provided with a groove, and adapted to engage the hasp before it reaches the bolt, thus preventing the locking of the parts when desired, substantially as described.

192,662. WHIFFLETREES. Coe D. Smith, Smithton Branch, N. Y. [Filed May 16, 1877.]



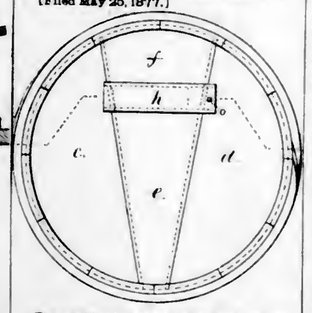
The double tree A A', with two single-tree seats, d^1 and d^2, and the retaining spring E, the pole B, the single trees D, and the bolts c and d, arranged as and for the purpose set forth.

192,663. WINDOW-SHADE ROLLERS. Jas. R. Smyth, New York, N. Y. [Filed Nov. 14, 1876.]



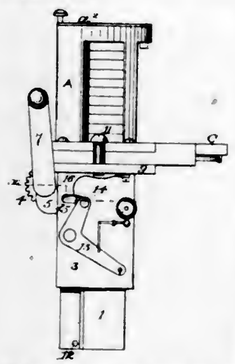
The cylindrical sleeve B, having slot c and holes d d, and carrying at its end the shears E, in combination with the spring D, and the shade-roller A, having the screw or nail F, substantially as described, and for the purpose set forth.

192,664. BARREL-HEADS. M. L. Thompson, Brooklyn, N. Y., assignor to himself and John P. Rittenhouse, Flemington, N. J. [Filed May 25, 1877.]



The combination, in a barrel-head, of the segments c d, with their edges rabbeted, the tapering sections e f of corresponding thickness, with rabbeted edges, and the blocking-piece h, flanged at its edges and slotted at the ends, substantially as set forth.

192,665. MACHINES FOR FEEDING HORSE-SHOE-NAIL BLANKS. John E. Wheeler, Lynn, and Fredk. W. Coy, Boston, Mass. [Filed Mar. 19, 1877.]



1. The conveyer described, the same consisting of a tube for holding blanks, provided with the detaining-spring a^1, and a base plate having means for successively ejecting the undermost blank from the tube, and recessed as shown, to render the same easily detachable, and from which the tube projects.

2. In combination with a removable tube for holding blanks, a yielding follower, arranged to support the blanks in the tube while the same is being filled, and to gradually lower or be forced downward about the thickness of a blank with each blank deposited in the tube, substantially as and for the purpose described.

3. In combination with a removable conveyer for holding and feeding blanks, the mechanism described, the same consisting of a follower provided with means for lifting the same, and for regulating its descent, substantially as shown and described.

4. The combination of a follower for the support of blanks, arranged to yield under pressure, with suitable alarm mechanism for denoting that the tube is almost filled with blanks, substantially as described.

5. As an attachment to punching-machines for filling removable conveyer with blanks, the pinion 4 and shaft 6, having a bearing in brackets 5, projecting from the casing 3, and provided with a thumb-screw and handle, 7, in combination with the follower 1, recessed as shown, and provided with the rack 2 and stop 12, all arranged under the bed-plate of the punching-machine, to operate the follower vertically on a line with the die, as shown.

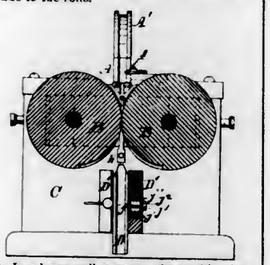
6. The combination of the follower, recessed as shown, with the bent lever 13, pivoted to the casing 3, pin 14, projecting through slot 15, and spring 16, substantially as and for the purpose described.

7. The combination of the casing 3 and platform 9, a mechanism for lifting a follower and restraining the same from descent except under pressure, an alarm mechanism and suitable stops, with a removable conveyer for receiving and holding blanks from a punching-machine, and feeding the same, all operating to automatically receive and lodge said blanks in tube A, substantially as shown and described.

8. In a removable conveyer for receiving, holding, and feeding blanks, the open tube A, provided at its base with the rests a upon its sides, with the restraining-spring a^1, and upon its top with the swinging bar a^2, substantially as shown and described.

192,666. MACHINES FOR MAKING HORSE-SHOE-NAILS. John E. Wheeler, Lynn, and David B. Loring and Frederick W. Coy, Boston, Mass. [Filed Mar. 19, 1877.]

Brief.—Improvement on machine described in patent granted D. B. Loring, November 28, 1876, No. 184,719. Blanks are ejected, one at a time, from a removable box, and slide down an inclined way to the feed-tunnel, which contains, in addition to the divided detent described in the patent to Loring, another detent for arresting the descent of the blank at a point above the divided detent. A delivery-tunnel, held to its place by spring-pressure, presses back a spring-arm, the point of which is intended (when the delivery-tunnel is pressed down by an imperfect blank to a die-roll) to enter the feed-tunnel below the lower detent, and intercept or prevent further feeding of blanks to the rolls.



1. In a horse-nail machine, the combination of the feed-tunnel A, provided with the guides $a\ a'$ and regulator f, with the revolving dies B^1, substantially as shown, and for the purpose set forth.

2. The combination of a delivery-tunnel, held in relation to the revolving dies B^1 by friction, with the spring h, arranged to project upward from the frame, and whose end operates as a cut-off in preventing the feeding of blanks to the rolls, substantially as shown and described.

3. The combination of the movable delivery-tunnel D, ways D^1, one of which is recessed, as shown, with plate j, spring j^1, and bolt j^2, inclosed in said recess, all arranged to operate as described.

4. In a horse-nail machine, the combination of a movable delivery-tunnel, provided with a removable front plate, with the ways D^1 D^2, where one of which is provided with a groove and the other with a screw-pin and lever, for the purpose of fastening the front plate in position, substantially as and for the purpose described.

5. The combination of the feed-tunnel A, automatic guides $a\ a'$, regulator f, and inclined chute A', substantially as and for the purpose described.

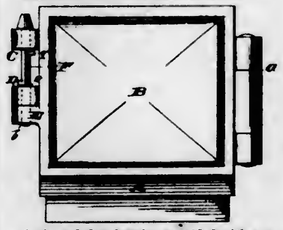
6. In a horse-nail machine, the combination of a feed-tunnel provided with the guides $a\ a'$ and regulator f, the revolving dies B^1, and the movable delivery-tunnel D, and the spring h, all arranged in relation to each other and operating substantially as described.

7. In a horse-nail machine, the combination of the disk c', provided with pin c, with the lever f^3, pivoted as shown, spring g^3, and lever b', arranged in relation to each other as set forth, whereby the regulator f and guides $a\ a'$ are successively operated, substantially as described.

8. In a horse-nail machine, the combination of a removable box for holding blanks, provided with means for successively ejecting the undermost blank, a tunnel for conveying and guiding said blank to the rolls, and the revolving dies B^1, all arranged substantially as and for the purpose described.

9. The combination of the automatic feeding device described, the revolving dies B^1, and the movable delivery-tunnel, substantially as and for the purpose described.

192,667. FASTENING DEVICES FOR AXLE-BOX COVERS. George S. Winslow, Cedar Rapids, Iowa. [Filed May 16, 1877.]

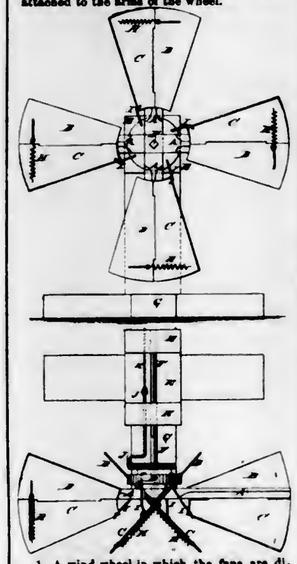


1. An axle-box housing provided with perforated lugs, the upper one having a groove therein, in combination with the cover and a locking-pin, the latter constructed with nibs or lugs formed on opposite sides thereof, substantially as and for the purpose set forth.

2. The combination, with an axle-box housing, A, provided with perforated lugs O D and cover B, constructed with projection or lug B, of the locking-pin F, having nibs or lugs g h formed on opposite sides thereof, substantially as and for the purpose set forth.

192,668. WINDMILLS. Wm. G. Alexander, Winnemucca, Nev. [Filed June 4, 1877.]

Brief.—The fans adjust themselves to the force of the wind, so as to run at a uniform speed, which may be conveniently stopped by being divided longitudinally into two equal parts or sections, hinged to each other at their adjacent edges, and having one section rigidly attached to the arms of the wheel.



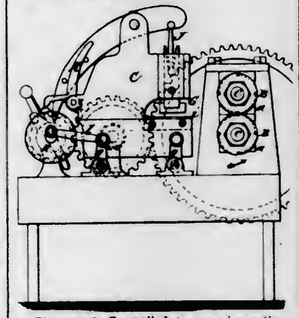
1. A wind-wheel in which the fans are divided longitudinally into two equal parts or sections, B C, hinged to each other at their adjacent edges, and having one section, B, rigidly attached to the arms A of the wheel, substantially as herein shown and described.

2. The combination of the spiral springs H with the hinged parts or sections B C of the fans, substantially as herein shown and described.

3. The combination of the rods I, the sliding wheel D, the sliding rod J, and the cord K with the hinged sections C of the fans, and with the wheel-shaft F and the turn-table E, substantially as herein shown and described.

192,669. MACHINES FOR MAKING PICKET-TEETH. Robert Aldrich, Millville, Mass. [Filed May 5, 1877.]

Brief.—The die-rolls feed the rod, and impart the required shape, and the punch, working in harmony therewith, advances to cover the pins and cut the teeth, advancing and receding alternately.



The punch G applied to a reciprocating stock, C, and actuated by means described, in combination with the circular swaging-dies B B, as set forth.

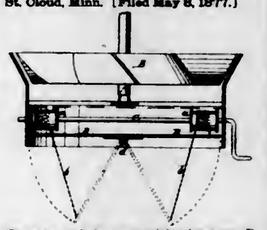
192,670. ROPE OR LINE CARRYING PROJECTILES. Thos. C. Backus, Brooklyn, N. Y. [Filed May 28, 1877.]

Brief.—To carry a line into a building; for use with fire-escapes or life-saving apparatus.



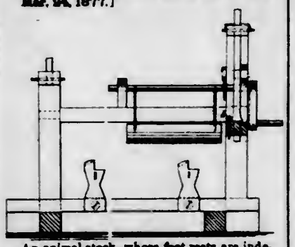
A line or rope projectile, consisting of a slotted tubular dart or missile, to be shot out of a gun or other device, and provided with closed ends, and with an interior slide-piece and string attached thereto, the whole arranged and operated substantially in the manner set forth.

192,671. WATER-WHEELS. J. J. Bourgeois, St. Cloud, Minn. [Filed May 8, 1877.]



The gate made in two semicircular parts, D, hinged on a rod or rods beneath the wheel B, the shaft C, having pulleys e attached, and the chains b, all constructed as shown and described.

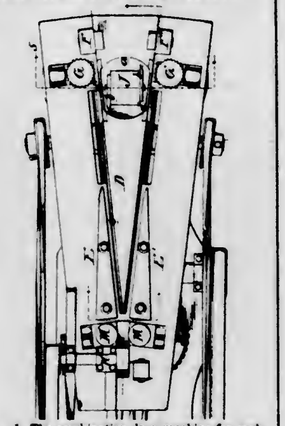
192,672. ANIMAL-STOCKS. John Bowman and S. C. Irving, Greenbush, Ill. [Filed Mar. 24, 1877.]



An animal-stock, whose foot-rests are independent and separately adjustable, as shown and described, to allow the feet to be operated upon simultaneously.

192,673. MACHINES FOR MANUFACTURING COMPOUND LUMBER. William B. Brock, New York, N. Y. [Filed Mar. 7, 1877.]

Brief.—Compound lumber is made by means of a rotary cutter for grooving the boards, said cutter operating through a grate; a pressure-roll for causing the board to bear against the grate; pressure-rollers for forcing the grooved boards together, and converging guides for directing the boards from the cutters to the rollers; cutters for tonguing and grooving; two circular saws for severing a strip from the board, and suitable operating mechanism.



1. The combination, in a machine for making compound lumber, of a rotary cutter for grooving two boards, pressure-rollers for forcing the grooved boards together, and converging guides for directing the boards from the cutters to the rollers, all substantially as set forth.

2. The combination of a rotary cutter having a series of grooving-knives, a grate through which the grooving-knives project, and a pressure-roller for causing a board to bear against the grate, all substantially as described.

3. The combination of the rotary cutter J, the converging guides, pressure and feed rollers G G', and pressure-rollers F F'.

4. The combination of tonguing and grooving mechanism, substantially as described, with the inclined block D and the blocks E and E', forming a converging guide, as set forth.

5. The combination of tonguing and grooving mechanism, substantially as set forth, with the inclined guiding-block D, and the circular saws K on opposite sides of said block.

6. The combination of the block D and its inclined ribs s with the cutter or cutters J.

192,674. ADJUSTABLE ROCKING-CHAIRS. James R. Brumby, Marietta, Ga. [Filed Apr. 16, 1877.]

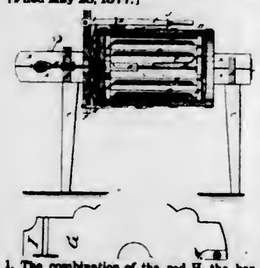
In a reclining-chair, the frame E and seat-frame C, pivoted in reverse directions to the seat-back A, and having oppositely-inclined

teeth, in combination with the bars B, pivoted to standards d, and having rods h i, and connected by sliding pivots with the rockers D, as and for the purpose specified.

192,674.



192,675. ROTARY CHURNS. Lars Sudahl, Spring Grove, (Blosford P. O.,) Minn. [Filed May 26, 1877.]

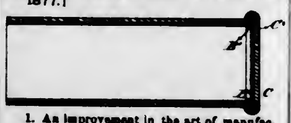


1. The combination of the rod H, the bar or plate G, the lever I, and the slotted catch J, with the churn-body D, and the cover F, substantially as herein shown and described.

2. The combination of the hook F with the detachable dasher N O, and with the dasher-shaft M, substantially as herein shown and described.

3. The frame made in two parts, A B, to adapt it to receive and hold the pivots E, and the dasher-shaft M of the churn, substantially as herein shown and described.

192,676. METALLIC CARTRIDGES. James H. Bullard, Springfield, Mass. [Filed Feb. 24, 1877.]



1. An improvement in the art of manufacturing cartridge-shells, which consists in placing a sheet of copper upon a sheet of brass, cutting a blank from the double sheet, and drawing and heading the blank, substantially as described, and for the purpose set forth.

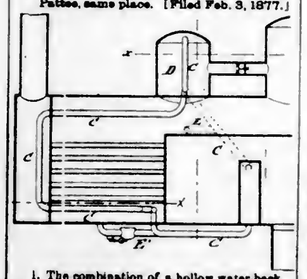
2. A cartridge-shell having a brass body, A, and headed base C, and a copper lining, B, provided with a re-enforcing rim or filling, B', substantially as specified.

192,677. VEHICLE AXLE-BOXES. Isaac N. Camp, Deerfield, Mich. [Filed Apr. 2, 1877.]



The combination of inner box B and outer box C with the caps D, having flanges d', the washers d and the center screw e, as shown and described.

192,678. STEAM BOILERS AND SUPERHEATERS. Solomon N. Carvalho, New York, N. Y., assignor to himself and James M. Pattee, same place. [Filed Feb. 3, 1877.]



1. The combination of a hollow water-back or water-reservoir, and of a continuous circulating-pipe leaving at the highest and returning at the lowest part of the water-back, with a separate superheating steam dome, and with the lowermost or coldest part of the boiler, substantially in the manner and for the purpose set forth.

2. The combination, with the two domes shown and described, of the hollow water-back or reservoir, with a circulating pipe passing from the highest part of the water-back through the boiler, and by serpentine coil at the lowermost part back to the bottom part of the water-back, substantially as specified.

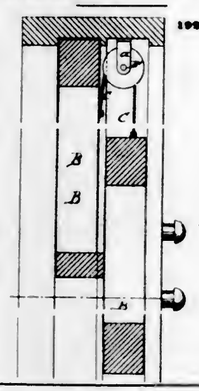
3. The combination, with the two domes shown and described, of the circulating water-pipe C of the water-back, by short pipe-connections E E', and safety-valves with the boiler, substantially as described.

192,679. PROCESSES OF ORNAMENTING GLASS. Charles J. Cartlidge, New York, N. Y. [Filed Oct. 23, 1876.]



The process herein described of ornamenting a glass plate or other glass article, consisting essentially in first obtaining it with or producing upon its surface a dull ground, whereby it is rendered non-transparent, then transferring to such surface a pattern coated with varnish or other acid-resisting substance, then submitting the plate to the action of hydrofluoric acid, and, finally, producing on the deadened and etched surface, by suitable resists and repeated immersions in a bath composed of a mixture of the said acid and carbonate of ammonia, lace or other ornamental designs of a whitish hue, substantially as and for the purpose specified.

192,680.





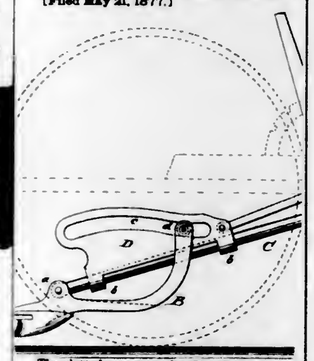
192,680. GASH-BALANCES. Wm. Cushner, Pleasant Hill, Mo. [Filed June 4, 1877.]

Brief.—A double spring-pulley turning in opposite directions (one pulley being larger than the other, and the larger carrying, chambered in it, a coiled spring) is so arranged at the top of the window-frame that the balancing-cords are wound upon it in opposite directions. There are also sliding spring-acted bolts, and cross-pins in side recesses of the sash, coacting with the double spring-pulley to control its action, and hold the sash in desired position.

1. As an improvement in sash-balancing devices, the combination of the sashes B, cords C, and double spring-pulleys B', said cords winding in opposite directions on the separately-turning and spring-acted sections of the double pulleys, substantially in the manner and for the purpose set forth.

2. The combination of the spring-balanced sash, having side recesses, with the sliding and spring-acted bolt, having cross pin looking into recesses of sash, for the purpose set forth.

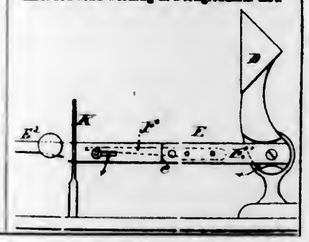
192,681. ROCKING DEVICES FOR HARVESTERS. Edward Cheney, Geneva Lake, Wis. [Filed May 21, 1877.]



The slotted cam or wedge D, adjustable on the draw-bar C, and combined with the shoe B, substantially in the manner and for the purpose described.

192,682. STOP-MOTIONS FOR DRAWING-FRAMES. J. B. Clarke, Woonsocket, R. I., assignor of one-half his right to J. A. Bennett, same place. [Filed Mar. 24, 1877.]

Brief.—When the sliver runs through the trumpet, the catch is held up; but when it breaks the weighted lever falls and stops the machine. The lever upon which the catch is formed is in two parts, shouldered and pivoted together, and provided with a longitudinally-extending spring, which permits a limited downward bending of said lever. The tension of said spring may be adjusted by a screw-threaded stud working in a longitudinal slot.

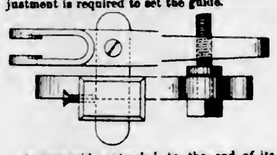


1. In a stop-motion for drawing-frames, the combination, substantially as hereinbefore described, of the sectional stop-motion lever E, the spring F, the sliver-trumpet D, and a staple, K, all constructed and arranged for the purpose set forth.

2. The combination of weighted slotted section E', pivoted section E', spring F, and adjusting-stud G, substantially as described, and for the purpose set forth.

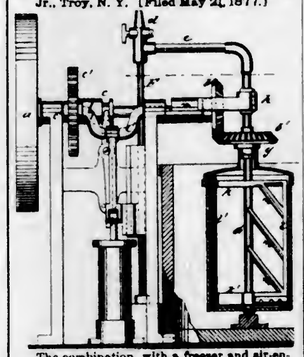
192,683. SAW-GUIDES. William Collins, Perham, Minn. [Filed Mar. 24, 1877.]

Brief.—The forked lever, which carries the wooden plugs that bear against the sides of the saw, is pivoted to a laterally-adjustable bar in the main frame, so that only one adjustment is required to set the guide.



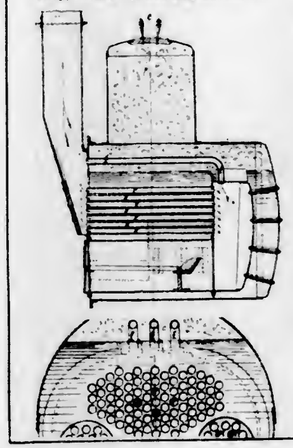
A saw-guide extended to the end of its frame, and provided with a screw at the long end of lever, as shown and described, whereby the sawyer need not let go his feed-lever, and may adjust with more facility.

192,684. ICE-CREAM FREEZERS. O. Dexter, Jr., Troy, N. Y. [Filed May 21, 1877.]



The combination, with a freezer and air-engine, of the receiver E, having the upwardly-opening valve, the cocked pipe d F, the branch pipe e, and the tubes G G', as and for the purpose specified.

192,685. STEAM-BOILERS. René Constant Duchesne, Villeneuve-la-Lande, in Chantenay, France. [Filed May 22, 1877.]



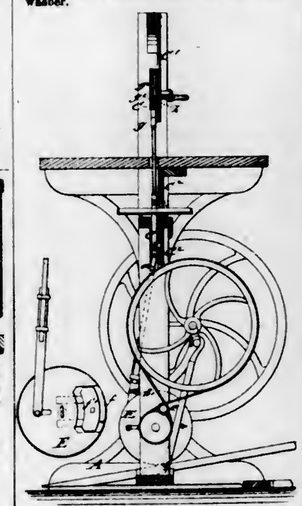
1. The combination, in a steam generator or boiler, of one or more furnaces or fire-chambers with one or more other furnaces or fire-chambers, under the construction substantially as shown and described, so that the products of combustion of the one shall be ignited or reinflamed by the other.

2. In a steam generator or boiler, a central furnace or fire-box, the products of combustion of which pass through a single flue into the smoke-box, in combination with lateral furnaces and fire boxes, the products of combustion of which pass through nests of tubular flues into the same fire-box, substantially as shown and set forth.

3. The combination, with one or more furnaces carrying its or their products of combustion to the fire-box in a flamed condition, and one or more furnaces conveying its or their products of combustion to the fire-box in a non-inflamed but inflammable condition, of return-flues passing the mingled and inflamed gases to the chimney through the steam or water portion of the boiler, or through both, substantially as shown and set forth.

192,686. SCROLL-SAWING MACHINES. F. Biesdicks, New York, N. Y. [Filed May 12, 1877.]

Brief.—A lateral saw-frame, working in upper and lower guide-rails, is adjustable to different lengths of stroke by a radially-slotted and adjustably-weighted crank-disk. The upper saw-clamp is adjusted for the tension of the saw by a slotted wedge-key and screw-washer.



1. The combination of the reciprocating saw-frame with a central top guide-rail and lower guide-rails placed at both sides of the saw, to provide space for the sawdust-receiving pan, substantially as set forth.

2. In a scroll-saw, the combination of the guided and reciprocating saw-frame C by a pivoted crank-rod, with a revolving crank-disk, E, having radial stroke-adjusting slot e, and adjustable saw-frame-balancing weight, f', substantially in the manner and for the purpose set forth.

3. The combination of the saw-frame C with the upper clamp, adjustable by screw stem and nut, and with the adjustable sliding crank-rod, to adapt the saw-frame to any length of saw, substantially as set forth.

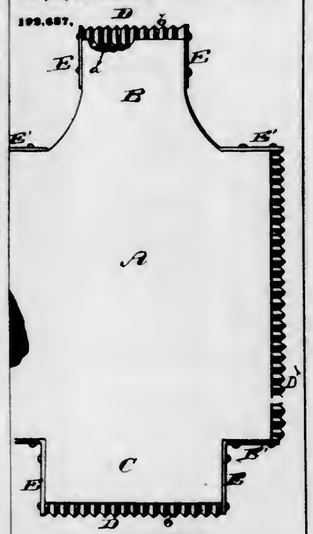
4. The combination of the upper saw-clamp g, having adjusting screw stem and nut, with a slotted tension-adjusting key, h, and screw-washer h', substantially in the manner and for the purpose specified.

192,687. IRONING-BOARDS. Thos. Elkson, Abingdon, Ill. [Filed Apr. 26, 1877.]

1. An ironing-board provided in one or more of its edges with a longitudinal concave groove, and a circumferentially grooved or corrugated roller held therein by rubber bands, substantially as herein set forth.

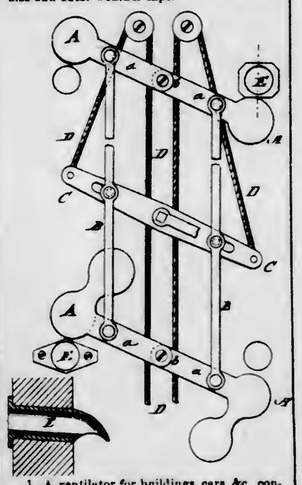
2. The board A, formed with the neck piece B and foot C, and concave grooves in its edges, in combination with the circumferentially grooved or corrugated rollers D D' and rubber bands E E', substantially as and for the purpose described.

192,687.



192,688. VENTILATORS. Thomas M. Foster, Union City, Pa. [Filed May 28, 1877.]

Brief.—A number of apertures arranged in the wall, and opened or closed by single and double covers, that fit snugly over the apertures by a pivoted lever, and cords and pulleys. The apertures are provided with thimbles and outer weather caps.

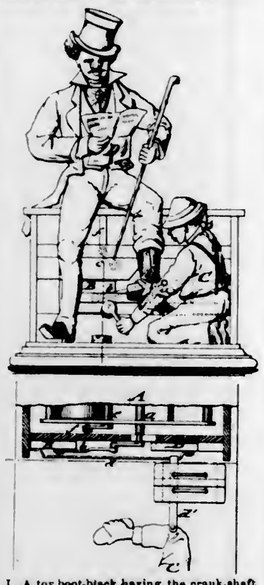


1. A ventilator for buildings, cars, &c., consisting of a number of air-supply apertures, in combination with a corresponding number of single or double covers, that are jointly operated by mechanism, substantially as described, so as to close all, or open all, or partly open and close the apertures, substantially in the manner and for the purpose set forth.

2. The combination of the jointly-swinging adjustable covers A A, operated by a lever mechanism, substantially as described, with the air-supply apertures, having thimbles and extension weather-caps, substantially in the manner and for the purpose specified.

192,689. TOY BOOT-BLACKS. A. Gartner, New York, N. Y., assignor to himself and Louis Gompper, same place. [Filed May 12, 1877.]

Brief.—A toy figure sits with one boot mounted upon the stool of a boot-black, who automatically plies his vocation thereupon.

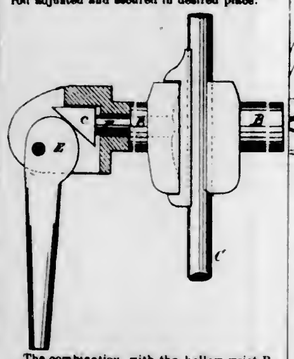


1. A toy boot-black having the crank-shaft of a clock-train, a horizontally guided and reciprocated slide-piece, B, and a fixed arm, *d'*, extending at right angles from the slide-piece, in combination with the swinging arm of a figure, C, substantially as set forth.

2. A toy boot-black having the combination of a crank-shaft, *e*, of a clock-train, a vertically guided and reciprocated slide-piece, D', and a hinged and spring acted seek portion, E, of the toy figure D, to impart intermittent motion to the head of the figure, substantially as specified.

192,690. PUMP-ROD ADJUSTERS. N. C. M. Gifford and Pratt Abell, Barnhart's Mills, Pa. [Filed May 21, 1877.]

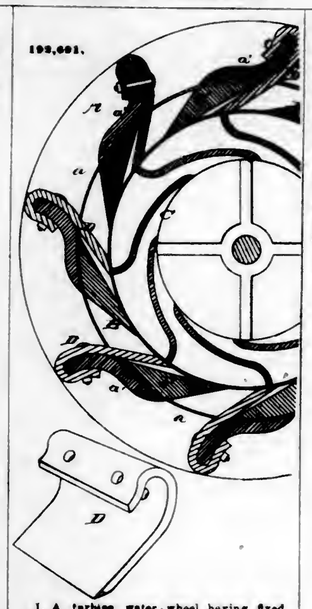
Brief.—The clamp may be loosened, and the rod adjusted and secured in desired place.



The combination, with the hollow wrist B, of the cam lever E, pivoted in the head D, and the bolt F, having inclined face on its head *c*, as and for the purpose specified.

192,691. TURBINE WATER-WHEELS. A. R. Guilder, Minneapolis, Minn. [Filed Mar. 31, 1877.]

192,691.

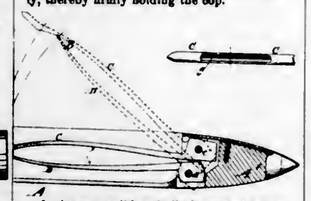


1. A turbine water-wheel having fixed guide-plates for directing the entire current of water from the chutes immediately to the buckets of the wheel, irrespective of the position of the gate, substantially as and for the purpose set forth.

2. The combination of water-casing A, register-gate B, wheel C, and plates D, bolted to the partitions *a*, substantially as and for the purpose set forth.

192,692. SPINDLES FOR LOOM-SHUTTLES. Jas. Hamilton, Salmon Falls, N. H. [Filed May 12, 1877.]

Brief.—The point of the auxiliary spindle is adapted to slide in a groove of the main spindle. At the outer end of said groove is a socket. The spindles have their pivots arranged in such relation to each other that when the said spindles are turned down into the shuttle the socket of the main spindle limits the longitudinal motion of the auxiliary spindle, and forces the latter to bend outwardly, thereby firmly holding the cop.



1. An expansible spindle formed of two detached bowed prongs, in combination with the body of a shuttle, A, provided with the pivots *c' d'*, substantially as and for the purpose set forth.

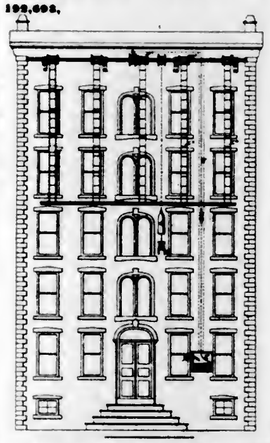
2. The prong C, provided with a groove, *g*, in combination with the prong D and the body of the shuttle A, having pivots *c' d'*, substantially as herein set forth.

192,693. FIRE-ESCAPES. Samuel H. Harrington, Baltimore, Md., assignor to himself, Joseph K. Milnor, Hugh G. Stewart, and Henry Taylor, same place. [Filed May 18, 1877.]

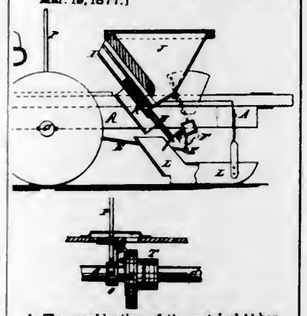
1. The combination, with a system of ladders wound upon a shaft supported on the exterior of the building, over windows or other openings communicating with the interior of the building, of a pulley or windlass fast on said shaft, having wound in the opposite direction of the ladders a cord, or rope, or cable, passing through a tube within the wall, or applied to the inner side of the wall, and terminating in a box provided with a hook or other rope, cord, chain, or cable holding device, the whole being constructed and arranged for operation substantially as herein shown and described.

2. The combination, with a system of weighted ladders wound upon a shaft on the exterior of the building, as described, of a regulating device, consisting of a pulley having wound upon it a weight-carrying cord of a length of about half that of the ladders, the same being constructed and arranged for operation substantially as herein shown and described.

192,693.



192,694. CORN-PLANTERS. F. A. Hartnagel and J. W. Hartnagel, St. Louis, Mo. [Filed Mar. 19, 1877.]



1. The combination of the notched U-bar M, the sliding catch N, the sleeve O, the two levers Q S, and the connecting-bar R, with the eccentric wheel D, the axle C, the clutch T, and the clutch-lever P, substantially as herein shown and described.

2. The combination of the index U and the dial-plate V with the rock-shaft F that operates the dropping-slides, and with the frame A, substantially as herein shown and described.

192,695.

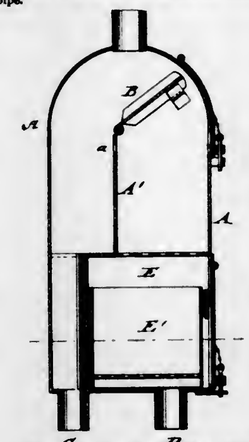


192,696. GUIDE-PULLEYS FOR BAND-SAWS. John H. Hobson, New Castle, Ind. [Filed June 22, 1877.]

The guide-pulley herein described, consisting of the disk or section A, with hub C and raised shoulder D, and the disk or section B, fastened on the hub, substantially as and for the purposes herein set forth.

192,696. COMBINED CUT-OFF AND FILTER. John Hoover, Crawfordsville, Ind. [Filed May 5, 1877.]

Brief.—The partition above the filter is provided with vent-holes, to allow surplus water to escape. The water is allowed to waste through waste-pipe until the roof is cleaned. It is then passed through the filtering-chamber into the cistern. When the cistern is full, the water can again be passed through the waste-pipe.

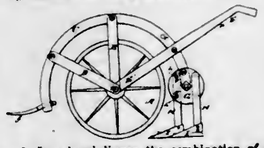


1. The combination of a cut-off, A, having hinged gate B, partition A', and exit-pipes C D, with a filtering-chamber, E', and removable box or receptacle E, for the filtering material, substantially as specified.

2. The partition-wall of the cut-off A, having exit-holes *a* for the surplus water above the filtering device, for the purpose specified.

192,697. DIGGER AND WEEDER. Moses Johnson, Lockport, N. Y., assignor of one-half his right to M. C. Richardson, same place. [Filed Dec. 23, 1876.]

Brief.—Curved beam with braces and handles overarching and inclosing the bearing-wheel; the disk with other devices for attaching various cultivating implements.



1. In a hand-digger, the combination of a transporting-wheel with a curved beam concentric with the upper part of said wheel, and pivoted to the axis of the latter by braces, substantially as described.

2. The combination of handles E E with bars B and D, curved beam C, and wheel A, substantially as set forth.

3. The combination of curved beam C with disks G G, perforated at *g g g g*, and with standards H attached thereto.

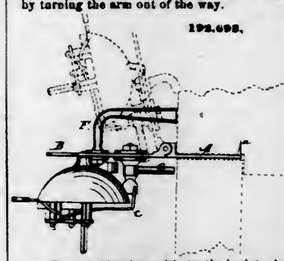
4. Standards H, provided with adjusting-rods *h*, in combination with disks G, having perforations *g*, and with curved beams C, substantially as set forth.

5. As an article of manufacture, standard H, provided with rods *h* and bracing-plate G, and rigidly secured to upright shank J' of weeder-blade J', substantially as and for the purpose set forth.

192,698. BURGLAR-ALARMS. J. K. Johnston, St. Louis, Mo. [Filed June 4, 1877.]

Brief.—By means of the hinged plate the alarm may be turned up out of the way of the door when it is not desired to use it. A pivoted arm in the outer plate bears against the wall or door-frame above the door, and holds the plate rigid. The plate may be turned up by turning the arm out of the way.

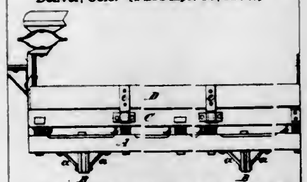
192,698.



1. The combination, with toothed plate A, of the hinged plate B, clock-work and alarm mechanism, the sliding trigger, and adjustable arm, as shown and described, for the purpose specified.

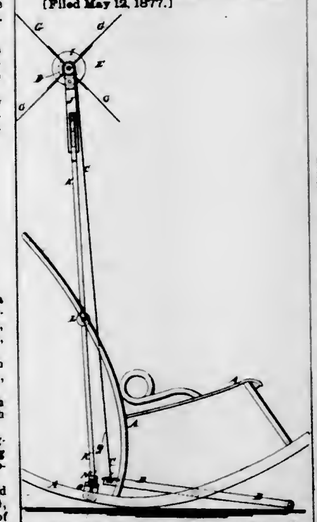
2. The combination of the curved axially-adjustable arm F, the plates A and B hinged together, and the stop C, all as shown and described, to operate as specified.

192,699. WAGON-BEDS. W. J. Kinsey, Denver, Colo. [Filed Apr. 30, 1877.]



A wagon-bed composed of the timbers B, secured by braces *a*, the sills A, concaved cross-pieces *b*, side pieces C, and floor *c*, all made and arranged substantially as herein shown and described.

192,700. FAN ATTACHMENTS FOR ROCKING-CHAIRS, &c. Charles Krauss, Chicago, Ill. [Filed May 12, 1877.]

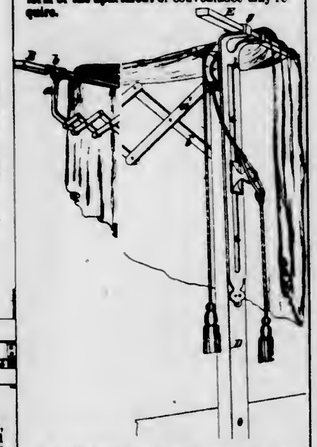


1. The combination of the pivoted bar B, the cord C, the pulley D and shaft E, the bub F and fans G, the spring H and case I, the branched adjustable bar J, the bar K, the guide-block L, and the adjustable step and clamp N *n' O o'* with each other, to adapt them to be attached to a chair, or cradle, or table, substantially as herein shown and described.

2. The combination of the adjustable clamp M *m'* with the guide-block L of the bar K, for securing said guide-block adjustably to a chair, or cradle, or table, substantially as herein shown and described.

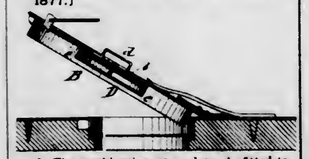
192,701. FOLDING TOILET-SCREENS. H. S. Lathrop, Savannah, Ga. [Filed Mar. 24, 1877.]

Brief.—The cross-bars are removable from their sockets, thus providing for the use of bars of different lengths to support screens of different sizes; also, to facilitate packing in a small space. They may also be adjusted so as to project more or less on one side, as the form of the apartment or convenience may require.



In combination with the lazy-tongs arm a having socket *b*, and the bracket h having socket *g*, the adjustable screen-supporting cross-bars B E, as shown and described, for the purpose specified.

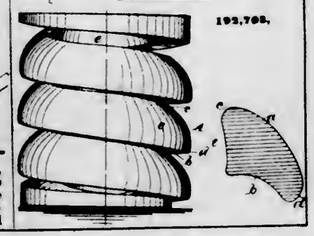
192,702. VENTILATING-BUNGS. Simon H. Lesser, New York, N. Y. [Filed June 11, 1877.]



1. The combination of a plate, A, fitted to and around the bung-hole of a cask or other receptacle, and forming a seat for the bung, with a hermetically-closing hinged and spring-locked bung, having a ventilating device, substantially in the manner described, and for the purpose specified.

2. The combination, with a bung, B, of a ventilator, D, made of a revolving top plate having holes *a*, fixed plate having holes *b*, and perforated guard-plate *c*, substantially as specified.

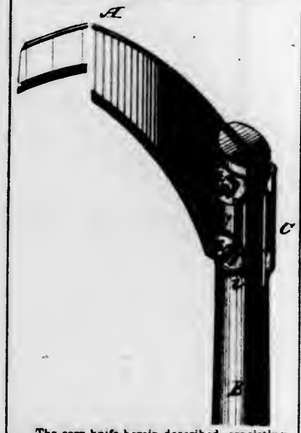
192,703.



192,703. SPIRAL CAR-SPRINGS. J. Ludlum, Pompton, N. J. [Filed May 28, 1877.]

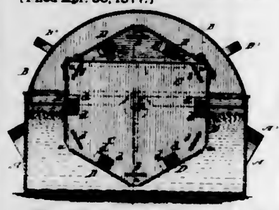
The spiral spring A, provided with convex outer surface *a*, interior concave surfaces *b c*, and rounded edges *c d*, as and for the purpose specified.

192,704. CORN-KNIVES. Wm. Millspaugh, Middletown, N. Y. [Filed Apr. 4, 1877.]



The corn knife herein described, consisting of the blade A and slotted handle B, combined with the concave reversible clips C and fastening devices D, whereby the parts may be taken apart for transportation, put together by the user, and changed in case of breakage, substantially as and for the purpose set forth.

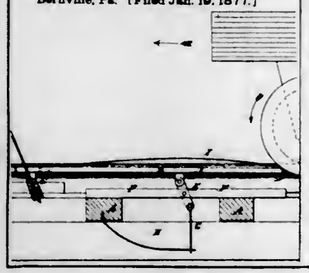
192,705. WASHING-MACHINES. S. Needles, Holden, Mo., assignor of one-half his right to W. M. Covantry, same place. [Filed Apr. 30, 1877.]



1. The rotating hexagonal cylinder C D, formed with the corner-openings *a a*, and provided on the inside with the strips *b*, and curved flanges *d*, substantially as and for the purposes herein set forth.

2. The combination of the boiler A, the semicircular cover B, and the hexagonal rotating cylinders C D, provided with corner-openings *a* and interior strips *b*, and curved flanges *d*, and supported on journals *h*, substantially as and for the purposes herein set forth.

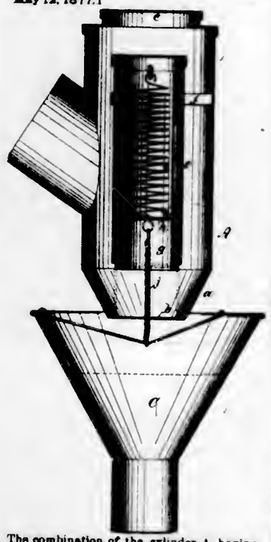
192,706. RAILROAD-GATES. E. W. Moyer, Bernville, Pa. [Filed Jan. 19, 1877.]



1. The spring H, attached at one end to rods G, and at the other to ties A to bring and hold levers E in vertical position, as shown and described.

2. The spring I, attached at its middle to the middle of bar D, and having hook ends that overlap the ends of bar D, substantially as and for the purpose specified.

192,707. FEED-REGULATORS FOR MILLSTONES. Jas. W. Moir and Jas. H. Ellis, Halifax, Nova Scotia, Canada. [Filed May 12, 1877.]



The combination of the cylinder A, having the central tube *e*, the valve *g*, spring *i*, and hopper C, substantially as shown and described.

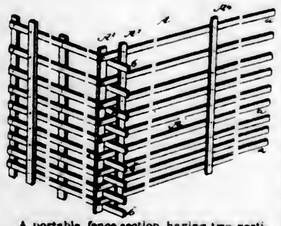
192,708. PLOW-BRIGHTENERS. J. O. Minor and Cyrus Woolverton, Bedford, Iowa. [Filed June 5, 1877.]



1. The frame *a*, having a number of bars, each one of which has its outer side covered with emery, and adapted to be used as a handle, substantially as specified.

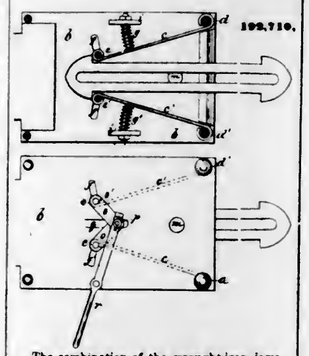
2. The oval frame *a*, having a number of bars, as described, and having one or both of its ends cut away, substantially as described.

192,709. FENCES. A. A. McAllister, Shady Grove, Ga. [Filed Dec. 16, 1876.]



A portable fence-section having two vertical battens, A^1 A^2, arranged as shown, horizontal rails A^3, a central vertical batten, A^4, and free ends *a a*, substantially as described, and for the purpose set forth.

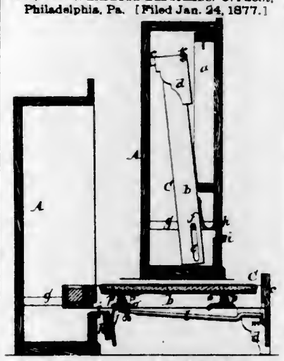
192,710. CAR-COUPLINGS. C. D. Norman, Ames, Iowa. [Filed Mar. 13, 1877.]



192,710.

The combination of the wrought-iron jaws *c c'*, the pivot and guide rods *d d'* and *e e'*, the top and bottom draw-head plates *a b*, provided with the curved coincident slots *f f'*, and the bottom plate having the lengthwise slot *q* extending in rear of said curved slots, the toggle-arms *e e*, the joint and guide pin *p*, the hand-lever *r*, pivoted to plate *b*, all as shown and described, whereby the toggle-arms may be set to hold the jaws open, as specified.

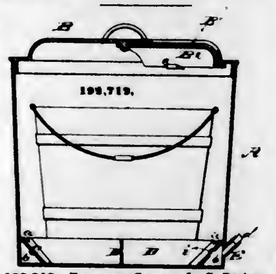
192,711. WARDROBE-BEDSTEADS. C. Pabst, Philadelphia, Pa. [Filed Jan. 24, 1877.]



1. As a new article of manufacture, a wardrobe-bedstead composed of the case A, doors B having receptacle *a*, the brackets *g* having pins *f*, the side rails *b* of the bedstead having slots *e* adapted to the pins *f*, and the section *h* substantially as specified.

2. In combination with the case A, bedstead C, connected to the hinged section *h*, and pins *f* of the brackets *g* of the outer hinged supports *d*, having the shoulder *m* and the gravitating handle *l* attached at one end to the bedstead, and adapted to bear at its other end upon the shoulder *m* when the hinged support is turned down, substantially as described.

192,712. TOBACCO-SAFES. L. C. Parker, Robinson, Kans. [Filed Apr. 14, 1877.]



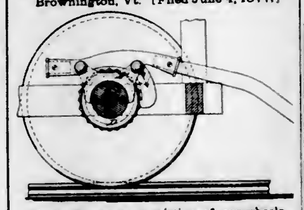
192,712.

Brief.—The pail of tobacco sits in the safe over a water-space that can be filled from the outside, and access is had to it through an opening in the removable cover.

1. In a moisture-retaining safe, the combination, with the shell A, of the notched flaring rim C, having one or more openings, *i*, the cross bars or rack D, and the elevated pail G, substantially as and for the purposes herein set forth.

2. The combination of the safe A, the cover B, with pivoted section B^1, the inlet E, rim C, rack D, and pail G, all constructed substantially as and for the purpose set forth.

192,713. CAR-MOVERS. Daniel Pierce, Brownington, Vt. [Filed June 4, 1877.]



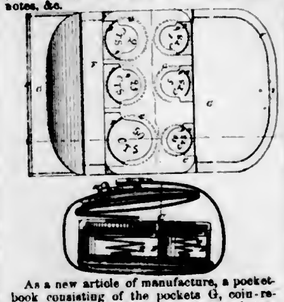
1. A car-mover consisting of cog-wheels, having teeth running in opposite direction, and grooved side disks, secured permanently to axle, in combination with a detachable yoke frame, having lever-sockets and actuating-pawl, substantially in the manner and for the purpose set forth.

2. The yoke-frame fitted to the side disks of the cog-wheels, and carrying on the lateral brace-bolts a rigid lever with end sockets, and a swinging pawl pivoted to one cross-bolt, substantially in the manner and for the purpose specified.

3. The combination, with a car axle or shaft, of rigid cog-wheels, having teeth arranged at opposite direction, and of circumferentially-grooved side disks or collar attached to the fixed cog-wheels, substantially as described.

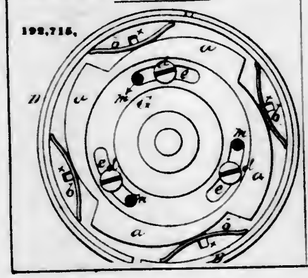
192,714. POCKET-BOOKS. Daniel M. Read, New York, N. Y. [Filed May 5, 1877.]

Brief.—Each tube or receiver is provided with a spring-follower, to keep the uppermost coin of each pile at all times in a position to be fed out the cut-away part of cap C. The usual pockets are provided for the reception of bills, notes, &c.



As a new article of manufacture, a pocket-book consisting of the pockets G, coin-receivers B, and overlapping cover F, substantially as shown and described.

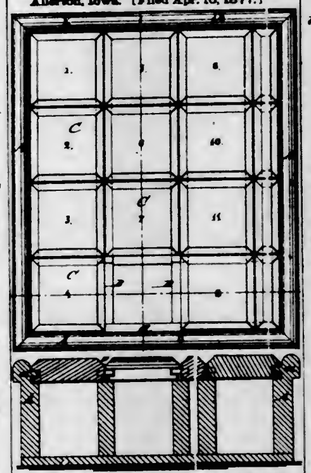
192,715.



192,716. SELF-RAISING LARD. T. H. Rosser, Selma, Ala. [Filed Dec. 11, 1876.]

A compound formed of alum, bicarbonate of soda, lard, starch, and tartaric acid, as described.

192,717. SNOW-GAUGES. Wm. Shockley, Allerton, Iowa. [Filed Apr. 16, 1877.]

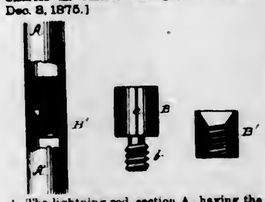


1. An improved screw-case, in which the compartments are severally provided with lids that slide laterally and longitudinally, as and for the purpose specified.

2. A screw-case having a number of boxes having all lids, except one, which are guided along the side tongues of the case and T-shaped top rails of the partitions, the T-rails being cut out at one end tier to admit the lateral sliding of the lids of the end tier, and the sliding of the lids of the remaining boxes in line therewith over the open box, substantially as specified.

3. The combination of the laterally-sliding lids of the end tier of boxes, having end grooves, with the guiding ends of the T-rails arranged at right angles thereto, and with an end tongue of the case, substantially in the manner and for the purpose set forth.

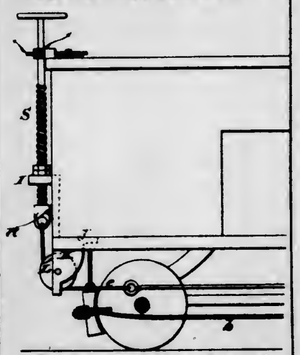
192,718. COUPLINGS FOR LIGHTNING-RODS. Charles H. Smith, Chicago, Ill. [Filed Dec. 3, 1875.]



1. The lightning-rod section A, having the male plug B, with the solid grooved head *a* and screw-shank *b*, in combination with the section A', provided with the grooved female plug B', having a central screw threaded perforation, the male and female plugs being inserted within or made to envelop the ends of said sections, and secured thereto by solder, substantially as described.

2. A connecting-plug having a grooved head, in combination with a hollow lightning-rod section, whereby the latter and the plug can be securely soldered together, substantially as described.

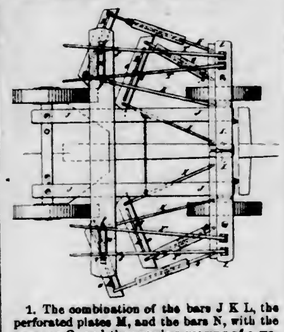
192,719. CAR-BRAKES. J. Tarr, Leavenworth, Kans. [Filed May 5, 1877.]



1. The plate or casting H, provided with the lug I, having screw-threaded hole, and with the arm J and flanges K, forming a housing, substantially as and for the purpose set forth.

2. The combination, with the casting H, provided with lug I, said casting arranged as described, of the screw-rod S, passing through a threaded hole in said lug, the plate R, with lug P swiveled on the end of the screw, and the chain *c* connecting with the brake, substantially as and for the purpose described.

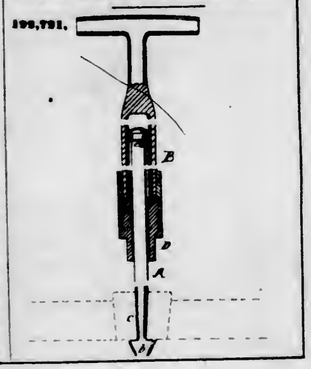
192,720. ROAD-SCRAPERS. A. Thompson, Harmony, Ill. [Filed May 5, 1877.]



1. The combination of the bars J K L, the perforated plates M, and the bars N, with the scrapers O, and the running gearing of a wagon, substantially as herein shown and described.

2. The combination of the loops or keepers R, the chain S, the levers T, the cross-bar U, and the standards W, provided with the hooks V, with the scrapers O and with the bars J, attached to the running gearing of a wagon, substantially as herein shown and described.

192,721.

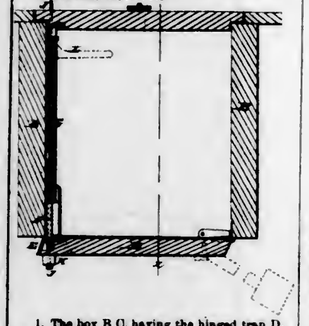


192,721. BUNG-EXTRACTORS. William J. Wedeman, Bay City, Mich. [Filed May 21, 1877.]

Brief.—The arrow-head extractor is driven by the tubular hammer-stock through the center of the bung.

The arrow-head extractor A, having anvil *a*, in combination with tubular hammer-stock B, having T-head at the upper and guide D at the lower end, as and for the purpose specified.

192,722. STABLE SCUTTLES AND TRAPS. William M. Watkins, Worcester, Mass. [Filed May 18, 1877.]

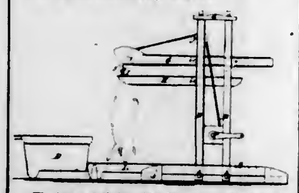


1. The box B C, having the hinged trap D, catch E, latch F, rod G, and spring H, arranged as shown and described.

2. The combination, with trap-door D, of the cord J and pivoted pulleys K on forward corners of said door, as and for the purpose specified.

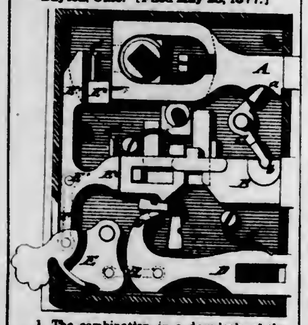
192,723. HOG-ELEVATORS. Geo. Wheeler, Newark, Ohio. [Filed Mar. 15, 1877.]

Brief.—The horizontal bars are adjustable in the uprights, so as to be used on the opposite side, or so that carcasses may be hung at both ends at the same time, and thus facilitate the number of hogs dressed.



The improved slaughtering apparatus formed of the tub D, platform I, and base A, connected as specified, the uprights B, bars G H, and rope and windlass, all arranged as shown and described.

192,724. LOCKS FOR DOORS. Elam Wike, Dayton, Ohio. [Filed May 26, 1877.]

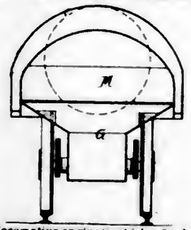


1. The combination, in a door-lock, of the latch A, key-bolt B, and night-bolt D with the cam-lever E and slide-piece E', having locking-extensions F, substantially as shown and specified.

2. The combination in a door-lock, with the latch and key-bolt, of a slide-piece, E', having extensions F, of which the lower rests on the key-bolt when the latter is in open position, to prevent throwing of night-bolt, substantially as specified.

3. In a door-lock, the night-bolt D, having curved or hook-shaped rear extension D', to secure the key in locked position, as set forth.

192,725. LOCOMOTIVES. J. B. Wootten, Reading, Pa. [Filed June 16, 1877.]



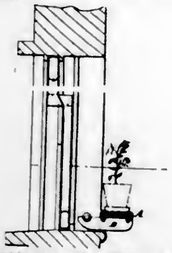
A locomotive-engine in which a fire-box wider than, and a grate as wide as or wider than, the distance between the driving-wheels, and arranged above the same, are combined with a bridge, M, extending across the said fire-box, and with the auxiliary combustion-chamber, all substantially as set forth.

192,726. LABELS FOR PLUG-TOBACCO AND CIGARS. G. W. Yerby, New York, N. Y. [Filed May 26, 1877.]



A tobacco-plug provided with a label of the same material, but a different color, the letters or characters being cut, and the label incorporated with the plug by compression, as shown and described.

192,727. WINDOW-BRACKETS. John F. Zimmerman, Crestline, Ohio. [Filed Apr. 2, 1877.]



The combination of the adjustable bars B and connecting-loops *a* with the shelf A, as shown and described, for the purpose specified.

192,728. SHOWER-BATH APPARATUS. H. J. Bailey, Pittsburg, Pa. [Filed May 18, 1877.]

Brief.—The rose is attached to an adjustable bracket by a clamp-screw, and is connected with the water-supply by a hose. The cock has a discharge-nozzle, which serves for a shower-discharge and a bath-discharge.

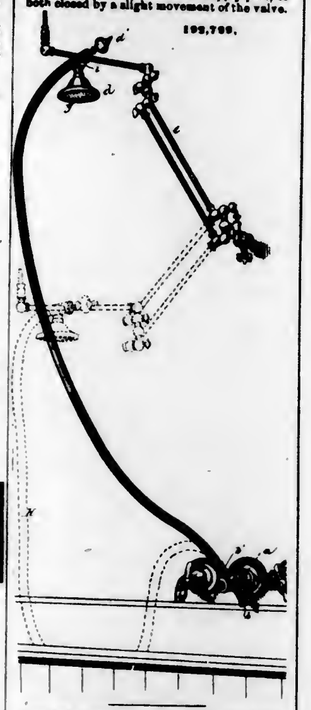
1. In a shower-bath apparatus, the combination of a rose, an adjustable bracket, a hose-pipe, and a water-supply, substantially as described.

2. A bath-shower nozzle, provided with a suitable clamp or device for attaching to and detaching the same from a bracket or support, substantially as described.

3. In a shower-bath apparatus, the combination of rose *d*, having a clamp, *d'*, or equivalent device, and an adjustable bracket, substantially as set forth.

4. In combination with a water-supply-pipe, a bath-discharge nozzle, *b*, a shower-discharge nozzle, *b'*, a valve or cock, *c*, and a pipe or cock, *e*, having two or more ports, *r r'*, or openings, substantially as described, whereby either nozzle may be opened to its supply-port, or both closed by a slight movement of the valve.

192,729.



192,730. CORSETS. Jos. Bale and L. Goldberg, London, England. [Filed June 12, 1877; patented in England, Feb. 21, 1877, for fourteen years.]



1. In corsets, stays, or bodices, the cup-shaped breast-gores A, in combination with the regulating-tape D and supporting-band E, substantially as herein described.

2. In corsets, stays, or bodices, the supporting-band E, arranged to operate substantially as and for the purposes herein described.

192,730. BALE-TIES. F. M. Blake, Worcester, Mass. [Filed May 31, 1877.]



1. A wire bale-tie, having its ends formed, as herein set forth, with transverse eyes or loops *a*, beads *b* and *c*, and returned ends *d e*, arranged for interlocking with each other in the peculiar manner shown and described.

2. In a bale-tie, the combination, with returned ends *d*, of transversely or diagonally-arranged loops *a*, whereby, when the tie is severely drawn, the strain, by uncoiling said loops, presses inward the ends *d* in the peculiar manner substantially as herein set forth.

192,731. BINDERS FOR SEWING-MACHINES. John Blanton, Chicago, Ill. [Filed Aug. 28, 1876.]

Brief.—A spring, regulated by a set-screw, is attached to the main plate of the binder, and, passing through an aperture in the scroll in a diagonal direction, bears upon the edge of the binding, to properly guide it.



The combination, with the plate A and loop B, of the spring D, lever L, and set-screw *b*, substantially as and for the purposes set forth.

192,732. SAFETY-POCKETS. W. M. Blume, Brooklyn, N. Y. [Filed May 31, 1877.]



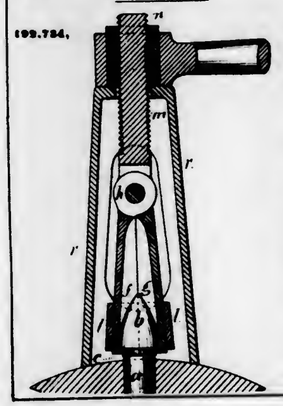
The combination, with the flap of a pocket having a center piece, of a hole for the passage of a watch-chain, substantially as described.

192,733. TEETH FOR COAL-BREAKERS. S. Broadbent, Scranton, Pa. [Filed Apr. 16, 1877.]



The coal-breaking cylinder made with teeth that are each provided with a cylindrical shank, and a neck between the portion of the tooth resting upon the cylinder and the largest part of the tooth, to allow the tooth to be grasped and withdrawn, substantially as specified.

192,734.



192,734. EXTRACTORS FOR THE TEETH OF COAL-BREAKERS. S. Broadbent, Scranton, Pa. [Filed May 26, 1877.]

The extracting instrument for the teeth of coal-breaker rollers formed of the jaws *f g*, tapering ring I, screw *m*, nut *n*, and tube or frame *r*, substantially as set forth.

192,735. METALLIC SHALS. M. J. Brooks, New York, N. Y. [Filed June 22, 1877.]



1. A metallic shackle having lateral anchoring projections formed by repeated transverse bends or folds, and compressed or flattened to preserve their shape, the ends of the shackle being extended beyond said projections in the form of guides, substantially as herein shown and described.

2. A metallic shackle having the stop projections or enlargements thereon, and smaller or less prominent anchoring devices between said stop projections and its extremities, substantially as herein shown and described, for locating said anchoring devices within the seal-disk, in the manner set forth.

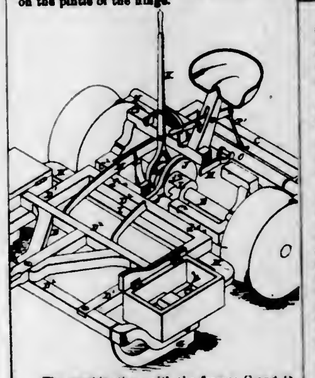
192,736. FENCE-BARBS. W. T. Burrows, Nashua, Iowa, assignor to Hopkins & Burrows. [Filed May 19, 1877.]



As an improved article of manufacture, a wire-fence barb consisting of the diamond-shaped plates A, each having two acute angles, *a a*, two obtuse angles, *b b*, and a central slot, *d*, extending inwardly more than one-half the width of the plate, said plates being joined at their slots, and locked by forcing down the metal at the ends of the slots in each plate, as described, and for the purpose set forth.

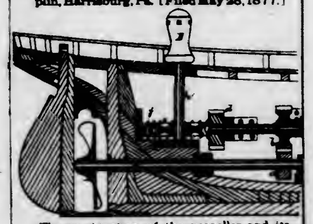
192,737. CORN-PLANTERS. K. M. Christrup and C. F. Schneider, St. Louis, Mo.; said Schneider assignor to F. Kornpfeat, same place. [Filed Mar. 20, 1877.]

Brief.—The clutch and eccentric mechanism are adjustable on the axle, the connecting-rod on the pintle of the hinge.



The combination, with the frames C and D of the device for operating the seed-slides, consisting of the eccentric J, having a ratchet-face, *j*, for engaging with clutch L on the axle, a jointed arm or eccentric rod, J', adapted to slide laterally on the pintle of a hinge, *i*, the collar *k*, lever K, bar I, and the seed-slides H, all arranged substantially in the manner described, and for the purpose set forth.

192,738. CAPSTAN AND PROPELLER ATTACHMENTS FOR VESSELS. W. H. Churchill, New London, Conn., and W. C. Champlin, Harrisburg, Pa. [Filed May 28, 1877.]

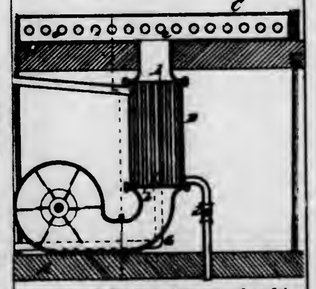


The combination of the propeller and its shaft, and the capstan and its shaft, with mechanism to effect, by means of the propeller-shaft while it may be in revolution to turn the propeller, rotary motion of the capstan, such mechanism, as described for such purpose, being the gears *a b d e*, shaft *c*, right and left screws *f f'*, and worm-gear *g*, arranged and applied as set forth.

192,739. PLATE-OILS OR VARNISHES FOR PRINTING-INKS. C. Collins, New Orleans, La. [Filed June 1, 1876.]

As a body for plate-printing and lithographic ink, the composition herein described, consisting of crude turpentine, linseed-oil, and rosin, in the proportions named, substantially as described, and for the purpose set forth.

192,740. PROCESSES AND APPARATUS FOR DRYING FISH-SCRAP. L. B. Cornell, Shelter Island, assignor of one-half his right to H. B. Dixon, Castleton, N. Y. [Filed Apr. 20, 1876.]



1. The volatilizing and removing from fish-scrap and other substances requiring similar treatment, in the process of drying, the fatty matters contained therein, by subjecting them to highly-heated currents of air, substantially as hereinbefore set forth.

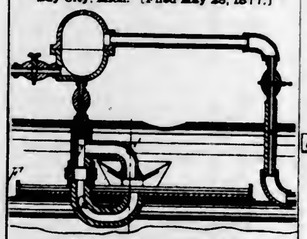
2. The combination of the hot-air pipes C C *c c* and movable platforms L, substantially as hereinbefore set forth.

3. The combination of the pipes C C *c c*, series of dividing and heating pipes or tubes *b b*, and heating-chamber D, substantially as hereinbefore set forth.

4. The combination, in a drying apparatus, of the following instrumentalities, viz: a blower, a series of tubes, *b b*, to divide the air and impart heat to the small streams thereof passing through them, a heating-chamber containing the said tubes, and a series of distributing-tubes, *c c*, to discharge and distribute the heated air into the substance to be operated upon, said heating-chamber being arranged between the said blower and the said distributing-tubes in the pipe through which the drying-air is conveyed, substantially as hereinbefore set forth.

5. The combination of a blower, a series of tubes, *b b*, a chamber, D, a steam-generator, and a superheater, substantially as hereinbefore set forth.

192,741. BOILER-CLEANERS. T. Craney, Bay City, Mich. [Filed May 28, 1877.]



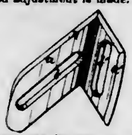
1. The combination, with a steam-boiler, of the large pan-shaped catch-plate F, and the inverted siphon G, opening upwardly through the said catch-plate, for conducting off the heavy particles deposited on such plate, constructed and arranged substantially as described and shown.

2. The flaring elbow C^1, deflectors C^2, and catch-plate F, in combination with the ascending leg of a water-circulating mud-extractor, substantially as and for the purpose set forth.

3. The combination, with the pipe C, of the downwardly-turned deflectors C^2, for conducting off the surface-water, the catch-plate F, below such deflectors, and the inverted siphon G, for conveying off the heavy particles not taken up by the said deflectors and deposited on the said plate, substantially as described and shown.

192,742. CORN HARROWS AND CULTIVATORS. James L. Curry, Oskaloosa, Iowa. [Filed Jan. 9, 1877.]

Brief.—The invention is limited to an angle-iron for securing the tooth-bar to the standard; and consists of a casting, the faces of the two wings standing at acute angles to each other. One wing has a vertical slot and the other a horizontal slot, by means of which any desired adjustment is made.



In a wheel corn harrow or cultivator, the combination, with the arms E, depending from the beam D, of the peculiar couplers A, composed of the wings *a a'*, meeting at an acute angle, the said wings being obliquely inclined toward each other, and being slotted at *b b'*, respectively, in the line of the direction of their inclination, together with the beam F and the bolts *e*, as and for the purpose specified.

192,743. SOLDERING-TOOLS. L. Cutting, San Francisco, Cal. [Filed Apr. 26, 1877.]

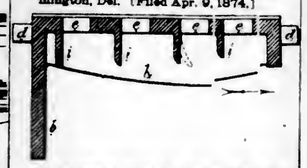


1. A soldering-tool composed of the following parts or elements, viz: The handle G, with its bar C and clamping-ring B, the soldering edge or cylinder A, and the heater D, adapted to be inserted within, and removed from, the end of the soldering-cylinder, and held therein at proper distance from the lower end by any suitable means, the whole constructed and arranged together substantially in the manner herein set forth.

2. The clamping-ring B upon the end of the holder C, adjustable by means of the screws *a a*, with its pin or stop *f*, for holding the cylinder A within it, when constructed and arranged to operate substantially as and for the purpose herein described.

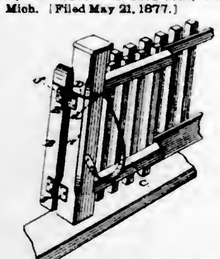
3. A soldering-tool in which the soldering end is formed of a hollow ring or cylinder, with a beveled edge and a detachable and removable heater, adapted to be inserted within and removed from the cylinder, and supported therein by a pin or stop, substantially as herein described and specified.

192,744. GRATE-BARS. A. O. Denio, Wilmington, Del. [Filed Apr. 9, 1874.]



The within-described bar, having the central longitudinal web *h*, longitudinal openings *g* in the top, and on each side of the web-vanes *i*, projecting from each side of the latter, and trunnions *d* at the ends of the bar, all constructed as set forth.

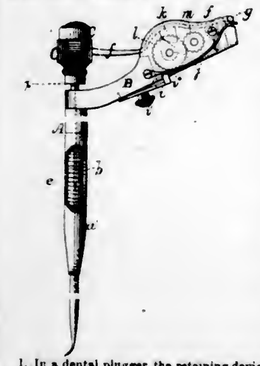
192,745. GATES. L. Dickerson, Trenton, Mich. [Filed May 21, 1877.]



In combination with post A' and gate B, the spring C, pull-cord D, hinge E, and latch *f*, constructed and combined to operate substantially in the manner and for the purpose hereinbefore set forth.

192,746. DENTAL PLUGGERS. Robert B. Donaldson, Washington, D. C. [Filed June 1, 1877.]

Brief.—The tool passes entirely through the outer case, upon which a hammer-lever is pivoted. This last is operated by a series of wheels, one of which carries a cam, which operates upon a pendant from the lever.



1. In a dental plugger, the retaining device for detachably securing the plugger or other instrument therein, consisting of the slotted tube *b*, having a lever-spring provided with a tooth or detent engaging the instrument, substantially as and for the purpose set forth.

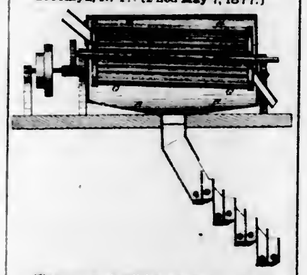
2. The stock or tube A, having the opening *a*, in combination with the inner short tube *b*, having the lever-spring *d*, provided with a detent or tooth, substantially as and for the purpose set forth.

3. The tube *b*, resting upon and in combination with the spring C, stock A, and lever-spring *d*, having a detent or tooth, substantially as and for the purpose set forth.

4. The mallet or hammer C, having a lever, *f*, provided with a lateral projection, *g*, in combination with the support B, spring *h*, and tension-regulating device, substantially as and for the purpose set forth.

5. The external mallet or hammer C and lever *f*, having a pendant, in combination with the cam *j* and gearing *l m*, substantially as and for the purpose set forth.

192,747. ORE-MILLS. Horace K. Drake, Brooklyn, N. Y. [Filed May 7, 1877.]



The process of utilizing cement by rendering the gold mingled therewith capable of amalgamating with mercury, which consists in removing the "rust" from the gold and separating it from other impurities, by disintegrating the mass and causing a mutual attrition of the particles against themselves by revolving the mass, as described.

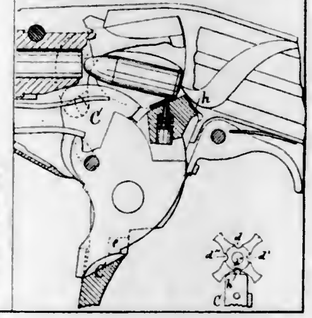
192,748. CARRIAGE-CURTAIN FASTENERS. Henry P. Elston, Richmond, Va. [Filed Feb. 10, 1877.]



As an improved article of manufacture, the hereinbefore-described curtain-fastener, consisting of the lower plate B, having spurs or projections F, lugs D, and central opening O, combined with the upper plate A, having spurs E and central opening C, substantially as and for the purpose described.

192,749. MAGAZINE FIRE-ARMS. George F. Evans, Mechanics Falls, Me. [Filed Apr. 17, 1877.]

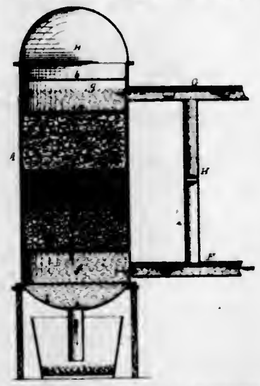
Brief.—Improvement on inventions described in Letters Patent No. 84,685, December 8, 1868, and No. 119,020, September 19, 1871. The cartridges are placed in grooves in a revolving cylinder, and are carried forward to the chamber by a fixed spiral coil, within which the cylinder revolves. The present improvements relate to devices for locking the rotating cylinder when the breech is closed, and to devices for stopping the downward and forward movement of the breech-block where the trigger falls into the cocking-notch.



1. The combination, in a magazine-gun, of the cylinder A, provided with the notches *d d' d'' d'''*, and the breech-block C, provided with the projection *h*, constructed to operate as and for the purpose described.

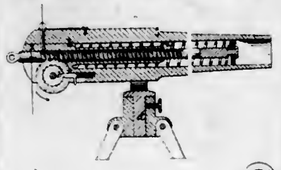
2. The cylinder A, the pin *g*, provided with the square tapering end *k*, and the square tapering recess *l* in the heel-plate G, all constructed and combined to operate as and for the purposes described.

192,750. FILTERS. Jas. Foley, Montreal, Quebec, Canada. [Filed Jan. 31, 1877.]



The cylinder or receptacle A, having a sediment-chamber, *h*, perforated receptacles for receiving the filtering material, pipes F, G, and H, provided with valves, and an air-chamber, B, with or without its transverse plate, having the orifice *b*, substantially as and for the purpose set forth.

192,751. SPRING-GUNS. Jos. L. Follett, New York, N. Y. [Filed June 18, 1877.]



1. The combination of a spring and the gear-operated spring-compressing shaft with means, substantially as herein shown and described, for disconnecting the spring from the shaft by rotation, substantially as herein set forth.

2. The combination, in a spring-gun, of a disk by which the projectile is ejected from the gun with a buttoned shaft capable of rotation, for locking in with or unlocking from said disk, substantially as described.

3. The combination, with the spring, its slotted disk, and the rotating locking-shaft, provided with the groove, of the locking-pin, or the equivalent thereof, to maintain the shaft locked with the spring and disk, as set forth.

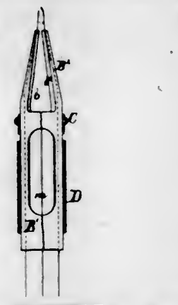
4. In combination with the spring and its compressing-shaft, the helical or equivalently-formed rack and gear-wheel, all operating substantially as and for the purposes set forth.

5. The combination, with the spring, its compressing-shaft, and gear-wheel, of the spring-bolt and toothed wheel, to lock the shaft at any stage of compression of the spring.

192,752. PENCIL-SHARPENERS. Ezra W. Frost, Brooklyn, N. Y. [Filed Mar. 22, 1877.]

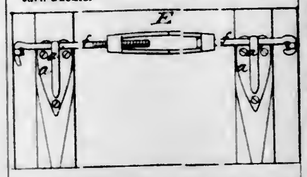
The pencil-sharpener and point-protector described, composed of the sheet-metal portion B^1 B^2, having liberal apertures *a*, in combination with the contractile rubber band D and rigid hoop C, as herein specified.

192,753.



192,754. WAGON-END-GATE RODS. Jacob Gennly, Victor, Iowa. [Filed May 10, 1877.]

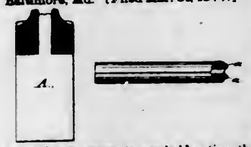
Brief.—The rods *f f* are joined by a hinged turn-buckle.



1. The combination, with a wagon-body and the end-gate lashed therein, of the rods *f*, and hinged or jointed turn-buckle E, substantially as specified.

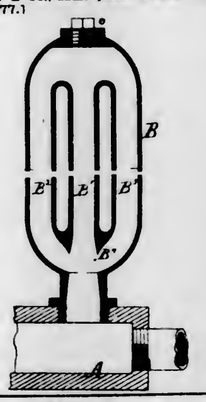
2. The combination, with the wagon-body, its end-gate, the hinged or jointed buckle, and end rods *f*, of the supporting-lugs *a* on the end-gate, substantially as specified.

192,754. PEN-HOLDER TIPS. B. W. Giles, Baltimore, Md. [Filed Mar. 31, 1877.]



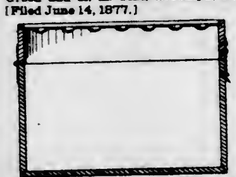
As an improvement in pen-holder tips, the blank A, provided with the ears *a a*, for forming the solid body, as well as the holding-springs, of a pen-holder tip in one piece, when constructed and arranged as herein shown and described.

192,755. STEAM-RADIATORS. R. S. Gillespie, New York, N. Y., assignor to Hunter, Keller & Co., same place. [Filed Mar. 14, 1877.]



The within-described radiator composed of an ascending pipe, B^1, and two or more descending pipes, B^2 B^3, connected at the top and bottom, the whole serving as efficient heating-surface, (with the assurance that the central pipe shall maintain the highest temperature,) as and for the purposes herein specified.

192,756. BOXES FOR COLLARS AND OTHER ARTICLES, WITH TOPS FOR GAMES. S. H. Green and A. H. Tift, Brooklyn, N. Y. [Filed June 14, 1877.]



1. The combination, with a wooden-box body and metal top cover, of hinges and fastenings, substantially as set forth.

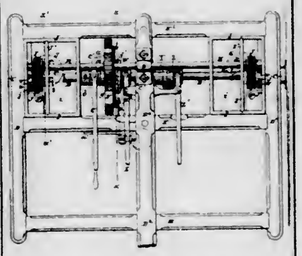
2. A wooden box, the cover or top of which is composed of sheet metal, struck up to present on its face corrugations or recesses or depressions of an ornamental or useful character, substantially as set forth.

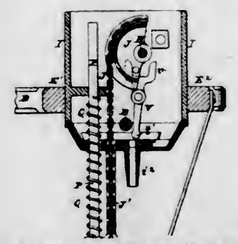
3. A combined wooden and metal box, the metal constituting the top being inserted in grooved sides, so as to form a protecting flange around the metal, substantially as shown and set forth.

4. As a new article of manufacture, a metal-top wooden game-box.

192,757. CORN-PLANTERS. M. Gregg, Chamois, Mo. [Filed Jan. 19, 1877.]

Brief.—At each discharge of seed the plunger and hinged marker are elevated and depressed.





1. The combination, with the hollow marker M of the plunger K, working vertically therein, and forming the connection between the marker and the lifting-chain J', so that the chain operates first on the plunger, to allow the closing of the seed-pocket, and is retained in such relative position with the marker, substantially as and for the purpose set forth.

2. The combination of lifting-chain J', hollow marker M, vertically-moving frame N, and depressing spring Q, operating substantially as set forth.

3. In combination with the hanging marker M and frame N, the forked projection *n*, forming a guide and stop for the swinging marker, as set forth.

4. The combination of seed-wheel S, sliding pawl t, forked lever V, and oscillating sector J, with roller-pin j, substantially as set forth.

5. The combination of the segment-wheel F and pinion G, with a suitable marker, M, for the purpose set forth.

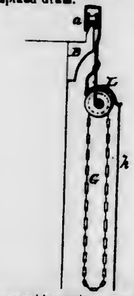
6. The segment-wheel F and pinion G, having enlarged projecting tooth g, in combination with a suitable marker, M, for the purpose set forth.

7. The combination of segment-wheel F, pinion G, rock-shaft H, sector J, chain J', and marker M.

8. The combination of the axle-shaft section B, loose segment wheel F, clutch f' W, clutch-lever s, and weighted dog a, substantially as set forth.

192,760. FIRE-ESCAPES. W. Guthrie, Chicago, Ill., assignor of one-half his right to E. O. Lamphere, same place. [Filed May 17, 1877.]

Brief.—A spiked drum is pivoted in a yoke, that is suspended from a track-way on the top of the building, said yoke being provided with a grooved roller. The device is to be drawn in front of any of the windows, and by means of the endless ladder any number of persons can descend, one after another, in continuous succession, their descent being regulated by a brake, which impinges on one of the flanges of the spiked drum.



1. A movable carriage suspended on a stationary track attached to a building, and the carriage provided with a rotating spiked or toothed drum, having an endless chain ladder placed around the same, substantially as and for the purposes herein set forth.

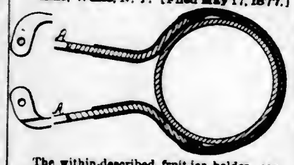
2. The combination of the flanged drum D, provided with the spikes or teeth b, the brake L, and the endless chain ladder G, with the movable carriage C, suspended by one or more wheels, a, on the stationary track B, substantially as and for the purposes herein set forth.

192,759. ATTACHING GLASS KNOBS TO METAL SOCKETS. John W. Haines, Cambridge, Mass. [Filed Mar. 19, 1877.]



The flanged socket, in combination with the knob pin or shank b, provided with one or more gutters, d, for the purpose of conducting the molten lead from the opening k to the sides of and recesses in said pin or shank, substantially as shown and described.

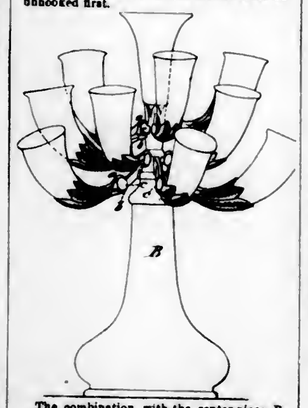
192,760. JAR-HOLDERS. T. Hale and H. Hale, Wales, N. Y. [Filed May 17, 1877.]



The within-described fruit-jar holder, consisting of the handles A A, forming the curved jars B B, the flexible band C, and the rubber sleeve or covering D, substantially as and for the purposes herein set forth.

192,761. COMPOUND VASES OR BOUQUET-HOLDERS. C. Heckert, New York, N. Y. [Filed May 2, 1877.]

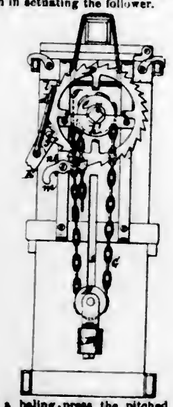
Brief.—The stand and tubes are made of glass. The tubes can be removed by lifting upward toward the center, those above to be unhooked first.



The combination, with the center-piece B, constructed or provided with the bosses c, having grooves d, of the tubular receptacles, each provided with the hook a and finger b, all substantially as and for the purpose described.

192,762. HAND POWER-PRESSES FOR BALING COTTON, &c. P. C. Ingersoll, Brooklyn, N. Y., assignor to himself and Jas. N. Balston, same place. [Filed May 8, 1877.]

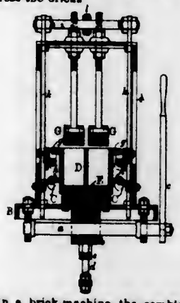
Brief.—A lever having a pawl of link form actuates a ratchet-wheel, on the shaft of which is a smaller wheel, adapted for carrying the chain in actuating the follower.



In a baling-press, the pitched chain-pinions C, journaled at the ends of the box of the press near the top, the ratchet-wheels D, secured to the shafts of said pinions, and the working pawl-levers E, for operating the pinions, in combination with the actuating-chains G, passing over the pinions C, and extending downwardly and around the sheaves H on the follower-beam B, all adapted to operate substantially as set forth.

192,763. BRICK-MACHINES. T. James, Baltimore County, Md. [Filed Apr. 30, 1877.]

Brief.—The molds filled with clay, and supported on a plate fitted to ride on the rails, are pushed beneath the plungers. A hand-lever actuates a cam-shaft to raise the molds and press the bricks.

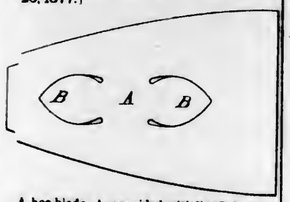


1. In a brick-machine, the combination of the removable mold D, with mechanism for elevating the same, as described, the removable plate E, vertically-moving block F, and stationary blocks G, substantially as herein described.

2. As means for elevating the brick-mold D, the elevating-bars h, side bars k, transverse rod i, and hand-lever l, combined substantially as shown.

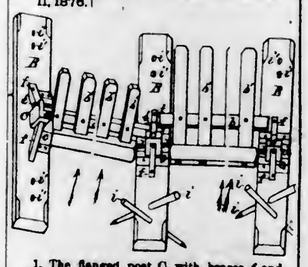
3. The combination of the vertically-moving block F, the shaft a, cam b, hand-lever c, track C, mold-plate E, removable mold D, and stationary blocks G, substantially as specified.

192,764. HOES. M. Johnson, Lockport, N. Y., assignor of one-half his right to M. C. Richardson, same place. [Filed June 20, 1877.]



A hoe blade, A, provided with lips B B, cut out of the blade to form the ferrule, and leaving openings in the blade close to the handle, as and for the purposes set forth.

192,765. FLOOD-FENCES. W. H. Johnson, Madison County, Ohio, assignor of one-half his right to H. P. Ustick. [Filed Dec. 11, 1876.]



1. The flanged post C, with braces f and corbel-block e, in combination with the mud-sill B with its pins i i, as and for the purpose hereinbefore set forth.

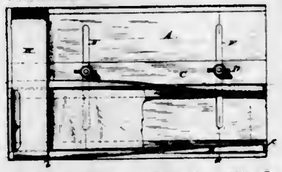
2. In a flood-gate the mud-sill B, provided with the corbel-block e, in combination with

the posts C, having braces f, flanges d, and holes s, together with the safety-pin e' to retain the rail b, as and for the purpose hereinbefore set forth.

3. The bottom hinge, so located with reference to the flanges f that the gate is supported during low water in a position slightly inclined from the vertical in the up-stream direction, as described.

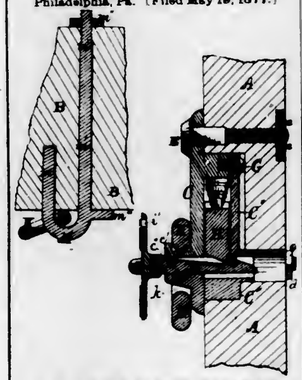
192,766. DEVICES FOR TURNING OR FOLDING THE EDGES OF FABRICS. M. Jonasson, New York, N. Y. [Filed May 10, 1877.]

Brief.—Adapted to fold both edges of strips of cloth of various widths. Between two hem-folding guides (one of which is adjustable) a series of interchangeable tongues or plates, of a width to correspond with the width of strip of cloth, are used, over the edges of which the cloth is folded.



The plate A, provided with a guide, B, having a single open fold, b, at one end, which is gradually folded into a double fold, c, at the other, in combination with the movable guide C, similarly constructed, and a series of interchangeable tongues, G, the whole constructed to operate substantially as set forth.

192,767. SEAL-LOCKS. Fred. J. Kimball, Philadelphia, Pa. [Filed May 19, 1877.]



1. A seal-lock in which the sealing-key which confines a hasp in place has an irregular shape in cross-section, whereby it is prevented from being inserted within the lock in but one position, substantially as and for the purpose specified.

2. The staple M, provided with the short arm m, the long arm m', having a threaded inner end, the nut m'', and the collar m''', substantially as and for the purpose shown.

3. The lock-casing consisting of the plate C, provided with the ∩-shaped flange C', the plate C'', having the flange C''', and the screw G, passing through said plate C'' into said flange C', substantially as and for the purpose shown and described.

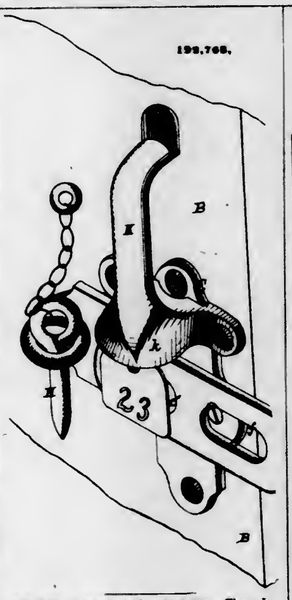
4. A combined seal and key in which the key is first formed, and the seal then cast upon its end, substantially as and for the purpose specified.

192,768. SEAL-LOCKS. Fred. J. Kimball, Philadelphia, Pa. [Filed Sept. 4, 1875.]

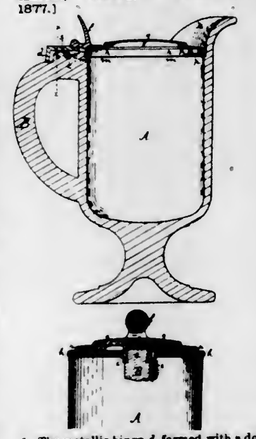
1. A seal-lock for use upon cars, in which a rigid hasp is pivoted to or upon the side of the car, and is provided with two openings for engagement with the lock of the door, substantially as and for the purpose shown.

2. In combination with the sealing devices, and with the door B, the door-handle K, provided with the hood k at its lower end, substantially as and for the purpose set forth.

192,768.



192,769. COVERED GLASSWARE. Chas. L. Knecht, Pittsburg, Pa. [Filed Apr. 7, 1877.]



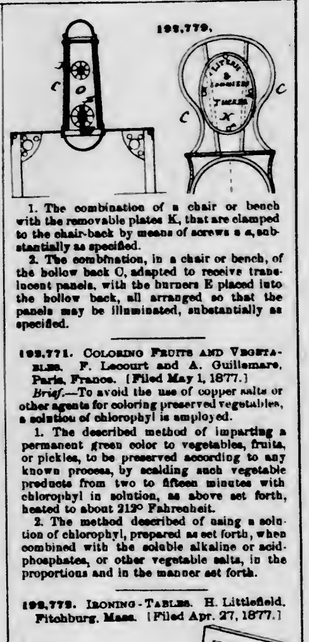
1. The metallic hinge d, formed with a dovetailed groove, i, and secured upon a dovetailed projection, c, upon the vessel, substantially as shown and set forth.

2. The metal hinge herein described, consisting of a piece, d, with a recess, i, said recess being dovetailed in vertical section, closed at its end and top, and having a detachable pin or screw, said piece being adapted to fit over a correspondingly dovetailed projection formed on the body of the cup, and having a groove to admit the pin or screw by which said piece d is held in position upon the dovetailed projection, substantially as set forth.

3. The hinged lid g, provided with a series of perforations, p, in combination with the glass vessel A, having an annular seat or shoulder, m, formed within the same and below the rim or lip of the vessel, as and for the purposes herein specified.

192,770. ADVERTISING SEATS AND CHAIRS. J. M. A. Lacomme, L. J. C. Marville, and A. A. Giren, Paris, France. [Filed May 9, 1877; patented in England, Aug. 9, 1873, for fourteen years.]

192,770.



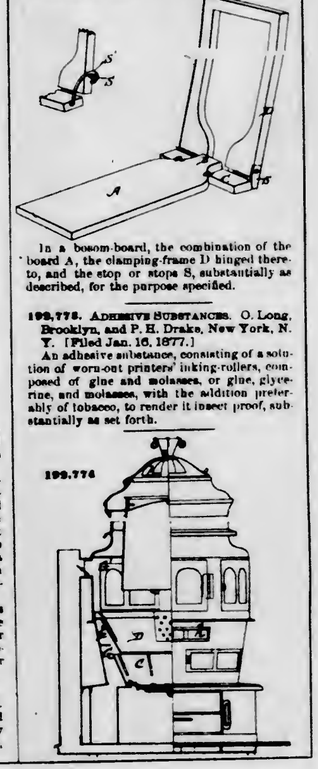
192,771. COLORING FRUITS AND VEGETABLES. F. Lecourt and A. Guillemare, Paris, France. [Filed May 1, 1877.]

Brief.—To avoid the use of copper salts or other agents for coloring preserved vegetables, a solution of chlorophyl is employed.

1. The described method of imparting a permanent green color to vegetables, fruits, or pickles, to be preserved according to any known process, by scalding such vegetable products from two to fifteen minutes with chlorophyl in solution, as above set forth, heated to about 212° Fahrenheit.

2. The method described of using a solution of chlorophyl, prepared as set forth, when combined with the soluble alkaline or acid phosphates, or other vegetable salts, in the proportions and in the manner set forth.

192,772. IRONING-TABLES. H. Littlefield, Fitchburg, Mass. [Filed Apr. 27, 1877.]



In a bosom-board, the combination of the board A, the clamping-frame D hinged thereto, and the stop or stops S, substantially as described, for the purpose specified.

192,773. ADHESIVE SUBSTANCES. O. Long, Brooklyn, and P. H. Drake, New York, N. Y. [Filed Jan. 16, 1877.]

An adhesive substance, consisting of a solution of worn-out printers' inking-rollers, composed of glue and molasses, or glue, glycerine, and molasses, with the addition preferably of tobacco, to render it insect proof, substantially as set forth.

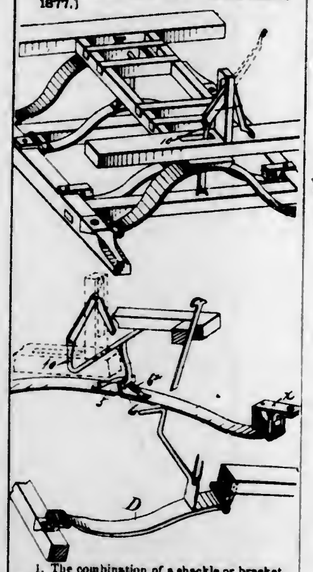
192,774

192,774. HEATING-STOVES. E. L. Matteson, Randolph, N. Y. [Filed Apr. 23, 1874.]

1. The combination of the cold air-chamber G^2 and combustion-chamber G, surrounding the fire-pot, in connection with the annular return-flue between the two sections C D of the fire-pot, substantially as and for the purposes herein set forth.

2. A fire-pot for stoves and furnaces, made in two sections, C and D, one entirely above the other, and provided with the flue *d*, in combination with the partition *f*, substantially as described, and for the purposes set forth.

192,775. AUXILIARY WAGON-SPRINGS. A. W. McKown, Kimble, Pa. [Filed June 1, 1877.]



1. The combination of a shackle or bracket, *x*, projecting inward from the axle or bolster, a yielding packing under its forward end, and a link hung between the axle or bolster and such packing, substantially as shown and described.

2. In combination with an auxiliary wagon-spring, and with a device for connecting and disconnecting the same, a bearing, 5, constructed with a notch and stop, substantially as and for the purpose described.

3. The bearing 5 adapted for application to an auxiliary spring, and constructed with a yoke receiving guide, 6°, notch 6, and a portion at the rear of the notch, to serve as a stop or detent, substantially as shown and described.

4. In combination with the auxiliary springs and the described bearing or bearings thereon, a disconnecting device or devices, arranged to be swung down, and provided with a fork or yoke at its lower end, adapted to stride such bearing and to engage therewith, substantially as shown and described.

5. The combination with the yoke-bar and its arm or handle 10, a jointed part, or its described equivalent for operating the same and passing through a slot in an upright part of the seat or body, substantially as and for the purpose set forth.

6. The short or half spring D, hung at one end directly to the axle or bolster, and hinged or linked at its other end under the body of the wagon, and provided with a device adapted to bear upon or release the same at a point between its ends, substantially as shown and described.

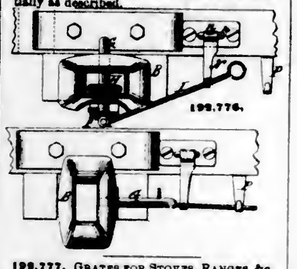
192,776. CAR-COUPLINGS. G. M. McMahan, Carter's Creek Station, Tenn., assignor of one-half his right to S. K. Hathaway, same place. [Filed May 14, 1877.]

1. The combination, with the draw-bar A A', constructed and operating substantially as described, of the removable coupling-pin G and the rod I, pivoted to said pin for removing said pin from and replacing the same in the link, and for turning the draw-head, substantially as and for the purpose described.

2. The combination, with the draw-head B and coupling-pin G, of the locking-plate F, formed on said draw-head, and the locking-pin *m*, projecting from the coupling-pin, substantially as and for the purpose set forth.

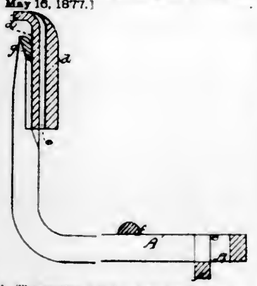
3. The combination, with the turning draw-head B, draw-bar A A', and removable coupling-pin G, having the rod I pivoted thereto, of the swinging stop-support N, whereby the said coupling-pin may be withdrawn and inserted in the draw-head from above, for use in connection with an ordinary car-coupling, substantially as and for the purpose specified.

4. The combination of the swinging stop-support, the locking-plate F, and the hook-support P, for keeping the rod I and coupling-pin G in line with each other, substantially as described.



192,776.

192,777. GRATES FOR STOVES, RANGES, &c. Jas. H. Mearns, Philadelphia, Pa. [Filed May 16, 1877.]

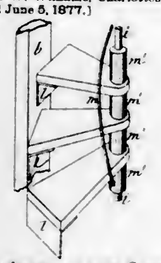


1. The section A' of a grate having lugs or slides *f f* and *f' f'*, in combination with the grate A having bars *b*, the lugs keeping the section A' in its horizontal position, it being held in its backward position by any suitable device, substantially as set forth.

2. The flue *e*, between the cap-plate *d* and the top rail d^1 of the grate A, substantially as and for the purpose set forth.

3. The combination of the cap-plate *d*, the top rail d^1 of the grate A, and the top rail d^2 of the section A', substantially in the manner and for the purpose set forth.

192,778. FIRE-ESCAPES. T. A. Michie and James W. Williams, Charlottesville, Va. [Filed June 5, 1877.]



1. As a fire-escape, a tower, C, constructed of upright bars *b* and surrounding holding-bands *c*, fastened to the wall and provided with a spiral stairway, D, communicating with balconies B, substantially as described.

2. In a permanent wall fire-escape, tower C, provided with a spiral stairway, D, the steps being fastened at their outer ends to the bars *b* by angle-irons *i*, and at their inner ends to a center rod, *i*, by separating supporting sleeves *m'*, as described.

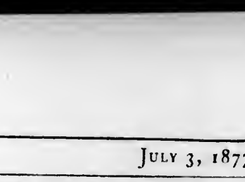
192,779. METALLIC FENCE-POSTS. Saml. Miller, Lamoille, Iowa. [Filed May 19, 1877.]



1. A wrought-iron fence-post, having a catch or holder punched out of the body of the post, and provided with the fastening-pin c, substantially as specified.

2. The fence-post described, consisting of the cast-iron base B, having diverging flanges, and the iron stem A, formed of thin metal and having a vertical central bearing-face, *a*, provided with holding-lugs and flaring side flanges *d*, substantially as specified.

192,780. BOOTS AND SHOES. John Miner, Detroit, Mich. [Filed Oct. 31, 1876.]



A metallic cap-sole secured to the sole of a boot or shoe by suitable devices, leaving an intermediate space or spaces to allow a current of air to pass between them, substantially as set forth.

192,781. ARTIFICIAL GRINDSTONES. A. O. Morgan, Burlingame, Kans. [Filed Feb. 26, 1877.]



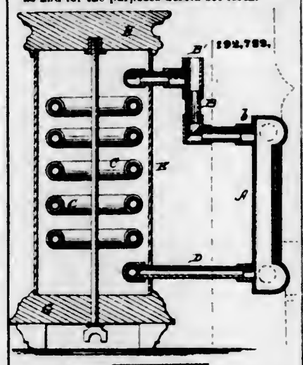
A grindstone wheel or tool, composed of a native clay comprising the elements silica, alumina, oxide of iron, lime, and magnesia, and of sifted sand, as set forth.

192,782. WATER-BACKS FOR FIRE-PLACES. Geo. W. Moore, Lynchburg, Va. [Filed May 17, 1877.]

Brief.—Corrugated water-back; two or more independent compartments, each having outflow and return pipe.

1. The water-back A, constructed as described, with corrugated face, in combination with the connecting pipes B D and radiator C E G H, substantially as and for the purposes herein set forth.

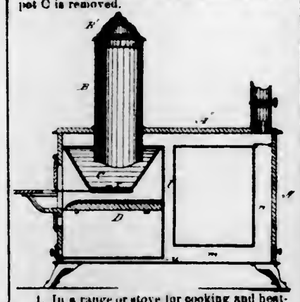
2. A water-back, A, divided by vertical partitions *h* into two or more chambers, A', each chamber having inlet and outlet, substantially as and for the purposes herein set forth.



192,783.

192,783. MAGAZINE COOKING-STOVES. J. D. Murray, Port Sarnia, Ontario, Canada. [Filed May 18, 1877.]

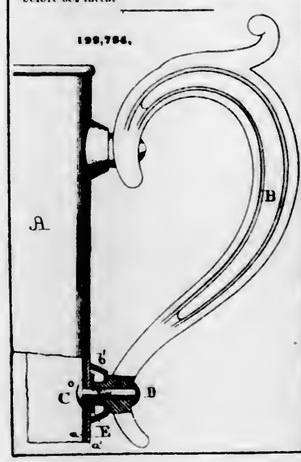
Brief.—When wood is to be used, the fire-pot C is removed.



1. In a range or stove for cooking and heating purposes, the combination of the box or body A, having a removable magazine, B, removable fire-pot C, and the flues *l*, *m*, *n*, and *n*, with the removable hearth-plate D for wood burning, substantially as and for the purpose herein before set forth.

2. The combination of the range or stove A, having double ash-pits *i* and E, with the removable hearth plate D for wood-burning, and removable fire-pot C for coal-burning, substantially as and for the purpose herein-before set forth.

192,784.



192,784. SHEET-METAL-VESSEL HANDLES. F. G. Niedringhaus and W. F. Niedringhaus, St. Louis, Mo., assignors to St. Louis Stamping Company, same place. [Filed May 11, 1877.]

1. The vessel A and rivet C, having the notches *c' c'*, combined substantially as described.

2. The combination of the vessel A, rivet C, having the notches *c' c'*, and the washer E, substantially as described.

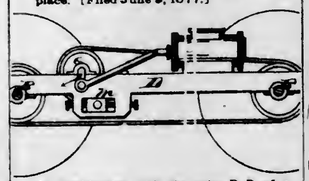
3. The combination of the vessel A, notched rivet C, handle B, and solder D, substantially as described.

4. The combination of the vessel A, notched rivet C, handle B, washer E, and solder D, substantially as described.

5. The combination of the enameled vessel A and a rivet, C, the latter passing through and projecting beyond the vessel-wall for a sufficient distance to allow a handle to be attached by it to the vessel without injuring the enamel of the vessel, such rivet being held in position by the friction of the adjoining parts, and by the enamel covering, substantially as shown and specified.

6. The combination of the enameled vessel A, rivet C, and washer E, substantially as described.

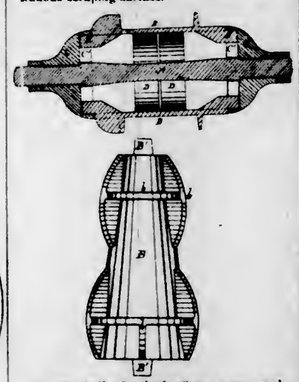
192,785. DRIVING-GEAR FOR STREET-CARS. G. E. Noyes, Washington, D. C., assignor of one-half his right to E. N. Gray, same place. [Filed June 9, 1877.]



In combination with the axles B B of a street-car, the beams D D, connecting the axles and supporting the engines E E, the pulleys H H, driving-drum G, belt-tightening drum J, and endless belt I, all constructed and arranged to operate substantially as and for the purposes set forth.

192,786. BOILER-FLUE SCRAPERS. Geo. H. Noyes, Erie, Pa. [Filed June 4, 1877.]

Brief.—The shell of the scraper is composed of tapering segments or ribs, each alternate rib being reversed to break joints, and a continuous scraping-surface.



1. The shell of a boiler-flue scraper, made of ribs B, which are narrower at one end than the other, as and for the purposes mentioned.

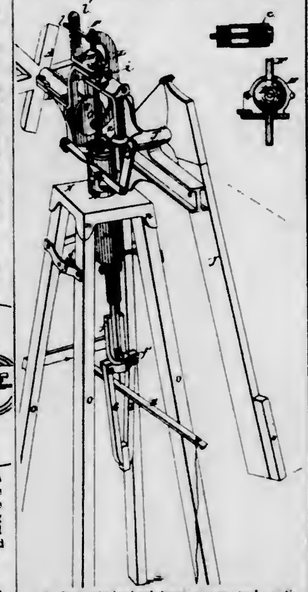
2. In combination with the tapering ribs B B B B the disk-shaped caps C, as shown, and for the purposes mentioned.

3. The springs D, in combination with the ribs B, said springs having a bearing upon each of said ribs, as shown, and for the purposes mentioned.

4. The combination, within a boiler-flue scraper, of the shaft A, ribs B B B B, made tapering, and arranged as described, the disk-shaped caps C C, and springs D D, said parts being arranged and operating together as shown, and for the purposes mentioned.

192,787. WINDMILLS. W. Peck, Rockford, Ill. [Filed Apr. 2, 1877.]

Brief.—The invention consists in devices for automatically throwing the wheel out of the wind as the wind varies in force. There are also elastic bumpers having adjusting-bolts and inclosing-cases, which are placed on both sides of the vertical part of the casting, and against which the wind-wheel frame strikes after being swung around upon a vertical hinge.



1. In a wind-wheel having a central vertical hinge or hinges, the combination of the weighted lever J, cranked journal J', bearing J'', connecting-rod K, and wheel-frame D, arranged and operating substantially as described, and for the purpose set forth.

2. In a windmill hinged upon its vertical or nearly vertical center, the combination of the wheel-frame, the vane-carrying frame, and the elastic bumper *s*, have the spring-adjusting bolt and inclosing-case, arranged and operating substantially as described and specified.

3. In combination with the wheel-frame, the crank-head C, oscillating lever L, pitman-rod F, guides *l* and *l'*, all arranged and operating substantially as described, and for the purpose set forth.

4. The combination of the pitman-rod F, guides *l l'*, and ball-guide E', inclosed in case E, all arranged and operating substantially as described, and for the purpose set forth.

5. The combination of the cap-tube or box N', radial rods S', and braces S, secured to the tower in such manner that the lower end of the tube may be adjusted and supported, substantially as described, and for the purpose set forth.

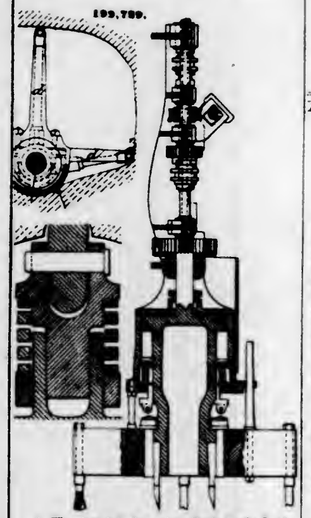
6. The combination of the pitman-rod and tubes E, N', and P, arranged substantially as described, and in such manner that the regulating-rod, which connects the levers J and H, shall pass through the openings in the said tubes, substantially as herein specified and set forth.

7. In a windmill having the open swivel-connection attached to the pitman-rod, the bifurcated pump-rod G, whereby a direct central lift shall be had, substantially as described and set forth.

192,788. ROCK-BORING AND TUNNELING MACHINES. H. N. Pearce, Hatfield, England. [Filed Mar. 13, 1877; patented in England, Feb. 25, 1876, for fourteen years.]

Brief.—The machine forms a bed or track for its support as the cutting proceeds. The revolving cutter-head forms the lower groove in the rock.

192,789.



1. The hereinbefore-described method of boring or tunneling rock, which consists in cutting a small annular groove or main bore, simultaneously forming holes at the sides and top of the bore, and then enlarging the bore by exploding charges in these holes, substantially as hereinbefore set forth.

2. The hereinbefore-described method of boring or tunneling rock, which consists in cutting an annular groove or main bore, enlarging the upper part and sides of the bore, and preserving the lower part, constituting a way to support the machine, and in which it can be moved to and fro, substantially as hereinbefore set forth.

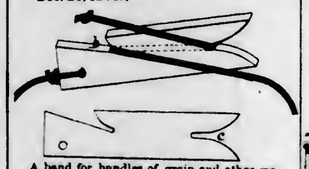
3. The main frame or bed of the machine, constructed of a curved or semi-cylindrical form on the under side, to adapt it to fit within the groove formed at the bottom of the bore, and traverse along it in a straight line, substantially as hereinbefore set forth.

4. The combination, substantially as hereinbefore set forth, of a ram, a cutting-head actuated thereby, and a series of borers also actuated by the ram, and forming holes round the annular groove cut by the said head, whereby the rock between the annular groove and the holes formed by the borers may be forced in by explosive charges, and the amount of work required to win a large bore greatly reduced.

5. In a rock-boring or tunneling machine, the combination, substantially as hereinbefore set forth, of the ram, the cutting-head, and the main frame or bed, provided with two or more cylinders for actuating the ram, in the manner described.

6. The cutting-head, constructed substantially as hereinbefore described, with cutters having their edges set circumferentially to the annular groove to be cut.

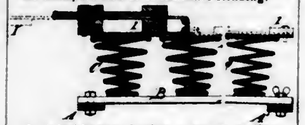
192,789. BANDS FOR BUNDLES OF GRAIN. F. Potzler, Minneapolis, Minn. [Filed Dec. 26, 1876.]



A band for bundles of grain and other materials of a like nature, composed of a piece of twine and a block of wood, provided with a hole near one end for the reception of one end of the twine, and with two tapering notches on the opposite end of the block, one for receiving the twine and the other for locking it after its passage around the bundle, substantially as herein shown and described.

192,790. BED-BOTTOMS. Saml. H. Reeves, Brooklyn, N. Y. [Filed Jan. 29, 1877.]

Brief.—The supporting-frame and the top surface are so constructed and arranged that they can be independently folded or shifted for transportation or to facilitate cleaning.



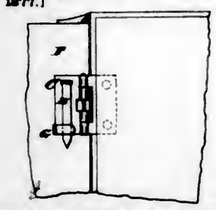
1. A bed-bottom having a top or resting surface, and supports therefor, substantially as described, each capable of being independently folded or shifted, for the purposes set forth.

2. A bed-bottom having a top or resting surface, and supports therefor, substantially as described, each capable of being independently folded, the supports, by swinging into positions nearly parallel with the length of the top surface, substantially as and for the purpose set forth.

3. A bed-bottom having a top or resting surface, and supports therefor, substantially as described, each capable of being independently folded, and the supports being provided with springs, substantially as set forth.

4. The bed-bottom, consisting of the top or resting surface composed of the slats I, and capable of being folded transversely, the supports B therefor, the springs C, clasps D uniting the top coils of the latter, and the slats A and A', substantially as set forth.

192,791. TEMPORARY BINDERS. Wm. H. Russell, Brooklyn, N. Y. [Filed Apr. 18, 1877.]



In combination with the stubs C C, the fastener E, made of some suitable flexible material, and the sheath G, all arranged as and for the purposes herein set forth.

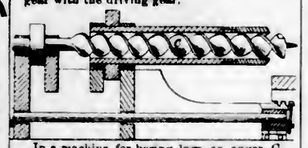
192,792. REGISTERS. A. Shedlock, New York, N. Y., assignor to A. Gage, same place. [Filed May 22, 1876.]



The combination of the retaining or locking pawls *f f*, wheels *a a*, pawls *h h*, and shaft *b*, constructed and operating substantially as hereinbefore set forth.

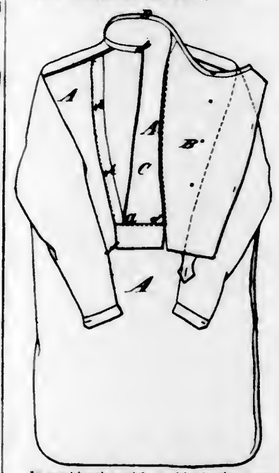
192,793. WOOD-BORING MACHINES. J. D. Shoote, Horseheads, assignor of one-half his right to S. H. Conkling, same place, and C. B. Vinton, Elmira, N. Y. [Filed June 20, 1877.]

Brief.—An auger for boring the hole and a reamer surrounding the same, the auger projecting beyond the reamer, are mounted in a frame, in which is placed a log-carriage, operated by the gear which operates the augers. The log-carriage can be thrown in or out of gear with the driving gear.



In a machine for boring logs, an auger, C, for boring the hole, and a reamer, D D', for reaming or completing the same, when the auger projects beyond the reamer, and the two parts revolve in the same direction at different rates of speed, substantially as and for the purposes herein set forth.

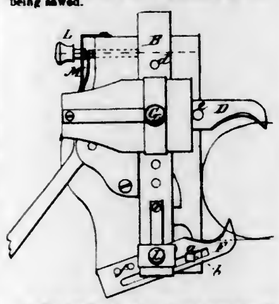
192,794. SHIRTS. M. Simon, New York, N. Y. [Filed May 26, 1877.]



In combination with a shirt having a portion cut away to form a front opening, C, inclined vertically along one of its borders from the lower angle *a*, the bosom B connected at one side only to the body A, and arranged to overlap the shirt-body at the other side, and also to overlap the body of the shirt below the opening C, but detached from the shirt-body at such point, as and for the purpose described.

192,795. SAW-MILL DOGS. H. Snyder, Fowlersville, Mich. [Filed May 8, 1877.]

Brief.—Two laterally-adjustable dogs, the lower one provided with a longitudinal guide-slot, are mounted in a perforated center-bar, vertically adjustable in a dovetail groove in the head-piece, for holding crooked logs while being sawed.



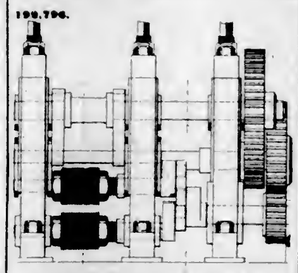
1. The combination, with the center-bar B and the upper dog D, of the lower dog F, adjustable in and out by means of the slot *b* and pivot-pin *a*, for the purpose set forth.

2. The lower dog provided with the slot *b* for the pivot-pin *a*, and the holes *f*, and arranged in a guideway in the center or dog bar, in combination with the spring-bolt I, adapted to hold said dog when adjusted horizontally by means of said slot, as described.

3. The dovetail center-bar, having the toothed rack *i*, and the head-piece having the spring-bolt L, the hold-plate M, and the lever-gear connection with said center-bar, combined for operation as described.

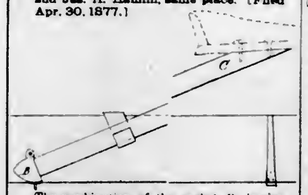
192,796. MACHINES FOR THE MANUFACTURE OF SCREWS. Wm. C. Stiff and A. Bowen, Birmingham, England. [Filed June 22, 1877.]

192,796.



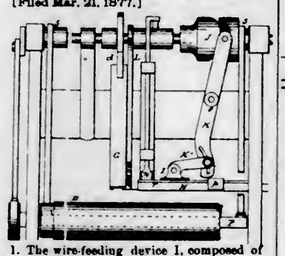
In machinery for the manufacture of screws, the combination, with screw-threaded cutting-rolls having fixed bearings, and a screw-threaded cutting-roll having movable bearings, of cranks, the pins of which engage a disk by which rotation is imparted to all said cranks, the pin of the crank of the movable roll being connected with said disk through the intermediary of a slide, substantially as herein more fully shown and described, and for the purpose set forth.

192,797. WAGON-SEAT SPRINGS. T. Thompson, Shiocton, Wis., assignor to himself and Jas. H. Hamlin, same place. [Filed Apr. 30, 1877.]



The combination of the socket B, having upper face-flange and curved bottom part, with the rounded off lower end of the wooden spring C, having a top shoulder and metallic face-plate, substantially as and for the purpose specified.

192,798. MACHINES FOR MAKING WIRED TICKETS. H. Van Geesen, Paterson, N. J. [Filed Mar. 21, 1877.]



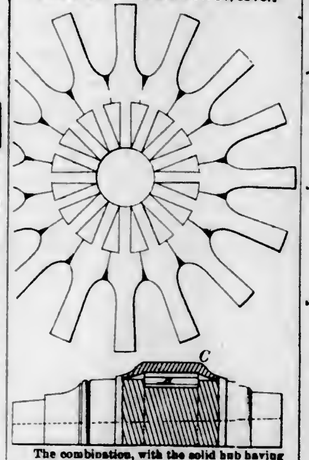
1. The wire-feeding device I, composed of the following parts: the shuttle or piece *a*, perforated longitudinally to admit the wire, and slotted to receive the tongue *b*, which is pivoted near the rear end thereof, the box H, and the spring *n* and plate *p*, or other suitable friction device, in combination with the cam J and levers K K', substantially as shown and described, for the purposes specified.

2. The wire-forming device G, composed of the slotted metal box *c*, the tongue *h*, the slotted plate *s*, and the plunger *d*, constructed and arranged substantially as herein described, for the purposes specified.

3. In combination with the wire-forming device G, constructed as described, the endless web D, suspended table P, and the cams S S, arranged in relation to each other substantially as shown and described, to operate as set forth.

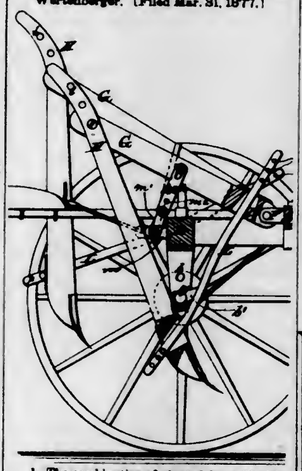
4. The combination of the feeding device I, forming device G, knives L and *g*, presser-foot N, suspended table P, and endless web D, arranged relatively with each other and with the several cams on the driving-shaft, substantially as set forth, to operate conjointly in the manner and for the purposes specified.

192,799. VEHICLE-HUBS. C. J. Valentine, Belvidere, N. J. [Filed Nov. 27, 1876.]



The combination, with the solid hub having the annular groove B and the radial mortises extending inward therefrom, of the metallic annular band C having the V-shaped partitions between its slots, and the tenoned double-beveled spoke-heads, in contact with said partitions on each side, and forming a solid arch within said groove, substantially as specified.

192,800. SULKY PLOWS AND CULTIVATORS. L. Wertenberger and G. W. Amies, Laketon, Ind.; said Amies assignor to said Wertenberger. [Filed Mar. 31, 1877.]



1. The combination of pivoted frame N with levers M, shafts M', pivoted beams G, and toggle-connections, substantially as and for the purpose set forth.

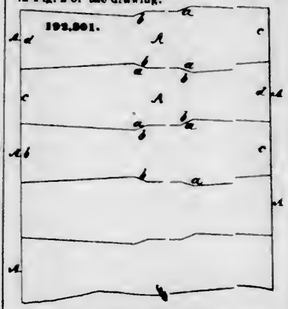
2. The combination of pivoted beams G with braces J and L, standards H, rock-shaft M', and adjustable toggles, substantially as and for the purpose set forth.

192,801. BLANKS FOR TABLE-FORKS. Le Roy S. White, Waterbury, Conn., assignor to Brown & Brothers, same place. [Filed May 25, 1877.]

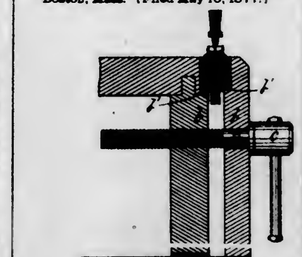
Brief.—The blank claimed receives edgewise pressure to thicken shank, is graded lengthwise and trimmed, and may be again pressed edgewise.

The blank A, having two taper portions, *d b* and *a e r*, and an intermediate parallel or approximately parallel portion, *a a b b*, connected with said parallel portions by more or less abrupt widening and narrowing portions, substantially as herein described and shown in Fig. 2 of the drawing.

192,801.

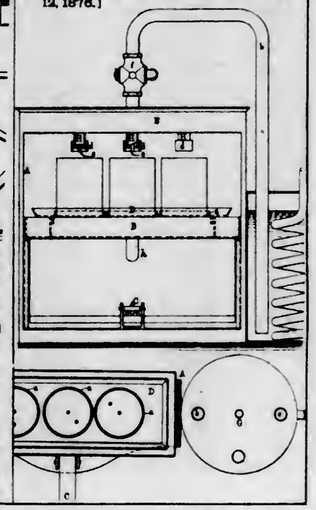


192,802. BRUSH-MACHINES. J. L. Whiting, Boston, Mass. [Filed May 10, 1877.]



The laterally-adjustable upright jaws *b b*, provided with the projections *b' b'*, in combination with the clamps *a*, constructed to temporarily hold the bristles until the ferrule is applied, substantially as set forth.

192,803. PROCESSES AND APPARATUS FOR CANNING FRUITS, VEGETABLES, &c. Wm. A. Wicks, Baltimore, Md. [Filed Apr. 12, 1876.]



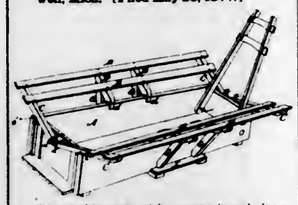
1. In the filling of food-cans, the process of supplying the liquid accompanying the solid portion of the food to the cans by forcing the said liquid, under pressure, into the can through a minute opening, which is afterward closed by a drop of solder, substantially as described.

2. The combination of the pipe *b*, through which the liquid is forced under pressure, cock *f*, reservoir E, series of discharge-pipes H, and flexible ends or gaskets *d*, substantially as and for the purpose herein specified.

3. The discharge-pipes H, combined with flexible ends or gaskets *d*, and stop-valves *e*, substantially as and for the purpose described.

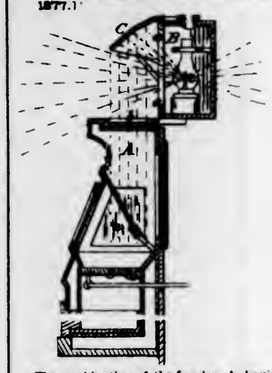
4. The frame A and vertically-sliding drippan B, provided with the spout *h*, combined with the tray D, having seats to receive the cans, substantially as and for the purposes specified.

192,804. HAY-RACKS. C. Williams, Plainwell, Mich. [Filed May 26, 1877.]



The combination, with a wagon-box, A, having staples *a* in its ends and steps 1 at the sides, of the boards B, end arms C notched at *b*, the central arms D with hooks *d*, and the braces G, substantially as and for the purposes herein set forth.

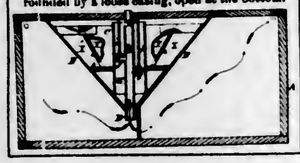
192,805. STREET-CAR FARE-BOXES. L. Wood, Brooklyn, N. Y. [Filed Jan. 16, 1877.]



The combination of the fare-box A, having a transparent top, *b*, the lamp-box B, situated above the fare-box, and behind its transparent top *b*, and the reflector C situated outside, above, and in front of the lamp-box B, so as to reflect the rays from the head-lamp into the fare-box, constructed and operating substantially in the manner described and specified.

192,806. REFRIGERATORS. L. B. Woolfolk, Lexington, Ky. [Filed Nov. 10, 1876.]

Brief.—Ice surrounds the salt-box, which has perforated sides, to let the drip pass through the salt and down to the bottom of the refrigerator-box, from whence it is allowed to escape through an outlet-pipe, having inlets at different heights, closed by stoppers, and surrounded by a louse casing, open at the bottom.



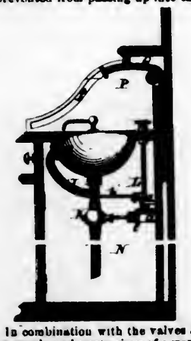
1. The combination, with the refrigerating-vessel B, of the internal partition C, ice-receptacle X X', salt-receptacle Y, offlet-pipe D, inlets *e f g*, casing-pipe E, and refrigerator-box A, substantially as described.

2. The combination, with the refrigerating-vessel B, of the ice-receptacle X X', as and for the purposes set forth.

3. In a refrigerating apparatus, the offlet-pipe D, inlets *e f g*, stoppers *e' f' g'*, and casing-pipe E, as and for the purposes set forth.

192,807. WASH-BASINS. C. B. Yvelin, New York, N. Y. [Filed June 6, 1877.]

Brief.—The combination, with a wash-basin, with its supply-pipe, its overflow-pipe, and its waste-pipe, of stop-cocks, and of a mechanism for operating said stop-cocks simultaneously, so that when the supply-pipe is opened both the overflow-pipe and the waste pipe are also opened, and all danger of overcharging the basin is avoided, and when the supply-pipe is closed both the overflow-pipe and the waste pipe are also closed, and the sewer-gases are prevented from passing up into the room.

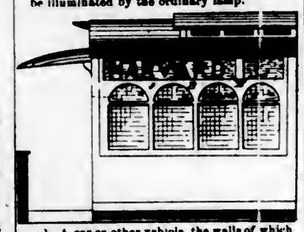


1. In combination with the valves J and K in the supply and waste pipes of a wash-basin, the vertical shaft L, having at its lower end a bevel-wheel, *d*, meshing with a bevel-wheel, *e*, to operate the valve K, and with rods *c* and arms *a b*, for operating the valve J by a single movement of the vertical shaft, as and for the purpose described.

2. The combination, with a wash-basin, a suitable supporting-casing, N, and cheek-pieces P, of a sliding cover, Q, adapted to be drawn out to cover and conceal the wash-basin, substantially as shown and described.

192,808. STREET-CARS. Albert A. Young, Boston, Mass. [Filed May 8, 1877.]

Brief.—A system of destination panels applied to the side of the car, so arranged as to be illuminated by the ordinary lamp.



1. A car or other vehicle, the walls of which at their upper edges are constructed for the reception of signal or destination panels, in the manner substantially as set forth.

2. In combination with a car or other conveyance, a transparent, or partially transparent, or translucent, signal panel or panels, constructed substantially as described, and arranged in the upper edges of its walls, between the roof and the upper line of its windows, for the purposes set forth.

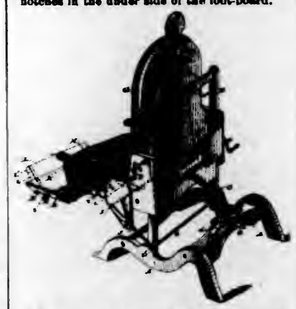
3. The combination of a removable or a system of removable signal-panels, substantially as described, with the walls of a car or other conveyance, for the purposes set forth.

4. The combination of a transparent or translucent panel, and of a stenciled or open skeleton-letter panel, with a car or other conveyance, constructed in the manner substantially as and for the purpose set forth.

5. The combination, with the walls of a car or other conveyance provided with a stenciled signal-panel or system of panels, substantially as described, of a removable glass or other transparent or translucent panel, or corresponding system of glass panels, for the purposes set forth.

192,809. DENTISTS' CHAIRS. B. Burritt, Elgin, Ill. [Filed Feb. 26, 1877.]

Brief.—To the base or supporting frame, the rear portion of which is elevated to form a rest for the foot of the operator, is pivoted an upright frame, the inclination of which with relation to the base-frame can be adjusted by a curved notched bar and detent. A sliding frame, carrying the seat and back, is adjusted vertically on the upright frame by a cord passing over a pulley on the upper end of the upright frame, and having its ends wound in opposite directions on a differential windlass or shaft on the sliding frame, the rotation of which regulates the adjustment of the sliding frame. The back can be adjusted vertically, independently of the seat, by a pin and set-screw working in slots in the sliding frame. The seat is pivoted to the sliding frame, and its inclination can be adjusted by links connecting it with an adjusting rock-shaft and lever. A supplemental foot-rest is attached to the main foot-board, and is adjustable thereon by means of a transverse rod engaging with notches in the under side of the foot-board.



1. The base or supporting frame A, constructed with the rear ends of the side pieces raised as described, and a wide rear cross-bar, suitable for a foot-support, substantially as and for the purpose set forth.

2. The base A, provided with the slotted cross-piece *a*, in combination with the upright frame B pivoted thereto, curved notched arm C, pivoted to the frame B, and detent *a'*, all constructed and operating substantially as and for the purpose set forth.

3. The slotted cross-piece *a*, in combination with the notched bar C, detent *a'*, pivoted fastening-arm *c*, and guide *c'*, substantially as and for the purpose set forth.

4. The frame B, in combination with the sliding frame D, cord F, and shaft E, provided with an enlargement, *e*, and crank *e'*, all arranged and operating substantially as described.

5. The frame D, in combination with the independent back G, secured to and adjusted upon the frame D, independently of the seat, by means of the slots *d'*, pin *g*, and set-screw *g'*, substantially as described.

6. The seat H, pivoted to the sliding frame D, in combination with the rock-shaft I, crank-arm *i*, link-bar *i'*, and adjusting-lever J, substantially as and for the purpose set forth.

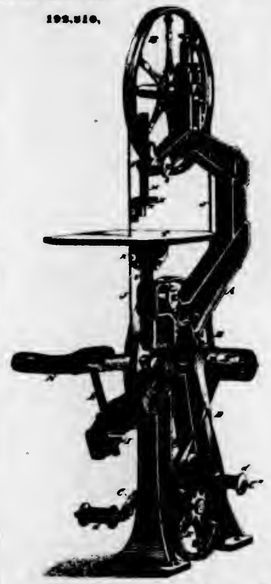
7. The foot-board K, provided with notches *k* on its under side, in combination with the adjustable foot-rest L, constructed as described, and attached to the foot-board by means of the rod *l'*, substantially as set forth.

8. The base A, in combination with the pivoted frame B, sliding frame D, seat H, and removable pivot-bolts *b*, *h*, and *i'*, whereby these parts may be readily disconnected for shipment, substantially as set forth.

192,810. BAND SAWING MACHINES. Frank Millward, Cincinnati, Ohio. [Filed Mar. 31, 1877.]

Brief.—The saw can be operated by foot-power without the use of treadles or a fly-wheel by means of cranks attached to a driving-wheel connected by a belt to a pulley on the lower band-wheel shaft. The wheels are cast in one piece, with double-curved branching arms. The guides are adjustable, to admit of the saw being run at a different place on the band-wheels.

192,810.



1. A sawing-machine embracing, in combination, a stationary frame, upper and lower band-wheels mounted thereon, an endless saw running over said wheels, and a foot-power driving-shaft having suitable driving connection with the saw band wheels, and fitted with opposite foot-cranks adapted to directly receive the feet of an operator seated on or near the machine, substantially as and for the purpose specified.

2. In combination with the saw band wheels B of a band-saw machine, the foot-crank shaft C having a driving-connection therewith, and arranged crosswise of the axes of the band-wheels, substantially as and for the purpose set forth.

3. In combination with the saw band wheels B of a band-saw machine, the foot-crank shaft C having a driving-connection therewith, operating to rotate the band-wheels in the opposite direction to the direction of rotation of the shaft C, substantially as and for the purpose specified.

4. The frame A of a band-saw, having a projecting socket-arm, *a*, in combination with the seat H and shank *h*, substantially as and for the purpose set forth.

5. The frame A, having an open-sided seat or socket, *a'*, for the reception of the adjustable supporting-column of the work-table, substantially as and for the purpose specified.

6. The combination of band-wheels B, foot-crank shaft C, driving-connections E D, and fast and loose pulleys F F', substantially as and for the purposes specified.

7. The band-wheel B, cast in one piece, with branches *b* *b'*, branches *b²* *b²*, and arms *b³* *b³*, substantially as and for the purpose specified.

8. The combination of the open-sided box Y, the tilting stud X *x'* pivoted thereto, and adjusting-screw *y*, substantially as and for the purpose specified.

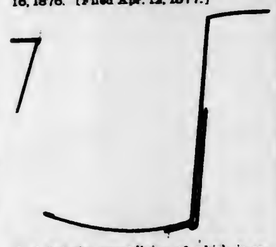
9. The combination of the open-sided socket or seat *a'* of frame A, eyebolt S, hand-wheel *s*, and sliding guide-rod M, substantially as and for the purpose specified.

10. The saw-guide K, having notched web *k' k' k'*, side guides *k² k²*, and bolt *k³*, substantially as and for the purpose specified.

11. The combination of table-column U having slotted projection Q, and lower guide K having lateral shank P and nut R, substantially as and for the purpose specified.

REISSUES.

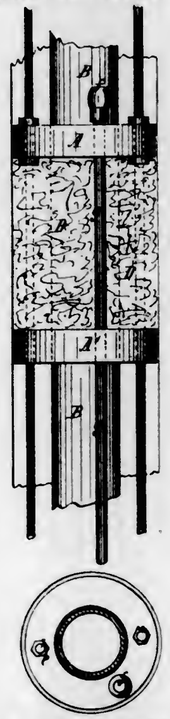
7,772. METHODS OF ATTACHING SWEAT-BANDS TO HATS. N. A. Baldwin, Milford, Conn. Patent No. 177,452, dated May 16, 1876. [Filed Apr. 12, 1877.]



1. A hat the sweat-lining of which is secured by a succession of stitches perpendicularly to the brim and outside the plane of the crown, substantially as described.

2. In the manufacture of hats, the method herein described of attaching sweats, consisting in securing the sweat to the inner edge of an independent strip of material, and the said strip secured to the hat, substantially as specified.

7,773. PACKING FOR OIL-WELLS. John R. Cross, Cleveland, Ohio, assignor to H. H. Bliss, Chester, Pa. Patent No. 46,217, dated Feb. 7, 1865. [Filed May 1, 1877.]



1. In an artesian-well packer, a flexible or yielding packing material, in combination with devices which press said material against both the wall of the well and the discharging-tube.

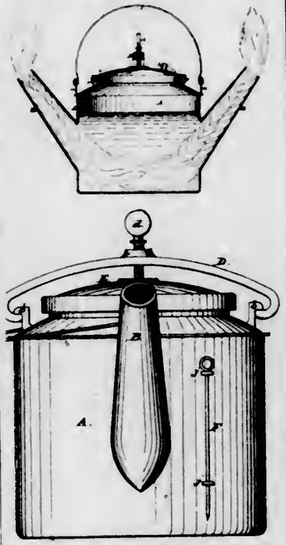
2. In an artesian-well packer, the combination, with the discharging-tube, of a flexible or yielding packing material, and two flanges or disks which approach each other, and compress the yielding packing material between them.

3. In an artesian-well packer, the combination of two flanges surrounding the discharging-tube, a yielding packing material arranged between the flanges, and screw-threads for causing one flange to approach the other to compress the packing material.

4. In an artesian-well packing, a fibrous material, connected to movable rings, which compress the packing when they approach each other, and which elongate said packing when they recede from each other.

5. In an artesian-well packer, a flexible or yielding packing material, in combination with a flange adapted to surround the discharging-tube, and also provided with a seat adapted to receive and support a gas-escape-pipe.

7,775. SAFETY DERRICK-LAMPS. J. Dillen, Kane City, Pa., assignor to J. Eaton and B. H. Cole. Patent No. 102,663, dated May 3, 1870; Reissue No. 5,114, dated Oct. 29, 1872. [Filed Mar. 3, 1877.]



1. A lamp, constructed substantially as described, having the body A, and wick-tubes B B on such body, with a gas-tight lid or cover and a ball, for the purpose specified.

2. The lid E, having a double rim, *e e'*, with or without rubber packing, in combination with the yoke D, screw *d*, and lamp A, substantially as shown, and for the purpose specified.

3. A derrick-lamp with two wick-tubes on opposite sides, said lamp and tubes being of continuous and entire metal, substantially as shown and described.

4. The combination, in a derrick-lamp, of the body A, wick-tubes B, ears *a*, and bail *c*, substantially as shown and described.

5. A cast-metal derrick-lamp consisting of the body A, wick-tubes B, and projections or ears *a*, all in one and the same piece, and produced at the same operation of casting.

6. A cast-metal derrick-lamp body or bowl, and two or more wick-tubes, all in one and the same piece, and produced at the same operation of casting.

7. In a derrick-lamp, the combination of the body of the lamp, two or more wick-tubes on the sides of such body, and at equal distances apart, and a gas-tight lid, substantially as described.

8. The lamp A, lid E, vent A, yoke D, screw *d*, and bail *c*, as constructed, for the purpose specified.

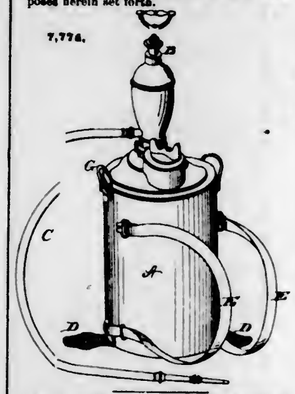
7,774. KNAPSACK FIRE-ENGINES. Jos. W. Douglas, Middletown, Conn., assignor to W. & B. Douglas. Patent No. 93,974, dated Aug. 24, 1869. [Filed June 13, 1877.]

1. The reservoir A, armed with one or more foot-pieces, D, projecting from the reservoir at the bottom, for the purposes herein set forth.

2. With a portable reservoir carrying a pump, the straps E E, for attaching the same to the body, substantially as herein set forth.

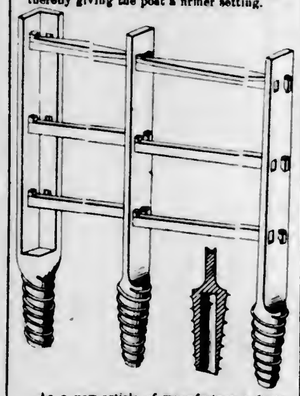
3. The reservoir A, armed with foot-pieces D D and belts E E, in combination with the force-pump B and pipe C, arranged and operated substantially in the manner and for the purposes herein set forth.

7,774.



7,775. IRON FENCES. Moody G. Freeman, Bloomington, Ill. Patent No. 163,761, dated May 25, 1865. [Filed May 17, 1877.]

Brief.—In forcing the post into the ground, an amount of soil equal to the size of the base of the post is displaced. This presses into the wall of the post-hole, making the walls surrounding the base more dense and solid, and thereby giving the post a firmer setting.



As a new article of manufacture, a fence-post, having a metallic hollow tapering base, such base having closed sides and exterior screw-threads, substantially as and for the purpose described.

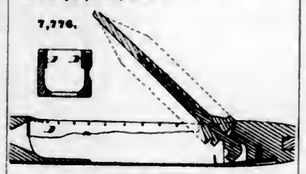
7,776. SHUTTLES FOR WEAVING DUCK, &c. W. L. Gilbert, Plymouth, Mass. Patent No. 191,526, dated June 5, 1877. [Filed June 11, 1877.]

Brief.—In weaving a fabric requiring a heavy or coarse weft, the latter, as it is drawn rapidly off of the bobbin during the flight of the shuttle, is liable to be thrown out of the shuttle by the centrifugal force generated during the said unwinding. A shoulder or abutment is formed on the inside of the shuttle by affixing to the sides or ends thereof a lining of suitable material. This may be of cloth or of any other material, either with or without a friction-surface. The weft, by striking against the shoulder, is mainly prevented from being thrown out of the shuttle. A friction-surface above the shoulder will materially aid the latter in preventing the escape of the thread.

1. A loom-shuttle provided with a shoulder or abutment, e, arranged in a bobbin-chamber of such shuttle, substantially in manner and for the purpose as set forth.

2. A loom-shuttle provided with a cloth or friction lining, D, arranged in the bobbin-chamber of such shuttle, substantially as and for the purpose specified.

7,776.



7,777. CANDLES FOR MINERS' USE. Peter R. Gottstein, Houghton, Mich. Patent No. 101,857, dated Apr. 12, 1870. [Filed Dec. 18, 1876.]

The process of making dipped candles of stearine, by keeping the room at a high temperature, allowing the dip to cool when about one quarter of an inch thick, and then dipping rapidly until finished, substantially as described.

7,778. BOOK, SHAWL, AND PARCEL HANDLES. G. Havell, Newark, N. J. Patent No. 183,563, dated Oct. 24, 1876. [Filed June 13, 1877.]



1. In a handle for carrying books, shawls, or parcels, a pendent loop attached to and forming a part of such handle, substantially as and for the purposes set forth.

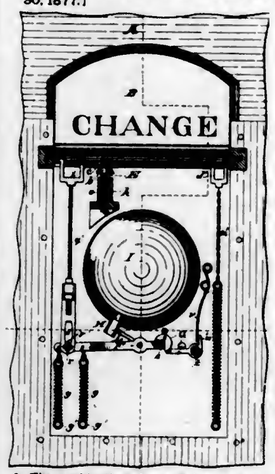
2. A pendent loop projecting from and within a handle, and forming a part of such handle, for carrying shawls, books, or parcels, for the purposes herein set forth.

7,779. MANUFACTURE OF ENAMELED IRON-WARE. F. G. Niedringhaus and W. F. Niedringhaus, St. Louis, Mo. Patent No. 177,968, dated May 30, 1876. [Filed Sept. 26, 1876.]

1. The herein-described process of enameling iron-ware by oxidizing the iron during the process of drying the glaze, substantially as set forth.

2. As a new manufacture mottled enameled sheet-iron ware, having the oxidized base fused with the surface-glaze.

7,780. CHANGE-GATES FOR CARS. John B. Slawson, New York, N. Y. Patent No. 73,396, dated Jan. 14, 1868. [Filed Apr. 30, 1877.]



1. The combination of a small door or wicket-gate, adapted to be opened and closed from either side, with the end platform and wall or door of a street-car or other public conveyance, substantially as and for the purposes set forth.

2. The combination of a bell and a small door or wicket-gate, operated from either side, with the end wall or door of a street-car or other public conveyance, in the manner substantially as and for the purposes set forth.

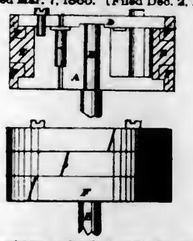
3. A self-closing wicket-gate, B, in combination with a door or wall of a street-car, omnibus, or other public vehicle, substantially as and for the purpose herein shown and described.

4. The combination of a self-closing wicket-gate and a bell with a door or wall of a street-car or other public conveyance, substantially as and for the purpose set forth.

5. The pin E and spring A, in combination with a gate, for the purpose described.

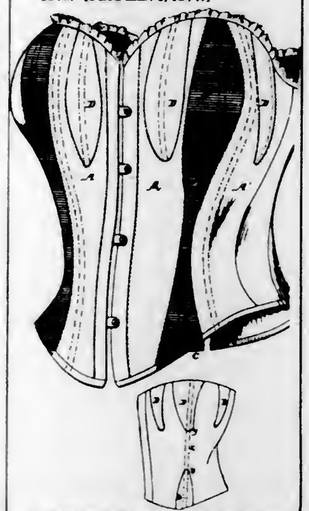
6. A gate-frame consisting of two halves or parts inclosing the bell, and the operating devices of the latter, in combination with a door or wall of a street-car or other public conveyance, for the purposes set forth.

7,781. PISTON-PACKING. A. J. Stevens, Sacramento, Cal. Patent No. 46,723, dated Mar. 7, 1865. [Filed Dec. 2, 1876.]



The piston or head A, with its spider C and follower D, in combination with the rings and flanges F, said flanges projecting over, and being supported by, the head A and follower D, substantially as and for the purpose herein described.

7,782. CORSETS. L. C. Warner, New York, N. Y. Patent No. 172,214, dated Jan. 11, 1876. [Filed Mar. 6, 1877.]



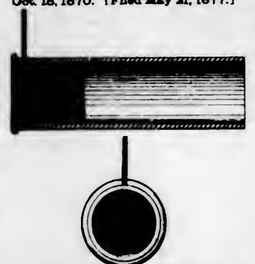
1. A bosom-pad corset—that is, one having hollow projecting receptacles covering the breasts, the front of which is composed of three or more sections, one of the same being a continuous strip extending from the upper to the lower edge of the corset, and aiding in imparting the hollow semi-spherical form to the bosom-pad, substantially as set forth.

2. A bosom-pad corset, each front section of which consists of three or more sections united edge to edge, and extending the entire length of the corset, as set forth.

3. The combination, in a bosom-pad corset, of the continuous strip D', extending through and forming part of the bosom-pad, and the inserted side pieces D D, arranged on opposite sides of said strip, as specified.

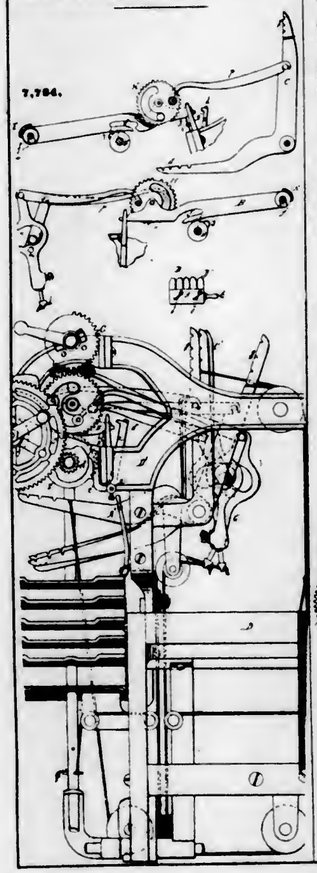
4. The combination, in a bosom-pad corset, of the breast-sections A A' and a continuous strip, D', inserted between and extending the length of the sections, aiding in forming the bosom-pad and the lower gore, and having a continuous pocket for a central rib, all substantially as and for the purpose specified.

7,783. CARTRIDGES. David B. Williams, Quincy, Ill. Patent No. 106,543, dated Oct. 18, 1870. [Filed May 21, 1877.]



An artificial breech or chamber for cartridge-shells having a flat base, and the opposite edges overlapping each other, forming a conical chamber, as set forth.

7,784.



7,784. LOOMS. L. J. Knowles, Worcester, Mass. Patent No. 134,992, dated Jan. 21, 1873. [Filed May 17, 1877.]

Brief.—The pattern levers are leveled, and all brought into connection with the lifting-wheel, to level the warps at their highest lift, by a slotted hand-bar. A locker-bar holds the cranked gears in engagement with the depressor-wheel by engaging with the ends of the levers that are down. A compound lever actuates the shuttle-boxes, one lever part being fulcrumed in the end of the other lever part.

1. The combination, with the vibrating levers B, of an elevating bar or plate independent of the pattern-chain, to raise said levers out of connection with the pattern-chain, and place them in gear with the lifting mechanism, for the purposes set forth.

2. The combination, with the free ends of the vibrating levers B, of the slotted plate B', substantially as and for the purposes set forth.

3. The combination, with levers B and locking device d' and e, of shaft c, arm c', and cam d, substantially as and for the purposes set forth.

4. The movable cap or lever holder E', substantially as and for the purposes set forth.

5. The combination, with the separate gear-cranks H H and their vibrating levers B B, of the compound levers G and the connections p p, substantially as and for the purposes set forth.

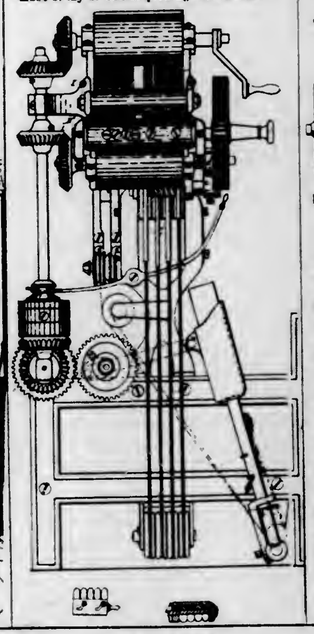
6. The combination, with the vibrating arms B and their gear-cranks H, of the cogged lifting and depressing wheels C E and angle-levers C', said parts being constructed and relatively combined with each other on the elevated frame D', as shown and described.

7. In combination with the pattern-cylinder B'', the levers B, having the curve 1, as and for the purposes set forth.

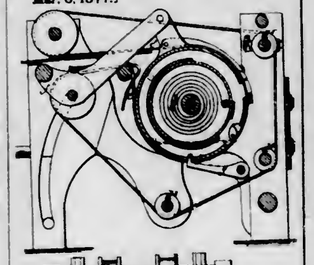
8. The combination, with the shaft of the pattern chain or wheel and gear K, of the locking-arm L and its bolt, substantially as and for the purposes set forth.

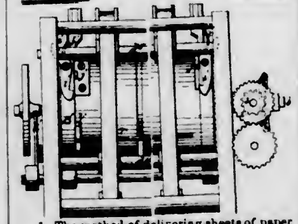
7,785. LOOMS. L. J. Knowles, Worcester, Mass. Patent No. 134,992, dated Jan. 21, 1873. [Filed May 17, 1877.]

Brief.—The shedding-shaft actuates both harness mechanism and pattern-surface. By a clutch it may be engaged with or disconnected from the crank-shaft, so that the sheds may be formed without weaving or any movement of lay or box or picking mechanisms.



7,786. APPARATUS FOR DELIVERING SHEETS FROM PRINTING-PRESSES. T. J. Mayall, Reading, Mass., assignor, by mesne assignments, to F. B. Williams. Patent No. 146,085, dated Dec. 30, 1873. [Filed Mar. 6, 1877.]





1. The method of delivering sheets of paper by accumulating a number laid one upon the other successively on a revolving endless carrier, and then discharging them in a single mass therefrom.

2. The gathering-cylinder or revolving endless carrier, combined with means for directing and retaining many sheets thereon, and means for stripping the accumulated sheets therefrom, all substantially as described.

3. The combination of devices for separating the paper into sheets, with a gathering-cylinder or revolving endless carrier, devices for directing and retaining many sheets thereon, and means for delivering the accumulated sheets in a single mass therefrom, all substantially as described.

4. The combination of a mechanism for printing a web of paper, with a mechanism for severing said web into sheets, a gathering-cylinder or revolving endless carrier, devices for directing and retaining many sheets thereon, and means for delivering the accumulated sheets in a single mass therefrom, all substantially as described.

5. The combination, with the delivery-cylinder, of a dropping or delivery apron, formed by the tapes which run in contact with the cylinder, and automatically operated alter-

nately to rise and embrace the cylinder and cause the sheets to accumulate thereon in layers, and to drop and permit the discharge of the said sheets, substantially as and for the purposes set forth.

6. The delivery-cylinder and independent cylinder-heads, mounted on the axis of said cylinder, in combination with the endless tapes, and the movable or dropping frame or arms carrying one or more of the pulley-shafts for the tapes, and hinged or jointed to the cylinder-heads, the whole operating as set forth.

7. The combination, with the cylinder-heads and dropping frame, of the coiled springs for producing the rotation of the heads needed to effect the dropping of the frame, and the retaining-hooks for holding the said heads in position against the pressure of the springs, as and for the purposes set forth.

8. In combination with the revolving cylinder, the cylinder-heads and their actuating springs, the lugs and dogs carried by said cylinder and cylinder-heads, respectively, and adapted to engage with and disengage from one another at the time and in the manner set forth, and the retaining-hooks adapted to catch and hold the cylinder-heads upon disengagement of said lugs and dogs, the whole operating together, as and for the purposes set forth.

9. The combination, with the cylinder-heads and their retaining-hooks, of the tripping-lever and register-wheel, and pin carried by said register-wheel, substantially as shown and set forth.

10. In combination with the dropping-apron and delivery-cylinder, the hinged dropper or guide carried by said cylinder, and operating, in connection with the same and the dropping-apron, substantially as set forth.

11. The dropper, hinged to and carried by the delivery-cylinder, in combination with the lifting-pin in the cylinder-head, adapted to engage a finger on said dropper at the time and in the manner set forth, said parts being combined for joint operation, substantially as shown and described.

12. In combination with the dropping-apron or frame and the delivery-cylinder, the bent guide-fingers carried by said dropping-apron, and operating in connection with the delivery-cylinder, substantially in the manner shown and set forth.

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ORDER.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., July 3, 1877.

The Supreme Court of the District of Columbia having held, by a decision and decree rendered June 19, 1877, in the matter of the appeal in the case of THOMAS J. MAYALL and F. B. WILLIAMS from the decision of the Commissioner of Patents, that the reissue of a patent shall not be withheld by reason of an interference previously declared between such patent and a *junior* applicant, rule 60 of Office Rules of Practice is hereby amended to accord with the said decision of the court.

Interferences now pending between reissue applications of prior patents and later patents, or with applications for reissue of later patents, or with subsequent original applications, will be dissolved; but, on motion, the record in the interference proceeding may be amended by the substitution of the reissued patent in place of the original patent.

ELLIS SPEAR,
Commissioner of Patents.

The decree above mentioned is as follows:

IN THE SUPREME COURT OF THE DISTRICT OF COLUMBIA.

[*Patent appeal No.* 35.—*In the matter of Thomas J. Mayall and Frank B. Williams: Appeal from the decision of the Commissioner of Patents, rendered May* 21, 1877.]

This appeal coming on to be heard upon the record from the Patent Office, and having been argued by A. Pollok, esq., for appellants, and by J. H. Peirce for the Commissioner of Patents, it is thereupon ordered, adjudged, and decreed—

First. That the refusal of the Commissioner to grant the reissue, as prayed for by the appellants, on the ground that an interfering application had been filed subsequently to the date of said patent, and that the grant of said reissue depended upon the question of priority by him to be determined as between said interfering application for patent and the patent of said Mayall, is without authority of law, and therefore void and of no effect.

Second. That the said Thomas J. Mayall and Frank B. Williams are entitled to the reissue as prayed for and as allowed, as the same appears from the indorsement of the file and the actions of the Patent Office, and that the same be issued to them.

Third. That the clerk of this court transmit to the Commissioner of Patents a copy of this decree duly authenticated.

By the court:

A. W.

A true copy.
Test:
[SEAL.] R. J. MEIGS, *Clerk*,
By M. A. CLANCY, *Asst. Clerk.*

AMENDMENT OF THE ABOVE DECREE JUNE 19, 1877.

This decree shall not be understood as requiring the said Commissioner to issue a patent or patents under the claim for reissue if the applicant shall appear not to be so entitled under the law for other reasons than those which may exist by reason of interference with any junior applicant.

True copy.
R. J. MEIGS, *Clerk*,
By R. J. MEIGS, JR., *Assistant.*

COMMISSIONER'S DECISIONS.

JOHN P. MYGATT.—*Motion.*

[*In the matter of the application of John T. Mygatt for Letters Patent for* "IMPROVEMENT IN THE MANUFACTURE OF PAPER BOXES," *filed November* 23, 1867.—*Decided May* 24, 1877.]

Section 35 of the act of 1870, which declared all applications to be abandoned that had been rejected or withdrawn prior to the date of its passage, and that had neither been renewed nor a new application filed within six months thereafter, construed to be modified by section 111 of the same act, so as to not include applications pending at the date of its passage.

The word pending is used in the section in the same sense as it is applied to a suit—that is, it is pending so long as it remains undecided or in suspense.

Any case in which judgment has been rendered by a competent tribunal, the parties notified, and no appeal taken or noted, can hardly be regarded as pending.

The Office rules in force at the time of the passage of the act of 1870 construed to mean that a case was pending only until the

decision of an appeal after a second rejection thereon, or until after the party had withdrawn the case from the further consideration of the Office.

An application for letters patent having been acted upon for the last time January 27, 1869, by the Board of Examiners-in-Chief, who affirmed a previous rejection of the Primary Examiner, a motion to reopen the case and dispose of it on its own merits was denied, it having been abandoned under the law of 1870, and not pending at the date of the passage of said act.

DOOLITTLE, *Acting Commissioner:*

The last action taken by the Office on the above-entitled application was January 27, 1869. This consisted of a decision by the Board of Examiners-in-Chief affirming the rejection of the Primary Examiner. A motion is now made to reopen the case on the ground that no time having been fixed by law at that date for an appeal to the Commissioner, the parties may exercise that right at any time.

Applicant also insists that his application falls within the provisions of Section 4,894 Revised Statutes.

He submits affidavits to show that by reason of poverty he could not sooner take his appeal to the Commissioner.

Under the practice of the Office of late this application would be held to be abandoned by virtue of that proviso in Section 35 of the act of July 8, 1870, which enacted that, when an application for a patent had been rejected or withdrawn prior to the passage of that act, the applicant should have six months from the date of such passage to renew his application, or to file a new one; and, if he omitted to do either, his application should be held to have been abandoned.

The only restriction upon this section seems to have been created by Section 111 of the same act, which provides—

That all applications for patents *pending* at the time of the passage of this act, in cases where the duty has been paid, shall be proceeded with and acted on in the same manner as though filed after the passage thereof.

The question arises as to the proper construction to be placed on the word "pending" in the latter-named section. It was once held to include all cases in which the application fee had been paid prior to the passage of the law, and which at that time either stood upon the docket awaiting action on the part of the Office, or were subject to be called up for further consideration by action on the part of the applicant, and this too until the case had been carried up to the highest tribunal on appeal within or without the Office. But the better opinion seems to be that the word "pending" here refers to an application in the same sense that the word is applied to a suit—that is, it is pending so long as it remains undecided or in suspense. Any case, therefore, in which judgment has been rendered by a competent tribunal, the parties notified, and no appeal has been taken or noted, can hardly be regarded as pending.

In accordance with the above definition the Office rules in force at the time of the passage of said act held that a case was pending only until the decision of an appeal after a second rejection thereon, or until after the party had withdrawn the case from the further consideration of the Office. (See Office Rules 45 and 123 of the August edition of 1869.)

It is well settled that, in the absence of any provision of law to the contrary, the Office Rules of Practice have the authority of law in all matters arising at the time in which they were in force.

The same proviso of Section 35 also requires that, upon the hearing of such renewed applications, abandonment should be considered as a question of fact. The mischief which the requirements of that section were designed to remedy was quite apparent. Applications after lying in the Office for years were dug up and renewed, to greatly embarrass patentees and manufacturers who had reduced the invention to successful operation, and also to cover up other analogous inventions which had been freely used by the public, years after the slothful applicant had ceased to prosecute his claims in the Office.

In regard to this mass of rejected applications which could be revived after the lapse of any number of years, an eminent judge of the Supreme Court of this District remarked before the passage of the above act, that—

"Many, perhaps most, of this multitude of rejected cases, although falling short of invention, embody suggestions which, under the unscrupulous and ingenious manipulation of professional inventors, would reissue into patents to the utter confusion of existing rights. Abandonment, in fact, should be an estoppel at law, especially against exhuming this potter's field of the Patent Office. (*Gates et al.* vs. *Benson*, C. D. 1870, p. 76.)

In the recent case of the *United States Rifle and Cartridge Co., et al.*, vs. *The Whitney Arms Co.*, (11 OFFICIAL GAZETTE, p. 373,) the same section of the law was construed by Judge Shipman as follows:

The thirty-fifth section of this act provided that when an application for a patent has been rejected or withdrawn prior to the passage of this act, the applicant shall have six months from the date of such passage to renew this application or to file a new one, and if he omit to do either his application shall be held to have been abandoned. Upon the hearing of such renewed applications abandonment shall be considered as a question of fact. Prior to the passage of this act the practice of the Patent Office in regard to the granting of renewed applications for patents after the lapse of years from the date of their previous rejection or withdrawal was not uniform. It had been held that the withdrawal of an application and the neglect to prosecute it within a reasonable time was an abandonment of the invention. The contrary had been held both by the Patent Office and the courts. Inventors whose applications had been rejected were desirous of renewing them, and it was proper both that some limitation should be placed upon the time within which the new applications should be made, and that some stable principle should be adopted in regard to the question of abandonment. The section provided that this question should be regarded as a matter of fact that lapse of time should not of itself be conclusive evidence of abandonment, but that the decision of such cases should depend upon peculiar circumstances as a question of fact and not of law.

In the case of *A. Mills*, (7 OFFICIAL GAZETTE 961,) the Commissioner held that not only was an application abandoned which was not renewed within the six months prescribed by the section under consideration, but that by the terms of the section an applicant was barred from prosecuting a new application for the same invention at any time thereafter, the statute having fixed a limitation upon such right.

In the case of *George Crompton*, (9 OFFICIAL GAZETTE, p. 5,) the effect of that section was held to be, however, not to bar the applicant from filing a second application after the time mentioned, but only to sever all connection between the original and new application, so that the original application could not be relied upon to sustain the patent in the event of two years public use. It was also held that the original application was dead absolutely.

In view of the law and practice thus established this application of Mygatt must be regarded as having been abandoned by virtue of Section 35 of the act of 1870, and cannot now be revived.

So far as Section 4,894 Revised Statutes (Section 32 of the act of 1870) is concerned, a new principle was there adopted applicable to cases pending at the time of the passage of the act of 1870, or filed thereafter, which required applicants, in order to avoid abandonment of their applications, to prosecute the same within two years after any action therein, or else show to the satisfaction of the Commissioner that such delay had been unavoidable.

Of course, having found that the application in question was not pending at the time of the passage of the act of 1870, the provisions of the latter-mentioned section are not pertinent thereto. (*W. H. Golding*, 8 OFFICIAL GAZETTE, 141.)

It appears, too, that on June 26, 1876, applicant filed a new application for this same invention. The latter one, which is now pending, can alone be considered.

The motion is denied.

DECISIONS OF THE COURTS.

SUPREME COURT OF THE UNITED STATES.

NATHAN C. RUSSELL, APPELLANT, *vs.* ISAAC V. PLACE AND JOHN W. PLACE.

[*Appeal from the Circuit Court of the United States for the Northern District of New York.—Decided October Term*, 1876.]

In order that a former judgment of a court of competent jurisdiction obtained in an action between the same parties shall act as an estoppel in a subsequent suit, it must be certain that the consideration and determination of the particular matter sought to be concluded was necessarily involved in the verdict and judgment.

If this does not clearly appear from the face of the record, extrinsic evidence consistent with the record may be admitted to establish the fact.

Where several distinct matters may have been litigated, upon one or more of which the judgment may have passed, and it remains uncertain which of them was thus litigated, and upon which the judgment was rendered, the whole subject-matter of the action will be at large and open to a new contention.

Complainant having made claim in his patent to an article and to a process in which that article was used, and it being uncertain whether judgment was rendered on one or both of these claims the defendant in a subsequent suit was not estopped from setting up both the former and new defenses in his answer.

Mr. Justice FIELD delivered the opinion of the court.

This is a suit for an infringement of a patent to the complainant for an alleged new and useful improvement in the preparation of leather, and is similar in its general features to the suit of the complainant against Dodge, recently decided. It is submitted upon substantially the same testimony, and presents, with one exception, the same questions for determination. That exception relates to the operation, as an estoppel against setting up the defenses here made, of a judgment recovered by the complainant against the defendants in an action at law for the infringement of the patent.

The bill of complaint sets forth the invention claimed, the issue of a patent for the same, its surrender for alleged defective and insufficient description of the invention, its reissue with an amended specification, and the recovery of judgment against the defendants for damages in an action at law for a violation of the exclusive privileges secured by the patent.

The bill then alleges the subsequent manufacture, use, and sale by the defendants without the license of the patentee of the alleged invention and improvement, and prays that they may be decreed to account for the gains and profits thus acquired by them, and be enjoined from further infringement.

The answer admits the issue of the patent, its surrender and reissue, and as a defense to this suit sets up in substance the want of novelty in the invention, its use by the public for more than two years prior to the application for the patent, and that the reissue, so far as it differs from the original patent, is not for the same invention. The answer also admits the recovery by the complainant in the action at law of the judgment mentioned, but denies that the same issues were involved, or tried, in that action which are raised in this suit.

The action at law was brought in the circuit court of the United States for the northern district of New York, in the ordinary form of such actions for infringement of the privileges secured by a patent. The defendants pleaded the general issue, and set up, by special notice under the act of Congress, the want of novelty in the invention, and its use by the public for more than two years prior to the application for a patent. The plaintiff obtained a verdict for damages, upon which the judgment mentioned was entered; and this judgment, it is now insisted, estops the defendants in this suit from insisting upon the want of novelty in the invention patented, and its prior use by the public, and also from insisting upon any ground going to the validity of the patent which might have been availed of as a defense in that action; and, of course, upon the want of identity in the invention covered by the reissue with that of the original patent.

It is undoubtedly settled law that a judgment of a court of competent jurisdiction, upon a question directly involved in one suit, is conclusive as to that question in another suit between the same parties. But to this operation of the judgment it must appear, either upon the face of the record or be shown by extrinsic evidence, that the precise question was raised and determined in the former suit. If there be any uncertainty on this head in the record—as for example, if it appear that several distinct matters may have been litigated, upon one or more of which the judgment may have passed, without indicating which of them was thus litigated, and upon which the judgment was rendered—the whole subject-matter of the action will be at large and open to a new contention, unless this uncertainty be removed by extrinsic evidence showing the precise point involved and determined. To apply the judgment, and give effect to the adjudication actually made, when the record leaves the matter in doubt, such evidence is admissible.

Thus in the case of the *Washington, Alexandria, and Georgetown Steam Packet Company* vs. *Sickles*, reported in the 24th of Howard, a verdict and judgment for the plaintiff in a prior action against the same defendant on a declaration, containing a special count upon a contract and the common counts, was held by this court not to be conclusive of the existence and validity of the contract set forth in the special count, because the verdict might have been rendered without reference to that count, and only upon the common counts. Extrinsic evidence showing the fact to have been other-

wise was necessary to render the judgment an estoppel upon those points.

When the same case was before this court the second time,* the general rule with respect to the conclusiveness of a verdict and judgment in a former suit between the same parties, when the judgment is used in pleading as an estoppel, or is relied upon as evidence, was stated to be substantially this: that, to render the judgment conclusive, it must appear by the record of the prior suit that the particular matter sought to be concluded was necessarily tried or determined—that is, that the verdict in the suit could not have been rendered without deciding that matter; or it must be shown by extrinsic evidence, consistent with the record, that the verdict and judgment necessarily involved the consideration and determination of the matter.

Tested by these views, the question presented by the plaintiff in this case, upon the effect as evidence of the verdict and judgment in the action at law, is of easy solution. The record of that action does not disclose the nature of the infringement for which damages were recovered. The declaration only avers that the plaintiff was the original and first inventor of a new and useful improvement in the preparation of leather, and that he obtained a patent for the same, and on its surrender a new patent with an amended specification, without describing with other particularity the nature and operation of the invention, and alleges as the infringement complained of that the defendants have made and used the invention, and have caused others to make and use it. The patent contains two claims: one for the use of fat liquor generally in the treatment of leather, and the other for a process of treating bark-tanned lamb or sheep skin by means of a compound composed and applied in a particular manner. Whether the infringement for which the verdict and judgment passed consisted in the simple use of fat liquor in the treatment of leather, or in the use of the process specified, does not appear from the record. A recovery for an infringement of one claim of the patent is not of itself conclusive of an infringement of the other claim, and there was no extrinsic evidence offered to remove the uncertainty upon the record; it is left to conjecture what was in fact litigated and determined. The verdict may have been for an infringement of the first claim. It may have been for an infringement of the second. It may have been for an infringement of both. The validity of the patent was not necessarily involved, except with respect to the claim which was the basis of the recovery. A patent may be valid as to a single claim and not valid as to the others. The record wants, therefore, that certainty which is essential to its operation as an estoppel, and does not conclude the defendants from contesting the infringement or the validity of the patent in this suit.

The record is not unlike a record in an action for money had and received to the plaintiff's use. It would be impossible to affirm from such a record with certainty for what moneys thus received the action was brought, without extrinsic evidence showing the fact; and of course, without such evidence, the verdict and judgment would conclude nothing, except as to the amount of indebtedness established.

Packet Company vs. *Stokes*, 5 Wall., 592.

According to Coke, an estoppel must "be certain to every intent;" and if upon the face of a record anything is left to conjecture as to what was necessarily involved and decided, there is no estoppel in it when pleaded, and nothing conclusive in it when offered as evidence.†

The decree is affirmed.

Mr. Justice CLIFFORD dissented.

†See *Aiken* vs. *Peck*, 22 Vt., 260, and *Hooker* vs. *Hubbard*, 102 Mass., 245.

APPLICATION FOR EXTENSION.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., April 24, 1877.

On the petition of Erastus T. Bussell, of Indianapolis, Indiana, praying for the extension of a patent granted to him on the 29th day of November, 1853, numbered 10,280, extended for seven years from the 29th day of November, 1867; reissued on the 13th day of December, 1870, and numbered 4,202, for an improvement in combined rubber and spiral steel spring. This application having been authorized by act of Congress approved March 3, 1877:

It is ordered that the testimony in the case be closed on the 10th day of July next; that the time for filing arguments and the Examiner's report be limited to the 20th day of July next; and that said petition be heard on the 25th day of July next.

Any person may oppose this extension.

ELLIS SPEAR,
[tf] *Commissioner of Patents.*

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date July 10, 1877.]

10,091.—Cassimeres.—OSCAR F. CHASE, Thompson, Conn. Application filed June 16, 1877. Term of patent 3½ years.

10,092.—Parlor-Tables.—PHILIP P. KUEHBORTH, Buffalo, N. Y., assignor to ALBERT BEST & Co., same place. Application filed June 16, 1877. Term of patent 3½ years.

10,093.—Cuff.—EMELINE A. LITCHFIELD, Somerville, Mass. Application filed June 4, 1877. Term of patent 3½ years.

10,094.—Clock-Cases.—HERMANN J. MÜLLER, New York, N. Y. Application filed May 21, 1877. Term of patent 7 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date July 10, 1877.]

4,834.—Concentrated or Condensed Lemonade.—BUSING & HADDON, New York, N. Y. Application filed June 22, 1877.

"The word-symbol 'IMPERIAL.'"

4,835.—Soap.—CORNWALL & BROTHER, Louisville, Ky. Application filed February 14, 1877.

"A representation of a star surmounted by a crescent."

4,836.—Cleaning and Polishing Compound.—ALBERT C. EMERICK, Toledo, Ohio. Application filed June 18, 1877.

"The word-symbol 'SAPOPOLITUM.'"

4,837.—Writing-Paper.—J. Q. PREBLE & Co., New York, N. Y. Application filed April 23, 1877.

"The representation of the coat of arms of the city of Belfast, Ireland."

4,838.—Flour.—F. E. SMITH & Co., Brooklyn, N. Y. Application filed April 9, 1877.

"The word-symbol 'ST. GEORGE.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date July 10, 1877.]

1,109.—Title: "**Ceylon Balsam.**"—L. H. COLBORNE & Co., New York, N. Y. Application filed January 31, 1876.

1,110.—Title: "**No. 4,711 Eau De Cologne.**"—FRITZ W. FUCHS, Hoboken, N. J. Application filed June 28, 1877.

1,111.—Title: "**A Sanitary Measure to Prevent Disease.**"—GROSS BROTHERS, Milwaukee, Wis. Application filed July 2, 1877.

1,112.—Title: "**S. H. Kennedy's Concentrated Extract of Pinus Canadensis.**"—SIMON H. KENNEDY, Omaha, Neb. Application filed March 2, 1877.

1,113.—Title: "**Something New.**"—S. S. MARVIN & Co., Pittsburg, Pa. Application filed December 16, 1876.

1,114.—Title: "**Self-Raising Pan-Cake Flour.**"—S. S. MARVIN & Co., Pittsburg, Pa. Application filed December 16, 1876.

1,115.—Title: "**Wm. Sears & Co., Cracker Bakers.**"—WM. SEARS & Co., Grand Rapids, Mich. Application filed May 31, 1877.

1,116.—Title: "**J. D. Soles' Invisible Ink.**"—JAMES D. SOLES, Mount Pleasant, Iowa. Application filed June 30, 1877.

Copies of patents, arranged by classes of inventions, can be obtained at 10 cents per copy where the entire class is ordered.

Printed copies of any patent can be obtained commencing with issue of November 26, 1867, to date.

Printed copies of specifications can be procured from No. 59,740, issue of November 20, 1866.

Where specifications are printed, copies of same attached to drawings will be furnished without extra cost.

THE illustrated portion of the Patent Office Report for 1869 and for 1871 has recently been completed, and can be had, by those having the remaining volumes for those years, by applying to the Commissioner of Patents.

SALE OF SPECIFICATIONS AND DRAWINGS.

Photolithographic copies of the drawings of all patents issued since November 26, 1867, have been produced, and will be sold to the public at 25 cents per patent, or, where twenty or more copies are ordered at one time, at 10 cents per patent.

Coupon-books, to the amount of $2 or more, can be purchased from the Chief Clerk of the Patent Office; the coupons, for 10 cents each, may be filled out at any time, and, on presentation, will entitle the holder to a photolithographic copy of *any* drawing which has been reproduced.

The specifications of all patents issued since July 1, 1871, are in print, and will be furnished with the drawing without extra charge. The specifications of patents issued from November 20, 1866, to July 1, 1871, are in print, and where such is the case the Office will furnish them with the drawings, but the Office will not undertake to reprint copies of patents which have been exhausted.

In addition to the above, the Office has reproduced, and offers for sale at the price mentioned above, all drawings in the following classes, embracing patents granted from 1790 to date. The classes are those of the Examiners:

1. Aeration and Bottling.
2. Apparel.
4. Baths and Closets.
5. Beds.
6. Bee hives.
7. Beer and Wine.
8. Bleaching and Dyeing.
9. Boats.
10. Bolts, Nuts, and Rivets.
11. Bookbinding.
13. Brakes and Gins.
14. Bridges.
15. Brushes and Brooms.
17. Butchering.
18. Caoutchouc.
19. Carding.
20. Carpentry.
21. Carriages and Wagons.
23. Chemical Misc.
26. Cloth.
28. Cordage.
29. Crinoline and Corsets.
31. Dairy.
33. Drafting.
34. Driers and Kilns.
36. Electricity.
37. Excavators.
38. Felting and Hats.
40. Files.
42. Fire-arms.
44. Fuel.
45. Furniture.
47. Garden and Orchard.
48. Gas.
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53. Hardware manufacture.
55. Harrows.
56. Harvesters.
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61. Hydraulic Engineering.
62. Ice.
65. Kitchen Utensils.
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68. Laundry.
71. Manures.
72. Masonry.
73. Measuring Instruments.
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77. Metal Working, boring and drilling.
78. Metal Working, forging, swaging, and riveting.
79. Metal Working, punching, cutting, and shearing.
80. Metal Working, rolling.
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82. Metal Working, turning, planing, and milling.
83. Mills.
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86. Needles and Pins.
87. Oils, Fats, and Glue.
88. Optics.
89. Ordnance.
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94. Paving.
96. Plating.
97. Plows.
98. Pneumatics.
99. Preserving Food.
101. Printing.
102. Projectiles.
103. Pumps.
104. Railways, The Way.
105. Railways, Cars and Interior Fittings.)
106. Railway Cars, Exterior Mountings and Fittings.
107. Railway Track and Car Irons and Fittings, manufacture of.
108. Roofing.
111. Seeders and Planters.
112. Sewing-machines.
114. Ships (1) construction.
115. Ships (2) propulsion.
116. Signals.
117. Silk.
118. Spinning.
119. Stabling.
120. Stationery.
124. Stills.
126. Stoves and Furnaces.
127. Sugar.
130. Thrashing.
131. Tobacco.
132. Toilet.
134. Tubing and Wire.
135. Umbrellas and Fans.
137. Water Distribution.
138. Water wheels.
139. Weaving.
141. Wood screws.

And the subdivisions of—

Bench-planes.
Bale-ties.
Buttons and Machines.
Combs, &c.

About forty other classes are in progress, and it is hoped that all the drawings remaining, some thirty thousand in number, may be completed during the fiscal year.

The total number of patents of which drawings are complete and offered for sale as above will approximate one hundred and fifty thousand.

When a patent has been allowed, and the application has not been forfeited by delay of six months, if the final fee of twenty dollars is paid before 12 o'clock on Friday, the patent will issue and bear date the following Tuesday.

The Government fee on making application for a patent is fifteen dollars. The final fee is twenty dollars. Usually there are no other Government fees unless the application is appealed.

All letters to the Patent Office must be addressed to the Commissioner of Patents.

Letters Patent of the United States do not reach the patentee or owner until about two weeks from the day of their date. The letters, nevertheless, have the force of patents from the time they are signed and sealed.

The "Rules of Practice" are furnished gratis on personal or written application to the Commissioner of Patents.

Where specifications are in print they are furnished with the drawings without extra charge.

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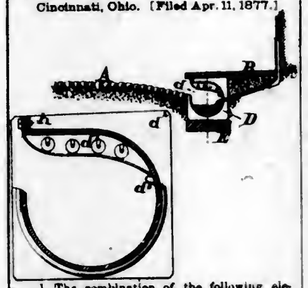
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TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED JULY 10, 1877.

192,811. STREET-GUTTERS. Chas. Bigeon, Cincinnati, Ohio. [Filed Apr. 11, 1877.]



1. The combination of the following elements: the foundation E, the gutter D, having the rib d^2, adapted to rest upon the foundation, and the covering-plates B, adapted to rest upon the gutter, as described.

2. In combination with the gutter, having the ribs d^1 d^2, the inclosed wire and covering-plates H, as described.

192,812. BALANCE-SPRING HOOKS. Ebenezer Blackman, New York, N. Y. [Filed Nov. 3, 1876.]



1. A balance-spring hook held in position by a friction band or brake, acting by the weight of the article suspended on the outer rim or edge of the casing holding the spirally-wound spring and ribbon, as described.

2. A friction band or brake having an adjustable fulcrum-point, in combination with a balance-spring hook supported by a spirally-wound spring and ribbon, all arranged and operated substantially as described.

192,813. SOLDERING-MACHINES. Wm. D. Brooks and R. Gornall, Baltimore, Md. [Filed Feb. 20, 1877.]

1. The combination of an indicator with the can holding mechanism, for the purpose herein set forth.

2. The spider B, constructed with supporting-points *b*, upon which the can is held, and with projections *b'*, which prevent the can from lateral displacement, substantially as described.

3. The combination of the spider B, constructed with the points *b* and fingers *b'*, and the side rods *k*, springs *m*, and lateral extensions *c* of the spider, substantially as described.

4. The large wheel W, and means for inclining it during its movement around the central standard, in combination with the friction-wheel *l*, supported from said standard, so as to bear upon the upper edge of the large wheel when inclined, substantially as described.

5. The combination of the treadle T with the can-holder or spider B and the springs *m*, mounted on the side rods *k*, for raising the holder, whereby the depression of the treadle depresses the can holder on its rotary support, and removes the can from the plate A, which meanwhile remains stationary, as herein set forth.

192,814. STOVE-REGISTERS. B. F. Clement, St. Louis, Mo., assignor to C. H. Buck, same place. [Filed May 22, 1877.]



1. The combination, in a stove-register, of an opaque and a transparent slide, such slides moving horizontally upon each other, substantially as described.

2. The combination, in a stove-register, of the slides B and C, operating substantially as described.

3. The combination of the plates A and D and the slides B and C, substantially as described.

4. The plate A, having the fretwork cast in the apertures *a a a*, in combination with the slides B and C, sliding, respectively, upon the back and front of such apertures, substantially as and for the purposes set forth.

5. The combination of the plate B having the shank *b*, and the slide C having the slot *b''*, substantially as described.

6. The combination of the plates A and D, slides B and C, shank *b*, knob *b'*, and nut *b''*, substantially as described and shown.

192,815. WOODEN BOXES. W. P. Coburn, Winchester, N. H. [Filed June 19, 1877.]

1. A box the body of which is composed of scored and bent boards, the ends of which are secured in separate grooved boards, as set forth.

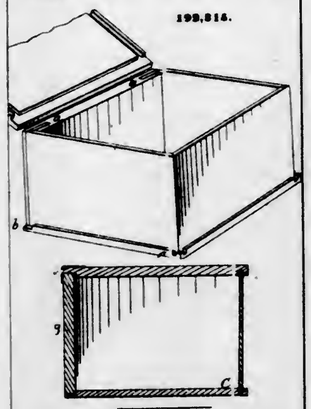
2. The combination constituting a box composed of scored and bent and grooved boards, as described, with top and bottom pieces grooved for the reception of the edge of said body, as shown and described.

3. The box-body composed of thin scored and bent pieces of board, the bent ends of which are embedded and glued into the grooves of separate pieces, constituting one or more sides of the body, substantially as shown and set forth.

4. In combination with the body composed of thin and thick pieces, united as described, the grooved bottom piece to confine and hold, by means of glue, the edges of the body, as set forth.

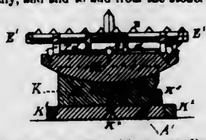
5. The combination, with a body made as described, and united with the bottom, as shown and set forth, of a removable top, grooved to confine, when applied, the edges of the body of the box, whether said top be or not hinged to the body, as shown and described.

192,816.



192,816. GRINDERS FOR HARVESTER-KNIVES. W. Comey, Westborough, Mass. [Filed May 7, 1877.]

Brief.—The tool may be slid and rotated in an arc in a vertical plane, rotated horizontally, and slid to and from the stone.



1. In combination with the grinding mechanism, the blade-holding device B' E' and the rocking sliding block H, all operating together, substantially as described, and for the purpose set forth.

2. The combination of the holder B' E' and the rocking sliding block H with the block K and sliding base A', substantially as described, and for the purpose set forth.

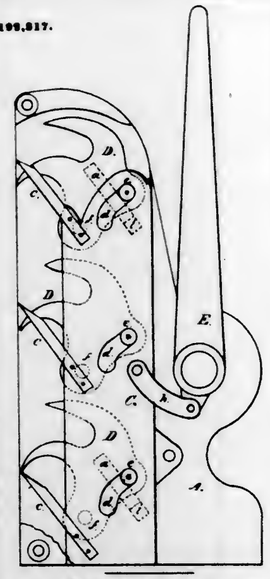
192,817. SAW-MILL DOGS. A. Cunningham, Milwaukee, Wis., assignor to J. M. Stowell, same place. [Filed Mar. 31, 1877.]

Brief.—The timber is securely held upon the head-block, during the operation of sawing, by means of two sets of dogs, one having single straight teeth attached to a segmentally-slotted plate, having studs upon its under side, which work in inclined slots in the standard, the other having double-curved teeth pivoted to the standard, and provided with studs, which work in the slots in said plate, both sets being operated by a pivoted lever, connected to the slotted plate by a link.

The combination of the standard A, having the slots *a a*, with the plate C provided with the teeth *s c*, eccentric slots *d d*, and lugs *i i*, the dogs D D having pivots *f f*, the link *h*, and lever E, all constructed and operating as shown and described, and for the purpose specified.

THE GRAPHIC CO. N.Y.

192,817.



192,818. FENCE-POSTS. N. T. Dye, Marshalltown, Iowa, assignor of one-half his right to D. M. Hayworth, same place. [Filed May 8, 1877.]

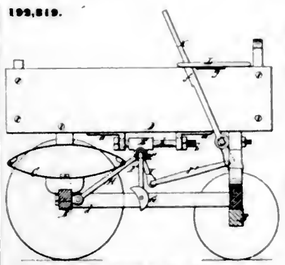


1. The post A, provided with re-enforced apertures B and wing M, substantially as shown and described.

2. The post A, provided with a flange having apertures a, with wire prongs secured thereiu, substantially as shown and for the purpose set forth.

3. The post A, provided with slots B, diagonal slots H, apertures I, apertures a, and wing M, substantially as set forth.

192,819. WAGON-BRAKES. Wm. F. Bly, Pleasantville, Md. [Filed May 29, 1877.]



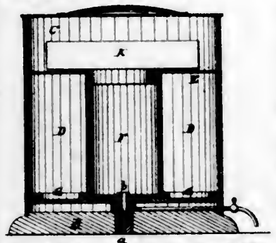
1. The combination of the radius-rods H, hinged to wagon axle B', the vibrating cranked shaft F, having brake-blocks G on its crank-arms, the T-shaped tubular bearings E E', and the guide-bolts *b*, substantially as and for the purpose described.

2. The T-shaped tubular bearings E E', sliding on the guide-bolts *b*, and having the cranked shaft F, which carries the brake-shoes G, passed through its tubular part E', substantially as described.

3. The combination, with the wagon-axle and the body of the wagon D, of the radius-rods H, cranked shaft F, T-shaped tubular bearings E E', guide-bolts *b*, pitman I', crank-shaft J, and hand-lever K, substantially as described.

192,820. WATER AND WINE COOLERS. D. K. Enright, Chicago, Ill. [Filed Nov. 15, 1876.]

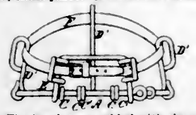
Brief.—A cylindrical water-cooler having concentric cooling-chamber, at the bottom of which is revolving bottle-tray. The ice-chamber has perforated bottom, and is above the water-cooler. Both water-cooler and tray are supported by a hollow central block, through which the cold water is drawn.



1. The revolving pan or tray G and hollow center-pin *a*, in combination with the cooler F, substantially as and for the purpose described.

2. The box K, in combination with the upper chamber C, and water-cooler F, substantially as and for the purpose described.

192,821. SPONGE-HOLDERS FOR HORSES' FEET. T. T. Furlong, Chicago, Ill., assignor of one-half his right to E. B. Draper, same place. [Filed June 11, 1877.]



1. The band A, provided with the open network D, in combination with the loops D' and strap F, substantially as and for the purpose specified.

2. The combination of the band A, network D, loops D', strap F, and stirrup E, substantially as and for the purpose specified.

192,822. UMBRELLAS. Robt. S. Galbraith, Montreal, Quebec, Canada, assignor of one-half his right to Wm. Snow, same place. [Filed Apr. 11, 1877.]

1. The tubes *a* and *f* and spring *t*, in combination with the handle *g*, having passages *m* and the catch *n*, substantially as and for the purpose set forth.

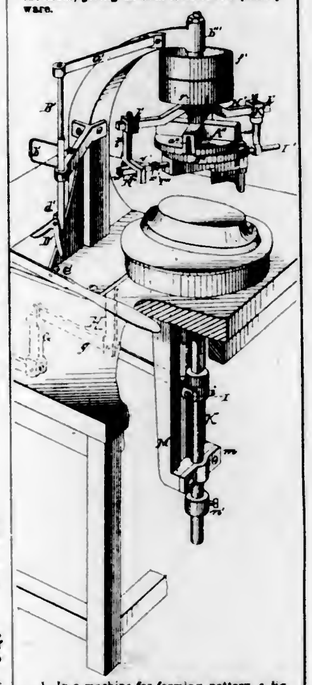
2. The combination of the handle *g*, having ferrule *q* and catch *n*, projecting as at *p*, with the case *a'*, having ferrule *c'*, provided with notch *d'*, substantially as and for the purposes set forth.

192,823.



192,823. MACHINERY FOR THE MANUFACTURE OF POTTERY. R. Gracey, East Liverpool, Ohio, assignor to himself and W. L. Gracey, same place, and C. M. Fairman, Pittsburg Pa. [Filed Mar. 16, 1877.]

Brief.—The oval movement of the forming-tool operates upon the exterior of the clay on the mold, giving an oval form to the pottery-ware.



1. In a machine for forming pottery, a jigger shaft operated by a pivoted lever hung on an oscillating fulcrum, substantially as set forth.

2. In a pottery-machine, a lever hung on an oscillating fulcrum, and pivotally connected with a jigger-shaft provided with movable collars for determining its position, as set forth.

3. The lever *g*, provided with the fork I, and hung on the oscillating fulcrum H, in combination with the collar i, substantially as and for the purpose specified.

4. In a pottery-machine, a jigger-shaft having a fixed vertical movement, and provided with collars and set-screws to secure its vertical adjustment, substantially as shown and described.

5. A pottery-machine in which the movement of a lever simultaneously removes the jigger-head from operative position, and displaces the motor actuating the forming mechanism, as set forth

6. A pottery-machine, in which the device driving the forming mechanism is removed, and the jigger-head lowered out of operative position by the movement of a lever, as set forth.

7. The adjustable slide K', provided with a hanger having a pendulous movement, in combination with arm I', substantially as expressed.

8. The stud M', provided with the pin *p'*, in combination with the hanger *m'* and arm I', as set forth.

9. The hanger *t'*, provided with the bar *v'*, having the slot N', in combination with a bar for supporting the plate B'', as set forth.

10. The sleeve *w'*, for the purpose specified.

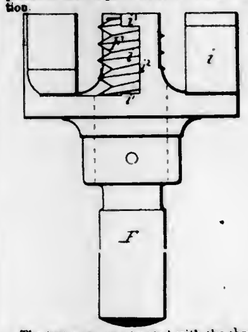
11. The sleeve *w'*, in combination with the threaded axle *x'*, for the purpose set forth.

12. In a machine for making pottery, a tool having an oval movement, substantially as set forth.

13. In a machine for making pottery, a tool having an oval or elliptical movement, in combination with an adjustable jigger-head, substantially as set forth.

192,824. GAGES FOR THE MANUFACTURE OF THE CHASERS OF SCREW-CUTTING DIES. John J. Grant, Hartford, Conn. [Filed Feb. 26, 1877.]

Brief.—Seats corresponding to those of the die in which the chasers are finally placed are formed on the sole-plate. The threads of the chasers are made to coincide with those of a stem projecting from the sole plate, and the chasers are then removed from their seats and placed in the die-plate formed for their reception.



The test-gage constructed with the threaded core or center F, and the members of the sole-plate, with their seats i arranged around such center, substantially as and for the purposes specified.

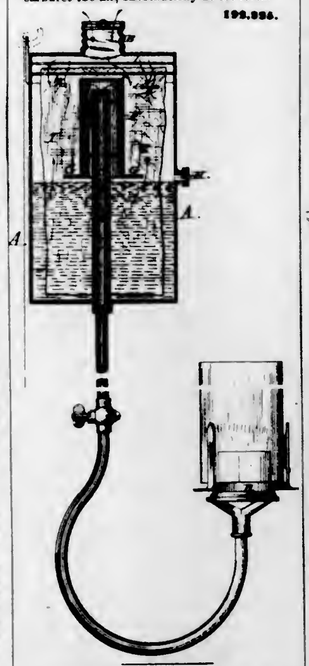
192,825. APPARATUS FOR CARBURETING AIR. R. P. Hangliter, Philadelphia, Pa., assignor of a part of his right to L. E. F. Toboldt and Jas. McGuineas, same place. [Filed June 16, 1877.]

Brief.—The carbureted air, by weight, being heavier than common air, falls through a depending pipe to the burner, and in so doing draws in air at the top of the vessel, which is carbureted by passing through the sheets of fibrous material saturated with oil.

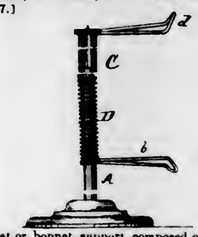
1. In an apparatus for carbureting air, the combination of the vessel A, having a valved opening in its top, and a rack, K, from which is suspended the fibrous material I, the vertical tube C, the tube F, setting over the upper end of the tube C, and having its lower open end provided with a lateral flange, G, all substantially as and for the purpose described.

2. The combination of the vessel A, opening in top thereof, and its cap B and valve *c*, the tubes C and F, the fibrous sheets I, and the opening H, and screw-cap secured thereon, the whole adapted to operate to automatically carburet the air, substantially as set forth.

192,826.

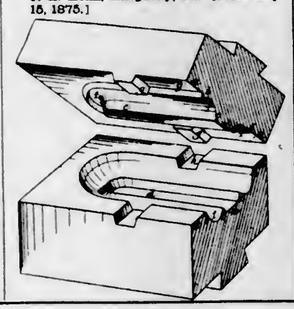


192,826. HAT AND BONNET STANDS. Edw. H. Hart, New York, N. Y. [Filed Jan. 6, 1877.]



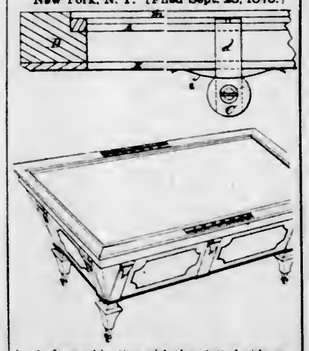
A hat or bonnet support composed of the post A, slide C, blades *b* and *d*, and spring D, substantially as herein shown and described.

192,827. DIES FOR WELDING CHAIN-LINKS. J. H. Helm, Allegheny, Pa. [Filed May 16, 1875.]



As an improvement in link-welding dies, in which the line of parting of the two die-blocks is broken up into different planes, none of which are coincident with the plane of the center of the die proper, the external sloping wall *b*, substantially as described.

192,828. BILLIARD-REGISTERS. R. M. Hoe, New York, N. Y. [Filed Sept. 23, 1876.]

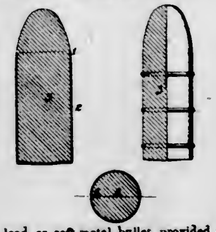


1. In combination with the slotted side or end rail of a billiard-table, the graduated plated and stemmed pointer, substantially as shown and described.

2. The combination of rail D, glass plate *m*, graduated scale A, stemmed pointer *c*, and glass plate *m*, handle C, spring *i*, substantially as shown and described.

192,829. RIFLE-BULLETS. B. B. Hotchkiss, New York, N. Y. [Filed Feb. 19, 1877.]

Brief.—The packing serves as lubricant, and prevents the barrel from "leading."



A lead or soft-metal bullet provided with a separate packing-shell, formed of a harder metal and mounted upon it, substantially as described.

192,830. GUN-CARRIAGES. B. B. Hotchkiss, New York, N. Y. [Filed Feb. 19, 1877.]

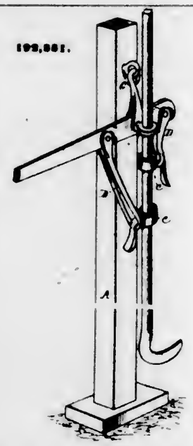


The combination, with the stock of a gun-carriage, of a guide-rib for directing the rearward movements of the same under the shock of discharge, substantially as described.

192,831. LIFTING-JACKS. Thos. J. Jenne, Gouverneur, N. Y. [Filed May 28, 1877.]

The hook G, suspended from the frame A, and provided with the pin forming the fulcrum of the lever, said fulcrum-pin being constructed with a loop or eye at its end, through which the lifting-bar passes, in combination with the loops D D connected with the lever on opposite sides of its fulcrum, and the pawls C C arranged on the lifting-bar, the whole being constructed and arranged to operate substantially as and for the purpose specified.

192,831.



192,832. LIFE-PRESERVERS. David Kahnweiler, New York, N. Y. [Filed May 4, 1877.]

Brief.—Pressed granulated cork quilted in pockets. (Passed by Board of Examiners in-Chief.)

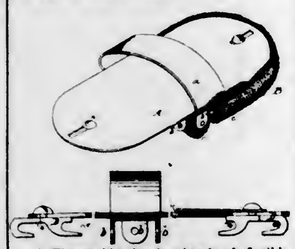


1. The mode of manufacturing life-preservers herein described—that is, by first filling the bags or pockets of the usual case with granulated cork, then compressing the same under a pressure which consolidates the particles, and then maintaining the cork in its compressed condition by sewing through the casing from side to side, as set forth.

2. A life-preserver constructed of one or more bags, *a*, which are filled with grated or reduced cork, compressed into flat cakes, and stitched or riveted after being compressed, the stitches extending through the compressed cork, substantially as specified.

192,833. BRUSHES. William B. Lawrence and Chas. B. L. Holmes, New York, N. Y. [Filed June 21, 1877.]

Brief.—A flexible back has bent cylindrical brushes attached thereto.



1. The combination, in a brush, of a flexible metallic back, A, brushing-face B, and handle *a*, for the purpose set forth.

2. The combination of the back A and a brushing-face, one portion of which extends across and above the edge of the back, for the purpose set forth.

3. The combination, in a brush, of the back A and a series of bent brush-cylinders, arranged one within the other, beneath and secured to the back, substantially as specified.

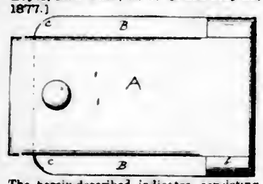
4. The said bent cylinders arranged beneath the back A, with interlocking bristles, as set forth.

5. The said bent cylinders locked detachably to the under face of the back A, for the purpose specified.

6. The combination of the bent cylinders *c*, the straight cylinders *c'*, and the back A, as set forth.

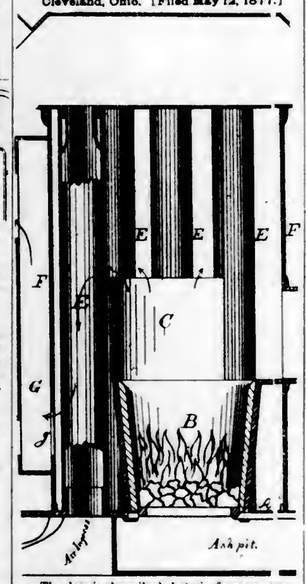
7. The combination of the back A, flanges *b*, and adjustable locks D, for the purpose set forth.

192,834. LINE-INDICATORS FOR BOOKS. I. Lopez, New York, N. Y. [Filed May 29, 1877.]



The herein-described indicator, consisting of a part, A, to lie upon and across the page, provided with a slide, B, at one end, attached by a shoulder, leaving an intervening space between the parts A and B, constructed substantially as described and shown, and for the purposes set forth.

192,835. HOT-AIR FURNACES. C. Marchand, Cleveland, Ohio. [Filed May 12, 1877.]



The herein described hot-air furnace, consisting of the base-plate A, fire-pot B located therein, the extension-wall C arranged above the fire-pot, and the flues E, in combination with the gas-tight inclosing-wall F, and the smoke-flue G, having an outlet, *g*, at its base, whereby the heat without the flame is caused to circulate about the pipes, the construction, arrangement, and operation being substantially as shown and specified.

192,836. EXERCISING-MACHINES. I. W. McGaffey, Chicago, Ill. [Filed May 1, 1877.]

1. The combination, with a chair capable of being used as a piece of furniture, of a health lift or scale, or both, the weighing or lifting apparatus being placed in or below the seat, and the indicator or dial being placed in the chair-back, substantially as specified.

2. The combination, with the lever of a health-lift, of a small platform mounted upon the lever on that side of the fulcrum opposite to the side at which the handles are attached, whereby the single lever is made to serve both as the lift-lever and as a scale-lever, substantially as specified.

3. The arrangement of the weighing-platform upon the platform of a health-lift, said weighing-platform being placed so that it will come between the feet of the person lifting, substantially as specified.

4. The intermediate spring, consisting of two long leaves, to the ends of which the lifting-handle is attached, said spring being furnished with a sliding clamp for shortening or lengthening the elastic vibration, and being provided with compression and adjusting screws at the clamp, and at the connection with the handle, substantially as specified.

5. The construction of the lifting-handle, with a joint connection to a swivel-piece, and a sliding collar to cover the joint, so that the handle may be turned or folded, substantially as specified.

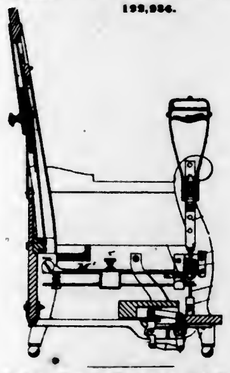
6. The combination of the handle or hand-grasp and the spring-plug with the lifting-bar, having a series of perforations, the lower edges of which are chamfered off on one side of said bar, substantially as described, and for the purpose set forth.

7. The combination of the grasp and vertical lifting-bar, the former being attached to the latter by a pawl, which will permit the grasp to be lowered on the bar as a ratchet, substantially as specified.

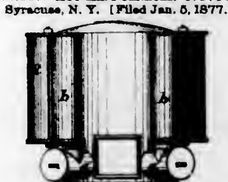
8. The sliding panel in the back of the chair, covering the dial, in combination with the dial in the back of the chair, substantially as specified.

9. The method of removably hinging the seat by means of L-shaped slots in the side pieces of the chair-frame, and lugs on the seat-frame, whereby the seat may be pulled forward before it is raised to accommodate the thickness of the upholstery, substantially as specified.

192,836.



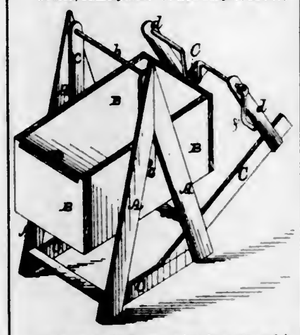
192,837. HOT-AIR FURNACES. J. F. Peace, Syracuse, N. Y. [Filed Jan. 5, 1877.]



1. The combination of the radiator B, constructed of two segments of cylinders of different diameters, arranged concentrically side by side, united at the ends, and closed at the top and bottom by a segment of annular plate, the horizontal flues *a a*, and interior passages formed by bridges *f*, substantially as and for the purpose specified.

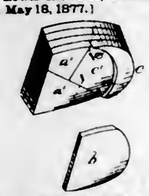
2. The combination of the radiator B, constructed of two segments of cylinders of different diameters, arranged concentrically side by side, and closed at the top and bottom by a segment of annular plate, the enlarged ends *b b*, horizontal flues *a a*, and interior passages formed by bridges *f*, all constructed and combined substantially in the manner described and shown, for the purpose set forth.

192,838. CHURNS. H. E. Pendleton, Russell, Iowa, assignor to himself and D. A. Cotter, same place. [Filed May 3, 1877.]



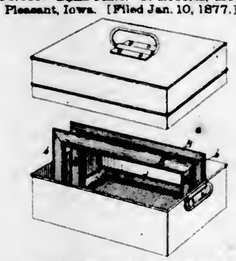
The receptacle B suspended from the rod *b* by the connections *c c* and frame A A *a a*, in combination with, and having the diagonal bars C C, uprights *d d*, supported upon the elevated ends of the said bars, crank-shaft D, and connecting-rod *s*, substantially as and for the purpose set forth.

192,839. BOOT AND SHOE HEEL PROTECTORS. Lewis Richards, Braintree, Mass. [Filed May 18, 1877.]



In a boot and shoe heel, the combination, with the protecting-plate *c*, having the shank *c'*, of the shortened lift *b*, all arranged and united substantially as and for the purpose set forth.

192,840. BAKE-PANS. C. Roberts, Mount Pleasant, Iowa. [Filed Jan. 10, 1877.]



1. The tubular frame or reservoir A *A*, having the upright tubes *b b* connected together by the perforated tubes B B, substantially as and for the purpose set forth.

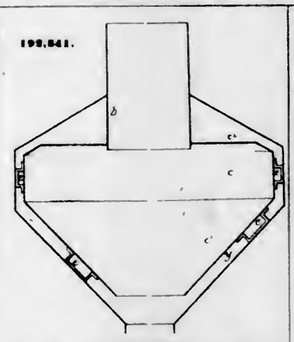
2. The imperforate reservoir A *e*, in combination with an upright removable pipe, *b*, with a perforated extension, B, reaching over the contents of the pan, substantially as and for the purpose set forth.

192,841. SPARK-ARRESTERS. W. Rushton, Atlanta, Ga. [Filed June 14, 1877.]

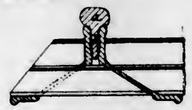
1. The combination, with the stock having the inclined bonnet a^2 and curtain *b*, of a liner, B, having at the upper edge a flange, c^2, free from contact with the outer casing, the whole arranged to form a space, *y*, the mouth of which is presented at an angle to the curtain, as and for the purpose specified.

2. The liner provided at the upper edge with an inclined flange, c^2, supported only at one edge, and having external lugs *e*, arranged on vertical lines, as set forth.

192,841.



192,842. RAILROAD-TRACKS. Auguste de Wiecsmnski-Serres, Paris, France. [Filed May 25, 1877.]

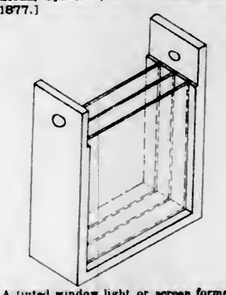


1. The combination and rigid connection, as shown and described, of four elements, constituting a system of railway structure, namely: a shanked rail, two longitudinal side supporting sleepers—one on either side of said rail—and saddle-pieces, having notches provided for the interlocking of parts, substantially as herein shown and set forth.

2. The combination and arrangement of a shanked rail, twin sleepers, saddle-support, and wedge-piece, substantially as shown and set forth.

3. The construction of twin metallic sleepers, each being formed with a horizontal base-plate, a vertical side support and clamp of the rail, and a further intermediate perforation for the reception of the locking saddle-piece and cross-tie, substantially as shown and set forth.

192,843. TINTED WINDOW-LIGHTS. P. B. Sloan, Syracuse, N. Y. [Filed Apr. 3, 1877.]



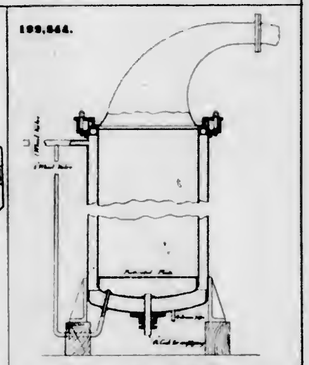
A tinted window light or screen formed of two or more panes of glass parallel or at an angle one with the other, and fixed in a frame by a water-tight joint, with a space between them for the reception of a tinted liquid, and having an opening into said space for filling and removing the tinted liquid, substantially as and for the purposes specified.

192,844. CLEANSING CLOTH, YARNS, AND WASTE. C. W. Smith, Barnwood, near Gloucester, England. [Filed June 16, 1877.]

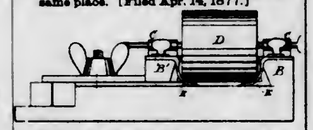
1. The process of cleaning and scouring woolen cloths, yarns, and wastes when rolled into mats, into coils, and placed in cylindrical receivers with amylic alcohol or petroleum-spirit, substantially as hereinbefore described.

2. The methods of scouring or cleansing woolen cloth, yarns, and wastes, and recovering valuable products from the materials which have been used in conducting the said scouring or cleansing, substantially by the means and in the manner herein shown and set forth.

192,844.

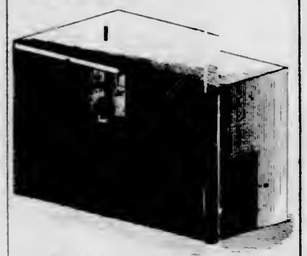


192,845. SADDLERS' TRIMMING-TOOLS. M. M. Sulgrove, Indianapolis, Ind., assignor of one-third his right to Wm. K. Sproul, same place. [Filed Apr. 14, 1877.]



In a machine for trimming and rounding the edges of leather straps, the curved knives E E, the fixed guide B, and movable guide B', in combination with the pressure-roller D and springs C C, to which the roller is attached, all arranged and operating substantially as shown and set forth.

192,846. APPARATUS FOR DRYING GLUE. Samual T. Swasey, Salem, Mass. [Filed Sept. 30, 1875.]



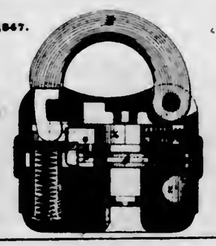
1. The combination of the chamber A, compartments C, heater or condenser G, and fan F, substantially as described.

2. The combination of the chamber A, compartments C, heater or condenser G, fan F, and doors J, arranged substantially as and for the purpose described.

3. In combination, the chamber A, compartments C, fan F, and diaphragm K, substantially as shown and described.

4. In combination, the chamber A, compartments C, fan F, and tubes or pipes M, substantially as described.

192,847.



192,847. PADLOCKS. W. H. Taylor, Stamford, Conn., assignor to the Yale Lock Manufacturing Company, same place. [Filed May 26, 1877.]

1. The combination of an exterior shell having the hasp hinged to it, and an interior solid packing-block carrying and protecting the locking mechanism, and preventing injurious crushing or indentation of the shell, substantially as described.

2. The combination of the packing-block, the bolt provided with the central aperture and talon, and the tumblers in the block-slot, substantially as described, whereby a key bitted alike on each side may be employed to pass between the tumblers and through the bolt, and work the lock.

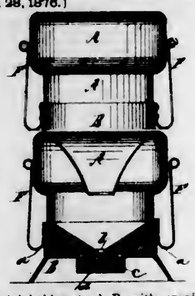
3. The combination of the bushing, the double-slotted ledge, and the slotted disk, substantially as described.

192,848. HAME-TUGS. Wm. S. Thayer, Candor, N. Y. [Filed May 26, 1877.]



The tug A, consisting of the flat plate a, having slots *b*, lining *c*, and stripe *d*, in combination with the trace C, having the T-shaped clip B, substantially as and for the purpose set forth.

192,849. INKSTANDS. Wm. J. Thorn, Leominster, Mass., assignor of one-half his right to E. H. Harding, same place. [Filed Dec. 28, 1876.]



The ink-holder stand B, with opening *c*, nut *d*, rubber disk *e*, and spring pen-holders F F, in combination with the ink-holder A, with groove *a* and hole *b*, substantially as and for the purpose hereinbefore set forth.

192,850. CHAIRS. Thos. Testevin, Council Bluffs, Iowa. [Filed May 24, 1877.]

1. A chair, the parts composing the frame thereof being each composed of two, three, or more strips of wood, of the same or different varieties, bent simultaneously into the desired form, and united together in the manner shown and described.

2. In a chair or seat, the posts A and arm-pieces B, composed of several strips of the same or different varieties of wood, the strips composing each part being bent simultaneously into form and united together, as and for the purpose set forth.

3. The legs, front and rear, bent at their lower extremities outward, and united to the rockers or to the frame by a screw or bolt, *a*, or other suitable means, as and for the purpose set forth.

4. In combination with the frame A B, the brace D, united to said frame, as shown and described.

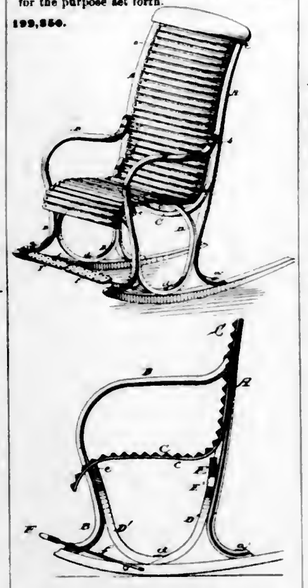
5. In a chair, the back and seat consisting of thin narrow slats C, supported at their ends upon continuous elastic wooden strips *c c* fastened to the top rail, and passing downward to the level of the seat, bent forward, and secured to the bar *a*, as set forth.

6. In combination with the continuous elastic wooden strips *c c*, the slats C, slotted at their ends, and secured to said strips by pins passing through said slots, as and for the purpose set forth.

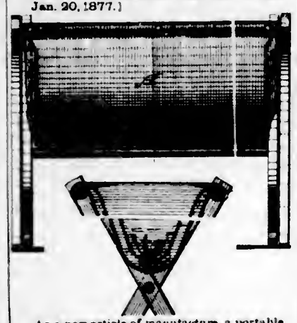
7. In combination with the frame A B, the braces D' D', having cross-bars E E', gained or bolted together at *g*, substantially as and for the purpose set forth.

8. The foot-rest, composed of the wire *f* and the separately-adjustable boards F F', as and for the purpose set forth.

192,850.



192,851. CLOTHES-BASKETS. Jacob H. Van Arnum, Kendallville, Ind. [Filed Jan. 20, 1877.]



As a new article of manufacture, a portable folding clothes-basket composed of a folding frame, to which is attached a receptacle of cloth, or such flexible material forming both the sides and ends as may be folded in compact form, as set forth.

192,852. WIRE BALE-TIES. C. H. Victory, Albany, N. Y., assignor of one-half his right to A. P. Adams, same place. [Filed May 31, 1877.]



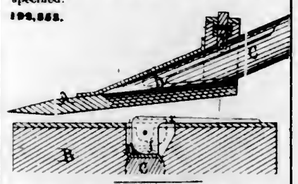
The combination, with the loop or other fastening of a wire bale-tie, of the clamp-piece B, substantially as and for the purpose herein specified.

192,853. SNOW-SHOVELS. C. H. Victory, Albany, N. Y., assignor of one-half his right to A. P. Adams, same place. [Filed May 15, 1877.]

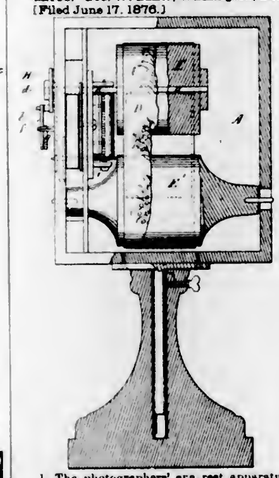
1. The combination of the shovel-blade A with the detachable chisel-pointed handle C, as and for the purpose herein specified.

2. The detachable handle C of a shovel or other implement, provided with a metallic chisel-point, D, as and for the purpose herein specified.

192,853.



192,854. PHOTOGRAPHIC EYE-REST APPARATUS. Geo. W. Baker, Wilmington, Del. [Filed June 17, 1876.]

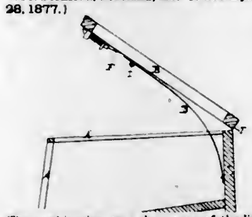


1. The photographers' eye-rest apparatus herein described, consisting of the musical-box attachment, the endless panoramic belt, and the intermittently-rotating rollers carrying the said belt, arranged inside of a casing having a show-opening, substantially as specified.

2. In combination with the casing A, having a show-opening, C, the endless panoramic belt D, and the intermittently-rotating rollers E E', substantially as specified.

3. The roller-shaft *a*, the carrier or beam H, rocking independently thereon, a ratchet-disk, *d*, connected to the shaft *a*, pawl *e*, and a wrist-pin, *b*, in combination with the clock mechanism G, the crank-arm *g*, and pitman *f*, substantially as specified.

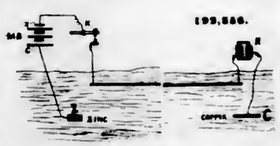
192,855. SHOW-CASES. F. L. Bartlett and W. I. Bickford, Portland, Me. [Filed Apr. 28, 1877.]



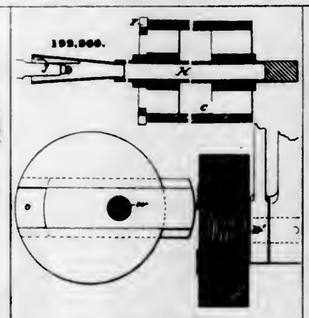
The combination, in a show-case, of the lid B, bolt *c* and catch, cord F, and slotted spring D, or its equivalent, substantially as and for the purposes set forth.

192,856. TELEGRAPHIC CIRCUITS. S. J. M. Bear, Mitchell, Iowa. [Filed Oct. 6, 1876.]

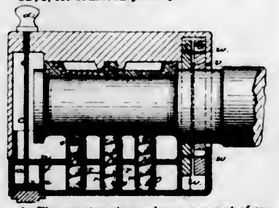
A telegraphic circuit composed of a main battery connected to the earth, a non-insulated conductor to the distant station, of metal of the same polarity as the pole of the battery to which it is connected, and a plate buried at the distant station of opposite polarity, substantially as set forth.



192,856.



192,857. AXLE-BOXES. Wm. G. Beattie, Nine Elms, London, England. [Filed May 11, 1876; patented in England, Aug. 17, 1876, for fourteen years.]



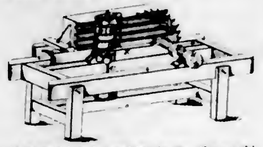
1. The construction and arrangement of apparatus for ascertaining whether the axle-box is or is not supplied with oil, consisting of cylinder *a*, piston *b*, rod *c* with knob *d*, and apertures *e e* and *f f*, all combined and operating substantially in manner shown and described.

2. The combination, in the car-axle box, of the supply-cock *h m*, wicks *p*, carriers *o*, diaphragm *n*, oil-cylinder *a*, piston *b*, and rod *c*, substantially as set forth.

3. The dust-shields *s* and *t* above and below the journal, respectively, and attached to each other by the screws *w*, in combination with the spring *u* acting on the shield *s*, and the springs *v* that press the shields apart and against the inner surfaces of their containing recesses, substantially as set forth.

192,858. MACHINES FOR CUTTING WOOD MOLDINGS. Mat. Bostwick, Painesville, Ohio, assignor of one-half his right to S. L. Titus, same place. [Filed July 20, 1876.]

Brief.—The moldings are dressed, slitted, and afterward cut from the block while passing once through the machine.



In a machine for making hoops, the combination, with the horizontal driving-shaft B, and circular saw D secured thereto, of the vertical driving-shaft C, provided with a series of stripping-saws, E, and cutters or forming-knives G, said cutters consisting of flat knives detachably secured to collars placed between the saws, the cutters being arranged spirally about the shaft, substantially as described.

192,859. COVERED NUTS. F. A. Bradley, New Haven, Conn. [Filed May 28, 1877.]



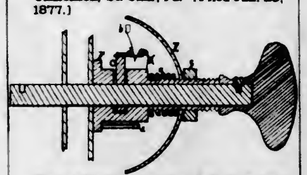
In a headed carriage-nut, the combination of the outer and inner covering, stitched around the head, with the metallic edge *d*, inclosing said stitched edge, and substantially as described.

192,860. PLAITING-MACHINES. J. H. Brown, Brooklyn, N. Y. [Filed Oct. 26, 1876.]

1. In a plaiting-machine the hollow rock-shaft H and arms *a a*, arranged to operate as described, for the purpose set forth.

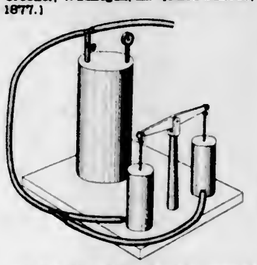
2. The combination of the set-screw *w* and crank-pin *w'* with the sliding block *s*, constructed and arranged substantially as and for the purpose set forth.

192,861. ALARMS FOR DOORS. Wm. W. Climenson, St. Clair, Pa. [Filed Jan. 20, 1877.]



The combination, in a door-lock alarm, substantially as described, of a standard, F, lug G with pin *d* attached, springs H H, and hammers *b b* attached, gong E, spiral spring *e*, and nut *f*, and the spring-posts *a a*, for the purpose hereinbefore set forth.

192,862. FIRE-EXTINGUISHERS. Wm. W. Crooker, Waukegan, Ill. [Filed June 16, 1877.]



The method herein described of applying carbonic acid or other extinguishing gas to fires for the purpose of annihilating the same, which consists in conveying such gas to the desired point by means of a current of air forced through a suitable conduit, substantially as specified.

192,863. PROCESSES OF MAKING COMPOSITION ARTICLES. W. H. Dibble, Elizabeth, N. J. [Filed Nov. 18, 1876.]

The process of making composite articles, hereinbefore described, consisting of first mixing either organic or inorganic pulverized or granulated substances with blood, then subjecting the mass so formed to heat, and finally compressing said mass under great pressure in heated molds of any desired form, all substantially in manner and proportion as described.

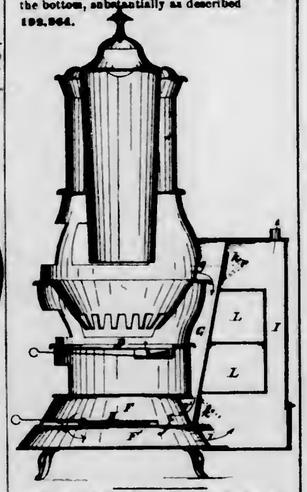
192,864. MAGAZINE HEATING AND COOKING STOVES. Ernst A. C. Fox, Frederick, Md. [Filed May 17, 1877.]

1. In a stove, the combination of the chambers F F', arranged one above the other in the base of the stove beneath the ash-chamber, so as to occupy the entire horizontal and vertical area of the base, and communicating with each other by a front dampered opening, *h*, the upper chamber communicating with a reversible flue, G, and the lower chamber with the flue leading to the chimney, substantially as described.

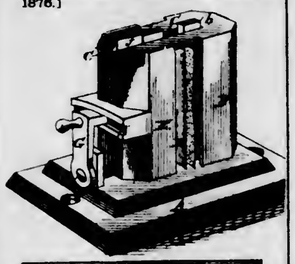
2. The combination of the enlarged flue I and heating-chambers L L with the chambers F F', the reversible flue G, and the damper-connections, substantially as described.

3. In a stove, the combination, with the flue I and heating-chambers L L, of a chamber, F', occupying the entire bottom area of the stove, and through which the volatile products of combustion can be directed to the flue I for the purpose of radiating from the base of stove, or from which said products of combustion can be entirely excluded without otherwise affecting the draft of the stove when it may be desirable to prevent the radiation of heat from the bottom, substantially as described

192,864.



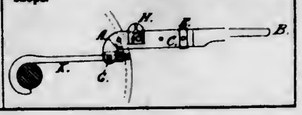
192,865. KNIFE-SCOURERS. C. V. Hadley, East Cambridge, Mass. [Filed Dec. 12, 1876.]



The combination of the grooved bed piece A, fixed upright casing D, and grooved plate C, with the adjustable upright casing E, emery-sheathed rubber sleeves B B, and a cam-lever, G, all substantially as and for the purpose described.

192,866. CAR-MOVERS. Wm. F. Hashuysen, Amsterdam, Holland, and C. Burn, London, England. [Filed Mar. 27, 1877.]

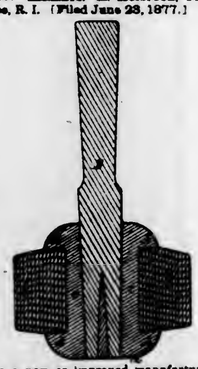
Brief.—To move cars about sidings and in shops.



1. The combination of the lever A B, with shoulders upon opposite sides, the swivel G, hung in the end of said lever, and the hooked arm K, adjustably attached to said swivel, substantially as described.

2. The combination of the lever A B, the saddle H, the projecting lugs J J, formed thereon and arranged on the said lever, the swivel G, and adjustable arm K, all substantially as and for the purpose described.

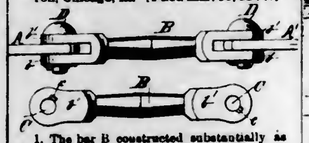
192,867. MALLETS. A. Holbrook, Providence, R. I. [Filed June 28, 1877.]



1. As a new or improved manufacture, a rawhide-head mallet in which the strip of hide is wound in a close spiral about an axis coincident with that of the handle of such mallet.

2. A mallet-head composed of the solid flanged and eyed metallic core *a*, essentially as represented, and a strip, *b*, of rawhide, wound in a close spiral on and about the neck of such core, and between its flanges, all being substantially as set forth.

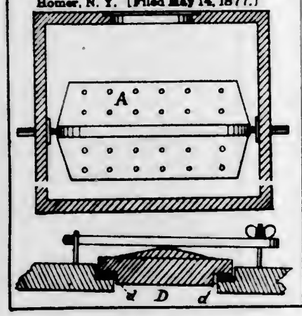
192,868. RAILROAD-SWITCHES. B. Hugron, Chicago, Ill. [Filed Mar. 16, 1877.]



1. The bar B constructed substantially as described—that is to say, with bifurcated ends *b b'*, in which are formed bolt-holes C, said holes in the ends *b'* each having a feather notch or slot *c* at its side, and these so arranged and formed as to be at a different angle the one from the other, substantially as shown and described.

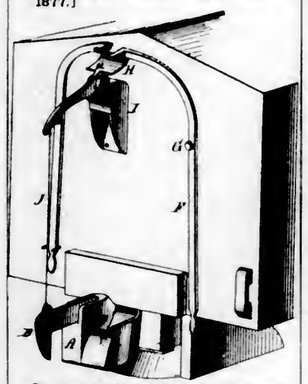
2. A coupling-bar, B, each end of which is bifurcated and provided with bolt-holes C, and which holes in the ends *b'* each have a feather notch or slot, *c*, formed at one side, in combination with the feather-bolts D, switch-rod A, and lever-rod A' of a railroad-switch, all being arranged to operate in the manner and for the purposes substantially as set forth.

192,869. ROTARY CHURNS. Ceylon Isbell, Homer, N. Y. [Filed May 14, 1877.]



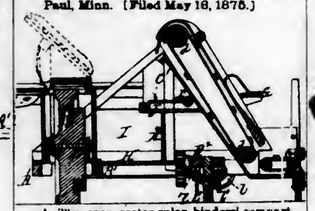
The herein-described cover D, rubber *d d*, and agitator A, in combination with a revolving box-churn, all made and used substantially as and for the purpose herein described and shown.

192,870. CAR-COUPLINGS. Jno. Johnston, Iona, Ontario, Canada. [Filed June 11, 1877.]



In an automatic coupling for railway cars, the combination and arrangement of the buffers A and hooks B with the levers K, flanged lever H, bracket I, and chain J, the several parts being constructed substantially as described.

192,871. HARVESTERS. C. W. Levalley, St. Paul, Minn. [Filed May 16, 1876.]



1. The open rectangular binders' compartment I, intermediate between the elevator and the single main carrying and driving wheel, and arranged in the same vertical transverse plane therewith, said compartment extending from front to rear of said frame, between the binders' tables, as described.

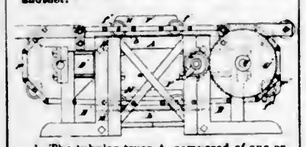
2. The extended transverse frame-bars A, accommodating the binders' stand between the elevator and drive-wheel, as described, in combination with the triangular truss-frames C C' C', substantially as and for the purpose set forth.

3. The grain-receiver I' i, arranged partly underneath the inclined elevator, and between said elevator and the driving-wheel, as and for the purpose described.

4. The hinged binders' tables G G, arranged upon the inner or grain side of the driving-wheel, and in front and rear of the binders' compartment, located between the driving-wheel and elevator, as described.

192,872. PORTABLE APPARATUS FOR LOADING VESSELS AND MOVING HEAVY ARTICLES. Samuel Marsden, St. Louis, Mo. [Filed May 5, 1877.]

Brief.—To carry goods from one point to another.



1. The tubular truss A, composed of one or more panels, *a*, end frames B B B' B', shafts C C', chain wheels D D D' D', and chains E E', combined substantially as described.

2. The combination of the truss A, end frames B B B' B', shafts C C', wheels D D D' D', chains E E', and trucks F F', substantially as described.

3. The combination of the truck F, and the pivoted stop I, substantially as described.

4. The trucks F'', having the elongated bearing *f'''*, in combination with the chains E E', and wheels D D, substantially as described.

5. The combination of the frame A, chains E E, wheels D D D' D', end frames B B B' B', and keys N N, substantially as described.

6. The truss A, having the ways *b b* and *b' b'*, substantially as described.

7. In a portable conveyer, a frame, A, whose top supports the trucks moving in one direction, and whose bottom is the support of the same trucks in returning, substantially as described.

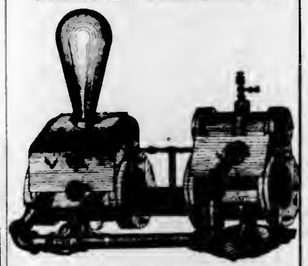
8. The combination of the hollow frame A, the chains E E', wheels D D D' D', and the double-topped trucks F F', operating substantially as described.

9. The combination of the frame A, ways *b' b'*, wheels D D D' D', trucks F F', and chains E E', substantially as and for the purpose of upholding the chains.

10. The combination of the chains E E', and the trucks F F', having double tops, substantially as described.

11. The combination of the panel *a*, and the end frames B B B' B', substantially as described.

192,873. STEAM-PUMPS. Jas. W. Pearce, Cleveland, Ohio. [Filed May 24, 1877.]



The combination, in a steam-pump, of the exhaust steam pipe, provided with branches leading to opposite ends of the water-cylinder and check-valves located in said branch pipes, to prevent the admission of water into the exhaust-pipe, substantially as and for the purpose described.

192,874. MACHINES FOR SPLITTING HOOP-POLES. Jas. A. Peoples, Chicago, Ill., assignor to Roswell Hart, Rochester, N. Y. [Filed Jan. 6, 1877.]

Brief.—Hoop-pole blanks, either round or angular, are fed to splitting-knives, mounted in a removable head, by means of an upper flanged roll and a lower roll having a V groove in its face, the tension of both rolls upon the blank being maintained, while admitting of the movement of each roll toward or from the other. The split blanks are discharged by two pairs of rolls, two of which have an independent movement in their bearings, while maintaining an equal tension on the blanks.

1. The combination, in a machine for splitting hoop-poles, of an upper and a lower feed-shaft, each driven by gearing, the bearings for said shafts fitted to and movable within slots curved concentrically with their driving gears, and a spring or springs connecting the bearings of the two shafts, substantially as set forth.

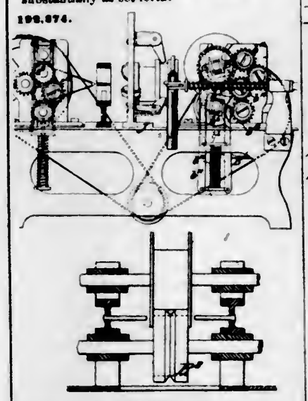
2. The combination, in a machine for splitting hoop-poles, of two feed-roll shafts, mounted in bearings fitted to and movable in curved slots, pivoted links articulating the bearings of the upper and lower shafts, with upper and lower plates, respectively, and a spring connecting said plates, substantially as set forth.

3. The combination, in a machine for splitting hoop poles, of a cylindrical feed-roll having side flanges, a cylindrical feed-roll without flanges, and a supplementary V-grooved or bevel faced ring or rings, which can be adjusted upon or removed from said last named roll-shaft, substantially as set forth.

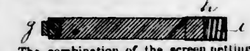
4. The combination, in a machine for splitting hoop-poles, of a knife-support and centering apparatus, having their bases fitting into dovetail grooves in a stationary transverse clamp secured upon the frame, so that either or both may be readily removed therefrom, substantially as set forth.

5. The combination, in a machine for splitting hoop-poles, of two pairs of discharging-rolls and their shafts, one shaft of each pair being mounted in movable bearings, and a spring connected at its ends to two plates, respectively jointed to the movable bearings of the two shafts, so that the spring shall act with equal tension upon each of said shafts, substantially as set forth.

192,874.



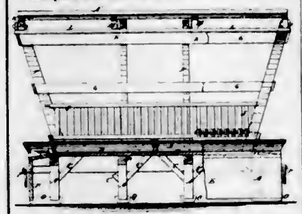
192,875. WINDOW-SCREENS. B. F. Pomeroy, Springfield, Mass. [Filed Apr. 26, 1877.]



The combination of the screen netting A, rollers *a a*, caps *i*, springs *i*, slots *b*, with their tacks or pins, and rubber or other flexible material *g*, substantially as and for the purpose set forth.

192,876. STOCK-FEEDERS. A. W. Prather, Lineville, Iowa. [Filed May 28, 1877.]

Brief.—The hay or straw is placed upon the gratings, through which the grain and grass-seed pass into a receptacle.



1. The combination, with the base or frame-work A B D I and the rack F G, of the pivoted rack or racks J, substantially as herein shown and described.

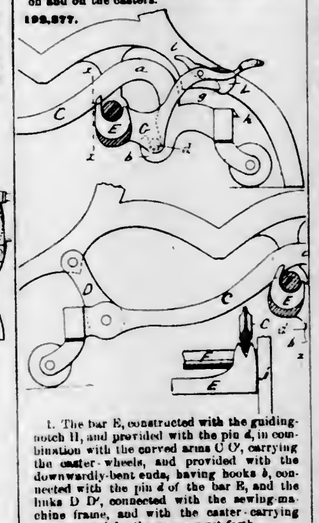
2. The combination of the shelter K L M with the rack F G, and base or frame work A B D, substantially as herein shown and described.

3. The herein-described improved portable stock feeder, shelter, and seed-saver, consisting of the hinged or pivoted frame K L M, rack F G, racks J, troughs B, base or frame work A B D E, and runners O, the several parts constructed and arranged as specified.

192,877. SEWING-MACHINE CASTERS. G. K. Proctor, Salem, Mass. [Filed Dec. 12, 1876.]

Brief.—As an improvement on Patent No. 145,011, November 25, 1873, a peculiar trough-shaped or drip bar, having a guiding notch and connecting bolt or pin, is combined with two curved caster-carrying arms, formed with downwardly projecting hook shaped ends, in which the connecting pin of the bar rests, and also with suitable links or braces, connecting the caster carrying arms with the frame of the sewing-machine. There is also provided a holding-pawl and treadle lever, of novel construction, for the ready throwing of the stand on and off the casters.

192,877.



1. The bar E, constructed with the guiding-notch H, and provided with the pin *d*, in combination with the curved arms C C', carrying the caster-wheels, and provided with the downwardly-bent ends, having hooks *b*, connected with the pin *d* of the bar E, and the links D D', connected with the sewing-machine frame, and with the caster-carrying arms, as and for the purpose set forth.

2. The holding pawl L, in combination with the treadle-lever J and caster-carrying arm C, all as described, for the purpose specified.

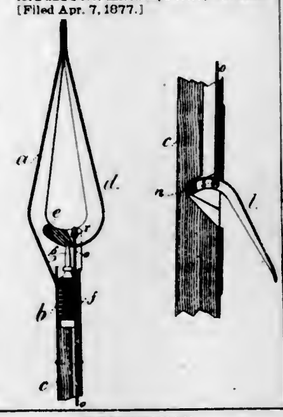
192,878. BOOKS AND COVERS. L. D. Reynolds and I. Reynolds, Dayton, Ohio. [Filed Nov. 18, 1876.]



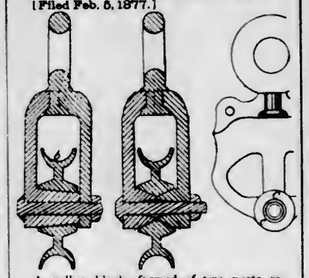
1. In combination with the paper book, made as described, a metallic or other rigid piece or pieces, B, applied thereto, as set forth, so as to clamp or hold all the sheets, and adapted to be inserted in and held by the back of a removable cover.

2. The combination of a book, all the leaves of which are stitched or fastened through a central fold common to all the sheets, with a removable cover, constructed with a metallic back composed of two plates or folds of metal, and an interposed linen or flexible material.

192,879. STONE-REACHERS. Wm. Rutherford and Peter Mitchell, Forfar, Scotland. [Filed Apr. 7, 1877.]



192,880. METAL PULLEY-BLOCKS. E. U. Scoville and W. L. Scoville, Manlius, N. Y. [Filed Feb. 5, 1877.]



A pulley-block, formed of two parts secured together as described, and supported at the center by the projections on which the pulley *b* runs, bolted and secured as and for the purposes specified.

192,881. COMBINED HOSE NOZZLE AND SPRINKLER. P. H. Ryon, Bridgeport, Conn. [Filed Apr. 17, 1877.]

Brief.—A sprinkling nozzle is arranged parallel to the main nozzle, a two-way cock conducting the water to either.



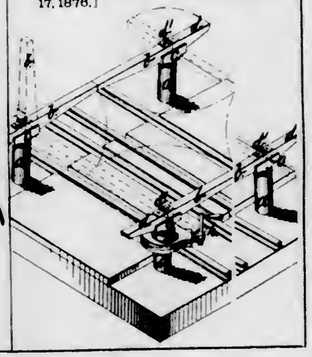
1. A combined hose-nozzle and sprinkler, in which the two parts are connected by an elbow-pipe, *e*, which is either cast with or screwed into the side of the nozzle, substantially as set forth.

2. The combination of the nozzle *a*, two-way cock *d*, elbow-pipe *e*, and sprinkler *g*, the pipe either forming a part of the nozzle or being attached thereto, substantially as specified.

192,882. METAL PULLEY-BLOCKS. E. U. Scoville and W. L. Scoville, Manlius, N. Y. [Filed Feb. 5, 1877.]

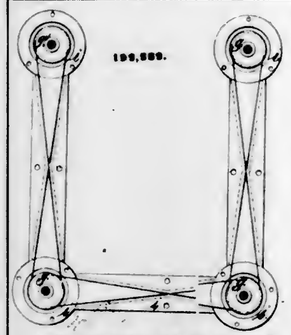
A pulley-block, formed of two parts secured together as described, and supported at the center by the projections on which the pulley *b* runs, bolted and secured as and for the purposes specified.

192,883. GATES FOR RAILROADS. Henry A. Stearns, Pawtucket, R. I. [Filed Feb. 17, 1876.]



THE GRAPHIC CO. N.Y.

193,889.



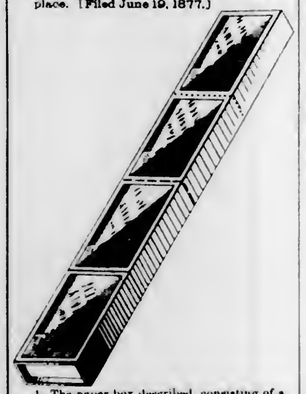
1. The combination, with the horizontally-swinging gate-bars, of the standards a, spindles e, the latter having bolsters secured to their upper ends to support the gate-bars and pulleys to their lower ends, which operate in connection with chains to impart simultaneous movement to the gate-bars, substantially as and for the purpose set forth.

2. The combination, with standards a and spindles e, of the bolsters c and hinged gate-bars secured to said bolsters, substantially as and for the purpose specified.

3. The combination, with the horizontally-swinging gate-bars, of the standards a and spindles e, the latter extending below the standard through the foundation of the crossing, and stepped in water-tight casings i i, substantially as and for the purpose set forth.

4. The combination, with the horizontally-swinging gate-bars, of the standard a, spindle e, the latter having bevel-gearing combined therewith, whereby the bars may be actuated by a crank, h, substantially as and for the purpose specified.

193,892. PAPER BOXES. W. H. Swift, Wilmington, Del., assignor to the Swift & Courtney & Beecher Company, same place. [Filed June 19, 1877.]



1. The paper box described, consisting of a tubular case, sectionally divided, as described, in combination with a series of drawers corresponding in number.

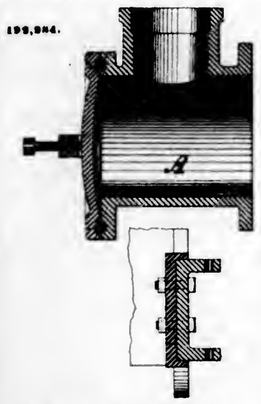
2. A tubular case, partially divided into sections by scoring or perforating, as described.

193,894. MOUTH-PIECES AND LIDS FOR GAS-RETORTS. T. Ubil, Philadelphia, Pa., assignor of one-half his right to T. R. Brown, same place. [Filed June 5, 1877.]

1. The combination, with a gas retort mouth-piece having a groove or recess around its outer face, of a lid having a groove of corresponding outline filled with yielding or elastic packing, which projects and fits into the groove of the mouth-piece when the lid is closed thereon, substantially as set forth.

2. The combination of a retort mouth-piece, having a recessed side flange and a removable hinge-piece, with a plate fitting into the recess of said flange, and bolted thereto, substantially as set forth.

193,844.



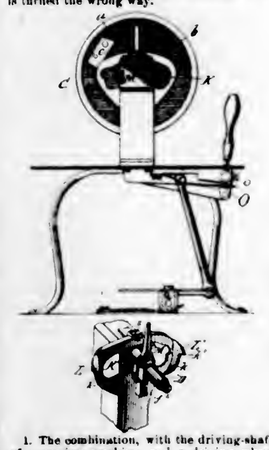
193,885. DEVICES FOR ATTACHING LABELS TO PLUG-TOBACCO. C. W. Van Alstine, Chelsea, Mass. [Filed Apr. 27, 1877.]



A label or tag for marking plug-tobacco having a central metallic stem to be driven or pressed into the plug to fasten the tag thereto, the tag being attached to the stem by a rim or flange on the end of the latter, that overlaps the outer surface of the tag, and spurs integral with and projecting from the body of the stem, that overlap the inner surface of the tag, substantially as described.

193,886. STOPPING MECHANISMS FOR SEWING-MACHINES. Chas. H. Warner, Sturbridge, Mass. [Filed May 4, 1877.]

Brief.—A stop mechanism operated by a lever, said mechanism being so constructed that by moving the lever in one direction the machine will be stopped with the needle at the bottom of its stroke, and by moving the lever in the opposite direction the machine will be stopped with the needle at the top of its stroke. By continuing either motion of the lever the presser-foot will be raised from the work. The fly-wheel will be unclutched if it is turned the wrong way.



1. The combination, with the driving-shaft of a sewing-machine, and a driving-wheel mounted loosely thereon, of a clutch and operating mechanism, substantially as described, whereby the said driving-wheel may be disconnected from the shaft when the needle is in either an elevated or depressed position, but in no other, as and for the purpose set forth.

2. The combination, with the driving-shaft of a sewing-machine, and a driving-wheel mounted loosely thereon, of a clutch and mechanism, substantially as described, whereby the said wheel may be disconnected from the shaft when the needle is in either an elevated or depressed position, but in no other, and the presser-foot be either raised or not, as may be desired, as and for the purpose set forth.

3. The combination, with the shaft D, and the driving wheel C, provided with the springs a and b, and the inclined piece c, of the lever F, pivoted to said shaft, whereby, when the driving-wheel is reversed, the same will be automatically unclutched from its shaft, as and for the purpose set forth.

4. The combination, with the goose-neck or arm of a sewing-machine, and the bell-crank lever G, provided with a notch, h, of a sprung-projection, i, for locking the said bell-crank lever in position, as set forth.

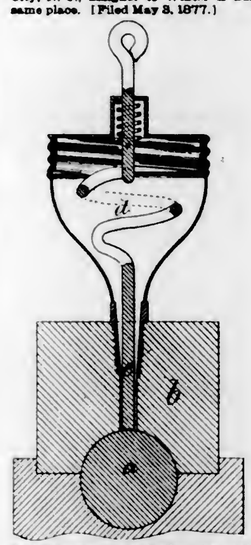
5. The combination, with the bed of a sewing-machine, and the bell-crank lever G, of the lever N, rock-shaft provided with a projection, o, spring O, arm s, and connecting-rod m, as and for the purpose set forth.

6. The combination, with the shaft D, and block E, of the lever or dog F, pivoted thereto, as and for the purpose set forth.

7. The bell-crank lever G, constructed as described, and provided with the projections L L′ on its opposite sides in reverse position with respect to each other, as and for the purposes described.

8. The combination, with the bell-crank lever G, provided with a notch or projection, and the presser-foot of a sewing-machine, of a lever, m, as and for the purposes set forth.

193,887. LUBRICATORS. H. Winter, Jersey City, N. J., assignor to Winter & Ball, same place. [Filed May 3, 1877.]



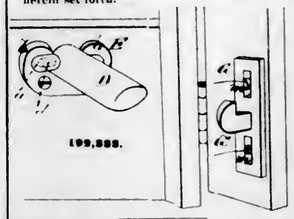
In a lubricator, a conducting-wire, resting at one end upon the journal, and formed as a coil within the cup containing the tallow or other lubricating material, and the upper end passing through the cap of the cup, substantially as set forth.

193,888. DOOR-CHECKS. Jos. Alexander, Gallipolis, Ohio. [Filed June 16, 1877.]

Brief.—A catch on an adjustable plate is attached to the door, and on the base-board is a bracket or plate, in which is loosely journaled a semi-tubular outwardly-projecting stop, open on the under side, but rounded and closed at its outer end, and automatically dropping over and engaging with the catch to hold the door open.

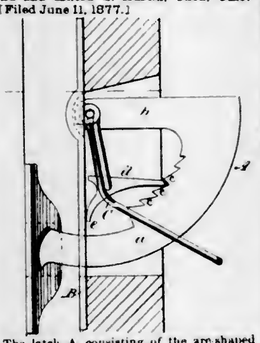
The within-described door stop and catch,

consisting of the plate E, having lugs or projections b, with recesses a, the semi-tubular stop D, with journals d and shoulders i, and the adjustable plate G, with hook G′, all constructed substantially as and for the purposes herein set forth.



193,888.

193,889. GATE-LATCHES. Cyrus B. Austin and Milton S. Austin, Cuba, Ohio. [Filed June 11, 1877.]



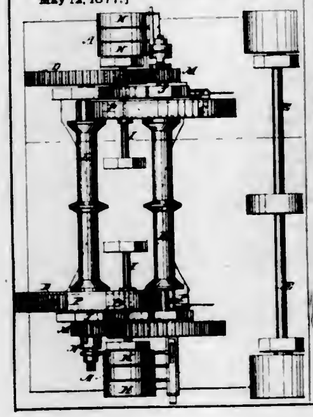
The latch A, consisting of the arc-shaped part a having ratchet-teeth c, and the arm b, the lever C, pawl d having the toe e, and the plate B, in combination, substantially as shown and described.

193,890. TOY PISTOLS. James Barry, New York, N. Y. [Filed June 11, 1877.]



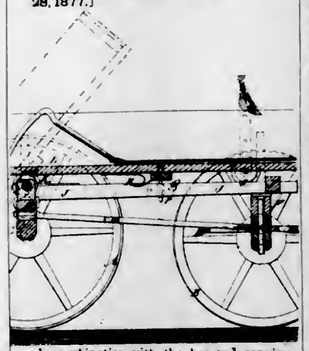
The combination, with a plunger, B, notched, grooved, headed, and provided with propelling rubber band, of the tube A having closed end, anvil a′, and lateral opening a, arranged as and for the purpose specified.

193,891. HOISTING-MACHINES. H. Batt, Kentish Town, London, England, assignor to L. G. Tabraham, Boston, Mass. [Filed May 12, 1877.]



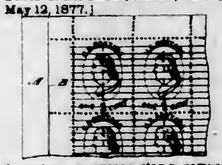
The combination of the fast and loose pulleys H A H, the shafts I, the sliding gear-wheels B, the gear-wheels C D, the drums K L, the loose gear-wheels M, and the clutches N, with each other, substantially as herein shown and described.

193,893. DUMPING-WAGONS. Charles S. Bateman, Battle Creek, Mich. [Filed May 28, 1877.]



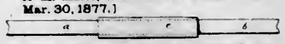
In combination with the box and running gear, the intermediate frame J, wheels K M K, and flanged wheels O O, all constructed and arranged as shown and described, to form a dumper operated by the horses in unloading, as set forth.

193,898. POSTAGE OR REVENUE STAMPS. David G. Beaumont, Austin, Tex. [Filed May 12, 1877.]



A postage or revenue stamp, composed of two superposed sheets or layers, A B, the top layer carrying the printed designs, having parallel incisions therein, and the bottom layer being provided with adhesive material on the back, substantially as and for the purpose set forth.

193,894. CORSET-STAYS. M. P. Bray, Birmingham, assignor of one-half his right to M. Adler, New Haven, Conn. [Filed Mar. 30, 1877.]



As an article of manufacture, stays for corsets, &c., made from two or more short strips of horn united by a metallic coupling closed over the meeting ends of the strips, substantially as described.

193,895. DRAW-KNIVES. A. B. Brockett, Branford, Conn. [Filed Apr. 21, 1877.]

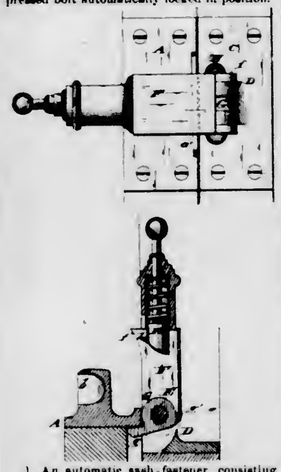
Brief.—The desired incline of the handles to the plane of the blade is attained by tapering the beads of the blade-bar, and forming a corresponding bend in the socket-shank.



In a draw-knife, the heads constructed with a downward incline, combined with the bent socket hinged therein, and the handle adjustable on the said socket, substantially as described.

193,896. FASTENERS FOR MEETING-RAILS OF SASHES. W. H. Brown, Indianapolis, Ind. [Filed June 1, 1877.]

Brief.—The meeting-rail of the lower sash is provided with a supporting-plate having a central socket-stud, which engages a spring-pressed bolt working in a suitable casing, pivoted to a supporting-plate on the meeting rail of the upper sash, which lock-bolt casing is adapted to be thrown up in vertical line by the act of raising the lower sash, and to be there held until this sash is again closed. There is also a double latch-catch vibrating in suitable bearings upon the supporting-plate of the upper sash, by which the casing is forced down over the lower sash, and the spring-pressed bolt automatically locked in position.



1. An automatic sash-fastener, consisting of a metallic plate, formed with the engaging socket D, and adapted to be secured to a lower sash, in combination with the vertically-swinging double catch G and the locking mechanism, the two latter loosely secured by a single pivot to the upper sash-plate, substantially as described.

2. In an automatic sash-fastener, the vertically-swinging double catch, formed with an engaging projection at both extremities, and pivoted to the upper sash-plate, substantially as described.

3. In an automatic sash-fastener, the locking-bolt casing F, adapted to swing freely on the upper sash plate, and formed with the front projecting incline f′, in combination with the lower sash plate A, formed with the rear projection a′, adapted to engage the said incline on the bolt-casing, substantially as described.

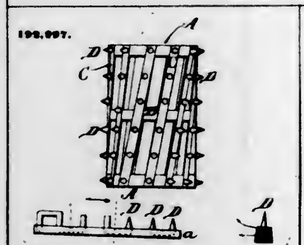
193,897. LOOM-TEMPLES. Wm. H. Burns, Worcester, assignor to J. H. Prouty and S. S. Sprague, same place, and G. F. Burns, Millbury, Mass. [Filed Oct. 7, 1876.]

Brief.—The bars are arranged on the roller so as to have an angle of inclination to the plane of the roller-heads. This arrangement produces the effect of the spiral set, and tends to draw the fabric outwardly. The teeth are arranged in pairs, and each pair is in one piece. This construction secures the teeth more firmly than when each tooth is separate. The bars and teeth may be readily removed, and in case of breakage new ones may be substituted.

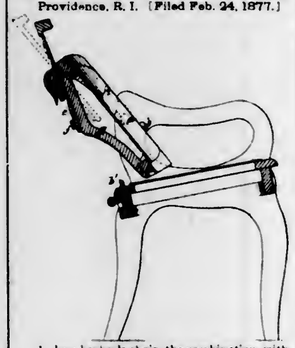
1. In a roller for loom-temples, a toothed bar, having the teeth arranged in pairs, each pair being in one piece, and fastened substantially in the manner and for the purposes herein set forth.

2. A roller for loom-temples, consisting of the heads A A and B, having notches or grooves in their edges, as described, the inclined bars C C placed in said notches or grooves, and the teeth D D fastened in said bars, all constructed substantially as and for the purposes herein set forth.

192,897.



192,898. BARBERS' CHAIRS. Jos. Clough, Providence, R. I. [Filed Feb. 24, 1877.]



1. In a barber's chair, the combination, with a pivoted back, of a sliding head rest, which is movable in a line obliquely to the vertical line of the back, substantially as described.

2. The combination, with a pivoted back, of a head rest bar, *g*, which is rigidly connected with the top and bottom rails of the back, substantially as described.

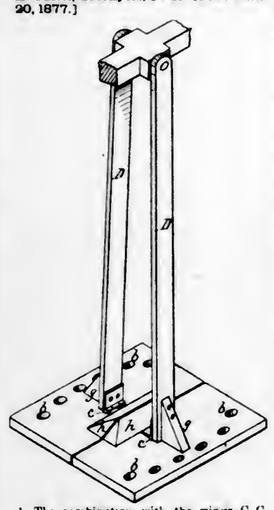
3. The combination, in a barber's chair, with the pivoted back, provided with flanged pivots, of the sides of the chair, provided with open sockets or mortises, substantially as described.

192,899. PEN-AND-PENCIL CASES. Richard M. Collard, New York, N. Y. [Filed June 18, 1877.]



The guide-tube B, secured rigidly at one end, inside of the outer case A, and extended through the same, in combination with the double slotted tube *f*, the pencil-stock *g*, and the slotted sliding actuating-tube G, substantially in the manner and for the purpose specified.

192,900. RECIPROCATING CHURNS. John A. Cubitt, Brockport, N. Y. [Filed June 20, 1877.]



1. The combination, with the wings C C, hinged directly together, of the two dasher-rods D D, hinged to the tops of the wings, arranged as described, to produce an automatic action of the dasher-wings in opening and closing, as herein described.

2. The combination of the wings C C, hinged directly together, the two dasher-rods D D, hinged to the tops of the wings, and the two opposing sets of stops *g g* and *h h*, for gaging the opening and closing movements of the wings, as herein shown and described.

192,901. SCREW-DRIVERS. A. J. Curtis, Monroe, Me., assignor to himself and E. H. Neally, same place. [Filed June 4, 1877.]



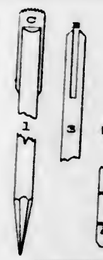
A carpenter's tool consisting of the screw-driver A, having conical collar *a'*, shoulder *a²*, sliding sleeve B, and tweezers C, all constructed and arranged as shown and described.

192,902. LEAD-PENCILS. Henry T. Cushman, North Bennington, Vt. [Filed Jan. 26, 1877.]

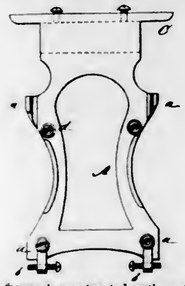
1. As a new article of manufacture, the herein-described eraser, consisting of the slab C, possessing the described attribute of thickness, mounted so as to expose the lateral edges of the same, by the described means, in a longitudinal slot in the end of a lead-pencil or other suitable handle, the cheeks of which slot may be cut away as the eraser is worn down, substantially as described and set forth.

2. The specific means of securing the described eraser in the slot of the pencil or holder, consisting of any suitable adhesive material used in connection with the eraser C, provided with creases *a a* and *b b*, or perforation *c*, and the cheeks of slot B, substantially as described and set forth.

192,903.

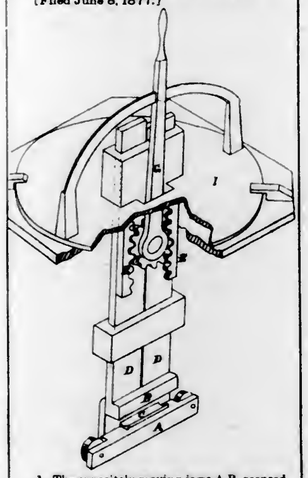


192,903. SAW-TOOTH ADJUSTERS. John F. Damon, Rockland, Mass. [Filed May 28, 1877.]



The frame A, constructed with a straight-edge C, rests *a a* on either side thereof, and an adjusting-screw, *b*, combined substantially as described.

192,904. GRIPING DEVICES FOR ROPE TRAMWAYS. Thos. H. Day, San Francisco, Cal. [Filed June 8, 1877.]



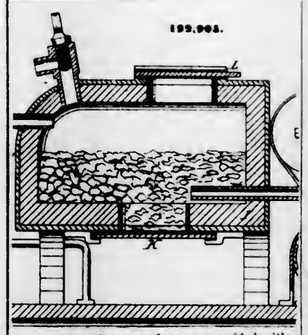
1. The opposite-moving jaws A B, secured to the bars D, said bars being provided with the toothed racks E E, in combination with the pinion F and lever G, substantially as and for the purpose herein described.

2. A means for reversing the rope-griping device, the same consisting in mounting it upon a turn-table, I, substantially as herein described.

3. The movable rod K, in combination with jaws A B, so arranged as to secure the rope, and prevent its leaving the gripe, or release it, substantially as herein described.

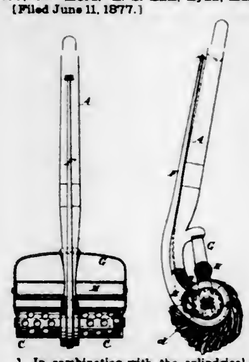
192,905. GROUND-SQUIRREL EXTERMINATORS. H. Dreyer, Oakland, Tex. [Filed Feb. 17, 1877.]

192,906.



An insect-destroyer furnace, provided with inlet for fuel at top, outlet for refuse at bottom, and gas-tight slides K L for said inlet and outlet, as shown and described.

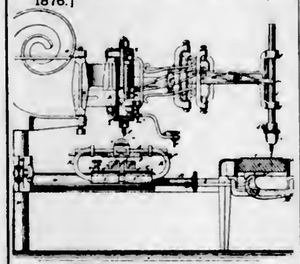
192,906. MOPS. E. S. Ellis, Lynn, Mass. [Filed June 11, 1877.]



1. In combination with the cylindrical rotating mop C on a handle, A, a pressure-roller, H, acted on by a spring, G, substantially as described.

2. The lever-handle F, ratchet and pawl *c d*, and pressure-roller H, in combination with mop cylinder C, substantially as described.

192,907. ENGRAVING-MACHINES. Aug. E. Ellinwood, Garrettsville, assignor to himself, Robt. Irwin, same place, and W. W. Harris, Cleveland, Ohio. [Filed July 15, 1876.]



1. The combination of the tracing-mandrel I, levers K I, double ball-and-socket joints *n n*, connecting-rod *p*, graver-stock *e*, and the pantograph-arms of an engraving-machine, substantially as shown and described.

2. The adjustable socket H, having the conical screws *y'* and corresponding cups *q'*, in combination with the graver-stock *e* and arm E, as specified.

3. The combination of the frame *q*, concave panel *r*, pivoted arms *e*, and cam-lever M, substantially as specified.

4. The combination of the stud P, arm *w'*, arm *e*, and jaws *v v'*, as shown and described.

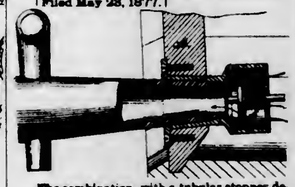
5. The combination of the arm *w'*, jaws *v v'*, pivoted as described, the bolt *o'*, and screw N, as specified.

6. The clamps B B', in combination with the jaws *v v'*, as shown and described.

7. The bar *f'*, annular supports *g'*, arms *h'*, and clamps *i'*, in combination, as shown and described.

8. The combination of the bar *f'*, annular support *g'*, arms *h'*, lever *j'*, and pin *k'*, substantially as shown and described.

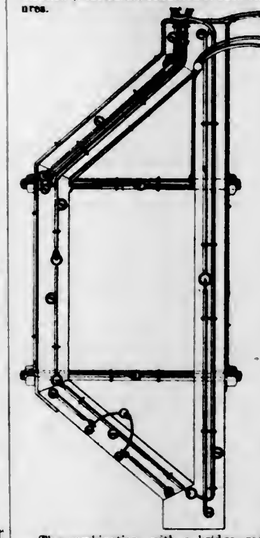
192,908. DEVICES FOR TAPPING BEER AND OTHER CASKS. J. Felbel, New York, N. Y. [Filed May 23, 1877.]



The combination, with a tubular stopper device provided with an automatically-closing valve and formed with a taper bearing and screw-thread, of a faucet or tap formed with a correspondingly-tapering portion and counter-thread, the whole adapted to operate as and for the purposes specified.

192,909. ELECTRICAL APPARATUS TO INDICATE OVERSTRAIN OR WEAKNESS IN ROOFS, BRIDGES, OR OTHER STRUCTURES. John Forbes, Dartmouth, Halifax, Nova Scotia, Canada. [Filed May 5, 1877.]

Brief.—A means for obtaining a prompt indication of the unsafe condition of such structures.



The combination, with a bridge, roof, or other structure, of a system of insulated conductors and a circuit-closer, so arranged that any abnormal condition resulting from overstrain or other cause tending to reduce the originally designed margin of safety shall be indicated (by completion or rupture of the circuit) upon an annunciator suitably situated and connected for the purpose, substantially as herein described and set forth.

192,910. BLANKS FOR METAL FORKS AND SPOONS. H. B. Fowler, New Haven, Conn. [Filed May 9, 1877.]



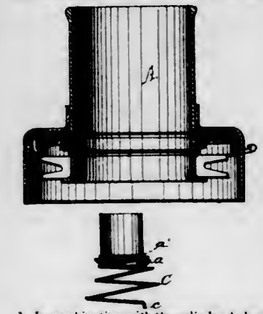
A cast metal blank for spoons and forks, consisting of a soft-metal exterior, with an interior bar of harder metal inclosed, as and for the purpose set forth.

192,911. CLEARING ATTACHMENTS FOR STOVE-GRATES. E. A. C. Fox, Frederick, Md. [Filed May 17, 1877.]



The combination of the casting A, having the flange *a*, with the grate B, and the clearing attachment arranged underneath the grate, and provided with fingers which normally lie below the under side of the grate, but can be raised and drawn back and forth at will, substantially as described, for the purpose specified.

192,912. UMBRELLA TIP-CUPS. H. S. Frost, Watertown, Conn. [Filed June 6, 1877.]



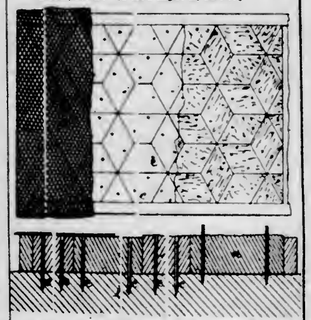
1. In combination with the cylinder A, having the flange *a* and bead *a'* located at one extremity, the conical spring C secured at its small end within the recess, as described.

2. In combination with the cylinder A, having the spring C attached at one extremity, the cup B and ring D, the construction being such that the spring is held below the plane of the upper surface of the cup, as shown and described.

3. In combination with the ring, the cup B and the spring C, having a bent end, as described.

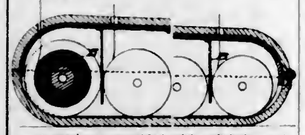
4. The tip-cup described, having the cylinder, with flange *a* and bead *a'*, the cup B, the conical spring C, and ring D, secured to the cup, as described.

192,913. MANUFACTURE OF ORNAMENTAL WOOD-SURFACED FLOOR-COVERINGS AND WAINSCOTING. Saml. P. Grocock, New York, N. Y. [Filed Apr. 2, 1877.]



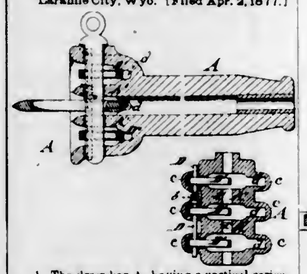
The method of forming ornamental wood surfaces by gluing pieces to a level bed, then securing them by headless nails passing below their surfaces, then evening the upper portion thereof, then gluing canvas to their leveled surfaces, and, finally, removing the connected pieces from bed, and drawing the nails through them, as specified.

192,914. SPOOL-CASES. Benj. R. Hamilton, South Deerfield, Mass. [Filed Apr. 16, 1877.]



A spool-case provided with exit-holes and a thread-binding layer, and with interior hinged and folding partitions between the exit-holes and spools, substantially as specified.

192,915. CAR-COUPLINGS. F. Heavener, Laramie City, Wyo. [Filed Apr. 2, 1877.]



1. The draw-bar A, having a vertical series of throats, and the vertical pivot-bar D, having a corresponding series of rigid spring-actuated arms, D', of equal leverage, projecting horizontally across the throats, in combination with each other and with the coupling pin and link, substantially as described.

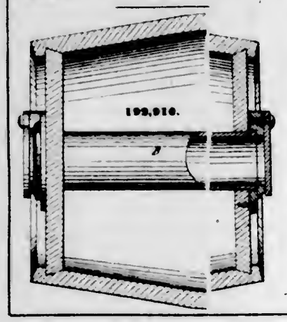
2. The draw-bar A, having one or more throats, with narrower or reduced recesses *d* upon the sides and back, opening into the said throats, in combination with a tapered link, substantially as and for the purpose described.

3. The draw-bar A, having a series of throats with reduced recesses *d* upon the back and sides, in combination with the pivot-bar D, having rigid arms D', adapted to be moved laterally into said recesses by the entering link, substantially as and for the purpose described.

4. The combination, with the pivot-bar D, arranged upon the outside of the draw-bar and provided with arms D', of the draw-bar A, having projections *c* formed about the recesses *d* upon the sides, to constitute bearings for and protect the rod D, substantially as described.

5. The rod D, having rigid arms D', and provided with a supporting-collar and a spring, in combination with the draw-bar, having a series of throats, as described, with projections *c* formed about the recesses *d* of the throats, adapted to support the collar of rod D, substantially as described.

6. The combination, with the draw-bar having a series of throats with projections *c*, of the rod D, arranged outside the draw-bar in the projections, with a supporting-collar and a spring, *b*, and the arms D', made to rock rigidly with the bar upon its axis, and to slide thereon longitudinally for the separation, removal, and replacement of the parts, as described.

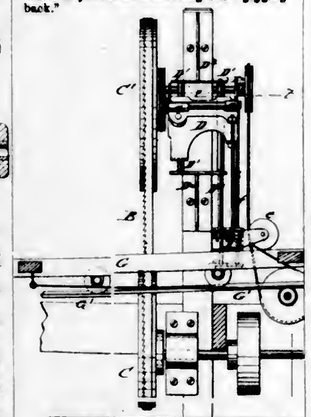


192,916. BEER-CASKS. John Hoffman, Toledo, Ohio. [Filed Mar. 19, 1877.]

In combination with the tube applied to a barrel or other cask, the pivoted adjustable caps or covers and the rings or annular boxes, as shown and described, for the purpose specified.

192,917. BAND-SAW MILLS. J. R. Hoffman, Fort Wayne, Ind. [Filed May 21, 1877.]

Brief.—The log-carriage is operated upon inclined ways. From the upper saw-pulley, for the purpose of straining the saw, the upper pulley-shaft-supporting frame is horizontally adjustable, so as to tilt the saw, and strain either the front or back edge. The inclined ways are for facilitating the "figging back."

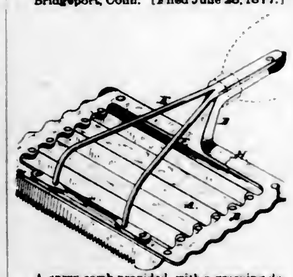


1. In a band-saw mill, the combination of the upper saw-pulley C with the log or feed carriage G, and mechanism, substantially as described, for operating said carriage from the saw-pulley, for the purpose of straining the saw, as and for the purpose set forth.

2. The combination, in a band-saw mill, of the inclined way G', log-carriage G, band-saw B, lower pulley C, upper straining saw-pulley C', and suitable transmitting mechanism for operating the log-carriage from the upper strain-pulley, substantially as and for the purpose set forth.

3. The combination of the outer eccentrically-pivoted rod, D', and inner pivot-rod D', and suitable operating-gear, with the shaft-supporting frame D, upper saw-pulley C', for imparting horizontal motion to the latter, for the purpose described.

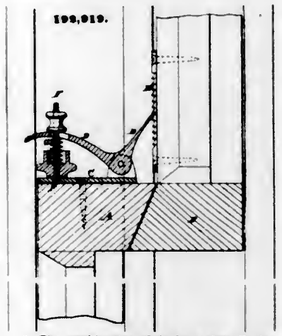
192,918. CURRY-COMBS. C. A. Hotchkiss, Bridgeport, Conn. [Filed June 28, 1877.]



A carry-comb provided with a grasping device made out of one piece of metal, so as to form two bars, E, extending across its back, which are connected to it and its standard D, substantially in the manner hereinbefore set forth.

192,919. SASH-FASTENERS. F. J. Hoyt, New York, N. Y. [Filed May 28, 1877.]

Brief.—A bent lever-pawl and rack-plate are kept in automatic engagement by means of a spring-encircled rod, over which the long arm of the lever passes, and there are on this rod an upper and lower nut, serving, respectively, to lock the pawl either in closed position or when entirely withdrawn from the rack-plate.

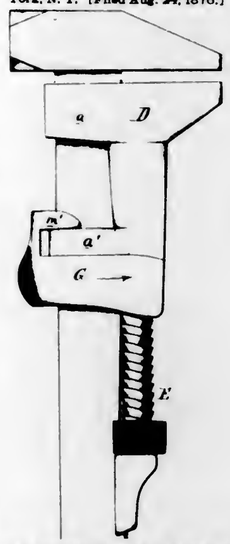


1. The combination of the base-plate C, the bent-lever pawl D, the rack-plate E, the rod F, and the spiral spring G, with each other, to adapt them to be applied to the sashes of a window, substantially as herein shown and described.

2. The combination of the base-plate C, the bent-lever pawl D, the rack-plate E, the screw-rod F, and the nut H, with each other, for locking the pawl D in place when engaged with the plate E, substantially as herein shown and described.

3. The combination of the base-plate C, the bent-lever pawl D, the rack-plate E, the screw-rod F, and the nut I, with each other, for locking the pawl D in place when disengaged from the rack-plate E, substantially as herein shown and described.

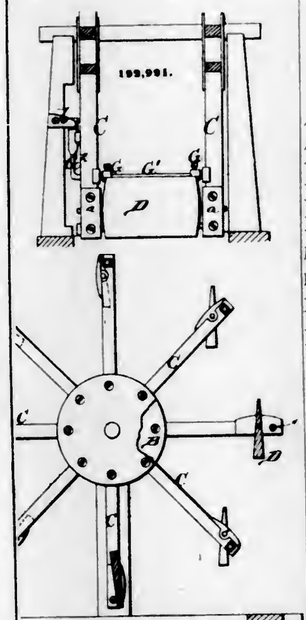
192,920. WRENCHES. B. F. Joslyn, Worcester, Mass., assignor to R. P. Bruff, New York, N. Y. [Filed Aug. 24, 1876.]



The combination of the adjusting-screw B of a wrench and the movable jaw D, having the projection *a'*, with the sliding yoke G, having teeth adapted to the screw, and provided with the lip *m'*, substantially as described.

192,921. FEATHERING PADDLE-WHEELS. I. A. Kilmer and E. B. Kilmer, Howe's Cave, N. Y., assignors of one-third their right to A. Kilmer, same place. [Filed June 28, 1877.]

192,921.

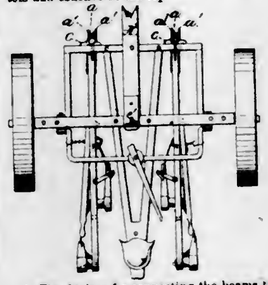


1. In a paddle-wheel, the paddle D, hung upon gudgeons on one side of the center in the arms C, in combination with the stop-rods *b* outside of the pivots of the paddles, the several parts being so arranged that when the paddles enter the water, when the wheel is moving forward, their outer smaller sides will be held against the front of the stop-rods by the gravity of their inner larger sides, and a positive resistance formed against the water, substantially as set forth.

2. In combination with the reversible paddles D, the shouldered arms or catches G, shaft G', weighted crank-arm G', and latch *h*, substantially as and for the purposes herein set forth.

192,922. CULTIVATORS. Henry P. Kynett, Lisbon, Iowa. [Filed June 20, 1877.]

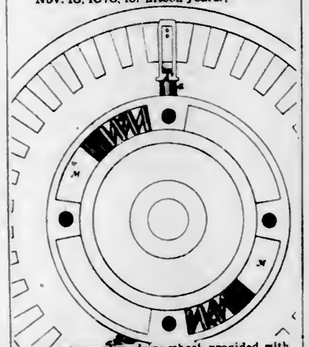
Brief.—Pivoted socket attachments for plow-beams on movable fastenings, adapting the machine for a riding or walking cultivator. A shovel straight in cross-section at the bottom and concave at the top.



1. The devices for connecting the beams to the cultivator, consisting of the combination of sockets *a*, pivoted to the front ends of the beams, the round bolts *b*, having heads at the lower ends, the single bearings *c*, having lugs *z* and semicircular grooves, and fastened by the eyebolts *c'*, which eyebolts hold in place, also, the connecting-bolts *b*, substantially as described.

2. The cultivator-mold K, having the upper part of the mold concave, and the upper part of the beveled point straight, substantially as and for the purposes described.

192,923. TRACTION-WHEELS FOR LOCOMOTIVES. Jean Larmanjat, Paris, France. [Filed Apr. 19, 1877; patented in France, Nov. 18, 1876, for fifteen years.]

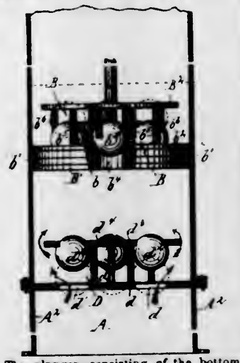


1. A locomotive drive-wheel, provided with radially-arranged spring-seated teeth, combined with catches for holding them withdrawn into the wheel, substantially as and for the purpose described.

2. The drive-wheel, having the radially-arranged spring-seated teeth, provided with spring catches B, in combination with the concentric plate F, made adjustable upon its center, and having lugs I adapted to hold the said teeth in, when in one position, or be turned to allow the same to project, substantially as described.

3. The circularly-arranged spring E, and movable block D, in combination with the drive-wheel having radially-arranged spring-seated teeth, having spring-catches, and with the adjustable plate F, having lugs I, substantially as described, and for the purpose set forth.

192,924. LIFT-PUMPS. John Luster, East Joplin, Mo. [Filed Nov. 28, 1876.]



1. The plunger, consisting of the bottom disk B^1, having groove *b*, the rings b^1, holes b^2, balls b^3, rods b^4, upper disk B^2, to operate as and for the purpose set forth.

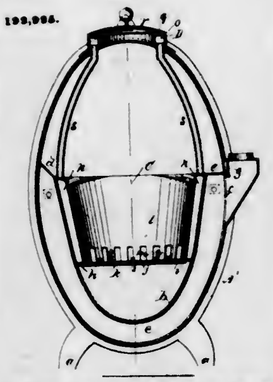
2. The lift-pump proper, provided with a plunger, B, consisting of the bottom disk B^1 having the rings b^1, holes b^2, guide-rods b^4, upper disk B^2, the clack-valve D, consisting of the bottom disk *d* having holes d^1, balls d^2, rods d^3, upper plate d^4, and the pump-sections A^1 A^2, all said parts being combined to operate in the manner and for the purpose set forth.

192,925. STOVES. C. Lyman, Clarinda, Iowa. [Filed May 21, 1877.]

1. The elliptical end pieces A A^1, the body B, and pieces *b*, inclosing the fire *c*, and the fire-pot C, having the curved end pieces *l*, combined and arranged substantially as herein shown and described.

2. The air-passages *n*, arranged at the sides of the fire-pot C, the tubes *s*, and the hollow perforated annular casting D, in combination in a stove, substantially as shown and described.

192,926.



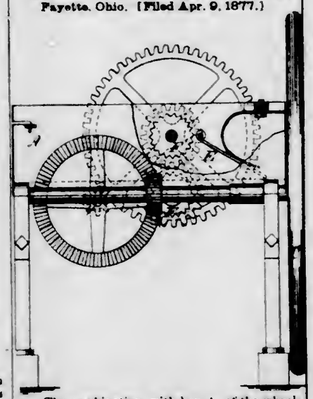
192,926. COMBINED BLOTTER AND RULER. Mark P. McElhinney, Montreal, Quebec, Canada, assignor to Robt. W. Simpson, same place. [Filed June 11, 1877.]

Brief.—A piece of blotting-paper is wrapped around each section, and the ends clamped between the sections by caps C, which are readily detachable.



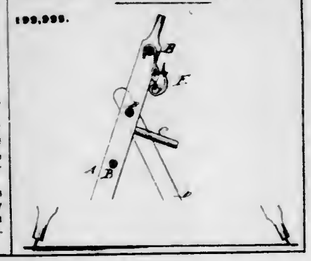
An improved blotting-ruler, formed of the two semi-cylindrical strips A, the blotting-paper B, wrapped around them, and the ferrules or caps C, substantially as herein shown and described.

192,927. STRAW-CUTTERS. S. Mepham, Fayette, Ohio. [Filed Apr. 9, 1877.]



The combination, with box A, of the wheel G, having knives D, the spring-held hinge-plate E, and rolls F F', all arranged as shown and described, for the purpose specified.

192,928.

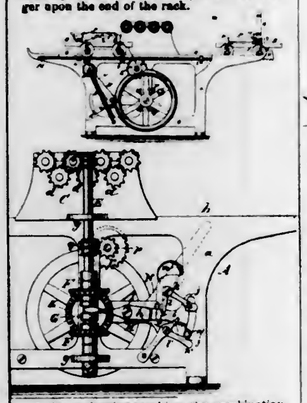


192,922. HOG HANGERS AND CARRIERS. J. Meyer, Hollowayville, Ill. [Filed May 21, 1877.]

A hog carrier and hanger consisting of a frame, A, with cross-pieces or rounds B, fixed legs C, and hinged braces D, and a top round extended at both sides of the frame for suspending the hogs therefrom, substantially in the manner and for the purpose set forth.

192,923. IRONING APPARATUS. H. Monk, Troy, N. Y. [Filed Apr. 30, 1877.]

Brief.—The machine is reversed by a double clutch, which is reciprocated by a lever having a forked end engaging with a pin upon the extremity of a bell-crank. The clutch is held in position by two weighted drop-fingers alternately engaging with a lip upon the actuating-lever, said fingers being operated by the pin which throws the forked actuating lever back and forth. The bell-crank is weighted, and is moved by the traveling troning-table, which carries a pin adapted to engage with said bell-crank at the proper moment. The rack-bar beneath the table is drawn into engagement with the actuating pinion by a stud upon the latter hooking into a bent finger upon the end of the rack.



1. In an ironing-machine, the combination of the sliding rod M having finger *t*, with the reciprocating table, the slotted and weighted elbow-lever N having pin *d*, the forked lever H, shifting-clutch, and geared shafts K and L, all as shown and described, to operate as specified.

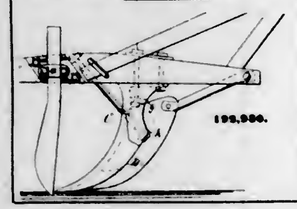
2. In an ironing machine, the combination of the table traveling beneath the ironing rolls, and provided with racks, the finger *g'*, and the gear *r* having stud *h'*, substantially as shown and described, for the purpose specified.

3. In an ironing-machine, the combination of pivoted locking-levers *l a l' a'* with the pivoted lever H, clutch-reversing mechanism, and a vibrating lever provided with an arm or pin, *d*, for engaging said lever H, substantially in the manner shown and described, for the purpose specified.

4. In an ironing-machine, the levers *k k'*, lever H, lever N, rod M having the finger *t*, in combination with the tables B and clutch G, substantially as shown and described.

5. In an ironing-machine, the board or table proper P, constructed with a recess to receive an elastic pad, as shown and described.

6. In an ironing-machine, the hinged and recessed table P, the hinged bar Q, and the table B having the aperture *i'*, ribs *p' q'*, and adjusting-screws *k*, in combination, substantially as herein shown and described.



192,930.

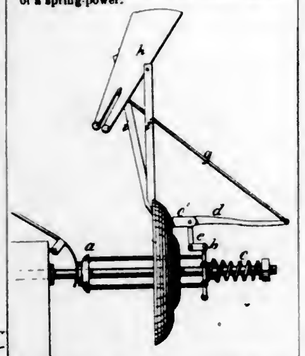
192,930. STUMP-PLOWS. W. Painter, Albion, Ill. [Filed May 5, 1877.]

Brief.—A bollow standard with a horizontal web across its cavity and a cross-bar upon its rear edges. It is cut away and shouldered to receive the mold-board. The latter has a flange extending up the land-side instead of the ordinary land side.

The standard C, having the cross-piece *g* and cross-bar *h*, and adapted to the mold-board D, substantially as shown and described.

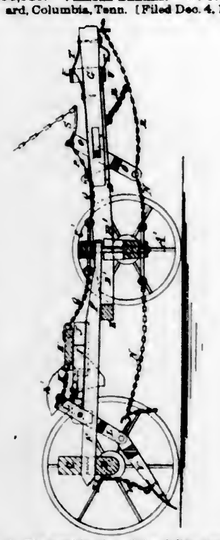
192,931. WINDMILLS. I. H. Palmer, Lodi, Wis. [Filed Jan. 3, 1877.]

Brief.—The fans that compose the wheel swing in and out of the wind on axes at right angles to radial lines drawn through their centers, and which are held in the wind by means of a spring-power.



The disk *a*, spider *b*, and connecting-rods which pass through the head, in combination with the bell-crank lever *d*, connecting rods or bars *g*, wing *h*, and spring *c*, the parts being arranged to operate as set forth.

192,932. VEHICLE-BRAKES. W. P. Pickard, Columbia, Tenn. [Filed Dec. 4, 1876.]



1. The combination of the sliding tongue G, vertical levers L O, pivoted at or near their centers, the chain K, sliding brake-beam H, chains Q, N, and P, with the wagon gearing or body, as and for the purpose set forth.

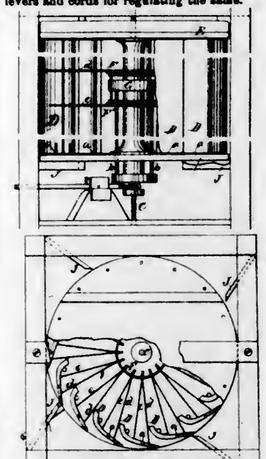
2. The combination of the movable tongue G, having the curved plates or slip-checks T, with the front bounds *D'* provided with the cross-plates U, as and for the purpose set forth.

3. The auxiliary brake-chain R, in combination with the draft-pole, front double-tree, and brake devices, as and for the purpose set forth.

4. The hinged or movable drag-bar V, and the suspension-chain W, in combination with the pivoted lever L, and rear axle B, as and for the purpose set forth.

192,933. WIND-WHEELS. Jas. P. Preston, Gold Run, Cal. [Filed Apr. 30, 1877.]

Brief.—This wheel rotates on a vertical axis, and the invention consists in the peculiar form of pivoted vanes, and in an arrangement of levers and cords for regulating the same.



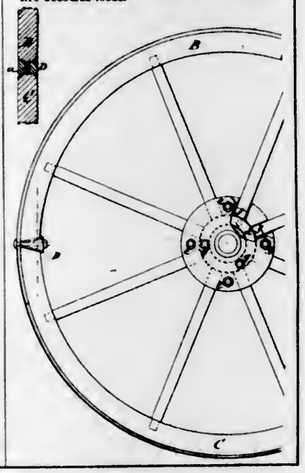
1. In a windmill, the vanes D, made self-regulating by being pivoted near their outer edges and making the narrow inside part at an angle to the main outside part, as shown and described, to allow a light wind to act with full force, and a heavy one to close the vanes more or less.

2. The fixed collars F F', having pulleys, as specified, the movable collar G, cords *d d*, and vanes D, in combination, substantially as shown and described.

3. The deflectors J, arranged to shield the reverse side of wheel and direct the wind on the vanes, as set forth.

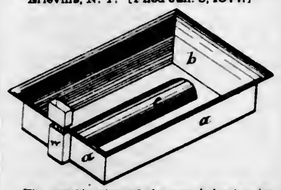
192,934. VEHICLE-WHEELS. M. J. Racer, La Grange, Tex. [Filed Dec. 18, 1876.]

Brief.—A wedge fitted between the fellies, for the purpose of expanding them when the tire becomes loose.



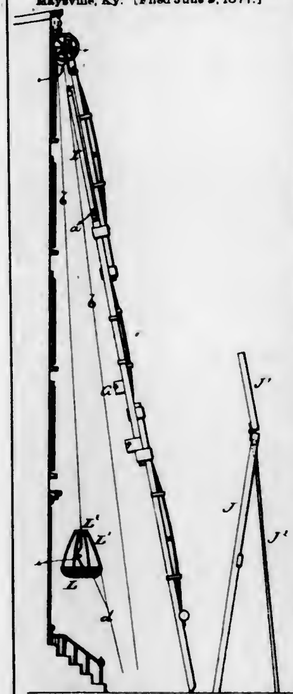
The wedge D, concaved on the sides, and fitting over convexities in the sections B C to prevent lateral displacement, as described.

192,925. MILK-COOLERS. Levi T. Reed, Brieville, N. Y. [Filed Jan. 5, 1877.]



The combination of the pan *b*, having its bottom constructed so as to form the longitudinal cavity *c*, and the vat *a*, provided with the longitudinal rib or flange *d*, constructed and arranged substantially as described and shown, for the purpose set forth.

192,926. FIRE-ESCAPES. T. K. Ricketts, Maysville, Ky. [Filed June 9, 1877.]



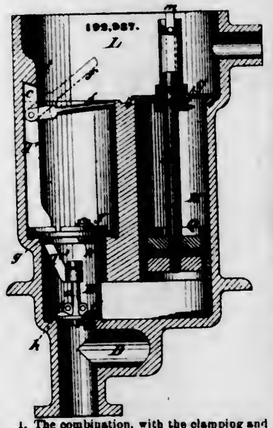
1. The round shaft I, connected to the top section of the sectional fire-escape herein described, for the purpose set forth.

2. In combination with the sectional fire-escape herein described, the elevator consisting of the frame J, hinged bar J', and pivoted shaft J², substantially as and for the purpose herein set forth.

3. The basket herein described, consisting of the bottom L, frame-work L', open on one side, the top plate L², and the bent center rod R, all constructed as and for the purposes herein set forth.

192,927. DOUBLE-ACTING PUMPS. James Robertson, Brooklyn, N. Y. [Filed June 18, 1877.]

Brief.—Two valves in line with the supply-pipe may be simultaneously withdrawn by the bars which hold them in position. Flap-valves act as puppet-valves when unduly pressed. An inverted yoke, removably set in guides, holds a valve to the top of the piston-cylinder, and, with a plate beneath, clamps the valve and a central double-flanged packing.



192,927.

1. The combination, with the clamping and lifting bar T, having the valve J and its seat attached thereto, of the lug *d* and the clamping cross-bar *f*, pivoted to the said bar T, for clamping said valve in the pump barrel, and for lifting said valve and seat out of said pump-barrel, substantially as and for the purpose specified.

2. The combination, with the lug *d*, clamping and lifting bar T, and pivoted clamping cross-bar *f*, of the lifting-bar T' and bolt *a*, attached to the valve O, for lifting said valve out of the pump-barrel, substantially as and for the purpose specified.

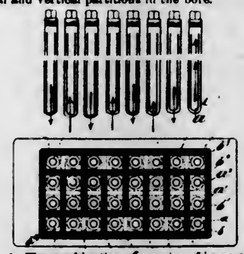
3. The combination of the yoke-guide *n*, perforated in the center of its horizontal part, having the valve S attached to it, and acting as a guide both for said valve and the piston-rod R, with the vertical guides *m*, provided inside of the head L of the pump, and fitted to the vertical parts of said yoke-guide, substantially as and for the purpose described.

4. The combination, with a pump piston-rod, and a centrally-perforated valve playing on said piston-rod, of packing applied within said valve to prevent passage of air through said valve around the piston-rod, substantially as and for the purpose set forth.

5. The combination, with a pump-barrel, of a combined flap and puppet valve or valves, substantially as and for the purpose specified.

192,928. APPARATUS FOR CIRCULATION OF FLUIDS FOR HEATING PURPOSES. Thomas F. Rowland, New York, N. Y. [Filed June 5, 1877.]

Brief.—Steam or water rises through an inner tube, descends through the space inclosed by the outer tube, and so on through the tubes in succession, being directed by the horizontal and vertical partitions in the bore.



1. The combination of a series of inner and outer tubes and partitions, substantially as described, whereby a circulating medium is forced to traverse in succession the inner and the outer tubes, as distinguished from an apparatus in which the circulating medium traverses, first, all the inner tubes, and then all the outer tubes.

2. The combination of a series of double tubes with the horizontal partitions *m*, *n*, and *o*, and the vertical partitions *r*, substantially as described.

3. The combination of the double tubes with the horizontal partitions *m*, *n*, and *o*, and the vertical partitions *p* and *q*, substantially as described.

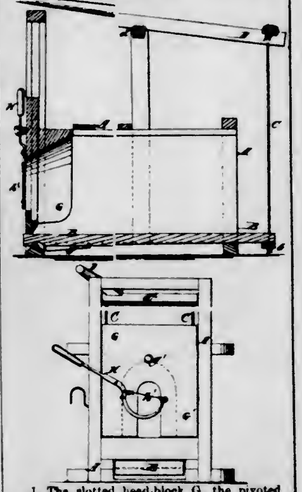
4. The combination of two or more double tubes with a series of dividing-partitions, substantially as described, whereby the circulating fluid passes first through two inner tubes, then through an outer tube, and then through an inner tube, or vice versa.

5. The combination of a compound series of double tubes with a set of dividing-partitions arranged in the same base, substantially as described, whereby the circulating medium in its passage through the apparatus is forced to traverse first a set of outer tubes, then a set of inner tubes, or vice versa, as distinguished from a circulating apparatus in which the circulating medium traverses first all the inner and then all the outer tubes, or vice versa.

6. A steam boiler or superheater consisting of a series of concentric inner and outer tubes and partitions, substantially as described, whereby the circulating medium is forced to traverse in succession each inner and each outer tube, as distinguished from an apparatus in which the circulating medium traverses first all the inner and then all the outer tubes.

7. A steam boiler or superheater, consisting of a series of sets of concentric inner and outer tubes and dividing-partitions, substantially as described, whereby the circulating medium is forced to traverse in succession each set of inner and each set of outer tubes, as distinguished from an apparatus in which the circulating medium traverses first all the inner and then all the outer tubes.

192,929. HOG-TRAPS. Charles B. Rutledge and John W. Rutledge, Shannondale, Ind. [Filed June 18, 1877.]



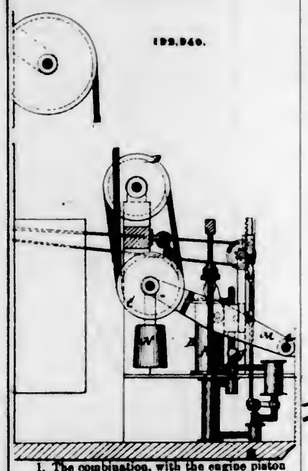
1. The slotted head-block G, the pivoted bottom board B, the cords C, the lever D, and the hook F, in combination with each other and with the box A, substantially as herein shown and described.

2. The lever H, having its forward part bent into U shape, and provided with a cord, *h'*, in combination with the slotted head-block G, substantially as herein shown and described.

192,940. GOODS AND PASSENGER ELEVATORS. Rudolph Schmidt, Yonkers, N. Y., assignor to Otis, Brothers & Co., same place. [Filed May 25, 1877.]

Brief.—The working-space of the hoisting mechanism is economized, so as to adapt said mechanism to a room of contracted dimensions and yet obtain an extended lift. Pistons actuate a beam hinged at one end, their power being applied intermediately of its two ends. A tackle device, with one end of the rope connecting with the cage, is operated by the free end of the beam.

192,940.

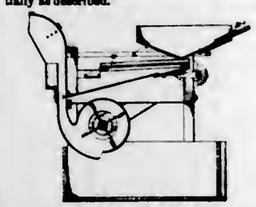


1. The combination, with the engine piston or pistons, of a lever or swinging beam actuated by said piston or pistons, and one or more movable pulleys of a tackle device carried by and swinging with the beam, substantially as and for the purpose herein set forth.

2. The combination of the movable pulley or pulleys C of the tackle device, the swinging beam M, the counter-balance N, and the piston or pistons of the engine by which said beam is operated, and the movable pulley or pulleys and counter-balance applied to the beam are raised and lowered, essentially as described.

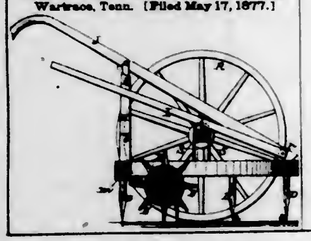
192,941. GRAIN-SEPARATORS. J. B. Smith, Shiloh, Ohio. [Filed Apr. 14, 1877.]

In a grain-clearing machine, the combination, with longitudinally-vibrating riddle and delivery-bottom, of a fan and air shaft, the parts arranged substantially as described, whereby the vibrating delivery-plate enters the air-shaft and delivers the grain in an intermittent and variable manner for the more thorough action of the blast thereon, substantially as described.



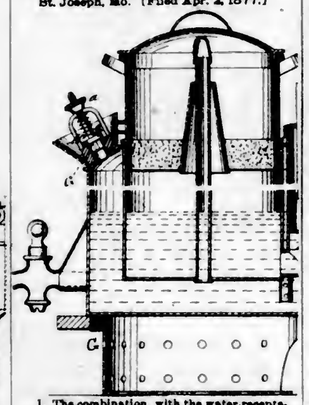
In a grain-clearing machine, the combination, with longitudinally-vibrating riddle and delivery-bottom, of a fan and air shaft, the parts arranged substantially as described, whereby the vibrating delivery-plate enters the air-shaft and delivers the grain in an intermittent and variable manner for the more thorough action of the blast thereon, substantially as described.

192,942. HARROWS. Wiley G. P. Sharp, Wartrace, Tenn. [Filed May 17, 1877.]



In a harrow, the combination of the triangular frame A, having the revolving roller G journaled in its rear end, and both provided with teeth, handles J, lever L, axle P, wheels R, slotted standards S, and standard H, both the frame and the roller being raised at the same time, substantially as shown.

192,943. COFFEE-POTS. W. H. Sherwood, St. Joseph, Mo. [Filed Apr. 2, 1877.]

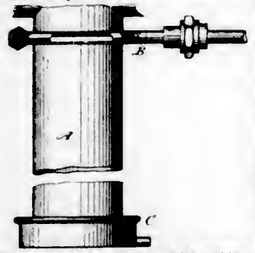


1. The combination, with the water-receptacle of a coffee pot or boiler having interior receiver, connecting-tube, dripping-cap, and strainer, of a perforated steam-supply tube extending nearly to the bottom of the pot, and provided with a detachable screw-cap, substantially in the manner and for the purpose set forth.

2. The spring-valve G', in filling-tube, opened and closed by a set-screw, a, applied to the threaded stem of valve, as shown and described, for the purpose specified.

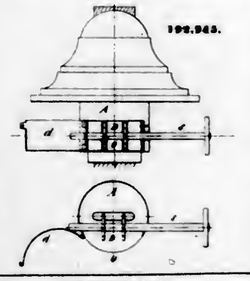
192,944. COOLING APPARATUS FOR STAND-PIPES OF GAS-RETORTS. David R. Shiras, Sharon, Pa. [Filed Apr. 23, 1877.]

Brief.—Water is sprayed upon the outside of the stand-pipe, down which it runs, and is caught by an annular cup, from which it is conducted away.



The curved perforated pipe B, in combination with the stand-pipe A, and annular trough C, as and for the purpose specified.

192,945.



192,945. LAMP-BURNERS. Wm. Silvester, Pittsburg, assignor of one-fourth of his right to R. H. Mahoffey, Allegheny city, Pa. [Filed Feb. 5, 1877.]

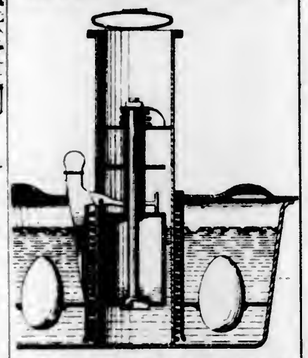
Brief.—The stem of the lamp-burner is held in its bearings by the closed door.

1. In a lamp-burner, the wick-tube having an opening whereby the adjusting device can be taken out, as described and set forth.

2. The wick-tube A, having opening e and door d, as described, and for the purpose set forth.

192,946. AUTOMATIC EGG-BOILERS. O. Smith, Bridgeton, N. J. [Filed Dec. 20, 1876.]

Brief.—A frame, holding eggs or other articles to be cooked, is depressed, against the power of certain lifting mechanism, to position to be exposed to the action of heat, and is held in this position by locking mechanism until a predetermined interval of time has elapsed, when certain timing mechanism, acting upon the locking mechanism, releases the lifting mechanism, which then raises the frame and the articles borne upon it away from the action of heat.



1. A cooking-vessel having the following combination of elements: mechanism, substantially as described, for lifting the cooking articles away from the action of heat, and timing mechanism, substantially as described, for determining the interval of time before the lifting mechanism shall act.

2. In combination with lifting and timing mechanism, substantially as described, stop mechanism, substantially as described, for arresting the movement of the lifting mechanism.

3. In combination with catch mechanism, substantially as described, for holding down the cylinder against the action of the lifting mechanism, a float, substantially as described, adapted to lock the catch mechanism, as and for the purpose set forth.

4. In combination with the lifting mechanism and the catch mechanism for holding down the cylinder, float mechanism, substantially as described, adapted for the double purpose of locking and unlocking the catch mechanism.

5. In combination with the catch mechanism, a float having a leakage-opening, as described.

6. In combination with the float having the opening d^2, the valve having the spirally-cut periphery, as described.

7. In combination with a float having a leakage-opening, adjusting mechanism, substantially as described, for varying the size of the opening.

8. In combination with the float having the central opening, the valve and its connections, adapted to cover said openings, as described.

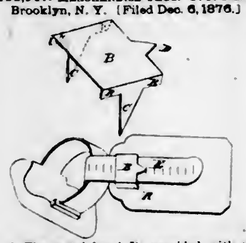
9. In combination with the float having the central openings, the valve, valve-rod, and opening, and the stop-pieces for starting the valve from its seat, substantially as described.

10. In combination with the float having the opening d^2, the valve, valve-rod, and index-finger, and the marked division-plate.

11. In combination with the spring-plate, the trip-lever and float mechanism for rotating it, substantially as described.

12. A cooking-vessel, substantially as described, adapted to expose articles to the action of heat for a predetermined period of time, and then automatically remove them from the action of the heat, as and for the purpose set forth.

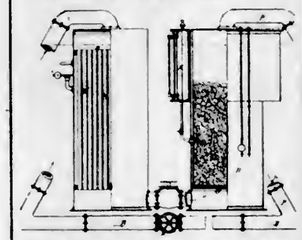
192,947. MERCHANDISE-TAGS. O. T. Smith, Brooklyn, N. Y. [Filed Dec. 6, 1876.]



1. The metal band B, provided with the prong or catch D on its front edge, and at an angle to its flat surface, the ends E E, bent at x x and at right angles to the flat surface of the band, and the attaching-clasps C C, substantially as described.

2. The perforated tongue-shaped tag, substantially as described, in combination with the metal band B, provided with the angled prong D, bent ends E E, and attaching-clasps C C, for the purposes substantially as specified.

192,948. REFINING IRON AND STEEL. S. R. Smyth and Joseph Simpson, Manchester, England. [Filed July 27, 1875.]



1. The process herein described of purifying and refining iron—that is to say, by first passing a blast of air through a mass of coke or other granulated material saturated with purifying chemical agents, and then forcing the impregnated blast into the metal in the furnace, substantially as specified.

2. The combination of the generator H, containing coke or other granulated material, a series of tanks, A' B' C', &c., each provided with a pipe for conveying the contents of the tanks into the generator, with pipes S P, for conveying the blast of air to, and discharging it in a saturated condition from, the said generator, all substantially as set forth.

192,949. FIFTH-WHEELS. S. P. Stillman, Westerly, R. I. [Filed Mar. 12, 1877.]



1. The combination of concentric bed-rails C D, top rails C' D', and center-bars E E', with a center-pivot of the reach in rear of axle, said center-bars and center-pivot being stiffened by a supporting-rod, that connects the pivot-bolt, and an extension of the upper bar E', as shown and described.

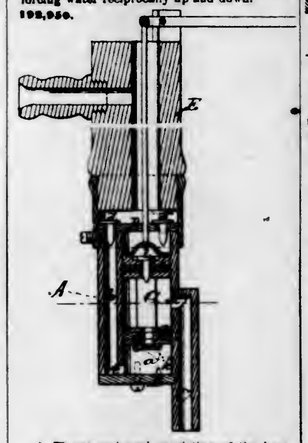
2. The bed-rail D of the axle having rigid center-bar E with projection e, in combination with the inner rail D', having interior flange e', for the purpose herein specified.

3. The combination of the inner bed-rail D, having central raised part and side cogs, with the corresponding top rail D', having toothed grooves, and with a toothed friction roller fitted thereto, substantially as and for the purpose specified.

192,950. LIFT AND FORCE PUMPS. Thomas B. Swan, Mechanics Falls, Me. [Filed June 23, 1877.]

Brief.—A pump-barrel closed at the lower end. A valve at its upper end opens upward; a feed-pipe central; a conduit valved near base, and leading to top; two pistons, valved, forcing water reciprocally up and down.

192,950.

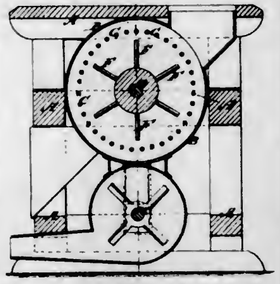


1. The pump-barrel consisting of the bore a, having opening m midway of its length, for the reception of the feed-pipe, a closed lower end, and a valve, d', in its upper end opening upward, in combination with the lateral conduit b, having at its lower end a passage, c, communicating with the lower end of said barrel, and at its upper end a valve, d, opening upward into the body E of the pump, substantially as specified.

2. The combination of the bore a of the barrel A, closed at its lower end, and provided at its upper end with a valve opening upward, a feed-pipe opening into said barrel midway of its length, and a lateral channel communicating at its lower end with said bore, and having at its upper end a valve, d, opening upward, with a piston, G, having at its lower end a valve, k, opening downward, and a valve, l, opening upward at its upper end, substantially as specified.

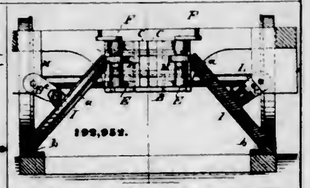
192,951. COTTON-CLEANERS. Charles O. Thomas and Thos. Robertson, Murfreesborough, Tenn. [Filed Oct. 30, 1877.]

Brief.—A long cylindrical case inclosing a circle of stationary rods, and a central revolving shaft, with projecting arms or beaters arranged spirally thereon. The cotton is passed to the action of the beaters through an opening in the circle of rods near one end, and is forced by the beaters to the opposite end of the case, where it is discharged, the seeds disengaged by the beaters falling through the grated casing into an air-blast, by which they are expelled from the machine.



The combination of cylinder B, provided with an inner circle of longitudinal rods, C, and the central rotary shaft, having spirally-arranged pins F, the latter beating the cotton against the rods, and carrying it round and round the cylinder until the discharge is reached, for the purpose specified.

192,952. APPARATUS FOR PROPELLING CARS. John B. Tibbits, Hoosick, N. Y. [Filed Apr. 30, 1877.]



192,952.

1. The horizontal wheels H, connected with the vertical track-wheels by inclined wheels I, having angular groove a and bevel b, as and for the purpose specified.

2. The inclined wheels I, supported by arms L, and driven by friction-wheels H, substantially as shown and described.

3. The combination of the ways B, slides C, ways D, supports E, spring G, and shafts F, substantially as shown and described.

192,953. VEHICLE-BODIES. Thos. Tostevin, New York, N. Y. [Filed June 29, 1877.]

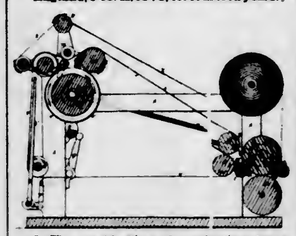


1. A body for wagons or children's carriages, composed entirely of a woven fabric, consisting of a warp of elastic steel wires, with a weft of any suitable fibrous material, said fabric being attached directly to the axles, or fifth wheel bars, without the intervention of springs, as and for the purpose set forth.

2. A wagon or carriage body composed entirely of the woven or slatted fabric described, attached to the running gear, and bent into form to compose the dash, floor, seat, and back in one continuous piece, as and for the purpose set forth.

3. A dash-board for wagons or carriages, constructed of the woven or slatted fabric described, as and for the purpose set forth.

192,954. DELIVERY APPARATUS FOR PRINTING-MACHINES. S. D. Tucker, New York, N. Y. [Filed May 4, 1874; patented in England, Feb. 11, 1873, for fourteen years.]



1. The combination of conducting-tapes which convey, separate, and accelerate the sheets, with a rotating carrier provided with mechanism adapting it to collect a number of sheets one on the other upon its surface, and with mechanism to discharge the collected sheets in a single mass or body therefrom, all substantially as described.

2. The combination, with a cutting mechanism for separating a web into sheets, of a rotating carrier whose circumference is greater than the length of the sheets, and which is provided with means for collecting a number of sheets one on the other upon its surface, and interposed carrying-tapes, whereby the sheets are separated from the web, and carried to and collected upon the delivering cylinder, with their ends separated, so as to provide a space for the movements of devices acting upon their leading edges, all substantially as described.

3. The combination, with a rotating carrier provided with means for collecting many sheets thereon, of two sets of tapes conducting the sheets thereto, one of which sets of

tapes nearly encircles said carrier, and forms a guard holding the sheets thereon, all substantially as described.

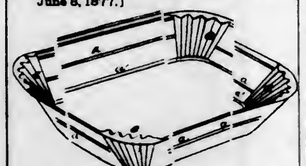
4. The combination, with the rotating carrier N, of roller P, tapes T X, and deflectors G', for delivering the sheets to and piling them upon the revolving carrier N, substantially as described.

5. The combination, with the rotating carrier N, of rollers O P, tapes T X, and switches F', for deflecting the collected sheets off from the carrier N, substantially as described.

6. The combination, with the rotating carrier N, of rollers O P, tapes T X, deflectors G', switches F', and dy-frame Y, substantially as described.

7. The combination, with the rotating carrier N and the pinion C', of the toothed cam-wheel B', bar E', and switches F', substantially as described.

192,958. BUTTER-DISHES. Cornelius Van Skelline, Brooklyn, E. D., N. Y. [Filed June 8, 1877.]



1. As a new article of manufacture, a seamless butter-dish made of one piece of metal, stiffened by radial corrugations *c c* and longitudinal corrugations *a a*, as set forth.

2. A seamless dish with radial corrugations *c c*, and having beads *a* and *a'* at either or all sides, as and for the purposes set forth.

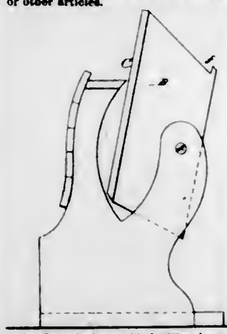
192,954. PACKING BOTTLES, &c., IN CASES. Edward Vorster, New Orleans, La. [Filed May 8, 1877.]



In a packing-case, the combination of one or more key-strips, F, with longitudinal and cross-strips, *b c* &c., as described, and for the purpose specified.

192,957. SCHOOL-DESKS. Wm. Walgrain, Charles F. Buscall, and Kate Buscall, New York, N. Y. [Filed Nov. 11, 1876.]

Brief.—The construction of the front end of the book box, set forth in the claim, forms, when the box is turned up, a rest for books or other articles.

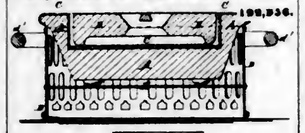


A school desk provided with a box, B, having diagonally-cut ends, top C, and rabbet *f*, substantially as shown and described, for the purpose specified.

192,958. DISH-WARMERS. J. H. Wright, New York, N. Y. [Filed June 1, 1877.]

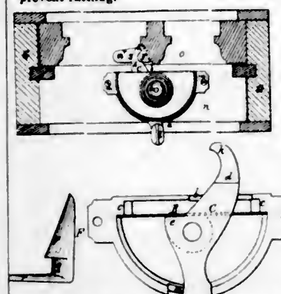
1. The papier mache block A, recessed upon the upper side, and lined with sheet metal C, to adapt it to receive and hold the heating-iron B, substantially as herein shown and described.

2. The combination of the case D, divided into two compartments by the horizontal partition E, with the papier maché block A, that receives and holds the heating-iron B, substantially as herein shown and described.



192,959. FASTENERS FOR THE MEETING-RAILS OF SASHES. John Andrews, Marlborough, Mass. [Filed Dec. 18, 1876.]

Brief.—A suitable spring, supported at its ends, and arranged in a case, is combined with a swinging hooked catch-lever extending across, and provided with a tooth or projection to bear against the spring, the lever serving to hold the spring within the case. There is also a beveled and notched catch attached, by fastening-plate, to the lower rail of the upper sash, and with which the hooked end of the swinging lever automatically engages, the catch being also provided with a suitable cam, as well as with the notch and bevel, the cam serving to draw the two sashes tightly together, to prevent rattling.

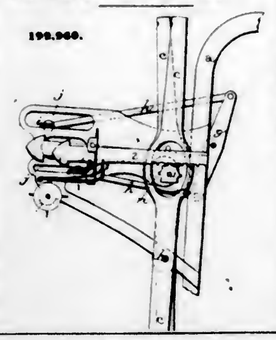


1. The spring B, supported at its ends, and arranged in the case, as described, in combination with the swinging catch-lever C, extending across such spring, and provided with the tooth or projection *a*, to operate with such spring, all being substantially as represented.

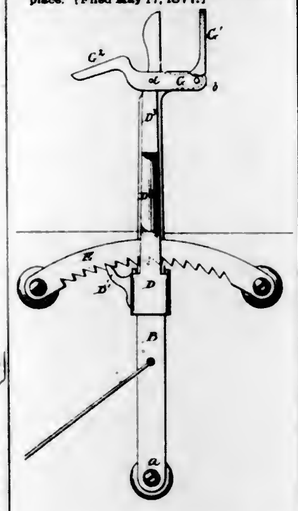
2. The catch F, provided with a notch, *q*, and bevel *p*, and arranged with or to be applied to the upper sash, as described, in combination with the swinging catch-lever C, provided with an operative spring, and applied or to be applied to the lower sash, so as to operate with such beveled and notched catch in locking the sashes, as set forth.

3. The catch F, provided with the notch *q*, cam *s*, and bevel *p*, and arranged with or to be applied to the upper sash, as described, in combination with the catch-lever C, provided with the hook *k* and an operative spring, B, and applied or to be applied to the lower sash, so as to operate with the said catch F in locking the two sashes, drawing them together, and forcing them laterally into their grooves, all substantially as set forth.

192,960.

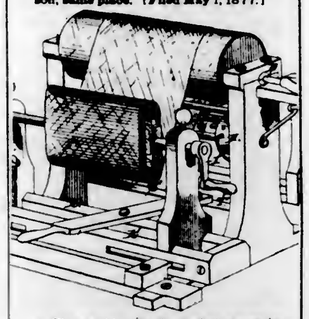


192,961. VEHICLE BRAKE-LEVERS. Edgar J. Anderson, Racine, Wis., assignor of one-half his right to Jens Jensen, same place. [Filed May 17, 1877.]



The combination of the main lever B, provided with the arm *b* and lug *d*, the ratchet E, spring C, slide D, with dog D^1, pocket D^2, and arm D^3, and the lever G, all constructed substantially as and for the purposes herein set forth.

192,962. CLOTH-MEASURING MACHINES. George P. Baker, East Aurora, N. Y., assignor of one-half his right to S. B. Thomson, same place. [Filed May 1, 1877.]



1. The combination, in a cloth-measuring machine, of a movable bed provided with puppets, having centers for supporting the winding-board of the cloth with a lever for the purpose of enabling the operator to wind the cloth truly upon said board, substantially as set forth.

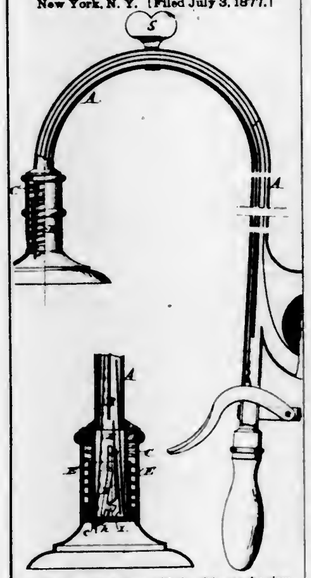
2. In combination with the mandrel S and its chuck, the cam on its rear end, and spring-bearing against the same to regulate the draft of the cloth, substantially as set forth.

3. The spring I, secured at one end to the supporting standard of the winding-drum, and having its free end bent and adapted to engage with one of the disks H carrying the parallel rods G, the whole being constructed and combined substantially as and for the purpose described.

192,963. MANUFACTURE OF CHEESE. Chas. Belts, Chicago, Ill., and John Prindle and Stephen W. Prindle, Sharon, Wis. [Filed June 14, 1877.]

The process herein described of treating the whey, consisting of subjecting the whey to slow heat and boiling until reduced to the consistency of sirup, again subjecting it to slow heat, adding fresh sweet milk, and boiling down until it forms cakes when cold, substantially as described.

192,964. PORTABLE PERCUSSION-TORCHES FOR LIGHTING GAS. W. W. Batchelder, New York, N. Y. [Filed July 3, 1877.]



1. A gas-torch provided with mechanism operated automatically to withdraw the tape or primer from the magazine, and feed and ignite the same by the reaction of a spring operated by means of a cord, wire, or chain extending down the interior of the tube of the torch to an operating-lever, substantially as and for the purposes described.

2. A gas-torch having the magazine located upon the same side of the head as the handle thereof, whereby all injury to the globe or shade is avoided in the use of the instrument, and all danger of the magazine becoming heated and the contents ignited is obviated, substantially as set forth.

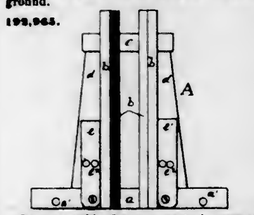
3. The combination, in a gas-torch, of the tubular extension C and tubular section E, riding thereon and operated by means of a spring, and a chain, cord, or wire extending to a lever near the handle, with the springs H and I and tumbler K, whereby the tape or primer is withdrawn from the magazine and fed forward and ignited, substantially as set forth.

4. In combination with the tube A, the longitudinal partition therein dividing the same into two compartments for the passage of the operating-wire and the tape or primer, and forming a flat guide for the latter, substantially as set forth.

192,965. PORTABLE FENCE-POSTS. Stephen R. Beam, Bedford, Mich. [Filed June 8, 1877.]

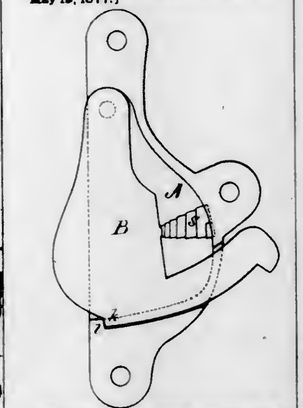
Brief.—Adjusting-arms are pivoted to the front side of the sill, and are made adjustable, so that the post is thereby adapted to sloping ground.

192,965.



In a portable fence, a post, A, composed of the sill *a*, having pin-holes *a'*, vertical bars *b*, and cross-bar *c*, braces *d*, having pin-holes d^1, and pivoted arms $e e^1$, having one or more pin-holes, e^2, substantially as and for the purpose set forth.

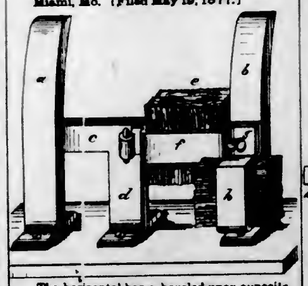
192,966. LATCHES FOR GATES AND DOORS. Anson L. Beardsley, Fairport, N. Y. [Filed May 19, 1877.]



1. The combination, with the concave sheath A, open at the side, of the swinging latch B, swelling out from the margin of the side opening, substantially as specified.

2. The combination, with the notched and concave sheath A, of the swinging latch B, having the handle *h* and the spring *s*, substantially as specified.

192,967. BOOT-CLEANERS. Daniel F. Bell, Miami, Mo. [Filed May 19, 1877.]



The horizontal bar *c*, beveled upon opposite sides to form a scraper, and carved to form the bearing for a brush, *e*, in combination with the strap *f* and strap *h*, that secures the brush *k*, the loop *i*, thumb-screw *g*, and standards *a b d*, all the parts being constructed and arranged in the manner and for the purpose shown and described.

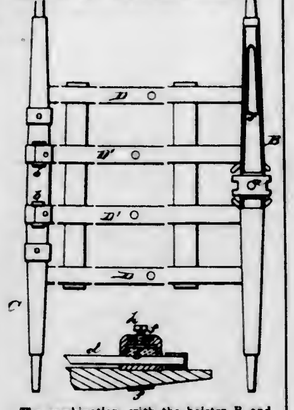
192,968. POSTAGE OR REVENUE STAMPS. William W. Bierce, Memphis, Tenn., assignor of one-half of his right to John C. Spencer, New York city. [Filed June 26, 1876; patented in Canada, Oct. 30, 1876; patented in England, Oct. 26, 1876; patented in France, Jan. 8, 1877.]

192,968.



A postage-stamp a portion of the face of which is raised above the contiguous parts thereof, and is surrounded with perforations, substantially as and for the purpose described.

192,969. VEHICLE-SPRINGS. A. B. Bishop, Medina, Ohio. [Filed Apr. 14, 1877.]



The combination, with the bolster B and rear axle C, of the two center springs D' D', attached to the under sides thereof, the two side springs D D, attached to the rods *d d* on top of the bolster and rear axle, the boxes *e e*, set-screws *h h*, and rubbers *i i*, substantially as shown and described.

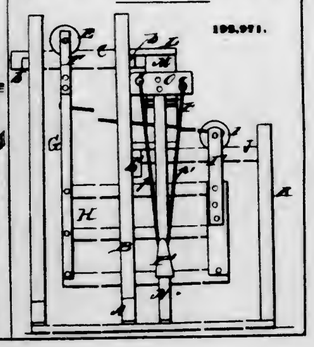
192,970. STAYS FOR HOOPS. B. L. Bitting, Rural Hall, N. C. [Filed June 14, 1877.]

Brief.—A strip of sheet metal having its lower end made sharp or pointed, to be driven into the side of the cask. The upper end is bent to form a prop to keep the hoops in position.



A metallic strip, *a*, having one or more points on its lower end, a shoulder to support the hoop, and a turned-over edge at the top, the strip being adjustable upon the side of the pail, all substantially as shown and described.

192,971.

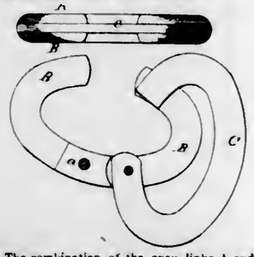


192,971. GATES. Jonathan Bundy, Centredale, Iowa. [Filed Feb. 3, 1877.]

1. The combination of sliding gate H with drum M, perforated guide-boards O O, cord P, and weights P' P', as specified.

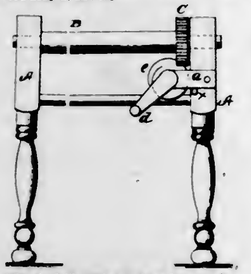
2. The combination of sliding gate H with guide-bars C and J, grooved rollers E and I, vertical guide-rollers K K, and an operating cord or cords, substantially as and for the purpose set forth.

192,972. LAP-LINKS. Luther B. Burdin, Paris, Ky. [Filed May 17, 1877.]



The combination of the open links A and B, connected by a central block, *c*, riveted between them, and the link C, open on the reverse side, pivoted between the links A B, all constructed substantially as and for the purposes herein set forth.

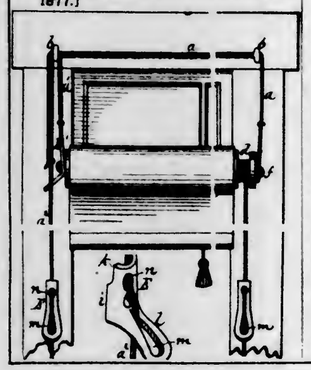
192,973. QUILTING-FRAMES. Roswell W. Burk, Battle Creek, assignor to himself and Eugene Darlington, Penfield, Mich. [Filed May 3, 1877.]



1. The shaft D, with its threads *e e*, when one end of said shaft has a movable and adjustable bearing, as and for the purpose set forth.

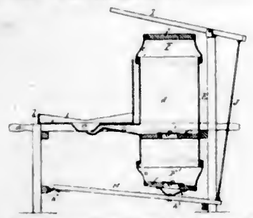
2. The combination, with the frame A of a quilting frame, of the rollers B B, having pinions C C, the shaft D, with its worm-threads *e e*, and the adjustable bearing *a*, substantially as and for the purposes herein set forth.

192,974. CURTAIN-CORD TIGHTENERS. E. C. Byam, Rochester, N. Y. [Filed Apr. 9, 1877.]



In a curtain fixture sustained by cords *a a'* *a²*, the angular holder E, constructed at its top with the notched offset *k*, with a semicircular opening in the back to admit the cord, a hole, *n*, to allow the cord to pass outward, and a wedge-shaped slot, *m*, in the lower projecting portion, with its angular end standing upward to allow the cord to pass downward through the same, the whole arranged as set forth, so that the cord forms a friction-loop on the outside of the holder and engages with the slot by its own weight, as shown and described, and for the purpose specified.

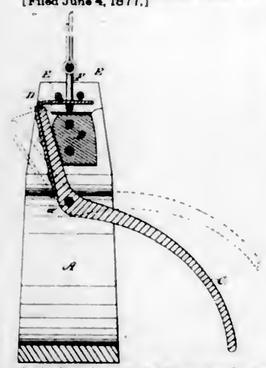
192,975. PORTABLE FORGES. William E. Canedy and Frank Larson, Rochester, Minn. [Filed Apr. 21, 1877.]



1. The combination, with the bellows E, having a cylindrical body portion, *d*, valved diaphragm G, and the upper flexible cap F, and the lower flexible cap F', of the lever H, connecting-rod J, the vertically and horizontally vibrating lever I, arranged over and operating to depress at each descent the upper flexible cap F, the conduit *h*, and the hearth of the forge, substantially as specified.

2. The bellows having a rigid center and flexible caps at each end of said central portion, and the vertically-vibrating levers H I, the latter arranged over and operating to depress at each descent the upper flexible cap, connected by a rod, J, combined substantially as specified.

192,976. SAFETY-STIRRUPS. William B. Conway, Blacksburg, Va., assignor of one-half his right to G. D. Thomas, same place. [Filed June 4, 1877.]



1. A pivoted toe protector or guard, combined with and extending downwardly and in front of a stirrup, and adapted to be deflected by the foot to disconnect the stirrup from the strap, substantially as described.

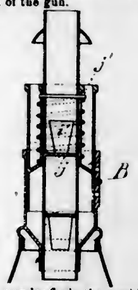
2. The toe protector or guard C, pivoted to the stirrup, and provided with a hooked extension upon its upper end, in combination with the stirrup having the rods E E, and the stirrup-strap having a loop, substantially as described.

3. The combination of the stirrup A, having connecting-bar B and rods E E, the pivoted toe protector or guard having a hooked spring-plate, D, and the stirrup-strap having a loop, F, substantially as and for the purpose described.

192,977. POWDER-FLASKS. Jacob Covode, Hiawatha, Kans. [Filed May 19, 1877.]

Brief.—When the flask is turned upside down, the powder runs through the end of the movable tube, and through the opening into the charge-chamber surrounding the tube. The end of the movable tube is then placed into the muzzle of the gun, and, by bearing down on the flask, the tube is pushed in, and the powder then runs out of the chamber, through the other opening of the tube, into the barrel of the gun.

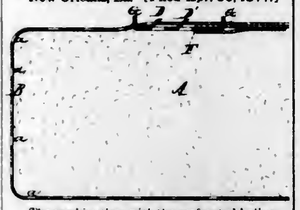
192,977.



1. In a powder-flask, the combination, with the central sliding tube, having the end inlet and side openings shown, of the adjustable-neck cylinder, forming the top of the charge-chamber, and its annular spring-seat chamber surrounding said central tube, and the encircling spring seated therein, substantially as specified.

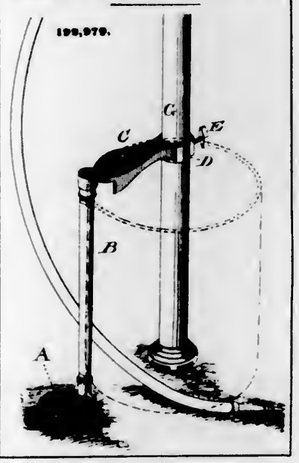
2. The charging device consisting of a diaphragmed tube open at its extreme end, and having openings above and below the diaphragm, and provided with a spring encircling its body at or near the top, the same being secured by means of pin *j'*, said pin extending diametrically across the tube, its ends bearing on slots, in combination with the flask A and collar B, substantially as specified.

192,978. BALE-TIES. Richard De Gray, New Orleans, La. [Filed Apr. 30, 1877.]



The combination, with the perforated baling-band, of the buckle having teeth, as at D D', and slotted flanges, as at G G, through which the band is passed and afterward turned over flush with its top surface, substantially as described.

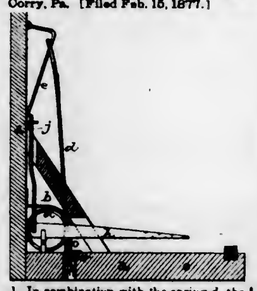
192,979.



192,979. PORTABLE PUMPS. Joseph W. Douglas, Middletown, Conn., assignor to W. and B. Douglas, same place. [Filed June 13, 1877.]

The combination of the foot-piece A with rigid post B, and the arm C, projecting rigidly from the post, and provided with a clamp to form the stirrup in which the pump cylinder may be adjusted up and down, substantially as herein set forth.

192,980. ANIMAL-TRAPS. Sidney Earle, Corry, Pa. [Filed Feb. 15, 1877.]



1. In combination with the spring *d*, the L-shaped latch *e* and trigger *j*, arranged to operate substantially as shown and described.

2. The combination of the set-screw *c*, spear *h*, trigger *j*, and latch *e*, substantially as set forth.

192,981. RAILWAYS. Edouard Frere, Antwerp, Belgium. [Filed Oct. 6, 1876.]



A railroad track consisting of consecutive blocks of stone embedded in the ground with the top surfaces of the straight and inside tracks of the curves grooved with longitudinal grooves, and the outside tracks of the curves level, and the blocks at the junction of every switch capped with metal, substantially as described.

192,982. WINDOW-SCREENS. F. A. Gilbert, New Haven, Conn. [Filed May 7, 1877.]

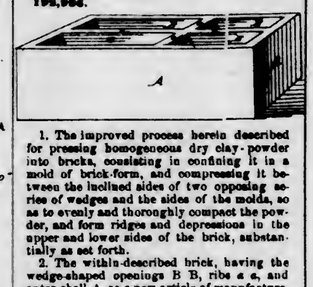


The herein-described spring or holder for window-screens, consisting of the body E, one end, *f*, turned inward as a means for securing the spring, the upper edge *h* turned outward to form the locking-projection, and the finger-piece *i*, all constructed from a single piece of sheet metal, substantially as described.

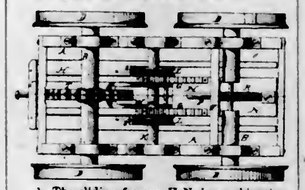
192,983. BOXES. Erwin G. Gollner, New York, N. Y. [Filed Apr. 25, 1877.]

As a new article of manufacture, a packing box, A, of quadrantal form, having one of its flat sides, D, hinged at *a*, and provided with the curved flange D', attached at its broad ends to the sides D'' D'' to strengthen the structure and retain the contents, the cover D being curved or cut away to fit closely against the edge of said flange, substantially as and for the purpose described.

192,984.



192,984. CAR-STARTERS. Samuel Graham, Freeport, Ill. [Filed June 7, 1877.]

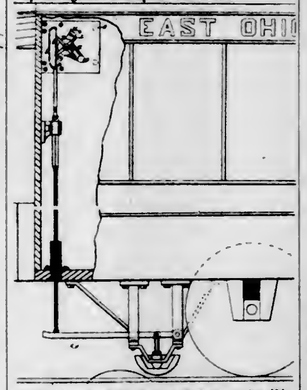


1. The sliding frames H N, in combination with the grooved wheels L, ropes or chains S, pinions M, teeth G, ratchet T, and pawl W, substantially as set forth.

2. The sliding frame N, provided with bar P, spring R, and teeth G, in combination with the frame H, wheels L, ropes S, pinions M, ratchet T, and pawl W, substantially as specified.

192,985. STATION-INDICATORS. James W. Graydon, Indianapolis, Ind., assignor to M. B. Graydon, same place. [Filed June 23, 1877.]

Brief.—The indicating-belt is moved by a rod extending below the car, which strikes an operating-arm or stop near the track.



1. In a street or station indicator, the sliding rod and the jointed pusher or extension, the grooves and tappet chain-wheel for operating the apron, substantially as specified.

2. In a street or station indicator, the pivoted slotted bar, the chain-wheel mounted on a journal attached thereto, a device for securing the slotted end of the bar, a chain and pulley, the rolls C and apron attached thereto, as specified.

192,986. MANUFACTURE OF BRICKS. Jacob Greenawalt, Pittsburg, and J. C. Anderson, Allegheny, Pa. [Filed May 19, 1877.]

Brief.—The clay, having been deprived of moisture, is compacted into the form of brick by means of wedge-shaped plungers, operating from its opposite sides, thereby forming a light brick of net-work form.

192,986.

1. The improved process herein described for pressing homogeneous dry clay-powder into bricks, consisting in confining it in a mold of brick-form, and compressing it between the inclined sides of two opposing series of wedges and the sides of the molds, so as to evenly and thoroughly compact the powder, and form ridges and depressions in the upper and lower sides of the brick, substantially as set forth.

2. The within-described brick, having the wedge-shaped openings B B, ribs *a a*, and outer shell A, as a new article of manufacture, substantially as described.

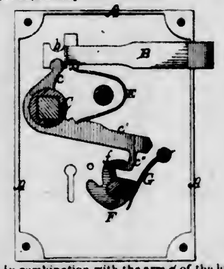
192,987. SCOOPS. W. J. Griffiths, Brooklyn, N. Y. [Filed Feb. 14, 1877.]



1. In combination with the handle and hemispherical head of a sheet-metal scoop, the cylindrical body A, made from a single piece of sheet metal, corrugated throughout its longitudinal and cylindrical surface, as and for the purpose herein shown and described.

2. A sheet-metal scoop having a cylindrical part made from a single piece of metal corrugated throughout its longitudinal and cylindrical surface, said cylindrical corrugated scoop body being cut off in front in an oblique direction, and on its edge with an iron or steel strip, and provided at its rear with a hemispherical head, to which is secured the handle, substantially as herein shown and described.

192,988. LOCKING-LATCHES. John Haptonstall, Perry, Iowa, assignor to himself, G. Harlan, and P. C. Bude, same place. [Filed Apr. 18, 1877.]



1. In combination with the arm *e'* of the hub C, having the hooked lug *e''* near its outer end, the dog F, pivoted within the casing A, and provided with a hooked arm, *f*, which may be caused to engage with or be released from said lug *e''*, and the spring G, arranged to bear against and hold in position said dog, substantially as and for the purpose shown.

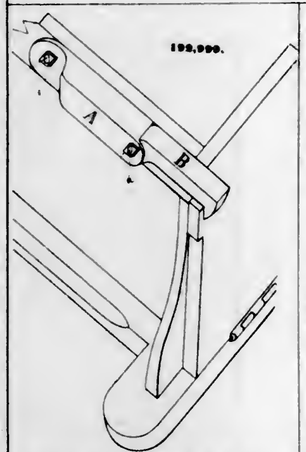
2. The spring-latch described, in which the latch B *b*, hub C, having the arms *e e'* and hooked lug *e''*, the spring E, the dog F, provided with the hooked arm *f*, and the spring G, are constructed and combined to operate in the manner and for the purpose set forth.

192,989. WAGON END-GATE CATCHES. F. A. Havens, Wethersfield, Conn., assignor of one-half his right to S. A. Castle, same place. [Filed Feb. 6, 1877.]

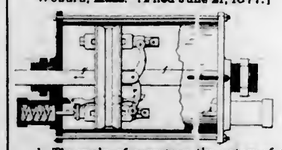
1. The spring and latch case A, recessed as herein described, and adapted to be used upon either side of a wagon, substantially as and for the purposes set forth.

2. In combination with case A, having recess *a'*, the pivoted latch B, and spring C, constructed and combined substantially as and for the purposes set forth.

192,990.



192,990. WATER-METERS. H. B. Hayes, Woburn, Mass. [Filed June 21, 1877.]



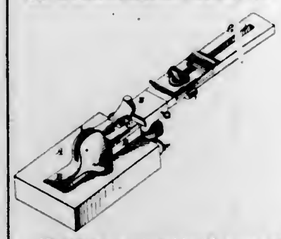
1. The mode of operating the valves of a reciprocating piston by power generated from the traveling piston, and stored, and suddenly and automatically released by the movement of the piston, as specified.

2. The combination, with the valves carried by the piston reciprocating in a cylinder, of a spring or its equivalent, in which power is stored by the movement of the piston and devices for suddenly releasing the spring and transmitting the power to the valves, substantially as set forth.

3. The combination of the piston, its valves, and latches for holding the same, devices for operating said latches and releasing the valves at the ends of the stroke, and springs, weights, or equivalent devices, in which power is accumulated by the movement of the piston, arranged to operate the valves when released, as specified.

192,991. SAW-SETS. C. Heinen, Leavenworth, Kans. [Filed Mar. 13, 1877.]

Brief.—The frame G is detached when the teeth of narrow-bladed saws are to be set.



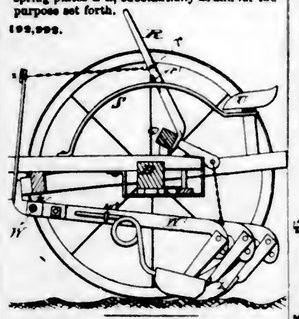
The hinged or pivoted leaf E, having the detachable slotted support or frame G, provided with the gage or clamp H I, in combination with the support A, having the hammer or lever C and spring *c'*, all constructed and arranged as described, substantially as and for the purpose set forth.

192,992. CULTIVATORS. Saml. N. Hench, Ickesburg, assignor of one-half his right to Walker A. Dromgold, Patterson, Pa. [Filed Mar. 10, 1877.]

1. The combination of pivoted adjusting-lever R, having diagonally-opposite lips *r r'*, with locking-plate S, having notch *s* and reversed notches *s'*, whereby said lever is adapted to raise the cultivator-teeth out of engagement with the ground, or to adjust them to any depth required, substantially as and for the purpose set forth.

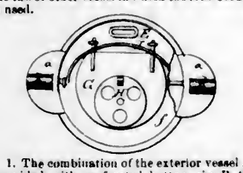
2. The combination of drag bars W¹ with pivot-rod W, supplemental drag-bar Y, and spring-plates Z Z, substantially as and for the purpose set forth.

192,993.



192,993. AGRICULTURAL BOILERS. Henry Henley, Bloomington, Ind. [Filed Mar. 23, 1877.]

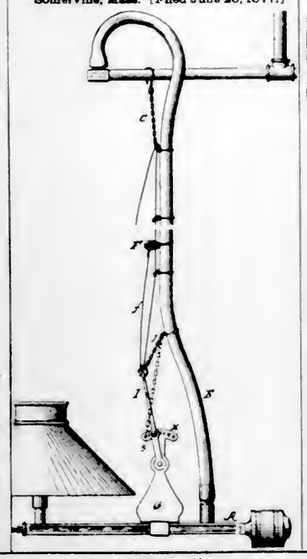
Brief.—The U-clamps fit over the edges of the tub or other vessel in which the feed-cooker is used.



1. The combination of the exterior vessel A, provided with perforated bottom rim B, the fire-box C, grate D, with connecting-rods *d* and feet *e*, top rim *f*, with smoke-pipe E, and the lid G with register H, all substantially as and for the purposes herein set forth.

2. The rods J and U-shaped clamps L, in combination with the cooker A, having sockets *b* and fire-box C, substantially as and for the purposes herein set forth.

192,994. DROP-LIGHTS. C. Henry, East Somerville, Mass. [Filed June 20, 1877.]



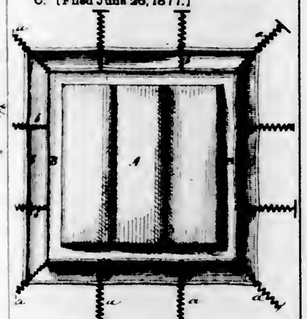
1. In a drop-light, the combination of the adjusting sliding frame G, with the bar A, by which the different weights of burners and shades may be balanced, substantially as herein described.

2. In a drop-light, the bar A and sliding frame G, provided with the cross-head H, in combination with the pivoted arm I, substantially as and for the purpose set forth.

3. In a drop-light, the bar A and sliding frame G, provided with the cross-head H, in combination with the cord or chain J and flexible support E, substantially as and for the purpose set forth.

4. The sliding frame G and pivoted arm I, in combination with cord or chain *f*, clasp F, and flexible support E, for raising or lowering the light, substantially as herein set forth.

192,995. FIRE-ESCAPES. C. Henry, East Somerville, Mass., assignor of one-half his right to A. H. Evans, Washington, D. C. [Filed June 26, 1877.]

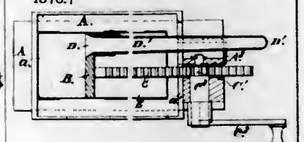


1. The fire-escape herein described, consisting of the mattress A, sheets B C, and springs *a b*, substantially as and for the purpose set forth.

2. The mattress A and sheet B, in combination with the spring *b*, substantially as and for the purpose set forth.

3. The sheets B C, in combination with the springs *b*, and spring-handles *a*, substantially as and for the purpose set forth.

192,996. SAUSAGE-STUFFERS. I. W. Heysinger, Philadelphia, Pa. [Filed Oct. 30, 1876.]



1. A sausage-stuffer provided with a cylinder and piston, arranged to deliver the material to the rear, alongside the piston-rod, substantially as described.

2. In combination with the cylinder E, the plunger B, provided with a delivery-tube, D, therein, substantially as and for the purpose set forth.

3. In combination with the trough A, the removable cylinder E, the plunger B, the piston-rod C, and the back-action delivery-tube D', the whole arranged to operate substantially as and for the purpose described.

4. In combination with the plunger B, provided with the delivery-tube D D', the imperforate plain meat-cylinder E, the same being removable, and provided with a handle, *e*, for the removal of the same, substantially as described.

5. In combination with the horizontal bed-trough A, concave for the reception of the cylinder E', the said perforated cylinder E' constructed to rest by its own gravity within the same, and provided with the screen or cover E², which closes the trough A from above when the cylinder E' is in place, together with the discharge-nozzle A² and the piston B, the whole constructed to operate substantially as and for the purpose above described.

6. The combination of the trough A, provided with removable cylinders E E', the plunger B, provided with the delivery-tube D D', the rack C, pinion C', and handle *c²*, the whole constructed to operate substantially as and for the purpose described.

192,997. COMBINED SOAP AND SHAVING BOX. Anton Hopfen, New York, N. Y. [Filed May 21, 1877.]



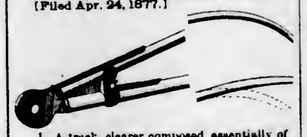
1. A combined soap and shaving box, composed of the body A, perforated lid B, and perforated bottom C with sliding rim D, substantially as herein set forth.

2. The centrally-located foot or pedestal E, formed on the under side of the perforated bottom C, substantially as and for the purposes herein set forth.

3. The rack G and strips H, in combination with the box having perforated lid and bottom, for the purposes herein set forth.

4. The pad I, in combination with the perforated bottom C of the combined soap and shaving box, for the purposes herein set forth.

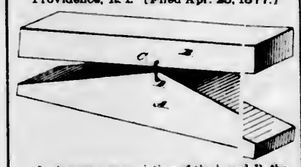
192,998. TRACK-CLEARERS FOR HARVESTERS. H. L. Hopkins, Manchester, Iowa. [Filed Apr. 24, 1877.]



1. A track-clearer composed essentially of two prongs, both adjustably connected so that their curved ends can be thrown toward and from each other, and means for holding the prongs rigidly in any desired position, substantially as and for the purpose specified.

2. The combination, substantially as specified, of the track-clearer iron, provided with sockets, the curved prongs adjustably seated in said sockets, and the clamping-plate, and bolt and nut.

192,999. CASTANETS. William Hutchings, Providence, R. I. [Filed Apr. 23, 1877.]



1. A castanet consisting of the board B, the finger-piece A, made triangular, as shown, and the axle-loop C, all constructed and arranged to operate substantially as described.

2. In a castanet or like instrument, the triangular piece A, of wood or other suitable material, substantially as and for the purposes set forth.

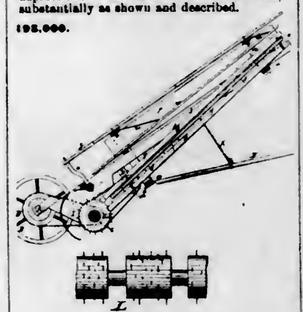
193,000. HAY RAKE AND LOADER. Wm. Ingledue, Marshalltown, Iowa. [Filed May 21, 1877.]

1. The axle A, provided with wheels B, pawls F, ratchets E, and hand-wheel D, in combination with the wheel S, picker-roller L having depressions, and arms Y, substantially as set forth.

2. A horizontal picker-roller, I, provided with depressions, in combination with the wheel m, crank-shafts *d e*, and arms Y, substantially as specified.

3. The shafts *d e* and arms Y, in combination with the picker-roller I, provided with depressions to receive the ends of the arms, substantially as shown and described.

193,000.



193,001. TOY NOAH'S ARKS. G. H. Ireland, Springfield, Mass. [Filed Dec. 18, 1876.]

Brief.—Is two-storied, and the lower story has a window and movable panorama combined therewith.

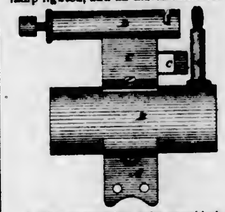


1. The combination, with a toy ark, substantially as described, of the partition-floor D, rollers F F, panorama E, door G, and transparent plate H.

2. The combination, with a toy ark, of the ring J, string M, and dove L, for the purpose substantially as described.

193,002. BURGLAR-ALARMS. John Israel, Lancaster, Ohio. [Filed June 26, 1877.]

Brief.—The act of opening a door or window to which the alarm is attached releases the spring-plunger, by which a cap is exploded, a lamp lighted, and an alarm sounded.

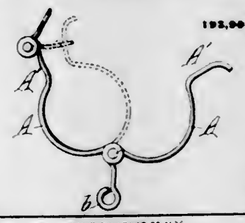


1. The percussion-tube provided with the wafer-slot and concavity, substantially as described.

2. The combination of the percussion-tube, its screw-cap having annular notch *n'*, and the spring-plunger having the hook-notch *n*, substantially as described.

3. The improved percussion device, having the wafer-slot, the concavity, the spring-plunger, the screw-cap, and provided with a screw or standard, substantially as described.

193,003.

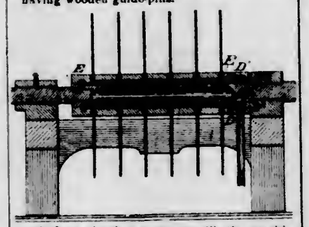


193,003. BAG-FASTENINGS. T. B. Jackson, New Wilmington, Pa. [Filed Apr. 30, 1877.]

In combination with the curved bars A A of a bag-fastener, the handle or lever *b*, having an eye or loop, and the pivot thereof forming the hinge between said bars, substantially as and for the purpose set forth.

193,004. CIRCULAR-SAW MILLS. Orrin L. Jenks, Port Huron, Mich., assignor to himself and Wm. S. Jenks, same place. [Filed Sept. 22, 1876.]

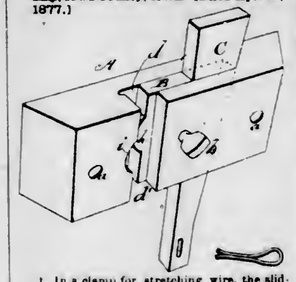
Brief.—Water is introduced through a journal-box into grooves in the gage-collars and saws, and then distributed upon the surfaces of the saws near the center in a thin film. The relative spaces between the saws are adjusted and the saws prevented from buckling by means of pivoted and laterally-adjustable arms having wooden guide-pins.



1. In a circular-gang-saw mill, the combination, with the saw-arbor B and the grooved passages *c*, of the water-box D, having an opening for a water-pipe, and the collar E, provided with openings *d*, substantially as described and shown.

2. In combination with the adjustable guide-bars G, the guide-rod K and nuts L, substantially as and for the purposes set forth.

193,005. FENCE-WIRE STRETCHERS. W. W. S. Kime, Victor, assignor of one-half his right to M. R. Kime, Dayton Township, Iowa County, Iowa. [Filed Apr. 21, 1877.]



1. In a clamp for stretching wire, the sliding key-block B, provided with a rounded projection, A, in combination with a wedge-key, and the clamp-body, having the concave recess *i*, substantially as and for the purpose set forth.

2. The combination of the clamp A, having mortise *d* and grooves *d'*, and applied to a lever, as described, the sliding key-block B and wedge-key C, substantially as and for the purpose described.

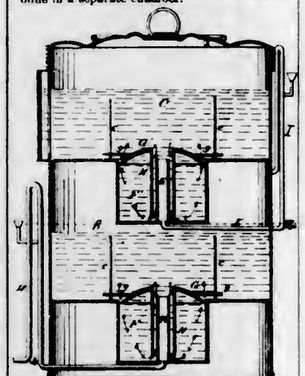
193,006. STREET-SIGNS. P. A. La France, Elmira, N. Y., assignor of one-half his right to Alex. H. Baldwin, same place. [Filed Jan. 23, 1877.]



Signs for street-lamps, combining in their construction frames with parallel U-formed sides of flexible sheet metal and stemmed letters or figures, inserted and held in place by pinching the frames on each side of the stems, substantially as set forth.

198,007. APPARATUS FOR CARBURETING AIR. Geo. W. Lamb, Westonburg, Ky. [Filed July 3, 1877.]

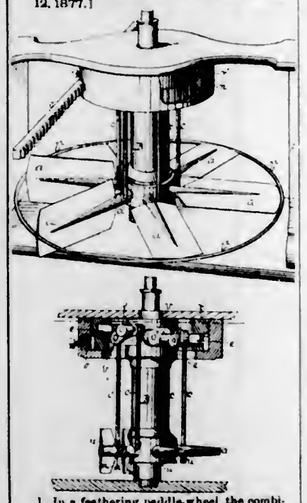
Brief.—Air is first forced through a mixture of petroleum and water, and then through gasoline in a separate chamber.



1. The combination, in a gas-generating apparatus, of the pipe and well chambers E F and concave cap or float G with its tube H, arranged and operating substantially in the manner specified.

2. The combination, with the carbureting-chambers B C, of the pipes D I E E', well-chambers F F', caps or floats G G', with their tubes H H', the several parts constructed and relatively arranged substantially as herein shown and described.

198,008. FEATHERING PADDLE-WHEELS. D. Lindsay, Pittsburg, Pa. [Filed June 12, 1877.]

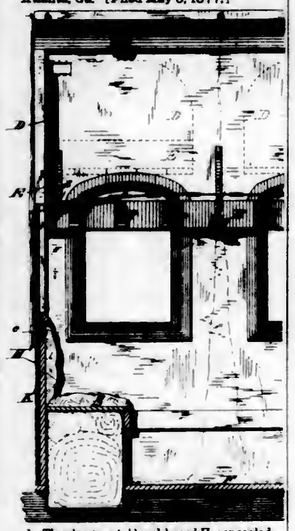


1. In a feathering paddle-wheel, the combination of shaft B, a series of continuously-rotating paddles pivoted thereon, rods c, wrists e, and cam r, substantially as set forth.

2. The combination of adjustable ring r', having a cam-groove, r, therein, wrists e, rods c, paddles a, and shaft B, substantially as described.

3. The combination of rack-bar o, geared cam-ring r', wrists e, rods c, paddles a, and shaft B, substantially as set forth.

198,009. SLEEPING-CARS. C. B. Lucas, Atlanta, Ga. [Filed May 5, 1877.]



1. The sheet-metal head-board H, concealed, when the car is used for day travel, between the abutting seat-backs, and turned up edgewise on its pivot, so as to form a separating-partition between the lower berths, when the car is used as a sleeper, all as described.

2. The combination and arrangement of the head-board H, pivot e, latch c, and recess K, all in the manner and for the purpose set forth.

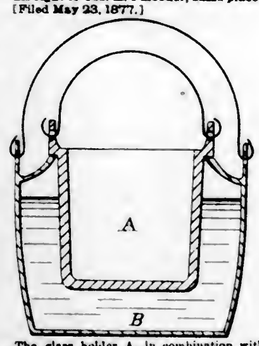
3. The sheet-metal upper berth B, provided with the spring-bottom M and recesses R, and hung and supported in the manner specified.

4. The folding berth B, consisting of a sheet-metal tray removably hinged to the wall of the car, substantially as described.

5. The hinged folding metallic head-boards D, for separating the upper berths, and provided with the folding flaps E, hinged to their lower edges, in the manner and for the purpose stated.

6. An upper berth provided on its outer or lower side with recesses corresponding in shape with the tops of the car-windows, for the purpose of permitting the unobstructed admission of light through that part of the windows, all as described.

198,010. GLUE-POT KETTLES. J. F. Lucas, Washington, D. C., assignor of one-half his right to Jos. H. Falconer, same place. [Filed May 23, 1877.]



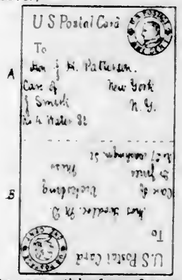
The glass holder A, in combination with the kettle B, substantially as and for the purposes set forth.

198,011. BILLIARD-CUSHIONS. J. S. Mansur, Brownsville, Tex. [Filed May 5, 1877.]



A rubber cushion, B, attached to a frame, C, and covered by a cloth, D, and adapted to be attached to and detached from an ordinary table, substantially as herein set forth.

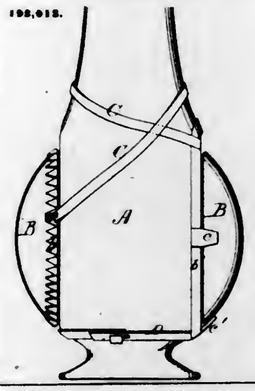
198,012. POSTAL CARDS. C. K. Marshall, Vicksburg, Miss., assignor of one-fourth of his right to N. H. Harris. [Filed Jan. 20, 1876.]



1. As a new article of manufacture, a single unfolded or unfoldable postal card, consisting of the sections A B C D and the duplicate stamps, whereby an inquiry can be made and an answer returned, simply employing a single card, substantially as described.

2. A section of a single postal card constructed with a writing-surface to receive the address and the written inquiry of the person sending it, and a stamp for paying the postage, in combination with a duplicate section of said postal card, which duplicate is an extension on the same plane of the first-mentioned section of the postal card, and is attached thereto and spread out when mailed, and is used, when received by the person to whom the inquiry is addressed, for writing an answer and an address upon, and for paying the return postage, all as and for the purpose described.

198,013.



198,015. LENS ATTACHMENTS FOR LAMP-CHIMNEYS. G. W. Martin, Chelsea, Mass. [Filed June 16, 1877.]

1. The combination, with a chimney or flame-protector having a plane surface or surfaces, of a plano-convex lens, applied on said chimney or flame-protector with its plane surface in contact with that of the chimney or flame-protector, substantially as specified.

2. The combination, with a lamp-chimney having the flattened or plane surfaces a upon its globular part, of the plano-convex lens or lenses B, removably secured with their plane surfaces in contact with those of the chimney, substantially as specified.

3. The combination, with the lamp-chimney having plane surfaces a, of the lenses B, having collars C, adapted to be passed over the funnel of the chimney, and to sustain the lenses with their plane surfaces in contact with those of the chimney, substantially as specified.

4. The combination, with the lamp-chimney A, having a flat surface or surfaces, a, and a plano-convex lens or lenses suspended thereon, of the collar-strap D, substantially as specified.

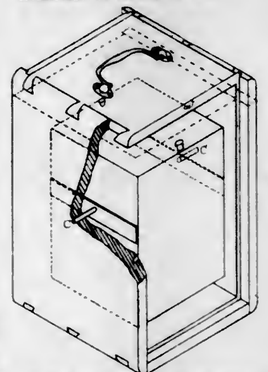
198,016. BURIAL-CASKETS. Jno. Maxwell, Rochester, N. Y. [Filed May 26, 1877.]

Brief.—The removable face-glass frame and its outer covering-plate can both be removed at a single operation.



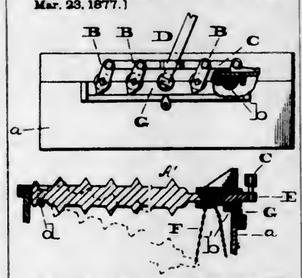
In a burial-casket, the combination, with the glass-frame B and covering-plate D, of the dowels b and flanges d at one end, and the locks C C, with springs f and catches k, at the other, arranged as described, and operating in the manner and for the purpose specified.

198,017. OIL-CANS. T. W. McNally, Louisville, Ky. [Filed May 31, 1877.]



An oil-can provided with the trunion C C, in combination with the containing-box described, having its front and rear walls removable, substantially as and for the purpose described.

198,018. GRATES. G. B. Mershon, Philadelphia, Pa., assignor of one-half his right to A. H. Mershon, same place. [Filed Mar. 23, 1877.]



1. The grate-bars A, in combination with the front coupling-bar C and with the arms B, fitted on the front extensions of the bars A, and detachably connected to said bar C, substantially as and for the purpose set forth.

2. The sliding bearing E and lowering grate-bar A', combined and operating substantially as and for the purpose set forth.

3. The grate-bars, in combination with the front coupling-bar C, arms B, and movable bearing E, substantially as and for the purpose set forth.

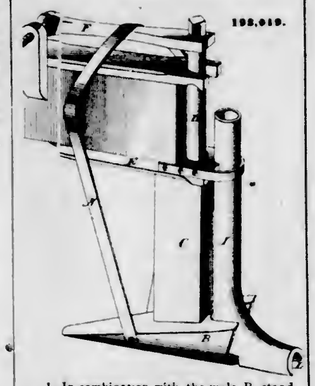
4. The connection F, in combination with the sliding bearing E and lowering-bar A', substantially as and for the purpose set forth.

5. The removable front plate or plates t of the rest plate s, in combination with the grate-bars and the front hangers b b', substantially as and for the purpose set forth.

6. The combination, with the grate-bars, of the front coupling-bar C, sliding bearing E, and lever D, substantially as and for the purpose set forth.

198,019. TILE-LAYING MACHINES. Wm. J. Mettler and Jas. I. Mettler, Mendota, Ill. [Filed Apr. 16, 1877.]

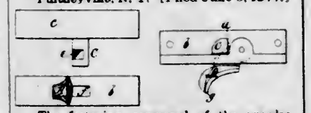
Brief.—A lever or crank secured to the standard of the mole, so that its direction is turned by a traveling screw placed crosswise of the beam; the lower part of the tile-tube made oval, or with a sharp angle at the bottom, to guide tile of different sizes.



1. In combination with the mole B, standard D, and cutter C, the lateral inclined cutters N, and horizontally-adjustable lever F, with which the cutters N and C are connected, substantially as set forth.

2. The tile-tube I, having the lower end of the tube formed with inclined interior faces, and cut away at L, substantially as set forth.

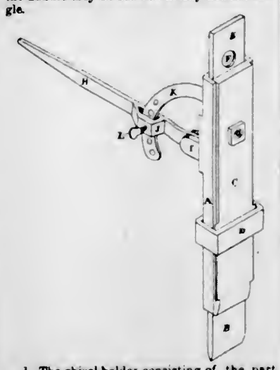
198,020. BOX-FASTENERS. J. C. Millard, Pultneyville, N. Y. [Filed June 6, 1877.]



The fastening, composed of the angular plate c having the rigid notched stud C c, the corresponding plate b having the thumb-catch A with projections d and g, and pivoted in a slot, as shown and described, to operate as specified.

198,021. MILL-PICKS. W. B. Morris, Collinsville, Cal. [Filed May 8, 1877.]

Brief.—The chisel admits of adjustment, and the handle may be secured at any desired angle.

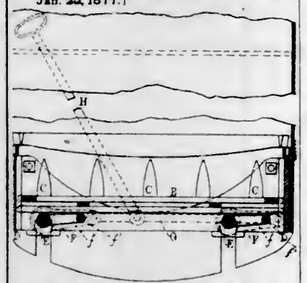


1. The chisel-holder consisting of the part A, with its inclosing sides a a', and the plate C, thicker at the bottom than at the top, in combination with the clamp-band D, the whole constructed to operate substantially as herein described.

2. The independent adjusting and compensating plate E, perforated as shown, with its holding-bolt G, in combination with the holder A C and chisel B, the several parts constructed and arranged in the manner substantially as and for the purpose herein described.

3. The slotted handle H, pivoted or hinged at I, together with the arc K and set-screw L, in combination with the chisel-holder of a pick, substantially as and for the purpose herein described.

193,022. GRATE-CLEANERS. C. B. Murray, Warren, assignor of one-half his right to W. E. Childs, Ellengowan, Md. [Filed Jan. 25, 1877.]



1. The frame B, having the spines C, combined with the shafts E, cranks F, rod G, and lifters *f* and lifter-rods *f'*, detached from the said frame, substantially as specified.

2. The handle H, rod G, cranks F, and shafts E, provided with lifters, combined with the grate-cleaner B C and casing D, substantially as and for the purposes specified.

193,023. STOPPERS FOR MUCILAGE-HOLDERS. S. S. Newton, Binghamton, N. Y. [Filed Apr. 26, 1877.]



The combination of the shank D, clamping-plate E, ring C, and plug B, substantially as set forth.

193,024. STOPPERS FOR MUCILAGE-HOLDERS. S. S. Newton, Binghamton, N. Y. [Filed Mar. 19, 1877.]



1. The combination, with the discharging-tube B B' of a bottle-stopper, of the removable elastic lining or seat *b'* and the depending valve *c*, attached to the sponge-holder, substantially as set forth.

2. The sponge-holder consisting of the tube C and the cup or hollow bulb C', in combination with sponge D, secured to the bulb, substantially as set forth.

3. The combination, with the tubes B' C', the valve *c*, and the valve-seat, of the flanges *c'* and B', substantially as set forth.

4. The combination, in a bottle-stopper, of the following elements, namely: a central discharging-tube, a metal cap supported upon the tube, and extending horizontally over the mouth of the bottle, an elastic plug attached to the discharging-tube below the metal cap, and serving to close the mouth of the bottle, and to secure the discharging-tube in position, and a metal flange depending from the metal cap to hide the internal plug from view, substantially as set forth.

193,025. STOPPERS FOR MUCILAGE-HOLDERS. S. S. Newton, Binghamton, N. Y. [Filed Mar. 29, 1877.]



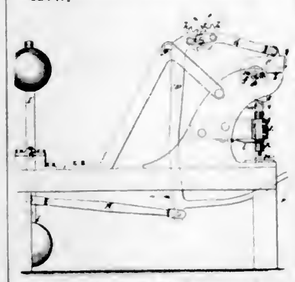
1. In combination with the neck or discharge opening of a vessel adapted to contain liquids, a stopper and a stopper-support arranged centrally of the opening, and to which the stopper is screwed, substantially as set forth.

2. A stopper-support arranged substantially as described, in combination with a stopper which packs or fits closely both the mouth of the vessel and the stopper-support, and prevents the liquid from passing either between the stopper and the mouth of the bottle, or between the stopper and its support, substantially as set forth.

3. A bottle-neck provided with an irregularly-formed inner surface, in combination with a screw-threaded thimble secured by said irregularly-formed surface, and a stopper having a screw-thread adapted to engage with the screw-threaded thimble.

4. A bottle provided with a chamber having a contracted throat or opening, adapted to receive and retain a supplemental cleaning-sponge, substantially as set forth.

193,026. MACHINES FOR PUNCHING AND SHEARING METAL. H. O'Neill, New York, N. Y., assignor of one-half his right to J. Ritterband, same place. [Filed Mar. 16, 1877.]



The combination of the pendulous or weighted vibrating fly-lever I, the connection H, the operating pendent lever D, the toothed sectors *h h'*, the links *i*, the rod G, and the working-blade C of the shears, with its adjusting-screws *e e*, substantially as specified.

193,027. HOISTING-MACHINES. N. P. Otis, Yonkers, N. Y. [Filed May 25, 1877.]

Brief.—As the engine-piston ascends, it carries with it the piston in the fluid-retarder, forcing the water out through a pipe at the upper end and against a piston, to which is attached a rod connected to the main valve, which regulates the amount of steam required. The water displaced by the piston flows to the opposite side thereof, and arrests the descent of the car or cage should any of the machinery break.

1. The combination, with the engine-cylinder and an outside retarder, of a central rod passing through the end of the engine-cylinder, and directly connecting the engine-piston with the retarder-piston, the frame which carries the movable pulleys of the tackle device, and independent side rods directly connecting the engine-piston with said pulley-frame, substantially as specified.

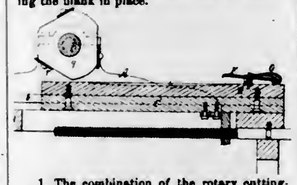
2. The combination, in a hoisting apparatus, with the raising and lowering car or cage of said apparatus, a fluid-retarder for controlling the motion of said car or cage, and a main valve for controlling the motion of the hoisting engine, of a fluid-governor controlled by said retarder, and serving to control the main or supply valve of the engine, essentially as herein described.

3. The combination, with a fluid-retarder, of a check-valve for arresting the return of the piston of the retarder against descent of the load, the hand rope by which the lever of the main valve of the engine is controlled, and means for actuating said check-valve by said hand-rope in relation with the engine-valve, substantially as specified.

4. The combination, with the cylinder K of the fluid-retarder, of the perforated or partially-closing check-valve *g*, the governor N, the pipe *i*, and the close check-valve *k*, essentially as and for the purpose herein set forth.

193,028. LEATHER-SKIVING MACHINES. C. F. Packard, Brockton, Mass. [Filed May 28, 1877.]

Brief.—The invention consists of a rotary cutting-cylinder, a reciprocating counter-blank carrier, having a recess of varying depth to receive the blank, and mechanism for clamping the blank in place.

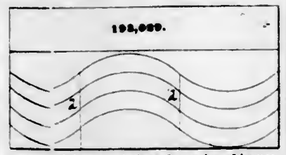


1. The combination of the rotary cutting-cylinder with the plate E, provided with the counter-blank tapering receiving recess *i*, and with mechanism for supporting such plate and moving it lengthwise under the said cylinder, all as set forth.

2. The combination of the rotary cutting-cylinder with the plate E, provided with the counter-blank tapering receiving recess *i*, and mechanism—viz., the levers F G—for clamping a blank in such recess, and also with mechanism for supporting the plate and moving it relatively to the cutting-cylinder, all being substantially as shown and described.

193,029. PLAITING-MACHINES. W. Painter, Baltimore, Md., assignor of one-half his right to L. R. Keiser, same place. [Filed June 12, 1877.]

193,029.



1. A plaiter consisting of a series of leaves attached to a flexible backing, constructed and arranged to operate substantially as described.

2. The combination, with the plaiter consisting of the leaves *a* and backing *b*, of a folder, *c*, all constructed to operate substantially as set forth.

3. A plaiter having its surface ruled with lines to serve as guides in laying the plaits, substantially as described.

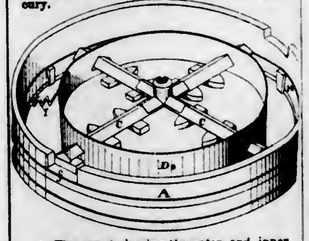
4. A plaiter having a series of leaves adapted to receive and automatically retain the fabric as plaited, substantially as described.

5. A plaiter having a series of curved or waving leaves or formers, arranged to operate as set forth, and adapted to form corrugated or waving plaits, substantially as described.

6. The method herein described of forming plaits, the same consisting in pressing a textile fabric into the spaces between the leaves of a pattern-plait by means of a folder, withdrawing the same after the formation of each plait, and fixing or setting the plaits, substantially as described.

193,030. PAN AMALGAMATORS. A. B. Paul, San Francisco, Cal. [Filed Dec. 2, 1876.]

Brief.—The ore is introduced into the inner compartment, and gradually works itself under the rim, by the aid of the muller, into the outer annular compartment, wherein it is amalgamated by contact with the contained mercury.

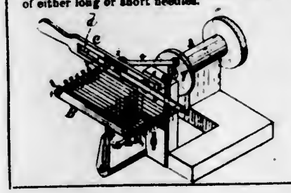


1. The pan A, having the outer and inner portion of its bottom at different levels, as shown, and provided with the muller C, operating in both parts, in combination with the annular rim D, supported upon the muller and reaching to near the bottom of the outer compartment, so as to allow a partial separation of the contents of the two compartments, and a gradual discharge from the inner to the outer one, substantially as herein described.

2. The copper or other electro-positive rim H, secured to the inside of the pan A, and connected with the electro-negative diaphragm D by the elastic wire I, substantially as herein described.

193,031. MACHINES FOR POLISHING THE EYES OF NEEDLES. A. B. Payne and J. S. George, Bridgeport, Conn. [Filed Oct. 8, 1876.]

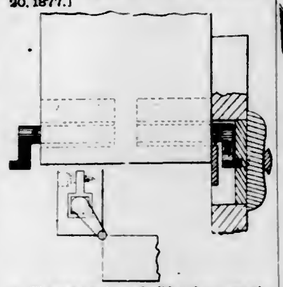
Brief.—The box to which the thread-clamp is attached reciprocates in the slot of a lever provided with a handle, which can be oscillated upon its pivot to cause the threads to round and polish the corners of the eyes of the needles. The clamp for holding the needles can be raised and lowered, with relation to the thread-clamp, by a screw, in virtue of which the machine can be made to polish the eyes of either long or short needles.



1. In combination with lever C, sliding box *a*, and rod *c*, thread-clamp B, provided with washers on the studs *s s*, for holding the threads tight by means of the nuts *f f*, all substantially as described.

2. The combination of the vertically-adjustable needle-clamp with the oscillating and reciprocating clamp B, substantially as described, and for the purpose set forth.

193,032. HINGES FOR PIANO-LIDS. John D. Peoples, Venice P. O., Pa. [Filed Apr. 20, 1877.]



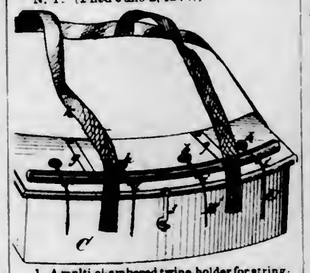
1. The combination of a lid or door, a crank rigidly secured in each end thereof, and angularly inclined toward its rear corners or edges, and bearings for the wrist-pins, substantially as described, whereby the revolution of the lid or door is effected about an axis in line with the said rear edge of the same.

2. The combination of the mortised lid, a T-shaped socket-piece, and a correspondingly-stemmed angularly-inclined crank, substantially as shown.

3. The combination of the crank, the curved slot, the recess, and the bearing-box, substantially as shown, whereby the fitting together is done from the outside of the end-boards and the parts concealed.

4. In combination with the bearing box, a section of molding or other ornament, substantially as shown, for the purpose of full concealment.

193,033. TWINE-HOLDERS FOR STRINGING HOP-YARDS. G. D. Pierce, Sangerfield, N. Y. [Filed June 2, 1877.]



1. A multi-chambered twine-holder for stringing hop-yards, provided with one or more straps or bands for attaching the same to the person, and having eyes for the separate passage of the twines from the chambers of the said holder, substantially as and for the purpose specified.

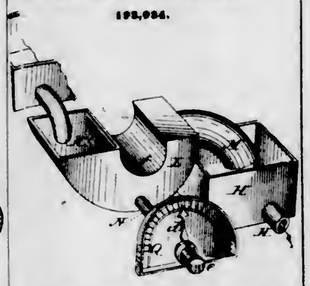
2. The combination, with the eyes for the passage of the twines, and guides for keeping the free ends of the twines separate, of a friction device or devices for preventing the too easy passage of the twines, substantially as and for the purpose described.

3. The combination, with the box C, provided with straps for attaching it to the person, and having a series of separate twine-holding compartments or chambers, *c*, eyes and guides for the passage of the twine from the box, of the spring clamp or bar G, constructed to control the delivery of the several twines from the box, essentially as shown and described.

193,034. CARBURETING-MACHINES. C. H. Pierson, Janesville, Wis., assignor of one-third his right to S. E. Phillips and Wm. Puffer, same place. [Filed May 9, 1877.]

Brief.—Oil is carried up from the reservoir by buckets formed in the periphery of a wheel, and is deposited in a tray, from which it flows to the pivoted feed cup. This feed-cup may be set, by a dial and pointer, to feed any desired quantity of oil to the carbureting-chamber. The bucketed wheel is secured upon the same shaft with the air-blowing wheel.

193,034.



1. In an air-carbureting machine, a feed-cup device, receiving the gasoline from the feed-wheel, pivoted, and constructed with opposite receiving and discharging ends, substantially of the form shown, and adapted to feed an ascertained quantity at its discharging end to the carbureting-chamber, and to overflow the surplus at its receiving end, substantially a set forth.

2. The combination, with the feed-wheel B and the fixed tray O, of a horizontally-pivoted feed-cup device, discharging an ascertained quantity of gasoline, as set forth, and the carbureting-chamber duct H, substantially as herein set forth.

3. The horizontally-pivoted feed-cup device, its carrying-rod N, the pointer *d*, finger-grasp *e*, and the dial Q, combined for use as set forth.

4. The horizontally-pivoted feed-cup device, provided with the top depression or sink *f*, between the receiving and discharging ends, as and for the purpose set forth.

193,035. BOOKS AND COVERS. I. Reynolds, Dayton, Ohio, assignor to I. & L. D. Reynolds, same place. [Filed June 23, 1877.]



1. The metallic spring-back, independently covered with cloth or other suitable fabric before any other attachments are made thereto, to prevent the edges *o o* of the spring, from cutting the linen or other fabric which is placed on the inside of the cloth-covered spring, and passes over the edges thereof, to hold the two lids of the cover, substantially as herein set forth.

2. In combination with the spring-back, as independently covered with cloth or other suitable fabric, a book formed with ribs, and correspondingly so shaped as to be held firmly by the two inwardly-turned edges of the cloth-covered spring-back, substantially as herein set forth.

3. The combination of the double spring-back shown in Fig. 2, the outer spring being covered with cloth or other fabric, to prevent the cutting of the fabric which holds together the lids of the cover, said fabric being firmly secured between the two springs by being glued and riveted between the same, thus leaving the inward spring free and open to receive and grasp a book having ribs correspondingly so shaped as to be held firmly by the inwardly-turned parts of the inner spring.

193,036. BOOK-BINDINGS. I. Reynolds, Dayton, Ohio, assignor to I. & L. D. Reynolds, same place. [Filed June 23, 1877.]

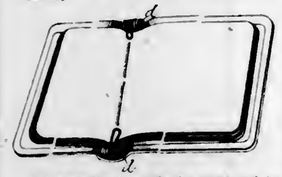


1. The removable or skeleton binder C, provided with a cord, tape, or band, *h i*, for the purpose of strengthening the pocket at the points *j j*, substantially as described.

2. In combination with a book complete, composed of leaves and cover, both stitched through the center, and both folded at one operation, a removable binder having pockets to be slid over the permanent cover of the book proper, such pockets being re-enforced at the points *j j* by means of the cords, tapes, or bands *h i*, substantially as described.

3. A book the ends of the binding tapes or cords of which pass through and are firmly fastened to the back of the cover, substantially as described.

193,027. TEMPORARY BINDERS. I. Reynolds, Dayton, Ohio, assignor to I. & L. D. Reynolds, same place. [Filed July 3, 1877.]



1. In combination with the cover and its cloth back, a metal back, *c*, formed in a single piece, and secured to the cloth by turning the ends of the metal over and upon the same, substantially as shown and described.

2. In combination with a metallic back of a book-cover, the coiled and tongued wires *d*, substantially as and for the purpose set forth.

3. The combination, with the cover provided with a metallic back, and with coiled and tongued wires *d*, as shown and described, of a book composed of sheets, all centrally united by a line of stitches passing through all the sheets alike.

4. In combination with the covering of the book back and the wire clamp which holds the book in position, a metal back, *c*, formed in a single piece, and secured to the covering by turning the ends of the metal upon and over the outer ends of the covering, as shown and described.

193,028. TABLE BEVERAGES. J. J. Rogers, Binghamton, N. Y. [Filed Mar. 24, 1877.]

The composition, as a table beverage, consisting of water, sugar, oil of winter green, alcohol, yeast, and burnt sugar, in the proportions substantially as described.

193,029. PROCESSES AND MACHINERY FOR MANUFACTURE OF FLOUR. C. M. Roberts, Washington, D. C. [Filed June 28, 1877.]

1. The process of manufacturing flour by first grinding the wheat in connection with a strong air-blast introduced at the eye of the stones to expel the meal, and afterward purifying the ground meal or middlings by means of air-currents, in whole or in part, substantially as described.

2. The process of manufacturing flour by first grinding the grain, then purifying the meal by air currents, then separating the flour, middlings, and bran, and then purifying the middlings by air-currents, and regrinding and reboiling them, substantially as described.

3. The process of purifying meal or middlings by first forcing them by a blast of air between two disks, one or both of which revolve, in order to spread them out in a thin sheet, and then subjecting them to the operation of air-currents to remove the light impurities, substantially as described.

4. The combination of a bed burr, a runner, a blast apparatus to blow air into the eye of the burrs, and a blast or suction apparatus to create a purifying air-current up through the meal ejected from the edge of the burrs, substantially as described.

5. The combination of the burrs A B, casing C, and blast-pipe E, with the normally closed discharge f, and the air-openings J in the top of the casing, to accommodate the discharge of the air-currents with the light impurities, substantially as described.

6. The combination of the burrs A B, casing C, blast-pipe E, suction-pipe K, and the dust-room M, substantially as described.

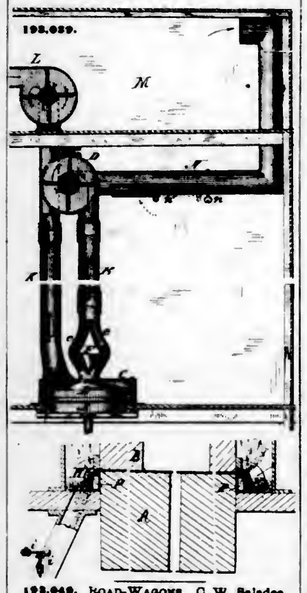
7. The combination of the blast arrangement D E N, with the dust-room M, suction fan and pipe, and burrs and casing, substantially as described.

8. The combination of the blast-pipe P with the burrs, substantially as described.

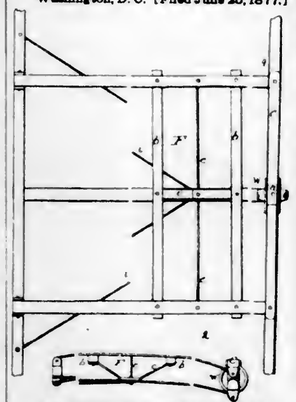
9. The combination of the blast pipe P with the burrs, the casing, and the suction pipe or pipes, substantially as described.

10. The combination of the blast-pipe P with the burrs, the casing, the suction pipe or pipes, and the blast in the eye of the burrs, substantially as described.

193,029.



193,030. ROAD-WAGONS. C. W. Saladee, Washington, D. C. [Filed June 26, 1877.]



1. The combination of the upper side springs, the lower central spring, and a central girder, F, constructed to afford a lateral brace between the lower and upper springs, and a horizontal brace between the side springs, substantially as set forth.

2. The combination of the side springs, central spring, and girder, consisting of a bracket, *c*, braces *e*, and bar or bars *b*, substantially as specified.

3. The combination of the central and side springs, the central girder, and the lateral stays *i*, substantially as set forth.

4. The combination of the bolster and yoke W, inclosing the front axle, and bolted at both ends to the sides of the bolster, as set forth.

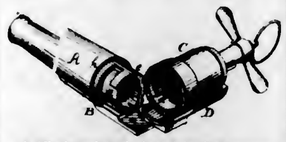
5. The yoke W, receiving the front axle, bolted to the bolster, and having a connection for the lower spring, substantially as set forth.

193,031. ARTIFICIAL MARBLE. C. Schaeffer, Washington, D. C., assignor to F. Lambrecht, same place. [Filed June 15, 1877.]

1. The method of forming slabs, tiles, or other articles of artificial stone having a variegated surface, by arranging fragments of marble of various sizes and colors in a mold, covering said fragments with a composition of hydraulic cement and silicate of soda or potash, backing the same with a composition of hydraulic cement and sand, and allowing the whole to set and dry, substantially as herein set forth.

2. An artificial stone composed of a body of hydraulic cement, mixed with silicate of potash or soda, a back of cement and sand, and a facing of dust of marble or other stone, covered with a thin layer of a mixture of finely-pulverized cement and silicate of potash or soda, substantially as herein set forth.

193,032. BREECH-LOADING ORDNANCE. A. Schroeder, Omaha, Nebr. [Filed Feb. 1, 1877.]

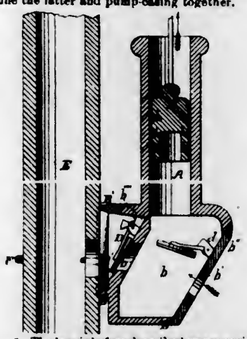


1. The barrel A of a breech-loading cannon, having a tapering bore, in combination with the breech-block, having an internal and external lock, constructed in the manner and for the purpose specified.

2. The barrel A, having turned-down rear end forming shoulder *h*, and part *e*, with L-shaped slots *a*, and interior stops and projections, and provided with metal piece B, in combination with the breech-block C, hollowed out and provided with lugs, and having a cylinder provided with internal lugs, and connected to a trough, D, which is pivoted to the piece B, and capable of being swung laterally to one side of the barrel, all substantially as set forth.

193,033. PUMPS. A. M. Searls, Genesco, Ill. [Filed Feb. 19, 1877.]

Brief.—The barrel of the pump is cylindrical in form, open at its upper and lower ends, and is cast in one piece with the valve-box. The pump-casing is secured to the wooden pipe by means of straps and lugs, by which the flange is embedded within the pipe, and closely confine the latter and pump-casing together.

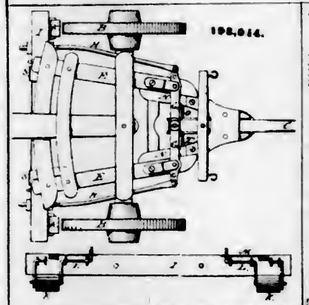


1. The hereinbefore-described pump-casing, consisting of the barrel A and valve-box B, provided with the inclined valve-seats *b'''* and *b''''*, and inlet and outlet openings *b'* and *b''*, the whole forming one casting, substantially as and for the purpose specified.

2. The means employed for combining the pump-casing with the pipe E, consisting of the A-shaped flange B', formed upon said casing, and capable of being embedded within the side of said pipe, and the strap F *f*, nuts *f'*, and lugs G, or their equivalent, substantially as and for the purpose set forth.

193,034. AUTOMATIC WAGON-BRAKES. L. Selvart, J. Dietsen, and C. Stoetsel, Big River, Wis. [Filed Mar. 20, 1877.]

193,044.



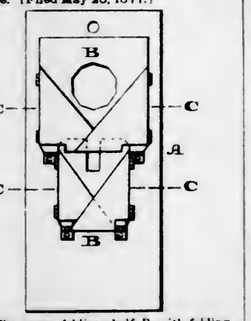
1. The sliding loop W and its combination with tongue C, iron plate T, bolt O, and shores X, for the purpose hereinbefore set forth.

2. The spring-clevis L and its combination with the shoe-piece K and brake-beam I, for the purpose hereinbefore set forth.

193,045. CONFECTIONERY COMPOSITION. F. Sibley, J. Holmwood, Jr., and A. Luckenbach, Buffalo, N. Y.; said Luckenbach assignor to said Sibley and Holmwood, Jr. [Filed May 1, 1877.]

A composition consisting of paraffine, coffee-sugar, and grape sugar or glucose, substantially as and for the purpose hereinbefore set forth.

193,046. SUPPORTING-FIXTURES FOR HEATING APPARATUS. H. B. Smith, Philadelphia, Pa., assignor to O. Conrad, same place. [Filed May 28, 1877.]



1. The upper folding shelf B, with folding feet C, in combination with the lower folding shelf B, with folding feet C, substantially as and for the purpose set forth.

2. The two hinged shelves B B, with hinged feet C C, folding over each other and on the supporting-back A, substantially as and for the purpose set forth.

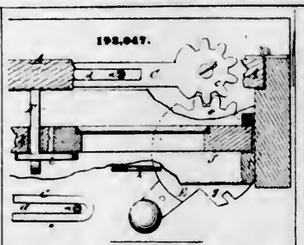
193,047. SHUTTER-WORKERS. H. Smith, New York, N. Y., assignor of one-half his right to W. V. Smith, same place. [Filed Feb. 26, 1877.]

Brief.—A slotted and geared lever, working on a pin in the under side of the shutter, is combined with, and meshes into, the teeth of another geared operating-lever, both levers underneath the sill of the window-frame operating in the same plane, and the handled end of the operating lever passing into the interior of the room. There is also a perforated arc on the operating-lever, with which a suitable hook or catch engages, to hold the shutter open or closed.

1. A window-shutter constructed and combined with a slotted and geared lever, C, into the gears of which lever meet the gears of a second and operating lever, E, both of said levers operating in the same plane, and the end of said second or operating lever passing into the room, substantially as and for the purpose described.

2. In a device for opening and closing shutters, a geared and pivoted lever, E, constructed with a perforated arc, and combined with a hook or catch, *h*, whereby the shutter may be retained fully open, closed, or in an intermediate position, substantially as described.

193,047.



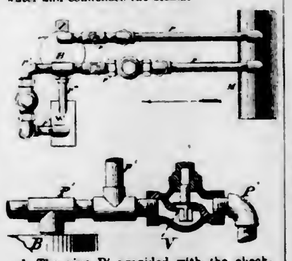
193,048. HYDROCARBON-BURNERS. Wm. Stewart, R. J. Stewart, and C. W. Makepeace, Paterson, N. J. [Filed June 14, 1877.]



An apparatus for heating steam-boilers and other furnaces composed of a box, A, closed at its top and provided with holes in the lower part of its sides and in its bottom, a filling of asbestus or other absorbent and refractory material, and a feed-pipe extending in a horizontal direction through said box, all constructed and operating substantially as described.

193,049. PRESSURE SAFETY ATTACHMENTS FOR HOUSE-BOILERS. George Steele, New York, N. Y. [Filed Dec. 27, 1876.]

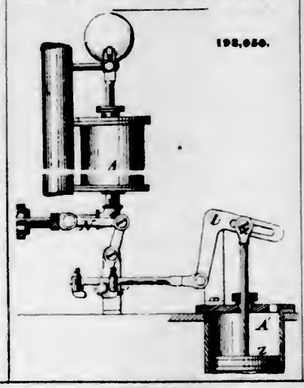
Brief.—When steam from the water-back accumulates in the upper part of the boiler, the pressure opens a valve in a pipe connecting the boiler with the main, which lets in water and condenses the steam.



1. The pipe P', provided with the check-valve V, placed between the boiler B and the water-main M, and separately and independently connected with said boiler and water-main, substantially as and for the purpose herein specified.

2. The pipe P'', connecting the water-back W with the boiler B and with the pipe P', and provided with the check-valve V' between the said water-back and boiler, substantially as and for the purpose specified.

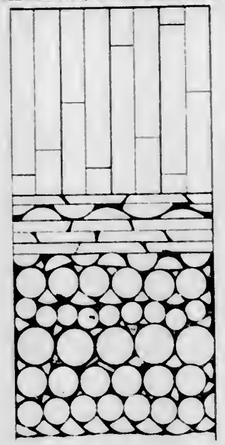
193,050.



193,050. GOVERNORS FOR MARINE ENGINES. George Steele, New York, N. Y. [Filed Nov. 28, 1876.]

The combination, with the throttle or regulating valve G, the water and air cylinder A', and the piston Z acted upon directly by water on its under surface, and by the atmosphere on its upper surface, of a steam, water, or air cylinder, A, containing a piston connected with said throttle valve, and an induction or eduction valve or valves actuated by the piston Z and its connections to admit steam, water, or air to, and exhaust the same from, the said cylinder A, the whole operating substantially as described, and for the purpose herein set forth.

193,051. WOOD PAVEMENTS. H. M. Stow, San Francisco, Cal. [Filed June 19, 1877.]



A pavement for walks or drives, composed of round and split blocks laid in juxtaposition, and in rows of nearly uniform areal surface, upon a board foundation, and top-dressed with sand, or an asphalt or concrete composition, as herein described and represented.

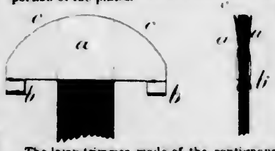
193,052. LAMP-TRIMMERS. Eaton Stone, Franklin, N. J. [Filed Mar. 16, 1877.]



A lamp-trimmer consisting of two blades, pivoted to the slotted cone or deflector of the lamp, and closing together above such cone, substantially as set forth.

193,053. LAMP-TRIMMERS. Eaton Stone, Franklin, N. J. [Filed Dec. 11, 1876.]

Brief.—The trimmer is adapted to slip over the wick. Its side plates are then to be pressed upon the wick, the carbonized portion of which is removed by passing a cleaner over the curved portion of the plates.



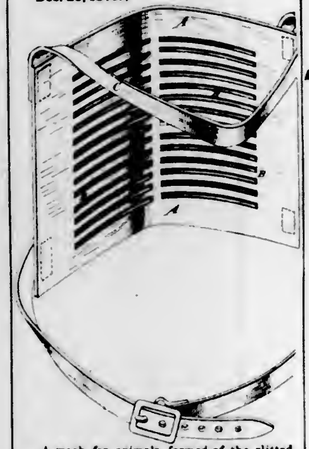
The lamp-trimmer made of the contiguous plates *a*, connected by the springs *b*, and having the curved edges *c*, as and for the purpose set forth.

198,054. FISHERMEN'S APRONS. Abner J. Tower, Boston, Mass. [Filed May 31, 1877.]

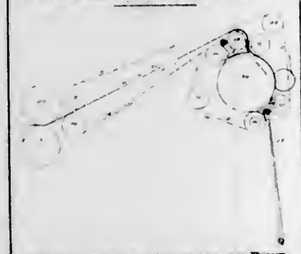


As a new article of manufacture, a fisherman's apron, or petticoat apron, constructed with sleeves B, and an open back, as and for the purpose set forth.

198,055. MASKS FOR HORSES AND CATTLE. A. H. Trueblood, Denison, Tex. [Filed Dec. 20, 1876.]



A mask for animals, formed of the slitted piece A B, with straps for securing it in front of their eyes, substantially as set forth.



198,056. DELIVERY APPARATUS FOR PRINTING-MACHINES. S. D. Tucker, New York, N. Y. [Filed Feb. 23, 1877.]

Brief.—From the perforator of a perfecting printing-machine endless tapes carry the web over a guide-roller, where the sheets are torn off. They are thence delivered, over a fixed guide, to a cylinder, on which a determined number of sheets, supported and directed by tapes and guides, are collected, and then, by a rocking switch, together discharged before an oscillating fly.

1. The combination of the collecting-cylinder 30 and endless tapes 11, 12, and 13, substantially as described.

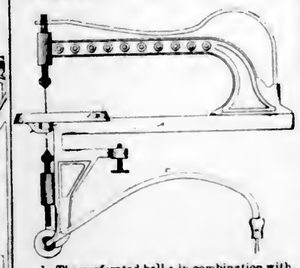
2. The combination of the collecting-cylinder 30, endless tapes 11 12 13, and deflectors or switches 3, substantially as described.

3. The combination of the collecting-cylinder 30, endless tapes 11 12 13, guides or deflectors 2, and deflectors or switches 3, substantially as described.

4. The combination of the collecting-cylinder 30, endless tapes 11 12 13, deflectors or switches 3, and fly 25, substantially as described.

198,057. SCROLL-SAWING MACHINES. W. H. Tufts, Howard County, Md. [Filed Mar. 21, 1877.]

Brief.—The table is supported upon a ball formed on the lower front part of the main frame, and working between a cup-shaped recess on the under side of the table and a concave perforated support attached to said side, and it is given any desired inclination by means of a wedge-shaped segment, in connection with a similarly-inclined surface upon the under side of the table, and secured in position by a set-screw passing through a segmental slot in the table into the main frame. The material to be sawed is perforated for fret-sawing by a drill secured in a holder attached to one end of a rubber tube, the other end of said tube being detachably connected to the end of the driving-shaft.

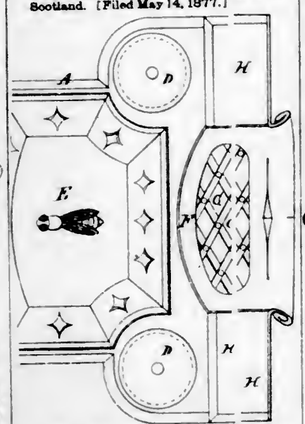


1. The perforated ball *e*, in combination with the table B and concave perforated support *e*, substantially as and for the purpose specified.

2. The frame A, provided with the ball *e*, in combination with the table B, having the adjusting-inclines *f*, as shown and described.

3. In a scroll-sawing machine the frame A and shaft *d*, in combination with the rubber tube C, provided with a drill-holder, in the manner and for the purpose set forth.

198,058. RECEPTACLES FOR TOILET ARTICLES. James Vernon, Newton Stewart, Scotland. [Filed May 14, 1877.]



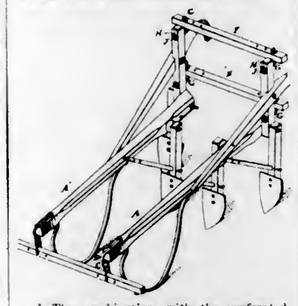
1. As a new article of manufacture, the within-described toilet-article receptacle, embodying, in a single piece of earthenware, having elastic studs near the outer lower edges, the recess F, its perforated strainer G, the stands H at the side of the recess, the two chambers, with their tray B, rests C, and lid E, and boxes D D, the whole being constructed and arranged substantially as herein shown and described.

2. The combination, in a toilet-case constructed of earthenware, of the rubber studs secured near the outer edges of the same, to protect the article from abrasion or other injury, substantially as set forth.

3. In combination with the covers of the toilet article, the rubber studs for protecting the same, substantially as set forth.

198,059. CULTIVATORS. Wm. C. Ward, Middletown, Ohio, assignor of one-half his right to F. A. Kennel and E. Long, same place. [Filed Apr. 23, 1877.]

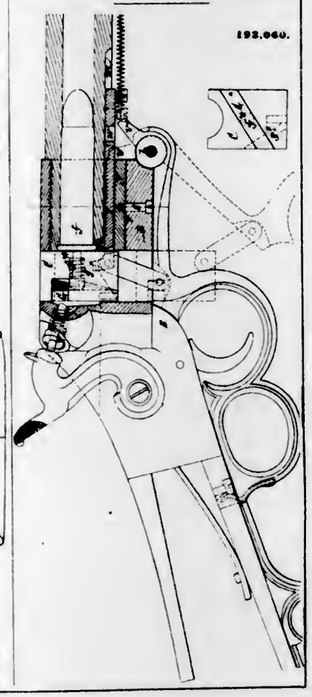
Brief.—The right-angled bolt allows the bars and standards to turn upon it at each end, allowing flexible motion in both directions.



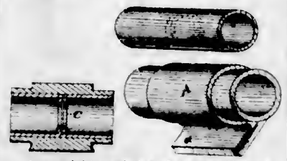
1. The combination, with the perforated frames A H A' H', and bars E F, of the curved shackle-bolt G, having the shoulders *g'*, orifice *g*, key or pin I, and washer J.

2. The shackle device consisting of the curved bolt G *g g'*, key I, and washer J.

198,060.

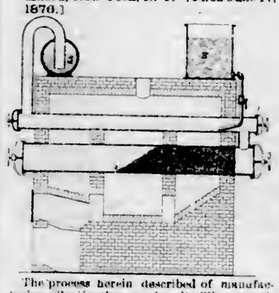


198,061. SIGHTS FOR FIRE-ARMS. M. B. White, Manchester, N. H. [Filed May 17, 1877.]



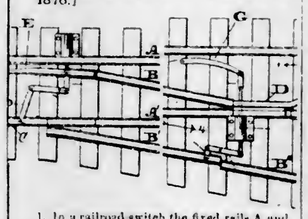
A gun-sight consisting of the metallic bushing, provided with bead-flues, and adapted to have rotary adjustment within an ordinary shell or casing, substantially as described.

198,062. PROCESSES FOR THE MANUFACTURE OF ILLUMINATING-GAS. A. W. Wilkinson, New York, N. Y. [Filed June 17, 1870.]



The process herein described of manufacturing illuminating gas by distilling wood, peat, or coal, passing the gases thus produced through the residual incandescent carbon of the previous charge pushed back to the rear end of the retort in which it has been been formed, and mixing the gases resulting therefrom, in a highly-heated state, with liquid hydrocarbon, and afterward converting the whole into a permanent gas by redistillation, the operation being continuous and uninterrupted, substantially as set forth.

198,063. RAILROAD-CROSSINGS. Joseph S. Williams, Riverton, N. J. [Filed May 19, 1876.]



1. In a railroad switch the fixed rails A and A' of the main line, and the fixed rail B' of the siding, in combination with the movable rails C and E, moving and jointing in opposite directions, whereby by a single movement continuity is established either with the main line or with the siding, substantially as specified.

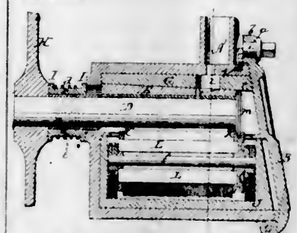
198,064. BREECH-LOADING FIRE-ARMS. F. Wesson and Chas. N. Cutter, Worcester, Mass., assignors to said Wesson. [Filed May 7, 1877.]

1. The vertically-sliding breech-block C, provided with the independent spring center firing-pin *f*, in combination with the lever G arranged in a diagonal recess in the back end of the breech-block, and pivoted at its lower end to the breech-block, substantially as and for the purpose described.

2. The combination, with the cartridge-ejector I, fitted within a longitudinal groove in the breech-receiver B, of the removable gib J, fitting in a groove, *r*, in the breech receiver, to provide for holding the ejector in place, while at the same time both can be readily removed, substantially as and for the purpose described.

198,065. CAR-AXLE BOXES. G. Williams, Mystic Bridge, assignor of one-half his right to F. A. Holmes, Stonington, Conn. [Filed June 26, 1877.]

Brief.—By fastening door on the outside, prevents it from becoming fouled and difficult to open; secures minimum of friction between journal and oiling-cylinder. The same spring forces one dust-excluding collar against the hub and another against the internal opening of the box, spring and collars all being outside the latter.

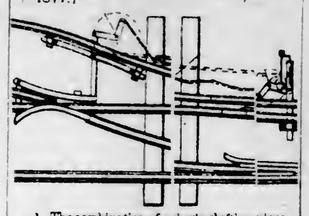


1. In combination with the box A, having recess *x* at its top, the door B, hinged to the bottom of the box, extended above the top of the same, and provided with a short shaft, *a*, and eccentric C, to work in the recess *x*, as set forth.

2. The combination, with a car-journal, D, wheel H, and box A, of the two flanged collars, I I, constructed independent of the box or wheel, formed with overlapping L-shaped joints *e*, and the exterior spring *d* surrounding the same, substantially as and for the purposes herein set forth.

3. The combination, with a car-journal, D, having flange *m*, of the cylinder K L, with circumferential groove in the outer head, and with brushes *h*, journal-boxes M, guides N, and springs *i*, all substantially as and for the purposes herein set forth.

198,065. RAILWAY-CROSSINGS. Joseph S. Williams, Riverton, N. J. [Filed Mar. 6, 1877.]



1. The combination of a single shifting-piece with the permanent and continuous rails of the main track, said shifting-piece being positively operative to complete the side track, and removable from the main line by the action of the car-wheels in either direction over the main line, substantially as and for the purpose set forth.

2. The shifting rail or rails which transfer the cars from the main line to the siding, connected to a shifting-piece at the crossing, and each independently operative of the other by the action of the car-wheels, substantially as and for the purpose set forth.

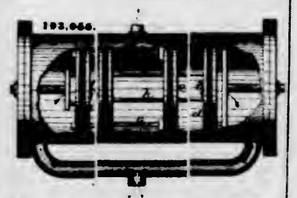
3. A shifting-piece of crossing, connected with a shifting-guard located on opposite sides of the inner rail of the side track, substantially as and for the purpose set forth.

4. The combination of the shifting-piece of the crossing and guard, adjacent to the inner rail of the side track, with the shifting-guard or guards, adjacent to the outer rail of the side track, substantially as and for the purpose set forth.

5. The side rail or bearing, adjacent to the shifting piece of the main line, allowed to recede in case of obstructions between them, substantially as and for the purpose set forth.

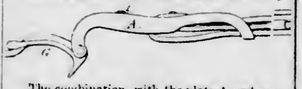
198,066. SUCTION AND FORCE PUMPS. J. N. Wilson, Fulton, Ill. [Filed May 11, 1877.]

198,066.



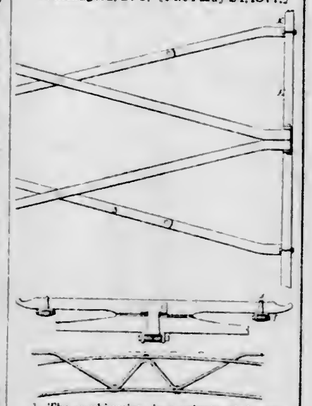
In a pump-cylinder, the combination of four pistons, which are united together in pairs, substantially as shown.

198,067. HAME-FASTENERS. A. B. Woodard, Hornellsville, N. Y. [Filed May 18, 1877.]



The combination, with the plate A and pivoted piece G, of the spring I, bearing against the same, as and for the purposes specified.

198,068. ROAD-WAGONS. C. W. Saladee, Washington, D. C. [Filed May 24, 1877.]

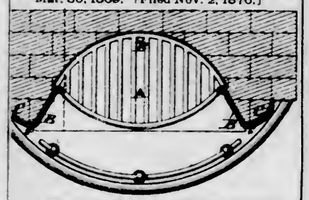


1. The combination, in a vehicle, of the upper and lower springs, arranged to cross each other, and connected together at the crossing-point, as described.

2. The brace or braces S, connecting and bracing the upper and lower springs, and extended at the ends to support the body, as set forth.

REISSUES.

7,727. FIRE-PLACES. C. S. Rankin, Cincinnati, Ohio. Patent No. 88,509, dated Mar. 30, 1869. [Filed Nov. 2, 1876.]

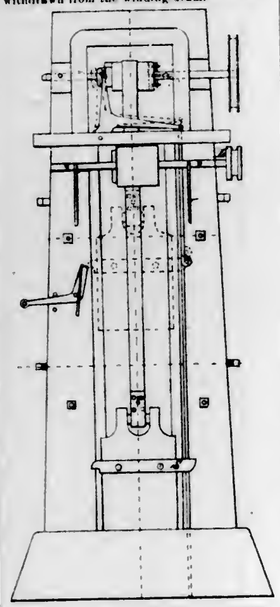


1. The channels *a a*, formed at the junctions of a convex or forwardly-projecting grate, A, and jambs B B', extending forward from the sides of the grate, the said channels communicating in a vertical direction with a forwardly extending discharge-flue, substantially as and for the purposes herein set forth.

2. The combination of the projecting recessed grate or basket A, oblique jambs B B', and front plate or frame C, substantially as and for the purposes set forth.

7,788. DROP-PRESSES. W. C. Hicks, Summit, N. J. Patent No. 37,446, dated Jan. 20, 1863. [Filed Oct. 13, 1876.]

Brief.—The clutch is operated through the medium of a bell crank lever and a rod suspended therefrom, the latter of sufficient weight to keep the clutch in gear with the winding-drum, and it is thrown out of gear by a bar on the hammer, which, when ascending and near its highest point, lifts the rod; but the clutch reengages and causes the drum to begin to wind up the belt so soon as the hammer begins its descent. Another drum, revolving in a direction contrary to that of the winding drum, rapidly unwinds the belt so soon as the clutch is withdrawn from the winding-drum.



7,788.

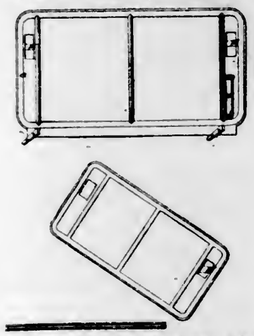


1. The method of unwinding the hammer-belt immediately upon its reaching the requisite elevation, by the employment, in combination with the ordinary winding-drum, shipping-clutch, and appurtenances, of auxiliary friction rolls or drums, the whole being arranged to operate substantially in the manner and for the purposes set forth.

2. The combination, with the hammer, lifting-drum, and connection between them, of an engaging and disengaging device, and parts for operating the same in the upper part of the stroke of the hammer, leaving it free from the control of the hammer in the lower portion of the stroke, as set forth.

3. The combination, with the hammer and its lifting connection, and with a disengaging mechanism for disengaging the hammer from the action of the lifting-shaft, and with a catch for retaining and releasing the hammer, of a lifting-drum, having a connection at the time of and before the delivery of the blow of the hammer with the driving parts of the device, for the purpose hereinbefore set forth.

7,789. ADJUSTABLE METALLIC DASHES FOR VEHICLES. G. M. Peters, Columbus, Ohio. Patent No. 102,315, dated Apr. 26, 1870; Reissue No. 4,408, dated May 30, 1871; Reissue No. 4,661, dated Apr. 9, 1872. [Filed May 15, 1877.]



1. As a new article of manufacture, a footless carriage-dash, including a provision which adapts it to be readily connected to and detached from feet used to secure it to a carriage, substantially as and for the purpose specified.

2. A metallic dash for carriages, constructed with moldings raised upon its surface, substantially as and for the purpose specified.

3. A dash provided with a recess, groove, or socket, for the reception of the shank of a dash-foot, substantially as and for the purposes specified.

4. An independent dash-foot, adapted to be fitted to the carriage-body while separate from the dash, substantially as and for the purpose specified.

5. In combination, a dash and an independent separable dash-foot, substantially as and for the purposes set forth.

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DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—NORTHERN DISTRICT OF ILLINOIS.

HENRY A. ADAMS vs. THE JOLIET MANUFACTURING COMPANY.

Letters patent granted Henry A. Adams, October 15, 1872, for "Improvement in Corn-Sheilers," sustained, notwithstanding the principal difference from what had preceded it in the art was simply in the reverse revolving motion given to the feed-regulators in the hopper of the machine, it appearing that an improved result was thereby attained.

A patent should never be defeated for a mere technical defect if it clearly appears what the inventor has described and claimed as his invention.

A change of location of a part in a combination, where there is no new function performed by the changed member in its new location, will not evade a patent.

The fact that it does its work better than in the position occupied in the infringed machine, is merely of degree, and makes no difference so long as the result is the same.

[*Coburn & Thacher*, for complainant.
Munday & Evarts, for defendant.]

BLODGETT, *J.*:

This is a bill in equity for an alleged infringement of letters patent of the United States issued to Henry A. Adams, dated October 15, 1872, for an "Improvement in Corn-Shellers," and prays an account of damages, and injunction.

The complainant's improvement consists in the arrangement of a winged shaft, or "*beater-shaft*," so geared as to revolve rapidly in the throat of the corn-sheller, for the purpose of driving the ears of corn into the machine.

In his specification his device is described as follows:

This invention relates to an improvement in a corn-sheller patented by Augustus Adams, as described in his Letters Patent No. 54,659, dated May 15, 1866.

In said patented corn-sheller a winged shaft is placed above the opening in the sheller, and is worked oppositely to the direction of the entering corn in such manner that the said wings strike the upper ear if two ears attempt to enter the throat at once, and throw said upper ear back into position to descend properly, but I have discovered that the ear so thrown back retards the feed, inasmuch as the following ears are likely to override the ears so thrown back, and the difficulty is thus continued. In the present invention, I propose to overcome this objection by forcing all the ears, as they approach the throat, to pass rapidly out of the way into the sheller, by means presently specified. And to this end I arrange a shaft above the throat with a series of wings, wheels, or projections, to revolve in the same direction as the entering corn, so as to force the corn rapidly forward into the sheller, which is capable of shelling all the corn that can be forced through the throat. By this means I avoid any chance of clogging the feed under ordinary circumstances.

His detailed description of his device is as follows:

H is a shaft, which may be surrounded by the hood R. This shaft carries the beaters or wings P, arranged to revolve in the direction of the arrows (that is, the direction of the feed) shown at Fig. 1 of the drawing. Space enough is left between the revolving wings and the bottom of the throats B to allow of a single ear, as at *n*, to pass freely beneath without contact, but sufficiently near to strike an overriding ear, as at *m*, and force it and other ears in contact therewith, or in the road thereof, ahead rapidly into the sheller, clearing the passage for the corn following.

His first claim is as follows:

The combination, with a corn-sheller, of a series of wings, wheels, or projections, so arranged on a shaft as to revolve in the same direction the corn is running, and so placed relative to the throats as to force into the machine all misplaced or hesitating ears, substantially as specified.

It may be premised that the device in question is applicable to a power-sheller only, and is intended to operate in connection with the endless apron or other feeding device, whereby the ears of corn are brought to the throat of the sheller, and the object was to keep the throat of the machine from clogging by forcing the ears into the throat of the machine instead of allowing them to pile up or override each other at that point.

The object was to secure an operative automatic feed, which, without the care of an attendant, would keep the stream of ears of corn steadily and uniformly running into the sheller, instead of permitting it to pile up or choke in the throat.

Augustus Adams had two devices in his machine prior to complainant's invention, intended to accomplish the same purpose. The first were the small picker-wheels, running in the same plane with the shelling-disks, and intended to catch and carry forward the ears as they fell into the throat.

The second was a winged shaft, or beater-bar, over the throat of the sheller, so arranged as to revolve in a direction contrary to the direction of the stream of ears of corn, and drive back the overriding ears as they approached the throat. This device was found to do but little toward securing the desired result, as t

ears thrust or knocked back only got in the way of others, and the machine was therefore still liable to clog, so as to make the feed irregular, and require frequent attention from an attendant.

At this stage of the art the complainant entered the field, and although he only reversed the motion of the Augustus Adams beater-bars, yet the evidence shows he produced by this comparatively trifling change a result, so far as the automatic feed of a corn-sheller was concerned, which had not been attained before.

The defense, first, denies the novelty of the invention; second, denies the infringement.

Upon the question of novelty, evidence has been put into the record of a large number of devices for feeding or regulating the feed of corn shellers, thrashing-machines, straw-cutters, planing-machines, carding-machines, &c. But I do not find in any of them anything which seems to anticipate the complainant's machine.

The device of Augustus Adams in form of construction is almost precisely like that of complainants, except that it revolves in a contrary direction. But when at rest, and without the gearing by which the motion is secured, the two devices would strike the eye as substantially alike. Defendant also insists that the first claim of complainant's patent is anticipated by the picker-wheels, as they are called, in Augustus Adams' patent; because complainant's claim is for "*a series of wings, wheels, or projections, so arranged on a shaft as to revolve in the same direction the corn is running.*" * * * And it is argued that the claim to use "*wheels*" on the shaft necessarily involves the use of wheels revolving *over* the throat of the sheller, as the picker-wheels revolve *in* the throat. It may be admitted that the terms used are somewhat unfortunate, and may tend to confuse; but the court should never defeat a patent for a mere technical defect, if it clearly appears what the inventor has described and claimed as his invention. It seems to me the word wheels is used in this claim as a synonym for disks. The idea of the person who drew the claim, it appears to me, was that the wings or beaters might have disks on each side to help in thrusting the corn forward when they were used. I think, also, the court might, if necessary to save the patent, reject this word as surplusage, although I do not think it necessary to do so in this case, as the patentee in his specification evidently intends to suggest that some kind of wheels or disks may be fixed upon the shaft to act with the beaters; but this is more in the nature of a suggestion than a specific device by which he is bound to construct his machine.

The principle that it is the duty of the court to uphold and sustain the patent, instead of seeking for reasons to overthrow it, is fully sustained. (*Turrill* vs. *R. R. Co.*, 1 Wall., 491; *Rubber Company* vs. *Goodyear*, 9 Wall., 788; *Klein* vs. *Russell*, 19 Wall., 433; *Burden* vs. *Corning*, 2 Fish., 477.)

I do not, therefore, find the complainant's invention anticipated by the picker-wheels of Augustus Adams, nor does it seem to me the first claim of the patent should be held void for the use of the word "*wheels*."

As to the infringement: The proof shows that defendant makes and sells a machine—complainant's Exhibit C—with a beater-bar revolving at the entrance to the throat of the machine, so as to strike the ears of corn on the under side instead of the top, and so force them into the sheller. And it is claimed by defendant that the function performed by its beater-bar is different from that performed by complainant's.

Defendant calls its beater-bar a device for *forcing* the feed, while complainant's is only a *regulator* or device for disposing of the misplaced or overriding ears.

The models of both complainant's and defendant's shellers show that the ears of corn are brought forward nearly above the throat of the sheller upon an endless apron, and from that dropped or slid down a sharp, almost perpendicular incline, into the throat of the shelling apparatus.

It may, I think, be therefore said that no device for forcing the feed is required in either machine, but what both need is a regulator to prevent the ears from overriding each other and choking up the throat; and it is very plain to me that the defendant's beaters under the stream of ears of corn perform the same office, and no other that is performed by complainant's.

A change of location of a part, in a combination where there is no new function performed by the changed member in its new location, will not evade a patent.

In the case of *Potter* vs. *Schenck*, before his honor, Judge Drummond, 1 Bissell, 515, an infringement was alleged of the Wilson patent for a sewing-machine feed. By the defendant's device in that case the feed was secured by the pressure of teeth operating upon the top instead of the under side of the cloth, and in reference to this change of mode in effecting the result, the learned Judge said:

> The question is whether this is a substantial variation, in all or any of its particulars, from the invention of Wilson, as described in his specifications of 1856. I have already stated that it is not, and, as it seems to me, on this ground, viz: that when a mechanic has the leading idea which it developed in Wilson's patent once thoroughly understood and fixed in his mind, he can carry out that idea in a variety of forms, simply by the exercise of mechanical ingenuity. Here was a great leading principle in the feed of the machine, devised and invented by Wilson. He, to be sure, describes the particular manner in which he carries out that idea; but once get that in the mind and it is clear that you can carry it out in a variety of forms. This is, it may be said, an ingenious variation or difference by which the idea of Wilson is carried out. The shoe or main part of the feeding apparatus is not placed beneath the plate upon which the cloth rests, but is on the top of the plate, or, as was contended, and I think with a good deal of force, by the counsel for complainants, instead of being placed as Wilson describes it, it was merely reversed. It is clear that that does not change the principle of the invention, and it is clear, too, as already stated, that a mechanic once having the idea in his mind could apply it by adopting a great variety of forms and devices, and this among others.

Nor will the fact that the beater does its work even better in the location where defendant puts it than where complainant puts it, if it does the same work, but only in degree better, make any difference. The result is still the same. The ears are urged into this sheller by the blows they get from these revolving wings, whether they receive them on the top or bottom. And it can make no difference, it seems to me, that defendant's beaters may strike every ear, while complainant's strike only the overriding ones, because, when the stream is running evenly, no blows are needed on either side, and when one ear comes along with another on top of it, it makes no difference whether the under one or upper one is first driven forward into the sheller, so long as that is the function of the beater; whether it strikes the top or bottom, the result is the same, and secured by substantially the same mechanism. Both these machines *force* the feed by driving the corn into the sheller and preventing clogging, and both of them *regulate* it. It therefore seems to me that neither of the points made in the answer is sufficient to defeat the patent; that, as the proof in this case stands, the patent is for a novel and useful invention, and that the defendant by its machine infringes the patent.

APPLICATION FOR EXTENSION.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., April 24, 1877.

On the petition of Erastus T. Bussell, of Indianapolis, Indiana, praying for the extension of a patent granted to him on the 29th day of November, 1853, numbered 10,280, extended for seven years from the 29th day of November, 1867; reissued on the 13th day of December, 1870, and numbered 4,202, for an improvement in combined rubber and spiral steel spring. This application having been authorized by act of Congress approved March 3, 1877:

It is ordered that the testimony in the case be closed on the 10th day of July next; that the time for filing arguments and the Examiner's report be limited to the 20th day of July next; and that said petition be heard on the 25th day of July next.

Any person may oppose this extension.

ELLIS SPEAR,
Commissioner of Patents.

[tf]

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date July 17, 1877.]

10,095.—Carpets.—ALPHONSE BAYE, Paris, France, assignor to ROXBURY CARPET COMPANY, Boston, Mass. Application filed July 7, 1877. Term of patent 3½ years.

10,096.—Glassware.—JENKIN JONES, Pittsburg, Pa. Application filed July 7, 1877. Term of patent 3½ years.

10,097.—Ranges.—FRANKLIN M. LAWRENCE, Portland, Me. Application filed June 19, 1877. Term of patent 14 years.

10,098.—Heating-Stoves.—JAMES A. LAWSON, Troy, N. Y. assignor to FULLER, WARREN & CO., same place. Application filed June 25, 1877. Term of patent 7 years.

10,099.—Playing-Cards.—ALFRED J. MANNING, New York, N. Y., assignor to A. DOUGHERTY, same place. Application filed June 30, 1877. Term of patent 7 years.

10,100.—Buttons, Studs, &c.—JAMES W. MILLER and ISAAC M. MILLER, Newark, N. J. Application filed June 23, 1877. Term of patent 14 years.

10,101.—Shears and Scissors.—MITCHELL RENZ, Naugatuck, Conn. Application filed June 11, 1877. Term of patent 7 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date July 17, 1877.]

4,839.—Plug-Tobacco.—BUCHANAN & LYALL, New York, N. Y. Application filed June 25, 1877.

"The word-symbol 'NARRAGANSETT' arranged above the representation of an attack by Indians on a wagon-train on the frontier."

4,840.—Preparation for Destroying Rats, Roaches, Ants, &c.—J. S. BURDSAL, Cincinnati, Ohio. Application filed June 16, 1877.

"The word-symbol 'PHOSPHORENE.'"

4,841.—Chemical Composition for Use with Sizing for Warps.—THOMAS BURRELL and ROBERT SMITH, Fall River, Mass. Application filed May 28, 1877.

"The word symbol 'NEWTRALIN.'"

4,842.—White Paint.—J. H. CHADWICK & CO., Boston, Mass. Application filed May 11, 1877.

"The word-symbol 'AMERICAN MINE,' used in connection with the word 'White.'"

4,843.—Cigars.—MICHAEL J. DOUGHERTY, Pittsburg, Pa. Application filed March 7, 1877.

"The letters 'M. J. D.' and the word-symbol 'LITTLE BUILDER.'"

4,844.—Cordage.—EDWIN H. FITLER & CO., Philadelphia, Pa. Application filed May 7, 1877.

"Pictorial matter representing a view of our factory and surroundings, as shown."

4,845.—Cigars, Cigarettes, Smoking and Chewing Tobacco.—FREDERICK A. FORD, Elizabeth, N. J. Application filed June 23, 1877.

"The word-symbol 'NOXALL.'"

4,846.—Smoking-Tobacco.—G. W. GAIL & AX, Baltimore, Md. Application filed April 12, 1877.

"The word-symbol 'DEMI-CUBA.'"

4,847.—Refined Petroleum.—HAAS BROTHERS, San Francisco, Cal., and New York, N. Y. Application filed April 30, 1877.

"The word-symbol 'SAFEGUARD.'"

4,848.—Refined Petroleum.—HAAS BROTHERS, San Francisco, Cal., and New York, N. Y. Application filed April 30, 1877.

"The word-symbol 'POPULAR.'"

4,849.—Medicinal Compound.—J. A. HEINTZELMAN, Philadelphia, Pa. Application filed June 5, 1877.

"The fac-simile of my signature, 'J. A. HEINTZELMAN.'"

4,850.—Smoking and Chewing Tobacco, Cigars, and Cigarettes.—DAVID HIRSCH & CO., New York, N. Y. Application filed June 15, 1877.

"The word-symbol 'MOSS ROSE.'"

4,851.—Smoking and Chewing Tobacco and Cigarettes.—DAVID HIRSCH & CO., New York, N. Y. Application filed June 26, 1877.

"The word-symbol 'DEFIANCE.'"

4,852.—Starch and Starch Products.—T. KINGSFORD & SON, Oswego, N. Y. Application filed May 9, 1877.

"The representation of a shield or escutcheon supported on the left by the figure of a female Indian, and on the right by the figure of a farmer holding a sickle, and embellished at the bottom and on either side by representations of the leaves and ears of Indian corn, as shown."

4,853.—Silk Ribbons.—LEISLER & SOMMERHOFF, New York, N. Y. Application filed June 13, 1877.

"The monogram composed of the letters 'L' and 'S.'"

4,854.—Perfume Known as "Florida Water."—WILLARD E. MASTEN, Albany, N. Y. Application filed March 19, 1877.

"The word-symbol 'CAPITAL CITY.'"

4,855.—Shirts.—MILLER & BROTHER, Philadelphia, Pa. (Re-registration.) Application filed November 25, 1871.

"The words 'Eagle Shirt Factory' and picture of an eagle."

4,856.—Flour.—MOREHEAD MANUFACTURING COMPANY, Morehead, Minn. Application filed April 30, 1877.

"The word-symbol 'BELLE OF MOREHEAD.'"

4,857.—Overcoats.—JOHN PARET, New York, N. Y. Application filed May 28, 1877.

"The word-symbol 'ZERO.'"

4,858.—Petroleum or Coal Oils.—WELLMAN, PECK & CO., San Francisco, Cal. Application filed April 30, 1877.

"The word-symbol 'BONANZA.'"

4,859.—Heaters, Stoves, and Heating-Pipe.—HIRAM PURDY, Burlington, Iowa. Application filed April 16, 1877.

"The word symbol 'CYCLONE.'"

4,860.—Spices.—SLOAN, JOHNSON & CO., Peoria, Ill. Application filed March 28, 1877.

"A representation of a conventional figure, in the similitude of a human being, having the head of a bird, seated in a rocking-chair, its legs crossed, its left hand raised, and its right hand bearing a knife."

4,861.—Cured Fish.—JOHN J. STANWOOD, Gloucester, Mass. Application filed June 23, 1877.

"The word-symbol 'CHAMPION.'"

4,862.—Cigars.—STRAITON & STORM, New York, N. Y. Application filed June 25, 1877.

"The word-symbol 'ARISTOCRATS.'"

4,863.—Cigars.—WARNICK & BROWN, Utica, N. Y. Application filed June 22, 1877.
"The word-symbol 'WHITE ROSE.'"

4,864.—Flour.—NATHAN BROOKE, Philadelphia, Pa. Application filed April 4, 1877.
"The letters 'X X X' and the word 'BAKERS.'"

4,865.—Paper Collars.—CLEVELAND COLLAR COMPANY, Cleveland, Ohio. Application filed March 12, 1877.
"The word-symbol 'GURDON.'"

4,866.—Paper Collars.—CLEVELAND COLLAR COMPANY, Cleveland, Ohio. Application filed March 12, 1877.
"The word-symbol 'THE FLYER.'"

4,867.—Paper Collars.—CLEVELAND COLLAR COMPANY, Cleveland, Ohio. Application filed April 7, 1877.
"The word-symbol 'CHERRY RIPE.'"

4,868.—Soap.—CORNWALL & BROTHER, Louisville, Ky. Application filed February 14, 1877.
"The word-symbol 'DUBLIN.'"

4,869.—Shirtings.—GEORGE B. DURFEE, Fall River, Mass. Application filed April 4, 1877.
"The word-symbol 'OUR OWN.'"

4,870.—Cigars.—JAMES L. DAVIS & SON, New York, N. Y. Application filed March 24, 1877.
"A crowned female head, encircled by an ornamental border, and the letters 'J. L. D. and S.'"

4,871.—Cotton Flannels.—FIELD, LEITER & Co., Chicago, Ill. Application filed March 9, 1877.
"The word-symbol 'KENNEBEC MILLS.'"

4,872.—Medicine-Case of Ready-Compounded Prescriptions.—DR. HUBBARD & Co., Louisville, Ky. Application filed July 7, 1877.
"The picture of an open medicine-case."

4,873.—Preparation for the Hair.—CASWELL, HAZARD & Co., New York, N. Y., and Newport, R. I. Application filed April 11, 1877.
"The word-symbol 'LOTUS BALM,' arranged substantially as shown in said fac-simile, and a representation of palm-trees and pyramids."

4,874.—Drugs and Medicines.—CASWELL, HAZARD & Co., New York, N. Y., and Newport, R. I. Application filed April 11, 1877.
"The representation of a belt of circular form, upon which is exhibited the motto 'Labor omnia vincit,' said belt encircling an eagle, displayed, having shield upon its breast, arrows and an olive-branch in its talons, and underneath it the words 'Established 1780.' Said belt is also surmounted by a pestle and mortar."

4,875.—Cologne-Water.—CASWELL, HAZARD & Co., New York, N. Y., and Newport, R. I. Application filed April 11, 1877.
"A shield colored red and blue, and having diagonally across it a white band, and upon its field a golden *fleur-de-lis*, and a golden musk-deer's head, said belt, the motto 'Labor omnia vincit," said pestle and mortar, and the figures '1780.'"

4,876.—Cod-Liver Oil.—CASWELL, HAZARD & Co., New York, N. Y., and Newport, R. I. Application filed April 11, 1877.
"The representation, substantially as shown on said fac-simile, of men engaged in the manufacture of cod-liver oil near the sea, and of a vessel sailing upon the sea."

4,877.—Preparation for the Hair.—CASWELL, HAZARD & Co., New York, N. Y., and Newport, R. I. Application filed April 11, 1877.
"The word-symbol 'PHILOCOME" and the representation, substantially as shown in the accompanying fac-simile, consisting of parts of the general trade-mark commonly used by us for all the goods manufactured or sold by us, said parts consisting of a belt of circular form, upon which is exhibited the motto 'Labor omnia vincit,' said belt encircling an eagle, displayed, having a shield upon its breast and arrows in its talons. Said belt is surmounted by a pestle and mortar, from underneath which issues a scroll upon which are the words 'Caswell, Hazard & Co.,' and there being underneath said belt a wreath and the figures '1780,' and the representation, substantially as shown in the accompanying fac-simile, of the sides of a medal."

4,878.—Cosmetics.—HOWARD, SANGER & Co., New York, N. Y., assignors of one-half their right to F. R. ARNOLD & Co., same place. Application filed March 27, 1877.
"The fac-simile signatures of 'HOWARD, SANGER & Co.' and 'F. R. ARNOLD & Co.' upon the border, and 'ELLI. SENES' near the bottom."

4,879.—Liniment.—A. J. LAUBACH & Co., Philadelphia, Pa. Application filed May 2, 1877.
"The fanciful word-symbol 'ECLECTIC.'"

4,880.—Blacking, Boot and Shoe Dressing, and Stove-Polish.—GEORGE A. MOSS, Orange, N. J. Application filed January 16, 1877.
"An open flag, having around and near its edge a border of stars, and on its face the words 'Is the best,' in combination with the words 'The Union,' placed above the flag."

4,881.—Road-Wagons.—CHERRY, O'CONNER & Co., Nashville, Tenn. Application filed December 1, 1876.
"The word-symbol 'TENNESSEE.'"

4,882.—Cologne.—ALFRED B. TAYLOR, Philadelphia, Pa. Application filed December 23, 1876.
"A symbol representing the United States quarter-dollar, the same being used in connection with the words 'Twenty-five Scent Cologne."

4,883.—Hams, Lard, and Other Pork Products.—WATTS, PARKER & Co., New York, N. Y., and Cincinnati, Ohio. Application filed May 8, 1877.
"A figure of a man in the costume of our forefathers holding a musket, with two dates, 1776 and 1876, one on each side thereof."

4,884.—Ales, Porter, and Brown-Stout.—J. WALKER & Co., Cincinnati, Ohio. Application filed March 31, 1877.
"The representation of a ribbon folded back and forth in a zigzag form."

4,885.—Canned Tomatoes.—ABRAHAM ANDERSON, Camden, N. J. Application filed June 25, 1877.
"The words 'BOSTON MARKET,' and the pictorial representation of a four-wheeled timber-wagon, with double team and driver, conveying a very large tomato suspended between the wheels."

4,886.—Playing-Cards.—ANDREW DOUGHERTY, Brooklyn, N. Y. Application filed June 30, 1877.
"The word-symbol 'INDICATOR.'"

4,887.—Flour.—EMPIRE MILL COMPANY, St. Louis, Mo. Application filed June 27, 1877.
"The fanciful words 'WHITE VELVET FANCY.'"

4,888.—Axes and Saws.—WILLIAM FRANKFURTH & Co., Milwaukee, Wis. Application filed June 27, 1877.
"The word-symbol 'WISCONSIN FARMER.'"

4,889.—Cigars, Cigarettes, Chewing and Smoking Tobacco.—LICHTENSTEIN, BROTHERS & Co., New York, N. Y. Application filed July 3, 1877.
"The word-symbol 'COSSACK.'"

4,890.—Cigars, Cigarettes, Chewing and Smoking Tobacco.—LICHTENSTEIN BROTHERS & Co., New York, N. Y. Application filed July 3, 1877.
"The word-symbol 'HONDURAS.'"

4,891.—Cigars, Cigarettes, Chewing and Smoking Tobacco.—LICHTENSTEIN BROTHERS & Co., New York, N. Y. Application filed July 3, 1877.
"The word-symbol 'PASHA.'"

4,892.—Soap.—ROBINSON BROTHERS & Co., Boston, Mass. Application filed June 30, 1877.
"The word-symbol 'GIANT.'"

4,893.—Cigars.—SAMUEL STRAUS, New York, N. Y. Application filed June 29, 1877.
"The word-symbol 'BON-TON.'"

4,894.—Button-Holders.—GEORGE J. STOCKS, Philadelphia, Pa. Application filed June 29, 1877.
"The figure of a shoe."

4,895.—Butter.—ELGIN BUTTER COMPANY, Elgin, Ill. Application filed June 11, 1877.
"The letters 'E. B.'"

4,896.—Baking-Powder.—FITTS & AUSTIN, New York, N. Y. Application filed February 14, 1877.
"The fanciful designation 'NEW PROCESS.'"

4,897.—Medical Compound.—JULES HOURIET, Terre Haute, Ind. Application filed December 12, 1876.
"The word-symbol 'SWISS.'"

4,898.—Bitters.—THADDEUS E. PECK, Bridgeport, Conn. Application filed May 10, 1877.
"The word-symbol 'OLD TIME,' in combination with the engraving representing Benjamin Franklin."

4,899.—Collars and Cuffs.—STRAHAN, HODGSON & Co., Troy and New York, N. Y. Application filed March 2, 1877.
"A rectangular figure composed of a border surrounding a central quadrilateral space, with ornamented blue stripes on two opposite sides, and two red bars extending across the ends of the blue stripes, and inclosing quadrilateral spaces and ornamental figures."

4,900.—Tea.—HAAS BROTHERS, San Francisco, Cal., and New York, N. Y. Application filed June 8, 1877.
"The figure of an elephant."

4,901.—Yeast-Powder.—HAAS BROTHERS, San Francisco, Cal., and New York, N. Y. Application filed June 8, 1877.
"The word-symbol 'CHALLENGE.'"

4,902.—Tea.—HAAS BROTHERS, San Francisco, Cal., and New York, N. Y. Application filed June 8, 1877.
"The figure of a globe."

4,903.—Medicinal Preparations.—DR. D. JAYNE & SON, Philadelphia, Pa. Application filed April 26, 1877.
"The name 'D. Jayne,' in the form of a water-mark."

4,904.—Medical Compound.—COUSSENS & TABLER, Nashville, Tenn. Application filed April 14, 1877.
"The monogram composed of the letters and character 'C. & T.,' and the fac-simile of the signature of 'J. N. TABLER, M. D.'"

4,905.—Corsets.—MARTIN I. COOLEY, Plainfield, N. J. Application filed March 20, 1877.
"A monogram composed of the letters 'M. I. C.,' in connection with the name 'COOLEY,' and the representation of a corset."

4,906.—White Lead.—ECKSTEIN, HILLS & Co., Cincinnati, Ohio. Application filed April 2, 1877.
"The word-symbol 'PHŒNIX' and the representation of the phœnix."

4,907.—Grain-Seeding Machines.—FARMERS' FRIEND MANUFACTURING COMPANY, Dayton, Ohio. Application filed May 26, 1877.
"The symbol of two overlapping medals."

4,908.—Liniment.—WILLIAM L. KELLER, Baltimore, Md. Application filed June 14, 1877.
"The word-symbol 'ROMAN,' in connection with the word 'Liniment.'"

4,909.—Artificial Ivory Keys for Organs, &c.—THE SMITH AMERICAN ORGAN COMPANY, Boston, Mass. Application filed May 19, 1877.
"The word-symbol 'LITHOPHANE.'"

4,910.—Preparation for Coloring Butter.—WELLS, RICHARDSON & Co. Application filed April 26, 1877.
"The symbol of the dandelion plant in full blossom, in connection with the words and letters 'Wells, Richardson & Co.'s Perfected Butter Color.'"

4,911.—Bottled Cider.—S. S. PIERCE & Co., Boston, Mass. Application filed May 26, 1877.
"The figure of a shield, with a lion rampant, with the letters S. S. P. & Co.' and the motto 'Puritas et cura.'"

4,912.—Cereals.—THE CEREALS MANUFACTURING COMPANY, New York, N. Y. Application filed January 22, 1877.
"the fanciful words 'AMERICAN BREAKFAST.'"

4,913.—Pharmaceutical Preparation.—WILLIAM M. OLLIFFE, New York, N. Y. Application filed April 30, 1877.
"The figure of a Maltese cross, with the letters O L L F F E running in a perpendicular manner through the center thereof, and also at right angles thereto, having a human eye in the center."

4,914.—Medicinal Preparation.—JAMES D. THORNDIKE, Boston, Mass. Application filed May 7, 1877.
"The word-symbol 'VITALIZER,' and the letter V, with the letters 'ITALIZER' upon one of its sides, as shown."

4,915.—Medicinal Food.—GEORGE J. WENCK, New York, N. Y., assignor to MARGARET E. WENCK, same place. Application filed May 3, 1877.
"The word-symbol 'WENCK'S LIEBIG'S.'"

4,916.—Cigars.—ANDREW J. CRAWFORD, New York, N. Y. application filed June 26, 1877.
"The word-symbol 'CHECKER BOARDS.'"

4,917.—Medicines put up in Capsules.—DUNDAS DICK, New York N. Y. Application filed May 8, 1877.
"The words 'Soft Capsules.'"

4,918.—Cough-Sirup.—NATHAN F. PHILO, Crescent, N. Y. Application filed April 30, 1877.
"The arbitrarily-selected word 'MOHAWK.'"

4,919.—Soap.—PROCTOR & GAMBLE, Cincinnati, Ohio. Application filed April 21, 1877.
"The word 'white' displayed in ornamental characters in white upon a blue ground."

4,920.—Medical Compound.—HENRY A. TILDEN, New Lebanon, N. Y. Application filed June 8, 1877.
"The word-symbol 'DIPHTHERINE.'"

4,921.—Tea.—MOMOTARO SATO, New York, N. Y. Application filed April 10, 1877.
"The arbitrary word 'BASKET.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date July 17, 1877.]

1,117.—Title: **"Richard L. Brown's Horse Eye Water."**—RICHARD L. BROWN, Rockville, N. C. Application filed July 9, 1877.

1,118.—Title: **"A. Dougherty Patentee, New York."**—ANDREW DOUGHERTY, New York, N. Y. Application filed July 2, 1877.

1,119.—Title: **"Manufactured by the Philadelphia Cordage Works."**—EDWIN H. FITLER & Co., Philadelphia, Pa. Application filed May 7, 1877.

1,120.—Title: **"Best Light Oak."**—HEATH & MILLIGAN, Chicago, Ill. Application filed April 6, 1877.

1,121.—Title: **"The Stock Liniment."**—PAINTER & CALVERT, San Francisco, Cal. Application filed July 10, 1877.

CATALOGUES AND CIRCULARS RECEIVED.

[Inventors, manufacturers, and dealers in engines, machines, tools, and manufactured articles are respectfully requested to send duplicate copies of catalogues and circulars issued by them to the Commissioner of Patents, Washington, D. C. Where such publications have a permanent value, other than as mere advertisements, their receipt will be acknowledged in the OFFICIAL GAZETTE.]

Brass-Work, Plumbers' Materials, &c.—HENRY C. MEYER & Co., 48 Cliff street, New York.

The Miott Pen Tip.—JNO. W. MCGILL, 86 John street, New York.

When a patent has been allowed, and the application has not been forfeited by delay of six months, if the final fee of twenty dollars is paid before 12 o'clock on Friday, the patent will issue and bear date the following Tuesday.

The Government fee on making application for a patent is fifteen dollars. The final fee is twenty dollars. Usually there are no other Government fees unless the application is appealed.

Where specifications are printed, copies of same attached to drawings will be furnished without extra cost.

Printed copies of any patent can be obtained commencing with issue of November 26, 1867, to date.

Printed copies of specifications can be procured from No. 59,740, issue of November 20, 1866.

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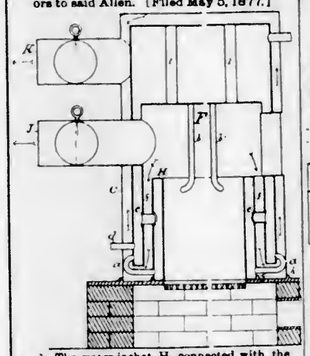
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TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED JULY 17, 1877.

193,069. STEAM-BOILERS. D. N. Allen and J. M. Farrington, Concord, N. H., assignors to said Allen. [Filed May 5, 1877.]



1. The water-jacket H, connected with the outer boiler by the bent water-pipes *a*, thimbles *e*, and vertical water-tubes *b*, in combination with the outer casing C and water and steam spaces above the fire-pot, traversed by the tubes *i*, as and for the purpose specified.

2. The boiler provided with an outer smoke-jacket, C, an auxiliary combustion-chamber, F, annular flue *f*, and the outlet-pipes J and K, one of which connects directly with the auxiliary combustion-chamber, and the other with the smoke-jacket, as shown and described.

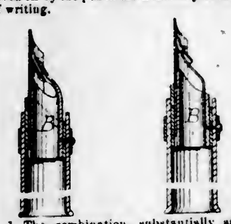
193,070. HAND-STAMPS. H. W. Bardwell, Tunkhannock, Pa. [Filed Feb. 27, 1877.]



The combination of the handle A, spring-shank B, extending to and embracing the head piece, and head-piece D, substantially as shown and described.

193,071. FOUNTAIN-PENS. H. C. Benson, Yonkers, assignor to Jos. Reckendorfer, New York, N. Y. [Filed June 19, 1877.]

Brief.—A stick of soluble solid ink is held by a spring-clasp beneath, and in contact with, the pen. When the pen is dipped in water, the ink-solid will, to a certain extent, dissolve in the water held by the pen, and thus produce an ink or writing-fluid, which will be given off by the pen in the usual way or course of writing.



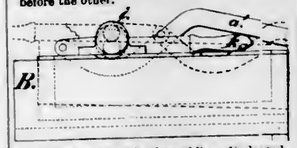
1. The combination, substantially as set forth, of the pen, the clasp, and the detachable and removable ink solid or stick, received and held by said clasp.

2. A pen-holder whose inner barrel is formed with a tongue or extension, constituting a clasp to receive and hold an ink solid or stick, substantially as shown and set forth.

3. The combination, as herein set forth, of the pen-holder, the pen proper, and the ink-solid spring-clasp, arranged to bear against or toward the under side of the pen with a yielding pressure, as and for the purposes specified.

193,072. MOLDS FOR CASTING RIBBED SURFACES. S. H. Bingham, Philadelphia, Pa., assignor to the Bullock Printing Press Company, same place. [Filed May 5, 1877.]

Brief.—Casts ribbed stereotype-plates for cylinder-presses in a suitable box or mold, and raises the entire cope of the box in a line vertical to the drag, to prevent injury to the ribs, as may be done when one end is lifted before the other.



1. A casting-box for the molding of indented castings, consisting of a lower box, in combination with a movable top or lid operated by an attached arm or arms, whereby the rear or lower end of the lid is first raised in a right line, and then axially rotated, substantially as and for the purpose specified.

2. A casting-box for the molding of indented castings, consisting of a lower box, in combination with a movable top or lid, operated by an attached arm or arms, whereby the upper or forward end of the lid is first raised in a right line, and then rotated upon the rear end, substantially as and for the purpose specified.

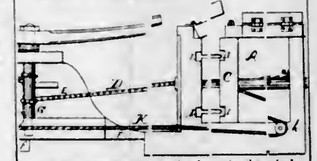
3. A casting-box for the molding of indented castings, consisting of a lower box, in combination with a movable top or lid, operated by attached and connected arms or levers, whereby the entire lid is first raised in a right line by a single hand-lever, and then rotated upon one end, substantially as and for the purpose specified.

4. The combination, with a casting-box consisting of a lower box, B, and a top or lid, A, of an eccentric-shaft, *a i*, attached thereto, whereby the upper or forward end of the lid is raised in a right, or virtually right, line, as and for the purpose specified.

5. A casting-box consisting of a lower box, B, and a top or lid, A, united thereto by a slotted hinge, provided with an eccentric-pin, whereon the lower or rear end of the lid may be first raised in a right, or virtually right, line, and then rotated, substantially as and for the purpose specified.

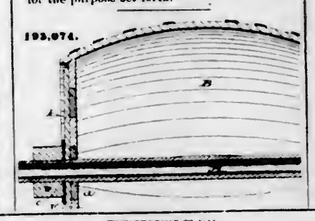
193,073. HAY-PRESSES. Francis B. Boalt, Bainbridge, N. Y. [Filed Jan. 26, 1877.]

Brief.—The slide carrying the windlass may be drawn in under the baling-chamber for convenience in transportation.



In combination with the box A, the windlass G, slide F, chains D, attached to lugs *a*, working in channels *b*, windlass-chain E, and retracting-cord K, connected as described, all constructed and arranged as herein described, for the purpose set forth.

193,074.

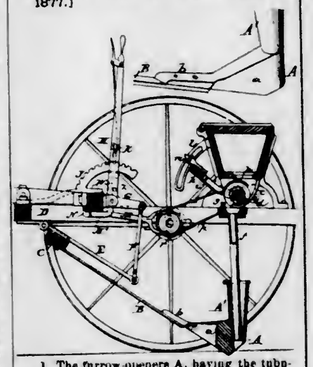


193,074. BEER-CASKS. M. Brand, Chicago, Ill. [Filed Mar. 12, 1877.]

Brief.—A cask having a tube through its center, screw-threaded at each end, and cross-pieces of wood, to strengthen the head of the cask, which are secured by washer and nuts.

The combination of the cask B with the tube A, cross-pieces *k k*, and the screw-nuts *e e*, constructed as shown and described, and for the purposes specified.

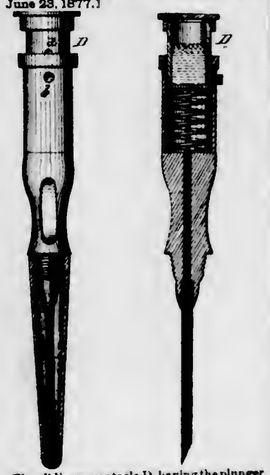
193,075. GRAIN-DRILLS. T. Brennan and J. Taylor, Louisville, and J. T. Lynam, Jefferson County, Ky. [Filed Jan. 29, 1877.]



1. The furrow-openers A, having the tubular extensions A', the V-shaped ends, and the sharp-edged colters *a*, constructed as shown, in combination with flat straight lifting or operating and supporting springs B, and tongues *b*, substantially as described.

2. The combination of the furrow-openers A, straight flat springs B, hinged bar C, rod E, link F, lever H, and toothed rack J, all constructed and arranged substantially as described.

193,076. VACCINATING-INSTRUMENTS. T. S. Brinkerhoff, Auburn, N. Y. [Filed June 23, 1877.]



The sliding receptacle D, having the plunger attached thereto, in combination with the hollow lancet and spring, substantially as and for the purpose set forth.

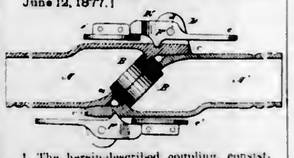
THE GRAPHIC CO. N.Y.

193,077. BATHING-SHOES. C. C. Clayton, Ocean Grove, N. J. [Filed Aug. 18, 1876.]



The herein-described bathing-shoe, consisting of the canvas vamp and quarters A B, sole-piece C, cork sole E, and eyelets G G, arranged to receive the lacing-ribbon, the whole constructed as herein shown and described.

193,078. COUPLINGS FOR VACUUM-BRAKES. F. W. Eames, Watertown, N. Y. [Filed June 12, 1877.]



1. The herein-described coupling, consisting of two parts, each the counterpart of the other, so as to be interchangeable at pleasure, and having end openings of oblique form, so that when brought together they form a splice-joint, and leave a clear, open, and unobstructed channel for the passage of the air, as set forth.

2. A coupling device having its valve located entirely outside, so that while equally efficient as a valve, it does not obstruct the passage of the air through the coupling when the parts are brought together, as set forth.

3. A coupling consisting of two parts, each the counterpart of the other, and having levers E, provided with valve-disks *e*, operating in combination with the gaskets B, substantially as and for the purpose specified.

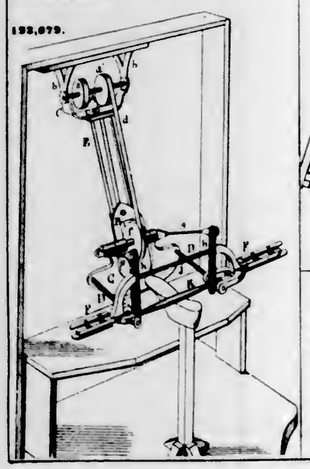
4. A coupling consisting of two parts, each the counterpart of the other, and having valve-levers E, provided with rounded projections or studs F, which engage with the correspondingly-shaped groove *c*, substantially as and for the purpose specified.

5. The combination of the parts A A', having oblique end openings, with the flexible gaskets B B, seated in said openings, substantially as and for the purpose specified.

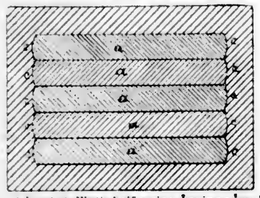
6. The gasket B, constructed, substantially as described, with two flanges, *b b'*, and annular grooves between the flanges, in combination with the flange *a* of the coupling, substantially as and for the purpose specified.

7. The combination of the coupling, having oblique end openings, the gaskets B, and levers E, having valve-disk *e*, with spring G and sleeve *g*, substantially as and for the purpose specified.

193,079.

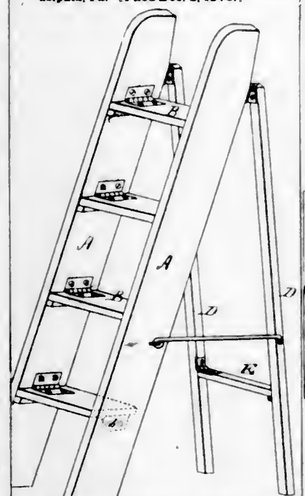


193,080. ELLIPTIC SPRINGS. A. French, Pittsburg, Pa., assignor to A. French & Co., same place. [Filed May 22, 1877.]



A banded elliptic half-spring, having a band griping tightly the top and bottom leaves of the spring, and also seated by independent seats or prints on the edges of the spring-leaves, substantially as set forth.

193,081. STEP-LADDERS. Geo. Gay, Philadelphia, Pa. [Filed Dec. 2, 1876.]



A laterally compressible or folding step-ladder, having side pieces A, and hinged folding steps B, legs D, hinged to the rear edges of said side pieces to fold in the planes thereof, and folding transverse brace E, substantially as specified.

193,082. MACHINES FOR FORMING SHEET-METAL PIPE-COUPLINGS. E. Griffin, Syracuse, N. Y. [Filed May 23, 1877.]

1. The combination and arrangement of the mandrel *a*, dies *c c' c²*, elevated guide-block *c³*, beveled toward the die *c'*, and supported on set-screw *x'*, and the guide-block *c⁴* in front of die *c²*, and having set-screw *x²*, substantially in the manner and for the purpose described and shown.

2. The combination and arrangement of the guide *c⁴*, having bevel *e* on top of its forward end, the die *c*, plunger *d*, and guides *h h*, having beveled projection *r* at one side of the plunger, and a spring at the opposite side thereof, constructed to operate substantially in the manner specified.

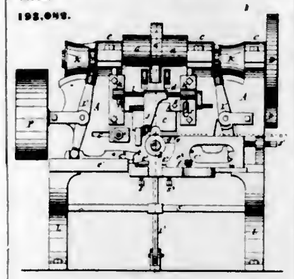
3. The combination and arrangement of the guide *c⁴*, having the shape of an inverted L, resting with its vertical limb on way *w*, and having the end of its horizontal portion fitted in a groove, *g*, in frame A, the stod *f*, and set-screw *x'*, as and for the purpose set forth.

4. The combination, with the die *c*, of the guide *c⁴*, set-screw *x'*, and gage *i*, secured in slot *i'* in frame A, substantially as and for the purpose described.

5. The combination of the plunger *d*, screw-shaft *l*, journaled in boxes on guides *h h*, and gage *J*, pendent from screw-shaft *l*, and weighted at its lower extremity, constructed and arranged as described and shown, for the purpose set forth.

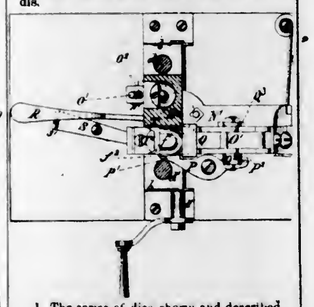
6. The combination and arrangement of the shaft B, having cams or eccentrics G G, cam G', and cam-drums K K, the plunger *d*, die *c*, levers L^1 L^1, dies c^1 c^2, lever I, counterpoise H, mandrel *a*, lever L^2, and spring S, all constructed to operate substantially in the manner described and shown, for the purpose set forth.

193,083.



193,084. MACHINES FOR WELDING AND FINISHING CHAIN-LINKS. B. Hershey, Erie, assignor to Pittsburg Chain and Car Link Manufacturing Company, New Brighton, Pa. [Filed June 20, 1877.]

Brief.—The link, after having been welded, is submitted to finishing dies capable of endwise and sidewise compression at the same time that the drop-die descends upon the beldis.



1. The series of dies shown and described, consisting of the welding dies *e* and *e'* and the finishing-dies *f* and f^1, Q, T, and P, constructed and operating substantially as set forth.

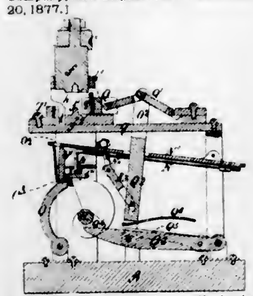
2. The swaging-dies *f* and f^1, in combination with the endwise compressing die Q, and the back rest T, and the sidewise compressing die P, and the side wall T of the die-chamber.

3. The finishing-dies composed of a supporting or stationary die and the drop-die, in combination with endwise and sidewise compressing dies, substantially as shown and described.

4. The foot-lever R, in combination with a rocker, S, and pivoted arm N^3, for the purposes of throwing the cam-lever Q^2 into position to be acted upon by the toggle-cam Q^1, and simultaneously bringing the arm N^3 into the range of motion of the spring plate cam N^2, and thus enabling the cam N^2 to depress the spring plate N^3, and thereby bring the spring N into action, and dislodge the stop-latch O^2 from the under end of the die frame or gate, substantially as set forth.

5. The toggle-cam Q^1, in combination with the pitman Q^2 and Q^3, the latter provided with the wedge I^{10}, by the operation of which the toggle-die Q and the rocking die P are simultaneously brought into action, substantially as described.

193,085. MACHINES FOR WELDING CHAIN-LINKS. B. Hershey, Erie, assignor to Pittsburg Chain and Car Link Manufacturing Company, New Brighton, Pa. [Filed June 20, 1877.]



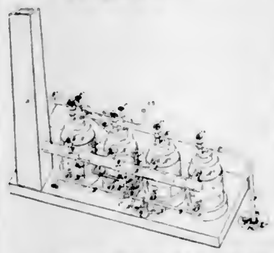
1. A drop die and a stationary die, having their opposed faces suitably recessed to contain one end and a portion of both sides of a chain link, in combination with a deeply recessed concave-faced compressing die and a concave-faced stationary die or back-rest, such compressing die having a reciprocating motion perpendicular to the direction of the motion of the drop-die, substantially as and for the purposes set forth.

2. The transverse recess or space *t* between the outer end of the stationary die f^1 and the inner end of the back-rest T, for the purpose of containing the chain-link, upon which the link to be welded is hung, as set forth.

3. The cam Q^4 and the cam-lever Q^5 in combination with the toggle mechanism (consisting of the pitman Q^2 and the toggle-joint Q^3) and the torsion-spring plate N^3, the adjustable bolt N^4, and the link N^5.

4. The foot-lever R, push-bar R^1, cam-lever Q^5, and cam Q^4, in combination with the toggle mechanism, link N^5, adjustable bolt N^4, torsion-spring plate N^3, and stop-bar O.

193,085. STEAM-GENERATORS FOR WARMING BUILDINGS, &c. B. Holly, Lockport, N. Y. [Filed May 14, 1877.]



1. A train or series of steam-boilers connected together, and to a feed-water supplying apparatus, and to a draft-flue, by pipes and flues furnished with cocks or valves and dampers, substantially as described, whereby, at the will of the engineer, all of the boilers can be used for generating high-pressure steam, or a portion of the train or series be used for generating high-pressure steam, and the others for heating and supplying feed-water for those generating high-pressure steam, as set forth.

2. A train or series of steam-boilers connected together, and to a feed-water-supplying apparatus, and to a draft-flue, by pipes and flues furnished with cocks or valves and dampers, substantially as described, whereby, at the will of the engineer, all of the boilers can be used for generating high pressure steam, or a portion of them be used for generating high-pressure steam, and a portion for heating and supplying feed-water for the high and low pressure boilers, as set forth.

3. A train or series of boilers connected together, and to a feed-water-supplying apparatus, and to a draft-flue by pipes and flues furnished with cocks or valves and dampers, substantially as described, whereby, at the will of the engineer, all of the boilers can be used for generating high pressure steam, or a portion of them be used for generating high pressure steam, a portion for generating low-pressure steam, and a portion for heating and supplying feed-water for the high and low pressure boilers, as set forth.

4. The combination of the smoke-flue D b^1 b^2, waste-heat pipes D^2 D^4, and the dampers c^1, c^3, c^5, and c^6, with two or more boilers, A^1 A^2, and stack D^1, substantially as described.

5. The combination of the smoke-flue D b b^2, having dampers *c* c^2, waste-heat pipe D^2, and its damper c^4, two or more boilers, A A^2, and stack D^1, substantially as described.

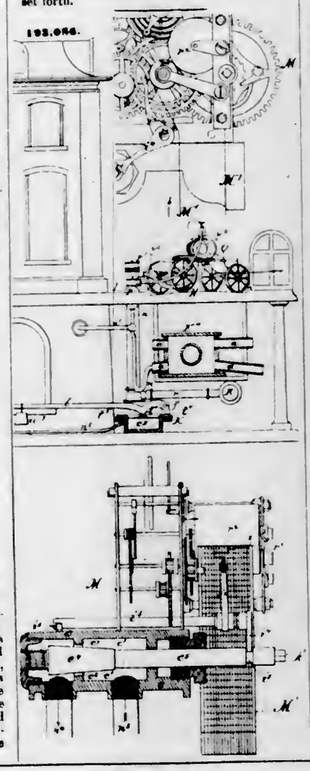
6. The combination of the boilers A A^1 A^2, smoke-flue D b b^1 b^2, waste-flues D^2 D^3 D^4, and the dampers *c* c^1 c^2 c^3 c^4 c^5 c^6, and the stack D^1, substantially as described.

7. The combination of the pump C, pipe B, train or series of boilers, and the feed-water pipes and cocks belonging to boiler A^1, substantially as described.

8. The combination of the pump C, pipe B, train or series of boilers, and the feed-water pipes and cocks belonging to boiler A, substantially as described.

9. The combination, with a train, series, or battery of boilers, of the high and low pressure steam conveying pipes E and G and their cocks, substantially as and for the purposes set forth.

193,086.



193,086. APPARATUS FOR UTILIZING STEAM IN HEATING, &c. S. Holly, Lockport, N. Y. [Filed May 14, 1877.]

Brief.—Supplies steam to large districts from boilers centrally located; adapted to obviate the injurious effects of expansion and contraction in steam mains and connections; provides means for regulating and recording supply of steam; delivers steam under high or low pressure.

1. An underground steam street-main in combination with steam-supplying apparatus, and with a meter constructed to control the pressure of steam in a building, and also record the consumption of steam from such main, substantially as described.

2. Underground street-mains, connected with steam-supplying apparatus, and with junction boxes which permit expansion and contraction of the mains longitudinally, and with heat-radiators in buildings contiguous to streets where the mains are laid, substantially as and for the purposes described.

3. In combination with steam-conveying pipes of a building, for conveying steam to heat the building, and for other purposes, a steam-meter constructed to control the pressure of steam in such pipes, and also record the consumption of steam in the building, substantially as described.

4. An underground steam street-main, in combination with steam-supplying apparatus, and with a heat-radiator of a building, and with a meter, substantially as described.

5. Underground street-mains connected with steam-supplying apparatus, and with a heat-radiator, and with a steam-trap, substantially as described.

6. Underground street-mains connected with steam-supplying apparatus, and with a heat-radiator, and with a steam-trap, which answers the double purpose of a reheater and a steam-trap, substantially as described.

7. An underground steam street-main in connection with steam-supplying apparatus, and with a heater of a building, and with a water-hydrant, substantially as and for the purpose described.

8. An underground steam street-main connected with steam-supplying apparatus, and with a heater of a building, and with a street steam-hydrant, substantially as and for the purpose described.

9. Underground street-mains connected with steam-supplying apparatus, and with a heat-radiator, and with an automatic steam-regulator or governor, substantially as and for the purpose described.

10. Underground steam street-mains connected with steam-supplying apparatus, and with a heat-radiator of a building, and with underground snow and ice reservoirs having open-ended or perforated steam-pipes in said reservoirs for the escape of steam therein, substantially as and for the purposes described.

11. A steam street-main expansion-chamber, F^6, substantially as described.

12. An adjustable hood, *g*, in combination with street-main F^1, service-pipe *a*, and an expansion-chamber, which serves as a steam-chamber, substantially as described.

13. The combination of the expansion-chamber F^6, the street-main F^1 screw threaded as at f^3, the adjustable ring G^3, and the follower *e*, substantially as and for the purpose described.

14. The wall of the expansion-chamber F^6 of the junction-box F^{10}, made to support the inner end of a section of the steam-main, and the outer covering m^1 of the steam-main, substantially as described.

15. The section f^7 of the steam-main, made of nickel-plated metal, substantially as and for the purpose described.

16. The combination of the convex ring g^6 of the steam-main F^1, the wall of the expansion-chamber, tube G, and eyebolts g^7, substantially as and for the purpose described.

17. Steam street-mains, insulated as described, drained by tiles, as at *x*, substantially as and for the purpose described.

18. The meter-cylinder *c*, having inlet n^1, an outlet, n^4, and an annular diaphragm, c^5, in combination with a longitudinally-adjustable cone-valve, c^4, a laterally-traveling pencil-finger, i^3, clock movement M, and ribbon M^1, substantially as and for the purpose described.

19. One or more than one radiator heated heated by steam supplied through the passage of the cone-valve c^4, in combination with the regulator K, whereby the same determined pressure of the steam is practically maintained either in one radiator, or in more than one radiator, whether only one radiator or more than one radiator is in use at the same time, substantially as described.

1 ✣

20. The spring *c* in combination with the bar *i*², the pencil-finger *i*³, clutch *i*⁴, and valve-stem *c*², substantially as and for the purpose described.

21. The combination of the conducting-pipe *s*¹ and steam-pipe *s*², having a coil, *h'*, and the trap *l'*, having connected chambers *c*⁵ and *c*⁶ and pipe *s*¹¹, substantially as and for the purpose described.

22. The suspended trap-float *f'*, provided with a tube, *t*, of less height than the depth of the chamber of the float, in combination with the pipe *s*¹¹, pipe *s*¹⁰, cock *w*⁵, and pipe *w*⁴, substantially as and for the purpose described.

23. A reheater interposed between radiators, which are heated by steam from the source of supply, and radiators which are heated by water of condensation from the same steam, substantially as and for the purpose described.

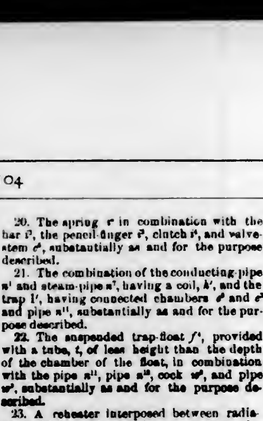
24. The reheater-pipe *s'* in combination with the trap *l'*, substantially as and for the purpose described.

25. A street steam-hydrant connected with the street-main F¹, and located in close contiguity to a water-hydrant, which is warmed by a pipe, *s*, connected to said main F¹, whereby steam and water may at all times be simultaneously supplied from the same locality to an engine for extinguishing fires, substantially as described.

26. The casings *s*⁴ and *s*⁵ for the service-pipes, said casings serving for preventing the major portion of the service-pipes from becoming impacted by earth, and for permitting them to expand and contract freely, substantially as described.

27. A contrivance or contrivances for supplying steam for warming districts of dwellings in cities and towns, and for driving machinery, and for other purposes in said districts, consisting of steam-supplying apparatus, street-mains having expansion junction service-boxes, service-pipes having connecting-pipes, and meters, substantially as described.

193,087. METER-VALVES OF APPARATUS FOR WARMING DWELLINGS, &c. B. Holly, Lockport, N. Y. [Filed May 14, 1877.]

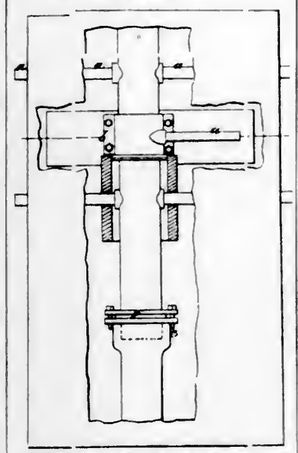


1. The longitudinally adjustable valve-plug, of cone form, which is applied to be uninfluenced by the direct pressure of the steam upon it within its chamber, in combination with a valve-chamber having a perforated diaphragm across it for the cone-plug to work in back and forth, and an inlet-passage between one end or head of the chamber and the said diaphragm, and an outlet-passage between the other end or head of the chamber and said diaphragm, whereby a suitable receiving-chamber on one side of the diaphragm for high-pressure steam is provided, and a like chamber for low-pressure steam on the other side of the diaphragm is also provided, and the passage of the steam, which is at high pressure, into pipes which are to conduct the steam at variant pressures, or at low pressure, is controlled, substantially as herein set forth.

2. The valve-plug chamber, made in two parts, and with its diaphragm confined between the ends of these parts by a coupling device, substantially as described.

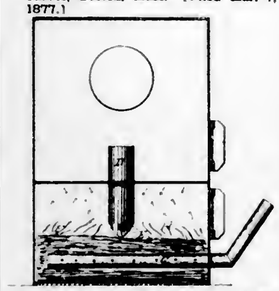
193,088. STREET MAINS OR PIPES FOR SUPPLYING LARGE DISTRICTS WITH HEAT FOR WARMING BUILDINGS. B. Holly, Lockport, N. Y. [Filed May 14, 1877.]

Brief.—The mains or pipes are held stationary in the saddles, and are allowed perfect freedom to expand and slip steam-tight at the packed joints. The saddles are placed at the middle of the sections at points where the lateral connections are made.



In combination with steam-tight slip-jointed sections of a street-main, saddles placed near the middle of their length, for confining the respective sections from longitudinal displacement at or near the points where the service-pipes leading from the mains are located, and thereby preventing very great lateral deflection of said service-pipes, substantially as herein set forth.

193,089. FURNACES AND STOVES. Jas. J. Jarves, Boston, Mass. [Filed Mar. 7, 1877.]



1. The combination of the receptacle for oils, containing asbestus or other loose fire-proof materials, the diaphragm, and the chimney, provided at its lower end with holes or serrated apertures, and passing up through the diaphragm, substantially as and for the purposes described.

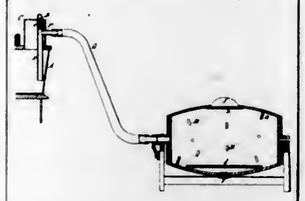
2. The above-described method of burning hydrocarbon oils and generating gas therefrom by igniting the oils in a receptacle containing fire-proof materials, and emitting the gas through a chimney projecting out of the receptacle, and provided at its lower end with holes or serrated apertures.

193,090. WASHING-MACHINES. Chancy R. Jenne and Wm. Creighton, Okolona, Miss. [Filed Apr. 30, 1877.]

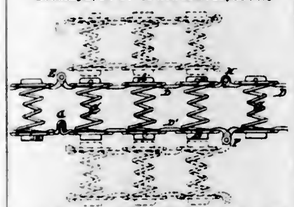
1. The combination, with the steam-dome C, of the vertical pipe E, perforated as at *e*, the horizontal pipe F, and the valve or stopper D, movable vertically within the pipe E, the whole being arranged to operate substantially as set forth.

2. The barrel-washer provided with door K L, bung V, slats N, pins M M, and a hollow journal adapted to receive the tube G, and permit rotation of the washer, as and for the purposes set forth.

193,090.



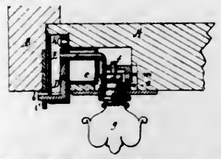
193,091. SPRING-BEDS. Jacob A. Johntry, Brooklyn, N. Y. [Filed Mar. 10, 1877.]



1. A sectional mattress, consisting of the combination of the slats A B, springs C, and bars D D', attached together by hinges E and F, arranged in the manner and for the purpose set forth.

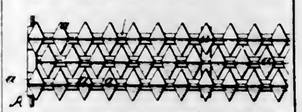
2. In combination with the bars D, the hook-and-eyebolt fastening H, for the purpose substantially as described.

193,092. LATCHES FOR DOORS, &c. Geo. F. Joyce, Brookline, Mass. [Filed Apr. 24, 1877.]



In combination with the pivotal arm *a*, latching projection *b*, shaft *c*, and crank *d*, arranged as set forth, the knob *g*, stud or cam *e*, and the stops *m* and *n*, all applied substantially in manner and for use with a door, and the catch-plate C, disposed with the door-frame, as represented.

193,093. GRATE-BARS. J. R. Kelly, Springfield, Ohio, assignor of one-half his right to P. P. Mast and C. O. Gardner, same place. [Filed May 21, 1877.]



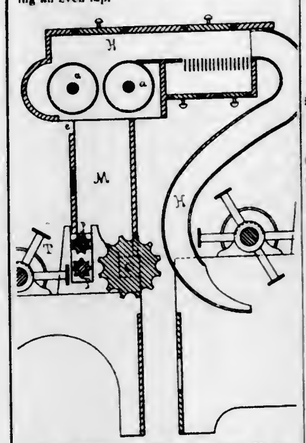
1. The combination, substantially as shown and described, of the series of grate-bars A, each bar having on its top a series of upright quadrangular studs, *a*, arranged with their transverse axes at right angles to the bar, and the series of bars arranged with the studs of each opposite the spaces of the next, as set forth.

2. The series of parallel laterally-adjustable bars A, having the series of quadrangular studs arranged diagonally thereon, in the manner shown and described, and for the purposes set forth.

3. In combination with the bars, having the studs constructed and arranged as shown, the bolts C and washers *b*.

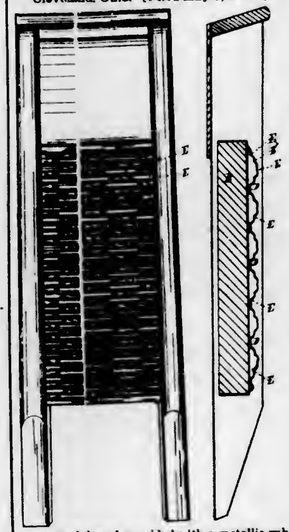
193,094. COTTON OPENERS AND CLEANERS. Richard Kitson, Lowell, Mass. [Filed Aug. 31, 1876.]

Brief.—The cotton is delivered to and operated upon by the first beater, which, by the current of air which it generates, throws the cotton into and through the trunk, when it falls into a second condenser-box, and is, by means of the fluted rolls, fed outward to the second beater, in a uniform quantity for forming an even lap.



The combination of the cotton-trunk H, the condenser-box M, and the beater T, substantially as described.

193,095. WASH-BOARDS. J. H. Lapham, Cleveland, Ohio. [Filed May 3, 1877.]



A wash-board provided with a metallic rubbing-surface composed of the main corrugations D, the latter having a series of small grooves, E, alternating with raised spaces *a*, both parallel with the main corrugations D, substantially as herein described.

193,096. SEWER-CLEANERS. C. Loscher, Chicago, Ill. [Filed June 29, 1877.]

1. The disks *d*, provided with the rearwardly curved spring-arms *f*, in combination with the central shaft, substantially as and for the purpose set forth.

2. The sections C C C, flexibly connected together and gradually increasing in size, substantially as and for the purpose herein set forth.

3. The combination of the sections C C C, flexibly connected together, and the large disks E, substantially as and for the purpose set forth.

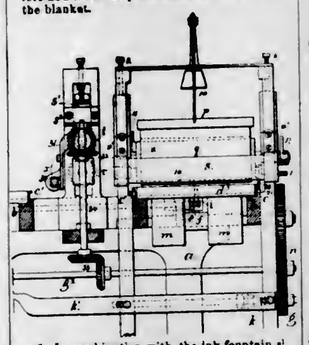
4. The combination of the disks *d*, curved spring-arms *f*, with the sleeves or collars, and the central shaft, substantially as and for the purpose set forth.

193,096.



193,097. PLATE-PRINTING PRESSES. Jas. Milligan, Brooklyn, N. Y. [Filed Feb. 1, 1876.]

Brief.—The plate-beds, jointed to an endless chain, are carried round, in horizontal ways on a right-angular frame, under adjustable inking devices and the impression-cylinder. They are stopped at each corner of the frame by pins on the chain striking an arm of a rock-shaft linked to the driving-clutch. One end of the blanket is attached to the cylinder, and the other to a weighted cord, adjustable projections on the beds moving the cylinder before and after the plate comes in contact with the blanket.



1. In combination with the ink-fountain *s'*, metal roller *t*, cloth roller *v*, and slide frames *s*³, the screws 25, 26, and 27, and boxes of the respective rollers, to regulate the quantity of ink and the position of the inking-roller, substantially as set forth.

2. The combination, with a clutch and its slide and lever, of the arms 3 and 4 upon the shaft 2, the knob 6, and the studs *i* upon the chain *f*, substantially as set forth.

3. In a plate-printing press, in which the plates are carried beneath and move the blanket-roller, the combination of a blanket-roller, a blanket adapted to press upon the engraved portion of the plate, and fingers and lugs for commencing the movement of the blanket before contact with the plate, then allowing the blanket to be moved by contact with the plate, and fingers and lugs continuing the movement of the blanket-roller as the plate and sheet move away from the said blanket, as specified.

193,098. VELOCIPEDES. John H. Nolan, Boston, Mass. [Filed May 19, 1877.]

1. The combination of the wheeled frame having its rear axle provided with the disks and their operating clutches, the horse pivoted upon the frame and sustained by springs, and devices connecting the horse and the clutches, substantially as shown and described.

2. The foot-rests Y, having their rear ends curved and secured in sockets on the frame, as shown, whereby they are rendered adjustable vertically.

3. In combination with the frame-bars O, having the axle U seated on its under side, the arms N applied as shown, for the double purpose of securing the axle and sustaining the shaft M.

4. In combination with the arms L, having the horse secured to them, the transverse bar Q, mounted on guides W, and supported by the spiral springs P.

5. In combination with the swivel-post I and the steering-cord F extending therefrom to operating devices in the head of the pivoted horse, the guiding-pulleys G for said cord, arranged with their axes coincident with that on which the horse is mounted, as shown, whereby the movements of the horse are prevented from affecting the cord.

6. In combination with the steering-cord F passing through the horse in the manner shown, the pulley C, pivoted bit B, and reins A, substantially as shown.

7. In combination with the steering-cord, the pulleys D E, constructed and arranged as shown.

8. In a velocipede, the combination of the horse mounted on pivoted arms and sustained by springs, the main shaft or axle U, provided with the clutch-arms S and disks T, and the links R, arranged in the manner shown and described, so as to actuate the clutches alternately, one during the upward and the other during the downward movement of the horse.

9. In combination with the flanged wheels T, arranged as shown, the clutch-blocks S, provided with the V-shaped recess to admit the flange of the wheel, and with the rolls *b* bearing against both sides of the flange, as shown.

193,098.



193,099. DRAWING-SLATES. C. C. Shepherd, Passaic, N. J. [Filed Oct. 16, 1876.]

Brief.—An ordinary slate, a transparent slate with copies, and an inclined desk or box are combined in one, and arranged to be used either side up.

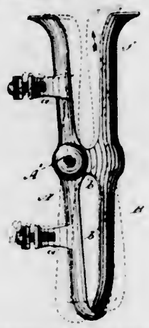


1. The combination, with the slate *d*, frame *a b c*, and movable copy-slips *f*, of the springs *h* placed beneath the slips and within the box *e*, as set forth.

2. The ground glass *m* and the inclosing-frame *n*, applied within the frame *a b c*, in combination with the sliding panel *l*, substantially as set forth.

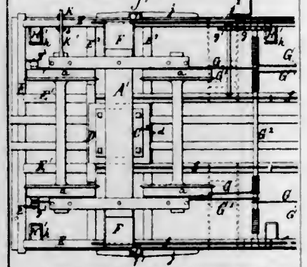
3. The reversible inclined desk-frame having a slate attached at one side thereof and a receptacle at the other side, containing pictures and a transparent ground-glass drawing-slate, substantially as set forth.

198,100. WHIP-SOCKETS. J. H. Sunderman, Quincy, Ill. [Filed Feb. 6, 1877.]



The combination of the socket-piece A, having brackets a a, pin A', and lip *c*, with the swinging jaw B, having arm *b*, and lip *c'*, substantially as and for the purpose shown and described.

198,101. DUMPING-CARS. M. Van Wormer, Dayton, Ohio. [Filed May 15, 1877.]



1. The outer frame E of a dumping-car, having the bars E' E² and the plate D arranged above the supporting-truck, whereby they form a central support for the car-body, and the lateral bars E², in dumping, pass down between the cross timber and the wheels of the truck without touching them, substantially as set forth.

2. The connection between a dumping-car and a truck, consisting of a plate, B', having a socket, B, with spherical bearing and crown-piece B², and a plate, C', having a neck, C', and ball C, substantially as set forth.

3. In a dumping-car, the horizontally-moving slides F, substantially as set forth.

4. The stakes H', fitted into the floor H of a gondola or dumping car, and fastened to the inner sides of the frame E by staples h, whereby their resistance to outward strain is increased, substantially as set forth.

5. The combination of the gate I' and the lower draw-bolt K, having its fulcrum *k* on the dumping-frame E, whereby the operating-lever K' is brought in contact with the wheel *a* when dumping, substantially as set forth.

6. The combination of the cross-timber A', having a friction-roller, F', and the slide F, substantially as set forth.

7. The combination of the car-frame E and bars E', having guide-rods *f*, and the slides F, having friction-rollers *f'*, substantially as set forth.

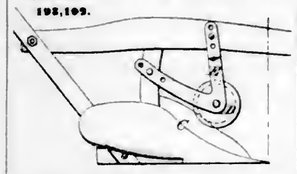
8. The combination of the car-frame E, shaft G², cords or chains G G', pulleys *g'*, and slides F, substantially as set forth.

198,102. PLOWS. John W. Wood, Bonham, Tex. [Filed May 1, 1877.]

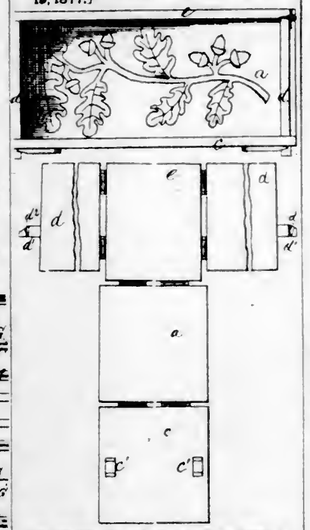
1. In combination with a mold-board plow, a grooved wheel, D, arranged to straddle or embrace the cutting edge of the colter or mold-board, as shown.

2. In combination with the mold-board C, having the cutting-edge or colter, the grooved wheel D, sustained by the adjustable bracket E, as shown.

198,103.

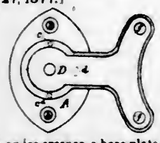


198,104. BUTTER-MOLDS. A. Alexander, Jr., South Windsor, Conn. [Filed Feb. 19, 1877.]



In combination, figured bottom board *a*, side flaps *c c* hinged thereto, end flap *d* hinged to side flap, and the locking device, all substantially as described, and for the purpose set forth.

198,105. ICE-CREEPERS. H. Aotes, Philadelphia, Pa., assignor of one-half his right to Wm. H. Weidling, same place. [Filed Jan. 27, 1877.]



1. In an ice-creeper, a base-plate, A, in combination with a spur-claw, F, provided with a pivot, D, and a locking device, and adapted to rotate horizontally in the plane of the sole of a boot or shoe, all substantially as specified.

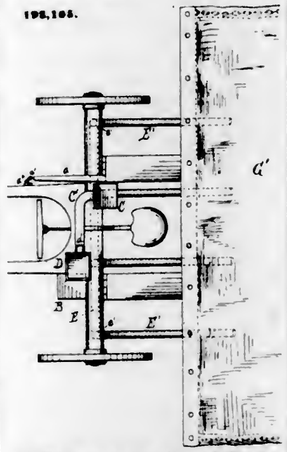
2. In an ice-creeper, in combination with the base-plate and spur-claw thereof, a spring, *s*, recessed in said plate, and so covered by said claw as to be protected from water, dirt, and other injurious matter, all substantially as specified.

3. In an ice-creeper, in combination with its base-plate and a spur-claw, horizontally adjustable thereon, a locking device so locking the said claw to the said plate as to retain the claw locked in different positions relatively to the plate, substantially as and for the purpose specified.

198,106. INSECT-DESTROYING MACHINES. K. C. Atwood, New York, N. Y. [Filed June 21, 1877.]

Brief.—A stove attached to the axle, and connected, by means of a tube, with a blower or bellows, is connected with an escape-pipe having attached thereto a series of flexible tubes, by means of which fumes are carried to the ground. An apron or cover attached to a horizontal bar secured to the rear of the axle prevents the escape of or confines the fumes delivered by the flexible tubes.

198,105.

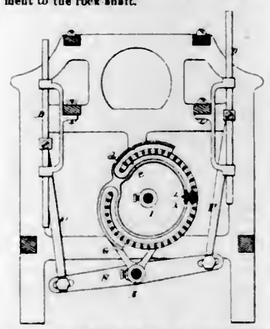


1. The apron or cover G', attached to the rear of an insect-destroying machine, to operate substantially as described, as and for the purpose specified.

2. In an insect-destroying machine, the stove B, pipe C', blower C, hopper D, pipe E, flexible tubes E' E', and apron G', the whole constructed and arranged to operate substantially as described.

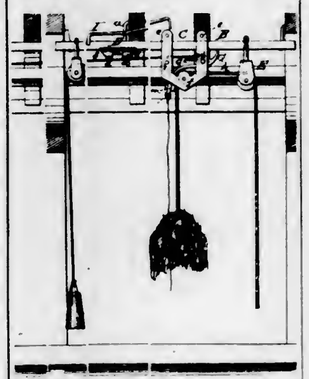
198,106. MECHANISMS FOR OPERATING THE ROCK-SHAFTS OF YARN-SPOOLERS. Wm. Bancroft, Hopedale, Mass., assignor to Hopedale Machine Company, same place. [Filed Mar. 27, 1877.]

Brief.—The thread-guide rail is forced upward and downward by mechanism positive in its action, as follows: A toothed sector is fastened directly to the rock-shaft, and gears with a pinion on one side of the mangle-wheel. On the other side of the mangle-wheel is a pinion upon the end of a shaft, which engages the row of pins on said wheel, and revolves it first in one and then in the other direction, thereby imparting a reciprocating rotary movement to the rock shaft.



In the spooling-machine, the combination of the mangle-wheel I *d*, provided with a pinion, H, operative gear L, and shaft K, substantially as explained, with the toothed sector G, applied to such pinion H, and directly fixed upon the rock-shaft B, connected as described with the supporting-rods of the opposite thread-guide rails, such combination while in operation effecting positive movements, as explained, of the said rods and their rails.

198,107. HAY-ELEVATORS. W. L. Banks and W. Coning, Wilmington, Del. [Filed June 16, 1877.]

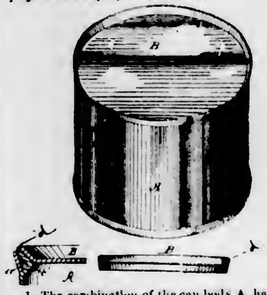


1. In combination with the carriage C, traveling on the centrally-suspended track B, the lever G, provided with the arm G', and gum lock *m*, and capable of being reversed in the carriage, substantially as and for the purposes herein set forth.

2. The center-catch D and tilting stop I, in combination with the track B and carriage C, for the purposes herein set forth.

198,108. SHEET-METAL CANS. G. W. Bell, Brooklyn, N. Y. [Filed Feb. 12, 1876.]

Brief.—Either head of the can is provided with an internal recess, to receive the end of the can-body and a sealing substance. A packing-cord soaked in shellac rests in an external groove in the end of the can-body, and is held by the depending flange of the top or end crimped against it. The end of the cord may project for the purpose of opening.



1. The combination of the can-body A, having an external groove, *c*, and the top or end B, having a depending flange, *a*, said flange inclosing a sealing or packing substance, placed entirely outside of the body and within the groove, and being crimped snugly against the same, as set forth.

2. The combination of the can-body A, having an external groove, *c*, the top or end B, having the depending flange *a* and a packing-cord arranged within the groove, and with or without the projecting end, said flange *a* being crimped snugly against the can-body, as described.

3. The combination of the can-body A, having an external groove, *c*, the top or end B, having the internal recess *d* and depending flange *a*, and a packing-cord arranged within the groove, substantially as shown and described.

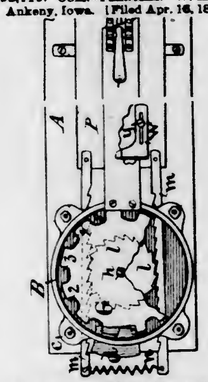
198,109.



198,109. BOOK-BINDING. E. S. Boynton, New York, N. Y. [Filed June 29, 1877.]

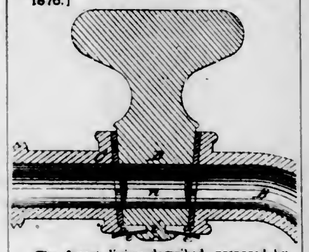
A book the signatures of which are secured by a pin and one or more loops completely surrounding the pin, substantially in the manner described.

198,110. CORN-PLANTERS. W. L. Ohlem, Ankeny, Iowa. [Filed Apr. 16, 1877.]



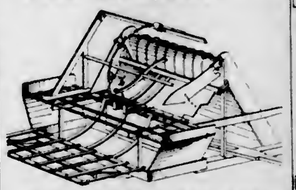
In a corn-planter, the seed-boxes B, mounted upon the bench A, and having a cup cover, *d*, the rotary disk form valve G, having a series of uniform seed-cups, 1 2 3 4, in its edge, and a central shaft, *h*, carrying a ratchet-wheel, *l l*, the slide P, having the ratchet-bars *m* pivoted at its corners, and carrying the gage *w*, and the fixed and elevated bar S, supporting the hand-lever *t*, all arranged and combined to operate substantially as set forth.

198,111. LININGS FOR FAUCETS. William Cleveland, Orange, N. J. [Filed Sept. 18, 1876.]



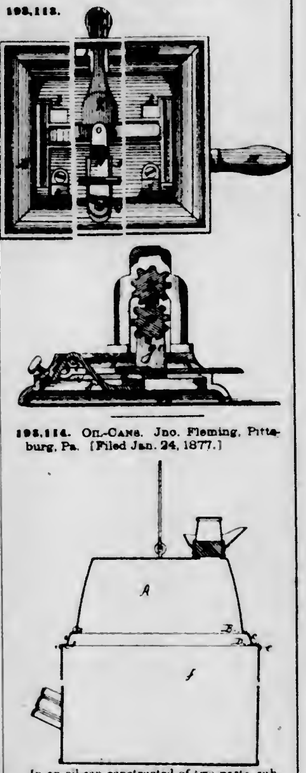
The faucet-lining described, prepared by saturating leather with tallow or other suitable grease at a temperature about the boiling-point of said tallow, substantially in the manner and for the purposes set forth.

198,112. HARVESTERS. J. H. Elward, St. Paul, Minn., assignor to St. Paul Harvester Works. [Filed May 2, 1876.]



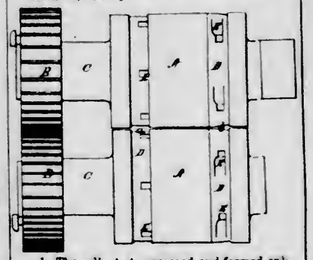
The swinging adjustable shields, in combination with the grain-receptacle for directing the grain to the proper point for binding, substantially as described.

198,113. OIL-CANS. Jno. Fleming, Pittsburg, Pa. [Filed Jan. 24, 1877.]



In an oil-can constructed of two parts, substantially as shown, and belonging to the class specified, the apron or stamped metal breast A, combined with the body *f*, and provided at its joint or juncture therewith with the series of flanges B c D *e*, formed and located substantially as and for the purposes described.

198,114. MANUFACTURE OF BLANKS FOR CUTLERY. C. G. Hallas, F. W. Flower, and E. Pearson, Sheffield, England. [Filed May 15, 1877.]



1. The rolls A A, recessed and formed substantially as described, for producing blanks for table-cutlery, in the manner and for the purpose set forth.

2. A continuous series of the rough blanks for table-cutlery, rolled in one piece, with the bolsters or shoulders at regular intervals, and adapted to be cut up into lengths, substantially as and for the purposes herein shown and set forth.

198,115. FLUTING-MACHINES. C. Feldner, New York, N. Y. [Filed June 10, 1876.]

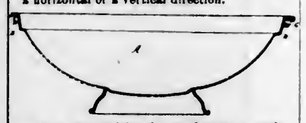
1. The combination, with an oscillating lower-roller frame, of an elliptic spring, adjustably secured against the lower side of its cross-bar, substantially as and for the purpose described.

2. The combination of the hand-lever, swinging frame, elliptic spring, and adjustable angular lever-supporting said spring, substantially as and for the purpose described.

198,113.

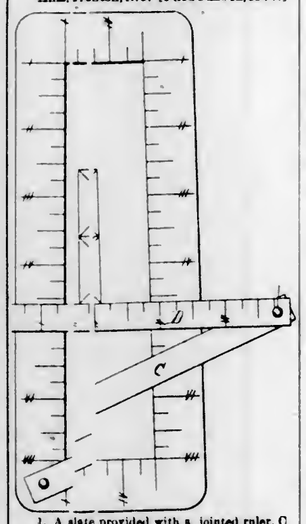
193,116. WASH-BASINS. John Hamilton, Pittsburg, Pa. [Filed Jan. 2, 1877.]

Brief.—As constructed, the edge of the basin will not be readily injured by blows from either a horizontal or a vertical direction.



As a new article of manufacture, a wash-basin stamped from one piece of metal, and strengthened at the edge by the horizontal flanges C B and vertical flange D, as shown and described.

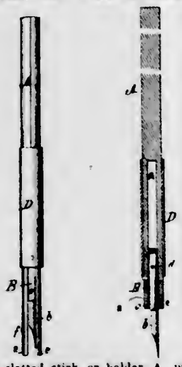
193,117. SLATE-FRAME ATTACHMENTS. M. Hills, Trenton, N.J. [Filed June 12, 1877.]



1. A slate provided with a jointed ruler, C D, pivoted to its frame, substantially as shown and described, and for the purpose set forth.

2. A slate provided with a graduated frame, in combination with a jointed ruler pivoted to said frame, substantially as shown and described, and for the purpose set forth.

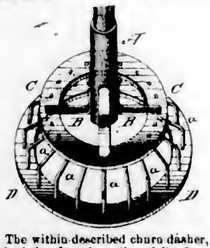
193,119. PEN-HOLDERS. A. S. Hubbell, Norwich, Conn. [Filed Jan. 20, 1877.]



The slotted stick or holder A, provided with the opening *a*, in combination with the clasp B, as constructed for holding different sizes of pens, and the sliding ferrule D, substantially as and for the purpose herein shown and described.

193,118. RECIPROCATING CHURNS. Selah Jeffers, Litchfield, Mich. [Filed Apr. 20, 1877.]

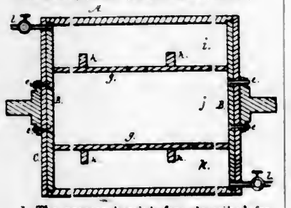
Brief.—Two flat rings of unequal diameters are connected by a series of bent wire arms, and have a socket and handle attached by L-shaped arms.



1. The within-described churn dasher, composed of the flat rings C and D of unequal diameter, and connected together by a series of angular or bent wire arms, *a*, substantially as and for the purposes herein set forth.

2. The combination of the flat rings C D, angular or bent connecting wires *a*, the L-shaped arms B, and central socket or ferrule A, substantially as and for the purposes herein set forth.

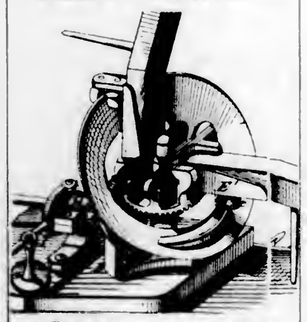
193,120. PROCESSES AND APPARATUS FOR LEACHING TAN-BARK. J. J. Johnston, Columbiana, Ohio. [Filed June 9, 1877.]



1. The process hereinbefore described for leaching bark for obtaining liquor for tanning purposes—viz., placing bark in a vessel, and partly exhausting the air from said vessel and the cells of the bark, and supplying it with water, which is caused to flow through it a number of times, and subsequently forcing the liquor from said vessel and bark by atmospheric pressure.

2. The vessel or leach A, pivoted on trunnions, and divided into compartments *i*, *j*, and *k* by perforated partitions *g*, the compartments *i* and *k* having each a valve, *l*, and the compartment *j* a door, *f*, substantially as herein described, and for the purpose set forth.

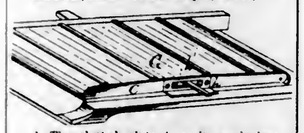
193,121. HARVESTER-RAKES. S. Johnston, Brockport, N. Y. [Filed May 1, 1877.]



1. The rake cam or bowl having the two permanently-fixed ways or tracks, one for the rake and the other for the reel arms, as described, in combination with the permanently-fixed rollers, arranged at different distances from the pivotal centers of said arms, and operating in the manner and for the purpose specified.

2. The shaft-protecting and clutch sleeve, arranged and sliding within the bearing for the rake-driving shaft, substantially as described.

193,122. HARVESTERS. C. W. Levalley, St. Paul, Minn. [Filed May 9, 1877.]

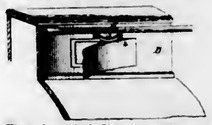


1. The slotted plate A, or its equivalent, through which the sickle-lever passes, provided at the ends of the slot with cutting-edges, substantially as described.

2. The forward canvas bar C, provided with the rabbet and with the sickle-lever slot, having the cutting-walls, as explained, in combination with the carrier apron, arranged to overhang its upper forward edge, as described.

193,123. VENTILATORS FOR RAILWAY-CARS. Edw. Leverich, New York, N. Y. [Filed Dec. 11, 1876.]

Brief.—The deflectors, instead of being between the windows and upon the body of the car, are transferred to the transom or elevated portion of the roof, and arranged directly opposite the openings.

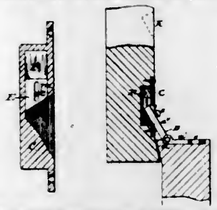


1. The pivoted deflectors C C, arranged upon the exterior of the transom of a car, directly opposite the openings therein, substantially in the manner shown and described.

2. The transom B, having openings and provided with external deflectors arranged opposite said openings, and inside shutters E, adapted and applied substantially as set forth.

193,124. FASTENERS FOR THE MEETING-RAILS OF SASHES. Edw. Leverich, New York, N. Y. [Filed Dec. 11, 1876.]

Brief.—An ordinary hinged fastener, with button or knob at its upper end, is combined with a recessed stop, which is constructed with a yielding metal block, sliding up and down, and furnished at its upper end with rubber or other suitable sprig, the block being slotted, and a pin provided to limit its vertical movement, the construction serving, by pressure of the hinged fastener on the beveled end of the yielding block, to prevent rattling, and also to lock the two sashes in closed position.



The hinged fastener D, in combination with the stop C, constructed with the recess A, and provided with the yielding block E and spring F, substantially as shown and described, for the purpose specified.

193,125. SAFETY-PINS. Purches Miles, New York, N. Y. [Filed Dec. 14, 1876.]

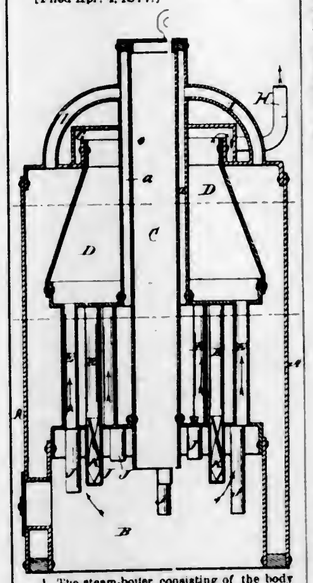


1. The shield-pin made with a sheet-metal guard-hook introduced inside of the bent wire, and secured by the metal being bent around the wire, substantially as set forth.

2. The guard for the shield-pin, made of convex sheet metal, with the edges contiguous to the wire, substantially as set forth.

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193,126. STEAM-BOILERS. Geo. H. Miller and Wm. Feely, Hull, Quebec, Canada. [Filed Apr. 4, 1877.]



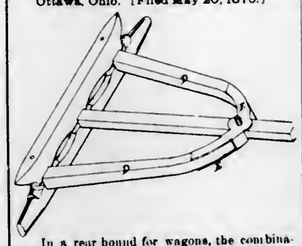
1. The steam-boiler consisting of the body A, provided with the chambers B and D, flues E, tube C, and jacket *a*, as shown.

2. In a steam-boiler, the combination of the depending tubes and the loose spiral blades, dividing the same through the center, and serving to insure a circulation and prevent the deposition of sediment.

3. In combination with the top chamber G and outlet H, the smoke chamber D, having its wall extended up into chamber G, as and for the purpose described.

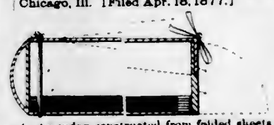
4. In combination with the jacket *a*, communicating at its lower end and by the pipes I with the interior of the boiler, the chamber D surrounding said jacket, as shown, whereby the products of combustion are applied to dry and superheat the steam.

193,127. REAR HOUNDS. A. Muhleisen, Ottawa, Ohio. [Filed May 20, 1876.]



In a rear hound for wagons, the combination of the two bent portions D and the flanged or socketed connecting-iron E, all constructed substantially as shown and described.

193,128. TEMPORARY BINDERS. T. Orton, Chicago, Ill. [Filed Apr. 18, 1877.]

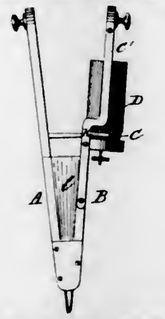


1. An index constructed from folded sheets E, slit at the backs, and having the alternate flaps united thereby, forming an extensible or chain back, substantially as described.

2. An indexing-file composed wholly or in part of sheets slitted to receive postal cards, whereby the latter may be filed under the appropriate index, and in connection with letters, if desired, substantially as described.

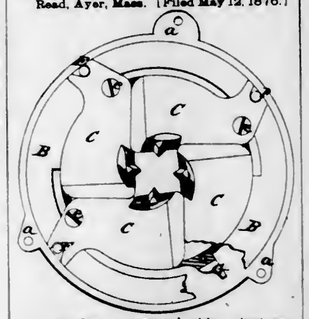
3. A postal-card sheet for indexing-files, provided with slits arranged with right and left offsets, as described and shown, whereby the cards may be attached to the sheet so as to overlap each other in both directions, substantially as and for the purpose set forth.

193,129. HAND CORN-PLANTERS. N. A. Palmer, Wagram, Ohio. [Filed June 4, 1877.]



In a hand corn-planter, constructed substantially as described, the pivoted legs A B, the latter shorter than the former, and having upward-projecting bent straps C C, between which the hopper D and feed-wheel C are arranged, the latter operating by spring-catch F, substantially as described, for the purpose herein shown and specified.

193,130. CORN-SHELLING MACHINES. C. D. Read, Ayer, Mass. [Filed May 12, 1876.]



1. The hopper *a*, formed with a short upright cylinder, with lugs G cast on its outer circumference, and a circular bottom flange arranged for the support of ring B and wing-plates C C C C, substantially as and for the purpose specified.

2. The movable ring, with its upward projecting studs F F F F, or their equivalents, connecting with the wing-plates C C C C, in combination with the coiled springs D D, substantially as specified.

3. The wing-plates C C C C, pivoted to the hopper *a*, and connected by their slotted ends to the movable ring B, and provided with upward, inward, and downward projections, with inclined V's on their inner surfaces, constructed and arranged to operate substantially as and for the purpose herein specified.

193,131. PLAITING-MACHINES. H. B. Rorke, Fulton, N. Y. [Filed Apr. 26, 1877.]

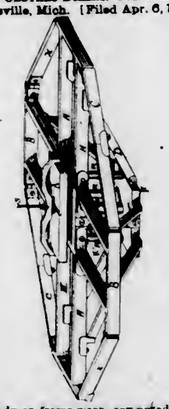


1. The plaiting and fluting rods *g*, made flat on one side and half round on the other, substantially as shown.

2. The rods *g*, in combination with the U-shaped plates *i* and rods *o*, substantially as set forth.

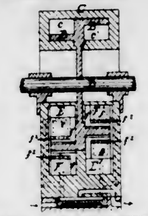
3. The holding or pressing device *l*, provided with the rubber *s*, or its equivalent, substantially as specified.

193,132. CLOTHES-DRIERS. Jos. Simmons, Coopersville, Mich. [Filed Apr. 6, 1877.]



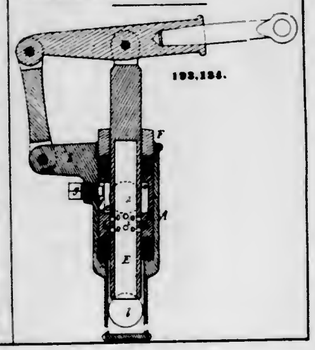
The body or frame-work composed of the blocks E and F, attached by means of the rounds R R R R, in combination with the hinged arms H H, bars B B, and hinged bars C C C C, and supporting-braces D D D D, all constructed and arranged as described.

193,133. ROTARY STEAM-ENGINES. Aloha Vivarttas, New York, N. Y., assignor to the Central Propelling Company, same place. [Filed Nov. 15, 1876.]



In a rotary engine, the combination, with the casing C, having the chamber *c c'* and recesses E E', of the plate A, having eccentric ring-flanges B B', the abutments or valves F F', through which the ring-flanges pass, and formed by the parts *f f'*, having recessed chambers *f'*, for allowing steam to enter and exhaust from the chambers *c c'*, the springs *f'*, and packing-strips *f'*, all substantially as shown and described.

193,134.



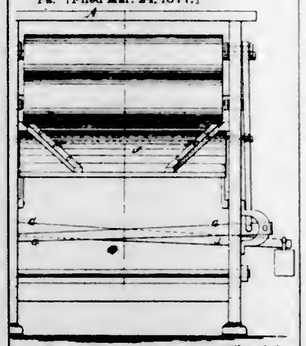
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193,134. STEAM-VALVES. Wm. Andrews, Lisbon Falls, Me. [Filed June 9, 1877.]

1. In combination with the tubular sleeve provided with the induct and the insulator, and arranged in the valve-case with two packings and a compression-screw applied thereto, as set forth, the movable tubular valve, having each of its inducts so arranged that while taking steam it shall extend above the insulator, and shall, on the valve being forced downward, be closed by the insulator before reaching the lower packing, all being substantially as specified and represented.

2. The valve-case A, open at top, closed at bottom, and provided with the branch induct *a* and educt *b* and the packing-seat *c*, arranged as set forth, in combination with the clamp-nut F, the packings C D, the perforated and insulating sleeve B, and the tubular open valve E, provided with one or more inducts, *i*, all being constructed and applied substantially as shown and explained.

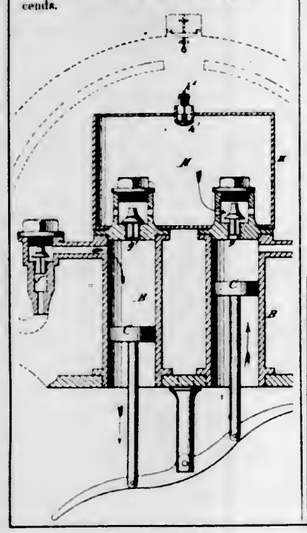
193,135. WRINGERS. E. Banfield, Jermyn, Pa. [Filed Mar. 24, 1877.]



The combination, with wringer-rolls, of the beveled guide N and inclined leaves J, having cleats M, as and for the purpose specified.

193,136. BALLOONS. W. Beckley, Louisa, Ky., assignor to himself, D. W. Garred, and M. F. Garred, same place. [Filed June 4, 1877.]

Brief.—By withdrawing the gas from the balloon into the condenser, where it is compressed, the balloon descends, and by allowing the gas to escape into the balloon again it ascends.



1. The mode of controlling the descent and ascent of balloons and other vessels floating in the air by the buoyancy of gas, by the compression and expansion of the gas contained within said balloon or vessels, substantially as herein shown and described.

2. The combination of the cylinders B, one or more, provided with the valves *f'*, opening inward, and the valves *g* opening outward, and the condenser H, provided with the valve *h'*, opening inward with each other, to adapt them to be applied to a balloon for regulating the volume of the gas contained in said balloon to control its buoyancy, substantially as herein shown and described.

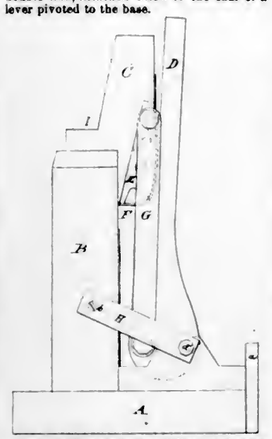
193,137. BRUSHES. R. Bisbee, New York, N. Y. [Filed Mar. 19, 1877.]



The combination of wires A and rubber plate B with leather plate C and a metallic plate, D, arched in form and burred around the edge, as and for the purpose specified.

193,138. LIFTING-JACKS. Wm. Z. Black, Roann, Ind. [Filed Feb. 17, 1877.]

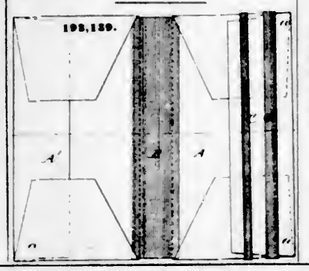
Brief.—A front shoulder-piece sliding in the post has a series of teeth behind it, against any one of which works the upper end of a double link, attached below to the cam of a lever pivoted to the base.



1. In a lifting-jack, the sliding ratchet-bar C, provided with the shoulder I, the ratchets E, and the protecting-plate F, moving vertically in the central slot of the standard B, substantially as described, and for the purposes set forth.

2. The lever D, the bracing-plates H, and the base A and standard B, in combination with the parallel engaging-dogs G, one end of which is confined by the protecting-bar F to the ratchets E, and the sliding ratchet-bar C, moving in a vertical central slot of the standard B, substantially as described, and for the purposes set forth.

193,139.



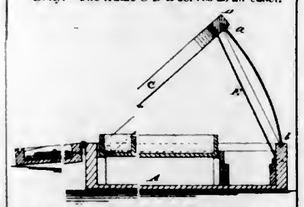
193,139. BOOK-COVER PROTECTORS. Chas. B. Browne, Camillus, N. Y. [Filed June 11, 1877.]

Brief.—Sections A A' are connected by an elastic back. Flaps *a a* are cemented to flap A', while *a a* and A are simply held together by elastic strap C. Elastic strap C acts as a book-marker.

A book-cover protector consisting of the parts A A', made as described, and connected by an elastic back-piece, B, and provided with a fastening-band, C, substantially as shown and described.

193,140. ARTISTS' APPLIANCES. William H. Brownell, Brooklyn, N. Y. [Filed May 28, 1877.]

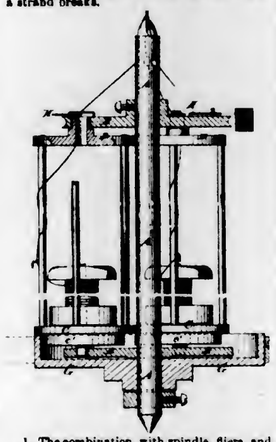
Brief.—The frame C D E serves as an easel.



An artist's case or box, A B, grooved at *b*, and provided with the pivoted frame C D E, the bar D of the latter being grooved at *a*, and the strips E being elastic, as and for the purpose specified.

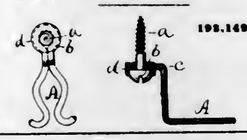
193,141. TWISTING-SPINDLES FOR MAKING CORDAGE. Charles H. Brownell, Moodus, Conn. [Filed Feb. 3, 1877.]

Brief.—The lower plate, which supports the fliers and spindle, is arranged loosely upon said spindle, and is capable of being revolved in the same direction as, or in an opposite direction to, that of the spindle, so as to impart a tight or loose twist to the strand, as may be desired. Springs are attached to the upper plate to automatically stop the machine when a strand breaks.



1. The combination, with spindle, fliers, and plates B, as shown and specified, of the springs H, arranged on the upper plate B and having the bend *h*, as and for the purpose described.

2. The combination, with spindle, fliers, and plates B, of the loose ring-plate G, constructed and operating as and for the purpose set forth.



193,142.

193,142. OIL-CAN HOLDERS FOR SEWING-MACHINE TABLES. Geo. D. Clark, Plainville, Conn. [Filed Jan. 25, 1877.]

1. The improved oil-can holder herein described, consisting of the screw, the head, and the dependent spring-holder, substantially as described, and for the purpose specified.

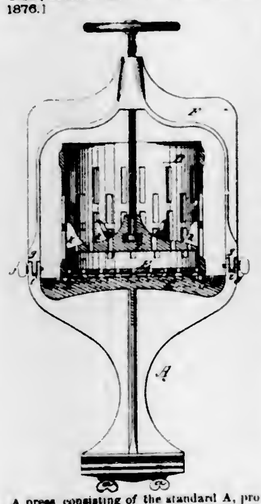
2. The combination of the holder A, provided with eye *e*, the head *d*, washer *b*, and screw *a*, substantially as described, and for the purpose specified.

193,143. CLOTHES-PINS. E. F. Clearwater, Carmel, N. Y. [Filed Mar. 24, 1877.]



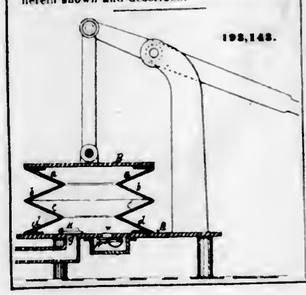
In a clothes-pin, the locking cam-lever C *c*, constructed with end tenon pivoted between forks of jaw B, as shown and described, to adapt said lever to bear against the inner face of said jaw, and to be held in locked position by the shoulder on each side of its tenon.

193,144. HOUSEHOLD PRESSES. Henry W. Clum, Green Point, N. Y. [Filed Dec. 23, 1876.]



A press consisting of the standard A, provided with a clamp, B, and having formed upon it the disk C, the jointed yoke F, screw G, follower I, having lugs K, and the loop D, all constructed and arranged substantially as herein shown and described.

193,145.



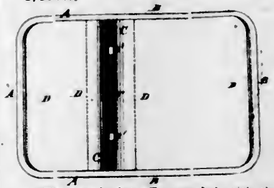
193,145.

193,146. PUMPS. John W. Colline, Chicago, Ill. [Filed Jan. 8, 1877.]

Brief.—Atmospheric pressure causes the water to ascend through the suction-pipe into the chamber. When the chamber is filled, the long end of the handle is elevated, and the plate forced downward to depress the diaphragm, by which means the water is forced from the chamber into the discharge-pipe.

The combination, with the base A and valves H and H', of the plate B and diaphragms *a*, *b*, *c*, and *d*, substantially as and for the purpose specified.

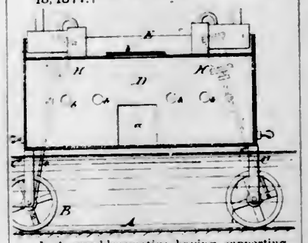
193,146. MEMORANDUM-BOOKS. William A. Cooke, New York, N. Y. [Filed May 5, 1877.]



1. The metal plate E, provided with the loops *e'*, and the fastening-wire F, in combination with the cover A B C and the inside book D, substantially as herein shown and described.

2. The inside book, formed of an odd number of connected sections, in combination with the looped plate E, fastening-wire F, and cover A B C, as and for the purpose set forth.

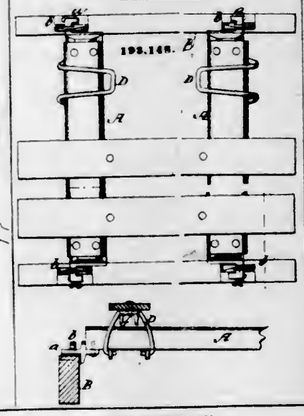
193,147. CANAL-LOCOMOTIVES. Gabrielle de Nottbeck, New York, N. Y. [Filed June 18, 1877.]



1. A canal-locomotive having supporting-standards C and drive-wheels B, in combination with track-rails A, laid upon the bed of a canal, so as to enable the locomotive to run in the latter, and be used for towing boats, as herein set forth.

2. The locomotive body mounted above the water upon standards C, and constructed with a storage-room, D, a deck, E, and engines H, arranged substantially as and for the purposes specified.

193,148.



193,148.

193,149. BED-BOTTOMS. F. P. Edmans, Troy, N. Y. [Filed May 28, 1877.]

In combination with the C-shaped springs H and angular hooking-blocks *f*, the shouldered hooks *a a* on end rails A, and hooks *b* on side rails B, substantially as described.

193,149. COMBINED OVERALLS AND JUMPER. Saml. H. Emanuel, Gloucester, Mass. [Filed June 18, 1877.]



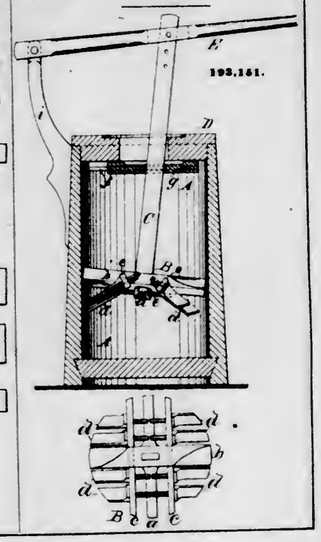
The combined overalls and jumper, consisting of the sections A A, united by the seam *a b* at the back, and having the leg portions united by seams *a c*, the whole being made without seams at the sides or around the waist, and provided with pockets and pocket-openings, substantially as herein shown and described.

193,150. CARTRIDGE CAPPING AND UNCAPPING IMPLEMENTS. Charles Eutebrouk, Boston, Mass. [Filed May 28, 1877.]



A recapper for cartridge-shells, consisting of the handle or lever A, having the opening B, the hinged handle or lever E, having the face F, spring H, and piercing punch L, operated by the hinged handle or lever P, or equivalent devices, as and for the purposes set forth.

193,151.



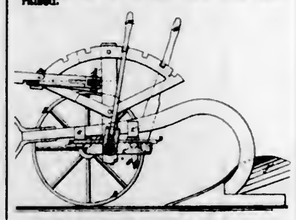
193,151.

193,131. RECIPROCATING CHURNS. Daniel A. Fiske, St. Louis, Mo. [Filed Mar. 24, 1877.]

The combination, with rod C, of centrally-crossing bars a b, the former having pins e, the bars c, provided with rounded portion that fits grooves of bar b, and the floats or arms d, having tenons that pass through bars c and touch bars a, as shown and described.

193,132. RIDING-PLOWS. J. L. Florance, Plano, Tex. [Filed Apr. 2, 1877.]

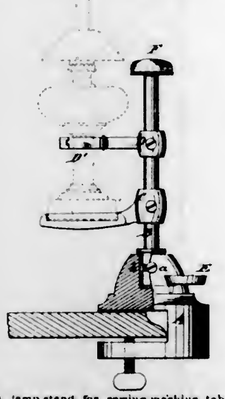
Brief.—The axle is cranked rearward. The rear end of a frame is journaled upon the crank, and vibrates vertically in the space between the ends of the axle, the free end of the frame projecting forward. Upon this frame the plow is mounted, and adjusts laterally. An angular lever raises the crank and plow, and another has the furrow-wheel journaled upon its extension. Hooked arms upon the plow-bearing plate engage the crank, and tilt downward the front end of the plow-beam when being raised.



1. The combination, with the frame D, pivoted to the cranked axle C c', and having apertured cross-bar, of the superposed beam E, having bolts e', as and for the purpose described.

2. The combination of the hook-arms O with the hinged frame D, and with the crank c' of the axle C, substantially as herein shown and described.

193,133. LAMP-BRACKETS. John Forster, Coal Valley, Ill. [Filed June 4, 1877.]



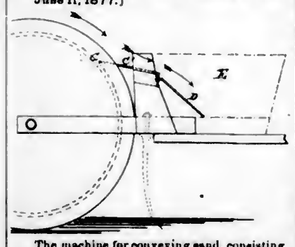
A lamp-stand for sewing-machine tables, &c., consisting of a socket-base, A, with swinging oil-cup stand E, and of an upright standard, B, with adjustable stand C and collar D, for the lamp, and a pin-cushion, F, at the top, all arranged substantially as and for the purpose set forth.

193,134. DOOR-CHECKS. John Francis, Waco, Tex. [Filed Apr. 30, 1877.]

Brief.—A door plate or case, provided with a rubber block, is countersunk or let into the door on the inside near the bottom, and there is also attached to the base-board a holder or knob, grooved or recessed at its front end, to engage automatically with the rubber block of the door-plate.

The holder A, having a recess, e, in combination with a countersunk case, B, substantially as described, and an elastic binding-block, C, located in said case, and adapted to engage with the recess of the holder, for the purpose set forth.

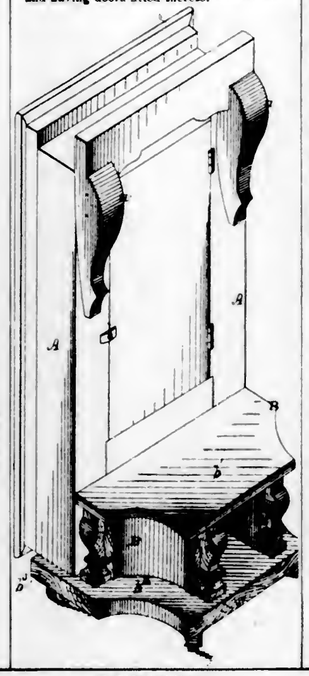
193,135. SAND-CONVEYERS. Rufino C. Garcia, San Antonio, Tex., assignor to himself and A. Robin, same place. [Filed June 11, 1877.]



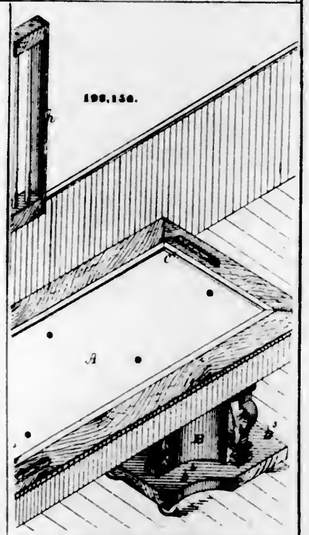
The machine for conveying sand, consisting of the receptacle E, the inclined conducting-apron D, fingers C, inclined plate C', and the drum or wheel provided with circular cutters, all combined and arranged as shown and described.

193,136. BILLIARD-TABLES. Wm. Gardner, New York, N. Y. [Filed May 10, 1877.]

Brief.—The billiard-table is hinged to its supports, those at one end serving as a desk and base when the table is tipped up on its end, and the legs are adapted to hang down close against the table, and serve as apparent brackets, the under part of table being hollow, and having doors fitted thereto.



193,136.



1. A billiard-table hinged or pivoted to a pedestal or base, the latter having a support upon which the edge of the table is caused to rest when elevated, substantially as and for the purpose set forth.

2. In combination with a billiard-table, the base B, removably connected thereto, and having a limited endwise movement, to enable it to be moved nearer and support the projecting end of the table when lowered from its elevated position, substantially as and for the purpose set forth.

3. In a billiard-table support or base, the slotted lever e, having arms C C, in combination with adjusting mechanism, substantially as and for the purpose set forth.

4. In a billiard or other table, its leg or legs provided with truing or leveling mechanism consisting of the threaded bar or rod a^1 and adjusting nut a^2, partially let into the leg, substantially as and for the purpose set forth.

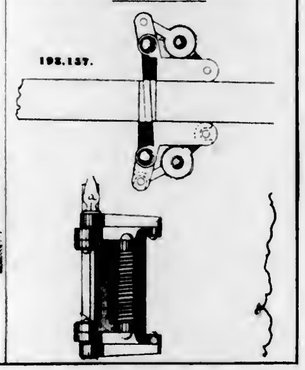
5. The base or support B, having bifurcated arms or bars C C, in combination with table A, having the sliding axis or rod e, substantially as and for the purpose set forth.

6. The base or support B, having the extension b^3 and bifurcated arms C C, in combination with the table A, having the axis or rod e, substantially as and for the purpose set forth.

7. The base B, having bifurcated arms C C, lever e, and adjusting mechanism d d', in combination with the table A, supported thereon, substantially as and for the purpose set forth.

8. The base B, having bifurcated arms C C, in combination with the table A, having the axis e, slots f, and tongue or slide g, substantially as and for the purpose set forth

193,137.



193,137. SPRING-HINGES. George Geer, Unionville, Conn. [Filed Apr. 17, 1877.]

Brief.—A three-leaf hinge, double-acting, for swinging the door in either direction, is combined with a two-part toggle-frame and spiral spring. The middle leaf of the hinge has a short arm at each end, and the outer leaf is also provided at each end with an arm, which stands at right angles to the body thereof, the arm carrying the pintle of the hinge, the construction giving added strength, and alternately compressing and expanding the spring as the arms pass the dead-center. A single-acting spring-hinge may be constructed in like manner by providing the middle leaf with screw-holes, and cutting off or omitting the parts which connect it with one of the outer leaves.

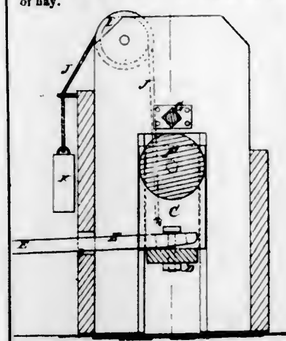
In a spring-hinge, the leaves provided with projecting arms in combination with the toggle-frame and spring, substantially as described, and for the purpose specified.

193,138. DYEING YARNS AND FABRICS IN ANILINE-BLACK. William J. S. Grawitz, Paris, France. [Filed Mar. 13, 1877; patented in England, Oct. 21, 1874, for fourteen years.]

The herein-described process of dyeing vegetable or animal textile materials of black and grey colors, or shades bordering thereon, by slow concurrent progressive reaction on the textile fibers themselves, of aniline salts and metallic oxidizing salts or acids, without exposure to the air, and with or without heat, with a subsequent peroxidation by means of chloric or chromic acid, substantially as set forth.

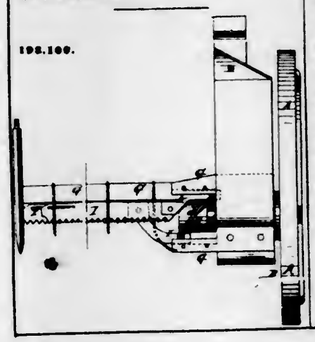
193,139. MACHINES FOR PRESSING HAY, &c., FOR FUEL. John E. Hackett, Caledonia, Minn. [Filed May 28, 1877.]

Brief.—The press-roller works in adjustable bearings in slots in the end boards of the frame, and is balanced by weights attached to cords passing over pulleys in the top of the frame. The square shaft may be drawn longitudinally from its bearings to withdraw it from the roll of hay.



The lever E, cross-bar D, and weight mechanism J I K, combined and arranged in connection with the bearings C, as and for the purpose specified.

193,140.

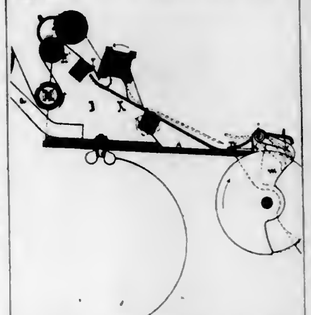


193,160. MOWERS. Isaac N. Hall, Garden Grove, Iowa. [Filed May 12, 1877.]

The combination of the gear-wheels E B, the shaft C, and the diagonally-flanged cylinder D d' with the inner ends of the two sickle-bars I, the cutter-bar G, and the drive-wheel A, substantially as herein shown and described.

193,161. MACHINES FOR DAMPING, CUTTING, AND FEEDING PAPER AND OTHER MATERIALS. Gustav L. Jaeger, New York, N. Y. [Filed May 31, 1877.]

Brief.—From the roll the paper passes, in contact with a hollow foraminous steam damping-roller, to feed-rollers, one of which is of rubber, and is capable of circumferential expansion by clamp-nuts applied at each end thereof, whereby the feed is adjusted to a slight degree. The paper is cut in sheets by a rotary cutter having a curved guard-point, which bears against the stationary cutter, the separated sheets falling upon a vibrating chute, from which they are delivered to the griper-cylinder, having, in combination, a rock shaft, carrying gage-arms, which are operated by a cam upon the cylinder. The feed is, in addition to the above-described adjustment of the rubber roll, varied by detachable gear of varying sizes.



1. In a machine for feeding and cutting paper or other materials, a griper-cylinder and a cutting mechanism, each constructed substantially as described, and combined with a hollow foraminous cylinder connected with a steam-supply pipe, substantially as and for the purpose specified.

2. The combination, in a machine for feeding and cutting paper or other materials, of a griper-cylinder, a cutting mechanism, substantially such as described, and a pair of feed-rollers, one of which is composed of an elastic body mounted on an elastic core provided with nuts which bear against the ends of the elastic body, substantially as and for the purpose set forth.

3. The combination, in a machine for feeding and cutting paper or other materials, of a griper-cylinder, a revolving cutter, a pair of feed-rollers, gear-wheels d' d', mounted on the shaft of one of said feed-rollers, and pinions a' a', which are detachably connected, and one of which is in gear with a cog-wheel, e, mounted on the cutter shaft, all constructed and operating substantially as and for the purpose described.

4. The combination, with the revolving knife J and the stationary cutting-blade 1, of a curved guard, h, substantially as and for the purpose set forth.

5. The combination, with the revolving knife, the stationary cutting-blade, and the griper-cylinder, of a vibrating chute, constructed and operating substantially as and for the purpose shown and described.

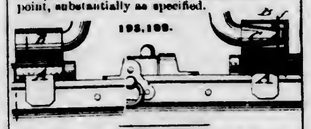
6. The combination, with the griper-cylinder and its cam, of a rock-shaft having an arm or lever, i, pins p q, and pivoted gages s e, provided with lips which bear upon the pins p q, substantially as described, whereby the gages are alternately operated by the action of the cam on the rock-shaft, as set forth.

193,162. HANDLE ATTACHMENTS FOR CARPET-BAGS AND SATCHELS. A. Kaufmann, New York, N. Y. [Filed June 18, 1877.]

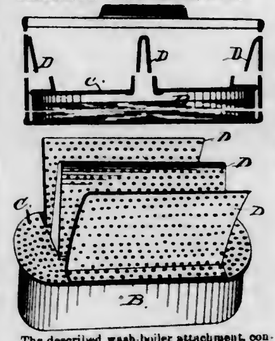
1. A spring-clasp for satchels, bags, &c., formed of a clasp-piece pivoted to posts of the outer jaw of the frame, and locked into closed position on the jaws by a sliding spring-pin entering a socket-hole of one of the posts, and adapted to be released by a sliding thumb-piece, substantially in the manner described, and for the purpose specified.

2. The combination of the pivoted clasp A, having handle-socket B, with interior pin f, with the ferrule C fastened to end of handle, and provided with a collar, f', recessed at one point, substantially as specified.

193,163.

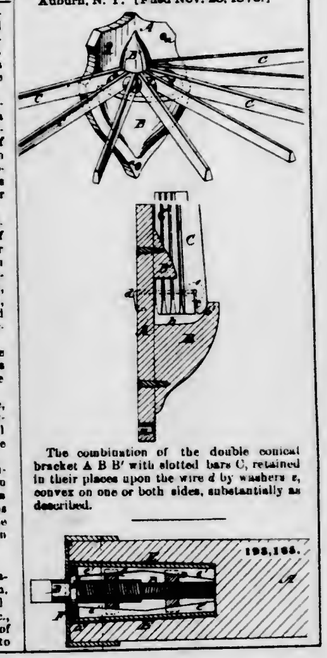


193,163. WASH-BOILERS. W. A. Kellogg, Scranton, Pa. [Filed Mar. 20, 1877.]



The described wash-boiler attachment, consisting of the non-perforated wall B having an open bottom, a horizontal perforated top or covering, C, and perforated steam distributers D, the wall B being slightly less in circumference than the area of the boiler within which the attachment is to be placed for use.

193,164. CLOTHES-DRIERS. Chas. B. Koon, Auburn, N. Y. [Filed Nov. 25, 1876.]



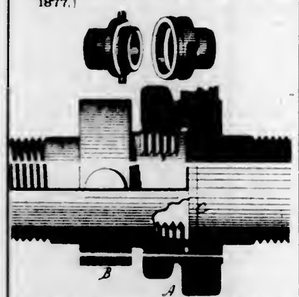
The combination of the double conical bracket A B B' with slotted bars C, retained in their places upon the wire d by washers e, convex on one or both sides, substantially as described.

193,165.

193,165. HOE-HANDLES. W. R. Littleton, Valley Mills, Tex. [Filed Feb. 17, 1877.]

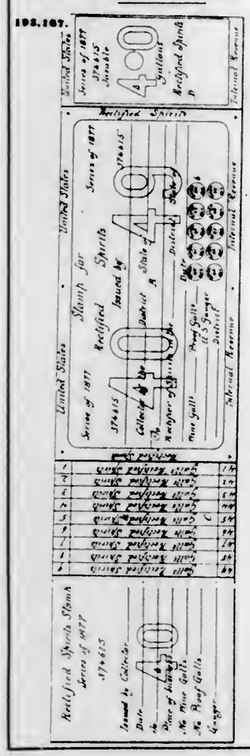
The handle A, having hole a^1, grooves a^2, and longitudinal slots a^3, in combination with a collared bolt, B, having thereon two screws of different diameter, and with threads running in different directions, the notched nuts C D, fitting said screws, the plates E, having flanges e', the notched disk F, and the straps G, overlapping said disk, as and for the purpose specified.

193,166. HOSE-COUPLINGS. C. F. Littlejohn, New Haven, Conn. [Filed June 12, 1877.]



In a hose-coupling consisting of the two parts A B, the one constructed with two or more internal series of inclined or spiral ribs, with intermediate blank spaces, the other part with corresponding series of external inclined or spiral ribs and blank spaces, and so that the ribs of the one part may enter the spaces of the other part, for the engagement of the ribs of the one part with the ribs of the other part, substantially as described.

193,167.

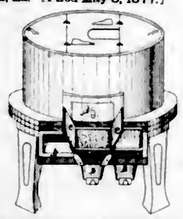


193,167. REVENUE-STAMPS. E. A. Locke, Boston, Mass., assignor to the Benedict & Burnham Manufacturing Company, Waterbury, Conn. [Filed May 18, 1877.]

1. An internal-revenue stamp for distilled spirits, having upon its face the serial number in duplicate, combined with a series of removable figures ranging from the minimum to the maximum number, inclusive, of gallons for which the stamp is made to indicate, and for the purpose of cancellation, substantially as described.

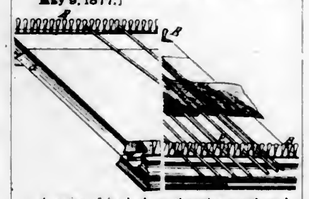
2. In combination with an internal-revenue stamp having upon its face a serial number in duplicate, and a series of removable figures ranging from the minimum to the maximum number, inclusive, of gallons for which the stamp is made to indicate, and for the purpose of cancellation, a coupon having the same serial number as the stamp, to receive the figure removed from the stamp, substantially as and for the purpose described.

193,168. MEASURING DEVICES FOR SEED-HEATERS. Richard Macdonald, New Orleans, La. [Filed May 9, 1877.]



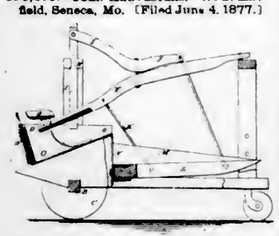
As an improvement in seed-heaters, the measuring apparatus herein described, the same consisting of a frame, A, for the support of the measures B, the latter so arranged as to slide back and forth beneath the hopper sides or scrapers *s*, for the purpose set forth.

193,169. PLAITING-MACHINES. Manville M. Macdonald, Syracuse, N. Y. [Filed May 9, 1877.]



A series of barbed or otherwise roughened teeth or loops, B B, formed from a single piece of wire, substantially as set forth.

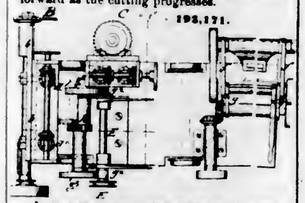
193,170. CORN-HARVESTERS. W. B. Mayfield, Seneca, Mo. [Filed June 4, 1877.]



The combination of the strippers L M, the bales K, the levers F J, and the box O, made with an inclined bottom, a vertical flange or apron, N, with the wheels and axle C B, and the frame-work of the machine, substantially as herein shown and described.

193,171. STONE-QUARRYING MACHINES. J. B. McRae, Mount Holly, Ark. [Filed May 5, 1877.]

Brief.—The machine is designed to work in quarries of soft stone, and to cut the stone directly into blocks of the required size for building purposes. The car is to be provided with a steam engine or other motor, whereby an adjustable vertical saw and an adjustable horizontal saw at the front of the car are operated, and back of the same a third vertical and adjustable rear saw at right angles to the front saws, to divide the long pieces of stone cut by the latter from the bed into blocks of the size required. A lever engaging and disengaging friction-gear, connecting by a train of wheels with the front axle, is used to propel the car forward as the cutting progresses.



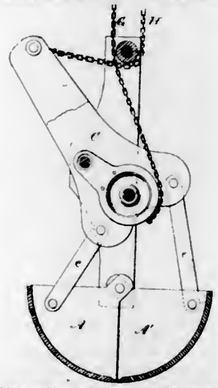
193,171.

1. In a stone-quarrying machine, the vertically and horizontally cutting circular front saws B and C being vertically adjustable to different elevations by sliding supporting-frames, slotted guide-standards, traveling-nuts, and actuating screw-bolts, substantially as and for the purpose specified.

2. The shaft of the circular rear saw, sliding by its supporting-frame along a vertical guide-standard, in combination with the fulcrumed lever-frames $f f'$ and $g g'$, and with intermediate shafts and pulley and belt connections to revolve the saw simultaneously with raising the same, substantially as specified.

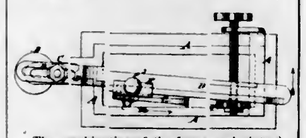
3. The combination of the front saw-shaft, feed-shaft E, friction-pulleys, operating-levers, and transmitting-gear with cog-wheel of front axle of car, to move the car forward for feeding the saws, substantially as described.

193,172. DREDGE-BUCKETS. Jas. McSpirit, Jersey City, N. J. [Filed June 4, 1877.]



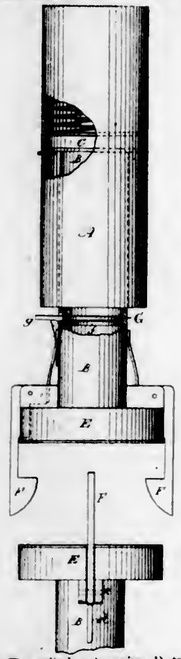
The combination of pivoted dredge-bucket halves A A', operating chains G H, rods *e e*, plates E, and lever C, as shown and described, for the purpose specified.

193,173. MILLSTONE-DRESSING MACHINES. Frank Miller, Lapeer, Mich. [Filed June 18, 1877.]



The combination of the frame and slotted arm A B, the pivoting-bolt C, the pivoted slotted lever D, the sliding cross-head E, the cutter F, the pawl G, the ratchet-wheel H, and the swiveled screw I with each other, to adapt the device for use in dressing millstones, substantially as herein shown and described.

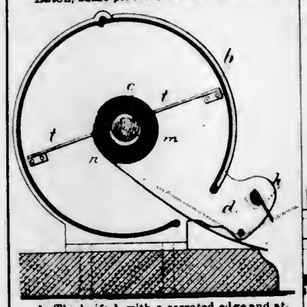
193,174. PIPE-COUPLINGS. Rufus H. Moss, Salem, Oreg. [Filed June 4, 1877.]



1. The cylinder A, spring D, tube B, having flanges C E, and the spring-catches F, in combination, substantially as shown and described.

2. The combination of the valve G, having the lever *g*, with the tube B, substantially as shown and described.

193,175. PAPER-HOLDERS. Alonso Newbury, Cozzackie, N. Y., assignor to B. F. Eaton, same place. [Filed Apr. 9, 1877.]



1. The knife *h*, with a serrated edge and attached to the bearings *d*, in combination with the case or holder for a roll of paper, substantially as set forth.

2. The combination of the tearing-knife *h*, bar *l*, and case for holding the roll of paper, substantially as set forth.

3. The inclined flanges *t* attached to the inner surfaces of the heads of the paper-case, and having sockets *n*, in combination with the roll of paper *c*, and its rod *m*, substantially as set forth.

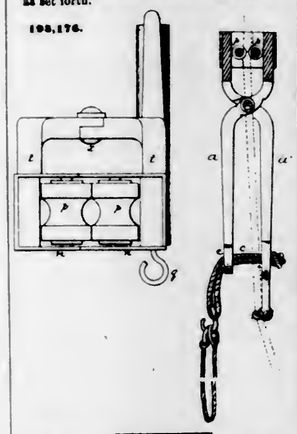
193,176. FIRE-ESCAPES. C. Palatini, New York, N. Y. [Filed May 9, 1877.]

1. The fire-escape clamp, provided with jaws, secured to which are bearings constructed and arranged in such a manner that when the clamp is opened the rope can enter laterally between said bearings, in the manner and for the purpose herein set forth.

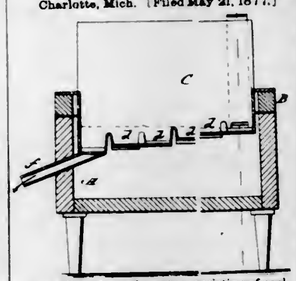
2. The jaws *a a'*, provided with lateral extensions *t*, as and for the purpose specified.

3. The fire-escape clamp, provided with clamping-rollers *p*, arranged to form the bearing-surfaces between which the rope is pressed, as set forth.

193,176.

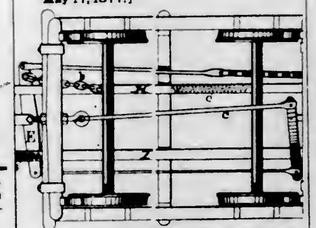


193,177. MILK-COOLERS. E. F. Preston, Charlotte, Mich. [Filed May 21, 1877.]



A milk cooler and aerator consisting of cooling-tank A, cooling-pan B, milk-receiver C, and channels *d*, all constructed, and the channels connected with receiver and outlet *f*, as shown and described.

193,178. TRAIN-BRAKES FOR RAILWAY-CARS. John Raddin, Lynn, Mass. [Filed May 17, 1877.]



1. The combination of the levers B B', each of which is connected with mechanism for applying the brake-shoes to the wheels of one truck, and each of which is dependent upon the other for the application of the brake-shoes to the wheels of both trucks with the sliding bars H I and loose joint *b*, the bars being used for distributing the power from the engine in opposite directions, but each using the same system of lever and rods, substantially as described.

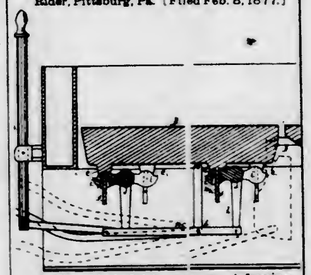
2. The combination of the bars H *h*, adapted to operate through loose joint *b*, the levers E E', with the spring *c*, all arranged to operate as described.

193,179. SHADE-HOLDERS. G. H. Beck, Bethlehem, Pa. [Filed Apr. 16, 1877.]



A shade-holder composed of a collar or ring of U shape, clasped tightly over the bent ends of the arms and retaining-springs, substantially as specified.

193,180. GRATES FOR FURNACES. Leman P. Rider, Pittsburg, Pa. [Filed Feb. 8, 1877.]

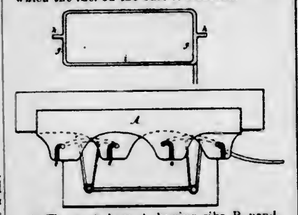


1. The rock-shaft *j*, having arms *i*, forming the bearing-surfaces of the pendants *e* of the bars B, which, when at rest, are on the same horizontal plane with the axis of the journal of said shaft, in combination with the grate-bars B, constructed, arranged, and operated so that a vertical motion only is imparted to the latter, as herein described.

2. The grate-bar B, having pendants *e* and pins *f*, in combination with a rock-shaft, *j*, having arms *i*, provided with openings *g*, whereby the pendants are held in juxtaposition with the arms *i* through the medium of a key, substantially as herein described, and for the purpose set forth.

193,181. GRATES FOR FURNACES, &c. L. P. Rider, Pittsburg, Pa. [Filed Feb. 8, 1877.]

Brief.—The grate-bars are hung on two frames having trunnions in side bearing-plates. Said plates and bars are provided with oblong holes and stops. The bars are adapted to move alternately vertically and longitudinally, by which the fuel on the bars is loosened.

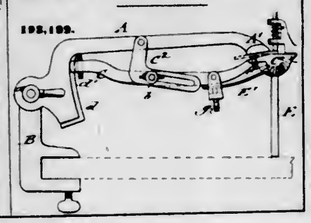


1. The grate-bars A, having ribs B, pendants C, curved apertures *e*, adapted to receive the supporting-frame, constructed as herein described, and for the purpose set forth.

2. The supporting-frame, constructed as shown, in combination with the grate-bars A, provided with curved apertures *e*, substantially as herein described, and for the purpose set forth.

3. The elongated bearing *j* and latch *k*, in combination with the trunnions *h* of the frame, as and for the purpose set forth.

193,182.



192,182. SAW-SET AND FILE-GUIDE. H. C. Root, Virginia City, Nev. [Filed Jan. 19, 1877.]

Brief.—Adjustable clamping-jaws pivoted, and secured by a clamp-piece, to the bench or table, and combined there with parts necessary to the adaptation of the device to the purpose of setting a saw or filing it interchangeably.

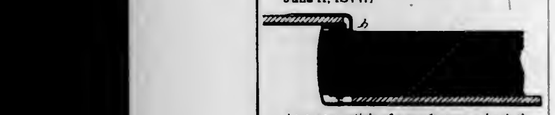
1. The combination of the swinging and clamping jaws A A′ and C C′, and slotted, pivoted, and clamped elbow-lever C², and set-screw d', with the clamp-piece B, substantially in the manner and for the purpose set forth.

2. The combination, with the swinging table and jaws A′ C′, of the longitudinally-sliding and swinging guide F, secured, by clamp-screw f', spring g, and holder g', thereto, substantially as described.

3. The combination, with the grooved adjustable guide F and jaws A′ C′, of a fulcrumed arm, F′, resting on one of the saw-teeth for retaining the file, substantially as set forth.

4. The combination of the jaws A′ C′, grooved guide F, and fulcrumed arm F′ with a file-holding socket, h, and with a pivot-handle, G′, having guide-pulley and clearing-brush, substantially in the manner and for the purpose set forth.

192,183. BOOK-BINDING. Oswald Routh and J. S. Routh, New York, N. Y. [Filed June 11, 1877.]



As a new article of manufacture, a book the leaves or signatures of which are bound together by means of metallic strips a, and attached to its covers by tapes passing through the slits b, substantially as described.

192,184. FAN ATTACHMENTS FOR ROCKING-CHAIRS. Chas. F. Russ, Brooklyn, N. Y. [Filed May 5, 1877.]



A fan attachment for chairs, consisting of the adjustable bifurcated arm B, swinging arm c, carrying fan D and counterpoise d, and clamping device h, provided with clamping-tongue s and set-screws p, and adjusting set-screw n, the whole arranged to operate as and for the purposes as herein shown and set forth.

192,185. DEVICES FOR DEPOSITING FEED IN TROUGHS. Andrew J. Rush, (Simpson's Store P. O.,) Nineveh, Pa. [Filed June 18, 1877.]

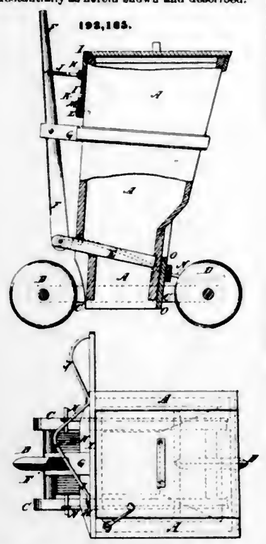
Brief.—The feed is dropped in a trough as the device is pushed along in it. A stroke-board levels the grain, and the sliding bottom is held open at different distances by a regulating device.

1. The combination of the bars and wheels C D, the sliding bottom E, and the lever F, with the box A, substantially as herein shown and described.

2. The combination of the regulator H J and its lock K L M, with the box A, the lever F, and the sliding bottom E, substantially as herein shown and described.

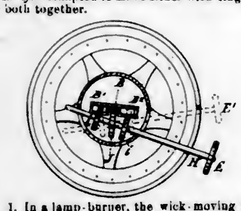
3. The combination of the curved rods N and the sliding stroke-board O with the sliding bottom E, the lever F, and the box A, substantially as herein shown and described.

192,185.



192,186. LAMP-BURNERS. Amos W. Sangster, Buffalo, N. Y., assignor of one-half his right to J. Sangster and G. H. Dunbar, same place. [Filed Dec. 21, 1876.]

Brief.—Adapted to move either wick singly or both together.

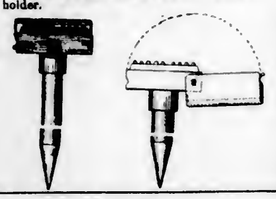


1. In a lamp-burner, the wick-moving device E H i, arranged to vibrate substantially as specified, in combination with the wick-tube B, for the purpose of moving either wick separately, as set forth.

2. The combination of said wick-moving device with the spring J and tube B, for the purpose of moving either wick separately or both together, substantially as described.

192,187. INDIA-RUBBER STAMPS. Seth B. Scott, New York, N. Y. [Filed Jan. 2, 1877.]

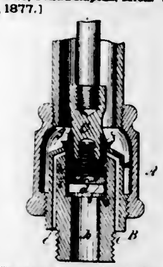
Brief.—The inking-pad is attached to the under side of the swinging cap or cover, thus inking the type for use, and protecting them from dust when not in use. The type-bed is provided with a screw-threaded socket for the reception of a pencil, which forms a handle or holder.



1. The combination, with an elastic stamp, of a case and inking-pad attached to the stamp, and fitted to be swung aside when the stamp is used, substantially as set forth.

2. The rubber stamp provided with an attached inking-pad and case, and a socket for a pencil, substantially as set forth.

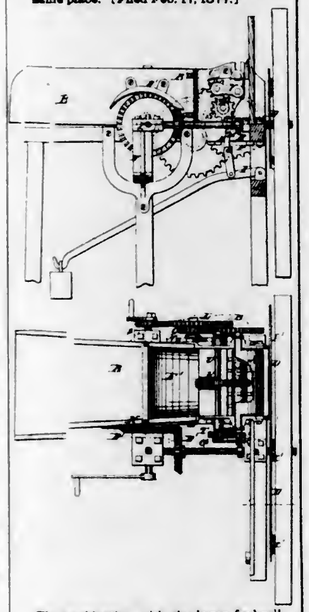
192,188. HYDRANT-VALVE. Frederick Shriver, Grand Rapids, Mich. [Filed June 26, 1877.]



1. The part B, containing the valve-seat c, and having one or more lateral openings, d, and passages e, the casing A, having the annular space a, and the valve C, in combination, substantially as shown and described.

2. The valve C, having the under-cut shoulder g, packing f, metallic disk h, and packing-disk i, substantially as shown and described.

192,189. STRAW-CUTTERS. C. Silbersahn and H. Hayssen, Sheboygan, Wis., assignors to said Silbersahn, and J. M. Kohler, same place. [Filed Feb. 17, 1877.]

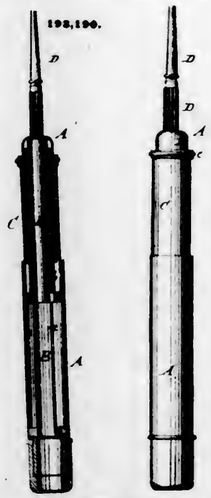


The combination, with the lower feed-roll, of the gear-wheels R S T and straps Z Y jointly with the upper feed-roll, with its center gear-wheel W and the shaft U, with its central gear-wheel B, as specified.

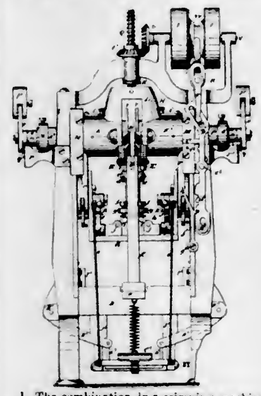
192,190. PEN AND PENCIL CASES. James B. Smith, New York, N. Y. [Filed June 18, 1877.]

In combination with the fixed strengthening-tube A′, fixed to tube B, the sliding tubes C b, and pencil-stem D, substantially as described.

192,190.



192,191. LEATHER-CRIMPING MACHINES. Jason Smith, Charlestown, Mass. [Filed June 4, 1877.]



1. The combination, in a crimping-machine, of a head, made as described, and two followers carrying corrugated plates, a screw and a nut for moving each follower, and a toggle for locking and releasing them, substantially as shown and described.

2. The combination of the head H, having the end pieces M and sleeves P, the followers O, link f, three-arm levers e, nuts e', screws a^1, and weighted lever o', substantially as shown and described.

3. The adjustable arms r', in combination with the sleeve P and lever o' for limiting the motion of the latter, substantially as specified.

4. The arms r', in combination with the weighted levers o, provided with rollers q, substantially as shown and described.

5. The combination of the lever o' with the lever o' for releasing the follower O, substantially as shown and described.

6. The movable frame G, having the studs p, in combination with the head H, carrying the dogs s, for supporting the leather-clamping mechanism, as shown and described.

7. The levers K, having the eyebolts n and toothed sectors L, the nuts I, having the toothed sectors J, the screws l, and levers i, in combination, for operating the leather-clamping jaws, substantially as shown and described.

8. The plates E, placed in the groove in the vertical posts C on opposite sides of the tree D, and provided with adjusting-screws f, in combination with the curved beveled pieces F and the mechanism for operating the plates, substantially as shown.

9. The combination, in a leather-crimping machine, of the beveled curved pieces F and the beveled corrugated and curved pieces N for drawing the leather over the tree, substantially as herein shown and described.

10. The cams J′, affixed to the side pieces A, for tripping the lever h^1, substantially as and for the purpose herein shown and described.

11. The combination of the bar B^1, having the slot a^1, arm c^1, and ratchet-teeth d^1, the pawl f', the pin f^1, and shifting lever e, substantially as shown and described.

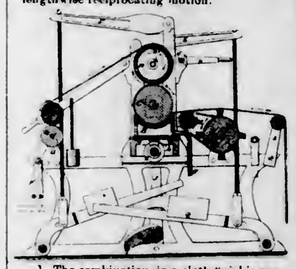
192,192. REEDS FOR MUSICAL INSTRUMENTS. William Spethmann, New York, N. Y., assignor to himself and Elias Durlach, same place. [Filed June 11, 1877.]



A musical reed in which the reed or reeds a^1 is or are cut out of the body of the plate A, so as to be in one piece therewith, and having the corrugations a^2 and a^3 formed in the said plate, substantially as herein shown and described.

192,193. CLOTH-FINISHING MACHINES. H. Springborn and C. H. Baush, Holyoke, Mass. [Filed Feb. 26, 1877.]

Brief.—Hot and cold pressing are combined in one operation. The concave bed has a lengthwise reciprocating motion.

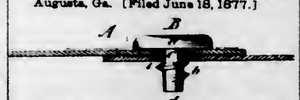


1. The combination, in a cloth-finishing machine, of the hollow bed B, solid roll C, and hollow roll D, substantially as herein shown and described.

2. In combination with roll C, the bed B, adjustable lengthwise on its foundation, as and for the purpose set forth.

3. The levers E, boxes i, having ears k, studs q, stirrup p, and boxes g, in combination, as shown and described.

192,194. BALE-TIES. Robert G. Stewart, Augusta, Ga. [Filed June 18, 1877.]



1. A bale-band which is perforated, and the edge of the perforation split and upset, in the manner and for the purpose described.

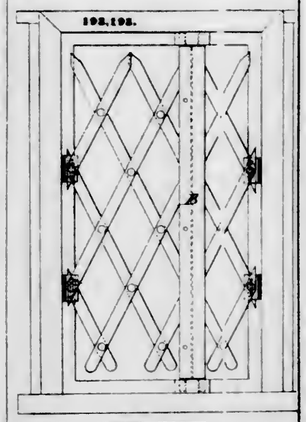
2. The screw B, formed with a neck, c, a thread, b, and an entering point, d, in combination with a bale-band having a perforation, C, through it, formed with upset portions i i', substantially as described.

3. The screw B, attached permanently to the bale-band, in the manner specified.

192,195. FOLDING GRATINGS FOR WINDOWS. Calvin T. Steckel, Brooklyn, N. Y. [Filed Apr. 30, 1877.]

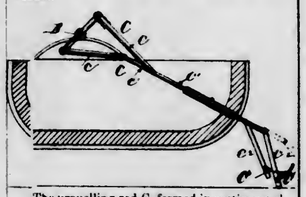
The combination of a folding lazy-tong shutter with a fixed and slotted hinge of the window-casing, to fold and turn the shutter, substantially as and for the purpose specified.

192,195.



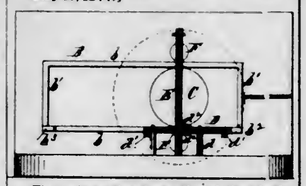
192,196. CANAL-BOAT PROPELLERS. Jacob Tascher, Central City, Colo. [Filed June 8, 1877.]

Brief.—For "poling" on the bottom of the canal.



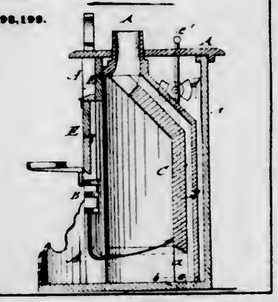
The propelling rod C, formed in sections c c', and having a broad foot-piece, C^2, at its outer end, while the rod C passes through the guide D in a sloping direction, and receives a reciprocating motion from the driving-shaft B, as and for the purpose described and set forth.

192,197. DEVICES FOR CONVERTING MOTION. Jacob Tascher, Central City, Colo. [Filed May 16, 1877.]



The reciprocating frame B and the wheel C, having V-shaped grooves b^2 and c, respectively, formed in their contiguous faces, the sliding bars D and E, the wheels F, and the lugs b^2 and b^1, constructed and arranged as and for the purpose set forth.

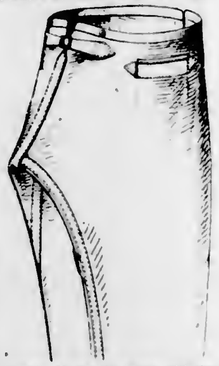
192,198.



193,198. OPEN-FRONT HEATING-STOVES. F. H. Thompson and D. Knappenberger, Belknap, Pa. [Filed May 12, 1877.]

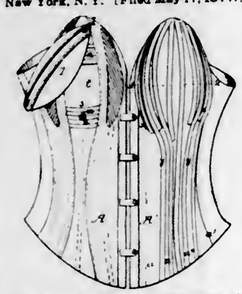
The combination, in a heating-stove, of the casing A, exit A^1, shelf A^2, tiles C, jacket having the flue D connected with aperture *a*, and the shield E, and recess E', all constructed and arranged as and for the purpose specified.

193,199. OVERALLS. Jacob Wallach, New York, N. Y. [Filed May 28, 1877.]



Overalls having flat seams, with the edges joined by stitches on the outside of the garment, folded down and covered by a reenforcing strip, as shown and described.

193,200. CORSETS. Ira De Ver Warner, Bridgeport, Conn., and Lucien C. Warner, New York, N. Y. [Filed May 17, 1877.]



1. A bosom-pad corset in which each front section consists of the pieces $a\ a^1\ a^2\ a^3$, constructed and connected substantially as described.

2. The combination of the curved side pockets *x x* and the intermediate curved overlying pockets, extending from the top to below the breast receptacles, as specified.

3. A bosom-pad corset, having in the breast an opening, *t*, with a transverse lower edge, *s*, as set forth.

4. The flap l, pivoted at the upper end to the upper portion of a bosom-pad corset, substantially as specified.

5. The combination of the pieces *a* a^2 and intermediate pieces *s d*, arranged to leave an opening, *t*, as set forth.

6. The cross-ribs *u*, arranged above and below the opening *t*, substantially as and for the purpose set forth.

193,201.

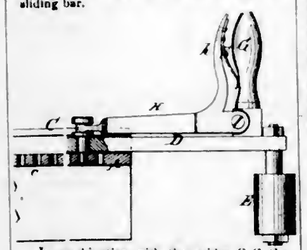


193,202. TOY BUZZER. Jas. B. Wells, Cincinnati, Ohio. [Filed May 21, 1877.]

A whirligig whistler, formed of a single disk plate, A, perforated at *a a* and provided with curved leaves B on the periphery, the leaves being separated by notches *b*, as shown and described.

193,203. ADJUSTABLE GAGES FOR SAW-MILLS. Franklin Wheeler, Berlin, N. H. [Filed June 26, 1877.]

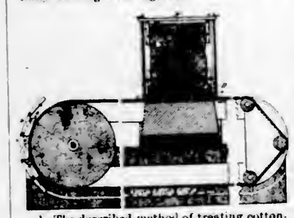
Brief.—The gage-roller is attached to the outer end of a sliding bar longitudinally adjustable between guides formed upon a perforated bed, and held in position by a latch-pin secured to a spring-latch pivoted to a vertical handle on the upper outer end of the sliding bar.



In combination with the guides C C, the slide-bar D, roller E, handle G, and the latching device H A S *b c*, substantially in the manner and for the purpose described.

193,203. METHODS OF AND APPARATUS FOR TREATING COTTON, &c. F. G. Wheeler, New York, N. Y. [Filed Dec. 6, 1876.]

Brief.—An endless apron carries intermittently each of a series of previously-prepared bales under the press, its preparation consisting in placing the material between a top and bottom frame hinged at the sides, and partially drawing them together.



1. The described method of treating cotton-bales, consisting, essentially, in placing the pressed bales successively in a continuous series upon an intermittently-moving surface, and in conveying them into the press for compression, and conveying them out of the press, after compression, to the point of discharge, substantially as described.

2. In combination with a cotton-press, an intermittently-moving carrier, adapted, substantially as described, to receive and discharge a continuous series of bales.

3. In combination with a cotton-press, the endless chain or chains, having the sectional platform, substantially as described.

4. In combination with the endless chain and platform, the sectional frame D, as described.

5. In combination with the described method of treating cotton-bales before and during compression, consisting in applying the bands to the bale before it enters the press, and holding them before and during the time of compression by independent frames, the method of automatically conveying them to the press, substantially as described.

193,204. PROCESSES AND APPARATUS FOR COATING METAL ROLLERS. Henry Wilde, Manchester, England. [Filed Apr. 20, 1877.]

1. The method, herein described, of securing a more intimate union between the roller and an electroplate of copper by heating the roller and subjecting it in this condition first to a bath of the cyanide of copper, and afterward continuing the deposition of the copper from a bath of the sulphate, as and for the purpose described.

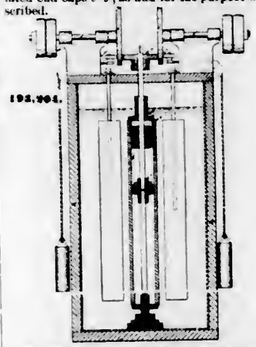
2. The method of forcing the coating into closer contact with the roller, and detecting any want of adhesion between the two metals, which consists in burnishing one or more thin coatings from a sulphate solution before the final coating is deposited, substantially as described.

3. The method of accelerating the deposition of plating metal upon the surface to be plated by imparting to the depositing solution a whirling or rotating motion in horizontal planes, as and for the purpose described.

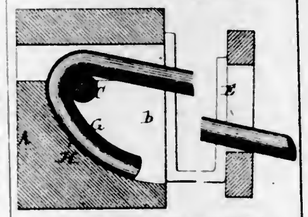
4. The combination, with the roller immersed in the bath, of the insulated shaft *c c*', the friction-pulley c^3, and the friction-disks *e'*, substantially as and for the purpose described.

5. The shaft *c c*', carrying the friction-pulley c^3 and the roller to be coated, in combination with the disks *e*, shafts *e'*, and levers *f'*, having bowls *f'* arranged to effect a contact between the disks *e* and pulley c^3 through the action of weights, as and for the purpose described.

6. The combination, with the roller *b*, of the shaft *c c*', having insulated coupling c^4 and conducting-pistou c^5, together with the insulated end caps $c^7\ c^8$, as and for the purpose described.



193,205. HORSE HAY-RAKES. W. Adriance, Poughkeepsie, N. Y. [Filed May 31, 1877.]



1. The combination, with a rake-head, A, having vertical recesses *b* in its rear surface, and a rod, C, extending longitudinally through the same, of the rake-teeth D, having downwardly-projecting inner ends, forming hooks G, resting over the longitudinal rod, and adapted to have a vertical movement thereon, substantially as and for the purpose described.

2. The rake teeth D, having their inner ends bent in a curved downward direction to form curved hooks G, in combination with the rake-head A, provided with the longitudinal rod C and recesses *b*, having curved lower edges H, substantially as described.

193,206. RAILROAD-SWITCHES. John H. Ainsworth, Philadelphia, Pa. [Filed June 4, 1877.]

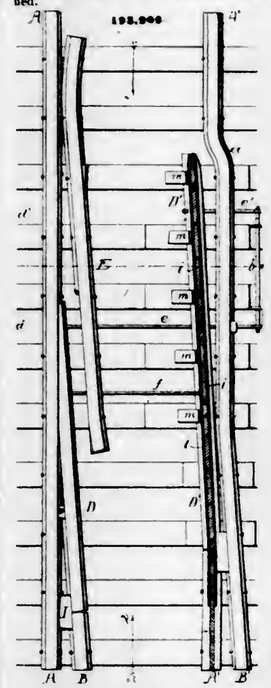
1. The combination of the main rail A, having a bent portion, *a*, with the switch-rail D', having a pointed end, but maintaining its full width up to within a short distance of the end, as set forth.

2. The combination of the switch-rail D, the switch-rail D', having a point in advance of that of the rail D, the shaft *b*, having cranks *d d'* of unequal lengths, and the connecting-rods *e e'*, as specified.

3. The combination of the switch-rail D' and main rail A' with the bars *i i*, extending throughout the length of the switch-rail, as set forth.

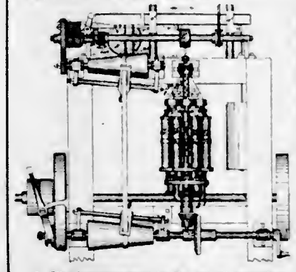
4. The combination of the switch-rail, main rail, and sliding-rail with a block, l, as specified.

193,206



193,207. ART OF MAKING THREAD, &c. A. R. Arnold, Newark, N. J. [Filed Mar. 10, 1876.]

Brief.—The first doubling and twisting of the yarns into a strand is made in the direction in which the said yarns were spun. The improvements in those parts of the machine that manipulate the yarns previous to the reeling of the finished thread are based upon the mechanism covered by Letters Patent No. 7,007, January 8, 1850. Said improvements relate to minor details of construction. The improvements further relate to the reeling mechanism, embracing a traverser and its operating mechanism and a counting mechanism; also, to the lubricating devices for the spindles, all as set forth in the claims.



1. The improvement in the art of manufacturing thread from yarn, consisting of the continuous preliminary twisting of the yarns, (previous to the first doubling,) the doubling, and twisting of the yarns into a strand in the direction in which they are spun, substantially as before set forth.

2. The improvement in the art of manufacturing thread from yarn, consisting of the continuous preliminary twisting of the yarns, (previous to their first doubling,) the doubling, the twisting into strands in the direction in which the yarns are spun, redoubling, and counter-twisting of the material, substantially as before set forth.

3. The combination, substantially as before set forth, of the yarn-tubes, yarn-channels, secondary spindle, and the twisting-head of said spindle.

4. The combination, substantially as before set forth, of the yarn-tubes, the set of tension-pins for each yarn-tube, a suitable support for such tension-pins, the secondary spindle, and the twisting-head of said spindle.

5. The combination, substantially as before set forth, of the yarn-tubes, the set of tension-pins for each yarn-tube, a suitable support for such tension-pins, the adjustable tension device for each yarn-tube, the secondary spindle, and the twisting-head of said spindle.

6. The combination, substantially as before set forth, of the yarn-tubes, the set of tension-pins for each yarn-tube, a suitable support for such tension-pins, the secondary spindle, and the main spindle.

7. The combination, substantially as before set forth, of the yarn-tubes, the set of tension-pins for each yarn-tube, a suitable support for such tension-pins, the adjustable tension device for each yarn-tube, the secondary spindle, and the main spindle.

8. The combination, substantially as before set forth, of the yarn-tubes, the secondary spindles, the strand-channels, the main spindle, and the twisting-head of said main spindle.

9. The combination, substantially as before set forth, of the yarn-tubes, the secondary spindles, the strand-tension devices, (one for each secondary spindle,) the main spindle, and the twisting-head of said main spindle, the whole arranged as before described, whereby, as a distinguishing characteristic in the mode of operation of the combination, the yarns are drawn endwise of the yarn-tubes to the secondary spindles, and receive a preliminary twist before being twisted into the strand.

10. The combination, substantially as before set forth, of the yarn-tubes, a yarn-tension device for each yarn-tube, the secondary spindles, the twisting-heads thereof, the strand-tension devices, (one for each secondary spindle,) the main spindle, and the twisting-head thereof.

11. The combination, substantially as before set forth, of the yarn-tubes, the secondary spindles, the main spindle, and the adjustable coil-guide, which is movable endwise of the main spindle and receives the cord as it leaves the said main spindle.

12. The combination, substantially as before set forth, of the yarn-tubes, the secondary spindles, the main spindle, the draft-roll, and the coil-guide for said draft-roll.

13. The combination, substantially as before set forth, of the yarn-tubes, the secondary spindles, the main spindle, the draft-roll, the coil-guide, and the reel.

14. The combination, substantially as before set forth, of the yarn-tubes, the secondary spindles, the main spindle, the draft-roll, the reel for winding thread in a skein, and the traverser, the whole arranged as before described, whereby, as a distinguishing characteristic in the mode of operation of the combination, the yarns are drawn endwise of the yarn-tubes to the secondary spindles, and receive a preliminary twist before being twisted into strands.

15. The combination, substantially as before set forth, of the yarn-tubes, the secondary spindles, the main spindle, the draft-roll, the reel, the traverser, and the shifting mechanism for shifting the traverser relatively to the reel.

16. The combination, substantially as before set forth, of the yarn-tubes, the secondary spindles, the main spindle, the reel, and the counting device for counting the number of yards reeled.

17. The combination, substantially as before set forth, of the yarn-tubes, the secondary spindles, the main spindle, the reel, the counting device, and the stop-dog.

18. The combination, substantially as before set forth, of the yarn-tubes, the secondary spindles, the main spindle, the reel, the count-wheel, the index, and the index-stop.

19. The combination, substantially as before set forth, of the yarn-tubes, the secondary spindles, the main spindle, the reel, the traverse latch-dogs, and the traverser.

20. The combination, substantially as before set forth, of the yarn-tubes, the secondary spindles, the main spindle, the reel, the counting device, the stop-dog, the adjustable traverse latch-dogs, and the dial.

21. The combination, substantially as before set forth, of the reel, the traverser, the counting device, the stop-dog, the traverse latch-dogs, and the dial.

22. The combination, substantially as before set forth, of the counting device, the index, the index-dog, the wheels for transmitting motion to the counting device, and the movable holder for holding the counting device in gear, and permitting it to be thrown out of gear for resetting.

23. The combination, substantially as before set forth, of the yarn-tube, the movable cap thereof, the twisting-head of the secondary spindle, and the movable section of the strand-channel.

24. The combination, substantially as before set forth, of the secondary spindle, the yarn-tube, and the driving-pins, which permit the yarn-tube to be turned without turning the spindle.

25. The combination, substantially as before set forth, of the main spindle, the counter-shaft for imparting motion to it, and the clutch-teeth, which permit the main spindle to be turned without turning the shaft.

26. The combination, substantially as before set forth, of the main spindle, the draft-roll, and the clutch-teeth and latch, whereby the movement of the draft-roll may be intermitted, while the main spindle continues to twist the thread.

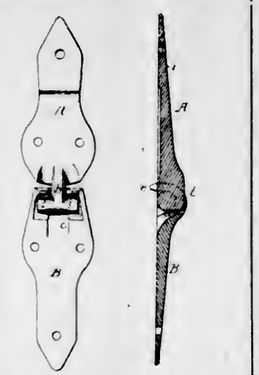
27. The combination, substantially as before set forth, of the main spindle, the reel, the differential gear, through which a slow motion is transmitted to the reel, and the clutch-teeth and latch, whereby the movement of the reel can be intermitted while the main spindle continues to twist the thread.

28. The combination, substantially as before set forth, of the oil-reservoir and the revolving journal, constructed with the helical oil-feed groove.

29. The combination, substantially as before set forth, of the oil-reservoir, the revolving journal, constructed with the helical oil-feed groove, and the receiving-reservoir.

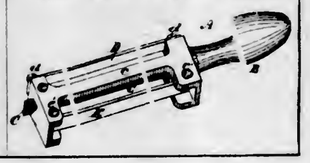
193,208. TRUNK-HINGES. John Arnold, Newark, N. J. [Filed Mar. 28, 1877.]

Brief.—The T-shaped projection on one leaf of the trunk-hinge fits into a corresponding recess in the other, which has projecting sharp flanges, which are driven into the trunk.



The combination, in a hinge, of the leaf A, its T-headed projection, and the leaf B, its recesses *c*, slot *d*, and spurs *e*, substantially as set forth.

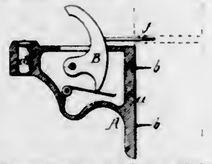
193,209. SAW-SHARPENER AND TOOTH-GAGE. George W. Atkins, Milton, Del., assignor of one-half his right to George H. Hulings. [Filed May 15, 1877.]



The improved saw-sharpener and tooth-gage, consisting of the file-holder A, having the handle B and longitudinal brace C, and provided with the vertically-adjustable slotted gage D, secured by screws *d d*, and the laterally-adjustable gage E, having its ends inserted in sockets, and secured by screws *e e*, all as shown and described.

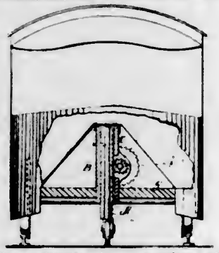
193,210. BURGLAR-ALARMS. B. N. Bailey, Philadelphia, Pa., assignor of one-half his right to Eugene Naegele, same place. [Filed May 21, 1877.]

Brief.—The device is attached to the frame of a door or window, and the arm of the hammer placed in the crack of the door, or between the sash of the window. When released by opening the door or window, the hammer falls and explodes a cartridge.



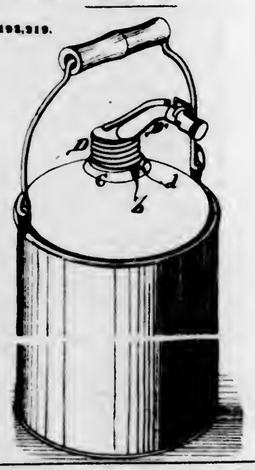
The combination of a door or window and its frame with the casing A, carrying a cartridge, *d*, and spring-hammer B, with finger *f*, and having a face, *a*, adapted to said window, door, or frame, and provided with pins *b*, or equivalent device, as described, for attachment thereto, as set forth.

193,211. CAR-REPLACERS. J. B. Barnes, Indianapolis, Ind. [Filed Jan. 31, 1877.]



The combination, in a car replacer, of the spindle A, having roller *a'*, the tubular ratchet-box B, adapted to receive said spindle, the outer socket-box C, receiving said ratchet-box, a pinion, *i*, engaging the latter, a ratchet and pawl, and a crank-arm, for actuating said pinion, substantially as specified.

193,212.



193,213. OIL-CANS. W. H. Barnes, Elgin, Ill., assignor of one-half his right to W. R. Eaton, same place. [Filed June 27, 1877.]

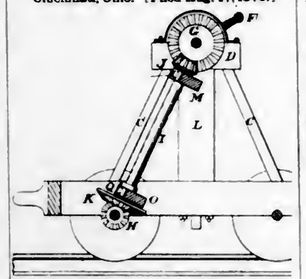
1. In an oil-can, the combination of the screw-collar C with the screw-cap D, having the outlet-tube D', arranged in said cap, and stops *b* and *d*, arranged respectively on the collar and cap, whereby the outlet-tube, when the cap is screwed on, is always at right angles to the bail, substantially as described.

2. An oil-can, consisting of an outer cylindrical metal case, having a strengthening-wire around its top, forming an interior shoulder, an interior glass can made tapering from top to bottom, and an interposed packing, substantially as and for the purposes herein set forth.

193,214. COMPOSITIONS FOR MOLDED ARTICLES. Honore Bayle, New York, N. Y. [Filed May 2, 1877.]

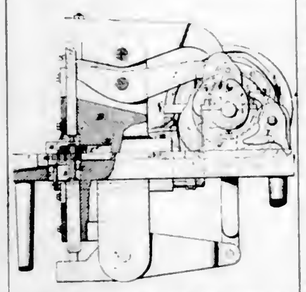
The composition or compound consisting essentially of papier-maché, gum-arabic, and bronze-powder, with or without the addition of other coloring matter, in or about in the proportions hereinbefore described, for the purpose specified.

193,215. HAND-CARS. George W. Bemis, Cincinnati, Ohio. [Filed Aug. 17, 1876.]



The improved railroad hand-car herein described, constructed with a frame consisting of stanchions L L, supporting-sills P P, stays C C C C, and brace-pieces M O, and a driving-gear consisting of an oblique shaft, I, journaled in the brace-pieces M O, and provided with bevel-gear wheels J K, the hand-crank shaft E F, having bevel-gear wheel G, and the axle-shaft R, carrying bevel-gear wheel H, all arranged substantially as set forth.

193,216. NUT-MACHINES. John R. Blakeslee, Cleveland, assignor of one-half his right to Erastus B. Pierce, Cuyahoga Falls, Ohio. [Filed June 4, 1877.]



1. The combination, with the cutters, the mechanism for operating the same, and the gage at the rear of said cutters, of the finishing-die and the compressing-dies and mechanism for operating the same, substantially as set forth.

2. In combination with the final angular cutters and the gage, the hammers located at the rear of said cutters, for the purpose of squaring the sides of the nut-blank before it enters the finishing-die, substantially as set forth.

3. In combination with the cutters for cutting the nut-blanks, the clamp for grasping the blank, and the bent lever and cam for actuating the same, for preventing the bar from cocking during the operation of cutting and severing the nut, substantially as described.

4. In combination with the cutters and finishing-die, the gage for holding the end of the blank, supporting it against the action of the final cutters, and retaining the nut, when separated, in position to enter the finishing-die, substantially as set forth.

5. The combination, with the cutters, their operating mechanism, and the gage at the rear of said cutters, of the clamps for grasping the blanks, finishing-die, and the compressing-dies and their operating mechanism, all constructed to operate together substantially as set forth.

193,218. CROCHET ATTACHMENTS FOR SEWING-MACHINES. Helen A. Blanchard, Boston, Mass., assignor to J. Bigelow, trustee, same place. [Filed June 28, 1876.]

Brief.—The cam mentioned in the first claim is on a downwardly-projecting stud on the under side of the cloth plate, and the lever it actuates, and through which it actuates the crocheting devices, passes up through an opening to the top of the cloth plate.



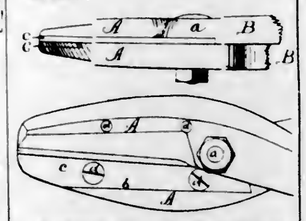
1. In combination with the stitch-forming mechanism of a sewing-machine, a horizontally-acting loop weaving or knitting device, a cam located beneath the table for operating the same, and connecting mechanism, substantially as shown and described.

2. In an overseaming sewing-machine, the combination, with the stitch forming mechanism thereof, of the horizontally-operating loop weaving or knitting device, operated as shown, and arranged in relation to the said mechanism, as described, whereby a series of crochet-stitches are placed along the edge of the fabric being united, and sewed thereto by means of the diamond overseaming-stitch, as and for the purposes set forth.

3. The combination of crochet-thread carrier D, which swings on point d^2 back and forth, with needle-carrier C and lever B, and its operative mechanism, substantially as and for the purposes set forth.

4. The needle-carrier $C c^1 c^2 c^3$, having latch-needle c^1, and combined with lever $B B^1$ and cam-wheel A, substantially as and for the purposes described.

193,217. SHEARS FOR TINSMITHS. Thomas H. Brady, New Britain, Conn. [Filed Jan. 31, 1877.]

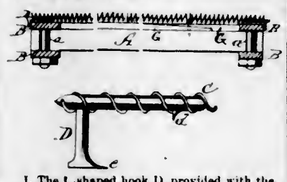


In tinsmiths' hand shears the blades A A, having the longitudinal depressions in their faces extending back of the joint and terminating in the shoulder *b*, and the removable steel facings *c c* fitted in said depressions, and receiving the bolt by which the blades are

pivoted together, substantially as described, and for the purpose set forth.

193,219. SPRING BED-BOTTOMS. O. Brewster, Warren, Pa. [Filed Jan. 17, 1877.]

Brief.—Coiled-wire springs arranged lengthwise of the frame, and connected at alternate intervals by links, form the web of the bottom. L-shaped hooks having spurs thereon are inserted in the ends of the springs, and engage with the cross-bars of the frame. By means of the spurs the hooks can be adjusted in the springs and the tension of them regulated. Overlapping levers are arranged on the side bars of the frame, in such manner that they can be used to force the end bars apart, thus stretching the entire web.

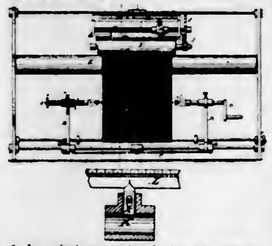


1. The L-shaped hook D, provided with the spurs *d* and *e*, for regulating the tension of the springs and entering the top and rear of the cross-bars B, as and for the purposes herein set forth.

2. The combination of the bars B, springs C, connected at alternate intervals by links *b*, and hooks D, provided with spurs *d* and *e*, constructed and arranged substantially as and for the purposes herein set forth.

3. In a spring bed-bottom, the combination of the side rails A A, having connected top and bottom cross-bars B B at each end, movable thereon, the springs C C, connecting the two sets of cross-bars, and the overlapping levers G G, for stretching the springs and holding the cross-bars at the proper distance apart, substantially as set forth.

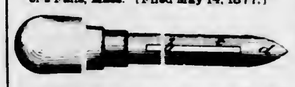
193,219. CLOTH-MEASURING MACHINES. Thomas M. Brintnall, New York, N. Y. [Filed Mar. 10, 1877.]



1. In a cloth-measuring device, the smooth-bored sleeve K, with bored hub and movable toothed pointer *k*, in combination with the screw H, gears J I, and traction-roll F, all arranged in a hinged frame, G, substantially as and for the purposes herein set forth.

2. In a cloth-measuring device, the combination of the sliding standards B, having bottom sleeve-bearings Q and top bearings *b*, the adjustable sleeves or tubes *c*, and the shafts *d*, with clutches *f*, substantially as and for the purposes herein set forth.

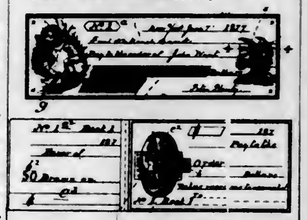
193,220. APPLE PARERS AND CORERS. W. S. Brock, New York, N. Y., assignor to the John Russell Cutlery Company, Turner's Falls, Mass. [Filed May 14, 1877.]



1. The concavo-convex longitudinally-slotted knife blade, having one or both sides of the slot in the same formed with a cutting-edge, substantially as and for the purpose specified.

2. The concavo-convex blade, having the longitudinal slot formed therein, with a cutting edge or edges, and provided with a cutting coring-point formed thereon, substantially as and for the purpose set forth.

193,221. BANK-CHECKS, &c. Franklin W. Brooks, New York, N. Y., assignor of one-half his right to William Fullerton, same place. [Filed June 18, 1877.]



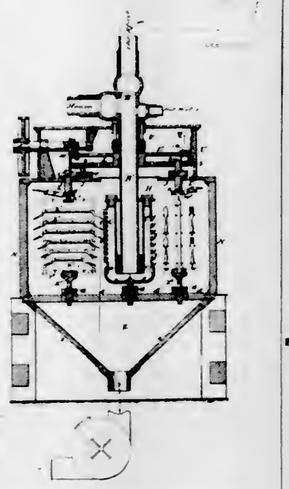
1. A blank for bank checks or other commercial paper, provided with a detective number, letter, or device, concealed by a seal flap or cover, having a portion above the number defined by perforations, and provided with an open crease or fold at one end to facilitate its removal.

2. A blank for bank-checks or other commercial paper, provided with a seal covering a detective number, letter, or device, and with a star or other figure printed on the back of the check to render it opaque at the point where the detective number is applied, and assist in concealing the same.

3. A blank for bank-checks or other commercial paper, having a cemented seal flap or cover concealing a detective number, letter, or device, and provided with a superimposed picture or design, in fugitive ink, to expose any tampering therewith.

4. A bank-check or other commercial paper, having a concealed detective number, letter, or device for determining its genuineness, and provided with pictures or designs, printed in fugitive ink, over and upon the seal which covers said number, letter, or device, and the adjoining surface, and also over and upon the words or figures necessary to be protected to prevent altering said paper to increase its value.

193,222.



193,223. STEAM DISH-CLEANERS. Don C. Buell, Paradise, Ky. [Filed Nov. 16, 1874.]

Brief.—The machine is made with three compartments, arranged one above the other. The top compartment contains suitable mechanism for revolving a system of pipes, through which spray is thrown upon the dishes located in the second compartment. The dishes are placed in variously-formed "holders," which latter are secured in rectangular frames or "receivers" arranged concentrically around the spray-pipe. The holders are removably secured in the receivers, and may be detached entirely from the machine. The lower portion of the middle compartment opens into the third compartment, which latter is in the shape of a funnel, and is used to convey away the impurities washed from the dishes. Suitable mechanism may be attached to the lower compartment for exhausting the hot air and steam from the machine, and by a suitable impelling apparatus attached to the upper end of the spray-pipe cold air may be forced through the spray-pipes upon the dishes, thereby facilitating the operation of drying. A bell is placed in the upper compartment, and signals the completed operation of cleansing.

1. The combination of a suitable air-impelling device, a pipe, B, and tubes connected therewith, for directing the cold-air blast upon the cleansed dishes or ware, for the purpose of drying and cooling the same, substantially in the manner set forth.

2. In combination with the cleansing-chamber and the tube connected with the bottom thereof, a suction or exhaust pan, for the purpose of rapidly exhausting the vapor from the chamber, substantially in the manner specified.

3. In a machine for cleansing various articles of table or culinary ware, the combination, with a series of vertical steam and water discharge or jet pipes, of a series of racks or holders for said ware, the same being arranged around the system of jet tubes, and pivoted so as to revolve horizontally, in the manner described, whereby the whole circumference of each article to be cleansed is exposed to the action of the steam and water jets, as set forth.

4. A system of revolving pipes, B C D, substantially as described, for throwing the steam, hot water, and spray in jets of different angles upon the articles to be cleansed.

5. Revolving receivers, substantially as described, constructed with a seat, F''', in the bottom plate, and a groove and catch, *g''*, in the top plate, to secure in a uniform position the holders in which the articles to be cleansed are immediately placed.

6. A wheel, L, firmly attached to the main pipe B and connecting with the wheels N, to effect a relative and simultaneous motion of the receivers and jet-pipes, substantially as set forth.

7. The combination of the annular gear M and suitable connecting mechanism with the series of concentrically-placed revolvable receivers, as shown and described.

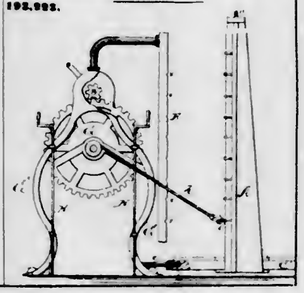
8. A conical or other shaped funnel, Z, under the cleansing-chamber, with its rim bolted to the plate A, substantially as set forth, to receive and carry off the steam, water, and other accumulations of the cleansing.

9. The arrangement of a bottom plate, A, open in the cleansing chamber, with cross-bars A' and set-screws G, substantially as set forth, to afford points of support for the receivers and system of revolving pipes, and at the same time allow the accumulations of the cleansing to fall without obstruction into the funnel.

10. The table or supporting-frame, of iron or strong timber, to sustain the machine, with a movable end frame fastened and unfastened by means of bolts to admit the funnel, substantially as set forth.

11. The rotating wheel L, having an arm or tooth, in combination with the stationary bell for giving the signal of the progress of cleansing process, as set forth.

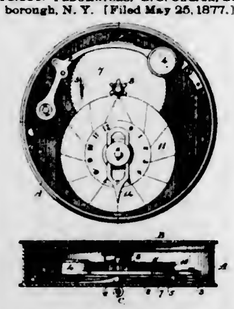
193,224.



193,223. MACHINES FOR CUTTING SOAP. N. A. Chandler and John C. Boesch, Charleston, S. C. [Filed May 26, 1877.]

In a horizontally-working soap-cutting machine, the combination of the frame A, having vertical and horizontal wires *a b* and cutter B, and movable upon the bottom board D, the adjustable frame G', with windlass G and pins *s*, the chains or ropes *h*, and grooved stationary face-board E, all substantially as and for the purposes herein set forth.

193,224. PEDOMETERS. B. S. Church, Scarborough, N. Y. [Filed May 25, 1877.]



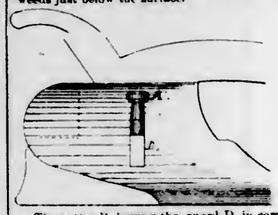
1. The combination, with an actuating-lever, 2, an indicator and index-hand, of moving differential toothed wheels 9 10, and intermediate mechanisms transmitting the motion of one to the other, substantially as described.

2. The combination of an index-hand and an indicator-dial, provided with a varying scale, both of which devices travel in the same direction with a differential movement, whereby the same number of pulsations of the actuating-lever produced by steps varying in length may record the true distance traveled, substantially as described.

3. The combination, with an indicator, provided with a varying scale, of an adjustable pointer or index-hand, substantially as described.

193,225. WEEDING-PLOWS. James Coles, Milburn, assignor of one-half his right to David B. Coles, Mount Olive, N. J. [Filed Apr. 25, 1877.]

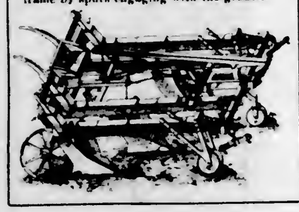
Brief.—A horizontal cutter projects from the mold-board, and has a vertical end surmounted by a ball. It is intended to cut the weeds just below the surface.



The cutter B, having the guard D, in combination with a plow, substantially as and for the purposes specified.

193,226. GANG-PLOWS. Thomas J. Crump, Buena Vista, Tex. [Filed May 19, 1877.]

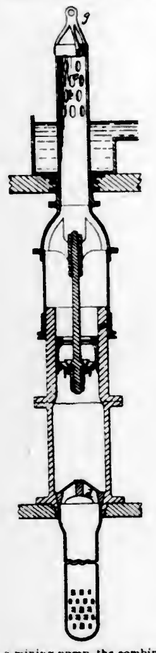
Brief.—Means for attaching a gang of plows together. Outside plow-beams may be used or removed. Lever device for backing the plow-frame by spurs engaging with the ground.



1. An improved gang-plow, consisting of the plows A A^1 A^2 A^3, front bar or frame B^4, auxiliary frame B^3, rear or carriage frame B, pivoted seat C, elevating device E, backing device H I *l*, and central colter D, the several parts being constructed, arranged, and combined to operate substantially as specified.

2. The combination of the plows A^1 A^2 and auxiliary frame B^3, with the main frame or bar B^4, and rear carriage-frame B, substantially as described.

193,227. MINE-PUMPS. E. Daggett, Salt Lake City, Utah. [Filed May 5, 1877.]



1. In a mining-pump, the combination, with a reciprocating pipe, a pump-barrel, and suitable valves, of an auxiliary or water-balance chamber, substantially as described, whereby the weight of the pipe may be wholly or partially balanced, as set forth.

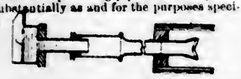
2. In a mining-pump having a reciprocating pipe, the combination, with said pipe, of a discharge tank provided with a stuffing-box in its bottom for the passage of the pipe, substantially as described.

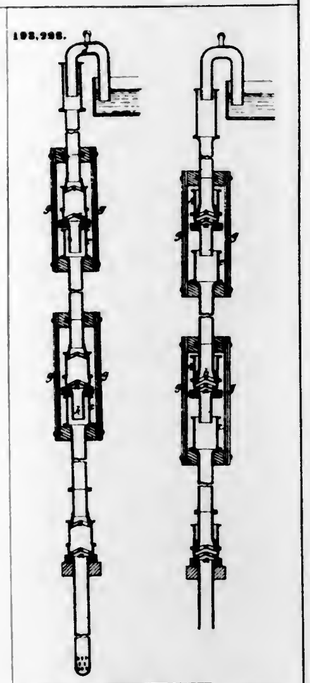
193,228. MINE-PUMPS. E. Daggett, Salt Lake City, Utah. [Filed May 5, 1877.]

Brief.—Two stationary pump-barrels with suitable valves, and two reciprocating pipes which operate the valves, are united together and operate simultaneously, so that the several barrels and pipes co-operate as one pump, the water being forced from the lowest pump to one next above, and so on until it can be freely discharged at the top of a shaft, or any lower point from which flowage is desirable.

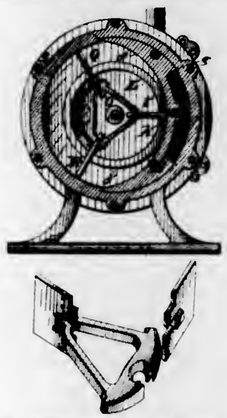
1. In a mine-pipe, two or more stationary pump-barrels placed one above the other and provided with suitable valves, in combination with two or more reciprocating pipes which are connected to each other by tie-bars, and operate simultaneously within their respective pump-barrels, substantially as described.

2. In a mine-pump, the combination, with a pump-barrel, a reciprocating pipe, and suitable valves, of a tank mounted upon the upper end of the reciprocating pipe and moving with it, substantially as and for the purposes specified.





193,229. ROTARY ENGINES. J. Davenport, Massillon, Ohio. [Filed Feb. 15, 1877.]



1. The combination, with the piston of a rotary engine, of movable wings secured to a pendulum-link, substantially as and for the purpose set forth.

2. The combination, with the piston of a rotary engine, of movable wings, one of which is pivoted to a pendulum-link while the others are removably secured thereto, substantially as and for the purpose set forth.

3. The combination, with the pendulum-link, of the springs and detachable wings, provided with re-enforce rocking-bearings, substantially as and for the purpose set forth.

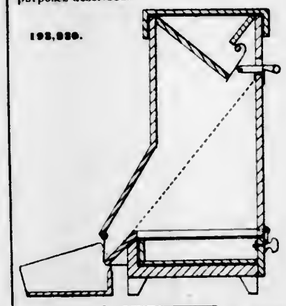
193,230. ASH-SIFTERS. Milton Dean and Andrew B. Kingsbury, Utica, N. Y.; said Kingsbury assignor to said Dean. [Filed Apr. 10, 1877.]

1. The ash-sifter, having an exit-port, *c'*, extending over a recess, d^5, in combination with a removable cover, C, having pendent sides the proper width to fit the recess under the exit-port, adapting it to be used interchangeably as the cover of the ash-sifter, and as the receiver of the sifted coal, substantially as described.

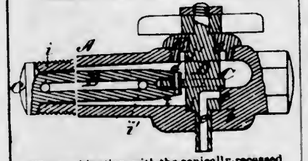
2. In an ash-sifter, the lid or trap *d*, having pivotal bearings, and provided with an adjusting-bar or handle, d^1, having a notch, d^2, in combination with the plate *f*, for opening and closing the throat of the receiving-hopper of the sifter, substantially as described.

3. The removable cover C and the receiver D, in combination with the ash-sifter having the inclined sieve B and traps or lids *d h*, adjusted to operate substantially as and for the purposes described.

193,230.



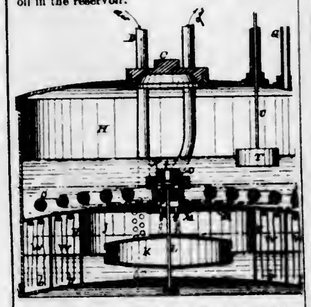
193,231. GAGE-COCKS. H. A. Distelrath, Columbus, Ohio. [Filed May 2, 1877.]



The combination, with the conically-recessed tubular casing A, of the inner tube B, having conical boss *c* fitting in said recess, and its induct-opening *i* in front of said boss, the eccentric C, and the operating-shaft D, having exit-passage *e*, substantially as specified.

193,232. CARBURETERS. Oliver P. Drake, (Frank G. Drake, administrator,) Boston, Mass. [Filed Apr. 13, 1877.]

Brief.—Oil is fed from the reservoir to the carbureting-chamber automatically by a float and valve. The carbureted air or gas is passed through a coil of pipe immersed in the oil of the reservoir, for condensing any excess of vapor carried off from the carbureting-chambers. A float and rod indicate the height of oil in the reservoir.

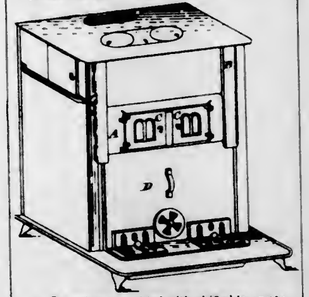


1. The combination of the flanged tube M, its cap N, and the valve P with the division-disk R, whereby a direct communication is secured with chamber J from reservoir H without the use of connecting-pipes or stop-valves, as specified.

2. The combination of cap N, flanged tube M, and valve P with the division-disk R, the horizontal line of the cap N, where the conduit-hole *t* enters, projecting above disk R into the reservoir H above the main body of the coil S S, resting on disk R, in order to secure a constant body of gasoline at the bottom of the reservoir H, which cannot be drawn off through the automatic feed-valve, as a condensing medium to always cover and surround coil S S, when in use, for the purposes specified.

3. The combination of the condensing-coil S S with the division-disk R, cap N, flanged tube M, valve P, chamber J, reservoir H, and outlet-tube E, whereby the main body of the coil S S shall rest on disk R at the bottom of reservoir H, below the outlet-conduit of the cap N, for the purpose set forth.

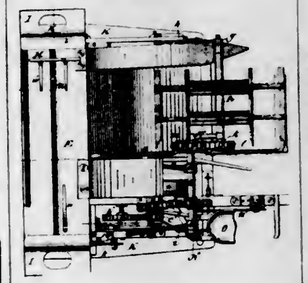
193,233. STOVES FOR COOKING AND HEATING. Bernard Duerstock, Cincinnati, Ohio. [Filed June 20, 1877.]



1. In a stove provided with shiftable grate J, the sliding fire-door A, having the auxiliary hinged doors C C, substantially as described and shown.

2. In combination with a stove having shiftable grate J and sliding door A, the removable linings I K L M, as described and shown.

193,234. HARVESTERS. George Esterly, Whitewater, Wis., assignor of one-half his right to Geo. W. Esterly, same place. [Filed Feb. 29, 1876.]



1. In combination with the tubular shaft G, having the rake-head F connected thereto, the rod N passed through said shaft, and having its end bent to form a reel-sustaining arm, as shown and described.

2. The combination of the tubular rake-shaft G, provided with the pulley *m*, the reel sustained by the rod N, and provided with the pulley K, and the chain *l*, as shown.

3. In combination with the rear platform E and the main rake F the front platform D, having its rear edge hinged to rise and fall, substantially as shown.

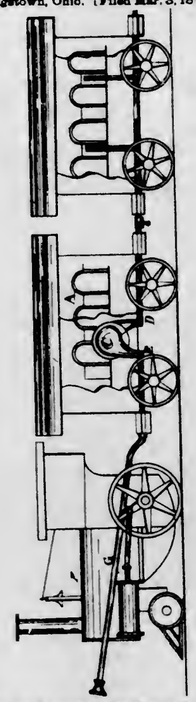
4. In combination with the hinged edge *g'* of the platform the rock-shaft *h'*, provided with the arm *i'* and handle *k'*.

5. In combination with the main frame A and the outer binders' stand K the rod P and bar *e'*, as shown.

6. The combination of a rake and a reel revolving in circular paths, having different centers, the path of the rake being partly within and partly without that of the reel-blades, as and for the purpose described.

7. The combination, in a harvester, of a reel and a rake, both rotating in a vertical plane, with their axis parallel, but not concentric, with each other, substantially as shown.

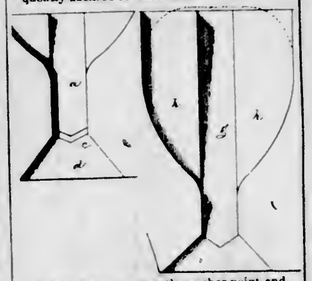
193,235. CAR-VENTILATORS. H. B. Finney, Youngstown, Ohio. [Filed Mar. 3, 1877.]



The pipe G, extending in front of the locomotive and under the floors of the cars, in combination with the fan-blower, operated by the rotation of the wheel-axle and induction-pipe J, rising vertically from the floor-pipe G', whereby ascending currents are induced and a circulation of fresh air maintained from the lower to the upper parts of the cars.

193,236. MANUFACTURE OF ANCHOR-POINTS. Wm. N. Fisher, Boston, Mass., assignor to Boston Forge Company, same place. [Filed Apr. 17, 1877.]

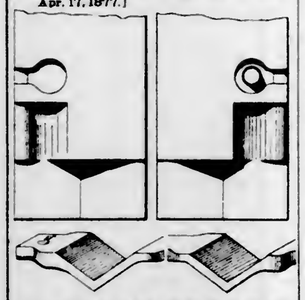
Brief.—The arm approximately shaped together with the palm. Both, at a welding-heat, are placed in proper-shaped dies, welded together, and shaped, and the point is subsequently sheared in other dies.



1. The dies to receive the anchor point and palm, to weld or unite the palm to the arm, and draw the point, substantially as described.

2. The point-receiving groove *a* and cutting-dies *c c*, to hold the point of the anchor and shear it to proper length from the palm, substantially as described.

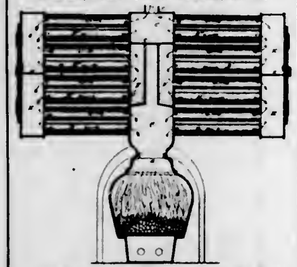
193,937. MANUFACTURE OF ANCHORS. Wm. N. Fisher, Boston, Mass., assignor to Boston Forge Company, same place. [Filed Apr. 17, 1877.]



1. The series of dies herein described for forming the heads of anchors, having stock-eyes and ring openings, substantially as specified.

2. As an improvement in the art of manufacturing anchor-heads, forming a bar of metal with half-eyes, bending and welding the same to make a whole eye, and finally shaping the head and producing the ring opening, substantially as specified.

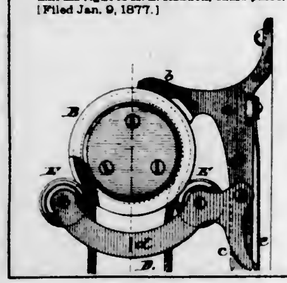
193,938. HOT-AIR FURNACES. G. T. Flint, Winona, Minn. [Filed June 21, 1877.]



1. The radiator B, having chambers C, F, and C' located centrally therein, and vertical end chambers E and E', connected with said central chambers, as described, by horizontal pipes D D' D'' D''', substantially as and for the purposes set forth.

2. In combination with heater A, having neck *a* at its apex, the radiator B, having central chamber C, in which are divided off side chamber F and upper central chamber C', vertical end chambers E and E', separated from each other by partition *g*, and the horizontal connecting-pipes D D' D'' D''', substantially in the manner and for the purposes set forth.

193,939. CURTAIN-FIXTURES. Albert Fontayne, Cincinnati, Ohio, assignor of one-half his right to H. B. Randell, same place. [Filed Jan. 9, 1877.]

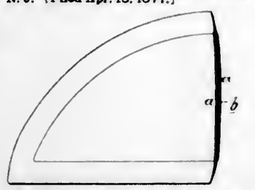


1. In a curtain-fixture, the combination of two parallel arms, D D, serving as guides for the cord, the roller or rollers E journaled between the same, a grooved pulley, B, a brake-shoe, *b*, and a spring, *c*, for keeping the rollers, pulley, and brake-shoe in frictional contact, substantially as described.

2. The combination of a bracket, C, the vibrating parallel arms D D, pivoted thereto, and having the projecting ends *c c*, a spring, *c*, bearing on said ends, rollers E E journaled between the arms D, the grooved pulley, and a brake-shoe, *b*, substantially as described.

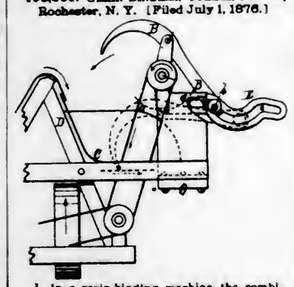
3. The combination, with a curtain-roller, A, of the grooved pulley B, attached to the end thereof, the bracket C, and the two parallel independent arms D D, attached to, and projecting laterally from, the bracket, and rollers E, journaled between said arms, and upon which the grooved pulley B rests and revolves, substantially as described.

193,940. HEEL-STIFFENERS FOR BOOTS AND SHOES. Cornelius Y. Gardner, Vineland, N. J. [Filed Apr. 18, 1877.]



A heel or counter stiffener, consisting of a central piece, *b*, and covering-pieces *a a*, cemented together, the covers projecting sufficiently beyond the central piece to form the flange of the stiffener, as shown and described.

193,941. GRAIN-BINDERS. John H. Gordon, Rochester, N. Y. [Filed July 1, 1876.]



1. In a grain-binding machine, the combination of a driving-crank, a fixed slotted guide, and a binder-arm mounted at or near its middle directly on the crank, and arranged to slide in the guide, substantially as shown and described.

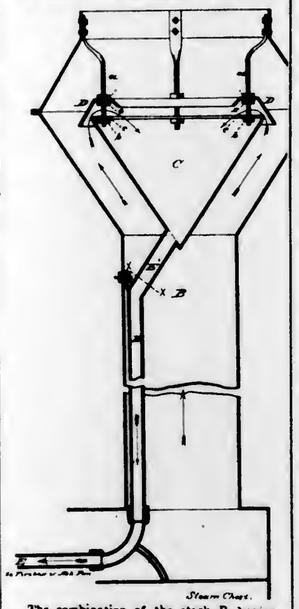
2. In a grain-binding machine, the combination, substantially as shown and described, of a rotating driving-crank, a binder-arm mounted at or near its middle thereon, and a fixed curved guide, by which the movement of the binder-arm is controlled, and its nose caused to travel in a straight line during the whole or the greater part of its backward movement.

3. The combination, in a grain-binder, of the table C, the fixed overhanging standard provided with the rigid guide-arm E, the crank *e* having its shaft mounted in the standard, and the binder-arm B, sustained and carried by the crank and guide-arm, as shown.

4. The combination of the rotating crank, the binder-arm mounted thereon, and a fixed elongated guide, E, having the end of the arm arranged to slide to and fro therein or thereon, as shown, the distance between the crank-pin and the bearing of the arm on the guide remaining the same during the entire movement of the arm.

5. In a grain-binding machine, the combination of a rotating driving-crank, a fixed sinuous guide, and an arm adapted and arranged to carry the binding-wire around the grain mounted directly on the crank, and controlled in its movement by the guide, substantially as shown and described.

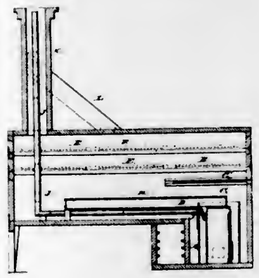
193,942. SPARK-ARRESTERS. P. H. Grace, Sedalia, Mo. [Filed June 19, 1877.]



The combination of the stack B, having vertical bolts or rods *a*, with the inverted cone C, conveyer E, and adjustable annular deflector D, substantially as and for the purpose herein shown and described.

193,943. FRUIT-DRIERS. Saml. R. Griffith, Bloomington, assignor to John R. Dodge, Jr., and William T. Shurtleff, Normal, Ill. [Filed June 27, 1877.]

Brief.—Before being placed in the drier, the fruit may be bleached in the chamber M by being subjected to the fumes of a burning compound composed of sulphur, charcoal, and alum.



1. The combination, with the drying and heating chambers, of the bleaching-chamber M, arranged in rear of said heating-chamber, and under said drying-chamber, substantially as and for the purpose specified.

2. The combination, with the drying and heating chambers and heating device, of the longitudinal perforated air-conducting pipes H, perforated plates G G', longitudinal flue or pipe J, exhaust shaft K, and exhaust-pipes L, the several parts constructed and relatively arranged substantially as herein shown and described.

3. The combination, with the drying and heating chambers and heating device, of the longitudinal perforated air conducting pipe or pipes H and perforated plates G G', arranged in the front end of the drying-chamber and directly over the heating device, whereby the heated air is equally distributed throughout the drying-chamber, substantially as specified.

193,944. STRAINERS. Adolph Guillemin and John Lehman, Lancaster, Minn. [Filed Dec. 26, 1876.]

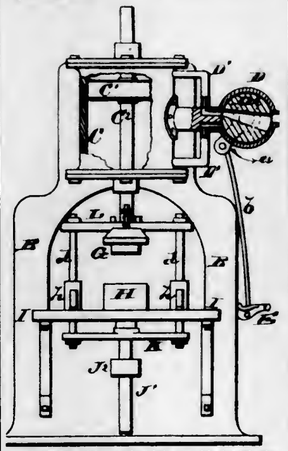


1. The combination of the funnel or body A, having perforation *d''*, with the hinged sleeve or ring B, having radiating arms *d*, and clamping-ring C, substantially as and for the purpose hereinbefore set forth.

2. The combination of the funnel or body A, sleeve B, and clamping-ring C with the removable strainer-cloth D, substantially as and for the purpose hereinbefore set forth.

193,945. BRICK-MACHINES. John L. Haws, Johnstown, Pa. [Filed May 19, 1877.]

Brief.—The plunger, in its upward movement, after pressing the brick, carries the yoke and connecting-rods, whereby the follower forming the bottom of the mold is caused to eject the brick.



1. The rocking valve D', provided with the arm *a* and rod *b*, in combination with the lever E, bent steam-pipes D', leading into the single steam-cylinder C near its upper and lower ends, piston C', rod C'', carrying the presser-block G, die H, and follower J, substantially as described, and for the purpose set forth.

2. The combination of the presser-block G with cross-bar L, the connecting-rods *d d*, cross-bar K, rod J', and follower J, substantially as and for the purposes herein set forth.

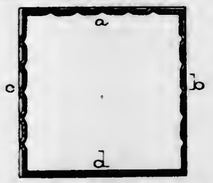
193,946. MATCH-SAFES. Edgar K. Haynes, Boston, Mass. [Filed June 20, 1877.]



1. As a new article of manufacture, a pocket match-safe, composed of the body, having the two apartments *b c*, and provided with a hinged cover, having a guard to shield the wick, all combined to operate substantially as described.

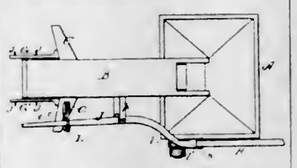
2. The case having the two apartments *b c*, and the slot *i*, to move up the wick, in combination with the cover, to close both the openings, substantially as described.

193,947. PAILS. Patrick Hickey, Philadelphia, Pa. [Filed Dec. 1, 1876.]



The body A, with sides *a b c*, formed with corrugations, a horizontal bead, and a plain side, *d*, substantially as and for the purpose set forth.

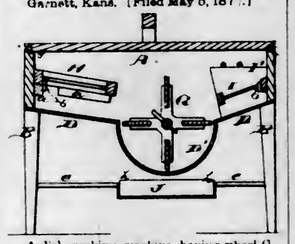
193,948. GRAIN-ELEVATOR AND BAG-FILLER. George R. Hockenhull, Berlin, Wis. [Filed Apr. 21, 1877.]



1. In an elevator mechanism, the shaft *h*, having fixed pulley I, and movable pulley *i'*, and the endless belt H, combined with a vibrating lever, J, having slot *n* in its weight end, through which said belt is passed, substantially as specified.

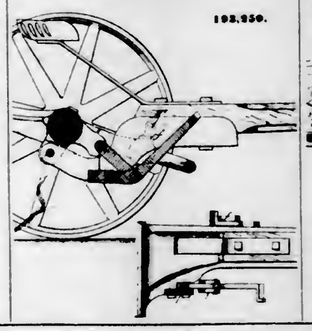
2. The spring arms G G', having hook *j* secured to legs C, and engaging the hopper-spout F, in combination with the hopper A, substantially as specified.

193,949. DISH-WASHERS. J. J. Hoffman, Garnett, Kans. [Filed May 5, 1877.]



A dish-washing machine, having wheel G, bottom D D D', racks H I, rods *e e*, and pan J, all substantially as and for the purpose set forth.

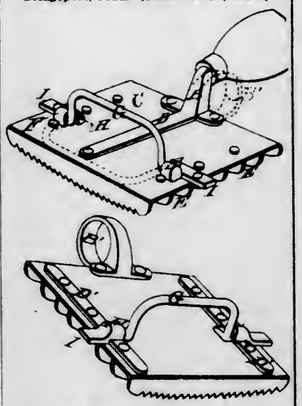
193,950.



193,950. MOWERS. H. L. Hopkins, Manchester, Iowa. [Filed Apr. 24, 1877.]

The combination, substantially as specified, of the pivoted tongue, the foot-lever fulcrumed on a stud on one side of the tongue socket, the link for connecting the foot-lever to an arm of the frame, and the pendulous detent for bracing against the forward end of the frame, to hold it down after it has been tilted.

193,951. CURRY-COMBS. C. A. Hotchkiss, Bridgeport, Conn. [Filed Oct. 10, 1876.]



1. In combination with a curry comb having a thumb-rest, a finger-grasping device pivoted to the comb in raised bearings at the back of the comb, substantially as set forth.

2. In combination with a curry-comb having a thumb-rest and knockers, a finger grasping device pivoted in raised bearings at the back of the comb, substantially as set forth.

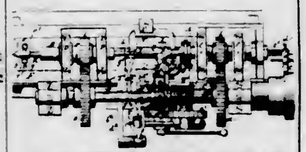
3. In combination with a curry-comb having a thumb-rest, a finger-grasping device pivoted in raised bearings at the back of the comb, said bearings being provided with extensions to form knockers, substantially as set forth.

4. In combination with a curry comb having a thumb-rest, a folding finger-grasping device having stop-lugs and journals constructed in one piece therewith, and arranged substantially as set forth.

5. In combination with a curry-comb having a thumb-rest, a finger-grasping device pivoted in raised bearings at the back of the comb, and stop-lugs, substantially as set forth.

193,952. MACHINES FOR MILLING, POINTING, AND SHOULDERING KEYS. Henry G. Hotchkiss, New Haven, Conn. [Filed Mar. 8, 1877.]

Brief.—The tools for pointing, milling the body, and shouldering the key are advanced to their work, in the order named, by means of the cam acting on pins on as many slides, the first passing through the hollow spindle and chuck, the two last pivoted centrally beneath the key on a common shaft. The milling-jaws are connected to their slide by links, and open or close as the slide advances or recedes. One of them is rabbeted to receive the shouldering-tool, which has a spring-connection with its slide.



1. The combination, with the rocking milling-jaws A' A', of their closing-slide F', the rod *a'*, connecting said slide with one of said jaws, the rod *b'*, connecting the slide F' with a lever, *c'*, and the rod *d'*, connecting said lever with the other milling-jaw, A', essentially as described.

2. The combination of the spring *h'* with the slide G' and rocking-arm F', which car-

ries the shouldering-tool, essentially as described.

3. The rocking-arm B', which carries the shouldering-tool, arranged to one side of one of the milling jaws A', in combination with the die i^1 of said jaw, rabbeted to receive within and under cover of its one side the shouldering-tool k^1, whereby burr upon the edge of the shoulder of the key is prevented, substantially as specified.

4. The combination of the gears c^1 d^1 e^1, with the revolving cam S, and the slide F', with its attached stud or roller, f^3, for operating the milling jaws, essentially as described.

5. The revolving cam S of irregular construction on its acting surface, in combination with the studs or rollers f^3 g^3 and the slides F' G', by which the milling-jaws and shouldering-tool are operated, essentially as specified.

6. The irregularly-constructed revolving cam S, in combination with the studs or rollers f^3, n', and g^3 of the mechanism, by which the milling-jaws, the pointing-tool, and the shouldering-tool are operated, substantially as specified.

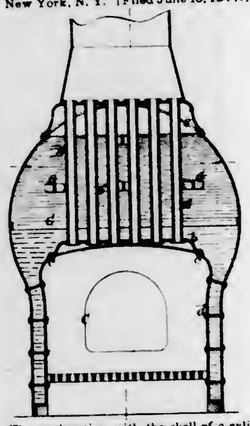
7. The combination of the socket H, which carries the pointing-tool, the sliding rod G, the bent rod or arm e, the lever C', the adjustable rod m^1, and the swinging arm D', for feeding the pointing tool to its work, essentially as described.

8. The combination, with the rotating hollow chuck J and its hollow mandrel A, of the longitudinally-adjustable inner tool-socket H, and the tool therein, substantially as and for the purposes herein set forth.

9. The combination of the slotted chuck I, on the sliding rod K, the forked lever N, the rod k, the weight l, the compound treadle P Q, the bent lever R, the spring s, and the sliding collar o, by which the chuck J is opened and closed, essentially as described.

10. The slotted socket M on the sliding chuck-rod K, in combination with the forked slide g g, the fork i^2 i^2 of the lever N, the set-screw i, and the hollow mandrel H, substantially as specified.

192,952. STEAM-BOILERS. John Hughes, New York, N. Y. [Filed June 15, 1877.]

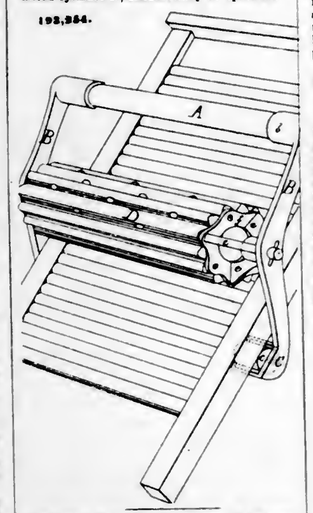


The combination, with the shell of a cylindrical boiler, of the tube-sheet secured to said shell, and a series of vertical tubes extending from the crown of the fire-box to said tube-sheet, substantially as set forth.

192,954. WASH-BOARD ATTACHMENTS. G. W. Hunter, Washington, D. C. [Filed June 2, 1877.]

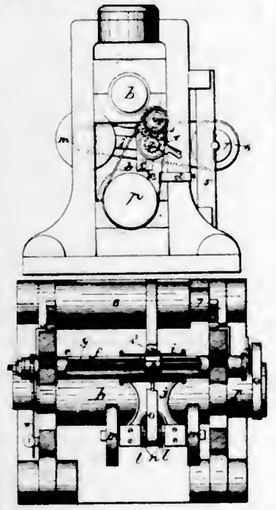
Brief.—The device is adapted to be used with any ordinary wash-board; and consists of a bent side frame, on the lower ends of which are formed friction-roller boxes, which serve the double purpose of affording leverage for the machine and acting as guards to prevent the contact of the clothing with the friction-roller. The perforated hollow fluted rubbing cylinder is open at the ends for the ingress of water, and a flat ring, the interior diameter of which is less than that of the cylinder, prevents the egress of water elsewhere than through the perforations in the cylinder.

A portable attachment for wash-boards, consisting of the frame A B B, formed with bent side pieces and friction-roller boxes C C, in combination with the perforated hollow fluted cylinder D, substantially as specified.



192,955. PORTABLE GRINDING-MACHINES FOR PLATE OR OTHER ROLLS. Griffith W. Jones, Reading, Pa., assignor of one-half his right to Wm. Mellvain & Sons, same place. [Filed June 26, 1877.]

Brief.—The grinding device may be secured in bearings to a swinging frame overhead, so as to be raised and lowered.



1. The combination of the pulleys p r, belt Q, wheels t r, pinions l, arms s, and lever u, whereby the motion of the screw is reversed, substantially as shown.

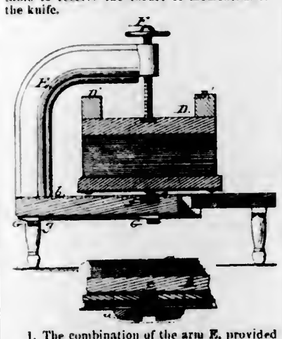
2. In combination with the housing and rolls, the chuck-bearings c, and the tube e, the same being applied in the openings in the housing of the rolls, substantially as described.

3. The tube e, having a slot, f, cut in its side, screw g, nut h, slide i, grinding-wheels, and a mechanism for reversing the motion of the screw, so as to cause the grinding-wheels to traverse back and forth over the surface of the rolls, substantially as specified.

4. The tube e, having the lever w, secured to one end, in combination with a set-screw for raising or depressing the end of said lever, slide i, having grinding-wheels attached thereto, whereby the grinding-wheels may be brought in contact with the surface of the upper or lower roll, substantially as shown.

192,956. CLAMPS FOR PAPER-CUTTING MACHINES. John Keith, Greenfield, Mass. [Filed June 23, 1877.]

Brief.—The paper-holding bed is pivoted between the upper and lower arms of the clamp E, and when desired the lattee, with or without the bed and paper, can be moved, in the longitudinal slot or guideway of its table A, to or from a knife of a paper-cutting machine. The lower arm of the clamp is provided with inclines G G, which ride upon bars g g', fixed across the guideways of the slotted table, to elevate the paper-holding bed above the latter when necessary to swing around the paper-bed to the knife for a new cut; but before the cut is made the clamp must be moved to throw the inclines out of contact with the cross-bars g g', to let the paper-bed rest firmly upon the table to receive the thrust or momentum of the knife.



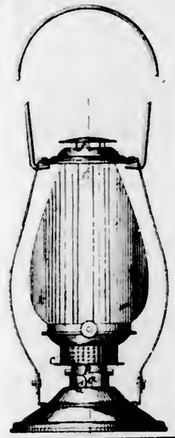
1. The combination of the arm E, provided with inclines G G, or their equivalent, with the slotted table A, having guideways a a', and cross-bars g g', as set forth.

2. The slotted table A, provided with guideways a a' and cross-bars g g', substantially as described, for the purpose set forth.

3. The U shaped clamp-arm E, provided with screw F and inclines G G, and adapted to operate in connection with a slotted table having guideways, as specified.

4. The clamping mechanism herein described, consisting of the slotted table A, pivoted bed-plate B, form D D', and arm E having screw F, and inclines G G, for the purpose specified.

192,957.

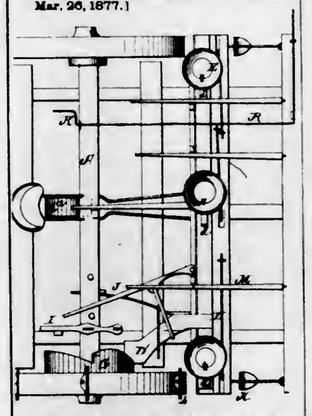


192,957. LANTERNS. Oswald I. King, New York, N. Y. [Filed June 6, 1877.]

1. The combination of a partially-rotating collar, which rests upon the lantern-base, and embraces the neck thereof, and which has longitudinal slots (one or more) in its upper edge, with pins (one or more) projecting radially from said neck immediately above said collar, and with two hinged guard-rails arranged opposite each other, fastened at one end to the lantern-cap, and at the other end to said collar, substantially as and for the purpose described.

2. The combination of an annular globe-supporting plate and a foraminous cylinder, which extends both below and above said plate, and is provided with a flange on its upper edge, substantially as and for the purpose described.

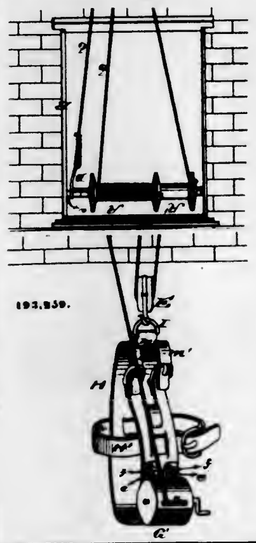
192,958. CORN-PLANTERS. E. H. Lancaster and Thos. Shull, Montpelier, Ind. [Filed Mar. 26, 1877.]



1. The combination, with the axle A, of the stirrup H, straddling the axle, and the lever I for operating the stirrup vertically up and down, for the purpose herein set forth.

2. The combination of the shovel K, L-shaped bar L, and lever M, for the purposes herein set forth.

3. The combination of the L-shaped rod R, pointer S, and crank R', substantially as and for the purposes herein set forth.



192,959.

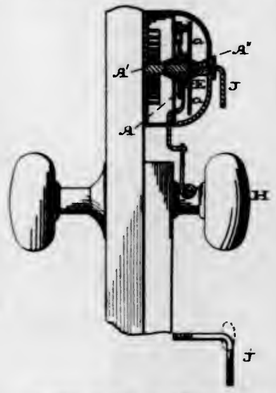
192,959. FIRE-ESCAPES. Friend Lewis, W. H. Lewis, and David O. Holman, Adams, N. Y. [Filed May 12, 1877.]

1. In a fire-escape, the combination of a double spool, a suspension-cord, with tackle-block, a harness and regulating-reel, with cord, substantially as and for the purpose described.

2. The combination of the double spool A A', hanger D, suspension-cord b, tackle-block E, and harness H, substantially as and for the purpose described.

3. The harness H, provided with the loop I, shoulder straps m' m', waist-strap H, reel G, slotted reel-case G', brake k, and cord d, substantially as described, and for the purpose set forth.

192,960. BURGLAR-ALARMS. J. C. Mackie, Philadelphia, Pa. [Filed Apr. 19, 1877.]

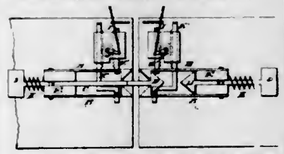


The crank or pin J, in combination with the winding-post A' and with the collar A'', supporting the gong and directing the crank or pin to said post A', substantially as and for the purpose set forth.

192,961. PROCESSES FOR PREPARING WOOD FOR MECHANICAL REDUCTION TO PAPER-PULP. George E. Marshall, Turner's Falls, Mass. [Filed June 30, 1877.]

The process of removing the gum, acids, and other deleterious matter preparatory to grinding, by subjecting the wood to a high degree of pressure of water under the boiling-point, all substantially as described.

192,962. CAR-COUPLINGS. G. W. Mathews, Ickesburg, Pa. [Filed Mar. 24, 1877.]



The combination, with the spring-jaws B, slotted block E, guide F, racks E' E', pinion F', and shaft G, having the wheel H, of the draw-bar C, having the arrow-head D, block D', and retracting-spring K, substantially as described, and for the purpose set forth.

192,963. EXTENSION BOW-IRONS FOR CARRIAGE-POLES. C. K. Mellinger, Harrisburg, assignor of one-half his right to J. W. Anderson, Fairfield, Pa. [Filed June 14, 1876.]

Brief.—A bed-plate having suitable bolt-holes is secured to the end of the bow, and the slotted shackle-iron is clamped between it and a similarly-slotted keeper.

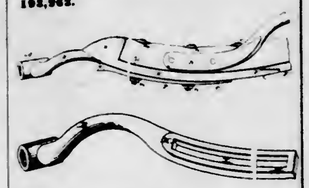
1. The bed-plate E F, when provided with the socket D W, for the insertion therein of the end of bow H, substantially as and for the purpose set forth.

2. The bed-plate E F, provided with the splice-joint F, in combination with the T-plate F', and the bow H, substantially as set forth.

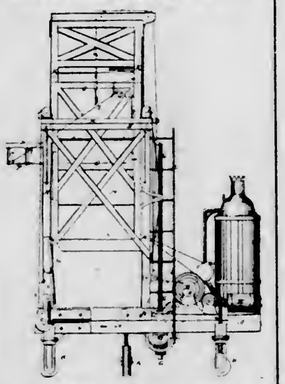
3. The bed-plate E F and the keeper-plate C C', when provided with flanges E and C', respectively, and combined by bolts m n and nuts m' n', substantially as set forth, as a shackle-casing.

4. The bed-plate E F, shackle A B K, and keeper-plate C C', all constructed and applied as set forth, in combination with the bow H, as described.

192,963.



192,964. FIRE-ESCAPES. Edmd. R. Meusel, Hoboken, N. J. [Filed May 11, 1877.]



1. The combination of the platform A and hinged elevator-frame H, with the supporting-rollers B and removable trucks I and J, all arranged to operate so that the trucks are removed when the elevator-frame is erected, substantially as herein shown and described.

2. The combination of the platform A, vibrating shaft or guide F, screw G, and pivoted nut f, with the pivoted elevator-frame H, all operating substantially as herein shown and described.

3. The combination of the locking-lever R of the pivoted elevator-frame H, with the clutch x, which throws the screw G into gear, substantially as herein shown and described.

4. The hydraulic jack A, suspended from the platform A, in combination with the removable casters B B, substantially as and for the purpose specified.

5. The combination of the elevator-frame with the folding rungs m m, pivoted thereto, substantially as herein shown and described.

6. The combination of the elevator-car O and hinged gate or platform P with the ropes g and spring-arbor r, all arranged to operate substantially as herein shown and described.

7. The combination of the elevator-car O with the posts t and with the guard-rail s, which is adapted to slide on said posts, substantially as herein shown and described.

8. The combination of the elevator-car O with the sliding rail s and with the pivoted catches u, whereby said rail is arrested shortly before the car A reaches its lower position, substantially as specified.

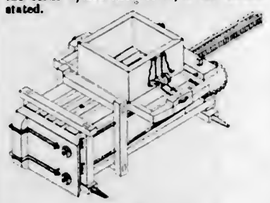
192,965. BALING-PRESSES. Benj. F. Miller, Owensborough, Ky. [Filed May 7, 1877.]

Brief.—The plunger-rod has racks for the engagement of cog-wheels on its sides, whose shafts are made square at their upper ends, for engagement by the eye of a lever. The wheels being of different diameters, greater or less pressure is obtained, according to the di-

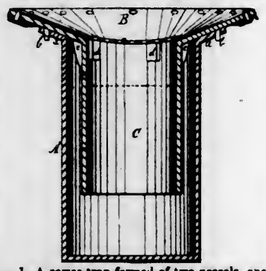
ameter of the wheel chosen to operate the plunger. Sliding half-covers, operated by cords, are used in the bottom of the hopper.

1. The combination, with a baling-box, A, and end delivery N, of the follower B, whose stem has three series of racks, J, K, and *l*, for the engagement of the two wheels H and I of unequal diameters, and the tentative-pawl R, as represented.

2. The combination of feed box S, bale-box A, and the sliding shutters U U, operated by the cords V, and sheaves W, in the manner stated.



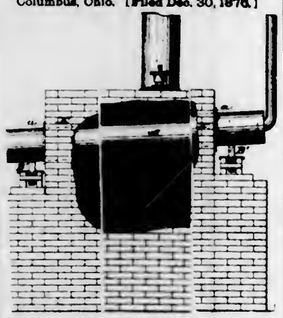
198,966. SEWER-TRAPS. Joseph B. Moore, Philadelphia, Pa. [Filed June 26, 1877.]



1. A sewer-trap formed of two vessels, one within the other, the inner one being provided with a flanged top and an open bottom, and the outer one with ears at top to connect it with the flange of the inner vessel, and a closed bottom to retain the water, the whole being constructed and arranged substantially as described.

2. The combination of the outer vessel A, the inner vessel C, flange B, hooks *b b*, and ears *a a*, the whole constructed and arranged substantially as shown, and for the purposes described.

198,967. GRAIN-DRIERS. Thos. S. Morris, Columbus, Ohio. [Filed Dec. 30, 1876.]

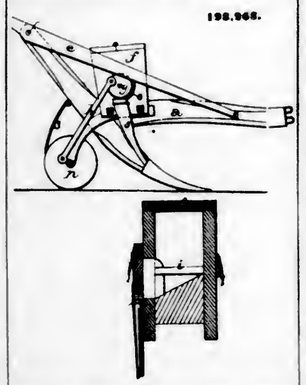


The combination, with the furnace of a steam-boiler, of the revolving tubular grain-drier A, hung on the friction-rollers B', and constructed, arranged, and operating in the manner and for the purposes specified.

198,968. SEED-PLANTERS. Wren Moores, Sherburne, Ky. [Filed June 14, 1877.]

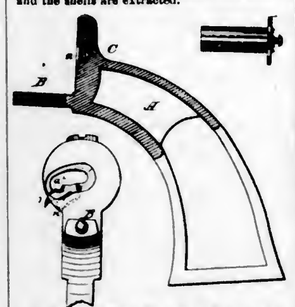
In a walking seed-planter, the combination of seed-box *f*, having an opening through its side, and an inclined bottom leading to the said hole, seed-plate *g*, shield 6, shaft *i*, connecting-rods *h r*, driving-wheel *n*, and seed-spout 5, substantially as shown and described.

198,968.



198,969. REVOLVING FIRE-ARMS. Daniel Moore, Brooklyn, assignor to Merwin, Hulbert & Co., New York, N. Y. [Filed June 19, 1877.]

Brief.—The extractor-stem engages with a catch arranged in an opening in the recoil-shield. When the barrel is unlocked and swung laterally on its fulcrum, and then moved forward, the extractor is retained by said catch, and the shells are extracted.



1. In a revolving fire-arm, a frame, a fulcrum slide-pin, and a concaved strap and guard, constructed substantially as herein set forth.

2. In a revolving fire-arm, a frame with a fulcrum slide-pin projecting forward at the lower part of the recoil-shield, and a recessed opening in the shield, in combination with an extractor, substantially as set forth.

3. The combination of a frame, a fulcrum slide-pin, a barrel, a sliding bracket-arm, a cylinder, a center-pin, and an extractor, combined and operating substantially as described, whereby, when the barrel and cylinder are swung aside upon the fulcrum slide-pin, the extractor is carried with them laterally, and operated substantially as herein set forth.

4. An opening and recessed channel in the face of the recoil-shield of a revolver, in combination with an extractor and a clutch, for the purposes herein set forth.

5. The automatic spring-dog *f*, contained within the bracket H, in combination with the fulcrum slide-pin B and its notch *e*, for the purposes herein set forth.

6. The spring-catch O, formed with a semi-circular edge, and arranged within the recessed recoil-shield, for the purposes herein set forth.

7. In a revolving fire-arm, a barrel and cylinder turning sidewise upon a fulcrum below the cylinder, and then movable longitudinally forward on said fulcrum for extracting the shells, and whereby the cylinder may be loaded without the necessity of cutting an opening in the recoil-shield, as herein set forth.

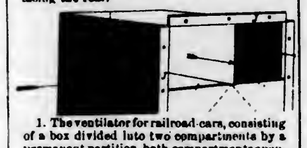
8. In a revolving fire-arm, the combination of a fulcrum slide-pin projecting from the bottom of the recoil-shield, a concaved strap projecting parallel therewith from the bottom of the frame, and a cylindrical arm projecting from the barrel-bracket, and fitting over the pin and in the strap, whereby both an interior and an exterior bearing are obtained for the same, as herein set forth.

9. The beads *w*, formed upon the sides of the cylindrical bracket-arm I, in combination with the guard-strap, for the purposes herein set forth.

10. In a revolving fire-arm, a frame, a barrel, a cylinder, and an extractor, so arranged that, by a lateral and longitudinal movement upon a fulcrum slide-pin, the extractor moves laterally therewith, but is retained at the recoil-shield by proper devices during the forward movement of the barrel and cylinder upon the fulcrum slide-pin, for extracting the empty shells of the cartridges from the chambers of the cylinder, constructed substantially as and for the purpose set forth.

198,970. VENTILATING APPARATUS FOR CARS. Manfred A. Morton, Chicago, Ill. [Filed June 15, 1877.]

Brief.—A box with two gauze sides and a central partition, forming two gauze-covered chambers, one facing toward one end of the car, and the other toward the other end of the car, and applied to the exterior, so that the movement of the car causes the ventilator to catch the air at the gauze mouth facing the front end, in the direction in which the car is moving, thus forcing the air into the car, and producing at the same time an exhaust of air from the car through the other gauze opening, facing the rear.

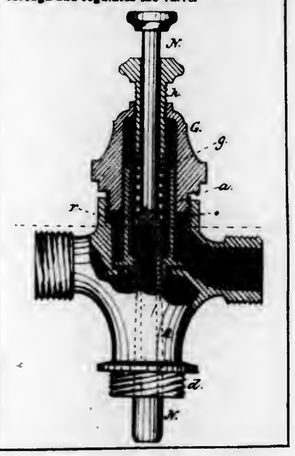


1. The ventilator for railroad-cars, consisting of a box divided into two compartments by a permanent partition, both compartments opening through gauze screens to the outside air, and opening into the car through apertures which are provided, or which are not provided, with a valve or valves, said box being attached in such manner to the car as to project clear into the air at all sides except that which connects it to the car, substantially as specified.

2. The ventilator having the double compartment permanently divided, gauze-covered ends, and a double inclined bottom, substantially as specified.

198,971. WATER-CLOSET VALVES. James Muirhead, Providence, R. I. [Filed Mar. 7, 1877.]

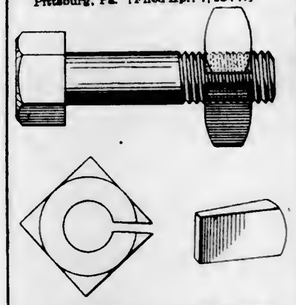
Brief.—A screw-plug is placed over the spring to increase or diminish the pressure upon the valve. The valve-stem is screwed through and regulates the valve.



1. The combination of the valve-plunger *e*, spring *g*, screw-plug *h*, with the cap G, and valve-body A, when constructed and operating substantially as and for the purpose set forth.

2. The valve *e* and stem N, the latter made to screw through the valve, and extend out through the cap, for the purpose of adjustment, in combination with the cap G and valve-body A, substantially as described, and for the purpose specified.

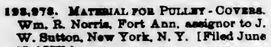
198,972. NUT-LOCKS. John A. Nichols, Pittsburg, Pa. [Filed Apr. 7, 1877.]



A right cylindrical or prismatic inwardly-springing and regularly-threaded nut, which, when in normal tension, has a tap-hole of a diameter less than that of the bottom of the bolt-thread, and having a cleft which remains open for the insertion of an expanding tool, substantially as specified.

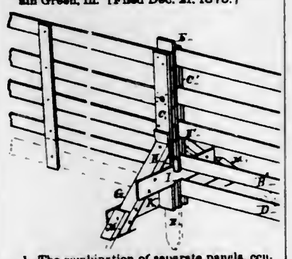
198,973. MATERIAL FOR PULLEY-COVERS. Wm. R. Norris, Fort Ann, assignor to J. W. Sutton, New York, N. Y. [Filed June 15, 1877.]

Brief.—Improvement on the patents of J. W. Sutton, No. 125,238, April 2, 1872, and No. 166,233, August 31, 1875.



As a new article of manufacture, the herein-described material for pulley-covers, composed of a suitable fabric embedded in soft vulcanized rubber, and provided at one edge with the lip *c*, and at the other with the rabbet *d*, said lip and rabbet having due proportion to each other, all substantially as and for the purpose herein set forth.

198,974. FENCES. D. R. Ostrander, Fountain Green, Ill. [Filed Dec. 21, 1875.]



1. The combination of separate panels, center stake E, extending into the ground, the supporting-frame G, with braces H H', stakes M M', and the ties I K, inclosing the panel-ties C C', substantially as set forth.

2. The combination of separate panels, center stake E, extending into the ground, with supporting-frame G, having braces H H' and ties I K, inclosing the panel-ties C C', substantially as set forth.

3. The combination of separate panels with the supporting-frame G, having braces H H' and ties I K, inclosing the panel-ties C C', and having stakes M M', substantially as set forth.

198,975. TUBE-EXPANDERS FOR BOILERS. Orestes Pagan, Philadelphia, Pa. [Filed May 15, 1877.]

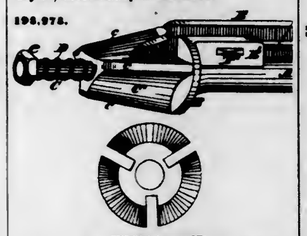
1. The winged removable tube-expanding head, having a central aperture for the passage of the mandrel, substantially as described.

2. The combination of the stock A, having mandrel C and shoulder B, the spring D, with nut *a*, tube-expanding head C', and beading-chisel E, substantially as described, and for the purpose set forth.

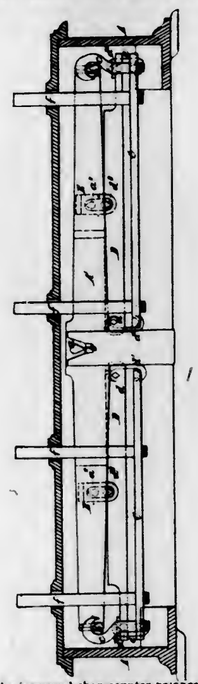
3. The combination of the stock A, having the shoulder B and lateral enlargement, with the mandrel C, substantially as described.

4. The slotted beading-chisel, adapted to a stock, A, having a lateral enlargement, E', and key F', substantially as described.

198,976.



198,976. PLATFORM-SCALES. John Parnall, Bristol, England. [Filed June 21, 1877.]



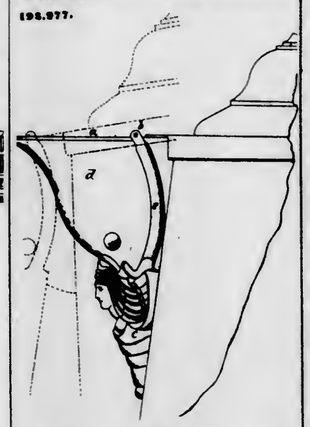
1. An improved shop-counter balance, consisting of a main lever, A', in combination with a series of double compensating-levers D, one arranged at each side of the fulcrum of said lever A', and each provided with five centers, *d d' d²* and *d³ d⁴*, the whole arranged to operate substantially as set forth.

2. The combination, with the main lever A', of the single compensating-levers, arranged at each side of its fulcrum, and each having three centers, substantially as and for the purposes specified.

198,977. PITCHERS. Edmund A. Parker, West Meriden, Conn., assignor of one-half his right to John E. Parker, same place. [Filed Mar. 9, 1877.]

In pitchers and like articles in which the spout is closed by a cover, the combination of a weight with said cover, when said weight is attached upon the closing side of the cover, and at or forward of the hinge, substantially as described.

198,977.



198,978. DEVICES FOR PREVENTING OIL-WELL TUBING FROM FALLING. Lemuel Patterson, Parker City, Pa., assignor of one-half his right to W. A. Myers, same place. [Filed June 26, 1877.]



1. The head *a*, provided with the recesses *b*, in combination with the pivoted dogs and the mechanism for operating them, substantially as described.

2. The head *a*, in combination with the casing of an oil-well, the dogs *d*, cranks *g*, connecting-rods *h*, ring *i*, lever *l*, and rod *n*, the parts being arranged to operate substantially in the manner and for the purpose set forth.

198,979. AUTOMATIC TRAIN-BRAKES. H. L. Perrine, Freehold, N. J. [Filed Apr. 17, 1877.]

Brief.—One pipe, open to the reservoir, conducts air to the brake-valve under the diaphragm, and thence to the cylinders. A second pipe conducts air above the diaphragm. When air is let out of this pipe, the diaphragm is raised by the pressure on the under side, which opens the valve to the cylinder, allowing air to enter from the first-mentioned pipe, and applying the brakes. To release the brakes, the pressure is restored above the diaphragm, which closes the induction-valve and opens an exhaust. If the car-couplings break, the short hose-couplings separate, let the air out from above the diaphragm, and apply the brakes. The last car is provided with an air-tank similar to that on the locomotive, and for the same purpose.

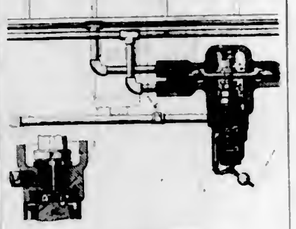
1. In an air-brake valve mechanism, in which an equalized pressure is normally maintained, brake-cylinders, and an air-supply reservoir, in combination with air-retaining pipes having the long couplings provided with check-valves, and air-relieving pipes, provided with the short couplings, substantially as and for the purpose described.

2. The combination, in a train-brake mechanism, consisting of brake-cylinders, valves, and air-pipes, of a locomotive air reservoir at one end of the pipes, and an independent reservoir at the other end of said pipes, provided with controlling-cocks, whereby air is let into and out of the pipes, substantially as and for the purpose specified.

3. A brake mechanism for freight-trains combining the following elements, viz., a main reservoir, two independent lines of pipes, brake-cylinder valves having diaphragms upon which, so as to close the valves, is normally maintained an equalized pressure, a caboose-car, provided with an auxiliary storing reservoir, and air supply controlling-cocks, substantially as described.

4. A check-valve, in combination with the compound cocks at the engine-reservoir, independent lines of air-retaining and air-relieving pipes, and a brake operating valve mechanism, whereby at the parting of the pipe couplings the check-valve is automatically set, and the air directed into the air-retaining pipes, and cut off from the air-relieving pipes, substantially as described.

5. A valve mechanism B, provided with a solid corrugated diaphragm, L, a loose valve, *e*, and piston *d*, in combination with the induction and exhaust ports of a brake-cylinder, substantially as described.

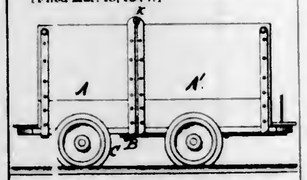


193,280. LUBRICATING COMPOUNDS. J. H. Pitt, Bellaire, Ohio. [Filed Apr. 12, 1877.]

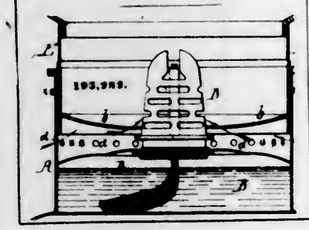
Brief.—All the ingredients, with the exception of the lye, are mixed together, and heated to 250° Fahrenheit, and the lye added and stirred in when cold.

The within described lubricating compound, consisting of crude petroleum, animal grease, rosin, lye, and salt, in or about the proportions substantially as described.

193,281. DUMPING-CARS. T. Purviance, Steubenville, Ohio, assignor of one-half his right to D. Lowmiller, same place. [Filed Mar. 15, 1877.]



A dumping car consisting of the sections A A′, pivoted together at the upper central part, and provided with a catch or bolt, B, and pin C at the bottom thereof, the several parts being arranged and combined to operate substantially as and for the purpose specified.



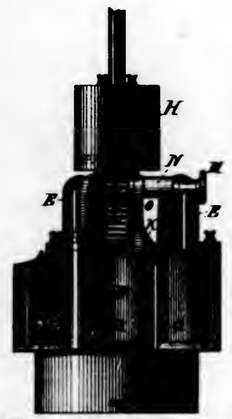
193,282. LAMPS AND LANTERNS. Jos. H. Richardson, Philadelphia, Pa. [Filed June 9, 1877.]

Brief.—The object is to prevent the accumulation of ignitible gases near the burner from overflow of oil.

The combination, in a lamp or lantern, of the body A, its openings *d*, and burner D, with the deflecting flange *b*, having its inner edge at or near the base of the burner, whereby an accumulation of gases at that point is prevented, as specified.

193,283. TURBINE WHEELS. Theodore H. Riedon and Wm. W. Tyler, Mount Holly, N. J. [Filed Apr. 27, 1877.]

Brief.—A double water-wheel, the upper section of which opens into and surrounds the central shaft without interior dividing diaphragm or partition whatever, and both sections of which receive the water horizontally on the outside, while the lower section discharges vertically, or nearly so, and the upper in the direction of an angle of forty-five degrees between the vertical and horizontal. There is also a cylindrical gate adapted to open upon the lower section thereof alone or both sections together.



1. In a cylinder-gate turbine wheel, a crown-plate, E′, supported close to the top of the wheel by means of goose-necks E, which pass over the gate, substantially as described.

2. The arrangement, substantially as shown and described, of the crown-plate E′, goose-necks E, and gate P, which moves within said goose-necks, substantially as shown and described.

3. In combination with the gate P, a sleeve, J, and spider K, carrying the gate, sliding upon a central stem, G, erected upon the crown-plate, and operated by a rack and pinion, L *l*, to open or close the gate, substantially as described.

4. The combination, substantially as shown and described, of the stationary cylinder H and the piston I, connected with the gate P, whose weight is partly balanced by the upward pressure of the water on said piston.

5. In combination with the cylindrical gate P, a garniture, Q, the top of which is downwardly and outwardly inclined, in order to shed obstructions, while its bottom inclines inwardly to form the top of a contracting chute, substantially as shown and described.

6. The garniture Q, constructed with a centrally-converging ditch Q′, substantially as described.

7. The garniture Q, constructed with recesses S in its sides, substantially as and for the purposes set forth.

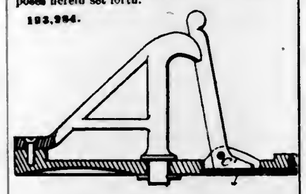
8. A double water-wheel, T, the upper section of which surrounds the central shaft F, without interior dividing diaphragm or partition whatever, substantially as shown and described.

193,284. VEHICLE-HOLDBACKS. A. B. Roberts, Brooks, Me. [Filed June 2, 1877.]

1. The base-plate A, formed with the recess *a*, boss *b*, hole *d*, and ears *e e*, with slot between them, in combination with the hook B, with the arm B′, the latch C, with head C′, and the spring D, as and for the purpose herein set forth.

2. The combination of the recessed, perforated, and slotted base plate A, having boss *b* and ears *e e*, the hook B, with arm B′ and tenon *h*, the latch C, with head C′, and the spring D, all substantially as and for the purposes herein set forth.

193,285.

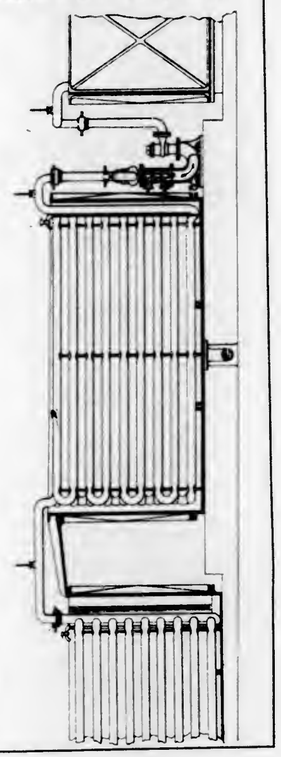


193,286. PEN-HOLDERS. Philip Sonrey, New York, N. Y., assignor to Eberhard Faber, same place. [Filed June 14, 1877.]



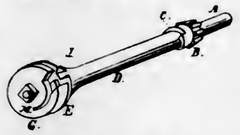
The sheet-metal tube A, provided at one end with the segmental socket *s*, formed by crushing in a portion of the tube, in combination with the retaining spring C extending from the handle B, the tube entirely concealing the spring and both being attached to the handle, substantially as described.

193,286. ICE-MACHINES. R. Schultz, Schoppenstedt, Germany. [Filed Mar. 19, 1877.]



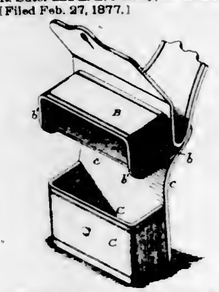
In an ice-machine or refrigerating apparatus, the combination of one or more air-injectors or siphon pumps with an air-compression pump and cooling-worms, substantially as and for the purpose set forth.

193,287. GRAIN-BINDERS. Ole O. Storle, Milwaukee, Wis., assignor of one-third his right to John G. Flint, Jr., same place. [Filed Nov. 20, 1876.]



Head G, with its hooking-slot M, in combination with sleeve D, rims E and F, with slot L, clutch C, and shaft A, substantially as specified.

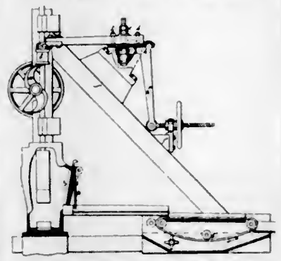
193,288. PHYSICIANS' SADDLE-BAGS. Chas. R. Suter and E. E. Furney, St. Louis, Mo. [Filed Feb. 27, 1877.]



1. The bag composed of two parts or cases, B C, the case B being suspended to the back C from its upper corners only by flexible piece or hinge *b*, to allow of its free and independent upward movement, substantially as and for the purpose set forth.

2. The combination, in a saddle-bag composed of two cases or parts, B C, of lip or flange *b′*, in one piece with the front and ends of case B, and forming a lap-joint between the cases, substantially as set forth.

193,289. STAMP-MILLS. Hiram H. Scoville, Jr., Chicago, Ill. [Filed Feb. 26, 1877.]



1. The combination, substantially as specified, in a stamp-mill, of the horizontal yielding arms, the crushers, the support *h″* for holding the said arms out of action with the crushers during the latter part of the down movement of the crushers, and the springs arranged for downward action on the said arms at points near the fulcrums of the said arms, for the purposes specified.

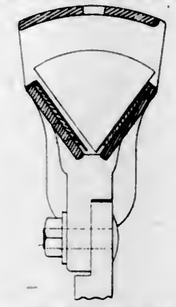
2. The combination, substantially as described, in a stamp-mill, of the vibrating arms, the adjustable rocker *h*, the springs *f f*, and the bolts for clamping the arms and springs to the rocker, for the purposes set forth.

3. The combination, substantially as described, in a stamp-mill, of the vibrating arms *d d*, rocker *h h″*, springs *f f*, clamping-bolts *n″ o″* and their nuts, and the tension device *m k n*, for the purposes set forth.

4. The combination, substantially as described, in a stamp-mill, of the horizontal yielding arms *d d*, the stamps or crushers *e*, continuous and adjustable support *h* for holding the arms *d d* out of action with the crushers during the latter part of the down movement of the crushers, the springs *f f*, arranged for action on the arms *d d* at points near the fulcrum of the latter, and means, substantially as described, for adjusting the said seat or support for the arms *d d*, and thereby adjusting all the arms *d d* simultaneously.

193,290. BOBBIN-HOLDERS FOR SPOOLING-MACHINES. A. C. Slater, Uxbridge, and T. C. Ball, Northbridge, Mass. [Filed May 19, 1877.]

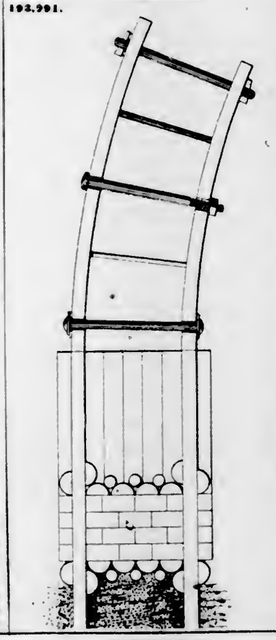
Brief.—The ordinary bobbin-holder is lined with thin elastic metal, and between such lining and the trough a yielding medium, as cloth, leather, &c., is introduced, in order to hold the bobbins steadier and reduce noise.



1. The combination, with the bobbin-holding trough, of a lining supported therein to prevent its direct contact with the trough opposite that portion of the lining where the bobbin rests, substantially as described.

2. The combination, with a bobbin-holder, of a lining and an interposed packing, to operate substantially as described.

193,291.

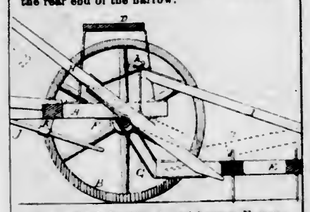


193,291. STREET-RAILROADS. William H. Stow, Chicago, Ill., and Henry M. Stow, San Francisco, Cal. [Filed Mar. 14, 1877.]

In street-railroads, the rectangular longitudinal sills laid without cross-sleepers, the said sills being surrounded and held in place by the pavement, and supported at the curves and at other points by clamps and braces, substantially as described.

193,292. HARROWS. Oliver Slagle, London, Ohio. [Filed June 14, 1877.]

Brief.—The harrow is connected loosely to the axle of the sulky by inclined loops, and the rear end of a lever pivoted upon said axle projects beneath the front bar of the harrow, whereby the same may be elevated. A brace extends from the rear edge of the harrow to the said lever, for the purpose of depressing the rear end of the harrow.



1. A wheeled sulky, A, and harrow E, combined with rigid inclined slotted connections or loops G, whereby the harrow at its forward end will be depressed by the forward motion of the sulky, but may be permitted to rise or fall independent of the sulky, substantially as set forth.

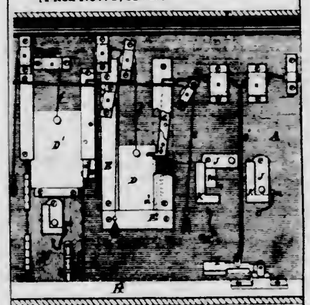
2. A wheeled sulky, and harrow attached thereto by rigid loops G, combined with a lever, H, fulcrumed upon the axle or frame of said sulky, substantially as shown, and, at its rear end, engaged with the front bar of the harrow, for the purpose of lifting the same at will.

3. A wheeled sulky, A, and the harrow E attached thereto, and provided with a lifting-lever, H, arranged to lift the harrow at its front end, combined with a brace, I, joined to the rear edge of the harrow, and capable of engagement, loosely at its front end, to said lifting-lever, for the purpose of depressing the rear end of the harrow, as set forth.

4. The lifting lever H, arranged to lift the harrow at its front end, provided with the standard *h*, combined with the brace I hinged to the harrow near its rear edge, and capable of engagement with said standard near its top, as set forth.

5. The lifting-lever H and brace I, combined with the foot-lever J, whereby pressure of the driver's foot may be employed to push the lifting-lever H upward, and thus forcibly depress the harrow, as set forth.

193,293. SAFE AND VAULT. Jas. G. Taylor and Charles D. Williams, St. Paul, Minn. [Filed Nov. 9, 1876.]



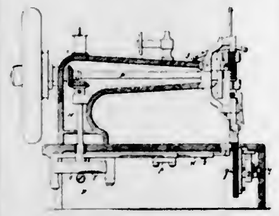
1. A safe or vault, formed of suitable size to contain one or more persons and valuables, constructed of suitable material to resist an attack from the outside, and provided with windows and interior shutters, that can be instantly opened and closed and automatically locked by the person or persons within, substantially as set forth.

2. In a combined vault and safe, vertically-sliding shutters D or D', with notches a a', spring-dogs b, levers G, and operating cords or chains arranged to be worked singly or all together, substantially as herein set forth.

3. In a combined vault and safe, the loop-holes m, shutters J, guides K, and pins n, all substantially as and for the purposes herein set forth.

193,294. SEWING-MACHINES. Gustav H. Thiele, St. Petersburg, Russia. [Filed May 7, 1877.]

Brief.—The shuttle-lever is one of the third order, pivoted or fulcrumed at the extreme end of the table, to give greater length and a sweep nearer a straight line, and is vibrated by means of a cam-grooved disk mounted on the lower end of a perpendicular shaft, which gears with the upper horizontal driving-shaft, carrying on its front end, in the head of the machine, another cam-grooved disk, which vibrates another lever of the third order attached to and moving the needle-bar. These two cam-grooved disks are removable, so that others may be substituted to change the throw of the needle and shuttle when a larger or smaller shuttle is used; also, improved feed mechanism.



1. The combination of a horizontal driving-shaft and of a plate or disk, J, rotating in a vertical plane, and provided with a cam-groove, a, cut in its face, with a slotted lever, K, and the needle-bar, in the manner and for the purpose set forth.

2. In combination with the feeding devices of a sewing machine, the disk I, having cam f, and a rock-shaft, Q, carrying two lever-arms, l' and k, the spring s, sleeve u, adjusting screw v, and link S, substantially as and for the purposes set forth.

3. The combination of a removable plate or disk, I, rotating in a horizontal plane and provided with a cam-groove, q, and the shuttle-carrier N, with a removable plate or disk, J, rotating in a vertical plane, and having a cam-groove, o, cut in its face, the lever K, and needle-bar and mechanism, substantially as described, for connecting and operating said disks.

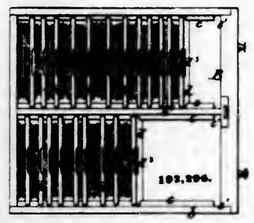
193,295. ADJUSTABLE LINKS. Charles J. H. Thompson, Providence, R. I. [Filed July 5, 1877.]



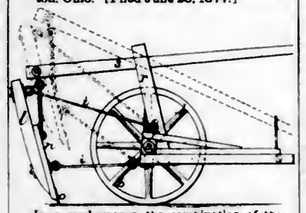
As an improved article of manufacture, the hereinbefore-described adjustable link, consisting of the two equal parts A A', each having the metal cut away in a spiral direction, as shown, leaving a central portion, C, of the full size of the metal at one side, and an opening, B, with thinned edges at the opposite side, and provided with lugs a a' and openings b b, the two parts being adapted to fit together to form an entire link, substantially as and for the purpose specified.

193,296. BILL-FILES. Douglas H. Thomas, Baltimore, Md. [Filed June 7, 1877.]

In a drawer for filing vouchers or other papers, the combination of horizontal strips, attached internally to the sides of the drawer, so as to leave an opening, c', at one end, with movable slats, grooved at each end and beveled at the top, substantially as and for the purpose described.



193,297. ROAD-SCRAPERS. Uriah Thompson and Larando L. Thompson, Cardington, Ohio. [Filed June 23, 1877.]



In a road-scraper, the combination of the draft-rods i, axle s, vertical rods l, scraper o n, lever z, and connecting-rod p, all constructed and arranged for operation, substantially as shown and described.

193,298. MANUFACTURE OF PRUNE-WINES. Wm. Thompson, Raheny, Ireland. [Filed May 31, 1877.]

1. For the manufacture of prune-wine, extract of prunes prepared by steeping French prunes for about two months in rectified spirits, mixed with water, substantially as herein described.

2. An improved prune wine compounded of the liquor produced by steeping ground raisins in water with sugar, and extract of prunes prepared as set forth in the first claim, such mixture being fermented at a temperature of from 70° to 80° Fahrenheit, and then fined, substantially as herein described.

193,299. METHODS OF PREVENTING THE ALTERATION OR COUNTERFEITING OF MONETARY PAPERS. Wm. A. Smith, Niagara Falls, assignor of one-fourth of his right to Ananias Smith, Buffalo, N. Y. [Filed July 13, 1876.]



1. The method of preventing the alteration of bank-checks, drafts, and other monetary papers by means of a scale composed of numbers or characters, or both, printed or otherwise placed on the check, in connection with the amount or value of the same, or otherwise written upon it in invisible ink, and from which scale a number selected at will indicates to the holder the true value or genuineness of said check, substantially in the manner and for the purpose hereinbefore described and set forth.

2. The combination, with a bank-check, draft, or other monetary paper provided with a scale of numbers or characters, or both, as above described and claimed, of an independent card upon which is printed a corresponding scale, substantially as and for the purpose specified.

193,300. DENTAL-ENGINE HAND-PIECES. George W. Tripp, Auburn, N. Y., assignor to S. S. White, Philadelphia, Pa. [Filed Mar. 22, 1877.]

Brief.—The sections of the tubular hand-piece are united by a lug and transverse groove, so that they will not part accidentally in rotating said hand-piece.

1. A dental-engine hand-piece, shell, or casing, composed of sections locked together by a lug and transverse groove, substantially as described.

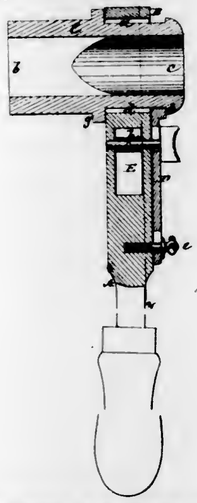
2. The combination, substantially as hereinbefore set forth, of the interlocking case-sections, one provided with a longitudinal and transverse groove, and the other with a locking-lug, and a sleeve sliding on the sections, and provided with a spline to lock the lug of one section in the groove of the other.

3. The dental-engine hand-piece hereinbefore described, consisting of the combination of two interlocking sections, one provided with a longitudinal and transverse groove, and the other with a lug traversing in said grooves, a sleeve sliding on said sections provided with a spline traversing in the longitudinal groove and across the face of the transverse groove, and a locking-spring which retains said sleeve in its forward position, whereby accidental disconnection of the parts is prevented.

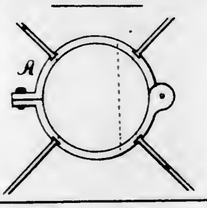
193,300.



193,301. RATCHET-WRENCHES. M. Vassar, 2d, Ballston Spa, N. Y. [Filed Apr. 3, 1877.]



The combination of the removable rotating socket or head C, having teeth d on its exterior, and constructed with a through passage having open ends b c, in combination with the eye B of the handle, and a locking slide or fastening, for holding the socket in position lengthwise, but allowing of its free rotation within the eye B, substantially as specified.



193,302. STREET-GUIDES. Manuel J. Vieira, Indianapolis, Ind., assignor of one-third his right to Francis Thompson, San Francisco, Cal. [Filed May 21, 1877.]

As an article of manufacture, a street-guide composed of the band A, the upwardly-curved shanks, and the guide-arms, all substantially as herein shown and described.

193,303. BUCKLES. Seth Ward, Princeton, Ind. [Filed Dec. 14, 1876.]



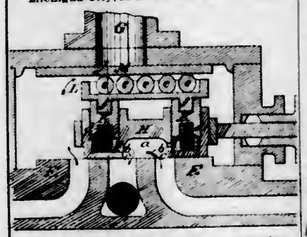
The within-described buckle, consisting of a metal plate, A, provided with two irregular slots, a a, with serrated edges, and having a hook, eye, or other device formed at one side, substantially as set forth.

193,304. HAIR SWITCHES. Saml. J. Wells, Chicago, Ill. [Filed May 14, 1877.]



A switch of human hair divided in strands, wound at their ends and combined with loops or eyes C C 1, and an attaching or fastening loop, A, as and for the purpose described.

193,305. BALANCED SLIDE-VALVES. Wm. J. Westwood, South Bend, assignor of part of his right to T. Jernegan, trustee, Michigan City, Ind. [Filed Dec. 22, 1876.]

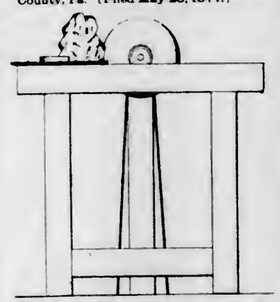


1. In a balanced slide-valve, the combination of the spring-plunger, situated in chambers in the valve and forced upwardly by steam entering such chambers from the valve-cavity, with friction-rollers between such plungers and the valve-chest cover, substantially as and for the purposes set forth.

2. In a balanced slide-valve wherein the live steam is admitted under the valve, the combination of the plungers with the roller-boxes and rollers, substantially as described and shown.

3. In a balanced slide-valve wherein the live steam is admitted under the valve, the combination of the chambers I, passages b, plungers K, spiral springs d, roller-boxes L, rollers e, and steel plates M, constructed and arranged substantially as described and shown.

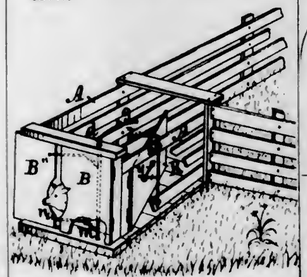
193,306. METHODS OF PROTECTING EMERY-WHEELS. William W. White, McKean County, Pa. [Filed May 28, 1877.]



1. The method of preventing emery-wheels from glazing, breaking, or bursting while being used, which consists in applying ice to the wheel while it is in operation, as set forth.

2. The method of preventing emery-wheels from glazing, breaking, or bursting while being used, and of preventing the metal being ground from changing in quality, as described, which consists in applying ice to the wheel and to the metal being ground, as set forth.

193,307. HOG CATCHING AND HOLDING APPARATUS. Ira E. Winchell, Prairie City, Iowa, assignor of one-half his right to M. Feathers, same place. [Filed May 25, 1877.]



The trap A A, having the fixed door or end section B c, the sliding door B'' c', and its operating mechanism d g m n, and the door R and its operating mechanism s t w y, arranged and combined to operate substantially as and for the purposes shown and described.

193,308. SHOE-BRUSHES. A. Worthington, Brooklyn, N. Y. [Filed Apr. 26, 1877.]



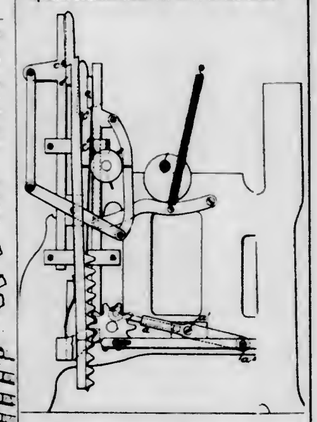
1. The tubular hollow handle and receptacle A, provided with a cap or cover at one end, and a screw-thread, i, on the other, in combination with a screw, f, having its bearing in some part of the handle, and a follower, z, fitting within the hollow of the handle, and threaded on the screw f, when all are arranged to form a combined detachable handle and receptacle complete within itself, as herein set forth.

2. The combination of the stock of the dauber B with the screw-threaded socket D set in the edge of the same, and arranged to receive a screw-threaded handle and receptacle, and with the elastic tube j attached to the dauber-stock, as shown, and communicating with the socket D to form a conduit for the blacking, as set forth.

3. The combination of the hollow tubular handle A, provided with a cap at its outer end, a screw-thread, i, at its open end, and a screw and follower within the hollow of the same, arranged to force out the blacking, with the dauber-head B, having a socket, D, screw-threaded to fit the handle A, and a flexible tube, j, the said socket and tube being arranged to form a conduit for the blacking, substantially as specified.

193,309. MECHANISMS FOR SHIFTING DROP SHUTTLE-BOXES IN LOOMS. H. Wyman, Worcester, Mass. [Filed Nov. 2, 1876.]

Brief.—Improvements based upon devices covered by English Patent No. 1,455, for 1860. The reciprocating rack-bars or jacks, under the control of a pattern mechanism, are operated by lifters and depressors, as is usual in shedding mechanism. The racks mesh with pinions, each provided with a crank-pin. The main lever of the box-motion is in contact with, and is operated by, the crank-pin of one of the pinions, while the auxiliary lever is similarly connected to, and operated by, the crank-pin of the other pinion. The pinions make only a half-revolution. The invention consists in the special combinations set forth in the claims.



1. A lever connected at one end with shuttle-boxes and its actuating crank-pin, an auxiliary lever pivoted upon a fixed fulcrum and connected with the shuttle-box lever, and an actuating crank-pin for it, in combination with two toothed wheels and two reciprocating toothed surfaces, the toothed wheels turning the crank-pins, the crank-pins in contact with and moving the levers, and the toothed surfaces moving the toothed wheels, the whole under the control of a pattern, the combination being substantially as set forth.

2. A lever connected at one end with shuttle-boxes and a crank-pin in contact with said lever to move the same, in combination with an auxiliary lever pivoted upon a fixed fulcrum and supporting the shuttle box lever, and with a crank-pin in contact therewith, and mechanism, as described, for giving an oscillating movement to said crank-pins to move the auxiliary lever, whereby four shuttle-boxes may be operated, substantially as set forth.

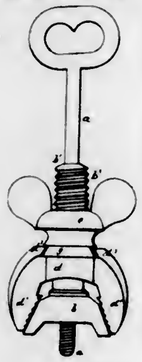
3. The combination of the main and auxiliary levers, with their respective crank-pins and mechanism, as described, for oscillating the same, with the pattern-indicating surface, whereby any one of the shuttle-boxes is placed in position by the crank-pins in contact with the levers a a', under the government of the indicating mechanism, substantially as described.

193,310. BOOT-CRIMPERS. Aaron T. Moore, Cadiz, Ohio, assignor of one-fourth of his right to O. W. Glover, same place. [Filed Apr. 17, 1877.]

1. The combination, with the block *b*, constructed with the stem *b'*, of a sliding clasp, *d*, and thumb-nut *e*, turning on stem *b'*, substantially as set forth.

2. The combination, with the block *b*, constructed with the stem *b'*, and thumb-nut *e*, constructed with a flange, *e'*, of a sliding clasp, *d*, constructed with the lugs *d'*, substantially as and for the purpose set forth.

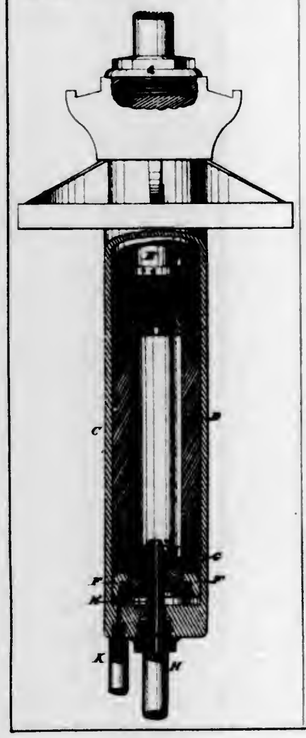
198,810.



REISSUES.

7,790. HYDRAULIC PRESSES. A. H. Emery, New York, N. Y. Patent No. 63,875, dated Apr. 16, 1867. [Filed Mar. 24, 1877.]

Brief.—The platen may be moved through a distance equal to the sum of the strokes of the rams.



1. A plurality of rams, acting consecutively on a platen, and imparting the sum of their own respective strokes with increased pressure at the latter part of the stroke.

2. The combination of the pipes H K, valve S, and concentric rams E and D.

3. The levers V V, sliding wedges U U, and valve S, arranged to operate in the manner substantially as and for the purpose set forth.

4. The lifters X X, platen P, and compressram D, combined and arranged to operate substantially as and for the purpose specified.

5. The combination of the lifters X X, compress-ram D, and levers Y, arranged to operate substantially as and for the purpose set forth.

6. The sliding wedges U U, platen P, levers W W e e, spring *f*, and valve S", combined and arranged to operate substantially as and for the purpose specified.

7. The platen P and lifters X X, in combination with the levers Y Y and springs B', arranged to operate substantially as and for the purpose set forth.

8. The springs B, arranged with the levers Y Y, stops *w*, and cords *u*, to operate substantially as and for the purpose specified.

9. The lifters X X, pawls Y' at the ends of the lifters X X, the recess *i* in the compress-ram D, and the fixed rests *j j*, all combined and arranged to operate substantially as and for the purpose specified.

10. The combination of the clamp-frame D', wedge E', and the loops *d' d'*, substantially as and for the purpose set forth.

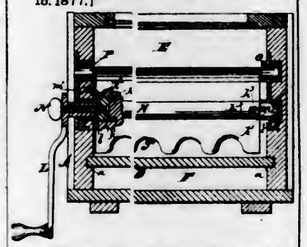
7,792. PISTONS FOR DEEP-WELL PUMPS. Charles Jarecki, Erie, Pa., assignor, by mesne assignments, to Jarecki Manufacturing Company. Patent No. 63,968, dated Nov. 10, 1868. [Filed Jan. 31, 1877.]



1. A combined pump piston and valve consisting in the combination, with a valve-seat, the outer edge of which projects and forms an annular bearing for the parts by which it is clamped in place, of a crown or cage constructed with a screw-threaded lower end, and the piston having its upper end screw-threaded to fit the threads of the cage or crown, the two operating to secure the valve-seat in place, the piston being provided or not with a wrench seat or nut, whereby it may be removed when desired, substantially as described.

2. The steel valve-seat D, provided with the concentric collar *a*, adapted to be clamped between the shoulder *f* of the detachable crown A, and the top of the piston-section B, whereby the valve is held rigidly in place, as herein shown and described, for the purpose specified.

7,793. BUTTER-WORKERS. E. D. Kitchen and Emanuel W. Kitchen, Buckingham Township, Bucks County, Pa. Patent No. 186,852, dated Jan. 30, 1877. [Filed Mar. 15, 1877.]



1. The butter-worker paddle G, having a straight side, *g*, and scalloped or indented side *g'*, substantially as shown and described.

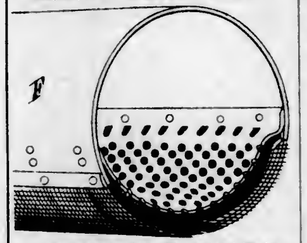
2. The vessel herein described, consisting of the ends A A', bottom B, straight sides C, and curved board or plate D, fitting in grooves in said ends, and forming the working compartment E, and water and ice chamber F, substantially as shown and described.

3. A vessel having separate boxes or bearings for the reception of the journals of a butter-worker paddle and churn-dasher, substantially as shown and described.

4. In combination with the vessel described, adapted for use in churning or butter-working, of the socket-bearings I O and open bearings M P, the bearings O P being above the bearings I M, substantially as set forth and shown.

5. The combination of shaft H, having projecting gudgeon or journal *h'* at one end, and gut *h'* at the other end, boxes I and M, hollow journal or handle L, and screw N, the several parts being constructed and arranged substantially as shown and described.

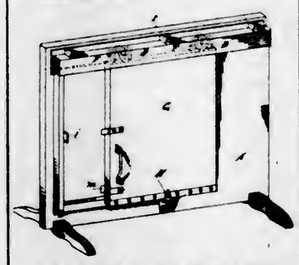
7,794. SELF-DISCHARGING PULVERIZING-BARRELS FOR ORES. A. B. Paul, San Francisco, Cal. Patent No. 102,857, dated May 10, 1870. [Filed Mar. 29, 1877.]



1. The combination, with a pulverizing-barrel, of screens C D, one or more, arranged in its sides, and protected by shields B, constructed and arranged to operate substantially as and for the purpose above set forth.

2. The pulverizing-barrel F, provided with discharging-screens B C D, constructed and operating as herein described, and with hollow trunnions A, for the introduction of material to be treated substantially as above specified.

7,795. CAR-DOOR-HANGING DEVICES. Elias B. Pratt, Norwood, Mass. Patent No. 184,983, dated Dec. 5, 1876. [Filed June 26, 1877.]



1. In a device for hanging the door of a car, the runlet B, provided with the flanges C, and otherwise constructed and arranged to operate substantially as set forth and specified.

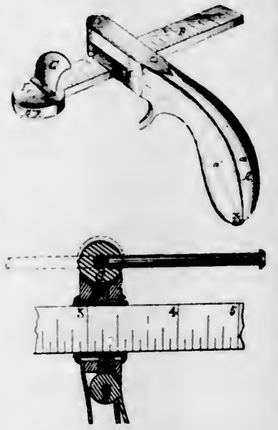
2. In a device for hanging the door of a car, the laterally-elongated staple or ing F, constructed and arranged to operate with the trucks D and door G, substantially as set forth and specified.

3. The door G, lugs F, trucks D, and runlet B, combined and arranged to operate substantially as set forth and specified.

4. The door G, provided with the wedge *n*, in combination with the roller H, substantially as set forth and specified.

5. The inclined projection *m*, in combination with the door G, substantially as set forth and specified.

7,796. CAR-DOOR-HANGING DEVICES. Elias B. Pratt, Norwood, Mass. Patent No. 184,983, dated Dec. 5, 1876. [Filed June 26, 1877.]



1. In a draw-gage for cutting leather, the combination, with the sliding gage-bar, of a cam actuated by a lever, for the purpose of holding the said bar at any point, substantially as described.

2. The combination with the sliding gage-bar, of a cam bearing upon one side of the same, and another cam, actuated by a lever, bearing against the other side of the said bar, substantially as described and shown.

3. In a draw-gage for cutting leather, the handle A cast hollow, and having the finger-hook *b* cast therewith, substantially as described and shown.

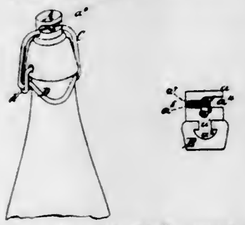
4. In a draw-gage for cutting leather, the hollow cast-metal handle A, turned down like a pistol-stock, and having its inner side thrown out of line with the head of the instrument, substantially as and for the purposes set forth.

6. In a draw-gage for cutting leather, the metal handle A, cast hollow in two parts, *a a'*, and having the finger-hook *b*, substantially as described and shown.

6. The combination with the handle A of the adjustable lever E, for the purpose of changing the size of the said handle, substantially as described and shown.

7. In a draw-gage for cutting leather, the hollow handle, having a leaf-spring secured therein, and a hole for the entrance of the lever for working the cams, substantially as described and shown.

7,797. BOTTLE-STOPPERS. Augustus E. Rich, Fall River, Mass., assignor of two-thirds interest to James H. Crittenden. Patent No. 188,512, dated Oct. 24, 1876. [Filed May 8, 1877.]



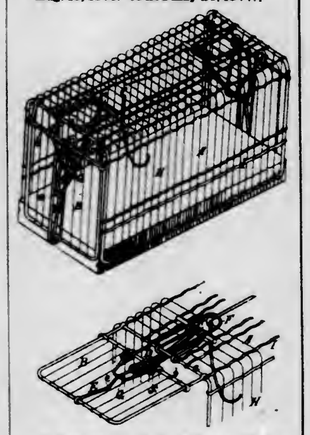
1. In combination, metallic stopple A, rubber stopple B, wire ball C, wire lever D, metallic pin *a'*, and spiral spring *a'*, as set forth and described, for the purpose specified.

2. The sockets in the bottle, whereby the lever is secured and pivoted to the bottle, in combination with the lever connecting the ball with the bottle, substantially as described.

3. A bottle stopper, composed of a metallic stopple, slotted at its upper side for the passage of a bail, and constructed with neck and button at its under side, and a rubber stopple, having a cavity in its upper side of corresponding form to the neck and button of the metallic stopple, to which it is secured by its own elasticity, in combination with the wire lever D, connected with the metallic stopple by a bail passed through the slot in the metallic stopple, substantially as described.

4. A metallic stopple, constructed with button and neck at its under side, covered by a rubber stopple, and with circular top, provided with a perpendicular slot and a horizontal slot in the side of the top part, whereby the stopple may be pushed through the tube of the bottling-machine, and the bail may be connected with it while the plunger holds the stopple in the bottle, substantially as described.

7,798. ANIMAL-TRAPS. Frank B. Rice, Lowell, Mass. Patent No. 181,106, dated Aug. 15, 1876. [Filed May 26, 1877.]



1. A setting-lever for animal-traps, adapted to be unfolded or extended for setting the trap, and to fold or abut when sprung within the limits of the end of the trap, substantially as and for the purposes set forth.

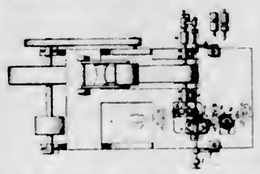
2. A wire cage having a hinged door, a spring, and an automatic-locking device, in combination with a lever, arranged to unlock and open the door and to set the trap, and adapted to drop down when the trap is sprung into a position, substantially coincident with and not projecting beyond the door, for the purpose set forth.

3. A wire cage having a hinged door and an operating-spring, in combination with a locking device, adapted to operate automatically when the trap is sprung, and an unlocking device, which serves to unfasten the door by a movement of the lever used in setting the trap, substantially as set forth.

4. The combination, with the trap A and hinged door B, provided with the bent bar E, of the spring-loop C D, having the double function herein described.

7,799. MACHINES FOR SHAVING HALF-ROUND HOOPS. George B. Selden, Rochester, N. Y. Patent No. 171,247, dated Dec. 21, 1875. [Filed Jan. 2, 1877.]

Brief.—The movable cutter-head on the flat side of the hoop is controlled by elastic pressure-rolls on the bark side, which rolls yield when a knot passes.



1. The movable cutter-head G, controlled by the yielding knot-passer M on the bark side of the hoop, and the supporting-rest *q*, traveling with the head G, in combination with the stationary rest *s*, substantially as described.

2. The movable cutter-head G, when provided with the ring *r*, in combination with

the yielding knot-passer M on the bark side, operating substantially as described.

3. The knot-cutter C, in combination with the movable cutter-head G, provided with the internal ring *r*, and the knot-passer M on the bark side, operating substantially as and for the purposes set forth.

4. The movable cutter-head G, provided with the internal ring *r*, and knot-passer M on the bark side, in combination with the angular feed roll 2 or 3, either or both, operating substantially as described, for the purposes set forth.

5. In combination with the movable cutter-head G, controlled by the yielding knot-passer M on the bark side, the supporting-rest *q*, traveling with the head.

6. The combination of the cutter-head G, controlled from the bark side by the knot-passer M, with the rest *s*.

7. In combination with the movable cutter-head G, provided with the ring *r*, the pivoted knot-passer frame M, containing a series of rollers, *k k k*, operating to control the head and pass the knots, substantially as described.

8. The movable cutter-head G, when provided with the internal ring *r*, in combination with the yielding roll R on the bark side of the hoop, operating substantially as described.

9. The combination, in a hoop-dressing machine, of the knot-cutter C, and the shaving-head G, provided with supporting-rests on the split side of the hoop, and a yielding roll or rollers opposite the shaving-head, operating substantially as and for the purposes set forth.

10. The combination, in a hoop-dressing machine, of the knot-cutter C, the shaving-head G, provided with supporting-rests on the split side of the hoop, and a yielding roll or rollers opposite the shaving-head, and the angular grooved feed-rollers 1 or 3, either or both, operating substantially as and for the purposes set forth.

7,800. CAR-AXLE BOXES. Owen Tomlinson, Bombay, India. Patent No. 184,808, dated Nov. 28, 1876. [Filed Apr. 27, 1877.]

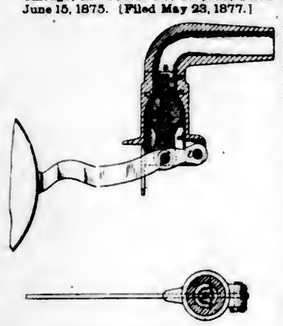
1. The separate continuous solid bearing D and cheeks *a*, in combination with the continuous lubricating-pads F at each side of the journal, and extending from end to end, or nearly so, of the bearing-surface, substantially as set forth.

2. The dust-plate G, made with a deep channel across its lower edge, in combination with the axle-box having the oil-receptacles that are separated by the partition *f*, substantially as and for the purposes set forth.

3. In an axle-box, the combination of the cheeks *e*, lubricating-pads F, detachable keep E, and bearing D, substantially as and for the purposes set forth.

4. The removable keep E, having a dovetailed recess, in combination with the bearing D fitting into such recess, so that the two can be removed together, as specified.

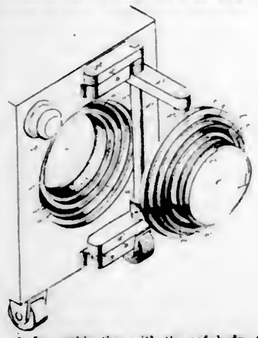
7,801. TANK-REGULATORS. Albert Fuller, Brooklyn, assignor to Henry C. Meyer & Co., New York city, N. Y., and L. Wolff, Chicago, Ill. Patent No. 184,539, dated June 18, 1875. [Filed May 23, 1877.]



In combination with the valve of a tank-regulator, pivoted at the lower part of its stem to the float-lever, and closing against the pressure of the supply-column, means for guiding or laterally holding the upper end of the stem of said valve, substantially as and for the purpose set forth.

7,802. DOORS AND HINGES FOR BURGLAR-PROOF SAFES. Phineas F. King, St. Louis, Mo., assignor to Beard & Brother. Patent No. 153,348, dated July 21, 1874. [Filed Nov. 14, 1876.]

Brief.—An independent internal ring having screw-threads is combined with the casing of the safe and the screw-threaded door; and there are peculiarities in the construction of the hinge mechanism for supporting the door, which are clearly pointed out in the claims.



1. In combination with the safe-body A, and the screw-threaded door, an independent internal ring, having screw-threads, substantially as described.

2. In combination with the wall of the safe and the door C, the radius-bars d^5 d^6, held in different horizontal planes, and adapted, when closed, to lie against the wall of the safe, in the same vertical plane, as described.

3. In combination with the vertical bar d^6, and the door C, centrally attached thereto, the radius-bars d^5 d^7, adapted to move in opposite arcs of equal circles, substantially as described.

4. In combination with the radius-bars, the bracket D, having an extended bearing, as and for the purpose set forth.

5. In combination with a threaded door and threaded casing, radius-bars adapted to move in opposite arcs of equal circles, and a bar, d^6, attached to the central axis of the door, as described.

6. The combination of the following elements: the vertical bars d^6 d^8, the radius-bars d^5 d^7, carrying the door, the bracket D, and the adjusting mechanism for taking up the sag, substantially as described.

7. In combination with a round screw-door, having a central axis, a central vertical axis, *d*, adapted, substantially as described, to hold the door in a balanced position and permit it to oscillate to find its place in the casing, as set forth.

8. In combination with a round-screw door, having a central axis fixed in its bearing, mechanism connecting the door to the safe, substantially as described, adapted to carry the door in planes parallel to the face of the safe, as set forth.

9. A screw-door adapted, substantially as described, to move in planes parallel to the face of the safe, and to oscillate upon a central vertical axis, as set forth.

7,803. PLOWS. A. Lauer and J. Hartmann, Louisville, Ky. Patent No. 190,500, dated May 8, 1877. [Filed July 5, 1877.]

Brief.—Land-side plate and plow-point extended upward and outward toward the land.

1. The triangular point, constructed as described, in combination with the land-side extended upward and outward, and the standard, substantially as and for the purpose specified.

2. The detachable land-side F, having the upward extension *a* curved outward from the beam, in combination with the mold-board and the point, the latter being extended upward, and secured to the land-side extension, their upper portions having a corresponding curvature and lying in contact, substantially as shown and described, for the purpose specified.

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COMMISSIONER'S DECISIONS.

STOCKWELL *vs.* HAINES.—*Interference.—Interlocutory Appeal.*

[*Appeal from the decision of the Primary Examiner in the matter of the Interference between Letters Patent of Emery Stockwell, No. 186,177, granted January 9, 1877, and the application of Lewis A. Haines, for reissue of Letters Patent No. 106,691, granted August 23, 1870, for* "IMPROVEMENT IN TIME-LOCKS."—*Decided July 5, 1877.*]

An invention not set forth in the original specification nor fully shown by the original drawings cannot be incorporated on reissue where its existence depends upon the restoration of a missing element to the model in a particular position, it not appearing that such position was necessarily the only one it could have had, and both original specification and drawings failing to indicate its location.

The models and drawings of machine patents can be amended under the law, only each by the other. Affidavits as to the location of a particular element cannot be considered, nor can the Commissioner go outside of the record to ascertain what was the scope or detail of the original invention.

[*Marcus S. Hopkins*, attorney for Stockwell.
Gilmore, Smith & Co., attorney for Haines.]

SPEAR, *Commissioner:*

Appeal is taken in this case from the refusal of the Examiner to dissolve the interference. Two reasons were urged before him, and reiterated upon appeal for the dissolution. The first denies that Haines has any proper foundation for the subject-matter to which title is asserted in the patent of 1870, which it is now sought to reissue. Neither the model, drawings, nor specification connected with that patent, as originally granted, give warrant, it is alleged, for the invention now incorporated and claimed.

The second relates to a former interference between the same parties, in which Haines appeared with an original application for the device in controversy. In that interference priority of invention was finally decided in favor of Stockwell.

It is urged on behalf of the parties in interest in this case, who are the assignees of Haines, that they were not parties to the former interference, and are not bound to abide by its results. I do not deem it necessary to go into any discussion on this point, for the reason that I am satisfied on examination of the original patent that the invention in controversy is not to be found therein, and that these parties representing Haines in this controversy have no title whatever under this patent of 1870 to the invention in dispute.

The claims of Haines in interference are as follows:

1. In a chronometric lock, the combination with the time movement of two automatic unlocking devices, substantially as and for the purposes set forth.

2. In a chronometric lock provided with devices for determining the time for unlocking the safe, a supplemental unlocking device, which is inoperative so long as the working of the time movement is regularly performed, but which effects the unlocking of the lock whenever the time movement nearly approaches the point of running down, substantially as and for the purposes set forth.

In the original specification of Haines there is no description of this supplemental unlocking device. The locking device consists of a pivoted bar, which drops behind the shoulder on the bolt, and prevents retraction. This locking-bar is connected to the clock mechanism, so that the revolution of the said clock mechanism, after a given period, will raise the bar and permit the bolt to be thrown backward.

The object aimed at in the invention in controversy is the provision of an additional unlocking device, so constructed and applied that in case the clock mechanism runs down before bringing into operation the primary unlocking device, or in case of the breakage of the spring by which the clock-work is moved, the secondary mechanism shall act to raise the locking-bar.

In the drawing attached to the patent of Haines, and in the model originally filed with the application, are shown some additional mechanism now alleged to be this secondary or supplemental unlocking mechanism. It consists of a bar pivoted to the wall of the case and extending above the main spring. The end of this bar is connected by a slender rod to the locking-bar below. This is all that is shown in the drawing, and all that appears in the model, and the original specification throws no further light upon the subject. It appears clear, however, that the mechanism which I have de-

scribed will not operate as required by the conditions of the invention in dispute without some further addition. The extreme uncoiling of the spring will not touch the pivoted bar above, and cannot therefore operate to raise it, the bar being a little outside of the line of direction marked by the spring in uncoiling, and not directly over it, as would be necessary to insure a lifting-contact. But the invention requires that this bar shall be raised by the spring in its uncoiling, and thus, by means of the connecting-rod, lift the locking-bar below. The addition necessary to effect this purpose, as represented by both parties, is a transverse pin through the upper pivoted bar, which pin must extend over the spring in such relation thereto as to come in contact with and be lifted by the spring when it uncoils.

It is not contended that there is a hint of the existence of any such pin in the drawing or specification of the Haines patent as originally filed. In the model, however, there is a horizontal perforation, in which such a pin might be placed. This is relied upon as showing that the pin did form a part of the original invention, and as further evidence to this end certain affidavits are also filed. It is clear to my mind that these affidavits cannot be considered. The law provides that in the case of a machine patent the model and drawing shall not be amended, excepting each by the other, and it also provides that amendments may be made upon proof outside of the case only when there is neither model nor drawing. This is a machine patent, and there is a model and drawing, and it is plain that I cannot go outside of the record to ascertain what was the scope or detail of the original invention.

Rejecting the affidavits, there remains only the hint or suggestion, if it may be called such, from the presence of the perforation in the upper pivoted bar of the model. It does not follow necessarily that this perforation was made to admit a pin projecting over the spring. I am not certainly assured that the pin, as was suggested at the hearing, might not have been made to project outward in an opposite direction from what would bring it in contact with the spring, in order that it may be operated by hand, or, as was also suggested, that the hole was made for the admission of a wire to be carried up through a perforation which appears in the wall of the case above just over the hole in the bar. Since other use may be made of this construction it, of course, does not follow necessarily that this particular use, namely, the introduction of the pin to extend over the spring was intended. In so grave a matter as the reissue of a patent with the claim for an invention not described or even referred to in the original specification, not shown in the drawing, and not fully shown in the model, nothing can be left to conjecture. It is not enough that the purpose of the hole in the bar should be most reasonably inferred to be for the admission of the pin to project over the spring. It should be a matter of certainty, and it is not in this case.

So far as appears the invention in controversy is not the property of the assignees of Haines, and in my judgment cannot be properly included in the amended specification.

The decision of the Examiner is accordingly overruled, the interference is dissolved, and the reissue application is refused.

STRONG *et al. vs.* CRUIKSHANK.—*Interference.—Appeal.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the interference between the application of John J. Strong and Kate M. Strong, filed November* 12, 1875, *and the application of Savannah Cruikshank, filed October* 9, 1875, *for* IMPROVEMENT IN ANT-GUARD.—*Decided July* 9, 1877.]

A concave flange, coated on its under side with chalk, and applied to a table-leg or similar article, to prevent the march of insects, is lacking in patentable novelty—the peculiar property of chalk being well known, and concave flanges for similar purposes being old in the art.

It is the exercise of simple intelligence to put the chalk on the under side of the flange, where it is best protected from being rubbed.

DOOLITTLE, *Acting Commissioner:*

The subject-matter of this interference, twice rejected by the Primary Examiner, is—

A concave flange, arranged on the leg of a table or similar article, and coated on the under side with chalk or other crumbling substance.

The peculiar property possessed by chalk, rendering it an impassable barrier to the march of ants, is well known.

The practice among boys for sport, and among housewives for more practical purposes, of drawing chalk-lines to stop the passage of ants is common.

The use of concave flanges on corn-cribs, trees, &c., to prevent the ascent of insects is old, and the references cited in the letter of the Examiner in originally rejecting Cruikshank show concave cups or cavities to hold liquid for the same purpose.

The only novelty that can be claimed for the present alleged invention is the fact that protection is afforded by the flange to the chalk; but any intelligent person desiring to put chalk on a table-leg or chair for the purpose specified would naturally put it on at a place that would best protect it from being rubbed.

The exercise of a not necessarily intelligent judgment, the parties in this case desire to have patented.

I do not believe the patent laws were designed to give to any person the exclusive right for a term of years to use and sell simple devices, the result of ordinary judgment. (*Dunbar & Hopper* vs. *Myers & Eunson*, 11 OFFICIAL GAZETTE, 35.)

This interference is, therefore, dissolved, and both applications are rejected.

CORNWALL *et al.—Trade-Mark.—Appeal.*

[*Appeal from the decision of the Examiner of Trade-Marks in the matter of the application of Cornwall & Brother, for the* REGISTRATION OF A TRADE-MARK.—*Decided June* 29, 1877.]

A star and crescent applied as as a trade-mark to soap is registerably different from a star alone.

Whether a proposed mark deceptively resembles another already registered is a question of judgment, to be determined upon the probabilities of the case. *Ex parte Imbs*, (10 OFFICIAL GAZETTE, 463.)

DOOLITTLE, *Acting Commissioner:*

Applicants seek to register an arrangement of a star and crescent, applied to soap, as their trade-mark. They are referred to a registered trade-mark consisting of the figure of a star alone, also applied to soap; and it is contended by the Examiner that the employment of the former combined symbol would be likely to deceive those desirous of purchasing soap having the last-named brand.

It is a question of judgment, and is to be determined upon the probabilities of the case, as was substantially held in the very similar case of *Imbs*, 10 OFFICIAL GAZETTE, 463.

The flags of at least two nations are distinguished by almost the same difference in symbol as that employed by applicants to distinguish their soap from the registrants, to whom they are referred.

The flag of Egypt is a crescent on a red ground, and the Turkish man-of-war flag is a crescent and star on the same colored ground. There is no mistaking one flag for the other by persons of the slightest discernment; and I think the same may be said when those symbols are applied in a similar way to the soap of two different owners.

The decision of the Examiner of Trade-Marks is, therefore, reversed.

APPLICATION FOR EXTENSION.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., April 24, 1877.

On the petition of Erastus T. Bussell, of Indianapolis, Indiana, praying for the extension of a patent granted to him on the 29th day of November, 1853, numbered 10,280, extended for seven years from the 29th day of November, 1867; reissued on the 13th day of December, 1870, and numbered 4,202, for an improvement in combined rubber and spiral steel spring.

This application having been authorized by act of Congress approved March 3, 1877:

It is ordered that the testimony in the case be closed on the 10th day of July next; that the time for filing arguments and the Examiner's report be limited to the 20th day of July next; and that said petition be heard on the 25th day of July next.

Any person may oppose this extension.

ELLIS SPEAR,
Commissioner of Patents.

[tf]

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date July 24, 1877.]

10,102 to **10,107**, inclusive.—**Carpets.**—JOHN FISHER, New York, N. Y., assignor to LOWELL MANUFACTURING COMPANY, Lowell, Mass. Applications filed July 13, 1877. Term of patents 3½ years.

10,108.—Cigar-Box.—SAMUEL LOWENTHAL, Cincinnati, Ohio. Application filed May 26, 1877. Term of patent 7 years.

10,109 to **10,120**, inclusive.—**Carpets.**—ELEMIR J. NEY, Lowell, Mass., assignor to LOWELL MANUFACTURING COMPANY, same place. Applications filed July 13, 1877. Term of patents 3½ years.

10,121.—Picture-Frame.—LEWIS PATTBERG, Jersey City, N. J. Application filed May 10, 1877. Term of patent 3½ years.

10,122.—Butter-Coolers.—BERNHARDT T. STEINHARDT, New York, N. Y. Application filed June 20, 1877. Term of patent 14 years.

10,123 to **10,128**, inclusive.—**Carpets.**—CHARLES W. SWAPP, Lowell, Mass., assignor to LOWELL MANUFACTURING COMPANY, same place. Applications filed July 13, 1877. Term of patents 3½ years.

10,129.—Heating-Stoves.—JAMES A. LAWSON, Troy, N. Y., assignor to FULLER, WARREN & Co., same place. Application filed June 18, 1877. Term of patent 7 years.

10,130.—Card-Basket.—PETER ROSENBACH, Brooklyn, N. Y. Application filed May 8, 1877. Term of patent 7 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date July 24, 1877.]

4,922.—Cigars.—ED. ASCHERMANN & Co., Milwaukee, Wis. Application filed July 6, 1877.
"The word-symbol 'MARK TWAIN.'"

4,923.—Corsets.—DAVID H. FANNING, Worcester, Mass. Application filed July 5, 1877.
"The word-symbol 'CINDERELLA.'"

4,924.—Corsets.—DAVID H. FANNING, Worcester, Mass. Application filed July 5, 1877.
"The word-symbol "QUEEN BESS.'"

4,925.—Corsets.—DAVID H. FANNING, Worcester, Mass. Application filed July 5, 1877.
"The word-symbol 'NONESUCH.'"

4,926.—Liquid Blacking.—S. S. NEWTON & Co., Binghamton, N. Y. Application filed July 7, 1877.
"The word-symbol 'ANGORA.'"

4,927.—Flavoring-Extracts.—ROYAL BAKING POWDER COMPANY, New York, N. Y. Application filed June 18, 1877.
"The word-symbol 'ROYAL.'"

4,928.—Cigar-Boxes.—PHILIPP SCHNEIDER, New York, N. Y. Application filed May 31, 1877.
"The saved 'tidal-wave' box, the other boxes being sea-damaged, and the word-symbol 'TIDAL WAVE.'"

4,929.—Piano-Fortes.—ROBERT W. SMITH, New York, N. Y. Application filed July 10, 1877.
"The word-symbol 'UNIVERSITY.'"

4,930.—Piano-Fortes.—ROBERT W. SMITH, New York, N. Y. Application filed July 10, 1877.
"The word-symbol 'IRVING.'"

4,931.—Hoes.—UNION MANUFACTURING COMPANY, Lockport, N. Y. Application filed June 20, 1877.
"The word-symbol 'CHAMPION,' in connection with the word 'Hoe.'"

4,932.—Perfumery.—YOUNG, LADD & COFFIN, New York, N. Y. Application filed July 5, 1877.
"A monogram composed of the letters and character 'Y., L. & C.,' together with the figure of sunbeams."

4,933.—Chewing and Smoking Tobacco.—BUCHANAN & LYALL, New York, N. Y. Application filed April 3, 1877.
"The word-symbol 'FLUSH.'"

4,934.—Chewing and Smoking Tobacco.—BUCHANAN & LYALL, New York, N. Y. Application filed April 3, 1877.
"The word-symbol 'MAGIC.'"

4,935.—Chewing and Smoking Tobacco.—BUCHANAN & LYALL, New York, N. Y. Application filed April 3, 1877.
"The word-symbol 'ACME.'"

4,936.—Wines and Spirituous Liquors.—CHARLES F. EHLEN, St. Louis, Mo. Application filed March 6, 1877.
"The head of a buffalo and a star.'"

4,937.—Horse and Animal Shoe Nails.—GLOBE NAIL COMPANY, Boston, Mass. Application filed June 19, 1877.
"The word-symbol 'GLOBE.'"

4,938.—Smoking-Tobacco.—GOODWIN & Co., New York, N. Y. Application filed June 23, 1877.
"The word-symbol 'OLD JUDGE.'"

4,939.—Smoking-Tobacco.—GOODWIN & Co., New York, N. Y. Application filed June 23, 1877.
"The word-symbol 'OUR ROOSTER.'"

4,940.—Iron and Cast-Steel Hoes.—GEORGE T. LANE, Troy, N. Y. Application filed April 23, 1877.
"The symbol of a crescent, with the letter 'L' placed inside thereof, and the words 'Lane's Crescent' and 'Planters' Hoe Co.'"

4,941.—Black Silks.—LEISLER & SOMMERHOFF, New York, N. Y. Application filed June 13, 1877.
"The figure of a lion standing upright, and holding in his left paw a branch like a sheaf, with his right paw resting upon a shield bearing the words 'Confiance Oblige.'"

4,942.—Printed Publications.—HOWARD LOCKWOOD, New York, N. Y. Application filed June 22, 1877.
"The words 'AMERICAN' and 'EXPORT,' as applied to my publications, in connection with the map of the world."

4,943.—Medicinal Preparations.—LAFFERTY & CO., Richmond, Va. Application filed June 1, 1877.

"The arbitrary words 'VEST POCKET.'"

4,944.—Coal.—WILLIAM H. S. MILLER, Newark, N. J. Application filed June 16, 1877.

"The word-symbol 'BLACK DIAMOND,' used in connection with the word 'Coal.'"

4,945.—Roasted Coffee.—GEO. OGDEN & CO., Philadelphia, Pa. Application filed June 27, 1877.

"The pictorial representation of an old-style tin coffee-boiler, upon the center of which is imprinted the capital letter O, in connection with the words 'STANDARD PACKAGE.'"

4,946.—Prepared Cereals for Making Table Beverages.—ANN M. PUTNAM, Boston, Mass. Application filed June 18, 1877.

"The word-symbol 'NEW ERA.'"

4,947.—Cigars.—FERDINAND SMITH, Providence, R. I. Application filed June 16, 1877.

"The word-symbol 'JUSTICE.'"

4,948.—Butter.—JOHN STEWART, Manchester, Iowa. Application filed June 15, 1877.

"The word-symbol 'EDGEWOOD.'"

4,949.—Cigars, Cigarettes, and Smoking and Chewing Tobacco.—STRAITON & STORM, New York, N. Y. Application filed May 17, 1877.

"The word-symbol 'PUFF.'"

4,950.—Cigars.—RAFAEL VEGA, Brooklyn, N. Y. Application filed May 31, 1877.

"The representations of horses ridden by jockeys."

4,951.—Flint, Sand, Emery, and Match Papers and Cloths.—WIGGIN & STEVENS, Malden, Mass. Application filed June 11, 1877.

"The word-symbol 'NEW ENGLAND.'"

4,952.—Compressed Yeast.—FRANK, BUCHSTEIN & CO., New York, N. Y. Application filed June 13, 1877.

"The word-symbol 'MOUNT VERNON.'"

4,953.—Flour.—JENKINS & HOVER, Oswego, N. Y. Application filed March 19, 1877.

"The title 'HOFFMAN'S' and the symbols 'X X,' used in connection with the name 'St. Louis.'"

4,954.—Dress-Goods.—PASSAVANT & CO., New York, N. Y. Application filed July 9, 1877.

"The arbitrarily-selected words 'FAILLE DE PARIS.'"

4,955.—Dress-Goods.—PASSAVANT & CO., New York, N. Y. Application filed July 9, 1877.

"The word-symbol 'WINDSOR.'"

4,956.—Medical Compound.—R. V. PIERCE, Buffalo, N. Y. Application filed July 9, 1877.

"The fac-simile of the signature 'R. V. PIERCE, M. D.'"

4,957.—Medical Compound.—R. V. PIERCE, Buffalo, N. Y. Application filed July 9, 1877.

"The fac-simile of the signature of 'R. V. PIERCE, M. D.'"

4,958.—Smoking-Tobacco.—MANUEL RIQUELME, New Orleans, La. Application filed July 9, 1877.

"The word-symbol 'LOUISIANA.'"

4,959.—Carbonated Beverages.—SMITH & POWELL, Brooklyn, N. Y. Application filed July 10, 1877.

"The letters and character 'L. & S.'"

4,960.—Cigars.—MOSES A. WOLF, Chicago, Ill. Application filed June 22, 1877.

"The representation of a female figure carrying a banner that contains the representation of a female head."

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date July 24, 1877.]

1,122.—Title: **"Button's Pearl Breakfast Hominy."**—CLARA M. BUTTON, Albany, N. Y. Application filed June 12, 1877.

1,123.—Title: **"Button's Superior White Crushed."**—CLARA M. BUTTON, Albany, N. Y. Application filed July 12, 1877.

1,124.—Title: **"Mathis Dysentery Remedy."**—CHARLES B. MATHIS, Tom's River, N. J. Application filed June 15, 1877.

1,125.—Title: **"Dr. Pierce's Favorite Prescription."**—R. V. PIERCE, Buffalo, N. Y. Application filed February 28, 1877.

1,126.—Title: **"Dr. Pierce's Compound Extract of Smart Weed."**—R. V. PIERCE, Buffalo, N. Y. Application filed February 28, 1877.

1,127.—Title: **"Lundborg's Triple Extract of Jockey Club."**—YOUNG, LADD & COFFIN, New York, N. Y. Application filed July 5, 1877.

SALE OF SPECIFICATIONS AND DRAWINGS.

Photolithographic copies of the drawings of all patents issued since November 26, 1867, have been produced, and will be sold to the public at 25 cents per patent, or, where twenty or more copies are ordered at one time, at 10 cents per patent.

Copon-books, to the amount of $2 or more, can be purchased from the Chief Clerk of the Patent Office; the coupons, for 10 cents each, may be filled out at any time, and, on presentation, will entitle the holder to a photolithographic copy of *any* drawing which has been reproduced.

The specifications of all patents issued since July 1, 1871, are in print, and will be furnished with the drawing without extra charge. The specifications of patents issued from November 20, 1866, to July 1, 1871, are in print, and where such is the case the Office will furnish them with the drawings, but the Office will not undertake to reprint copies of patents which have been exhausted.

In addition to the above, the Office has reproduced, and offers for sale at the price mentioned above, all drawings in the following classes, embracing patents granted from 1790 to date. The classes are those of the Examiners:

1. Aeration and Bottling.
2. Apparel.
4. Baths and Closets.
5. Beds.
6. Bee hives.
7. Beer and Wine.
8. Bleaching and Dyeing.
9. Boats.
10. Bolts, Nuts, and Rivets.
11. Bookbinding.
13. Brakes and Gins.
14. Bridges.
15. Brushes and Brooms.
17. Butchering.
18. Caoutchouc.
19. Carding.
20. Carpentry.
21. Carriages and Wagons.
23. Chemical Misc.
26. Cloth.
28. Cordage.
29. Crinoline and Corsets.
31. Dairy.
34. Drafting.
34. Driers and Kilns.
36. Electricity.
37. Excavators.
38. Felting and Hats.
40. Files.
42. Fire-arms.
44. Fuel.
45. Furniture.
47. Garden and Orchard.
48. Gas.
52. Gunpowder.
53. Hardware manufacture.
55. Harrows.
56. Harvesters.
58. Horology.
59. Horseshoes.
61. Hydraulic Engineering.
62. Ice.
65. Kitchen Utensils.
66. Knitting and Netting.
67. Lamps and Gas-fitting.
68. Laundry.
71. Manures.
72. Masonry.
73. Measuring Instruments.
75. Metallurgy.
76. Metal Working, bending and straightening.
77. Metal Working, boring and drilling.
78. Metal Working, forging, swaging, and riveting.
79. Metal Working, punching, cutting, and shearing.
80. Metal Working, rolling.
81. Metal Working Tools.
82. Metal Working, turning, planing, and milling.
83. Mills.
85. Nails.
86. Needles and Pins.
87. Oils, Fats, and Glue.
88. Optics.
89. Ordnance.
90. Ore.
91. Paint.
92. Paper-making.
93. Paper manufactures.
94. Paving.
96. Plating.
97. Plows.
98. Pneumatics.
99. Preserving Food.
101. Printing.
102. Projectiles.
103. Pumps.
104. Railways, The Way.
105. Railways, Cars and Interior Fittings.)
106. Railway Cars, Exterior Mountings and Fittings.
107. Railway Track and Car Irons and Fittings, manufacture of.
108. Roofing.
111. Seeders and Planters.
112. Sewing-machines.
114. Ships (1) construction.
115. Ships (2) propulsion.
116. Signals.
117. Silk.
118. Spinning.
119. Stabling.
120. Stationery.
124. Stills.
126. Stoves and Furnaces.
127. Sugar.
130. Thrashing.
131. Tobacco.
132. Toilet.
134. Tubing and Wire.
135. Umbrellas and Fans.
137. Water Distribution.
138. Water wheels.
139. Weaving.
141. Wood screws.

And the subdivisions of—

Bench-planes.	Buttons and Machines.
Bale-ties.	Combs, &c.

About forty other classes are in progress, and it is hoped that all the drawings remaining, some thirty thousand in number, may be completed during the fiscal year.

The total number of patents of which drawings are complete and offered for sale as above will approximate one hundred and fifty thousand.

When a patent has been allowed, and the application has not been forfeited by delay of six months, if the final fee of twenty dollars is paid before 12 o'clock on Friday, the patent will issue and bear date the following Tuesday.

The Government fee on making application for a patent is fifteen dollars. The final fee is twenty dollars. Usually there are no other Government fees unless the application is appealed.

Where specifications are printed, copies of same attached to drawings will be furnished without extra cost.

Printed copies of any patent can be obtained commencing with issue of November 26, 1867, to date.

Printed copies of specifications can be procured from No. 59,740, issue of November 20, 1866.

The "Rules of Practice" contain full instructions, forms, &c., for making applications for patents.

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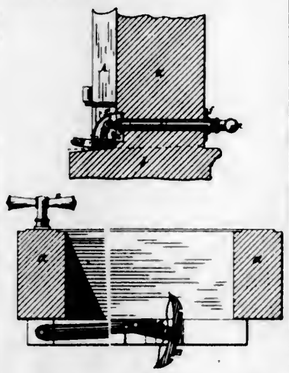
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OF

PATENTS GRANTED JULY 24, 1877.

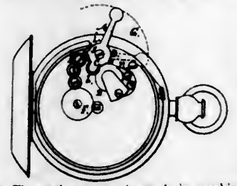
193,311. COMBINED SHUTTER WORKER AND FASTENER. James Aborn, Cranston, R. I., assignor to Andrew G. Smith, same place. [Filed May 14, 1877.]

Brief.—A lever-arm, carrying a pivoted spring-latch with double catches, is connected with a controlling-lever and a knob-rod, which rod, when manipulated, causes the controlling-lever to swing to and fro to release the double catch from the fastenings, and to carry the blind with it, the construction serving as a combined shutter worker and fastener, the whole operated from the inside.



The combination, with a blind or shutter, and its window-frame, of a pivoted spring-latch, a lever-arm attached thereto, and to the window-frame, and a controlling-lever, provided with a hand-rod, substantially as described, whereby the manipulation of the hand-rod, mounted in the frame, releases the latch from its fastenings, and swings the blind on its hinges, as set forth.

193,312. LEVER WINDING AND SETTING ATTACHMENTS FOR WATCHES. Henry Abbott, Newark, N. J. [Filed May 5, 1877.]



1. The reciprocating lever A, in combination with the ratchet-wheel D, on barrel-arbor, and the cannon-pinion F, or center-post, having a suitable connecting mechanism for throwing it into action with either, for the purposes of winding and hand-setting, substantially as specified.

2. The combination of the lever A, having the gear B, with the yoke *c* and gear *b*, substantially as and for the purposes set forth.

3. The combination of the lever A, yoke *c*, and gear *b* with a movable click-spring, *e*, substantially as and for the purposes set forth.

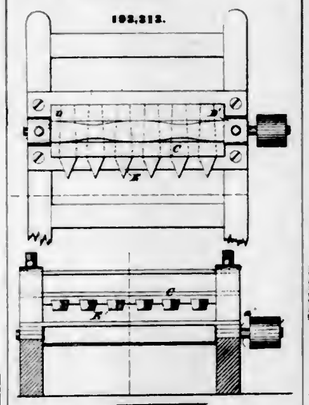
4. The combination of lever A, yoke *c*, and gear *b*, by a suitable connecting mechanism, with the ratchet-wheel D, operating the barrel-arbor, and with the cannon-pinion F, for turning the hands, substantially as specified.

193,313. PRESSER-BARS FOR PLANING-MACHINES. Emery D. Barrett, Spring Lake, Mich., assignor to himself and William M. Barrett, same place. [Filed Jan. 17, 1877.]

1. A presser-bar for planing-machines, constructed substantially as hereinbefore set forth, with clearing and bearing ribs or teeth.

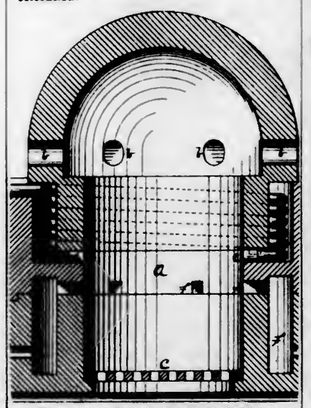
2. The combination, substantially as herein-before set forth, of the presser-bar, its removable teeth, and the cutter.

193,313.



193,314. FINISHING GLASSWARE. G. W. Blair, Pittsburg, Pa. [Filed May 29, 1877.]

Brief.—The "sulphuring" of glass in a furnace for reheating and finishing the article is prevented by injecting steam into the flame of the combustion-chamber, it having the effect to destroy or neutralize the objectionable discoloration.



The process herein described, which consists in the application of steam in a glass-finishing furnace as an agent to clarify the flame, and prevent the discoloration of the glass, substantially as described.

193,315. PRINTERS' LEAD-SHAVING MACHINES. Claus G. Blomgren, Oscar N. Blomgren, and Swen A. Hawkinson, Chicago, Ill. [Filed July 17, 1876.]

Brief.—The blanks are inserted one by one, and carried by feed-rolls along to be acted upon by, first, the cutter A, to true the blank; secondly, the revolving cutters *a*, to cut away face of blank and make the lead of uniform thickness; thirdly, the finishing-cutter T, to shave off the ridges formed by the cutters *a*; and, lastly, the cutters *m m*, by which the edges are shaved and trued.

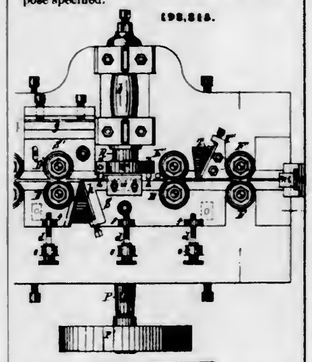
1. The combination, with the head-block S and revolving cutter-head R', of the clamp-plate W, substantially as and for the purpose specified.

2. The combination, with the head-block S, of the spring-pressure guide-block S', substantially as and for the purpose specified.

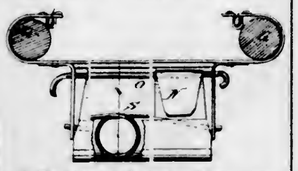
3. The combination, with the revolving cutter-head R', carrying the cutters *a*, of the cutter A and finishing-cutter T, substantially as and for the purpose specified.

4. The combination, with the revolving cutters *a* and stationary cutters A and T, for shaving the sides of the lead, of the edging-cutters *m m*, substantially as and for the purpose specified.

193,316.



193,316. HORSE-YOKES. Jacob Boyer, Rural Valley, Pa. [Filed Feb. 22, 1877.]



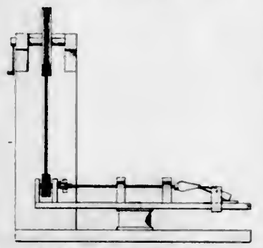
1. The sheet-metal plate or brace A, having perforated lips B and C, in combination with the barbs, substantially as set forth.

2. The sheet-metal guard, having guides N N, in combination with the spring S and wire O, as specified.

3. The nails or studs H of the yoke or bow G, in combination with the spring-clasps I, substantially as and for the purposes set forth.

193,317. MACHINES FOR FLARING GLASSWARE. William Buttlear, Pittsburg, Pa., assignor to Dithridge & Co., same place. [Filed May 29, 1877.]

Brief.—The power mechanism is provided with a clutch-head, for receiving the end of the snap carrying the article to be flared.

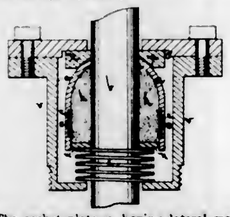


1. In a machine for flaring hollow glassware, the combination of a removable snap, standards for supporting the snap during re-

tation, and power mechanism adapted to be connected to the snap for rotating the same, substantially as specified.

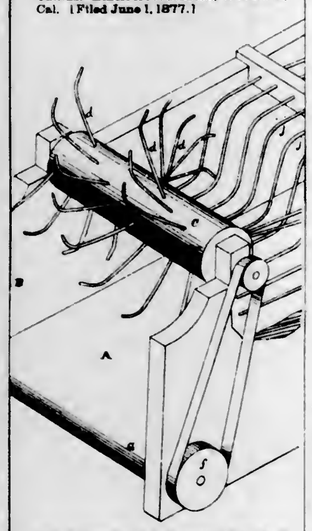
2. In a machine for flaring hollow glass ware, the combination of a removable snap for carrying the article, power mechanism for connecting with and rotating the snap, stand ards for sustaining the snap, and a tool for flaring the chimney, mounted in a sliding carrier, and properly centered with the snap, substantially as described.

193,318. PACKING FOR PISTON-RODS. John Byers, Ravenna, Ohio, assignor of one-half his right to Ira Culver, same place. [Filed Apr. 7, 1877.]

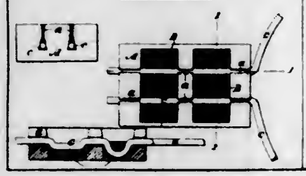


The socket-plate *x*, having lateral movement with the piston-rod *b* in the stuffing-box *r*, in combination with the case *a*, having the orifices *o o o o*, the interior and exterior of one end of which being hemispherical, and the rest of the case cylindrical, the fibrous packing *h*, the circular spring *c*, the plate *s*, and spring *e*, substantially as herein set forth.

193,319. FRAMES FOR THRASHING-MACHINES. Ethelbert J. Clanton, Woodland, Cal. [Filed June 1, 1877.]



The endless belt A and upright sides B, in combination with the roller C, with its teeth *d d* bent as described, and the parallel series of wires *j j*, entered downward under the roller C so as to form a gage and spreader for the grain, the parts being combined and operated substantially as above specified.



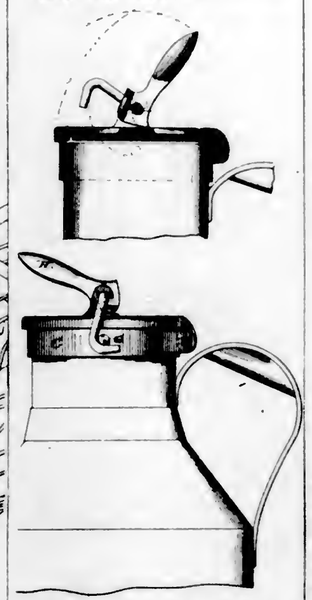
193,320. METALLIC SEALS. Henry Clarke, Baltimore, Md., assignor of one-half of his right to T. Poultney, same place. [Filed Dec. 13, 1876.]

1. The method hereinbefore described of securing the wire in the body of the seal, which consists in indenting the wire, and compressing the soft metal partially around but not over it, so as to leave the wire always open for inspection, as set forth.

2. A hard-metal seal-frame constructed, substantially as hereinbefore set forth, with grooves for the reception of the wire, of greater diameter at the bottom than at the top, whereby, while leaving the wire free to be inserted endwise, and exposing it to inspection throughout the entire length of the frame, its removal laterally is prevented.

3. The metal seal hereinbefore described, consisting of the hard-metal frame provided with threaded slots, the wire bow or shackle, and a soft-metal filling, in which the wire shackle is embedded securely, while leaving it viable throughout its entire length.

193,321. CANS AND CARRIERS FOR MILK. I. S. Coffin, Manchester, N. H., assignor of one-half his right to H. B. Fairbanks, same place. [Filed June 26, 1877.]



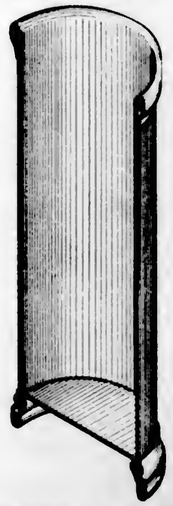
1. The combination, with a milk-can, of a hinged cap, provided with a rock-shaft having hooked ends adapted to engage with lugs attached to the can, and with a cam-lever, adapted to bear upon the top of the can, and secure the cap hermetically thereon, substantially as set forth.

2. The combination of the cap-seat secured to the neck of the can, the cap hinged thereon, and provided with an annular groove on its under side containing packing, and adapted to fit over the cap-seat, and with a cam-lever and rock-shaft, provided with hooked ends adapted to engage upon lugs on the can, substantially as and for the purposes set forth.

193,322. MAKING HOLLOW ARTICLES OF VULCANIZED FIBER. W. Courtenay, New York, N. Y. [Filed May 18, 1877.]

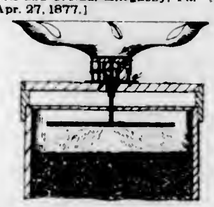
The improved art, hereinbefore set forth, of forming tubular articles from vulcanized fiber, which consists in partially dissolving the edges of the material in chloride of zinc, forming it upon a mandrel, cementing the edges under heat and pressure, wetting, and shrinking upon a mold to impart the desired contour to the tube while drying.

193,323. CANS OR VESSELS FROM VULCANIZED FIBER. W. Courtenay, New York, N. Y. [Filed May 18, 1877.]



A vessel constructed of vulcanized fiber, having flanged or beaded ends of the same material, and a bottom secured therein, substantially in the manner set forth.

193,324. VINEGAR-GENERATORS. L. Eisenbeis and C. Nau, Allegheny, Pa. [Filed Apr. 27, 1877.]

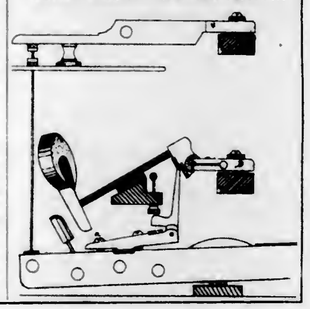


1. In a vinegar-generator feeder, the funnel or receiver and distributer suspended upon bearings, and adapted to receive the wash and distribute it uniformly over the upper part of a generator, substantially as and for the purpose specified.

2. In a vinegar-generator feeder, the funnel or receiver, provided with a T-distributer, vanes, and a journal or bearing, substantially as and for the purpose specified.

3. In a rotary vinegar-generator feeder, the inclosed anti-friction roll bearing, substantially as and for the purpose specified.

193,325. PIANO-FORTE ACTIONS. J. W. Evans, Chicago, Ill. [Filed Feb. 5, 1877.]



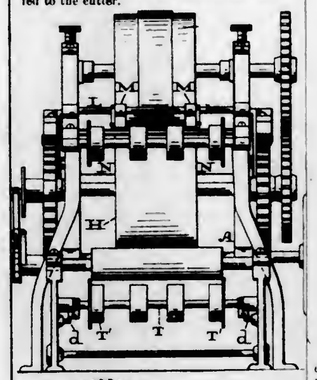
The piano-forte action in which the rigid wooden joints are provided with a compressed spring for compensating the shrinkage of the wood, substantially as specified.

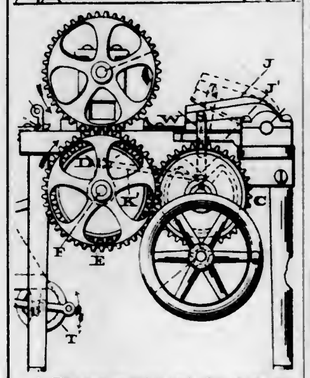
193,326. MEDICINAL COMPOUNDS. J. P. Fixmer and C. A. Janssen, Springfield, Ill.; said Janssen assignor to said Fixmer. [Filed Feb. 9, 1876.]

The medical compound described, consisting of water, alcohol, sugar, bitter-apple, gentian-root, orange-peel, cascarilla-bark, curcuma, anise seed, cassia, rhubarb, and cloves, prepared in about the proportions set forth.

193,327. MACHINES FOR CUTTING PAPER, ENVELOPES, &c. E. J. Frost, Philadelphia, Pa. [Filed Nov. 20, 1876.]

Brief.—Paper is fed off the reel, as described in claim 1, and the slack taken up by a gravitating beam-roll. Continuously-rotating feed-drums convey a proper length of web previously reeled off to the cutter, which latter is constructed of a shape to produce the article required. The upper feed-drum is made in sections, each of which has a portion of its periphery raised, and they may be adjusted with relation to each other, in order to vary the length of the sheet to be severed. Eccentric cams are suspended above the sheet, to prevent backlash or rear movement after being fed to the cutter.





1. The paper-carrying reel of a paper-cutting machine positively rotated to unroll the sheet in advance of the cutting operation, substantially in the manner and by the pawl and ratchet mechanism described.

2. The reel and drums G H, in combination with the automatic take-up mechanism T T' *d*, substantially as shown and described.

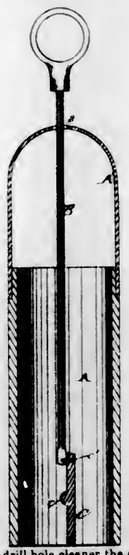
3. The feed-drum G, constructed of sections G' G'' G' each having a portion of its periphery raised, and one of such sections, G'', having a slot, *e*, and the other sections, G', having bolt-holes, through which and the slot *e* a bolt is passed to unite the three sections and cause them to act as one, the said slotted section permitting of the relative adjustments of the raised portions of the peripheries of said sections, substantially as and for the purpose specified.

4. The reel and feed-drum, in combination with the cams M, substantially as and for the purpose set forth.

5. The cutter J, in combination with arms K, cam-grooved gear C, and table J', substantially as shown and described.

6. The stripper-plate W, under which the paper is fed to the cutter, in combination with said cutter, table J', and feed mechanism, substantially as described.

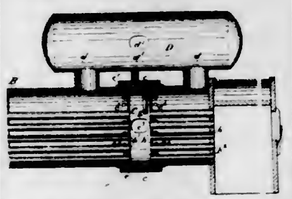
193,328. ROCK-DRILL-HOLE CLEANERS. G. F. Gass, Allegheny, Pa. [Filed May 16, 1877.]



In a rock drill hole cleaner the combination of the can A, pivoted valve C, staple *c'*, and rod B, constructed and arranged substantially as shown and described.

193,329. STEAM-BOILERS. J. Gates, Portland, Oreg. [Filed Apr. 13, 1877.]

Brief.—An auxiliary combustion-chamber is formed between two sections of a boiler. Water communication is established by an annular outside chamber through perforations in the shell of each section. Said annular chamber also communicates with the steam-dome.



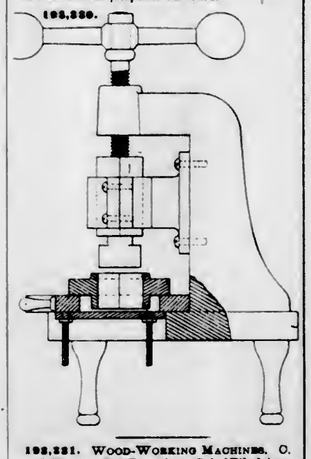
1. In combination with the sectional boiler and chamber c^1, the drum D, and connecting pipe d^1, as described.

2. In combination with the sections of the boiler B, having the heads *b* and b^1 and openings c^2 c^3, with the annular plate *c*, as described.

193,330. PROCESSES AND APPARATUS FOR PUTTING UP CAUSTIC ALKALI. H. B. Hall and E. Hine, New York, N. Y. [Filed June 12, 1876.]

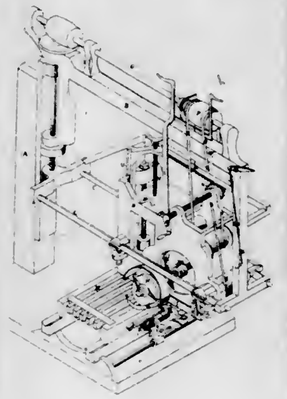
1. The hereinbefore-described process of putting up caustic alkali, which consists in compressing the same, in a dry granular condition, into air-tight packages, substantially as specified, whereby the alkali will be practically free from water, and will retain its original strength, as set forth.

2. In a machine for compressing caustic alkali into cans, the combination of the stationary and movable plates N, and movable table R and table L, with a suitable frame-work, A, for supporting the screw F, block I, and plunger G, constructed and operating substantially as and for the purposes set forth.



193,331. WOOD-WORKING MACHINES. C. J. Hardee, San Francisco, Cal. [Filed Apr. 9, 1877.]

Brief.—The horizontal and vertical cutter-heads are each adjustable. The work-table has a micrometer adjustment by means of screw and clamp.



1. The swinging frame B, provided with the tracks C C and rack-bar A, in combination with the carriage D with its cutter-heads s W, operated as described, and the transverse shaft *f*, with its crank *g* and pinion E, substantially as and for the purpose described.

2. In combination with the carriage D, arranged to be operated as described, the drop-frame I, hinged at one end to the carriage and having its opposite end arranged to be raised and lowered by means of the screw rod *l*, and having the horizontal shaft K with its cutter-head s mounted in the adjustable end of said frame, substantially as and for the purpose described.

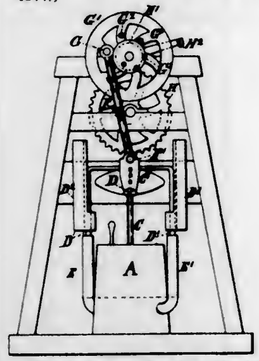
3. The swinging frame B, with its tracks C C, and having the pulley P mounted upon a feather on the driving-shaft *o*, in combina-

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tion with the carriage D, with its spindle-shaft K and adjustable spindle-shaft T, said carriage being connected with the driving-pulley P by means of rods *i i*, substantially as and for the purpose described.

4. The sliding table-top H, with its rack J, and operated by means of the shaft M and pinion N, in combination with the horizontal screw *p*, and clamp R, substantially as and for the purpose described.

198,333. RECIPROCATING CHURNS. J. Harris, Buena Vista, N. Y. [Filed June 25, 1877.]

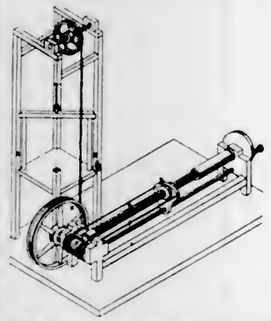


1. The churn A, rod C, and cross-head C', provided with the bent rod D^1 D^1, and connected with the braces D^2 D^2, as specified, in combination with the connecting-rod F, pin G, and crank-wheel G^1, provided with the holes G^2, arranged substantially as and for the purposes described.

2. The pumps E and E', connected to the churn at, or nearly at, a tangent to the circumference of the same, as and for the purposes specified, in combination with the bent cross-head rod D^1 D^1, as described.

198,335. HOISTING APPARATUS. W. Hawkins, San Francisco, Cal. [Filed June 18, 1877.]

Brief.—Cage and guides of ordinary construction.



The device herein described for operating elevators and hoisting apparatus, consisting of the rotating screw-shaft G, with its traveling nut H, in combination with the operating-ropes and the speed-increasing drums and pulleys E F, or equivalent devices, substantially as herein described.

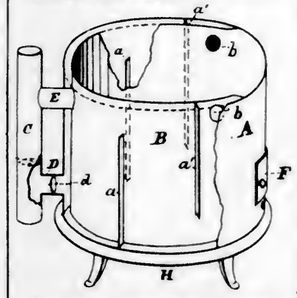
198,334. SHOW-CASES. J. Hay, Newark, N. J. [Filed June 20, 1877.]



The clasp A, having the knob B attached thereto by the screw S, and having the right-angle strips C and D, for attaching it to the drawer, substantially as and for the purpose specified.

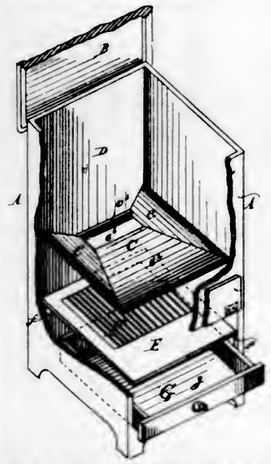
198,335. COMBINED DRUM AND STOVE. L. B. Houchens, Falls Church, Va. [Filed Jan. 12, 1877.]

Brief.—When used as a drum, the dampers are so manipulated that the products of combustion will pass between the casings to the perforations in the inner one, through which they pass into the fire-chamber, and out through the flue above the dampers.



A combined drum and stove, consisting of the casings A B, pipes C D E, door F, top G, bottom H, partitions *a a* and *a' a'*, and dampers *c d*, the casing B being provided with openings *b*, one or more, all constructed substantially as shown and described.

198,336. COAL-BOXES. C. Hymers, St. Louis, Mo. [Filed Feb. 5, 1877.]



1. The feed hopper C, consisting of the side pieces *c c'*, having grooves c^2, the bottom piece c^3, the supports c^4, having mortises c^5, in combination with a cabinet, A, as and for the purposes set forth.

2. The grate-bottom F, the supports *f*, in combination with the feed-hopper C, and cabinet A, having the drawer G, as and for the purposes set forth.

3. The feed-hopper C, consisting of the side pieces *c c'*, having inclined grooves c^2, the bottom pieces c^3, the supports c^4, having mortises c^5, the grate bottom F, the drawer G, having removable bottom *g*, all said parts in combination with a cabinet, A, as and for the purposes set forth.

198,337. CLASPS OR FABRIC-HOLDERS. G. H. Leonard, East Hampton, Mass. [Filed July 3, 1877.]

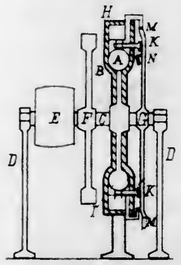
1. In a clasp or fabric holder, the combination, with a triangular metal piece, of a fabric end folded about the triangular portion, with its attached extremity toward the apex of the triangle, and means, substantially as described, for preventing the fabric from unfolding.

2. In combination with the fabric B, the piece A, having the face portion *a*, wings *a'*, loop a^2, and triangular portion a^3, as described.

198,337.

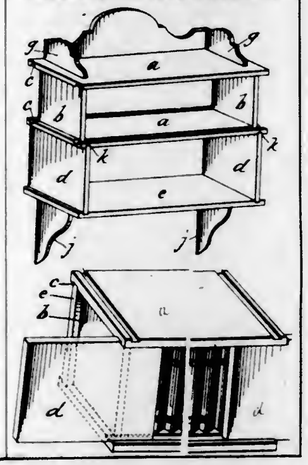


198,338. ROTARY ENGINES. G. Lilly, York, Wis. [Filed Nov. 27, 1876.]



The combination, with a cylinder having an annular space near its periphery, revolving piston A, steam-chest H, sliding abutment I, and laterally-sliding valve K, of the wheel G, provided with cam-projection M and cam-lug N, adapted to operate the abutment and valve directly, as shown, and adjustable block O for closing the valve or cutting off the steam at any desired portion of the distance between the steam-chests, the several parts constructed and arranged to operate in the manner herein shown and described.

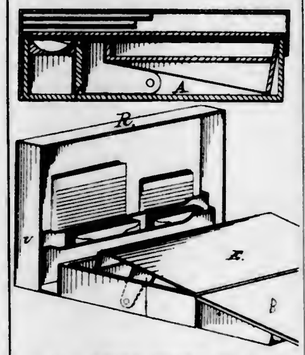
198,339. BOX AND BOOK-SHELF. D. Lothrop, Boston, Mass. [Filed Mar. 8, 1877.]



1. The convertible box and book-rack described, having one of its sides separately removable, to form a shelf, and its opposite side composed of two pieces, *d d*, of equal length, also removable, to form uprights, these parts being adapted, in conjunction with the remainder of the box, to afford a set of book-shelves, all substantially as shown and described.

2. The convertible box and book-rack described, consisting of the sides *a a*, one or both having slots or channels *k k*, the ends *b b*, and the removable divided front *d*, the whole constructed and combined as and for the purpose set forth.

198,340. PAPETERIES AND WRITING-CASES. D. Lothrop, Boston, Mass. [Filed Mar. 27, 1877.]

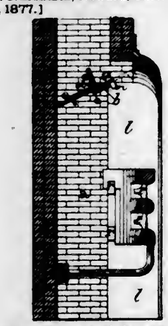


1. In a combined papeterie and writing-desk, the combination, with the lid B, hinged at the front edge of the box, of the inner lid E, hinged also at the same edge or side, and provided with a flap adapted to support it at an incline, the two lids thus affording a continuous inclined bed or desk.

2. In combination with the lid E, and its flap, and with means for steadying the latter when such lid is raised, supports *o o*, adapted to be swung up and re-enforce such lid, or to be swung down into the box, substantially as and for the purposes set forth.

3. In combination with the lid B, a drawer or tray having inclined ends, and adapted to be withdrawn from the box, and to lie beneath and support or re-enforce the lid in its inclined position.

198,341. FIRE-PLACES. O. F. Mehurin and O. C. Mehurin, Newark, Ohio. [Filed Apr. 9, 1877.]

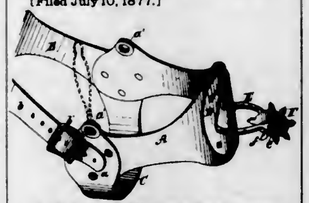


1. The combination of the plate *b* with the jambs *l*, fastened in the sides of the fire-place and the grate-front, substantially as shown.

2. The combination of the plate *b*, damper *g* provided with the extension *e* and a stop, *i*, and with a guide, *d*, to keep the damper straight, substantially as described.

3. The combination of the plate *b*, flange *c*, opening *d*, damper *e g*, stop *i*, grooves in the plate *b*, and flange *o*, to catch therein, all arranged substantially as set forth.

198,342. SPURS. A. Mills, U. S. Army. [Filed July 10, 1877.]



1. In a spur-holding device, the combination of the flexible band A, adapted to fit closely around the heel of a boot, with the rowel-plate D and rowel F, all substantially as shown and described.

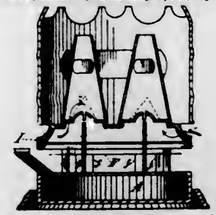
2. The curved rowel-plate D, provided with the light yoke or frame E, and the rowel F, journaled and rotating freely therein, adapted for attachment to a leather heel-band, substantially as and for the purpose specified.

3. In combination with spur-attaching straps, the metallic spring-loop G, adapted, by means of buttons and eyelets, to hold the pantaloons in place, all substantially as set forth.

4. The two-part ring-shield H H', having clasp-pins *h h'*, in combination with the rowel, and serving as a detachable shield or protector thereto, substantially as specified.

5. An improved spur-holding device, consisting of the flexible heel-band A, straps B and C, curved rowel-plate D, provided with frame or yoke E, rowel F, metallic spring-loop G, with or without the two-part ring or shield H H', all substantially as shown and described.

198,343. KEROSENE-STOVES. F. Morandi, Boston, Mass. [Filed May 7, 1877.]

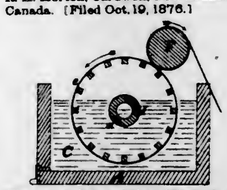


1. The deflector or shield F, slotted laterally from one edge, interposed between the reservoir and flame by a horizontal sliding movement, substantially as set forth.

2. The combination of a supporting-base, an oil-reservoir, and a removable heat-deflector, with an outer case rigidly secured to a cone-plate, and hinged with the cone-plate and chimneys to a rack or base, substantially as set forth.

3. The hinged cone-plate I, having shoulders G surrounding the cones for the reception of the chimneys, and perforated between the chimneys and cones, substantially as and for the purposes set forth.

198,344. SAVE-ALLS FOR PAPER-MAKERS. R. A. Morton, Cardwell, New Brunswick, Canada. [Filed Oct. 19, 1876.]



The "save-all" consisting of the tank, sieve-covered drum, hollow perforated shaft, and the couch-roller and scraper, substantially as described.

198,345. PERCUSSION-FUSES FOR SHELLS. E. H. Plumacher, Nashville, Tenn. [Filed June 11, 1877.]

Brief.—The fuse-case contains a forward plunger, held by springs, but released and thrown back, so as to present a pointed anvil beyond the division-ring, by the concussion when the projectile is fired. The capped plunger is thrown back to its seat by the same concussion, and thrown forward to strike against the anvil when the projectile is stopped by an obstruction.

1. The needle-discharging plunger B, in combination with spring-guard *k* and a recessed fuse-case, substantially as shown and described.

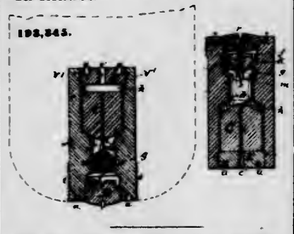
2. A cylindrical percussion-plunger, truncated at the top, provided with a fire-channel, *e*, and charged with a fulminating-powder or pill, in combination with a fuse-case having a projecting or pointed discharging-anvil, substantially as shown and described.

3. A fuse-case or tube with three chambers of different sizes and forms, provided with a screw-cap and screw-bottom, in combination with the needle-plunger, with spring-guards, and the percussion-plunger, substantially as described and set forth.

4. The needle-pointed discharging-plunger B, with spring-guards, in combination with percussion-plunger C, substantially as and for the purpose described.

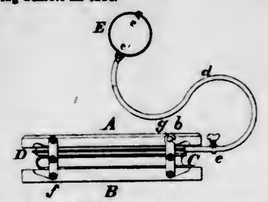
5. Cone-crowned percussion-plunger C, with fire-channel *s*, charged with a pill or a fulminating-powder, in combination with needle-discharging plunger B, having spring-guards *k*, and the cylindrical fuse-case, divided into three chambers by interior projecting shoulders, and provided with a cap-screw and bottom screw, the latter having a fire-escape channel, *e'*, substantially as and in the manner described.

198,345.



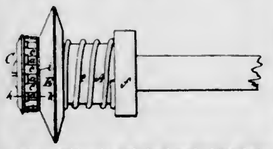
198,346. COPYING-PRESSES. J. A. Powlett, San Francisco, Cal., assignor to J. P. Hopkins, same place. [Filed Apr. 30, 1877.]

Brief.—Between two plates which are linked together are placed an inflation-bag and the copy-book, the bag being filled with air by means of a compression air-bulb and a connecting flexible air-tube.



The plates A B, secured together with extension-hinges *f f'*, and provided with extension-hooks *b b'* and buttons *g g'*, in combination with an inflation-bag, D, provided with an exhaust-cock, *c*, flexible tube *d*, and compression-bulb E, provided with valves *e e'*, substantially as and for the purpose hereinbefore set forth.

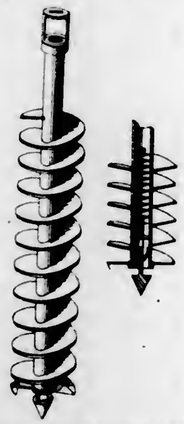
198,347. MACHINERY FOR POLISHING AND SETTING THE SOLE-EDGES OF BOOTS AND SHOES. G. F. Read, New England Village, Mass. [Filed Apr. 6, 1877.]



The combination of the interlocking hubs or sleeves C E, the one movable to and from the other, as described, when the same are

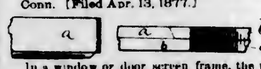
provided with the bead *h* and grooves *i k*, arranged substantially as and for the purposes set forth.

193,348. WELL-BORING APPARATUS. C. H. Robinson, Memphis, Tenn. [Filed June 1, 1877.]



The concave screw-flange of the auger, as hereinbefore described.

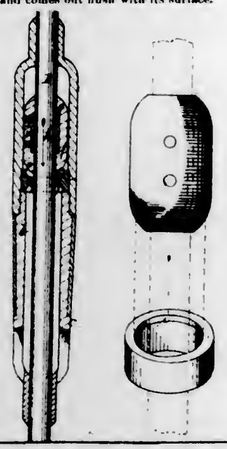
193,349. WINDOW-SCREENS. G. Saxton, Woodbury, and F. H. Saxton, Bristol, Conn. [Filed Apr. 13, 1877.]



In a window or door screen frame, the peculiar construction and arrangement of the rails of the frame, made in short halves *a*, beveled at the ends, and long halves *b*, beveled at the edges near the ends, and put together, substantially as described, and for the purpose specified.

193,350. DEEP-WELL CHECK-VALVES. W. J. Sherriff, Pittsburg, Pa. [Filed May 26, 1877.]

Brief.—The check-valve slides upon the piston-rod within the piston, which has elongated openings through the range of movement of the valve. This valve is cylindrical, but spheroidal at each end, where its seat is of like form. The seat is formed on an annulus, which may be reversed to present a new seat when that first used has been worn away. A soft-metal packing is poured into grooves around the piston, and comes out flush with its surface.



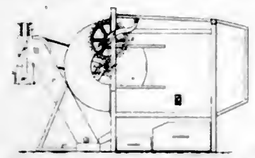
1. In a check-valve for deep wells, the combination of the beveled or rounded valve having the rod-opening and its seat, substantially as and for the purpose specified.

2. In a check-valve for deep wells, the combination of the beveled or rounded valve having the rod-opening and its reversible seat, substantially as and for the purpose specified.

3. In a check-valve for deep wells, the cylindrical, doubled, beveled, or rounded reversible valve having the rod-opening and its seat, substantially as and for the purpose specified.

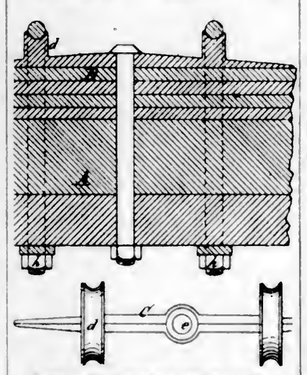
4. The check-valve provided with the interior soft-metal or alloy packing, substantially as and for the purpose specified.

193,351. BAG HOLDERS AND FILLERS. J. G. Shurtz, Chicago, Ill., assignor of two-thirds his right to P. C. Huffman and J. P. Dickey, same place. [Filed June 22, 1877.]



The combination, with the throat R of the elevator P, of the adjustable frame R′, sliding in vertical guides upon said throat, pressure-spring T, supported upon the top of said throat, and band *n*′, substantially as and for the purpose specified.

193,352. CLIP-PLATES FOR BUGGY-SPRINGS. E. M. Simmons, Grand Rapids, Mich., assignor of one-half his right to H. D. Blakeslee, Buffalo, N. Y. [Filed June 22, 1877.]



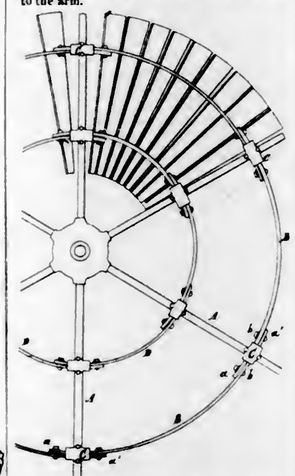
A clip-plate for buggies, provided with convex or arch-shaped bearings *d*, adapting the clip-plate to be used with clips having a semi-circular or oval bend, substantially as and for the purpose hereinbefore set forth.

193,353. PEGGING-JACKS. Chas. M. Sparhawk, Binghamton, N. Y. [Filed Dec. 4, 1876.]

The combination of the base-plate A, standard B, collar *a*, lever C, detent-pin *d*, spring-handle *e*, lever-plate D, last-frame, consisting of plate E, pivoted to plate D, ratchet *i*, and pawl *j*, all constructed substantially as herein shown and described, for the purpose set forth.

193,354. WINDMILLS. D. C. Stover, Freeport, Ill. [Filed Apr. 14, 1877.]

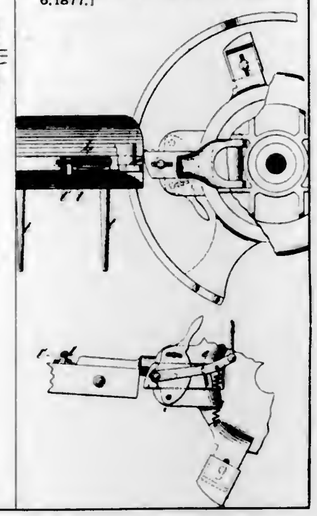
Brief.—The ends of the several pieces which form the rim are lapped and bolted together, and a metal cap is also added, which is bolted to the arm.



1. In a windmill, the rim B, formed of pieces having overlapping ends *a a*′, secured together by means of bolts *b*, in combination with the arms A, substantially as and for the purposes specified.

2. The arms A and rim B, formed of pieces having overlapping ends, in combination with the cap C, substantially as and for the purposes described.

193,355. HARVESTERS. G. Sweet, Dansville, and L. Sweet, Wellsville, N. Y. [Filed June 6, 1877.]



1. A beater-arm connected to a rake-head by two supporting locking-pivots, one at the inner and the other at the outer end of the rake-head, whereby the said rake-head is firmly supported, while at the same time it is permitted to roll in its bearings, when combined with apparatus, substantially as described, whereby the said rake-head is automatically rolled in its bearings and caused to traverse the platform with its teeth in a horizontal position.

2. The combination of a rolling rake-head supported and locked at its inner and outer end with two trips, one at the front end and the other at the rear end of the platform, the front trip being occasionally operative, while the back trip is permanently operative, substantially as described.

3. The combination of a rolling rake-head with a tripping device and a spring, the friction of which spring, together with the movement of the rake-head, serves to roll the head in its supporting-bearings, substantially as described.

4. The combination of a rolling rake-head with the supporting-pivot *p*, the jaws *l l*′ and the springs, substantially as described.

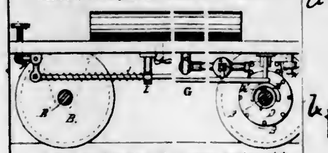
5. The combination, with a rolling rake-head, of a spring, having bevels or angles, and a tripping device, for the purpose of rolling the rake-head, substantially as and for the purposes described.

6. A movable tripping device, which consists of a sliding tripping-piece, actuated and held in position by means of a pin moving in a transverse slot, substantially as described.

7. A rolling rake-head movable longitudinally, when combined with a longitudinally-acting spring bearing against said rake-head, substantially as described.

8. The combination of a rake-head supported and locked at the inner and outer ends with a permanent back trip, which trip serves to roll the rake-head in its bearings at the instant of the delivery of the gavel to the ground, substantially as described.

193,356. CAR STARTERS AND MOTORS. C. H. Thompson, New York, N. Y., assignor of one-half his right to T. O'Neill and Ira Jenree, same place. [Filed Jan. 20, 1877.]



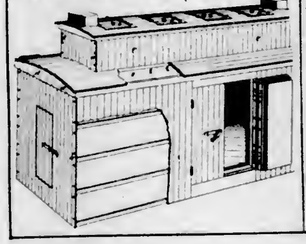
1. The combination of a rotary engine with the axle of a car, the engine being secured directly thereto, in the manner specified, so that it may be engaged or disengaged at will, as shown, and for the purpose set forth.

2. The combination of axle B′, rotary engine D, clutch A, key *h*′, and operating-yoke H, substantially as arranged and described.

3. The combination of foot-lever F, bell-crank lever *f*, rod G, spring J, valve-connection K, slot I, yoke H, clutch A, fixed key *h*′, axle B′, and rotary engine D, substantially as described, and for the purpose set forth.

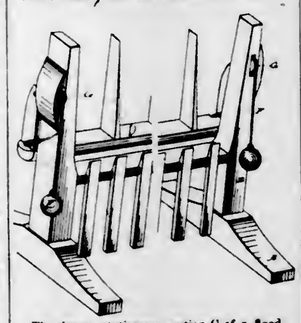
193,357. REFRIGERATOR-CARS. J. Tiffany, Chicago, Ill. [Filed Jan. 22, 1877.]

Brief.—An ordinary car has an external jacket, between which and the car proper is a space opening to the external air at each end of the car. These openings may be closed by means of plugs, for the purpose of converting the air-passages into dead-air spaces at will.



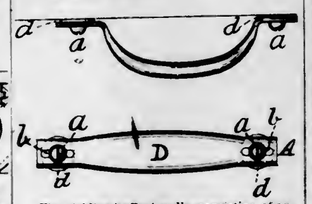
A refrigerator-car having its sides and top provided with an external jacket, forming horizontal air-passages extending the entire length of the car, said passages having openings at each end, provided with stoppers for converting the passages into dead-air chambers, in combination with dead-air or packed chambers constructed within and surrounding the body of the car, substantially as described.

193,358. FLOOD GATE AND FENCE. A. Watson, Altona, Mo. [Filed June 16, 1877.]



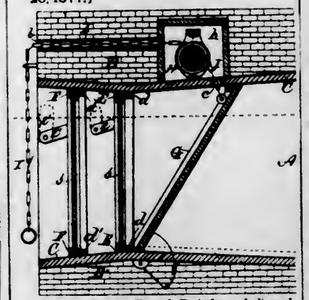
The lower stationary section C of a flood gate or fence, in combination with the upper pivoted section D, provided with the vertical stakes *a*, weights and cords F F, working on pulleys G, and the support H, all constructed to operate substantially as and for the purpose set forth.

193,359. BUFFER-HANDLES FOR FURNITURE. J. A. Whitaker, Hamilton, Ohio, assignor to himself, David Gray, and A. A. Brown. [Filed Mar. 22, 1877.]



The yielding buffer-handle, consisting of an elastic metallic support, A, covered with suitable material, and having slots *b b* at each end, adapted to engage with the pins *a*, which are passed through the soft-metal seats *d*, as and for the purpose set forth.

193,360. BAKERS' OVENS. A. Wilson and A. O. Ahlenius, Galesburg, Ill. [Filed Jan. 20, 1877.]



1. The frames E and F, ledges *d d*′, and buttons *a a*′, arranged to operate with the opening A in the wall of a baker's oven, substantially as and for the purpose specified.

2. The hinged partition G, seated in the opening A, as described, and arranged to operate with the transparent media in the frames E and F, and with an operating chain, I, substantially as described, and for the purpose specified.

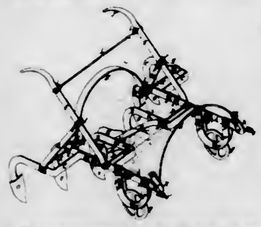
193,361. BALE-TIES. R. Wilson, Allegheny, Pa., assignor to himself and J. H. Lindsay, same place. [Filed Dec. 12, 1876.]



1. The slotted buckle having the fulcrum and pivot bars, and a locking-lug projecting in a direction opposite to the line of strain, the bar of the locking-lug being beveled in the line of strain, substantially as and for the purpose specified.

2. In combination with a slotted bale-band, the slotted buckle having the locking-lug *e* and the bar *e*, beveled as herein specified, and for the purpose set forth.

193,362. CULTIVATOR-PLOWS. W. H. Bennett and H. R. Height, Lebanon, Tenn. [Filed May 14, 1877.]



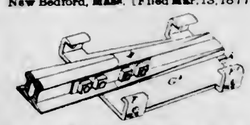
1. The combination of the middle plow-beam A, the outer beam C, the baudle-braces G H, the eyebolts I of the swelled arch K, and the bolts E, substantially as set forth.

2. The combination of the middle beam A, the inner beam B, the fender N, the handle-beam F, and the bolt D, whereby the said parts are fastened together, substantially as set forth.

3. The combination of the middle beams A, inner beams B, handle-beams F, and bolts H passed through all of the said parts, and extended beyond the inner beam, whereby a simple fastening is secured, and either the fender N or beam T can be used at pleasure, substantially as and for the purpose described.

4. The beams A, having hooks B, in combination with the arched double-tree S, having flat bearing *s*, and outer hooks *s*′, substantially as set forth.

193,363. RAILWAY-FROGS. E. H. Bryant, New Bedford, Mass. [Filed Mar. 13, 1877.]



In a railroad-frog, the rail-point E, with lip A, operating in combination with the wing-rails A′ A′, distance-pieces H′ H′, bed-plate G′, with clamps F F′, filling blocks B B B B, and set-screws *c c*, *c c*, substantially as and for the purpose specified.

193,364. MACHINES FOR LINING PAPER. C. L. Orum, Winchester, Va. [Filed Apr. 5, 1877.]

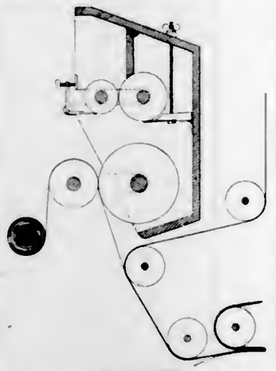
1. The reservoir of a pasting-machine, provided with two paste-grinding rolls, which are located within the reservoir in such manner as to divide it into substantially two compartments for containing the ground and unground paste, as herein shown and described.

2. The combination, with a reservoir, of a pasting-machine having two compartments formed by the two paste-grinding rolls, as specified, of a pasting-roll, the same being located within one of said compartments for taking up the ground paste, substantially as and for the purpose specified.

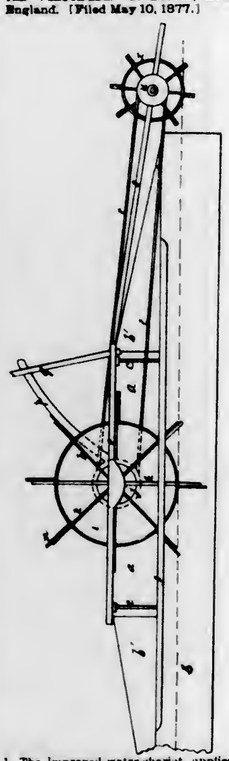
3. The reservoir of a pasting-machine, having two compartments formed by the two paste-grinding rolls, as specified, in combination with one or more scrapers for taking off the paste from said rolls, substantially as and

for the purpose described.

4. The combination, with a reservoir of a pasting-machine, of a pasting-roll, a pressing-roll in direct contact therewith, a guide-roll, over and upon which the two sheets are brought in contact, located as specified, and a drying-cylinder, substantially as and for the purpose set forth.



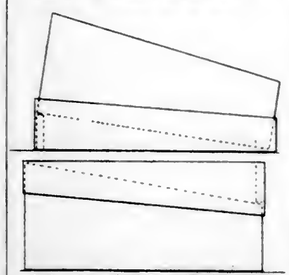
193,365. COMBINED LIFE-BUOY AND WATER-VELOCIPEDE. G. Drevar, London, England. [Filed May 10, 1877.]



1. The improved water-chariot, applicable, also, as a combined life-buoy and life-boat, constructed of a case or box, *a*, side pieces *b*, forming pointed ends, (boarded or covered in,) transoms *d*, longitudinal bars *e*, and outriggers *f*, in combination with the side and end paddle-wheels operated by the cranks, hand-levers, pulleys, and bands, the whole constructed and arranged substantially as and for the purposes hereinbefore described, and represented in the drawing.

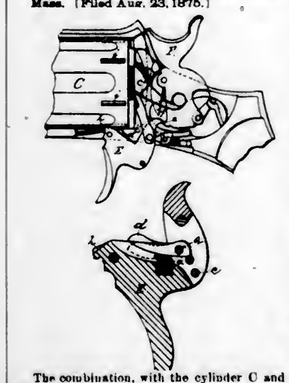
2. The frames *e* at either or both ends of the chariot, and carrying each the end wheels *x*, and hinged to the box or case, substantially as shown and described, in combination with the side wheels, both sets of wheels, at side and end, deriving their rotary movements from the same mechanism, all as set forth.

193,366. SHOW-BOXES. B. Dreyfus, New York, N. Y. [Filed June 15, 1877.]



A show-box, whose top portion is gradually inclined from front to rear, in combination with a cover similarly inclined, and provided with two stops or cleats arranged in its forward or front ends to support the box in an inclined position, when used as a support for the box, and rendering the whole structure rectangular in shape when used as a cover proper, substantially as shown and described in the papers of my said application, and the drawings that accompanied the same.

193,367. REVOLVING FIRE-ARMS. S. Forehand and H. C. Wadsworth, Worcester, Mass. [Filed Aug. 23, 1876.]



The combination, with the cylinder C and hammer F, of trigger E, provided with locking projection *h*, trigger-point *s*, locking-bolt *d*, spring *n*, safety-catch *b*, and fly *f*, constructed and relatively arranged for operation substantially as and for the purposes shown and described.

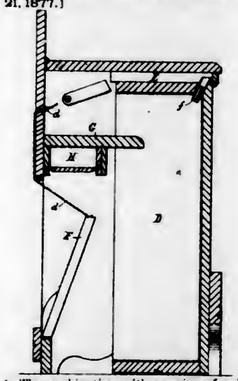
193,368. SYRINGES. C. B. Griswold, Brooklyn, N. Y. [Filed Aug. 29, 1876.]

Brief.—An outer wire frame is arranged upon notched disks placed around the eduction-tube.



For vaginal syringes the device C, constructed with the ribs *c*, converged at one extremity to provide a rounded end and fixed upon the annular braces D, recessed to permit the outflow of liquid along the syringe, all substantially as and for the purpose set forth.

193,369. WASH-STANDS. C. C. Hall, Boston, Mass., assignor of one-half his right to Edward C. Bates, same place. [Filed May 21, 1877.]



1. The combination, with a casing of suitable height to adapt its top to be used for the ordinary purposes of a toilet wash-stand when closed, and provided with a hinged or removable cover, of a water-tight tank or tub adapted to be extended beyond the limits of the casing for use as a bath-tub, and to be retracted within the casing when not in use, substantially as described.

2. In combination with a casing provided with a hinged or removable cover or lid, and made of suitable height to adapt its top to be used for the ordinary purposes of a toilet wash-stand or commode when closed, the pivoted tank D, adapted to be folded into the casing or extended beyond the same, and the seat G, all arranged and adapted to operate substantially as and for the purposes described.

3. The combination, with a commode or wash-stand casing, of the pivoted tank D and the brace or pawl F, adapted to engage with the rear end of the tank D and lock it in position for use, substantially as described.

4. The combination, with a commode or wash-stand casing, of the pivoted tank D, brace F, and cord *d*, all arranged and adapted to operate substantially as and for the purposes described.

5. The combination, with a commode or wash-stand casing provided with a hinged lid or cover, of the pivoted tank D, the seat G, and one or more drawers, H, located beneath said seat and in the rear of said tank, all arranged and adapted to operate substantially as and for the purposes described.

193,370. BARBED FENCES. Geo. G. Hunt, Bristol, Ill. [Filed June 21, 1877.]

Brief.—The barb is placed upon the hook in such a manner as to effectually prevent the hook from spreading when under strain.



The barb E, in combination with short sections of wire A, provided with a hook, B, at one end, and an eye or loop, C, at the other end, when such barb is used substantially in the manner and for the purposes hereinbefore specified.

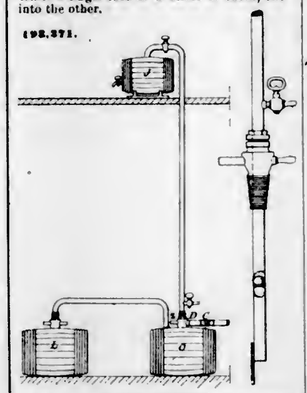
193,371. PUMPING APPARATUS FOR RAISING WINE, BEER, &c. C. Laburthe, Paris, France. [Filed Jan. 9, 1877.]

Brief.—This apparatus can be used for transmitting liquids without contact with air. Can also be used for forcing carbonic or other gas into liquids.

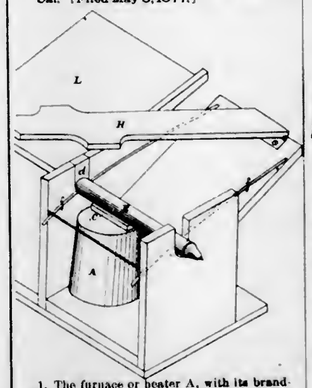
1. The combination of the bung D, plunger-tube F, retaining-valve E, and ascension-tube F', furnished with the stop-cocks I and H, as shown and described.

2. In combination with tube B, adapted to be connected to an air-pump for exhausting air from an emptied cask, a retaining-valve, C, with one or several bungs, D, serving to empty, by means of the pressure of air or other gas, either a single cask or a series of casks, one into the other.

193,372.



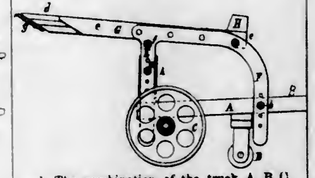
193,373. BRANDING-STAMPS FOR MARKING CANDLES. I. Lavenson, San Francisco, Cal. [Filed May 8, 1877.]



1. The furnace or heater A, with its branding-iron C, in combination with the cylinder E, with its slot *g*, said cylinder being supported upon springs *f f* above the branding-iron, and operated by the lever H, substantially as and for the purpose described.

2. In combination with the heater A and branding-iron C and cylinder E, the inclined table I, with its end-board or stop arranged so that the lowermost candle can be pushed directly into the cylinder E, substantially as and for the purpose described.

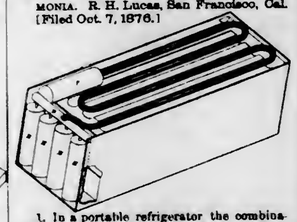
193,374. COMBINED TRUCK AND SKID. T. Loring, Brookline, Mass. [Filed May 31, 1877.]



1. The combination of the truck A B C, raised platform or skids G, having the stops H, and projections or hold-fasts *g*, substantially as and for the purpose hereinbefore set forth.

2. The combination of the truck A B C, skids G, having the stops H and hold-fasts *g*, and being adjustable by means of the supports E and F as to height and inclination, and as to length by having one part, *d*, thereof slide on or within the other, *e*, substantially as hereinbefore described.

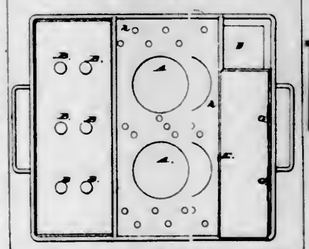
193,375. REFRIGERATING BY MEANS OF AMMONIA. R. H. Lucas, San Francisco, Cal. [Filed Oct. 7, 1876.]



1. In a portable refrigerator the combination of the detachable closed vessel C, in which is stored anhydrous ammonia in a liquid form, with the detachable water-tanks E, and pipes B and D, substantially as and for the purpose set forth.

2. The connected series of tubes B B B, having the detachable closed vessel C, in which is stored anhydrous ammonia, in a liquid form, attached to one end, in combination with one or more detachable water-tanks, E, connected with its opposite end, substantially as and for the purpose described.

193,376. TRAYS FOR LAMPS. D. G. Mark, Evansville, Ind. [Filed Feb. 5, 1877.]



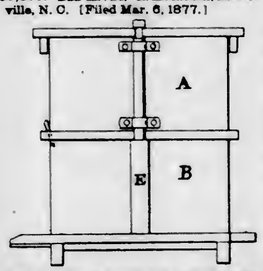
1. The lamp-rack with the main receptacle H and the false floor, with the holes A and *h*, as and for the purposes described.

2. The lamp-rack with the main receptacle H, the false floor with the holes A and *h*, and the upright posts B, inserted in a false bottom resting on the main bottom of the tray, as and for the purposes described.

3. The lamp-rack with the main receptacle H, the false floor with the holes A and *h*, the upright posts B, and the till C, as and for the purposes described.

4. The lamp-rack with the main receptacle H, the false floor with the holes A and *h*, the upright posts B, the till C, and the receptacle D, as and for the purposes specified.

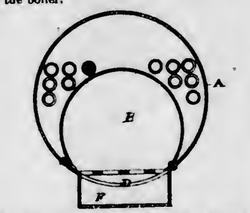
193,377. BEE-HIVES. R. McInturff, Burnsville, N. C. [Filed Mar. 6, 1877.]



In a bee-hive, the section A, hinged to and swinging upon the upright E, rigidly attached to the section B, substantially as and for the purpose set forth.

193,378. PORTABLE STEAM-BOILERS. W. R. Michener, San Francisco, Cal. [Filed June 8, 1877.]

Brief.—The boiler is cut away at the front to allow for the ash-pit. The space thus formed is stiffened by the axle being rigidly fixed to the boiler. The water-space of the boiler is entirely above the grate, the outer cylindrical shell forming the bottom of the flue and a stay for the boiler.



1. A portable boiler having the flue B made in the form of a segment of a circle, the edges of said segment being riveted to the lower part of the main circular shell A at C, so that the segment D of the shell shall extend around and serve as a stay and bottom for both tube and boiler, substantially as herein described.

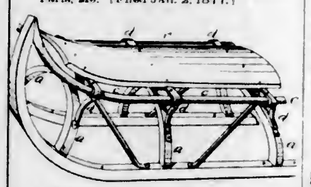
2. In combination with the segmental tube B, riveted to the shell A, as shown, and having the part D cut away to receive the ash-pan F, the shaft or axle G, secured across this open space and serving as a stay, substantially as herein described.

193,379. AUTOMATIC FANS. John Miller, Pittsburg, Pa. [Filed Oct. 2, 1876.]



In an automatic fan and fly-brush, the combination of the arms A, shaft *d''*, brace *f*, center-bit *f'*, set-screw *f''*, with a clock-work motor, substantially as described and shown.

193,380. BOYS' SLEDS. Henry F. Morton, Paris, Me. [Filed Jan. 2, 1877.]



1. The brace *d*, provided with the bifurcated portion *d'*, substantially as and for the purpose herein specified.

2. The combination of the frame *a*, brace *d d'*, side rail *c*, and cross piece *b*, all substantially as and for the purpose hereinbefore set forth.

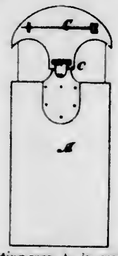
193,381. BOTTLES FOR LIQUID BLACKING. S. S. Newton, Binghamton, N. Y. [Filed Dec. 1, 1876.]

Brief.—The invention will be readily understood from the claims and drawing.



In a blacking-bottle stopper, the combination of a sponge support, a passage through which liquid may flow from the bottle to the sponge, and a valve or gate attached to and operated by the sponge-support, to regulate the flow of the liquid to the sponge or other device for applying the liquid, substantially as set forth.

193,382. TICKET-HOLDERS. E. D. Pinney and A. L. Hodge, Aurora, Ill. [Filed Aug. 12, 1876.]



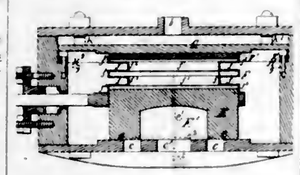
The holding case A, in combination with the pin-piece C and hinge *e*, connecting the two former together, all constructed and operating substantially as and for the purpose set forth.

193,383. BALANCED VALVES FOR STEAM-ENGINES. T. Poore, Scranton, Pa. [Filed June 26, 1877.]

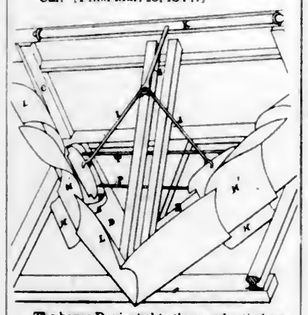
1. In a steam-chest, the combination of a slide-valve, E, adjustable back plate G, stop H, and adjusting washers *g*, and a yielding hood, F F', substantially as set forth.

2. The combination of the hood F F', channel e^1, groove e^2, and port e^3, whereby constant communication between the air inside the hood F F' and the outer atmosphere is maintained, substantially as set forth.

3. The yielding portion F of the hood formed of yielding horizontal plates *f*, and vertical tubular connections f^2 f^3 of alternately larger and smaller diameters, whereby a suitable degree of elasticity in a vertical direction is secured from the horizontal plates *f* between the said connections, for keeping the slide-valve steam-tight at its face and back, substantially as set forth.

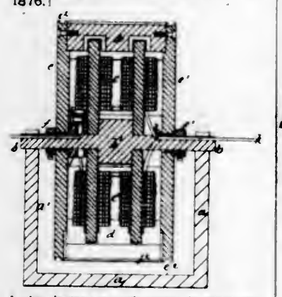


193,384. SNOW-PLOWS. G. Royal, Truckee, Cal. [Filed Mar. 15, 1877.]



The boxes D, pivoted to the angular timbers B B, and connected as described, in combination with the adjustable shares or cutters H H and the fixed mold-boards H' H', substantially as and for the purpose above described.

193,385. ELECTRO-MAGNETIC MOTORS. A. Shedlock, New York, N. Y., assignor of one-half his right to J. Fraser and W. M. Reynolds, same place. [Filed Nov. 10, 1876.]



1. An electro-magnetic motor, in which the surfaces of the magnets and armatures, when in juxtaposition, are inclined one to another, in the manner substantially as set forth.

2. The armature *d*, constructed with the inclined surfaces d^1 d^2 and d^3, so as to be acted upon by the three surfaces of the poles of the magnets, substantially as set forth.

3. The commutator described, consisting of the cam or notched wheel *j*, swinging frame A, having projecting portions A^1 A^2 and A^3 A^4, and springs *i* and *i'*, substantially as and for the purpose described.

193,386. OZONE-GENERATORS. H. Spendelow, Buffalo, N. Y. [Filed Jan. 29, 1877.

Brief.—A cover of coils and chamois-skin stretched thereon operate as a filter, and prevent escape of impurities with the ozone. The edge of the chamois skin serves to hold the perforated metallic hood upon the jar. The phosphorus-holder has a fender to protect the glass sides of the jar from the burning phosphorus. The holder is adjusted by means of a perforated bar and pin. A water-reservoir surrounding the bottom of the jar serves as a means of submerging the phosphorus in case of the jar cracking.

1. The combination, with the jar A, of the perforated or porous cover B, skin C, and perforated hood D, arranged substantially as and for the purpose hereinbefore set forth.

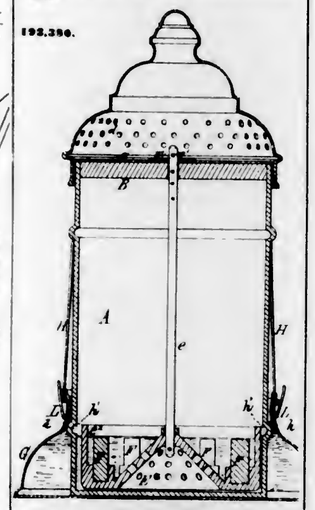
2. The combination, with the jar A, perforated cover B, and skin C, of the phosphorus-holder E, provided with rod *e*, secured adjustably to the perforated cover B, substantially as and for the purpose hereinbefore set forth.

3. The combination, with the generating-vessel A, closed at the bottom, of the water-reservoir G surrounding and removably attached to the lower portion thereof, substantially as and for the purpose hereinbefore set forth.

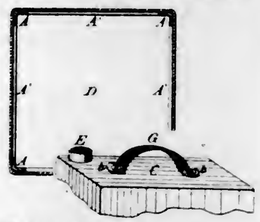
4. The combination, with the jar A, formed with rib *h'* and water-reservoir G, of the screen H, provided with catches *h* for connecting the water-reservoir to the jar and protecting the latter, substantially as hereinbefore set forth.

5. The combination, with the jar A and water-reservoir G, of the screen H, provided with catches *h* and elastic band L, substantially as and for the purpose hereinbefore set forth.

193,386.



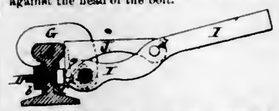
193,387. METHODS OF MAKING PAPER CANS FOR PETROLEUM AND OTHER FLUIDS. E. Waters, Troy, N. Y. [Filed Jan. 15, 1875.]



The herein-described process of manufacturing square paper cans, consisting in, first, preparing a skeleton frame-work of the angle-pieces A and connecting-pieces A^1; second, inserting the head C and bottom D in the upper and lower ends of said frame-work; and, third, closing the sides thereof by winding a continuous sheet of paper of a width corresponding to the length of the angle-pieces A around the skeleton frame until the requisite degree of thickness has been attained, substantially as and for the purpose herein set forth.

193,388. DEVICES FOR CLAMPING THE BOLTS ON FISH-PLATES OF RAILROAD-RAILS. F. E. Weed and R. Messinger, New Canaan, Conn. [Filed June 7, 1877.]

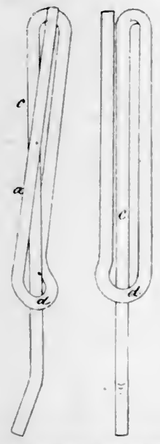
Brief.—The hooks for fitting over the rail-head are connected by a cross-bar, along which slides the cam-lever for pressing against the bolt. A piece with a cam-shaped end is pivoted to the cam-lever, and serves, when thrown against the rail-head, to lock the said lever against the head of the bolt.



1. The combination of the two hooks G G and the connecting bar or rod H with the lever I, which is capable of vibrating and sliding on said rod or bar H, substantially as specified.

2. The combination of the hook G and pivoted cam-lever I with the locking-lever J, substantially as and for the purpose specified.

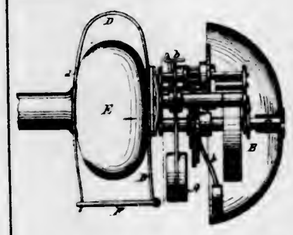
193,389. PAPER-CLIPS. E. J. Wright, Waltham, Mass. [Filed Nov. 11, 1876.]



A paper-file consisting of one piece of wire bent to form the stiffener *c*, the clamp formed by stiffener *c* and loop *d*, and the upper stop-loop formed by the lines *b c*, constructed and arranged in the manner and for the purpose substantially as herein set forth.

193,390. BURGLAR-ALARMS. I. B. Woodruff, Winsted, Conn. [Filed June 20, 1877.]

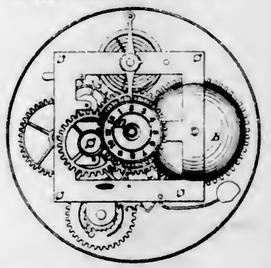
Brief.—The alarm is attached to the door-knob, and by turning the knob a weighted pendulum is released, which sets the alarm in motion.



1. A burglar-alarm provided with the pendulum A, as constructed and arranged, in combination with the liberating-wire *b*, forming a portion of the bell-hammer handle, operating substantially in the manner as and for the purpose herein set forth.

2. The forked clamp D, to attach to a door-knob, E, to hold the alarm mechanism securely in position by the clasp F, substantially as herein shown and described.

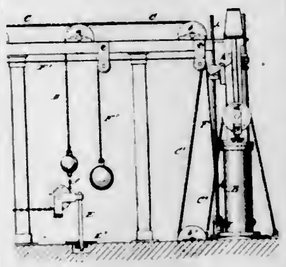
193,391. ALARM-CLOCKS. I. B. Woodruff, Winsted, Conn. [Filed June 20, 1877.]



The alarm-bell B, secured upon the winding-arbor of the clock-alarm, the whole being arranged upon, and operating within, the frame of the time mechanism, substantially as and for the purpose specified.

193,392. HYDRAULIC ELEVATORS. G. Ball, Springfield, Ill. [Filed May 28, 1877.]

Brief.—Steam or water enters a vertical cylinder, forcing up a cross-head surmounted by a pulley, over which passes a chain or cable, secured at its rear end, and over elevated pulleys in series. From this cable proceed lateral cords or chains, as desired.



1. An apparatus for moving heavy bodies, consisting, essentially, of a steam or hydraulic ram, B, a guided power-transmitting chain, rope, or cable, C, with end rope C' passing over the ram and over guide-pulleys to the places of work, and of devices to start the ram, substantially in the manner described, and for the purpose specified.

2. The combination of the ram B B', having top pulley *d*, with the transmitting cable C C', branch ropes D, folding standards E, and guide-pulleys *f'*, substantially as specified.

3. The combination of the ram B, power-transmitting ropes and chains C', C, D, and *f*, and standards E, with starting cords F', and with exhausting and cushioning devices of ram, substantially as described, and for the purpose specified.

4. A steam-ram having steam entrance and exhaust valves and devices for exhausting the cylinder and cushioning the piston, in combination with the ram-starting and power-transmitting ropes, substantially in the manner described, and for the purpose specified.

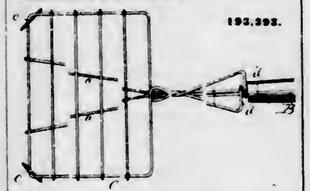
193,393. BROILERS AND TOASTERS. A. C. Bolton, Greenport, N. Y. [Filed June 26, 1877.]

Brief.—The supporting-wires pass under, and are interlocked with, the twisted extension of the lower frame. The upper frame is similar to the lower, the wires twisted and bent outwardly, and provided with downwardly-extended arms, which cross each other and clasp the extended wires of the frame beneath.

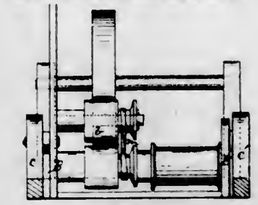
1. In a broiler and toaster, the frame A, twisted together as described, and stiffened and supported by wires *a*, and provided with a wooden handle, B, substantially as set forth.

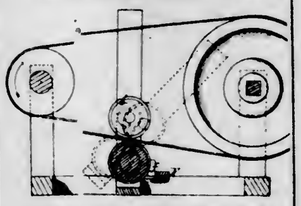
2. The fastening formed by binding the diverging ends of the wire of the frame C into oppositely-disposed hooks, substantially as herein shown and described.

193,393.



193,394. SAND-PUMP REELS. D. C. Brawley, Petrolia, Pa. [Filed July 2, 1877.]



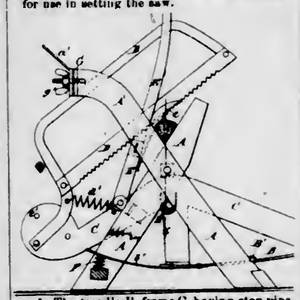


1. The sand-pump reel, provided with a pulley secured to the shaft, the whole mounted in a swinging bearing or frame, substantially as and for the purpose specified.

2. The combination, with a sand-pump reel, of two pulleys connected by a belt or equivalent gearing, one of said pulleys mounted on the reel-shaft, the whole arranged in a swinging frame or bearing, substantially as and for the purpose specified.

193,395. WOOD-SAWING MACHINES. J. A. Chandler, Monticello, Iowa. [Filed June 4, 1877.]

Brief.—The treadle is provided at its forward end with a spring, which, in connection with a buffer-spring upon the cross-piece of the saw buck, produces an easy and regular motion in sawing, and dispenses with cranks and fly-wheels. An anvil is formed upon the upper end of one of the arms of the saw buck, for use in setting the saw.

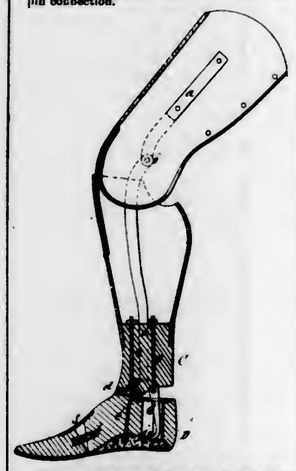


1. The treadle B, frame C, having stop-pins *c*, the saw-frame D, and saw horse A, in combination with the springs *b* F, arranged under the treadle, substantially as herein shown and described.

2. The combination of the clamp G with the saw-horse A and anvil H, having curved arms A', as shown and described.

193,396. ARTIFICIAL LEGS. C. Collins, Albia, Iowa. [Filed June 26, 1877.]

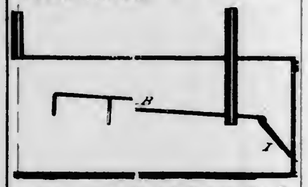
Brief.—Between the upper and lower blocks of the heel and foot are placed a rubber cushion, two link-jointed bolts, and a hook-and-pin connection.



The combination of the hook G and pin *f* with the ankle-block C, foot-section D, link-joint *i*, and rubber cushion *d*, substantially as herein set forth.

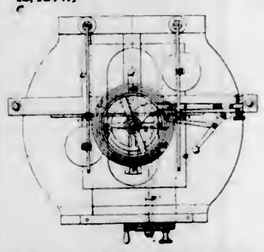
193,397. GAS-WASHING APPARATUS. W. M. Cosh, Conshohocken, Pa. [Filed Apr. 2, 1877.]

Brief.—Gas is washed by being passed through water below the inclined shelf having notched ribs. The hinged gate at the inlet end of the box prevents the gas rising above the shelf at that end.



A gas-washer whose shelf or partition B comes short of both ends of the box, and has the downwardly-inclined and hinged door I, which connects it with one end of the box, as and for the purpose specified.

193,398. ENGINEERS' PLOTTING-TABLES. A. R. Crandall, Lexington, Ky. [Filed June 18, 1877.]



1. A surveyor's or engineer's plotting-table, consisting of a sliding table, operated for laying down the distance by micrometer-screw, a revolving base-disk, a vertically-sliding protractor, with foot-clamp and prick-point, and paper-holding weights, substantially in the manner and for the purpose set forth.

2. The combination of the sliding and guiding table B with a micrometer-screw, B', having fixed head C, loosely turning, and graduated head C', and clamp-screw *b*, substantially as specified.

3. The combination of the sliding and guided table B, and revolving base-disk D, with alternately-applied foot-clamp E' of protractor, and paper-holding weights G', substantially as and for the purpose described.

4. The combination of the sliding and spring-pressed shaft *f* of protractor and foot-clamp, and the pivoted and guided arms G of paper-holding weights G', with a suitable guide-rod and lever mechanism, for alternately raising foot-clamp and lowering weights, or lowering foot-clamp and raising weights, substantially as specified.

5. In an engineer's plotting-table, the combination, with the protractor E, of a spring-clamp, E², and tangent-screw E⁴, to adjust protractor to vernier, substantially as set forth.

6. In an engineer's plotting table, the combination of pivoted arms G, having concaved or inclined upper edges, with the weights G', suspended by arms with pulleys, for the purpose of returning weights to the required positions, substantially as described.

7. In an engineer's plotting-table, the combination, with the foot-clamp, of a diagonally-stretched thread, adjustable by set-screws, indicating zero-line of protractor, for the purpose set forth.

193,399. WHIPS. G. B. Ely and S. D. Ely, Rochester, N. Y., assignors of one-half their right to H. O. Candee, same place. [Filed May 12, 1877.]



A whip having a longitudinal section or cable, consisting of two or more strands of intertwisted wire, all substantially as shown and described.

193,400. MACHINES FOR WELDING METAL TUBING. Henry C. Evans, Pittsburg, Pa. [Filed May 4, 1877.]



1. The combination, in a pipe-welding machine, of the movable plunger or brace-bar with the traveling welding-tool and the skelp-rest, substantially as and for the purpose specified.

2. The combination, in a pipe-welding machine, of an open-slotted bottom trough or pipe-rest, two traveling welding-rolls, and a movable plunger or brace-bar, substantially as specified.

3. The combination, in a pipe-welding machine, of a pipe-rest, the movable rack brace-bar, the rack-bar for carrying the welding-roll arranged in guides on the brace-bar, and gearing, substantially as described, for operating the rack-bars, as and for the purpose specified.

193,401. HAND-TRUCKS. Hiram R. Ferris Cleveland, Ohio. [Filed May 26, 1877.]



1. In combination with a hand-truck, a foot lever pivoted to the axle of the truck, substantially as and for the purpose described.

2. The combination, with a hand-truck, of a foot-lever constructed to return automatically to its inoperative position on the under side of the truck, for the purpose and substantially as described.

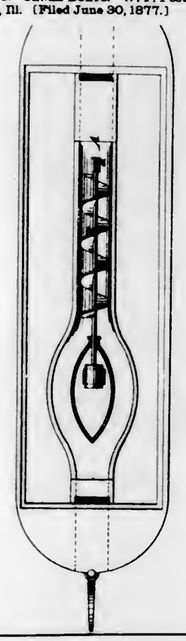
3. The combination, with a hand-truck, of a foot-lever pivoted to the truck, the short arm of which acts against the lower cross-bar of the truck, substantially as and for the purpose described.

4. The combination, with a hand-truck, of a foot-lever pivoted to the axle of the same, and constructed in the form of a frame, substantially as and for the purpose described.

5. The combination, with a hand-truck, of a foot-lever constructed of the side bars A A and cross-bars B C D, the said side bars of the lever pivoted to the axle of the truck near the wheels of the same, substantially as and for the purpose described.

6. The combination, with a hand-truck, of a foot-lever pivoted to the truck, the long arm of said lever extending back of the axle when the lever is turned down, said lever being constructed to be folded beneath the truck-frame, substantially as and for the purpose set forth.

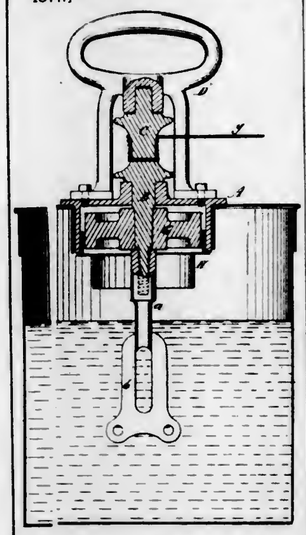
193,402. CANAL-BOATS. W. P. Fest, Chicago, Ill. [Filed June 30, 1877.]



1. A canal-boat having a central water-channel extending from bow to stern, an interior spiral revolving screw at the middle part of the boat, and branch channels or arms back of the screw, that unite again before the water leaves the boat, to divide the water and discharge it at the stern without agitation, substantially as specified.

2. A canal-boat having a central water-channel extending from bow to stern, and branch channels or arms that divide back of the propelling-screw, and unite before passing out of the boat, so as to form a space or cavity between the branches, for connecting the propelling mechanism with the screw-shaft, substantially as set forth.

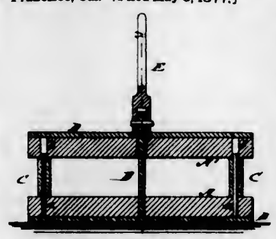
193,403. ROTARY CHURNS. H. G. Fougeu, Cape Girardeau, Mo. [Filed June 23, 1877.]



1. The combination of flanged cap A, spindle B, and handle D with the shaft *a* and dasher *b*, as shown and described, for the purpose specified.

2. The combination, with cap and revolving spindle, of the collar H and cylinder J, as and for the purpose set forth.

193,404. COPYING-PRESSES. E. Gill, San Francisco, Cal. [Filed May 5, 1877.]



A copying-press consisting of boards A A', metallic angle-straps B, springs C, arranged about the corner-pins, guide-posts D, and eccentric levers E E, substantially as shown and described.

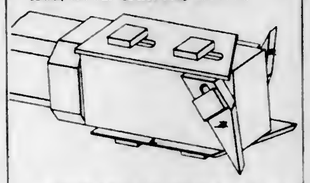
193,405. GUIDE-BOARDS. J. T. Hart, Kensington, Conn., assignor to Moore Manufacturing Company, same place. [Filed Feb. 17, 1877.]

In a guide-board, the iron-plate backing A, having an even front face, in combination with the cast-iron letters and characters having flat backs, the parts secured together with such backs resting on and supported by the solid iron-plate backing, all substantially as described, and for the purpose specified.

193,406.



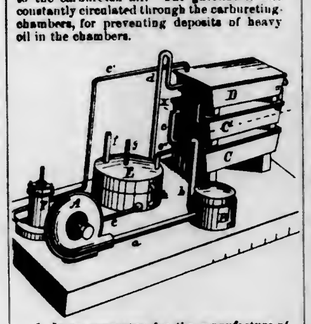
193,406. AUGERS. D. E. Henderson, Lee-town, W. Va. [Filed May 4, 1877.]



The auger-head E, having knife-bits A and clearing-bits B, secured thereto by bolts or set-screws, substantially as shown and described.

193,407. APPARATUS FOR MANUFACTURING ILLUMINATING-GAS. W. S. Hill, Hyde Park, Mass. [Filed Mar. 9, 1877.]

Brief.—Air is forced into a regulating-receiver, and thence into the carbureting chamber. A constant circulation of gasoline is maintained through a coil of pipe in a receiving-chamber, which thus acts as a condenser to the carbureted air. The gasoline is also constantly circulated through the carbureting-chambers, for preventing deposits of heavy oil in the chambers.



1. In an apparatus for the manufacture of illuminating-gas from gasoline, the rotary blower A, operating in combination with the automatic receiver B, pipe *a*, escape-valve *m*, and valve *l*, to produce and deliver to the carbureting-tanks C C' a steady current of air at a uniform pressure, in the manner and for the purpose specified.

2. In an apparatus for the manufacture of illuminating-gas from gasoline, the chamber D, with partition *x*, and pipe *e* and *d*, operating in combination with the reservoir E, pump F, and coils of pipe *c'*, whereby gasoline is circulated through chamber D, for condensing the surplus moisture from the gas, in the manner and for the purpose specified.

193,408. CANS FOR PACKING AND SHIPPING PAINTS. H. H. Hull, Cleveland, Ohio. [Filed June 19, 1877.]

1. A can whose head is formed with the engaging loop and openings, in combination with the paint emptying attachment, made independent thereof, substantially as described.

2. In a paint-package, the head provided with a central loop and openings extending through the cover on each side of said loop, in combination with a piston, a movable frame extending through the head, a screw-shaft, and tightening-nut, substantially as described.

3. The combination, in a paint-can, of a discharge orifice, D, loop G, perforations E, temporary sealing F, and piston-head B, substantially as and for the purposes described.

4. The combination, with a paint-package provided with a piston, of an independent frame, constructed to be inserted through the head of the package, a screw-shaft adapted to be removably secured to the head, and a tightening-rod, substantially as described.

5. As an article of manufacture, a device made independent of a paint-can, and adapted to detachably engage therewith in the process of emptying it of its contents, the same consisting of the arch or bow shaped frame, the longitudinal screw-shaft, and the nut or other analogous mechanism for operating the said shaft, substantially as described.

193,409.

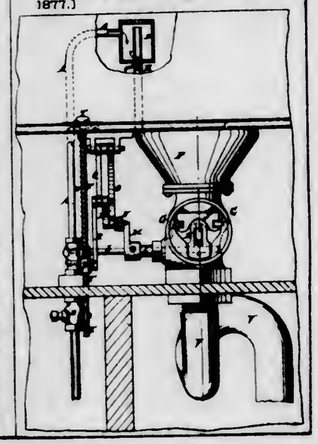


193,409. CONCRETE-PAVEMENT COMPOUNDS. E. Jacques, Great Falls, N. H., assignor to himself and R. Gotier, same place. [Filed June 11, 1877.]

Brief.—For about twenty-seven square yards of pavement the following ingredients are mixed together, in about the proportions named: one barrel gas-tar, twenty pounds gum tar, one pound alum, one pound washing-soda, one-fourth pound brown potash, and nineteen wheelbarrow-loads of sharp sand. The gas-tar is boiled with the gum tar about one and one-half hour; then add the potash, alum, and soda, dissolved in about one gill of water. The sand is then added, and the whole thoroughly mixed in a machine.

A paving-concrete composed of the several ingredients named, mixed together in the manner and in about the proportions specified.

193,410. WATER-CLOSETS. F. B. Kernohan, Pittsfield, Mass. [Filed June 11, 1877.]

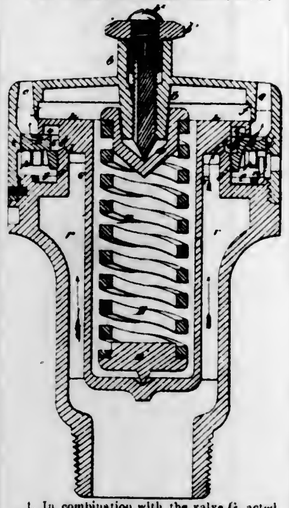


1. The after-wash reservoir D, having inlet-pipe A, and the outlet-pipe E, the latter open a little below the top of the reservoir, and just above the bottom thereof having an orifice half the diameter of the inlet-pipe, as shown and described, so that the reservoir may supply the after wash when the inlet-pipe is closed.

2. The combination of the plate or apron H, provided with the web *h'*, and the valve I J K, with the valve-case G and the basin F of the water-closet, substantially as herein shown and described.

3. The combination of the triangular frame or plate O P Q, the connecting-rods N R, and the crank-arm M with the valve-shaft L and the lifting-rod T, substantially as herein shown and described.

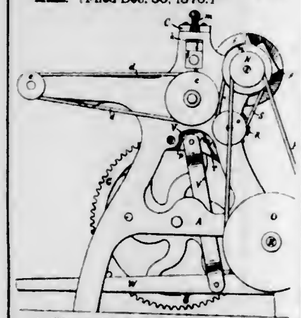
193,411. SAFETY-VALVES. E. B. Kunkle, Fort Wayne, Ind. [Filed June 4, 1877.]



1. In combination with the valve G, acted on by a spring and adjusting-screw, C, as set forth, the valve-head A, constructed with a beveled surface, 2, and annular channels 3 4, forming, in connection with the flange *f* and regulator E, a port, *s*, substantially as described.

2. The regulator E, provided with teeth, and working in connection with a catch, *n*, as and for the purpose specified.

193,412. MACHINERY FOR UNHAIRING, SCOURING, &c., HIDES AND SKINS. B. F. Larrabee, Lynn, assignor to B. Harrington, Salem, trustee of the Roberts Hide Working Machine Association, Boston, Mass. [Filed Dec. 30, 1876.]



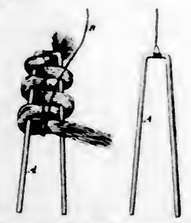
1. The combination, in a machine for unhairing, scouring, and currying hides or skins, of the drum D, single feed roll P, the cylinder M, provided with one or more right and left hand spiral blades or knives, and the endless apron L, when the several parts are arranged relative to each other as set forth—i. e., with the feed-roll above the drum, the knife-cylinder in the rear of said drum and feed-roll, and the apron with its upper surface below the level of the top of the drum, as and for the purposes described.

2. The combination and arrangement of the supporting drum D, feed-roll P, knife-cylinder M, provided with one or more right and left hand spiral blades, *f f*, and the cylindrical brush R, all adapted to operate substantially as described, for the purposes specified.

3. The combination, in a machine for unhairing, scouring, or currying hides or skins, of the drum D, the cylinder M, provided with one or more right and left hand spiral blades, and the guard or shield T, all arranged and adapted to operate as and for the purposes described.

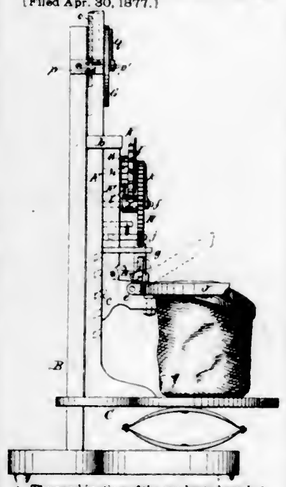
4. The combination, in a machine for unhairing, scouring, or currying hides or skins, of the cylinder M, provided with one or more right and left hand spiral blades, *f f*, the drum D, mounted in the detached boxes *a a*, fitted to and movable independently of each other in slots in the side frames of the machine, the rocker-shaft U, the treadle-lever W, connected to the rocker-shaft by the rod V' and lever V, and the radius-arms *p p*, mounted upon the rocker-shaft, and bearing at their movable ends against the under side of said boxes *a a*, and adapted to raise the drum D by a vibratory motion of said arms about the axis of the rocker-shaft, substantially as described.

193,413. HAIR-CRIMPERS. John Leeming, Poughkeepsie, N. Y. [Filed June 18, 1877.]



The combination, with hair pin A, of a flexible wire, B, arranged as shown and described, so that the hair may be crimped near its roots, and without the use of clamps.

193,414. GRAIN-TALLY, BAG-HOLDER, AND WEIGHER. A. C. Lintz, Sweet Air, Md. [Filed Apr. 30, 1877.]

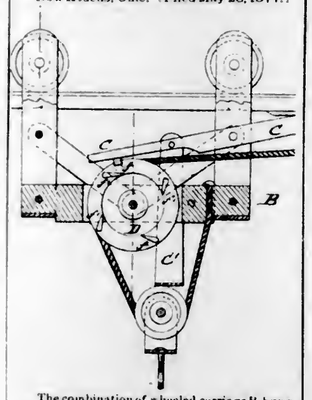


1. The combination of the graduated ratchet-wheel H, having the notched hub L, the finger *F*, fixed index *k*, ratchet wheel M, notched and graduated wheel K, lever *h*, pawl *g*, and the hinged piece J, substantially as herein shown and described.

2. The base-piece A, standard B, springs D, platform C, standard E, rack *o*, pinion *p*, index *q*, and dial G, in combination, substantially as shown and described.

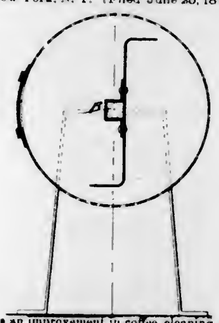
3. The fixed curved piece *d* and hinged curved piece J, in combination with the adjustable support F and standard E, substantially as shown and described.

193,415. HAY-ELEVATORS. J. L. Malcolm, New Athens, Ohio. [Filed May 28, 1877.]



The combination of wheeled carriage B, hung to track-beam and having a pulley, D, with side projections *f*, with the locking catch-lever C, substantially in the manner set forth.

193,416. COFFEE-CLEANERS. P. McAuliffe, New York, N. Y. [Filed June 25, 1877.]



As an improvement in coffee cleaning and polishing machines, the combination of revolving radial stirrers or wing-plates, having scoop-shaped ends, with a loosely-mounted cylinder or drum of sheet metal, having laterally alternating perforated and solid or non-perforated sections, said stirrers and cylinder revolving in one direction, but at different speed, substantially in the manner described, and for the purpose specified.

193,417. INSECT-DESTROYERS. F. J. McDonald, Madison, Ohio. [Filed June 16, 1877.]

Brief.—A can carried by a bail, with a diaphragm one-fifth the distance from the open lower end. A rose-head expands below this diaphragm. A perforated cylinder ascends above. In this cylinder moves a piston, weighted, which is lifted by means of a loop in the piston-rod, in which may be inserted a finger of the hand carrying the apparatus.

1. An insect-destroying apparatus, consisting of a can provided with a rose, recessed beneath the bottom of the can, and a valve for admitting liquid poison through the rose, and governable by the finger-hold, substantially as and for the purposes described.

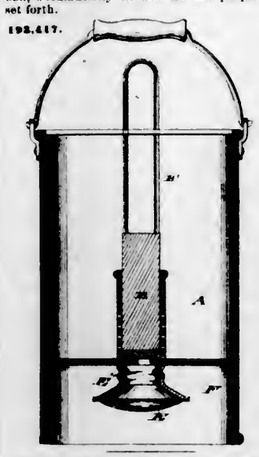
2. The apparatus for destroying insects upon plants, consisting of the bucket or can A, valve B, with handle B', rose E, and recess F, substantially as and for the purposes described.

3. The combination of the can or bucket A, valve B, with handle B', rose E, and strainer D, substantially as and for the purposes described.

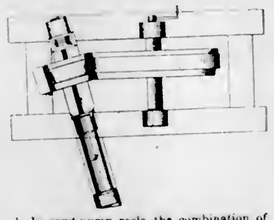
4. The combination, with a cylinder provided with an intermediate diaphragm, of a rose located below the same, a perforated cylinder secured to the upper face of the diaphragm, and a piston-valve operating therein, substantially as described.

5. The combination, with a cylinder provided with an intermediate diaphragm, of a discharge-rose located beneath the diaphragm, of a perforated cylinder secured to the upper face of said diaphragm, a piston-valve, working inside of the cylinder, and a valve-stem extending upwardly in close proximity to the bail, substantially as and for the purposes set forth.

193,417.



193,418. SAND-PUMP REELS. WM. H. H. Morris, Franklin, Pa. [Filed July 2, 1877.]



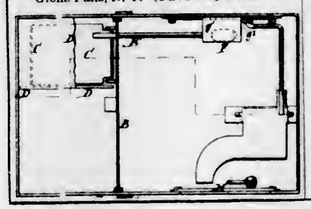
1. In sand-pump reels, the combination of the tongued driving-wheel with the grooved bevel friction-wheel, substantially as and for the purpose specified.

2. The combination of a grooved bevel friction-wheel with a sand-pump reel, which is driven from a band-wheel, substantially as specified.

3. The beveled band-wheel having a tongue with square face, in combination with the grooved bevel-wheel of a sand-reel pump, substantially as specified.

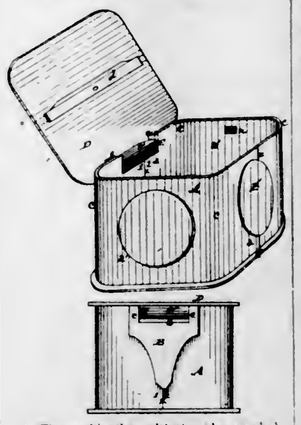
4. The grooved beveled pulley for sand-pump reels, substantially as specified.

193,419. ANIMAL-TRAPS. C. M. Orton, Glens Falls, N. Y. [Filed May 21, 1877.]



The combination of the sliding partition B, having an opening formed through it, the drop-bridge C, the weighted wire E F, with the box A, the plate D, having an opening formed through it, and the door G, provided with a flange, g^1, for setting and resetting the trap, substantially as herein shown and described.

193,420. COMBINED COLLAR-BOX AND TOY BANK. H. N. Parker, Perkinsville, Vt., assignor to E. E. Mack, Albany, N. Y. [Filed June 4, 1877.]



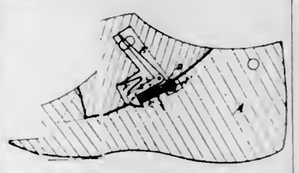
1. The combination, with the sides *a a' a'* and the rounded corners *c c c c*, made continuous with said sides by bending, of the tie-pieces B, one or more, substantially as and for the purpose set forth.

2. The combination, with the body A and cover D, of the hinge E, composed of the pieces *e e*, made continuous with the tie-piece B, and the piece *e'*, secured to the cover and provided with pintles, as and for the purpose set forth.

3. The combination, with a collar-box, having cover D hinged to the body by pieces *e* and *e'*, of the slot *s*, made between the piece *e'* of the hinge and the upper edge of the tie-piece B, carrying pieces *e*, substantially as and for the purpose set forth.

193,421. LASTS. J. T. Poole, Benton, New Brunswick, Canada, assignor to S. J. Parsons, same place. [Filed Apr. 23, 1877.]

Brief.—The block is provided with a plate having a downwardly-projecting hook, which engages with a slotted plate on the last, and forms an auxiliary fastening to the spring-latch.



In a last-fastening, the combination, with the spring-latch, of the notched plate C and the plate D, having the downwardly-projecting hook *d'*, substantially as and for the purpose specified.

193,422. PROCESSES OF ENAMELING IRON-WARE. E. C. Quinby and J. C. Whiting, St. Louis, Mo. [Filed June 21, 1877.]

1. The enamel glass or crystal composed of silica, borax, soda, plaster paris, and arsenious acid, substantially as and for the purpose set forth.

2. The combination, with the enamel glass or crystal composed of silica, borax, soda, plaster-of-paris, and arsenious acid, of clay, substantially as and for the purpose set forth.

3. The combination of carbonate of magnesia with the enamel coat, composed of silica, borax, soda, plaster-of-paris, and arsenious acid, and clay, substantially as and for the purposes set forth.

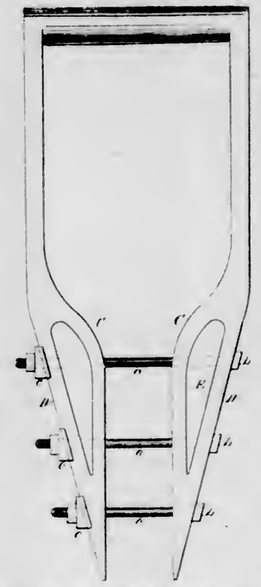
4. Sulphate of magnesia in the process of enameling sheet-iron ware, for the purpose of keeping the enamel glaze or coating in proper condition for dipping, substantially as set forth.

5. Arsenious acid in the process of enameling sheet-iron ware, for the purpose of causing a more tenacious adherence of the enamel to the iron, in the proportions substantially as set forth.

6. In the process of manufacturing sheet metal mottled enameled ware, developing the mottles by heat and moisture in the presence of a soluble salt or salts incorporated in the enamel coating, as described, whereby the oxide remaining upon the surface of the coated metal is acted upon, substantially as described, after the said surface has been pickled and cleaned.

7. The process of enameling sheet-iron ware consisting of the making of an enamel glass or crystal by the complete vitrification of silica, borax, soda, plaster-of-paris, and arsenious acid; the running of the same, when so vitrified, into water; the grinding of the same in water, with admixture of clay and calcined carbonate of magnesia; the straining and ripening of the resulting mixture; the treatment of the same with sulphate of magnesia, either in the mixing-pan or the mill, or in both; the coating with the same when thus treated of the annealed and cleaned sheet or wrought iron surface; the drying of the coated article, and the burning in the muffle, all substantially as set forth.

193,423. STIRRUPS FOR OIL-WELL MACHINERY. F. A. Segerdahl, Karns City, Pa. [Filed May 12, 1877.]



1. A stirrup whose inside shoulders C are reenforced by outside braces D, as shown and described.

2. The bolts *a*, having beveled heads *b*, and the beveled and flanged washers *c*, in combination with the stirrup, substantially as herein shown and described.

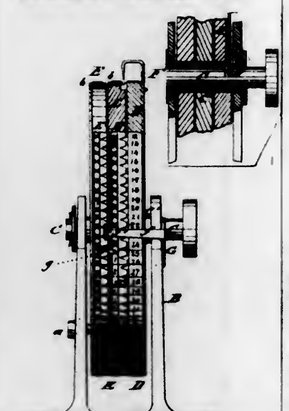
193,424. CHUCKS FOR METAL-LATHES. A. B. Smith, Denver, Colo. [Filed Nov. 25, 1876.]

Brief.—The toothed ring for operating the pinions on the jaws simultaneously is thrown into gear by pins resting against a screw ring.

The combination, with the body of the chuck and the toothed ring A, of the pins B and B' B' and the screw-cap C, substantially as described.



193,495. ADDING-MACHINES. M. M. Smith, Kirksville, Mo. [Filed May 5, 1877.]



1. An adding machine composed of a revolving disk, with eccentrically-sliding catch-lever, of fixed adjoining disks, or a drum having sliding and numbered bands or ring, and of a stationary arm with front pointer or stop piece, and intermeshing pinion, all arranged substantially in the manner and for the purpose specified.

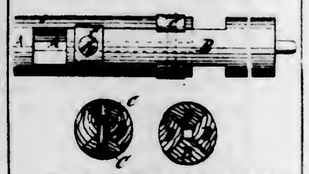
2. The combination of the shaft C, eccentrically-pivoted catch-lever F, revolving wheel D, stationary arm G, and stop-piece *f*, and sliding adjoining band E, substantially as and for the purpose specified.

3. The combination of the inner shaft C, outer sleeve or shaft C', having recess *d*, eccentrically pivoted and guided catch-lever F, and revolving wheel D, to first raise or lower the catch-lever, and then turn the wheel, substantially as specified.

4. The combination of the revolving disk D and catch-lever F with the sliding and toothed adjoining band E', to engage the same and carry it forward, substantially as described.

5. The combination of the revolving disk D and catch-lever F with the first sliding and toothed band E', having zero stop or point *g*, with pinion *f'* of stop-piece G, and with the second sliding and toothed band E', substantially in the manner and for the purpose specified.

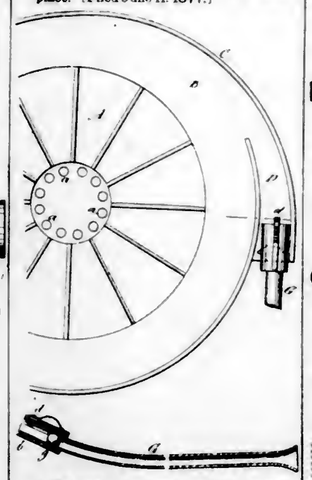
193,496. SHADE-ROLLERS. A. M. Smith, Brooklyn, N. Y. [Filed June 27, 1877.]



1. The adjustable shade-roller A, constructed in two or more sections, having a sliding joint, B, and clamp or stop C, substantially as and for the purpose herein set forth.

2. The clamp or stop C in combination with the adjustable shade-roller A, when arranged and operated substantially as and for the purpose herein set forth.

193,497. GAMING APPARATUS. James F. Spence, Brooklyn, N. Y., assignor to himself, C. E. Davis, and R. P. Wilkins, same place. [Filed June 11, 1877.]

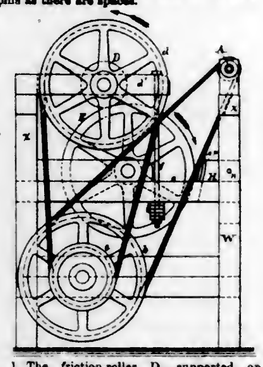


1. The game-table, constructed with a central conical depression, A, and a circular shelf, B, in combination with a guard, C, divisions E, and one or more gates, D, substantially in the manner and for the purpose described.

2. The blow-pipe G, constructed with an enlargement, *b*, for receiving the balls, in combination with the spring *d*, substantially in the manner and for the purpose described.

193,498. MACHINES FOR MAKING WOODEN PINS. A. R. Sprout, Picture Rocks, Pa. [Filed July 2, 1877.]

Brief.—Wooden pins are formed by first passing through a hollow mandrel strips of prepared wood, which are rounded. They are then dropped between the revolving drum and a series of cutting-knives, secured in the side of the frame, which divides them into as many pins as there are spaces.



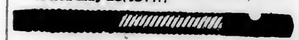
1. The friction-roller D, supported on slightly-yielding frame-pieces, connected by rods having rubber washers, to the brace which supports the drum E, as shown and described, and for the purpose named.

2. The removable bar, cutters *s*, and beveled cheek-plates *s*, the edges of both being concaved to conform to the face of the drum or cylinder E, as and for the purpose specified.

3. The roller D, communicating motion to the drum E by frictional contact, in combination with the knives or cutters *s*, with beveled cheek-plates, having edges concaved and at right angles to the face of the drum, as shown and described.

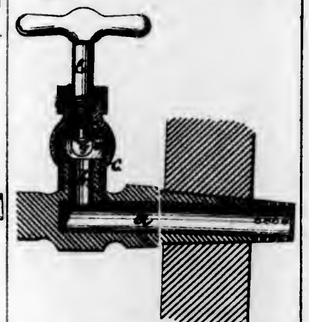
4. In a machine for making wooden pins with rounded and compressed ends, the combination of the hollow mandrel A, drum E receiving its motion from a friction-roller, cutters *s*, with beveled cheek-plates attached to the movable bar, all arranged and operating substantially as shown and described.

193,499. TOOL-STOCKS FOR DENTAL ENGINES. Edwin Telle, New Orleans, La. [Filed May 28, 1877.]



A dental tool-stock made up of the solid part for entering the chuck and the coiled-wire part, upon which the rotating tool is directly fastened, as shown and described.

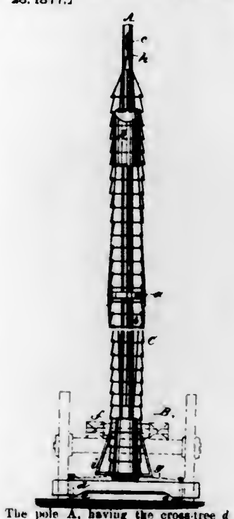
193,500. FAUCETS. W. B. Tweedie, Providence, R. I., assignor of one-half his right to C. T. Cady, same place. [Filed Apr. 25, 1877.]



1. The combination, with the faucet *a* and branch *b*, of the detachable valve case *c*, the valve-disk *d*, and stem E, provided with the stuffing-box *f*, arranged and operating substantially as and for the purpose described.

2. The combination, with the faucet *a b* and detachable valve, substantially as described, of the outlet-pipe *g*, provided with a suitable device to connect the faucet with a pipe, all arranged substantially as and for the purpose specified.

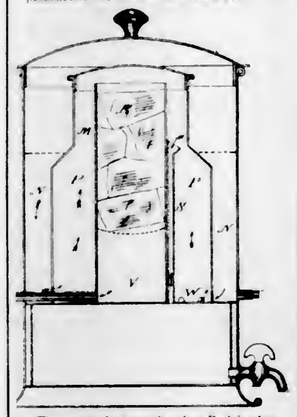
193,501. FIRE-ESCAPE LADDERS. H. B. Walbridge, Brooklyn, N. Y. [Filed May 28, 1877.]



The pole A, having the cross-tree *d* and pulley *c*, the jointed ladder C, and rope *h*, in combination, substantially as herein shown and described.

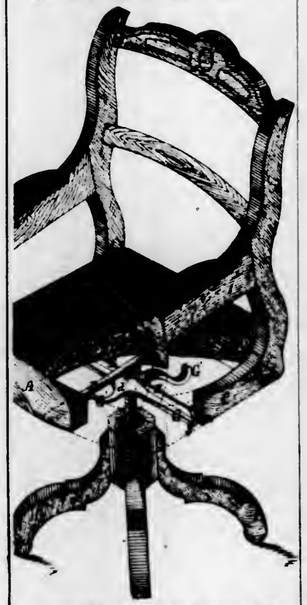
193,502. FILTERING AND COOLING APPARATUS. J. W. Webb, Oakland, Cal. [Filed June 8, 1877.]

Brief.—The chair tilts upon the ends of the spring rod, the rod being twisted at its center as the chair is tilted by the jaws attached to the under side of the bar extending between the front and back rails, the ends of rod at the same time being firmly held by flattened portions thereof engaging with jaws on the lateral arms of the spider. The spring-rod returns the chair to the proper position when pressure is withdrawn from the back.



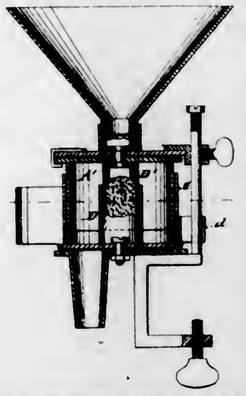
The screen-bottom chamber E, drip-chamber V, and discharge-tube K, in combination with the chambers P N and tube S, constructed substantially as and for the purpose set forth.

193,503. TILTING CHAIRS. J. White, Norwich, N. Y. [Filed June 22, 1877.]



The bar D, provided with the jaws *d*, the spring-rod E, and the spider G and G', having the jaws *g*, in combination with each other, the chair, and a stool or other support, substantially as and for the purpose shown.

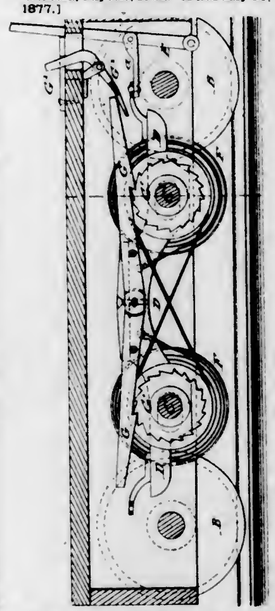
193,504. MEASURING DEVICES FOR FILLING CARTRIDGES. John D. Wilkinson, Plattsburg, N. Y. [Filed May 5, 1877.]



1. The combination of the telescoping cylinders, pivoted to guide-plates, and having charging-tubes, with bottom and top plates, having respectively a standard and sliding collar and clamp-screw to adjust charging tubes to the required size of charge, substantially as specified.

2. The combination of the charging-tubes and axially-turning cylinders, having stops *d*, with the top and bottom guide-plates and fixed standard to produce registering of charging-tubes with supply and discharge openings, substantially as specified.

193,505. CAR BRAKES AND STARTERS. A. Winston, Fayette, Iowa. [Filed May 28, 1877.]



1. The combination, with car-wheels B, of the pair of ratchet-wheels G', having teeth set in opposite directions, their pulleys and connecting-cord, the pawls G G, the pair of shafts C' C', carrying friction-wheels C C, and connected by a rigid frame, D, and the cumulative springs F F, all arranged as shown and described, to operate as specified.

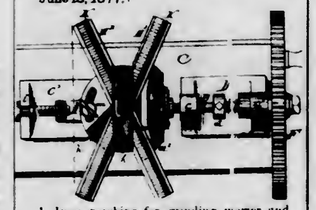
2. The combination of the slotted side supports of the car with sliding friction-brake mechanism and car-wheels B, to apply the brake to front or rear set of car-wheels, substantially as specified.

193,506. PROCESSES FOR THE MANUFACTURE OF MILK-SUGAR. L. H. Witte, Cleveland, Ohio. [Filed May 23, 1877.]

1. The process of preparing whey for the manufacture of milk-sugar, consisting in the scalding and subsequent settlement or subsidence of the whey, substantially as described.

2. The process of procuring milk sugar from whey, consisting of the following steps: first, the boiling or evaporation of the whey by heat (in one or more shallow pans) to reduce it and to separate impurities; second, drawing out the liquor into a separate vessel, where the sugar is permitted to crystallize; third, cleansing the crystals, before they are dried, with water; fourth, remelting or dissolving the crystals, preferably with free steam; fifth, recrystallizing the milk-sugar, substantially as and for the purposes described.

193,507. MACHINES FOR GRINDING MOWER AND REAPER KNIVES. E. J. Worcester and V. F. Prentice, Worcester, Mass. [Filed June 18, 1877.]

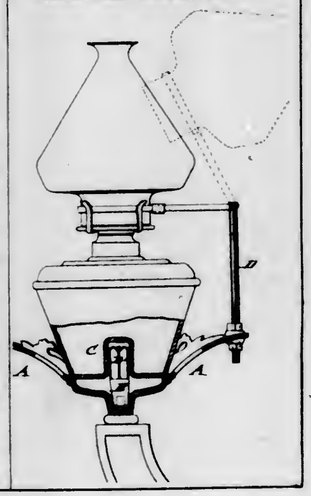


1. In a machine for grinding mower and reaper knives, in combination, substantially as hereinbefore described, the wheel A, made with grinding-surface *a* and beveled periphery *a'*, shaft B, capable of longitudinal yielding movement, and head block H, having diagonally-crossed grooves K, as and for the purposes set forth.

2. In combination, substantially as described, the grinding-wheel A, shaft B, spring D, gears E F, head H, and frame C *c c'*, substantially as and for the purposes set forth.

3. The combination, with the wheel A and its rotating mechanism, of the adjustable head-rest H, constructed with adjustable jaws H^1, having grooves K, slide-plate H^2, and adjusting-screw I, substantially as and for the purposes set forth.

193,508. COMBINED LAMP-REST AND SHADE-HOLDER. P. J. Clark and J. Kinta, West Meriden, Conn. [Filed Apr. 2, 1877.]

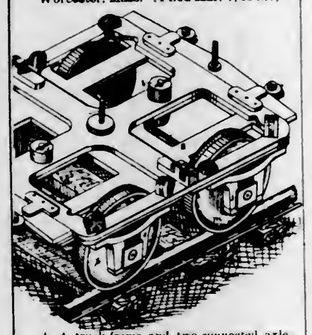


1. The socket B, intermediately and detachably connected at the upper and lower end, respectively, with the fount and plate A, as and for the purpose specified.

2. The combination of the detachable screw-socket B of the fount plate or basket, having a clamping wire-holder, B', with the central portion C of the fount, substantially as and for the purpose specified.

3. The combination of the fount plate or basket with a vertically-adjustable supporting-post, D, carrying the swinging shade or chimney, encircling band or holder, substantially in the manner and for the purpose set forth.

193,439. CAR-TRUCKS. George Crompton, Worcester, Mass. [Filed Mar. 7, 1877.]



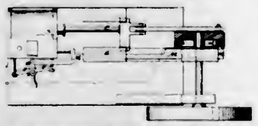
1. A truck-frame and two connected axle-carrying frames, pivoted to the truck-frame, as described, on opposite sides of the king-bolt, adapted to hold the car-body and truck-frame together, in combination with a transversely-sliding wedge operated by the change in the relative positions of the car-body and truck frame, and located between the axle-carrying frame and truck-frame, to move the axle-carrying frame or frames, axles, and wheels automatically, substantially as described.

2. The wedge-formed sliding bars and car-body, in combination with the truck-frame and independent axle-carrying frames pivoted thereto, as described, whereby the axles are controlled in position independently, each by its own wedge moved by the car-body, and are placed in radial or parallel lines, to adapt the wheels and axles to a curved or straight track, substantially as described.

3. The double-inclined transversely-sliding wedge, arranged between the truck-frame, which is connected with the car-body by a king-bolt, and the pivoted axle-carrying frame, in combination with the car-body, to change the position of the wedge and positively hold the axle-carrying frame at right angles to the track, or radially therewith, substantially as described.

4. The truck-frame and transversely-sliding double-inclined wedge, in combination with the axle-carrying frame and friction-rollers *j*, substantially as described.

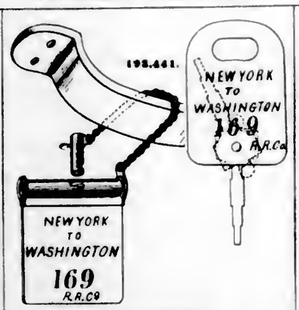
193,440. VALVE-GEAR FOR STEAM-ENGINES. J. H. Davis and W. White, Winneborough, Tex. Filed Nov. 25, 1876.]



A steam-engine whose exhaust-valve stems project below the cylinder, and are connected, by arms P P Q on shaft O, with an extension of the main-valve slide M, substantially as and for the purpose specified.

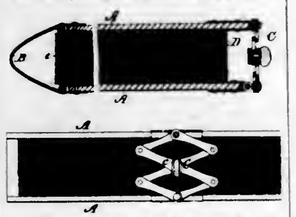
193,441. BAGGAGE-CHECKS. H. A. Deraismes, Elizabeth, N. J. [Filed June 29, 1877.]

An improved baggage check, provided with a lock permanently attached thereto and forming a part thereof, substantially as and for the purpose described.



193,442. TEMPORARY BINDERS. P. England, Lincoln, Nebr. [Filed June 4, 1877.]

Brief.—By reason of the flexible spring connected to the backs A A at their rear inside edge, and the clasp C, of lazy-tongs construction, attached to the front edge of the backs or covers, the latter are readily expanded or contracted, to accommodate different bulks of matter which may be interposed between them. The backs also exert a uniform pressure on the interposed bills or letters. Clasp C is provided with an adjusting and tightening screw, *c*.



1. The combination, with the backs A A, of the clasp C, constructed in the form of lazy-tongs, terminating with converging end bars, hinged to one of the backs, and adapted to engage with a catch on the other, substantially as described, and for the purpose set forth.

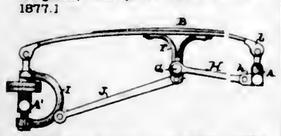
2. The thumb-screw *c*, combined with the bars of the clasp C, to form at the same time a pivot and a frictional adjustment, substantially as described.

3. The combination, with the connected and folding backs A A, of the tubes *d* and the continuous flexible spring *e*, arranged to pass through said tubes, as and for the purpose described.

193,443. TANNING SOLUTIONS. J. Foley, Montreal, Quebec, Canada. [Filed Sept. 28, 1876.]

The process of preparing the tannin-extract, which consists in leaching the ground bark with water having bianhydrite of lime in solution, substantially as and for the purposes set forth.

193,444. CARRIAGE RUNNING-GEAR. S. Gibson, Sharon, Pa., assignor of one-fourth of his right to C. Bowden and W. Knighton, same place. [Filed May 31, 1877.]



The herein-described running-gear, consisting of the axles A A', head-block C, springs B B, brackets F and I, and connecting-shackles or braces G, H, H, and J, constructed and operating substantially as and for the purpose specified.

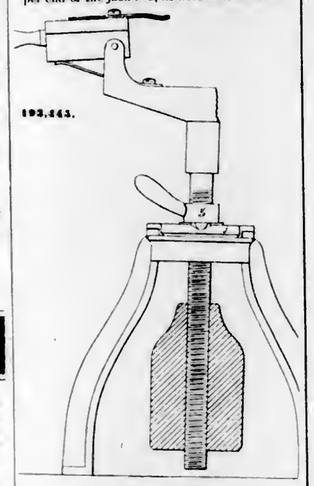
193,445. LASTING MECHANISMS FOR BOOTS AND SHOES. J. W. Hatch, Rochester, N. Y., and H. G. Thompson, Milford, Conn. [Filed June 6, 1877.

1. A jack-rod and a gimbal or universal joint to support it between its ends, in combination with an adjustable weight, applied directly to the lower end of the jack-rod to counterbalance the weight of the devices carried by the upper end of the jack rod, substantially as described.

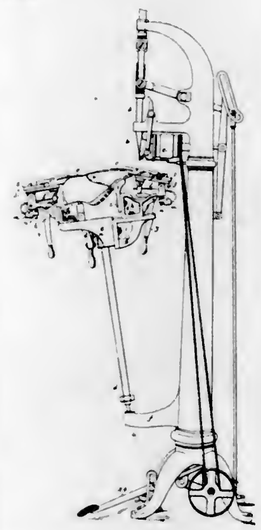
2. The jack rod, gimbal-joint to support it, a lasting-head, and counterbalancing-weight, in combination with an adjusting device to raise or lower the jack-rod with reference to the gimbal-joint, to adapt the height of the rod to the devices applied to its upper end, to permit the shoe to be placed in proper position with reference to tack or nail driving devices, all substantially as described.

3. In a lasting-machine, a pair of crimping-jaws to draw over and plait in the uppers of boots and shoes, and mechanism to operate them, in combination with an adjustable counterbalance or weight, attached to the lower end of the jack-rod to counterbalance the weight of the lasting-head and its devices at the upper end of the jack-rod, as herein described.

193,443.



193,446.



193,446. LASTING-MACHINES FOR BOOTS AND SHOES. J. W. Hatch, Rochester, N. Y. [Filed Feb. 27, 1877.]

1. Crimping-jaws or pullers to push and draw over the uppers of boots and shoes, when provided with holes, substantially as described, back of the working-edges of the jaws, to permit tacks or other fastenings to be driven for the purpose of securing the upper to the inner sole.

2. Crimping-jaws or pullers to draw over and plait in the uppers of boots and shoes preparatory to lasting the same, in combination with a toggle-joint and a lever and link to operate the toggle-joint and jaws, all substantially as described.

3. A pair of crimping-jaws, connected by an elongated pivot, 8, and provided with backwardly extended portions 5 6, having pins, in combination with a pivoted supporting-plate, provided with slots *q*, 14, and 15, and with mechanism to longitudinally reciprocate the jaws above the supporting-plate, to operate substantially as described.

4. Crimping-jaws or pullers to draw over and plait in the uppers of boots and shoes, in combination with the pivoted supporting-plate, slotted at *q*, to guide the jaws, and the adjustable spring to regulate the downward pressure of the plate and jaws, substantially as described.

5. Crimping-jaws or pullers to draw over and plait in the uppers of boots and shoes preparatory to lasting the same, in combination with the pivoted supporting-plates and lifting-levers to elevate or depress the plates and jaws, substantially as described.

6. The pivoted supporting-plate, in combination with the crimping-jaws or pullers and pivot 7, adapted to move in the slotted portion *q* of the plate, substantially as described, and for the purposes set forth.

7. The vertically-adjustable toe-support and its laterally-adjustable rest *h*, in combination with crimping-jaws or pullers, to adjust the shoe up and down, backward and forward, with relation to the jaws, substantially as and for the purpose described.

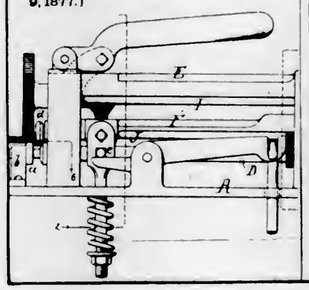
8. Crimping-jaws or pullers to push and draw over and plait in the uppers of boots and shoes, in combination with an automatically-operated hammer or driver, to drive tacks or nails through holes made in the working portions of the jaws, substantially as described.

9. The crimping-jaws and mechanism to operate them, to push and draw over the edge of the upper at both the heel and toe, in combination with a rod provided with a ball-like termination or end, to permit the rod and lasting devices to be moved freely in any direction to present the heel and toe of the shoe or boot to a tack driving mechanism, substantially as described.

10. The elastic crimping-jaws or pullers, provided with elevated inner corners to rest upon the uppers at the edge of the last, and made lower at their outer edges than at their inner edges, to operate substantially as described.

11. The combination, in a lasting-machine, of the following instrumentalities, viz: a pivoted supporting-plate, a pair of crimping-jaws, loosely connected therewith, mechanism to reciprocate the jaws longitudinally with reference to the plate, and to close the jaws as they are moved forward, and a spring to hold the pulling portions of the jaws and forward end of the pivoted plate pressed downward, so that the pulling portions bear with a yielding pressure upon the upper to pull it over the inner sole.

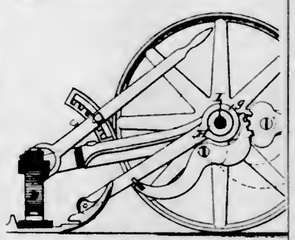
193,447. SOLE-EDGE-BENDING MACHINES. S. Henshall, Philadelphia, Pa. [Filed June 9, 1877.]



1. The combination, in a sole-edge bending machine, of a feed-wheel, an edge-turning disk, and a stock-supporting collar, the said wheel and disk being provided with means for independent vertical adjustment, substantially as set forth.

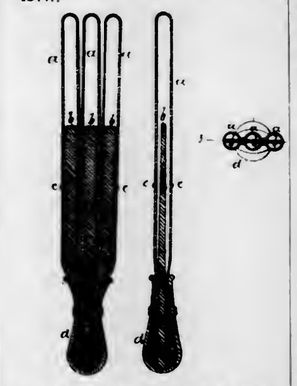
2. The combination of the fixed shaft D and its collar *a* with the feed-wheel M and turning-disk *d*, the shafts of which are carried by pivoted spring-frames E and F_1 as specified.

193,448. MOWING-MACHINES. H. L. Hopkins, Manchester, Iowa. [Filed Apr. 24, 1877.]



The combination, substantially as specified, of the cutting apparatus adapted for oblique folding, and the stiff draft-rod flexibly secured thereto at one end, and terminating in a ring at its other end, which fits loosely around the axle of the machine.

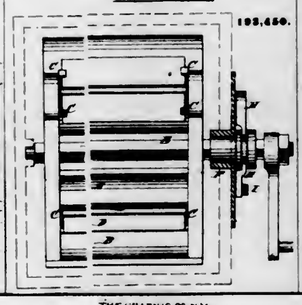
193,449. INDOOR GYMNASTIC INSTRUMENTS. C. Klemm, Riga, Russia. [Filed June 28, 1877.]



1. A muscle-beater consisting of hollow elastic tubes or fingers *a*, provided with springy stays *b* inside, kept together at *c*, and ending in the handle *d*, substantially as and for the purpose set forth.

2. A muscle-beater consisting of hollow elastic tubes *a*, having interior elastic stays *b*, and a handle, *d*, as specified.

193,450.



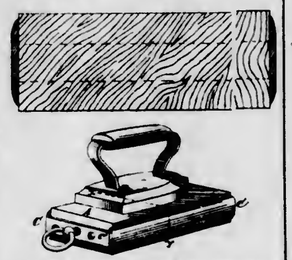
193,450. ROTARY CHURNS. Wm. Knaggs, Richview, Ontario, Canada. [Filed Mar. 24, 1877.]

Brief.—To two end bars are attached two pairs of concaved bars, stop-arms, and two pairs of pivoted bars, and a dasher-rod, with a pivoted latch and catch.

1. The dasher formed by the combination of the two bars A, the two pairs of concaved bars B, the stop-arms C, and the two pairs of pivoted bars D with each other and with the dasher-rod E, substantially as herein shown and described.

2. The combination of the bearing F, the plate G, the pivoted latch H, and the catch I, with the enlarged and grooved upper part of the dasher-rod E, substantially as herein shown and described.

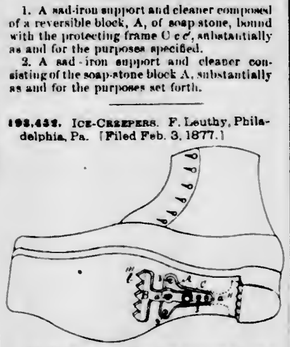
193,451. SAD-IRON HOLDERS. R. Lanstrom, Mount Lookout, Ohio. [Filed Apr. 28, 1876.]



1. A sad-iron support and cleaner composed of a reversible block, A, of soap-stone, bound with the protecting frame C *c c'*, substantially as and for the purposes specified.

2. A sad-iron support and cleaner consisting of the soap-stone block A, substantially as and for the purposes set forth.

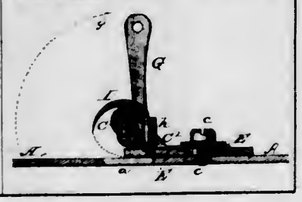
193,452. ICE-CREEPERS. F. Leuthy, Philadelphia, Pa. [Filed Feb. 3, 1877.]



In an ice-creeper, the combination of plate A, provided with locking pins *a'* and *a''*, and adapted to be secured to the sole of a boot or shoe, of plate B, curved to form a spring, and provided with holes to receive the locking-pins, all arranged and constructed substantially as shown and set forth.

193,453. SEWING-MACHINE ATTACHMENTS FOR PIERCING WHIP-COVERS. H. Lombard, Westfield, Mass., assignor to himself and J. J. Bohler, same place. [Filed Nov. 17, 1876.]

Brief.—The base-plate of the attachment is perforated, to allow the feed to operate on a strip of leather intended for a whip-cover. A curved awl, *i*, is mounted on a rock-shaft in adjustable bearings, an arm on the shaft being attached to, and operated by, the needle-arm of the machine.

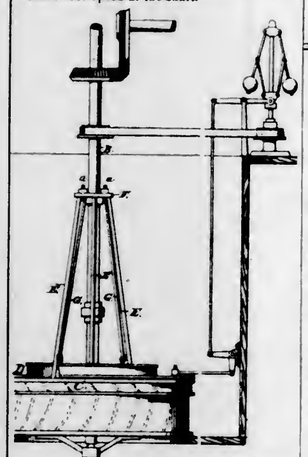


1. The combination of the bed-plate A, provided with feed-opening a, the adjustable gage E, and the rocking bar B, provided with the arm G and curved awl I, substantially as and for the purposes herein set forth.

2. The adjustable box or bearing-block C, plate A, and set screw D, in combination with the rocking bar B, carrying the awl I, for the purposes herein set forth.

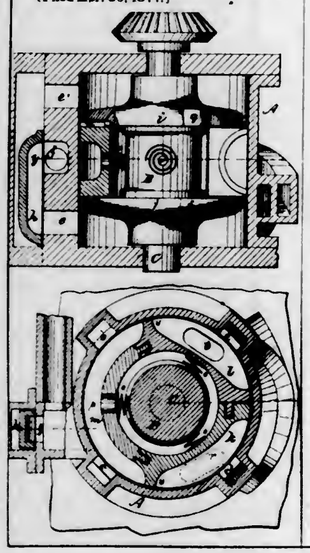
193,434. WATER-WHEELS. J. S. Ladow, Mechanicsville, N. Y. [Filed Sept. 3, 1875.]

Brief.—When the wheel is at rest, the chutes are fully open. The water being let on by a main gate, the suspended gate is controlled by the governor to close the chutes in proportion to the speed of the shaft.



In combination with the gate D, the collar F, standards E, resting on the guide and supporting the collar F, and bangers G, constantly suspending the gate just out of contact with the guide, so that the gate may be operated by a governor, substantially as described.

193,435. ROTARY VALVES FOR COMPOUND ENGINES. Isaac Munden, Bradenville, Pa. [Filed Apr. 30, 1877.]



The combination of the valve chest A, having ports *a b c d*, and the hub B, having flanges *i j* and valve-segments *k l m*, tongued and grooved together, substantially as shown and described.

193,436. DENTAL DRILLS. E. Osmond, Cincinnati, Ohio. [Filed Apr. 14, 1877.]

Brief.—The uncoupling device is operated through an arm connected to a sleeve forward of it, instead of by a sleeve and lug directly over it, thus enabling the operator, without changing the position of his hand, to work the coupling, although located farther back.



1. In a surgical or dental drill, the combination, substantially as specified, of the two-part drill spindle, the adjustable coupling thereof, a bar or link connected to and extending forward from said coupling, and an exterior thimble which engages the forward end of said bar, and is so located that the finger of the operator may move it to uncouple the two parts of the spindle without changing the position of his hand on the drill.

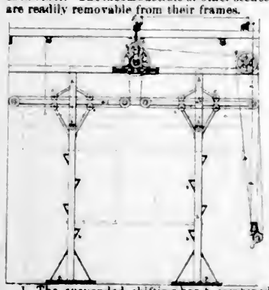
2. A coupling device for shafts or spindles, having, in combination, notched spindles B 1 B' 2, socket *b'* formed in the former, encircling sleeve G, having feather *g* diametrically secured thereto, and spring 3, to operate substantially as and for the purpose specified.

3. In a dental drill the combination of notched spindles B 1 B' 2, socket *b'*, sleeve G *g*, spring 3, anti-friction collar I, and thimble H, having extended bar *h'*, substantially as and for the purpose specified.

4. In a dental drill the combination of governing-sleeve E *e'*, actuating-spring *e*, spring-catch I *d*, and the notched drill G *c'*, connected to operate substantially as and for the purpose specified.

193,437. STAGE-SCENERY AND OPERATING MECHANISMS. Henry F. Parsons, Los Angeles, Cal., assignor to D. R. Morse, New York, N. Y. [Filed Dec. 9, 1876.]

Brief.—The turning of a single crank moves both sections of scenery either toward or from each other. The incombustible or other scenes are readily removable from their frames.



1. The suspended shifting-bar *b*, combined with its carrying-rest *g*, clamp *i*, braced extension friction and confining rollers *e*, and side brackets *k*, when made in the manner and for the purpose described.

2. The gearing machinery, consisting of the forks, with their grooved and toothed wheels, combined with actuating-cord, for changing the scenes, as described.

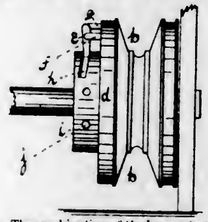
3. The described arrangement of the cord *s* for operating and shifting the scenes simultaneously, as shown and set forth.

4. The method of attaching woven-wire material to the frames of scenery by means of grooves and strips, as described.

5. The supports for the scaffolding employed in theatrical scenery, consisting essentially of fixed brackets applied to the suspended shifting-bars, as described.

6. The cord *m*, extending from the elevated mechanism, for moving the scenery to the side of the stage, and down to the frame supporting the operating-crank, whereby a single attendant can govern, control, and operate said mechanism at will, substantially as set forth.

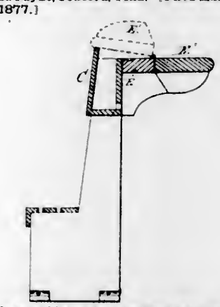
193,438. SHIPS' WINDLASSES. G. M. Patten, Bath, Me., assignor to T. W. Hyde, same place. [Filed May 3, 1877.]



1. The combination of the lever-wheel *i* and the lever *e* with the chock or pin *g*, operating as and for the purposes herein set forth.

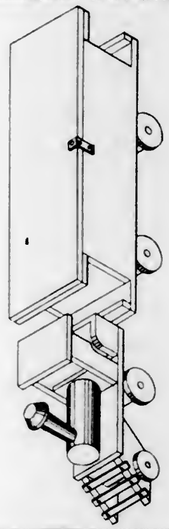
2. The combination, as herein described, of the starts *c* on the wild-cat, the lever *e*, pin *g*, wheel *d*, lever-wheel *i*, with its spiral *h* and holes *j*, and a lever, for the purposes set forth.

193,439. SCHOOL DESK AND SETTEE. J. R. Payne, Concord, Tenn. [Filed Mar. 30, 1877.]



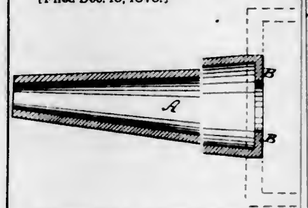
In a combined school desk and seat, the vertical rack F, formed between the back of the desk D and back piece C of the seat, said rack being provided with an opening in one side at the bottom, and adapted to be covered over at the top by the hinged part E' of the desk D, substantially as and for the purpose specified.

193,440. TOY LOCOMOTIVES. W. S. Reed, Leominster, Mass. [Filed Apr. 13, 1877.]



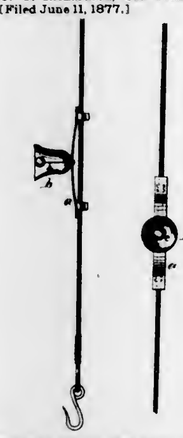
A knock-down toy consisting of a locomotive-engine, formed of detachable parts, and a car for containing the detachable parts of the engine, substantially as herein shown and described.

193,461. CONDENSERS FOR SPELTER-RETORTS. E. H. Richter, Jersey City, N. J. [Filed Dec. 16, 1876.]



The condenser A, provided with the annular strengthening-bridge B, substantially as and for the purpose herein shown and described.

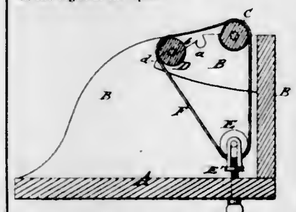
193,462. INDICATORS FOR MINING-SHAFTS. C. O. Richardson, San Francisco, Cal. [Filed June 11, 1877.]



The bell *b*, secured to the bar *a*, and containing the spring-clapper C, combined with a hoisting-rope, substantially as and for the purpose herein shown and described.

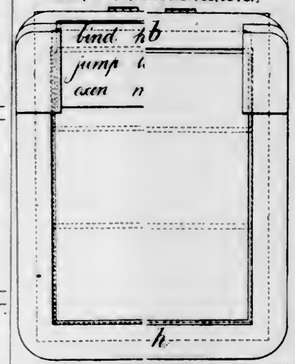
193,463. CIGAR-BUNCHING MACHINES. C. H. Schneider, Cold Spring, N. Y. [Filed May 5, 1877.]

Brief.—The roller that actuates the apron is continuous from one side of the machine to the other, and the short movable rollers are adjustable upon an incline, to inclose the bunch in the bight of the apron.



The combination, in a cigar-bunching machine, of an actuating crank-roller, C, sliding forming-roller D, lower adjustable roller E, and revolving apron F, with supporting-brackets B, having recesses *a*, inclines *b*, and shoulders or rests *d* in front of the crank-roller, to be operated substantially in the manner described, and for the purpose set forth.

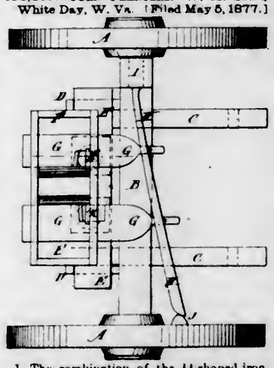
193,464. SCHOOL-SLATES. C. C. Shepherd, Passaic, N. J. [Filed Nov. 16, 1876.]



1. The combination, with the slate and frame, of the inclined pieces *e*, with channels in the opposite faces for the reception of the copy-slips, substantially as set forth.

2. The combination, with an ordinary opaque slate and its frame, of an inclined desk and hinges, substantially as set forth, so that either surface of the said slate can be made use of while in an inclined position, as set forth.

193,465. CORN-PLANTERS. W. M. Steel, White Day, W. Va. [Filed May 5, 1877.]



1. The combination of the U-shaped iron bars D with the axle B of the sulky A B U, to adapt it to receive the operating parts of the machine, substantially as herein shown and described.

2. The combination of the bar E, the hopper or hoppers F, the dropping-slides G, the spring-bar H, the stud I, and the block or blocks J with the U-bars D and the axle B and wheel A of the sulky, substantially as herein shown and described.

193,466. LASTING AND TACKING MACHINES FOR BOOTS AND SHOES. H. G. Thompson, Milford, Conn. [Filed Dec. 15, 1876.]

1. The combination, with an upwardly-pressed jack, of a plaiting-fork or presser-foot, adapted to operate together substantially as described.

2. The plaiting-fork or presser-foot, curved upward at its front end, and provided with an opening, through which a tack or nail may be driven by a driving-rod, substantially as described.

3. The plaiting-fork, curved upward at its forward end, and roughened upon its under surface to engage the upper upon the last, in combination with an upwardly-pressed jack, substantially as described.

4. The pivoted plaiting fork or presser-foot, substantially as described, in combination with the bracket *n* and a spring, to permit the foot to adapt itself to the inequalities of the last.

5. A plaiting fork or presser-foot, in combination with an upper-holding dog, provided with pins or equivalents, to enter and engage the upper and hold it while being drawn over the last, as described, preparatory to driving a tack, substantially as set forth.

6. The fork or presser-foot and upper-holding dog and pins, or equivalents, in combination with means to adjust the dog to permit the pins to penetrate the upper more or less, to adapt the dog to the various fabrics from which shoes are made.

7. The plaiting-fork or presser-foot, in combination with the horizontally-movable edge-rest, substantially as described.

8. The fork or foot and edge-rest, in combination with the slide-bar and the pin and ball-joint, to sustain and adjust the edge-rest to adapt the plaiting-fork or presser-foot to pull or lap the upper more or less over the inner sole.

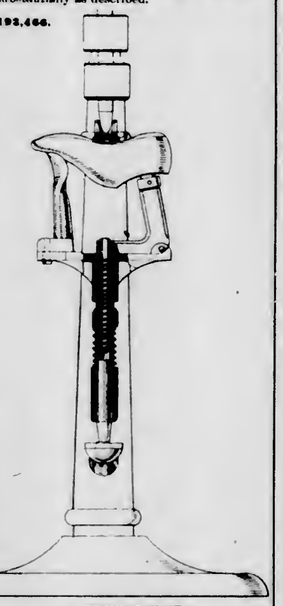
9. The plaiting-fork or presser, in combination with the horizontally-moving and swiveling edge-rest, substantially as described.

10. The plaiting fork or presser-foot and the upper-holding dog, provided with pins or equivalents, in combination with the slide-bar to operate the dog, substantially as described.

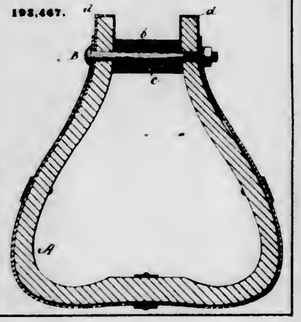
11. The fork or presser-foot, holding-dog, and pins, or equivalents, and adjusting device, in combination with the slide-bar and edge-rest, substantially as described.

12. An upwardly-pressed jack and plaiting-fork or presser-foot, in combination with a sliding edge-rest and an upper-holding dog, provided with pins or equivalents, to operate substantially as described.

193,466.



193,467.

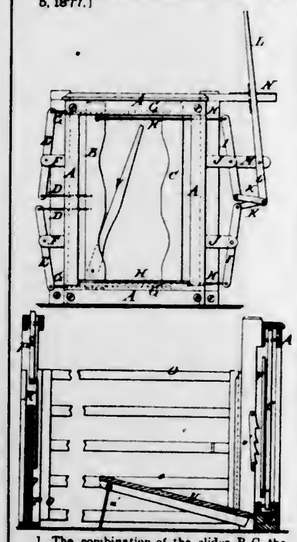


193,467. STIRRUPS. C. E. Wallin, Salt Lake City, Utah. [Filed June 26, 1877.]

1. The combination, with the stirrup A and the pivot-bolt B, of the encompassing metal roller *b* and the outer rubber roller *c*, substantially as and for the purpose described.

2. The combination of the wooden stirrup A, the pivot-bolt B, the end caps *d*, formed from a flat piece of metal, as described, the continuous bands *e*, and the transverse bands *f*, substantially as described, and for the purpose set forth.

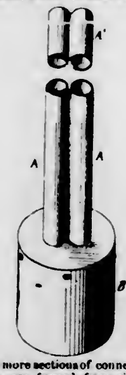
193,468. HOG-TRAPS. T. C. Weaver and H. V. Weaver, Kenney, Ill. [Filed May 5, 1877.]



1. The combination of the slides B C, the connecting-rods D G H K, the levers E, I, and L, and the ratchet-bar N with each other and the frame A, substantially as herein shown and described.

2. The combination, in a cattle-trap, of the hinged table U, provided with the pivoted legs *u'*, and the lever and ratchet V *v'* with the frame A, substantially as herein shown and described.

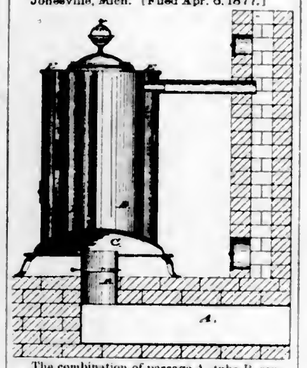
193,469. LIGHTNING-RODS. Lawson Adams, Omaha, Nebr. [Filed Feb. 1, 1877.]



1. One or more sections of connected copper pipe, which are formed from single sheets rolled in double scroll form, as and for the purpose set forth.

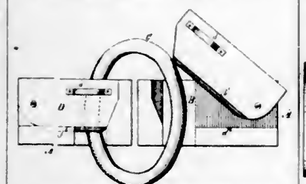
2. The sections A A′ of copper pipe, formed as described, and used in combination with the copper tank B, as and for the purpose specified.

193,470. HEATING-STOVES. A. J. Baker, Jonesville, Mich. [Filed Apr. 6, 1877.]



The combination of passage A, tube B, centrally arranged with respect to the bottom space or chamber, dome-shaped bottom space C, circumferentially-arranged vertical air-conductors D, having top openings E, and a central fire-box, all constructed and operating substantially as and for the purpose set forth.

193,471. CAR-COUPLINGS. T. D. Baldwin, Albion, Mich. [Filed June 21, 1877.]

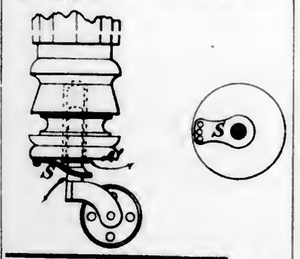


1. In a car-coupling, the draw-heads A A, having slots or recesses B B, in combination with the gates D D and ring or link C, substantially as and for the purpose set forth.

2. In a car-coupling, the draw-heads A A, having beveled flanges *a' a'*, and slots or recesses B B, in combination with the ring or link C and beveled gates D *d'*, substantially as and for the purpose set forth.

193,472. CASTERS FOR FURNITURE. S. E. Bauder, Birmingham, Ohio. [Filed June 30, 1877.]

Brief.—The ordinary drop caster is provided with a short leather strap, tacked onto the under surface of the leg of a bedstead or other article of furniture, and having its free end perforated for the passage of the stem or spindle of the caster, the construction preventing the caster, by an inexpensive device, from dropping entirely out when the leg is lifted from the floor.



In combination with a drop-caster for furniture, a strap, S, of leather, rubber, elastic, or other suitable material, fastened at one end to the leg of the article of furniture, and having a hole in the other end, for the passage of the caster-spindle, substantially as and for the purposes herein set forth.

193,473. SUMMER-FRONTS FOR FIRE-PLACE GRATES. Frank S. Bissell, Pittsburg, Pa. [Filed May 29, 1877.]



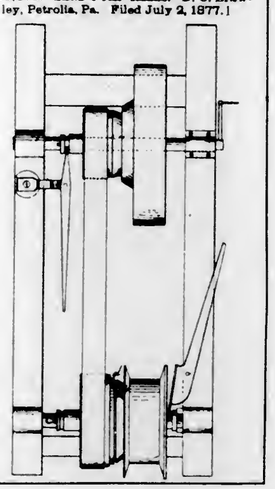
In combination with the ash-screen or shutter of an open fire-place grate, the detachable shutter, adapted, substantially as described, to close the combustion chamber or space above the ash-screen, so as to form therewith the summer front.

193,474. PNEUMATIC SIGNALS. F. Boyd, Oshkosh, Wis. [Filed July 3, 1877.]



The herein-described pneumatic signal, consisting of the tube or cylinder A, having the perforated head D and valve F arranged in one end thereof, the piston B, piston-rod C, and whistle or vibrator K I *b*, the several parts constructed and relatively arranged as specified.

193,475. SAND-PUMP REELS. D. C. Brawley, Petrolia, Pa. [Filed July 2, 1877.]

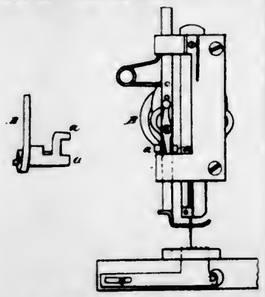


In a sand-pump reel, the reel-drum mounted upon an independent shaft, and in combination with a driving or band wheel and interposed clutch mechanism, substantially as and for the purpose specified.

193,476. SIRUPS AND MINERAL WATERS, &c. H. L. Bowker, Boston, Mass. [Filed July 7, 1877.]

The combination of saponin extracted from vegetable products with sirups, mineral waters, ciders, beers, ales, &c., or other liquids containing carbonic-acid gas, whether natural or artificial, as and for the purpose herein set forth and described.

193,477. SEWING-MACHINES. F. H. Brown, (W. P. Brown, administrator,) Indianapolis, Ind. [Filed Jan. 8, 1877.]



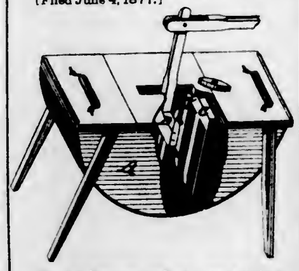
1. The mechanism for lifting the presser-foot automatically during the operation of the machine, the said mechanism consisting of the combination of the friction-clutch B, provided with one or more rigid lateral fingers *a a*, arranged for direct engagement with the presser-foot bar during the upward movement of the clutch, the rotary eccentric C, and the presser-foot bar, substantially as specified.

2. The combination of the lifter E with the automatic lifter B, both arranged, substantially as described, with relation to each other, for operation together, for the purpose of thereby rendering the clutch inoperative when the presser is on the goods.

3. In combination, the rotary eccentric C on the needle-actuating shaft, the clutch B, resting at its upper end on the said eccentric, and having at its lower end one or more lateral fingers, *a a*, the downwardly-pressing spring F, resting on the upper end of the clutch, the presser-foot bar, contracted at the point *a'* below the said fingers when the presser rests upon the goods, and the lifter E, all substantially as and for the purposes specified.

4. The combination of the lifter E with an automatic presser-foot lifter, substantially as and for the purposes specified.

193,478. RECIPROCATING CHURNS. J. D. Brown and J. A. Roberts, Kearney, Mo. [Filed June 4, 1877.]

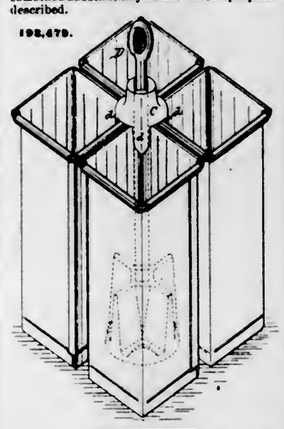


The combination, with the churn-body A, of the dasher D and removable racks C C, all constructed and operating substantially in the manner and for the purpose set forth.

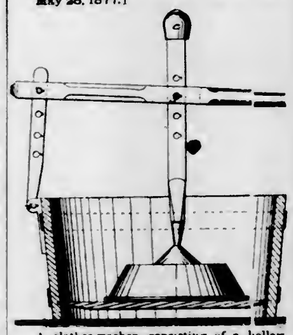
193,479. GRAPPLING-INSTRUMENTS FOR HANDLING CANS IN MAKING ICE. Emil Burgin, Basil, Switzerland. [Filed Apr. 5, 1877.]

A grappling apparatus consisting of the rod A, the platform B, provided with the projections *b*, and the sliding collar C, provided with the projections *d*, all constructed and combined substantially as and for the purpose described.

193,479.

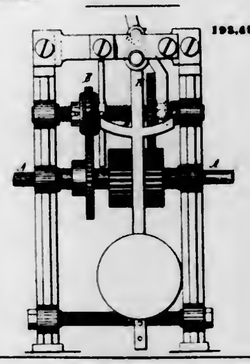


193,480. WASHING-MACHINES. B. C. Cady and J. W. Wolfe, Johnstown, Ohio. [Filed May 28, 1877.]



A clothes-washer, consisting of a hollow inverted presser, the inner surface of which is divided into cells by partitions, and its upper surface having a vertical shaft affixed thereto, which shaft has perforations for the purposes of adjustment, and a removable counter-weight fitted to its upper end, in combination with an operating-lever and fulcrum, the fulcrum also having adjusting perforations, and being hinged to the side of the tub, substantially as and for the purpose described.

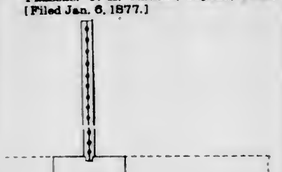
193,481.



193,482. GOVERNORS FOR STEAM-ENGINES. P. Carriere, Ganges, France. [Filed Dec. 30, 1876.]

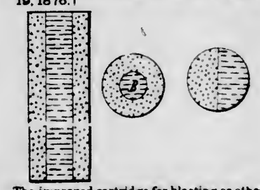
The combination of the power-shaft A, screw-shaft U, with differential gears B and E, arranged thereon, the first connected by frictional device, the second threaded to correspond to the thread of the shaft and corresponding differential gears on the power-shaft with a vibrating pendulum and arms projecting radially from said shaft U to impart vibration to the pendulum, and with connection from the wheel E to the valve, to be regulated substantially as described.

193,483. PERFORATORS FOR PRINTING-PRESSES. J. A. Carruth, Topeka, Kans. [Filed Jan. 6, 1877.]



In printing-presses, a frisket-finger provided with perforating-teeth, arranged on edge *a*, substantially as and for the purpose specified.

193,484. BLASTING-CARTRIDGES. P. Castellanos, San Francisco, Cal. [Filed Dec. 19, 1876.]



The improved cartridge for blasting or other similar purposes here described, consisting in an ordinary paper cartridge, having various interior compartments, loaded with two different mining-powders, which are pyronome in grains, or another powder of this class, inexplosive for percussion, and "giant" or another powder explosive by percussion, constructed and operating substantially as and for the purpose specified.

193,484. BLASTING-CARTRIDGES. P. Castellanos, San Francisco, Cal. [Filed Dec. 19, 1876.]

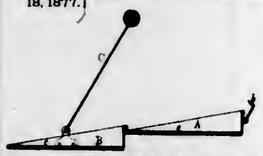
The improvement in paper cartridges containing hygrometric mining-powder, the same improvement consisting in an outside tin-paper covering, which is again enveloped in common paper, applied to the cartridges in order to make them impermeable to dampness, substantially as and for the purpose specified.

193,485. DEVICES FOR EXPLODING MINING-POWDERS. P. Castellanos, San Francisco, Cal. [Filed Jan. 8, 1877.]



The percussive petard here described, as an improved device for exploding mining-powders which fulminate by percussion, the same consisting in a small cartridge or vase of paper, copper, or of other equivalent material, charged, in part, with a percussive granulated powder, composed of chlorate of potassium and a picrate, and with a top of quick-match or its equivalent, the same vase having an empty space to receive a fuse to fire it, constructed and adapted for use substantially as described.

198,486. COOKING UTENSILS. R. D. Clark and R. Wells, Baltimore, Md. [Filed Jan. 18, 1877.]



The triangularly-ended frames A and B, hinged together as shown, and provided with bars *a* extending from the backs to the open fronts of the said frames, the whole being combined with a bail and handle, and constituting a reversible holder, for the purpose specified.

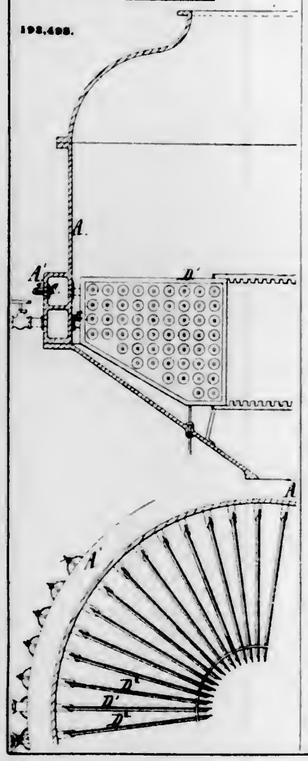
198,487. CLASPS FOR BRAID-ROLLS. John Cockcroft, Pawtucket, R. I., assignor to D. Goff, D. L. Goff, and L. B. Goff, same place. [Filed May 31, 1877.]

Brief.—The metallic clasp has two or more radial arms, which project in different directions from the center of the roll to its periphery, for the purpose of supporting said roll and securing the loose end of the braid.



A metallic clasp for braid-rolls, having two or more radial arms, which extend from the center and engage with the periphery of the roll, substantially as described.

198,488.



1. The spring-cover D^1, with hinged spring-catch P, in combination with the brake J, for the purposes set forth.

2. The combination of the grooved wheel D^1, having slots h^1 and notches h^2, the cord or wire *m*, with pin m^1, the spring-cover L, shaft R, with arm R^1 and crank R^2, and the spring-catch D^2, all substantially as and for the purpose set forth.

3. The combination of the arches C C, drum D, with threaded journal *b*, nut *d*, spring *e*, and arm or brace H, substantially as and for the purpose set forth.

198,489. INCUBATORS. T. M. Davis, Philadelphia, Pa. [Filed Sept. 26, 1876.]

Brief.—A hot-water reservoir has a glass bottom. The eggs in a fleecy bed are held to this bottom beneath it by a spring cushion. The water, heated over a lamp or furnace at one side, ascends and flows into the reservoir, whence it flows out, and circles round to the heater again by the force of heat.

1. The combination, in an incubator, of a hot-water tank, B, with an egg-tray provided with suitable yielding material, and with mechanism, substantially as described, for maintaining the contents of the tray in contact with the tank, substantially as described.

2. The combination, in an incubator, of the heated tank B, provided with a glass bottom, with the egg-tray G, as and for the purpose set forth.

198,490. HEATING APPARATUS FOR VACUUM-PANS. D. B. Cobb, Jersey City, N. J., assignor of one-half his right to Babcock & Wilson, New York, N. Y. [Filed July 23, 1875.]

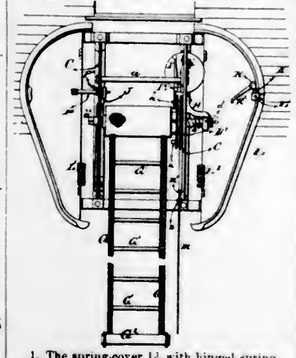
Brief.—A steam-belt, divided by horizontal circumferential partition into an upper and lower compartment, supplies steam to the radially-arranged heating-chambers contained within the pan. The sirup circulating freely between them is exposed to a large extent of heating-surface, promoting rapid evaporation. The radial chambers are alternately connected with the upper and lower compartments of the belt, so that steam may be entirely shut off from either set at will, for reducing the quantity of heat, &c. The inlet to each chamber is accessible through an opposite hand-hole in the belt, and may be plugged up when desired. Outlet-pipes from the radial chambers are provided for the escape of condensed steam and air.

1. The radial heating chambers, in combination with a central well communicating with the spaces between the several heating-surfaces, as and for the purposes specified.

2. The steam distributing belt A', divided into two independent chambers, supplied with independent steam-inlets with means for controlling the admission of steam, and connected each with alternate chambers D^1 D^2 mounted within the evaporating-pan A, as and for the purposes specified.

3. The radial chambers, conformable to the shape of the bottom of the pan for operation and discharge of the vacuum-pan, and extending inwardly from near the interior circumference, and having a central well, all in combination with circumferential steam-belts with steam connections to the radial chambers, as above described.

198,489. FIRE-ESCAPES. Ira D. Cross, Reno, Nev. [Filed May 19, 1877.]

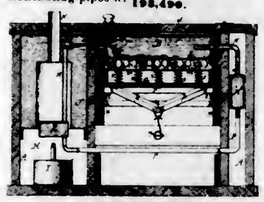


1. The spring-cover L^1, with hinged spring-catch P, in combination with the brake J, for the purposes set forth.

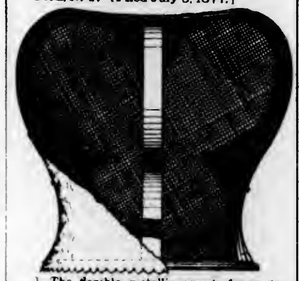
2. The combination of the grooved wheel D^1, having slots h^1 and notches h^2, the cord or wire *m*, with pin m^1, the spring-cover L, shaft R, with arm R^1 and crank R^2, and the spring-catch D^2, all substantially as and for the purpose set forth.

3. The combination of the arches C C, drum D, with threaded journal *b*, nut *d*, spring *e*, and arm or brace H, substantially as and for the purpose set forth.

198,490.



198,491. CORSETS. G. L. Du Laney, New York, N. Y. [Filed July 6, 1877.]



1. The flexible metallic corset-frame described, doubled continuously with its edges inward, and adapted to receive and retain within such double portion the edge of a fashioned corset.

2. A fashioned corset having the requisite contour for chest, bust, and hips, the body of either the front or back of which is composed of a single piece of metallic wire-cloth, molded or clamped upon shaping formers into its ultimate permanent form, and held to such form by a metallic binding.

3. In combination with a fashioned corset made of a single piece of wire-cloth or other suitable flexible material, a metallic flexible binding surrounding the same, and which, while protecting the edge of the fabric, insures the retention of the corset in its fashioned shape.

4. In combination, a wire-cloth fashioned corset, bound with a flexible metallic binding, and a wire-cloth back-piece, similarly bound.

5. In combination with a shaped corset made of wire-cloth, and having a flexible sheet-metal binding or frame, a felt or textile material adapted to cover the same as a protection for the lungs and chest.

198,492. GIN-SAW-FILING MACHINES. A. S. Eastham, Navasota, Tex. [Filed May 12, 1877.]

Brief.—The spurs of the driving wheel, by gear, crank, and levers, reciprocate two files. Crown-teeth on same driving-wheel rotate a gumming-file. Stud on same driving wheel, through levers, operates the feed, and through an additional lever lowers rotary file from saw during the feed, and restores file to saw after the feed.

1. A gin-saw-filing machine consisting, essentially, of a rotary and intermittingly movable file, of an intermittingly-operating feed and check device, and of adjustable reciprocating sharpening-files, substantially in the manner set forth.

2. The combination of the main driving-wheel B, having pin *a*, with a rock-lever, *b b'*, and, by connecting-levers, with the feed device and rotary file, to raise or lower the latter simultaneously with the former, substantially as set forth.

3. The combination of main driving-wheel B, having pin *a*, rock lever *b b'*, connecting-lever *d*, and slotted and guided plunger d^1, with head *e* of feed rod M', to withdraw the same for dropping on next tooth, substantially as described.

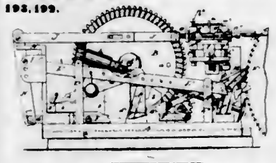
4. The combination of main driving-wheel B, having pin *a*, rock-lever *b b'*, weighted file-lever L^1, sliding box *f*, and rotary file shaft, to drop or raise the file into teeth, as set forth.

5. The combination of feed-hand M with drag or check pawl N, having adjustable drop-spring N', for the purpose described.

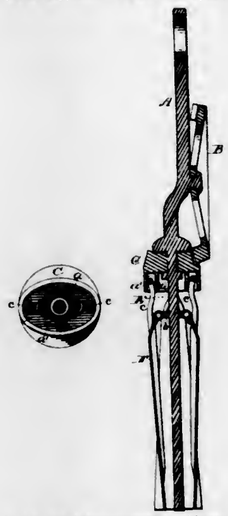
6. The combination of the coupling and slotted universal joint of rotary file shaft with collar, balancing spiral spring, and slide-box of the same, to facilitate raising and lowering of rotary file, as described.

7. The combination of the reciprocating piston-rods of the files O with laterally-adjustable boxes, pivoted guide-supports, laterally-sliding rest-piece, and horizontal supporting-arms, to adjust files to any position toward teeth, as set forth.

198,493.



198,493. EGG-BEATERS. L. Eberhart, Laporte City, Iowa. [Filed June 5, 1877.]



1. An egg-beater or cream-whipper, the arms of which are hung substantially as described, and having imparted to them a reciprocating action in opposite directions, each set of two arms alternating with the other set, as shown and described.

2. In an egg-beater or cream-whipper, the combination of the handle A, beveled gear B, pinion C, having the under side provided with an elliptical groove, as shown, handle-extension E, and four reciprocating arms, F, all combined and operating substantially as shown and described.

3. In an egg-beater or cream whipper, an arm, F, having a double shank, *c*, attached thereto by having the sides turned over the two arms of the shank and hinged to the extension E of the handle by forming a loop, *d*, of the upper end, as shown and described.

198,494. BOOKS AND COVERS. John R. Edwards and Henry H. Edwards, Baltimore, Md. [Filed June 26, 1877.]

1. In combination with a letter-book, a temporary binder, adapted to compress the leaves of the book and prevent access of the water to the stitching or binding, substantially as described.

2. In combination with the binder B, the book A, having one or more strips, *a*, inserted at the back, as and for the purpose set forth.

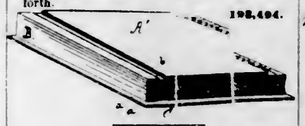
3. The binder B, having shoulder *b* and beveled ends *b' b'*, substantially as described.

4. The book A, having strip *a*, in combination with the binder B, having shoulder *b*, substantially as described.

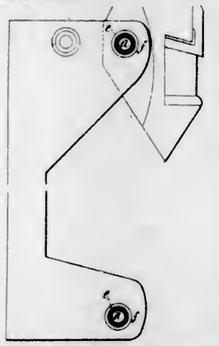
5. In combination with a letter-book and its index, a temporary binder, clamping only the former, substantially as described.

6. In combination with the book A, having the flexibly-attached index A', the binder B, having a single rigid cover, C, all substantially as described, and for the purpose set forth.

198,494.

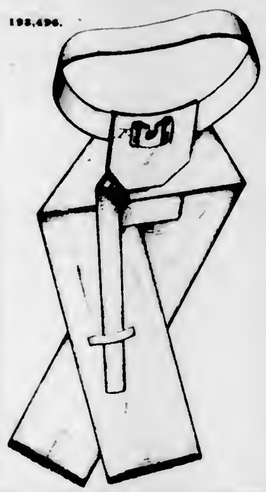


198,495. PIANO-ACTIONS. J. D. Elliot, Newton, assignor to the Rogers Upright Piano Company, Boston, Mass. [Filed Feb. 28, 1877.]



In a piano-action, the combination of the metallic bushing *f* with the bushing *e* of flexible material, within which the pivots of the parts of the action are arranged, substantially as specified.

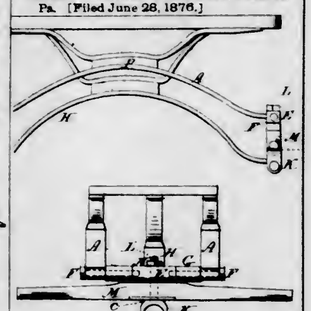
198,496.



198,496. SCARF-RETAINERS. J. A. Eshleman, Philadelphia, Pa. [Filed Nov. 24, 1876.]

The within-described neck-tie or scarf-retaining device, consisting of a plate, F, secured at its opposite ends to said neck-tie or scarf, and swelled in the center, where it is provided with an opening, *a*, constructed and arranged to operate as set forth.

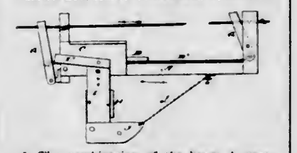
198,497. BUGGIES. J. H. Farrell, Dunbore, Pa. [Filed June 28, 1876.]



1. The king-bolt L, having the lower forked or arched end K for the middle spring, and the bearing *c* for the axle, in combination with the head-block E, the axle M, and the middle spring H of a buggy, substantially as and for the purpose set forth.

2. The head-block E of a buggy, having the iron-bound end bearing-bolts F, in combination with the side springs A, secured upon and by said end bearing-bolts, as set forth.

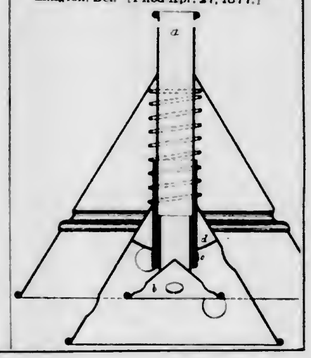
198,498. CORN-PLANTERS. John Feldmier, Lawrence, Kans. [Filed May 5, 1877.]



1. The combination of the beam A, corn-box C, connecting-straps D^2, carrying dropping-slide D, and levers G G, constructed as described, and adapted to be attached to a cultivator, and operated by a knotted rope placed angling across the row to be planted, substantially as and for the purpose described.

2. In combination with the corn-dropper A C D D^2 and forked levers G G, the adjustable perforated arm I I, lever F, conductor H, and furrow-opener J, with chain *d*, substantially as and for the purpose described.

198,499. CLOTHES POUNDERS AND WASHERS. G. L. Fisher, Scranton, Pa., assignor of one-half his right to H. Barry, Wilmington, Del. [Filed Apr. 27, 1877.]

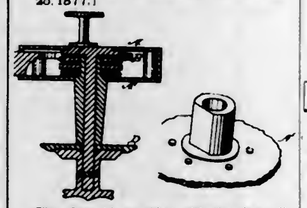


1. The central stem *a*, combined at its base with the small inverted cone *b*, serving as a bearing on the clothes and as an auxiliary to the larger cones, substantially as described.

2. Combined with the central stem *a*, the rubber ring *c*, as and for the purposes specified.

3. In combination with the inner cone-washer, its central hollow stem, and the solid plate partition or brace *d*, as and for the purposes specified.

193,500. PERMUTATION-LOCKS. T. FOX, Bay City, Mich., assignor to himself and J. J. Fitzgerrell, same place. [Filed May 25, 1877.]



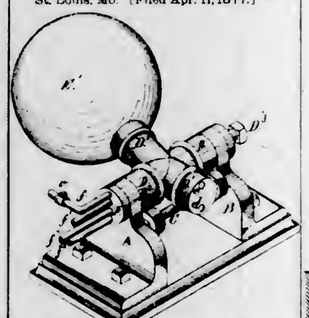
The plate A', provided with the sleeve C upon one side, and the flatted sleeve *f* on the other, and having the series of projections *f'* cast thereon, as and for the purpose described.

193,501. BOXES FOR MAKING MATTRESSES. J. H. Gallagher, New York, N. Y. [Filed Apr. 11, 1877.]



In the manufacture of mattresses a box made in sections to contain the tick while it is being stuffed, and pierced with holes to facilitate the sewing of the mattress, the successive sections of the box to be applied as soon as the preceding section of the mattress is stuffed, and the several parts of the different sections to be made separately to receive the tick, substantially as described.

193,502. BOILER-FEEDERS. R. Garstang, St. Louis, Mo. [Filed Apr. 11, 1877.]

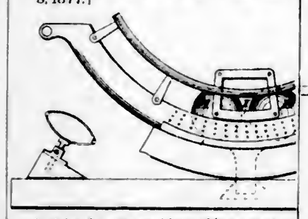


1. The rock-shaft D D', having water vessels E E', and provided with steam and water passages in the portion D', in combination with standards A B, the portion A^1 of the standard A having suitable ports connecting with the passages in the portion D', all constructed and arranged substantially as set forth.

2. The rock-shaft D, constructed with passages d d^1 and e e^1, in combination with the standard A, having ports a a^1 a^1 a^2 a^3 a^3 and pipes f f' f^2 f^3, and the standard B, as and for the purpose set forth.

3. The combination, with the rock-shaft D, carrying water-vessels E E', of the shafts C, provided with bearing-rollers *c*, sustaining the shaft D, and limiting the oscillatory motion of the same.

193,503. QUARTZ-CRUSHING MACHINES. H. Gebhardt, Silver City, Mont. [Filed Mar. 3, 1877.]



1. A hand quartz-machine rocking on a central pivot, and provided with side reaction-springs, substantially as described.

2. In a quartz-crushing machine, the combination, with a rocking frame pivoted and supported from beneath, and containing the gravity-rollers, of the side reaction-springs, substantially as described.

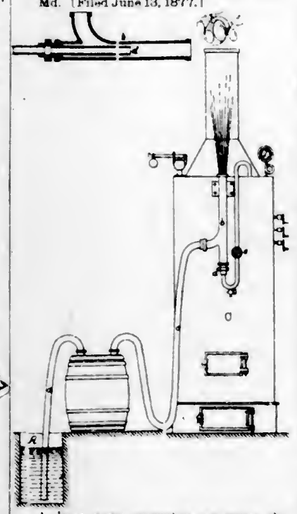
3. The combination, with the arc-shaped rocking frame, provided with a parallel bearing-piece and guiding-pivot, of a supporting-floor, having a conical-shaped slot in which the pivot oscillates, substantially as described.

4. The combination, with the rocking frame provided with perforations, of the side aprons, substantially as described.

5. The combination, with the rocking frame operated by lever-handles, of the reaction springs, adjustable in relation to the said frame, substantially as and for the purpose described.

6. The combination, with the rocking frame provided with lever-handles, a guard-rail, and crushing-rollers rigidly attached to one another, and moving freely within said frame, of the side reaction-springs, substantially as described.

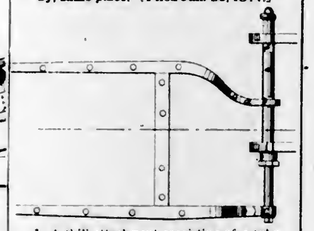
193,504. APPARATUS FOR EMPTYING SEWAGE-TANKS. Emil Gettman, Baltimore, Md. [Filed June 13, 1877.]



1. In a sewer-emptying apparatus, the combination of the steam-generator C with the steam-pipe *d*, valve *e*, and air-exhausting pipe *b*, provided with a nozzle for connection with the barrel-pipe *e*, substantially as specified.

2. A sink or sewer emptying apparatus consisting of the following elements in combination, to wit: A steam-generator, provided with an escape-pipe through which steam is liberated into the open air, and an air-exhausting pipe from which the air is exhausted by the said escape of steam, a base-pipe attached to said exhausting-pipe, and a barrel or tank provided with tubing for entering the sink or sewer, substantially as herein specified.

193,505. ADJUSTABLE THILL ATTACHMENTS. S. Gilzinger, Rondout, N. Y., assignor of one-half his right to A. A. Crosby, same place. [Filed Jan. 26, 1877.]

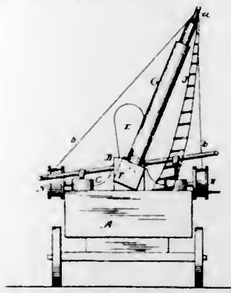


1. A thill attachment consisting of a tubular attaching-bar and interior bar, with a spline or fin secured to the tubular attaching-bar, in combination with one or more thill-irons, provided with gates formed in the eye or eyes thereof, substantially as and for the purpose described.

2. In a thill attachment, a tubular attaching-bar with a spline or fin, provided with one or more gates, substantially as and for the purpose described.

193,506. HYDRAULIC FIRE-ESCAPES. J. F. Greene, Brooklyn, N. Y. [Filed June 21, 1877.]

Brief.—A series of telescopic tubes connected at bottom with a hollow pivoted chest, serving as a universal joint, is mounted upon a truck. The base is connected with a force-pump. A rope ladder and stays are attached to upper end of the tube.



1. A portable fire-escape consisting of the truck A, its force-pump C, the pivoted chest D, communicating with the pumps, and series of telescopic tubes G, pivoted at the lower end to the side of the chest D, substantially as described.

2. The combination of the truck carrying the force-pump and series of tubes G, its receptacle I, and the rope-ladder J, as set forth.

3. The combination of the truck-pump and tubes G, and the drums N, carrying stay-lines, extending to the tubes, substantially as set forth.

4. The combination of the tubes G, stay-lines *b*, and braces *b'*, substantially as herein shown and described.

193,507. MASH-RAKES. Alex. I. Guthrie, Louisville, Ky. [Filed June 9, 1877.]

Brief.—A rake with hollow teeth, having a beveled front edge sloping upward and backward, with perforations closed by set-screws in the head of the rake, for the purpose of removing the mash that may accumulate in the teeth.



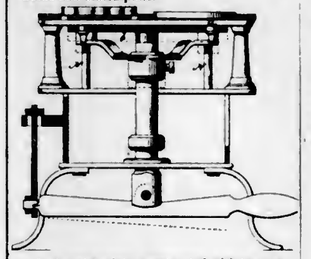
1. In a mash-rake, the hollow rake-tooth D', having the central cutting-edge *a*, beveled sides *b b*, and inclined lower end, terminating in a point, *c*, substantially as and for the purpose set forth.

2. In a mash-rake, the hollow rake-head D, provided with screws *s* and perforations *o*, in line with the axes of the hollow teeth D', substantially as described, and for the purpose set forth.

3. In a mash-rake, having branch pipes P R, tube L, box G, and tube E, the hollow rake-head D, having perforations *o* and screws *s*, and the hollow teeth D', having central cutting-edges *a* and beveled sides *b*, all combined for the purpose set forth.

193,508. MATCH-PLATE MOLDINGS. T. F. Hammer, Branford, Conn. [Filed Mar. 30, 1877.]

Brief.—Molds two flanged pinions at once, with one set of half-patterns on one side of one match-plate. Raises table holding match-plate, and partially rotates it horizontally till its legs cover bearings. After molding one half-flask, partially rotates table reversely to remove table-legs from bearings; then lowers table arrangement of pins and sockets on half-flasks and match-plate.



1. A match-plate, constructed with two perforations, *e f*, at each end, and all on the same central line, in combination with two parts of a molding-flask, the one constructed with studs *g*, corresponding to the perforations *f* on the plate, and the other part with studs *h* corresponding to the other perforations *e*, and the said other part with perforations *i*, corresponding to the studs *g* on the said one part, substantially as described.

2. The combination, for molding purposes, of a match-plate and patterns, the plate constructed with apertures or recesses corresponding to the patterns, the said patterns arranged on a vertically-moving rotating carriage provided with adjustable supports N, and means, substantially such as described, for turning the said carriage-posts to a bearing when the patterns are raised, or turning them from the said bearing to lower the patterns, substantially as described.

193,509. PRESERVING FOOD. J. HARVEY, London, England. [Filed Feb. 22, 1877.]

Brief.—The bisulphide of carbon is placed in a shallow dish, and burned in the close chamber in which the meat, &c., is placed; or it may be burned in a common spirit-lamp.

The process of preserving meat, fish, and other animal substances above described, and consisting in subjecting such substances to the action of nascent sulphurous acid obtained free from injurious impurities by the combustion of bisulphide of carbon, substantially as specified.

193,510. PLUG-TOBACCO. E. R. Hearn, Jersey City, N. J. [Filed May 17, 1877.]



A package of plug-tobacco having two or more plugs applied together, with a raised device on one plug lying within a depressed surface of the adjacent plug, substantially as and for the purposes herein set forth.

193,511. PROPELLING CANAL-BOATS. J. H. Hetzler, Baltimore, Md. [Filed June 16, 1877.]

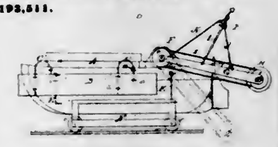
1. The combination, with a canal-boat having horizontally-vibrating raised and curved davits C upon its sides, of the guard plates B and hooks E, substantially as specified.

2. The combination, with a vertically-adjustable frame, G G', carrying the propelling-wheel H, and having a bail, J, of a derrick, L, a tackle, K, and a catch, P, substantially as specified.

3. The combination, with a canal-boat, of a propelling-wheel having end tread-disks *n*, and intermediate longitudinal ribs adapted to bite upon the ground when said wheel is rotated, substantially as specified.

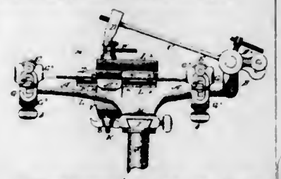
4. The propelling-wheel H, consisting of the shaft *g*, the spaced disks *f f'*, connected by tread-boards *h*, and the radial paddle-boxes *i*, arranged between said disks *f' f'*, adapted for use substantially as specified.

193,511.



193,512. MACHINES FOR SETTING SAW-TEETH. R. Heunsch, Washington, D. C., assignor to G. Follansbee and R. C. Hewitt, same place. [Filed May 17, 1877.]

Brief.—The saw-blade is held down to the beveled bed by correspondingly-beveled rollers, which can be adjusted according to the width and thickness of the blade. The clamp can be adjusted to the angle desired by the mechanism specified in the second claim.

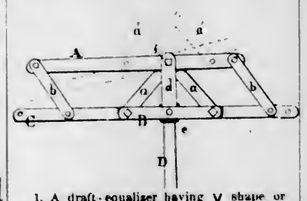


1. The combination, in a saw-set, of the beveled bed A, beveled rollers E E, adjustable plates G G, and adjustable L-shaped arms G' G', substantially as and for the purposes herein set forth.

2. The combination of the clamping-jaws L L', with their arms P P' hinged together, the screw R, with thumb-nuts S S, and the forked arm V, substantially as and for the purposes herein set forth.

3. The adjustable clamping-jaws L L' and arms P P', in combination with the auxiliary intermediate jaw L^2, provided with the ribs *m*, substantially as and for the purpose set forth.

193,513. DRAFT-EQUALIZERS. R. Hoadley, Toulon, Ill., assignor of one-half his right to D. Lowman, same place. [Filed Nov. 10, 1876.]

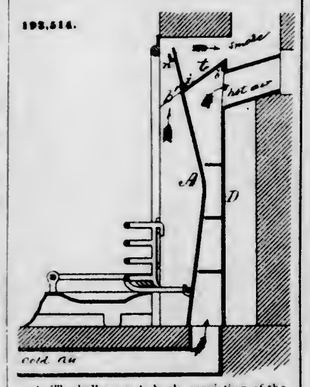


1. A draft-equalizer having V shape or triangular braces *a a*, arranged to make the bar B rigid with tongue D, in combination with bars C C, connected to a back bar, A, by bars *b b*, substantially as and for the purposes set forth.

2. The combination of the removable and adjustable braces *a a*, having a pivotal connection with the junction-bolts of the bars B C, bolt *f*, main bar A, parallel bars *b b*, and strap *d* or tongue D, constructed and adapted for the purposes substantially as shown and described.

193,514. GRATE-BACKS. W. A. Holbrook, Milwaukee, Wis. [Filed June 9, 1877.]

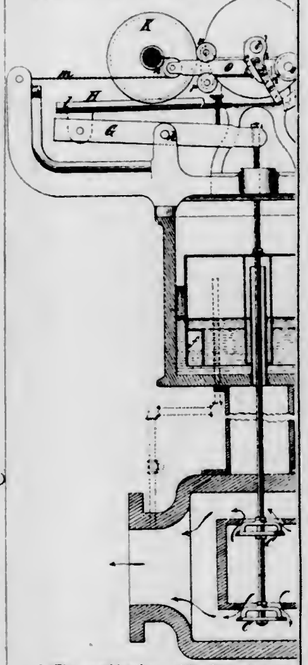
193,514.



1. The hollow grate-back, consisting of the concave cast-iron plate A, having the top *t* inclined backward and upward from its upper bend, and flange *b* extending around its side and top edges, and the laterally-bent iron jacket D, having a corresponding side flange, and bolted to the sides and top of said plate, substantially as specified.

2. The combination, with the concave corrugated cast-iron grate-back A, having flange *b* and inclined top *t*, of the sheet-iron jacket D bolted thereto, and having the series of inner projecting ledges obliquely arranged at different heights, substantially as specified.

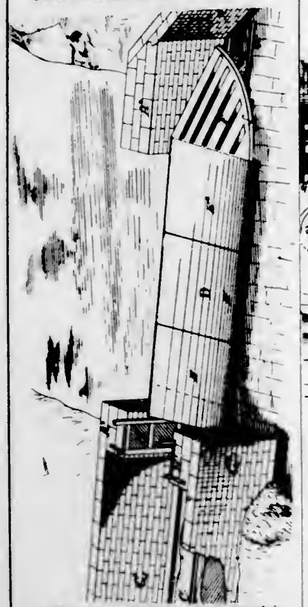
193,515. GAS-GOVERNORS. C. W. Isbell, New York, N. Y. [Filed May 8, 1877.]



1. The combination, with the valve or valves of a gas-governor and a lever applied to said valve or valves, of an adjustable weight applied to said lever, and an adjusting device, operated by clock work, and operating upon said weight or weights to produce an automatic adjustment thereof, substantially as and for the purpose herein described.

2. The combination, with the lever G, valve or valves C, and gas-holder F, of the adjustable inclined way H, roller-weight K, chain or cord *m*, bar O, and the cam *c*, driven by a train of clock-work, substantially as and for the purpose specified.

192,816. SYSTEM AND APPARATUS FOR THE IMPROVEMENT OF THE NAVIGATION OF RIVERS. Wm. B. Johns, Georgetown, D. C. [Filed June 29, 1877.]



1. The system for the improvement of rivers, consisting of wing-dams and abutments, a channel-space between the abutments, and a movable dam filling such channel-space, adapted for withdrawal to open the channel-space, or for replacement to close the channel-space, substantially as described.

2. The combination of one or more wing-dams for turning the water of a river into an open channel, abutments on each side of the channel, with a dam adapted to be moved across or withdrawn from such channel, substantially as and for the purposes set forth.

3. The combination, with the channel A, of the dam D, moving on a track laid in the bottom of such channel, and the receptacle or basin G, into which the said dam is adapted to be withdrawn, substantially as described and shown.

4. A movable dam of prismatic form, arranged with the longest face against the current, substantially as described.

5. The movable dam D, constructed in sections, substantially as and for the purposes set forth.

6. In combination with a movable dam, constructed as set forth, the track-cleaner F, substantially as described.

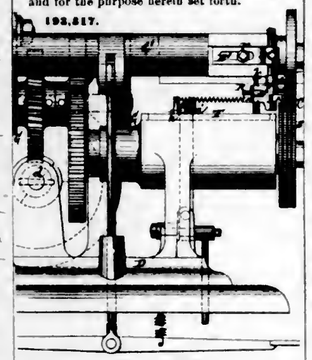
192,817. MACHINES FOR CHANNELING THE SOLES OF BOOTS AND SHOES. John Keats, Wood Green, England. [Filed June 13, 1877.]

1. The combination, with the rocking frame G, moving about an axis parallel with the axes of the feed-wheels, of a cutter-carrying and guide bracket or piece, S, having both an upward and downward and a horizontal adjustment relatively to said rocking frame, and a knife having a horizontal adjustment, not only with reference to the said rocking frame, but also with reference to said bracket, substantially as herein shown and described, for the purpose set forth.

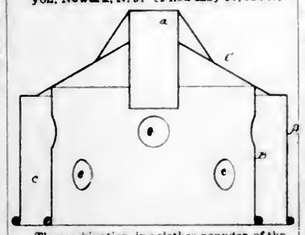
2. The combination, with the rocking frame which carries the upper feed-wheels of a machine for channeling or preparing the soles of boots and shoes, of the slide B', adjustable in said frame, the knife-carrying and guiding bracket S, adjustable in said slide, the knife C, sliding freely through said bracket, and mechanism connected with said bracket, for varying the position of said knife relatively to the guiding-face of said bracket, substantially as herein described.

3. The combination, with the frame G, rocking on an axis parallel with the axes of the feed-wheels, and the cutter-carrying and guide bracket S, attached to said frame G, of the knife C, sliding through said bracket, the lever R, attached to said bracket and connected with said knife, and the slide T and pin K, connected with said lever R, substantially as and for the purpose herein set forth.

192,817.

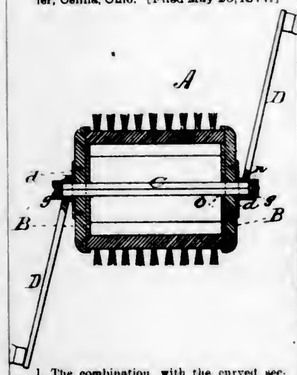


192,818. CLOTHES-POUNDERS. S. R. Kenyon, Newark, N. J. [Filed May 17, 1877.]



The combination, in a clothes-pounder, of the inclined top C, its central socket *a*, and outer rim A, and the inner perforated rim B, connected to and supported by the inclined top C, as set forth.

192,819. CYLINDRICAL BRUSHES. J. Kistler, Celina, Ohio. [Filed May 26, 1877.]



1. The combination, with the curved sections of a cylindrical brush, of the heads B, annularly grooved to receive the said sections, an axial bolt extending through the said heads, and suitable clamp-nuts applied upon the said bolt substantially as specified.

2. The combination, with a cylindrical brush having plates *d* upon its ends, with rectangular openings therein, and the prismatic axial shaft extending through said plates and provided with screw-threaded ends, of the crank-arms D, applied on said shaft, and the nuts *g*, substantially as specified.

3. The combination, with the cylindrical brush A, of the crank-arms D, having the inner wing *a* oblique to the brush ends, and the handle oblique to the axis of the brush, substantially as specified.

192,820. ART OF TANNING. F. Knapp, Brunswick, Germany. [Filed Mar. 16, 1877.]

The process of tanning hides or skins by steeping them in a solution of basic sulphate of iron, produced by first boiling a solution of ordinary green vitriol (sulphate of iron) and nitric acid to oxidise the iron salt, and then adding green vitriol (sulphate of iron) until the solution becomes the proper consistency, substantially in the manner herein set forth.

192,821. CHEMICAL COMPOUNDS FOR TANNING HIDES AND SKINS. F. Knapp, Brunswick, Germany. [Filed Mar. 8, 1877.]

1. The oxysalt, basic sulphate of iron, prepared as and having the physical properties described.

2. The process of preparing basic sulphate of iron, consisting in first adding nitric acid to the boiling solution of sulphate of protoxide of iron, and subsequently adding to the resulting solution a solution of sulphate of protoxide of iron, and either allowing the salt to remain in solution or evaporating the same to dryness, substantially as and for the purpose specified.

192,822. HOSE-NOZZLES. A. Koegler and C. H. Nicoll, Newark, N. J. [Filed July 6, 1877.]

Brief.—A tubular stem having a shoulder in the rear part, in combination with a tubular slide, which extends through said tubular stem, and which is closed at its rear end, while it is provided with a flange forming a valve, and having its seat on said shoulder, and also provided with lateral discharge-openings contiguous to its rear or closed end, so that if the tubular stem is connected to the end of a hose the pressure of the liquid therein tends to keep the tubular side in a forward position, and thereby to hold the valve in contact with its seat, so as to prevent the escape of the liquid.



1. The combination, in a hose-nozzle, of a tubular stem, A, having a shoulder, *b*, in the rear part thereof, with a tubular slide, C, which extends through said stem and is closed at its rear end, being provided with a flange, *a*, forming a valve, and having its seat on said shoulder, and also provided with lateral openings *d*, contiguous to its rear or closed end, all adapted to operate substantially as described.

2. The combination, with the tubular stem A and tubular slide C, of a sliding ring, D, which is fitted on the said stem, and connected to the tubular slide by means of screws or rivets *f* (one or more) passing through longitudinal slots *g* in said stem, substantially as and for the purpose described.

192,823.



192,823. TRAVELING-BAGS, SATCHELS, &c. A. C. Krick, Newark, N. J. [Filed June 26, 1877.]

1. A door or partition for traveling-bags, valises, &c., provided with a rigid hinge-piece attached to and forming part thereof, as herein set forth.

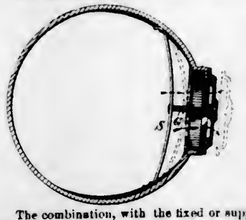
2. In a traveling-bag, valise, or other similar article, a detachable door or partition, provided with a rigid hinge-piece and suitable fastening devices, substantially as herein set forth.

192,824. PRIMERS FOR CARTRIDGES. J. Lee, Ilion, N. Y. [Filed June 11, 1877.]



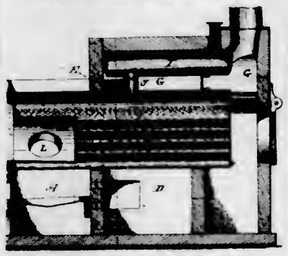
A primer consisting of the body or shell A, having its closed end or head indented or made concave, with the non-explosive material e filled in around, or made solid with said concave head, substantially as and for the purpose set forth.

192,825. SAFETY-VALVES FOR LAMPS. J. H. Lewars and C. Klaitz, Philadelphia, Pa., assignors to W. E. S. Baker, same place. [Filed June 22, 1877.]



The combination, with the fixed or supplemental collar of a lamp, of a valve and valve-seat, struck up in corresponding dies, as described, and provided with the guide G and springs S, all constructed, arranged, and operating as set forth.

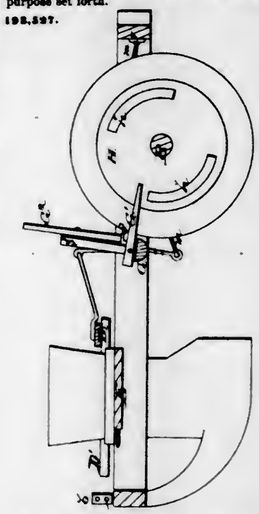
192,826. STEAM-GENERATORS. W. Lowe, Bridgeport, Conn. [Filed July 2, 1877.]

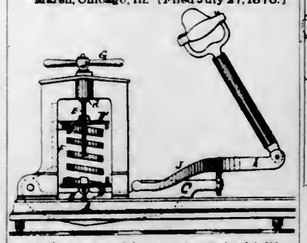


1. In a superheating steam-boiler, the combination, with the fire-box, of the auxiliary combustion chamber *m*, located immediately over said fire-box, and in front of the tubes, the smoke-chamber D, conduit E, and superheater I, arranged within the uptake-chambers G, substantially as and for the purpose set forth.

2. The combination, in a steam-boiler, of the fire-box A, flues L, connecting said fire-box with the auxiliary-combustion chamber *m*, return smoke-chamber D, and uptake conduit-flues E and G, constructed and arranged substantially as and for the purpose set forth.

192,827. EXERCISING-MACHINES. J. P. Marsh, Chicago, Ill. [Filed July 27, 1876.]

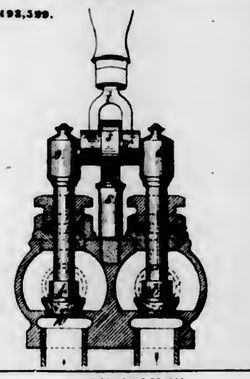




1. In an exercising-machine or health-lift, the combination, with the lifting-lever C, of the equalising-yoke J, provided with the arms *k k* journaled to the lever, substantially as and for the purpose specified.

2. In an exercising-machine or health-lift, the combination, with the lifting-lever C, adjusting-screw E, and disks D D', of the resisting-spring F permanently connected at its ends to the said disks, substantially as and for the purpose specified.

192,828.



192,829. VALVES FOR STEAM-RADIATORS. J. N. Matlock, Brooklyn, assignor to J. J. Smith and J. L. Wise, New York, N. Y. [Filed July 5, 1877.]

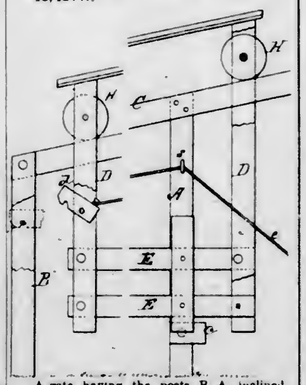
Brief.—A double-valve case, two parallel valve-stems, and an intermediate cam-acting lever, opening or closing simultaneously the two valves, one of which is for the admission of steam, and the other for the discharge of water of condensation.

1. The double valves and their cases, and the inlet and exit pipes, respectively, in combination with a lever and eccentric or cam operating both valves simultaneously, substantially as set forth.

2. The double valve-cases and connections for the respective pipes, in combination with the valves, valve-stems, trunnions, eccentric or cam, standard, and slotted head, substantially as and for the purposes set forth.

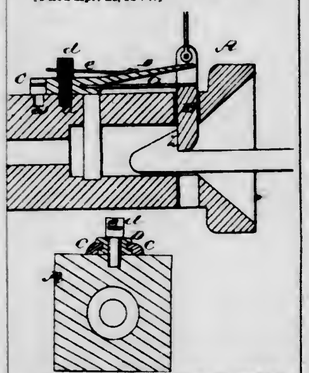
3. In combination with double valves, introduced into the compartments of one case, the cross-piece r, extending from the head of one valve-stem to the head of the other, to which the power for opening and closing both valves simultaneously is applied, substantially as set forth.

192,830. FARM-GATES. A. T. McComb and A. D. McComb, Oxford, Ala. [Filed Feb. 10, 1877.]



A gate having the posts B A, inclined track C fixed thereon, and the vertically-extended posts D D, connected by rails E, and provided with pulleys H H, in combination with the vibrating latch *d* and operating-cord *e*, substantially as specified.

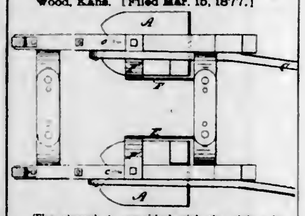
192,831. CAR-COUPLINGS. E. B. McCarty, Plantersville, Tex., assignor of one-half his right to James Heagerty, same place. [Filed Apr. 21, 1877.]



1. In a car-coupling, the arm D, provided with the spring G, in combination with the coupling-pin B, operating in the manner substantially as and for the purpose described.

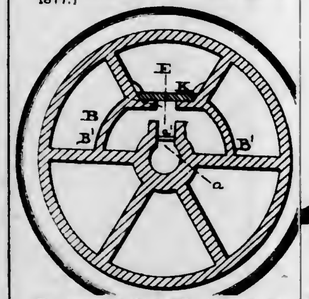
2. The combination of the draw-head A, with flanges C C and holes *a a'*, the sliding arm D, with spring G, and the pin *d* and spring *c*, substantially as and for the purposes described.

193,329. CULTIVATORS. Chas. McGee, Elwood, Kans. [Filed Mar. 15, 1877.]



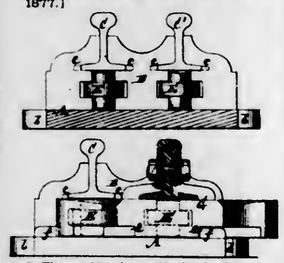
The shovel A, provided with the nick *c*, in combination with the centrally-arranged colter or blade E, as and for the purpose described.

193,333. CAR-AXLE LUBRICATORS. B. McHugh, Huntingdon, Pa. [Filed Mar. 6, 1877.]



The projecting channel E, with open support *a'*, in combination with the arch-shaped chamber B and cap K, substantially as and for the purpose set forth.

193,334. RAILROAD-SWITCHES. G. M. McMahan, Carter's Creek Station, and J. T. Craik, Columbia; said Craik assignor of one-half his right to S. K. Hathaway, Carter's Creek Station, Tenn. [Filed May 31, 1877.]



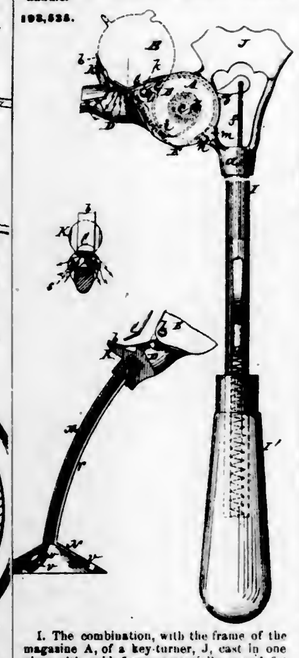
1. The combination, with the fixed head of the chair and movable or sliding cross-head thereof, of one or more rollers, arranged to protrude from one of said heads for operation in relation with or against a bearing or guiding surface on the other of said heads, the whole constituting a switch chair having a roller-joint, substantially as specified.

2. The combination of the fixed stops *f f* with the cross-head G, fitted to slide upon the bed A of the chair, and constructed with a roller guiding or bearing surface, the duplicate protruding back rollers E E, and the stationary head B of the chair by which said rollers are carried, essentially as shown and described.

193,335. GAS-LIGHTING TORCHES. E. L. Megill, Brooklyn, N. Y. [Filed Jan. 31, 1877.]

Brief.—The hammer strikes upon a short anvil and toward the gas to be ignited. The percussion-tape is fed and the pellets exploded by means of mechanism connected with the handle.

193,336.



1. The combination, with the frame of the magazine A, of a key-turner, J, cast in one piece with said frame, essentially as and for the purposes herein set forth.

2. The combination of the stem I, the handle I', the magazine A, the connecting rod *f*, the spring *g*, the trigger *h*, and the tumbler or cam G, substantially as and for the purposes specified.

3. The magazine lid or cover B, pivoted to the magazine-frame at a point, *l*, between the hammer C and the tape-feeder E, essentially as described.

4. The guide, guard, and stop K, in combination with the magazine A and its lid B, substantially as specified.

5. The combination of the circular concentric tape-guide *i*, with the magazine A, and the tape-feeder E, working outside of the exterior concentric surface of said guide, whereby the feed of the tape from and outside of the magazine is facilitated, essentially as described.

6. The sharp anvil D, in combination with the hammer C, having a striking action in the the direction in which it is required to pass the flame, substantially as specified.

7. The anvil D, constructed with a transverse slit, *s*, in its nose, substantially as and for the purpose herein described.

8. The magazine A having its walls in part formed of the hammer C, the tape-feeder E, and the guide *i*, essentially as described.

9. The vibrating cam G, in combination with the hammer C and its inclined lip *d*, substantially as and for the purpose herein described.

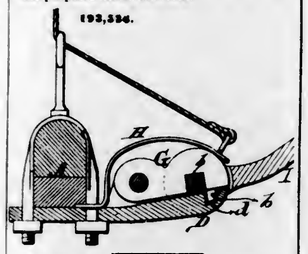
10. The combination of the fulminate-tape feeder E, with the cam G, to which said feeder is attached, substantially as specified.

193,336. THILL-COUPLINGS. R. C. Millings, Charleston, S. C. [Filed June 30, 1877.]

1. In a thill-coupling, the pivoted jaw G, provided with square recess *a*, in combination with the thill-iron J, having perforated ends I I, and the bolt L, having square conuter *b* and rounded ends *i i*, substantially as and for the purposes herein set forth.

2. The combination of the stationary jaw D, with recess in its end, as described, the pivoted jaw G, with recess *a* and tenon *b*, and the spring H, substantially as and for the purposes herein set forth.

193,336.

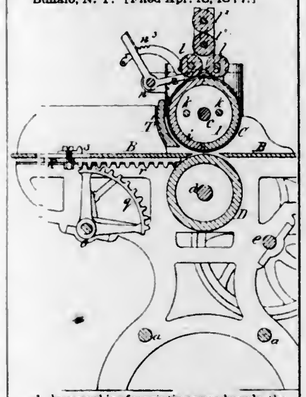


193,337. MANUFACTURE OF BUTTONS. L. Millaux, Waterbury, Conn. [Filed June 13, 1877.]



As an improvement in the manufacture of buttons, a button back and shank struck up from a single piece of metal, one end of the shank formed with a cup-shaped recess, adapted to enter the back of the face-disk of the button, as shown and described.

193,338. ROTARY PRINTING-MACHINE FOR PRINTING ON BOARDS. H. Montgomery, Buffalo, N. Y. [Filed Apr. 18, 1877.]



1. In a machine for printing upon boards, the combination, with the type-cylinder, made adjustable, as described, of the stop-plate T', secured to the boxes of the cylinder and adjustable therewith, as and for the purpose set forth.

2. The combination, with the type-cylinder C, of the inking-rollers *l l' l'*, supported in movable bearings M, having the notches *m'* of the lower rollers *l* made deeper than the notch *m'* of the upper rollers, so that the rollers *l' l'* can be raised from the lower rollers without raising the latter from the type-cylinder, substantially as and for the purpose hereinbefore set forth.

3. In combination with the adjustable type-cylinder C and stop-plate T', arranged as described, the table B, reciprocating feed-bar R, and longitudinal guide-plates T, substantially as and for the purpose set forth.

4. The combination, with the type-cylinder C and reciprocating feed-bar R, provided with gear-rack *r*, of the rock-shaft *o*, arm *o'*, rod *p*, crank *p'*, and gear segment *q*, substantially as and for the purpose hereinbefore set forth.

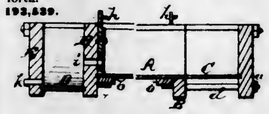
193,339. EVAPORATING-PANS. J. W. Miller, Scotland, Ind. [Filed May 19, 1877.]

Brief.—The juice and sirup are separated from each other in different chambers by valves at alternate ends of the chambers. The dirt and scum are caught in sinks at alternate ends of the chambers, from which they are drawn off by drain-pipes leading from the bottoms of the sinks.

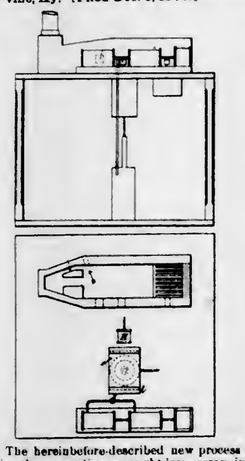
1. The combination of the pan A, sink D, communicating passages *i*, and valve *k*, substantially as and for the purposes herein set forth.

2. The combination of the pans A, passages C, sinks D, valves *k*, and drains *k*, all substantially as and for the purposes herein set forth.

193,339.

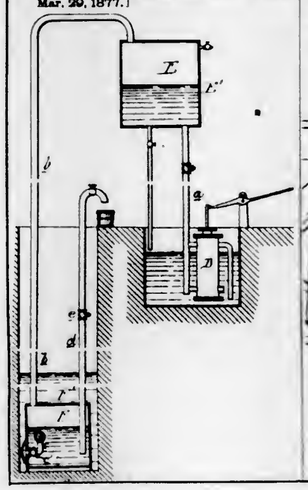


193,340. PROCESSES OF CONVERTING IRON SCRAP INTO BARS. A. J. Moxham, Louisville, Ky. [Filed Dec. 5, 1876.]



The hereinbefore-described new process of directly converting wrought-iron scrap into merchantable iron without subjecting the iron to the ordinary muck process, consisting of first forming the scrap within a furnace into a suitable bloom, then removing said bloom therefrom and subjecting it to hydraulic or other pressure, in the manner described, whereby a condensed bloom is formed and prepared for immediate conversion into bar or other shaped iron, as may be required.

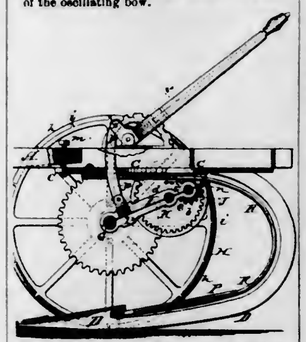
193,341. PUMPING APPARATUS FOR WELLS. Jesse E. Nale, Moorestown, N. J. [Filed Mar. 29, 1877.]



The combination of the pump D, compression-chamber E, and chamber F, with the connecting-pipes *a* and *b*, and discharge-pipe *d*, as set forth.

193,342. POTATO-DIGGERS. Jas. Norton, Hightstown, N. J. [Filed May 26, 1877.]

Brief.—The wheel has a central circumferential flange and transverse teeth. The handle slides on the lever and adjusts the pawl. Suitable gearing works the shaker by means of the oscillating bow.



1. The oscillating bow R, carrying a shaker, P, and swinging on one center beneath the plow, and another in the frame above it, in combination with a fixed plow or shovel, substantially as and for the purposes herein set forth.

2. The parallel swing-boxes I, axle G, frame C, and shafts K and J, in combination with the oscillating bow R, carrying the shaker P, constructed and arranged substantially as and for the purpose set forth.

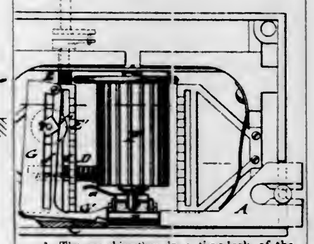
193,343. ORNAMENTAL CHAIN-LINKS. B. Nortemann, Attleborough Falls, Mass., assignor to R. F. Simmons & Co., same place. [Filed May 25, 1877.]



1. The combination, in a box-chain link, of the independent perforated and externally-plated sides A, having mitered edges, and soldered together at said edges on or from the inside of the link, substantially as specified.

2. The combination of the perforated sides A, having plated exterior surfaces and mitered joints at their edges, united internally by solder *s*, and the end rings B entered and soldered within the open ends of the box-link formed by the sides A, essentially as described.

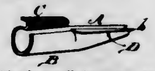
193,344. TIME-LOCKS. John S. Overmyer and J. A. Huston, New Lexington, Ohio. [Filed May 5, 1877.]



1. The combination, in a time-lock, of the sliding bolt A and lever-stop B with the releasing traversing nut D, and the intermeshing drum F, to set the releasing nuts to any desired position without interference with the actuating watch-movements, substantially in the manner and for the purpose specified.

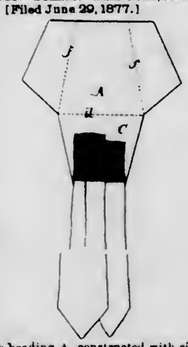
2. The combination of the stop-lever B with the slotted and pivoted lever-plate G, having bottom arm G', and adjustable disk *f'*, and the pointer *d* of the traversing releasing-nut D, to produce the automatic dropping of the lever-stop at a fixed time, substantially as and for the purpose specified.

193,345. PENCIL-SHARPENERS. G. H. Park, Rome, N. Y., assignor of one-half his right to A. Leach and G. J. Leach, same place. [Filed May 5, 1877.]



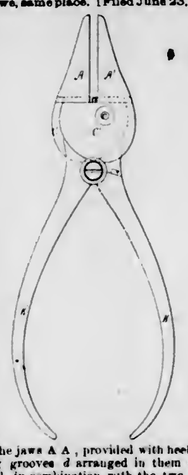
A combined pencil-sharpener and pencil-point protector, consisting of the cone A, cylinder B, and flange C, formed of a single piece of metal, with a knife, D, attached to or formed on the cone, having its point *b* projecting beyond the end of the cone, substantially as and for the purposes set forth.

193,346. SCARFS. Emil Peltz, Astoria, N. Y. [Filed June 29, 1877.]



The heading A, constructed with side flaps and a flap, C, for supporting the scarf end, and adapted to be folded downward on the line *d*, and the side flaps folded inward on the lines *f*, and fastened, substantially as and for the purpose described.

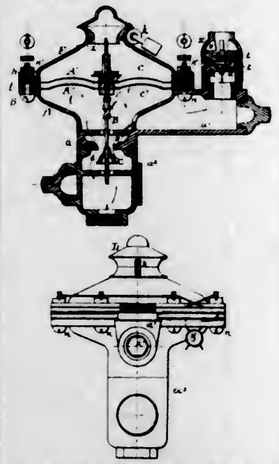
193,347. PINCHERS. M. M. Pettes, Worcester, Mass., assignor to himself and A. F. Stowe, same place. [Filed June 23, 1877.]



1. The jaws A A, provided with heels C C, having grooves *d* arranged in them as explained, in combination with the two levers B B', pivoted together and to such jaws, and arranged therewith, and provided with studs *e* to enter the grooves *d* of the said heels, all being substantially as set forth.

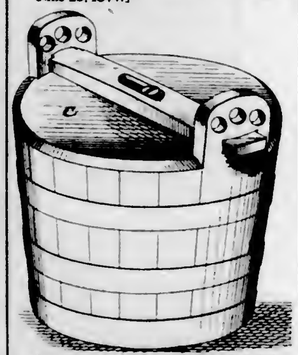
2. Each of the jaw-heels, extended at its upper edge into the base of the fellow jaw, as represented, when the said jaws are provided with heels, and pivoted, as described, to the upper arms of two crossed levers, as set forth.

192,548. GAS-GOVERNORS. R. H. Plass and H. McManus, New York, N. Y.; said McManus assignor to said Plass. [Filed Nov. 15, 1876.]



1. The combination, in a gas-regulator, of the two diaphragms, washer or ring *l*, and the body A and detachable cover F, as set forth.
2. The combination of the two diaphragms, valve-rod, washer, *i*, and nuts *i' i''*, as specified.
3. The combination of the body A, cover F, fastening devices, and cord or wire, and seal *y*, as and for the purpose set forth.
4. The combination of the delivery-pipe, perforated partition or disk *t*, disk-valve *s*, and ribs *v*, for the purpose set forth.
5. The auxiliary disk, combined with the disk *s*, perforated partition, and ribs *v*, as and for the purpose set forth.
6. The disk or partition *t*, having the central opening, and the recesses *u u*, threaded at the edge, and adapted to and adjustable in the threaded interior of the delivery-pipe, as specified.

192,549. BUTTER-FIRKINS. A. Pope, Allegheny, assignor of one-half his right to W. M. McKelvy, Pittsburg, Pa. [Filed June 29, 1877.]

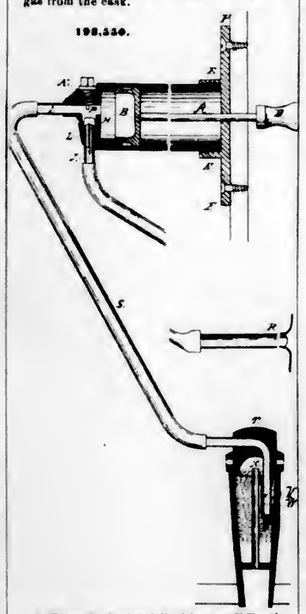


In combination with a butter-firkin and the cover thereof, a cross-bar adapted to be secured in openings on opposite sides of said tub, said bar being provided with a longitudinal slot, within which is located a clamping device, whereby the bar may be held in position to secure the cover to the top of the tub and permit its removal, substantially as set forth.

192,550. BEER-PRESERVERS. A. Redman, Milwaukee, Wis. [Filed Apr. 7, 1877.]

Brief.—Cold air is drawn from the ice-box by the air-pump, and compressed into the beer-cask to such an extent as to force the liquid rapidly out of the faucet. The water in the vent acts as a seal to prevent the escape of gas from the cask.

192,550.

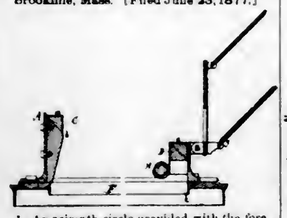


1. The cylinder-head E with arms F F, substantially as and for the purpose specified.
2. The vent T, with tube U, having an opening, V, rubber W, and tube X, substantially as and for the purpose specified.
3. The combination of the cylinder A, piston B, tubes I J, and valve L with vent-plug T and air-tube R, connected by suitable tubing, and operating substantially as and for the purpose specified.

192,551. MANUFACTURE OF IRON AND STEEL. J. Reese, Pittsburg, Pa. [Filed June 21, 1875.]

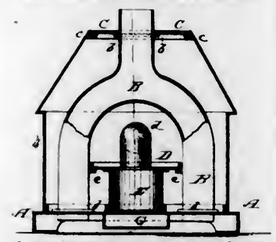
1. The process herein described of treating the metal in the converter by introducing iron-ore oxide in a divided state continuously, and by means of the air or other oxygen-yielding blast, until decarburization is effected, substantially as and for the purpose specified.
2. The process herein described of recarbonizing iron in the converter, by introducing plumbago in a divided state, and by means of the blast, substantially as specified.
3. The process herein described for the manufacture of steel, consisting in first purifying and decarbonizing the metal in the converter by the introduction of iron-ore oxide, and then recarburizing the metal by the introduction of plumbago by means of the blast, substantially as specified.

192,552. AZIMUTH-CIRCLES FOR ATTACHMENT TO SHIPS' COMPASSES. E. S. Ritchie, Brookline, Mass. [Filed June 23, 1877.]



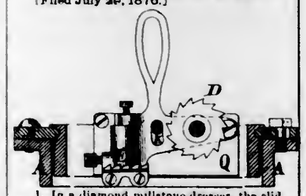
1. An azimuth-circle provided with the fore and back reflectors or reflecting-prisms C D, arranged with its sights and main reflector substantially in manner and to operate as specified.
2. An azimuth-circle provided with the fore and back reflectors C D, and a spirit-level, H, arranged with its fore and back sights and main reflector substantially in manner and to operate as set forth.
3. An azimuth-circle provided with fore and back reflecting-prisms C D, and main and auxiliary reflectors E G, arranged with its fore and back sights B A, and annulus F, substantially in manner and to operate as set forth.

192,553. HOT-AIR FURNACES. A. J. Robinson, Troy, N. Y. [Filed May 16, 1877.]



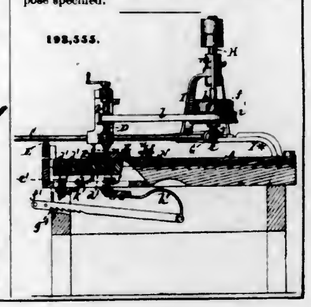
1. In a furnace or stove the heater B, provided with flanges *b*, in combination with the plates A, C, and D, substantially as and for the purpose set forth.
2. In a furnace or stove the plate D in combination with the fire-pot E, smoke-pipe *d*, and ash-pit G, substantially as and for the purpose set forth.
3. In a furnace or stove the combination of the heater B, having flanges *b e*, plates A C D, groove *c*, fire-pot E, smoke-pipe *d*, and ash-pit G, constructed and arranged as and for the purpose set forth.
4. In a furnace or stove the groove *c*, having equal width at its top and bottom, with the corresponding tongue of the plate C, and a sand filling or packing, substantially as and for the purpose set forth.

192,554. MILLSTONE-DRESSING DEVICES. Simon Ross, Cincinnati, Ohio, assignor to himself and G. A. Vandegrift, same place. [Filed July 26, 1876.]



1. In a diamond millstone-dresser, the sliding block Q, to which is pivoted a tool-holder, having its vertical motion limited, and adjustable by the slot K and pin L, with rack E, arranged to communicate with and change the position of the feeding device, substantially as and for the purpose specified.
2. As applied to a millstone-dresser, the screw-box H, divided through its center, the part T being secured to the frame A, and the movable part pivoted to the same at O, and arranged to be locked together by the lever N, substantially as and for the purpose specified.

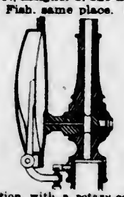
192,555.



192,555. ROUTING-MACHINES FOR ENGRAVERS' USE. V. Royle and J. Royle, Jr., Paterson, N. J. [Filed May 2, 1877.]

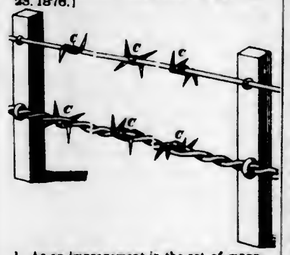
1. The support I for the driving-spindle H, constructed with a base, I°, of open-loop form, in combination with the table A and the swinging arm G, having upper and lower bearings *e e*, and of bracket-like construction, with an upper brace, *m*, essentially as and for the purpose herein set forth.
2. The removable face plate or bar E, in combination with the sliding and adjustable clamp N, substantially as specified.
3. The sliding bar S, hung on radial arms or levers *s' s'*, and arranged so that when moved toward the work it bears downward relatively to the surface of the table on which the work is secured, in combination with the dog P, carried by said bar, essentially as described.
4. The combination of the removable and adjustable dog P, having an inclined stem, *c'*, in combination with the sliding bar S, having a combined forward and downward motion, as described, and provided with a series of oblique apertures, *d'*, for operation in relation with the work, substantially as specified.
5. The combination of the notched extensible handle L with the vibrating slotted socket or piece K, with which said handle engages, and the swinging arm G, essentially as and for the purpose herein set forth.

192,556. AUTOMATIC COCKS. C. H. Scofield, Utica, N. Y., assignor of one-half his right to W. P. Fish, same place. [Filed May 7, 1877.]



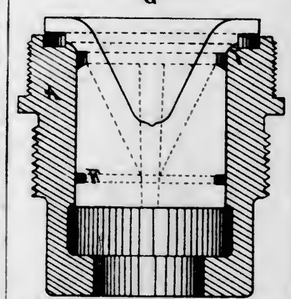
1. The combination, with a rotary cock or plug-valve having a tight casing secured eccentrically to one end of said cock, of a diaphragm within said casing and a lever-catch arranged to rest on the surface of said diaphragm opposite the pressure, substantially as described.
2. The combination, with a valve having a closed receptacle secured eccentrically to the stem of the valve, of a diaphragm located within said receptacle, a lever resting on the outer surface of said diaphragm, and means for adjusting the lever, substantially as described.

192,557. WIRE-FENCE BARBS. Hiram B. Scutt, Joliet, Ill., assignor to Joliet Wire Fence Company, same place. [Filed Oct. 23, 1876.]



1. As an improvement in the art of manufacturing sheet-metal barbs for wire fences, the method, substantially as hereinbefore described, of producing pointed prongs thereon, to wit: by the employment of continuous strips of iron having sharp, or comparatively sharp, longitudinal edges, as made by rolling or compression, and increasing in thickness thence toward the longitudinal center, and by cutting from said bars the barb-blanks by means of a V-shaped die or stamp having its cutting-edges arranged to meet in or near the center of the said bars, and extending to or terminating in the longitudinal edges thereof.
2. The barb C, cut in lines converging from its outer corners toward the center, and having thereon, between each pair of prongs thus formed, a projection, *s*, substantially as and for the purpose specified.
3. A sheet-metal barb having tapering prongs cut in lines converging from its four outer corners or points toward the center, and provided with the projections *s s*, arranged between the prongs so formed, in combination with a strand or cable of a wire fence, substantially as and for the purposes set forth.

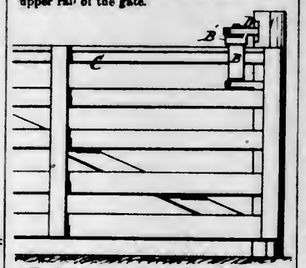
192,558. SAFETY-VALVES. Thomas Shaw, Philadelphia, Pa. [Filed July 3, 1877.]



1. A safety-valve provided with a spring, substantially as described, whereby the hammering of the valve incident upon the escape of high-pressure steam is prevented.
2. In a safety-valve, a spring surrounding the guide-wings of the valve, as and for the purpose set forth.
3. A valve having its guide-wings recessed to receive a spring, as and for the purpose set forth.
4. The combination, in a safety-valve, of the casing A, valve G, having recesses in the guide-wings, and a spring placed within such recess, as and for the purpose set forth.

192,559. GATE-HANGERS. N. H. Sherrill, Le Roy, N. Y. [Filed Dec. 29, 1876.]

Brief.—For a gate that slides half-way back and then swings at right angles, a "closed hanger" is provided, which is separable in its parts, so that it may be placed around the upper rail of the gate.



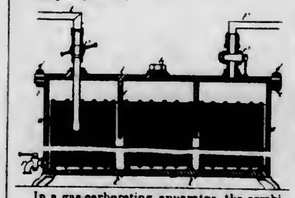
The hanger consisting of the two parts B and B', the first forming the body, constructed with open ends *a a* and seats *h h*, to receive the journals of the pulley, and the last constructed in the form of a cap or box, fitting over and inclosing the top of the other, the whole forming a closed loop, but separable in its parts, to be inserted on or removed from the rail of the gate after the gate is built, as shown and described, and for the purpose specified.

192,560. STOVE-PIPE THIMBLES. T. Shuman, Corning, Iowa. [Filed Jan. 15, 1877.]



In a stove pipe thimble the disks A and B, in combination with the cylinder C, the disk A being provided with the lugs *a a* and *b b* and holes *h h*, and the disk B being provided with the projections *d d* and the lugs *c c* and the holes *h h* and the wires *e e*, substantially as described, and for the purposes set forth.

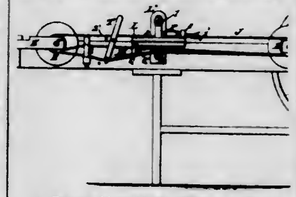
192,561. APPARATUS FOR CARBURETING GAS. C. A. Sirié, Paris, France. [Filed May 28, 1877.]



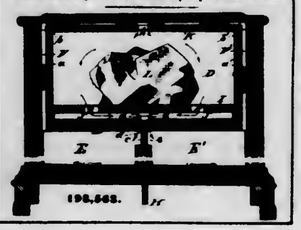
In a gas carbureting apparatus, the combination of the inclosing-case, its upper portion divided into compartments by partitions *f*, a frame, *g*, in each of said compartments, wound with a cotton absorbent, the inlet *t* opening within the frame in the first compartment, and the exit *t'* from the last compartment, all substantially as specified.

192,562. DOMESTIC SPINNING-WHEELS. J. A. Smith and E. S. Smith, Pond Fork, Ky. [Filed Mar. 24, 1877.]

Brief.—The spindle-carriage is moved backward and forward by means of an endless traveling band, provided with knots along its length, for operating against suitable stops on said carriage. Suitable mechanism along the guideway operates in conjunction with devices on the carriage to retain and release said carriage in its backward and forward traverses.



1. The combination of a sliding spindle-carriage with cords or bands, which draw said carriage toward the operator, and also rotate said spindle, substantially as and for the purpose set forth.
2. The combination of a sliding spindle-carriage with an endless traveling band extending from end to end of the guideway, and provided with knots for moving said carriage and pulleys at each end, substantially as and for the purpose set forth.
3. The combination of a sliding spindle-carriage, having a spring-pressed fork at each end, with a knotted traveling cord or band and devices, substantially as described, at the ends of the guideway, for forcing said forks away from said carriage, substantially as and for the purpose set forth.
4. The combination of bifurcated tripping-lever T, having cleft *t t'*, with band or cord J, having knots *j j'*, cross-bar S', and carriage L, with extension R', having catch *r*, substantially as and for the purpose set forth.
5. The combination of slotted lever T, knotted cord J, cross-bar S', extension R', spring R, fork Q, and carriage L, substantially as and for the purpose set forth.
6. The combination of spindle-carriage L, provided with inclined bifurcated catch U, and cord or band J, having knots or enlargements *j j'*, substantially as and for the purpose set forth.
7. The combination of arched bar S with inclined extension P', spring P, and fork or bifurcated block O, supported by carriage L, substantially as and for the purpose set forth.



193,563. REFRIGERATORS. Geo. F. Smith, Michigan City, Ind. [Filed Apr. 17, 1877.]

In a refrigerator, the combination, with the two provision-chambers E E′ and the single ice-box D, provided with opening *d*, and situated above such provision-chambers, and extending the entire width of the refrigerator, of the side flues F F′, air-box K, having opening *h*, and the false bottom I, having the side openings *e e′*, all constructed and arranged substantially as described and shown.

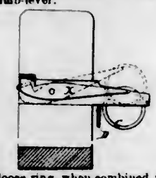
193,564. HAME-TERRETS. Byron G. Smith, Auburn, N. Y. [Filed July 3, 1877.]



An improved hame-terret provided with two braces—a brace, *b*, continuous with the base-line of the terret-ring *c*, and a flying-brace, *a*, whereby a triangular brace is formed, substantially as described.

193,565. GATE-FASTENINGS. C. P. Snow, Freeport, Ill. [Filed Jan. 30, 1877.]

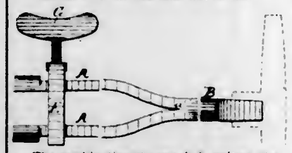
Brief.—A loose ring is suspended in a suitable bracket upon the gate post, and, in connection with a rigid latch upon the gate, serves as a fastening. It is operated from the inside by a thumb-lever.



1. A loose ring, when combined with a suitable bracket and latch, to serve as a gate or door fastening, substantially in the manner set forth.

2. The lever X, in combination with the ring C, for the purpose of releasing the latch D, so as to open the gate or door from the inside, substantially as set forth.

193,566. WRENCHES. J. H. Snyder, Eau Claire, Wis. [Filed Mar. 20, 1877.]



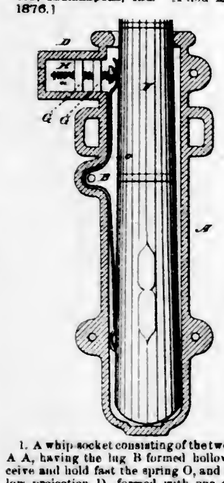
The combination of arms A A, uniting at *a*, so as to form the stock or base B, with the sliding adjustable clasp or sleeve E, having thumb-screw G, substantially as and for the purpose herein shown and specified.

193,567. SPRING BED-BOTTOMS. James I. Spencer, New York, N. Y. [Filed Nov. 28, 1876.]

Brief.—The central bend or bearing-loop passes through the eyelet, which secures the bracing tapes or bands at their intersections, and the sides of the loop bearing against the edges of the eyelet hold the spring firmly in place.

The spring constructed with the central bend or bearing-loop B, as and for the purpose herein set forth.

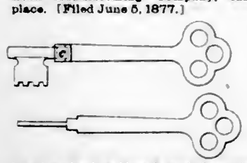
193,568. WHIP-SOCKETS. M. S. Tarkington, Indianapolis, Ind. [Filed May 16, 1876.]



1. A whip-socket consisting of the two halves A A, having the lug B formed hollow to receive and hold fast the spring O, and the hollow projection D, formed with one or more lugs, G G, drilled and tapped to receive the screw H, all arranged and adapted to be operated in the manner set forth and described.

2. A whip-socket consisting of two halves, A A, spring O, and screw H, in the manner set forth and described.

193,569. KEYS FOR LOCKS. W. H. Taylor, Stamford, Conn., assignor to the Yale Lock Manufacturing Company, same place. [Filed June 5, 1877.]



1. A key-shank and bow formed of one piece of sheet metal, and provided with a tenon and projection thereof smaller than the tenon, substantially as described.

2. An improved key, composed of a sheet-metal bow and shank, and a slotted bit-stem, the two united by a ferrule that serves as a stop or gage for the key.

193,570. WASHING-BOARDS. F. Taylor and H. F. Baker, Jr., Centreville, Ind. [Filed May 26, 1877.]

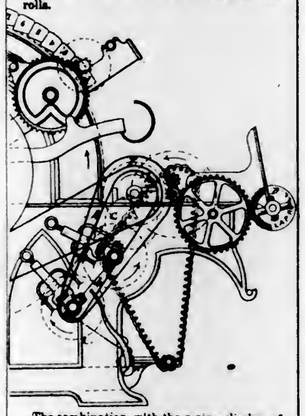
1. A wash-board having its washing-surface composed of a series of spiral springs, substantially as set forth.

2. A series of spiral springs, arranged in a frame, and resting on a solid backing, to form a wash-board, as herein set forth.

3. The combination of the side pieces with the cross-bars, the back, the spiral springs, and the water-escapes, substantially as and for the purposes set forth.

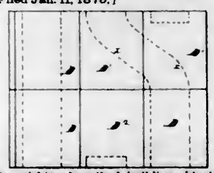
193,571. COTTON-CARDING ENGINES. G. E. Taft, Northbridge, Mass. [Filed Oct. 16, 1876.]

Brief.—The top-flats are arranged in advance of the group of workers and clearers over the main cylinder, for removing the trash, &c., before the fibers reach the group of workers and clearers. The space for these top-flats and workers and clearers is increased by dropping the feed-rolls and doffer below the axis of the main cylinder. To strip the main cylinder of any fiber that may escape the doffer, a roll is arranged beneath the leader-in roll, and between this roll and said leader-in is located a breaker-roll, for opening any bunches that may reach the leader-in from the feed-rolls.



The combination, with the main cylinder, of the feed-rolls, the leader-in, the top-flats, the top workers, the doffer, the cylinder-stripper, and the under worker 1, the several parts being arranged around the main cylinder in the following order, to wit: the feed-rolls, leader-in, top-flats, upper workers, doffer, cylinder-stripper, and under worker, as and for the purpose set forth.

193,572. BUILDING-BLOCKS. J. Thompson, Orange Valley, assignor of one-half his right to Wm. L. Dunn, Camden, N. J. [Filed Jan. 11, 1876.]



The within-described building-block D^1, having a diagonal opening extending from one end to the side, and adapted to be used in connection with blocks D^2 D, as set forth.

193,573. MOVABLE PARTITIONS OR SCREENS. G. W. Tripp, Auburn, N. Y. [Filed June 1, 1877.]

1. The portable screen or partition, consisting of the movable standards A, the vertical rolls B, and the flexible screen C, combined and arranged to operate substantially as shown and described.

2. The folding arm *b*, attached to the standard A, as and for the purpose described.

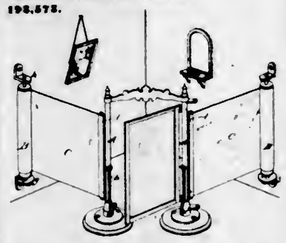
3. The portable standard A, provided with wheels or rollers *a* and a folding arm, *b*, as shown.

4. In combination with the vertically-movable roll, containing the shaft *c* and spiral spiral spring *d*, the incline *i*, bolt *e*, and spring *f*, arranged to operate as shown and described.

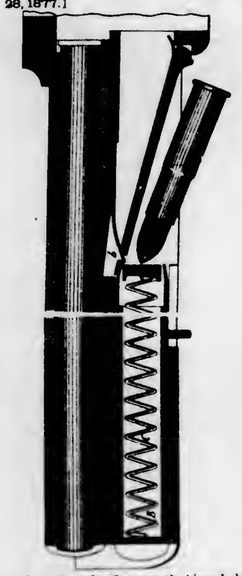
5. In combination with a hollow portable standard, A, having a roll, B, with a flexible screen, C, mounted therein, folding arms m n, hinged to the standard, as and for the purpose described.

6. The combination, substantially as shown and described, of a vertical roll, mounted in suitable bearings or supports, a flexible screen attached to said roll, and capable of being extended horizontally therefrom, a spring applied to the roll for the purpose of winding the screen thereon, and devices, substantially such as shown, for holding and sustaining the screen in its extended position.

193,574.



193,575. MAGAZINE FIRE-ARMS. F. W. Tiesing, New Haven, Conn. [Filed Feb. 28, 1877.]



1. In a magazine fire-arm, the hinged plate, arranged forward of the cartridge-carrier and opening into the magazine, in combination with the spring-follower in the magazine and mechanism, substantially as described, for moving the follower forward, substantially as and for the purpose specified.

2. In a magazine fire-arm, the hinged plate, arranged forward of the cartridge-carrier and opening into the magazine, in combination with the spring-follower in the magazine, mechanism, substantially as described, for moving the follower forward, and the spring-latch *b*, substantially as and for the purpose specified.

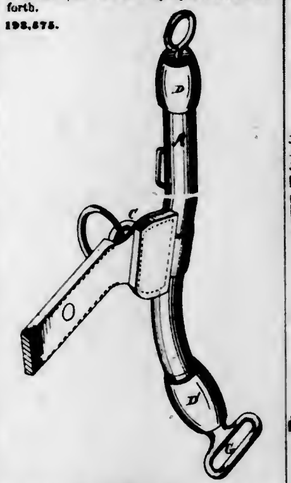
193,576. HAMMS. M. Turley, Council Bluffs, Iowa. [Filed Dec. 13, 1876.]

1. The combination of the tubular hame A, the adjustable sleeve B, having set-screw *a*, hollow boss *b*, and the detachable screw-staple C, all constructed substantially as and for the purposes herein set forth.

2. The staple C, screwed into a boss or projection on the sleeve B, as and for the purposes herein set forth.

3. The combination of the tubular hame A, screw collar D′, and staple G, screwed into said collar, as and for the purposes herein set forth.

193,575.



193,576. WEIGHING-SCALES. A. Turnbull, New Britain, Conn., assignor to Landers, Frary & Clark, same place. [Filed June 30, 1877.]

Brief.—Attaches the pointer, by a rod, directly to the moving support, thus dispensing with rack and pinion.



In combination, the vertically-guided support of a weighing-scales, spring dial, and pointer, a connection-rod positively joining the said pointer to the vertically-moving part of the mechanism, substantially as described.

193,577. NAIL-PLATE FEEDERS. A. H. Tyrrell, Fowler, and S. Evans, Niles, Ohio. [Filed May 28, 1877.]

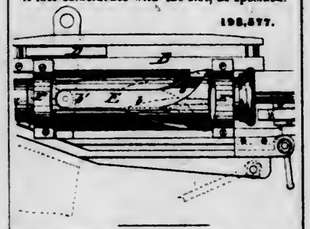
1. In a nail-plate feeder, the stationary plate A, having a screw-threaded eye formed on its rear extremity, the crank-shaft, having a corresponding thread, the side plate B, having perforated ears, forming bearings for the shaft, and located at a distance apart greater than the width of the threaded eye, all combined and arranged as shown and described, whereby the shaft forms both the hinge-support and means for adjusting the rear end of plate B for giving proper taper to the nails, as specified.

2. The combination of the reciprocating cross-head with the grooved working-barrel, and with straight and inclined guides of the side plate, to impart simultaneously rotary and up-and-down motion to barrel, substantially as and for the purpose described.

3. The reciprocating cam-rod, laterally-swinging cam, sliding and spring-cushioned cross-head, having recessed arms, and clamping-dogs pivoted to second independently-sliding cross-head, all in combination with the nail-plate feed-rod, substantially as and for the purpose set forth.

4. In a nail-plate feeder, the working-barrel, having spirally-inclined and oppositely located shoulders, each extending nearly half way round the interior of the cylinder, as shown and described, so that, in case the nail-plate is inserted in the cylinder with its transverse plane more or less inclined to the slot in the tapered point of the cylinder, it will, when pushed forward, be partially rotated to bring it into coincidence with the slot, as specified.

193,577.



193,578. HORSE HAY-RAKES. H. C. Vells, Poughkeepsie, N. Y. [Filed June 20, 1877.]



1. The combination, in a horse-rake, of tubular projections, firmly connected to the main frame, with the wheels which are mounted on said tubular projections, with an independent shaft, which extends through said tubular projections, ratchets and pawls, which connect the independent shaft with the wheels, a rake-head, and a suitable clutch mechanism, all constructed and operating substantially as and for the purpose herein shown and described.

2. The combination, with the shaft D, wheels C, and rake-head E, of a pinion, *c*, feathered on the shaft, a rack, *d*, secured to the rake-head, and a foot-lever, F, substantially as and for the purpose described.

3. The combination, with the independent shaft D, wheels C, and rake-head E, of a pinion, *c*, feathered on the shaft, a rack, *d*, secured to the rake-head, a foot lever, F, and a releasing-arm, *e*, all constructed and operating substantially as and for the purposes set forth.

4. The combination, with the main frame A, rake-head E, wheels C, and thill H, of two sets of staples or bolt-holes, substantially as and for the purpose described.

193,579. CORN-STALK-CUTTING IMPLEMENTS. John Wabner, Ellsworth, Wis. [Filed Dec. 13, 1876.]



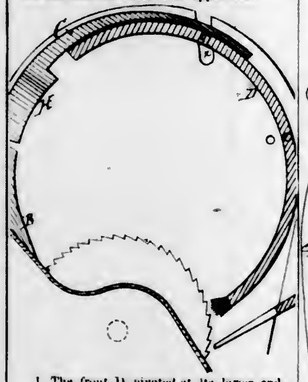
1. The combination of the bar A, secured to the leg, the knife P, provided with the flange R, having curved slot *x*, the bolts *d d′*, plate *f*, and nuts *e e′*, all substantially as and for the purposes herein set forth.

2. The combination, with the bar A, carrying the adjustable knife P, of the leg-strap B,

hinged bar E, spring-band G, with grooved lips *a a*, the plates *b b*, L-shaped hook, heel-strap K, and straps I and L L, all constructed and arranged substantially as and for the purposes herein set forth.

193,380. ROLL-BOXES FOR COTTON-GINS. W. O. Watson, Albany, Ga. [Filed May 18, 1877.]

Brief.—By means of the adjustment of the front the operator is enabled to change the roll-box from an under to an upper feed.



1. The front D, pivoted at its lower end, and adjustable out and in at the top, substantially as and for the purposes herein set forth.

2. The combination of the adjustable lid C and the adjustable front D, substantially as and for the purposes herein set forth.

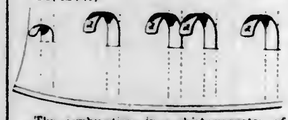
3. The combination, in a roll box for cotton-gins, of the condenser B, the adjustable lid C, with flange H, and the adjustable front D, all constructed and arranged to operate substantially as herein set forth.

193,381. WICK-RAISERS. W. N. Weeden, Waterbury, Conn., assignor to Benedict & Burnham Manufacturing Company, same place. [Filed June 26, 1877.]



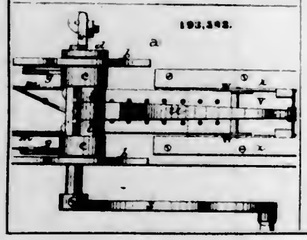
The herein-described wick-raiser for lamp-burners, consisting of the tubular open raiser-shaft, combined with the stars and button, substantially as described.

193,382. CORSET SKIRT-SUPPORTERS. Levi S. Weed, New Haven, Conn., assignor to C. A. Baldwin, same place. [Filed June 30, 1877.]



The combination, in a skirt-supporter, of the vertical stays, the skirt supporting springs, and the auxiliary metallic pockets, to inclose the lower ends of the said stays and springs, substantially as described.

193,383.

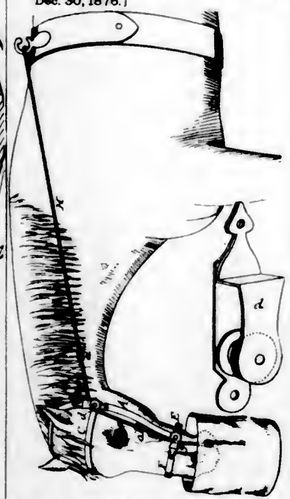


193,385. LEATHER-PUNCHING APPARATUS. William P. Willoughby, Charlton, Iowa. [Filed July 6, 1877.]

1. The combination of the standards *b*, shaft provided with eccentrics *c*, punch-bar *e*, spring *g*, eccentrics *i*, rod *u*, and a feeding device attached to the end of the rod, substantially as shown.

2. The combination of the eccentric *i*, rod *u*, clamp *v*, and sliding frame *w*, whereby the strap is fed forward after it has been punched, substantially as specified.

193,384. AUTOMATIC FEED-BAIDLES. C. H. Williams, New York, N. Y. [Filed Dec. 30, 1876.]



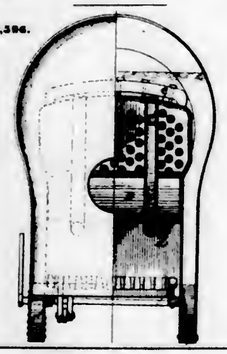
The feeding gear having the brow band C, nose-band F, and cheek-strap A, and the pulleys *d* and *g*, respectively, at the intersections of said bands and strap, in combination with the feeding cord H, having stops *a a'*, and the feed-bag, substantially as specified.

193,385. SUSPENSION-HOOKS FOR CHANDELIERS. G. W. Woodward, Brooklyn, N. Y. [Filed May 1, 1877.]



A suspending device for chandeliers, consisting of a hook having two or more bearing-surfaces formed by the converging planes on its interior surface, to adapt said hook to be used in either a vertical or horizontal position.

193,386.



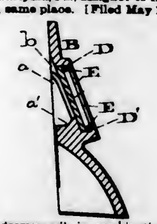
193,386. FIRE-BOXES FOR LOCOMOTIVE-ENGINES. H. B. Woods, Rock Island, Ill. [Filed July 12, 1877.]

Brief.—The sides of the fire-box alongside of the wheels is depressed, forming mud-chambers. The crown-sheet is curved, by which the mud and sediment is shed into the side mud-chambers.

1. A mud-chamber for a locomotive-boiler, having the sides dropped or extended downwardly below the front and rear ends, substantially as and for the purposes set forth.

2. In combination with the mud-chambers dropped or extended downward below the ends of a locomotive-boiler, the curved crown-sheet of the fire-box, for shedding deposits in said chambers, substantially as shown and described.

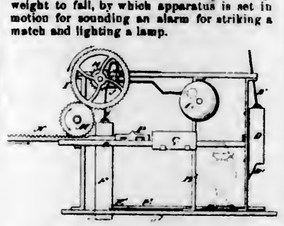
193,387. DRAWER-PULLS. W. A. Wright, Philadelphia, Pa., assignor to H. K. Wampole, same place. [Filed May 14, 1877.]



The drawer-pull, in combination with the frame B, having inner flanges or lugs *a a'*, top channels *b*, front flanges or lugs D D', and skeleton-frame spring E, substantially as and for the purpose set forth.

193,388. FIRE AND BURGLAR ALARMS. C. Corning and A. J. Reid, Lawrence, Kans. [Filed Jan. 27, 1877.]

Brief.—The severance of a cord by which a weight is suspended allows said weight to fall and move a slide, which releases an actuating-weight to fall, by which apparatus is set in motion for sounding an alarm for striking a match and lighting a lamp.



1. The combination of tripping-weight D, having beveled extension D', with transversely-slotted slide E, having point E', transversely-slotted bed-plate A, and actuating-weight F, substantially as and for the purpose set forth.

2. The combination of weight F, drum G, gear-wheels I and M, rack N, guideway O, match-holder P, and friction-plate Q, substantially as and for the purpose set forth.

3. In a fire or burglar alarm, the combination of an actuating-weight, supported by a slide, with a tripping-weight, the fall of which withdraws said slide, substantially as set forth.

REISSUES.

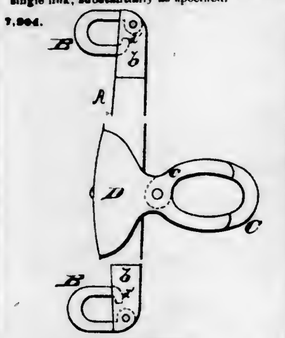
7,804. WHIFFLETREE-IRONS. John Irvine, Jokesburg, Pa. Patent No. 188,912, dated Mar. 27, 1877. [Filed June 28, 1877.]

1. The combination of a single-tree, A, slotted at its ends, and provided with the slotted end ferrules *b*, with the hooks B, pivoted in the slots in the ends of the single-tree, and having their ends *d'* closing into said slots, substantially as described, and for the purpose set forth.

2. The combination of the single-tree A, provided at its ends with the slotted ferrules *b* and slots *a*, having inclined ends *d*, with the hooks B, pivoted in the slots in the ends of the single-tree, and having their ends *d'* closing into said slots, substantially as described, and for the purpose set forth.

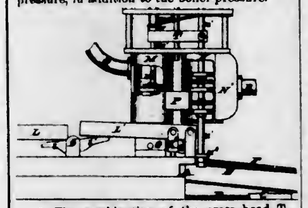
3. The hook C, hinged in, and closing into, arms *c* of ferrule D, and forming therewith a single link, substantially as specified.

7,805.



7,806. VALVE-GEARS FOR COMBINED HIGH-PRESSURE AND CONDENSING ENGINES. T. L. Jones, Natchez, Miss. Patent No. 94,891, dated Sept. 14, 1869. [Filed Oct. 10, 1874.]

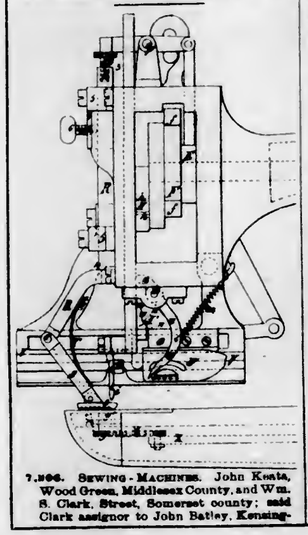
Brief.—While the exhaust is under pressure it escapes into the atmosphere, after which the cylinder is opened to the condenser, to give the piston the benefit of atmospheric pressure, in addition to the boiler-pressure.



1. The combination of the cross-head T, valve-stem m^1, stop e, and valve-stem n^1, substantially as described and shown.

2. The combination of the valve chests M N, valves *m* and *n*, stems m^1 n^1, passage P, pipes Q and R, cross-head T, and side pipe N^1, substantially as described.

3. The rod F, rock shaft J, cross head T, stems m^1 n^1, valves *m n*, and chests M and N, substantially as described and shown.



7,806. SEWING-MACHINES. John Keats, Wood Green, Middlesex County, and Wm. S. Clark, Street, Somerset county; said Clark assignor to John Batley, Kensington, Park Gardens, Middlesex County, England. Patent No. 50,995, dated Nov. 14, 1865; antedated Apr. 14, 1863. [Filed June 15, 1877.]

Brief.—A hook-needle is passed through the material from above, and when at its lowest point, and before it begins to ascend, a whirl in the work support carries a thread around it. The needle then rises through the fabric, carrying a loop of thread with it, which thread is opened by a looper operated by cams on the needle-bar. A shuttle propelled in a race above the work-support, carrying another thread, passes through the aforesaid loop, forming a lock-stitch.

1. The combination, in a sewing-machine, of the following instrumentalities, viz: a table or surface on which the material to be sewed is supported, a feeding instrument to move the material along said table or surface, a shuttle arranged on the same side of said table or surface with the material, a hook, and a rotating thread guide, all co-operating substantially as herein set forth, to produce a lock-stitch with two threads.

2. The combination, in a sewing-machine for producing a lock-stitch with two threads, of a shuttle and hook, both arranged above the table or support, on the upper side of which the material to be sewed is supported, substantially in the manner herein described.

3. A sewing-machine, having its shuttle and shuttle-race placed above the table or support, upon the upper surface of which the material to be sewed is supported, as herein described.

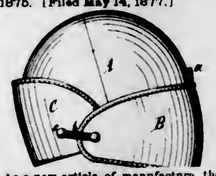
4. The combination, with a hook and a shuttle, both placed above or on the same side of the table of a sewing-machine, of an instrument for dividing or opening the loop and assisting to remove it from the hook, substantially as herein described.

5. The combination, with the hook and thread-carrier, of mechanism for operating the same, so timed that the thread-carrier, after having laid the thread around the hook, rests while the hook is drawing up the loop through the material, and until the hook has performed the greater portion of its descent, and makes its return movement only after the loop has been released from the hook, whereby the whole movement of the carrier is obtained not only while the loop is slack, but while the latter is not liable to be brought into the path of the needle, substantially as herein described.

6. The combination, with the needle-bar, the feeding device, and the shuttle-driver of a sewing-machine, of the eccentrics E F, and crank G H, all upon the same shaft and within the needle-box, substantially as herein described.

7. The combination of the rod R, capable of turning on its axis, and having a longitudinal reciprocating motion, the rod S, pivoted thereto, and the serrated plate *s* or fork attached to or provided on said rod S, the whole operating to feed in various directions, substantially as herein described.

7,807. CAPS. Marcus Marks, New York, N. Y. Patent No. 166,396, dated Aug. 3, 1875. [Filed May 14, 1877.]



As a new article of manufacture, the head-covering consisting of the crown or body A, band C, swinging ear and neck protector B, tape or cloth *a*, and fastenings *b c*, said protector being arranged upon the exterior of the article, substantially as described, and adapted to move up and down thereon.

7,808. CAPS. Marcus Marks, New York, N. Y. Patent No. 166,395, dated Aug. 3, 1875. [Filed May 14, 1877.]

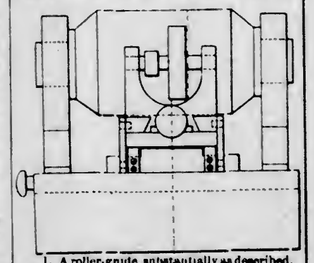


1. As a new article of manufacture, the head-covering A, with a swinging ear and neck protector, B, attached near the front by buttons and loops, or other equivalent devices, upon which the neck-protector swings as an axis, and attached at the rear by a tape or cloth, which prevents the upper edge of the protector from swinging below the lower edge of the hat or cap, the said several parts being constructed and combined substantially as described.

2. The swinging or sliding neck-protector B, constructed substantially as described, so as to swing or slide on fastenings at the sides or near the front of the cap.

3. The swinging or sliding neck-protector B, constructed substantially as described, so as to swing or slide on fastenings at the sides or near the front of the cap, and connected with the cap at the back by a tape or cloth, to prevent it from swinging or sliding below the lower edge of the hat or cap.

7,809. GRINDING-MACHINES. J. M. Poole, Wilmington, Del., assignor to himself, W. T. Porter, and T. B. Poole. Patent No. 130,741, dated Aug. 20, 1872. [Filed June 22, 1877.]

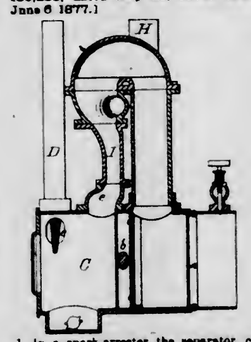


1. A roller-guide, substantially as described, in combination with a traversing carriage, for the purpose specified.

2. A roller-guide, substantially as described, capable of a rotary adjustment, in combination with a traversing carriage, for the purpose specified.

3. A roller-guide, substantially as described, in combination with a traversing carriage having a lateral movement, for the purpose specified.

7,810. SPARK-ARRESTERS. F. M. Stevens, Concord, N. H., assignor of one-half interest to Henry G. Holmes. Patent No. 180,283, dated July 25, 1876. [Filed June 6 1877.]

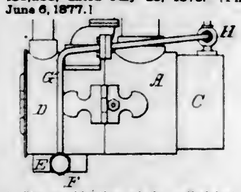


1. In a spark-arrester, the separator, consisting of the elbow-pipe F, provided with two curved educts, H H, at the sides, the said educts being joined to the elbow-pipe obliquely, in such a manner as to form with the elbow continuous and somewhat spiral passages, whereby the escape of the smoke and gases is not retarded by abrupt deflection, all substantially as herein set forth.

2. In a spark-arrester, the combination of the elbow-pipe and educts F H H for separating the sparks, the conduit I, leading therefrom to the receiver, and the receiver C, provided with an opening, *a*, into the conduit, and an opening, D, into the outer air, all substantially as set forth.

3. In a spark-arrester, the combination of a separator, constructed as described, and mounted on the chimney, with a conduit leading from the said separator to a receiver, and a receiver provided with an inlet for the sparks and some portion of the gaseous products, an outlet at the upper part for the escape of the gases only, and a suitable hand-hole or opening for the discharge or removal of the accumulated sparks, all as and for the purposes substantially as set forth.

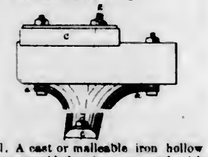
7,811. SPARK-ARRESTERS. F. M. Stevens, Concord, N. H., assignor of one-half interest to Henry G. Holmes. Patent No. 180,283, dated July 25, 1876. [Filed June 6, 1877.]



1. The combination of the cylindrical receiver D, hinged to the smoke box, the extension E, the discharge-pipe F, steam-pipe G, and hand-hole J, all arranged to operate substantially in the manner set forth.

2. The steam-pipe G, in two sections, coupled as described, and connected with a valve, H, in combination with the boiler C, the smoke-box A, and the receiver D, hinged to the latter, and provided with a discharge-pipe, F, all substantially as set forth.

7,812. SLEIGH-KNEES. Arthur A. Abbott, Chicago, Ill., assignee, by mesne assignments, of Mary B. Francisco, administratrix of Henry Francisco, deceased. Patent No. 56,334, dated July 10, 1866. [Filed Mar. 24, 1876.]



1. A cast or malleable iron hollow sleigh knee, provided at its upper end with flanges *a a*, one extending inward and the other outward, and adjusted to fit against the lower edge of the beam to receive the bolts connecting them to the beam on opposite sides of the knee, substantially as specified.

2. A cast or malleable iron sleigh-knee, provided at its upper end with the grooved flanges *a a* to receive the lower edge of the beam, substantially as specified.

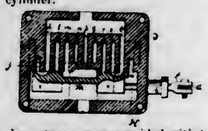
3. A cast or malleable iron sleigh-knee, provided at its lower end with the grooved flanges *c c*, to receive the upper edge of the runner, substantially as specified.

4. A cast or malleable iron sleigh-knee provided at its upper end with the grooved flanges *a a*, and at its lower end with the grooved flanges *c c*, substantially as specified.

5. A hollow cast or malleable iron sleigh-knee, connected at its ends to the upper edge of the runner and lower edge of the beam by vertical bolts passing through the knee, substantially as specified.

7,813. VALVES AND GEAR FOR DIRECT-ACTING ENGINES. G. F. Blake, Boston, Mass., assignor to George F. Blake Manufacturing Company. Patent No. 60,852, dated Jan. 1, 1867. (Filed June 13, 1877.)

Brief.—The auxiliary valve operates the main valve, cuts off steam from the main cylinder, and opens an additional exhaust from said cylinder.



1. In a steam-pump provided with two pistons connected by a piston-rod sustained in stuffing-boxes in the cylinder-heads, the combination, with the main piston-rod, of an independent tappet-rod parallel with, but removed from contact with, the main piston-rod and connections, substantially as described, between such tappet-rod and the auxiliary valves, to operate as set forth.

2. The lever G, pivoted at *g*, in combination with the tappet-rod, and the rod H, connected with and to operate the double auxiliary valve during the movement of, and in the direction of the movement of, the steam-piston, substantially as set forth.

3. In combination, the main valve, the auxiliary piston, the main ports, the auxiliary valve, the ports covered by it, and the ports *k* and *l*, which serve the purpose of exhaust-ports for the main cylinder, the combination being and operating substantially as described.

4. The auxiliary piston and the segmental main valve connected loosely therewith, in combination with the auxiliary cylinder and its segmental or curved seat, adapted to sustain both the auxiliary piston and the main valve on the same curved surface, substantially as described.

5. In a steam-pump, a single segmental or curved valve-seat, extended from end to end of the auxiliary cylinder, and provided with ports *r q p m n*, in combination with the main valve and its loosely-connected auxiliary piston, both adapted to rest upon and be reciprocated over and in contact with the same curved seat, substantially as set forth.

6. The combination, with an auxiliary valve and its seat, provided with ports leading to the auxiliary cylinder, of the main valve and main cylinder, whereby a single valve serves to operate the main valve to cut off steam from the main cylinder, and as an additional exhaust from said cylinder.

7,814. SPINDLE-BEARINGS FOR SPINNING-MACHINES. L. Cheetham, Lewiston, Me., assignor to George Draper. Patent No. 122,706, dated Jan. 16, 1872. [Filed Feb. 10, 1877.]

Brief.—The bobbin is chambered at its lower end, and the bolster extended upward within said chamber, so as to afford a bearing for the spindle near its top. The spindle and its bearings are lubricated by carrying the oil to the top of the bolster in grooves upon the spindle, after which it flows back, through the longitudinal grooves on outside of bolster, into the oil-chamber, being prevented from escaping in its descent by means of a tubular guard. Over the guard and top of the bolster is placed an auxiliary tubular cap, for keeping the oil from contact with the bobbin.



1. In a ring spinning machine, the combination of a fixed bolster, a stationary live-spindle, and a chambered bobbin, constructed and adapted to co-operate substantially as described, whereby the bobbin, driven by the spindle encompasses the upper end of the bolster, and extends downward to within a distance from the top of the bolster-rail less than the length of its surface to be covered by the yarn-load.

2. In a ring-spinning machine, a spindle which is shorter above its upper bearing than the bobbin carried by it, and which is attached to the bobbin by the frictional adhesion of surfaces located entirely within a distance from the top of the bobbin less than the extreme length of the bobbin itself, substantially as described.

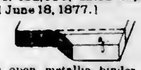
3. A quill-bobbin, chambered at its lower end to permit its use with an extended bolster, and provided above the chamber with an interior surface adapted to fit a taper upon the spindle, substantially as described.

4. The combination of a bobbin adapted to be driven by the spindle chambered at its lower end, a stationary bolster for the spindle located within it, and a tubular cap to protect the interior of the bobbin from access of oil, substantially as described.

5. A stationary bolster, having a bearing for the spindle above its supporting-rail, and provided with outside grooves and an interior passage for the flow of oil downward and into its bore, substantially as described.

6. In a ring-spinning machine, a bolster adapted to permit the flow of oil upward within it and downward outside of it, in combination with a tubular guard surrounding the bolster, substantially as and for the purpose specified.

7,815. TEMPORARY BINDERS FOR BOOKS. Henry H. Edwards, Baltimore, Md. Patent No. 182,650, dated Sept. 26, 1876. [Filed June 18, 1877.]



1. The open metallic binder A, provided with the shoulder *b*, substantially as and for the purpose described.

2. In combination with the binder A and book C, the cover D, having strip *d'*, as set forth.

3. In combination with the back B, the binder A, having tangs *a a* and shoulder *b*, substantially as described.

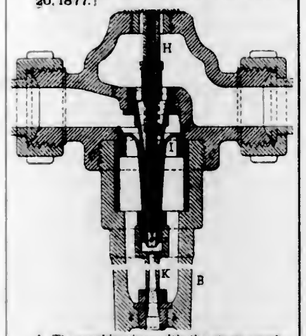
4. In combination with the binder A and back B, the book C and cover D, substantially as described.

5. The cover D, having flexible portion *d* and strip *d'*, as and for the purpose described.

6. As a new article of manufacture, a tablet consisting of a series of leaves pierced with a line of registering oblong incisions, extending clear through the tablet, substantially as described.

7. A tablet having its leaves pierced with a line of symmetrical oblong incisions, the same extending clear through the tablet, one of the incisions being in the edge of the leaves, and serving the purpose of a starter in detaching the same, substantially as described.

7,816. INJECTORS FOR FEEDING BOILERS. W. Sellers, Philadelphia, Pa. Patent No. 75,059, dated Mar. 3, 1868. [Filed Feb. 20, 1877.]



1. The combination, with the steam-nozzle, the combining-tube, and the discharging-tube, of a plug having a central discharge of less diameter than the smallest diameter in the discharging-tube, whereby the steam-discharge may be regulated, and also reduced from a solid jet of a diameter greater than the smallest diameter in the discharging-tube to a solid jet of less diameter than the smallest diameter in the discharging-tube, substantially as and for the purposes set forth.

2. The combination, with the steam-nozzle, of the plug H and rod *e e*, substantially as and for the purposes set forth.

3. The combination, with the piston I and case A, of the flange *d d*, substantially as and for the purposes set forth.

4. The combination, with the case B, of the bushing L, self-adjusting combining-tube J, and discharging-tube K, substantially as described.

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IMPERIAL GERMAN PATENT LAW, MAY 25, 1877.

We, WILHELM, by the grace of God, German Emperor, King of Prussia, &c., decree in the name of the German Empire, by and with the consent of the Federal Council and of the Parliament, as follows:

PART I—PATENT RIGHT.

SECTION 1. Patents are granted for new inventions which are useful in the arts. Exceptions are—

1. Inventions the use of which would be contrary to the laws and to good morals.

2. Inventions of edible preparations, medicines, and substances obtained by chemistry, unless these inventions relate to a certain definite process for producing the same.

SEC. 2. An invention is not considered new if, at the time of the application for a patent in accordance with this law, it has already been described in printed publications, or been brought into such public use in the country, that those skilled in the art are enabled to make use of it.

SEC. 3. The patent is granted to the party who first makes application for the same in accordance with this law. The applicant is not entitled to a patent if the essential part of his claim is taken from the description, drawings, models, utensils, or devices of another person, or from a process used by such other person, without his consent, and if for such reason protest is made by such person.

SEC. 4. When a patent has been granted, no one is permitted, without the consent of the patentee, to manufacture, or introduce for industrial purposes, or sell the patented article. If the invention consists of a process, a machine, or other industrial device, a tool or other implement, the patentee has, further, a right against any one using, without his consent, his process or the article constituting his invention.

SEC. 5. The patent does not affect persons who, at the time of the patentee's application, have already commenced to make use of the invention in the country, or made the preparations requisite for such use. Furthermore, the patent is of no effect in cases where the invention is to be used for the Army or Navy, or otherwise, in the interest of public welfare, according to a decision of the Chancellor of the Empire. But, in such cases, the patentee has a claim for remuneration against the Empire or the State in whose particular interest his patent has been restricted; the amount, if not agreed upon, to be determined by the courts. The patent is of no effect in the case of devices applied to vessels which but temporarily visit the country.

SEC. 6. The claim to the issue of a patent and the patent right itself descend to heirs. The claim and the right can be transferred to others, in whole or in part, by an agreement or by testamentary disposition.

SEC. 7. The term of a patent is fifteen years, and it dates from the day following the filing of the application. If the invention relates to an improvement of another invention already covered by a patent in behalf of the applicant, he can apply for a patent for additional improvement, which expires with the original patent.

SEC. 8. For each patent, when the same is granted, a fee of thirty marks is to be paid. Except in the case of patents for additional improvements, (section 7,) another fee is to be paid for each patent at the beginning of the second and of each following year. It amounts at the first time to fifty marks, and it increases each year by fifty marks. A patentee who proves indigence can be allowed to delay the payment of the fees for the first and second years; and if the patent expires in the third year, he can be released from such payment.

SEC. 9. The patent expires if the patentee relinquishes the same, or if the fees are not paid within three months, at the latest, after they become due.

SEC. 10. The patent is declared invalid if it appears, first, that the invention was not patentable according to section 1 and section 2; second, that the substance of the application was derived from the description, drawings, models, utensils, or devices of another person, or from a process used by such other person, without his consent.

SEC. 11. The patent can be repealed after the term of three years—first, if the patentee neglects to introduce his invention to a proper extent in the country; or, at least, to do everything requisite for such introduction; second, if it appears requisite for the public interest that others shall obtain license to use the invention, and the patentee refuse to grant such license for a reasonable consideration and sufficient security.

SEC. 12. A non-resident can obtain a patent and enjoy the rights thereof only by appointing a representative in the country. The latter has power to represent the patentee in the steps requisite by this law, and also in suits at law relating to the patent. Suits against the patentee must be brought before the court of the district which embraces the residence of the representative; and, in default of such, before the court of the district in which the Patent Office is situated.

PART II—PATENT OFFICE.

SEC. 13. The grant, the amendment, and repeal of patents take place through the Patent Office. The Patent Office is located at Berlin. It consists of at least three permanent members, including its president, and of a number of temporary members. These members are appointed by the Emperor, the other officials by the Chancellor of the Empire. The appointment of the permanent members is made by nomination of the Federal Council, as follows: If they occupy office in the Imperial or State service, the appointment will be for the term of such office; otherwise for life. The appointment of the temporary members is for the term of five years. Of the permanent members, at least three must be qualified for the bench, or for the higher offices of administration. The temporary members must be experts in some industrial pursuit. The temporary members are not subjected to the conditions of section 16 of the law concerning the legal rights of Imperial officials, dated March 31, 1873.

SEC. 14. The Patent Office consists of several divisions, which are instituted at least for one year in advance. A member of one may belong to others. For the granting of a patent, the attendance of at least three members of a division is necessary, two of whom must be temporary members. To determine in regard to the invalidation or repeal of patents, a separate division is instituted. The final decisions of this division are given by two members, including the president, who must be qualified for the bench or for the higher offices of the administration, and three other members. For other decisions, three members form a quorum. The provisions of the civil procedure in regard to the exclusion and rejection of judicial officers find here their application. For consultation, experts who are not members may be called in; but they have no vote.

SEC. 15. The resolutions and decisions of the divisions are issued in the name of the Patent Office. They are to be supported by reasons, must be given in writing, and official notice thereof sent to all concerned. Notifications stipulating limits of time for compliance are forwarded by the mail. Letters to be registered and receipted are forwarded. If a notification cannot be given in the country, it must be carried out by the especially appointed official of the Patent Office through delivery to the Post Office in accordance with the conditions laid down in sections 161 and 175 of the code of civil procedure. An appeal may be taken from the decisions of the Patent Office.

SEC. 16. If an appeal is taken from a decision of the Patent Office, such appeal is decided by another division, or by several divisions jointly. No member who has already voted upon a case shall participate in the appeal.

SEC. 17. The constitution of the divisions, the distribution of their powers, the rules and practice of the Patent Office, in so far as not laid down in this law, are to be regulated by an Imperial decree, with the agreement of the Federal Council.

SEC. 18. The Patent Office, on requisition of the courts, is held to give opinions upon questions relating to patents; otherwise said Office is not permitted to make decisions or give opinions outside of its regular sphere of business without the consent of the Chancellor of the Empire.

SEC. 19. The Patent Office keeps a record of the subject-matter and the term of the patents granted; also, the names and residences of the patentees, and of their proxies, if such have been appointed at the time of the application. The beginning, the term, the expiration, the declaration of invalidity, and the repeal of the patents are to be entered in this record, and at the same time published in the *Reichs Anzeiger*. If any change takes place in the person of the patentee, or of his representative, such change, on being laid before the Patent Office with proper proof, will be likewise entered in the list and published in the *Reichs Anzeiger*. Until this is done, the former owner of the patent and his former representative are entitled to the rights and subject to the obligations laid down by this law. The inspection of the record of the descriptions, drawings, models and samples, on the basis of which the grant of patents has taken place, is open to all persons, except where a patent is taken in the name of the Imperial administration in behalf of the army and navy. The Patent Office publishes, in brief, in an Official Gazette, the descriptions and drawings as far as the same are free for public inspection. In the same such notices are also to be inserted as are required by law to be published by the *Reichs Anzeiger*.

PART III—PROCEDURE IN PATENT MATTERS.

SEC. 20. The application for a patent must be made in writing before the Patent Office. For each invention a separate application is required. The application must contain a petition for the grant of a patent and a clear designation of the article to be patented. In an inclosure, the invention must be described in such a manner that it may appear thereby capable of being brought into use by others skilled in the art. The necessary drawings, designs, models and specimens are to be attached. The Patent Office will establish regulations in regard to other requirements for an application. Prior to the publication of an application for a patent, amendments are admissible. When the

application is made, a fee of twenty marks must be paid to defray the cost of the proceeding.

SEC. 21. If, in the application, the prescribed conditions are not fulfilled, the Patent Office indicates the deficiencies and requires of the applicant their amendment within a certain time. If this requirement be not satisfied within such time, the application is rejected.

SEC. 22. If the Patent Office considers an application satisfactorily complete, and there is no reason for refusing the patent, the announcement of the application is ordered. This publication eventually entitles the applicant, in regard to the subject-matter of his application, to the provisions of sections 4, 5. If the Patent Office finds that the subject-matter contained in the application is not patentable, according to sections 1 and 2, the application is rejected.

SEC. 23. In the announcement of an application the name of the applicant and the subject-matter of his application are published once in the *Reichs Anzeiger*. At the same time the application, with everything pertaining thereto, is open for public inspection. With the publication is connected a notice stating that the subject-matter of the application is provisionally protected against infringement. If the application relates to a patent sought in the name of the Imperial administration for the army and navy, the exhibition of the application is omitted.

SEC. 24. After eight weeks from the day of the publication (section 23) the Patent Office is to decide as to the granting of the patent. Until that time objections may be filed before the Patent Office. The objections must be put in writing and supported by reasons. It can be based only on the ground that the invention is not new, or that it is subject to the conditions contained in the second clause of section 3. The Patent Office may, prior to its decision, order the attendance and hearing of the parties interested, and also ask the opinion of experts, and institute all investigations necessary.

SEC. 25. The applicant may file a protest against the decision rejecting his application, and the applicant or opponent against the decision concerning the grant of the patent, within four weeks from the decision. With the protest twenty marks are to be paid to defray the expenses of the proceeding. If no payment is made the protest is not considered. The second clause of section 24 is applicable also to this procedure.

SEC. 26. If the patent is finally allowed, the Patent Office issues an announcement in the *Reichs Anzeiger*, and prepares a certificate for the patentee. If the patent is refused, such fact must also be published. With the refusal the provisional protection is annulled.

SEC. 27. The proceeding for declaring a patent invalid, or for repealing the same, takes place on motion only. In the case of second clause of section 10, only the injured party is entitled to make such motion. The motion is to be laid before the Patent Office in writing, with statement of facts on which it is based.

SEC. 28. After the institution of such proceeding has been ordered, the Patent Office notifies the patentee of the motion, and asks him to give his rejoinder within four weeks. If the patentee makes no rejoinder within this time, the motion can be decided at once, without summoning or hearing the parties interested, and all the statements of the complainant may be considered proved.

SEC. 29. If the patentee rejoins in time, or if, in the case of second clause of section 28, a decision is not made at once, the Patent Office institutes the proceedings requisite to clear the matter up, giving in the former case a copy of the rejoinder to the petitioner. It can order the hearing of witnesses and of experts. They are subject to the rules of the civil procedure. The proceedings in taking testimony are to be carried on before a sworn recorder. Judgment is pronounced after the parties interested have been called and heard. If the recall of the patent is claimed for the reason given in second clause, section 11, the decision to be rendered on such claim must be preceded by a sufficient respite, a warning of the recall of the patent, and the reasons therefor.

SEC. 30. In the decision (sections 23, 29) the Patent Office shall determine, according to its judgment, the partition of costs among the parties interested.

SEC. 31. The courts are bound to give legal assistance to the Patent Office. The fixation of a punishment of witnesses and experts who fail to appear or refuse to testify, or to make oath to their testimony, is made, on request, by the courts. They have also to provide, on request made to that effect, for the production of refractory witnesses.

SEC. 32. An appeal can be taken from the decision of the Patent Office, (sections 28, 29, 30.) The appeal lies before the Imperial Supreme Court of Commerce. It must be made in writing, and filed in the Patent Office, within six weeks from the decision of the same. The reasons of said appeal are to be notified. The court, in its judgment, determines the costs of the proceeding in accordance with section 30. The mode of proceeding is determined by rules which are to be proposed by the court, and then fixed by an Imperial decree, with the concurrence of the Federal Council.

SEC. 33. In regard to the official language before the Patent Office, the provisions of the law on the constitution of courts relating to the forensic language are to be applied. Applications which are not made in the German language are not considered.

PART IV—PENALTIES AND DAMAGES.

SEC. 34. Whoever, knowingly, contrary to the provisions of sections 4 and 5, makes use of an invention, shall be punished by a fine not exceeding five thousand marks, or by imprisonment not exceeding one year, and is bound to indemnify the injured party. The prosecution takes place only upon complaint.

SEC. 35. In case of condemnation, the injured party shall have the right to publish the judgment at the expense of the condemned party. The mode of publication and the legal term thereof are to be designated in the sentence.

SEC. 36. In lieu of any specific damages under this law, on motion of the injured party, an indemnification, not exceeding ten thousand Marks, may be exacted in addition to other penalties. For this amount the condemned parties are liable as joint debtors. The imposition of a fine excludes the further prosecution of a claim for damages.

SEC. 37. The jurisdiction of the Imperial Supreme Court of Commerce, as laid down in section 12 of the law relating to the institution and jurisdiction of a

Supreme Court for Commerce, dated June 12, 1869, is extended to civil suits in which a claim is made in view of the provisions of the present law.

SEC. 38. Suits for infringement of a patent right fall under the statute of limitation after three years, with regard to each of the several actions respectively based upon them.

SEC. 39. The question whether there has been any damage, and the amount thereof, are to be decided by the court, according to its unbiased, free conviction, upon consideration of all the circumstances.

SEC. 40. Fines not exceeding one hundred and fifty marks, or a term of imprisonment, are inflicted on, first, whoever applies to articles, or to a package containing such articles, a mark which is liable to create the false impression that such articles are protected by a patent, in accordance with the provisions of this law; second, whoever, in public advertisements or signs, on business cards or in similar publications, employs a mark which is liable to create the false impression that the articles named therein are protected by a patent, in accordance with the provisions of this law.

PART V.—TRANSITORY PROVISIONS.

SEC. 41. Patents in force on the basis of existing laws at the time remain in force to the end of their term, in accordance with such laws. A prolongation of their term is not admissible.

SEC. 42. The owner of an existing patent (section 41) can lay claim to a patent for the invention thereby protected according to the provisions of this law. The examination of the invention is then made in accordance with the proceedings prescribed by this law. A patent will be refused if, previously to the decision, the owner of another existing patent (section 41) for the same invention applies for a patent or opposes the grant of such patent. For want of novelty the patent can be refused only if the invention, at the time when the same was first protected by a patent in the country, was not new in the sense of section 2. With the grant of a patent under this law the patents (section 41) existing for the same invention expire in so far as the owner of the new patent owns the same. In so far as this is not the case, the new patent takes effect in the domain covered by the existing patents only after the latter have expired.

SEC. 43. In fixing the legal term of a patent granted according to section 42, the time will be taken into account for which the invention had already been protected by the earliest patent existing in the country. The patentee is subject to the payment of the legal fees for the remaining term of the patent (section 8;) the term when payment becomes due, and the annual rates are determined by the time when the invention was first protected in the country.

SEC. 44. By the grant of a patent in accordance with section 42, such parties as, at the time of the application, have already used the invention without violating a patent right, or who have made the requisite preparation for such use, cannot be interfered with.

SEC. 45. This law takes effect July 1st, 1877.

In testimony whereof we have herewith set our own Imperial hand, and our seal affixed.

Given at Berlin the 25th May, 1877.

[L. S.] WILHELM.

PRINCE VON BISMARCK.

COMMISSIONER'S DECISIONS.

LITTLE *vs.* SARGENT.—*Appeal.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the interference between the applications of Samuel A. Little and James Sargent for* "IMPROVEMENT IN LOCK MECHANISM."—*Decided July* 9, 1877.]

A clock-lock and combination or key lock applied independently of each other to the same bolt-work of a safe or vault door, held to be a patentable combination.

The advantages of the particular arrangement being clear, from an examination of the previous state of the art, and its patentability having passed unquestioned through numerous contests before the office tribunals, are strongly conclusive facts as to its merits.

[*Marcus S. Hopkins*, for Little.
James L. Norris and *J. J. Coombs*, for Sargent.]

SPEAR, *Commissioner:*

This interference was originally between the applications of Little, Lillie, Pillard, and Sargent. In the course of the long controversy, however, Lillie and Pillard, failing to take any appeal, have been left out, and the contest is now between Little and Sargent.

The question most strenously urged at the hearing of this case was that of the patentability of the combination which is the subject of the controversy. This I understood to be the substance of the objection raised by counsel for Little, though the precise statement was that there was no interference on any proper understanding of the claims set up by Sargent.

Sargent's claims are as follows:

1 The combination, with a door-bolt, E, of a clock-lock, B, and combination or key lock A, applied independently on a safe, vault, or other door, so as to rest against or connect with said door-bolt, and provided with a device whereby the door-bolt may be retained in the unlocked position for shutting the door, the whole arranged so that the door-bolt cannot be withdrawn when locked till both locks have been unlocked.

2. The combination of a clock-lock and a combination or key lock, both constructed to be applied on a safe, vault, or other door, so as to rest against the door bolt, and provided with a lock-bolt, having an opening or an offset which is automatically brought in and out of coincidence with the tongue of the door-bolt, whereby the door-bolt may be retained in the unlocked position for shutting the door and prevented from being withdrawn when locked until both locks have been unlocked.

The first claim is substantially the same as the second of Little's. As the claims stand there is undoubtedly a conflict, and cannot possibly be otherwise, because the terms are substantially the same. The proposition to interpret the same terms in one case to mean one thing and in the other to mean another, as a basis for dissolution of the interference, is in substance a statement that the claims, in view of the state of the art, should be modified and restricted so as to cover the peculiar device of each party, and to cover nothing more. If the claims should be allowed at all to either applicant, then it is impossible to avoid the determination of the question of the priority of invention. So that the first question to be determined is whether or not these claims are for patentable subject-matter. My first impression, after an inspection of the drawing and model and a consideration of the claim in controversy, was unfavorable to its patentability. Time-locks being old, like the combination or key locks, it might appear that the application of both together to a door would be no more than the ordinary application of these locks to their proper position, where they would work out their ordinary functions, and no more than their ordinary functions. Yet, considering the state of the art, I am of opinion that an advance had been made by reason of this combination now in controversy. Heretofore it appears, in cases where it is necessary to use both the time mechanism and the ordinary key or combination lock, the time mechanism has been applied directly to the lock to block its bolt-work or render its mechanism in some way inoperative until the expiration of the time previously determined upon. There are objections to this, sought in many ways to be overcome, not now necessary to refer to particularly. But in this combination, the time mechanism in the form of a complete time-lock is applied wholly independent of the combination-lock. It blocks the same bolt-work, and must be unlocked before the bolt-work can be retracted. It leaves the ordinary combination-lock for day use free and unobstructed, and guards the safe at night, or during the hours when the bank is closed, and may be applied without change in the ordinary combination or key lock. In order that it may be applied to the same bolt-work, a device is necessary by which the bolt-work may be thrown back after the revolving bolt of the time-lock is set to obstruct the bolt-work against retraction; or, after the time mechanism is set for that purpose, but this may be accomplished in various ways. The main elements are the bolt-work, clock-lock, and the combination or key lock with some such adjustable device, between the bolt and the time-lock, or included in some part of the structure, as will allow the time-lock to be set with the bolt-work thrown back and the door open. This combination appears to have the favorable consideration of the Examiner, Examiners-in-Chief, and of my predecessor. It has been earnestly contested for more than a year. The very claim which Little now insists should be restricted stands upon the record asserted by himself. In view of these facts, at this late day, and after Sargent has been led through so long a controversy under the repeated sanction of the Office I cannot refuse this claim except upon the clear showing of its lack of patentability. But I am inclined to think that the combination of the time-lock and the ordinary lock, each independent of the other, but so applied and connected to the bolt-work as to operate effectively in conjunction or independently, is an advance upon the old method of applying the time mechanism directly to the combination or key lock, and that the original and first inventor is entitled to a patent therefor.

The question as to which party is the original and first inventor is not difficult to determine. Sargent has been held by the Examiner of Interference and the Board to be the prior inventor, as appears to me justly and in accordance with the evidence, and I must accordingly affirm the concurrent decisions of these tribunals.

JOHN D. MURRAY.—*Appeal.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the application of John D. Murray for* "IMPROVEMENT IN LOCOMOTIVES."—*Decided July* 10, 1877.]

A combination claim held to be met by the reference cited, where the elements in both were identical in arrangement and also in kind, with the exception of a single one, which, though differing in form, was the same in function and effect as the corresponding element of the reference.

Probable advantages arising from particular construction disregarded, the claim being laid broadly, and without apt words of limitation to express them.

[*L. Bagger & Co.*, attorneys for applicant.]

SPEAR, *Commissioner:*

Applicant's claim involved in this appeal is as follows:

The combination of the steam-chest F, located within the smoke-box B of a locomotive, for receiving, superheating, and distributing the exhaust steam with the exhaust-ports of the cylinders, and the discharge-pipes H G H, substantially as and for the purposes herein shown and specified.

The claim stands rejected on Letters Patent No. 167,131, granted to C. D. Smith, August 24, 1875.

This patent shows all the elements enumerated in applicant's claim except the steam-chest, and in lieu of it provides what is called a "bifurcated pipe." As the elements hold precisely the same relations to one another and to the other parts of the locomotive in both cases, the sufficiency of the reference narrows itself to a consideration of the equivalency of the steam-chest, or, more properly, waste-steam chamber, to the "bifurcated pipe" of the patentee, for it is quite clear that if these two are the same in function and operation the result of their conjoint action with the other identical elements will likewise be the same, and the combination claimed be fairly anticipated by the patent. The steam chest or chamber is stated to be for the purpose of receiving, superheating, and distributing the waste steam from the exhaust-ports of the cylinders. The alleged superheating action results from the location of the chamber within the smoke-flue of the locomotive, exposed as it is to the direct heat of the combustion products passing to the stack. Its enlarged size, with respect to the induct-pipes from the exhaust-ports and the educt distributing-pipes, between which it is situated, permits of the expansion of the entering steam, and thus momentarily retards its passage, so that it is longer exposed to the heat of the chamber, and consequently is reheated to a higher degree than it would be if no such expanding-chamber were interposed. To my mind the bifurcated pipe satisfies the conditions necessary to effect the retardation and reheating of the circulating steam precisely the same as the steam-chamber. It is enlarged with relation to the induct and educt pipes, and is located so as to be fully exposed to the heating action of the furnace-gases.

I can take no notice of the kind of valves applicant uses, nor of their situation within the escape-pipes. Attorney has dwelt with much stress upon these differences in kind and location of valve as making a marked difference in advantageous result in favor of the applicant's combination. This, however, I am not called upon to decide. No reference or limitation is made in the claim either to the valve itself or to its situation. It reads for "the combination of the steam-chest F," &c., irrespective of the kind of valve employed, or, indeed, whether there is any valve at all or not. Nor is it important that a number of pipes, more than is shown in applicant's drawing, can be attached to his steam-chamber, and thus permit of a more varied utilization of the steam. The same may be said of the patentee's bifurcated pipe. A number of holes may be made in each branch, above the valve, and auxiliary pipes inserted therein, without more mechanical skill

than is called for in attaching them to the steam-chamber.

The patentee is limited neither to the precise form nor size of bifurcated pipe shown by his drawing, so that in practice it may be of capacity fully equal to that of the steam-chamber. It serves for the same purpose as does this waste-steam chamber, and receives, superheats, and distributes the steam in the same sense that the latter does. It is, broadly, its full equivalent, and the claim must be ruled to be met.

The decision of the Board is affirmed.

STOVER *vs.* CLARK.—*Interference.—Appeal.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the interference between the application of D. C. Stover, filed July* 14, 1876, *and the patent of Norman C. Clark, granted June* 27, 1876, *for* "IMPROVEMENT IN BARBED-WIRE FENCES."—*Decided July* 14, 1877.]

In interference controversies, where the adverse party is a patentee, the applicant must show conclusively that he fully reduced the invention to a form or condition capable of standing the test of actual practical use prior to the invention by the patentee.

An experimental reduction—the illustration of a theory by a model—will not suffice of itself to establish this fact.

An applicant who devised an experimental model, which was afterward lost without test as to its practicability, and did nothing further until his contestant had secured a patent, cannot be said to be the prior meritorious inventor.

[*C. H. Watson & Co.*, attorneys for Stover.

L. A. Deane, attorney for Clark.]

SPEAR, *Commissioner.*

The subject-matter in dispute is—

Barbed metallic material for fencing, having stamped or cut barbs or points projecting from both sides, formed at intervals between the edges of said material, and forming part of the same.

The question in controversy is one capable of easy solution if the bearing of the Office in relation to interference proceedings, in which one of the parties is a patentee, is kept clearly in mind. In this class of cases the adverse applicant must show conclusively that prior to the time of the invention by the patentee he (the applicant) had fully reduced it to a form or condition capable of standing the test of actual practical use. An experimental reduction, the illustration of a theory by a model, will not suffice of itself to establish that completion which is alone regarded by the law as sufficient to impeach the title of the patentee. As was said in *Coffin* vs. *Ogden*, 18 Wall, 124—

If the thing were embryotic or inchoate; if it rested in speculation or experiment; if the process pursued for its development had failed to reach the point of consummation, it cannot avail to defeat a patent founded upon a discovery or invention which was completed, while in the other case there was only progress, however near that progress may have approximated to the end in view.

With this in mind, and referring to the evidence adduced, it appears that Clark, the patentee, made his first model of the invention about the first or second week of April, 1876, which was followed on the 31st day of May by the filing of his application in the Patent Office and the grant to him on the 27th day of June of Letters Patent No. 179,268. We may safely fix about the middle of April as the time when the invention was reduced to a practicable form, and thus completed in a patentable sense, so that this is the date from which we must reckon in determining whether his opponent, Stover, was the prior meritorious inventor of the subject-matter. In behalf of Stover, we find that his first model was completed some time in September, 1874. This, however, was subsequently lost, and he states that—

I cannot fix any dates as to any time I made a duplicate model, but can remember of frequently cutting the same from paper with a knife, for the purpose of describing it.

The original model is not before me, so that I cannot judge from an inspection whether it was such a reduction as amounts to a demonstration of the completion and utility of the invention. The model was lost without a single test as to practicability, and the character of its duplicates made afterward from paper slips is a pretty strong indication of the theoretical condition in which the entire matter was involved during all this time.

Stover delayed applying for a patent for the invention until July, 1876, and this, too, notwithstanding another of his own of like character, that had its inception at about the same time, was filed and prosecuted with vigor. He gives as a reason for the delay that he had no machinery which was capable of cutting the barbs from the strip in the desired manner, and was busy in devising it, yet there is nothing to show that the same obstacle did not intervene to prevent the filing of an application for his other invention as well.

His attitude toward the invention throughout is that of one who had but little confidence either in its perfection or utility, and the conclusion of mere experimental reduction is very difficult to avoid. No practical use is alleged or proved, nor does it appear that a single strip of material was manufactured in form to be thus applied until his assignee, Brinkerhoff, commenced to take orders for and to make it in July of 1876, fully three months after Clark had completed the invention.

Even admitting that September, 1874, is the correct date to ascribe to Stover in the completion of a model illustrating the invention, his long delay in reducing to practical use, which did not occur until a month after the grant of a patent to his more diligent contestant, is an insuperable objection to the award of priority and the allowance of a patent. It would be idle for the Office to made a grant founded on a pure experimental embodiment of an invention, which, as has been seen, the courts would decline to sustain.

The judgment of the Board of Examiners-in-Chief in favor of Clark is affirmed.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—SOUTHERN DISTRICT OF NEW YORK.

HARRINGTON *vs.* LIBBY.

[*Before* JOHNSON, J.—*Trade-Mark.—Form of Package.—February*, 1877.]

Held: That complainant could not legally enjoy the exclusive right to use a decorated tin pail as a collar-box notwithstanding that he was the first to so employ it, and had registered it as a trade-mark.

[*J. A. Whitney, esq.*, for complainant.

E. Wetmore, esq., contra.]

JOHNSON, *J.:*

The plaintiff claims to be entitled to the exclusive use of a tin pail with a bail or handle to it, the tin ornamented with a geometrical pattern, and used to contain paper collars. This claim is made not on the ground that he is the inventor and patentee of pails thus made, or of the material used in making them, or of the art of selling collars by giving away a tin pail with them, but the claim is that the pail is a trade-mark, and entitled to protection as such, either by force of the statute of the United States on the subject, or by virtue of the general law of trade-marks.

It appears that the ornamented tin which the plaintiff employs is a common article in commerce, and that pails made of tin, ornamented or unornamented, are, and have long been, in use for all such purposes as any one chose to apply them to.

The question whether any one can seize upon such an article and make title to its exclusive use for a special purpose by calling it a trade-mark, must be far from clear in favor of the claimant. The forms and materials of packages to contain articles of merchandise, if such claims should be allowed, would be rapidly taken up and appropriated by dealers, until some one, bolder than the others, might go to the very root of things and claim for his goods the primitive brown paper and tow string as a peculiar property. It will be observed that it is not a mark at all which is claimed, but the whole enveloping package, the whole surface of which is covered by the ornamental pattern. There is no name, no symbol, no assertion of origin or ownership. The case strongly resembles that of Payson's indelible ink, (Browne on Trade Marks, 186, 187,) where the claim was rejected on the ground that if maintained the effect would be to gradually throttle trade.

The case of *Moorman* vs. *Hoge*, (2 Sawyer, 78,) seems to me quite in point. In favor of maintaining the right to the barrel in question, in that case, all circumstances of fact concurred; but the court held that the law did not recognize an exclusive right to an unpatented package, nor permit its assertion.

I concur in the principles maintained in that case, and think the plaintiff has failed to show such a right in the premises as can entitle him to a preliminary injunction.

The motion must be denied.

U. S. CIRCUIT COURT—EASTERN DISTRICT OF MICHIGAN.

THE DETROIT STOVE WORKS, COMPLAINANT, *vs.* THE MICHIGAN STOVE COMPANY, DEFENDANT.

[*In equity.—Before* H. B. BROWN, *D. J.*]

DECREE OF THE COURT.

This cause having heretofore been brought on to be heard upon the pleadings filed, and the proof taken thereon, and the said pleadings and proofs having been read, and Mr. Thomas S. Sprague, of counsel for complainant, and Mr. John Miner, of counsel for defendant, having been heard, and the court having fully considered the said pleadings, proofs, and arguments, it is hereby ordered, adjudged, and decreed that the reissued letters patent granted unto John V. B. Carter and James Duyer, dated March 7, 1876, No. 6,979, are valid; and that the complainant is the owner of said letters patent; and that the defendant has infringed the said letters patent in making, using, and vending to others the improvement in base-burning stoves for heating and cooking, as charged in said complainants' bill of complaint, and that the said complainants are entitled to have a perpetual injunction to restrain said defendants, its agents, servants, and all holding or claiming under or through them, from making, using, or vending, or in any manner disposing of heating and cooking stoves, embracing the invention or improvements described in said letters patent, namely:

In combination with a heating-stove, having reversible and base flues, a culinary attachment placed directly against the rear flues of said stove so that the inner wall or front of said culinary attachment is adapted to be heated by direct radiation from the fire-pot, while the other walls of said attachment are heated by the products of combustion in their passage from the base to the exit, substantially as and for the purposes set forth.

And, also—

In a heating-stove, and in combination therewith, a culinary attachment provided with suitable openings, to allow the products of combustion to be directed from the flues of a reversible-flue heating-stove into the inclosed flue-space surrounding the oven, placed between the ring which forms the base of the combustion-chamber proper, and the base of the stove, all being effected substantially in the manner and for the purposes described in said letters patent.

And it is further adjudged and decreed, that the cause be referred to D. J. Davison, a master of this court, to ascertain and report the number of base-burning stoves for heating and cooking containing the said improvements, or either of them, made, and also the number sold by the said defendant since the 7th day of March, 1876, and the damages complainant has sustained, or use and profits defendant has received, by reason of such infringement since the time last aforesaid.

And upon the coming in and confirmation of the said report that said complainant have a decree and execution for the amount due thereon, and also for the costs in this suit to be taxed.

U. S. CIRCUIT COURT—DISTRICT OF NEW JERSEY.

LORIN INGERSOLL *vs.* MARY TURNER AND WILLIAM TURNER.

Letters Patent No. 119,705, granted to E. A. Heath, October 10, 1871, declared to be void in view of letters patent granted to Wm. H. Topham, August 2, 1870, for an improvement in spittoons.

The fact that one patent is granted for a cuspadore and the other for a spittoon is of no importance, as the difference is merely of form, and the form itself is old.

The characteristic and valuable feature of both articles being their self-righting quality arising from their weighted bottoms, the invention remains the same notwithstanding metal may be substituted for *papier mache* in their manufacture.

The substitution of sheet metal for less appropriate material involved no invention, and the construction of the cuspadore in three pieces is but obvious mechanical skill.

NIXON, *D. J.:*

This is a suit in equity to restrain the infringement of Letters Patent No. 119,705, issued to E. A. Heath on the 10th day of October, 1871, for a metallic cuspadore.

The bill of complaint prays for an injunction, account, and assessment of damages.

The answer denies that Heath was the original and first inventor of the alleged improvement in cuspadores,

described and claimed in his letters patent, but that he was anticipated by one Wm. H. Topham, to whom letters patent were granted on the 2d of August, 1870.

The word cuspadore is derived from the Portuguese verb *cuspo*, to spit; *cuspidor*, a spitter. The English cuspadore is a spittoon of a peculiar form.

Not much stress, therefore, can be laid upon the fact that Topham calls his patent "an improvement in spittoons," and Heath calls his "an improvement in cuspadores." The difference between a spittoon and a cuspadore is one of form, and the form of the cuspadore is not new.

The characteristic and valuable feature of both articles is their self-righting quality, arising from their weighted bottoms, the functions of the weighted bottom in each are the same, and Topham has the merit of being the older. It is in evidence that he made *papier maché* cuspadores, with weighted bottoms, as early as June and July, 1871, anterior to the date of the patent to Heath. What, then, has Heath done? He has improved a cuspadore by increasing the weight of the bottom, whereby it is rendered less liable to upset, using the same means that Topham applied to spittoons, and producing the same results. He has substituted sheet metal for other, and, it may be less appropriate, materials for the manufacture; but there was no invention in the mere change of material.

And this method of construction, to wit, the putting together the cuspadore in three pieces, is so obvious that nothing was claimed for it in the patent, and nothing ought to have been. Any skilled mechanic would naturally adopt it within the exercise of inventive talent.

As the defendants justify under the Topham patent, there must be a decree in their favor, and it is ordered accordingly.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date July 31, 1877.]

10,131.—Cassimere.—DAVID D. ROWEN, Adams, Mass. Application filed July 18, 1877. Term of patent 3½ years.

10,132.—Carpets.—JOHN H. BROMLEY, Philadelphia, Pa., assignor to JOHN BROMLEY & SONS, same place. Application filed July 18, 1877. Term of patent 3½ years.

10,133.—Hoating-Stoves.—RICHARD A. CULTER and DAVID C. PROCTOR, Peoria, Ill. Application filed June 14, 1877. Term of patent 7 years.

10,134.—Glass Shades.—WILLIAM W. LYMAN, Meriden, Conn., assignor to MERIDEN FLINT GLASS COMPANY, same place. Application filed June 20, 1877. Term of patent 7 years.

10,135 and **10,136.—Cassimeres.**—JOSIAH PERRY, Dudley, Mass. Applications filed July 18, 1877. Term of patents 3½ years.

10,137.—Casings of Soda-Water Apparatus.—JAMES W. TUFTS, Medford, Mass. Application filed July 5, 1877. Term of patent 14 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date July 31, 1877.]

4,961.—Flax Threads and Twines.—THOMAS BARBOUR, Paterson, N. J. Application filed June 4, 1877.

"The representation of a spinning-wheel and a lion bound by bread."

4,962.—Canned Lobsters.—BURNHAM & MORRILL, Portland, Me. Application filed May 14, 1877.

"The word-symbol 'QUEEN BRAND' and a representation of the rising sun."

4,963.—Perforated Card-Board.—DREYFUSS & SACHS, New York, N. Y. Application filed May 12, 1877.

"The diamond-shaped border or symbol."

4,964.—Stove-Castings.—DETROIT STOVE WORKS, Detroit, Mich. Application filed July 17, 1877.

"The emblem of a crown and the word-symbol 'JEWEL.'"

4,965.—Aromatic Beverage.—PHILIPP DORNBUSCH, Nashville, Tenn. Application filed July 14, 1877.

"The letter D, traversed by an arrow."

4,966.—Silk Ribbons.—HUGO FUNKE, College Point, N. Y. Application filed April 25, 1877.

"The concentric rings, with the words 'Gold Medal' and 'Exhibition of the world's industry, I class,' and the monogram composed of the letters 'C. P.'"

4,967.—Leaf-Tobacco.—FELIX GARCIA, New York, N. Y. Application filed July 13, 1877.

"The arbitrarily-selected words and letters 'FLOR DE F. G.'"

4,968.—Medical Compounds.—GREENE, LINDLEY & BENTLEY, Cincinnati, Ohio. Application filed March 20, 1877.

"The monogram composed of the letters 'G., L. & B.'"

4,969.—Photographic Pictures.—BENJAMIN T. IRISH, New Bedford, Mass. Application filed June 8, 1877.

"The compound word-symbol 'CRYSTAL-IVORYTYPE.'"

4,970.—Medical Preparations.—SIMON H. KENNEDY, Omaha, Nebr. Application filed July 11, 1877.

"A monogram composed of the letters 'S. H. K.'"

4,971.—Soap.—MCCULLOUGH SOAP COMPANY, Milwaukee, Wis. Application filed July 10, 1877.

"The symbol formed of the letters 'C E N,' 'A L,' figures '10,' and the representation of an eye."

4,972.—Soap.—JAMES MCKEONE, Philadelphia, Pa. Application filed June 29, 1877.

"A picture of the head and bust of a man, thrown in oval upon rays of light proceeding from a pictorial representation of the sun's disk upon the right, a rainbow upon the left, in connection with the words and characters following—that is to say, 'ORIGINAL CHINESE SAN GOON,' and six Chinese-character writings."

4,973.—Dried Beef, Hams, Breakfast-Bacon, and Shoulders.—MEYER, HUSCHART & CO., Baltimore, Md. Application filed July 16, 1877.

"The arbitrary words 'PARTRIDGE BRAND.'"

4,974.—Medical Compound.—R. V. PIERCE, Buffalo, N. Y. Application filed February 28, 1877.

"The pictorial representation of the mask or quartering view of the upper and middle third of the human face, used in connection with the words 'Dr. Sage's Catarrh Remedy.'"

4,975.—Chewing-Tobacco.—QUIGG & ALLEN, Atchison, Kans. Application filed January 16, 1877.

"The representation of the tree and the word-symbol 'CHARTER OAK.'"

4,976.—Medical Preparation.—JOHN M. RICHARDS & CO., New York, N. Y. Application filed July 14, 1877.

"The word symbol 'CASTROLEUM.'"

4,977.—Concentrated Food-Supplement for Horses and other Animals.—JOHN M. RICHARDS & CO., New York, N. Y. Application filed July 14, 1877.

"The word-symbol 'LINOIL.'"

4,978.—Baking-Powder.—RIVERSIDE MILLS COMPANY, Rutgers, N. Y. Application filed October 5, 1876.

"The word-symbol 'TIP TOP.'"

4,979.—Polishing-Soap.—JOHN T. SCHWACHHOFER, Hunter's Point, N. Y. Application filed July 13, 1877.

"The bust of the female having the crowned head, and the word-symbol 'SAPHIA.'"

4,980.—Smoking and Chewing Tobacco, Cigars, and Cigarettes.—B. J. SEMMES & CO., Memphis, Tenn. Application filed July 16, 1877.

"The word-symbol 'MEMP,' in Coptic letters, as shown."

4,981.—Spirituous Liquors and Wines.—B. J. SEMMES & CO., Memphis, Tenn. Application filed July 16, 1877.

"The word-symbol 'MEMP,' in Coptic letters, as shown."

4,982.—Toilet Wash.—FRANK WRIGHT & BROTHER, Washington, D. C. Application filed July 16, 1877.

"The word-symbol 'POND LILY,' and the representation of pond lilies."

4,983.—Whisky.—JOHN C. YOST & CO., Cincinnati, Ohio. Application filed July 16, 1877.

"The arbitrary words 'BILLY MOORE.'"

4,984.—Tobacco.—CHARLES R. MESSINGER, Toledo, Ohio. Application filed March 19, 1877.

"The word-symbol 'SUN FLOWER.'"

4,985.—Knitting-Cotton.—MARTIN B. OCHS, New York, N. Y. Application filed May 26, 1877.

"The word-symbol 'GERMANIA.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date July 31, 1877.]

1,128.—Title: "Nature's Remedy, Bedford Alum & Iodine Mass."—BEDFORD ALUM & IODINE SPRINGS COMPANY, Lynchburg, Va. Application filed June 23, 1877.

1,129.—Title: "Certain Cure for Headache."—GEO. D. COANEY, Bayonne, N. J. Application filed July 19, 1877.

1,130.—Title: "Marvelous Cure for Chills and Fever."—GEO. D. COANEY, Bayonne, N. J. Application filed July 19, 1877.

1,131.—Title: "Kidney Tea."—BENJAMIN W. DYER, New York, N. Y. Application filed July 18, 1877.

1,132.—Title: "Dry Goods."—FORBES LITHOGRAPH MANUFACTURING COMPANY, Boston, Mass. Application filed July 21, 1877.

1,133.—Title: "Dry Goods, Importers, Jobbers, and Retailers."—FORBES LITHOGRAPH MANUFACTURING COMPANY, Boston, Mass. Application filed July 21, 1877.

1,134.—Title: "Pennsylvania Baking Powder."—H. C. HOPPER, Philadelphia, Pa. Application filed July 16, 1877.

1,135.—Title: "Moody's Concentrated Fluid Extract of Sarsaparilla, Stillingia, and Yellow Dock."—JOHN C. MOODY, San Francisco, Cal. Application filed July 20, 1877.

1,136.—Title: "Madame Lang's Perfected Nurser."—JEREMIAH QUINLAN, New York, N. Y. Application filed April 26, 1877.

1,137.—Title: "Sanderson's Soap Crystals."—SANDERSON, BUCHANAN & CO., Chicago, Ill. Application filed July 20, 1877.

1,138.—Title: "Extract Florida Bouquet."—H. EDWARD WENDEL, Philadelphia, Pa. Application filed July 17, 1877.

SALE OF SPECIFICATIONS AND DRAWINGS.

Photolithographic copies of the drawings of all patents issued since November 26, 1867, have been produced, and will be sold to the public at 25 cents per patent, or, where twenty or more copies are ordered at one time, at 10 cents per patent.

Coupon-books, to the amount of $2 or more, can be purchased from the Chief Clerk of the Patent Office; the coupons, for 10 cents each, may be filled out at any time, and, on presentation, will entitle the holder to a photolithographic copy of *any* drawing which has been reproduced.

The specifications of all patents issued since July 1, 1871, are in print, and will be furnished with the drawing without extra charge. The specifications of patents issued from November 20, 1866, to July 1, 1871, are in print, and where such is the case the Office will furnish them with the drawings, but the Office will not undertake to reprint copies of patents which have been exhausted.

In addition to the above, the Office has reproduced, and offers for sale at the price mentioned above, all drawings in the following classes, embracing patents granted from 1790 to date. The classes are those of the Examiners:

1. Aeration and Bottling.
2. Apparel.
4. Baths and Closets.
5. Beds.
6. Bee hives.
7. Beer and Wine.
8. Bleaching and Dyeing.
9. Boats.
10. Bolts, Nuts, and Rivets.
11. Bookbinding.
13. Brakes and Gins.
14. Bridges.
15. Brushes and Brooms.
17. Butchering.
18. Caoutchouc.
19. Carding.
20. Carpentry.
21. Carriages and Wagons.
23. Chemical Misc.
26. Cloth.
28. Cordage.
29. Crinoline and Corsets.
31. Dairy.
33. Drafting.
34. Driers and Kilns.
36. Electricity.
37. Excavators.
38. Felting and Hats.
40. Files.
42. Fire-arms.
44. Fuel.
45. Furniture.
47. Garden and Orchard.
48. Gas.
52. Gunpowder.
53. Hardware manufacture.
55. Harrows.
56. Harvesters.
58. Horology.
59. Horseshoes.
61. Hydraulic Engineering.
62. Ice.
65. Kitchen Utensils.
66. Knitting and Netting.
67. Lamps and Gas fitting
68. Laundry.
71. Manures.
72. Masonry.
73. Measuring Instruments.
75. Metallurgy.
76. Metal Working, bending and straightening.
77. Metal Working, boring and drilling.
78. Metal Working, forging, swaging, and riveting.
79. Metal Working, punching, cutting, and shearing.
80. Metal Working, rolling.
81. Metal Working Tools.
82. Metal Working, turning, planing, and milling.
83. Mills.
85. Nails.
86. Needles and Pins.
87. Oils, Fats, and Glue.
88. Optics.
89. Ordnance.
90. Ore.
91. Paint.
92. Paper-making.
93. Paper manufactures.
94. Paving.
96. Plating.
97. Plows.
98. Pneumatics.
99. Preserving Food.
101. Printing.
102. Projectiles.
103. Pumps.
104. Railways, The Way.
105. Railways, Cars and Interior Fittings.)
106. Railway Cars, Exterior Mountings and Fittings.
107. Railway Track and Car Irons and Fittings, manufacture of.
108. Roofing.
111. Seeders and Planters.
112. Sewing-machines.
114. Ships (1) construction.
115. Ships (2) propulsion.
116. Signals.
117. Silk.
118. Spinning.
119. Stabling.
120. Stationery.
124. Stills.
126. Stoves and Furnaces.
127. Sugar.
130. Thrashing.
131. Tobacco.
132. Toilet.
134. Tubing and Wire.
135. Umbrellas and Fans.
137. Water Distribution.
138. Water wheels.
139. Weaving.
141. Wood screws.

And the subdivisions of—

Bench-planes.
Bale-ties.
Buttons and Machines.
Combs, &c.

About forty other classes are in progress, and it is hoped that all the drawings remaining, some thirty thousand in number, may be completed during the fiscal year.

The total number of patents of which drawings are complete and offered for sale as above will approximate one hundred and fifty thousand.

When a patent has been allowed, and the application has not been forfeited by delay of six months, if the final fee of twenty dollars is paid before 12 o'clock on Friday, the patent will issue and bear date the following Tuesday.

The Government fee on making application for a patent is fifteen dollars. The final fee is twenty dollars. Usually there are no other Government fees unless the application is appealed.

Letters Patent of the United States do not reach the patentee or owner until about two weeks from the day of their date. The letters, nevertheless, have the force of patents from the time they are signed and sealed.

The "Rules of Practice" are furnished gratis on personal or written application to the Commissioner of Patents.

Where specifications are in print they are furnished with the drawings without extra charge.

Where specifications are printed, copies of same attached to drawings will be furnished without extra cost.

Printed copies of any patent can be obtained commencing with issue of November 26, 1867, to date.

Printed copies of specifications can be procured from No. 59,740, issue of November 20, 1866

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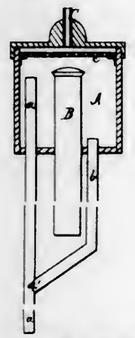
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Werden, C. A., Grinding machine	193,627
Westcott, C. S., Matrix for type casting	193,628
Wharton, W. E., Thief and robber trap	193,790
Wherry, J. R., Lawn seat	193,738
Wiethisbach, A., Braiding machine	193,791
Willson, T. A., Spectacle frame	193,739
Wilson, C. J., Saw	193,740
Winslow, G. S., Seal bolt	193,741
Wisner, G. T., Potato bug poison syringe	193,742
Wood, G. H., Pressure regulator	193,629
Wood, J. B., and J. W. Scull, automatic tubular car coupling	193,679
Wood, T. H., Side bar wagon	193,792
Woodside, L. S., Check row attachment for corn planters	193,743
Woolman, A. C., Gate latch	193,630
Wyckoff, G. D., Combined ruler and letter scales	193,744
Yale, R. H., Traction wheel	193,680
Yates, A. P., Door spring	193,681
Young, J., Insect guard	193,745

TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED JULY 31, 1877.

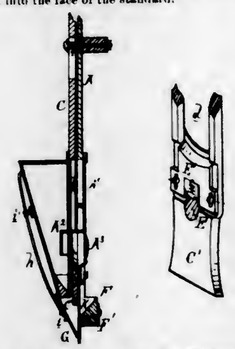
193,589. CONDENSERS FOR ENGINES. W. J. Allen, Buffalo, N. Y. [Filed Feb. 12, 1877.]



The combination of the condenser-head A, the steam-pipe B, water-tube C, air-pipes *a a a*, and the water-pipes *b b b*, the latter leading from the condenser into the air-pipes *a a a*, respectively, to get greater velocity of water, and greater suction of air where the air and water meet, substantially as hereinbefore described.

193,590. HAND-PLANTERS. S. P. Babcock, Adrian, Mich. [Filed Mar. 15, 1877.]

Brief.—On the stop-block is adjustably secured a metal block, for graduating the depth of penetration. The removable scraper-plate is held in position by spring-arms. The plunger is tapered at its lower end to render it self-cleaning. Within the hopper, above the discharge-orifice, is removably secured an inverted hood, to prevent crowding of the corn. The handle of the plunger is secured to it by a flanged sleeve, the base-flange of which is let into the face of the standard.



1. In a hand corn-planter, the combination, with the standard A, of the stop-block F, having the seed-passage *k* and the metal box F' adjustably secured to the said stop-block, constructed and arranged substantially as described and shown.

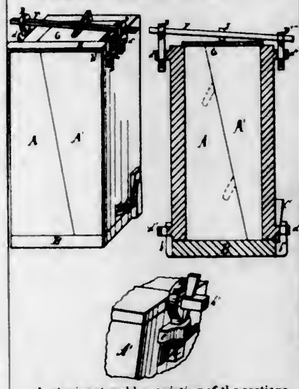
2. The combination, with the hopper, of the removable scraper plate G, having the saddle *i*, the long wire spring A, and hooks *i' i'*, constructed and arranged substantially as described and shown.

3. In a hand-planter, substantially as described, the plunger, having a tapered foot, C', as and for the purpose set forth.

4. The hood or guard A', in combination with the hopper of the hand-planter, substantially as and for the purpose set forth.

5. The flanged sleeve or washer *c*, in combination with the handle-bolt, standard, and plunger of a hand-planter, as and for the purpose set forth.

193,591. INGOT-MOLDS. Joseph Baker, Chicago, Ill. [Filed June 12, 1877.]



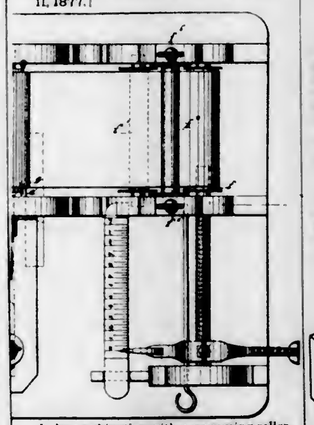
1. An ingot-mold, consisting of the sections A and A', joining on an oblique line and being united by deflecting dowel-pins *a'*, substantially as and for the purpose set forth.

2. A parallel ingot-mold, consisting of the sections A and A' joining on an oblique line, and having the lugs *d* and *d'* cast to its sides and near to its top and bottom ends, in combination with the loops D and D', cover G, bar F, and wedge *g*, substantially as described, and for the purpose specified.

3. A parallel ingot-mold, consisting of the sections A and A', joining on an oblique line, being united by deflecting dowel-pins *a'*, and having lugs *d* and *d'*, in combination with the loops D and D' of different lengths, as and for the purpose specified.

4. An ingot-mold, consisting of the sections A and A', joining on an oblique line, and having lugs to their top and bottom ends, in combination with the loop E and clamp bar H, as described and shown.

193,592. CLOTH-MEASURING MACHINES. A. W. Barker, Girard, Kans. [Filed Apr. 11, 1877.]



1. In combination with a measuring-roller, screw-shaft, and index-saddle, means, substantially as described, for determining the pressure upon the shaft for regulating the tension, substantially as described.

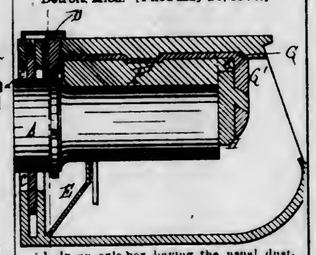
2. In combination with the saddle, the notched arm and adjustable weight, substantially as described.

3. In combination with the screw-shaft and rod 1, the saddle having the pivoted index-finger and adjustable weight, substantially as described.

4. In combination with the saddle and shaft, the pivot and guiding-rod 1, as described.

5. The combination of the following elements: a winding roller or board, a pressure-roller, *f'*, and a tension device, substantially as described, adapted to determine the power required to turn the measuring-roller.

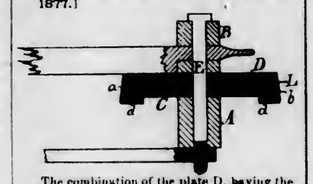
193,593. CAR-AXLE BOXES. T. A. Bissell, Detroit, Mich. [Filed May 26, 1877.]



1. In an axle-box having the usual dust-excluding packing C, the combination of the oil-pocket E, extending close to the journal, and the forked plate D, adapted to ride loosely on the axle-collar *a*, and return its drip to the oil-cellar, constructed and arranged substantially as described and shown.

2. The shoe G, cast with a pendent flange, G', at its front end, adapted to receive and secure the stop-plate H, substantially as and for the purpose set forth.

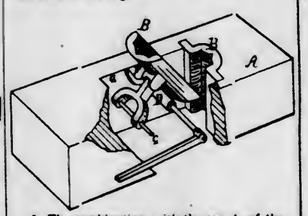
193,594. FIFTH-WHEELS FOR WAGONS. J. J. Black, Cleveland, Ohio. [Filed May 26, 1877.]



The combination of the plate D, having the flange *a* and ears *d*, the plate C, having the notches *c*, the leather lubricant L, having its periphery *b* bent down like the flange *a*, and embracing the periphery of the plate C, and the axle-tree A, bolster B, and the uniting king-bolt E, all substantially as described.

193,595. COMBINED TUBE-CLAMP AND WRENCH FOR SUSTAINING THE LINING OF ARTESIAN WELLS. H. M. Bradley, Bay City, Mich. [Filed Apr. 4, 1877.]

Brief.—When the dog is turned down, the main lever, in being thrown up, releases the pipe by means of its eccentric bearing against the heel of the dog.



1. The combination, with the bar A, of the stationary semicircular jaw B, set into the said bar and serrated vertically, as described, the similarly-serrated semicircular jaw B', and the lever C, pivoted to the last-named jaw

and to the bar, the said lever being of such length that the two jaws will come in contact before the lever assumes a horizontal position, substantially as set forth and shown.

2. The combination, with the movable jaw B', pivoted to the end of a lever, C, of the pivoted dog F and the eccentric D, whereby the movement of the said eccentric is adapted to raise or clamp the said jaw, according as the said dog is in a depressed or elevated position, substantially as described.

3. The pipe-clamp described, adapted to be used as a pipe-wrench, consisting of the mortised bar A, serrated jaws B B', lever C, dog F, and eccentric D, all constructed, arranged, and adapted to operate substantially as set forth and shown.

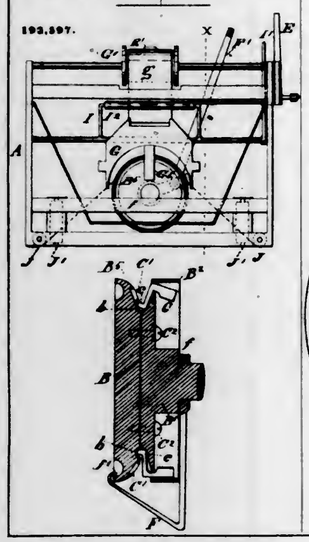
193,596. TORCHES. B. F. Card, Brooklyn, N. Y. [Filed July 3, 1876.]



1. The combination of the two tubes A' and A, sliding telescopically one within the other, the screw-eyes *a* and *b*, cord *c*, handle F, block E, lamp B, and lamp-wick case D.

2. The combination of the tubes A' and A, sliding telescopically one within the other, the screw-eyes *a* and *b*, cord *c*, handle F, block E, lamp B, lamp-wick case D and cap C.

193,597.



193,597. MEANS FOR TOWING CANAL-BOATS. B. R. Cole and S. B. King, Buffalo, N. Y. [Filed Mar. 16, 1877.]

1. The cable-wheel B and its operating mechanism, in combination with a water-box, Z, arranged within the boat, substantially as and for the purposes specified.

2. The combination of the disks B B², clips C, friction-roller E, arm E², and crank E³, for the purpose of preventing the slipping of the cable and moving the roller E out of the way, substantially as described.

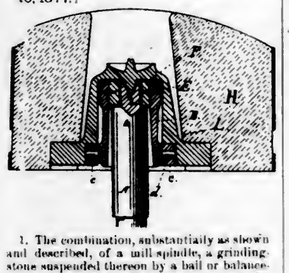
3. The cable-wheel B², provided with a rim, B³, clips C, and rubber plates C³, in combination with a frame, A, provided with the friction rollers J J', for the purposes described.

4. The combination of the friction-rollers *g'* with a grappling device, G, for the purposes described.

5. The combination of the grapple G, belt *g*, lever I, and arm I¹ with the windlass G¹, for the purpose of dropping the cable into the wheel, substantially as described.

6. The cable-wheel B², in combination with the angular arms F and F', for the purpose of throwing the cable off from the wheel, as specified.

193,598. MILLSTONE-DRIVERS. A. Cunningham, Milwaukee, Wis. [Filed Mar. 16, 1877.]



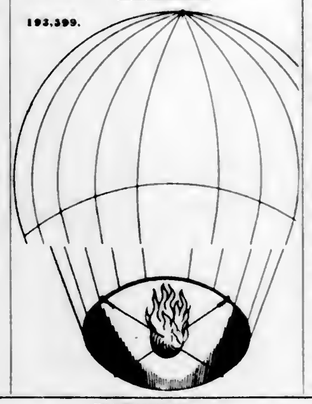
1. The combination, substantially as shown and described, of a mill-spindle, a grinding-stone suspended thereon by a bail or balance-rynd, and an intermediate driving-sleeve pivoted to the spindle in such manner as to have a universal motion thereon, and provided with trunnions engaging with the bail.

2. The combination of the driving-sleeve B, spindle A, block F, and pivots *a a'*, when constructed and operating substantially as and for the purposes hereinbefore set forth.

3. The combination of the spindle A, the stone H, suspended thereon by the bail B, the block F pivoted upon the upper end of the spindle, and the driving-sleeve B, pivoted at its upper end to the block, and provided at its lower end with the trunnions *d*, entering recesses in the bail, as and for the purposes described.

4. The combination, substantially as shown and described, of a mill-spindle, a grinding-stone, having at or above its center a bearing on said spindle, and a separate pivoted driving-sleeve extending and transmitting power from the upper end of the spindle directly to the lower part of the stone.

193,599.



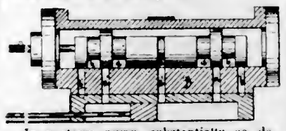
193,599. TOY BALLOONS. J. J. Detwiller, Jersey City, N. J. [Filed May 11, 1877.]

Brief. The article sold is ready for use at once.

The ammunition for fire-balloons herein described, consisting, essentially, of a mass of cotton, felt, sponge, or similar fibrous or porous substance, saturated with paraffine or other dry hydrocarbon, as set forth.

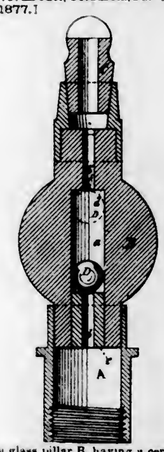
193,600. VALVES FOR DIRECT-ACTING PUMPS. G. W. Dixon, Spring Lake, assignor to Wm. M. Ferry, Grand Haven, Mich. [Filed Jan. 13, 1877.]

Brief.—An auxiliary port in the valve and cylinder admits steam to the latter, to carry the pump over the dead-point.



In a steam-pump, substantially as described, the auxiliary channel *c* in the valve, and the port *c'* leading into the cylinder, substantially as and for the purpose set forth.

193,601. GAS-BURNERS. Charles S. Ford, Philadelphia, assignor of one-half his right to J. J. Krodel, Columbia, Pa. [Filed June 21, 1877.]



The glass pillar B, having a central bore, *a*, and a reciprocating solid wooden ball, D, within the bore, and a bushing, *c*, at its lower end, with a central opening, *b*, and a central opening, *b'*, at its upper end, with an annular shoulder, *d*, having small openings *f* for the passage of gas to the tip, in combination with the base A and tip C, substantially in the manner and for the purpose set forth.

193,602. WEATHER-STRIPS. H. Gollings, Pittsburg, Pa. [Filed June 29, 1876.]



The elastic gum spring D, in combination with the swivels C C, air-strip B, and water-strip A, provided with groove *a²*, all combined and arranged as described, and for the purposes set forth.

193,603. FIRE-ENGINES. J. Grzybowski, Chicago, Ill. [Filed June 20, 1877.]

1. A wheeled truck or frame provided with a pumping mechanism, sustained by a post or standard, in combination with the horizontal driving-wheel rotating upon and around said post, substantially as and for the purpose set forth.

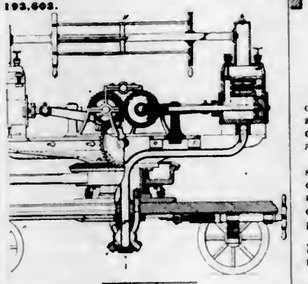
2. A pump having a horizontal driving-wheel mounted upon, and its supply and delivery pipes passed through, a hollow standard sustaining the pump, substantially as shown and described.

3. A wheeled truck supporting a pumping mechanism, operated by a horizontal draft-lever or sweep, substantially in the manner shown and described, whereby the pump is adapted to be operated by the team by which it is drawn from place to place.

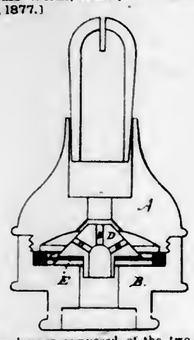
4. In combination with the wheeled truck having the two pumping cylinders and their air-chambers thereon, the reel W, having its shaft X sustained by the air-chambers, as shown.

5. In combination with the wheeled truck, the crossed and pivoted brake-arms U and mechanism for operating them, substantially as shown.

193,603.



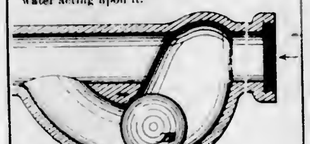
193,604. GAS-BURNERS. John G. Hanning, Indianapolis, Ind., assignor to Pioneer Brass Works, same place. [Filed June 11, 1877.]



The burner composed of the two sections A B, in combination with the valve D, constructed as shown, and hung in the flexible diaphragm E, arranged and operating substantially as set forth.

193,605. BALL-CHECK-VALVES FOR SEWERS. B. C. Hay, Washington, D. C., assignor, by mesne assignments, of one-half his right to G. A. Bassett, trustee, Jamestown, N. Y. [Filed June 19, 1877.]

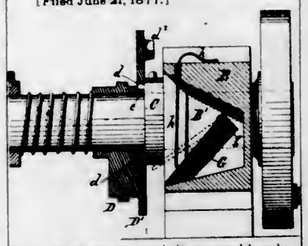
Brief.—The valve opens by falling into the diverging channel, and is closed by the reflux water acting upon it.



1. In a ball-valve case or body, a diverging passage or channel, *c*, substantially as shown and described, for the purpose of permitting the ball to fall back out of the main bore or passage, and of allowing the reflux water to act against the ball from the rear, in order to drive it to its seat.

2. In a check-valve case or body, a side channel, *c*, arranged to direct the reflux water against the valve proper, in order to force the same to its seat.

193,606. VALVE-GEARS FOR STEAM-ENGINES. John D. Haslet, Meadville, Pa. [Filed June 21, 1877.]



1. The sliding eccentric D, mounted loosely on the crank-shaft and adapted to move laterally thereon, for being connected with and disconnected from said shaft, substantially as and for the purpose described.

2. The eccentric D, mounted loosely and sliding laterally on the crank-shaft, for being connected with or disconnected from said shaft, in combination with the vibrating plate or lever for throwing said eccentric out of engagement with the shaft, as described.

3. The dog or lever G, arranged within the hollow or recessed pillow-block, in combination with the sliding eccentric D, as described.

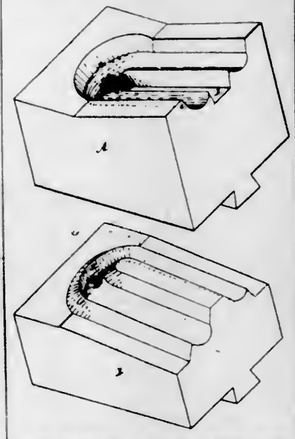
4. The lever G, for throwing the eccentric out of engagement with its shaft, in combination with the spring E, for forcing the eccentric back into engagement with said shaft, substantially as described.

5. The clutch face-plate D', attached to the sliding eccentric, and provided with the key-seats *d d'*, in combination with the collar C on the crank-shaft, having the pin or key engaging with said face-plate, as described.

6. The face-plate D', provided with the pin *d²*, in combination with the dog or lever G, substantially as and for the purpose set forth.

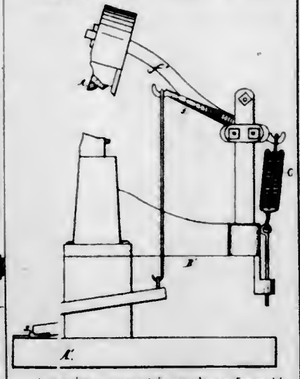
193,607. DIES FOR WELDING LINKS. J. H. Helm, Allegheny, Pa. [Filed Sept. 8, 1876.]

Brief.—The inclined planes of the die-blocks and the cavities therein operate so as to concentrate the force of the movable die-block upon the portion of the link to be welded, and they are so constructed that the inner line of parting of the die proper dips below, and the outer line rises above, their respective planes throughout the portions that embrace the sides of the link.



The die-blocks A B, having inclined faces and cavities, constructed and arranged as described.

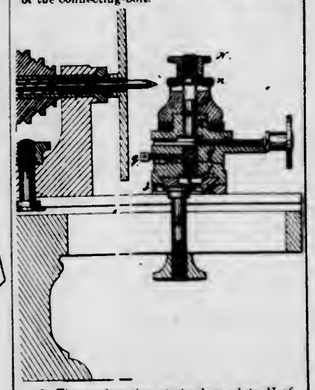
193,608. MACHINES FOR WELDING CHAIN-LINKS. J. H. Helm, Allegheny, Pa. [Filed June 2, 1876.]



As an improvement in machines for welding chain-links, the combination of the dies A B, arm *f'*, treadle *r*, and spring C, substantially as and for the purpose hereinbefore described and set forth.

193,609. SLIDE-RESTS FOR WATCH-MAKERS' LATHES. Caleb Hopkins, Waltham, Mass. [Filed Feb. 8, 1877.]

Brief.—The foundation-piece of the rest is formed with ways for a slide to move on, and this slide is provided on top with the half, and the piece above it with the other half, of a turn-table. A pierced bolt connects these halves, and when it is desired to draw them together, and prevent the upper half from revolving upon the lower, a wedge-pointed screw is inserted in the hole of the bolt. Integral with the said upper half is another piece, formed with ways for the reception of the slide, which carries the tool-post. A threaded stem on this slide receives the nut for raising or lowering, as desired, the tool-post, which may be freely revolved, unless clamped to the stem and nut by a nut which engages with the threaded end of the connecting-bolt.



1. The combination of the base-plate H of the rest with the lathe-shears and the slide-rest proper, substantially as described.

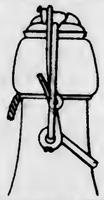
2. The pierced bolt J, in combination with the pieces I and Q, and the cone-pointed screw *q*, substantially as and for the purposes hereinbefore set forth.

3. The combination of the piece L with the hub K, the adjusting-nut *k*, the bolt M, and the set-nut N, substantially as described, and for the purposes hereinbefore set forth.

4. The improved slide-rest hereinbefore described, being composed of the parts H I J K *k* L M N *n* Q *q*, together with the necessary working screws and cranks, in combination with the lathe-bed, substantially as described, and for the purposes set forth.

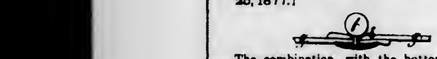
193,610. BOTTLE-STOPPERS. D. G. Hubbard, East Bridgewater, Mass. [Filed June 23, 1877.]

Brief.—The additional yoke enables one to readily actuate the stopper-fastener.



1. The combination of the trigger, as described, with the bottle-stopper and its lock, substantially as set forth.
2. The combination of the trigger and catch, essentially as explained, with the bottle stopper and its lock, substantially as described.
3. The catch or pin extended up through the metallic head of the stopper, and having its head resting on the rubber or elastic portion of the said stopper, all as represented.

193,611. BUTTON-FASTENERS. Martin R. Kenyon, Providence, R. I. [Filed June 25, 1877.]



The combination, with the button *f*, provided with the eye *e*, of the concaved disk *a*, having the tongue *b*, provided with the loop *c*, stamped out of one piece of metal, substantially as and for the purpose set forth.

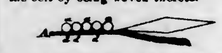
193,612. METALLIC CARTRIDGES. T. T. S. Laidley, Watertown, Mass. [Filed Mar. 6, 1877.]



1. The herein-described method of making a cartridge-shell, which consists in forming a shell closed at one end, punching a hole through the closed end, inserting the cap-shaped head *b* in the hole, and riveting the head to the shell by pressure from the inside, as set forth.
2. The combination of the anvil *d*, formed of a piece of triangular wire, with the cap *c* formed in the head *b* of a cartridge-case, substantially as described, and for the purpose specified.

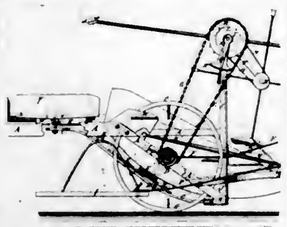
193,613. CARTRIDGE-BELTS. Anson Mills, U. S. Army. [Filed July 9, 1877.]

Brief.—The thimbles or pockets for holding the cartridges are suited to the main body of the belt by being woven thereto.



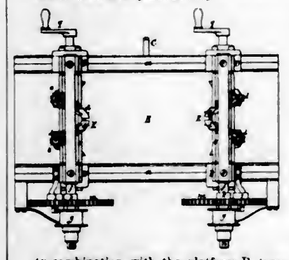
1. A cartridge box or belt having the thimbles or pockets for holding the cartridges woven upon the main portion of the fabric or belt, substantially as described.
2. The combination, with the main portion of the belt A, of the thimbles or pockets *a a*, for holding the cartridges, connected to said belt by being woven thereto, as and for the purposes set forth.
3. The combination, with the belt A, of a series of thimbles or pockets, *a a*, for holding the cartridges, formed with a soft or spongy inner surface, for exerting a pressure or friction upon the cartridges, to hold them in place, as and for the purpose specified.
4. The cartridge-belt herein described, having the series of thimbles or pockets *a a*, for holding the cartridges, connected to said belt by being woven thereto, and provided with the edges or borders through which the perforations *b b* are formed, as and for the purpose set forth.

193,614. HARVESTERS. J. L. Owens, Cambria, assignor to G. Esterly; said G. Esterly assignor of one-fourth his right to G. W. Esterly, Whitewater, Wis. [Filed Mar. 26, 1876.]



1. The combination of the lever C', the connecting-rod D', the lever E', provided with the slot *e'*, having its middle part curved, and the crank F', with the cross-head A' of the gatherer Y, and with the bevel-gear wheels G' D, connected with the drive-wheel C, substantially as herein shown and described.
2. The combination of the rods P' M', of equal length, and diverging from a common center, with the binders' swinging platform P', and with the lever N', that raises and lowers the frame A, substantially as herein shown and described.

193,615. MACHINERY FOR SCOURING AND DRESSING LEATHER. W. Panton, Quincy, Mass. [Filed May 28, 1877.]



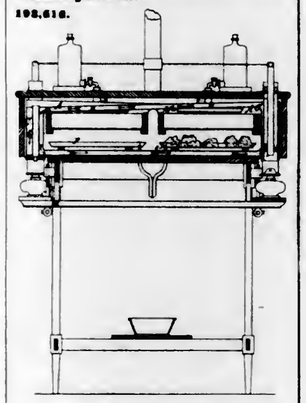
In combination with the platform B, (provided with the pedal C, or suitable mechanism for moving it vertically, as described,) the two rotary scourers E, arranged in separate carriers D D, movable toward or away from each other and over the said platform, and having mechanism for so moving them and revolving the scourers, as explained, consisting of the drum *i*, belts *h h*, pulleys *g*, shafts *f n*, gears *k l m o*, rack *p*, cranks *q*, clutch *r s*, and slide *t*, all arranged and applied as set forth.

193,616. INCUBATORS. Edw. S. Renwick, Millburn, N. J. [Filed Mar. 7, 1877.]

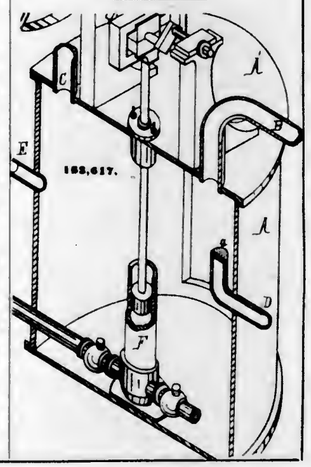
Brief.—The incubator is heated by two oblong water-tanks, and the moisture is supplied by open trays above and below the egg-holders. The foul air passes off through a ventilating-chimney, that extends below the egg-holders.

1. The combination, substantially as before set forth, of the incubating chamber, the egg-holders, the heat-flue, and the waste-heat chimney.
2. The combination, substantially as before set forth, of the incubating chamber, the egg-holder, the heat-flue, the waste-heat chimney, and the chimney-valve.
3. The combination, substantially as before set forth, of the incubating chamber, the egg-holder, and the air-pipe, arranged to supply air into the upper part of the incubating-chamber.
4. The combination, substantially as before set forth, of the incubating chamber, the holder, and the ventilating-chimney, arranged to discharge the air from the lower part of the incubating chamber.
5. The combination, substantially as before set forth, of the incubating chamber, the egg-holder, the ventilating chimney, arranged to discharge air from the lower part of said chamber, and the ventilating-valve which regulates such discharge.
6. The combination, substantially as before set forth, of the incubating chamber, the egg-holder, the ventilating-chimney, arranged to discharge air from the lower part of said chamber, and the air-supply pipe, arranged to supply air to the upper part of said chamber.
7. The combination, substantially as before set forth, of the incubating chamber, the egg-holder, and the water-tray, arranged in the upper part of said incubating-chamber, whereby moisture is supplied above the level of the egg-holder.
8. The combination, substantially as before set forth, of the incubating-chamber, the egg-holder, the water-tray arranged in the upper part of the incubating-chamber, and the under water-tray.
9. The combination, substantially as before set forth, of the incubating chamber, the egg-holder, the ventilating-chimney, and the thermostatic chamber, whereby the air escaping from the incubating-chamber is caused to pass through the thermostatic chamber.
10. The combination, substantially as before set forth, of the incubating chamber, two egg-holders, the thermostatic chamber, arranged between the said two egg-holders, and the ventilating-chimney, communicating with said thermostatic chamber.
11. The combination, substantially as before set forth, of the incubating-chamber, the egg-holder, and two independent heaters, having their ends which receive heat arranged at the opposite ends of the incubating-chamber.
12. The combination, substantially as before set forth, of the incubating-chamber, the egg-holder, the water-tray, and the drain-pipe, whereby surplus water is conducted from the incubating-chamber.

193,616.



193,617.

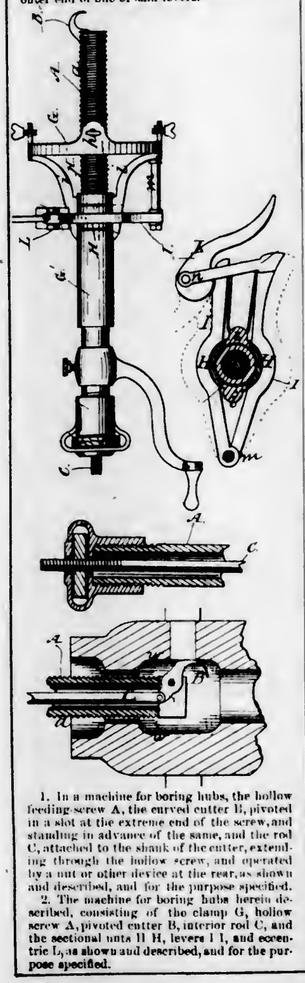


193,617. FEED-WATER HEATER AND PUMP COMBINED. Delos E. Rice, Detroit, Mich. [Filed May 23, 1877.]

The feed-water heater described, consisting of the cylindrical tank A, the submerged reciprocating pump F, exhaust-steam-inlet pipe B, feed-water-inlet pipe D, having its end covered by a perforated plate, *a*, and in line with the said steam-inlet pipe, steam-escape C, and overflow E, all constructed, arranged, and combined substantially as described and shown.

193,618. HUB-BORING MACHINES. R. G. Rowe and I. B. Edington, Waterloo, N. Y. [Filed Nov. 3, 1876.]

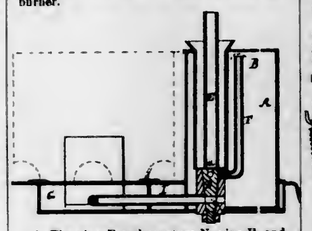
Brief.—By means of a curved cutter, pivoted to the lower end of a hollow feeding-screw, and attached to the lower end of a rod extending through the screw, and operated by a nut upon the upper end of said rod, an enlargement is cut in the interior of the hub, so that the ends of the spokes will not touch the box when secured in place. The hub is held in a circular clamp attached to an interior-threaded sleeve, vertically adjustable upon the feeding-screw, by means of two spring acted levers, provided with sectional nuts working in slots in said sleeve, and secured in position by an eccentric pivoted to an arm attached to the outer end of one of said levers.



1. In a machine for boring hubs, the hollow feeding-screw A, the curved cutter B, pivoted in a slot at the extreme end of the screw, and standing in advance of the same, and the rod C, attached to the shank of the cutter, extending through the hollow screw, and operated by a nut or other device at the rear, as shown and described, and for the purpose specified.
2. The machine for boring hubs herein described, consisting of the clamp G, hollow screw A, pivoted cutter B, interior rod C, and the sectional nuts H H, levers I I, and eccentric L, as shown and described, and for the purpose specified.

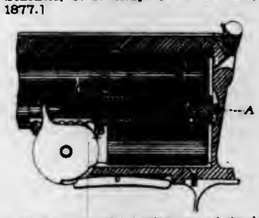
193,619. OIL-STOVES. Charles Ruprecht, Cleveland, Ohio. [Filed May 31, 1877.]

Brief.—Oil is poured into the external pipe, from which it escapes into the reservoir by means of an aperture near its bottom. During this operation the stop-cock is so turned as to bring the hole *a* in open relation to the air-tube. The supply is also cut off from the burner.



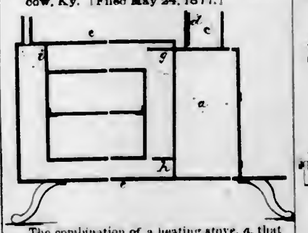
1. The pipe B and aperture N, pipe E, and air-tube F, in combination with the stop-cock and reservoir A, substantially in the manner as herein described, and for the purpose set forth.
2. The combination of the pipe B and aperture N, stop-cock and pipe I, reservoir A and receiver G, as and for the purpose specified.
3. The air-tube F and central pipe E, having attached thereto the key of the stop-cock communicating with pipe I, pipe B, and aperture N, as and for the purpose set forth.
4. In oil-stoves, an annular chamber formed between the external and central pipe, with an opening at the base of said chamber, communicating with an oil reservoir, and the central tube connected with the key of a cock for opening and closing the passage of the pipes F I, as and for the purpose set forth.

193,620. REVOLVING FIRE-ARMS. G. W. Schofield, U. S. Army. [Filed Mar. 24, 1877.]



1. The ejector-stud A, having squared shoulders, so that it can be removed by means of a wrench, substantially as set forth.
2. A movable gas-collar, having shoulders at each end, substantially as described and shown.
3. The movable gas-collar P, provided with the shoulders *a* and *b*, substantially as described and shown.
4. A recessed base-pin, in combination with a movable gas-collar and a recess, M, in the cylinder, substantially as set forth.

193,621. STOVES. Mary A. Shelby, Moscow, Ky. [Filed May 24, 1877.]

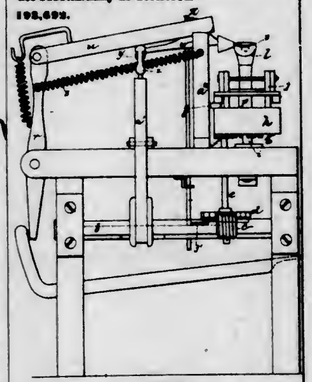


The combination of a heating stove, *a*, that is provided with the pipe *c* and damper *d*, cooking-stove *e*, dampers *g h i*, and pipe I, substantially as specified.

193,622. BOOT AND SHOE EDGE BURNISHING MACHINES. Chas. H. Southall, Leeds, England. [Filed June 6, 1877.]

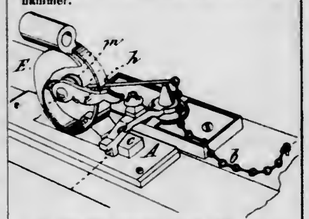
1. The arm *w*, the burnisher, and the burnisher-carrying lever, in combination with the link and lever and eccentric.
2. The arm, burnisher-carrying lever, link, and lever *a'*, and spring *s*, in combination with the carriage and shoe-supporting devices, substantially as described.
3. The edge-burnishing tool *c'*, provided with double faces 3 3, as shown and described, to operate as set forth.
4. The heel-burnisher composed of lever *w*, a forked portion, *f'*, and curved burnishers, provided with ends *h' h'*, constructed to operate substantially as described.

193,623.



193,623. BURGLAR-ALARMS. F. M. Swallow, Springfield, Mass. [Filed Oct. 16, 1876.]

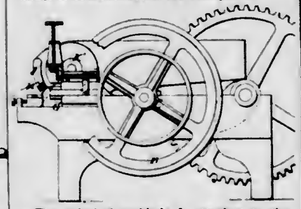
Brief.—The hammer is held cocked by a flexible rod inserted in an opening in the case, and attached to a stationary part of the building, so as to be withdrawn by the act of opening the door or window, and thus release the hammer.



A combined burglar-alarm and window-fastening catch, consisting of the combination of the plate A, the case E made thereon, and provided with the slit or opening *h*, the hammer pivoted in said case, the spring *m*, the elastic trip *f*, and cord or chain *b*, all substantially as and for the purpose hereinbefore set forth.

193,624. MACHINES FOR SHEARING BOILER-PLATES. A. Thomson, Fitchburg, Mass. [Filed May 23, 1877.]

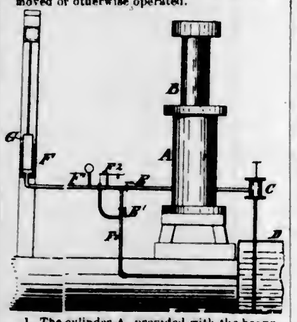
Brief.—The stationary shear-blade is formed with a circular or convex top, which fits the under or concave side of the bent plate.



The spiral shear-blade I, attached to the arc-shaped end of the pivoted lever F, in combination with the adjustable gage-bar G and adjustable convex stationary shear-blade M, substantially as herein described and set forth.

192,625. HYDRAULIC RAILROAD-SIGNALS. Harvey Tilden, Cleveland, Ohio. [Filed July 2, 1877.]

Brief.—Water, oil, or other equivalent liquid is pumped from a reservoir into a cylinder having a heavy or weighted piston, and forced through a pipe provided with one or more stop-cocks or valves, and a cylinder or plunger at its opposite end, to which is connected a signal-target or other device to be moved or otherwise operated.



1. The cylinder A, provided with the heavy or weighted piston B and forcing-pump O, in combination with the pipe F^1, reservoir D, cylinder F, and plunger or piston G, substantially as and for the purposes specified.

2. The combination of the indicator and relief-valve F^3 with the pipe F, discharge-pipe F^2, and cylinders A and F, substantially as and for the purposes described.

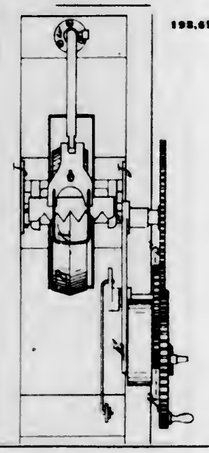
192,626. EAVES-TROUGHS. F. A. Walker, Sparta, Wis. [Filed Sept. 27, 1876.]



1. In combination with an eaves-trough, C, a transverse sustaining-screw, D, having one end secured to the building, and the other bent laterally, and a band, E, passing under the trough and mounted at its ends on the screw, as shown.

2. A supporting-band for an eaves-trough, in combination with a sustaining screw or rod passing through the extremities of said band, and provided at its outer end with a lateral or eccentric portion, a, so that by giving it a partial rotation the band may be secured or released, as required.

192,627.



192,627. GRINDING-MACHINES. Cyrus A. Worden, Waukegan, Ill., assignor to himself and Wm. B. Worden, same place. [Filed Apr. 19, 1877.]

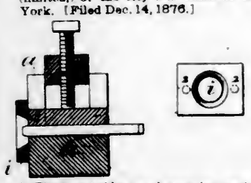
Brief.—May detach the vibrating arm and clamp the swinging frame, so as to grind without reciprocating wheel.

1. The combination, substantially as before set forth, of the revolving grinder, the knife-holder, the hinge-connection between the holder and its support, the main frame, the swing-frame, the link carrying the crank-shaft of the reciprocating mechanism, and the arm which connects the crank of the crank-shaft with the main frame.

2. The combination, substantially as before set forth, of the main frame, the grinder, the swing-frame, the link carrying the crank-shaft, and the gearing which drives the grinder and the crank-shaft, and the arm connecting the crank of the crank-shaft with the main frame.

3. The combination, substantially as before set forth, of the revolving grinder, the notched hangers for the water-trough, and the water-trough fitted with arms to engage with said hangers.

192,628. MATRICES FOR TYPE-CASTING. C. S. Westcott, Elizabeth, N. J., assignor to the American Type Machine Company, (limited,) of the city and State of New York. [Filed Dec. 14, 1876.]



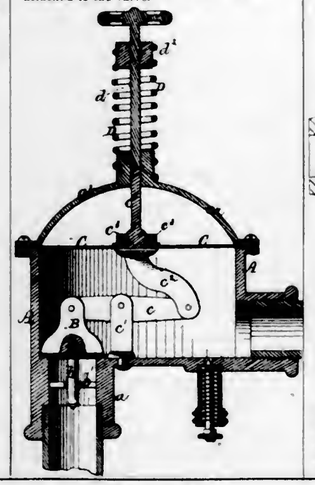
1. The type-holder s and clamping mechanism, in combination with the plate f and intervening device g, for determining the distance that the type projects from the holder, substantially as set forth.

2. The matrix-frame i, in combination with the type-holder and type, substantially as set forth.

3. The method herein specified of making separate complete type-matrices, by adjusting and securing the type in a holder with its letter projecting therefrom, and then forming the complete matrix within a matrix-frame held in position around the letter, substantially as set forth.

192,629. PRESSURE-REGULATORS. G. H. Wood, Port Huron, Mich., assignor of one-half his right to P. B. Sanborn, E. C. Carlton, and W. Stewart, same place. [Filed June 12, 1877.]

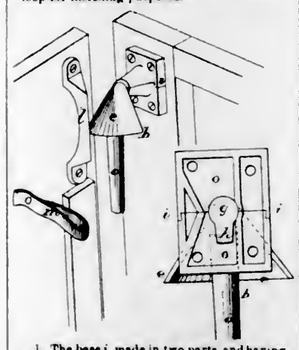
Brief.—The pressure is regulated by the spring and diaphragm acting upon the lever attached to the valve.



In a pressure-regulator, the case A, having the flexible or yielding partition or diaphragm C, in combination with the valve B, lever connection e e^1, screw d, having a nut, d^1, and spring D, substantially as and for the purpose set forth.

192,630. GATE-LATCHES. Augustus C. Woolman, Bellefontaine, Ohio. [Filed June 20, 1877.]

Brief.—As an improvement on Patent No. 191,216, May 22, 1877, the base or socket in which the latch is held is made in two parts, each having a recess in its rear side, enabling the latch to be applied to either right or left hand gates; and there is also a special adaptation of the latch or keeper and a suitable loop for fastening purposes.

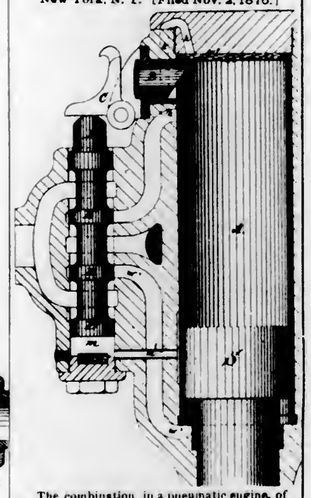


1. The base i, made in two parts, and having a recess, o, made in each of them, whereby either part may be made to receive the stop h, thus enabling the latch to be applied to right or left hand doors or gates, substantially as shown.

2. The latch b, consisting of the stem d, hood e, pivot part g, and stop h, substantially as shown.

3. The base i, made in two parts, each part having a recess in its rear side, in combination with the latch b and catch or keeper l, the parts being constructed to operate substantially as shown and described, for the purpose set forth.

192,631. PNEUMATIC ENGINES. J. F. Allen, New York, N. Y. [Filed Nov. 2, 1876.]



The combination, in a pneumatic engine, of valve E, provided with piston E^2 and rod D, lever C, and ping B, the passage a, and port x, with or without the passage h and valve E^3, substantially as and for the purpose set forth.

192,632. BIT-BRACE WRENCHES. Chas. H. Amidon, Miller's Falls, Mass., assignor of one-half his right to E. R. Saxton, Buffalo, N. Y. [Filed May 14, 1877.]



1. A bit-brace wrench having the inner jaw C acted upon directly, and the outer jaw B indirectly, by a right and left screw, E, the center between said jaws being fixed and unchangeable in the axial line of the brace, as described, for the purpose set forth.

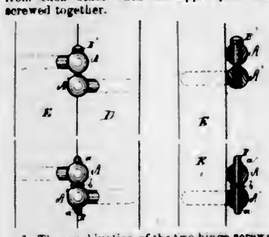
2. In a bit-brace wrench, a movable outer jaw attached to a sleeve sliding on the arm of a brace, said sleeve guiding a free movement of the inner jaw in its approach to or separation from the outer, the two jaws preserving between them an unchanging center, as described.

3. In a bit-brace wrench, the inner jaw C sliding on the sleeve b, in combination with the outer jaw B attached to sleeve b, said jaws being operated by the right and left screw E, as and for the purposes set forth.

4. The supplementary jaws c', as described, one or both of which are provided with feet d, secured at right angles to said jaws to prevent their movement outward, for the purpose set forth.

192,633. HINGES. J. Beaudet, Cambridgeport, Mass. [Filed June 23, 1877.]

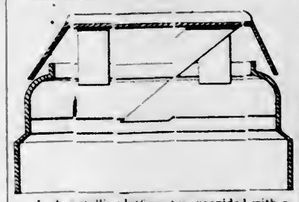
Brief.—Two hinge-screws, provided with globular heads, are inserted obliquely in the door and frame, and united by a pivotal screw or pintle passing through the head of one and screwed into the head of the other. The lower pair of hinge-screws, similar in construction and arrangement, are united by a pintle flanged in the middle, and cannot readily be detached from each other when the upper pair are screwed together.



1. The combination of the two hinge-screws A A' with the pivotal screw or pintle B', inserted into the head of one and screwed into that of the other of such hinge-screws, substantially as represented, for the purpose set forth.

2. In combination with the door D and its frame E, and the two lower hinge-screws A A' inserted therein, and arranged and provided with the pivot or pintle B and flange b, as set forth, the two upper hinge-screws A A', and their headed pivotal screw or pintle B', inserted through the upper of such hinge-screws, and screwed into that next below it, such upper pair of hinge-screws being screwed into the door and frame, substantially as and for the purpose specified.

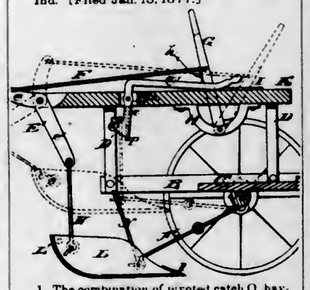
192,634. PLATFORM-SCALE TOPS. E. J. Bliss, Boston, Mass., assignor to himself and S. M. Brown, Jr., same place. [Filed Feb. 27, 1877.]



1. A metallic platform-top provided with a depending rim formed as an integral part thereof, in combination with the usual scale-frame, the bottom of the rim being adapted to extend below and outside the top of the frame, all substantially as described.

2. The improved scale-top herein described, consisting of a platform provided with depending edges, and with ribs across the top, all substantially as and for the purpose described.

192,635. SCRAPERS FOR EXCAVATING EARTH. Jonathan A. Botkin, Farmland, Ind. [Filed Jan. 13, 1877.]



1. The combination of pivotest catch O, having handle O', with bail N and scoop L, substantially as set forth.

2. The combination of elbow-lever E^1, rod F, straight lever G, bail K, scoop L, and toggle-links M M, substantially as set forth.

3. The combination of bail N with stop pin P, on the under side of beam E, substantially as set forth.

4. The combination of elbow lever E^1, rod F, straight lever G, bail K, and scoop L with devices retaining the front part of said scoop in an elevated position, while the rear part is dumped by said levers, rod, and bail, substantially as set forth.

5. In a scoop or scraper, constructed as herein described, the combination of the vehicle-frame with arched supports D D', elevated beam E, longitudinally slotted at E^2, cleft at its rear end, and provided near its front end with rack I, and staple or guide-rod J, substantially as set forth.

192,636. PAINTS. D. E. Breinig, Brooklyn, N. Y., assignor to the Bridgeport Wood Finishing Company, Bridgeport, Conn. [Filed Mar. 1, 1877.]

The composition herein described, consisting of silicic acid, oxide of zinc, carbonate of lime, japan, metalline gum, and spirits of turpentine, substantially as set forth.

192,637. GRAIN-BINDERS. Harry H. Bridenthal, Jr., Latrobe, Pa. [Filed Aug. 23, 1876.]

1. The herein-described holding-head, consisting of the head-piece D, series of pivoted arms c c, connecting-links e, e^1, and s, and the operating-lever e^1, all combined substantially as and for the purposes herein specified.

2. The combination of the holding-head D, parallel bars f h^1, head i^2, shaft e^2, lever g, eccentric o, and the operating-pinions l^1 l^2, substantially as and for the purposes herein specified.

3. The holder-operating lever g, coil-spring and spring-shaft e^1, bar f, and the holding-head D, these members all arranged substantially in the manner and for the purposes herein specified.

4. The combination of the head i^2, arm q, link e^{13}, and the swinging holding-head lever e^1, substantially as and for the purposes herein specified.

5. The combination of the holding-head shaft e^2, holder-rotating pinion l^2, holder-operating pinion l^1, knotting-mechanism operating-pinion I, and the driving-wheel H, all arranged substantially in the manner and for the purposes herein specified.

6. The combination of the receiver N, swinging apron Q, stop b, double gaveling-arms d^5 d^6, shaft R, and the holding-head D, substantially as and for the purposes herein specified.

7. The combination of the apron Q, gear y, arm 4, hub z, and the drive-wheel H, substantially as and for the purposes herein specified.

8. The combination of the shaft R, separating-arm d^6, gaveling-arm d^5, sleeve y^1, arm d^7, spring 10, and the stop b, substantially as and for the purposes herein specified.

9. The combination of the holding-head D, arm q, curved arms or tines d^7 d^3, and apron Q, substantially as and for the purposes herein specified.

10. The frame K, holding-head D, swinging apron Q, and the platform i^3, these members all arranged substantially in the manner and for the purposes herein specified.

11. In combination with the frame T and the separating wheel G, the curved guard-piece v, substantially as and for the purposes herein specified.

12. The combination of the revolving ring-shaped twisting-head u and the stationary head t, all provided with narrow openings and gathering-arms, substantially as shown, and for the purposes herein specified.

13. The combination of the stationary head t, spring-piece z, ledge d^4, twisting-head u, and the separating wheel G, substantially as and for the purposes herein specified.

14. The swinging frame T, arm h^3, disk h^2, and the shaft R, these members all arranged substantially in the manner and for the purposes herein shown and described.

15. The combination of the head D, bar f, reciprocating frame j, series of pivoted oscillating tines i^3 and i, and the operating-bar k, substantially as and for the purposes herein specified.

16. The combination of the reciprocating frame j, projection h^3, lever d, rod d^3, head D, and the twisting-tine operating-bar k, substantially as and for the purposes herein specified.

17. The slotted head-piece D, reciprocating oscillating tines i^3 i, looping-jaw a^2, and the flexible reciprocating slide or plate m, these members all constructed and arranged to operate in combination, substantially in the manner and for the purposes herein specified.

18. The combination of the winding-tines i^3, frame j, rock-arm h^3, cam-groove plate F, pinion 1, and the segmental drive-wheel H, substantially as and for the purposes herein specified.

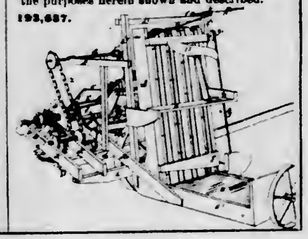
19. The combination of the holding-head D, slide m, segmental slide p, head i^2, diagonal ledges i^{13} and i^4, and the cam-wheel F, substantially as and for the purposes herein specified.

20. In combination with the frame L' L^4 and the elevator-belt frame B, the arc-plate i^4 and the lever e, or equivalent, substantially as and for the purposes shown and described.

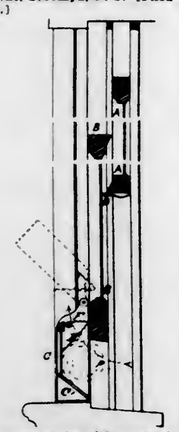
21. In combination with the swinging elevator-belt frame B and the stationary receiver N, the sliding board X, substantially as and for the purposes herein specified.

22. The drive-wheel H, segment a^1, gaveling gear-pinion 5, cross bar K, and the spring-latch 13, these members all constructed and arranged substantially in the manner and for the purposes herein shown and described.

192,637.



193,638. WINDOW-VENTILATORS. J. W. Browne, Brooklyn, N. Y. [Filed Aug. 1, 1874.]



1. The combination of the sashes A B, strip D, and ventilator C C', constructed and operating substantially in the manner described and specified.

2. The combination, with the ventilator-case and sliding sash window, of the inclined deflector C' and gauze-screen E, situated at right angles to the deflector C', constructed and operating substantially in the manner described and specified.

3. In a ventilator, constructed and operating substantially as described, the screen F, arranged horizontally in such ventilator, or at right angles to the plane of the sash, constructed and operating substantially in the manner described and specified.

4. In combination with the ventilator, the screens E and F, made in one piece, or united and pivoted at each extremity to the ends of the ventilator, constructed and operating substantially in the manner described and specified.

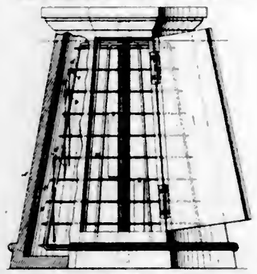
193,639. WICKET-SLIDES FOR CAR-DOORS. Jacob Capron, New York, N. Y. [Filed Feb. 22, 1877.]

1. The slide described, consisting of the part B, having dovetailed recesses b^2, the part C, having grooves c', the slide D, spring F, and cover-board b^4, combined and arranged as described.

2. The combination of the plate B, having the dovetailed recesses, with the cover-board, as described.

3. In combination with the plates B and C, the slide and the spring-lever for actuating the bell, as described.

193,640. TICKET-CASES. H. W. Conger, Hot Springs, Ark. [Filed June 28, 1877.]

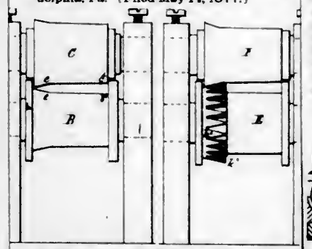


1. In a railroad-ticket case or cabinet, the combination of a body, A, provided with a side door or opening, and a rotary skeleton frame, B, mounted therein and adapted to receive the tickets, substantially as shown and described.

2. The combination of the case or body A with its side opening, and the rotating conical skeleton frame B, substantially as shown and described.

3. In combination with the case having horizontal bars, the detachable hooks having the tickets secured firmly thereto, substantially as shown.

193,641. MANUFACTURE OF BLANKS FOR HARROW-TEETH. J. M. Crawford, Philadelphia, Pa. [Filed May 14, 1877.]



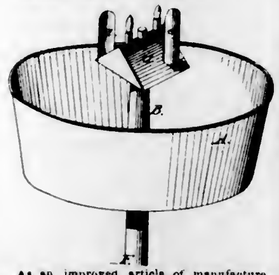
1. The pair of rolls E F, one of them being formed with longitudinal V shaped projections b', for rolling blanks suitable for harrow-teeth.

2. An improvement in the art of making harrow-teeth, which consists in first rolling the blank, by means of the rolls B C, into the shape in cross-section of the longitudinal section of the harrow-tooth, and then indenting the edge thereof by means of the rolls E F, by displacing the metal, all as described.

193,642. INK-RIBBON CHAMBERS FOR TYPE-WRITERS. Philander Deming, Albany, N. Y. [Filed May 5, 1877.]

In combination with the inking-ribbon R, the chamber C, holding said ribbon, and the cap W or moisture-supplying device for gradual evaporation, substantially as and for the purpose set forth.

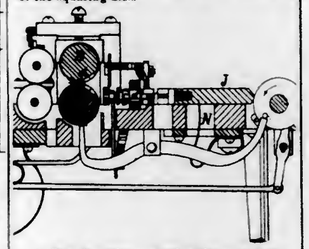
193,643. APPARATUS FOR DESTROYING INSECTS. Jesse R. Duke, Norristown, Ark., assignor of one-half his right to Wm. J. Patton. [Filed Nov. 29 1876.]



As an improved article of manufacture the apparatus for destroying millers, moths, &c., consisting of the pan A, provided with socket B, and triangular lamp C, having one or more burners located at or near its apex, which projects above the pan, substantially as described.

193,644. MACHINES FOR MAKING BOLTS. Geo. Dunham, Unionville, Conn. [Filed Nov. 15, 1876.]

Brief.—The feed-rolls and the die-rolls oscillate, and the latter are provided with griping and angular-shaping die-surfaces, and carry shears. The heated bar is fed to the griping-surfaces of the die-rolls and held, when it is seized by the upsetting-jaws and upset, to provide metal for the square neck. The feed-rolls again oscillate, thrusting the rod forward between the angular-shaping surfaces of the rolls, which reciprocate toward the feed-rolls, to enable that to be done. The preliminary shaping having been done, and the end of the rod having been seized by the transferring tongs, the blank is severed, and carried to the holding and turning jaws, which receive and hold, while the heading and squaring dies do their work, and turn between the two strokes of the squaring-dies.



1. The die-rollers, carrying shears and angular shaping-dies, in combination with mechanisms for operating the shears and imparting an oscillating motion to the die-rollers, substantially as described, and for the purposes set forth.

2. The die-rollers carrying angular shaping-dies, shears, and griping dies, substantially as described, and for the purposes set forth.

3. The die-rollers carrying shears and angular shaping-dies, in combination with the feed-rollers, substantially as described, and for the purposes set forth.

4. The combination of oscillating rollers, bearing shears and griping-dies, with the upsetting-jaws and their operating mechanism, substantially as described, and for the purpose set forth.

5. The combination of oscillating rollers, bearing shears, angular shaping-dies, and griping dies, with upsetting-jaws and feed rollers, substantially as described, and for the purposes set forth.

6. The combination of shears, angular shaping-dies, griping dies, and upsetting-jaws, substantially as described, and for the purposes set forth.

7. The combination of angular shaping-dies, griping-dies, upsetting jaws, and feed-rollers, substantially as described, and for the purposes set forth.

8. The combination of angular shaping-dies, griping-dies, upsetting-jaws, shears, and feed-rollers, substantially as described, and for the purposes set forth.

9. The combination of angular shaping-dies with transferring-tongs and holding and turning jaws, substantially as described, and for the purposes set forth.

10. The combination of upsetting-jaws, griping-dies, angular shaping-dies, shears, and transferring-tongs with mechanism for completing the bolt, substantially as described, and for the purposes set forth.

11. The combination of angular shaping-dies, shears, transferring-tongs, and mechanism for completing the bolt, substantially as described, and for the purpose set forth.

12. The combination of feed-rollers, upsetting-jaws, griping and shaping dies, shears, transferring-tongs, and mechanism for completing the bolt, substantially as described, and for the purposes set forth.

13. The combination of shears, transferring-tongs, holding and turning jaws, and squaring and heading dies, substantially as described, and for the purposes set forth.

14. The combination of holding and turning jaws, mechanism for opening and closing said jaws and giving them a quarter-turn, with neck-squaring and heading dies, substantially as described, and for the purposes set forth.

15. The combination of shears, transferring-tongs, and holding and turning jaws, substantially as described, and for the purposes set forth.

16. The combination of angular shaping-dies, transferring-tongs, holding and turning jaws, and squaring and heading dies, substantially as described, and for the purpose set forth.

17. The combination of angular shaping-dies, shears, transferring-tongs, holding and turning jaws, and squaring and heading dies, substantially as described, and for the purposes set forth.

18. The combination of the feed rollers, upsetting-jaws, oscillating die-rollers, with squaring and heading dies M J M, substantially as described, and for the purposes set forth.

19. The combination of feed-rollers, die-rollers, bearing griping-dies, shears, and angular shaping dies, transferring-tongs, holding and turning jaws, and squaring and heading dies, substantially as described, and for the purposes set forth.

193,645. HOES. George B. Ely, St. Johnsbury, Vt. [Filed May 7, 1877.]



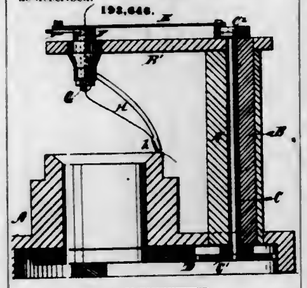
A hoe, embodying in its construction a tang, B, a pad, B^1, constructed on the outer end of the tang and provided with a flat supporting face, B^2, on the upper end of which, and below the point of union between the pad and tang, is formed a projection, D, provided with an overlapping flange or lip, E, and having a stud or rivet, C, and a blade, A, formed with a recess, A^2, and hole A^3, the whole being constructed substantially as shown and described.

193,646. ATTACHMENTS TO KNITTING-MACHINES FOR RE-ENFORCING THE KNEE-CAPS OF STOCKINGS. John J. Fitzpatrick, Philadelphia, Pa. [Filed Jan. 10, 1876.]

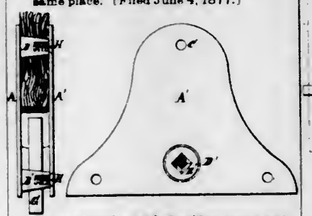
Brief.—An attachment by which the thickness of that part of a stocking which covers the knee-cap is increased by laying an extra thread by the side of the regular thread for two inches, more or less, on the front side of the stocking.

1. The re-enforcing-thread attachment for knitting-machines, consisting of the thread carrier H A, rock-shaft G, link E, crank F, crank-head C^1, wheel C^2, and cogged sector D, combined and arranged substantially as described.

2. The post B, supporting the table B^1, and carrying the shaft C eccentrically to the axis of its own rotation, in combination with the supporting-frames A and A', cogged sector D, wheel C^2, crank-head C^3, crank F, link E, rock-shaft G, and thread carrier H A, substantially as described.



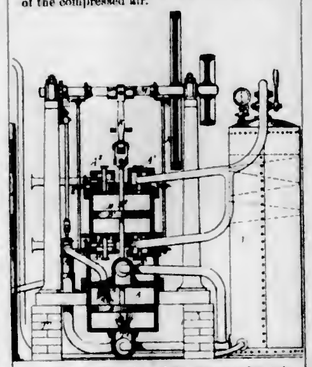
193,647. ANTI-FRICTION ROLLERS FOR SLIDING DOORS. A. A. Freeman, Philadelphia, Pa., assignor to S. L. Garrett, same place. [Filed June 4, 1877.]



The combination, with the side plates A and A', tapering posts or studs B, B^1, and B^2, screws H, and anti-friction wheel or roller G, of the solid axle or spindle F, provided with tapering polygonal ends, and supported in corresponding sockets E and E^1, formed in the bosses D and D^1, substantially as set forth.

193,648. MACHINERY FOR THE ARTIFICIAL PRODUCTION OF COLD FOR ICE-MAKING, &c. Paul Giffard, Paris, France. [Filed July 1, 1876.]

Brief.—The air is compressed by the piston and accumulated in the reservoir, and at each stroke of the piston the compressed air is deprived of its heat by the injection of water. The cold compressed air passes into the expansion-cylinder. In expanding, the air becomes extremely cold. The packing of the piston is of rubber, and expands by the action of the compressed air.



1. The combination of the compression-cylinder A, expansion-cylinder D, and their respective pistons with the intermediate reservoir V and the inlet and exit valves, all substantially as described.

2. The combination of the compression cylinder A, expansion-cylinder D, and their respective pistons with the intermediate reservoir V, exit and inlet valves, and injection-pump A^7, all substantially as described.

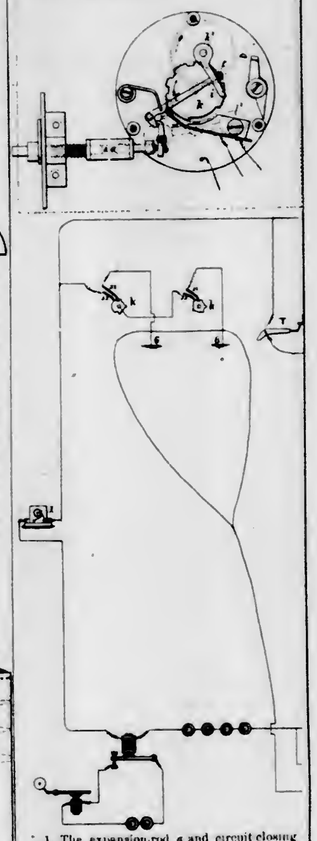
3. In a piston, the combination of duplicate rings A^4 in the periphery of the piston, caoutchouc packing D^2 in rear of said rings, channel E^1 in rear of said packing, and passages F to said channels from the respective sides of the piston, substantially as described.

193,649. PROCESSES OF TREATING ANIMAL FIBER. John F. Greene, Brooklyn, assignor to Angora Woolen Company, New York, N. Y. [Filed Dec. 2, 1876.]

1. The within-described mode of producing an improved colored fiber—that is, subjecting animal hair of the character specified to the action of a hot nitric-acid solution, or the equivalents set forth, and then drying the same, all as described.

2. The within-described colored fiber, consisting of the animal hair specified, having a light color, unalterable by acid, as set forth.

193,650. DISTRICT AND FIRE ALARM TELEGRAPHS. John H Guest, Brooklyn, N. Y. [Filed Dec. 29, 1876.]



1. The expansion-rod *a* and circuit-closing lever *c*, arranged side by side with the intermediate lever *b* at one end, and the circuit-closing points at the other end, for the purposes and as set forth.

2. The circuit-closing wheel *k* and actuating mechanism, substantially as set forth, in combination with the thermostat and intermediate levers, that liberate the mechanism by the expansion of the thermostat, substantially as set forth.

3. An electric circuit containing thermostats with closed circuits and the magnet of a bell or sounder, and a circuit-breaker operated by the bell or sounder, the circuits being arranged substantially as shown in Fig. 5, so that the bell is made to ring while the thermostat circuit is broken, as set forth.

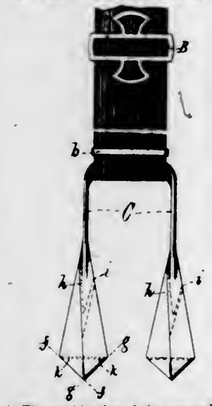
4. The combination, with a circuit containing district alarm or other signaling instruments, of a branch circuit containing a thermostat, an earth connection, and a relay from one station to a patrol or second station, whereby the signals are given at the second station from the thermostats only, substantially as set forth.

5. The combination of the wheel *k*, springs 22, 23, and 34 with the circuit-closing arm on the arbor k^2, for the purposes set forth.

6. A relay-magnet in the main circuit and a relay-magnet in the earth-circuit at the central station, and a registering instrument in a local circuit connected with both the relays, in combination with a thermostat break-wheel in a branch circuit from the main line, substantially as set forth.

7. A circuit containing district-alarm telegraph instruments, battery, and indicating-instrument at the central station, and thermostat alarm instruments in branch circuits from the main circuit, in combination with a relay-circuit to an indicator at the fire-patrol station, operated by the thermostats, and not by the district-alarm instrument, substantially as set forth.

193,631. SUSPENDERS. George B. Gurley, New York, N. Y. [Filed June 22, 1877.]



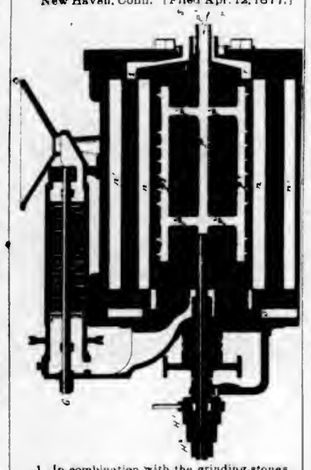
1. The combination of the suspender-body A, looped at its base, forming a pocket, *e*, provided with sliding buckle B and adjustable guard *b*, and the suspender-end C, the two ends of which are formed by overlapping the webbing upon itself on lines *f* and *g*, and secured by stitching at lines *k*, *k*, and *i*, forming an equivalent of a button-hole, substantially in the manner as herein shown and set forth.

2. The suspender-end C, each end of which is formed by overlapping the webbing upon itself on lines *f* and *g*, such folds being secured by lines of stitching *k*, *k*, and *i*, such arrangement of folds forming an opening, which is a substitute for a button-hole, the faces and bottom of which are formed by the selvage edges of the webbing, all substantially as herein shown and set forth.

3. In combination with the suspender-body A, looped at its base, forming a pocket, *e*, and provided with sliding buckle B, and a suspender-end inserted through the pocket *e*, the sliding guard *b*, encircling the body of the suspender, applied as and for the purposes as herein shown and set forth.

4. The combination of the suspender-body A, provided with buckle D, having slot *o* in its base, and the suspender-end F, the two ends of which are formed by overlapping the webbing upon itself on lines *f* and *g*, and secured by lines of stitching at lines *k*, *k*, and *i*, such suspender-end being folded at its center on lines *m n*, and attached to the base of the buckle D by passing the ends through the slot *o*, and thence through the folded loop *p* of the webbing, forming a knot, all substantially as and for the purposes as herein shown and set forth.

193,632. GRINDING-MILLS. E. Harrison, New Haven, Conn. [Filed Apr. 12, 1877.]



1. In combination with the grinding-stones and hopper of a mill, the horizontal revolving cylinder between the hopper and the feed-spout, the stationary shaft G, provided with radial fingers intermediate with radial fingers on revolving cylinder, and substantially as and for the purpose specified.

2. The combination of the stones of a grinding-mill, the mill-spindle, the springs *e*, collar H, and adjusting-nut H^1, substantially as and for the purpose described.

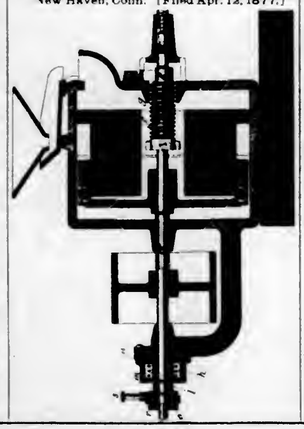
3. In a vertical grinding-mill, the arrangement of the stones on a removable head, combined with arms L^2 on the case, and corresponding arms or bearings L^1 on the said removable head, substantially as and for the purpose described.

4. In combination with a grinding-mill, two or more concentric bolt-screens, the outward bars or sweeps *s n'*, and radial passages *r s*, in the head, leading respectively from each bolt to independent concentric discharge-spouts, substantially as described.

5. In combination with a grinding-mill and revolving bolt, a blower, consisting of the hollow shaft concentric and revolving within the bolt P, tubular arms P^1, and perforated tubular bars P^2, parallel to said shaft P, substantially as and for the purpose specified.

6. The combination in a bolting-mill, of the cylindrical bolt, the revolving tubular blower, and the openings in the bolt-case, covered by an open fibrous material, substantially as described.

193,633. GRINDING-MILLS. E. Harrison, New Haven, Conn. [Filed Apr. 12, 1877.]



1. In combination with the bed and runner stones of a horizontal grinding-mill, and the case which incloses them, two discharge spouts or openings, D, arranged upon opposite sides of the case and in the plane of the grinding-faces of the stones, as shown and described.

2. The combination, in a mill substantially such as described, of the hanger H^1 outside the case with the eccentric and rocker yoke arranged to work therein, substantially as described.

3. The combination, in a mill substantially such as described, of the feed-screw *f* on the runner-spindle, the flange around the spindle, opening in the case, and the feed-spout, substantially as described.

4. In combination with the runner-stone of a grinding-mill and its spindle, the externally screw-threaded flanged sleeve *l*, cap *m*, spring *h*, shouldered step *i*, and screw cap *r*, all substantially as described.

5. The step *i*, with its oil-passage *r t*, combined with the spindle of the runner-stone of a grinding-mill, substantially as described.

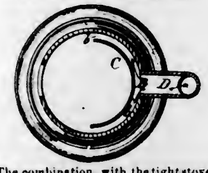
6. In combination with the runner-stone and its plate or shell, the scrapers N, constructed and arranged substantially as described, and so as to serve both to hold the runner-stone on its plate and as scrapers or carriers for the meal, substantially as specified.

193,634. LIGHTNING-RODS. John Hewitt, Hamilton, Ontario, Canada. [Filed Dec. 21, 1876.]

A continuous tubular lightning-conductor, constructed by wrapping one or more corrugated strips of metal spirally around a tube of metal, substantially as described.

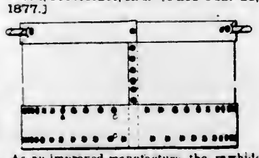
193,635. STOVES. Wm. H. Hoadley, Chenango Forks, N. Y. [Filed Apr. 3, 1876.]

Brief.—A shield at the rear of the ash-pit in front of the air-induction opening.



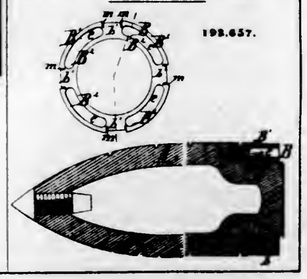
The combination, with the tight stove A, of pipe D, ash-guard C, and flues *b b*, all arranged and constructed as described.

193,636. RAWHIDE WASTE-CANS. A. Holbrook, Providence, R. I. [Filed June 23, 1877.]



As an improved manufacture, the rawhide waste tub or can, having the upper part of its body folded as described, and each of its handles inserted in the outer fold, and fastened thereto, and to the part or parts encompassed by such fold, all being substantially as specified.

193,637.

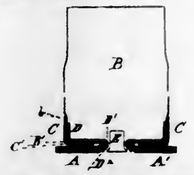


193,657. PROJECTILES. B. B. Hotchkiss, New York, N. Y. [Filed Jan. 11, 1877.]

1. In combination with a body, A, having an annular recess, A', the sectional expansive packing described, having cells *a*, separated by firm parts *b'*, and adapted to allow the forcing outward of the expansive sections or lips B^1, and to provide spaces for windage over the parts *b'*, as specified.

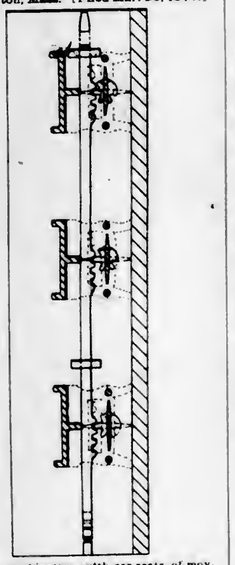
2. In a projectile having cells, as described, in the packing B, the longitudinal scores *m*, partially separating the solid parts *b'* from the expansive parts B^1, in combination with the body A A', and adapted to serve as herein specified.

193,658. CARTRIDGES FOR FIRE-ARMS. B. B. Hotchkiss, New York, N. Y. [Filed Jan. 11, 1877.]



A cartridge having the external cup C, matched upon the metallic shell B B^1, in combination with the metallic plate A A' and internal piece D D^1 D^2, as and for the purposes specified.

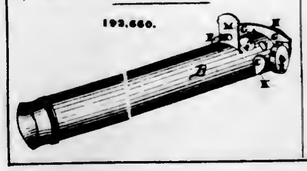
193,659. CAR-SEATS. Chilon Houghton, Arlington, Mass. [Filed Mar. 26, 1877.]



1. The combination, with car-seats, of movable partitions for dividing the space under the seats into sections, as and for the purposes set forth.

2. The combination of the seats, movable partitions, and the slide, constructed and operated substantially as and for the purposes set forth.

193,660.



193,661. FENCES. V. A. Kilgroe, Anniston, Ala. [Filed July 13, 1877.]



1. In a fence, the combination of the stakes *a*, rails or boards *b*, central stake *c*, and end stakes *d*, substantially as shown and described.

2. In combination with the rails *b* and stakes *a c*, the end stakes *d* and stakes *g*, substantially as specified.

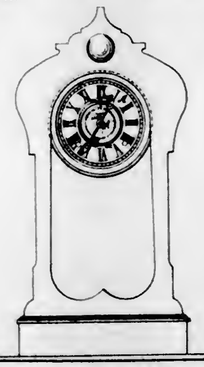
193,662. MOLDERS' FACING-POWDER. W. King, Gallipolis, Ohio. [Filed Nov. 16, 1876.]

Brief.—Uses a clay consisting, mainly, of silicic acid, alumina, and water, and having but little or no lime, potash, soda, or magnesia. Mentions as such clays German or Missouri, Amboy, New Jersey, and Mount Savage, Maryland.

1. The combination of a refractory clay having the above analysis, or nearly so, in admixture with carbonaceous matter, as a molders' facing for foundry purposes, substantially as described.

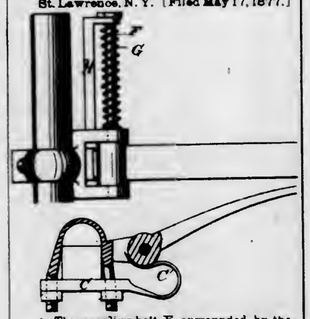
2. The combination of a refractory clay having the above analysis, or nearly so, in admixture with carbonaceous matter in the proportion of one part of the clay with from five to seven parts of the carbonaceous matter, substantially as and for the purpose described.

193,663. CALENDAR-CLOCK DIALS. F. Kroeber, Hoboken, N. J. [Filed May 26, 1877.]



The combination of the annular stationary dial A with the stationary pointer *b*, and with the concentric circular rotary calendar-dial E, which is embraced by and set back of the annular dial A, to utilize the blank space otherwise formed therein, substantially as specified.

193,664. THILL-COUPLINGS. A. P. Ladd, St. Lawrence, N. Y. [Filed May 17, 1877.]

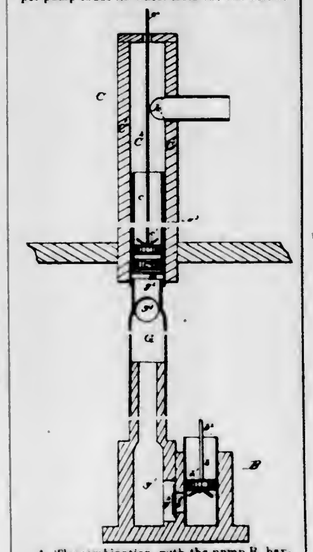


1. The coupling-bolt F, surrounded by the spring G and supported by the arm H, substantially as set forth.

2. The plate-spring C', extending forward from the clip-cap C, and then folding back under the thill, so as to support the latter, substantially in the manner and for the purposes set forth.

193,665. FORCE-PUMPS. Wm. S. Laney, Lithopolis, Ohio. [Filed June 22, 1877.]

Brief.—The pump has removable cylinders, provided with gratings and screens. The upper pump takes its water from the one below.



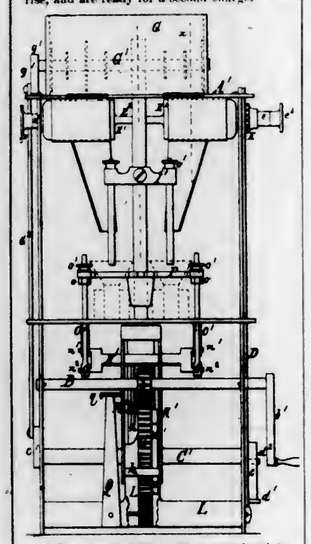
1. The combination, with the pump B, having cylinders *b*, buckets or pistons b^1, and column G, operating as described, of the pump C, having pipes g^2 g^3, case C', removable cylinders *c c*, and pistons c^1, constructed and operating as described.

2. A pump, having removable cylinders *c c*, provided with gratings or screens c^2 c^3, and valves c^4 c^4, substantially as described.

3. The combination, with the pistons or buckets b^1 c^1, and rods b^2 c^2 of the pumps B C, of the pivoted levers D, levers d^2, crank *e*, shaft E, wheel E', pinions *e'* and *f*, and shaft F, and fly-wheel F', the whole being constructed to operate substantially as shown and described.

193,666. TOBACCO-PACKING MACHINES. J. R. Lawrence, Durham, assignor of one-half his right to S. R. Carrington, Orange County, N. C. [Filed Dec. 2, 1876.]

Brief.—The tobacco is fed automatically into an oscillating charger from the hopper, and drops into the funnels and bags, where two strokes of the rammer are given, when they rise, and are ready for a second charge.



1. In a machine for packing granulated tobacco or other material, a feeding mechanism, in combination with a packing mechanism, with means for giving to the packing-rod or rods more than one reciprocation for each supply from the feeder, substantially as set forth.

2. In a tobacco-packing machine, the combination of the main shaft C, oscillating stirring shaft G^1, oscillating tubular valve E^2, and intermediate mechanism for producing these movements, substantially as described.

3. The valve E^2, having a slot, e', in combination with the piston F^2, having a slide, e^2, and the screw E^3, having a collar, e^3, and a thumb-head, e', substantially as set forth.

4. The valve E^2, having a pinion, E, in combination with the slide D, having a rack, D', pins d^3 d^4, and a slot, d, the main shaft C', cam c, shaft B, lever G^2, and shaft G^1, substantially as set forth.

5. The combination of the rod I^2, carrying a packing rod I, the forked head K, having prongs K', slots k^1, pins k^2, the long and short cams M M^1, main shaft C', spring Q, or its equivalent, and guides L L of the frame, substantially as and for the purpose described.

6. The combination of the frame P, rods O', lever-plate N^1, cam n, main shaft O', and wheel C, carrying an eccentric pin, N, the whole constructed and arranged to operate substantially as described.

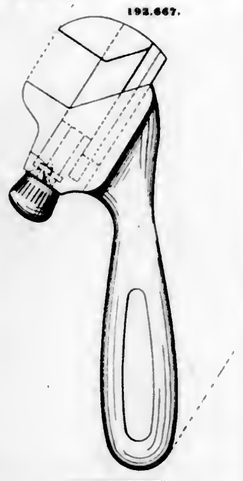
193,667. WRENCHES. A. S. Lipsey, West Hoboken, N. J. [Filed Nov. 3, 1876.]

1. The combination, in a wrench, of a slideway in the head thereof, provided with a partly-open fixed collar, a movable jaw supported in such slideway, and a screw having a neck at a short distance from its head, and capable of detachment when freed from the part with which it engages while in use, substantially as described, whereby each of said parts contributes to the support of the others, the head and body of the said screw being made in one piece.

2. In a wrench a slideway provided with a partly-open fixed collar, whereby provision is afforded for the insertion of a screw with its head in place, and adapted to secure the screw longitudinally without other means, substantially as described.

3. The combination, in a wrench with a screw-threaded socket in a movable jaw, of a screw provided with a thread only at the end farthest from the head, and a shank diametrically smaller than said thread, and admitting of play within the said socket, substantially as set forth.

193,667.



193,668. PREPARING THE FIBER OF PALMETTO-LEAVES FOR UPHOLSTERING PURPOSES. G. F. Miller, Jacksonville, Fla., assignor of one-half his right to R. H. Chinn, Washington, D. C. [Filed Jan. 10, 1877.]

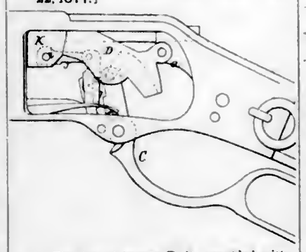
1. The process of preparing palmetto-leaf for upholstering purposes, by subjecting the fiber of said leaf to a bath of oxalic acid, chloride of lime, and water, substantially as described.

2. The process of preparing palmetto-leaf for upholstering purposes, to wit: First, separate the fibers of the leaf, then dry such fiber in the sun or in a heated air-tight room, then subject the fiber to a bath of oxalic acid, chloride of lime, and water, and then dry the same, substantially as described.

193,669. PROCESSES OF ENAMELING SHEET-IRON WARE. Wm. F. Niedringhaus, St. Louis, Mo. [Filed June 11, 1877.]

The herein-described improvement in the mode of enameling sheet-metal ware by subjecting such ware, after withdrawing it from the baking-oven, to a process of slow cooling, substantially as described.

193,670. BREECH-LOADING FIRE-ARMS. J. C. Petmecky, Austin, Tex. [Filed June 22, 1877.]



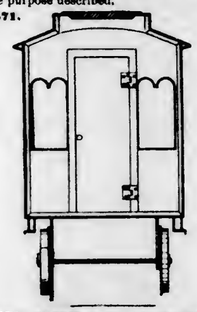
1. The breech-braces D D, provided with the grooves d d^1, and operated by means of the pin b in the end of the finger-lever C, substantially as and for the purposes herein set forth.

2. The combination of the finger-lever C, with projection G, having slot e, the lever I with pin A, the link J, and the breech-pin base K, all constructed substantially as and for the purpose herein set forth.

193,671. SAFETY-CARS. T. Powers, New York, N. Y., and C. C. Gilman, Eldora, Iowa. [Filed Nov. 24, 1876.]

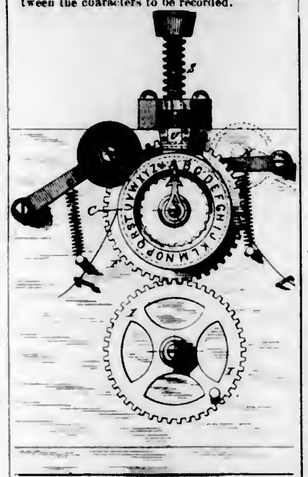
A railway-car body, provided with a large opening in the top of the roof that is closed by a detached hatch or cover that fits into the opening with tight joints, and so constructed and arranged that it will by gravity alone be kept in place so long as the car remains upright, but will be thrown off by the overturning of the car, substantially as and for the purpose described.

193,671.



193,672. PERFORATING APPARATUS FOR ELECTRIC TELEGRAPHS. C. A. Randall, New York, N. Y. [Filed Nov. 15, 1876.]

Brief.—For perforating paper to be used in the system of telegraphy in which transmitter and receiver run synchronously, and the distances between the perforations correspond to the distances in the "type circuit" wheel between the characters to be recorded.



1. In combination with a fillet of paper or other non-conducting substance, the rotating paper-feed drum C, of the same diameter as the type-circuit wheel of the receiving apparatus, and the punch S T and die C, the whole arranged substantially as described.

2. The combination, with a fillet of paper or other non-conducting substance, of the paper-feed drum C, rotated by the movement of the fillet of paper and constructed of the same diameter as the type-circuit wheel of the receiving apparatus, and the punch T and die U, substantially as described.

193,673. LAMPS. Frank Rhind, Brooklyn, N. Y. [Filed July 6, 1877.]

1. The foot a, having a horizontal chamber, b, upon its top, which chamber has the burner screwed directly into one end, and the reservoir inserted into the other, substantially as shown.

2. The reservoir c, having a flat base, d, a shoulder around the base for a spring to catch over, and a contracted opening for the oil to flow out, substantially as set forth.

3. The combination of the foot a, having a horizontal chamber, b, upon its top, the said chamber having an enlarged conical end to receive the reservoir c, and a means for holding the reservoir in position, substantially as described.

193,672.

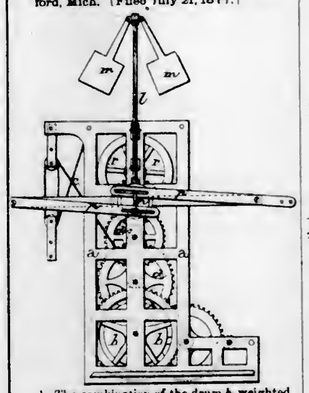


193,674. DOLLS' HATS. Charlotte L. Slade, New York, N. Y. [Filed May 24, 1877.]



As a new article of manufacture, a doll's hat, trimmed or decorated with relief pictures of flowers secured thereto, substantially as and for the purpose described.

193,675. MOTORS. Thos. H. Smythe, Hartford, Mich. [Filed July 21, 1877.]



1. The combination of the drum b, weighted cord c, mechanism d, shaft e, wheel g, shaft l, fan-arms m, double crank n, and slotted levers p, substantially as shown.

2. In combination with the drum b, cord c, mechanism d, shaft e, wheel g, shaft l, fan-arms m, crank n, and levers p, the shaft t, balance-wheel r, and slotted lever t, substantially as set forth.

193,676. ALE AND BEER FAUCETS. A. W. Sperry, Wallingford, assignor of one-half his right to G. F. Heublein, Hartford, Conn. [Filed Feb. 19, 1877.]

Brief.—The sleeve, which screws back and forward in the bush, covers and uncovers the port of the faucet-tube.

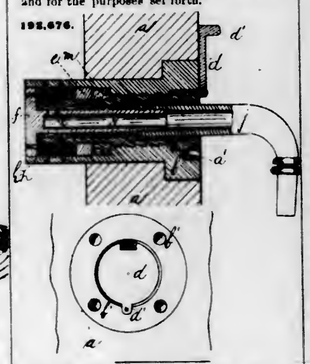
1. In combination, the interiorly-threaded faucet-body b, the exteriorly-threaded valve-tube c, and the stand-tube g, provided with the orifice i, all arranged and operating substantially as shown and described, for the purposes set forth.

2. In combination, the interiorly-threaded faucet-body b, the exteriorly-threaded valve-tube c, bearing the hinged lid d flush with the upper end of the faucet-body, and provided with the spur d' abutting into the socket a', all arranged and operating substantially as shown and described, for the purposes set forth.

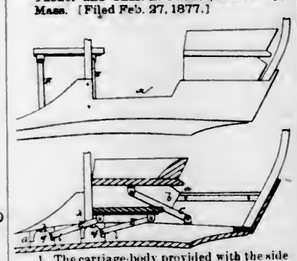
3. In combination, the interiorly-threaded body b, the exteriorly-threaded valve-tube c, the stand-tube g, provided with the orifice i, and screw-threaded upper end, and the connection-tube j, all arranged and operating substantially as described, for the purposes set forth.

4. In combination, the interiorly-threaded faucet-body b, packing-ring m, exteriorly-threaded valve-tube c bearing hinged lid d, packing ring h, stand-tube g provided with the orifice i, and rising from the plate f supported within the faucet-body—body b or plate f perforated—all substantially as described, and for the purposes set forth.

193,676.



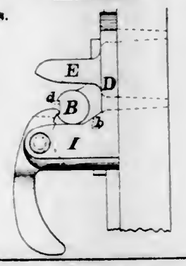
193,677. JUMP-SEAT CARRIAGES. Geo. J. Tucker and Chas. L. Tucker, Amesbury, Mass. [Filed Feb. 27, 1877.]



1. The carriage-body provided with the side notches or recesses a a, in combination with the back seat applied to the body, as described, so as to be moved forward into such recesses and be supported by them, as set forth.

2. The front-seat leg E, pivoted to the seat and provided with the projection f and the pivot-receiving slot e, in combination with the leg-supporter G, furnished with the notch k or notches k n, arranged in it, as set forth, to aid in supporting the leg, as specified.

193,678.

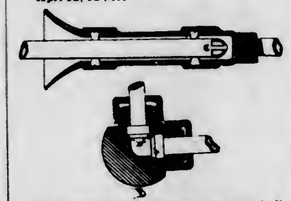


193,678. GATE-LATCHES. Hiram Unger, Germantown, Ohio. [Filed Apr. 2, 1877.]

1. The combination, in a gate-fastening, of the grooved latch B with plate D, provided with lugs I I, stud E, and toothed catch A, substantially as and for the purpose specified.

2. The locking device of the fastening, consisting of the recessed or grooved latch and catch, in combination with the incline b of the plate D, substantially as described.

193,679. AUTOMATIC TUBULAR CAR-COUPLINGS. J. P. Wood and J. W. Scull, Philadelphia, Pa., assignors of one-third their right to H. Snyder, same place. [Filed Apr. 18, 1877.]

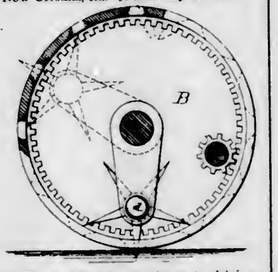


1. A coupling ball-joint consisting of a ball, B, provided with interior conical seats, in combination with conical-faced pipes or rods joined thereto, substantially as specified.

2. A tubular coupling for connecting railroad-cars in train, provided with a conical barred point, c, and a trumpet-mouthed tube, D, substantially as specified.

3. An automatic telescope-coupling connecting railroad-cars in train, in combination with conducting-pipes situated within said cars and connected to said coupling at or near the tops of the end walls of the cars, substantially as specified.

193,680. TRACTION-WHEELS. R. H. Yale, New Orleans, La. [Filed July 10, 1877.]



1. The combination of the main driving-wheel of a traction-engine with an independent spur-wheel, substantially as described.

2. The combination of the wheel B, having openings, as described, with the spur-wheel, having blades adapted to project through said openings, as described.

3. In combination with the main wheel and axle, the links or arms supporting the spur-wheel, adapted to revolve, as and for the purpose set forth.

193,681. DOOR-SPRINGS. Arthur P. Yates, Syracuse, N. Y. [Filed Dec. 19, 1876.]

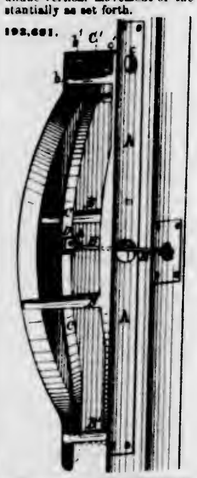
Brief.—A semi-elliptical spring, arranged in vertical position within a recess near the edge of the door, is held in place and concealed by a face-plate, provided, near the middle, with inwardly-projecting guide-posts. There are also combined with the spring and face-plate a screw, mounted in the plate, and carrying a nut as means of adjusting the tension of the spring, and smaller guide-posts at the upper end, to prevent undue vertical movement, the ordinary link connection passing through an aperture in the face-plate to connect with the inner edge of the door-frame.

1. The combination, with the plate A, of the vertical spring C, the screw e, mounted in the plate A, and the nut C', substantially as set forth.

2. The plate A, provided with the guiding-posts B B, in combination with the vertical spring C, substantially as set forth.

3. The combination of the posts *b b'* with the spring C, screw *c*, and nut *C'*, to prevent undue vertical movement of the spring, substantially as set forth.

193,681.



193,649. WRINGING-MACHINES. Ranson G. Baldwin and Andrew J. Parkhurst, Oskaloosa, Iowa; said Baldwin assignor to said Parkhurst. [Filed Mar. 17, 1877.]

Brief.—The sliding rack is provided with a ridge, which slides in a groove in the presser-plate, and the cog-lever is kept in place by means of inwardly-projecting butts on the upper part of the wringer-frame.



The combination of the presser-plate D having groove *d*, rack G having ridge *e*, frame-pieces *f f* having butts *g g*, and pivoted cog-lever H, substantially as and for the purpose herein shown and specified.

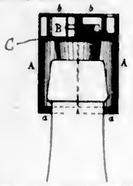
193,682.



193,683. ATTACHMENTS TO FENCE-POSTS. George J. Barnhart, Charlottesville, Va. [Filed June 4, 1877.]

The fence-post, consisting of the perforated stub B, and side stakes A A, the connecting wire links F F and C, and the interwoven wire E, substantially as specified.

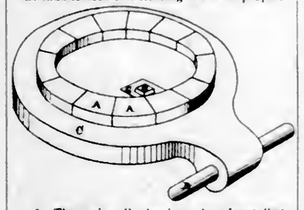
193,684. DEVICES FOR PREVENTING THE UNAUTHORIZED REMOVAL OF CORKS FROM BOTTLES, &c. Charles L. Bell, Saluda, Va. [Filed July 5, 1877.]



The combination, with the hinged semicircular shells A A, of the circular plate C, semicircular projections *a a*, and heads *b b*, each of said heads carrying a part of a locking device, substantially as and for the purpose specified.

193,685. CLACK-VALVES FOR PUMPS. W. C. D. Body, Virginia City, Nev. [Filed June 26, 1877.]

Brief.—A hinged disk-valve has an annular dovetailed groove in its face, into which segmental blocks of wood or equivalent material are guided from the center, and pressed into position to fill the groove, the face of the annulus thus formed constituting the valve proper.



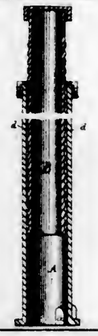
1. The valve C, having the dovetailed groove E made in its face, and the connecting-slot F, for the introduction of the face-blocks A, substantially as herein described.

2. The groove E for receiving the face-blocks A, and the connecting-slot F, with its key-block G and screw H, substantially as and for the purpose herein described.

3. In combination with the clack or valve C, the ring of wooden blocks A, attached to said valve so as to form a face or joint when the valve is closed, substantially as herein described.

193,686. STOP-COCK BOXES. G. P. Bowers, Boston, Mass. [Filed June 12, 1877.]

Brief.—The upper length of pipe slides inside of the lower pipe, and is adjusted to the required length by the projecting teeth of the upper pipe passing through suitable notches in the ring, which ring, on being turned, meshes with the teeth, and holds the pipe in place.



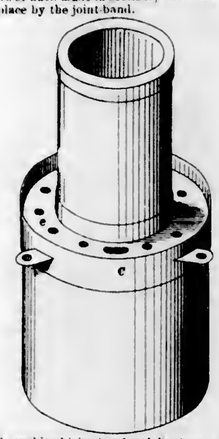
1. The pipe B, provided with one or more sets of teeth, *d*, in combination with the pipe A, provided with the central opening E and enlargements *a a* thereof in its upper end, or in a cap secured thereto, all arranged and adapted to operate substantially as and for the purposes described.

2. In combination with the pipe A, provided with the central opening E and enlargements *a a*, and slots *o o* formed in its upper end or in a cap secured thereto, the pipe B provided with one or more sets of teeth, *d*, and two or more lugs, *e*, all arranged and adapted to operate substantially as and for the purposes described.

3. In combination with a cap provided with a downwardly-projecting annular ring, and one or more lips or lugs projecting inwardly from the lower edge of said ring to engage with lips on the pipe to which it is to be secured, one or more notches or recesses, *j j*, cut into and through the upper corner of said cap, substantially as and for the purposes described.

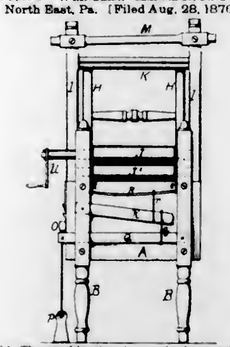
193,687. SECTIONAL CHIMNEYS. J. Browell, San Francisco, Cal. [Filed June 8, 1877.]

Brief.—The chimney consists of concentric pipes or flues made in sections, which are held in place by the joint-band.



A combined joint-band and diaphragm, consisting of the outer band C, diaphragm or web *c*, and inner band *d*, in combination with a sectional chimney, substantially as and for the purpose described.

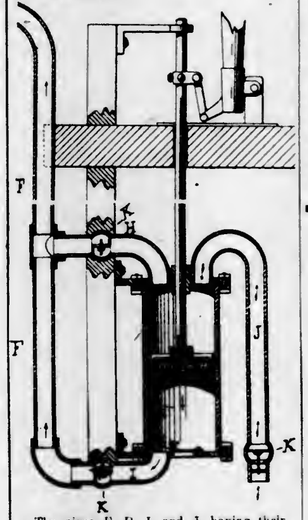
193,688. WRINGERS. Marvin A. Caldwell, North East, Pa. [Filed Aug. 28, 1876.]



1. The combination, in a wringing machine, of the uprights formed of the legs B B of the vat A, yoke and links S *s*, levers Q R, and links *q r*, and lever O or P, substantially as shown and described.

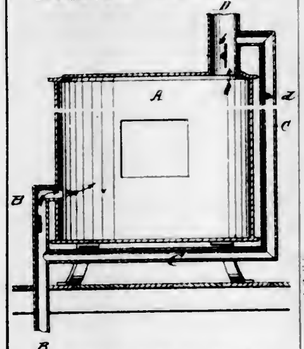
2. The combination, in a wringing machine, of rollers J J', yoke and links S *s*, levers Q R and links *q r*, and levers O or P, substantially as set forth.

193,689. PUMPS. R. P. Cammack and C. A. Ray, Louisa Court-House, Va. [Filed June 20, 1877.]



The pipes F, H, I, and J, having their check-valves K K K, in combination with the barrel or cylinder of a pump, substantially as and for the purpose specified.

193,690. HEATING-STOVES. A. H. Chase, Dowagiac, Mich. [Filed Jan. 19, 1877.]



The combination of the draft pipe B, having a valve, *a*, and the cold-air pipe C, having a valve, *d*, with the heating stove A and exit-pipe D, provided with the damper *b*, all constructed and relatively arranged as herein shown and described.

193,691. FEEDING MECHANISMS FOR SEWING-MACHINES. Mathias Christopherson, Chicago, Ill. [Filed Dec. 13, 1876.]

Brief.—The feed may, at will, be converted from a plain four-motion to a six-motion or zigzag feed by throwing it into or out of gear with a gear on the shaft carrying the cam for giving the four motions. A gear mounted on a pivoted frame, and carrying on its shaft a cam for giving the additional lateral motions.

1. The combination of shaft *f*, carrying the wheel F and cam F', with the feed-rod I, pivoted control bar M, clutch *i*, and plate K, substantially as and for the purpose herein shown and described.

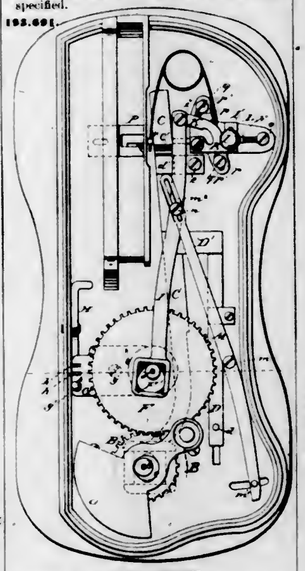
2. The oscillating and adjustable feed-bar L, having recess *r* and slots *p' p'*, in combination with the set screws *q q* and reciprocating feed-dog N, substantially as and for the purpose herein shown and described.

3. The combination of shaft *f*, carrying the wheel F and cam F', feeding-rod I, plate K, thumb-screw *l*, oscillating and adjustable feed-bar L, and set-screws *q q*, substantially as and for the purpose hereinbefore set forth.

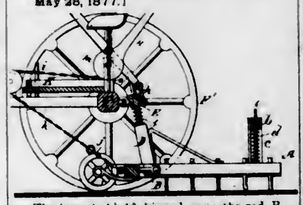
4. The oscillating feed-bar L, having recess *r*, in combination with the feed-dog N and the feed-plate P P', substantially as and for the purpose herein shown and described.

5. In the feeding mechanism of a sewing-machine, the combination of the following operating elements, to wit: the feed-slide C, cam *e*, gear-wheel B, adjustable gear-wheel F, cam F', reciprocating rod I, pivoted plate K, control bar M, oscillating feed-plate L, feed-dog N, and feed plate P P', all combined and arranged to operate substantially in the manner and for the purpose herein shown and specified.

193,692.

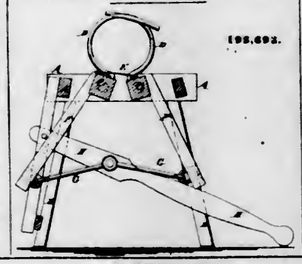


193,692. HARROWS. L. B. Coddington and W. W. French, Westfield, N. J. [Filed May 28, 1877.]



The bars A A' A', hinged upon the rod B, the frame C, having the cross-bar *b* and uprights D, the springs *d*, rods *s*, springs *f*, hinged bar E, axle F, and wheels F', in combination, substantially as shown and described.

193,693.

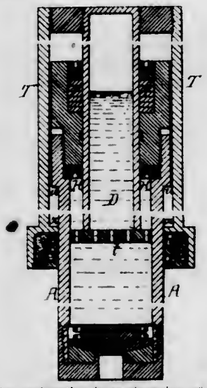


193,693. MACHINES FOR PRESSING CORN-STALKS FOR FUEL. E. P. Davis, Omaha, Nebr., assignor to himself, J. E. Davis, J. Fisk, and W. V. Morse, same place. [Filed June 4, 1877.]

1. The combination of the rigid arms F, the pivoted rods G, and the lever H with the shafts C, the hooks D, and the frame of the machine, substantially as herein shown and described.

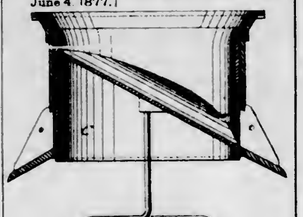
2. The combination of the rods E with the shafts C and the hooks D, substantially as herein shown and described.

193,694. AIR-SPRINGS. Chas. J. A. Dick, Philadelphia, Pa. [Filed Apr. 21, 1877.]



The combination, in an air-spring, of an air-vessel, A, having a shoulder, *s*, and suitable packing H, with a plunger, D, and cylinder or frame T, having a shoulder, *x*, all substantially as set forth.

193,695. GRAIN-DISTRIBUTERS. Cornelius E. Drake, Avoca, Iowa, assignor to himself and John S. Murray, same place. [Filed June 4, 1877.]



A grain-distributer for elevator-heads, consisting of an outer casing with a number of inclined bin-spouts, and of an interior revolving cylinder with inclined or dishing bottom and spout-shaped exit-aperture, registering with the bin-spouts, substantially in the manner and for the purpose set forth.

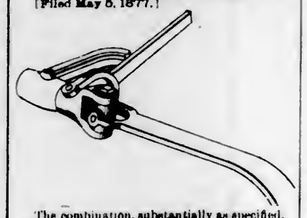
193,696. TOBACCO-PIPES. S. R. Dummer, Jersey City, N. J. [Filed June 27, 1877.]



1. The bowl of a smoking-pipe made wholly of tobacco, or of tobacco mixed with the ingredients above named, or their equivalents, to prevent the too ready combustion of the bowl, substantially as and for the purpose described.

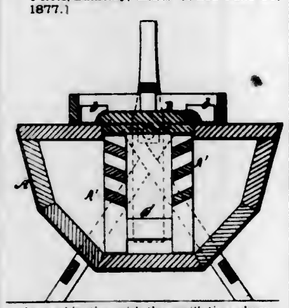
2. The combination of a screw-threaded socket, provided with the wing *a* to hold it in place, and the bowl of a smoking-pipe, the socket being of different material from the bowl, substantially as described.

193,697. MOWERS. Wm. W. Edgarton, Bouckville, N. Y., assignor of one-half his right to H. L. Hopkins, Manchester, Iowa. [Filed May 5, 1877.]



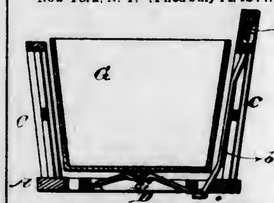
The combination, substantially as specified, of the coupling arm of the cutting apparatus, the swiveling-bolt arranged in line therewith, the lever controlling said bolt, and the universal joint intermediate between the coupling-arm and the swiveling-bolt.

193,698. RECIPROCATING CHURNS. A. D. Ferris, Blakeley, Minn. [Filed June 30, 1877.]



In combination with the oscillating churn-box A, the removable frame G, slatted as described, and held down in place by means of the cover D and its fastenings, substantially as shown.

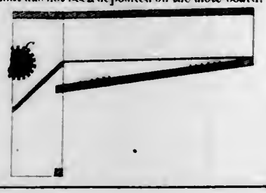
193,699. CART-SCALES. David F. Foster, New York, N. Y. [Filed July 14, 1877.]



The combination, with the bottom frame A, of the skeleton frame C, the scale-frame D, with levers E, rod *b*, and beam H, and the cart body G, all substantially as and for the purposes herein set forth.

193,700. COTTON-GIN FLUES. Looke C Glover, Grenada, Miss. [Filed May 19, 1877.]

Brief.—The flue has an upwardly-inclined and hinged bottom, and parallel, or nearly so, to the upper wall of said flue is a reticulated diaphragm, over which the cotton passes on its way to the batting-rollers, and whereby it is deprived of the fine dust or foreign matter that has not been deposited on the mote-board.



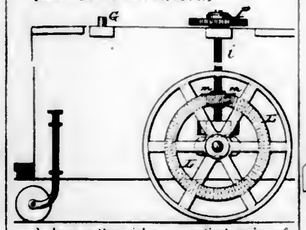
The flue or conduit for ginning-machines, having a separating-screen arranged therein, and a hinged bottom below said screen, substantially as specified.

193,701. BRACELETS, &c. Chas. H. Graef, Edgewater, N. Y. [Filed May 12, 1877.]



As a new article of manufacture, a bracelet or analogous article consisting of a spring band, having applied in a longitudinal direction to its exterior, and attached at its ends, an ornamental metallic strip, which adapts itself to the varying shape of the spring-band, substantially as and for the purpose specified.

193,702. COTTON-HARVESTERS. Clinton E. Graves, Galveston, Tex., assignor of one-half his right to S. Sampson, same place. [Filed June 13, 1877.]



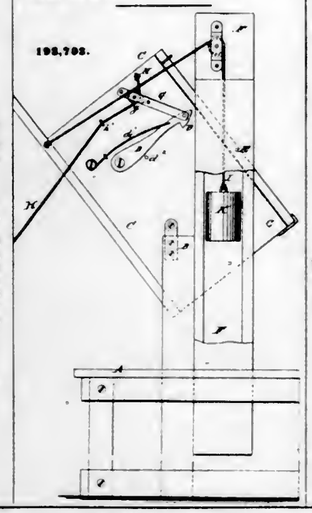
1. In a cotton-picker, a vertical series of horizontal rods, D, arranged on each side of the passage for the plant, and provided with spirally-arranged steel-wire brushes *d*, the said rods being supported solely at their rear ends, substantially as herein set forth.

2. In a cotton-picker, two series of horizontally-rotating endless chains, carrying steel-wire brushes, and arranged one series on each side of the passage for the plant, and upon alternately large and small wheels, and the two series rotating in opposite directions, as herein set forth.

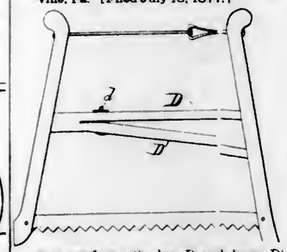
3. In a cotton-picker, the combination of the horizontal brush-rods D and the endless rotating brush-chains I, constructed and arranged substantially as and for the purposes herein set forth.

4. The combination, with the driving-wheels B and shafts G, of the gears L m, shafts i, gears P R, and the single intermediate idle-gear P'', substantially as and for the purposes herein set forth.

193,703.

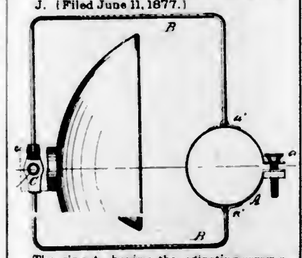


193,704. HANDSAWS. W. Hankin, Scelyville, Pa. [Filed July 18, 1877.]



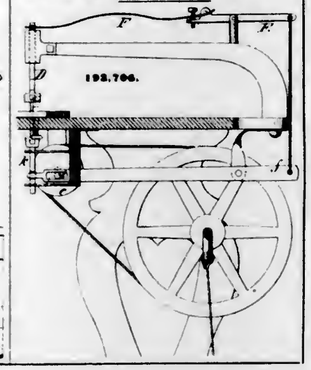
In a saw-frame, the bar D and brace D', slit or constructed from one and in the same piece, by which they are sprung apart, and pressure or power thus obtained to tighten and secure the parts of the frame in position, in combination with the bolt or its equivalent, *d*, strengthening or bracing them together where they converge, substantially as and for the purpose set forth.

193,705. ADJUSTABLE SUPPORTS FOR LAMP-REFLECTORS. R. Henry, Glassborough, N. J. [Filed June 11, 1877.]



The ring A, having the adjusting-screw *a* and loops *a'*, the wires B, and socket C, having the screw *c*, in combination, substantially as shown and described.

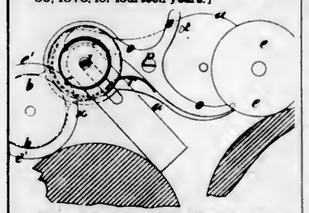
193,706.



193,706. SCROLL-SAWING MACHINES. W. Hinchliffe, Nashville, Tenn. [Filed June 26, 1877.]

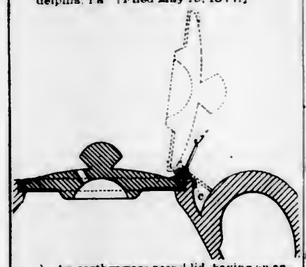
The combination, with side-studded wheel *c*, operated by the treadle mechanism, and the bars D *k*, between which the saw is clamped, of the rod connected levers E *f* and spring F, arranged as shown and described, for the purpose specified.

193,707. ROTARY-SPEED MEASURES. Wm. Ireland, Buckhaven, North Britain. [Filed Apr. 12, 1877; patented in England, Mar. 30, 1876, for fourteen years.]



In a measuring and indicating instrument, the two arms or bars *a b*, jointed together at one end, the rollers *a c'* at their free ends, pinion *f*, indicating-dial *g*, wheels I *m*, pawl *o*, and spring *r*, substantially as and for the purposes set forth.

193,708. TEA-POTS. J. E. Jeffords, Philadelphia, Pa. [Filed May 19, 1877.]



1. An earthenware vessel-lid, having an annular metallic rim embracing its outer edge, said rim having a hinge and arm formed in one piece with it, substantially as specified.

2. The combination of the cover, having annular rim, the hinge provided with a stop-arm, and the body of an earthenware vessel, constructed and arranged substantially as specified.

3. The stop arm *j*, erected on the vibrated wing of the hinge, attached to the top and body of an earthenware vessel, and adapted to prevent the lid from striking against the handle, substantially as specified.

193,709.



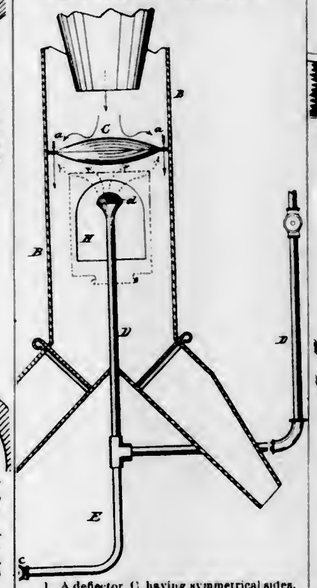
193,709. METALLIC SEALS. W. W. Johnson, Nashville, Tenn. [Filed Mar. 26, 1877.]

A metallic seal consisting of the bow or shackle formed of a central wire having a wire or wires wrapped around it in such manner that the convolutions are separated by a greater or less space, and a ball of soft metal, combined as shown and described, and for the purpose specified.

193,710. LUBRICATING COMPOUNDS. John Johnson, Brooklyn, N. Y. [Filed July 19, 1877.]

A lubricating compound consisting of plumbago, soluble glass, asbestus, and whiting, in about the proportions named, the whole adapted to be molded into any desired form, for the purposes set forth.

193,711. GRAIN-STRAINERS. E. C. Jones, Independence, Mo. [Filed June 21, 1877.]



1. A deflector, C, having symmetrical sides, arranged centrally in a casing, and combined with the same, and a subjacent steam-pipe, substantially as and for the purpose described.

2. The double-convex deflector, arranged in the casing by supports *a*, and combined with the steam-pipe D, substantially as described.

3. The combination, with the casing B and the deflector C, of the steam-pipe D, having perforated nozzle and drain-pipe E, substantially as described.

4. The casing B, having communicating chutes provided with cut-off slides, in combination with the deflector C, and the steam-pipe D, as described.

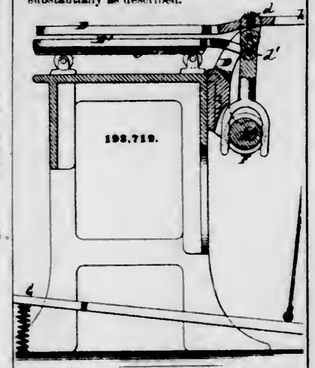
5. The combination, with the deflector C and the steam-pipe D, of the casing B, having a door, H, arranged to permit the inspection of the said deflector and pipe, as described.

193,712. FELTING-MACHINES. J. Keats, Wood Green, England. [Filed June 18, 1877.]

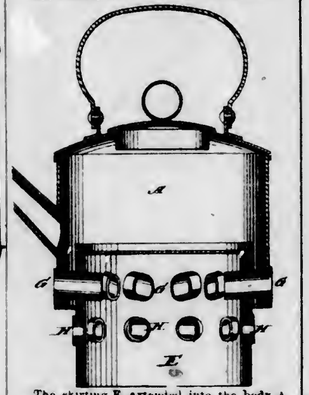
1. The combination of the lower platen B' and lever C with the upper platen B, connected to said lever by a pivot, *d*, which provides for the rise and fall of the said platen B with a jar-like action, and also provides for the vertical self-adjustment of the said platen to keep itself parallel with the lower platen B', substantially as herein described.

2. The combination of the two platens B B', the lever C, with which the said platens are respectively connected, as herein described, and the eccentric F, operating within the yoke or fork of said lever, all substantially as herein set forth.

3. The combination of the platens B B', the lever C, the eccentric F, the shaft E, and the treadle G, connected with the upper platen in rear of the lever C, the whole arranged substantially as described.

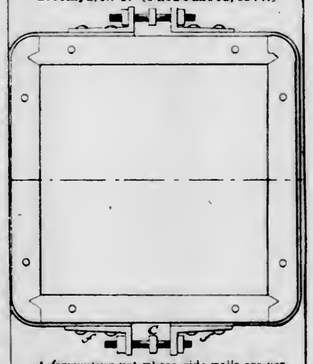


193,713. BOILERS OR KETTLES FOR HEATING WATER UPON OIL-STOVES. R. E. Killip, Brooklyn, N. Y. [Filed July 13, 1877.]



The skirting E, extended into the body A and below the bottom of the same, in combination with the tubes G H, substantially as described.

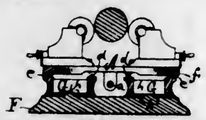
193,714. FERMENTING-VATS. C. Klein, Brooklyn, N. Y. [Filed June 18, 1877.]



A fermenting-vat whose side walls are vertically bolted, hoop-bound, and connected with each other as well as the bottom by angle-joints, substantially as and for the purpose specified.

193,715. MACHINES FOR GRINDING CALENDER-ROLLS. E. E Latham and R. Binns, South Windham, Conn. [Filed June 30, 1877.]

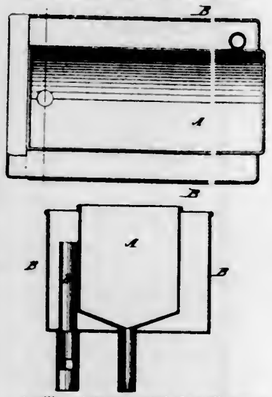
Brief.—By key, cams, or screws bends the rails and ways of the upper carriage to correct irregularities in the ways. On one end of the carriage is a sliding shoe, in which one-way groove is cut. May reverse carriage and straighten again. May use indicator to multiply deviations.



1. The main bed F, in combination with the skeleton-beds G G, bearing-ways *e e*, and mechanism for springing the latter upon the former, and retaining the same in place when so sprung, substantially as described, and for the purpose set forth.

2. The main bed F, skeleton-beds G G, bearing-ways *e e*, wedges *k k*, or the equivalent of said wedges, in combination with the carriage A and shoe *f*, operating together substantially as described, and for the purpose specified.

193,716. MILK-COOLERS. C. W. Loller, Unionville, Pa. [Filed June 30, 1877.]



A milk cooler constructed of a milk-pan, A, having a bottom inclined from the longer sides to the center line, and of a vat, B, which is attached to one of the shorter ends of the pan, and extended to form a space around the remaining side and bottom, for effective cooling of the milk, substantially in the manner and for the purpose set forth.

193,717. NUT-LOCKS. Wm. Lyon, Newark, N. J. [Filed June 30, 1877.]

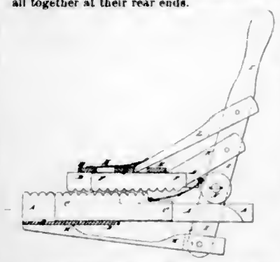


1. The method of locking nuts on slotted bolts, consisting in spreading a portion of the body of the slotted bolt outwardly on opposite sides, whereby the nut is locked on the bolt, as shown and described.

2. The combination of a threaded bolt, formed with solid end *d* and a slot, *b*, the sides of which are bulged, and a nut, B, substantially as and for the purpose set forth.

193,718. WASHING-MACHINES. Michael B. Nauss, Goldsborough, (Etters P. O.,) Pa. [Filed June 4, 1877.]

Brief.—The rubbing apparatus is composed of four series of corrugated strips, one series stationary, the three others movable, and so connected to the operating-lever and to each other that they move different distances, sliding between and upon each other, and at the completion of each alternate reciprocation are all together at their rear ends.

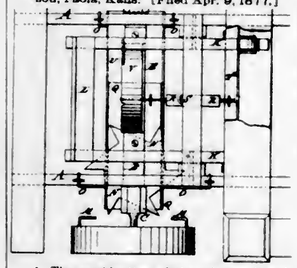


1. The combination of the corrugated strips A C D F, their connecting boards or strips B E G, the spring H, the lever I, and the connecting rods or bars J K L, substantially as herein shown and described.

2. The combination of the springs M with the upper corrugated strips D F, their connecting-strips E G, and the bar L, substantially as herein shown and described.

3. The combination of the wheels N with the lever I and the middle bars A, having rounded rear ends, substantially as herein shown and described.

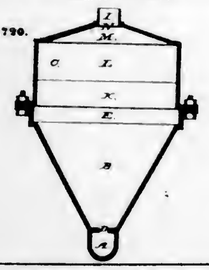
193,719. CORN-PLANTERS. W. J. Nicholson, Paola, Kans. [Filed Apr. 9, 1877.]



1. The combination of the stirrups O and the plate E, for supporting the slide Q, the cam-wheel P, and the toothed wheel N, substantially as herein shown and described.

2. The combination, with cam-wheel P, of the plate Q, having double-shouldered recess, the lever R, rod S, and dropper slide T, as shown and described, for the purpose specified.

193,720.

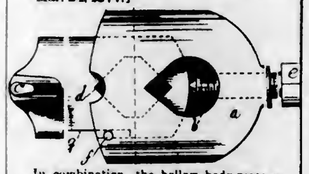


193,720. SERVICE-PIPE FILTERS. John C. Nichols, Atlanta, Ga. [Filed May 31, 1877.]

1. The combination, in a filter, of the compartments A and B, separated by a gauze partition, D, the compartment C, separated from B by a porous partition, E, and the pulverized filtering media, arranged within the compartments B and C, as set forth.

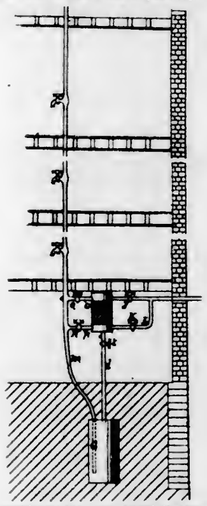
2. The combination, with the vessel containing the compartments A B C, of the pipes F G H I and valves O P Q, all arranged as set forth.

193,721. LATHE-DOGS. S. G. North and A. M. Norton, Higganum, Conn. [Filed Mar. 24, 1877.]



In combination, the hollow body-piece *a*, cast in one solid piece, fitting to the sides and edges of the slide, and having orifice *b*, the inner slide *c*, having the orifice *d* and mortise *g*, the set-screw *e*, and the pin or screw *f*, all arranged to operate as hereinbefore described.

193,722. FILTERS AND COOLERS. J. Peter, Petaluma, and T. C. Walter, San Francisco, Cal. [Filed June 26, 1877.]



The subterranean cooling-tank G, connected by a pipe, *l*, with a filtering-tank, F, and having the pipe *m* leading through the house, in combination with a series of cleaning-pipes, all combined and arranged to operate substantially as and for the purpose described.

193,723. LATCHES FOR CARRIAGE-DOORS. F. P. Pfleghar, New Haven, Conn. [Filed May 31, 1877.]

1. The latch D *b* C of a carriage-door lock, the shank C whereof is countersunk within a recess in the carrying-plate, and held by dovetail guides.

2. In a carriage-door latch, the latch-shank C, bent and countersunk in the recess B in the carrying-plate A, the lever F, working over such countersunk shank and against an outside end lapping bearing, *a*, thereon, all constructed and combined as set forth.

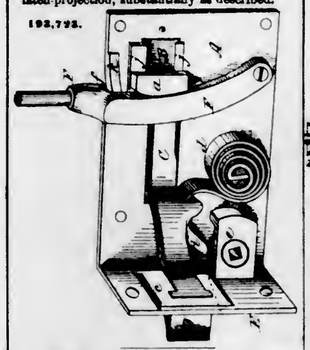
3. In a carriage-door lock, the dovetail ways *j j* of the gnide-recess B, the corresponding dovetail edges of said shank, and the lapping projection *a* of the latch-shank C, to hold the latch-shank in said recess within the thickness of said plate.

4. The hand-lever of a carriage-door lock, having the upper guide-lapping hold, for the purpose described.

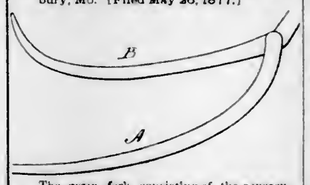
5. The hand-lever, secured by pivot to the plate at its lower end, and guide-hold at the top of said plate, in combination with the latch having the free projecting bearing, substantially as and for the purpose described.

6. A carriage-door lock consisting of a carrying-plate, a recessed guideway therein, a latch supported in said guideway, a curved latch-neck, and a hand-lever having a lapping upper guide-hold and a free bearing upon the latch-projection, substantially as described.

193,724.



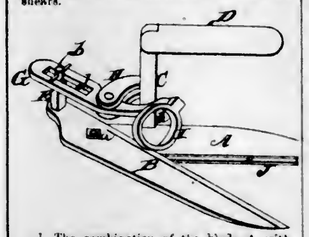
193,724. GRAIN-FORKS. A. Reagan, Salisbury, Mo. [Filed May 26, 1877.]



The grain-fork consisting of the consecutive spaced tines A, having intermediate thereto a tine, B, projecting up above the level of said tines A, and having a recurvate end, the whole formed in one piece, substantially as specified.

193,725. BARBERS' SHEARS. Wm. Reed, Geneva, Ind. [Filed July 7, 1877.]

Brief.—A complex arrangement of arm, projecting handle, and forked arm attached to one blade, and of a post, slotted and pivoted lever, and thumb-ring attached to the other blade, constitutes a pair of barbers' shears; and there is also an adjustable comb-holder, secured to a longitudinally-slotted arm, and located underneath the stationary blade of the shears.



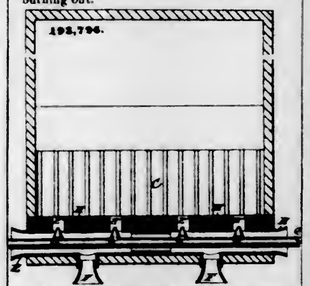
1. The combination of the blade A, with arm C, having projecting handles D and forked arm H, the blade B, with tenoned post E, and the pivoted lever G, with slot *d* and thumb ring I, substantially as and for the purposes herein set forth.

2. The adjustable comb-holder J, with slotted arm I, in combination with the scissors A B, arm C, and set-screw K, substantially as and for the purposes herein set forth.

193,726. AIR-FEEDING DEVICES FOR FURNACES. H. C. Richmond, Allegheny, Pa. [Filed May 28, 1877.]

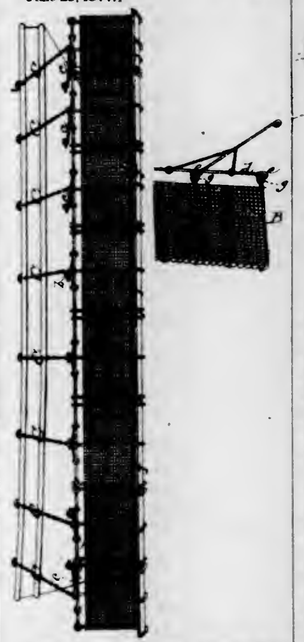
Brief.—The concentric pipe is provided with nipples protruding into hollow projections in the exterior pipe. The spaces between said projections are filled with fire-brick or other refractory material, thus preventing them from burning out.

193,726.



The air-pipe E arranged against and parallel with the front wall of the furnace, and having pipes protruding therethrough with funnel-shaped opening F for access of air, and nozzles E' opening into the furnace, in combination with the interspaced fire-tile H arranged flush with the nozzles and upon the exposed side of the pipe, together with the concentric steam-pipe and nozzles G G', as described.

193,727. TORPEDO-GUARDS FOR VESSELS. Benj. A. Richardson, Norfolk, Va. [Filed June 23, 1877.]



1. The combination, with a vessel, of the spaced encircling reticulated torpedo-guard, substantially as specified.

2. The combination, with a vessel and the vertically-vibrating outriggers c, of the sectional encircling guard, substantially as specified.

3. The reticulated section B of a torpedo guard, in combination with a vessel, an outrigger, and a cross-head on said outrigger, substantially as specified.

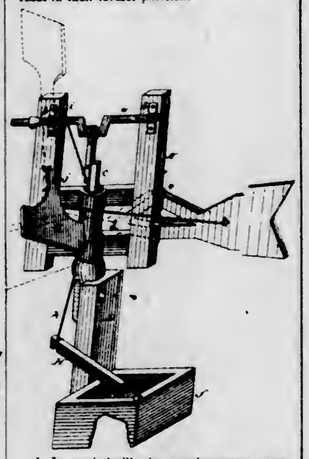
4. A torpedo-guard composed of reticulated sections suspended from a vessel, and provided upon their lower upturned edges with gathering-hooks, substantially as specified.

5. The combination, with a vessel, of the vertically-vibrating outriggers c, having cross-heads *d*, with eyes *e*, and the reticulated guard-sections B, having hooks *g*, adapted to engage said eyes, substantially as specified.

6. The combination, with a vessel and the T-shaped outriggers c, of the sectional guard B, hinged to said outriggers, substantially as specified.

193,728. WINDMILLS. S. Rittenhouse, Pioneer, Ohio. [Filed Apr. 21, 1877.]

Brief.—A supplementary vane is used in high winds only, and its effect is to regulate the position of the main vane and that of the wheel in such a manner that the motion of the wheel shall be no faster in spite of the increased force of the wind, and also in the arrangement, in the water-tank, of a board pivoted to a lever, the other end of which is connected, by a chain, to the supplementary vane, and the result of which is, when the tank is full, to throw the supplementary vane into, and the main vane out of, gear, so that the wheel is set at an angle to the wind, and thus slackening its speed until the water in the tank runs low, when the vanes and wheel are automatically reset in their former position.



1. In a windmill, the supplementary vane G, hinged horizontally, and set slantingly to the frame A, substantially as and for the purpose herein shown and specified.

2. In a windmill, the combination of the pivoted frame A, vane F, supplementary vane G, hinged horizontally, and set slantingly to frame A, and connecting-rod *d*, substantially as and for the purpose shown and specified.

3. In a windmill, having the supplementary horizontally-hinged vane G, the rod or bracket K, serving as a support for the vane G when at rest, substantially as and for the purpose set forth.

4. The combination of the post or standard D, lever H, board *g* sliding in the water-tank *f*, chain *h*, and vane G hinged horizontally to the frame A, all arranged to operate substantially in the manner and for the purpose herein shown and specified.

5. The improved windmill herein described, consisting essentially of the standard D, pivoted frame A having vanes F G, connected by rod *d*, tank *f*, lever H having hinged board *g*, chain *h*, and bracket K, all combined and arranged to operate substantially in the manner and for the purpose herein shown and specified.

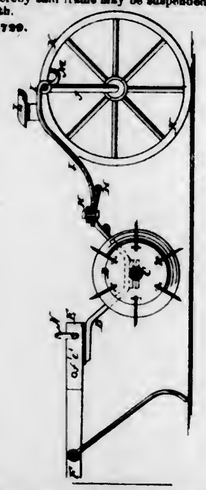
193,729. SULKY STALK-CUTTERS. M. E. Roach, Rolling Prairie, Ind. [Filed May 28, 1877.]

Brief.—The reach of the sulky is detachably connected to one of the rear cross-bars of the cutter-frame, and the arched axle is provided with hooks, whereby the said frame may be suspended for transportation.

1. The combination of the sulky, consisting of the reach 1, the arched axle J, the wheels K, and the seat L, with the frame D E H of the cutter and the tongue F, substantially as herein shown and described.

2. The combination of the hooks M with the axle-axle D and cutter-frame D E H, whereby said frame may be suspended, as set forth.

193,729.



193,730. PITMAN-ROD CONNECTIONS FOR STEAM-ENGINES. Rudolph Schrader, Indianapolis, Ind. [Filed July 7, 1877.]

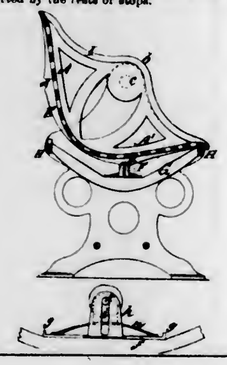


1. The combination of the cam-hook B, made tapering, as described, the rest C, and the longitudinal bisected box D D, having its sides made tapering, substantially as and for the purposes herein set forth.

2. The longitudinal bisected box D D, having tapering sides, and the ends provided with circular tenons *a a*, in combination with the rest C, heads G G, with grooves *b b*, and the cam-hook B, substantially as and for the purposes herein set forth.

193,731. CHAIRS AND SETTEES. J. A. S. Simonson, Brooklyn, N. Y. [Filed May 1, 1877.]

Brief.—The projecting flanges on the arm-pieces conform to the upper edges of the side standards on which they rest, thereby taking the strain from the pivots when the seat is in use. The front edge of the seat is also supported by the rests or stops.

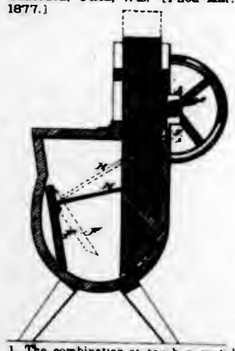


1. The combination of the reversible parts A A′, each acting as a seat or a back, of the end pieces B, forming united reversible arm-rests, the suspending-pivots *e*, arranged midwise in the said united arm-rests, and the rests or stops H, the whole combined substantially as and for the purpose set forth.

2. The combination, with the pivoted end pieces B of the reversible chair or settee, and the end supports C, of the flanges I on the said end pieces, for relieving the pivots from strain when the whole is used as a chair or settee, substantially as and for the purpose set forth.

3. The combination, with the reversible seat and back A A′, having in or on the bottom recessed stops *d* of the compound metal and rubber spring F, substantially as and for the purpose specified.

193,732. WASHING-MACHINES. Thore E. Smitback, Utica, Wis. [Filed Mar. 20, 1877.]



1. The combination of the box or tub A, pounders C, having triangular recesses I, hinged press-boards F, and operating-rods H, all arranged to operate substantially in the manner and for the purpose shown and specified.

2. In a washing-machine constructed substantially as herein described, the pounders C, having perforated brackets *g*, in combination with the guide-rods h and rubber pads or washers *i*, substantially as and for the purpose herein shown and specified.

3. The improved washing-machine herein described, consisting, essentially, of the box or tub A, pounders C, having recesses *f* I, and perforated brackets *g*, shaft D, having crank e and wings *e*, hinged press-boards F, and rods H, all combined and arranged to operate substantially in the manner and for the purpose herein shown and specified.

193,733. FRUIT-PICKERS. J. C. Stribling, Pendleton, S. C. [Filed June 25, 1877.]



The curved fork A and frame B, hinged together as described, and the knife D and link *c*, in combination, as herein set forth.

193,734. TOBACCO AND CABBAGE PLANTERS. John C. Tennent, Aquasco P. O., Md. [Filed Apr. 30, 1877.]

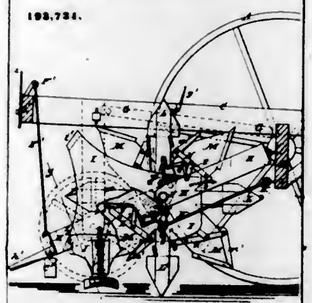
1. The combination of the stationary frame C, the hinged frame H, the plates I, the shaft J, and the pivoted parallel bars K, with each other and the wheels and axle A B, to form a frame-work adapted to receive the operating parts of the machine, substantially as herein shown and described.

2. The wheel, formed of alternate solid and hollow arms L M, having their outer ends made wedge-shaped, and the inclined rear side *m′* of the ends of the hollow arms M made loose, to slide as a valve, in combination with the plates I, the hinged frame H, and bars K of the frame-work, substantially as herein shown and described.

3. The combination of the pivoted bars N, the springs O, the short connecting-bars P, the bent levers Q, the pivoted catch-bars S, the springs T, and the stops R U, with the wheel L M, the sliding plates *m′*, and the plates I of the frame-work, for opening and closing the hollow arms M of the said wheel L M automatically, as the machine is drawn forward, substantially as herein shown and described.

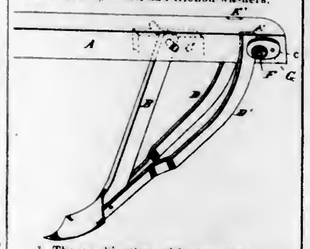
4. The combination of the presser-plates V, the standards W, the springs X, the pairs of parallel connecting-bars Y, the connecting-rods Z, the bent levers A′, and the stops B′, with the plates I of the frame-work, and with the wheel L M, substantially as herein shown and described.

193,734.



193,735. DEVICES FOR BRACING CULTIVATOR-TEETH. Byron Town, Fond du Lac, Wis. [Filed July 2, 1877.]

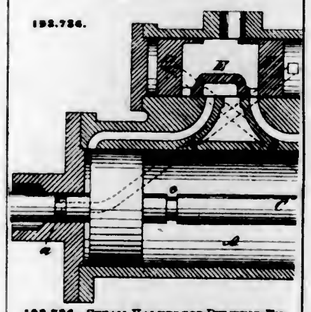
Brief.—A pivoted tooth with rear double braces held by a bolt and friction-washers.



1. The combination, with the beam A and pivoted cultivator-tooth B, of the double brace D D′, bolt and nut F *f*, and washers G G, arranged upon opposite sides of the beam A and outside of the braces, substantially as and for the purpose specified.

2. The combination of the beam A, having the encircling grooves E E′, washers G G, having the lugs or pins *e e*, bolt and nut F *f*, double brace D D′, and pivoted cultivator-tooth B, the several parts constructed and relatively arranged substantially as herein shown and described.

193,736.

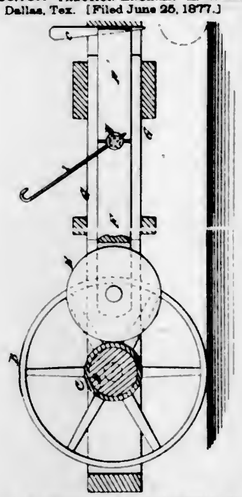


193,736. STEAM-VALVES FOR PUMPING-ENGINES. John Tregoning, Brooklyn, N. Y. [Filed June 11, 1877.]

Brief.—Steam from the valve-chest is exhausted through passages communicating with each end thereof and with grooves in the piston-rod.

The combination of the circumferentially-grooved piston-rod C, and the cylinder having passages *a b*, with the steam-chest and the valve E, as and for the purpose set forth.

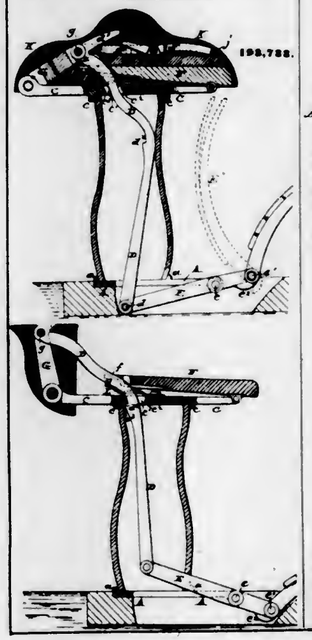
193,737. TRACTION-ENGINES. L. Walker, Dallas, Tex. [Filed June 25, 1877.]



1. In combination with transporting-wheels B B, having elongated hubs C C, the shaft D and pressure-wheels E E, arranged to operate in the manner and for the purpose described.

2. Adjustable bars F F′, wedges *e*, screws H, and pressure-wheels E E, combined with the hubs of transporting-wheels B and shaft D, substantially as and for the purpose set forth.

193,738.



193,739. LAWN-SEATS. John R. Wherry, Little Rock, Ark. [Filed Mar. 15, 1877.]

Brief.—The hinged back and cover are connected by an arm and a lever to a pitman, which in turn is connected to a jointed treadle, by means of which the back and cover can be raised from the seat. When weight is removed from the seat, a spring under the rear end thereof lifts the pitman, and causes the back and cover to descend over the seat—an improvement on Patent No. 183,995, October 31, 1876.

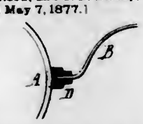
1. The combination of treadle E, pitman D, hinged back I, and cover K, substantially as set forth.

2. The combination of pitman D, having a bent upper portion working in a guide-slot, *e′*, lever G, and back I, connected to said lever G, substantially as set forth.

3. The combination, with the hinged seat F, having projection *f*, and the pitman D of the spring L, substantially as and for the purpose set forth.

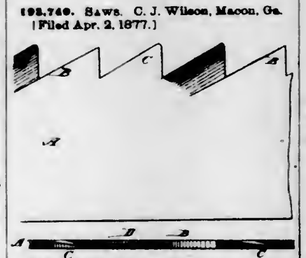
4. The combination of treadle E, pitman D, lever G, pintle H, arm J, cover K, back I, and seat F, substantially as set forth.

193,739. SPECTACLE-FRAMES. T. A. Willson, Reading, Pa., assignor to himself, G. J. Willson, and C. B. Bishop, same place. [Filed May 7, 1877.]



The combination of the eyes of a pair of spectacles and the wire bridge B with the blocks D, soldered to the eyes, and having perforations *f*, as and for the purpose described.

193,740. SAWS. C. J. Wilson, Macon, Ga. [Filed Apr. 2, 1877.]



The combination, on a saw with two adjacent round-pointed cutters, C D, beveled from base to point on opposite sides, of an advance clearing-tooth, B, in line with plate A, and lower than cutting-teeth, as shown and described, for the purpose specified.

193,741. SEAL-BOLTS. Geo. S. Winslow, Mount Vernon, Ill. [Filed Feb. 22, 1877.]



1. The combination, with a bolt provided with interior self-locking mechanism and a recess extending partly through the bolt to connect with the locking-pin, of a seal formed with a hooked shank, which latter engages with the locking-pin of the bolt, substantially as and for the purpose set forth.

2. The combination, with a bolt provided with interior self-locking mechanism, of a seal adapted to fit against the side of the bolt, said seal provided with a hooked shank, which extends partly through the bolt for engagement with the locking mechanism of the same, substantially as and for the purpose set forth.

3. The combination, with a bolt provided with interior self-locking mechanism, of a seal, the latter constructed to fit the bolt, and provided with a beveled hook and an annular ledge or flange, substantially as and for the purpose set forth.

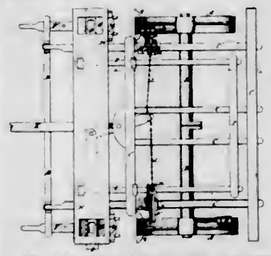
193,742. POTATO-BUG-POISON SPRINGS. George T. Wianer, Florida, N. Y. [Filed June 18, 1877.]



The barrel A perforated at *d* and at *a*, and provided with a piston-rod having two pistons, D D′, on it in combination with the vessel B, substantially in the manner and for the purpose set forth.

193,743. CHECK-ROW ATTACHMENTS FOR CORN-PLANTERS. L. S. Woodside, Riverton, Iowa, assignor to himself and M. S. Sober, same place. [Filed Apr. 9, 1877.]

Brief.—At each side of the frame are hinged blocks, to which levers are pivoted. These levers are struck by cams on the spokes of the driving-wheels as they revolve, imparting motion to the blocks and seed-slide through the medium of connecting-chains and centrally-pivoted lever.



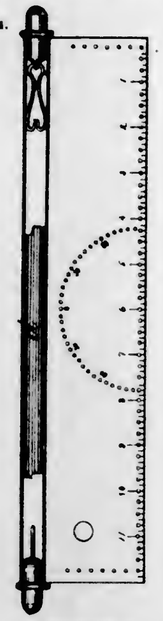
The combination of the two chains or jointed rods L, the two pairs of hinged blocks M N, and the wheels or rollers O with the lever K, that operates the seed-dropping slide J, and with the wheels A and axle B, substantially as herein shown and described.

193,744. COMBINED RULER AND LETTER-SCALES. G. D. Wyckoff, Indianapolis, Ind., assignor to J. A. Green, Brooklyn, N. Y. [Filed Jan. 2, 1877.]

Brief.—Improvement on Patent No. 181,236, to same inventor.

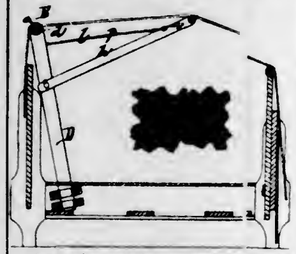
The ruler made with a hollow cylinder at one edge, in combination with a reversible plug and letter-holder, a plug and fulcrum-pin, and perforations in the ruler, forming the divisions of the letter-scale, substantially as set forth.

192,744.



192,745. INSECT-GUARDS. James Young, Cambridge, Mass. [Filed June 26, 1877.]

Brief.—The netting is attached to the roll on which it is wound and unwound, and when the canopy is to be used the frame, consisting of the strips, cross-bar, and cords and braces, is turned down, and the netting drawn over the same and over the standard at the foot of the bed, when the sides of the netting are then turned down, and the canopy is complete. The reverse of this operation folds the canopy and its supporting-frame up.



The supporting-frame, consisting of the standards D, strips A, cross-bar i, and cords and braces *l m*, in combination with the roll E, substantially as described, for the purpose set forth.

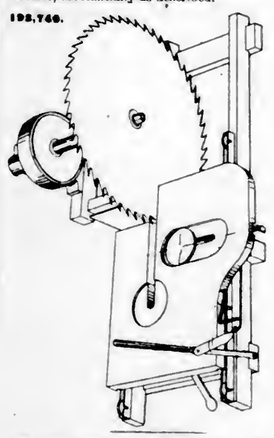
192,746. MACHINES FOR MAKING AND BAPPING SHINGLE-BOLTS. S. D. Albright and G. W. Albright, Stanton, Mich. [Filed Jan. 15, 1877.]

Brief.—The shingle-block can be "sapped" by the same saw preparatory to bolting it by means of a turn-table arranged upon the sliding table, upon which the block is stood and turned preparatory to presenting it to the saw.

1. The combination, with a sliding saw-table, of a turn-table, pivoted at one side of the cutting-line, substantially as and for the purpose set forth.

2. The combination, with a sliding saw-table, of a turn-table, pivoted at one side of the cutting line, and laterally adjustable with relation thereto, substantially as described.

192,760.



192,747. VEHICLE-WHEELS. Jerome Bacon, Medina, Wis., assignor of two-thirds of his right to G. Bacon and A. V. Holcomb, same place. [Filed July 21, 1877.]



1. In a wheel for vehicles a metallic felly made in one piece with inclined sides *d* converging to the narrow tread *e*, substantially as and for the purposes set forth.

2. A metallic felly made in one piece with inclined sides converging to the narrow tread *e*, and having the double recesses *h i* on the inner surface, substantially as and for the purposes set forth.

3. In a wheel for vehicles, the combination of a metallic felly made in one piece with inclined sides, converging to the narrow tread *e*, and having double recesses in its inner surface, and the spokes having tenons at their outer ends, whereby a double bearing is afforded at the outer end of each spoke, substantially as and for the purposes set forth.

192,748. DEVICES FOR APPLYING EDGE-TOOLS TO SHARPENERS. Curtis P. Brown, Wheeling, W. Va. [Filed May 24, 1877.]

1. The chuck A, journaled in the side frames of the machine so as to turn or revolve therein, and constructed with a central opening or slot to receive the tool to be sharpened, shouldered clamping plate *b*, playing in the central opening, and thumb-screw *c*, as and for the purposes described.

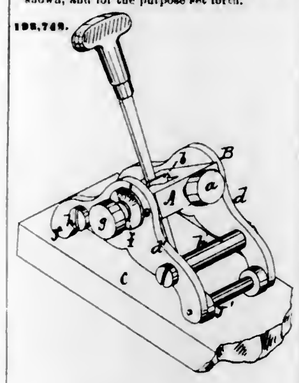
2. The chuck A, journaled in the side frames of the machine, and provided on one end of its journal with a dial-plate, *e*, which revolves or turns with the chuck, as and for the purposes described.

3. In combination with the revolving chuck A and dial-plate *e* on its journal, the clamping-screw *g* and washer *f*, as and for the purposes described.

4. In combination with the revolving or turning chuck A, the frame or carriage composed of side rails or supports *d d'*, braces *h h'*, and rollers J J', substantially as and for the purpose described.

5. In a machine for holding and sharpening edge-tools, the combination of the adjustable chuck A, clamping-plate *b*, having the V-shaped grooves C C', thumb-screw *a*, dial *e*, washer *f*, thumb-screw *g*, side supports *d d'*, rods *h h'*, rollers J J', substantially as herein shown, and for the purpose set forth.

192,749.



192,749. HARNESS-SADDLES. E. R. Cahoone, Newark, N.J. [Filed July 6, 1877.]



1. A saddle-tree constructed with a flat upper surface continuous to the end of said tree, with the exception of openings *a* for the passage of the back-band, &c., as set forth.

2. The saddle-tree A, constructed with a flat upper surface continuous to the end of said tree, and provided with the opening *a* for the passage of the back band, combined with the flap C, secured to the central part of said tree by tacks or nails driven through holes *c c*, in contradistinction to a fastening by nails or tacks driven through holes along the edge of the tree, substantially as and for the purpose set forth.

3. The saddle-tree A, provided with the transverse rib *d*, substantially as described, combined with the flap-leather C, for the purpose set forth.

4. A saddle-tree, A, flat on its upper surface, and provided with an orifice, *s*, for the purpose set forth, and with the transverse rib *k* on the under side of said tree and above the terret-hole, for the purpose described.

5. The stiffener E, constructed with a flange across one end, as shown, combined with the loop *f* and shoulder *g*, with which said flange is caused to engage and be firmly held by depressing said loop *f*, as set forth.

6. The under plate F, constructed with side ribs or flanges *k*, and a recess, *i*, to receive the nut for the terret, and ribs *j j* along the edges of said recess, to prevent the ends of the terret-nut from turning or slipping under the edges of the ribs *k* on the under side of the tree, whereby a pocket is formed to receive the terret-nut and the end of the back-strap, the edges of the ribs *k* are covered, and the padding is kept in place by the ribs *k*.

7. A tree, A, constructed with a recess, *l*, in the under side of the arch, to receive the end of the water hook, combined with the bridge G, provided with feet *m*, substantially as and for the purpose set forth.

8. A saddle-tree, A, constructed with a smooth and unobstructed arch, combined with a detachable bridge, G, beneath said arch, and provided with friction rollers *n*, as set forth.

9. The saddle-seat H, constructed with a flat surface, *s*, at the pommel, to secure a flat seat for the head of the water-hook bolt, as set forth.

10. The saddle-seat H, provided with a circular or other shaped depression or seat, *w*, in the under side of extended cantle, to receive the nut-holder for the fly-terret, as set forth.

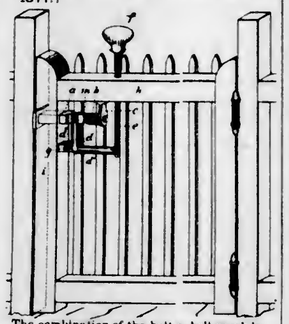
11. The button or cover I, fitted to the under side of the cantle, and adapted to receive and securely hold the nut for the fly-terret, so that when said terret is screwed down the said cover will conceal the nut and still permit the same to be removed and replaced.

12. The button or holder I, constructed with a concave inner side and longitudinal ribs *r r* and pivoted buttons *t t*, as set forth.

13. The loop *f*, as shown and described, combined with the stiffener E, whereby said stiffener may be secured in place by depressing said loop, as set forth.

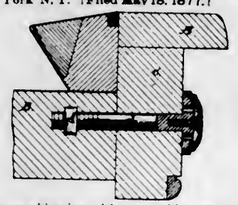
14. The stiffener E, constructed with the fork *r*, combined with the D loop J, provided with feet, as shown, whereby said fork keys and holds said loop fast.

192,750. GATE-LATCHES. J. D. Cameron, Chippewa Falls, Wis. [Filed May 2, 1877.]



The combination of the bolt *a*, bell-crank lever *d*, vertical rod *e*, with knob *f*, bracket *c*, lug *g*, and spring *b*, the whole arranged substantially as described, and for the purpose set forth.

192,751. FASTENING DEVICES FOR BILLIARD-CUSHION RAILS. Hugh W. Collender, New York N. Y. [Filed May 18, 1877.]



In combination with the cushion rail of a billiard-table, a cushion-rail bolt and ornamental cap, the bolt having the ordinary head coming to a bearing on the outer face of the rail, and the ornamental cap being formed with a knurled bead near its perimeter, and with a perfectly circular base or bearing surface, all substantially as specified, for the purposes set forth.

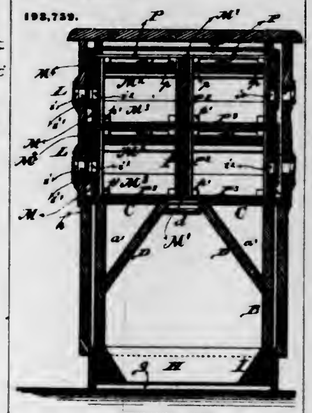
192,752. BEE-HIVES. Orson Colvin, Vicksburg, assignor of one-half his right to J. R. Hawkins, Kalamazoo, Mich. [Filed May 26, 1877.]

Brief.—Claims 1, 2, 6, and 11 are to improvements in the hive, and the other claims are to devices or forms over which the several sections of the hive are formed and put together.

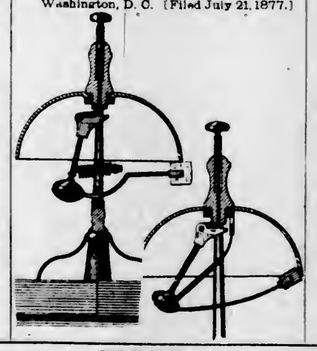
1. The inclined partitions D D, arranged in the top of the brood chamber, in combination with the inner walls of said chamber and the top plates C, to form the angular dead-air chamber *a'*, substantially as herein set forth.

2. The combination of the outer casing A, inner casing B, top plate C, with blocks *b* and inclined partitions D, all constructed and arranged as described, to form the brood chamber of a bee-hive with dead-air chambers *a a'*, substantially as herein set forth.

192,752.



192,753. CALL-BELLS. Wm. J. Cowing, Washington, D. C. [Filed July 21, 1877.]

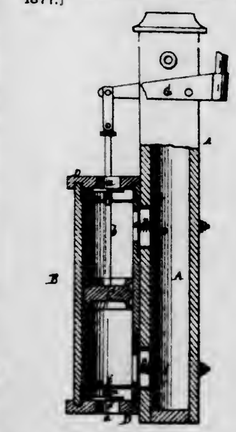


1. In a call-bell, the combination of the following elements, viz: first, a stop normally held against the bell to arrest the vibrations thereof; secondly, a connection to the thumb-piece, whereby the movement of the latter to ring the bell releases the stop and allows the bell to sound; and, thirdly, a spring to force the stop against the bell again as soon as the operator's hand is removed from the thumb-piece, substantially as described.

2. The combination of a bell, a thumb-piece, a hammer, a sound-stop, and a spring, substantially as described.

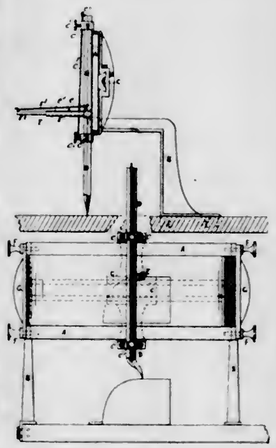
3. The combination of a bell, a thumb-piece, a hammer, and a sound-stop connected to the hammer by a rod, so as to move therewith, substantially as described.

192,754. FORCE-PUMPS. S. R. Dawson, Council Bluffs, Iowa. [Filed June 13, 1877.]



In a pump, the combination, with the cylinder B, having top and bottom caps D, with apertures *a* and the braces *m*, the plunger C, the two plunger-rods *b b*, passing through the cap, and the top connecting-bar E, the spring-valves I, and the pump-stock A, all substantially as and for the purposes herein set forth.

192,755. DEVICES FOR DRAFTING SHIPS' LINES FROM A MODEL. R. Duthie, Aberdeen, North Britain. [Filed June 23, 1877; patented in England, May 18, 1876, for fourteen years.]



1. A drafting instrument for drawing or setting out ships' line from a model, consisting, essentially, of a guide or drafting bar, adapted to move vertically and horisontally, and carrying a suitable marker at right angles thereto, and a drafting-board mounted in a suitable frame, all constructed and arranged in such manner that the movements of the guide-bar upon the surface of a model will cause the marker to reprodnce corresponding lines upon a sheet of paper held upon the drafting-board, substantially as described, for the purpose specified.

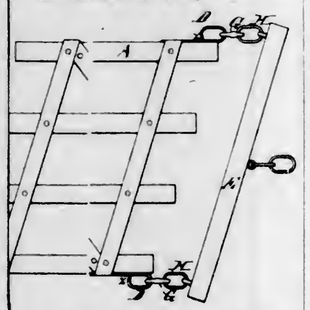
2. The combination, with the brackets B and the drafting-board A, of the clamps G and the set-screws F, substantially as described, for the purpose specified.

3. In combination with the drafting-board A of the slide C, the guide or index-bar D, and pencil-holder E, substantially as described, for the purpose specified.

4. The combination, with the board A, of the slides C and *c*, the set-screws c^1, the guide-bar D, and pencil-holder E, and a yielding connection, c^2, between the upper end of the guide-bar D and the lower slide-bracket *c* or its set-screw c^1, substantially as described, for the purpose set forth.

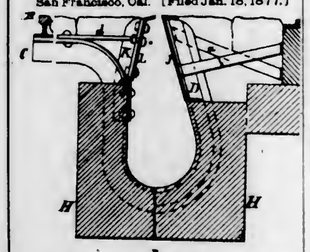
5. The two-part pencil holder E, consisting of the slotted sleeve E^1, the pencil-holder E^2, having a stop-pin, *e*, and a yielding connection, E^3, between the sleeve and pencil-holder, in combination with the guide-bar D and board A, all arranged, constructed, and operating substantially as described, for the purpose specified.

193,756. HARROWS. F. Dyer, Rock Falls, Ill. [Filed Mar. 25, 1876.]



In a harrow, the combination, substantially as herein described, of the harrow-frame A, having at its front ends hooks D, with narrow openings *x* at their rear ends, the links G having reduced portions *i*, and the draft-bar E having links H, as and for the purpose set forth.

193,757. TRAMWAY-TRACKS FOR WIRE-ROPE RAILROADS. Wm. Eppelsheimer, San Francisco, Cal. [Filed Jan. 18, 1877.]

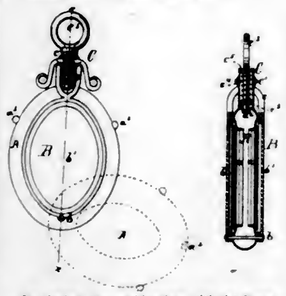


1. In a tramway-track for wire-rope railroads, a tube to receive the rope or cable, made of concrete or equivalent material, open at the top, and combined with iron ribs, substantially as set forth.

2. The combination of the rails B, ties C, and open tube H, of concrete or equivalent material, substantially as and for the purposes herein set forth.

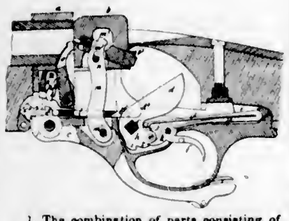
3. The combination of the tie C with the upright K and the brace or tie-rod *d*, substantially as shown and described.

193,758. LOCKETS. Chas. A. Faas, Wrentham, Mass. [Filed May 5, 1877.]



In a locket, the combination, with the frame A, pivoted between the plates of the case B at *b*, and having the notch a^2, of the locking device C, composed of the spring-bolt or pin c^3, carried by the ring c^2, and working in the barrel c^1, having the channeled top or head c^4, as described, and for the purpose specified.

193,759. BREECH-LOADING FIRE-ARMS. J. Farquharson, Blairgowrie, North Britain, assignor to G. Gibbs, T. Pitt, and W. E. Metford, Bristol, England. [Filed June 28, 1877.]



1. The combination of parts consisting of the main lever *c*, connected to the breech-block *b* by a slotted lever, *m*, provided with a tongue or extension, m^2, on its upper end, working in a slot in the firing-pin, to retract the same after having been forced forward by the hammer, as set forth.

2. The combination of the parts comprising the main lever *c*, link *m*, breech-block *b*, firing-pin b^2, cocking-bar *l*, and hammer *d*, constructed and arranged relatively to each other, substantially as shown, and so that, by the pulling down of the lever *c*, the required movements, in the peculiar order specified, are imparted to the hammer *d*, the firing-pin b^2, and the breech-block *b*, as above set forth.

3. The extractor *o*, and the suspended arm *p*, or its equivalent, formed, constructed, and arranged in combination with each other and with the projection or nose c^2 on the main lever *c*, so that the action or movement of the said lever produces the peculiar movement of the said extractor for extracting the cartridges, substantially as above set forth.

4. The sliding safety-bolt *r*, arranged and operating in combination with the main lever *c* and with the trigger *f*, substantially as above set forth, and for the purposes specified.

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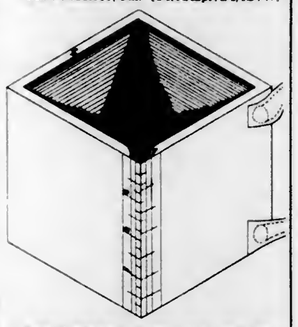


1. The combination with an expanding or hinged shoe, the bolt C, nut E, and nut or bolt locking projection F, substantially as and for the purposes specified.

2. In combination with an expanding or hinged shoe, the lugs B B', having beveled bearings D or D', or both, with bolt C, substantially as and for the purposes specified.

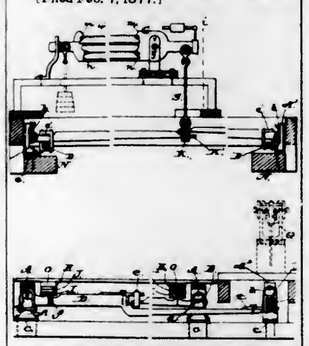
3. The arrangement and combination of plates A A', bolt C, nut E, lugs B B', with flanges G G', substantially as and for the purposes specified.

193,761. LIQUID-MEASURES. L. B. Healy, San Francisco, Cal. [Filed Apr. 24, 1877.]



A metric cup having equal sides, the cube of which represents a liter, and provided with a tubular handle or other supplemental receptacle which is capable of containing a quantity of water equal to that displaced by the thickness of the sides, so as to render the cup capable of containing a kilogram of water, substantially as and for the purpose described.

193,762. PLATFORM-SCALES. Silas H. Hibbard, La Salle, assignor of two-thirds his right to C. Brunnar and N. Snow, Peru, Ill. [Filed Feb. 7, 1877.]



1. The long levers D D, constructed to allow the short levers E E to extend over and connect in the same plane with levers D D by means of the stirrups *e e*, the said levers D D and E E having their bearings in pivot-housings attached to the beams of the frame-work, in combination with the steelyard-levers F F, substantially as and for the purposes set forth.

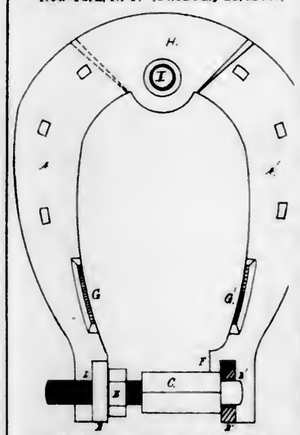
2. The pivot-housings, having rubber plates or springs *c* interposed between them and the beams upon which they are attached, substantially as and for the purpose set forth.

3. The interposition of rubber plates or springs between the bearing-plates I and the iron heels or plates H on the ends of the beams of a platform-scale, substantially as and for the purpose set forth.

4. The platform-beams, having a rubber plate, J, interposed between the recessed bearing-plates I and iron heels H, attached to the ends of the said beams, and secured by brace-rods M, substantially as described.

5. The plates forming the removable scales, as described and shown, and having their ends notched and made to fit over the arms of the steelyard G, in combination with the removable pins *m m* and *n n*, substantially as set forth.

193,763. HORSESHOES. Robt. B. Hugunin, New York, N. Y. [Filed July 25, 1877.]

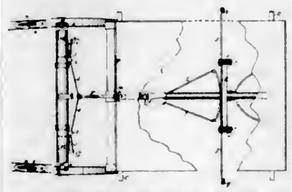


1. In combination with an expanding or hinged shoe, the bolt C, nut E, and nut or bolt locking projection F, substantially as and for the purposes specified.

2. In combination with an expanding or hinged shoe, the lugs B B', having beveled bearings D or D', or both, with bolt C, substantially as and for the purposes specified.

3. The arrangement and combination of plates A A', bolt C, nut E, lugs B B', with flanges G G', substantially as and for the purposes specified.

193,764. HORSE-DETACHING APPARATUS. W. Jones, Berlin, Wis. [Filed July 21, 1877.]



1. The spring-actuated slide *c*, carrying extension *d* and stud *e*, in combination with the ferrule, having longitudinal guideways for the slide, and means for operating the same, substantially as described.

2. The ferrule provided with a bent fork, *b*, and combined with the slide *c*, extension *d*, and locking stud *e*, for the purpose of guiding the latter, pulling off the trace, and operating as a stop to the extension against the tension of the spring, substantially as described.

3. The detaching devices, consisting of a ferrule provided with guideways *a* and a bent fork, *b*, combined with the slide *c*, carrying extension *d* and stud *e*, the follower-block *g*, the spring *h*, lever *i*, and straps F G G, substantially as and for the purpose described.

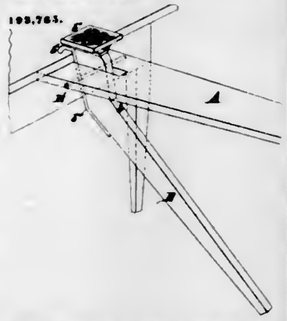
4. The fulcrum-plate *j*, combined with the notched lever *i* and the slotted ferrule, for the purpose described.

5. The combination, with the detaching devices E upon the ends of the whiffletrees and the straps F G G connected therewith, and provided with a hook, *m*, of the brake I J K, having a strap, H, arranged in its draft-bars, and connected with the strap F, for the simultaneous and joint operation of the brake and the detaching devices, as described.

193,765. IRONING-BOARDS. W. M. Kepler, Cincinnati, Ohio, assignor to himself and E. W. Bishop, Winchester, Ind. [Filed June 8, 1877.]

Brief.—The pivot-pin passes through and near the ends of the board and support, the arrangement of the pivot-pin in relation to the slotted opening in the end of the board being such as to allow the parts to be folded close together when not in use.

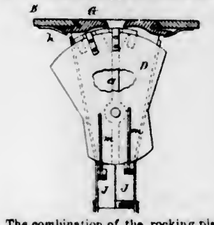
193,766.



The combination of board A, centrally perforated at E for the pivot-pin, with the brace B, pivoted thereto in a plane at right angles to the board A, and having its said pivot above the plane of its upper edge, so as to permit the folding close of the hinged members.

193,766. CORN-PLANTERS. L. F. King and Henry M. Funk, Polo, Ill. [Filed Jan. 15, 1877.]

Brief.—The back or vibrating part of the seed-tube is pivoted to a central partition, and has secured on it at the top a cut-off and feed-plate. The lower end of the discharge-spout is closed by pivoted drops actuated through the medium of rods attached to the vibrating back. The seed is graduated by cut-offs as it is passed from the hopper-bottom to the tube.

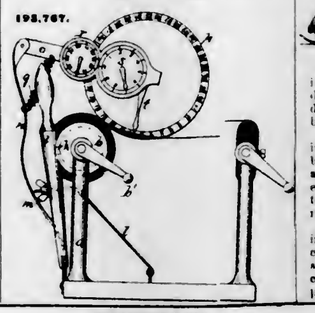


1. The combination of the rocking plate D with lugs *b b*, the adjustable cut-off E, with slots or holes *x x*, and the stationary filling-pieces *e e*, attached to the plate by the metal strips *i i*, substantially as and for the purpose herein set forth.

2. The cut-offs G G, with springs *k k* arranged in the hopper-bottom B, in combination with the rocking cut-off E, substantially as and for the purposes herein set forth.

3. The combination of the rocking plate D, rods *m m*, and pivoted drops J J, substantially as and for the purposes herein set forth.

193,767.

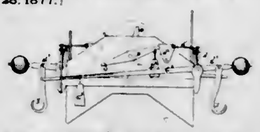


193,767. CLOTH-MEASURING MACHINES. J. Loff, Whitewater, Wis. [Filed Dec. 14, 1876.]

1. The grooved roller *b*, in combination with the springs *g g* and lever *i*, by which the roller may be swayed from side to side, as set forth.

2. The combination of the grooved roller, the lever *i*, fitting in the groove, the rod *l*, and the nut *m*, as set forth.

193,768. GRAIN-SACKING SCALES. Edwin A. Martin, Thornville, Ohio. [Filed Apr. 28, 1877.]

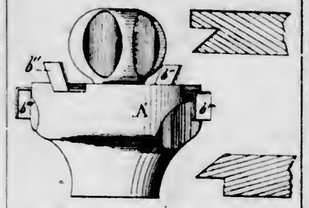


1. The combination, with the gate J, of the latch *h* and spring *i*, with the arm *b* on the scale cross-bar G, for withdrawing the latch, substantially as herein set forth.

2. The combination of the box A with passages C C, having automatically closing slide-doors at their ends, the shifting valve D with levers D^1 and weights D^2, latches d^2, rods d^1, scale-beams G G^1 G^2, having arm *d*, and the weights H G^2, all constructed substantially as and for the purposes herein set forth.

193,769. GUTTER-HEADS. John W. C. McCurdy, Atwood, Pa. [Filed June 26, 1877.]

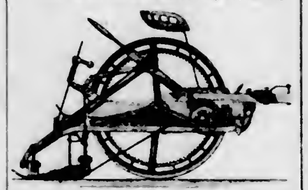
Brief.—One of the cutters is provided with bits adapted to cut an acute-angled groove in the edge of a board or plank, and the other head with bits adapted to cut a corresponding tongue in the opposite edge of such board or plank.



1. The cutter-head A, having bits B, *b*, and *b'*, combined therewith in the manner and for the purposes substantially as set forth.

2. The cutter-head A', having bits B', *b''*, and *b'''*, combined therewith, substantially in the manner and for the purposes set forth.

193,770. HARVESTERS. L. J. McCormick, W. R. Baker, and L. Erpelding, Chicago, Ill., assignors to C. H. & L. J. McCormick, same place. [Filed July 17, 1875.]



1. The combination, substantially as hereinbefore set forth, of the slotted and grooved down-hanger, and the hooked front end of the drag-bar pivoted therein, and guided and braced thereby.

2. The combination, substantially as hereinbefore set forth, of the shoe and the drag-bar, extending over and in rear of the shoe, and its swivel-pin connecting it with the rear end of the shoe, whereby the drag-bar sustains the thrust of the shoe while leaving it free to rock on its hinges.

3. The combination, substantially as hereinbefore set forth, of the shoe, the drag-bar extending over and in rear of the shoe, the swivel-pin connecting the two, and the forked coupling-arm, the front member of which is pivoted to the front of the shoe, while its rear

member is pivoted to the swivel-pin of the drag-bar, whereby great flexibility of movement and a firm bracing of the shoe is secured.

4. The combination, substantially as hereinbefore set forth, of the lateral brace or coupling-arm attached to the front of the shoe, the drag-bar hinged to the rear of the shoe, and the lifting-lever pivoted upon the drag-bar and linked to the lateral brace to tip the cutters.

5. The combination, substantially as hereinbefore set forth, of the shoe, the forked coupling-arm, the drag-bar extending over and in rear of the shoe, the swivel-pin connecting the two, the rocking lever and detent mounted on the drag-bar, and the adjustable-link connection between the lever and the coupling-arm, whereby the shoe readily may be rocked or adjusted.

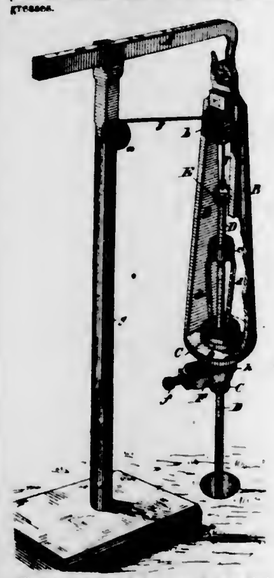
6. The combination, substantially as hereinbefore set forth, of the shoe, the drag-bar extending over and in rear of the shoe, the swivel-pin connecting the two, the forked coupling-arm, the overhanging bracket on the frame, and the adjustable spring-tension link connecting the bracket and the rear member of the forked coupling-arm, whereby the pressure of the shoe upon the ground may be regulated.

7. The combination, substantially as hereinbefore set forth, of the shoe, the drag-bar, the forked coupling-arm, the overhanging bracket on the frame, the adjustable spring-tension link connecting the bracket and the rear member of the forked coupling-arm, and the chain, link, and lifting-lever acting on the front member of the coupling-arm, whereby the shoe is first rocked and then lifted by one continuous movement of the lever.

8. The combination, substantially as set forth, of the coupling-arm, the chain attached thereto, the link attached to the chain, and the pivoted slotted lever in which the link is pivoted, whereby the link acts as a stop to the backward movement of the lever while allowing it to move forward freely to lift the coupling arm.

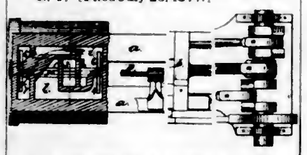
193,771. TEMPER-SCREWS FOR USE IN WELL-BORING. D. McLean and J. Herwerk, Valley, Pa. [Filed Jan. 6, 1877.]

Brief.—When the jaws of the split nut are open, the screw is drawn up to the highest position by the counterpoise. The jaws are then closed by the clamp-screw, and the temper-screw worked down as the drilling progresses.



The combination of the screw D, provided with the split nut and clamp, with the swivel E, cord *g*, pulleys *a b*, and counterpoise G, all arranged and operating substantially as specified.

193,772. DUPLEX BALANCED STEAM-ENGINES. Helem Merrill, Brooklyn, E. D., N. Y. [Filed July 26, 1877.]

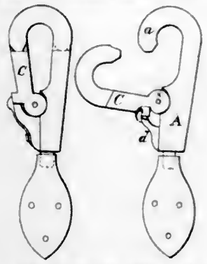


1. A combination, in an engine provided with two cylinders, a single valve common to both, the bridge *j*, with the port *i* under the valve-seat, said port connecting the front ends of one cylinder and the pistons with the back end of the other cylinder, which work in opposite directions, in the manner and for the purpose substantially set forth.

2. The combination, in a steam-engine, of the two cylinders working as one, the horizontal metal partition, and the bridge, having an under and an over conduit, with the two side passages *i* and *l*, formed by the longitudinal partition, as set forth and described.

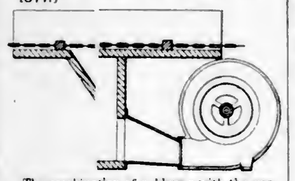
3. The combination, in a two-cylinder engine, of the abutment *b*, the guides *a*, and brace *u*, with the crank-shaft and the cylinder-heads of the engine, whereby rigidity and firmness are given to the working parts, for the purpose set forth and described.

193,773. SAFETY-HOOKS. W. E. Murray, Ukiah, Cal. [Filed June 1, 1877.]



In a safety-hook, the combination of the body A, having hooked end *a*, swinging hook C pivoted thereto, the laterally-swinging stop *d*, and spring *i*, all arranged and operating substantially as shown and described.

193,774. SAFETY-TRAPS FOR CHIP-CARRIERS IN WOOD-WORKING MACHINERY. D. C. Newell, Yonkers, N. Y. [Filed July 5, 1877.]



The combination of a blower with the carrier or chute, constructed with an opening in the bottom, substantially as described.

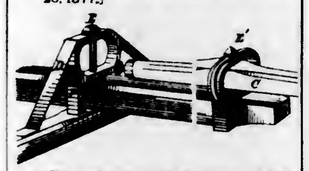
193,774.



193,775. WATER-FILTERS. Wm. Nugent, New York, N. Y. [Filed Feb. 24, 1877.]

As a new article of manufacture, the water-filter herein described, consisting of the sheet-metal case A, struck up as described, having the inlet *c* provided with spiral corrugations, and the outlet *b*, the spirally-corrugated elastic bushing D, the perforated bottom plate *f*, and the sponge or other filtering material E, substantially as and for the purpose set forth.

193,776. WHIFFLETREE ATTACHMENTS. J. J. Pancost, Saybrook, Ohio. [Filed May 26, 1877.]

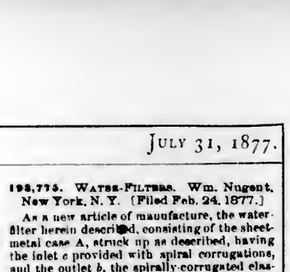


1. The combination, with the pole A, of the double cast-iron frame F, resting on such pole, the evener B, passing through the lower section of the said frame, the pin E, and the brace D, constructed and arranged substantially as described and shown.

2. The combination, with the pole A and evener B, of the double frame F, pin E, and brace D, the whiffletree C, frame G, and pin E', all constructed and arranged substantially as described and shown.

193,777. GATES. James F. Read, Portland, Mich. [Filed May 19, 1877.]

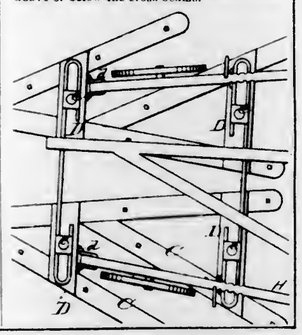
Brief.—The hinged end of the gate is supported on rollers journaled in an upright bar sustained by sockets integral with rings that surround loosely the post, the lowermost socket having a stub projecting obliquely from its lower surface, that may be made to enter any one of a number of holes in the post, and thus maintain the gate at any desired elevation.



In combination with a gate and its supporting-post, the sockets B B' having the frames *b' b²* and the pin or stud *b³*, substantially as and for the purpose set forth.

193,778. HARROWS. A. Reagan, Salisbury, Mo. [Filed May 12, 1877.]

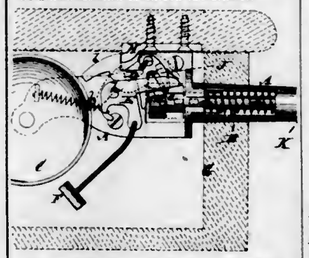
Brief.—The harrow is raised or lowered by means of the swinging stirrups, which adjust above or below the cross-beams.



The combination, with a harrow, of the swinging stirrups *d*, attached to braces D, and the wheel-bearing levers H, substantially as specified.

193,779. TILL-LOCK ALARMS. A. Rosenfield, Jersey City, N. J. [Filed Dec. 8, 1876.]

Brief.—The alarm is operated by a cam on the inner end of the spindle in the act of turning the latter into position, to allow a stud thereon to enter a slot in its case before it can be drawn forward to unlock the drawer.

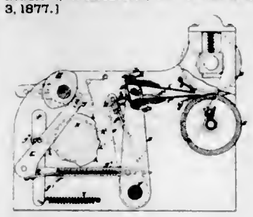


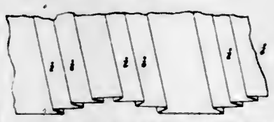
1. The combination of the rotating and longitudinally-adjustable spindle B, having the cam or tappet J, and stud *c* thereon, the socket or frame in which said spindle slides and turns provided with a slot, *d*, for reception of the stud *c*, the hammer-butt E, and the catch or hook D, substantially as specified.

2. The spindle B, provided with the step *w* and cam J, in combination with the hammer-butt E and hook D, essentially as described.

3. The frame A, constructed to form a bearing for the rotating and longitudinally sliding spindle B, and extended back of said bearing to form a support for the other working parts of the lock, in combination with the bell C, the hammer-butt E, and the catch or hook D, all attached to said frame, substantially as shown and described.

193,780. PLAITING-MACHINES. James H. Rowe, New York, N. Y., assignor to C. S. Bradford, Westchester, Pa. [Filed May 3, 1877.]





1. The combination of the plaiting-knives C C', the rollers B B', cams G' H, with intermediate and co-operating mechanism, substantially as described, whereby the knives, while in one relative position, are reciprocated two or more times to form a set of obverse knife-plaits, and then changed in position and similarly reciprocated to form a box-plait and a set of several reverse knife-plaits, as set forth.

2. The reciprocating knives C C', in combination with the cams H G', levers g^2 G, connections f' g^3, arm *s*, rod *f*, stud d^2, and slotted segment d^3, substantially as described.

3. The reciprocating knives C C', in combination with the cam H and the intermediate connections g^2 g^3, &c., substantially as described.

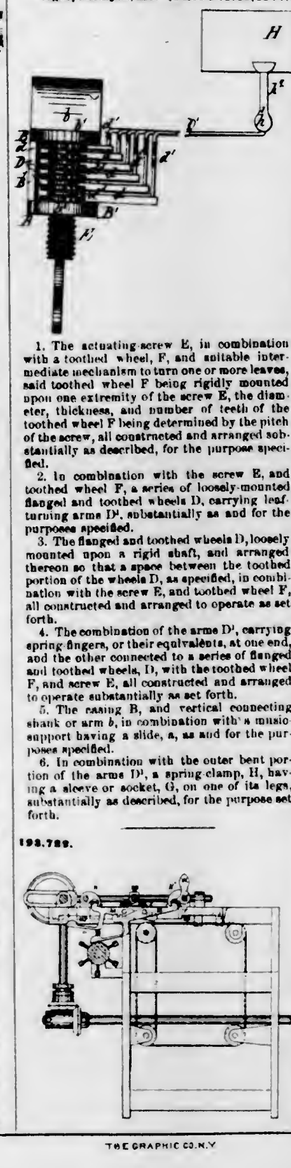
4. The screws R R, in combination with the frame D and pivoted knives C C', as shown and set forth.

5. The combination, in a plaiting-machine, of the following instrumentalities, to wit: a pair of reciprocating and relatively reversible plaiting-knives, a swinging frame to support and reciprocate the same, a pair of cams to change the relative position of said knives, and a set of mechanical devices operating through and in conjunction with said cams for the purposes of swinging said frame and changing the relative positions of said knives, substantially as described.

6. The tilting-frame D holding the plaiting knives C C', in combination with the swinging frame E and press rolls B B', substantially as described.

7. The combination, with the cam H, for the purpose set forth, of the ratchet I and dog I', substantially as described.

193,781. LEAF-TURNERS. Chas. Schwerdtfeger, Palmyra, Mo. [Filed Feb. 15, 1877.]



1. The actuating-screw E, in combination with a toothed wheel, F, and suitable intermediate mechanism to turn one or more leaves, said toothed wheel F being rigidly mounted upon one extremity of the screw E, the diameter, thickness, and number of teeth of the toothed wheel F being determined by the pitch of the screw, all constructed and arranged substantially as described, for the purpose specified.

2. In combination with the screw E, and toothed wheel F, a series of loosely-mounted flanged and toothed wheels D, carrying leaf-turning arms D', substantially as and for the purposes specified.

3. The flanged and toothed wheels D, loosely mounted upon a rigid shaft, and arranged thereon so that a space between the toothed portion of the wheels D, as specified, in combination with the screw E, and toothed wheel F, all constructed and arranged to operate as set forth.

4. The combination of the arms D', carrying spring-fingers, or their equivalents, at one end, and the other connected to a series of flanged and toothed wheels, D, with the toothed wheel F, and screw E, all constructed and arranged to operate substantially as set forth.

5. The casing B, and vertical connecting shank or arm *b*, in combination with a music support having a slide, *a*, as and for the purposes specified.

6. In combination with the outer bent portion of the arms D', a spring-clamp, H, having a sleeve or socket, G, on one of its legs, substantially as described, for the purpose set forth.

193,782.

193,783. HARNESS-MOTIONS FOR LOOMS. John Shinn, Philadelphia, Pa. [Filed Oct. 26, 1876.]

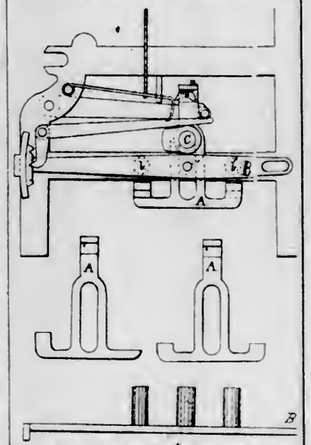
Brief.—The invention consists in special combinations of devices for producing an open shed. The jacks have double hooks at each end, one of said hooks being adapted to be operated by the lifter or depressor, and the other to be caught by the retaining-hooks for keeping the shed open. The pattern-chain controls the jacks in the usual manner.

1. A shaft arranged horizontally at the top of the loom, and having fixed to it two eccentric cams, set with their throw to work in opposite directions, each being adapted to work a sliding bar, one carrying a lifter, and the other a depressor, in combination with a series of horizontal sliding bars, upon which are pivoted double-hooked jacks controlled by a pattern device, and by which means the heddles may be moved in either direction, up or down, and held in that position by retaining-hooks N and N', until relieved by the pattern device, as above described.

2. In combination with a series of pivoted hooks or jacks, constructed with two catches or hooks at each end, and controlled by a pattern device, the two series of retaining-hooks N and N', as shown and described.

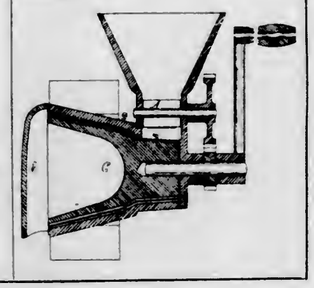
193,783. SHUTTLE-BOX MOTIONS FOR LOOMS. John Shinn, Philadelphia, Pa. [Filed Oct. 26, 1876.]

Brief.—The anchor-shaped lifters act upon studs projecting laterally from the oscillating lever, and thereby determine the position of the shuttle-boxes. Each lifter is provided with a pivoted catch, operated by a lever connected with a pattern mechanism. A yield-ing lifting bar engages with the selected catch-thereby raising the corresponding anchor-lifter, and placing in position the required box.



In a shuttle-box motion for looms, a series of lifters, A, one for each box, in combination with the oscillating lever B, having projections *b b'*, as shown and described, and for the purpose specified.

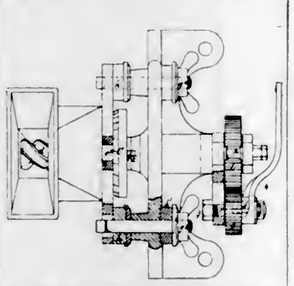
193,784.



193,784. GRINDING-MILLS FOR SOFT CORN. M. P. Squires, Stonington, Conn. [Filed May 7, 1877.]

The combination of rotary feeder A and scraper B with grinding cylinder C and shell D and hinged cap E, all substantially as shown and described.

193,785. GRINDING-MILLS MADE OF METAL. H. B. Stevens, Buffalo, N. Y., assignor to G. L. Squier, same place. [Filed June 4, 1877.]



1. The combination, with the frame or bracket A, provided with fastening-bolts *g*, having elongated heads *g*', and cone C, of the concave E, provided with elongated openings *e*', adapting the concave to be removed from the cone without detaching the bolts, substantially as hereinbefore set forth.

2. The combination, with the frame A, cone C, and fastening bolts *g*, having elongated heads *g*', of the concave E, provided with elongated openings *e*' and recesses *e*², arranged at right angles to the openings *e*', substantially as and for the purpose hereinbefore set forth.

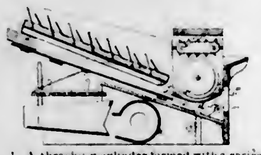
3. The combination, with the frame A, cone C, concave E, and fastening-bolts *g*, of the springs *h*, arranged on the bolts *g* between the frame and the concave, and the springs *h*', arranged on the bolts *g* between the frame and the nuts *g*², substantially as and for the purpose hereinbefore set forth.

4. The combination, with the frame A, shaft *b*, and removable concave E, of the cone C, fitted loosely upon the end of the shaft, and having its hub *c* formed with recesses or key-seats *c*', and the key *i*, secured diametrically in the shaft *b*, so as to permit the cone to be detached from the shaft by simply removing the concave, and without requiring the key to be withdrawn, substantially as and for the purpose hereinbefore set forth.

5. The combination, with the frame A and concave E, of the shaft *b*, provided with the key *i*, cone C, having its hub *c* provided with recesses *c*', and washer *k*, arranged between the frame A and the hub of the cone, and provided with recesses *k*', substantially as and for the purpose hereinbefore set forth.

6. The combination, with the frame A, shaft *b*, cone C, and concave E, of the arm R, provided with stud *r* and radial slot *r*', and detachable gear-wheels L *l*, substantially as and for the purpose hereinbefore set forth.

193,786. CLOVER THRASHING AND HULLING MACHINES. Z. S. Stocking, Cleveland, and D. Lippy, Mansfield, Ohio. [Filed May 24, 1877.]



1. A thrashing cylinder formed with a series of annular shoulders, whose surfaces, and also the surfaces of their cylinder-interspaces, are roughened or corrugated, substantially as described.

2. A thrashing cylinder having a series of detachable annular shoulders, whose surfaces, together with the cylinder spaces between the shoulders, are made roughened, the said cylinder spaces being formed sectional, each partly in piece with the two consecutive shoulders between which it intervenes, substantially as described.

3. In a thrashing and hulling machine, a feeder and header or concave, consisting of an endless apron passing over rollers, and provided with rows of teeth, placed to pass between the collars of the thrashing-cylinder, substantially as described.

4. The combination, with a thrashing cylinder having a series of annular shoulders or collars, of a feeder and concave, consisting of an endless apron passing over rollers, and provided with rows of teeth, which are so placed as to pass between the projections of said cylinder, substantially as and for the purpose specified.

5. A thrashing cylinder adapted to be adjusted, relative to the feed end of the shaker, substantially as described.

6. In a thrashing and hulling machine, the swinging arm *d*, provided with several grooves, *d*² and *d*³, for the insertion and adjustment of the receiving plate *d*' and attachment of the concave D, substantially as described.

7. The combination of a thrashing-cylinder, a feeder and concave, and a lower concave, with a frame, in which said parts are housed, and which is capable of vertical adjustment relative to the feed end of the shaker, substantially as described.

8. The combination, with the adjustable frame carrying the thrashing-cylinder, of the rack and pinion shaft, actuating the same in its vertical movement, substantially as described.

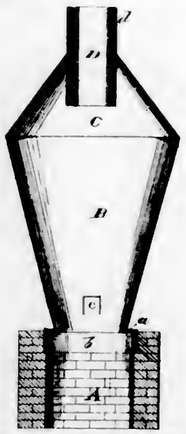
9. The combination, with the swinging arm *d*, provided with several grooves, of the receiving-plate *d*', adjustable in said grooves, substantially as described.

10. A separator constructed in one or more sections, each section provided with a series of slanting plates, and a series of laterally vibrating teeth extending between said plates, substantially as and for the purpose described.

11. A separator constructed in one or more longitudinal sections, each section provided with a series of slanting plates and openings between said plates, through which project a series of teeth attached to a longitudinal rod or shaft, by which the teeth are laterally vibrated, substantially as and for the purpose specified.

12. A separator constructed in one or more sections, each section provided with a series of slanting plates, and a series of laterally-vibrating teeth extending between said plates, in combination with the groove *p* and finger *n*', substantially as and for the purpose described.

193,787. DUST-TRAPS FOR FURNACES. T. J. Taylor, Eureka, Nev. [Filed May 18, 1877.]



A dust-trap for smelting furnaces, consisting in the upper outwardly-flaring body B, provided with the contracted top C, and short cylinder D, extending slightly above the top C, and down partly through said top portion C, the lower portion of body B having an enlarged supporting collar or flange, which connects with the body by an annular horizontal flange or ring, *a*, substantially as set forth.

193,788. PRESERVING APPLES. J. Walker, Bursettstown, Pa. [Filed June 26, 1877.]

The mode herein described of preserving apples, which consists in placing the apples in a ventilated box and surrounding them with a compound of coal-ashes, pulverized alum, and sulphur, substantially in the proportions and in the manner set forth.

193,789. NUT-LOCKS. J. J. Walden, Locust Summit, Pa. [Filed Jan. 31, 1877.]

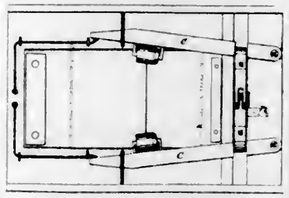


1. A solid double-headed bolt, the heads of which are arranged at right angles to each other, said bolt having a wedge-shaped shank, substantially as and for the purpose set forth.

2. The combination, with the rails and fish-plates provided with oblong openings, of double-headed bolts, a locking-plate, and wedges driven beneath the shank of said bolts, the heads of said wedges secured beneath the heads of the bolts, substantially as and for the purpose set forth.

3. The combination, with the double-headed bolts and wedges driven in contact with the same, of a locking-plate provided with staples and a locking-bar, to prevent the displacement of said wedges, substantially as and for the purpose set forth.

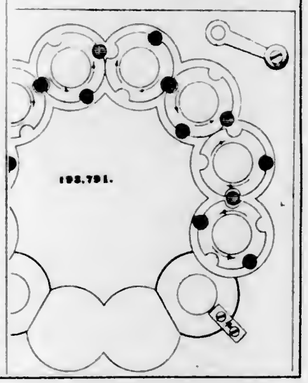
193,790. THIEF AND ROBBER TRAPS. Wm. E. Wharton, Lawson, Mo. [Filed Aug. 10, 1875.]



1. In combination with the tilting floor-sections, the pivoted levers and toggle-arms, said levers being arranged horizontally and parallel to the sections, and supporting the adjacent free ends of the latter, substantially as shown and described.

2. In combination with the levers for supporting the floor-sections and the toggle-arms, the pivoted brace and trip-cord, substantially as described.

3. In combination with the toggle-arms, pivoted brace-levers C, and tilting floor-sections, the notched tripper and knotted weighted cord, substantially as shown and described.

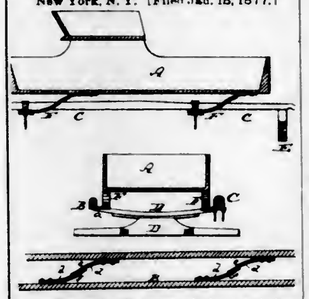


193,791. BRAIDING-MACHINES. A. Wietlisbach, Paterson, N. J. [Filed Apr. 7, 1877.]

Brief.—The carriers are of the same diameter, and all are provided with four notches except the "returns," which have five. They all revolve in equal times by means of suitable gearing. They are also removable, and capable of having their places supplied by blanks or "dummies," thus allowing the course to be broken or divided, for forming flat braid of different widths, or tubular braid or hose.

The combination, in a braiding machine, of the series of interchangeable notched spindle-carriers and blanks with actuating gearing, substantially as herein shown and described, whereby flat braids of various sizes, or tubular braided goods or hose may be formed, substantially as set forth.

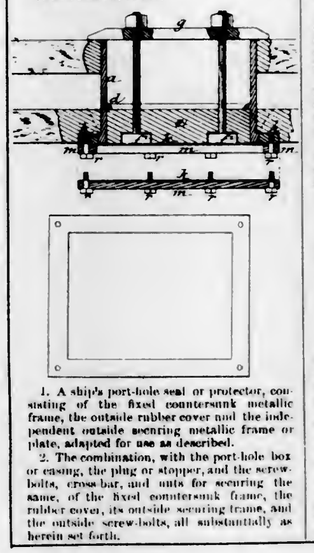
193,792. SIDE-BAR WAGONS. T. H. Wood, Flushing, assignor to J. B. Brewster & Co., New York, N. Y. [Filed Jan. 18, 1877.]



1. The spring F, composed of the main inner leaf *d*, and of the upper and lower lap-leaves *e* and *f*, said lap-leaves being on opposite sides of the inner leaf and loose at their inner ends, substantially as herein shown and described.

2. The combination of the vehicle-body A and side bars B C with four or more oblique springs, F F, and with the rear axle D, reach H, head-block G, and fifth-wheel I, the four springs being all parallel with one another, and vertically interposed between the side bars and the vehicle-body, substantially as specified.

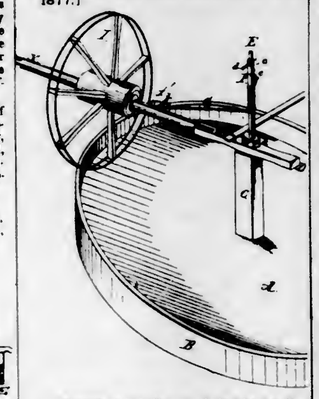
193,793. PORT-HOLE PROTECTORS FOR SHIPS. Wm. H. Forbes, Baltimore, Md. [Filed June 5, 1877.]



1. A ship's port-hole seal or protector, consisting of the fixed countersunk metallic frame, the outside rubber cover and the independent outside securing metallic frame or plate, adapted for use as described.

2. The combination, with the port-hole box or casing, the plug or stopper, and the screw-bolts, cross-bar, and nuts for securing the same, of the fixed countersunk frame, the rubber cover, its outside securing frame, and the outside screw-bolts, all substantially as herein set forth.

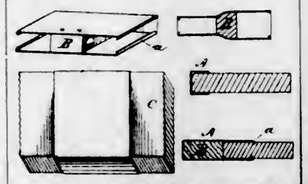
193,794. MACHINES FOR TEMPERING CLAY. W. H. Smith, Bristol, Tenn., assignor of two-thirds his right to W. Mullenix, same place, and David Sullens. [Filed June 18, 1877.]



1. Slotted sleeve F, key *d*, key-hole *a* in shaft E, in combination with washer *b*, upright post C, mortar-bed A, beam D, tempering-wheel I, rope or chain G, carriage H, substantially as shown, and for the purpose pointed out.

2. The two-eared carriage H, in combination with the groove *x*, beam D, tempering-wheel I, draw chain or rope G, sleeve F, lug *e*, shaft E, post C, and mortar-bed A, substantially as shown, and for the purpose set forth.

193,795. ERASIVE-TABLET HOLDERS. O. Cleveland, Jersey City, N. J. [Filed Sept. 16, 1875.]



1. An erasive-tablet holder consisting of a solid metallic tube, having its elongated end opening provided, on opposite sides, with lips or flanges projecting inwardly, substantially as described.

2. A tubular eraser-tablet holder, provided at its opposite ends with inwardly-flanged openings of different diameters, adapting it to receive and retain different-sized erasive tablets, substantially as described.

3. The combination of the tubular erasive tablet holder, having inwardly-flanged ends, and a central block or support, B, substantially as described.

REISSUES.

7,817. WARDROBE-BEDSTEADS. Frederick Caulier, Philadelphia, Pa., assignor, by mesne assignments, to the New England Wardrobe Bedstead Company. Patent No. 183,367, dated Oct. 17, 1876. [Filed June 9, 1877.]

Brief.—The tilting body and sliding head-board are connected by hinges, and the former is hinged to a bar having pivots or fulcra on the ends thereof, which slide and turn in guides or ways in the projecting foot-pieces of the frame. By this arrangement, when the body is raised or lowered it has a compound movement on its pivots or fulcra, which enables it to accommodate itself to the vertical movement of the counterbalancing head-board.

1. The combination, with the tilting body D of a wardrobe-bedstead, of a bar, F, hinged to the said body, and arranged to move to and from the head-board, as described, when said body is being raised and lowered, as set forth.

2. The combination of sliding head-board A, and tilting body D, said body turning on pivots or fulcra which have liberty of movement to and from the vertical line of said head-board when the body is raised or lowered, as set forth.

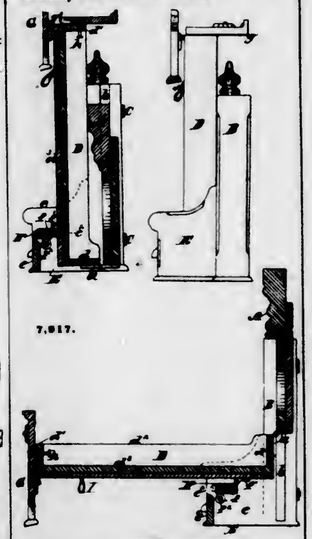
3. The combination of sliding head-board A, tilting body D, and bar F, having hinged connections at *a* and *f*', the bar F being arranged to move in ways or guides *d*, so to accommodate the swinging or rotary motion of the body to the vertical motion of the head-board, as set forth.

4. The head-board and body of a wardrobe-bedstead united by a hinged connection, and so combined and arranged that the former counterbalances the latter, substantially as shown and described.

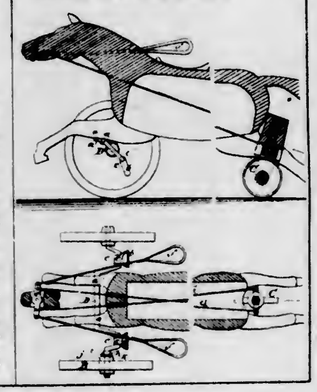
5. In combination with the foot-piece E, the bar F, hinged to the body D, substantially as shown and set forth.

6. The sliding head-board A, grooved posts B B, foot piece E, and hinged sliding bar F, combined and arranged for use, and operating substantially as shown and described.

7. In combination with bar F, hinged to the body D, the anti-friction rollers *f*' *f*², arranged to move on sides *e e* of the foot-piece E, substantially as shown and described.



7,818. VELOCIPEDES. Montpelier Manufacturing Company, Montpelier, Vt., assignees, by mesne assignments, of F. W. Mackenzie. Patent No. 41,310, dated Jan. 19, 1864. [Filed July 6, 1877.]



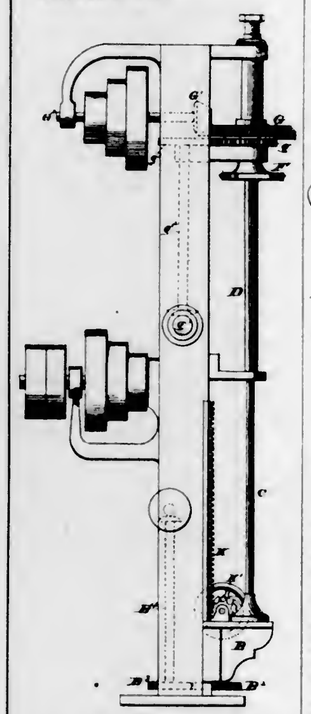
1. A velocipede constructed with cranks having foot-rests loosely fitted on the crank-pins thereof, and supported solely by said crank-pins, which foot-rests are adapted to receive the rider's feet directly and without the intervention of treadles or of other mechanism.

2. A rigid auto propelling horse or other seat for a rider, in combination with and connected directly to a shaft having two or more cranks.

3. The stirrups *b* or foot-rests, arranged directly on the crank-pin opposite the one on which the body rests, in combination with the cranked axle and body.

4. The arrangement of the friction plate *j*, the elastic *i*, and the collar *h*, in combination with the cranked axle and body.

7,819. METAL-BORING MACHINES. J. Simpson, Meadville, Pa., assignor of one-half interest to Dick & Church, same place. Patent No. 124,091, dated Feb. 27, 1872. [Filed May 19, 1877.]



1. A boring machine for making working cylinders or barrels for pumps, oil-wells, steam-engines, &c., consisting of a vertical drill, in combination with a vertical chuck and mandrel, located above the drill, and constructed to support the article to be bored, and feeding mechanism for feeding the drill upward, substantially as and for the purposes described.

2. In a boring-machine for making working cylinders or barrels for pumps, oil-wells, steam engines, &c., a vertical drill and a vertical chuck located above the drill for supporting the article to be bored and causing it to revolve about its vertical axis, in combination with mechanism for feeding the drill upward, substantially as and for the purposes described.

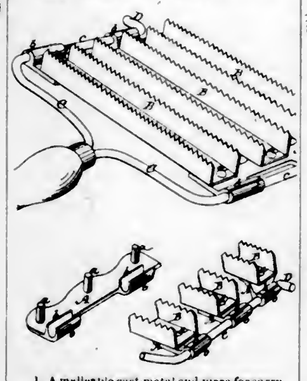
3. In a boring machine for making working cylinders or barrels for pumps, oil-wells, steam-engines, &c., a vertical non-revolving drill, together with a vertical chuck or mandrel located above the drill, and constructed to support and revolve the article to be bored, in combination with mechanism for feeding the said drill upward, substantially as and for the purposes described.

4. In a boring-machine for making working cylinders or barrels for pumps, oil-wells, steam-engines, &c., the vertical drill C, support B, and feed screw or shaft B', in combination with the vertical revolving chuck or mandrel F, and variable feed devices B^2 g^1, with intermediate connections, whereby the rapidity of the drill-feed may be varied, as desired, with respect to the rapidity of revolution of the chuck or mandrel, substantially as and for the purposes described.

5. In a boring-machine, the combination, with a vertical chuck or mandrel located above the drill, and constructed to support and revolve the article to be bored, a vertically-adjustable drill-support, and non-revolving drill, of the feed screw or shaft B', adjustable nut *b*, and device b^1, for engaging or disengaging the nut at pleasure, substantially as described.

6. In a boring-machine, the combination, with a vertical chuck or mandrel located above the drill, and constructed to support and revolve the article to be bored, a vertically-adjustable drill-support, and non-revolving drill, of the stationary rack K, pinion K', and hand-wheel L, said pinion and hand-wheel secured to a shaft journaled in bearings attached to the drill support, substantially as described.

7,820. CURRY-COMBS. Miles Sweet, Troy, N. Y. Patent No. 89,182, dated Apr. 20, 1869. [Filed Nov. 11, 1876.]



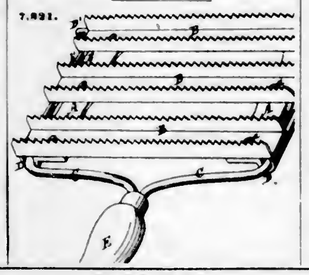
1. A malleable cast-metal end piece for curry-combs, having lugs *b b* formed thereon, and rivet-holes or rivet-blanks *a a* a cast or formed thereon, so that said piece shall not only facilitate the putting together of the parts, but serve as the means of holding them together when clinched or hammered down, as described.

2. In a curry-comb, a series of sheet-metal comb-bars, B, riveted to malleable cast-metal end pieces A A, which end pieces have lugs *b b*, bent tight upon or around the wire frame, which is a continuation of the shank for the handle, as and for the purpose set forth.

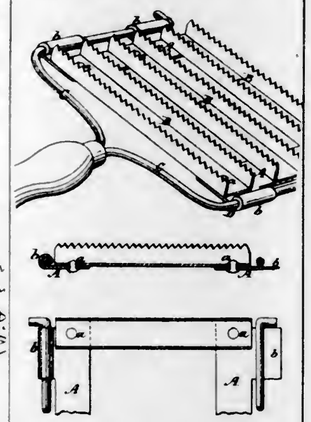
3. The wire shanks or wire frame of a curry-comb, bent adjacent to both its point of entrance with, and point of exit from, its connection with the body of the curry comb, substantially as set forth.

4. The outer bent ends of the wire frame as knocking lugs or fenders D D, as and for the purpose set forth.

7,821.



7,822. CURRY-COMBS. Miles Sweet, Troy, N. Y. Patent No. 89,182, dated Apr. 20, 1869. [Filed June 11, 1877.]



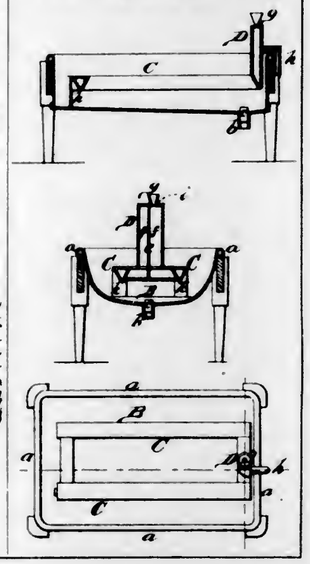
1. The troughed plates A, and their combination with the comb bars and handle, as described, in virtue of which the comb-bars extend across and over the trough, and thus secure the comb proper to the wire frame of the handle, substantially as set forth.

2. The combination of the toothed bars, the rods or wires connecting the bars and handle, and plates cast with concave loops, by which the rods are connected to the bars, substantially as set forth.

7,823. CURRY-COMBS. Miles Sweet, Troy, N. Y. Patent No. 89,182, dated Apr. 20, 1869. [Filed June 11, 1877.]

The end pieces A, with projecting lugs *b*, cut from sheet metal, for the purpose specified.

7,824. MILK-COOLERS. Nelson E. Smith, Richford, Vt., administrator of R. Smith, deceased. Patent No. 164,048, dated June 1, 1875. [Filed July 14, 1877.]

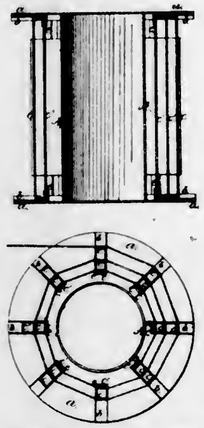


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1. The milk-pan B, having its sides and bottom formed of one piece of sheet metal, with the bottom flat at one end and gradually curved toward the other end to make it inclined longitudinally, substantially as herein set forth.

2. The rectangular cooler C, formed of triangular pipes, in combination with the centrally-divided trunk D, having a feed-funnel, *g*, a hole, *i*, and an angular discharge-pipe, *h*, substantially as described.

7,824. ROLLERS FOR DRYING FLOOR-CLOTH. Robert Hoskin, Cranford, N. J., assignor to I. N. Hebberd, New York city. Patent No. 65,223, dated May 28, 1867. [Filed July 17, 1877.]



1. An open rack arranged spirally about a drum or aperture, substantially as and for the purposes set forth.

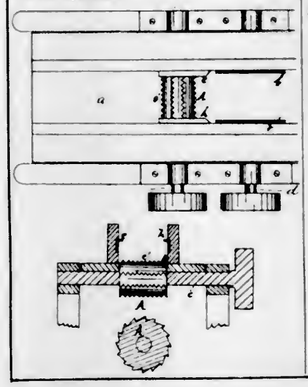
2. A rack for drying material, composed of a number of adjustable arms, capable of being arranged in a volute or spiral manner, substantially as set forth.

3. The bar *c*, provided with the angular flanges, as and substantially for the purpose set forth.

4. The circular heads *a*, provided with the grooves *b* for receiving the bars *c*, substantially as specified.

7,825. MACHINES FOR MAKING MATCH-BLOCKS. Emery Andrews, Portland, Me., and William Tucker, Philadelphia, Pa., assignors, by mesne assignments, to S. E. Spring, Andrew Spring, and J. C. Jordan, Portland, Me. Patent No. 96,764, dated Nov. 16, 1869. [Filed Oct. 29, 1873.]

Brief.—The blocks are trimmed and notched at one operation.



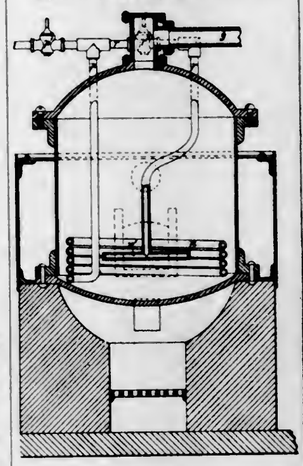
1. The knives or cutters to chip out or remove from one end of the wood, to be used for match blank or card, certain portions thereof, at regular intervals, to form the fire end of the matches, in combination with suitable device or devices for trimming one or both edges of said wood at one operation, substantially as described.

2. The combination of the notching teeth or cylinder A, the saws *b b'*, the lips or shoulders *s* A, and the trough *a*, substantially as and for the purposes set forth.

3. The combination of the notching-teeth with the saws *b b'*, and a trough or means for feeding the blanks or cards, substantially as described.

4. The combination of the moving notching-teeth operating on the lower end of the blank, as herein described, with the guides or lips *e d*, and suitable means for feeding the blocks or blanks, substantially as set forth.

7,826. PRODUCTION OF DEODORIZED HEAVY HYDROCARBON OILS. Joshua Merrill, Boston, Mass. Patent No. 90,264, dated May 18, 1869; Reissue No. 7,783, dated June 12, 1877. [Filed July 5, 1877.]

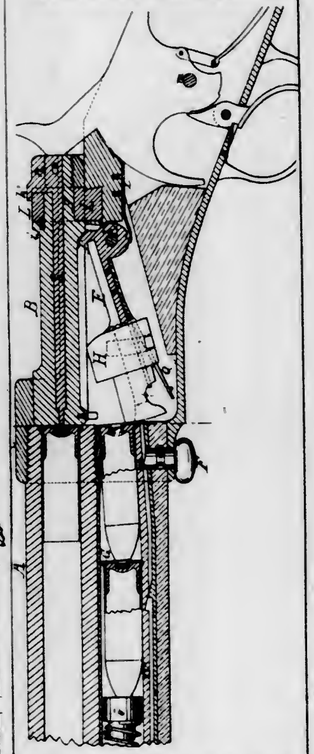


1. The above-described heavy hydrocarbon oil, suitable for lubricating and other purposes, free from the characteristic odors of hydrocarbon oils, and having a slight smell like fatty oil.

2. The above-described new manufacture of deodorized heavy hydrocarbon oils, suitable for lubricating and other purposes, free from the characteristic odors of hydrocarbon oils, and having a slight smell like fatty oil, from heavy hydrocarbon oils, by treating them substantially as hereinbefore described.

3. In combination with a still suitable for distilling oils, the superheating-coil, with its steam-pipe, outlet-pipe, and return-pipe, and their stop-cocks, arranged substantially as described.

7,827. MAGAZINE FIRE-ARMS. William S. Smoot, Ilion, N. Y. Patent No. 97,821, dated Dec 14, 1869. [Filed Jan. 26, 1877.]



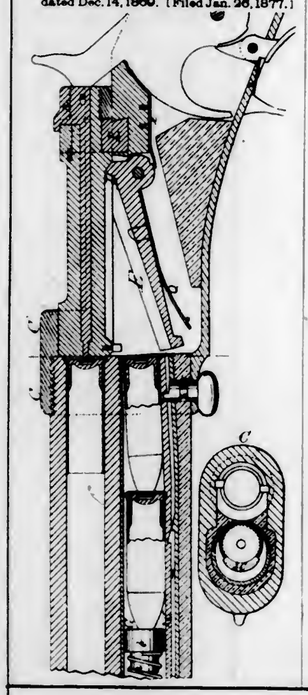
1. The combination of an annular key or eccentric sleeve, L, vibrating upon the exterior of the breech-block, with the continuous solid breech-block B, having feathers *t t*, the whole forming a breech system reciprocating upon the top of the frame, and available throughout its entire length for the reception of a mainspring and guiding-flange or feather.

2. The combination of the spring Q with the carrier-block E and a magazine tube, G, loaded from above and in rear, the whole being arranged in such manner that after the insertion of each cartridge into the magazine the carrier shall be caused to partially cover the mouth or entrance thereof to prevent the expulsion of the cartridge.

3. The retaining fingers H, in combination with pivoted carrier-block E and inclines *r r* on the sides of the breech-frame, the whole operating substantially as and for the purpose set forth.

4. The combination of the annular key, having an oblique-sided notch, and the firing-pin A, whereby the latter is withdrawn upon the rotation of the former to unlock the breech, as herein specified.

7,828. MAGAZINE FIRE-ARMS. William S. Smoot, Ilion, N. Y. Patent No. 97,821, dated Dec. 14, 1869. [Filed Jan. 26, 1877.]



1. The combination, in a magazine fire-arm having a movable cartridge-carrier, of an overhang to keep the cartridges from being thrown from the receiver upon the upward movement of the carrier, as set forth.

2. The combination of a vibrating carrier, E, and overhang C', the combination being and operating as set forth.

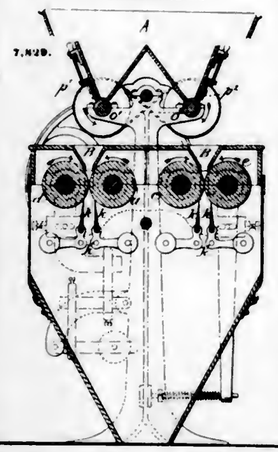
3. In a magazine gun having an opening through the top of the receiver for the insertion of a cartridge, the overhang C', as and for the purposes set forth.

4. An elliptical magazine or cartridge-receptacle for magazine-guns, as specified.

5. The combination, with the elliptical magazine, of the wedge faced bar 2 C', as set forth.

6. The wedge-faced bar 2 C', operating in connection with a series of inclines on the bottom of the magazine to hold the cartridges firmly in place.

7,829.



7,829. MACHINES FOR CRUSHING MEAL. F. Wegmann, Naples, Italy. Patent No. 182,250, dated Sept. 12, 1876. [Filed Apr. 26, 1877; patented in England, Mar. 6, 1874, for fourteen years.]

1. The combination, in a machine for preparing flour or meal, of crushing-rolls constructed with unbroken surfaces of porcelain or equivalent silicious substance.

2. One or more rolls *a*, and corresponding rolls *d*, the latter being supported on pins *f*, reating in slots, and fulcrumed upon the points of adjusting-screws *s*, and pressed against the former automatically, substantially as and for the purposes set forth.

3. In a machine for preparing flour or meal, and in combination with the other operative members thereof, the crushing-rollers *a d*, constructed with unbroken surfaces of porcelain or other equivalent silicious substance, for the purpose set forth.

4. The combination, in rolls for treating meal, of a porcelain surface, a metal core, and a non-conducting layer interposed between the metal and the porcelain, all substantially as and for the purpose set forth.

5. The scrapers *k k*, constructed of glass or other similar substance, in combination with their carrying and adjusting appliances and the crushing rolls.

6. The combination, with the self-adjusting crushing rolls, of self-adjusting scrapers, adapted thereto.

7. The combination, with meal-crushing rolls of porcelain or other equivalent silicious substance, of scrapers of glass or other similar substance, for the purpose described.

8. The supply-hopper A, the feeding-rolls a^1 a^2, and the adjustable slides p^1 p^2 at the angles of the double-inclined bottom thereof, the crushing-rolls *d a* and *e c*, and the supplemental hoppers B B, interposed between the feeding and the crushing rolls, whereby the meal is delivered in regulated sheets by regular roll-feed into hoppers arranged above the crushing-rolls.

9. A machine for crushing meal or flour, consisting of a supply-hopper with feed-rolls, self-adjusting crushing-rolls of porcelain or china, supplemental hoppers adapted thereto, and self-adjusting scrapers for the crushing-rolls, all constructed and adapted for operation as herein set forth.

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DECISIONS OF THE COURTS.

UNITED STATES CIRCUIT COURT.

ANDREW ALBRIGHT *vs.* THE CELLULOID HARNESS TRIMMING COMPANY.

[*In equity.—Before* NIXON, *J.*]

Reissued Letters Patent No. 5,155, granted to Andrew Albright, November 26, 1872, for "improvement in dies for finishing rubber-coated harness-mountings," reviewed and sustained.

The prohibition of the statute in relation to reissue applications is limited to the adding of new matter to the specifications, and there is no obligation upon the patentee to claim all things in the reissue which were claimed in the original invention. *Carver vs. Braintree Man. Co.*, (2 Story, 438.)

The novelty of the device for which the patent was granted does not depend upon the question whether the separate instrumentalities are new, but whether any new and useful result is produced by their combination.

The patentability of the dies established, it appearing that by their use a better article was brought upon the market, at less labor and expense, than had before been produced.

A person who merely produces articles experimentally by a device—changes the structure of the device itself, and finally does nothing with it until after the grant of a patent to another inventor—has neither perfected the device nor adapted it to successful use. It is an abandoned experiment.

Experimental making and using of a patented invention is a technical infringement that may be restrained.

Defendant having substituted broad bearing-surfaces for the cutting-edges of complainant's dies, the change held to be colorable as one simply arising from the difference in the material upon which the dies were used without variation in result.

NIXON, *Dist. J.:*

There are several suits pending between these parties, and I will first consider the case which was denominated "No. 1" on the argument, and which has been brought against the defendant corporation for infringing certain Letters Patent, numbered 5,155, for "improvement in the manufacture of rubber-coated harness-trimmings," being a reissue to the complainant of the date of November 26, 1872, the original patent having been granted February 13, 1872, and antedated January 27, 1872.

The only claim of the reissue is for the dies, a tool adapted to do a particular work, and the complainant states in his schedule to the reissue that his invention consists in making and using a pair of dies for pressing, finishing, polishing, and trimming the edges of the vulcanized coating of harness-trimming, such as rings, buckles, terrets, hooks, and like articles.

The answer of the defendant substantially denies the infringement, and that the complainant was the original and first inventor of the dies described in the reissue, or any material part thereof, alleging that the same was used by a number of persons, whose names and places of business are set forth. It further alleges that the thing patented had been described in printed publications prior to complainant's alleged discovery or invention, and more particularly in a number of English and American patents therein enumerated; that the same had been in public use, or on sale, in this country for more than two years before the complainant made application for his original letters patent; and, also, that the reissue was not for the same invention as was fully described in the original patent.

Such grounds of defense necessarily involve the construction of the complainant's invention; and in order to construe it intelligently, we must first examine the original patent, including the specifications, drawings, &c., and ascertain, if we can, what the patentee discloses and claims therein to be his invention; then look at the reissue to see whether any other or different invention is set up, and next consider the state of the art at the date of the patent to learn from thence what the patentee is entitled to claim as his own.

The case, as prepared and ably argued by the counsel, covers a very extensive field of investigation, and, having given to it the care and attention which its importance to the parties seemed to demand, we shall proceed to briefly state our conclusions rather than the processes of reasoning by which they have been reached.

In the specification of the patent the patentee states that his invention consists of making a pair of dies for pressing, polishing, and trimming the edges of the rubber coating of harness-trimmings, so as to imitate stitching, and to finish each article without hand-labor. In other words, he proposes with an instrument or tool to do an old thing in a new and better way.

He was not the first to use dies in the manufacture

of rings, buckles, terrets, or other harness-mountings, nor the first to imitate leather stitching on rubber-coated articles, nor the first to densify and polish with dies plastic compositions surrounding a metal core by heat and pressure. Numerous English and American patents—as, notably, the patent to Thomas Deakin, December 22, 1842, for the use of metallic dies to receive the metal skeleton; the English patent to Newton, September 4, 1851, and to Moses Poole, March 28, 1853, for the Goodyear invention of applying india-rubber compositions in making and finishing parts of harness; the patent to William Green, August 6, 1857, in regard to imitation stitching; and the American patent to Welling, dated April 28, 1862, for pressing and solidifying the mass of any plastic composition around an iron ring by means of dies—reveal methods of separately accomplishing these different results.

The operation of the invention is simple. A metal ring, buckle, or other article is coated with the rubber and placed in one of the dies, and the other die is pressed down upon it. The dies, or the article itself, are moderately heated, so that the pressure of the polished dies will polish or finish the article. The dies are beveled off at *a* and *c* of Fig. 2 of the drawings, so as to form sharp edges. These edges *a* cut off the waste at the inner side of the ring, while the edges *c* cut off the waste on the outer side. In this way the act of pressing together the dies polishes, trims, and finishes each article in the best and quickest manner. *e* shows the indented lines, which produce an imitation of stitches. The dies touch each other, *x*, *y*, and *z*, so that they cannot crush the article placed in them. The claim of the patent in the original is for—

The construction and operation of the dies A and B, with cutting-edges *a* and *c*, substantially as described, for finishing rubber-coated harness-mountings.

On the 26th of November, 1872, the patent was reissued in two divisions, as is expressly authorized by section 4916 of the Rev. Stat. Of these Division A, numbered 5,155, was for the dies, and Division B, numbered 5,156, for the process of manufacturing metallic harness-trimmings covered with rubber or other known vulcanizable gum. Suit No. 1 was brought for infringement of the Reissue No. 5,155. A comparison of the specifications, drawings, and claims fails to show that any new matter has been introduced into the reissue which did not appear in the original patent. It is true that Division A does not embrace everything which is found in the original; but it is not necessary that it should, since the prohibition of the act is limited to the adding of new matter to the specifications, and there is no obligation upon the patentee to claim all things in the reissue which were claimed in the original invention. *Carver* vs. *Braintree Man. Co.*, (2 Sto., 438.)

Of what, then, does the invention consist as described in the reissue?

We have a die in two parts, so constructed as to press, solidify, polish, and trim the edges of a partially-made ring with an iron core, and to impart to it by a single operation the desired form, rib, and imitation stitch, and at the same time separating the waste material from the article. It embodies the following features: (1) a central cavity for the body of the article to be formed; (2) a recess surrounding the cavity in which to form a projecting rib adapted to receive ornamentation; (3) provision, by grooves, for the escape of the surplus material; (4) cutting or defining edges to separate the surplus material on the inner and outer edges of the article; (5) concentric recesses to receive the waste; and (6) bearing-surfaces to determine the thickness of the finished article, and to prevent crushing the same.

Whether this is a new device or not does not depend upon the question whether the separate instrumentalities are new, but rather upon the question whether any new and useful result is produced by their combination.

The evidence seems to be, that the complainant, who is also the patentee, has been able by the use of this die to bring upon the market a better article of rubber-coated harness-trimming, with less labor and expense, than had before been produced. Before its introduction the workmen were in the habit of placing the soft rubber around the metal core, and as a preliminary step of putting it through the process of vulcanization, after which the article was trimmed, polished, and finished by hand, and the stitches marked thereon with the sharp-pointed wheel. These separate and laborious methods have been superseded by the complainant's invention.

Not much time need be spent upon the inquiry whether the defendant corporation has infringed.

At complainant's request they produced a pair of finishing-dies, such as they used in the manufacture of celluloid-coated harness-trimmings, and the same has been marked Complainant's Exhibit No. 12. Complainant's Exhibit No. 7 was put in to show the die described and claimed in Reissue No. 5,155, and the question is whether the use of the former is an infringement of the characteristic devices of the latter. Their features of resemblance are more numerous than their features of dissimilarity. Even where they are not identical in form they seem to be so in function. For instance, the sharp cutting-edges described and appearing in Exhibit No. 7 are not described and do not appear in Exhibit No. 12. Their absence, and the substitution in their place by the defendants of the broad bearing-surfaces, was largely commented upon by their counsel on the argument, and it was assumed that such a change effected a substantial difference in the mode of operation of the two dies; but actual experiments shown do not sustain the assumption. It was found that the dividing-ridge in Exhibit 12—the defendants' die—through bearing-surfaces, acted also as cut-offs of the surplus material, and produced substantially the same result as the sharper cutting-edges of Exhibit 7—the complainant's die. A thicker fin was ordinarily left on the outer rim of the article pressed in the one case than in the other, and where a coating material was used less dense than the hard rubber, such as celluloid, it seems that the broad bearing-surface insured a better finish than the cutting-edges by holding more of the material within the dies for solidification and polish; but the construction and mode of operation of the two dies are so substantially alike that the use of Exhibit No. 12 must be held to be an infringement of Exhibit No. 7.

Nothing was brought forward in the case which cast serious doubts upon the originality of the complainant's patent except the Sturges die, Exhibit No. 18, produced by the complainant.

Mr. Sturges says that in the spring or summer of 1865 he made a pair of dies to press up a composition with which he wished to coat an iron buckle to imitate the stitched leather buckle. He pressed up different compositions, experimenting with leather and paper and cloth. He never made any quantity, or ever put any in the market, "being a mere matter of experimenting."

It does not appear that these experiments were successful, as he testifies that he abandoned them and laid the dies away upon the shelf in his shop, where they remained until they were brought out for the purpose of defense in this case. He did not perfect or adopt his invention, if he made one, to successful use. His dies were first made as molds or stuffing-boxes, with holes at the back, through which he forced the composition around the iron frame previously placed in the die. That mode did not work successfully, as the tendency was for the composition to force the iron frame out of place. He then closed up the openings with solder, and instead of forcing in the composition he placed it above and below the iron frame before the die was closed. He experimented alone about a couple of months, and pressed up, with these different materials, probably a half gross of buckles. He fails everywhere in his testimony to indicate that he regarded his device, whether used as a stuffing-box or a die, as of any practical value, and he ceased for years all efforts to make it successful. Under these circumstances what he did must be put in the category of abandoned experiments. "He is the first inventor," says the Supreme Court in *Whitely* vs. *Swayne*, (7 Wall., 685,) "and entitled to the patent, who, being an original discoverer, has first perfected and adapted the invention to actual use." (*Gaylor* vs. *Wilber*, 10 How., 477; *Washburn* vs. *Gould*, 3 Story, 133; *Parham* vs. *The Button Hole Co.*, 4 Fish., 468; *The Corn-Planter Patent*, 23 Wall., 181.)

Let a decree be entered in case No. 1 for an injunction and account, according to the prayer of the bill of complaint.

It is not necessary to make any extended reference to case No. 2. The suit is brought for the infringement of Letters Patent No. 137,873, issued to the complainant April 15, 1873, for "improvements in the manufacture of rubber-coated harness-trimmings."

The patentee says in the specification that the nature of his invention consists in the formation of a die constructed of two or more pieces for stamping and finishing harness or carriage trimmings when a metallic body is covered with suitably-prepared rubber, or other equivalent substances, without having any refuse or surplus material in the die when the process is done, and he alleges that it is an improvement on the patent issued to him February 13, 1872, and reissued in two divisions, November 26, 1872. His claim is for—

The die, constructed substantially as described, for pressing and finishing composition-coated harness or carriage trimmings without leaving any refuse material in them, as set forth.

The improvement therefore consists in a die that finishes and polishes the coated article with no provision for waste or surplus material.

Have the defendants infringed by making or using such a die? They admit in their answer that subsequent to the date of the said Letters Patent No. 137,173, among other experiments made, or caused to be made at their factory in Newark, in the course of perfecting their manufacture of harness-trimmings coated with celluloid, they tried dies of substantially the form and construction and having the same operation described in said letters patent; but such use was only experimental, and the said experiments demonstrated the fact that harness-trimmings coated with celluloid cannot be manufactured in dies thus constructed, and that they accordingly abandoned the experiment.

It should be said, in justice to the candor and frankness of the defendant corporation, that this admission on their part is quite as full on the complainant's proofs. Their superintendent, Lockwood, says that prior to July, 1874, he saw in their factory a die similar to Exhibit No. 8, which it is admitted was constructed according to the patent under consideration, and the complainant, Albright, testified that he visited the defendants' rooms in Newark in October or November, 1873, and saw there one large oval brace-buckle die and one or two ring-dies constructed on the plan of Exhibit No. 8, and also buckles and rings, which, from their general appearance, he believed had been pressed in these dies.

That seems to be the extent of the testimony as to the making and using the die. It is a technical infringement, and is sufficient to authorize an injunction restraining their future use; but no reference will be ordered, as no damage or profits have been shown or suggested.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date August 7, 1877.]

10,138.—Embroidery-Pattern.—EMIL CRISAND, New Haven, Conn., assignor to HENRY ST. JOHN, same place. Application filed July 18, 1877. Term of patent 3½ years.

10,139.—Stoves.—JAMES DWYER, Detroit, Mich., assignor to DETROIT STOVE WORKS, same place. Application filed July 17, 1877. Term of patent 7 years.

10,140 to 10,142, inclusive.—Oil-Cloth.—CHARLES T. MEYER and VICTOR E. MEYER, Bergen, N. J., assignors to EDWARD C. SAMPSON, New York, N. Y. Applications filed July 21, 1877. Term of patents 3½ years.

10,143.—Cooking-Stoves.—JAMES A. LAWSON, Troy, N. Y., assignor to FULLER, WARREN & CO., same place. Application filed June 18, 1877. Term of patent 7 years.

10,144.—Book-Covers.—JOHN BECKER, Boston, Mass., assignor to DANA ESTES and CHARLES E. LAURIAT, same place. Application filed July 5, 1877. Term of patent 7 years.

10,145.—Frames for Sugar-Bowls.—FRANK DUNWORTH, JAMES H. YOUNG, and JAMES A. DUNWORTH, New York, N. Y. Application filed March 30, 1877. Term of patent 3½ years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date August 7, 1877.]

4,986.—Roasted and Ground Coffee.—BARKLEY & HASSON, Baltimore, Md. Application filed July 11, 1877.
"The letters 'O. K.' in an oval."

4,987.—Roasted and Ground Coffee.—BARKLEY & HASSON, Baltimore, Md. Application filed July 11, 1877.
"The figure of a star."

4,988.—Bone and Ivory Articles.—CARLTON J. BATES, Chester, Conn. Application filed May 28, 1877.
"The symbol of the head of a walrus."

4,989.—Medical Preparation.—NATHANIEL K. BROWN, Burlington, Vt. Application filed March 12, 1877.

"The representation of the coat of arms of Vermont, used in connection with the words "Browe's Compound Concentrated Fluid Extract of Buchu."

4,990.—Tonic Beverages.—EOLEN & BYRNE, New York, N. Y. Application filed July 23, 1877.

"The word-symbol 'EXCISE.'"

4,991.—Medical Compound.—COOKE & CO., Washington, D. C., and Philadelphia, Pa. Application filed July 18, 1877.

"The word-symbol 'POPOLIO.'"

4,992.—Cigars, Cigarettes, and Cheroots.—DAVID W. DE FOREST, Brooklyn, N. Y. Application filed June 20, 1877.

"The word-symbol 'SEMI.'"

4,993.—Prepared Moss.—FÉLIX DUFFOUR, New Orleans, La. Application filed July 23, 1877.

"The representation of an anchor."

4,994.—Watches.—ELGIN NATIONAL WATCH COMPANY, Chicago, Ill. Application filed July 10, 1877.

"The word-symbol 'THE AGE.'"

4,995.—Watches.—ELGIN NATIONAL WATCH COMPANY, Chicago, Ill. Application filed July 10, 1877.

"The word-symbol 'LEADER.'"

4,996.—Bitters.—MORITZ EISNER, Philadelphia, Pa., and SAMY MANDEL, New York, N. Y. Application filed June 26, 1877.

"The monogram composed of the letters 'U. A.,' used in connection with the words 'H. Underberg Albrecht, Alleiniger Distillateur des Boonekamp of Maag-Bitter, Rheinberg.'"

4,997.—Reed-Organs.—J. ESTEY & CO., Brattleborough, Vt. Application filed March 7, 1877.

"The word-symbol 'ACCLIMATIZED.'"

4,998.—Fine-Cut Smoking-Tobacco.—G. JAQUET & CO., New Orleans, La. Application filed July 21, 1877.

"The word-symbol 'VICTORY' and a pictorial representation of a farm-yard."

4,999.—Bitters.—JOHNSTON, HOLLOWAY & CO., Philadelphia, Pa. Application filed June 29, 1877.

"The word-symbol 'HOOFLAND'S.'"

5,000.—Medicinal Compound.—JOHNSTON, HOLLOWAY & CO., Philadelphia, Pa. Application filed June 29, 1877.

"The word-symbol 'HOLLOWAY'S.'"

5,001.—Medicinal Compound.—JOHNSTON, HOLLOWAY & CO., Philadelphia, Pa. Application filed June 29, 1877.

"The word-symbol 'HEISKELL.'"

5,002.—Ladies' Dress-Goods.—CONRAD S. JONES and JEFFERSON P. JONES, Philadelphia, Pa. Application filed March 7, 1877.

"The word-symbol 'DEXTER.'"

5,003.—Molasses-Gates.—GEORGE S. LINCOLN & CO., Hartford, Conn. (Re-registration.) Application filed January 4, 1871.

"The word-symbol 'Phoenix.'"

5,004.—Refined Sugar.—F. O. MATTHIESSEN & WICHERS SUGAR REFINING COMPANY, New York, N. Y. Application filed July 17, 1877.

"The word-symbol 'NORTH STAR.'"

5,005.—Medical Compound.—CHARLES J. MOFFETT, Columbus, Ga. Application filed July 23, 1877.

"The word-symbol 'TEETHINA.'"

5,006.—Flour.—BENJAMIN R. PEGRAM, Jr., New York, N. Y. Application filed July 24, 1877.

"The word-symbol 'PRIMA DONNA.'"

5,007.—Brandies and Wines.—RESAULD, FRANÇOIS & CO., New York, N. Y. Application filed July 18, 1877.

"The letter 'R.'"

5,008.—Drapery and Upholstery Trimmings."—CHRISTIAN A. SCHMIDT, Stapleton, N. Y. Application filed June 25, 1877.

"An ornamental and symmetrical design formed of representations of different upholstery-trimmings, the same being more especially arranged on a curtain-pole, from which a large tassel is centrally suspended, while a heavy fringe is placed over the pole, and suspended, drapery-like, at both sides, so as to connect with curved symmetrical gimps, that support at their lower ends a cord, with side drop-hangers and a central festoon-slide."

5,009.—Flour.—FERDINAND SCHUMACHER, Akron, Ohio. Application filed April 27, 1877.

"The number 'EIGHTEEN HUNDRED AND SEVENTY SIX' and the initials 'F. S.'"

5,010.—Rubber Boots.—THE BOSTON RUBBER SHOE COMPANY, Malden and Boston, Mass. Application filed June 8, 1877.

"The word-symbol 'STANDLOOF.'"

5,011.—Wines.—AUGUET WERNER, New York, N. Y. Application filed July 18, 1877.

"The word-symbol 'AMERICA.'"

5,012.—Medical Compound.—EZRA R. WILBUR, Fall River, Mass. Application filed May 31, 1877.

"The words 'DOCTOR WILBUR'S,' the fac-simile of the signature of E. R. Wilbur, and the picture of the man, said man being myself."

5,013.—Malt-Liquors.—CHARLES WOLTERS, Philadelphia Pa. Application filed July 25, 1877.

"The word-symbol 'PROSPECT.'"

5,014.—Mineral Waters and Salts.—COMPANY FERMIERE OF THE THERMAL ESTABLISHMENT OF VICHY, Vichy, France. Application filed April 30, 1877.

"The oval medallion with the representation of the thermal buildings."

5,015.—Preserved Fruits and Vegetables.—FARMERS' FRUIT PRESERVING COMPANY, Five Points, Del. Application filed April 12, 1877.

"The words 'RISING SUN' and the representation of a rising sun."

5,016.—Watches, Chronometers, and Timers.—WILLIAM B. FOWLE, Auburndale, Mass. Application filed February 21, 1877.

"The words 'AUBURNDALE ROTARY.'"

5,017.—Writing-Paper and Envelopes.—MORGAN ENVELOPE COMPANY, Springfield, Mass. Application filed May 19, 1877.

"The representation or symbol of a chess or checker board."

5,018.—Hungarian Wines.—LORENZ REICH, New York, N. Y. Application filed June 4, 1877.

"The representation of the coat of arms of the Austro-Hungarian Empire, and the legend 'Nullum vinum nisi Hungaricum' surrounding said coat of arms, in a circular position, and the letters 'L. R.' underneath."

5,019.—Dentifrices.—RYNEAR OTTO MOSES, New Orleans, La. Application filed June 26, 1877.

"The title 'PHILODONTI,' (tooth friend,) and the representation of a hand with tooth-brush therein, the said hand projecting upward from a cuff surmounting an ornamental border."

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date August 7, 1877.]

1,139.—Title: **"Fall River Standard."**—GEORGE B. DURFEE, Fall River, Mass. Application filed November 21, 1876.

1,140.—Title: **"Our Own."**—GEORGE B. DURFEE, Fall River, Mass. Application filed November 21, 1876.

1,141.—Title: **"Boonekamp of Maag-Bitter."**—MORITZ EISNER, Philadelphia, Pa., and SAMY MENDEL, New York, N. Y. Application filed June 26, 1877.

1,142.—Title: **"Hanford's Purified Rye."**—A. HANFORD & Co., New York, N. Y. Application filed July 26, 1877.

1,143.—Title: **"Hanford's Purified Bourbon."**—A. HANFORD & Co., New York, N. Y. Application filed July 26, 1877.

1,144.—Title: **"Baccarat."**—THEODORE PABST and HENRY ESCH, New York, N. Y. Application filed July 14, 1877.

1,145.—Title: **"C. O. D. One Price Clothing House."**—IG. BLUMENSON & CO., New Orleans, La. Application filed August 1, 1877.

1,146.—Title: **"Non-Corrosive Cylinder Oil."**—EDWARD H. KELLOGG, New York, N. Y. Application filed July 31, 1877.

1,147.—Title: **"The Stock Condition Powder."**—PAINTER & CALVERT, San Francisco, Cal. Application filed August 1, 1877.

1,148.—Title: **"J. J. Rogers' Celebrated Birch Beer."**—JAMES J. ROGERS, Binghamton, N. Y. Application filed July 30, 1877.

1,149.—Title: **"Elixir of Honey."**—SPECIFIC MEDICINE COMPANY, St. Louis, Mo. Application filed August 1, 1877.

1,150.—Title: **"Dr. Adam Bell's Fit Cure."**—SPECIFIC MEDICINE COMPANY, St. Louis, Mo. Application filed August 1, 1877.

When a patent has been allowed, and the application has not been forfeited by delay of six months, if the final fee of twenty dollars is paid before 12 o'clock on Friday, the patent will issue and bear date the following Tuesday.

The Government fee on making application for a patent is fifteen dollars. The final fee is twenty dollars. Usually there are no other Government fees unless the application is appealed.

Letters Patent of the United States do not reach the patentee or owner until about two weeks from the day of their date. The letters, nevertheless, have the force of patents from the time they are signed and sealed.

The "Rules of Practice" are furnished gratis on personal or written application to the Commissioner of Patents.

Where specifications are in print they are furnished with the drawings without extra charge.

Where specifications are printed, copies of same attached to drawings will be furnished without extra cost.

Printed copies of any patent can be obtained commencing with issue of November 26, 1867, to date.

Printed copies of specifications can be procured from No. 59,740, issue of November 20, 1866.

SALE OF SPECIFICATIONS AND DRAWINGS.

Photolithographic copies of the drawings of all patents issued since November 26, 1867, have been produced, and will be sold to the public at 25 cents per patent, or, where twenty or more copies are ordered at one time, at 10 cents per patent.

Coupon-books, to the amount of $2 or more, can be purchased from the Chief Clerk of the Patent Office; the coupons, for 10 cents each, may be filled out at any time, and, on presentation, will entitle the holder to a photolithographic copy of *any* drawing which has been reproduced.

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In addition to the above, the Office has reproduced, and offers for sale at the price mentioned above, all drawings in the following classes, embracing patents granted from 1790 to date. The classes are those of the Examiners:

1. Aeration and Bottling.
2. Apparel.
4. Baths and Closets.
5. Beds.
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7. Beer and Wine.
8. Bleaching and Dyeing.
9. Boats.
10. Bolts, Nuts, and Rivets.
11. Bookbinding.
13. Brakes and Gins.
14. Bridges.
15. Brushes and Brooms.
17. Butchering.
18. Caoutchouc.
19. Carding.
20. Carpentry.
21. Carriages and Wagons.
23. Chemical Misc.
26. Cloth.
28. Cordage.
29. Crinoline and Corsets.
31. Dairy.
33. Drafting.
34. Driers and Kilns.
36. Electricity.
37. Excavators.
38. Felting and Hats.
40. Files.
42. Fire-arms.
44. Fuel.
45. Furniture.
47. Garden and Orchard.
48. Gas.
52. Gunpowder.
53. Hardware manufacture.
55. Harrows.
56. Harvesters.
58. Horology.
59. Horseshoes.
61. Hydraulic Engineering.
62. Ice.
65. Kitchen Utensils.
66. Knitting and Netting.
67. Lamps and Gas fitting.
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71. Manures.
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117. Silk.
118. Spinning.
119. Stabling.
120. Stationery.
124. Stills.
126. Stoves and Furnaces.
127. Sugar.
130. Threshing.
131. Tobacco.
132. Toilet.
134. Tubing and Wire.
135. Umbrellas and Fans.
137. Water Distribution.
138. Water wheels.
139. Weaving.
141. Wood screws.

And the subdivisions of—

Bench-planes.
Bale-ties.
Buttons and Machines.
Combs, &c.

About forty other classes are in progress, and it is hoped that all the drawings remaining, some thirty thousand in number, may be completed during the fiscal year.

The total number of patents of which drawings are complete and offered for sale as above will approximate one hundred and fifty thousand.

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Grove, J. A., Ditching machine	193,815
Guild, C., assignee	193,866
Gundlach, E., Objective for astronomical telescopes	193,816
Hacking, J. G., assignee	193,894
Hamilton, H., Cotton bale tie	193,946
Hamilton, O. M., assignee	193,932
Hammerschlag, S., Waxing paper	193,867
Hardy, W. H., assignee	193,979
Harris, G., Drier for fruit and other articles	193,947
Harris, W. S., Umbrella	193,868
Harvey, L. D., Ventilator in the windows of buildings	193,948
Hawa, W. H., Bessemer converter bottom	193,949
Heath, W., Snap hook	193,950
Heckert, W., Clamp for carpenters and cabinet makers	193,951
Hefner, J., Bee hive	193,869
Hemenway, F. F., Automatic cut off gear for steam engines	193,952
Henry, T., Horseshoe	193,953
Hicks, W. H., Bottle closing device	193,870
Hodges, M. S., Windmill	193,954

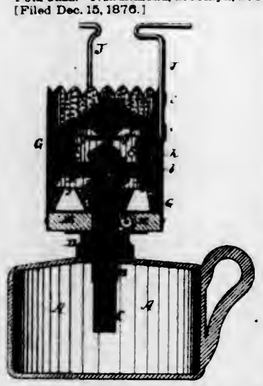
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Hollister, J. F., Grain binder	193,817
Holloway, C. T., Fire extinguisher	193,955
Hood, A. J., Motor for light machinery	193,956
Hopkins & Dickinson Manufacturing Company, assignee	194,021
Hopkins, D. A., Device for lining journal boxes	193,818
Hopkins, F., Whip	193,872
Horn, J. W., Washing machine	193,957
Hornum Patent Register Manufacturing Company, assignee	193,958
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Hotchkiss, A. E., Mechanical movement	193,871
Howard, J. B., Vegetable and fruit slicer	193,959
Hoyt, W. A., Fire escape and extension ladder	193,960
Hunter, J. K., assignee	193,992
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Ioor, J. P., Hemmer for sewing machines	193,873
Jennings, W. P., Jacquard machinery	193,874
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Keats, J., Button	193,964
Keep Manufacturing Company, assignee	193,961
Keppler, C., Street car bell	193,876
Kerper, J., assignee	193,900
Kimball, J. E., and E. Merritt, Nail driving machine for attaching soles to boots and shoes	193,965
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Knight, A., Tool	193,967
Knowles, E. H., and N. A. Briggs, Washing machine	193,892
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Kramer, J., and B. Boke, Side gear for thrashing machines	193,819
Ladd, H. R., and Z. C. Parker, Fetter to prevent cows and horses kicking	193,968
Laprade, P. A., Combined espalier and shelter for vines	193,969
Lauby, J. M., Stove pipe elbow	193,970
Laurence, H., Writing tablet	193,971
Lawler, J. J., Steam radiator	193,877
Lawrence, T. C., Wagon brake	193,878
Leavitt, E. M., Flying target	193,879
Lee, J., Breech loading fire arm	193,821
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Lewis, W. K., Canning beans and pork for food	193,880
Liebmann, H. F. W., Wash board	193,972
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Lindbom, C., Mower	193,881
Livingston, D. M., Nest egg	193,823
Lobdell Car Wheel Company, assignee	193,954
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Locke, F., Derrick step	193,824
Lomb, H., assignee	193,816
Long, S. N., Lamp extinguisher	193,882
Longman, W., Mixed paint	193,974
Loring, D. B., Manufacture of horseshoe nails	193,975
Lott, E. B., assignee	193,979
Ludwig, F. W., Button fastening	193,976
Lux, J., Horse hay fork	193,977
Lyon, S., Corn planter	193,978
Mass, A. W. M., Gas retort	193,959
Macht, C. G., Child's carriage	193,960
Mack, D., Combined seeder and cultivator	193,883
Mahon, J., Jr., assignee	193,825
Mangold, L., Oscillating valve for steam engines	193,981
Marshall, W. L., Automatic canal lock	193,885
Martin, J., Spinning mule and jack	193,884
Marx, F., and J. N. Blasi, Automatic fan	193,886
Maxon, T., Clamp for hoisting monuments, pillars, &c	193,982
McClintock, J. M., assignee	193,931
McFarland, F. J., J. and M. Brown, Churn made of bent wood	193,918
McGovern, P., Spinning mule	193,887
McGrath, M., Draw bridge	193,825
McMurtrie, W., Process of charring the interior of barrels, casks, &c	193,826
McRae, D. B., Circular saw	193,965
Mead, J. F., Plow	193,983
Mecklenborg, J. B., assignee	193,910
Megaw, J., Roll grinding machine	193,984
Melville, F. H., Device for securing and carrying paper bags	193,888
Merrill, R. H. and J. P., assignees	193,914
Merritt, E., and J. E. Kimball, Nail driving machine for attaching soles to boots and shoes	193,965
Montgomery, D. C., Rein holder	193,986
Moore, J. L., Garter	193,987
Morgan, A. W., Pipe for street gas and water stop cock boxes	193,827
Mulliner, F., Elastic wheel tire	193,988
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Nelon, M. D., Screw propeller	193,989
Nelson, N. P., Clearing teeth for ice plows	193,828
Nicholds, L. C., and T. Sanders, Harrow and cultivator	193,999
Nolte, J. F., and C. C. Little, Water filter	194,016
Norton, J. P., assignee	193,864
Nugent, R. C., Machine for forming flanges on boiler heads, (reissue)	7,834
Pae, J. A., Spark arrester and conveyer	193,990
Palmer, W. L., assignee	193,846
Palmer, W. W., Center board for vessels	193,829
Panknin, C. F., Fertilizer	193,890
Parker, Z. C., and H. R. Ladd, Fetter to prevent cows and horses kicking	193,968
Parkhill, A. M., assignee	194,007
Parkison, Long, and McKinney, assignees	193,934
Parsons, J. A., Rotary pump	193,891
Patterson, L., Window sash fastener	193,992
Patterson, W. W., Lightning rod	193,991
Pennie, H., Pipe coupling	193,993
Perkins, J. G., and L. G. Church, Fruit drier	193,924
Peteler, F., Hand binder for harvesters	193,994
Phillips, J. L., Back board wagon	193,892
Phillips, Nimick & Co., assignees, (reissue)	7,834
Piper, A. S., S. and T., assignees	193,828
Price, J. F., Cotton harrow and chopper	193,830
Pusey, J. L., assignee	194,001
Rankin, J. R., Rotary printing press	193,995
Ratcliff, F., Call bell	193,996
Resser, M. W. and P., Stalk cutter	193,997
Reynolds, H. A., Method of producing stereoscopic pictures	193,998
Rice, H. C., Strainer, steeper, and clarifier for tea, coffee, &c	193,891
Rice, J., Scrapar and ditcher	193,893
Rice, O. M., Stench trap	193,831
Richardson, B. A., Fire escape	193,895
Richardson, G. M. and C. C., Horse hay rake, (reissue)	7,836
Ritchel, C. F., Compound and ornamental lumber	193,833
Ritty, S., Horse hay take	193,832
Rix, G. S., Lathe for turning wood	193,834
Rockville, J., Car coupling	193,896
Rogers, H., Shaking and dumping grate for furnaces	193,897
Sanders, T., and L. C. Nichaolds, Harrow and cultivator	193,999
Sargent, J., Door bolt	194,000
Sargent, J., Time lock, (reissue)	7,835
Saunders, T. P., assignee	193,943
Savery, T. H., Roll grinding and finishing machine	194,001
Schaschne, C., Grain huller	194,002
Schlueter, E., Swing	194,003
Schreiner, J. H., assignee	193,859
Scofield, L., Corn planter	194,004
Scott, C., assignee, (reissue)	7,832
Seinecke, A., and J. Fricker, Jr., Ballot box	193,862
Sharp, J. L., assignee	193,993
Sherman, H., Combined dividers and sliding hook	193,898
Sherwood, E. A., Machinery for feeding and attaching buttons	194,005
Shingleton, G. W., Watchman's time detector	194,006
Simonds, A. B., Carbon paper, (reissue)	7,837
Sinclair, H. M., Feather renovator	193,835
Small, E., assignee	193,862
Smith, D., Revolving fire arm	193,836
Smith, E. D., Jr., assignee	193,831
Smith, G. H., Sulky plow	193,899
Smith, J. and A., assignees	193,926
Smith, J. N., assignee	194,011
Smoot, T. E., Garden plow	194,007
Société Dauphinot Martin et Desquilbet, assignee	193,884
Sommerville, W. W., assignee	193,907
Southard, A. M., Corn planter, (reissue)	7,838
Spreen, H. C., assignee	194,010
Stadler, H. A., Device for opening and closing doors of furnaces, &c	194,008
Stanchfield, D., Cultivator	194,009
Stephens, J. L., assignee	193,910
Stewart, E., Beer pump	194,010
Stewart, E. J., assignee	193,948
Stewart, G., assignee	193,883
Stone, J. M. and J. H., assignees	193,887
Stotzman, J. W. and A. D., and A. Deardo ff, Bee hive	193,856
Sullenberger, W. H., Straw cutter	193,900
Sutherland, D. A., Saddle piece for seams of boots and shoes	194,011
Taggart, G. J. A., Fire escape	193,901
Tenner, A., Automatic fire extinguishing apparatus	194,012
Thomas, J. H., Horse hay rake	194,013
Thomas, J. H., Horse hay rake	194,014
Thompson, J. C., Self leveling berth for ships, &c	193,837
Tilman, N. T., Writing ink	194,015
Tittle, C. C., and J. F. Nolte, Water filter	194,016
Trowbridge, A., Jr., Organ stop action	194,017
Van Brunt, G. W., Seeding machine, (reissue)	7,839
Wait, J. B., assignee	194,004
Wardwell, C. P. S., Corn shelling machine	194,018
Weider, J. and J. S., Churn	193,902
Wesson, D. B., assignee	193,836
West, A. J., Process for steaming oil wells	193,838
Weston, T. A., Hoisting tackle	194,019
Wheat, P. H., assignee	193,931
Wheeler, J. E., assignee	193,975
Whipple, J. A., Thill coupling	194,020
White, W. F., Painter's palette	193,904
Whittemore, R. E., Medicated soap	194,021
Widmayer, W. F., Rotary fly for printing presses	194,022
Wiggins, J. G., Door and alarm bell	193,903
Wildrick, D. L., and W. H. Darling, Burglar alarm	193,905
Wiley, J. A., assignee	193,887
Wilson, H. W., and A. Gandy, Thill coupling	193,863
Winkel, W., Door bell	194,021
Winslow, S. E., Holdback iron	193,839
Wood, W. M., Jr., Fire arm	193,906
Woods, W. L., Bill file, (reissue)	7,840
Yale Lock Manufacturing Company, assignee	194,019

TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED AUGUST 7, 1877.

193,796. VAPOR-BURNERS FOR HEATING PURPOSES. T. R. Almond, Brooklyn, N. Y. [Filed Dec. 15, 1876.]



1. The sliding wick-tube B, combined with the cross-bar *d*, stem *e*, and extinguisher-plate *f*, substantially as herein shown and described.

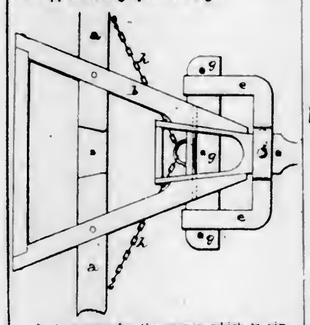
2. The cap I, combined with the chamber, which is formed by the perforated tube H and plate F, substantially as herein shown and described.

3. The perforated tube G, made with sockets *i i*, and combined with the brackets J J, substantially as herein shown and described.

4. The combination of the outer perforated tube G with the inner perforated tube H and connecting shoulder *h*, all arranged to constitute a combustion-chamber for vapors or gases that pass through the horizontal perforations of the tube H, above the shoulder *h*, into the tube G, substantially as specified.

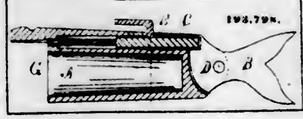
193,797. DRAFT ATTACHMENTS FOR WAGONS. Thomas Andrews, Auroraville, Wis. [Filed July 10, 1877.]

Brief.—The evener is sustained by a metallic support resting upon the tongue.



1. A support for the evener, which is pivoted upon the tongue, and which supports the evener below the level of the tongue, so that the draft will be direct from the axle, substantially as shown.

2. The combination of the axle *a*, bounds *b*, tongue *c*, support *e*, evener *g*, and draft-chains *h*, all parts being combined to operate substantially as specified.

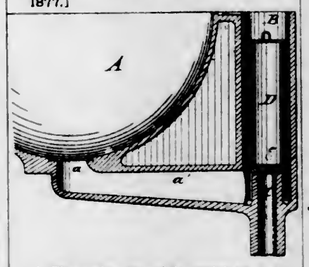


193,798.

193,798. WHIFFLETREE-HOOKS. Newton M. Bowen, Knightstown, Ind. [Filed June 16, 1877.]

In a single-tree attachment, the combination of the ferrule A, having one chamber for the reception of the end of the single-tree, and a separate chamber, G, for the reception and protection of the bolt C, with the pivoted tip B and the bolt C, having the lug E, all constructed, arranged, and operated substantially as herein shown and described, and for the purposes specified.

193,799. VALVE WASH-BASINS. James E. Boyle, Brooklyn, N. Y. [Filed Mar. 6, 1877.]

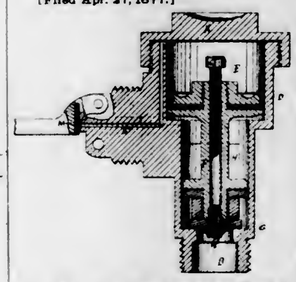


1. The combination of the wash-basin A A, the chambers B B, the water way *a'* from the outlet *a*, and the waste-pipe C, with the float D or its equivalent, substantially as described.

2. The float D, with its sides or periphery extended around the end of the waste pipe C of wash-basin, and below the level of the water in the outlet, so as to form a perfect trap, substantially as described.

3. A valve wash-basin wherein the basin A A, the chamber B B, and the passage or water-way *a'*, and the end of the waste-pipe C are constructed in one piece or together, substantially as described.

193,800. VALVES FOR WATER-CLOSETS, &c. James E. Boyle, Brooklyn, N. Y. [Filed Apr. 27, 1877.]



1. The combination of the pistons D and G, of unequal diameters, the trip-valve M, the water-way J, and stem F, with its aperture, to insure the slow closing of the valve, substantially as described.

2. The pistons D and G, operated in chambers of unequal diameter, and from the larger of which chambers is a discharge water-way, whereby the opening and the closing of the valve shall be due to the differential pressure of the water upon the surfaces of the respective pistons.

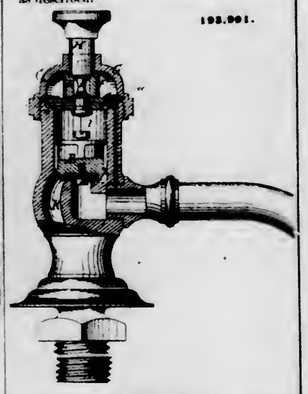
193,801. COCKS OR FAUCETS FOR WASH-BASINS, &c. James E. Boyle, Brooklyn, N. Y. [Filed Mar. 7, 1877.]

Brief.—The valve is opened by pressing down the trip-valve, which allows the water above the gravitating-plug to run out through ways in the side of the faucet. The valve is closed by the pressure of the water.

1. The combination of the gravitating-plug B, operated in the chamber I, with the disk C, the trip-valve D, the water-ways *c* and *a'*, and the groove *a* in cocks or faucets, substantially as described.

2. The combination of the disk C and its horizontal water-ways with the trip-valve D and groove *a* in cocks or faucets, substantially as described.

193,801.



193,802. WASHING-MACHINES. Nicholas A. Briggs and Elijah H. Knowles, Shaker Village, N. H., assignors to said Briggs. [Filed May 17, 1877.]

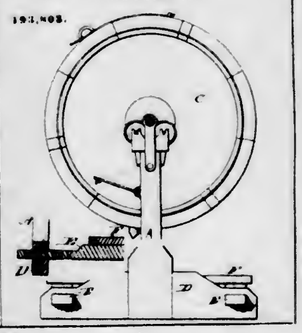
Brief.—The carrier of the pounding or beating blocks is supported on arms, the lower ends of which encompass and slide upon rods attached to the outside of the wash-box. Guards placed upon the top edges of the sides of the wash-box prevent the operator's hand or arm from being accidentally caught and jammed between the uprights of any one of the beating-blocks and the adjacent partition of the wash-box.



1. In the washing-machine, the carrier-supporting arms *a* and rods *b*, applied to the box and carrier, and arranged therewith substantially as set forth.

2. The side guards F, combined and arranged, substantially as set forth, with the box D, the carrier A, and the uprights of the rubbers of the washing-machine.

193,803.



THE GRAPHIC CO. N.Y.

193,802. ROTARY CHURNS. E. Buell, Heuvelton, N. Y. [Filed Feb. 16, 1877.]

The post A and side pieces D, adjustably connected together by the platform F, having cross-bars E, all constructed and arranged to support the churn C, substantially in the manner set forth.

193,804. PRESERVING-KETTLES. John I. Burr, Philadelphia, Pa., assignor to the Barrows Savery Company, (limited,) same place. [Filed Mar. 20, 1877.]



The kettle provided with a slotted handle, F, and spout G, both formed on the rim, and combined with the pivoted or swinging bail D, as and for the purpose set forth.

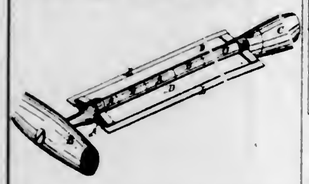
193,805. HARD-METAL TYPES. George W. Casilear, Washington, D. C. [Filed Dec. 16, 1876.]



1. The process herein described of making hard-metal movable type, consisting of engraving the design upon a plate, taking up in relief upon a roll, then rolling into a second plate, routing out the surrounding metal, and subsequent separation, as set forth.

2. As a new article of manufacture, a hard metal movable type for surface-printing, having the design in relief, with the surface surrounding the same routed out, as shown and described.

193,806. CURRIERS' KNIVES. R. E. Chorrington, Holyoke, assignor to C. Guild, Boston, Mass. [Filed Feb. 15, 1877.]



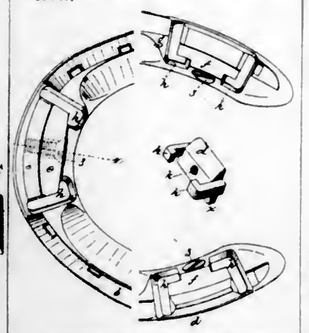
1. In a tool-holder, the tool holding jaws provided with arched recesses, operated upon by a central rod, provided with cams or eccentrics corresponding to such arched recesses, substantially as and for the purpose herein described.

2. In a tool-holder, the central rod F, provided with cams or eccentrics adapted to open and close the tool holding jaws, substantially as shown and described.

3. In combination, the rod F and clamps A and D, with the knives L, substantially as described.

4. In combination, the rod F, clamps A and D, handles B and C, screws H and J, with the knives L, substantially as and for the purpose described.

193,807. HORSESHOES. Jason A. Conkey, Newton, Mass., assignor to himself and E. R. Flint, same place. [Filed Jan. 10, 1877.]

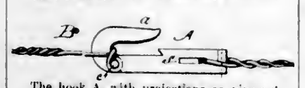


1. The shoe-body provided with isolated projections *e f* at the concaved inner edges at toe and heels, and with a groove, *b*, outside the projections, in combination with a removable calk provided with a portion, *x*, to enter the groove, and with hooked arms to clasp the projections, substantially as described.

2. A calk provided with the inwardly-projecting hooked arms *h* and projecting portion *x*, in combination with projection *e*, substantially as described.

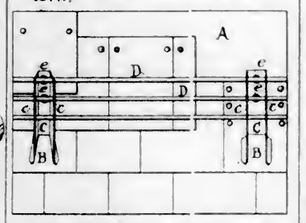
3. The calk provided with the threaded hole *k*, and made as described, in combination with the projection *e* and the screw with shank fitted loosely to the hole in the projection and with a tapering head, substantially as described.

193,808. BALE-TIES. A. F. Dietz, Guilderland Centre, N. Y. [Filed July 9, 1877.]



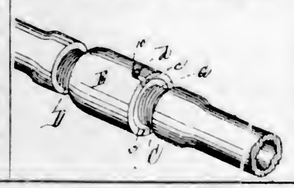
The hook A, with projections or pins *c c'*, and loop B, constructed with two side loops, *c'' c'''*, in combination, and operating substantially as and for the purpose herein set forth.

193,809. SNOW-GUARDS FOR ROOFS. P. A. Dugan, Brooklyn, N. Y. [Filed Apr. 14, 1877.]



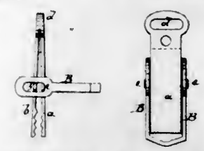
The combination of the iron slates or shingles B, provided with the supports C, having the openings *d* and *e*, and a snow-guard formed of a series of rods, D, constructed and operating substantially as and for the purpose set forth.

193,810. HOSE-COUPLINGS. T. W. Eccleston, Boston, Mass. [Filed June 30, 1877.]



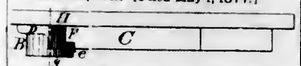
The combination of the screw portion C, with its collar G, provided with pins *d*, the screw portion D, and the screw-sleeve E, with its slots *e*, constructed to operate substantially as and for the purpose described.

193,811. SUSPENDER-CLASPS. F. Eckermann, New York, N. Y. [Filed May 25, 1877.]



The clasp composed of the plates *a b*, pins *e f*, and slotted yoke B, substantially as herein shown and described.

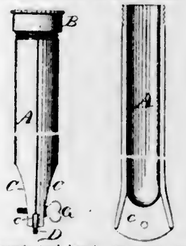
193,812. WAGON-SEAT SPRING-BAR FASTENINGS. E. R. Franklin and S. F. Feavel, Shiloton, Wis. [Filed May 1, 1877.]



A spring bar fastening for wagon seats, consisting of the casing B, provided with slots F and *g* and lugs D and E, and containing the roller H, provided with the socket K, in combination with the spring-bar C, having the notch N, substantially as described.

193,813. ARTISTS' PENCILS. O. P. Gash, Missouri City, Mo. [Filed June 5, 1876.]

Brief.—The tube or handle is supplied with paint, which is deposited by the wheel D upon the surfaces intended to be ornamented.



The artist's tool herein described, consisting of tube A, having cap B and flattened widened end C, recess *c*, and disk D, pivoted upon a set or clamping screw, G, substantially in the manner herein described, for the purposes shown and specified.

193,814. SECTIONAL BOATS. F. D. Graves, Boston, Mass. [Filed Mar. 24, 1877.]

1. The flexible hull or cover G, having the rigid end pieces E, combined with the rigid sectional lining or inner hull, and means, substantially as described, for detachably connecting said outer hull or cover and end pieces to the inner hull or lining, as set forth.

2. The inner hull or lining composed of the sections A, secured together by detachable couplings along the gunwales, and by detachable clamping devices along the bottom, as set forth.

3. The end pieces E, provided with slotted plates F at their upper ends, adapted to receive the ends of the gunwale strips, and with recesses E' at their lower ends, adapted to receive the ends of the clamping-strips, substantially as and for the purpose specified.

4. The gunwale-couplings or locking devices, each composed of a recessed plate, C, having a bolt, *c'*, a tongued plate, D, having an orifice, *d'*, and a clamping-nut, *c*, as set forth.

5. In a sectional boat, the detachable flooring K, combined with the sections A and devices whereby it is detachably clamped to said sections, as set forth.

6. In combination with the sections A, the wooden flooring K, having its grain running transversely of the boat, and the clamping-strips L, having their grain running lengthwise of the boat, as set forth.

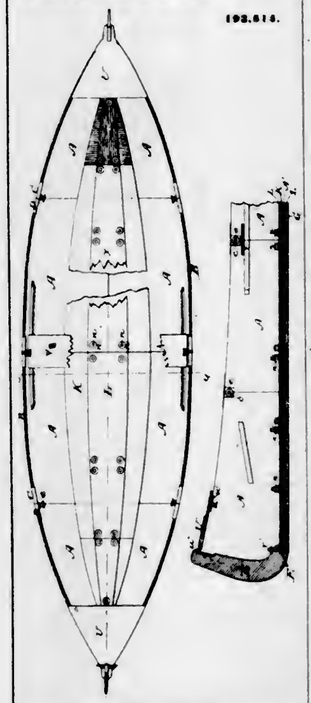
7. The end pieces E, having slotted plates F, combined with the gunwale-strips B, as set forth.

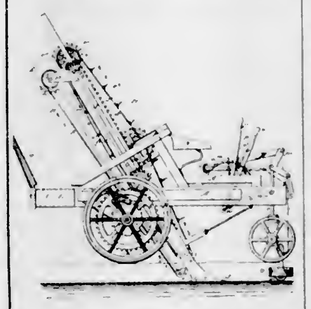
8. The detachable deck-pieces U, having hooks *u*, combined with the sectional hull having staples *u'*, and the end pieces E, having projections *u'*, as set forth.

9. The end pieces E, having recesses E', and adapted to be secured to the ends of the strips L L, as set forth.

10. The thwart piece V, having braces or links *v*, adapted to be detachably connected to the sides of the boat, and prevent the latter from spreading, as set forth.

193,815. DITCHING-MACHINES. John A. Grove, Bluffton, Ind. [Filed May 7, 1877.]





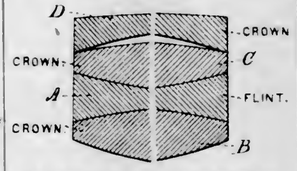
1. The combination, with a ditching-machine having an elevator, D, provided at its lower end with a cutter or cutters, *d*, and having a revolving endless belt or chain, E, buckets *e'*, and a band, F, as described, of the endless delivery-belt L, substantially as set forth.

2. In a ditching-machine, an elevator, D, provided with a cutter or cutters, *d*, belt or chain E, buckets *e'*, and band F, the said elevator D being capable of adjustment vertically in relation to the framing A independently of the driving means, substantially as described.

3. The combination, with a ditching-machine, of a shaft, q^4, provided with a roller, q^5, a loose inclined sleeve, q^6, and a horizontal guide-wheel, Q, constructed and operating substantially as and for the purpose described.

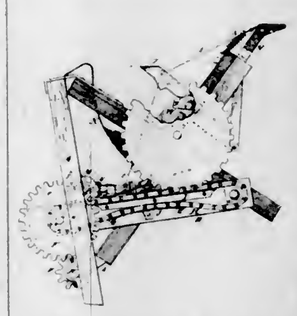
4. The combination, with the beam or under carriage of a ditching-machine, of the sliding plate q^1, hinged shaft q^4, roller q^5, and guide-roller Q, substantially as described.

193,816. OBJECTIVES FOR ASTRONOMICAL TELESCOPES, &c. E. Gundlach, Rochester, assignor of one-half his right to J. J. Bausch, same place, and H. Lomb, Brooklyn, N. Y. [Filed May 21, 1877.]



An objective for telescopes and other optical instruments, wherein the spherical aberration is corrected independent of the chromatic aberration, by means of one or more separate negative (concavo-convex) lenses, the whole constructed in the manner and for the purposes substantially as described.

193,817. GRAIN-BINDERS. J. F. Hollister, Piano, Ill. [Filed Apr. 12, 1876.



1. The wire-carrying arm U, having cap or hood T as a shield to said arm, and as a divider for the flow of grain, constructed and arranged substantially as and for the purpose set forth.

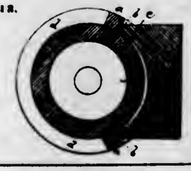
2. In a harvester, the chain H, pin *a a*, and wheel G, and the crank Z, in combination with the pin *b* and wheel K, constructed and arranged substantially as and for the purpose set forth.

3. The combination of the cap T and pins *r* with the cam *q* and crank Z, substantially as and for the purpose set forth.

4. The compressor-wheel W, provided with projecting arms, in combination with the platform X, for forcing the grain into position and compressing it, substantially as set forth.

5. The combination of the cam *i*, arm *j*, and blade *k* with the block *l*, all constructed and operating substantially as set forth.

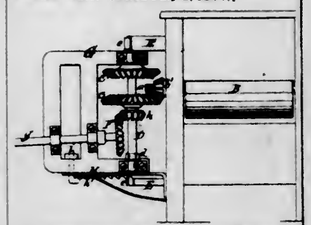
193,818.



193,818. DEVICES FOR LINING JOURNAL-BOXES. D. A. Hopkins, Park Ridge, N. J. [Filed June 28, 1877.]

The mandrel A, provided with the shoulder or collar *d*, with the parallel ribs *a a*, and intermediate ledges *b*, substantially as and for the purpose herein shown and described.

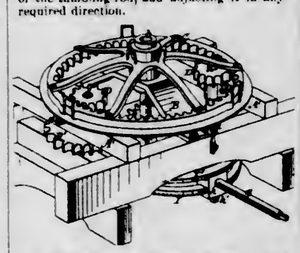
193,819. SIDE GEARS FOR THRASHING-MACHINES. J. Kramer and B. Boke, Maria Stein, Ohio. [Filed July 2, 1877.]



In combination with an adjustable pivoted jack-frame and gearing, adapted for attachment at either side of a thrashing-machine, the two gear-wheels C and C', mounted upon the same adjustable vertical shaft, with the cogs of one facing the other, at such distance apart that the pinion upon either end of the thrashing-cylinder shaft will engage with one at a time, substantially as described.

193,820. HORSE-POWERS. J. Kramer and B. Boke, Maria Stein, Ohio. [Filed July 2, 1877.]

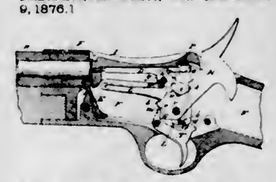
Brief.—The first section of the tumbling-shaft is supported in a sliding box resting upon half-circular guides secured to the frame, and retained in place by a screw-bolt, for the purpose of reducing the friction upon the joints of the tumbling-rod, and adjusting it in any required direction.



1. In combination with a double-geared horse-power, the adjustable sliding bearing *h*, clamping-bolt *h'*, and circular guides I and I', substantially as and for the purpose described.

2. In combination with the vertical central shaft *e* of a double-geared horse-power, the tumbling shaft *g*, sliding box *h*, and circular guides I I', the inner box or bearing H, pivoted to said central shaft, substantially as shown and described.

193,821. BREECH-LOADING FIRE-ARMS. James Lee, Milwaukee, Wis. [Filed Oct. 9, 1876.]



1. The pivot-pin P, provided with the notch or recess *n*, in combination with the firing pin, arranged to engage in said notch, for the purpose of holding said pin in place, substantially as described.

2. The mainspring G, provided with the two spurs or points of bearing *s* and *r*, in combination with the sear C, said parts being constructed and arranged to operate substantially as described.

3. The firing-pin D, provided with the shoul-

der *f*, in combination with the sear C, provided with the hooks or points *h* for drawing back the firing-pin, as set forth.

4. The sear C, pivoted to the breech-piece I in front of the hammer, constructed and arranged to operate substantially as described, whereby it is made to force the hammer back from the firing pin after the arm is fired, as set forth.

5. The spring G, provided with the spur *e*, arranged to press against the under side of the firing pin, and causing the latter to act on the flat side of the pivot-pin P, for the purpose of closing the breech, substantially as described.

6. The combination and arrangement of the sear C, spring G, and hammer H, substantially as described, whereby the spring is made to change its position, and thereby to exert more force on the sear at one time than at another, as set forth.

7. The sear C, provided with the arm *d*, arranged to extend down alongside of or past the hammer, in combination with the trigger T, pivoted below the hammer, substantially as described.

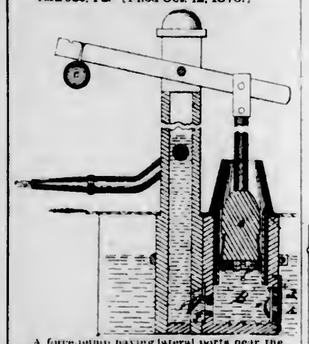
8. The hammer H, provided with the notches *c* and *c'*, in combination with the trigger T and sear C, constructed to operate as described, whereby the trigger is made to hold the hammer at half-cock, and the sear to hold it at full-cock, substantially as described.

9. The stop or projection *i*, formed on the depending arms of the breech-block, in relation to the bearing point of the spring on the hammer, substantially as described, for the purpose of arresting the movement of the spring, and leaving the hammer free to be thrown back, as set forth.

10. The hammer H, provided with the projection *o*, arranged to operate on the front arm of the trigger, for the purpose of causing the rear end of the trigger to ride up behind the arms of the breech-block, and thereby lock the latter in position when the hammer is cocked, as set forth.

11. The combination of the swinging breech-block, with a rebounding hammer, substantially as set forth.

193,822. FORCE-PUMPS. John M. Lemon, Latrobe, Pa. [Filed Oct. 12, 1876.]



A force-pump having lateral ports near the base and at its opposite exterior sides, one of them (a valved eduction-port) communicating with the stock, its vertical pistons being ovoid in their upper parts and working into corresponding caps, and carrying flaring elastic packings beneath, substantially as and for the purpose described.

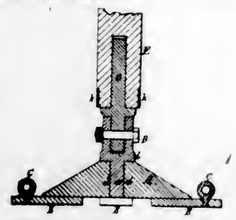
193,823. NEST-EGGS. D. M. Livingston, Needham, Mass. [Filed Feb. 20, 1877.]



As a new manufacture, an artificial egg or egg-shell, porous in whole or in part, or provided with a porous stopper, and charged with a liquid or solid from which there shall emanate and escape through the pores of such shell or stopper a substance, gas, or odor destructive or detrimental or obnoxious to insects or creatures such as usually infest a nest or a bird while setting thereon.

193,824. DERRICK-STEPS. Francis Locke, Gloucester, Mass. [Filed July 10, 1877.]

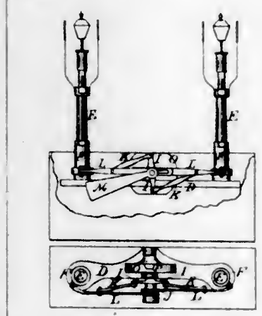
Brief.—A derrick composed of a single boom, provided with a hinged movable step having eyebolts, to receive ropes to stay the step in place, is to rest upon a deck or platform, in any desirable direction.

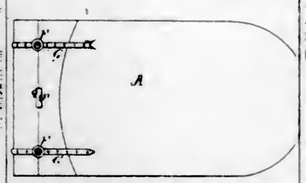


1. The derrick-step composed of the frustum A, the support-pieces B B B B, and eye-bolts C C, arranged as set forth.

2. The combination of the derrick-step, composed of the frustum A and support-pieces B B B B, with the pivoted and studded hinge D and the boom E, all arranged and applied substantially as shown and explained.

193,825. DRAW-BRIDGES. M. McGrath, Clewsland, Ohio, assignor of one-half of his right to J. Mahon, Jr. [Filed Nov. 10, 1876.]





The combination of the sleeves F F, slides L L, pitmen K K, cranks I I, shaft J, disk O, and levers M M with the posts E E, gates G G, and the bridge A, when constructed and arranged to operate substantially as and for the purpose set forth.

193,826. PROCESSES OF CHARRING THE INTERIOR OF BARRELS, CASKS, &c. William McMurtrie, Oxford Township, Warren County, N. J. [Filed Feb. 15, 1877.]

The process of charring the interior of barrels or other vessels of wood, which consists in introducing to the said vessels air heated previously to any temperature above 160° centigrade, or steam or gases previously heated to any temperature above 230° centigrade, according to the degree of charring desired, substantially as described.

193,827. PIPES FOR STREET GAS AND WATER STOP-COCK BOXES. A. W. Morgan, Buffalo, N. Y. [Filed June 20, 1877.]

In connection with street gas and water boxes, the pipes A A', constructed or cast with the spirals or screw-threads *a a*, one pipe turning on the other, for the purpose of making them adjustable, substantially as specified.

193,827.



193,828. CLEARING-TEETH FOR ICE-PLOWS. Nels P. Nelson, Chicago, Ill., assignor of one-half his right to A. S. Piper, S. Piper, and T. Piper, same place. [Filed Jan. 22, 1877.]

Brief.—The clearing-tooth has two front edge-blades, one of them removable, and presents a concave backwardly-inclined clearing surface.



1. In an ice-plow, the forward or clearing tooth B, constructed with its front edge concave or grooved to its extreme point, whereby the channel is cleared by raising the ice therefrom, substantially as described.

2. The clearing-tooth B, constructed from two blades, D and E, having their front edges beveled to form a groove when arranged side by side, and the blade E being made removable, substantially as and for the purpose set forth.

193,829. CENTER-BOARDS FOR VESSELS. W. W. Palmer, Jersey City, N. J. [Filed May 17, 1877.]

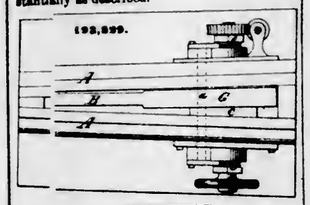
Brief.—The center-board is adjustable sidewise, to assist in steering and in trimming the vessel.

1. A center-board adjustable laterally at its front end by means of followers C C applied on opposite sides of it, in combination with adjusting-screws D D, substantially as described.

2. In combination with the follower-blocks C C, a laterally-adjustable center-board, as described, and the adjusting-screws D D and packings for preventing leakage, as specified.

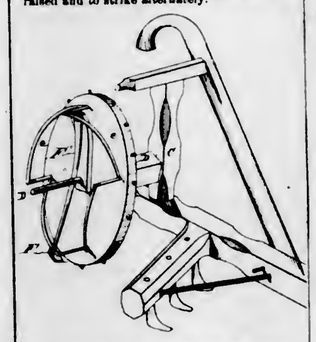
3. The tapered re-enforcement G, located at the upper front corner of a center-board, substantially as described.

193,829.



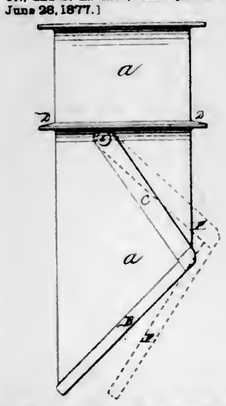
193,830. COTTON HARROW AND CHOPPER. J. F. Price, Lincoln, Tenn. [Filed Nov. 16, 1876.]

Brief.—A wheel is attached to the frame of a cultivator or harrow. On the outer side of the wheel is a series of cams. A hoe with a spring-shank is secured to the wheel. As the latter revolves, the cams cause the hoe to be raised and to strike alternately.



A cotton-chopper composed of the shaft D, the wheel E, having the cams *e*, and the hoe F, with its spring-shank F', in combination with the standard C of a cultivator-frame, and with the diagonal brace *f*, substantially as shown and described.

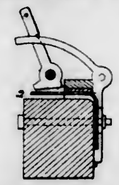
193,831. STENCH-TRAPS. Obed M. Rice, Rochester, N. Y., assignor to E. D. Smith, Jr., and S. M. Rice, same place. [Filed June 28, 1877.]



1. The combination of the obliquely-truncated pipe *a*, the valve B, and the arms *c*, substantially as described.

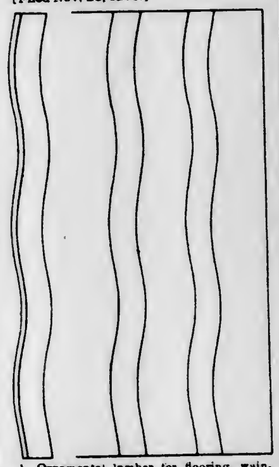
2. The combination of the pipe *a*, provided with flanges D, and the flap-valve B, supported by arms *c c* on opposite sides of the pipe, substantially as and for the purposes set forth.

193,832. HORSE HAY-RAKES. S. Ritty, Dayton, Ohio, assignor of one-half his right to J. Dodds, same place. [Filed Aug. 18, 1876.]



The combination of the arm *w*, supported on a rod for operating pawls with reference to ratchet-wheels, the gravitating-latch S, for holding said arm during discharge, the adjustable spring Q, for holding the pawls clear of said ratchet-wheels when not required in discharging a horse-rake, substantially as set forth.

193,833. COMPOUND AND ORNAMENTAL LUMBER. Charles F. Ritchel, Corry, Pa. [Filed Nov. 20, 1876.]

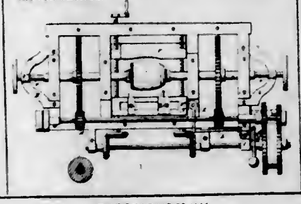


1. Ornamental lumber for flooring, wainscoting, table-tops, or other articles composed of strips of like or different woods, whose joining edges are indented or wavy, substantially as described and shown, and for the purposes set forth.

2. Compound lumber composed of parallel strips of like or different woods, whose joining edges are indented or wavy, substantially as described and shown, thus giving the glue-joint greater attaching-surface and additional strength, as set forth.

193,834. LATHES FOR TURNING WOOD. G. S. Rix, Concord, N. H. [Filed Jan. 22, 1877.]

Brief.—The material is placed in a lathe, both centers of which revolve, and reduced to the desired form by means of automatically-moved cutters.

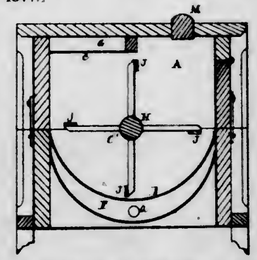


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1. The combination of the weighted lever I, having a spiral thread, the loose gear-wheels, and the intermediate disk H, as described.

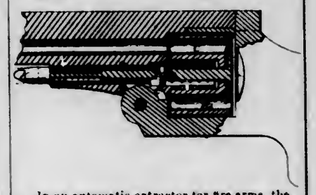
2. The combination of the weighted lever and the releasing mechanism, consisting of the pin J, lever K, bar L, and catch l^2, as described.

193,835. FEATHER-RENOVATORS. H. M. Sinclair, Bellevue, Ohio. [Filed May 26, 1877.]



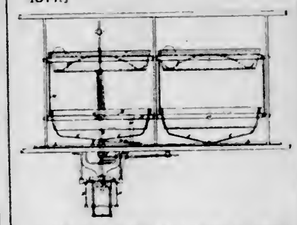
The combination of upper section A, having vapor-opening provided with plug M, and steam-chamber G, provided with steam-inlet *e* and foraminous plate *c*, the lower section B, having close drying-chamber F, provided with steam inlet and outlet, and the rotary agitator, consisting of crank shaft H, pivoted between the two sections, and having arms I and beaters J, the whole adapted to operate substantially as and for the purpose set forth.

193,836. REVOLVING FIRE-ARMS. Dexter Smith, Springfield, Mass., assignor to D. B. Wesson, same place. [Filed June 12, 1877.]



In an automatic extractor for fire-arms, the combination of a fixed projection with a sliding piece arranged in connection with the extractor-stem, said sliding piece having a backward movement when engaged with the fixed projection to extract the shells, and having also a movement forward independent of the extractor, to enable it to engage with the fixed projection, and place itself in position to extract the shells, substantially as described.

193,837. SELF-LEVELING BERTHS FOR SHIPS, &c. J. C. Thompson, Brooklyn, N. Y., assignor of three-eighths of his right to C. Fitz, New Orleans, La. [Filed Apr. 10, 1877.]



1. The combination of a series of berths capable of longitudinal and transverse vibration with a governing weight, as and for the purposes described.

2. The combination of two or more berths capable of longitudinal and transverse vibration, with rods connecting the ends thereof, as and for the purposes described.

3. The combination of a series of berths

capable of longitudinal vibration with a frame capable of transverse vibrations, as and for the purposes described.

4. The combination of two or more frames in which cots or berths are suspended, arranged one above the other, with a connecting-rod, as and for the purposes described.

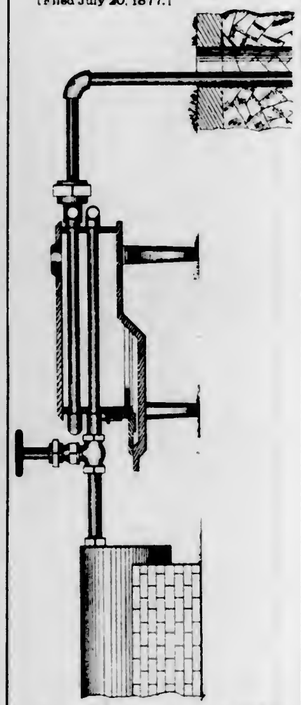
5. The combination of a series of bars, pivoted to the ends of the berths, and a reciprocating rod, whereby a longitudinal vibratory movement is imparted to a series of berths.

6. The combination of a frame, arranged about the weight and bell-cranks, connected with the vertical reciprocating rods, through the medium of which the transverse vibrations of the weight are imparted to the bars in which the berths are suspended.

7. The combination of the reciprocating shafts J J, bell-cranks H, and rod G, whereby the motion of the shafts J may be transmitted to another series of berths, as and for the purposes described.

8. The crank K, connected by suitable rods or shafts to the weight O, whereby the longitudinal vibrations of the weight are imparted to the rod L, as and for the purposes described.

193,838. PROCESSES FOR STEAMING OIL-WELLS. A. J. West, Connsautville Pa. [Filed July 20, 1877.]

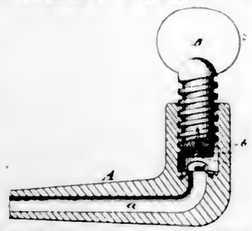


The process herein described of steaming oil wells by causing to flow therein a jet or current of superheated steam, substantially as and for the purpose set forth.

193,839. HOLDBACK-IRONS. S. E. Winslow, Augusta, Me. [Filed June 7, 1877.]

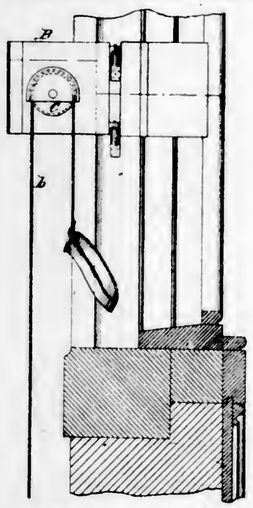
A holdback iron for the thills of carriages, having the threaded projection A, by which it is secured to the thill, in combination with the spring C and the pivoted arm D, having its rear end with faces nearly at right angles to each other, against which the spring C presses, whereby the arm D is kept closed when turned down, and open when turned up, substantially as described.

193,840. FAUCETS. Thomas A. Andrews, Gainesville, Tex. [Filed May 5, 1877.]



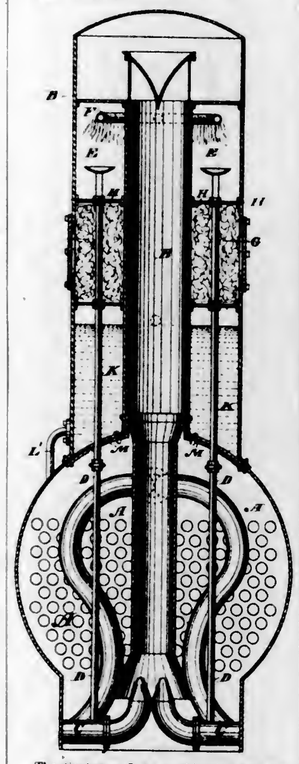
The combination of internally-threaded L-shaped body A, having valve-seat a and oblong aperture a^2, the screw B, having the projection b and the elastic packing secured to screw B, as and for the purpose specified.

193,841. FIRE-ESCAPES. T. A. Andrews, Gainesville, Tex. [Filed June 18, 1877.]



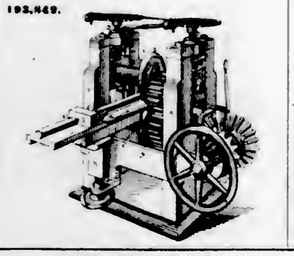
A fire-escape arranged within a receptacle in a window-frame, having door B, with pulley C on the inside, and having its rope b always over said pulley, as shown and described, so that it may be used at a moment's notice.

193,842. FEED-WATER HEATERS AND FILTERS. W. J. Austin, Chicago, Ill. [Filed Feb. 7, 1877.]

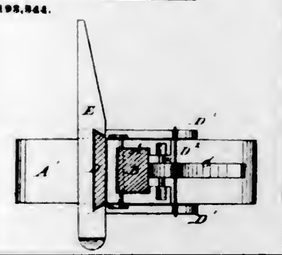


The diaphragm L, in combination with the exhaust-steam pipes C, the exhaust steam pipes D, the circular or annular perforated supply-water pipe F, the spray-water chamber E, the hot filtered-water chamber K, and the smoke-stack B, as shown and described, and for the purpose set forth.

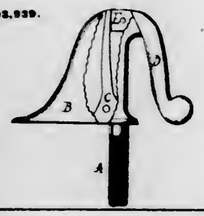
193,843.



193,844.



193,939.

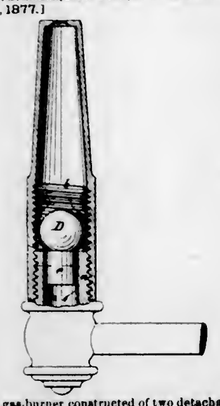


193,844. LIFTING-JACKS. S. Barrow and D. Barrow, Windfall, Ind. [Filed June 18, 1877.]

1. In combination with the notched-lifting-bar B, guided in notched standard A, the adjustable lever C, link b, and pivoted pawl c, arranged substantially as described.

2. The plate D, with its fastenings D^1 D^2 d, and the adjustable arm E, in combination with the standard A and lifting-bar B, substantially as described.

193,845. GAS-BURNERS. Wm. Bedell and W. S. Bedell, New York, N. Y. [Filed July 13, 1877.]

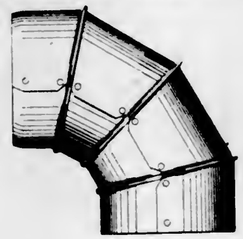


A gas-burner constructed of two detachable tubular sections, and having combined with it a regulating-valve, D, on which is constructed a tail or guide, e, forming an auxiliary regulator, substantially in the manner and for the purpose specified.

193,846. PROCESSES OF TREATING BLOOD FOR FORMING ORNAMENTAL ARTICLES. J. Bliss, Jersey City, N. J., and F. O. Badger, Brooklyn, N. Y., assignors, by mesne assignments, to W. L. Palmer, New York city. [Filed Apr. 20, 1877.]

The process of treating blood alone for making articles of use or ornament by reducing it to a dry and powdered or fine condition, and subjecting it to heat and pressure in suitable molds or dies, substantially as set forth.

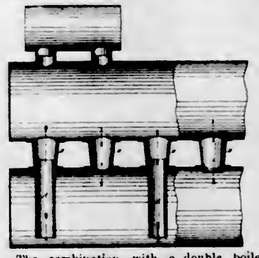
193,847. STOVE-PIPE ELBOWS. G. Choate, East Saginaw, Mich. [Filed Mar. 3, 1877.]





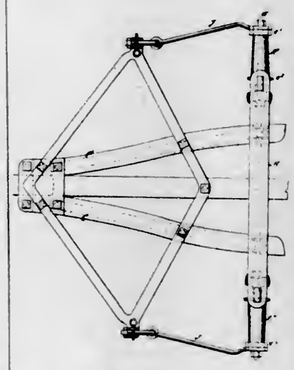
The stove-pipe elbow herein described, formed of a blank cut on three similar but oppositely-arranged reversed curves from a rectangular piece of metal, and formed with rivet-holes, for the purpose set forth, as shown in Fig. 2 of drawing.

193,848. STEAM-BOILERS. Henry S. Coleman, Chelmsford, England. [Filed July 21, 1877.]



The combination, with a double boiler, whose two parts are connected by short tubes B, of circulation-tubes A, forming downward continuations of each alternate connecting-tube, said circulation-tubes extending to within a few inches of the bottom of the lower shell, for the purpose of determining a circulation of the water, as shown and described.

193,849. TRUSSED WAGON-AXLES. C. E. Cookerly, South Pueblo, Colo., assignor to W. Farnsworth, same place. [Filed June 26, 1877.]

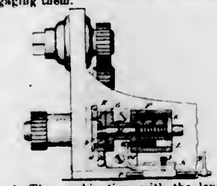


1. The combination of the skein-bridges F and the truss-rod G with the skeins E and the axle A, substantially as herein shown and described.

2. The combination of the jointed rods J and the frame K with the nuts e^1, the axle A, and the hounds C, substantially as herein shown and described.

193,850. STOPS FOR ENGINE-LATHES. C. A. Cooley, East Hartford, Conn. [Filed June 26, 1877.]

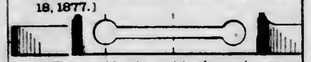
Brief.—The rod having been adjusted, the tool-carriage strikes the arm on the rod the instant the work is done, withdraws the bolt from the notched disk, and the spring in the barrel turns the shaft, about which it is coiled, and the disk with its pin, and throws the lever carrying the gears down, thereby disengaging them.



1. The combination, with the lever E, of the disk I, having the pin c, a spring, a detent, and a tripping device, substantially as and for the purpose herein shown and described.

2. The barrel F, having formed on it the sleeve a^1 and disk G, the shaft H, spring O, disks K I, spring-bolt L, and the tripping device, consisting of the rod P, having the arm g, and the adjustable head N, in combination, substantially as herein shown and described.

193,851. YIELDING CAR-PLATFORMS. R. A. Cowell, Cleveland, Ohio, [Filed May 18, 1877.]



1. The combination, with the spring-controlling arm centrally pivoted to a cross-head, and the supplemental platform of the springs directly connecting the extremities of the said arm with the respective end portions of the platform, substantially as described.

2. The combination, with a spring-controlling arm pivoted within a recessed cross-head, of the supplemental platform directly bearing against pressure-springs, the said platform fitting about the cross-head and having its tread-board sliding freely over the same, substantially as described.

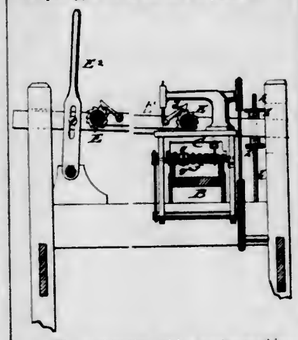
3. The combination, with the spring controlling arm, pivoted to a cross-head and formed with front stud projections, of the supplemental platform formed with counter projections, and the intermediate springs fitting over the said projections, substantially as described.

4. The combination, with the recessed cross-head A, of a bearing-plate, C, and spring controlling arm D, pivoted in said bearing-plate, substantially as and for the purpose described.

5. The combination, with the recessed cross-head A, of a bearing-plate, C, spring-controlling arm D, springs E, and supplemental yielding platform G, the latter provided with slots g^1, and secured to the cross-head through the medium of a bolt, substantially as and for the purpose described.

193,852. QUILTING-MACHINES. John J. Crall, Dry Ridge, Mo. [Filed Dec. 23, 1876.]

Brief.—The quilt is wound on rollers supported by a frame, which is adjusted laterally by levers. The sewing-machine is gradually moved across the fabric by the following means: The driving-shaft of the machine is connected, by a belt, with a shaft, on which are a loose differential pulley and a laterally-sliding, but axially-keyed, clutch, operated by a hand-lever. A cord passes from one end to the other of the track on which the carriage of the sewing-machine runs, passing over a guiding pulley and the loose differential pulley. The rate of speed at which the carriage travels is governed by the size of the groove on the differential pulley, in which the cord is placed.



1. The combination, with a sewing-machine arranged on a carriage, as shown and described, of the cord g, attached at the ends to staples g^1, the differential pulley and the sliding pulley g^2, substantially as shown and described.

2. The combination of the stretching front and back rollers E, having ratchet and pawl mechanism, with the adjustable slide-pieces E^1 and hand-levers E^2, to feed fabric to sewing-machine, substantially as specified.

193,853. ADDING-MACHINES. M. M. Oram, Mankato, Minn. [Filed Apr. 19, 1877.]

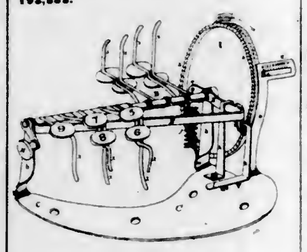
1. The hanged ratchet-wheel A, having on its periphery numbered spaces indicating units and tens, with the hub *a'* extended on one side and screw-threaded exteriorly, the arm D, with screw-threaded socket *d'*, and carrying the pointer *d*, substantially as shown.

2. The base plate C, standards *b*, and standard *c*, with indicator-scale *c'*, all cut from one piece of sheet metal.

3. The pawl *i*, attached to the yoke E, rectangular lever *k*, pivoted to the base-plate, and having a spring under the part *l*, and a catch on the upper end of the lever, and also a side lug engaging with the pawl *i*, as shown and described, and for the purpose specified.

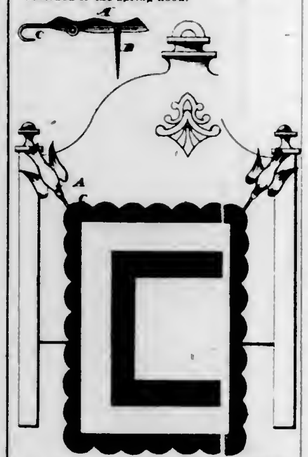
4. The standards *b*, supporting the shaft B, the yoke E, having the extended end *e* connected to a spring, for the purpose specified, in combination with stop *h* and the nine digit-keys, pivoted or swung to the shaft, and resting in front on the yoke, the keys having downward-extending stop ends of variable length, the said parts operating in connection with the ratchet-wheel A, as shown and described.

193,853.



193,854. DEVICES FOR SECURING PILLOW-SHAMS. John R. Cross, Cleveland, Ohio. [Filed Feb. 26, 1877.]

Brief.—The holder is secured to the head-board or post by the screw, and the sham is attached to the spring hook.



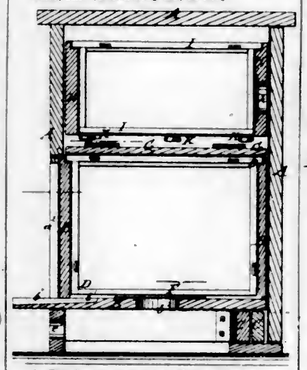
A pillow sham catch or holder, consisting of the plate A, having a screw, B, rigidly secured to one end, and a spring hook or clamp to the opposite end of the plate, substantially as described.

193,855. CARTRIDGES. Isaac Davis, Fitzwilliam, N. H. [Filed July 23, 1877.]



A cartridge having a shell made in two or more sections, connected by plugs, and each containing separate charges of explosive, the plugs and bullets being provided with nipples for receiving percussion-caps, substantially as shown and described.

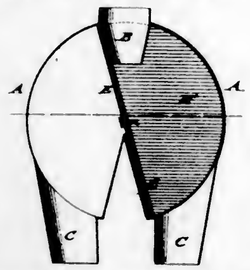
193,856. BEE-HIVES. A. Deardorff, J. W. Stutsman, and A. D. Stutsman, Morrisonville, Ill. [Filed May 28, 1877.]



1. The honey or top board G, made in three parts hinged to each other at their adjacent edges, to adapt it to be folded together to uncover the side comb-frames, substantially as herein shown and described.

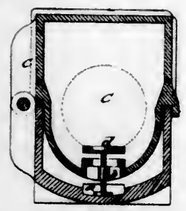
2. The folding bars C, attached to the main hive A, to support and serve as a way for the brood-chamber B, substantially as herein shown and described.

193,857. WATER CUT-OFFS. J. G. Diem, St. Francisville, La. [Filed June 4, 1877.]



As an improvement in water cut-offs, a cylindrical main body, A, having supply-pipe B, with conical interior end and discharge-pipes C C, with inclined separating-walls, in combination with a centrally-pivoted gate, E, having semicircular side guide-walls E', substantially in the manner and for the purpose set forth.

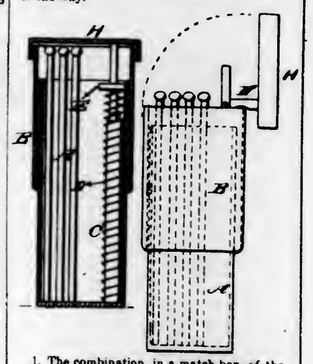
193,858. CAR-AXLE-BOXES. R. B. Eason, New York, N. Y., assignor to himself and S. A. Allen, same place. [Filed June 18, 1877.]



The combination, with car-axle box, of the casings B C and sliding valve *d*, all constructed and arranged substantially as and for the purpose specified.

193,859. MATCH-BOXES. H. Ellig, Philadelphia, Pa., assignor to himself and J. H. Schreiner, same place. [Filed July 2, 1877.]

Brief.—The spring holds the top down and the case B up. Access is gained to the matches by forcing the cylinder A up through case B, which action also throws the top over and out of the way.

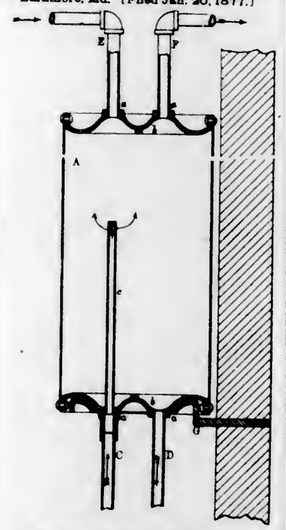


1. The combination, in a match-box, of the stud or standard C, plate E, attached to the sliding case B, and a spring, D, as set forth.

2. The lid H, arm F, projection G, and plate E, the arm being pivoted to the stud or standard C, all combined substantially as described and represented, and for the purpose set forth.

3. The combination, with the match-box A, of the cylinder B, the stud C, the spring D, the plate E, the arm F, having projection G, and pivoted to the standard C, and the lid H, substantially as described, and for the purpose set forth.

193,860. KITCHEN-BOILERS. B. H. Frazer, Baltimore, Md. [Filed Jan. 20, 1877.]



1. In a kitchen or range boiler, the heads thereof consisting of flanged plates provided with the annular corrugations or annular grooves and ribbed inner surfaces, substantially as set forth

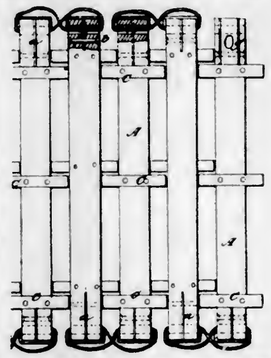
2. In combination with the heads of a kitchen or range boiler, the pipes C, D, E, and F, relatively arranged with respect to the said heads, substantially as described.

3. A kitchen or range boiler having annular grooved and ribbed heads at each end thereof, as described, the said heads being

provided with cylindrical lugs *a* and fitted with pipes C D E F, as and for the purposes specified.

193,861. FIRE-ESCAPES. B. F. Frank, Colfax, Cal. [Filed June 30, 1877.]

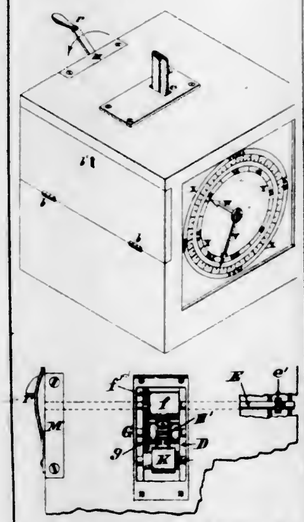
Brief.—The slats of a bed bottom are provided with short transverse strips, which serve as rounds or steps. The slats are connected together at their ends, thus forming a ladder.



Slats A, flexibly connected together, and having cross-pieces C secured to them, substantially in the manner and for the purposes described.

193,862. BALLOT-BOXES. J. Fricker, Jr., and A. Seinecke, Cincinnati, Ohio. [Filed Mar. 29, 1877.]

Brief.—During the deposit of each ballot a gong is struck once, a register indicates an additional unit on a dial, and printing devices imprint upon the ballot the ward or any desired characters. A lock retains a crank upon the shaft, and when the crank is removed the lock is adapted to prevent the rotation of the shaft either by accident or design.



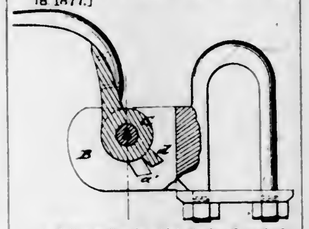
1. The combination, with a ballot-box, of a gong or bell for giving audible notice of the deposit of each ticket, said gong or bell being operated by means of the driving-shaft that forces the ticket into the box with a positive movement, substantially as herein described and for the purpose set forth.

2. A ballot-box having combined with it suitable devices for canceling each ticket and announcing each deposit audibly with a bell, and visibly with indicators and dials, substantially as herein described, and for the purpose set forth.

3. In combination with pinion *e'* of driving-shaft E of a ballot-box, the striking wheel S *s*, for operating the annunciator T *t t' t''* at the deposit of each ticket in the box, substantially as herein described, and for the purpose set forth.

4. In combination with driving-shaft E *e*, lock M *m m'*, and socketed crank P *p*, Q *q*, the two-throw bolt N O O' O'', for locking said shaft and crank, substantially as herein described, and for the purpose set forth.

193,863. THILL-COUPLINGS. A. Gandy and H. W. Wilson, Freeport, Ohio. [Filed June 18 1877.]



A thill-coupling in which the lug *d* on shaft-sleeve C fits a recess, *a'*, in one of the clip-lugs B, as shown and described, whereby the thills may be upheld.

193,864. WHIPS. A. F. Gerald, Augusta, assignor of one-half his right to J. P. Norton, Lewiston, Me. [Filed Mar. 19, 1877.]

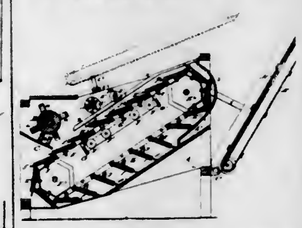


A whip having a core composed of a number of small wires, the wires being greater in number or larger in size at the butt, and decreasing in number toward the tip.

193,865. METHODS OF REPAIRING STRUCTURES WITH BETON OR CONCRETE. J. C. Goodridge, Jr., New York, N. Y. [Filed Mar. 21, 1877.]

The within-described method of repairing and replacing structures formed wholly or in part of stone, brick, or metal, or cock in its natural position, by the employment of beton or concrete, substantially in the manner set forth.

193,866. THRASHING-MACHINES. James P. Gordon and John W. Gordon, Coal Valley, Ill. [Filed Feb. 26, 1877.]



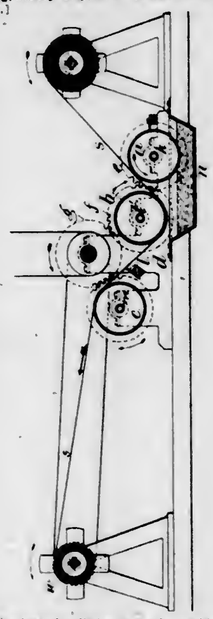
1. An improved grain-separator, consisting of a revolving beater, revolving stirrer, and endless carrier with tilting sections, as shown and described.

2. The revolving thrashing-cylinder B, having tapering teeth with convex sides, in combination with an adjustable part, C, having intermediate concave teeth, substantially for the purpose described.

3. The combination, with tilting carrier sections, of curved end guide pieces *k'*, substantially as and for the purpose specified.

4. The combination of frame A, having bearings *i'*, and the swinging stacker, connected with said frame by arms *i*, in the manner and for the purpose set forth.

193,867. WAXING PAPER. S. Hammerschlag, Jersey City, N. J. [Filed June 4, 1877.]



1. The heated cylinders *a b c*, in combination with the trough *s*, the scraper *l*, and mechanism for revolving the cylinder *c* in the opposite direction to the movement of the paper with which it is in contact, substantially as set forth.

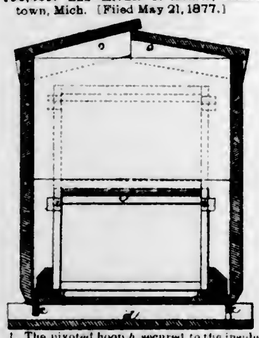
2. The method herein set forth of waxing paper, consisting in spreading the wax upon the surface, heating the paper from the opposite side, to spread and fuse the wax into the fabric of the paper, removing the surplus wax, and remelting and polishing the wax upon the paper, substantially as set forth.

193,868. UMBRELLAS. William S. Harris, Brooklyn, N. Y. [Filed June 18, 1877.]



An umbrella stick having upon its taper portion the bow-spring D, provided with a lug, G, constructed and arranged to operate substantially as shown and described.

193,869. BEE-HIVES. J. Hefner, Jamestown, Mich. [Filed May 21, 1877.]

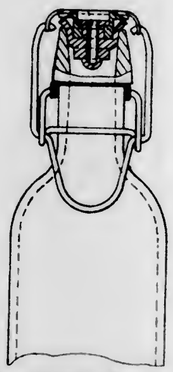


1. The pivoted hoop *b*, secured to the inside of the lower section as a support for the honey-frames, substantially as shown.

2. The combination of the hoop *b*, section *a*, and honey frames *f*, the frames being placed inside of and resting on the hoop, whereby a space is left all around the frames to be packed with bran, substantially as set forth.

3. The combination of the hoop *b* and the strips *c*, the strips being made adjustable up and down between the hoop and the section, so as to afford ventilation for the hive, substantially as specified.

193,870. BOTTLE-CLOSING DEVICES. Wm. H. Hicks, Brooklyn, N. Y. [Filed June 11, 1877.]



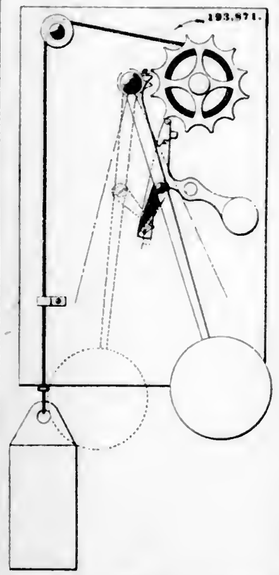
1. The combination, substantially as hereinbefore described, of a closing mechanism, a cap-piece, carrying a compressible packing-piece, provided with an opening or perforation through it closed by the elasticity of the surrounding material independent of the cap-piece, all arranged to operate substantially in the manner and for the purposes set forth.

2. A compressible packing piece, substantially as hereinbefore described, provided with one or more perforations or slits through the convex or tapering surface at its base, closed by its own elasticity independently of the cap-piece, substantially as and for the purposes set forth.

193,871. MECHANICAL MOVEMENTS. A. E. Hotchkiss, Cheshire, Conn. [Filed Dec. 30, 1876.]

Brief.—A pendulum and escapement. A tooth suspended from the former passes over a notch in a weighted pallet, and fails to operate the escapement until the swing of the pendulum has slackened to the necessary degree.

In combination with a free reciprocating device, an impulse-wheel with power applied thereto to give a rotary movement, a stop to arrest and hold the said wheel, with a trip in connection with the said reciprocating device, by means of which the reciprocation will intermittently trip the said stop and free the wheel, substantially as specified.



193,872. WHIPS. Frank Hopkins, Helena, Mont. [Filed June 18, 1877.]



The combination, with a whip-stock, of the end ferrule, provided with a socket at its outer end, a swivel held in the socket, and a snapping linked to the swivel for holding the lash, all arranged and constructed substantially as shown and described.

193,873. HEMMERS FOR SEWING-MACHINES. John P. Ioor, Indianapolis, Ind. [Filed Apr. 30, 1877.]

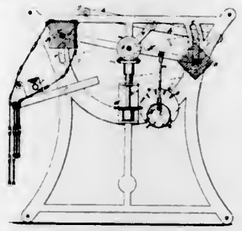
Brief.—The device is adjustable for hems of different widths.



The plate A, having offset B, tapering edge-guide *b*, ear *c*, and rib *f*, in combination with plate C, having guide *d*, the bar D, slotted bar E, screw *g*, and plate F, all constructed and arranged as and for the purpose specified.

193,874. JACQUARD MACHINES. W. P. Jennings, Brooklyn, N. Y. [Filed May 12, 1877.]

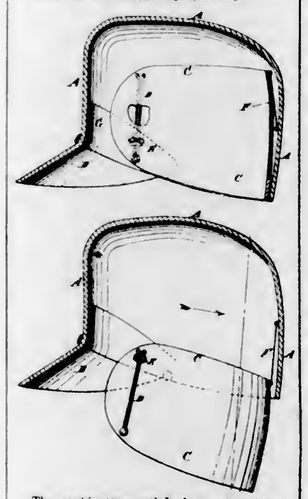
Brief.—First, a cam-wheel of peculiar construction, in connection with gearing and rotating arms, gives positive intermittent motion to the card-cylinder. Second, a heater is combined with the cards in such a manner that the latter are not injured by moisture in the air.



1. A rotary shaft having cam D, with narrow feathered leaves *e* and two broad feathered leaves, *f*, in combination with the spur-wheel G on a vertical shaft, G', bevel-wheels *m*, shaft *b*, arms *g g'*, rods *k*, and cylinders B, as and for the purpose specified.

2. In combination with the cards of a jacquard, a heater or drier, J, arranged substantially as described.

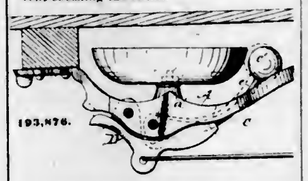
193,875. CAPS. S. Katz and W. Katz, New York, N. Y. [Filed July 9, 1877.]



The combination, with body A, of the band C, the slide D, the guide-eye E, and the frame F, all constructed and arranged as and for the purpose specified.

193,876. STREET-CAR BELLS. C. Keppler, New York, N. Y. [Filed June 5, 1877.]

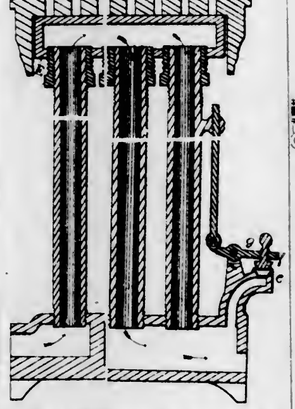
Brief.—The movement of the lever which operates the hammer is arrested before the latter strikes the bell, and the stroke is completed by the momentum of the hammer. After completing its stroke the hammer, being unsupported, falls away from the bell to prevent checking the sound.



In combination with a suppporting-bracket, A, centrally divided, as described, a bell-hammer, C, pivoted to the bracket and adapted to move between the divisions of the same, and lever D, the hammer and lever both being pivoted to the bracket, substantially as described.

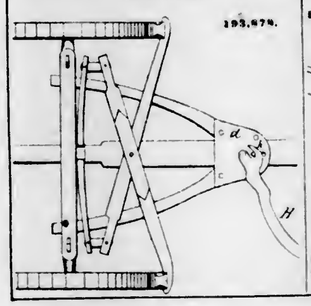
193,877. STEAM-RADIATORS. J. J. Lawler, Scranton, Pa., assignor of one-half of his right to J. W. Brock, same place. [Filed June 27, 1877.]

Brief.—The end of each pipe is screwed about an inch into the bushing. The bushing is then screwed into the top nearly to its seat. The lower end of the pipe is then inserted in the base and turned to the desired position. The bushing is then turned to its place. Its thread being slightly larger on the outside than on the inside, its tendency is to advance with greater rapidity, and the parts are thus drawn tightly and firmly together.



1. In a steam-radiator, the combination of a pipe and bushing, having an outer thread larger than its inner thread, with the base and top-piece, as and for the purpose specified.

2. The combination of a steam radiator with a valve and fulcrumed lever attached to the radiator, substantially as shown and described.

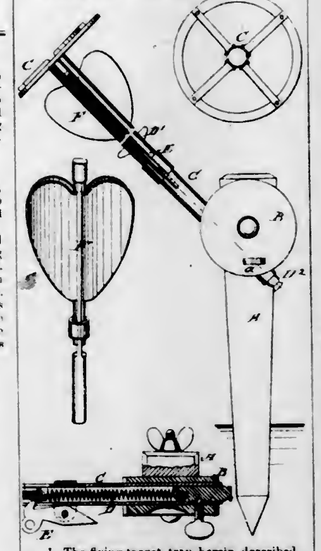


193,878. WAGON-BRAKES. Theodore C. Lawrence, Ladoga, Ind. [Filed Mar. 31, 1877.]

1. The lever H, having an arm, *h*, and pivoted to the metal plate *d*, in combination with the reciprocating bar.

2. The combination of the lever H, the metal plates *d*, the reciprocating bar, the brake-bars, and the equalizing bar, as and for the purposes described.

193,879. FLYING TARGETS. E. M. Leavitt, Auburn, Me. [Filed July 9, 1877.]



1. The flying-target trap herein described, consisting essentially of the upright stake A, adjustable socket B, slotted barrel C, spring D, and catch E, substantially as and for the purpose set forth.

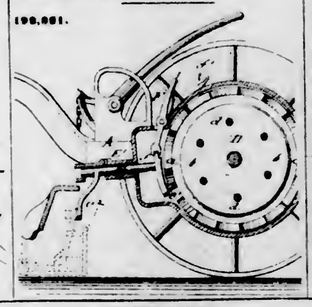
2. The combination of the slotted barrel C with the sliding and spring-acted cross-head D', catch E, released by string, and tension-adjusting end piston D', substantially as specified.

3. The flying target F, consisting of a dart-shaped body having front wings, as and for the purpose set forth

193,880. CANNING BEANS AND PORK FOR FOOD. William K. Lewis, Boston, Mass. [Filed June 12, 1877.]

The process, substantially as described, of putting up baked beans for the market, the same consisting in first parboiling the beans, then placing them in a can with pork, and hermetically sealing the can, and afterward subjecting the can containing the parboiled beans and the pork to the action of heated water or steam, whereby the same are prepared for immediate use.

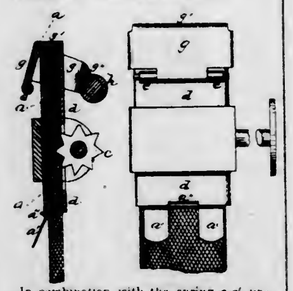
193,881.



193,881. MOWERS. Carl Lindbom, Stockholm Sweden. [Filed Apr. 30, 1877.]

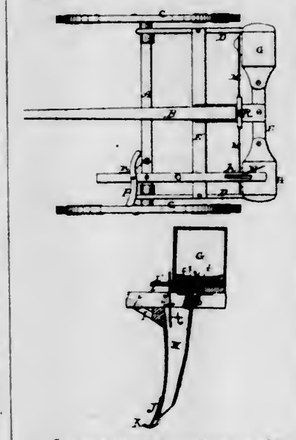
The combination of the sliding and rocking-shaft E, having front and rear crank-arms, crank-pin *e'*, and lug *f*, the frame having the guide-tube E', spring-pressed lever F, and catch *f'*, with the wave-wheel D and cutter-bar, all constructed and relatively arranged as herein set forth, for the purpose specified.

193,882. LAMP-EXTINGUISHERS. Saml. N. Long, Dennis, Mass., assignor of three-fifths he his right to S. S. Baker and E. Small, same place. [Filed May 28, 1877.]



In combination with the spring *a a'*, provided with the shoulder *a''*, the extinguisher *g g'*, provided with arms *g''* and weight *h*, and hinged to said spring *a*, substantially as and for the purpose herein set forth.

193,883. COMBINED SEEDER AND CULTIVATOR. David Mack, Barnesville, assignor of one-half his right to G. Stewart and H. Ebey, Rockville, Kans. [Filed Apr. 11, 1877.]



1. In a corn-planter, the combination of the adjustable hollow tube or conductor H, the slotted brace I, shovel J, and runner K, slotted at its front end, all substantially as and for the purposes herein set forth.

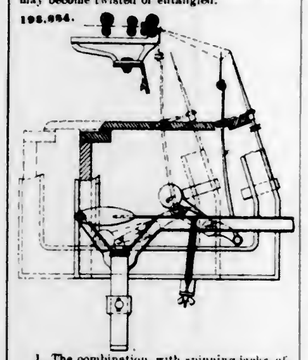
2. The combination, with the plates L L' under each hopper G, of the cross-bar M, pivoted lever N, slotted pivoted lever O, with pin, the finger P, and the knockers *n* on the spokes of the wheel C, all substantially as and for the purposes herein set forth.

193,884. SPINNING MULES AND JACKS. J. Martin, Reims, France, assignor to Societé Douphinot Martin et Desquibet, same place. [Filed June 12, 1877.]

Brief.—To the frame or carriage of the mule is secured a rod carrying sets of hooked needles, which correspond in number with the threads carried by the mule. A reciprocating motion is imparted to the needle-bar, so that the hooked needles thereon shall pass between the threads during the inward run of the car-

riage, and when said carriage has nearly completed its inward run the needles are withdrawn, thereby breaking any two threads that may become twisted or entangled.

193,884.

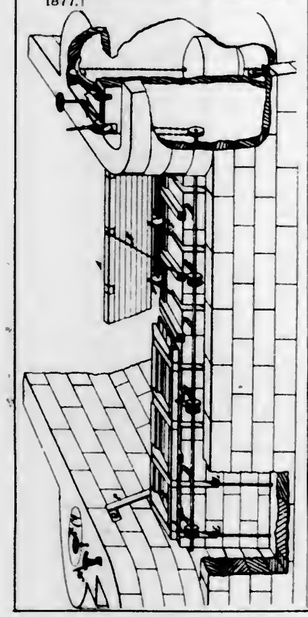


1. The combination, with spinning-jacks of otherwise ordinary or suitable construction, and whether applied to the carriage or any stationary portion of the same, of a bar extending the whole length of the jack, and carrying hook-needles at distances apart to correspond with the intervals of threads preceding from drawing-rolls, such bar being operated substantially as herein shown and described, so that the said needles shall engage in and cause the breakage of any interlaced threads or double twists, substantially as set forth.

2. The hook-needles shaped or formed substantially as herein shown and described, so that the same shall engage with the interlaced or twisted threads or yarns in their descending movement, substantially as herein shown and set forth.

3. The combination, with the double-twist-breaking needles, of mechanism to actuate the same, substantially as shown and described, so as to impart to the same a reciprocating movement, whether the same be oscillatory or other, substantially as described.

193,885. AUTOMATIC CANAL-LOCKS. W. L. Marshall, U. S. Army. [Filed July 2, 1877.]



1. A lock-gate hinged near its center of pressure, substantially as described, so that in its upward and downward movement it shall revolve about a movable or shifting axis, for the purposes set forth.

2. In combination with a vertically-moving lock-gate, a double series of rods hinged thereto and to the foundation, one series being located above the other, substantially as shown and described.

3. In combination with a lock-gate, a double series of rods hinged thereto and to the foundation, the upper series being provided with a water-brake, the whole operating substantially as set forth.

4. In combination with a rod which forms a portion of the hinge of a lock-gate, a water-brake operating substantially as set forth, and carrying a guide to prevent kinking or binding of the piston-rod, as explained.

5. In combination with a lock-gate, a maneuvering-axle located parallel with the axis of said gate, at a point near the lower most position thereof, the same being provided with drums to receive the maneuvering-chains, and adapted to receive motion from a power applied to said axle, substantially as set forth.

6. A sill or heurter constructed and arranged substantially as explained, and connected with sleepers in front and sliding bars in rear, for the purpose of preventing damage to the gate, the whole being combined as set forth.

7. In combination with a lock-gate which swings about a movable axis, the heel-chains, located at suitable intervals along the edge of said gate, and operating to prevent its jumping, substantially in the manner explained.

8. In combination with a lock-gate, a block-wall, recessed, as explained, for the purpose of affording access of water to the rear of the joint-closer, substantially as set forth.

9. In combination with a vertically-moving lock-gate, a joint-closer attached to the lock-walls, and made automatically adjustable, substantially as set forth.

10. In combination with a lock-gate hinged at or near its lower edge, an elastic joint-closer secured to the lock-wall, and adapted to close the joint between the gate and said wall, by abutting against the end of the gate when the latter is in an elevated position, in the manner and for the purposes shown and described.

11. In combination with a valve located in a lock-gate, a second or supplementary valve connected therewith, by the opening of which latter the center of pressure on the whole valve-surface is changed from one side of its axis to the other, substantially as explained.

12. In combination with a valve located in a lock-gate, a spring attached to some convenient portion of the lock, and adapted to close said valve when the gate is opened, for the purposes set forth.

13. In combination with a valve-system in a lock-gate, a locking contrivance adapted to secure said valve after it has been automatically closed, in the manner set forth.

14. In combination with a locking contrivance connected with a valve in a lock-gate, a rod projecting to the upper surface of said gate, and adapted to control the locking mechanism, substantially in the manner shown and described.

15. The herein-described lock-walls, recessed or provided with suitable wells to receive the operating-buoys, substantially as set forth.

16. In combination with the buoy-wells, a channel or passage leading thereto from the lock-chamber, for the purposes set forth.

17. The herein-described buoys, combined with the gate-operating mechanism, substantially as described, so that the gates may be lowered or dragged under water by means of the power derived from the buoyant effort of the water, substantially as explained.

18. In combination with the buoys or weights, which are elevated by the buoyant effort of the water, an endless chain operating to communicate motion to the maneuvering-axle, substantially as described.

19. In combination with a buoy or weight adapted to be elevated by the buoyant effort of the water, an endless chain operating to communicate motion, substantially as explained, and a friction-clutch or clamp adapted to arrest the motion of said buoy, for the purposes set forth.

20. The combination of buoys or weights, the driving-chain, a maneuvering-axle located below the gate, and carrying the chain-drums, and a series of chains attached to said gate at suitable intervals, substantially as described.

21. In combination with the maneuvering-shaft of a lock-gate, a series of water-pipes, arranged to throw jets upon or under the chain-drums, for the purpose of keeping them clear of sediment, substantially as specified.

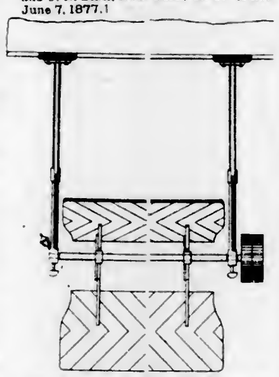
22. A series of water-pipes laid along the bottom of the lock-chamber, and adapted to keep the same clear of sediment, said series being connected or combined with a main pipe leading from a higher level, substantially as set forth.

23. In a canal-lock, a main pipe leading from the upper level or from the waste-weir, as explained, the same being provided with a gate or valve, and combined with a series of pipes in the lock-chamber, whereby the surplus water of the canal may be utilized for filling or clearing said lock-chamber, as set forth.

24. In a canal-lock, the combination of an upper and a lower gate, both being adapted to be elevated and depressed by the buoyant effort of the water, substantially as explained.

25. In a canal-lock, the combination of an upper and a lower gate, the former being connected with a buoy adapted to depress it during the ascending movement of said buoy, and the latter being connected with a weight adapted to depress it during the descending movement of said weight, substantially as specified.

193,886. AUTOMATIC FANS. Felix Marx and J. N. Blasi, New York, N. Y. [Filed June 7, 1877.]



The combination of two or more horizontal fans in a frame arranged to revolve in opposite directions, substantially as described and shown, and for the purpose specified.

193,887. SPINNING-MULES. P McGovern, North Andover, Mass., assignor to G. L. Davis, J. A. Wiley, J. M. Stone, G. G. Davis, J. H. Stone, and J. H. Davis, same place. [Filed Apr. 8, 1876.]

Brief.—Improvement on Letters Patent Nos. 113,784 and 138,511; and consists, first, in the combination of parts for connecting the winding-on clutch to the faller-lock; second, in the means for keeping the carriage square while being run out and in; third, in the combination of parts for setting the mainspring, which, when released, imparts the various movements to the mule; fourth, in the construction of the backing-off pulley, its cone, and the drawing-in clutch, and their arrangement with respect to the other parts of the mule; fifth, in the counter for registering the number of drafts of yarn, and the means employed for operating the same; and, sixth, in the construction of the twist-clock, and the means made use of for operating it.

1. The combination of the winding-clutch on the main drum, for driving the spindles, with the faller-lock and a yielding connection, operating substantially as described.

2. The combination, with the carriage, of the long shaft N and its series of pulleys N', and fixed cords or bands winding upon the same, and operating substantially as described.

3. The combination of the rod Y with the wrist-pin Z and its driving-gear, and the scroll-shaft T, whereby the mainspring W is set by the revolution of said scroll-shaft, substantially as described.

4. The combination, with the scroll-shaft T and the shipper S, of the backing-off pulley and the cone and the drawing-in clutch, the said pulley being free to revolve upon the scroll-shaft as an axle, the said cone and

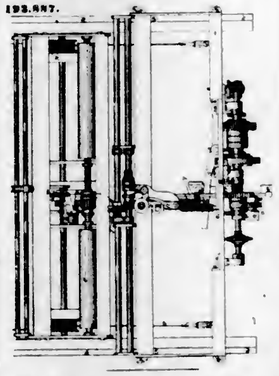
drawing-in clutch being made in one piece, whereby, by the operation of the shipper-lever, the different parts of the mule are put into operation in their proper order to perform the different functions necessary to spinning and winding up the yarn, as specified.

5. The combination of the counter e, which registers the number of drafts of yarn made, with the scroll-shaft T and connecting mechanism, substantially as described, whereby the movement of its driving-pawl is continuously under the control of the movement of the said scroll-shaft, substantially as described.

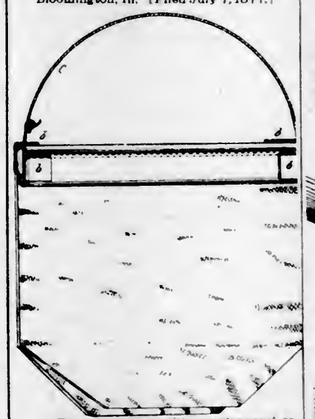
6. The combination of the driving-pawl of the counter with the scroll-shaft T by means of the worm and segmental gear, operating substantially as described.

7. The combination and arrangement of the twist-clock slide and the drawing-in scroll-shaft T, substantially as described, whereby the twist-clock will be put in gear with its driving mechanism by the action of said shaft, substantially as described.

193,887.



193,889. DEVICES FOR SECURING AND CARRYING PAPER BAGS. Frank H. Melville, Bloomington, Ill. [Filed July 7, 1877.]



The combination, with a water-proof or other paper bag, of a detachable metallic strip, B, applied thereto substantially as herein shown and described.

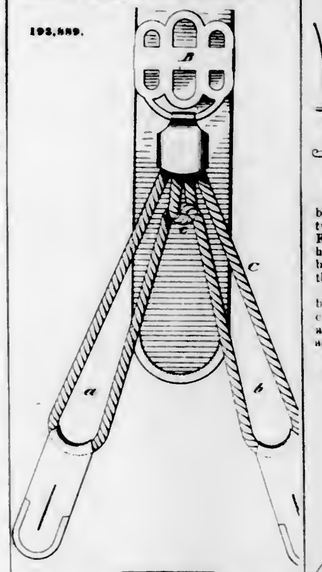
2. The metallic strip, B formed from a single blank of metal, cut entirely through on the lines *a a*, and folded over longitudinally and centrally, substantially in the manner herein shown and described.

3. The combination, with a paper bag, of the metallic strip B, inclosing the cord C, substantially as and for the purpose specified.

193,890. SUSPENDER-ENDS. J. H. Murfey, New York, N. Y. [Filed July 9, 1877.]

The suspender-end herein described, consisting, essentially, of a clip or fastening, A, and the cord C, formed into the adjustable loops *a b* and the short retaining-loop *c*, substantially as herein shown and described.

193,889.

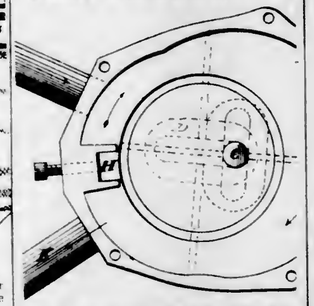


193,890. FERTILIZERS. Chas. F. Panknin, Charleston, S. C. [Filed Apr. 16, 1877.]

A compound consisting of ninety-five parts of phosphate of lime and five parts of sulphur, each having been comminuted and mixed, as described.

193,891. ROTARY PUMPS. J. A. Parsons, Cleveland, Ohio. [Filed Feb. 28, 1877.]

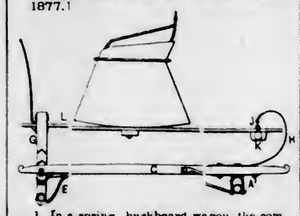
Brief.—Power being applied to the shaft, water is sucked in the direction of the arrow. One of the sliding pistons passes beyond the projection. When the piston comes in contact with the sides of the case, it gradually recedes until the projection is opposite the piston. When the piston recedes within the periphery of the drum, the water is forced, by the action of the piston, out of the exit-pipe.



1. The combination, with the casing, having a circular groove located eccentrically in one head of the same, of a slotted drum having a shaft rigidly secured thereto, and pistons connected by a yoke, within which is inserted a bearing-pin, substantially as and for the purpose set forth.

2. The combination, with the casing and adjustable abutment located between the induction and eduction ports of the same, of a slotted drum arranged eccentrically within the casing, and pistons connected to a yoke, which latter is supported by an independent bearing-pin, substantially as and for the purpose set forth.

193,892. BUCKBOARD-WAGONS. James L. Phillips, Lowville, N. Y. [Filed May 18, 1877.]



1. In a spring-buckboard wagon, the combination of the spring-buckboard L, hung between the side reaches C C, the forward bar K of which is attached to the bolster or cross-head B by shackles J J and C-spring G, the brace E, cross-reach D, and axle A, as and for the purposes described.

2. In a spring buckboard wagon, the combination of the spring-buckboard L, the rear cross-bar K, and leather or iron shackles J, and C-springs H, with the side reaches C C, as and for the purpose described.

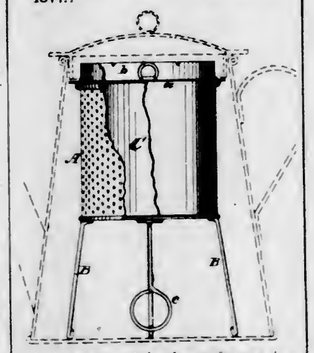
193,893. SCRAPER AND DITCHER. J. Rice, Liberty, Mo. [Filed June 18, 1877.]



1. As an improvement in triangular scrapers, the bars A and B, pivoted together and provided, respectively, with flat and concave face-plates, which project above and below the parts A B, as shown and described, to adapt the scraper for use, as specified.

2. The combination of the detachable cap-block G with the upper corner of the angle of the scraper, substantially as herein shown and described.

193,894. STRAINER, STEEPER, AND CLARIFIER FOR TEA, COFFEE, &c. H. C. Rice, Louisiana, Mo., assignor of one-half his right to J. G. Hacking. [Filed Mar. 27, 1877.]

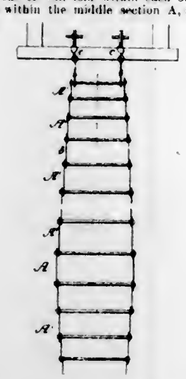


1. As a new article of manufacture, the combination of the perforated or gauze receptacle A, the elastic legs B B, and the removable imperforated cylinder C, all arranged in the manner substantially as herein set forth.

2. As an article of manufacture, the perforated receptacle A, having legs B B, and the perforated cover *a*, having an elevated ledge or rim, *b*, all combined and arranged as and for the purposes set forth.

193,895. FIRE-ESCAPES. B. A. Richardson, Norfolk, Va. [Filed June 11, 1877.]

A fire-escape ladder having one large link-section, A, at or near the middle, and on each side, pivoted thereto, smaller ones, A', successively decreasing in size toward each end, as shown and described, so that all the link-sections A' will fold within each other, and then within the middle section A, as specified.



193,896. CAR-COUPLINGS. J. Rockwell, Ponca, Nebr. [Filed June 11, 1877.]



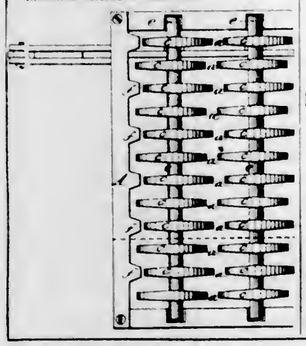
1. The combination of draw-head B with draft-hook D, link-piece D^1, pivoted wire-loop D^2, and operating-lever D^3, to throw the coupling-hook forward or draw it back into the draw-head, substantially as specified.

2. The combination of the pivoted lower coupling-jaw, being extended to the rear end of the draw-head, and having recessed rear part, with the laterally-swinging and weighted catch-block E, having lever E^2, substantially as described.

3. The recessed rear end of the lower jaw C, having pivoted lifting-lever C^2, with rings or eyes *a*, in combination with the supporting-pin *b* of the draw-head, to retain jaws in open and uncoupled position, substantially as set forth.

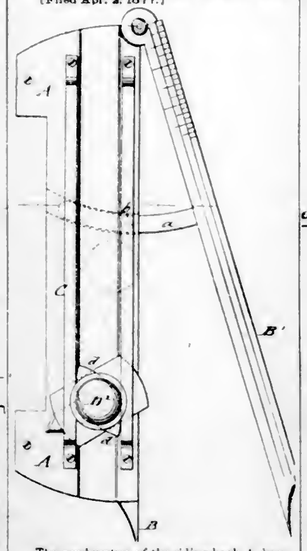
193,897. SHAKING AND DUMPING GRATES FOR FURNACES. Harry Rogers, Janesville, Wis., assignor to himself and J. H. Rogers. [Filed Feb. 12, 1877.]

Brief.—Each shaft is provided with a series of fingers or bars, made circular on top, and forming the grate-surface. Each finger is eccentric with the shaft in a horizontal direction, and with the bars in each series alternating with each other in their location upon the shaft, so that the long end of one finger will correspond with the short end of the finger on the next adjoining shaft, whereby, on shaking the bars, a zigzag opening would be made in an unbroken surface of a coal-fire.



The combination of the rock-shafts *c c*, resting and operating in suitable bearings, the series of grate-bars *c c*, made circular on their upper sides, and eccentric horizontally with and upon said rock-shafts, so that the bars upon each shaft alternate with each other in their location upon the shaft, the arms B and the connecting-rod D, by means of which the whole series of bars are operated, all substantially as herein described.

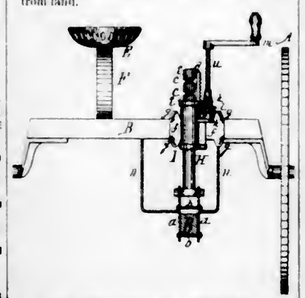
193,898. COMBINED DIVIDERS AND SIDING-HOOK. Homer Sherman, Flushing, Mich. [Filed Apr. 2, 1877.]



The combination of the siding-hook A, having a straight back, a fixed point, B, at one end, and a half-knuckle joint at the other end, with the pivoted divider-leg B^1, provided with a half-knuckle joint, as and for the purpose set forth.

193,899. SULKY-PLOWS. Geo. H. Smith, Rockford, Ill. [Filed June 7, 1877.]

Brief.—Plow-beam suspended from a vertical shaft, upon which it vibrates vertically and rotates horizontally. The shaft has a geared rack at one side, with studs which fit into annular grooves upon the shaft. A crank-screw elevates the shaft in a socket. The latter is cast with a bed-plate, which pivots upon another clamped to the axle. These devices serve to level the plow, and to move it to or from land.

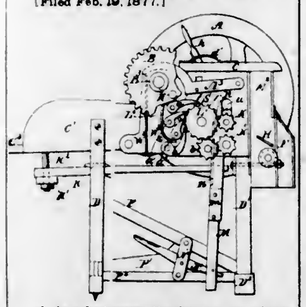


1. The herein-described screw-gear *a i*, toothed rack *d*, socket I, and shaft H, having annular grooves and swiveled trunnion-plates at its lower end, in combination with a plow-beam, for the purpose of raising and lowering the plow thereto attached, to regulate its working depth and hold it suspended for transportation, as herein before set forth.

2. In combination with a plow-beam having a plow thereto attached, the clamping-plates *a*, shaft H, toothed rack *d*, and socket I, to admit of a vertical rocking movement and a lateral oscillatory or swinging movement of the plow, as and for the purpose hereinbefore set forth.

3. The socket I, with slotted bed-plate *f*, fitted with shaft H, capable of an oscillatory and a vertical movement in the socket, with plow thereto attached, pivoted to the bed-plate *h*, in combination with the axle-tree, to incline the socket from a vertical position to either side to level the plow, as hereinbefore set forth.

193,900. STRAW-CUTTERS. W. H. Sullenberger, Harrisburg, Pa., assignor of one-half of his right to J. Kerper, same place. [Filed Feb. 19, 1877.]



1. In a feed-cutter, the sickle or curved cutter O^1, firmly attached at its heel to a rock-shaft, by which it is solely guided and operated by reciprocatory motion, substantially as and for the purpose set forth.

2. In a feed-cutter, the sickle or curved cutter O^1, mounted rigidly on, and guided solely by, the rock-shaft X^1, provided with crank O^2, in combination with wrist Q^2, connecting-rod Q, wrist Q^1, and gear B^1, and operating substantially as and for the purpose set forth.

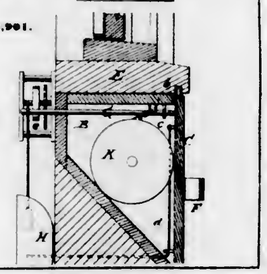
3. In a feed-cutter, the feed-roll pinions K and K^1, geared with each other by gear L and reversing-gear b^1, in combination with the vibrating sector L^2, provided with pawls a a^1 a^2, and connected by link S with tappet-lever A^2, when the vibratory movement of the latter may be varied or suspended by the set of the lever *h*, substantially as and for the purposes set forth.

4. The feed-cutting mechanism, consisting of cutter O^1 on rock-shaft X^1, and impelled by gear B^1, as set forth, in combination with the toothed grinding-roll A^1 and the adjustable concave A^2, arranged transversely in front of cutter O^1, said roll being operated by the shaft of said gear B^1 by positive gear connection that may be brought in gear or disgeared without stopping the machine, substantially as and for the purposes set forth.

5. In the feed-cutter, as set forth, the grinding-roll gear-train, consisting of pulley G, chain W, shifting-gear W^1, on pivoted carrier Z, and wheel B_1, in combination with the disgearing-lever E K^1, and operating as and for the purpose set forth.

6. In combination with the cutting apparatus, and with the grinding apparatus as described, the chute E^1, connected by its crank H with connecting-rod H^1, by which it is held and adjusted, in the manner shown and described, and for the purpose set forth.

193,901.

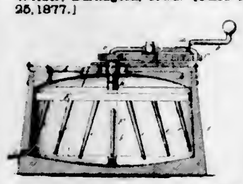


193,901. FIRE-ESCAPES. G. J. A. Taggart Parsons, Kans. [Filed June 4, 1877.]

1. The combination, with door C, of the spring-bolt G and lever-bolt D, the latter extended through the door and provided with a blade, F, as described.

2. The combination, with wall-chamber, having hinged door and bottom downwardly inclined to the front, of the ladder J, attached rigidly to roof of chamber at one end and to a reel, K, at the other, for the purpose specified.

193,902. CHURNS. J. Weidar and J. S. Welder, Burlington, Iowa. [Filed June 25, 1877.]

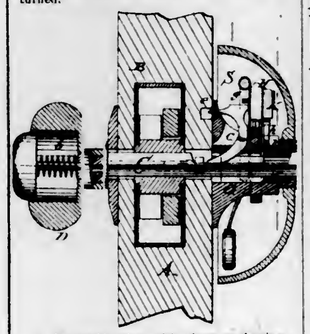


1. The dashers consisting of the bar E, having fingers *e*, and the shaft F, having fingers *f*, substantially as shown and described.

2. The combination of the wheel C, pinions *c*, and dasher, consisting of the shaft F, bar E, and fingers *e f*, and the receptacle A, having concave bottom and cover, substantially as shown and described.

193,903. DOOR AND ALARM BELLS. J. G. Wiggins, Seneca Falls, N. Y. [Filed June 25, 1877.]

Brief.—The device is operated as a door-bell by pressing a button in the door-knob. By turning a collar on the inside of the door-spindle the hammers are thrown into gear, so as to operate as an alarm when the knob is turned.



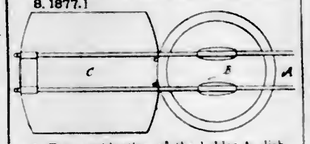
1. In combination with alarm mechanism, the button-head rod *b*, applied in the spindle O, the dog *e*, and one or two segments H, bearing hammers, substantially as described.

2. Dog *e*, applied to the latch-spindle C, and pivoted to the bracket G, in combination with alarm mechanism, substantially in the manner described.

3. Pivoted segments K K, combined with segments H H, spring S, and adjustable T-head *k*, substantially as described.

4. The T-head *k*, formed on an endwise adjustable tube, *k*, in combination with slotted bracket G, spindle C, and adjusting-nut J, substantially in the manner and for the purpose described.

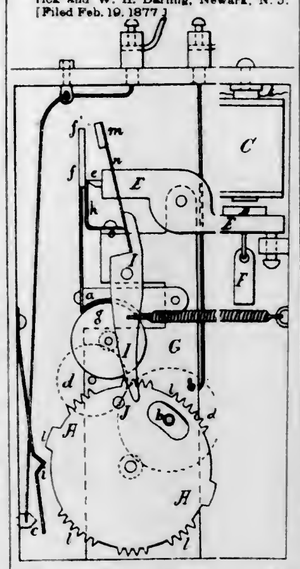
193,904. PAINTERS PALETTES. William F. White, Ashburnham, Mass. [Filed May 8, 1877.]



1. The combination of the holder A, dish B, and plate C, arranged and applied substantially as described, the whole constituting a painter's palette, as and for use as specified.

2. The holder made of wire bent at its middle and near its ends, and between such ends and middle, all substantially as set forth.

193,905. BURGLAR-ALARMS. D. L. Wildrick and W. H. Darling, Newark, N. J. [Filed Feb. 19, 1877.]



1. The arrangement, in a burglar-alarm, of a signal-wheel, brake-wheel, brake, and connections to the armature of an alarm-magnet, for starting and stopping the signal-wheel, as set forth.

2. The combination, in a burglar alarm, of the magnet C, (connected with the building to be protected in any usual manner,) armature D, and lever E, or its equivalent, with the signal-wheel H and brake-wheel *g*, both revolved by weight or spring, substantially in the manner described, and controlled by the falling of the armature D from the magnet C, in the manner set forth.

3. The pin J, or its equivalent, on the signal-wheel H, operating in combination with the lever I and hammer *m* to drop the brake when lifted from the wheel *a* by lever E.

4. The stop *h*, spring-catch *f*, and hammer *m*, operating with the point *e* on lever E to raise and drop the brake *a*, as and for the purpose described.

193,906. FIRE-ARMS. Wm. M. Wood, Jr., Washington, D. C. [Filed Feb. 14, 1877.]

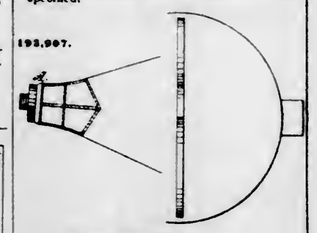
Brief.—The construction claimed is for the purpose of allowing the barrel to yield when being turned on its pivot, and to bring it close to the recoil-shield when in position for firing.



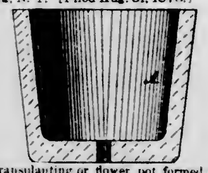
The pivoted barrel C, provided with the pin *d*, in combination with the stock B, provided with the oval or elongated slot *e*, longitudinal recess F, bolt *m*, and spring *n*, all constructed to operate substantially as and for the purpose set forth.

193,907. BELLOWS. J. Agnew, Pittsburg, Pa., assignor of one-half his right to W. W. Sommerville, same place. Filed July 5, 1877.]

193,907.

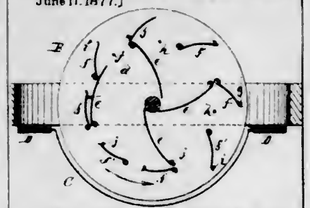


193,908. FLOWER-POTS. John F. Alt, New York, N. Y. [Filed Aug. 31, 1876.]



A transplanting or flower pot formed of a mixture of earthy matter and a soluble fertilizing material, so that when said pot with the contained plant is set in the ground the fertilizer will dissolve, thus destroying the integrity of the pot, and at the same time yielding nourishment to the root of the growing plant, substantially as and for the purpose set forth.

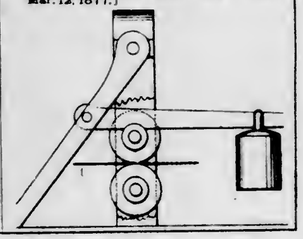
193,909. TIDE-WHEELS. W. H. Andrews and H. Fuller, Deckerville, Mich. [Filed June 11, 1877.]



1. The combination, in the wheel B, of the shaft *c*, heads *d*, and pivoted buckets *e f*, substantially as shown and described.

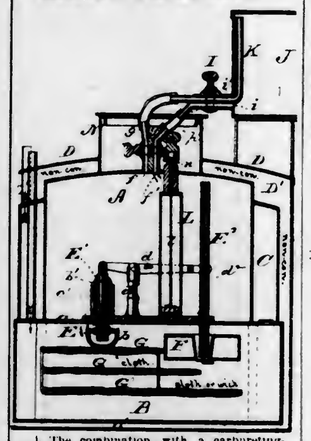
2. The curved gate C, supported by guides D, substantially as shown and described.

193,910. MACHINES FOR NOTCHING WIRE IN THE MANUFACTURE OF NAILS. John M. E. Baackes, Covington, Ky., assignor of two-thirds his right to J. L. Stephens and J. B. Mecklenborg, same place. [Filed Mar. 12, 1877.]



The improved machine, substantially as herein described, for making notched wire for the manufacture of wire nails.

192,911. CARBURETERS. David S. Bangs, Boston, Mass. [Filed May 26, 1877.]



1. The combination, with a carbureting-chamber and an oil-reservoir arranged above the same, of the connecting-pipe E, having rose *b* upon its lower end and a valve-seat at its upper end, the exterior perforated guide-pipe *b'*, the reticulated guard *c'*, encircling said pipe, the plunger E^1, working in pipe *b'*, the vibrating lever *d*, a float, F, rod d^2, connecting said lever and float, and a guide-tube, E^2, in which said rod reciprocates, substantially as specified.

2. The combination, with the feed-pipe E, having one end in the reservoir and the other in the carbureter, of the shield-pipe *b'*, having apertures *c*, the encircling reticulated guard *c'*, the rose *b*, and the plunger E^1, substantially as specified.

3. The combination, with an oil-reservoir, a carbureting-chamber, separated by a diaphragm therefrom, and *n* pipe extending through said diaphragm, of a rose applied upon the lower end of said pipe, and perforated on its upper side, whereby the oil is discharged scatteringly against the said diaphragm, substantially as specified.

4. The combination, with an oil-reservoir, a carbureting chamber below it, a separating-diaphragm, a pipe extending through the said diaphragm, and an inverted rose upon the lower end of said pipe, of an open-ended removable frame, and the spaced independent horizontal evaporating-layers supported by said frame, substantially as specified.

5. The oil-reservoir A, having a two-way cock and separate inlnet and exit orifices *g g'* and *f f'*, of the filling tank J, having a two-way cock, l, with like orifices, the tube K, extending to the top of said tank, and the connecting-pipes *p p'*, substantially as specified.

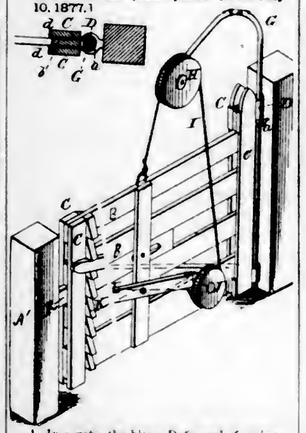
192,912. CORN-CULTIVATORS. Walter G. Barnes, Freeport, Ill. [Filed June 19, 1877.]

Brief.—A spring-loop for hitching up the plow-beams. The construction of the coupling for securing the plow-beam to the axle.

1. As an improvement in cultivators, the combination of the hinged beams D, having spring-loops G, axle S, and tongue or frame A, having hooks *i i*, substantially as and for the purpose herein shown and described.

2. In combination with the beams D and axle B, the adjustable coupling-jaw herein described, consisting of the plates *p p'*, having segmental slots *g*, projecting lips *r r'*, and diagonal front caps or braces *s s'*, constructed and combined to operate substantially as and for the purpose herein shown and described.

192,913. GATES. John M. C. Bennett, Lansing, Mich., assignor of one-half his right to W. Bradshaw, same place. [Filed July 10, 1877.]



1. In a gate, the hinge D, formed of a piece of sheet metal, bent as shown, formed with the flanges *d d*, and fastened by the wedge *b* between the boards C C of the gate, as herein set forth.

2. The combination of the post A with eye-screw *a*, gate B C, hinges D D, and rod G, substantially as herein shown and described.

3. The combination of the gate B C, rod G, with pulley H, cord or chain I, pulley J, lever L, and ratchet-bar K, all substantially as and for the purposes herein set forth.

192,914. MOCCASINS. Scotto Berry, New Sharon, assignor of one-half his right to R. H. Merrill and J. P. Merrill, Skowhegan, Me. [Filed June 23, 1877.]



A moccasin composed of the parts A A, united at front and rear, and forming the upper, the counter B, the insole D, united as shown to the parts A A, and the overlapping outer sole C, all substantially as shown and described.

192,915. SAND-PUMPS. William H. Birge, Franklin, Pa. [Filed Aug. 1, 1877.]

1. A sand pump constructed of telescope sections, the upper section serving as an air chamber, and the lower one as a sand chamber, the passage between said chambers being automatically opened and closed by a valve actuated by the movement of the lower section of the pump, substantially as and for the purpose set forth.

2. In a sand-pump, the combination, with a sand-chamber, having a valve-rod secured thereto, of an air-chamber, provided with a valve-seat, and a valve adapted to open and close a port in said valve-seat, substantially as and for the purpose set forth.

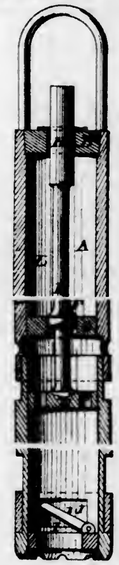
3. A sand-pump formed in movable sections, the lower section provided with a valve-rod having a conical and piston valve secured thereto, while the upper chamber is constructed with a valve-seat for the conical valve, and a perforated head for the passage of the piston-valve, substantially as and for the purpose set forth.

4. The combination, with the air-chamber of a sand-pump, of a valve-rod secured to the lower section of the pump, said valve-rod being provided with two valves of differential areas to insure the seating of the valve governing the passage between the air and sand chamber as the pump is lowered in the well, substantially as and for the purpose set forth.

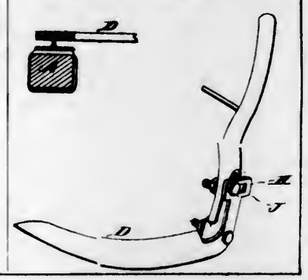
5. The combination, with the sand-chamber provided with an opening adjacent to the inlet-valve, of a ring-valve, substantially as and for the purpose set forth.

6. The combination, with the air-chamber provided with openings *j*, of the vertically-movable sand-chamber, adapted to automatically close openings *j* as the pump strikes the bottom of the well, substantially as and for the purpose set forth.

192,916.

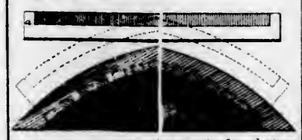


192,916. SCYTHES. Gilbert Bishop, Holton, Kans. [Filed June 2, 1877.]



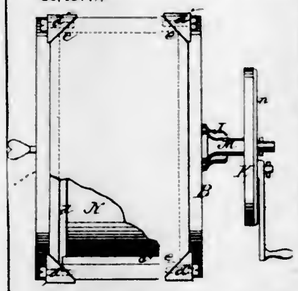
As an improved article of manufacture, the scythe D, having the enlarged rectangular head H, slot J, and opening K, substantially as and for the purpose set forth.

192,917. MOLDS FOR PLASTER CASTS. J. Borden, Boston, Mass. [Filed Sept. 7, 1876.]



In the art of forming molds for plaster casts, a combined wax or glue and canvas strengthened mold, formed straight, and then bent into desired shape, to operate substantially as and for the purpose described.

192,918. CHURNS MADE OF BENT WOOD. Michael Brown, F. J. McFarland, and Jos. Brown, Wapakonetta, Ohio. [Filed June 30, 1877.]

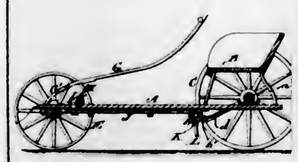


1. The combination, with the end pieces *a* and the side and bottom pieces N, formed as described, of the corner angle-plates E, having the upper wing d^3 raised above the sides and ends of said box, and serving as stops for its lid, substantially as specified.

2. The combination, with churn-body A, of the packing device consisting of the tubular bearing I, having prismatic collar *h*, and exteriorly screw-threaded, the screw cap J, the spindle G, provided with collar *j*, and the packing-rings *l*, substantially as specified.

3. The combination, with the journal G of a churn-dasher having collar *j* and the tubular outside-threaded bearing I, of the compression screw-cap J and the packing-rings l, substantially as specified.

192,919. CHILDREN'S CARRIAGES. Chas. H. Bush, Fall River, Mass. [Filed June 30, 1877.]



1. The platform A, constructed as described, and provided with the tongue-support H, in combination with the reversible tongue G, pivoted to the front axle, and straddling the neck A^1 of the platform, substantially as described, and for the purpose set forth.

2. In a child's carriage having a reversible tongue, G, the forked pivoted lever H, sliding bar J, shaft K, with brake-shoes L L and arms *b b'*, and the spring *d*, all substantially as and for the purposes herein set forth.

192,920. PROCESSES FOR OBTAINING AMMONIA SALTS. Samuel Cabot, Jr., Boston, Mass. [Filed Mar. 26, 1877.]

1. The process of obtaining salts of ammonia and bicarbonate of soda as independent products, the same consisting in treating volatilized mono-carbonate of ammonia charged with carbonic-acid gas with a fine rain of saline sodiac solution, substantially as and for the purpose described.

2. A process for the manufacture of sal-ammoniac, consisting of the following steps: boiling ammoniacal gas liquor, cooling the resulting volatilized carbonate of ammonia, charging the same with carbonic acid gas, and finally spraying the ascending gases under inclosure with saturated brine, substantially as and for the purpose described.

192,921. PROCESSES OF ETCHING GLASS. W. Campbell, Jersey City, N. J. [Filed Feb. 28, 1877.]

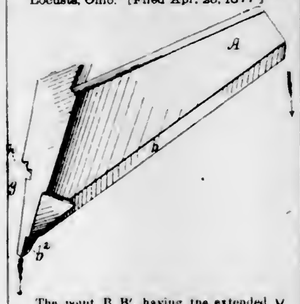
The hereinbefore-described method of preparing glass and other substances for etching, by applying a coating of asphalt or other resinous or waxy substance, which is removable by turpentine or an equivalent menstruum, and a coating of sensitized gelatine, and then exposing the same to light through a photographic negative, substantially as specified.

192,922. ELECTROPLATED SHELLS OR CYLINDERS FOR IMITATING LEATHER, &c. H. R. Cassel, New York, N. Y. [Filed June 14, 1877.]



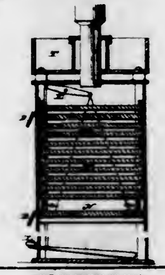
The combination of the mold lined on the inside with leather or other suitable material, the surface of which is to be imitated with an anode suspended in the mold, so as to form an intervening chamber or annular space between the exterior of the anode and the material to be imitated, substantially as described, whereby a cylindrical shell of deposited metal is produced, as and for the purpose specified.

192,923. PLOWS. B. F. Chandler, Three Locusts, Ohio. [Filed Apr. 25, 1877.]



The point B B', having the extended Y shaped slot or groove *b*, recess *c*, and perforated projection *c*, in combination with the share A, beveled and tapered, as at b^1 b^2, and recessed and stepped, as at *g h*, substantially as and for the purpose set forth.

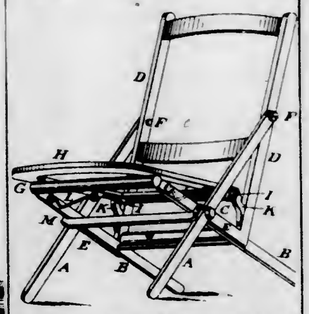
192,924.



192,924. FRUIT-DRIERS. L. C. Church and J. C. Perkins, Kalamazoo, Mich. [Filed Feb. 19, 1877.]

The combination of the tank T, the condensing-pipes P P P P, the ventilator A, the racks K K, the pedal L, and the furnace F, substantially as and for the purpose hereinbefore set forth.

192,925. FOLDING CHAIRS. Henry Clostermann, Jr., Cincinnati, Ohio. [Filed Mar. 29, 1877.]



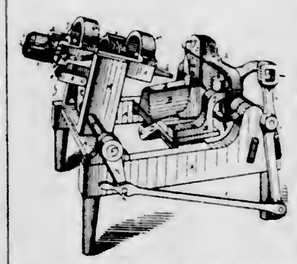
1. In combination with the member B G, the triangular and overlapping member A D E M O, pivoted at G, the point of intersection with said member B, substantially as described.

2. In combination with a suitable cross piece, B G, the rigid and overlapping triangular frame A D E M O, constituting the back proper, the arms, and the front legs of a camp-chair, as set forth.

3. In combination with the pivoted and intersecting members B G and A D E M O, the seat H I, pivoted near its rear edge to a stretcher, J, attached to brackets K, which project from the back proper D, in the manner explained, said seat being coupled to the member B G by means of bent links L.

192,926. NAIL-PLATE-FEEDING MACHINES. E. J. Couch, Allegheny, Pa., assignor to himself, J. Smith, and A. Smith, Youngstown, Ohio. [Filed May 15, 1877.]

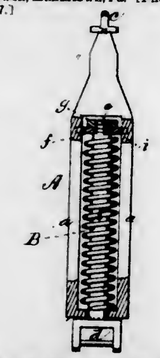
Brief.—The double cam-groove formed by the double ring accures, through the sector and its wrist, the advance of the nail-plate at each half-revolution of the tubular barrel.



1. In a nail plate feeding machine, the double ring *r r'*, attached to frame *b b'*, and connected by cross-ties *r'*, the inner faces of said rings being formed so as to constitute a double cam-groove around the barrel, in combination with the wrist *r*, attached to the sector *w*, the said sector being pivoted to the tubular feeding-barrel, all substantially as specified.

2. In combination with the feeding mechanism of a nail machine, the scrap-cleaner *k*, having a vibratory motion back and forth across the path of the feeding mechanism at each back stroke of the same, said scrap-cleaner being pivoted at one end to the rocking head C, and connected by means of a flexible joint with the rod *k'*, which is secured to the arm *g'* of the feeder-frame, the said parts being constructed and arranged to operate substantially as herein specified.

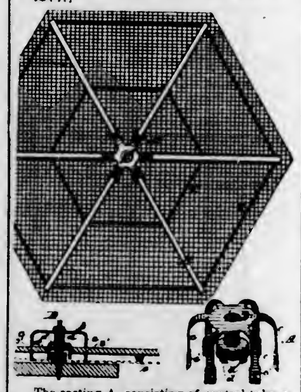
193,927. HAME-TUG ATTACHMENTS. J. A. Cruwell, Mifflintown, Pa. [Filed June 23, 1877.]



1. The tug-spring consisting of the open frame A, having a T-shaped hook at one end, and an opening at the other, the metallic rod B, having a loop at its outer end and a screw-thread at its inner end, a helical spring, S, the compressing-plate *f*, and its retainer-nut *g*, substantially as specified.

2. The combination, with a hame having arm *j*, provided with oblong slot *l* and terminal eye *i*, of the tug-spring frame A, having spring S, metallic rod B, and the T-shaped hook *c*, substantially as specified.

193,928. CLOTHES AND FRUIT DRIERS. G. J. Curry, Chemung, Ill. [Filed Apr. 14, 1877.]



The casting A, consisting of central tube *a* and slotted arms *c d*, in combination with the detachable ribs B, cords C, and screw threaded rod D, all constructed, arranged, and operating substantially in the manner and for the purposes herein shown and specified.

193,929. DOUBLE HYDRAULIC ELEVATORS. H. Davies, Newport, Ky. [Filed Mar. 23, 1877.]

Brief.—The elevator-trunks are divided into horizontal compartments corresponding to the stories of the building. The elevators are alternately raised and lowered by hydraulic rams automatically actuated by valve mechanism. When the doors are open the elevator is prevented from moving.

1. In a hydraulic elevator, the combination of two hydraulic rams with a valve, which latter operates to admit liquid to one of the rams, while at the same time it allows the liquid to escape from the other ram, substantially as and for the purpose set forth.

2. The trunks of an elevator, in combination with independent hydraulic rams and valve mechanism, whereby the movement of the elevator serves to automatically shift the valve, and alternately admit and exhaust pressure from the respective rams, substantially as and for the purpose set forth.

3. The combination, with the trunk actuating rams and valve mechanism, of the cataract and intermediate engaging connections, substantially as described.

4. The combination, with the trunks alternately actuated by hydraulic pressure, of the connecting sliding rod, the cataract, and the intermediately-engaging disk-wheel, whereby the movement of the said trunks is adjustably regulated, substantially as described.

5. The combination, with the trunk-actuating rams, valve, and valve-rod, of the rock-shaft, the weighted lever, and the connecting mechanism, whereby the valve is operated under the automatic rise and fall of the trunks, substantially as described.

6. The combination, with the trunks and the cataract plunger-rod, of the intermediate engaging mechanism for locking or unlocking the trunks in their vertical movement, substantially as described.

7. The combination, with the trunks and connecting mechanism, of the cataract plunger-rod and the relief-valve rod, the two latter alternating in an intermittent vertical reciprocation at each rise and fall of the trunks, substantially as described.

8. The combination, with the hinged bar rigidly connecting the doors, of the transverse spring-pressed bars, the same operating to automatically open the doors as the elevator reaches its extreme limit of movement, substantially as described.

9. The trunks of an elevator, provided with self-opening doors, automatically locking the same against movement in either direction, substantially as set forth.

10. The combination, with the outwardly spring-pressed doors, of the horizontal rock-shaft and friction-rollers, the latter bearing in against the doors under engagement with the cataract plunger-rod, substantially as described.

11. The combination, with trunk A, carrying bracket Q, of rods O and P and weighted lever *m*, the latter provided with a series of gage-slots, substantially as described.

12. The combination, with trunk B and sliding lever W, of the disk-wheel V, substantially as described.

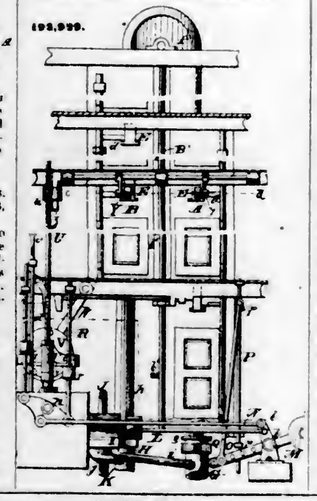
13. The combination, with the disk-wheel V, having right-angular face-studs, and the double inclined projecting-rim *v*, of the angular collar T and plunger-rod U, substantially as described.

14. The combination, with the vertical locking-bar B', provided with suitable handles, of the horizontal spring-pressed bar A', engaging with the plunger-rod U, substantially as described.

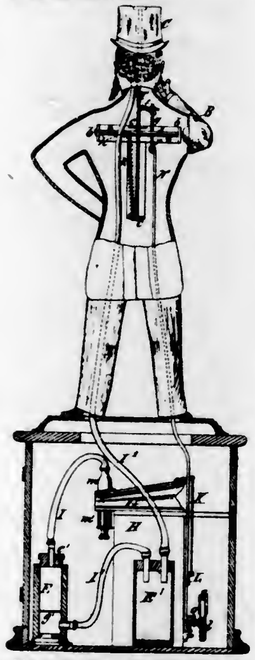
15. The combination, with the rock-shaft Z, having arms *y*, carrying friction-rollers Y, and lever-arm *z*, of the plunger-rod U, provided with stud *u*, substantially as described.

16. The combination, with the hinged bars D, operating doors C, of the spring-pressed bars E, and rock-shaft Z, the latter carrying friction-rollers, substantially as described.

193,929.



193,930. AUTOMATIC SMOKING-SIGNS. H. J. Davies and W. D. Davies, Brooklyn, N. Y. [Filed July 2, 1877.]



1. The combination, with an automatic figure representing a living smoker, of a bellows and a furnace or fire-pot in the base on which the figure stands, clock-work for operating the automatic figure and bellows, tubes leading from the bellows to the fire-pot, and from the fire-pot to an aperture in the mouth of the said figure, and a valve or valves directing the smoke in such manner that it flows from the fire-pot only toward and out of said aperture, substantially as and for the purpose set forth.

2. The combination, with the smoking-figure A, bellows G, fire-pot E, and eduction-tubes directing smoke from the said fire-pot to the aperture in the mouth of the figure, of the condenser and dust-collector E', interposed between said fire-pot and said aperture, and connected therewith by the tube F', substantially as and for the purpose set forth.

3. The combination of the movable arm B, the rock-shaft *s*, having bearings in the body of the figure, and attached to said movable arm, the lever *r*, the rod N, the lever *k*, the spring *k*, the horizontal pivoted bar P, and the crank *o*, operated by the clock-work H, to actuate the horizontal bar, substantially as and for the purpose described.

4. The combination, with the arm B, the rock-shaft *s*, having vertical lever *g*, and operated by the clock-work H through the medium of the rod N, horizontal pivoted bar P, and crank *o*, of the vertical shaft T, having forked lever *f*, and adapted to oscillate the head O, substantially as described.

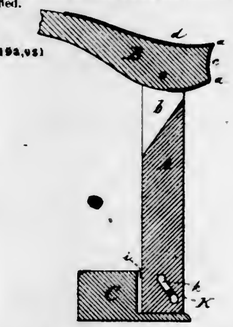
5. The combination, with the automatic smoker and the clock-work and bellows for operating the same, substantially as herein described, of the endless advertising sheet *t*, arranged in the same case or hollow base that contains the clock-work, and operated by belt or gearing connecting the same with the said clock-work, substantially as and for the purpose set forth.

193,931. LIFTING-JACKS. T. R. Day, Devall's Bluff, Ark., assignor of two-thirds his right to J. M. McClintock and P. H. Wheat, same place. [Filed June 23, 1877.]

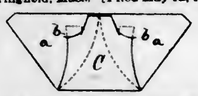
The improved wagon-jack herein described,

consisting of the lever B, upright A, having diagonally-slotted tenon D, block C, having recess *i* and bolt K, all combined, arranged, and operating substantially in the manner, and for the purpose herein shown and specified.

193,931



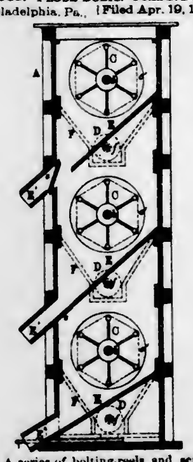
193,932. PAPER BOXES. Geo. A. Denison, Chicopee, assignor to himself, J. P. Buckingham, same place, and O. M. Hamilton, Springfield, Mass. [Filed May 12, 1877.]



1. In a self-locking box having main and supplemental flaps, the flaps C C and *a a a a*, having curved edges on lines 3 3 3 3, in conjunction with the devices which render the box a self-locking one, substantially as described, and for the purpose specified.

2. A self-locking box consisting of the main flaps B B and C C, the latter divided into three parts at the end by short slits, two of which parts form lugs *c c*, and the supplemental flaps *a a a a*, having curved inner edges and slits *b*, substantially as described, and for the purpose specified.

193,933. FLOUR-BOLTS. John S. Detwiler, Philadelphia, Pa. [Filed Apr. 19, 1877.]

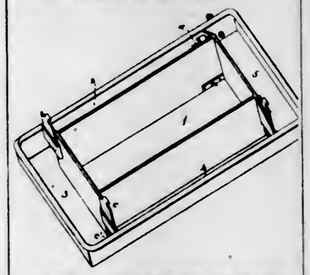


1. A series of bolting-reels and screw conveyers, combined with a system of inclined bottoms or chutes, provided with valves *e* and spouts, whereby the middlings or offal from each reel may be carried from the machine separately, or may be spouted off collectively from all the reels at the end of the machine, substantially in the manner and for the purposes herein specified.

2. In a bolting-machine, the partition *c*, perforated for the ends of the reels, combined with inclined bottoms or chutes D, provided with spouts F' and valves *s*, substantially as specified.

193,934. EVAPORATING-PANS. Wm. M. Dixon, Riceville, Tenn., assignor to Parkison, Long & McKinney, same place. [Filed Sept. 30, 1876.]

Brief.—In this pan for concentrating the juice of sugar-cane, sorghum, &c., the heat is directed to the central compartment, and the juice, when done, is skimmed, and run successively and by degrees into the separate communicating cooling-chambers, in each of which it is again skimmed, until it gets to the last in a cool and clarified condition, and is drawn off. The cooling-compartments are arranged around the central one, and beyond the fire, so that the syrup may be transferred from the first cooling-chamber to the last without crossing the line of heat. The walls or partitions of the central chamber are higher than the outer walls of the other chambers, and all the walls are made of wood, or of metal below and wood above. The entire bottom is of metal.

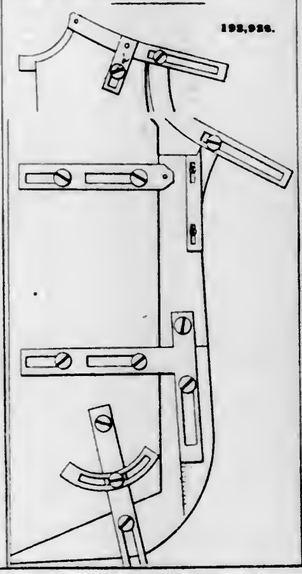


In combination with the furnace E, the evaporator-pan herein described, consisting of the central boiling-chamber 1, corresponding in area to the area of the furnace or fire-bed, and overlapping communicating cooling-chambers 2 3 4 5, substantially as and for the purpose herein shown and specified.

193,935. TRANSFER-SHEETS FOR GRAINING WOOD. Richard J. Doolan, Albany, N. Y. [Filed June 6, 1877.]

A transfer-sheet for graining wood and other materials, composed of unsized paper, coated on one of its sides with a composition of starch, glue, and molasses, and over that with a composition of gum-arabic, glue, and molasses, said coated side being further provided with a grained face, substantially as and for the purpose set forth.

193,936.

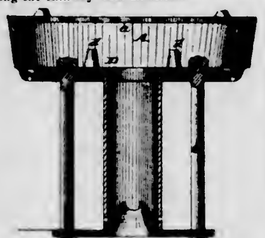


193,936. SHIRT-PATTERN GUIDES. H. Dyer, Springfield, Mass. [Filed Mar. 15, 1875.]

In an adjustable shirt-pattern, the swinging shoulder-line bar D, the curved bar E, the slide F, and border-pieces B' B', in combination with the body A, substantially as and for the purpose set forth.

193,937. OIL AND GAS STOVES. Oliver Edwards, Florence, Mass. [Filed June 20, 1877.]

Brief.—The top of the stove is provided with an annular channel, with openings to receive and discharge any overflow from the vessel being heated. The top is supported by tie or pillar rods secured to the base, thus relieving the chimney from all strain.



1. An oil or gas stove top formed with a basin adapted to receive and discharge any overflow of vessels heated thereon, substantially as described.

2. In an oil or gas stove top, a bottom plate provided with a channel, substantially as described.

3. The channel formed in the lower plate of an oil or gas stove top about the chimney-flue, and provided with one or more waste-openings, substantially as described.

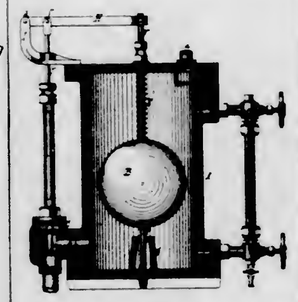
4. The top of an oil or gas stove whose upper horizontal body, either with or without short supporting-studs, has its opening edge irregularly formed, and whose lower horizontal body is provided with a waste-basin, substantially as described.

5. The top of an oil or gas stove made as a hollow casting, having a horizontal upper body, whose opening-edge is irregularly formed, and having its lower horizontal body provided with inner supporting-studs and a waste-basin, substantially as described.

6. In an oil or gas stove, a combined tie and pillar-rod formed with a supporting-shoulder, substantially as described.

7. In an oil or gas stove, the rods supporting the top, and made with shoulders or offsets at both extremities, substantially as described.

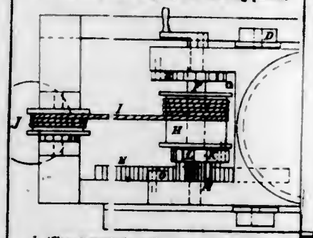
193,938. STEAM-TRAPS. David Edwards, New York, N. Y., assignor to himself and F. C. Durant, same place. [Filed July 14, 1877.]



The combination, with the main chamber A, float B, lever H, valves *e e'*, and valve-chamber C, of a pressure-relieving channel, *c*, extending from the top of the valve-chamber to the waste-pipe, said valve chamber being connected with the main chamber of the trap, and made to communicate therewith through a passage, *b*, all substantially as herein shown and described.

193,939. TIGHTENING AND STRETCHING ROPES, BELTS, &c. Wm. Eppelsheimer, San Francisco, Cal. [Filed May 16, 1877.]

Brief.—The rope B is stretched by means of the windlass, and weight, and locking-pawls.



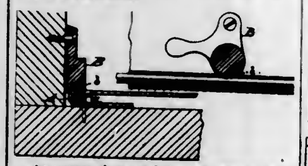
1. The mounted pulley A on frame C, in combination with shaft F, ratchet-wheel G, and its pawl *g*, drum H, with weight J, coupling I, pinion M, and rack N, substantially as shown and described.

2. The mounted pulley A on frame C, with stretching-weight J, in combination with pawl O and rack N, substantially as shown and described.

3. The mounted pulley A on frame C, in combination with the shaft F, having the ratchet-wheel G, its pawl *g*, drum H, with weight J, pawl O, and rack N, substantially as shown and described.

193,940. CARPET-FASTENERS. J. Failing, Umatilla, Oreg. [Filed May 28, 1877.]

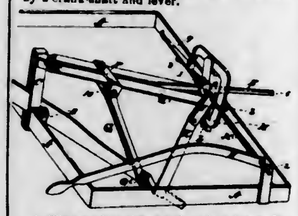
Brief.—A metal rod running around the base-board, and held in place by studs or pins, has the edge of the carpet placed around it, and there are a series of grooved eccentric buttons or cams pivoted at intervals to the base-board, which press down and, by their grooved edges, firmly hold the carpet on the line of the rod in fixed position.



An improved carpet-fastening, composed of a metallic rod, A, of studs or pins *a*, driven into the floor in front of the rod, and of grooved pivoted eccentrics, cams, or buttons B, that secure, jointly with the rod and pins, the edge of the carpet along the base-board of the room, substantially in the manner and for the purpose set forth.

193,941. SULKY-PLOWS. Ansel H. Gale, Freeport, Ill. [Filed June 20, 1877.]

Brief.—The plow-beam, when at work, is locked in position by a spring-latch. The draft-rod is attached to a sliding clamp with connecting-bars to the plow-beam. When the latch is withdrawn the draft of the team will elevate the plow, or the plow-beam may be worked by a crank-shaft and lever.



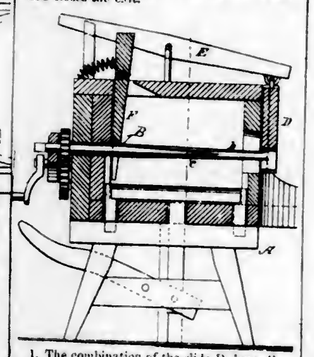
1. The combination of the plow-beam B, pivoted bars G, sliding draft-bar E, and frame-bars A, substantially as described and shown.

2. The combination of plow-beam B, bars G, guide L, latch M, spring S, and draft-bar E, substantially as shown and described.

3. The sliding clamp F, carrying the draft-bar E, pivoted connecting bars G, rock-shaft N, with arm I, lever H, and bar K, in combination with plow-beam B and frame-bars A, substantially as shown and described.

193,942. MACHINES FOR BUNCHING HAY FOR FOEL. M. E. Getter, Aiden, Minn. [Filed Mar. 19, 1877.]

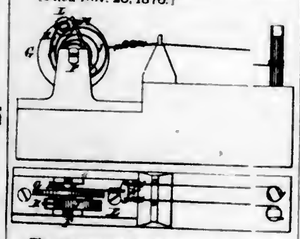
Brief.—The hay is compressed against the revolving tines, and is wound thereon. A forked lever assists in stripping the bunched grass off from the tines. A sliding door opens and closes the exit.



1. The combination of the slide D, lever E, and box A, substantially as herein shown and described.

2. The combination of the box A, shaft B, having tines *b c*, and the forked lever F, substantially as herein shown and described.

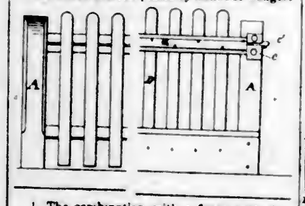
193,943. STRINGING PIANO-FORTES. T. S. Gould, Hartford, Conn., assignor to himself and Thomas P. Saunders, same place. [Filed Nov. 20, 1876.]



The combination of the wheel and fusee H, the spring J, and the adjustable device K L M with the strings of a piano-forte, substantially as herein described.

193,944. PICKET FENCES. J. A. Green and A. J. Knapp, Allegan, Mich. [Filed Mar. 29, 1877.]

Brief.—A horizontal wire traverses centrally each rail, and the pickets are transversely grooved to fit close to the rails inclosing the wires. The rails are secured to the posts at the ends of the panels, where the wires also are secured in metal plates by means of wedges.



1. The combination, with a fence-post, A, and wire B, of the casting C, provided with the groove *a* and the key C', substantially as and for the purposes herein set forth.

2. The combination, in a fence, of the pickets D, having transverse grooves *b*, the wires B, and the strips or moldings G, substantially as and for the purposes herein set forth.

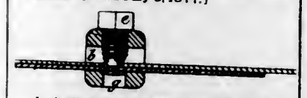
193,945. PROCESSES OF EMBOSSING FELTED FABRICS. J. F. Greene, Brooklyn, N. Y. [Filed May 24, 1877.]

1. The within-described mode of producing felt imitations of woven fabrics—that is, by compressing the printed felt fabric on parallel lines by thin blades having parallel, or nearly parallel, sides, leaving intervening uncompressed portions, as set forth.

2. The combination, with a roller or carrier, of thin radial blades having sides parallel, or nearly parallel, as set forth.

3. The transverse ribs or blades *s*, combined with the parallel thin blades *t*, as specified, for the purpose set forth.

193,946. COTTON-BALE TIES. H. Hamilton, Youngstown, Ohio, assignor of one-half his right to W. L. Buechner, same place. [Filed July 6, 1877.]

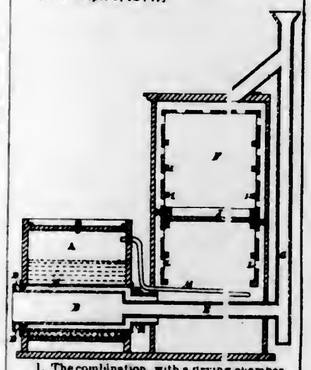


1. A strap or buckle embracing the ends of a bale hoop, a screw-threaded opening in one side thereof, and an opening or cavity coincident in the other side, in combination with a bulging and clamping screw-bolt, thereby coincident portions of the laps are bulged into said opening or cavity, and there clamped to one side of the strap.

2. A buckle for cotton-bale ties, a screw-threaded opening in one side, a coincident opening or cavity in the other side, and an intervening slot adapted to receive a screw-bolt, for the purpose described.

3. The combination, with a buckle-tie, having a screw-threaded opening on one side, a coincident opening or cavity on the other side, and an intervening slot of a screw-bolt, having a tapering or truncated point, for the purpose stated.

193,947. DRIERS FOR FRUIT AND OTHER ARTICLES. George Harris, Petaluma, Cal. [Filed Apr. 9, 1877.]



1. The combination, with a drying-chamber, of the wooden outer tank A and its fire-place B, with a surrounding air-space, substantially as and for the purpose described.

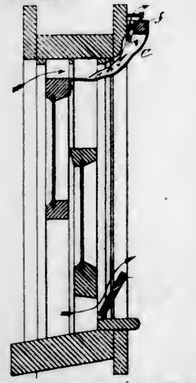
2. The combination, with the drying-chamber F, of the heating-tank A, with its fire-place B, surrounding air-space C, and air-flue H, substantially as and for the purpose specified.

3. The heater-tank A, with its fire-place B and the surrounding air-space C, in combination with the smoke-flue E, leading from the fire-place through the drying-chamber F and the air-flue H opening directly into it, substantially as herein described.

4. The heater A with its fire-place B, air-space C, and the flues E and H, together with the steam-pipes M, in combination with the drying-chamber F, said chamber having its walls double and perforated at L, substantially as and for the purpose herein described.

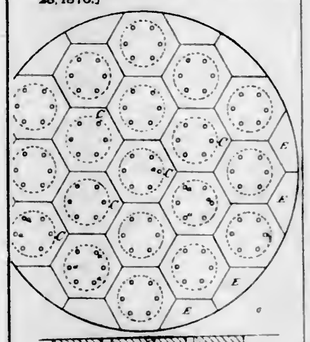
193,948. VENTILATORS IN THE WINDOWS OF BUILDINGS. L. D. Harvey, Sheboygan, assignor to himself and E. J. Stewart, Genesee, Wis. [Filed Mar. 24, 1877.]

Brief.—A flexible deflector is fastened to the upper rail of the window-sash and to the window-casing, and serves to direct the air-currents to the ceiling.



The flexible deflector C, having the supporting-strip *f*, in combination with the frame and upper sash of a window, substantially as shown and described.

193,949. BESSEMER-CONVERTER BOTTOMS. W. H. Hawe, Johnstown, Pa. [Filed July 28, 1876.]



1. A perforated prismatic brick for converter-bottoms, having an axial opening in its end for the reception of a fastening-screw, substantially as specified.

2. The combination, with the bottom-plate of the prismatic perforated bricks fitted solidly together, the fastening-screws, and the bridge-barrs, substantially as specified.

3. The combination, with the bottom-plate, the bricks, and fastenings, of the stop plates, for regulating the blast, substantially as specified.

4. A Bessemer converter-bottom, composed of sectional prismatic tuyere-bricks, having offset lugs for seating them in the openings of the base-plate, and set-screws and bridge-burrs for securing them thereto, substantially as specified.

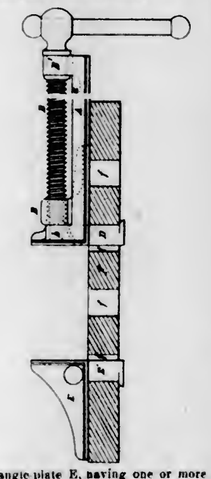
193,950. SNAP-HOOKS. W. Heath, Bath, Me. [Filed May 5, 1877.]



In a snap-hook, the combination of the hook A, the straight flat spring D, the free end of which is adapted to work by the point of the hook both in and out, and the strengthening-spring D', substantially as and for the purposes herein set forth.

193,951. CLAMPS FOR CARPENTERS AND CABINET-MAKERS. Wm. Heckert, Providence, R. I. [Filed Jan. 2, 1877.]

Brief.—The work is firmly clamped by means of an angle-plate forming one of the jaws, and provided with a flanged pin for securing it in one of a series of holes in the bench, and a sliding bed-plate provided with bearings for the actuating-screw, and forming an adjustable jaw, and secured in one of a series of holes in the bench by a flanged pin attached to a sliding nut, and passing through a longitudinal slot in the bed-plate.



1. The angle-plate E, having one or more pins, E', as specified.

2. The stationary nut D, with one or more pins, D', in combination with the screw B and sliding bed-plate A, constructed as and for the purpose specified.

193,952. AUTOMATIC CUT-OFF GEAR FOR STEAM-ENGINES. F. F. Hemenway, Troy, N. Y. [Filed May 16, 1877.]

1. The herein-described dead-plate, constituting a seat for a cut-off valve, said plate resting against the main valve, which forms its only support, being held in contact therewith solely by steam-pressure upon its outer face, and provided with ports through which the admission of steam to the cylinder may be cut off at any desired position of the piston, the several parts being combined to operate substantially as and for the purposes set forth.

2. The combination, with the herein-described movable dead-plate, which is held to its seat upon the main valve by steam-pressure, of the perforated and balanced cut-off valves, and the main valve, substantially as shown and described.

3. The combination of the herein-described movable dead-plate, held to its seat on the main valve by steam-pressure, the main valve, balanced cut-off valves, and a cam-surface operating to open and permit the closing of said cut-off, substantially as specified.

4. The combination of the herein-described dead-plate, held to its seat on the main valve by steam-pressure, the main valve, balanced cut-off valves, a cam-surface operating to open and permit the closing of said cut-off, and a rock-shaft adapted to be connected with the governor, substantially as explained.

5. In combination with a lifting-post, slotted to receive the operating-lever, and provided with a wearing-pin, the wearing piece or block M, held against the under face of said lever by means of a spring, substantially as set forth.

193,953. HORSESHOES. T. Henry, Rockport, Ohio, assignor to Matilda Henry. [Filed Mar. 26, 1877.]



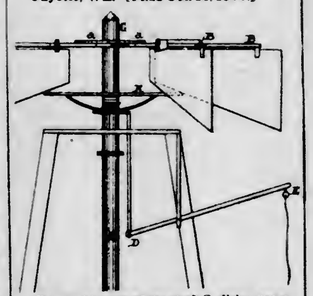
1. The tapering lugs *g g* on the face of the shoe A, as and for the purpose specified.

2. The toe-calk B, constructed with a dovetail tenon, *b*, the strap D, and screw *d*, in combination with the shoe, substantially as described.

3. The heel-calks C C, constructed with the dovetail tenon *c* and straight tenon *c'*, and the bands E E, in combination with the shoe A, substantially as described.

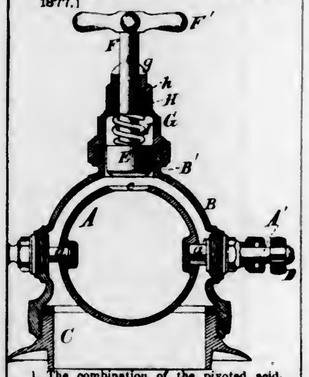
4. The combination and arrangement of the shoe A, provided with the tapering lugs *g g*, the toe-calk B, provided with the strap D and screw *d*, the heel-calks C C, provided with the two tenons *c c'*, the bands E E, and the link F, all substantially as and for the purpose set forth.

193,954. WINDMILLS. M. S. Hodges, La Fayette, Wis. [Filed Oct. 14, 1876.]



The combination of the shaft G, disk *a*, arms B, disk K, and levers D E, substantially as shown.

192,955. FIRE-EXTINGUISHERS. Chas. T. Holloway, Baltimore, Md. [Filed Jan. 26, 1877.]

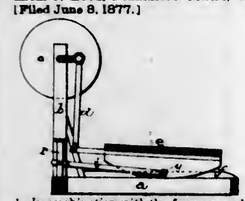


1. The combination of the pivoted acid-chamber A *c* with the metallic valve or stopper E and sprung l, substantially as and for the purpose specified.

2. The combination of the pivoted acid-chamber A *c* with the metallic valve or stopper E, stem F, spring I, stud *f*, and notched incline *g*, substantially as and for the purpose specified.

3. The combination of the valve E, stem F, and cap G with the spring I, gland H, and packing *h*, substantially as and for the purpose specified.

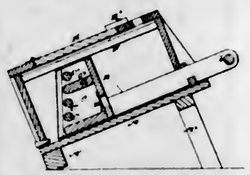
192,956. MOTORS FOR LIGHT MACHINERY. Alex. J. Hood, Fennimore Centre, Wis. [Filed June 8, 1877.]



1. In combination with the frame *a*, rocking frame *c*, placed thereon, round *g*, and a connecting-rod, *i*, to prevent the frame *c* from being displaced, substantially as shown.

2. The combination of the frame *a*, rocking frame *c*, and means for preventing lateral displacement of the rocker, with the rod *i*, connecting-rod *d*, wheel *e*, and a supporting-frame, *b*, substantially as set forth.

192,957. WASHING-MACHINES. John W. Horn, Eden's Ridge, Tenn. [Filed May 31, 1877.]



The inclined wash-box A, having guides F and slot *a*, in combination with the plunger-frame B and pounder C, open at its top, and provided with bars C', partition G, pocket C², and valve D, substantially as described, and for the purpose set forth.

192,958. FARE-REGISTERS. Wm. H. Hornum, New York, N. Y., assignor to the Hornum Patent Register Manufacturing Company, same place. [Filed June 6, 1877.]

1. The combination, in a fare-register, of a pawl and ratchet for preventing the registering mechanism from being turned backward, a registering mechanism, an alarm mechanism, a prime mover common to both, and a locking-latch for preventing the alarm from being sounded, while the registering mechanism is free to be turned to zero, substantially as described.

2. The combination, in a fare-register, of a single-trip register, a general register, a prime mover common to both, a pawl and ratchet for preventing the single-trip register from being turned back, and a locking-latch for preventing the general register from being moved, while the single-trip register is free to be turned to zero, substantially as set forth.

3. The combination, in a fare-register, of a single-trip register, a general register, an alarm, a prime mover common to all three, a pawl and ratchet for preventing the single-trip register from being turned back, and a locking-latch for preventing the general register and the alarm from being moved, while the single-trip register is free to be turned to zero, substantially as described.

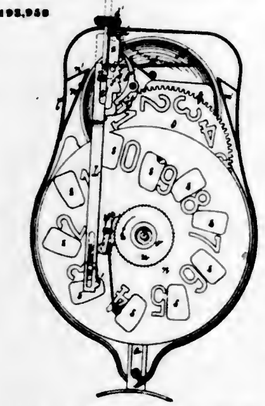
4. The combination, with the locking-latch, the alarm mechanism, and the registering mechanism, of a pawl for locking the latch, and of a projection, cam, or toe, or any part of the registering mechanism, for releasing the locking-latch automatically, when the registering mechanism has been turned to zero, substantially as set forth.

5. The combination, in a fare-register, with a registering mechanism, an alarm, a prime mover common to both, a locking-latch, a pawl for retaining said locking-latch, and a tooth or projection for releasing the locking-latch, of a zero-stop to arrest the registering mechanism at the moment the locking-slide is released, substantially as specified.

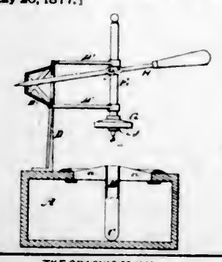
6. The combination, in a fare-register, of a solid protector with the alarm-bell or gong, and with the sound-openings in the sides of the case, said protector being provided with an opening in its top, substantially as and for the purpose shown and described.

7. The combination of a strap, chain, or rope, extending from one end of a railroad-car or vehicle to the other, a protecting-case, provided with a series of vertical slots, a series of supports between the slots, a bell-crank lever, and a registering mechanism, all adapted to operate substantially as and for the purpose set forth.

192,959



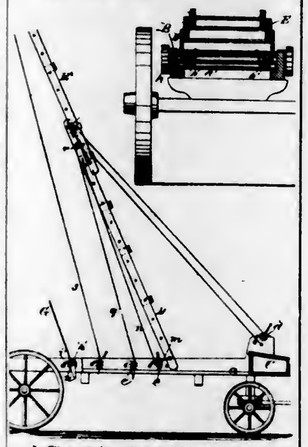
192,960. VEGETABLE AND FRUIT SLICERS. J. B. Howard, Woonsocket, R. I. [Filed May 26, 1877.]



1. The box A, provided with the front opening A³, slide A³, and knives *a a*, having convex edges, in combination with the plunger G, having the projection *d* and spur *e*, corer B, and inclined spout, substantially as described, and for the purpose set forth.

2. The standard D, with arms D' D', and frame D², in combination with the plunger-rod E and lever H, substantially as and for the purposes herein set forth.

192,960. FIRE-ESCAPES AND EXTENSION-LADDERS. William A. Hoyt, Paris, Tex. [Filed June 30, 1877.]



1. The combination of the truck-frame B, ladders D E, and windlass *c*, having ropes *m n* for drawing the ladders forward and supporting them while being raised, substantially as shown and described.

2. The combination of windlass *d*, mounted on the elevated front of the truck, the ladder-ropes *p*, and the ladder D, made adjustable at its foot, so that when lowered to a horizontal position the windlass may be operated to draw or slide the ladder toward the front, as described.

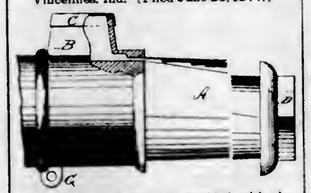
3. The frame G, having the shaft *u*, provided with ratchets, pawls, and cranks, as and for the purpose shown and described.

192,961. UMBRELLA-COVERS. J. C. Hurcombe, New York, N. Y., assignor to the Keep Manufacturing Company, same place. [Filed July 26, 1877.]



A cover for umbrellas, provided with sewed pockets for the reception of the ribs, which pockets are formed by seaming said cover at suitable points, substantially as and for the purpose specified.

192,962. AXLE-LUBRICATORS. L. Johnson, Vincennes, Ind. [Filed June 28, 1877.]

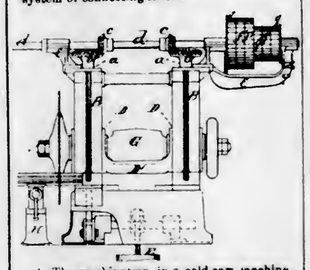


1. The tap or nut, D, provided with the hole *b*, in combination with an axle-skein or spindle, A, having oil-groove *a*, substantially as and for the purposes herein set forth.

2. The combination of the axle-skein A with exterior spiral groove *a*, the reservoir B with cover C, and the nut D with hole *b*, all substantially as and for the purposes herein set forth.

192,963. MACHINES FOR SAWING METAL BARS. William R. Jones, Braddock's, Pa. [Filed May 9, 1877.]

Brief.—The end of the rail adjacent to the saw is securely clamped by a vise while being operated upon. In line with the plain roller, over which the rail passes, and the vise are a series of jacks, (against one of which the back of the rail is pushed,) the square faces of which serve as gages to determine the length of rail end to be cut off. The journal-boxes of the saw-arbor are balanced by a weight and system of connecting-levers.



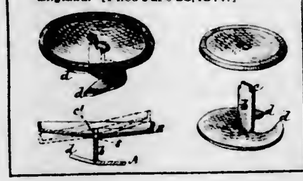
1. The combination, in a cold-saw machine for cutting iron, of the saw and arbor, the fixed housings, vertically-adjustable coupled journal-boxes, mechanism for adjusting said boxes, and an automatically operating device to rise and fall with said boxes and relieve the adjusting mechanism, substantially as described.

2. The combination of the cold-saw and arbor and the flanged vertically-adjustable bearings or boxes, sliding in the vertically-slotted stationary housings with the supporting mechanism, consisting of the shaft *b'*, arms *c'*, posts *c'*, lever *a'*, and weight E, substantially as set forth.

3. The jack, consisting of the tubular sliding piece *m*, having a square-faced head and a central post, with a stationary tubular base into which said post slides, and a lever, *p*, substantially as described.

4. In combination with the saw and the vise H, one or more guide-rolls, *r*, having collars *s*, adapted to enter the concavity of the rail, substantially as shown.

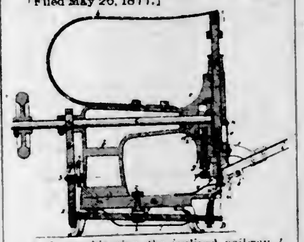
192,964. BUTTONS. J. Keats, Wood Green, England. [Filed June 28, 1877.]



1. A stud or button having its shank *b* and a shouldered rivet, *c*, which attaches the said shank to the head, formed from the same sheet-metal blank with the back plate A by cutting from the disk of said blank a tongue-like portion, extending from the center to or beyond the circumference of said disk, and turning up the so-cut portion perpendicular to the said disk, substantially as herein described.

2. In combination with the shank and head of a button, the shouldered double rivet *c' c'*, formed on the shank, and having its prongs turned in reverse directions to form a flexible connection between the shank and head, substantially as herein described.

192,965. NAIL-DRIVING MACHINES FOR ATTACHING SOLES TO BOOTS AND SHOES. J. E. Kimball and E. Merritt, Abington, Mass. [Filed May 26, 1877.]



1. In combination, the inclined nailway *l*, with its automatically-movable spring-dies *m m*, the nail-tube *k*, vertical shaft *r*, and the oscillating barb or picker *q*, as and for the purpose herein shown and described.

2. In combination, the inclined nailway *l*, the spring-dies *m m*, the driver-bar *f*, projection *n*, and levers *o o*, as and for the purpose set forth.

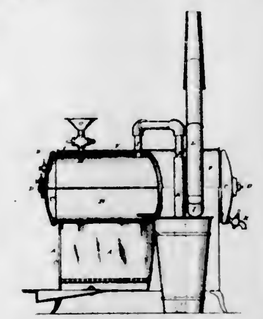
3. In combination with the driver *f* and nail-tube *k*, the curved support *u u'*, as and for the purpose set forth.

4. In a nailing-machine, the curved support *u u'*, with its feed point or surface *u''*, and groove *u'''*, as and for the purpose set forth.

5. In combination with the driver *f* and its nail-tube *k*, a four-motion feed-support and clinching surface, *u u' u'' u'''*, as and for the purpose set forth.

6. In combination with the driver *f* and its nail-tube *k*, the support *u u'*, swivel rocking lever *u*, spring 1, link 3, adjustable fulcrum-pin 5, and the driving-shaft *e*, with its cam or eccentric 4, as and for the purpose set forth.

192,966. AGRICULTURAL STEAMERS. J. T. King, Greenville, Ohio. [Filed May 18, 1877.]



1. In combination, with a cylindrical kettle or generator, substantially as represented, the stove or fire-box A, capable of being thrown open at top, and whose end plates have semicircular indentations A''', for the reception of such kettle or generator, substantially as set forth.

2. The combination of necks or collars M and swinging breech flue L on opposite sides of the stove, communicating with a suitable separable stack or chimney, substantially as set forth.

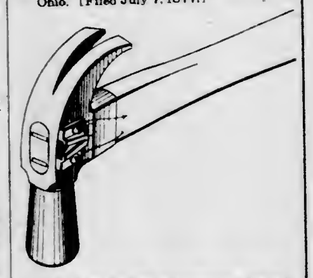
3. In combination, the following elements, to wit: A stove, A, having necks or collars, M, for breech-flue L, a concave open-top, and a kettle or steam-generator, B, fitting the same, substantially as and for the purpose set forth.

4. In combination with the open-topped stove A, the cylindrical steam-generator B, having the annular grooves *c*, heads C, funnel O, and jointed steam-pipe or goose-neck I K, substantially as set forth.

5. In combination with a cylindrical steam-generator or cooking vessel, B, the stove A, having semicircular removable end panels S, and separable top U, substantially as and for the purpose set forth.

6. In combination with the open-topped stove A, having semicircular end depressions A''', and side necks M, the cylindrical steam-generator B, and the forked smoke-pipe or breeching L, substantially as set forth.

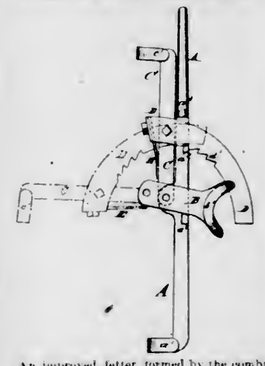
192,967. TOOLS. A. Knight, Sandusky, Ohio. [Filed July 7, 1877.]



1. As a new article of manufacture, the nail-starter attachment C, having the V-shaped slot *a*, the groove *b*, and set-screws *d*, substantially as shown, and for the purpose set forth.

2. The combination, with an ordinary hammer or hatchet, of the nail-starter attachment C, having a V-shaped slot *a*, running nearly through the center, and a groove, *b*, on the under side, and attached in the manner as described.

192,968. FETTERS TO PREVENT COWS AND HORSES KICKING. H. R. Ladd and Z. C. Parker, Orwell, Ohio. [Filed May 5, 1877.]



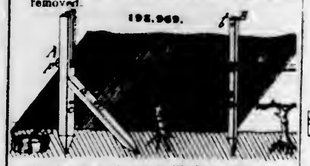
An improved fetter formed by the combination of the lever A, having a hook, *a'*, formed upon its lower end, and provided with the projections *a' a² a³*, the pivoted bar B, having a hook, *b'*, formed upon its rear end, the pivoted bar C, having a hook, *c'*, formed upon its upper end, and the pivoted catch bar D, provided with the teeth *d'*, and the spring E, with each other, substantially as herein shown and described.

192,969. COMBINED EETALIER AND SHELTER FOR VINES. P. A. Laprade, Issoudun, France. [Filed Dec. 4, 1876.]

Brief.—Anchored wires are stretched between posts and standards, the upper series being adjustable in pairs of two. Long straw is arranged in a layer, resting upon the lower wire, and the lower end of the straw resting

in a furrow and covered in with earth. As the vines or plants grow the shelter is raised to a higher position, and in midsummer wholly removed.

193,969.



1. In an espalier or trellis-frame, the combination of the end posts A and palings B with the removable eyebolts D and the permanently-anchored wire C, all constructed and arranged substantially as described, for the purpose specified.

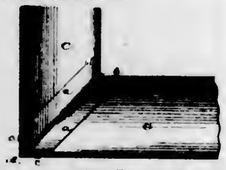
2. The end posts A, having slots a', in combination with the movable wire F, bolts G, having eyes g, and hooks g^1, the palings B, and a stretching device, substantially as and for the purposes set forth.

3. The end posts A in combination with the movable wire H, having hooks h, the hooks g^1 of the bolts G, and the palings B, arranged and constructed substantially as and for the purposes specified.

4. The combination of the movable wire H, having hooks h, with the movable wire E, the slotted end posts A, and a series of palings, B, and a stretching device or devices, substantially as and for the purposes specified.

5. A combined adjustable shelter or protection and an adjustable espalier or trellis work, consisting essentially of slotted end posts A, the anchored wire C, the wire E, the wire H, provided with a series of metallic hooks, h, the palings B, eyebolts D, the hook and eyebolts G, and a stretching device or devices, all combined, constructed, and arranged to operate substantially as and for the purposes described.

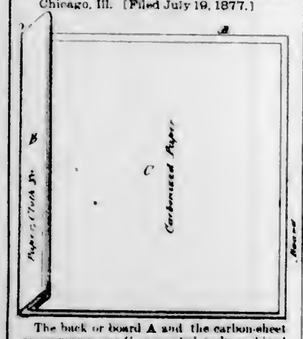
193,970. STOVE-PIPE ELBOWS. Joseph M. Lauby, Brodhead, Wis., assignor of one-half his right to Chas. Lauby, same place. [Filed Apr. 2, 1877.]



1. A stove pipe elbow consisting of oval connecting ring A, with its flanges a a, holes c c, in connection with parts C C, and welt b, arranged as described, and for the purposes set forth.

2. The combination of parts C C of a stove-pipe elbow, with oval connecting ring A, with its flanges a a, and welt b, as described, and for the purposes set forth.

193,971. WRITING-TABLETS. H. Laurence, Chicago, Ill. [Filed July 19, 1877.]



The back or board A and the carbon-sheet or copying paper C, connected and combined for use by means of the holding strip B, folded and secured with said carbon sheet, as described.

193,972. WASH-BOARDS. H. F. W. Liebmann, Chicago, Ill. [Filed May 7, 1877.]

Brief.—The rubbing-board is made of glass, porcelain, or terra-cotta, and is removable, so that, if broken, its place can be supplied by another in the original frame. It is provided with perforations, which, when the rubbing-board is secured in place, match with holes in the body-board, thus allowing the dirty suds to readily escape at different points.

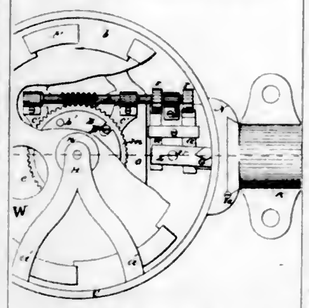


1. The wash-board frame A, having grooved side rails a and body-board b, in combination with the rubbing-board C and turn button d, all arranged substantially as described and shown.

2. The wash-board described, consisting of the side and end rails a a', perforated body-board b, soap-board b', and the removable perforated rubbing-board C, all constructed and arranged substantially as set forth and shown.

193,973. TIME-LOCKS. Lewis Lillie, Elizabeth, N. J. [Filed Apr. 3, 1877.]

Brief.—A supplemental unlocking mechanism is provided, whereby the lock can be unlocked in case time mechanism should stop.



1. The wheel W, arranged to be operated by the time-movements, and having on its circumference alternate recesses and full parts, in combination with one or more segments, F*, and the bolt B, substantially as and for the purpose specified.

2. The combination of the wheel W and the unlocking mechanism, consisting of the threaded arbor x', disk x, wheel m, worm and shaft o, ratchet-wheels r r, bars a a, lever L, and bolt B, substantially as and for the purpose specified.

3. The wheel W and the unlocking mechanism, consisting of the threaded arbor x', disk x, wheel m, worm and shaft o, ratchet-wheels r r, bars a a, lever L, and bolt B, in combination with the train-bolts and spindle, substantially as and for the purpose specified.

193,974. MIXED PAINTS. W. Longman, Brooklyn, N. Y. [Filed June 16, 1877.]

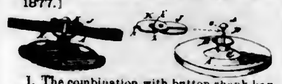
A paint compounded of oxids of zinc, with or without the carbonate of lead, with silicate of alumina, linseed oil, spirits of turpentine, black oxide of manganese drier, and with or without cowrie-gum varnish, and with or without coloring pigments, in the proportions substantially as herein described.

193,975. MANUFACTURE OF HORSESHOE-NAILS. D. B. Loring, Boston, assignor of one-half his right to J. E. Wheeler, Lynn, Mass. [Filed June 15, 1877.]



The following described process in the manufacture of horseshoe-nails, consisting, first, in punching from a ribbed metal plate a blank having a head-forming portion wider and thinner than the head of the finished nail; second, in upsetting the head-forming portion of the blank by a lateral pressure exerted upon its edges; third, in reducing the shank by a pressure exerted upon its front and back transversely to that exerted in forming the head, whereby the head and the shank are successively formed by cold-rolling, and but one pressure exerted upon the completed blank, as described.

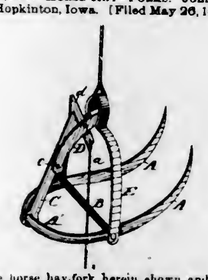
193,976. BUTTON-FASTENINGS. Fred. W. Ludwig, Cincinnati, Ohio. [Filed July 2, 1877.]



1. The combination, with button-shank having the collar or enlargement G, of a locking device, J K k k', formed and operating substantially as set forth.

2. The button-shank A B C D E G, constructed substantially as and for the purpose set forth.

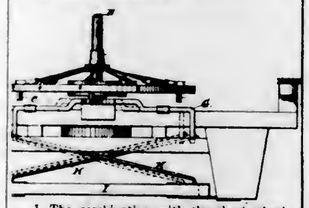
193,977. HORSE HAY-FORKS. John Lux, Hopkinton, Iowa. [Filed May 26, 1877.]



The horse hay-fork herein shown and described, consisting of the fork A A' A, having cross-bar B, swinging bail E, hinged lever C, elbow D, and pivoted dog d, constructed, combined, and operating substantially as and for the purpose hereinbefore set forth.

193,978. CORN-PLANTERS. S. Lyon, Chetopah, Kans. [Filed Apr. 24, 1877.]

Brief.—The circumference of the rope-wheel is increased or diminished by blocks sliding in slotted arms connected with an adjustable collar. The rope-wheel rotates on a vertical spindle, over bifurcated levers, that are alternately vibrated by adjustable trips attached to and having a point projecting below the slotted arms. The bifurcated levers strike projections on a bridge-like rod, that has arms connecting it with the seed-slide bar for vibrating the slide. The levers have spring-arms on each side that come in contact with stops limiting the stroke.



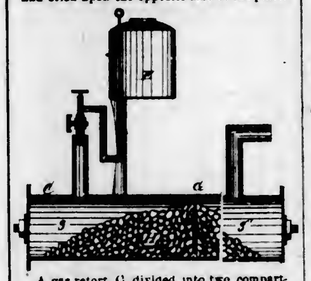
1. The combination, with the check wheel having radial arms, of the sliding collar, the grooved adjustable blocks, and the pivoted arms, for changing the circumference of the check-wheel.

2. The combination, with the check-wheel and trip-pin, of the bifurcated levers, their springs and stops, and the slotted bridge for actuating the seed-slides, substantially as described.

3. The combination, with the bridge G, of the cross-bars H, bar I, and sliding valves s, for dropping the grain, substantially as described.

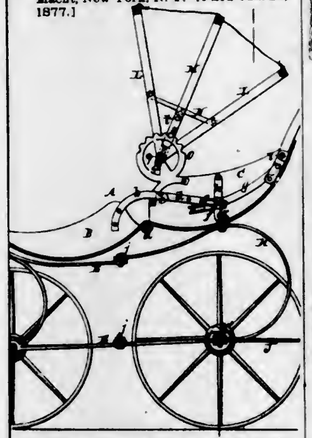
193,979. GAS-RETORTS. A. W. M. Mann, Mobile, Ala., assignor of two-thirds his right to R. B. Lott, same place, and W. H. Hardy, Meridian, Miss. [Filed Dec. 21, 1876.]

Brief.—Oil, melted resin, or pitch is dropped upon coke or pieces of brick kept at a bright-red heat, and the gas generated is caused to pass down through the coke and brick by a vertical plate having an opening near the bottom of the retort, and to rise through the coke and brick upon the opposite side of the plate.



A gas retort, C, divided into two compartments, g g', of equal size, by a plate, G, projecting downward from the top, said plate provided with a narrow opening or passage-way, i, at its bottom, substantially as and for the purpose herein shown and described.

193,980. CHILDREN'S CARRIAGES. Carl G. Macht, New York, N. Y. [Filed Jan. 24, 1877.]



1. The combination, with the folding body A, arms H, and axles I, of the telescopic traverse K, connected at each end with the arms H, substantially as and for the purpose described.

2. The combination, with the folding carriage-body A and the hinged push-handle D, of notched braces b, fastened to the front section B of the body A, and of latches d, which are operated by the motion of the push-handle, substantially as set forth.

3. The combination, with the folding carriage-body A, the folding truck E E H H, and the hinged push-handle D, of arms g, latches d, notched braces b, catches k, and eyes or equivalent devices k, all constructed and operating substantially as shown and described.

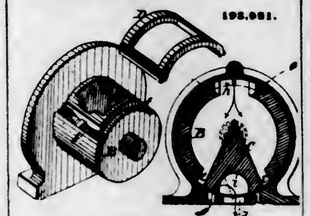
4. The combination, with the carriage-body A and the hinged push-handle D, of two bolts, I, connected to one and the same button p, substantially as and for the purpose set forth.

5. The combination, with the serrated segments O, bows L L, and toggle levers N, of the intermediate bow M, having slots r, and pins s, adapted, respectively, to the pivots q, and to the serrations in the segments O, substantially as described.

193,981. OSCILLATING VALVES FOR STEAM-ENGINES. L. Mangold, Chattanooga, Tenn. [Filed Nov. 10, 1876.]

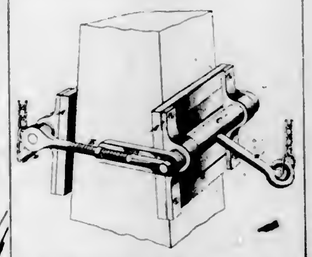
The combination of the cylindrical valve B, having ports h and e e, with groove around the port h, the metal frame D, and springs f, the valve-case A, with its ports, and the partition C, with recess i, all substantially as and for the purposes herein set forth.

193,981.



193,982. CLAMPS FOR HOISTING MONUMENTS, PILLARS, &c. T. Mazon, Springfield, Ohio. [Filed June 20, 1877.]

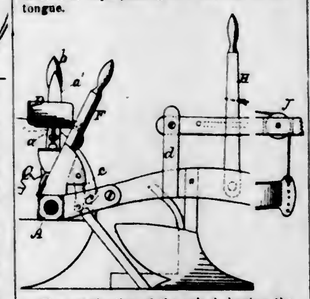
Brief.—Two clamping plates are connected together on each side by adjusting bars working on eccentrics, which are operated by means of levers.



In combination with the friction plates A A' of a clamp for hoisting, the eccentrics C C', levers D D', and adjusting-bars E E', substantially as and for the purpose set forth.

193,983. PLOWS. J. F. Mead, De Kalb, Ill. [Filed June 26, 1877.]

Brief.—The rear end of plow-beam is hinged to arms projecting from the axle. A lever hinged upon the axle and linked to the plow-beam turns the former and lifts the latter. The front end of the plow-beam is lifted by a lever and rope passing over a pulley in the tongue.

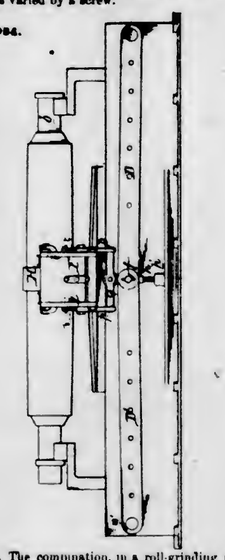


The combination of the axle A, having the forward-projecting arms c c', the plow-beam E, pivoted to axle arms c c', and the elbow-lever F, hinged to the axle and linked to the rear end of the plow-beam, substantially as shown and described.

193,984. ROLL-GRINDING MACHINES. J. Magaw, Philadelphia, Pa., assignor of one-half his right to Lobdell Car Wheel Company, Wilmington, Del. [Filed Feb. 26, 1877.]

Brief.—The outer end of the reciprocating grinder-carriage is suspended by a horizontal hinge, so that the axis of the grinder is constantly changed with relation to the axis of the roll being ground by the rising or falling of the grinder as it passes up or down a jointed and double-inclined trackway on the side of the main frame. The inclination of the trackway is varied by a screw.

193,984.

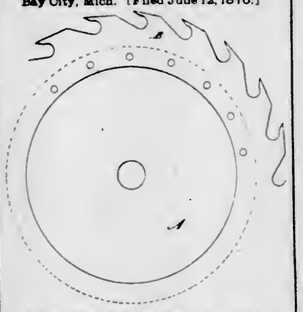


1. The combination, in a roll-grinding machine, of a carriage, to be traversed on the base of the machine, a plate pivoted to the said carriage, and carrying the grinding-wheel, two inclined planes on the base and mechanism, substantially as described, whereby the planes are made to control the said pivoted plate and grinding-wheel, all substantially as set forth.

2. The combination, in a roll-grinding machine, of adjustable bars D D', hinged together at f, with the hinged plate F carrying the grinding-wheel and the carriage G.

3. The combination of the hinged plate F and bars D D', and the roller s, made self-accommodating to the edges of the said bars, substantially as described.

193,985. CIRCULAR SAWS. D. B. McRae, Bay City, Mich. [Filed June 12, 1876.]



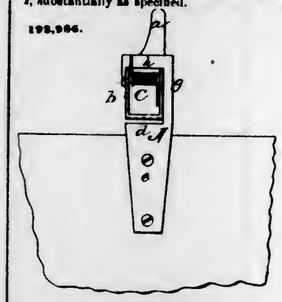
1. The toothed ring B or B', attached to a center disk or body plate, A, of not greater thickness than the toothed ring, substantially as specified.

2. A saw consisting of a toothed ring and a center body-disk, attached as described, in which the disk is made as thick at the center as the ring, and diminishes in thickness therefrom to the ring, substantially as specified.

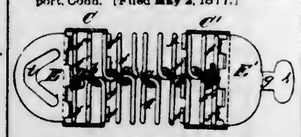
193,986. MEN-HOLDERS. David C. Montgomery, St. Joseph, Mo. [Filed May 5, 1877.]

The rein-holder, consisting of the fixed vertical abutment or jaw A, open at the side, and its fastening-extension *e*, cast in one piece, the cam jaw C, pivoted thereto, and having its biting-surface obliquely grooved toward the abutment-arm *g*, the handle *c*, and spring *s*, substantially as specified.

193,986.



193,987. GASTERS. J. L. Moore, Bridgeport, Conn. [Filed May 2, 1877.]



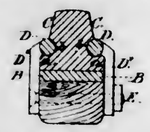
1. A spring for an elastic band, constructed by bending an elastic wire first in parallel loops, and then bending the loops upon a former in such manner that the ends *a* of said loops lie over, or nearly over, the central longitudinal axis of the spring, substantially as and for the purpose specified.

2. The combination, with the spring A, of the flexible check *b*, applied to said band by winding it in or passing it through the ends *a* of the loops of the spring, substantially as and for the purpose set forth.

3. The combination, with the caps C C', of the clasp E E', respectively inserted in the slots *d* of said caps, and having attached tongues *f*, for fastening either part of the clasp in one or other of the said caps, substantially as and for the purpose set forth.

4. The combination, with the spring A and caps C C', of the clasp E E', the part E having formed therein the locking-slot *i*, and the part E' having on it the locking-head *h* and neck *g*, substantially as and for the purpose specified.

193,988. ELASTIC WHEEL-TIRES. F. Mullner, Liverpool, England. [Filed Sept. 7, 1876.]



1. As a new article of manufacture, a molded vulcanized india-rubber tire, C, provided with lateral flanges *a a* at its base, and lateral recesses *b b* outside or above said lateral flanges for the reception of lateral griping surfaces, substantially as described.

2. In combination with the ordinary tire B and rim of the wheel, the flanged elastic tire C, griping-surfaces D, and fastening device E, substantially as described.

193,989. SCREW-PROPELLERS. Michael D. Nelon, Newport, Ky. [Filed July 26, 1877.]

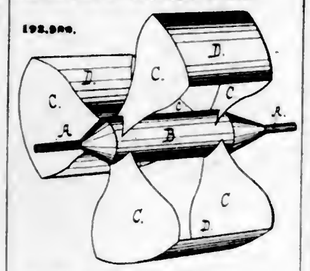
1. In a propeller-wheel, a pair of blades connected by means of a plate, the unattached edges of which are parallel with the shaft, substantially as described.

2. In a propeller-wheel, two sets of blades, the same being connected in pairs by means of plates, the opposite edges of which are parallel, substantially as described.

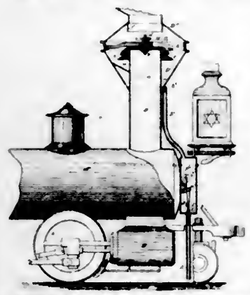
3. In a propeller-wheel, a hub and a pair of blades, connected by means of a plate, forming together a water-channel having parallel opposite surfaces, as set forth.

4. In combination with the shaft A, the hub B, blades C, and plates D, all substantially as described, and for the purpose set forth.

193,990.



193,990. SPARK ARRESTER AND CONVEYER. James A. Pae, Montgomery, Ala. [Filed June 19, 1877.]

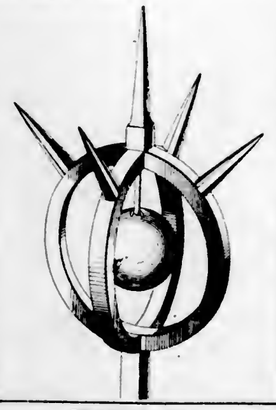


1. In combination with the smoke stack D and spark-conveyer E, the chamber F, located in front of the engine, and having one central discharge-pipe, L, and two side discharges, K K, provided with suitable valves and operating-rods, so that the sparks contained in chamber F may be discharged either in the middle of the track or on the rails in front of the wheels, at the option of the engineer, substantially as and for the purpose herein shown and specified.

2. In combination with the smoke-stack D, the following co-operative elements—viz., the incline *a*, deflector *c*, adjustable cap G, tripod H, and annular screen *f*, all constructed and combined to operate substantially as and for the purpose hereinbefore set forth.

193,991. LIGHTNING-RODS. W. W. Patterson, Corning, Iowa. [Filed Apr. 30, 1877.]

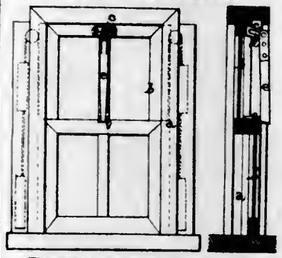
Brief.—The invention is fully set forth by the claim and drawings.



A lightning-rod tip formed by the union of two intersecting circles of metal, and having a series of points projecting therefrom at various angles, and a magnetized ball or globe suspended within the intersecting circles, substantially as set forth.

193,992. WINDOW-SASH FASTENERS. L. Patterson, Parker City, Pa., assignor of one-half his right to J. K. Hunter, same place. [Filed May 10, 1877.]

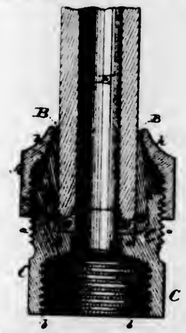
Brief.—A long-handled pivoted lever and a casting with downwardly-inclined slot are attached to the upper bar of the upper sash, in such manner that the handle is utilized both for a window-pull and a sash-fastener.



The combination of the two sashes with casting *c*, having a downwardly inclined slot, the lever *e*, and with or without the plate *g*, all arranged to operate substantially as specified, for the purpose set forth.

193,993. PIPE-COUPLINGS. Henry Pennie, Brooklyn, assignor to himself and J. L. Sharp, New York, N. Y. [Filed Jan. 19, 1877.]

Brief.—The sleeve surrounding the pipe is expanded by driving through it the portion which rests between the shoulder of the shell and the pipe end.



1. The shell C, made with the interior shoulder *d*, and hollowed above said shoulder to form a tapering chamber, which chamber gradually contracts toward the outer end of said shell, substantially as and for the purpose herein shown and described.

2. The soft metal tapering sleeve B, combined with the expansion ring or tool D, and with the shell C, substantially as herein shown and described.

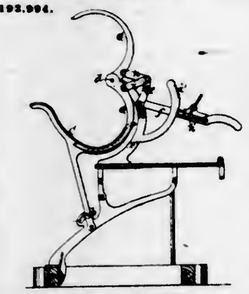
3. The combination of the compression-nut A, which has the conical projection *h*, with the shell C and soft-metal tapering sleeve B, the angle of the projection *h* differing from that of the sleeve B, substantially as herein shown and described.

4. The combination of the shell C, which has the screw-thread *a* and the thread *b*, with the nut A and tapering sleeve B, to constitute a coupling for a single pipe, substantially as herein shown and described.

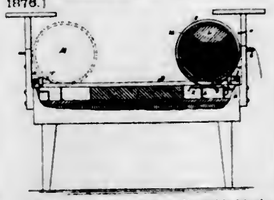
193,994. HAND-BINDERS FOR HARVESTERS. F. Pateler, Minneapolis, Minn. [Filed Dec. 26, 1876.]

The combination, with a trough for receiving the material, and a frame constructed to slide in suitable ways, of toogs composed of two curved jaws pivoted together, and a bell-crank lever, *f*, and rods *h* and *i* attached to said lever and to the jaws, substantially as and for the purpose described.

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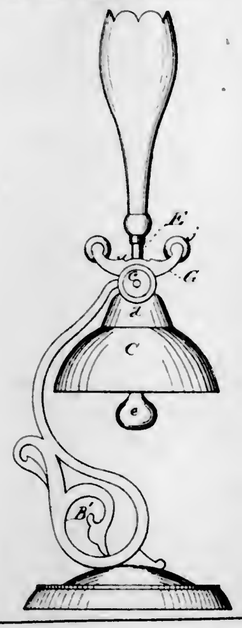
193,995. ROTARY PRINTING-PRESSES. J. R. Rankin, Indianapolis, Ind. [Filed Oct. 30, 1876.]



1. The combination of the adjustable blocks T and rails D, in the manner specified, for the purpose of adjusting the travel of the pressure-roller M, in the manner set forth and described.

2. The cylinder M, provided with flanges N at each end, and having a weight side, L, arranged and adapted to be operated in the manner and for the purposes set forth and described.

193,996. CALL-BELLS. F. Ratcliff, Meriden, Conn. [Filed July 14, 1877.]

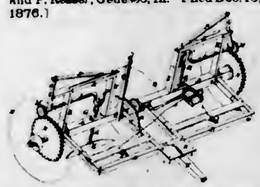


1. The combination, with the bell C, having the tubular neck *d*, and the brackets B B', having tubular head *b*, supporting said bell, of the rock-shaft D, journaled in the said head, and the hammer-stem *f*, extended through said neck and head and secured to said rock-shaft, substantially as specified.

2. The combination, with the bell C, the cap *b*, the rock-shaft journaled thereon, and the bell secured to said rock-shaft, of the transverse bail G, having enlarged handle ends *j*, and being at right angles to said shaft, substantially as specified.

3. The bracket for a call-bell provided with the extension E, in combination with a flower-cup, adapted to be removably secured to said extension out of the way of the operating parts of said bell, substantially as specified.

193,997. STALK-CUTTERS. M. W. Resser and P. Resser, Geneseo, Ill. [Filed Dec. 16, 1876.]



1. In combination with the axle A, pivoted frame bars C, and cutter-bars H, the lever Q, spring-pawl *q*, and toothed segment R, substantially as and for the purpose specified.

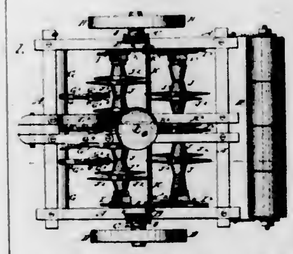
2. The hereinbefore-described stalk-cutter, in which are combined the longitudinally-jointed supporting-frame A, C, D, and E, the ground-wheels B, the pivoted bearing-blocks G, the cutter-bars H, the cutters H', the crank-shafts I *i*, the pinions M, and gear-wheels N, said parts being constructed and arranged to operate in the manner and for the purpose substantially as shown.

193,998. METHODS OF PRODUCING STEREOSCOPIC PICTURES. H. A. Reynolds, Brooklyn, N. Y. [Filed Ap. 23, 1877.]

The method of producing stereoscopic pictures by making a double positive and copying the stereoscopic picture therefrom by means of a one or two tubed camera, substantially as described.

193,999. HARROWS AND CULTIVATORS. T. Sanders and L. C. Nichaolds, Hamburg, Iowa. [Filed June 16, 1877.]

Brief.—The plows, capable of lateral adjustment, are arranged upon a shaft journaled in the frame near the front end. In the rear of the plows are two shafts, with star-wheels arranged alternately thereon, having bearings in the lower ends of levers pivoted to the sides of the frame, and having connection with a lever pivoted upon the frame, by means of which the harrow-wheels may be raised and lowered.



1. The plow (J), constructed as described, with the reversed hoof *a*, front cutting edge *c'*, and curved side flanges E' E', substantially as herein set forth.

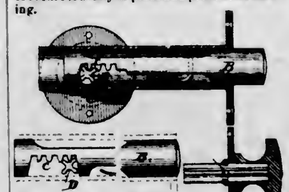
2. The star-wheel herein described, constructed in two parts, each part consisting of an elongated hub, J, disk J', and radial arms J', and the two parts locked together by one or more lugs *k* and corresponding recesses *i*, substantially as and for the purposes herein set forth.

3. The combination of the two shafts H H', each with a series of star-wheels, as described, the pivoted levers I I', connecting rods *k k'* *k'*, shaft K with arms K' K', and lever L and ratchet L', substantially as and for the purposes herein set forth.

4. The combination of the frame A, adjustable up and down on the wheels D D, the adjustable plows G', laterally adjustable on the shaft G, the adjustable shafts H H', with bisected star-wheels placed thereon, and the roller R, all constructed substantially as herein set forth.

194,000. DOOR-BOLTS. J. Sargent, Rochester, N. Y. [Filed July 12, 1877.]

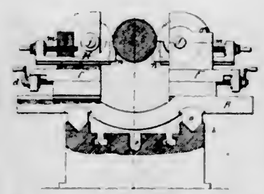
Brief.—One or both of the terminal teeth in a ratchet series formed in a recess of the bolt are cut away, in such manner as to cause one of the engaging teeth of the key or spindle, when the bolt is fully projected, to bear against the next succeeding full-sized ratchet-tooth, the peculiar shape and angle of the terminal teeth preventing retraction of the bolt by pressure or otherwise without first using the key or spindle. The spindle is likewise provided with grooved teeth extending its entire length, which not only serve to operate the ratchet-teeth as rack and pinion, but are likewise utilized to enter the knob or handle, to secure it firmly in place and prevent its turning.



1. A lock-bolt provided with a ratchet or series of teeth, *c*, in combination with a pinion, spindle, or key, D, one or both of the terminal teeth of said ratchet or series of teeth being cut away, so as to throw said terminal teeth out of bearing against the teeth of the spindle, and cause the succeeding tooth of the ratchet to bear against one of the spindle-teeth, substantially as described, whereby the bolt is held in a locked or dogged position against any pressure or strain applied directly thereto through means other than the spindle, as set forth.

2. In combination with the bolt B, having a rack arranged within a suitable casing, the spindle or key D, formed with pinion-teeth extending from end to end of the same, for receiving the knob or handle G attached thereto, and to operate the bolt, substantially as described.

194,001. ROLL GRINDING AND FINISHING MACHINES. T. H. Savery, Wilmington, Del., assignor to himself, J. L. Pusey, and W. G. Gibbons, and the Lobdell Car Wheel Company, same place. [Filed June 12, 1877.]



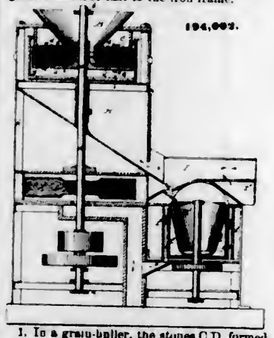
1. In a machine for grinding or finishing rolls and other like objects, the combination of free bearings for the roll, traversing grinding-wheels or other tools, and bearing-blocks *a a*, adapted to the roll, all substantially as set forth.

2. The combination of the carriage B and the adjustable slides F, carrying the grinding-wheels or other tools, with bearing-blocks *a a*, which admit of being adjusted independently of the said slides.

194,002. GRAIN-HULLERS. C. Schaschus, Rordout, N. Y. [Filed May 3, 1877.]

Brief.—The hulling-burrs are formed of alternate layers of steel bands having their working edges slitted or notched like teeth, and sheets of coarse woven wire rolled tightly together and cast to the iron frame.

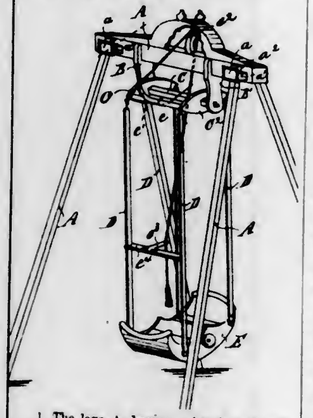
194,002.



1. In a grain-huller, the stones C D, formed of alternate rows or layers of steel bands *d*, having their edges slitted or notched, and woven wire *s*, rolled together and united, substantially as and for the purposes herein set forth.

2. The improved grain-huller herein described, consisting, essentially, of the hopper B, the shaft E, stones C D, the curb G attached below the stones to the shaft, and revolving therewith, the trough H, box I, tinisher and fan, all constructed and arranged to operate substantially as and for the purposes herein set forth.

194,003. SWINGS. E. Schlueter, St. Louis, Mo. [Filed May 28, 1877.]



1. The legs A, having a bevel at a^3, and being pivoted at a^1 to bearing-blocks, the latter being slotted at *a*, said parts being combined with a cross-bar A′, to operate in the manner and for the purpose set forth.

2. An improved swing consisting of the legs A, jointed, as shown, to the cross-bar A′, hangers B B′, axle C, bows C^1 C^2, hangers D D D D, seat E, said parts being combined with a cord attachment, to operate in the manner set forth.

3. The center-arm e^2, its cross-piece e^1, in combination with hangers D D, and cord F, axle C, hangers B B′, cross-bar A′, legs A, and seat E, as and for the purpose set forth.

4. The combination of the cross-bar A′, legs A, bearing-blocks *a*, hangers B B′, axle C, bows C^1 C^2, cross-piece *e*, arm e^2, hangers D D D D, seat E, and cord attachment to form the improved swing, substantially as set forth.

194,004. CORN-PLANTERS. Levi Scofield, Grand Haven, Mich., assignor of one-half his right to J. B. Wait, same place. [Filed Jan. 12, 1877.]

Brief.—The bar for imparting a reciprocating movement to the seed-slides is mounted on rocking bearings pivoted to the cross-bar.

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1. A reciprocating connecting-bar between the seeding mechanisms of a corn-planter, in combination with rocking supports, as set forth.

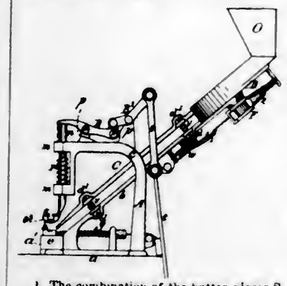
2. A rocking bearing, C, combined with the reciprocating connecting-bar of a corn-planter, and having pivoted connections below and rounded supporting-surface for the bar, as set forth.

3. The pivoted bearing C, formed with an arm or arms *e*, slotted stud *x*, and rounded surface for the bar, as set forth.

4. The connecting-bar *a* and segmental bearings C C, pivoted on the runner-beam or equivalent support, and held thereto by a strap, as set forth.

194,005. MACHINERY FOR FEEDING AND ATTACHING BUTTONS. E. A. Sherwood, Syracuse, N. Y. [Filed May 14, 1877.]

Brief.—A machine in which the mechanism for feeding buttons, the device for placing and adjusting them, and the foot for holding each button and crimping the leather over the eye are all connected and operated, respectively, by a single movement of an operating foot device, leaving the operator's hands free to adjust the shoe for each successive button and to handle the needle and thread.



1. The combination of the button-placer S, wheel *w*, cord 1, ratchet F, lever-arms *x* and 2, space-wheel H, and the adjusting and distributing wheel I, with the pressure-rod *t*, all constructed and operating together substantially as above described.

2. The combination of the yoke *s*, levers B B′, foot-holder *n*, and foot *o* with the pressure-rod *t*, all constructed and operating together substantially as above described.

3. The combination of the jaws *h*, provided with recesses *i*, with the foot *o*, all constructed and operating together substantially as above described.

4. The combination of the inclines *b* and C with the placer S, jaws *h*, and foot *o*, all constructed and operating together substantially as above described.

5. The combination of the adjusting-wheel I with the hopper O, stirrer P, guide 3, and inclines C and *b*, all constructed and operating together substantially as above described.

6. The combination, with mechanism for feeding and delivering buttons in a machine for uniting them to the uppers of shoes, of recessed or countersunk jaws, with a space between them to receive and hold the button-eye above them, with an open foot adapted to crimp the leather over the button-eye, and allow the leather-covered eye to project through and above said foot to receive the action of the needle in sewing on the button.

7. The divided jaws *h h*, for holding the button to be sewed, made adjustable vertically in relation to the inclined button-conductors to automatically adapt said jaws to different-sized buttons.

8. The mechanism for feeding the buttons in succession, the device for placing and adjusting the buttons, and the foot for holding the button and crimping the leather over the eye, all connected and operated, respectively, by a single movement of an operating foot device, leaving the operator's hands free to adjust the shoe for each successive button, and to handle the needle and thread.

9. The lower incline *b*, with smooth upper surface to support the head of the button, and the upper incline C, with longitudinal groove in its under side to receive and hold the button-eye, adjustable with respect to each other, and combined with the feeding-wheel I, and the button-receiving jaws, substantially as herein set forth.

10. The countersink in the raised bed beneath the jaws *h h*, to receive and hold the head of the button, combined with the narrow opening between said jaws to receive and hold the eye of the button during the operation of uniting it to the leather.

11. The foot *o*, open at one side to allow the needle to pass through the eye of the button while the latter is held clamped between the foot and the jaws, in combination with the recesses *i* in the jaws, to guide the needle, as herein set forth.

12. The combination, with the inclined guides for the buttons and the jaws *h*, of the horizontal button-placer S, for operation as described.

13. The combination, with the button distributing and feeding wheel I, of the way-wheel H and the guide-arm 3, as herein set forth.

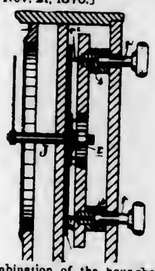
14. The revolving disk D^3 and the way-wheel H, forming the button-carrier, the circumferential notches in the wheel I for receiving the eyes of the buttons, combined with the guide-arm 3 and the inclined guide-ways for the buttons, substantially as herein set forth.

15. The guide-arm 3, adjustable, in combination with the rimmed holder D, and interchangeable wheels H, of different sizes, for the purpose stated.

16. The pivoted stirrer P, in combination with the hopper O, and the feeding and distributing wheel I, for the purpose stated.

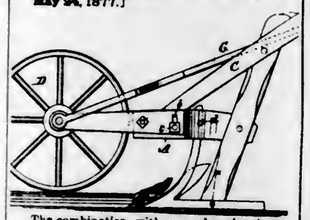
17. A button adjuster, distributer, and holder, consisting essentially of the adjustable button receiving and holding jaws *h*, the inclined button-conductors *b C*, the adjusting and distributing wheel I, the reciprocating button placer S, and the vertically-reciprocating crimping and holding foot *o*, all constructed and adapted for operation substantially as herein set forth.

194,006. WATCHMEN'S TIME-DETECTORS. George W. Shingleton, Indianapolis, Ind. [Filed Nov. 21, 1876.]



The combination of the hour-shaft J, its feather *i*, and the sleeve E, its recess *m*, flange C, and pins *f*, and punches r^4, as set forth.

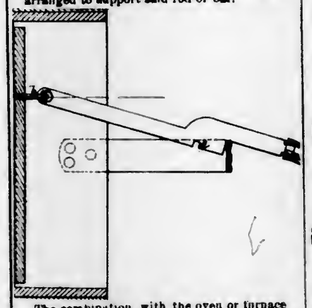
194,007. GARDEN-PLOWS. T. E. Smoot, Florence, Ala., assignor of one-third his right to A. M. Parkhill, same place. [Filed May 24, 1877.]



The combination, with a garden-plow having a front wheel, D, beam A and handles C, of a reversible push or draft bar, G, having breast-piece *f*, and forked lower end pivoted directly to the axle of said wheel upon opposite sides of the same, as and for the purpose set forth.

194,008. DEVICES FOR OPENING AND CLOSING DOORS OF FURNACES, &c. Henry A. Stadler, New York, N. Y. [Filed July 21, 1877.]

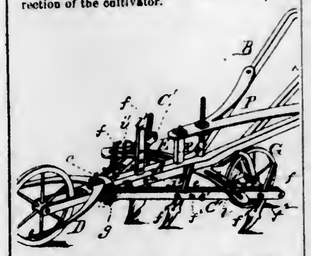
Brief.—A stepped or notched rod or bar is freely connected, by an eyebolt, to the furnace-door, and engages with a fixed guard or rail arranged to support said rod or bar.



The combination, with the oven or furnace door, of a freely-connected rod or bar, constructed to form a handle, also provided with one or more steps or notches on its under edge, and the fixed guard or rail, arranged to support said bar, and serving, by the engagement of the steps or notches of the rod or bar with it, to hold the door closed or partly open, as required, substantially as specified.

194,009. CULTIVATORS. D. Stanchfield, Davenport, Iowa. [Filed Mar. 24, 1877.]

Brief.—A wheel-cultivator in which the handles and the central beam are made of a single piece of iron or steel, the side bars also of a single piece bent back upon itself, and clamped together at the teeth. The lever S, attached to the rear wheel, is designed to regulate the direction of the cultivator.



1. The combination, with the main beam A of a cultivator having the angular operating-handle B B^1 B^2, of the vertically-adjustable caster-wheel G, the lever S, extending from said caster-wheel beyond the cross-bar of the handle and the spring T, binding the latter on the cross bar, substantially as specified.

2. The combination, with a cultivator having a front traveler-wheel, C, of a vertically-adjustable and horizontally-vibratory steering-wheel, G, substantially as specified.

3. The combination, with a cultivator having a front transporting-wheel, C, and the triangularly extended beam having a notched cross-bar, B^3, of the vertically-adjustable and vibrating wheel G, its operating-lever S, and a spring binding the said lever against the said bar, substantially as specified.

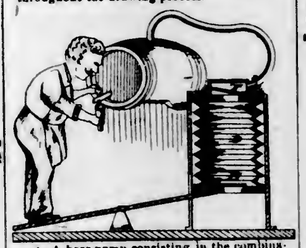
4. The combination, with the beam A having a triangular operating-handle, B B^1 B^2, and the laterally-adjustable beams C pivoted to said beam A, of the curved plate E, having slots *i* and perforated offset *p*, the threaded bolts f^2 secured to said beams C, the clamp-nuts *q q*, the shank *o′* of the caster-wheel G, the operating-lever S, and spring T, substantially as specified.

5. The plow-beam A and handle B B^1 B^2, formed of a single piece of metal, substantially as specified.

6. The combination, with the main beam of a cultivator having a front transporting-wheel, C, of the single-tree D, pivoted to said beam, and having its lever-arms extending to the front at each side of said wheel, substantially as specified.

194,010. BEER-PUMPS. H. Stewart, Fort Madison, Iowa, assignor of one-half his right to H. C. Spreen, same place. [Filed July 3, 1877.]

Brief.—The tapster stands upon a pivoted lever, causing the force of air in a collapsible vessel to press upon the liquid in the cask throughout the drawing process.

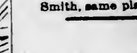


1. A beer-pump consisting in the combination, with a pump having a vertically moving head, of a pivoted platform, one end of which rests in contact with the movable head of the pump, while the other end serves as a support for the person engaged in drawing beer or other liquid, substantially as described.

2. In a beer-pump, the combination, with an outer casing and a fixed upper head, the latter having an eduction-valve attached thereto, of a collapsible cylinder, a movable lower head, the latter provided with an induction-valve and a pivoted platform, one end of which bears on the movable head, while the opposite end serves as a support for the operator, substantially as described.

3. The combination, with a casing provided at its upper end with an air-chamber, a fixed pump-head located below the same, and valve opening upwardly into said chamber, of a collapsible cylinder, movable lower pump-head, and a pivoted platform, one end of which rests against the movable pump-head, while the opposite end serves as a support for the operator, substantially as described.

194,011. SADDLE-PIECES FOR SEAMS OF BOOTS AND SHOES. D. A. Sutherland, Lynn, Mass., assignor to himself and J. N. Smith, same place. [Filed July 6, 1877.]

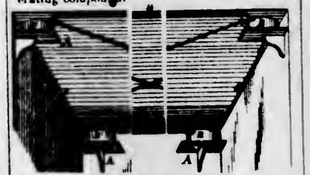


1. A stay-piece for seams of boots or shoes, &c., consisting of a flat strip or ribbon of leather or other suitable material, having the grooves or channels *c c*, and either square or finished edges *d* of a single thickness, all as described, for the purpose specified.

2. A stay-piece for seams of boots and shoes, &c., consisting of a flat strip or ribbon of leather or other suitable material, having grooves or channels *c c* on one side, and a groove, *f*, on the other, and either square or finished edges *d* of a single thickness, all substantially as described, for the purpose specified.

194,012. AUTOMATIC FIRE-EXTINGUISHING APPARATUS. A. Tenner, Cincinnati, Ohio. [Filed June 22, 1877.]

Brief.—The fire in the room ignites the fuses. The latter lead to boxes containing a gas-generating compound.



The combination of the boxes B, containing dry and solid chemicals, and having suitable supports A and long fuses C, forming a circuit connecting said boxes, as and for the purposes set forth.

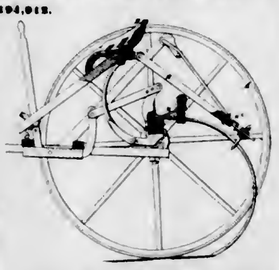
194,013. HORSE HAY-RAKES. John H. Thomas, Springfield, Ohio. [Filed Jan. 16, 1877.]

1. The combination of the rising and falling seat, the teeth, the clearer, the supports F for the clearer, and the bar H for moving the clearer free of the rake-teeth, substantially as set forth.

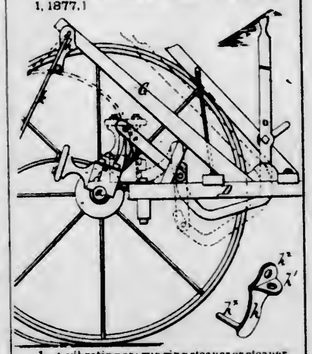
2. In combination with the clearer, the bar H, pivoted to the seat, so that as the seat falls it will force the clearer up, substantially as set forth.

3. In combination with the clearer and its independent supports, the bar H, adjustable as to its length, substantially as set forth.

194,013.



194,014. HORSE HAY-RAKES. John H. Thomas, Springfield, Ohio. [Filed Aug. 1, 1877.]



1. A vibrating or swinging cleaner or cleaner-rake, in combination with rollers, applied and operating substantially as and for the purpose described.

2. The swinging or vibrating cleaner rake, provided with rollers *m*, as described, in combination with the brackets *h h*, or their equivalent, for preventing lateral play of the cleaner and keeping the rollers in the vertical plane of the rake-teeth over which they move, as described.

3. The vibrating cleaner K, provided with the rollers *m*, as described, in combination with the brackets *h h*, having the stops *h′* for holding the cleaner K and rollers *m* above and free from the rake-teeth when the latter are down at work, as described.

194,015. WRITING-INKS. N. T. Tilman, Xenia, Ind. [Filed June 23, 1877.]

A writing-fluid composed of the following ingredients, to wit: Tincture of the chloride of iron, acetic acid, solution chloride of sodium, pulverized extract of logwood, and bichromate of potash, in or about the proportions set forth.

194,016. WATER-FILTERS. C. C. Tittle and J. F. Nolte, Cincinnati, Ohio. [Filed June 27, 1877.]

Brief.—A combined diaphragm forms the bases of two cones, the apices of which connect with the induction and the eduction nozzle or hose, and may be reversed for cleansing. A clamp retains these connections. Deflectors in the cones protect them from the impact of the water.

1. A filtering diaphragm made of asbestus board prepared with plaster of paris and London cement, as described.

2. In a reversible filter, the perforated plates H and H′ of cast metal, and provided with rim M, for inclosing the filtering diaphragms.

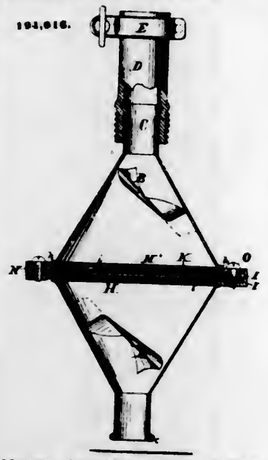
3. In a reversible filter, the break-waters or

agitators B B, adapted to give the water a spiral motion, for the purpose set forth.

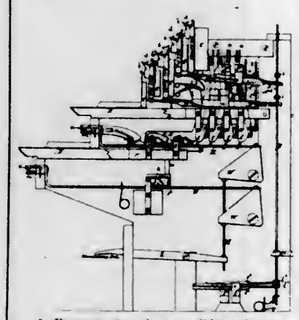
4. In combination with the reversible filter and connecting-hose, the clamp E, provided with arms G G, having inclined surfaces *g g*, one arm being provided with a slot, *f'*, and link *f*, adapted to bind the arms together, as and for the purpose set forth.

5. In a reversible filter, the plates H and H', provided with ridge L, and offset *l*, and grooves *k k*, as described and shown.

194,016.



194,017. ORGAN STOP-ACTIONS. A. Trowbridge, Jr., Boston, Mass. [Filed May 17, 1877.]



1. For actuating the stop-sliders of an organ, two or more sets of keys, A, separate from the playing-keys B, and provided with mechanism, substantially as described, or its equivalent, by which one or more of such sets may be thrown, as explained, either into or out of engagement with the trackers or stop-actuating devices, such mechanism consisting not only of the catch-plates *c c*, levers D D, and nuts *i i*, applied to said keys A and to each tracker, but of the lever-supporting rails F F, springs G G, slides H H, elbow-levers I I, and the connection-bars K K, the slides H being provided with studs and pawls, and all being arranged to operate essentially as explained.

2. Each key A, provided with the angular notch at its upper end, substantially as specified.

3. Each key A, provided with a guide-slot, and notched in front, and arranged between rails having a catch-plate and guide-pin to operate with the key, all as specified.

4. In combination with each key A and its lever D, for operating the stop-tracker, mechanism for raising or depressing the fulcrum of the lever, so as to bring such lever into or out of engagement with the tracker, as set forth, such mechanism, as described, for such purpose being a spring, a slide, its stud, and pawl, an elbow-lever, and a connecting-bar, all arranged as set forth.

5. The combination of the arms *f f* and link *z* with the two lowest rock-shafts, all being substantially as and for the purpose specified.

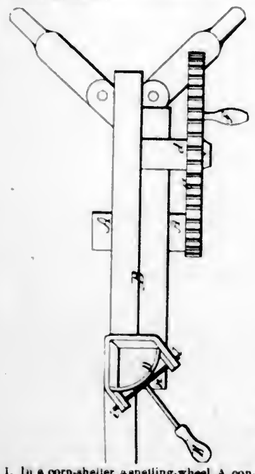
6. In an organ, and for drawing back simultaneously all the pairs of slides belonging to a given set of stop-keys thereof, the pedal L, connection-rod M, and two elbow-levers N N, arranged and applied essentially as specified and represented.

7. In combination with a group of stop-keys, A, and their operative slide H, as described, the indicator-key O, combined with such slide by a lever, *x*, and rod *y*, connected with the shaft of such slide, so as to operate substantially as set forth.

8. In combination with two of the rails F F, and for producing a sforzando or explosive effect, mechanism, substantially as described, such consisting of the pedal P, rod a^3, adjustable block b^3, and the pins c^3 c^3, arranged in slots d^3 d^3 of the bars K K, as explained.

9. The notched guide S, the pedal P, spring k^3, rock-shaft h^3, and the arm g^3, in combination with the trackers, provided with nuts arranged over such arm, as described.

194,018. CORN-SHELLING MACHINES. C. P. S. Wardwell, Lake Village, N. H. [Filed June 16, 1877.]

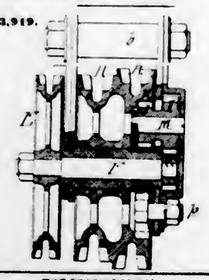


1. In a corn-sheller, a shelling-wheel, A, constructed with a peripheral shelling-rim, *g*, and a feeding-flange, *h*, projecting outward nearly at right angles from one edge of the shelling-rim, both the rim and flange having teeth or projections on their faces, substantially as and for the purpose herein specified.

2. In a corn-sheller, a shelling-wheel, A, constructed with a peripheral shelling-rim, *g*, having teeth or ribs *i i* upon its periphery, arranged in lines oblique to the axis of the shelling-wheel, and an outwardly-projecting toothed feeding-flange, substantially as and for the purpose herein specified.

3. In combination with the shelling-rim *g* and feeding-flange *h*, arranged at an angle to each other, the counter-pressure concave D, moving inward in an oblique direction toward the said rim and flange, substantially as and for the purpose herein specified.

193,919.



194,019. HOISTING-TACKLE. Thomas A. Weston, Stamford, Conn., assignor to the Yale Lock Manufacturing Company, same place. [Filed Apr. 18, 1877.]

Brief.—Power is gained by differential gear.

1. The combination, in a pulley-block, of a hoisting pulley or pulleys, a driving-shaft passing through the hoisting pulley or pulleys, a driving-pulley secured to the said shaft, and the system of cog-wheels having fixed central axes, substantially as described, whereby the said driving-shaft is geared to the said hoisting pulley or pulleys, as herein set forth.

2. The combination, in a differential pulley-block, of the differential pulleys, of different diameters, and rigidly secured to each other, a driving-shaft passing through the same, a driving-pulley secured to said shaft, and a system of gearing, substantially as described, whereby the said driving-shaft is geared to the said differential pulleys.

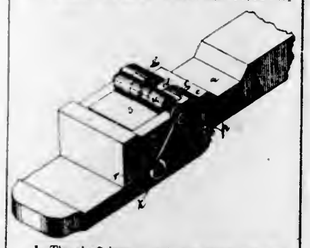
3. An improved pulley-block containing the following elements, viz: a hoisting pulley or pulleys, a driving pulley and shaft, and a system of cog-wheels for communicating motion from the driving-pulley to the hoisting pulley, all the said cog-wheels having fixed central axes radially within the circumference of the hoisting-pulley, substantially as described.

4. In a pulley-block, the combination of a hoisting pulley or pulleys, provided with toothed gearing, with the driving-pinion G and pinions I J, radially within the circumference of the said pulley, as set forth.

5. The combination, in a pulley-block, of the hoisting pulley or pulleys, the driving-shaft F, and the intermediate sleeve *m*, on which the said pulley or pulleys turn, as described.

6. The plate P, fitted to and combined with the sleeve *m*, and secured to the block-frame, and forming a support for one end of the fixed counter-shaft M.

194,020. THILL-COUPLINGS. J. A. Whipple, Cambridge, Mass. [Filed Apr. 17, 1877.]



1. The shaft-iron *a*, and its cylindrical end *b* and guard *c*, in combination with a clip part, *e*, metallic packing *h*, and a spring to hold it pressed against the end *b*, substantially as described.

2. The shaft-iron *a*, provided with the cylindrical end *b* and guard *c*, in combination with the clip part *e*, and metallic packing-block cover plate pivoted on the packing-block, and spring, substantially as described.

194,021. MEDICATED SOAPS. R. E. Whittemore, Essex, Conn. [Filed May 10, 1877.]

1. A soap made by incorporating *Hamamelis Virginica* with ordinary soap, substantially as above recited.

2. The combination of the glycerated extract of *Hamamelis Virginica* with the oils and fats to be used in the manufacture of soap, substantially as specified.

3. The combination of the glycerated extract of *Hamamelis Virginica* with alkaline solutions to be used in the manufacture of soap, substantially as set forth.

4. A soap made by combining *Hamamelis Virginica*, the ingredients of ordinary soap, and bayberry tallow, substantially as set forth.

194,022. ROTARY FLIES FOR PRINTING-PRESSES. W. F. Widmayer, New York, N. Y. [Filed Jan. 3, 1877.]

1. In a fly for printing-presses, rotating arms or fingers approaching and receding from one another, in order to receive and spread the paper, substantially as described.

2. In a fly for printing-presses, rotary arms or fingers caused by mechanism, substantially as described, to spread or recede from each other during and at the completion of the operation of depositing the sheets of paper upon the receptacle provided for them.

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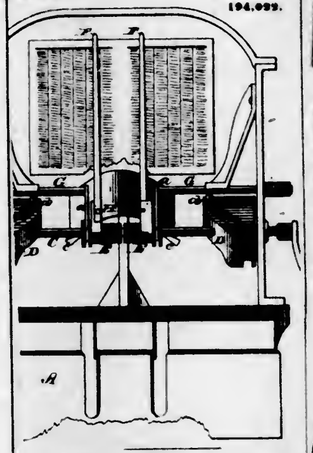
3. In combination with a fly for printing-presses, a horse for receiving the paper from the fingers, constructed with a convex flanged table or top, substantially as described.

4. In a fly for printing-presses, the combination of rotary sliding arms or fingers, and cams for causing said arms to approach and recede from one another, substantially as described.

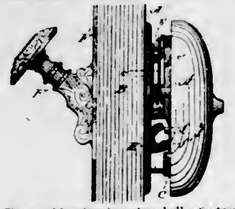
5. In a fly for printing-presses, the combination of rotary sliding arms or fingers, rotary cams, and sliding shafts, substantially as described.

6. In a fly for printing-presses, the rotary spreading arms or fingers capable of being adjusted relatively to the breadth of the sheets of paper to be acted upon, substantially as described.

194,023.



194,024. DOOR-BELLS. William Winkel, Pluckemin, N. J., assignor to Hopkins & Dickinson Manufacturing Company, New York, N. Y. [Filed July 25, 1877.]



1. The combination, in a door-bell, of a toggle-joint having one arm joined directly to the hammer-arm, and the other pivoted upon a stationary stud, a reciprocating bar moved by the bell-pull and connected to the central pivot of the said toggle-joint, and a spring for throwing said toggle-joint outwardly after it has passed a straight line, substantially as described.

2. The combination, with the toggle-joint *e e'*, of the shifting-bar D, having lug *f'*, and the lever E, moved by the bell-pull and provided with the jaws *f f'*, substantially as described and shown.

3. The combination, with the shifting-bar D, having lug *f'* and the toggle-joint *e e'*, of the lever E, provided with jaws *f f'*, the link *k*, and the bell-pull F, substantially as described and shown.

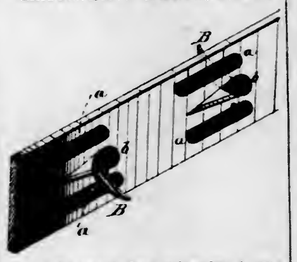
4. The combination, with the toggle-joint *e e'*, of the hammer C and spring *c*, substantially as described and shown.

5. The combination, with the lever E, moved by the bell-pull, of the shifting-bar D, spring *h*, toggle-joint *e e'*, hammer C, and spring *c*, substantially as described and shown.

6. The bell-striking mechanism described, wherein are combined the lever bell-pull F, link *k*, lever E, spring *h*, shifting-bar D, toggle-joint *e e'*, hammer C, and spring *c*, all constructed and arranged to operate substantially as described and shown.

REISSUES.

7,830. BARBED FENCES. Jacob Brinkerhoff, Auburn, N. Y. Patent No. 189,922, dated Feb. 6, 1877. [Filed July 21, 1877.]

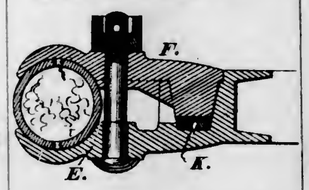


1. A flat metallic fence strip or bar, A, provided with spurs or barbs raised therefrom, said spurs or barbs having longitudinal depressions or concavities *b*, substantially as and for the purpose set forth.

2. A flat metallic strip having spurs or barbs raised therefrom, and said strip stiffened or strengthened by being provided with a concavity or depression, *a*, in the strip at or near the point from which the barb or spur is cut or raised, for the purpose set forth.

3. A metallic fence strip or bar, A, provided with spurs or barbs B, the strip or bar having the depressions *a* on each side of the spur, and the spur provided with the concavities *b*, substantially as and for the purpose set forth.

7,831. HARVESTERS. C. C. Bradley, Syracuse, N. Y. Patent No. 177,680, dated May 23, 1876. [Filed July 26, 1877.]

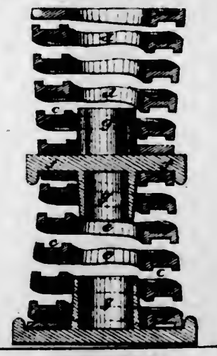


1. In a harvester, a spherical cutter-bar head, cast or formed hollow, for the purposes specified.

2. In a harvester, a hollow spherical cutter-bar head, to contain lubricating material, substantially as described.

3. In a harvester-pitman, the combination of a detached socket-clasp, F, a fixed socket-clasp, E, a bolt and lock-nut, G, and an elastic cushion, K, the whole forming an elastic socket-joint, as shown and described, and for the purpose specified.

7,832. CAR-SPRINGS. G. F. Godley, Philadelphia, Pa., assignor of one-half interest to Chas. Scott. Patent No. 161,115, dated Mar. 23, 1875. [Filed Mar. 27, 1877.]



1. A spiral solid plate-spring having the upper and lower surfaces of the thickest part of the plate parallel when coiled, substantially as set forth.

2. A spiral solid plate-spring having the opposite surfaces of the plate parallel when coiled, and the plate itself thinner at its central portion, substantially as set forth.

3. The combination, with the two cone-shaped coils *d d*, of the plate *f*, provided with axial or with rim projections, substantially as set forth.

4. An edge-coiled spiral spring whose metal displaced by coiling has parallel bearings or supporting-surfaces in the contiguous coils, in conjunction with a thinner web, substantially as shown and described.

5. An edge-coiled spiral spring having a form in cross-section of the bar, substantially as shown and described, whereby the adjacent coils shall have parallel surfaces for a portion only of the breadth of the bar.

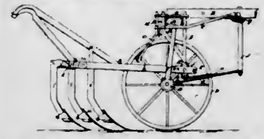
6. An edge-coiled spiral spring made of a bar of metal having a central flat-sided connecting-web of lesser thickness than the edges which it connects, substantially as shown and described.

7. An edge-coiled spiral spring made of a bar of metal having its opposite faces flat and inclined to each other, and having a reduced or lesser central thickness, substantially as shown and described.

8. An edge-coiled spiral spring made from a bar having a center of less thickness than the edges, and having one or more flat inner edges, substantially as shown and described.

9. As an article of manufacture, a blank form or bar of metal adapted for coiled springs, having the inclined opposite sides, and a thinner portion or web, as shown and described.

7,833. WHEEL-CULTIVATORS. E. M. Kissell and M. L. Kissell, Springfield, Ohio. Patent No. 177,853, dated May 23, 1876. [Filed July 18, 1877.]



1. The plow-beam frame composed of the bars *h h'*, bolted together at their forward ends, and self-braced in the rear by the bent angular portion of the bar *h'*, substantially as shown, and for the purpose specified.

2. In combination with the draft-post E and rod *a* of a wheel-cultivator, the frame-bars *h h'*, clevis-plates *f' f'*, and connecting-bolt *h'''*, as shown and specified.

3. The combination, with the laterally and vertically adjustable draft-posts E, of the hooked bars *c*, attached thereto, so as to be adjusted laterally with the posts, and always occupy a relative position with the plow-beam frame, substantially as set forth.

4. The combination of the hooked bars *c*, posts E, links *e*, set-screws *d*, and the elevated axle of a wheel-cultivator, substantially in the manner and for the purpose specified.

5. The suspended draft-bar *f*, provided with a T head for the purpose of allowing of two separate points of attachment thereto for the draft-rods by their front ends, in order to equalize the draft, substantially in the manner specified.

6. The draft-bar *f*, provided with a T head, in combination with the double-tree and draft-rods, to form separate means of attachment to the wheel-spindle and plow-beam, as shown and described.

7,834. MACHINES FOR FORMING FLANGES ON BOILER-HEADS. R. C. Nugent, Dayton, Ohio, assignor, by mesne assignments, to Phillips, Nimick & Co., Pittsburg, Pa. Patent No. 166,715, dated Aug. 17, 1875. [Filed Mar. 29, 1877.]

Brief.—The pivoted table upon which the plate to be flanged is held by a pin passing through a center hole is made concave. The frame carrying the pivoted plate is raised by means of worm-shafts and segmental rack to bend and form the flange, the edge of the plate being grasped between the rollers and revolved thereby.

1. The combination of the rotating table P with a pivoted table, E, and a pair of rolls, B B', substantially as herein described, and for the purpose set forth.

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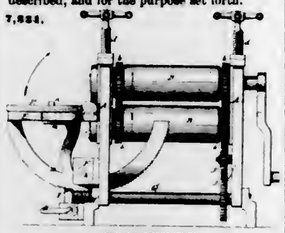
2. The concaved rotating table P and the pivoted table E, provided with adjustable bearing L, in combination with a pair of rolls, B and B′, for impinging upon the border of a disk of metal, and rotating it in the operation of flanging said disk, substantially as herein described, and for the purpose set forth.

3. The concaved rotating table P and the pivoted table E, provided with segments D, in combination with worms H, and a pair of rolls for impinging upon the border of a disk of metal, and rotating it in the operation of flanging said disk, substantially as herein described, and for the purpose set forth.

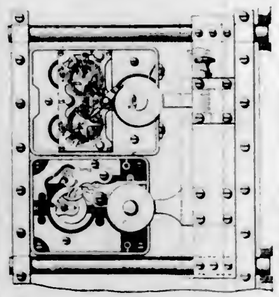
4. The combination of the segments D, worms H, eccentrics K, journal-boxes I, with the pivoted table E, and a pair of rolls, B and B′, substantially as herein described, and for the purpose set forth.

5. The combination and arrangement of the rolls B and B′, rotating table P, pivoted table E, provided with segments D, worms H, eccentrics K, journal-boxes I, shafts G, and operating-gear *j* and *j*′, substantially as herein described, and for the purpose set forth.

7,834.



7,835. TIME-LOCKS. J. Sargent, Rochester, N. Y. Patent No. 165,878, dated July 20, 1875. [Filed Apr. 5, 1876.]



1. The combination, in a time-lock constructed to be applied upon a safe or vault door, to operate in conjunction with the bolt-work thereon, of an obstruction arranged to be moved to prevent the retraction of the bolt-work and to release the same at a time determined by the time mechanism, a yoke capable of being oscillated or vibrated on its axis for retaining the obstruction in a position for keeping the bolt-work locked, two time mechanisms, each having a rotating dial, either or both of which will operate the yoke for removing the obstruction to bring it into a position for releasing the bolt-work, substantially as described.

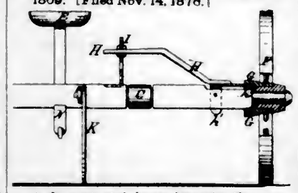
2. In a time-lock having two separate and independent time mechanisms, constructed to be applied upon a safe or vault door, and to operate in conjunction with the bolt-work thereof, the combination of two rotating or revolving dials, each of which is rotated by its own time mechanism, and a yoke operated by either or both of said dials to remove the obstruction so as to allow the retraction or unlocking of the bolt-work at the predetermined time for which the dials have been set.

3. In a time-lock, the combination, with the mainspring-arbor and a revolving dial moved thereby for setting the time mechanism to unlock at a predetermined time, of gearing whereby the setting of the time mechanism to unlock at any given time will necessarily wind up the time mechanism to the extent that it will unwind by the arrival of the predetermined time for unlocking.

4. In a time-lock, the combination, substantially as set forth, of an obstruction for the bolt-work of a safe or vault door, made in two parts, each having an independent turning movement, and connected together by a spring, said obstruction being stationary, except during the brief intervals when locking or unlocking is being effected, and adapted to be turned on its axes to permit of the bolt-work being retracted at a time determined by the time mechanism.

5. The combination, with the dial and pallet, of stop-pins for stopping the movement of the time mechanism when the lock is unlocked, substantially as described.

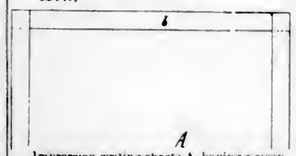
7,836. HORSE HAY-RAKES. G. M. Richardson and C. C. Richardson, Dana, Mass., assignors to W. H. Field, Port Chester, N. Y. Patent No. 89,169, dated Apr. 20, 1869. [Filed Nov. 14, 1876.]



1. In a wheeled horse hay-rake, the combination of the revolving hollow flange G with the partially-revolving rake-head and the friction-brake applied to the concave of the flange, substantially as described.

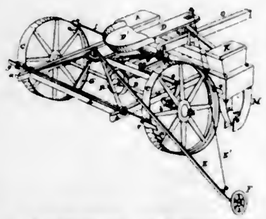
2. The combination of the band or flange G, lever H *h*′ *h*, and slotted arm I with each other, and with the axle B and wheel F, substantially as herein shown and described, and for the purpose set forth.

7,837. CARBON PAPER. A. B. Simonds, New York, N. Y. Patent No. 167,361, dated Aug. 31, 1875. [Filed July 18, 1877.]



Impression writing sheets A, having a clean and stiffening covering material, *b*, upon one or more edges, adapted to serve as and for the purposes herein specified.

7,838. CORN-PLANTERS. A. M. Southard, Marshalltown, Iowa. Patent No. 160,307, dated Oct. 26, 1875. [Filed May 14, 1877.]



1. The combination, with the seeding mechanism of a corn-planter, of bearing-wheels having smooth peripheries, brakes controllable at will acting against such peripheries, and side markers mounted on such wheels out of the way of such brakes, adapted to serve as herein specified.

2. Bearing-wheels C, having smooth peripheries, and side markers *a*, in combination with brakes H and scrapers *g* acting on said peripheries, and with the seeding mechanism of a corn-planter, as herein specified.

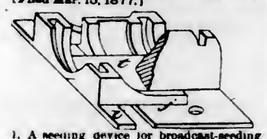
3. In a seeding-machine, the combination, with the frame A and traction-wheels C, of the brakes H, secured to the ends of separate rock-shafts I I, journaled in the frame in front of said wheels, each rock shaft extending from the front of one of the wheel-rims to the center of the frame, and provided with a foot-treadle, J, the said foot-treadles being arranged side by side, so that one or both of them can be depressed by one foot, substantially as shown.

4. The combination, with the elevated seat-frame D, of the bar E, wheel F, swivel *f*, and guy-rope E′, arranged as described, so that the said bar and wheel may be changed to the opposite side of the machine, without unloosing the guy-rope, by a half-axial rotation, substantially as specified and shown.

5. The combination, with the seed-boxes K, of the dropper-plate P, having the holes *e*, and adjustably secured, by their shanks P′, to the T-shaped reciprocating bar Q Q′, substantially as described and shown.

6. The combination, with the seed-boxes, of the seed-spouts L, having the rib *i*, and a hole above and below said rib, adapted to receive a furrow-opener or a plow-shovel, substantially as described and shown.

7,839. SEEDING-MACHINES. W. A. Van Brunt, S. E. Davis, R. S. Barber, and D. C. Van Brunt, Horicon, Wis., assignees, by mesne assignments, of G. W. Van Brunt. Patent No. 35,990, dated July 22, 1862; Reissue No. 3,339, dated Mar. 28, 1866. [Filed Mar. 15, 1877.]



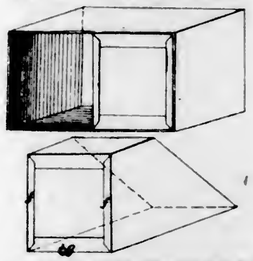
1. A seeding device for broadcast-seeding machines consisting, essentially, of a radially-flanged adjustable seed wheel or cylinder, and a seed case or cap, and having between the flanges of the one and the inner surface of the other a channel or space to prevent the crushing of seed.

2. A seeding device for broadcast-seeding machines consisting of a readially-flanged adjustable cylinder or seed-wheel and a seed case or cap, and having between the flanges of the one and the inner surface of the other an adjustable space or channel to pass seed without crushing.

3. A seeding device for broadcast-seeding machines consisting of a flanged adjustable seed wheel or cylinder and a seed case or cap, with a space or channel between to prevent crushing of seed, in combination with a gate or slide to govern the flow of seed, substantially as described.

4. A seeding device for broadcast-seeding machines comprising a rotary cylinder or feed-wheel and a seed case or cap, having on opposite sides of the vertical diameter of the cylinder the seed inlet and outlet, respectively, for the purpose set forth.

7,840. BILL-FILES. W. L. Woods, Washington, D. C. Patent No. 46,416, dated Feb. 14, 1865. [Filed July 18, 1877.]



1. The file or paper holder herein described, having its inner end open and its sides chamfered or beveled, in combination with its case, substantially as and for the purposes set forth.

2. The combination of a file or paper holder having an open inner end and beveled sides, giving it a general wedge shape, and its outer end made of metal, as described, with a case wholly enveloping it, excepting at the outer end, substantially as set forth.

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RULES OF PROCEEDINGS OF THE GERMAN PATENT OFFICE.

NOTICE:—Pursuant to section 20 of the Patent Law of the 25th of May of this year, we issue the following provisions concerning the notification of inventions:

SECTION 1. THE APPLICATION and every accompanying drawing or specification must be signed by the applicant or his attorney. Explanations of the subject of the invention may not be given in the application itself, but only in the documents annexed to it.

SEC. 2. EACH ANNEX to the application must be furnished with a consecutive number. Each annex is, as far as it does not deal with models or samples, to be handed in in duplicate.

SEC 3. THE APPLICATION must contain the statements as hereafter required, as far as possible, in the given order of succession—

a. A short but accurate specification of what forms the subject of the invention. From the specification there must distinctly appear the claim for a patent—*i. e.*, that which the applicant considers new and patentable.

b. THE PETITION that a patent be granted for the subject of the invention so described. If only an additional patent is to be granted, (section 7 of the Law of Patents,) the applicant must expressly state this and the original patent, as also its number and the year when granted be stated. If the patent is only to take the place of an existing patent, (section 42 of the Law of Patents,) the applicant must likewise also expressly state this, and, at the same time, add thereto the documents about such patents in place of which the patent is to stand. The petition is in this case to be confined to a transformation from a territorial patent to one for the whole empire. If at the same time a patent is claimed for an improvement, a special petition must be made for the same.

c. THE DECLARATION that the governmental charges of twenty marks (section 20 of the law of patents) is already paid into the treasury of the Patent Office, so that it will be paid in along with the application.

d. THE STATEMENT of name, rank, and residence of the applicant, as far as the application is effected by an attorney. The latter must hand in a power of attorney, signed by the applicant. If an attorney is appointed for an applicant living within this realm, and if the attorney is to be entered as such in the patent roll, (section 19 of the statute,) then it must be expressly stated in the power of attorney.

IN APPOINTING AN ATTORNEY on the part of an applicant for a patent not residing within this realm, it is taken for granted that such agency extends to the rights and powers specified in section 12 of the statute

e. The enumeration of the different annexes to the application, giving their number and contents.

SEC. 4. For all written documents of applications, paper of the size of thirty-three centimeters height by twenty-one centimeters must be used. For the writing, deep black ink (not sticky) must be used. Of each of the drawings there must be handed in duplicates. For the first and principal copy, white, stout, and smooth drawing-paper (so-called Bristol or carton paper) of the size of thirty-three centimeters height by twenty-one centimeters breadth, or thirty three centimeters height by forty-two centimeters breadth; or thirty-three centimeters height by sixty-three centimeters breadth must be used.

THE DRAWING, as also all writing on the principal copy, must be done with China ink, in deep black lines—not be colored or tinged. The drawing must be inclosed by a plain marginal line, which is to be drawn two centimeters back from the edge of the paper. All writing must fall within the space inclosed by the marginal lines.

THE SIGNATURE of the applicant is to be affixed in the lower right-hand corner. On the upper side of the sheet a space within the border-line, of at least three centimeters height, must be left free for number, date, and specification of patent.

As a second copy, a tracing of the first and principal copy on drawing-cloth is to be handed in. In this copy the use of mixed colors is permitted and desired. The drawings may not be folded or rolled. They must be packed so as to arrive at the Patent Office in a smooth condition.

SEC. 5. ALL WEIGHTS AND MEASURES must be given

according to the metrical system, statements of temperature according to Celsius, those of density as specific weights.

SEC. 6. THE SPECIFICATIONS must confine themselves to what is pertinent toward forming a judgment of the application for a patent. Explanations of a general character should be avoided. Moreover, the specifications must be so arranged as to adapt themselves for publication on granting of patent. In the summary in conclusion the claims for a patent should be specified more closely than done in the application.

SEC. 7. THE SUBJOINING OF MODELS and samples is desired so far as it may aid in giving a clear idea of the invention. It should be done when without this the judgment of the application for a patent cannot take place with any certainty.

COSTS AND CHARGES.

THE COSTS AND CHARGES, which, according to the provisions of the Patent Law of 25th of May of this year must be paid into our Treasury, are, for the sake of convenience, not to be sent in with the applications, but, by post office order, addressed to the Treasury of the Imperial Patent Office. The post-office order must, however, if it is a case of a grant of a patent, show the name of the applicant, and the subject of the application—in cases of complaint the name of complainant, and the cause of complaint; in other cases, that of the patentee, the subject of the patent, and the number which the same has in the patent roll. The Treasury furnishes receipts only if expressly wished for; the cost of postage in such case to be borne by the receiver of such receipt.

PATENT JOURNAL.

THE PATENT JOURNAL is intended for the public notices and publications required by the patent act. Accordingly, it will contain all publications relating to notices of inventions filed for the purpose of obtaining a patent, as well as to the refusing or granting of the patent, to the commencement, termination, expiration, declaring invalid, and the withdrawal of the patents.

The regulations made for carrying the patent act into effect, and such action and decisions of the Patent Office itself as are of general public interest, shall also be made public through the Patent Journal.

The right will be reserved besides of communicating in an unofficial column the more important transactions occurring in the field of patent matters.

Publications relating to the notices of inventions, to the refusal, to the granting, and the duration of patents shall be inserted in one column under the heading of "Patent List."

In addition to the main journal there will be published in separate supplements, to be circulated from time to time, and to be known as "Patent Documents," the drawings and specifications, on the strength of which the granting of the patent has ensued. The subscription price for the latter will be specially made public.

The publication of the Patent Journal has been entrusted to the publishing-house known here as "Carl Heymann, publishers."

The price for Germany will be twelve marks annually; for the first six months up to the end of the current year, five marks.

Berlin, July 12, 1877.

IMPERIAL PATENT OFFICE.

(Signed,)

JACOBI.

COMMISSIONER'S DECISIONS.

NICHOLAS SEIBERT.—*Motion.*

In the matter of the reissue application of Nicholas Seibert for "IMPROVEMENT IN LUBRICATORS," *filed August* 29, 1876.—*Decided August* 1, 1877.]

Doubted whether a result which is not common to all machines constructed under a patent can be appropriated on reissue, since it is in its nature special or fugitive.

The right to cover, after discovered uses and results, is upon the assumption that the mechanism for which a patent is granted is invariable, so that there is permanency and certainty in the results accomplished.

On reissue, the restoration of a missing element to a model in a manner which would give to it an artificial significance was refused, neither the original drawings nor specification affording any clue as to its position, and all other locations that could be possibly assigned being equally in keeping with the ascribed purpose and function of the element.

Under Sec. 4916, R. S., authorizing amendments upon reissue, the acceptance and consideration of proof outside the record is limited to those cases which have neither model nor drawing.

Where a patent has both model and drawing, affidavits in support of a proposed amendment are in the nature of proof *aliunde*, which is excluded by the section.

[*A. H. Evans & Co.*, attorneys for applicant.]

SPEAR, *Commissioner:*

Previous to taking an appeal to the Board of Examiners-in-Chief on the pertinency of the reference of rejection cited, applicant makes preliminary motion to finally dispose of the question of alleged "new matter," which has been agitated at various times during the pendency of his application.

It is his desire to amend the model belonging to the case so as to restore a missing element—a steam-pipe—which has been lost, which it is admitted it originally contained, and upon the basis of the model thus amended to correspondingly change both drawing and specification to agree therewith.

This is not all, however, for not only is he desirous that the pipe shall be restored, but that it shall be placed upon the model in a particular manner, in a substantially upright vertical position with relation to the oil cylinder of the lubricator, to which it is connected. If this were the only position that would satisfy the spirit of the invention and the terms of the description of the original patent, there might be, perhaps, no serious objection to having the pipe adjusted as asked for; but as either a horizontal or a downward vertical position of the pipe would be equally in keeping with what is indicated as the *modus operandi* of the machine, a serious doubt arises as to whether the amendment can be allowed to go to the extent contended for, particularly as it will result in the introduction of a new force or principle—hydraulic-column pressure-feed—in the working of the machine, which is nowhere indicated or hinted at in the original description. Undoubtedly a patentee has the right, under the law, to secure himself in all the results and uses of which his machine is capable; but this is upon the assumption that the machine itself is invariable, that the relative arrangement of all the mechanical parts is inflexibly sustained in every machine, so that there is permanency and certainty in the results accomplished. Under such circumstances the discovery of a new result could be very properly appropriated on reissue as one regularly arising from the usual and determined operation of the machine.

But if what I have termed the inflexibility of arrangement does not exist, if within limits there may be variation in the relative location of mechanical parts it is not difficult to understand that when such variation is attempted a train of modified results may arise that differ more or less from those which are consequent upon the normal construction of the machine, and this, too, without departing in the slightest degree from the spirit of the invention, or disturbing the usual co-operation of the elements. Indeed, these results may be strikingly dissimilar from what would ordinarily follow. They are in a sense special or fugitive. They do not pertain to the machine, however constructed within the limits of the invention, but belong to it only under certain circumstances. How then can such a result be covered on reissue, when it is not true that all machines made within the terms and for the objects set forth in the specification will produce it? The objection becomes all the stronger against such practice if it appear that the arrangement necessary to the result was not shown or even hinted at in the original patent.

The case before me presents just such special features. One certain position of the steam-pipe with relation to the oil cylinder permits the collection of condensed steam within the pipe, and gives rise to a result which is not possible with the pipe in any other location; yet it is clear that all other positions which the pipe could possibly assume will completely satisfy the requirements of the original description as to its purpose and function.

Even admitting that the pipe had the relative arrangement contended for it, I am not satisfied that the remedy on reissue can be made so elastic as to appropriate results which are of uncertain occurrence and not common to every machine made within the intent and spirit of the invention. But is there sufficient warrant for me under the law to order the insertion of the pipe in a manner which will give to it this artificial significance? Sec. 4916, Rev. Stat., declares, "nor in case of a machine patent shall the model or drawings be amended except each by the other," and limits the acceptance and consideration of proof outside the record to those cases where there is neither model nor drawing.

The present patent has both, so that in strictness I cannot regard the affidavits that are offered. They are in the nature of proof *aliunde*. Even relaxing this rigid rule of exclusion and examining the testimony of the affiants, I find that they speak simply of lubricators they have seen in use prior and subsequent to the time of filing the original application by the inventor. Not one of them, except the inventor himself, swears to the position of the pipe on the original model as filed.

It is with this question alone that I have to deal, for it may be truly said, keeping in mind what was regarded as the correct *modus operandi* of the machine, that if, in the lubricators in use, the pipe was vertically upright with relation to the oil-reservoir, then this was a mere accident of arrangement, and liable to change with the circumstances which prompted it. Certainly no inference of its vertical arrangement on the model can be derived from the simple fact that it had such a position on the machines in use.

Referring now to the testimony of the inventor, who we must remember is the party most interested, I do not consider it sufficient, in view of all the circumstances, to establish the fact for which he is contending. In an interference proceeding before this Office in 1872, relating to this same subject of hydraulic-column feed, and in which Seibert, the patentee, was a party, he testifies that at San Francisco, in May of 1870, while experimenting with a lubricator made according to the present patent, which had been granted in the previous September, 1869, "I found that after the steam had condensed so as to fill the space between the piston and cylinder-head in the lubricator, it would work better than hot steam. This fact suggested the idea of doing away with the piston, and making a cup upright and applying water under the bottom of the oil, and regulating it into the bottom of the cup as fast as I wished the oil to go into the cylinder or steam-pipe." In answer to a direct question, "Now, when did you make the change in the piston-lubricator, namely, placing the cup upright and feeding water under the lubricant?" he replies, "About the middle of May, 1870." This change was embodied in a patent granted by the Office to him February 14, 1871.

It is a little singular that in the interference to which I have referred, and which was declared upon this later patent, where the matter in controversy was substantially the same as now presented, the patent of 1869 was not put in evidence as establishing the fact of hydraulic-column feed. Nothing of this kind was attempted, however, until final decision was rendered adverse to Seibert's claim of priority. This circumstance, taken in connection with the evidence above quoted, discredits the force of the affidavit now presented by the inventor.

Upon a careful view of the entire case in all its aspects, I cannot consent to order the amendment as asked for. The pipe may be restored, but not in a vertical upright position, nor must the drawing show or the specification describe it in such relation.

The case is remanded to the Examiner with these suggestions.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date August 14, 1877.]

10,146.—Pattern in Suitings.—NATHAN FRYE, Andover, Mass. Application filed July 25, 1877. Term of patent 3½ years.

10,147.—Handles of Spoons and Table Cutlery.—GEORGE GILL and EDWIN L. BRITTIN, Derby, Conn. Application filed July 31, 1877. Term of patent 7 years.

10,148 to 10,150, inclusive.—**Carpets.**—JOHN HAMER, Dutchess county, assignor to FALCONER & CARROL, Matteawan, N. Y. Applications filed July 30, 1877. Term of patents 3½ years.

10,151.—Match-Safes.—WILLIAM HAMILTON, New York, N. Y., assignor to DREYFUSS & SACHS, same place. Application filed July 27, 1877. Term of patent 3½ years.

10,152.—Advertising-Cards.—JAMES D. HOLT, Philadelphia, Pa. Application filed June 21, 1877. Term of patent 3½ years.

10,153 and **10,154.—Carpets.**—THOMAS J. STEARNS, Boston, Mass., assignor to THE ROXBURY CARPET COMPANY, same place. Applications filed August 2, 1877. Term of patents 3½ years.

10,155.—Iron Gates and Rails.—WILLIAM TWEEDDALE, Brooklyn, N. Y., assignor to NORTH AMERICAN IRON WORKS, same place. Application filed February 2, 1877. Term of patent 14 years.

10,156.—Wall-Pockets.—DANIEL RAUP, Watsontown, Pa., assignor of one-half his right to DAVID CLINE, same place. Application filed May 16, 1877. Term of patent 3½ years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date August 14, 1877.]

5,020.—Oatmeal, Cracked Wheat, Hominy, and Samp. BOGLE & LYLES, New York, N. Y. Application filed August 2, 1877.
"A crown with an ornamented oval."

5,021.—Cigars.—BENJAMIN F. BECKMAN, Westfield, Mass. Application filed August 3, 1877.
"The word-symbol 'MADCAP.'"

5,022.—Concentrated Beef-Juice.—JAMES P. BUSH, Boston, Mass. Application filed July 30, 1877.
"The word-symbol 'BOVININE.'"

5,023.—Scales.—JOHN CHATILLON & SONS, New York, N. Y. Application filed July 31, 1877.
"The word-symbol 'FAVORITE.'"

5,024.—Medical Compound.—DAVIS & HAYDOCK, New York, N. Y. Application filed July 19, 1877.
"The word-symbol 'LIFE FOR THE LUNGS,' and the figure of a woman embracing a child."

5,025.—Canned Fruits and Vegetables.—GADD & SUDLER, Sudlersville, Md. Application filed June 30, 1877.
"The word-symbol "OUR CHOICE."

5,026.—Fluid Medical Compound.—JOSEPH J. GRINDALL, Baltimore, Md. Application filed July 31, 1877.
"The fanciful name, 'THE GIPSEY'S GIFT.'"

5,027.—Steam-Cooked Cereals.—ALEXANDER HORNBY, Craigsville, N. Y. Application filed July 26, 1877.
"The figure '3' in quotation-marks, and the word-symbol 'MINUTE.'"

5,028.—Flour.—JENKINS & HOVER, Oswego, N. Y. Application filed July 30, 1877.
"The word-symbol 'PEARL.'"

5,029.—Shoes.—MAYNARD & JONES, San Francisco, Cal. Application filed August 3, 1877.
"The design and letters hereinafter described. The outer part of the design is the representation of a hexagonal frame having the representations of screws in its angles. Within the hexagonal frame is a shaded circle, in the center of which is an equal-armed cross, upon which are the letters 'M. & J.' Above and to the right hand of the cross is a crescent, and below and to the left hand of the cross are four stars."

5,030.—Macaroni.—A. STEPHANI & Co., New York, N. Y. Application filed July 20, 1877.
"The word-symbol 'LA SUPERBA.'"

5,031.—Cigars, Cigarettes, and Smoking-Tobacco.—Stralton & Storm, New York, N. Y. Application filed July 30, 1877.
"The word-symbol 'OXFORD.'"

5,032.—Cigars, Cigarettes, and Smoking-Tobacco.—Stralton & Storm, New York, N. Y. Application filed July 30, 1877.
"The word-symbol 'WESTMINSTER.'"

5,033.—Medical Compounds.—AUGUST H. VORDICK, St. Louis, Mo. Application filed July 11, 1877.
"The fac-simile of my autograph."

5,034.—Gin.—WALDEN, WHITTEN & Co., Philadelphia, Pa. Application filed May 31, 1877.
"A representation of a fish."

5,035.—Mineral Water and Mass.—BEDFORD ALUM AND IODINE SPRINGS COMPANY, New London and Lynchburg, Va. Application filed June 25, 1877.
"The figure of a fountain, said fountain having at its base or lower portion the figure of a sea-dragon, as shown."

5,036.—Ribbons and Binding or Braid.—BRAINERD, ARMSTRONG & Co., New York, N. Y. Application filed July 27, 1877.
"The word-symbol 'CENTENNIAL,' combined with a figure or picture of an eagle."

5,037.—Buttons.—CITY BUTTON WORKS, New York, N. Y. Application filed June 25, 1877.
"The representation of a sphinx's head."

5,038.—Playing-Cards.—VIRGINIUS C. CLAYTON, New York, N. Y. Application filed July 20, 1877.
"The word-symbol 'ELECTION EUCHRE.'"

5,039.—Glass-ware.—E. D. DITHRIDGE, Allegheny, Pa. Application filed March 30, 1877.
"The portrait of the late Edward Dithridge, used in connection with the words 'Original Genuine Dithridge Flint Glass.'"

5,040.—Lead-Pencils.—EAGLE PENCIL COMPANY, New York, N. Y. Application filed August 8, 1877.
"The word-symbol 'OFFICE.'"

5,041.—Silk Ribbons.—JOSEPH LOTH & Co., New York, N. Y. Application filed June 1, 1877.
"The word-symbol 'FAIR & SQUARE.'"

5,042.—Plaiting-Machines.—DAVID MILLER, New York, N. Y. Application filed May 3, 1877.
"The word-symbol 'BOSTON.'"

5,043.—Flour.—ALBERT L. MURDOCK, Jamaica Plain, Boston, Mass. Application filed July 5, 1877.
"The word-symbol 'GOLDEN.'"

5,044.—Preparation of Cocoa.—HENRY M. SMITH, Spuyten Duyvil, N. Y. Application filed June 25, 1877.
"The word-symbol 'ALKETHREPTA.'"

5,045.—Hog-Cholera Medicine.—ALBION P. CHARLES, Knoxville, Ill. Application filed July 28, 1877.
"The word-symbol 'EUREKA.'"

5,046.—Hermetically-Sealed Oysters, Vegetables, and Fruits.—LAWRENCE W. COUNSELMAN, Baltimore, Md. Application filed June 29, 1877.
"A pictorial representation of the Battle Monument of Baltimore within an ornamental circular border, in connection with the words 'LORD BALTIMORE CIRCLE BRAND.'"

5,047.—Sofa-Beds.—HENRY F. HOVER, Philadelphia, Pa. Application filed June 21, 1877.
"The letter 'H' inclosed in a circle."

5,048.—Cologne.—E. W. HOYT & Co., Lowell, Mass. Application filed August 3, 1877.
"The word-symbol 'GERMAN.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date August 14, 1877.]

1,151.—Title: **"St. Louis Dental Company."**—J. SPYER & E. C. CHASE, St. Louis, Mo. Application filed August 7, 1877.

1,152.—Title: **"Dispense with the Buttons and Use the Adjustable Clasp."**—HENRY D. GOLDSMITH, New York, N. Y. Application filed July 30, 1877.

1,153.—Title: **"Dr. Sanford's Liver Invigorator or Liver Remedy."**—SAMUEL T. W. SANFORD, Long Island City, N. Y. Application filed July 10, 1877.

1,154.—Title: **"The Non-Explosive Chemical Gas for Illuminating Purposes."**—ISAAC STRAHLEM, Cleveland, Ohio. Application filed March 15, 1877.

1,155.—Title: **"Huile D'Olives."**—PINCKNEY, JACKSON & Co., New York, N. Y. Application filed July 27, 1877.

As 12 o'clock on Friday is the latest hour that a final fee can be received in order to get a patent into the "issue" of the following Tuesday, applicants are earnestly requested to make the final payment before Friday, if possible, so that the proper entries may be made on the books of the Office before closing the "issue."

THE illustrated portion of the Patent Office Report for 1869 and for 1871 has recently been completed, and can be had, by those having the remaining volumes for those years, by applying to the Commissioner of Patents.

When a patent has been allowed, and the application has not been forfeited by delay of six months, if the final fee of twenty dollars is paid before 12 o'clock on Friday, the patent will issue and bear date the following Tuesday.

The Government fee on making application for a patent is fifteen dollars. The final fee is twenty dollars. Usually there are no other Government fees unless the application is appealed.

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Where specifications are in print they are furnished with the drawings without extra charge.

Where specifications are printed, copies of same attached to drawings will be furnished without extra cost.

Printed copies of any patent can be obtained commencing with issue of November 26, 1867, to date.

Printed copies of specifications can be procured from No. 59,740, issue of November 20, 1866.

Copies of patents, arranged by classes of inventions, can be obtained at 10 cents per copy where the entire class is ordered.

All letters to the Patent Office must be addressed to the Commissioner of Patents.

The "Rules of Practice" contain full instructions, forms, &c., for making applications for patents.

The drawing accompanying an application for a patent must be on a sheet ten by fifteen inches.

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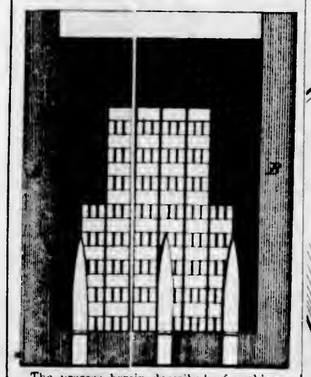
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TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED AUGUST 14, 1877.

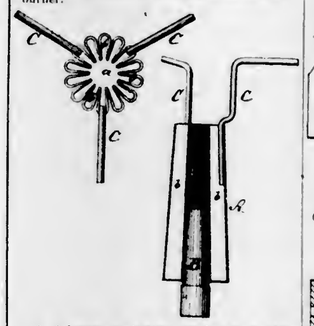
194,026. PROCESSES OF PREPARING MOLDED FORMS OF CLAY, AND SETTING THEM IN KILNS FOR BURNING. Henry W. Adams, Philadelphia, Pa., assignor of one-half his right to John Q. A. Ziegler, same place. [Filed Nov. 28, 1876.]



The process herein described of making, setting, and burning bricks or other molded forms of clay, consisting in mixing with portions of the clay for forming a kiln of bricks a quantity of finely-powdered mineral coal, equivalent to from three to eight ounces of such coal, or thereabout, or an equivalent bulk of similarly-powdered coke, for each molded brick of the usual dimensions, or similar proportions for other sizes, and then placing them, thus constituted, at points in the kiln most remote from the furnaces or fire-arches, as at the sides and top, to the end that the temperature of the kiln, when burning, shall be substantially uniform throughout, and that the bricks or charges, as a consequence, shall, at the completion of the process, be of a uniform hardness.

194,025. GAS-BURNERS FOR PRODUCING HEAT. Thos. R. Almond, Brooklyn, N. Y. [Filed Jan. 6, 1877.]

Brief.—Adapted to fit over an ordinary gas-burner.



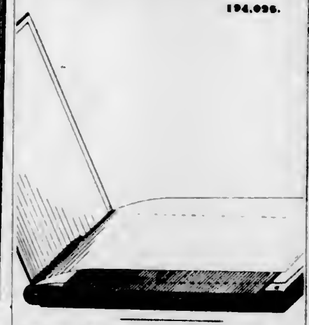
1. A heater or heater attachment to gas-burners, constructed of a fluted metallic tube, the flutes extending from end to end, to constitute self-adjusting fastening devices and form air-channels, substantially as herein shown and described.

2. The gas-burner A, having upright air-channels or flutes *b*, combined with the brackets C, placed therein, substantially as herein shown and described.

194,026. COPYING-BOOKS. W. A. Anderson, La Crosse, Wis. [Filed May 26, 1877.]

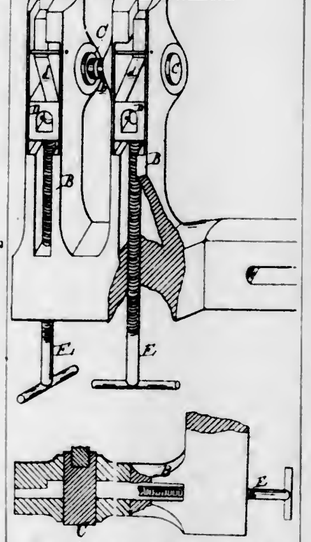
As an improved article of manufacture, a prescription-copying book, having alternate leaves of thin and thick sized paper, so combined that prescriptions may by written with ink or pencil upon the thinner leaf, and a copy thereof taken on the thicker leaf by interposing carbonized paper, such thick sheet receiving such copy, and operating as a backing to prevent the multiplication of copies and the marring of the sheets below, substantially as specified.

194,026.



194,027. SAW-GUIDES. J. N. Babb, Summerfield, Mich. [Filed May 28, 1877.]

Brief.—Each of the arms through which the saw runs is provided with a laterally-moving guide, actuated by a wedge and screw.

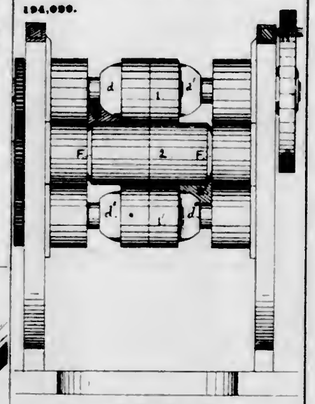


The bracket A and its recessed arms B B, and the combination therewith of the guides C C, each having the slot *c* in its back, and the blocks D *d* D *d*, and screws E, constructed and arranged substantially as and for the purpose set forth.

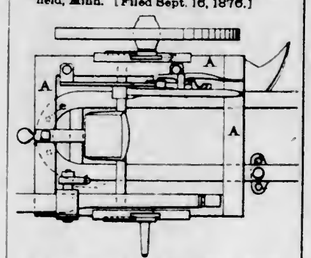
194,028. MACHINES FOR ROLLING HORSE-SHOE-BLANKS. J. D. Billings, New York, N. Y. [Filed Aug. 2, 1877.]

The rolls 1, 1′, and 2, provided with shaping-grooves *d*, *d′*, *d″*, *d‴*, and F F′, to produce by pressure a horseshoe blank or bar composed of the integral parts B *a* a thereof, substantially in the manner as above set forth.

194,029.

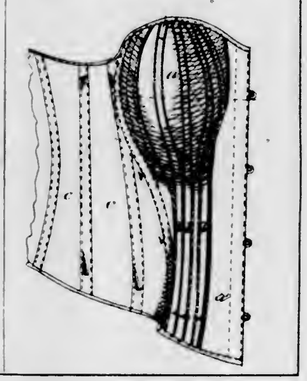


194,030. WHEEL-PLOWS. T. Bruner, Richfield, Minn. [Filed Sept. 16, 1876.]



In combination with the frame A, having openings at its front and rear, the plow beams connected, as above, and provided with the perforated plates *b* and bolt *c*, as and for the purpose set forth.

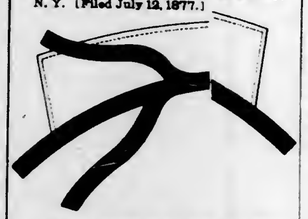
194,030. CORSETS. Mary E. Clark, Wakefield, Mass. [Filed Apr. 30, 1877.]



1. In a corset, a full bust woven in a single piece, and formed into the shape of the natural bust, having the bones therein extending entirely over and above the same, and converging at the upper edge of the corset, as herein specified, and for the purpose set forth.

2. The combination of the woven bust *a* and bust-piece *a'*, and the intermediate piece *c*, cut in the shape of the pattern, Fig. 4, substantially as and for the purpose herein specified.

194,031. COLLARS. J. W. A. Olmstt, Troy, N. Y. [Filed July 12, 1877.]



1. In combination with a band of a collar, a re-enforcing piece of cloth inserted and secured at each end of the band, and between the outer and inner sides of the band, substantially as and for the purposes herein described.

2. In combination with the band of a curved collar, a re-enforcing piece of cloth cut on a line parallel with the warp of the goods, and inserted and secured at each end of the band, and between the outer and inner sides of the band, substantially as and for the purposes herein described.

194,032. CLOTHES-WRINGERS. Alfred B. Cooke, Baltimore, Md., assignor to C. Rogge, same place. [Filed Feb. 9, 1877.]

Brief.—The standards are slitted to form elastic journal-supporting strips, on each side of which slitted part the wood is cut out to permit separation of the strips forming the slitted center part, and these strips are bored to receive the journals of the wringer-rolls, the upper ends of said strips being left free to vibrate in a transverse slot on the under side of a top piece extending above the rollers from standard to standard.



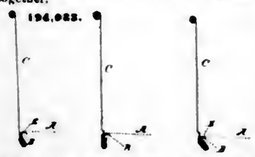
1. The standards A A, having the spring-strips G H, secured to the standards at their lower ends, and having their upper extremities free to vibrate, in combination with the rolls B C, journaled in said strips, and with the parts *b' b'* and I, all as and for the purpose set forth.

2. The standards A A, having elastic strips G H, in combination with rolls B C, posts *b' b'*, top I, and drip-board *f'*, all as and for the purpose set forth.

194,033. METALLIC SIEVES. M. E. Dayton, Chicago, Ill. [Filed Sept. 28, 1876.]

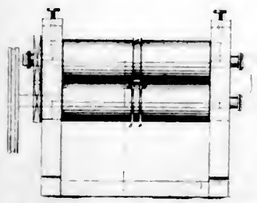
Brief.—May stretch wire-cloth over band and insert in body; or cloth may be loosely attached to band and inserted in body; or both cloth and band and body at once be placed together, the wire stretched, and all swaged together.

194,033.



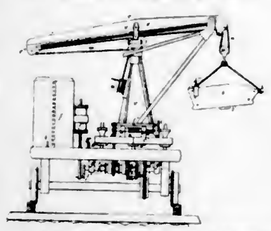
In a metallic sieve, the body C, the band B, and the bottom A, when the bottom is clasped over a metallic edge within the fold uniting the band and body, and is thereby held flexed over the rounded shoulder E, and the several parts are held in place by their conformation at the fold, substantially as described and shown.

194,034. STEAM-ENGINES. R. H. Edson, Detroit, Mich. [Filed Aug. 31, 1876.]



In a steam engine, the combination, with the cylinder and piston, of the usual steam-ports *a*, entering near the ends of the cylinder, the circulating channels *s* in each end of the said cylinder, and the main valve E, adjusted to close both steam-ports while the crank-pin is passing the line of centers, and while the piston is at the end of each stroke, substantially as described and shown.

194,035. TRAVELING CRANES. W. H. Elliot, New York, N. Y. [Filed July 11, 1877.]

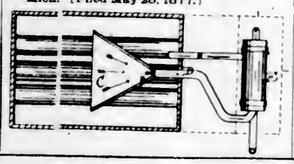


1. A traveling crane having the following elements: a sliding beam for elongating the arm of the crane, adjusting devices for keeping the crane-mast in a vertical position, and a car, whereby the crane may be moved from point to point, with its load suspended, substantially as specified.

2. The rope *w*, rope *v*, and the windlass *w''*, in combination with sliding beam *e*, when said ropes are arranged to operate substantially as and for the purpose specified.

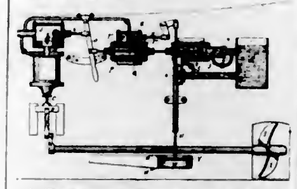
3. The detachable cart-body A, provided with hinges *h'* and fastenings *h'''*, substantially as and for the purpose specified.

194,036. BOILER-CLEANERS. J. A. Fordon, Bay City, and J. E. Thomas, Wenona, Mich. [Filed May 28, 1877.]



The combination, with a steam boiler, of the triangular skimming-pan C, placed in the rear part of the boiler, so as to receive at its large open end the surface-current, the flow-pipe D, for conducting off the material caught up by the said pan, the settling-chamber E, and return-pipe F, substantially as described and shown.

194,037. MARINE-ENGINE GOVERNORS. J. W. Fowle, Boston, Mass., assignor of one-half his right to W. H. Ireland, same place. [Filed June 5, 1877.]

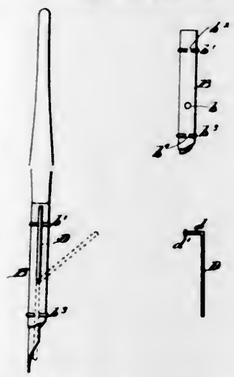


1. The receptacle W, open in its upper and lower ends, as described, with its float or piston V below the water-line, in combination with the valve R in the cylinder P, and connecting mechanism thereto, as and for the purpose specified.

2. In combination with the cylinder P, the pump-cylinder *a*, its pipes *c c'*, valves *c c'*, pipes *f f'*, and cut-offs *g g'*, for the operation of the throttle-valve K, as and for the purpose set forth and described.

3. In combination with the pump-cylinder *a* and its pipes and valves or cut-offs, as described, the tank or receptacle *d*, as set forth, and for the purpose specified.

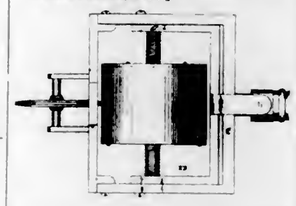
194,038. PEN-HOLDERS. John W. Green, Pontiac, Mich. [Filed Jan. 27, 1877.]



1. The combination of a pivoted guide-rod with a pen-holder, having a stop therefor near its front end, substantially as and for the purpose set forth.

2. The combination of a swiveling guide-rod D with pen holder B, having notched beads *b'* and *b²*, substantially as and for the purpose set forth.

194,039. STRIPING IMPLEMENTS FOR PAINTERS' USE. L. Homann, Cincinnati, Ohio. [Filed June 19, 1877.]

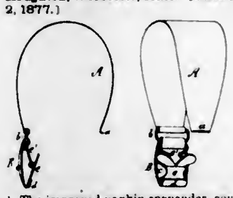


1. The hollow rubber distributing-wheel composed of a tube of hard rubber with metal heads, substantially as and for the purpose specified.

2. In a striping-tool the combination of a striping-wheel and distributing-wheel, the distributing-wheel rotating upon a screw-shaft, substantially as shown.

3. The combination of striping-wheel frame C and distributing-wheel frame D, adjustably fitted within frame C, the two frames being connected together as shown, and operating as described.

194,040. NAPKIN-SUPPORTERS. Stillman Houghton, Worcester, Mass. [Filed July 2, 1877.]

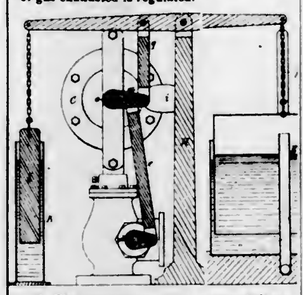


1. The improved napkin suspender, consisting of the hook A, a clasp or buckle, B, and their connecting hinge or link *b*, arranged and applied as set forth.

2. The combined napkin suspender and holder, consisting of the main hook A and its lip or auxiliary hook *a*, and the clasp or buckle B, hinged to such main hook, and provided with the curved lip *d*, for engaging with the lip or hook *a*, all being substantially as set forth.

194,041. APPARATUS FOR REGULATING THE SUPPLY OF STEAM TO GAS-EXHAUSTERS. Reuben K. Huntoon, Wakefield, assignor to Allen Governor Company, Boston, Mass. [Filed Feb. 6, 1877.]

Brief.—The pressure of the gas being exhausted operates a float, which, by proper connections, operates a valve in the steam-supply pipe, thus regulating the supply of steam to the exhausting-engine, whereby the quantity of gas exhausted is regulated.



1. The combination of the counterbalance tank K and weight I with the gasometer-bell *o* and tank applied, as described, to a gas retort exhaust-pipe, and with mechanism for connecting the said bell with the throttle-valve of the supply-pipe of a steam-engine, and for causing such valve to be governed in its movements by the bell, under circumstances and in manner and for the purpose substantially as set forth, the mechanism, as represented, for connecting the bell *o* and valve B, consisting of the lever G, chain *p*, connecting-rods *e q*, cranks *a b*, and the valve-spindle *d*.

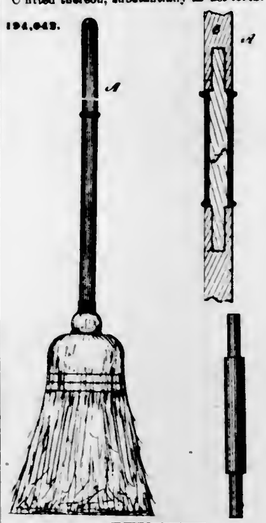
2. The combination, substantially as described, of a steam-engine governor and a gas-exhaust regulator, essentially as explained, with the throttle or valve of the supply-pipe of a steam-engine and with a gas retort exhaust-pipe, whereby the said valve becomes regulated in its movements for supplying steam to the engine as the varying pressure of the steam or of the gas may require, for the proper extraction of the gas from the retort or retorts.

194,042. BROOMS. W. M. Jackson, Providence, R. I. [Filed May 10, 1877.]

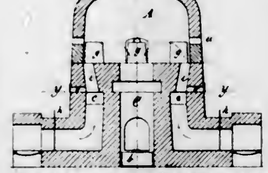
1. A broom-handle composed of two or more pieces, one of which is reduced in diameter to receive and hold a loose sleeve, the said pieces being rigidly connected, substantially as shown and described.

2. In combination with the handle A, having a portion reduced in diameter, the sleeve C fitted thereon, substantially as set forth.

194,043.



194,044. GLASS-FURNACES. J. Johnson, Pittsburg, Pa. [Filed July 7, 1877.]

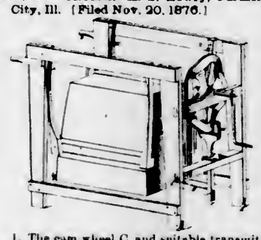


1. In a furnace for melting glass or other similar substances, the circular flue C, below the bottom of the furnace, in combination with the flues *i i i* and the heating-chamber A, as described and set forth.

2. In a furnace for melting glass or other similar substances, the combination of the flues *i i i i* with the heating-chamber A, the center flue C, and horizontal flue *d*, as described, and for the purpose set forth.

3. The box *b*, receiving the melted glass, which might run out of the chamber A, in combination with the center flue C, as described and set forth.

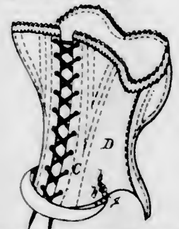
194,045. CHURNS. H. S. Lowry, Farmer City, Ill. [Filed Nov. 20, 1876.]



1. The cam wheel C and suitable transmitting agencies, in combination with the churn-box I and springs K, substantially as described.

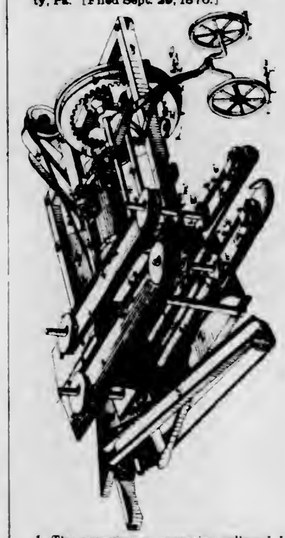
2. The combination of the cam-wheel C, rollers E E, pivoted pitman F, short pitman H, box I, and pin-connections, to secure the results substantially as shown and described.

194,046. CORSETS. C. A. McGee, Jackson, Mich. [Filed May 23, 1877.]



The body of a corset having the front and back pieces B C cut with the fabric and provided with bones, and the side pieces D cut on the bias and without bones, substantially as described and shown.

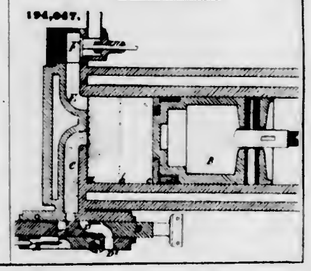
194,048. CORN-HARVESTERS. J. H. McNall, Finley Township, Allegheny County, Pa. [Filed Sept. 29, 1876.]



1. The snapping or squeezing rollers I I, with gimlet-points 1, snapping or breaking edges 2 2, squeezing-ridges 3 3, substantially as and for the purposes described.

2. The combination of the chains *k' k'*, having vertical prongs, pronged wheels *m' m'*, chains *n' n'*, having horizontal prongs, and rollers I I, substantially as and for the purposes described.

194,047.



194,047. GAS-MOTOR ENGINES. N. A. Otto, Deutz, Germany. [Filed July 13, 1876.]

1. A gas-motor engine wherein an intimate mixture of combustible gas or vapor and air is introduced into the cylinder, separate from a charge of air or other incombustible gas, in such manner and in such proportions that the particles of combustible mixture will be close together at the point of ignition, but will be more and more dispersed in the charge of air forward of that point, whereby the development of heat and the expansion or increase of pressure produced by the combustion are rendered gradual, substantially as herein described.

2. A gas-motor engine wherein an intimate mixture of combustible gas or vapor and air is introduced into the cylinder separate from and subsequent to a charge of air, such introduction being effected through an aperture or apertures in the end surface of the cylinder, in order to cause the charge of air to move forward in the cylinder as the combustible mixture is introduced, substantially as and for the purposes set forth.

3. A gas-motor engine wherein, by one outstroke of the piston, separate charges of combustible gaseous mixture and of air are drawn into the cylinder, which charges are compressed by the instroke and then ignited, so as to propel the piston, which, by its return stroke, expels the products of combustion, substantially as herein described with reference to Figs. 2 to 13 of the drawings.

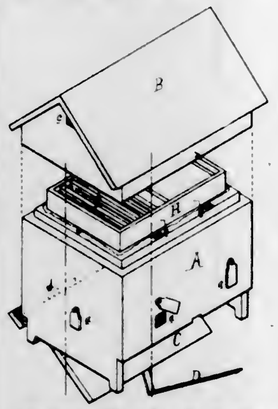
4. In gas-motor engines wherein charges of combustible gas and air are introduced separately into the cylinder, regulating the power of the engine by controlling the gas supply by means of a valve operated by a governor, substantially as herein described.

5. In gas-motor engines, the shaft K, driven from the engine-shaft, with crank K^3, imparting motion to the slide D, cam R, for regulating the gas-supply, and cam F^2, for opening the escape-valve F, substantially as herein described.

6. In gas-motor engines, the combination of the cylinder A, piston B, engine-shaft I, counter-shaft K, crank K^3, slide D, gas-slide P, cam R, escape-valve F, lever F^1, and cam F^2, all arranged and operating substantially as and for the purposes herein described.

194,048. BEE-HIVES. M. Potter and S. H. Barnabee, Mendon, Mich. [Filed May 25, 1877.]

Brief.—The comb-frame is separated from the brood-chamber by a partition made in two parts and hinged together, so as to be fastened in place by springing its halves into a right line against the walls, as shown.

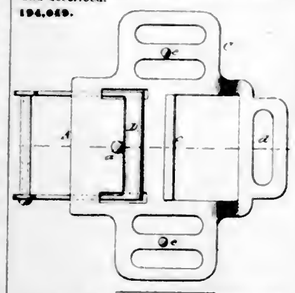


The double-walled hive A and its cap B, provided with ventilators *a b c*, the hinged bottom C, the hasp D, and the hinged partition F, all constructed and combined in the manner and for the purpose set forth.

194,049. BUCKLES FOR HARNESS. George Quackenbush, Bath, N. Y. [Filed June 23, 1877.]

In a trace-buckle, the combination of the main plate A, provided with ribs *b* and c, and bail D, with auxiliary side buckles, all constructed and operating substantially as shown and described.

194,049.



194,050. PROCESSES OF RECOVERING PHOSPHORIC ACID USED IN MANUFACTURE OF GELATINE. Nathaniel B. Rice, East Saginaw, Mich. [Filed Apr. 5, 1876.]

Brief.—Dissolves the bone with phosphoric acid, leaving the gelatine; precipitates the lime by SO_3, drains out the phosphoric acid, leaches the phosphoric-acid solution of next lot through the sediment of the first, which carries off the phosphoric acid from the CaO,SO_3, thus displacing it by an acid phosphate of lime, the residuum available as a valuable fertilizer. Subjects each lot to the action of SO_3, and then leaches a part or the whole of the next lot through the sediment of each preceding.

1. The process of recovering the free phosphoric acid contained in the sulphate of lime sediment by replacing the said phosphoric acid by an acid phosphate of lime, substantially as and for the purposes set forth.

2. In obtaining gelatine from bone, hornpith, &c., by means of phosphoric acid, the process of treating the acid phosphate of lime to recover the phosphoric acid therefrom, consisting in subjecting each lot to the action of sulphuric acid and then leaching a part or the whole of the next lot through the sediment, substantially as described.

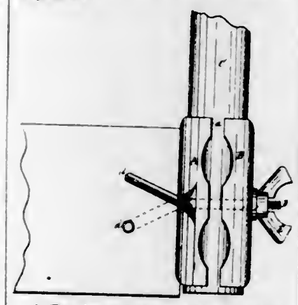
194,051. BAYONETS. E. Rice, U. S. Army. [Filed Mar. 26, 1875.]



A bayonet of sufficient width to serve as an intrenching tool, one edge of which is provided with a cutting edge and the other with saw-teeth, substantially as, in the manner, and for the purpose set forth.

194,052. CROSSCUT-SAW HANDLES. C. A. Root, Andover, Ohio, assignor of one-half his right to L. W. Merrell, same place. [Filed May 11, 1877.]

Brief.—The handle is attached to the saw, so that it may be used at right angles to the sides of the saw or in a right line therewith, by means of two clamping-plates, the inner one having a longitudinal and transverse groove, a bifurcated bolt hooking into holes in the saw-blade, and a thumb-nut for securing the whole in position.

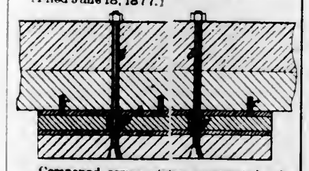


1. The clamp-plates or sections A and B, provided with the longitudinal and transverse grooves *m* and *n*, as and for the purpose specified.

2. In combination with the bifurcated bolt D and nut, sections A and B, handle C, and saw F, the spring G, for the purpose set forth.

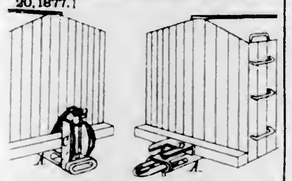
3. The adjustable saw-handle herein described, consisting of section or clamp plates A B, provided with the transverse and longitudinal grooves *m n*, bifurcated bolt D and nut, in combination with the saw, constructed to operate in the manner substantially as set forth, and for the purpose specified.

194,053. ARMOR-PLATING FOR SHIPS, FORTS, AND LIKE STRUCTURES. W. Rowlinson, Fallbarrow, Windermere, England. [Filed June 18, 1877.]



Compound armor-plates constructed substantially as herein shown, and for the purposes set forth—that is to say, the combination of two or more malleable-iron or steel plates, connected together by malleable-iron tubes, cores, or distance pieces, with an intermediate body of a strong, hard, and essentially brittle metal cast in between said plates, substantially as shown and herein set forth.

194,054. CAR-COUPLINGS. F. Roy, Amherstburg, Ontario, Canada. [Filed Feb. 20, 1877.]

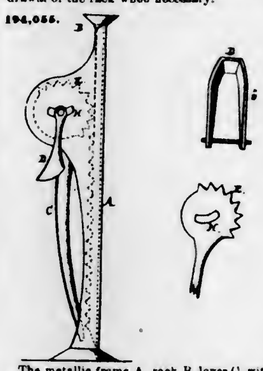


The combination, with a draw-bar, A, of the spring-plate C C, for sustaining the coupling-pin, and the wedge-plate D, for releasing the pin, substantially as described.

194,055. HOISTING-JACKS. Hugh Sells, Vienna, Ontario, Canada. [Filed Jan. 26, 1877.]

Brief.—A rack in a vertical post is operated by a lever having a disk with teeth on a portion only of its periphery, to admit of the withdrawal of the rack when necessary.

194,055.



The metallic frame A, rack B, lever C, with its cogs E E, center curved slot H, and adjustable pawl D, when constructed and operated as herein described, and for the purposes set forth.

194,056. ATTACHING DOOR-KNOBS TO SPINDLES. Al B. Shaw, Medford, assignor to M. W. Carr, Somerville, and H. W. Brooks, Cambridge, Mass. [Filed Jan. 30, 1877.]

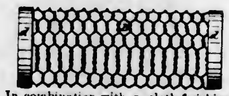
Brief.—A spring-pin passes through the knob-shank into the spindle, and is held in place by a loose collar placed over the knob-shank.



The combination, with the spindle *b*, socket *c*, and rose *h*, of the sleeve *d*, provided with the larger opening *e* and smaller opening *e'*, and the pin *f*, provided with shoulders *f'* and *f''*, and spring *g*, all constructed and arranged substantially as and for the purposes herein set forth.

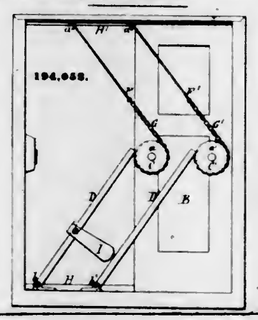
194,057. PATTERN-CYLINDERS FOR CLOTH-FINISHING MACHINES. J. H. Smith, Somerville, N. J. [Filed May 19, 1877.]

Brief.—The pattern-cylinder is made of wire woven or twisted together.



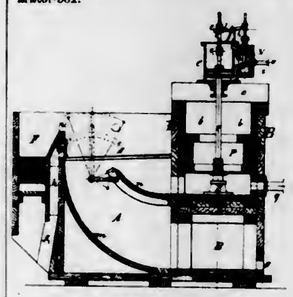
In combination with a cloth-finishing machine, a pattern for figure-napping, made of wire-netting or wire-cloth, having meshes adapted to form designs of any desired configuration and depth or width, substantially as and for the purpose described.

194,058.



194,059. ORE-JIGGERS. S. Stutz, Pittsburg, Pa. [Filed Oct. 7, 1876.]

Brief.—The plunger, by the peculiar construction of the steam-valves, has a slow upward and sudden downward movement, so that the space under the plunger, when raised, will be filled from the supply-pipe alone without producing backward current from the separator-box.

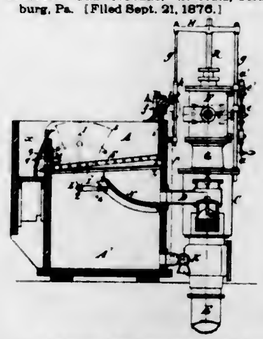


1. The box *b*, communicating with the separator-box A by a clear opening unprovided with a valve, and also communicating directly with the fresh-water supply through the pipe *q*, in combination with the box-shaped plunger P and the steam cylinder C, with its steam-passages and valve-movement, as and for the purpose specified.

2. The boxes A B, provided with the curved partition M and the outlet *e*, substantially as described, for the purpose specified.

3. The combination of the stationary sieve S and water-chamber A with the dam *u*, passage F, and dry screen *f*, and with the passages *h*, g^2, and g g^1, substantially as described.

194,060. ORE-JIGGERS. S. Stutz, Pittsburg, Pa. [Filed Sept. 21, 1876.]



1. In a machine for separating or washing coal, the combination, with the separator-box and one or more sieves, of a water-cylinder, C, and a steam-pump mounted thereon, substantially as described.

2. In a machine for separating and washing coal and other substances, the combination of a steam-pump, having a slow upward and sudden downward movement of the piston, with the valved connecting water-passages and the separator box or boxes, provided with one or more sieves, substantially as described.

3. In a coal-washing machine, the combination of the separator-box, the piston by which the water is driven, the passages leading from the piston-chamber to the box beneath the sieve, and a sieve hinged at one end and made to vibrate, as set forth.

4. In combination with the vibrating sieve, the rods *i i*, guides *m m*, cams *k k* on shaft *f*, rocked by arm *l* and rod *g*, as set forth.

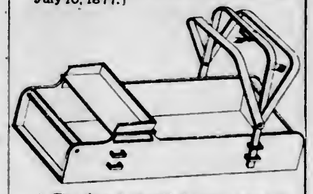
5. In combination with the sieve S, and arranged in proper relation thereto and to the passage D, the movable pallet N, as set forth.

6. The pallet N, hinged near the passage D, in combination with the shaft L and levers connected therewith, whereby the position of said pallet may be changed, as set forth.

7. The automatically-moved cock K, in combination with the rod *p* and shaft *f*, as set forth.

8. The described separator, consisting of the two chambers or boxes, the vibrating sieves, the adjustable pallets, the steam-pump, with cylindrical valves, the water-supply pipe, and the induction-passages D D, the several parts being relatively arranged substantially as and for the purpose specified.

194,061. WAGON TOPS AND COVERS. R. W. Thompson, Cleveland, Ohio. [Filed July 10, 1877.]



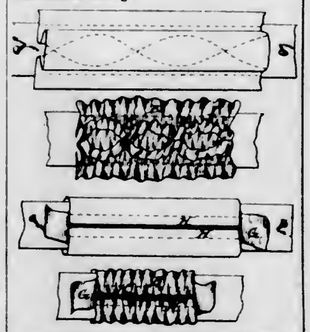
1. The sheet A, provided with buckles A^1 and strip A^2, substantially as and for the purposes described.

2. The combination, with the bows B, the sheet or cover A, and strip A^2, substantially as and for the purposes described.

3. In combination with the wagon or other vehicle, the removable bows B and cover A A^1 A^2, substantially as and for the purposes described.

194,062. SHIRRED FABRICS. S. Wales, New York, assignor of one-half his right to N. H. Furness, Tarrytown, N. Y. [Filed Jan. 13, 1876.]

Brief.—The elastic foundation may be a woven fabric rendered elastic by threads of rubber, or a sheet of rubber re-enforced by an open-woven fabric, to prevent the holes made by the needle in sewing cutting out. This foundation, in a distended state, is combined, by sewing, with non-elastic fabric, which results, when the elastic is set free, in an elastic fabric presenting a surface shirred to various patterns, according to the patterns formed by the lines of sewing.



The combination of a non-elastic fabric with the elastic foundation, joined in the manner set forth, the whole forming an ornamental shirring of regular configurations, substantially as and for the purpose hereinbefore set forth and described.

194,063. TUYERES. Peter L. Weimer, Lebanon, Pa. [Filed June 1, 1877.]

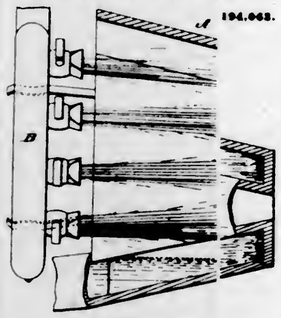
1. The combination of a tuyere, A, open at its rear end, with a perforated water-pipe, B, located opposite the open end and outside of said tuyere, substantially as shown and described.

2. The supply-pipe B, provided with the nozzles C, when constructed and arranged to

operate in combination with the open ended tuyere A, substantially as described.

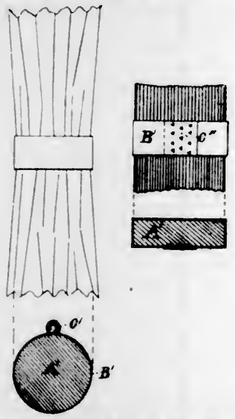
3. In combination with the tuyere A and water-pipe B, the spring-arms *c*, constructed to operate substantially as set forth.

194,063.



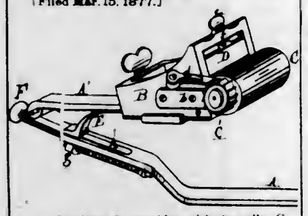
194,064. LABELING PLUG-TOBACCO. Robt. Wilson, Paul J. Borg, and John Auer, Middletown, Ohio. [Filed May 12, 1877.]

A plug of tobacco having a metal girdle-label around its outer wrapper, held in place by indentation or compression of its contiguous ends, substantially as specified.



A plug of tobacco having a metal girdle-label around its outer wrapper, held in place by indentation or compression of its contiguous ends, substantially as specified.

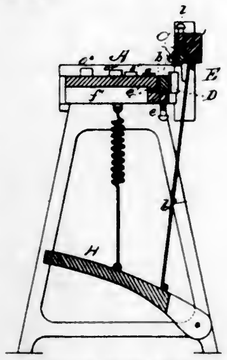
194,065. INKING APPARATUS FOR PRINTING-PRESSES. H. R. Winn, Detroit, Mich. [Filed Mar. 15, 1877.]



1. The fount B, provided with the roller C, a ratchet and pawl, and the adjustable gate D, in combination with a jointed bracket, adapted to support it above the ink-table of a press, substantially as described.

2. The combination of the block E and screw F with the jointed bracket A A', for adjusting the plane of an ink-fount above the ink-table of a press, substantially as described.

194,066. MACHINES FOR CUTTING BLANKS FOR PIPE-ELBOWS. O. H. Amann and L. A. Harker, Columbus, Ohio. [Filed May 12, 1877.]



1. An improved machine for cutting blanks for sections of curved pipe-elbows, consisting essentially of the bed A, the removable and adjustable cutter D, supported in a rabbet at the edge of said bed, and the vertically-reciprocating bar b^1, carrying the cutter G^1, said cutters being of the form substantially as specified.

2. In a machine for cutting blanks for sections of curved pipe-elbows, the combination, with the bed A and its stationary cutter D, supported in a rabbet at its edge, of the vertically-slotted side guides F, for the vertically-reciprocating cutter-head, said guides having horizontally-grooved arms E, receiving the side edges of the bed, and adjustable thereon, substantially as specified.

3. In a machine for cutting blanks for curved pipe-sections, the combination, with a bed having an edge cutter-blade, of the gage-pins $o\ o^1\ o^2\ o^3$, of different heights, and a side gage, J, higher than the highest of said gage-pins, substantially as specified.

4. A machine for cutting blanks for sections of curved pipe-elbows, having, in connection with a bed or table, A, carrying at its rear edge a curved cutter, D, and arms supporting a reciprocating cutter, G', the spaced gage-pins increasing in height from the cutter outward, and the side gage, substantially as specified.

194,067. LOCKING DEVICES FOR DRIVE-WHEELS FOR SEWING-MACHINES. G. W. Baker and D'A. Porter, Cleveland, Ohio. [Filed June 20, 1877.]

Brief.—The outwardly-swinging frame is pivoted to a collar upon the shaft to lock the drive-wheel. It is adapted to be readily disengaged from the wheel, permitting it to be revolved either forward or backward.



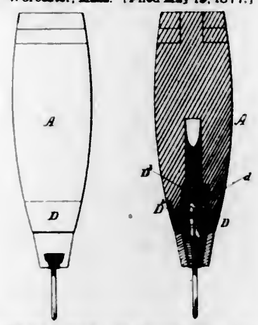
1. The combination, with the wheel B, provided with a pin, D^2, said wheel journaled loosely upon the shaft A, of an outwardly-swinging frame, D, pivoted to a shaft or a collar secured thereto, said frame constructed to engage with the pin D^2 on the wheel, substantially as described.

2. The combination, with the wheel B, provided with pin D^2, of an outwardly swinging frame, D, pivoted to a collar, A', secured to shaft A, substantially as described.

3. The combination, with wheel B, provided with a pin, D^2, of an outwardly-swinging frame, D, pivoted to collar A', and the spring D^3, substantially as described.

4. The combination, with the drive-wheel of a sewing-machine, of an outwardly-swinging frame, constructed and adapted to be locked to the drive-wheel, substantially as described.

194,068. AWL-HAFTS. M. A. Bartlett, Worcester, Mass. [Filed May 19, 1877.]



The combination, with the wood body A and split spindle B, formed with an offset or shoulder, *b*, of the re-enforce piece D, having central projection D^1, internally shouldered at *d*, and outer rim or flange D^2, for embracing the wood, substantially as and for the purposes set forth.

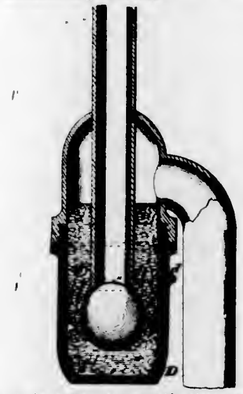
194,069. GLOVE-FASTENERS. L. Bonesteel, Rochester, N. Y. [Filed June 20, 1877.]



The glove-fastening consisting of the body *a*, having a stud, *b*, at one end, a loop, *c*, at the other, and an open hook, *d*, intermediate with the stud and loop, as shown and described, and for the purpose specified.

194,070. SEWER, STENCH, AND GAS TRAPS. B. P. Bower, Cleveland, Ohio. [Filed June 6, 1877.]

Brief.—The valve is exposed to view through the removable glass section.



1. In a trap, a removable glass section formed at the bottom so as to stand erect without support when removed from the trap, substantially as described.

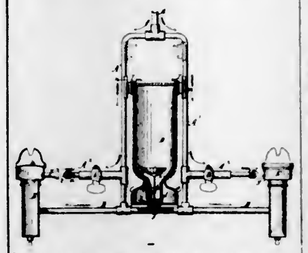
2. In a trap, a glass section screw-cut at the top for attachment to the adjacent portion of the trap, substantially as described.

3. In a trap provided with a glass section, D, the combination, with said trap and glass section, of the interposed gasket of rubber or equivalent material, substantially as described.

4. In a sewer-trap, a sediment-chamber formed of glass, substantially as described.

5. In combination with a trap embracing valve-mechanism, a removable section, D, of glass, located with respect to the said valve mechanism so as to expose the same to view, substantially as and for the purposes described.

194,071. LAMPS. A. Burbank, Rochester, N. Y., assignor of two-thirds his right to D. Hovey and E. A. Chase, same place. [Filed May 26, 1877.]



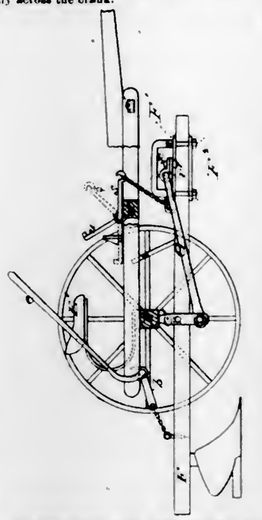
1. An air-injecting lamp constructed with air-pipes A^1 A^1, inclosing the oil-receptacle B, branch pipes A^2 A^2, provided with the injectors *a a*, and oil-pipes D D, connected at one end with the receiver C and at the other with the burners E E, as shown and described, and for the purpose specified.

2. The combination, with the transparent receptacle B, constructed with the narrow neck *d* of the shallow receiver C contracted at its top so as to embrace only the neck, leaving the whole body of the receptacle exposed, as shown and described, and for the purpose specified.

3. The combination, with the transparent receptacle B and air-pipes A^1 A^1, of the sliding holder I, arranged to operate in the manner and for the purpose specified.

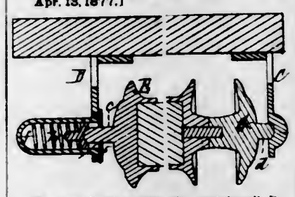
194,072. SULKY-PLOWS. H. H. Canaday, Fairfield, Iowa. [Filed June 30, 1877.]

Brief.—A clamp connects the front end of the plow-beam to its supporting-crank. Long connecting-staples allow the beam forward and back play, and it may be adjusted laterally across the crank.



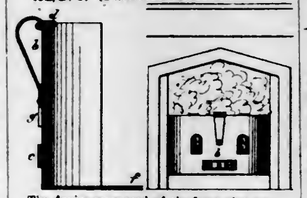
The combination, with a sulky carriage, the vertically-vibrating frame G, and the plow-beam F, of the adjustable clamp-plates F^1 F^2 and the clamp staples loosely straddling the end bar of said frame, substantially as specified.

194,073. CURTAIN-FIXTURES. T. Connelly and J. F. Bickell, Chelsea, Mass. [Filed Apr. 13, 1877.]



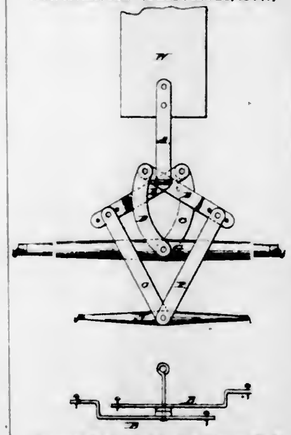
The combination, with the curtain-roll D, cap E, and metallic spool G, having pins *c* and *d*, and the bracket C, of the bracket B, with its channel *f* and inclosed spring *h*, block or disk *i*, and plate 5, the several parts constructed and arranged to operate substantially in the manner herein shown and described.

194,074. SHIELD AND DAMPER FOR FIRE-PLACE GRATES. Ella C. Cooke, Washington, D. C. [Filed Nov. 28, 1876.]



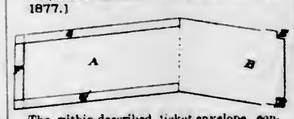
The device composed of the front plate provided with the damper *b* and the bottom plate *f*, constructed substantially as shown and described, for the purpose set forth.

194,075. DRAFT-EQUALIZERS. T. R. Cook, Mooresville, Ind. [Filed June 26, 1877.]



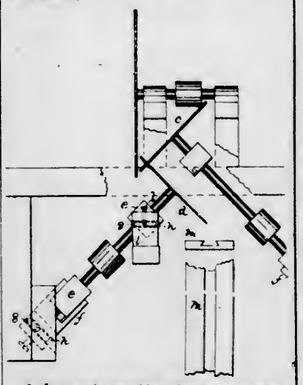
The combination of the two levers B B, straps C D O P, main bar G, and whiffletree N, substantially as herein shown and described.

194,076. TICKET-ENVELOPES. J. H. Culver, San Francisco, Cal. [Filed June 26, 1877.]



The within-described ticket-envelope, consisting of the part A, having the side flaps G, folded over the notched extension-flap F, and the notched flap B, secured under the extension-flap F, as specified.

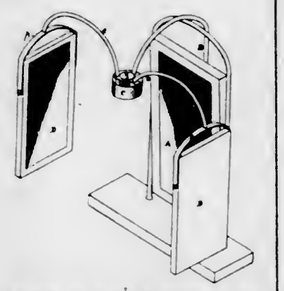
194,077. LATH-MACHINES AND PRODUCTS. W. S. Davis, Pittsfield, Me., assignor to Warren L. Parks, same place. [Filed Nov. 16, 1876.]



1. In a sawing-machine, the combination of the grooving or beveling saws *c d*, with boxes *e*, cunings *f*, pivoted slides *g*, and standards or supports *i i*, having grooves *h* therein, all arranged and operating as set forth, for the purposes specified.

2. A lath, *m*, intended for use in the ordinary manner, provided with a dovetail groove, *n*, in its face, substantially as and for the purposes specified.

194,078. TOILET-MIRRORS. J. G. Divoll, Sonora, Cal. [Filed June 8, 1877.]



The fixed rod or wire B, arranged to project from above a permanent mirror, A, and provided with a cup, C, with its standard *f*, in combination with one or more adjustable mirrors, D, suspended, by means of curved wires or rods *e*, from the cup C, in the manner above described, so that the said mirrors can be adjusted to any desired position in the circle, substantially as and for the purpose described.

194,079. MACHINES FOR BARRING BUTTON-HOLES. L. Dustin, Elizabeth, N. J., assignor to the Singer Manufacturing Company, New York, N. Y. [Filed May 22, 1877.]

Brief.—When the clamp-plate has reached the end of the feed-movement, and the sides and eye of the button-hole have been stitched, a movable guide is operated by a hand-lever, to throw the clamp to one side, so that the needle will operate on both sides of a line continuous of the slit of the button hole, and form a bar across the end, the feed being stopped during the barring.

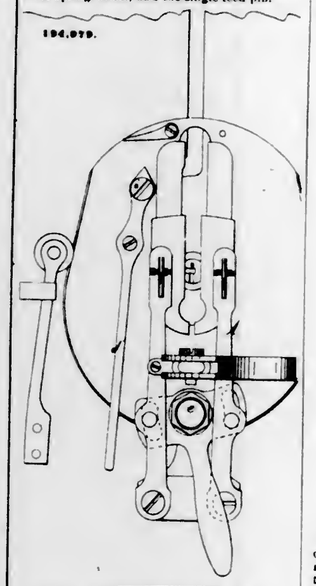
1. The combination, substantially as before set forth, of the cloth-clamp, the movable guide for moving the cloth-clamp laterally, and one feed-pin, whereby the cloth-clamp during barring is fed lengthwise of the button-hole.

2. The combination, substantially as before set forth, of the cloth-clamp, the movable guide for moving the cloth-clamp laterally,

the single feed pin, and the lever for operating the said guide.

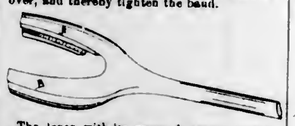
3. The combination, substantially as before set forth, of the cloth clamp, the movable guide for moving the cloth clamp laterally, the spring wheel, and the single feed pin.

194,079.



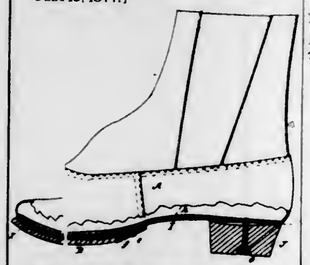
194,080. TIGHTENING BALE-BANDS. N. T. Edson, New Orleans, La. [Filed Apr. 20, 1877.]

Brief.—To grasp the buckle and bend it over, and thereby tighten the band.



The lever, with its grooved prongs A and B, substantially as and for the purposes described.

194,081. BOOTS AND SHOES. C. Edwards, Jamaica, N. Y., assignor of one-half his right to C. A. Beldin, same place. [Filed June 19, 1877.]



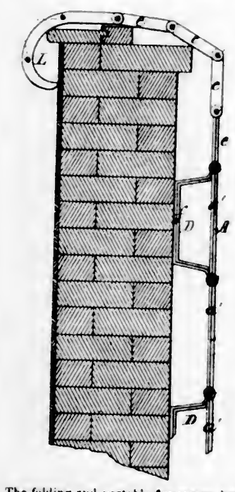
1. The detachable sole H, provided with a rim or plate, *d*, to fit upon a plate, I, attached to the inner sole of the shoe, substantially as shown and described.

2. The metallic plate I, in combination with the inner sole A, and detachable outer sole B, as shown and described, for the purpose of holding the said detachable sole B, as set forth.

3. The detachable sole B, provided with a countersunk plate, *s*, in combination with the pin *f*, as and for the purpose set forth.

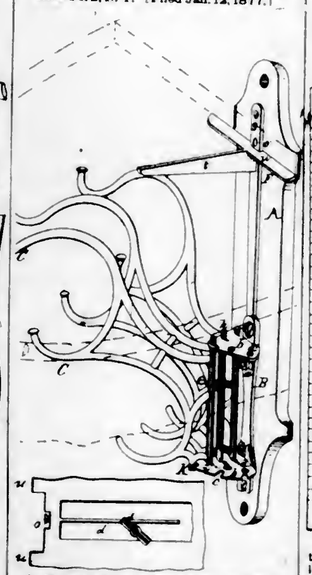
4. The combination of the sole B, provided with a metallic rim or plate, *d*, extending around its edges, the plate I secured to the inner sole, and the plate *e*, and pin *f*, as and for the purposes set forth.

194,082. FIRE-ESCAPES. Louis Falk, Morrisania, N. Y. [Filed Feb. 20, 1876.]



The folding and portable fire escape herein described, consisting of the sectional jointed and runged shanks *e*, hooks L, ladder-sections A, and rectangular fenders D, connected to said ladder-sections, and adapted to have elongated vertical bearing on the house wall, substantially as specified.

194,083. DEVICES FOR SUPPORTING AND PROTECTING CLOTHES. E. B. Gildersleeve, New York, N. Y. [Filed Jan. 12, 1877.]

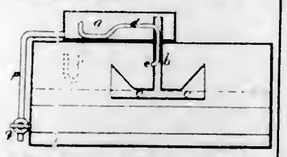


1. In a clothes rack, the combination of the canopy D, bracket F, wall-piece A, bracket B, provided with the soles *b* and *b'*, the sole *b* having the apertures *d* and notches *c*, and hooks C, provided with the projections *i* K, substantially as described.

2. The combination of the soles *b b'*, the former having the holes *d* and notches *c*, and the latter the holes *d'*, with the hooks C, having the projections h, i, and K, substantially as shown and described.

3. The combination of the canopy D, provided with the slot *p*, stud *o*, and bracket F, having the sole *t* and seat *o'*, with the wall-piece A, bracket B, having the soles *b* and *b'*, the sole *b* being furnished with the holes *d* and notches *c*, and hooks C, substantially as set forth.

194,084. PURIFYING WATER IN STEAM-BOILERS. S. D. Gilson, Syracuse, N. Y. [Filed Apr. 14, 1877.]



1. The combination of the inlet-pipe *b* and trap-pipe *d* with the precipitator, in the manner and for the purposes described.

2. The combination of the blow-off pipe *p* with the precipitator *a*, inlet-pipe *b*, and trap-pipe *d*, as herein specified.

194,085. MANUFACTURE OF BETON. J. C. Goodridge, Jr., New York, N. Y. [Filed June 5, 1877.]

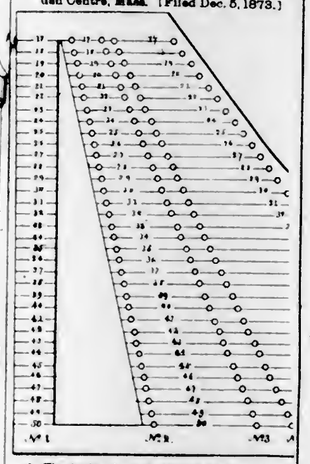
1. As a new manufacture, a beton formed of sand and cement, mixed with water to the point of saturation, substantially as hereinbefore set forth.

2. The process of purifying cement by separating therefrom the impure, light, and earthy matters, the uncombined lime and clay and the soluble salts, substantially as hereinbefore set forth.

3. As a new manufacture, a beton composed of sand and cement purified, as hereinbefore set forth, mixed with water to the point of saturation.

4. As a new manufacture, the stone or monolithic masonry made from the substances and treated in the manner described.

194,086. INSTRUMENTS FOR DRAFTING PATTERNS. C. H. Griffin, Lynn, assignor of one-half his right to D. Knox, Saugus, and one-fourth his right to E. E. Durgin, Malden Centre, Mass. [Filed Dec. 5, 1873.]



1. The device shown in Fig. 1, being the pattern called the "dart-scale," as provided with lines, holes, and figures, or other indicating characters, and the curved right-hand side marked "dart," all when combined and arranged to operate substantially as described and shown.

2. The scale piece marked "Back shoulder" in Fig. 2, with its slide 2 at one end and pin at the other, and the subsidiary cross-slide seen, in combination with the sliding scale-piece marked "Back neck No. 1," and the loop bearing it, the slotted scale-piece marked "Shoulder No. 7," also the scale-piece No. 5, and the piece marked "Back No. 8," and bearing scale-piece entitled "Scale No. 5," all when constructed and arranged to operate substantially as described and shown.

3. The scale-piece marked "Back No. 3" in Fig. 2, in combination with its slide 3, the cross slide, and the piece marked "Back No. 8," and the scale-piece entitled "Scale No. 6," all when constructed and arranged to operate substantially as described and shown.

4. The scale-piece marked "Back-waist scale No. 4" in Fig. 2, in combination with the pin on which it partially rotates, its slide 4, and the piece marked "Back No. 8," all when constructed and arranged to operate substantially as described and shown.

5. The combination of the piece marked "Back No. 8," with its scale and scale-piece entitled "Scale No. 5," and the end loop, and the pieces marked, respectively, "Back neck," "Shoulder No. 7," with its slot, "Back-shoulder scale No. 2," with its pin, "Back No. 3," and "Back-waist scale No. 4," with its pin, with their slides and indicating characters, all when constructed and arranged to operate substantially as described and shown.

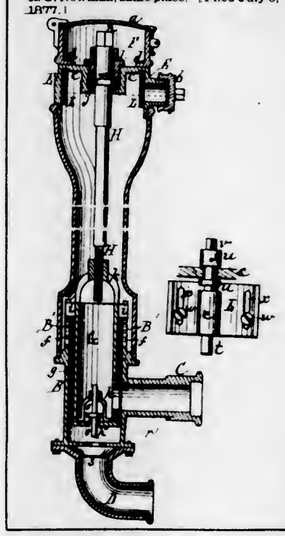
6. The scale-piece marked "Back neck No. 2" in Fig. 4, in combination with the piece marked "Front-neck scale No. 1," or other strip of wood or metal or other material, when the two strips are fastened together at an obtuse angle, all substantially as described and shown.

7. The scale-piece marked "Front-chest scale" in Fig. 4, in combination with the sliding triangle formed by the piece marked "Front-arm-size scale No. 3," the piece forming the opposite long side of triangle, and the pointer Q, all when constructed and arranged to operate substantially as described and shown.

8. The scale-piece marked "Front-arm-size scale No. 3" in Fig. 4, with its pointer Q and pin Q', their slide, and the support for the same, in combination with the "Front-chest scale," and the scale-piece entitled "Scale No. 0," of Fig. 3, with its perforation or dent P, all when constructed and arranged to operate substantially as described and shown.

9. The scale-piece No. 0, of the configuration shown, and provided with scale marked "Neck No. 1," and the perforation P, all constructed and arranged to operate substantially as described and shown.

194,087. HYDRANTS. E. Hand, Rochester, N. Y., assignor of one-tenth of his right to R. G. Newman, same place. [Filed July 6, 1877.]



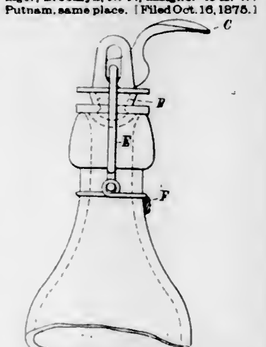
1. In a hydrant, the combination, with the hollow valve G, provided with the lugs *i i*, of the cylindrical projection B', extending up within the body of the hydrant, and provided with the spiral slots *f f*, which receive the lugs, the whole arranged as set forth, so that the valve receives a compound vertical and turning movement, as herein described.

2. The hollow valve G, constructed with a port, *h*, for admitting water from the main, packed upon its outer surface, and provided at its bottom with a waste-valve, which serves as a check, as shown and described, and for the purpose specified.

3. The combination, with the hollow valve G, of the waste-valve K, separate bearing-disk r, and cross-bar *s*, as shown and described, and for the purpose specified.

4. In a hydrant, the combination, with the nozzles *b b b*, of the valves L L L, formed of thin segments, which move vertically, the screws *t t t*, connecting with said segments, and the guide-screws *w w*, and slots *x x*, as shown and described, and for the purpose specified.

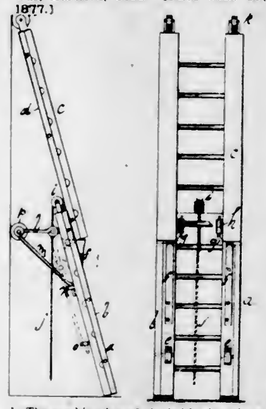
194,088. BOTTLE-STOPPERS. W. C. Hornfager, Brooklyn, N. Y., assignor to H. W. Putnam, same place. [Filed Oct. 16, 1876.]



1. The combination, with a swinging bail-wire, of the bottle stopper, connected to the bail-wire by the latter passing through the slotted wing of the stopper, and the lever G, pivoted upon the bail-wire E, substantially as set forth.

2. The india rubber, B, for the metallic stopper, having the flange 2 between the conical body 1 and the convex lower portion 3, as set forth.

194,089. EXTENSION-LADDERS. L. Hauerwas, Hartford, Conn [Filed June 29, 1877.]



1. The combination of the ladder lengths *a c* and the connecting slide plates *b d*, when these plates are made to confine the ends of the rounds, substantially as shown and described.

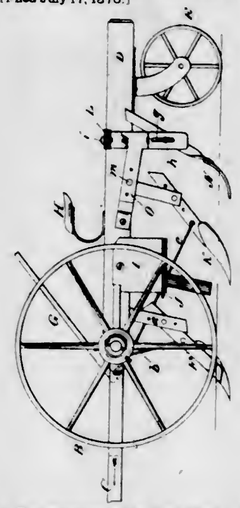
2. The spring-catches *f*, forked, as described, for the purposes set forth.

3. The combination of the base-length *a*, provided with the friction-pulleys *e*, and the extension-length *c*, provided with the friction-pulley *k*.

194,090. ART OF TANNING. Robert Hein, St. Mary's, Pa. [Filed Apr. 30, 1877.]

As an improvement in the art of tanning, a bate composed of red arsenic, potash, and water, prepared as described, and for the purpose set forth.

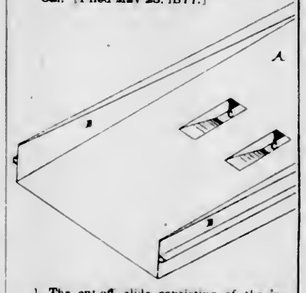
194,091. COMBINED PLOW AND CORN-PLANTER. J. T. Hughes, Murrayville, Ill. [Filed July 17, 1876.]



1. The combination of the main frame A D, provided with the wheels B and E, the pivoted shovels F and K, connected with the hand-lever G, the hopper I, provided with the vibrating feed-slide *l*, as shown, and the seat H, located, as shown, so that the operator sitting thereon may control the lever with his hand and operate the feeling device with his feet.

2. In combination with the driver's seat H of a corn-planter, a seed-hopper, I, provided with a pivoted feed-plate or slide, J, having its two ends adapted and arranged in position to be operated by the feet of the driver, in the manner shown.

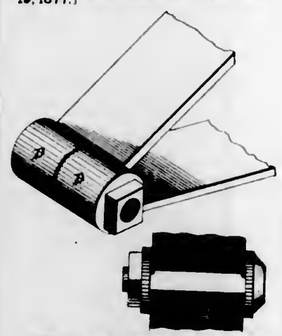
194,092. CUT-OFF SLIDES FOR CUBE-SUGAR MACHINES. L. Hopken, San Francisco, Cal. [Filed May 23, 1877.]



1. The cut-off slide consisting of the inclined or wedge-shaped plate A, with the side plates B, substantially as and for the purpose described.

2. The cut-off slide A, having the inclined surface, as shown, and provided with the escape-openings C for surplus sugar, substantially as herein described.

194,093. VEHICLE-SPRING HEADS. R. B. Hughes, New Haven, Conn., assignor to W. & E. T. Fitch, same place. [Filed June 19, 1877.]



1. The recessed spring-head constructed in two parts, combined with the two parts of the spring, hook-shaped to correspond to the interior of the parts of the head, and a bolt through said parts of the head and between the hooked ends of the spring, substantially as described.

2. The recessed spring-head constructed in two parts, combined with the two parts of the spring, hook-shaped to correspond to the interior of the parts of the head, and a bolt through said parts of the head and between the hooked ends of the spring, and lug or lugs in the mouth of the recess in the head to connect the said parts of the head with the upper part of the spring, substantially as described.

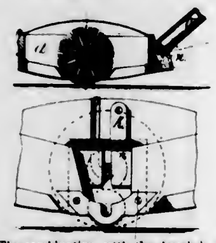
194,094. BUTTON-FASTENINGS. M. Johnson, New Orleans, La. [Filed Mar. 19, 1877.]



1. In a button-fastening, the combination of the slotted shank *b* and disk *f*, provided with the parallel elastic bars *e e*, all substantially as shown and described.

2. A button-fastening composed of a pointed slotted shank, *b*, rigidly secured to the button, and a disk, *f*, provided with parallel spring-bars *e e*, all constructed and operating substantially as described.

194,095. CARPET-SWEEPERS. B. W. Johnson, Providence, R. I., assignor to W. V. Daboll, same place. [Filed Mar. 24, 1877.]



1. The combination, with the brush *b* and pins C C of the box, its ends having the slot *f* and recess *g*, the slotted slide A, provided with the guard *i*, and secured upon the shaft by the turn-button K, arranged to facilitate the insertion and retention of the brush, as and for the purpose set forth.

2. The handle *e*, provided with the screw *p*, in combination with the curved and slotted bracket *m*, arranged to hold the nut *n*, and allow it to slide in the segmental box, so that the handle may be adjusted and secured in any position, substantially as described.

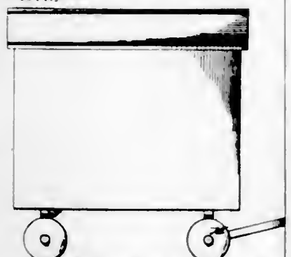
194,096. WHIP-SOCKETS. D. A. Kimbark, Chicago, Ill. [Filed July 18, 1877.]

The herein-described whip-socket constructed from a thin sheet of elastic metal, rolled or coiled into tubular form, so as to leave the inner edge free, substantially as specified.

194,096.



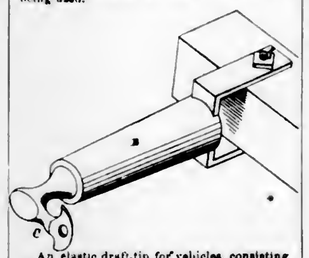
194,097. PORTABLE ICE-HOUSES. John E. Lippitt, Wilmington, N. C. [Filed July 7, 1877.]



A portable ice-storing house, substantially as and for the purpose described.

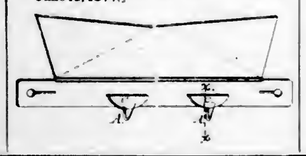
194,098. DRAFT-TIPS FOR VEHICLES. A. Marshall, San Francisco, Cal. [Filed June 18, 1877.]

Brief.—An elastic tip attached to the crossbar or to the end of the thills, no whiffletrees being used.



An elastic draft-tip for vehicles, consisting of the barrel B, having tip C, with its shank *c*, and spring I secured therein, said barrel being attached directly to the rigid cross-bar or forward end of the thills, on a line therewith, substantially as and for the purpose herein shown and described.

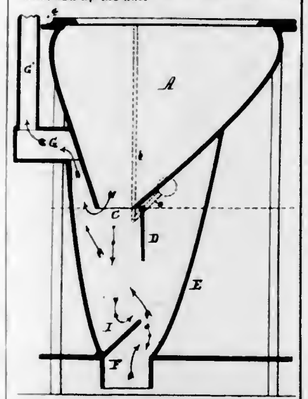
194,099. FASTENINGS FOR COLLARS, CUFFS, &c. Thos. Moore, Rock Mart, Ga. [Filed June 15, 1877.]



As an improved article of manufacture, the hereinbefore-described device for attaching collars and cuffs to neck and wristbands, consisting of the metallic hook A, having eye B, and shield C, formed of the two parts *a b*, substantially as described.

194,100. WATER AND AIR CLOSETS. G. R. Moore, Philadelphia, Pa. [Filed June 30, 1877.]

Brief.—The flap-valve, operated by the seat and rod, is never to be entirely closed, so that a current of air may pass down through the bowl and up the flue.



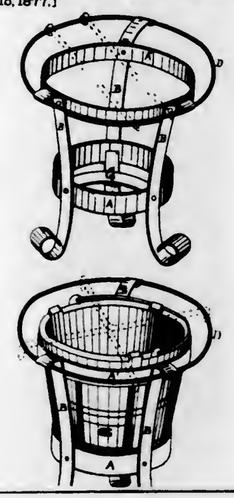
1. A water or air closet provided with a ventilating-flue, and with the loosely-fitting self-closing bottom D at the outlet of the hopper A, substantially as and for the purpose herein set forth.

2. In combination with the hopper A, the self-closing bottom D, provided with the opening-rod *b*, extending up to the hinged seat B, at a point where the same is nearly closed, and by which it is then operated, and then only, substantially as and for the purpose herein set forth.

3. In combination, the self-closing bottom D, air-flue G, hopper A, and container E, substantially as and for the purpose herein set forth.

4. In combination, the container E, provided with the diaphragm I, the hopper A, and flue G, substantially as and for the purpose herein set forth.

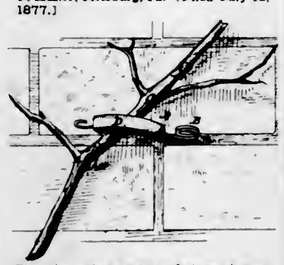
194,101. PORTABLE FURNACE-STANDS. J. N. Muller, New Orleans, La. [Filed June 15, 1877.]



1. A furnace-stand composed of rings A A', the bottom C, and the legs B, for the purpose set forth.

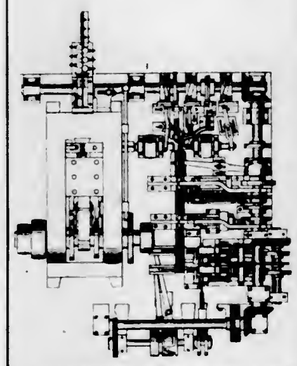
2. In a furnace-stand composed of rings A A', tripod C, and legs B, a ring-rest, D, as described, and for the purpose specified.

194,102. VINE CLAMP OR FASTENER. Geo. F. Muller, Pittsburg, Pa. [Filed July 18, 1877.]



The wire-spring clamp or fastener A, provided with a sheath, D, of cork or other suitable material, and adapted to be secured in position, substantially as and for the purpose specified.

194,103. WOOD-SCREW MACHINES. A. L. Munson, New York, N. Y., assignor to S. T. W. Sanford and W. Peterson, same place. [Filed Apr. 27, 1877.]



1. In an organized machine arranged for the automatic manufacture of screws from a continuous supply of wire, the combination of the following elements, viz: a blank-heading device, a shaving device, a drilling device, a punching device, a screw-threading device, and an apparatus for transferring the screw-blanks from one device to the others, such combination of elements being adapted to the manufacture of screws the heads of which are provided in the center with an angular cavity in place of the usual slot or nick.

2. In an organized machine arranged for the automatic manufacture of screws from a continuous supply of headed screw-blanks, the combination of elements, viz: a shaving device, a drilling device, a punching device, a slotting device, a reshaving device, a screw-threading device, and an apparatus for transferring the screw-blanks from the first-named device to the others in rotation, such combination of elements being arranged for the manufacture of screws the heads of which are provided in the center with an angular cavity in place of the usual slot or nick.

3. In an organized machine arranged for the automatic manufacture of screws from a continuous supply of wire, the combination of the following elements, viz: a blank-heading device, a drilling device, a punching device, a combined milling and shaving device, a screw-threading device, and an apparatus for transferring the screw-blanks from one device to the others, such combination of elements being arranged for the manufacture of screws the heads of which are provided in the center with an angular cavity in place of the usual slot or nick.

4. In an organized machine arranged for the automatic manufacture of screws from a continuous supply of headed screw-blanks, the combination of the following elements, viz: a drilling device, a punching device, a slotting device, a shaving and milling device, a screw-threading device, and an apparatus for transferring the screw-blanks from the first-named device to the others, such combination of elements being arranged for the manufacture of screws the heads of which are provided with an angular cavity in addition to the usual slot or nick.

5. In an organized machine arranged for the automatic manufacture of screws from a continuous supply of wire, the combination of the following elements, viz: a blank-heading device, a shaving device, a drilling device, a punching device, a screw-threading device, and an apparatus for transferring the screw-blanks from one device to the others, such combination of elements being adapted to the manufacture of screws the heads of which are provided in the center with an angular cavity in place of the usual slot or nick.

6. In an organized machine arranged for the automatic manufacture of screws from a continuous supply of headed screw-blanks, the combination of the following elements, viz: a shaving device, a drilling device, a punching device, a screw-threading device, and an apparatus for transferring the screw-blanks from the first named device to the others in rotation, such combination of elements being adapted to the manufacture of screws the heads of which are provided in the center with an angular cavity in place of the usual slot or nick.

7. In an organized machine arranged for the automatic manufacture of screws from a continuous supply of wire, the combination of the following elements, viz: a blank-heading device, a drilling device, a punching device, a combined milling and shaving device, a screw-threading device, and an apparatus for transferring the screw-blanks from one device to the others, such combination of elements being arranged for the manufacture of screws the heads of which are provided in the center with an angular cavity in place of the usual slot or nick.

8. In an organized machine arranged for the automatic manufacture of screws from a continuous supply of headed screw-blanks, the combination of the following elements, viz: a drilling device, a punching device, a combined milling and shaving device, a screw-threading device, and an apparatus arranged for transferring the screw-blanks from the first-named device to the others in rotation, such combination of devices being arranged for the manufacture of screws the heads of which are provided in the center with an angular cavity in place of the usual slot or nick.

9. In an organized machine arranged for the automatic manufacture of screws from a continuous supply of wire, the combination of the following elements, viz: a blank-heading device, a shaving device, a drilling device, a slotting device, a reshaving device, a screw-threading device, and an apparatus for transferring the screw-blanks from one device to the others, such combination of devices being arranged for the manufacture of screws the heads of which are provided centrally with a round hole in addition to the usual slot or nick.

10. In an organized machine arranged for the automatic manufacture of screws from a continuous supply of headed screw-blanks, the combination of the following elements, viz: a shaving device, a drilling device, a slotting device, a reshaving device, a screw-threading device, and an apparatus for transferring the screw-blanks from one device to the others in rotation, such combination of devices being arranged for the manufacture of screws the heads of which are provided centrally with a round hole in addition to the usual slot or nick.

11. In an organized machine arranged for the manufacture of wood screws provided in the center of their heads with a round or angular cavity in addition to or without the usual slot or nick, the combination of the following devices: a rotating spindle provided with clamping jaws for grasping the screw-blank, a longitudinal reciprocating rotating spindle carrying a drill, the two spindles revolving in contrary directions, and a feeding device for delivering the screw-blanks to such devices, the whole arranged and operating substantially as herein shown and set forth.

12. In an organized machine arranged for the manufacture of wood screws provided in the center of their heads with a round or angular cavity in addition to or without the usual slot or nick, the combination of the following devices, viz: a rotating spindle provided with clamping-jaws for grasping the screw-blank, a longitudinal reciprocating rotating spindle carrying a drill, the two spindles rotating in contrary directions, a shaving cutter or cutters, and a feeding mechanism for delivering the screw-blanks to such devices, the whole arranged and operating substantially as herein shown and set forth.

13. In an organized machine arranged for the manufacture of wood-screws, in combination with the shaving, slotting, and screw-threading devices embodied therein, and a series of power-presses provided with dies for grasping the screw-blanks while being operated upon by such devices, a transferring apparatus provided with a series of clamping-jaws, operating in a frame provided on its apex with a series of transfer-seats, such jaws arranged to automatically adjust their grasp to various gages of wire, and having the following stated movements: a movement to the right, and an upward movement to grasp and remove the series of blanks from the various devices operating thereon, and a movement to the left, and a downward movement to deliver such blanks to the next succeeding operation, the whole arranged, applied, and operating substantially in the manner as herein shown and set forth.

14. The combination of an apparatus or device for punching an angular cavity in the head of a screw-blank previously drilled, a device for slotting or nicking the same, and a transferring apparatus for delivering the screw-blanks to and removing them from such punching and slotting devices, the whole arranged and operating substantially as herein shown and set forth.

15. The combination of a reshaving apparatus, consisting of a reciprocating rotating shaft carrying a milling and shaving tool, such shaving-tool being adjusted to its work by the advance of such shaft, and retired therefrom by its retrograde movement, a device for clamping and holding the screw-blank while it is being operated upon, and an apparatus for delivering the screw-blanks to and removing them from the action of the milling and shaving apparatus, the whole arranged, applied, and operating substantially as and for the purposes as herein shown and set forth.

16. The combination of a carrying-trough, arranged to convey a column of screw-blanks from a heading apparatus or a hopper, a device for separating or selecting a single blank from the column of blanks so conveyed, a device for shaving the heads of such blanks, a drilling apparatus, a stationary guide-rest, a reciprocating guide-rest, and an apparatus for transferring the blanks, after drilling and shaving, therefrom to the succeeding operations in the formation of a screw, all substantially as herein shown and set forth.

17. The combination of a carrying-trough, arranged to convey a column of screw-blanks from a heading apparatus or a hopper, a device for separating or selecting a single blank from the column of blanks so conveyed, a device for shaving the heads of such blanks, a stationary guide-rest, a reciprocating guide-rest, and an apparatus for transferring the blanks, after being shaved, therefrom to the succeeding operations in the formation of a screw, all substantially as herein shown and set forth.

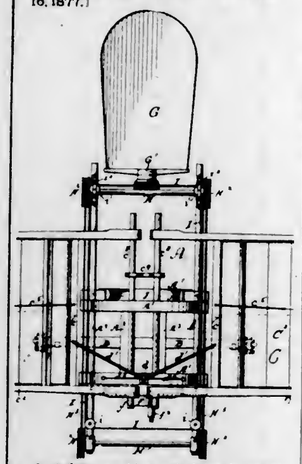
18. The combination of a device for punching a screw-blank in which a round hole has been previously drilled for the purpose of forming it into an angular cavity, a device for slotting or nicking the blank-head, and an apparatus for delivering the screw-blank to and removing it from such devices, all substantially as herein shown and set forth.

19. The combination of a screw-threading apparatus having two sets of threading devices operating in unison; an apparatus for delivering the screw-blanks alternately to such threading devices, such delivering apparatus having the following-stated movements: a movement to the right beneath the line of screw-blanks supported in seats, a rising movement to grasp the blanks, a movement to the left carrying the blanks, and a falling movement to deliver the blanks to the threading devices; a series of sectional guide-stands arranged to receive the screw-blanks from such transferring apparatus, and to guide them to the revolving clamps, which grasp the head of the blanks and rotate them during the pro-

cess of threading, such guide-stands retaining and guiding the blank while the thread-cutters operate thereon, and afterward opening laterally and delivering the finished screws through their base; and a set of reciprocating fingers arranged to force the blanks from the transferring seats and transferring apparatus to said sectional guide-stands and revolving clamps, all substantially as herein shown and set forth.

20. The reciprocating guide-rest i' and fixed guide-rest i, arranged to support the screw-blanks prior to, during the process of drilling and shaving, and for delivery to the transferring apparatus, substantially as herein shown and set forth.

194,104. AERIAL NAVIGATORS. M. M. Murrell, Panther Springs, Tenn. [Filed Apr. 16, 1877.]

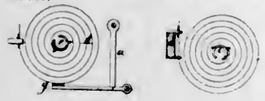


1. A flying-machine embodying in its construction a framing, A, having pivoted wings C C, controlled and operated by cords or ropes E E and F F, and a guiding tail, G, controlled and operated by means of cords or endless bands H^2 and I and rock shafts H^1 H, substantially as set forth.

2. The combination, with the frame of a flying machine, of the wings C C, pivoted on rods or axes c^1, and controlled in their upward movement by springs d^1, substantially as set forth.

3. In a flying-machine, a guiding tail, G, pivoted on a rock-shaft, H, and controlled and operated by cords or bands H^2 and I, substantially as shown and described.

194,105. CHRONOMETER-REGULATORS. G. Newton, St. Louis, Mo. [Filed July 24, 1876.]



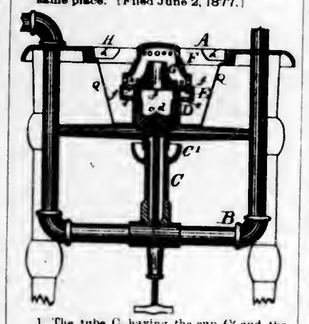
1. In a chronometer, a compensation to overcome the effect of changes in the humidity of the atmosphere, consisting of a material which expands and contracts under the changes of humidity, arranged to lengthen and shorten, automatically, the hair-spring or pendulum, substantially as described and shown.

2. The combination, substantially as described and shown, of a block or strip of wood or equivalent material, *a*, with the hair-spring or pendulum of a time-keeper, for the purpose set forth.

3. The combination of the hair-spring or pendulum of a chronometer and a material which expands under the influence of moisture, the latter arranged to govern, directly or indirectly, the action of the former, substantially as described.

4. In a chronometer, a material which expands and contracts under the changing humidity of the atmosphere applied to counteract the effect of such changes on the speed of the mechanism, substantially as described, for the purpose of securing a regular unchangeable speed of the mechanism at all times.

194,106. GASOLINE-STOVES. W. C. North, Cleveland, Ohio, assignor to A. M. North, same place. [Filed June 2, 1877.]



1. The tube C, having the cup C' and the T-connection cast thereon, all in one piece, as shown and described.

2. In combination with the tube C, the yoke D, having the jet-orifice *d* and annular chamber E, with its orifices *e e*, substantially as described.

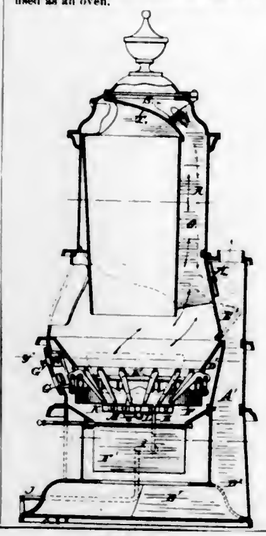
3. In combination with the cap or dome F, perforated as described, the cone G, provided with vertical opening *g* and the orifices *f f*, substantially as shown and described.

4. The combination of the yoke D, provided with the jet-orifice *d* and annular chamber E, with the cap or dome F, having the flat bottom, with its cone G and orifices *f f*, and the tube C, with its cup C', substantially as shown and described.

5. The inverted truncated cone-shaped shield Q, depending from the pit-opening of the stove, and extending below and surrounding the burner, in combination with said burner and the rabbeted annular spider in said pit opening, substantially as shown and described.

194,107. PARLOR-STOVES. D. E. Paris, Omaha, Nebr. [Filed July 12, 1877.]

Brief.—A series of levers or fingers pivoted around the lower part of the upper section of fire-pot, and adapted to be shaken by a fender-bar or foot-rest. Folding doors are located beneath the grate, and arranged to be closed up under the grate, to adapt the ash-pit to be used as an oven.



1. A series of levers or fingers pivoted around the lower part of the upper section of the fire-pot of a stove, and forming a part of the sides of the same, said fingers being capable of being raised or lowered by means of suitable mechanism to separate the ashes from the coals.

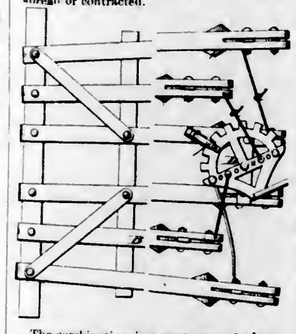
2. A feuder-bar or foot-rest for a stove, consisting of the curved bar J, extending around the lower part of one side of the stove and secured to the bent levers I I, extending through the walls of the stove, and connected with the frame for operating the fingers, said fender-bar or foot-rest being adapted to serve as a shaker for the grate, whereby said grate may be operated to separate the ashes from the coals.

3. In combination with the oscillating fingers or levers, a dumping-bottom, the two being capable of being simultaneously operated by means of an annular frame suspended from the fingers, and provided with lugs engaging with lugs on the axis of the dumping-grate, said frame being operated by levers connected with a fender-bar, for the purpose of rocking said dumping-grate.

4. In combination with the ash-pit and fire-box of a base-heating stove, the folding doors or dampers located below the grate, and adapted, in the manner described, to be closed against the same, to adapt the ash-pit to be used as an oven.

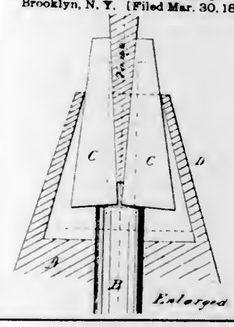
194,108. CULTIVATORS. J. Poets, Shakopee, Minn. [Filed Apr. 16, 1877.]

Brief.—Fixed center-beams, on which is mounted a rotating plate. Two or more outer swinging beams on each side are connected, by rods, to the plate at different distances from its pivot-point, so that the beams shall be at equal distances from each other, whether spread or contracted.



The combination, in a cultivator, of one or more stationary central beams, a plurality of laterally-swinging beams on each side of said central beams, a plate or arm pivoted upon the central beams, and a series of independent arms extending from the individual beams inward to the opposite sides of the plate, and pivoted thereto at different distances from its center, in the manner shown and described, whereby the beams are moved different distances and uniform spaces maintained between them at all times.

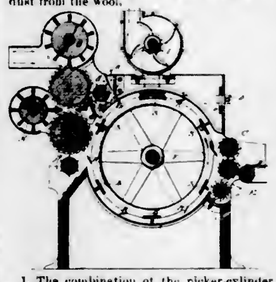
194,109. DRILL-CHUCKS. Henry L. Pratt, Brooklyn, N. Y. [Filed Mar. 30, 1877.]



The combination of the slotted body A and shell D, secured rigidly thereon, with the jaws C C, capable of free and independent movement in the slot *a*, and screw-threaded spindle B, which acts against the bases of the jaws, and closes them by forcing them forward and their inclined sides against the shell D, constructed and operating substantially as described and specified.

194,110. MACHINES FOR PICKING AND BURRING WOOL, &c. C. G. Sargent and F. G. Sargent, Westford, Mass. [Filed Sept. 11, 1876.]

Brief.—The fibers are taken from the feed-rolls by a picker cylinder armed with alternate brush and toothed lags, and passed to a burring-cylinder, from which they are transferred with the other side outward by a rotary transfer-brush to a second burring-cylinder revolving in the opposite direction to the first. Guard-cylinders opposite each burring-cylinder remove the burrs and other foreign matters. A fan, through suitable openings, removes all dust from the wool.



1. The combination of the picker-cylinder F and feed-rolls C D with a picker-roll, E, arranged, as shown, with its teeth pointed in the opposite direction from that in which the picker-cylinder rotates, for the purpose of catching and detaining the unopened locks of wool.

2. In a picking and burring machine, the combination of a picker cylinder, F, two burring-cylinders, J and L, and a rotary transfer-brush arranged, as shown, in such relation to each other that the fiber is all delivered from the picker-cylinder directly to the first burring-cylinder, and thence by the brush to the second burring-cylinder.

3. The combination of the picking-cylinder F, the burring cylinders J L, guard-cylinders K M, transfer-brush N, the fan I, and the body or casing inclosing said parts, as shown, whereby the fiber is passed automatically from the picking-cylinder to the two burring-cylinders in succession, and at the same time subjected to the incoming currents of air.

4. In combination with the two burring-cylinders J L and the intermediate transfer-brush N, a fan, I, arranged to produce a current of air past the brush and between the cylinders, substantially as shown.

5. In combination with the outside casing and the burring cylinder L and its guard-cylinder M, mounted therein, as shown, an air-inlet, *a*, and a deflector, *d*, located as shown and described, and for the purpose set forth.

6. In a picking and burring machine, the combination of two toothed feed rolls, a rotary cylinder, provided with both toothed and brush lags and a burring cylinder, said parts being arranged, as shown, so that the fiber is taken from the feed rolls, opened and straightened, and delivered directly to the burring-cylinder.

7. In a toothed lag for a picker-cylinder, the combination of the parallel bars *k*, notched, as shown, and the series of necked and shouldered teeth seated in and between said bars, as shown.

8. A lag for a picker-cylinder provided with a series of small brushes detachable and adjustable radially independent of each other, substantially as shown and described.

9. In combination with a lag, S, a cylindrical pocket, *s*, provided with an exterior screw-thread, and with a central cluster of wires or bristles, substantially as shown.

194,111. ELECTRIC ENGINEERING AND LIGHTING APPARATUS AND SYSTEM. Wm. E. Sawyer, New York, N. Y. [Filed June 22, 1877.]

1. In an electric lighting system, a single conductor supplied with electricity, two or more lamps in the circuit of said conductor, and a shunt around each lamp containing a switch.

2. In an electric lighting system, a single conductor supplied with electricity, two or more lamps in the circuit of said conductor, and a shunt around each lamp containing a resistance.

3. In an electric lighting system, a single conductor supplied with electricity, two or more lamps in the circuit of said conductor, and a shunt around each lamp containing an adjustable resistance.

4. In an electric engineering system, a single conductor supplied with electricity, two or more electric engines in the circuit of said conductor, and a shunt around each engine containing a resistance.

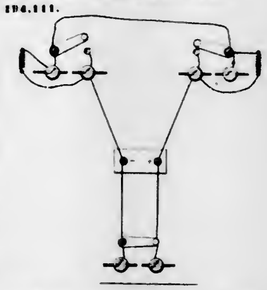
5. In an electric engineering system, a single conductor supplied with electricity, two or more electric engines in the circuit of said conductor, and a shunt around each engine containing an adjustable resistance.

6. In an electric engineering and lighting system, a single conductor supplied with electricity, two or more electric engines and electric lamps in the circuit of said conductor, and a shunt around each engine or lamp containing a resistance.

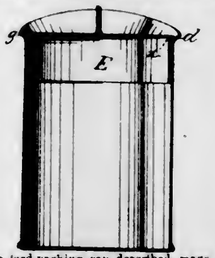
7. In an electric engineering system, a single conductor supplied with electricity, two or more electric engines and electric lamps in the circuit of said conductor, and a shunt around each engine or lamp containing an adjustable resistance.

8. The herein described system for supplying electricity from a central or otherwise conveniently located generator, consisting of a single conductor running from said generator to the house or houses to be supplied with electricity, and in each house, or each engine, lamp, or other apparatus to be operated by said electricity, three lines of conductors, one including the switch for throwing the current through the lamp, engine, or other apparatus, another including the apparatus to be operated, and the third consisting of a continuously-closed circuit with a simple or an adjustable resistance for preserving intact the circuit of the main conductor.

194,111.



194,112. COMBINED CAN AND MEASURE. J. Sears, Chicago, Ill. [Filed July 16, 1877.]



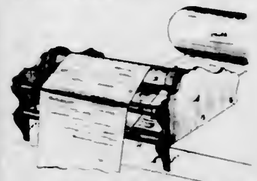
The tard-packing can described, made not only as a true measure of its contents, and having a handle and a pouring-mouth and cover E, but having the outward incline *d* at the top of the can, and the corresponding incline *g* on the cover, such inclines being in the form of frusta of cones, and adapted for making a tight wedging joint, all as shown and described.

194,113. PROCESSES FOR TREATING AND RESTORING THE METAL OF OLD CAR-WHEELS. George W. Swett, Troy, N. Y. [Filed May 23, 1877.]

The process herein described of rendering the metal of which old car-wheels are composed capable of use again for the same purpose, and which consists in subjecting the metal in a reverberatory furnace to the action of a carbonizing flame until a highly-heated state of fluidity is obtained, and then to the action of a decarbonizing flame to the extent described, and subsequently carbonizing the metal by adding spiegel or franklinite or No. 1 or No. 2 iron, as described.

194,114. MACHINES FOR ROLLING DRY-GOODS. J. K. Somes, Springfield, Mass., assignor to himself and L. R. Waite, same place. [Filed June 8, 1877.]

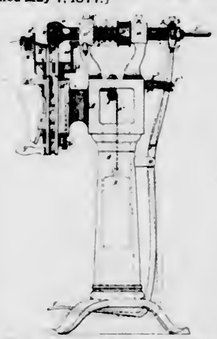
Brief.—The cloth to be rolled is first drawn over the rollers, then back under them and under the base-board. The machine is held in place by the tension of the goods while being drawn through.



1. A portable device for aiding in the rolling or folding of dry-goods, consisting of a frame supporting rollers or bars, in combination with arms projecting downward over the edge of the counter, the said rollers and arms being arranged as described, whereby the web of cloth, in passing through the device, holds the same to the counter, substantially as described.

2. A device for aiding in the rolling or folding of dry-goods, consisting of a base, D, brackets or frame A, and rollers B C, the said base being slightly raised from the table, whereby the cloth which is passed forward over the rollers, turned back, and passed under the base, is subjected to the requisite tension, substantially as described.

194,115. MACHINERY FOR TRIMMING AND BURNISHING THE HEELS OF BOOTS AND SHOES. A. E. Strickler, Worcester, Mass. [Filed May 7, 1877.]



1. The combination, in a boot and shoe trimming and burnishing machine, of the revolving tool-shaft or spindle B, having a longitudinal reciprocative movement through its bearings *a a'*, the boot-supporting plate C, arranged to oscillate in a fixed plane perpendicular to the axis of said shaft B, and adjustably pivoted, by stud L, to the carrier G, working in guides A' on the frame A, substantially as and for the purposes set forth.

2. In combination, substantially as described, the revolving tool-shaft B, edge-finishing tool E or D, oscillating boot-supporting plate C, provided with jacking mechanism, pivot-stud L, arranged below the heel-seat *c*, and fitted to turn with plate C, sliding pivot-carrier G, adjustable pattern-plate M, and

guide stud or bearing N, for the purposes set forth.

3. The pattern-plate M, formed with projections *m m* at its ends, adjustably attached to the pivot-stud L, and arranged to work against a stud or bearing-piece, N, in line with the working-face of the trimming-tool, substantially as and for the purposes described.

4. The combination, in a heel trimming and burnishing machine, of the reciprocating tool-shaft B, rotating in bearings *a a'*, collar *b*, treadle-lever F, return-spring B^3, arm F^1, check piece F^2, and thumb-screw F^3, as and for the purposes set forth.

5. The burnishing-tool D for edge-finishing machines, formed with a hollow shank, and provided with perforations *d*, as and for the purpose set forth.

6. In combination, substantially as set forth, the hollow revolving shaft B, hollow perforated burnishing-tool D, gas-pipe I^1, and burner I at the interior of the revolving head, for the purposes stated.

7. The cutter-tool for boot and shoe trimming machines, when constructed, as herein shown and described, with edge-trimming blades E^1, welt-trimming blades E^2, perforated guard plate E^3, longitudinally-movable stud E^4, and spring E^5, all centrally secured, to revolve about the same axis, as set forth.

8. The combination, with supporting-plate C, of the yoke S, brackets S^1, sliding dog P, and jacking-lever P^1, arranged and operating substantially as and for the purposes set forth.

9. The combination, with the boot-supporting plate C and edge-finishing tool E or D, of the adjustable yoke R, provided with guard flange R^2, for protecting the upper and guiding the tool, substantially as set forth.

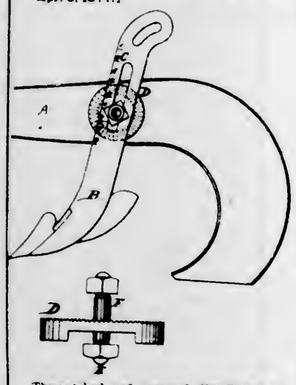
10. In combination with the boot-supporting plate C and adjustable yoke R, for embracing and centering the boot-heel, the toe-guide *s*, for embracing the boot-toe, substantially as and for the purpose set forth.

11. The combination, substantially as shown and described, of the plate C, having slot *s*, the toe-guide S, stud *r*, friction-spring and washer *t*, and inclined projections V, for the purpose stated.

12. The combination, substantially as set forth, of the boot-supporting plate C *c*, heel-centering yoke R, sliding dog P, provided with points or projections *n*, and elastic pad *r*, jacking-lever P^1, and ratchet device *o o'*, for the purposes described.

13. In a machine for finishing heel-edges, the combination, with the revolving shaft B, heated burnisher D, and heating-burner I, of the supporting-bearing *a'*, with water-reservoir a^1, substantially as shown and described.

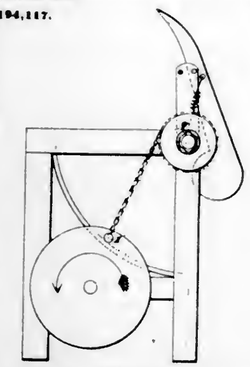
194,116. ATTACHING COLTERS TO PLOWS. G. V. H. Whitbeck, Phelps, N. Y. [Filed Apr. 5, 1877.]



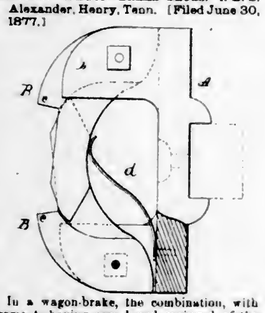
The notched and recessed disk D, having rigidly attached thereto, and forming part of the same, the double-ended bolt E F, arranged in combination with the slotted jointer-plow or colter B and plow-beam A, substantially as and for the purposes herein set forth and described.

194,117. GRAIN-BINDERS. B. Woodbury, Kalamazoo Mich. [Filed June 12, 1877.]

The combination, with a rock shaft, a binding-arm connected therewith, and springs or equivalent means to turn the shaft in one direction, of a chain or other flexible connection, one end of which is secured to a pulley on the rock-shaft, and the other end to a wheel on a counter shaft, substantially as and for the purpose set forth.



194,118. WAGON-BRAKE SHOES. I. E. S. Alexander, Henry, Tenn. [Filed June 30, 1877.]



In a wagon-brake, the combination, with frame A, having ears *b* and spring *d*, of the curved levers B B, cut away from shoulders *c* to their free ends, and thus allowing their sides to overlap, as and for the purpose specified.

194,119. SOUNDING-TOYS. C. Arpiesella, Old Point Comfort, Va. [Filed June 5, 1877.]

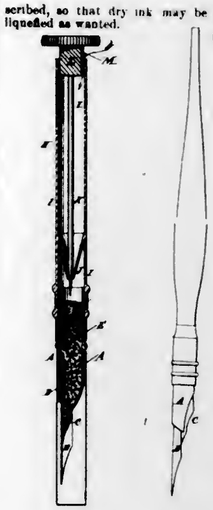


A toy musical instrument consisting of two disks, preferably concavo-convex in form, united together by means of an elastic spring, and having an opening at their edges, to which the mouth of the operator may be applied for the purpose of sounding the instrument, substantially as set forth and shown.

194,120. FOUNTAIN-PENS. C. A. Atkinson, New York, N. Y. [Filed July 9, 1877.]

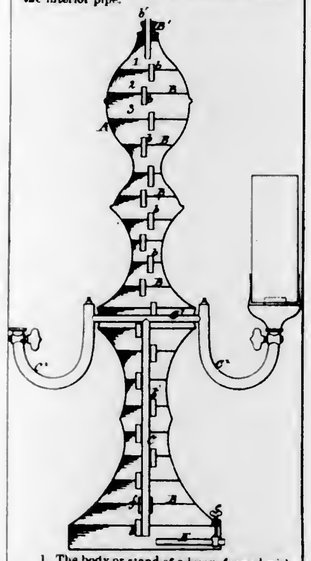
The combination, with the hollow holder A, having tongue C and socket D, of the tube I, having orificed funnel-bottom J, rod K, and channeled stopper L M, as shown and described, so that dry ink may be used and liquefied as wanted.

194,120.



194,121. LAMPS FOR BURNING NAPHTHA-GAS. William W. Austin, Lowell, Mass. [Filed July 18, 1877.]

Brief.—Oil poured into the top descends to the various reservoirs through the short pipes. Accompanying air is vaporized, and rises to the burners from the lower reservoir through the interior pipe.

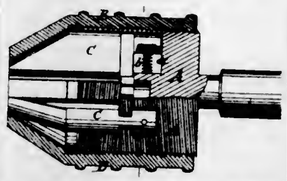


1. The body or stand of a lamp, formed with a series of shallow reservoirs placed within it, one above the other, each having a short tube passing through the bottom of said reservoirs, and extending downward slightly more than the tube of the next reservoir under it projects upward, substantially as and for the purpose described.

2. In combination with the stand of a lamp and its internal shallow reservoirs, placed one above the other, and connected as described, the pipe C, located within said stand, to carry the hydrocarbon gas to the burner from a point lower than said burner, substantially as described.

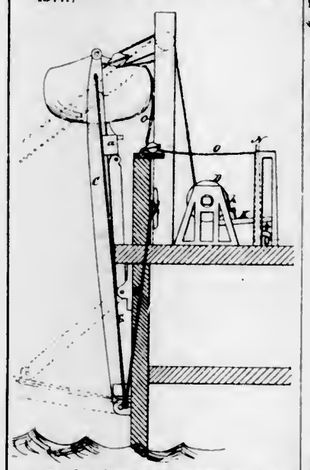
3. In combination with the stand A, partitions B, and pipes *b* and C within said stand, the overflow-pipe E and cock *e*, substantially as and for the purpose described.

194,122. DRILL-CHUCKS. Henry B. Beach, West Meriden, Conn. [Filed Apr. 16, 1877.]



A chuck having jaws with rear extensions, acted upon by springs in recesses of part A, and guided without axial displacement by tongues and grooves of the parts A C, as shown and described.

194,123. BOAT-LAUNCHING APPARATUS. M. Bourke, Youngstown, Ohio, assignor to Bourke, Wise & Co. [Filed July 20, 1877.]



1. In a boat-launching apparatus, the frame pivoted to the supporting-bars, and provided with a slot or groove and pins, for the purpose of adapting it for securing the boat until such time as it is desired to release the same, as specified.

2. In a boat-launching apparatus, the combination of the pivoted bars and pointed blocks and spring-dogs with the pivoted notched boat-supporting bars C, for the purpose of preventing the latter falling back toward the side of the vessel, as specified.

3. In a boat-launching apparatus, the windlass, ropes, friction-brake, and weighted lever, in combination with the boat-supporting bars pivoted to the side of the ship, as specified.

4. In a boat-launching apparatus, the combination of a trip-catch, N, cord O, and lever L with the friction-brake *h*, windlass D, and boat-lowering bars C, substantially as shown and described.

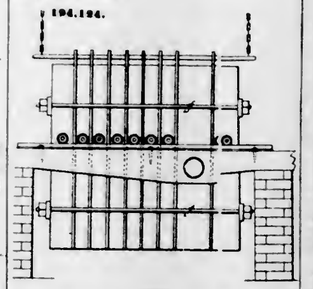
5. In a boat-launching apparatus, the combination of the adjustable arm of the trip-catch N with the screw-threaded shank thereof and the weighted brake-lever L, as and for the purpose specified.

194,124. FILTER-PRESSES. John Bowing, Cornhill, London, England. [Filed May 14, 1877.]

Brief.—The compound chamber is formed by connecting a series of rings bound together with iron hoops. The rings are mounted on rollers, and run on two suspended rails, so as to admit of their being easily moved, and when in contact the rings form a cylinder.

The improvements in the construction of filter-presses, substantially as herein described, and as illustrated.

194,124.

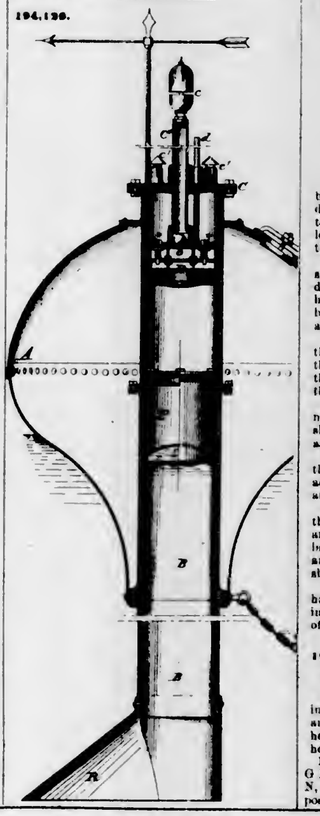


194,125. HAME-CLIPS. Jacob Butterfuss, Salamanca, N. Y. [Filed July 11, 1877.]



A hame-clip formed of the two parts A B, hinged to each other at the outer side of the eye, and provided with the L-headed screws C and the nut-bar D, said parts being constructed and arranged substantially as herein shown and described.

194,126.



194,126. NAUTICAL ALARM-BUOYS. S. G. Cabell, Washington County, D. C. [Filed July 26, 1877.]

Brief.—Air is taken in through valves as the buoy rises, and is expelled through the whistle as the buoy falls with the waves.

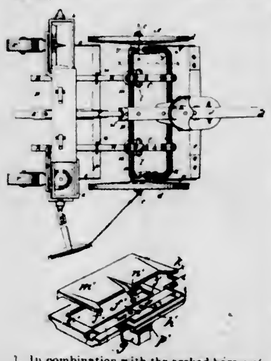
1. In combination with the hollow shell A, central pipe B, and cap C, the adjustable diaphragm D, carrying the air-pipe C' and whistle or trumpet c, constructed and arranged to operate substantially as described.

2. In combination with the hollow shell A, central pipe B, and cap C, containing inlet air-valves, and carrying a whistle or trumpet mounted on a permanently-fixed air-conducting pipe, as described, I the floating piston P, constructed and arranged to operate substantially as set forth.

3. In combination with the hollow shell A, central pipe B, and cap C, both the adjustable diaphragm D and the floating piston P, arranged as shown in Fig. 1.

4. In combination with the hollow shell A and central pipe B, the rudder or vane R and indicator R', substantially as and for the purpose described.

194,127. CORN-PLANTERS. J. Case, Washington Court-House, Ohio. [Filed May 22, 1877.]



1. In combination with the arched bars *a a'*, blocks *b*, journal *c*, and wheels *d*, the rigid depending laterally-adjustable brackets C attached to the two bars, and provided at their lower ends with eyes or sockets in line with the journals *c*, as shown.

2. The arched draft-frame having the two supporting-wheels, a tongue, and two rigid depending laterally-adjustable brackets, C, having their lower ends adapted to receive beams or drag-bars, substantially as shown and described.

3. In combination with the blocks *b* and the notched ends of the bars *a a'* inserted therein, as shown, the journals *c*, seated in the blocks, and the arms, as shown, to hold the arms in place.

4. In combination with the blocks *b*, the notched arms *a a'*, and the journals *c*, the shouldered keys *y*, and the wheels *d*, applied, as shown, to retain the keys in place.

5. In combination with the tongue *j* and the mortised blocks attached to its side, the adjustable seat E, provided with the two legs and the transverse sustaining-pin *x'*.

6. In combination with the draft-frame A, the planter-frame B, constructed as shown, and provided with the guides *w* and the draft-bars *n*, the latter extending through the guides and connecting with the draft-frame, as shown.

7. The combination of the metal frame *c'*, having the groove *d'*, the feed-slide *e'*, and the inclined cast-metal bottom *m'*, having the cut-off point *n'*, as shown.

194,128. HORSE-CLIPPING MACHINES. P. Casey, Providence, R. I. [Filed June 26, 1877.]

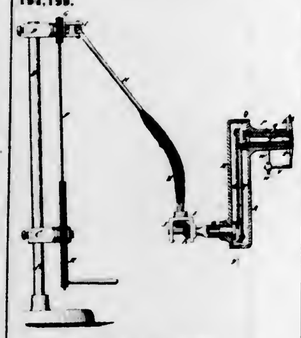
Brief.—Motion is transmitted from the driving to the cutting mechanism by double cranks and their corresponding bars. The comb is held stationary by the toothed head of the holder.

1. The combination, with mechanism E F G H I K, of the double crank M, two bars, N N, and double crank O, as and for the purpose described.

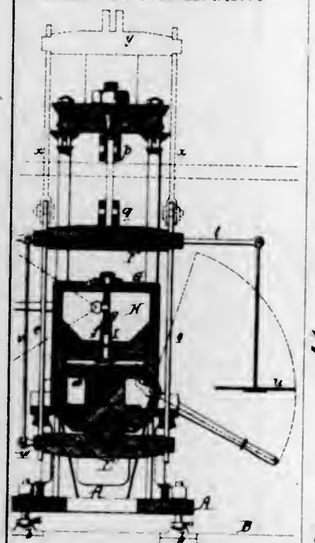
2. The combination of sleeve P, socket Q, and case R, as and for the purpose set forth.

3. The circular comb U, having hub attached to cylinder T, in combination with the toothed holder V, as and for the purpose specified.

194,128.



194,129. TESTING-MACHINES. R. Cerero, Havana, Cuba. [Filed May 1, 1877.]



1. The combination of the piston of a hydraulic press with two cross-heads connected together by bars, and with the entablature supported on columns independent of the press, as set forth.

2. The combination of the cross-head F and its eye *q* with the entablature M and its bolt P, having an eye, *p*.

3. The combination of the cylinder D with the head G, its water-chamber H, and pump I.

4. The combination of the cross-heads E and F, and their levers *t* and *w*, with the lugs *s*, rod *s*, and plate *u*.

5. The combination of the hollow cylinder-head G and its pump I with the shaft *j*, its arm *i*, and operating-lever J, as described.

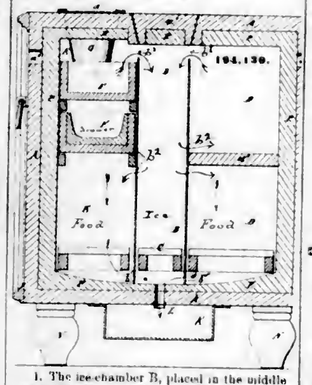
6. The combination of the cylinder, the pump-barrel, and its check-valve, with the passage *m* and valve *n*.

7. The combination of the base A and its bolts *a*, with rounded heads, with the foundation S, as specified.

194,130. REFRIGERATORS. E. Clark, New York, N. Y. [Filed July 23, 1877.]

Brief.—Central ice-box accessible at side and top. Milk-cooler in top inclosed in a perforated and lined casing. The lining claimed may be plastered onto the case and drawers, or may be molded and dried, and clamped on by wooden or metallic bevels.

194,130.

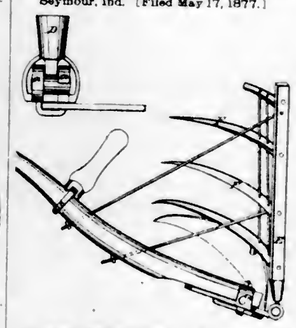


1. The ice-chamber B, placed in the middle part of the box A, and provided with the openings b^1 b^2 b^3 in the lower, middle, and upper parts of its sides, and with the doors a^1 a^2 at its top and at the lower part of its front, substantially as herein shown and described.

2. The combination of the case G, having an open bottom, and the refrigerator-box A, provided with a door, a^2, in its top, with the detachable milk-vessel H, as and for the purpose set forth.

3. A non-conducting lining for refrigerators, consisting of charcoal, hydraulic cement, sawdust, plaster-of-paris, sand, and water, mixed in about the proportions specified.

194,131. GRAIN-CRADLES. Geo. E. Clow, Seymour, Ind. [Filed May 17, 1877.]



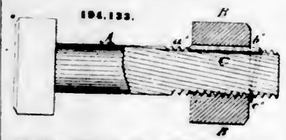
1. In combination with the slotted web-extension, the adjustable socket, as shown and described.

2. The combination of the slotted web-extension, cut away on one side, as shown, and the socket having a T-shaped shank, whereby the socket may be detached, as specified.

194,132. PADS FOR COPYING-PRESSES. S. W. Cox, New York, N. Y. [Filed June 5, 1877.]

The copying-press pad herein described, having a face composed of bibulous material secured to a metallic back, in the manner and for the purpose herein specified.

194,133.

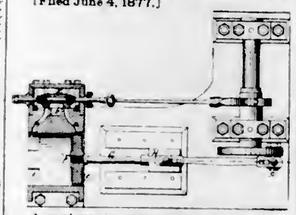


194,133. NUT-LOCKS. S. S. Crocker and A. Wilcox, Clarence, Iowa. [Filed July 23, 1877.]

Brief.—Insert the straight part of the fastening-wire into the hole made by adjusting the grooves in the bolt and nut; then spring the spiral around the thread. The spiral, in its normal position, has a smaller diameter than the bolt.

The lock C, made of spring-brass wire, having its outer part bent to form a spiral spring, *c'*, in combination with the grooves a' b', formed in the bolt A and nut B across their threads, substantially as herein shown and described.

194,134. TOBACCO STRIPPING AND DRYING MACHINES. W. Davies, Henderson, Ky. [Filed June 4, 1877.]



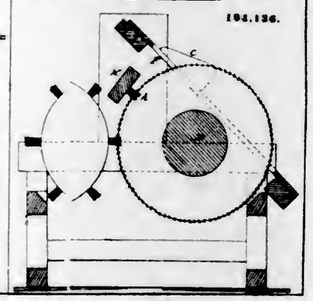
A machine for stripping and drying leaf-tobacco, consisting, essentially, of revolving and heated rolls, of which one roll has circumferential stripping-knives and an intermediate groove or indentation, and the other roll circumferential grooves or recesses registering with the knives, substantially in the manner and for the purpose set forth.

194,135. CHAIRS FOR USE IN PUBLIC PLACES. G. S. De Bonald, Berthier-en-Haut, Quebec, Canada. [Filed Jan. 25, 1877.]



In combination with a chair, A, an arm or upright, D, pivoted in the back thereof, as and for the purposes shown and described.

194,136.



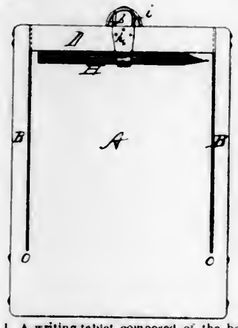
194,136. COTTON-GINS. Robt. Dickinson, Darlington Court-House, S. C. [Filed May 21, 1877.]

1. The ribs F, constructed in pairs or gangs, substantially as described.

2. The flange C, arranged on ribs F, and rising between the saws above the teeth, as shown and described, for the purpose set forth.

3. The bar K, fixed between the saws and brush-cylinders, but above their shafts, and provided with bristles that receive the teeth of saws, as specified.

194,137. WRITING-TABLETS. G. M. Dimmock, Springfield, Mass. [Filed July 16, 1877.]



1. A writing-tablet composed of the body A, spring-arms B B, pressure-bar D, bent staples *b* and *i*, and pencil-catch *h*, combined together and operating substantially as and for the purpose set forth.

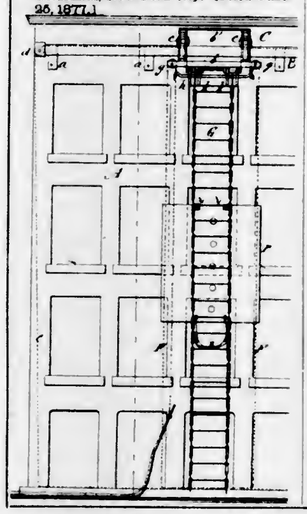
2. A writing-tablet in which the spring-arms B B are formed from and remain a portion of the body A, by cutting the slits *o o* nearly the whole length of the tablet, but not detaching the arms therefrom, substantially as and for the purpose set forth.

3. In a writing-tablet, the combination of body A, spring-arms B B, and pressure-bar D, substantially as set forth.

4. The combination, in a writing-tablet, of the body A, spring-arms B B, pressure-bar D, and pencil-catch A, substantially as set forth.

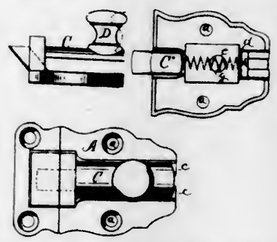
5. In a writing-tablet, the combination of the body A, spring-arms B B, pressure-bar D, and bent staples *b* and *i*, substantially as set forth.

194,138. FIRE-ESCAPES. H. Elbe, Niagara Falls, N. Y., assignor to himself and A. Goldsmith, New York city. [Filed June 26, 1877.]



The combination of rail B, having two grooved pulleys at its ends, and the car C, having bars *b b*, flanged wheels *c c*, and pulleys *g g*, with the chains *e e* F F and ladder G, as shown and described.

194,139. CUPBOARD-LATCHES. Otto F. Fogelstrand, New Britain, assignor to the Hart, Bliven & Meade Manufacturing Company, Kensington, Conn. [Filed Feb. 5, 1877.]

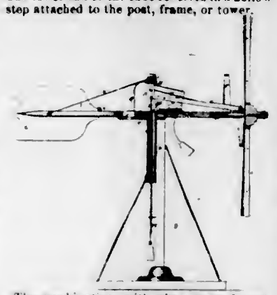


1. In a cupboard-latch, the plate covering the spring-chamber, provided with the orifice *e*, substantially as and for the purpose described.

2. The combination of the plate provided with ledges *c c*, bottom plate *e*, and cross-plate *d*, which form three sides and rear end of the spring-chamber, the spiral spring *g*, resting within said chamber, and the latch C, adapted to cover said spring, and close one side and the front end of said spring-chamber, substantially as described, and for the purpose specified.

194,140. WINDMILLS. O. B. Fuller and L. A. Fuller, Mount Pulaski, Ill. [Filed Jan. 19, 1877.]

Brief.—The wheel revolves upon a journal formed upon, or attached to, the outer end of a bar or beam. The inner end of the bar is rigidly attached to the upper end of the tube, which works in the keepers attached to the post, frame, or tower that supports the wheel. The lower end of the tube revolves in a hollow step attached to the post, frame, or tower.



The combination, with wheel-beam L and vane-beam G, turning together about tube F, and the latter turning independently in one direction, of the frame Q R, whose socket I is arranged over tube, the bow-standard S, and the chains H, all arranged as and for the purpose set forth.

194,141. PROCESSES FOR RECOVERING ALKALIES USED FOR THE REDUCTION OF WOOD TO PAPER-PULP. E. H. Furbish, Yarmouth, Me. [Filed Sept. 7, 1876.]

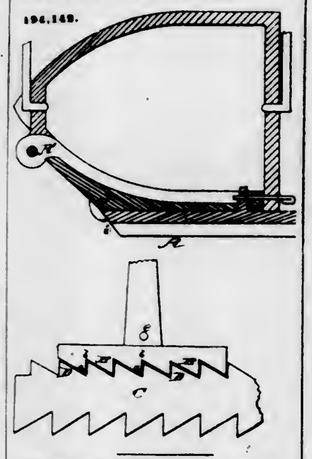
The process of economizing the alkaline solution used for reducing wood or wood chips to pulp for paper-manufacture, which consists in washing the spent lees from the cooked mass in water heated as herein described—that is, by steam blown off from the cooking-vessel—evaporating the water, recovering the ash in a recovery-furnace, boiling and rendering the recovered ash caustic by lime, evaporating the same, and reducing it to the proper strength for use, as herein described.

194,142. PLAITING-IRONS. J. G. Gingras, Shreveport, La., assignor of one-half his right to W. I. McCausland, Dallas, Tex. [Filed May 26, 1877.]

1. A plaiting-iron consisting of an iron having a series of longitudinal acute-angled teeth, with their sides of unequal length, and a correspondingly-shaped plaiting-board, substantially as herein set forth.

2. A plaiting-iron, A, provided with a series of longitudinal acute angled teeth, B, having their sides of unequal length, and adapted for use, substantially as herein set forth.

194,143.



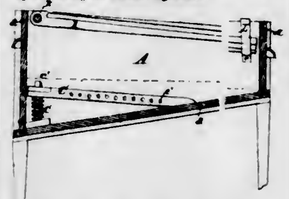
194,143. HYDRAULIC CEMENTS. J. C. Gostling, New York, N. Y. [Filed July 30, 1877.]

1. A compound consisting of calcareous shell-marl, clay, pozzolana or anthracite-coal ashes, and ribbon-stone, substantially as described.

2. The process of preparing hydraulic cement by calcining marl, mixing it with clay, pozzolana, or anthracite-coal ashes, and ribbon stone, reducing the mixture to a paste with water, afterward burning it to a clinker, and grinding it to powder, as herein specified.

194,144. WASHING-MACHINES. J. C. Grannan, Cincinnati, Ohio. [Filed Feb. 27, 1877.]

Brief.—The bottom of the tub is formed in an inclined plane, and the rubber-frame is located over the lowest end thereof, so that the water is collected at one end of the tub when the rubbing is done, leaving the other end of the tub comparatively free from water, thereby lessening its violent agitation.

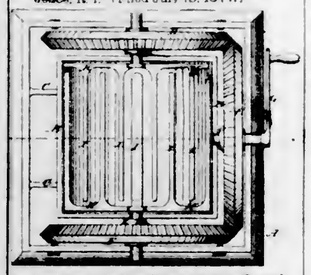


1. The combination, substantially as specified, of the tub having a continuous inclined bottom, the rubber-frame over the deepest portion of the tub, having a yielding support at the deepest end of the tub, and resting at the other end on the bottom of the tub and the reciprocating rubber.

2. The combination of vessel A, yielding rubber-frame C, reciprocating rubber-frame D E E', the latter having, at the end opposite frame C, a yielding connection with the vessel A, substantially as and for the purpose specified.

3. The combination, substantially as specified, of the reciprocating rubber-frame, the handles pivoted and adjustably fixed to the standards thereof, the slotted pivoted ways, in which the cross-bar of the handles plays, and the springs M.

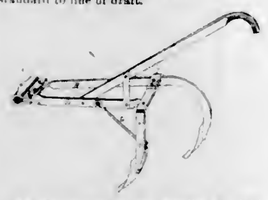
194,145. CHURNS. CHAS. P. Greene, Providence, R. I. [Filed July 13, 1877.]



An improved churning apparatus, formed of the case A, made in two parts and provided with the partitions C, concaved upon their upper sides, the churn body B, made in two parts, and provided with the hopper b^1 and the lid b^2, the three bevel-gear wheels D E F, the crank G, and the two dashers H I, substantially as herein shown and described.

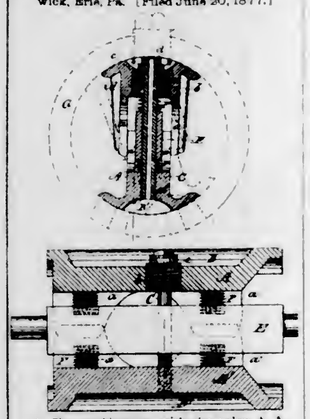
194,146. CULTIVATORS. T. D. Guthrie, Jr., Galva, Ill. [Filed June 2, 1877.]

Brief.—A bent standard is pivoted to the beams, which are pivoted at their front ends to the coupling. Gang free to move laterally without changing angle of plow upon said bent standard to line of draft.



The combination of the coupling A, rigid beam B, and beam D, with bent standard F, pivoted to the beams, piece I, and brace G, substantially as described, and for the purpose specified.

194,147. BALANCED VALVES. WM. Hardwick, Erie, Pa. [Filed June 20, 1877.]



1. The combination, with the valve A A, and the valve-rod E, of the perforated bolt C, connecting the opposite chambers in the valve, and passing directly through the valve-rod, substantially as described.

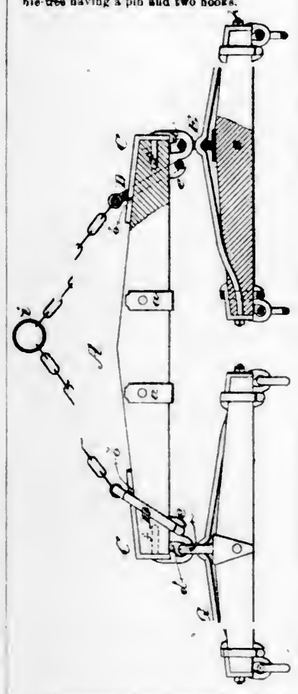
2. An exteriorly threaded bushing located in the movable portion of a balanced valve, and combined with the said movable portion and a connecting bolt, for the purpose described.

3. The stuffing-box consisting of the interiorly and exteriorly threaded bushing b and the threaded cap c, in combination with the bolt C and the valve, substantially as and for the purpose described.

4. The springs F, combined with the valve-pieces A A', having guide-lugs a a^1, and a bolt, connecting the parts of the valve by means of a screw-thread at one end and a collar at the other, substantially as and for the purpose described.

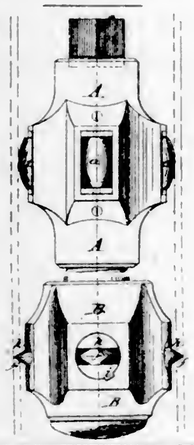
194,148. WHIFFLETREES. A. Hayes, Petaluma, Cal. [Filed June 23, 1877.]

Brief.—An iron clasping the end of the double-tree having a pin and two hooks.



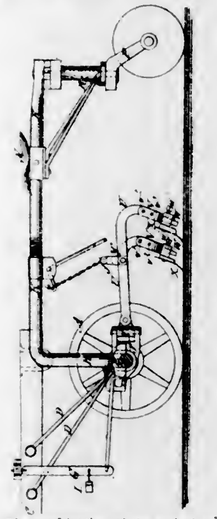
In combination with a double-tree, A, the end irons C C, constructed as described, with shoulders b, eye d, hook e, and pin f, the clevises D, chains h, and ring i, substantially as and for the purposes set forth.

194,149.



194,150. RIDING-CULTIVATORS. Squire J. Hinkle, Saratoga, Ind. [Filed June 4, 1877.]

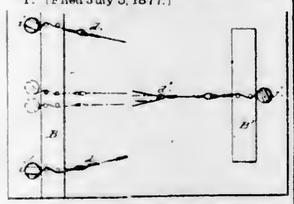
Brief.—The frame-bars rise from the couplings upon the arched axle, and extend backward to connect the frame of the caster-wheels. At the seat the bars converge, to afford the plowman freedom to manipulate the plow-beams by means of the foot-levers and foot-rests.



1. The combination of the arched axle E, arched and bent bars K, the cross-bar L, and caster-wheels, as shown and described.

2. The combination of the bent bars K, seat N, plow-beams U, with foot-rests y', levers A', and chains Z, substantially as and the purpose specified.

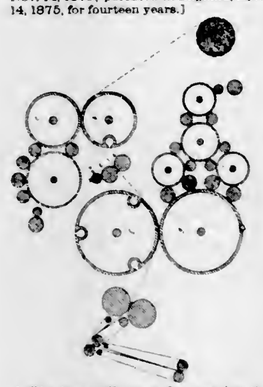
194,151. METHODS OF STRINGING PIANOS. J. J. Hull and W. Raynor, Brooklyn, N. Y. [Filed July 5, 1877.]



1. The method of stringing pianos, which consists in folding the long strings through a loop or its equivalent, affixed to a vibrating wire or string connected with a tuning pin, and confining the ends of the long strings at the opposite bridge, or at a point between the two bridges, whereby the piano can be shortened without impairing the volume of tone of the long strings, substantially as set forth.

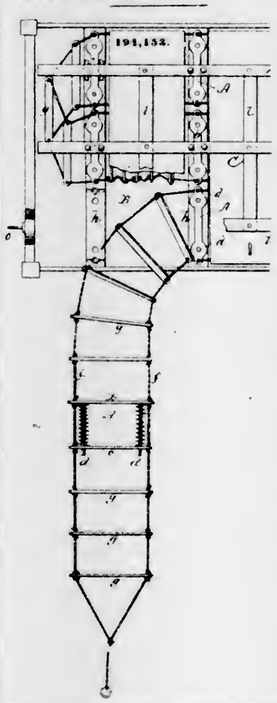
2. The loops d d' d'' attached to the wire c c', in connection with the pegs i i' and tuning pin j, for the purposes set forth.

194,152. ROTARY PRINTING-MACHINES. W. J. Ingram, Westminster, England. [Filed Nov. 14, 1876; patented in England, Apr. 14, 1875, for fourteen years.]



1. The large cylinder g, for receiving the cuts, in combination with the smaller cylinder e, for receiving the type, the said cylinders being, respectively, provided with blanket-cylinders f and b, and so geared as to be driven a different number of rotations per minute, according to their respective diameters, as and for the purpose herein set forth.

2. The combination of the pressing-rollers c c with the printing-cylinders e and g, for the purpose of pressing and smoothing the paper after it has received the impression from the letter-press printing-cylinder, and before it passes to the cut or engraved-plate cylinder, as herein set forth.



194,153.

194,154. FIRE-ESCAPE AND SPRING BED-BOTTOM. J. Kellner, Jersey City, N. J. [Filed June 30, 1877.]

1. A bed-bottom composed of spring-sections and intermediate bars attached to ropes, substantially as and for the purpose herein shown and described.

2. The sections A, consisting of the bars b c, rods d, and springs e, substantially as shown and described.

3. The combination of the spring-sections A and ropes f with a bedstead having transverse slats h, substantially as shown and described.

4. The frame C, composed of slats or bars k l, and provided with pins m, in combination with the sections A, substantially as shown and described.

5. The bar D and chain o', in combination with the bedstead for receiving the end of the ropes f, substantially as specified.

194,154. SLEEPING-CARS. E. P. Kellogg, New York, N. Y. [Filed June 22, 1877.]



1. In a convertible sleeping and parlor car, the combination, with the opposite side seat ends D, arranged in fixed alternate positions, the seat ends on one side being opposite the middle of the seats on the other side, of the pedestals B, fixed in positions on a line with the alternating seat ends, and the stanchions or berth-posts adapted for use with said fixed pedestals, as herein set forth.

2. In a sleeping-car, the combination, with the berth frames, of end partitions rolled upon a revolving roll in a wall recess, and adapted to be drawn out door-like therefrom to form berth end partitions, and to roll back out of the way when released.

3. A wall recess or case having a vertical slot to permit of the travel of a rolling and unrolling curtain or partition retracted by a spring roll within the recess, and stopped at the slot by a hand rod or stay, as set forth.

4. The combination of a traveling wall curtain or partition for sleeping-berths, with the ends of the fixed side seats and berth supporting stanchions or posts, to which said curtains are fastened when drawn out.

5. The combination of a traveling wall curtain or partition for sleeping-berths with the ends of the fixed side seats, the berth supporting stanchions or posts, and the detachable end boards or partitions of the lower berths.

6. The combination, with separate end rails for the berths, of a traveling wall curtain, adapted to be drawn out and retracted between, above, and below said separate end rails, as set forth.

7. The lower berth of a sleeping-car, ventilated by means of a wall-flue, U, between the windows, and having a registered opening, V, in said berth, and an outlet opening, p, on the outside of the said wall at or near the top of the car, as set forth.

8. The shouldered stanchion enlargement K, having vertical dovetail sockets e on three of its sides, in combination with the dovetail tongues f of the front and separate end rails L M, as and for the purpose set forth.

9. The stanchion-sleeve H, having the holding pin h, in combination with the adjustable end partitions J, for holding the latter in place, as described.

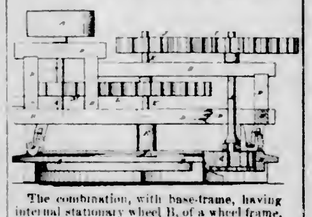
194,155. BAG-HOLDERS. L. L. Klinefelter, Green Township, Summit County, Ohio. [Filed Aug. 28, 1873.]

The combination, in a bag-holder, of the lever-jaws g g' with the shoulder-jaws h h', mounted, as described, upon the supporting standards a a', whereby the bag is securely held by its own weight when filling, substantially as herein described.

194,155.

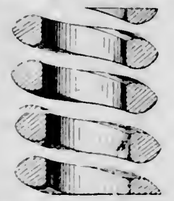


194,156. HORSE-POWERS. E. R. Lancaster, Alum Mills, Va. [Filed June 25, 1877.]



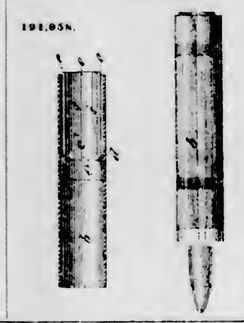
The combination, with base-frame, having internal stationary wheel B, of a wheel-frame, D, revolving thereon, the mechanism G H I J K L M N, and the mill O, all arranged on the inside of sweeps P, as shown and described.

194,157. SPIRAL SPRINGS. James Ludlum, Pompton, N. J. [Filed May 28, 1877.]



A spiral spring consisting of a coiled steel bar having convex sides and flattened on one of its edges, substantially as shown and described, for the purpose specified.

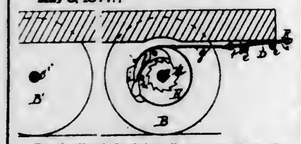
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194,158. PEN-HOLDERS. Geo. W. Mabie, Brooklyn, N. Y. [Filed July 2, 1877.]

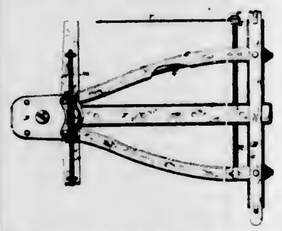
As a new article of manufacture, the stock A, fitted in one end of the outer barrel *b*, and the inner barrel fitted in the other end of the barrel *b*, and having the enlarged end *c* and the reduced outer end *c'*, which is slitted to yield to accommodate pens having different sized and shaped shanks, substantially as and for the object shown and described.

194,159. CAR-STARTERS. J. Mallon, Baton Rouge, assignor of one-half his right to F. Von Phul, New Orleans, La. [Filed May 8, 1877.]



The inclined draft-bar F, supported on the friction-rollers of a guide-block, D, in combination with the grooved wheel H, provided with weight *i*, pin *m*, and pawl *l*, the latter operating a ratchet-wheel, *k*, as described, and for the purpose set forth.

194,160. WAGON RUNNING-GEAR AND BRAKE. T. G. Mandt, Stoughton, Wis. [Filed May 23, 1877.]



1. The metal reach-plate D, constructed with the two downwardly-projecting longitudinal flanges E E on its under side, to form a recess having beveled sides, for the reception of the beveled reach F, substantially as described.

2. The metal reach-plate D, constructed with the beveled recess for the reception of the reach, and combined with the bounds and the bound-irons, in the manner described, for the purpose specified.

3. The combination of the adjustable bottom or under plate H with the reach and reach-plate, substantially as described, for the purpose specified.

4. The adjusting-screw L and movable under plate H, combined with the reach-plate, to clamp the reach rigidly within the recess of such reach-plate, substantially as described.

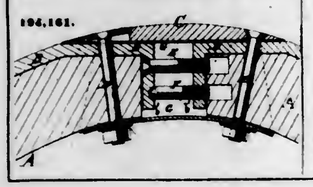
5. The movable under plate, constructed with angular side wings *j j*, substantially as described, for the purpose specified.

6. The movable under plate, held loosely within the flanges of the reach-plate by means of the angular side wings *j j* and the bound-irons, substantially as described.

7. The bent bar N, having a straight center, held or journaled transversely upon the rear end of the reach-plate by means of the transverse half-box thereto, and the upper half-box O, substantially as described, for the purpose specified.

8. The combination of the looped and perforated upright arm S, the removable brake-handle W, and the adjustable operating-rod T with the rock-shaft R of the brakes, substantially as described, for the purposes specified.

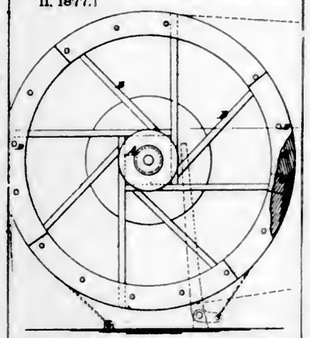
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194,161. WAGON-TIRE TIGHTENERS. W. G. McCreight, Atlanta, Miss. [Filed June 4, 1877.]

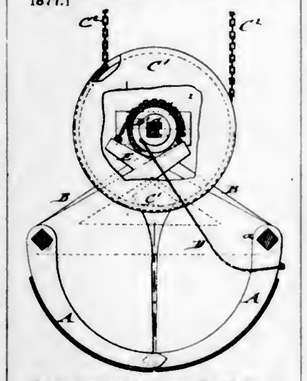
The combination of the draw-screw E and the brace-screw F with flanges *b'*, formed upon the ends of an open tire, B, and with the adjacent ends of two felloes, A, substantially as herein shown and described.

194,162. BULL-WHEELS FOR DERRICKS. W. J. McKee, Petrolia, Pa. [Filed June 11, 1877.]



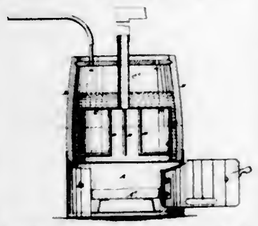
A bull-wheel for derricks, provided with a solid segmental rim alternately slotted in the arms thereof, and bringing the strain directly over and on the ends of the arms, as shown and described.

194,163. DREDGING-BUCKETS. J. McKeever, Jersey City, N. J. [Filed June 18, 1877.]



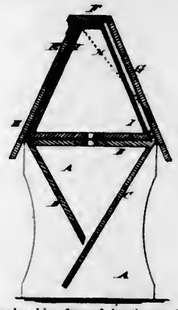
The fixed triangular frames B and the rotary shaft C, having pulleys C' D', in combination with swinging bucket-sections A, having rigid arms connected with pulleys D', as and for the purpose specified.

194,164. FEED-COOKERS. M. B. Mills, De Witt, Iowa. [Filed July 9, 1877.]



In combination with a wooden barrel, B, the furnace A, fire-chamber C, pipes D, and chimney C', constructed and arranged substantially in the manner described.

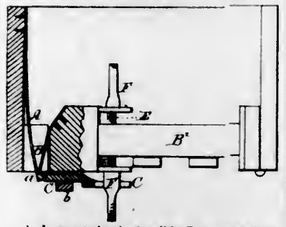
194,164. BEE-HIVES. D. L. Murff and D. Kyle, West Station, Miss. [Filed June 30, 1877.]



1. The bee-hive formed by the combination of the vertical end boards A, the horizontal board B, the inclined rear and front boards C D, the front board E, and the hinged cover F G with each other, substantially as herein shown and described.

2. The triangular honey-cases I, in combination with the triangular chamber A E F G, formed above the triangular brood-chamber, substantially as herein shown and described.

194,166. GATE-LATCHES. A. Newbrough, Madisonville, Ky. [Filed July 6, 1877.]

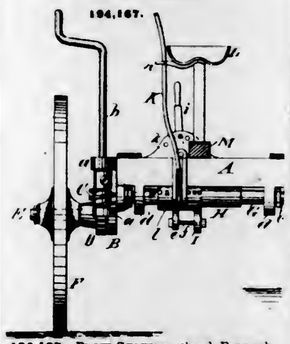


1. In a gate-latch, the slide C, connected by a free joint to the arm D of the thumb-stem E, and combined with a gate face-plate, B, and the post spring-catch A *a*, all as shown and described.

2. The projecting gate face-plate B, the beveled end of the spring-catch, and the beveled end of the slide or push bar, combined for use as described.

3. The push-bar provided with the shoulders *c e d*, in combination with the guide *b*, the spring-catch A *a*, and the thumb-stem connecting-arm D, all as herein set forth.

194,167.



194,167. PLOW-SULKIES. Saml. Pennock, Ithaca, N. Y. [Filed June 16, 1877.]

Brief.—The plow is hung upon an arm, which depends from a cylinder or sleeve upon a cross-shaft. The sleeve has cogs, which engage a sector-lever, by which the sleeve and plow are made to slide laterally. The sleeve also has cogs around a portion of its surface, to allow

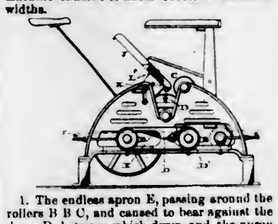
the beam to be raised by another sector-lever, which is made to engage at any point of lateral adjustment by extending the cogs across the sleeve.

1. The combination, with round bar G, supported under frame A, of the turning and sliding sleeve H, provided with longitudinal cogs *l* and teeth *g*, and having arm I, attached to the plow-beam, as and for the purpose described.

2. The combination, with the sleeve H, having rack and longitudinal cogs, of the pivoted sector *k*, having lever *i*, and the lever K, having toothed sector *m*, as and for the purpose specified.

194,168. MACHINES FOR SHEARING SHEET METAL. G. H. Perkins, Philadelphia, Pa., assignor to Le Comte & Perkins Manufacturing Company, (limited,) same place. [Filed Sept. 26, 1876.]

Brief.—The tension of the endless band is regulated by adjusting the bearings of the lower rollers, over which it passes. A shouldered wheel, acted on by a spring, presses the sheet against the opposite side of the feed-chute. The drums carrying the cutters are made in sections, adjustable toward or from each other, in virtue of which the cutters can be set to the desired distance apart, and the machine enabled to shear sheets of different widths.



1. The endless apron E, passing around the rollers B B C, and caused to bear against the drum D, between which drum and the apron the plate to be cut is introduced and fed by the movement of said apron and drum to cutters F H, the several devices named being combined and arranged for operation in cutting sheet metal, substantially as specified.

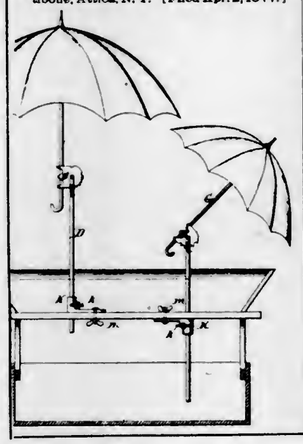
2. The divided drum D, having the screw-shaft *f*, and the divided drum D', having the screw-shaft *f*, in combination with the cutters F H and apron E, substantially as and for the purpose described.

3. The drum D, rotary cutters F H, and feeding and holding apron E, in combination with the rollers B B, having adjustable bearings, substantially as and for the purpose set forth.

4. The feed-chute J and guide-wheel L, in combination with the rod *p*, substantially as and for the purpose set forth.

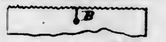
5. The shouldered wheel L, arm K, and spring *n*, in combination with the chute J, substantially as and for the purpose described.

194,169. UMBRELLA-HOLDERS. H. W. Pettibone, Attica, N. Y. [Filed Apr. 2, 1877.]



The adjustable clamp K, in two pieces, connected with the thumb-screw *h* and spring *l*, all combined and arranged substantially as specified.

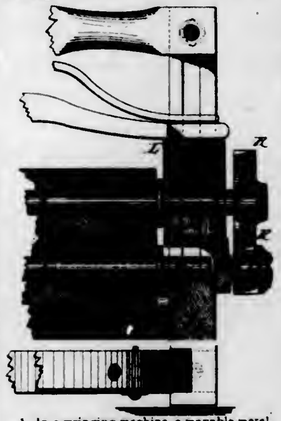
194,170. PAPER BAGS. I. W. Pope, Chagrin Falls, Ohio. [Filed Feb. 21, 1877.]



A paper bag having a cut, B, formed in its upper edge, without removing any material from the edge of the bag, substantially as and for the purposes set forth.

194,171. WRINGING-MACHINES. Napoleon B. Phelps, New York, N. Y. [Filed June 12, 1877.]

Brief.—The movable bearing for the upper roll is formed with exterior flanges, whereby it bears against the outside of the standard, instead of requiring a groove to be cut in said standard for the reception of the guiding-flanges, as heretofore. The pin for the purchase-pinion, being placed upon an exterior arm depending from the movable bearing, enables the journal of the lower roll to extend entirely through the standard of the wringer-frame without coming in contact with the purchase-gear.



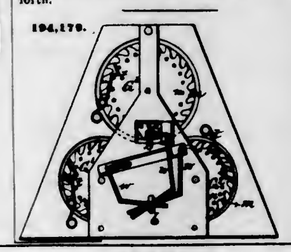
1. In a wringing-machine, a movable metallic journal-box having a projection or projecting arm, L^1, extending outside the frame, and provided with a stud or bearing, L^2, for the purchase or crank pinion, for the purposes herein set forth.

2. In a wringing-machine, a metallic journal-box provided with side flanges *d d* on the inner side, to bear against the inner surface or surfaces of the standard, and projection L^1, with stud L^2, substantially as and for the purposes herein set forth.

3. The movable metallic journal-box L, provided with side flanges *d d* and *d' d'*, and projection L^1, with stud L^2, substantially as and for the purposes herein set forth.

4. In a wringing-machine, the purchase driving-gear P, mounted on a stud or bearing formed on the arm L^2 of the movable journal-box, said box extending outside the frame, in combination with the gear R, of larger size, on the upper roll, the step-gears J J on the opposite side of the frame, and the elastic rolls, substantially as and for the purpose set forth.

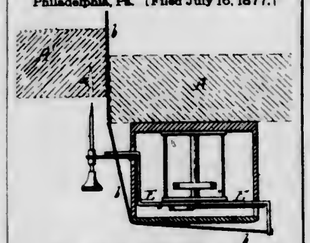
194,170.



194,172. GAME-COUNTERS. A. Pohl, New York, N. Y. [Filed May 26, 1877.]

The combination of a numbered dial-plate, provided with teeth *m* and pins *n*, the shaft *p*, with lug *s*, the spring-dog *t*, crank-rod *w*, bell C, and hammer D, with arms *b*, all substantially as and for the purpose described.

194,173. BURGLAR-ALARMS. T. Powell, Philadelphia, Pa. [Filed July 16, 1877.]

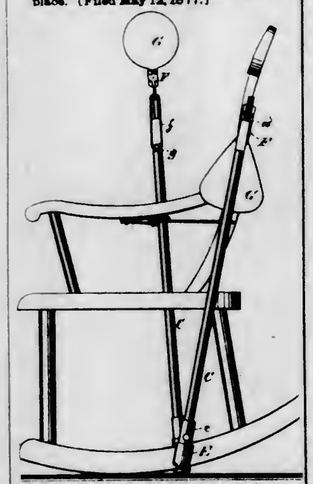


1. The combination of the alarm mechanism, the governing-slide E, and the pin *e*, carried by and capable of moving in the outer end of said slide, as specified.

2. The combination of the alarm mechanism, the governing-slide E, and its retainer, with the cord *b*, as specified.

3. The combination of the alarm mechanism, the governing-slide E, and its spring-retaining arm *d*, as specified.

194,174. FAN ATTACHMENTS FOR ROCKING-CHAIRS. John F. Rakes, Greenup, Ky., assignor to himself and Wm. Bryson, same place. [Filed May 12, 1877.]



The tube C, rod D, having the cap E, the link *f*, socket F, and fan G, in combination, substantially as herein shown and described.

194,175. COMBINED CANE AND CAMP-STOOL. D. B. Reynolds, Brockton, Mass., assignor of one-half his right to W. L. French, same place. [Filed July 12, 1877.]

1. A cane provided with a head, and having its body made in three sections of about equal lengths, coupled together and to end, and adapted to be readily disconnected and coupled to the cane-head to form a tripod, substantially as and for the purposes described.

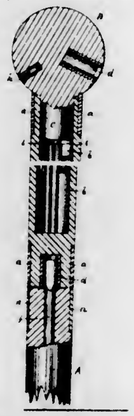
2. In combination with the body of a cane made in three sections of equal lengths, coupled together and to end, and adapted to be readily disconnected, a cane-head provided with means for coupling said sections thereto to form a tripod, and also provided with three or more sockets to receive radial arms to support a flexible seat, substantially as described.

3. The combination of the sections A, A^1, and A^2, adapted to be coupled together end to end to form a cane, and to the cane-head D to form a tripod, three or more arms, C C, adapted to be set in sockets in the head D in inclined radial positions, and provided with shoulders i i near their outer ends, and a flexible seat, B, provided with the metal sockets G G, adapted to engage with said shoulders i i, substantially as described.

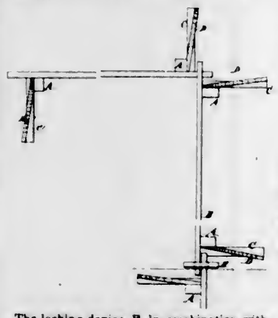
4. A cane-body made in three sections of equal lengths, coupled together end to end, and adapted to be readily disconnected and coupled to the cane-head to form a tripod, in combination with the chamber *b*, formed in one of said sections, and adapted to receive the flexible seat and its supporting-arms, one or both, substantially as and for the purposes described.

5. As a means of coupling two or more sections of a cane-body together, or to the cane-head, the cylindrical socket or bushing *d*, provided with the lips *e e*, in combination with the shank *f*, provided with the shoulders *g g*, adapted to engage with the inner sides of the lips *e e*, substantially as and for the purposes described.

194,175.



194,176. FENCES. J. V. Richardson, Tuckerman, Ark., assignor to himself and R. E. Richardson, same place. [Filed June 18, 1877.]



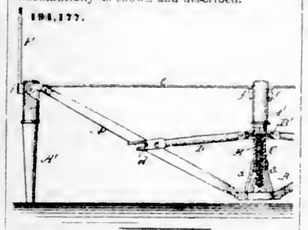
The locking device E, in combination with the panels composed of the boards B and triangular posts A C D, attached to the ends of the latter, on opposite sides thereof, as shown and described, whereby panels may be secured together to form a continuous line of self-supporting fence.

194,177. FOLDING BEDSTEADS. Wm. W. Rogers, Indianapolis, Ind. [Filed May 21, 1877.]

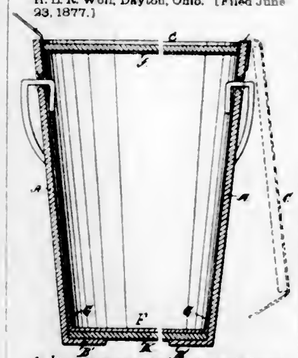
Brief.—The posts are connected to central spiders and adjusting screw and sleeve by inclined bars and pivoted braces, and the posts are connected to each other by hooked rods. By unhooking the rods and disconnecting the screw and sleeve the parts can be compactly folded.

The combination of the legs A A^1, bars A^2 A^3, braces D D^1, spider B, sleeve C, spider B^1 and screw E, and the rods *e g*, in combination, substantially as shown and described.

194,177.



194,178. PAPER BOXES. R. A. Rogers and H. L. R. Wolf, Dayton, Ohio. [Filed June 23, 1877.]

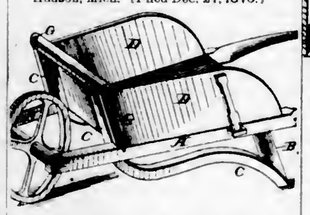


1. In a paper or straw-board vessel, the top C, constructed as described, and provided on its under side with the strip *f*, which forms a hinge and grasping loop, substantially as and for the purpose specified.

2. In a paper or straw-board vessel, the bottom composed of the pieces F and K, secured to each other and to the vessel by the flange G, and the notched or serrated edge F^1, substantially as and for the purpose specified.

3. The herein described vessel of paper or straw-board, composed of the body A, with serrated bottom edge, flanged bottom piece F, and supplemental piece K, and the top C, all constructed and united in the manner and for the purpose herein set forth and described.

194,179. WHEELBARROWS. C. W. Rose, Hudson, Mich. [Filed Dec. 27, 1876.]



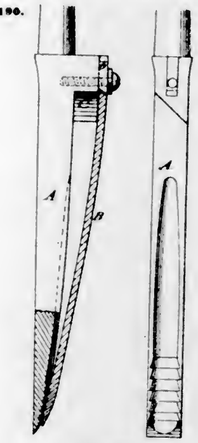
In a wheelbarrow, the combination, with the cross-piece B and side-pieces A C, of the L-shaped bar G, constructed and arranged substantially as set forth, whereby the bar G serves to secure the side-pieces together, and also serves as a support for the side-board, substantially as set forth.

194,180. MORTISING-CHISELS. J. S. Russell, Indiana, Pa., assignor to himself and J. Feath, same place. [Filed June 11, 1877.]

1. A chisel, A, having a beveled shank-piece, C, and a tongue, *b*, with beveled front shoulder, in combination with a chip-holding spring, B, having slotted rear end, and with a fastening-screw, *a*, substantially in the manner and for the purpose specified.

2. The combination, with a chisel, A, being fluted at the back and serrated near the point, of a serrated and pointed spring, B, for reliably holding the chips, substantially as described.

194,180.



194,181. MACHINES FOR MAKING CHAIN-LINKS. J. Schinnellier, Pittsburg, Pa., and L. Fitzpatrick, Benwood, W. Va. [Filed June 9, 1877.]

Brief.—While being wound upon the mandrel the iron is held against the sides thereof by the reciprocating holders.

1. The mandrel *i*, adapted to form the links of a chain, and adjusted to rotate within the guide *j*, in combination with the irregularly-shaped die or roller *k'*, constructed to rotate and smooth down the metal upon the mandrel as it is being wound thereon, substantially as shown and herein described.

2. In combination with the mandrel, binding-roll, inclined guide, and holders, the cutters *o o'*, situated beyond the point of bite of the roll and mandrel, as and for the purpose set forth.

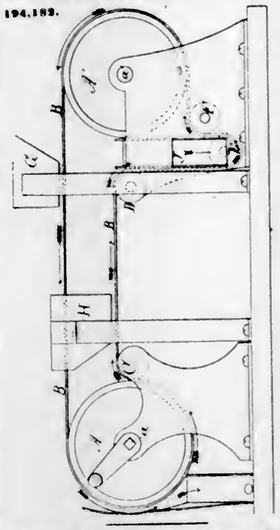
3. The revolving mandrel *i*, in combination with the die or roller *k'* and holders *m n*, operating with relation to the mandrel *i*, substantially as herein described, and for the purpose set forth.

4. In a machine for making chain-links, the chute *p*, provided with a pivoted side, *q*, adapted by means of a cam or eccentric movement, as set forth, to close upon the link when the same falls into the chute, in combination with the rotating mandrel *i* and guide adapted to force the links therefrom, all substantially as specified.

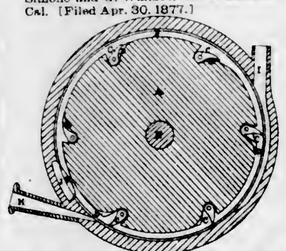
194,182. BELT GRAIN-CONVEYERS. H. G. Seeber, Brooklyn, N. Y. [Filed Mar. 9, 1877.]

The belt-conveyer A, provided with the hoppers G and H and the spouts I and J, and with suitable bearing-rollers, to give the under portion of said belt direction in its course from one of the pulleys A A^1 to the other, for the discharge of the grain into said spout J, all constructed and arranged to operate as and for the purpose described.

194,183.



194,183. ROTARY WATER-METERS. J. P. Simone and G. Wallace, San Francisco, Cal. [Filed Apr. 30, 1877.]



1. The rotary disk or wheel A, having the annular groove B formed in its periphery, and the vanes C so hinged as to stand radially and fill the groove or lie below it, in combination with the case F, with its ingress-pipe H and egress-pipe I, substantially as herein described.

2. The grooved wheel A, with its hinged vanes C fitted to rotate within the case F, said case being fitted with a plate, J, having a tongue, K, substantially as and for the purpose specified.

3. The disk A, having the annular groove B formed in its periphery, and the vanes C moving in the case F, said vanes closing down into the groove B, and having the slot D made in front of them, so that the pressure of the water will act to raise them into a radial position, substantially as herein described.

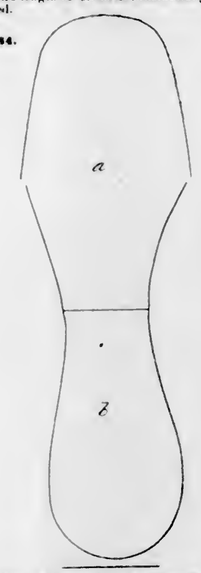
4. In combination with the grooved disk A, having a number of equidistant vanes, C, operating as shown, the case F, having plate J, with its tongue K, and the packing-plates G between the ingress and egress pipes, but constructed so as to allow the wheel to revolve freely through the remainder of the case, substantially as herein described.

5. The grooved disk A, radial vanes C, case F, having plates G, and plate J, with its tongue K and indicator L, all constructed and arranged to operate in the manner herein shown and described.

194,184. INSOLES FOR BOOTS AND SHOES. P. T. Smith and R. L. Cochran, Burlington, Iowa; said Cochran assignor to said Smith. [Filed July 29, 1876.]

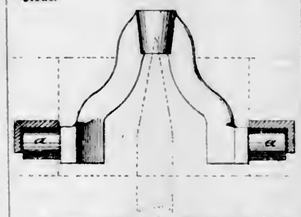
The flexible sheet-metal insole herein described, consisting of the zinc portion *a*, extending the entire length of the ball of the foot, and the copper portion *b*, extending the entire length of the heel, said portions being secured together in contact at the narrow middle of the insole, and each having its extended bearing on the foot to set up a current the entire length of the sole, substantially as specified.

194,184.



194,185. BALANCE-RYNDS. J. Smith and J. Snashell, Buffalo, N. Y. [Filed June 18, 1877.]

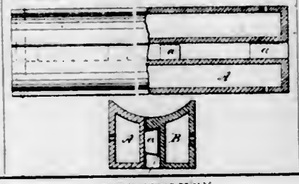
Brief.—The running balance of the "runner" upon the cock head is made more sensitive by journaling the burns in boxes set in the stone.



A balance-rynd having pivots at the lower and diametrically-opposite ends, in combination with boxes set into the upper stone or runner, for balancing the same thereon, substantially as described, and for the purpose specified.

194,186. BED-PIECES FOR CLOTH-PRESSING MACHINES. Herrman Springborn and C. H. Baush, Holyoke, Mass. [Filed May 28, 1877.]

Brief.—The concave bed is divided into two compartments, one for steam and the other for cold water, with air spaces between. Hot and cold pressing is done by one passage of the cloth.

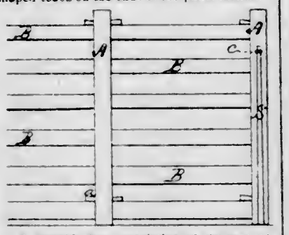


1. A concave bed for cloth pressing machines, having two separate compartments and an intermediate air-space, one of the said compartments being for receiving a cooling medium, and the other for receiving a heating medium, substantially as shown and described.

2. A bed piece for cloth pressing machines, consisting of the separate chambered parts A B, connected by dovetail projections and slots, and having intermediate air-spaces, substantially as shown and described.

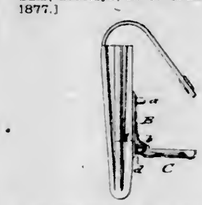
194,187. PORTABLE FENCES. J. G. Sutton, Rockport, Kans. [Filed May 1, 1875.]

Brief.—Converging mortises are cut into the post, which receive a correspondingly-shaped tenon on the ends of the panel-boards.



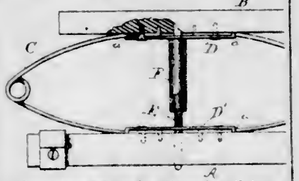
A portable fence consisting of the post A^1, having the converging mortises i and eyebolts e, the post A, having converging mortises *i*, the panel-boards B, and the pointed stay-rods S, substantially as and for the purpose set forth.

194,188. LOCKS FOR POCKET-BOOKS. E. Suhr, Brooklyn, N. Y. [Filed June 30, 1877.]



The combination of the base-plate, and of the spring-plate riveted thereto at one end, and having a bent seat or bearing at the free end, with the swinging face-plate, having solid covering end flange and inwardly-bent pivots inserted in the seat or bearing of the spring, as and for the purpose specified.

194,189. WAGON-SEAT SPRINGS. Geo. P. Swazey, Riverhead, N. Y., assignor of one-half his right to A. Bradley, same place. [Filed July 14, 1877.]



In a wagon-seat spring, the springs C, having their ends turned out to pass into the strips A B, and held thereto by plates D D^1, having flanges *a*, provided with recesses *b*, in combination with the rod E and its spring-bolster F, substantially as shown and described.

194,190. CULTIVATORS. J. C. B. Thomas, Palmyra, Mo. [Filed June 18, 1877.]

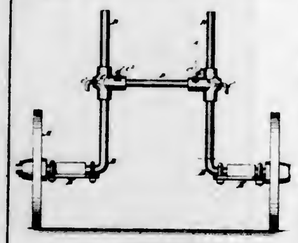
Brief.—Forward and back motion of either wheel obtained by a limited rotation of the cross-bar in the sockets. The cross-bar adjusted and held at any height upon the axles by set-screws.

1. The three-armed coupling C, the horizontal arm provided with a transverse slot to receive a stud upon the cross-bar D, and allow the latter a partial rotation, and the vertical

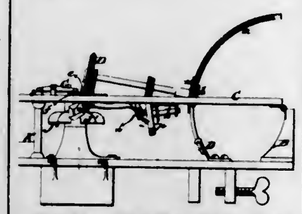
portion, having a tube and set-screw to permit its adjustment at different heights upon the vertical part of axle, as shown and described.

2. The combination of the three-armed coupling C, axles B, cross-bar D, and set-screws c' d', as and for the purpose specified.

194,190.



194,191. VEGETABLE AND FRUIT SLICERS. G. R. Thompson, Quincy, Ill. [Filed June 30, 1877.]



1. In a machine for paring, coring, and slicing apples, a hinged or pivoted lever, carrying the fork, the parer, and the mechanism for operating the same, substantially as herein set forth.

2. The combination of a hinged or pivoted lever, carrying the fork and the parer, and a stationary quadrant, with a cogged segment for operating the same, as set forth.

3. A stationary base, with coring and slicing devices attached thereto, and a hinged or pivoted lever, carrying the fork and the parer, all combined and arranged substantially as and for the purposes herein set forth.

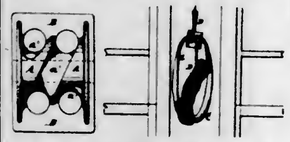
4. The combination of the stationary quadrant D, with cogged segment *a*, lever G, shaft *d*, with gears *b* D *i*, fork E, with pinion *s*, gear-wheel H, paring-arm I, and spring *n*, all substantially as and for the purposes herein set forth.

5. The combination of the paring arm I, finger F, and cam *p*, substantially as and for the purposes herein set forth.

6. The plate *h*, with stem *f*, in combination with the fork E and lever G, substantially as and for the purposes set forth.

7. The projection *t* on the pinion *b*, in combination with the guide *w* on the quadrant D, as and for the purposes herein set forth.

194,192. FIRE-ESCAPES. Jules A. Tixier, Brooklyn, N. Y. [Filed June 30, 1877.]



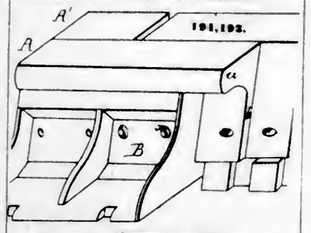
A casting consisting of the centrally-perforated cylinder A and frame B, the former having groove *a'* across the ends of one side and diagonally across the other, while the frame has transverse notches on its bars, in combination with the loop C and rope D, as and for the purpose specified.

194,193. COMPOUND RAILROAD-RAILS. T. W. Travis, Philadelphia, Pa., assignor of one-half his right to J. A. Pollock, same place. [Filed June 28, 1877.]

1. A continuous compound rail composed of two sets of angle-bars, A A', with staggered joints, and two sets of girders, B B', all being combined substantially as set forth.

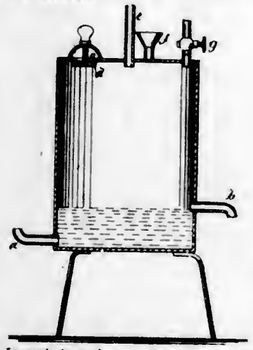
2. The combination of the angle bars with girders dovetailed together, as described.

194,193.



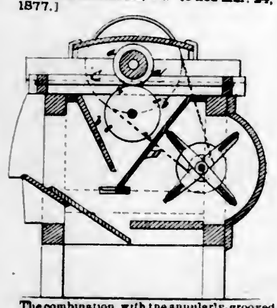
194,194. APPARATUS FOR DEODORISING GASES FROM RENDERING-TANKS. Chas. J. Trotter, Chicago, Ill. [Filed May 12, 1877.]

Brief.—The gas or vapor from a rendering-tank is conducted through the pipe *a* into the tank A. It passes through any suitable deodorizing compound, and escapes by way of pipe *e*. *f* is a funnel, through which the deodorizing substance is passed. This is closed by a plug or valve. *g* is an escape-pipe, through which the gas or vapor passes, when *f* is opened, for supplying the deodorizer. *b* is for the overflow of the liquid.



In rendering animal matter, the method of absorbing the evolved noxious gases in a liquid deodorizer, as shown and described.

194,195. PEA-NUT THRASHERS. J. L. Underwood, Smithfield, Va. [Filed Mar. 24, 1877.]

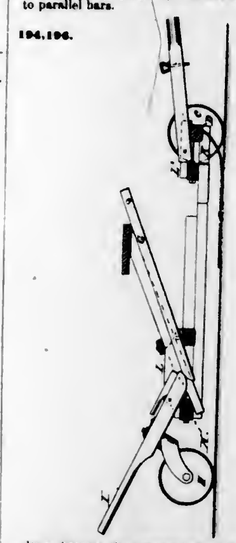


The combination, with the annularly-grooved feed-roller and the reel arranged parallel to and below it, of the frame of stretched wires passing between the ribs of the roller, as and for the purpose specified.

194,196. HARROWS. Elias Vandawater, Rockville, Ill. [Filed Feb. 5, 1877.]

Brief.—The harrow has three sections pivoted together, with two small wheels at front and one in the rear, which is adjustable, and serves to raise or lower the harrow-frame. For this purpose the handle is used when walking and the foot lever when riding. The wheel-lever is held up by a pawl, which fastens across to parallel bars.

194,196.



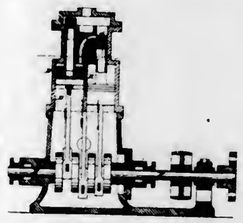
In a harrow, the combination of the foot-lever G, hand-lever I, provided with wheel H, and pawl *d*, with the sections J J and K and axle D, having wheels *c*, the several parts being arranged to operate substantially as and for the purpose described.

194,197. TOBACCO-PACKAGES. A. Villaret, New York, N. Y. [Filed May 5, 1877.]



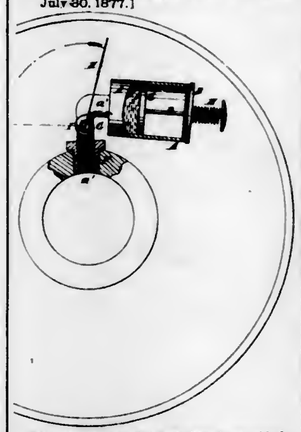
A tobacco-package formed of a number of smaller packages, arranged to slide or telescope one within the other, each containing a quantity of tobacco sufficient for one chew, substantially in the manner and for the purpose set forth.

194,198. RECIPROCATING STEAM-ENGINES. W. Walker, Bury, Great Britain, assignor of one-half his right to E. Betts and A. Betts, Wilmington, Del. [Filed Apr. 20, 1877.]



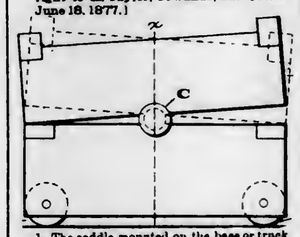
In a tri-cylinder engine, the combination of pistons C D E, each having a shank, *d*, with a bored exhaust-passage extending from a side opening down through both the shank and piston, the steam-passages leading from each bore in which the shanks work down through the casting or frame of the engine to the cylinders, and the steam chamber above the shanks, all as shown and described, whereby steam is admitted to the piston-cylinders in succession when the shanks *d* recede sufficiently for their upper ends to uncover the port, and the exhaust takes place alternately with admission of live steam through the side-opening in the shanks and the passage extending vertically through them and the pistons, as specified.

194,199. OILING JOURNALS OF LOOSE PULLEYS. Chas. H. Weigle, York, Pa. [Filed July 30, 1877.]



The combination of the receiver A, provided with the discharge-pipe *a'* and the screw-cap B, the piston, piston-rod, and spring C D E, the valve, fan, and spring G H I, and the sleeve F, having a right-hand screw-thread upon its outer surface, and a left-hand screw-thread upon its inner surface, with each other, to adapt the device to be applied to the hub of a loose pulley, substantially as herein shown and described.

194,200. BARREL-STANDS. E. C. Wells, Vineland, N. J., assignor of one-half his right to H. Taylor, Towanda, Pa. [Filed June 18, 1877.]

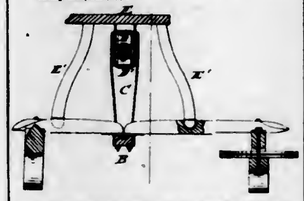


1. The saddle mounted on the base or truck by means of a centrally-arranged rod, substantially as and for the purpose set forth.

2. The saddle and base or truck, in combination with a rod centrally elevating the saddle, and forming an axis therefor, substantially as and for the purpose set forth.

3. The saddle D and truck A, in combination with the axial rod C, having overlapping shoulders *b b*, substantially as and for the purpose set forth.

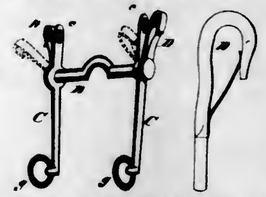
194,201. SPRING-SEAT AND REACH FOR VEHICLES. A. J. White, Castile, N. Y. [Filed May 28, 1877.]



1. The combination of the hinged reach-sections A A', cross-brace B, rods C, spring D, convexly-attached spring D', suspended from the seat E, which rests on the reach-sections, substantially as and for the purpose specified.

2. The combination of the jointed reach, having mortises for the seat-arms E', seat E, and cross-brace B, secured below hinge-joint of reach, substantially as specified.

194,202. BRIDLE-BITS. R. S. Whitman, Springfield, Mass. [Filed Feb. 15, 1877.]



1. The combination, with a bridle-bit, of the spring supporting-hooks D D, slotted to receive the bearing ends of the bit, and to admit of a limited swinging or rocking movement of the same before forming a rigid connection with the hooks, all substantially as and for the purpose stated.

2. The combination, with the mouth-piece B and cheek-pieces C C, of the spring supporting-hooks D D, slotted to receive the bearing ends of the mouth-piece, and to admit of a limited swinging or rocking movement of the same before forming a rigid connection with the hooks, all as set forth.

194,203. CHURNS. Van R. Wilcox and A. Benedict, Perry, and G. Benedict, Cleveland, Ohio. [Filed June 23, 1877.]



1. A tubular churn-dash having enlarged lower conical part and top cap, with valve for admission of atmospheric air on raising dash, substantially as and for the purpose set forth.

2. The funnel-shaped cream-saver D of a churn, provided with radial arms *d'* and the ring *d*, in combination with a dasher having collar *a* and spring *b*, as and for the purpose specified.

194,204.

194,204. BOTTLE-STOPPERS. Carl E. G. Winter, Port Jervis, N. Y., assignor to himself and J. G. Pfutzner, same place. [Filed July 9, 1877.]

The stopper composed of the disks *e f* and connecting portion *g*, substantially as shown and described.

194,205. TRANSOM-OPENERS. J. F. Wollensak, Chicago, Ill. [Filed July 10, 1877.]

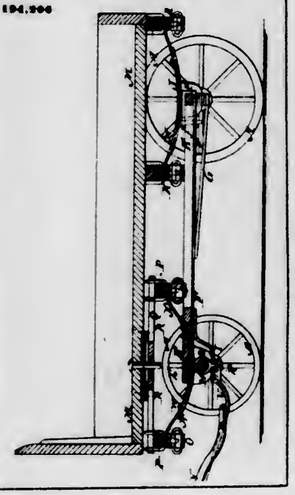
Brief.—As an improvement on Patent No. 190,176, May 1, 1877, the vertical rod has no sliding movement, but is provided with a jointed pendent handle, which is raised to nearly a horizontal position, and then turned to the right or left, like a lever, the rod serving, by a horizontal partial rotation, to open, close, lock, or unlock the transom, there being a small sliding bolt or latch, suitably attached to the transom, which bolt or latch is preferably provided with a spring.



1. The combination of a transom, a latch or bolt, B, and a vertical rod, R, adapted to operate the transom and latch or bolt by rotating partially on its axis, substantially as described.

2. The spring latch or bolt B *s*, combined with the transom, and the vertical rod R, adapted to operate the latch or bolt and transom by partially turning on its axis, substantially as described.

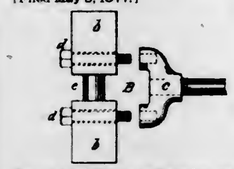
194,206



194,206. PLATFORM-WAGONS. N. B. Wood and E. R. Fitch, Hubbardsville, N. Y. [Filed July 9, 1876.]

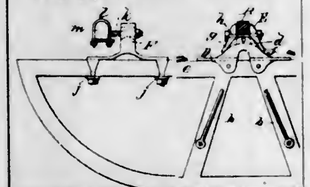
A platform-wagon having the axles connected by a reach, the pole connected with the front axle D, and cross-springs N O, shackled together, provided with lugs W, and attached to head-blocks P, as and for the purpose specified.

194,207. CROSS-HEADS FOR STEAM-ENGINES. D. A. Woodbury, Rochester, N. Y. [Filed May 3, 1877.]



A cross-head for a steam-engine, made in two parts, the guide-wings b and wrist c constituting one portion, and the arch c, to which the piston-rod is attached, the other, said parts being suitably secured together, substantially as and for the purposes set forth.

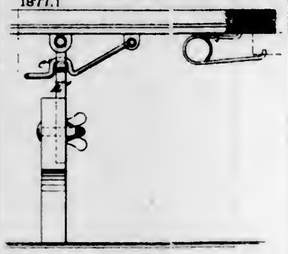
194,208. SLEIGH-RUNNERS FOR WHEELED VEHICLES. M. C. Wright, Chatham, Ohio. [Filed May 12, 1877.]



1. The support E, composed of the parts f g and bolt h, and the casting D, having ears d, in combination, substantially as and for the purpose shown and described.

2. The combination of the post F, having bottom clip-arms f and a slotted top, and the bolt k, having a clip, l, with the sleigh-rave e, runner A, and the thill-bar m, as and for the purpose set forth.

194,209. IRONING-BOARDS. F. H. Young and J. S. Sheldon, Stanhope, N. J., assignors to said Sheldon. [Filed Apr. 23, 1877.]



1. An ironing-board divided by a longitudinal recess or slot at the front end into a wider and a narrower supplementary board for ironing bosoms and sleeves, substantially as and for the purpose set forth.

2. The leg-holding brace, bent to bind on the upper leg section, and having an enlarged front end or rest for the flat-iron, substantially as described.

194,210. PERCUSSION-FUSES FOR PROJECTILES. Max Zeroni, Witten, Germany. [Filed July 23, 1877.]

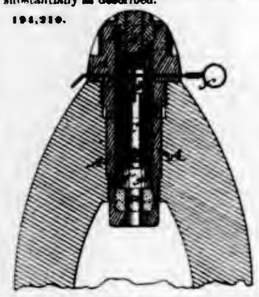
1. In a percussion-fuse, the combination of the bolt-casing, having a suitable priming device, with a needle-bolt retained by a safety-wire and frangible pin, substantially in the manner and for the purpose set forth.

2. The combination of the bolt-casing, having retaining base-plate and suitable priming-screw, with a sliding needle-bolt, having top center pin and retaining base-pins, substantially as and for the purpose specified.

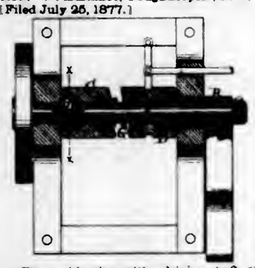
3. The combination with a bolt-casing, having retaining base-plate and priming-screw, with a needle-bolt and frangible retaining-pin, substantially as and for the purpose described.

4. In a percussion-fuse, a tubular needle-bolt, having central top pin and base-pins, substantially as described.

194,210.



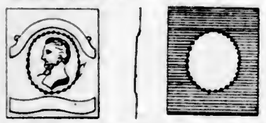
194,211. DEVICES FOR TRANSMITTING MOTION. W. Adriance, Poughkeepsie, N. Y. [Filed July 25, 1877.]



1. The combination, with a driving shaft, of a stationary clutch-head, a sliding clutch, and a sleeve to which motion is to be transmitted, and which is bored out to form the bearing for one end of the driving-shaft, the sliding clutch being feathered on said sleeve, and the whole being adapted to operate substantially as described.

2. The combination, with a driving-shaft, a stationary clutch or clutch-head, a sliding clutch, a sleeve to which motion is to be transmitted, and which is bored out to form the bearing for one end of the driving-shaft, of ratchet-teeth formed in the interior of said stationary clutch, and of a spring-pawl fitted in a socket formed in the driving-shaft, and engaging with each ratchet-tooth, substantially as and for the purpose described.

194,212. POSTAGE OR REVENUE STAMPS. W. W. Bierce, Memphis, Tenn., assignor of one-half his right to J. C. Spencer, New York city. [Filed Nov. 7, 1876; patented in Canada, Oct. 30, 1876, for five years.]



1. A postage or revenue stamp having a portion of its back ungummed, when the corresponding portion of its face is raised above the plane of its contiguous parts, substantially as and for the purpose described.

2. A postage or revenue stamp having a portion of its back ungummed, when the corresponding portion of its face is raised and surrounded with perforations or indentations, substantially as and for the purpose described.

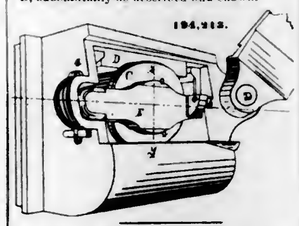
194,213. CAR-AXLE BOXES. T. A. Bissell, Detroit, Mich. [Filed Feb. 20, 1877.]

1. The latch stop-bar E, hinged to a car-axle box, substantially as and for the purpose set forth.

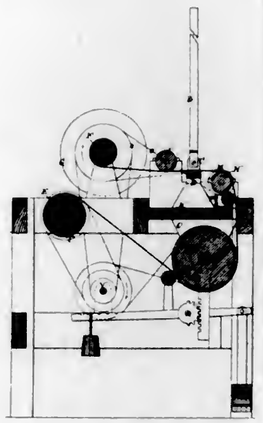
2. The combination, with the hinged stop-bar E, of the end-bearing F, removably secured to the said stop-bar by means of its lugs c c and the bolt d, substantially as described and shown.

3. The combination, in an axle-box, of the hinged stop-bar E, having lug c, and the door B, substantially as described and shown.

194,213.



194,214. MACHINES FOR POLISHING PAPER, &c. Henry Braunhold, New York, N. Y. [Filed Jan. 13, 1877.]



1. The shaft E, take-up shaft F, horizontal bed B, and polishing-tool C, in combination with the vertically-movable smoothing-roller L, hangers O, yielding table K, and upper and lower rollers H and I, the whole constructed for operation substantially as and for the purpose described.

2. The combination of boxes P and the spreading-rollers Q therein with the shaft H, revolving in contact with the rollers Q, and the bed B, tool C, shafts E and F, and smoothing-roller L, substantially as described.

194,215. BAILERS FOR OIL-WELLS. D. C. Brawley, Petrolia City, Pa. [Filed July 19, 1877.]

Brief.—A long yielding cylinder with external buffer-rings. Metal ferrule and screw cap or cap at its base, forming a seat for an automatic valve. A like upper termination, with ascending arms receiving pivots of swiveled ring, which turns at right angle upon the ascent of a short valve-stem with the valve, which descends through the cylinder by gravity, and is elevated by a cord.

1. A bailer for Artesian wells, consisting of the flexible cylinder or body, substantially as and for the purpose specified.

2. In combination with the flexible cylinder of a bailer, the buffer rings, substantially as and for the purpose specified.

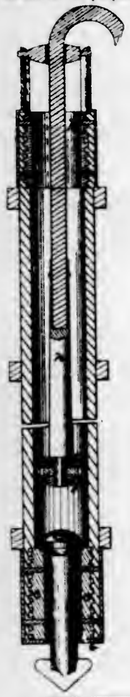
3. The combination, in a bailer, of the flexible cylinder and threaded tube, and riveted plates forming the head or bail thereof, substantially as specified.

4. The combination, with a bailer, of a short-stemmed piston and rope, for operating the piston within the bailer, substantially as and for the purpose specified.

5. The combination, in a bailer, of the ears and pivoted guide-ring or tumbler-head with the piston or rope, substantially as and for the purpose specified.

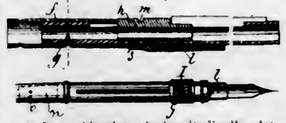
6. The combination, with a flexible bailer, of the screw-socket bottom or valve-plate, substantially as and for the purpose specified.

194,215.



194,216. PEN AND PENCIL CASES. Stephen M. Brougham, Richmond County, N. Y. [Filed July 3, 1877.]

Brief.—When both pen and pencil are within the case, turning handle H in one direction admits of the pencil being projected by slide I. To project the pen, first withdraw the pencil, and then turn the handle in an opposite direction to that when the pencil was brought into requisition.



1. In combination, the longitudinally slotted and ribbed tube C, provided with the short transverse slot g, and the short sleeve or tube f, having a pin, x, entering such slot, substantially as and for the purpose set forth.

2. In combination with the tubes C and f, connected as shown and described, and with a slide, I, arranged to actuate both the pen-holder and pencil-holder, the solid handle B, applied directly to the short tube f, substantially as and for the purposes set forth.

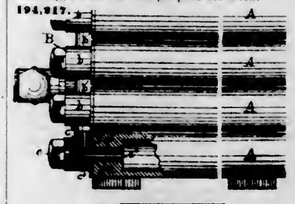
194,217. RESERVOIRS FOR COMPRESSED AIR. Henry Bushnell, New Haven, Conn. [Filed July 21, 1877.]

1. The described reservoir for compressed air, consisting of a lap-welded tube with welded heads, substantially as described.

2. In combination with the tubes A and casting B, a series of bolts, C, having the annular grooves and perforations, as described.

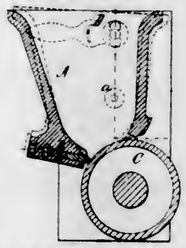
3. In combination with a tube and intermediate casting, a bolt, substantially as described, adapted to unite the casting to the tube, and to permit the passage of the air through the casting, as and for the purpose set forth.

194,217.



194,218. INK-FOUNTAINS FOR PRINTING-PRESSES. A. Campbell, Brooklyn, N. Y. [Filed Oct. 24, 1876.]

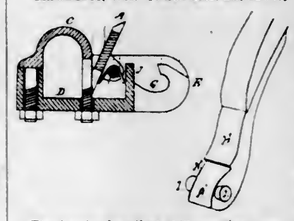
Brief.—The ink-fountain is pivoted above the roller, forming its bottom, and is connected to a lever and eccentric-pin, by which its front edge, which bears the doctor-blade, may be adjusted with relation to the roller, to regulate the quantity of ink delivered.



1. In combination with the ink-roll C, the ink-bowl A, hung above the roller, as described, whereby a vibratory movement of the bowl may obtain for the purpose of controlling the flow of ink, substantially as herein described.

2. In combination with an ink-fountain, an independent adjustable and removable scraper or doctor, having its forward edge rounded, substantially as and for the purpose set forth.

194,219. THILL-COUPLINGS. John Carr, Milwaukee, Wis. [Filed Mar. 20, 1877.]



The herein-described thill-coupling, consisting of the thill-bar H, having shoulder N, cover A, pointed end A', and journals I I, operating in combination with a clip-bar, D, having lugs E, and cross-bar J, substantially as and for the purpose specified.

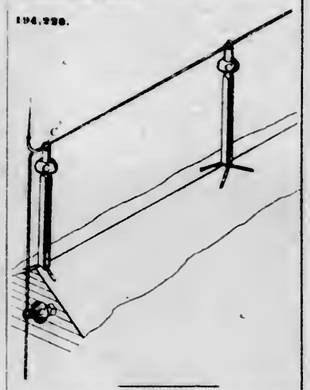
194,220. LIGHTNING-RODS AND INSULATORS. J. C. Chambers, Newport, Ky. [Filed May 29, 1877.]

1. The spiral rod constructed with a horizontal attaching portion and one or more upturned receiving points, in combination with the insulator constructed with a summit groove to receive the rod and a circumferential groove for the tying-wire to secure said rod in position, substantially as described.

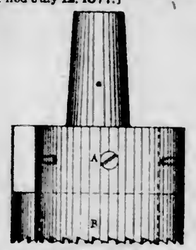
2. The combination of the main groove C', for the reception of the rod, and the supplementary oblique grooves c, to receive the spiral flanges of the rod, and prevent it from turning.

3. A lightning-rod insulator constructed as herein shown, with a screw-socket for application to the post, an enlargement below the said screw-socket to prevent contact between the post and the neck of the insulator, and an umbrella-shaped flange expanding downward from the neck, serving to shed the rain and as a shield.

194,220.



194,221. CUTTER-HEADS FOR GROOVING AND CHANNELING. F. S. Clarkson, Baltimore County, assignor to H. Cromwell and F. B. Sloan, (composing the firm of C. Sidney Norris & Co.,) Baltimore city, Md. [Filed July 12, 1877.]



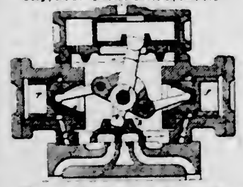
A surface grooving and channeling bit, consisting of the volute head A, having an extension, a, provided with one or more saws, B, the teeth of which project from the face of said head in the direction of the line forming the center, around which the head, when in operation, is revolved, substantially as herein shown and described.

194,222. WAGON-TONGUES. A. J. Clemmons, Burdett, Mo. [Filed May 12, 1877.]



The combination, with the tongue A, having the bore c and circular recess h', and the socket B, having the central hole b, with the slot b', of the head G, provided with the jaws G', and shank G', with lug h, and the neck-yoke D, swiveled by the pin d in the recess between the jaws, substantially as described, and for the purpose set forth.

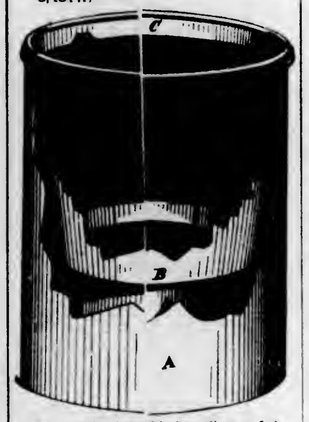
194,223. VALVE MECHANISMS FOR PUMPING-ENGINES. N. W. Conduct, Jr., Jersey City, N. J. [Filed Feb. 9, 1877.]



The combination, in a direct-action pumping-engine, of a slide-valve, B, rock-shaft D

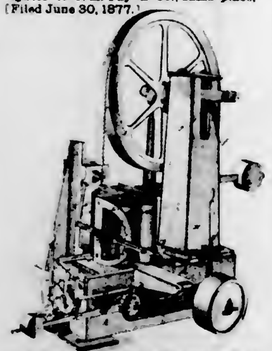
pistons P and P', actuated by the pressure of steam and devices, whereby the primary movement of the said shaft, in either direction is imparted from a moving part of the machine, and is continued and completed by the pressure of steam through the medium of the said pistons, all substantially as set forth.

194,224. CULINARY VESSELS. G. A. Culbertson, Keaton County, Ky. [Filed July 3, 1877.]



The combination, with the boiler A, of the partly solid jelly-pan B, suspended within the boiler, and the perforated fruit-pan C, suspended within the jelly-pan, the whole constructed to operate substantially as and for the purpose described.

194,225. BAND-SAW MILLS. W. H. Doane and G. W. Bugbee, Cincinnati, Ohio, assignors to J. A. Fay & Co., same place. [Filed June 30, 1877.]



1. A band saw in which the support of the bearing of the upper saw-pulley arbor is adapted for adjustment, substantially as described, whereby the upper saw-pulley can be set to rotate in a plane either coincident with or obliquely intersecting the plane of rotation of the lower saw-pulley.

2. The combination, substantially as specified, of the column provided with vertical ways, the bearing of the upper saw-pulley arbor, and the two sets of anti-friction rollers, one set being arranged near the top of the bearing to run on the interior side of the ways, and the other set near the bottom of the bearing to run on the exterior side of the ways.

3. The combination, substantially as specified, of the column provided with vertical ways, the bearing of the upper saw-pulley arbor, provided with fixed pins or studs f^1 and f^2, the two sets of anti-friction rollers, arranged as hereinbefore set forth, and the adjusting screw.

4. The combination, substantially as specified, of the two saw-pulley arbors, the outside sleeve-bearings on the overhung ends thereof, and the straining rod, adjustable in length.

5. The combination, substantially as specified, of the two saw-pulley arbors, the outside sleeve-bearings on the overhung ends thereof, and the straining-rod, adjustable in length, and adapted to automatically change in length to a limited extent to compensate for the contraction and expansion of the saw.

6. In a band-saw, the combination, substantially as specified, of the upper and lower saw-guides and an independent and permanently fixed supporting-standard common to both guides.

7. The combination, substantially as specified, of an independent and permanently-fixed supporting-standard, the vertically-adjustable slide, the guide proper, riding on a horizontal way or ways on the slide, and means for adjusting the guide proper horizontally.

8. The combination, substantially as specified, of the upper saw-guide and the lever for adjusting it vertically from the front side of the machine.

9. The combination, substantially as specified, of the movable feed-rolls, the sliding rack connected with the frame thereof, the pinion, the weighted lever, the hinged pawl thereof, and the ratchet-wheel on the arbor of the pinion.

10. The combination, substantially as specified, of the fixed friction-pinion, the friction-disk, the rod connected by knuckle-joint at one end to shaft O^2, and adapted to be swung laterally for shifting the friction-disk it carries at the other end, and the laterally-adjustable bearing of the rod.

11. The combination, substantially as specified, of shaft O^2, the rod connected thereto by a knuckle-joint, and carrying the friction-disk, the laterally-adjustable bearing of said rod, the rock-shaft, the arm thereon, and the lever for operating the rock-shaft.

194,226. MACHINES FOR COMPRESSING AND STAMPING LEAD SEALS. W. D. Doremus, Washington, D. C., assignor of two-thirds of his right to J. W. Mancourt, Brooklyn, N. Y. [Filed June 30, 1877.]



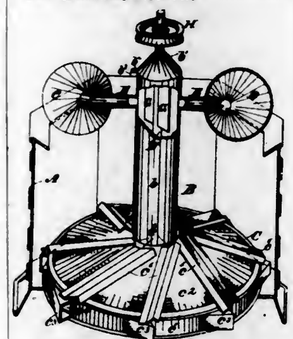
1. The combination, with the jaws or carriers A A', provided with dies or faces having their operating surfaces constructed in the form described, and mechanism for holding the same in proper relative position to each other, of serial or numbering wheels arranged in one of said jaws, substantially as specified.

2. The combination, with the jaws or carriers A A', provided with dies or stamps constructed as described, and the straps or stirrups B B', of the serial or numbering wheels, arranged within the jaw A', and mechanism, substantially as specified, for revolving said wheels, whereby in the operation of the press the disks or seals are compressed upon their carrying-wires, and a series of numbers impressed upon their faces which shall differ on each and every seal, as set forth.

3. The combination, with the jaws or carriers A A', connected together as described, and the serial or numbering wheels $e\ e^1\ e^2\ e^3$, the former being provided with a ratchet, f', of the pawl f, pivoted to the jaw or carrier A', as and for the purposes set forth.

4. The combination, with the serial or numbering wheels $e\ e^1\ e^2\ e^3$, constructed with the recess g formed in their sides, and being provided with a series of holes, as shown, of the partition i, provided with the grooves i', and the spring-plates h, carrying the pins h^1, as and for the purposes set forth.

194,227. CHURNS. W. Earle, Philadelphia, Pa. [Filed July 27, 1877.]



1. The hollow shaft b, having air-induction arms E E, and a partition, G, between said arms, to prevent the interference of entering air-currents, as set forth.

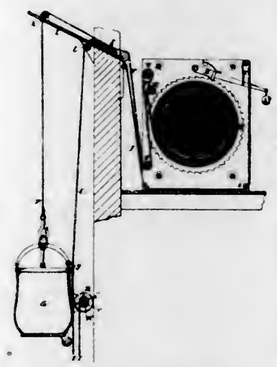
2. In combination with the hollow shaft b, the drum C, having internal partitions or air-guides D, and air-eduction openings c', protected by hoods c^2, substantially as shown and described.

3. In combination with the drum or wheel C, having sloping top and air-eduction openings c', the arches c^3, substantially as and for the purposes set forth.

4. The combination of hollow shaft b, removable top b^1, drum C, and spindle F, said spindle being fixedly secured to said top, and passing through said bottom, and said shaft and removable top being fitted together, substantially as described and shown.

5. The vertical churn-vessel A, provided with a revolving shaft and made octagonal in cross-section, so as to break the circular current produced by the revolution of said shaft, as set forth.

194,228. FIRE-ESCAPES. Jos. Biehler, St' Louis, Mo. [Filed June 21, 1877.]



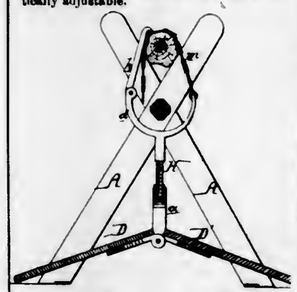
1. The combination of spring-drum B E, rope or band F, ratchet b, pawl H, and rope I, adapted to disengage said pawl from said

ratchet, substantially as and for the purpose set forth.

2. The combination, with the basket G and rope I of the guide-rollers R, having shaft R' for winding up the cord, substantially as and for the purpose set forth.

194,229. ATTACHMENTS TO SAW-BUCKS. H. C. Emery, Flourtown, Pa. [Filed Jan. 22, 1877.]

Brief.—A log of wood can be firmly held by the operator's feet while it is being sawed by means of a rod, forked at its upper end, and provided with a pivoted hooked pawl and chain, to be passed over the wood, and connected to the cross-bar of a saw-buck by a retracting-spring, and to two hinged foot-boards by a pivoted forked arm, in which said rod is vertically adjustable.

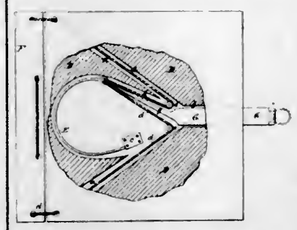


1. The combination, with a saw-buck or other like frame, of the chain m, hooked pawl k, the rod H, and foot-board, all substantially as described.

2. The combination of the boards D D', hinged together, with the rod H, hinged to the said boards, substantially in the manner described.

3. The rod H, forked at its upper end, and made adjustable at its lower end in the fork e, constructed as shown and described, and for the purpose specified.

194,230. TEMPORARY BINDERS. P. England, Lincoln, Nebr. [Filed July 30, 1877.]



1. In combination with a letter-file, substantially as described, a spring connected with cords for holding the inner edges of the backs, and connected also with a strap carrying the clasp, for the purpose of making the backs of the file self-adjusting to the bulk of its contents, as specified.

2. The spring E, the attached cords $d\ d$, and strap G, carrying the clasp, combined with a letter-file, substantially as described, and located in a chamber in one of the backs of the same, for the purpose specified.

3. The removable index F, provided with hinged backs and having eyelets, as described, in combination with the letter-file having slotted plates $f\ f$, and the knotted cords $d\ d$, for holding in said index, substantially as described.

194,231. PLOWS. Sara O. English and Roxanna Whyte, St. Louis, Mo., administratrix of N. Whyte, deceased. [Filed Jan. 11, 1877.]

Brief.—Devices for lubricating the mold-board and share of a plow consisting of a reservoir, a conducting-pipe, a perforated tube behind the mold-board, and slats or openings through mold-board and share. Similar devices convey the lubricator to the heel of the colter and point of the share.

1. The combination, with a plow, of a perforated tube communicating with the face of the mold-board, and with a reservoir for containing a lubricating material, substantially as described.

2. The combination, with a plow, of the perforated flanged tube f, the vertical pipe F, and a suitable lubricating-reservoir, substantially as described.

3. The combination, with the colter and share of a plow, of an attachment for supplying a lubricating material to the heel of the colter and point of the share, substantially as described.

4. The combination, with the colter and share of a plow, of the pipe a', terminating at its lower end at the heel of the colter and point of the share, and a reservoir for containing a lubricating material, with which the upper end of the pipe communicates, substantially as described.

194,232. PRESSES FOR LARD, FRUIT, &c. E. W. Fawcett, Salem, Ohio, assignor to the Silver & Deming Manufacturing Company, same place. [Filed July 11, 1877.]



1. The combination of the shaft with a semi-cylindrical rack-bar, I, having a countersunk thread and an adjustable piston, as shown and described.

2. In a lard and fruit press or sausage-stuffing machine, the shaft G, having one or more collars, e, head f, and screw-thread H, substantially as shown and described.

3. The frame A, provided with laterally-projecting stops E, as shown, and for the purpose specified.

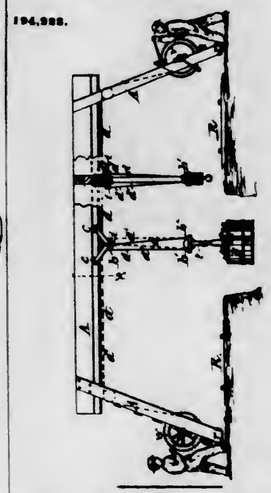
4. In a lard and fruit press or sausage-stuffing machine, the upright F, frame A, shaft G, having collar e, and screw-thread H, in combination with the semi-cylindrical rack-bar I and piston J, substantially as shown and described.

5. In a lard and fruit press or sausage-stuffing machine, the cylinder C, having legs b and legs a, in combination with the frame A, cross-piece B, spring-latch D, and stops E, substantially as described.

194,233. APPARATUS FOR CONSTRUCTING SEWERS, &c. M. G. Field, Syracuse, N. Y., assignor of one-half of his right to J. Finegan, same place. [Filed Mar. 28, 1877.]

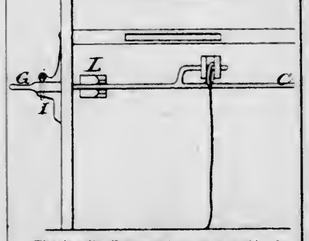
An apparatus for constructing sewers, consisting of the elevator A', Fig. 2, composed of main frame, provided with wheels r and ways s, block b', provided with hook h, pulleys b^2 b^3, carriage c', provided with pendent swivel-hook s, line F, and bucket B, and of the material lowerer A, Fig. 1, composed of main frame provided with wheels r and ways s, carriage c, provided with pulleys b and hooks i, block b^2, provided pulleys b^1, bucket B, lines $d\ d'$, windlasses w, and brakes v, all constructed and arranged substantially as shown and described, for the purposes specified.

194,234.



194,234. HORSE-HITCHES. P. J. Fischle, Philadelphia, Pa. [Filed July 15, 1876.]

Brief.—The connection, to a simultaneous unhitching device, of a bracket-supported handle and a bracket-guide applied to the pull-rod.



The handle G, squared upon one side, in combination with the bracket I, having the D-shaped orifice, and the guide-bracket L, as and for the purpose described.

194,235. PROCESSES OF TREATING WORN-OUT SAND-PAPER OR EMERY-CLOTH TO UTILISE THE SAME. R. Glover, Leominster, Mass., assignor to himself and J. Q. Bull, same place. [Filed Apr. 30 1877.]

The process, substantially as described, of treating waste abrasive cloth or paper for the purpose of separating the abrasive material thereof from its cloth or paper support, and removing the glue or cement from both, and rendering them capable of again being utilised, such process consisting in subjecting the said waste abrasive paper or cloth to the action of steam, and subsequently washing with water, so as to remove from the paper or cloth the abrasive material and glue, and carry them into a receiver for intercepting the said abrasive material and discharging the glue and surplus water, and afterward removing the separated matters of the keir and chamber, and desiccating them or either of them, as may be required.

194,236. WAREHOUSE-TRUCKS. Wm. B. Grable and O. K. Pickles, St. Louis, Mo. [Filed Apr. 28, 1877.]

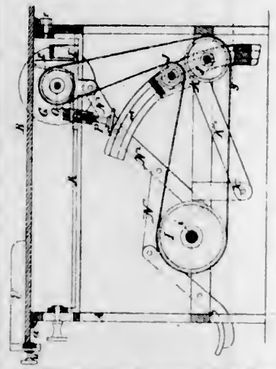
The combination of the truck A B, movable platform D, links E, operating-lever F, rock-shaft G, arms *g*, and pitman H, as and for the purpose set forth.

194,236.



194,237. CIRCULAR SAWING MACHINES. F. D. Green, Williamsport, Pa. [Filed Mar. 10, 1877.]

Brief.—The saw-mandrel is mounted in a vertically adjustable saddle attached to a sliding carriage, so that it will compensate for wear, and cause it to cut higher or lower in dadoing. The sliding carriage travels in rocking ways, which admit of the adjustment of the saw to cut any desired angle. The proper tension on the belts in all conditions is maintained by suitable pulleys mounted in a frame working in curved guides.

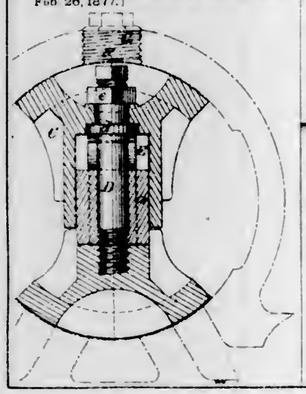


1. The saddle O and adjusting means P, in combination with the carriage I, adapted therefor, and with a circular saw and suitable driving means, adjustable up and down therein, as herein specified.

2. The rocking ways E E, turning on pivots *e e*, in combination with the carriage I, dovetailed or locked to the said ways, and with the saw G mounted thereon, as and for the purpose specified.

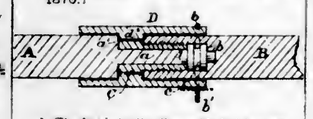
3. The curved guides *m*, in combination with the frame K, pulleys J J, carriage I, and saw G, as herein specified.

194,238. OSCILLATING VALVES FOR STEAM-ENGINES. W. Hardwick, Erie, Pa. [Filed Feb 26, 1877.]



The combination of the valves B C and tap-bolt D, having the collar *d* and nut *e*, substantially as herein shown and described.

194,239. CAR-AXLES. Warren H. Haynes, North Sudbury, Mass. [Filed Dec. 1, 1876.]



1. The divided collar C, provided with screw-threads, adjusted on the neck *a*, and held in place by shoulder *a'* and head *b* of section A, in combination with the hollowed end of section B, provided with screw-threads to fit over the screw-threads of the divided collar, substantially as and for the purposes described.

2. The sleeve D, having the square part *d'*, in combination with the jointed axle A B and the divided collar C, having the square part *d*, substantially as and for the purposes described.

3. The combination of section A, having neck *a*, shoulder *a'*, and grooved head *b*, the section B, having screw-threads in the hollowed end, divided collar C, having square part *d* and screw-threads at *d'*, sleeve D, having square part *d''*, and pins *b'*, substantially as and for the purposes described.

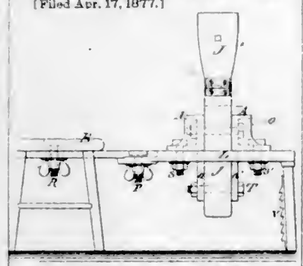
194,240. EGG-CARRIERS. S. P. Hodgen, Neosho, Mo. [Filed May 17, 1877.]



1. The follower herein described, consisting of the frame C and rings D, for the purposes herein set forth.

2. In combination with the follower herein described, a series of paper sheets, A, having indentations B, with torn openings in the bottom, forming rough edges underneath, substantially as herein set forth.

194,241. STITCHING-HORSES FOR HARNESS-MAKERS. Frank Huot, Davenport, Iowa. [Filed Apr. 17, 1877.]



1. The combination, with the stool B and slotted arm N, having thumb-screw R and pivot-screw P, of the clamp J, all arranged substantially as shown, for the purpose set forth.

2. The clamp J, with its slotted shank, the standards A and A', with their slotted projecting jaws *a* and *a'*, and the bolts O and T, in combination with the pivoted bed-plate L, provided with circular slots *k* and *k'*, substantially as and for the purpose described.

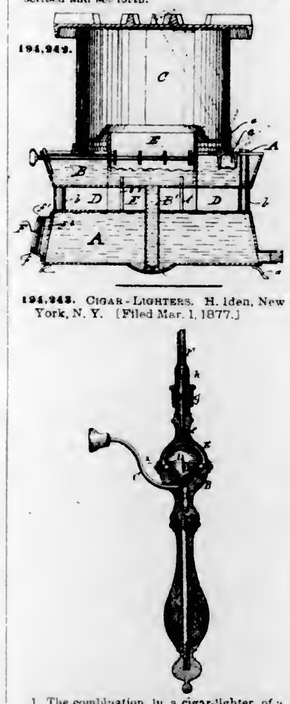
194,242. HYDROCARBON-STOVES. A. B. Hutchins, Brooklyn, N. Y. [Filed Mar. 8, 1877.]

1. The oil-reservoir A, the water-reservoir B, and the connecting-tube B', arranged as described, to permit the water to descend through the said tube to the bottom of the oil-chamber, and press the oil up to the top part of its chamber, and also up into the wick-tubes as high as the top of the water in the reservoir B, while the lower end of the tube B' is submerged in the water in the well A', so as to seal it against the entrance of oil, substantially as described and set forth.

2. The wick-tubes E, formed partly of one solid cast piece, *e e' e''*, having seats *e''* formed therein for the shaft of the wick-elevator, and a sheet-metal front plate soldered to the sides *e'*, substantially as and for the purpose set forth.

3. The foot-piece *c*, attached to the side of the top of stove C near its base, and arranged to fall into a slot or mortise in the top plate of reservoir B, on which the said top part C rests, to assemble the parts together, and also to act as a hinge or coupling when the top part of the stove is tipped over into a convenient position for lighting, substantially as described and set forth.

194,243. CIGAR-LIGHTERS. H. Iden, New York, N. Y. [Filed Mar. 1, 1877.]



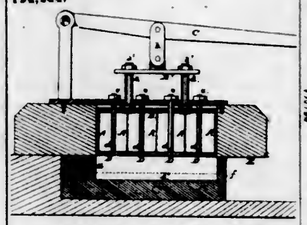
1. The combination, in a cigar-lighter, of a globe-shaped valve chamber, B, provided with a well, *a*, a valve which is ground down on its seat and provided with a small gasway, *d*, and with an acorn-shaped nipple, *b*, extending down into the well of the valve chamber, a gas-jet, C, communicating with said well, and a cap which covers the valve chamber and fits the top part of the valve, allowing the same just sufficient play for the purpose desired, said cap being connected to a flexible pipe, all constructed, combined, and operating substantially as shown and described.

2. The combination, in a cigar-lighter, of a valve chamber, B, gas-jet C, valve D, and flexible pipe F, with a cup, *g*, and a gas-supply pipe, *f*, extending up into the cup, closed at its top and provided with under-cut recesses *h h* in its sides, substantially as and for the purpose set forth.

194,244. MACHINERY FOR CUTTING AND PRESSING SUGAR INTO CUBES. W. Jsaper, San Francisco, Cal., assignor of one-half his right to S. Boushey, same place. [Filed Mar. 8, 1877.]

Brief.—The sugar, placed in a proper frame, is cut into cubes by a series of reciprocating knives intersecting at right angles. A series of pressers occupying the spaces between the knives serve to clean the knives upon their withdrawal from the sugar mass. The presser-rods and the rods of the knife-plate are adjustable in length.

194,244.



1. A machine for cutting and pressing sugar into cubes, consisting of a frame or bed, E, a series of cutters formed by cutter-blades A A crossing and intersecting each other at right angles, and reciprocated by suitable mechanism, and a set of stationary pressers, D D, held within the spaces formed on and by the cutters, constructed, arranged, and operating together substantially as described, for the purpose set forth.

2. The construction and arrangement, upon a cutter-plate, B, having a reciprocating motion imparted to it, of a set of cutters, A A, crossing and intersecting each other at right angles, and inclosing a series of rectangular spaces, within which are placed and held a set of stationary blocks or pressers, D D, the said cutters and cutter-plate and the said pressers being adjustable in a vertical direction within the machine or mechanism with which they are combined, substantially as and for the purposes described and shown.

3. A mold for holding sugar to be submitted to the action of a cutting and pressing machine, composed of a tray, F, rims *f*, and removable frame G, arranged and combined together substantially as and for the purpose described and shown.

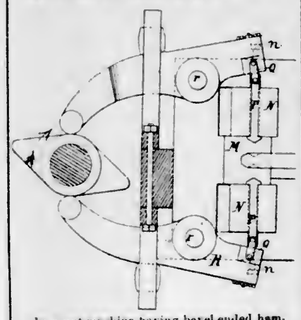
194,245. SIZING AND DRESSING COTTON. F. P. Jenkins, Boston, Mass. [Filed May 4, 1877.]

1. The herein-described sizing compound, consisting of bittern-water and starch, in or about the proportions as herein set forth.

2. The herein-described process for sizing and dressing cotton and other fabrics by impregnating it with a mixture of bittern-water and starch, or its equivalent, in or about the proportions as herein set forth.

194,246. NUT-MACHINES. Jas. Johnston, Paterson, N. J. [Filed June 18, 1877.]

Brief.—In front and to one side of the die-box are situated a pair of bevel-ended punches, which compress the edges of the bar, forming V shaped depressions, after which the blank is cut off by the advance of the punch, and carried into the die-box and finished.



In a nut-machine having bevel-ended hammers or swages P and suitable operating means, in combination with a close die, M, and punches E J and their connections, the adjustable guiding means N and confining means S, adapted to allow the line of action of the indenting swages to be readily changed, as herein specified.

194,247. PROCESSES OF TREATING TOBACCO-LEAVES. J. Kimmel and J. Schmidgruber, Boston, Mass. Filed Apr. 4, 1877.]

The process of treating tobacco-leaves with a mixture of logwood, cochineal, and wine or cider, prepared and applied substantially as hereinbefore set forth.

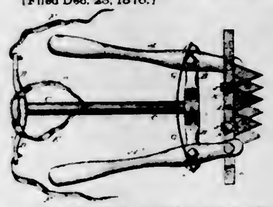
194,248. TRACE-BUCKLES. R. M. Kinne, Cuba, N. Y. [Filed Dec. 13, 1876.]



1. A buckle-frame having a tongue upon the lower side of the front cross-bar, and provided with lugs upon the side bars, forming bearings, in combination with a rectangular clamping-bail having a pivot or fulcrum upon each side, substantially as and for the purpose described.

2. In a trace-buckle, a rectangular clamping-bail, provided with pivots or fulcra, in combination with a frame having lugs, forming stop-bearings for said pivots, substantially as described.

194,249. HEDGE-TRIMMERS. R. H. Knettle, Lone Elm, and C. Force, Bunceton, Mo. [Filed Dec. 23, 1876.]



1. The levers A A', pivoted to the cross-bar B, in combination with the swivel-rod C, substantially as and for the purpose set forth.

2. The cross-bar B and swivel-rod C, in combination with the bar D, substantially as herein shown.

3. The swivel-rod C, provided with the neck strap or yoke E, in combination with the cross-bar B, bar D, and straps F F, substantially as and for the purpose specified.

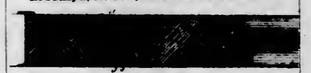
4. The cross-bar B, pivoted levers A A', and the fender G, substantially as and for the purpose set forth.

5. The cross-bar B, levers A A', in combination with the fender G, and pivoted rod C, as and for the purpose set forth.

6. The combination of the cutter-bars and clamps J with the stops L, substantially as and for the purpose herein specified.

7. The bar D, swivel-rod C, cross-bar B, pivoted levers A A', and fender G, in combination with the cutter-bars, stops L, and clamps J, substantially as and for the purpose set forth.

194,250. BUILDING-BLOCKS. S. Krackowizer, Hoboken, N. J., and P. Schulze, Brooklyn, N. Y. [Filed June 14, 1877.]



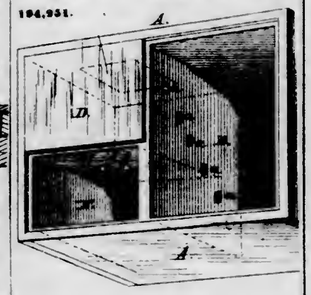
A building-block the top and bottom sides or surfaces of which are flat, while its four sides *c d e f* are ogee-shaped, substantially as and for the purpose herein shown and described.

194,251. REFRIGERATORS. J. A. Kunkel, Jersey City, N. J. [Filed July 18, 1877.]

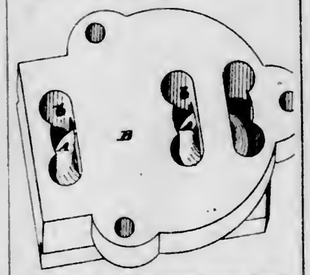
1. The combination of the casing A, the perforated vertical and horizontal partitions B and C, forming the chambers D, E, and F, with the sliding drawers having their sides perforated to coincide with the perforations in the vertical partitions, substantially as and for the purpose described.

2. The combination, with the casing A and vertical partition B, having a series of perforations, *a*, of the sliding drawers, having in their sides a series of perforations provided with elastic packing *d*, and coinciding with the perforations in the vertical partition only when the drawer is closed, substantially as described, and for the purpose set forth.

194,251.



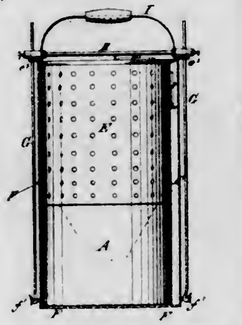
194,252. PUMP-VALVES. E. Lannay, Lima, Ohio. [Filed June 7, 1877.]



The detachable pump-valve casing B and the permanently-inclosed disks A A, confined and guided by the chambers *b b* of the casing, as and for the purpose set forth.

194,253. COMBINED FISH TRAP AND BUCKET. James M. Lassiter, Manchester, Tenn., assignor to Robt. L. Lassiter, same place. [Filed Mar. 24, 1877.]

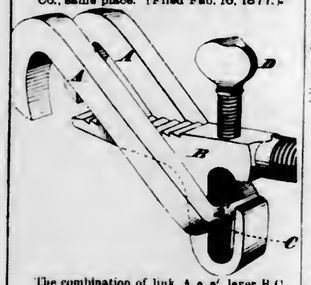
Brief.—For capturing minnows or other bait-fish, and keeping them alive during transportation.



1. The combination of the glass vessel A, provided with the funnel-shaped top *a'*, the shaft B, the bait-hooks C, and the cord D, the perforated vessel E, provided with the slides *e' e''* and the eyes *e'''*, the rods G H, and the bail I, with each other, substantially as herein shown and described.

2. The combination of the glass vessel A, provided with the funnel-shaped top *a'*, the shaft B, the bait-hooks C, and the cord D, the perforated vessel E, provided with the slides *e' e''* and the eyes *e'''*, the bracket F, provided with the eyes *f'*, the rods G H, and the bail I, with each other, substantially as herein shown and described.

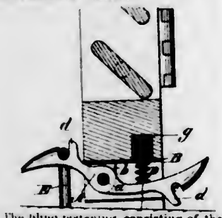
194,254. PIPE-TONGS. W. Lomas, Cincinnati, Ohio, assignor to William Lomas & Co., same place. [Filed Feb. 16, 1877.]



The combination of link A a a', lever B C, and adjusting-screw D, substantially as and for the purpose specified.

194,253. SHUTTER AND BLIND FASTENERS. G. Marshman, Lynn, Mass. [Filed June 28, 1877.]

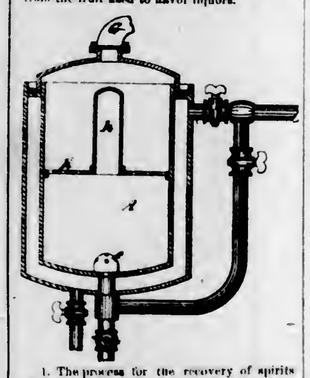
Brief.—A suitable base-plate is cast with an upwardly-projecting socket, which socket enters the shutter or blind, and partially chambers a long elastic spring, dispensing with rivets or other fastening devices, there being also the ordinary two-way catch, against the upper surface of which the spring impinges, to secure automatic action.



The blind-fastening consisting of the plate H, provided with the upwardly-extending socket *g* and the downwardly-extending studs on its face, the double-ended pivoted hook A, and the spring D, seated in the socket and bearing on the hook, as shown.

194,256. RECOVERY OF SPIRITS FROM SPENT CHARCOAL OR RECTIFYING-FILTERS. E. A. McKeever, Philadelphia, Pa. [Filed May 5, 1877.]

Brief.—The high proof spirit remaining in the charcoal is driven off in heating and drying, and the heavier portions by the live steam. The process may be used to extract the spirit from the fruit used to flavor liquors.

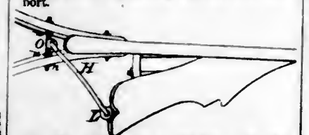


1. The process for the recovery of spirits from spent charcoal or other material, consisting in heating and drying the absorbent, and then subjecting it to the action of live steam, substantially as described.

2. The plate *h'* and tube A, in combination with the vessel A, as described.

194,257. PLOWS. J. Nourse, Boston, Mass. [Filed Aug. 4, 1876.]

Brief.—The eye upon the mold-board; the curved hook; the laterally-movable hook-support.



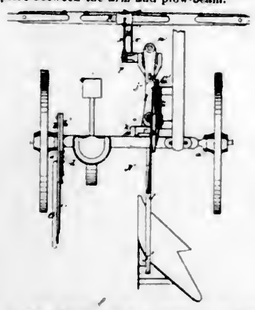
1. The combination of the loop L or seat for receiving the hook H with the swallow-tail or rear central portion of a swivel-plow mold-board, substantially as described, and for the purpose set forth.

2. The combination of the horizontally-adjustable hook-support O with the cross-brace rod between the two handles of the plow, substantially as described, and for the purpose set forth.

3. The combination of the curved body of the hook H with the eye and hook at either end, by means of which the hook can be lengthened or shortened, as described, and for the purpose set forth.

194,258. SULKY-PLOWS. William T. Orr, Kewanee, Ill., assignor to Jos. Orr, same place. [Filed Dec. 2, 1876.]

Brief.—An arm with universal joint projects forward from the axle to receive the front end of the plow-beam. It also carries the equalizing attachment for a three-horse evener, both of which are swiveled to the arm. A curved bar from the rear end of beam, with notches formed to engage the lever only when moved forward, lifts the rear as the lever depresses the front of the plow-beam. Tubular joint-piece between the arm and plow-beam.



1. The vibrating arm 1, journaled in front of the axle-tree, and having both vertical and horizontal movement, adapted for use substantially as specified.

2. In combination with the vertically-vibrating beam having a curved serrated rod, N, and the vertically-vibrating arm 1, to the end of which the said beam is pivoted, the connecting-rod *j*, vibrating knee-crank G', lever H, having staple *o*, a pawl, *f'*, and a mechanism for actuating the same, substantially as specified.

3. The arm 1, having universal movement relative to the axle-tree, in combination with a vertically and horizontally vibrating beam and a rod for sustaining its front end, as set forth.

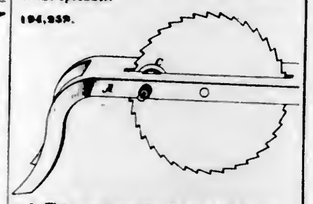
4. The rod 1, pivoted to the axle, and having a vertical eye, *l*, in its free end, in combination with the L-shaped bolt *m*, having tubular arm *n* and an attaching-nut, *n*, the forked front end of a plow-beam, and a bolt passing through eyes in the fork, registering with the bore of bolt *m*, substantially as specified.

5. The equalizer, consisting of the walking-beam P, having arms *w w'* of unequal lengths, the rods *x x'*, connecting the double-tree and single-tree, respectively, with the said arms, and the regulating-rod *y*, connecting rods *x x'*, combined and arranged substantially as specified.

194,259. SPREADERS FOR WOOD-SAWING MACHINES. D. K. Overhiser, Williamsport, Pa. [Filed Mar. 2, 1877.]

Brief.—The wood, after it is cut by a suitable saw, is spread, and friction by contact with the saw of the cut portions prevented by means of a circular flanged metal plate, having an offset of sufficient width to support the lumber and act as a roller, and provided with a circular screw-threaded opening through its center, for the reception of a threaded steadying-pin, and having upon the outer end of its journal a collar for preventing lateral motion of the spreader.

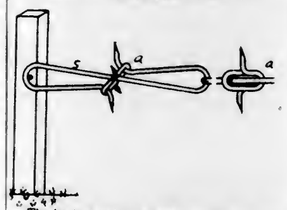
194,259.



1. The rotary spreader C, arranged and operating substantially as described.

2. A rotary spreader, in combination with the steadying-pin M, arranged and operating substantially as described.

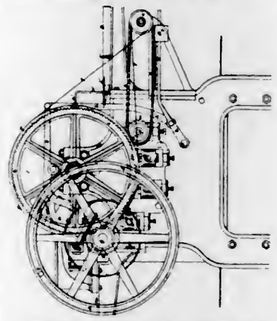
194,260. BARBED FENCES. C. P. Parker, Joliet, Ill. [Filed Apr. 10, 1877.]



The barbed link *s*, in combination with the rings *a*, connecting the extremities of the link *s*, in the manner and for the purposes set forth.

194,261. BRONZING-MACHINES. L. Poirier, Paris, France. [Filed Feb. 14, 1877; patented in France, Oct. 17, 1874, for fifteen years.]

Brief.—Relates, essentially, to the special construction of parts.



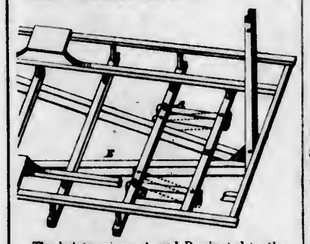
1. The combination, with the movable trough *r*, of the levers 6, cam-shaft 4 5, lever 3, counterpoise lever 2, cam *y*, the bronzing rollers mounted in said trough, and the cylinder or drum, as shown and described, for applying the bronze-powder to the sheet intermittently, as specified.

2. The combination of conic pinions 28 29, shaft 31, having cam 32, button 33, attached to the drum having a toothless space, 34, gear *i*, and pinion *k*, all as shown and described, for stopping the drum automatically, as set forth.

3. The filter-table and drum lever *z*, arm *a*, and cam *y*, the parts being so arranged that the table is lowered when the sheet has been caught by the tong *b*, all combined as shown and described.

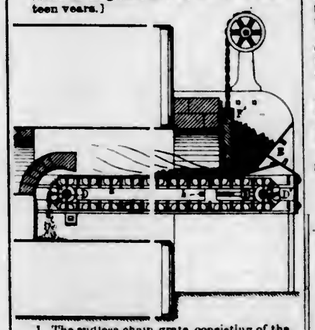
4. The combination, with the cylinders 10 11, of the longitudinally-reciprocating brushes 13 and grooved cam 16, as shown and described, for the purpose specified.

194,262. HAY-RACKS. J. Porter, Convis, Mich. [Filed Mar. 28, 1877.]



The bolster-pieces A and B, pivoted to the cross-beam C, and capable of being adjusted and bolted either at a right angle with or in an inclined position to the cross-beam C, as and for the purposes described.

194,263. FIRE-GRATES FOR STEAM-BOILERS. S. Regan, Bow, England, assignor of one-half his right to T. Gemmel, Baltimore, Md. [Filed Apr. 27, 1877; patented in England, Dec. 8, 1874, for fourteen years.]



1. The endless chain grate consisting of the series of grate-bars *a*, hinged together at the several points *b*, the longitudinal grate-supports D'', and the shafts D D', having prongs *i*, engaging the chains, as shown, combined in a boiler with a mechanism imparting movement to the chain-grates, substantially as specified.

2. Combined in a boiler, an endless-chain grate consisting of grate-bars, hinged together as specified, a front inclined fuel receptacle or feeder, and a vertically-adjustable feeding door, as described.

3. The endless-chain grate of the boiler, combined with the longitudinal supports D'' and the screws *k*, working in threaded projections thereon, and adjusting the shaft D' of the said endless-chain grate, substantially as described.

4. The endless grate consisting of a series of grate-bars linked together, substantially in the manner specified, combined in a boiler with a moving mechanism, consisting of the worm-wheels *c*, *d*, *f*, and *h*, and shafts D', *e*, and *g*, the latter carrying the driving-pulley, as shown and described.

5. The grate-bars *a*, having projections at either side thereof, and tongued and grooved joints for attachment to each other, as specified.

6. The combination of a series of grate-bars, *a*, having interjacent projections and tongued and grooved joints, with pins for making the said series of bars endless when attached, as described, and for the purpose specified.

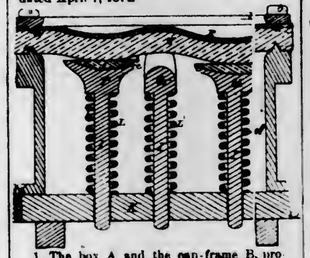
194,264. PROCESSES OF RESTORING CRAPE, LACES, &c. Eva B. Reid, New York, N. Y. [Filed July 18, 1877.]

Brief.—British ink-powder is dissolved in vinegar and water, and shellac is dissolved in alcohol. The solutions are then mixed to form the bath.

The within-described process of renovating and restoring crape, lace, and other analogous fabrics—that is to say, immersing or saturating the same in a solution of alcohol, shellac, vinegar and water, and dye-stuff, prepared in the manner hereinbefore set forth, then wringing out and drying the fabric, and finally subjecting it to the action of steam, substantially as and for the purpose set forth.

194,265. SHOE-PRESS BEDS. J. W. Rogers, Salem, Mass., assignor to himself and F. Winslow, same place. [Filed Apr. 24, 1877.]

Brief.—Improvement on Patent No. 149,364, dated April 7, 1874.

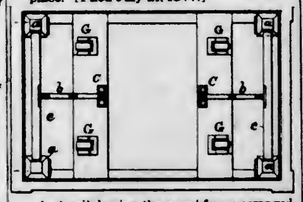


1. The box A and the cap-frame B, provided with teeth on their next adjacent surfaces, in combination or for use with the elastic plate C, arranged between the said box and frame, as set forth.

2. The combination of the auxiliary removable plate D and its leather re-enforce E with the elastic plate C of a shoe-sole bed-press, substantially as described.

3. The combination of the two cushioned slides F H and the intermediate concave slide G and their supporting-springs with the box A and its elastic plate C, all being to operate as described.

194,266. CHILDREN'S FOLDING CRIBS. H. W. Rope, Washington, D. C., assignor of one-half of his right to H. O. Towles, same place. [Filed July 21, 1877.]

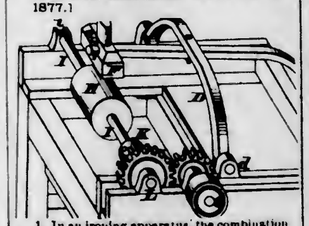


1. A crib having the guard-frame arranged to slide over and inclose the body of the crib, substantially as and for the purpose set forth.

2. The combination of the sliding guard-frame A, body B, folding legs *e*, lock-hinges *b*, and casters G, substantially as and for the purposes set forth.

3. The guard-frame A, provided with grooved plates E, in combination with the body B, having tongued plates D and spring-catches F F, substantially as and for the purposes set forth.

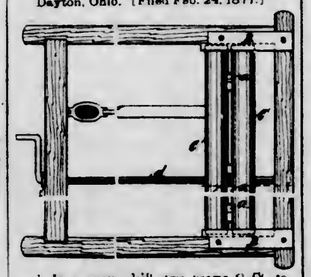
194,267. IRONING APPARATUS. F. M. Sanderson, Cincinnati, Ohio, assignor to S. N. Sanderson, same place. [Filed Apr. 14, 1877.]



1. In an ironing apparatus, the combination of the removable feed-drum H, shaft I, formed with neck *i* and cut *i'*, and a driving-shaft, L, provided with socket-head K and pin *j*, all constructed and arranged substantially as set forth.

2. The solid removable iron F, having stem *f* and the key-piece *e*, in combination with the drum H, having shaft I *i i'*, and shaft L, having socket-head K and pin *j*, as and for the purpose set forth.

194,268. GRAIN-DRILLS. Chas. F. Schols, Dayton, Ohio. [Filed Feb. 24, 1877.]



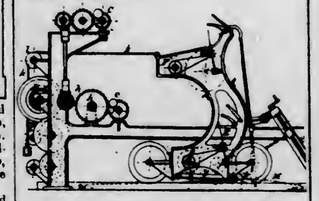
1. In a grain-drill, two beams, C C', to which the drag-bars are attached, hinged directly together, as shown, in combination with and operated by the crank-rod *d* and arm *b*, as and for the purpose described.

2. The bearing-boxes B, with their rear ends rounded, in combination with the beams A and shifting-beams C C', as and for the purpose described.

3. In a grain-drill, the combination of the following instrumentalities—viz., two hinged beams, C C', to which the drag-bars are attached, two bearing-boxes, B, and a crank-rod, *d*, connected by an arm, *b*, to a central hinge, *a*, all connected and operated as and for the purpose specified.

194,269. SPINNING-MULES. Heinrich M. Schon, Crimmitschau, Saxony, Germany. [Filed June 19, 1877.]

Brief.—The carriage supports two sets of cop-spindles, one set above the other, an upper and lower set of faller-wires, operated by a single faller-bar, an upper and lower set of cord-drums, and mechanism for operating the whole simultaneously from a single head-stock, which also supports a double set of drawing-rollers. A single quadrant or winding-on motion operates the two sets of spindles. A network of cords stretched from the carriage to a point beneath the upper set of drawing-rolls serves to catch broken yarns falling from the top tier of spindles.



1. The combination, in a spinning mule, of a single carriage having two or more sets of cop-spindles arranged in tiers, or one set above the other, a head-stock having two sets of drawing-rollers, a single quadrant or winding-on motion, and mechanism, substantially as described, for operating the carriage, the rolls, and the quadrant, for the purpose herein set forth.

2. In a spinning mule, an upper and lower set of faller-wires, connected together and combined with a single faller-bar, a mule-carriage, and devices, substantially as described, for operating both sets of faller-wires when the carriage runs in, substantially as herein set forth.

3. The combination of an upper and lower set of cord-drums, an upper and lower set of cop-spindles, an upper and lower set of faller-wires, with a mule-carriage and a single quadrant or winding-on motion, as herein set forth.

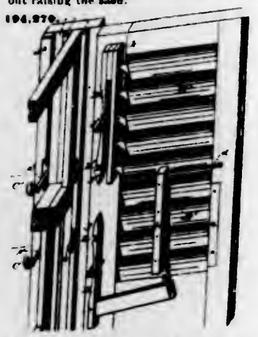
4. The combination of the cords *k*, sheaves *l*, and weights *m* with a mule-carriage and head-stock, as and for the purpose set forth.

194,270. BLIND-SLAT OPERATORS. S. M. Sherman, Fort Dodge, Iowa. [Filed June 20, 1877.]

Brief.—Two crank-arms extending into the room are combined with sliding spring-rods and suitable means of connecting the same with the pivoted slats of the window-blind, the construction permitting the upper and lower sections of slats to be operated independently

of each other from inside the room, and without raising the sash.

194,270.

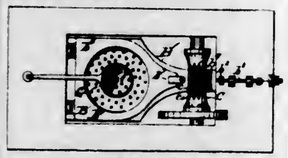


1. In a blind-slat operator, the combination of the cranks C C' with the sliding spring-rods D D', substantially as described and shown.

2. In a blind-slat operator, the combination, with a blind carrying sliding spring-rods and means for connecting such rods, with the pivoted slats of the cranks C C', pivoted in the window-frame, and adapted to engage with the rods when the blind is closed, substantially as described and shown.

194,271. SHOT-MACHINES. Elisha Shiver, Washington, D. C., assignor to J. Lockey, same place. [Filed July 11, 1877.]

Brief.—Feeds a flux, composed of sal-ammoniac, seven parts, and rosin, one part, from an agitated sieve onto a suspended and doubly-agitated card sieve.



1. In a machine for manufacturing shot, the combination, with a suitable driving mechanism, of the fluted roller C, sieve-frame B', provided with transverse grooves b^2 b^2, sieve B, and spiral springs b and b^1, all constructed and arranged substantially as shown and described, for the purpose specified.

2. In a machine for manufacturing shot, the combination, with a suitable driving mechanism, of the fluted roller C, sieve-frame B', provided with transverse grooves b^2 b^2, sieve B, spiral springs b b^1, and vibrating flux-distributer G, all constructed and arranged substantially as shown and described, for the purpose specified.

3. In a machine for manufacturing shot, the combination, with the roller C, provided with longitudinal projection c c, sieve-frame B', provided with transverse grooves b^2 b^2, and spiral springs b, of the spiral spring b^1, hook b^3, and tapered piece b^4, all constructed and arranged substantially as shown and described, for the purpose specified.

4. In combination with the sieve-frame, means for giving the frame a vibratory movement, and means for determining the extent of the vibration, substantially as described.

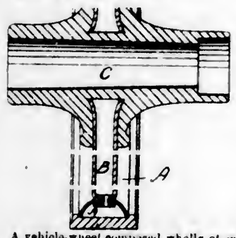
5. The combination of the sieve to throw down drops of molten lead and a flux-distributer adapted to deliver continuously the flux upon the sieve.

6. In combination with the sieve, mechanism for giving the same a vertical and horizontal vibration, substantially as described.

7. In the manufacture of shot, the described method of dividing lead into globules, consisting, essentially, in pouring the molten lead on a perforated suspended card, and imparting to the suspended card a double vibration, substantially as described.

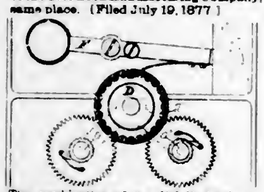
8. In the manufacture of shot, the described method of dividing lead into globules, consisting, essentially, first, in supplying a perforated suspended card with sal ammoniac and rosin; second, in pouring upon the suspended card the molten lead; and, third, in imparting to the same a double vibration, substantially as described.

194,272. WAGON-WHEELS. C. S. Tegnander, Gottenburg, Sweden, assignor of one-third of his right to A. L. Johnson, Boston, Mass. [Filed July 6, 1877.]



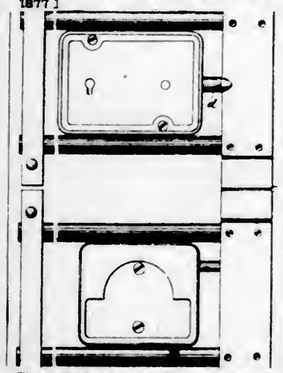
A vehicle-wheel composed wholly of metal, and having the spokes B inserted through openings in the concave felly A, and clinched in place at their outer ends, the hub C, cast upon the inner ends of the spokes, and the tire D applied to the felly, the whole being combined substantially as and for the purpose described.

194,273. TIME-LOCKS. H. R. Towne and E. Stockwell, Stamford, Conn., assignors to the Yale Lock Manufacturing Company, same place. [Filed July 19, 1877.]



The combination of the dial D, having a series of adjustable pins, the lever F, provided with the spring, and the dog-block J, substantially as described.

194,274. BOLTING MECHANISMS FOR SAFE AND VAULT DOORS. H. R. Towne, Stamford, Conn., assignor to the Yale Lock Manufacturing Company. [Filed July 19, 1877.]



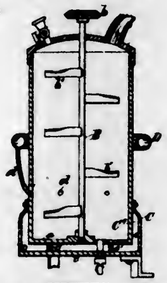
The combination, on a safe or vault door, of two independent sets of bolt-work, constructed and arranged to be dogged respectively by separate locks, (one a time-lock and the other a non-time lock, if preferred,) and to be operated by a single spindle, substantially as described.

194,275. PROCESSES AND APPARATUS FOR CLEANSING AND PURIFYING OIL, GREASE, &c. Reuben D. Turner, Philadelphia, Pa. [Filed Dec. 22, 1876.]

1. The process herein described for refining, purifying, and deodorizing oil, grease, or fatty matter by mingling the same with water, and violently agitating the liquid mass in a close vessel, a current or currents of air being forced into and through the liquids at the same time, and heat being applied during the first part of the operation, substantially as described.

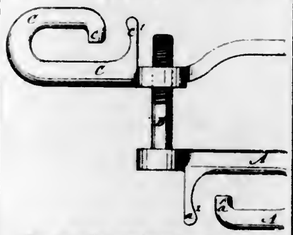
2. The vessel A, having a beater-shaft, B, and steam or hot-water chamber C', in combination with the air-pipe D, encircling the vessel A, and provided with branches d, substantially as shown and described.

194,275



194,276. REVERSIBLE PLOW-HOOKS. J. A. Vann, Belvidere, N. C. [Filed June 26, 1877.]

Brief.—Clevis with hook above and below the beam, and reversible.



The reversible draft-hook for plows, consisting of the bottom hook A, having the screw-shank B and stops a^1 a^2, and the top hook C, having the stops c^1 c^2, and a screw-opening, substantially as herein shown and described.

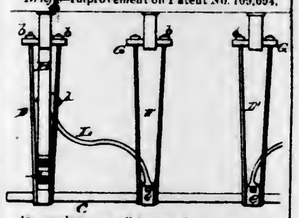
194,277. BREASTPIN-TONGUES. L. Van Doran, Washington, D. C. [Filed Dec. 21, 1876.]



The combination of the socket C, provided with enlargement b, the notched pin B, and the connecting or fastening pin D, all constructed substantially as and for the purposes herein set forth.

194,278. AWNING-FRAMES. Isabella Werner, Charleston, S. C., administratrix of C. Werner, deceased. [Filed Apr. 26, 1877.]

Brief.—Improvement on Patent No. 109,694.



In awnings, scroll-braces L L, provided with eyes e and pins e', in combination with the side arms B, rod C, and suspension-rods D D', substantially as and for the purpose set forth.

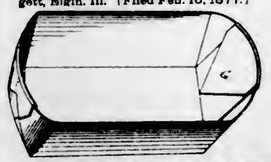
194,279. VALVE-CUPS FOR OIL-WELLS. A. D. Westbrook, Lambertville, N. J. [Filed May 31, 1877.]

Brief.—Gutta-percha is used instead of india-rubber or leather, it being found that it is not injuriously affected by contact with petroleum products naturally existing in wells.



As a new article of manufacture, the plunger for oil-wells, consisting of a series of gutta-percha cup-shaped disks secured around the hollow plunger, as and for the purposes set forth.

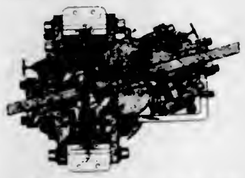
194,280. GROCERS' DISHES. H. M. Wilcox, R. J. Percy, and J. F. Daggett, Chicago, assignors, by mesne assignments, to L. K. Woodbridge, same place, and C. V. Daggett, Elgin, Ill. [Filed Feb. 16, 1877.]



1. A grocer's dish made from a single piece of wood veneer, its ends scored across and slit down to the score, the side flaps thus formed being laid over the central portion and fastened, the parts being then covered by a strip of paper or equivalent material, G, attached by glue or its equivalent both within and without the dish, and extending beyond the edges of the central flap, as and for the purpose set forth.

2. In a grocer's dish having the end flaps D D C turned up, lapped, and fastened, the paper strip G, secured by glue or its equivalent both within and without the dish, and extending beyond the sides of the center flap C, as and for the purpose set forth.

194,281. ROTARY-DISK STEAM-ENGINES. G. R. Winkler, Williamsport, Pa., assignor of part of his right to J. W. Hays, A. Niemeyer, H. Hinckley, and T. Hill, same place. [Filed Oct. 26, 1876.]



1. The combination of two rotary engines, connected together diagonally, with a driving-shaft common to both engines, substantially as described.

2. In combination with two rotary engines, connected together and driven by a shaft common to both, the reheater C, substantially as described.

3. In combination with two rotary engines, connected together and driven by the same shaft, the reheater C, the live-steam pipes c' k^{11}, and the exhaust-pipes P P, and the pipes K K', substantially as described.

4. In a rotary steam-engine, the combination, with the piston-wings H, of the removable side packing h^3 h^{11} h^{12}, constructed and arranged substantially as described and shown.

5. In a rotary steam-engine, the combination, with the piston-wings O, of the removable side packing P, constructed and arranged substantially as described and shown.

6. In a rotary steam-engine, the combination, with the disk, of the divided edge packing G, having an elastic filling, constructed and arranged substantially as described and shown.

7. In combination with the disk E', the rods Q and springs p of the wings O and rings R, substantially as described.

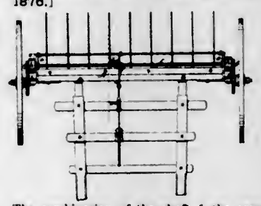
8. The cylindrical packing-rings R R', with fingers r and rectangular notches r^2, seats r^3, and grooves r^4, substantially as described.

9. In combination with the packing-rings R R', constructed substantially as described, the packing S, substantially as and for the purposes set forth.

10. In a rotary engine, the combination, with the head F, of the circular recess e, the gear e^2, the plate e^3, and the pinion e^4, substantially as described.

11. In combination with the head, the divided rings f f' and springs f^3, substantially as described.

194,282. HORSE HAY-RAKES. J. E. Wisner, Friendship, N. Y. [Filed Aug. 28, 1876.]



The combination of the shaft f, the arms which support the tooth board, the pinions g g, the pawls and ratchets, and the pinions i i, and lever for engaging the gear with the ratchet-wheel, substantially as described.

194,283. EVAPORATING-PANS. H. Wood, Montreal, Quebec, Canada. [Filed June 5, 1877.]

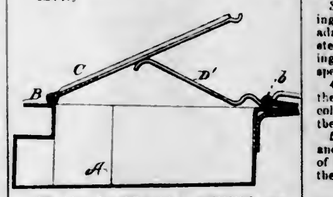
Brief.—Within and near the bottom of the vessel are arranged one or more coils of steam-pipes, from which project upward stand-pipes with closed end. Around each one of these stand-pipes is placed a jacket or shield, open at top and bottom, and within the stand-pipe is set a small air-pipe, open at both ends. The material to be treated enters freely into the space between the stand-pipes and the shield, affording circulation to the whole mass, keeping it at an even temperature and insuring simultaneous crystallization.



1. In an evaporating pan or vessel, the combination of the steam-pipes with shields or jackets open at both ends, substantially as and for the purpose set forth.

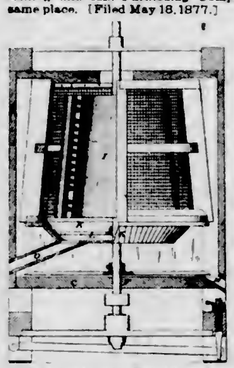
2. In an evaporating vessel, the combination, with the steam-pipes, of internal tubes G, open at top and bottom, substantially as herein set forth.

194,284. SAD-IRON HEATERS. J. B. Woolsey, Bloomfield, Iowa. [Filed Apr. 28, 1877.]



The hinged bail D, with arms D' D', in combination with the hinged door C and heater A B, all constructed substantially as and for the purposes herein set forth.

194,285. BRAN-DUSTERS. Wm. Yeakle, Hamilton, Ohio, assignor to Hamilton Milling and Mill Furnishing Company, same place. [Filed May 18, 1877.]

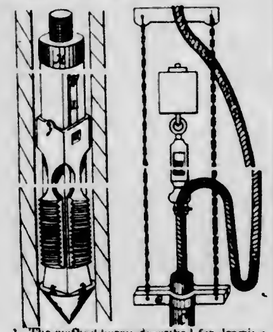


1. In a downwardly-flaring bran-duster, the bowl-shaped bran-chamber K, whose outlet O is at or about midway between its center and circumference, substantially as set forth.

2. The bran-chamber K of the represented bowl, of inverted-frustum shape, whose bran-spout O is at or about the same radial distance as the periphery of the beater-top, as and for the objects set forth.

REISSUES.

7,841. CASING-SPEARS FOR USE IN OIL-WELLS. V. Gretter, Richland Township, (St. Petersburg P. O.,) Clarion County, Pa. Patent No. 143,141, dated Sept. 23, 1873; Reissue No. 5,956, dated July 7, 1874. [Filed July 16, 1877.]



1. The method herein described for drawing the casing of oil and similar wells, which consists in jarring within and near the bottom of the casing, while the weight of the casing is supported from above, substantially as specified.

2. A casing-spear having expansible gripping-slides or wickers, connected and operating together, and projections or similar devices for limiting the downward movement of the wickers, substantially as specified.

3. A casing-spear having expansible gripping-slides or wickers, and a device or devices adapted to be operated from or by the spear-stem, substantially as described, for supporting the wickers during the withdrawal of the spear.

4. The combination, in a casing-spear, of the square stem, the wickers connected by a collar, and a spring or springs for locking up the wickers, substantially as specified.

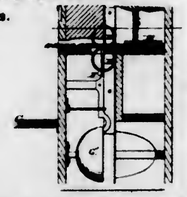
5. The combination, with the casing-spear and jar mechanism operating within the casing, of the clamp for supporting the casing while the jarring is done, substantially as specified.

7,849. TICKET-BOXES. E. Hambuljer, Detroit, Mich., assignor to E. L. Hutchinson, Auburn, N. Y. Patent No. 48,274, dated June 20, 1865. [Filed June 11, 1877.]

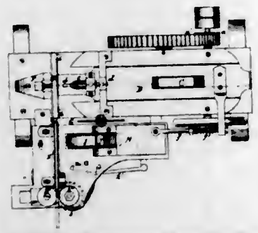
1. The combination, with a machine for cutting pieces or checks from tickets, of a bell arranged to be rung or sounded each time and at the same time as the cutters are actuated, for the purposes herein set forth.

2. The combination, in a machine for cutting checks from tickets, of a bell and a box or chamber to receive the cuttings, for the purposes herein set forth.

7,842.



7,843. MACHINE FOR CUTTING BUNGS. W. L. Standish, Pittsburg, Pa. Patent No. 67,079, dated July 23, 1867. [Filed July 26, 1874.]



1. The hollow reciprocating cutter *c*, tapered upon the inside, and having projecting lips or chisel-points, substantially as and for the purpose specified.

2. The die or plunger *e*, in combination with the hollow cutter *c*, substantially as and for the purpose specified.

3. The guide-box or channel E, in combination with the cutter *c* and the die or plunger *e*, substantially as and for the purpose specified.

4. The hollow taper steel-cutter *c*, the guide-pin *d*, the guide-box E, and the die *e*, combined and operating substantially as and for the purposes herein described.

5. The combination of the saw G and the sliding frame H and D, substantially as and for the purpose herein specified.

6. The ratchet-wheel *k* and pawl k^1, in combination with the feed rolls k^2 k^3 and the slide frame H, substantially as and for the purpose specified.

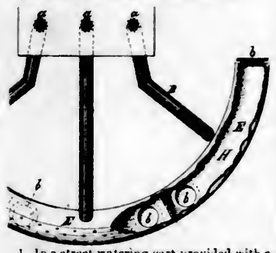
7. The combination of the hollow cutter *c*, the guide-pin *d*, the guide box E, the die *e*, the saw G, the ratchet *k*, the feed rolls k^2 k^3, and the slides D and H, substantially as described, for cutting blocks and pointing or tapering the ends of bungs, plugs, or taps, in the manner specified.

7,844. REVERSIBLE LATCHES. William E. Sparks, New Haven, Conn., assignor, by mesne assignments, to Mallory, Wheeler & Co. Patent No. 96,049, dated Oct. 19, 1869. [Filed July 27, 1877.]



The combination, in a knob-latch, of the following instrumentalities—to wit, first, a yoke with latch bolt swiveled thereto; second, a hub supported in the case independent of other parts of the mechanism, and constructed with a longitudinal spindle-seat, and with an opening transversely into said spindle-seat; third, a follower constructed to engage the said yoke and hub, and with a portion thereof in such relative position to the opening in the spindle-seat that when the spindle is in its seat it will hold the follower, and when the spindle is removed it will allow the follower to be drawn outward with, and for the purpose of turning the latch bolt, substantially as described.

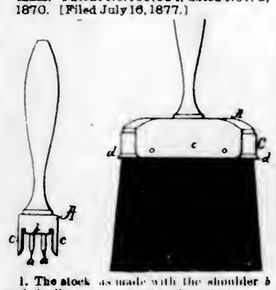
7,845. STREET-SPRINKLERS. John A. Bancroft, Worcester, Mass., assignor to L. F. Bancroft, same place, and A. B. Yetter, New York city. Patent No. 101,700, dated Apr. 12, 1870. [Filed July 11, 1877.]



1. In a street-watering cart provided with a water-tank, a sprinkler divided into two or more separate compartments, each having an independent connection with the tank by means of a pipe provided with a suitable valve, for the purpose of enabling the driver of the cart to sprinkle paths of variable widths, substantially as described.

2. The sprinkler E, provided with the transverse partitions *d* and the stop plugs or caps *b*, as and for the purpose set forth.

7,846. BRUSHES. J. L. Whiting, Boston, Mass. Patent No. 109,084, dated Nov. 8, 1870. [Filed July 16, 1877.]



1. The stock as made with the shoulder *b* and the lips *c c*, arranged as described.

2. The stock as made with the lips *c c* and one or more projections, *a*, to enter the bristles, as described.

3. The stock as made with the lips *c c*, the shoulder *b*, and one or more projections, *a*, arranged as described.

4. The brush as made with the lips *c c* and the ferrule C, arranged with the stock A and bristles B, as set forth.

5. The brush as made with the lips *c c* and one or more projections, *a*, arranged with its stock A and ferrule C, as described.

6. The stock or head A as made with one or more projections, *a a*, shoulders *b b*, and ferrule C, as set forth.

7. The brush as made with one or more projections, *a a*, shoulders *b b*, ferrule C, and bristles B, as set forth.

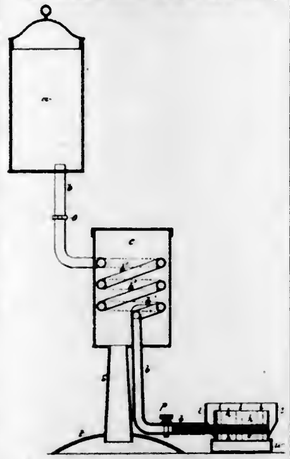
7,847. BOTTLE-STOPPERS. H. W. Putnam, Bennington, Vt., assignee, by mesne assignments, of W. Morgenstern, deceased. Patent No. 131,111, dated Sept. 3, 1872. [Filed Feb. 12, 1877.]



1. The stopper E, formed with a recess, *c*, beneath its head *d*, combined with the supporting-plate, having a hole to receive the head, substantially as set forth.

2. The stopper E and the projection upon the upper part thereof, made of elastic material, in combination with a plate, having an opening for the reception of said projection, substantially as set forth.

7,848. APPARATUS FOR BURNING HYDROCARBONS. E. F. Rogers, Chelsea, Mass., assignor, by mesne assignments, to himself and L. L. Holden. Patent No. 135,011, dated Jan 21, 1873. [Filed June 2, 1877.]

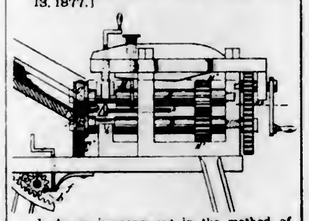


1. In a hydrocarbon-burning apparatus for heating purposes, the combination of an elevated reservoir, a generator connected therewith by means of a pipe, and adapted to contain liquid fluid under pressure, and a water-pan, located below the point of combustion, substantially as and for the purposes set forth.

2. The combination of the elevated reservoir *a*, the water-chamber *c*, containing the coiled supply-pipe *b'*, and the generator *h*, substantially as set forth.

3. The generator *h*, provided with the air-ducts *i*, in combination with the jacket *l*, having the inclined bottom *l'*, and apertures *m*, as and for the purpose specified.

7,849. MACHINE FOR RAISING OR FLANGING THE EDGES OF SHEET METAL. Henry Facha, New York, N. Y. Patent No. 44,945, dated Nov. 8, 1864. [Filed June 13, 1877.]



1. As an improvement in the method of flanging sheet-metal blanks, the method hereinbefore described—that is to say, clasping the edge of the blank between a pair of rolls and then rotating the blank by means of the rolls, and gradually elevating the main portion of the blank, which is outside of the rolls from the plane of its contact with the rolls into a plane at an angle therewith, so that a flange is formed on the blank by the action of the rolls and the upward movement of the body of the blank, substantially as set forth.

2. In combination with the flanging-rolls, the tilting platform, operating in manner as described, and for the purpose set forth.

3. The combination, with flanging-rolls, of a cogged segment attached to a tilting table, and of gearing for operating the segment, whereby the table is raised to an angle with the axes of the flanging-rolls, as and for the purpose set forth.

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COMMISSIONER'S DECISIONS.

THOMAS PHILLIPS.—*Appeal.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the application of Thomas Phillips, filed November 5, 1875, for* "IMPROVEMENT IN PAPER."—*Decided July* 31, 1877.]

A compound paper in which a layer of bleached pulp is superposed upon one of unbleached is anticipated by a paper having layers of fine and coarse pulp correspondingly arranged—the result, a paper of good finish and having the requisites of cheapness and durability, being the same in both cases.

Articles new to the trade are not necessarily patentable. Invention must be exercised in their production.

No invention was necessary to substitute bleached pulp for the light quality pulp previously employed, the characteristics of the substitute material being well known in the art, and the present use without discovery of any peculiar fitness therefor.

[*Dodge & Son*, attorneys for applicant.]

SPEAR, *Commissioner:*

The novelty of the following claim is involved in this appeal:

As a new article of manufacture, a paper composed of two layers of pulp, one bleached and the other unbleached, substantially as set forth.

The purpose of the invention is to make a paper suitable for the manufacture of paper bags and other like articles, which shall be cheap and strong, and at the same time possessed of a good finish. To this end applicant provides two vats in his paper-machine, one of which contains bleached pulp, and the other unbleached pulp from the same stock and of the same quality. A layer of bleached pulp is superposed upon one of the unbleached, and the two felted and compressed together during the progress of the continuous web through the machine. The effect is to make a paper which has a bright exterior surface from the presence of the bleached pulp, and at the same time has the requisites of cheapness and strength from the use of the unbleached.

The principal references which have been cited in rejection are the American patent of William A. Russell, No. 157,192, and the English Patent No. 834 of 1864.

It is my purpose to consider simply the English patent, for while that of Russell involves very much the same idea, the English reference resembles applicant's more closely, not only in the manner of making and the machinery devised for the purpose, but also in the product which results. The compound paper, the English patentee says, is for the purpose of making paper hangings, and consists of a lower layer of the inferior coarser pulp, and an upper layer of finer pulp deposited thereon, and united together, as pulp, into a single continuous web during their passage through the machine. There can be no doubt, and, indeed, attorney has admitted as much, that the process pursued by the English patentee and the applicant are substantially identical. He rests the merit of his case entirely on the ground that his particular article, a compound paper made up of bleached and unbleached pulp, presumably of the same stock and quality, although the claim is not so limited, is new to the trade in view of the state of the art, and is therefore patentable. This, however, does not follow. In the case of the *Collar Company* vs. *Van Dusen*, (23 Wallace, 563,) the court, in alluding to this very class of cases, makes use of the following language:

Articles of manufacture may be new in the commercial sense when they are not new in the sense of the patent law. New articles of commerce are not patentable as new manufactures unless it appears in the given case that the production of the new article involved the exercise of invention or discovery beyond what was necessary to construct the apparatus for its manufacture or production.

It remains for me to inquire whether that invention has been exercised in the present case, which entitles the applicant to a patent.

There is nothing in the English patentee's specification which would lead us to conclude that his finer and coarser pulps were made from the same stock; but it should be remembered that he selects these finer and coarser qualities of pulp for the same purpose proposed by applicant. He insures presentability on the exterior by the finer pulp, and strength and durability by the coarser pulp beneath. Now, the bleached pulp which the applicant proposes to employ is well known in its characteristics, and has been in long use in the art. There has been no discovery of any new quality in the present case which would entitle its use to consideration. It is whitened by bleaching, and more or less diminished in strength. Applied to the unbleached

pulp it gives a superior finish, and at the same time makes a stronger paper than would be the case if it were used alone. But these are the qualities set forth by the English patentee. What then has applicant done? He has substituted one well-known pulp for another, where both perform the same office in the same way and produce the same effect. It may evidence judicious selection to take the bleached pulp in preference to another light one from a different stock, but that is all. It certainly involved no invention, so that the stricture against the patentability of articles merely because they are new to the trade, referred to above, would seem to clearly apply.

My attention has been called by attorney to some irregularities of procedure committed by the Board and the Primary Examiner. There is little doubt but that attorney is technically correct, and that both these tribunals departed somewhat from the prescribed rules of practice in disposition of the case when before them. The objection, as I understand it, relates more particularly to the citation of a former patent granted to applicant for an improved paper bag as anticipating the present application. I do not deem it necessary to dwell upon this at length, as the patent has not been considered in the present decision, and the fault of the Board, which brought it irregularly to my notice, has been without damage. Moreover, the attorney is concluded from raising the objection on the present appeal, as it should properly have been made before the Board of Examiners-in-Chief on a motion for a new hearing and as reasonable ground therefor.

The decision of the Board rejecting the application is affirmed.

JAMES GREAVES.—*Appeal.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the reissue application (Division A) of James Greaves, for* "IMPROVEMENT IN CONDENSING-CYLINDERS FOR CARDING ENGINES," *filed March* 15, 1877.—*Decided June* 25, 1877.]

The substitution of polygonal shafts and corresponding sleeve-shaped revolving bearings for round shafts and splines on the cylinders of a carding-engine is a patentable one.

Although the two devices are generally well-known equivalents where the purpose is to impart a revolving and a longitudinal reciprocating motion to the body which the shaft supports, in the present adaptation a new and highly important function is performed, not contemplated nor called for by any of the previous uses.

If no new effect was produced the simple substitution would have been without patentable merit.

SPEAR, *Commissioner:*

Substantially the same claim as that now in question was refused by the Acting Commissioner, when the original application on which the patent was issued was before the Office. The decision of the Board was therefore *pro forma.*

The claim is as follows:

In a carding-engine, a condensing or rubber cylinder mounted on a polygonally-shaped horizontal shaft, in combination with a driving-gear, A, having a sleeve-shaped bearing, *b*, said shaft and cylinder being adapted to be revolved by the drive-wheel A, and at the same time to be rapidly and continuously reciprocated by suitable mechanism.

It appears that prior to this invention the shafts of the cylinders in carding-engines were uniformly made round and used with the spline to prevent turning in the pinions by which they were driven, and to permit at the same time a longitudinal reciprocating motion.

In answer to the claim the Examiner cited patents showing in other situations and other implements a square shaft rotated by a pinion through which it passes, and in which it was capable of an endwise reciprocating movement. The references showed, in fact, that the square or polygonally-shaped shaft, where a combined rotating and reciprocating motion was necessary, was old in many situations, and known as a substitute for a round shaft and spline before this applicant made the invention claimed. The claim, however, is limited to the square or polygonally-shaped shaft passing through the pinion having a corresponding shaped opening to admit it, in connection with a condensing-cylinder of a carding-engine.

The first question, then, to be considered is whether any new effect is produced by the substitution of this square or polygonal shaft for the old round shaft and spline in connection with these cylinders of a carding-engine; for if the effect here be the same as that produced by the substitution of the square for the round shaft in other situations, then the substitution is a mere substitution of one old device for another. These condensing-cylinders are represented as several feet in length, and are arranged in parallel rows, between which passes the material that is to be condensed. For the accurate, successful operation of the machine, it is necessary that the opposite cylinders should be exactly parallel; but it has been found that upon that end to which the pinion is applied for rotating the cylinder, the round shaft, with its spline, pressed upon by the pinion in its rotation, was rapidly worn, and to such an extent that after a use of comparatively few months that end of the shaft would drop and leave the upper and lower cylinders out of parallel with each other. On the other hand, the square or polygonal shaft being kept from rotation within the pinion by means of its corners instead of the spline, the wear is distributed more uniformly; and further than this, when in operation, the forcible rotation of the pinion acting upon the corners tends to hold the shaft, even when worn, in an exactly central position, so that the wear, although as great perhaps as in the round shaft and spline, becomes a matter of comparatively little importance, so long as the shaft is of sufficient size to be turned by the pinion.

I have examined the model and am satisfied that these representations are correct, and that the square or polygonal shaft substituted for the round shaft and spline, in this particular connection with the condensing-cylinders, performs a new function, not contemplated and not called for in any other position in which it appears to have been placed. The new function is a highly important and useful one, and I think, therefore, the claim should be allowed.

The *pro-forma* decision of the Board of Examiners-in-Chief is therefore reversed.

CORNWALL & BROTHERS.—*Trade-Mark.*

[*Appeal from the decision of the Examiner of Trade-Marks in the matter of the application of Cornwall & Brothers for the registration of a Trade-Mark.—Decided July* 7, 1877.]

A geographical word used as a trade-mark in a fanciful sense, and not fraudulently nor deceptively applied, may generally be registered.

There may, however, be a difference in this regard between foreign and domestic geographical words.

The word "Dublin" registered as a trade-mark for soaps, it not appearing that it was either a descriptive or deceptive term in this connection.

DOOLITTLE, *Acting Commissioner:*

The trade-mark sought to be registered consists of the word "Dublin," to be printed upon labels applied to boxes of soap.

It is a general rule that the name of a district, town, or city cannot be appropriated as the exclusive property of any one. High on Injunctions, sec. 673; Bispham Eq., 411; *Wolfe* vs. *Goulard*, 18 How's Pract. Rep., 64; *Brooklyn White Lead Co.* vs. *Masury*, 25 Barb., 416; *Newman* vs. *Alvord*, 49 Barb., 588; *Candee* vs. *Deere*, Sup. Ct., of Ill., 10 Am. Law Reg. U. S., 694; *Delaware and Hudson Canal Co.* vs. *Clark*, 13 Wallace, 311; *Glendon Iron Co.* vs. *Uhler*, 6 OFFICIAL GAZETTE, 154; *Lewis N. Green*, C. D., 8 OFFICIAL GAZETTE, 729.

Are there any circumstances which make the present application an exception to that rule?

Applicants do not make their soap in Dublin, Ireland, but in this country, and therefore contend that the term is not descriptive in any sense, but an entirely fanciful and arbitrary symbol.

In the case of Green, above cited, the Commissioner indicated the practice of the Office in regard to these geographical names. If they are descriptive of a certain place or locality where the goods or articles to which they are to be applied are produced, then they are objectionable on the same ground that all merely descriptive words are objectionable as trade-marks. It would appear that it was solely in respect to this objectionable descriptive quality that the Supreme Court refused to extend its protection to the term "Lackawanna," applied to coal obtained from the district bearing that name.

It is obvious (said the Court) that the same reasons which forbid the exclusive appropriation of generic names, or of those merely descriptive of the article manufactured, and which can be employed with truth by other manufacturers, apply with equal force to the appropriation of geographical names designating districts of country. Their nature is such that they cannot point to the origin (personal origin) or ownership of the articles of trade to which they may be applied. They point only at the place of production, not to the producer, and could they be appropriated exclusively, the appropriation would result in mischievous monopolies. Could such phrases as "Pennsylvania wheat," "Kentucky hemp," "Virginia tobacco," or "Sea Island cotton" be protected as trade-marks—could any one prevent all others from using them, or from selling articles produced in the districts they describe under those appellations, it would greatly embarrass trade and secure exclusive rights to individuals in that which is the common right of many. It can be permitted only when the reasons that lie at the foundation of the protection given to trade-marks are entirely overlooked. * * * * * Nothing is more common than that a manufacturer sends his products to market, designating them by the name of the place where they were made. But we think no case can be found in which other producers of similar products in the same place have been restrained from the use of the same name in describing their goods.

And, after discussing the various cases cited, the Court concluded—

It must then be considered as sound doctrine that no one can apply the name of a district of country to a well-known article of commerce, and obtain thereby such an exclusive right to the application as to prevent others inhabiting the district or dealing in similar articles coming from the district from truthfully using the same designation.

The language here quoted would not, it appears to me, be applicable to a geographical name wholly fanciful in its signification. Further, it does not appear that the element of fraud enters into this application. There is no evidence of the fact that there is any soap on the market known as "Dublin" soap. If such were the fact the Office would be justified in refusing registration on the ground that the adoption of the same title by applicants would be deceptive and a fraud upon the public. "Dublin brown-stout" has a well-known reputation. The fact of its notorious use would be conclusive evidence of fraud as against a citizen of another place who asserted the right to use the term in designating his product. So in *Alvord* vs. *Newman*, parties in the State of New York were enjoined from using the word "Akron," a name of a town in Ohio, upon cement, the purpose evidently being to induce the public to believe that the article made by the defendants in New York was the same as that made by the plaintiffs, who were in Ohio. It was a case of an attempted fraud, although it was also determined that the plaintiffs could acquire no exclusive right to the use of the word as against any one producing a similar article at the same place.

As to any deception in this particular case, in view of the fact alluded to by counsel for applicants, of the extensive use throughout the country of labels applied to soap manufactured by firms in this country bearing the titles "Irish," "Limerick," "Scotch," &c., the public generally have become aware of their purely fanciful signification, and would not be very likely to be deceived by the addition to this medley of the word "Dublin." Neither would the public, probably, be convinced that a sudden importation of soap from Dublin had taken place. If the symbol was the name of a well-known district or city in this country the case might be wholly different. "Philadelphia," "New York," or "Baltimore" attached to soap might have an entirely different signification.

It is thus found impossible to lay down a rule that would cover all cases of this kind. Each case must stand upon its own ground. A certain geographical name applied to an article might be either descriptive or deceptive. Another geographical name applied to the same article might be neither.

My conclusion as to this application is, that the word "Dublin," as here applied, is not intended as, and has not the effect of, a geographical word, and that in view of the peculiar circumstances of the case is also not deceptive. Its registration will therefore be allowed.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date August 21, 1877.]

10,157 and 10,158.—Pattern in Suitings.—NATHAN FRYE, Andover, Mass. Applications filed July 25, 1877. Term of patents 3½ years.

10,159.—Bracelet.—JULIUS HACKENBERG, New York, N. Y. Application filed July 9, 1877. Term of patent 3½ years.

10,160 and 10,161.—Center-Piece.—SAMUEL KELLETT, San Francisco, Cal. Applications filed July 31, 1877. Term of patents 7 years.

10,162.—Advertising-Balls.—EDWIN E. SAGE, Chicago Ill. Application filed July 3, 1877. Term of patent 3½ years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date August 21, 1877.]

5,049.—Liver-Pills.—DR. A. W. CHASE, SON & CO., Toledo, Ohio. Application filed June 15, 1877.

"The letter C, as described in registered trade-mark of May 22, 1877, the portrait of Dr. Chase, and the fac-simile of his autograph."—

5,050.—Cigars.—L. DESSAUER & Co., Fort Wayne, Ind. Application filed July 16, 1877.

"The picture of a bird of a red color, as illustrated."

5,051.—Prepared Paints.—HEATH & MILLIGAN, Chicago, Ill. Application filed June 12, 1877.

"The word 'BEST,' printed (upon a ground of any desired description) in red, with large letters, open or skeleton, along the central portion of a label to which it is applied, the name of the particular kind of paint contained in the package being printed over it in smaller black letters, all as shown."

5,052.—Flour.—F. W. JENKINS & BRO., New York, N. Y., and Pittsburg, Pa. Application filed June 28, 1877.

"The word 'FRENCH.'"

5,053.—Brandy.—OSWALD JACKSON & BROTHER, New York, N. Y. Application filed March 30, 1877.

"The design representing three barrels in two tiers, the words 'Pinet, Castillon & Co.,' and the word 'Cognac,' used in connection with this design."

5,054.—Soap.—LAUTZ BROTHERS & Co., Buffalo, N. Y. Application filed August 23, 1876.

"The pictorial representation of a baby."

5,055.—Champagne-Wine.—MOËT & CHANDON, Épernay, France. Application filed August 4, 1877.

"A representation of 'A FIVE-POINTED STAR.'"

5,056.—Champagne-Wine.—MOËT & CHANDON, Épernay, France. Application filed August 4, 1877.

"The title or designation 'MOET & CHANDON.'"

5,057.—Moet & Chandon Champagne-Wine.—RENAULD, FRANÇOIS & Co., New York, N. Y. Application filed July 18, 1877.

"The title or designation 'RENAULD, FRANÇOIS & Co.,' in combination with the title or designation 'MOËT & CHANDON.'"

5,058.—Wine.—LOUIS ROEDERER, Reims, France. Application filed April 17, 1877.

"The word-symbol 'CABINET' and my name, 'L. Roederer,' arranged within the ornamental frame-like border *b*, upon a ruled ground, *a*, as shown."

5,059.—Wine.—LOUIS ROEDERER, Reims, France. Application filed April 17, 1877.

"The word 'Reims,' the title 'L. Roederer,' and a point and a star, as shown."

5,060.—Wine.—LOUIS ROEDERER, Reims, France. Application filed April 17, 1877.

"The word and letters 'N. H. Schreider' and an anchor arranged in connection with a border, *a*, placed upon the figure of an ermine robe, *b*."

5,061.—Wine.—LOUIS ROEDERER, Reims, France. Application filed April 17, 1877.

"The word 'SCHREIDER' in connection with the figure of an anchor."

5,062.—Wines.—LOUIS ROEDERER, Reims, France. Application filed April 17, 1877.

"The name 'L. ROEDERER,' and the symbol of a star and point."

5,063.—Corn-Starch.—THE CHICAGO STARCH WORKS, Chicago, Ill. Application filed June 18, 1877.

"A representation of the head of an Indian inclosed within a frame or niche, and accompanied by representations of packages of corn-starch in niches to the right and left, the whole arranged and disposed as shown."

5,064.—Stationery, and Fancy Goods Connected Therewith.—TIFFANY & Co., New York, N. Y. Application filed February 23, 1877.

"The title or designation 'TIFFANY & Co.'"

5,065.—Champagne-Wine.—WERLÉ & Co., Reims, France. Application filed April 21, 1877.

"A design composed of the words 'VEUVE CLICQUOT PONSARDIN,' with a circular allocation consisting of the words and letters 'V. Clicquot P. Werlé,' inclosing a conventional representation of a comet above, and the word 'Reims' in conspicuous letters below, the field between and adjacent to the different elements of the design being occupied by ornamental lines, all disposed and arranged as shown."

5,066.—Champagne-Wine.—WERLÉ & Co., Reims, France. Application filed April 21, 1877.

"A circular allocation composed of the words and letters 'V. CLICQUOT P. WERLÉ,' inclosing a conventional representation of a comet, as shown."

5,067.—Smoking and Chewing Tobacco.—WATSON & MCGILL, Petersburg, Va. Application filed July 26, 1877.

"A circular device resting upon a right-angled ornamental frame. The most conspicuous object is the flesh-tinted representation of a woman, with a fanciful low-necked dress, without sleeves, holding in one of her gloved hands a closed fan. Above said representation, and in light-colored letters on a blue ground, is the proper name 'Henriqueta,' and below, on an elongated red shield are the words 'Manufactured by Watson & McGill, Petersburg, Virginia.'"

5,068.—Smoking and Chewing Tobacco.—WATSON & MCGILL, Petersburg, Va. Application filed July 26, 1877.

"A representation of the interior of a room with a Spanish man and woman gaily dressed. The man is seated in a chair, his left elbow resting on a table, his right hand holding a pipe. The woman, who is standing at his right, is holding out to him a package. On the table is a plaid shawl, and on the end thereof, which rests on the floor, a cat is lying. Above the said device, on an elongated blue shield, is the Spanish title 'CONSUELO DE MI ALMA.' At the bottom, on a blue shield, are the words 'Manufactured by Watson & McGill, Petersburg, Virginia.' There are right-angled ornamental corner-pieces forming a frame."

5,069.—Smoking and Chewing Tobacco.—WATSON & MCGILL, Petersburg, Va. Application filed July 26, 1877.

"A pictorial representation of two men, one of whom, dressed in a variegated Spanish costume, is seated on a rock, while the other, dressed in white, and representing an American citizen, is offering him a package. Beyond the latter person is visible the masts, sails, and deck of a vessel, from which the United States flag is flying. In the distance is a rocky promontory, and small vessels sailing. Above the representation of the men are the Spanish words, 'LA HONRADEZ.' The frame of said pictorial representation is composed of an arch resting upon columns, with the shield of Spain at the right-hand upper corner, and the shield of the United States at the corresponding upper corner. At the base appear the words 'Manufactured by Watson & McGill, Petersburg, Va.,' our name being in light letters on an elongated red shield."

5,070.—Smoking and Chewing Tobacco.—WATSON & MCGILL, Petersburg, Va. Application filed July 26, 1877.

"A landscape, in the foreground of which, near rocks and trees, are two plumed Indians, one kneeling, holding a bow in his left hand and pointing with his right, and beyond them are four North American buffaloes or bisons fleeing from the approach of a locomotive and train of cars on a railroad, and beyond the railroad are other buffaloes scampering away, and in the distance is a range of mountains, all contained within a circular border, which rests upon an ornamental right-angled frame. Above the landscape, and resting upon said frame, is a fanciful elongated red shield, upon which, in blue letters with white edges and shaded in black, are the Spanish words 'LA OCCIDENTAL,' and in a corresponding position at the bottom of the device is a blue shield, bearing the words 'Manufactured by Watson & McGill, Petersburg, Virginia.'"

5,071.—Champagne-Wine.—WERLÉ & Co., Reims, France. Application filed April 21, 1877.

"A representation of an anchor, with the letters 'V. C. P.' in the background, as shown."

5,072.—Stove-Polish.—HENRY D. ATWOOD, Taunton, Mass. Application filed July 27, 1877.

"The word-symbol 'SUFFRAGE.'"

5,073.—Claret-Wine.—ESCHENAUER & Co., Bordeaux, France. Application filed August 6, 1877.

"A fac-simile of our autograph, 'ESCHENAUER & Co.'"

5,074.—Claret-Wine.—ESCHENAUER & Co., Bordeaux, France. Application filed August 6, 1877.

"A representation of the letter 'E.'"

5,075.—Claret-Wine.—ESCHENAUER & Co., Bordeaux, France. Application filed August 6, 1877.

"The word-symbol 'RED SEAL.'"

5,076.—Claret-Wine.—ESCHENAUER & Co., Bordeaux, France. Application filed August 6, 1877.

"The word-symbol 'WHITE SEAL.'"

5,077.—Claret-Wine.—ESCHENAUER & Co., Bordeaux, France. Application filed August 6, 1877.

"The word-symbol 'GOLD SEAL.'"

5,078.—Canned Salmon.—FITZPATRICK, DAVIS & Co., Fisherton, Washington Territory. Application filed August 6, 1877.

"The word-symbol 'THISTLE BRAND,' together with the representation of a thistle."

5,079.—Champagne and Cognac.—J. GLAENZER & Co., New York, N. Y. Application filed July 20, 1877.

"The peculiar seal and our firm-name, as shown and described."

5,080.—Vehicles and Vehicle-Springs.—WILLIAM W. GRIER, Hulton, Pa. Application filed August 9, 1877.

"The word-symbol 'DEXTER.'"

5,081.—Cigars.—LEVY BROTHERS, New York, N. Y. Application filed August 8, 1877.

"The word-symbol 'ROYAL BULL.'"

5,082.—Varnishes, Japans, and Fresco-Size.—D. ROSENBERG & SONS, New York, N. Y. Application filed August 6, 1877.

"The representation of a flag combined with an annulus or belt, as shown."

5,083.—Bitters.—YOUNG, PATTERSON & Co., Minneapolis, Minn. Application filed May 17, 1877.

"The word-symbol 'SCOTCH.'"

5,084.—Canned and Dried Corn.—C. E. SEARS & Co., Circleville, Ohio. Application filed August 6, 1877.

"The word-symbol 'EXCELSIOR BRAND.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date August 21, 1877.]

1,156.—Title: **"Neufeld's Italian Balm."**—JOHN HART & ABRAHAM A. MYERS, Lancaster, Pa. Application filed August 11, 1877.

1,157.—Title: **"Clifford's Febrifuge."**—JOSEPH C. RICHARDSON, St. Louis, Mo. Application filed August 14, 1877.

1,158.—Title: **"Clifford's Febrifuge or Fever and Ague Cure."**—JOSEPH C. RICHARDSON, St. Louis, Mo. Application filed August 14, 1877.

1,159.—Title: **"Directions for Using Clifford's Febrifuge."**—JOSEPH C. RICHARDSON, St. Louis, Mo. Application filed August 14, 1877.

When a patent has been allowed, and the application has not been forfeited by delay of six months, if the final fee of twenty dollars is paid before 12 o'clock on Friday, the patent will issue and bear date the following Tuesday.

The Government fee on making application for a patent is fifteen dollars. The final fee is twenty dollars. Usually there are no other Government fees unless the application is appealed.

SALE OF SPECIFICATIONS AND DRAWINGS.

Photolithographic copies of the drawings of all patents issued since November 26, 1867, have been produced, and will be sold to the public at 25 cents per patent, or, where twenty or more copies are ordered at one time, at 10 cents per patent.

Coupon-books, to the amount of $2 or more, can be purchased from the Chief Clerk of the Patent Office; the coupons, for 10 cents each, may be filled out at any time, and, on presentation, will entitle the holder to a photolithographic copy of *any* drawing which has been reproduced.

The specifications of all patents issued since July 1, 1871, are in print, and will be furnished with the drawing without extra charge. The specifications of patents issued from November 20, 1866, to July 1, 1871, are in print, and where such is the case the Office will furnish them with the drawings, but the Office will not undertake to reprint copies of patents which have been exhausted.

In addition to the above, the Office has reproduced, and offers for sale at the price mentioned above, all drawings in the following classes, embracing patents granted from 1790 to date. The classes are those of the Examiners:

1. Aeration and Bottling.
2. Apparel.
4. Baths and Closets.
5. Beds.
6. Bee hives.
7. Beer and Wine.
8. Bleaching and Dyeing.
9. Boats.
10. Bolts, Nuts, and Rivets.
11. Bookbinding.
13. Brakes and Gins.
14. Bridges.
15. Brushes and Brooms.
17. Butchering.
18. Caoutchouc.
19. Carding.
20. Carpentry.
21. Carriages and Wagons.
23. Chemical Misc.
26. Cloth.
28. Cordage.
29. Crinoline and Corsets.
31. Dairy.
33. Drafting.
34. Driers and Kilns.
36. Electricity.
37. Excavators.
38. Felting and Hats.
40. Files.
42. Fire-arms.
44. Fuel.
45. Furniture.
47. Garden and Orchard.
48. Gas.
52. Gunpowder.
53. Hardware manufacture.
55. Harrows.
56. Harvesters.
58. Horology.
59. Horseshoes.
61. Hydraulic Engineering.
62. Ice.
65. Kitchen Utensils.
66. Knitting and Netting.
67. Lamps and Gas-fitting.
68. Laundry.
71. Manures.
72. Masonry.
73. Measuring Instruments.
75. Metallurgy.
76. Metal Working, bending and straightening.
77. Metal Working, boring and drilling.
78. Metal Working, forging, swaging, and riveting.
79. Metal Working, punching, cutting, and shearing.
80. Metal Working, rolling.
81. Metal Working Tools.
82. Metal Working, turning, planing, and milling.
83. Mills.
85. Nails.
86. Needles and Pins.
87. Oils, Fats, and Glue.
88. Optics.
89. Ordnance.
90. Ore.
91. Paint.
92. Paper-making.
93. Paper manufactures.
94. Paving.
96. Plating.
97. Plows.
98. Pneumatics.
99. Preserving Food.
101. Printing.
102. Projectiles.
103. Pumps.
104. Railways, The Way.
105. Railways, Cars and Interior Fittings.)
106. Railway Cars, Exterior Mountings and Fittings.
107. Railway Track and Car Irons and Fittings, manfacture of.
108. Roofing.
111. Seeders and Planters.
112. Sewing-machines.
114. Ships (1) construction.
115. Ships (2) propulsion.
116. Signals.
117. Silk.
118. Spinning.
119. Stabling.
120. Stationery.
124. Stills.
126. Stoves and Furnaces.
127. Sugar.
130. Thrashing.
131. Tobacco.
132. Toilet.
134. Tubing and Wire.
135. Umbrellas and Fans.
137. Water Distribution.
138. Water wheels.
139. Weaving.
141. Wood screws.

And the subdivisions of—

Bench-planes.
Bale-ties.
Buttons and Machines.
Combs, &c.

About forty other classes are in progress, and it is hoped that all the drawings remaining, some thirty thousand in number, may be completed during the fiscal year.

The total number of patents of which drawings are complete and offered for sale as above will approximate one hundred and fifty thousand.

Letters Patent of the United States do not reach the patentee or owner until about two weeks from the day of their date. The letters, nevertheless, have the force of patents from the time they are signed and sealed.

The "Rules of Practice" are furnished gratis on personal or written application to the Commissioner of Patents.

Where specifications are in print they are furnished with the drawings without extra charge.

Where specifications are printed, copies of same attached to drawings will be furnished without extra cost.

THE illustrated portion of the Patent Office Report for 1869 and for 1871 has recently been completed, and can be had, by those having the remaining volumes for those years, by applying to the Commissioner of Patents.

The drawing accompanying an application for a patent must be on a sheet ten by fifteen inches.

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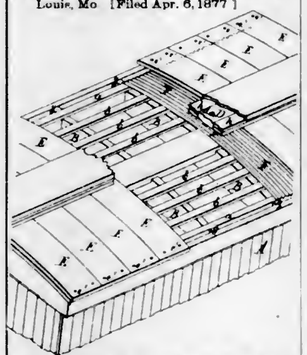
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TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED AUGUST 21, 1877.

194,286. CAR-ROOFS. Hiram Aldridge, St. Louis, Mo. [Filed Apr. 6, 1877.]



1. In a car roof wherein metal sheets and wood covering-boards are used, as described, the combination of the clamping ridge-board and ridge-beam, and the outer eave-beams, with spaces between them and the eaves, for the purpose of fastening the roof without piercing the sheets and allowing water to escape, substantially as set forth.

2. In a car-roof, the combination of the laterally-adjoining roof-boards E of a length greater than that of the lining or joint-sheets, and the ridge-clamp, substantially as set forth.

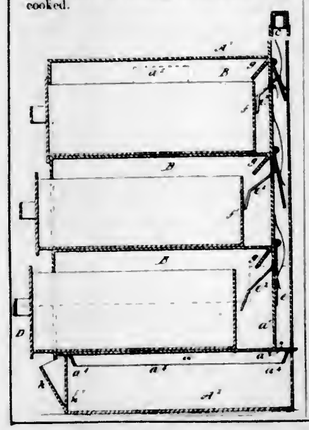
3. In a roof, the boards E, having their inner or lower sides corrugated to fit a corrugated metal lining or metal joint-strips, substantially as set forth.

194,287. PROCESSES OF TREATING COCOA-NUTS. A. P. Ashbourne, Oakland, Cal. [Filed Nov. 27, 1876.]

The process of treating cocoa-nut meat, which consists in grating or pulverizing the cocoa-nut, steaming for a short period, extracting a portion of the oil by boiling water, pressing, and finally enring by adding sugar and albumen of egg when the product is thoroughly dried, substantially as described.

194,288. STEAM COOKING DEVICES. A. F. Bock, Battle Creek, Mich., assignor of one-half his right to C. F. Bock and C. Peters, same place. [Filed July 19, 1877.]

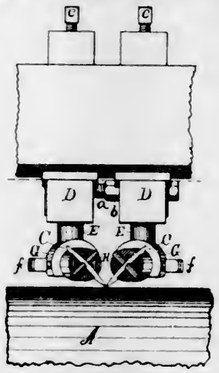
Brief.—The steamer is composed of a case provided with drawers and a peculiar valve arrangement, by which, when the drawers are closed, steam is admitted to the articles to be cooked.



1. The combination, with the fine C and steam-ports *d* leading into the cooking-compartment of a culinary steamer, of the valve *e*, constructed with an arm or rod, e^1, passing through the port *d* into the cooking-chamber, and spring e^2, arranged and operating substantially as and for the purpose set forth.

2. The improved culinary steamer, consisting of the casing A^1, constructed with one or more cooking-compartments, B, flange a^4, and steam-ports *d*, deflectors *g*, hinged valves *e*, constructed with a rod or arm, e^1, flue C, with induction-ports a^2 and eduction-port e_1, and detachable boiler A^1, arranged and operating substantially as set forth.

194,289. PAPER-BOX MACHINES. Joseph P. Buckingham, Chicopee, Mass., assignor of one-half his right to O. A. Denison and O. M. Hamilton, same place. [Filed Nov. 27, 1876.]



1. The pair of rotary cutters C C, set in V form, with their peripheries adjacent to each other at bottom of the V, and acting together to make a single score, substantially as described.

2. The combination of the cutters C C, cutter-heads H H, and sockets G G, having the same axial line as the heads H H, and provided with fastening mechanism, substantially as described, and for the purpose set forth.

3. The combination of cutters C C, cutter-heads H H, sockets G G, shafts E E, and clamping-sockets F F, substantially as described, and for the purpose set forth.

4. The combination of cutters C C, cutter-heads H H, sockets G G, shafts E E, clamping-sockets F F, frames D D, and adjusting-screw *a*, substantially as described, and for the purpose set forth.

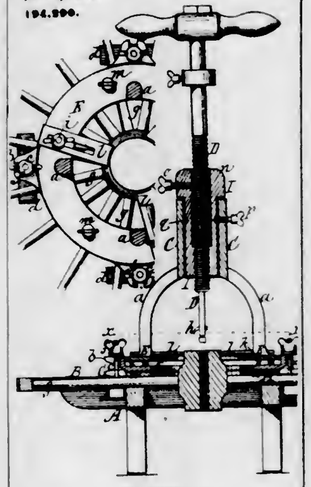
194,290. HUB-BORERS. Ezra Caswell, Lyons, N. Y. [Filed Dec. 11, 1876.]

Brief.—The hub is firmly clamped and held by means of an upper clamping ring, provided with curved arms, which support a socket, and having longitudinally-adjustable gages. A lower clamping-ring attached to the upper by screw-bolts, and provided upon its under surface with a packing-ring of soft material, and having upon its periphery slotted lugs, which embrace the upper ring, keep the two centered, and form bearings for adjusting-screws, provided with blocks, which embrace the spokes, and press them against the packing on the lower ring while being bored by a suitable cutter attached to a screw-shaft working in a circular bearing, having its interior threaded, and turning loosely in the socket upon the upper clamping ring.

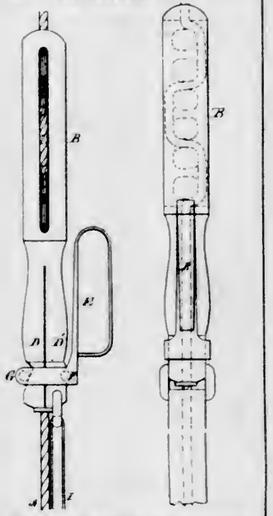
1. In a hub-boring machine, the two rings E G, the packing-ring H, the gages I I, the adjusting-screws *i m*, and the packings *k k*, combined to operate as and for the purpose specified.

2. In a hub-boring machine, the combination, with the screw-shaft D and the socket C, connected with the ring E by supporting-arms *a a*, of the nut I, provided with a head, *n*, resting on top of the said socket, and a circumferential groove, *q*, for the reception of the screw *p*, as shown and described, and for the purpose specified.

194,290.



194,291. FIRE-ESCAPES. W. N. Clark, J. B. Clark, and W. N. Clark, Jr., Chester, Conn. [Filed June 21, 1877.]



1. The adjustable slide B, made of one piece of wood, having a series of holes connected by the channel C, to produce friction upon a cord, and the lower end forked so as to embrace the cord, which passes through the holes and channels, substantially as herein described.

2. The clamp E F G, which can be clasped by the hand, together with the slide B, and press the forked ends upon the cord to produce greater friction, substantially as herein described.

THE GRAPHIC CO'NY

194,292. BLANKS FOR SHIFTING-RAILS OF CARRIAGES. E. D. Clapp and F. Van Patten, Auburn, N. Y. [Filed May 29, 1877.]



As a new article of manufacture, the forging, consisting of the bar A, having lugs B and E, substantially as shown and described.

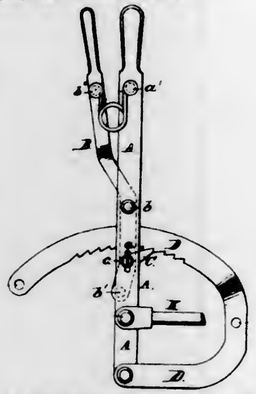
194,293. BLANKS FOR SHIFTING-RAILS OF CARRIAGES. E. D. Clapp and F. Van Patten, Auburn, N. Y. [Filed May 29, 1877.]



As a new article of manufacture, the forging consisting of the prop-holder iron A, having the lugs B and C, substantially as shown and described.

194,294. WAGON-BRAKE LEVERS. W. G. Collins, Cleveland, Ohio. [Filed July 23, 1877.]

Brief.—The pawl has a rotary and also a slightly vertical motion in the slot.



In a vehicle brake-lock having the connecting-rod K and ratchet D, the combination, with the lever A, having the slot *a*, and the lever B bent in the form described and pivoted at *b*, of the pawl C, pivoted at *c* to the lever A, and connected to the lever B at *b'*, all arranged and operating substantially as and for the purposes set forth.

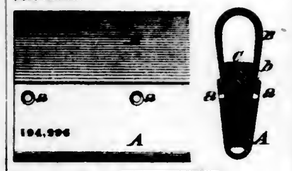
194,295. END-GATE RODS FOR VEHICLES. Wm. G. Collins, Cleveland, Ohio. [Filed Jan. 22, 1877.]



An end-gate-rod washer, having a clasp or clasps, *a a*, substantially as and for the purposes set forth.

194,296. WEATHER-STRIPS. J. H. Davis, St. Louis, Mo. [Filed Dec. 1, 1876.]

The tube B, formed by inclosing within elastic or other cloth the expansion pad C, both to be firmly held together within the holding-back A by the clamping inturned burred edges *b* and the countersinks *a a*, as and for the purpose shown.

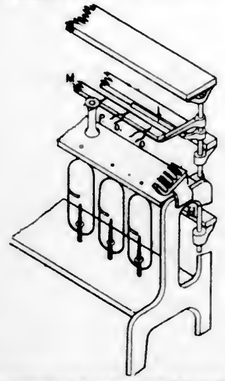


194,297. ARTIFICIAL STONE. O. A. Davis, Sacramento, Cal. [Filed June 27, 1877.]

A process of manufacturing stone, consisting in uniting, in small proportion, a fine mixture of sand and cement with a large proportion of coarse sand and cement, treating the compound with a solution of alum, milk-whey, and alcohol, molding the mass, and finally wetting and finishing the stone, substantially as set forth.

194,298. BOBBIN-SUPPORTS FOR SPINNING-FRAMES. G. Estes, Lowell, Mass. [Filed May 7, 1877.]

Brief.—A supplementary rail is attached to the frame of the machine, upon which are secured a number of spring-wire forks, that project over the edge of said rail, and receive and hold the empty bobbins.



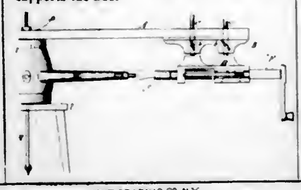
In a spinning-frame, a supplementary bracket-support, provided with forked bobbin-holders, substantially as and for the purpose herein specified.

194,299. PROCESSES FOR PREVENTING THE FOULING OF GAS-LIME. F. A. Genth and G. F. Barker, Philadelphia, Pa., assignors of one-half their right to T. B. Brown and H. Bower, same place. [Filed May 1, 1877.]

The process of preventing the fouling of gas-lime, or the imparting thereto of an offensive odor in purifying gas, which consists in passing the gas through sulphuric acid, or a suitable porous material charged therewith, to deprive it of ammonia, &c., before passing the gas through the lime, substantially as described.

194,300. MACHINES FOR TENONING SPOKES AND BORING FELLIES. E. Goss, Kingston, Wis. [Filed Apr. 23, 1877.]

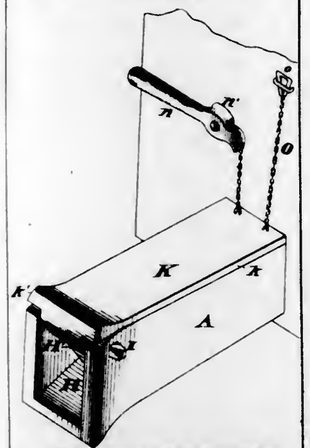
Brief.—The auger-shaft is supported in a bracket vertically, and longitudinally adjustable on a bar, connected to the bolt which supports the hub.



1. In a spoke-tenoning and felly-boring machine, the bar A, connected with the rod N at one end, and provided at the other end with the bracket B, in combination with the bolts C C, the bracket D, and the auger-shaft F, substantially as described, and for the purposes set forth.

2. The rod N, horse I, and nut O, in combination with the bar A, bracket B, bolts C C, bracket D, and auger-shaft F, substantially as described, and for the purposes set forth.

194,301. CAR-COUPLINGS. H. Grove, North Lima, Ohio. [Filed Apr. 19, 1877.]



1. The combination of the draw-head A, provided with respective depressions E and G, with the link-holder K, pivoted or hinged to the draw-head at I, and provided with projections L and M, substantially as described.

2. The combination of the draw-head A, provided with depressions E and G, and inclined plane H, with the link-holder K, pivoted at I to the draw-head, and provided with projections L and M, the latter formed with the inclined surface *n n'*, and inclined plane H', substantially as and for the purpose described.

3. The combination, with a draw-head provided with projection C, formed between the depressions E and G, of a link-holder, pivoted or hinged to the front of the draw-head, and provided with the rear projection L, the same being constructed to relieve the said hinge or pivot of all strain caused by the action of the coupling-link, substantially as and for the purpose described.

4. The combination of a draw-head, provided with depression G, angular projection B, and depression E, with the link-holder K, pivoted to the draw-head, and provided with projections L and M, the latter extending to such a depth into the depression E as to prevent the coupling-link from passing under the same when the holder is in its closed position, substantially as described.

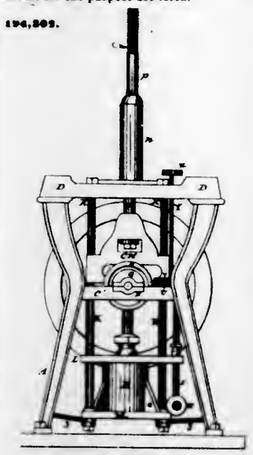
5. The combination, with the draw-head A, provided with respective depressions E and G, and the link-holder K, pivoted or hinged to the draw-head at I, and provided with projections L and M, in combination with respective chains or cords and suitable operating mechanism, whereby the said link-holder may be disengaged from its coupling-link by one standing on either the top or the platform of a car, substantially as described.

194,302. MEAT-CHOPPERS. J. H. Huber, Lancaster, Pa. [Filed Apr. 18, 1877.]

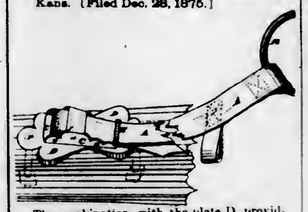
1. The combination of the supporting-plates M, L, and C with the top D, having a central guide-column, *n*, for the shaft *p*, cross-head C H, and guide-bars K, and the central arrangement of the steam-cylinder and appliances for operating the knives, all substantially as and for the purpose shown and specified.

2. The combination and arrangement of the crank-shaft S, worm-gear Q, double pinion U V, cog-wheel T, and pinion Z, both on the same vertical shaft Y, the whole substantially as and for the purpose set forth.

194,303.

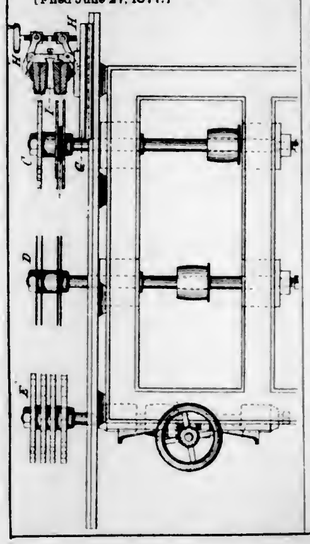


194,303. FASTENINGS FOR HOLDBACK-STRAPS OF HARNESS. S. D. Lecompte and J. H. Ketchason, Leavenworth County, Kans. [Filed Dec. 28, 1876.]



The combination, with the plate D, provided with slots J and K, of the case or frame C, provided with the tongue R and loop E, all substantially as and for the purpose stated.

194,304. MORTISING AND TENONING MACHINES. William Levin, New York, N. Y. [Filed June 27, 1877.]



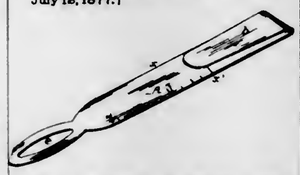
1. In a machine for jointing stretcher-frames, a series of cutters adapted to act simultaneously on two or more of the several distinct pieces of the frame, and corresponding to the several cuts to be made in the said pieces, the said cutters being arranged to correspond with the herein-described arrangement of the pieces of the frame in a group back to back, and having their position and action gaged and regulated from the meeting back surfaces of the said group of pieces, by which means right and left handed work is performed without discrimination, and rapidity of execution and compactness and simplicity of mechanism are secured, substantially as herein set forth.

2. The mode, herein described, of rapidly forming the several corner-joints of stretcher-frames, viz., by arranging the several pieces of the frame in a group with their flat back surfaces in contact with each other, and submitting such group to the action of a series of cutters adapted to act simultaneously on the several pieces of the group, the said cutters corresponding to the several cuts to be made in the said group of pieces, and arranged to correspond with the aforesaid grouped arrangement of the frame-pieces, substantially as and for the objects herein set forth.

3. In combination with the series of cutters C D E adapted to make a distinct series of cuts, and with the sliding work-table G, movable past said cutters, the swinging work-holder H, pivoted to said table and capable of being set at various angles at positions between said cutters, substantially as and for the purpose set forth.

4. In combination with the cutters C D E and sliding work-table G, the work-holder H, provided with a central supporting and separating ledge, 1, arranged in fixed definite position with the cutters, and adapted to receive the several distinct pieces of the frame on each side thereof with their variable and beveled sides in contact therewith, substantially as shown and described.

194,305. BOOK-MARKERS. T. P. Marshall and S. B. Marshall, Trenton, N. J., assignors to S. B. Marshall, same place. [Filed July 18, 1877.]



1. As a new article of manufacture, a compound implement consisting of the blade A, sharp at the edge *x*, graduated at the opposite edge, having a recessed finger at one end, and folded at the other to form a tongue, *b*, as specified.

2. A compound implement consisting of the plate, its clamping-tongue *b*, and graduated edge, as set forth.

3. The compound implement consisting of the plate, its clamp, and recessed finger, as set forth.

194,306. PENCIL-HOLDERS. T. P. Marshall and S. B. Marshall, Trenton, N. J., assignors to S. B. Marshall, same place. [Filed July 18, 1877.]



1. The attachment A, consisting of a metal plate folded to form a clamp, provided with a flap, *a*, or other device for securing it to the garments, and with a lip, *b*, for holding a pen or pencil, as set forth.

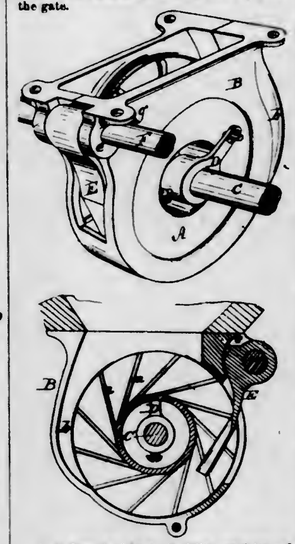
2. The combination of the clamp, the pencil-holder *b*, and the pen-wiper B, as set forth.

3. The plate, bent to form a clamp, combined with a pen-wiper attached to and supported by the plate, as set forth.

4. The plate A, adapted for attachment to a garment, and cut at the front, as shown, to form a lip, *b*, projecting from the face between the side edges, and adapted to retain a pencil, as set forth.

194,307. PERIPHERAL FORCE-FEEDS FOR GRAIN-DRILLS. A. J. Martin, Springfield, Ohio, assignor to P. P. Mast & Co., same place. [Filed Oct. 1, 1875.]

Brief.—Within the feed cup is mounted a feed-wheel, composed of two vertical flanges, having channels or ribs for feeding out the grain. The quantity discharged is governed by a gate, the forward end of which is arranged to move inward to divide the moving stream, allowing a part to be discharged, while the other continues its course within the cup past the gate.



1. A force-feed for grain drills, consisting of a cup or case, a vertical feed-wheel mounted in said cup and feeding at the periphery, and a gate having its forward end arranged to move inward through an opening in the rear side of the cup, so as to divide the moving stream of grain in the cup and direct one portion of the same outward through the opening while the remaining portion is permitted to continue its course within the cup past the gate.

2. The combination, substantially as shown and described, of a feed cup or case, a vertical feed wheel or ring mounted therein and feeding at its periphery, and a movable gate in the rear side of the case arranged to divide the stream of grain passing under the wheel, and to direct more or less of the same outward without retarding or impeding the course of the remaining portion.

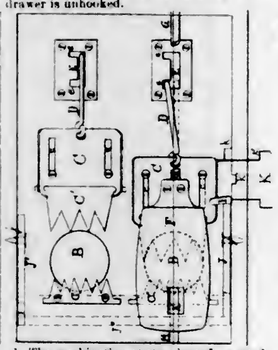
3. In combination with a feed cup or case, B, and a vertical wheel, A, mounted therein and feeding on the periphery, a gate or tongue, E, having its rear end pivoted outside of the cup, and its forward end inserted through an opening in the rear side of the case, for the purpose of directing more or less of the moving grain outward from the cup.

4. The combination of the grooved or channeled wheel, having the large central opening, the cup or case B encircling and supporting the wheel, as shown, and the central driving-shaft C, provided with the arm D.

5. The gate E, having its end made of the bent or irregular form in cross-section, substantially as shown.

194,308. THIEF-DETECTERS FOR MONEY-DRAWERS, &c. G. Palmer, Littlestown, Pa. [Filed Feb. 3, 1877.]

Brief.—The fingers of the thief are caught and held by toothed plates, placed over the openings through which the fastening of the drawer is unhooked.



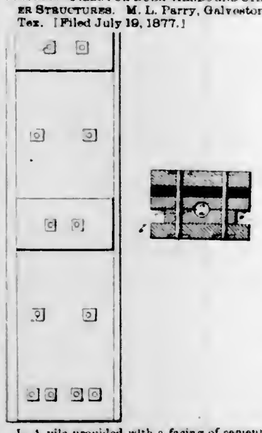
1. The combination of the pivoted serrated plate C' with the sliding flanged plate C, when both are applied to a drawer or door, substantially as and for the purpose described.

2. Serrated plate C', sliding plate C, and connecting-rod D, working in slot E, combined as shown and described, and arranged to operate in connection with serrated plate C'', as and for the purpose set forth.

3. The plate F, in combination with the hooked rod H, spring G', and plate C, whereby the serrated C' is moved over the hole B to operate with the plate C'', substantially as and for the purpose described.

4. The combination of the plate F, constructed and arranged as described, with the bolt-frame J J' J'', substantially as and for the purpose described.

194,309. PILES FOR BULK-HEADS AND OTHER STRUCTURES. M. L. Parry, Galveston, Tex. [Filed July 19, 1877.]



1. A pile provided with a facing of cement, substantially as set forth.

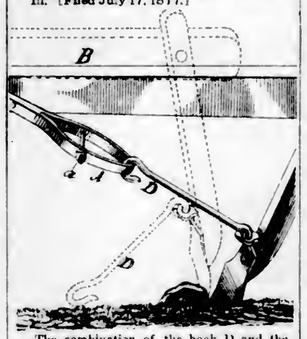
2. A pile, consisting of two or more heavy planks, the abutting sides of which have semi-circular grooves formed therein, to constitute a cylindrical passage through the pile, substantially as set forth.

3. A pile provided with a facing of cement, and a conduit through the body of the same, substantially as set forth.

4. A bulk-head made of piles, provided with outer facings of cement, the several piles being secured to each other by string pieces, substantially as set forth.

5. A pile provided with a facing of cement, and detachable side pieces, the latter serving as sides of the mold in applying the cement, after which they are adapted to be attached to the edges of the pile and constitute rabbeted edges for the same, substantially as set forth.

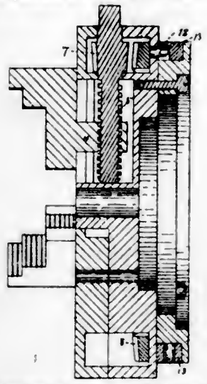
194,310. SAFETY CLAMPS AND HOOKS FOR CULTIVATORS. Sanford Peck, Waldron, Ill. [Filed July 17, 1877.]



The combination of the hook D and the spring-clamp A, having the adjusting-screw a, and attached to the beam B and the standard, in the manner and for the purpose set forth.

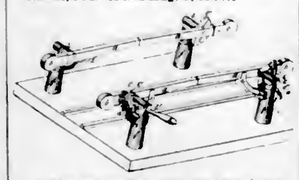
194,311. UNIVERSAL CHUCKS FOR LATHES. O. Plummer, Worcester, Mass. [Filed Nov. 23, 1876.]

Brief.—The gear ring, for causing a simultaneous movement of all the jaws, rests upon pins, which are operated upon by cams on a ring, to bring said gear-ring into connection with the pinions on the jaw-screws. When the gear ring is not raised, each jaw may be adjusted separately. Improvement on Horton's chuck, patented November 13, 1855, No. 13,787.



In combination with pinion 7 and ring-gear 8, pins 12, or their equivalent, and ring-cam 13, substantially as and for the purposes hereinbefore set forth.

194,312. GATES. Henry A. Stearns, Pawtucket, R. I. [Filed Aug. 8, 1877.]



1. The combination, with the gate-bar a, pivoted to rotating bolster E, of the segmental rims c' d', secured respectively to the gate-bar and standard, substantially as for the purpose set forth.

2. The combination, with the gate-bar a, pivoted to rotating bolster E, of the segmental gears c d, secured respectively to the gate-bar and standard, substantially as and for the purpose set forth.

3. The combination, with the gate-bar a, pivoted to rotating bolster E, of the segmental gears c d, secured respectively to the gate-bars and standards, substantially as and for the purpose set forth.

4. The combination, with the gate-bar a, having a counter-weight, b, secured to its outer end, said gate-bar pivoted to the rotary bolster E, of the segmental gears c d, secured respectively to the gate-bar and standard, substantially as and for the purpose set forth.

5. The combination, with a gate-bar, a, counterbalanced by a weight, b, secured to its outer end, of the rotating bolster E, and segmental gears c d, each provided with bearing-rims c' d', and secured respectively to the gate-bar and standard, substantially as and for the purpose set forth.

6. A gate consisting of two gate-bars, a a, pivoted in rotating bolsters E E, and adapted to be actuated by means of the segmental gears c d, secured respectively to the gate-bars and standards, substantially as and for the purpose set forth.

7. The combination, with posts f f, located upon opposite sides of the gate-opening, of two gate-bars, a a, pivoted to rotating bolsters E E, with the segmental gears c d, each of which is provided with bearing-rims c' d', the said gears being secured respectively to the gate-bars and standards, substantially as and for the purpose set forth.

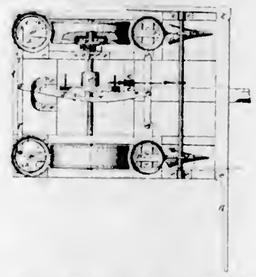
8. The combination, with the counterbalanced gate-bars a, pivoted to rotary bolsters E, of the segmental gears c d, secured respectively to the gate-bars and standards, and intervening mechanism, substantially as described, whereby the several gate-bars may be operated simultaneously, substantially as and for the purpose set forth.

9. The combination, with the gate-bars a, pivoted to rotary bolsters E, of the segmental gears c d, secured respectively to the gate-bars and standards, the bolsters E being rigidly secured to spindles g, and actuated by means of connecting chains, rods, or wires, substantially as and for the purpose set forth.

10. The combination, with one or more gates, constructed and arranged substantially as described, of the hand-lever K, secured to one of the rotary bolsters E, substantially as and for the purpose specified.

11. The combination, with the gate-bars a, and posts f, of stops or rests i, substantially as and for the purpose specified.

194,313. CORN-PLANTER AND FERTILIZER-DISTRIBUTER. F. U. Stokes, Urbana, Ohio. [Filed Oct. 14, 1876.]



The combination of the cam-wheel F' e' with the axle B, and with the levers W X, that operate the dropping slides and disks, substantially as herein shown and described.

194,314. WINDMILLS. George S. Strong, Springfield, Ohio. [Filed June 20, 1877.]

Brief.—This wheel is adapted to be deflected by the force of the wind from a position at, or nearly at, a right angle to the tail-vane to one at, or nearly in a line parallel with, said vane, for throwing it out of the wind. There is, in combination with the wheel, a sliding weight, adapted to be moved automatically back and forth or out and in on its supporting arm by the movements of the wheel itself, in such manner that as the shaft of the wheel is deflected from a position in line with the vane the resistance to its further deflection will be increased, and vice versa.

1. The combination, with a wind-wheel adapted to vibrate or swing from a position at or near a right angle to its vane to one parallel, or nearly so, therewith, of a sliding weight, for giving increased resistance as the wheel moves from its position at right angles, substantially as described.

2. The combination of the vibrating lever K, provided with the sliding weight, with the the turn-table or swinging wind-wheel and its vane, substantially as and for the purpose described.

3. The lever K, mounted on a swiveling-fulcrum, I, and provided with a sliding weight, in combination with the wind-wheel, vibrating relatively to its vane, as described.

4. The sliding weight M on the arm or lever K, in combination with the link for moving said weight out and in on said arm or lever, as described.

5. The jointed folding link m m', in combination with the weight M, sliding on the arm or lever, as described.

6. The sliding weight on the vibrating arm or lever K, connected by its actuating link with the arm H, at a point above the fulcrum of said lever, as described.

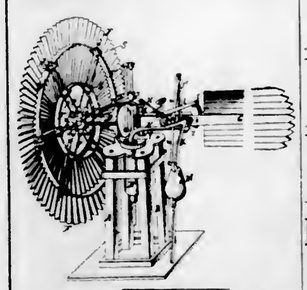
7. The radial wheel arms or spokes p p', made from a single rod or piece, bent back upon itself, and having both arms or ends connected with the central hub, substantially as described.

8. The clamps S consisting of the interlocking-plates s s', for uniting the wheel with its arms, as described.

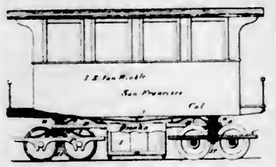
9. The perforated clamp-plates s s', in combination with the double arm p p', having the bracing arrangement described, for uniting said arms to the wind-wheel, as set forth.

10. The cylinder B', provided with the anti-friction metal bearings b b', the former made in hollow hemispherical or conical form, and applied and operating as described.

194,316.



194,315. RAILROAD-CARS. Isaac S. Van Winkle, San Francisco, Cal. [Filed Apr. 27, 1877.]



1. In a railway-car the central tubular springs a and the elliptic side springs, both arranged between the body of the car and the truck-frames, as shown and described.

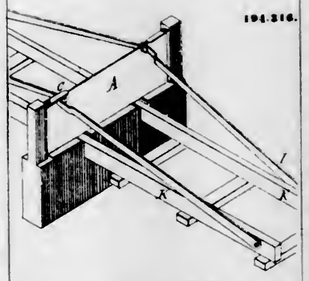
2. The bolster-frame B, secured by the king-bolts D, in combination with the central springs a and a' and the side springs c and c, all arranged to operate in connection with the trucks and body of a car, substantially as described.

3. The box I, provided with one or more metallic boxes or safes, g, for the safe transportation of bullion or other valuables arranged underneath the bolster-frame or car body, substantially as shown and described.

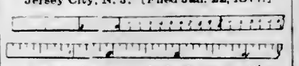
194,316. RAILROAD-GATES. J. H. Vickars, Denver, Colo. [Filed Jan. 3, 1877.]

A gate for railways, operated by the passing train, consisting of the upper section A, lower section B, vertical rods E, springs H, bars I, and rails K, combined together, as described.

194,316.

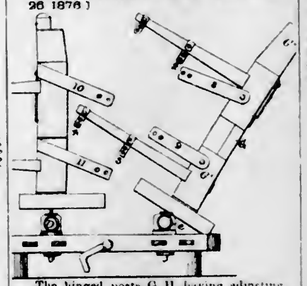


194,317. TAPE-MEASURES. C. D. Ward, Jersey City, N. J. [Filed Jan. 22, 1877.]



A measuring-tape or device for road-cutting or other excavations, provided with subdivisions commencing at a given relative distance from the end of the tape, and which bear a given relation to the perpendicular depth of the cutting, whereby the extent or slope of the cutting is determined by measurement alone, and without calculation, substantially as described.

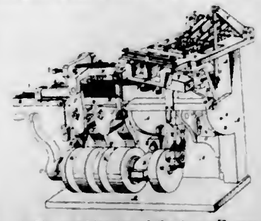
194,318. DEVICES FOR HOLDING SHEEP. G. T. Wilson, Russellsburg, Pa. [Filed Oct. 26 1876.]



The hinged posts G H, having adjusting-blocks G' H' and arms and straps, as described, combined and operating substantially as and for the purpose specified.

194,319. MACHINES FOR CUTTING AND STICKING MATCH-STICKS. McC. Young, Frederick, Md. [Filed Mar. 1, 1875.]

Brief.—Blocks of wood of suitable form and size are placed side by side upon guideways in a feeding trough attached to the main frame, and automatically fed to a series of adjustable knives secured in a knife stock, mounted in a vertically-reciprocating gate, by which a series of match splints are cut. They are then automatically carried up and fed into a series of perforated plates arranged side by side, and progressively fed through and out of the machine. A wind-trunk is attached to the carriage-frame near the cutters, for carrying off the small slivers of wood to prevent clogging.



1. The combination of the frame H, carrying the feeding-spurs g, with the arms F'' J, straps L, and levers F I, and their cam grooves, for effecting a positive four-motion feed to the spurs, as described.

2. In combination with the double feed troughs a a and their forwarders b b the spurs g, having the positive four-motion feed, as described.

3. In combination with the feeding-spurs g the springs f for holding the blocks when the spurs are out of the blocks, substantially as described.

4. In combination with the feeding-spurs and weight to advance the blocks side by side, the double series of cutters o o' on the gate O, one set for cutting splints from one set of blocks, and the other set for cutting from the other series of blocks, substantially as described.

5. In combination with the adjustable knife-stock P, the cutters o o', wrought upon the shank or bar q, and held to said stock by seats and pins, substantially as and for the purpose described.

6. In combination with the double series of plates p p for receiving the cut splints, the double sets of feeding-fingers, adjusted by screws 5, and worked from the single rocking box T, substantially as described.

7. In combination with the rocking box T and shaft 4 for holding the feeding-fingers, the diametrically-opposite screws or screw-points at each end of said shaft, as and for the purpose described.

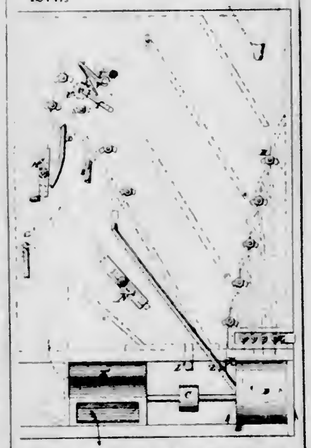
8. In combination with the cutters o o', the open guides 1 and conical holes 2 for directing the splints into the carrying plates p, substantially as described.

9. In combination with the cutters o o', the slide or cut-off w, moved by a positive motion in both directions, as and for the purpose described and represented.

10. In combination with the cam-shaft, hung in adjustable bearings B, the adjustable pitman N, for the purpose of timing the action of the cutters to and with the feeding up of the blocks, substantially as described.

11. In combination with the vertically-reciprocating cutters o o', the wind-trunk Y, for taking up and carrying off the small slivers of wood to prevent clogging, substantially as described.

194,320. MIDDLINGS-SEPARATORS. M. H. Alberty, Cherokee, Kans. [Filed June 30, 1877.]



1. The combination of a series of air-passages, F, provided with gates G at their outer ends, and gates H at their inner ends, with the blast-fan D and the air-chambers L O Q, substantially as herein shown and described.

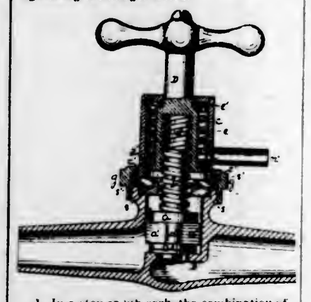
2. The combination of the adjustable riddles M P with the air-passages F, the exhaust-chamber N J' O', the blast-fan D, and the exhaust-fan E, substantially as herein shown and described.

3. The combination of the grading valves Y A' C' and the dividers E' F' with the inclined board R, the riddles M P, the inlet air passages F, and the exhaust chamber N, substantially as herein shown and described.

4. The combination of the slide H', the divider F', the inclined board M', and its extension N' with the exhaust air chamber N J' O', substantially as herein shown and described.

194,221. STOP-COCKS. George C. Bailey, Pittsburg, Pa. [Filed May 19, 1877.]

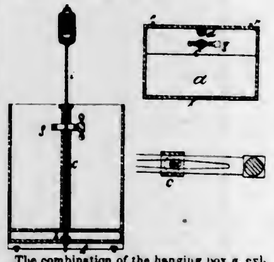
Brief.—The waste pipe is placed in the desired position, and held in that position by tightening the flanged union.



1. In a stop or tub cock, the combination of a swiveled cap having a waste-port therein, with a valve and valve-case, substantially as set forth.

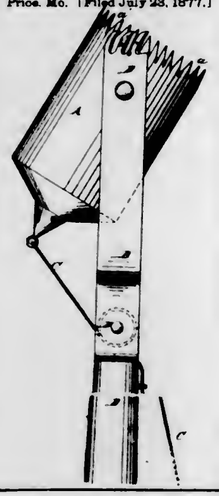
2. The combination of swiveled cap *c*, having waste-port *a*, socketed and flanged operating-stem D, valve *e*, having threaded stem *h*, packing ring *i'*, and flange-union *g*, with a valve case, substantially as set forth.

194,222. FIRE-ESCAPES AND HANGING SCAFFOLDS. Carl L. Behrens, Davenport, Iowa. [Filed May 26, 1877.]



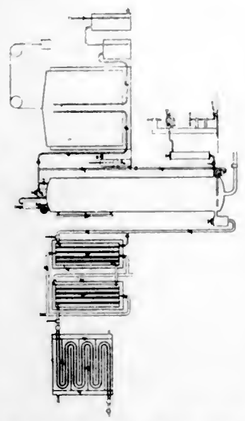
The combination of the hanging box *a*, cylinders *c d*, the former provided with a movable slotted pin, *g*, pulley *b*, rollers *f f*, and rollers P P, ropes *h i*, and cramp-irons K K, all constructed as shown and described.

194,223. FRUIT-PICKERS. H. C. Berbeyer, Price, Mo. [Filed July 23, 1877.]



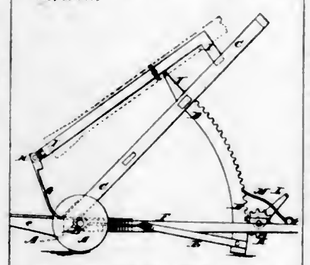
An improved fruit-picker, formed of the pivoted cup A, having teeth *a'* formed upon its edge, the forked socket-shank B having teeth *b'* formed upon the ends of its fork, the cord C, and the pulley D, substantially as herein shown and described.

194,224. PRESERVING BEER. Josef Bersch, Baden, Austria, assignor of one-half his right to H. Guth, New York, N. Y. [Filed May 22, 1877.]



The herein-described process of treating beer with a solution of gelatine and tannin, prepared as described, substantially in the manner and for the purpose set forth.

194,225. TOOL-CARRYING TRUCKS FOR USE IN BORING OIL-WELLS. H. T. Blackwell, Edenburg, (Knox P. O.,) Pa. [Filed July 28, 1877.]



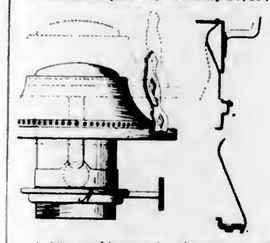
The combination of the wheels and axle A B, the frame C, the curved rack-bar D, the brace-bars E, the pivoted bar F, the spring-bars G, the round H, the swiveled frame I, and the gear-wheel, crank, and pawl K L M with each other, substantially as herein shown and described.

194,226. PULLEY-BLOCKS. Anton Bischoff, New York, N. Y., assignor to himself and F. Burger, same place. [Filed Aug. 3, 1877.]



A pulley-block for clothes-lines, made with circular recesses at the inner faces of the cheeks, the recesses extending around the flanges of the pulley to prevent wedging of clothes-lines, substantially as specified.

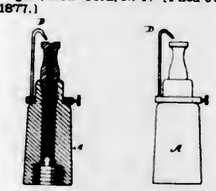
194,227. LAMP-BURNERS. E. L. Bryant, Ansonia, Conn., assignor to Wallace & Sons, same place. [Filed July 27, 1877.]



1. The combination, in a lamp burner, of a cylinder around the wick-tube, the said cylinder constructed with a filling-aperture, a vertically-sliding sleeve on said cylinder, and an automatic valve inside said filling-aperture, substantially as described.

2. In a lamp-burner, the method herein described for securing the chimney springs, consisting in the insertion of the lower end of the spring through the edge of the chimney-rest, and through a loop upon said rest, and turned upon an internal shoulder, substantially as described.

194,228. ELECTRIC GAS-BURNERS. A. L. Bogart, New York, N. Y. [Filed July 9, 1877.]



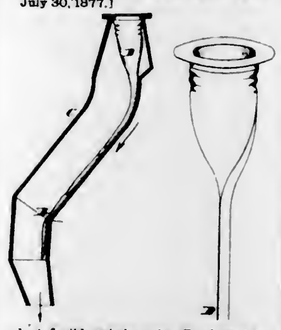
1. The pillar A of a gas-burner, when made from speckstein or steatite, substantially as herein set forth.

2. The pillar A made from speckstein and having screw-threads *m* and *o* formed thereon, substantially as shown, in combination with a metallic gas-tip.

3. The combination of the steatite pillar A, the conductor D, and a metallic gas-tip, substantially as shown and described.

4. The combination of the steatite pillar A, the conductor D, and a lava gas-tip either of the bat'swing or the fish-tail kind, substantially as herein specified.

194,229. STENCH-TRAPS FOR USE IN SINKS, &c. S. Buhrer, Cleveland, Ohio. [Filed July 30, 1877.]



1. A flexible tubular valve, B, adapted, by suitable means, to rest at an angle to the perpendicular, substantially as and for the purposes described.

2. The flexible tubular valve B, inclosed in a suitable casing, C, placed at an angle to the perpendicular, substantially as and for the purposes described.

3. The casing C, provided with a flat floor or surface, for the accommodation of the flexible tubular valve B, substantially as and for the purposes described.

4. The casing C, placed at angle to the perpendicular, the floor of which is formed on a curve, or provided with the angle C', substantially as and for the purposes described.

194,230. FASTENER AND TIGHTENER FOR CYLINDRICAL SPIRAL WIRE COILS IN BED-BOTTOMS, &c. L. Canfield, Fond du Lac, Wis. [Filed Mar. 31, 1877.]

Brief.—The coil is secured in the fastener by inserting the end of the wire of the coil in the holes in the fastener, and turning them up together. They can be adjusted with relation to each other by detaching the fastener from its support, and turning it on the coil.

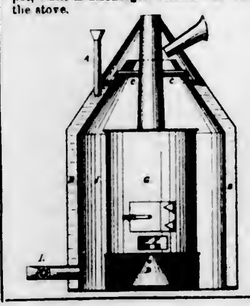


1. The fastener and tightener A, having the single row of holes *a* and the parallel rows of holes *c b*, in combination with the spiral coil C, the holes *c b* being of suitable size to receive the wire of the coil, and also being arranged to agree with the diameter and pitch of the coil, whereby the coil can be inserted into the fastener, substantially as described.

2. The combination of the coil C C and the fastener A, having the holes therein corresponding to the coil, substantially as and for the purpose above described.

194,231. CAR-HEATERS. De Witt C. Chipman, Richmond, Ind. [Filed Jan. 26, 1877.]

Brief.—The part D discharges into the fire-pot, while E discharges outside the body of the stove.

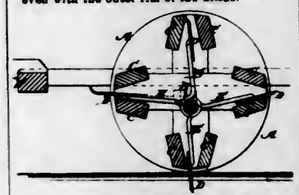


1. The combination and arrangement of the reservoirs B and D beneath the heater G, for the purposes specified.

2. The combination and arrangement of reservoirs B, D, and E, with pipes C C, whereby the inner and outer surface of the heater G is deluged at the same time, substantially as described.

194,232. CORN-STALK CUTTERS. Benj. C. Clevenger, Chanute, Kans. [Filed Apr. 23, 1877.]

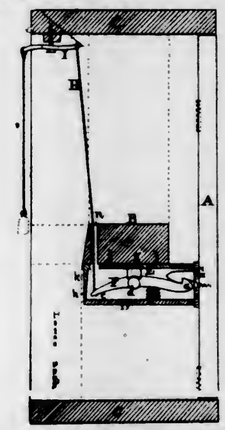
Brief.—The cutter has a crank-axle, to which the knives are fastened with arms, and forced into cutting position as they revolve downward. The ends of the axle are bent at right angles, forming arms, which extend along the frame, and are turned upward, and inserted in holes in the latter. The circular heads are solid, and the bars through which the knives project are fastened on their inner surface and even with the outer rim of the heads.



In a corn-stalk cutter, the bars C C, in combination with the circular heads A A, those of each pair being arranged with their inner edges separated, and outer edges near each other, as shown and described, for the purpose specified.

194,233. SHUTTER-FASTENINGS. Asa J. Cole, Peoria, Ill. [Filed July 16, 1877.]

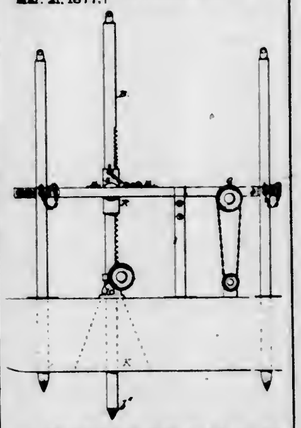
Brief.—A closed case, having only a cord-aperture and a hook-entrance, is attached to the under surface of the sash-bar, and carries a pivoted spring-hook, one end of which is connected by a wire or cord, leading to a lever on top, and then led down the inside of the window. There is also a hook attached to the blind or shutter, which automatically engages the spring-hook housed within the casing, and can be released only by manipulation of the cord from inside the room.



1. A closed case, D, attached to the under surface of the sash-bar B, and entirely closed on its upper side by a plate or the sash-bar, excepting at a small wire or cord passage, *h*, beneath the extension-passage *n* in said bar, and at the hook entrance *p*, at its outer end, in combination with a pivoted spring-hook, F, or catch, and wire or cord H, substantially as and for the purposes described.

2. The combination and arrangement of the hook G attached to shutter or blind A, the housed catch F, (housed in case D E, attached to lower edge of sash B,) cord or wire H, lever I, and cord *e*, substantially as and for the purposes described.

194,234. DREDGING-MACHINES. C. O. Davis and F. Davis, Portland, Me. [Filed Mar. 21, 1877.]



1. The combination of the spud B and well K, as set forth.

2. The spud B, bearings J, sleeve *i*, in combination with the rack *f* and pinion *g*, as and for the purposes set forth.

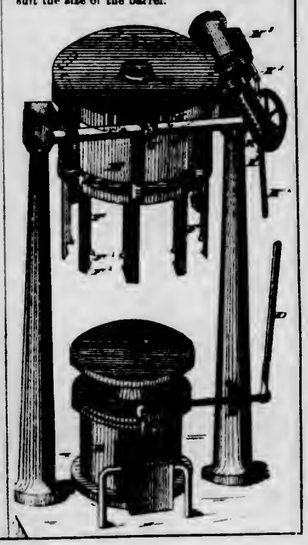
3. The combination of the spud B, guides D D, sleeve R, slide *a a*, rack *c*, and pinion F, with shaft *t*, for the purposes set forth.

4. The combination of the spud B, guides D D, sleeve R, slide *a a*, as and for the purposes set forth.

5. The combination of the spud B and spuds A A, as and for the purposes set forth.

194,235. BARREL TRUSSING AND HOOPING MACHINES. Mark L. Deering, Cleveland, Ohio, assignor of one-half his right to G. H. Hopper. [Filed June 23, 1877.]

Brief.—The barrel is supported on a vertically-movable platform, by which it is elevated into contact with dependent arms supported by a superposed head. The upper part of the head is rotatable, and is provided with inclined slots, into which the ends of the arms project, said arms being fulcrumed near their mid-length, so that by rotating the movable part of the head the lower ends of the arms may be moved closer together or farther apart to suit the size of the barrel.



1. In a barrel-hooping machine, the combination, with a vertically moving platform for supporting the barrel, of a series of dependent arms secured to an independent head, which latter is located above the movable platform, substantially as described.

2. In a barrel-hooping machine, the combination, with a vertically-moving platform, of a superposed head provided with a series of dependent arms, and means for imparting a radial movement to said arms, substantially as described.

3. In a barrel-hooping machine, the combination, with a vertically-moving platform, of a superposed head or frame, provided with a series of dependent arms, the latter trunnioned below their upper ends to the head, while the extreme upper ends have their bearings in a rotary head or plate, substantially as described.

4. In a barrel-hooping machine, the combination, with a vertically-moving platform, of a superposed head, provided with dependent arms, the latter trunnioned at F', and the movable head H constructed with inclined slots H' for the reception of the upper ends of said arms, substantially as described.

5. The combination, with the head H, of the worm-gear J J' and hand-wheel J'' for operating the same, substantially as described.

6. The combination, with the head H, of the worm-gear J J', rack and pinion K K', and steam-power for operating the said rack, substantially as described.

7. In a barrel-hooping machine, the steam-cylinder H and vertically-moving platform C, the whole governable by a lever, D, operating a valve, substantially as and for the purposes described.

8. The barrel-hooping machine, consisting of the vertically-moving platform C, cylinder B, and lever D, in combination with the adjustable spring-arms F, and governing lever K', or its equivalent, substantially as described.

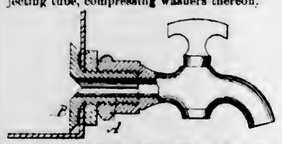
9. In a barrel-hooping machine, the combination, with the arms F and trunnions F', of the rotary head H, provided with boxings G, substantially as described.

10. The combination, with the vertically-moving platform and the guide frame or top E, having a flat surface underneath, of the arms F and mechanism for expanding them so as to stand free from the barrel, substantially as and for the purposes described.

11. The combination, with the arms F, of removable trunnions F', substantially as and for the purposes described.

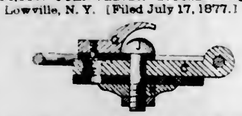
194,336. STOP-COCKS. S. M. Denniston and C. Simmons, Prescott, Ariz. [Filed June 25, 1877.]

Brief.—A transversely-bisected hollow externally-threaded bolt projecting from the vessel, having a large interior head, also bisected, is driven from within by a hand reaching from another opening, and an interiorly-threaded faucet barrel or tube is screwed upon this projecting tube, compressing washers thereon.



The combination of the split and threaded tube A, having the T-shaped head B and the stop cock D, substantially as shown and described.

194,337. PUMP-VALVES. D. Frank Dodge, Lowville, N. Y. [Filed July 17, 1877.]

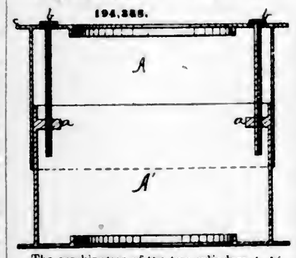


1. The lower valve of a pump hinged upon a divided ring of spring metal, and by the outward pressure of said springy retained in position within the barrel and upon the valve-seat, substantially as described.

2. In combination with the ordinary pump-valve, the supplemental valve F, and vent E, substantially as described and set forth above.

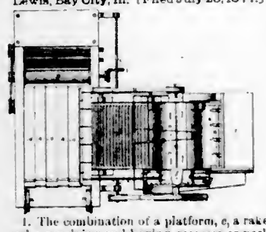
194,338. STOVE-PIPE THIMBLES. Wm. J. Donaldson, Buffalo, N. Y. [Filed July 19, 1877.]

Brief.—A stove-pipe thimble composed of two telescopic cylinders, made adjustable to any length by means of screws passing through the top of the outer cylinder, and engaging with lugs on the sides of the inner cylinder.



The combination of the two cylinders A A', the latter having lugs *a a*, with the adjusting-screws *b b*, passing through the cylinder A and the lugs *a a*, substantially as and for the purpose described.

194,339. BAND-CUTTING FEEDERS FOR THRASHING-MACHINES. J. Dusch and H. Lewis, Bay City, Ill. [Filed July 25, 1877.]



1. The combination of a platform, *c*, a rake, and a revolving reel having recesses or pockets in its sides, the rake being adapted to throw the bundle into the recesses or pockets, substantially as shown.

2. A revolving reel having recesses in its sides, and cutters made to reciprocate back and forth therein, so as to cut the bands of the bundles, substantially as described.

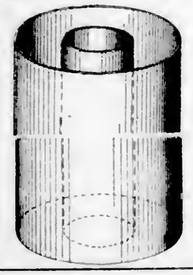
3. In combination with the revolving reel, having recesses or pockets in its sides, the cutters moving back and forth therein, and a holding spring for keeping the bundles pressed down upon the cutters, substantially as set forth.

4. The combination of a revolving reel, the disk *k*, having teeth upon a portion of its surface, the shafts *s*, carrying the pinions *m*, and cranks *n* for operating the cutters, substantially as specified.

5. The combination of a reel, *g*, provided with cutters for cutting the bands, an endless apron for catching the straw and feeding it forward, and a rake for scattering the straw over the surface of the slats A, substantially as shown.

6. The combination of the feeding-slats A, the rollers B C D, and the toothed reel *w*, the reel serving as a regulator, substantially as set forth.

194,340. PROCESSES OF OBTAINING WROUGHT-IRON OR STEEL DIRECT FROM THE ORE. C. M. Dupuy, Philadelphia, Pa. [Filed Mar. 13, 1877.]



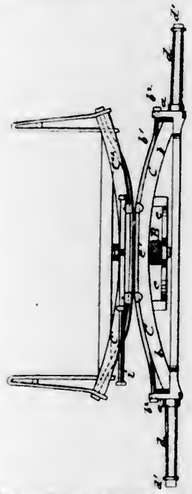
1. The improved method of obtaining wrought-iron or steel direct from the ore, which consists in reducing the mixed and pulverized ore flux and carbon in sheet-iron annular cases, which cases are finally incorporated with the reduced metal and form a part of the finished bloom, as herein described.

2. The described process of producing wrought-iron direct from the ore, which consists in charging onto a furnace-hearth sheet-iron annular canisters filled with a pulverized mixture of iron ore, carbon, and flux, and subjecting them therein to a gradually-increasing temperature until the reduction of the contained ore is perfected, the furnace-flame being maintained throughout the operation of a reducing quality, and the resulting mass of metal withdrawn and shingled, all substantially as herein set forth.

3. The method of promoting the speedy reduction of the ore, which consists in spreading a carbonaceous layer upon the furnace-hearth, and charging the annular canisters containing the mixed materials therein, substantially as herein described.

4. The process of preventing the destructive oxidizing action of the furnace-gases upon the reducing metal, which consists in mixing with the ore such quality and proportion of fluxing material as will form with the gang a non-flowing slag, which slag, remaining where it is formed throughout the mass, effectually glazes and protects the metal from deleterious action, as herein described.

194,341. VEHICLE RUNNING-GEAR. G. R. Duval, Oregon City, Oreg. [Filed Apr. 9, 1877.]

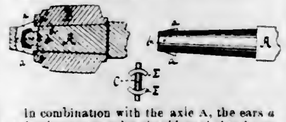


1. The combination, with the rear axle, of an arch, C, having brace-rod *b*, and passing up into the bolster, as shown and described.

2. The combination, with the front axle and bolster, of the two arches C C', reversed and touching on the parts of their greatest convexity, as and for the purpose specified.

3. The combination of coupling-sleeve *g* and brake-sleeve *i*, back of the same, with lateral and rear extending brace-rods of rear axle, substantially as set forth.

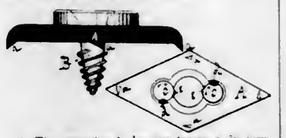
194,342. VEHICLE-HUB-ATTACHING DEVICES. C. O. Egerton, Baltimore, Md., assignor of two-thirds of his right to W. S. Richmond and H. Richmond, New York city. [Filed July 10, 1877.]



In combination with the axle A, the ears *a a*, having rectangular shoulders *a' a'* and projections *d d*, and the spring *e*, substantially as described.

194,343. STAMP-CANCELING DEVICES. C. C. Egerton, Baltimore, Md., assignor of two-thirds of his right to W. S. Richmond and H. Richmond, New York city. [Filed July 10, 1877.]

Brief.—The screw holds the canceler and drives the tangs into the barrel through the stamp. The screw cannot be unscrewed without revolving the canceler, which, by its tangs, cancels the stamp. The spring-operated serrated disks serve to hold the screw when it is turned in one, but loosen their hold when turned in the opposite direction.



1. The canceler A, having tangs *a*, in combination with the disks C and screw B, substantially as described.

2. In combination with the canceler A, the disks C, having springs *d* and teeth *c*, substantially as described.

3. In combination with the canceler A, having disks C, the screw B and nut E, substantially as described.

4. In combination with the nut E, threaded externally, and having holes *f f*, the canceler A and screw B, substantially as described.

194,344. GRATE-BARS. E. M. Erdman, Lykens, Pa. [Filed July 2, 1877.]

Brief.—The air passes around and through the hollow stiffening-bar, by which it is kept cooler than the solid bar, and therefore not so liable to warp.



The combination, with a furnace-grate bar, of a removable tube or hollow cylinder, whereby the grate-bar is stiffened, and at the same time allowing a free circulation of air through said tube or hollow cylinder, substantially as and for the purpose set forth.

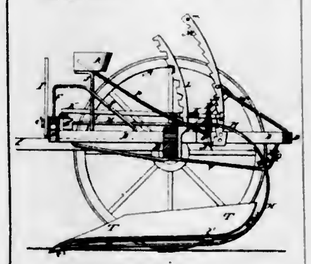
194,345. SPECTACLES. L. Franklin, Platteville, Iowa. [Filed June 27, 1877.]



1. In spectacles, the combination of the two glasses *c h*, the one, *c*, being rigidly fastened to the frame *a*, and the other, *h*, provided with a joint at one end, whereby it can be folded down over the lower glass, substantially as shown.

2. In spectacles, the combination of the stationary glass *c*, frame *a*, glass *h*, ball *i*, and slotted socket, whereby the glass *h* can be moved backward out of the way, or folded downward over the front of the glass *c*, substantially as described.

194,346. MACHINES FOR PICKING STONES, &c. C. Fuller, Little Marsh, Pa. [Filed July 23, 1877.]



1. The combination of the hinged cross-bar G and the U-rods H, connected by the cross-bars A' A'' A''' with the frame-work of the machine, substantially as herein shown and described.

2. The combination of the adjustable cross-bar E and the guide-rods F with the hinged cross-bar G, to which the U-rods H are attached, and with the frame D, substantially as herein shown and described.

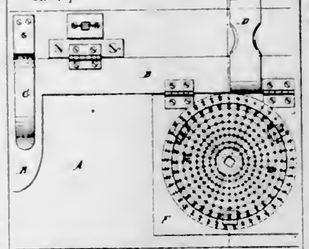
3. The combination of the lever I, provided with the slotted curved arm *i'* and the pin *c'*, with the frame D, the adjustable cross-bar E, and the hinged bar G, to which the U-rods H are attached, substantially as herein shown and described.

4. The combination of the lever K and the notched fulcrum-bar L with the cross-bar *k'* of the U-rods H, and with the axle B of the carriage, substantially as herein shown and described.

5. The combination of the ratchet-bars M, the pawls N, the rod O, and the lever P, with the cross-bar *k'* of the U-rods, and with the frame D, substantially as herein shown and described.

6. The combination of the scraper T, provided with the keeper *t'* and the flange-socket *t''*, with the lower arms of the U-rods H, substantially as herein shown and described.

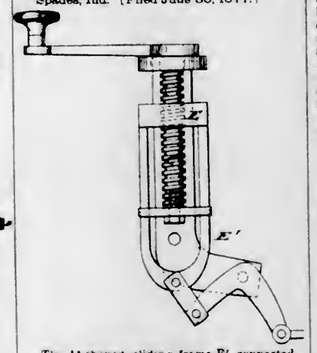
194,347. APPARATUS FOR TESTING BANK-CHECKS, &c. F. Grafelmann, Middle Village, (Maspeth P. O.,) and A. D. Grafelmann, New York, N. Y. [Filed June 30, 1877.]



1. The combination of the plate A', the hinged right-angled bar B', the springs C', the lever D', and the plate E, provided with the concentric circles of holes arranged upon radial lines, and with the series of combination numbers to adapt it for use by a depositor for marking his checks, substantially as herein shown and described.

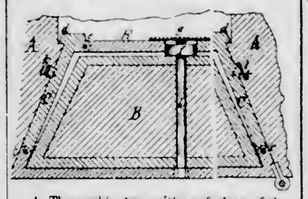
2. The combination of the plate A, the hinged right-angled bar B, the spring C, the lever D, the plate F, provided with the circular hole, and the series of index numbers, and the rotating circular disk G, provided with the circles of holes arranged upon radial lines, and the series of combination numbers to adapt it for use by a bank for testing a marked check, substantially as herein shown and described.

194,348. VEHICLE-BRAKE LOCKS. J. Hahn, Spades, Ind. [Filed June 30, 1877.]



The U-shaped sliding frame E', connected by nut at upper end with screw-shaft of frame A, and at lower end with the brake mechanism, as and for the purpose specified.

194,349. LOCKING DEVICES FOR SAFE-DOORS. R. Heneage, Buffalo, N. Y., assignor of one-half his right to A. C. Stevens, same place. [Filed July 5, 1877.]

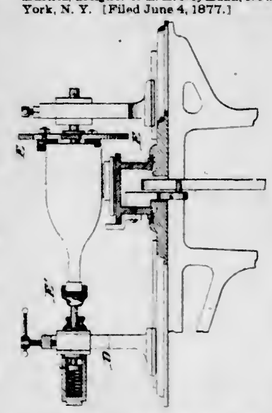


1. The combination, with a safe-door, of the side plates C C, hinged to the door near the front, and constructed so as to lock the door when the inner ends of the side plates are swung outward, and forming a tight joint between the door and its seat, substantially as hereinbefore set forth.

2. The combination, with a safe-door, of the side plates C C, hinged to the door near the front, and actuating-plates E E, arranged on the rear side of the door, and hinged to the side plates and cam *f*, substantially as and for the purpose hereinbefore set forth.

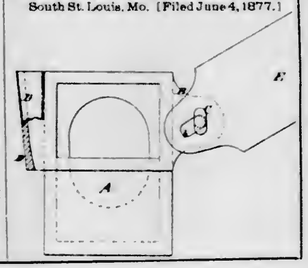
3. The combination, with a safe-door, of the pivoted side plates C C, provided with ribs *i*, engaging in groove *k*, having packing-strips *l*, substantially as and for the purpose hereinbefore set forth.

194,350. MACHINES FOR PRINTING ON GLASS, PORCELAIN, &c. F. W. Heuer, Vienna, Austria, assignor to E. H. Neymann, New York, N. Y. [Filed June 4, 1877.]



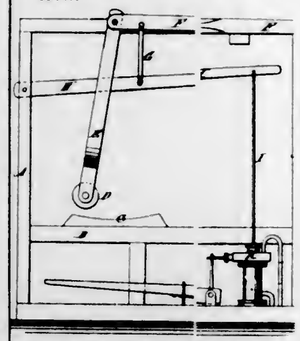
In a machine for printing in colors on cylindrical bodies of glass, porcelain, &c., the combination, with ink-distributing devices and elastic printing-plate, of the laterally-adjustable standards D, with the vertically-adjustable and revolving face-plate E, having radially-movable cushioning-seats or rests, and with the vertically-adjustable revolving and spring-cushioned head E', substantially in the manner set forth.

194,351. CAR-AXLE BOXES. Jas. W. Hill, South St. Louis, Mo. [Filed June 4, 1877.]



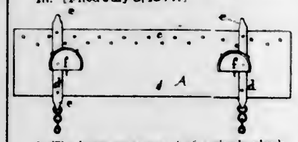
The combination, with box A, having ear B, with button-head C on the neck a, and provided with grooved jaw D, of the cover E, having the opening b, as and for the purpose specified.

194,352. LEATHER-ROLLING MACHINES. H. Hudson, Saltillo, Pa. [Filed June 18, 1877.]



In a leather-rolling machine, the combination of the steam piston-rod I with the lever H, connecting rod G, pivoted bars E F, and roller D, all substantially as and for the purpose specified.

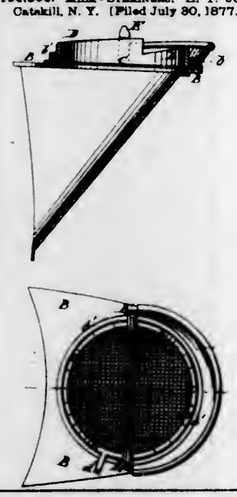
194,353. HARROWS. N. S. Johnson, Fiat, Ill. [Filed July 3, 1877.]



1. The harrow composed of a single plank, A, having teeth c at one edge only, and draft attachments (rings or loops) for drawing the same in either direction laterally, according to its requirement as a smoother or pulverizer, or a clod-crusher, substantially as and for the purposes described.

2. The harrow A, provided with teeth c on one edge, bands d d, and loops e e or draft attachments at either edge of the board, and seat or seats f, substantially as and for purposes described.

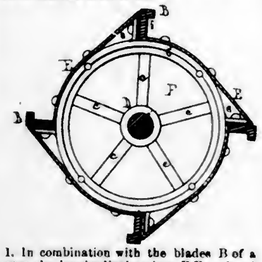
194,354. MILK-STRAINERS. H. T. Jones, Catskill, N. Y. [Filed July 30, 1877.]



The combination of the double cam ring D and the lugs E with the gauze C, the flange b', and the plate B, substantially as herein shown and described.

194,355. BEATERS FOR COTTON-OPENERS. R. Kitson, Lowell, Mass. [Filed June 21, 1877.]

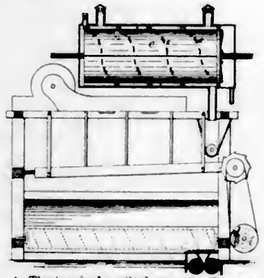
Brief.—The shaft, arms, and blades are protected by longitudinal and end casings, the former extending backward from each beater-blade to the face of the next blade, leaving as much of the face exposed as may be desirable, but inclosing the space between the blades. The end casings are provided with wings, which serve to protect the shaft and ends of the blades, and to create a draft of air.



1. In combination with the blades B of a beater, the longitudinal casings E E and end casings F F, substantially as described.

2. The combination of the blades B, the longitudinal casings E E, and end casings F F, the latter provided with wings G G, substantially as described.

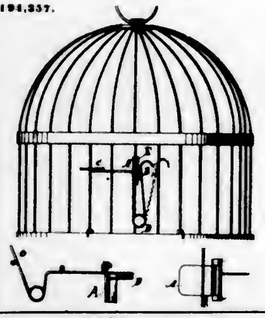
194,356. MANUFACTURE OF FLOUR. C. R. Knickerbocker, Jackson, Mich. [Filed Mar. 30, 1877.]



1. The herein-described process of preparing the product of grinding grain for separation by heating it and then subjecting it, while in a heated condition, to the cooling and drying action of air-currents, substantially as set forth.

2. The herein-described method or process of separating flour from bran, by first heating the bran, then drying it by air-currents, then crushing it, and then removing the flour which has been thus detached, substantially as described.

194,357.

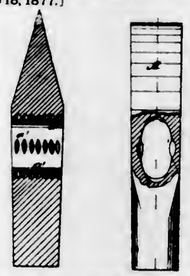


194,357. DEVICES FOR HOLDING BIRD-FEED IN CAGES. W. H. H. Krause, Chicago, Ill. [Filed June 12, 1877.]

Brief.—The food is held by one plate against the toothed edge of the other plate. The holder slides and rotates on one wire of the cage, and is held at any height by a spring-catch engaging another wire of the cage.

The combination of the spring-clamp D, plate B, attached to one branch thereof, plate A, attached to the other branch thereof and to the cage wire, and having a serrated edge, and of the spring-catch C, as and for the purpose set forth.

194,358. SECURING HANDLES IN TOOLS. L. Landeker, San Luis Obispo, Cal. [Filed June 18, 1877.]



A tool having the projections a' on the inside of the eye thereof, as and for the purpose specified.

194,359. PAPER-LINED BAGS. E. Mallalieu, Baltimore, Md. [Filed May 16, 1877.]



1. As a new article of manufacture, a bag-tube consisting of paper and textile fabric, the same being unattached except at the seam, substantially as described.

2. A bag consisting of paper and textile fabric, the same being attached only at the seam, substantially as described.

194,360. FISH-PLATE BOLTS FOR RAILWAY-RAILS. T. McDonough, Mont Clair, N. J. [Filed May 23, 1877.]

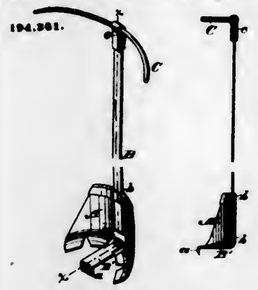


The combination of a double-headed bolt, A b a, and a slotted wedge, D, with the fish-plates and railroad-rails, the bolt and wedge being applied thereto, as herein described, and so that the thin edge of the wedge shall be turned outward against the flange of the rail, substantially as set forth, for the purpose specified.

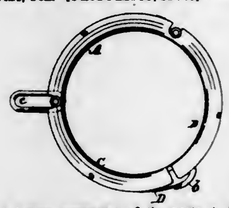
194,361. BOOT-LEG SUPPORTERS. Peter McGuigan, Mannville, Wis., assignor of one-half his right to M. McGuigan, same place. [Filed Jan. 5, 1877.]

The combination of the counter-stiffener A, spring-supporter B, and wire C, in the manner described, for the purpose specified.

194,361.



194,362. HOPPLES. B. F. Melton, Gainesville, Tex. [Filed June 18, 1877.]



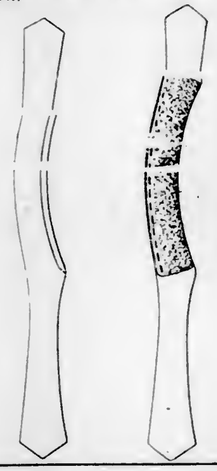
A hopple consisting of the parts A B C and link c, the part B having an opening, a, and the part C having the hook b and spring D, substantially as herein shown and described.

194,363. RUBBER HOSE. Henry J. Merrens, Cleveland, Ohio. [Filed June 9, 1877.]



A rubber hose consisting of an interior cylinder of rubber and a layer or layers of cloth, the latter formed with longitudinal overlapping edges, as described, and wound with cord or wire, the whole being coated with vulcanized rubber, substantially as described.

194,364. TONGUE-CLEANERS. L. Morgenthau, New York, N. Y. [Filed June 4, 1877.]



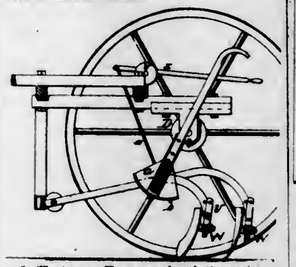
A tongue-cleaner having a central scraper portion and end handles, in combination with an absorbing-brush attached to the scraper, substantially in the manner described, and for the purpose specified.

194,365. ALLOYS FOR PLATING METALLIC ARTICLES. M. P. Page, Eureka, Ill. [Filed Feb. 17, 1877.]

A plating composition consisting of silver, one part, tin, ten parts, nickel, one part, and copper, four parts, as herein described.

194,366. RIDING-CULTIVATORS. James H. Palm, Lexington, Ohio. [Filed Jan. 17, 1877.]

Brief.—A split tongue of irregular shape. An extensible handle, whose pitch may be changed by pulling it up. When released, a spring throws it back, causing its pin to engage with one of a series of holes in the flanged handle-plate. Construction of the lifting-lever and its circular ratchet.



1. The tongue E, provided with the contraction and swell, substantially as shown and described.

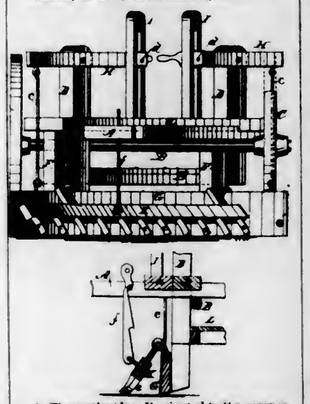
2. The handle f, composed of the parts i l, v in combination with the flanged quadrant s, the lower portion of the handle being provided with a spring, g, arranged to project a pin, e, beyond the end of the handle, substantially as shown and described.

3. A cultivator-handle pivoted upon its bolt and provided with a spring device to engage it rigidly with its plow-beam, whereby the handle is held in working position or released and adjusted at various heights by elevating the handle itself, substantially as set forth.

4. A cultivator-handle, f, provided with the spring g and pin e, in combination with the flanged quadrant s, substantially as set forth.

5. The lever x, pivoted on the center-pin y of the circular ratchet o, which forms a bearing for the lever upon one side and an engaging ratchet upon the other, and provided with the spring e and stud w, substantially as shown and described.

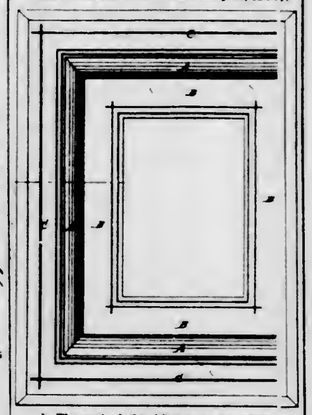
194,367. ROAD-SCRAPERS. S. Pennock, Ithaca, N. Y. [Filed June 18, 1877.]



1. The toothed bar K, pivoted to the scraper G, and connected with the pivoted rod f, substantially as and for the purpose specified.

2. The triangular frame A, bars a b, slotted pivoted standards I, standards D, in combination with the scraper-bar G, rods c, and levers H, substantially as shown and described.

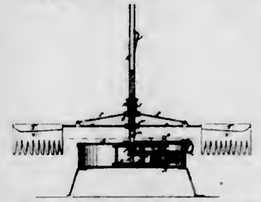
194,368. PASSE-PARTOUT MATS. S. Phillips, Paterson, N. J. [Filed May 21, 1877.]



1. The method of making passe-partout mats, by first attaching paper to molding, then cutting the latter, and finally joining the molding together, as shown and described.

2. A passe-partout mat in which the molding A and the inside mat B are coated with a preparation consisting of French zinc, gelatine, and ultramarine blue, substantially as herein shown and described.

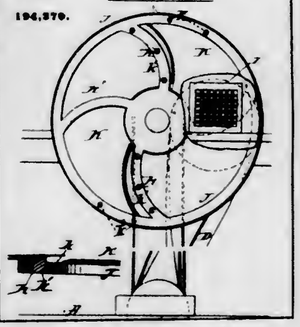
194,369. AUTOMATIC FANS. A. W. Prather and D. D. Shirley, Linnville, Iowa. [Filed July 13, 1877.]



1. The combination of the shaft L, the sleeves M R, the notched and grooved ring-flanges N Q, the hinged arms O, the hinged braces P, the catch-springs S, and the fan, flag, or brush holders T, with each other and with the box A and its clock-work, substantially as herein shown and described.

2. The combination of the pivoted lock-bar V with the box A, and with the squared upper part of the shaft K of the clock-work that gives motion to the shaft L, which carries the fans, substantially as herein shown and described.

194,370.



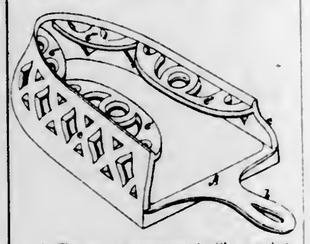
194,370. MEAT-CUTTERS. R. B. Pumphrey, Baltimore, Md. [Filed Nov. 11, 1876.]

1. The knives K K, rigidly held to the wheel J, and having set-screws k^2 k^2, in combination with said wheel, having lateral notches or recesses k^2, substantially as and for the purpose set forth.

2. The tripping or releasing mechanism *g h h'* and clamp H, in combination with the follower G and receptacle F, substantially as and for the purpose set forth.

3. In a meat-cutting machine, the blocking device or reticulated frame I, having its partitions or dividing-plates *i i* beveled or sharpened, substantially as and for the purpose set forth.

194,371. SAD-IRON STAND AND SCOURER. F. Raymond, Wheeling, W. Va. [Filed Apr. 3, 1877.]



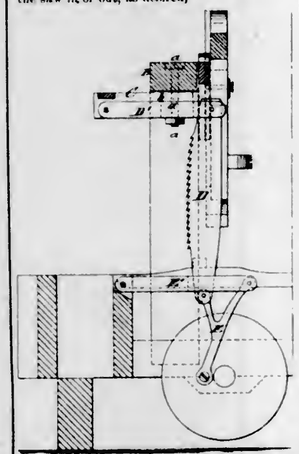
1. The case A, constructed with open bottom, handle *b*, elevated sides *c*, and laterally projecting ledges *c' c'' c''' c''''*, substantially as and for the purposes described.

2. In combination with the open bottom case A, the removable bottom board C, fitting loosely within the open bottom of the case, and covered with a scouring material, substantially as and for the purposes described.

3. The combined sad-iron stand and scourer, composed of case A, constructed with handle *b*, sides *c*, and flanges *c' c'' c''' c''''*, removable bottom C, and removable scouring surface D, all arranged and adapted to operate substantially as and for the purposes set forth and shown.

194,372. SAWING-MACHINES. J. J. Reinhart and W. Houghton, Loogootee, Ind. [Filed July 9, 1877.]

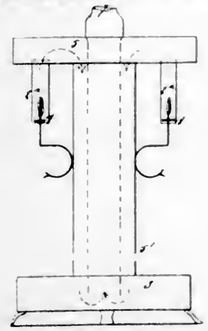
Brief.—By means of the forked pitman and the vibrating arm the saw is caused to recede during its upward movement, and to advance during the downstroke. The muley-head is made adjustable, so as to set the upper end of the saw in, or out, as desired,



1. The combination, with a vertically-reciprocating saw, D, pivoted at upper end to a vibrating arm, D', of a forked pitman, eccentrically pivoted to the drive-wheel, and having one of its fork-prongs pivoted to saw, while the other is pivoted to a pivoted bar, E', as and for the purpose described.

2. The saw, arm, and upper muley-boards, in combination with screw-bolts *a* and muley-head, slotted at *b*, as and for the purpose specified.

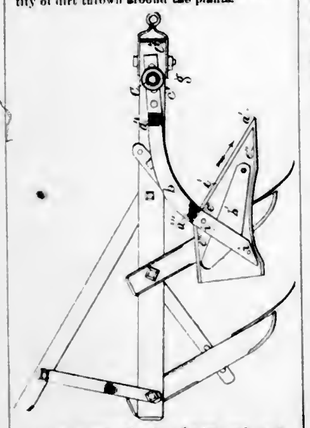
194,373. APPARATUS FOR HEATING AND LIGHTING. C. Ritchie, Brixton, England. [Filed June 24, 1876.]



The improved apparatus for lighting, heating, and ventilating apartments, consisting of gas-burners 1, transparent tubes or globes 2^a, the communicating tubes 5, hollow base, and a vertical tube connecting with the base, all combined and arranged as shown and described, to operate as specified.

194,374. PLOW-FENDERS. J. B. Rubsam, Springfield, Ohio. [Filed June 29, 1877.]

Brief.—Constructed with a sharp point and oblique edge to run under the leaves of plants, and raise them above the falling earth. The beam-clamp comprises an eccentric ratchet-plate, to adjust the distance from the plow, and various holes in the plate and a stud upon the beam, to regulate the height from the ground. A hinged cut-off regulates the quantity of dirt thrown around the plants.



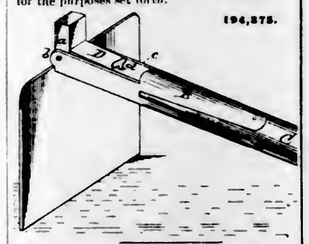
1. An improved plow-fender and corn-straightener of semi-rhomboidal shape, with its oblique angle *a'* extended forward on the ground-line, and its front edge *c'* inclined backward from the same at an angle of about thirty-five degrees to forty degrees, substantially as shown and specified, for the purpose hereinbefore set forth.

2. The improved double adjustable ratchet-clamp C, having an eccentric base-plate *c*, provided with holes *c c c*, for adjustment upon pin *f* of beam C', constructed and operated substantially as shown and described, as and for the purpose hereinbefore set forth.

194,375. COMBINED HOE AND SHOVEL. W. R. Russell and C. Steenken, Norfolk, Va. [Filed June 4, 1877.]

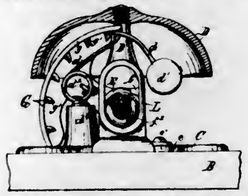
A blade or fork having the shank *a* pivoted between the plates *c* of the socket B, in combination with the hinged plate D, provided with the thumb-screw *d*, substantially as and for the purposes set forth.

194,375.



194,376. BURGLAR-ALARM WINDOW-FASTENINGS. Geo. Saurbrey, Columbus, Ohio. [Filed Aug. 1, 1877.]

Brief.—The movement of either sash turns the spindle and rings the bell.

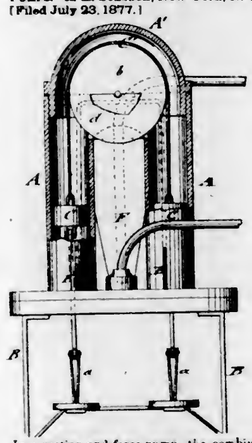


1. In a combined fastener and burglar-alarm, a bolt, F, mounted in a framing, C, carried by a bar, A, and provided with a serrated or toothed disk, G, the bolt F and disk G being adapted to be operated by a plate or projection, L, carried by a frame, B, substantially as and for the purpose described.

2. The combination, with a frame, C, provided with a standard, D', arm *d*, and hammer *d*, a bolt, F, having a semicircular locking-piece, f^3, disk G, and springs H H', of the locking and operating plate or projection L, substantially as and for the purpose described.

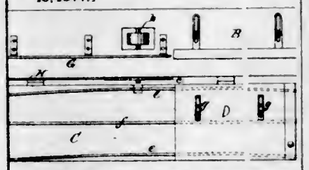
3. The combination, with the bolt F, of the grooved pulley or extension I of the arm K and cam or rim *k*, substantially as and for the purpose described.

194,377. TREADLE-OPERATED CONFLUENT PUMPS. R. H. Schenck, New York, N. Y. [Filed July 23, 1877.]



In a suction and force pump, the combination of two cylinders, connected with valved induction and eduction pipes, with alternately operated and treadle-acted pistons, connected by a top cord or chain passing over a guide-pulley from one piston to the other, substantially in the manner described, and for the purpose specified.

194,378. CIRCULAR SAWING MACHINES. J. M. Shaw, Shaw's Mills, Ga. [Filed July 13, 1877.]



1. The hinged table C and adjusting-screws *h*, in combination with the frame A and table B, substantially as shown and described.

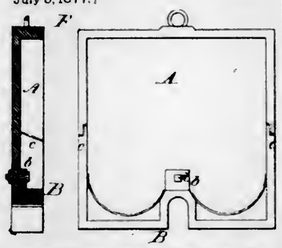
2. The combination, in a sawing-machine, of the hinged table C, having the curved track *e*, and the table D, adapted to run upon the said track, substantially as shown and described.

3. The divider H and guide C, for confining and guiding the edging, substantially as shown and described.

194,379. CONDITION-POWDERS FOR HORSES AND CATTLE. L. Shoenfeld, Eufaula, Ala. [Filed May 16, 1877.]

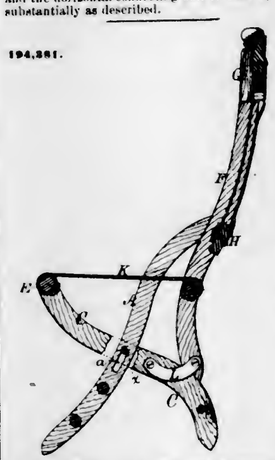
A medicated compound for the cure of, and prevention of, disease among horses, cattle, and other animals, consisting of juniper-berries, flaxseed, sugar, salt, saltpeter, fenugreek-seed, coriander-seed, turmeric, ginger, bloodroot, cream-tartar, grains of paradise, sulphur, bicarbonate of soda, Peruvian bark, gentian, and levigated antimony, in or about the proportions specified.

194,380. FURNACE-DOORS. Jas. Spinks, Pittsburg, Pa., assignor of one-fourth his right to M. Mundy, same place. [Filed July 5, 1877.]



The combination, specifically, of the casting A and casting B, the latter having the lug *b* and the horizontal connecting bolt or bolts *d*, substantially as described.

194,381.

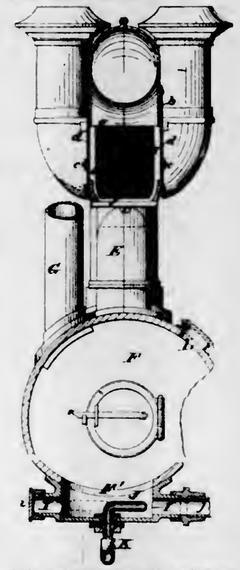


194,381. FOLDING CHAIRS. W. H. Sternberg, Wichita, Kans. [Filed Dec. 26, 1876.]

Brief.—The connecting-links between the side rails of the back and the back legs hold those parts firmly together when the chair is unfolded, and the elongated slots or bearings for the pivots allow a downward movement of the back legs, to keep the flexible seat taut.

The hereinbefore-described chair, in which the bars A and C, rails F, seat K, links L, pivots *x*, and elongated pivotal bearings *a* are constructed and combined in the manner and for the purpose substantially as specified.

194,382. SPARK-ARRESTERS. F. M. Stevens, Concord, N. H., assignor of one-half his right to H. G. Holmes, New York, N. Y. [Filed June 28, 1877.]



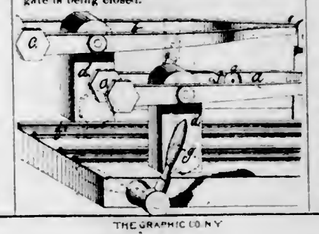
1. In a spark-arrester, a spark-screen, arranged laterally within the separator in such a manner that it divides the outer portion of the rotated current of gases bearing the sparks from the inner portion not bearing sparks, the first-named portion being thereby cut off from exit at the smoke-educts without first passing through the said screen, but having free access to the spark-receiver, substantially as set forth.

2. In a spark-arrester, the receiver F, provided with two or more discharge-educts, I I, and a steam-nozzle, J, swiveled in such a manner that it may be turned to coincide with the apertures in either educt desired, substantially as set forth.

3. The combination of the separator C, having slots *b b* in its side walls to receive the screen, the screen H provided with studs *c c*, and the side plates *d d* arranged to be secured to the separator-walls, substantially as set forth.

194,383. RAILROAD-GATES. H. A. Stearns, Pawtucket, R. I. [Filed Oct. 28, 1876.]

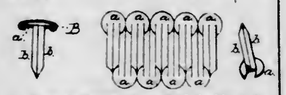
Brief.—Bifurcated bars are supported evenly on the ends of bearing-shafts in the standards. An alarm is operated automatically when the gate is being closed.



1. The combination, with a gate-standard, of a bifurcated and counterbalanced gate-bar, the two arms of which are rigidly secured to the opposite ends of the actuating-shaft, substantially as described.

2. The combination, with a railway-gate, of a ratchet bar or plate, *n*, pawl *o*, hammer *p*, and alarm-bell *q*, the several parts arranged substantially as set forth to sound an alarm when the gate is being closed.

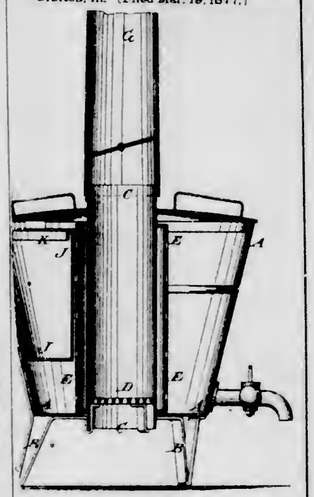
194,384. PAPER-FASTENERS. P. B. Sweet, Jr., Georgetown, D. C. [Filed Jan. 24, 1877.]



1. A paper-fastener formed of the blank A, having an enlarged portion, *a*, provided with prongs *b b*, bent at the center of, and at right angles to, said enlarged portion, and adapted to receive the concave head B, substantially as and for the purpose described.

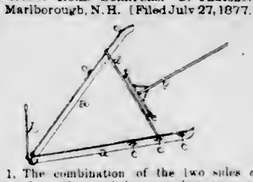
2. The prongs *b b*, bent at right angles to and from the center of the enlarged portion *a*, in combination with the concave head B, substantially as and for the purpose described.

194,385. WASH-BOILERS. M. Tanenbaum, Grafton, Ill. [Filed Mar. 19, 1877.]



A wash-boiler consisting of the vessel A, tapering toward its bottom, provided with central fire-chamber and flue D G, as well as water-jacket E, and having circumferential beads A', adapted to receive the separate segmental vessel J, having the flange *a* and cover K, all as and for the purpose set forth.

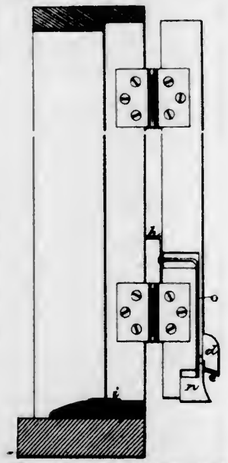
194,386. ROAD-SCRAPERS. G. Thatcher, Marlborough, N. H. [Filed July 27, 1877.]



1. The combination of the two sides *a*, hinged together at their rear ends so as to retain the dirt, with the rigid axle *d*, hinged tongue *g*, and sockets *c* on the sides *a*, whereby the front ends of the sides may be opened and closed at will, substantially as shown.

2. The combination of the two sides, pivoted together at their rear ends, with the cam-lever for raising the ends above the ground, substantially as set forth.

194,387. WEATHER-STRIPS. T. H. Tyson, Washington Court-House, Ohio. [Filed June 30, 1877.]



The combination of the door *b*, having a groove cut in its inner edge, weather-strip *c*, having the plate *i*, strip *d*, rod *o*, handle *h*, and slide *n*, the slide being applied to the lower corner of the door and moved by a direct pressure upon the handle, substantially as shown.

194,388. GARDEN-PUMPS. C. Vogelsang, Round Top, Tex. [Filed July 27, 1877.]

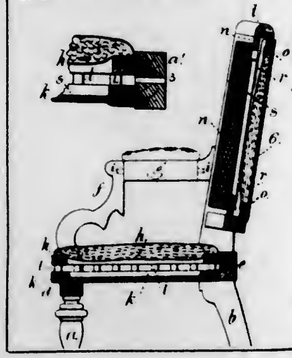
Brief.—A shallow circular case or segment thereof is perforated in its rim with a single row of holes extending a half or quarter circle, as the case may be, and sprinkles a section of a circular area accordingly.



In a sprinkling-pump, a nozzle, H or I, provided with a pipe, *h*, as a means of attachment to a forcing medium, consisting of a cylinder, piston, air-chamber, and outlet-pipe, substantially as shown.

194,389. CHAIRS. Harwood Wakeman, New York, N. Y. [Filed May 14, 1877.]

Brief.—The seat is composed of two frames united, one covered with cane and the other upholstered, the frames being removable, in order to bring either surface uppermost. The arms may also be revolved on dowels, to bring the upholstered part underneath, to protect it from injury when not in use. The seat-frame and posts are perforated for ventilation. The back may be removed by taking off the cap-piece, and may be reversed or removed entirely, to allow a permanent backing to be used.



1. The seat-bottom made of frames connected together, and with spindles or studs between them, in combination with the seat-frame adapted to support said seat-bottom with either side uppermost, substantially as set forth.

2. The combination, with a seat or back of woven cane or open-work, of a foundation of wire-work secured to the frame, so as to lie directly beneath and support the cane, substantially as set forth.

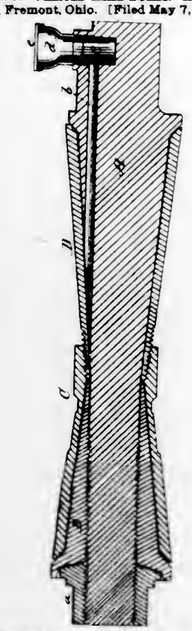
3. The removable head-rest *t*, having an upholstered surface and cap-piece *t*, provided with dowels to connect the same to the posts *c*, in combination with the said posts *c* and removable frames *a* and *o*, substantially as set forth.

4. The seat or back frame made with openings in the side pieces thereof, in combination with the movable frames, substantially as set forth.

5. The chair provided with a permanent backing, 6, and also a frame containing cane or open work that is removable from the frame of the chair-back, substantially as set forth.

6. The arm-pieces of the chair, made to revolve upon a longitudinal axis, and upholstered at one side, substantially as set forth.

194,390. VEHICLE AXLE-BOXES. A. Walter, Fremont, Ohio. [Filed May 7, 1877.]

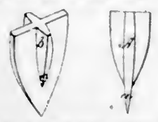


1. The tapering spindle A, screw-threaded sleeve B, nut *a*, in combination with the two tapering sections C D, substantially as and for the purpose set forth.

2. The tapering spindle A, having opening *b* and cup *c*, and the tapering sleeve B, tapering sections C D, and nut *a*, constructed and arranged as specified.

194,391. WEDGES FOR TOOL-HANDLES. A. St. C. West, Charleston, S. C. [Filed Aug. 4, 1877.]

Brief.—The wedge is provided with two lateral flanges and a sharp drive-point, extending below the lower ends of said flanges.



The four-flanged helve-wedge, adapted for use substantially as specified.

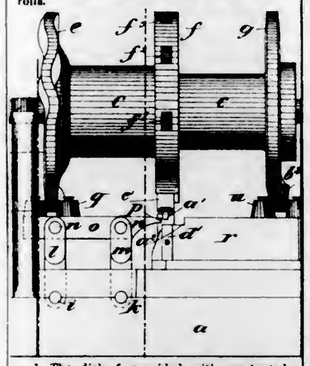
194,392. DYEING AND COLORING FEATHERS, LACES, AND OTHER FABRICS. J. Williams, Columbia City, Ind. [Filed May 31, 1877.]

Brief.—For a yellow color, one ounce chrome-yellow ground in oil and one quart of gasoline are used.

My improved process of dyeing and coloring, which consists in immersing the material to be colored in a bath of gasoline or naphtha and mineral pigment ground in oil, in substantially the proportions described, and then removing and drying, as specified.

194,393. HORSESHOE-NAIL MACHINES. H. E. Woodford, Montreal, Quebec, Canada. [Filed June 13, 1877.]

Brief.—The disk carrying the graduated rolls for drawing the nail-blank is also provided with a projection on its periphery for operating the cutters, which, at the proper time, are brought in position to sever the blank. One cutter is fixed in the side of the anvil, the other to a pivoted arm connected with the anvil, with which said arm advances and recedes, bringing its cutter in position to act, and again withdrawing it from the path of the graduated rolls.

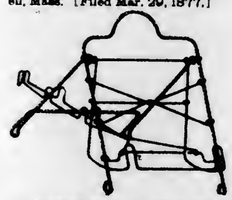


1. The disk *f*, provided with graduated rollers, as described, in combination with the anvil *r*, provided with die *t*, reciprocating side die *o*, and cutter a^1 d', substantially as and for the purposes set forth.

2. The combination of the anvil *r*, having cutter *d'* attached thereto, and disk *g*, having projection b^1, with the arm *o*, cutter a^1, and mechanism for operating said cutter, substantially as and for the purposes set forth.

3. The combination of the disk *f*, having graduated rolls, as described, and projection *c'*, with a sliding anvil, *r*, having cutter *d'* and cutter a^1 actuated thereby, and operated substantially as and for the purposes set forth.

194,394. WIRE STANDS FOR BOOKS, CARDS, &c. E. P. Woods and G. D. Dudley, Lowell, Mass. [Filed Mar. 29, 1877.]



1. The stand provided with the loose pendent holder E E, substantially as shown and described.

2. A wire stand having its front and rear legs hinged at the top, and provided with a spreader adapted to hold the legs apart at different distances, substantially as described.

194,395. SLEEPING-CARS. S. S. B. Alexander, Mobile, Ala. [Filed Aug. 13, 1877.]

1. In a sleeping-car, a reversible seat-back made in two sections, hinged together, forming, when unfolded, one end and one-half of the lower berth, and provided with a hinged frame to form one-half of the upper berth, substantially as herein set forth.

2. In a sleeping-car, a removable and vertically adjustable cushioned seat, having a box underneath, substantially as and for the purposes herein set forth.

3. The plates E, forming the grooves *d* d^1 and recesses d^2 d^3, in combination with a car-seat having projecting pins *b b* in its ends, substantially as and for the purposes herein set forth.

4. The sectional reversible car-seat back, consisting of the frames G G^1 G^2, cap G^3, and partition G^4, all constructed substantially as and for the purposes herein set forth.

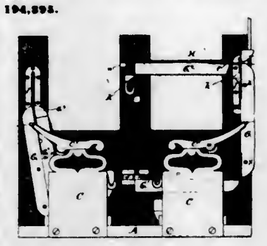
5. The combination of the reversible sectional seat-back, having projecting pins *i i*, and the grooves d^3 in plates E, for the purposes herein set forth.

6. The pivoted reversible arm-rest C', provided with the swiveled pin *k* and spring-latch *m*, substantially as and for the purposes herein set forth.

7. The pivoted spring-arms J J, in combination with the frames G^1, for the purposes set forth.

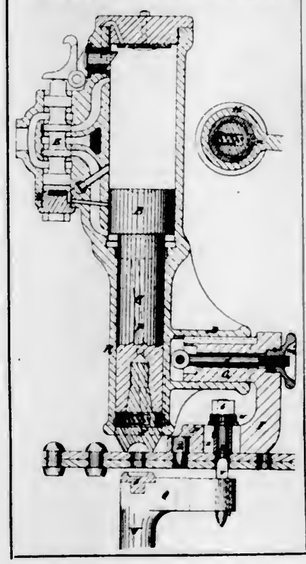
8. The catch *n* and bracket K, in combination with the frame G^2, for the purposes set forth.

194,396.



194,396. RIVETING-MACHINES. J. F. Allen, New York, N. Y. [Filed Apr. 3, 1877.]

Brief.—Depressions in the face of the hammer at right angles to its narrow striking-surfaces allow the metal of the rivet-head to spread when struck. The narrow striking-surfaces act upon each part of the rivet, in virtue of the continued turning of the hammer by the mechanism specified in the first claim, and eventually produce the finished head. An adjustable foot, provided with a steady-pin, which enters one of the rivet-holes, supports the machine upon the work, and the machine is connected to the anvil-block by a bolt, that passes through one of the rivet-holes and into a slotted arm projecting from the said anvil-block.



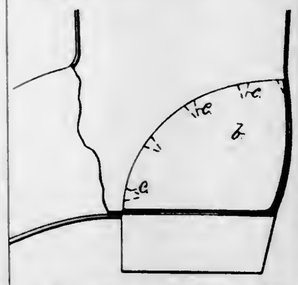
1. In a riveting-machine, the combination of the ratchet-wheel M with internal teeth, feather *n*, and spring bolt or tooth O, arranged near the lower end of the piston-rod or hammer-head, with the guiding-tube H, and inclined groove *p*, substantially in the manner and for the purpose described.

2. The riveting hammer-head P, having portions of its operating-surfaces cut away, so as to form depressions opposite each other, in the manner and for the purpose substantially as specified.

3. In combination with a riveting-machine, the movable or sliding foot F, with steady-pin L and movable bolt N, arranged to operate in the manner and for the purpose substantially as set forth.

4. The combination of the bolt N, supporting the holding-on bar, the square guiding-sleeve *t*, and the elastic *w* under the nut *b*, for the purpose substantially as described.

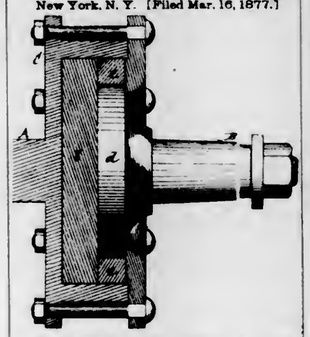
194,397. HEEL-STIFFENERS FOR BOOTS AND SHOES. D. Almy, Bristol, R. I. [Filed May 17, 1877.]



1. The metallic heel-guard, arranged to form the sides and bottom lining of a boot or shoe at the heel, substantially as and for the purpose described.

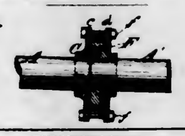
2. The combination, with the heel-guard *b*, of the prongs *c c c*, adapted to secure the heel-guard to the boot or shoe, so as to form an interior lining of the same at the heel.

194,398. VEHICLE-AXLES. B. T. Babbitt, New York, N. Y. [Filed Mar. 16, 1877.]



In a compound axle composed of three parts, viz., a main portion or body, A, and independent wheel-carrying sections B at opposite ends of said body, the combination, with said body A and either wheel-carrying end section B, of a box and flange-joint and an interposed packing or filling, *b c*, of india-rubber or other like elastic material, constructed to receive the flange *d* of the joint within it, substantially as and for the purposes herein set forth.

194,398.



194,399. AXLES FOR RAILWAY-CARS. B. T. Babbitt, New York, N. Y. [Filed May 2, 1877.]

The combination, with the independently-rotating axle-sections A A', of the box C, provided with the flanges *c d*, the flange E, fitted into the box, the annular cap *F*, and the bolts *f*, all constructed and arranged substantially as shown.

194,400. MANUFACTURE OF FELTED SHOES, SLIPPERS, AND OTHER ARTICLES. Mark Bailey, Huddersfield, assignor to J. Batley, Kensington Park Gardens, England. [Filed June 13, 1877; patented in England, June 3, 1875, for fourteen years.]

Brief.—Patented in England June 3, 1875, No. 2,048.



1. In the process of manufacturing seamless slippers, shoes, and other coverings for the feet, of felted fibers, forming a web of a shape approximating to that of the slipper, shoe, or other article on a flat pliable former, and subjecting such web while on said former to the action of a hardening-machine, substantially as herein described.

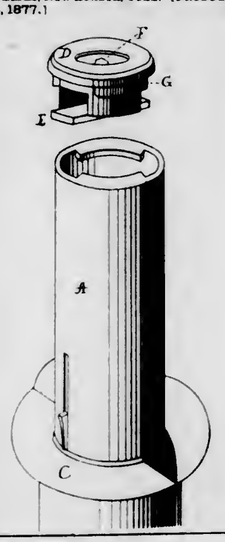
2. In the process of manufacturing seamless slippers and other similar articles, the hardening of the hollow web while there is no opening in it, upon a former which it entirely incloses, substantially as herein described.

194,401. HORSE-DETACHERS. C. O. Baker, Grand Rapids, Wis. [Filed June 18, 1877.]



In a device for detaching horses, the combination of the spring-rods *c d*, cranked levers *e*, spring-catches *i*, and rods *o*, substantially as shown and described.

194,402. SERVICE-BOXES FOR THE SHUT-OFF COCKS OF GAS AND WATER PIPES. W. H. Barns, New London, Conn. [Filed July 23, 1877.]



1. The cap D, having the rims G on its under side to fit corresponding spaces between the lugs of the tube, the cap being thereby prevented from turning, and having the toggle E, with its set-screw F, substantially as described.

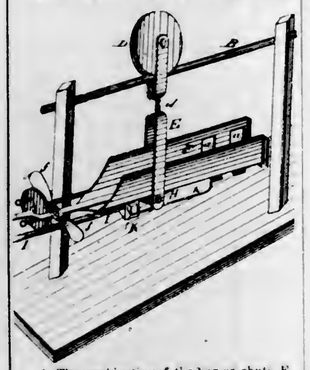
2. In a service-box or tube for underground stop-cocks formed of two parts, the combination of the upper tube A and the disk C, fitted around and keyed to it, substantially as described.

3. A service box or tube for underground stop-cocks formed of two parts, having its upper part A of metal, in combination with the disk C, and its lower part of clay or cement drain-pipe, substantially as described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

194,403. ROLLING-MILL TENDERS. James F. Black, Oshkosh, Wis. [Filed Mar. 6, 1877.]

Brief.—The chute is provided with guide-rods, passing through the block upon the bail, through which the screw attached to the chute also travels to advance the iron to the rolls.



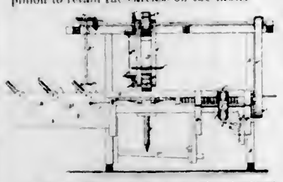
1. The combination of the box or chute F, having guide-rods h h, with the bail E, sliding block H, and operating-screw I, substantially as and for the purpose hereinbefore set forth.

2. The combination of the box or chute F, having slots or cut-outs *a a*, with the rotating rod G, having cats-paws *g g*, substantially as and for the purpose hereinbefore set forth.

3. The improved rolling mill tender herein described, consisting of a box or chute, F, bail E, sliding block H, operating screw I, and rotating turning-rod G, the whole constructed and arranged for operation substantially as and for the purpose herein shown and specified.

194,404. HOG-DRESSING MACHINES. Isaac Boone, Troy, Ohio. [Filed Mar. 20, 1877.]

Brief.—Ribs and revolving arms in the vat thoroughly immerse the carcass. The roller at the end of the table is raised by rack and pinion to retain the carcass on the table.



1. The scalding-vat B, having longitudinal notched ribs *b* projecting upward from its bottom, along which the hogs are carried, while being scalded, by arms *b'* fixed on transverse rotating shafts *b''*, as described.

2. The platform A, provided with a vertically-adjustable revolvable table, C, the face of which consists of a series of free rollers, *c*, together with a rotating scraping device, D, adapted to have a free vertical and horizontal motion with its carriage; also, a series of revolving, corrugated carrying-rollers, E, set in the extension of said platform, and a chain-belt scraper, *f*, across said platform, all arranged to operate as and for the purpose specified.

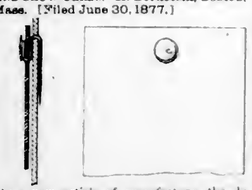
3. In the scalding-vat B, the longitudinal, upwardly-projecting ribs *b*, having upon their upper edges the deep and wide curved notches or depressions *b'* and the transverse rotating shafts *b''*, arranged respectively over each of the said depressions, and having the projecting arms *b'''*, all arranged to operate as and for the purpose specified.

4. The rotating scraper-wheel *d''*, carrying the knives *d'''*, and adapted to have free vertical and horizontal movements with its carriage on the table C, in the face of which are the rollers *c*, and which has pivotal standard *c'* bearing in lever *c''* in frame and platform A, all arranged to operate as and for the purpose specified.

5. The scraping device D, composed of the hinged frame *d*, extending horizontally over table C, and carrying pulley *d''*, the hinged frame *d'* depending over said table and carrying scraper-wheel *d''* with its knives *d'''*, as arranged and operated by suitable gears, as and for the purpose specified.

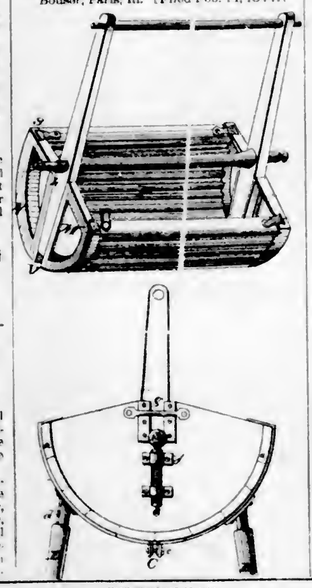
6. The combination, with the platform A, of the corrugated rollers E, their operating-screw *e* revolved by pulley *e''*, the chain-belt F carrying scrapers *f''*, together with roller E' mounted in racks *e'''*, provided with crank-pinions *e''*, arranged to operate as and for the purpose specified.

194,405. DEVICES FOR ATTACHING PRICE AND SHOW CARDS. H. Bornstein, Boston, Mass. [Filed June 30, 1877.]



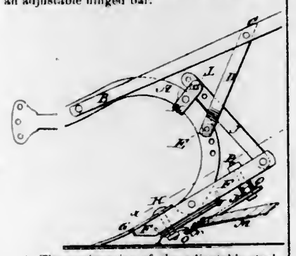
As a new article of manufacture, the device herein described, consisting of a round pointed wire, provided with a head, and bent to form two oppositely-disposed loops contained within the limits of the head, whereby the head and its contiguous loop are adapted to be clamped to a card or other article, as and for the purposes set forth.

194,406. WASHING-MACHINES. Chas. W. Bousor, Paris, Ill. [Filed Feb. 14, 1877.]



194,407. PLOW STOCKS AND SWEEPS. J. S. Bowling and R. Bowling, Alexandria, Ala. [Filed Feb. 10, 1877.]

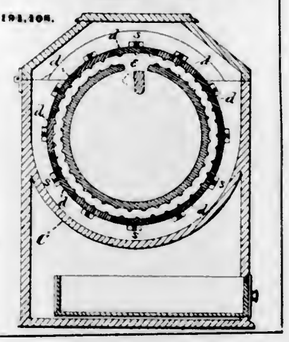
Brief.—A spring upon the shovel-fastening bolt. The horizontal cutters or sweep upon an adjustable hinged bar.



1. The combination of the adjustable steel spring I with the adjustable slotted foot F, and with the bolt H, that secures the plow-plate G to said foot F, substantially as herein shown and described.

2. The combination of the sweep M, the hinged bar N, and the adjusting-bolt P, with the adjustable slotted foot F, and with a bolt, H, that passes through said slotted foot F, substantially as herein shown and described.

194,408.



1. The rubber constructed with the two-part sectoral end castiugs, in combination with spring mechanism, as described, whereby the said rubber has a vertical spring-pressed adjustment, substantially as described.

2. The rubber in a washing machine, constructed with metallic bar-supporting castings made in two parts at either end of the same, substantially as and for the purpose described.

3. The sectoral end castings of a rubber-frame, provided with dovetailed grooves on their inner curved sides for securely supporting the rubbing-bars, substantially as and for the purpose described.

4. In a rubber, the combination, with the sectoral castings having dovetailed grooves, of the rubbing-bars provided with correspondingly-tenoned end extremities, the latter relatively secured by a curved engaging device passing through the plane of the grooves, substantially as and for the purpose described.

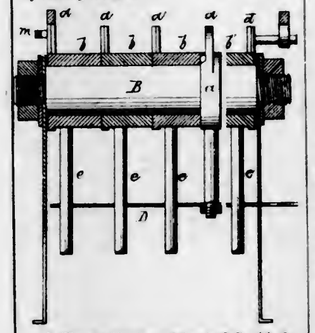
5. The combination, with the sectoral castings, of the guard-pieces secured to the top rubbing-bars, and seating over the recess formed by the grooves in the supporting-arcs of the castings, whereby the engaging-bolt and tenoned ends of the bars are protected, and at the same time a finished appearance is given to the frame, substantially as and for the purpose described.

6. The sectoral metallic end pieces for supporting the rubbing-bars, the same secured by their vertical radial arms respectively to either side of the main uprights of the rubber, substantially as and for the purpose described.

7. The combination, with the lower middle bars, forming an enlarged transverse central space opening in the working face of the rubber, of a superposed longitudinal strip closely connecting the upper edges of the said middle bars, substantially as and for the purpose described.

194,409. MACHINES FOR BENDING METAL PLATES. John Braun, Philadelphia, Pa. [Filed July 16, 1877.]

Brief.—The bar is put in the slots in the lugs *d*, secured by the stop *m* and lock *m'*, and bent by turning the lever D.



1. The combination of the shaft B with the collar *a* and vibrating sleeves *b b'*, having slotted lugs *d*, as set forth.

2. The combination of the shaft B, sleeves *b b'*, and their rods *e*, and the operating lever D, as specified.

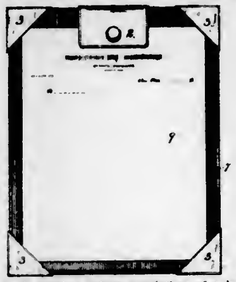
3. The combination of the outermost sleeve *b* with the stop *m*, as specified.

4. The combination of the outermost sleeve *b'* with a slotted retaining-plate, *m'*, as set forth.

5. The combination of the outermost sleeve *b'* with a slotted retaining-plate, *m'*, arranged to slide longitudinally, as described.

6. The combination of a series of sleeves, *b b'*, each having a lug, *d*, with a slot extending to the body of the sleeve, whereby a solid support is afforded for the lower edge of the blade during the bending operation, as specified.

194,410. WRITING-TABLETS. B. Brower, New York, N. Y. [Filed July 30, 1877.]

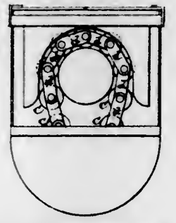


1. A writing-tablet consisting of a base-plate provided at one end with a spring or clamp for securing sheets upon its surface, and at the other end with one or more confining-pockets for preventing their displacement, substantially as described.

2. A rectangular writing-tablet provided with sheet-confining pockets at its corners, and with a spring or clamp upon one of its ends, substantially as described.

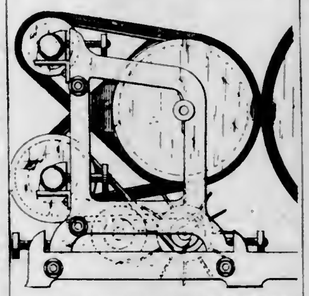
194,411. CAR-AXLE BOXES. R. R. Carpenter, Tippecanoe City, Ohio. [Filed July 17, 1877.]

The elongated hanging endless roller-chain, composed of the hollow cylindrical rollers C, the shafts or rods D passing through them, and the links *d* connecting the rods, in combination with a journal-box extended below the axle to form an oil-reservoir, the journal and concave top box, substantially as and for the purposes herein set forth.



194,412. CARDING-MACHINES. F. Christen, Homestead, Iowa. [Filed May 17, 1877.]

Brief.—Improvement upon English Patent No. 9,769, of 1843. The fleece is taken from the main cylinder by a doffer having several independent rings of card-clothing, which, after leaving said doffer, pass alternately over upper and lower delivery-rolls, and present uniform slivers for removal by the doffer-knives. A dividing-roller, provided with rows of teeth to register with the spaces between the rings, and lay the fibers evenly thereon, is located beneath the doffer. The tension of the bands or rings is regulated by the adjustability imparted to the bearings of the delivery-rollers.



1. The combination, with the main cylinder of a carding-machine, of a single doffer, consisting, essentially, of independent rings of card-clothing, separated from each other by ribs on the doffer-cylinder, substantially as and for the purpose set forth.

2. The combination, with the main cylinder of a carding-machine, of a doffer-cylinder provided with ribs, to guide the rings of card-clothing, upper and lower delivery-rollers, and independent rings of card-clothing, the latter arranged so that alternate rings pass over either the upper or lower delivery-rollers, substantially as described.

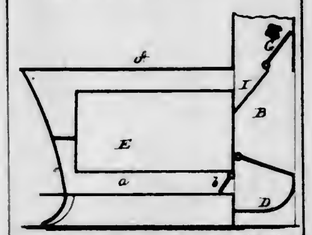
3. The combination, with the main cylinder of a carding-machine, of a doffer-cylinder provided with ribs to guide the rings of card-clothing, upper and lower delivery-rollers, independent rings of card-clothing, and a dividing-roller, the latter provided with rows of teeth arranged to register with, and mesh into, the spaces between the intervening edges of the rings on the doffer-cylinder, substantially as described.

4. A doffer-cylinder constructed with a series of rabbets formed in its periphery, and ribs formed between each of the several rabbets, in combination with a series of independent rings of card-clothing, substantially as and for the purpose set forth.

5. The combination, with a doffer-cylinder provided with ribs, to guide the rings of card-clothing, of upper and lower delivery-rollers, journaled in laterally-adjustable bearings, whereby the tension of the rings may be regulated as desired, substantially as described.

6. The combination, with the doffer-cylinder and independent rings of card-clothing, of upper and lower delivery-rollers, the latter adapted to be longitudinally adjusted, in order to bring the rabbets on the rollers in line with those on the doffer-cylinder, substantially as and for the purpose set forth.

194,413. COMBINED COOKING-STOVE AND HEATER. J. B. Corley, Louisville, Tenn. [Filed Mar. 29, 1877.]

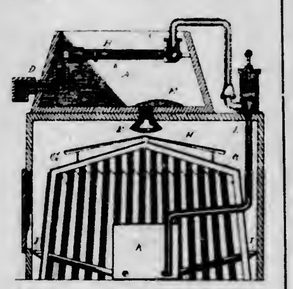


1. In a cooking-stove, the combination of a fire-place heater, B, having dampers and deflecting plates, substantially as described, on the rear end of the same, the bottom flue *a* under the stove-oven, and the damper *b*, arranged at the rear end of said flue, substantially as and for the purposes herein set forth.

2. The combination, in a combined cooking-stove and fire-place heater, of the flue *a*, damper *b*, inclined plate I, and damper G, substantially as and for the purposes herein set forth.

3. In combination with the cooking-stove A, the bottom flue *a*, and the damper *b*, the fire place heater B having grate D, deflecting plate I, and the damper G, all constructed substantially as and for the purposes herein set forth.

194,414. REFRIGERATING-CHAMBERS. G. W. Cornell, Jersey City, N. J. [Filed July 20, 1877.]

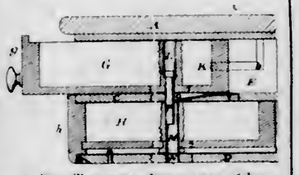


1. The combination, with the ice-box A, having all sides inclined outwardly, as shown, of the water-distributer, consisting of perforated pipes B, the pipe C, strainer E, and sprinkler E', all constructed and operating substantially in the manner shown and described.

2. A corrugated cooling-chamber having inclined top and sides, provided with an umbrella for equally distributing the water down all sides, substantially as set forth.

3. The corrugated cooling chamber G, in combination with umbrella H, trough I, pipes J, and reservoir K, all constructed and arranged substantially in the manner shown and described.

194,415. TILLS FOR MONEY-DRAWERS. A. T. Crippen, Cincinnati, Ohio. [Filed Mar. 6, 1877.]

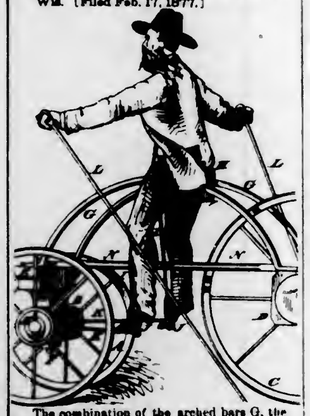


1. In a till or money-drawer, a pair of drawers, G and H, mounted one above the other, and separated by a stationary partition, C, hidden by the front portion *g* or *h* of one or both drawers, said portions being flush when closed and in close contact, and the upper one

only provided with a visible handle, I, in combination with stop K *b*, orifices L M N, and gravitating bolts P, substantially as set forth.

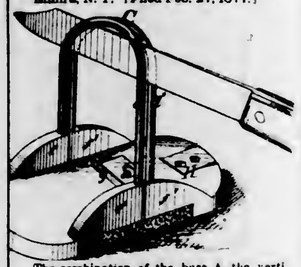
2. The combination of the false and true drawers G and H, separated by horizontal partition C, and of which the uppermost or false drawer only has a visible handle, and, when drawn fully out, operates to lock the true drawer by the liberation of one or more gravitating bolts, P, substantially as set forth.

194,416. TRICYCLES. M. E. Croft, Horicon, Wis. [Filed Feb. 17, 1877.]



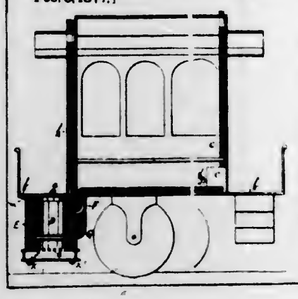
The combination of the arched bars G, the block O, the seat H, the cord I, the stirrups J, the rods K, and the stay-bars N, with the wheels A A C, the axles B D, the tubes M, and the bolster E, substantially as herein shown and described.

194,417. BREAD-CUTTERS. R. W. Davis, Elmira, N. Y. [Filed Feb. 27, 1877.]



The combination of the base A, the vertical braces *f f*, the two parallel disconnected arched wires *d d* set in said vertical braces, and forming a knife-guide, and the adjustable gage *g*, all substantially as and for the purpose described.

194,418. CAR-HEATERS. Upton J. Duffield, Wheeling, W. Va., assignor to W. C. Duffield and R. C. Duffield, same place. [Filed Feb. 5, 1877.]



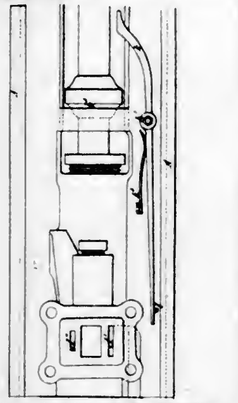
1. The apparatus for heating street-railway cars by hot water, consisting of a hot-water furnace, D E, having a series of water-circulating pipes, J J′, &c., placed and secured entirely beneath the platform of the car, with the top of the furnace even with the top of the platform, and suitable pipes and reservoirs connected thereto, whereby a constant circulation of hot water is created around the interior of the car to warm the same, substantially as described and shown.

2. The combination, in a hot-water heating apparatus for warming street-cars, of the fire-pot D, water-chamber or boiler E, grate *e*, hinged door *g*, ash-pan *f*, gage-cock *l*, circulating-pipes J J′ J″ J‴, plates *m m′*, and rods K K′ K″ K‴, all constructed, arranged, and adapted to operate as and for the purposes described and shown.

3. The water-chamber or boiler E, outlet-pipe F, inlet-pipe G, the continuous circulating warming-pipe B, reservoirs C C′, escape-pipes *c c′*, and gage-cocks *d d′*, all combined and arranged substantially as herein shown, and for the purpose set forth.

4. The apparatus for heating street-railroad cars, consisting of fire-pot D, water-chamber E, grate *e*, and circulating-pipes J J′ J″ J‴, the entire apparatus secured beneath the platform of the car, substantially as and for the purposes described and shown.

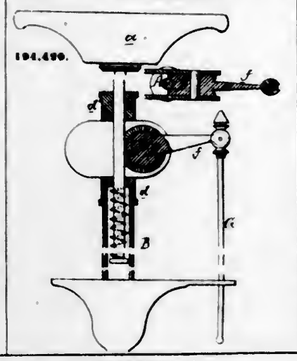
194,419. MACHINES FOR DRILLING ROCKS. W. W. Dunn, San Francisco, Cal. [Filed May 22, 1877.]



1. The combination, with the slide-valve *s*, of the oscillating rod *c′*, operated by the piston-rod, and the arm *c²*, projecting up through the exhaust-port, constructed and arranged substantially as described and shown.

2. In a rock-drilling machine, the devices for effecting the feed or advance of the drill, consisting of the conical surfaces *b²* on the piston-rod, the rocking shaft and lever *f′ f²*, the arm and pawls *f³ f⁴ f⁵*, the ratchet-wheel *f⁶*, feed-screw *f*, and nut *g*, constructed and combined substantially as set forth.

194,420.

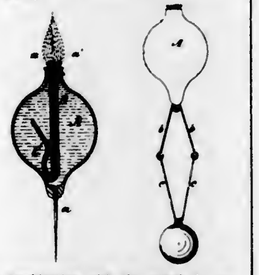


194,420. LAMP-SUPPORTING CHANDELIERS. C. G. Dyott, Philadelphia, Pa. [Filed Jan. 15, 1877.]

1. The combination of the tube B of a lamp-carrying chandelier, the rod A, suspended from the ceiling, and the eccentric D, pivoted to the tube, and having a periphery adapted to the said rod, all substantially as set forth.

2. The combination of the rod A, the eccentric D, pivoted to the tube B, and having an arm, *f*, with the guided rod G, hinged to the said arm *f*, all substantially as specified.

194,421. ILLUMINATING DEVICES FOR CHRISTMAS-TREES, &c. B. Egloff, Staten Island, assignor to A. Weidmann and C. L. Schwarz, New York, N. Y. [Filed June 12, 1877.]



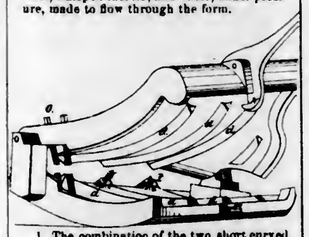
In combination with the vessel A, constructed as described, the wick-tube B, provided with the projections *a′* and the longitudinal slot *g*, substantially as and for the purpose set forth.

194,422. PROCESSES FOR TREATING MINERAL WOOL. A. D. Elbers, Hoboken, N. J. [Filed May 25, 1877.]

The process of preparing mineral wool, which consists in mixing the mineral wool while in a heated condition with bituminous, gummy, or resinous substances while in a vaporized condition, substantially as described.

194,423. APPARATUS FOR BENDING AND HARDENING MOLD-BOARDS. D. Franklin, Tama City, Iowa. [Filed Mar. 16, 1877.]

Brief.—The bending-dies and the hardening-form are provided with corresponding interchangeable guide-pins, situated so as to enter the bolt-holes on the edge of the mold-board. By changing the position of these pins different shapes may be imparted to the blanks, and duplicates of any given shape may be bent and hardened. The blank is first bent, and then, while yet hot, is transferred to the hardening-form, clamped therein, and water, under pressure, made to flow through the form.



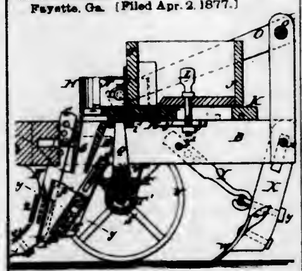
1. The combination of the two short curved and interchangeable guide-pins with cast-iron dies, for bending mold-boards, said pins being in the lower die, near its share-edge, as and for the purposes before described.

2. The tempering-form for mold-boards, consisting of an iron box, made in two parts, hinging and locking together, and provided with the sharp-edged ribs and intervening channels, also having open ends and closed sides, and constructed or made more shallow at its front end, to adapt it for receiving a stream of water forced through it under pressure, substantially as and for the purpose specified.

3. The combination of the two short and and straight guide-pins *f f* with the two-part tempering-form for mold-boards, provided with the ribs *d d d* and channel and open ends, as and for the purpose before described.

4. The combination of the set-screws O O with the tempering-form for mold-boards, provided with the ribs *d* and channels and open ends, as and for the purposes before described.

194,424. SEED-PLANTERS. E. Gerber, La Fayette, Ga. [Filed Apr. 2, 1877.]



1. The combination of the standard C, made of two bars welded together at their lower ends, and having holes in their upper ends, and the shouldered and grooved brace plates E, with each other, and the draw-bar A and the beams B, substantially as herein shown and described.

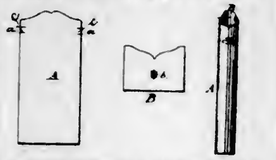
2. The combination of the adjustable conductor-spout F, having its rear side slotted and extended upward, with the brace-plates E, the standard C, and the stationary conductor-spout G, substantially as herein shown and described.

3. The combination of the triangular hopper J, the slotted false bottom K, the bolt and nut L *b′*, and the cleats *b′*, with the beams B, the cup H, and the dropping wheel or plate I, substantially as herein shown and described.

4. The combination of the slotted plates N with the cup H, the hopper J, and the dropping wheel or plate I, substantially as herein shown and described.

194,425. PEN-HOLDERS. B. W. Giles, New York, N. Y. [Filed Jan. 11, 1877.]

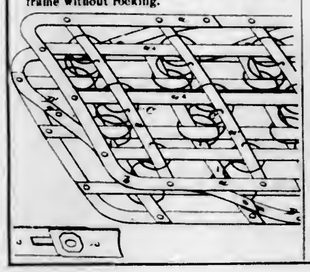
Brief.—The blanks are struck out, as shown in Figs. 1 and 2, and subsequently drawn into cylindrical form, after which inner tube B is secured to outer tube A by forming tongues upon the longitudinal edges of the latter, and forcing them into an opening, *b*, of the former.



The pen-holder tip herein described, consisting of the outer tube A, with slits *a a* and tongues *c c*, and the spring B, having a hole, *b*, constructed and secured together substantially as shown and specified.

194,426. SPRING BED-BOTTOMS. A. Gordon, Williamsport, Pa. [Filed May 26, 1877.]

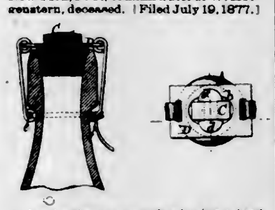
Brief.—The arrangement of the adjustable braces, in the manner stated in the claims, permits the vertical movement of the upper frame without rocking.



1. In a bed-bottom, a brace composed of two straps, *c c′*, secured together by a slot and pin, and sliding upon each other, substantially as described and shown.

2. The bed-bottom described, consisting of the frames A B, having cross-straps and rounded corners, and the braces D D′, made in two parts, adapted to slide upon one another, and inclined in opposite directions from those on the other side or end of the bed bottom, all constructed and arranged substantially as set forth and shown.

194,427. BOTTLE-STOPPERS. E. Haeuser, New York, N. Y., administrator of W. Morgenstern, deceased. [Filed July 19, 1877.]



1. In a bottle-stopper, a plug having a head which is provided with a transverse opening, in combination with a plug supporting plate having a slot for the reception of said head of the plug, the slot being provided with spurs on its opposite sides adapted to catch in said transverse opening of the head, substantially as and for the purpose described.

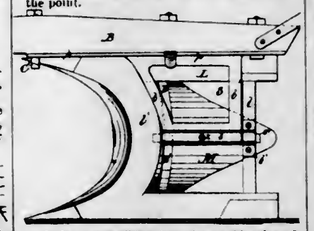
2. In a bottle-stopper, a plug having a head which is provided with a transverse opening, in combination with a plug-supporting plate having a slot for the reception of said head of the plug, and with a retaining-bar having enlargements at each end, and which is adapted to be passed through the transverse opening in said head, substantially as and for the purpose described.

3. In a bottle-stopper, the combination of a plug having a head which is provided with a transverse opening, a supporting-plate having a slot for the reception of said head of the plug, the slot being provided with spurs on its opposite sides adapted to catch in said transverse opening of the head, and of a retaining-bar which is adapted to be passed through said transverse opening of the head, and to be fastened therein, substantially as and for the purpose described.

4. In a bottle-stopper, the combination of a plug-supporting plate with a link for connecting said plate to the neck-band of the bottle, a wire neck-band having two adjacent loops, and a locking-arm which is connected to said supporting-plate, and provided with shoulders adapted to catch under said loops, substantially as and for the purpose described.

194,428. PLOWS. Julius Hartmann, Louisville, Ky., assignor of one-half his right to A. Lauer, same place. [Filed July 7, 1877.]

Brief.—Construction and combination of the double plow with its frame and braces. The double spring-catch and double support for the point.

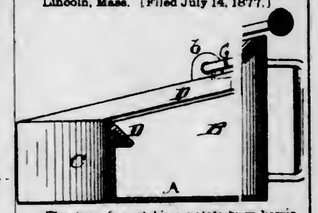


1. In a reversible plow, the combination of the concave sheth S″, curved brace B′, and V-shaped brace B″ with the mold-board, share, and frame, composed of the land-sides L and connecting-bars *l P*, all as shown and described.

2. In combination with a standard attached to the beam, the reversible plow proper, composed of the mold-board, share, land-sides, and laterally-curved colter-piece, and a connecting and supporting frame, all constructed and arranged as shown and described, whereby the pivots or spindle bearings are brought in rear of the inner side or edge of the colter, and the plow made a center-draft, as specified.

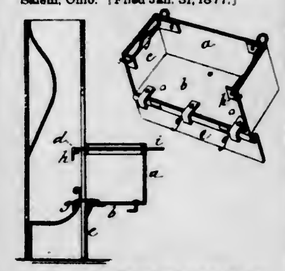
3. In a reversible plow, the double spring-catch projecting horizontally from the sides of the beam, to which it is fixedly attached, the vibrating frame carrying the mold-board, land-sides, and share, and the double or T-headed lug, all combined as shown and described, to operate as specified.

194,429. POTATO-BUG TRAPS. S. Hartwell, Lincoln, Mass. [Filed July 14, 1877.]



The trap for catching potato-bugs herein described, consisting of the bottom A, circular wall B, inclining from rear to front, sides *a a*, semicircular recess C, continuous inclined flange D, stationary handle H, and hinged bail G, as and for the purpose set forth.

194,430. GRATE-FENDERS. E. D. Hawley, Salem, Ohio. [Filed Jan. 31, 1877.]



1. A grate fire fender and preserver, having a closed bottom and outer side with contiguous open inner side and top, in combination with a grate from which it extends to obtain the advantages stated.

2. A grate fire fender, having a closed bottom and outer side, with contiguous open inner side and top, suspended upon and removably attached to and in front of the grate-bars or other part, for the purpose herein set forth.

3. A grate fire fender and preserver, having a closed bottom and outer side, and contiguous open inner and top sides, and combined with a bottom damper for use with a grate, as herein set forth.

4. A grate fire fender and preserver, having a closed bottom and side, with contiguous open inner side and top, and adapted for vertical adjustment in relation to the grate, to obtain the advantages stated.

5. The grate fire fender and preserver, constructed substantially as described, provided with hooks *g* and catches *h*, whereby it is secured in place upon the grate-bars, substantially as herein set forth.

6. As a new manufacture, a grate fire fender and preserver, constructed with open top and inner side, and closed bottom and outer side, a bottom damper and suitable fastening devices, for use with grates, as herein set forth.

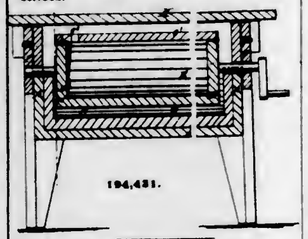
194,431. WASHING-MACHINES. Orien G. Hays, Nilwood, Ill. [Filed Mar. 3, 1877.]

Brief.—The cylinder may be raised and supported by removable blocks placed just below its journal when many clothes are to be washed. The cylinder is provided with a slat hinged at one end to the end disk of the cylinder, and secured by a spring-catch to the other disk, and, when desired, one end of a piece of clothing may be secured within the cylinder by means of this slat, and the projecting portion more thoroughly rubbed and cleansed than if merely placed loosely between the rubbing-cylinder and the concave.

1. The slatted rubbing-cylinder E, consisting of the grooved slats, circular disks, and the grooved slat *e′*, hinged to one of said disks and provided with a spring-catch, *e²*, for

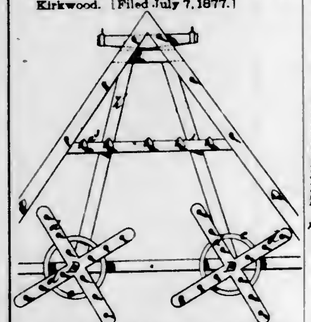
securing it to the other disk, as herein shown and described.

2. The combination of the vertically-slotted box A, notched adjustable bearing-blocks F, removable blocks H, springs M, and slotted grooved cylinder E, the several parts constructed and relatively arranged to operate in the manner herein shown and described.



194,431.

194,439. ROTARY HARROWS. C. Y. Hilty, Apollo, Pa., assignor to himself and James Kirkwood. [Filed July 7, 1877.]

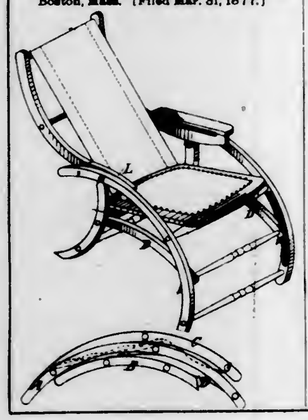


1. In a combined harrow, the combination of a main or drag frame and one or more rotary frames, connected by an antomatically-adjustable bar-connection, substantially as and for the purpose specified.

2. The combination, in a harrow, of the main or drag frame and one or more rotary frames, journaled in a coupling bar pivoted to the main frame, and provided with an independent draft, substantially as and for the purpose specified.

3. The combination, in a harrow, of A or V frame, provided with a series of cultivator-teeth, arranged transversely, and one or more rotary frames or harrows, arranged in rear of the cultivator-section, substantially as and for the purpose specified.

194,488. FOLDING CHAIRS. S. C. Hopkins, Boston, Mass. [Filed Mar. 31, 1877.]



1. A folding chair having the sides of its three folding sections formed of wood, bent to correspond in shape to arcs of circles, and pivoted upon hinges common to all said parts, substantially as set forth.

2. In a folding chair, the combination of a pivoted back frame, two leg-frames and their connecting-braces, with the locking device for the braces, substantially as set forth.

3. In a folding chair, the combination of the back frame and the two leg-frames with hinges K, constructed as described, uniting the frames, substantially as set forth.

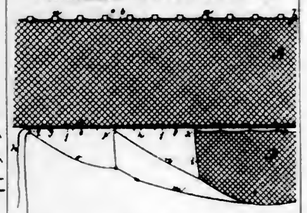
4. In a folding chair which combines the three frames, as described, the arm-rest L, formed by the upper surfaces of two of the frames lying side by side, and pivoted to each other, substantially as set forth.

5. The combination of the front and rear leg-frames pivoted above the seat, and the back frame folding independently of the other parts of the chair, substantially as set forth.

6. In a folding chair, the combination, with the back and leg frames, of an arm-piece hinged by its side to one of the frames, and arranged to fold inwardly when the chair is folded, substantially as set forth.

7. In a folding chair, the combination of a rigid seat, a flexible back attached to the seat, and a yielding stop beneath the seat supporting its rear end, substantially as set forth.

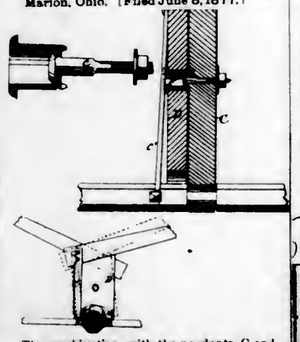
194,434. FISHING-SEINES. S. B. Howes, West Dennis, Mass. [Filed Feb. 20, 1877.]



1. The bottom net B, separable from the seine A, and connected thereto by the pursing-line *h* of the latter, extended through loops or eyes *k* affixed to the front edge of the bottom net, all as set forth.

2. The combination of the seine A, and its pursing-line *h*, with the bottom net B, and with the series of back and lateral drag-lines *m n o m n o* applied to the said bottom net and seine, and arranged therewith substantially in the manner as shown and described.

194,436. HORSE HAY-RAKES. E. Huber, Marion, Ohio. [Filed June 8, 1877.]



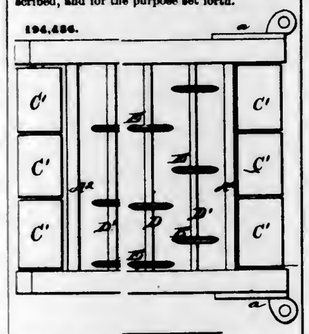
The combination, with the pendants C and D, of the pivots, formed of the flanged thimbles having spurs *e* and the bolts *b*, all as shown and described.

194,436. HARROW AND ROLLER. Geo. R. Hughes and John E. Wall, Franklin, Tenn. [Filed Feb. 24, 1877.]

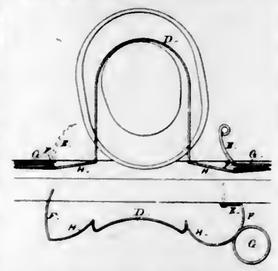
Brief.—In the center and at each end of the frame are sectional rollers, and within the spaces between the center and end rollers are alternately arranged revolving cutters.

The harrow-frame A, provided with the sectional rollers B' C' and cutters E E, alternately arranged on their shafts between said rollers, the axes of the rollers and cutters being parallel to each other, substantially as described, and for the purpose set forth.

194,436.



194,437. HAT-HOLDERS COMBINED WITH SEATS. Geo. T. Hunsaker, Carthage, Ill. [Filed Apr. 2, 1877.]

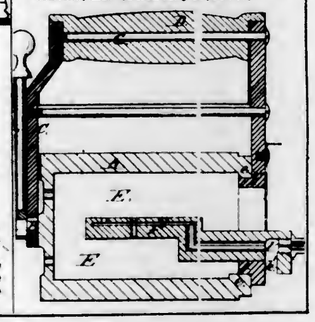


1. The hat-holder having the hat-loop D, held at some distance from the seat by arms H F having the springs G, substantially as set forth.

2. The hat-holder having hat-loop D, held by arms E F H at each side, the parts E being nearly the same in direction with the loop D, and secured in or against the seat bottom or support, so as to bear the strain of the weight on the farthest side of loop D, and the parts F H being made to form a spring, substantially as set forth.

3. The wire hat-holder having hat-loop D, held by arms at each side having parts E, nearly the same in direction with loop D, and secured in or against the seat bottom or support, arranged to support the strain of weight on the farthest side of loop D, substantially as set forth.

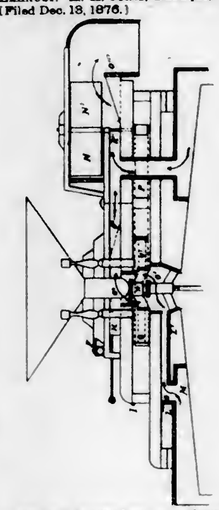
194,438. SELF-HEATING FLAT AND FLUTING IRONS. L. C. Jennings, St. Charles, assignor of one-half his right to E. J. Pitts, Pattonville, Mo. [Filed May 19, 1877.]



1. The combination, in a burner, of the jet-plug *l*, air-hole k^1, combustion-chamber k^2, and flame-holes k^3, substantially as and for the purpose set forth.

2. The combination, with the iron A, of the gudgeon B, provided with square end *b*, and the forked slide or holder D', substantially as and for the purpose set forth.

194,439. GRAIN-CLEANER AND MILLSTONE-EXHAUST. M. K. Jones, Dubuque, Iowa. [Filed Dec. 18, 1876.]



1. The two parallel bars or projections on each side of the feed-cup, with diagonal slots through the same, in combination with the inclined planes of the feed gate, constructed and operated substantially as herein set forth.

2. The tube having its opening in the hopper adjacent to the feed-cup, in combination with the valve for operating the same, substantially as herein described, having for its object the supplying of grain to the stone independent of the feed movement or motion of the stone.

3. The combination, with the millstone-curb, of the air-conductors L L', opening into the curb at M M', the fans N N', general air-passage O, and the air-conductor P at the opposite end, all arranged substantially as and for the purposes herein set forth.

4. The combination, with the alarm-bell, of the wire S, with bent end Z, the wheel U U', with cam T, the connecting-cord, and the flexible leather W, all constructed and arranged to operate substantially as and for the purposes herein set forth.

194,440. STEAM-GENERATORS. T. L. Jones, Natchez, Miss., assignor of two-thirds his right to T. P. Leathers, New Orleans, La., and J. P. Kaiser, St. Louis, Mo. [Filed Feb. 7, 1877.]

Brief.—Spring-valves prevent the water from entering the branch pipes through which the products of combustion are forced into the water-space of the boiler. Said gaseous products are made to take a circuitous route by means of a bladed screw, and are thus retarded until they give up all their heat.

1. In a steam-generator, the screw I, substantially as and for the purpose of causing the current or currents of heated air or gas to follow a circuitous route through the water.

2. The combination of the generator A, screw I, and casing J, substantially as described.

3. The combination of the generator A, fire-chamber B, tubes E and E', or either of said tubes, tube F, screw I, and casing J, substantially as described.

4. The combination of the screw I, casing J, and tube F, substantially as described.

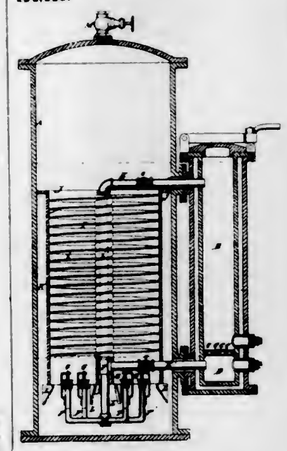
5. The combination, in a steam-generator, of the screw I, casing J, tube F, and branch tubes F' F' F' F', substantially as described.

6. The generator A, fire-chamber B, tubes E and E', tubes H H' H'', and cocks k' k'' e e', combined and operating substantially as described.

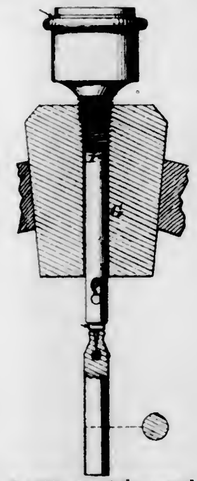
7. The combination of the casing J and the tubes F' F' F' F', the former extending below the level of the mouths of the latter to prevent the escape of the gaseous current from the tubes directly into the channels K and *k*, substantially as described.

8. In an aero steam-generator, the combination of a heat-retaining screw, by which the heated gaseous or vaporous currents are caused to traverse a circuitous route in their passage upward through the water, and an independent channel or channels through which the water that is urged by said currents to the upper part of the generator can return to the lower part of the generator.

194,440.



191,111. PROCESSES OF VENTING BARREL-BUNGS. Alois J. Klein, Cincinnati, Ohio. [Filed June 4, 1877.]

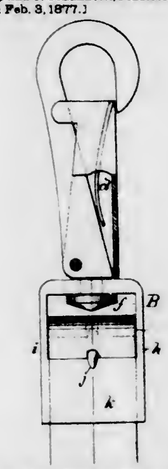


1. The within-described process of venting bungs, which process consists in forming a channel longitudinally of the bung by punching a plug a suitable distance out of the same, and then applying to said channel the stem of a suitable air-valve, so as to dislodge said plug, and cause it to be suspended from said stem, for the purpose set forth.

2. The cylindrical and chambered punch B C *e* for forming a channel in a vent-bung, said punch being constructed either with or without the bore D, and being provided with a shaft, E, of relatively less diameter than the cutter B C *e*, in order that the punch may be readily withdrawn from the channel, substantially as herein described and set forth.

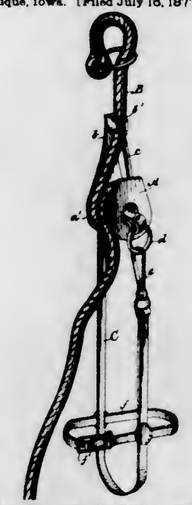
3. The prong *x*, projecting from the lower end of an air-valve stem for suspension of the plug ejected from the channeled bung, substantially as herein described, and for the purpose set forth.

194,442. BUCKLE AND SNAP-HOOK. F. W. Knapp and C. Schallborn, Fiddletown, Cal. [Filed Feb. 3, 1877.]



A snap-hook having pivoted spring-latch *a c*, longitudinal spring *d*, stud *e*, and head *f*, in combination with a yoke, B, having arms *h i*, tongue *j*, and side pieces *k k*, the hook and yoke being swiveled together, as shown and described, for the purpose of forming a swiveling buckle-snap.

194,443. FIRE-ESCAPES. W. H. Knowlton, Dubuque, Iowa. [Filed July 16, 1877.]

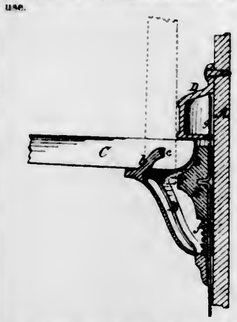


1. In a fire-escape, the block A, consisting of the drum *a* having flanges *a'*, the arm *h*, and spring *c*, constructed and arranged substantially as described and shown.

2. The portable fire-escape described, consisting of the block A, having drum *a*, flanges *a'*, arm *b*, and spring *c*, the straps C *f* and buckle *f'*, in combination with the rope B, all constructed and arranged substantially as described and shown.

194,444. CLOTHES-DRIERS. C. B. Koon, Auburn, N. Y. [Filed July 23, 1877.]

Brief.—The bracket is provided with a latch-block, controlled by a spring to retain the arms folded, or to secure one or more arms vertically and out of the way while the others may be in use.

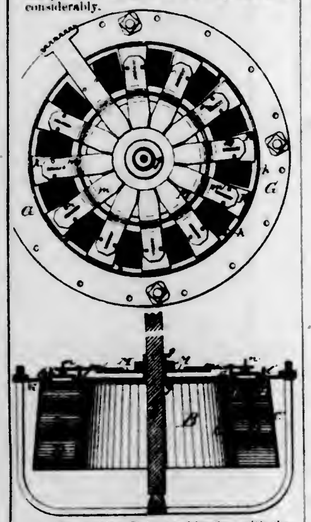


1. In combination with a series of arms, C, brackets B and D, the latch-block E, substantially as and for the purpose described.

2. In combination with the latch-block E, series of arms C, and bracket to support said arms, the slotted fingers *b*, to separate the arms and receive the binding-wire, substantially as described.

194,445. TURBINE WATER-WHEELS. C. Krogh and C. O. Krogh, Krogbville, Wis. [Filed Apr. 21, 1877.]

Brief.—When the gates are opened the water from the flume passes through the channels between inclines, and strikes the buckets and passes out, forcing the wheel around. A certain quantity of water is always carried around with the wheel, which, by the centrifugal motion, is forced against its outer walls, thus creating considerable friction. This is compensated for by the conical shape of the turbine, the power of which is in this way increased considerably.



1. The turbine B, in combination with the gate-cover C, having openings *h* and inclines *i*, disk M, having radial arms *m*, and gates K, having inclines *l*, substantially as and for the purpose herein shown and specified.

2. The combination of the turbine B, constructed as described, with the gate-cover G, having downward-projecting rims *e f*, substantially as and for the purpose set forth.

3. In a turbine water-wheel constructed substantially as herein described, the gates K, having inclines L, substantially as and for the purpose hereinbefore set forth.

194,446. BRUSH AND BROOM SUPPORTS. J. S. Lash, Philadelphia, Pa. [Filed June 11, 1877.]



1. The hook-shaped holder C, having the shank *b*, in combination with the bracket A, having the notched bearing *a'*, substantially as shown and described.

2. The broom-holder bracket, consisting of the plate A, having the semi-cylindrical bearing B notched at *a'*, as shown and described, and for the purpose set forth.

194,447. TOOTH-PICKS. H. Laurence, New Orleans, La. [Filed June 14, 1877.]



1. The combination, with a quill tooth-pick, of a spring loop or detent, *c d*, and a slotted carrying tube or barrel, *g f*, substantially as described.

2. The quill tooth-pick, pointed at one or both ends, having a slot or opening, *e*, in its periphery, and a spring-detent *c d*, inclosed, whereby said quill tooth-pick is adapted to be carried in a slotted tube, and to be projected and retracted.

3. A double-pointed quill provided with a detent, in combination with a slotted carrying tube or barrel open at both ends, for the purpose set forth.

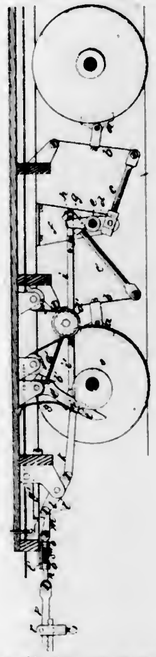
194,448. ELASTIC DRAFT-LINKS. Wm. G. Le Duc, Hastings, Minn., assignor to A. V. Gardner, New York city. [Filed Mar. 13, 1877.]



1. The elastic draft-link, composed of elliptically-curved band or bands, rod or rods, of suitable metal, provided at their ends with hooks or eyes, all substantially as set forth.

2. The elastic draft-link, composed of the curved band or bands, rod or rods, of suitable metal, provided with end-fastening devices, in combination with the intermediate springs or their equivalent, all substantially as and for the purpose set forth.

194,449. CAR-BRAKES. H. Macy, Zurich, Switzerland. [Filed June 28, 1877.]



1. The combination, with the elastic levers *b*, attached to the car, locomotive, or carriage, and having brake-shoes attached to their central portions, of pressure-rods *c c'*, attached to the lower ends of said elastic levers, and a lever or system of levers, *e g d*, for operating the same, to apply the brake-shoes to the wheels, substantially as and for the purpose set forth.

2. In combination with the brake-shoes and a system of levers and rods for operating the same, an eccentric or cam on one of the car-axles, operating through the medium of a lever, C, upon said system of levers and rods, to apply the pressure to the brakes at one revolution of the cam, substantially as herein specified.

3. In combination with the brake-shoes, a system of rods and levers, and an eccentric or cam on the car-axle, for operating the same, the weighted lever *n'*, for restraining the action of the brakes, and the cord *e'*, for raising said lever *n'* and allowing the brakes to act automatically, substantially as and for the purpose set forth.

4. The combination, with the mechanism for automatically applying the brakes, the compound bar *k*, rock-lever *l*, notched link *m*, and pawls *g'*, the whole adapted to operate together to lock the brakes, as set forth.

5. The combination, with the braking mechanism, constructed and operating substantially as above described, of the pushing-rod *k*, rock-lever *l*, link *m*, and sliding rod *n*, for rendering the brakes continuous throughout the train when cars are coupled together, substantially as and for the purpose set forth.

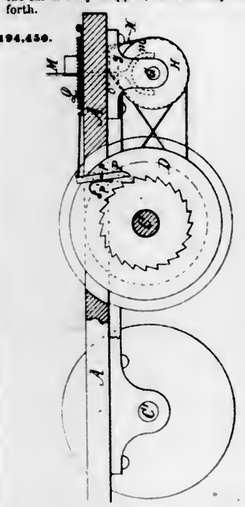
194,450. CAR BRAKE AND STARTER. Wm. Marean, Galveston, Tex. [Filed July 24, 1877.]

1. The combination of a car-axle, C, having the pulleys D and F, the shaft G having the pulleys H and J and friction-disks I and L, the connections R and S, and the spring Q, whereby a partially-yielding car-brake is produced, substantially as set forth.

2. In a car-brake the combination of the shifting-lever M and the lever O, whereby the within-described yielding brake-gear is converted into an unyielding brake, substantially as set forth.

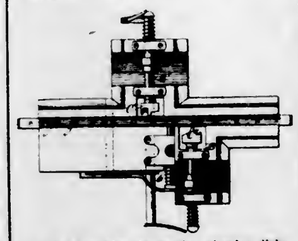
3. The combination of the band-brake H N O, the car-axle C and connections D R, whereby the car is fully stopped, substantially as set forth.

194,450.



194,451. MACHINES FOR CUTTING ESCUTCHEONS AND OTHER ORNAMENTS UPON FURNITURE. F. B. Matteson, Rockford, Ill., assignor of one-half his right to M. P. Whiteside, same place. [Filed Mar. 19, 1877.]

Brief.—A strip of wood or other material for the formation. The escutcheons, rosettes, &c., are placed on a traveling carriage, and fed to the cutters automatically.



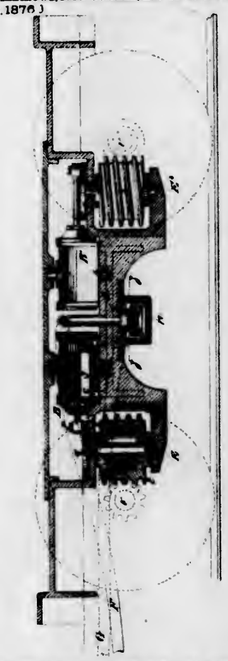
1. In a machine for cutting circular disks from a continuous strip of material, the combination of the revolving cutters, the operating levers or mechanism, and the carriage, all operated in proper sequence, substantially as described and set forth.

2. In a machine for cutting circular disks from a continuous strip, the combination of the revolving cutters, the traveling carriage, the ratchet-wheel mounted upon one end of a bearing-shaft, the toothed feed-wheel mounted upon the other end of said shaft, all operated in proper succession, by levers or other mechanism, substantially as described and set forth.

3. In a machine for making escutcheons from continuous strips of material, the hollow chisel of the required shape for forming the key-hole, in combination with the revolving cutters and traveling carriage, all arranged and operating substantially as described and set forth.

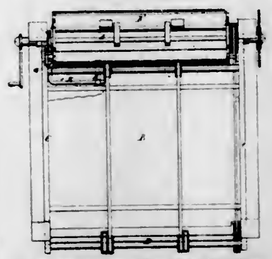
4. The herein-described method of making escutcheons, rosettes, &c., from continuous strips of material moved endwise in regular succession to one revolving cutter, which forms one side, and to another revolving cutter, which forms the other side, and also cuts the completed disk from the strip, substantially as described and set forth.

194,452. STREET-CAR ENGINES. Francis V. Mathews, New Orleans, La. [Filed Dec. 23, 1876.]



The combination, with front and rear truck-axles, of two oscillating steam cylinders, B B', whose pistons are connected by opposite cranks with shafts E, said shafts being provided with worms *t* that drive the axle-pinions, as shown and described.

194,453. MACHINES FOR SIZING AND VARNISHING PAPER. R. McNamee, Philadelphia, Pa. [Filed June 16, 1877.]



1. In combination with a drum, its gripers, a feed-table, and a varnishing-roller, of the endwise-movable conveyer-frame, substantially as specified.

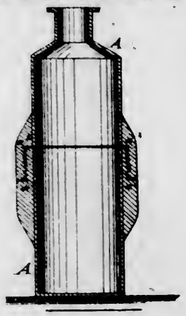
2. The rock-shaft K, provided with fingers *k*, one end of which are attached to the spring S and controlling-arm Q, in combination with the cam on the end of the cylinder B', as and for the purpose specified.

194,454. NURSING-BOTTLES. Moses A. Michaels, McKeesport, Pa. [Filed Feb. 10, 1877.]

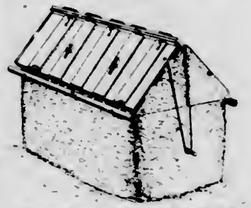
Brief.—The body of the bottle is of two parts that screw together. This enables the bottle to be more readily cleansed.

As an article of manufacture, a nursing-bottle, A, made in two parts, and provided with a screw-coupling, a^1 a^2, for connecting said parts detachably, as shown and described.

194,454.



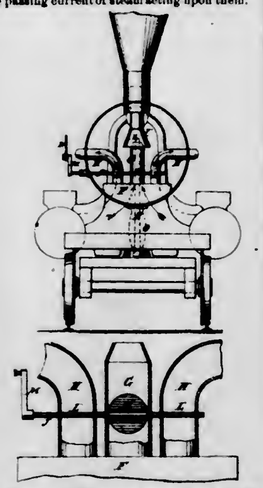
194,455. SECTION-ROOFS FOR SHELTERING GRAIN, &c. R. Montgomery, Troy, Iowa. [Filed July 19, 1877.]



The sectional roof herein described for sheltering grain, consisting of the sections constructed of boards cleated vertically on the outside and horizontally on the inside, the cleats forming the rabbets and splices for the joints, the whole secured together by staples, hooks, and bolts, and to the grain by ropes and stakes, all arranged substantially as described.

194,456. EXHAUST-REGULATORS FOR LOCOMOTIVES. J. D. Murray, Sarnia Station, Ontario, Canada. [Filed Jan. 3, 1876.]

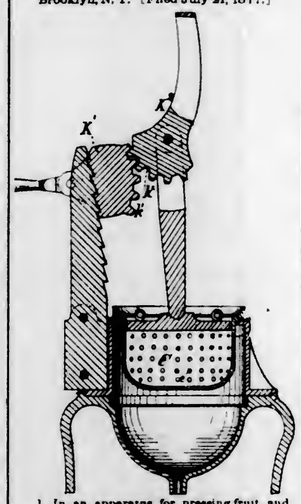
Brief.—The valve in the pipes leading to the tender are set on the valve-rod at right angles to the valve in the central pipe, whereby the manipulation of the valves is facilitated by the passing current of steam acting upon them.



The combination of the receiving-chamber F with the distributing-pipes H G H, pro-

vided with valves L K L, the valves L L being set at right angles to K, and located above the receiving-chamber, substantially as and for the purpose herein shown and specified.

194,437. FRUIT-PRESSES. G. A. Newsam, Brooklyn, N. Y. [Filed July 21, 1877.]



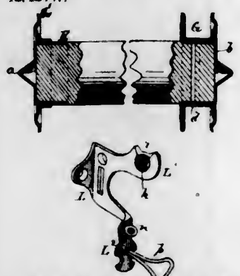
1. In an apparatus for pressing fruit and for similar purposes, the combination of a serrated standard, a correspondingly serrated or recessed lever, and a cam, constructed and operating substantially as described, whereby the fulcrum of the lever may be adjusted to different heights, as herein set forth.

2. The rolling-fulcrum lever, consisting of the parts K^1 K^2, provided with the toothed sectors k^1 k^2, and connected by the links L L, in combination with a preserving apparatus, substantially as and for the purpose herein described.

3. The combination of the base or main frame B and the standard H, provided with means for attaching and detaching it, substantially as herein described.

4. The pressing apparatus, constructed as herein described, in combination with a funnel and filter and a supporting-stand, substantially as and for the purpose set forth.

194,438. CURTAIN-FIXTURES. Walter B. Noyes, Charlestown, Mass. [Filed Apr. 12, 1877.]

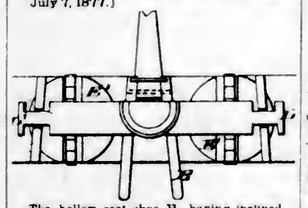


1. The cap E, spun or otherwise formed of sheet metal, with the conical projecting pivot *a*, formed of the same piece of metal with the cap itself, substantially as herein set forth.

2. A pulley for curtain-rollers formed of two sheet-metal pieces, L, shaped in cross-section, with their flanges having annular corrugations, and surrounding and connected directly to the end of the roller, substantially as herein set forth.

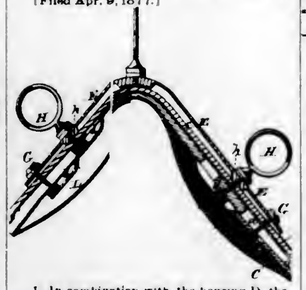
3. The bracket L, constructed with two arms, L^1 L^2, the arm L^1 having the conical recess *k*, and the arm L^2 the eye *n* and stop *p*, said bracket being adapted to receive and support the roller D, having the sheet-metal caps E E, provided with conical bearings *a*, substantially as and for the purposes herein set forth.

194,439. LAND-MARKERS FOR PLANTING CORN. S. J. Pefley, Ladoga, Ind. [Filed July 7, 1877.]



The hollow cast shoe H, having inclined sharp toe *d* and top bars *h h*, in combination with the inclined block G', constructed as and for the purposes herein set forth.

194,440. HARNESS-SADDLES. L. C. Pepper and B. E. Gephart, Mount Pleasant, Iowa, assignors of one-half their right to J. T. Drummond and W. L. Albert, same place. [Filed Apr. 9, 1877.]



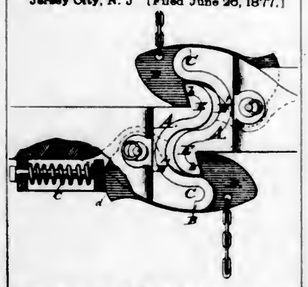
1. In combination with the housing D, the narrow metallic yoke E, provided with downward-projecting flanges *e*, which rest on the housing, and with cross-ribs *h*, forming enlargements, through which the screws of the terrets pass, as set forth.

2. The nut-piece C, provided with the groove *a* and loops *b*, substantially as and for the purposes herein set forth.

3. The combination, with the nut-piece C, having grooves *a* and loops *b*, the housing D, and yoke E, of the pad-screws G, for fastening both the skirts and layers in position, substantially as herein set forth.

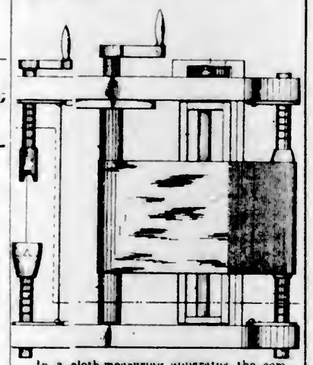
4. The combination of the pad with nut-piece C, having groove *a* and loops *b*, the housing D, the yoke E having flanges *e* and ribs *h*, the pad-screws G, and the terrets H, all constructed substantially as and for the purposes herein set forth.

194,441. CAR-COUPLINGS. Geo. T. Peters, Jersey City, N. J. [Filed June 26, 1877.]



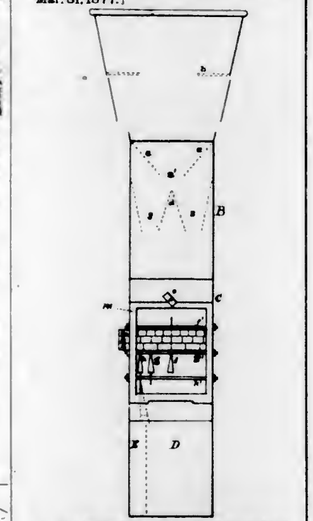
The draw-head B, formed in a single piece, with two wings, C C, semicircular lug E, and semicircular recess E', forming a knuckle-joint when two draw-heads are brought together, in combination with the draw-hook D, pivoted between the wings C C, and having a curved rear end, and a horizontal indentent bolt actuated by means of a spring bearing against said curved rear end of the hook, substantially as and for the purpose set forth.

194,442. CLOTH-MEASURING MACHINES. W. D. Porter, McComb, Ohio. [Filed Mar. 17, 1877.]



In a cloth-measuring apparatus, the combination of detachable, notched, or slotted catches with the circumferentially-grooved and axially-adjustable shafts for holding the bolt, substantially as shown and described.

194,443. GRAIN-TOLLERS FOR GRIST-MILLS. J. W. Price, Michigantown, Ind. [Filed Mar. 31, 1877.]



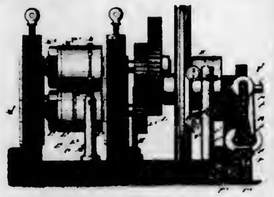
1. In a grain-toller, the inclined spout B having stationary chutes and dividers arranged within for the purpose of effecting a regular and evenly-shaped flow of the grain, as described, and connected to which is the reversely-inclined spout C, with the adjustable dividers *f g h*, operating substantially as shown and described, and the toll-spout E and grist-spout D.

2. In a grain-toller, the dividers *f g h* rigidly secured to the rods *f' g' h'*, with ends extending from each side of the lower inclined spout C, and threaded to receive the thumb screws or taps, whereby the dividers are adjusted laterally, as and for the purpose specified.

3. The chute *c*, with contracted vent *c'*, A-shaped divider, and chutes *s s* arranged in the spout B relative to each other, as shown and described, for the purpose of obtaining a regular and evenly-spread flow of the grain before it reaches the dividers, as herein specified.

194,444. MACHINE FOR MAKING HORSE-SHOE-NAILS. D. I. Pruner, McVeytown, Pa., assignor to himself, A. B. Valentine, G. Valentine, and G. A. Fairlamb, same place. [Filed Feb. 2, 1877.]

Brief.—Die-rollers form the rod into a series of connected (heads and points) blanks. Emery wheels remove all irregularities left by the forming process, and a shear co-operating with a stationary bed-die trims and points each nail, and severs it from the rod. A pawl, operated by the shear carrying plunger, feeds the rod forward. A V-shaped plate, backed by a spring, acts to discharge a nail that adheres to the shearing die.



1. The combination of male-forming die M, shaft J, sleeve M^1, collar J^1, and clamping-nut M^2 with shaft L, partition L^1, collars L^2, rings L^3 L^4, and nut, substantially as and for the purpose set forth.

2. In a machine for making horseshoe-nails, the combination of a rotating male and female die, as described, with feeding guideway M^3, slotted upper plate O^1, having casing *o'*, and under plate O, having bar *o*, with guiding extension or tongue o^2, substantially as and for the purpose set forth.

3. In a machine for forming and cutting horseshoe-nails, a pair of suspended emery-wheels, arranged so as to grind the blanks before they are cut, and combined with springs I^w, for keeping wheels in contact with the blanks, substantially as and for the purpose set forth.

4. The combination of guideway P, standards P^1 P^1, frames P^2 P^2, shafts P^3 P^3, with operating pulleys and emery-wheels, substantially as and for the purpose set forth.

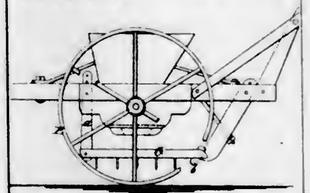
5. Vertically-reciprocating slide R, in combination with lever S, feeding-hook S^1, retaining-dog S^2, and guideway P, substantially as and for the purpose set forth.

6. Vertically-reciprocating slide R, in combination with lever S, slotted at *t*, feeding-hook S^1, slotted block t^2, and retaining-dog S^2, substantially as and for the purpose set forth.

7. Rod W, having spring W' and freeing-plate w^1, in combination with recessed slide R and recessed blocks R^1 R^1, die-blades u u^1, and male die V, substantially as and for the purpose set forth.

194,445. PLANTER AND MANURE-DISTRIBUTER. John Reel, Double Springs, Miss. [Filed June 18, 1877.]

Brief.—The harrow-frame at the rear, by a cross-bar, is flexibly connected to the lower end of the plow-standard, and the front is adjustable by a standard passing up through a slot in the beam.



In a planter and manure-distributer, the harrow composed of toothed side bars, the connecting cross-bar *b* secured to the plow-standard H, the vertical standard *a* passing through and made adjustable in a slot in the beam, all said parts being combined as shown and described, for the purpose specified.

194,446. LANTERNS. E. B. Requa, Jersey City, N. J. [Filed May 5, 1877.]

1. The combination, in a lantern, of the lamp, the perforated bottom, the tubes H, extending up from said bottom, and the detachable tubular deflector D, having its lower end communicating with the upper ends of the tubes, substantially as and for the purpose described.

2. The combination, with a lantern, its lamp, the tubular deflector D, and tubes H, communicating at their upper ends with the deflector, of the double perforated bottom, substantially as and for the purpose described.

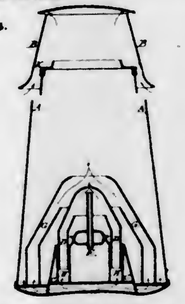
3. In combination with the double bottom of the lantern, a series of partitions forming horizontal air-spaces, whereby horizontal currents of air are admitted from any quarter of the lamp, substantially as and for the purposes set forth.

4. In combination with a lamp, a perforated concavo-convex bottom, whereby air is deflected into the same when the lamp is suddenly lowered, substantially as set forth.

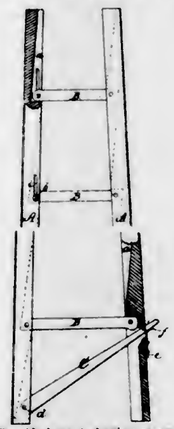
5. The tubular deflector, in combination with the double bottoms of the lamp and lantern, whereby the air is uniformly supplied to the burner, substantially as specified.

6. The combination of the lamp and tubular deflector, the concavo-convex bottom, and the air-spaces therein, with the band and cap with air-spaces for the admission and escape of air, the whole arranged to operate as herein described, to increase the supply of air to the lantern when shifted vertically, substantially as herein set forth.

194,466.



194,467. FOLDING LADDERS. A. S. Riches, Glenbeulah, Wis. Filed July 7, 1877.]

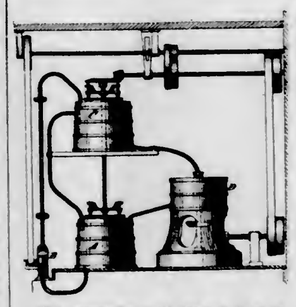


1. The side bars A, having recesses *a*, with reversely-inclined bottoms, in combination with the pivoted rounds, as and for the purpose described.

2. A ladder having convergent side bars and pivoted rounds, with one set of ends of the rounds permanently pivoted to one of the side bars, and the other ends loosely pivoted to the other side bar by means of slots, as and for the purpose described.

3. The combination, with the side bars A and the pivoted rounds B, of the locking-brace C, the slotted plate *e*, and the spring *f*, substantially as and for the purpose described.

194,468. ORE-MILLS FOR WET-GRINDING. Franz Rudeloff, Buchau, Prussia. [Filed May 25, 1877.]



The combination, with the mill D, of the stirring apparatus A, placed below the said mill, the stirring apparatus C, placed above the said mill, the circulating-pump B, and circulating-pipes, forming, with the said mill, pump, and stirring apparatus, a continuous circulating-passage for circulating the mixed material to be ground through the mill, substantially as and for the purpose specified.

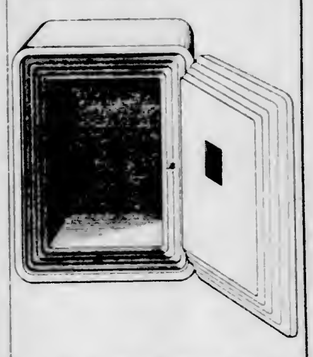
194,469. SCREW-CUTTING TAPS AND DIES. John Schaub, Allegheny, Pa., assignor to himself, J. C. Reymer, and J. H. Rhine. [Filed May 14, 1877.]

Brief.—The tops of the threads of alternate sections are removed, so as to lead and cut the width of the thread, while the succeeding sections finish the cut by deepening the groove.



As a new article of manufacture, a tap or die formed in a single piece, and having a series of mutilated leading-bearings interposed or arranged between the cutting-bearings, substantially as and for the purpose specified.

194,470. FIRE-PROOF SAFES. J. E. Schonacker, Dayton, Ohio, assignor of one-half his right to Edwin W. Neff, Detroit, Mich. [Filed June 5, 1877.]

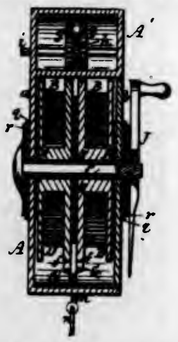


1. The inner side and flanged edges of a fire-proof safe door, when made in and from a single piece of malleable metal, formed into the desired shape by swaging, as set forth.

2. The door-frame of a fire-proof safe, when made in and from a single piece of malleable metal, formed into the desired shape by swaging, as set forth.

3. The flanged edges of the door and the door-frame of a fire-proof safe, when each is made in and from a single piece of malleable metal, and with rounded corners by swaging, substantially as and for the purpose described.

194,471. FIRE-ESCAPES. Jos. A. Schultz, Batavia, N. Y. [Filed May 18, 1877.]



1. In a fire-escape, the combination of the two pulleys B B, lying side by side in the case A, the gears *g g h h* connecting the said pulleys, and the single strap D, winding upon the pulleys, as shown and described, and for the purpose specified.

2. In a fire-escape, the combination, with the two pulleys B B resting upon the bolt C, of the several washers *o p q r*, the loose head or disk *b* of the case, and the lever J, capable of turning upon the threaded end of the bolt to produce the clamping action, as shown and described, and for the purpose specified.

3. In a fire-escape, the combination, with the geared pulleys B B, of the spring-pawls G G, engaging with the said pulleys, and the connection *m* and ring *n*, extending outside of the case, as shown and described, and for the purpose specified.

4. In a fire-escape, the combination, with the handle or loop H, of the body-strap I, with a spring-connection, K, connecting the strap with the handle, as shown and described, and for the purpose specified.

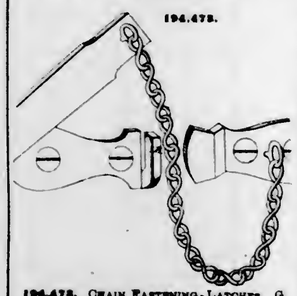
194,472. PROCESSES OF COLORING PHOTOGRAPHS. Jos. A. Schultz, Batavia, N. Y. [Filed May 26, 1877.]

1. As a step in the process of preparing photographs to receive oil-colors, attaching the photograph to an open frame or box, and the application upon the back side of the photograph of a solution of animal oil and acetic acid, for the purpose of neutralizing the chemical salts, as herein described.

2. As a step in the process of preparing photographs to receive oil-colors, the employment of a bath of spirits of turpentine and benzine, for the purpose of removing the oil and metallic particles after the treatment by animal oil and acid, as herein described.

3. The process of finishing photographs in oil-colors, which consists in first treating the positive to a bath consisting of animal oil and acetic acid, to neutralize the chemical salts, then subjecting the same to a bath of spirits of turpentine and benzine, to remove the oil and metallic particles, and, finally, coating the same on the back side by an oil-color, and tinting on the front side, in the manner and for the purpose specified.

194,473.

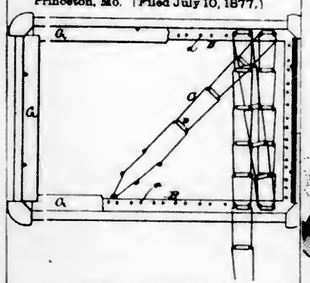


194,473. CHAIN FASTENING-LATCHES. G. C. Setchell and W. W. Higgins, Norwich, Conn. [Filed Sept. 21, 1876.]

Brief.—A drop-latch has one end secured to a chain from the door-jamb, and the other is removably keyed to a base-plate. The door may stand partially opened, but cannot be fully opened until the door is first closed and the latch unkeyed.

The combination, with the latch-plate A, pivoted latch D, removably secured at *a*, and catch-piece C, of the chain E, substantially as and for the purposes herein set forth.

194,474. FIRE-ESCAPES. Wm. P. Sheets, Princeton, Mo. [Filed July 10, 1877.]

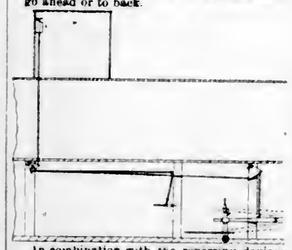


1. A bed-bottom formed of a chain-ladder having one end permanently attached to the bedstead, and strung back and forth, and capable of being used as a fire-escape, as herein set forth.

2. The combination, in a bedstead, of the bars B with pins *a*, ladder C D, and hinged strips G, substantially as and for the purposes herein set forth.

194,475. INDICATORS FOR STEAMBOAT-ENGINES. L. Shook, Pittsburg, Pa., assignor to himself and Patterson & Bishop. [Filed June 19, 1877.]

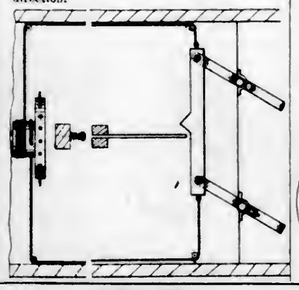
Brief.—The object is to indicate to the pilot the position of the valve by which the engine is controlled, and whether the engine is set to go ahead or to back.



In combination with the reversing devices of an engine, an indicator placed in the pilot-house or a similar position, and intermediate mechanism, substantially as specified, for operating the indicator from the eccentric rod or lever.

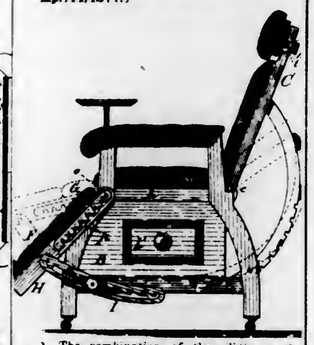
194,476. INDICATORS FOR STEERING APPARATUS. L. Shook, Pittsburg, Pa., assignor to himself and Patterson & Bishop. [Filed June 19, 1877.]

Brief.—For the purpose of indicating when the rudder passes the central point in either direction.



The combination, with a rudder or its tiller, of an alarm or indicator, the spring rod or bolt, and intermediate mechanism, substantially as specified, for operating the indicator or alarm interruptedly, so as to indicate when the rudder passes the central position.

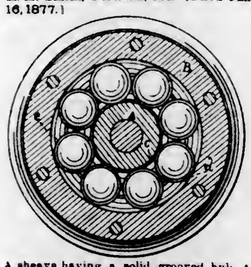
194,477. INVALID-CHAIRS. E. C. Smith and G. B. Reily, Grand Rapids, Mich. [Filed Apr. 14, 1877.]



1. The combination of the sliding and slotted arms H H, notched and slotted segments I I, buttons *m o*, and keepers *p p*, whereby the foot-boards may be adjusted and retained in any given position, substantially as and for the purpose herein shown and described.

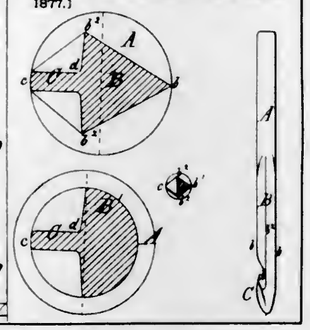
2. The combination of the hinged and adjustable back C having adjustable head-rest C', sliding arms H H, slotted segments I I, and adjustable foot-boards E F G, all constructed and combined to operate substantially in the manner and for the purpose herein shown and described.

194,478. SHEAVES FOR PULLEY-BLOCKS. A. M. Smith, Portland, Me. [Filed June 16, 1877.]



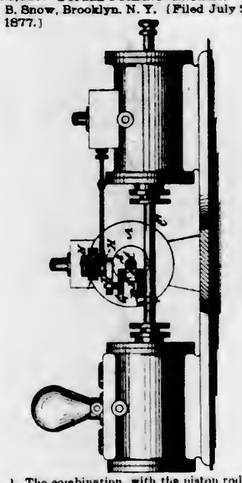
A sheave having a solid grooved hub, A, and split grooved rim B, in combination with spheres or balls *c* and the ordinary pin-bearing of a pulley-block, substantially as set forth.

194,479. SEWING-MACHINE NEEDLES. Ira T. Smith, Hamden, Conn. [Filed May 16, 1877.]



A machine-needle constructed substantially as described, consisting of the shank A, perforating portion B, and hook C, the perforating portion being in cross-section in the form substantially of two unequal isosceles triangles joined together at their equal bases, the long diagonal being equal to the diameter of the circular shank A, and the short being less than said diameter, the hook C being formed in that part of the perforating portion B which has in cross-section the form of the smaller triangle, as and for the purpose set forth.

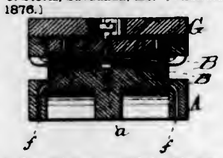
194,480. DUPLEX PUMPING-ENGINES. W. B. Snow, Brooklyn, N. Y. [Filed July 21, 1877.]



1. The combination, with the piston rods C C' of the two pumping-engines arranged to cross or pass each other, as described, of the revolving link D, having no fixed shaft or center of motion, and connected at its opposite ends with said rods, substantially as specified.

2. The combination, with the crossing or passing piston-rods C C' of the two pumping-engines and their connecting revolving link D, of the crank G and the eccentrics H H, operated by the latter for giving motion to the valves of said engines, essentially as described.

194,481. BALANCED STEAM-VALVES. D. C. Stotts, Savannah, Mo. [Filed Nov. 18, 1876.]



1. The valve A, provided with transverse grooves A' A', in combination with springs B, ring F, and plate G, substantially as described, and for the purpose set forth.

2. In a balanced steam-valve, the plate C, having lubricating-holes D D, passages *f f*, and set-screw E, in combination with springs B B and valve A, substantially as described, and for the purpose set forth.

3. In a balanced steam-valve, the valve A, having transverse grooves A' A', adjusting-springs B B, metallic packing-ring F, in combination with plates C G, all constructed substantially as described, and for the purposes set forth.

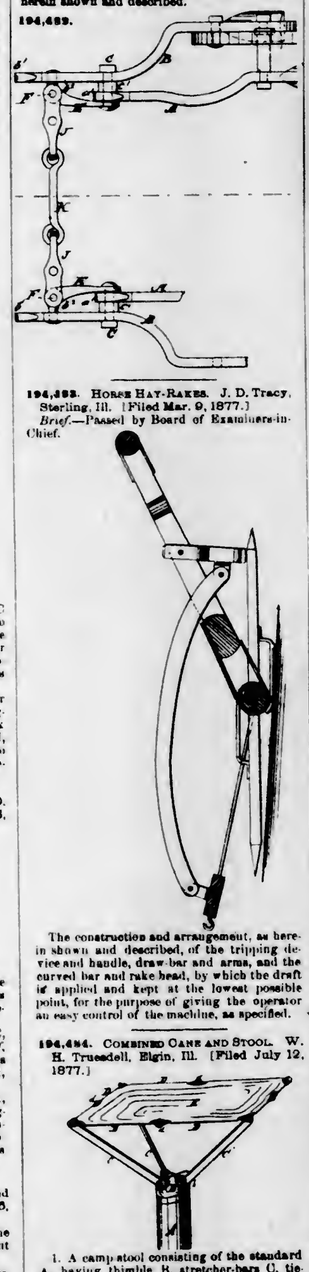
194,482. CULTIVATORS. J. Summers and J. Trimble, Muncie, Ind. [Filed Apr. 16, 1877.]

Brief.—The form and construction of the arch. The manner of connecting the front ends of the plow-beams.

1. The combination of the bar E, the bolts C F, and the eye *b*', with the forward ends of the two beams A B, substantially as herein shown and described.

2. The arch, formed of the two adjustable bent bars J J, and connecting bar or link K, in combination with the forward parts of the two pairs of beams A B A B, substantially as herein shown and described.

194,483.



194,483. HORSE HAY-RAKES. J. D. Tracy, Sterling, Ill. [Filed Mar. 9, 1877.]

Brief.—Passed by Board of Examiners-in-Chief.

The construction and arrangement, as herein shown and described, of the tripping device and handle, draw-bar and arms, and the curved bar and rake-head, by which the draft is applied and kept at the lowest possible point, for the purpose of giving the operator an easy control of the machine, as specified.

194,484. COMBINED CANE AND STOOL. W. H. Truesdell, Elgin, Ill. [Filed July 12, 1877.]

1. A camp-stool consisting of the standard A, having thimble B, stretcher-bars C, tie-chains D, and canvas seat E, all constructed and arranged substantially as described and shown.

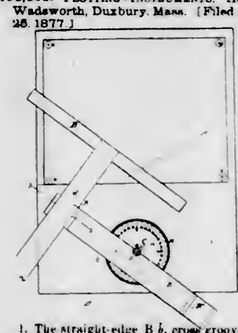
2. The ferrule portion A of a cane, having thimble B, stretcher-bars C, tie-chains D, and canvas seat E, in combination with the upper portion F of the cane, having a socket in its shank, all constructed substantially as described, for the purpose specified.

194,485. MANGERS. Isaac Van Riper, Long Island City, N. Y. [Filed May 31, 1877.]



A manger molded in one solid piece of a composition of cement and sand, and which is rounded at the junction of its bottom and inner sides, substantially as and for the purpose described.

194,486. PLOTTING-INSTRUMENTS. Henry Wadsworth, Duxbury, Mass. [Filed Apr. 26, 1877.]

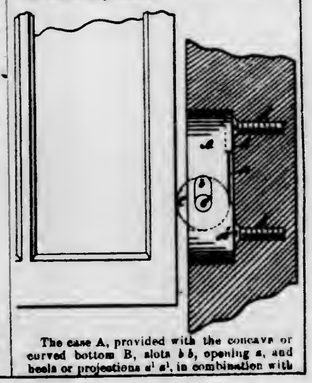


1. The straight-edge B *b*, cross-grooved, as shown at B' B', and turning on an axis in the center of the circle M, in combination with a T-square, D *d*, and with the board A, adapted to support the paper, as and for the purposes herein specified.

2. The clamping-screw C, in combination with the grooved straight-edge, circle, and board, to allow the whole to be held firmly while the T-square is slid in and out in the grooves or guides, and the lines drawn, as herein specified.

194,487. SASH-HOLDERS. Geo. L. Waitt, Philadelphia, Pa., assignor to S. L. Garrett, same place. [Filed Jan. 19, 1877.]

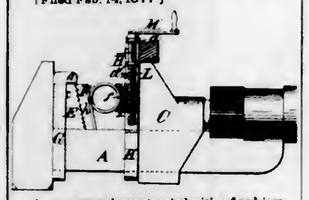
Brief.—A suitable case, formed with curved bottom, partly open, and having vertical slots in the sides, carries a rubber roll, journaled therein, moving up and down, to hold the sash in desired position, there being also provided two adjusting-screws in the rear, which serve to project the case forward and adjust the degree of pressure.



The case A, provided with the concave or curved bottom B, slots *b b*, opening *a*, and heels or projections *a' a'*, in combination with

the adjusting screws d^1 d^2, elastic friction-roller C, bushing c, and axle c', substantially as herein shown and described.

194,488. PIPE AND NUT WRENCHES WITH CUTTERS. B. L. Walker, Sing Sing, N. Y. [Filed Feb. 14, 1877.]



1. In a wrench constructed with a fixed jaw, B, and a movable jaw, C, the combination, with the fixed jaw, of the wedge-shaped griper-block and the spring-strap G, having the turned down ends a, and embracing the said block and the bar A, and holding the griper-block in the relation to the bar and fixed jaw, the said griper-block constructed to have a longitudinally-sliding movement on the strap G, as and for the purpose described.

2. The combination of the sliding and gripping cutter carrier E, carrying the cutter F, strap G, frame H, carrying the grooved sliding support I, feed-screw L, having bearing K, and winch M, all constructed and combined for operation substantially as described.

194,489. REVOLVING FIRE-ARMS. T. M. Wallace, Philadelphia, Pa., assignor of one-half his right to W. Wurfflein, same place. [Filed July 28, 1877.]



1. The combination of the frame and barrel of the weapon A with the barrel B and its spring-pin b, as specified.

2. The combination of the revolver A with the barrel B, provided with a plate, a, and guard D, as specified.

3. The combination of the frame of the weapon A with the handle-plates E, having projections f, with lugs i for attachment to the stock, all substantially as set forth.

4. The combination of the stock F and its threaded socket m with the weapon A and its handle-plates E, having projections f with threaded lugs i, as specified.

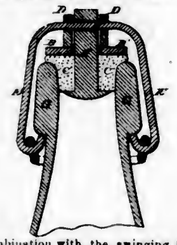
194,490. HATS AND CAPS. A. B. Waring, Yonkers, N. Y. [Filed Feb. 7, 1877.]



As a new article of manufacture, a hat or cap consisting of a body of knitted material capable of fulling, and in a form approaching to that of the finished article, and a hat or body of felt, the two being thoroughly incorporated by felting and fulling, substantially as herein set forth.

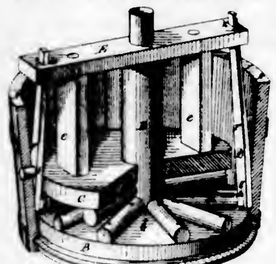
194,491. BOTTLE-STOPPERS. T. A. Weber, New York, N. Y., assignor to P. L. Strauss, same place. [Filed May 14, 1877.]

Brief.—The stopper-plate slides up and down the standard, compressing the rubber cylinder.



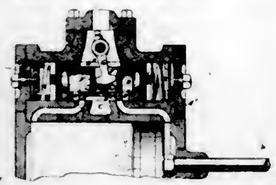
In combination with the swinging bail E, the perforated elastic stopper C, pin A, sliding washer B, and eccentric D D^x d, constructed and combined to operate substantially as and for the purpose herein shown and specified.

194,492. WASHING-MACHINES. H. Weisel, Maple Grove, Minn. [Filed May 5, 1877.]



The upper disk C, having the rigidly-attached bar E and braces e, in combination with the lower or clothes-supporting disk B, having the shaft D and levers F, pivoted to the face of the tub at f, and connected with the bar E, substantially in the manner herein shown and described.

194,493. VALVES FOR STEAM-ENGINES. S. H. Whitmore, Cincinnati, Ohio, assignor of one-half his right to F. C. Wells, Chicago, Ill. [Filed Nov. 29, 1876.]



1. The steam chest A and cylindrical hollow slide-valve D, having ports, as described, for the passage of steam to and from the chambers at the ends of the valve, and to and from the cylinder of the engine, in combination with the slide-valve F, placed in the interior of valve D, and having its movement in the same direction, and independently actuated by the oscillating arm G passing through a slot in the shell of valve D for admitting steam to operate the said valve D, substantially as set forth.

2. The valve D, constructed with a cylindrical cavity, and ports D^2, D^3, D^4, D^5, and D^6, in combination with the auxiliary valve F, which is moved in the direction of the main valve, valve-chest A, oscillating arms G, and springs E, substantially as set forth.

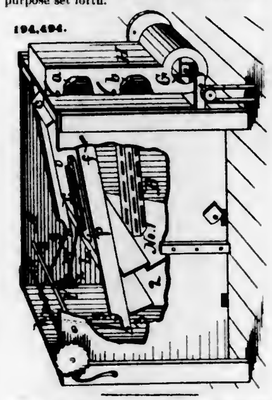
194,494. MIDDLINGS SEPARATORS. H. R. Winchell, Montour, Iowa. [Filed Nov. 25, 1876.]

1. The combination, with sieve O and plate p, formed with an upward projection, of the knocking-bar r, freely connected to said plate and the pitman w, substantially as and for the purposes set forth.

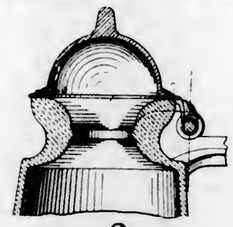
2. The inclined screen-board c, supported over the top and front end of the sieve O, the fan G in the fan-box H, having an air-port at its top under the adjustable valve a, and the slot or mouth d in the front and top of the case A, arranged and combined substantially as and for the purposes shown and described.

3. The combination, with the sieve O, plate p, and knocker r, of adjustable pitman w, provided with arm t, substantially as and for the purpose set forth.

194,494.



194,495. HINGED TOPS FOR GLASSWARE. T. B. Atterbury, Pittsburg, Pa., assignor to himself and J. S. Atterbury. [Filed Mar. 1, 1877.]



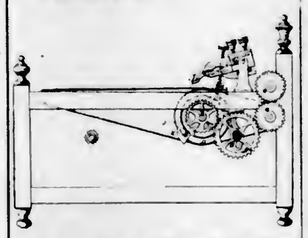
In a molasses-pitcher or similar article of glass table-ware, the cover provided with the slotted knuckle or open strap-hinge e i, and connected to the glass article by vitreous pintles formed thereon, substantially as and for the purpose specified.

194,496. RAILWAY-RAIL JOINTS. Henry H. Doty, Washington, D. C. [Filed June 12, 1877.]



The rails A and B, having extensions C and D upon the upper side of the base, overlapping the flange of the base of the adjoining rail, and giving mutual support to the rails, substantially as set forth.

194,497. PAPER-RULING MACHINES. Wm. O. Hickok and A. Cooper, Harrisburg, Pa.; said Cooper assignor to said Hickok. [Filed June 26, 1877.]



1. In a ruling-machine, the pen-cylinder moving loosely upon its shaft by the friction of the apron, and the heads secured on the cylinder-shaft, and operated by a system of variable gearing, substantially for the purposes herein set forth.

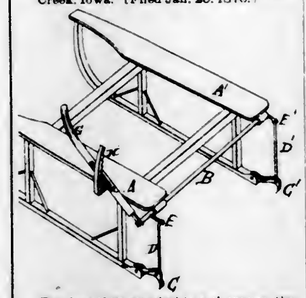
2. In combination with the striker J, the screw-sleeve K, provided with the shaft d, passing through the striker, and held by a nut, e, at any angle desired, and the adjusting-screw L passed through the sleeve, whereby the sleeve and screw may be adjusted at any angle desired, for the purposes herein set forth.

3. The adjustable rest M, provided with the pad f, in combination with the adjustable screw L, for the purposes set forth.

4. In combination with the head D^2 at the end of the pen-cylinder of a ruling-machine, the cam k, provided with the T-shaped slot n, and adjusted and held to the head D^2 by set-screw m, as and for the purposes herein set forth.

5. In a pen-bar for ruling-machines, one or both of the jaws provided with a lining, s, of rubber or equivalent material, covering the entire inner surface thereof, for the purposes herein set forth.

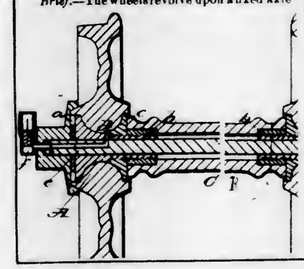
194,498. SLED-BRAKES. C. Lemley, Dutch Creek, Iowa. [Filed Jan. 25, 1876.]



The dogs C C', attached to each runner, the levers D D', both operated by the crank-shaft B, extending across and attached to both raves A A' of the sled, in combination with the lever G and ratchet H, substantially as described, and for the purposes set forth.

194,499. CAR WHEELS AND AXLES. G. R. Nebinger, Philadelphia, Pa. [Filed Dec. 11, 1876.]

Brief.—The wheels revolve upon a fixed axle

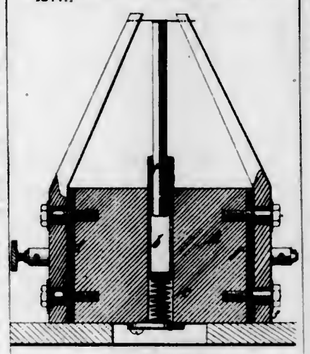


1. The hollow journal-box A, consisting of the sectional parts a c, exteriorly conical or grooved, in combination with the wheel having the inner wall of its hub of convex form or tongued, substantially as and for the purpose set forth.

2. The two parts a c, connected by a shank, b, in combination with the encircling axle C, secured to an extension of said shank, substantially as and for the purpose set forth.

3. The wheels with convex hubs, the sectional concave journal-boxes, inclosed axle B, and inclosing axle C, combined and operating substantially as and for the purpose set forth.

194,500. ELECTRIC CANDLES. W. E. Sawyer, New York, N. Y. [Filed June 22, 1877.]



1. The method of obtaining an electric light, consisting in heating a refractory substance by bringing it in contact with a heated conductor of electricity.

2. An electric candle, in which a conductor of electricity, heated to any desired degree of intensity, renders luminous a non-conducting substance in contact therewith, as set forth.

3. An electric candle, in which the circuit producing the light is entirely metallic, in combination with a substance which is rendered luminous by heating.

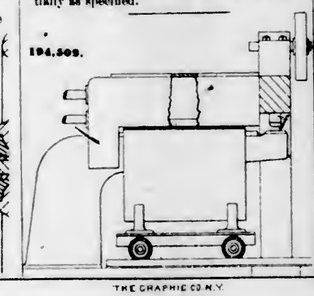
4. An electric candle, in which the light is produced by the direct action of the electric current upon its conductor, in combination with a clay, lime, or other refractory substance, substantially as shown and described.

5. In an electric candle, the combination, with a refractory substance, rendered luminous by heat, of apparatus for forcing the same to a constant bearing against a heated conductor, substantially as shown and described.

194,501. PROCESSES FOR THE PRODUCTION OF CARBONIC-OXIDE GAS FOR HEATING AND WELDING. William S. Sutherland, Coombs Wood, Halesowen, England. [Filed Mar. 12, 1877.]

In the manufacture of carbonic oxide, the process herein described, consisting in heating the incoming air by the outgoing products of combustion, whereby radiation and loss of heat from the producer are prevented, and the fuel is burned with a supply of air insufficient to produce carbonic acid, substantially as specified.

194,502.



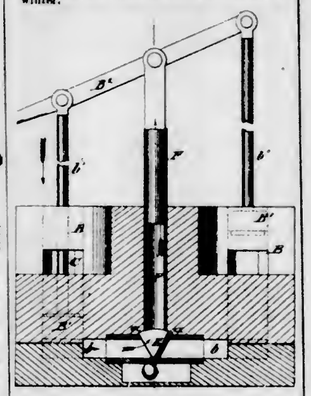
194,502. MACHINES FOR WELDING METAL TUBES. William S. Sutherland, Coombs Wood, Halesowen, England. [Filed Mar. 12, 1877; patented in England, July 14, 1874, for fourteen years.]

1. In a metal-welding machine of the class specified, the combination of the slotted combustion-chamber and the beak arranged in relation thereto, substantially as and for the purpose specified.

2. The combination of the slotted or open combustion-chamber, the beak serving as an anvil, and the hammer, the whole substantially as and for the purpose specified.

194,503. DIRECT-ACTING FORCE-PUMPS. J. K. Van Pelt and W. Lee, Texarkana, Ark., assignors to themselves and W. H. Elliott, same place. [Filed Apr. 16, 1877.]

Brief.—The water enters the cylinders through holes in their sides, thereby dispensing with valves in the pistons. When the motions of the plungers cease, the water falls back into the water-chambers, remaining cool in summer and without danger of freezing in winter.



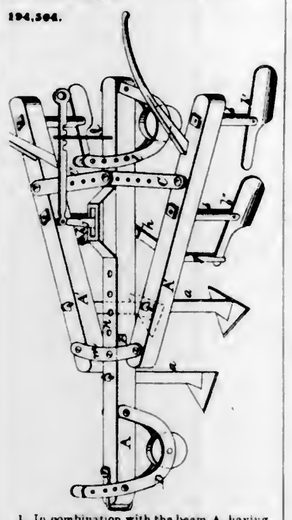
In a double-acting pump, the combination, with two plungers, B^2 B^3, of side-apertured cylinders B B, channels b b, chamber D, cut-off E, and discharge F, arranged as shown and described.

194,504. CULTIVATOR, WEEDER, AND MARKER. M. N. Ward, Cedar Rapids, Iowa, assignor of one-half his right to D. J. Buckley. [Filed July 11, 1877.]

Brief.—The frame consists of a long center beam and two shorter outside beams. The forward ends of the outer beams are connected to the center beam by means of short metal straps, which are longitudinally adjustable by means of holes in the center beam. The rear ends of the outside beams are adjusted laterally by means of spreading-irons, provided with holes. The forward cutters consist of a triangular horizontal steel plate, having a thin, sharp standard rising from the center. The middle ones are pivoted on a central standard,

and have a connecting-lever, by which they can be set at any desired angle. The rear shares are horizontally curved, and can also be set at any angle.

194,304.



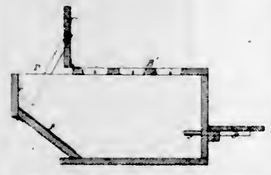
1. In combination with the beam A, having the shorter and side beams A' A' connected thereto, as shown, the marking-hoes *b'* adapted to be set at any desired angle horizontally on standards *b*, substantially as described.

2. In a cultivator, the hoes *b''*, adjustable horizontally by means of beams A' and spread-irons C, and also on the standards *b* by means of arms *g*, straps *h*, and lever *j*, substantially as set forth.

3. In the within-described device, the combination of the side beams A' with main beam A by means of strap B, adjustable lengthwise on said beam, and, by means of spread-irons C, adjustable parallel or at an angle therewith, substantially as described.

4. In combination with the frame A B A A, constructed and adapted to operate as described, the triangular sod-cutter *a a a*, and hoes *b''' b''* and *b' b'*, forming thereby a weeding device, substantially as herein set forth.

194,305. EGG-TESTERS. W. W. Dunbar, Atlanta, Ill. [Filed Aug. 14, 1877.]



1. The combination, with an egg-tester having the egg-seats *i*, an inspection-opening, D, and an inclined mirror below said opening, of the adjustable screen-lid C, between said seats and opening, substantially as specified.

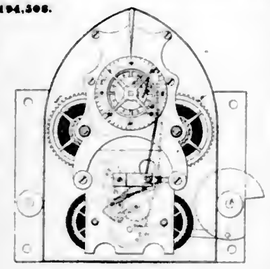
2. The combination, with an egg-tester having the egg-seats *i*, inclined mirror B, inspection opening D, and screen-lid C, between said seats and opening, of the removable lamp-stage F, substantially as specified.

3. In an egg-tester, the adjustable guard-lid C, between the egg-seats and inspection-opening, as and for the purpose specified.

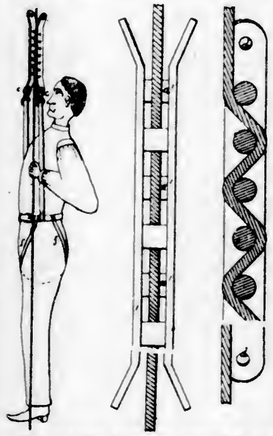
194,306. TIME-LOCKS. J. Burgs, Circleville, Ohio, assignor, by mesne assignments, to the Yale Lock Manufacturing Company, Stamford, Conn. [Filed Aug. 15, 1876.]

The combination of the oscillating notched dogging device, isolated from the time mechanism, the spring-actuated gearing for oscillating it, and the time mechanism for determining the time of setting into action the spring-actuated gearing for oscillating the dog for unlocking, and devices for connecting and operating the parts, substantially as described.

194,308.



194,307. FIRE-ESCAPES. J. J. Van Wie, Dubuque, Iowa, assignor to himself, W. P. Allen, and G. A. Fifield, same place. [Filed June 14, 1877.]



The reversible fire-escape, adapted for being fitted upon a single rope, and consisting of two side pieces, which are rigidly fastened together by separated round bars, and having their upper and lower ends bent outwardly, and perforated, all in the manner and for the purpose herein described.

REISSUES.

7,850. REFINING AND BLEACHING HAIR. J. Bené, Brooklyn, N. Y. Patent No. 184,577, dated Nov. 21, 1876. [Filed July 27, 1877.]

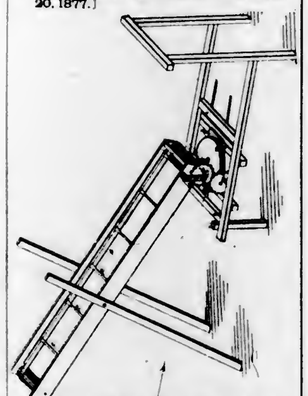
1. The process of refining all grades of coarse hair by bathing and manipulating the same in a chemical bath composed of acids and chlorate of potash, the component parts of such bath being substantially in the quantities as hereinbefore set forth.

2. The process of fixing or setting the colors of hair previously refined and bleached in a chemical bath of acids and chlorate of potash, and afterward dyed or not, by immersing and manipulating the same in a bath composed of warm water, muriate of tin, bisulphite of soda, and muriatic acid, the component parts of such bath being the quantities substantially as hereinbefore set forth.

3. The process of refining and bleaching all grades and classes of coarse hair, which process consists of, first, bathing and manipulating the same in a chemical bath composed of acids and chlorate of potash, which refines and bleaches the hair; second, in bathing the hair so refined and bleached in a bath of warm water, muriate of tin, bisulphite of soda, and muriatic acid, which bath fixes or sets the color; and, third, in finally bathing the hair so refined, bleached, and manipulated, in a bath composed of water and ammonia, which final bath cleanses and removes all impurities therefrom, the component parts of said baths being in the quantities substantially as hereinbefore set forth.

4. As a new article of commerce and manufacture, hair of fine texture produced from any grade of coarse hair, either animal or human, by a process of refining and bleaching, substantially as and in the manner herein shown and set forth.

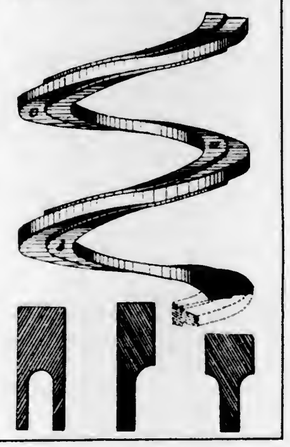
7,851. COB-CARRIERS FOR CORN-SHELLERS. Henry H. Eby, Mendota, Ill. Patent No. 134,790, dated Jan. 14, 1873. [Filed Mar. 20, 1877.]



1. A movable independent cob-carrier wherein are combined a supporting and revolving block, a carrying-frame whose inner end is supported upon said block, and whose outer end is supported upon movable legs, and gearing applied at the inner end of the carrying-frame and capable of acting continuously, whether the carrying-frame is fixed in position or being swung to a new position, substantially as described.

2. A movable independent cob-carrier wherein are combined a carrying-frame supported at its inner end upon a revolving block, and the central vertical shaft and its connections, whereby the said carrying-frame can be adjusted vertically and horizontally without stopping the operation of the endless belt, substantially as and for the purposes set forth.

7,852. CAR-SPRINGS. G. F. Godley, Philadelphia, Pa., assignor, by means assignments, of part interest to C. Scott and M. F. Prudden, same place. Patent No. 155,578, dated Oct. 6, 1874. [Filed Mar. 27, 1877.]



1. A metal car-spring having flat surfaces *a b*, and a web or webs, *c*, having a lesser thickness beyond such surfaces, substantially as shown and described.

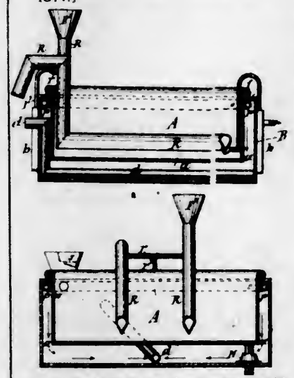
2. A spiral metal car-spring, formed of a bar having a part thinner in cross-section than the rest, and coiled with such thin part in the interior of the coil, substantially as and for the purpose set forth.

3. An edge-coiled spiral spring made from a blank form or bar of metal, having two or more independent thicknesses in different parts of the same cross-section, and presenting opposite flat surfaces in each of such thicknesses.

4. An edge-coiled spiral car-spring made from a metallic blank having parallel sides, but with one edge thicker than that of its opposite edge or edges.

5. As an article of manufacture, a blank form or bar of metal adapted for making edge-coiled springs for vehicles, and having one of the forms in its cross-section, as described, and as shown in Figs. 1 to 5, respectively.

7,853. MILK-COOLERS. Henry A. Hannum, Canenovia, N. Y. Patent No. 182,436, dated Sept. 19, 1876. [Filed July 27, 1877.]



1. The combination and arrangement with a milk-pan set within a water-pan, having a water-outlet underneath the milk-pan of a water-inlet, arranged around the exterior of the pan, at or near the top thereof, to apply the cold water first at the top of the pan, and uniformly on all sides, substantially as described.

2. The arrangement, with the milk-pan A within the tank B, and having a water-space around its sides and bottom, of the perforated pipe *p*, extended around the pan, inside the water-tank, at the top of its vertical sides, and the perforated pipe *d*, arranged longitudinally centrally underneath the pan, and having an exit through the end of the tank, substantially in the manner described and shown, for the purpose set forth.

3. The pipe R, when constructed of a convex or segmental top and two tangential sides converging to an angle at the bottom, substantially as described and shown, for the purpose specified.

4. The combination and arrangement of the tank B, pan A, pipe R, having isolated vertical extensions at one end of the pan, and a T-shaped bar engaging at each end of its horizontal portion *r*, one of the aforesaid vertical extensions of pipe, and having its vertical limb *r'* extended to the exterior of the tank B, all constructed and combined substantially in the manner specified and shown, for the purpose set forth.

7,854. CARBONIC-ACID-GAS GENERATORS. A. Kayser, Buffalo, N. Y., assignor, by mesne assignments, to the Kayser Gas Generator Company. Patent No. 186,080, dated Jan. 9, 1877. [Filed July 23, 1877.]

1. The combination, with the generating-vessel A B and acid-receptacle C, of the gas-tube *n'* depending from the under side of the acid-receptacle, and valve *e*, closing against the under side of the acid-receptacle, substantially as and for the purpose hereinbefore set forth.

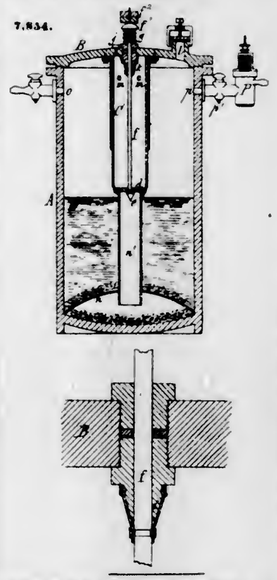
2. The combination, with the generating-vessel A B and acid-receptacle C, and tube *w'*, of the valve *e*, closing against the under side of the acid-receptacle, valve-stem *f*, and spring *g*, arranged so as to hold the valve in a closed position, substantially as hereinbefore set forth.

3. The combination, with the generating-vessel A B and acid-receptacle C, of the gas-tube *w'*, leading from the bottom of the acid-receptacle to the lower portion of the generating-vessel, and valve *e*, constructed so as to be opened and closed automatically, as the variations of pressure render necessary, substantially as hereinbefore set forth.

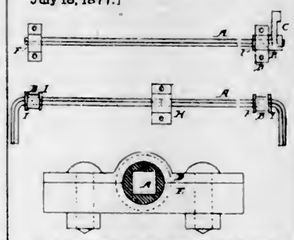
4. The combination, with the generating-vessel A B and acid-receptacle C, of the perforated diaphragm *n*, gas-tube *w'*, opening into the space between the diaphragm *n* and the bottom of the vessel A, and automatic valve *e*, substantially as and for the purpose hereinbefore set forth.

5. The combination, with the generating-vessel A B and acid-reservoir C, of the valve and stem *e f*, spring *g* tending to close the valve, and weight or weights *f'* tending to open the valve, all arranged substantially as and for the purpose hereinbefore set forth.

7,854. [duplicate]



7,855. TORSION-SPRINGS FOR VEHICLES. C. W. Saladee, Washington, D. C. Patent No. 132,606, dated Oct. 29, 1872. [Filed July 18, 1877.]



1. A torsional spring composed of an angular rod of steel, of substantially uniform size and shape throughout the entire length, including the bearing, as and for the purpose set forth.

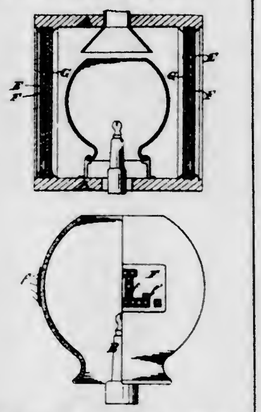
2. A torsional spring of angular steel, uniform in size and shape at the bearings with the body of the spring, or nearly so, and having a central attachment, from which the twist extends in opposite directions, substantially as set forth.

3. A torsional spring consisting of the central straight body A, extended to form the arms C at right angles to the body on the same side, and provided with a central attachment, secured immovably upon the spring, and from which the spring is twisted toward each end, substantially as set forth.

4. A torsional spring composed of an angular rod of steel extending through a cylindrical bearing, substantially as set forth.

5. The loose sleeve-bearing B, for supporting and operating angular torsional springs, substantially as and for the purpose set forth.

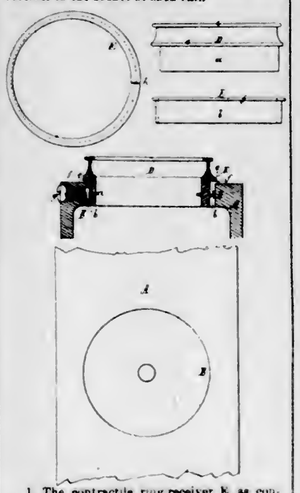
7,856. ILLUMINATING-SIGNS. C. H. Seawell, St. Louis, Mo. Patent No. 189,796, dated Apr. 17, 1877. [Filed June 21, 1877.]



The illuminating-sign, having the combination in its face or faces of the outer transparent pane E, the lettered and perforated plate F, the semi-transparent or translucent pane or plate G, substantially as set forth.

7,857. RINGS FOR RING AND TRAVELER SPINNING-MACHINES. J. W. Wattles, Canton, Mass. Patent No. 75,610, dated Mar. 17, 1868; Reissue No. 3,155, dated Oct. 20, 1868. [Filed June 23, 1877.]

Brief.—The bore of the receiver is eccentric to its outer circumference. Said receiver is split through, so as to be capable of being sprung or contracted upon the shank of the ring by means of a screw inserted in the rail, which screw is also employed to confine the receiver in the socket of such rail.



1. The contractile ring-receiver E, as constructed, with or having the flange *f* and shank *b*, and the cross-cut *h* extending through them.

whereby such receiver is rendered capable of being sprung or contracted upon the shank of a ring by a screw inserted in the rail and employed to confine the receiver in the socket of such rail, as set forth.

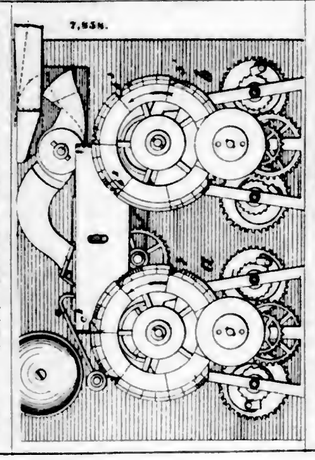
2. The combination of a spinning-machine ring and its supporting rail, with a clamp-screw inserted in the latter, and with a ring-receiver, contractile, as described, and also inserted in the rail, whereby, by setting or screwing up the said screw against the ring-receiver, such receiver may be confined in place in the rail-socket, and be contracted upon the ring so as to hold it in position in the receiver, as set forth.

3. The combination of the contractile spinning-ring receiver, socketed to receive a ring, and inserted in a socket of the ring-rail, with a ring inserted in the receiver, and with a screw screwed into the rail and against the shank of such receiver, all substantially as set forth.

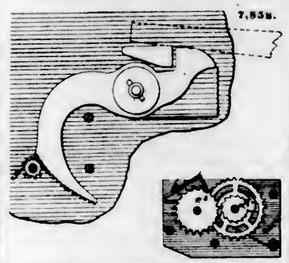
4. The combination of the single clamping-screw *g* with the ring-rail A, and with the contractile receiver E and its ring D, provided with eccentric shanks *a b*, all being substantially as set forth.

7,838. TIME-LOCKS. J. Burge, Circleville, Ohio, assignor to the Yale Lock Manufacturing Company, Stamford, Conn. Patent No. 166,255, dated Aug. 3, 1875. [Filed Mar. 17, 1876.]

7,838.



7,838.



1. The combination of the dials arranged to revolve once in seven days, and provided with devices for releasing the unlocking mechanism daily or otherwise, and the clock-work, substantially as described.

2. The combination, substantially as before set forth, of the two revolving dials and the connecting-yoke resting thereon.

3. The combination, substantially as described, of the direct-acting unlocking clock-work, two time-movements for determining the time of action of said clock-work, and the yoke and dials, substantially as described.

THE GRAPHIC CO. N.Y.

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DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—SOUTHERN DISTRICT OF OHIO.

THE MILLER AND PETERS MANUFACTURING COMPANY *vs.* NAPOLEON DU BRUL.

[*Before* SWAYNE, *J.*:]

[This decision was stenographically reported, but has not been read or revised by the Judge.]

The Commissioner of Patents alone is invested with authority to decide whether a patentee is entitled to a reissue, and after he has exercised this power and granted the reissue it becomes a presumption of law that he has done his duty thoroughly, faithfully, and properly.

The action of the Commissioner in granting a reissue is not open for re-examination by the courts, except on the ground of fraud in its procurement.

The validity of a patent is not determinable by the degree of novelty or invention displayed, but it is sufficient if there exists some novelty and merit, however slight.

The same novelty and merit that will entitle an applicant to a patent entitles him to the judgment of a court upon that point, and the action of the Patent Office in making the grant is *prima facie* proof that the requisite novelty and merit exist.

This is a suit brought on reissued letters patent for improvement in cigar-molds, granted F. C. Miller, September 28, 1875, as a reissue of letters patent originally granted same, October 13, 1874.

The bill charges the infringement of the first and second claims, which are as follows:

1. The series of cups *e*, which are constructed with flanges *e'*, and attached to a suitable backing, substantially as and for the purposes specified.

2. The movable half-mold, composed of a series of cups, *e*, and attached to a backing, in combination with the stationary half-mold, having a corresponding series of sockets, *d'*, substantially as and for the purpose specified.

The defenses relied on are—

(1.) That the reissue is broader than the original, and not for the same invention. (2.) Want of novelty. (3.) Want of patentable invention.

As to the validity of the reissue it is delegated, by the act of Congress upon the subject, to the Commissioner of Patents carefully to examine the question whether the patentee is entitled to a reissue, and to decide according to the result of that examination. The presumption of law is, according to the authorities, that the Commissioner has done his duty thoroughly, faithfully, and properly, and has arrived at a conclusion in accordance with his action.

The question is not open for re-examination, except on the ground of fraud. (*Battin* vs. *Taggart*, 17 How., p. 84; *Rubber Co.* vs. *Goodyear*, 9 Wall., p. 796; *Seymour* vs. *Osborne*, 11 Wall., 516, and others.)

The presumption is that everything is correct and valid touching the reissue.

I have found nothing in this case sufficient to open up the question for re-examination. I need not remark further on the subject.

On looking through the patents which have been introduced on the part of the defendant, and examining the models which show the invention, we find nothing that *exactly* anticipates said invention. In this connection it is proper to read a part of the specification:

The plungers or cups of the upper or movable half-mold are formed separately, and subsequently secured to the backing, while in the sockets in the lower or stationary half-mold, in order to obtain a perfect register between the cups and the sockets, heretofore the cups have been made of the same width, or nearly so, from top to bottom—that is to say, the width at the top at a particular point would be the same, or nearly so, as the width at the bottom at this same point, and the face of the backing to which they are attached checked their further entrance into the sockets by bringing up against the top of the socket-board. By reason of this construction of the cups it was exceedingly difficult to secure the backing to it without injuring the cups or the surfaces of the sockets by forcing the cups too far into the socket, and, in case the cups were secured by gluing, either their backing would glue onto the top of the socket-board, or else it had to be withdrawn before the cups had been previously secured. To avoid these difficulties is the object of the first part of my invention, which consists in providing the plungers or cups with laterally-projecting flanges, by means of which they are supported on top of the socket-piece while in the sockets, so that the backing may be brought down upon them with any requisite force to secure them without danger of injuring the molds proper, and which also serve to form a space between their backing and the socket-board, so that, in gluing, the backing may be held clamped to the cups for any length of time necessary to make a permanent and reliable connection.

Then, after referring to another feature not here in controversy, the patentee proceeds in describing this invention:

The cups *e* are made singly and separate from the backboard *a*, for the reason that it is very difficult and very expensive to make them of one piece, and at the same time make the whole set or series fit accurately to the corresponding female sockets

underneath, while, by making them singly, I make them cheaply, and then, by laying them one by one into the female sockets d', and, while in such position, gluing or otherwise uniting the backboard a to them, I secure a fitting and correspondence of the two sets of sockets or cups that is absolutely unattainable in any other manner. Not only this, but if one of the cups e be accidentally broken, I can at once and in an inexpensive manner, replace; while, if the cups were in one piece, and then one of the cups were to be broken, the whole series would become practically worthless. In furtherance of this object, I make each cup e with flanges or shoulders e', which gives each cup the broadest practicable base to stand on, yet leaves space between the cups for the attainment of the nice adjustment with reference to the socket d', which I have spoken of. The grain of the wood of these cups runs, by preference, in the direction of their length, and transversely of the length of backboard a. When the shoulders e' fit down upon the socket-board d, as shown in Fig. 2, the spaces between the faces of the sockets d' and cups e are circular in cross-section, and fitted to give the proper cylindrical shape to the cigars. Further, the flanges e' e' on the cups enable me to make the molds properly rounded in cross-section, without altering the depth of either the male or female cups by simply making the male cups with thinner or thicker edges, as the case may require.

In the flanges attached to each upper cup, at the bottom of the upper cup, required to be separate and distinct from the others, and the flanges required to be distinct from the backing-board, and attached to it in the manner described, I find what I do not in any other case. There is no description in any patent of *exactly* the same thing. There is to be found in no mold which has been produced by the defendant *exactly* the same thing. In several instances there has been a *very near approach* to the alleged invention of the plaintiff, but in no instance has the mark been *quite hit*. It is neither claimed nor proved that any mold was ever made or used exactly as described in the complainant's patent. The variations in several instances are exceedingly small, but they are sufficiently marked to leave a distinction between them and the requirements and description of the complainant's invention, as set forth in his patent.

The case turns entirely on the complainant's flanges. For the reasons which I give I have come to the conclusion that his invention belongs to him, as inventor, and that it has the requisite novelty. So far, I think, his case stands on firm ground.

Then comes up the question of patentability. I have no hesitation in saying that upon the argument it seemed to me that there was no sufficient novelty and merit. Single cups, attached to a backing, having been invented before, it seemed to me that the point beyond this prior invention which the complainant has reached was not sufficient to sustain a patent. In this aspect of the case I thought there was no novelty. It is proved that small as these flanges are, inconsequent as they seem, little bearing as they have upon the question, there is some merit, some utility.

If that be so, that, united with the novelty which has been found to exist, and which is established in the proof, small as that merit is, it entitled the complainant to a patent in the judgment of the Commissioner of Patents, in the judgment of the Patent Office, and it entitles him to the judgment of this court upon that point. If this be so, the patent seems to be supported and the complainant is entitled to the benefit. We have no authority to measure the degree of merit in the case in this connection. The action of the Patent Office is *prima facie* proof to that effect. The testimony in the record bears upon the proof and sustains the judgment of the Patent Office, if this were material. The testimony of Miller is full to this effect, and, in my judgment, it has not been effectively contradicted. The testimony of Peters, one of the complainants, is less cogent, but substantially to the same effect. The testimony of Tietig and of Heintz bears somewhat in the same direction, but with less force.

Now, this general reflection strikes me as very material to the solution of any doubts upon the subject, and the idea has had great weight with me in coming to the conclusion which I have reached, and with very considerable hesitation, for the time, of the correction of my judgment. There can be no doubt that, in the distinct conception of the patent, complainant has done what was not done before. One or two persons have suggested that the proper cups can be made single and separate from the others, or connected with them—the cups being made in sections consisting of one, two, or more, and the last patent of Du Brul contains, perhaps what may be called the flange, but that flange is inside. I examined the model and came to that conclusion. Here the flange regulates the depths, and that is set out in the patent. This flange attached, when properly connected regulates the depth to which it can be pressed, and that makes the peculiar mold in which lies the merit of the alleged invention.

But, departing from the details, it may be assumed, I think, from the proof that nobody had found or described, or insisted on Miller's particular configuration of these molds.

Why should not others let his alleged invention alone? They can use anything that preceded it—the old German mold; any of those covered by the Du Brul patents. They can use anything in relation to which evidence has been given, and which anticipated the alleged invention of the complainant. Now, if his was so worthless or wanting in originality, so immaterial, as it is claimed, why should not they let it alone?

The conclusion I have here reached in sustaining the patent only requires that this should be done. It does not interfere with the use of any of these inventions, which really seem to be better than his, and all which antedate his. His invention, such as it is, worth much or little, belongs to him, and, under the patent he is entitled to the exclusive manufacture of it. I am, therefore, constained to come to the conclusion that the plaintiff is entitled to the injunction.

U. S. CIRCUIT COURT—NORTHERN DISTRICT OF NEW YORK.

WILLIAM PERRIGO *et al. vs.* CHAUNCEY B. SPAULDING.

[*In equity.—Before* JOHNSON, *Cir. J.—Decided June 7*, 1876.]

A motion for injunction against the user of a machine refused, because damages and profits had been recovered for the manufacture and sale of the machine from his vendor.

When a patentee gets his remuneration by patent or license fees, a recovery of the license or patent fee from an infringer, and its payment, authorizes him to use the particular articles for which such recovery had been had.

When a patentee gets his remuneration in the exclusive use of his machine and the sale of its products a recovery will not give the infringer any right to the further use of the infringing machines.

When a patentee gets his remuneration by the sale of his patented machine for use by others a recovery of profits and damages from the manufacturer of an infringing machine is a full compensation for his injury, and places him in the same position as if he had made and sold the machine himself, and confers on the machine the right to be used while it lasts.

When a full recovery and satisfaction from one party has been had the patentee has obtained all that the law gives him and the particular article or machine becomes, in effect, licensed by the patentee, and may be used so long as it lasts, free from any further claim by the patentee.

STATEMENT.

[This was a motion for an injunction against the defendant on a bill in equity under letters patent granted to one Birdsall, to enjoin the *use* of an infringing machine. Prior to this the patentee Birdsall had sued the makers and vendors of the defendant's machine and recovered from them their gains and profits for all machines made and sold by them, among which was the defendant's machine. The complainants having acquired a territorial right from Birdsall now attempt to enjoin the *use* of the defendant's machine.]

[*W. W. Hare*, for the plaintiffs.
Edgar P. Glass, for the defendant.]

JOHNSON, *Cir. J.*:

The rights of the defendant become fixed at the date of the decree in the suit between Birdsall and Wickson and Van Wickle, the vendors to Spaulding of the machine the use of which is sought in this suit to be enjoined. That decree was made in January, 1875. Its force and effect as between the parties and their privies could not be affected by a subsequent agreement between the plaintiff in that suit, Birdsall, and the plaintiffs in the present suit. Their agreement bore date in September, 1875. It attempted to engraft a clause contained in it upon an earlier agreement between them, which bore date in September, 1874. This it was competent for them to do, so far as their own rights were concerned, but the previously existing rights of third persons could not be thus affected. The decree against Spaulding's vendors must be looked to in order to determine whether its effect was to authorize the use by Spaulding of the patented machine which he had purchased of them until it should be incapable of further use. There is no question that the machine now owned by the defendant Spaulding was one of those for the making and selling of which Wickson and Van Wickle were sued by Birdsall, and for which he claimed to recover both profits and damages; nor that it was embraced in the decree in that suit; nor that the decree has been fully satisfied in respect to the damages and profits awarded. The question is, therefore, What effect is to be given to the decree? By its terms it adjudges that the defendants Wickson and Van Wickle have infringed the patent owned by Birdsall by making and vending the machines manufactured by them, and orders that they account to the plaintiff both for the damages sustained by him and the profits made by them in consequence of such infringement. It then declares that the amount of such damages and profits is adjudged to be the sum of one thousand dollars, and directs the mode of payment.

It seems to be well established that, when a patentee gets his remuneration by patent or license fees, a recovery of the license or patent fee from an infringer and its payment authorizes him to use the particular articles for which such recovery has been had. On the other hand, when a patentee chooses to use his invention himself and find his remuneration in the sale of the products of its use, and to prevent others from using his invention, it is his right, and then a recovery for profits and damages will be limited to the profits and damages up to the time of the recovery. Such a recovery will not carry with it any right to the further use by the infringer of the invention. (*Suffolk Co.* vs. *Hayden*, 3 Wall., 315; *Spaulding* vs. *Page*, 4 Fisher's Pat. Cases, 641, 645, 646.) But when the patentee sells his patented instrument or machine for use by others, finding his remuneration in the profit of the sale of the manufactured machine or instrument, it is obvious that his interest is promoted by increasing the sale, and that into his profit enters the value of the patented invention over and above the cost of manufacture and the ordinary fair profit of the manufacture. Even if no patent or license fee is fixed, the value thereof, as a profit, enters into the selling price, and, if not capable of exact ascertainment, may nevertheless be approximated to, by estimation, when necessary. When the patentee sells he receives this profit, and thus obtains full compensation for the article sold and for the right to use it while it lasts. When for an infringement he obtains both the profits and damages he will be presumed to have obtained a full compensation for all the injury he has sustained, and to be placed in as good a position as if he had made and sold the article himself. Such is, I think, the presumption between parties thus situated, and, if any different rule is sought to be applied in any particular case, it should appear that a recovery has not been sought or obtained for the whole gains of the manufacture as well as for all the damages sustained. (*Spaulding* vs. *Page*, before cited, *The Gilbert and Barker Manufacturing Company* vs. *Bussing*, 12 Blatchf. C. C. R., 426.) When a patentee manufactures and sells his patented article for use, the right to use passes by the sale. If an infringer manufactures and sells, he must account for and pay the profits, which are to be calculated upon the principle that the gain by the appropriation of the patentee's invention is their measure. If there are damages sustained and proved by the plaintiff beyond the profits made by the infringer, these also may be recovered. But when a full recovery and satisfaction from one party has been had the patentee has obtained all that the law gives him, and the particular article or machine, if it be a machine, becomes, in effect, licensed by the patentee, and may be used so long as it lasts free from any further claim by the patentee.

The motion for an injunction must be denied.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date August 28, 1877.]

10,163.—Cassimeres.—JOHN THOMAS FISKE, JR., Pascoag, town of Burrillville, R. I. Application filed August 13, 1877. Term of patent 3½ years.

10,164.—Corset-Gore.—THOMAS S. GILBERT, Birmingham, Conn., assignor of one-half his right to BREWSTER BROS. & CO., same place. Application filed July 18, 1877. Term of patent 3½ years.

10,165.—Hanging-Baskets.—WILLIAM HAMILTON, New York, N. Y., assignor to DREYFUSS & SACHS, same place. Application filed July 27, 1877. Term of patent 3½ years.

10,166.—Carpets.—DAVID MCNAIR, Boston, Mass., assignor to THE ROXBURY CARPET COMPANY, same place. Application filed July 31, 1877. Term of patent 3½ years.

10,167.—Oil-Cloth.—JEREMIAH MEYER, Lansingburg, N. Y., assignor to D. POWERS & SONS, same place. Application filed August 8, 1877. Term of patent 3½ years.

10,168.—Carpets.—THOMAS J. STEARNS, Boston, Mass., assignor to THE ROXBURY CARPET COMPANY, same place. Application filed August 2, 1877. Term of patent 3½ years.

10,169 and **10,170.—Carpets.**—WILLIAM DE HART, Amsterdam, N. Y., assignor to S. SANFORD, same place. Applications filed August 2, 1877. Term of patents 3½ years.

10,171.—Carpets.—ALFRED HILL, Amsterdam, N. Y., assignor to S. SANFORD same place. Application filed August 2, 1877. Term of patent 3½ years.

10,172.—Carpets.—CORNELIUS USTER, Amsterdam, N. Y., assignor to S. SANFORD, same place. Application filed August 2, 1877. Term of patent 3½ years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date August 28, 1877.]

5,085.—Smoking and Chewing Tobacco.—BECK & FELDKAMP, Chicago, Ill. Application filed June 19, 1877.

"The word-symbol 'THREE BEATS,' in connection with the symbol of three men engaged in conversation."

5,086.—Smoking-Tobacco.—BECK & FELDKAMP, Chicago, Ill. Application filed June 27, 1877.

"The representation of an Indian mounted on horseback, with his gun pointed in the direction of two fleeing buffaloes."

5,087.—Homœopathic Medicinal Preparations.—CHARLES T. HURLBURT, Brooklyn, N. Y. Application filed August 7, 1877.

"The monogram consisting of the letters 'C. T. H.,' used in connection with the words 'Hurlburt's Homœopathic Preparations."

5,088.—Dressings for Boots and Shoes.—GEORGE H. REED & SONS, Boston, Mass., assignors to B. F. BROWN & CO., same place. Application filed January 30, 1877.

"The word-symbol 'AMERICAN.'"

5,089.—Birch-Mead.—SCHUTT, KELSEY & CO., New York, N. Y. Application filed July 21, 1877.

"The representation of a birch-tree, and a woman drawing sap from the tree."

5,090.—Piano-Fortes.—SIMPSON & CO., New York, N. Y. Application filed July 18, 1877.

"The word-symbol 'MODEL.'"

5,091.—Roasted Coffee.—A. STEPHENS' SON, Cleveland, Ohio. Application filed July 17, 1877.

"The word-symbol 'FAVORITE.'"

5,092.—Roasted Coffee.—A. STEPHENS' SON, Cleveland, Ohio. Application filed July 17, 1877.

"A vari-colored field, there being a bar part of dark color and part of light color at the top, a similar bar at the bottom, and an intermediate colored bar at the center, with a colored rectangular frame-work intermediate between the two end bars."

5,093.—Cigars.—SMITH & RISING, Ottawa, Ill. Application filed July 5, 1877.

"The word-symbol 'NICOTS.'"

5,094.—Medicinal Waters.—JACOB M. ADAMS, Saratoga Springs, N. Y. Application filed August 14, 1877.

"The representation of a spouting spring and the letter 'G.'"

5,095.—Cigars, Cigarettes, Smoking and Chewing Tobacco.—JAMES M. DAVIS, Bergen Point, N. J. Application filed August 14, 1877.

"The name 'Premium Cigar Manufactory,' and the representation of a number of stars, impressed upon the illustration of a circular medal, between two concentric circles, the medal bearing upon its face, in addition to said name, stars, and circles, the figure of an eagle carrying suspended from its beak a bundle of cigars, and holding in its claws a bunch of tobacco-leaves."

5,096.—Cigarettes.—MAX FRIEDMAN, New York, N. Y. Application filed August 11, 1877.

"The word-symbol 'CONGRESS.'"

5,097.—Cigars, Cigarettes, and Smoking-Tobacco.—JOSEPH HIRSCH, New York, N. Y. Application filed August 11, 1877.

"The word-symbol 'FUTURO.'"

5,098.—Soap.—LAUTZ BROTHERS & CO., Buffalo, N. Y. Application filed August 4, 1877.

"The pictorial representation of a person engaged in washing another person's face or body."

5,099.—Cigars.—HENRY MULLER, New York, N. Y. Application filed August 13, 1877.

"The word-symbol 'DOMINATOR.'"

5,100.—Rubber Hose.—NEW YORK BELTING AND PACKING COMPANY, New York, N. Y. Application filed August 11, 1877.

"The representation of a spider."

5,101.—Plug Chewing-Tobacco.—THE PIONEER TOBACCO COMPANY, Brooklyn, N. Y. Application filed August 11, 1877.

"The word-symbol 'FRUIT-CAKE.'"

5,102.—Plug Chewing-Tobacco.—THE PIONEER TOBACCO COMPANY, Brooklyn, N. Y. Application filed August 11, 1877.

"The word-symbol 'PIONEER.'"

5,103.—Plug Chewing-Tobacco.—THE PIONEER TOBACCO COMPANY, Brooklyn, N. Y. Application filed August 11, 1877.

"The word-symbol 'BRUNETTE.'"

5,104.—Plug Chewing-Tobacco.—THE PIONEER TOBACCO COMPANY, Brooklyn, N. Y. Application filed August 11, 1877.

"The arbitrary or fanciful words 'WOOD TAG.'"

5,105.—Sewing-Machine Needles.—WILLIAM WILCOX, Worcester, Mass. Application filed August 11, 1877.

"The symbol formed of the letters 'W. N. CO.,' stamped upon the shank of the needles."

5,106.—Perfumery.—YOUNG, LADD & COFFIN, New York N. Y. Application filed August 11, 1877.

"The word-symbol 'CRITERION.'"

5,107.—Leather.—AARON REMSEY & CO., Buffalo, N. Y. Application filed June 30, 1876.

"A pictorial representation showing a mounted ranchero or herdsman in the act of lassoing a steer."

5,108.—Fluid Medicinal Preparation.—A. VOGELER & CO., Baltimore, Md. Application filed July 11, 1872.

"The words 'HAMBURGER TROPFEN.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date August 28, 1877.]

1,160.—Title: "**Lap-Tablets.**"—BLOOMFIELD BROWER, New York, N. Y. Application filed August 18, 1877.

1,161.—Title: "**L. Coes' Mechanics' Screw Wrench.**"—LORING COES & MELVIN O. WHITTIER, Worcester, Mass. Application filed August 18, 1877.

1,162.—Title: "**Rocky Mountain Cough Syrup.**"—W. H. CULMER, Salt Lake City, Utah Territory. Application filed August 20, 1877.

1,163.—Title: "**Coca Bitters.**"—CHARLES M. FLETCHER, New York, N. Y. Application filed August 17, 1877.

1,164.—Title: "**The Comic Playing Cards of Fortune.**"—GARDINIER & VARNEY, New York, N. Y. Application filed August 17, 1877.

1,165.—Title: "**Return Pop Corn Ball.**"—BENJAMIN F. HUBER, Lancaster, Pa. Application filed August 8, 1877.

1,166.—Title: "**Dr. Judge's Oxy-Hydrogenated Air.**"—J. D. JUDGE, Boston, Mass. Application filed July 18, 1877.

1,167.—Title: "**Lautz Bros. & Co's. Stearine Soap.**"—LAUTZ BROTHERS & CO., Buffalo, N. Y. Application filed August 18, 1877.

1,168.—Title: "**Murison's Catarrh & Bronchial Fumigator.**"—JAMES MURISON, St. Louis, Mo. Application filed August 17, 1877.

1,169.—Title: "**Lubricating B. & T. Oil.**"—RICHARD J. THOMPSON & EDWARD T. BEDFORD, New York, N. Y. Application filed August 20, 1877.

DISCLAIMERS FILED.

185,773.—Improvement in Indicators for Steam-Engines.—THOMAS MINOR, Brooklyn, and JOHN RAE, New York, N. Y. Patented December 26, 1876. Disclaimer filed September 1, 1877.

Disclaim so much of the subject-matter as is covered by, and included in, the first clause of the claim, which is in the following words, to wit:

For steam or other indicators, a hollow spring, the chamber whereof is in direct communication with the steam-cylinder or other motor.

4,418, (reissue.)—**Improvement in Reducing Wood to Paper Pulp.**—HENRY VOELTER, Heidenheim, Wurtemberg, assignor to ALBERTO PAGENSTECHER, New York, N. Y. Patented August 10, 1858; antedated August 29, 1856. Reissued April 6, 1869; extended seven years. Reissued June 6, 1871. Disclaimer filed August 24, 1877, by HENRY VOELTER, ALBERTO PAGENSTECHER, and WILLIAM A. RUSSELL.

Disclaim that part of the claim which is in the following words, to wit:

3. In combination, a grinding surface and cells or boxes for blocks of wood, so constructed and arranged with reference to the surface that the fibers of blocks of wood placed therein lie in the plane, substantially, of the grinding-surface, and across the line of motion of points in the grinding-surface, as described.

All letters to the Patent Office must be addressed to the Commissioner of Patents.

Printed copies of specifications can be procured from No. 59,740, issue of November 20, 1866.

Printed copies of any patent can be obtained commencing with issue of November 26, 1867, to date.

The "Rules of Practice" contain full instructions, forms, &c., for making applications for patents.

Copies of patents, arranged by classes of inventions, can be obtained at 10 cents per copy where the entire class is ordered.

The Government fee on making application for a patent is fifteen dollars. The final fee is twenty dollars. Usually there are no other Government fees unless the application is appealed.

When a patent has been allowed, and the application has not been forfeited by delay of six months, if the final fee of twenty dollars is paid before 12 o'clock on Friday, the patent will issue and bear date the following Tuesday.

As 12 o'clock on Friday is the latest hour that a final fee can be received in order to get a patent into the "issue" of the following Tuesday, applicants are earnestly requested to make the final payment before Friday, if possible, so that the proper entries may be made on the books of the Office before closing the "issue."

All patents issued during the week are signed, sealed, and dated on Tuesday.

Where specifications are in print they are furnished with the drawings without extra charge.

The drawing accompanying an application for a patent must be on a sheet ten by fifteen inches.

Where specifications are printed, copies of same attached to drawings will be furnished without extra cost.

The "Rules of Practice" are furnished gratis on personal or written application to the Commissioner of Patents.

The GAZETTE is made to bear the same date as the patents to which the claims, briefs, and drawings relate, although it is not actually mailed to subscribers until about two weeks later than its date.

Letters Patent of the United States do not reach the patentee or owner until about two weeks from the day of their date. The letters, nevertheless, have the force of patents from the time they are signed and sealed.

THE Illustrated portion of the Patent Office Report for 1869 and for 1871 has recently been completed, and can be had, by those having the remaining volumes for those years, by applying to the Commissioner of Patents.

INDEX OF INVENTIONS PATENTED AUGUST 28, 1877.

	Class No.	No. of Patent.
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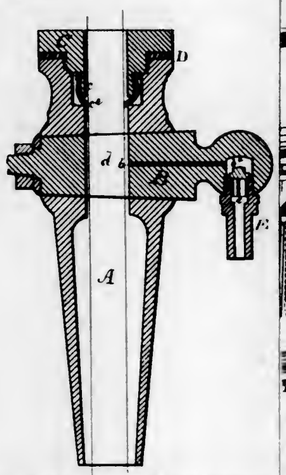
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TITLES, DRAWINGS, AND CLAIMS

OF

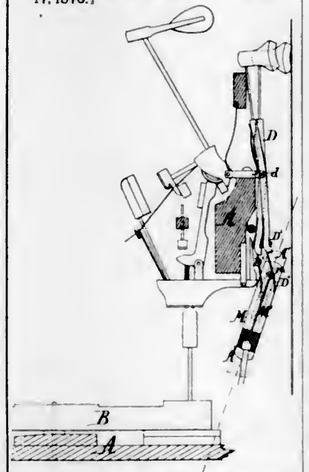
PATENTS GRANTED AUGUST 28, 1877.

194,508. VENT-PLUGS FOR BEER-BARRELS. J. Aenis, Cleveland, Ohio. [Filed Aug. 1, 1877.]



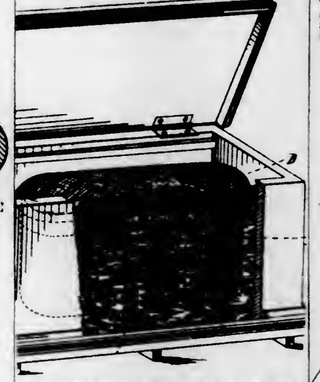
The herein described vent-plug, consisting of the hollow plug A, having the open cap C, said cap having the flange *c*, packing c^2, and the packing-ring D, the cross-pin B, having the vent-opening *b*, chamber b^2 in the head, the nipple E, having the check-valve *e*, the construction, arrangement, and operation being substantially as shown and described.

194,509. PIANO ATTACHMENTS. C. Boecker and G. Finck, New York, N. Y., assignors to C. Boecker aforesaid. [Filed Nov. 17, 1876.]



In combination with the yoke M, arranged to be moved across the path of the damper-extensions D^1, as shown, the rubber-coated wire *m*, adapted to arrest and hold any desired dampers out of use at will, and to soften the contact without liability to fraying, as herein specified.

194,510. MILK-SETTING APPARATUS. F. G. Butler, Fellows Falls, Vt., assignor to the Vermont Farm Machine Company, same place. [Filed Mar. 6, 1877.]



1. In an apparatus for raising cream from milk, the combination, with the milk can and its cover C, of the hood or outer cover D, made of material adapted to serve as an absorbent and retainer of water, substantially as and for the purposes set forth.

2. The covered milk-can, provided, as described, with a translucent pane at its bottom part, and with an outlet or cock at or below its bottom line, substantially as and for the purposes set forth.

194,511. DOOR-SPRINGS. Z. Cobb and H. B. Cobb, Wilmington, Del. [Filed July 31, 1876.]



1. A door-spring composed of a series of thin steel leaves, which are each attached to suitable supports at both their ends, by means substantially as described, and adapted to slide freely upon each other throughout their entire length when the door is opened and closed.

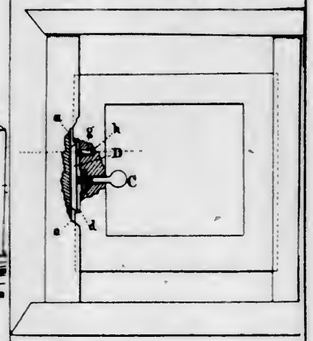
2. The door spring composed of a series of thin steel leaves, attached at both their ends to supports upon a door and its jamb, all the leaves sliding freely upon each other, and each compressed in reverse curves when the door is opened, substantially as described, for the purpose specified.

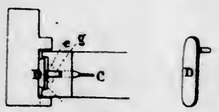
3. The bracket B, hinged clasp C, and curved arm F, combined with the spring A, composed of a series of thin steel leaves adapted to slide upon each other, substantially as described, for the purpose specified.

4. The bracket B and clasp C, each provided with a curved end, *k*, substantially as described.

194,512. SASH-HOLDERS. E. M. Dever, Peoria, Ill. [Filed June 26, 1877.]

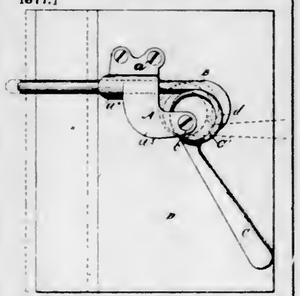
Brief.—A screw-bolt, passing through the sash from the inside, impinges against a plate or shield, which plate has a projecting pin engaging in a suitable hole or socket of the sash, and there is preferably provided a plate-socket, in which the shield or plate is embedded.





The combination, with the screw-bolt and nut C *e*, of the plate D, having pin *g* arranged in connection with socket *h*, with or without plate-socket *d*, substantially as and for the purpose described.

194,513. VEHICLE-SEAT FASTENERS. W. J. Elsom, Cortland, N. Y. [Filed July 12, 1877.]



1. The hook B B^1 and B^2, in combination with the cam-lever C, provided with the flange *d*, substantially as shown and described.

2. The hook B B^1 B^2, in combination with the cam lever C, provided with the flange *d* and depression C', substantially as shown and described.

3. The combination of the supporting-plate A, having the hub *a'* integral therewith, the hook B B^1 B^2, and the cam-lever C, provided with the depression C', as shown and described.

4. The combination of the supporting-plate A, hook B B^1 B^2, cam-lever C, provided with the flange *d*, and depression C', as shown and described.

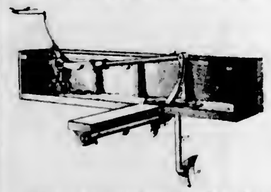
194,514. CAR-COUPLINGS. F. H. Fickett, Chicago, Ill., assignor of one-half his right to J. W. Reid, same place. [Filed Dec. 6, 1876.]

In combination with the gravitating coupling hook, and its lifting-chains and clasps, the dog or clutch *o* (one or more) applied and operating substantially as described, and for the purpose set forth.

194,515.



194,515. VEHICLE-BRAKES. L. J. Fitzgerald, Cortland, N. Y. [Filed July 12, 1877.]



1. The combination, with the brake-block H, brake-shaft G G', and arm E, of the curved connecting-rod B B' and curved lever A, substantially as and for the purpose described.

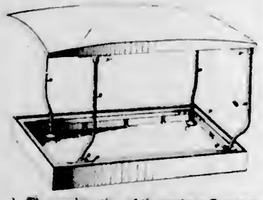
2. The combination of the curved lever A, curved screw-threaded rod B, threaded rod B', arm E, set-screw F, and brake-shaft G G', as shown and described.

3. The combination of the clamping-plate O, the cap-plate P, packing Q, and brake-shaft G, substantially as and for the purpose described.

4. The combination of the curved lever A, curved connecting-rod B B', arm E, set-screw F, brake-shaft G G', clamping-plate O, packing Q cap-plate P, and brake-block H, substantially as and for the purposes set forth.

194,516. VEHICLE-TOPS. L. J. Fitzgerald, Cortland, N. Y. [Filed July 12, 1877.]

Brief.—The supports may be unscrewed from the top and the body.

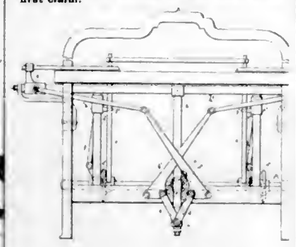


1. The combination of the sockets C, corner-plates D, supports B, and the screw-threaded sockets F, as herein shown and described.

2. The combination of the sockets C, supports B, plates D, provided with the set-screws G, screw-threaded sockets F, and carriage-top E, substantially as and for the purpose set forth.

194,517. LOOMS. E. H. Graham, Biddeford, Me., assignor of a part of his right to R. W. Randall, W. F. Lunt, J. B. Palmer, and C. Hardy, same place. [Filed Oct. 23, 1876.]

Brief.—Improvement upon the loom covered by Letters Patent No. 153,711. The improvement relates to the lay and shuttle motions. The lay-swords have each a cam-slot, in which moves a stud, secured to a sliding block that is reciprocated vertically. The lay has a quick beat-up, in order to avoid striking the shuttle-carriers. The carriers are actuated by the combination of mechanism set forth in the first claim.



1. The combination of the gear *a*, as located on the main shaft *A*, the cross-shaft and pinion-gear driven by it, the crank and lifting bar or rod *g*, with the sliding block *b*, the upright standard *h*, the compound levers *d d* and d^1 d^1, operating the shuttle-arms by means of the connecting-rods and standards h^1 h^1, substantially as described and set forth.

2. The means for driving the lathe from the main shaft, consisting of the combination of pinion-gears a^1, cranks, lifting rods or bars *f*, sliding blocks b^2 upon the upright standards c^1, adapted to operate directly upon the lathe-sword *e*, substantially as set forth and described.

3. The combination of a lathe-sword, *e*, having a cam-path, as described, a stud, f^1, sliding block b^2, and means for moving the same perpendicularly upon an upright standard, c^2, substantially as set forth and described.

194,518. TEA AND COFFEE POTS. J. Hall, Boston, Mass. [Filed July 26, 1877.]

Brief.—The upward and outwardly inclined flange on the mouth of the pot engages with the oppositely-disposed flange on the cover, whereby the cover is prevented from falling off when the vessel is in position to pour out the contents.



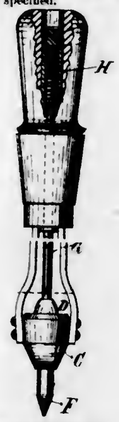
The pot A, having its top provided with a flange or projection, *a*, which inclines upward and outward, in combination with the lid or cover B, provided with a flange, *b*, which inclines downward and inward, substantially as described, for the purpose set forth.

194,519. SOLDERING-TOOLS. A. Harris, Chicago, Ill., assignor of one-half his right to G. M. Clark, same place. [Filed May 31, 1877.]

1. The combination, in a soldering-tool, of the cup C and the iron D, provided with the projecting point F, for the purpose of holding the molten solder, and controlling and regulating its flow and distribution in the seam or joint to be soldered, substantially as specified.

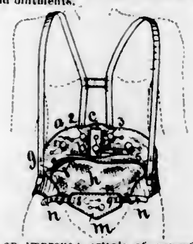
2. The combination, in a soldering-tool, of the cup C, iron D, rod G, and spring H, whereby the iron is firmly pressed upon the seat in the cup to hold the solder until the tension of the spring is overcome by the operator, substantially as specified.

194,519.



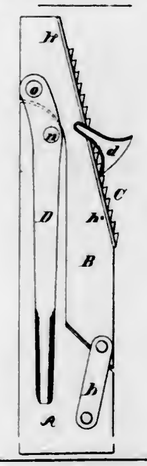
194,520. ELECTRO-THERAPEUTIC BELTS. J. Hobbs, Des Moines, Iowa. [Filed Apr. 23, 1877.]

Brief.—For the joint application of electricity and ointments.



As an improved article of manufacture, the apparatus composed of the belt-section *a*, having the slot *b*, hinge-strap *d*, and series of batteries 1 2 3 5, the pad *g*, and its removable cover *h*, the belt-section *m*, having a series of batteries, 8 9, and connecting-straps *n n*, and the suspenders *r r*, substantially as and for the purposes shown and described.

194,521.



194,521. WAGON-JACKS. J. F. Klingle-smith, St. Louis, Mo., assignor of one-half his right to C. Farner, same place. [Filed July 18, 1877.]

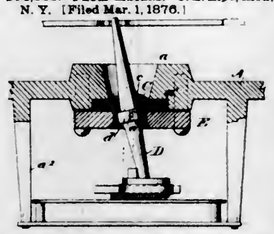
The movable pawl stirrup *d*, in engageable contact with C, and retained by *h h*, combined with the strapped frame A B, when operated by lever D, as and for the purpose herein described.

194,522. GAME-TABLES. R. F. Lincke, Oakland, Cal. [Filed Feb. 26, 1877.]



A combined game table and picture-frame, consisting of a portable bed, having on its upper side the frame B and cushions *b*, and on its lower side an ornamental molding formed by extensions of the frame B, and a picture, C, all constructed and adapted to be used as and for the purpose described and shown.

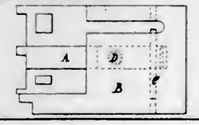
194,523. FLUID-METERS. C. E. Lipe, Ilion, N. Y. [Filed Mar. 1, 1876.]



1. In combination with the casing A, the lever D, and the transverse pin *e*, the gland E and the elastic packing C, as described.

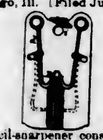
2. In combination with the recessed casing A, the gland E, and the elastic packing C, the lever D, as described.

194,524. DISTRIBUTER TYPE-CARRIERS. W. A. Lorenz and C. D. Hughes, Brooklyn, N. Y., assignors to S. W. Green, same place. [Filed Jan. 29, 1877.]



The combination of the carrier frame B, the vibrating clutch A, the recess F, and spiral spring D, by means of which greater scope of spring and increased bearing-surface of the side of the carrier are obtained, substantially as described.

194,525. PENCIL-SHARPENERS. G. A. Mc-Lane, Chicago, Ill. [Filed June 16, 1877.]



1. The pencil-sharpener consisting of two spring-depressed converging cutters whose edges are directed toward the pencil-point, and a tubular guide for the pencil, of sufficient length to cause the pencil to move in parallel longitudinal lines, and so placed relative to the cutters as to direct the pencil centrally between the latter, substantially as specified.

2. The combination, with the pencil-guide and spring-depressed cutters, of a stop on the frame for regulating the length of the first cut, substantially as specified.

3. The hooked or recurved pivoted cutters, in combination with a guide for the pencil and a spring or springs for setting them to their work, substantially as specified.

4. The combination of the frame-plate, the guide, and cutters placed upon the upper surface of the plate, and the spring or springs placed below the plate, substantially as specified.

5. The combination of the cutters, the guide, the spring or springs, and the frame-plate, made to catch and retain the cuttings to preserve the operator's hands from being soiled in the work, substantially as specified.

6. The pencil-sharpener whereof the cutters are spring-depressed, opposing each other to guard against breaking the lead by their pressure, and having their cutting-edges turned toward the extremity of the pencil point, so that the cut will be from the wood toward the extremity of the lead point, substantially as specified.

7. The spring-depressed converging cutters, in combination with the interposed stopping-surfaces, one for each cutter, so placed relative to the cutters as to keep them opposite to each other, and from contact with each other, substantially as specified.

194,526. CORSETS. J. Mead, Boston, Mass. [Filed May 29, 1877.]

A corset, provided at its front edges, where the clasps are attached, with a double row of lacings from the top to the bottom of the same, and at which part the fabric of the corset is double, the inner portion of which passes around the clasp and has eyelets near its edge, and is laced to corresponding eyelets in the other portion or flap *b*, substantially as shown, and for the purpose described.

194,527. ATTACHMENTS FOR VERTICAL STEAM-BOILERS. C. M. Miller, Phelps, N. Y., assignor to E. E. Miller. [Filed Aug. 16, 1877.]

Brief.—Two dish-shaped disks have openings through them, which register with each other, so that the openings are all closed or opened, or partially so. Said disks are nearly equal in circumference to the smoke-box, so that when in position over the flame-tubes the smoke and gases are deflected to the outer annular space. The smoke-pipe projects down into the smoke-box, whereby the sparks and cinders are arrested.

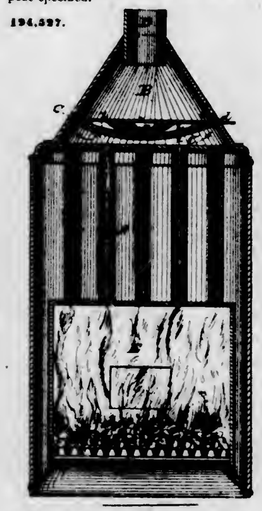
1. The combination, in a vertical tubular boiler, of the fixed and movable perforated dish-shaped disks C and C', with the boiler-flues and the draft annular space *e*, formed by the dish-shaped disks and the inner wall of the conical chamber B, whereby the products of combustion may pass centrally through the disks or over their circumference, or both, direct from the flues, and thereby obtain complete regulation, equalization, distribution, and control of the heat through the flues and above the top of the boiler, as herein set forth.

2. The fixed and movable disks C and C', having their lowest central point in near relation to the top flue-sheet, and increasing the space between the disks and flue-sheet toward the circumference of said disks, and at the flue-space *e*, formed thereby, as described, whereby the products of combustion are caused to pass mostly through the outer flue-tubes, or equally through them all, under a direct draft, as described.

3. The combination, with the heat-regulating disks C and C', and circumferential flue-space *e* formed thereby, of the inwardly-projecting smoke-flue D, and the conical chamber B, substantially as and for the purpose stated.

4. The combination, with a circular oscillating valve or heat-equaliser, of a curved operating-rod, substantially as and for the purpose specified.

194,527.

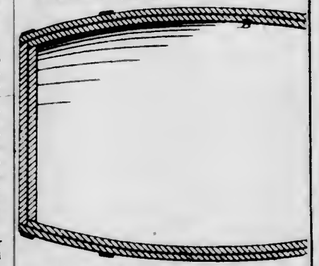


194,528. EYE-SHANKS FOR BUTTONS. L. Millaux, Waterbury, Conn. [Filed Aug. 3, 1877.]



As an improved article of manufacture, the hereinbefore-described cup-eye for buttons, having cup and eye constructed of one piece of metal, substantially as described.

194,529. BARRELS FOR HOLDING VOLATILE LIQUIDS. R. M. Munroe, Edgewater, N. Y. [Filed Mar. 17, 1877.]

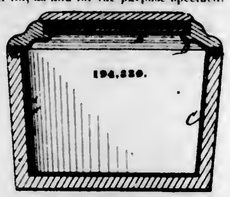


As a new article of manufacture, a double keg or barrel with an intervening layer of glue, or other equivalent substance, when the said double barrel is formed of two sheets or laminæ of wood, compressed together, in combination with a dovetailed head or heads which are firmly held in position by means of the approaching ends of the barrel, substantially as described.

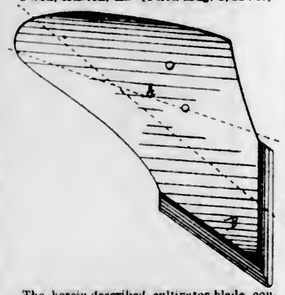
194,530. BURIAL-CASKETS. Albert H. Nirdlinger, Rochester, N. Y., assignor to the Stein Manufacturing Company, same place. [Filed May 26, 1877.]

In a burial-casket, the combination of the portable or removable lining C, formed to fit within the casket, and the rubber sheet D, covering the bottom of the lid, said parts formed with flanges or edges overlapping and resting between the edges of the casket and lid, as and for the purpose specified.

194,320.

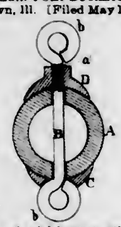


194,321. CULTIVATOR-BLADES. John H. Owen, Huston, Ill. [Filed Aug. 8, 1876.]



The herein-described cultivator-blade, consisting of the mold-board A and diamond-shaped blade B, cast in one piece, curved gradually the whole width from the point of blade to the extreme top of mold-board, and also curved gradually transversely across the mold-board, thereby facilitating the throwing of the soil to one side, equalizing the draft or cutting-surface, and strengthening the blade, as specified.

194,322. CHAIN-PUMP BUCKETS. F. Potter, Beardstown, Ill. [Filed May 16, 1877.]



1. The stem B *a b b* bent at either end into eyes *b b*—one eye at least—after the bucket and washers are in place, in combination with the bucket A and washers C D, substantially as and for the purposes described.

2. The combination, with stem B, provided with screw-washer D at its upper extremity, of washer C, confined on said stem by bending said stem into an eye, *b*, substantially as and for the purposes described.

3. The combination of stem B *b b a*, with washers C D, substantially as and for the purposes described.

4. The combination, with bucket A and washers C D, of the stem B *b b a*, applied and inserted and secured with the recurved eye *b*, substantially as and for the purposes described.

5. The combination and arrangement of the bucket A, washers C D, stem B, with thread *a*, and the finally-formed finishing-eye *b*, all substantially as described.

194,323. BOLTING-REELS. L. V. Rathbun, East Pembroke, N. Y. [Filed June 26, 1876.]

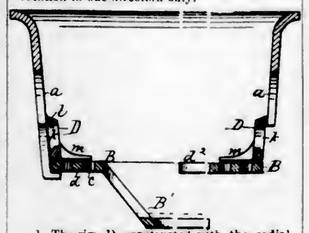
1. The combination, with a bolting-reel, of the slotted segment E, pivoted at the bottom, so as to be adjustable toward or from the reel, and the cam G, made adjustable forward and back on the segment, to vary the angle at which the snapping-cord strikes the cloth, as herein shown and described.

2. The combination, with the rotating reel, provided with springs, of the cam G, constructed with the wedging sides *m m* and pointed end *n*, and pivoted to its support so as to rise under the back-action of the springs, as shown and described, and for the purpose specified.

3. In a bolting-reel, the flat spring B, attached to the head lining of the reel, and constructed and arranged to operate in connection with the adjustable cam, as and for the purpose specified.

194,324. STOVE AND FURNACE GRATES. D. Richmond, Rochester, N. Y. [Filed Mar. 31, 1877.]

Brief.—To shake the grate, the segment is moved back and forth. The pawl engages the bars of the ring, and gives the latter a forward rotation in one direction only.



1. The rim D, constructed with the radial and wedge-shaped lugs *m m*, in combination with a grate, B, provided with the depressed center B′, and with eccentric slots and bars *c d*, having radial offsets c^1 d^1, leading from the elevated to the depressed portions of the grate, as shown and described, and for the purpose specified.

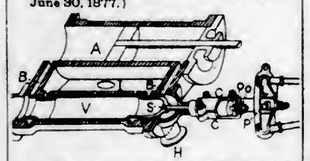
2. The grate B, constructed with the depressed center B′, with the eccentric slots and bars *c d*, and the radial offsets c^1 d^1, and with the overhanging straight bars d^2 d^2 resting over the entrance, as shown and described, and for the purpose specified.

3. The depressed section B′, constructed with bars *g g g*, having the intermediate slots *h h h* communicating with a common outlet, h^1, as shown and described, and for the purpose specified.

4. The combination of the grate B B′, the agitating-ring D, and the fire-pot A, provided with the depending legs *a a*, as shown and described, and for the purpose specified.

5. The combination, with the ring D, provided with the bars *k k*, of the segment E, having the pawl *r* and socket *s*, as and for the purpose described.

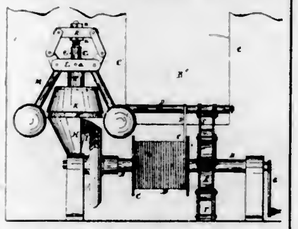
194,325. VALVE-MOTIONS FOR STEAM-ENGINES. F. B. Rice, Dunkirk, N. Y., assignor to Mrs. M. J. Turrell, same place. [Filed June 30, 1877.]



1. The combination of clamps C C, the head H, and the valve-stem S, with its collars O O, substantially as set forth.

2. The combination of the clamps C C, the head H, the valve-stem, the pin P, and the link L, substantially as set forth.

194,326. FIRE-ESCAPES. W. Roberts and M. E. Benjamin, Cleveland, Ohio. [Filed June 29, 1877.]



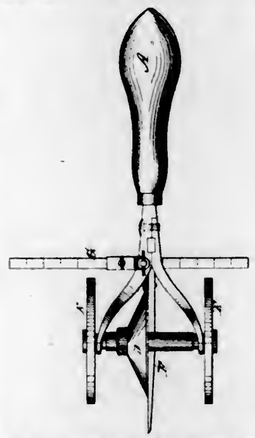
1. The shaft B, having on it a spool, C, for a winding-rope, a sprocket-wheel, E, carrying an endless chain, F, and a beveled gear-wheel, J, in combination with the gear I and friction-clutch consisting of shell K and friction-cone H′, the friction being regulated by the governor-balls and arms and sleeve P, substantially as and for the purpose described.

2. The shaft B, having on it a sprocket-wheel, E, and endless chain F, in combination with the friction-cone and ordinary governor balls, by means of the beveled gear I J, substantially as and for the purpose described.

3. The combination, in a governor constructed as described, of the adjusting-screws *n n*, with the shaft G and cross-head of the frame, substantially as and for the purpose of regulating the friction-bearing of cone H′ and shell K.

194,327. CLOTH-CUTTING MACHINES. M. E. Sinnott, Bakersfield, Vt. [Filed May 4, 1877.]

Brief.—Outside wheels actuate revolving cutter, which acts in combination with a fixed shear-blade.



1. In combination with the revolving cutter and wheels E actuating the same, the blade F and handle A, as and for the purpose described.

2. In combination with the cutting mechanism, constructed as described, the gage G attached to the handle, as and for the purpose described.

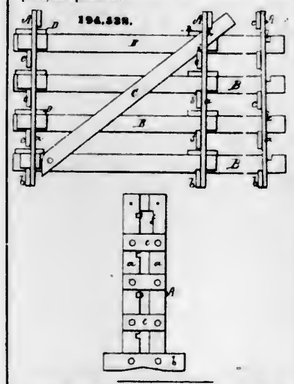
194,328. PORTABLE FENCES. J. M. Smith, Dedham, Mass. [Filed July 17, 1877.]

1. The post composed of the foot-piece *b*, the series of connection pieces *c*, and the two uprights *a a*, provided with the notches *e*, arranged in them or the said uprights, as shown, in combination with a set of rails, B, and their flange-caps D, arranged to extend into the said post, as represented.

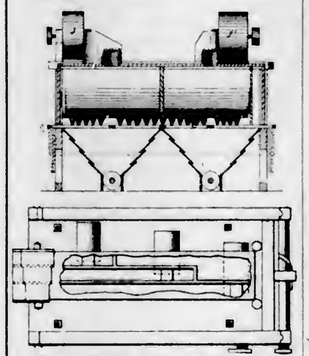
2. In combination with the post A, constructed and having notches *e f* in it, as described, and with the two sets of rail B and their flange-caps D, arranged in said post, as set forth, the diagonal brace C, notched and extended through the post alongside of one of its two upper rails, and thence obliquely across one set of the rails, and fastened thereto, all substantially as shown and explained.

3. In combination with a post, A, constructed and having one of its uprights provided with notches *e*, arranged in it, as described, two sets of corner-rails, B, arranged at a right angle with each other, and intermortched, and having in one of such sets notches *k* to receive the corner-post connection-pieces, as represented, the other set being nailed or fastened to the post, as specified.

194,328.

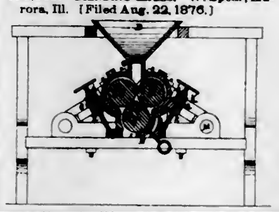


194,329. MIDDLINGS-SEPARATORS. G. T. Smith, Washington, D. C. [Filed Sept. 8, 1874.]



The combination, with the bolting-surface in a middlings-purifier, of two fans in fan-cases, which do not communicate with each other, each fan operating to produce independent air-currents in separate and distinct compartments, and through different sections of the reciprocating bolting-cloth, substantially as set forth.

194,340. GRINDING-MILLS. W. Spear, Aurora, Ill. [Filed Aug. 22, 1876.]

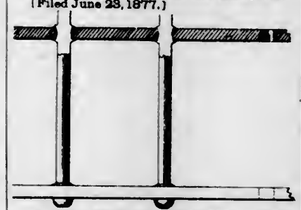


1. The three grinding-cylinders D E F, arranged and adjusted to form two grinding-surfaces, in combination with a concave, H, adjusted to form a third grinding-surface with one of the cylinders, substantially as described.

2. The grinding-cylinders D and E, in combination with one or more pivoted adjustable frames, K L, substantially as and for the purpose set forth.

3. The pivoted adjustable frames K L, in combination with the springs P Q, and the grinding-cylinders D E, substantially as and for the purpose set forth.

194,341. JOINTS FOR WIRE AND ROD FABRICS. M. J. Stark, Buffalo, N. Y., assignor to Heinz, Pierce & Munschauer, same place. [Filed June 23, 1877.]

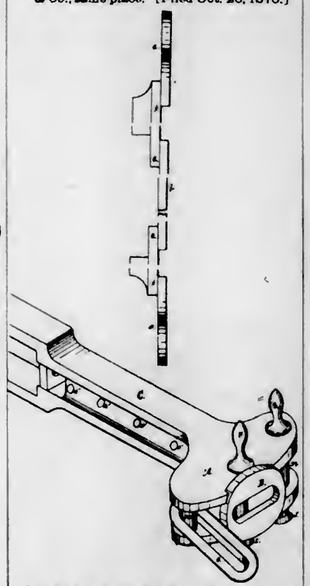


1. A joint for fabrics of the class described, consisting of a perforated band and a filling-wire, having upset distortions above and below the band, as and for the purpose set forth.

2. A bird or similar cage or article in which the filling-wires are secured within perforated bands by increased diameters of said filling-wires within the perforations, and by shoulders on both sides of each band, substantially as and for the use and purpose stated.

3. A joint for fabrics of the class described, consisting of a perforated band, and a filling-wire, having an increased diameter or distortion entirely within the band, as and for the purpose set forth.

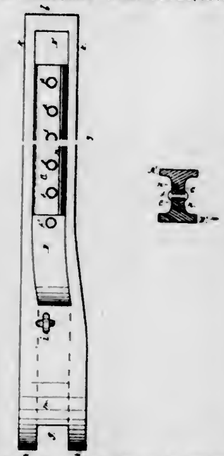
194,342. CAR-COUPLINGS. J. T. Wilson, Pittsburg, Pa., assignor to Wilson, Walker & Co., same place. [Filed Oct. 26, 1876.]



1. In a car-coupling, the parts A, B, C, *b*, and *k*, constructed as hereinbefore described, and united together in the manner set forth, for the purpose of forming a coupling such as represented in Figs. 8 and 9, substantially as described.

2. In a car-coupling, the parts A, provided with stays *s s* and draw-pin *m*, whereby said parts are stiffened and braced, substantially as described.

194,343. CAR-COUPLINGS. J. T. Wilson, Pittsburg, Pa., assignor to Wilson, Walker & Co., same place. [Filed Oct. 26, 1876.]

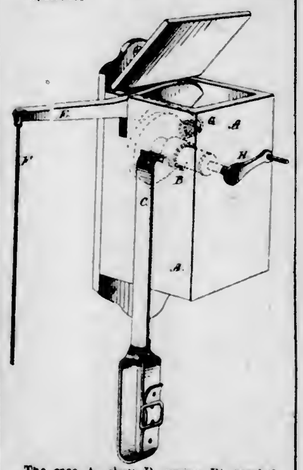


1. In a car-coupling, the part A, constructed as herein described, and welded between the bars A′ and B′, as and for the purpose hereinbefore described and set forth.

2. In a car-coupling, the part A, constructed as herein described, and welded between the bars A′ and B′, the edge of webs C resting on shoulders *s* and riveted together, substantially as and for the purpose hereinbefore described and set forth.

3. In a car-coupling, the end *l*, formed by welding the piece *c* between the parts *k*, substantially as and for the purpose hereinbefore described and set forth.

194,344. FIRE-ESCAPES. C. Bacon and J. L. Thomas, Posey County, Ind. [Filed June 9, 1877.]



The case A, shaft B, spring B′, band C, brake-lever E, cord F, and spring G, all constructed and arranged to operate substantially as herein described.

194,345. PIPE-STEMS. T. W. Ball, Jersey City, N. J. [Filed July 2, 1877.]

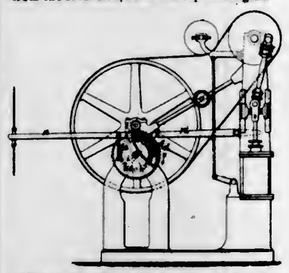
As a new article of manufacture, the pipe-stem made of one piece of wood with a hole through it, and having the plug mouth-piece and bend, substantially as set forth.

194,545.



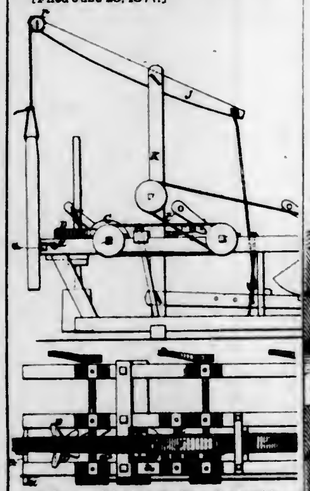
194,546. AUTOMATIC STOPS FOR ELEVATORS. Jas. Beggs, Paterson, N. J. [Filed Aug. 1, 1877.]

Brief.—The gear-wheel and a disk with tumblers intervening are upon the same shaft. The disk remains quiescent during the hoisting operation, while the tumblers are revolved in succession, and just before the car-platform reaches its extreme movement the tumblers' stops come into contact with each other, and form a connection from the gear-wheel to the disk, and the latter is partially revolved. The stopping and starting lever is moved by a link from the said disk, so as to stop the engine.



The combination, with the elevating mechanism, of a range of tumblers with stops, the actuating-wheel and connections to the stopping-lever of the engine, substantially as set forth.

194,547. WELL BORING AND DRILLING MACHINES. Alfred Burdick, Baldwin, Iowa. [Filed June 23, 1877.]



1. In a well-boring machine, the combination of a worm, C, and worm-wheel D, for operating the auger, as herein set forth.

2. The combination of the worm-wheel D, sliding boxing E, key G, and catch *a'*, as and for the purposes herein set forth.

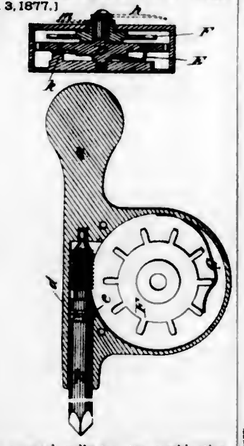
3. The slanting pins *b b*, projecting from the top of the worm-wheel D, for the purposes herein set forth.

4. The auger-bit *h*, having its inner back part *e* turned upward, in combination with the auger bucket and the valve *f*, for the purposes herein set forth.

5. In combination with the boring-machine herein described, the walking-beam J, with central pulley *p* and end pulley *p'*, as and for the purposes herein set forth.

6. The derrick K, carrying the walking-beam J at its upper end, and pivoted at its lower end, and held in position by a button M, whereby the derrick can be raised and lowered at will, substantially as described.

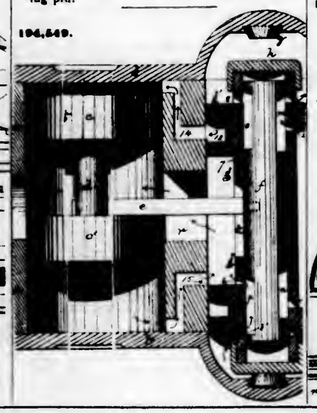
194,548. SPEED-INDICATORS FOR SHAFTING. W. Churchill, Newark, N. J. [Filed Apr. 3, 1877.]



1. In a speed-indicator, the combination and arrangement, as shown and described, of the following elements, viz: the case or body made in one piece with the handle *a*, the graduated face, and the open back, the threaded spindle B, the spring G, the worm-wheel D, provided with the spring E and pointer H, the toothed wheel F, provided with the tubular journal and the pointer *m*, the pin *e*, to retain the spindle in place, and the back-plate *c*, provided with the incline *k*, and applied to secure the wheels and the pin *e* in place.

2. In a speed-indicator, the combination of the body, cast in one piece with the open back, and the graduated face, registering-wheels mounted therein, a spindle, B, secured by a pin inserted from the back, and a back-plate, *c*, applied as shown, and serving to close the back of the body, to secure and give a bearing to the wheels, and to fasten the spindle-holding pin.

194,549.



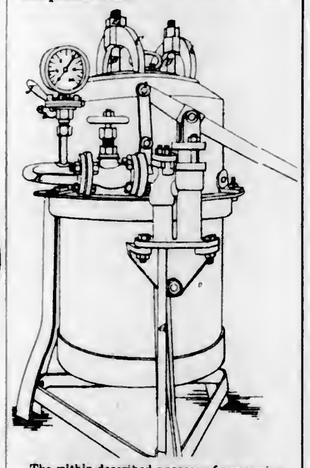
194,549. PISTON WATER-METERS. J. H. Coombs, Boston, Mass. [Filed June 18, 1877.]

1. The reciprocating solid valve *f*, provided with the passages *m n o p*, and arranged within the exterior valve *g*, provided with a corresponding number of ports, when constructed and operating substantially as and for the purpose set forth.

2. The combination of the solid reciprocating valve *f*, provided with the valve-stem *e*, the slotted exterior valve *g*, and the double-headed piston *c d*, substantially as and for the purpose specified.

194,550. PRESERVING FLESH AND FISH BY SALICYLIC ACID. J. Eckart, Munich, Germany. [Filed June 11, 1877.]

Brief.—The solution used is preferably half a pound salicylic acid dissolved in one hundred pounds water.

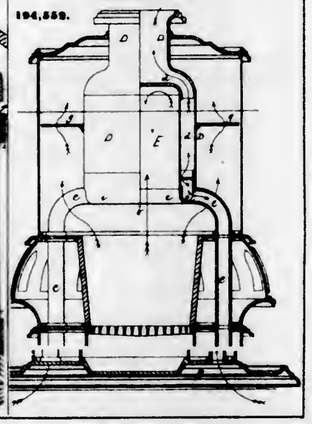


The within-described process of preserving animal food by forcing into it, by hydraulic pressure, a preservative solution of salicylic acid in the water-tight vessel, substantially as described.

194,551. COMPOSITIONS FOR SURFACING LEATHER. D. Flannery, Brooklyn, N. Y. [Filed May 26, 1877.]

The within-described finishing composition, consisting of rosin, shellac, gum arabic, Irish moss, gum-tragacanth, or equivalent resinous and mucilaginous gums, combined with borax solution and flax-seed, substantially as set forth.

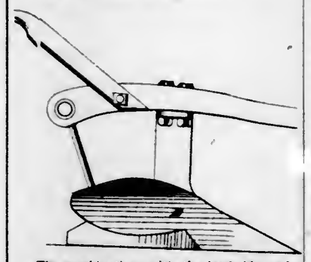
194,552.



194,553. HEATING-STOVES. J. E. Gridley, St. Paul, Minn. [Filed June 11, 1877.]

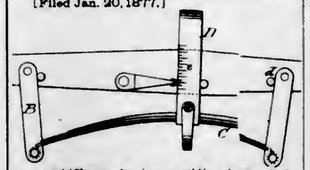
The combination and arrangement of the generator D E, heat check and spreader A A', and conduits e e, substantially as hereinbefore described.

194,555. PLOWS. T. B. Jones, Madisonville, Ky. [Filed June 26, 1877.]



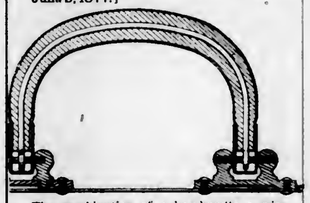
The combination, with the land-side and plow-beam, of a broad flat standard, having its upper end turned at right angles to its body, and secured to the plow-beam by two bolts, and a brace-rod, having one end secured to the inner surface of the mold-board and the opposite end secured to the inner or land-side of the plow-beam, substantially as set forth.

194,554. SPRING-WHIFFLETREES. A. B. King, Camden, Ohio, assignor to C. King. [Filed Jan. 20, 1877.]



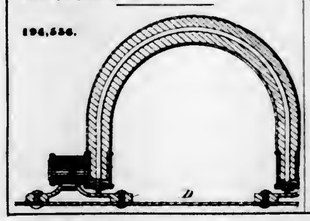
A whiffletree having a sliding draft relief-band, D, embracing its middle portion, and a rear longitudinal spring, C, connected centrally to said relief-band, and at its ends to bearing-arms extending to the arms of the whiffletree, substantially as specified.

194,555. HANDLES FOR TRAVELING-BAGS, &c. John W. Lieb, Newark, N. J. [Filed June 5, 1877.]



The combination of a bag-handle, a wire passing lengthwise through the same and connected with the stirrups on the bag-frame, and metallic caps or sockets secured to the ends of the handle and pivoted on the stirrups, substantially as shown and described, so as to conceal the ends of the wire and answer the other purposes set forth.

194,556.



194,556. HANDLES FOR TRAVELING BAGS, SATCHELS, &c. John W. Lieb, Newark, N. J. [Filed June 5, 1877.]

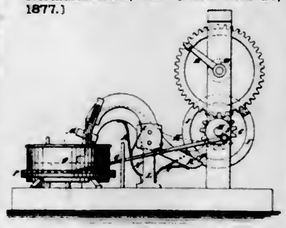
1. The combination of the eye or bearing C, the rotating wrist B mounted therein, and the transverse socket a rigidly connected to the end of the wrist, substantially as shown.

2. The combination of the eyes C, the wrists B mounted therein, and the handle A, having straight ends attached to the ends of the wrists transversely to their axes, substantially as shown.

3. The combination of the eye C, the wrist B, having the horizontal bearing and the transverse socket, and the handle A having the wire passed through it from end to end, and secured at the ends, as shown and described.

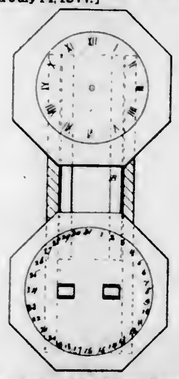
4. The combination of a bag-frame, D, two eyes, B, thereon, two wrists or sleeves rotating horizontally in said eyes, and a handle, A, having straight ends secured firmly to the wrists at substantially right angles to their axes.

194,557. MEAT-CHOPPERS. J. C. Lloyd, Northumberland, Pa. [Filed Feb. 26, 1877.]



The combination of the shaft H and gear-wheel G, rotated by the gear-wheel F, wheel I, provided with the pins J, and the crank-wheel S, having the push-rod Q pivoted thereto, with the curved levers K, having knives M, springs N, arranged under said levers, rack-wheel P, pivoted meat-box O, and bent rod T, having the curved plate U, the whole constructed, arranged, and operating in the manner and for the purpose set forth.

194,558. COMBINED CLOCK AND CALENDAR CASE. Thos. H. Mott, New York, N. Y. [Filed July 14, 1877.]



1. As a new article of manufacture, a calendar-clock case or frame composed of an independent clock case and an independent calendar-case, when joined together substantially in the manner set forth.

2. As a means of attaching a separate and independent calendar to a separate and independent clock-case, the prolongated sides or back of the calendar-case, in combination with the calendar-clock works, substantially as hereinbefore set forth.

194,559. APPARATUS FOR MASHING. A. W. Oppmann, Cleveland, Ohio. [Filed July 10, 1877.]

Brief.—For moistening grain preparatory to mashing. A spiral grain-conveyer working in a chamber having perforated walls, and surrounded by an annular water-chamber, combined with a supply-tube for grain and a water-pipe, substantially as set forth.

194,559.



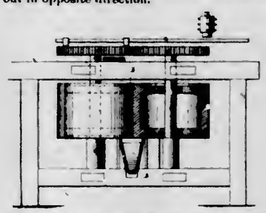
1. The revolving spiral conveyer J, chamber E, and annular chamber F, in combination with the pipe G and tube C, substantially as and for the purpose set forth.

2. The chamber E, with the wall or sides thereof perforated, and opening into the water-chamber F, and having a spiral conveyer, J, for agitating and conducting the saturated malt from its ingress through the perforated chamber E to its discharge, substantially as described, and for the purpose specified.

3. In mash-machines, the combination of an annular water-chamber provided with an induction water-pipe, a chamber with perforated sides, an induction grain-tube, and a revolving conveyer therein, surrounded by the said annular water-chamber, substantially as described, and for the purpose set forth.

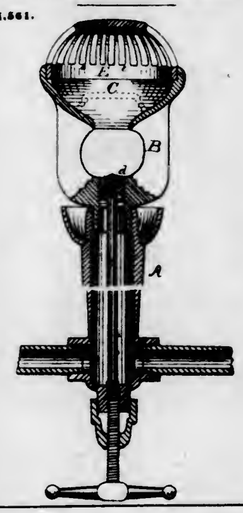
194,560. CIDER-PRESSES. D. Phillips, Collamer, Ind., assignor of two-thirds of his right to D. and I. Haines, same place. [Filed June 18, 1877.]

Brief.—The apples are crushed to pomace by a grinding-roller, and fed into the upright pressing-rollers to extract the juice, which runs off into a receptacle, while the pomace passes out in opposite direction.



In a cider-press, the combination of the two rolls *a*, placed vertically in the frame *b*, shafts *c*, gear-wheels *d*, pinion, crushing-roller *h*, hopper *g*, sweep *e*, and the two troughs *s r*, the parts being combined and arranged to operate substantially as shown and described.

194,561.



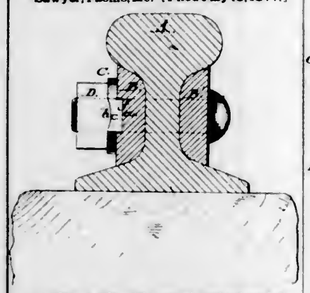
194,561. VAPOR-BURNERS. C. H. Prentiss, Cleveland, Ohio. [Filed June 11, 1877.]

1. The combination, in a vapor-burner, of the generating-tube A, constructed as described, the yoke B, and the cup C, formed with said yoke, substantially as specified.

2. In a vapor-burner, the yoke B, terminating in the cup C formed therewith, the combination and arrangement being substantially as shown and described.

3. In a vapor-burner, the combination of the yoke B, the cup C formed therewith, and the cap E, having slots *e*, all constructed and arranged substantially as shown and described.

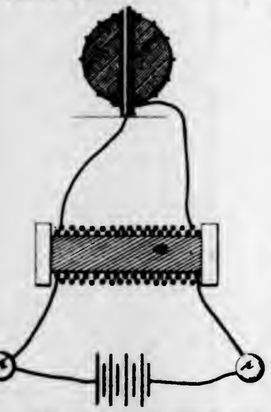
194,562. RAILROAD NUT-LOCKS. Thos. J. Sawyer, Pacific, Mo. [Filed July 13, 1877.]



1. The nut D, with curved projections *b* fitting into the curved recess *c* of washer C, in combination with one or more rigid holding-projections on the inner side of the washer, whose holding faces are parallel to that side, and with a screw-bolt and fish-plate, as described, and for the purpose set forth.

2. The nut D, with curved projection *b* fitting into the curved recess *c* of washer C, in combination with rectangular tongue *a'* of washer C, fitting into rectangular groove *f* of fish-plate B, as described, for the purpose set forth.

194,563. ELECTRIC LIGHTING APPARATUS. Wm. E. Sawyer, New York, N. Y. [Filed June 22, 1877.]



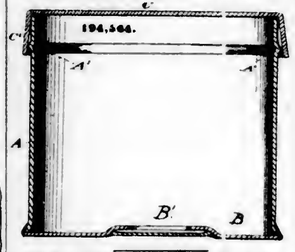
1. In an electric lighting apparatus, an insulating-sphere studded with metallic points arranged in a series of meridional lines extending from pole to pole of the same, substantially as shown and described.

2. An electric lighting apparatus, consisting of a series of lines of insulated metallic points arranged upon the surface of a sphere, in combination with an induction-coil with or without a condenser, as set forth.

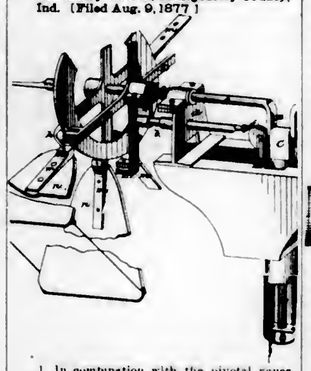
194,564. PACKING OR SHIPPING CANS. H. A. Sherwin, Cleveland, Ohio. [Filed June 14, 1877.]

1. A metallic shipping-can for paints, fruits, &c., consisting of a body, A, with straight sides extending from bottom to top, and provided with a small bead, A', in combination with a cover, C, provided with a depending flange, C', made to extend just below the outer edge of the said bead, the two united at this point by a joint of soft solder, filling the space between the depending flange and the lower surface of the bead, substantially as and for the purposes described.

2. A metallic shipping-can for paints, fruits, &c., consisting of the body A, provided with straight sides from bottom to top, with a bead, A', and top C, provided with depending flange C', inclined slightly outward, so as to embrace the bead, a narrow separable joint of soft solder between the lower edge of the flange and the body of the can, beneath the bead, and a perforated bottom, B B', substantially as and for the purposes described.



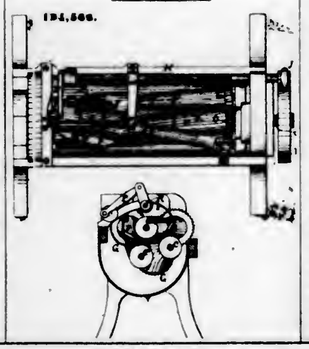
194,565. WINDMILLS. John B. Stingley and Henry Nelson, Montgomery County, Ind. [Filed Aug. 9, 1877.]



1. In combination with the pivotal vanes of the wind-wheel, the sliding head of the governor having a depending arm provided with the horizontal rod *b* for attachment to the operating cord or wire.

2. The arms D D D D of the governor having at right angles to their outer ends the slotted locks E, in combination with the hinged links *k* and vanes *s*, substantially as described, and for the purposes set forth.

194,566.



194,566. MACHINES FOR FELTING HAT-BODIES. Jas. S. Taylor, Danbury, Conn. [Filed Feb. 17, 1877.]

1. The rocking felter or felters F, in combination with the rollers *c c' c²* for the purpose of imparting to the material to be felted, a positive, rotatory, and felting motion in the process of felting, substantially as shown and described.

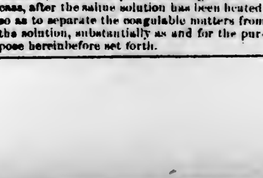
2. The combination of the felters F F, with the rollers *c c' c²*, arranged with their axes diagonally crossing each other, in the manner and for the purpose, as described.

3. The combination of the springs *s s*, felters F F, rollers *c c' c²*, in the manner and for the purpose as described.

4. The combination of the rollers *c c' c²*, constructed substantially as shown and described, and arranged with their axes diagonally crossing each other, forming the receiving-chamber X, for the purpose specified.

194,567. BOXES FOR PAPER COLLARS. G. C. Thomas, New York, N. Y. [Filed July 23, 1877.]

Brief.—The sides of the cover may be set in grooves in the under side of the composition top.



As a new article of manufacture, a paper-collar box consisting of the lower portion B and the sides E of the cover, firmly secured in place by means of the composition top C, the latter having depending flanges D', which fit over the upper edges of the sides E of the cover, substantially as and for the purpose set forth.

194,568. TRACE-FASTENERS. N. Thomas, Taunton, Mass. [Filed June 16, 1877.]

1. The trace-fastening consisting of the flattened shank A, secured to the end of the whiffletree, and having the transverse notch E in its face, and the flattened button B, made hollow to receive the spring S and the screw C, by which said button and spring are held to the shank, substantially as described, for the purpose specified.

2. The flattened button B, combined with the flattened shank A B' by means of the spring S and screw C, contained within the button, the screw passing entirely through it to enter the shank at the bottom of its transverse recess E, substantially as described, for the purpose specified.

194,569. PROCESSES FOR PRESERVING FLESH. John L. Alberger, Buffalo, N. Y. [Filed Apr. 16, 1877.]

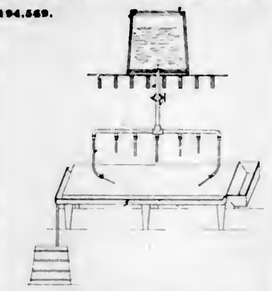
1. The process of preserving flesh for food by injecting the carcass, or any portion thereof, with a saline solution containing carbolic or salicylic acid, substantially in the proportion specified, whereby the albuminous juices are fixed and their decomposition prevented, while the nutritive and market value of the meat is correspondingly increased, substantially as hereinbefore set forth.

2. The process of preserving flesh for food by first injecting the same with a saline solution, then subjecting the injected meat to a refrigerating temperature for curing the bones and cartilages, and then immersing the injected meat in brine of suitable strength for withdrawing from the injected meat any excess or supplying thereto any deficiency of salt, substantially as and for the purpose hereinbefore set forth.

3. The process of immersing the injected meat for finally curing the same in the saline solution, which has passed through the carcass, after the saline solution has been heated, so as to separate the coagulable matters from the solution, substantially as and for the purpose hereinbefore set forth.

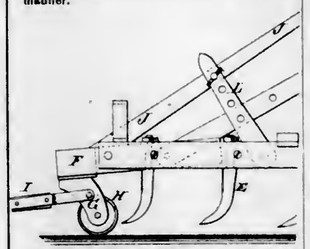
4. The process of treating the injected flesh-trimmings by packing the same in bags, smoking them, then boiling the same in water, and packing them in air-tight cans, substantially as and for the purpose hereinbefore set forth.

194,569.



194,570. ADJUSTABLE WHEEL-CULTIVATORS. David Archer, Jr., Brier Hill, N. Y. [Filed June 30, 1877.]

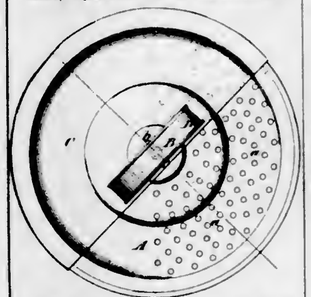
Brief.—The tongue secured to the standard of a caster-wheel, and the latter secured to a center-beam vertically adjusted by a rigid lever. The rear wheels are adjusted in the same manner.



The combination, in a cultivator, of the tongue I and standard G, having wheel H, with the front bar F, pivoted between beams A A, and provided with lever J, as and for the purpose specified.

194,571. KETTLE-COVERS. A. J. Beaudette and L. L. Beaudette, Fond du Lac, Wis. [Filed July 23, 1877.]

Brief.—One-half of the cover is perforated. An additional half-cover is secured to the top of the main cover by a spring key, and arranged to revolve and cover the perforations or expose them at pleasure. A lip attached to the main cover engages with the ear of the kettle, to prevent the cover from turning.

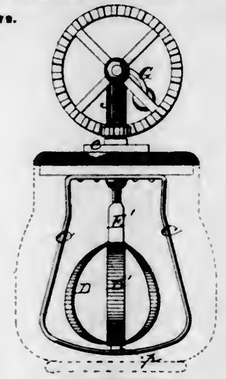


The combination of the perforated cover A, the half-cover C, pin B, spring-key *b*, handle D, and lip *a*, substantially as specified.

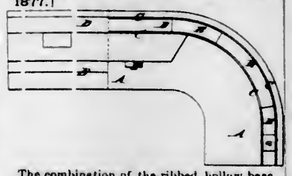
194,572. CHURNS. D. F. Blair, Owosso, Mich., assignor of one-half his right to G. Moses, same place. [Filed July 28, 1877.]

In a churn-lid, the combination of the ball C, provided with the transverse bearing-plate *p* of the dashers D D', journaled in said plate at their lower ends, and the shafts E E', supporting the said dashers, and journaled in said lid, substantially as specified.

194,573.

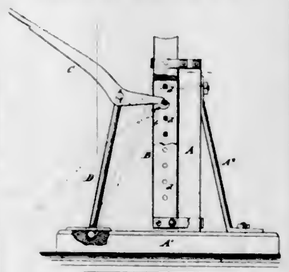


194,574. WAGON-BOX CORNERS. Wm. B. Botsford, Mill Port, N. Y. [Filed July 13, 1877.]



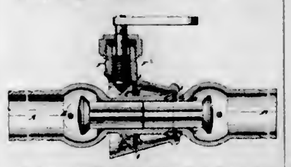
The combination of the ribbed hollow base A, sills B fitting therein, the two plates C, the boards D, and the filling E, all constructed and arranged as and for the purpose specified.

194,575. WAGON-JACKS. Amiel Bratschi, Portersville, Pa. [Filed June 25, 1877.]



The combination, in a lifting jack, of a sliding post, B, having cross-pins *d* in a slot thereof, and a lever, C, having an inverted hook at the end, the former connected with rigid base A' by swinging rod D, and the latter by fixed guide-post A, as shown and described.

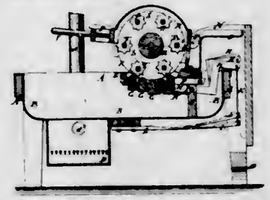
194,576. HOSE-COUPLINGS. W. H. Burden and B. J. Pleasance, Cleveland, Ohio. [Filed June 11, 1877.]



A hose-coupling whose parts A B are provided with corresponding shoulders *a a* C C, and the packing-rings *b*, the part B being provided with a flange, E, and with a locking device, F F', as and for the purpose specified.

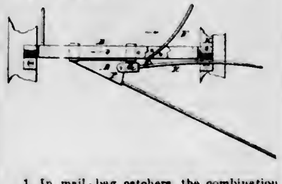
194,576. WASHING-MACHINES. J. H. Calvert, Princeton, Ky. [Filed May 5, 1877.]

Brief.—The pivoted bent levers, located beneath the cylinder, having a washing-surface composed of corrugated rollers, and connected by rods to the horizontal flat springs beneath the suds-box, form a yielding bed for the clothes while being operated upon.



The combination of the cross-bars G, the pivoted bent levers H, the connecting-rods K, and the springs L with the suds-box A B and the platform E, attached to said suds-box, to form a yielding bed for the clothes while being operated upon, substantially as herein shown and described.

194,577. MAIL-BAG CATCHES. G. H. Carver and E. A. Munger, Piano, Ill. [Filed Mar 21, 1876.]



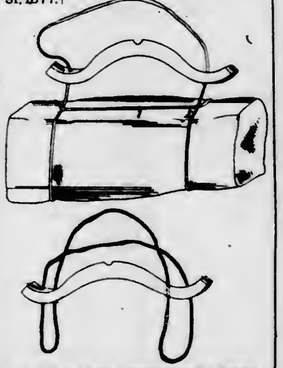
1. In mail-bag catchers, the combination of bar B, forming a track for the sliding head D, a rigid arm, C, secured to said head, and the pivoted arm E, substantially as shown.

2. The combination of a bar, B, a sliding head, D, rigid arm C, pivoted arm E, and a lever, F, substantially as set forth.

3. The combination of the bar B, head D, arms C E, lever F, and guides 2 3, substantially as described.

4. The combination of the arm E, lever F, and pins 2 and 3, or their equivalents, substantially as specified.

194,578. PACKAGE-HOLDERS. E. Card and I. Lindsley, Pawtucket, R. I. [Filed Jan. 31, 1877.]



1. A package-holder consisting of a handle having a twine-fastener, in combination with a suitable length of twine connected to the

handle in the form of a running loop or loops, and arranged to be drawn to and fro through the handle for increasing or reducing the size of the loop or loops, substantially as described, whereby a package may be inclosed within the loop or loops, the handle forced downward upon the package, the surplus twine drawn through the handle and secured by its fastener, as set forth.

2. A rigid package-holder handle, which is bow-shaped, and provided with hooked or curved ends, substantially as described, whereby the handle may be readily engaged with a tied package by placing the handle beneath two parallel wraps of the twine thereon, as set forth.

3. A rigid package-holder handle provided with longitudinal slits at the ends, substantially as described, whereby the handle may be readily engaged with a tied package by placing the handle beneath a wrap of twine and entering the twine into the slits, as set forth.

4. A rigid package-holder handle provided with hooked or curved ends and a longitudinal slit at each end, substantially as described, whereby the handle may be applied to the longitudinal and lateral wraps of twine on a tied package, as set forth.

194,579. PROCESSES OF COLORING PHOTOGRAPHS. D. Chamberlain, Winona, Minn. [Filed May 12, 1877.]

The process of coloring photographs, which consists in first pasting the picture on white cloth, next rendering the picture and cloth translucent, and then applying the color to the back, said steps being taken in the order substantially as specified.

194,580. SPRING-FLOORS. Wm. H. Clark, Austin, Nev. [Filed July 9, 1877.]

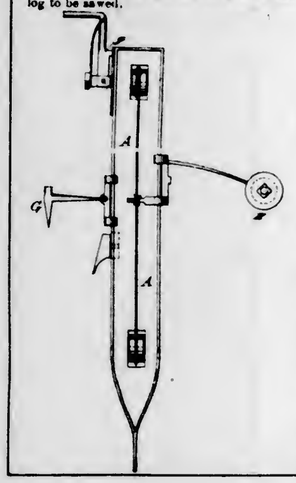


1. In combination with the spring-floor supported on the rubber buffers D, the metal caps E E and upright pins C, substantially as and for the purpose described.

2. In constructing a spring-floor, the metal strips F for preventing the floor from rebounding above desired height, and guides G for keeping the floor in its proper position, and also the ventilators H at desired parts of the floor, all arranged and operating substantially as and for the purpose above described.

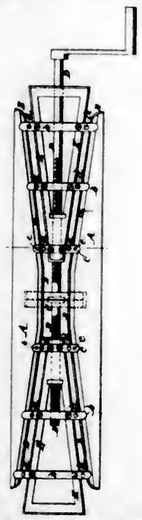
194,581. SAW-FEEDERS. Jas. G. Cofman, Pierpont, Mich. [Filed July 30, 1877.]

Brief.—The saw is held down to its work by means of a vertically-adjustable spring roller attached to a spike of peculiar form, adapted to be driven into the ground alongside of the log to be sawed.



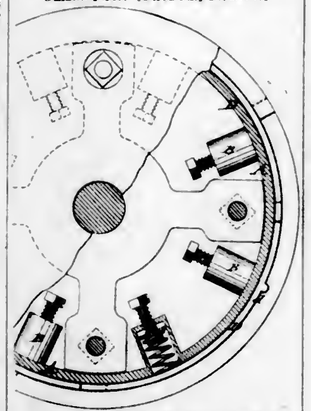
In combination with a spike, A, the adjustable anti-friction roller E, applied to a spring-arm, and the adjustable dog G, substantially as described.

194,582. APPARATUS FOR STRETCHING FELT JACKETS FOR ROLLERS IN PAPER-MACHINES. L. Cole, Corinth, N. Y. [Filed June 30, 1877.]



The bars A, having tapered ends, and provided with plates B, the cross-bars C, wedges E, having cross bars *b c*, the rollers *d*, and the spindle D, having right and left hand threads, in combination, substantially as shown and described.

194,583. PISTON-PACKINGS. I. H. Congdon, Omaha, Nebr. [Filed July 13, 1877.]



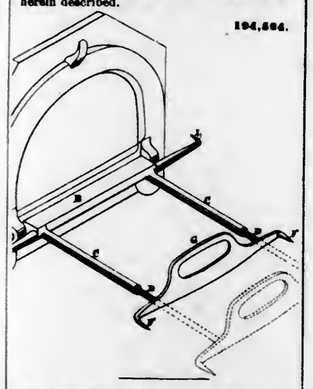
The combination of the lugs or seats of a piston-head and a solid ring, having radial pockets, adjustable springs, and outer circumferential groove, with an inner sectional packing-ring and outer packing-rings, substantially in the manner and for the purpose specified.

194,584. SAGE-HOLDERS. John S. Covert, Modesto, Cal. [Filed July 9, 1877.]

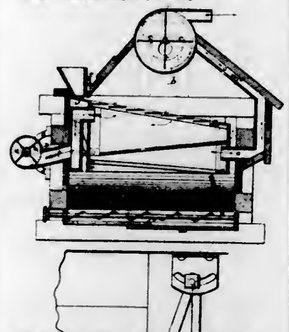
1. The horizontal bar B, with its backwardly-projecting points I, in combination with the tubes C, with their sliding bars D, and points or hooks F, the whole forming an adjustable bag-holder, substantially as described.

2. The horizontal bar B, journaled as shown, and the backwardly-projecting points I, together with the adjustable bars D and points F, in combination with the looped handle G, by which the device can be raised and the sack automatically released, substantially as herein described.

194,584.

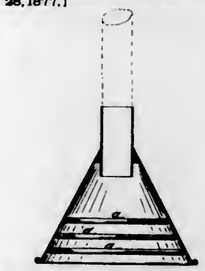


194,585. MIDDLINGS-SEPARATORS. Jacob Creager and Wm. F. Thompson, Boscobel, Wis. [Filed July 10, 1877.]



The arrangement of the suction-fan *c* in the top of the chamber *b*, slats *g*, board *h*, sieve *i*, spout *o*, and blast-fan Q, the parts being combined for operation substantially as shown.

194,586. CLOTHES-POUNDERS. George A. Crooker, Charlottesville, Va. [Filed June 28, 1877.]



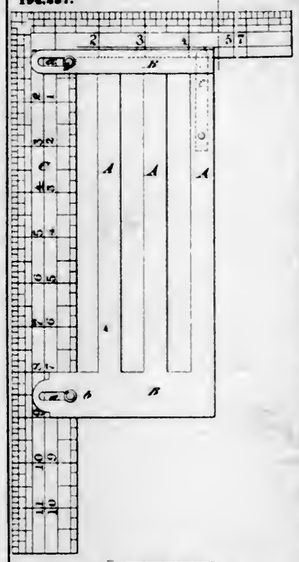
A conical cup for washing clothes having the wire coils *a* soldered upon and projecting from its interior surface, as and for the purpose set forth.

194,587. ATTACHMENTS FOR CARPENTERS' SQUARES. J. Daniels, Sharon, Wis. [Filed June 11, 1877.]

Brief.—Can lay out single and double mortises by means of the adjustable bars.

The parallel bars A, attached to slotted end pieces B, and the bolts *b*, in combination with the square C, substantially as shown and described.

194,587.

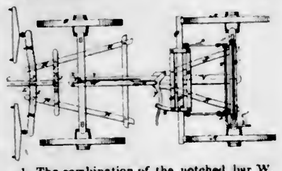


194,588. STEP-LADDERS. Thos. Duncan, Chicago, Ill. [Filed June 20, 1877.]



In a step-ladder, the locked or sliding staple E, the metallic brace C C, and ratchet-plate D D, arranged, connecting, and operating as specified.

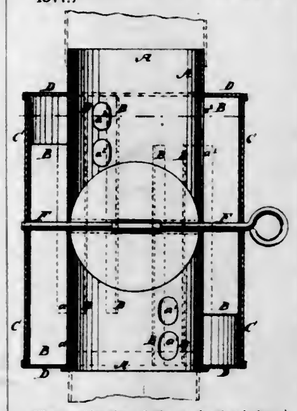
194,589. DUMPING-WAGONS. T. C. Duncanson, Jeffersonville, Ohio. [Filed June 20, 1877.]



1. The combination of the notched bar W, the connecting bar or link X, the lever Y, and the catch bar or loop Z, with the slotted reach V, for locking and releasing the king-bolt, substantially as herein shown and described.

2. The combination of the links or hasps F' and the levers G', provided with the hook-pins *g'*, with the end-board *a'* and the side-boards of the wagon-box A', substantially as herein shown and described.

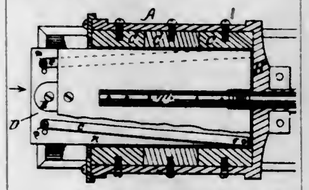
194,590. STOVE-PIPE DRUMS. Moses P. Farnham, Kanawha, Cal. [Filed Apr. 30, 1877.]



The combination of pipe A, having holes *a' a'*, the two sets of radial partitions B, the end-closed drum C D, and the damper E F, all constructed and arranged substantially as and for the purpose specified.

194,591. WOOD-GRINDERS FOR PAPER-PULP. A. Fickett, Rochester, N. Y., assignor of one-half his right to S. Dobbs, same place. [Filed July 5, 1877.]

Brief.—The wood is applied and held to the action of the grinding-surface in the wedge-shaped boxes formed by the table, the plate, supported by and above it, and the laterally-adjustable guides.



1. As an improvement in wood-pulping engines or grinders, the cylindrical case or shell A, provided with one or more stone annulars, C, constructed and arranged to operate substantially in the manner and for the purposes set forth.

2. In combination with the grinding-cylinder, constructed substantially as shown and described, the table D, and guides or gages *e*, for the purposes set forth.

3. In combination with the internally-grinding cylinder, the guides *e*, having their outer end made adjustable, substantially as shown and described, for the purpose of permitting the wood to be presented more or less diagonally to the grinding-surface, as set forth.

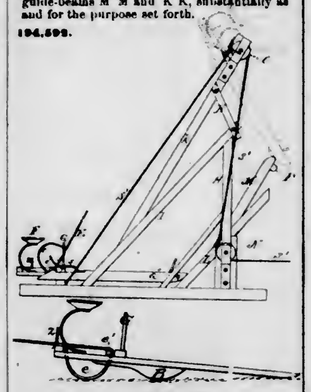
194,592. HAY-RAKERS, LOADERS, AND STACKERS. P. F. Fleming, Salisbury, Mo. [Filed June 23, 1877.]

1. The rake mounted upon runners B, in combination with levers E E', having semi-circles *e e'*, substantially as specified.

2. The combination of rake A, carriage Q, ropes 1, L, long guide-beams *k k*, and short guide-beams M M of the derrick-frame or hoisting apparatus, substantially as and for the purpose set forth.

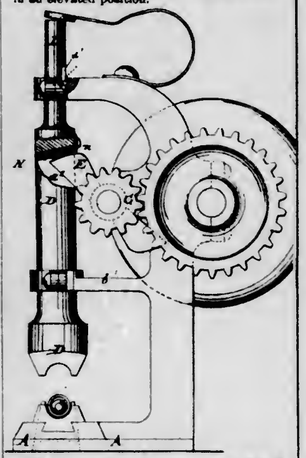
3. The combination of carriage Q, having the runners Q' Q'', ropes 8 8', and catches X X, and the derrick-frame, having inclined guide-beams M M and K K, substantially as and for the purpose set forth.

194,592.



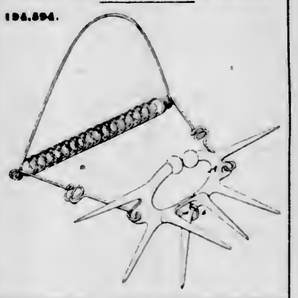
194,593. MACHINES FOR WELDING TUBES. J. French, South St. Louis, Mo., assignor to himself and J. W. Hill, same place. [Filed May 21, 1877.]

Brief.—The slot in the hammer is provided with a rubber cushion, said cushion being protected from wear, and held in its place by a metal plate, which is secured by a bolt so placed as to serve also as a stop, against which the ends of the cam rest, to hold the hammer in an elevated position.



The friction-plate N, arranged in a slot, *d''*, of the hammer D, in combination with a bolt, *n*, that both secures said plate, and serves as a stop for the cam, as shown and described.

194,594.

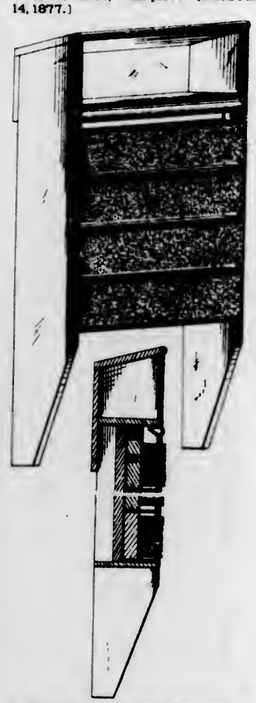


194,596. CALF-MUZZLES. H. W. Fuller, Seneca, Kans. [Filed July 13, 1877.]

1. A calf's muzzle, made of a jointed and spiked nose piece, and of a bent wire frame extending along the sides of the mouth and across the forehead, substantially as and for the purpose specified.

2. A calf's muzzle, made of a jointed and spiked nose piece, a bent wire frame extending sidewise of the head and across the forehead, and of a flexible spiral bit, substantially as described.

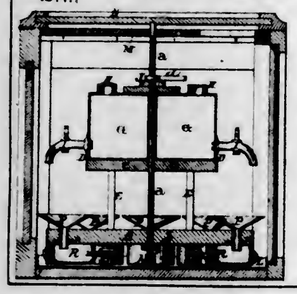
194,598. WASH-BOARDS. G. Gallup, Cleveland, Ohio, assignor of one-half his right to H. Woodford, same place. [Filed June 14, 1877.]



1. A wash-board having its face or rubbing-surface composed of two or more removable brushes and intermediate flexible strips, substantially as described.

2. A wash-board having its face or rubbing-surface composed of two or more removable brushes and intermediate flexible strips, the same supported upon a solid backing, substantially as described.

194,596. OIL-CABINETS. J. S. Gold, Washington Court-House, Ohio. [Filed Feb. 7, 1877.]



1. An oil-cabinet containing an interior revolving structure, having a series of independently-removable oil-cans, and each can provided with its corresponding funnel and drip-cup, substantially as and for the purposes herein set forth.

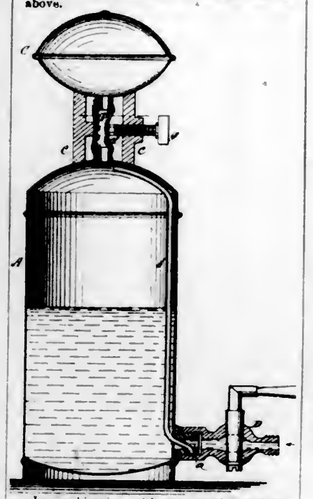
2. In combination with the base A, elevated platform C, and cans G, the rod *a*, nut *b*, plate or washer J, and thumb-nut *d*, substantially as and for the purposes herein set forth.

3. The combination of the base A, having cut-outs *x x*, funnels P, and sliding drip cups R, having rear notches *s*, substantially as and for the purposes herein set forth.

4. The false top M, arranged in the cabinet K, and having the aperture *y*, in combination with the revolving structure, oil cans, and central rod, as and for the purposes herein set forth.

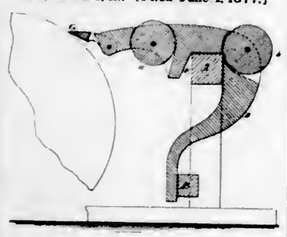
194,597. HYDRO-PNEUMATIC FIRE-EXTINGUISHERS. O. C. Hearle, Montreal, Quebec, Canada. [Filed June 18, 1877.]

Brief.—Water is twice let into the main tank, thus twice compressing the air into the receiver above.



In combination with the vessel A and its cock D and air-tube *b*, the air-receiver C, flexible tube G, and clamping-screw *g*, the air-receiver being permanently secured to the water-receiver, substantially as described.

194,598. DOGS FOR SHEET-METAL-ROLLING MILLS. E. C. Hegler and F. W. Matthiessen, La Salle, Ill. [Filed June 4, 1877.]



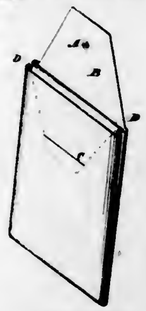
1. A dog for sheet-metal-rolling mills supported by bars A B, and provided with the hinged nose-piece G, substantially as shown and described.

2. The combination of the casting D, having the curved end or tail-piece F, and nose-piece G and the rollers *a b*, as shown and described.

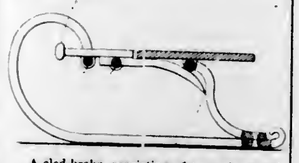
194,599. PAPER CASES OR POCKETS. Louis Hellman and George Gregory, Chicago, Ill. [Filed June 13, 1877.]

As a new article of manufacture, a paper case or pocket, made of a single piece of material, folded over upon itself, the blank being creased and folded along the dotted lines E E, the inside flaps D D locking the parts securely together, the whole covered by the outside flap B, folding over the end of the case, and secured in the slit C, and having the eyelet A inserted in the flap B for the purpose of allowing the case to be used as a wall-pocket, and suspended from this point, as and in the manner shown, and for the purpose set forth.

194,599.

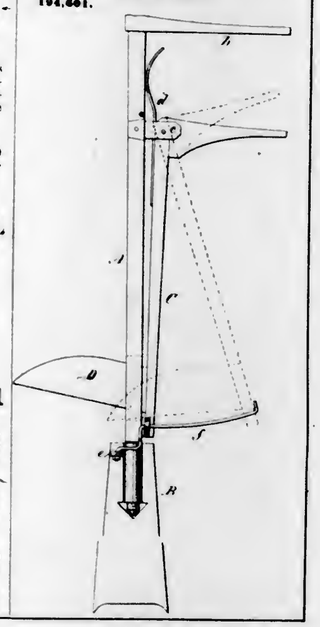


194,600. SLEDS. C. D. Hinman, M. Ladd, and W. W. Ladd, St. Johnsbury, Vt. [Filed June 18, 1877.]



A sled-brake consisting of two pieces end lapped over an intermediate pivot under the seat, one part folding in a front slot of the seat and the other under the rear of seat, as shown and described.

194,601.

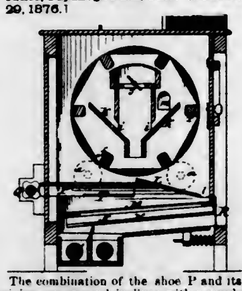


194,601. TOBACCO-HARVESTERS. H. Janes, Knobnoster, Mo. [Filed July 9, 1877.]

Brief.—The handle serves to lift the instrument into position, and by means of the lever a quarter-rotary motion is given to the lower blade, which cuts and splits the tobacco-stalk at one operation.

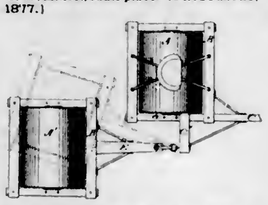
The shank A, having the handle *b*, the chisel B, lever C, knife D, curved rod *f*, and spring *d*, in combination substantially as shown and described.

194,602. MIDDLINGS-SEPARATORS. Henry Jones, Cuyahoga Falls, Ohio. [Filed Sept. 29, 1876.]



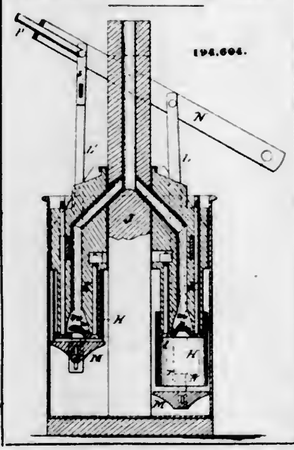
The combination of the shoe P and its retaining-screens and inclines with a revolving reel, having the internal ribs *f* and stationary suction separating-spout furnished with guide-boards and inlets, as and for the purpose described and represented.

194,603. AGRICULTURAL LAND-ROLLERS. G. R. Kidder, Armada, Mich., assignor of two-thirds of his right to L. Granger and C. W. Millett, same place. [Filed June 23, 1877.]



The land-roller having the roller-frame B rigidly attached to one side of the tongue C, and the horizontal lateral arm C', projecting from the other side of the tongue opposite said frame, in combination with the rear overlapping roller A', having an independent tongue, E, and clevis connection for attachment to said arm, substantially as specified

194,604.

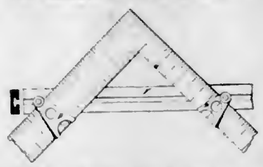


194,604. DOUBLE-ACTING PUMPS. Riley I. Knapp, Guilford, Ill. [Filed May 28, 1877.]

Brief.—Duplex vertical pump confluent at top. The entire bottom of each cylinder is a valve attached to the rod and lifting lever, which thus closes the valve in the first impulse of lifting.

In pumps, the combination, with cylinders H arranged on pistons K, of the head M and rods L L', the latter connected with a lever, N, as and for the purpose specified.

194,605. FRAMING-SQUARES. C. Lamb, San Francisco, Cal. [Filed Dec. 9, 1876.]



1. The combination, with a square, of a grooved bar, F, and clasp D, substantially as shown and for the purpose set forth.

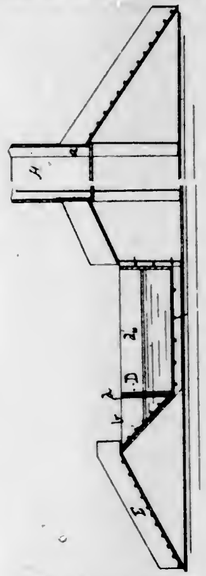
2. The clasp D, constructed substantially as shown, to secure a framing square to a bar, F, substantially as set forth.

194,606. STIFFENED OR SIZED HAT-BODIES. L. Lindfors and C. Schultz, Boston, Mass. [Filed Mar. 10, 1877.]

A hat-body treated with the above described gum, composed of spirits of ammonia, shellac, isinglass, and water, as and for the purposes above described.

194,607. HOG-WASHING MACHINES. C. Maddux, Clarksburg, Ohio. [Filed July 31, 1877.]

Brief.—The swine are driven into the pen, and then one by one into the tank, where they are scrubbed with a broom or coarse brush. When the washing is complete the door is raised, and the animal allowed to walk out.

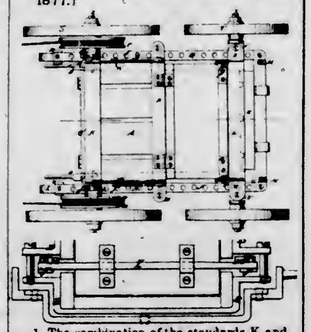


1. The tank A', provided with the door D and removable battened way *b*, substantially as described, and for the purpose set forth.

2. The tank A', having inclined end, removable battened way *b*, door D, and pipe *d'*, all substantially as described, and for the purposes set forth.

3. The device herein described, consisting of the pen A, tank A', having door D and battened way *b*, and exit-way E, all as and for the purpose set forth.

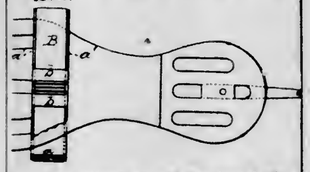
194,608. BALING-PRESSES ON WHEELS. M. McCarty, Pueblo, Colo. [Filed Apr. 30, 1877.]



1. The combination of the standards K and the wheels L with the rear ends of the rack-bars J, substantially as herein shown and described.

2. The combination of the plates W, having their rear parts bent inward into U form, with the rear band B, the baling-box A, and the spindles R of the rear wheels S, substantially as herein shown and described.

194,609. STIRRUPS. S. J. McDonald and J. W. Burton, Gallatin, Mo. [Filed July 21, 1877.]



1. The combination, with the flanged stirrup-iron A, of the foot-plate for stirrups, consisting of a ball-rest, *f*, pivoted thereto, the heel rest *f'*, and arched plate *f''*, connecting the same, substantially as specified.

2. The combination, with the flanged stirrup-iron A, of the stirrup-leather B, encircling the same, substantially as specified.

3. The combination, with the stirrup iron, having flanged side bars and loops at each side of its apex, of the stirrup-leather encircling the said iron passing between the flanges of the side bars and through the said loops, substantially as specified.

194,610. MACHINES FOR SEWING BUTTON-HOLES. Richard M. Melhuish, Hoxton, England. [Filed Mar. 17, 1876.]

Brief.—The needle works always in the same vertical line, and a lateral vibration and a longitudinal reversible feed are imparted to the work-plate, on which the fabric is clamped. The lateral vibration may be so regulated by adjustable cams as to first stitch one side; second, bar the end; and, third, stitch the other side of the button-hole, the adjustment of the cams effecting the stoppage and reversal of the screw-feed.

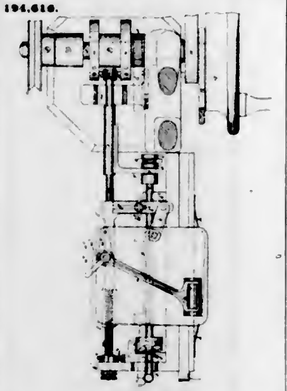
1. In a machine for sewing straight button-holes and for fancy stitching, the combination of the inclined-faced cam *i*, the rod *c*, the cloth-plate connected thereto, and a stationary roller or stud, *j*, said rod having endwise motion, and the cam working against the roller for vibrating the cloth plate, substantially as and for the purpose specified.

2. The combination, with the cloth-plate *a*, vibrated by cam *i*, as described, of the adjustable link *k* P, as and for the purpose set forth.

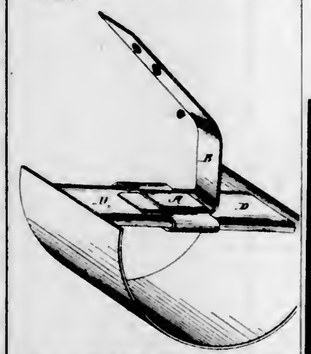
3. The combination, with cloth-plate *a*, rod *c*, cam *i*, and link *k* P, operated as described, of the feed-screw *m* and nut *l*, actuated as described, for imparting a vibrating, together with a traversing or feed, motion to the plate *a*, substantially as specified.

4. The combination of the connecting-link g^1 and sleeve S with the feed-screw m, the rod c, its eccentric g, and the cam i, for reversing or arresting the feed, and rendering the same dependent on the position of the cam, substantially as shown and described.

194,610.



194,611. EAVES-TROUGH HANGERS. C. T. Metzner, Sterling, Ill. [Filed Dec. 27, 1876.]



In an eaves-trough, the combination of the hanger B, provided with the short bend g, with the brace D, having the slot h and slide A, all arranged as described, and for the purpose specified.

194,612. RAWHIDE CAPS FOR WHIPS, &c. W. J. Morand, Passaic, N. J., assignor to I. S. Van Deusen & Son, same place. [Filed Feb. 6, 1877.]



The cap for handles, made of rawhide, in the shape of a cup, and turned up and finished, as a new article of manufacture.

194,613. MACHINES FOR DAMPING PAPER. T. M. Morton, Baltimore, Md. [Filed July 31, 1877.]

1. In a machine for moistening paper, a series of two or more felted rollers and an adjustable spray-pipe, substantially as described.

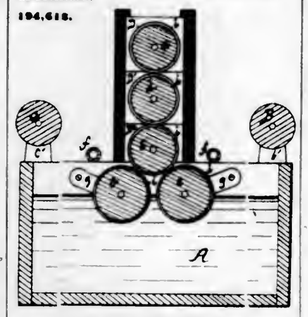
2. In a machine for moistening paper, an adjustable spray-pipe and a series of two or more felted rollers, one of which rollers is mounted in adjustable bearings, substantially as described.

3. In combination with the tank A, the rollers a, b, c, d, and e, and spray-pipe f, substantially as described.

4. In combination with the rollers a, d, and e, the adjustable spray-pipe f, substantially as described.

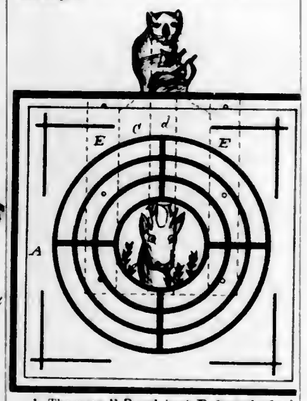
5. In combination with the felted moistening-rollers a d e, the feed and receiving rollers B C, and adjustable spray-pipe f, substantially as described.

194,614.



194,614. TOY TARGETS. Charles Oakford, Philadelphia, Pa. [Filed July 31, 1877.]

Brief.—A circular disk or bull's eye, mounted on the face of the slide, fits an opening in the target-board, and engages therein to set the device. When the bull's-eye is struck, it is forced out of the opening, and the slide is raised by a suitable spring, and figures or pictures are exposed through the opening and above the target.



1. The ways E E and back F, formed of a single piece of pasteboard or other suitable material, in combination with the target-board A, having an opening, a, to receive the bull's eye, substantially as set forth.

2. The combination of the slide C, having one or more pictures and a bull's-eye on its front side, with a target-board, A, having an opening, a, guideway E E, and back F, the said slide being operated by means of the gum-strip G or other suitable device, substantially as and for the purpose set forth.

194,615. HYDRANT-VALVES. W. Portsous, Pittsburg, Pa. [Filed Aug. 1, 1877.]

Brief.—The waste is ejected through the nozzle by the compressed air passing out of the air-chamber.

1. The combination of a hydrant-valve with an air cylinder and piston, whereby the waste is forcibly expelled, substantially as described.

2. The combination of an air-cylinder and piston with the outlet-pipe of a hydrant-valve, whereby the waste may be forcibly expelled through the regular bib or nozzle, substantially as specified.

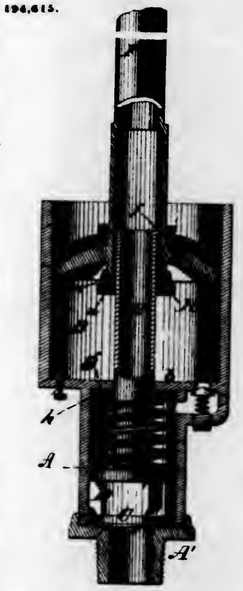
3. The combination, substantially as described, of an air-cylinder and piston with a hydrant-valve, the piston and valve being connected and co-operating, so that the act of closing shall operate to seat the valve and expel the waste.

4. The combination, specifically, of tubular outlet F, carrying a piston, tubular valve-stem E, carrying a valve, and the chambers B and A, separated and communicating, substantially as and for the purposes shown and described.

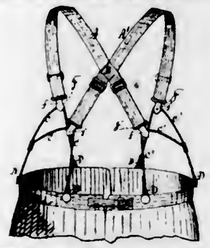
5. The combination of chamber A and open cage D with tubular valve-stem E, substantially as and for the purpose set forth.

6. In combination with the tubular stem E, having flange f, the enlarged outlet F, having washer m secured thereto, substantially as described.

194,615.



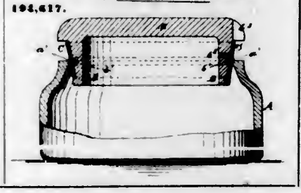
194,616. SUSPENDERS. Thomas O. Potter, Boston, Mass. [Filed Jan. 23, 1877.]



1. The improved brace, consisting of the shoulder-straps A A' and connecting devices F, in combination with the two independent cords C C' and button-holes D D, all arranged together as set forth.

2. The device F, consisting of the sheet-metal piece f and the sheave f', the piece f having the two loops, and being bent, as shown, to bring the two loops together to form one loop for the main straps, as set forth.

194,617.



194,617. FRUIT-JARS. H. Purdy, Burlington, Iowa. [Filed June 4, 1877.]

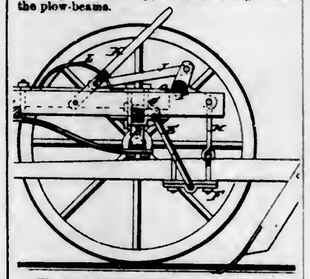
The air-hole b^1, formed in the cover B just above the groove b^1, and covered with the packing-band C, substantially as herein shown and described.

194,618. SUBSTITUTES FOR COFFEE. S. S. Putnam, Boston, Mass., assignor to W. W. Whitmarsh, same place. [Filed Apr. 30, 1877.]

The process of treating cereals to be used in making table beverages, by steam-cooking and drying the grain previous to and then roasting it, substantially as and for the purpose described.

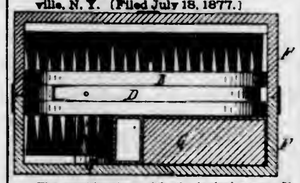
194,619. SULKY-PLOWS. R. A. Renfro, Rockwall, Tex. [Filed June 11, 1877.]

Brief.—In connection with the lifting-lever and crank the plow-beams are suspended from the axle by stirrups, which serve to brace the plow-beams to hold the plows down to work and to push the sulky, the draft being from the plow-beams.



The combination, with crank-axle, frame, and beams, of the stirrups E, bearings F, clips G, rods H, armed shaft I, pivoted rod J, and lever K, as and for the purpose specified.

194,620. BROOM-BRUSHES. S. Shaw, Springville, N. Y. [Filed July 18, 1877.]



The combination, with the inclosing case F F, of the blacking-brush A B, provided with small brush C and folding handles D D, and blacking-box G, constructed with crescent-shaped extension G', substantially as herein shown and described.

194,621.

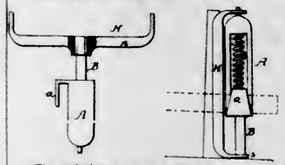


194,622. TORPEDOES FOR OIL-WELLS. A. M. Smith, Edenburg, (KNOX P. O.,) Pa. [Filed July 30, 1877.]

Brief.—The two-part ball forms a guide for the plunger, which explodes the charge.

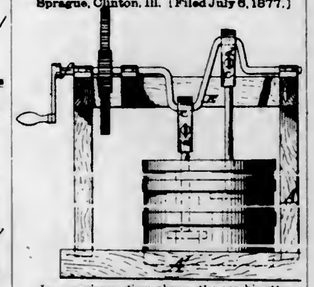
As an improvement in the torpedoes or cartridges used for shattering the rock in artesian wells, the combination, with the shell containing the charge, and of the drop-hammer, carrying the percussion-caps, of a ball, made of a stationary and a pivoted part, which are fitted to the stem or rod of the hammer, substantially as and for the purpose set forth.

194,623. SPRING ATTACHMENTS FOR VEHICLES. G. H. Spencer, Jersey City, N. J. [Filed Nov. 22, 1876.]



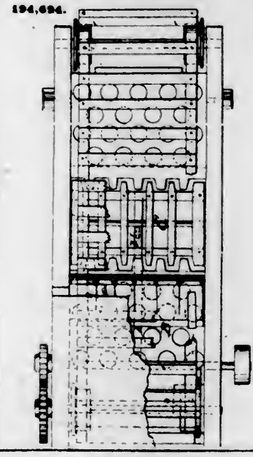
The tubular case A, having a hook, a, the rod B, spring i, and the bar H, having flanges a a' and sockets t, all constructed and adapted to each other, and to be applied to the side or seat of a vehicle, substantially as set forth.

194,624. CHURNS. B. C. Sprague and J. T. Sprague, Clinton, Ill. [Filed July 6, 1877.]



In a reciprocating churn, the combination of a crank-shaft, a dasher-rod, and a double-acting clamp, formed in two parts, each part having a vertical groove for receiving the dasher-rod, and also a horizontal groove at right angles to the latter for receiving the crank-shaft, said clamp being provided with a set-screw, and operating to clamp the dasher-rod and crank-shaft simultaneously, substantially as described.

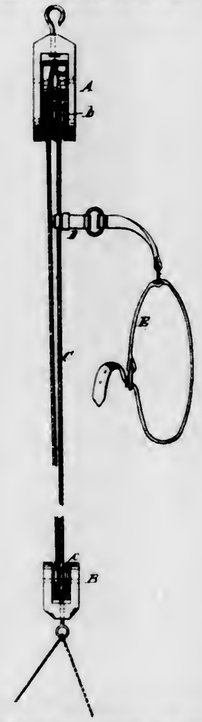
194,624.



194,625. GRAIN-SEPARATORS. R. Sprenkel, York, Pa. [Filed June 4, 1877.]

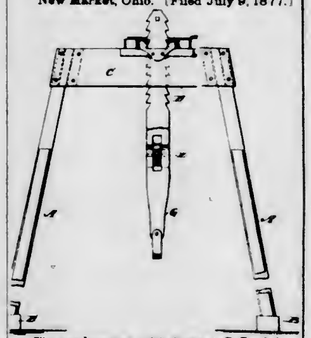
The combination, with the endless carrier, of the perforated floor and oscillating rocker, said rocker being constructed as a grating or portion of said floor, as and for the purpose specified.

194,626. FIRE-ESCAPES. Geo. S. Staples, Sherman, Tex. [Filed June 25, 1877.]



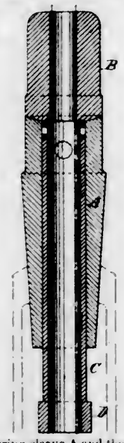
In a fire-escape, the combination, with block A, having the concaved pulley a and the double-grooved pulley b, of the block B, having a single-grooved pulley, c, and the endless rope C, as shown and described, for the purpose specified.

194,626. STUMP-EXTRACTORS. C. Tener, New Market, Ohio. [Filed July 9, 1877.]



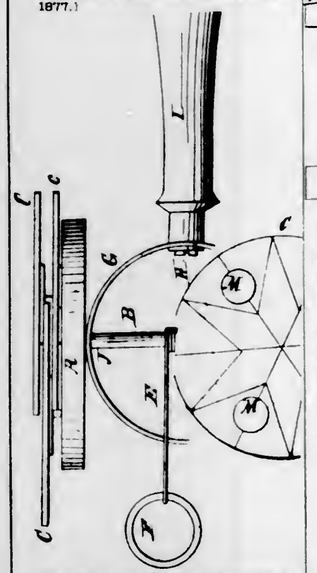
The combination, with frame A B C, of the bars D D, having ratchets on both sides and exactly opposite each other, the cross-lever E, and the link G, all as shown and described.

194,627. CHECK-VALVES FOR OIL-PUMPS. A. M. Terrill, Petrolia, Pa. [Filed July 30, 1877.]



The tapering sleeve A and the valve B, having the tubular stem C, provided with discharge apertures, combined and adapted for use in connection with the working-barrel and piston of an oil-well pump, substantially as shown and described.

194,628. CHROMATROPE TOYS. Henry Van Altena, Milwaukee, Wis. [Filed Apr. 24, 1877.]



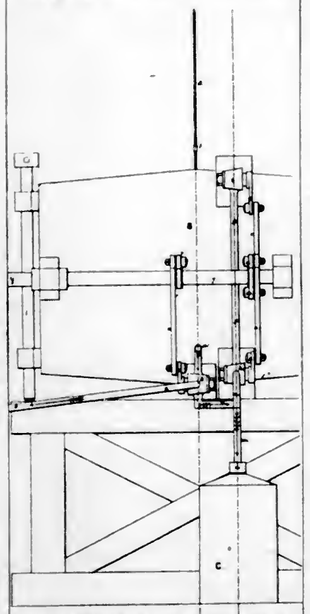
The disk A, axle B, disks C eccentric to the disk A, ring G, cord E, and handle I, constructed and arranged to operate substantially as and for the purpose specified.

194,629. ARTIFICIAL STONE. A. S. Vorse, Des Moines, Iowa. [Filed July 16, 1877.]

Artificial stone or marble composed of either hydraulic cement, sand, gypsum, lime, coal-ashes, or similar solids, and a liquid compound containing protoxide of lead, sulphate of zinc, alum, and silicate of soda, in about the proportions specified, substantially as and for the general purposes set forth.

194,630. MEASURING AND REGISTERING DEVICES FOR ASCERTAINING THE QUANTITY AND QUALITY OF DISTILLED LIQUIDS. C. R. Wedelin, Gotheborg, Sweden. [Filed May 31, 1877.]

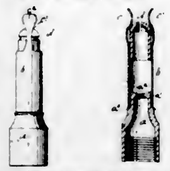
Brief.—A distilling-tank, a measuring-tank, and a testing-reservoir are connected by valves operated by one crank-arm, in such manner that the valves are operated simultaneously in one motion of the crank to fill the measuring-vessel, and in the other to empty the measuring-vessel into a suitable receiver, at the same time conveying a small quantity into the testing-reservoir.



1. In combination with the supply-tank A, the measuring tank B, the pipes *a e c*, the valve *b*, (operated from the shaft *y* by the arms *p r* and link *t*, or their equivalents,) and the index for regulating and registering the filling and emptying of the tank B, substantially as and for the purpose specified.

2. In combination with the measuring tank B, the pipe *g*, provided with the valves *i* and *h*, (both operated from the shaft *y* simultaneously with the valve *b*,) the pipe *m*, and sample-reservoir C, for filling the pipe *g* at the same time with the tank B, and discharging its contents into the tank C while emptying the tank B, substantially as and for the purpose specified.

194,631. GAS-BURNERS. J. D. West, East Orange, N. J., and W. H. Darby, Brooklyn, N. Y. [Filed Nov. 21, 1876.]



The gas burner described, consisting of the base *a*, having a cap, a^1, provided with the oblique openings a^2, the shell *b*, ears *c c'*, and tip *d*, constructed and arranged substantially as shown and set forth.

194,632. MUCILAGE-HOLDERS. George R. Wight, New York, N. Y. [Filed June 30, 1877.]

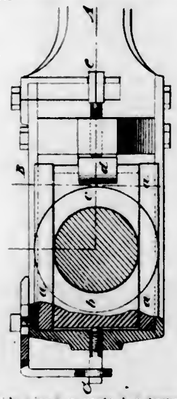
1. The sponge C of a mucilage-bottle, provided with a median cavity, whose bottom aperture registers with the perforation of a cap, B, as and for the purpose specified.

2. The fixed cap B, having central exit-perforation, outer rim, and circumferential binding-flange, in combination with the conical sponge C and the toothed fastening-ring D, substantially as shown and described.

194,633.

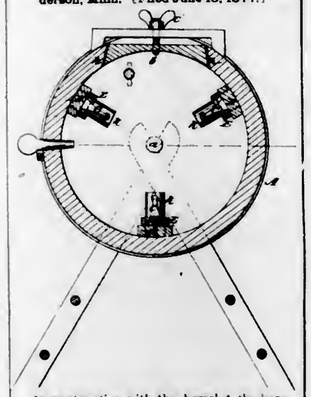


194,633. CONNECTING-RODS. George W. Wilks, Roberson Fork, Tenn. [Filed July 9, 1877.]



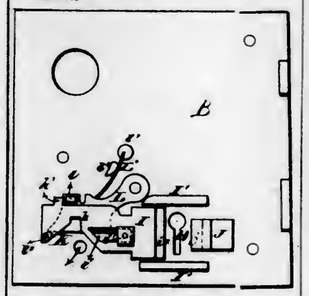
The side pieces *a*, parts *b c*, having their meeting surfaces reduced to a knife-edge, the gib *d*, screws C *e*, connecting rod A, and strap B, in combination substantially as shown and described.

194,634. ROTARY CHURNS. J. Wolf, Henderson, Minn. [Filed June 18, 1877.]



In combination with the barrel A the bars D, provided with dash-blades *c*, and secured in their places by means of cleats *k k* and turn-buttons E, substantially as described.

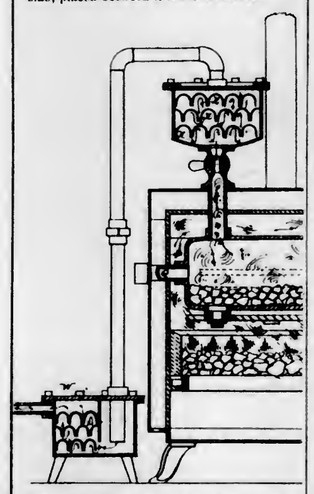
194,635. KEY-HOLE COVERS. G. W. Amborn, Peabody, Kans. [Filed Feb. 17, 1877.]



The slide I, having the slot *i*, triangular recess K, with rectangular extension *k*, block *k'*, and recess *k''*, in combination with the cover B, provided on its under face with the stop-block J, recessed at *j*, guide-blocks *l' l'*, arranged above and below the key-hole studs *p' p p p*, spring *l'*, and the pivoted tumbler L, having lug *l*, said devices being independent of the locking mechanism, and operated by an independent key, substantially as and for the purpose set forth.

194,636. COAL-GAS-PURIFYING APPARATUS. John D. Averell, New York, N. Y. [Filed Jan. 25, 1877.]

Brief.—Gas is generated from coal, and the tar is returned from the condenser to the retort to be redistilled. The bottom of the retort is protected by a removable soap-stone slab, placed between it and the fire-bed.



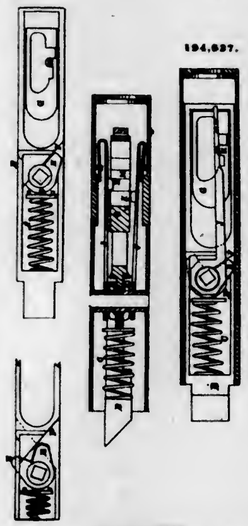
The combination of the inverted troughs *s* in tiers arranged within the condensers S and W, substantially as and for the purpose of purifying gas, as herein set forth.

194,637. LOCKING-LATCHES. P. H. Baker, Virginia City, Nev. [Filed Mar. 15, 1877.]

1. The bolt B, having the two slots for the reception of the spring C and the locking-block G, said bolt being made reversible, and constructed with the oppositely-inclined places F, upon which the cam-arms E act to move the bolt, substantially as herein described.

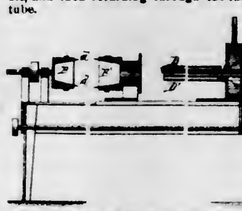
2. The slotted bolt B, movable block G, with its tooth and depressions, spring-arms J, and lugs K, said parts being fitted to be operated by the double-bitted key I, substantially as herein described.

194,637.



194,638. MACHINES FOR BORING PUMP-LOGS. W. C. Barker, Horseheads, N. Y. [Filed Aug. 17, 1877.]

Brief.—Pump-logs of different sizes are securely held in hollow heads, provided with wedge-shaped blocks, while bored by a suitable cutting-bit, rigidly attached to an exterior tube projecting from a steam-box. The chips are carried or forced out by steam passing around an interior tube into the log at the bit, and then returning through the interior tube.



1. The heads B B^1, provided with interior wedge-shaped blocks *d*, for the purposes herein set forth.

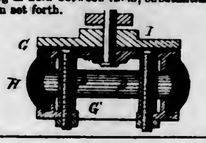
2. The combination of the two rotating heads B B^1, provided with interior wedges *d d*, and a rigidly-attached cutting bit or tool capable of being fed to the log, all substantially as set forth.

3. The combination of the exterior tube D, interior tube D', and steam-chest G, constructed as described, whereby steam is passed around the interior tube to the bit, and returns through said tube, carrying with it chips, &c., as herein set forth.

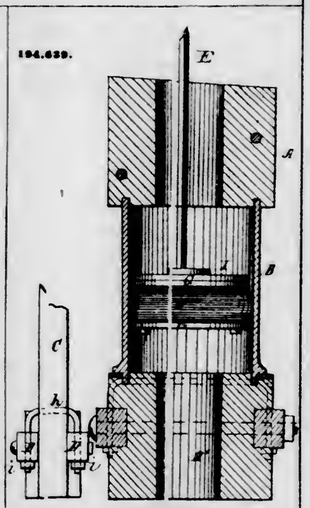
194,639. PUMP STOCKS AND PLUNGERS. W. C. Barker, Horseheads, N. Y. [Filed Aug. 17, 1877.]

1. In combination with the stock-sections A A' and cylinder B, the coupling-boards C C, bars D D, bent rods *h h*, and nuts *i i*, all substantially as and for the purposes herein set forth.

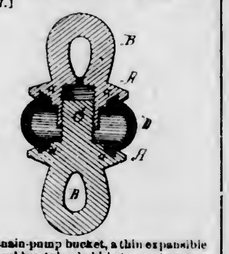
2. A pump-plunger consisting of the rings G G^1, having circular grooves *x x*, the ring G provided with cross-bar G^2, and the cylinder or ring H held between them, substantially as herein set forth.



194,639.



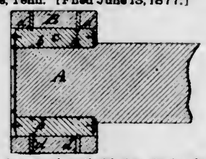
194,640. CHAIN-PUMP BUCKETS. W. C. Barker, Horseheads, N. Y. [Filed Aug. 17, 1877.]



1. In a chain-pump bucket, a thin expansible section of rubber tube, held between two metallic heads, for the purpose set forth.

2. The combination of the body A B C, having concentric grooves *a a* in the inner faces of the parts A A, and the piece of rubber tubing D secured between said parts A A, substantially as and for the purposes herein set forth.

194,641. ANTI-FRICTION JOURNALS. J. H. Bell, Fayetteville, assignor of a part of his right to T. Medearis, same place, J. N. Sullivan, Flat Creek, and D. J. Noblitt, Booneville, Tenn. [Filed June 13, 1877.]



The improved anti-friction device herein described, consisting of the box B, having flanges *d*, rollers *c*, having grooves *b*, and united by plates *a*, so as to form an endless band, C, and shaft A, all combined and operating substantially in the manner and for the purpose herein shown and specified.

194,642. MACHINES FOR WINDING PAPER, &c., INTO ROLLS. S. H. Bingham, Philadelphia, Pa., assignor to the Bullock Printing Press Company, same place. [Filed May 5, 1877.]

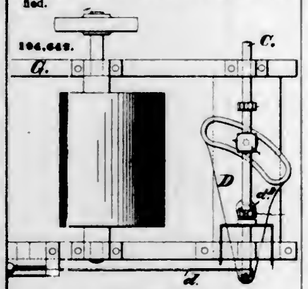
Brief.—The receiving-roll is supported in a laterally-adjustable frame, from which a stud projects into a cam-groove in a horizontally-pivoted lever connected by a rod to a lever at the opposite end of the machine.

1. In a machine for drawing or winding rolls of paper or textile fabrics, the combination with the rolls of said machine of a hand rod or lever placed at or near one roll and connected to another roll by a system of rods and levers, substantially such as described, whereby an operator is enabled at will to rapidly impart end motion to one of said rolls, and thereby maintain correct alignment of the side margin of the rolling or winding material, substantially as specified.

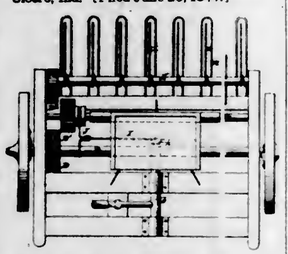
2. In the machine hereinbefore described, in combination with the rolls thereof, the sector D, connecting-rod *d*, and an operative handle or handles therefor, as and for the purpose specified.

3. In the machine hereinbefore described, the combination of the shaft C, sector D, connecting-rod *d*, and an operative handle or handles therefor, as and for the purpose specified.

194,642.



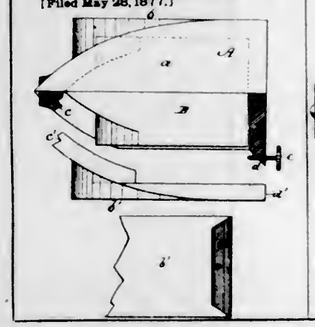
194,643. HORSE HAY-RAKES. J. G. Bishop, Cicero, Ind. [Filed June 26, 1877.]



1. The combination, in a horse hay-rake, of the axle B, the cog-wheel D, the rake-head K, with cogged segment D^2, the laterally-movable cog-wheel D^1, slide J, lever I, shaft *b*, with arm A, and foot-lever H, and the spring *d*, all constructed and arranged to operate substantially as and for the purposes herein set forth.

2. The clearing-rods R R, each made of a single piece of wire bent double, the ends being fastened to the frame, and the rake-teeth passing through them, as set forth.

194,644. SAD-IRON AND FLUTING-IRON COMBINED. C. C. Burke, Cuthbert, Ga. [Filed May 28, 1877.]

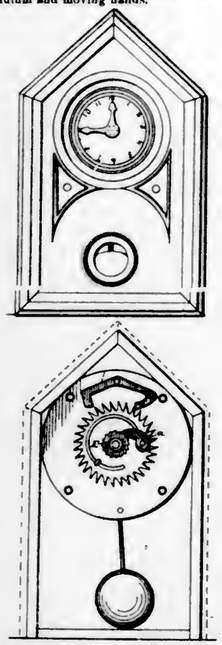


1. The hollow smoothing-iron A, having two larger faces, *a a*, and the two smaller faces *b b'*, one of which is formed upon a detachable plate, in combination with an adjustable handle, and the block B, having four faces with pointed ends adapted to correspond and fit close to the four faces of the smoothing-iron, substantially as described, and for the purpose set forth.

2. The combination, with the hollow smoothing-iron having the angular edge *c* and the dovetail projecting chamfer *d*, with set-screw *s*, of the detachable plate having groove *c'* and a dovetail chamfer *d'*, substantially as and for the purpose described.

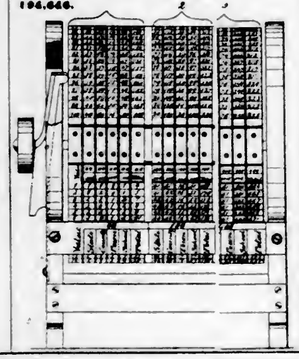
194,645. TOY CLOCKS. E. W. Bridge, Philadelphia, Pa., assignor to F. G. Pincus, same place. [Filed Jan. 30, 1877.]

Brief.—The clock ticks; shows a moving pendulum and moving hands.



A toy clock in which the power of a spring is communicated from the center-post to the escapement and restrained by a pendulum, which is connected to a pallet-lever suspended from the axis of the pallet-arm, substantially as stated.

194,646.



194,646. TAX-RECKONERS. G. B. Burnett, Harrisburg, Ill. [Filed May 24, 1876.]

1. In combination with the series of independent detachable strips bearing numbers representing values, the independent detachable screw-clamps, one for each strip, and the cylinder provided with a groove, all as shown and described.

2. The combination, with the rotating cylinder, of the circular finger-piece attached to its journal, and the spring-brake lever pivoted alongside the finger-piece, as shown and described, for the purpose specified.

194,647. BARBS FOR FENCE-WIRES. W. T. Burrows, Nashua, Iowa, assignor to Hopkins & Burrows. [Filed July 28, 1877.]



1. A solid-metal barb having four points, and cut from a metal bar rolled in star form, substantially as herein set forth.

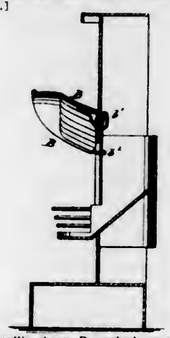
2. A four-pointed metal barb cut in a single piece from a rolled-metal bar, substantially as herein set forth.

194,648. TEMPORARY BINDERS. E. Casper, London, England, assignor to F. C. De Lousada, same place, and W. D. S. Moncrieff, Glasgow, Scotland. [Filed Aug. 1, 1877; patented in England, Dec. 12, 1876, for fourteen years.]



The combination of the right-angled parts 5 6 with the adjustable clip, having right-angled, or nearly right-angled, parts 8 9, and with boards or flaps 4 7, the clip being fixed by the clamping-screw 12, and the whole forming a holder for papers and documents, substantially as set forth.

194,649. HOODS FOR FIRE-PLACES. H. Clayton, Lexington, Ky. [Filed Feb. 17, 1877.]



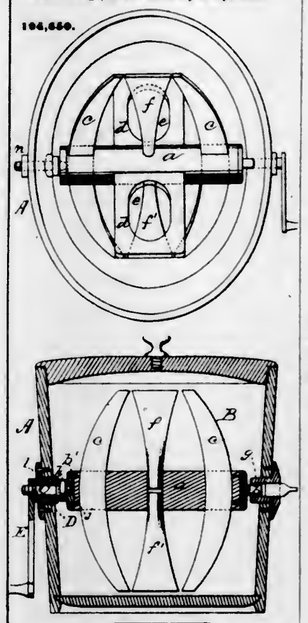
A metallic sheet, B, arched, concaved on rear edge, having spring-clamp b^1, and provided with hooks b^2, as shown and described, to form a hood for fire-places.

194,650. CHURNS. G. J. Cline and J. Gallagher, Goshen, Ind. [Filed July 21, 1877.]

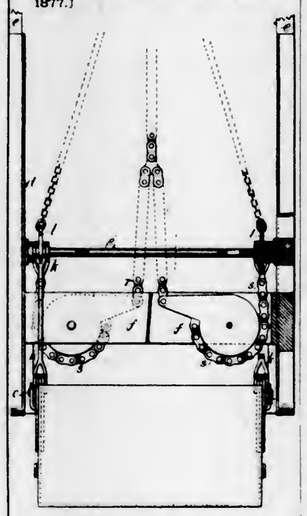
1. The churn-dash consisting of the cylindrical hub *a*, the crescent-shaped blades *c c*, the angular blades *f f'*, intermediate to and in the same plane with said blades, and the blade *d*, having orifices *e*, and extending through the hub *a* at right angles to the blades *c f f'*, substantially as specified.

2. The combination of the hub *a*, having plate *b'*, with a central polygonal opening, and the spindle C, having the polygonal head *j*, adapted to be received in said opening, and collar *k*, having a conical face, with the bearing D, having a countersunk head and an outside flange, *l*, substantially as specified.

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194,651. DREDGING-BUCKETS. William A. Collins, Bloomfield, N. J. [Filed May 23, 1877.]

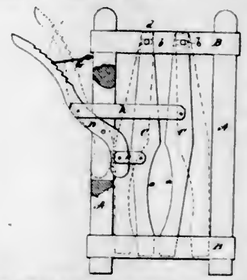


1. The lever-segments *a* and chains *c s*, in combination with the cross-frame *f*, toggle-bars *k*, and dredging-bucket, substantially as set forth.

2. The links *l* between the double joints of the toggle-bars *k*, in combination with the lever-segments *a* and chains *s*, for closing the bucket, substantially as set forth.

3. The plates *u* at the the edges of the bucket ends, forming guides for the halves of the buckets and claws for grasping, substantially as set forth.

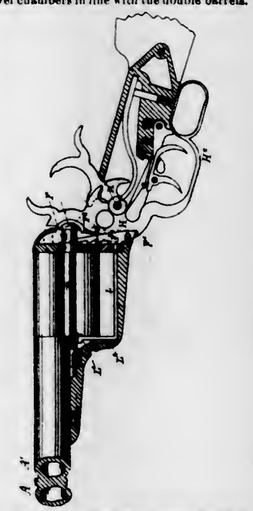
194,652. HOG-TRAPS. R. B. Corbin, Yates City, Ill. [Filed July 10, 1877.]



The combination of the frame A B, jaws C C, provided with the curves *a a*, and slots *b b*, and pivoted at *d d*, the curved lever D, with ratchet-teeth *i*, the connecting-straps *h h*, and pawl or catch G, substantially as and for the purposes herein set forth.

194,653. REVOLVING FIRE-ARMS. Jas. A. Crocker, Providence, R. I. [Filed May 20, 1877.]

Brief.—The operating-pawl is pivoted to the guard-lever, and by operating said lever the hammer is cocked, and the cylinder rotated through a half-revolution, to bring the two lower chambers in line with the double barrels.



1. The combination of the double barrel A A', and the charge-chamber B, with the crown-ratchet F, the pawl F^1, and the guard B B^2, all operating together, substantially as described, and for the purpose set forth.

2. The combination of the charge-chamber B, the bent rod L L^1, and the guard H H^2, provided with the cam H^1, substantially as described, and for the purpose set forth.

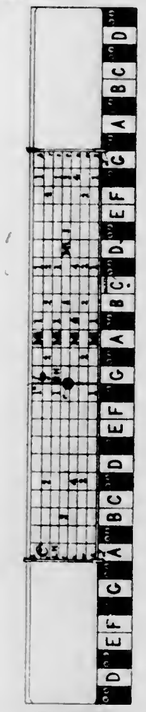
3. The combination of the charge-chamber B and the friction-block M with the point H^4 on guard H H^3 all operating together, substantially as described, and for the purpose set forth.

194,654. INDICATORS FOR PIANOS OR ORGANS. N. P. B. Curtiss, Boston, Mass. [Filed June 19, 1877.]

1. The imitation key-board, in combination with the connected guided slide provided with a series of horizontal spaces, marked to denote the keys to be touched to play the several chords designated on and by such slide, substantially as described.

2. A slide for a piano or organ indicator, provided with seven lines to indicate the chords described, and marked to designate the keys to be touched to play such chords, substantially as described.

194,654.



194,655. TOBACCO-BAGS. W. J. Cussen, Richmond, Va., assignor of one-half his right to M. Millhiser & Co., same place. [Filed June 26, 1877.]

Brief.—The gathering-strings are far enough below the top of the bag to allow the mouth to be laid out flat and be covered by the outer binding-strip.



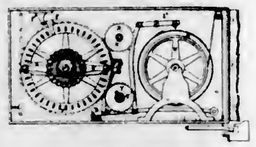
1. A tobacco-bag, A, having its mouth doubled, forming a projecting part, B, and provided with drawing-strings, inclosed in a channel formed by the stitching *b b*, substantially as and for the purposes herein set forth.

2. The combination of a tobacco-bag, A, having drawing-strings *a a* and projecting part

B, and the fastening-strip C, substantially as herein set forth.

3. The combination of a tobacco-bag, A, having drawing-strings *a a* and projecting part B, the strip C, and band D, substantially as set forth.

194,656. TIME-LOCKS. Milton A. Dalton, Cincinnati, Ohio. [Filed June 13, 1877.]



1. In a time-lock consisting of a unitary train of mechanism, the combination, substantially as specified, of the time-movement, the dogging device for securing the non time-lock or bolt-work of the safe, and an intermediate regulator, which controls said dogging device and automatically provides for the immediate unlocking thereof when the time-movement is stopped by accident before the appointed hour, in the same manner and by the same means as when it is stopped at the appointed hour, the three elements named being connected together by any well-known means for transmitting motion—such as shown, for instance.

2. The combination, substantially as described, of an automatic regulator or controller with a time mechanism; the regulator when in motion automatically interposes and retains in position an obstruction to opening a lock or door, and on ceasing motion automatically removes such obstruction, and the time mechanism automatically starts and interrupts the regulator.

3. The combination, substantially as shown, of an automatic regulator or controller, a time mechanism and intermediate devices for governing the time between the starting of the time mechanism and the regulator; the regulator when in motion automatically interposes and retains in position an obstruction to opening a lock or door, and on ceasing motion automatically removes such obstruction, and the time mechanism automatically either releases or interrupts the regulator as and when desired.

4. In combination, the lever *b*, arm *b*³, dial E, hub *e*⁺, and cross-head G for interrupting the regulator, as and for the purpose specified.

5. In combination with the mechanism of two going wheels, each geared with a pinion, the clutch for connecting and disconnecting the said pinion, the said clutch being connected with and operated by the dial mechanism, substantially as shown and described.

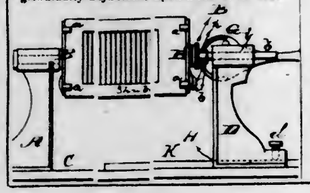
6. In a time-lock for safes, the combination of two springs for driving the going barrel of the time-piece, the spring being wound together and attached to the shell and its shaft, as shown.

7. The combination of the dials E and F and cross-head G, the dial E having a notched rim and hub, the dial F perforated to receive the pins of the cross-head, and the cross-head having the pins J J and tongue *e*³, the parts being fitted in the manner shown, and for the purpose described.

8. The elevator composed of a cylindrical shell with buckets upon its inner circle, and the holder journaled eccentrically upon its shaft within the shell, the whole constructed to operate as described, and for the purpose specified.

194,657. CLAMPS FOR USE IN PAINTING SHUTTER-BLINDS. S. H. Date, Rochester, Minn. [Filed May 12, 1877.]

Brief.—The blind while being painted is held, by a cam-lever between two standards having pivoted jaws. One of the standards longitudinally adjustable upon a rod at its base.

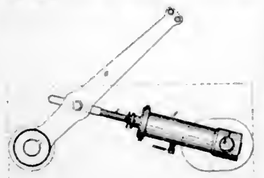


1. The combination of a stationary standard carrying a revolving bracket, and an adjustable standard carrying a movable head provided with a revolving bracket, substantially as and for the purpose described.

2. The combination of the head E, having slot or groove *i* and rods *b b*, the bracket B' pivoted in said head, and the cam-lever G, having flanges *k k*, substantially as and for the purpose described.

3. The combination of the rod or bar K, attached to the bed C, standard D, having m v able head E and groove H, and the set-screw *d*, substantially as and for the purpose described.

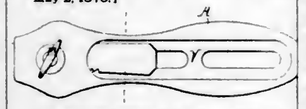
194,658. AUXILIARY STEERING-GEAR. Jas. Davies, Liverpool, England. [Filed June 15, 1877.]



1. The combination of the tiller G, pivoted cylinder A, spring H, piston C, and rod D, substantially as shown.

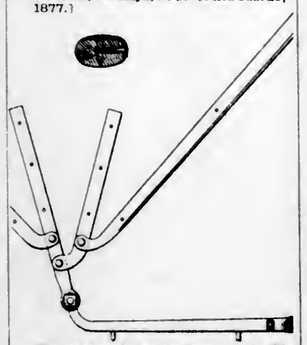
2. The combination, substantially as shown and described, of a tiller, a cylinder pivoted in line therewith, a piston mounted in the cylinder and connected directly to the tiller, and a spring mounted in the cylinder and acting against the piston, substantially as shown.

194,659. SAW-HANDLES. H. Disston and J. H. Vandegrift, Philadelphia, Pa., assignors to Henry Disston, Hamilton Disston, and Albert H. Disston, same place. [Filed May 2, 1876.]



The cast-iron handle A, the recess V on one side of the said handle, the slot *b* communicating with the said recess, and the set-screw *m*, all constructed as set forth.

194,660. CARRIAGE-SLAT IRONS. Wm. B. Doolittle, Brooklyn, N. Y. [Filed Jan. 29, 1877.]

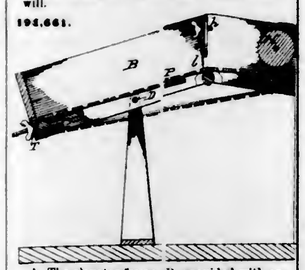


The slat-iron for carriage-bows, made with a flange at one edge, that tapers at the end nearest the joint, and is provided with holes for the attaching screws or rivets, substantially as set forth.

194,661. COTTON-GIN FEEDERS. Jas. W. Elliott, Prattville, Ala., assignor of one-half his right to W. L. Ellis, same place. [Filed July 6, 1877.]

Brief.—The elevator is pivotally mounted on the axle, by which means it can be inclined on any desired angle, and thus permit the operator to clean and adjust the mechanism at will.

194,661.



1. The elevator-frame B, provided with an endless apron having a double incline, and pivotally mounted upon the axle D, substantially as set forth.

2. The drum N, provided with the crank W, operating in the slotted bar X, having the pawl *a*, which engages the ratchet *b*, in combination with the draw-rod *f*, crank *d*, and rake *l*, substantially as shown and described.

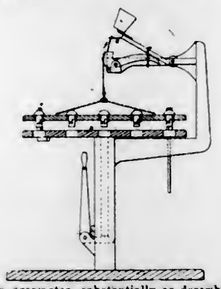
3. A cotton-gin feeder mounted on trunnions placed at or about its center of gravity, substantially as set forth.

4. The combination of the bar *s*, board *i*, bolts A, set-screws *k*, and rake *l*, substantially as specified.

5. The apron P, having a double incline in combination with the drum N and rake *l*, substantially as expressed.

194,662. DEVICES FOR AUTOMATICALLY MEASURING THE AREA OF SIDES OF LEATHER. M. V. B. Ethridge, Lynn, assignor to J. H. Williams, Newton, and C. W. Holden, Boston, Mass. [Filed July 24, 1877.]

Brief.—A platen suspended from the arm of a balance is provided with a large number of headed metallic pins passing through holes in the platen, and free to move vertically. The hide whose area is to be measured is pressed up against the platen, and the platen is relieved of the weight of the pins resting upon the hide, the number being proportional to the area of the hide. The pins not supported by the hide exert their weight upon the balance, and a suitably-graduated scale and index show the area of the hide.



An areameter, substantially as described, consisting of the movable perforated bed and platen, their series of pins, and the supporting-lever, index-arm, platen-counterbalance, and the pointer and scale, all applied, arranged, and supported essentially in the manner as set forth, the bed being provided with a lever or means of forcing it upward, as explained.

194,663. SECTIONAL FOLDING FLOWER-STANDS. Louis Falk, Morrisania, N. Y. [Filed Feb. 3, 1877.]

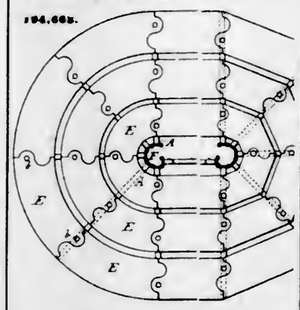
Brief.—A flower-stand composed of radially-folding supports and detachable sectional shelves. A square support is provided, which may be combined with the folding supports in different ways, and thus a variety of forms of stands may be made.

1. The flower-stand, consisting of the radially-folding supports A, hinged side by side, and provided with stops or projections *b*, and the detachable sectional shelves E, provided

with recesses for engaging said projections, substantially as specified.

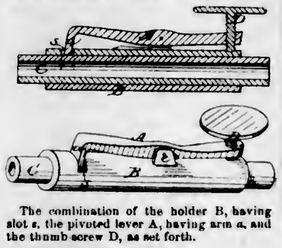
2. The combination, with the radially-folding supports A and the square support G, all provided with hinge-links *c*, of the shelves E, substantially as specified.

194,663.



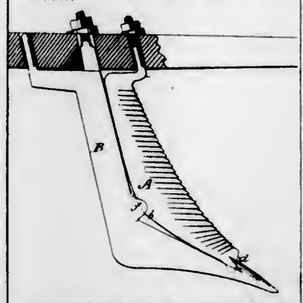
194,664. VALVES OR REGULATORS FOR FLEXIBLE TUBES. C. H. Farley, Portland, Me. [Filed June 12, 1877.]

Brief.—The flexible tube is held in the cylindrical case, and compressed by the bent end of the lever working through a slot. The lever is regulated by a screw.



The combination of the holder B, having slot *s*, the pivoted lever A, having arm *a*, and the thumb-screw D, as set forth.

194,665. COLTER AND PLOW-STOCK. A. H. Farmer, Oak Level, Va. [Filed May 14, 1877.]



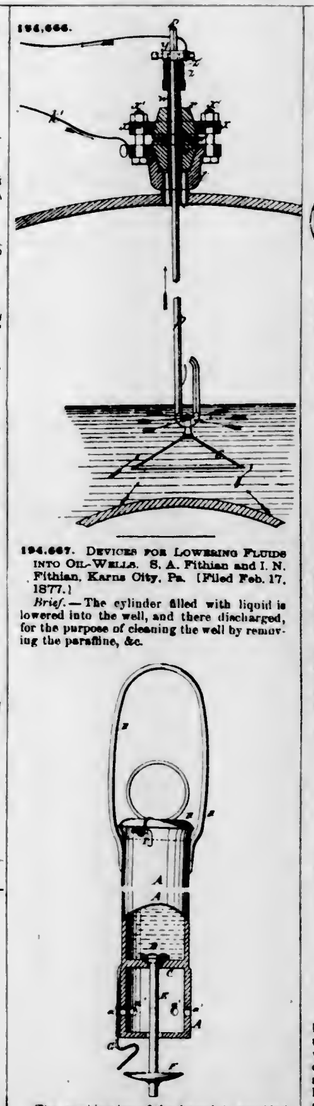
In combination with the stock B having the ears *f* at the angle thereof, the colter A having a convex back, and the right-angular arm projecting forward of the cutting-edge, as shown and described, for the purpose specified.

194,666. ELECTRICAL ANTI-INCRUSTATORS FOR STEAM-GENERATORS. E. Field, Westminster, Great Britain. [Filed May 14, 1877; patented in England, June 28, 1873, for fourteen years.]

1. The combination, in a steam-boiler, of the submerged electrode of a battery with the cleaning device S, loosely connected to the said electrode, substantially as described.

2. The combination, with the rod *p*, of the flanged holding-tube *w*, insulators *v v'*, socket *t*, and caps or cover *x*, substantially as described.

194,666.

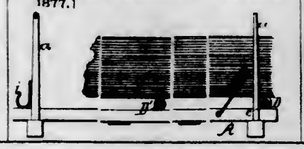


194,667. DEVICES FOR LOWERING FLUIDS INTO OIL-WELLS. S. A. Fithian and I. N. Fithian, Karns City, Pa. [Filed Feb. 17, 1877.]

Brief.—The cylinder filled with liquid is lowered into the well, and there discharged, for the purpose of cleaning the well by removing the paraffine, &c.

The combination of the barrel A, provided with the bail B, the bottom C, at a little distance above its lower end, and the perforations *a'* in its sides, below said bottom, the single or double valve D E F, the spring-catch G, and the closely-fitting cover H, substantially as herein shown and described.

194,668. LUMBER-WAGONS. W. W. Gawthrop, Kennett Square, Pa. [Filed July 21, 1877.]



1. The combination of the platform A, the fixed roller D at the rear end of the same, and the traversing roller D' at the front, as set forth.

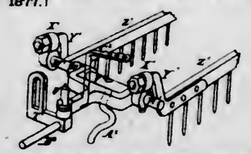
2. The combination of the angular projection *c* on the journal of the roller D with the hooked rod *d*, as specified.

194,669. ECCENTRIC POWERS. R. Gidley, Poughkeepsie, N. Y. [Filed Sept. 9, 1876.]



The spring-stops F F G G, pivoted to the bar B', within which bears the shaft, having the crank A, to prevent the reverse movement of the crank, substantially as and for the purpose set forth.

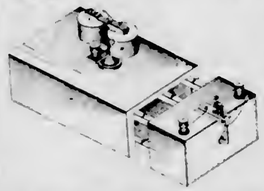
194,670. HARVESTER-RAKES. George H. Goetze, Lake Creek, Mo. [Filed Jan. 29, 1877.]



1. The combination of the parallel rakes Z', having bent pivot-arms Y', the shaft W', having collars X', and the horizontally-swinging bracket or bearing V', with the reel-post, grain-platform, and suitable mechanism for moving the rakes over the platform, as and for the purpose set forth.

2. The combination of the adjustable bearing-blocks X', the adjustable shaft W', the bearing V', and the bracket and pin T' U', with the reel-post O', and the crank-shanks Y' of the rakes Z', substantially as herein shown and described.

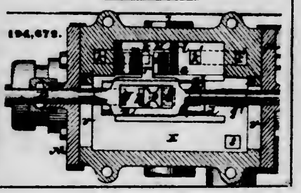
194,671. LOCAL-CIRCUIT BREAKERS FOR ELECTRO-HARMONIC TELEGRAPHS. Elisha Gray, Chicago, Ill., assignor, by mesne assignments, to the Harmonic Telegraph Company, New York city. [Filed Feb. 15, 1876.]



1. The combination, substantially as hereinbefore set forth, of a sounding-box, the column of air contained in which is thrown into vibration by tones transmitted through an electric circuit, an adjustable box or chamber, across which a diaphragm is stretched, and a local-circuit-breaking mechanism mounted on said adjustable section.

2. The combination, substantially as hereinbefore set forth, of a sounding-box, a diaphragm, a local circuit, and a circuit-breaking lever vibrating more slowly than the diaphragm, by which said local circuit is controlled.

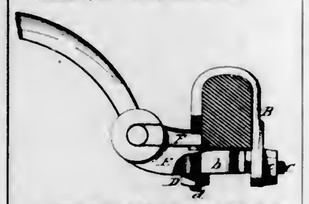
194,672.



194,673. STEAM-PUMPS. W. H. Guild, Jr., Brooklyn, N. Y. [Filed May 8, 1877.]

The valve-chest E, provided with transversely-arranged slots e v in its ends, in combination with the valve-rod D, constructed with a yoke, n, and arm r for operation of the main and auxiliary valves, substantially as specified.

194,675. THILL-COUPLINGS. H. D. Haisten, Cuthbert, Ga. [Filed Mar. 12, 1877.]



1. The improved thill-coupling herein described, consisting of the body E, having slot b and screw-threaded end C, clip B, having screw-threaded end d, bearing-plate F, and nuts c D, all combined and operating substantially in the manner and for the purpose herein shown and specified.

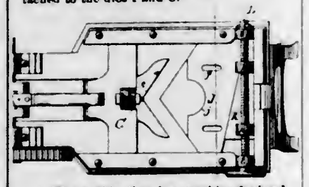
2. In a thill-coupling constructed substantially as herein described, the slotted body-plate E, substantially as and for the purpose set forth.

194,674. METHODS OF INTRODUCING PURIFYING AGENTS INTO IRON. Chas. W. Hall, New York, N. Y. [Filed July 21, 1877.]

In the purification of iron, the method of introducing the purifying agents into or upon the metals under treatment, which consists in placing the purifying and converting materials in the flame of the fire-box of furnaces when the iron is hot and near the point of melting, whereby the draft acts as a conveyer, substantially as described.

194,676. MACHINES FOR BENDING METAL BARS. Robert Hale, Minneapolis, Minn. [Filed July 19, 1877.]

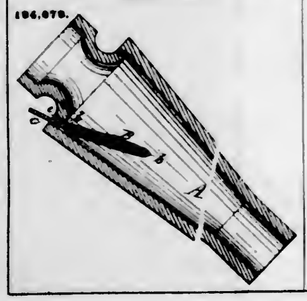
Brief.—Differently-shaped faces can be attached to the dies I and C.



1. The combination, in a machine for bending metal bars, of the movable die-plate J, transverse wedge K, provided with the bearings *k k*, and the screw L, all relatively arranged substantially as and for the purpose specified.

2. The combination, in a machine for bending metal bars, of the recessed cross-head C, removable former, die-block, and die-plate, and transversely-removable wedge K, substantially as and for the purpose specified.

194,678.



194,676. SEWER-TRAPS. S. C. H. Hansen, Washington, D. C. [Filed Aug. 11, 1877.]

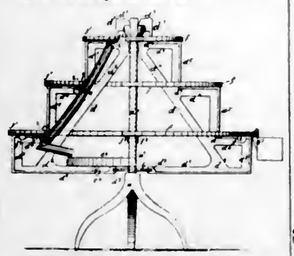
1. A sewer trap or pipe having a slot or perforation, *e*, for the insertion of a hinge-strap, substantially as and for the purpose hereinbefore set forth.

2. A valve, B, having secured to its periphery a flexible shank or strap with an enlarged head, substantially as and for the purpose hereinbefore set forth.

3. The combination of the valve B, having flexible shank or strap *c*, with the sewer trap or pipe A, having slot or perforation *e*, substantially as and for the purpose hereinbefore set forth.

194,677. FLOWER-STANDS. John Harper, Stamford, Conn. [Filed Oct. 7, 1876.]

Brief.—The troughs or shelves are placed upon a series of frames or racks, supported and revolving upon a vertical shaft, and said troughs are provided with spouts, which enter openings in a discharge-pipe attached to one of the frames to receive and carry off surplus or waste water from the troughs. A propagating-box is suspended on the outer side of one of the troughs or shelves.



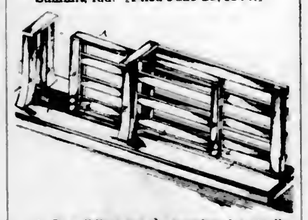
1. The propagating-box *k*, provided with the hooks k^1 and projections k^2, adapted to be suspended to and retained in position on the side f^1 of the trough f, as set forth.

2. In a flower-pot stand, the combination, with a series of removable troughs or shelves, *f*, having vertical sides f^1 f^2, openings *i*, and spouts i^1, and carried by a series of frames or racks, *d*, supported by a capital or head-piece, *c*, and plate *b*, supported and revolving on a stand, *a a'*, as described, of a discharge-pipe, *e*, having openings e^1 capable of receiving the ends of the spouts i^1, the whole being arranged and operating substantially as shown and described.

3. In a revolving flower-stand, a frame, *d*, constructed with horizontal arm d^3 and inclined arm d^2, and provided with a hooked upper end, d^1, and a slotted inner or lower end, d^2, and stand *a a'*, a capital or head *c*, constructed with the recess c^1 and radial grooves c^2, and disk *b*, having the notches b^2 or projections b^1, substantially as set forth.

4. The combination, with a series of removable frames, *d*, constructed with the rectangular supports d^1 d^2, supported by and revolving on a stand *a a'*, of a trough, f_1 constructed with the vertical sides f^1 f^2, substantially as and for the purpose set forth.

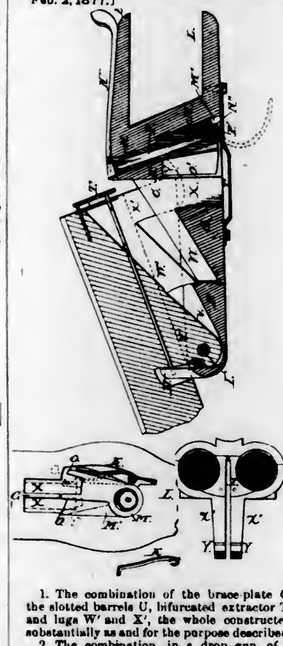
194,679. GATES. Charles T. Harris, Mount Summit, Ind. [Filed June 29, 1877.]



1. In a sliding gate the travelers *d*, centrally secured in the lower ends of the bars D, the periphery of the rear traveler being slightly above, and that of the forward traveler below, the lower ends of said bars, in combination with the track *f*, substantially as shown, and for the purpose set forth.

2. The double gate-posts E, in combination with the gate A, provided with travelers *d* and inclined track *f*, all being arranged and constructed substantially as and for the purposes set forth.

194,679. BREECH-LOADING FIRE-ARMS. I. W. Heysinger, Philadelphia, Pa. [Filed Feb. 2, 1877.]



1. The combination of the brace-plate C, the slotted barrels U, bifurcated extractor T, and lugs W' and X', the whole constructed substantially as and for the purpose described.

2. The combination, in a drop-gun, of a horizontal breech-piece, with the upper surface substantially flat, the vertical brace-plate C, and the barrel portion U cut away to receive the same, the whole constructed to operate substantially as described.

3. The combination of the serrated lugs W' and X', the abutting shoulders F and G, and the recesses W and X, together with the stop motion or its equivalent Y, so arranged as to prevent the entire escape of said lugs from said recesses, substantially as described.

4. In a drop-gun, the lug X' depending from the rear of the barrels, its rear face flush with the rear face of said barrels, formed solid, without undercutting or weakening in any part thereof, the stud Y projecting backward from its lower portion, above which engages the locking-arm when the barrels are closed, and which said stud Y, moving in a vertical recess in the breech-block, by impinging against the shoulder B', forms a stop-motion for the barrels when being opened for loading, substantially as set forth.

5. The cylinder of two diameters, bearing the arm O, in combination with the stud Y, spring K, lever-shaft P, and locking-lever N''', substantially as and for the purpose described.

6. In a breech-loading fire-arm, the cylinder N M, inclined obliquely downward and backward through the fixed breech-block, the whole constructed substantially as and for the purpose described.

194,680. LOCKS FOR FIRE-ARMS. I. W. Heysinger, Philadelphia, Pa. [Filed Feb. 2, 1877.]

1. A firing-pin for fire-arms capable of being swung out of reach of the hammer, and adjustable in relation thereto, constructed to operate substantially as and for the purpose described.

2. A firing-pin, I, provided with an impact shoulder, K, arranged to escape from under the face of the hammer B into a recess provided therefor, and to be retracted therein, substantially as described.

3. The firing-pin I, provided with a double-acting side and retractor-spring, *l*, and a swinging shoulder, K, in combination with the crank-arm *i*, the stirrup *h*, and a lever arranged to operate the same, the whole substantially as and for the purpose described.

4. A firing-pin for fire-arms arranged to be struck by the hammer in front of the retractor, substantially as described.

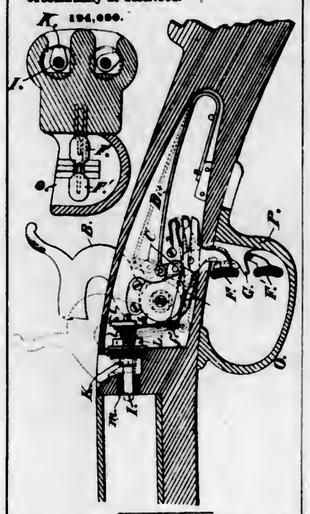
5. The combination of the firing-pin I, provided with the impact shoulder K, the retractor-spring *l*, and the adjustable screw-pin L, for regulating the tension of the same, the whole constructed to operate substantially as and for the purpose set forth.

6. The trigger F, in combination with a firing-pin arranged to be swung out of reach of the hammer B, the whole constructed to operate substantially as and for the purpose described.

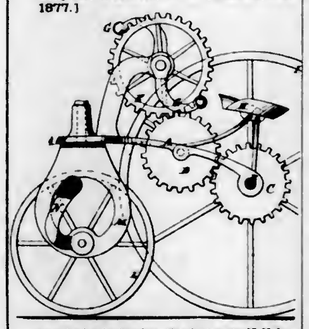
7. The arrangement, in a double-barrel gun, of the finger-pieces of the triggers F F', one above the other, substantially as and for the purpose described.

8. In a fire-arm, the trigger-guard O, permanently closed upon one side, the other being left open for the reception of the finger, substantially as described.

194,680.



194,681. VELOCIPEDES. J. Higgins and P. Traynor, Westfield, N. J. [Filed Apr. 9, 1877.]

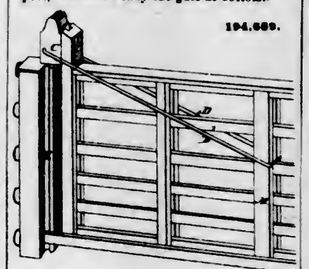


A velocipede having the foot-rests N N for operating the guide-wheel, the hand-gear C D E, and the seat H, arranged in connection with frame A, as shown and described, so that the rider can sit in his seat while he rotates a wheel that actuates the drive mechanism, and guides the vehicle with his feet.

194,682. GATES. R. H. Hudgin, Whitby, Ontario, Canada. [Filed Apr. 16, 1876.]

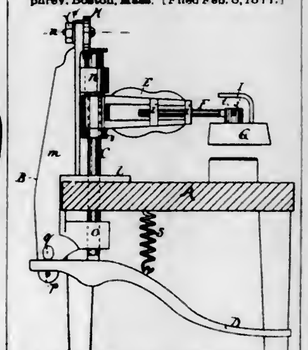
Brief.—Two diagonal rods suspend the gate from a block having a socket in its lower surface, that rests on the top of a supplementary post spiked to the face of the main post, or on an iron spindle or hook projecting from the main post. The ends of the two bottom bars of the gate interlock with the supplementary post, and thus steady the gate at bottom.

194,682.



The head block C, or its equivalent, pivoted upon the pintle I, and provided with suspension-rods D D, as described, in combination with the stud M of a gate having lower rails, with projecting ends to fit upon the said pintle I, substantially as and for the purpose specified.

194,683. IRONING APPARATUS. E. Humphrey, Boston, Mass. [Filed Feb. 5, 1877.]



1. In a tailor's pressing-machine the hanger B, constructed with its sole-plate *l*, vertical body *m*, shaft bearings *n o*, and fulcrum terminal for the treadle D, substantially as described and shown.

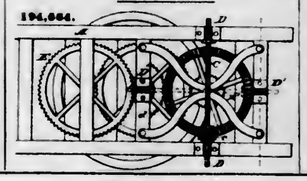
2. In a tailor's pressing-machine the combination of the reciprocating shaft C, swinging arm E, combined and arranged to move vertically with the shaft, and the sliding bar F, all substantially as and for the purposes specified.

3. In a tailor's pressing-machine the hanger B, formed substantially as described, shaft C, treadle D, and a goose-supporting arm, combined and arranged to operate substantially as and for the purpose specified.

4. In a tailor's pressing-machine the combination of the treadle D, vertical shaft C, arm E, and sliding bar F, constructed and arranged to operate substantially as specified.

5. In a tailor's pressing machine the combination of the automatically-raised vertical shaft C and adjustable cam H, to check the ascent of the shaft, but admitting a free descent thereof, all substantially as described and shown.

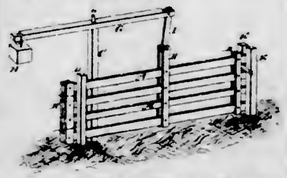
194,684.



194,684. HORSE-POWERS. E. S. Hushy, Montevideo, Minn. [Filed May 21, 1877.]

In combination with the horse power frame A, having gearing E E', boxes D, and auxiliary boxes D', the adjustable shaft or axle C, having pinion *c*, substantially as and for the purpose herein shown and specified.

194,685. GATES. T. J. Ingels, Atchison, Kans., assignor of two-thirds his right to J. Appleton and M. F. Ingels, same place. [Filed June 2, 1877.]



The combination of the gate A B, having its inner end hung between the posts C D diagonally opposite each other, and connected together by the supporting-stripa *a a*, and its outer end sliding between the posts E E, in combination with the tilting lever G, pivoted at its middle, weight H, and link I, pivoted at its lower end to the central vertical stripa B, and at its upper end to the inner end of said lever, substantially as described, and for the purpose set forth.

194,686. HINGES. David H. Jaccard, San Francisco, Cal. [Filed May 7, 1877.]

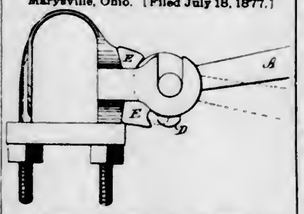
Brief.—The plates or leaves of a hinge are provided with lugs or projections, between the spaces of which is placed a flat link, pivoted to the lugs, which link moves automatically when the hinge is operated, the sides of one set of the lugs being concaved or recessed, to work on the ends of the other lugs, which are correspondingly rounded, the construction being specially adapted for hinging jewel-boxes and the like, to conceal the hinge entirely from view.



1. In combination with the plates or leaves *a b* of a hinge, provided with lugs or projections *c d*, the link E, constructed and operating substantially in the manner as herein set forth and specified.

2. The lugs *c c*, provided with recesses, in combination with the lugs *d d*, provided with rounded ends, which fit and operate in the recesses, substantially in the manner as set forth and described.

194,687. THILL-COUPLINGS. F. E. Justice, Marysville, Ohio. [Filed July 18, 1877.]



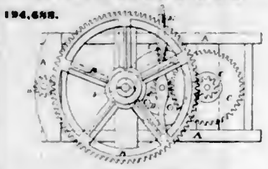
In combination with the clip having open sockets, and the thill-iron A, the buffing block E placed between the arms of the clip, and the cross-bar D attached to the under side of the eye of the thill-iron, all as shown and described, whereby the said cross-bar comes in contact with the block when the thills are lowered, as and for the purpose specified.

194,688. HORSE-POWERS. P. Keeley, St. Mary, Minn. [Filed May 7, 1877.]

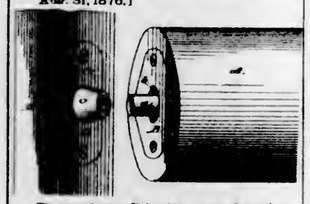
The horse-power herein described, consisting of the wheels B and C, pinion *c*, wheel D,

concave on its under side, pinion *d*, and tumbling bar or rod E, with its pinion *e*, the whole properly mounted and journaled in frame A, and constructed and combined substantially as and for the purposes set forth.

194,688.

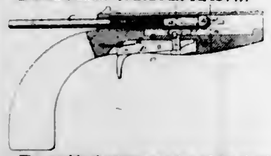


194,689. PREVENTING ROLLERS FROM CLOGGING. P. Keeley, Wasseca, Minn. [Filed Aug. 31, 1876.]



The metal plate B, having a central opening, *b*, and secured flush upon the end of shaft or reel A, and over its spindle *a*, in combination with the metal plate C, having the hollow boss or socket *c*, adapted to fit into the opening *b* and around the spindle *a*, and secured in standard D, as described, the several parts constructed and adapted to operate substantially as and for the purposes set forth.

194,690. TOY PISTOLS. B. Kirkbride, Morganville, Ohio. [Filed July 14, 1877.]

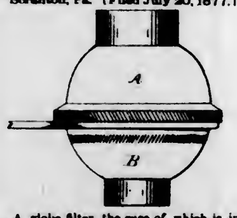


The marble-shooter consisting of the pistol-shaped body, having below its barrel a groove, *a*, divided from the trigger-recess *d* by a partition, Z, plunger C, having a serrated plate, *b*, playing in said groove, springs S and *s'*, and trigger D seated in said recess *d*, and having its tooth *s* arranged for direct engagement with said serrated plate, substantially as specified.

194,691. METHODS OF PREPARING HAY FOR ANIMAL-FOOD. John B. Lafitte, New Orleans, La. [Filed July 6, 1877.]

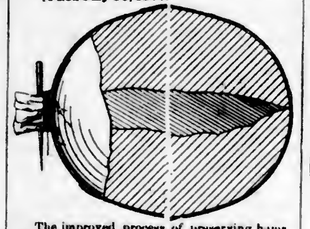
Hay which, by compression, has been reduced to solid food by the destruction of its air-cells and its tubular structure, substantially as and for the purpose described.

194,692. WATER-FILTERS. J. J. Lawler, Scranton, Pa. [Filed July 20, 1877.]



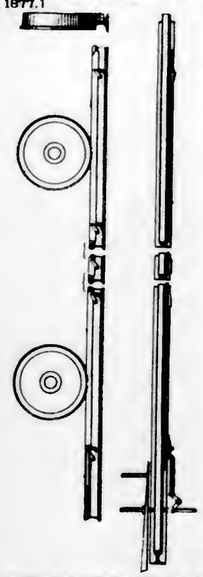
A globe filter, the case of which is in two equal separable sections, A B, adapted to contain a single mass of filtering material resting upon a concave base consisting of a perforated plate and wire-gauze, D E, said segmental base being of larger diameter than the case, substantially as shown and described.

194,693. PROCESSES FOR PRESERVING MEATS. David C. Link, New York, N. Y. [Filed July 30, 1877.]



The improved process of preserving hams and preparing them for immediate use, substantially as hereinbefore described, the same consisting in first removing the bone from the previously-pickled ham, then placing it in a bladder and smoking and boiling it while so inclosed, and subsequently coating the bladder with sirup, as set forth.

194,694. APPARATUS FOR LOCKING RAILWAY-SWITCHES. Jas. Livesey, Westminster, John Edwards, Cassland Crescent, South Hackney, and Wm. Jeffreys, 56 Mawbey Road, assignors to J. Saxby and J. S. Farmer, Canterbury Road, Kilburn, Middlesex County, England. [Filed June 26, 1877.]

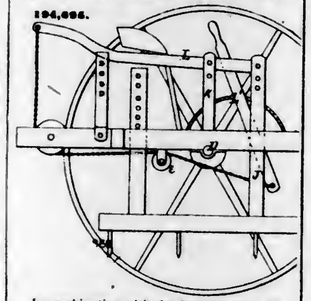


In combination with the switch-rails of a railroad-track, and the mechanism for shifting the same, a bar mounted horizontally alongside of one of the main rails, and connected with the switch-rails and their shifting mechanism by means of a lever or system of levers, the said bar being located in such relation to the switch-rails that it will be prevented by the wheels of a passing train from being moved, and will thus hold the switch-rails in a locked position while said train is passing over the same, whereby all possibility of moving said switch-rails is prevented until the train has passed, substantially as set forth.

194,695. WHEELED HARROWS. B. J. Lockwood, Danbury, Ohio. [Filed June 26, 1877.]

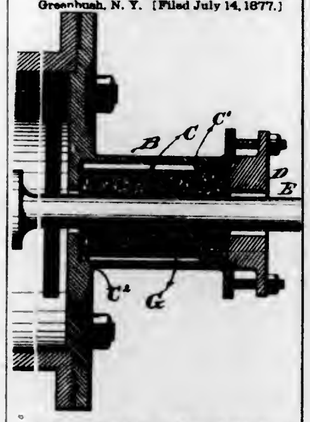
Brief.—The harrow has two square frames of equal size, the lower having a rigid perforated standard at each corner, which are adjusted through corresponding loops in the upper frame. A similar standard extends from the center of the lower frame, to which the raising device is attached. Two double-trees are used, connected with rods at each end, and the inner one having its bearing on a pivot and slightly-curved facing, which rests against the cross-beam of the harrow-frame.

194,696.



In combination with the harrow-frame, adjusted, as herein described, at its four corners, the perforated central bar J, lever L, chain *d*, pulleys *e*, and lever L' for regulating the same, as set forth.

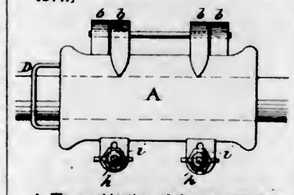
194,696. STUFFING-BOXES FOR STEAM-ENGINES. J. Loftus, East Albany, assignor of one-half his right to Richard Greenalch, Greenbush, N. Y. [Filed July 14, 1877.]



1. In a stuffing-box, the movable perforated cup C, provided with rim C' and notched ring C², for the purposes herein set forth.

2. The combination of the stuffing-box B, perforated cup C, gland D, piston-rod E, and packing G, all substantially as and for the purposes herein set forth.

194,697. HOSE-LEAK STOPPERS. John F. Logan, Indianapolis, Ind. [Filed Aug. 2, 1877.]



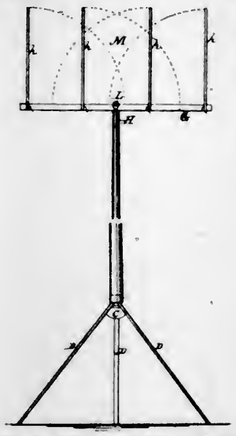
1. The combination of the two semicircular parts A B, having ears *b b*, and connected by the rod *a*, the forked ears *d d*, the hinged eye-bolts *h h*, and nuts *i i*, all constructed substantially as set forth.

2. One or more U-shaped springs D, having teeth or points on the inner side, in combination with the two-part hose-leak stopper, substantially as set forth.

3. In combination with a longitudinally-bisected clamp for stopping leaks in hose, one or more springs attached to the clamp, and pressing against the hose, substantially as and for the purposes herein set forth.

194,698. MUSIC-SUPPORTS. E. A. Marsh, Battle Creek, Mich., assignor of one-half his right to B. A. Nelsser, same place. [Filed Apr. 28, 1877.]

Brief.—The hollow standard has a metallic case fitted within it, the lower end of which is formed with an interior screw-thread to receive the screw-threaded shank of a knob, the shank having slots formed in it in which the folding legs are pivoted. When the legs are unfolded they are clamped between a conical bearing on the knob and the lower beveled end of the case. A folding rack or music-support is clamped to the upper end of the standard by a hook having a screw-threaded shank working in an internally-threaded ferrule on the standard. To convert the stand into a cane, the rack and its screw-hook are detached, the knob unscrewed, and the legs folded in their slots, when all the parts can be inserted into the case and the knob screwed up, securing all the parts in place and forming the handle of the cane.

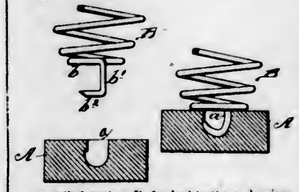


1. The knob C, having screw-plug E, with grooves *e*, in combination with the interiorly-threaded case B, and the legs D pivoted in said grooves, and adapted to occupy either a longitudinal position therein or be folded back past a right-angular position, to be clamped by said knob, to form a support for the music-stand, substantially as described.

2. The rack M, consisting of bar G, having notches *n*, the arms A, pivoted to bar G, and the auxiliary arm *i*, pivoted to arms A, and extended past their pivots, to engage with notches *n*, all combined as shown and described.

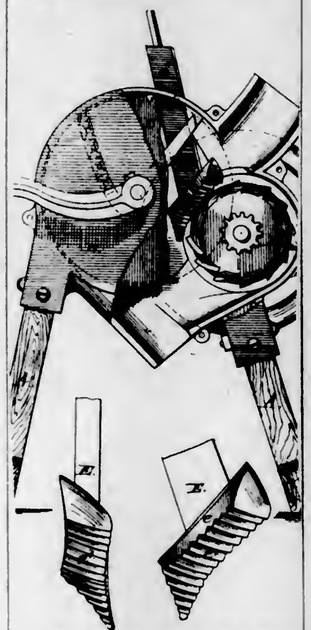
3. The screw-threaded hook L, combined with a music-rack, and with a standard having an interiorly-threaded ferrule, H, substantially as and for the purpose described.

194,699. SPRING BED-BOTTOMS. Chas. O. Marsh, Ashland, Ohio. [Filed Aug. 10, 1877.]



A coiled spring, B, for bed bottoms, having its lower end bent to form the lock-hook or anchor *b b' b²*, and fastened in a mortise in the slat or frame A, substantially as and for the purposes set forth.

194,700. CORN-SHELLING MACHINES. Jas. S. Marsh, Lewisburg, Pa. [Filed Apr. 25, 1877.]



1. In combination with the picker-wheel, the conical feed-wheel, with helical ribs or teeth, substantially as described.

2. In combination with the picker-wheel and feed-wheel, with helical ribs, as described, the bar E, automatically adjustable by its own weight with its presser-foot *e*, having its face convex, ribbed, and helical, substantially as shown and described.

3. In combination with the picker-wheel and the feed-wheel, geared together, as described, two cranks, one on the shaft of each of said wheels, substantially as and for the purpose described.

194,701. MANUFACTURE OF BREWERS' PITCH. Alfred Martin, Wilmington, N. C. [Filed July 10, 1877.]

1. The process of manufacturing brewer's pitch directly from crude turpentine, using oil of rosin instead of tallow or other oils, by first melting the turpentine and drawing off a portion, and then reducing the remainder by extracting spirits and acids before adding the oil of rosin and ocher, and, when drawing off the mass into a reservoir through a strainer, adding thereto the portion of turpentine first drawn off, substantially as specified.

2. The composition of crude turpentine, oil of rosin, and Rochelle ocher, in about the proportions specified, for the manufacture of brewer's pitch, substantially as set forth.

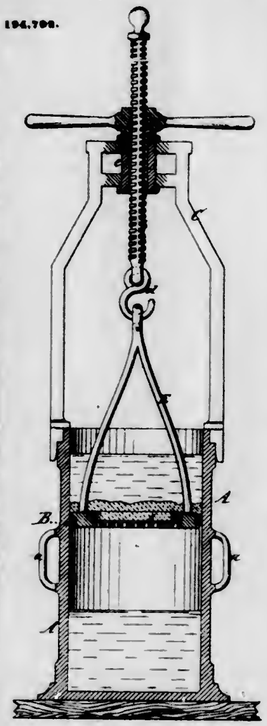
3. In the manufacture of brewer's pitch, the use of oil of rosin instead of tallow or other grease, substantially as specified.

194,702. APPARATUS FOR PREPARING COFFEE. J. Mayerhofer, Kahlenbergerdorf, near Vienna, Austria, assignor to Louis Fleischmann, New York, N. Y. [Filed July 24, 1877.]

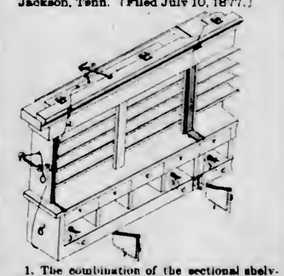
Brief.—A partial vacuum is formed in the lower part of the vessel by raising the perforated piston, upon the top of which are placed the ground coffee and an amount of hot water. The coffee is prepared by the percolation of the hot water through the piston.

In an apparatus for preparing coffee, the combination of the cylinder A, perforated piston B, and frame C, containing the apparatus for operating the piston, substantially as and for the purpose described.

194,703.



194,703. SHELVING AND COUNTERS FOR STORES. F. H. Mayo and W. H. Mayo, Jackson, Tenn. [Filed July 10, 1877.]



1. The combination of the sectional shelving A, hinged together at *a a*, the rollers C, and the hooks D, provided with cords *d*, substantially as and for the purposes herein set forth.

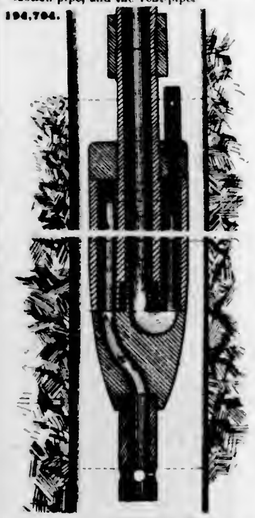
2. The removable panels G, in combination with the sectional hinged shelving, for the purposes herein set forth.

194,704. PUMPS TO REMOVE WATER AND PREVENT DEPOSITS IN OIL-WELLS. Chas. Means, Modoc City, Pa. [Filed Apr. 24, 1877.]

Brief.—The return working-barrel is sunk until the ends of the suction-pipe have passed the bottom line of oil-bearing rock or sand, the waste-pipe reaching to the upper level thereof. The pump being put in operation, will suck air only until the oil reaches above and seals the vent-pipe, when the pump will begin to lift the liquids from the well, first the contents of the return working-barrel, then the water from the bottom of the well, then the oil.

In an oil-well, the combination, substantially as specified, of the return working-barrel, the suction-pipe, and the vent-pipe.

194,704.



194,705. GIN-SAW SHARPENERS. John T. Medearis, Fayetteville, assignor of a part of his right to J. H. Bell, same place, J. N. Sullivan, Flat Creek, and D. J. Noblitt, Booneville, Tenn. [Filed July 14, 1877.]

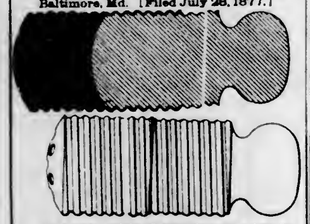


1. In a gin-saw sharpener, the cup or bowl shaped file F, having a sharp edge, *d*, substantially as and for the purpose shown and specified.

2. The combination, in a gin-saw sharpener, constructed substantially as herein described, of the cup or bowl shaped file F, and adjustable gaging sleeve *e*, substantially as and for the purpose herein set forth.

3. The improved gin-saw sharpener herein described, consisting essentially of the mortised uprights B B, cross-pieces C C, set-screws *b b*, shaft D, having cup-shaped file F and gaging-sleeve *e*, and spring *b'*, all combined and operating substantially in the manner and for the purpose herein shown and specified.

194,706. BLACKING-BOXES. H. D. Montsel, Baltimore, Md. [Filed July 28, 1877.]



As a new article of manufacture, a box for holding blacking or other semi-liquid bodies, consisting of a threaded cylindrical shell, having one end thereof formed by a screw plug or plunger, and the other end thereof by a perforated head, substantially as herein shown and described.

194,707. PICTURE-HOOKS. R. S. Merrill, Boston, Mass. [Filed July 13, 1877.]

1. A picture-hook formed at the rail or cornice end with two or more divergent or spread-apart hook-arms, substantially as and for the purpose set forth.

2. A picture-hook consisting of wire bent so as to form at the one end a hook for the picture-cord, and at the other end two or more divergent hook-arms for engaging and taking an extended bearing on the rail or molding, as set forth.

194,707.



194,708. PICTURE-HOOKS. R. S. Merrill, Boston, Mass. [Filed Aug. 15, 1877.]



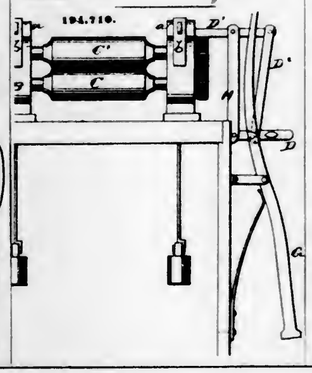
A sheet-metal picture-hook made in the form of a double hook from a single sheet of metal, broad at the molding or rail-hook end and narrow at the opposite end, as shown and set forth.

194,709. SHEET-METAL SPOONS. Henry C. Milligan, Elizabeth, N. J. [Filed Aug. 10, 1877.]



A spoon or other analogous article, having its handle and the point of juncture with the bowl stiffened by a flange turned down upon the edges of the handle and extending upon the bowl and below the horizontal plane of its top edge, substantially in the manner described.

194,710.



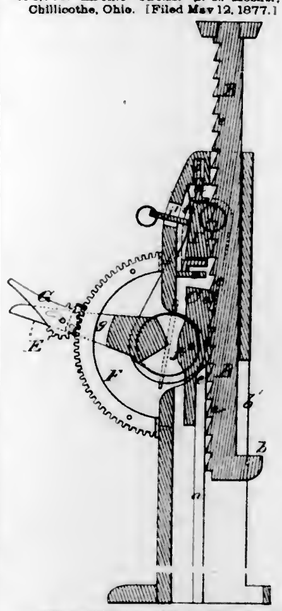
194,710. STOP-MOTIONS FOR RAILWAY-HEADS IN SPINNING MACHINERY. E. A. Mongeon, Woonsocket, R. I. [Filed Apr. 28, 1877.]

Brief.—When a sliver breaks in passing between the rollers, or is too thick, said rollers fall or rise, as the case may be, and in either case actuate a series of jointed levers, which, together with their accessories, operate to shift the belt, and thus stop the machine.

1. In a railway-head or drawing-machine, the combination of a non-yielding rotating roller, having its bearing stationary, and a yielding rotating roller, with the lever D^3, provided with the oval lug A, the belt-shipping lever G, having the triangular projection *i*, and the flat spring S, substantially as described, and for the purpose set forth.

2. The combination, with the roller C and the yielding roller C', of the weighted levers D, jointed levers D^1 D^2 D^3, oval pin A, and the belt-shifting lever G, with V-shaped pin *i*, all constructed substantially as and for the purpose described.

194,711. LIFTING-JACKS. S. E. Mosher, Chillicothe, Ohio. [Filed May 12, 1877.]



1. The combination, with the lifting-bar B and hollow standard A, having shelf *e*, of the spring-actuated pawl F' and its inclosing movable box I, substantially as specified.

2. The standard A, having registering-perforations *h f* below the lifting-block and below the locking pawl, adapted to receive a key-wedge, substantially as specified.

3. The combination, with the lifting-bar B and lifting-block C, of the hollow standard A, having trunnions D, the vertically-vibrating hangers E, the lever E', having trunnions D' journaled in said hangers, the pivot-pin *f*, toothed segment F, and toothed segment-lever G, substantially as specified.

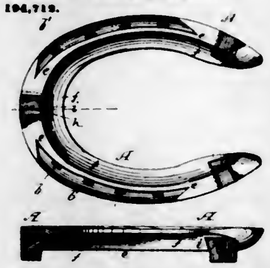
4. The combination, with the segment F and the standard and raising mechanism of a lifting jack, of the lever E', having longitudinal slot *g* and curved slots *i*, and the segment-lever G journaled in said slots and engaging said segment, substantially as specified.

5. The combination, with the vertically-movable pawl-box and pawl, of a hollow standard recessed to receive said pawl-box, and provided with perforations at the heel of said box, substantially as specified.

194,712. HORSESHOES. T. W. Murphy, Washington, D. C. [Filed July 7, 1877.]

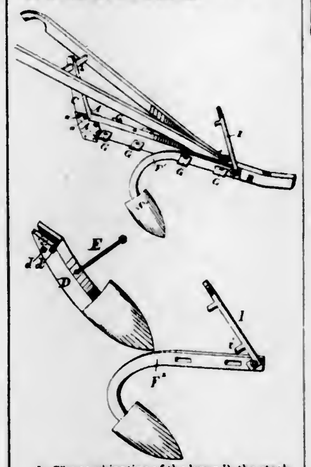
As a new article of manufacture, the shoe A, having outer edges *b'*, ridges *c*, and the curved concavity *f*, extending from the heel to the toe-calk on each side, and the toe and heel calks provided with dovetailed tapering fastenings, and the shoe having an inclined upper surface, constructed and arranged as set forth.

194,713.



194,713. SHOVEL-PLOW AND CULTIVATOR. T. H. Myers, Pleasant Dale, W. Va., assignor to J. W. Painter and J. S. Veach, Strasburg, Va. [Filed May 4, 1877.]

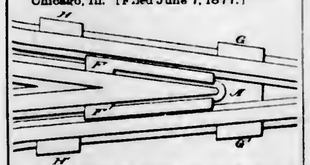
Brief.—The spliced and removable center-standard, the removable side-bars, secured by a hinged latch and hooks, providing for the use of from one to five shovels.



1. The combination of the beam B, the stock C, the removable standard D, fitted to the end of the stock C by an oblique joint gained for the reception of the beam-tenon, and secured by the side plates A A, bolts *d' d*, and brace-rod E, as and for the purposes set forth.

2. The combination of the removable lateral stocks or standards F' F', the stationary tenons G G, and the hinged latches I, formed with pins *i*, as and for the purposes described.

194,714. RAILROAD-FROGS. L. H. North, Chicago, Ill. [Filed June 7, 1877.]



The bed-plate C, having curved flanges F F', and wings A B, in combination with the underlying flanged base-plates H H' and G G', substantially as and for the purpose herein shown and specified.

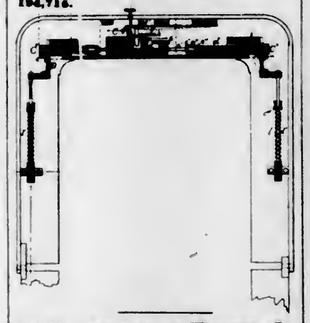
194,715. LOCKS FOR VALISES, &c. Abram Oberndorfer, Norfolk, Va. [Filed July 20, 1877.]

1. The lock-slide *c*, working within the slide *s*, in combination with the corner bolts C' C'' and slide-bolts F F', connected together by rods and cranks, and recoiled by springs, all substantially as and for the purpose described.

2. The combination of an assistant clasp-spring, *g*, with the stem *f* of the slide *c*, so that the latter must be moved before the spring can be operated to release the clasp or hook *g'*, which holds the cover, and whereby the clasp or hook *g'* can be fastened without the use of the key.

3. Combination of the slide *c*, working inside of slide *s*, with the key, so that the last will hold the parts *c* and *s*, and retain all the bolts connected with them unfastened.

194,716.



194,716. PIPE TONGS OR WRENCHES. B. B. O'Kelly, Boston, Mass. [Filed July 6, 1877.]



1. In a pipe-wrench, the combination of the tongued wedge-shaped jaw *i*, mounted upon the flat spring *m*, with the sliding bar *g*, having an oblique face and groove for the jaw *i*, and recess for the spring *m*, substantially as described, and for the purposes set forth.

2. The combination of the sliding collar *i*, held in position by the thumb-spring *k*, and the fixed collar *h*, with the sliding bar and jaw, and the graduated ratchet *e*, shank *a*, and removable jaw *c*, substantially as set forth, and for the purposes indicated.

194,717. SUSPENSION-BRIDGES. R. B. Osborne, New Castle County, Del. [Filed June 30, 1877.]

1. The combination, in one structure, of the suspension, Howe and Pratt systems of bridge construction, arranged substantially as and for the purposes specified.

2. The combination, in one structure, of the suspension, truss, and arch systems of bridge construction, arranged substantially as and for the purposes described.

3. The secondary suspension chains B B, supported on separate saddles or on columns standing on saddles within the towers, and forming the top chords of the main truss, combined with the main chains A A at points C C near the center of the span, substantially as herein specified, and for the purposes set forth.

4. The central section O, consisting of a truss, having for its top chords a portion of the main suspension-chains A A, flattened in their catenary curve, substantially as herein described, and for the purposes specified.

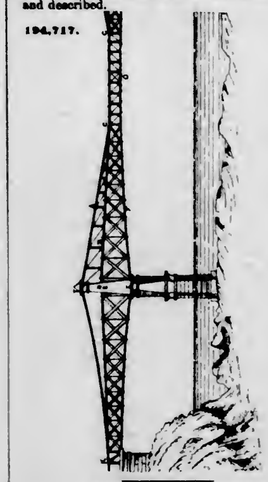
5. The central section O, combined with the end sections of the same span that embrace both the suspension and truss systems of bridge construction, whereby the ends of the central section O are sustained by the accumulated powers of the end sections at their points of connection therewith, substantially as specified.

6. In the bridge herein described, a main truss, having its top chords B supported on saddles, or columns on saddles, and its arched bottom chords F connected with movable skewbacks, resting on friction rollers on piers or abutments, substantially as and for the purposes specified.

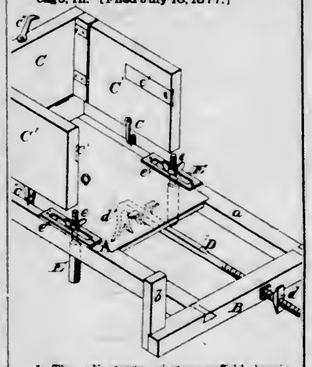
7. The combination of the pin P, cylindrical strut R, nut N, and eyelet-plate V, substantially as and for the purposes described.

8. The block M, having an increased longitudinal width of central surface parallel with its base, whereby two or more series of rods can be used therewith, substantially as shown and described.

194,717.



194,718. FOLDING AND ADJUSTABLE SCAFFOLDS FOR WINDOWS. C. I. Palmer, Chicago, Ill. [Filed July 18, 1877.]

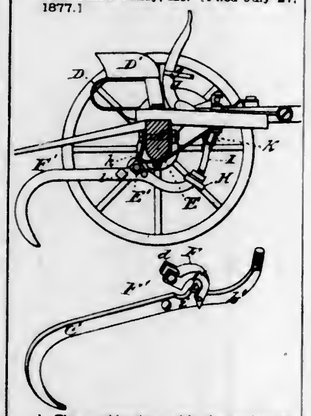


1. The adjustable window-scaffold herein described, consisting of frame A, brace B, standard *b*, hinged guard C C', adjustable supports E, and clinch-rod D, the whole combined and adapted to operate substantially as and for the purposes set forth.

2. The supports E, adapted to be moved horizontally or vertically, in combination with the frame A, substantially as and for the purposes set forth.

3. The clinch-rod D d d', combined with brace B b and frame A, substantially as shown and described.

194,719. HORSE HAY-RAKES. J. V. Parrish, Union Valley, Mo. [Filed July 27, 1877.]



1. The combination, with the horizontal shaft E' and the rake-teeth removably secured and vibrating thereon, of the ⊔-shaped spacing plates G, interposed between the said teeth and the bolt e, securing them thereto, substantially as specified.

2. The combination, with the shaft E' and the rake-teeth vibrating thereon, of the spacing-plates G, the hangers k engaging said shaft, and the nuts l applied thereon at its ends, substantially as specified.

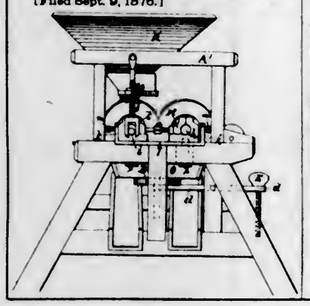
3. The combination, with the shaft E', of the rake-teeth F', having a half-bearing, i, the vibrating locking-plate F, having the half-bearing i', the ⊔-shaped spacing-plates G, and the bolts e, securing the locking-plates and the spacing plates to the rake-teeth, substantially as specified.

4. The combination, with the rake-tooth F', having a half-bearing, i, of the vibrating locking plate F, adapted to be clamped around the journal-shaft, and secured to the body of the tooth, substantially as specified.

5. The rake-tooth for horse hay-rakes, consisting of the tine c', and a vibrating bearing-plate F, adapted to be secured to the body of the tine, and to form therewith an aye for the reception of the journal-shaft, substantially as set forth.

6. The combination, with the journal-shaft E' and the rake teeth fulcrumed thereon, and extending in front of the axle, of the rake-head H, having crank-arm I, the pitman K, the bell-crank tripping-lever J, having latch-arm g, and the horizontally-vibrating latch M, adapted to engage said arm, substantially as specified.

194,720. ADJUSTING DEVICES FOR GRINDING-MILLS. L. G. Peel, Haselhurst, Miss. [Filed Sept. 9, 1876.]

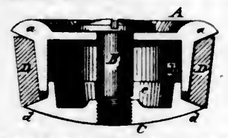


1. The combination, with the rollers B B and their shafts A A, of the boxes H, slotted plates I, with end flanges k, end screws m m, center screws n, and bolts p, all constructed substantially as and for the purposes herein set forth.

2. In combination with the hopper, the pivoted depending staffs J, provided with screw-threads, the adjustable shoe L, cuffs t, shaft h, with eccentrics i and adjusting-nuts s, all constructed substantially as and for the purposes herein set forth.

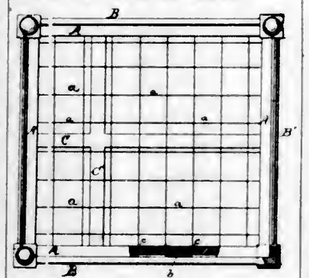
3. The combination, with the rollers B B, of the bed-stone C, rising to a point, x, in the center, and concave on both sides, tenoned bridge-tree D, guides b, rock-shaft c, with arms d d' and set-screws E f, all constructed substantially as and for the purposes herein set forth.

194,721. BUNGS FOR BARRELS. G. H. Phillippi, Buffalo, N. Y., assignor of one-half his right to G. W. Phillippi, same place. [Filed July 31, 1877.]



The combination, with the body A, having the flaring flange a and tapering annular ring b, of the gland C, provided with the flaring flange d and annular ring e, and the rubber packing-ring D, the parts being arranged to operate for expanding said rubber, substantially as and for the use and purpose stated.

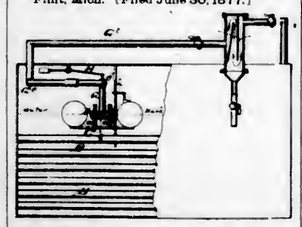
194,722. BED-BOTTOMS. Geo. S. Pickett, Paoli, Wis. [Filed Dec. 23, 1876.]



1. The side and end rails A, having the longitudinal grooves b b and series of small holes c c, for receiving and embedding the wire cord a a, in combination with the side and end pieces B B', the latter being firmly glued to the rails A, substantially as and for the purposes herein set forth.

2. In combination with the frame A, corded with wire a a, the cross-braces e and e', as herein shown and described.

194,723. BOILER-CLEANERS. E. Ransom, Flint, Mich. [Filed June 30, 1877.]



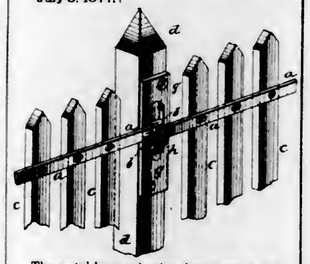
1. The skimmers D D, adjustably connected to floats A, and by pipes connected with a filter outside the boiler, for the purposes herein set forth.

2. The lever H, with counterbalancing-weight I, in combination with the floats, skimmers, and pipes connected with the filter, as and for the purposes herein set forth.

3. The joints e e e', formed in the pipe G, in combination with the skimmers and floats, substantially as and for the purposes herein set forth.

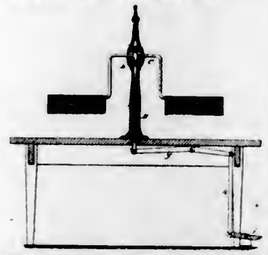
4. The combination of the floats, the skimmers, counterbalancing-lever, jointed pipe, filter, and connecting-pipes, all constructed and arranged to operate substantially as and for the purposes herein set forth.

194,724. FENCES. A. C. Reed, R. S. Greenlee, and R. L. Greenlee, Chicago, Ill. [Filed July 3, 1877.]



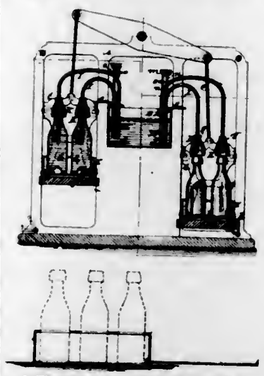
The metal bars a, having bent-over ends b, in combination with pickets c, posts d, plate g, and hooks h, substantially as set forth.

194,725. FAN ATTACHMENTS. G. S. Riggs, Micanopy, Fla. [Filed June 11, 1877.]



The rod C having wings a, the pinion b, rod c having the rack d, the hollow standard B, lever f, treadle i, and rod h, in combination, substantially as shown and described.

194,726. BOTTLING-MACHINES. Wm. A. Ross, Belfast, Ireland. [Filed July 10, 1877.]



1. The combination of two or more alternately rising and falling bottle-carrying cradles C, arranged on opposite sides of a balancing support or fulcrum, and connected so that they balance one another, two or more series or sets of rising and falling siphons, I, and a charging cistern or tank, B, between the cradles, substantially as specified.

2. The loose bells or hollow cones, in combination with the larger legs of the siphons, essentially as and for the purpose herein set forth.

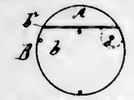
3. The combination, with the siphons, of the starting or liquid filling tubes applied thereto, and cocks or valves for closing said tubes after the siphons have been charged, substantially as specified.

4. The combination, in a bottling apparatus, with either rising and falling cradle C, of the removable bottle-holding tray E, constructed with a false sliding bottom k, whereby the loading and unloading of either cradle is facilitated and the working of the apparatus is expedited, essentially as described.

194,727. HORSE AND CATTLE MEDICINES. P. H. Rymal, Chicago, Ill. [Filed Mar. 21, 1877.]

A composition consisting of corn or maize meal, oil cake meal, flaxseed-meal, fenugreek-seed, ginger, caraway-seed, hemlock-bark, sulphur, anise-seed, gentian-root, salt, blood-root, belladonna, locust-bean meal, and elecampane-root, the whole combined and mixed gether in about the proportions and for the purposes herein set forth.

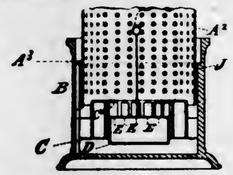
194,728. ENVELOPE-OPENERS. Jas. Salter, Brooklyn, N. Y. [Filed June 20, 1877.]



In an envelope-opener, the combination of the movable or hinged blade A with the handle B, formed of the pieces b b' and soft metal C, and straight side b', substantially as and for the purpose set forth.

194,729. OZONE-MACHINES. A. W. Sangster, Buffalo, N. Y., assignor of one-half his right to E. M. Jewett, same place. [Filed June 16, 1877.]

Brief.—The sticks of phosphorus are fixed in a float, the position of which is regulated and controlled by a surrounding float having projecting pins, which keep the stick of phosphorus nearly immersed under water, the two floats operating to keep the sticks of phosphorus in the same relative position to the surface of the water till they are entirely consumed. The dome and perforated part may be raised and supported by pins upon a ledge of the outer case, when the generation of ozone will commence.



1. The combination of the parts A A' A' provided with the pins A', with the vessel B, provided on the inside with the grooves B and ledge J, for the purposes specified.

2. In an ozone-machine, the combination of a float, D, and a series of rods or pins, C', arranged above said float and level of the water, so as to limit the distance the phosphorus shall project out of the water, as described.

3. The float C, provided with pins or rods C', in combination with the float D, for holding the phosphorus, for the purpose of limiting the distance the phosphorus shall project above the water at various levels of the same.

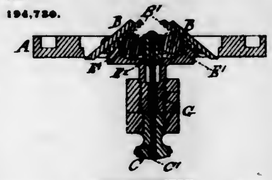
194,730. MEAT-CUTTERS. Jas. Sangster, Buffalo, N. Y., assignor to E. M. Jewett, same place. [Filed Feb. 1, 1877.]

Brief.—Any thickness of slice desired can be produced, when the machine is in operation, by means of a thumb-nut, which connects a set of pinions and racks to the cutters to adjust them.

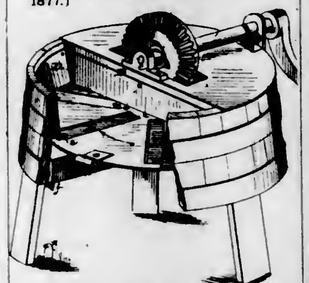
1. In a machine for cutting fibrous material, the combination of the disk A, cutters B, racks B', pinions E', rod C', and thumb-screw C, for the purposes specified.

2. The thumb screw C, rod C', provided with a pin, G, in combination with the arm or lever H, arranged substantially as specified, and gage D, as and for the purposes specified.

194,730.

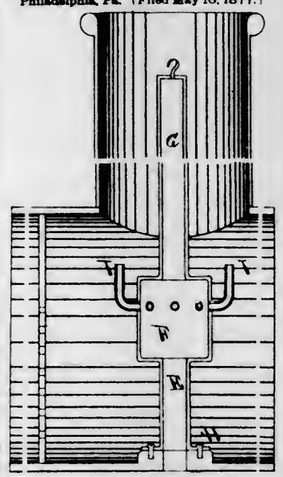


194,731. VEGETABLE-CUTTERS. H. Sendmeyer, Philadelphia, Pa. [Filed July 24, 1877.]



In combination with the rotating table or disk, the inclined skirting or guide D and a clearing-knife, secured to the edge of the table or disk, substantially as and for the purpose described.

194,732. SPARK-ARRESTERS. Thos. Shaw, Philadelphia, Pa. [Filed May 16, 1877.]



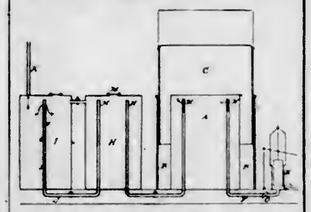
1. In a spark-arrester in which all screens and intercepting parts can be dispensed with, a smoke-stack of such area that the velocity of the ascending current of gases will be such as to cause the subsidence of the sparks in the smoke stack and arch.

2. The smoke-stack of the described increased area, in combination with an exhaust-nozzle, constructed substantially as described, to produce a high average with a low maximum draft.

3. The exhaust-nozzle composed of the passage E, expanding-chamber F, steam-cushion G, and escape-pipes I, arranged as described, for the purpose set forth.

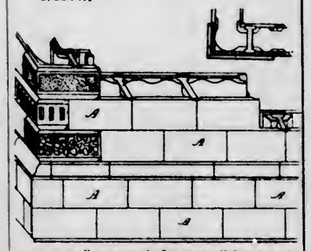
194,733. CARBURETERS. John Shepard, Carmi, Ill. [Filed Dec. 27, 1876.]

Brief.—Air is passed through the top of a vessel containing oil and water, carrying off the vapor therefrom, and then through a vessel containing gasoline.



The combination of the receiver A B C, the inlet-pipe F, the oil and water chamber H, the gasoline-chamber I, the connecting-pipe G, conducting air from the receiver to a point above the liquid in the chamber H, and the connecting-pipe J, receiving air and vapor from the upper part of the chamber H, and delivering it through perforations j j j beneath the gasoline in the chamber I, as and for the purpose set forth.

194,734. CONCRETE BUILDINGS. J. Sidebotham, Blackpool, England. [Filed July 3, 1877.]



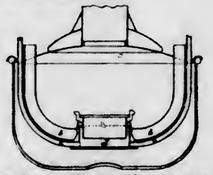
1. A wall composed of two parallel series of slabs or plates, one on the outside and the other on the inside, connected by the transverse ties, with or without the filling of concrete or cement.

2. The wall, composed of two upright parallel series of plates, the cross-ties connecting them, and the filling of concrete or equivalent material.

3. In building constructions, the combination of the slabs A, the T-grooves and T-ended tie-slabs, substantially as shown in Fig. 6.

194,735. LAMPS FOR BURNING HYDROCARBON OILS FOR RAILWAY-SIGNALS, &c. F. H. Smith, Bayswater, Great Britain. [Filed Feb. 3, 1877.]

Brief.—A short removable wick-tube is suspended, by means of projections on its exterior, in a shallow oil-receptacle.



1. The dome a, the movable wick-holder c, and the air-tubes b b, connecting therewith, substantially as shown and described.

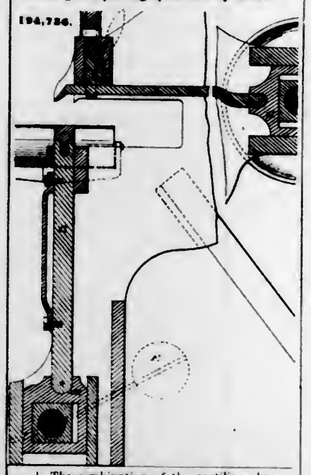
2. The combination of the dome a, the air-tubes b b, the oil-chamber d, and the wick-holder c, all substantially as shown and described.

194,736. MACHINES FOR PLANING OFF THE HEADS AND POINTS OF RIVETS. Hiram M. Smith, Richmond, Va. [Filed Oct. 3, 1876.]

Brief.—The rivets are inserted in the shape, and driven home by a vertically-moving die. The heads are upset by hand or other hammer,

and the ends are gouged off below the waist of the shape by a cutter, the rear end of which is pivoted in a reciprocating box. The forward end of the cutter is thrown up by a spring when not desired to operate, and, when desired to operate, is depressed by a cam-lever. The weight of the shape is supported during the riveting and planing operations by rollers.

194,736.



1. The combination of the rectilinearly reciprocating cutter with the devices for changing the direction of movement of the cutter, substantially as described.

2. The combination of the reciprocating cutter with the shape-supporting rolls.

3. The combination of the sliding mandrel C, the supporting-rolls, the eccentric, and weighted foot-lever, substantially as described.

194,737. GAS-TEST GAUGES. D. M. Small, New York, N. Y. [Filed Feb. 7, 1877.]

Brief.—Ascertains burning rate of gas by measuring length of flame in tube B.



The cap A and scale E, with tube B, containing slot D, and adjusted to fit over a burner, substantially as described, and for the purpose set forth.

194,738. COTTON-GIN FEEDERS. F. B. Smith, Prattville, Ala. [Filed July 6, 1877.]



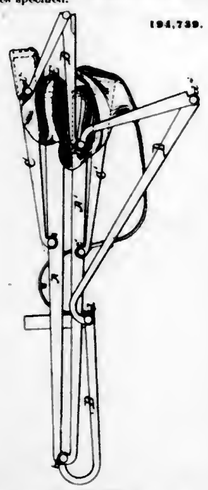
1. The frame D, provided with hopper L, chute M, and door N, as set forth.

2. The winged roller W, mounted upon the adjustable bearings X, in combination with an elevator-belt having inclined spiked slats, as set forth.

194,739. BUGGY-TOPS. J. H. Snyder and D. W. Henderson, Muskegon, Mich. [Filed May 31, 1877.]

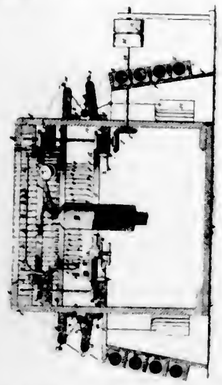
In a buggy-top frame the combination, with the main central bows A A', of the short brace bows C C', when the latter are respectively pivoted upon the former at *c c'*, at such a point that when the top is folded back or lowered the bows C C' will pass entirely to the rear of the buggy-seat, as and for the purposes specified.

194,739.



194,740. CIRCULAR LOOMS. B. L. Stowe, New York, N. Y., assignor to J. V. D. Reed, same place. [Filed Aug. 15, 1877.]

Brief.—The loom is designed to produce a tubular fabric of indefinite length. The vertical pick-ups are divided into two sets of long and short pick-ups, which are lifted by high and low cams. These cams are caused to travel around the circumference of the loom by the driving mechanism. The pick-ups are provided at their lower ends with lateral projections alternately arranged in opposite directions. The cams are shifted automatically, so as to engage during one revolution with the outer projections, and during the next with the inner. The warp-threads pass up onto a guide or lifter, that keeps the shed open during a revolution. A separator further divides the warp close to the edge of the tube where the weaving takes place. The arm crowds in the weft.



1. In a circular loom for weaving a web of indefinite length, the combination of the pick-ups *c*, actuated by mechanism substantially as specified, for opening thereby the shed of the warp, the devices described for giving to the warp-strands the requisite tension, and arm 12, for delivering and packing the woof-thread into the web, all constructed and arranged to operate as shown and described.

2. In a circular loom, the combination of the segmental carrier 1, the separator 13, and the arm 12, all being constructed to operate as shown and described.

3. In a circular loom, the combination of the cams *n n' o o'* and mechanism, substantially as described, for shifting the position of the same at each revolution around the loom, whereby the pick-ups *c* are actuated to open the shed of the warp, all being constructed to operate as shown and described.

4. In a circular loom for weaving a cylindrical web of indefinite length, the combination of the separator 13, the pick-ups *c*, and the devices described for giving to the warp-threads a yielding tension, all being constructed to operate as shown and described.

5. In a circular loom for weaving a tubular web of indefinite length, the combination of a separator, 13, for separating the warp-shed near the point of weaving, and mechanism, substantially as described, for giving to the warp-thread the requisite tension, all being constructed to operate as shown and described.

6. The combination, in a circular loom, of the toothed carrier 1, the pinions *c''* 1 2 3, the rollers *c c'*, &c., the disks 45 46 47 48, whereby the said carrier, while in motion, is supported and maintained in position concentric to the tube D, all being constructed to operate as shown and described.

7. In a circular loom for weaving a tubular web of indefinite length, the tension devices described, consisting of the hub N, the wires 50, 51, and 52, and the weight 54, for regulating the tension of the warp-threads, all being constructed to operate as shown and described.

8. In a circular loom for weaving a cylindrical web, the combination of the hollow tube D, through which passes the completed web, and around the open end of which the web is formed, with the segmental carrier 1 and separator 13, substantially as described.

194,741. CIRCULAR LOOMS. B. L. Stowe, New York, N. Y., assignor to J. V. D. Reed, same place. [Filed Aug. 15, 1877.]

Brief.—The loom is a modification of the inventor's single-ply loom for weaving tubular fabrics, and is designed to weave a multiple-ply web. The vertical pick-ups are combined with levers provided with lugs, and are actuated by shifting cams. The loom shown and described is adapted to weave a three-ply fabric, and there are three sets of cams, each set consisting of two pairs of cams. The entire series of pick-ups is divided into sets of eight, each two of each set carrying the tie-warp threads, and the remaining six carrying the warps of the different plies, viz., two carrying the warps of the inner ply, two the middle ply, and another two the outer ply. The alternate rising and falling of the pick-ups produces the shed, and the three separate sets of warp-threads for the different plies are carried up successively onto three guides, and the shed is thereby kept open during a revolution of the loom. The three weft-threads are packed in as in the other loom. There are three segmental carriers, three weft-arms, and three separators, and the necessary operating mechanism is provided. The number of plies can be varied by a different division of the series of pick-ups, and a corresponding variation in the number of the cams and weft-carrying arms, &c.

1. In a circular loom for weaving a web of more than one ply, the combination of the pick-ups *a*, with their levers *c*, having pins or lugs, constructed and arranged to operate as shown and described.

2. In a circular loom for weaving a web of more than one ply, the combination of two or more sets of cams or inclined planes with the pick-ups *a* and levers *c*, provided with pins or lugs, with mechanism substantially as described, whereby said cams are shifted relatively to each other, all being constructed to operate as shown and described.

3. In a circular loom for weaving more than one ply, the combination of two or more segmental gears 1 with the guides *l l'*, &c., the pick-ups *a*, the levers *c*, and shifting-cams, all being constructed to operate as shown and described.

4. The combination, with the segmental carriers, of two or more guides *l*, constructed and adapted to receive upon themselves the warp-threads, as and where they are successively raised up by the pick-ups described, and conjointly acting, when said threads are once raised, to bear up the same until a revolution of the loom is completed, as shown and described.

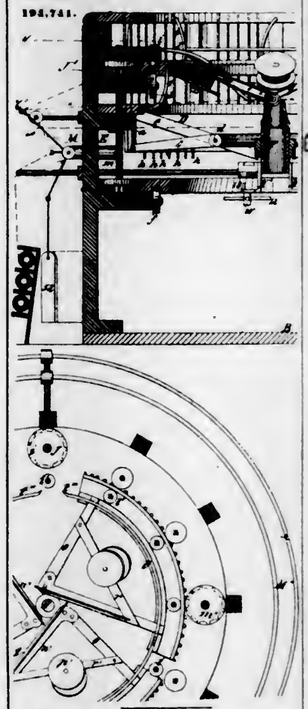
5. The combination, in a circular loom for weaving a web of more than one ply, of two or more segmental carriers, two or more shuttle-arms *n*, the pick-ups *a*, and two or more sets of shifting cams or inclined planes, for actuating said pick-ups, all being constructed to operate as shown and described.

6. In a circular loom for weaving more than one ply, the combination of the segmental carriers 1 1', &c., the guard-wires *s s'*, the guides *l l'*, &c., the rollers *l' l''*, &c., and the pinions J J', &c., all constructed to operate as shown and described.

7. In a circular loom for weaving a tubular web of more than one ply, the combination, with two or more shifting cams or inclines, 40 to 51, inclusive, of devices, substantially as described, actuated by said cams or inclines to throw the warp-threads to form the shed, the said cams or inclines being arranged to operate upon certain series or groups of said devices during a portion only of their revolution around the loom, and during the other portion of their revolution, and while free from engagement with said devices, to be shifted to engage with an alternate series of said devices, whereby the said warp-threads are during successive revolutions of the loom thrown in proper alternation to form the web, as set forth.

8. In a circular loom, the combination, with mechanism for separating the warp into a multiple shed, of two or more segmental gears 1, severally carrying arms *n*, which bear spools of the woof-thread, the whole constructed and arranged as described, whereby two or more woof-threads are delivered into the web at each revolution in spiral coils, one within another, thereby producing a web of more than one ply, substantially as described.

194,741.

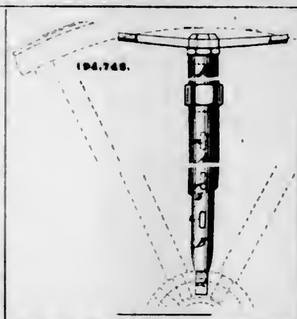


194,742. TIRE-TIGHTENERS. S. Stout, Tremont, Ill. [Filed May 12, 1877.]

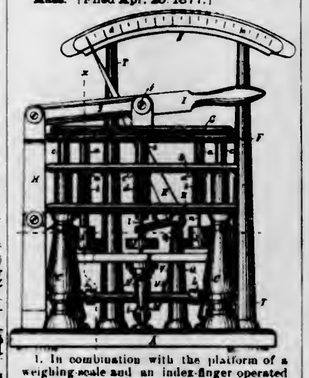
A tire-tightener formed of standard or arm B, having cross-pin, and of expanding-tube A, having spirally-notched lower end, and fixed nut to apply the wrench to expand the felly, substantially as specified.

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194,743.



194,743. DEVICES FOR AUTOMATICALLY MEASURING THE SUPERFICIAL AREA OF SIDES OF LEATHER, &c. Fred. F. Tapley, Lynn, and C. H. Porter, East Stoughton, Mass. [Filed Apr. 26, 1877.]



1. In combination with the platform of a weighing-scale and an index-finger operated thereby, a series of weights suspended above said platform at points equidistant from each other, and each representing a given fractional part of a square foot of area, and adapted to be automatically deposited, one or all, upon the platform of the weighing-scale by a downward movement of the object to be measured, substantially as described.

2. The combination, in a surface-measuring machine, of the hinged and pivoted platen or follower G, and the spring supported or yielding frame or table F, adapted to clamp the object to be measured between them, and then to be moved bodily downward to effect the registration of the measurement, substantially as described.

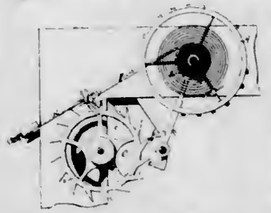
3. In a surface-measuring machine, the combination of the hinged and pivoted platen G, having formed therein a series of holes, *e e*, the yielding frame or table F, and a series of spring-supported pins, *a a*, arranged equidistant from each other, and each representing a given area of surface, and adapted to be pressed downward by the object to be measured, and thus indicate to the registering device the area of the object being measured, substantially as described.

4. In a surface-measuring machine, the combination of the tables D, E, and F, the platen G, provided with the holes *e e*, the pins *a a*, provided with the collars *a' a'*, and the springs *b b*, all arranged and adapted to operate substantially as and for the purposes described.

5. In combination with a weighing device provided with an index-finger and a graduated scale representing square feet and fractional parts thereof, the yielding table F, a series of spring-supported pins, *a a*, arranged equidistant from each other, and each representing a given area of surface, and having attached thereto, by a flexible or sliding connection, the weights J J, and the hinged and pivoted platen G, provided with a series of holes, *e e*, corresponding in number and location to the pins *a a*, all arranged and adapted to operate substantially as and for the purposes described.

6. In a machine for measuring surfaces, the combination of a weighing mechanism provided with an index-finger and a scale graduated to represent square feet and fractional parts thereof, a Jacquard mechanism for determining the area of the object to be measured, and a series of weights adapted to be deposited upon the platform of the weighing-mechanism by the movement of the Jacquard mechanism, substantially as described.

194,744. WATCH-ESCAPEMENTS. J. Thomson, Rochester, N. Y. [Filed Mar. 29, 1877.]



1. In combination with the balance-wheel of a watch or other time-keeper, an impulse device operated by the escape-wheel, but acting independently of the same and the escape-lever to impart the impulse to the balance-wheel, whereby a regular and uniform motion is imparted to said wheel.

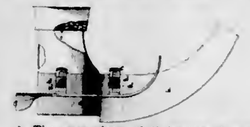
2. In combination with the escape-wheel and the balance-wheel of a watch escapement, the adjustable spring R, its pallet K, and extension F, whereby the impulses are imparted to the balance-wheel, substantially as set forth.

3. The combination of the balance-wheel A, the lever D, the escape-wheel C, and the impulse device F K R, the whole arranged to operate substantially as set forth.

4. In combination with the spring R, the spring *m* and screw S, for adjusting the tension of the spring R, substantially as and for the purpose specified.

194,745. CORN-PLANTERS. D. R. Vivion, McCredie, Mo. [Filed May 11, 1877.]

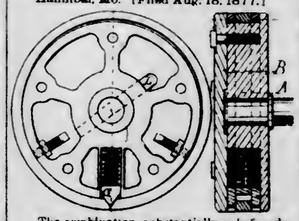
Brief.—To each side of the runner is adjustably attached gage plates or hoes, for graduating the depth of penetration. The rear ends of the bars are bent to form coverers.



1. The gage-plates C C, having the right-angular wings or hoes *cc*, in combination with and disposed edgewise to, and one upon either side of, the opener A, substantially as and for the purpose set forth.

2. The gage-plates C C, having the hoes or wings *c c*, and slotted studs *c' c'*, in combination with the opener A, having the screws and nuts *d d'*, substantially as and for the purpose set forth.

194,746. PISTON-PACKING. H. Walker, Hannibal, Mo. [Filed Aug. 18, 1877.]

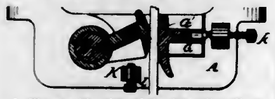


The combination, substantially as before described, of the flanged piston-head A, the follower B, two or more packing-rings and their expanding-wedges, with a solid piston-sustaining ring, in adjustable connection with the piston-head, but independent of the packing-rings, in the manner and for the purposes described.

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194,747. DROP-HAMMERS. C. D. Wallace, Auburn, N. Y. [Filed Mar. 12, 1877.]

Brief.—The cross-piece, against which the strap is clamped by the eccentrically-pivoted latch, is adjustable laterally by set-screws, to adapt the device to straps of different thicknesses. The extent to which the latch shall descend is regulated by set-screws.

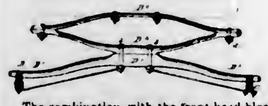


1. The combination of the laterally-adjustable cross-piece G, side pieces *a a*, having slots *i i*, and set-screws *k k*, substantially as and for the purpose herein shown and specified.

2. The side pieces *a a*, having studs or brackets K K, provided with set-screws *l l* or their equivalent, in combination with the latch C, pivoted loosely upon the eccentric shaft B, substantially as and for the purpose herein set forth.

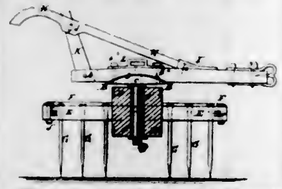
3. The improved friction-holding device herein described, consisting, essentially, of the side pieces *a a*, laterally-adjustable cross-piece G, set-screws *k k*, eccentric shaft B, lever *d*, having weight or spring D, loose-pivoted latch C, and set-screws *l l*, all combined and arranged to operate substantially in the manner and for the purpose herein shown and specified.

194,748. SIDE-SPAR VEHICLES. Geo. W. Warren, Bristol, Ind. [Filed May 9, 1877.]



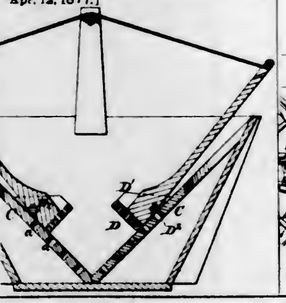
The combination, with the front head-block B and bind axle C, of the three spring-bars, D^1, D^2, and D^3, arranged and connected together substantially as and for the purposes herein set forth.

194,749. ROTARY HARROWS. C. Watson, Yanceyville, N. C., assignor to himself and J. G. Gunn, same place. [Filed June 26, 1877.]



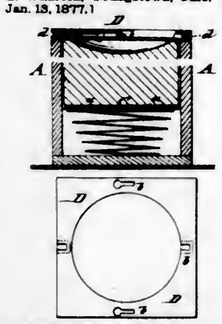
The combination of a draft-frame having handles, a vertical axle having collar as well as flange, and a rotary frame provided with harrow-teeth, as and for the purpose specified.

194,750. WASHING-MACHINES. P. L. West, Lyndon, Kans., assignor of one-half his right to W. F. Cain, same place. [Filed Apr. 12, 1877.]



In a washing-machine, the combination of the inclined perforated boards C C, arranged in the box A, as described, and the slotted or perforated beaters D D, operating alternately up and down on said boards, substantially as herein set forth.

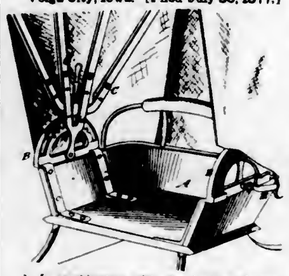
194,751. BILLIARD-CHALK HOLDERS. H. L. Wharton, Youngstown, Ohio. [Filed Jan. 13, 1877.]



1. The box A, having fixed screw-heads and detachable recessed lid D, the bottom plate or follower C, and its spring, all combined and arranged to operate substantially as described.

2. The combination of box or casing A, having fixed screw-heads, with a detachable lid having corresponding recesses to be locked to the box, substantially as set forth.

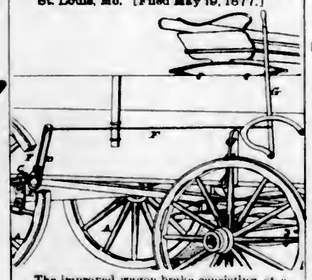
194,752. CARRIAGE-TOPS. J. N. Whipple, Volga City, Iowa. [Filed July 30, 1877.]



1. In combination with the bows and seat of a carriage, the arch B, having a segmental rack, B^1, and flange B^2, between which the detent with spring D^1 and point D^2 is placed, and lever D for actuating the detent, substantially as set forth.

2. The side curtains containing side rods E E, bent to conform to the shape of the curtains, and having projecting points, in combination with the back curtain, with tubular rod F for securing the curtains, substantially as set forth.

194,753. WAGON-BRAKES. Thos. Whyte, St. Louis, Mo. [Filed May 19, 1877.]

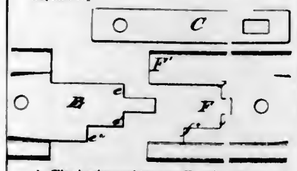


The improved wagon-brake consisting of a hook, C, and link E, having cord or chain F attached thereto, bracket D, and lever G, said hook adapted to engage with said link, in the manner substantially as and for the purpose set forth.

194,754. COMPOSITIONS FOR STAINING OR DYEING LEATHER, &c. George S. Wolff, Philadelphia, Pa. [Filed June 27, 1877.]

A black coloring composition, consisting of blue, red, and yellow aniline, dissolved in alcohol in about the proportions specified.

194,755. RAILWAY-RAIL JOINTS. H. W. Woodruff, Cincinnati, Ohio. [Filed July 14, 1877.]



1. The horizontal tongue E and corresponding recess F in the webs of the contiguous ends of the railway-rails, the heads and bases of which are of the usual form, with squarely-abutting ends, substantially as and for the purpose specified.

2. The combination of horizontal tongue E and corresponding recess F with the fish-plates C C, as and for the purposes described.

194,756. LAST-BLOCK FASTENERS. Barker C. Young, Boston, Mass. [Filed July 7, 1877.]

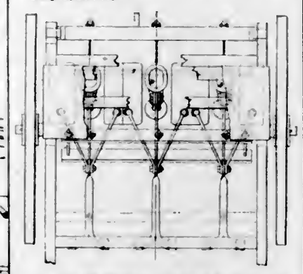


1. A last, A, and its block B, provided with metallic re-enforcing or bearing plates P P^1, which are rigidly attached, respectively, to the block and last, and are provided with shoulders *a b*, one having a projection, and the other a recess, said shoulders being adapted to bear against each other and prevent end and side motion of the block, substantially as described.

2. The plates P P^1, rigidly attached, respectively, to the last and block, and adapted, as described, to prevent end and side motion of said block, combined with the bolt I, which is adapted to slide in a socket in the plate P, and enter a recess in the plate P^1 to prevent upward motion of the block, as set forth.

3. The plate P, having the bottom plate *t*, provided with the socket *k* and spring *s*, combined with the bolt I, as set forth.

194,757. COMBINED SEEDER AND CULTIVATOR. Adam B. Groff, Bareville, Pa. [Filed July 5, 1877.]



1. The combination of the series of detachable and vertically-oscillating shields or protectors with the series of cultivator-teeth, and the frame supporting both, and the lifting mechanism, by means of which the whole can be raised up by the operator at will, substantially as described.

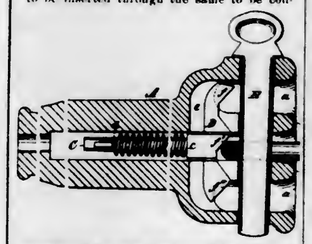
2. The combination of the rigid cross-bar, the adjustable lifting-bar, the adjustable screw-

rods, and the drag-bar hooks, constituting the frame for rigidly securing the seeding-boots and cultivator-teeth at a uniform and proper distance apart, and for lifting the shields, substantially as described.

3. The detachable cross-bar, in combination with the pivoted rods and the shields, substantially as described.

194,758. CAR-COUPLINGS. F. Heavener, Laramie City, Wyo. [Filed Aug. 21, 1877.]

1. The combination, with the draw-bar A, constructed, as described, with several throats, and with a recess, *s*, opening into the central throat, of the stem C, adapted to be inserted into said recess through said throat, and the cross-head B made of less transverse dimensions than the coupling-pin hole, and adapted to be inserted through the same to be connected with its stem, substantially as described, and for the purposes set forth.



2. The combination, with the coupling pin E and the draw-bar A, constructed as described, of the cross-head B, stem C having slot and shoulder *c*, the spring D, and the pin *d* arranged in said slot and fastened to the draw-bar for the purpose of holding the spring, guiding the stem, and limiting the forward movement of the cross-head, as described.

3. The combination, with the draw-bar having several throats, of the stem C, spring D, and cross-head B, having the faces *f f' f''* inclined so as to extend over the upper end of the link and hold the same in horizontal position without interfering with its freedom of movement, substantially as described.

REISSUES.

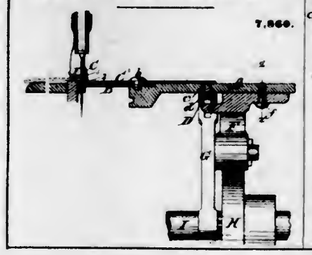
7,859. CONCEALED JOINTED BRACES FOR CARRIAGE-TOPS. D. W. Baird, Geneva, N. Y. Patent No. 143,316, dated Sept. 30, 1873. [Filed July 14, 1877.]



1. The brace or stay B, consisting of the two levers *a a'*, pivoted at *b* to break or open downward, and provided with the depending handle *h*, as shown and described, and for the purpose specified.

2. The levers *a a'*, having the enlarged heads *c*, with lateral sockets *d*, for the purpose specified, the stay *a* being formed with the depending handle *h*, all constructed and arranged as and for the purpose specified.

7,860.



7,860. CUTTING ATTACHMENTS FOR SEWING-MACHINES. Lyman L. Barber, Boston, Mass. Patent No. 166,267, dated Oct. 27, 1874. [Filed July 17, 1877.]

1. In combination with the stitch-forming mechanism of a sewing-machine, a reciprocating knife, arranged to cut against the edge of the stock parallel to the line of stitching, as set forth.

2. In combination with the stitch-forming mechanism of a sewing-machine, a reciprocating knife, arranged to cut against the edge of the stock parallel to the line of stitching, and two metal edges, 1 2, which hold and support the stock along or close beside the line on which the knife moves, said edges being flush and substantially parallel with the path of the knife, substantially as set forth.

3. The knife C, having its outer side substantially parallel with the line of its movement, and its inner side in a plane, that is diagonal to the plane of the outer side, and mechanism for reciprocating the same, combined with the metal edges 1 2, which are substantially parallel with the path of the knife, substantially as and for the purpose set forth.

4. The knife or trimmer C, having the notched or <-shaped cutting-edge, and the rounded or inclined back, said back and edge terminating at one point, as set forth.

5. The knife or trimmer C, constructed as described, and carried at the end of the horizontal shank or lever C', as set forth.

6. A sewing-machine knife or trimmer at the end of a horizontal plate or shank, inclined or curved upwardly from the back toward the operator, and rounded on the top edge to near the front, where it is sharpened to a point, and having its front notched in and sharpened, and its sides shaped to trim any desired form of edge on the work, substantially as and for the purposes specified.

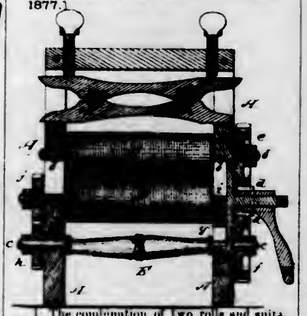
7. A presser-foot having its rear portion bent or curved up and rounded on the bottom, in combination with a throat-plate cut down to form an edge, 2, and a notched knife or trimmer, C, substantially as described.

8. The combination, with the stitch-forming mechanism of a sewing-machine, of a knife projecting above the top of the base, and mechanism for reciprocating the same against the edges of the stock, to cut the edge of the material parallel to the line of stitches, as set forth.

9. The knife C and shank C', combined with the pin *d* and slide D, adapted to be reciprocated horizontally by the power of the machine, as set forth.

10. The laterally-adjustable hanger F', combined with the lever G, slide D, pin *d*, and shank C', having the knife C, as set forth.

7,861. WRINGERS. J. Brinkerhoff, Auburn, N. Y., assignor, by mesne assignments, to the Empire Wringer Company. Patent No. 122,220, dated Dec. 26, 1871; Reissue No. 5,218, dated Jan. 7, 1873; Reissue No. 6,816, dated Dec. 21, 1875. [Filed July 23, 1877.]



1. The combination of two rolls and suitable connecting mechanism with a counter-shaft having a fixed journal at one side of the frame and a sliding journal at the other.

2. The combination of the rolls C and D arranged with gearing and sliding boxes and journals, to allow one or both ends of the rolls to be separated without changing the relative position of the gearing.

3. A sliding frame or box, B, having a journal or stud, *a*, cast, wrought, or secured thereon, in combination with a movable roll, for the purpose set forth.

4. A sliding box or frame, B, having a journal or stud, *a*, cast, wrought, or secured thereon, in combination with a frame and rollers, for the purpose set forth.

5. The combination of the train of gears *d e f* with the box B, so they shall always move together, and, consequently, be always in gear with each other while they move up and down with the upper yielding one of the pair of rolls, substantially as described.

6. In combination with the train of gears and the under roll detached from the box B, the counter-shaft E, and gears *h j*, for driving said under roll, substantially as described.

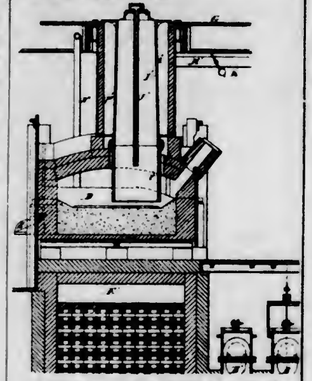
7. The upper roll C driven from the crank end by a pinion of smaller size than the pinion upon the shaft of roll C, and the lower roll D driven from the opposite end by suitable connecting mechanism to obtain the required purchase, substantially as and for the purpose set forth.

8. In combination with the rubber rolls C D, the purchase-pinion *d* located opposite the end of the lower roll D, and revolving independently of said lower roll, with suitable mechanism for imparting motion to the rolls, for the purpose set forth.

9. The combination of the rollers C and D and the purchase-pinion *d*, arranged to accommodate itself to the up and down movement of one roll, for the purposes set forth.

7,862. METALLURGICAL PROCESSES AND FURNACES. C. W. Siemens, Westminster, England. Patent No. 80,441, dated Apr. 27, 1860. [Filed Dec. 5, 1876.]

Brief.—Iron ore, mixed with reducing material, is charged into the upright retorts. Reducing-gases are passed into the center of the mass by the centrally-arranged gas-pipe. The retorts are heated by some of the waste heat from the furnace-bed. The reduced sponge drops into the bath of cast iron on the furnace-bed. Instead of upright retorts with iron ore, may use inclined retorts, with iron scraps, steel, or broken rails, &c.



1. The process of treating the metal in the bath of the furnace, which consists in adding litharge or any other oxide of lead formed into cakes or compact masses before use, by mixing it, substantially as described, with fused nitrate of soda or nitrate of potash, as and for the purposes described.

2. The method of preventing injury to the furnace or the choking up of the regenerators or flues, when oxide of lead or other substances which give off gases or vapors are added to the molten metal in the bath of the furnace, which consists in drawing off the gases or vapors, or the greatest part of them, from the furnaces without letting them pass into the regenerators or flues, and then condensing them to recover the products.

3. The combination of one or more tubular hoppers, I I', and the surrounding heating-chamber or chambers F, with the furnace D.

4. The combination of the tube J or J' with each of said hoppers I I'.

5. The combination of the connection M, provided with holes and caps, as set forth, with tubes J J', the said parts being arranged with the hoppers and furnace in the manner as set forth.

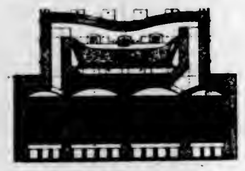
6. The combination of the system of heat-regenerators, as described, with the furnace D, its tubular hopper or hoppers, and the ac-

cessary heating chamber or chambers thereof, F F, the whole being made to operate together, and with one or more gas-producers, substantially as described.

7. In the process of making steel by a bath of metal and one or more hoppers and heating-chambers, as described, the method of managing the circulation and escape of the combustion products within a series of regenerators, whereby a portion of the products of combustion shall be withdrawn to heat the ore, metal, or material, while descending through the hopper or hoppers into the furnace or bath-chamber, and the remaining products of combustion, not reduced in temperature, be caused to pass through the regenerators to, and escape by, the chimney, the effect being to not reduce the temperature of the furnace by the introduction of the cool ore or materials through the hopper or hoppers.

7,863. REGENERATOR-FURNACES. C. W. Siemens, Westminster, England. Patent No. 89,441, dated Apr. 27, 1869. [Filed Dec. 5, 1876.]

Brief.—Gas and air enter through the reversible valves and pass through the regenerators to the furnace. The gas passes through the smaller regenerator and air through the larger, their sizes being proportioned to the respective volumes of air and gas necessary to insure complete combustion. From these they pass up side flues to the furnace, the air entering at a higher level than the gas. After combustion in the furnace-bed, the products of combustion pass down similar flues on the opposite side, through the other pair of regenerators, and, heating them intensely, pass out to the chimney.



1. A regenerative gas furnace in which the air-regenerator is as much larger than the gas-regenerator as the volume of air required to insure complete combustion is larger than the volume of gas.

2. A regenerative gas-furnace in which the air is introduced at a level superior to that at which the gas enters, as and for the purposes described.

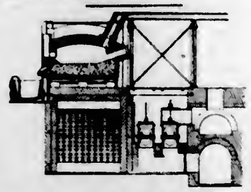
3. A regenerative gas-furnace in which the air-flues are separated from the gas-flues by a series of partition-walls, as and for the purposes described.

4. A regenerative gas-furnace in which both gas and air flues are arranged above the gas-generators.

5. A regenerative furnace in which the partition-walls between the air-flues and the furnace, the partition-wall between the flues and the ventilating-space, and partition-walls between the air and gas regenerators are arranged in the same vertical plane.

6. A regenerative gas-furnace in which the tie-rods are passed through the ventilating-space below the furnace bottom, as and for the purposes described.

7. A ladle mounted on wheels, in combination with the regenerative gas-furnace, as and for the purposes described.



7,864. VALVES FOR REGENERATOR-FURNACES. C. W. Siemens, Westminster, England. Patent No. 89,441, dated Apr. 27, 1869. [Filed Dec. 5, 1876.]

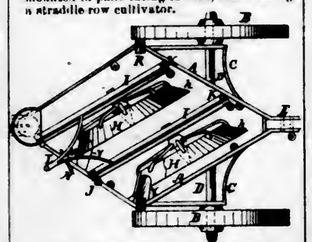
Brief.—Gas from the producer passes through one valve-box, past the reversing-valve, the side box, and onto the small regenerator and furnace-bed. Air passes in a similar way through the other valve-box, &c., and large regenerator to the furnace. The products of combustion come back through the other pair of regenerators, heat them, and pass to the chimney on the other side of the reversing-valve. On reversing this valve the courses of the air, gas, and products of combustion are also reversed.

1. In a regenerative gas-furnace, the reversing-valve, provided with metallic side boxes, substantially as shown and described.

2. In combination with the reversing-valve and side boxes, the mushroom throttle-valve, substantially as herein described.

7,865. ROTARY GANG-PLOWS. J. K. Underwood, Anoka, Minn. Patent No. 160,499, dated Nov. 2, 1875. [Filed July 24, 1877.]

Brief.—A pair of truck-wheels support, in an adjustable manner, a gang of disk-wheel plows having straight, smooth, flaring rims, standing at an angle of about forty-five degrees from a vertical plane. The rims are held by arms radiating obliquely from a central hub. A modification is shown and described in which the disks are adjustably mounted in pairs facing inward, thus making a straddle-row cultivator.



1. In a rotary plowing-machine, carried on truck-wheels, the rotary plowing-wheels H H, with flaring rims, having sharp, smooth, and perfectly circular peripheries, mounted on truck-wheels, and working in planes diagonal to the line of draft, substantially as described.

2. The rotary plowing-wheels O O P P, arranged in pairs upon a frame mounted upon truck-wheels B B, and the wheels in each pair diverging from each other from the ground upward, substantially as shown and described.

3. The combination of the frame A, truck-wheels B B, hook-bolts U, lever V, standard M, and wheels O O P P, combined and arranged to operate substantially as described.

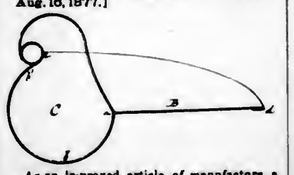
4. The combination of the rotary plowing-wheels H, pivoted beams I, keepers K, lever L, and standard M, all mounted on truck-wheels B B, and combined and arranged to operate substantially as described.

5. In combination with the truck-wheels B B, frame A, and plowing-wheels H H, set diagonally to the line of draft, I claim the caster-wheel F, with its flange *f*, all arranged to operate substantially as described.

6. The combination of the frame A C, having two sets of axles, D Q, hook-bolts U, standard M, and keepers K, adapted to receive rotary plows or cultivators, in the manner described.

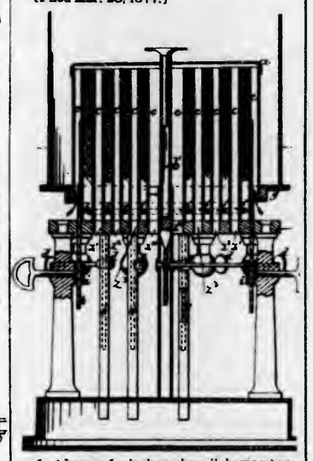
7. The combination, with rotary plows H, of beams I, pivoted upon the frame at J, and swinging in keepers K, the forked lever L, bare o, standard M, and pin N, as and for the purpose specified.

7,866. DUST-PANS. Sarah M. Rennie, Binghamton, N. Y., assignor of one-half interest to Wm. J. Rennie, same place. Patent No. 191,368, dated May 29, 1877. [Filed Aug. 16, 1877.]



As an improved article of manufacture, a dust-pan, constructed as described, and consisting of the lip or apron B, the recess C, and the curved protector *b'*, substantially as and for the purpose set forth.

7,867. LAMPS. H. H. Doty, Norfolk, Va. Patent No. 109,303, dated Nov. 15, 1870; Reissue No. 7,165, dated June 6, 1876. [Filed Mar. 28, 1877.]



1. A burner for hydrocarbon oils having two or more concentric annular wicks, and provided with air-spaces and means of air-supply and of deflection or modification of the air-currents which pass through them, substantially as described, whereby the air is admitted and delivered at the several points of combustion in substantially uniform volume, as and for the purpose set forth.

2. A burner adapted for two or more concentric wicks, and having a vertically-adjustable air-jacket or cylinder surrounding the outer wick-case, in combination with a bracket or chimney-gallery constructed and perforated substantially as shown.

3. A concentric burner having a vertically-adjustable outer air-jacket or cylinder, surmounted with a removable flanged ring, substantially as shown and described.

4. A burner adapted for two or more concentric wicks, and having an adjustable outer cylinder or air-jacket, with or without the flanged ring, combined with an internal rod or closed tube, and a bracket constructed and perforated substantially as shown, as and for the purposes set forth.

5. A burner adapted for two or more concentric wicks, and having an adjustable outer cylinder or air-jacket, with or without the flanged ring, combined with a central rod and disk or deflector, and with a bracket constructed and perforated substantially as shown, and for the purposes set forth.

6. An adjustable chimney-bracket outside the air-jacket, perforated to afford provision for a limited supply of air next to the lamp-glass, and also adapted to admit of the lateral adjustment of the chimney, substantially as shown and described.

7. Two or more concentric annular wick-tubes; air-spaces of substantially equal diameter inside and outside of the wick-tubes, which surround the central or innermost one; a central air-passage having a vertically-adjustable rod arranged centrally within it, and provided at its top with a detachable deflecting-disk, and an outer vertically-adjustable air-jacket or deflector having at its top a detachable ring, which is provided with an inwardly-projecting flange, combined substantially in the manner described, to constitute a lamp-burner for hydrocarbon oils.

8. The combination, in a lamp-burner for hydrocarbon oils, of a central wick-tube encircling an air-passage, which has within it a vertically-adjustable rod which is adapted, substantially as described, to support a horizontal deflecting disk, one or more annular, concentric wick-tubes encircling the central wick-tube and separated from it and from each other by annular air-spaces of substantially equal diameter, and an outer vertically-adjustable cylinder, to which is attached a perforated gallery, and which incloses an air-space outside the outermost wick-tube, substantially as shown and described.

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COMMISSIONER'S DECISIONS.

HENRY VOELTER.—*Extension.*

[*In the matter of the application of Henry Voelter for extension of Letters Patent of Reissue No. 4,418, for* "IMPROVEMENT IN REDUCING WOOD TO PAPER-PULP."—*Decided August* 22, 1877.]

Reissue Letters Patent No. 4,418, granted Henry Voelter June 6, 1871, for improvement in reducing wood to paper-pulp, declared valid in view of the state of the art with the exception of the third claim.

In an application for extension sufficiency of remuneration is a matter of fact, and not one upon which the judgment of the Commissioner can be informed by expert testimony.

SPEAR, *Commissioner:*

This case comes before the Commissioner by act of Congress approved March 3, 1877, which authorizes the Commissioner of Patents—

To hear and determine the application of Henry Voelter for the extension for the further term of seven years of the letters patent for "improvement in reducing wood to paper-pulp," granted to him August 10, 1858, antedated August 29, 1856, extended for seven years from August 29, 1870, and reissued upon an amended specification June 6, 1871; the form of such application and the mode of proceeding under it to be in all respects the same as was provided by the act of Congress approved July 8, 1870, entitled an act to revise, consolidate, and amend the statutes relating to patents and copyrights for the extension of patents granted prior to March 2, 1861; and if upon such hearing the Commissioner shall be satisfied that the said Henry Voelter, without neglect or fault on his part, has failed to obtain from the use or sale of his invention or discovery a reasonable remuneration for the time, ingenuity, and expense bestowed upon it, and the introduction of it into use, and that it is just and proper, having due regard to the public interest, that the term of the patent should be so extended, the Commissioner shall make a certificate upon said reissue patent renewing and extending the same to said Henry Voelter, his executors, administrators, or assigns, for the term of seven years from the 29th of August, 1877, which certificate shall be recorded in the Patent Office, and thereupon the said patent shall have the same effect in law as though it had been originally granted for twenty-eight years.

In accordance with this act, and with other provisions of acts of Congress relating to the extension of patents, application has been made in due form and is now before me, together with the testimony taken on behalf of applicant and of remonstrants.

Upon the question of novelty, so far as it relates to the essential points of the invention, there have been repeated adjudications in the Office and one in the circuit court. (*Miller* vs. *Androscoggin Pulp Co.*, 1 OFFICIAL GAZETTE, p. 409.)

No question has been raised upon this application for a second extension affecting in any way the validity of the claim in respect to the novelty of the process, or for what may be called the vital principle of the machine.

The examiner criticises justly, as I think, the third claim, in view of certain patents cited by him in his report, and this claim, as I understand, applicant is willing to disclaim. The other claims for details of the invention are of subordinate importance.

I have examined the cases cited as tending to show lack of novelty in these combinations, and am satisfied that no valid objection has been brought forward against the claims.

I have referred more particularly to the claims for subordinate matters in the patent, because the patent has been reissued since the former extension, and it does not appear that all the references which have been cited upon those subordinate claims were before the court. As to the value and importance of the invention there can be no question. In his decision granting the former extension of this patent the Commissioner states that Voelter was shown, by the evidence before him, to have been "the first to develop a successful machine for the production of paper-pulp by the mechanical reduction of wood fiber," and that "the real value of the invention was to be estimated by millions."

There is nothing in the evidence now before me tending to show that the value of the invention was then overestimated. It appears that less than six thousand tons of paper-pulp had been manufactured in this country by the Voelter machines prior to 1870; that during the last seven years the capacity of these machines has been increased to correspond to the increased call for that product, and that they have produced seventy-five thousand tons of pulp in the period last stated. It is shown, also, that the daily production is now about sixty tons, which is nearly double the average daily product of the last seven years. This increase in the manufacture is one element of the importance of the invention and one indication of its value. Another element, however, of the value of the invention and of its im-

portance to the public is to be found in the decreased cost of the article produced, for the benefit conferred upon the public is in proportion as it lessens the cost of the article of paper. Upon this point the evidence shows that the cost of the wood-pulp for paper is reduced to two and one-half or three cents per pound. The price of rag-pulp of corresponding grade is six cents per pound, and that of chemically-made wood-pulp seven cents per pound. It appears, then, that the seventy-five thousand tons of Voelter pulp made during the past years at three cents per pound would cost the public $4,500,000. The seventy-five thousand tons of rag-pulp which it has replaced would have cost at six cents per pound $9,000,000. The saving to the public, then, during the past seven years has been $4,500,000, and the evidence shows that this saving has not been effected by using an inferior paper, but that the wood-pulp, as applied in the manufacture of paper and mixed with other pulp, produces paper as good at least, for the purpose for which it is intended, as paper made wholly from the rag-pulp.

It is fair, also, to take into account, considering the question of saving to the public, that a large proportion of the rags used in the manufacture of paper prior to this invention was imported from abroad. It is also shown by the evidence that the effect of the introduction of this invention has been to force down the price of rag-pulp. The price of rag-pulp before the introduction of wood-pulp made by the Voelter process, or about the time of its introduction, was ten cents per pound. How much the reduction from ten cents to six cents per pound is due to the influence of the Voelter process, and how much to the general decline in prices has not been set forth in the testimony, or in the statement of applicant, and perhaps would be impossible to determine; but the opinion of the witnesses is, that as the demand for paper has been constantly increasing and the supply of rags is, from the nature of the article, limited, the reduction has been wholly or very largely due to the introduction of the Voelter pulp.

It is represented that the importation of news-paper of such grades as the Voelter pulp is worked into has now entirely ceased. There is also evidence that news-paper formed in part of the Voelter pulp is, in any form, as good as all rag-paper, and that for the more recently invented rapid web-printing-press it is better adapted, by reason of its more readily absorbing the ink.

The novelty of the invention, the value and importance to the public having been established, it remains to consider whether or not the inventor has received reasonable remuneration for his time, labor, and expense, for perfecting the invention and introducing it into use; and, further, whether the extension of the patent can be granted with due regard to the public interest.

The question of remuneration will be determined partly by reference to the finding of the Commissioner in the former extension. It appeared then that the inventor, so far from receiving any profit by reason of the invention, had incurred very heavy loss. Upon the showing now made a balance is still very largely against him, the amount which he has received during the extended term not having yet remunerated him for the actual amount expended upon the invention. During the last seven years the business of introducing the invention, and supplying the public with the product thereof, has been in the hands of Voelter's assignees. By the terms of the contract Voelter was to receive $6,000 per year for the invention, the same arrangement continuing for the term at present applied for, and the assignees were to have the whole control and sole responsibility and risk in the prosecution of the manufacture under the patent. Of the $6,000 per year, Voelter (residing abroad) has paid Prang, his agent, who negotiated for him originally the sale of the invention in this country, a commission of twenty-five per cent. He also made a deduction of some $10,000 in favor of the assignees on account of the large outlay which they were compelled to make in establishing the manufactory and bringing the invention into use, and because of the small profit accruing therefrom, so that the total amount received by him during the past seven years has been only about $20,000. This, as I have before intimated, was not sufficient to balance the account, as is shown in the application for the first extension, and as appears now, so that Voelter appears rather to have lost than gained by reason of the invention. Whether or not the amount received from the invention could have been increased by any increase of effort or diligence on the part of Voelter is, upon the record before me, very easy to determine.

The question of diligence up to the time of the former extension was settled by the Commissioner at that time. If the question were open I see no reason to change the finding of the Commissioner, and nothing has been introduced since which adds any new element to the problem.

The introduction of the invention required great exertion, familiarity with the business of the country in this particular line, and a very large outlay of capital. It could be carried on only by organized companies, and by them only at the risk of loss upon the capital invested. It does not appear that Voelter could have made any terms better than those which he did make at that time, and the result has shown that he could not by any personal effort of his own have accomplished more.

One of the witnesses, largely interested in the manufacture of pulp under this patent, testifies that his profits have been only about five per cent. upon the capital invested. The distrust, on the part of the paper manufacturers, of new and untried material—a distrust increased by failures of other experiments—was such that pulp manufacturers, after building pulp-mills having the Voelter machines, were compelled to add to those manufactories others for the purpose of working this pulp into paper, thus adding to one distinct business, requiring a very large outlay, another equally distinct, requiring another large outlay. So that, even if Voelter stood in relation to this extension exactly in the place of his assignees, or if his assignees were required, as they are not, to give an account of their profit and loss the result would be precisely the same.

The undertaking to introduce into general use such an invention is manifestly very great. It involved, to some extent, the reorganization of a great industry. The invention did not contemplate simply the manufacture of a finished article to be put upon the market ready for sale, disclosing its qualities and its merits to the view of the purchaser, as in most cases. It was rather a manufacture for manufacturers—a manufacture of raw material, so to speak. It was to be offered to manufacturers whose business would not bear experimenting, whose reputation as business men depended very largely upon the reliability of their manufacture; and, added to their natural reluctance to accept new and untried material to be put into their paper, the failure of which in the using might cause serious disaster and embarrassment to the purchasers of it, was the fact, heretofore referred to, of former experiment and former failure in attempts to supply cheaper material for this purpose.

In opposition to the extension of this patent, the remonstrants subjected the witnesses produced on behalf of applicant to cross-examination, produced evidence on their own behalf, and presented arguments at the hearing.

I have carefully read all the evidence in the case, and do not find that the testimony of the witnesses on direct examination is materially weakened by the cross-examination.

The statements made by counsel for Voelter at the hearing were amply sustained by the evidence. The testimony taken on behalf of the remonstrants is confined to that of experts, who testify mainly upon two points: First, against the patentability of the invention of Voelter; and, second, that he has already been sufficiently remunerated. The first of these points has already been sufficiently discussed. The second is not a matter about which the Commissioner's judgment can be informed by expert testimony, but must be based solely upon facts. The main reliance, at the hearing, in opposition to the extension, apart from some matter already discussed, was the fact of the expiration of foreign patents and the law relating to the limitation of the life of the American patent by the foreign patent first to expire. This does not appear to have been relied upon by the defense in the case of *Miller* vs. *Androscoggin Pulp Co*, referred to above, and is not in accordance with the view held by the Office. (*Apperly & Clissold*, Com. Dec. 1870, p. 163.)

The relation of the extension of this patent to the public interests of the country is a matter not so easy to determine. The policy of the founders of the Government, and that followed by the law-making power since the adoption of the Constitution, in relation to new and useful inventions is very simple and plain. It was to encourage and promote the progress of the useful arts. To this end it proposed to reward meritorious inventors, not simply for the making of an invention, but for the making and giving of an invention to the public. It proposed, further, to confer this reward by giving to such meritorious inventors the exclusive use of the invention for a term of years on condition of full and complete disclosure of it, so that at the expiration of the term full benefit of it would inure to the public. Following that principle the act of 1832, and more fully the act of 1836, provided that where the original term of fourteen years should be insufficient for the purpose, and if in that time, without any fault of his own, the inventor of a valuable invention should have failed to receive reasonable remuneration, he might, on certain just conditions, receive an extension of the time for a further period. In the same spirit, since the repeal of the general act providing for the extension of patents and the substitution of the term of seventeen years for that of fourteen, special acts of Congress have permitted special extensions, in order to carry out the policy of the Government underlying the whole patent system; and the vital principle which animates the whole is, that he who has conferred a meritorious invention upon the public shall, if possible, be rewarded. In order that inventors may be really and substantially rewarded, in some measure, in proportion to the benefits conferred, and thus others be stimulated in like efforts, the Government endeavors to keep faith with inventors, and, as far as possible consistently with the public interest, give them a monopoly of such length of time as may be necessary to reap a reward for their labor and expense.

In the original grant of patents the question of public policy does not ordinarily arise. The invention being new the public is in no way embarrassed by the grant of the monopoly, because it can accept or refuse the new invention, according to pleasure. No hardship could occur unless the invention had been allowed to go into public use for a long time prior to the grant of the patent, and for this the law expressly provides. In case of the extension of a patent there is simply a continuation of a monopoly already granted and sustained for a further period. Those already using the invention under the former term are ordinarily likely to use it under the extended term on the same conditions. The extension cannot operate as any surprise, either to those using or contemplating the use; nor do I see how, under any ordinary circumstances, a continuation of the lifetime of a patent can operate otherwise for another period of seven years than it has operated during the past. In the case under consideration there are no extraordinary circumstances, so far as I can discover, affecting this manufacture and likely to operate in any respect injuriously to the interests of the country.

The result during the past has been for the further introduction of the invention, the better and cheaper supply of a public need. The invention exactly suited the conditions it found in this country, and turned to profitable use an abundant native material, which has taken the place of that formerly imported from abroad.

The policy adopted and pursued by the assignees appears to have been a liberal one, as shown by the licenses and territorial assignments. It does not appear to have been a close monopoly, but a free competition between different licensed manufacturers, resulting, as we have seen, in a very large reduction in the price of paper-pulp. The extension of the patent another term appears likely only to establish on a firm and large basis this useful manufacture, to bring the product, as far as it is applicable, into increased use and to leave it in the possession of the public, at the expiration of the patent, as thoroughly introduced, known, and tested, as the old material which it has supplanted or is now supplanting.

I am satisfied, therefore, that the invention is new and of great utility, and that it is of exceedingly great value and importance to this country, abounding as it does in the material from which the pulp is made, and lacking in that for which the pulp is a substitute.

I am satisfied, further, that the inventor has not been properly remunerated for the time, labor, and expense bestowed upon his invention and the introduction of

it, and that this failure has not been through any fault or neglect on his part. Further, I am satisfied that the extension of the patent imposes no other conditions on the public than the original grant, and does not injure the public interests, and that I am carrying out the spirit and intent of the law, liberal alike to citizens and aliens, in extending the patent.

The extension will be granted on the filing of a disclaimer to the third claim.

G. A. GRAY.—*Caveat.*

[*In the matter of the petition of George A. Gray, Jr., accompanying his caveat.—Decided March* 26, 1877.]

It is sufficient if a caveat is signed by only one of two or more joint inventors. As the only object in filing a caveat is to obtain notice of interfering applications, the right of one joint inventor to this notice should not be subject to the control of his co-inventors.

[*James W. See*, for applicant.]

SPEAR, *Commissioner:*

The petitioner sends to the Office a drawing and specification relating to an invention, and requests that they may be filed in the secret archives as a caveat. He represents himself to be, not the sole, but a joint, inventor with another party of the invention represented in the papers.

The question is raised by the officer receiving these applications as to the propriety of putting on the record a caveat relating to a joint invention without the signature and oath of both inventors.

Caveat papers are simply preliminary papers filed in the Office for the purpose of securing notice in case of interfering applications while the caveator is experimenting or maturing his invention. This caveat cannot be merged into a patent, and is no foundation in itself for any such issue. Its simple object is, as before remarked, that the caveator may obtain notice. To this end it is only necessary to know what the invention is, and who is the proper party to notify.

The law does not even require an oath of invention. I see no reason why one of the parties to a joint invention should not file a caveat and be entitled to notice, whether others desire such notice or not. One of the parties might be an alien who had not made oath of his intention to become a citizen and did not desire to. In such case a citizen would be deprived of his legal right by a refusal to receive the caveat without the signatures of both.

The officer having charge of these papers will receive this caveat and place it upon record, and be guided by this decision in like cases.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date September 4, 1877.]

10,193 to 10,194, inclusive.—Carpets.—JAMES L. FOLSOM, Brooklyn, N. Y., assignor to THE HARTFORD CARPET COMPANY, Hartford, Conn. Applications filed August 20, 1877. Term of patents 3½ years.

10,195 to 10,203, inclusive.—Carpets.—OTTO HEINICKE, New Utrecht, N. Y., assignor to THE HARTFORD CARPET COMPANY, Hartford, Conn. Applications filed August 20, 1877. Term of patents 3½ years.

10,204 to 10,217, inclusive.—Carpets.—HENRY HORAN, East Orange, N. J., assignor to THE HARTFORD CARPET COMPANY, Hartford, Conn. Applications filed August 20, 1877. Term of patents 3½ years.

10,218.—Carpets.—HENRY NORDMAN, New York, N. Y., assignor to THE HARTFORD CARPET COMPANY, Hartford, Conn. Application filed August 20, 1877. Term of patent 3½ years.

10,219 and 10,220.—Carpets.—GEORGE W. PIGGOTT, New York, N. Y., assignor to THE HARTFORD CARPET COMPANY, Hartford, Conn. Applications filed August 20, 1877. Term of patents 3½ years.

10,221 to 10,223, inclusive.—Carpets.—JOHN E. ROLLINGS, New York, N. Y., assignor to THE HARTFORD CARPET COMPANY, Hartford, Conn. Applications filed August 20, 1877. Term of patents 3½ years.

10,224.—Carpets.—JOHN H. SMITH, Enfield, assignor to THE HARTFORD CARPET COMPANY, Hartford, Conn. Application filed August 20, 1877. Term of patent 3½ years.

10,225 to 10,228, inclusive.—Carpets.—WILLIAM H. SMITH, Enfield, assignor to THE HARTFORD CARPET COMPANY, Hartford, Conn. Applications filed August 20, 1877. Term of patents 3½ years.

10,229.—Cigar-Box.—JOHN STRAITON and GEORGE STORM, Bay Side, New York. Application filed April 18, 1877. Term of patent 7 years.

10,230.—Easy-Chair.—FRIEDRICH KRAYL, Chicago, Ill. Application filed May 5, 1877. Term of patent 3½ years.

10,231.—Printed and Woven Fabric.—WILLIAM MORRIS, London, England. Application filed December 9, 1876. Term of patent 7 years.

10,232.—Handles for Table-Ware.—JAMES A. WHALEN, New York, N. Y. Application filed August 24, 1877. Term of patent 7 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date September 4, 1877.]

5,109.—Stomach-Bitters.—EUGENE L. BETAUX, San Francisco, Cal. Application filed August 6, 1877.

"The fanciful words and figures 'BETAUX'S 1776-1876,' and the faces of Washington and Lafayette, mounted at the top by an eagle, and the United States of America and French flags, and at the bottom by the shields of France and the United States."

5,110.—Hair-Dye.—AZARIAH CONNELLY, New York, N. Y. Application filed June 9, 1877.

"The fanciful words 'CONNELLY'S SALVATION FOR THE HAIR.'"

5,111.—Cigars and Cigarettes.—G. W. FABER, New York, N. Y. Application filed August 17, 1877.

"The word-symbol 'REBAF.'"

5,112.—Calico-Prints.—FREEMAN MANUFACTURING COMPANY North Adams, Mass. Application filed August 7, 1877.

"The engraving representing Windsor Castle and the word-symbol 'WINDSOR.'"

5,113.—Champagne-Wine.—HEIDSIECK & CO., Reims, France. Application filed August 18, 1877.

"The arbitrarily-selected word 'MONOPOLE.'"

5,114.—Champagne-Wine.—HEIDSIECK & CO., Reims, France. Application filed August 18, 1877.

"The word-symbol 'ROYAL.'"

5,115.—Medical Preparation.—HIMROD MANUFACTURING COMPANY, New York, N. Y. Application filed March 27, 1877.

"The fac-simile signature of 'Peter Himrod,' used in connection with the words 'Himrod's Cure.'"

5,116.—Animal-Trap.—CLAUDIUS JONES, Seward, Nebr. Application filed August 16, 1877.

"The word-symbol 'DELUSION.'"

5,117.—Whisky.—MIAMI DISTILLING COMPANY, Hamilton and Cincinnati, Ohio. Application filed August 17, 1877.

"The representation of a drawn bow and arrow."

5,118.—Oatmeal, Cracked Corn, Cracked Wheat, Pearl Barley, and Farina.—THE QUAKER MILL COMPANY, Ravenna, Ohio. Application filed August 17, 1877.

"The figure of the man in Quaker garb."

5,119.—Cordial Designated "Schnapps."—JOEL B. WOLFE, New York, N. Y. Application filed May 25, 1877.

"The fac-similes of the signatures of 'Udolpho Wolfe' and 'Joel B. Wolfe.'"

5,120.—Pills for Biliousness, Constipation, &c.—GEORGE D. COANEY, Bayonne, N. J. Application filed August 3, 1877.

"The word-symbol 'HYGRIA.'"

5,121.—Cigars, Cigarettes, Cigarros, and Smoking-Tobacco.—S. FUGUET & SONS, Philadelphia, Pa. Application filed May 23, 1877.

"The word-symbol 'RAMPANT.'"

5,122.—Cigars.—HEYMAN [BROTHERS & LOWENSTEIN, New York, N. Y. Application filed August 18, 1877.

"The word-symbol 'PHŒNIX,' and of a representation of the legendary bird 'Phœnix.'"

5,123.—Woolen Fabrics.—T. E. HOPKINS, Fitchburg, Mass. Application filed June 29, 1877.

"The word-symbol 'CASTLEWOOD.'"

5,104.—Razors.—NATHAN JOSEPH, San Francisco, Cal. Application filed April 28, 1877.

"The word-symbol 'QUEEN'S OWN.'"

5,125.—Soap.—LINCOLN & HOLBROOK, Boston, Mass. Application filed August 20, 1877.

"The word-symbol 'RELIEF.'"

5,126.—Locomotive-Boiler Tubes.—NATIONAL TUBE WORKS COMPANY, Boston, Mass., and McKeesport, Pa. Application filed July 17, 1877.

"The word-symbol 'LOCOMOTIVE' inclosed in a rhomb-shaped border."

5,127.—Cleaning and Polishing Fluid for Wood and Japanned Surfaces.—GEORGE M. SHEPARD, Chicago, Ill. Application filed June 14, 1877.

"The representation or engraving of a railway-car, with the initials 'G. M. S.' thereon."

5,128.—Cigars.—ISAAC TEICHMAN, New York, N. Y. Application filed May 25, 1877.

"The word-symbol 'GOLDEN STARS.'"

5,129.—Plug Chewing-Tobacco.—THE PIONEER TOBACCO COMPANY, Brooklyn, N. Y. Application filed March 24, 1876.

"The word-symbol 'MATCHLESS.'"

5,130.—Canned Goods.—THOMPSON, FRY & CO., Philadelphia, Pa. Application filed August 18, 1877.

"The word-symbol 'HOME BRAND.'"

5,131.—Reed-Organs.—WHITNEY & RAYMOND, Cleveland, Ohio. Application filed August 31, 1877.

"The word-symbol 'UNITED STATES.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date September 4, 1877.]

1,170.—Title: **"Misfit Carpets."**—J. A. BENDELL, New York, N. Y. Application filed August 24, 1877.

1,171.—Title: **"Henry Bornstein, Inventor and Patentee of the Popular and Celebrated Pin Hook."**—HENRY BORNSTEIN, Boston, Mass. Application filed August 23, 1877.

1,172.—Title: **"Witch Hazel Liniment."**—BENJAMIN W. DYER, New York, N. Y. Application filed August 22, 1877.

1,173.—Title: **"Iron Condition Powders."**—BENJAMIN W. DYER, New York, N. Y. Application filed August 22, 1877.

1,174.—Title: **"Herbs 3 for 10."**—F. & M. HERBS, Hudson, N. Y. Application filed August 13, 1877.

1,175.—Title: **"Letter and Copying Book."**—YOUNG, ROLLAND & CO., New York, N. Y. Application filed August 24, 1877.

1,176.—Title: **"Dry Goods."**—FORBES LITHOGRAPH MANUFACTURING COMPANY, Boston, Mass. Application filed August 20, 1877.

DISCLAIMER FILED.

4,240, (reissue.)—**Improvement in Passenger Fare Boxes.**—JOHN B. SLAWSON, New York, N. Y. Patented July 28, 1857; reissued May 4, 1858; again reissued January 24, 1871. Disclaimer filed September 6, 1877.

Disclaims that part of the claim which is in the following words, to wit:

1. A fare-box composed of two compartments, so combined that the fare, on being deposited through an opening in one of them by the passenger, without the intervention of the driver or conductor, shall be temporarily arrested therein for examination and inspection by the driver or conductor, through an opening therein covered by a transparent medium, and then, when approved of, transferred directly to the second or general receiving-compartment, which, as well as the first, is made inaccessible, except by violence, to the driver or other unauthorized person, for the purpose set forth.

The "Rules of Practice" contain full instructions, forms, &c., for making applications for patents.

Copies of patents, arranged by classes of inventions, can be obtained at 10 cents per copy where the entire class is ordered.

The Government fee on making application for a patent is fifteen dollars. The final fee is twenty dollars. Usually there are no other Government fees unless the application is appealed.

When a patent has been allowed, and the application has not been forfeited by delay of six months, if the final fee of twenty dollars is paid before 12 o'clock on Friday, the patent will issue and bear date the following Tuesday.

As 12 o'clock on Friday is the latest hour that a final fee can be received in order to get a patent into the "issue" of the following Tuesday, applicants are earnestly requested to make the final payment before Friday, if possible, so that the proper entries may be made on the books of the Office before closing the "issue."

SALE OF SPECIFICATIONS AND DRAWINGS.

Photolithographic copies of the drawings of all patents issued since November 26, 1867, have been produced, and will be sold to the public at 25 cents per patent, or, where twenty or more copies are ordered at one time, at 10 cents per patent.

Coupon-books, to the amount of $2 or more, can be purchased from the Chief Clerk of the Patent Office; the coupons, for 10 cents each, may be filled out at any time, and, on presentation, will entitle the holder to a photolithographic copy of *any* drawing which has been reproduced.

The specifications of all patents issued since July 1, 1871, are in print, and will be furnished with the drawing without extra charge. The specifications of patents issued from November 20, 1866, to July 1, 1871, are in print, and where such is the case the Office will furnish them with the drawings, but the Office will not undertake to reprint copies of patents which have been exhausted.

In addition to the above, the Office has reproduced, and offers for sale at the price mentioned above, all drawings in the following classes, embracing patents

granted from 1790 to date. The classes are those of the Examiners:

1. Aeration and Bottling.
2. Apparel.
4. Baths and Closets.
5. Beds.
6. Bee hives.
7. Beer and Wine.
8. Bleaching and Dyeing.
9. Boats.
10. Bolts, Nuts, and Rivets.
11. Bookbinding.
13. Brakes and Gins.
14. Bridges.
15. Brushes and Brooms.
17. Butchering.
18. Caoutchouc.
19. Carding.
20. Carpentry.
21. Carriages and Wagons.
23. Chemical Misc.
26. Cloth.
28. Cordage.
29. Crinoline and Corsets.
31. Dairy.
33. Drafting.
34. Driers and Kilns.
36. Electricity.
37. Excavators.
38. Felting and Hats.
40. Files.
42. Fire-arms.
44. Fuel.
45. Furniture.
47. Garden and Orchard.
48. Gas.
52. Gunpowder.
53. Hardware manufacture.
55. Harrows.
56. Harvesters.
58. Horology.
59. Horseshoes.
61. Hydraulic Engineering.
62. Ice.
65. Kitchen Utensils.
66. Knitting and Netting.
67. Lamps and Gas-fitting.
68. Laundry.
71. Manures.
72. Masonry.
73. Measuring Instruments.
75. Metallurgy.
76. Metal Working, bending and straightening.
77. Metal Working, boring and drilling.
78. Metal Working, forging, swaging, and riveting.
79. Metal Working, punching, cutting, and shearing.
80. Metal Working, rolling.
81. Metal Working Tools.
82. Metal Working, turning, planing, and milling.
83. Mills.
85. Nails.
86. Needles and Pins.
87. Oils, Fats, and Glue.
88. Optics.
89. Ordnance.
90. Ore.
91. Paint.
92. Paper-making.
93. Paper manufactures.
94. Paving.
96. Plating.
97. Plows.
98. Pneumatics.
99. Preserving Food.
101. Printing.
102. Projectiles.
103. Pumps.
104. Railways, The Way.
105. Railways, Cars and Interior Fittings.)
106. Railway Cars, Exterior Mountings and Fittings.
107. Railway Track and Car Irons and Fittings, manufacture of.
108. Roofing.
111. Seeders and Planters.
112. Sewing-machines.
114. Ships (1) construction.
115. Ships (2) propulsion.
116. Signals.
117. Silk.
118. Spinning.
119. Stabling.
120. Stationery.
124. Stills.
126. Stoves and Furnaces.
127. Sugar.
130. Thrashing.
131. Tobacco.
132. Toilet.
134. Tubing and Wire.
135. Umbrellas and Fans.
137. Water Distribution.
138. Water wheels.
139. Weaving.
141. Wood screws.

And the subdivisions of—

Bench-planes.
Bale-ties.
Buttons and Machines.
Combs, &c.

About forty other classes are in progress, and it is hoped that all the drawings remaining, some thirty thousand in number, may be completed during the fiscal year.

The total number of patents of which drawings are complete and offered for sale as above will approximate one hundred and fifty thousand.

Printed copies of specifications can be procured from No. 59,740, issue of November 20, 1866.

Printed copies of any patent can be obtained commencing with issue of November 26, 1867, to date.

Where specifications are printed, copies of same attached to drawings will be furnished without extra cost.

The GAZETTE is made to bear the same date as the patents to which the claims, briefs, and drawings relate, although it is not actually mailed to subscribers until about two weeks later than its date.

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Godwin, H. J., and H. C. Fager, Washing machine	194,812
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Murphy D. H., Stopper for bottles, &c.	194,924
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Sauerbier, H., Manufacture of boots	194,931
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Sellew, W., assignee	194,911
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Tait, A. J., assignee	194,902
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Tower, J. J., assignee, (reissue)	7,873
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Van Deventer, W., assignee	194,874
Van Dorn, F., Cotton harvester	194,854
Van Etten, D. S., Curtain fixture	194,793
Van Sands, G., assignee	194,884
Verree, J. P., Bale tie	194,939
Wales, N., assignee	194,878
Walker, W., Candle holder for miners' use	194,940
Walkinshaw, S. L., Valve for steam cylinders	194,941
Watkins, J. E., and M. Sale, Cotton harvester	194,855
White, S. S., assignee	194,850
Wightman, J. C., Sheep shears	194,794
Wilcox Silver Plate Company, assignee	194,858
Wiley, W. A., Compound for graining wood	194,944
Wilson, C. C., assignee	194,811
Wilson, J. H. H., Nutmeg grater	194,942
Winger, H., Spring bed bottom	194,795
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Zeigler, D., Car coupling	194,946
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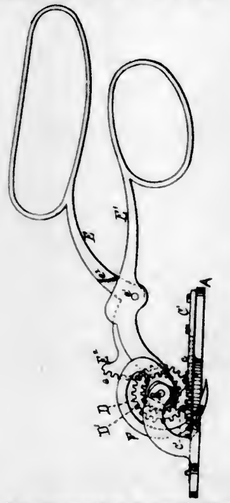
TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED SEPT. 4, 1877.

194,759. MACHINES FOR SEWING BAGS, &c. K. C. Atwood, New York, N. Y. [Filed June 19, 1877.]

Brief.—The device is placed on the material to be sewed—for instance, a bag full of grain, &c.—and a stitch taken by forcing together a pair of hand-levers; is then moved the length of a stitch, and the operation repeated, and so on to the end of the seam.



1. In a sewing-machine, the combination of the bed-plate A, constructed as described, plates C C', toothed rack *c*, hook *c'*, pinion D, and the mechanism for operating said pinion, the whole constructed and arranged substantially as described.

2. In a sewing-machine, the combination of the levers or handles E E', axial bolt B, differential gear D D', circular needle F, bed-plate A, plates C C', toothed rack *c*, and hook *c'*, the whole constructed and arranged substantially as described.

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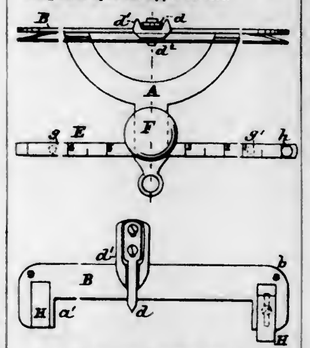
194,760. RATCHET-RELEASERS FOR UNLOADING COAL-CARS. W. D. Beebe, Pottsville, Pa. [Filed June 20, 1877.]

Brief.—The ratchet-shaft on coal-cars is inserted in the socket of the tool, and the tool operated as a wrench to loosen the pawl of the car-ratchet. The pawl of the wrench is then withdrawn by its lever, whereupon the car ratchet-shaft revolves, and the traps of the car are opened by weight of its load.

The combination, in a ratchet-release, of the lever A, the ratchet-wheel B, the ratchet-pin D, the spring F, the connecting-bar E, and the lever C, constructed and arranged as herein described and shown.

194,761. CARPENTERS' SCRIBING-TOOLS. C. B. Billings, Warren, Vt. [Filed Apr. 7, 1877.]

Brief.—A vertically-adjustable and swinging marker is attached, by a guide-rod, to a scribing-plate, provided with angular ends having vertically-adjustable plates, and connected to a frame having a slot, in which is adjustably secured a bar provided with studs upon its lower surface and a stud and measuring-scale upon the upper surface.



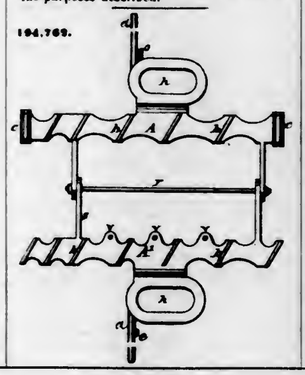
1. In combination with the frame A and plate B, the bar E, having pins *g g'* *h*, and adapted to be adjusted for marking squares and miters, substantially as described.

2. The plate B having angular ends *a a'* provided with the adjustable plates H, substantially as and for the purposes described.

3. In combination with the plate B and the guide-rod *c*, the holder *d'*, having an inclined recess for the adjustable tool *d*, a slot to receive the edge of the plate, and a lug, *d''*, extending under the guide-rod, substantially as and for the purposes described.

4. The frame A, having a recess to receive the bevel-plate and adjustable bar, in combination with the bevel-plate F, provided with a screw and knob, substantially as and for the purposes described.

194,762.



194,762. CLAMPS FOR STRAIGHTENING FILES IN HARDENING. W. S. Birks, Syracuse, N. Y. [Filed Mar. 7, 1877.]

Brief.—A two handed clamp with holding-points at graduated distances, and friction-rollers and pressing-levers.

1. A file-straightening tool composed of two leaves hinged to each other at their side, and provided with bearings *b* on their adjacent surfaces, and a handle, *h*, attached to each leaf, constructed to operate substantially as described, for the purpose set forth.

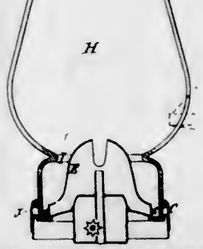
2. In a file-straightening tool, the arrangement of the bearings *b b*, having the distances between them gradually increasing from one end of the leaf, substantially as described, for the purpose specified.

3. The combination and arrangement of the jaws A A', having shanks *s* extended from their outside downward, and hinged by the rod *r* passing through the ends of said shanks, and stiffened by the rib *s* on the outside, and provided with teeth or ridges *b* on their inner surface, the jaw A' having, at its bottom edge, the inward-projecting spurs *v v*, and the jaw A, provided with anti-friction rollers *c*, constructed substantially as described, for the purpose specified.

4. The combination, with the leaves A A' provided with ridges or teeth *b b*, of the anti-friction rollers *c*, substantially as and for the purpose set forth.

5. In combination with the jaws A A' provided with handles *h h*, the levers *d d*, substantially as described and shown, for the purpose set forth.

194,763. LAMP-BURNERS. E. Blackman, New York, N. Y. [Filed Apr. 17, 1877.]



1. The burner formed as herein described, having a rim or flange on the outer edge of the base-plate extending above and below said base-plate, and the locking device or segment C, substantially as and for the purpose herein set forth.

2. The cone E, constructed of metal, and formed as herein described, in combination with a flat-wick lamp-burner, substantially as and for the purpose herein set forth.

3. The chimney or globe H, constructed with the vertical annular base formed with the segmental inclined lugs J above and out of the lower edges of the base, adapted to engage segments C on the lamp-burner, as and for the purpose described.

194,764.

194,764. ATMOSPHERIC EXHAUSTERS. A. B. Brown, Worcester, Mass. [Filed Jan. 31, 1877.]

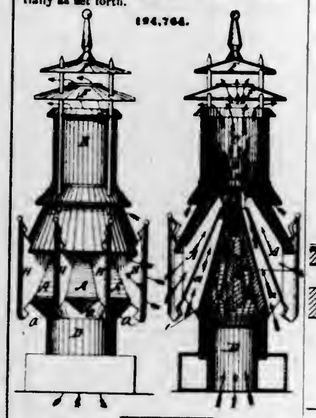
Brief.—This device is so constructed as to make use of the natural current of air coming from any point of the compass as a motive power, catching the air in openings, which diminish in area toward a common central vertical tube. By this means the air is compressed and increased in velocity, and in passing upward tends to create a vacuum, which must

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be supplied from the place needing ventilation through the open spaces between the condensers forming a free connecting-passage from the lower to the upper parts of the main shaft or fine.

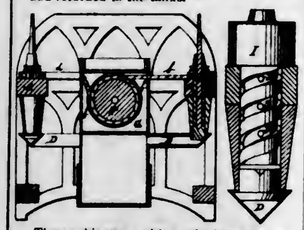
The combination and arrangement of the condensers, as shown at A a and B, with the vertical shafts C D, so arranged as to discharge the condensed or compressed air upward into the center of the main shaft C D, as shown at B, in a manner whereby the air is suddenly lifted in the main shaft, substantially as set forth.

194,764.



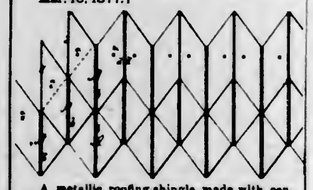
194,765. DEVICES FOR OILING SPINDLES IN SPINNING-FRAMES. L. Coburn, Worcester, Mass. [Filed Feb. 14, 1877.]

Brief.—All the spindles are lubricated simultaneously by a cord passing around the same and through an oil tank at each end of the frame. The oil passes down a spiral groove on the outside of the bolsters, from which small holes are pierced at intervals through to the spindles. The surplus oil is received by a tube arranged underneath the bolsters and returned to the tanks.



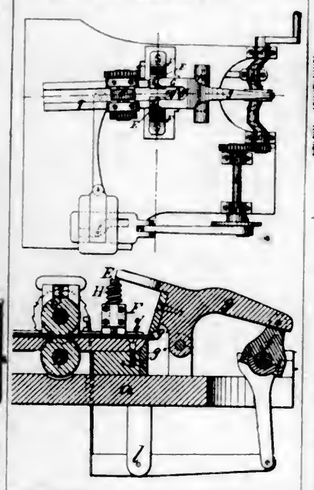
The combination, with a spinning frame, of the oil tank G, pulleys F, cord *b*, tube *d*, and bolsters I, provided with small openings opposite the spindle-bearings, as and for the purposes herein specified.

194,766. METALLIC ROOFING-SHINGLES. C. Comstock, New Canaan, Conn. [Filed Mar. 16, 1877.]



A metallic roofing-shingle made with central hollow rib *b* and with raised edges *d d*, all arranged so that the central rib of every shingle is adapted to embrace the two adjoining raised edges *d* of two shingles placed next below, and so that the upper shingle rests flush upon the two lower shingles, substantially as herein shown and described.

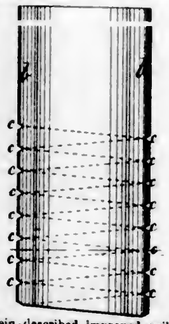
194,767. MACHINES FOR CUTTING HORSE-SHOE-NAIL BLANKS. J. Ferguson, Bridgewater, Mass., assignor of two-thirds his right to J. Turner and J. H. Ferguson, same place. [Filed June 6, 1877.]



The combination, with the oscillating nail-plate guide *q* and its shearing apparatus *g g' g''*, of the adjustable punches E E F F, for the purpose of punching notches on the edge of the nail-plate previous to its being cut by the shears, as herein shown and described.

194,768. HORSESHOE-NAIL PLATES. J. Ferguson, Bridgewater, Mass., assignor of two-thirds his right to J. Turner and J. H. Ferguson, same place. [Filed June 5, 1877.]

Brief.—The head-forming portion of the blank cut from the notched plate is, by virtue of its sloping sides, better enabled to enter the dies of the rolls.



The herein-described improved nail-plate, provided with notches or incisions *c c c* on its ridges *b b*, substantially as and for the purpose set forth.

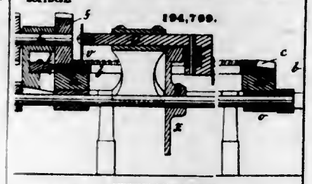
194,769. MACHINES FOR POINTING HORSE-SHOE-NAILS. J. Ferguson, Bridgewater, Mass., assignor of two-thirds his right to J. Turner and J. H. Ferguson, same place. [Filed June 15, 1877.]

Brief.—The nails are placed between the cogs of the ring, where they are clamped as they are carried around and operated upon in turn by the teeth of the pinion, and having been properly positioned by the guide, against which the head is pressed, and clamped in the manner described, the cutter shaves the surplus metal from its point, after which it is discharged by coming in contact with the inclined finger.

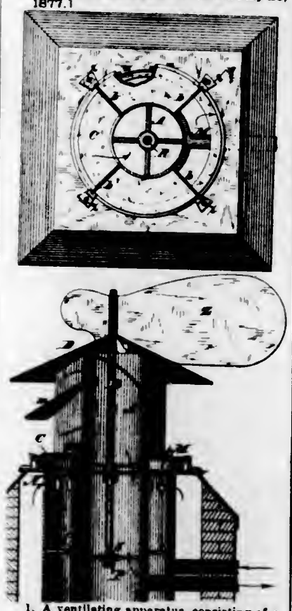
1. In combination, the intermittent rotary cog-ring *b*, intermittent rotary pinion *f*, adjustable guide *l*, and the reciprocating tool-holder *u* with its cutting-tool *v*, as and for the purpose set forth and described.

2. In combination with the intermittently rotary cog-ring *b*, the stationary inclined finger *s*, as and for the purpose set forth and described.

194,769.



194,770. VENTILATORS FOR BUILDINGS. C. L. Garfield, Albany, N. Y. [Filed July 26, 1877.]



1. A ventilating apparatus consisting of a vertical air-pipe extending above the building, and having a movable top provided with a vane to hold it properly to the wind, in combination with air receiving and discharging openings above the building, connected by independent pipes to the apartments to be ventilated, substantially as described.

2. The combination of the parts A G R Z with the pipes communicating from A and G, respectively, to the parts to be ventilated, substantially as described.

3. The combination of the conical cover D with the parts A G R Z and the connecting air-pipes, substantially as described.

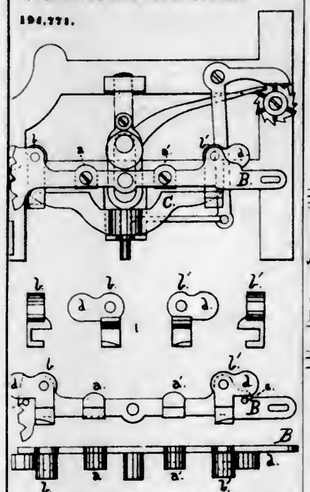
4. The combination of the disk C, provided with the aperture M, with the pipe A having wings *b b*, and the outer pipe G, substantially as described.

5. The L-shaped stop O, mounted on the disk C, in combination with the induction-opening, substantially as described, for the purpose specified.

194,771. SHUTTLE-BOX MOTIONS FOR POWER-LOOMS. R. B. Goodyear, Philadelphia, assignor of one-half his right to Wolfenden, Shore & Co., Cardington, Pa. [Filed Feb. 2, 1877.]

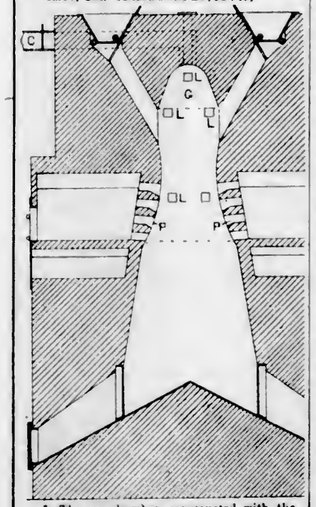
Brief.—The oscillating lever of the anchor-motion is provided with two pairs of shoes or steps, one pair being fixed and the other or outer pair pivoted. By this construction the lever is adapted to work the boxes in succession, or to skip the middle box in the upward or downward movement of the boxes.

194,771.



The combination of lever B, fixed shoes *a a'*, loose shoes *b b'*, and anchor-lifter C, as shown and described, and for the purpose specified.

194,772. SHAFT-FURNACES FOR ROASTING ORES. E. Green and A. Halsey, San Francisco, Cal. [Filed June 20, 1877.]



1. The ore-chamber constructed with the inward curves opposite the fire-places, and with the gradual enlargement toward the bottom of the furnace, as shown and described.

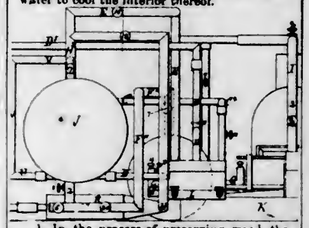
2. The ore-chamber constructed with the inward curves, and with the gradual enlargement below the same, as set forth, and having at its top the gas-chamber G, provided with appropriate exit-flues, substantially as shown and described.

3. The ore-chamber constructed with the inward curves opposite the fire-places, with the gradual enlargement toward the bottom of the furnace, and with the series of outlets or pigeon-holes P, communicating with the fire-places, and having severally the downward bevel at their exit-mouths, substantially as and for the purposes set forth.

4. The ore-chamber constructed with the inner curves and with the gradual enlargements above and below the pigeon-holes, the lower enlargement communicating with a series of inclined outlets, both at front and back, substantially as and for the purposes described and shown.

194,773. APPARATUS AND PROCESSES FOR PRESERVING WOOD. I. Hayford, Boston, Mass. [Filed June 2, 1877.]

Brief.—The air-pump is surrounded with water to cool the interior thereof.



1. In the process of preserving wood, the method of preparing the wood for reception of the preservative by subjecting it in a closed tank to the action of steam, forcing air under pressure into the tank during the steaming operation, and then exhausting from the tank the resultant vapors, as set forth.

2. The combination, substantially as set forth, of the boiler, the wood-containing tank, and the air-pump, with their system of connections, arranged substantially as described, so that the pump may act as a force-pump to maintain air-pressure in the tank during the steaming operation, and subsequently as a vacuum-pump to exhaust from the tank the vapor arising from the action of the steam.

3. The combination of the air-pump, the wood-receiving tank, and the injector and their connections, arranged substantially as set forth, so that the preserving-fluid, as it passes from the tank, shall, by action of the pump and injector, be returned to said tank, to again act on the wood therein.

4. The combination, substantially as set forth, of the wood-receiving tank, the injector, the preserving-liquid reservoir, and the pump, connected substantially as set forth, so that the pump may be used at will to force the liquid from the reservoir to the tank, or to maintain the liquid circulation through the injector and tank, or finally to permit the return of the liquid to the reservoir.

5. The combination of the wood-receiving tank, the steam-generator, the preserving-liquid reservoir, and the air-pump and connections, operating to maintain air-pressure in the tank during the steaming operation, to remove the steam and other vapors from the tank and to force therein the preservative liquid, substantially as set forth.

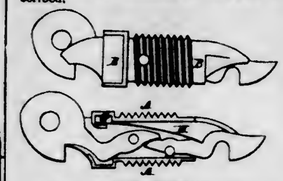
6. The combination, with the air-pump K and chamber or retort J, of the two systems of pipes, D D', &c., and O Q' C', &c., with their respective cocks, substantially as herein shown, whereby each pump becomes at one time a force-pump to drive air into the treating-chamber J, at another time a vacuum-pump to extract vapors of the steam from such chamber and create a vacuum therein, and at another time a force-pump to drive the treating-fluid from its reservoir into the treating-chamber and the pores of the wood, and, finally, a force-pump to maintain a circulation of air and of the preserving agent throughout the preserving process, substantially as and for purposes stated.

194,774. SHUTTER-FASTENERS. R. Hayden, Middletown, Conn. [Filed July 13, 1877.]

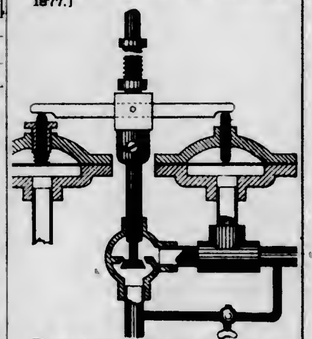
Brief.—The two ends of the ordinary horizontal case are extended outwardly upon the sides of the hooks, with inclined or curved under sides, in such manner that when the shutter is hooked, either open or shut, these projecting ends rest on the staples, into which the hooks pass, and serve to support the weight of the shutter. There is also a cell formed in the two halves of the shell or case, adapted to hold the end of a strong flat spring, to secure automatic action.

1. The projections E E and F F from the two ends of the horizontal case or shell, adapted to rest upon the staples or loops, for supporting the weight of the shutter, substantially as herein described.

2. The cell G, formed in the two halves of the case A and B, for holding the end of a flat spring, H, substantially as herein described.

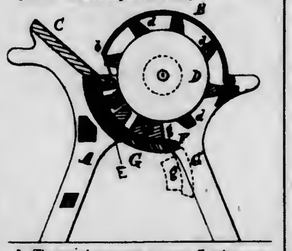


194,775. REGULATORS FOR CONTROLLING THE FLOW OF GAS TO FURNACES. Geo. M. Hopkins, Brooklyn, N. Y. [Filed Mar. 9, 1877.]



The combination of a valve and two diaphragms, one of which is, by suitable connections, adapted to be acted upon by gas-pressure and the other by steam-pressure, and a device for transmitting motion from either or both of the said diaphragms to the valve, substantially as herein shown and described.

194,776. MACHINES FOR PREPARING CORN-FODDER. D. F. Hull, Hagerstown, Md., assignor to Hagerstown Agricultural Implement Manufacturing Company, same place. [Filed Apr. 2, 1877.]



1. The supplementary concave G, when constructed and operating substantially as and for the purpose described.

2. The combination of the inclined feed-board C and cover B, with its edges cut away at *b*, for the purpose of feeding stalks to the machine and regulating the amount of feed, substantially as set forth.

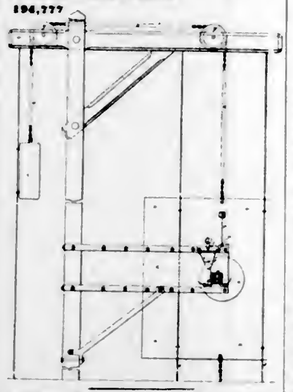
3. In combination with the feed-board and cut-away cover B forming a hopper, the upper row of concave rubbers forming a rack, or open bottom to the hopper, substantially as and for the purpose specified.

4. The combination of cylinder D, concave E, feed-board C, and cut-away cover B, substantially as and for the purposes described.

194,777. ELECTRICAL SEMAPHORES. Urain Juston, Paris, France. [Filed June 14, 1877; patented in France, Mar. 17, 1877, for fifteen years.]

in a railroad signaling apparatus, the combination of the frame c with the disk a, that is suspended by ropes x over pulleys y, so as to be capable of up-and-down motion, and with counter-weight r, locking-catch w, and electric unlocking-armature s, all arranged so that the disk a may be locked in its lowermost position, and unlocked by an electric current, substantially as and for the purpose herein shown and described.

194,777

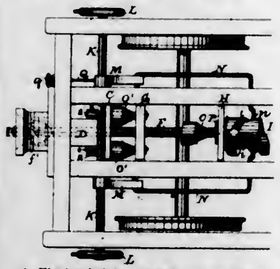


194,778. FIRE AND MARINE ESCAPES. L. Livingston, Boston, Mass. [Filed July 9, 1877.]



A fire-escape consisting of one or more canvas tubes, *d*, provided at each end with a hinged mouth-piece or frame, *e e*, and hooks *g g*, arranged and operating substantially as set forth.

194,779. CAR-COUPLINGS. Tyler C. Lord, Joliet, Ill. [Filed Oct. 5, 1876.]



1. The headed draw-bar F, arranged to operate in combination with draw-head D, having slot or opening *d*, by means of a turning device, I, operating to turn the draw-bar, substantially as and for the purpose specified.

2. The turning device I, having spiral slots or grooves *i*, operating, in combination with a rod, N, and rock-shaft K, for the purpose of turning the draw-bar F, and thereby effect the coupling and uncoupling of railroad-cars, substantially as specified.

3. The turning device I, having weighted side J and spiral grooves or slots *i*, operating in combination with the crank-rod N, rock-shaft K, and draw-bar F, substantially as and for the purpose specified.

4. The combination of draw-head D, draw-bar F, turning device I, rod N, and rock-shaft K with the windlasses or levers L and Q, arranged for operation on the sides or top of the car, substantially as specified.

5. In combination with the draw-head D, having plates *e*, and followers C and G, connected by means of the rods *e*, springs O' O', operating substantially as and for the purpose specified.

194,780. FIRE-BRIDGES FOR STEAM-BOILER FURNACES. R. K. McMurray, West New Brighton, N. Y. [Filed June 11, 1877.]



1. The combination, in a steam-boiler setting, of a furnace, a combustion-chamber communicating therewith, an intermediate bridge-wall, and a series of plates connected together to form a hollow metallic fire-bridge, which rests on, without being embedded in, the bridge-wall, and is removable therefrom through an opening in the side wall of the setting, substantially as set forth.

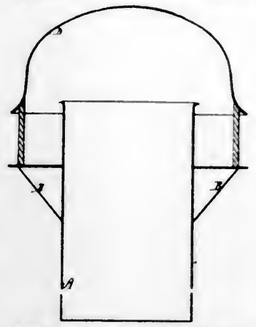
2. The combination, in a fire-bridge for steam-boiler furnaces, of a corrugated fire-plate, a back plate connected thereto, and provided with a series of air-supply openings, and a perforated diffusing-plate, substantially as set forth.

3. The combination, in a fire-bridge for steam-boiler furnaces, of a fire-plate, a back plate, interposed distance-pieces, and connecting-bolts, substantially as set forth.

4. The combination, with the fire-plate, of a back plate having a series of air-supply openings near its bottom, and a longitudinal deflecting-flange projecting into the space between the fire-plate and back plate above the air-supply openings, and of less width at all points than the distance between said plates, substantially as set forth.

5. The combination, substantially as set forth, of a fire-plate, a back plate, and a diffusing-plate, connected together and forming a hollow metallic fire-bridge, which is beveled or inclined in opposite directions toward its top, and is provided with a lower series of air-supply openings and an upper series of air-discharge openings.

194,781. VENTILATOR CHIMNEY-CAPS. P. Mihan, Cambridgeport, Mass. [Filed Jan. 12, 1877.]



In the described improved chimney cap or ventilator, the stationary dome D and the inverted and closed conical deflector B, arranged, as represented, in combination with the pipe A, concentric with the deflector and dome, and extended above the former and upward within the latter, all being substantially as set forth.

194,782. APPARATUS FOR COMBINING AERIAL CURRENTS. P. Mihan, Cambridgeport, Mass. [Filed Apr. 24, 1877.]

1. The inducts, the educt, and their connection-box, arranged as described, in combination with the foraminous strainer or partitions extended from the educt to or nearly to the base of the box and between the inducts, all being substantially as set forth.

2. The combination of the single gate, as described, with the connection-box and the inducts, foraminous strainer or partitions, and educt, all being substantially as set forth.

194,783. HORSESHOES. Chas. H. Perkins, Providence, R. I. [Filed Dec. 26, 1876.]



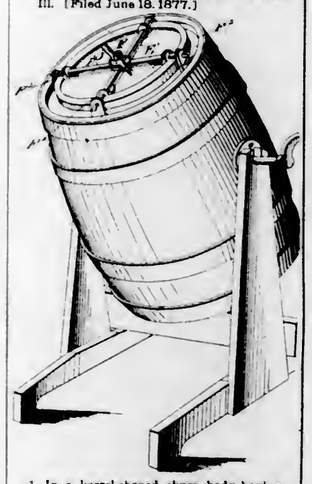
A horseshoe having heel-calks located some distance in from the heel of the shoe, and with the heel portions made thin, as described, so that the shoe may be shortened without impairing its strength and durability, as set forth.

194,784. COVERS FOR LIQUID-MEASURES. C. C. Redmond, Santa Clara County, assignor of one-half his right to J. Hart and F. H. Nicholson, San José, Cal. [Filed May 2, 1877.]



The combination, with the vessel A and tunnel B, of the lid or cover D, substantially as and for the purpose specified.

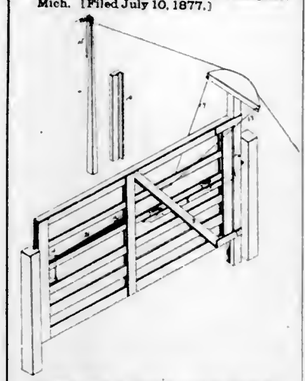
194,785. CHURNS. E. Rhoades, Rockford, Ill. [Filed June 18, 1877.]



1. In a barrel-shaped churn-body having the open ring-head, the combination of the perforated ears located upon the open ring, the simultaneously-operating bolts entering the perforated ears, and the wooden cover incased in metal and resting upon the ring, all arranged and operating substantially as described.

2. The combination of the churn-body having the open head, the cover having the surrounding rim, and crucial arms carrying a central hub, the wedge-shaped bolts eccentrically pivoted to the hub, the staples F', and the metallic ring having the vertical perforated ears, all these parts arranged and operating substantially as described, and for the purpose herein set forth.

194,786. GATES. K. E. Rudd, Cassopolis, Mich. [Filed July 10, 1877.]

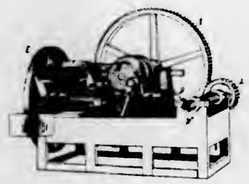


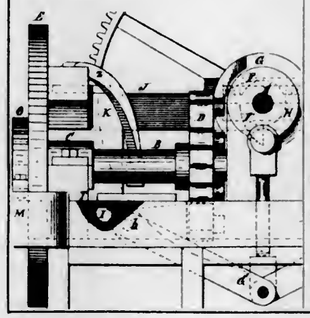
1. The slide 5, hung by iron hooks 6 6' in slots 7 7', and resting in ratchet-mortise in swinging post 9.

2. The combination of latch 13, lever 21, and connecting-wires 17 17', substantially as described, and for the purposes set forth.

194,787. BRICK-MACHINES. Geo. S. Selden and John N. McLean, Philadelphia, Pa. [Filed Sept. 14, 1876.]

Brief.—The mold-wheel has an intermittently-rotating movement imparted to it by means of a cam engaging with pins on the side of the wheel affixed to the mold-wheel shaft. The plungers are operated by cams on the main driving-shaft.





1. The combination of the shaft B', bearings C' and C², cams F and F', grooved cam-wheel G, and crank-disk H, substantially as shown and described.

2. The combination of the expelling-plunger J, guides K and K', cams F F', and shaft B', arranged and operating as and for the purpose shown and described.

3. The combination of the clay-box T, compression-plunger 1, toggle G', connecting-rod R, and crank-disk H, with the mold-wheel E, arranged and operating as and for the purpose shown and described.

4. The combination of the shaft B, cams F F', and expelling-plunger J, with the molds L L L, &c., of the mold-wheel E, arranged and operating as and for the purposes shown and described.

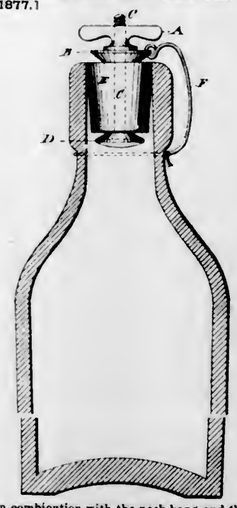
5. The circumferentially-grooved cam-wheel G, in combination with the pin-wheel D, having the pins on the side of the wheel, and mold-wheel E, arranged to operate substantially as described, for the purpose of giving an intermittingly rotary movement to the mold-wheel.

6. In combination with the wheel E, having molds L L L, &c., arranged to assume alternate horizontal positions above and below the center of the wheel, the reciprocating plungers I and J, operating to compress the clay in each mold in succession, and at the same time expel a finished brick.

7. The combination of the wheel E, molds L L L, &c., movable plates M, yoke O, and nut P, substantially as and for the purpose shown and described.

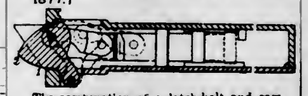
8. The combination of the sliding bolt V, eccentric W, shaft B', and openings X X X, &c., in the mold-wheel, substantially as and for the purpose shown and described.

194,788. BOTTLE-STOPPER FASTENERS. F. J. Seybold, Chicago, Ill. [Filed June 9, 1877.]



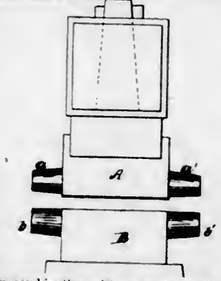
In combination with the neck-band and the cord F, the screw C, having beveled head D, beveled washer B, and thumb-nut A, for the lateral expansion or contraction of the flexible stopper E, substantially as shown and described, and for the purpose set forth.

194,789. LATCHES FOR DOORS, &c. C. H. Smith, New Britain, Conn., assignor to P. & F. Corbin, same place. [Filed July 27, 1877.]



The combination of a latch-bolt and cam-lever, of the class described, with a link which forms the jointed connection between said lever and bolt, substantially as described, and for the purpose specified.

194,790. MACHINES FOR THE MANUFACTURE OF HOES. John C. Smith, Evansville, Ind. [Filed May 10, 1877.]



In combination with an ordinary tilt-hammer, the dies A B, constructed with horns *a a'* and *b b'*, substantially in the manner and for the purpose set forth.

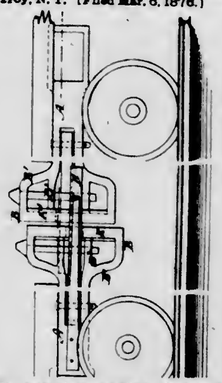
194,791. SCUTTLES OR HATCHWAYS FOR STABLES. N. Smalley, Providence, R. I. [Filed Dec. 2, 1876.]

Brief.—A door with sunken swiveled ring to lift by, the stem passing through the door, carrying a pinion meshing with two racks on the sides of bolts, which may be simultaneously opened and closed by the revolving of the ring.



In combination with a scuttle, A, the rotatable ring-bolt B, having pinion D, and slide-bolts H I, having ratchets L M and shoulders J K, all operating substantially as and for the purpose specified.

194,792. CAR-COUPLINGS. D. V. B. Smart, Troy, N. Y. [Filed Mar. 6, 1876.]



In automatic car-couplings, the draw-bar A having an acutely-beveled hook, D, pivoted at its rear extremity, and supported by a spring extending forward and beyond the pivot of the hook, and an enlarged head, B, formed with a face-plate, E, re-enforced upon one side by a vertical flange or catch-bar, E', having an acute edge, and supported at the top and bottom by diagonal braces B', and also internal horizontal braces B², substantially as shown and described.

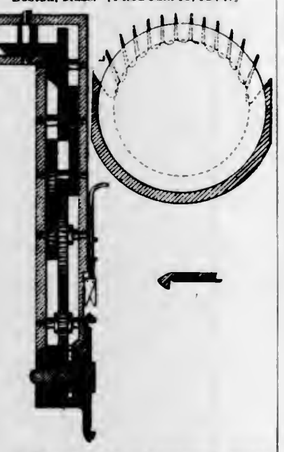
194,793. CURTAIN-FIXTURES. D. S. Van Etten, Richmond, Ind. [Filed Mar. 26, 1877.]

Brief.—One of the flanges on the curtain-roller shaft is provided with a laterally-projecting arm, which, by a lateral movement of the roller, can be engaged with, or disengaged from, one of the supporting eyebolts, and thereby secure the roller or allow it to turn, as is desired.



A curtain-roller provided with journals D D', the former having a perforation for the reception of the bolsting-cord, the flanges E E', the latter having the arm G, in combination with the eyebolts C C', all substantially as shown and described.

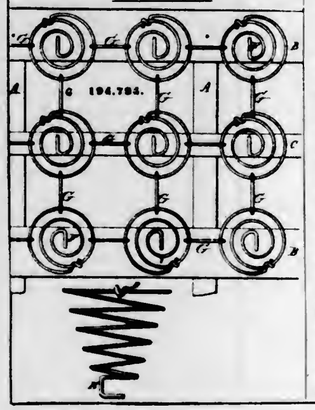
194,794. SHEEP-SHEARS. J. C. Wightman, Boston, Mass. [Filed Jan. 16, 1877.]



1. The comb-plate or guard-plate, having within its upper or lower surface a channel or space in which to operate circular revolving knife or cutter.

2. In combination with the channeled or spaced comb plate, substantially as described, a revolving circular knife.

3. The comb-plate or guard-plate, having its teeth so formed that lines drawn as a continuation of them will meet back of the center of the comb-plate, the points of all the teeth being equidistant, the lines of coincident teeth only meeting at the same point.



194,795. SPRING BED-BOTTOMS. H. Winger, Marshallville, Ohio. [Filed Mar. 31, 1877.]

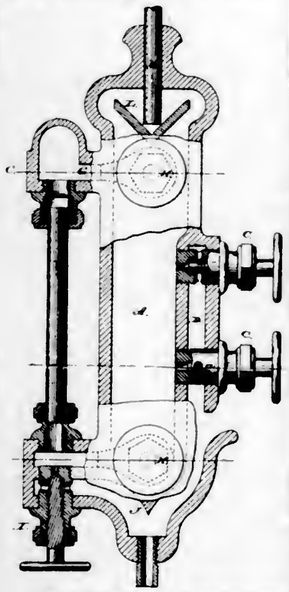
Brief.—The incisions or mortises in the slats, which receive the fastening-dowels formed on the lower ends of the springs, are smaller than the wire of the dowels, and the latter are secured in the mortises by forcing them in until they reach the bottom of the mortises, when the walls of the mortises partially close over the dowels, thus holding them in place.

1. The springs D, having the dowels E formed on the lower ends thereof, in combination with the slats B C, having the incisions or mortises F therein to receive the dowels E, substantially as and for the purposes described.

2. The combination of the springs D formed with the dowels E, the slats A B C, the links G, and the braces H, all substantially as shown and described.

194,796. WATER-GAGES FOR STEAM-BOILERS. D. A. Woodbury, Rochester, N. Y. [Filed Mar. 29, 1877.]

Brief.—A basin, L, is formed on the inside of the chamber to retain the water deposited by condensation. The pipe leading from the steam-gage extends into the basin, and is kept constantly immersed, and thereby dispenses with the ordinary siphon-tube.



1. The gage-cocks C C, in combination with the passage D and chamber A, all constructed and operating substantially as shown and described, and for the purpose specified.

2. The cock I, in combination with the passage J and chamber A, substantially as shown and described.

3. The basin L, in combination with the pipe M, substantially as shown and described.

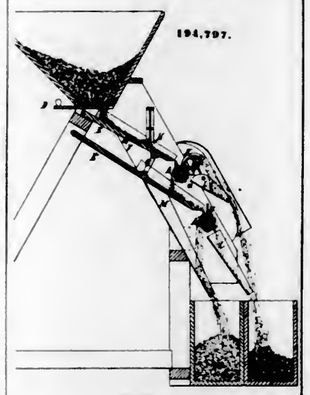
194,797. MAGNETIC ORE-SEPARATORS. A. Work, Providence, R. I. [Filed May 3, 1877.]

1. In a magnetic separating-machine, the electro-magnetic roll, consisting of the shaft A and the helix B, wound upon a portion of its length and revolving therewith, substantially as described.

2. In a magnetic separating-machine, the combination of the rolls A and A', the aprons E and E', the rotating wiper J, the scraper N, and the chutes L, L', and M, arranged to operate substantially as described.

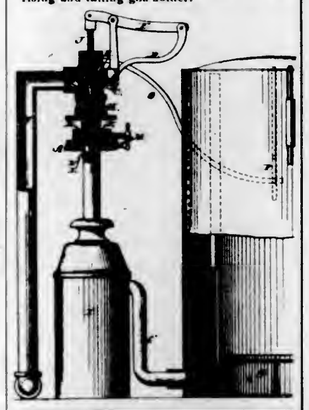
3. In a magnetic separating-machine, the arrangement of the revolving wiper J, in combination with the guard K, substantially as described.

194,797.



194,798. APPARATUS FOR GENERATING GAS. J. S. Wood, Brooklyn, N. Y. [Filed Jan. 24, 1877.]

Brief.—Oil is forced to the generator by air-pressure, and the flow is regulated by a plunger-valve. Oil is vaporized by a burner, and the vapor is mixed with air, the admission of which is regulated by a turning sleeve-valve. The plunger-valve and sleeve are automatically operated by a system of levers and the rising and falling gas-holder.



1. The combination of upper and lower sections b' d', the seats coming together at L L gas-tight, the regulating screw-valve M, vapor-chamber a', levers C, D, and F, to revolve sleeve H, cock B, and valve J, substantially as and for the purpose specified.

2. The combination of the generator A, cock B, sleeve H, levers C, D, F, and O, valve J, heater I, and gas-holder or regulator P, for the purpose substantially as described.

3. In an apparatus for generating gas, the combination, with a vapor-generator heated by a suitable burner, of a jointly-working plunger-valve and revolving sleeve, for regulating the oil and air openings, substantially as and for the purpose set forth.

194,799. PROCESSES OF BLEACHING BEES-WAX. Homer T. Yaryan, Richmond, Ind. [Filed June 18, 1877.]

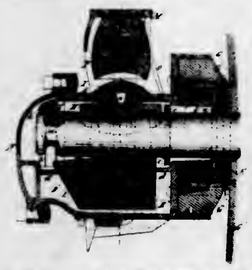
The process of bleaching bees-wax, which consists in passing any material which will act as a body through melted bees-wax, so that it will be saturated and coated with a thin layer, and exposing the same to the action of sunlight until the color of the wax is discharged, afterward removing the bleached wax either by dissolving it in the volatile products of petroleum or other known solvents, and removing the solvent by the aid of heat, or removing by the use of heat and pressure.

194,800. PROCESSES OF MANUFACTURING FELTED SURGEONS' SPLINTS. David Ahl, Newville, Pa. [Filed June 28, 1877.]



The process of manufacturing felted surgeons' splints, consisting of the following treatment, viz., first treating the felted blank in a solution of shellac and alcohol, then drying and puncturing it, then treating it in an acid-bath, then washing it in cold water, then softening it in a bath of boiling water, and molding it in the desired form.

194,801. CAR-AXLE BOXES. S. A. Bemis, Springfield, Mass. [Filed May 21, 1877.]



1. The annular flange G, arranged upon the side of the car-wheel, in combination with the wood-blocking C, into which said flange projects, substantially as set forth.

2. The wood-blocking C, provided with a central recess to receive the packing E, in combination with a sleeve, F, arranged upon a car-axle box, substantially as set forth.

3. The lugs a, arranged and combined with the box A, for the purpose of preventing the box and bearing H from tilting upward at the outer end, and for keeping the axle and its bearing H more perfectly in place and in contact, substantially as described.

4. In a car-axle box, the holder K, provided with elastic ears K', for the purpose of keeping the oil-distributing material always in contact with the axle, substantially as set forth.

5. In a car-axle box, the combination of the washers a and e, the packing E, and the sleeve F, for the purpose of preventing the oil from getting out of the box, and the dust from getting in, substantially as set forth.

6. The combination of the springs O with the jaws P of a car-axle box, and the box A, as a means of easing the side motion of a car, substantially as set forth.

194,802. SCAFFOLDING. Henry J. Caswell, Dudswell, Quebec, Canada. [Filed July 12, 1877.]

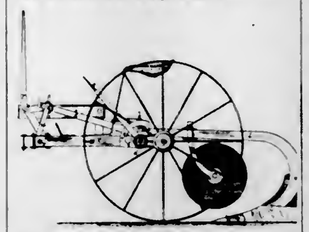
1. The combination of the brackets A and B with the track C, pulleys f h, and quarter-circle k, substantially as described.

2. The combination, with the carrier D, supporting-car E, and track C, the cord g, substantially as and for the purpose set forth.

3. In combination with a traveling carrier, D, a supporting-car, E, ropes j, and cord g, substantially as and for the purpose herein before set forth.

194,803. WHEEL-PLOWS. L. Chapman, Collinsville, Conn., assignor of one-half his right to the Collins Company, same place. [Filed Dec. 23, 1876.]

Brief.—A long sleeve upon the axle has projecting arms or flanges, to which the plow-beam is attached toward the rear and a foot-lever at the front, all rigid, and rocking together upon the axle. To the front end of the foot-lever a hand-lever is pivoted to aid it in raising the plow. The hand-lever is self-locking when the plow is up, and a spring-catch with the foot-lever locks the plow down.



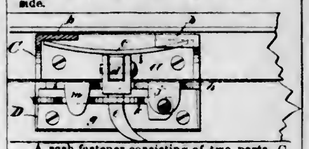
1. In a wheel-plow, the combination of the plow-beam i, sleeve j, embracing and rotating on the main axle a, and the lever k, adapted to be operated by the driver's foot, all arranged as described.

2. In combination, the plow-beam i and lever k, pivoted on axle a, and the pawl m, located with reference to the foot-lever, so that both lever and pawl may be operated by the driver's foot, substantially as shown and described.

3. In a wheel-plow, the combination of the foot-lever k and the pivoted hand-lever r, also jointed to the foot lever, for raising and lowering the plow, substantially as shown and described.

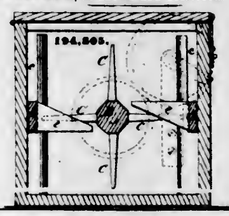
194,804. FASTENERS FOR THE MEETING-RAILS OF SASHES. H. L. Clark and A. B. Smith, Chester, N. Y. [Filed July 30, 1877.]

Brief.—A new combination and arrangement of parts by which a notched latch, passing over a curved and shouldered lever, engages under a beveled ear, locking the device, the construction preventing rattling as well as tampering with the fastenings from the outside.



A sash-fastener consisting of two parts, C D, the former having plate a, brackets b, a recess containing spring c, a stud, d, and a shouldered lever, e f, and the latter having plate g, brackets h i, notched latch k l, and beveled ear m, as shown and described.

194,805.

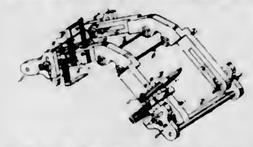


194,805.

194,806. CHURNS. N. W. Cone, Delaware, Ohio. [Filed July 9, 1877.]

A churn having rotary paddles C, bars or stripe d, and breakers e, the stripe being thus allowed to slide in and out of grooves e, as and for the purpose specified.

194,806. MACHINERY FOR SCOURING AND DRESSING LEATHER. Thos. L. Daheney, Stoneham, Mass. [Filed June 30, 1877.]

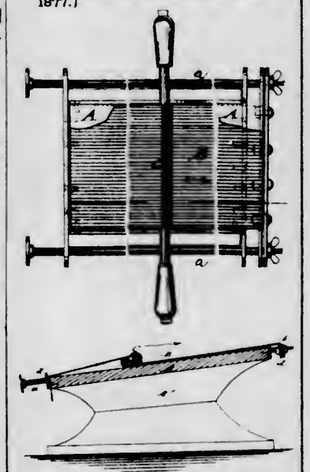


1. The pair of yielding scrapers l l, hung in a frame applied to a machine for scouring and setting leather or working hides, substantially as and for the purpose set forth.

2. The guides C C, attached directly to the stones or their holders, in combination with the scrapers l l, constructed to operate substantially as described, for the purpose specified.

3. The bent arm D, with its slot s, and the slotted portion c of the frame, in combination with the scraper-arm s, spring r, slotted adjustable stop E, and slotted lever f, with the scraper l pivoted thereto, as and for the purpose described.

194,807. CIGARETTE-MACHINES. William Davies, Henderson, Ky. [Filed May 21, 1877.]



The combination of the plain inclined platform A, flexible band B, and hand-roll C with the side bars a, cross-bars d, and nuts b, as and for the purpose specified.

194,808. FLOATING-BATH STRUCTURES. F. Despotz and J. Reboul, San Francisco, Cal. [Filed July 23, 1877.]

Brief.—This floating structure is divided into two main compartments, one at each end of the vessel, leaving a promenade or passage-way entirely around each. The roof of each compartment is made of glass, so that the rays of the sun will pass through to light and warm the interior, and aid in preserving the temperature of the water in the tank. In each compartment a pool or bathing-tank is constructed, and provided with an adjustable bottom.

1. A floating structure for bathing purposes, having one or more bathing-tanks, B C, each of which is provided with an adjustable bottom, f, substantially as and for the purpose described.

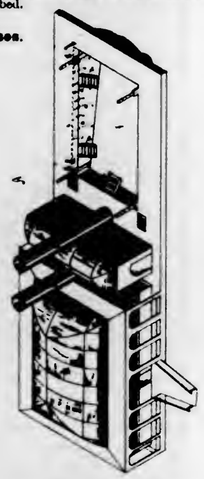
2. The floating tanks B C, provided with double walls, and having the space between

them filled with sawdust or other non-conducting substance, substantially as and for the purpose described.

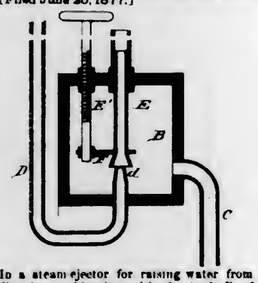
3. In a floating-bath structure, provided with tanks B C, and supplied with heated water through a pipe, T, the branch pipes o o o for distributing the water to different parts of the tank, substantially as and for the purpose described.

4. In a floating-bath structure, provided with one or more tanks, B C, the arrangement of an opening or openings P, with their valves r at both ends of each tank, by opening which a current of water may be established through each tank, substantially as and for the purpose described.

194,808.



194,809. STEAM WATER-ELEVATORS. W. Dotey, Wilmington, Ohio, assignor of one-half his right to S. M. Thorne, same place. [Filed June 25, 1877.]



In a steam-ejector for raising water from wells, the combination, with the tank B, of the water-inlet C, steam-induction pipe D leading downward outside and rising through the lower part of said tank, the adjustable discharge-pipe E rising from tank B, and the adjusting mechanism, consisting of the threaded rod E' and connection F, said rod extending above the well, all substantially as shown and described.

194,810. ORE-WASHERS. J. S. Duncan, San Francisco, Cal., assignor of one-fourth his right to E. R. Cook, same place. [Filed Mar. 16, 1877.]

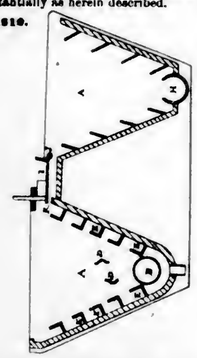
1. The chambers A, with their inclined sides provided with the series of pockets E E, for receiving and grading the particles according to their weight as they settle through the chamber, substantially as herein described.

2. The inclined-sided chambers A, with their receiving and separating pockets E, in combination with the perforated or slotted pipes B H, with valves C, whereby a gradiated upward current of water is produced to hold the particles in suspension and regulate their deposit, substantially as described.

3. In combination with the chambers A, with their inclined sides and pockets E, and the water-supplying tubes B H, the peculiarly-shaped bars D, for producing a rotary upward current to assist in separating and depositing the particles, substantially as herein described.

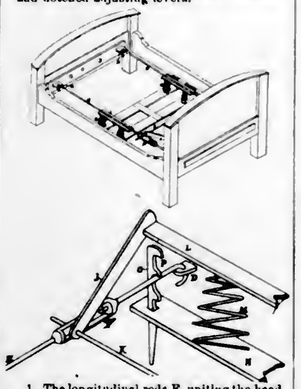
4. The concentrating-chambers A, with their pockets E, water-tubes B H, and bars D, said chambers being perforated and glazed at M, substantially as herein described.

194,810.



194,811. BED-BOTTOMS. B. Essig, Sacramento, assignor of one-half his right to C. C. Wilson and A. Simonton, El Dorado County, Cal. [Filed Apr. 24, 1877.]

Brief.—The longitudinal rods, secured to the spring-strips at the ends of the bed, act as fastenings for the bedstead, and also support the mattress or bed-bottom. They are centrally supported by strips resting on spiral springs. An adjustable head-section is supported on the rods by a transverse pivot-rod and notched adjusting-levers.



1. The longitudinal rods E, uniting the head and foot of a bedstead, in combination with the strips C, centrally secured to the inside of the ends of the bedstead, and having the rods E secured to their outer ends, so as to give them an elastic attachment, substantially as herein described.

2. The longitudinal spring-rods E, uniting the ends of the bedstead, in combination with the spiral springs G and longitudinal supports I, substantially as and for the purpose described.

3. The head or pillow frame J L N and springs M, in combination with the transverse rod K, and the levers O notched at P, and constructed to raise and lower and adjust the angle of the head of the mattress, substantially as herein described.

194,812. WASHING-MACHINES. H. C. Fager and H. J. Godwin, Windsor, N. C. [Filed Aug. 16, 1877.]

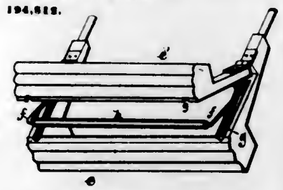
Brief.—The articles to be washed are suspended upon the pivoted holding device, and secured thereon by bringing the lower edges of the hinged jaws together.

1. The pivoted holding device *f*, secured between the hinged jaws of the vibrating rubber, substantially as set forth.

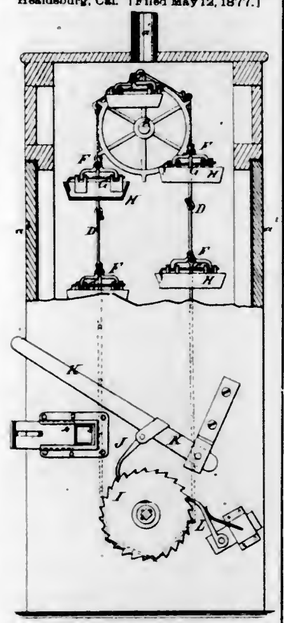
2. The hinged jaws *e e'*, provided with the recessed side pieces, as set forth, in combination with the holding device *f*, secured between the two, all substantially as herein shown and set forth.

3. The herein-described rubber, pivoted to the upper cross-bar *d*, and provided with the hinged jaws *e e'* and the pivoted holding device *f*, secured between said jaws, the same being arranged to vibrate within the machine, substantially as specified.

194,812.



194,813. FRUIT-DRIERS. W. W. Ferguson, Healdsburg, Cal. [Filed May 12, 1877.]



1. The combination of the swinging bars F and the pins G with the cross-rods E attached to the endless chains D for connecting the fruit-pans H detachably with said chains, substantially as herein shown and described.

2. The combination of the ratchet-wheel I, the pawls J and L, and the lever K with the shaft B of the fruit-drier and with the case A, substantially as herein shown and described.

194,814. HYDRANTS. H. Flint, Keokuk, Iowa. [Filed June 30, 1877.]

1. The hydrant with caps I and L, valve-seat K, and stem G, arranged to operate together, substantially as set forth.

2. The inclosing valve-cup I, combined with the cup L, having holes arranged in graduated order, so as to regulate the flow of water, as set forth.

3. The hydrant with a packing acting against the edge of bowl B and top of cap D, combined with a screw or other means of connecting the bowl and cap, substantially as set forth.

4. The hydrant with leak and groove R and outlet P', to enable the water to escape whatever may be the position the leak P is turned to, substantially as set forth.

5. The hydrant, with valve-stem G through outlet-pipe F, and with packing part T arranged to be operated by the water, substantially as set forth.

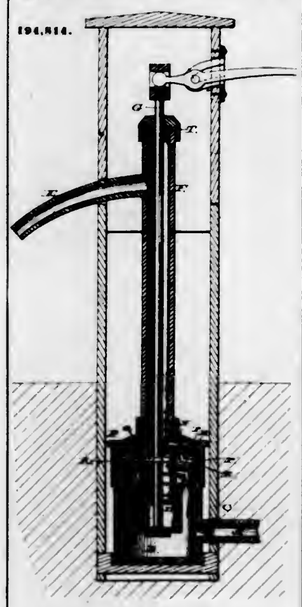
6. The hydrant with a valve, I, to open against water-pressure, in combination with a water-chamber, against the contents of which the valve must act in closing, arranged to form a water-cushion to relieve reaction in closing, substantially as set forth.

7. The hydrant combined with leak-hole P, valve N, and arms O, substantially as set forth.

8. The hydrant with central pipe and a spout arranged to act as a handle, for attaching it to and removing it from its base, combined with a casing divided and removable below the spout, substantially as set forth.

9. The hydrant having separately-removable key-lever handle and casing-top, with an internal bearing for the key-lever pivot in the removable casing-top, substantially as set forth.

194,814.



194,815. TOILET-MASKS. N. S. Emerson-French, New York, N. Y. [Filed May 28, 1877.]

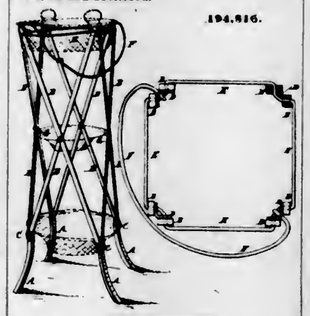


As a new article of manufacture, a toilet-mask composed of an outer layer of pliable fabric, and an inner layer or lining of flannel or similar soft material, substantially as described and shown, for the purpose set forth.

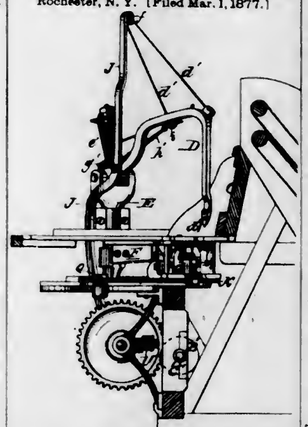
194,816. FOLDING WORK-STANDS. R. G. Gollner, New York, N. Y. [Filed July 28, 1877.]

The work-stand formed of the feet A, the bars B, the plates C D, the top cord or chain E, and the handle F, constructed and combined with each other, substantially as herein shown and described.

194,816.



194,817. GRAIN-BINDERS. J. F. Gordon, Rochester, N. Y. [Filed Mar. 1, 1877.]



1. In a grain-binding machine, the combination of the sector-rack K, pivoted to the vibrating arm F, and provided with the stud *b*, and the right arm L provided with the slot *c*, to receive the stud *b* and operate the rack, as shown.

2. In a grain-binding machine, the combination of a vibrating arm, F, carrying a twister-head, G, and a pivoted sector-rack, K, for operating the same, with a fixed guide, L, arranged to cause the movement of the rack on its pivot, substantially as shown and described.

3. In combination with the throat-plate O, the pivoted wire-clamping jaw M, provided with the nose *g* and arm A.

4. In combination with the jaw M, the horizontally-swinging arm R, the rod *s*, connecting the jaw with the free end of the arm, and the pivoted switch S, arranged to operate as shown and described.

5. In combination with the jaw M, the horizontally-swinging arm R, and switch S, the rod *s*, extending from the arm loosely through the jaw, and provided with the spring O', whereby it is permitted to yield, as and for the purpose described.

6. In combination with the jaw N, the swinging arm P, and the pivoted spring cam or dog Q, constructed and arranged as shown, so that the arm passes both forward and back on the same side thereof.

7. In a grain-binding machine, the combination of the wire-carrying arm and wire-clamping devices O, M, and N, with the rotary twister G, having the two hooks *d* on opposite sides, mounted below the upper clamping devices, and arranged to rotate in the manner and at the times specified, whereby one hook is caused to grasp one end of the wire and carry the same to one side out of the way previous to the descent of the wire around the bundle within reach of the other hook.

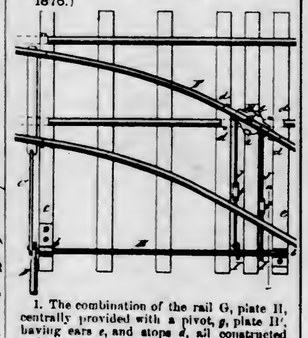
8. In combination with the stationary board C and the movable grain-table A, the guards or brackets T, attached to the table, and arranged to slide upon the board C when the table is moved.

9. The tension device, consisting of the grooved pulley *g'* on the spool-spindle, friction-band *h'*, and the movable block *i'*, mounted on the binder-arm, and provided with the spring *k'* and the pulley *m'* to guide the binding-wire, as described and shown.

10. The combination of the binder-frame W', pitman U, and disk or crank V, with the shaft W, pivoted lever X, bolt *w*, and rod *b'*.

11. In combination with the shaft E and arms D and H, the connecting-bar J, curved backward in the manner shown.

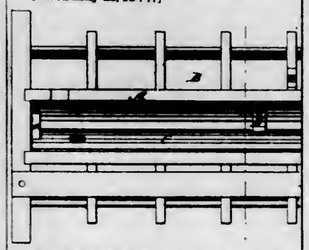
194,818. RAILROAD-SWITCHES. John W. Harding, Columbus, Tex. [Filed Dec. 30, 1876.]



1. The combination of the rail G, plate H, centrally provided with a pivot, *g*, plate H', having ears *e*, and stops *d*, all constructed and arranged as shown, and operating substantially in the manner and for the purpose set forth.

2. The combination of the lever D, rock-shaft E, rod C, arms I, rods J, turn-buckles *f*, plate H', having cams *e*, plate H, rail G, and stops *d*, all arranged as shown, with the main track and switch-rails, substantially as described.

194,819. STOCK-FEEDERS. O. M. Hayden and G. A. Knowles, La Porte City, Iowa. [Filed May 21, 1877.]



As an improvement in stock-feeders, the combination of the stirrer D with the gage C, trough B, and hopper A, as shown and described.

194,820. CURRY-COMBS. C. E. L. Holmes, New York, N. Y. [Filed June 9, 1877.]

Brief.—The comb-plates have end lips or flanges, which fit within tubular end bars, each end bar having a slot at one side, into which slots the lips extend.



1. A curry-comb provided at the ends with slotted tubes I, into which extend lips or flanges *a* of the comb plate or plates, substantially as set forth.

2. The combination of the comb bars or plates D, the slotted tubes I, and pintles *e*, extending through the tubes, as and for the purpose set forth.

3. The combination of the independent toothed comb-bars, provided with lips or flanges at the ends, and slotted tubes I, receiving the lips *a*, substantially as specified.

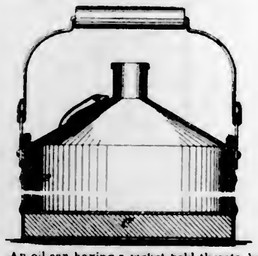
4. The combination of the toothed comb bars or plates, slotted tubes I, and pintles *e*, extending through the tubes and forming part of the frame, connecting the body and side handle, substantially as set forth.

5. A curry-comb having its separate parts connected and secured together by slotted tubes I, extending along the ends of the comb, and into which portions of the comb plate or plates project, substantially as set forth.

6. The comb plates having projecting lips or flanges, bent to conform to the interior of the end tubes I, as specified.

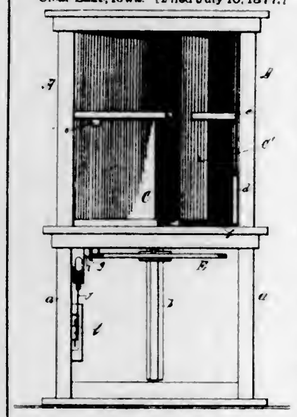
7. The plates having flanges bent and confined within the slotted tubes by pintles passing through such tubes, as set forth.

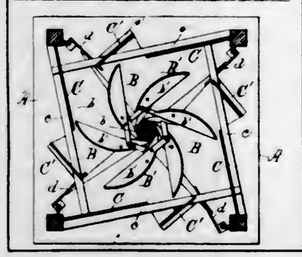
194,821. OIL-CANS. Wm. Y. Horne, St. Paul, Minn. [Filed July 9, 1877.]



An oil-can having a jacket held thereto by a wire on the inside of jacket, forming an integral part thereof, and removable only with the jacket, as shown and described.

194,822. WINDMILLS. Martin L. Howard, Clear Lake, Iowa. [Filed July 10, 1877.]





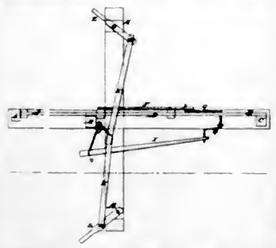
1. The wheel B B, consisting of the curved radial arms or wings B' B', put together in pairs, and connected to the axis or shaft *b* of the wheel by the bars *b' b'*, one of the bars *b'* connecting a pair of wings together, being connected to the other bar of said pair of wings, substantially as and for the purpose set forth.

2. The wheel B, having the curved radial wings or vanes B' B', arranged with reference to each other and the axis of the wheel, as described, in combination with the inclosure A, having the chutes C C', arranged as set forth, substantially as and for the purpose set forth.

3. The vanes or wings *d d*, in combination with the radial arms or bars D D *f f*, pendant *g*, rod *i* or its equivalent, brake E, and wheel-axis or shaft, substantially as and for the purpose set forth.

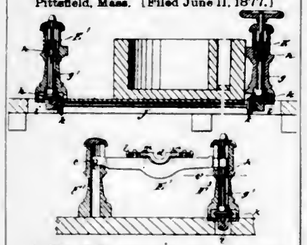
194,823. GATES. A. Hyre, Churubusco, Ind. [Filed May 12, 1877.]

Brief.—The gate slides, opens, and shuts upon a bar attached to the upper parts of the posts, and which passes between the adjacent edges of two horizontal bars of the said gate and between the cross-bars attached to the horizontal bars.



The combination, with the posts A B C M and gate D, sliding on a bar, E, of the pivoted bar F, U bar G, bars H I, crank-rod J, connecting-bars K, and levers L, all constructed and arranged substantially as and for the purpose specified.

194,824. RAG-ENGINES. E. D. G. Jones, Pittsfield, Mass. [Filed June 11, 1877.]



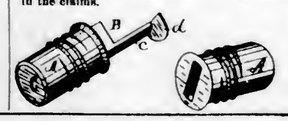
1. Bars E E', supporting the ends of spindle D, and pivoted in pillars F F', in combination with the vertically-adjustable nuts h in pillars F F', and the two connected adjusting-screws *g g'*, so that both bars are adjusted simultaneously, substantially as and for the purpose described.

2. In a rag-engine, the two screw-rods *g g'*, gear-wheels *k*, and shaft J, combined with the bars E E', substantially as described.

3. In combination with the spindle of cylinder C and the rear adjustable bar E', the bearing-box *d*, endwise adjustable, substantially as and for the purpose described.

194,825. SASH-FASTENERS. O. S. Judd, New Britain, Conn. [Filed June 30, 1877.]

Brief.—One end of the shell or case is hermetically closed. Other peculiarities and details of construction are exhaustively set forth in the claims.



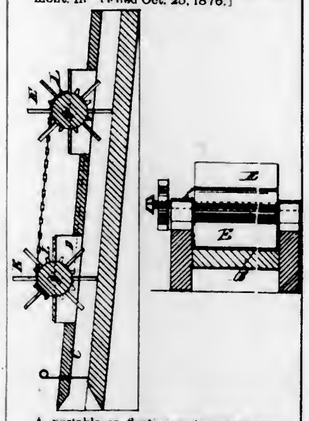
1. A window-spring of the class described, in which the case A C, when completed, is wholly closed, except at a single orifice at its front, through which the bolt protrudes, substantially as described, and for the purpose specified.

2. In a window-spring of the class described, the case A, having at annular recess, *b*, at its rear end, in combination with the flattened-disk C, for closing the rear end of said case, substantially in the manner described, and for the purpose specified.

3. In a window-spring, the bolt B, having the ordinary thumb-pad *d*, arm *e*, and rectangular body at its outer end, and its inner end enlarged to fit the cylindrical interior walls of the case, substantially as described, and for the purpose specified.

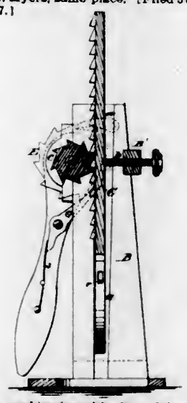
4. In a window-spring, the combination of bolt B *f e*, spring *g*, case A, having annular recess *h*, and the flattened disk C, substantially as described, and for the purpose specified.

194,826. PORTABLE APPARATUS FOR OBTAINING WATER-POWER. M. L. King, Belmont, Ill. [Filed Oct. 25, 1876.]



A portable or floating water-power apparatus, consisting of the inclosed inclined channel B, having a funnel-shaped mouth, in combination with two or more water-wheels, E, geared together, as and for the purpose substantially as described.

194,827. LIFTING-JACKS. J. S. Kirkwood, McKeesport, Pa., assignor to himself and H. C. Myers, same place. [Filed June 18, 1877.]

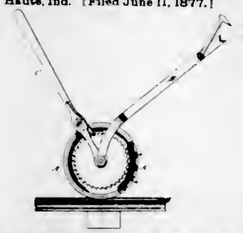


1. In combination with the rack-bar C and set-screw *b*, the tapered grooves *a*, substantially as and for the purpose specified.

2. The combination, with the rack-bar and wheel D, of the dovetail tongue *g* and the tongs J, as shown and described.

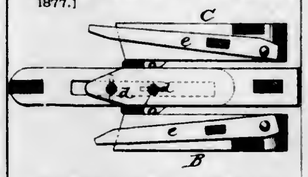
3. In combination with rack-bar C, stand-axis B B, tapered grooves *a*, and ratchet-wheel D, substantially as described.

194,828. CAR-MOVERS. G. W. Leek, Terre Haute, Ind. [Filed June 11, 1877.]



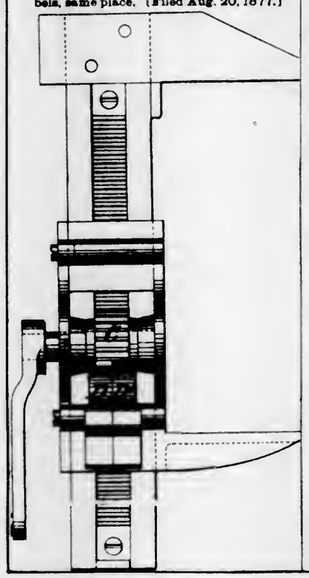
A car-mover, consisting of the knife-wheel A, having lateral concaved knives *a* in its grooved circumference, the ratchet-wheel on the same shaft, the forked lever-arm B, and the hand-lever C, having spring-pawl *c*, all as shown and described, for the purpose specified.

194,829. FOLDING WASH-BENCHES. G. W. Longfield, Chasy, N. Y. [Filed June 19, 1877.]



The frame or standard A, consisting of two divisions, one sliding over the other, and secured by set-screws *d d*, which work in longitudinal slots *c* in the side bars of the upper division, in combination with the side frames B and C, which are hinged to the standard, and supported horizontally by legs *e*, pivoted to their outer extremities, substantially as specified.

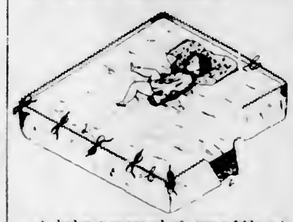
194,830. JOINERS' CLAMPS. W. H. Lilly, Philadelphia, Pa., assignor to C. H. R. Triebels, same place. [Filed Aug. 20, 1877.]



The combination, in a joiner's clamp, of a stock, having a fixed jaw and a longitudinal rack, with a frame movable on said stock and carrying a jaw parallel with that of the stock, a pinion gearing with the rack on the stock, and pivoted spring-pawls engaging the teeth of the pinion, substantially as set forth.

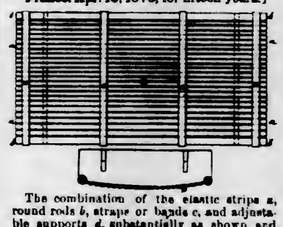
194,831. CHILDREN'S BED-MATS. O. A. Lirette, Houma, La. [Filed July 23, 1877.]

Brief.—A mat consisting of several folds of bamboo and sponge placed within a case having water-proof bottom and sides, to absorb any moisture or wet from the child.



A bed-mat composed of woven folds *a b*, and provided with an outer casing, C, as described, and for the purpose set forth.

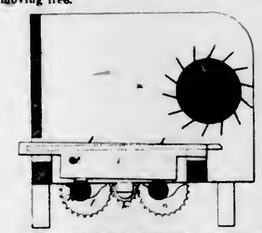
194,832. BED-BOTTOMS. G. Luciani, Paris, France. [Filed May 28, 1877; patented in France, Apr. 10, 1876, for fifteen years.]



The combination of the elastic strips *a*, round rods *b*, straps or bands *c*, and adjustable supports *d*, substantially as shown and described, to form a mattress having the qualities specified.

194,833. CHILDREN'S BED-MATS. O. A. Lirette, Houma, La. [Filed July 23, 1877.]

Brief.—The central parts of the shafts are formed into eccentrics. Every alternate one of the feeding-bars is provided with a strap for passing around one of the eccentrics, to connect the bars which have no straps with those that have, and, to secure uniformity of movement, a rod is passed through all the bars from side to side, the other ends of the bars moving free.



1. The combination of the frame *a*, driving-pulleys *e e*, belt *d*, the two eccentrics, and the feeding-bars, all substantially as described.

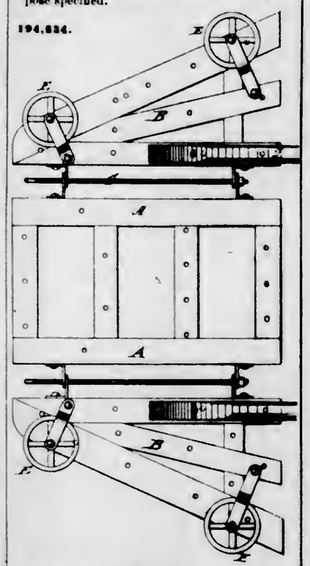
2. The combination of the two eccentrics, geared together, straps *h* upon each alternate bar, and a connecting-rod, *i*, whereby all the rods are made to move uniformly together, substantially as specified.

194,834. HARROWS. G. D. Miles, Cairo, Pa. [Filed June 25, 1877.]

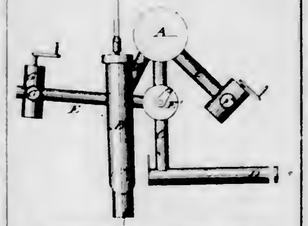
Brief.—The wings of the harrow may be folded in, either above or below the central frame, and the wheels serve to carry it from point to point.

The combination, with the body A, of side-pivoted wings B B and shafts D D, the outer bars of wings being provided with wheels E, and the inner bars being rigidly attached to shafts, as shown and described, for the purpose specified.

194,834.

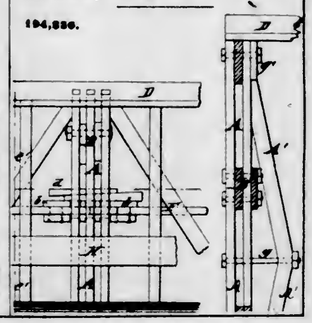


194,835. DEVICES FOR PROPELLING VESSELS. W. F. Morrison, Plattsmouth, Nebr. [Filed June 30, 1877.]



In combination with the water-supply tank, a cistern, A, and the propelling discharge-pipes D and E, the lateral pipes F and G branching off at right angles from pipes F and E, and being regulated by adjustable valves for steering the vessel in either direction during its forward and return motion, substantially as described.

194,836.

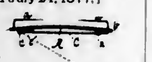


194,836. FRAME BUILDINGS. W. R. Morris and J. Slauser, La Rue, Ohio. [Filed July 9, 1877.]

1. The combination of the recessed and tenoned upper end of the plank-post A with the mortised rafter-plate D and lateral supporting-piece D', substantially as and for the purpose described.

2. The combination of a compound plank-post, A, which is not tied to the building, with a trussed brace, A', resting on end shoes and center stiffening-bolt *g*, substantially as specified.

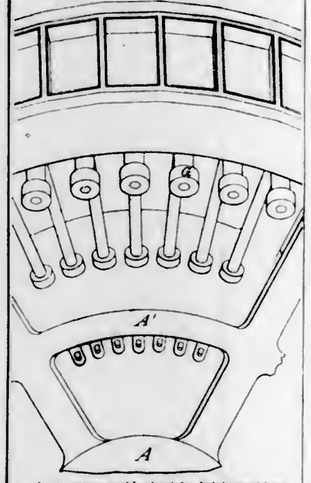
194,837. CUFF-FASTENERS. J. H. Myers, Troy, N. Y. [Filed July 24, 1877.]



1. The plate A, curved to conform to the cuff, and having the pins C *a a*, substantially as described.

2. The cuff-fastener herein described, consisting of the plate A, struck up as shown to form the hinge and spring, and provided with the pins *a a* and C, as set forth.

194,838. MOLD-WHEELS FOR BRICK-MACHINES. H. L. Oliver, Washington, D. C., assignor of one-half his right to E. S. Holmes, same place. [Filed Aug. 18, 1877.]



1. A rotary mold-wheel for brick-machines, having grooves in its periphery, substantially as and for the purpose specified.

2. A rotary mold-wheel for brick-machines, having grooves adjacent to the edges of the molds, substantially as and for the purpose specified.

3. A rotary mold-wheel for brick-machines, having transverse grooves in its periphery, substantially as and for the purpose specified.

4. A rotary mold-wheel for brick-machines, having circumferential grooves, substantially as and for the purpose specified.

5. A rotary mold-wheel for brick-machines, having the cross-bar or guide A' for the plungers, substantially as and for the purpose specified.

6. In a rotary mold-wheel for brick-machines, the combination of straight-line plungers and the grooved periphery of the wheel, substantially as and for the purpose specified.

194,839. WINDMILLS. I. H. Palmer, Lodi, Wis. [Filed Aug. 7, 1877.]

Brief.—The combination of a spring-rod with each pivoted section of fans, to assist, by its elasticity, in throwing or moving the sections into working position after they have been forced out by hand or an unusually strong wind.

1. In a wind-wheel, the combination of a spring rod, E, with the fan-sections, substantially as described, for the purpose specified.

2. In a wind-wheel, the combination of the spring rod E with the fan-sections and suitable bearings on the radial arms A, substantially as described.

3. The cross-bar G of the fan-sections hung upon the spring-rod E, substantially as described, so as to lie in rear of such rod when the sections are thrown out of the wind, substantially as described.

4. The combination of the spring-rod E and head lever-rod I with the fan-sections and radial wheel-arms, substantially as described, for the purpose specified.

5. The plates or sockets J, constructed with lateral lugs *k* to receive the spring-rod, substantially as described.

6. The connecting-plates M of the head lever-rod, adapted for adjustment thereon to regulate the throw of the fan-sections, substantially as described.

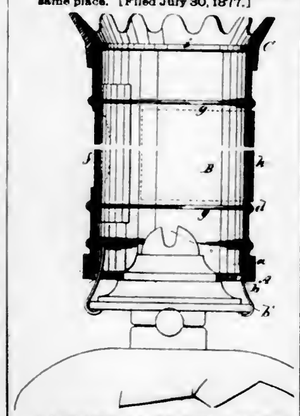
7. The combination of the protecting-plate *m* with the head lever-rod, substantially as described.

8. The head lever-rod I, adapted to bear against the spring rod E to set the latter for throwing the fan-sections into position full to the wind, substantially as described.

194,839.



194,840. HEATING ATTACHMENTS FOR LAMPS. C. I. Payne, Binghamton, N. Y., assignor to himself and J. W. Burnett, same place. [Filed July 30, 1877.]



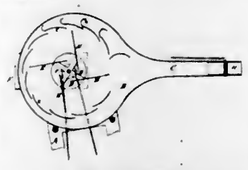
A heating attachment for lamps, consisting of the apertured base-piece A, the beaded sheet-metal portion B, having the opening *e*, mica window *f*, and rings *g*, the sliding cover *h*, and the flaring notched top piece C, substantially as shown and described.

194,841. FLYING-MACHINES. Jas. J. Pennington, Henryville, Tenn. [Filed July 23, 1877.]

1. The combination, in a flying-machine or aerial navigating apparatus, of a movable casing, B, having air-conduits F, and an air-discharge or blast-tube, C, with a revolving fan, E, and supporting-frame A, as and for the purpose set forth.

2. The gate H, in combination with the discharge-nozzle C, having the fan-shaped end, substantially as shown and described.

194,841.



194,842. HOOP-MACHINES. J. A. Peoples, Chicago, Ill., assignor to R. Hart, Rochester, N. Y. [Filed Jan. 6, 1877.]

Brief.—Half-round, flat, or angular hoop-splints are shaved, dressed, and the projections of knots removed therefrom by means of a rotating knot-cutter, mounted in a shaft, one end of which is hung on trunnions, and the other yielding, and adjustable in vertical guides, and partly inclosed in a guard-casing. A series of feed-rolls mounted in movable bearings, a rotating shaving-cutter having a casing partly inclosing the same, a fixed guard-plate, and a sliding guard-plate governed by a spring. A yielding knot-passer immediately below the shaving-cutter, a yielding adjustable feed-rest having V-shaped notches upon its base. A finishing cutter having fixed and sliding guard-plates and suitable operating mechanism.

1. The combination, in a hoop-machine, of a rotating cutter-head, a rotating feed-roll, and a yielding adjustable feed-rest or presser-slide, having one or more V-shaped or incline-sided notches upon its base, substantially as set forth.

2. The combination, in a hoop-machine, of feed-rolls mounted in movable bearings, a guide-stem attached to the bearing of the upper roll and passing freely through a hollow screw engaging a nut on the frame of the machine, and a spring interposed between said hollow screw and the bearing of the upper roll, substantially as set forth.

3. The combination, in a hoop-machine, of a rotating cutter-head and a casing partially inclosing the same, with a fixed guard-plate and a sliding guard-plate governed by a spring, said plates being secured to the casing near the opening thereof, and upon opposite sides of the cutter-shaft, substantially as set forth.

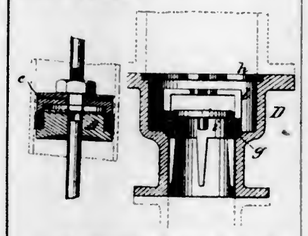
4. The combination, in a hoop-machine, of a cutter head and shaft rotating in fixed bearings, a knot-passer sliding in guides at right angles to the cutter-shaft, and an adjusting device, substantially as described, whereby the position of the knot-passer relative to the cutter-shaft may be regulated, and the tension of its bearing-spring varied, substantially as set forth.

5. The combination, in a hoop-machine, of a roll or knot-passer mounted on a sliding

frame, A, a screwed stem, A^4, secured to said sliding frame, a stationary nut on the bed-plate or guide-piece A^1 of the sliding frame, a hollow screw, A^5, engaging said nut to regulate the tension of the spring A^2 which presses against the sliding frame, and a nut, A^6, working on the stem A^4 to raise and lower said sliding frame, substantially as set forth.

194,842. PUMPS. Geo. W. Robaugh, Ottumwa, Iowa. [Filed July 9, 1877.]

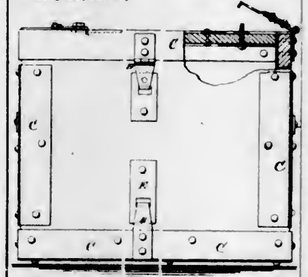
Brief.—Improvement upon Patent No. 149,953, April 21, 1874, to G. W. Robaugh, for a lift-pump, said improvement relating to the valves therein.



1. The piston-head consisting of the fixed portion A and the slotted removable parts *b c*, substantially as shown and described.

2. The part D, having two diameters, and containing the valve-seat *g*, the grating *h*, and the double valve, in combination, substantially as shown and described.

194,844. SECTIONAL PACKING-BOXES. G. Robinson, Jr., New York, N. Y. [Filed May 28, 1877.]



1. The edge piece C, at the upper forward edge of the box, made with a hinge-joint at its angle, substantially as herein shown and described.

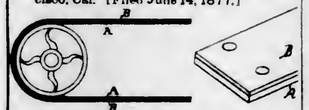
2. The sectional packing box, provided with iron corner-blocks F, inserted between and riveted to the parts of the double edge pieces C, substantially as herein shown and described.

194,845. FABRICA FOR CARPET-LINING, &c. D. G. Rollin, New York, N. Y. [Filed June 14, 1877.]

Brief.—The cotton-waste and sizing are saturated with water. To this mass particles of sponge, cork, raw cotton, or other elastic substance are added, also a little alum or other astringent.

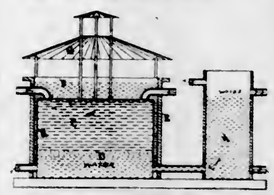
An improved fabric composed of cotton-waste, glue-sizing, sponge, cork, and raw cotton, substantially as specified.

194,846. BELTING. H. Royer, San Francisco, Cal. [Filed June 14, 1877.]



A belt composed of one side, A, formed of ordinary tanned leather, and the other side, B, of fulled rawhide or mechanically-prepared leather, substantially as and for the purpose herein described.

194,847. OIL-TANKS. T. Shaw, Philadelphia, Pa. [Filed May 12, 1877.]



In lightning-proof oil-tanks, the combination of the interior submerged oil and water tank R with the exterior water-tank E and the separate water-supply tank A, the tanks E and A having no direct connecting-conduit, each tank having suitable inlet and outlet passage-ways, arranged as and for the purpose set forth.

194,848. PADLOCKS. F. W. Smith and F. Eggs, Bridgeport, Conn. [Filed July 10, 1877.]



1. The combination, substantially as hereinbefore set forth, of the lock case, the pivoted shackle, having a heel or extension projecting into the case, and an oscillating dog to engage with the lock-tumblers, operated by the shackle both in locking and unlocking.

2. The oscillating tumbler-engaging dog, constructed substantially as described, having a top notch or recess to engage the shackle-extension and cut away or recessed to admit of the shackle-operating spring being secured upon its pivot, whereby the dog is adapted to be moved by the shackle both in locking and unlocking, and a single spring serves to operate upon both the shackle and dog.

3. The combination, substantially as hereinbefore set forth, of the shackle having an extension, the oscillating slotted spring-tumblers, the dog operated by the shackle, having a nose to engage the tumblers and located between the shackle-extension and said tumblers, and the spring acting upon the shackle extension.

4. The combination, substantially as hereinbefore set forth, of the pivoted shackle having a notched or hooked nose, the isolated spring-catch engaging therewith, and the tumblers unconnected with said catch, one of which acts directly upon the catch to release the shackle-nose.

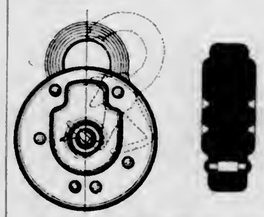
5. The combination of the pivoted shackle, the pivoted catch, isolated from and wholly unconnected with the tumblers of the lock, acting directly upon the shackle-nose, and provided with a heel, A, and the spring H', bearing against one side of the catch, while it is adapted to be operated upon at the opposite side by one of the tumblers as it is advanced by the key to release the shackle-nose, as specified.

6. The combination of the pivoted shackle, having a notched or hooked nose and a heel-extension, the spring-catch engaging with said nose, the dog, and the oscillating tumblers, these members being constructed and operating substantially as hereinbefore set forth, whereby the shackle, when locked, is held at both ends, and is unlocked at both ends simultaneously by the action of the tumblers.

7. The combination, substantially as hereinbefore set forth, of the lock-case, having the long curved rib or flange I', and the pivoted tumblers, having edges or peripheries of a curvature corresponding with that of said rib, whereby the tumblers are protected and endwise movement thereof prevented, as set forth.

8. The lock-case, constructed as described, with the long and short ribs or flanges I I', the latter extending into the case around the tumblers, and provided with the shoulder *i*, for the purposes specified.

194,849. PADLOCK-CASES. F. W. Smith and F. Eggs, Bridgeport, Conn. [Filed June 29, 1877.]



1. A sheet-metal lock-case, corrugated or crimped, substantially as hereinbefore set forth, whereby it is strengthened, and affords additional protection to the lock-works, which it is adapted to inclose and form bearings for, essentially as specified.

2. The combination of the corrugated case, provided with central bearings, and the shackle, having an extension working between said bearings, substantially as hereinbefore set forth.

3. The combination, substantially as hereinbefore set forth, of the case, its rivets, and the internal protecting plate or plates perforated for the passage of the rivets, and extending over the inner surface of the side or sides of the cases, thereby inclosing and protecting the works from edge to edge of the case.

4. The combination of the corrugated, crimped, or bulged case, and the smooth-surfaced protecting-plates, arranged against the inner sides of the case, substantially as and for the purpose set forth.

194,850. DENTAL-ENGINE HAND-PIECES. E. T. Starr, Philadelphia, Pa., assignor to S. S. White, same place. [Filed Mar. 22, 1877.]

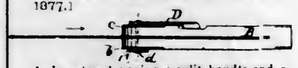


1. A swiveling sectional hand-piece provided with a spring-clutch between the detachable sections to prevent accidental separation thereof when turning to conform to the

movements of the hand of the operator, substantially as described.

2. The combination, substantially as herein before set forth, of the swiveling and detachable sections of the hand-piece with the overlapping sliding sleeve carrying a pin working in a groove in one section and interlocking with a notch in the other, and the spring inclosed within the sleeve, whereby accidental disconnection of the sections is prevented.

194,851. CARPENTERS' BEVELS. Justus A. Traut, New Britain, Conn. [Filed Feb. 5, 1877.]



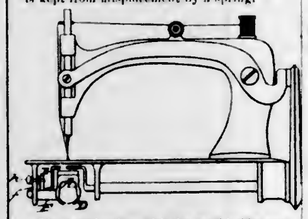
1. In a bevel having a split handle and a slotted blade, the screw *d* and the lever-nut D, when provided with means for bringing the lever-nut home between the two edges of the handle, substantially as described, and for the purpose set forth.

2. In a bevel, the combination of the handle B, screw *d*, nut C, and lever-nut D, operating together substantially as described, and for the purpose set forth.

3. In a bevel, the screw *d*, threaded from end to end, and flatted so as to form shoulders at one end, in combination with the plate *b*, correspondingly slotted, and the nut C, substantially as described, and for the purpose set forth.

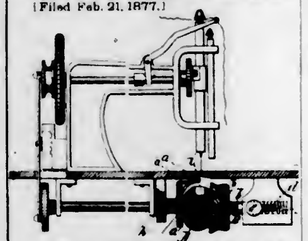
194,852. SEWING-MACHINES. J. Tripp, Coldwater, Mich. [Filed Jan. 8, 1877.]

Brief.—The under thread, on a commercial spool, is carried in a holder, supported in a skeleton frame pivoted to a projection or hanger suspended below the cloth-plate, and held in place by a set-screw in the hanger, and working in a circular or segmental slot in an upright arm on the holder-support. The spool is kept from misplacement by a spring.



The combination, with the spool-holder support D *d d*, having the arm or projection F, of the angular or curved spring E, slotted upright i, and pendant *f*, provided with a set-screw, *h*, and in which the projection or arm F is pivoted, substantially as and for the purpose set forth.

194,853. REVOLVING-HOOK SEWING-MACHINES. James Tripp, Coldwater, Mich. [Filed Feb. 21, 1877.]



1. The hook disk *a'*, having the cam *g*, in combination with the spool-holder A and support B, substantially as and for the purpose set forth.

2. The globe or holder A, in combination with the hook disk *a'* and cup-shaped support B, having an internal convexity or swell, *b'*, upon its bottom, to hold the spool in a retracted position in the globe, its rim assisting to support the latter, substantially as set forth.

194,854. COTTON-HARVESTERS. Ferdinand Van Dorn, Basking Ridge, N. J. [Filed June 18, 1877.]

1. The combination of the outer shell E, the inner sectional shell F, the fine H, the fan I L, and the curved spout J, with each other, and with the frame D of the machine, substantially as herein shown and described.

2. The combination of the wire-gauze K with the rear or concave side of the spout J, substantially as herein shown and described.

3. The concavity J', formed in the lower side of the upper part of the spout J K, substantially as herein shown and described.

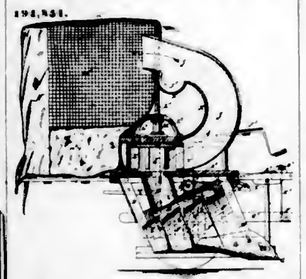
4. The combination of the sliding bars U, the levers W, the connecting-bars V, and the crank-lever X with the cross-head axles B, the shaft A' of the driving mechanism, and the frame D of the machine, for throwing the said driving mechanism out of gear, substantially as herein shown and described.

5. The combination of the levers Y and the upright bars U with the frame D of the machine, and with the shaft A' of the driving mechanism, and the drive wheels A, for raising and lowering the body of the machine, substantially as herein shown and described.

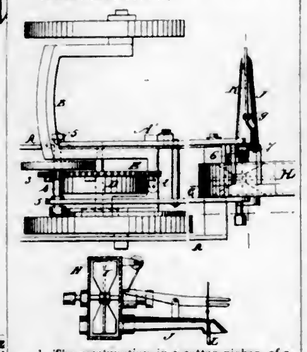
6. The sack N, provided with the opening in front, the gauze top *n'*, and the gauze partition *n²*, in combination with the spout J and the frame work of the machine, substantially as herein shown and described.

7. The combination of the adjustable guide-plates G with the shells E F and the frame D, substantially as herein shown and described.

194,855.



194,856. COTTON-HARVESTERS. John E. Watkins and Morris Sale, Smithfield, Ky. [Filed June 18, 1877.]



1. The combination, in a cotton-picker, of a suction-fan, a picker, and a convolute spring, the latter wound up by a transporting-wheel, as shown and described.

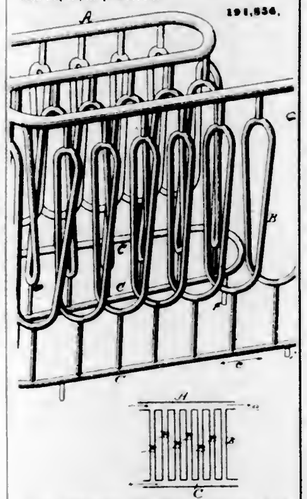
2. In a cotton-picking machine, the combination, with cranked axle D, of the main frame A and vertically-adjustable frame G, bearing the fan and picking device, substantially as described.

3. The picking-nippers L, combined with the nozzle J and fan-case H, substantially as described.

194,856. CONDENSERS FOR FRACTIONAL DISTILLATION. F. M. Young, Chicago, Ill. Filed May 12, 1877.]

Brief.—The hot vapors pass along the feed-pipes, and are drawn down into the vertical tubes partly by gravity and partly by the partial vacuum produced by partial condensation in said tubes. The condenser is to be immersed in water to the top of the coils, or to a less depth, as preferred.

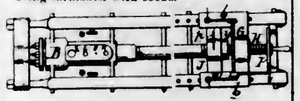
194,856.



An analyzing-condenser composed of a vapor-pipe, A, above, and a return-pipe, C, below, as set forth, combined with condenser-pipes B, extending between and uniting said vapor and return-pipes, substantially as and to operate as described.

194,857. HYDRAULIC TESTING-MACHINES. W. C. Allison, Philadelphia, Pa. [Filed Aug. 1, 1877.]

Brief.—In the top of the cylinder there are four orifices, the first of which communicates, through a pipe, with a supply of water under light pressure; the second for water under heavy pressure; the third with a gage for determining the pressure exerted by the machine on a pipe; and the fourth for water under the highest pressure which may be demanded, all the pipes communicating with these orifices being furnished with cocks.



1. A hydraulic testing-machine in which a stationary cylinder, B, and ram D are combined with a follower, J, connected to the said ram, all substantially as set forth.

2. The combination of the cylinder, the ram and its draw-bars, the cross-head G, and the follower J, adjustable on the cross-head, all substantially as specified.

3. A hydraulic testing-machine in which a cylinder, B, provided with one or more water-inlets, is combined with a follower provided with an air-outlet, as and for the purpose set forth.

4. The combination of the follower J, its inclosed chamber, the bent inlet-pipe *q*, and a suitable outlet.

5. The combination of the cylinder B and its ram with the orifice *h* communicating with a water-supply, the orifice *f* communicating with a gage, and the orifices *i* and *h*, one or both, communicating with a supply of water under pressure, all as described.

6. The combination of the cylinder B, its ram D having a projection, *f*, extending into the interior of the cylinder, and the packing *e*.

7. The combination of the ram D, having the cross-head G connected thereto, with the bolts *s'* and their nuts *s²*.

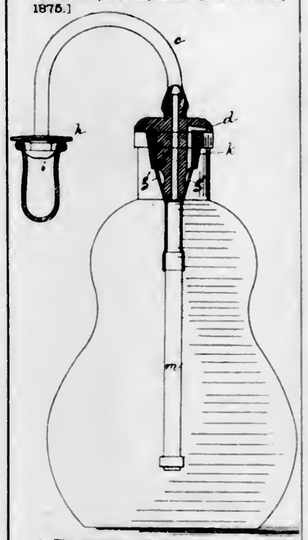
194,858. COVERED PITCHERS. S. W. Babbitt, West Meriden, Conn., assignor to Wilcox Silver Plate Company, same place. [Filed June 30, 1877.]

The combination, in a pitcher or similar article, of the hinged cover, the handle hinged at its lower end to the body of the pitcher, and connected at its upper end to the body of the pitcher, so as to allow it to swing toward and from the hinge of the cover, and a connection between the handle and cover, substantially as described, so that the movement from the pitcher opens the cover, substantially as specified.

194,859.



194,859. NURSING-BOTTLES. I. Bullard, Readville, assignor to himself and Alfred Hale & Co., Boston, Mass. [Filed Oct. 12, 1875.]



1. The stopper and air-passages, in combination with the soft-rubber gasket interposed next the bottle-neck, and provided with a valve or valves to admit air into the bottle, substantially as described.

2. The bottle, and the india-rubber gasket, provided with a valve or valves, and fitted over the tube, in combination with the stopper, provided with the air-passage *d*.

3. The india-rubber pipe *c*, and the mouth-guard *h*, made in one piece with it, all substantially as described.

4. The india-rubber pipe *c*, mouth-guard *h*, and nipple-holder *i*, all made of india-rubber, and in one piece, in combination with a nipple and bottle, substantially as described.

194,860. FILLER-MOUTHS FOR LAMPS, &c. C. Chinnock, Brooklyn, N. Y. [Filed July 3, 1877.]

1. The filler-cap composed of two parts, one concave or funnel-shaped, provided at its outer circumference with an annular rim, for attachment to the filler-mouth of a lamp or other receptacle for liquid, and having an opening through it, and another part consisting of a cover arranged outside the part first named, and adapted, upon being turned or oscillated, to cover or uncover the opening therein, substantially as specified, whereby the necessity for a handle wherewith to operate the movable part is obviated.

2. The combination, in a filler-cap, of a funnel-shaped part provided with an opening, and a second funnel-shaped part arranged outside the former, provided with a corresponding opening, and having its outer circumference bent over into a rabbet or groove located in the exterior of the funnel-shaped part first named, substantially as specified, whereby the means serving to secure the movable part to the outer part serve also as a handle for turning or oscillating the movable part to cover or uncover the other part.

3. A lamp-burner composed of a fixed concave or funnel-shaped cap provided with an opening, an outer movable concave or funnel-shaped cover therefor, provided with a corresponding opening, and having its outer edge bent over the outside of the said cap, so as to serve as a handle whereby it may be turned or oscillated, and a burner-tube erected from the said cap, said parts being organized and combined substantially as specified.

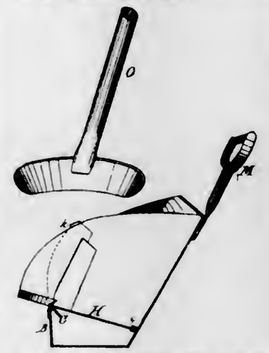
194,860.



194,861. PROCESSES FOR DESTROYING VERMIN. T. S. Church, Boston, Mass. [Filed Apr. 30, 1877.]

The described process of exterminating vermin in, and treating, furniture, upholstery, bedding, and articles containing wool and hair, consisting in subjecting such articles to a bath of warm naphtha, substantially as described.

194,862. POTATO-BUG CATCHERS. J. F. Corbin and M. W. Moseley, Eagle Bridge, N. Y. [Filed July 20, 1877.]



1. The sheet-metal scoop formed with flaring sides A, front B with its forwardly-inclined flange C, and handle M, arranged to tilt the scoop in the manner and for the purposes described.

2. In combination with the scoop formed as described, the perforated bottom E or H, arranged in an inclined position, to form an enlarged space underneath and at the front, substantially as and for the purposes described.

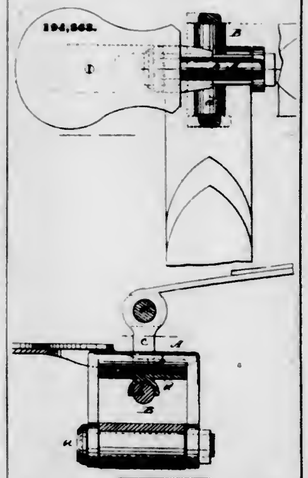
3. The front B, provided with flange C, and having door F formed in said flange, substantially as and for the purposes set forth.

4. The ladle formed of wood and sheet-metal, and shaped, as described, with reference to the scoop, to concentrate the vines, substantially as described.

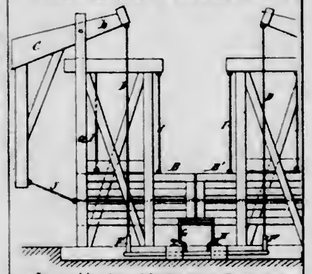
194,863. COMBINED SPRING-SHACKLE AND STEP. R. Doty, Wellsville, N. Y. [Filed May 12, 1877.]

The shackle A B, that connects wagon-springs, provided with the piece *d* to serve as a bearing for parts A B, and a support for the step, as shown and described.

194,863.

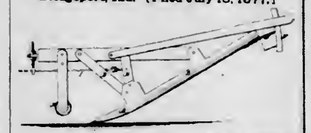


194,864. RAILWAY-GATES. W. I. French, Cainsville, Mo., assignor to himself and P. Jacobs, same place. [Filed Apr. 16, 1877.]



In combination with the gates B B', each suspended by two parallel rods, I I, the rock-levers provided with arms G and F, the rods D and J, and levers C e, substantially as shown and described, to operate as specified.

194,865. DITCHING-PLOWS. Seth Furnas, Bridgeport, Ind. [Filed July 18, 1877.]



1. A ditching-plow consisting of the combination of a beam, C, the brace-bars D D, the handles G, and the inclined scoop and trough A B, bolted to the said brace-bars and rear end of the beam, and arranged to support the handles at its extremity, substantially as and for the purpose described.

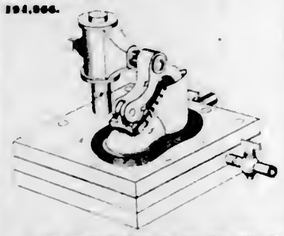
2. The combination, with the rear extension of the trough B, and the handles G having keepers H, of the cross-bar E having guide-bars F, and the set-screws *f*, substantially as and for the purpose described.

194,866. BOOT AND SHOE SOLE PRESSING MACHINES. T. J. Gifford and T. H. Gifford, Salem, Mass. [Filed July 26, 1877.]

Brief.—An apparatus for pressing the soles of boots and shoes against the uppers, in which an adjustable elbow or clamp holds the shoe, by means of the inclosed last, down upon a rubber bed, which rests upon, and forms a part of, a flexible rubber diaphragm. Below this diaphragm is a space, into which air, water, or any equivalent thereof is forced, in order to

produce pressure sufficient to hold the cemented sole firmly against the upper while the cement is hardening.

194,866.



1. An apparatus for pressing the soles of shoes against the uppers, consisting essentially of a bed or support for the sole, an elastic or yielding diaphragm supporting said bed, a water or air space under said diaphragm, and a device for supporting the last and upper against pressure directed upwardly against the sole, substantially as set forth.

2. The elastic or yielding diaphragm E, provided with the elastic bed having the rim *f*, substantially as and for the purpose specified.

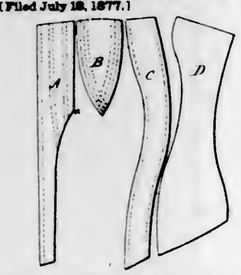
3. The base A, having the space B, the diaphragm E, the bed F, and the inlet and outlet pipes, substantially as set forth.

4. The base A, constructed as described, and having a vertical standard, N, combined with an adjustable device, L, located on said standard and adapted to bear upon a last supported on the base A, as set forth.

5. The elbow or clamp L, having two bearing-surfaces, and pivoted to a vertically and horizontally adjustable bearing, M, in the manner described, and adapted to swing in a substantially vertical plane, as and for the purpose specified.

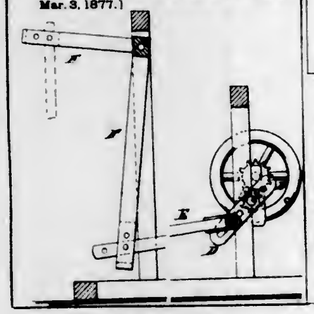
6. The pivoted elbow or clamp L, provided at one end with the pivoted block P, having a concave under surface and a yielding or elastic facing, R, substantially as set forth.

194,867. **Corsets.** T. S. Gilbert, Birmingham, Conn., assignor of one-half his right to **Brewster Brothers & Co.**, same place. [Filed July 18, 1877.]



In a corset, the parts A B C D, constructed and arranged as shown and described.

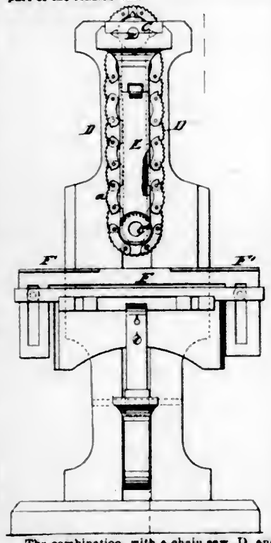
194,868. **Reciprocating Churns.** G. Goff and H. Hardiok, Stevensville, N. Y. [Filed Mar. 3, 1877.]



The combination, with a pitman, E, pivoted at the front end to a swinging elbow-lever, F, of the double-cranked rotary drive-shaft C, having arms, D, slotted, as shown and described, to regulate the throw of the pitman to correspond with any change in the stroke of dasher.

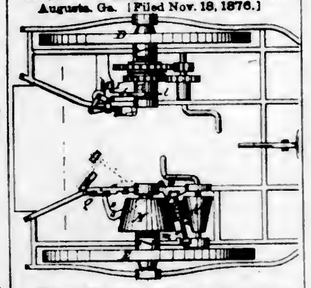
194,869. **Mortising-Machines.** Wm. W. Green, Jr., Chicago, Ill., assignor to himself, E. N. Nicholson, and J. M. Shields, same place. [Filed Feb. 26, 1877.]

Brief.—The material to be mortised is placed on a movable treadle-acted table or bench, and fed to a revolving endless-chain saw, formed of pivoted links with cutting-teeth, to which the proper tension is imparted by a grooved tension-bar, provided at its top with a spring. The saw is mounted upon a spurred pulley at the top of the main frame, and works in a grooved guide-roller attached to the lower part of the tension-bar.



The combination, with a chain-saw, D, and a movable table, F, of a tension-bar, E, provided with spring at top to keep the chain taut, and a groove to correspond with that in top and bottom wheels, as and for the purpose specified.

194,870. **Carriages.** W. H. Hancock, Augusta, Ga. [Filed Nov. 18, 1876.]

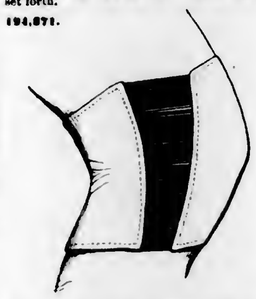


The combination, with wheel O, arranged with respect to cones M N, as shown and described, of the vertically-sliding frame P, lever *p*, ratchet-bar *r*, and spring-bolt S, as and for the purpose specified.

194,871. **Knee-Protectors.** M. C. Hiester, Philadelphia, Pa. [Filed May 17, 1877.]

A knee-protector consisting, mainly, of a tube of non-elastic material with an elastic gore, A, and made to embrace the leg above and below the knee, and having a cavity adapted to the knee-cap, all substantially as set forth.

194,871.

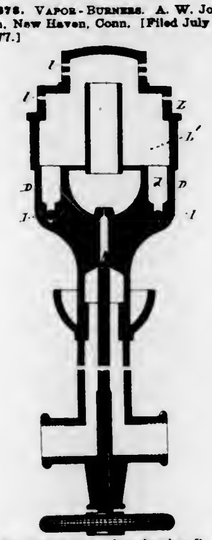


194,872. **Buttons.** J. John, New York, N. Y. [Filed June 8, 1877.]



The combination, with a button, A, provided with a shank, *c*, having at its end a rearwardly-extending hook, *d*, and a toe, *a*, extending laterally from said hook *d*, of a box-like clasp-piece, B, provided in its face with a straight slot or opening, C, of uniform width, for the reception of the shank *c* of the button, and with an inwardly-extending lip, *b*, at one end of said slot, serving to secure the shank of the button both lengthwise and transversely in place by engaging with the hook *d*, and a flap-spring, *e*, fastened at one end within the clasp-piece for keeping the said hook in engagement with said lip, and bowed rearwardly between its ends to assist in holding said hook transversely in place, substantially as and for the purpose set forth.

194,873. **Vapor-Burners.** A. W. Johnson, New Haven, Conn. [Filed July 24, 1877.]



1. The vapor-generating chamber B, situated between the valve *c* and the gas-chamber L', in combination with the hollow supporting-posts D D, substantially as described, and for the purpose set forth.

2. The hollow supporting-posts D D, provided with openings I I, substantially as and for the purpose described.

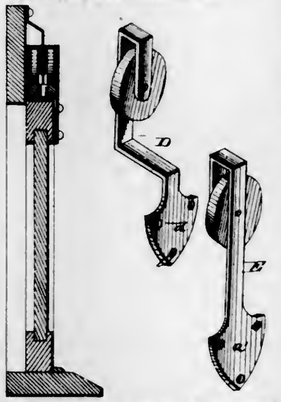
3. The openings I I, arranged as conductors for discharging the vapor in its passage from the gas-chamber L' through the hollow supporting-posts D D to the point of ignition, substantially as shown and described, and for the purpose set forth.

4. The combination of the heat-transmitting webs N N and ribs *n n* and *n'* with the openings I I and vapor-generating chamber B, substantially as described and set forth.

5. The combination of the vapor-generating chamber B, the hollow posts D D, the heat-transmitting webs N N, and ribs *n n* and *n'*, openings I I, valve *c*, tube M, and gas-chamber L', substantially as and for the purpose described.

194,874. **Door-Hangers.** T. J. Jones, Earl, assignor of one-half his right to Wm. Van Deventer, Earlville, Ill. [Filed Mar. 31, 1877.]

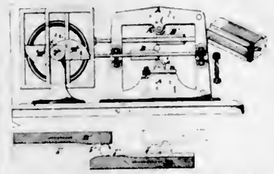
Brief.—A double roller-frame, independently journaling plane-faced rollers, is constructed by bending one of the supporting-arms at a double angle, in such manner that a single set of screws or rivets attaches the two-part frame to the door. A double track provides full bearing for each roller, acting independently of the other, thus providing measurably against the warping of the outer rail, or unequal sagging of the respective rails.



1. The double roller-hanger D E, constructed with independent frames for each roller, the said rollers having smooth face-bearing, substantially as described.

2. The combination, with the two-part double roller-frame D E, independently-journaling plane-faced rollers, the supporting-arm of the part D being made with a double angle, as described, of a single set of screws or rivets, by which the two parts are jointly secured to a door, substantially as described.

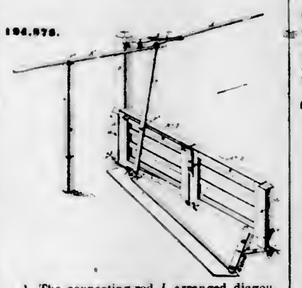
194,875. **Screw-Swaging Machines.** M. D. Luehrs, Cleveland, Ohio. [Filed Apr. 27, 1877.]



The grooved plates A B, made with the smooth surfaces *b'*, the same constituting plates having respective flat portions adapted to roll the bar to an exact proper diameter, and having a portion of each groove extending partly above and partly below these flat surfaces, whereby the parts of the bar grasped between the projections or ribs are expanded into the bottoms of the grooves, substantially as set forth.

194,876. **Gates.** Lewis T. Mason, Ellington, N. Y. [Filed May 14, 1877.]

194,876.



1. The connecting-rod I, arranged diagonally, for opening one gate in advance of the other, combined with the pivoted bars G and H, and with the two gates Nos. 1 and 2 hinged to swing in opposite directions, substantially as described.

2. The combination, with a gate-post and a gate, of an adjustable supplemental post, L, hinged to the gate, and fastened to the gate-post by a pivot-bolt at right angles to the plane of the gate, and arranged to be adjusted upon said bolt to compensate for the sagging of the gate, substantially as shown and described.

3. The levers A A', having each a compound or an oscillating and longitudinal movement, in combination with the lever D, the latch E, and the gate No. 1, substantially as and for the purpose described.

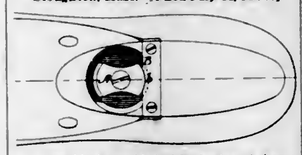
194,877. **Regulators for Gas-Burners.** Thomas F. McGann, Boston, Mass. [Filed July 26, 1877.]



1. The hollow tapering plug P, adapted to receive the tapering tip T, and to be inserted into the upper end of the shell or tube S, and provided with means, substantially as described, for checking and regulating the flow of gas from the shell to the tip, as set forth.

2. The combination of the plug P, provided with gas regulating and checking devices, the tip T, and the shell or tube S, as set forth.

194,878. **Last-Block Fasteners.** Wm. Miller, Boston, assignor of one-half his right to Nathaniel Wales and E. C. Monk, Stoughton, Mass. [Filed July 31, 1877.]

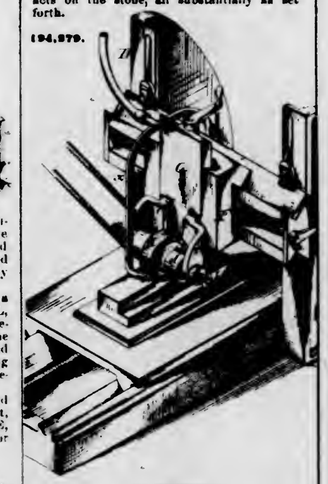


A last-block provided with a button, A, having one or more curved and flanged or beveled ends, combined with a last having a plate, B, provided with a curved recess, *b*, adapted to co-operate with the button A, and prevent side, end, and outward movement of the block, substantially as described.

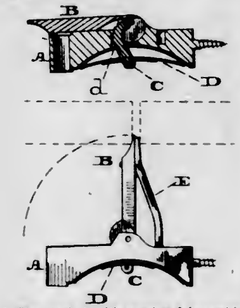
194,879. **Surfacing Stone.** J. M. Poole, Wilmington, Del. [Filed Feb. 25, 1876.]

A stone-facing machine in which are combined the following elements, namely, a reciprocating bed to which the stone is secured, a corundum or emery wheel, the slides F and G carrying the said wheel, and a pipe or pipes, *x*, carried by the said slide G, and terminating in a nozzle or nozzles directed to that portion of the periphery of the wheel which acts on the stone, all substantially as set forth.

194,879.



194,880. **Burglar-Alarms.** Wm. H. Reiff, Philadelphia, Pa., assignor of one-half his right to E. V. Machette, same place. [Filed July 30, 1877.]



1. The stock A with opening *d*, in combination with bar C passed through said opening, and connected at one end to the spring D and at the other end to the axial end of the hammer B, substantially as and for the purpose set forth.

2. The stock A, in combination with the hammer B and spring D, on opposite sides thereof, and with the bar C passed through the stock and connecting said hammer and spring, substantially as and for the purpose set forth.

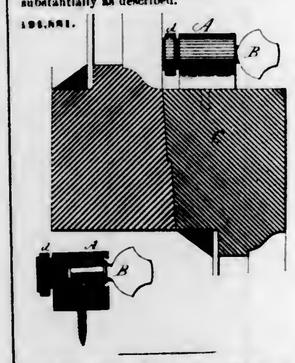
194,881. **Sash-Holders.** A. W. Sperry, Wallingford, assignor to G. Van Sands and C. W. Clark, Middletown, Conn. [Filed July 18, 1877.]

Brief.—A screw-threaded follower, having a swiveled head with bearing-surface, is fitted in an internally-threaded cylinder, and is operated by a detachable key, the main object being to force the two sashes against their respective stops on the jamb, preventing rattling, and also preventing the movement of either sash.

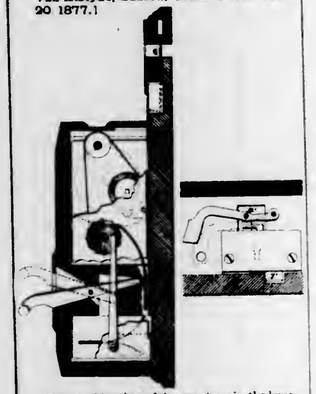
The herein-described improvement in sash-holding devices, consisting in the combination of the internally screw-threaded socket A, the correspondingly-threaded follower *c*, the head *d*, constructed with a bearing-surface, and arranged in the follower, so that the follower may turn freely, while the head remains stationary, and the detachable key B, or its

equivalent, for turning the said follower, all substantially as described.

194,881.

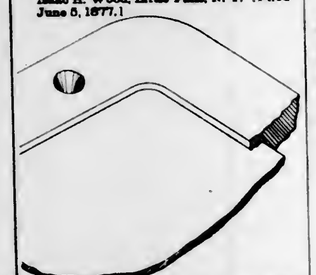


194,882. REGISTERING BALLOT-BOXES. L. Van Alstyne, Sharon, Conn. [Filed Feb. 20 1877.]



The combination of the aperture in the base, the slide for closing said aperture, lever and spring for operating said slide, a recording-strip intermittingly moved by the movement of the said slide, with a lock which simultaneously locks the slide and covers the key-hole for winding the strip, substantially as specified.

194,883. SLATE-FRAME ATTACHMENTS. F. S. Allen, Washington, D. C., assignor to Isaac H. Wood, Little Falls, N. Y. [Filed June 5, 1877.]



A slate the frame of which is provided with a conical hole, with a blade inserted in the walls of said hole, and entering the wood of the frame, substantially as and for the purpose set forth.

194,884. PERFORATING STAMP-CANCELER AND POSTMARKER. George F. Almy, Delphos, assignor to himself and H. M. Clark, Toledo, Ohio. [Filed July 13, 1877.]

Brief.—When the device is brought down on the article to be canceled, the plunger, carrying the swinging cutter, is forced upward, causing the latter to pass through the slot of the plunger and between the guides of the same, through the medium of the slot in the cutter and stationary pin in the lug of the stamp.

194,884.

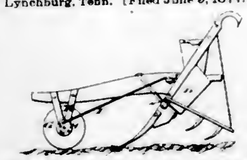


1. In a stamp-canceler, a swinging cutter operating from a shifting fulcrum, and actuated by means of a sliding plunger, for the purposes herein set forth.

2. The combination of a swinging cutter, a sliding plunger carrying the same, and a stationary bolt or its equivalent passing through a slot in the cutter, as and for the purposes herein set forth.

3. In a stamp-canceler, the combination of a plunger with guards, a swinging cutter, a sliding saddle or stirrup carrying the cutter within the plunger, and an adjusting-screw having two screw-threads of different pitch, substantially as and for the purposes herein set forth.

194,885. CORN-PLANTERS. Geo. E. Baites, Lynchburg, Tenn. [Filed June 9, 1877.]



The frame E, attached to the plow-beam, and having journaled in its lower end, on a common axis, the wheel G, and disk H provided with holes *x* at unequal distances from its center, in combination with the pitman I, slotted seed-slide J, and conductor L, substantially as described, and for the purpose set forth.

194,886. TAILORS' CHALK-HOLDERS. Eli S. Bartram, New Orleans, La. [Filed July 14, 1877.]

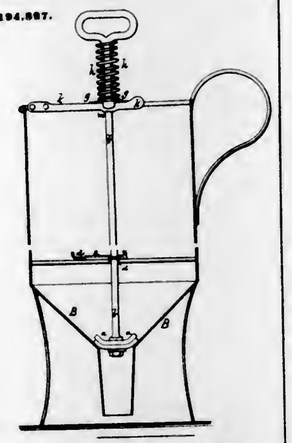


The wedge-shaped holder A, having beveled sides at the front end, projections *d d*, and slots *b b*, as described, and provided with the springs C C, forming hooks or catches *a a*, substantially as and for the purposes herein set forth.

194,887. MEASURING-FUNNELS. J. N. Berg, Minneapolis, Minn. [Filed July 17, 1877.]

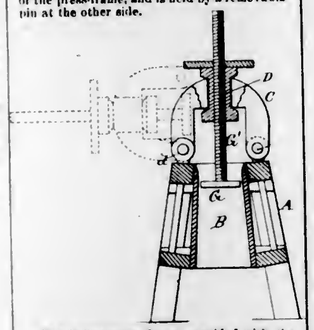
The combination and arrangement of the valve-rod *h*, spring *k*, spring catch *k*, bent metal plate *g*, and groove or collar *s*, arranged and operating substantially as hereinbefore described.

194,887.



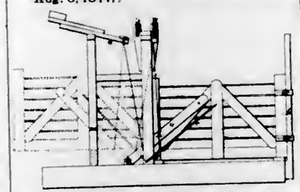
194,888. BALING-PRESSES. E. A. Brooks and R. J. Jordan, Bowenville, Ga. [Filed Aug. 10, 1877.]

Brief.—The yoke carrying a nut with screw and follower is hinged at one side, or at the top, of the press-frame, and is held by a removable pin at the other side.



In a baling press frame, provided with the bale-box B, the yoke C, carrying the nut D, screw G', and follower G, said yoke being hinged to the frame A at the end of one prong, and held to said frame at the end of the other prong by a detachable pin, *i*, all constructed substantially as and for the purposes herein set forth.

194,889. GATES. Albert A. Brooks, Battle Creek, assignor of one-half his right to H. D. Crooker, Calhoun County, Mich. [Filed Aug. 6, 1877.]



The combination of the gate *a*, rods *c o p*, and weighted lever Q, with the lever *l* and cranks *g*, substantially as described.

194,890. POST-OFFICE BOXES. B. H. Camp, Charlestown, Mass., and W. H. Camp, Waterbury, Conn. [Filed Aug. 3, 1877.]

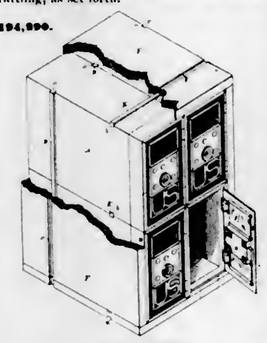
1. As a new article of manufacture, a post-office letter-box, A, being made independent and complete in or of itself, and provided with means, substantially as described, which admit of any number of boxes being combined and secured together.

2. The box A, provided near the back with grooves *a* on two vertical sides, and near the front, on the top and bottom, with grooves *b* to receive fins D and E, by which means they are locked together to prevent one or more of the boxes from being withdrawn, substantially as described.

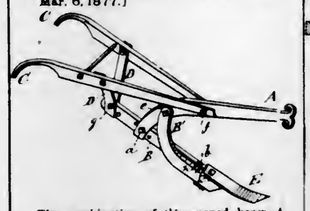
3. The casing F, having grooves *a'*, *b'*, and *c*, in combination with the boxes A, provided with grooves *a b* and fins D and E, substantially as described.

4. A post office letter-box door, provided with slit cylinders *i*, substantially as shown and described, each adapted to receive one edge of the glass, and, by its constant pressure, secure the glass in place and prevent its rattling, as set forth.

194,890.



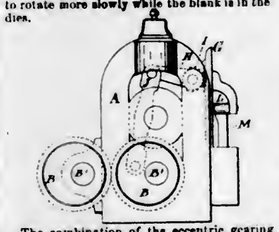
194,891. PLOWS. John R. Caldwell and James W. Herren, Dadeville, Ala. [Filed Mar. 6, 1877.]



The combination of the curved beam A, pivoted and adjustable shoe piece B B' *b*, pivoted handles C, and braces D, adjustable upon the shoe piece B, all arranged and operating substantially in the manner and for the purpose herein shown and specified.

194,892. MACHINES FOR MAKING AXES. C. W. Cardot, Jamestown, N. Y., assignor to himself, O. L. Jeffords, and J. H. Clark, all of same place. [Filed Apr. 28, 1876.]

Brief.—The eccentric gearing causes the rolls to rotate more slowly while the blank is in the dies.

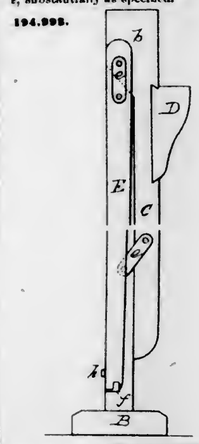


The combination of the eccentric gearing B B, rollers C C', gearing D D, and forming-die E, as and for the purposes described.

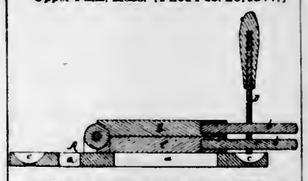
194,893. LIFTING-JACKS. William G. Cline, Cameron, Mo. [Filed July 28, 1877.]

The lifting-jack, consisting of the bevel-ended standard A, the bevel-shouldered rise-bar C, having the step D, and connection *d*, the lateral lever E, and the catch *h*, and links *e*, substantially as specified.

194,893.



194,894. ALTAR-BREAD, WAFER, OR WAFFLE BAKERS. Richard B. Daly, Newton Upper Falls, Mass. [Filed Feb. 20, 1877.]



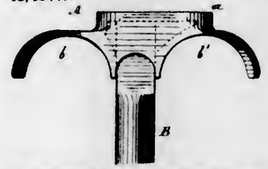
1. The combination of the open frame A and the two baking-plates B C, provided with the handles or projections *b*, for use as explained.

2. The combination of the open frame A and the two baking-plates B C, arranged and applied as described, and having in or to the frame a trough or channel, *c*, extending around such frame, as set forth.

3. The tool D, provided with the pivot-hole *d* and the oblique curved slot or notch *e*, arranged in it as set forth, in combination with the altar-bread baker composed of the frame A and the plates B C and their handles *b b*, arranged and applied as specified.

4. The altar-bread baker composed of the grooved and open frame A and the two plates B C, provided with the handles or projections *b b*, and arranged with and hinged to the frame A, all being as and for the purpose and to operate substantially as specified.

194,895. SHOE-MAKERS' POUNDING-IRONS. F. Damlos, Sandusky, Ohio. [Filed June 13, 1877.]



The improved shoe-makers' anvil or pounding-iron herein described, having a central recess, *c*, for the insertion of a removable stick or support, B, converging recesses *b b'*, and anvil *a*, projecting over the right recess *b'*, substantially as and for the purpose hereinbefore set forth.

194,896. TIME-LOCKS. Milton A. Dalton, Cincinnati, Ohio. [Filed June 30, 1877.]

1. The combination of a time piece, the adjunct connected and operating therewith, the non-time lock, and an intermediate link or mechanism between the adjunct and an operative part of the non-time lock, to assist in setting the combination of the lock when the adjunct in the time-piece is fixed, and to remain inoperative when said adjunct is moving, substantially as specified.

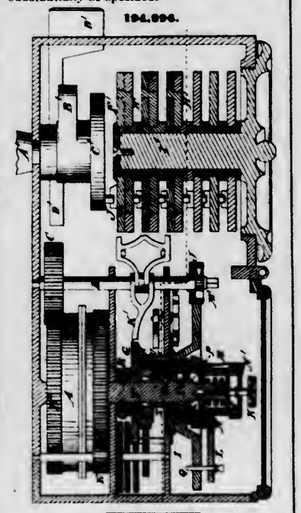
2. The combination, substantially as specified, of the fixed shaft, the hub S loose thereon, and carrying the fixed ratchet G and loose pinion H, provided with a wing, U, and the winged hub T V, which is permanently interlocked with hub S, and is adapted to slide on the fixed shaft, to be engaged alternately by the said shaft and by the said pinion.

3. The combination, substantially as specified, of the interlocked hubs S and T, seated on a fixed shaft, shell N for moving hub T, to lock it to and unlock it from said shaft, and the pin Q and dial I for determining the hour of unlocking hub T from the shaft, and throwing it into gear with the time-movement.

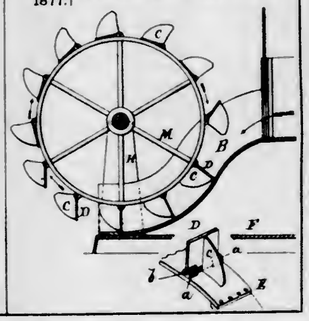
4. The combination, substantially as specified, of a regular tumbler of a non-time lock, a false tumbler adapted to be revolved thereby, a time-piece, the adjunct connected and operating with said time-piece, and an intermediate link or mechanism between the adjunct and the false tumbler, for acting on the false tumbler, to aid the regular tumbler in setting it at any time after the time-piece stops.

5. The brackets *a*, with the spring-washers a^2 interposed between them and the lock-case, for the purpose of securing, and at the same time cushioning, the lock-case in its place, substantially as specified.

194,896.



194,897. WATER-WHEELS. James W. De Haven, Kokomo, Ind. [Filed Aug. 10, 1877.]

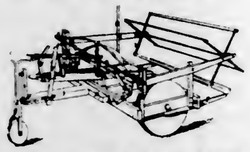


1. In a water-wheel, the combination of the rim E, with perforated ears *s*, and the removable buckets D, hinged between said ears by the rods *b*, substantially as herein set forth.

2. In a water-wheel, a hinged bucket, D, provided with one or more supports, C, substantially as herein set forth.

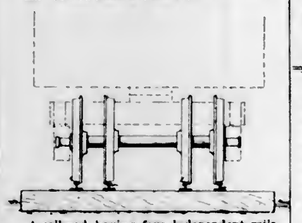
3. The combination, with the wheel S M E, having hinged buckets D, of the chute B, curved, as shown, whereby the water is made to elevate the wheel, substantially as herein set forth.

194,898. HARVESTER-REEL ADJUSTMENTS. Chas. Denton, Pekin, Ill., (Caroline L. Denton, executrix of estate of Chas. Denton, deceased, assignor to Andrew J. Hodges, Peoria, Ill.) [Filed June 22, 1876.]



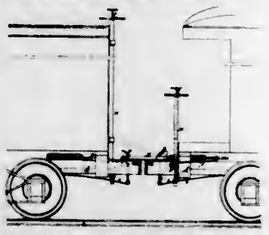
The reel, adjustable by means of double-jointed braces and parallel bars, in combination with the reel-arms and operating-lever, substantially as described.

194,899. SAFETY RAILWAY TRUCK AND TRACK. John W. Eckman, Greenfield, Ill. [Filed June 27, 1877.]



A railroad having four independent rails, and a like number of separate wheels upon each of the axles of the cars, with the flanges of the inner or safety wheels outside of the safety-rails, the whole constructed and arranged substantially as described.

194,900. CAR-COUPLINGS. J. W. Eckman, Greenfield, Ill. [Filed June 27, 1877.]



1. The draw-head A, provided with the tooth B upon its upper side, in combination with a sliding coupling-link, substantially as described.

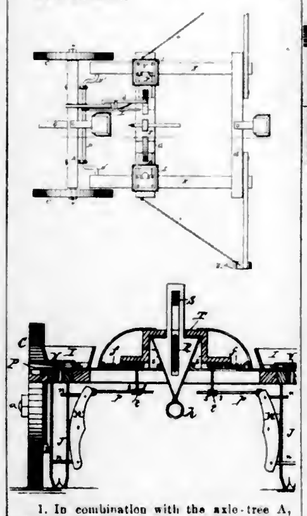
2. The draw-head A, provided with the tooth B upon its upper side, and dovetailed groove, in combination with slide C, carrying the coupling-link D, substantially as described.

3. The slide C, carrying the coupling-link, and operated from the platform or top of the car by means of the rock shaft and hand-wheel H, arm *g*, link *f*, and lever *s*, in combination with tooth B upon the draw-head, substantially as described.

4. The grooved draw-head A, provided with tooth B, in combination with pins *i i*, operated by means of rod *t*, lever *u*, and spring *s*, substantially as described.

5. The draw-head of a railroad-car, provided with a tooth to receive the coupling-link, in combination with a coupling-link, provided with mechanism for thrusting out said link from the platform or top of the car, substantially as described.

194,901. CORN-PLANTERS. Ery C. Gillett and Joseph F. Poole, Monroe, Wis. [Filed Mar. 21, 1877.]



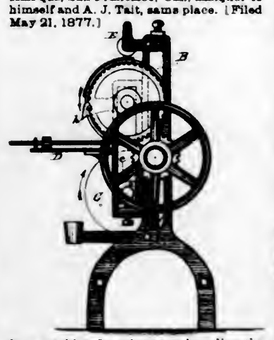
1. In combination with the axle-tree A, having the driving-wheels C C, and the planter-frame E G G', supported at its rear end by the caster-wheels H, we claim the crank-shaft D, placed in boxes on the axle, and having the frame placed on the cranks at its ends, and the lever L, whereby the front end of the planter may be adjusted up and down, as required, with relation to the axle, substantially as and for the purposes herein set forth.

2. In a corn-planter, the combination of the dropping-slides P and the balls *d*, placed in grooves *e* under the same, substantially as and for the purposes herein set forth.

3. In combination with the lever W and its valves *n n*, the adjustable rod *p* with nuts *o o*, the eyebolt *t*, and the dropping-slide P with spring *f*, substantially as and for the purposes herein set forth.

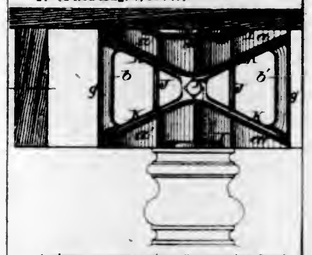
4. The combination, with the planter-frame and its wheels H, of the pivoted marker-arms Y, scrapers X X', marker Z, and chain *x*, substantially as and for the purposes herein set forth.

194,902. ROTARY PRINTING-PRESSES. M. Hairqua, San Francisco, Cal., assignor to himself and A. J. Tait, same place. [Filed May 21, 1877.]



In a machine for printing or branding the covers of wooden boxes, the combination, with the type and impression cylinders B C, of the feed-table D, the slide I, having stud *i*, the rod G, and the finger *k*, adjustably secured to the type-cylinder, whereby the feed can be so adjusted as to print or brand the board at any desired distance from its edge, constructed and arranged substantially as described and shown.

194,903. DEVICES FOR SECURING LEGS TO FURNITURE. Caesar Hass, New York, N. Y. [Filed Aug. 7, 1877.]



A clamp or corner-piece for securing furniture-legs, consisting of an upper and lower longitudinal web, *a a'*, a socket-piece, D, of transverse end-webs *b b'*, having spurs *g*, longitudinal ribs K K, transverse ribs J J, and flanges I I, one of which has a screw-hole, all combined substantially as described, and for the purpose set forth.

194,904. WATCH-KEYS. George Havell, Newark, N. J. [Filed Aug. 9, 187..]

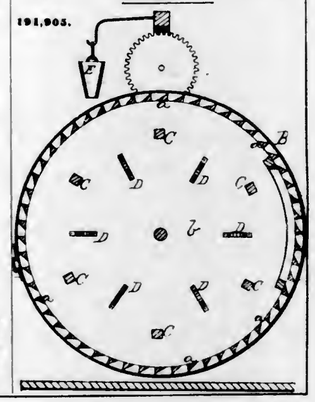


1. The tube of a watch-key made of two or more thicknesses of sheet metal, struck up and folded over each other, substantially as and for the purposes herein set forth.

2. A watch-key made of two or more pieces of sheet metal, struck up or otherwise formed into the required shape, folded, and united, substantially as and for the purposes herein set forth.

3. A watch-key formed of the two blanks A A, each having corrugations *a b*, hole *d*, and plate B, the plates B B forming the tube of the watch-key, the ring C held in the corrugations *a*, and the blanks fastened together by an eyelet or other means, substantially as herein set forth.

194,905.

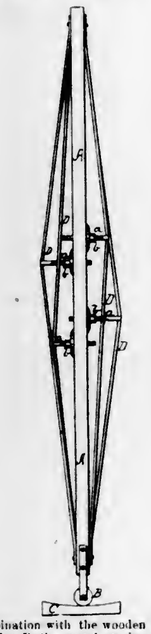


194,905. LEATHER-SCRUBBING CYLINDERS. Amenzo Hawver, Union, N. Y. [Filed June 14, 1877.]

1. In a hide-washer, the combination of the V-shaped slats *a a a*, the bars C C, and the shank cleaners D D, all arranged and operating as and for the purpose specified.

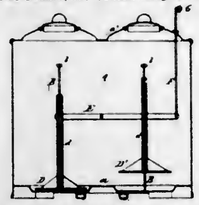
2. The water box E, arranged as described, in combination with the wheel B and slats *a a*, as and for the purpose specified.

194,906. LEATHER-ROLLING MACHINES. Amenzo Hawver, Union, N. Y. [Filed June 14, 1877.]



In combination with the wooden vibrator A and roller B, the metal strain-rods D D D D, screw-bolts *a a*, and adjusting-nuts *b b*, substantially as and for the purpose set forth.

194,907. GARDEN-SPRINKLERS. M. Hermes, Niles Centre, Ill. [Filed Aug. 2, 1877.]



1. A garden-sprinkler vessel, being composed of two cylindrical halves and attached to a wooden shoulder-plate, H, and having shoulder-straps K and hose L, with nozzles *m*, all constructed and arranged substantially as herein described and shown.

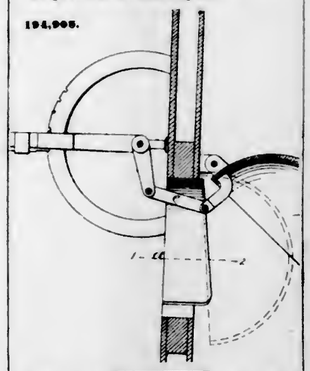
2. A garden-sprinkler vessel A, substantially as described, having dashers D and D', lever E, rod F, and lever G, all constructed, arranged, and operating as herein specified.

3. The garden-sprinkler vessel A, constructed as described, having hose L and nozzles *m*, in combination with the wooden shoulder-plate H, having notches *n*, substantially as and for the purpose herein specified.

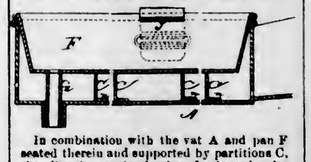
194,908. DOORS FOR FURNACES. Rufus Hill, Camden, N. J. [Filed Apr. 26, 1877.]

The combination of the doorway *a* and flange *x* with the deflecting-door.

194,908.

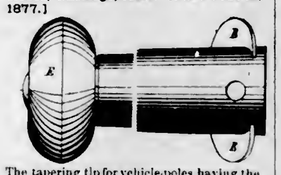


194,909. MILK-COOLERS. Edwin W. Hoag, Plattsburg, N. Y. [Filed Feb. 24, 1877.]



In combination with the vat A and pan F seated therein and supported by partitions C, the vibrating spring-latches J adapted to be thrown up and sprung over the edge of the said pan, substantially as specified.

194,910. CARRIAGE-POLE TIPS. George W. Hobbs, Uxbridge, Mass. [Filed June 12, 1877.]



The tapering tip for vehicle-poles having the inclined bearing-flange B upon its under and rear portion, a perforated and threaded end, *b'*, and the enlarged and rounded knob E, having the screw-tang *b*, adapted to engage with the perforated end *b'*, as specified.

194,911. MANUFACTURE OF SHEET-METAL ELBOWS. Frederick Hoeltge, Cincinnati, Ohio, assignor to himself, Wm. Sellew, and Wm. S. Munson, same place. [Filed May 22, 1877.]

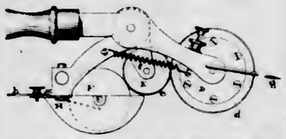


1. The process herein described of forming sheet-metal elbows by swaging in the contracted central part of an hour-glass-shaped blank, a transverse concavity to correspond with the inner curve of the finished elbow, and by swaging in the ends of the said blank transverse convexities, and by bringing the said ends together so that their transverse convexities will correspond with or form the outer curve or back of the elbow.

2. The blank formed, as herein shown, with convex ends of suitable width to be swaged to a curvature corresponding with the outer curve of the desired elbow, and with a contracted center of suitable width for swaging to form the inner curve thereof.

3. The dies A A' and C D, formed with a central curvature, *b b' b*, to impart the necessary shape to the center of the blank to form the inner curve of the elbow, and with marginal shoulders *a a*, to curve the ends of the blank, as and for the purposes set forth.

194,912. STRIPING-TOOLS FOR PAINTS. L. Homann, Cincinnati, Ohio. [Filed Feb. 24, 1877.]



1. In a striping-tool, the marking-wheel composed of rubber washer *d* clamped between the parts D D', which confine and support the rubber marker up to within close proximity of its marking-edge, substantially as shown and described.

2. The striping-tool composed of the described marking-wheel, the wheel F, revolving in the pivoted or swinging reservoir H, and intermediate wheel E, the said wheels being held in contact by spring *s*, and the whole operating in the manner and for the purpose specified.

194,913. FARE-REGISTERS. W. H. Hornum, New York, N. Y. [Filed July 31, 1877.]



1. The combination, in a fare-register, of a single-trip registering mechanism, an alarm, a prime mover common to both, and a key-hole guard, connected to a latch, which serves to lock the prime mover, the whole being adapted to operate substantially in the manner and for the purpose herein shown and described.

2. The combination, in a fare-register, of a single-trip registering mechanism, a general register, an alarm, a prime mover common to all three, and a key-hole guard connected to a latch, which serves to lock the prime mover, the whole being adapted to operate substantially in the manner and for the purpose herein set forth.

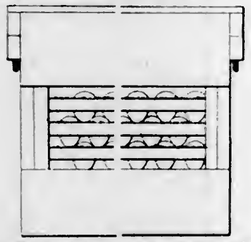
3. The combination, in a fare register, of a registering mechanism, a prime mover for imparting a step by-step movement to said registering mechanism, a latch for locking the prime mover, a key or button for turning the registering mechanism to zero, and a dial for indicating the number of times the registering mechanism has been set to zero by the key or button, substantially as shown and described.

4. The combination, with the indicator-disk *n*, key K, ratchet-wheel *e*, and key-hole *m*, of pawls *k r*, and tappet *o*, to prevent the key

from being withdrawn until the indicator-disk has been turned to zero, substantially as set forth.

5. The combination, with an indicator-disk or hand, and with a key, of a yielding zero-stop, connected to the indicator-disk, and of a fixed pin or abutment, whereby the indicator-disk or hand when turned by the key is stopped at zero, while the same can turn without obstruction when actuated by the prime mover, substantially as described.

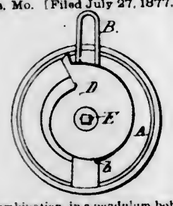
194,914. EGG-CARRIERS. M. A. Howell, Jr., Streator, Ill. [Filed May 16, 1876.]



1. For use in an egg crate or box, a perforated rack covered with adhesive substance and an outer coat of chaff, as shown and described, for the purpose specified.

2. In combination with a box constructed and arranged as described, a reversible rack or racks covered with an elastic coating, for the purposes and uses substantially as described.

194,915. REGULATING ATTACHMENTS TO PENDULUM-BALLS. Henry C. Jacot, St. Louis, Mo. [Filed July 27, 1877.]

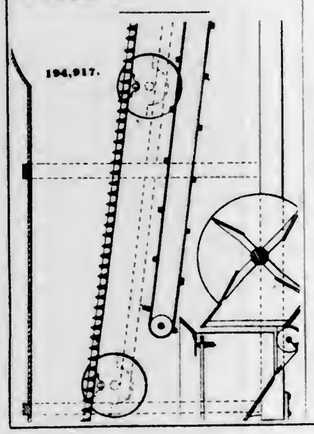


The combination, in a pendulum-bob, of the suspending-loop B, cam D, arbor E, hand F, and face G, substantially as set forth.

194,916. FIRE AND WEATHER PROOF COMPOSITIONS. Augustus Jamieson, Princeton, Ill. [Filed Mar. 7, 1877.]

The composition described, consisting of silicate of soda, oxide of zinc, and aqua-ammonia, prepared in about the proportions and manner described.

194,917.

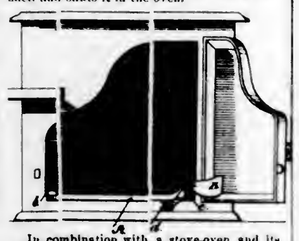


194,917. GRAIN-SEPARATORS. Terrence Kenny, St. Paul, Minn. [Filed June 7, 1877.]

The combination, with the straw-carrier of a thrashing-machine, of the rolling heads *a a*, having the weights *c c* attached directly thereto, as and for the purpose specified.

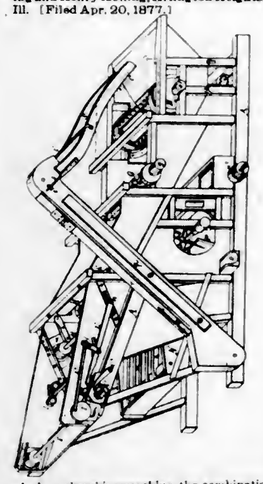
194,918. COOKING-STOVES. Rufus J. King, Dayton, Ohio. [Filed Aug. 14, 1877.]

Brief.—A lug provided with a friction-roller is so placed on the oven-door that it engages with, and travels on, a cam on the under side of the shelf, whose face describes a parabolic curve. Closing the door raises the shelf and shuts it in the oven.



In combination with a stove-oven and its door, the shelf A, having the cam-lugs *c* and *d*, whose faces form a parabolic curve, and the lug B, carrying a friction-roller, *e*, arranged in the manner described, so that as the door is being closed the roller travels upon the cam and causes the shelf to be raised, substantially as and for the purpose specified.

194,919. THRASHING-MACHINES. Jno. Kolling and Henry Kolling, Arlington Heights, Ill. [Filed Apr. 20, 1877.]



1. In a thrashing-machine, the combination of the thrashing-cylinder B, provided with grooves at its ends, with guard-plates *b*, extending entirely around said cylinder, and projecting into the grooves in the cylinder, substantially as described and shown.

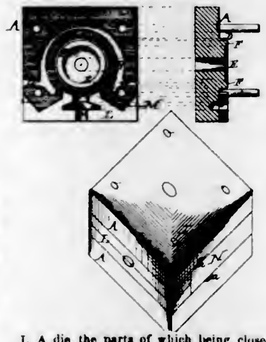
2. The rattle-rack shafts I and M and the shaker-shaft L, all arranged in sliding boxes in frame A, and connected so as to be simultaneously adjustable in an oblique direction, substantially as and for the purpose described and shown.

3. The rattle-rack shaking-shaft L, journaled in adjustable bearing-bars L′, and oscillated from the rattle-rack shaft by arm *l* and connecting-rod P, substantially as described and shown.

4. The rattle-rack shaft I, journaled in the boxes *i*, adjustable in boxes *i*′, in combination with the shaft M, journaled in boxes *m*, which slide in oblique guides *m*′, the bearings of the shafts I and M being coupled by a bar, L, all constructed and arranged substantially as described and shown.

194,920. DIES FOR MOLDING PLASTIC MATERIAL. David C. Lockwood, Newark, N. J., assignor to the Celluloid Harness Trimming Company, same place. [Filed July 31, 1877.]

Brief.—A die capable of producing an article which shall not exhibit any band, seam, or excrescence upon its exterior surface.



I. A die the parts of which being closed the material operated upon is forced outward against a surface or surfaces having no seam or joint between the upper and lower edges thereof, substantially as set forth.

2. A die consisting of two or more face-plates and an anvil, the latter having a vertical inner surface, substantially as set forth.

3. A die consisting of two or more face-plates and an anvil, divided into sections, which are conformed, as desired, upon those surfaces with which the material pressed comes in contact, substantially as set forth.

4. In a die, a removable anvil to receive the impact of the motor-plate, substantially as set forth.

5. In a die, a solid removable anvil having a vertical inner surface, substantially as set forth.

6. In a die, a removable anvil made in sections, substantially as set forth.

7. In a die, a removable anvil made in sections, having vertical inner surfaces, as set forth.

8. In a die, a removable anvil made in sections, the surfaces of which against which the material is pressed being curved or irregular, substantially as set forth.

9. The boss E, in combination with the anvil N, substantially as set forth.

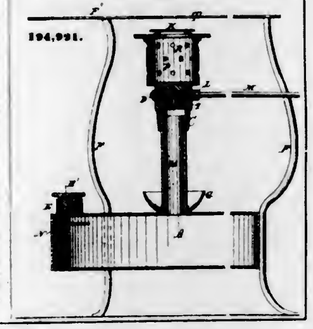
10. The face-plates A, in combination with the anvil N, formed in one or more parts, substantially as set forth.

11. The recesses B and annular space D, in combination with a solid or sectional anvil, as set forth.

12. A raised stud or platform, for the purpose of securing the anvil in place, as set forth.

13. The method of forming or producing articles having no horizontal excrescence or protuberance on their outer surface, which consists in causing the pressure of material against a surface or surfaces solid between the upper and lower edges thereof, substantially as set forth.

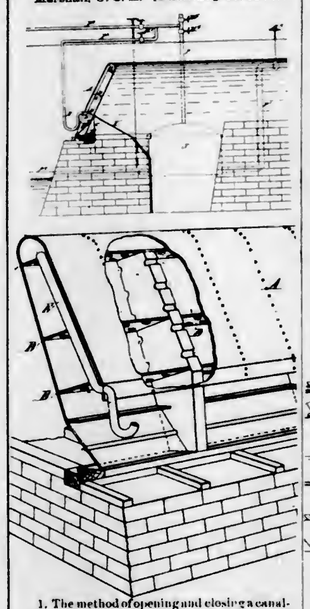
194,921.



194,921. LAMP-STOVES. B. G. Lofstedt, Chicago, Ill. [Filed Oct. 26, 1876.]

The improved lamp-stove having the fiber-filled chamber A with column H, inlet E with cork and screw-plug E′ and guard N, cup G, and the iron or vessel support F′ with legs F, in combination with the turn-valve L, having means for tightening it, and the burner with passage I, and cage P having air-inlets R and cap K, substantially as set forth.

194,922. AUTOMATIC CANAL-LOCKS. W. L. Marshall, U. S. A. [Filed Aug. 15, 1877.]



1. The method of opening and closing a canal-lock gate, substantially as herein indicated—that is to say, increasing its buoyancy to effect the raising and closing by displacing the water within it through the medium of an elastic fluid, and decreasing its buoyancy by allowing water to displace the elastic fluid to effect the reverse, as described.

2. A canal-lock gate divided into compartments, each having ports for the outlet of water, and inlet of air or other elastic fluid, substantially as set forth.

3. In combination with a canal-lock gate adapted to be opened and closed by varying its buoyancy, a conduit leading to the upper portion thereof, and adapted to convey a fluid under pressure to said portion, as and for the purposes explained.

4. In combination with a vertically-moving canal-lock gate, a section of elastic pipe forming the connection between said gate and the exterior pipe, which conveys a fluid under pressure, substantially as set forth.

5. The combination of an air or fluid compressing device, a hollow canal-lock gate, hinged below its center of pressure, and a pipe or conduit connecting the two, for the purposes explained.

6. In combination with a canal-lock gate adapted to be operated as hereinbefore set forth, a division-plate near the lower portion of said gate, arranged to afford a passage, *k*′, for water along its front, substantially as shown and described.

7. In combination with a canal-lock gate adapted to be operated as hereinbefore set forth, a series of perforated division-plates and vertical timbers or braces, serving to divide said gate into a number of compartments, between which there is free water and air communication, as and for the purposes explained.

8. In combination with a canal-lock gate, having a horizontal axis, a compartment at the top thereof, with outlet and inlet for air or fluid under pressure, and outlet and inlet for water, for the purposes described.

9. In combination with a canal-lock gate adapted to be operated substantially as herein shown and described, a series of conducting-pipes, with their valves and cocks arranged in close proximity to the fluid-compressing apparatus, in order that said apparatus and the gate may be operated or controlled from one standpoint, as explained.

10. In combination with an air-compressing tank located outside of the lock-chamber, and having an air-pipe leading to one or both gates, a water-pipe leading thereto from some convenient point of the upper level, and adapted to convey water to said tank, in the manner and for the purposes explained.

11. In combination with a canal-lock gate, an air-compressing apparatus, having two air-cocks, arranged one above and one below the connecting-pipe, as and for the purposes set forth.

12. In combination with a canal-lock gate, a series of pipes and valves connected therewith, substantially as described, so that the pipe which conducts the fluid under pressure to said gate will also serve to convey this fluid from out the gate when water is admitted thereto, for the purposes explained.

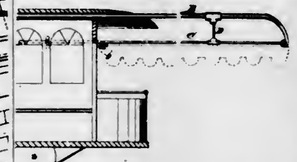
13. The hollow gate A, provided with the perforated division-plates D D, substantially as shown and described.

14. The combination of the hollow gate A and the fluid-conducting pipes P^2, B, and E, substantially as shown and described.

15. The combination, as before set forth, of the hollow gate A, air-conducting pipes, tank J, and water-connections P^1 and P^4.

16. The combination, as before set forth, of the tank J, pipes P, P^3, and P^4, and cocks M^1 M^2.

194,923. STREET-CAR AWNINGS. Frank P. McIntyre, Philadelphia, Pa. [Filed Apr. 20, 1877.]



1. The combination, in a street-car, of the sliding supporting-rod B, extending from end to end of the car, and above the horses, with the U-shaped rod C, detachably fastened to the car at its inner ends, and supported at its outer end by the rod B, substantially as described.

2. The combination, with the street-car, of the sliding rod B, the U-shaped rod C, and the braces D, substantially as described, and for the purpose set forth.

194,924. STOPPERS FOR BOTTLES, &c. D. H. Murphy, Plainville, assignor to William R. Hartigan, Burlington, Conn. [Filed May 21, 1877.]

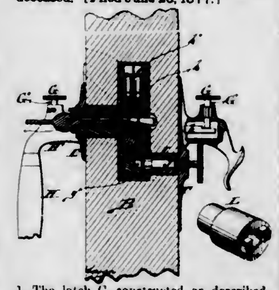


1. A bottle-stopper consisting in the combination, with a hollow stem and an elastic packing surrounding the lower portion of the same, of an inverted conical wedge, provided with a stem extending upward into the hollow stem of the stopper, and a spring located within the hollow stem below the upper end of the stopper, substantially as described.

2. The combination, with the hollow stem having an elastic tubular packing surrounding its lower portion, of an inverted conical wedge, a spiral spring located within the hollow stem and below the top of the stopper, and an oscillating cap, substantially as described.

3. The combination, with the conical wedge and main stem of the stopper, the latter grooved, as described, of a cord or wire attached to the movable stem, substantially as set forth.

194,925. LOCKING-LATCHES, AND HANDLES FOR THE SAME. Bowdoin S. Parker, Greenfield, Mass., administrator of C. B. Rose, deceased. [Filed June 28, 1877.]



1. The latch C, constructed as described, with arm C′, having hub *b* on its end, and having shoulder or offset *d*, as and for the purposes set forth.

2. The hub D, having bottom arm D^1 and top arm D^2, the latter formed with the inclines *i*, and provided with interior gravitating pins *h*, in combination with the latch and the gravitating pins *h*′ in the lock-case, substantially as set forth.

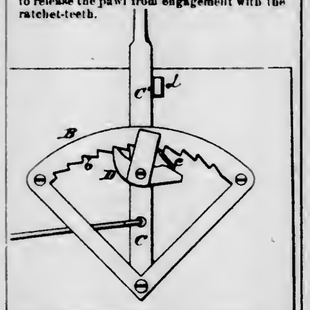
3. The combination of the latch C, having arm C′, with hub *b*, the rods *k k*′, projecting from said hub, and the thumb-pieces G, with shanks G′, arranged in the handles of the door, substantially as and for the purposes set forth.

4. In a door-handle, the combination of the metallic end pieces H′, having the flanges *z* and hollow cylinders a^1 interiorly screw-threaded, with the bolt a^2, screw-threaded at its ends, and hollow wooden center-piece H, substantially as described, and for the purpose set forth.

5. The feathered barrel L, hub D, with arm D^2, and the pins *h*, substantially as and for the purposes herein set forth.

194,926. BRAKE-LEVERS. Wm. F. Osborn, Burlington, Kans. [Filed July 28, 1877.]

Brief.—A jointed lever, the lower part having a pawl and spring, and the upper a cam to release the pawl from engagement with the ratchet-teeth.



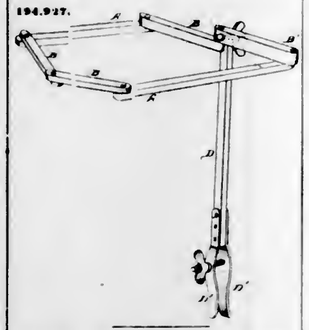
In a wagon-brake, the combination, with the segment B, having ratchet-teeth on the under side, of the single-jointed lever C C′, the upper part, C′, of which is provided with a cam, *h*, and the lower part, C, having attached thereto a pivoted pawl, D, and spring *r*, all constructed and operated as described.

194,927. MOSQUITO-BARS. Margaret Petris, Vallejo, Cal., assignor of one-half her right to A. B. Newcomb, same place. [Filed July 5, 1877.]

Brief.—The frame is double jointed, so that it can be extended, and thereby narrowed to the width of a single bed. It is pivoted on a set-screw that holds it in a horizontal position, and permits it to be folded with the standard.

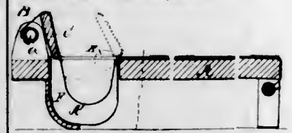
A mosquito-bar constructed of the parallel bars A, double-jointed end arms B B′, and standard D, the said frame being capable of expansion and of being folded, as shown and described.

194,927.



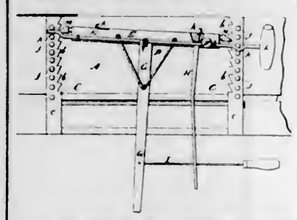
194,928. CIGARETTE-MACHINES. Joseph Pollak, New York, N. Y., assignor to A. Redlich and A. Schmitzler, same place. [Filed Apr. 30, 1877.]

Brief.—The slack apron upon the table has a bight formed in it by turning over a flat bar, and the bunch therein is manipulated by said bar in the hands of the operator.



A cigarette-machine consisting of a stationary table, A, having raised edges a^2, and an opening or pocket, A', an apron, B, capable of forming a loop, E, and a bar, C, to be worked back and forth by hand.

194,929. SHINGLE-SAWING MACHINES. M. Prillaman, Callaway's, Va., assignor of one-half his right to John P. Saul, same place. [Filed July 20, 1877.]



1. The sliding frame C, having side pieces c c, provided with ratchet-teeth b b and studs or butts f f, substantially as and for the purpose herein shown and specified.

2. The frame D, consisting of body-bar E and shaft G, the former having solid clamp A and lever-clamp H h', and the latter having toothed lever I, engaging with lever H, substantially as and for the purpose set forth.

3. The frame D, having body bar E, provided with spring-pawls M M at the ends thereof, in combination with the frame C herein described, substantially as and for the purpose shown and specified.

4. The combination of the frames C D, the former having studs or butts f f, and the latter having turning-rod K, provided with cranks k k, substantially as described, for the purpose set forth.

5. The improved shingle-machine herein described, consisting, essentially, of the slotted table A, sliding frame C, having ratchet-teeth b b and studs or butts f f, and feed-frame D, having clamps A H h', spring-pawls M M, and turning-rod K, having cranks k k, all combined, arranged, and operating substantially in the manner and for the purpose set forth.

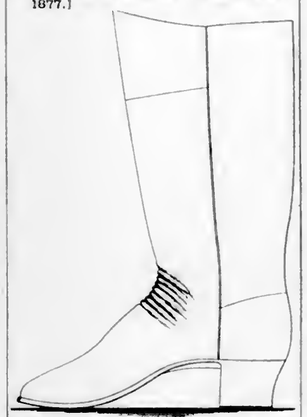
194,930. STARET-CAR WINDOWS. I. H. Randall, Boston, Mass. [Filed Feb. 21, 1877.]

The car-window attachment b, consisting of a plate, c, having screw-holes g, and a lip, i, having a screw-hole, l, all substantially as described, for the purpose specified.

194,930.



194,931. MANUFACTURE OF BOOTS. Henry Sauerbier, Newark, N. J. [Filed June 5, 1877.]



A boot provided with corrugations or creases between the instep and leg portion in the crimping process, as shown and described, for the purpose specified.

194,932. LOCK AND ELECTRIC BURGLAR-ALARM. Paul Seiler, San Francisco, Cal., assignor of one-half his right to Jos. Herz, same place. [Filed Feb. 19, 1877.]

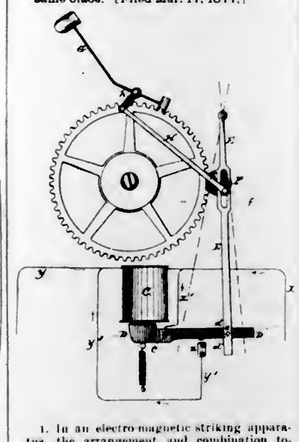
Brief.—A novel construction of lock for windows or doors, the bolts of which cannot be withdrawn without closing an electric circuit.



1. The pawls B B', having the peculiar-shaped slot f in them, when combined with the face-plate of the lock, and with suitable operating mechanism, substantially as described, whereby, when the pawl is held out from the lock-plate, an increased or greater amount of metal of the pawl is in line with and bearing against the eccentric bar C, or equivalent moving mechanism, constructed and arranged substantially in the manner and for the purpose described.

2. An electric burglar-alarm and lock or fastening for doors or windows, composed of the face-plate A, with its pawls or bolts B pivoted thereto, the eccentric bar C, with its disks or bearings D D', and the operating rod E, with a handle at one end and a square shoulder or key at the other end, which engages with a slot in the disk D, when the whole is arranged and has combined with it the insulated circuit-closing spring F and the electric wires leading from the alarm-box or indicator, substantially as herein described.

194,933. ELECTRO-MAGNETIC ALARM-BELLS. Paul Seiler, San Francisco, Cal., assignor of one-half his right to Jos. Herz, same place. [Filed Mar. 17, 1877.]

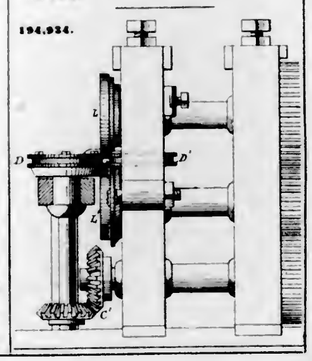


1. In an electro-magnetic striking apparatus, the arrangement and combination together of the long oscillating lever E, operated by the pinion F, and its eccentric pin or equivalent mechanism driven by the weight and drum or other motor, the vibrating hammer G, connected with and actuated by the pinion F, and the electro-magnet armature lever and pins, studs, or stops thereon, which control the movements of the oscillating lever, substantially as herein described, for the purpose set forth.

2. In an electro-magnetic alarm apparatus, the combination, with the armature-lever D, having pins or stops d d' situated in different planes, of the long slotted lever E, provided with a pin or stop, e, whereby the lower end of such slotted lever moves in substantially a straight line, as described and shown.

3. In an electro-magnetic alarm apparatus, substantially as described, the combination, with the magnet C and armature D, of the short circuit-wires x' y', constructed and arranged substantially as and for the purposes set forth.

194,934.



194,934. MACHINES FOR ROLLING HORSESHOE-BLANKS. John H. Snyder, Richmond, Va. [Filed June 29, 1877.]

Brief.—The desired shape is imparted to the edges by the horizontal rolls, then to the upper and lower surfaces by the vertical rolls, and at the same time the bar is creased and indented for the nail-holes by the latter.

In a machine for rolling horseshoe-blanks, the combination, substantially as described, of the horizontal rolls D D' and the vertical rolls L L', all arranged and constructed substantially as and for the purposes herein set forth.

194,935. HOOP-SKIRT FORMERS. Charles A. Sprague, Birmingham, Conn. [Filed June 29, 1877.]



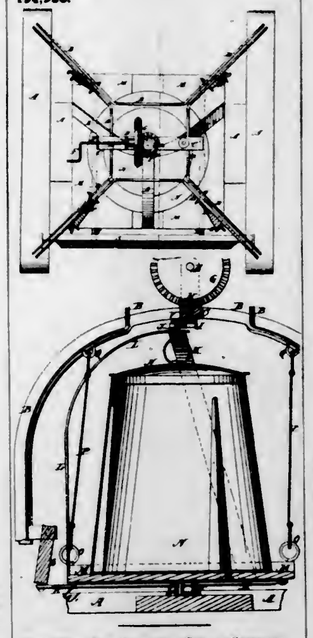
1. An open-front hoop-skirt or bustle former, provided with individual clamps or fastenings for tightly clasping and holding the ends of the respective hoops as said hoops are successively placed upon the former and severed, and subsequently while the tapes are being attached to the hoops, as herein set forth.

2. A hoop-skirt or bustle former having one or more of its sections or ribs provided with grooves and series of tenter-hooks, the head of each tenter-hook being constructed with a wedging bevel curve or incline, and partially sunk within the groove so as to slightly bend the wire, as herein shown and described, for the purpose specified.

3. A movable or swinging end gage attached to one of the sections of a hoop-skirt or bustle former, and adapted to be folded or removed to give more convenient access to the gaged ends, substantially as herein described.

4. A pair of end gages hinged to the front sections or intermediate sections of a hoop-skirt or bustle former, so as to fold out of the way when not in use, one of the same being constructed with a gage-flange to facilitate starting each hoop, and the other with a plain edge to facilitate cutting the wire when each hoop is finished, substantially as herein specified.

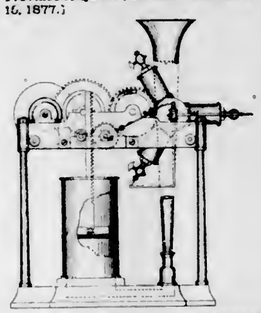
194,936.



7. The combination of pin T and pin U with ring W, substantially as herein shown and described.

194,936.

194,937. FOG-SIGNALS. George Sweanor, Montreal, Quebec, assignor to the Neptune Fog Horn Company, (limited,) Quebec, Province of Quebec, Canada. [Filed Aug. 16, 1877.]

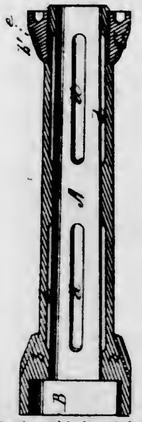


1. In combination with a winding mechanism, operating a piston in an air cylinder for giving audible sound by means of a whistle or reed, two or more air-pumps, constructed substantially as described, and adapted to control the speed, and thereby regulate the intervals of sounds.

2. The combination, in a fog-signal giving audible sounds by means of compressed air, of a winding mechanism consisting of two sets of gears, one set capable of being wound while the other is running off, and a cylinder having a piston operated thereby to expel air through a whistle or reed for giving audible sound, all constructed substantially as set forth.

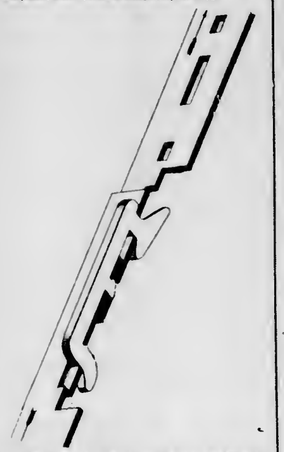
3. The combination, in a fog-signal giving audible sounds by means of air forced through a whistle or reed, of an air-cylinder having a piston automatically raised and dropped therein at intervals by the operation of a spring clutch and lever and cam, a train-wheel winding mechanism, and one or more air-pumps to regulate the length of interval between the sounds, all constructed substantially as set forth.

194,938. WAGON-AXLE BOXES. Charles J. Valentine, Belvidere, N. J. [Filed July 7, 1877.]



The combination, with the axle-box A, having an enlargement, B, at its inner end, provided with a ribbed beveled shoulder, b, of the conical nut C, having holding-ribs c upon its inclined face, substantially as specified.

194,939. BALE-TIES. John P. Verree, Philadelphia, Pa. [Filed July 27, 1877.]



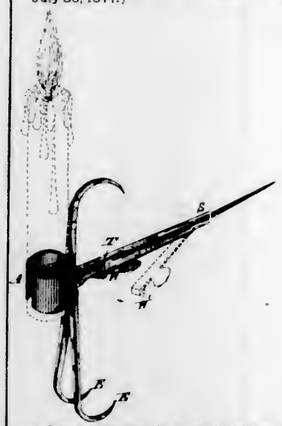
1. The hereinbefore-described fastening, consisting of the hooks and the central teat or engaging-point, adapted to be secured to the band end and operate as specified.

2. The combination, substantially as hereinbefore set forth, of the band, the fastening, having end hooks projecting in a corresponding direction, and an intermediate teat or engaging point, and the free end of the band slotted to engage with the hooks and teat, as set forth.

3. The combination, with the band, of the fastening, rigidly secured thereto, having a central teat or engaging-point and end hooks, one or both of which have the rear lip or lips, substantially as and for the purpose specified.

4. The hereinbefore-described bale-tie or fastening, consisting of the combination, with the band, of the hooked fastener, first formed in an arched or bent shape, and then secured to the band by inserting its hooks through holes therein and straightening out the fastener, substantially as specified.

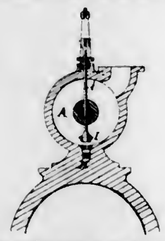
194,940. CANDLE-HOLDERS FOR MINERS' USE. W. Walker, Beaver, Utah. [Filed July 30, 1877.]



1. The combination, in a candle holder, of the socket A and the spear S, having the hinge joint T and the spring W, as set forth.

2. The combination, in a candle holder, of the socket A, the spear S, hinge T, and spring W, and the hooks, as set forth.

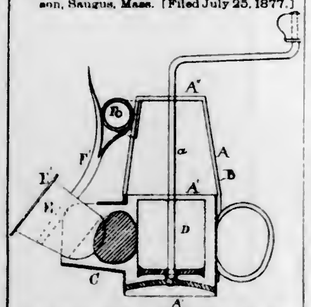
194,941. VALVES FOR STEAM-CYLINDERS. S. L. Walkinshaw, Allegheny, Pa., assignor of one-half his right to Jas. H. Lindsey, same place. [Filed Dec. 4, 1876.]



1. The combination of the balanced valve having a vertical slot, and the valve-rods i i, substantially as and for the purpose set forth.

2. The valves I I, rods i i J, lever K, fulcrum L, and the steam-passage ways H H', all combined and operating as described, for the object specified.

194,942. NUTMEG-GRATERS. J. H. H. Wilson, Saugus, Mass. [Filed July 25, 1877.]



As a new article of manufacture, the nutmeg grater described, consisting of the body A, having mouth C, the grating-cylinder D, spring-pressed follower E, having concaved end, cap-plate E', lever F', and spring F, all as set forth, and for the purpose described.

194,943. COMPOUNDS FOR GRAINING WOOD. Wm. A. Wiley, Rochester, N. Y. [Filed June 23, 1877.]

1. The compound, herein described, for preparing wood for graining, consisting of cider-vinegar, tinctura of squills, and acetic acid, and applied with dry paint, as herein set forth.

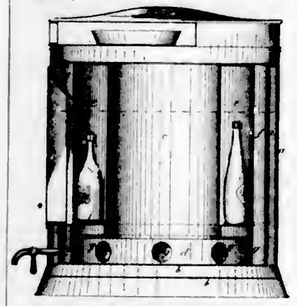
2. The method of graining wood, herein described, by wetting a sponge with a compound of cider-vinegar, tincture of squills, and acetic acid, touching the same to dry paint, and rubbing it over the surface to be operated on, and then applying a roll of putty worked with oil, substantially as herein set forth.

194,944. MANUFACTURE OF CIGARS. Geo. W. Writner, Cincinnati, Ohio, assignor of one-half his right to Napoleon Du Brul, same place. [Filed July 3, 1877.]



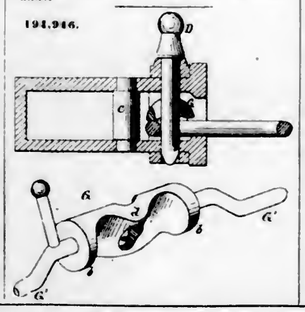
The process of manufacturing cigars of the ordinary tapered shape, consisting in first enveloping the filling in a temporary binder, which filling thus bound is pressed in a mold, removed therefrom, divested of its binder, and finally hand-wrapped, substantially as set forth.

194,945. COMBINED REFRIGERATOR, BOTTLE-COOLER, AND WATER-COOLER. Eugen Zahringer, Pittsburg, Pa. [Filed Mar. 10, 1877.]



In a combined refrigerator and water cooler, the annular closed refrigerating-chamber e, the central ice-receptacle c on its inner side, and the annular ice-space f on its outer side, (these communicating beneath said closed chamber by the space d and wall-openings g g,) in combination with the non-conducting double-walls a b, whereby the inner and outer walls of the refrigerating chamber are cooled alike.

194,946.

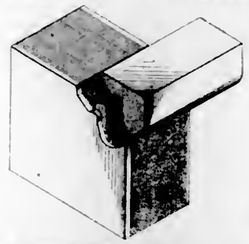


194,946. CAR-COUPLINGS. Daniel Zeigler, Lewistown, Pa. [Filed Mar. 26, 1877.]

The drop or gate G, constructed as described, with side lips *b b* and center lip *d*, with slot *a*, and having the crank-levers G' G' projecting from its ends, substantially as and for the purposes herein set forth.

194,947. WOOD-POLISHERS. Geo. Zimmer, Williamsport, Pa. [Filed June 9, 1877.]

Brief.—Mentions also a glued (or not glued) roll of sand-paper, whose ends are to be used.



A polishing-block consisting of a series of layers of sand-paper and intervening layers of cementing material, forming a solid mass, and shaped on the surface formed by the edges of the layers to suit the surface to be polished, as and for the purpose set forth.

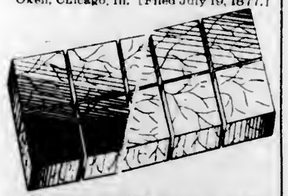
194,948. SAND-PUMPS. William Forker, Emlenton, Pa. [Filed Apr. 21, 1877.]



1. In a sand-pump, the rod C, sucker *g*, rod e, and detachable bottom or valve *f*, in combination with the pump barrel or bailing-tube A, substantially as described, and for the purpose set forth.

2. In a sand-pump, the rod *e*, provided at its upper end with two arms projecting at right angles to its longitudinal axis, operating within the rod C, constructed, arranged, and operating with relation to each other, as herein described, and for the purposes set forth.

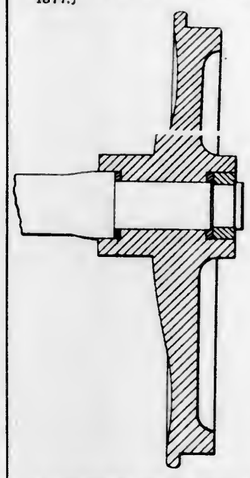
194,949. PREPARING PLUG-TOBACCO. G. B. Okell, Chicago, Ill. [Filed July 19, 1877.]



1. The herein-described method of preparing tobacco plugs for retail trade, consisting in first cutting the pressed lump into subdivisions, and then re-forming the plug by re-pressing it, and causing the subdivisions to adhere or stick together temporarily, to form a single piece, substantially as and for the purpose set forth.

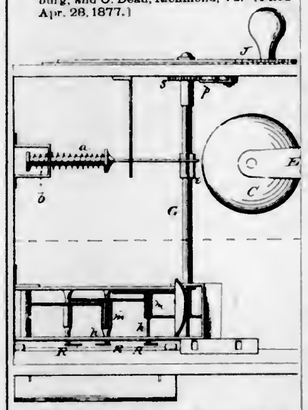
2. As a new article of manufacture, a plug of tobacco composed of a number of subdivisions of definite size and weight, stuck together, re-pressed, and adhering to each other by reason of said pressure, substantially as and for the purpose set forth.

194,950. CAR WHEELS AND AXLES. Isaac H. Randall, Boston, Mass. [Filed Mar. 28, 1877.]



In a railroad-car truck in combination, an axle with a shoulder to meet the inner end of the wheel-hub, a turned bearing for the wheel, a groove turned in the axle at the outer end of the wheel-hub, a car-wheel properly bored and finished to go on the axle between the shoulder and the groove and turn on the axle, a collar bored to fit exactly to the axle in the groove, and to be placed in the groove when expanded by heat, and locked by the contraction of the metal when cooled, made and arranged with reference to each other, as, or substantially as, described, and for the purpose specified.

194,951. ALARM-REGISTERS FOR USE IN BAR-ROOMS, &c. S. H. Moffett, Harrisonburg, and O. Dean, Richmond, Va. [Filed Apr. 28, 1877.]



The within-described register, consisting of the shaft G with flange e and pawl and ratchet *p s*, striker D with lug *d* and springs *a b*, the bell or gong C, and the registering mechanism with pointers and dials, all inclosed within a box, and constructed substantially as and for the purposes herein set forth.

REISSUES.

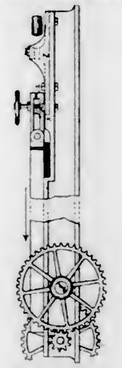
7,868. MACHINES FOR COLD-DRAWING RODS AND SHAFTING. Geo. H. Billings, Boston, Mass. Patent No. 130,465, dated Aug. 13, 1872. [Filed July 17, 1877.]

1. In a machine to cold-draw rods and shafting, a self-centering die through which a rod or shaft may be drawn to consolidate its fibers, substantially as and for the purpose described.

2. The combination, with a self-centering die provided with a central passage, of a clamp to hold the rod and mechanism whereby the rod may be drawn through the die, substantially as described.

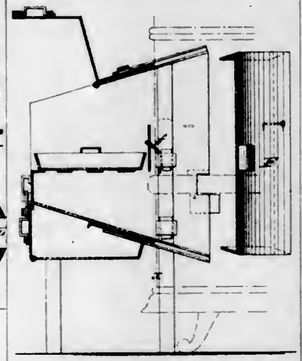
3. The combination, with a self-centering die having a convex end, of a concave seat to sustain the die and permit it to move easily on the seat, substantially as described.

7,868.



7,869. BAKERS FOR HEATING-STOVES. Lucas Drew, Irving, Wis. Patent No. 191,035, dated May 22, 1877. [Filed July 23, 1877.]

Brief.—An oven for light baking, made adjustable to all kinds of heating-stoves. The oven is provided with a detachable deflecting-plate, supported in vertical position between the stove and baking-dish, to prevent the direct heat from burning that side of the article being cooked.



1. The detachable deflector, having side arms for attaching it to the legs or guide-bands of the baker, as and for the purpose specified.

2. The detachable cover F, fitted by top, side, and bottom flanges to the baker, substantially as and for the purpose specified.

7,870. HARVESTERS. Jas. S. Marsh, Lewisburg, Pa. Patent No. 61,944, dated Feb. 12, 1867. [Filed May 21, 1877.]

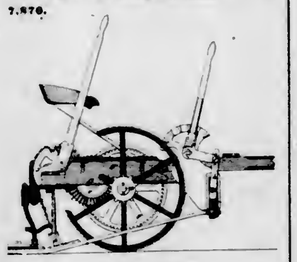
1. The cast-metal main frame, constructed, substantially as hereinbefore set forth, in one piece, with a tool-box and flanges on its upper surface to strengthen the frame, and with recesses in its outer rear corner for the gearing.

2. In a two wheeled hinged-bar harvester, the lifting-lever pivoted on the main frame, between the driving-wheels, (moving parallel therewith,) and in front of the axle thereof, provided with a detent, and connected with the coupling-link to which the forward end of the drag-bar is attached, these members being arranged and operating in combination, substantially as hereinbefore set forth.

3. The combination, as set forth, in a two-wheeled, hinge-bar, rear-cut harvester, of the forward lifting-lever with the rear lifting lever, each having a separate axis and moving parallel with the wheels, whereby the ordinary adjustment is retained, and the adjustment of the pitch of the guards to suit the condition of the crop to be cut is made instantaneously by the driver from his seat on the machine without stopping it.

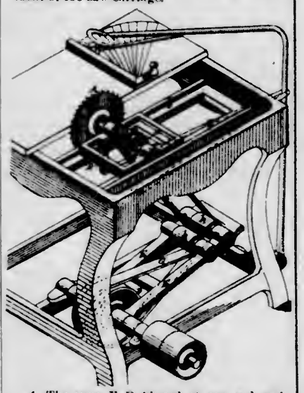
4. The combination, substantially as hereinbefore set forth, of two main supporting and driving wheels, a main frame mounted thereon, a finger-beam connected with the main frame by a hinged drag-bar and coupling-arm, a platform connected with said finger-beam and supported upon caster-wheels, and a rocking lever mounted upon the main frame and connected with the front end of the drag-bar, whereby the driver from his seat can raise or lower the finger-beam and platform by rocking them on the caster-wheels, without disturbing the parallelism or horizontality of either end of the cutting apparatus.

7,870.



7,871. CIRCULAR SAWING MACHINES. A. T. Nichols, Williamsport, Pa. Patent No. 166,887, dated Aug. 17, 1875. [Filed Aug. 16, 1877.]

Brief.—The belt is always kept at the proper tension to rotate the saw by means of two weighted pulleys, having their bearings in weighted arms, hinged at one end and free at the other, and forming a belt-tightener that will adjust itself to correspond with any movement of the saw-carriage.



1. The arms E E, hinged at one end and free at the other end, and provided with the pulleys *h h*, in combination with the saw-carriage, saw-mandrel, driving-shaft, and endless belt, for the purposes herein set forth.

2. The arms E E, hinged at one end and free at the other end, and having pulleys *h h*, the belt G passing around the pulley D on the driving-shaft, around the pulleys *h h*, and around the saw-mandrel, in combination with the movable saw-carriage and mechanism, substantially as described, or its equivalent, for reciprocating said carriage, all substantially as and for the purposes herein set forth.

7,872. REFRIGERATOR-SHIPS. J. F. Baldwin, Chelsea, Mass. Patent No. 92,246, dated July 6, 1869. [Filed Jan. 19, 1877.]

1. A navigable vessel provided with an ice-receptacle, forming a structural part of said vessel, the space between the main and upper decks constituting the non-conducting space above the ice-receptacle, and the space immediately below the main-deck constituting the refrigerating-chamber.

2. The combination, in a navigable vessel, of the main-deck A, the upper deck C, and ice-receptacle B, forming a structural part of the vessel, and the refrigerating-chamber S S below the main-deck, all substantially as set forth.

3. The combination, in a navigable vessel, of the chamber S S below the main-deck, chamber P between the main and upper decks, and ice-receptacle B, the same being protected by the chamber P, substantially as set forth.

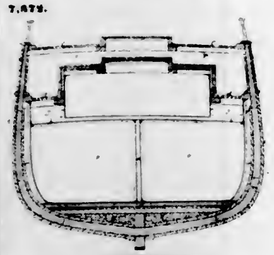
4. The combination, with the decks A C b, inclosing chambers P S S, of the air-spaces F at the sides of the chamber S S, as set forth.

5. The combination, with the hull of a navigable vessel, and with an ice-receptacle, B, and one or more refrigerating chambers arranged between decks in such hull, of the air-chamber P extending over the ice-receptacle and refrigerating chamber, for the purpose set forth.

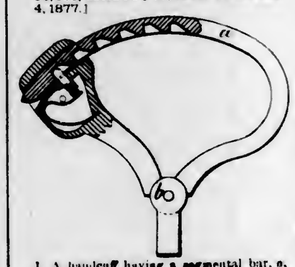
6. The combination, substantially as described, of the hull L, decks A C, ice-receptacle B, and cargo-chamber D D below the ice-receptacle and extending below the water-line.

7. The combination, substantially as described, of the water-tight flooring I and ballast-receptacle K in the hull, with the cargo and ice-receptacles and air-spaces F.

7,872.



7,872. HANDCUFFS. J. J. Tower, Brooklyn, N. Y., assignee, by mesne assignments, of Orson C. Phelps, deceased. Patent No. 56,463, dated July 17, 1866. [Filed Aug. 4, 1877.]



1. A handcuff having a segmental bar, a, with notches in the inner face and a swinging radius-bar, with the locking mechanism in said bar, between the center joint and the segmental bar, substantially as set forth.

2. In a handcuff, the combination, with the segmental bar having notches in the inner surface, of a radius-bar having a hole entirely through it for the passage of the segmental bar, and containing the lock, substantially as set forth.

7,874. PIPE-ELBOW MACHINES. Charles H. Amann, Columbus, Ohio, assignor of one-half his right to Lewis A. Harker, same place. Patent No. 178,705, dated June 13, 1876. [Filed May 19, 1877.]

1. The anvil wheel B, consisting of an exterior right cylindrical part, i, and an inner part, i', of the form of a conical frustum, with its larger base next the part i, and of larger diameter than the same, in combination with the hammer wheel B', consisting of an outer right-cylindrical part, j, and an inner conical part, j', of less diameter, and forming a re-entrant angle with part j, substantially as specified.

2. In a pipe-jointing machine, the combination, with the shafts A A' and wheel B', having the exterior right-cylindrical portion j, the conical portion j', and the re-entering angle between, of the anvil wheel B, having the exterior cylinder i, the salient i', and the stop-flange m, arranged in contact with the inner face of the wheel B', and adapted to form a bead on a pipe-edge with an oblique flange, 2, substantially as specified.

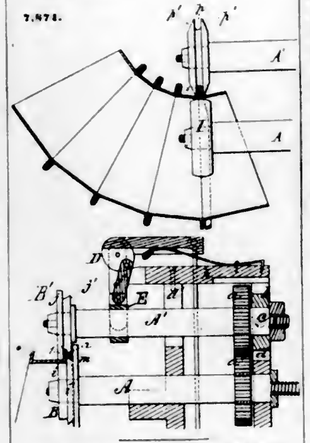
3. The combination, with an anvil-wheel applied upon the end of a shaft, and rotating in fixed bearings, and a hammer-wheel on a shaft having vertically-movable bearings, of a lever, a pressure-link pivoted to one of said movable bearings, and said lever and a treadle for applying the pressure, substantially as specified.

4. The combination, with the overhanging guide-arm, of the shaft, loosely applied in its bearings at one end, and suspended in a vertically-movable sash at the other, a pressure-link, an angle-lever, and an actuating-treadle, combined and arranged substantially as specified.

5. In a pipe-jointing machine, the combination, with the hammer-wheel B', its shaft A', suspended sash E, and overhanging guide-arm, of the pressure-link f, angle-lever D, and spring S, substantially as specified.

6. The adjustable transverse clamping-wheel l', having the tapering or beveled edges p' and deep peripheral grooves p, adapted to receive the flanges o 2, said wheel being attached to, and rotating on, the end of the adjustable-shaft A', in combination with a transverse anvil-wheel, I, on shaft A, substantially as specified.

7,874.



7,875. SEEDING-MACHINES. Chas. E. Patric, Springfield, Ohio. Patent No. 159,210, dated Jan. 26, 1875. [Filed Mar. 2, 1877.]

1. The lifting-roller lever F, provided with the tripper-foot, in combination with a latch or pawl, d', arranged and operating substantially as described.

2. The eccentric lifting-roller arm e, in combination with the pivoted cam-hook g, for throwing the shaft of the distributer-wheel into or out of action, substantially as and for the purpose set forth.

3. The pivoted cam-hook g and link h', in combination with the lever h', to which the intermediate transmitting gear-wheel H' is secured, arranged and operating substantially as described.

4. The lifting-roller E, connected with the eccentric arms e e' in advance of their pivotal center, whereby a backward thrust is given to the lifting-lever in raising the drill-teeth, substantially as and for the purpose set forth.

5. The forked lever O, in combination with the changeable grass-seed hopper, for actuating the slide of the grass-seed agitator, either in front or rear of the grain-box, as described.

6. The stirrers r, made in staple or stirrup form, and combined in pairs with the reciprocating slide of the agitator, as described.

7. The slide S, provided with the series of perforations s for discharging the grass-seed, and with the indicator-perforations s arranged outside of the hopper, in the manner and for the purpose described.

8. The eccentrically-pivoted bars L l', to which the drag-bars D are connected, in combination with the hook-braces l and perforated retaining-plate P, substantially as and for the purpose described.

9. A vertically-revolving feed-wheel, having a continuous seed-channel within its rim, combined with a gate or valve located within said seed-channel, and adjustable toward or away from the flanged periphery of said wheel for varying the capacity of said seed-channel, said valve being mounted upon a pivotal axis parallel with the axis of said distributer, for the purpose set forth.

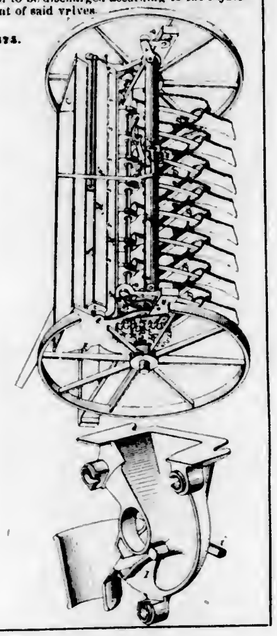
10. A vertically-revolving feed-wheel, having a continuous seed-channel within its rim, and an adjustable valve or gate located within said seed-channel, and mounted upon a pivotal axis parallel with the axis of said feed-wheel, combined with a crank-arm, i, attached to said pivot, whereby said gate may be moved for adjustment to vary the capacity of said seed-channel.

11. A vertically-revolving feed-wheel, having a continuous seed-channel within its rim, combined with a gate or valve, I, within said seed channel, and moving upon a pivotal axis, also, within the rim of said wheel, said gate being adjustable toward or away from the periphery of said wheel, to vary the size and capacity of said channel.

12. In a seeding machine, a series of seed-distributers, each having a vertical revolving feed-wheel with a continuous seed-channel within its rim, and within said seed-channel a gate or valve, adjustable in the plane of the wheel's rotation upon an axis which is parallel with the axis of said wheel, and all the gates or valves of said series adapted to be operated by, and combined with, a single rock-shaft, whereby the simultaneous adjustment of said valves may be effected.

13. In a seeding-machine, a series of seed-distributers, each having a vertical revolving feed-wheel with a continuous seed-channel within its rim, and within said seed-channel a gate or valve, adjustable in the plane of the wheel's rotation upon an axis which is parallel with the axis of said wheel, and all the gates or valves of said series adapted to be operated by a single rock shaft, combined with an index and dial, to indicate the quantity of seed to be discharged according to the adjustment of said valves.

7,875.



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COMMISSIONER'S DECISIONS.

A. DIECKERHOFF.—*Interlocutory Appeal.*

[*Appeal from the decision of the Principal Examiner in the matter of the reissue application of Adolph Dieckerhoff, for* "IMPROVEMENT IN EXPLOSIVE COMPOUNDS."—*Decided June 23, 1877.*]

The concluding clause of Sec. 4916, Rev. Stat., in authorizing the Commissioner to allow new matter in reissue applications having neither model nor drawing, does not warrant a departure from the original invention.

Its purpose is to correct accidental mistakes, not to permit the setting up of a substantially different invention from the original.

No amount of proof that the proposed new matter was within the knowledge of the inventor at the time of filing his original application can permit its introduction on reissue if it involves a departure from the original invention.

Whether the new matter is a departure or not may be gathered from a consideration of all original papers filed in the case, and from other evidence of official action from which the intentions of the parties can be discovered or their rights determined.

[*Hill & Ellsworth*, for applicant.]

DOOLITTLE, *Acting Commissioner:*

June 6, 1876, Patent No. 178,477 was granted Adolf Dieckerhoff, of Vienna, Austria, for improvement in explosive compounds. This compound was there stated to consist of "a mixture of picric acid, nitrate of potash, nitrate of soda, flour of sulphur, and sawdust, (of oak or other hard wood,") and its mode of manufacture described as follows:

Take one pound each of picric acid and nitrate of potash, and dissolve them in seventy-two pounds of boiling water; then take thirty pounds of sawdust and impregnate it with this solution. After it has thoroughly absorbed the liquid dry it till every vestige of damp has been driven out. To every twenty pounds of this impregnated sawdust add thirty-five pounds of nitrate of potash, thirty-five pounds of nitrate of soda, and fifteen pounds of flour of sulphur. Mix these ingredients thoroughly with the sawdust, and the explosive substance is finished and ready for use.

It is then added that as the product as thus completed is in the form of meal or flour, and that as it is more convenient to have it granulated or made into small sticks, the sawdust, after being impregnated as above described, is not allowed to dry, but is mixed with the other ingredients in a thoroughly damp state, and is then either pounded for about an hour in a wooden stamping-trough or ground in a mill, care being taken to keep the dough sufficiently damp, and it is then granulated by being passed through sieves or pressed into sticks by means of a hand press.

He claims—

1. The explosive compound described, composed of sawdust, saturated with a solution of picric acid and nitrate of potash, dissolved in boiling water, then desiccated, and afterward mixed with nitrate of potash, nitrate of soda, and sulphur, all as set forth.

2. The described process for granulating or for converting into sticks the compound of sawdust, picric acid, nitrate of potash, nitrate of soda, and sulphur, the same consisting in mixing nitrate of potash, nitrate of soda, and flour of sulphur with sawdust previously saturated with picric acid and nitrate of potash, and while it is in a damp state passing it through sieves for granulating or through a press to form sticks.

The patentee now applies for a reissue of his patent, introducing into his application new matter, which he attempts to sustain by affidavits, (his own and that of another person,) by virtue of the last clause of section 4916, which provides that when—

There is neither model nor drawing, amendments may be made upon proof satisfactory to the Commissioner that such new matter or amendment was a part of the original invention, and was omitted from the specification by inadvertence, accident, or mistake.

The new matter regarded as objectionable by the Examiner consists, first, in stating that the mixture of the picric acid, nitrate of potash, and boiling water may be allowed to precipitate by cooling, and that the wet precipitate may be used in his subsequent operations. Nothing is said in the patent about the formation of a precipitate, or the employment of a precipitate in the subsequent process; nor is such a result consistent with the process previously described. Second, instead of restricting himself to sawdust as an absorbent, as set forth in his patent, applicant now proposes to use "sawdust or other easily-combustible absorbent." This is not necessarily a departure from the original invention; but in this connection he adds, that he sometimes saturates common gunpowder with his basic solution, in which case the whole mass acts as the absorbent, and the nitrate and sulphur furnish the required elements to be used with the base. Clearly, gunpowder is not the equivalent combustible absorbent of sawdust. Third, in his patent his compound is

described as consisting alone of sawdust saturated with a solution of picric acid and nitrate of potash, dissolved in boiling water, and afterward mixed with nitrate of potash, nitrate of soda, and flour of sulphur; and he there makes no mention of the omission of any other substance or the substitution for them of other ingredients. Yet, in his present application, after stating the former amount of sulphur used, he adds, "with or without a small quantity of charcoal or other inflammable substance rich in carbon; or I may omit altogether the nitrate of potash or the nitrate of soda, but not both." The matter of the clause quoted is a radical departure from the original invention.

Two claims are added to the two in the patent, to embrace the new matter alluded to.

The Examiner, in his report, appears to take the ground that new matter in a case of this kind is as objectionable as in those cases where model and drawing had been furnished—for nearly all the decisions of the courts cited by him relate to the latter class of cases—and all of them arose on patents granted previous to the act of July 8, 1870, which statute was the first to provide for the allowance of extraneous proof as to what constituted part of the original invention where neither model nor drawing had been furnished.

The first part of section 4916, requiring that no new matter shall be introduced into the specification, plainly refers to those cases accompanied by drawing and model; and, as was held in *Seymour* vs. *Osborne*, this provision necessarily excluded the right in such cases to open the case to new parol testimony; but the express declaration, in the concluding clause of the section, that where there is neither model nor drawing amendments may be made upon proof satisfactory to the Commissioner that the proposed new matter or amendment was a part of the original invention, establishes a class of certain special cases, as the Supreme Court in the same case admitted. It gives to such applicants the privilege of submitting proof as to matter not embodied in the original patent, and permits the exercise of discretion on the part of the Commissioner in the consideration of such proof.

Construing the whole of section 4916 together, as it should be, and keeping in mind the only real and lawful purpose of a reissue application—to correct accidental mistakes in the original specification and drawing—there is nothing in the last clause, nor any previous one, to authorize a departure from the original invention, and the setting up in a reissue of a substantially different invention. No amount of proof regarding an entirely different invention, however satisfactory it might be in showing that the same was within the knowledge of an applicant at the time of applying for his original patent, could justify the Office in allowing its introduction therein by reissue. To the extent of correcting such errors and omissions as are sometimes supplied by consulting the model and drawing filed with an original application, the clause of the statute under consideration, I think, clearly obtains. It might permit, for instance, of the consideration of all original papers filed in the case, and such other evidence of official action from which the intentions of the parties could be discovered or their rights determined. This practice was illustrated in the case of *Winslow*, 9 OFFICIAL GAZETTE, 795, where the patent had been passed upon by the United States Supreme Court, and certain matter was held not to be a part of the patent, but where the Office considered the decisions of inferior courts, a dissenting opinion in the court alone, together with numerous affidavits, including one from an Examiner in the Patent Office, as showing clearly the fact that the applicant had made the invention and had intended to incorporate the same in his patent and believed that he had done so. No doubt existed in that case as to what the applicant's original invention was, as shown by the records of the Office and the testimony of others relating thereto, and that it was not definitely set forth and claimed was clearly an inadvertence that could be supplied by the character of proof mentioned. But I am aware of no decision of the Office or the courts which would justify a radical departure from the invention originally indicated or described by means of entirely extraneous proof.

My conclusion, therefore is, that the employment of a precipitate formed by the cooling of the solution, the use of gunpowder as an absorbent in place of sawdust, and the omission of the ingredients of nitrate of potash or the nitrate of soda, are entirely inconsistent with and opposed to the original invention described by applicant, and cannot now be allowed to be incorporated in the patent upon the strength of any proof whatever.

The application to this extent must be rejected.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—EASTERN DISTRICT OF MICHIGAN.

FRANK NORTHRUP *et al. vs.* SAMUEL ADAMS.

[*In equity.*—BROWN, *J.*]

Design patents are subject to the general principles of construction applicable to mechanical patents. A combination or aggregation of old designs producing no new appearance is not patentable.

When, in a design of a rectangular provision-safe, the only originality consisted in the use of two vertical panels in each wall and a familiar molding around the top and bottom, the patent was held invalid.

[*Mr. Hunt*, for complainant.
Messrs. J. W. McGrath and Geo. H. Lothrop, for defendant.]

[This was a bill for the infringement of a design patent for a provision or cheese safe. The specification describes—

A rectangular base, with a top supported by four corner-posts, with an intermediate stile or support, dividing each side into vertical panels, all of which are covered with wire-cloth of fine mesh. The front side is made to open as a door, which is single, but folds upon itself, the two parts being hinged together at the center stile. Around the base is an ogee molding, and a similar one is run around the top to serve as a cornice. A lighter molding of the same pattern is run around the edge of each panel, and a pleasant effect is produced by staining all of the molding a dark color, varnishing all the rest of the wood-work, leaving it in its natural color.

The claim was as follows:

As a design for a cheese-safe, the rectangular cage shown, having two vertical panels on each wall, a molded top, A, and a molded base, A'.

The defenses set up in the answer were: First, that the invention was in public use for more than two years prior to the application for a patent; second, the invention was not patentable.]

BROWN, *J.*:

Complainant claims his patent by virtue of that clause of R. S., sec. 4929, which extends the protection of the patent laws to any new and original design for a manufacture, or "any new and original shape or configuration of any article of manufacture not known or used by others" before his invention or production thereof. The law applicable to this class of patents does not materially differ from that in cases of mechanical patents, and "all the regulations and provisions which apply to the obtaining or protection of patents for inventions or discoveries * * * shall apply to patents for designs." (Sec. 4933.)

The same general principles of construction extend to both. To entitle a party to the benefit of the act, in either case there must be originality and the exercise of the inventive faculty. In the one, there must be novelty and utility; in the other, originality and beauty. Mere mechanical skill is insufficient. There must be something akin to genius—an effort of the brain as well as the hand. The adaptation of old devices or forms to new purposes, however convenient, useful, or beautiful they may be in their new role, is not invention. In the case of *Bannage* vs. *Phillipi*, 9 OFFICIAL GAZETTE, 1,159, the Acting Commissioner of Patents decided, I have no doubt correctly, that the use of a small model of the main centennial building for paperweights and inkstands was not patentable.

Another apt illustration of this is put by Simons, Design Patents, p. 194, of one who took a familiar statue of a shepherd boy, thrust a gas-pipe through the leg and arm, and applied it to the purposes of a drop-light. Here was good taste, undoubtedly, but not invention. He merely succeeded in making that which was before purely ornamental serve a useful purpose.

It is true patents have apparently been issued for designs frivolous in themselves, or new adaptations of old designs; but, as remarked in an excellent opinion by Commissioner Leggett, in the case of *Parkinson*, Simons on Design Patents, p. 101, "the practice of the Office in granting design patents has been not only liberal but lax." In the later decisions of the Office a stricter construction has been given to the law, and one more consonant to the familiar principles applied to mechanical patents.

If a combination of old designs be patentable at all, of which I have some doubt, the combination must be such as to produce a new appearance. If the effect produced be simply the aggregation of familiar designs, it would not be patentable. For example, if one should paint upon a familiar vase a copy of Stuart's portrait of Washington it would not be patentable, because both elements of the combination, the portrait and the vase, are old; but if "any new and original impression or ornament" were placed upon the same vase, it would fall within the express language of the section.

Apply these rules to the case under consideration. Rectangular safes essentially similar to complainant's, covered with wire-cloth, have been made and used for many years. When constructed of large size, each side was divided into panels by a vertical stile; when of smaller size, no such division was made. As the difference in size would not be patentable, so the division of each side into panels is none the more so. The only novelty, then, in this patent is the use of an ogee molding about the top and bottom, and the combination of this with paneled sides is claimed as complainant's invention. Moldings of this description, however, have been used for centuries, and applied, not only by way of ornament in architecture, but to articles of furniture and the decoration of interiors. The embellishment of a provision-safe with this ancient design is simply the adaptation of a well-known ornament to a new purpose. The result is pleasing in appearance, but not entitled to the protection of the patent laws as novel or original. Rectangular safes were formerly used for the exhibition of cheese in shops; but of late years they have been supplanted by a round safe, with the top divided and connected with hinges, so as to permit one-half of it to be thrown back. The present design appears simply to be a restoration of the old style with a rolling bottom, for the more convenient handling of the cheese, and the addition of a simple molding around the top and bottom, giving it undoubtedly a more pleasing appearance. While the patentee showed some taste in the manufacture of this article, and while it may have become popular and valuable to him, it does not seem to me to possess the originality without which no manufacture can be patentable.

It results that the bill must be dismissed with costs.

U. S. CIRCUIT COURT—SOUTHERN DISTRICT OF NEW YORK.

EMILE CORNELY vs. NORBERT J. HENDERICKX.

[*In equity.*—BLATCHFORD, *J.*—*Decided May*, 1877.]

ORDER.

BLATCHFORD, *J.*:

On the bill in this cause, and on notice of motion for an interlocutory injunction herein, with due proof of the service thereof, together with copies of the bill, and affidavits referred to in said notice on the defendant herein; and it appearing to this court that two letters patent of the United States were issued in due form of law, on the 10th day of November, 1868, to the plaintiff, as assignee of Antoine Bonnaz, each for an "improvement in sewing-machine for embroidering;" said letters patent being known and distinguished as Nos. 83,909 and 83,910, and that the said defendant has infringed the rights secured by the aforesaid two letters patent, by making, using, and selling to others certain embroidering-machines, known as "Petit Machines," and constructed and operating substantially as described in the two letters patent aforesaid, contrary to the form of the statute in such case made and provided, and after hearing Mr. B. F. Lee, of counsel for complainant, and Messrs. Coudert Brothers, of counsel for the defendant, on motion of Turner, Lee, and McClure, complainant's solicitors, it is ordered, adjudged, and decreed, that an injunction issue, commanding and enjoining the said defendant, his clerks, attorneys, agents, servants, and workmen, under the pains and penalties which may fall upon them, and each of them, in case of disobedience, that they forthwith desist from making, using, or selling, in violation of said letters patent, any sewing-machines for embroidering, constructed

substantially as described, and claimed in either of the said two letters patent, and particularly any of such machines known as "Petit Machines," until further order in this cause.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date September 11, 1877.]

10,233.—Hassock-Covering.—CHARLES H. BARTLETT, Cambridge, Mass. Application filed June 18, 1877. Term of patent 7 years.

10,234.—Handles for Dishes.—JOHN W. BURGESS, New York, N. Y. Application filed July 23, 1877. Term of patent 7 years.

10,235.—Speaking-Trumpets.—EDWARD CARLS, Morristown, N. J. Application filed August 21, 1877. Term of patent 7 years.

10,236 and **10,237.—Embroidery-Pattern.**—EMIL CRISAND, New Haven, Conn., assignor to HENRY ST. JOHN, same place. Applications filed August 8, 1877. Term of patents 3½ years.

10,238 to **10,247**, inclusive.—**Backs of Playing-Cards.**—ALFRED J. MANNING, New York, N. Y., assignor to ANDREW DOUGHERTY, same place. Applications filed August 4, 1877. Term of patents 7 years.

10,248.—Cooking-Range.—NICHOLAS S. VEDDER, Troy, and TOBIAS S. REISTER, Lansingburg, assignors to FULLER, WARREN & CO., Troy, N. Y. Application filed August 1, 1877. Term of patent 7 years.

10,249.—Parlor Wood-Stoves.—NICHOLAS BRAYER, Rochester, N. Y., assignor to EQUITABLE CO-OPERATIVE FOUNDRY COMPANY, same place. Application filed August 20, 1877. Term of patent 7 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date September 11, 1877.]

5,132.—Stove-Polish.—HENRY D. ATWOOD, Taunton, Mass. Application filed July 27, 1877.
"The word-symbol 'WOMAN'S.'"

5,133.—Books.—LEE & SHEPARD, Boston, Mass. Application filed August 21, 1877.
"The word-symbol 'THAT WIFE OF MINE.'"

5,134.—Linen Thread.—L. LICHTENSTEIN, Richmond, Va. Application filed August 27, 1877.
"The representation of a lion."

5,135.—Medical Compound.—MERRIAM & FROST, Springfield, Mass. Application filed August 22, 1877.
"The symbol representing the head, neck, and shoulders of a female, engraved upon a black background."

5,136.—Concentrated Soft Soap.—FRANCIS M. PLEINS, Dubuque, Iowa. Application filed May 28, 1877.
"The fanciful words 'WASH AND BE CLEAN.'"

5,137.—Cigars.—TEUSCHER & GERNSHEIMER, New York, N. Y. Application filed August 27, 1877.
"The word-symbol 'AMOROSA,' the bunch of flowers, the monogram 'T. & G.,' and the ribbon with single cigars attached."

5,138.—Playing-Cards.—THE NEW YORK CONSOLIDATED CARD COMPANY, New York, N. Y. Application filed August 24, 1877.
"The pictorial representation of two watch-dogs chained to their houses and baraing at each other."

5,139.—Cigar-Boxes.—WILLIAM WICKE & CO., New York, N. Y. Application filed August 28, 1877.
"The word-symbol 'WASHINGTON IRVING.'"

5,140.—Cigars.—FREIBERG, KLEIN & CO., Galveston, Texas. Application filed August 13, 1877.
"The word-symbol 'JACK HARDY.'"

5,141.—Medicinal Preparation.—PERLEY JEFFERS, Chicago, Ill. Application filed June 23, 1877.
"My own portrait and fac-simile of signature."

5,142.—Baking-Powder.—GEORGE RHORER, St. Louis, Mo. Application filed August 24, 1877.
"The word-symbol 'VIENNA' and the described figure of an eagle."

5,143.—Linen Fabrics.—GEORGE RIGGS, Newark, N. J. Application filed September 3, 1877.
"The word-symbol 'OLD BLEACH.'"

5,144.—Mineral Water.—ANDREAS SAXLEHNER, Pest, Austria. Application filed August 31, 1877.
"The word-symbol 'HUNYADI JÁNOS.'"

5,145.—Starch.—THE CHICAGO STARCH WORKS, Chicago, Ill. Application filed June 18, 1877.
"The snow-scene described below, used in connection with the words 'Snow-White,' the whole arranged as shown."

5,146.—Cigars.—H. K. & F. B. THURBER & CO., New York, N. Y. Application filed July 25, 1877.
"The word-symbol 'CHIQUITA.'"

5,147.—Leaf-Tobacco.—VEGA & BERNHEIM, New York, N. Y. Application filed September 3, 1877.
"The word-symbol 'FLOR DE TODO.'"

5,148.—Croup-Medicine.—WARNICK & REID, Amsterdam, N. Y. Application filed August 6, 1877.
"The word-symbol 'THE LITTLE OLD DUTCH DOCTOR'S.'"

5,149.—Starch.—WESP, LAUTZ BROS. & CO., Buffalo, N. Y. Application filed August 21, 1877.
"The word-symbol 'NIAGARA.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date September 11, 1877.]

1,177.—Title: "**Benter's Laundry Indigo Bluing.**"—HENRY BENTER, Allegheny, Pa. Application filed August 17, 1877.

1,178.—Title: "**Niles Cathartic Pills, &c.**"—EDWARD C. ENSIGN, Waymart, Pa. Application filed September 1, 1877.

1,179.—Title: "**Stock-Powder.**"—D. G. STOUGHTON, Hartford, Conn. Application filed August 30, 1877.

1,180.—Title: "**Sancho.**"—J. B. CLEMENTS, Cincinnati, Ohio. Application filed August 13, 1877.

SALE OF SPECIFICATIONS AND DRAWINGS.

Photolithographic copies of the drawings of all patents issued since November 26, 1867, have been produced, and will be sold to the public at 25 cents per patent, or, where twenty or more copies are ordered at one time, at 10 cents per patent.

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The specifications of all patents issued since July 1, 1871, are in print, and will be furnished with the drawing without extra charge. The specifications of patents issued from November 20, 1866, to July 1, 1871, are in print, and where such is the case the Office will furnish them with the drawings, but the Office will not undertake to reprint copies of patents which have been exhausted.

In addition to the above, the Office has reproduced, and offers for sale at the price mentioned above, all drawings in the following classes, embracing patents granted from 1790 to date. The classes are those of the Examiners:

1. Aeration and Bottling.
2. Apparel.
4. Baths and Closets.
5. Beds.
6. Bee hives.
7. Beer and Wine.
8. Bleaching and Dyeing.
9. Boats.
10. Bolts, Nuts, and Rivets.
11. Bookbinding.
13. Brakes and Gibs.
14. Bridges.
15. Brushes and Brooms.
17. Butchering.
18. Caoutchouc.
19. Carding.
20. Carpentry.
21. Carriages and Wagons.
23. Chemical Misc.
26. Cloth.
28. Cordage.
29. Crinoline and Corsets.
31. Dairy.
33. Drafting.
34. Driers and Kilns.
36. Electricity.
37. Excavators.
38. Felting and Hats.
40. Files.
42. Fire-arms.
44. Fuel
45. Furniture.
47. Garden and Orchard.
48. Gas.
52. Gunpowder.
53. Hardware manufacture.
55. Harrows.
56. Harvesters.
58. Horology.
59. Horseshoes.
61. Hyraulic Engineering.
62. Ice.
65. Kitchen Utensils.
66. Knitting and Netting.
67. Lamps and Gas-fitting.
68. Laundry.
71. Manures.
72. Masonry.
73. Measuring Instruments.
75. Metallurgy.
76. Metal Working, bending and straightening.
77. Metal Working, boring and drilling.
78. Metal Working, forging, swaging, and riveting.
79. Metal Working, punching, cutting, and shearing.
80. Metal Working, rolling.
81. Metal Working Tools.
82. Metal Working, turning, planing, and milling.
83. Mills.
85. Nails.
86. Needles and Pins.
87. Oils, Fats, and Glue.
88. Optics.
89. Ordnance.
90. Ore.
91. Paint.
92. Paper-making.
93. Paper manufactures.
94. Paving.
96. Plating.
97. Plows.
98. Pneumatics.
99. Preserving Food.
101. Printing.
102. Projectiles.
103. Pumps.
104. Railways, The Way.
105. Railways, Cars and Interior Fittings.)
106. Railway Cars, Exterior Mountings and Fittings.
107. Railway Track and Car Irons and Fittings, manfacture of.
108. Roofing.
111. Seeders and Planters.
112. Sewing-machines.
114. Ships (1) construction.
115. Ships (2) propulsion.
116. Signals.
117. Silk.
118. Spinning.
119. Stabling.
120. Stationery.
121. Stills.
126. Stoves and Furnaces.
127. Sugar.
130. Thrashing.
131. Tobacco.
132. Toilet.
134. Tubing and Wire.
135. Umbrellas and Fans.
137. Water Distribution.
138. Water wheels.
139. Weaving.
141. Wood screws.

And the subdivisions of—

Bench-planes. Bale-ties. Buttons and Machines. Combs, &c.

About forty other classes are in progress, and it is hoped that all the drawings remaining, some thirty thousand in number, may be completed during the fiscal year.

The total number of patents of which drawings are complete and offered for sale as above will approximate one hundred and fifty thousand.

The Government fee on making application for a patent is fifteen dollars. The final fee is twenty dollars. Usually there are no other Government fees unless the application is appealed.

When a patent has been allowed, and the application has not been forfeited by delay of six months, if the final fee of twenty dollars is paid before 12 o'clock on Friday, the patent will issue and bear date the following Tuesday.

As 12 o'clock on Friday is the latest hour that a final fee can be received in order to get a patent into the "issue" of the following Tuesday, applicants are earnestly requested to make the final payment before Friday, if possible, so that the proper entries may be made on the books of the Office before closing the "issue."

The "Rules of Practice" contain full instructions, forms, &c., for making applications for patents.

Copies of patents, arranged by classes of inventions, can be obtained at 10 cents per copy where the entire class is ordered.

THE illustrated portion of the Patent Office Report for 1869 and for 1871 has recently been completed, and can be had, by those having the remaining volumes for those years, by applying to the Commissioner of Patents.

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Applegate, S. S., Circuit closer for electric burglar alarms	195,074
Ashworth, J., Wire brush machine	195,075
Baker, L. J., Combined cornice and picture rod molding	194,952
Ball, C. A., Thill coupling	195,077
Ball, C. M., assignee	194,981
Ball, T. K., Force pump	195,076
Bancroft, L. F., Street sprinkler, (reissue)	7,877
Barbour, G. H., and J. Dwyer, Culinary attachment to base burning heating stoves	195,109
Bassett, G. T., assignee	195,167
Batley, J., J. Keats, and J. Neil, Manufacture of felted articles	195,078
Beal, E. T., Combined baking rim and vessel	195,080
Beall, J. T., Spindle, bolster, and step for spinning machines	195,079
Beam, D. A., Weighing attachment for hand trucks	194,983
Beddow, G., Self feeding stove	195,081
Beggs, J., and W. F. Healy, Brake for elevators	195,124
Benedict W. A., Carriage top	195,083
Benson, G. T., Cigar lighter	195,082
Bently, S. G., and J. R. Lusby, Harness buckle	195,141
Bishop, C. B., assignee	195,193
Blair, J. and J. C., Harvester	195,084
Bogart, S. S., Jr., assignee	195,138
Bradley, E. M., Harness buckle	194,984
Brigham H. De L., Bench drill	195,085
Brintzinhoffer, G., Brush holder	195,086
Brock, W. E., Culinary utensil for broiling, toasting, &c.	195,087
Brockett, A. E., Whiffletree	194,985
Brown, C. D., Moth proof paper from cedar wood	194,986
Brown, T. D., and J. W. T. Peltier, Copy holder	195,043
Browne, W. F., Combined steam and gas generating apparatus	195,088
Brush, W. H., Brick kiln	194,987
Burnham, J., Bee hive	195,089
Burroughs, C., and A. A. Sanborn, Monkey wrench	195,173
Burt, R. W., Horizontal wind wheel	194,988
Campbell, C. J., assignee	195,101
Capron, E. W., assignee	194,990
Carter, J. W., Font for oil lamps	194,953
Chapman, H. W., Fire escape	194,989
Chase, O. R., Machine for making cable pipe candles	194,954
Chase, O. R., Machine for paring cocoa nuts	194,955
Chase, W. K., Gas pipe and burner for preventing frost on show windows	195,090
Cherry, H., and H. E. Wheeler, Barbed wire fence	195,091
Clark, L. F., and W. H. Elliot, Machine for cleaning paper pulp screens	194,960
Clark, W. G., Traction wheel	194,956
Claudin, J. E., assignee	195,165
Cleveland Non Explosive Lamp Company, assignee	194,953
Clnett, J. W. A., Cuff, (reissue)	7,878
Cole, G. P., Detergent compound	194,980
Collier, F. M., and C. Thomas, Trace for harness	194,991
Conrath, L., and G. Johnston, Optometer	195,135
Cooley, O., Rake elbow for harvesters	195,092
Cottrell, R., Machine for sawing stone	194,957
Craik, R., Middlings purifier, (reissue)	7,884
Crary, A. B., assignee	195,027
Crawford, O. H., assignee	195,166
Croake, D., Shipping can	195,093
Crosby, H. C., Railroad signal	194,992
Crossley, H. A., Belting	194,993
Crowell, H. P., Ice elevator	195,095
Crowell, W., Ventilating barrel for shipping fruits, vegetables, &c	194,994
Crowther, J., Flower pot	195,094
Cummings, J. K., Washing machine	195,096
Cummings, W. A., Car coupling	194,996
Cummins, W. G., Sewing machine	194,995
Cunningham, G. W., Butter worker	194,958
Cunningham, I. N., Fence	195,097
Curtis, H., Grain binder	195,098
Dailey, P. A., Felted fabric	195,099
Dailey, W. H., Drill for socket couplings	195,100
Davis, J. D., and S. H. Dickey, Iron fence	195,103
Davison, P., Pruning shears	195,101
Day, W. O., Graining machine	194,997
Dean, E. C., assignee	195,049
Deering, W., assignee	194,978
De Forest, H. S., and C. Van Slyck, Striping machine	195,058
Dennis, S. W., Pneumatic dental mallet	195,102
Dickey, S. H., and J. D. Davis, Iron fence	195,103
Dieterich, C. F., Machinery for charging gas retorts	194,998
Dimmick, J. K., and F. A. Stine, Fire place stove	195,104
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Dollner, C. F., Umbrella handle	195,107
Dopp, H. W., Automatic cylinder cock	195,108
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Drummond, W. W., and W. Aiken, Sand molding machine for metal casting	195,070
Drummond, W. W., and W. Aikin, Art of molding sand for making casting	195,071
Duggan, T., and T. Jesson, Brush	195,016
Duggan, T., and T. Jesson, Brush making machine	195,017
Dwyer, J., and G. H. Barbour, Culinary attachment to base burning heating stoves	195,109
Eaton, I., and H. M. Fortney, Fifth wheel for vehicles	194,959
Eberly, D. B., Car coupling	195,110
Elliot, W. H., and L. F. Clark, Machine for cleaning paper pulp screens	194,960
Elliott, J. S., Milk cooler	195,111
Emerson, B. K., Mold board plow	194,961
Fairbanks, E. and T., & Co., assignees	195,112
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Fenton, E. W., Butter tub	195,113
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Ford, E. L., Duplex printing machine and folding apparatus, combined	195,115
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Goodwin, J. H., and D. Woodard, Sulky and gang plow	195,001
Gordon, J. H., assignee	195,098
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Green, W. S., Life saving apparatus	195,002
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Gunner, C., Fuel box	195,121
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Hackenberg, J., Bracelet	195,004
Hall, F. C., Iron fence post	194,963
Hammett, J. P., Mechanical movement	194,964
Hammond, R., Balanced slide valve	195,005
Hannig, F., Neck yoke	195,006
Harkins, J. B., Packing for combining tubes of injectors for steam boilers	195,007
Harrell, E., assignee	194,964
Hart, F. A., assignee	194,966
Harvey, E. A., Roller gage for rolling mills	195,008
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Haynes, G. M., assignee	195,038
Healey, T. M., and C. W. Rogers, Ore concentrator	194,965
Healy, W. F., and J. Beggs, Brake for elevators	195,124
Henery, A. P., Cultivator	195,125
Hersey, A. Beer forcing apparatus	195,126
Hickman, F., Machine for rolling metal	195,129
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Hicks, W. H., Bottle closing device	195,127
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Hoe, R., & Co., assignee	195,115
Hoffmann, P. A., Knife and fork scourer	195,009
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Hopfensack, H., Handle fastening for pocket books, &c	195,132
Horn, F., H. and J. Wagoner, Combined land roller and harrow	195,189
Hotchkiss, B. B., Machine or battery gun, (reissue)	7,881
Hover, J. E., Ink for canceling stamps	194,966
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Hyatt, I. S., Manufacture of brushes	195,010
Hydrocarbon Steam Generating Company, assignee	195,088
Hyer, C. M., Wood worker's float	194,967
Ireland, G. H., Toy	195,011
Irwin, J. H., Animal trap	195,133
Isbell, C., and E. C. Taylor, Wooden cover for vessels	195,012
Iseminger, D. H., Reciprocating engine	195,013
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Jacobsen, J., Potato bug destroyer	195,014
Jakel, F., Fire escape	195,134
Jenkins, H. M., Fountain brush	195,015
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Jesson, T., and T. Duggan, Brush making machine	195,017
Johnson, M. C., Clutch for stopping and starting machinery	195,018
Johnston, G., and L. Conrath, Optometer	195,135
Johnston Harvester Company, assignee	195,092
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Keats, J., J. Neil, and J. Batley, Manufacture of felted articles	195,078

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Lawrence Spool Company, assignee	195 060
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Lewis, T. P., assignee	195 027
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Meyenberg, S., assignee	195,146
Meylert, A. P., Apparatus for drying fertilizers and other articles	195 034
Michigan Stove Company, assignee	195,109
Miller, D., Method of making tea, coffee, and other extracts (reissue)	7,882
Miller, J., Device for making coffee, tea, and other extracts, (reissue)	7,883
Morgan, E., Wall pocket for stationery	194 970
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Morgan, G. H., Type writing machine	195,149
Morgan, T. R., Sheet metal pan machine	195 035
Morse, A. J., Hose coupling	195 150
Mosher, A. J., Stay for the seams of boots and shoes	194,972
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Niver, C. W., Insect destroying device	195,155
Nix, J. D., Harvester	195,038
Olfs, J., assignee	195,134
Olin, W. F., Harvester elevator	195,156
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Owens, T., Ventilator	195 039
Palmer, H. U., Barrel trussing machine	195,041
Palmer, I. H., Device for oiling windmills	195 157
Palmer, J. F., Snow shovel	195,158
Palmer, S. W., & Co., assignees	195,158
Parker, W., assignee	195 018
Pattee J. H., Cultivator	195,042
Patterson, T. L., and H. W. Walker, Process of clarifying saccharine juices	195 190
Peltier, J. W. T., and T. D. Brown, Copy holder	195 044
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Peoples, J. D., Portable hat and clothes hook	195,159
Perry, O. H., and E. P. Watson, Switch signal	195,160
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Pierce, J. B., Joint for hot air furnaces	195 044
Pillsbury, I. P., assignee	195,042
Platt, T. A., Selt adjusting eye shade	195,045
Poland, B., assignee	195,075
Polleck, W. E., assignee	195 063
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Pope, R. C., Bale tie	195,164
Portsous, W., and A. B. Roney, Stop and waste cock	195,163
Preisendanz, G., Hog cholera medicine	195,165
Pressure Extract Company, assignee, (reissue)	7,882
Pressure Extract Company, assignee, (reissue)	7 881
Price, G. W., Horseshoe attachment	195,047
Pyke, J., Jack for shoemakers	195,166
Randolph, J. L., Bale tie	194 975
Rathknecht, M. and V., Table leaf support	194,974
Rauch, J. H., Ditching machine	195,048
Reynolds, J. W., Bill file	195,167
Rigg, J., Vehicle seat awning	195,168
Robinson, W. W. H., Apparatus for heating railway cars, &c	195,049
Rogers, C. W., and T. M. Healey, Ore concentrator	194,965
Rogers, E., Hydraulic brick machine	195,169
Roney, A. B., and W. Porteous, Stop and waste cock	195,163
Rose, G. P., Whip socket and rein holder	195,170
Rothmann, E., Bed crib	194,976
Rowland, H. B., and W. S. Gayde, Jack for vehicles	195 171
Rubicam, J. H., Lifting jack	195,172
Ruhlmann, E., Garden wheel hoe	194,977
Russell, T. N., Lunch pail	195 050
Sanborn, A. A., and C. Burroughs, Monkey wrench	195 173
Sanford, W. H., assignee	195 047
Sawyer, W. E., Electro magnetic engine commutator	195,174
Schmitz, J. P., Sewer trap and flushing gate	195,175
Scranton, J. P., assignee	195,126
Sell, J. T., Sand trap for artesian or driven wells, &c	195 051
Sergeant, H. C., Brick machine	195 199
Shaw, T., assignee	194 966
Shishmanian, G. N., Fire escape	195,052
Smith, H. E., Washing machine	195,176
Smith, J. W., Revolving harrow	195,177
Smith, R., Plowshare	195,200
Somers, W. H., Label holder	195,178
Spencer, L. G., and F. Fairbanks, Platform scales	195,112
Standish, H., Grain separator	195,053
Stempel, O. A., Packing eggs for transportation	195,179
Steward, J. F., Grain binder	194,978
Stine, F. A., and J. K. Dimmick, Fire place stove	195,104
Stockham, J. B., Cutter head	195,180
Strohm, S. D., Pipe cleaning tool	195,181
Sturtevant, B. F., Exhaust fan or blower	195,182
Sutphen, A. P., assignee	195 138
Swan, T. B., assignee	195,081
Sweet, S., assignee	195,183
Tabb, W. D., assignee	195,038
Taylor, E. C., and C. Isbell, Wooden cover for vessels	195,012
Taylor, L., Hand fire engine	195,183
Taylor, W. B. S., Gas drop light	195 054
Thomas, C., and F. M. Collier, Trace for harness	194 991
Thompson, B., Quadruplex telegraph	195 055
Thomsen, P., Wagon brake levers, (reissue)	7,880
Therp, J. H., Compound for artificial stone	195 056
Todd, S., Grain separator	195,184
Tomlinson, J., Barrel machine	195,185
Tower, J. J., assignee	195,087
Trenton Lock and Hardware Company, assignee	195 060
Tures, G. N., Wagon-tongue	195,057
Turley, M., Horse collar	194,979
Tyner, W. L., Implement for laying tile	195,186
Typographical Machine Printing Company, assignee	195,149
Union Paper Bag Machine Company, assignee, (reissne)	7,876
Van Slyck, C., and H. S. De Forest, Striping machine	195,058
Vartan, S. T., Bell pull	195,188
Vaughan, P. W., and J. F. Glidden, Sulky plow	195,119
Vaughn, S. K., Animal trap	195,187
Vulcanite Jewelry Company, assignee, (reissne)	7,879
Wagoner, H. and J., and F. Horn, Combined land roller and harrow	195,189
Wait, O. E., Bobbin	195,059
Wait, O. E., Bobbin	195,060
Walker, G. W., Cooking stove	195,191
Walker, H. W., and T. L. Patterson, Process of clarifying saccharine juices	195,190
Wallace, F. G., Flour bolting machine	195,192
Walmsley, J., and J. P. Mallette, Barrel cover	195,143
Walsh, T. J., Soldering iron	195,061
Warren, E. B., and J. C. Nippes, Vessel for molding pitch	195,062
Warren, E. B., and J. C. Nippes, Vessel for molding pitch	195 064
Waterbury Clock Company, assignee	195,028
Watson, E. P., and O. H. Perry, Switch signal	195,160
Weber, G., Fruit press	195 064
Webster, J., assignee	195,192
Weston, C. H., assignee	195 090
Wheary, W. H., assignee	195,079
Wheeler, H. E., and H. Cherry, Barbed wire fence	195,091
White, J. E., Fare box	195 065
Whitehead, E., Velocipede	194,980
Whitney, P. A., Sheet metal roller seaming machine	195,066
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Williams, A. J., Machine for forming the warp eyes of wire heddles	195,194
Williams, R., Mustache spoon	195 067
Willson, T. A., and G. W. Meigs, Eyeglass frame	195,193
Wilmot, S. R., Lamp chimney	195 195
Wood, W. D., & Co., assignee	195,035
Wood, W. H., Bell plano	195 068
Woodard, D., and J. H. Goodwin, Sulky and gang plow	195,001
Woodgate, J. H., Revolving pulverizing harrow	195 198
Wolfe, I., Ironing board	195,197
Wright, J. H., assignee	195,031
Wright, R. U., assignee	195 030
Yetter, A. B., assignee, (reissne)	7,877
Young, J., Clothes wringer	194,981
Young, T. P., Sole edge setting and burnishing machine for boots and shoes	195,069

TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED SEPT. 11, 1877.

194,952. COMBINED CORNICE AND PICTURE-ROD MOLDING. Loring J. Baker, Boston, Mass. [Filed Apr. 27, 1877.]



A picture-rod molding consisting of a molding proper, a cornice above, and an intermediate nail-receiving channel, substantially as set forth.

194,953. FONTS FOR OIL-LAMPS. John W. Carter, Brooklyn, N. Y., assignor to Cleveland Non-Explosive Lamp Company, Cleveland, Ohio. [Filed July 10, 1877.]



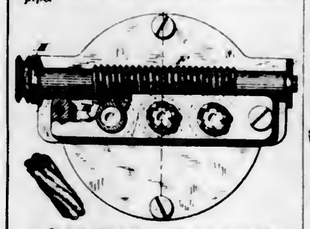
1. A lamp-font for holding oil or other burning-fluid having a slot or opening in its side, extending from its circumference to or toward the center of the font, substantially as and for the purpose hereinbefore described.

2. In an oil-lamp having a removable oil-font, the combination of a font having a slot or opening in its side with a case or receptacle adapted to receive the font, and having a central aperture extending through it for the passage of the rod, stem, chain, or other support of the lamp, substantially as described.

3. The arrangement of a library or student's lamp with a detachable font, having the stem, rod, chain, or other support of the lamp passing through the font or oil-receptacle and case, substantially as and for the purpose hereinbefore described.

194,954. MACHINES FOR MAKING CABLE-PIPE CANDIES. Oliver R. Chase, Boston, Mass. [Filed Aug. 1, 1877.]

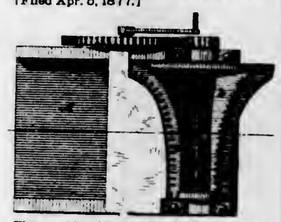
Brief.—The candy paste or dough is forced, by a plunger or other mechanism, through fluted dies, which are rotated by a worm and worm-gears, whereby a spiral direction is given to the flutes formed on the surface of the cable-pipe.



1. In a machine for making pipe or stick candy, rotating dies, constructed, arranged, and operating substantially as described, for the purpose of giving a spiral direction to the flutes impressed upon the surface of the pipe by the peculiar configuration of the dies, all as set forth.

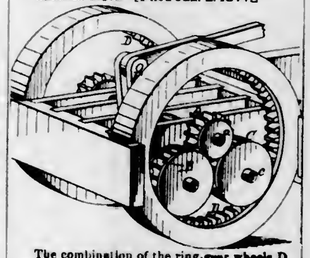
2. The combination, with the paste-chamber of a pipe-candy machine, of the rotating dies C, gears D, worm F, and pulley H, all constructed, arranged, and operating substantially as and for the purpose specified.

194,955. MACHINES FOR PARING COCOA-NUTS. Oliver R. Chase, Boston, Mass. [Filed Apr. 5, 1877.]



The machine herein described for paring cocoa-nuts, the same consisting of the combination, with a suitable frame and table, of the revolving curved comb-toothed radial cutters, arranged around and at a distance from a central shaft, and supported and driven in the manner specified.

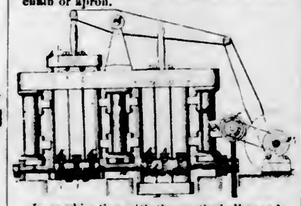
194,956. TRACTION-WHEELS. W. G. Clark, Chelsea, Mass. [Filed Jan. 2, 1877.]



The combination of the ring-gear wheels D with the driving-pinions A and intermediate gears B and C, substantially as described, the pinion-shafts being rotated by a crank or other means, and the whole operating essentially as set forth.

194,957. MACHINES FOR SAWING STONE. H. Cottrell, Newark, N. J. [Filed Jan. 31, 1877.]

Brief.—The carrying-racks fit onto and within grooved rollers, and can be passed back and replaced in front of the saws, thereby making the carrying gear continuous, like an endless chain or apron.

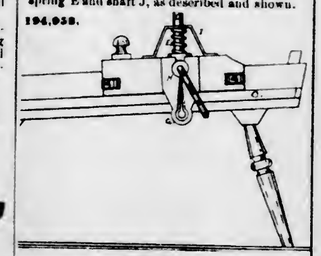


In combination with the vertical diamond-toothed saw, the continuous-feed mechanism, substantially as shown and set forth.

194,958. BUTTER-WORKERS. George W. Cunningham, Greene, N. Y. [Filed May 26 1877.]

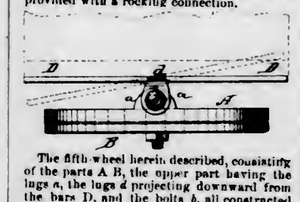
The combination of the spindle D, the cap I, and the slotted side iron H with the spiral spring E and shaft J, as described and shown.

194,958.



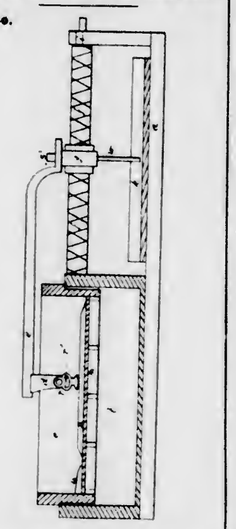
194,959. FIFTH-WHEELS FOR VEHICLES. Isaac Eaton and Henry M. Fortney, New Sharon, Iowa. [Filed June 9, 1877.]

Brief.—A fifth-wheel for platform-wagons provided with a rocking connection.



The fifth-wheel herein described, consisting of the parts A B, the upper part having the lugs *a*, the lugs *d* projecting downward from the bars D, and the bolts *b*, all constructed and arranged as and for the purpose set forth.

194,960.



194,960. MACHINES FOR CLEANING PAPER-PULP SCREENS. Wm. H. Elliot, New York, and Leonidas F. Clark, Ilion, N. Y. [Filed Apr. 10, 1877.]

Brief.—Removes from the prepared pulp knots, &c., that gather upon the screen-plates by means of a brush or rake having a reciprocating motion, operated by a double screw. The brush is provided with trips, whereby it is raised during its movements in one direction, but let down so that it will rest upon the

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screen-plates while moving in the other direction. The connecting rod *e* is provided with a sliding joint, whereby the movement of the brush may be brought to a rest for an instant at each end of the screen.

1. The screw *f* and nut *g*, in combination with connecting rod *e* and brush *d*, provided with trips *r*, substantially as and for the purpose specified.

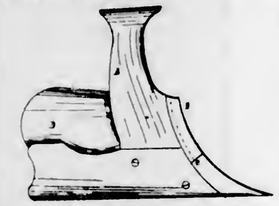
2. The trips *r*, in combination with a brush which has a traversing movement over paper-pulp screen-plates, substantially as and for the purpose set forth.

3. The plate *w*, in combination with screen *c* and brush *d*, substantially as and for the purpose specified.

4. The pin *w* and gnide *k*, in combination with a screw, *f*, nut *g*, connecting-rod *e*, brush *d*, and screen *c*, substantially as and for the purpose specified.

191,961. MOLD-BOARD PLOWS. Benjamin K. Emerson, Seville, Ohio. [Filed Aug. 6, 1877.]

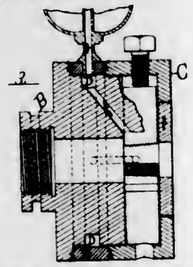
Brief.—The share and mold-board (about equally) form the cutting front of the plow, both of which extend some distance forward of the standard. The standard has a thin edge in front, and the mold-board hooks around it by a short angle. The standard is abruptly curved backward and upward above the top of the mold-board.



In plows, the mold-board D, having its dividing-edge extending forward of the standard B, in line with the edge of the point or share, and the inner side of the dividing-edge formed at an acute angle to fit the corresponding angle of the standard, for securing the two parts together, in combination with said standard, having its upper front edge, above the mold, curved or receding back, and its lower part embraced by the mold-board extending forward of said curve, substantially as and for the purpose set forth.

194,962. SCREW-CUTTING MACHINES. L. Field, Medina, N. Y. [Filed July 14, 1877.]

Brief.—The duct leading from the reservoir for the lubricant passes through a collar or band upon the chuck carrying the cutters, which chuck is provided with a channel, over which the collar fits, and with which apertures leading to the cutters communicate.



The ring or band E, the groove D, and holes *f f f*, in combination with the chuck B C and cutters *b*, substantially as shown and described.

194,963.

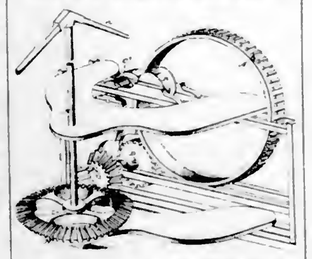


194,963. IRON FENCE-POSTS. F. C. Hall, Newton, Iowa. [Filed June 30, 1877.]

The rabbeted angle-pieces B B′, in combination with the post A, as and for the purpose set forth.

194,964. MECHANICAL MOVEMENTS. James P. Hammett, Drake's Creek, Ark., assignor of one-third of his right to Elias Harrell, same place. [Filed Apr. 10, 1874.]

Brief.—Power is applied to the sweeps, whereby the bevel-gear is rotated and the spur-wheel meshing with the cogs of the ring. The cogged ring imparts motion to another pinion and to the band-wheel on its shaft.



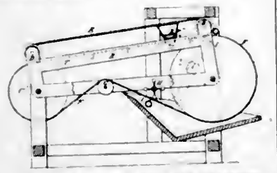
1. In a mechanical movement, the cogged ring A, in combination with the anti-friction wheel B, pinion C C′, and pinion D, substantially as set forth.

2. In a mechanical movement, the cogged ring A, provided with the tread *a*, having no axle, and supported during rotation from one side only, in combination with the pinion provided with the tread C, which supports one side of the cogged ring, substantially as set forth.

3. The combination of the cogged ring A, wheel B, pinion C C′, pinion D, bevel-wheels E H′, shaft H, and sweeps A *h*, substantially as set forth.

194,965. ORE-CONCENTRATORS. Thomas M. Healey and Charles W. Rogers, Washington, D. C. [Filed Aug. 31, 1877.]

Brief.—Ore is passed into the distributer, which is provided with false bottom and bottom slide, whereby the ore is held in contact with water before passing to the belt. It passes thence to the belt, meets a descending stream of water, which carries off the lighter portions, and the heavy material passes on against the stream. Residue is removed by beater and water-jet below.



1. In a machine for washing and concentrating ores, the combination of an endless traveling and laterally-shaking belt, F, guide-straps E, and beater H, acting upon the under half of belt F for the purpose of assisting in the dislodgment of the ore therefrom, oscillating ore-distributer Q, water-supply pipe or washer Z, sprinkler I, and guide-roller G, as and for the purposes described.

2. The oscillating ore-distributer Q, composed of apron X, false bottom R, and box Q, in combination with the endless traveling and laterally-shaking belt F, whereby the thorough wetting and partial settling of the ore are effected, substantially as described.

194,966. INKS FOR CANCELING STAMPS. J. B. Hover, Philadelphia, Pa., assignor to himself and Thomas Shaw. [Filed July 12, 1877.]

The incorporating of the chemical material composed of ordinary lamp-black, commercial hydrochloric acid, and linseed oil, as set forth, or their evident equivalents, for a canceling-ink that has for its object the destroying of the coloring matter or printed surface that composes the stamp, substantially as and for the purpose set forth.

194,967. WOOD-WORKERS' FLOATS. Chas. M. Hyer, Iowa Falls, Iowa. [Filed Feb. 2, 1877.]

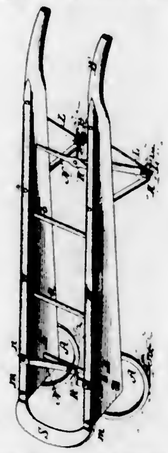
Brief.—The file is provided with two-faced cutters, diagonal across the face, gradually decreasing in size toward the end.



As a new article of manufacture, the wood-worker's float herein described, having single series of two-faced cutters, each cutter extending entirely across the face of the tool, and gradually decreasing in size toward the end, constructed and arranged substantially as and for the purpose set forth.

194,968. HAND-TRUCKS. C. H. Jackson, Harrisburg, Pa. [Filed Feb. 24, 1877.]

Brief.—The sides are of channel-iron, increasing in depth from the handles to the axles.



1. In a hand-truck, the thills made of sheet metal, and channeled, with flanges thereof increased in depth from the handles to the trundles, substantially as set forth.

2. A hand-truck provided with channeled thills, and having trundles between the flanges of the thills upon a fixed axle, substantially as set forth.

3. In a hand-truck, the combination of the channeled thills W W, trundles A A, fixed axle C, stays N N, nosing S, all connected rigidly by rivets or bolts R *m n*, substantially as set forth.

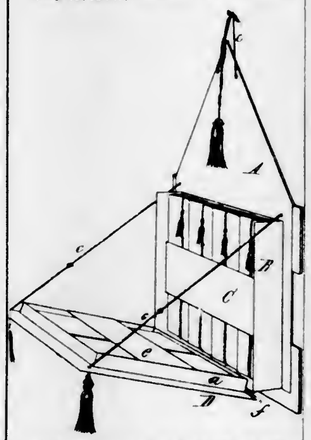
4. A hand-truck consisting of channeled thills W W, trussed legs L L, braces K K, cross-braces N′ *a b*, fixed axle C, braces N N, trundles A A, and nosing S, all these parts being arranged and combined substantially as set forth.

194,969. HAME-STAPLES. G. J. Letchworth, Buffalo, N. Y. [Filed Feb. 23, 1877.]



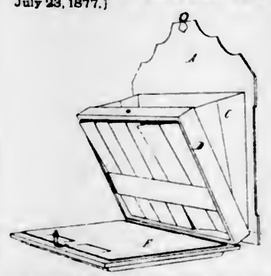
An improved article of manufacture, consisting of the hame-staple B, made of one piece of metal, and formed with an open eye, A, adapted to hold the ring C when closed, substantially as described.

194,970. WALL-POCKETS FOR STATIONERY. Elisha Morgan, Springfield, Mass. [Filed July 23, 1877.]



As a new article of manufacture, the combination of the board A and the box or pocket B, provided with its band C, the board D, hinged at *f*, the pocket *a*, provided with its band *c*, and the cords *e*, all substantially as and for the purpose herein set forth.

194,971. WALL-POCKETS FOR STATIONERY. Elisha Morgan, Springfield, Mass. [Filed July 23, 1877.]



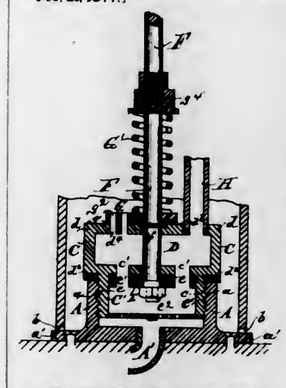
As a new article of manufacture, the combination of the box D, cover E, gussets C, and base A, the said box and base being hinged together, and forming a combined case for stationery and wall-pocket, all substantially as described.

194,972.

194,972. STAYS FOR THE SEAMS OF BOOTS AND SHOES. Andrew J. Mosher, Deering, Me. [Filed June 14, 1877.]

An improved stay for covering and staying the seams of boots and shoes, consisting of the outer stay-piece *a* and the inner central longitudinal strip *b*, combined substantially as shown, for the purposes set forth.

194,973. HYDRANT AND PLUG VALVES. T. Phillips, St. Louis, Mo., assignor of one-half his right to Edward Hudspith. [Filed Feb. 21, 1877.]



1. The valve E, having bearing edges and points *e′* to secure its packing.

2. The valve E, having water-passages *e′*, the packing *e*, the rod F, the cap or cover C, having the upper water-chamber D and lower part C′, the shell A, having inlet A′, all said parts being combined and operating to control the inlet of water to said chamber D, as and for the purpose set forth.

3. The cap or cover C, having screw-threads at *c*, water-passages *c²* *c′*, shoulder *c³*, body part at *d¹*, lugs *d*, and discharge-chamber D, as and for the purpose set forth.

4. The valve G, having edges *g*, as and for the purpose set forth.

5. The combination of the valve G, having edges *g*, passages *g²*, pins *g³*, the valve-packing *g¹*, the cap C, having waste *c⁴*, body part *d¹*, discharge-chamber D, the rod F, and discharge-pipe H, said parts operating in the manner and for the purpose set forth.

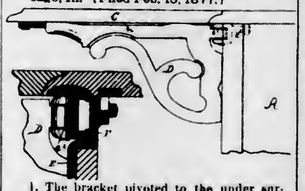
6. The spring G′, nut *g⁴*, in combination with valves G and E on the rod F, as and for the purpose set forth.

7. The boxing I, having mortises *i*, in combination with the lugs *d* of a cap or cover, C, as and for the purpose set forth.

8. The boxing I, having mortises *i*, the cap C, having lugs *d* and threads *c*, in combination with the shell A, as and for the purpose set forth.

9. The boxing I, its mortises *i*, the cap C, having chamber D, thread *c*, the upper valve G, discharge-pipe H, the lower valve E, and the operating-rod F, all said parts being combined to operate in the manner and for the purpose set forth.

194,974. TABLE-LEAF SUPPORTS. Mathias Rathknecht and Victor Rathknecht, Chicago, Ill. [Filed Feb. 15, 1877.]



1. The bracket pivoted to the under surface of the leaf, and to the table-body, and provided with a joint to permit it to fold with the leaf.

2. The combination of the bracket D, having the pivots *c c′* and joint *c²*, with the leaf C, the table A, and the shell E, and stop *m*.

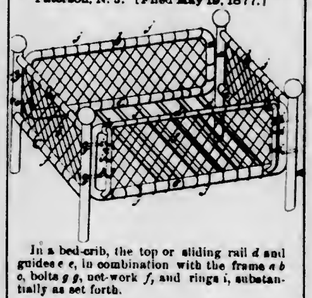
194,975. BALE-TIES. James L. Randolph, Martinsburg, W. Va. [Filed Aug. 17, 1877.]



1. The tie described, having the socket *b*, the box *b¹*, and the folding wings *b²*, as described.

2. The tie described, having the box *b¹*, the folding wings, and the socket formed by the material cut to form the space *x*, as described.

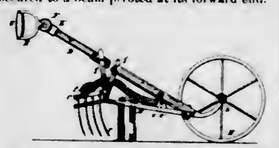
194,976. BED-CRIBS. Emanuel Rothmann, Paterson, N. J. [Filed May 19, 1877.]



In a bed-crib, the top or sliding rail *d* and guides *e e*, in combination with the frame *a b c*, bolts *g g*, net-work *f*, and rings *i*, substantially as set forth.

194,977. GARDEN WHEEL-HOES. Eugene Ruhlmann, Lockport, N. Y. [Filed Apr. 28, 1877.]

Brief.—The bed-plate is cast, and the forward end bifurcated to receive the wheel. The handles are radially adjustable, secured with corrugations and thumb-screw. The hoes or cutters are adjustable in transverse slots on the lower side of the bed-plate, one being set immediately behind the other, and cutting-edges inclined inwardly. The rake is rigidly secured to a beam pivoted at its forward end.



1. A combined wheel hoe and rake, consisting essentially of the bed-plate B, provided with channels and slots *d*, and with bearings for the wheel N and notches *r′* of the cutters A, adjustably secured within said channels, and the rake pivoted near the front end of said bed-plate, and having its curved teeth arranged to pass through said notches *r′*, the whole constructed and arranged substantially as and for the purpose specified.

2. The combination, with the bed-plate B, having the series of notches *r′ r′*, of the lever C′, pivoted to said bed-plate at *e*, and provided with curved teeth arranged obliquely in relation to the lever C′, as stated.

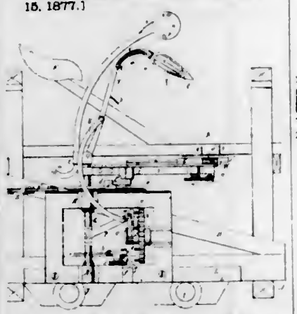
3. A platform for a combined cultivator and weeder, consisting essentially of a plate whose forward part is bifurcated, and each fork provided with an eye whose middle part has two transverse slot-holes, *d*, terminating in channels on the under side of said plate, and whose rear end is downwardly deflected, and has a series of excisions, *r′*, along its oblique edge, all substantially as described, the whole produced entire in the process of casting, as and for the purpose specified.

4. In a hand-cultivator, the combination, with the vertically-adjustable poles D D′, of the radially adjustable handles E, said handles being composed of the bails connected by the rods G, and provided with the circular disk F, having radial corrugations, as described, and adjustably secured to plates E′ fixed to the extremities of said poles, and provided with radial corrugations corresponding to those of the disk F, the whole being constructed and arranged to adapt the position of the handles to the wrists of the operator

without changing the position of the poles, substantially as and for the use and purpose stated.

5. A combined wheel hoe and rake, consisting essentially of the bifurcated bed-plate B, mounted upon the wheel N between the fork, the hoes A secured to the plate B, with capability of lateral adjustment, the rake pivoted to the forward end of the plate B, and having its curved teeth *r* passing through the excisions *r'*, the vertically-adjustable poles D D', and the radially adjustable handles E, the whole constructed and arranged substantially as and for the purpose specified.

194,978. GRAIN-BINDERS. John F. Steward, Plano, assignor to Elijah H. Gammon and Wm. Deering, Chicago, Ill. [Filed Mar. 15, 1877.]



1. The wheel N, provided with the pins *c*, in combination with the crank O, pivoted pawl *a*, spring *d*, cam *i*, spring *j*, and rod *k*, all constructed and arranged substantially as and for the purposes specified.

2. The diagonal brace-bar H and supporting rod or bar *b'*, in combination with the plate *a'*, having a socket and frame, M, for retaining the frame M in position at the top, and permitting its fore-and-aft adjustment, substantially as described.

3. The twisting-hook *n*, having its shaft set at an angle to throw the point of the hook forward, in combination with a reciprocating needle-arm, having a side opening, substantially as and for the purpose specified.

4. The reciprocating binding-arm T, provided with an opening near its point, and incline *r* at the side of said opening, in combination with the roller *s*, for forcing the point of the needle near the twister, substantially as and for the purpose specified.

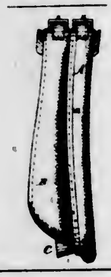
5. The roller *z*, located between the twister-staff on path of the needle-arm, in combination with the twister and needle arm, to maintain the binding-wire in proper position relating to the twister while rotating, substantially as described.

6. The reciprocating needle-arm T, provided with a pin, *k'*, in combination with suitable mechanism to give the needle-arm a lateral movement for engaging with the heads of the grain and moving them forward, substantially as specified.

7. The inclined guards *y*, located upon the twister carrier, in combination with the reciprocating needle-arm for keeping the throat clear, substantially as described.

8. The movable bar *h'*, in combination with the arms *c'* and *d'*, and swinging arm V and stops *c'* and *d'*, for operating the shear-blade and severing the wire, substantially as described.

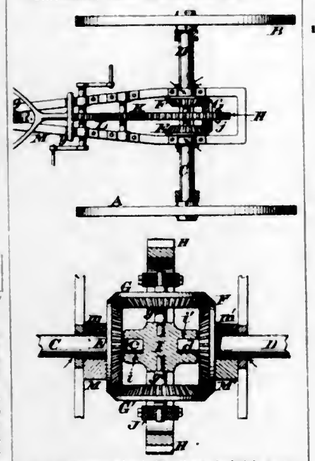
194,979.



194,979. HORSE-COLLARS. Marshall Turley, Council Bluffs, Iowa. [Filed Jan. 18, 1877.]

The combination, in a horse-collar, of the flexible tubular rim A, stuffed by means of a rope foundation extending the entire length of the rim, and made beveled or tapering at its upper ends, the pads B B attached flexibly to the said rim and not meeting each other at their lower ends, and the flexible apron C, arranged between the lower ends of the said pads, and attached thereto and to the flexible rim, substantially as and for the purposes specified.

194,980. VELOCIPEDS. Edwd. Whitehead, Cincinnati, Ohio. [Filed Aug. 9, 1877.]

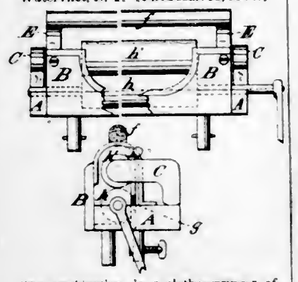


1. A master-wheel, H, whose hub I is provided with sockets *i i'*, within which sockets are journaled the driving axles C c D *d*, whose bevel wheels E F are operated by a bevel-gear, G, applied to said master-wheel, substantially as herein described.

2. An improved velocipede, consisting of driving-wheels A B, axles C c D *d*, bevel-wheels E F, and one or more bevel-gears, G, which bevel gears are applied to the master-wheel H I *i i'*, substantially as herein described.

3. In combination with master-wheel H I *i i'*, having the bevel-gear G applied thereto, the wheels K L and foot-pedals *l l'*, substantially as herein described.

194,981. CLOTHES-WRINGERS. J. Young, Amsterdam, assignor to Clinton M. Ball, Watervliet, N. Y. [Filed Mar. 13, 1877.]



The combination, in a clothes-wringer, of the solid bed-piece A, having an inclined recess, *g*, with the feed-board B, adjustable frames C C, elastic rollers *k k'*, braces E E, and top cross-bar *f*, all arranged and operating as set forth.

194,982. WATER-CLOSETS. John R. Adams, Oakland, Cal. [Filed July 19, 1877.]

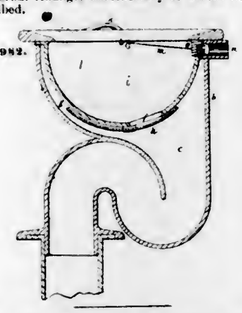
1. The combination of the outer chamber *b* and bowl *a* of a water-closet, set concentrically with each other, and having a space between them and the pan A, arranged to swing into this space to discharge itself, substantially as herein described.

2. The pan A of a water-closet, suspended by arms *i* from axes *j*, said axes being nearly, or quite, the center of formation of the outer chamber and bowl, and the operating-lever *k*, substantially as herein described.

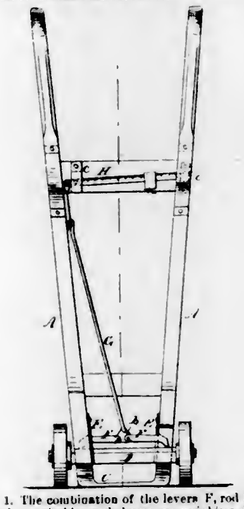
3. In combination with the pan *h*, suspended as shown, and the operating-lever *k*, the arm *l*, valve-rod *m*, to operate a valve in the pipe *n* and admit water, substantially as herein described.

4. The conveyer *o*, with its projecting tube *p* fitting the water-pipe *n*, as shown, said conveyer lying within the bowl, so as to prevent external leakage, substantially as herein described.

194,982.



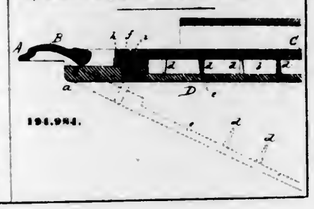
194,983. WEIGHING ATTACHMENTS FOR HAND-TRUCKS. Daniel A. Beam, Newark, N. J. [Filed July 13, 1877.]



1. The combination of the levers F, rod G, and a suitable scale-beam or weighing device, with a truck-body having slotted side pieces, and an axle, D, seated therein, as and for the purpose set forth.

2. The levers F, rod G, and scale-beam H, in combination with a truck having the slotted side pieces A, slotted plates E, and axle D, substantially as shown and described.

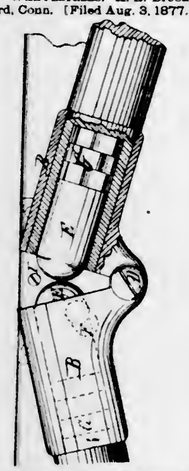
194,984.



194,984. HARNESS-BUCKLES. Edwin M. Bradley, Cheshire, Conn. [Filed June 12, 1877.]

In combination with the buckle-frame A and the plate C, as a part thereof, the plate D hinged to the frame, the inner or corresponding surfaces of the two plates provided with prongs *d*, and with means, substantially such as described, for securing the plates together upon the tug, all substantially as specified.

194,985. WHIFFLETREES. A. E. Brockett, Branford, Conn. [Filed Aug. 3, 1877.]



1. The yielding whiffletree composed of the two sections A A, the hinged ferrules B B, the bolts or pins E E, the springs G G, and bolt D, when arranged and operated substantially as and for the purpose herein set forth.

2. The yielding whiffletree composed of the sections A A, the hinged ferrules B B, the bolts or pins E E, the springs G G, and bolt D, in combination with the metal piece or casing J, substantially as shown and described.

194,986. MOTH-PROOF PAPER FROM CEDAR WOOD. Charles D. Brown, Portland, Me. [Filed Oct. 28, 1876.]

The new article of manufacture—that is to say, cedar paper, or paper made from cedar wood, as and for the purposes set forth.

194,987. BRICK-KILNS. William H. Brush, Buffalo, N. Y. [Filed July 6, 1877.]

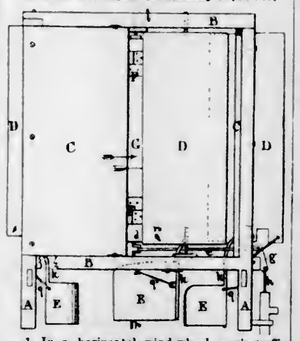


1. The combination, with the arch of a brick-kiln, of the grates C C, arranged within the arch near the ends thereof, and an intermediate fuel-space C' arranged below the plane of the grates C C, and made accessible from the outside by the means described, so that the combustion of the fuel in the space C' can be regulated either by means of air-currents admitted to the fires upon the grates C C or independent of the grate-fires, substantially as set forth.

2. In a brick-kiln, the combination, with the grates C C and intermediate fuel-space C' arranged below the plane of the grates C C, of the hinged aprons E, arranged under the rear portion of the grates, substantially as and for the purpose hereinbefore set forth.

3. In a brick-kiln, the combination, with the grates C C and intermediate fuel space C', of the hinged aprons E and the fire doors G, provided with openings *g* and slotted deflecting-plates H, substantially as and for the purpose hereinbefore set forth.

194,988. HORIZONTAL WIND-WHEELS. R. W. Burt, Peoria, Ill. [Filed July 25, 1877.]



1. In a horizontal wind-wheel, a shut-off valve, pivoted above and below to the frame or inclosing-case, said valve having an operating-vane projecting from it inward toward the wheel, to close said valve automatically when the wind is too high, substantially as described.

2. The combination, with the vertical fixed screens or casing, of a horizontal wind-wheel of several valves or vertical doors, pivoted at their top and bottom, in the wind-passages, each having a vane projecting toward the center of the machine, and held against the lighter winds by elastic tension devices extended between said vanes and the frame or casing of the machine, substantially as and for the purposes described.

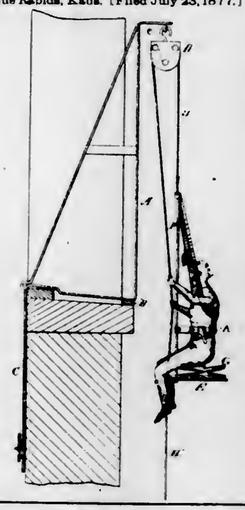
3. The combination, with the fixed screens C, of the respective pivoted valves D and vanes E, having tension devices *g* or springs, or other temporary stays, attached to a fixed point, substantially as and for the purposes described.

4. The fixed screens C, in combination with the frame A B and valves D, vanes E, and tension devices *g*, substantially as and for purposes described.

5. The vanes E placed within the casing of the machine, (*i. e.*, within the circle of the frame, screens, and valves,) in combination with their respective valves D, operated by the wind and the tension devices *g*, respectively, substantially as described.

6. The combination of screens C, valves D having vanes E and tension devices *g*, frame A B, and wheel G F *f*, substantially as and for purposes described.

194,989. FIRE-ESCAPES. H. W. Chapman, Blue Rapids, Kans. [Filed July 23, 1877.]



1. The combination of the hinged triangular frame A, attaching-bar C, and cross-bar B with a suspension-rope and seat, as and for the purpose set forth.

2. The seat E, having an eye, *d*, and supported by a rod, F, in combination with the rope H and pulley-block D, substantially as shown and described.

3. The bag G, in combination with the seat E, substantially as and for the purpose shown and described.

194,990. DETERGENT COMPOUNDS. George P. Cole, Johnstown, N. Y., assignor of one-half his right to Eliab W. Capron. [Filed Aug. 6, 1877.]

A cleansing compound composed of spirits of ammonia, sal-soda, borax, bisulphide of carbon, quicklime, tallow, chloroform, and water, in or about the proportions specified.

194,991. TRACES FOR HARNESS. Frederick M. Collier and Chauncey Thomas, Boston, Mass. [Filed Jan. 13, 1877.]



1. A harness-trace composed of a wire cable, provided with suitable separate attaching devices, all substantially as shown and set forth.

2. The socket-casting *a*, in combination with the cable *e* and shield-strap *h*, substantially as described.

3. The combination of the plug *c* with the cable *e* and casting *a*, substantially as and for the purpose described.

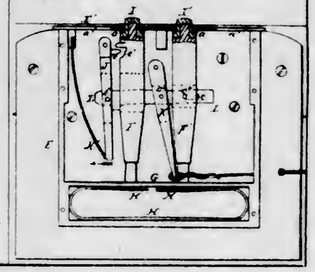
4. The combination of the cable *e* with the holders or guides *a*, *j*, and *l l*, and strap *h*, substantially as and for the purpose specified.

5. The combination of the cable *e* with the casting *a* and hook *p*, substantially as and for the purpose described.

6. The double bearing or guide *l l* and its bars *k k* and *m*, in combination with the cable *e* and strap *h*, substantially as and for the purpose above described.

194,992. RAILROAD SIGNALS. H. C. Crosby, Chicago, Ill. [Filed Dec. 4, 1874.]

Brief.—A system of movable posts and levers are arranged on the track, and are operated by the wheels of a passing train to work a signal in advance.



1. In a railway-signal, the combination, with the water-tight case E, of the movable shouldered posts F F', caps I I', and the packing-rings a a' interposed between the shoulder on the caps and lower surface of the cover V of the case, substantially as and for the purpose specified.

2. In combination, the vertically yielding posts F and F', the pivoted and yielding lever J, the pivoted arm K, and the hook or connecting-rod L, all arranged and operating together, substantially as and for the purpose specified.

3. The removable flanged caps I and I', mounted on the yielding posts F and F' and passing freely through the lid E', substantially as and for the purpose specified.

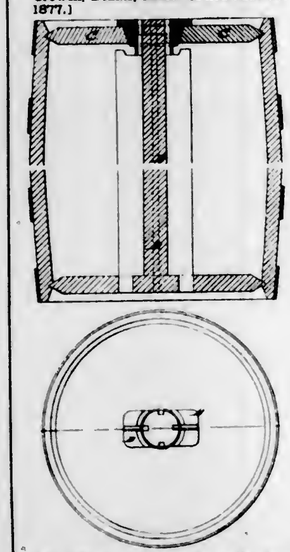
4. In a railway-signal, the combination, with the yielding post F provided with the notch d', of the yielding lever J provided with the arm s, adjusted to enter the notch in the post, substantially as and for the purpose specified.

194,993. BELTING. H. A. Crossley, Cleveland, Ohio. [Filed Dec. 9, 1876.]



As an improved article of manufacture, flat belting having longitudinal strands of wire cable attached to its exterior surface by wire staples or other suitable fastenings, substantially as described.

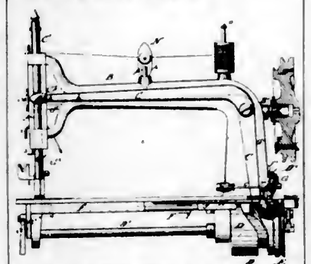
194,994. VENTILATING-BARRELS FOR SHIPPING FRUITS, VEGETABLES, &c. William Orowell, Dennis, Mass. [Filed June 26, 1877.]



In a ventilating-barrel, a center piece having air-admitting grooves, communicating through the heads with the outer air by means of a threaded metallic sleeve inclosing the the end of the ventilating-post, slotted within the sleeve to admit air, said sleeve being adapted to engage with a sectional removable head and a flanged conical screw-nut, substantially as set forth.

194,995. SEWING-MACHINES. William G. Cummins, Cookeville, Tenn. [Filed Feb. 10, 1877.]

Brief.—The cam, fixed to the driving-shaft below the table, is connected with the belt-pulley by means of a pin, the connection being maintained except when the bobbin-winder is pressed against the driving pulley. This throws the driving-shaft out of gear with the stitch-forming mechanism, and, by means of the peculiar construction of the bobbin-winder, raises the presser-foot from the work.



1. As an improvement in sewing-machines, the combination of the bobbin-winding arrangement G, having brake-plate, with the clutch-pin and its spring, of cam D of driving-shaft, and loose pulley E, for interrupting motion of feed and needle without stopping motion of treadle, substantially as and for the purpose set forth.

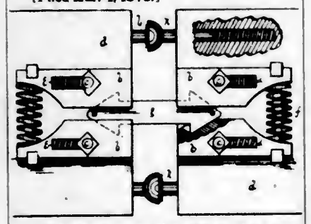
2. The combination of fulcrumed bobbin-winder G, having friction-roller at rear end, with fulcrumed elbow-lever G^1, and presser-bar G^2, to raise presser-foot from work, as described.

3. The combination of bobbin-winder G, with clutch-connected ram and pulley of driving-shaft, and with elbow-lever and presser-bar, to interrupt simultaneously action of feed, needle, and presser-foot without stopping motion of treadle, substantially as and for the purpose described.

4. The combination of the bobbin-winder, having finger-rest or board e, with the elevator and clasp-spring H, to keep bobbin-winder in raised or depressed position, as required, in the manner specified.

5. The combination, with needle-bar C', and presser-bar G^2, having screw-pin f^3, of the intermediate guide-bar I, as and for the purpose described.

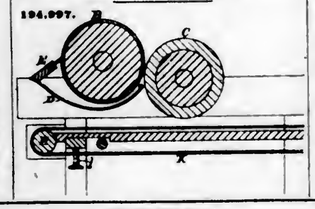
194,996. CAR-COUPLINGS. Wm. A. Cummings, Hartford, Conn., assignor of one-half his right to F. A. Hart, same place. [Filed Mar. 4, 1876.]



1. In combination, pivoted jaws b b, provided with mortises 4, pins c, and springs e, all substantially as described.

2. The links g, having arrow-heads at each end, and provided with slots m and pin-holes n, all substantially as described.

194,997.

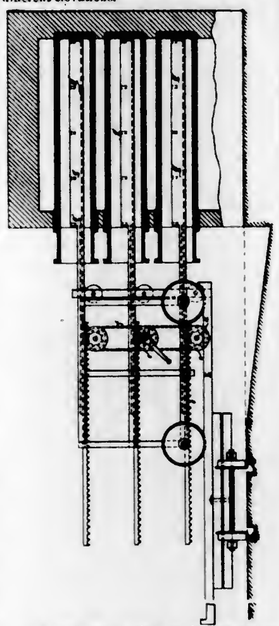


194,997. GRAINING-MACHINES. W. O. Day, San Francisco, Cal. [Filed June 18, 1877.]

A graining-machine consisting of the engraved graining-roller B, paint-tray D, flexible scraper E, composition impression-roller C, and the endless belt K, one or both ends of which are adjustable vertically, said parts being combined and arranged as described, and operated by crank O and gears p q r s, substantially as above specified.

194,998. MACHINERY FOR CHARGING GAS-RETORTS. Chas. F. Dieterich, Baltimore, Md. [Filed Nov. 6, 1876.]

Brief.—The charging-scoops are adjusted beneath the coal trough of the coal-carriage, and are there filled with coal by inverting the troughs. The scoops are then projected into the retorts, and the coal deposited therein by the withdrawal of their sliding bottoms, the coal being retained by cross-bars in the scoops. A turn-table on the truck of the charging-scoops permits their being turned for adjustment with the coal-trough or with the retorts. The scoops are vertically adjustable in their frame, so that they may be run into retorts at different elevations.



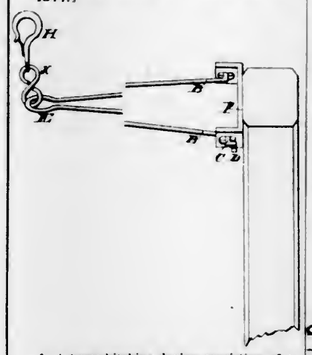
1. A coal-transporting car having one or more series of invertible troughs placed one above the other, each trough having capacity for a charge for a single retort, and being constructed to empty its contents into a retort-charger when placed thereunder, substantially as specified.

2. A coal-transporting car having one or more series of invertible troughs placed one above the other, each trough having capacity for a charge for a single retort, combined with a gas-retort-charging machine, consisting of a wheeled frame having one or more series of overhanging scoops placed one above the other, each scoop being provided with a sliding bottom, substantially as and for the purposes herein specified.

3. A coal-transporting car having one or more series of invertible troughs placed one above the other, and provided with mechanism whereby the whole number of troughs in either or all the series may be simultaneously inverted, substantially as and for the purposes set forth.

4. A wheeled gas-retort-charging machine having one or more series of overhanging scoops, constructed and operating substantially as described, combined with a turn-table pivoted to a car and provided with a truck, substantially as and for the purposes specified.

194,999. HORSE-HITCHING DEVICES. Chas. Frank, Harrisburg, Pa. [Filed Feb. 15, 1877.]



1. A horse-hitching device consisting of a folding rigid arm, E B B, to hitch an animal a proper distance from a tree or sidewalk, post, or other object, for the purposes set forth.

2. The vertically-hinged arm E B B, provided with one or more links H K, and bent ends G, in combination with a hinged or pivoted base-plate, P, provided with slots F and stops D, substantially as set forth.

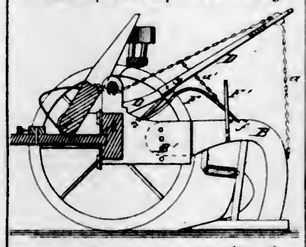
195,000. PADLOCKS. John Gerard, Trenton, N. J., assignor to Trenton Lock and Hardware Company, same place. [Filed July 27, 1877.]



The herein-described improvement in padlocks, consisting of the shell divided through the shoulder, one arm jointed at the shoulder and in said division, the said arm forming the shackle, and terminating at the hand in hook shape, combined with a hinged tongue of corresponding hook shape, to engage the hand when forced into the mouth, and means, substantially as described, for disengaging the tongue, the whole representing a body and head, with the hand in the mouth, and substantially as described.

195,001. SULKY AND GANG PLOWS. John H. Goodwin and David Woodard, Lamar Station, Mo. [Filed Feb. 3, 1877.]

Brief.—Spring to hold down the plow-beams connected, by a branch, to the main lifting-chains, so that the lever will release the springs and lift the plows. Pulley-frame jointed, to be turned up when the plows are lifted high.

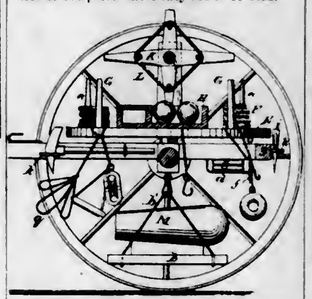


1. As an improvement in gang-plows, the combination of the pivoted plow-beams B and hinged beam-braces F with the connecting-chains, pulley-frame, and adjusting crank-lever mechanism, substantially as and for the purpose set forth.

2. The combination of the pivoted plow-beams B and hinged braces F with the connecting-chains a a', jointed pulley-frame D, and crank-lever mechanism to raise plows into upright position with pulley-frame after work, substantially as set forth.

195,002. LIFE-SAVING APPARATUS. Walter S. Green, Long Branch, N. J. [Filed July 23, 1877.]

Brief.—A series of wrecking and life-saving devices are mounted, in compact and convenient shape, upon a cart, by which they are carried to the place where they are to be used.



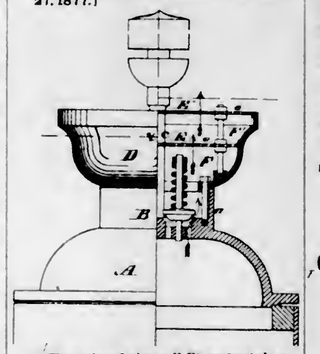
1. The combination of a horizontal wheel, E, provided with stakes s G and ammunition-box H, with the cart A, substantially as shown and described.

2. The reel K, having a shaft with projecting ends mounted upon the wheel E, as and for the purpose herein set forth.

3. The slings b', in combination with the mortar M, substantially as shown and described.

4. The combination, in life-saving apparatus, of the cart A, wheel G, reel K, and ammunition-box H, substantially as shown and described.

195,003. DEVICES FOR PREVENTING THE NOISE OF ESCAPING STEAM. H. Guele, St. Louis, Mo., assignor of one-half his right to W. E. Pollack, same place. [Filed June 27, 1877.]



1. The series of plates E E', perforated as described, and arranged above the valve B, as and for the purpose set forth.

2. In a device for preventing the noise of escaping steam, a series of plates, E E', perforated as described, the outer plates having finer and more perforations than the inner plates, substantially as described.

3. In a device for preventing the noise of escaping steam, one or more plates, E E', perforated as described, the outer plate being directly exposed to the atmosphere, and having no barrier between the plates or between the inner plate and the valve, substantially as described.

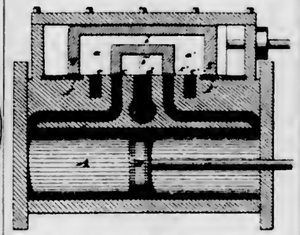
4. The combination of the dome A, valve B, whistle stem c, bowl D, and diaphragm E', substantially as described.

195,004. BRACELETS. Julius Hackenberg, New York, assignor to himself and Chas. H. Graef, Edgewater, N. Y. [Filed Apr. 30, 1877.]



A bracelet having the parallel rings B raised distinctively above the cross-stays C C, substantially as and for the purpose specified.

195,005. BALANCED SLIDE-VALVES. Richd. Hammond, Franklin, Pa. [Filed Aug. 16, 1877.]



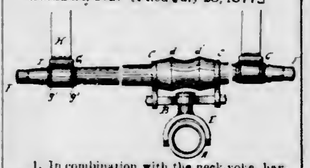
1. A valve provided with a live-steam chamber equal in area to the lower surface of the back of the valve, and an intermediate exhaust-chamber, said valve adapted to have free vertical movement in the valve-chest, in combination with the valve-seat provided with an intermediate exhaust-port, and two steam-ports located on opposite sides of said exhaust-port, one set of said steam-ports leading to the ends of the cylinder, while the other set of ports are at all times in direct communication with the steam-inlet and opposite steam-passages of the valve, substantially as described.

2. The combination, with a valve formed with live-steam passage a b a' and exhaust-steam passage b', of the steam-ports c c' e e' f f' and exhaust-port d, substantially as set forth.

3. A valve provided with a live-steam chamber equal in area to the lower surface of the back of the valve and an intermediate exhaust-chamber, said valve adapted to have free vertical movement in the valve-chest, in combination with the steam-chest provided with an auxiliary steam-chamber, and steam-ports leading therefrom, and directly connecting said auxiliary with the steam-chamber of the valve, substantially as described.

4. A balanced valve, constructed substantially as set forth, whereby the live steam has free entrance to the interior of the valve at all times, and is admitted intermittingly to the back of the valve, substantially as set forth.

195,006. NECK-YOKES. Frank Hannig, Lockhart, Tex. [Filed July 23, 1877.]



1. In combination with the neck-yoke, having the central enlargement d', the rings C C having perforated ears, the pivoted bar B, the swiveled half-ring E, and the pivoted ring A, all as shown and described.

2. The improved tip for neck-yokes, consisting of the combination of the ferrule F, having flange f', loop G with rings g', and ring I, substantially as described, and for the purpose set forth.

195,007. PACKING FOR COMBINING-TUBES OF INJECTORS FOR STEAM-BOILERS. Jas. B. Harkins, Altoona, Pa. [Filed July 23, 1877.]

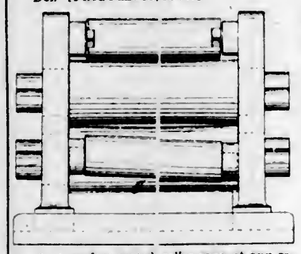
A combining-tube for boiler-injectors, provided with a rabbet to receive packing rings and a follower, said rabbet being in combi-

nication with the passing stream of water through suitable openings extending to the inner surface of the tube, whereby the packing is expanded by the pressure of the water, as specified.

195,007.



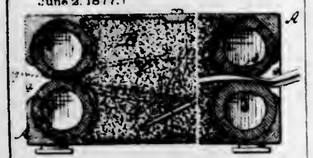
195,008. ROLLER-GAGES FOR ROLLING-MILLS. Edmund A. Harvey, Wilmington, Del. [Filed June 15, 1877.]



1. A surface-coated roller-gage of any required form, mounted in suitable bearings, and adapted to be brought in contact with one or both rolls of a rolling-mill, substantially as and for the purpose set forth.

2. A surface-coated roller-gage constructed in the form of a true cylinder, and mounted in adjustable bearings, and adapted to be brought at an angle with the axes of the rolls of a rolling-mill, substantially as and for the purpose set forth.

195,009. KNIFE AND FORK SCOURERS. P. A. Hofmann, Philadelphia, Pa. [Filed June 2, 1877.]



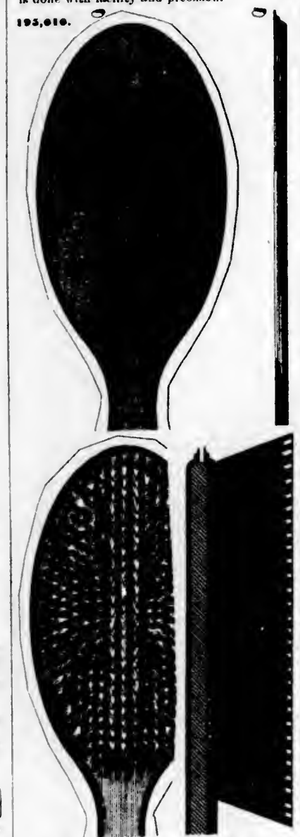
1. The combination, with the box A and its open ends, of the tubular gum pieces *b*, confined in recesses within the box, substantially as described.

2. The combination, with the box A and the two sets of gum pieces *b*, of the guides *c*.

195,010. MANUFACTURE OF BRUSHES. I. S. Hyatt, Newark, N. J. [Filed Feb. 7, 1877.]

Brief.—The brush is made of two half shells having a wooden core. The bristles are tufted in a double block, and ironed down to hold them in place. The dies and block are of peculiar construction, and the process of tufting is done with facility and precision.

195,010.



1. As a new article of manufacture, the half-shell of plastic material for brushes, substantially as hereinbefore described, and shown in Figs. 1 and 2 of the accompanying drawings.

2. As a new article of manufacture, the perforated half-shell of plastic material for brushes, substantially as hereinbefore described, and shown in Fig. 3 of the accompanying drawings.

3. A tufting-block composed of horizontal sections, with holes extending through the sections and chamfered at the middle part of the block, substantially as described, and as shown in Figs. 4, 5, and 6 of the accompanying drawings, for the purposes set forth.

4. The combination of the perforated half-shell and the sectional tufting-block, substantially as and for the purposes described.

5. The process, substantially as herein described, of tufting the bristles into a perforated half-shell, and into a tufting-block divided into horizontal sections, as shown in Figs. 7, 8, 9, and 10 of the accompanying drawings.

6. The method, substantially as herein described, of securing the inner ends of the tufted bristles by ironing or matting them down upon the inside of the half-shell, as shown in Fig. 11 of the accompanying drawings.

7. The combination, with a wooden core, of an inside sheet of plastic material, substantially as and for the purposes described, and as shown in Fig. 12 of the accompanying drawings.

8. The combination of the perforated half-shell, the matted ends of the bristles, the wooden core, and the inside sheet interposed between the bristles and the core, for the purposes described, and substantially as shown in Figs. 13 and 14 of the accompanying drawings.

9. The combination of a tufting-block, tufts of bristles with matted inner ends, a perforated, half-shell, a wooden core, an interposed sheet of plastic material between the bristles and the core, and a half-shell for the back of the brush, substantially as and for the purposes described, and as shown in Fig. 14 of the accompanying drawings.

10. The process of forming a half-shell, perforating the shell, tufting the bristles in the shell and in the tufting-block, matting the inner ends of the bristles upon the inside of the shell, interposing an inside sheet of plastic material, superimposing a wooden core, covering the wooden core with a half-shell of plastic material, and uniting these parts under heat and pressure, substantially as and for the purposes described.

11. As a new article of manufacture, a brush the body of which is composed of a plastic material inclosing a wooden core, the bristles being supported and secured entirely in plastic material, and plastic material being interposed between the bristles and the wooden core, substantially as and for the purposes described, and as shown in Fig. 17 of the accompanying drawings.

12. The process, substantially as herein described, of molding the half-shells, tufting the bristles in the perforated shell, and uniting the two half-shells in a die under heat and pressure.

13. The combination, in a die, of a top plate, a bottom plate, and a transversely-divided die-block, all of these parts being separable, substantially as and for the purposes described, and as shown in Figs. 14, 15, and 16 of the accompanying drawings.

14. The combination of a transversely-divided die-block and a sectional tufting block, substantially as and for the purposes described.

195,011. TOYS. George H. Ireland, Springfield, Mass. [Filed Dec. 18, 1876.]

Brief.—The toy warehouse has boxes, bales, a hoisting apparatus for the different stories, and other tools employed in merchandising.

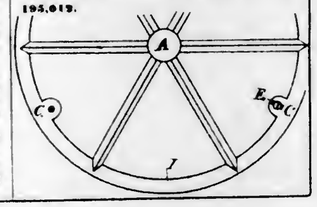
1. A toy warehouse having the windlass K with its operating mechanism, as shown, in combination with the rods J J and elevator-carriage G, substantially as shown and described.

2. In a toy warehouse, the combination, with the windlass K, of the adjustable beam L, substantially as shown and described.

3. A toy warehouse having the removable platform Z^2, in combination with the window F, substantially as shown and described.

4. A toy warehouse consisting of base A, ends B, side C, top D, one or more partition-floors W, partition E, bales R, boxes T, barrels Q, bags S, safe M, stool N, desk O, truck P, box-opener *p*, scraper *r*, mallet *s*, tongs *y*, windlass K, rods J J, elevator-carriage G, beam L, platform Z^2, all constructed and arranged substantially as described and set forth.

195,012.

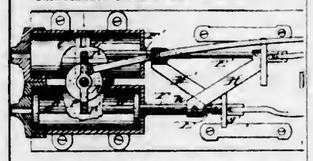


195,012. WOODEN COVERS FOR VESSELS. Ceylon Iebell and Elhanan C. Taylor, Little York, N. Y. [Filed July 19, 1877.]

Brief.—The metal frame is so constructed that any weight applied on the hub A bears equally on the rim I, and the slot E crosses the grain of the wood.

The herein-described metallic frame-work composed of the rim I, hub A, spokes, as shown and described, ears C, C, and C, one or more of them having slot E, attached to an ordinary wooden cover for vessels, substantially in the manner and for the purpose herein described, shown, and specified.

195,013. RECIPROCATING ENGINES. Daniel H. Isominger, Bloomington, Ill., assignor of one-half his right to Matthew Faloon, same place. [Filed Feb. 26, 1877.]



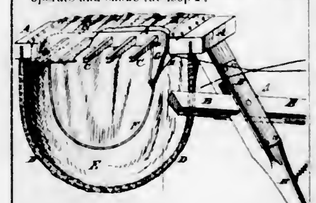
1. The combination of two cylinders, each provided with two pistons, and a valve arranged to alternately admit or introduce steam between the pistons in each cylinder, substantially as and for the purpose specified.

2. The combination of the pistons C C' D D', piston-rods E E', tubular piston-rods F F', and cross-arms H and H', all arranged as herein shown and described, whereby the pistons in one cylinder are moved in an opposite direction from the pistons in the other cylinder, substantially as specified.

3. The combination of the steam-chest provided with the steam-ports I I', induction-port K, and exhaust-port L, and valve M, having communicating openings *n n'* and *o o'*, whereby the steam is alternately admitted and exhausted from the cylinders, substantially as herein shown and described, and for the purpose specified.

195,014. POTATO-BUG DESTROYERS. Jacob Jacobsen, Swan Lake, Dak. [Filed Apr. 9, 1877.]

Brief.—A device designed to catch potato-bugs by pressing the vine between the teeth C and the bag E, and pulling the cord H to operate and shake the loop F.



The handles B, heads A, having fingers C, the fixed hoops D, bags E, and movable loops F, in combination, substantially as shown and described.

195,015.

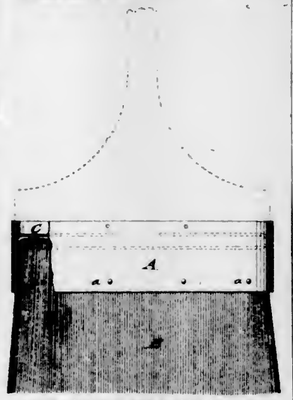


195,015. FOUNTAIN-BRUSHES. Harry M. Jenkins, Baltimore, Md. [Filed Sept. 3 1877.]

Brief.—The socket that holds the bristles is connected to the tube, and each has an abutment. The cork, as it is pressed into the can, makes tight joints between the parts.

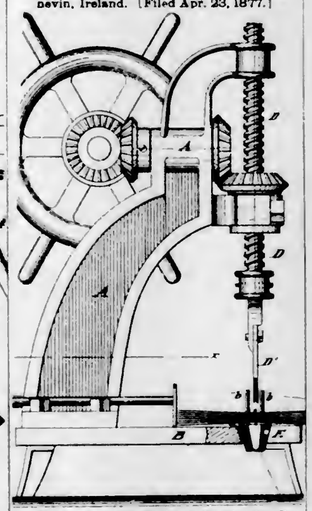
The stopper E, in conical shape, the tube C, provided with two abutments, one at each end of the stopper, and the cup D, with its bristles, in combination with the cam A, provided with tapering mouth, as and for the purpose set forth.

195,016. BRUSHES. Thos. Jesson, Galway, and Thomas Duggan, Glasnevin, Ireland. [Filed Apr. 23, 1877.]



The combination, with doubled brush material B, of the band A, rivets *a*, and wire C, arranged and applied as and for the purpose specified.

195,017. BRUSH-MAKING MACHINES. Thos. Jesson, Galway, and Thos. Duggan, Glasnevin, Ireland. [Filed Apr. 23, 1877.]



The combination of the socketed table B, the plunger D', and the box E, the latter having rolls *a* and pins *b*, as and for the purpose specified.

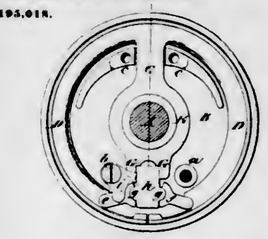
195,018. CLUTCHES FOR STOPPING AND STARTING MACHINERY. Moses C. Johnson, Hartford, Conn., assignor to W. Parker, New York, N. Y. [Filed July 13, 1877.]

1. The combination, with pulley, of the disk B, having lugs *c*, and the split ring D having arm C as well as ring E, as and for the purpose described.

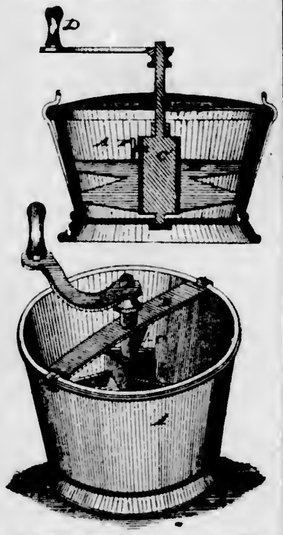
2. The combination, with split ring D having end recesses, and the follower A having projections *g*, of toggles jointing with said recesses and projections, for the purpose set forth.

3. The combination of disk B having studs *a*, the guides G, the toggles, and the clamp-plate *i*, for the purpose specified.

195,018.



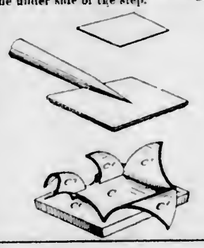
195,019. DOUGH-MIXERS. E. W. Jones, Cleveland, Ohio. [Filed June 28, 1877.]



In a cake-stirrer, the combination, with the actuating shaft constructed with an enlarged angular portion, of an angular sleeve having diagonal blades rigidly secured throughout their entire width to its broad flat sides, substantially as described.

195,020. CARRIAGE-STEPS. Geo. A. Keene, Lynn, Mass. [Filed Apr. 27, 1877.]

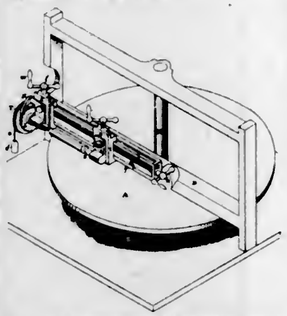
Brief.—A rubber pad having skirts attached to the under side of the step.



A rubber pad or tread for application to a carriage-step, provided with depending skirts *c'*, arranged to be fastened to the under side of the step or of the block under the step, substantially as and for the purpose set forth.

195,021. STONE-LATHES. Frank Kesseler, San Francisco, Cal. [Filed Jan. 27, 1877.]

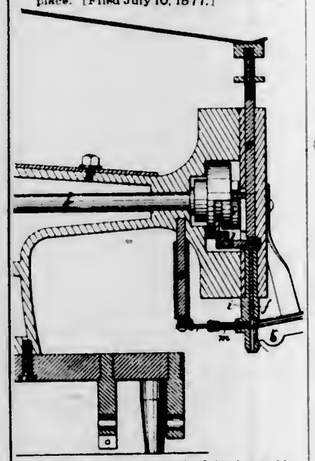
Brief.—Grinds to a true circle or an arc of a circle by pressing the article (so as to turn it on its axis while held between lathe-centers) against a rotating grinder.



1. The combination of a horizontally rotary bed or wheel, A, with a lathe attachment, which is adapted to hold the stone against the bed and rotate the stone as its surface is ground away, substantially as above set forth.

2. The horizontally rotary bed or wheel A, having the beam or timber D passing across its upper surface, in combination with the lathe-frame E, provided with the head-stock J, with its vertically sliding plate K, square center *w*, shaft *y*, ratchet L, pawl F, and suspended weight, and having the tail-stock I, with its vertically adjustable sliding plate *z*, and adjustable center S, all combined and arranged to operate substantially as and for the purpose described.

195,022. NAIL-DRIVING MACHINERY. Jos. E. Kimball, Abington, Mass., assignor of one-half his right to Edward Merritt, same place. [Filed July 10, 1877.]

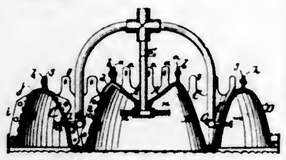


1. The oscillating nail-tube *i*, having a side opening adapted to receive the nails singly from the railway, in combination with the railway which closes the nail-tube opening at each partial rotation of the tube, all substantially as set forth, for the purpose stated.

2. The reciprocating barb or rest *m*, arranged and operated to enter the nail-tube, and to receive the nail previous to its being driven, as herein described.

3. In combination, the oscillating nail-tube *i*, the reciprocating barb or rest *m*, and the driver *f*, as and for the purpose set forth.

195,023. REFLECTORS FOR CHANDELIERS. Geo. H. Kitchen, Rye, N. Y. [Filed Aug. 4, 1877.]



1. The reflector constructed of the plates A, B, C, and D, to constitute an inverted cup, surrounded by an inverted annular dish, substantially as herein shown and described.

2. The combination of the plate A, having scalloped edges which form lugs *a*, with the plates B having also scalloped edges forming lugs *b*, and having projecting flanges *c*, substantially as herein shown and described.

3. The combination of the plate A, having scalloped edges and lugs *a*, with the plates B, having scalloped edges and lugs *b*, and with the plates C having scalloped edges and lugs *g*, and plates D having scalloped edges and lugs *h*, substantially as herein shown and described.

4. The combination of the reflector, composed of the plates A, B, C, and D, with the central gas-pipe E having burners *s*, and with the ring-pipe G having burners *m*, which extend through apertures in the plates C, substantially as herein shown and described.

195,024. FIRE-ESCAPES. A. G. Knox, New York, N. Y. [Filed June 18, 1877.]

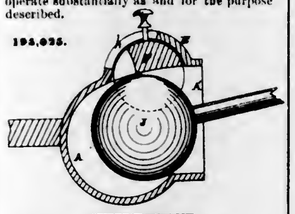


A fire-escape, made of a rope with bolstered stops or supports at suitable distances from each other, and with loop-shaped and bolstered handles at the upper part passing over the sill, substantially as specified.

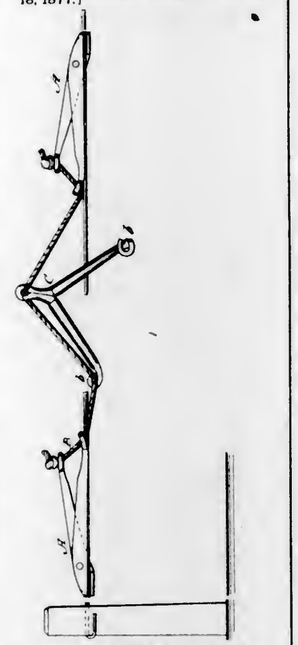
195,025. CAR-COUPLINGS. Wm. Lane, San Francisco, Cal. [Filed June 26, 1877.]

The socket or shell A, with its tubular extension A', and having the cylinder F arranged in a case, E, transversely across it, and cylinder being formed on one side with a depression to correspond with the interior of the shell, and provided with a pin, *i*, which moves in a transverse slot in the case, and a spring, *g*, for keeping the cylinder in its proper position, in combination with a coupling-rod, K, and ball J, all combined and arranged to operate substantially as and for the purpose described.

195,026.

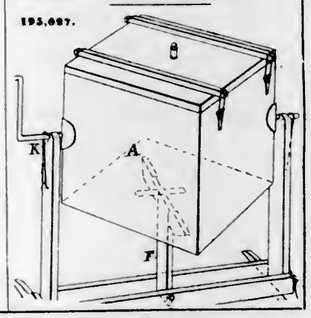


195,026. WIRE-FENCE TIGHTENERS. C. C. La Rue, Blairstown, Iowa. [Filed Aug. 18, 1877.]



In combination with the pinchers A A, constructed as described, and with the rope B, the angular lever C, having hooked ends, substantially in the manner and for the purposes specified.

195,027.

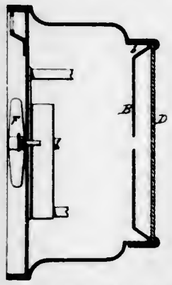


195,027. WASHING-MACHINES. Daniel R. Leach, Pike, N. Y., assignor of one-half his right to T. P. Lewis and A. B. Crary, same place. [Filed May 31, 1877.]

Brief.—By means of the pivoted swinging brace with pivoted cross-arm the rectangular suds-box is rigidly held in proper position for taking out or putting in clothing.

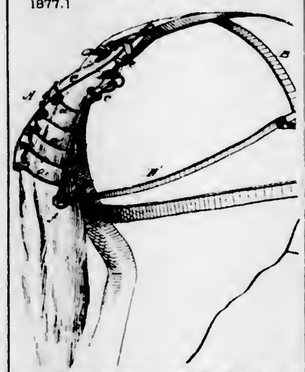
In combination with the rectangular box A, the swinging brace, composed of the upright F, cross-arm G, and cross-arm H, constructed to operate substantially as described.

195,028. CLOCK-CASES. William F. Lewis, Waterbury, Conn., assignor to the Waterbury Clock Company, same place. [Filed June 30, 1877.]



In a sheet-metal clock-case, the base or back of the dial B and the rim *b* constructed in one and the same piece with the body of the case.

195,029. LINE-FENDERS FOR HARNESS. T. J. Lindsay, Windfall, Ind. [Filed July 9, 1877.]

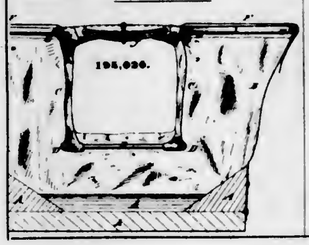


1. The fender consisting of the side pieces B B, transverse wires *a*, and stay-wire *c*, all arranged as herein set forth, and adapted for attachment to a harness-crupper, for the purpose specified.

2. The tail-strap E, provided with a snap-hook, *g*, in combination with the fender A, substantially as described.

3. The side straps D D, combined with the fender A and tail-strap E, substantially as described.

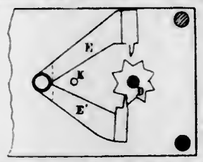
195,030.



195,030. FEED-BAGS. Thomas R. Lowerre, Mott Haven, (Morrisania Station,) N. Y., assignor to himself and Richd. U. Wright, same place. [Filed July 28, 1877.]

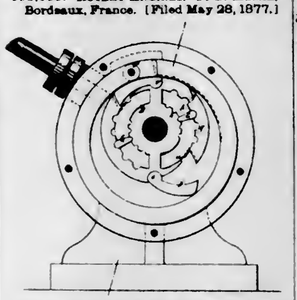
In a feed-bag, the combination, with the partitions C, of flanged covers F and wire frame E, constructed and arranged as and for the purpose specified.

195,031. OSCILLATING REGISTERS. N. M. Lowe, Boston, assignor to J. H. Wright, Nahant, Mass. [Filed Nov. 27, 1876.]



The automatic registering device consisting of the weighted anchor-escapement E, in combination with an escapement-wheel and recording-train, all to operate substantially as described, and for the purpose set forth.

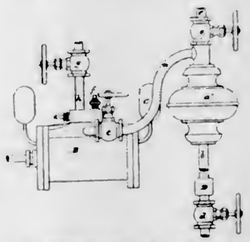
195,032. ROTARY ENGINES. P. B. Martin, Bordeaux, France. [Filed May 28, 1877.]



The arrangement of the semicircular channels r r' with fixed partitions, whereby the supply of steam is cut off, and with movable partitions, whereby the expansive action of the steam may be varied.

195,033. HYDRAULIC ENGINES. S. Marsden, St. Louis, Mo. [Filed July 19, 1877.]

Brief.—The waste-pipe and vacuum-chamber, acting as a siphon, assist the exhaust of the engine.



1. In combination with a water-engine, a waste-pipe having a vacuum-chamber therein, substantially as described.

2. In combination with a water-engine, a waste-pipe having a vacuum-chamber therein, and a discharge-pipe leading out of the vacuum-chamber, the latter being in height sufficient to contain a column of water that balances the weight of the atmosphere, substantially as described.

3. The combination of the low pressure device A and the water-engine B, substantially as described.

4. The combination of the engine B, the pipes *a* and *b*, and the valves *c* and *d*, substantially as described.

5. The combination of the engine B, pipes *a* and *b*, and the valves *c*, *d*, and *e*, substantially as described.

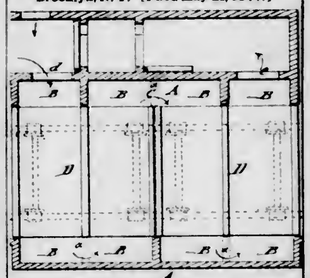
6. The enlargement *a'* in the pipe *a*, substantially as and for the purpose set forth.

7. The combination of the water-engine B, the low-pressure device A, and the chambers C C, substantially as described.

8. The combination of the water-engine B, device A, and check-valve D, substantially as described.

9. The combination of the water-engine B, device A, and air-cock *e*, substantially as described.

195,034. APPARATUS FOR DRYING FERTILIZERS AND OTHER ARTICLES. A. P. Meylert, Brooklyn, N. Y. [Filed May 21, 1877.]



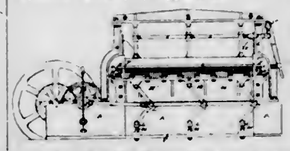
1. A drying apparatus composed of sectional drying-chambers, having a central space and sectional side spaces which communicate at alternate sides, in combination with entrance and exit openings for air, and with a car or a series of cars which have closed ends and closed partitions, substantially as described.

2. The combination of a drying apparatus, having a passage-way or passage ways, with cars having closed ends, and partitions of dimensions similar to those of the opening in said passage ways, designed to keep the drying-chamber automatically closed in entering or leaving the same, substantially as described.

3. The sectional drying chamber A, having sectional side spaces B B, divided by partition-walls with openings in alternate walls and at alternate sides, in combination with a series of cars, D D, having closed ends and closed partitions, and open platforms similar in length to the side spaces of the apparatus, intended to divert the air by a circuitous route through the side spaces and amid the platforms of the cars, substantially as described.

195,035. SHEET-METAL-PAN MACHINES. T. R. Morgan, Alliance, Ohio, assignor to W. D. Wood & Co., McKeesport, Pa. [Filed June 21, 1877.]

Brief.—A stationary blank-support is surrounded by a vertically sliding frame, operated by a series of toggle-levers, and carrying rollers, which press upward hinged flaps on the support, to fold the edges of the blank upwardly about a holding clamp, which is also operated vertically by toggle-levers.



1. In a machine for making sheet-metal pans, the combination of a former, P, with sliding frame M' moving vertically on same, constructed so as to carry the friction-rollers to close up hinges for folding up the sides and ends of pan, substantially as and for the purpose specified.

2. In a machine for making sheet-metal pans, the combination, with the sliding frame M', of the adjustable rollers O, for closing up the hinges for folding sides and ends of pan, as and for the purpose specified.

3. In a machine for making sheet-metal pans, the combination, with the vertically-sliding frame M' and base-plate A, of the adjustable toggles L, for giving motion to the sliding frame M' for actuating the folding hinges, as and for the purpose specified.

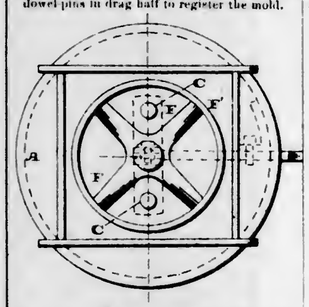
4. The combination, with the hinged forming-bars and sliding frame M′, carrying rollers O, of the toggles L, connecting-links K′, and cranks K, substantially as described.

5. The combination, with the hinged forming-bars, of the frames Q, girders R, toggles R′, and blank-holder Q′, substantially as described.

6. In a machine for making sheet-metal pans, the combination of the handles U, rock-shaft T′, levers T, rods S S′, toggles R′, blank-holder frames Q, and guide planed to same, all for engaging and disengaging the blank-holder and suspending and guiding it in position, substantially as and for the purpose specified.

195,036. MOLDING PULLEYS. Henry Nadig and Phillip Nadig, Allentown, Pa. [Filed Dec. 11, 1876.]

Brief.—The drag half of the flask is inverted on table; half-pattern is inserted; also two registering-tubes over holes in table. Pins are elevated part way through tubes. Tamp, lower the pins, remove and reverse half flask; insert dowel-pins in the tubes. So treat cope half of flask, and place its registering tubes over dowel-pins in drag half to register the mold.



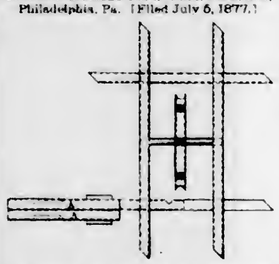
1. Registering guides embedded in the sand or material of the form or mold, and operating substantially as and for the purpose set forth.

2. The face-plate A, with movable guide-pins C and the tubes G H, operating therewith, substantially as and for the purpose set forth.

3. The tubes G H and pins J, combined and operating substantially as and for the purpose set forth.

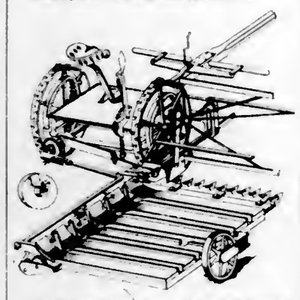
4. The face-plate A, with movable guide-pins C, half pattern F F′, tubes G H, and pins J, combined and operating substantially as and for the purpose set forth.

195,037. MUSICAL TOYS. Thos. Nicholson, Philadelphia, Pa. [Filed July 6, 1877.]



A musical toy consisting of a wind wheel, a mouth piece formed of a series of straws or other tubes provided with valves or reeds, and a conducting tube leading from the mouth-piece to the wheel, all combined and arranged substantially as and for the purpose set forth.

195,038. HARVESTERS. John D. Nix, Mount Vernon, Ill., assignor of two-thirds his right to Wm. D. Tabb and G. M. Haynes, same place. [Filed June 28, 1877.]



1. In a self-raker, adapted to fold beneath the table during its return movement, the combination, with the rake-tooth, provided with a loose anti-friction roller, of a corresponding body-strip of the table, constructed with an opening at both extremities suitable for the passage of the said roller-tooth, substantially as described.

2. The combination, with the rake-head, of the two lever-arms loosely connected to both its extremities, and respectively engaging it with the endless chains and the spring carrying-bar, substantially as described.

3. The combination, with the rake-head, connecting lever-arms, and spring carrying-bar, of the spring mechanism engaging the said rake-head and inclining the teeth forward during their delivery stroke, substantially as described.

4. The combination, with the spring pressed rake-head and rake-teeth, of the spring lever-catch, adapted to engage one of the said rake-teeth, preparatory to the return movement of the rake beneath the table, substantially as described.

5. The combination, with the spring lever-catch secured to the bottom of the grain-table at its delivery side, of the rake, the spring carrying-bar, and the connecting spring mechanism, substantially as described.

6. In an automatic rake, the combination, with the endless-chain pulleys and pinion shafts, of the shafting extending across the grain-delivery end of the raking-table, and operated by the single gearing spur, substantially as described.

7. The combination, with the bevel-gear actuating the automatic rake through connections, as described, of the chain-pulley, secured to the axle of the driving wheel and intermediate mechanism, the said chain-wheel formed with a slotted projection, whereby it may be connected with, and operated by, the linchpin of the said driving wheel, substantially as described.

8. In a pitman-coupling, the combination, with the box having the open tubular end extending across its entire vertical area, of the loose cap, fitting within the same, and provided with the transverse open groove, in which a suitable key has partial lateral bearing, substantially as described.

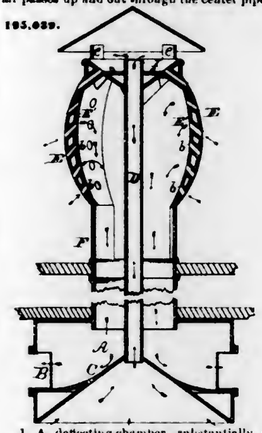
9. In a pitman-coupling, the combination, with the box made as described, and provided with lateral studs or projections, of the vertical sill-guides, formed one on either side thereof, and made with the upper longitudinal grooves, in which the said box-studs have sliding movement, substantially as described.

10. The combination, with a crank-wheel provided with a wrist-pin, constructed with a spherical journal, of a slotted pitman-box, the outer end of which is closed to serve as a bearing for one side of the wrist-pin journal, the removable block formed with a semi-spherical bearing, the two jam-nuts, adapted to be operated within the pitman-box, and the single jam-nut bearing against the outer side of the said box, substantially as described.

195,039. VENTILATORS. Thomas Owens, U. S. N. [Filed Aug. 28, 1877.]

Brief.—The external air or wind passes through the openings in the upright case, and is forced down into the deflecting chamber below the ceiling of the apartment, where it strikes the deflector-plate, by which it is thrown off in contact with the ceiling. The impure air passes up and out through the center pipe.

195,039.



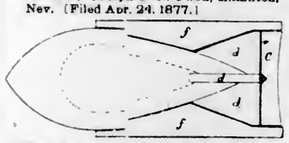
1. A deflecting chamber, substantially as shown and described, constructed, arranged, and operating to throw the fresh air out into the compartment in a line with the ceiling thereof.

2. The hereinbefore-described ventilator, having a deflecting chamber, A, provided with slides B and deflector C, substantially as and for the purpose set forth.

3. The combination of the head E, skin E′, and pipes c, all arranged substantially as shown, for the purpose specified.

4. In a ventilator, the combination of the deflecting chamber A, having slides B, deflector C, head E, skin E′, and tubes *c*, substantially as described.

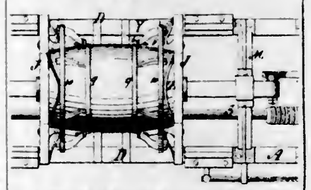
195,040. PROJECTILES FOR SMOOTH-BORE CANNON. Joseph R. N. Owen, Hamilton, Nev. [Filed Apr. 24, 1877.]



The shot provided with radial feathered flanges *d*, jacket or surrounding case *f*, and separate disk-shaped sabot *c*, substantially as herein shown and described.

195,041. BARREL-TRUSSING MACHINES. H. U. Palmer, Brooklyn, N. Y. [Filed Nov. 20, 1876.]

Brief.—The plungers are simultaneously advanced by a slow-moving cam, and retracted by a quick cam movement.



1. The elastically-seated trussing-arms, substantially as shown and described.

2. In a barrel-trussing machine, the combination of two reciprocating trussing-heads, which move to and from each other over the barrel ends, a driving-shaft, and two cams driven by the latter to simultaneously and uniformly actuate said trussing-heads, substantially as described.

3. The combination of head J, ring X, springs Z, arms Y, and slotted holders S, substantially as described and shown.

4. The combination of the ring X, slotted arms Y, slotted holders, and connecting-pin 6, substantially as shown and described.

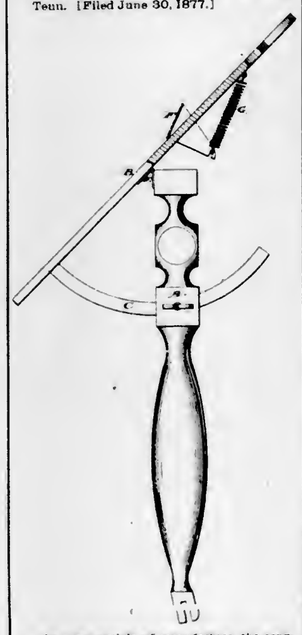
195,042. CULTIVATORS. James H. Pattee, Monmouth, Ill., assignor of two-thirds his right to H. H. Pattee and I. P. Pillsbury, same place. [Filed June 30, 1877.]



1. The suspending-rods H and draft-plates E, journaled to the axle B, so as to support the plows A at uniform, or nearly uniform, heights, while either side of the axle is advanced or receded independently, substantially as described, and for the purpose specified.

2. The suspending-rods H, draft-plates E, and shoes G, journaled or hinged to the axles B, so that the plows A may be suspended on the rods H, and either end of the axle B be advanced or receded and the plows remain at uniform, or nearly uniform, heights, substantially as described, and for the purpose specified.

195,043. COPY-HOLDERS. James W. T. Peltier and Timothy D. Brown, Knoxville, Tenn. [Filed June 30, 1877.]

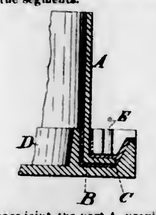


As a new article of manufacture, the copy-holder herein described, consisting of the support A and the base-board B, the latter provided with the sector C, pivoted clamp F, spring G, and hinge E, as shown.

195,044. JOINTS FOR HOT-AIR FURNACES. John B. Pierce, Buffalo, N. Y. [Filed Dec. 21, 1876.]

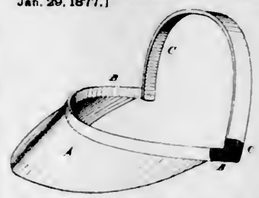
Brief.—The screws are applied at the intersections of the segments.

195,044.



In a furnace-joint, the part A, provided with a flange, B, in combination with the segments E, and the part D, having a groove, C, all cemented and fastened together, substantially as described.

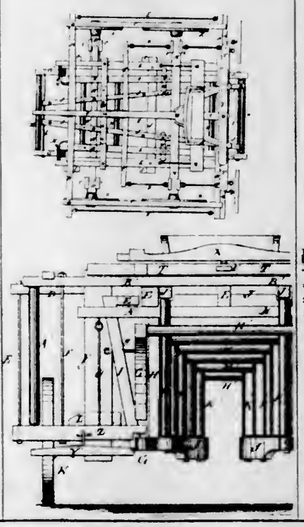
195,045. SELF-ADJUSTING EYE-SHADES. Thomas A. Platt, Brooklyn, N. Y. [Filed Jan. 29, 1877.]



A self-adjusting eye-shade, consisting of the shade A, provided with the spring B, made fast to the upper edge thereof, and the spring C, pivoted to the ends of spring B, as shown and described.

195,046. HEDGE-FENCE LAYERS. Ferdinando Poole and Wilson A. Pendergraft, Augusta, Kans. [Filed Aug. 3, 1877.]

Brief.—A frame-work mounted on four wheels is provided with a series of rollers on the sides and top, converging to a narrow opening at the rear end of the machine. This machine, being drawn over a young and growing hedge, bends the twigs in one direction. A reel upon the rear end of the machine is used for binding the hedge at given distances, and in the subsequent growth the twigs become interwoven. By elevating the machine upon the wheels a subsequent growth can be in like manner bent down and tied.



1. The frame-work formed by the combination of the wheels A K, the adjustable axles B L, the stationary axle-frame C D, the pivoted axle-frame V M M, the longitudinal bars E, the sills G, the vertical and the inclined uprights H I, and the cross-bars J, with each other, substantially as herein shown and described.

2. The combination of the connecting-rods O P R S, the pivoted cross-bars N Q, and the pivoted tongue or lever T U with the longitudinal bars E of the frame-work, and with the pivoted axle-frame V M M for guiding the machine, substantially as herein shown and described.

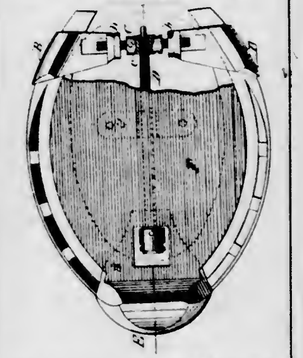
3. The combination of the draw-bars Z, the uprights A′, the cross-bars H′ D′, the longitudinal bars C′, the brace-rods E′, and the tie-rods F′ with the sills G and the longitudinal bars E of the frame-work for drawing the machine, substantially as herein shown and described.

4. The combination of the adjustable roller-frame G′ H′ I′ with the vertical and inclined uprights H I of the frame-work, substantially as herein shown and described.

5. The combination of the two adjustable roller-frames J′ K′ L′ with the roller-frame G′ H′ I′, and with the sills G and the longitudinal bars E of the frame-work, substantially as herein shown and described.

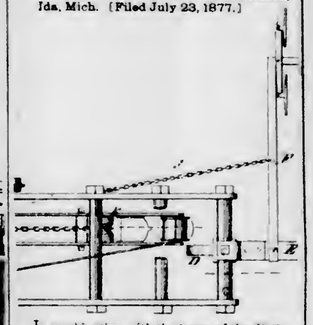
195,047. HORSESHOE ATTACHMENTS. Geo. W. Price, Lakeland, assignor to himself and Wm. H. Sanford, Hauppauge, N. Y. [Filed Aug. 3, 1877.]

Brief.—Prevents balling and slipping.



The combination of the calks B E, screws C D, and plate F, substantially as shown and described.

195,048. DITCHING-MACHINES. J. H. Rauch, Ida, Mich. [Filed July 23, 1877.]



In combination with the frame of the ditching-machine and the tongue E, attached to the swivel-standard of the wheel D, the bar F, and its double and single trees, and the chain *f*, arranged substantially as and for the purposes specified.

195,049. APPARATUS FOR HEATING RAILWAY-CARS, &c. Walter W. H. Robinson.

Georgetown, assignor of one-third his right to Edward C. Dean, Washington, D. C. [Filed Feb. 16, 1877.]

195,049.

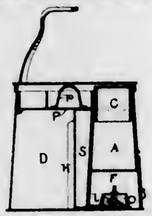


1. The combination, substantially as hereinbefore set forth, of the valve, the packing-box, and the tapering connecting-pipe, whereby the valve is automatically lifted by the insertion of the pipe.

2. The combination of the valve, the packing-box, the tapering connecting-pipe, and its solid trunnion, whereby the partial insertion of the pipe opens the valve and causes the steam to force the pipe quickly into its place.

3. The combination, substantially as hereinbefore set forth, of the valve and packing-box attached to one car and the adjustable connecting-pipe flexibly connected with another car, whereby they may be readily separated in case of accident, and the escape of steam prevented.

195,050. LUNCH-PAILS. Thomas N. Russell, Providence, R. I. [Filed May 23, 1877.]



1. In a lunch-pail provided with the tea or coffee urn A, lamp-chamber F, and lamp *l*, the soup vessel S, arranged, substantially as described, to derive heat by contact with the coffee-urn A and lamp-chamber F.

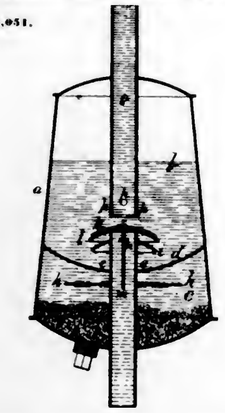
2. A lunch-pail provided with the coffee-urn A, lamp-chamber F, lamp *l*, soup-vessel S, food-space D, and pan P, substantially as and for the purposes specified.

195,051. SAND-TRAPS FOR ARTESIAN OR DRIVEN WELLS, &c. James T. Sell, Cambridgeport, assignor of one-half his right to M. A. Lathrop, Boston, Mass. [Filed May 16, 1877.]

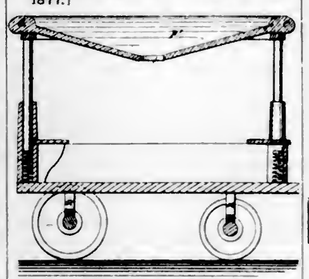
Brief.—When the water is drawn from the well it rises through the lower pipe, and, striking the under side of the concave valve, is forced downward against the division-wall. The sand and grit sink through openings into sand-chamber.

The combination and arrangement of the receptacle *a*, inlet-pipe *g* with its deflected bonnet *i* and valve *k*, the deflected division-wall *d* with its annular opening *e e*, and the suction-pipe *o* with its side openings *p p p*, all arranged and combined substantially as and for the purpose herein set forth and described.

195,051.

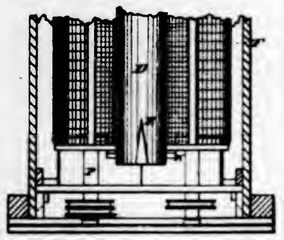


195,052. FIRE-ESCAPES. George N. Shishmanian, Galveston, Tex. [Filed June 30, 1877.]



A wheeled vehicle provided with a superposed concave cushion, F, apertured at the center, and near the outer edges supported by standards resting on springs, as shown and described.

195,053. GRAIN-SEPARATORS. H. Standish, Joy, Ill. [Filed May 18, 1877.]



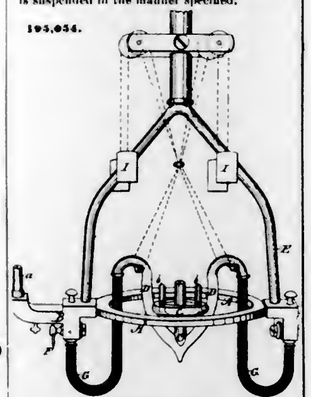
The semi-cylindrical trough D, attached to the shoe so as to have a vibratory movement, and provided with a wedge-shaped divider, E, for delivering seed in equal quantities to the screens F, respectively, as and for the purpose set forth.

195,054. GAS DROP-LIGHTS. William B. S. Taylor, Westfield Township, Union County, N. J. [Filed May 9, 1877.]

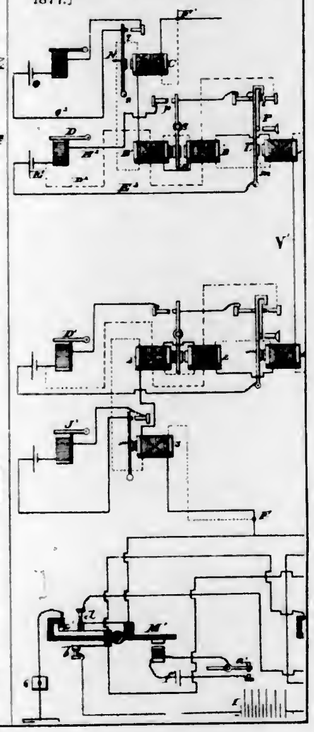
1. In combination with the metal gas tubes E, constituting the most essential part of the stationary portion of the chandelier, the light C, suspended by weighted chains to render it vertically adjustable in position, and the flexible tubing G connecting the light with the lower ends of said tubes E, and the weighted chains for suspending said light, as shown and described, whereby the tubing is arranged laterally of the light, and thus preserved from danger of injury by heat, and from rapid wear by coiling or uncoiling, as set forth.

2. The combination, with the portion E of the stationary chandelier-frame, of the curved goose neck pipes D D, rigidly attached to the body of the lamp or light C, and extending upward and outward, as shown, and the short pieces of flexible tubing G attached to the lower ends of the part E, and the weighted chains for suspending said light, as set forth, whereby, when the light is raised, the tubing is suspended in the manner specified.

195,054.



195,055. QUADRUPLEX TELEGRAPHS. Benj. Thompson, Toledo, Ohio. [Filed Jan. 5, 1877.]



1. In a quadruplex-telegraph apparatus, a line-wire, ground-wire, and shunt-circuit for a local battery, in combination with a set of magnets, their cores wound with three coils of wire, and a polarized armature pivoted between said magnets, and relatively so placed as to cause its contact-point to be open when there is no current on the line, substantially as and for the purpose described.

2. In a quadruplex-telegraph apparatus, a line-wire, ground-wire, local-battery circuit, and a shunt-circuit for local battery, in combination with a set of magnets, their cores wound with three coils of wire, a polarized armature pivoted between the same, and relatively so placed as to cause its contact-point to be open when there is no current on the line, and a magnet or set of magnets wound with two coils of wire, which operate an armature provided with front and back contact-points, and with a spring of sufficient tension to be overcome only by the united action of all the batteries, substantially as and for the purpose described.

3. In a quadruplex-telegraph apparatus, a line-wire, ground-wire, local-battery circuit, and shunt-circuit, in combination with a set of magnets, their cores wound with three coils of wire, a polarized armature pivoted between the same, and relatively so placed as to cause its contact-point to be open when there is no current on the line, and a magnet or set of magnets wound with two coils of wire, which operate an armature provided with front and back contact-points, with a spring of sufficient tension to be overcome only by the united action of all the batteries, and with a contact-controlling spring, whereby the duration of the local-battery current through the shunt-circuit is controlled, substantially as and for the purpose described.

4. In a quadruplex-telegraph apparatus, a line-wire and ground-wire, in combination with a set of magnets, their cores wound with three coils of wire, a polarized armature pivoted between the same, and relatively so placed as to cause its contact-point to be open when there is no current on the line, a magnet or set of magnets wound with two coils of wire, which operate an armature provided with front and back contact-points, and with a spring of sufficient tension to be overcome only by the united action of all the batteries, and a magnet or set of magnets, wound with two coils of wire, which operate an armature provided with a suitable contact-point, and controlled by a spring of sufficient tension to be overcome by the united action of batteries G and H, substantially as and for the purpose described.

5. The combination, in a quadruplex-telegraph apparatus, with the line-wire V^1, ground-wire V^2, shunt-circuit D^2, and local-battery circuit E^2, of the magnets A B B', wound as described, and the armatures *m* and *n*, provided with contact-points *r*, *s*, and *p*, substantially as and for the purpose described.

6. The combination, in a quadruplex-telegraph apparatus, with the line-wire V^1, ground-wire V^2, local-battery circuit E^2, shunt-circuit D^2, and local-battery circuit O^2 of the magnets A, B, B', and C, wound as described, and the armatures *m*, *n*, and *o*, provided with contact-points *p*, *q*, *r*, and *s*, substantially as and for the purpose described.

7. In a quadruplex-telegraph apparatus, the transmitter M, provided with contact-points *b*, *c*, *d*, and *e*, substantially as and for the purpose described.

8. In a quadruplex-telegraph apparatus, the combination of the transmitter M, having contact-points *b*, *c*, *d*, and *e*, with the transmitter M', provided with contact-points b', c', and d', substantially as and for the purpose described.

9. In a quadruplex telegraph apparatus, the combination of transmitter M, having contact-points *b*, *c*, *d*, and *e*, and transmitter M', provided with contact-points b', c', and d', with a battery arranged to give three different intensities, substantially as and for the purpose described.

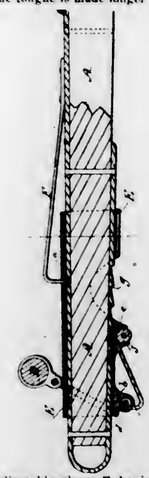
195,056. COMPOUNDS FOR ARTIFICIAL STONE. Jas. H. Thorp, New York, N. Y. [Filed Aug. 21, 1877.]

1. The herein-described compound, chemically treated, consisting of water, carbonate of magnesia, sesquioxide of iron, litharge, gypsum, and asphaltum, dissolved in alcohol, substantially in the proportions above named, and diluted, as set forth, for the purpose of producing the crystallization of the artificial stone, as specified.

2. An artificial stone composed of sand and cement, moistened with the diluted chemical mixture or compound formed of the ingredients described, substantially as and for the purpose set forth.

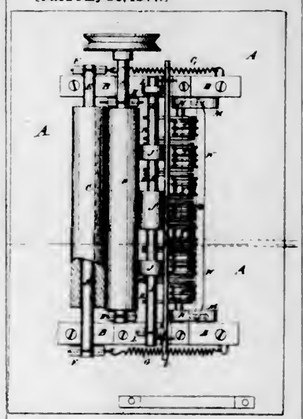
195,057. WAGON-TONGUES. G. N. Turee, Lyons, assignor of one-third his right to F. Lindmeier, Clinton County, Iowa. [Filed June 27, 1877.]

Brief.—An adjustable sleeve, by which, in effect, the tongue is made longer or shorter.



The adjustable sleeve E, having holdback-lugs *b c*, pawl H, and elastic bearing J, in combination with the tongue A, having ratchet-teeth *g*, and spring holder F, substantially as and for the purposes described.

195,058. STRIPING-MACHINES. C. Van Slyck and H. S. De Forest, Schenectady, N. Y. [Filed July 30, 1877.]



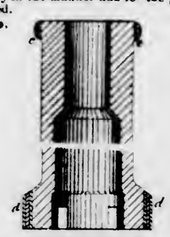
1. The combination of the rollers C D, the cylinders J, the shafts E K, the springs G, and the shaft, arms, and spring N M O W, with each other, and with the blocks B and bed-plate A, substantially as herein shown and described.

2. The combination of the rollers C D, the shaft E, the spring G, the shaft, pivoted bars, and beaded cylinders Q R T, the rod U, the springs V, and the shaft, arms, and spring N M O W, with each other, and with the blocks B and bed-plate A, substantially as herein shown and described.

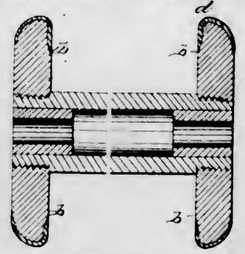
195,059. BOBBINS. Oscar E. Wait, Lynn, assignor to the Lawrence Spool Company, Boston, Mass. [Filed Apr. 6, 1876.]

A quill or pirn bobbin having bands of rawhide *d* or *e* applied to its base or tip, substantially in the manner and for the purposes described.

195,059.



195,060. BOBBINS. Oscar E. Wait, Lynn, assignor to J. A. Woodbury, Boston, Mass.; said Woodbury assignor to the Lawrence Spool Company. [Filed May 31, 1875.]



A spool or bobbin made of wood, and having the outer rounded edge of its head or heads reduced from *b* to *d*, and covered with a ribbon or band of rawhide wound circumferentially around the same, and having its two edges turned down over said rounded edge to cover about equal portions of either side of the head, and secured thereto by glue or other suitable adhesive material, substantially as described.

195,061. SOLDERING-IRONS. T. J. Walsh, San Francisco, Cal. [Filed Apr. 30, 1877.]

Brief.—The movable cylinder is pushed out and heated, and then withdrawn into the iron to heat the iron.



The movable cylinder F and handle E, in combination with the soldering-ring B and its supporting-tubes, substantially as and for the purpose herein described.

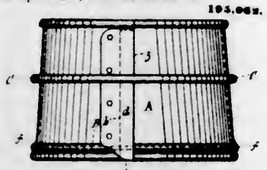
195,062. VESSELS FOR MOLDING PITCH. E. B. Warren and J. C. Nippes, Philadelphia, Pa. [Filed Apr. 5, 1877.]

1. The open sheet-metal ring A, for forming the continuous wall of a vessel for molding pitch or other material that solidifies in cooling, having a vertical groove, *c*, in its joint

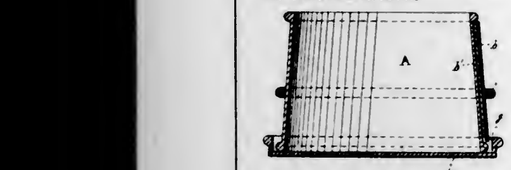
edge *b*, in line with the sheet of metal which forms the ring, for the reception of the edge *b*, substantially as and for the purpose set forth.

2. The combination of the open cylinder or ring A, having a perpendicular groove, *c*, and a horizontal groove, *f*, confined by hoop *e* or its equivalent, with the bottom B.

195,062.

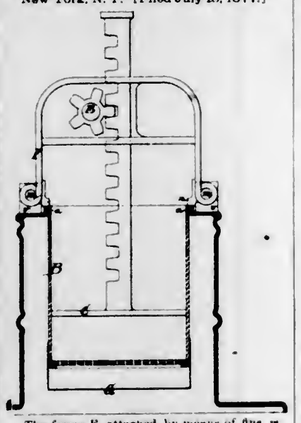


195,063. VESSELS FOR MOLDING PITCH. E. B. Warren and J. C. Nippes, Philadelphia, Pa. [Filed June 1, 1877.]



In a vessel for molding pitch or other material that solidifies in cooling, the combination of the open and expanding ring A, having in its joint *b'* a groove, *c*, for connecting the edge *b* therewith, and the bottom B forming a butt-joint with the lower end of the ring, substantially in the manner and for the purpose set forth.

195,064. FRUIT-PRESSES. Gotthelb Weber, New York, N. Y. [Filed July 13, 1877.]



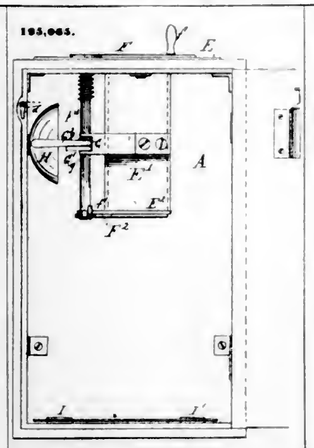
The frame F, attached by means of fins *m* to suitable lugs r, and provided with projections *n*, in combination with the cylinder B, arranged in the manner and for the purpose described.

195,065. FARE-BOXES. James E. White, Cincinnati, Ohio. [Filed Jan. 8, 1877.]

1. A combined fare and alarm box, A, locked and sealed, provided with a flat tube, E^1, having opening and closing plates F and F^2 rigidly attached to each other by a shaft, F^1, for receiving slip and sounding an alarm, substantially as and for the purposes described.

2. In combination with the combined fare and alarm box A, locked and sealed, provided with a flat tube, E^1, having opening and closing plates F and F^2 rigidly attached to each other by a shaft, F^1, for receiving slip and sounding an alarm, the devices I and I' for holding the note K, for the purposes herein described and set forth.

195,065.



195,066. SHEET-METAL ROLLER-SEAMING MACHINES. Pardon A. Whitney, Southington, Conn. [Filed July 17, 1877.]

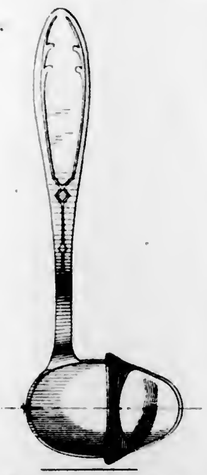
1. In a sheet-metal-burring machine, the combination of the shaft *b*, having the reduced portion *i* between the shoulders *j k*, the cylindrical box *l*, made in two parts, the set-screw *n*, and the frame having the hole *m*, to receive and permit adjustment and removal of the parts *b l*, as shown and described.

2. The box *a*, consisting of the part *c*, having ears *w*, the cap *a'*, and the pin *b'*, in combination with the frame A and shaft *a*, substantially as shown and described.

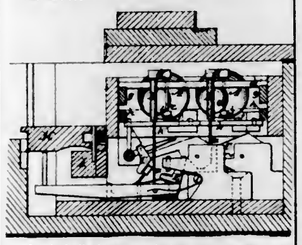
195,067. MUSTACHE-SPOONS. R. Williams, Yonkers, N. Y., assignor to himself and R. J. Anderson, New York city. [Filed July 30, 1877.]

A spoon having a bowl at right angles to the handle, said bowl being provided with winged and inclined mustache-guard, extending across the front part, and with a cutting-edge at the rear part of the bowl, substantially for the purpose specified.

195,067.



195,068. BELL-PIANOS. William H. Wood, Port Rowan, Ontario, Canada. [Filed June 11, 1877.]



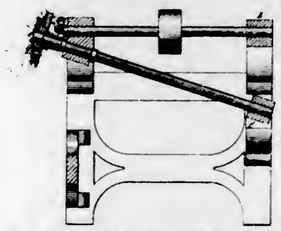
1. A bell-piano consisting, essentially, of tuned bells, hammers, keys, and softeners, as shown and described.

2. A bell-piano provided with a frame that slides in and out, as set forth, so that bell-frames having bells of different composition may be employed.

3. The combination, with levers F, of the wires *a*, guides *b*, bars *d d'*, wire *e*, having padded feet *f*, the slotted bars *g*, slide-bars *h*, and links *i*, as specified.

4. The combination of leather *j* and bars *k*, the latter operated by levers, as shown and described.

195,069. SOLE-EDGE SETTING AND BURNISHING MACHINES FOR BOOTS AND SHOES. Thos. P. Young, Lynn, Mass. [Filed May 9, 1877.]



1. In a machine for burnishing or setting the edge of a boot or shoe sole, a burnishing or edge-setting tool, mounted upon and adapted to oscillate partially around a shaft or axis, with its working face between said axis and the support or rest for the sole upon the edge of which it is to act, and moving in a curved path convex to said sole edge, substantially as described.

2. In a machine for burnishing or setting the edge of a boot or shoe sole, a burnishing or edge-setting tool, mounted upon and adapted to oscillate or reciprocate partially about an inclined axis, moving in a path concentric to said axis, with its working-face between it and the supporting-surface or rest for the sole to be acted upon, substantially as and for the purposes described.

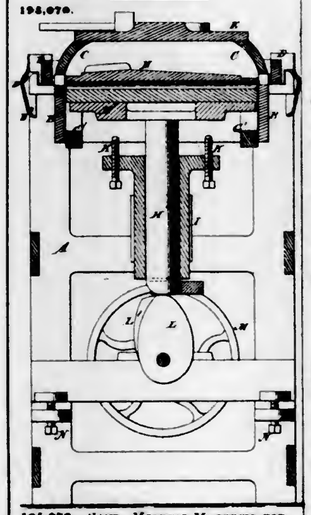
3. In combination with an edge setting or burnishing tool, adapted to set or finish the edge of that portion of the sole forward of the shank, a tool for finishing the edge of the shank portion of the sole, located just below and in the rear of the fore-part burnishing-tool, and adapted to oscillate or reciprocate therewith, and to be interchangeably used without changing the position of either tool, substantially as and for the purposes described.

4. The combination, in a sole-edge setting or burnishing machine, of the horizontal driving-shaft D, provided with a crank-pin, *a*, the inclined shaft G, carrying upon its front end one or more burnishing or edge-setting tools, and the slotted arm F, secured to said inclined shaft, and adapted to engage with and be acted upon by the crank-pin *a*, substantially as and for the purposes described.

5. The combination of the arm H, provided with the pin *d*, and having formed upon or secured to its opposite ends shank-edge setting and burnishing tools *l* of different patterns or styles, and mounted by its center upon a rocking shaft, said disk I, provided with two or more holes, *i i*, in its rear face, adapted to engage with the pin *d* in the arm H, and having formed upon or secured to its front face two or more fore-part burnishing-tools, *k*, of different thicknesses, the working-faces of which are a short distance within and equidistant, or nearly so, from the periphery of said disk, said disk being mounted upon the same shaft with and secured to the arm H, substantially as and for the purposes described.

6. The combination of the arm H, having formed upon or secured to its opposite ends shank-burnishing tools *l* of different patterns or styles, and provided with the pin *d*, and mounted loosely upon the shaft G, the disk I, having formed thereon a series of fore part burnishing-tools, *k*, of different thicknesses, and provided with a central opening and a series of spline grooves, *f*, equal in number to its burnishing-tools, and an equal number of holes, *i*, to engage with the pin *d*, the shaft G, provided with a single spline or key, *g*, and the button *m*, all constructed, arranged, and adapted to operate substantially as and for the purposes described.

195,070.



195,070. SAND-MOLDING MACHINES FOR METAL CASTINGS. Wm. Aikin and Wm. W. Drummond, Louisville, Ky. [Filed Mar. 9, 1877.]

Brief.—Double-shouldered dowel-pins, the upper larger portion serving to register the half-flask with the sand-box, when the sand is compressed about the half-pattern, the lower smaller portion serving to register the two half-flasks.

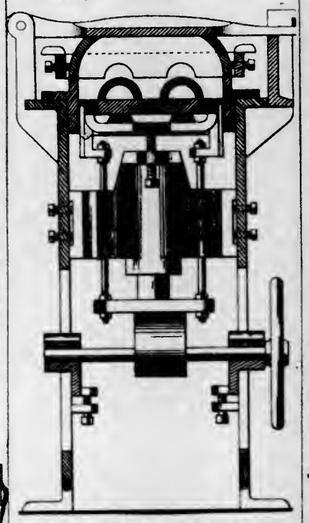
1. In combination, the box B, the flask C, and cap E, with the sectional follower G H, the sections of which are simultaneously actuated in one direction and alternately in the other, substantially as set forth.

2. In combination with the sectional follower G H, the cross-heads G^1 H^1, rods G^3 and piston H^3, yoke G^3, and double cam L L', for allowing the sections to be separately withdrawn, substantially as set forth.

3. In combination with the plungers and cam, the adjustable bearings of the latter, for regulating the action of the plungers upon the sand in the flask, substantially as set forth.

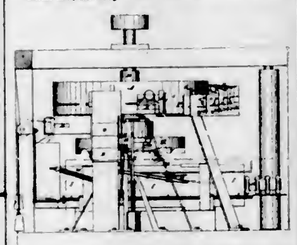
4. In combination with frame D, the double steady-pins D^2 D^4, of which section D^2 engages the guides on the box B in operating the machine, and section D^4 enters guides on the drag in closing the flask.

195,071. ART OF MOLDING SAND FOR MAKING CASTINGS. Wm. Aikin and Wm. W. Drummond, Louisville, Ky. [Filed May 7, 1877.]



As an improvement in the art of molding in sand, forming molds by compression by first filling loosely the open flask placed over a box and movable follower, then closing the flask, and afterward compressing all the sand into the flask about the pattern by the uniform forward movement of the follower and pattern, then withdrawing the pattern, and finally withdrawing the intermediate sections of the follower, substantially as set forth.

195,072. TYPE-DISTRIBUTING MACHINES. Robert T. P. Allen, Farmdale, Ky. [Filed Jan. 27, 1877.]



1. In combination with the wheel A, having the pendent rim 1, provided with horizontal slots, the sliding type-holders attached to said rim, and the retracting-spring and the stop device, all constructed and arranged substantially as shown and described, to operate as specified.

2. The combination of the spring-supported stop-rod C, the spring-catch, the tripping-lever 39, the toothed wheel, the holders B, and wheel A, substantially as shown and described.

3. The combination of the ratchet-wheel, the lever 39, and vertically-sliding rod E, suitably connected with said lever, all operating for pushing an individual type between the jaws of a type holder, substantially as shown and described.

4. The combination of the bent lever 9, the reciprocating plate provided with cam, and the type-line push-plate 8, substantially as shown and described.

5. The combination of the lateral line-pusher, working in guides across the front of the type receptacle D, the reciprocating plate I, and restraining-plate H, connected substantially as described.

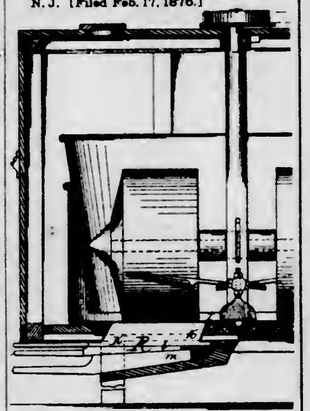
6. The combination of the lateral line-pusher, the cam-plate I, and restraining-plate H, weighted and connected substantially as specified, the rod J, the spring 25, and the L-catches, substantially as shown and described.

7. The combination of the endless chain, the L-catches pivoted thereto, the sliding cam-plate I, and slotted restraining-plate H, the locking device, the fixed incline 31, the spring 25, rod J, and lateral type-pusher, substantially as shown and described.

8. The rotating wheel A, the type-holders, having a sliding or movable jaw, the feelers 13, rods 14, and lever 15, combined as shown and described.

9. The rotating slotted rim-wheel A, the type-holders, the toothed wheel, spring-supported rod C, the detent-lever, the individual type-pusher, the type-line pusher, bent lever 9, the lateral type-pusher 12, movable cam-plate and restraining-plate, the L-catches, and sliding rod and spring 25, combined, substantially as shown and described.

195,073. APPARATUS FOR GRINDING TOBACCO. Stephen V. Appleby, Spotswood, N. J. [Filed Feb. 17, 1876.]



1. In combination with the bed-stone, the chasers, and scraping devices, their rotating shaft and the inclosing casing, the frustum-shaped casing supported within said casing, and terminating at its bottom near the face of the bed-stone, in close contiguity with the track of the chasers, whereby the heavier particles of tobacco are returned to said track, substantially as and for the purpose specified.

2. In combination with the bed-stone, the detachable plug R, consisting of the parts *k l m*, whereby the aperture is closed while the grinding is being effected, and opened for the discharge of the wet snuff, substantially as set forth.

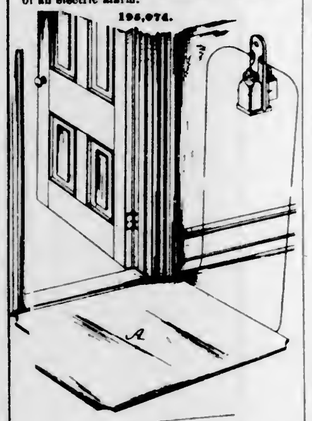
195,074. CIRCUIT-CLOSERS FOR ELECTRIC BURGLAR-ALARMS. Saml. S. Applegate, Camden, N. J. [Filed Aug. 9, 1877.]

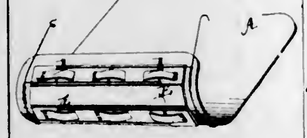
1. The combination of the wires of an electric alarm with a mat and circuit-closing devices attached to the said mat, as set forth.

2. A mat composed of flexible material, provided on its under surface with circuit-closing devices, in combination with the wires of an electric alarm.

3. The combination of the mat A, elliptic springs D, and a pin or pins, E, with the wires of an electric alarm.

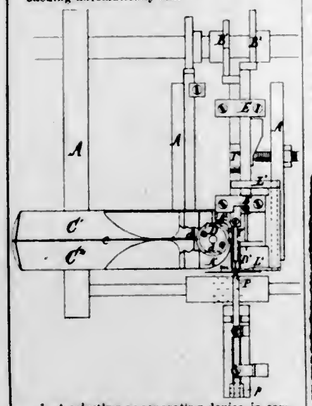
195,074.





195,075. WIRE-BRUSH MACHINES. John Ashworth, Somerville, assignor to Benj. Poland, Arlington, Mass. [Filed Jan. 16, 1877.]

Brief.—An inclined conveying and assorting device receives headed pins from a hopper, and delivers them, point downward, to a rotating notched disk-holder, which deposits them singly into an inclined trough, from which they are seated, by a follower, in a perforated backing automatically fed.



1. A selecting or separating device, in combination with the trough D', awl U, and pusher T, as specified.

2. The moving trough D' and pusher T, in combination with the awl U and backing material m, as specified.

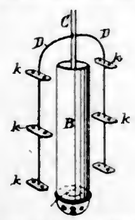
3. The moving trough D' and pusher T, with their several operating means, as shown, in combination with each other and with a feeding device, awl, and suitable means for holding the backing material *m*, as herein specified.

4. In combination with the hopper M and inclined slides C' C', the step-by-step wheel D, with its notches *d*, confining-piece A', inclined groove *a*, and moving trough D', as and for the purposes herein specified.

5. In combination with the trough D' and pusher T, the presser L', spring *i*, and lifting means L' T', adapted to serve as and for the purposes herein specified.

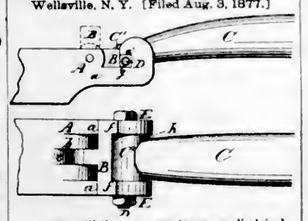
195,076. FORCE-PUMPS. Thomas K. Ball, Maysville, Ky. [Filed Aug. 1, 1877.]

Brief.—The arms attached to the pump rod or staff agitate the water when the pump is in operation.



The combination and arrangement of stock A, cylinder B, and staff C, provided with the agitator D and plates *k*, substantially as shown, and for the purposes described.

195,077. THILL-COUPLINGS. Chas. A. Ball, Wellsville, N. Y. [Filed Aug. 3, 1877.]



1. The thill C, constructed with a cylindrical head, C', axial bolt D, and bearing-boxes *g g*, substantially as and for the purpose herein shown and described.

2. The thill-coupling latch B, consisting of the central pivoted ear *d*, cross-piece *e*, having beveled face *b'*, and side wings *f f*, pressing, when the latch is locked, against the bearing-boxes of the thill, substantially as and for the purpose herein shown and described.

3. The combination of the thill C, having cylindrical head C', pin or bolt D, and bearing-boxes *g g*, with the coupling-box A, having recess *h* and bearings *a' a'*, and pivoted locking-latch B, all constructed and combined to operate substantially as and for the purpose herein shown and described.

195,078.



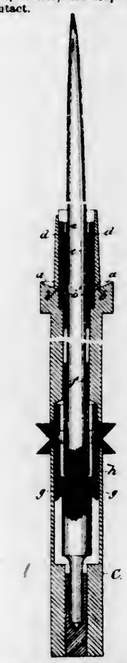
195,079. MANUFACTURE OF FELTED ARTICLES. John Batley, of Kensington Park Gardens, John Keats, of Wood Green, and James Neil, of Worship Street, Middlesex County, England. [Filed June 19, 1877.]

1. The flat pliable former made with a beveled or chamfered and thinned edge, substantially as and for the purpose herein described.

2. The pliable former made of two or more thicknesses of absorbent cloth, having interposed between them a layer of india-rubber or other water-proof material, substantially as for the purpose herein described.

195,079. SPINDLES, BOLSTERS, AND STEPS FOR SPINNING-MACHINES. John T. Beall, Petersburg, Va., assignor to himself and Wm. H. Wheary, same place. [Filed May 28, 1877.]

Brief.—The upper bushing of the bolster is surrounded by a fibrous packing, which reabsorbs the oil that accumulates in the cup above. The two bearings (the upper and lower) by their particular arrangements of parts serve to supply oil from a single point to all parts of the spindle, bolster, and step which are in frictional contact.



1. The bolster having oil-cup *a* and apertures *b*, in combination with the bushing *c*, arranged below the upper edge of the bolster to form a cup, and having slots at its upper end and apertures *b'* below, together with the absorbent packing arranged between the bushing and the bolster, substantially as described.

2. The bolster B, having bushings *c* and *f*, and oil cup *a* with apertures *b*, the spindle having an annularly-recessed whirl, with openings *g*, and the step C, all combined and arranged substantially as shown and described.

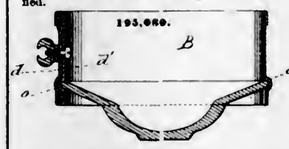
3. The combination, with the bolster having extended bearing *f*, of the spindle having annularly recessed whirl, with second annular recess, *i*, having undercut upper edges, as and for the purpose described.

4. The combination, with the step C and the bolster having extended bushing *f*, of the spindle having annularly-recessed whirl, with boss *h*, having undercut lower edges and openings *g*, as and for the purpose described.

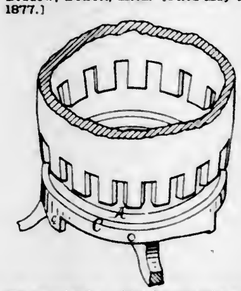
195,080. COMBINED BAKING RIM AND VESSEL. Ezra F. Beal, Poland, assignor of one-half his right to Thomas B. Swan, Minot, Me. [Filed July 7, 1877.]

The combination of the extensible rim B, having the edge groove *o*, lapping ends *d d'*, slot *e*, and clamp-screw, with the downwardly-extended dish or pan A, having its edge fitting into said groove, substantially as specified.

195,080.



195,081. SELF-FEEDING STOVES. George Beddow, Detroit, Mich. [Filed May 23, 1877.]



The combination, with a fire-pot and a grate without vertical movement supported below the same, of a ring adapted to be moved independently of the grate and to inclose entirely or disclose the space between the lower end of the fire-pot and such grate, substantially as described and shown.

195,082. CIGAR-LIGHTERS. G. T. Benson, Jersey City, N. J. [Filed Aug. 20, 1877.]



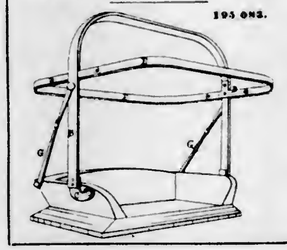
1. In a cigar-lighter, a double cam, arranged to actuate simultaneously independent feeding and igniting mechanism, substantially as and for the purpose specified.

2. As a means for feeding forward the fulminating-tape L, the spring feed-pawl H *k* and the rotary cam K, said pawl being automatically retracted when released by said cam, substantially as and for the purpose shown.

3. As a means for moving outward and retracting the tinder-fuse F, a lever or push-rod, G, pivoted or attached to the casing A, and operating in the manner substantially as set forth.

4. The hereinbefore described cigar-lighter, in which the casing A, having the opening *a* and studs B *b*, the cover A', provided with the openings *a'*, the covering plate C, the anvil-plate D, the fuse housing or tube E E', the fuse-rod G, the feeding-pawl H *k*, the cam K, and the spring-hammer M *m*, are constructed and combined with each other and with the fuse F and fulminating-tape L, in the manner and for the purpose substantially as shown and described.

195,083.

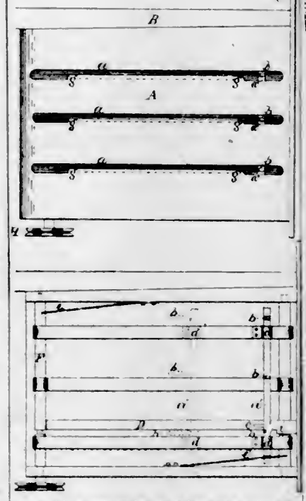


195,083. CARRIAGE-TOPS. W. A. Benedict, Ann Arbor, Mich. [Filed Feb. 19, 1877.]

1. The single-bow wagon-top described, consisting of the bow B, pivoted to the seat by means of the curved metallic arms C, the horizontal veil distenders E, secured to the said bow near its top, and the jointed arms G, all constructed and arranged substantially as described and shown.

2. In a single-bow wagon-top, and in combination, the bow B, curved metallic arms C, irons D, veil-distenders E, and adjustable arms G, the whole constructed and arranged to operate substantially as and for the purposes specified.

195,084. HARVESTERS. John Blair and Jas. C. Blair, Madison County, Ohio. [Filed May 18, 1876.]

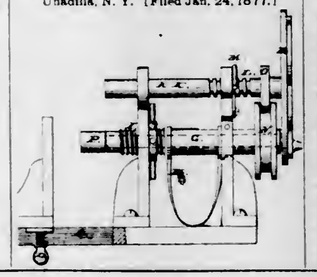


1. The combination, in a harvester-rake, of the platform A, having slots *a*, enlarged at both ends *g g'*, the rake-head *a'*, its rigidly-attached teeth *b* and foot *c*, and devices for imparting to the said rake, first, a traversing motion back and forth beneath the slotted plate; second, a longitudinal motion to carry the teeth into the enlarged slots; and, thirdly, the bridge D and its shoulder giving a positive rock motion to throw the teeth down and up, all as herein set forth.

2. The combination of the plate A, its slots with enlarged ends *g g'*, the rake *a'*, its teeth and foot *c*, the springs *e e'*, and the bridge D with its shoulder *i*, all constructed and operating as herein specified.

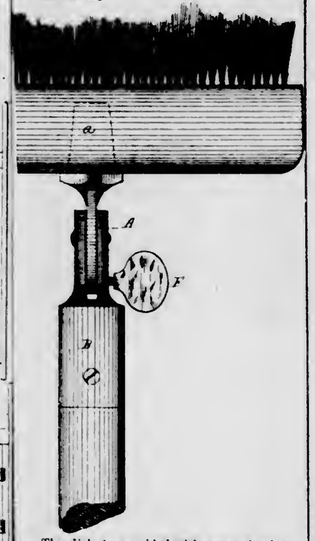
3. The reciprocating metallic belts combined with metal boxes and with a rake-head, the shaft of which turns and slides in said boxes, as specified.

195,085. BENCH-DRILLS. H. De L. Brigham, Unadilla, N. Y. [Filed Jan. 24, 1877.]



The sleeve G provided with the screw-thread I, wheel J, groove-wheel N, and spring H, in combination with the shaft K having the screw-thread L, and provided with the lever M, flange O, and driving-wheel R, the several parts being constructed, arranged, and combined to operate substantially as and for the purpose specified.

195,086. BRUSH-HOLDERS. George Brintzinghoffer, Philadelphia, Pa. [Filed Aug. 29, 1877.]



The disk A, provided with screw-shank *a*, in combination with the slotted ferrule B and binding-screw F, the disk A being pivoted in the slot in the ferrule, and adapted to be clamped therein by means of the set-screw, substantially as set forth.

195,087. CULINARY UTENSILS FOR BROILING, TOASTING, &c. Wm. E. Brock, New York, N. Y., assignor to J. J. Tower, same place. [Filed Aug. 3, 1877.]

Brief.—The lower and stationary frame has a hollow slotted shaft or stem, through which works a jointed rod, fastened to the handle of the griddle. The handle slides along the shaft, and projects the jointed rod through an inclined tubular jaw cast on the upper frame, and thus the frame is raised.



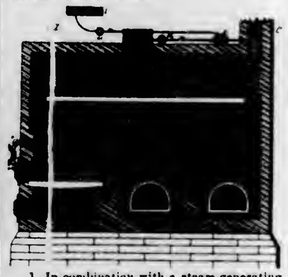
1. The combination, with the opening and closing gridiron or frame and shaft or stem of the stationary gridiron or frame, of the handle constructed to slide on or along said shaft or stem, and having combined with it mechanism or devices for both opening and closing the movable gridiron or frame by the sliding motion of the handle, essentially as specified.

2. The combination of the jointed extension-bar D' with the rod D, the sliding handle E, and the tubular jaw *d* of the movable gridiron or frame A', substantially as and for the purposes herein set forth.

3. The combination of the tubular slotted stem or shaft C with the screw *b*, the stationary gridiron or frame A, the detachable movable frame A', and the detachable sliding handle E, and means for opening and closing said movable frame, whereby the packing of the parts in a small space or compass is facilitated, substantially as described.

195,089. COMBINED STEAM AND GAS GENERATING APPARATUS. Wm. F. Browne, New York, N. Y., assignor to Hydrocarbon Steam Generating Company. [Filed Dec. 27, 1876.]

Brief.—Steam and liquid hydrocarbon are decomposed by passing them through incandescent carbonaceous matter in retorts, and the gas thus generated is supplied by tuyere-pipes above and below the retorts in the fire-box, where it is burned. The hydrocarbon liquid and steam previous to admission to the decomposing-retorts are passed through a superheating-coil in the chimney of the furnace. Coal gas is generated, enriched by liquid hydrocarbon, and purified by passing through purifying substances in a retort placed in a chamber below the combustion-chamber. The heating and the illuminating gases are stored, and the latter are compressed into receivers for distribution.



1. In combination with a steam generating furnace, a retort or retorts, with their induction, eduction, and tuyere pipes connected thereto, and tuyere-pipes terminating in openings within the walls of said furnace, whereby the gases are discharged from the tuyere-pipes directly into the fire-chambers in which the retorts are located.

2. In combination with the furnace of a gas-generating apparatus, a combined bridge-wall and retort, in combination with the flues beneath said retort and the deflecting bridge-wall, as and for the purpose set forth.

3. The heating or drying chambers in the rear of the bridge-wall and beneath the combustion-chamber of a steam and gas apparatus, in combination with said apparatus, substantially as and for the purpose specified.

4. A purifier, *g*, placed in a chamber beneath a combustion-chamber of a steam and gas generator, the chambers being connected by the flues *e' e*, for conducting heat to and from said purifier, for the purpose specified.

5. A gas-generating retort in the uptake of a chimney, for utilising the escaping heat, in combination with decomposing-retorts within the furnace or fire-chamber of a steam and gas generating apparatus, and eduction and tuyere pipes for conducting gases from said retorts into the fire-chamber in which said retorts are located.

6. A tuyere pipe or pipes, *p*, opening above the retorts and discharging their gases between the tops of the retorts and crown of the fire-chamber of a gas-generating apparatus, in combination with the retorts in which the gas is made, and furnace of said gas-generating apparatus.

7. The tuyere pipes *p'* opening below the retort, and discharging their gases into a furnace beneath the bottom of the retorts *a b c*, in combination with the tuyere-pipes *p*, retorts *a b c*, and furnace of a gas apparatus.

8. The main pipe *x*, for conducting gas from retorts to and through the tuyere-pipes *p p'*, and within the furnace in which the retorts are located, in combination with said retorts, tuyere-pipes, and furnace.

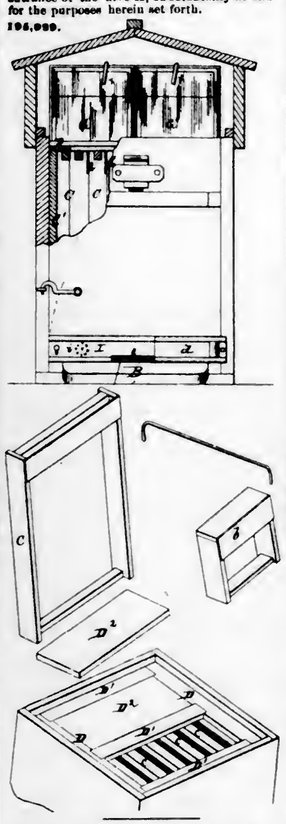
9. In combination with a steam-generating apparatus, retorts for manufacturing, heating, and illuminating gases by the decomposition of steam, hydrocarbon, and carbonaceous substances, and the purifier beneath the combustion-chamber of said apparatus, as shown, for purifying said gases.

195,090. BEE-HIVES. Jno. Burnham, Milan, Mich. [Filed Apr. 12, 1877.]

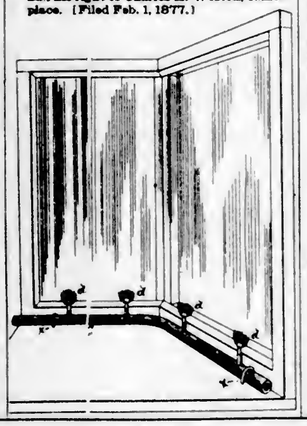
1. In combination with the frames C, the stationary side pieces D D and the removable end and center pieces D^1 D^2 D^1, and the independently-removable sections D^3 D^3, all substantially as and for the purposes herein set forth.

2. The pivoted gate I, extending the entire width of the hive, provided with ventilating-openings *i*, bee-entrance *s*, and slide *d*, and arranged in connection with the bee-entrance of the hive A, substantially as and for the purposes herein set forth.

195,099.

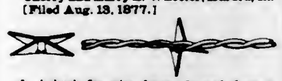


195,099. GAS PIPES AND BURNERS FOR PREVENTING FROST ON SHOW-WINDOWS. W. E. Chase, Lowell, Mass., assignor of one-half his right to Charles H. Weston, same place. [Filed Feb. 1, 1877.]



The gas-pipe *c*, provided with a series of burners, *d d*, and secured upon the bottom of a show-window, and in close proximity to the glass of the same, by means of staples *x x* or equivalent devices, as and for the purpose herein set forth.

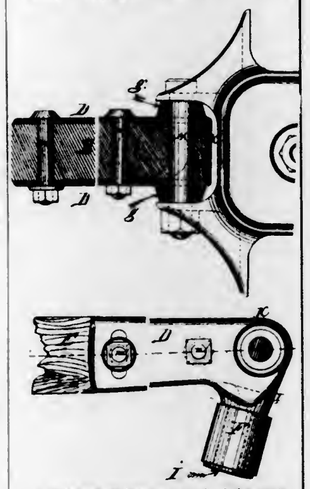
195,091. BARBED WIRE FENCES. Hamilton Cherry and Harry E. Wheeler, Aurora, Ill. [Filed Aug. 13, 1877.]



1. A barb for wire fences formed from a single piece of metal, having four or more prongs or points, and bent and doubled upon itself at the center, substantially as shown and described.

2. A barbed wire for fences, composed of barbs formed from a single piece of metal, having four or more prongs or points, and bent or doubled upon itself, as described, and a twisted-wire cable holding such barbs to place by means of its strands.

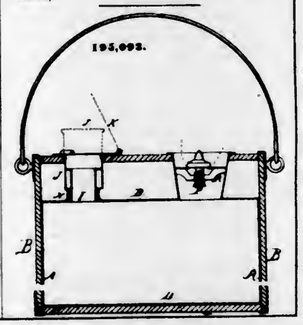
195,092. RAKE-ELBOWS FOR HARVESTERS. Orville Cooley, Brockport, N. Y., assignor to Johnston Harvester Company, same place. [Filed Mar. 17, 1877.]



1. The iron casing composed of the parts D K I *g*, cast in one piece, and adapted for attachment to the rake-arms, and having the friction-sleeve F, surrounding and permanently attached to the casting I, substantially as described.

2. The rake-arm E, constructed as described, combined with the socket D I, adjusting-bolt *m*, and pivot-bolt *n*, the arm extending past the pivot-bolt within the socket and abutting against the casing K, substantially as described.

195,093.

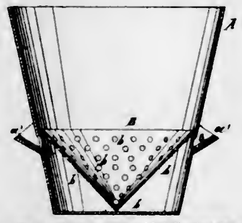


195,095. SHIPPING-CANS. Daniel Crosks, Milwaukee, Wis. [Filed Feb. 14, 1877.]

In combination with the can A and case B, provided with the securing-cover K, the fixed tube I, and movable tube or sleeve J, and the spring N, the latter surrounding the tube I, and bearing on the under side of the sleeve J, substantially as and for the purpose specified.

195,094. FLOWER-POTS. Joshua Crowther, Chicago, Ill. [Filed Oct. 19, 1876.]

Brief.—The pot has holes formed in its side for the introduction of water, and is provided with a conical-shaped perforated diaphragm or false bottom, of such size that when in position its upper edge will be a little above said holes, with its inverted apex resting on the bottom of the pot. Both air and water can circulate freely about the roots of the plants, and the capillary attraction of the soil will equalize the distribution of the water.

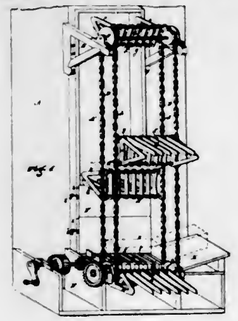


1. The conical or pyramidal diaphragm or false bottom B, having its inverted apex extended into the water-space for distributing the water, substantially as set forth.

2. The conical-shaped diaphragm or false bottom B provided with holes *b*, in combination with the pot A having one or more holes, *a*, substantially as and for the purposes specified.

195,095. ICE-ELEVATORS. H. P. Crowell, Philadelphia, Pa. [Filed Mar. 15, 1877.]

Brief.—The ice cannot slip out of the open side of the buckets, as this side fits up close to the house.



1. The L-shaped arms or grates G, secured at their angles and at one of their ends to the transverse rods *d d*, uniting the chains *d' d'*, substantially as shown and described.

2. In combination with the traveling band D, having projecting arms G, the slotted or skeleton platform I, substantially as shown and described.

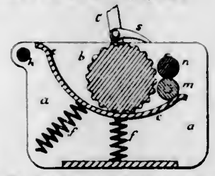
3. The gates or shutters B, having beveled ends *b* and hooks *b'*, substantially as shown and described.

4. The combination of the gate B', having hooks *b'* and pins *b''*, with the slide C, having hooks or eyes *c*.

5. The combination of house A, gates B B', slide C, traveling band D, beams E, windlass F, guards H, slotted platform I, incline K, and stop K', the parts being constructed and arranged for operation substantially as shown and described.

195,096. WASHING-MACHINES. James K. Cummings, Ladonia, Tex. [Filed June 5, 1877.]

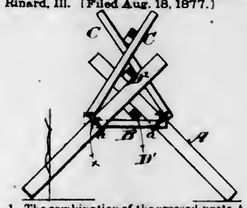
Brief.—The clothing is fed in, and cleansed between the yielding apron and the fluted roller, (which latter has a fixed axis, and reciprocates in the arc of a circle,) and is drawn out through the wringing-rollers by the slow rotation of the under wringing-roller.



1. The combination of the fluted roller *b*, having a reciprocating rotary motion on a fixed axis, the apron *a*, supported on springs *f*, and the rollers *m* and *n*, the roller *m* having a slow rotary motion, substantially as described, and for the purpose set forth.

2. The combination of the roller *b*, apron *a*, rollers *m* and *n*, arm *c*, pawl *s*, and ratchet *r*, the whole combined substantially as described, and for the purpose set forth.

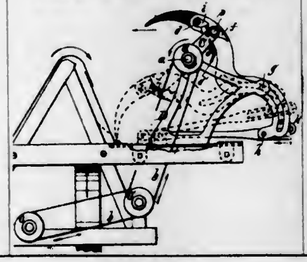
195,097. FENCES. Isaac N. Cunningham, Rinard, Ill. [Filed Aug. 18, 1877.]



1. The combination of the crossed posts A A, cross-bar B, and auxiliary posts C C, constructed and arranged substantially as and for the purposes set forth.

2. In combination with the posts A A and C C and cross-bar B, the wire *a*, having one end doubled and passed through the cross-bar B and post A, forming a loop, *x*, and one end passed around the two parts, thence through the loop and the end of the post C, and the two ends twisted together, all as set forth.

195,098. GRAIN-BINDERS. Henry Curtis, Chicago, Ill., assignor to John H. Gordon, Rochester, N. Y. [Filed Apr. 16, 1877.]



1. In a grain-binding machine, the combination of a sinuously-slotted binder-arm carrier, a fixed stud having said carrier mounted and arranged to slide thereon, and a rotating driving-crank connected directly with the carrier, substantially as shown and described.

2. The crank C, provided with a finger, *f*, in combination with the compressing-rod *d*, provided with the lug *i* and guard *o*, substantially as shown and described.

3. In a grain-binding machine, a driving-crank provided with a finger, *f*, a binder-arm carrier mounted on and carried by said crank, and a compressing-rod, *d*, arranged and operated by means of the finger, substantially as shown and described.

4. The combination of the slotted binder-arm carrier F, mounted on the crank C, and fixed stud *g*, with the stud *h*, bar H, binder-arm, and bar P, substantially as shown.

5. The combination of the binder-arm and slotted carrier F, mounted on the fixed stud *g*, and crank C, with the stud *h*, bar H, and movable twister-operating device L, substantially as shown.

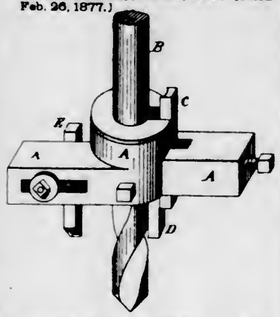
6. In a grain-binder, the combination of a binder-arm and a sinuous or bent carrier attached thereto, a rotary driving-crank connected to and bearing said carrier, and a fixed stud or guide, *g*, having the carrier arranged to slide and pivot thereon as it is moved by the crank, so that as the carrier is moved by the crank it receives by the action of the guide a sinuous or irregular movement, substantially as shown and described.

195,099. FELTED FABRICS. P. A. Dailey, Brooklyn, N. Y. [Filed Feb. 21, 1877.]



A felt fabric having a felted backing and a facing of colored threads arranged regularly, but separated, and jointly with said backing, producing a regular face-pattern, as set forth.

195,100. DRILLS FOR SOCKET-COUPLINGS. William H. Dailey, Omaha, Nebr. [Filed Feb. 26, 1877.]



The head A, with its cutters C D E, adjusted and arranged as described, in combination with the tool B, as and for the purpose specified.

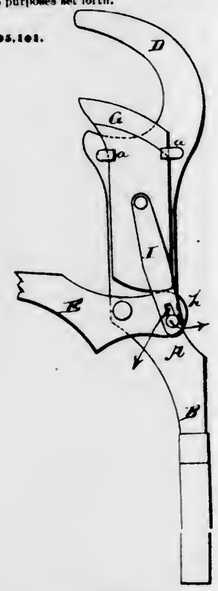
195,101. PRUNING-SHEARS. Peter Davison, Wiota, Wis., assignor of one-half his right to C. J. Campbell, same place. [Filed July 21, 1877.]

Brief.—A complex arrangement of an operating-lever having an eccentric, and of a slotted connecting-bar, guide-lugs, &c., serves to connect and operate a stationary hook-plate and a movable chisel-blade or cutter, the construction giving great leverage, and enabling the cutter to be easily removed for grinding.

1. In a pruning-shears, the combination, with a stationary hook-blade, D, of a movable blade, G, operating-lever e, having eccentric A, and the connecting slotted bar I, attached to the movable blade and operating-lever, substantially as described, and for the purposes set forth.

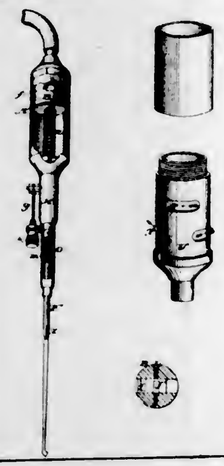
2. The combination of the bar A, having slot *d* and hook D, the blade G, guide-lugs *a a*, bolt *b*, lever E, having eccentric *h*, and the connecting-bar I, all substantially as and for the purposes set forth.

195,101.



195,102. PNEUMATIC DENTAL MALLETS. S. W. Dennis, San Francisco, Cal. [Filed June 21, 1877.]

Brief.—The valve is within, and moves transversely to the piston. The outside of the cylinder is provided with passages and ports, which register with the valve-chamber to shift the valve, and with the valve-ports to supply air to drive the piston down, and exhaust the air from above the piston to allow it to be returned by a spring.



1. The combination and arrangement together of the piston B, with its ports and passages *i j k* and its reciprocating valve *b*, the cylinder or chamber A, with its supply and exhaust passages and channels *c c' c² d d' d²*, communicating with the interior of the cylinder, and the coil-spring *e*, substantially as herein set forth, for producing a rapid vibration of the piston, as described.

2. The combination of the piston B, provided with the passages *i k*, with the reciprocating valve *b*, having passages *f f'*, and operating at right angles to the travel or momentum of the said piston, and acting to connect and to close the ports *i j k*, substantially as and for the purposes set forth.

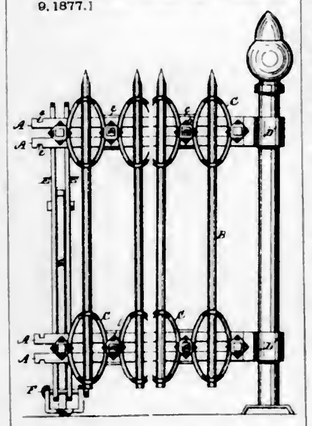
3. The cylinder A, with the passages and channels *c c' c² d d' d²*, substantially as described, and the ports therein communicating with the interior of the cylinder, in combination with the reciprocating piston B, which acts as a valve to govern the ports in the cylinder, and carries an auxiliary valve, moving at right angles to the movement of the piston, for controlling the supply and exhaust passages in the main valve or piston, substantially in the manner herein described.

4. In a dental mallet or plugging-tool, the combination, with the cylinder or chamber A, of the fixed sleeve H and the sliding and adjustable hollow stem G, holding the rod F, for the purpose of regulating and graduating the force or intensity of the blows of the instrument, substantially as herein described and set forth.

5. In a dental mallet or plugging-tool, the combination of the piston B, forced forward by pneumatic pressure, with the spring *e*, for returning such piston to its first position when the pneumatic pressure is removed, substantially as described.

6. In a dental mallet or plugging-tool, the combination, with the piston B, forced by pneumatic pressure and returned by the spring *e*, of the tool-holding rod F, adapted to be driven forward by the movement of such piston, and the spring *o* for retracting the said rod, substantially as described and shown.

195,103. IRON FENCES. Samuel H. Dickey and J. D. Davis, Oxford, Pa. [Filed Aug. 9, 1877.]



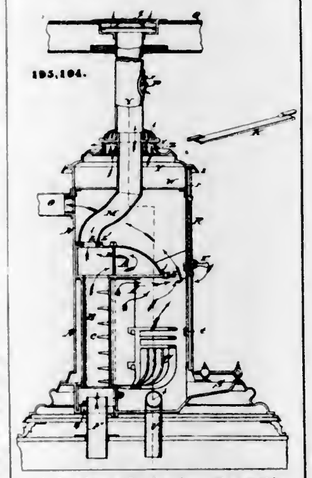
1. The pairs of parallel bars A A, arranged one above the other, in combination with the pickets B, the springing ornament C, the bolt *a*, clamp *b*, and washer *c*, said bolt passing through the slot or space between each two rails of a pair, and holding the pickets and ornaments by friction with the rails, substantially as and for the purpose described.

2. The line-post and brace, consisting of the pivoted parallel bars E E, the pivot-rod F, the brace G, and the slotted base, substantially as described, for the purpose of adapting the post to the line of the fence.

3. The clamp *x* and bolt *y*, for holding the rails at their junction, in combination with the slotted rails and the posts, as set forth.

195,104. FIRE-PLACE STOVES. Jacob K. Dimmick and Frederick A. Stine, Cincinnati, Ohio. [Filed Apr. 14, 1877.]

195,104.



1. In a heater for fire-places, the combination of vertical pipes B, laterally connected to form a close fire-back, and extending in vertical lines from the bottom of the grate-basket to the crown of the fire-place, and joined to a hot-air receiver which projects over the fire, substantially as and for the purpose specified.

2. The combination of pipes B, laterally connected to form a closed fire-back and vertical throughout or arching over the fire, hot-air receiver A extending over the fire, hot-air conducting-pipe M, and stove-shell N O, substantially as and for the purpose specified.

3. In combination with the stove-shell N and fire-place C, the sliding adjustable blower-plate R and gravitating catches T, operating substantially as and for the purpose specified.

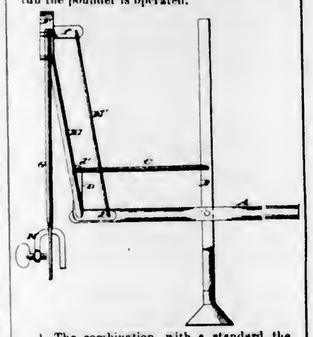
4. The pipes B, formed with flanges *b*, substantially in the manner and for the purpose specified.

5. The pipes B, formed with interior projections *c*, projecting inward from the side directly exposed to the fire, substantially as and for the purpose specified.

6. The combination of side pipes B, slots *d*, bolts *e*, lugs *f*, and side jambs V, substantially as and for the purpose specified.

195,105. WASHING-MACHINES. Cyrus A. Dodge, Muncie, Ind. [Filed July 23, 1877.]

Brief.—By means of the two parallel vertical rods and connecting mechanism the pounder-shaft is always maintained in a vertical position, notwithstanding the degree of inclination of the lever-handle in whatever portion of the tub the pounder is operated.



1. The combination, with a standard, the lower end of which is adapted to be secured to a tub, of two parallel rods, their upper ends swiveled to the standard, while the lower ends are pivoted to the operating-lever, to which is pivoted the pounder-handle, substantially as described.

2. In a pounder washing-machine, the combination, with the parallel rods swinging at an angular inclination to the vertical, of the swivel connecting the same with a supporting-standard, substantially as described.

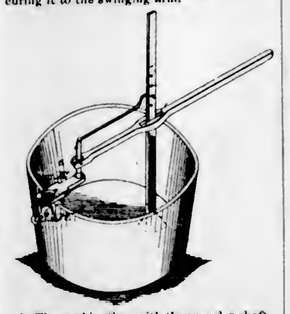
3. In a pounder washing-machine, the combination, with the standard and swivel, of the parallel swinging rods, the bell-crank, and the lever-handle, substantially as described.

4. In a pounder washing-machine, the combination, with the parallel swinging rods, of the bell-crank, pivoted to the lever-handle, substantially as described.

5. The combination, with the bell-crank, pivoted to the lever-handle, of the horizontal guide-rod, the pounder-shaft, and the parallel vertically-swinging rods, substantially as described.

195,106. WASHING-MACHINES. CYRUS A. Dodge, Chicago, Ill. [Filed Sept. 6, 1877.]

Brief.—The arm which carries the fulcrum-support of the lever-handle is constructed to rotate about its own pivotal axis, causing the arm to swing in a horizontal plane freely about the tub, and the handle is loosely connected to an upright secured to the free extremity of the swinging arm, which permits the handle to have an angular movement in a vertical line, while the fulcrum itself has an independent rotary movement upon a pivotal axis, securing it to the swinging arm.



1. The combination, with the pounder-shaft, handle, and guide-rod, of a single supporting upright, the latter adapted to have rotary movement in a horizontal line, substantially as described.

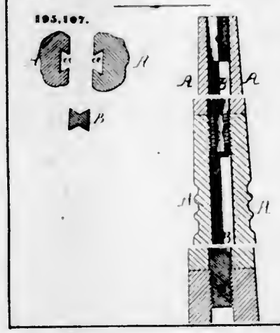
2. The combination, with the actuating-handle, of the supporting-arm adapted to have a rotary movement in a horizontal line, substantially as described.

3. The combination, with the handle and horizontally-swinging arm, of the connecting upright, the latter adapted to have an independent rotary movement in a horizontal line, substantially as described.

4. In a pounder washing-machine, the combination, with the horizontally-swinging arm, of the supporting-pivot working in a slot formed in the end of the swinging arm, substantially as described.

5. The combination, with the handle, guide-rod, and pivotal upright, of the horizontally-swinging arm, a suitable clamp, and connecting adjustable mechanism, substantially as described.

195,107.



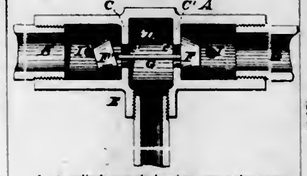
195,107. UMBRELLA-HANDLES. Charles F. Dollner, Philadelphia, Pa. [Filed Jan. 22, 1877.]

1. A handle for umbrellas and other articles, composed of two or more pieces, A, of bone, having dovetailed grooves *a* in their inner faces, in combination with a dovetailed strip, B, as and for the purpose set forth.

2. The dovetailed strip B for umbrella and other handles, the said strip having a screw-thread formed at one or both ends, as set forth.

3. The combination of a composite section of a bone handle with a central strip, B, arranged, as described, so as to serve not only as a means of uniting the pieces of the section together, but of uniting said section to an adjacent section or sections, as set forth.

195,108. AUTOMATIC CYLINDER-COCKS. H. W. Dopp, Buffalo, N. Y. [Filed July 6, 1877.]



1. A cylinder-cock having two valve-seats and two alternately-acting stemless valves, and the separate bar interposed between said valves, as and for the purpose stated.

2. A valve arranged to bear against a vertical seat, consisting of a frustum of a cone whose base forms the valve-seat, and whose base edge is the point of support of said valve, substantially as described, in virtue of which arrangement said valve, when not under pressure, is caused to open by gravitation, as specified.

3. As an improved article of manufacture, a cylinder-cock consisting of a suitable casing having two valve-seats, provided with valves arranged to open and close under the influence of pressure acting alternately upon them in virtue of their arrangement, and an intermediate mechanism, substantially as described, interposed between said valves, and to open automatically when pressure ceases, as and for the purpose specified.

4. As an improved article of manufacture, a cylinder-cock consisting of a suitable casing having two valve-seats, provided with valves arranged to open and close under the influence of pressure acting alternately upon them in virtue of their arrangement, and an intermediate mechanism, substantially as described, interposed between said valves, and to open automatically by gravitation when pressure ceases, as and for the purpose specified.

5. As an improved article of manufacture, a cylinder-cock consisting of a suitable casing having two valve-seats, provided with valves arranged to open and close under the influence of pressure acting alternately upon them in virtue of their arrangement, and an intermediate mechanism, substantially as described, interposed between said valves, said valves having their center of gravity located outside of their point of support, in virtue whereof said valves will open automatically when pressure ceases, substantially as and for the purpose specified.

6. The cylinder-cock hereinbefore described, consisting, essentially, of the pipe A, having the two seats C C', valves F F', arranged to open automatically, when not under pressure, by their own gravity, and the discharge-pipe E, as stated, as and for the purpose mentioned.

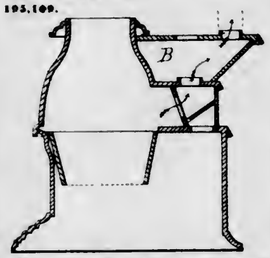
7. A cylinder-cock, substantially as heretofore described, consisting, essentially, of the pipe A, having the seats C C' and the valves F F', arranged to open automatically when not under pressure, as and for the purpose stated.

8. The combination, with the pipe A, having the double valve-seats C C' and the branch E, of the valves F F' and the pins I, said valves being arranged with capability of automatically opening when not under pressure, as and for the purpose stated.

9. The combination, with the two vertical valves F F', of the separate bar G, as stated.

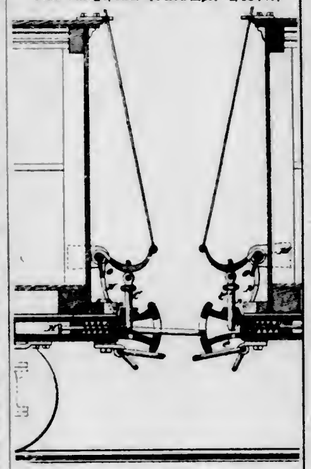
195,109. CULINARY ATTACHMENTS TO BASE-BURNING HEATING-STOVES. J. Dwyer and G. H. Barbour, Detroit, Mich., assignors to Michigan Stove Company, same place. [Filed June 23, 1877.]

195,109.



The portable culinary attachment B, adapted to fit the back and fire-case or exit of a magazine heating-stove, substantially as described.

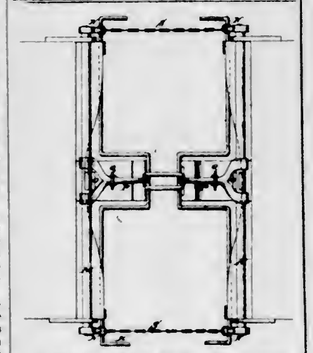
195,110. CAR-COUPLINGS. D. B. Eberly, Pine Village, Ind. [Filed Apr. 14, 1877.]



1. The combination, substantially as specified, of shaft M, with hand-levers at both ends and the rigid arm O at the center, the lifting-lever P loosely pivoted on said shaft and the coupling-pin.

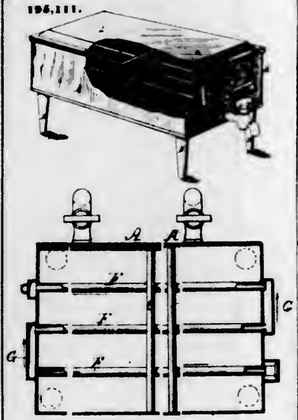
2. In combination with the hand-levers N and the coupling-pins C C', the connecting-chains S, operating substantially as and for the purpose specified.

195,111. MILK-COOLERS. John S. Elliott, Trout River Lines, N. Y. [Filed Aug. 18, 1877.]



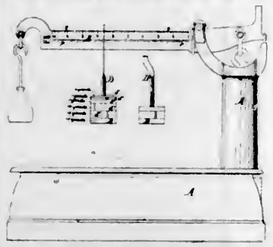
In combination with the vessel A and series of longitudinal pipes F opening through the ends of the vessels, the metallic connections or boxes G, secured to the exterior of the vessel and alternately connecting the opposite ends of said pipes, substantially as and for the purpose described.

195,111.



195,112. PLATFORM-SCALES. Franklin Fairbanks and L. G. Spencer, St. Johnsbury, Vt., assignors to E. & T. Fairbanks & Co., same place. [Filed Mar. 10, 1877.]

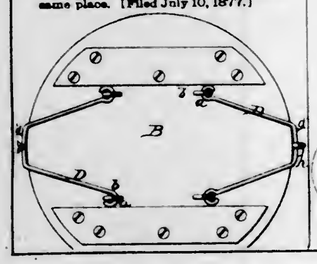
Brief.—Determines weight of cloth per yard.



1. The cloth-weighing scale described, having a beam carrying the graduations *q*, adapted to indicate the ounces per yard, in combination with the poise D having removable parts d^1 d^2, which allow the device to readily apply to different lengths of cloth, as herein specified.

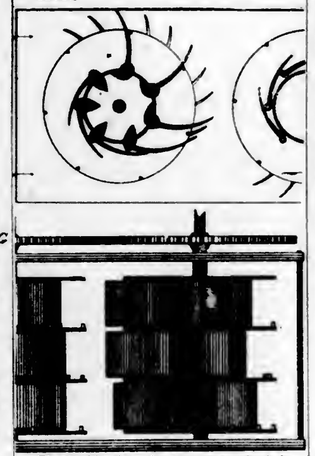
2. The sectional poise D d^1 d^2 d^3, distinctively marked, as shown, in combination with a platform-scale and with the scale-beam H, having both a series of graduations, *p*, indicating the total weight of the load, and another series of graduations, *q*, indicating the weight per yard of the goods, as herein specified.

195,113. BUTTER-TUBS. Emery W. Fenton, Jamestown, N. Y., assignor of two-thirds his right to Samuel Sweet and A. Kibling, same place. [Filed July 10, 1877.]



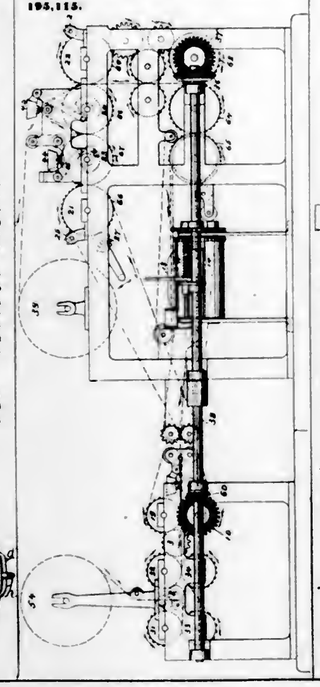
In combination with the pail A and cover B, the wire bails D D, constructed as described, having their ends spread apart, and fastened to the cover by staples *b*, and their centers forming loops *d*, and the hooks h, whereby four lines of bearing are obtained from four points on top of the cover, all substantially as and for the purposes herein set forth.

195,114. WATER AND WIND WHEELS. A. Folsom, Barrington, R. I. [Filed Mar. 21, 1876.]



The combination of two or more wheels in the same sluiceway, in the manner herein substantially set forth, and the extension-stops *d d*, as and for the purpose specified.

195,115.



195,115. DUPLEX PRINTING-MACHINE AND FOLDING APPARATUS COMBINED. Edwd. L. Ford, New York, N. Y., assignor to R. Hoe & Co., same place. [Filed July 9, 1877.]

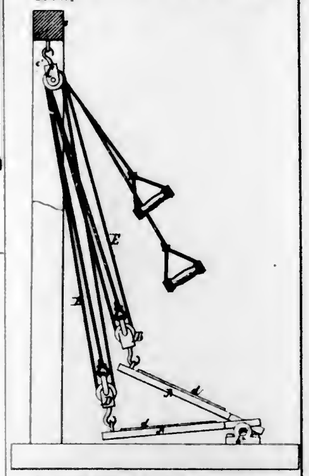
1. The combination of two independent printing mechanisms which produce two printed sheets with mechanisms for automatically associating said sheets together, and folding and delivering the same as a single product, all substantially as described.

2. The combination of a folding apparatus with two independent printing mechanisms, whereby the products of the printing mechanisms are automatically carried into the folding apparatus and simultaneously doubled or folded, all substantially as described.

3. The combination of pasting devices, folding apparatus, and two independent printing mechanisms and connecting mechanisms, whereby sheets from the printing mechanisms are automatically pasted along the proper margins, and simultaneously doubled or folded to form a single product, all substantially as described.

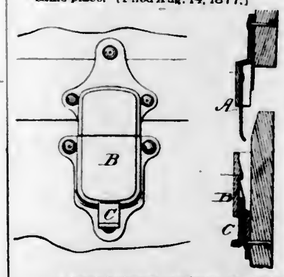
4. The method of automatically printing webs of paper, cutting the same into sheets, automatically associating said sheets one over the other, and simultaneously folding said sheets together to form a single product, all substantially as described.

195,116. EXERCISING-MACHINES. S. Conant Foster, New York, N. Y. [Filed Aug. 4, 1877.]



In combination, as an apparatus for producing muscular exercise, the treadles A, blocks C and D, and the rope E, all arranged as specified, to operate as set forth.

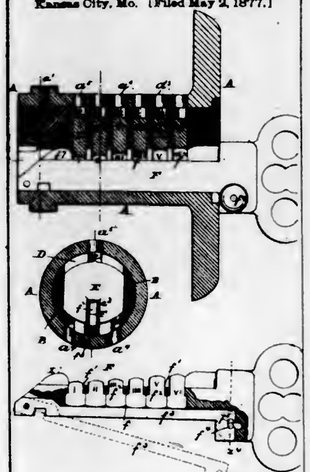
195,117. TRUNK-FASTENINGS. A. Frankel, Newark, N. J., assignor to J. Lagowitz, same place. [Filed Aug. 14, 1877.]



1. A trunk-fastening consisting of a spring-hasp, a socket or catch to interlock therewith, and a sliding thumb-piece to release the hasp, substantially as shown.

2. In a trunk-fastening, a spring-hasp, A, and a catch or socket, B, adapted to interlock therewith, in combination with a vertically-moving unlocking-slide, C, arranged to move upward under the end of the hasp, and be retained by the pressure thereof until the trunk is opened, and then fall by gravity to permit the automatic relocking of the hasp when the trunk is closed.

195,118. LOCKS AND KEYS. C. A. Gerard, Kansas City, Mo. [Filed May 2, 1877.]



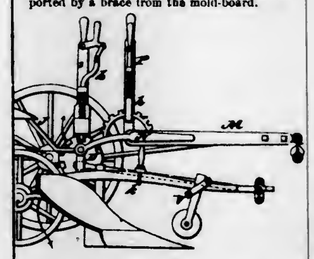
1. The tumblers E, provided with pins e e^1, in combination with the case A, provided with perforations for the engagement of said pins.

2. The combination of the case A, transverse latch a^1, and barrel B, grooved at *b*, substantially as set forth.

3. The combination of wards or blocks f^1, bar f^2, and catch f^4, substantially as and for the purpose set forth.

195,119. SULKY-PLOWS. Jos. F. Glidden and Phineas W. Vaughan, De Kalb, Ill. [Filed Aug. 18, 1877.]

Brief.—The plow-beam is rigidly attached to the axle-tree. The land-wheel is joined to the axle-tree by a crank adjusted by a rack and pinion, and the plow is vertically adjusted by another rack and pinion mounted upon the rear end of the tongue, which is pivoted to the outer end of the axle-tree. A furrow-wheel is attached to the rear end of the beam, and supported by a brace from the mold-board.

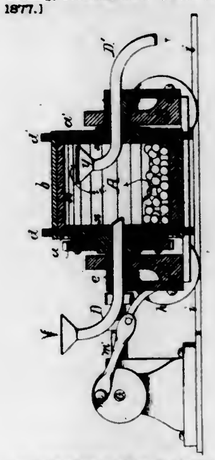


1. In a sulky-plow, the furrow-wheel placed upon a spindle supported directly in the rear end of the plow-beam, and in an arm attached to the plow, substantially as set forth.

2. The combination of the axle C, adjustable bar L, pivoted arms N N, and tongue M, as set forth.

3. The combination of the tongue M N, elbow-lever P, link S, with slot *x*, and the plow-beam with adjustable clip *k*, having projecting pin *i*, substantially as and for the purposes set forth.

195,120. TRITURATING-MACHINES. Moses Golding, Trenton, N. J. [Filed July 28, 1877.]



1. A triturating-machine in which a vessel containing balls is combined with mechanism through the medium of which the said vessel receives both a rotating and reciprocating motion.

2. The combination of the vessel A, the carriage B, and its wheels A, with rails adapted to the wheels, substantially as described.

3. The combination of the vessel A, its hollow journals, and inlet and outlet pipes, with a reciprocating carriage, B.

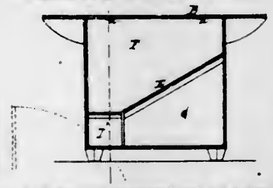
4. The combination of the vessel A with outlet-pipe D^1, turned upward within the vessel, as and for the purpose set forth.

5. The combination of the driving-shaft G, the carriage B, its vessel A, and devices by which the shaft is caused to reciprocate the said carriage, in combination with mechanism by which a rotating movement is imparted to the vessel from the same shaft, all substantially as set forth.

6. The combination of the carriage B and vessel A with the shaft J, the sleeve K, driven by and arranged to slide on the shaft, and geared to the said vessel A, all substantially as set forth.

7. The combination of the shaft J, the carrier N, and its pins *i*, with the sleeve K arranged to slide on the shaft, and having arms *q q* for receiving the pins, all as described.

195,121. FUEL-BOXES. Charles Gunner, Yorkers, N. Y. [Filed Mar. 24, 1877.]



1. A fuel-box constructed with the obliquely-inclined partition E, the compartments F G, the pit I, and one or more doors, H, substantially as described, and for the purpose set forth.

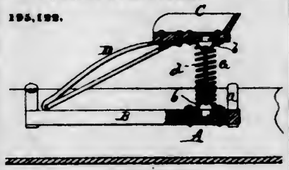
2. As new article of manufacture, the fuel-box described, consisting of body A, having inner inclined partition E, dividing the compartments F G, the pit I, door H, and table-top B, having folding leaves C and hinged supports D, all as and for the purpose set forth.

195,122. VEHICLE-SEAT SPRINGS. Richard H. Guyer, La Fayette, Ind. [Filed Aug. 13, 1877.]

1. The combination of the springs G, hollow thimbles or nipples *b*, and the bolts or rivets *d* with the seat and supporting-bars, as set forth.

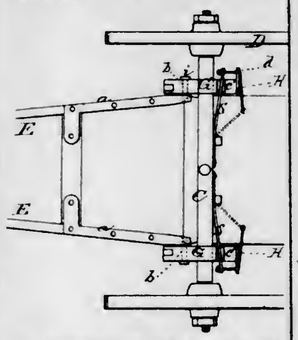
2. The combination, with the seat, of the springs G, levers D, and suspended spring-bars B, all constructed substantially as and for the purposes herein set forth.

195,122.



195,123. APPARATUS FOR DETACHING HORSES. Jeremiah L. Hattery, Charlottesville, Va. [Filed Aug. 20, 1877.]

Brief.—By pulling the cord the lower portion of the hinged clamp turns with the forward movement of the horse, and the thills are released.

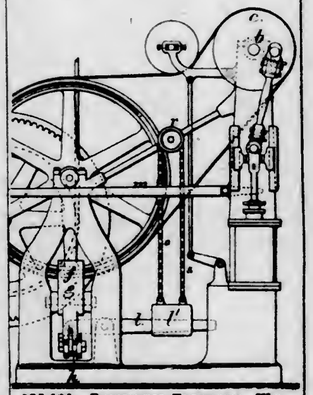


1. The combination, with the axle C and thills E, having spindles *b*, of the hinge-clamp G, having in its wings half-bearings, the springs S, having eyes *j*, the operating-cord H, and the pulleys *k* upon the dash-board, substantially as specified.

2. The hinge-clamp G, consisting of the wings *c c*, having each a half-bearing, *o*, adapted to receive the spindle, in combination with the springs S, having each an eye, *j*, substantially as specified.

3. The hinge-clamp G, consisting of the wings *c c*, hinged together at one end, having each a half-bearing, *o*, and adapted to be removably clamped around the spindles of the thills, said spindles having terminal heads *i*, substantially as specified.

195,124.



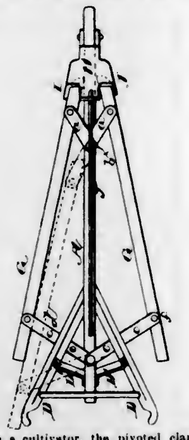
195,124. BRAKES FOR ELEVATORS. Wm. F. Healy and James Beggs, Paterson, N. J. [Filed Aug. 1, 1877.]

Brief.—The starting and stopping lever is attached to the weighted lever, which is provided with toggle-links and brake-blocks to grasp both edges of the band-wheel, and hold the same and the load at the required position.

I. The combination, with the band-wheel in the elevating apparatus, of the brake-blocks *f*, acting at opposite edges of the band-wheel, the levers *g*, toggle-bars *h*, lever *l*, and weight *l'*, substantially as set forth.

2. In combination with the main lever *m* and weighted brake-lever *l l'*, the chains *o* and *s* and pulley *r*, arranged and operating substantially as set forth.

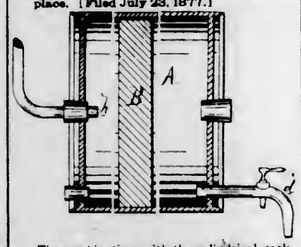
195,125. CULTIVATORS. Alvanes P. Henery, Malta, Ohio. [Filed July 14, 1877.]



1. In a cultivator, the pivoted clamp H, with side arms I, in combination with the center beam A and diverging side beams G G, operated substantially as and for the purposes set forth.

2. In combination with the beams A and G G and the connecting-links *c d*, the pivoted clamp H, with side arms I I, and lever J, substantially as and for the purposes herein set forth.

195,126. BEER-FORCING APPARATUS. A. Hersey, Monroe, Mich., assignor of one-half his right to James P. Scranton, same place. [Filed July 23, 1877.]



The combination, with the cylindrical cask A, of the piston E, fitted water-tight in the said cask, and adapted to be moved in the same by water-pressure, said cask having two holes at each end for the purpose of allowing a faucet, *d*, or pipe *h* to be entered into either end of the cask, substantially as described and shown.

195,127. BOTTLE-CLOSING DEVICES. Wm. H. Hicks, Brooklyn, N. Y. [Filed May 25, 1877.]

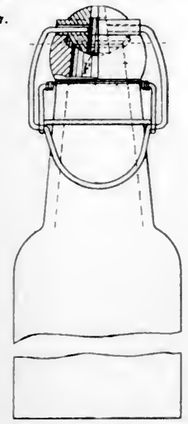
1. The combination, substantially as hereinbefore described, of a stopper for a bottle having a portion of its under surface curved or tapering downward toward its center, a compressible packing-ring on the inner walls of the neck of a bottle, with a closing mechanism, substantially as described, attached under the shoulder of a bottle and jointing to said stopper, all arranged to operate substantially in the manner and for the purposes set forth.

2. The combination, substantially as hereinbefore described, of a stopper for a bottle having a portion of its under surface curved or tapering downward toward its center, and an opening through it closed by a stopper, a compressible packing-piece or ring held within the mouth of the bottle, with a closing mechanism, substantially as described, attached beneath the shoulder of a bottle, all arranged to operate substantially in the manner and for the purposes set forth.

3. A stopper for a bottle arranged to be closed upon the mouth of a bottle by a closing mechanism, substantially as described, and provided with a surface on its under side tapering or curved downward toward its center, to compress the packing between the said tapering or curved surface and the inner walls of the mouth of the bottle, and an opening through it to be closed by a valve or stopper, all arranged to operate substantially in the manner and for the purposes set forth.

4. A bottle provided on the inner walls of its neck, near its mouth, with a seat arranged to hold a compressible packing, with its inner diameter tapering upward and outward from the center-line of the bottle, and arranged to be compressed downward and outward by a tapering or curved stopper pressed upon it from the outside of the bottle to make a tight joint, substantially as and for the purposes set forth.

195,127.



1. An annular or tubular compressible packing-piece for a bottle, substantially as hereinbefore described, surrounded by two flanges, so placed as to form a projection from the under surface of each flange, substantially as and for the purposes set forth.

2. A double-flanged annular packing-piece, having a projection from the under side of its lower flange, surrounded by a re-enforcing band, substantially as and for the purposes set forth.

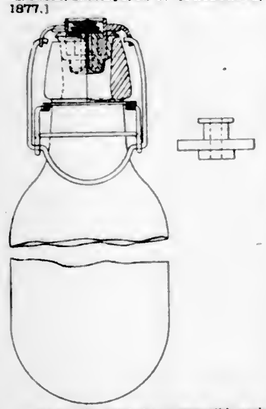
3. The combination of a controlling-wire, curved at its central portion, bent to form eyes or bearings equidistant from its center, beyond said eyes bent at nearly right angles with its central portion, and arranged at its ends to bear in bearings on opposite sides of the neck of a bottle, with a lever-wire, curved at its central portion, bent to pivot in bearings in a controlling-wire equidistant from its center, beyond said bearings or pivots bent to more than a right angle with its central portion, and arranged at its ends to joint to a cap-piece of a bottle, the whole arranged to operate together as a closing mechanism, substantially as and for the purposes set forth.

4. The combination of a cap-piece for a bottle, substantially as hereinbefore described, having an opening through it of different diameters, a flange projecting from its under side surrounding said opening, and provided with eyes or pivots upon opposite sides to connect with a lifting and closing mechanism, substantially as described, whereby said cap-piece may be lifted away from, and closed down upon, the mouth of a bottle uniformly, substantially as and for the purposes set forth.

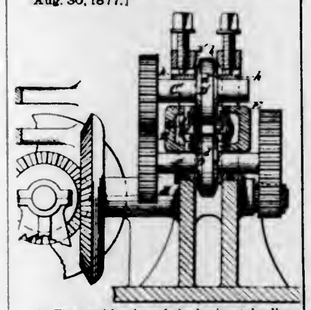
5. The combination of a cap-piece for a bottle, substantially as hereinbefore described, having an opening through it of different diameters, surrounded on its under side by an angularly-projecting flange, and arranged to connect with a closing mechanism, substantially as described, a packing-piece, compressible, having two flanges surrounding it, arranged to form a projection beneath each flange, said packing-piece being perforated through its entire length, substantially as and for the purposes set forth.

6. The combination, in a bottle-closing mechanism, of a cap-piece, substantially as hereinbefore described, having an opening through it of two different diameters, surrounded on its under side by a flange projecting from it, arranged at its edges to connect with a closing mechanism, substantially as described, a double flanged annular compressible packing-piece, a valve connected by a stem, through the opening through said packing-piece, with a cap-plate, perforated or notched, a spring, arranged to operate beneath said cap-plate to close the valve against its seat, and a closing mechanism, substantially as described, all operating or arranged to operate substantially as and for the purposes set forth.

195,128. BOTTLE-CLOSING DEVICES. Wm. H. Hicks, Brooklyn, N. Y. [Filed June 2, 1877.]



195,129. MACHINES FOR ROLLING METAL. Francis Hickman, Reading, Pa. [Filed Aug. 30, 1877.]

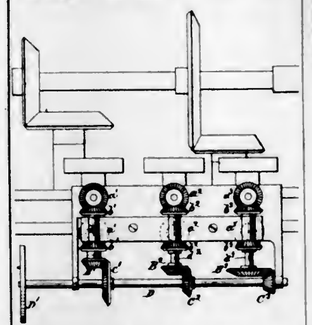


1. The combination of the horizontal roller D, having flat surface *d* and beveled surfaces *b b*, the vertical rollers G G having flat surfaces *f*, beveled surfaces *a a*, and elongated journals *i i*, and placed in the adjustable boxes E E, and the top gravitating roller D', having flat surface *d'* and beveled surfaces *b' b'*, the rollers G G being supported by the roll D, and they in turn supporting the roll D' and receiving their rotary motion by contact therewith, as described, all substantially as and for the purposes herein set forth.

2. In combination with the series of groups of rollers D D' G, constructed and arranged as described, the driving-shaft J, with beveled cog-wheels K of varying size, the shafts M, with beveled cog-wheels L of varying size, and pinions M, the cog-wheels N N of varying size, and the cog-wheels O O of the same size, whereby each cross-shaft M operates two sets or groups of rollers, the rollers of each group rotate at the same speed, and the speed of the groups varies from one end of the machine to the other, all substantially as and for the purposes herein set forth.

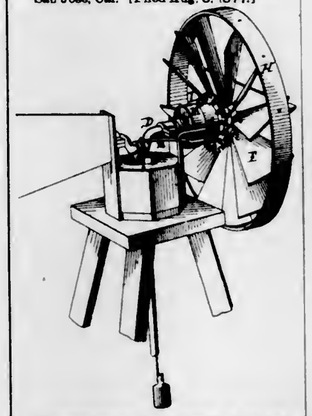
195,130. SCREW-GEARING FOR ROLLING-MILLS. Francis Hickman, Reading, Pa. [Filed May 17, 1877.]

Brief.—The upper rolls are adjusted simultaneously, but to different degrees with relation to the lower ones, by the system of gearing alleged in the claim.



In a rolling-mill having two or more sets of rolls at varying distances apart, the combination, with the gears a^1 a^2 a^3 on the screws of the upper rollers, the shafts d^1 d^2, having gears b^1 b^2, and the gears B^1 B^2 B^3 of varying diameter, and the single shaft D with gears C^1 C^2 C^3 of varying diameter, substantially as and for the purposes herein set forth.

195,131. WINDMILLS. Nicholas Holden, San José, Cal. [Filed Aug. 3, 1877.]

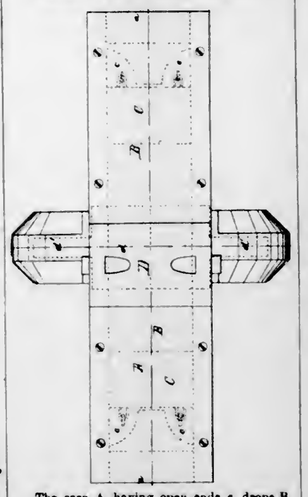


The combination, in a windmill, of the hub and ring G H, pivoted vanes F, provided with arms *e*, notched disk and drum I J, spring K, and shaft D, the several parts constructed and relatively arranged to operate substantially as herein shown and described.

195,132.

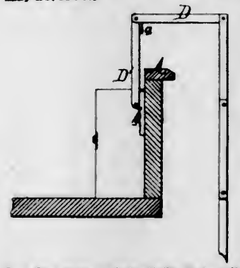


195,133. ANIMAL-TRAPS. James H. Irwin, Cornelia, Mo. [Filed July 10, 1877.]



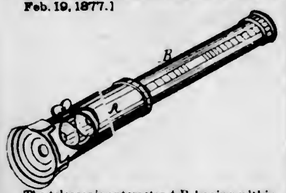
The case A, having open ends *a*, drops B in openings a^1, and having the weighted gates C, together with the intermediate weighted fall D in the opening a^2, arranged to operate as and for the purpose specified.

195,134. FIRE-ESCAPES. Ferdinand Jakel, Detroit, Mich., assignor of one-half his right to Joseph Olfs, same place. [Filed May 26, 1877.]



In a fire escape, substantially as described, the combination, with the folding chain-ladder C, of the bars D, bracket-standards D', having stops *a* and brackets *b*, whereby the said bars D are supported above the window-sill, and the ladder held clear of obstructions, constructed and arranged as shown and set forth.

195,135. OPTOMETERS. George Johnston and Louis Conrath, Detroit, Mich. [Filed Feb. 19, 1877.]



The telescopic optometer A B, having within its shell a pivoted frame carrying lenses of different construction, substantially as and for the purposes set forth.

195,136. TRUNDLE TOYS. Charles C. King, Newark, N. J. [Filed May 3, 1877.]

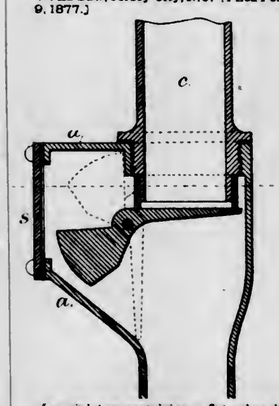
Brief.—Pushing the toy along moves the feet and arms of the suspended doll-figure as if in walking.



1. The combination of the handle A, crank-shaft B, wheels C, arms D, and levers *b* with the adjustable arm F and a doll or other figure, arranged to operate substantially as and for the purpose set forth.

2. In combination with the subject-matter of the preceding clause of claim, the wires or rods *a*, substantially as described.

195,137. TRAPS FOR WASTE-PIPES. George W. La Baw, Jersey City, N. J. [Filed Feb. 9, 1877.]



In a sink-trap containing a flat valve closing upward against an elastic seat, the tube *c*, screwed into the case *a*, so as to adjust the seat to the valve, and the removable cover *s*, secured to the case *a* to give access to the trap without disturbing the valve or seat, substantially as specified.

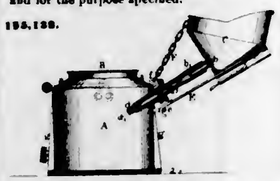
195,138. MILK-PANS. John D. Lathrop, Somerville, assignor of two-thirds of his right to Arthur F. Sutphen, same place, and Samuel S. Bogart, Jr., Jersey City, N. J. [Filed July 13, 1877.]

1. The pail A, in combination with the receiver C, flexible tube D, and an adjustable support, constructed and arranged substantially as described.

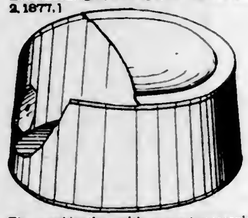
2. The receiver C, flexible tube D, and support E, so attached to the pail A as to admit of a horizontal swinging motion, substantially as and for the purpose specified.

3. The pail A, provided with flanges at the top and bottom, in combination with the vertical supports or braces *g g*, substantially as and for the purpose specified.

195,138.



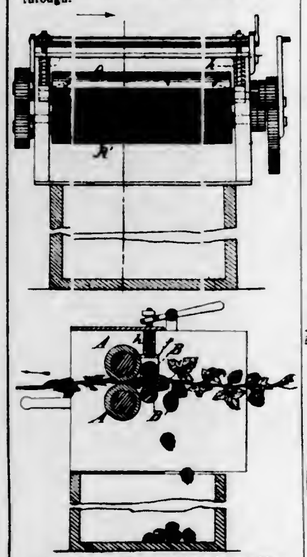
195,139. CANS FOR PACKING MEAT. A. C. Lautenschlager, Chicago, Ill. [Filed Aug. 2, 1877.]



The combination, with a meat-preserving can having the vent-hole *d*, of the rhombus-shaped shield E, turned at its corners and supported on the inside of the can, so as to allow the air to pass out through four or more apertures, constructed substantially as described and shown.

195,140. HOP-PICKING MACHINES. Herbert G. Locke, Waterville, N. Y. [Filed Apr. 3, 1877.]

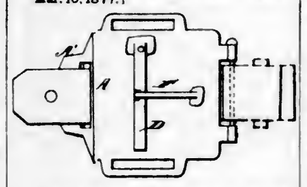
Brief.—A hop-picking machine having two sets of rollers revolving in opposite directions, the inner set clamping the vine, and the outer pressing off the hop as the vine is drawn through.



I. In a hop picking machine, the combination of two rollers for clamping the hop-vine, and two rollers near and substantially in line with the clamping-rollers for picking off the hops, said picking-rollers and clamping-rollers revolving in opposite directions, substantially as described.

2. The combination, with the rollers A A′ for clamping the vine, and the picking-rollers B B′, having bearings *f* seated upon by springs *h*, of a lever connected with the roller B for raising said roller, as and for the purpose described.

195,141. HARNESS-BUCKLES. J. R. Lusby and S. G. Bentley, Le Grand, Iowa; said Bentley assignor to said Lusby. [Filed Mar. 10, 1877.]



The combination of main plate A, having metal strap A^3, with tongue C, springs D and F, and rod E, having thumb-piece E′, substantially as and for the purpose set forth.

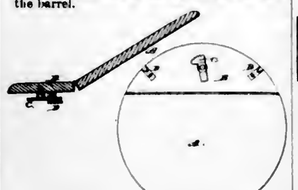
195,142. MANUFACTURE OF GRANULATED CRYSTALLINE CARBONATE OF SODA. Jas. Mactear, Glasgow, Scotland. [Filed July 21, 1877; patented in England, May 8, 1875, for fourteen years.]

1. The within-described process of making granulated crystalline sal-soda—that is to say, by first carbonating the "vat," or "red," or similar liquor, and then concentrating and cooling it under agitation, substantially as described.

2. The process herein set forth of utilizing the residuary liquid—that is to say, by boiling it down and then decomposing it, as set forth.

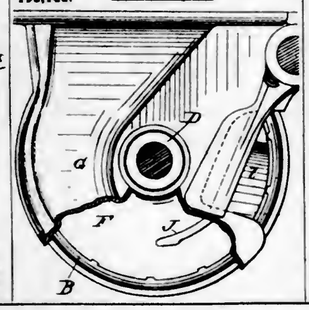
195,143. BARREL-COVERS. Jas. P. Mallette and James Walmsley, Chicago, Ill. [Filed Feb. 16, 1877.]

Brief.—The under side of a sectional barrel-cover is provided with a covering of cloth, canvas, or rubber, extending between the two sections, for preventing dirt from passing through the opening caused by raising the half-lid into the barrel.



The combination of the sections A and B, hinged together, and having their lower surfaces covered with canvas or similar material, with the clamps D and pivoted segmental lever C, constructed to operate as shown and described, and for the purpose specified.

195,144.



195,144. GRAIN-DRILLS. Andrew J. Martin, Springfield, Ohio, assignor to P. P. Mast & Co., same place. [Filed May 6, 1876.]

1. A feed device for grain-drills, consisting of an independent moving rim, B, in combination with fixed or stationary sides, substantially as described.

2. The gate J, arranged to operate substantially as described, in combination with the moving rim B and the stationary sides, for regulating the feed, as set forth.

3. A grain-feeding device, consisting of a case or cup having a delivery-opening in its side, a moving rim for feeding out the grain independently of a vertical wheel, and a device for regulating the quantity of the grain, all constructed, combined, and operating substantially as set forth.

4. The combination of a series of flanged distributing-wheels with a series of gates, operating between the flanges of said wheels and their shaft or hubs, and connected directly to an adjusting rod or shaft located outside of the periphery of said wheels, substantially as described.

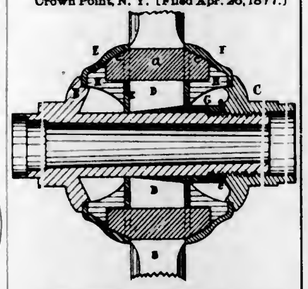
5. The seed-gate formed, pivoted, and operated substantially as shown and described, whereby the form of the measuring-channel between said gate and the inner face of the flange of the distributing-wheel remains substantially the same under the various adjustments of the gate, as set forth.

6. The combination, in a grain-drill, of the shaft E, arm D, and rim B with the stationary sides F and G, substantially as described.

7. The converging seed-channel, delivering the grain in a direction toward the point of the seed gage or valve, and formed in the arc of a circle, of which the pivot of the seed-gage is the center, or nearly so, substantially as shown and described.

8. A feed-wheel for grain-drills having a gate or gage arranged within its channel, so that while a portion of the grain is permitted to escape from the wheel the remainder is allowed to pass freely around with the wheel, whereby it is prevented from being crushed or injured, as set forth.

195,145. VEHICLE-HUBS. S. G. Mason, Crown Point, N. Y. [Filed Apr. 26, 1877.]



1. The combination of the sleeve A, spokes D D, beveled wedges *a a*, collars E and F, and nut C, substantially as and for the purpose set forth.

2. The combination of the spokes D D, beveled wedges *a a*, and conical collars E and F, provided with radial openings *b b*, substantially as set forth,

3. The collar E, composed of an outer and inner shell, and provided with bridges H H and openings *b b*, substantially as set forth.

4. The combination of the sleeve A, conical collars E and F, spokes D D, wedges *a a*, annular wedge G, and nut C, operating substantially as and for the purposes set forth.

195,146. PROCESSES OF MAKING ARTIFICIAL MOSS FOR ORNAMENTING PICTURE-FRAMES, &c. Mary Jane McColl, Allendale, assignor to Sophia Meyenberg, Paterson, N. J. [Filed May 24, 1877.]

The process of making imitation moss by first inserting textile fabric into melted wax, then stretching the coated fabric, as described, and, after allowing the wax to cool, partially removing the same from the fabric, substantially as and for the purpose described.

195,147. TORPEDOES FOR OIL-WELLS. D. C. McIntire, Elk City, Pa. [Filed Aug. 10, 1877.]

Brief.—A detachable tube connected to the bottom of the torpedo contains a sliding rod, which, when the torpedo is lowered, strikes the bottom of the well, and serves as an anvil upon which the cap on the lower part of the torpedo is exploded to ignite the charge.

195,147.



In a torpedo-shell, the sliding rod I, in combination with the shell, capped at its lower end, and the removable tube L, substantially as and for the purpose set forth.

195,148. SLIDING DOORS. A. McQuatters, Chicago, Ill. [Filed Apr. 30, 1877.]



1. The combination, with a sliding door, of a tube affording bearings upon its interior surface for the casters, and slotted longitudinally at the bottom, the casters placed within the tube and the hanger carrying the pivot for the casters, and attached to the door at its lower end, substantially as specified.

2. The combination of the supporting-tube D, slotted longitudinally at the bottom, and the hemispherical rollers, with the door and its hangers, substantially as specified.

195,149. TYPE-WRITING MACHINES. Geo. H. Morgan, Alexandria, Va., assignor to Typographical Machine Printing Company of the District of Columbia. [Filed Mar. 14, 1876.]

1. The combination of rocking or turning rods E, having cams *e*, and cylinder F, with type having a simple reciprocating radial motion, in the manner substantially as and for the purpose specified.

2. The combination of rocking or turning rods E and their cams *e* and cylinder F with a type-wheel carrying one or more series of spring-type having a simple radial reciprocating motion, in the manner substantially as and for the purpose specified.

3. The combination of the rocking rods E, having cam-faces *e*, cylinder F, levers G, and type-wheel K, substantially as and for the purpose specified.

4. The rocking rods E, having bent ends e^1, arranged to operate with the cylinder F and fixed cam or rod-turner E′, substantially as and for the purpose specified.

5. The combination of the pivoted bars H and the rocking rods E, having cranks e^2 and cams *e*, with the cylinder F and lever G, for the purpose described.

6. The combination of the key-bars I, rods J, and pivoted bars H with the cylinder F and rods E, having cranks e^2, substantially as and for the purpose specified.

7. The rocking rods E, having cam-faces e^3, arranged to operate in combination with the cylinder F and lever V, substantially as and for the purpose specified.

8. The rocking rods E, having the cams *e*, bent ends e^1, and cranks e^2, arranged to operate in combination with the cylinder F, pivoted bars H, fixed cam E′, and type-wheel K, substantially as and for the purpose specified.

9. The cylinder F and rocking rods E, having cams *e*, e^3, cranks e^2, and bent ends e^1, arranged to operate in combination with a fixed cam, E′, pivoted bars H, type-wheel K, and the lever V, substantially as described, for inking and printing the type and moving the paper-carriage, substantially as and for the purpose specified.

10. In a type writing and printing machine, the combination of a revolving cylinder and type-wheel, operating, substantially as described, with an oscillating paper-carrier, substantially as and for the purpose specified.

11. In a type writing and printing machine, the combination of a revolving cylinder and type-wheel, operating substantially as described, with an oscillating paper-carrier, receiving motion from the same mechanism which operates the type while printing, substantially as and for the purpose specified.

12. The combination of an oscillating paper-carrier, T, constructed to form the printing-platen, with the printing devices of a type-writing machine, substantially as set forth.

13. The combination of a lever, V, and pawl or pawls *v* with an oscillating paper-carrier and segmental ratchet T′, substantially as and for the purpose specified.

14. The combination of the pawls *v* and Z with the segment T′, lever V, and shaft U, for the purpose of moving the paper-carrier, substantially as and for the purpose specified.

15. The crank-shaft W, connecting-rod Y′, lever Y, and rod x^1, operating, in combination, so as to detach the pawl Z from the segment T′ and permit of the reversing of the paper-carrier, substantially as set forth.

16. The crank-shaft W, lever w^2, having pawl w^4, operating, in combination with the ratchet U′, for the purpose of raising the paper-carrier, substantially as set forth.

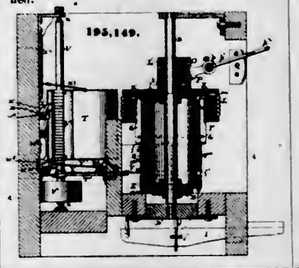
17. The combination of the spring-pawl X and ratchet U′ with an oscillating segmental paper-carrier, T, in the manner substantially as and for the purpose specified.

18. The crank-shaft W and lever w^2, operating, in combination with the connecting-rod Y^1, lever Y, sleeve Y^3, and rods x^3, for the purpose of disengaging the pawls *v* and X and permitting the descent of the paper-carrier, substantially as set forth.

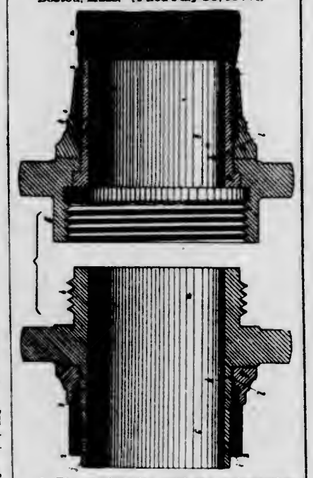
19. The combination of the lever W′ and crank-shaft W with an oscillating paper-carrier, T, and connecting mechanism, substantially as described, for the purposes set forth.

20. The segmental paper-carrier T, having the ratchet U′ secured to its axis, arranged to operate, in combination with the vertical shaft U, substantially as and for the purpose specified.

195,149.



195,150. HOSE-COUPLINGS. A. J. Morse, Boston, Mass. [Filed July 30, 1877.]



1. The combination, with the male portion *a* of the coupling and its connected tail-piece, of a single continuous cylindrical outer contracted binding-ring, shut upon the hose to hold it firmly between such ring and tail-piece, substantially as described.

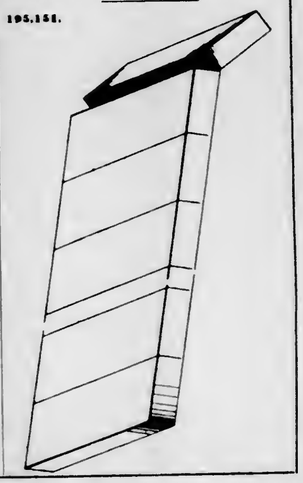
2. The combination, with the running section *g* and its loose tail-piece, provided with a shoulder, *f*, of a single continuous cylindrical outer contracted binding-ring, shut upon the hose between it and the tail-piece, substantially as described.

3. A tail-piece provided with a screw-thread, *k*, in combination with a contracted binding-ring, shut upon the hose between it and the tail-piece, whereby the tail-piece may drawn or screwed out from the binding ring, substantially as described.

4. The combination, with the tail-piece, grooved substantially as described, of a single continuous cylindrical outer contracted ring, shut upon the hose between it and the tail-piece, so as to cause the end of the binding-ring to force the hose into such groove, substantially as and for the purpose described.

5. In a hose-coupling, an outer binding-ring provided with an internal screw-thread, *l*, and composed of two metals of different degrees of ductility, substantially as and for the purpose described.

195,151.

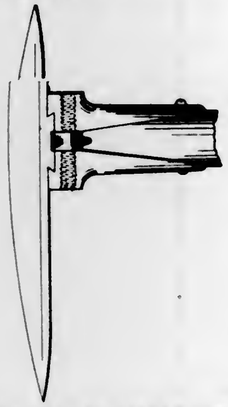


195,151. MANUFACTURING PLUG-TOBACCO. George S. Myers, St. Louis, Mo. [Filed Aug. 27, 1877.]

The within-described process of manufacturing plug-tobacco, which consists in dividing the lump into a number of sections slightly connected, and then subjecting such lump to pressure, substantially as specified.

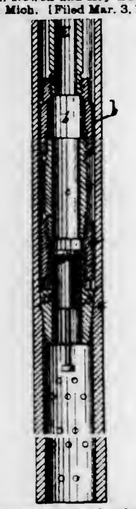
195,152. ATTACHING TOOLS TO HANDLES. Thomas H. Neal, Allegheny, Pa. [Filed Jan. 30, 1877.]

Brief.—The tool is attached to the handle by means of two ears attached to opposite sides of the handle, the upper parts of which are adapted to receive a dovetail tongue, formed upon the under side of the tool, and secured in position by a right and left hand screw passing through the ears.



The attachment for a tool and its handle, the same consisting of movable ears, and the body of the tool connected by a locking-joint and clamped by a screw or screws, substantially in the manner and for the purpose set forth.

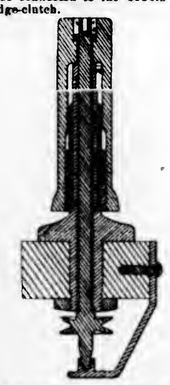
195,153. SEATING FOOT-VALVES IN PUMPS. John A. Newell and Ary Lucasse, Kalamazoo, Mich. [Filed Mar. 3, 1877.]



The socket-couplings *a b* and nipples *c c*, in combination with the tube E, for guiding a reamer in forming a seat for a valve-box, D, and for guiding the latter into its seat, substantially as described.

195,154. RING-SPINNING FRAMES. William E. Nichols, East Haddam, Conn. [Filed Apr. 28, 1877.]

Brief.—The bolster extends to nearly the top of the spindle. A loose tube, having an elastic sleeve fitted to its surface, is placed on the exterior of the bolster, to serve as a bushing for the lower end of the bobbin. The spindle may be connected to the bobbin by the usual bridge-clutch.



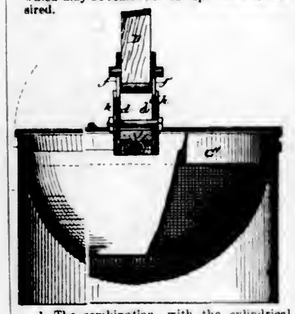
1. The combination, substantially as before set forth, of the spindle having a driving-head at the upper end to carry and drive the bobbin, the fixed tubular bolster, and the short live box or bearing for the lower end of the bobbin, constructed to revolve upon the exterior of said bolster near the bolster-rail.

2. The combination, substantially as before set forth, of the spindle, the fixed bolster, the short live box for the lower end of the bobbin, constructed to revolve upon the exterior of said bolster near the bolster-rail, and the elastic sleeve for the said short live box.

3. The combination, substantially as before set forth, of the spindle having a driving-head for the bobbin, the fixed bolster, the short live box for the lower end of the bobbin, constructed to revolve upon the exterior of said bolster near the bolster-rail, and the bobbin fitted at its upper end with a cross-bar that engages with the driving-head of the said spindle.

195,155. INSECT-DESTROYING DEVICES. C. W. Niver, Port Royal, S. C. [Filed May 17, 1877.]

Brief.—Uprights or standards, having slots to receive the pins or trunnions of a lever or handle for operating the insect-destroying device, are secured to the removably-attached cover of a cylindrical case, within which is detachably secured a hemispherical foraminous vessel for holding the poisonous substances, provided with an apron adapted to fit therein, which may be removed and replaced when desired.

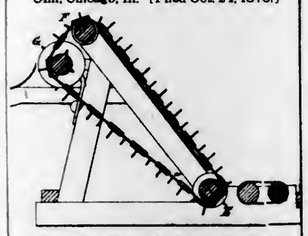


1. The combination, with the cylindrical case A and cover B, having the standards or uprights *d d'*, provided with the slots *f f'*, of a handle or lever, D, having the pins or trunnions *g g'*, whereby not only a shaking motion may be imparted to the said case and its auxiliaries, but also a jarring movement, as and for the purposes described.

2. The combination, with the standards or uprights *d d'*, provided with the slots *f f'*, and the lever D, provided with the pins or trunnions *g g'*, of the adjustable plates *h h'* and bolt *i*, whereby the amount of movements of the said pins or trunnions in the said slots may be regulated, as and for the purposes described.

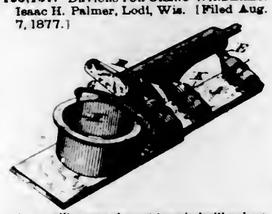
3. In a device for dusting paris-green and other poisonous substances on cotton, potatoes, and other plants, the combination, with a hemispherical foraminous vessel for holding the said material, of an apron adapted to be applied thereto, as and for the purposes described.

195,156. HARVESTER-ELEVATORS. W. F. Olin, Chicago, Ill. [Filed Oct. 24, 1876.]



The combination of the lower roller E and upper roller F with the grooved discharge-roller G and spur-belts *e*, whereby the grain is given a positive downward movement, and is lifted from the elevator by a more rapid movement of the discharge-roller, substantially as described.

195,157. DEVICES FOR OILING WINDMILLS. Isaac H. Palmer, Lodi, Wis. [Filed Aug. 7, 1877.]



1. An oiling attachment for windmills adapted to be operated, from the ground or from a platform at or near the base of the tower, to oil the bearings of the windmill-shaft, substantially as described.

2. A tilting platform carrying one or more oil-cans, combined with the shaft of a wind-wheel or with the bearings of said shaft, and provided with a pendent cord or rod by which the platform can be tilted from the ground to discharge oil from the cans onto the shaft, substantially as described, for the purpose specified.

3. The platform or rack A, carrying one or more oil cans, hinged to the wind-wheel shaft or its bearings, and provided with a projecting arm, *t*, to which the operating-cord E is attached, substantially as described.

4. The tilting platform combined with the shaft or crank of the wind-wheel or with its bearings, and operated from the ground to apply the open nozzles of the oil-cans on the platform to the oil-holes *m* in the shaft-bearings, substantially as described, for the purpose specified.

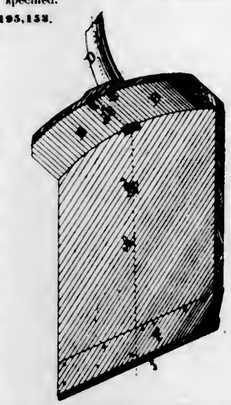
195,158. SNOW-SHOVELS. J. F. Palmer, Auburn, N. Y., assignor to S. W. Palmer & Co. [Filed June 1, 1877.]

1. The blade A and back piece B, provided with the groove *a*, combined with the curved handle D by means of the rivets *d d'*, substantially as and for the purpose shown.

2. As a means for protecting the edge of the blade A, the plate F, secured to the lower side of said blade, and the plate F', secured to the upper side of said blade, and having its forward thickened edge *f* bent downward and backward, so as to protect the corresponding edge of said plate F, substantially as and for the purpose set forth.

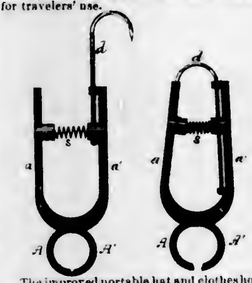
3. The hereinbefore-described snow-shovel, in which the blade A, back piece B, angle-irons C, handle D, rivets *a* and *a'*, and plates F and F' are constructed and combined in the manner and for the purpose substantially as specified.

195,159.



195,159. PORTABLE HAT AND CLOTHES HOOKS. John D. Peoples, Venice P. O., Pa. [Filed Aug. 1, 1877.]

Brief.—A pair of small tongs, pivoted and held together by a suitable spring, is provided with a swiveled hook, which may or may not have a sliding movement, and serves as a suspending-hook, or may be slid in, closing the device, and making it conveniently portable for travelers' use.



The improved portable hat and clothes hook, consisting of pivoted tongs A *a* A' *a'*, spring *s*, and swiveled hook *d*, with or without sliding movement, substantially as described.

195,160.



195,160. SWITCH-SIGNALS. Oliver H. Perry, Newtown, and E. P. Watson, New York, N. Y. [Filed Aug 24, 1877.]

1. The combination, with a draw-bridge lock-bolt and an operating rod or rods of a movable signal, of an automatic clutching and unclutching device, operated by the closing and opening of the draw.

2. The combination of the rod G, connected with a movable signal on the fixed part of the draw, and provided with half of automatic clutch-joint H, and the rod I, located on draw B, and provided with the other half of said automatic clutch-joint K, substantially as described.

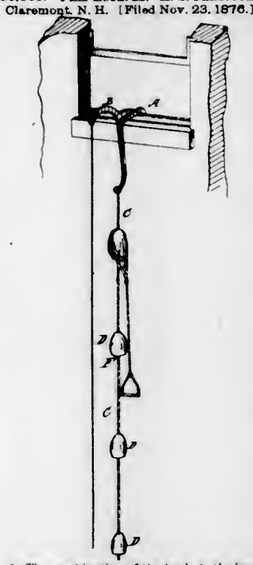
3. The combination of rod G, connected with a movable signal, and provided with one part of an automatic clutch-joint, the rod I, located upon the draw B, and provided with the other part of said automatic clutch-joint, and the fixed lock M, having walls *m m'*, substantially as set forth.

4. The operating-rod I upon the draw, having a ring-head, K, provided with an opening, *k*, and the signal-operating rod G, having a head, H, or vice versa, as described.

5. The lock or casing M, open at both ends, the signal-operating rod G passing through it from the shore end, and the rod I passing through it from the draw to lock and unlock said draw, both said rods being adapted for united movement.

6. The combination, with the operating-lever, the automatic clutching and unclutching signal-connections, and the fixed lock, of suitable stop or stops, for the purpose stated.

195,161. FIRE-ESCAPES. A. S. Philbrook, Claremont, N. H. [Filed Nov. 23, 1876.]



1. The combination of the hook A, the lever B, the rope C, the knobs D D D, and the socket and stirrup, all constructed and operating substantially as described.

2. The combination of the stirrup and socket, constructed and operating substantially as described.

195,162. MAGNETO-ELECTRIC TRANSMITTERS FOR PRINTING-TELEGRAPHS. George M. Phelps, Brooklyn, N. Y. [Filed June 27, 1877.]

Brief.—Pulsations of both polarities alternately move the type-wheel step by step; but when type-wheel is arrested a pole-changer is employed to convert the pulsations into a current whose polarity is that of the pulsation at the time of arresting the type-wheel.

1. The combination, with a magneto-generator and transmitting-instrument, of a pole-changer operated in connection with the magneto generator to continue pulsations of the same polarity upon the line after the transmitting mechanism is arrested by a key, substantially as set forth.

2. The combination, with a magneto-generator and a transmitting-instrument for a printing-telegraph, of a circuit-changer, C, brought into action by the mechanism that stops the transmitting portion of the apparatus, substantially as set forth.

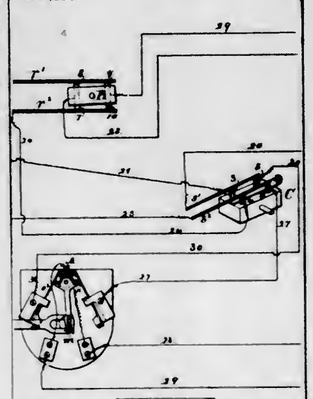
3. The combination, with the magneto generator, of the pole-changers A and C, circuit-connections, and transmitting-instrument, substantially as set forth.

4. The combination, with the magneto-generator and the pole-changers A and C, of the vibrator B and circuit-connections, substantially as set forth.

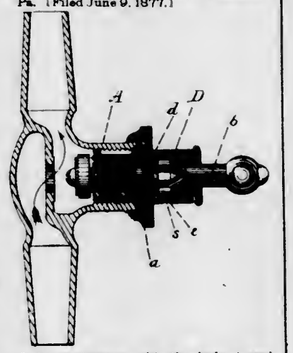
5. The combination, with the magneto-generator, of the pole-changer A and circuit-connections, substantially as set forth, to produce a current of either polarity, substantially as set forth.

6. The revolving wheel *i*, with notches and the wheel *f*, in combination with the arms *g'*, pawl *v*, finger *x*, lever *r*, and circuit-changer C, substantially as set forth.

195,163.



195,163. STOP AND WASTE COCKS. Wm. Porteous and Alex. B. Roney, Pittsburg, Pa. [Filed June 9, 1877.]



1. In combination with the body A and waste-chamber D, the reciprocating stem *b*, having the threaded enlargement *a*, and slotted, grooved, or channeled above the enlargement, substantially as described, to furnish outlet from body A to chamber D.

2. In combination, the movable chamber D, recessed, and having a flange projecting between the body and its cap, and the packing *d*, with the body A and stem *b*, substantially as and for the purposes described.

3. In that class of stop-cocks in which the valve is lowered to its seat by a threaded enlargement on its stem engaging with the threaded body of the cock, a waste-passage constructed in the stem or its enlargement, substantially as shown, leaving a permanent

passage way for the waste-water from the water-way of the valve-shank to that portion of the body above said enlargement.

4. The combination of main stem *b* with stem A, pin *i*, and spring *r*, the stem *b* having a circumferential groove wider than the head of pin *i*, substantially as described.

195,164. BALE-TIES. Richard C. Pope, St. Louis, Mo. [Filed Aug. 16, 1877.]

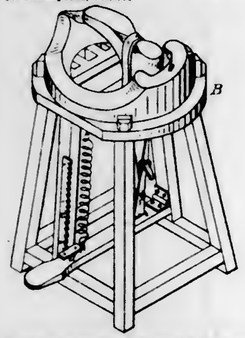


The tie made with a twisting or winding part, a^3, or described equivalent, substantially as and for the purpose set forth.

195,165. HOG-CHOLERA MEDICINES. G. Preisendans, Gridley, Ill., assignor of one-half his right to J. E. Claudin, same place. [Filed Apr. 3, 1877.]

The medicine for the cure of hog-cholera composed of the tincture of veratrum album, tincture of aconite-root, asafetida, alcohol, copperas, spirits of sweet niter, diluted phosphoric acid, or equivalent of phosphorus in any convenient shape, turpentine, solution of arsenic, rain-water, muriate of ammonia, powdered aloes, powdered nitrate of potash, and spongia, in about the proportions and used as and for the purposes specified.

195,166. JACKS FOR SHOE-MAKERS. James Pyke, Detroit, Mich., assignor to Moses W. Field and O. H. Crawford, same place. [Filed Apr. 4, 1877.]



In an improved shoe-maker's jack, the table B provided with lugs and sockets, whereby a jack-ring or pair of clamps may be mounted interchangeably, in combination with a treadle-rack, spring, and strap, adapted to operate in connection with either the jack or the clamps, all substantially as shown and described.

195,167. BILL-FILES. John W. Reynolds, Washington, D. C., assignor of one-half his right to George T. Bassett, same place. [Filed Aug. 11, 1877.]

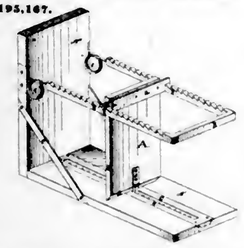
Brief.—The press slide or follower is held in position by a spring ratchet-bar at its top and a slotted ratchet-bar in the bottom of file, whereby, by depressing the rear end of spring-bar, the slide will fall backward, to allow access to papers.

1. The double-ratcheted spring-bar B and the helical springs *c* at its ends, in combination with the press-slide A and the slotted ratchet C, substantially as and for the purpose described.

2. The press-slide A constructed with an angle, *d*, on its lower end, and having the top cross-piece *a* and the bottom ⊥-piece *b*, in combination with the double-ratcheted spring-bar B and the slotted ratchet C, substantially as and for the purpose described.

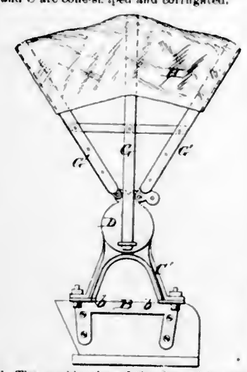
3. The slotted double-ratchet C in the bottom of the file-holder, in combination with the press-slide A and the spring-bar B, substantially as and for the purpose described.

195,167.



195,168. VEHICLE-SEAT AWNINGS. James Rigg, Dubuque, Iowa. [Filed Aug. 13, 1877.]

Brief.—The interior surfaces of the two disks D and C are cone-shaped and corrugated.



1. The combination of the flanged bracket B, corrugated conical concave C, with arms C^1 C^1, the corrugated cone D, and the thumb-bolt E, substantially as and for the purposes herein set forth.

2. The combination of the adjustable cone D, having flange *d* and staple *e*, the stationary center-bow G, pivoted bows G^1, and the top or awning H, substantially as and for the purposes herein set forth.

195,169. HYDRAULIC BRICK-MACHINES. E. Rogers, Cleveland, Ohio. [Filed June 27, 1877.]

Brief.—The invention consists in the devices for operating the valves of the hydraulic engines, which actuate the charger, pistons, &c. When any part has completed its movement, it operates, by connecting devices, the valves which govern the movements of the part next operating.

1. The combination of piston or plunger F^1, rods K^2, yoke K^3, rod K^1, and plunger K, substantially as and for the purpose set forth.

2. The combination of piston F^1, rods K^2, arms Z^4 and Z^3, and adjustable rod *d*, substantially as set forth.

3. The combination of piston or plunger G^1, rods N, arms M^3, shaft M, arm M^2, rod n^2, lever *m*, valve-rod k^1, and valve *k*, substantially as set forth.

4. The combination of pistons F^1 and G^1, shafts M and Z, arms M^3 and Z^3, bar *b*, rod *c*, trip or detent *d*, trip-lever *e*, rock-shaft *f*, and valves 11 12 13 14, engine *g*, valve *i*, and valve-rod i^1, substantially as set forth.

5. The combination of piston F^1, shaft Z, arm Z^1, and pawls Z^2 Z^2, studs V^2 V^2, disk V^1, shaft V, valves 3 4 5 6 7 8 9 10, charger-engine P^2, and engine L of the plunger or piston G^1, substantially as and for the purposes set forth.

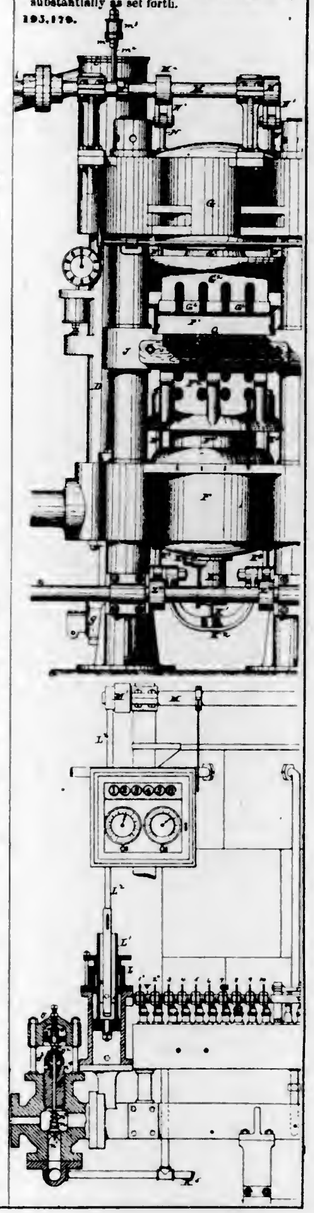
6. The combination of the charger P, rod Y^2, arms Y^1 Y^3, pawls W W^1, studs V^2 V^2, disk V^1, shaft V, valves 4 and 5, engine L, arm M^3, shaft M, arms M^2, rods N, and piston G^1, substantially as set forth.

7. The combination of piston G^1, rods N, arms M^3 and M^2, shaft M, pawls M^4 and M^5, studs V^2 and V^2, disks V^1 and V^1, and valve-shaft V, substantially as set forth.

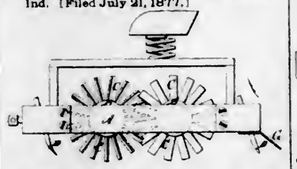
8. The combination of valves 1 to 10, inclusive, with lifting-levers U, valve-shaft V, with tappet-disks 1* to 10*, inclusive, *e*, stud-disks V^1 V^1, and pawls M^4 M^5 W^1 W^2 Z^2 Z^2, substantially as and for the purpose set forth.

9. The combination of valve *n*, stem n^2, rod o^2, plunger o^1, cylinder *o*, and valves 1 2, operated by tappet-disks 1* 2* on valve shaft V, substantially as set forth.

195,170.



195,198. REVOLVING PULVERIZING-HARROWS. James H. Woodgate, Waveland, Ind. [Filed July 21, 1877.]

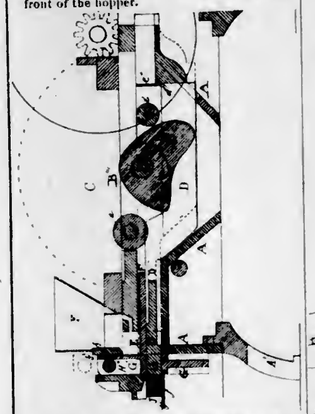


1. The harrow-frame A, provided with rollers B, having teeth G arranged spirally thereon, the teeth on the front rollers having their faces oblique to the line of draft, and the teeth on the rear rollers having their faces parallel to the line of draft, and the teeth on the front and rear rollers breaking joints with each other, in combination with the front and rear rows of teeth D, curved backward, substantially as described, and for the purpose set forth.

2. The inclined rigid leveling-plate G, in combination with the frame A, having rollers B with teeth C, arranged as set forth, and the teeth D, curved backward, substantially as described, and for the purpose set forth.

195,199. BRICK-MACHINES. H. C. Sergeant, New York, N. Y. [Filed Mar. 14, 1877.]

Brief.—The clay is fed into the mould from the bottom of the hopper, where it is pressed by one plunger, and upon lowering the mould, which is effected by cams and levers, the finished brick is ejected by a second plunger. The recess in the upper part of the sliding mold-plate allows the pressing-plunger to enter the mold slightly beyond the line of contact with the stationary plate forming the front of the hopper.



1. The top of the mold constructed with a recess, *f'*, in the inner face, substantially as and for the purpose described.

2. The top of the mold having a recess, *f'*, in combination with the presser-bar E, substantially as and for the purpose described.

3. The cams B''' B''' B''', in combination with the bars D and E, for the purpose of pressing the brick with one and removing it from the mold with the other.

4. The combination of the diaphragm *e''* on the bar E with the shoulder *e'* on the bar D.

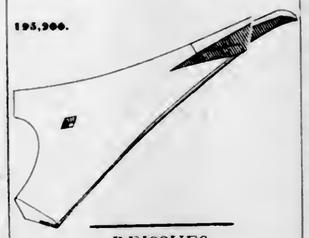
5. The combination of the bars D E, cams B''' B''' B''', the mold G, side levers I I, and cams B'''' B'''' and *c c*.

6. The recess *f'* in the top of the sliding mold, in combination with the stationary piece *f*, which forms a part of the upper side of the mold.

195,200. PLOWSHARES. Richard Smith, Sherbrooke, Quebec, Canada. [Filed July 24, 1877.]

As a new article of manufacture, a plowshare composed of steel and cast-iron, united by a fusion of the surface of the steel, substantially in the manner and for the purpose set forth.

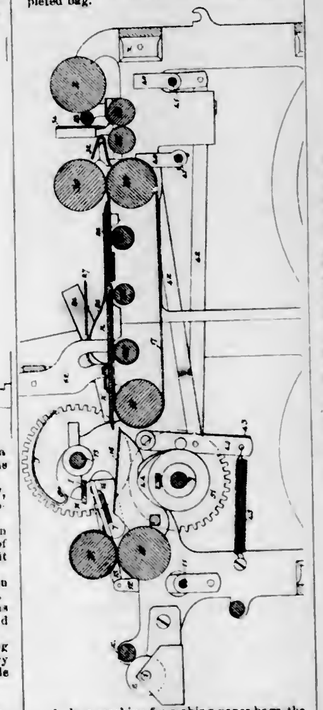
195,200.



REISSUES.

7,876. PAPER-BAG MACHINES. Christopher Amaseen, New York, N. Y., assignor, by mesne assignments, to the Union Paper Bag Machine Company, Philadelphia, Pa. Patent No. 84,076, dated Nov. 17, 1868. [Filed June 16, 1877.]

Brief.—The paper as it passes into the machine has paste applied to one side of its margin, and is fed forward to toothed knives, which sever a bag-length. The detached pasted piece is then passed on beneath a plate or former, around which it is shaped into tubular form by bent guide-plates. The paper being delivered from this former has its pasted side pressed upon the adjoining edge. One side of tube is now longer than the other, in view of the shape of the knives, and as the tube travels forward paste is applied, by a reciprocating paste-roll, to said longer side, (the bottom side,) after which a descending folding-blade folds it over upon the top side of the tube, and it passes between presser-rolls, and is discharged a completed bag.



1. In a machine for making paper bags, the combination, with a knife having a protruding central portion, of a knife correspondingly formed and mounted in a rotating carrier, the two knives co-operating to sever a paper-bag blank, having one protruding lip at one and two at the opposite end, substantially as described.

2. The combination of the reciprocating knife G and rotating knife H, substantially as described.

3. The combination of the knives G and H and spring-forwarders 5, substantially as described.

4. The combination of the former K with the pressing-roller 30, whereby the pasted side of the bag-tube is pressed and united, substantially as described.

5. The combination of the endless rubber carriers or aprons 17 with the former K, and one or more pairs of flanged rollers, 28, supporting said carriers or aprons 27, substantially as described.

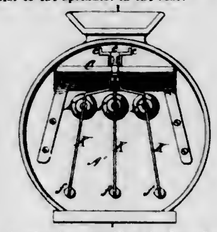
6. The combination of the movable or reciprocating pasting-roller 33 and the folding-blade 34, for pasting the projecting lip and forming the bottom of the bag, substantially as described.

7. The combination of the paste-supply roll 1, with the bottom seam movable or reciprocating pasting-roller 33 and the folding-blade 34, substantially as described.

8. The laterally-adjustable paste-wheel 2, substantially as described.

7,877. STREET-SPRINKLERS. L. F. Bancroft, Worcester, Mass., assignor to himself and Andrew B. Yetter, New York city. Patent No. 124,057, dated Mar. 19, 1872. [Filed July 11, 1877.]

Brief.—The driver operates, by a single or combined treadle, one or more valves within the tank, and thus permits or arrests the flow of water to the sprinkler in the rear.



1. A valve for controlling the flow of water from a tank into a sprinkler, and a valve-rod for operating such valve, in combination with a stuffing-box, 1, in the forward end of the tank, and an actuating-bar arranged in front of the tank, substantially as and for the purpose set forth.

2. The combination, with the tank in a street-sprinkler, of two or more valve-rods and two or more foot-levers, a holding mechanism, and a closing mechanism, whereby either one or more of the valves is adapted to be independently opened or closed by the foot of the driver, substantially as and for the purpose set forth.

3. The combination of the valve-rods H, arranged through stuffing-boxes in the front end of the tank, with the foot-levers K *c*, latch device L, and spring M, substantially as and for the purposes set forth.

4. The combination and relative arrangement, with the passages D and valve-rods H, of the spindle-valves E E', standards F and *s*, bell-crank levers G, and links *b*, substantially as shown and described.

7,878. CUFFS. J. W. A. Cluett, Troy, N. Y. Patent No. 158,627, dated Jan. 12, 1875. [Filed Aug. 23, 1877.]



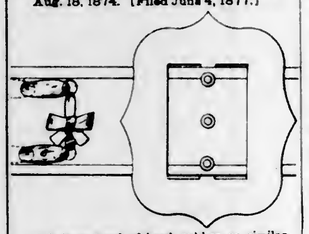
1. The method herein described of finishing a detachable or false cuff—that is to say, running or stitching the several parts together entirely around their edges when said parts are superposed and wrong side out, then turning the cuff right side out through an opening in one of the sides of the cuff, between the run

or stitched edges, and then lapping one portion over upon the remaining portion, substantially as explained.

2. In a detachable or false cuff of the character herein specified, the combination, with the front or face thereof, of a back having a closing-seam between the edges of the cuff, substantially as and for the purpose explained.

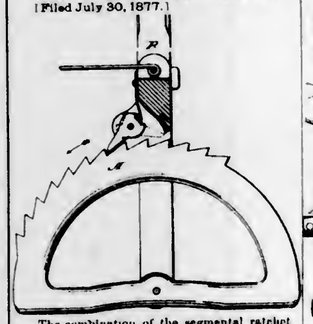
3. A detachable cuff stitched or run entirely around its outer edge on the wrong side, and then turned right side out through an opening in the front or back, substantially as explained.

7,879. BELTS. Wm. Mullee, Tough Kenamon, Pa., assignor to the Vulcanite Jewelry Company. Patent No. 154,270, dated Aug. 18, 1874. [Filed June 4, 1877.]



A belt or band of hard rubber or similar substance, provided with the interwoven cords or ribbons, substantially as specified.

7,880. WAGON-BRAKE LEVERS. P. Thomsen, Atchison, Kans., assignor of one-third his right to Niels Thomsen, Neenah, Wis. Patent No. 192,032, dated June 12, 1877. [Filed July 30, 1877.]



The combination of the segmental ratchet A, brake-lever B, swinging pawl-box C, and pawl *b*, all combined to operate substantially as and for the purpose herein shown and specified.

7,881. MACHINE OR BATTERY GUNS. Benj. B. Hotchkiss, New York, N. Y. Patent No. 130,501, dated Aug. 13, 1872. [Filed Jan. 31, 1877.]

Brief.—The cartridges are placed in an inclined trough, and are fed into the gun by their own gravity. The first half-turn of the actuating-shaft brings one of the barrels into line with the loading bolt or plunger. The second half-turn moves the plunger forward to load that barrel, and at the same time the cartridge in the preceding barrel is fired and the shell extracted from a third. By a peculiar construction of the worm-gear by which the barrels are rotated they are held stationary during a portion of each revolution of the actuating-shaft, during which interval the operations of loading, firing, and extracting the shell are performed.

1. In a machine-gun, the combination, with the reciprocating slide T, provided with the extractor 1, of the yoke Y, operating, substantially as described, for withdrawing the cartridge-shells from the barrels.

2. The slide V, carrying the charger or loading-bolt, in combination with the crank N, yoke Y, slide T, intermediate wheel 6, barrel or barrels B, and feed-trough Z, whereby the cartridges are successively inserted into and withdrawn from the barrels, as specified.

3. In a machine-gun, the partially-helical and partially circumferential threads 2 3, in combination with the barrels B and shaft H, as specified, the shaft carrying said threads being placed at right angles to the barrels, and provided with suitable gear engaging with the threads 2 3, whereby the barrels are intermittingly rotated for successively receiving and discharging the cartridge, as set forth.

4. A cartridge-valve or controlling-gate combined with and operated by the loading-bolt or charger, substantially as described.

5. In combination with a loading-bolt or charger, a yoke and crank and intermediate connecting mechanism, substantially as described, for reciprocating the same.

6. The combination of the valve or controlling-gate with a loading-bolt or charger and the cartridge-loading chamber in the breech-piece, substantially as described.

7. The combination of the gate 10, having an incline or equivalent step near its rear end, with the loading-bolt or charger, substantially as described.

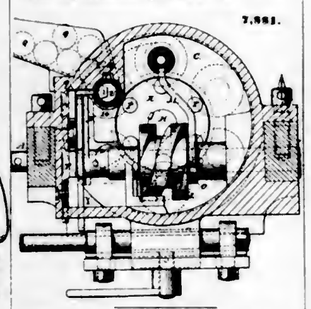
8. The combination, in the cartridge-loading chamber and feeding-recess communicating directly therewith, of a cartridge-controlling valve or gate, a reciprocating loading-plunger, and a support, as 14, for receiving the cartridge and guiding the same as it is carried forward into the firing-chamber, substantially as described.

9. A revolving mechanism for reciprocating the cartridge loading bolt or charger, constructed substantially as described, whereby a lost motion is produced and the loading-bolt is held stationary during a portion of the revolution of the actuating-crank.

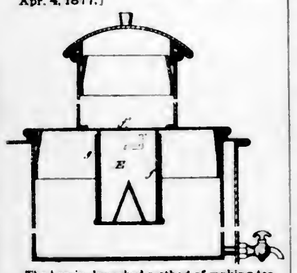
10. A revolving mechanism for reciprocating the cartridge-shell extractor, constructed substantially as described, whereby a lost motion is produced and the extractor is held stationary during a portion of the revolution of the actuating-crank.

11. The combination of the valve or controlling-gate with a stationary breech-piece provided with a cartridge-feeding recess and loading-chamber separate from the firing-chamber, substantially as described.

7,881.

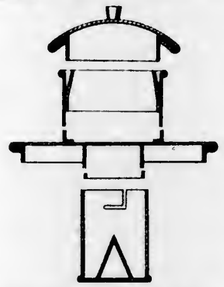


7,882. METHODS OF MAKING TEA, COFFEE, AND OTHER EXTRACTS. Jonathan Miller, Himrod's, N. Y., assignor to the Pressure Extract Company, Trenton, N. J. Patent No. 176,980, dated May 2, 1876. [Filed Apr. 4, 1877.]



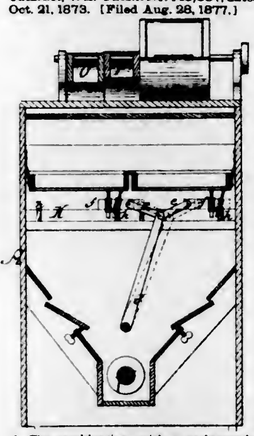
The herein-described method of making tea, coffee, and other extracts, by means of pressure caused by the expansion of the material in an unyielding chamber, substantially as described, and for the purpose set forth.

7,883. DEVICES FOR MAKING COFFEE, TEA, AND OTHER EXTRACTS. Jonathan Miller, Himrod's, N. Y., assignor to the Pressure Extract Company, Trenton, N. J. Patent No. 176,980, dated May 2, 1876. [Filed Apr. 24, 1877.]



An unyielding receptacle or press for the ground or loose material, having openings at its opposite ends, with a removable portion for the introduction of the said material, combined with the liquid-receptacle, and arranged therewith, as described, so as to permit the liquid to pass only from the liquid-receptacle to the extract-receiver, substantially as shown and described.

7,884. MIDDLINGS-PURIFIERS. Robt. Craik, Cataract, Wis. Patent No. 143,887, dated Oct. 21, 1873. [Filed Aug. 28, 1877.]



1. The combination, with a reciprocating riddle or shaker, of a brush moving transversely across the entire under surface of the riddle, and independently of the movement of the latter, substantially as and for the object set forth.

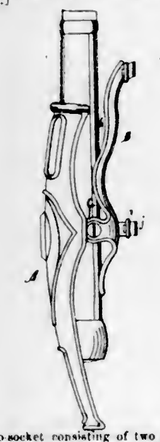
2. In combination with a suction-fan, a reciprocating riddle or shaker and a brush moving transversely across the entire under surface of the riddle independent of the movement of the latter, substantially as and for the purpose set forth.

3. The combination, in a middlings-purifier, of a riddle, shaker, or screen, a brush extending longitudinally along the under side of said riddle or shaker, and independent mechanism, such substantially as set forth, for reciprocating the shaker and moving the brush transversely across the entire under surface of the latter independently of the movement of the same.

4. The combination of knockers or cleaners with a brush arranged to move transversely across the under side of a reciprocating screen, and independently of the movement of the latter, substantially as and for the purpose described.

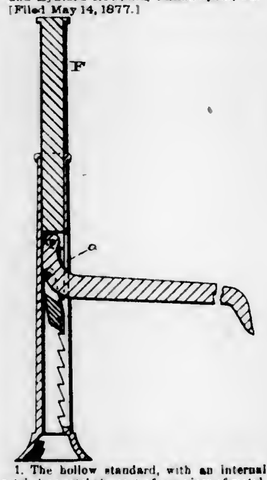
5. The conveyer G, having a series of secondary flights for feeding the middlings evenly to the discharge-opening, substantially as described.

195,170. WHIP-SOCKET AND REIN-HOLDER. George P. Rose, Freeport, Ill. [Filed Aug. 3, 1876.]



A whip-socket consisting of two parts, A B, formed substantially as described, the part B curved outward at the top so as to leave a space between it and the whip in the socket, thus forming a rein-holder, substantially as specified.

195,171. JACKS FOR VEHICLES. Horace B. Rowland and William S. Gayde, Cheltenham, assignors to said Horace B. Rowland and Lynford Rowland, Philadelphia, Pa. [Filed May 14, 1877.]



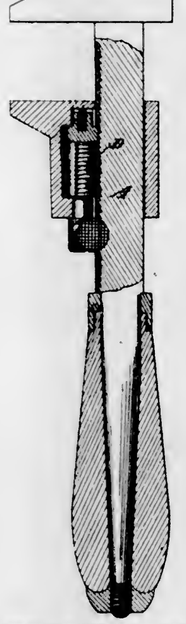
1. The hollow standard, with an internal ratchet or ratchets, cast of one piece of metal, in combination with a metallic base, metallic elevating-bar, metallic lever, and metallic shifting-dog, substantially as and for the purpose set forth.

2. The elevating-bar and the operating-lever pivoted thereto, in combination with the cast metallic standard, having an opening in its side, substantially as and for the purpose set forth.

3. The jack having a metallic elevating-bar, F, formed of or with radial ribs *b b*, substantially as and for the purpose set forth.

195,172. MONKEY-WRENCHES. Albert A. Sanborn and Charles Burroughs, Newark, N. J. [Filed Aug. 15, 1877.]

Brief.—The locking and unlocking may be effected with a rack on the wrench bar, and a tongued and grooved cylinder substituted for the mutilated screw.

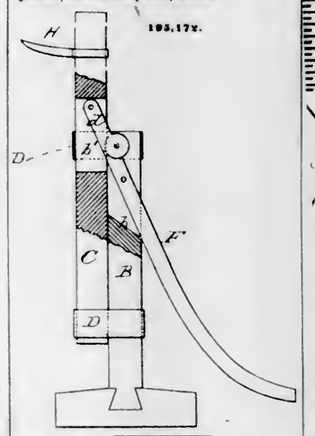


The combination, with the movable jaw of a monkey-wrench and a mutilated male screw carried by said jaw for locking the same to the bar of the wrench, of a friction-spring for holding said screw from turning except as turned by the operator, substantially as and for the purpose specified.

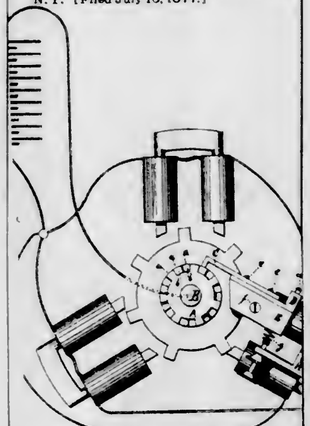
195,173. LIFTING-JACKS. John H. Rubicam, Winchester, Ohio, assignor of one-half his right to Wm. H. F. Lenfestey and Jacob S. Hixson. [Filed July 28, 1877.]

The combination, in a lifting-jack, with the standard B having spaced loops D D' and a vertically-vibrating lever, F, of the extensible section C, provided with a looped step or support, H, having body-loop *i* and arm *h*, said section C vertically movable in said loops D D', the slot *b'* in said standard, and the vertically-vibrating arm *d* pivoted in said slot, and connected with said lever by a pivot-stop joint *e'*, substantially as specified.

195,173.



195,174. ELECTRO-MAGNETIC-ENGINE COMMUTATORS. Wm. E. Sawyer, New York, N. Y. [Filed July 16, 1877.]

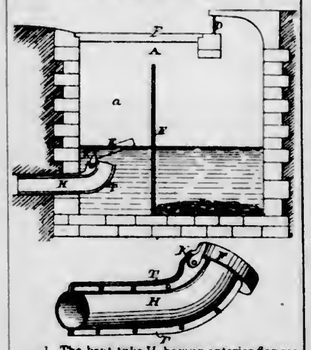


1. In an electro-magnetic engine commutator, the combination, with the spring-holder E, of the contact-piece C attachable thereto, and removable therefrom when so worn as to be of no further use.

2. In an electro-magnetic engine commutator, two or more contact-points connected to different magnets and caused to bear upon a rotating disk with equal pressure, by means of a spring or springs common to both or to all of such contact-points, substantially as shown and described.

3. In an electro-magnetic-engine commutator, the combination, with two or more parallel-toothed surfaces, of two or more contact-points therefor, insulated from each other and held to a bearing thereon by a spring common to both or to all of such contact-points, as and for the purposes specified.

195,175. SEWER-TRAP AND FLUSHING-GATE. John P. Schmits, San Francisco, Cal. [Filed July 21, 1877.]



1. The bent tube H, having exterior flanges T, arm or lug K, and the hollow floating cover F attached thereto, in combination with the sewer-pipe and cess-pool, as shown and described.

2. The hollow floating cover F, attached to arm or lug K, in combination with the bent tube H, sewer-pipe, and cess-pool, as shown and described.

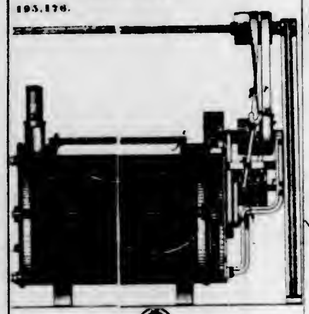
3. The perforated partition made of two like parts, overlapping each other vertically, and secured together adjustably by bolts passing through slots, and provided with the laterally-projecting pins, as shown and described, for the purpose specified.

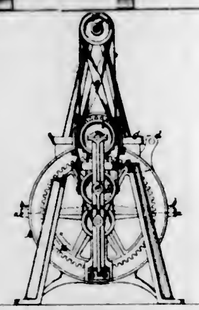
195,176. WASHING-MACHINES. Hamilton E. Smith, New York, N. Y. [Filed Feb. 22, 1877.]

1. The combination, with a cylindrical suds-reservoir, and with a perforated clothes-drum, B, of ogee-shaped beaters E, the edges of said beaters being provided with central swells *g*, depressions *h*, and curved ends *i*, substantially as and for the purpose herein shown and described.

2. The combination, with a cylindrical suds-reservoir, A, and with a perforated clothes-drum, B, of two belts, *q r*, one twisted and the other open, two belt-shippers, Q R, engaging with said belts, and two cam-grooves, *t u*, for moving said belt-shippers in succession, one after the other, substantially as and for the purpose set forth.

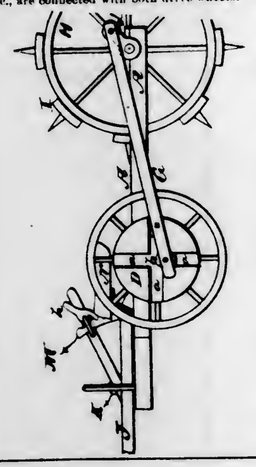
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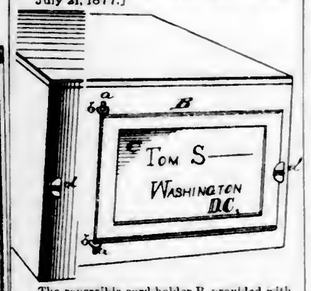
195,177. REVOLVING HARROWS. James W. Smith, Fancy Creek, Kans. [Filed June 30, 1877.]

Brief.—The tongue is pivoted on the axle, and the standard and ratchet serve to adjust it upon the harrow-frame. The disks, pitman, &c., are connected with both drive wheels.



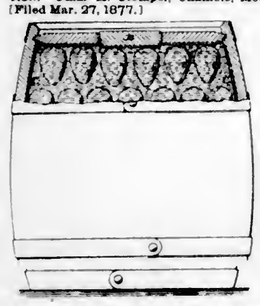
The harrow-cylinder frame A, pivoted near its front end to the axle B, carrying the drive-wheels C and grooved disks D, and provided with the standard K, ratchet M, and pawl *h*, in combination with the shaft E, provided with cranks *d*, pitmen G, having blocks *b*, and tongue J pivoted to the axle, all constructed and operated as shown and described.

195,178. LABEL-HOLDERS. Will H. Somers, Hume, N. Y., assignor of one-half his right to Seymour L. Doud, same place. [Filed July 21, 1877.]



The reversible card-holder B, provided with the pins *a*, in combination with the staples *b* and screws or hooks *d*, or their equivalents, substantially as and for the purpose set forth.

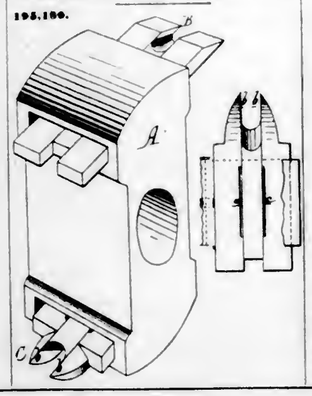
195,179. PACKING EGGS FOR TRANSPORTATION. Omar A. Stempel, Chamois, Mo. [Filed Mar. 27, 1877.]



1. The method of packing the eggs for transportation in a preservative liquid solution having a specific gravity about equal to that of the eggs, substantially as described.

2. The package for containing the eggs in their preservative liquid solution of the specific gravity described, consisting of a casing, A, having a lining, *c*, of cloth or other similar fabric, substantially as described.

195,180.



195,180. CUTTER-HEADS. J. B. Stockham, Jackson, Mich. [Filed July 12, 1875.]

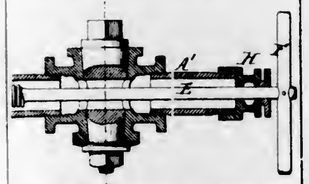
Brief.—In a cutter-head having one three-part routing cutter and one three-part planing-cutter the inner side of each outer bit is recessed, to allow it to spring inwardly under the pressure of a set-screw.

1. The combination, with the cutter-head A, of a three-bit matcher-knife, the slots *c* formed in the inside of the side bits, and the screw *a* set through the side of the cutter-head against the knife opposite the said recesses, constructed and arranged substantially as described and shown.

2. The cutter-head A for tongue-molding, having the three-bit knife B with square-side chisel-bits, and the three-bit knife C constructed with side bits beveled to a point and having the cutting-edge *b*, the several parts being constructed, arranged, and combined substantially as described and shown.

195,181. PIPE-CLEANING TOOLS. Samuel D. Strohm, Philadelphia, Pa. [Filed Aug. 11, 1877.]

Brief.—A rod with a handle carries a cap and stuffing-box with bearings, to fit on a tube, the opposite end consisting of a reduced rod with a drill-bit at its end, and spiral wire around to conform to a curve in the pipe, the spiral wire being flattened to pass through the elliptical bore in the plug of a stop-cock.



1. The within-described pipe-cleaner composed of a spiral or spirals and a stem combined, substantially in the manner described.

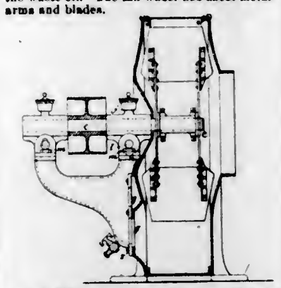
2. A pipe-cleaner in which a stem is combined with a flattened spiral, substantially as set forth.

3. A pipe-cleaner in which a rigid stem and cutting-bit are connected together by, and combined with, a flexible connection, as set forth.

4. The combination of the spiral and its stem with the tube A′ and its detachable stuffing-box B.

195,182. EXHAUST FANS OR BLOWERS. B. F. Sturtevant, Boston, Mass. [Filed July 30, 1877.]

Brief.—The mouth-piece, being reversible, can be changed to either side of the case. The two bearing-boxes, pivoted and adjustable, are supported by a hollow bracket, which receives the waste oil. The fan-wheel has sheet-metal arms and blades.



1. A blower-case, in combination with a reversible mouth or outlet, to discharge air from the case according to the direction in which the fan is run.

2. The combination, with the fan-shaft and its two pivoted and adjustable boxes, as described, of a hollow bracket to support the boxes and contain waste-oil.

3. In a fan-wheel, the combination, with the sheet-metal spiders having two or more arms, of a connecting-hub, substantially as described.

4. A fan-wheel having slotted sheet-metal arms, in combination with blades inserted in the slots in the ends of such arms, substantially as and for the purpose described.

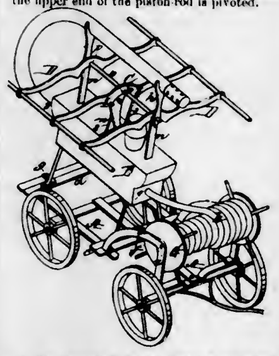
5. A fan-wheel having slotted sheet-metal arms, in combination with blades inserted in the slots, and with angle-iron strips to unite the blades and arms, substantially as described.

6. A blower-case provided about its periphery with a grooved flange to receive the edges of the sheet-metal segment of the case, and with flanges to which such segment is bolted or secured, substantially as described.

7. A blower-case curved at its lower portion, at front and back, to receive the reversible mouth and the covering-plate, substantially as described.

195,183. HAND FIRE-ENGINES. Levi Taylor, Marlborough, Mass. [Filed Feb. 14, 1877.]

Brief.—The body of the engine, with its operating parts, is detachable from the carriage on which it is mounted. Each piston-rod is so pivoted as to form one arm of a toggle-joint, the other arm being formed by that part of the curved portion of the brake-lever situated between the central pivot and the point where the upper end of the piston-rod is pivoted.

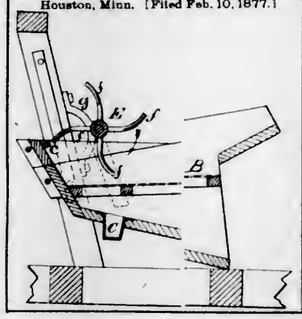


1. The engine B, in combination with, and made detachable from, a truck or carriage, A, provided with a hose-reel, substantially as and for the purpose set forth.

2. The hose-reel G, mounted upon the same truck as the engine B, and located in front thereof, to admit of the leading hose being always coupled to the engine ready for use, substantially as described.

3. The combination and arrangement of the brake-lever C, with its central portion curved upwardly, the vertical cylinders H H, and the piston-rods *s s*, each piston-rod being so pivoted as to form one arm of a toggle-joint, the other arm being formed by that part of the central curved portion of the brake-lever situated between the central pivot and the point where the upper end of the piston-rod is pivoted, whereby the point *q* or *r*, to which the piston-rod on the side depressed is pivoted, will rapidly approach a line passing vertically through the central pivot *p*, substantially as and for the purpose set forth.

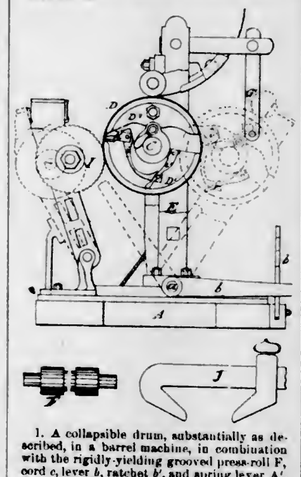
195,184. GRAIN-SEPARATORS. S. Todd, Houston, Minn. [Filed Feb. 10, 1877.]



The combination, in a picker for thrashing-machines, of the revolving picker E *f*, and the shaking shoe, having the screen B and the end board, provided on its inner edge with the rib C, as and for the purpose set forth.

195,185. BARREL-MACHINES. Jas. Tomlinson, Goderich, Ontario, Canada, assignor of one-half his right to Jas. L. Gage, Rochester, N. Y. [Filed Aug. 24, 1877.]

Brief.—A barrel formed of two sheets of veneers is made by means of a collapsible forming-drum, operated by an eccentric shaft, two circular saws mounted in a swinging frame, a yielding grooved presser-roll mounted in a swinging frame, provided with a series of curved stave-guides having rollers, under which the hoops pass, and suitable operating mechanism.



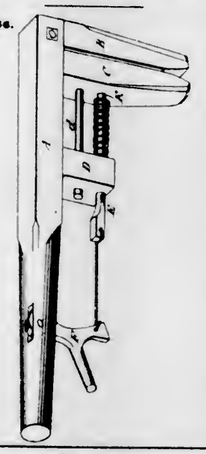
1. A collapsible drum, substantially as described, in a barrel machine, in combination with the rigidly-yielding grooved press-roll F, cord *c*, lever *b*, ratchet *b′*, and spring lever A′, for the purpose set forth.

2. In a barrel-forming machine, substantially as described, the combination of the press-roll and a series of hoop-guides with the collapsible rotary drum, substantially as set forth.

3. In a barrel-forming machine, substantially as described, the combination of the equalizing-saws and their swinging frame with the rotary collapsible drum, substantially as described.

4. In a barrel-machine, the clamp J, in combination with a collapsible forming-drum, substantially as described, for the purpose set forth.

195,186.

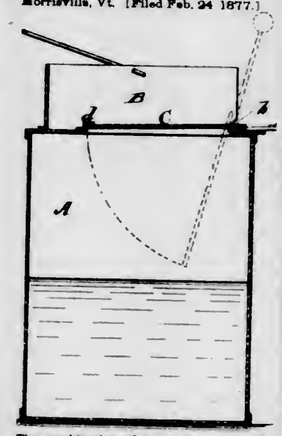


195,186. IMPLEMENTS FOR LAYING TILE. W. L. Tyner, Stanford, Ill. [Filed Aug. 7, 1877.]

Brief.—From the lower end of a staff or handle projects at right angles a jaw or finger. At a short distance from this is a stud, which supports one end of a rod, the lower end of which rests in the permanent jaw. A moving jaw slides upon the rod and a groove in the handle, and is held in contact with the permanent jaw by a coiled spring. A rod connects the movable jaw with an angle-lever near the upper end of the handle, by which the spring is contracted, thus separating the jaws.

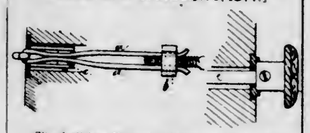
The herein-described implement for laying tile, consisting of the handle and jaw A B, movable spring-jaw C, having rod E, and lever and connecting-rod F G, substantially as specified.

195,187. ANIMAL-TRAPS. S. K. Vaughan, Morrisville, Vt. [Filed Feb. 24, 1877.]



The combination of trap-body A, box B, having slots *b b* and stop *d*, and weighted tilting platform C, having journals *c c′*, constructed and arranged to operate substantially as and for the purpose set forth.

195,188. BELL-PULLS. Samuel T. Varian, Plainfield, N. J. [Filed Apr. 9, 1877.]



The bell-handle and spindle *e*, with a screw upon its surface, in combination with the nut *b* and bent wire *a*, the parts being constructed and operating substantially as and for the purposes specified.

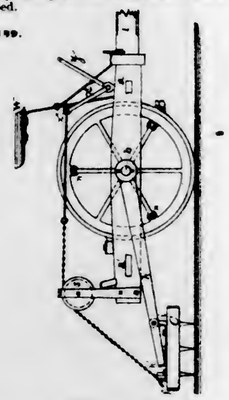
195,189. COMBINED LAND-ROLLER AND HARROW. H. Wagoner, John Wagoner, and Ferdinand Horn, Coshocton, Ohio. [Filed July 12, 1877.]

Brief.—The roller is constructed and mounted in the usual way, two rollers being joined end to end upon the same axis. At each outer end is journaled an arm, reaching rearwardly and downward, by which the harrow is supported. This consists of three bars having a length equal to both rollers, the ends being secured by end pieces. At each of the rear corners of the roller-frame is a post, which supports a pulley, and over each of these passes a cord or chain, which are respectively attached to the rear ends of the harrow, and thence over the pulleys to a foot lever and rock bar beneath the driver's seat. By pressing the lever with the foot the harrow can be raised from the ground.

1. In a combined land-roller and harrow, the draft-bars A, pivoted to the front of the harrow, and extending to the rear and resting on top of same, as shown and described, and for the purpose specified.

2. The land-roller and harrow, consisting of roller-frame A, polleys *s*, mounted on the uprights *k*, rock-shaft with arms *x'* and treadle *y*, draft-bars *h*, pivoted to the front of the harrow, and extending to the rear and resting on top of same, and chains or ropes *z*, arranged and operating substantially as shown and described.

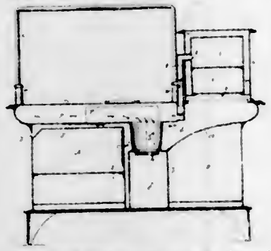
195,189.



195,190. PROCESSES OF CLARIFYING SACCHARINE JUICES. Hugh W. Walker and Thos. L. Patterson, Greenock, Scotland. [Filed Jan. 5, 1877.]

The within-described process of clarifying saccharine juices of sugar-manufacture—that is to say, by rapidly cooling the said juices by artificial means after concentration, substantially as described.

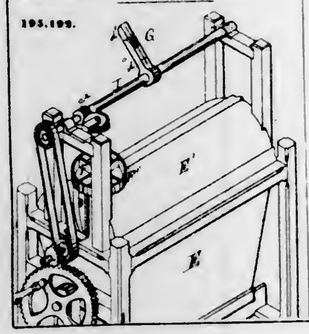
195,191. COOKING-STOVES. G. W. Walker, Malden, Mass. [Filed July 5, 1877.]



1. The combination, with the oven, elevated as described, of a hot-air chamber and a fire-pot located therein, whereby the radiated heat from the fire-pot may rise into the oven, substantially as described.

2. The combination, with the elevated oven, of a hot-air chamber, a fire-pot located therein, and an air-inlet to lead heated air into such chamber.

195,192.

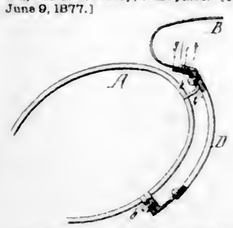


195,193. FLOUR-BOLTING MACHINES. F. G. Wallace, Jackson, assignor to himself and John Webster, Detroit, Mich. [Filed June 23, 1877.]

1. In a machine substantially as described, the knocker G, carried on a revolving shaft, and having a pivoted shoe adapted to strike and pass over the casing of the machine, substantially as described and shown.

2. The combination, with the casing E', of the shaft I and the knocker G, composed of the arm *d*, pivoted shoe *d'*, and spring *d²*, constructed and arranged substantially as described and shown.

195,193. EYEGLASS-FRAMES. Thomas A. Willson and George W. Meigs, Reading, Pa., assignors to said Willson, G. J. Willson, and C. B. Bishop, same place. [Filed June 9, 1877.]



1. The combination of the nose-piece D, spring B, and eye A with the strip *i*, bent upward and backward, as described.

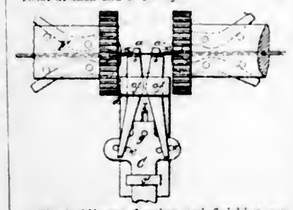
2. The combination of the spring B, the strip *i*, bent upward and backward, as described, and having flanges bent over the edges of the spring, and the screw *d*, as set forth.

3. The combination of the eyeglass frame A and block F, with the bundle E, formed of a bent strip of wire having its ends secured in an opening in said block, substantially as specified.

4. The mode herein described of manufacturing a catch for eyeglasses—that is to say, first punching out a sheet-metal plate comprising a head, base, and connecting stem, then securing this to the frame at right angles to the same, then twisting the neck so as to bring the head into line with the frame, and finally reducing the neck, as described.

195,194. MACHINES FOR FORMING THE WARP-EYES OF WIRE HEDDLES. Abijah J. Williams, Utica, N. Y., assignor to J. H. & N. A. Williams, same place. [Filed Mar. 3, 1877.]

Brief.—Expands the ends of the eye from the inside outwardly and against the force of the ordinary twisters by a slide-operating pivoted jaw, to shape the eye and compact the twist at each end of the eye.



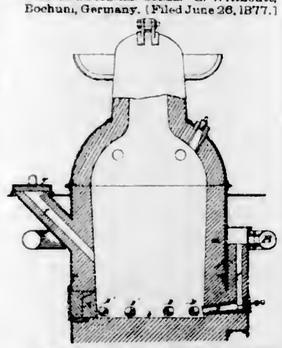
The heddle-eye forming and finishing contrivance, consisting, mainly, of jaws B and an actuating-slide, C, substantially as described, adapted for forming the heddle-eye and finishing the same, as specified, and operated as set forth.

195,195. LAMP-CHIMNEYS. S. R. Wilmot, Bridgeport, Conn. [Filed Oct. 19, 1876.]



The combination, with a supporting-shoulder or rest at or near the base of the chimney, of one or more entering and locking barbs, constructed and arranged to catch, by a straight or downward pressure of the chimney, into or within a spring fastening on the top of the lamp-burner, substantially as specified.

195,196. CONVERTERS FOR THE MANUFACTURE OF BESSEMER STEEL. L. Witthoefft, Bochum, Germany. [Filed June 26, 1877.]

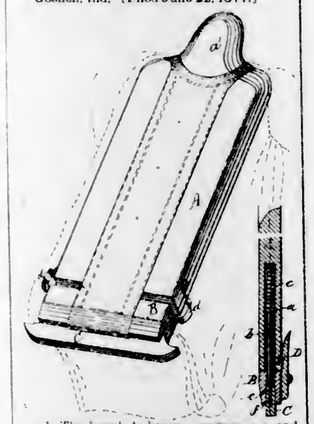


1. In a fixed converter for the manufacture of steel, the combination of the flues C' C and D D', formed in an extension or a series of extensions of the side walls of the converter and of fire-resisting material, substantially as set forth.

2. In combination with the tuyeres D D', the doors *a a*, located opposite said tuyeres, for the purpose of giving access to the furnace at convenient points for repairing said tuyeres, substantially as set forth.

3. In combination with the mouth of the converter and its hinged plate, the guard *d'* for protecting the workmen, substantially as set forth.

195,197. IRONING-BOARDS. Israel Wolfe, Goshen, Ind. [Filed June 22, 1877.]



1. The board A, having recesses *a a* and springs *c c*, in combinaton with the block B, having guide-rods *b b* and connecting straps *d d*, substantially as described, for the purpose herein shown and specified.

2. In an ironing-board, constructed substantially as herein described, the grooved sliding block B, in combination with the slat C, having cut or slit *f*, substantially as described, for the purpose set forth.

3. The combination of the boards A B, forced apart by springs *c c*, suitably arranged and united by straps *d d* with the latch or locking device D *g*, substantially as and for the purpose herein set forth.

4. The improved ironing-board herein described, consisting essentially of the board A, having recesses *a*, block B, having guide-rods *b* and groove *e*, springs *c*, slat C, having cut or slit *f*, connecting-straps *d d*, and latch or locking device D *g*, all combined and operating substantially as herein described, for the purpose set forth.

THE GRAPHIC CO. N.Y.

OFFICIAL GAZETTE

OF THE

United States Patent Office.

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CIRCULAR.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., September 26, 1877.

Inventors and their Attorneys are informed that, so far as can be learned, none of the files of pending applications were lost in the recent fire, nor a single original document of any kind.

All models in the north and west halls of the Model Room are destroyed. These include the following classes:

Aeration and Bottling.
Agricultural Implements.
Agricultural Products.
Brakes and Guns.
Brushes and Brooms.
Bridges.
Butchering.
Capstans and Windlasses.
Carpentering.
Carriages and Wagons.
Dairy.
Excavating.
Fences.
Grinding Mills.
Grain Cleaning.
Garden and Orchard.
Glass.
Hydraulics and Pneumatics.
Hoisting Apparatus
Metal-Working, (except about 500 models.)
Metallurgy.
Mechanical Powers.
Presses, (except Printing.)
Quarrying and Rock Drilling.
Railway, (except Locomotives.)
Stabling.
Stone-Sawing and Dressing.
Tobacco Machinery.
Wood-Working, (Tools and Machinery.)

A separate letter of inquiry concerning any particular case will receive attention.

W. H. DOOLITTLE,
Acting Commissioner.

As 12 o'clock on Friday is the latest hour that a final fee can be received in order to get a patent into the "issue" of the following Tuesday, applicants are earnestly requested to make the final payment before Friday, if possible, so that the proper entries may be made on the books of the Office before closing the "issue."

THE illustrated portion of the Patent Office Report for 1869 and for 1871 has recently been completed, and can be had, by those having the remaining volumes for those years, by applying to the Commissioner of Patents.

DECISION OF THE HONORABLE SECRETARY OF THE INTERIOR.

[*In the matter of the application of James Sargent for a revocation of the order made by the Commissioner of Patents July 24, 1877—suspending the issue of Letters Patent—subject-matter,* "IMPROVEMENT IN TIME-LOCKS"]

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, September 13, 1877.

SIR: On the 3d ultimo James Sargent filed an application in this Department asking for a revocation of the order made by you July 24, 1877, suspending the issue to him of letters patent for an "improvement in time-locks," to which he had been adjudged entitled by your Office.

The facts upon which this application was based are as follows:

On the 12th of February, 1874, Mr. Sargent filed in your Office an application for letters patent for said invention. This application proving defective, on the 12th of March, 1875, a new application was substituted therefor. Pending the consideration of this application, and before its allowance, two interfering applications were filed, viz: those of Emery Stockwell and John Burge, and interferences were declared.

Each of the contests thus instituted were decided in favor of Mr. Sargent, the latter on appeal to your predecessor in person, who, on April 11, 1876, decided that Mr. Sargent was the original inventor of the subject-matter of said interference, and entitled to a patent therefor. Subsequent to this decision interferences with Mr. Sargent's application were declared upon three interfering applications, viz: those of Oliver I. Pillard, Lewis Lillie, and Samuel A. Little. Each of these interferences were in turn decided in favor of Mr. Sargent, the latter by you on the 9th of July, 1877. Prior to the latter decision, and on June 14, 1877, Mr. Burge, a former interfering applicant, filed a bill in equity in the supreme court of the District of Columbia, under section 4915, Revised Statutes, making Mr. Sargent a defendant, and reciting the proceedings had in your Office in the interference case between himself and Mr. Sargent, and the several decisions therein made, and praying that he might be adjudged, upon consideration of the evidence thereafter to be submitted, entitled to a patent for the invention which had been the subject-matter of the interference aforesaid.

After your decision of July 9, aforesaid, Mr. Burge filed an application in your Office requesting you to suspend the issue of a patent to Mr. Sargent until the

final determination of the matters involved in the suit aforesaid pending in the supreme court of this District.

No fraud was alleged in said application in the adjudications and determinations of the rights of the respective parties in the contest theretofore had in your Office, nor were there any interfering applications then pending against Mr. Sargent's application.

Upon a full considera ion of the application thus presented, and the matters therein contained, you decided on the 24th day of July last that you had a right, by virtue of the discretionary power vested in you as Commissioner of Patents, to suspend the issue of the patent to Mr. Sargent until the final determination of said suit, and thereupon, the premises being considered, ordered its suspension.

Mr. Sargent denies your right or authority to make the order of suspension, and alleges that it is in plain violation of the express provisions of the Statute.

I have carefully considered the questions thus presented, together with the very able arguments of counsel made thereon.

The first question presented for my consideration is: Whether you have the right to make such an order, by virtue of the discretionary power vested in you as Commissioner of Patents, after final decision in a case, except where fraud or new matter is alleged. As an executive officer you have the authority to exercise such powers and functions as are conferred upon you by the statutes creating your Office and defining your duties, together with those which may be prescribed in the rules and regulations adopted to facilitate the business of your bureau, with the approval of the Secretary of the Interior. These duties are in part *quasi* judicial, and in part administrative or ministerial and directory.

In the discharge of your judicial duties you hear and determine the rights of parties within the statute governed by the same rules as a court. In the discharge of your administrative duties, whether of a ministerial or directory character, the law must be executed according to its letter and intent.

The rights which you are to determine are those which are granted by law, and are confined to a particular class. The mode of ascertaining and determining these rights, as well as their duration or continuance, is well defined by the statutes and the rules and regulations of your Office. These rights cannot be enlarged, abridged, or defeated, or at least should not, and will not be, if the law is properly administered.

Letters patent for an invention are not to issue until the right thereto is clearly established in accordance with the law and the rules and regulations of your Office; but when this is done, and all of the conditions and requirements of the law, as well as the rules and regulations of your Office have been fully complied with, they cannot be withheld. Sections 4888 to 4892, inclusive, of the Revised Statutes, define and prescribe what an inventor or discoverer must do before he shall receive a patent for his invention or discovery. Section 4893 defines your duties upon an application being filed, and is as follows:

> On the filing of any such application and the payment of the fees required by law the Commissioner of Patents shall cause an examination to be made of the alleged new invention or discovery, and if on such examination it shall appear that the claimant is justly entitled to a patent under the law, and the same is sufficiently useful and important, the Commissioner shall issue a patent therefor.

This language as to your duty is clear and explicit, and does not admit of doubt. If an applicant is adjudged to be entitled to a patent for the invention claimed, and has fully complied with the law and the rules and regulations of your Office, in the payment of fees, &c., he is entitled to demand that the patent shall issue to him, and there is no right, legal or otherwise, which will justify withholding it.

If a "legal bar" be interposed to the applicant's right to a patent, then he is not "justly entitled" to it, and it should be withheld, but in the absence of such bar the patent must issue unless an appeal be taken in cases where an appeal is provided by law.

If there be an interfering claim, then it cannot be said that he is "justly entitled" until the issue thus made is determined in accordance with the law and the regulations governing your Office, although he may have made an important invention and discovery, and would otherwise be entitled; but if after a fair consideration of such interfering claim it be decided that he is entitled to a patent, his right is unchanged, and he may demand that the patent issue.

Reference is made in your decision to the words "may issue" in section 4904 Revised Statutes, which prescribes the course of procedure whenever an interfering application is filed. The section reads as follows:

> Whenever an application is made for a patent which, in the opinion of the Commissioner, would interfere with any pending application, or with any unexpired patent, he shall give notice thereof to the applicants, or applicant and patentee, as the case may be, and shall direct the Primary Examiner to proceed to determine the question of priority of invention. And the Commissioner *may issue* a patent to the party who is adjudged the prior inventor, unless the adverse party appeals from the decision of the Primary Examiner, or of the Board of Examiners-in-Chief, as the case may be, within such time, not less than twenty days, as the Commissioner shall prescribe.

In relation to the words "may issue," you state:

> The discretion reposed by "may issue" is, to my mind, a real one, and becomes imperative only after a thorough search and general review has been had, "and if (section 4893) on such examination it shall appear that the claimant is justly entitled to a patent under the law." The supreme court of the District in the case of *Hull* vs. *The Commissioner of Patents*, 7 OFFICIAL GAZETTE, 559, and 8 OFFICIAL GAZETTE, 46, expressly confirmed the Commissioner in his right to withhold the issue of a patent under the authority of the section just above quoted. I find nothing inconsistent with this right in the language of section 4904 respecting interferences; but, on the contrary, a very scrupulous regard for it by the employment of apt terms which shall not conflict with its exercise. Since, then, there is nothing compulsory resting upon me in the present instance, there remains for me simply to decide whether it is fair to all parties that I should suspend the issue of the patent as prayed for.

In deciding that the words "may issue" gives you a discretion in the issuance of a patent, I think you erred. I am of opinion that the word "may," in that section, should be read "shall," the same as in section 4893. In *Mason* vs. *Pearson*, 9 Howard, 260, the Supreme Court say:

> Whenever it is provided that a corporation, or officer, "may" act in a certain way, or it "shall" be lawful for them to act in a certain way, it may be insisted on, as a duty for them to act so, if the matter, as here, is devolved on a public officer, and relates to the public, or third persons. Thus in *Rex and Regina* vs. *Barlow*, 2 Salkeld, 609, where the statute directs the doing of a thing for the sake of justice, or the public good, the word "may" is the same as the word "shall." Thus, 21 Hen., VI., says, "the sheriff may take bail." This is construed, he shall, for he is compellable "so to do." Carthew, 293.

Numerous cases might be cited showing this to be the well-settled construction of that word in similar statutes.

From the decision of the Commissioner of Patents in an interference case no appeal lies to any other tribunal. (Revised Statutes, Sec. 4911, *Edison et al.* vs. *Edison et al.*, 9 OFFICIAL GAZETTE, p. 403.) In other words, your decision in such cases upon the merits is final. It is contended, however, that by virtue of the provision in section 4915, Revised Statutes, providing a remedy for the defeated applicant by bill in equity to establish his right to a patent for the invention claimed, a decision final in its character in one of the Departments of the Government should be held in abeyance to await the determination of the same question in a co-ordinate Department of the Government. This view of the case was adopted by you, and, as I think, erroneously.

If such was the intention of the law-maker he has failed to express it. The proceeding in the court of equity is a proceeding *de novo*, and I am unable to conclude that Congress intended that a party who has submitted his claim to a right, to a tribunal clothed with powers of final adjudication thereon, should be deprived of that right when the adjudication is in his favor until another tribunal, not appellate or supervisory, has examined and determined the same question. The proceeding in equity is in no sense an appeal from your decision, nor does it, or can it, have the effect to supersede it.

Such also appears to be the opinion of the counsel for Mr Burge, for on page 6 of his brief he says:

> Second. If in the course of the equity proceeding Sargent should show to the satisfaction of the Commissioner that Burge was not prosecuting his suit *bona fide*, but, on the contrary, was simply compassing delay and vexation to Sargent under color of law, no doubt the Commissioner would issue the patent to Sargent.

If, then, the proceeding by bill in equity does not operate as an appeal, nor to supersede the decision made in your Office, can the withholding of a patent from Mr. Sargent be justified by what is termed discretionary power, in view of the statute which says that the patent shall issue? I think not. It cannot be fairly presumed, or at least it should not be presumed by you, that any different conclusion can or will be arrived at in that court than has already been made. If a reasonable doubt existed as to the correctness of the conclusion arrived at in your Office, then the proper proceeding would have been an application for a reconsideration of the former decision in the case upon the merits; but independent of such a doubt the issue of a patent should not and cannot be stayed.

The case of *Hull* vs. *The Commissioner of Patents*, 2 Mac Allister, p. 90, is quite different from this. There the Commissioner evidently did doubt the right of Mr. Hull to a patent, although a subordinate tribunal in his Office had decided that he was entitled to it, and for this reason he withheld it. Had the Commissioner of Patents in person decided that Mr. Hull was entitled to the patent, could he then reasonably or legally have withheld it? The court even in that case would have been powerless to grant the writ of *mandamus*, because another remedy is provided by law, but the Commissioner's supervisory power would have been wanting because the reason for its exercise would have ceased to exist.

In this case your predecessor in person decided that the patent should issue to Mr. Sargent. The correctness of that decision has not been successfully assailed before you, nor attempted, except by interfering applications, which have all been decided in Mr. Sargent's favor.

I am, therefore, brought to the conclusion that at the time of making the order of suspension there was no legal reason why the patent should not have been issued, and that there was no duty to be performed by you except the ministerial duty of preparing and issuing the patent, and that in the performance of those duties the statute is mandatory.

The second question presented for my consideration is: Have I the legal right to direct you now to issue a patent to Mr. Sargent? This right is denied by Mr. Burge's counsel. If there were any questions affecting the merits of Mr. Sargent's application still pending before you, there could be but one answer to this question, viz: that I have not that right. Such, however, is not the attitude of this case. All of the merits of the case have been determined in your Office, and Mr. Sargent has been decided entitled to a patent for the invention claimed. Nothing remains to be done but the ministerial duty of issuing it to him. In this view of the case it becomes important to know what my duties are in the premises.

By section 441, Revised Statutes, the Secretary of the Interior is charged with the supervision of certain branches of the public business, among which is "patents for inventions." By section 481 it is provided that the Commissioner of Patents, under the direction of the Secretary of the Interior "shall superintend or perform all duties respecting the granting and issuing of patents directed by law." Section 4883 provides that "all patents shall be issued in the name of the United States of America, under the seal of the Patent Office, and shall be signed by the Secretary of the Interior, and countersigned by the Commissioner of Patents," &c.

I think it is quite clear that the supervision and direction with which the Secretary of the Interior is charged means something more than an approval of the act of the Commissioner of Patents. The responsibility of seeing that the work is properly done by the Commissioner of Patents is with the Secretary of the Interior. This includes negative as well as affirmative acts.

The Commissioner of Patents is to "superintend or perform all duties respecting the granting and issuing of patents," but these duties are to be performed "under the direction of the Secretary of the Interior."

If the Commissioner neglects or refuses to perform any duty required by law to be performed by him under the direction of the Secretary of the Interior, or performs a ministerial or administrative duty improperly, I am of the opinion that the Secretary of the Interior, by virtue of his supervisory power, may direct him in its performance. To be charged with the responsibility of the supervision and direction of any kind of work or business, by law, and not be able to require that it shall be in accordance with the law, would be anomalous indeed

But it is said that if the Commissioner of Patents neglects or refuses to perform any duty required of him by law, the court will compel him by *mandamus* to perform it. Supposing this to be so, does that lessen the obligation and responsibility on my part in such a case, if I am called upon to see to it that the law be executed? The fact that a court which is charged with the duty of protecting all persons in their rights, will,

when the facts are presented to it, grant such a writ, in no way relieves me of the duty of making a proper order for the performance of the same thing, where the work to be done is in the hands of an officer who performs all of his duties under my direction, and I am charged with the responsibility of seeing that that work is properly performed.

If I am correct in this conclusion, and I see no escape from it, then it is clear that I have the right to direct the Commissioner of Patents in the performance of all administrative or ministerial duties.

The duty now to be performed, as before stated, of issuing a patent to Mr. Sargent is merely ministerial.

The last question presented for my consideration is: Should an order now be made for the issuance and delivery of letters patent to Mr. Sargent for the invention to which he has been adjudged entitled by your Office? There is no doubt that the invention claimed is patentable. In fact, this is conceded by all parties, and has been so determined. The only reason which has been assigned why a patent should not now issue to Mr. Sargent is that a bill in equity has been filed in the supreme court of the District of Columbia, in consequence of which the same questions which have been determined in your Office will be considered and passed upon, and it is possible that by a trial *de novo* a different conclusion may be arrived at than has already been reached. This, in my opinion, is not a sufficient reason for withholding the patent. It must be presumed that the questions at issue between the parties have been correctly decided in your Office upon the law and the facts presented.

If the decision made in your Office is erroneous, Mr. Burge has his remedy in the court, but pending that inquiry executive action cannot be stayed. Due regard must always be given to the rights of all parties in interest, in any proceeding, but if after a fair consideration of all the questions affecting them you are compelled in obedience to law and the facts presented to decide in favor of one and against the other, so that your judicial functions are exhausted, it is neither equitable nor just that the party who has established his right to the claim in controversy should be delayed in the enjoyment of it, so far as it depends upon your action, because it is possible that another tribunal, not appellate, may determine the same question otherwise.

If the filing a bill in equity by parties asserting adverse claims, to retry questions already decided by your Office, could be permitted to stay final action on your part, very few patents for really valuable inventions would, in my opinion, hereafter be issued, and the injurious results which would necessarily follow would be beyond calculation.

The administration of your Office should be such as to promote rather than discourage the making of useful and important inventions and discoveries.

I am not unmindful of the spirit of absolute fairness to all parties which prompted your action in this case, but I am compelled, upon a full consideration of the questions of law involved and my sense of duty in the premises, to arrive at a different conclusion.

You are, therefore, hereby directed to prepare for issue the letters patent for an improvement in time-locks, to which Mr. Sargent has been adjudged entitled.

I herewith transmit the application and the papers filed therewith.

Very respectfully,

C. SCHURZ,
Secretary.

To Hon. ELLIS SPEAR,
Commissioner of Patents.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date September 18, 1877.]

10,250.—Playing-Cards.—VIRGINIUS C CLAYTON, Brooklyn, N. Y. Application filed July 20, 1877. Term of patent 3½ years.

10,251.—Combined Chimney and Globe.—EDWARD D. DITHRIDGE Pittsburg, Pa. Application filed April 12, 1877. Term of patent 14 years.

10,252.—Chairs and Sofas.—PHILIP P. KUEHBORTH, Buffalo, N. Y., assignor to ALBERT BEST & CO., same place. Application filed July 19, 1877. Term of patent 3½ years.

10,253.—Picture-Frame.—EUGENE MULLIGAN and JEREMIAH H WOOD, Brooklyn, N Y. Application filed July 25, 1877. Term of patent 3½ years.

10,254.—Lamp Chimneys or Globes.—PAUL ZIMMERMAN, Pittsburg, Pa. Application filed September 3, 1877. Term of patent 3½ years.

10,255.—Embroidery-Pattern.—EMIL CRISAND, New Haven, Conn., assignor to HENRY ST JOHN, same place. Application filed September 11, 1877. Term of patent 3½ years.

10,256.—Imprint on Bars of Soap.—NOYES W. FISK, Springfield, Mass. Application filed September 7, 1877. Term of patent 14 years.

10,257.—Font of Ornamental Printing-Types.—JULIUS HERRIET, New York, N. Y., assignor to DAVID WOLFE BRUCE, same place. Application filed May 21, 1877. Term of patent 14 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date September 18, 1877.]

5,150.—Sewing-Machine Oil.—COLBY, HUTCHINS & Co., Cincinnati, Ohio. Application filed June 12, 1877.

"The word-symbol 'JONAH.'"

5,151.—Sausages.—ALOIS FEIGELSTOCK, New York, N. Y. Application filed August 31, 1877.

"The word-symbol 'VIENNA' and a bull's head biting on a bunch of leaves, with the Jewish inscription 'Cosher' on one of the leaves."

5,152.—Pottery-Ware, including Stone-China and Earthenware.—HOMER LAUGHLIN, East Liverpool, Ohio. Application filed August 10, 1877.

"The representation of an eagle rampant over a lion supine upon a portion of a globe."

5,153.—Books.—LEE & SHEPARD, Boston, Mass. Application filed August 21, 1877.

"The word-symbol 'THAT HUSBAND OF MINE.'"

5,154.—Mixture for Washing Clothes.—MARSH & Co., New York, N. Y. Application filed August 15, 1877.

"The word-symbol 'HURD'S MAGICAL MIXTURE.'"

5,155.—Cigars and Cigarettes.—MOORE, JENKINS & Co., New York, N. Y. Application filed August 31, 1877.

'The word-symbol 'CYCLONE.'"

5,156.—Soap.—PROCTER & GAMBLE, Cincinnati, Ohio. Application filed August 18, 1877.

"The diagonal red bar or ribbon, the same being used in connection with the words 'MOTTLED GERMAN.'"

5,157.—Soap.—PROCTER & GAMBLE, Cincinnati, Ohio. Application filed August 18, 1877.

"The diagonal green bar or ribbon used in connection with the words 'OLEINE OXIDE.'"

5,158.—Baking-Powder.—JAMES H. SHERWOOD, Brooklyn, N. Y. Application filed September 3, 1877.

"The cut or engraving representing a white rose, and the word-symbol 'WHITE ROSE.'"

5,159.—All Sawed Lumber Except Shingles.—WETZELL BROTHERS, Grand Rapids and Lockwood, Mich. Application filed May 24, 1877.

"The representation of a bunch of shingles packed and bound, with the stamp upon the top consisting of the words 'Wetzell Bros., Grand Rapids, Mich.'"

5,160.—Stove-Polish.—CLARENCE W. MONTGOMERY, Brooklyn, N. Y. Application filed June 11, 1877.

"The design shown in the drawing, which is composed of two sections of an arch, terminating upon two longitudinal straight ribs or lines."

5,161.—Oil-Cloths.—THOMAS POTTER, SONS & Co., Philadelphia, Pa. Application filed September 6, 1877.

"An eagle, a globe, and a scroll bearing the word 'EXCELSIOR.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date September 18, 1877.]

1,181.—Title: "**Directions for Use.**"—PATRICK H. DOYLE, Brooklyn, N. Y. Application filed September 7, 1877.

1,182.—Title: "**Pure Copper Distilled Soft Mash Whisky.**"—MIAMI DISTILLING COMPANY, Hamilton and Cincinnati Ohio. Application filed August 17, 1877.

1,183.—Title: "**Stuart, Peterson & Co.'s Enameled Ware.**"—STUART, PETERSON & Co., Philadelphia, Pa. Application filed September 8, 1877.

1,184.—Title: "**Stuart, Peterson & Co.'s Tinned and Enameled Ware.**"—STUART, PETERSON & Co., Philadelphia, Pa. Application filed September 8, 1877.

1,185.—Title: "**The Union Dressing, &c.**"—GEORGE A. MOSS Orange, N. J. Application filed January 11, 1877.

1,186.—Title: "**Perfect Solvent, for Removing Grease, Paint, Dirt, Stains, &c.**"—DRAKE & WOODMAN, West Lebanon, N. H. Application filed September 3, 1877.

SALE OF SPECIFICATIONS AND DRAWINGS.

Photolithographic copies of the drawings of all patents issued since November 26, 1867, have been produced, and will be sold to the public at 25 cents per patent, or, where twenty or more copies are ordered at one time, at 10 cents per patent.

Coupon-books, to the amount of $2 or more, can be purchased from the Chief Clerk of the Patent Office; the coupons, for 10 cents each, may be filled out at any time, and, on presentation, will entitle the holder to a photolithographic copy of *any* drawing which has been reproduced.

The specifications of all patents issued since July 1, 1871, are in print, and will be furnished with the drawing without extra charge. The specifications of patents issued from November 20, 1866, to July 1, 1871, are in print, and where such is the case the Office will furnish them with the drawings, but the Office will not undertake to reprint copies of patents which have been exhausted.

In addition to the above, the Office has reproduced, and offers for sale at the price mentioned above, all drawings in the following classes, embracing patents granted from 1790 to date. The classes are those of the Examiners:

1. Aeration and Bottling.
2. Apparel.
4. Baths and Closets.
5. Beds.
6. Bee hives.
7. Beer and Wine.
8. Bleaching and Dyeing.
9. Boats.
10. Bolts, Nuts, and Rivets.
11. Bookbinding.
13. Brakes and Gins.
14. Bridges.
15. Brushes and Brooms.
17. Butchering.
18. Caoutchouc.
19. Carding.
20. Carpentry.
21. Carriages and Wagons.
23. Chemical Misc.
26. Cloth.
28. Cordage.
29. Crinoline and Corsets.
31. Dairy.
33. Drafting.
34. Driers and Kilns.
36. Electricity.
37. Excavators.
38. Felting and Hats.
40. Files.
42. Fire-arms.
44. Fuel.
45. Furniture.
47. Garden and Orchard.
48. Gas.
52. Gunpowder.
53. Hardware manufacture.
55. Harrows.
56. Harvesters.
58. Horology.
59. Horseshoes
61. Hydraulic Engineering.
62. Ice.
65. Kitchen Utensils.
66. Knitting and Netting.
67. Lamps and Gas-fitting
68. Laundry.
71. Manures.
72. Masonry.
73. Measuring Instruments.
75. Metallurgy.
76. Metal Working, bending and straightening.
77. Metal Working, boring and drilling.
78. Metal Working, forging, swaging, and riveting.
79. Metal Working, punching, cutting, and shearing.
80. Metal Working, rolling.
81. Metal Working Tools.
82. Metal Working, turning, planing, and milling.
83. Mills.
85. Nails.
86. Needles and Pins.
87. Oils, Fats, and Glue.
88. Optics.
89. Ordnance.
90. Ore.
91. Paint.
92. Paper-making.
93. Paper manufactures.
94. Paving.
96. Plating.
97. Plows.
98. Pneumatics.
99. Preserving Food.
101. Printing.
102. Projectiles.
103. Pumps.
104. Railways, The Way.
105. Railways, Cars and Interior Fittings.
106. Railway Cars, Exterior Mountings and Fittings.
107. Railway Track and Car Irons and Fittings, manufacture of.
108. Roofing.
111. Seeders and Planters.
112. Sewing-machines.
114. Ships (1) construction.
115. Ships (2) propulsion.
116. Signals.
117. Silk.
118. Spinning.
119. Stabling.
120. Stationery.
124. Stills.
126. Stoves and Furnaces.
127. Sugar.
130. Thrashing.
131. Tobacco.
132. Toilet.
134. Tubing and Wire.
135. Umbrellas and Fans.
137. Water Distribution.
138. Water wheels.
139. Weaving.
141. Wood screws.

And the subdivisions of—

Bench-planes.
Bale-ties.
Buttons and Machines.
Combs, &c.

About forty other classes are in progress, and it is hoped that all the drawings remaining, some thirty thousand in number, may be completed during the fiscal year.

The total number of patents of which drawings are complete and offered for sale as above will approximate one hundred and fifty thousand.

The Government fee on making application for a patent is fifteen dollars. The final fee is twenty dollars. Usually there are no other Government fees unless the application is appealed.

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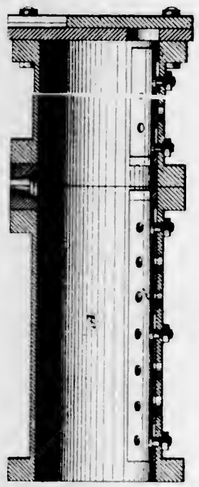
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TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED SEPT. 18, 1877.

195,201. FLUMES FOR ESTABLISHING PERMANENT CHANNELS IN RIVERS, &c. M. J. Adams, St. Paul, Minn., assignor of one-half his right to National Tube Works Company, McKeesport, Pa. [Filed Aug. 30, 1877.]

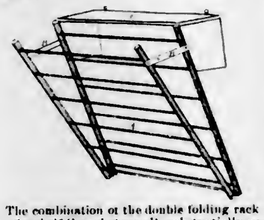


1. The above-described flumes for establishing permanent channels in rivers, sloughs, canals, and still waters, the same being provided with ports or valves for the forcible discharge of water upon the bottom, and a gate at the lower end, and mechanism for applying pressure at the upper end, substantially as described.

2. The combination, with the above-described flumes, of the lever-valves, as and for the purpose set forth.

3. The combination, with the above-described flumes, of the sliding valves, as set forth.

195,202. CLOTHES-DRYING RACKE. Will C. Aiken, Cleveland, Ohio. [Filed Dec. 14, 1876.]



The combination of the double folding rack A, the shelf C, and straps B, substantially as and for the purpose set forth.

195,203. NUT-LOCKS. Allen W. Bodell, Glenford, Ohio. [Filed Apr. 11, 1877.]

1. The outside fish-plate C, having projections provided, respectively, with a socket and an inclined groove, substantially as specified.

2. The outside fish-plate C, having the projections provided, respectively, with a socket and inclined groove, when the groove has a curved side wall and point *b'*, substantially as specified.

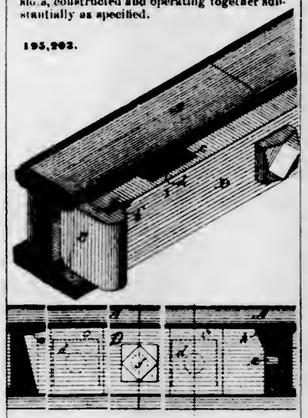
3. The locking-bar D, provided with the transverse side slots *c*, substantially as specified.

4. The locking-bar D, provided with the slots *c*, and having on its ends, respectively, the tenon and incline, substantially as specified.

5. The locking-bar D, provided with the slots *c*, and having on its ends, respectively, the tenon and incline and bevel *e*, substantially as specified.

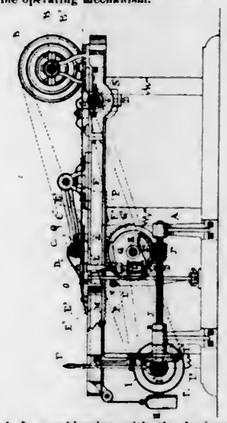
6. The combination of the outside fish-plate and locking-bar, provided with transverse side slots *c*, constructed and operating together substantially as specified.

195,203.



195,204. MACHINES FOR PLANING AND GROOVING WASH-BOARD LEGS. Charles T. Brandon, Toronto, Ontario, Canada, assignor of one-half his right to James S. McMurray and T. R. Fuller, same place. [Filed May 22, 1877.]

Brief.—Wash-board legs are planed, rounded, and tapered upon their upper edge, and grooved on the inside stone operation by means of suitable planing-knives, two sets of knives having concave cutting-edges, and mounted in a swinging frame, and two grooving-saws, in connection with a horizontally-reciprocating carriage, a partially-toothed wheel for moving said carriage a certain fixed distance, and suitable operating mechanism.



1. In combination with the horizontally-moving carriage E, provided with form E', the pivoted frame C', provided with the rounding and tapering cutters D, arranged and operating substantially in the manner and for the purpose set forth.

2. The combination, with a horizontally-moving carriage, provided with form P, of the right and left side grooving-saws O, arranged and operating substantially as described.

3. In combination with the horizontally moving and feeding carriage E, provided with forms E' and P, the rounding and tapering cutters D, the right and left grooving-saws O, and the adjustable under cutting-knives S, substantially as shown and described.

4. The hinged frame C', provided with the cutters D D and tapered bearing-block Q, in combination with the carriage E, provided with the form E', substantially as shown and described.

5. In combination with the continuously-revolving partly-toothed wheel G, carriage K, with rack F' and weight H, substantially as shown and described.

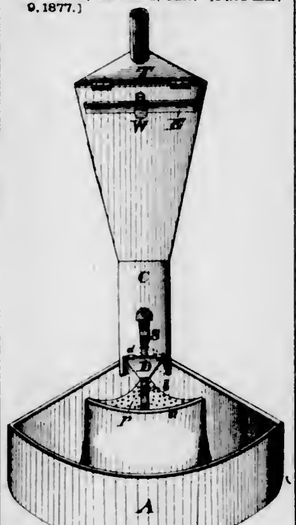
6. In combination with the partly-toothed revolving wheel G, provided with the sectional filling web pieces G', the hinged frames L', provided with the projecting finger-pieces L', substantially as shown and described.

7. The adjustable sectional bars T, arranged to receive the legs after they have passed the knives S, substantially in the manner and for the purpose set forth.

8. The guiding and supporting bars F, in combination with the carriage E, cutters D, and saws O, substantially as shown and described.

9. The combination of the driving-shaft B', pulleys B' and I, shaft I', friction-wheels I' I', shaft J, worm J', worm-wheel J', shaft K, and sectionally-toothed wheel G, with the carriage E, arranged and operating substantially in the manner and for the purpose set forth.

195,205. FEED-TROUGHS FOR HORSES. G. C. Broom, Cleveland, Ohio. [Filed Mar. 9, 1877.]



1. A feed-trough, A, provided with an extra perforated trough or screen, *a*, substantially as and for the purpose set forth.

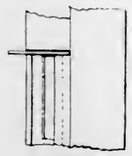
2. In a feed-trough, the combination, with a hopper and chute and feed trough, of a spring-pressed delivery-valve and an agitator, projecting into the feed-trough, substantially as and for the purpose set forth.

3. In a feed-trough, the combination, with the duplex trough A *a*, the latter provided with a perforated bottom, *p*, of the hopper, chute, spring-pressed valve, and agitator, substantially as and for the purpose set forth.

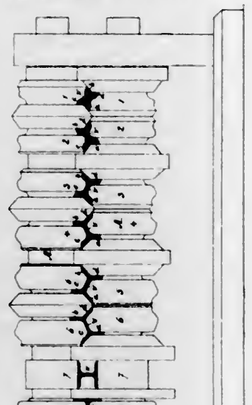
195,206. WEATHER-STRIPS. William H. Cosper, Chicago Ill. [Filed Sept. 9, 1876.]

In combination with a weather strip or strips, a parting stop on one side, in its upper part, and on the other side in its lower part, and provided with a cross groove opposite the meeting rail, substantially as and for the purpose specified.

195,206.



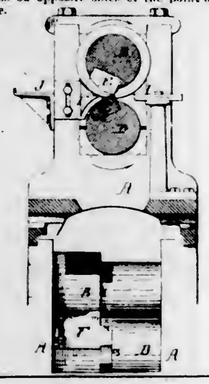
195,207. ROLLS FOR BEAMS AND GIRDERS. J. F. De Buigne, Vienna, Austria. [Filed Feb. 20, 1877.]



The rolls A A, provided with a series of grooves for forming the web and flanges for beams or girders to be rolled, said grooves being arranged in relation to each other and to the axis of the rolls in the manner substantially as described, and for the purpose specified.

195,208. SPIKE-POINTING MACHINES. Louis De Lario, Allentown, Pa. [Filed Feb. 2, 1877.]

Brief.—The guide over which the blank is passed to the dies is said to be adjustable, in virtue of which the blank may be so manipulated as to produce either equal or unequal bevels on opposite sides of the point of the spike.

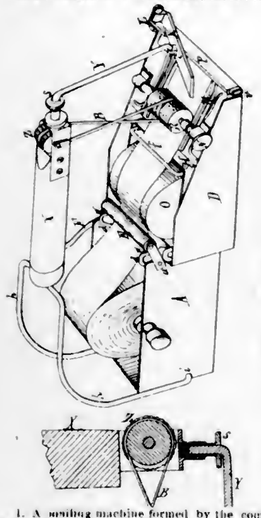


1. The combination of the rolls of a spike-machine with the detachable dies E, each having an eccentric face, i, and the face or shoulder *e*, and being adjustable, both radially and laterally, as and for the purpose set forth.

2. The combination of the rolls B and D, and their eccentric dies E, the adjustable gage I, and the guide-plate F, as specified.

3. The combination of the rolls B and D, and their eccentric dies E, with the guide-plate F, rendered adjustable vertically, as described.

195,209. ADDRESSING-MACHINES. Alex. Dick, Buffalo, N. Y. [Filed May 12, 1877.]



1. A mailing machine formed by the combination of the body A D, and the inserted and attached parts, viz.: reel gage and web-guides *d d*, web-depressing roller C, paste-roller O, slideway M with springs *r* and brackets *t*, feeding-roller R with central groove and metallic spurs, belt B, propelling-roller Z, handle X with pivoted double-wire reel-guard *h h*, pitman Y with thumb-screw S, stamping-cutter K, and fixed cutter F, when the construction and combination of all the various parts, singly and relatively, are in the manner shown and described herein.

2. The gage-wires *d d*, having the loops W W mounted by inserting their ends in a transverse tube at one end of the part A, and in bearings at the other end of the same, as set forth and described.

3. The combination, in a mailing-machine, of the roller E, having pivoted bearings, with the gage-wires *d d* and paste-roller O, as shown and described.

4. In combination with the feeding-roller R, the slideway M having the spring *r*, and brackets *t*, substantially as set forth and described.

5. In combination with the reel receptacle A, the pivoted double-wire reel-guards *h h*, attached to handle X, as shown and described.

6. In combination with the pitman Y, cutter-stamp K, and blade P, the swiveled thumb-screw S.

7. In combination with the belt B, feeding-roller R, and slideway M, the propelling-wheel Z, journaled in open chamber attached to handle X, as shown and described.

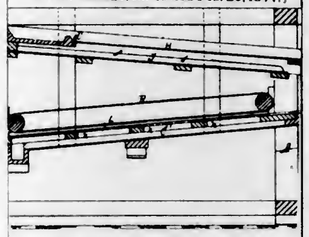
8. In combination with the belt B and slideway M, the feeding-roller R, formed with a central groove and metallic spurs, as shown and described.

195,210. ADJUSTABLE HANDLES FOR ROLLING BARRELS, &c. Chester O. Dodge, Colebrook, Ohio. [Filed July 20, 1877.]

1. The lug *a*, provided with a slot, G, in combination with the set-screws H, limb *a'*, and section A, substantially as and for the purpose set forth.

2. The jointed sections A A', provided with arms and center pivots D, in combination with the limb *a*, having a slot therein, screw-pins H, and limb *a'*, substantially as and for the purpose specified.

195,211. GRAIN-SEPARATORS. Louis Gathmann, Chicago, Ill. [Filed Feb. 26, 1877.]



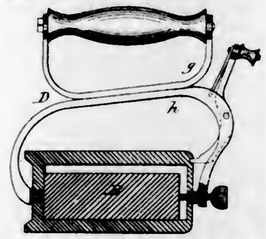
1. The combination, with the laterally-reciprocating screen L, of the revolving endless apron R, substantially as and for the purpose specified.

2. The combination, with the reciprocating screen L and revolving apron R, of the grading-screen H, substantially as and for the purpose specified.

3. The reciprocating screen L, provided with a series of cross-bars, *s*, for supporting the center of the screen, in combination with the revolving apron R, substantially as and for the purpose specified.

195,212. FLUTING AND POLISHING IRONS. Anda D. Grose, Tilton, Ky. [Filed June 23, 1877.]

Brief.—The handle is made in two sections, welded or otherwise secured together, and the lower section is provided with a projection at one end and a set-screw at the other, which end is bent so as to always act as a spring, and keep the heated interior block rigidly in place.



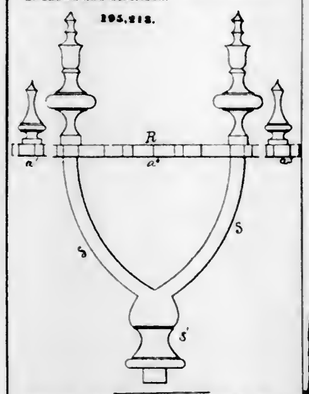
The handle D formed of sections or arms *g h* and set-screw *l*, in combination with iron A and block B, as described.

195,213. STANDS FOR FIRE-IRONS. Walter B. Hague, Pittsburg, Pa. [Filed Mar. 28, 1877.]

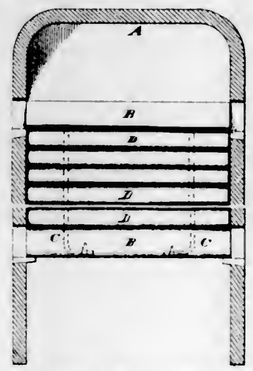
As a new article of manufacture, the herein described stand for fire-places, consisting

of a base, S', and the two branching supporting-arms S S secured to the bar R, said bar being formed with the central and end angularly-shaped arms, and having the rests a^1, a^2, and a^3 for the articles set forth, substantially as shown and described.

195,213.



195,214. WASH-BOARDS. David E. Hall, Cleveland, Ohio, assignor to himself and John C. Compton, same place. [Filed July 7, 1877.]



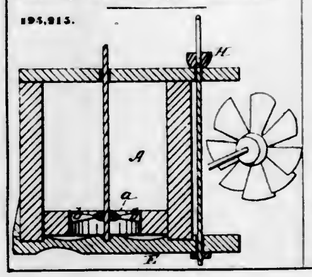
1. A wash-board plate, consisting of slats strung upon strands C, substantially as and for the purpose described.

2. A wash-board plate, consisting of slats strung upon strands C, in combination with cross-pieces B, substantially as and for the purpose described.

3. An elastic wash-board plate, consisting of slats strung upon strands, said slats being free and independent from the sides of the wash-board frame, substantially as and for the purpose described.

4. The combination of the frame A, cross-pieces B, rubbing-slats D, and strands C, substantially as and for the purpose described.

195,215.

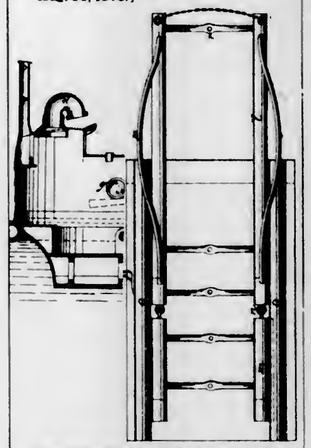


195,215. WATER-WHEELS. John C. Horton, Elkton, Tenn., assignor of one-half his right to Neill Hollon, same place. [Filed Aug. 24, 1877.]

1. The wheel with the inclined buckets widest at their outer ends and disconnected, arranged within a circular opening, *c*, in the floor of the flume, for operation as shown and described.

2. The combination of the wheel, arranged in an opening, *c*, in the floor of the flume, with the hinged cross-tree E, the supporting connecting-rod G, and the adjusting-nut H, all constructed as shown and described.

195,216. LIFE-BOATS AND LAUNCHING APPARATUS. F. X. Huber, Dionys Lindauer, and A. J. Larché, New York, N. Y. [Filed Aug. 30, 1876.]



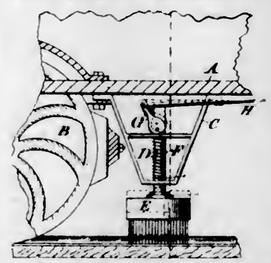
1. The external flexible air-chamber or pipe, covered and guarded by the continuous flange attached around the boat above the air chamber, substantially as described.

2. The swiveled, curved, and downwardly-opening ventilators, combined with a life-boat, substantially as described.

3. In combination with a ship's boat, a supporting platform or frame, K, ways B *o*, and sliding jointed rails *w l*, adapted to support and launch the boat from the ship, substantially as described.

4. In combination with a covered life-boat, a signal-pipe, *e*, having openings or windows on all sides, at its upper end, and communicating with the interior of the boat, by means of which signal-lanterns may be displayed in the pipe and protected thereby, substantially as described.

195,217. RAILWAY-TRACK CLEARERS. M. C. Isaacs, Chicago, Ill. [Filed July 11, 1877.]



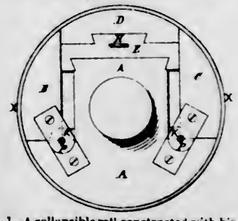
1. The track-brooms attached to the car so as to be free to slide up and down, in combination with independent springs which hold the brooms to work, but permit them to yield, and mechanism, to be operated from the driver's stand or platform, whereby the brooms may be raised bodily and held from contact with the track, substantially as and for the purpose set forth.

2. The car-frame A, in combination with the bracket C, attached thereto, the broom-spindle D, mounted in the bracket so as to slide up and down, the track-broom E, and the springs F, substantially as and for the purpose set forth.

3. The bracket C, provided with the cross-plate *c*, in combination with the broom-spindle D, spring F, and cam-lever G, substantially as and for the purpose set forth.

4. The pendent bracket C, constructed as described, in combination with the sliding broom-spindles D, holding-springs F, cam-lever G, and cords or rods H, extending forward and upward, so as to be within reach of the driver, substantially as and for the purpose set forth.

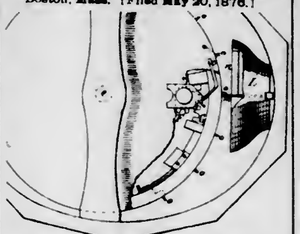
195,218. ROLLS FOR PAPER-BARREL MACHINES. Nice Keely, Philadelphia, Pa. [Filed Nov. 28, 1876.]



1. A collapsible roll constructed with hinged sections B and C, in combination with offsets K, substantially as and for the purpose shown and described.

2. The combination of sections B and C, pivoted on A, section D, and dovetail key E, substantially as hereinbefore set forth.

195,219. ALARM-SAFES. J. B. Kingham, Boston, Mass. [Filed May 20, 1876.]



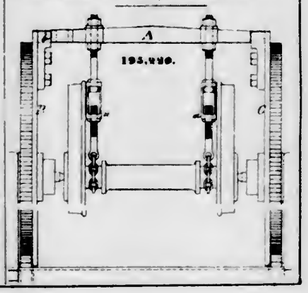
1. The combination of the internal revolving circular safe with the elliptical stationary outer case, substantially as and for the purpose specified.

2. The revolving circular safe C, provided with the projecting pins *s*, in combination with the bell or gong L, and the devices for ringing it, as specified.

3. The elliptical case A, provided with the top J, the latter being pierced with orifices *s*, as and for the purpose shown and described.

4. The elliptical outer case, provided with the pierced top and the cross-bar, in combination with the circular revolving safe, having projecting pins, and the bell or gong, substantially as and for the purpose specified.

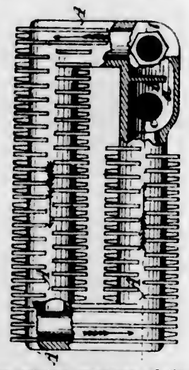
195,220.



195,220. DEVICES FOR LIFTING WORK INTO AND OUT OF LATHES. Ellis Knight, Evanston, Wyo., assignor to William Sellers, Philadelphia, Pa. [Filed Aug. 16, 1877.]

The cross-bar A and adjustable screw-swivels *a a*, in combination with the face-plates B and C, substantially as and for the purposes described.

195,221. STEAM-RADIATORS. H. E. Light, Rochester, N. Y. [Filed June 20, 1877.]



1. The radiators consisting of the pipes A A and ends A' A', forming circuits, constructed with the enlarged openings or spaces *p p* at the front, for the purpose of inserting nipples and allowing the use of ordinary pipe-tongs for operating the nipples, without throwing the radiators too far apart, as herein shown and described.

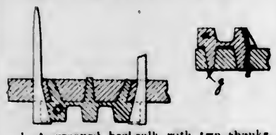
2. In radiators such as described, the pockets *a a* and diaphragms *b b*, located at the front end of the radiators, with right and left nipples *c c* connecting the radiators on alternate sides of the diaphragms, and the enlarged openings or spaces *p p* at the ends of the radiators, the whole combined to operate in the manner and for the purpose specified.

3. In pipe-radiators such as described, the combination, with the pipes A A, of the quadrangular or segment flanges *m m*, provided with the beveled shoulders *r r*, resting one upon another, as shown and described, and for the purpose specified.

4. A series of radiators each consisting of a complete pipe-circuit, provided with pockets and diaphragms forming water-traps at one end, connected by right and left nipples on opposite sides of the diaphragms, and the flanges of the several radiators interlocking or resting upon each other to prevent displacement of any one of the radiators, as shown and described, and for the purpose specified.

5. A steam-radiator section, consisting of a complete circuit constructed with the depressed pocket *a* in the lower pipe, with a single diaphragm or wing, *b*, extending from the top of the pipe downward to the level of, or below the bottom of, the steam-passage from the radiator, as shown and described, and for the purpose specified.

195,222. HORSESHOES. J. J. Mervesp, East Newark, N. J. [Filed July 13, 1876.]



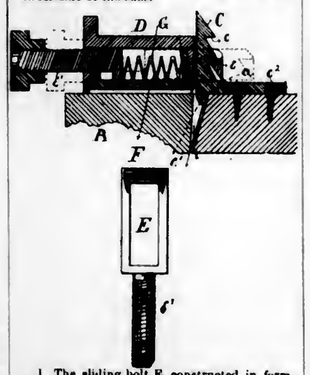
1. A grooved heel calk with two shanks, one perpendicular, with fastening spur *g*, the other oblique, as shown in Fig. 4, in combination with the horseshoe formed with the beveled surfaces *k k*, substantially as described.

2. The outer heel calk *a*, of form substantially as described, and secured in place by the wedge *e*, in combination with the shoe formed with the beveled surfaces *k k*, as set forth.

3. A grooved toe-calk with two or more shanks, two of which are oblique, as shown in Figs. 3 and 10, in combination with the nails and shoe with rasp-like teeth formed upon the upper surface of the toe only, as described, for the purpose specified.

195,223. FASTENERS FOR MEETING-RAILS OF SASHES. Niles M. Miller, Chicago, Ill. [Filed Jan. 29, 1877.]

Brief.—A sliding spring-bolt has a beveled face rectangular loop formed on its outer end, which is adapted to pass over and engage with a series of notches or serrations on the beveled face of an upright catch or keeper, and the bolt-case has its ends slotted, and is provided with a removable bottom, closely fitting in the under side of the case.

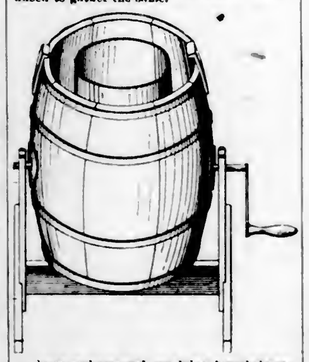


1. The sliding bolt E, constructed in form of a loop, in combination with the case D, spring G within the loop, and catch or keeper C, provided with a series of notches, *c*, upon the inclined face of the upright arm thereof, substantially as and for the purpose set forth.

2. The bolt-case D, with its ends slotted, as described, in combination with the loop-bolt E, spring G, and removable bottom F, substantially as and for the purpose set forth.

195,226. CHURNS. Alexander P. Minnick, Rockford, Ill., assignor of one-half his right to J. C. Chappell, same place. [Filed Sept. 22, 1876.]

Brief.—The cream is put into the cylinder and churned. When butter is produced the cylinder is removed, and the breaker introduced to gather the same.



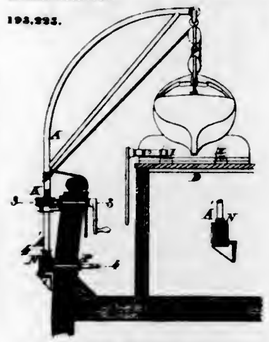
In an end over-end revolving barrel-churn, the longitudinal removable open-end cream-cylinder, arranged and operating substantially as described, and for the purpose set forth.

195,225. MEANS FOR OPERATING SHIPS' DAVITS. Alfred B. Mullett and George W. Baird, Washington, D. C., assignors to said Mullett. [Filed Jan. 29, 1877.]

1. The combination, with the davit A, of gearing K L M, for imparting rotation to the same, substantially as and for the purposes set forth.

2. The combination, with the davit A, of the gearing N P, for elevating the same in the manner described.

195,227.

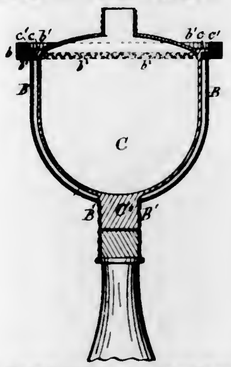


195,228. TEMPORARY BINDERS. J. W. Munday, Chicago, Ill. [Filed Aug. 27, 1877.]



The letter-file consisting of a portfolio having stiff lids and a flexible back, in combination with the loose index-sheets and the elastic guards attached to the ends of the lids at both ends, substantially as specified.

195,227. LAMPS. Stephen S. Newton, Binghamton, N. Y. [Filed Mar. 29, 1877.]



1. The fount C, having a perforated flange, *e*, in combination with the shell B and corrugated shoulder *b*, substantially as set forth.

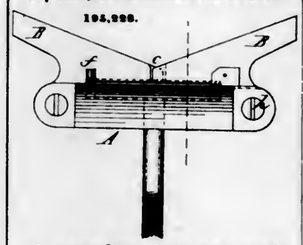
2. In combination with the shell B, the flanged fount C, having a central vertical air-tube, as and for the purposes set forth.

3. In combination with the fount C, the shell B, provided upon the upright portion of its interior surface with projections for attaching the fount C, the whole constructed, as described, to allow downward passage of the oil, substantially as set forth.

195,228. SPOOLING-GUIDES. Andrew Partridge, Springfield, Mass., assignor to himself and T. A. Curtis, same place. [Filed July 27, 1877.]

Brief.—A plate having a horizontal slot is attached to a beam, which is made cylindrical on its upper side, and provided with a vertical opening in front of the plate, to permit the dirt to fall through. An opening is made from the top of the plate down to the horizontal slot at such an angle as to prevent the thread escaping. The space in the slot above the beam may be adjusted to different sizes of thread.

195,228.



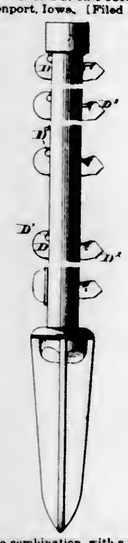
1. In a spooling-guide, the plate or upright part B, provided with a horizontal slot or opening, *a*, and an opening or cut, *c*, made diagonally across the thickness of the upright part into said horizontal opening *a*, substantially as and for the purpose herein set forth.

2. In a spooling-guide, the beam A, provided with the vertical opening *i*, in combination with the plate or upright part B, having the horizontal slot or opening *a* and the diagonal opening *c* made therein, substantially as set forth.

3. In a spooling-guide, the plate or upright part B, provided with the horizontal opening *a*, in combination with the beam A, having its rear part *a* located beneath the upper edge of the opening *a*, said upright part and beam being made adjustable with reference to each other, so that the space in said opening *a* above the beam may be made wider or narrower, to accommodate thread of different sizes to be passed through said opening *a*, substantially as described.

4. In combination with the upright part B and the beam A, the guard *f*, located near the end of the horizontal opening *a*, substantially as and for the purpose described.

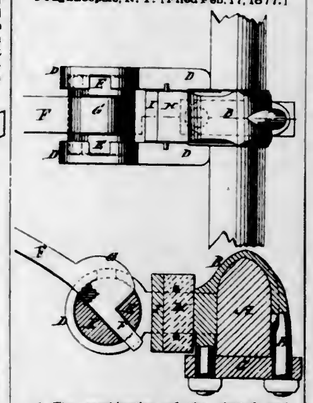
195,229. IRON FENCE-POSTS. J. B. Perkins, Davenport, Iowa. [Filed Aug. 10, 1877.]



1. The combination, with a metallic post, of wire fasteners D, passed through the post, substantially as and for the purposes described.

2. In a fence-post, the metallic wire fasteners D, provided with notches D' and points D², for combining the wire with the post, substantially as and for the purposes described.

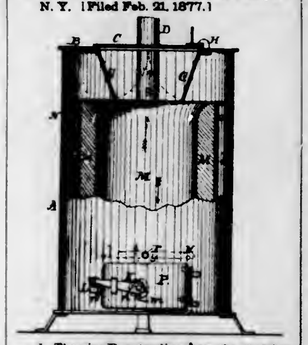
195,230. THILL-COUPLINGS. F. C. Potter, Poughkeepsie, N. Y. [Filed Feb. 17, 1877.]



1. The combination of the slotted and notched cylinder E, and the recessed and notched lugs D, and the thill-iron F, provided with the lugs J, substantially as herein shown and described.

2. The combination of the rubber block H, faced with leather I, with the thill-iron F, provided with cam G, the lugs D, and axle-clip B, substantially as herein shown and described.

195,231. STOVES. B. Rice, West Schuyler, N. Y. [Filed Feb. 21, 1877.]



1. The pipe D, extending from the chamber between the casings A and J, and upward through the top B, substantially as shown.

2. In combination with the top B, the cover C, provided with the pivoted disk E, with notch *o* and catch H', and the adjustable slotted plate F, with notch *i* and catch H, so that the cover C may be fastened at two edges, forming a right angle, as and for the purposes set forth.

3. The perforated plate I, secured to casing A, back of the damper S, as shown and described.

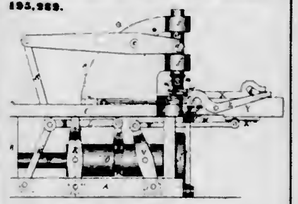
4. The combination of the latch K, the door P, provided with slot *m*, and the catch L, substantially as shown.

5. The lids G, hinged to the under side of the top B, with their lower extremities resting on the top of the inner casing J, so that the lids are kept in positions inclined toward each other, as shown and set forth.

195,232. HORSESHOE-MACHINES. Andrew J. Roberts, Boston, assignor to himself and M. E. Hawes, Somerville, Mass. [Filed Dec. 26, 1876.]

Brief.—A pawl-slide feeds the bar through a cut-off block across and above the plane of travel of the former. Two levers operated by a cam-groove in the rear end of the former, one of which is formed with a cutting-edge while the other is forked, stride the forward end of the bar, and force it down into the plane of movement of the former at the same time the cut is being made. A pair of anti-friction rollers give the initial bend to the blank as the former forces it between them, and side dies press the partly-bent blank to its ultimate shape, and surround and sustain it while the nail-holes and creases are being punched. A projecting flange of the former is shaped on its under face to press and form the upper surface of the shoe. Channels for the admission of water are formed between the die-head and die. A pin on the forked lever knocks the completed shoe from the former.

195,233.



1. In a horseshoe-machine, the combination of the transverse feeder D', the longitudinal former X, rollers *r r'*, the oscillating transverse formers U, and pressing-die *m*, all combined and operating substantially as described.

2. Levers Z Z', pivoted to the guide-frame Y of former X, and formed in their forward ends, respectively, with jaws and with a cutter, in combination with the cam *k* of the traveling former X, substantially as and for the purposes herein set forth.

3. In a horseshoe-machine, a transverse feeder having a pivoted pawl or other suitable bar-holder, and arranged to travel on a frame, G', having a cut-off block, A', in combination with a former, X, frame Y, and levers Z Z', all arranged and operating substantially as specified, and for the purpose described.

4. In a horseshoe-machine, a rotating shaft, O, provided with cams J, P, Q, and N, in combination with the several mechanical devices described connecting said cams with the feeder D', formers X U, and pressing-die *m*, all arranged and operating substantially as and for the purpose described.

5. In a horseshoe-machine, the pressing-die *m*, having a socket to receive the head-block J, and recessed and curved on its front and sides to receive a die, and formed on its sides with vertical grooves or channels *q* for the introduction of water to the bottom of the die, substantially as described, and for the purposes specified.

6. The die *m'*, curved in the contour of a horseshoe, and formed on its bottom with flanges and prongs, to form the grooves and nail-holes of the shoe, and having a curved yoke, *x*, with screw ends, which extend through a cross-bar, *w*, and are secured to it by screw-nuts *w'*, all substantially as herein set forth.

7. The die-holder *m*, provided with a suitable die, arranged and operating as described, in combination with the formers U X, rollers *r r'*, levers Z Z', and feeder D', all arranged and operating substantially as specified, and for the purposes herein set forth.

8. The adjusting-screws *o* of die-holder *m*, for the purpose specified, in combination with the punching and creasing die *m'*, secured about the holder *m*, substantially as described.

9. The projecting flange d^4 of the former X, in combination with the pressing-face of the die-holder *m*, substantially as described, for the purpose specified.

10. The guide k^4 for the horseshoe-bar in its feed to the machine, which guide is arranged to guide the bar across and in a horizontal plane so different from the horizontal plane in which the longitudinal former X travels that the feed of said bar can occur while the said former is moving, and without interference therewith, in combination with mechanism, substantially such as herein described, which is arranged to receive the said bar, when fed as aforesaid, and to carry it into the horizontal plane of movement of the longitudinal former X, all substantially as and for the purpose specified.

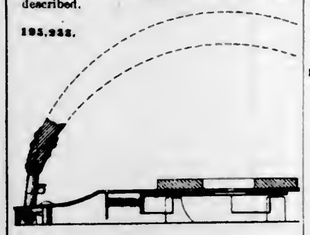
195,269. COMBINED LOCK AND HANDLE FOR TRAVELING-BAGS. Wm. Roemer, Newark, N. J. [Filed Aug. 10, 1877.]

The lock-case made with the notched sides *a a* near its ends to receive and hold the ban-

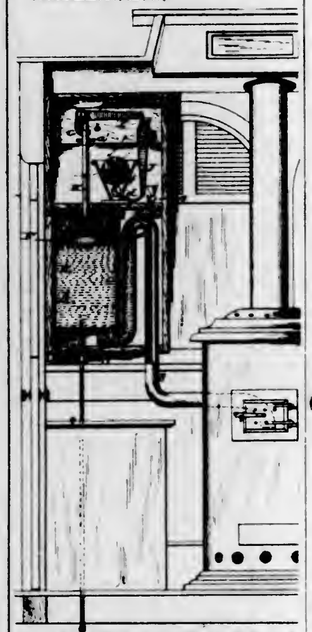
THE GRAPHIC CO N.Y.

dle-rings B, substantially as herein shown and described.

195,233.



195,234. APPARATUS FOR EXTINGUISHING FIRES IN CAR-STOVES. Lawrence O. Root and L. I. Baker, East Minneapolis, Minn. [Filed Mar. 17, 1877.]



1. A water-reservoir adapted to be secured within a railroad car, provided with a tortuous passage connected with the reservoir, and adapted to communicate with the interior of a stove, in combination with a spring-impelled piston within the reservoir, and a trip mechanism for holding the piston up until released by any unusual movements of the car, substantially as described.

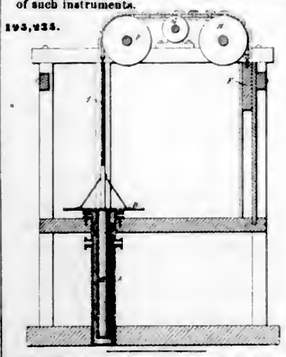
2. The water-reservoir A and tortuous passage B, adapted to communicate with the interior of a stove, in combination with the piston F, spring G, rod H, arm I, rod J, and weight *e*, connected with the rod J, substantially as described.

195,235. REGULATORS FOR AUTOMATIC TELEGRAPHS. William E. Sawyer, New York, N. Y. [Filed June 29, 1877.]

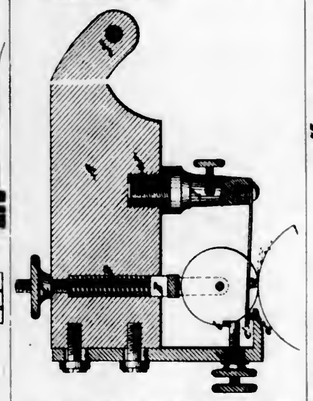
Brief.—The transmitting-movement automatically works a commutator, which changes the current from the transmitting and recording instruments to a single regulator, which controls all the instruments in the line.

In an autographic telegraph in which the transmitting or receiving apparatus is regulated at the end of each revolution thereof, the combination of two or more transmitting and receiving instruments, provided with commutators which put the line-wire alternately to the transmitting or receiving apparatus and to the regulating apparatus, and an apparatus independent thereof which periodically transmits an electrical impulse over the line for the purpose of regulating the motion of such instruments.

195,235.



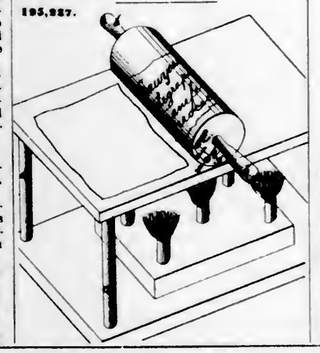
195,236. AUTOGRAPHIC TELEGRAPH TRANSMITTERS. W. E. Sawyer, New York, N. Y. [Filed July 9, 1877.]



1. In a telegraph-transmitter operated by embossed lines, the combination, with a style actuated by such embossed lines, of apparatus bearing upon the message, by means of which the proper distance of the style from the unembossed portions of the message is maintained.

2. In a telegraph-transmitter operating by embossed lines, the combination of a message-holding surface, a gage bearing thereon or on the message, and a style actuated by such embossed lines.

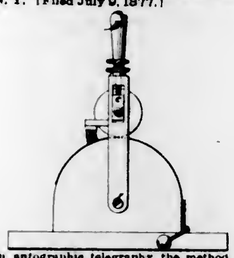
195,237.



195,237. AUTOGRAPHIC TELEGRAPH-TRANSFER PROCESSES. Wm. E. Sawyer, New York, N. Y. [Filed July 9, 1877.]

The method of preparing a message or messages written upon ordinary paper for autographic telegraph transmission, consisting in subjecting the same to momentary pressure against a sheet of metal while the latter is bearing upon a heated surface, whereby the lines of writing are liquefied, and, leaving the original blank, adhere to the sheet of metal.

195,238. COPYING-TELEGRAPH-MESSAGE PROCESSES. Wm. E. Sawyer, New York, N. Y. [Filed July 9, 1877.]



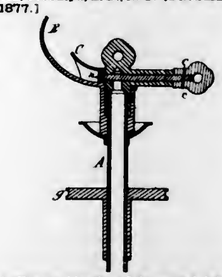
In autographic telegraphy, the method of treating a message or messages written so as to indent the paper upon which it or they are written, consisting in coating the lines of writing left in relief upon the reverse side or sides with an ink or other liquid or compound, as set forth.

195,239. BARBED-WIRE FENCES. Hiram B. Scutt, Joliet, Ill. [Filed Aug. 27, 1877.]



The combination of the twisted strands *a a* with the bent and pointed barbs B B, the latter bent to form the central eyes *s s*, one eye linked into the other between the strands, and a strand passed through each eye, substantially as and for the purposes specified.

195,240. VAPOR-BURNERS. Henry Wellington, Brooklyn, E. D., N. Y. [Filed Mar. 24, 1877.]



1. The combination of the curved deflector-plate E, the separate packing and supporting tube A, and the removable nipple-block, substantially as shown and described.

2. In a vapor-burner, the removable and adjustable nipple-block held to its seat by the lateral C attached to the deflector, the several parts being arranged substantially as shown.

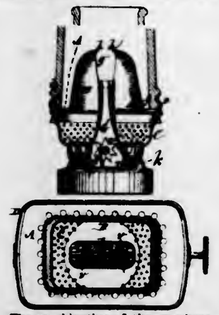
3. In a vapor-burner having a curved deflector, and in which the flow of gas is regulated by a needle-valve, the combination, with such deflector, of an adjustable nipple or valve seat, whereby the flow of gas may be directed toward any point of said deflector, for the purposes explained.

4. In combination with a needle-valve the stem of which is indented, as explained, a head or thumb-piece attached thereto by compression, in the manner set forth.

5. In combination with a vapor-burner, a loose spool applied about the supporting-tube thereof, and adapted to sustain the shade or reflector sustaining arms, substantially in the manner set forth.

6. In combination with the main tube A, leading to a vapor-burner above, the spool I, having the flange K, with circumferential groove *g*, constructed and arranged as shown and described.

195,241. LAMP-BURNERS. S. R. Wilmot, Bridgeport, Conn. [Filed Oct. 19, 1876.]



1. The combination of the cone base A, of oblong or approximately square form externally, with its attached cone B of like configuration internally, and the air-distributer C of a corresponding configuration with the cone base, substantially as shown and described.

2. The screw-bottom *k*, pierced or cut to form tongues or lips *s*, and said tongues or lips bent to enter up in between the ratchets *e* to keep the latter and their operating wire from moving laterally, substantially as specified.

3. The combination, with the cone bottom or base A, of the marginal band D, constructed to extend both above and below said base and to lock the cone to the air-distributer, also the chimney to the burner, substantially as specified.

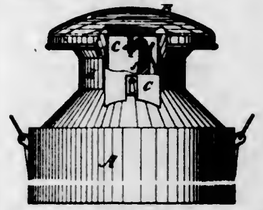
4. A lamp-burner having its cone, cone-base, and air-distributer of an oblong or approximately square form, as described, in combination with a lamp-chimney of a correspondingly oblong or approximately square form at its base, and with its body of a greater width in one direction than in a direction transverse thereto, essentially as described.

5. The band D, having its upper edge or portion constructed to form a spring or snap, for the purpose of catching and holding or locking the chimney when the latter is entered at its base down within said band, substantially as specified.

195,242. DOOR-SPRINGS. Frank Ziesenise, Philadelphia, Pa. [Filed Mar. 2, 1877.]

The bracket in combination with the springs D, having the ends of their pressure-arms F continued into bearings *b* for the roller G, and connected by the brace-bar H, substantially as and for the purpose set forth.

195,243. MILK-CANS. Frank Albaum and J. Eisenla, Brooklyn, E. D., N. Y. [Filed Aug. 25, 1877.]

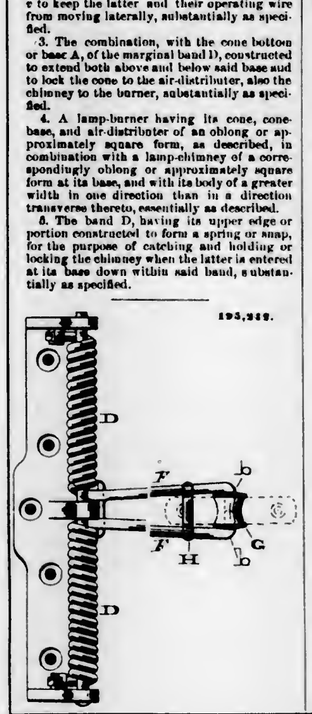


The combination of the milk-can A, having the immovable lock C rigidly attached to its cylindrical contracted neck, with the cover B, having the catch *e* rigidly secured to its lower side, said catch being adapted to engage in the lock if brought in line with it, substantially as herein shown and described, all arranged so that the can may be closed without bringing the catch *e* into the lock, as specified.

195,244. HORSE-POWERS. L. D. Albin, Sr., Chilhowee, Mo. [Filed Aug. 11, 1877.]

Brief.—The master-wheel and its frame may be drawn or revolved by one set of horses while the upper pinion-frame is drawn by another set of horses in the opposite direction. The master-wheel, however, may be locked, and but one set of horses used, hitched to the pinion-frame. By an interchange of parts motion may be transmitted from the top of the machine above the horses or from underneath it below the horses, as desired.

195,244.



1. In a horse-power, the revolving master-wheel and frame, in combination with a pinion-frame revolving in opposite direction to the master-wheel, to obtain increased speed of driving-shaft, substantially as and for the purpose set forth.

2. The combination of the revolving master-wheel and frame, having detachable and inclined draft-levers, and the pinion-frame, having detachable arms and draft-levers, and revolving in opposite direction to the master-wheel, with a transmitting double crown-wheel and driving-shaft supported on top of pinion-frame, substantially as specified.

3. The combination of the revolving pinion-frame and double crown-wheel with the detachable speed-pinion, driving-shaft, and sectional supporting-frame, resting by end travelers on a guideway of the pinion-frame, substantially as and for the purpose described.

4. The combination of the supporting-standard and top piece, having hinged and recessed lock-piece, with the master-wheel frame, to lock the same in fixed position, as described.

5. The combination of the master-wheel, tubular master-wheel shaft, pinion-frame, and inverted crown-wheel with the speed-pinion and driving shaft or shafts, supported in the vertically-adjustable bottom frame of the apparatus, to transmit power near the ground, substantially as set forth.

6. The combination of the tubular master-wheel shaft, turning in bearings of the supporting-frame, with the independently revolving and coupled crown-wheel shaft, turning in bearings of the adjustable bottom frame, and of the pinion-frame, substantially as specified.

195,245. DEVICES FOR ATTACHING HUBS TO AXLES. Frank H. Allen and Jas. Lathrop, Norwich, Conn., assignors to themselves and John R. Warner, same place. [Filed July 9, 1877.]

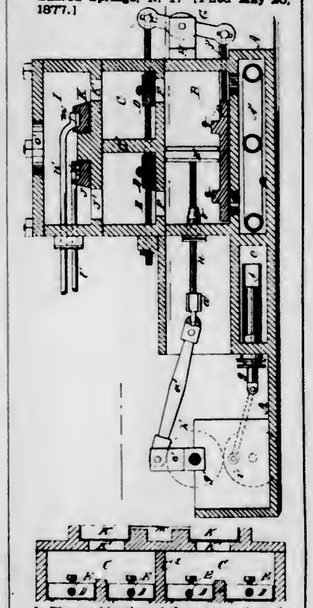


1. In combination with the axle A and tube B, the spring-catch *d*, arranged and operated as and for the purpose specified.

2. In combination with the axle A and tube B, the porous reservoir *h h*, as arranged and for the purpose specified.

3. In combination with the axle A, tube B, and spring catch *d*, the projections *b b*, as and for the purpose specified.

195,246. STEAM-ENGINES. J. J. Anthony, Sharon Springs, N. Y. [Filed May 26, 1877.]

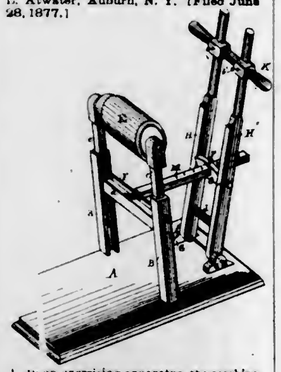


1. The combination of the rectangular cylinder B, having the ports F *e*, the piston B', valve *p*, having the ribs *g*, the steam-chest C, valves D, and levers G, substantially as shown and described.

2. The combination, with chest I, having four ports, of the valves J J, connected by a bar, *k'*, attached to a rod, P, and the two valves K K, connected by a bar, *m'*, attached to rod *n'*, as and for the purpose specified.

3. The bed A, having chambers *a b c d*, the heating-pipe A', and pump consisting of the barrel *f*, plunger *g*, and valves *i l*, in combination, substantially as shown and described.

195,247. EXERCISING-MACHINES. Lucius L. Atwater, Auburn, N. Y. [Filed June 28, 1877.]



1. In an exercising apparatus, the combination, with a base-plate, A, and standards B B', of an adjustable frame, the latter composed of slide-pieces *c c'*, bar *d*, and roller E, and secured to the former by a pin, F, as described, and for the purpose set forth.

2. In an exercising apparatus, the combination, with a base-plate, A, standards H B', and adjustable roller-frame, of the parallel bars H H', pivoted to lugs G G', and provided with handle-bar K and cross-bar O, through which a connection is made, by means of a brace, *m*, with the roller-frame, as described, and for the purpose set forth.

195,248. BILL-FILES. James A. Austin, Brooklyn, N. Y. [Filed June 1, 1877.]



As a new article of manufacture, the herein-described bill-file, consisting of the open-ended, double-indexed interleaves, formed from a continuous folded sheet, provided with detached covers A A, having the securing-flaps C C and elastic fastening-straps B D, all substantially as described.

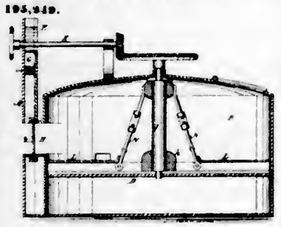
195,249. BAKING-OVENS. Saml. Axford, Freeport, Ill. [Filed June 25, 1877.]

Brief.—The revolving bread-tables are vertically adjustable by means of turn-buckles. Flues lead one from the furnace, one from the body of the oven, and one from above the oven-door.

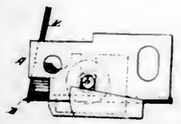
1. In combination with the oven B and the furnace C, arranged as shown, the flues *b G d*, communicating with the chimney E, substantially as specified.

2. The bread-table L, attached to the hub A, and made adjustable by means of turn-buckles or braces N N, as specified.

195,249.

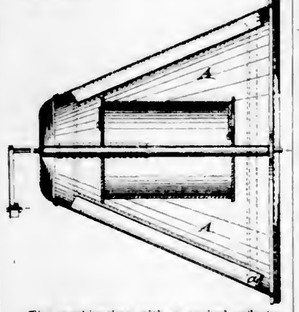


195,250. CHANNELING-MACHINES. George W. Bacon, South Groveland, Mass. [Filed July 23, 1877.]



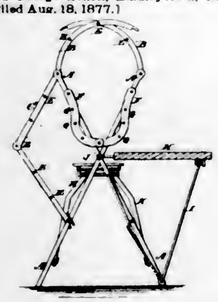
The combination of the block A, having V-shaped groove in the side, the channeling-knife B, fitting said groove and having tongue *a* on the back, the grooved slotted block C, having arm D, and the grooving-knife E, as shown and described.

195,251. COFFEE-ROASTERS. John E. Bankston, Pulaski, Tenn., assignor to himself and T. J. Wells, same place. [Filed Mar. 24, 1877.]

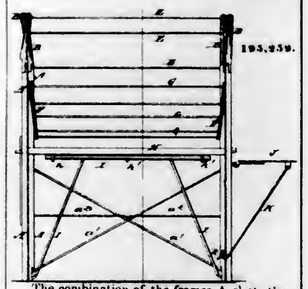


The combination, with a conical reflector open at the larger and closed at the smaller end, of an internal cylinder or roaster journaled concentrically within the reflector, substantially as and for the purpose specified.

195,252. IRONING-TABLES. C. W. Barber and George Lenox, Lindleytown, N. Y. [Filed Aug. 18, 1877.]

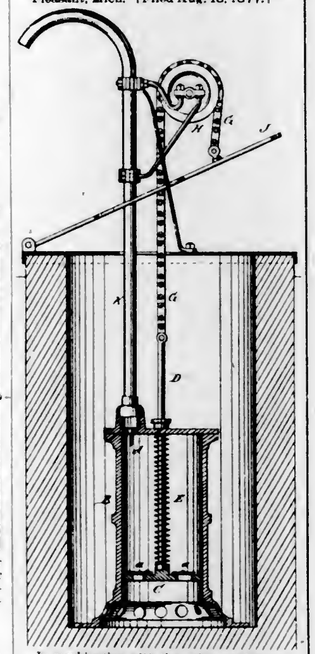


195,253.



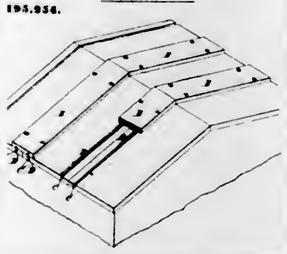
The combination of the frames A *a*' *a*', the clothes-bars B C D E, the clothes-basket F G, the ironing-table H I, and the shirt-board J K, with each other, the said parts being constructed and arranged substantially as herein shown and described.

195,253. LIFT-PUMPS. E. Barnes, Mount Pleasant, Mich. [Filed Aug. 18, 1877.]



In combination with the submerged pump-cylinder having a perforated bottom, and with a piston, C, having valves *a*, the spring E, rod D, chain G, pulley H, and treadle J, arranged substantially as described.

195,254.

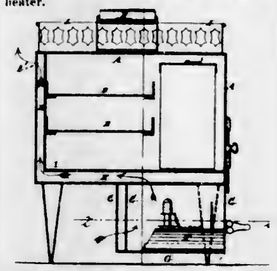


195,254. CAR-ROOFS. Elias U. Benedict, Aurora, Ill., assignor of one-half his right to Edward T. Prindle, same place. [Filed July 31, 1877.]

In combination, the single course of boards, grooved as shown and described, the battens B, similarly grooved, and the vertical india-rubber elastic tongues, placed within such grooves, and compressed and tightened to fill the grooves by the act of fastening the battens to place.

195,255. PORTABLE LUNCH-HEATERS. M. Bradley, New York, (Morrisania P. O.,) N. Y. [Filed July 23, 1877.]

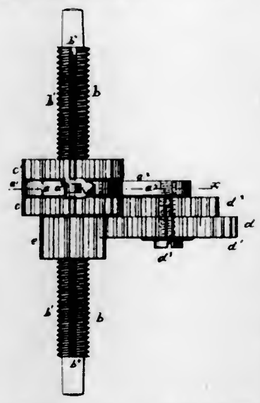
Brief.—The heater is double-walled at bottom and one end, with a portion of the outer bottom wall cut away. A lamp-chamber, of double walls of perforated metal, is secured to the bottom of the heater below the cut-away portion. Heat passes between the double walls, and escapes through holes near the top of the heater.



The internally-shelved box A, cut away at the bottom, having holes *c'*, and double walled at bottom and one end, in combination with a subjacent chamber, G, having the slide-lamp F, as shown and described, to form a lunch-heater.

195,256. DEVICES FOR REGULATING THE FEED OF MINING-DRILLS. Hiram Burk, Zoar Station, Ohio. [Filed Feb. 21, 1877.]

Brief.—The shaft of the drill is provided with a large thread, and at the same time the too rapid advancement of the bit with each revolution of the drill-shaft is prevented. The progress in any given number of revolutions of the crank is retarded by the series of gear-wheels carried by the rocking journal and shaft. The shaft, when run out, is taken from the rocking journal, turned end for end, and replaced ready again for use.

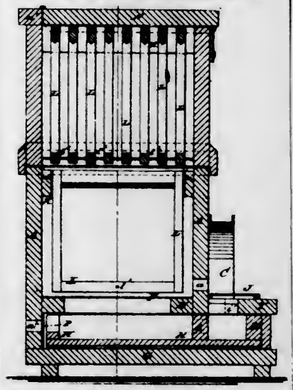


1. The rocking journal *a*, constructed with the semicircular arms *a*' *a*', hinged together, and provided with a lug, *a*', and pin *d*', arranged and adapted to receive the series of gear-wheels which regulate the movement of the drill-shaft, substantially as set forth.

2. The double-gear wheel *c c'*, provided with an intermediate journal adapted to be received by and revolve in the arms *a*' *a*', and with a central threaded hole for the reception of the threaded shaft of the drill, as and for the purpose set forth.

3. The combination, with the rocking journal *a*, constructed with a lug, *a*', and the shaft *b*, constructed with a groove, *b*', of a sliding pinion, *e*, provided with a feather, *e'*, nut-gear *c*, revolving in a bearing in the rocking journal, and gears *d*' *e*', formed in one piece and revolving on a pin or axle projecting from the lug *a*', substantially as and for the purposes set forth.

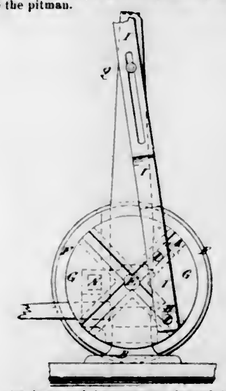
195,257. BEE-HIVES. Isham B. Burroughs, Tuscaloosa, Ala. [Filed Apr. 16, 1877.]



The combination, with a bee-hive, of the flanged arch C over the entrance, the hinged plate J, the drawer H, and the platform I, having slits *i'*, substantially as shown and described, for the purpose specified.

195,258. HORSE-POWERS. T. C. Churchman, Sacramento, Cal. [Filed Aug. 3, 1877.]

Brief.—The power is designed for working pumps, &c. Sliding T-blocks, operating in the grooved disk, impart reciprocating motion to the pitman.

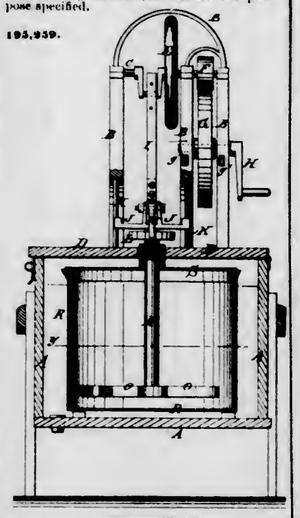


An improved horse-power, formed by the combination of the step B, the spindle C, having a bearing, D, upon its upper end, the guide-standard K, provided with a ring, L, at its lower end, the grooved disk G, the T-blocks H, and the pitman I bent twice at an angle, as described, with the shaft E and the traction-wheel F, substantially as herein shown and described.

195,259. WASHING-MACHINE AND CHURN COMBINED. Wiot H. Clarke and William Collins, Council Grove, Kans. [Filed Apr. 30, 1877.]

The combination, with the frame B and box A D, of the wheels G F, crank-shaft C, pitman-rod I, having pawls M, cross-head J, sliding on rods K, and the swiveled ratchet-wheel L, the latter being both rotated and reciprocated by the rod I, as and for the purpose specified.

195,259.



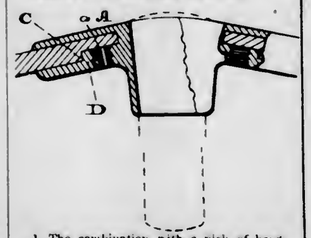
195,260. COMBINED SNAP-HOOK AND BUCKLE. Jehial H. Cleveland and Edward McConnell, Buffalo, N. Y., assignors to themselves, P. V. Carroll, and S. A. Wall, all of same place. [Filed Nov. 11, 1876.]



1. A snap-hook, having the hook A' terminating in two branches, A'', extending to the cross-bar C, with the space X extending clear back to and under the cross-bar C, for the purpose of preventing the accumulation of snow, ice, or other obstructions between the spring S and said hook, substantially as hereinbefore set forth and described.

2. The combination, with the cross-bar C, of the spring S, said spring being provided with notches L on its rear end, substantially as hereinbefore set forth and stated.

195,261. PICKS. Wm. L. Cousland, Philadelphia, Pa. [Filed May 22, 1876.]



1. The combination, with a pick, of headless screws, threaded throughout their lengths, having openings *a*, and fitted flush with the outer surface of the head of the pick, substantially as and for the purpose set forth.

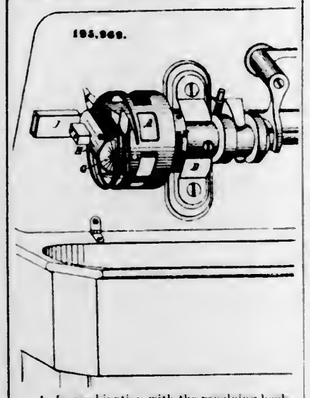
2. The pick-head with sockets A, having offsets or shoulders D, and the removable blades B, having offsets or shoulders C, substantially as and for the purpose set forth.

195,262. SEWING-MACHINES. José R. V. De Castro, Oporto, Portugal. [Filed Nov. 21, 1876.]

Brief.—Improvements in the construction of the spool-holder for supporting the spool

carrying the under thread in a rotary-hook machine. The holder is mounted on the under side of the bed-plate in a dovetail guide, and has a friction-spring to hold it in any desired portion thereof. It is also provided with a spring to keep the spool down in the holder, and a spring in the bottom of the holder to facilitate the passage of the loop of needle thread between it and the spool.

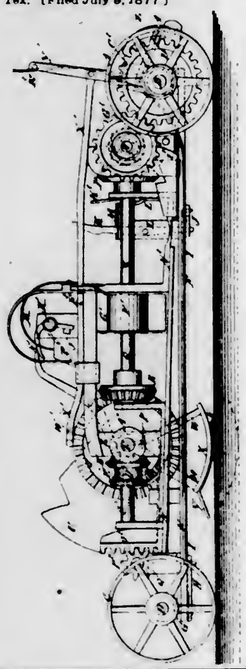
195,260.



1. In combination with the revolving hook cylinder A, constructed as shown and described, the bobbin-case tube or holder H and its dovetailed supporting slide *j*, as and for the purposes set forth.

2. The tube H, provided with the spring bar *s t*, and also with a slide, *j*, whereby the tube may be readily applied to or removed from the bed plate, and also slid in right lines into and out of the hollow revolving cylinder A, as shown and described.

195,262. DITCHING AND EXCAVATING MACHINES. Samuel A. De Force, Crockett, Tex. [Filed July 9, 1877.]



1. The combination of the rotating cutter U and the reciprocating holder X Y with the shaft T, upon which they are hung, and with the frame-work of the machine, substantially as herein shown and described.

2. The combination of the segmental gear-wheels E^1 D^1 and the bevel-gear wheels B^1 A^1 with the shaft T, and the bevel-gear wheel S, that carry the holder X Y, and the cutter U, substantially as herein shown and described.

3. The combination of the spout J^1 with the cutter U, the holder X Y, and the endless carrier F^1 H^1 G^1, substantially as herein shown and described.

4. The combination of the spring M^1 and arm L^1 with the shaft K^1, to which the spout J^1 is attached for moving said spout forward to receive the dirt, substantially as herein shown and described.

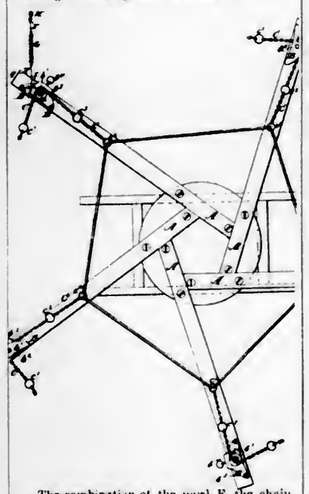
5. The combination of the arm N^1, the lever O^1, and the stop-pin P^1, with the cutter U and the shaft K^1, to which the spout J is attached to move the said spout J^1 back to allow the cutter U and holder X Y to pass, substantially as herein shown and described.

6. The combination of the stops T^2 R', the latch Q^1, and the stop-pins S^1 P^1, with the shaft T, the frame N^2, and the cutter U, for controlling the movements of the holder X Y from the movement of the said cutter U, substantially as herein shown and described.

7. The combination of the tooth W^1, the sliding rod X^1, the spring-lever Y^1 E^2, the pawl A^2, and the gear-wheel D^2, with the bevel gear wheel S and the axle B of the carriage, substantially as herein shown and described.

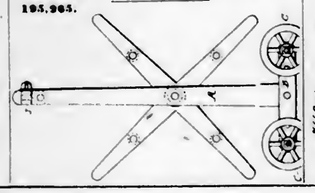
195,264. DRAFT-EQUALIZING DEVICES FOR HORSE-POWERS. John R. Dickinson, Ida, Mich. [Filed June 25, 1877.]

Brief.—The pawl, pivoted into the box secured to the ends of sweeps, is provided with a short chain to be hooked into the draft-chain, so that if the weak horse is drawn back by the said chain the pawl will be drawn to clamp against it, which prevents the weak horse from having to draw against the others.



The combination of the pawl E, the chain F, the spring G, the hook H, and the pin and washer I with the box B and the draw chain C, substantially as herein shown and described.

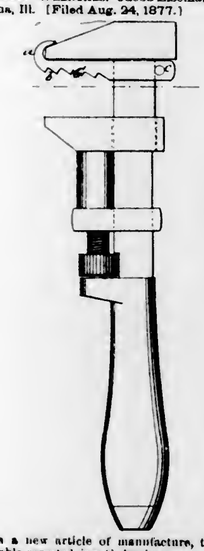
195,265.



195,265. HOSE-REELS. Bailey B. Douglas, Newark, N. J., assignor to the Rubber Clothing Company, New York city. [Filed Aug. 7, 1877.]

The combination, in a garden hose-reel, of the standards A A, supported upon a four-wheeled truck, the bolts C, rungs E, nozzle-holder J, nut *c*, and latch L, when combined and arranged to operate as and for the purposes set forth.

195,266. WRENCHES. Jacob Eiseman, Galena, Ill. [Filed Aug. 24, 1877.]



As a new article of manufacture, the removable serrated jaw G, having one end bifurcated, and a hook, *a*, on the opposite end, substantially as described.

195,267. SOAP-MAKING COMPOSITIONS. C. B. Elliott and H. C. Alexander, New York, N. Y.; said Alexander assignor to said Elliott. [Filed Mar. 6, 1877.]

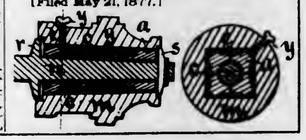
The composition herein described, consisting of sal soda, common salt, and caustic soda, substantially in the proportions specified, and for the purposes set forth.

195,268. MAINSPRING ATTACHMENTS FOR WATCH-BARRELS. Edwin H. Flint, Cincinnati, Ohio. [Filed June 11, 1877.]



An arbor-arm, *d*, having the concave edge *e*, and a mainspring having an outer hook and an inner end engaging with hook on boss of barrel-wheel *f*, all arranged in mainspring-barrel, as shown and described.

195,269. VEHICLE-AXLE LUBRICATORS. G. W. Hall and A. F. Pfaffe, Watkins, Iowa. [Filed May 21, 1877.]

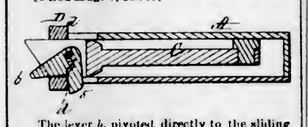


1. As an improved article of manufacture, an angular axle-box, *a*, having a round central bore, *b*, a series of reservoirs, *c*, and a continuous groove, *d*, substantially as and for the purposes shown and described.

2. The angular axle-box *a b c d*, in combination with the hub *m*, having a perforation, *t*, and the set-screw *y*, substantially as and for the purposes shown and described.

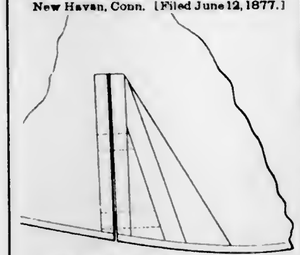
3. The angular axle-box *a b c d*, the packing *g* in the reservoir *c*, the hub *m*, having depressions in its ends around its central bore, the axle-spindle *n*, having a flange or shoulder, *r*, at its base, and the washer *s*, secured on the front end of the spindle *n*, all arranged and combined to operate substantially as and for the purposes set forth.

195,270. REVERSIBLE LATCHES. William F. Hall and Henry J. Hall, Boston, Mass. [Filed Aug. 7, 1877.]



The lever *b*, pivoted directly to the sliding latch-bolt C, in combination with two stops, *d d*, located one on each side of the case A, either of which serves as a fulcrum for the lever, according to the position of the latch-bolt, whereby the latch-bolt and its lever are rendered reversible, substantially as described.

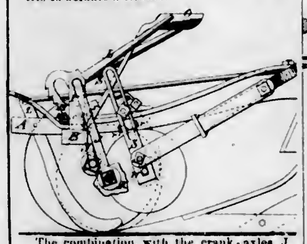
195,271. CORSETS. Thomas F. Hamilton, New Haven, Conn. [Filed June 12, 1877.]



One or more gores of corsets, vertically slit or detached at one edge, combined with transverse elastic strips arranged through pockets in said gore, and secured at each end and over said slit, substantially as described.

195,272. WHEEL-PLOWS. S. M. Harris, Forest Grove, Oreg. [Filed May 28, 1877.]

Brief.—Cross bar bolted to front end of plow-beam, with bearings for crank-axles. The levers are rigid upon the cranks, and have sector-ratchets, which engage with spring-pawls. An adjustable frame suspends a weed-roller, having a cutting disk at one end and an eccentric to actuate a cleaner.



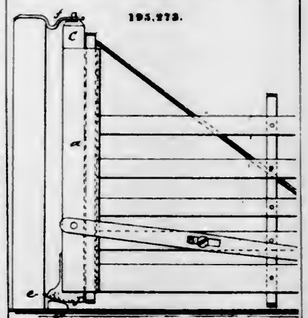
The combination, with the crank-axles J arranged in bearings supported on cross-bar B, of the rack-levers L and spring-pawls N, as shown and described.

195,273. GATES. John W. Harvey, Farley, Iowa. [Filed July 23, 1877.]

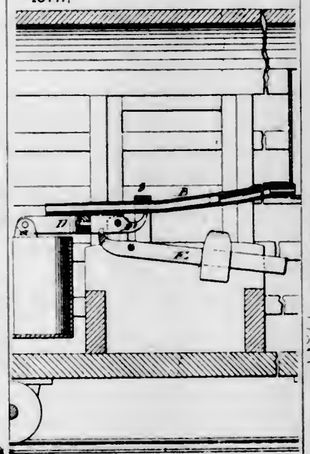
Brief.—The foot-plate for the gate has a convex bottom and crossed slots through it. Studs on the post enter the said slots, and keep the gate in proper position.

In combination with the fixed pivot-bearing *f* and the fixed block G, having the two studs or pins *e*, the gate provided with the shoe J attached to the lower end of post C, and having the two slots *g g*, each extending backward and crossing the other, as shown and described, whereby, when the gate is opened, it turns and bears against that one of the pivot-pins *e* that is adjacent to the side toward which the gate turns, so that the latter will swing shut by its own gravity, as set forth.

195,273.



195,274. CATTLE-WATERING DEVICES. W. H. Hayes, Salisbury, Mo. [Filed July 13, 1877.]



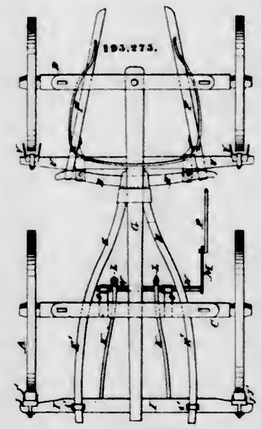
The combination of the bucket-carrying lever D', having curved rear extension D, and the weighted regulating-lever E, with the water-supplying hose B, and a fixed top hand, *b*, extending over the hose to cut off or re-establish supply of water to bucket, substantially as set forth.

195,275. WAGON-BRAKES. Christopher Heinen, Leavenworth, Kans. [Filed Mar. 12, 1877.]

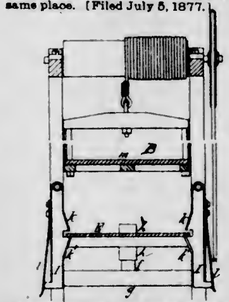
1. The combination of the brake bar I, the rods K, the arms L, the shaft N, the arm M, the connecting rod P, the lever Q, the notched bar T, and the lever-spring pawl S with each other and with the rearward extension E' of the rear hounds E, substantially as herein shown and described.

2. The combination of the bar D and the U-shaped scrapers V with the forward hounds F and the fore wheels B, substantially as herein shown and described.

195,275.

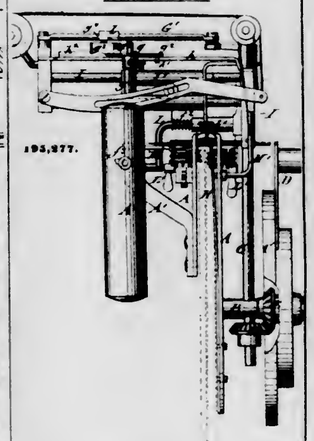


195,276. AUTOMATIC HATCHWAY-DOORS. Robert Heneage, Buffalo, N. Y., assignor of one-half his right to Albert C. Stevens, same place. [Filed July 5, 1877.]



The combination, with the swinging hatchway-door E, provided with spring *f* and elevator-cage B, of a spring-catch lever, I, pivoted at its upper end, and provided near its lower end with a notch for holding the door, and two releasing-inclines, K K', arranged, respectively, above and below this notch, all constructed and operating as shown and described.

195,277.



195,277. CARPET-SEWING MACHINES. Jos. Heese, San Francisco, Cal. [Filed May 21, 1877.]

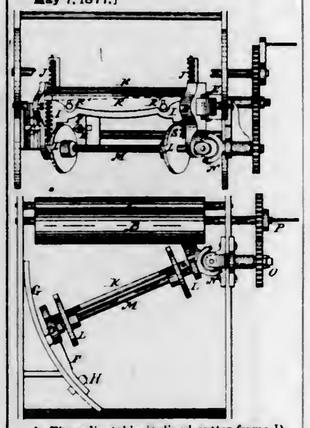
Brief.—The carpet is held in a vertical position, fed by feed-wheels on each side, and sewed together with a loop or chain stitch, means being furnished to regulate the feed and the distance of the seam from the edge of the carpet.

1. The regulating-plate *b*, having downward-extending point b^1 and contracted part in front of the same, for the purpose specified.

2. The combination of the main plate A, having feed-rollers *a a*, with independent spring-pawls b^1, feed-bar I, and cam *f* of driving-shaft G and regulating set-screw f^1, to feed mechanism and adjust length of stitch, substantially as described.

3. The combination of the reciprocating thread-hook M, having spring-acted vertical rod or stem *g*, with the raised portion h^1 of guide-bar h, and with the projection or lug *i* of the driving-rod G^1, to raise and lower hook at the proper time, substantially in the manner set forth.

195,278. PAPER-CUTTING MACHINES. W. F. Hill, North Manchester, Conn. [Filed May 7, 1877.]

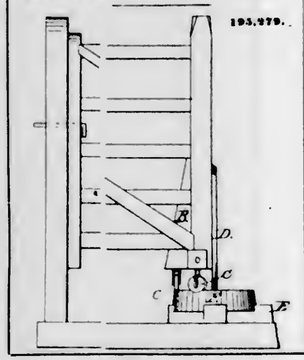


1. The adjustable inclined cutter-frame D, hinged at one end, in combination with the slide F, the arc G, and the clamp H, substantially as herein described.

2. The frame D, containing the cutters swinging upon the hinge E, in combination with the cam-shaft M for operating the said cutters, connected with the actuating mechanism of the machine by means of a universal joint, N, in line with the said hinge, substantially as herein described.

3. The combination of the rotary cams L, operating to press the cutters together, the cutter-bars I and K, the holder-bar K with its springs S, and the springs J for withdrawing the cutter-bar I, substantially as and for the purpose herein described.

195,279.

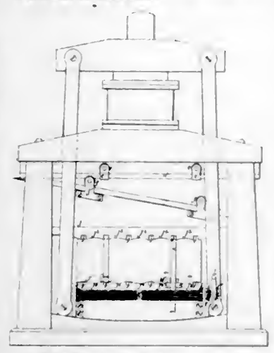


195,279. GATES. Samuel B. Hilleary, Rock Fork, Ohio. [Filed Aug. 14, 1877.]

The combination, with the gate, of the attachments B, metallic rod D, casters C, the groundwork E, and ring F, substantially as described.

195,280. BALE-BAND TIGHTENERS. John C. Hodges, Jr., Galveston, Tex. [Filed Aug. 3, 1877.]

Brief.—One end of the band is fastened to a buckle or tie-piece, which is securely held in the plate-socket. The other end of the band is seized by the griping-rollers and tightened thereby, when it is secured by a wedge driven between it and the upper platen, after which the ends of the band are secured. The spaces between the band slots of the platens are of transverse concave form.



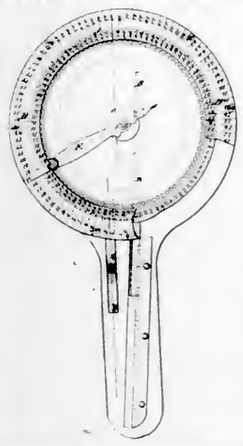
1. In the band-tightening contrivance herein described, a pair of fluted or roughened feed and griping rollers applied to the platen, and geared together and operated simultaneously, for the purpose set forth.

2. The tie-plate socket M, constructed as described, and applied to the platen so as to be detachable therefrom when the tie is tightened around the bale, substantially as described.

3. The combination of the detachable tie-plate socket M, the fluted feed and griping rollers, and the platen of the press, substantially as and for the purpose described.

4. The channel-bars J J^1, constructed with concaved or waved pressure-surfaces J^2 and tie-channels *j*, the said bars being solid between the channels, and the channels being formed in the solid portions of the bars, all substantially as shown and described.

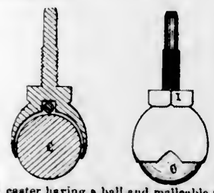
195,281. ADDING-MACHINES. W. L. Hofer, Deposit, N. Y. [Filed July 13, 1877.]



An adding and subtracting machine, provided with a single wheel, a slide-spring held to a rib of said wheel, and a pointer moved along a graduated scale on handle, as shown and described.

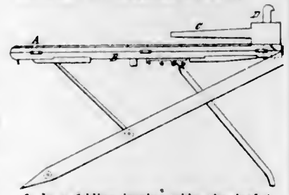
195,282. FURNITURE-CASTERS. C. Horn, Philadelphia, Pa. [Filed July 18, 1877.]

Brief.—The socket of an ordinary ball-caster is made of malleable metal, having an inside shoulder about half-way down the sides of the ball, and the extension of the socket continuing downward is bent in to hold the ball in place, thus simplifying and cheapening the construction.



A caster having a ball and malleable-metal socket, the inside of the socket-surface, which touches the ball, terminating in a shoulder about half-way down the sides of the ball, and an extension of said socket continued down and bent in to hold the ball up, substantially as and for the purpose described.

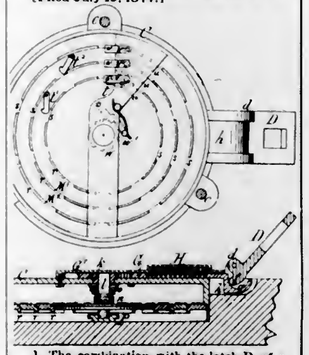
195,283. IRONING-TABLES. E. C. Hotchkiss, Buffalo, N. Y. [Filed Jan. 10, 1877.]



1. In a folding ironing-table, the leaf A, hinged to and folding upon the leaf B when used as an ironing-board, and adapted to open out and rest upon arms when used as a work-table, substantially as described and shown.

2. In combination with an ironing table, the reversible sleeve-board C, attached to the table by the hooked locking pin D, substantially as set forth and shown.

195,284. REGISTERS FOR FREIGHT-CAR DOORS. William H. Hoyt, Batavia, N. Y. [Filed July 19, 1877.]

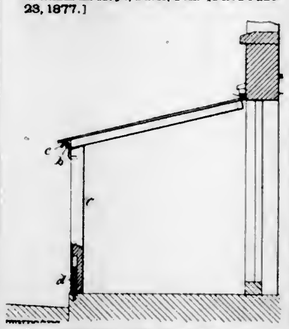


1. The combination, with the latch D, of a slide, G, and registering mechanism for recording the number of times the latch has been opened and closed, substantially as hereinbefore set forth.

2. The combination, with the latch D, provided with claw *f*, of the slide G, provided with spring H, and registering mechanism, substantially as and for the purpose hereinbefore set forth.

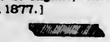
3. The combination, with the latch D and slide G, provided with rack *i*, of the pinion *k*, coupling *n*, spring *o*, and registering-wheels, substantially as and for the purpose hereinbefore set forth.

195,285. COMBINED AWNING AND SHUTTER. William A. Hoyt, Paris, Tex. [Filed June 23, 1877.]



In combination with the hinged awning, having eyes *b* projecting from its outer edge, the detachable posts C, having their upper ends beveled, and provided with hooks *c* and the sliding bolts *d*, all as shown and described, for the purpose specified.

195,286. CONCRETE-BLOCK PAVEMENTS. Samuel S. Ingalls, Chicago, Ill. [Filed July 9, 1877.]

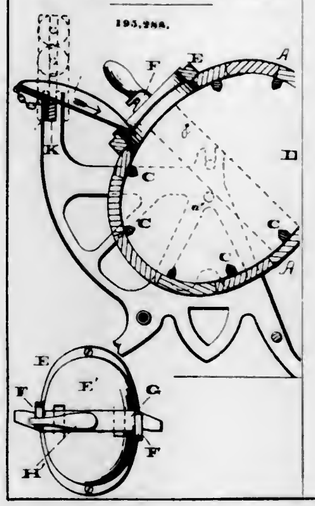


As an improvement on my former patent No. 149,658, the artificial-stone paving-blocks formed with the tongues and grooves commencing near the top and extending to the bottom of the block, all constructed as and for the purpose set forth.

195,287. LAYING CONCRETE PAVEMENTS. Samuel S. Ingalls, Chicago, Ill. [Filed June 26, 1877.]

A corner-protector consisting of the two blocks *a b*, and thin metal facings *c d*, the block *a* being easily detachable from the block *b*, all constructed and adapted to be used substantially as and for the purposes set forth.

195,288.

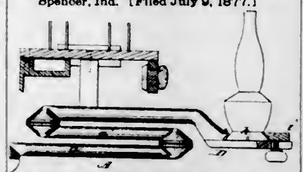


195,289. WASHING-MACHINES. Joseph B. Jones, Philadelphia, Pa. [Filed May 1, 1877.]

1. The tub A, provided with the fixed flange E, in combination with the hooked side bars F, removable cross-bar G, cover E', and cam-head H, substantially as and for the purpose set forth.

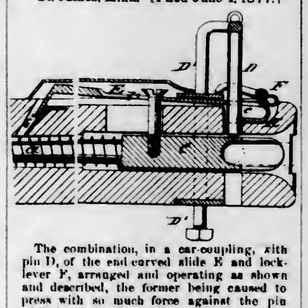
2. The tub and supporting-frame, in combination with a removable spout, J, provided with a foot, J', substantially as and for the purpose set forth.

195,289. LAMP-BRACKETS. Thos. J. Jury, Spencer, Ind. [Filed July 9, 1877.]



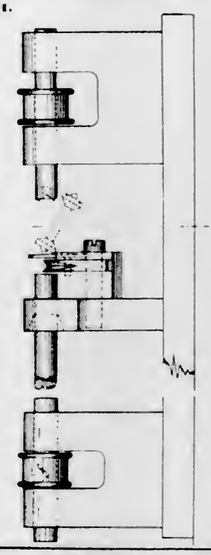
The jointed extensible bracket A, having a clamp on one end and a lamp-shelf, D, on the other end, provided with fixed and movable lugs *h i*, in combination with the rotating spool-holder C, substantially as described.

195,290. CAR-COUPLINGS. Jas. R. Lamb, St. James, Minn. [Filed June 4, 1877.]



The combination, in a car-coupling, with pin D, of the end-curved slide E and lock-lever F, arranged and operating as shown and described, the former being caused to press with so much force against the pin while in the link that it cannot be displaced.

195,291.



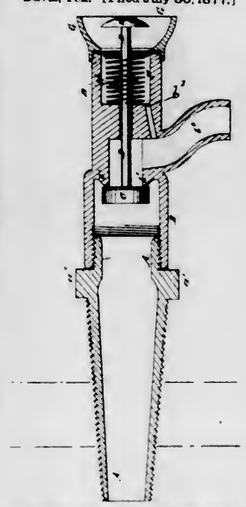
195,291. LATHES FOR TURNING BOBBINS. W. R. Landfear, Brooklyn, N. Y., assignor to Timothy Merrick, Holyoke, Mass. [Filed July 17, 1877.]

1. In a machine for making bobbins, a stationary guide for supporting the inner end of the bobbin during the operation of forming the gudgeons, substantially as herein described.

2. In combination with a bobbin-making machine in which the barrel is turned, the gudgeons formed, and the bobbin completely finished in one and the same machine, a rotating and longitudinally-reciprocating chuck and spindle or chuck holder, arranged to advance toward and support the bobbin during the operation of forming the gudgeons, and to recede therefrom to allow the finished bobbin to drop, substantially as herein described.

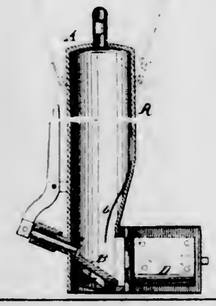
3. In combination with a bobbin-making machine in which the barrel is turned, the gudgeons formed, and the bobbin completely finished in one and the same machine, a cutter for simultaneously forming the second gudgeon of one bobbin and the first gudgeon of the next bobbin, substantially as herein described.

195,292. FAUCETS. Wm. S. Lempert, Fort Davis, Tex. [Filed July 30, 1877.]



The combination of the inner part A, provided with the square or octagonal flange *a'*, the outer part B, provided with the valve-seat b^1, the spring-chamber b^2, the channel b^3, and the nozzle b^4, the cup or flange G, the valve, valve-stem, and button, C D E, and the spiral spring F, with each other, substantially as herein shown and described.

195,293.



193,293. PNEUMATIC DREDGING-TUBES. W. P. Lewis, Oroville, Cal. [Filed June 11, 1877.]

A pneumatic tube for dredging, mining, and other purposes, consisting of a main tube, A, connected to air-pump, and having inclined bottom valve B, with sliding lock-key and hinged side discharge D, the lock-key being withdrawn after the vacuum is created, to fill the tube by drawing in the sand or other matter, substantially in the manner and for the purpose set forth.

193,294. VALVES. Seth Lloyd, Conshohocken, Pa. [Filed May 5, 1877.]

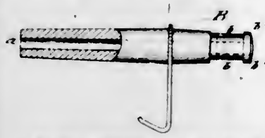
Brief.—The upper handle-section of the valve-stem is connected to the lower valve-operating section by a kind of coupling or clutch, both sections having conical valves, that are forced, by interposed springs, against seats of the casing or box, to produce the tight fitting of the stem.



The combination of the upper and lower sections of the valve-stem B, having interlocking lugs *a a'* and outer valves *b*, with the seats *b'* of the stem casing or box A, and with the interposed interior spring D, substantially as specified.

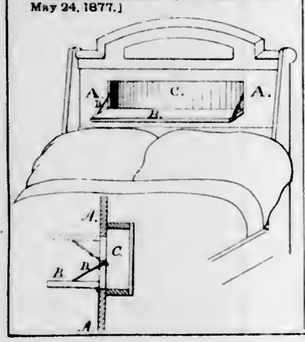
193,295. SAP-SPOUTS. Francis E. Lord, Readsborough, Vt. [Filed July 9, 1877.]

Brief.—The spout is made of wood. The rim or flange is smaller than the drive-cone, and will operate as a partial support for the spout when weighed down with the sap-vessel. The annular groove has two perforations, to admit the sap into the tube. The sides of the tube are grooved to secure the hook.



A sap-spout consisting of a tube having a drive-cone, H, and end rim *h'*, with an annular groove, *b*, between them, as shown and described.

193,296. HEAD-BOARDS FOR BEDSTEADS. William W. Lummus, Lynn, Mass. [Filed May 24, 1877.]



1. The head-board A, having a recess, C, provided with a door, B, opening toward the bed, substantially as described.

2. The head-board A, provided with an adjustable board, B, arranged to open to form a shelf, or to fold against said head-board to present the appearance of a panel, substantially as shown.

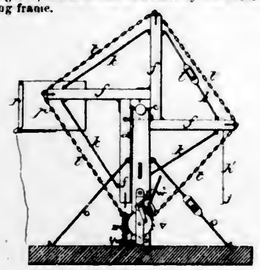
3. The head-board A, provided with the centrally located recess C and door B, adapted to be opened to form a shelf, supported by braces D, substantially as described.

193,297. PURIFYING RAW ANIMAL-FATS. Isaac Mayer, New York, N. Y. [Filed June 18, 1877.]

The process of treating tallow in the cold, for purifying same, consisting in macerating in dilute nitric acid and subsequently removing the same from the acid liquor and boiling it, in the manner substantially as set forth.

193,298. APPARATUS FOR UNLOADING AND ELEVATING GRAIN, BRICKS, &c., FROM WAGONS. Alvord M. McLeran, Tabor, Iowa. [Filed Aug. 17, 1877.]

Brief.—A rod or chain, provided with a hook, is attached to the outer end of the radial arm opposite the receiving-box, for the purpose of elevating the front end of the wagon-bed, and thereby emptying its contents into the receiving-box, which is then elevated by the rotating frame.

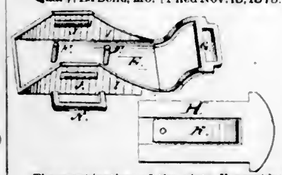


1. The combination of the standards *o*, shaft *b*, arms *f*, receiving-box *p*, and elevating ropes or chains *h'*, provided with hooks *j*, whereby the contents of a wagon can be emptied into a receiving-box, substantially as shown.

2. The combination of the shaft *b*, arms *f*, studs *g*, hooks *h*, and spring catches *i* with the braces K, whereby the arms *f* may be secured rigidly in position or detached at will, substantially as described.

3. In an elevator, a hinged frame, *l*, provided with operating mechanism, by means of which horse-power can be employed or detached at will, the whole operating substantially in the manner and for the purpose described.

193,299. HARNESS-BUCKLES. Allen L. McQuary, La Belle, Mo. [Filed Nov. 15, 1875.]

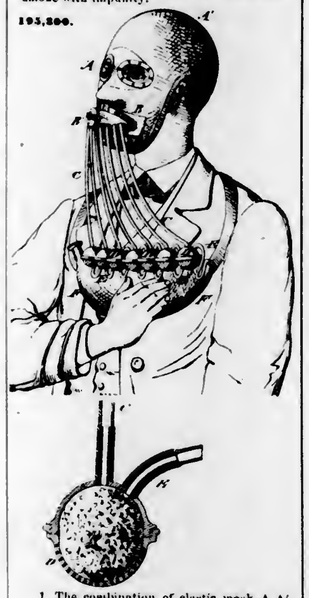


The combination of the plate E provided with two pins, F F, the side plates I I provided with loops J J, and the key H provided with the spring K, and transversely applied to the plates I I, substantially as and for the purposes hereinbefore set forth.

193,300. SMOKE-EXCLUDING MASKS. Geo. Neally, New York, N. Y., assignor to himself and C. W. Bloomingdale, same place. [Filed July 9, 1877.]

Brief.—A mask and cap of elastic material fit tightly to the head, the nose and mouth pieces being connected, by one or more tubes, with suitable perforated filters containing moistening sponges, which filters are again connected by one or more tubes with an elastic water-bag strapped around the neck or body, the apparatus enabling firemen and others to encounter or pass through suffocating smoke with impunity.

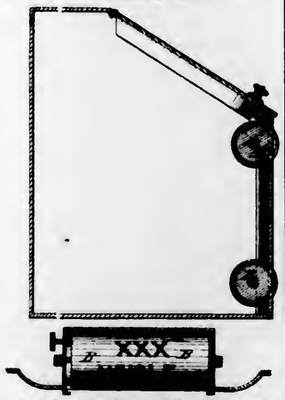
193,300.



1. The combination of elastic mask A A', tubes C, perforated air-filters D, containing moistened sponges or their equivalents, tubes E, and water-receptacle F, all constructed and arranged as and for the purpose specified.

2. The hinged lip B' of the mouth-piece of mask, as and for the purpose set forth.

193,301. CANISTERS. Edwin Norton, Chicago, Ill. [Filed June 27, 1877.]



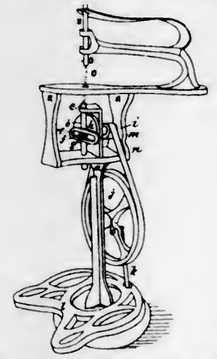
1. A can or caddy provided with openings in its front, in combination with a plurality of labels and moving devices, substantially as and for the purpose set forth.

2. A can or caddy provided with one or more labels inclosed in casings on the inside of the can, and provided with an inside fastening device to prevent tampering with the labels, substantially as set forth.

3. A can or caddy having two openings, in combination with two revolving labels inclosed within the case, and a fastening device, whereby spices of different kinds and also different qualities may be labeled, substantially as and for the purpose set forth.

193,302. SCROLL-SAWING MACHINES. W. Palen, Paterson, N. J. [Filed Feb. 10, 1877.]

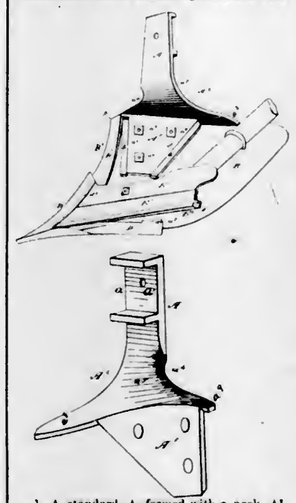
Brief.—The saw is driven by means of a disk, provided with a stud carrying a roller, working in a link formed on the saw-shaft, and mounted on a shaft having its bearings in a bracket under the table, and operated by a belt passing over the fly-wheel and a pulley upon said shaft.



In a scroll-sawing machine, the combination of bracket *c* with the shaft *m*, having pulley *i* and face-plate or disk *k*, provided with stud *f*, carrying roller *g*, the shaft *b*, having link *a*, the saw *o*, rods *s*, spring *r*, guide *q*, wheel *j*, belt *n*, and treadle *k l*, all constructed and operating as shown and described, and for the purpose set forth.

193,303. PLOWS. Oscar F. Phillips, Lynchburg, Va. [Filed July 17, 1877.]

Brief.—The standard of the plow is constructed to fit upon the side of the beam opposite the mold-board. It gradually curves toward the mold-board side of the plow, and projects forward and rearward along the upper margin of the mold-board, from which point the standard expands into a triangular plate, which fits into a recess formed in the mold board, and is secured by bolts and nuts.



1. A standard, A, formed with a neck, A', constructed with a front face, a^1, having a sharp curved surface and curved side face, a^2, gradually increasing in area, and extensions a^3 a^4, and coupling plate A^1, substantially as and for the purposes shown and described.

2. The combination, with a mold-board, B, provided with ribs *b b*, as described, of a standard, A, formed with a coupling-plate, A^1, having vertical and inclined surfaces a^1 a^2, and a neck, A^2, having a front face, a^4, and side face a^3, constructed to operate substantially as shown and described.

3. The combination, with the mold-board B, angular brace C, and point D, all constructed as described, of the land-side E, constructed with an inclined front face, *e*, recess *e'*, and removable face-plate E^1, having a sole-plate, E, substantially as set forth.

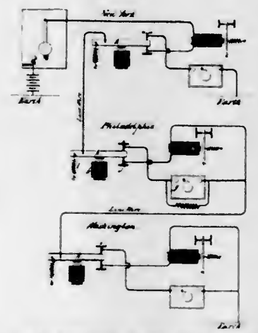
193,304. METHODS OF SETTING ARTIFICIAL GEMS. Henry Pio and Maurice Nelson, Paris, France, assignors to Veit & Nelson, New York, N. Y. [Filed July 30, 1877.]



1. As an improvement in the manufacture of imitation jewelry, stones of glass or enamel melted on and secured to stems and attached by the same to metallic frames or mountings, substantially as and for the purpose set forth.

2. In imitation jewelry, the combination of glass or other imitation stones melted on and secured to stems, with perforated metallic frames or mountings to which the same are screwed, riveted, soldered, or otherwise applied, substantially as specified.

193,305. COUNTER-BALANCES FOR ELEVATORS. Henry R. Plimpton, Boston, Mass. [Filed Nov. 19, 1875.]



1. The combination of the cylinder A, piston C, car or platform B, the constant counter-balance-weight F, and the chain B, made of such a weight that a length thereof equal to the whole height of the lift shall be just equal to one-half the weight of the column of water displaced by the piston when in its lowest position, substantially as described.

2. The combination of the cylinder A, piston C, car or platform B, constant counter-balance weight F, two or more pulleys, E, G, or H, the wire rope or other light flexible connection *f*, and the chain D, extended in a horizontal position on the pulleys E, G, or H, when the piston C is in its lowest position, and made of such a weight that a length thereof equal to the height of the whole lift shall be equal to the weight of the column of water displaced by the piston when in its lowest position, substantially as and for the purposes described.

3. As a means of connection between a load to be raised and a dead-weight counterpoise, a wire or other rope or cord having strung thereon or otherwise secured thereto a series of thimbles, rings, or other weights, distributed evenly or at certain stated and specified intervals along its length, as and for the purposes described.

4. As a means of connection between a load to be raised and a dead-weight counterpoise, a chain or other flexible connection having certain specified and defined portions of its length made of different weights, substantially as shown and described, for the purposes specified.

193,306. TOASTERS AND BROILERS. Saml. Poole, Brooklyn, N. Y. [Filed June 13, 1877.]

193,306.



The gridiron-frames *a b*, attached to the bar *c* and lever *f*, respectively, in combination with the fulcrum-jaws *e* upon the bar *c*, the thumb-piece *g* at the end of the lever *f*, and spring *h*, between the bar *c* and lever *f*, as and for the purposes set forth.

193,307. PIPE-CUTTERS. Grotus Post, Paterson, N. J., assignor of one-half his right to Jas. W. Post, same place. [Filed Aug. 11, 1877.]

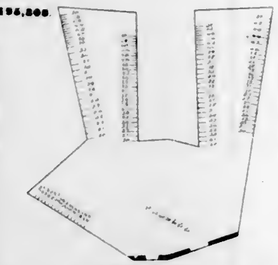
1. The ratchet-wheel A, frame-work *a a'*, removable bed *c*, and, in combination therewith, lever B, pawl H, spring I, screw F, lever *f*, block D, pin or rest *h*, for the purposes shown and set forth.

2. The cutter *d*, having curved and toothed sides for cutting off burrs from the ends of pipes during the process of their being cut, as shown and specified.

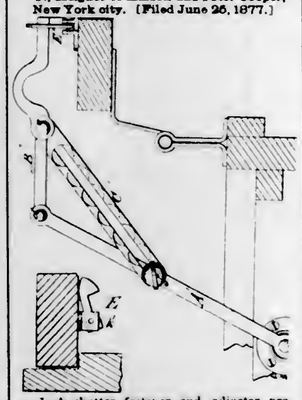
193,308. PATTERN-CHARTS FOR CUTTING GARMENTS. E. H. Reeves, West Farmington, Me. [Filed Aug. 16, 1877.]

The series of pattern-charts and guides, Figs. 1, 2, 3, and 4, having the configuration and provided with the numbers, letters, and lines, substantially as described and shown, for the purpose specified.

195,308



195,309. SHUTTER BOWERS AND FASTENERS. Thomas B. Rogers, Jr., Brooklyn, N. Y., assignor to himself and Peter Cooper, New York city. [Filed June 26, 1877.]



1. A shutter fastener and adjuster provided with a slotted bar, C or C^1, having concavities for the reception of the convex portion of the thumb-screw E, substantially as shown and described.

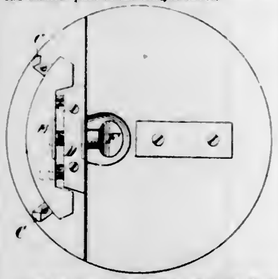
2. The bars A' B', jointed together, as described, the slotted bar C^1, and clamping-screw f', in combination, as set forth.

3. The nib g', in combination with the bars A' B', as and for the purpose specified.

4. The catch E', having the shoulder k', in combination with the bars A' B', substantially as shown and described.

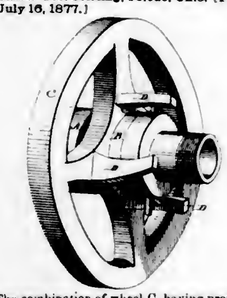
195,310. TRANSFERABLE BARREL-COVERS. S. W. Sheldon and Daniel Dunscomb, New York, N. Y. [Filed Aug. 18, 1877.]

Brief.—The cover is readily transferable from one barrel to another, and secured in position by means of two brackets fitting over the outer ends of the staves, and a segmental block adjustable by a set-screw passing through a block rigidly attached to the under side of the smaller part of the hinged cover.



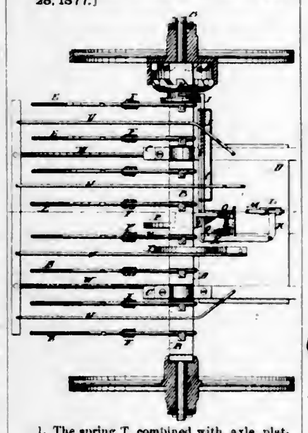
The combination of the brackets C, the fixed block D, movable segmental block E, and the thumb-screw F, with a hinged barrel cover, substantially as herein shown and described.

195,311. HOSE-COUPLINGS FOR FIRE-ENGINES. Geo. Sterling, Toledo, Ohio. [Filed July 16, 1877.]



The combination of wheel C, having prongs D D D D, with collar B, connected thereby with cylinder A A, all substantially as shown and described.

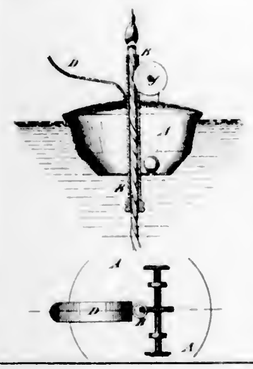
195,312. HORSE HAY-RAKES. Adolphus W. Stevenson, Xenia, Ohio. [Filed May 28, 1877.]



1. The spring T, combined with axle, platform, and teeth, to be coiled by the rise of the latter, and exert a downward pressure on said teeth as they descend, substantially as set forth.

2. The combination of the spring-latch Q, the connecting-rod R, and the foot-lever S with the curved bar P, the axle B, and the platform D, substantially as herein shown and described.

195,313.

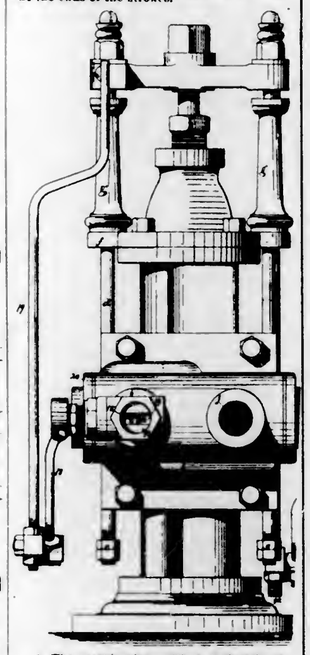


195,313. FLOATING OIL-BURNERS. Oscar Tamagno, New York, N. Y. [Filed Mar. 3, 1877.]

A floating oil-burner consisting, essentially, of a hollow metallic float, A, a wick-tube, B, and a suitable device for raising and lowering a wick fitted in said tube, substantially as and for the purpose set forth.

195,314. HYDRAULIC ENGINES. William O. Wakefield, Boston, Mass. [Filed May 19, 1877.]

Brief.—The valve is so arranged as to gradually check the flow of water, to permit the piston to be operated with a less head of water at the ends of the strokes.



1. The combination, with a hydraulic engine, of a valve to gradually check the flow of water, to permit the piston to be operated with a less head of water at the ends of its strokes, substantially as described.

2. The combination, with a hydraulic engine, of a valve provided with grooves or auxiliary water-passages, to permit sufficient water to flow continually therethrough to start the main and auxiliary pistons, substantially as described.

3. The inlet-valve and its arm, in combination with the rod 19, adapted to be raised and lowered by the cross-head to automatically lessen and increase the volume of water admitted to the main piston at each movement, substantially as described.

4. The combination of the valve-cylinder and its ports *o q* with the auxiliary piston and valve, the end *x* of the piston being removed far enough from the valve to provide a passage of sufficient width to communicate with the ports *o q*, substantially as described.

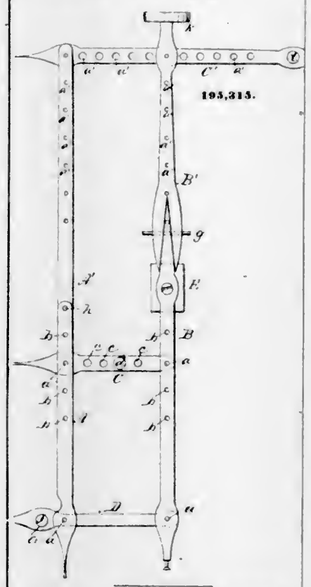
5. The valve *x* and its valve counterpart, constructed substantially as described, and provided with passages 2 3 4 between them, to operate substantially as set forth.

6. The auxiliary piston provided with the rotary reciprocating valve, the valve counterpart, and the passages 2 3 4, in combination with the valve chamber provided with ports *n o p p' r s*, to operate substantially as described.

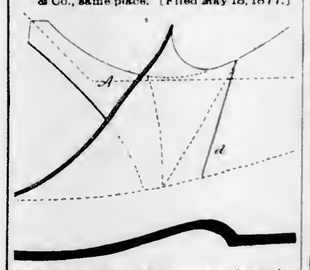
195,315. PANTOGRAPHS. H. Ware, Omaha, Nebr. [Filed July 13, 1877.]

The combination of the bars A' B' C' with the bars A B C D, substantially as shown and described.

195,315.

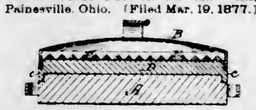


195,316. OVERSHOES. George Watkinson, New Haven, Conn., assignor to L. Candee & Co., same place. [Filed May 18, 1877.]



The herein-described improvement in Arctic overshoes, consisting of a lining made of one piece of material, and provided with the slits *d* in the sides in rear of the strap portions, substantially as described.

195,317. MEAT-BLOCKS. Newton Wells, Painesville, Ohio. [Filed Mar. 19, 1877.]



The combination of the detachable plate D, having lugs *c*, and provided with a roughened top surface, or with pyramidal projections E, with the meat-block A and removable cover B, as and for the purpose set forth.

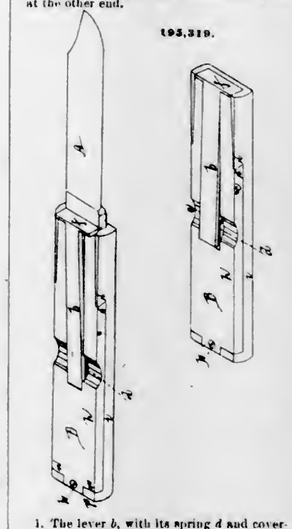
195,318. COMPOSITIONS FOR PAVING-BLOCKS. James S. Wethered, New York, N. Y. [Filed June 25, 1877.]

A compressed block formed of seventeen parts of asphaltum, three parts of mineral oil, and eighty parts of pulverized iron-slag, as described.

195,319. SLIDING-BLADE SHEATH-KNIVES. W. T. Whitehouse, Boston, Mass. [Filed July 16, 1877.]

Brief.—A sliding-blade knife has an outside lever, pivoted in a transverse recess of the handle or sheath, which lever is provided at its outer end with a projecting lip or plate, adapted to bite in and hold the blade when projected, and also to fit closely over the open end of the sheath when the blade is slid in, forming a lid or cover, which excludes dirt and retains the blade wholly within the sheath in closed position, and the handle or sheath is formed in two parts, interlocking by a dovetail joint at one end and secured by a screw at the other end.

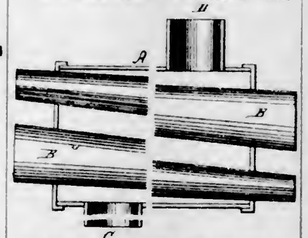
195,319.



1. The lever *b*, with its spring *d* and covering plate or lip *f*, in combination with the handle B and blade or implement A, constructed to operate substantially in the manner and for the purpose described.

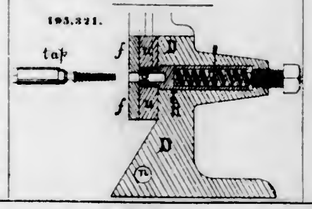
2. The handle B, formed of two parts, *h i*, locked together at one end by a dovetail joint and at the other end by a screw, *k*, substantially as and for the purpose set forth.

195,320. HEATING APPARATUS. A. T. Winchell, Albion, Mich. [Filed May 12, 1877.]



The chamber A, having pipes C D and removable tapering flues B, arranged in sections, one above the other, with their ends reversed alternately, as shown, whereby a smoke flue is formed within the chamber, which at its bottom is largest at its inlet end, and at its top is smallest at its outlet end, producing a zigzag current, substantially as and for the purposes set forth.

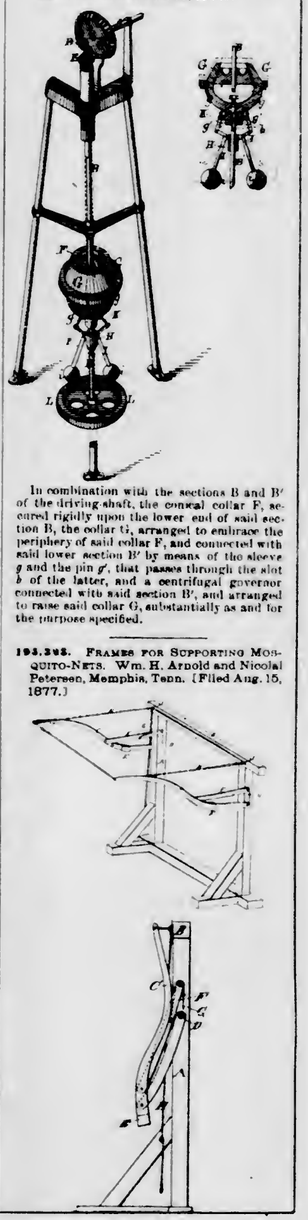
195,321.



195,321. NUT-TAPPING MACHINES. Samil. L. Worsley, Taunton, Mass. [Filed June 30, 1877.]

The combination of hollow follower R, the tap passing through it, the blank-holder *u*, and the fixed plate *f*, as and for the purpose specified.

195,322. GOVERNORS FOR REGULATING THE SPEED OF MACHINERY. John S. Adams, Elgin, Ill. [Filed Feb. 16, 1877.]



In combination with the sections B and B' of the driving-shaft, the conical collar F, secured rigidly upon the lower end of said section B, the collar G, arranged to embrace the periphery of said collar F, and connected with said lower section B' by means of the sleeve *g* and the pin *g'*, that passes through the slot *b* of the latter, and a centrifugal governor connected with said section B', and arranged to raise said collar G, substantially as and for the purpose specified.

195,323. FRAMES FOR SUPPORTING MOSQUITO-NETS. Wm. H. Arnold and Nicolai Peterson, Memphis, Tenn. [Filed Aug. 15, 1877.]

1. The frame for awnings, mosquito-bars, or other canopies, constructed with two or more jointed arms, supported by hinged braces F F and extended elbows E, in the manner described.

2. The combination of the jointed arms C, braces F, springs G, and cords H, substantially as and for the purpose set forth.

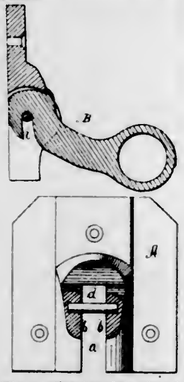
195,326. PERFUMED CHARMS. Charles A. Atkinson, New York, N. Y. [Filed Mar. 28, 1876.]



As a new article of manufacture, a charm or ornament made of porous earthenware and scented by the absorption of a perfume, as described.

195,327. COFFIN-HANDLES. C. A. Bailey, Cobalt, Conn. [Filed Aug. 10, 1877.]

Brief.—The claim points out the peculiarities of construction, which serve to make the device easily detachable, and constitute the invention.



The combination of the plate A, having slot *a* and ears *b b*, with wire *d* cast solid therein, and the arm R, cast with the inclined or slanting slot *i* at its inner end, substantially as and for the purposes herein set forth.

195,328. SPINNING-TOPS. C. A. Bailey, Cobalt, Conn. [Filed Aug. 10, 1877.]



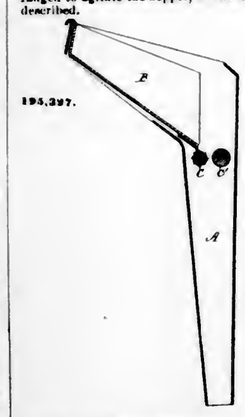
1. In combination with a spinning-top, the frame consisting of the base A, with recess *a*, the handle B, and the arm C, with hole *b* and pin *d*, substantially as and for the purposes herein set forth.

2. The combination of the frame A B C with pin *i*, the bell-top D G, and the ball *h*, substantially as and for the purposes herein set forth.

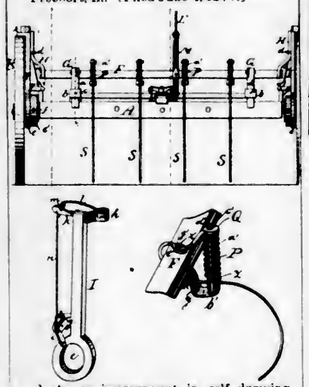
195,327. GUANO-DISTRIBUTERS. Joseph P. Baker, Madison, Ga. [Filed Aug. 20, 1877.]

Brief.—Within an extension of the spout is pivoted a hanging hopper, the lower end of which rests upon a fluted roller for imparting vibratory movement to it. The material to be sown is passed between rollers, and delivered to the furrow in a pulverized condition.

The fertilizer-distributer consisting of the spout A and the pivoted or hanging hopper B, combined with the rollers C C', one of which is fluted, grooved, or toothed, and arranged to agitate the hopper, substantially as described.



195,328. HORSE HAY-RAKES. W. G. Barnes, Freeport, Ill. [Filed June 4, 1877.]



1. As an improvement in self-dumping horse hay-rakes, the combination of the axle A, having vertical levers I I, with the adjustable hinged rake-head F, having levers H H working in keepers *d d* on levers I I, so as to be turned when the axle with its levers is rotated, substantially as and for the purpose herein shown and specified.

2. The combination of the hinged and adjustable rake-head F, having upright levers H H, with the axle A, wheels B B, and brake-levers I I, carrying the hinged shoes *k k*, substantially as and for the purpose herein shown and specified.

3. The combination of the brake-levers I, hinged friction-blocks *k*, and springs *l*, substantially as and for the purpose herein shown and specified.

4. The combination of the levers I, hinged friction-blocks *k*, springs *l*, and operating mechanism consisting of rods *s o*, cranks *i p*, rods *s*, equalizer *t*, and foot-lever K, substantially as and for the purpose herein shown and described.

5. The tooth-holder herein shown and described, consisting of the bent and slotted bolt P R, in combination with the spring *a'* and cap-piece Q, substantially as and for the purpose hereinbefore set forth.

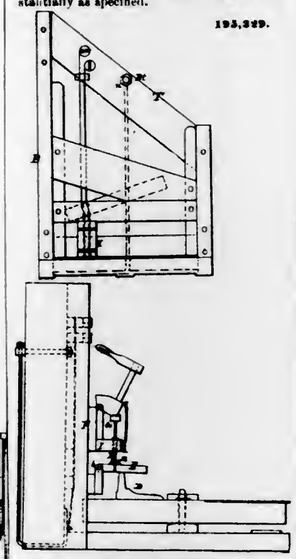
6. The combination of the rake-head F, tooth S, curved bolt or staple P R, having slots *y z*, coiled spring *a'*, cap-piece Q, bolt *x*, and clamp-nut *g'*, substantially as and for the purpose hereinbefore set forth.

195,329. PIANOS. Kiel V. Barnekov, Newburg, N. Y. [Filed Dec. 6, 1876.]

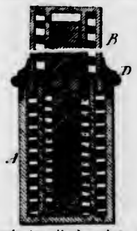
Brief.—The piano at the base end is projected vertically to a marked degree, in order to allow increased length of string at that part.

In an upright piano, the frame, sound-board, and hammer-line, arranged to decline from the left or bass side to the right or treble side at their respective upper margins, substantially as specified.

195,329.

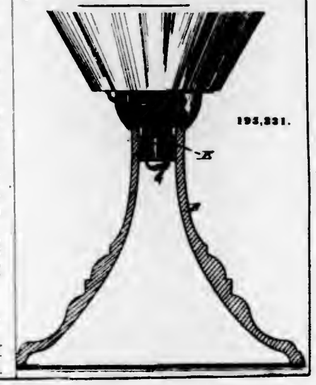


195,330. CAR-SPRINGS. John Barr, Bridgeport, Conn. [Filed June 6, 1876.]



The herein-described spring, consisting of the two parts A B, each constructed with concentric chambers, the chambers of one alternating with those of the other, combined with independent springs in the said chambers, and the collar D, attached to the part A and extending inwardly over a shoulder on the part B, substantially as described.

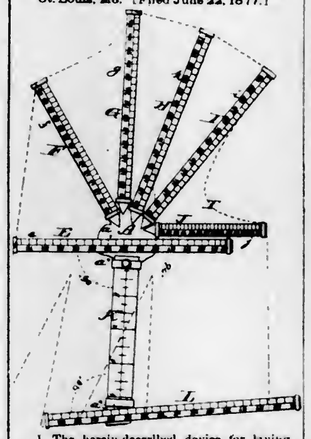
195,331.



195,331. MEANS OF ATTACHING LAMPS, &c., TO THEIR SUPPORTS. Samuel S. Barrie, New York, N. Y. [Filed May 26, 1877.]

The combination, with the base portion of the fount or bowl or peg depending therefrom, the hollow pedestal or column B and the independent tightening screw or nut G or G', of the elastic cushion E, clamped above and below between said base portion of the fount, or bowl or peg depending therefrom, and said screw or nut G or G', within the walls of the hollow pedestal or column, substantially as shown and described.

195,332. APPARATUS FOR DRAFTING PATTERNS FOR DRESSES AND COATS. Z. Bauer, St. Louis, Mo. [Filed June 22, 1877.]



1. The herein-described device for laying out dress-patterns, consisting of the parts A and B, and having the arms E, L, M, and R, arranged as described, substantially as and for the purpose set forth.

2. In the part B, the arrangement of the arms M and R, substantially as and for the purpose described.

3. The part B, having the arm P arranged at the inclination shown, for the purpose described.

4. The combination of the parts A, B, and C, constructed and arranged to operate substantially as described.

5. The combination of the parts B and D, substantially as described.

6. The grooved slide *p*, having the strip *p'*, substantially as described.

7. The combination of the grooved slide *p*, having the edges *p'' p''* and the strip *p'*, substantially as described.

195,333. CONVERTIBLE CHAIR AND CRADLE. H. J. Beandet, Green Point, N. Y. [Filed Feb. 22, 1877.]

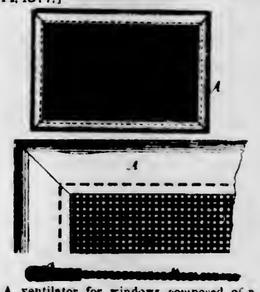
Brief.—The back is provided with a sliding or hinged adjustable frame, to the lower end of which is hinged another frame, which latter is also connected with the lower ends of the side bars of the back frame or with the seat-frame, and it can be adjusted to form an extension of the seat-frame, whereby an ordinary rocking-chair can be converted into a cradle, the sliding frame in the back forming one end of the cradle.

The combination, with a rocking-chair, of the rearward extension E of the chair-bottom and the swinging back-frame B, substantially as and for the purpose specified.

195,334. PROCESSES FOR CLEANING PLUSH AND CLOTH. John Besanson, Titusville, Pa. [Filed June 8, 1877.]

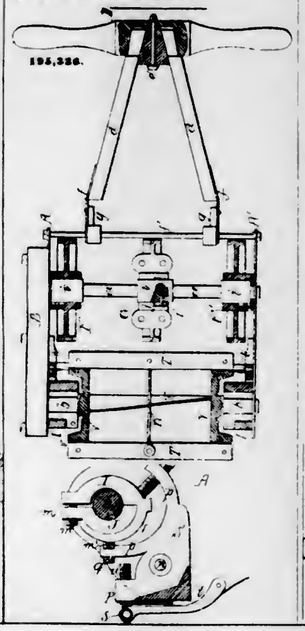
The within-described process for cleaning and dyeing cloth and plush, consisting, essentially, of the following stages, viz: Removing all dust and stains, coloring with extract of cochineal or other color, acetic acid, flavin, and salts of tin; then steaming, sponging, and brushing; again steaming and applying gum-tragacanth and salt dissolved in water, and, finally, drying and brushing, substantially as herein set forth.

195,335. VENTILATORS FOR WINDOWS. T. W. Bracher, New York, N. Y. [Filed Mar. 14, 1877.]



A ventilator for windows, composed of a frame, A, containing a sheet, *a*, woven of metallic wires and of threads of cotton or other fibrous material, substantially as and for the purpose shown and described.

195,336.



196,336. LAWN-MOWERS. John Braun, Philadelphia, Pa. [Filed June 4, 1877.]

1. The combination of the handle D and its inclined recess, the inclined bars *d*, the wedge-shaped block *e*, and confining-bolt *e'*, as specified.

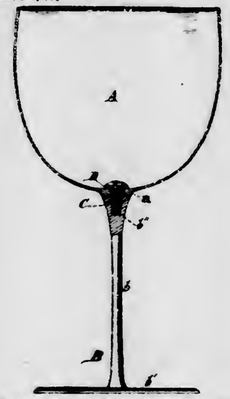
2. The combination of the rod *f'*, bars *d*, carrying the handle and hung loosely to the rod, and the arms *g* connected to the bars *d*, hung to the rod *f'*, and provided with set-screws, by which they may be secured to the same, as specified.

3. The combination of the shaft *a* and its end driving-wheels F F' fixed thereon with the central driving-wheel G, so secured to the shaft as to be readily removable, as specified.

4. The combination of the cutter-shaft *b*, the bearing I, and the adjustable box J, having a lug, *m*, and set-screw *m'*.

5. A lawn-mower, supported at its front end upon a roller, *e*, extending across the machine beneath the edge of the cutting-knife F, as described.

195,337. DRINKING-GLASSES. Charles B. Braunstein, Cincinnati, Ohio. [Filed May 22, 1877.]



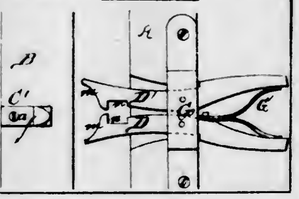
A drinking-glass having bowl A *a*, pedestal B *b b' b''*, detachable headed screw C, and gasket D, substantially as and for the purpose specified.

195,338. PROCESSES OF MANUFACTURING TONGUED AND GROOVED VENEERS. Wm. E. Brock, New York, N. Y. [Filed Mar. 29, 1877.]

Brief.—Improvement on Patents Nos. 161,746 and 178,989 of same inventor.



The improvement in the manufacture of tongued and grooved veneers, consisting in the simultaneous tonguing, grooving, and planing the outer faces of the tongues of the veneer in advance of the saw while sawing such veneer from the log, board, or plank, substantially as and for the purpose herein set forth.

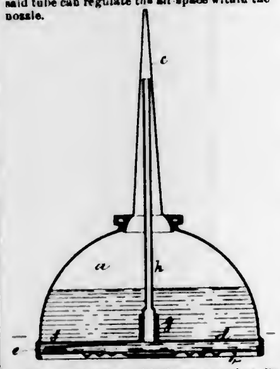


195,339. GATE-LATCHES. Thomas Cameron and John F. Jowers, Mount Pleasant, Miss. [Filed July 7, 1877.]

The post B, provided with the bolt C, having the perforated arm C' and its outer end beveled, in combination with the recessed gate-bar A, plate G, jaws D D', having beveled ends *w*, recesses *s*, projection *h*, recess *i*, and the springs G', substantially as described, and for the purpose set forth.

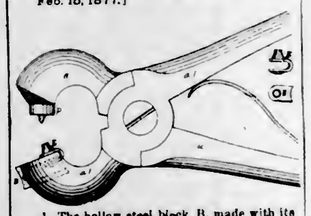
195,340. OILERS. Dexter H. Chamberlain, Boston, Mass., assignor to W. H. Iraland, same place. [Filed May 23, 1877.]

Brief.—The delivery-tube is made adjustable in the socket of the diaphragm, by which said tube can regulate the air-space within the nozzle.



The combination, with the receptacle *a*, its flexible bottom *b*, nozzle *c*, and valve-diaphragm *d e f*, of the socket *g* and the adjustable detachable delivery-tube *h*, substantially as described.

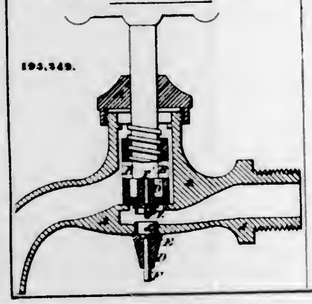
195,341. MECHANISMS FOR SETTING EYELET-HOOKS. John Charlton, Newark, N. J., assignor to John Charlton, Jr. [Filed Feb. 16, 1877.]



1. The hollow steel block B, made with its various apertures, as shown, combined with the set-screw S and compressing-instrument *a* and *a'*, as shown and described, and for the purpose set forth.

2. The hollow steel block B, made as shown, with its various-sized apertures drilled at various distances from the ends, adapted for use with the jaws of an eyelet-hook-setting machine, for the purposes described.

195,342.



195,343. FAUCETS. Cyrus O. Clapp, Hartford, Conn. [Filed Feb. 17, 1877.]

Brief.—The check-valve is used to draw off the water contained in the supply-pipe without opening the cocks.

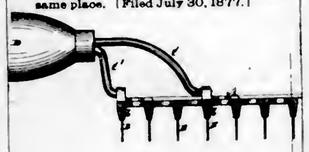
The combination of the conical valve E, the triangular stem F, the bar G, and the plug D with an ordinary water-faucet, substantially as herein set forth.

195,344. SPOOL-HOLDERS. F. W. Claybrook, Hague, Va. [Filed June 9, 1877.]



The improved crochet spool-holder, consisting of the spring-holder proper A and the ornamental plate B, having the hook *d*, said parts A B being hinged together, as shown and described, for the purpose specified.

195,345. CURRY-COMBS. John F. Cline, New York, N. Y., assignor of one-half his right to William A. Butler; said William A. Butler assignor to Thomas L. Butler, same place. [Filed July 30, 1877.]



A curry-comb consisting of the handle D, the handle-brace-rods C C', the cast-metal frame A, and the comb-blades B, the said brace-rods and the comb-blades being attached to the comb-frame by casting the latter onto the rods and blades, as set forth.

195,345. SHAWL, PACKAGE, OR BOOK STRAP HANDLES. Joseph Cohen, Newark, N. J. [Filed Aug. 4, 1877.]



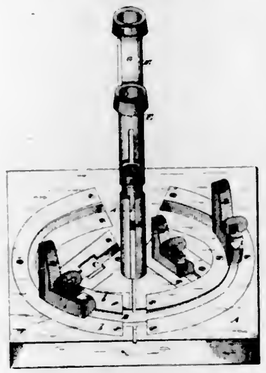
A shawl, package, or book strap handle composed of the upper part A, the under inverted arched brace B, the open eyes *a a*, and the shoulders *a' a'*, all cast in one piece, forming a handle complete in all its parts without any rivets or joints, substantially as described.

195,346. SPARK-ARRESTERS. Henry Colford, Halifax, Nova Scotia, Canada. [Filed Feb. 17, 1877.]



A spark-arrester or beater consisting, essentially, of a series of double triangular plates, *a*, united in the middle and arranged spirally within or upon a smoke-stack, chimney, or drum, so as to prevent sagging of the plates, substantially as and for the purpose hereinbefore set forth.

195,347. MITER-BOXES. Geo. M. Conover, Cleveland, Ohio, assignor of one-half his right to Geo. R. Tuttle, same place. [Filed Apr. 13, 1877.]



1. In a miter-box, the base A, provided with a circular and practically-continuous groove, B, in combination with gages D D', substantially as described.

2. In a miter-box, the base A, provided with grooves B and C, in combination with gages D D' and supplementary gages D² D², substantially as and for the purpose described.

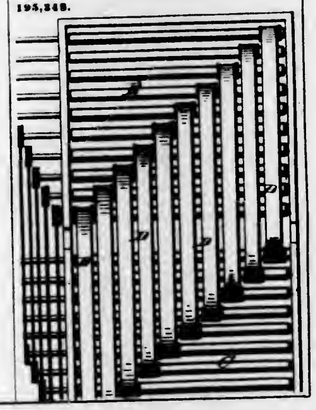
3. In a miter-box, the saw-guide standards, in combination with the rollers I and blocks H, in which latter the rollers are journaled, and which extend above the surface of the rollers, and serve as a rest for the saw-guides, preventing the same from striking the rollers, substantially as and for the purpose described.

4. In a miter-box, the saw-guides provided with sheaves or wheels L, which rest on the back of the saw, substantially as and for the purpose described.

5. In a miter-box, the combination, with the tubular standards provided with rollers I, of the tubular saw-guides provided with sheaves or wheels L, substantially as and for the purpose described.

6. The combination, with the base A, provided with grooves B and C, of the tubular saw-standards E E', saw-guides K, provided with sheaves or wheels L, and gages D D' D², substantially as and for the purpose described.

195,348.

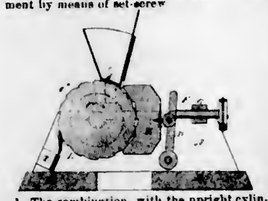


195,348. SCHOOL-CHARTS. Cyrus Corning, Lawrence, Kans., assignor of one-half his right to Aquila J. Reid, same place. [Filed June 9, 1877.]

A school-chart consisting of a case, A, with central opening *a*, having strips *b*, two series of rollers, B C, connected in pairs, as described, and the endless belts D, all constructed substantially as and for the purposes set forth.

195,349. GRINDING-MILLS. Wm. N. Cosgrove, Faribault, Minn., assignor of one-fourth his right to Isaac M. Fuller, same place. [Filed Aug. 4, 1877.]

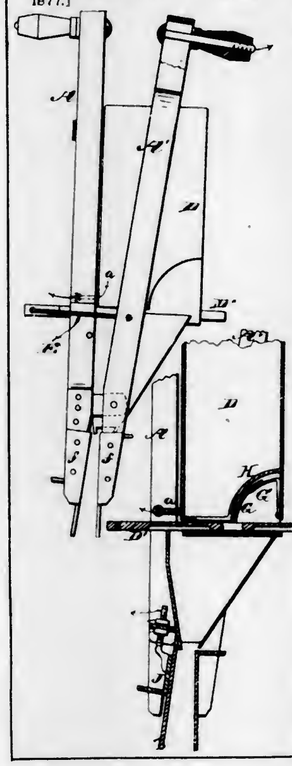
Brief.—Vibrating lever, hinged to concave on axis of the cylinder, secures radial adjustment by means of set-screw



1. The combination, with the upright cylindrical stone C, of the vibrating lever D, the upright concave E, and the adjusting-screw F, bearing on the said lever, as and for the purpose shown and described.

2. The combination, with the ebeck-blocks A, upright wheel C, and concave E, of the vibrating lever D, hinged to said concave, the adjusting-screw F, and brush L, substantially as specified.

195,350. HAND CORN-PLANTERS. Melvin Cottle, Richmond, Kans. [Filed Aug. 4, 1877.]



1. A seed-box, D, attached to the lever A by means of the arm *a*, projecting from the bottom of the box, and the hooks at the upper end, substantially as described.

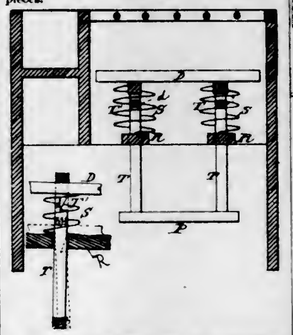
2. In a seed-planter, a slide, D', connected to and operated by the lever A' by means of the spring-wire rod E, which is capable of being unhooked from the slide and lever, as and for the purpose set forth.

3. The metal cut-off G, with spring G', in combination with the curved guard H, box D, and slide D', substantially as and for the purposes set forth.

4. The combination of the slide D', the bowed spring E, with hook-shaped ends, and the lever A', substantially as and for the purposes set forth.

195,351. MANGERS. James N. Crabb, Richmond, Ind. [Filed Aug. 16, 1877.]

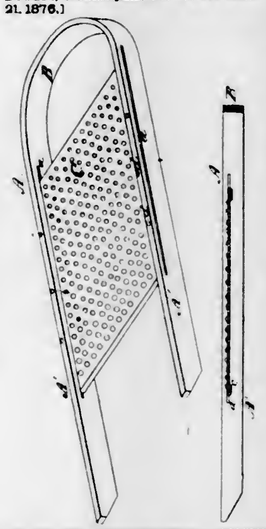
Brief.—The device has a treadle to depress the movable bottom prior to securing it by engaging the notched uprights with the cross-pieces.



1. The combination, with the adjustable platform D of a manger, of the notched uprights T, cross-piece P, and mortised cross-bars R, substantially as and for the purpose herein shown and described.

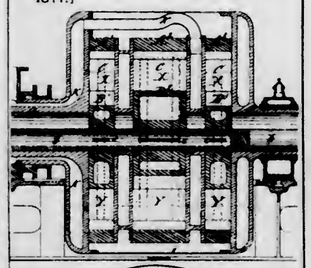
2. The combination, with the bin and slatted hinged cover, of the slatted bottom or platform D, springs S, mortised cross-bars R, notched uprights T, and cross-piece P, the several parts constructed and arranged as herein shown and described.

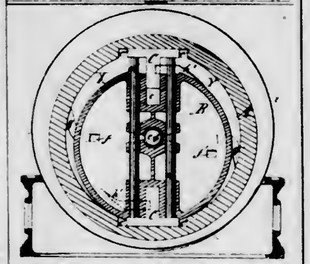
195,352. VEGETABLE-GRATERS. Abner W. Dowdell, Philadelphia, Pa. [Filed Aug. 21, 1876.]



The vegetable grater consisting of the sides A' A', with kerfs *a* and handle B, in one piece, in combination with the grating-plate C, consisting of a single piece of metal with the top and bottom edges lapped, as at *c*, and side edges secured by nailing to the side pieces A' A', all as set forth.

195,353. ROTARY ENGINES AND PUMP. Oscar Elgass, New York, N. Y. [Filed July 24, 1877.]

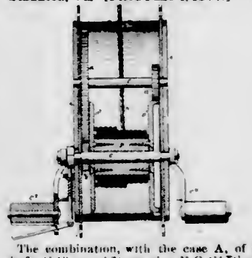




1. In a rotary steam engine or pump, the combination, with an outer cylinder, A, and an inner cylinder, B, both eccentrically mounted on hollow shafts, having their axes parallel, of the sliding partitions C C, working in ways *c c'*, the whole constructed to operate substantially as described.

2. In combination with the inner and outer cylinders and the sliding partitions, the induction-ports *f f'*, steam-passages *g g'*, and eduction-ports *h h'*, arranged to alternately admit and exhaust steam on opposite sides of the space between the two cylinders, substantially as set forth.

195,354. FIRE-ESCAPES. George W. Eyler, Staunton, Va. [Filed June 1, 1877.]



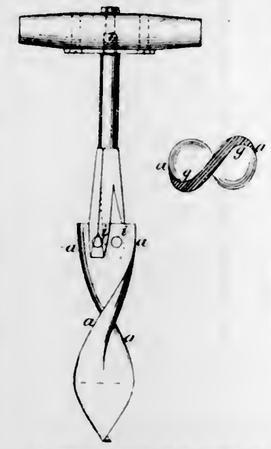
The combination, with the case A, of the shafts C C', spool D, gearing E G G' D', and cranks C² C², with a ratchet or friction device connected to one or both of said cranks, substantially as and for the purposes herein set forth.

195,355. GLOVE-FASTENINGS. F. G. Farnham, Hanley, Pa. [Filed Apr. 17, 1876.]



A garment-fastening consisting of the plate B, staple *c*, spring-key A, and loop E, said plate B extending beyond the staple *c*, substantially as described.

193,336. EARTH-AUGERS. Jacob Fisher, Ottawa, Kans. [Filed Aug. 3, 1877.]



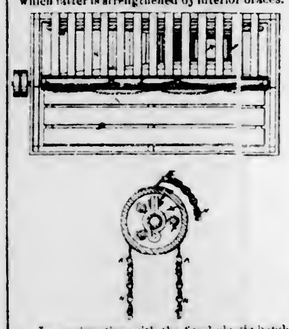
1. An earth-auger blade or pod having long spiral cutting-edges *a* and grooves *g* throughout its entire length, as and for the purpose described.

2. An earth-auger blade or pod consisting of long spiral cutting-edges having their greatest width a short distance above the point, then tapering a short distance, from the termination of which taper said edges extend parallel to the top, for the purpose described.

3. The obliquely-forked shank, in combination with an auger-blade terminating with a full flat width at the shank-connection, for the purpose described.

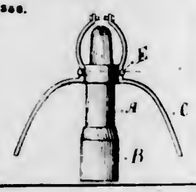
193,337. CARPET-BEATERS. M. H. Foster, Portland, Me. [Filed May 5, 1877.]

Brief.—The carpet rests on elastic strips above a perforated steam-pipe, and is beaten by looped chains attached to a hollow roller, which latter is strengthened by interior braces.



In combination with the fixed elastic bands F, hopper Q, and aperture R, the hollow roller I, having the central rod M, braces N, clamps O, and eyes P, and the looped beating-chains secured to the periphery of the roller, as set forth, all as described.

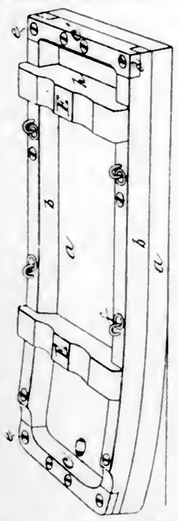
193,338.



193,338. ELECTRICAL GAS-BURNERS. E. A. Hill, Chicago, Ill. [Filed Mar. 6, 1877.]

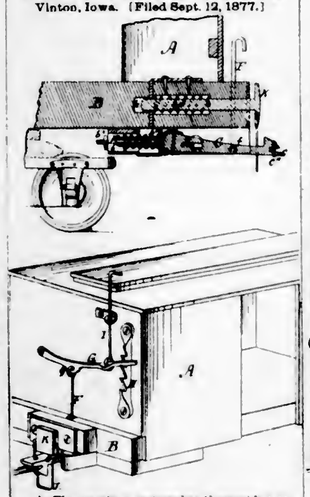
The burner-tip A, constructed of electrical non-conducting material, in combination with the independent conducting-plates C and separate attaching-pins E, whereby the plates are secured to the tip, substantially as and for the purpose set forth.

193,339. STONE AND LOG SLEDS. William Gregg, Mason, Mich. [Filed Nov. 18, 1876.]



The improved stone-sled herein described, consisting of the bottom *a*, of longitudinal plank bent upward at the bow, the bent sides *b* corresponding in curvature to the bottom and supported thereon, the ends *c c'*, and the adjustable and removable bolsters E, substantially as specified.

193,360. CAR-COUPLINGS. H. M. Grover, Vinton, Iowa. [Filed Sept. 12, 1877.]



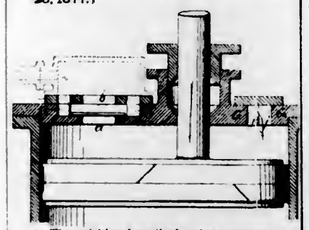
1. The coupling or draw-bar C, provided on its outer end with the hook *c*, and pivoted near its inner end between the jaws D D, in combination with the shouldered loop E, having the spring *e*, substantially as and for the purposes described.

2. In combination with the draw-bar C, provided with the shouldered loop E and spring *e*, the rod F, lever G, ratchet H, and rod I, for the purpose of coupling and retaining in a coupled position and uncoupling the cars, substantially in the manner as set forth.

3. The loop L, attached to the buffer K to give the former a limited longitudinal movement along the draw-bars while retaining them in place, substantially in the manner as described.

4. The draw-bar C, having the elongated and enlarged bolt-hole, in combination with the shouldered loop E, provided with the spring *e*, pivoted loosely between the jaws D D, substantially as and for the purpose set forth.

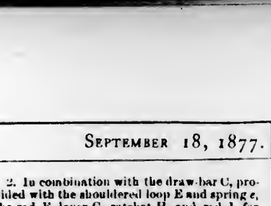
193,361. BLOWING-ENGINE VALVES. W. H. Harrison, Newcastle, Pa. [Filed July 28, 1877.]



1. The within-described valve apparatus, consisting of a valve-chamber and valve, an air inlet or outlet, the central opening *b* or *i*, and side ports, for the passage of the air, all substantially as set forth.

2. The combination, in the cylinder-cover, of any desired number of valve-chambers, each chamber containing a valve, and having inlets and outlets and a detachable cover, all substantially as described.

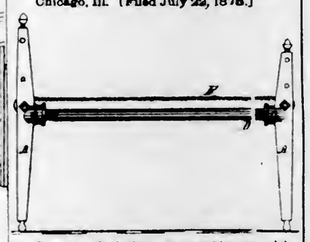
193,362. VENTILATING-SKYLIGHTS. Joseph Harsch, Baltimore, Md. [Filed July 2, 1877.]



1. The water-conducting beads or conduits *c*, combined with the glass plates of a skylight, substantially as specified.

2. In a skylight, two or more glass plates, having their approaching edges provided with water conducting beads or conduits, as shown, in combination with removable hollow bars, adapted to connect the said glass plates and cover the adjacent beaded edges thereof, substantially as specified.

193,363. BEDSTEADS. William Hendley, Chicago, Ill. [Filed July 22, 1876.]

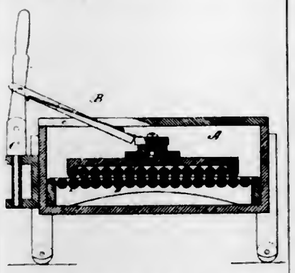


In a metallic bedstead, in combination with the side rails D D, provided at opposite ends with right and left hand screw-threads, cross-rails C C, and the posts A A, provided with the right and left hand screw-threaded sockets *a*, to receive the ends of the side rails of the elastic wire-fabric bed-bottom F, attached

at its ends to the cross-rails, whereby the fabric is tightened in the direction of the length of the coils by rotating the side rails, substantially as specified.

193,364. WASHING-MACHINES. Benjamin F. Henry, Miami Township, Saline County, Mo., assignor to himself, Benj. Cooper, Jos. T. Cooper, and James Mayfield, same place. [Filed May 19, 1877.]

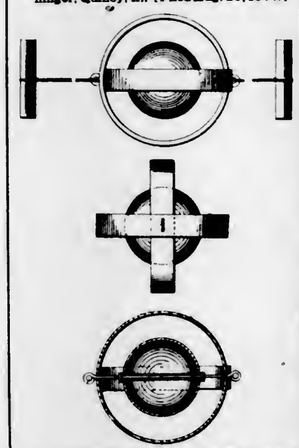
Brief.—The reciprocating scrubber is attached, by a hinged sectional connecting-rod, to the vertically-vibrating lever, which lever terminates in a shouldered spindle turning in bearings on the end of the suds-box, and the scrubber is lifted out of the suds-box by engaging with the lever the hooked end of a wire or rod, the other end of which is attached to the connecting-rod, and then pulling the lever away from the suds-box, when, by means of the shouldered spindle, the scrubber can be turned at right angles to the suds-box, and clothing put in or taken out.



1. The combination of the axially-rotating and vertically-vibrating lever, the hinged sectional connecting-rod, and the hooked rod B with a suds-box and reciprocating scrubber, substantially as specified.

2. The suds-box A, having spaced horizontal bearings, in combination with the shouldered spindle C, the lever-handle pivoted thereto, the flexing connecting-rod, and a scrubber, substantially as specified.

193,365. TOY WHIRLIGIGS. Julius Henninger, Quincy, Ill. [Filed Aug. 20, 1877.]



1. A whirligig toy consisting in the combination with a suitable ring frame-work and axial cross-piece, of a colored-glass ball, supported on the said cross-piece, substantially as described.

2. The combination, with the cross-piece rigidly securing together the two rings at right angles to their respective central bodies, of the ball, supported upon said cross-piece and inclosed by the frame-work of the rings, substantially as described.

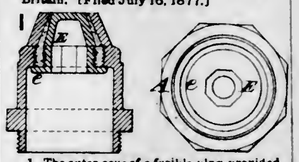
193,366. EVAPORATING-PANS. Henry W. Hescock, Hubbard, Ohio. [Filed Aug. 18, 1877.]

Brief.—The hot boiling juice, free from scum, passes into the base of the siphon-pipe, and is passed through the latter to the adjoining pan.



The combination, with independent evaporating-pans, of one or more siphons, each of which is secured to a perforated base, substantially as described.

193,367. FUSIBLE PLUGS FOR STEAM-GENERATORS. H. Hiller, Manchester, Great Britain. [Filed July 16, 1877.]



1. The outer cone of a fusible plug, provided with screw-threads on the inside, in combination with the inner cone and its fusible-metal envelope, adapted to be screwed into the outer cone, substantially as described.

2. The combination of the threaded outer and inner cones with the envelope of fusible metal, adapted to be screwed into the outer cone and onto the inner one.

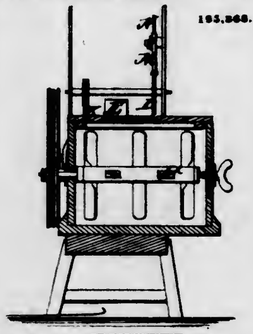
3. The combination of the cone E, provided with the rectangular collar *e*, with the outer cone and the intermediate fusible metal, as and for the purpose set forth.

193,368. CHURN-MOTORS. W. W. Hinkle, Hood's Mills, Md. [Filed July 21, 1877.]

1. The pivoted escapement M, to the inner arm of which is attached the bent arm N, having at its outer end the hook *n*, adapted to receive the removable weight O, substantially as described, and for the purpose set forth.

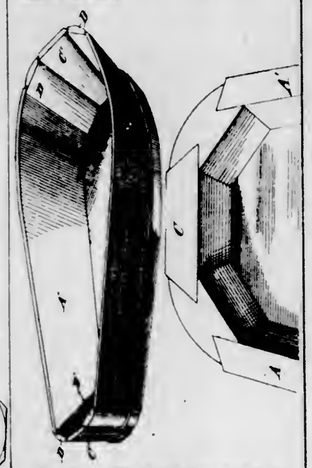
2. The pivoted escapement M, to the inner end of which is attached the bent arm N, having at its outer end the hook *n*, adapted to receive the removable weight O, in combination with the escapement-wheel L and the train of gearing described, operated by a spring or weight, substantially as described, and for the purpose set forth.

193,368.



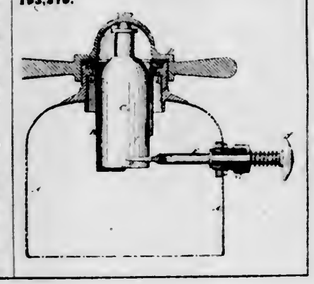
193,369. COFFINS. Jacob A. Hogue, Cincinnati, Ohio, assignor to the Cincinnati Coffin Company, same place. [Filed May 4, 1874.]

Brief.—The ends of the bent sides are beveled, and in connection therewith the end pieces have beveled edges and the corner-pieces are V-shaped, having rabbets to fit the beveled ends of the sides and the beveled edges of the ends of the coffin.



In a wood coffin having bent sides A A', the corner-pieces D D' and ends C C', joined together and to the sides A A' by joints *d*, substantially in the manner and for the purpose specified.

193,370.

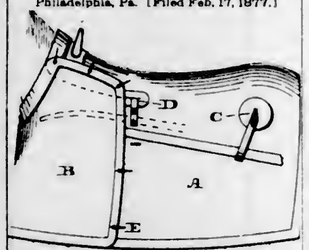


195,370. FIRE-EXTINGUISHERS. Charles T. Holloway, Baltimore, Md. [Filed June 13, 1877.]

1. In fire-extinguishers, the combination of the chamber B in the gas-generating chamber A with the carboy C and rod F, constructed and arranged substantially as shown, and for the purpose specified.

2. A fire-extinguisher consisting of the gas-generating chamber A, chamber B, carboy C, cap D, and rod F, having point *f'* and prongs *g g*, and passing through the stuffing-box G, arranged in the side of the chamber A, when all constructed substantially as shown, and for the purpose set forth.

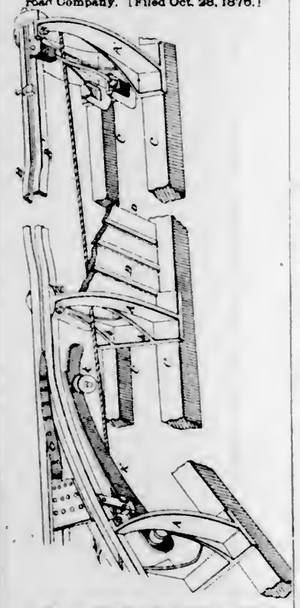
195,371. HORSE-BLANKETS. Wm. Horlak, Philadelphia, Pa. [Filed Feb. 17, 1877.]



1. The body part A, formed with a forward extension, A', in combination with the detachable front part B, having cut away portion *b*, substantially as and for the purpose set forth.

2. The body part A, provided with hold-back openings C and back strap openings D, in combination with the part B, whereby the traces and shafts will be on the outside of the part A, substantially as and for the purpose set forth.

195,372. ENDLESS-ROPE TRACTION-RAILWAYS. Asa E. Hovey, San Francisco, Cal., assignor to the Sutter Street Railroad Company. [Filed Oct. 28, 1876.]



1. The construction and arrangement together of the brackets A A and the rails B B', forming the frame or skeleton for a rope-tunnel for endless rope traction-railways, said brackets forming a support for the grooved rails, and for the planking forming the sides or shell of the tunnel, substantially as herein described and specified.

2. In an endless-rope traction-railway, the combination of the tunnel or rope-chamber supported upon sills, so as to form a continuous sewer or channel beneath, and communicating with the said rope tunnel or chamber, substantially as described and shown.

3. In an endless-rope traction-railway, the angle-irons B B', to form a groove for the griping mechanism of the dummy, by which a vertical bearing and guiding surface is formed within the groove for the vertical guiding-rollers of the gripe-bar, that acts to keep the bar from contact with the sides of the groove, arranged and applied substantially as and for the purpose set forth.

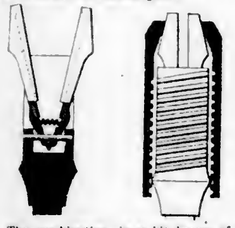
4. The curved depression lever K, with its sheave *k*, for depressing the rope in endless-rope traction-railways at the points of switching, and at other points when it is necessary to carry the gripe-bar across the rope, said lever being constructed and arranged to operate substantially in the manner and for the purpose herein described and specified.

5. In combination with the groove-rails B B' and the bracket A, with its closed head C, the grooved bumper *c* and its bumper-rod E, with the rubber spring for receiving the shock of the griping-bar of the dummy at the terminus of the groove in endless-rope traction-railways, constructed and combined to operate together, substantially as and for the purpose herein described.

6. In an endless-rope traction-railway, the combination, with the rope tunnel or chamber, of pulleys journaled in the same, upon which the rope runs, and means for lubricating the bearings of such pulleys from the outside of the tunnel, substantially as described and shown.

195,373. BIT-BRACES. Wm. A. Ives, New Haven, Conn. [Filed Mar. 14, 1877.]

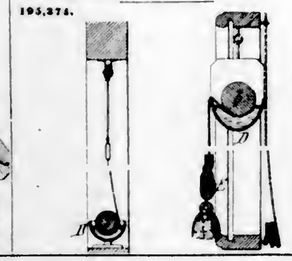
Brief.—The movement of the griping jaws toward each other, so that they may not pass the center, is limited by means of a lug in the socket centrally between the jaws.



1. The combination, in a bit-brace, of a transversely-slotted socket, threaded upon its exterior surface, a correspondingly-threaded sleeve internally contracted at its outer end, a pair of griping-jaws fitted to receive the tang of the bit arranged loosely on the stationary transverse bar, and the central lug stationary in the socket, all substantially as described.

2. The combination, in a bit-brace, of a transversely-slotted socket, threaded upon its exterior surface, a correspondingly-threaded sleeve internally contracted at its outer end, a pair of griping-jaws fitted to receive the tang of the bit arranged loosely on the stationary tranverse bar, the central lug stationary in the socket, with the spring between the jaws, the tendency of which is to force asunder the lower end of the jaws, substantially as described.

195,374.

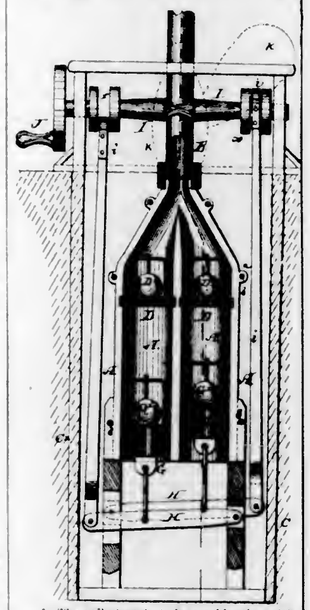


195,374. COOLING OR DISINFECTING THE AIR OF ROOMS. Bushrod W. James, Philadelphia, Pa. [Filed May 1, 1877.]

Brief.—The trough which contains the liquid for saturating the curtains supports a roller, to which a curtain is attached, the curtain being raised and lowered by any suitable means, and having secured to the bottom an extension of netting, which may be used when the saturation of the curtain does not cause evaporation as rapidly as desired.

A cooling or disinfecting apparatus consisting of a frame and a trough, D, carried by the frame, in combination with a roller suspended partly within the said trough, and a curtain passing under or around said roller, and adapted to be raised and lowered, all substantially as described.

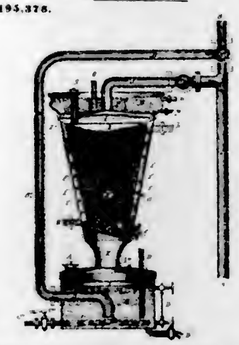
195,375. DOUBLE-ACTING PUMPS. Mark D. Judkins, Oaakis, Minn. [Filed July 28, 1877.]



1. The cylinders A A, in combination with valves G', and connected with bottom levers H, rods *i i*, eccentrics *x x*, and crank J, substantially as and for the purpose set forth.

2. The reservoirs *k k*, cylinders A A, and valves G', in combination with the lever H, rods *i i*, shaft I, and the frame, substantially as and for the purpose set forth.

195,376.



195,376. APPARATUS FOR RECTIFYING SPIRITS. Joseph Kast, Buffalo, N. Y., assignor of a part of his right to Truman Stone, Frank Ewens, and Chas. F. Bitter, same place. [Filed June 23, 1877.]

Brief.—A charcoal filtering apparatus for rectifying spirits, located between the still and condenser.

1. The combination, with the vessel A, of the pipe B, three-way cock B', pipe B'', separator F, pipe J, having the stop-cock K, and the pipe L, as stated.

2. A separator consisting, essentially, of the tapering shell G, provided in its interior with the shell G', having both its extremities swelled to fit the said exterior shell G, and thereby to afford an uninterrupted water-space, *f*, around the said interior shell, substantially as specified.

3. The combination, with the vessel F, of the inclined perforated diaphragm 2 and the screw-plug *g*, located in the lower part of said vessel F, substantially as specified, whereby the contents of said vessel discharge by gravitation, as described.

4. The separator F, consisting, essentially, of two connected shells, G G', provided with the helical water-passage *f*, the inclined perforated diaphragm 2, horizontal diaphragm 3, deflector I, head I', escape-pipe J, and the filling plug S, substantially as hereinbefore set forth and described.

5. The combination, with the vessel A, of the steam coil C, supply-pipe B'', diaphragm 1, and the separator F.

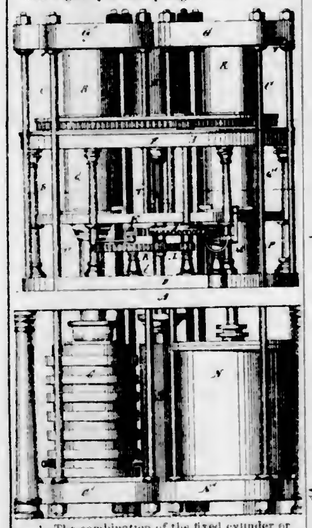
6. The combination, with the shells G G', of the spiral *f'*, whereby the ascending current of water is caused to move spirally upward, for the purpose specified.

7. The combination, with the receiver N, of the annular receiver F, as stated.

8. The combination, with the vessel A and separator F, of the pipe R, arranged to reach within a short distance from the bottom of said vessel A, whereby, by admitting a current of steam within said vessel, the entire apparatus can be cleaned without removing the contents of said separator, all as herein before set forth and specified.

195,377. MACHINES FOR COMPRESSING TAN-BARK, &c. Cornelius Kimplen, Chicago, Ill., assignor of one-half his right to W. R. Gould, same place. [Filed Apr. 19, 1877.]

Brief.—When the stationary press-cylinder registers with one of the intermediate movable cylinders and one of the upper cylinders carried by the revolving table, the tan-bark is filled in, and partly pressed by the steam-plunger. The pressure is completed by the hydraulic plunger, and the compressed material discharged by a third plunger.



1. The combination of the fixed cylinder or section P with the movable cylinders or sections Q' and R', for forming a receiving and compression cylinder, substantially as set forth.

2. The combination of the movable sections or cylinders Q and R with the press O, substantially as and for the purpose described.

3. The combination of the section or cylinder R'' with the press S and open top plate G', for discharging the cake or bale, substantially as specified.

4. The combination of the sections or cylinders R, R', and R'' with the fixed top plates G, G', and G'' and revolving platform H, for bringing them successively into operation, substantially as described.

5. The combination of the cylinders R, R', and R'' and revolving platform H with the cylinders Q and Q', substantially as described.

6. The combination of the cylinder P with the cylinders Q Q', operating in a higher plane, and with the cylinders R, R', and R'', operating in a still higher plane, so that they may be interchangeably used, substantially as set forth.

7. The combination of the cylinders R, R', R'', Q, Q', and P and presses N O S with the revolving platform H and fixed platform E, all constructed and operating substantially as specified.

8. The combination of the wheel K, having the pin *e*, and pitman *d* with the sliding rack *b*, wheel *a*, and arm *p*, for driving the pin *j* back and forth in the circular groove *f*, substantially as specified.

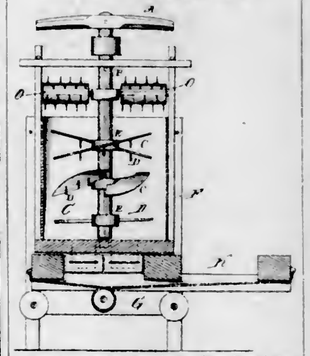
9. The combination of the lever or arm A, hook *i*, pin *j*, and plate *h'* with the radial groove *g* and the semicircular groove *f*, for shifting sides with the hook, substantially as set forth.

10. The combination of the wheel K, pitman *d*, sliding rack *b*, pinion *a*, arm *p*, and pin *j* with the arm or lever *h*, sliding block *h'*, and hook *i*, substantially as specified.

11. The combination of the pin *m* and lever *n*, having the cam or projection *n'*, with the pin *o* and arm *p*, for lifting the grappling-hook *i* at its extreme movement, substantially as described.

12. The combination of the pinions I and L with the cogged platform H and wheel K, for moving and shifting the cylinders or sections to position, substantially as set forth.

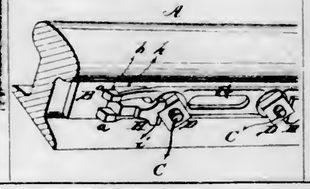
195,378. BRICK-MACHINES. H. Lindsey, Asheville, N. C. [Filed Mar. 20, 1877.]



In a brick machine, the combination of the reciprocating mold-table, the screw feed, and pulverizing-rollers, arranged upon a suitable frame, substantially as and for the purpose specified.

195,379. NUT-LOCKS. D. R. Major, Huntingdon, assignor to J. M. Major, Watsontown, Pa. [Filed Aug. 18, 1877.]

Brief.—The locking-key is driven under and held by the shouldered spring-arms of the washer-plate.

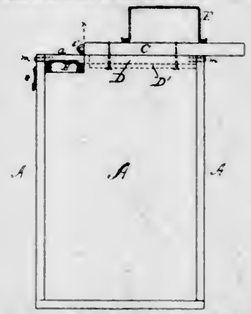


1. The washer G, formed with the arms *a a*, having shoulders *b b* in their inner sides, in combination with a locking-bar, substantially as set forth.

2. The combination of the angular locking-bar H, having wings or flanges *h h*, and the washer G, having arms *a a*, with shoulders *b b*, all substantially as and for the purposes set forth.

195,380. SHIPPING-CAN SHIELDS. Edwd. T. Mason, Chicago, Ill. [Filed Aug. 27, 1877.]

Brief.—The slide may cross the grain of the cover, to prevent its warping. May be thick enough to hold the can steady in the shield. The can is removed by taking out the double-pointed fastenings. The cover may be nailed for greater security in transportation.



1. As a new manufacture, a can shield provided with a top which covers and is flush with the side pieces, and to which a straight horizontal sliding movement is permitted, substantially as set forth.

2. As a new manufacture, a can-shield having a sliding top, the devices connecting which with the shield and regulating its movement are entirely inclosed within the shield, substantially as specified.

3. The can-shield provided with a sliding top, having the devices for holding said top and regulating its movement located centrally within the shield, substantially as shown.

4. The shield having a sliding top secured thereto by means of the guide-strip and slide, substantially as set forth.

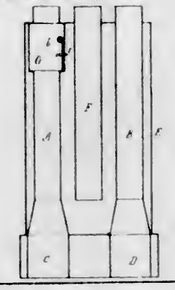
5. The combination, with the top and sides of the shield, of the slide, when the latter is of such length and is so placed as to act as a stop, substantially as set forth.

195,381. PROCESSES OF CHLORINATING ORES. J. Howell Mears, Philadelphia, Pa. [Filed July 30, 1877.]

In treating ores, the process of chlorination, consisting in mixing the ore with lime and water in air-tight tanks, introducing chlorine gas thereinto while in a state of agitation, then adding acid, and again agitating the mass, whereby chlorine gas is evolved in the mass of ore under pressure, substantially as and for the purpose set forth.

195,382. CHIMNEYS. Patrick Mihan, Cambridgeport, Mass. [Filed Sept. 7, 1877.]

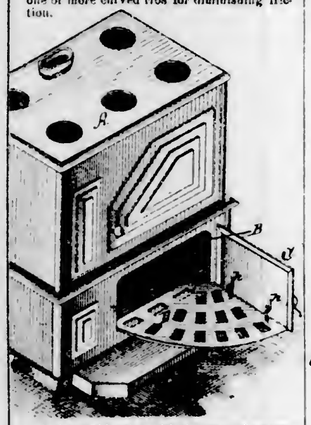
Brief.—The damper at the top of flue C being closed, the smoke will pass from that flue through the opening *f*, and encircle the flue D, which may be for either smoke or air, and will finally escape through flue F.



The combination of the case E and its ejection-pipe F with two or more discharge-pipes, A B, of a chimney, and with a damper, *a*, and side opening *f*, arranged in one of the said pipes A B, all being substantially as and for the purpose and to operate as set forth.

195,342. COOKING STOVES AND RANGES. I. T. Montross, Peekskill, N. Y. [Filed Aug. 27, 1877.]

Brief.—Opening and closing the oven-door slides the segmental shelf along the bottom of the oven-chamber. The shelf has a stop to prevent being entirely withdrawn from the oven, and on the bottom it is provided with one or more curved ribs for diminishing friction.

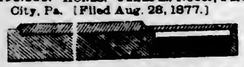


1. In combination with the oven of a stove and the door thereof, a segmental shelf attached to the door, and constructed and adapted to be automatically moved by the door in a horizontal plane on the bottom of the oven-chamber, substantially as shown.

2. In combination with the oven of a stove and the door thereof, a segmental shelf, D, attached to the door, and having at one of its outer corners a projecting stop, F, said shelf being automatically moved in the arc of a circle on the bottom of the oven-chamber, and the stop serving to engage with the casing of said oven, substantially as shown.

3. In combination with the segmental sliding shelf, the curved ribs or beads on the bottom thereof, for the purpose of diminishing the friction of said shelf against the bottom of the oven, substantially as set forth.

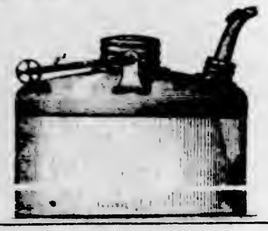
195,344. HONES. Julius A. Nober, Parker City, Pa. [Filed Aug. 26, 1877.]



In a hone or an abrading instrument, a glass plate coated with a solution of soapstone and water, as and for the purposes set forth.

195,353. INCASED GLASS VESSELS. D. W. Norris, Elgin, Ill. [Filed July 23, 1877.]

Brief.—An incased glass vessel with elastic metallic rim of various styles, extending under the bottom as a flange. Casing is paper or metal, or both. May pad between the vessel and the covering. A ground glass stopper may be used.



1. An incased glass vessel for containing and transporting liquids, having an elastic metallic rim extending under the edges of the bottom, for the purpose of furnishing a support for the vessel without excluding light through the bottom when the incased vessel is raised, substantially as described.

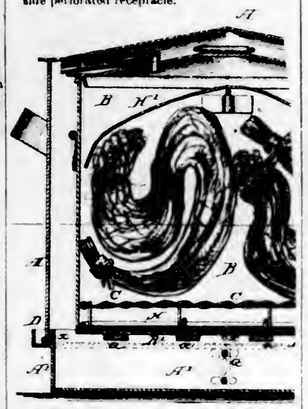
2. The combination of a glass vessel, paper side case, and metal top covering, substantially as described.

3. In combination with an incased glass vessel, a glass neck or collar around the supply or discharge orifice, having external screw-threads, a metal covering around the periphery of the collar, and having screw-threads and a screw cap, ring, or nozzle adapted to overlapping the metal covering, substantially as described.

4. In an incased glass vessel, the combination of the lifting-bail or handle and the inclosing case with a screw-neck, and a cap or ring screwing or otherwise secured around said neck, and lapping over the top covering, whereby in lifting the vessel the whole or a portion of the weight is supported by the screw-neck, substantially as described.

195,356. APPARATUS FOR COLORING TOBACCO-LEAVES. E. J. Oppelt, Baltimore, Md. [Filed July 26, 1876.]

Brief.—The outer case is water-seated to the lower tub, and can be readily set over an inside perforated receptacle.

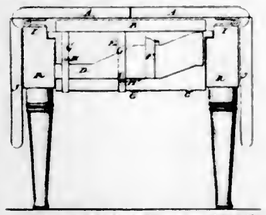


1. The removable inside box B, with a cover and perforated bottom, in combination with a removable box, A, and tub A', substantially as and for the purpose set forth.

2. The inside box, provided with a cover and perforated bottom, in combination with a tub, A', and a water-sealed box A, substantially as and for the purpose set forth.

3. The combination of the steam tub A', having the grooved seat D around its upper edge, the removable outer vessel A, and the interior steam box or vessel B, all constructed substantially as and for the purposes herein set forth.

195,367. EXTENSION-TABLES. F. R. Osgood, Codillac, Mich. [Filed May 3, 1877.]



1. The central pieces C, connected together by the top B, and provided with the straps G, carrying the rollers H H', in combination with the leg frames R S, having arms D, provided with inclined planes *s*, substantially as described, and for the purpose set forth.

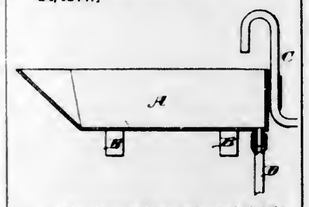
2. The central pieces C, connected by the top B, and provided with the pins E and straps G, carrying the rollers H H', in combination with the leg frames R S, having arms D, provided with inclined planes *s*, substantially as described, and for the purpose set forth.

3. The leaf A, hinged to the legs R, and having the leaf J hinged to it, substantially as described, and for the purpose set forth.

4. The combination of the top B and hinged leaf A with the leaf J, hinged to the latter and provided with the support L, whereby when the table is extended the leaves are braced and held securely in contact, substantially as described.

5. The legs R, connected by the longitudinal bars S, and provided with the arms D, in combination with the diagonal braces *a*, substantially as described, and for the purpose set forth.

195,368. INSULATED BATH-TUBS. William J. Patton, Little Rock, Ark. [Filed July 24, 1877.]

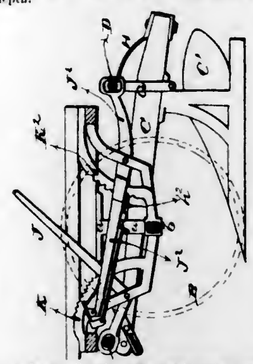


1. An insulated bath-tub, connected with the supply by a pipe made of insulating material, or a pipe insulated from all external objects, substantially as described, and for the purposes set forth.

2. An insulated bath-tub, connected with the supply by a pipe made of insulating material, or a pipe insulated from all external objects, and provided, also, with an insulated escape-pipe, substantially as described, and for the purposes set forth.

195,369. SULKY-PLOWS. Joseph M. Payne, Dallas, Tex. [Filed July 28, 1877.]

Brief.—The frame is rectangular, and supported on two wheels. The plow, which may be of ordinary construction, is placed outside of the right-hand wheel, and is held in place by two horizontal adjustable levers, one of which is pivoted to the forward end of the beam. The other embraces the rear end of the beam, and by its adjustment the operator from his seat can "wing" the plow or regulate its depth.

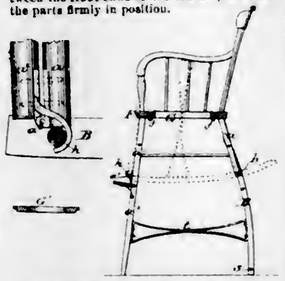


1. In a sulky-plow, the combination, with the plow and frame, of the pivoted connecting-bars D D', having holes *x* in their inner ends for adjusting the plow at different distances from the wheels, substantially as herein set forth.

2. In a sulky-plow, the combination of the pivoted connecting-bars D D', with adjusting-holes at their inner ends, and a plow, with its beam at their outer ends, and the independent levers J J', with pawls and ratchet segments K K', substantially as and for the purpose set forth.

195,390. CONVERTIBLE CHAIRS. C. G. Pease, Boston, Mass. [Filed Apr. 27, 1877.]

Brief.—When the rockers and the jointed legs are adjusted as extensions of the legs of the chair, they are connected by braces, rigidly secured to the rockers, and detachably connected to the jointed legs by fastening devices and pins, to prevent vertical or lateral movement. When the chair is converted into a rocking-chair, hooks on the hinged extensions engage with a transverse stretcher between the front ends of the rockers, and lock the parts firmly in position.



1. A four-legged chair having rockers which are jointed or pivoted to two of the legs, and are adapted to be converted into extensions thereof, the other two legs being adapted to be correspondingly extended, substantially as set forth.

2. In combination with a chair having jointed legs $a a^1$, the rockers B, jointed to the opposite legs, and adapted to be detachably connected to the jointed legs $a a^1$ in either of two positions, as set forth.

3. In a combined rocking and high chair, the hinged extensions of the front legs, adapted to be turned upwardly, and at the same time secure the front ends of the rockers, as set forth.

4. The pivoted rockers B, having the round or stretcher *s*, combined with the legs *a a* and the hinged extensions a^2, having the hooks h h, as set forth.

5. The pivoted rockers B, having the braces *t*, combined with the hinged extensions a^2, having fastening devices *e* adapted to secure said braces to the extensions a^2, as set forth.

6. The extensions a^2, having pins *p*, combined with the braces *t*, having holes *p'*, as set forth.

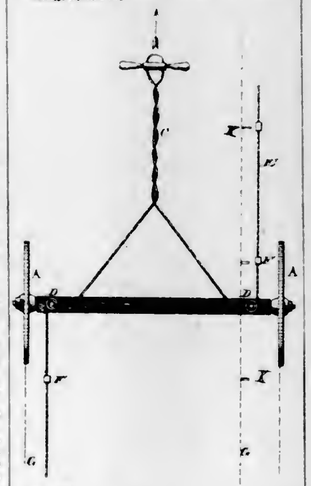
7. The detachable seats G G', adapted to be used interchangeably, in combination with the seat-frame F, adapted to receive either seat singly, and provided with catches or fastening devices *f* for securing the seats, substantially as and for the purpose set forth.

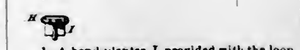
195,391. DEVICES FOR RINGING BELLS. E. Perry, Austin, Tex., assignor of one-half his right to Fred Stersing, same place. [Filed Aug. 13, 1877.]

1. The pivoted castings d, having pivoted latches *k*, provided with hooks *u*, in combination with the pivoted rods *f*, having studs *f'* and brackets D, having studs *b'*, substantially as and for the purpose herein shown and specified.

2. The improved bell-striking mechanism herein described, consisting, essentially, of scaffolding B, having brackets D, provided with studs *b'*, pivoted castings d, having pivoted hooked latches *k*, pivoted rods *f*, having studs *f'*, connecting-rods *g*, crank-shaft C, springs E, and rubber cushions i, all combined, arranged, and operating substantially in the manner and for the purpose herein shown and specified.

195,392. MARKERS FOR HAND CORN-PLANTERS. Byron Phelps, Decatur, Ill. [Filed Aug. 9, 1877.]





1. A hand-planter, I, provided with the loop or eye H for the cord or marker E, substantially as described.

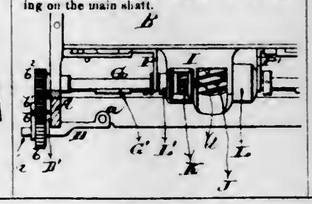
2. The combination of a hand-planter with a check-row cord or marker, substantially as and for the purpose set forth.

3. The marker-truck composed of the main frame, bar, or axle B, provided with transferring pulleys D D, carrying wheels A A or their equivalent, and tongue C, separate from and independent of any seeding devices, for laying and transferring the check-row cord or marker, and adapting the latter to be used in connection with a hand-planter, as described.

4. The combination of a cord or marker truck, a check-row cord or marker, and a hand-planter, substantially as described.

195,393. GRAIN AND SEED DRILLS. Elwood Phillips and Thomas G. Dunbar, Centreville, Ind. [Filed June 30, 1877.]

Brief.—In a double feed-box is mounted a double feed roller, each of which is provided with an adjustable case, one adjustable with the main shaft and the other on a shifter sliding on the main shaft.

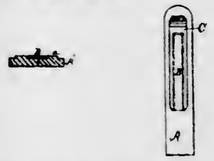


1. In a rocking-chair, the combination of the pivoted back C, the levers D D, and the lazy-tongs H H, supporting the foot-boards, all constructed and arranged substantially as shown, and for the purposes herein set forth.

2. The combination of the lazy-tongs H H, foot-boards I I, center-bar J, having slots *e e*, and the connecting-screws *d' d'*, substantially as and for the purposes herein set forth.

3. The combination of the pivoted back C, guide-bars E, loops or castings *b*, the rod *d*, and eccentrics G, with cranks G', substantially as and for the purposes herein set forth.

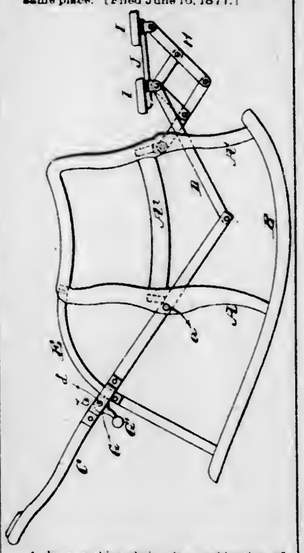
195,394. ORGAN-REEDS. John Pim, Erie, Pa. [Filed May 11, 1877.]



1. As a new article of manufacture, a reed for the reed-board of a cabinet-organ or similar reed instrument, the body portion or frame of which is made of cast metal, and is provided with a throat or opening for the reed, substantially as described, and for the purposes set forth.

2. As a new article of manufacture, a reed for a musical instrument, the body portion or frame of which is cast upon the tongue, substantially as herein set forth.

195,395. RECLINING ROCKING-CHAIRS. W. D. Pope, Gadsden, Ala., assignor of two-thirds his right to Rodolphus O. Randall, same place. [Filed June 16, 1877.]



1. In a rocking-chair, the combination of the pivoted back C, the levers D D, and the lazy-tongs H H, supporting the foot-boards, all constructed and arranged substantially as shown, and for the purposes herein set forth.

2. The combination of the lazy-tongs H H, foot-boards I I, center-bar J, having slots *e e*, and the connecting-screws *d' d'*, substantially as and for the purposes herein set forth.

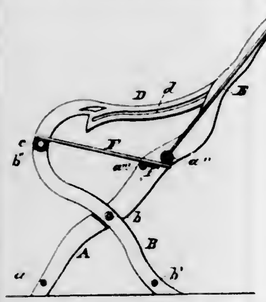
3. The combination of the pivoted back C, guide-bars E, loops or castings *b*, the rod *d*, and eccentrics G, with cranks G', substantially as and for the purposes herein set forth.

195,396. FOLDING CHAIRS. Edwin S. Pratt, Buffalo, N. Y. [Filed Aug. 6, 1877.]

1. In folding chairs, a seat composed of a series of slats secured together transversely, as described, said seat being pivoted to the chair-frame, and adapted to move rearward and downward over a guide when the chair is folded together, substantially as hereinbefore stated.

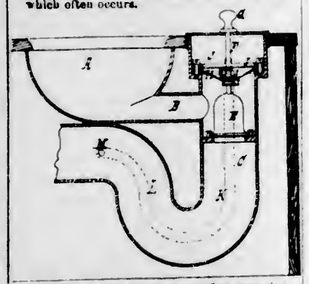
2. The combination, with the standards A and legs B, pivoted together by the bolts *b*, of the bolt *b''*, hollow cylinder C, slats F, transverse piece *f*, and the round *a'''*, as specified, for the use and purpose stated.

3. The folding chair herein before described, consisting, essentially, of the connected standards A, legs B, slotted arms D secured to the legs B by the bolt *b''*, and to the standards A by the rosette-pins *d'*, hollow round C, with the slats F arranged to rest upon the round *a'''*, and the chair-back E, the whole being constructed and arranged to operate substantially as and for the use and purpose specified.



198,397. WATER-CLOSETS. Henry C. Price, New York, N. Y. [Filed Sept. 7, 1877.]

Brief.—The trap has a supplemental trap-pipe, to accommodate the accidental overflow, which often occurs.



1. The supplementary or overflow trap pipe L, arranged, substantially as described, in combination with the main trap K of a water-closet, substantially as set forth.

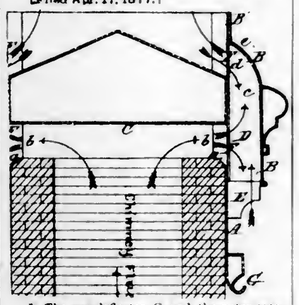
2. The flexible diaphragm H, attached to the stem of the valve E, in combination with the traps K and L, or either of them, substantially as described.

198,398. TIPS FOR BOOTS AND SHOES. Saml. Prior, Trenton, N. J. [Filed Apr. 10, 1877.]



The above-described process of making shoe-tips, consisting of the following steps: subjecting the tip-blank to a bath of sulphuric acid, a second bath of potash and soda, then cleansing in water, skiving the blank extremities, as shown, forming the single compressed round top edge, and finally crimping the tip, the whole being done so as to preserve an equal cross measurement through all the different parts of the tip, substantially as described.

198,399. CHIMNEY-TOPS. William Quayle Peoria, Ill., assignor of one-half his right to Cutler, Sandmeyer & Co., same place. [Filed Apr. 17, 1877.]

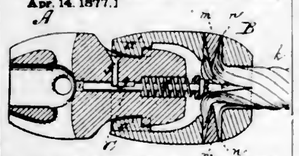


1. The cap-deflector C, and the outer case B, constructed and arranged with reference to the outer wall of the chimney and its flue, to form the vertical side flues *c* D, the cap-outlets *d*, and the main flue outlets *b*, of equal area with the chimney-flue, said outlets *b d* being in line with the outside of the chimney-wall, as shown and described.

2. The telescoping part A, having the inward-bent flange *a*, in combination with the deoin-brackets E, and the angle-irons F, as and for the purpose herein set forth.

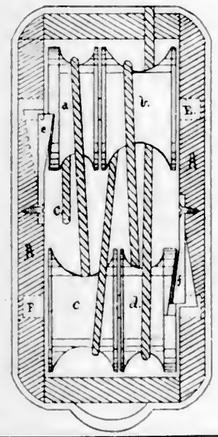
3. The combination, with the wall part A of a chimney-cap, of the gutter G, having the open ends *f*, as and for the purpose herein set forth.

198,400. CHAIN AND BELT COUPLINGS FOR RAILROAD-CAR BRAKES. Edmond O. Richard, St Roche, Quebec, Canada. [Filed Apr. 14, 1877.]



1. A coupler for chains or ropes consisting of the male and female coupling-heads A B, having, respectively, the spurred offsets *c' c'* and notched offsets *a' a'*, adapted to interlock the one with the other, substantially as specified.

2. The female chambered head B, having spaced offsets *b' b'* provided with notches *b*, in combination with the male head A having spaced offsets *c' c'* and spurs *d*, a bolt, C, and a retainer-spring, *s*, substantially as specified.

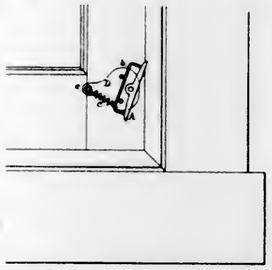


198,401. FIRE-ESCAPES. John Riesdorph, Burlington, Vt. [Filed June 16, 1877.]

The pulley-block A, in combination with the sheaves *a b c d*, the springs *e f*, and the rope C, arranged substantially as and for the purposes described.

198,402. SASH-FASTENERS. M. H. Rison, Paris, Tenn. [Filed Aug. 15, 1877.]

Brief.—A suitable plate carries a centrally-pivoted pawl, to the back of which is attached a parallel wire with right-angled ends, and a spiral spring loosely working thereon, but rigidly attached to the plate, serving to tilt or reverse the pawl, the construction permitting the device to adjust itself when the sash is raised, and, when lowered, to lock the sash down.



The sash support and fastener, consisting of the centrally-pivoted pawl A, with parallel wire *b*, spring *s*, and plate D, arranged and operating substantially as shown and described.

198,403. WRENCHES. Laurel E. Robinson, Mount Vernon, Ohio. [Filed June 27, 1877.]

Brief.—One chamois-covered hook is set over a spoke, and wrench socket put over the axle-nut; the center bar is sprung toward the wheel, the other hook put on, when the wheel is revolved.

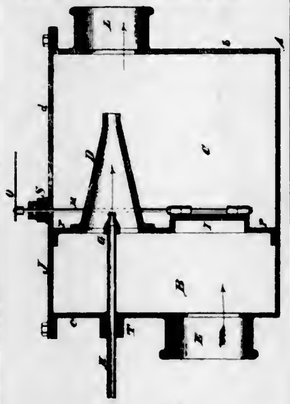


The herein-described wrench, consisting of the elastic piece A, provided with cap B and fastening devices, whereby it is adapted to be fastened to the spokes of a wheel, and hold the cap in position over the nut, substantially as and for the purpose specified.

198,404. GAS-EXHAUSTERS. Richard Salter and W. J. Salter, Covington, Ky. [Filed June 13, 1877.]

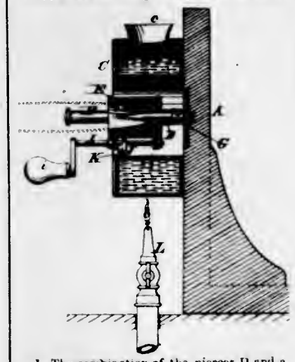
1. The box A, divided into two chambers, B and C, by a vertical partition, from which projects a cone, D, in combination with the steam-pipe H and nozzle G, substantially as and for the purpose herein set forth.

2. The box A, having inlet E and outlet L, and divided into chambers B and C by a partition, P, having an opening controlled by a valve, I, and provided with a cone, D, projecting into the chamber C, in combination with the steam-pipe H and nozzle G, all substantially as and for the purpose described.



198,405. CIGAR-TIP FORMERS. J. Schalscha, Memphis, Tenn. [Filed Feb. 3, 1877.]

Brief.—The tip is pierced and formed in the heated former or mold, and when finished is stripped automatically from piercer and mold.



1. The combination of the piercer D and a sliding former pressed out by a spring or springs, and held in its inner position by a lock or stop, substantially as described.

2. The combination of the sliding former E, water-chamber C, piercer D, and lamp or heater L, substantially as and for the purpose specified.

198,406. PLOWS. Jos. Seaman, Chicago, Ill. [Filed Apr. 13, 1875.]

Brief.—A wooden plug is used in securing the point. The colter-share runs forward of the colter. The bearing-wheels and colter-share are secured and adjusted by the same devices. The tension-rod that secures the point has both vertical and horizontal adjustment.

1. The frame A^1, having the elongation d^4 and brace or standard d^1, and constructed with the longitudinally-mortised lateral projection or shoulder a^4, adapted to receive the vertically and laterally adjustable share-lever B, and allow the same vertical and lateral movement for adjusting the share vertically or laterally, substantially as shown and described.

2. The combination, with the frame A^1, having the longitudinally-mortised shoulder or projection a^4, of the laterally and vertically adjustable share-lever B, supporting the share A, and coupled to the frame at its rear end by the coupling *d*, substantially as shown and described.

3. In combination with the frame A^1, having the mortised shoulder a^4, the share-lever B, having the head-piece b', and made in two separable sections, coupled at B', substantially as shown, and for the purpose specified.

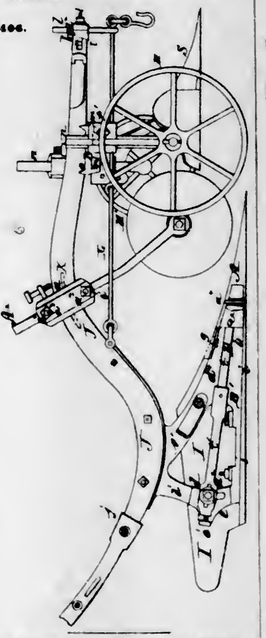
4. The share-lever or supporting-bar B, having the head-piece b' fitting a socket in the share, and provided with a wooden plug inserted in the bolt-hole for the reception of the share-bolt a^2, substantially as described.

5. The horizontal wheel-slides *m m* and vertical wheel-standards *n n*, beveled as shown, in combination with the beveled recessed block O and the correspondingly-beveled recessed blocks or keys secured by bolts or pins to the beam J and slide-heads p', respectively.

6. The combination, with the land-wheel M', of the skim colter S, arranged in front of said wheel, and attached to the wheel-standard, substantially as described and shown.

7. In combination with the draft-rod L and clevis-pin *l*, the segmental slotted and beveled head-piece *l'*, slotted bolt *l''*, and adjustable clamping-blocks *P P*, substantially as shown and described.

198,406.



198,407. MACHINES FOR OPENING ENVELOPES. Alonzo B. See, Yonkers, N. Y., assignor of one-half his right to N. P. Otis, same place. [Filed July 2, 1877.]

Brief.—Envelopes are placed upon the lower knife C, with one edge abutting against the gage D of the attached knife C', after which the handle or knob L is struck a quick blow, to cause the knife and its gage to descend, thereby severing the bight or folded ends only without injuring the contents. Bar I, being elastic and bearing upon the plate D, easily slips laterally on said plate. Thus any lateral motion of the knob under the hand of the operative does not effect the proper cutting relation of the shear-blades, as would be the case were the knob directly attached to the plate D.

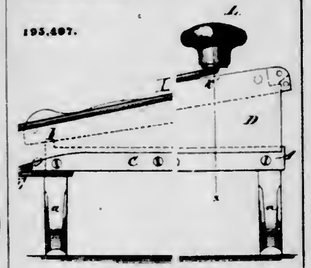
1. In a machine for opening envelopes, the combination of the gage-plate D and the shear-blade C', directly attached to one side of said gage-plate, the latter forming an abutment against which the edge of the envelope bears, substantially as described, whereby a narrow strip can be cut off from the edge of the envelope when the gage and shear-blade are depressed, as set forth.

2. A machine for opening envelopes, embodying in its construction the combination of a frame, A, the stationary shear-blade C, the gage-plate D, and the shear-blade C', directly attached to one side of said gage-plate, the lower portion of the latter forming an abutment against which the edge of the envelope bears, substantially as described, whereby, when the gage-plate and its shear-blade are depressed, a narrow strip can be severed from the edge of the envelope, as set forth.

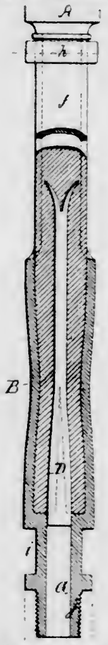
3. The combination, with a stationary shear-blade and a movable gage-plate and attached shear-blade, of a spring applied to operate upon the movable gage-plate for pressing it toward the face of the stationary shear-blade, substantially as and for the purpose described.

4. The combination, with the oscillating gage-plate D, pivoted to the bed-plate, and carrying the shear-blade C', of the knob-bar I, resting upon the said gage-plate, for operating the same, substantially as and for the purpose set forth.

198,407.



198,408. JOINTS FOR SUCKER-RODS. John Shaw, Oil City, Pa. [Filed Aug. 20, 1877.]



The socket B, contracted at *c*, and having a hollow projection, G, the rod A, adapted to the socket and severed at the end, as specified, and the taper pin D, all being combined substantially as set forth.

198,409. FURNACES FOR BURNING COAL-BLACK UNDER STEAM-BOILERS, &c. Wm. Silvester, Pittsburg, Pa., assignor of one-half his right to W. Walton, same place. [Filed Mar. 9, 1877.]

Brief.—Air is injected into the lower chamber, and forced up under pressure through the series of tubes communicating with the fire-grate.

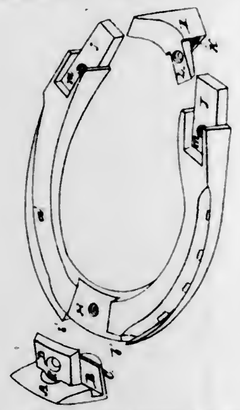
195,409.



1. In a fire-grate for burning slack coal, the combination of the bottom *b*, lined with fire-bricks, and the blast-pipes *a a a a* fixed therein, as described, and for the purpose set forth.

2. In a fire-grate, the blast-chamber C and pipes *a a a a*, in combination with the bottom piece *b*, as described, and for the purpose set forth.

195,410. HORSESHOES. Thomas Skelton, Milwaukee, assignor of one-half his right to Chas. Koehm, Paynesville, Wis. [Filed Feb. 5, 1877.]



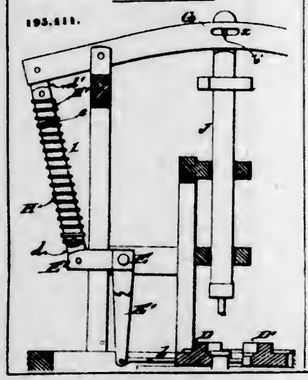
1. The shoe A', having bearings *b' b'*, dovetail mortise H, mortise *m m*, tenon J, and screw hole F, substantially as shown and described.

2. Toe-calks A, having dovetail lip or tenon D, screw-hole F, mortise B, and lip C, substantially as shown and described.

3. Heel-calks I, having mortise K, lip or tenon L, and screw-hole F, substantially as shown and described.

4. The combination of the shoe A', calks A, and calks I, secured by screws G, all substantially as shown and described.

195,411.

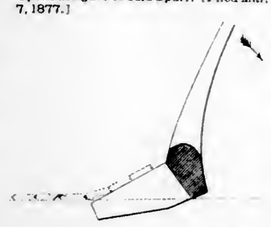


195,411. MACHINES FOR PRESSING RINGS ON GLASSWARE. Joseph Slim, Lockport, N. Y. [Filed Aug. 18, 1877.]

1. The combination of a stationary mold, a movable mold, and a reciprocating plunger with die, the movable mold and plunger being operated simultaneously by one stroke of the lever, substantially as and for the purposes set forth.

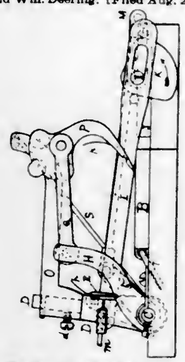
2. The combination of the mold D', rods *b*, rocking shaft E with arms E' E², the lever G, and the flexible connection H H' I, constructed substantially as and for the purposes set forth.

195,412. CROW-BARS. Thomas H. Spurr and Wm. Upton, Philadelphia, Pa.; said Upton assignor to said Spurr. [Filed Mar. 7, 1877.]



The within-described crow-bar, bent and forked at the lower end, and adapted to be used as set forth.

195,413. GRAIN-BINDERS. J. F. Steward, Plano, Ill., assignor to Elijah H. Gammon and Wm. Deering. [Filed Aug. 24, 1877.]



1. The bar O, given a rising-and-falling movement, in combination with the sliding wire-carrier P, for the purpose specified, substantially as described.

2. In a grain-binder, the wire-carrier P, capable of a swinging adjustment in the direction of the length of the grain, in combination with a fixed receiver, substantially as described.

3. The twisting mechanism, in combination with the wire-carrier, capable of independent adjustment in the direction of the length of the grain, operating to return the point of the wire-carrier to the same relative position to the fixed twister, whatever may be the amount or direction of said adjustment, as shown and described.

4. The vibrating arm D, with the twisting mechanism mounted thereon, in combination with bar O and wire-carrier P, substantially as described.

5. The combination of the collar R and rod S with swinging bar O, for the purpose of adjustment, as described.

6. The bundle-supports T T, provided with teeth, as shown, for the purpose described.

7. The arm H, operating as described, for forcibly ejecting the bundle of grain from the machine.

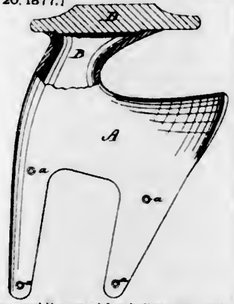
8. The combination of the cam K, crank M, connection L and N, with the cranks E and G, for producing the timed movements of the arms D and H, for the purpose described.

195,414. BOOTS AND SHOES. Geo. C. Steinhauer, San Francisco, Cal. [Filed Aug. 10, 1877.]



A shoe having the widened and extended foxing, as shown, provided with gore-pieces *a a* inserted on each side of the lining thereof, said gore-pieces and foxing being adapted to be folded inwardly on each side of the foot, and secured by a strap and buckle, substantially as described.

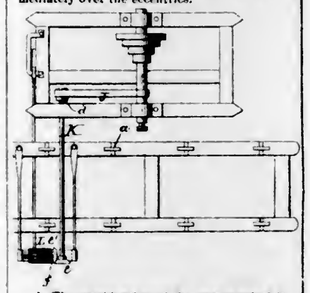
195,415. SADDLE-TREES. Henry C. Still and Joseph R. Still, Austin, Tex. [Filed Aug. 20, 1877.]



The pommel H, cast with a hollow neck and opened end, and formed in one piece with the fork A from malleable cast-iron, in combination with the separately-attached cap D, substantially as and for the purpose described.

195,416. CIRCULAR-SAW MILLS. Frederick Strobel and Cicero M. Idleman, Marion, Ohio. [Filed Aug. 2, 1877.]

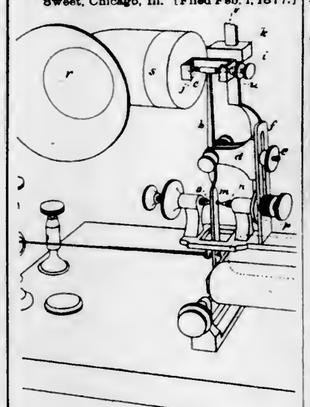
Brief.—The head-setting mechanism is operated from the driving-shaft connected to the saw-mandrel, and is thrown in and out of gear with such operating mechanism by means of eccentrics actuated by a lever-connection and a long cogged roller, mounted on a plate immediately over the eccentrics.



1. The combination of the saw-mandrel B, belt J, shaft K, gears *e e'*, rod *f*, cogged roller L, and cog-wheel N on the shaft I, and a mechanism for intermittingly throwing the roller L in gear with the cog-wheel N, substantially as and for the purposes herein set forth.

2. The combination, with the plate M, carrying the cogged roller L, of the shaft A, with eccentrics *i i* and crank *k*, the rod O and lever P, with a mechanism for communicating motion from the saw-mandrel to the roller L, substantially as and for the purposes herein set forth.

195,417. TELEGRAPH-SOUNDERS. Daniel E. Sweet, Chicago, Ill. [Filed Feb. 1, 1877.]



1. The hammer *b*, constructed and supported substantially as described, in combination with the armature *m* and pins *i* and *j*, the whole constructed for the purpose of enlarging the movement of the striking parts of a telegraphic instrument, substantially as described.

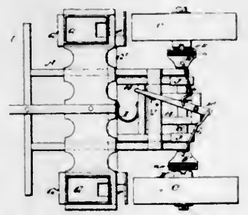
2. The sounder constructed with the tube *r*, made with the flaring opening, the gong section *s*, and the screws *i* and *j*, all constructed and combined substantially in the manner and for the purpose herein set forth.

3. The combination of the hammer *b*, sliding block *d*, with binding-screw *e*, slotted plate *f*, standard *q*, with screw *s*, binding-screw *p*, and armature *m*, constructed substantially as described, and for the purpose set forth.

4. The combination of the sounder *r s*, standard *v*, hammer *b*, and armature *m*, substantially as described, and for the purpose herein set forth.

195,418. CORN-PLANTERS. Enoch P. Terrell and John Foos, Bellefountaine, Ohio. [Filed May 26, 1877.]

Brief.—The sliding frame carrying the seed-slide is forced forward by cams on the axle of the bearing-wheels, and retracted by a suitable spring.

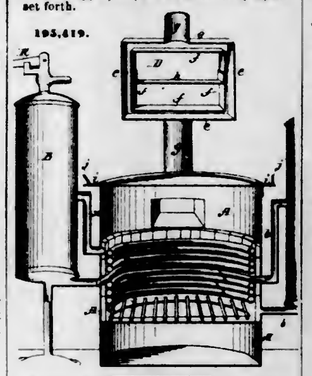


In a corn planter, the combination of the horizontal sliding frame H, carrying the metal-lined horizontal slides G', having apertures *e*, with the slotted seed-boxes G, spring I, axle B, carrying the loose driving wheels C C, cams J J, and clutches D D, connected by the rods *b b* with the lever D², all constructed, arranged, and operating in the manner and for the purpose set forth.

195,419. COMBINED STEAM-DRUM AND COOKING APPARATUS. Hermann Tillack, New York, N. Y. [Filed July 30, 1877.]

The combination of the two distinct coils of pipe *x x* and *b b*, one above the other, in the furnace A, the hot-water cylinder C, connected with the lower, and the steam-cylinder B with the upper, coil, all as and for the purpose set forth.

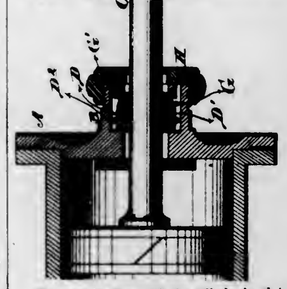
195,419.



195,420. SOLUTIONS FOR PRESERVING MEAT. P. Toninetti, Hamburg, Germany. [Filed July 7, 1877.]

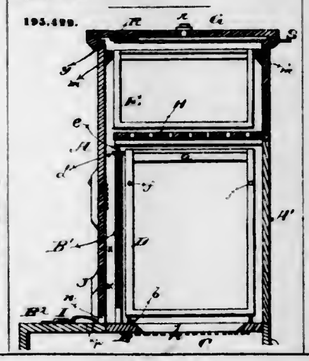
The meat-preserving solution consisting of bi-borate of soda, acetate of soda, borate of soda, chloride of sodium, nitrate of potash, acetate of ammonia, crystallized thymic acid, acetate of alumina, acetate of baryta, and water, in or about the proportions herein described and set forth.

195,421. PACKING FOR PISTON-RODS. F. D. Toucey and E. F. Scallen, Minneapolis, Minn. [Filed June 30, 1877.]



The combination, with the cylinder-head A, box B, and piston-rod C, of the L-shaped perforated sectors D and sectors D', having pins *e*, and arranged to break joints with each other, spring D², male ring G, with holes *a'*, female ring G', and cap H, as and for the purpose set forth.

195,422.



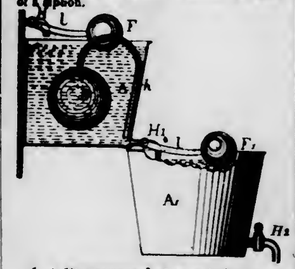
195,422. BEE-HIVES. James F. Van Horn, Corsicana, Tex. [Filed July 28, 1877.]

1. In a bee-hive, the frame-board B', attached to the sliding bottom B, and provided with pins *c* on its upper edge, in combination with the frames D, having the eyes *d*, pins *f*, and metal points *h*, and with the rear door A' opposite the bee-entrance *n*, substantially as described, and for the purpose set forth.

2. A cutter, K, arranged to slide or be moved close to the under side of the top of a bee-hive, for the purposes set forth.

195,423. LIQUID-FILTERS. Chas. F. Vent, Cincinnati, Ohio. [Filed Mar. 1, 1877.]

Brief.—The filter is composed of an outer perforated shell containing a layer or layers of filtering material, and a central receptacle for receiving the purified liquid. The liquid is drawn from the central reservoir by means of a siphon.

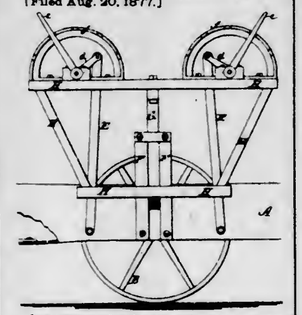


1. A filter composed of an exterior porous or perforated vessel, containing the filtering material, and a central interior vessel for receiving the filtered liquid, in combination with a siphon for drawing the filtered liquid from said central vessel, substantially as specified.

2. The combination of filter, siphon, faucets, vessel A, and float-ball and cock, shown in Fig. 1, for the purpose set forth.

3. A filter composed of an exterior porous or perforated vessel, containing the filtering material, and a central interior vessel for receiving the filtered liquid, in combination with means tending to produce a vacuum in the central receiving-vessel, substantially as specified.

195,424. GRAIN AND GRASS-SEED HARVESTERS. John H. Walton, Germantown, Ky. [Filed Aug. 20, 1877.]



In a grass-seed and grain stripping machine, the seed receptacle carrying the reel, and having the fixed vertical guide-bars F, the connecting rods, the rock shafts, the adjusting and locking levers, and fixed racks, the bent axle, and the frame H, supported upon and rigidly attached to said axle, all combined as shown and described, whereby the seed-receptacle may be adjusted vertically and held locked in any adjustment without changing its relation of parallelism with the tongue, substantially as shown and described.

195,425. LEG AND FOOT RESTS. T. Weddle, Brooklyn, N. Y. [Filed Feb. 7, 1877.]

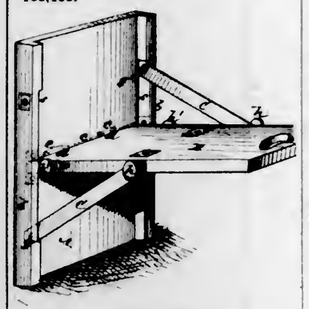
1. The combination of the standard A, having sides *b b* and mortises *c*, and the shelf B, fitted between said sides, and provided with tenons *d d*, substantially as and for the purposes herein specified.

2. The combination of the hinged straps D with the sides *b b* of the standard A, the screws or removable pins, and the shelf B, constructed to fit within the sides *b*, and to be directly supported by the standard, essentially as described.

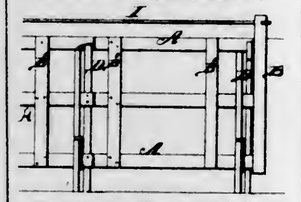
3. The combination of the pivoted braces C and screws or removable pins *k* with the shelf B and its supporting and receiving standard A, having sides *b b*, substantially as specified.

4. The combination of the hinged straps D, the pivoted braces C, the screws or pins *k k'*, the standard A, having sides *b b*, and the shelf B, constructed to connect and enter within the standard, substantially as shown and described.

195,425.



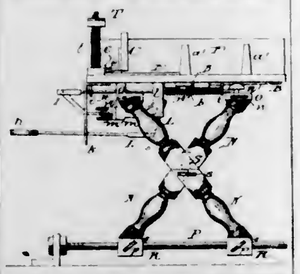
195,426. BOARD FENCES. L. F. Wilder, Sumner, Mich. [Filed July 28, 1877.]



The overlapping fence-panels A A, provided with the central vertical boards B' and end vertical boards B, extending above the panels and connected by a removable wire, I, at their upper ends, in combination with the cross-stakes D D and rod G', bent at its middle, and provided with hooked ends, substantially as described, and for the purpose set forth.

195,427. AUTOMATIC RECEIVING-TABLES FOR PRINTING-PRESSES. M. D. Wilkins, Bloomington, Ill. [Filed Aug. 20, 1877.]

Brief.—Through slots in the receiving table extend guides, which reciprocate and act on three sides of the paper that is being delivered by the fly, and push it against the adjustable stationary guide. The guides are operated, either directly or by connection with the machine, through the medium of cross-bars and connecting links on the under side of the table.



1. The combination, with the paper-receiving table A, of the automatically-reciprocating and adjustable guides *a'* and adjustable guide C, substantially as and for the purpose specified.

2. The combination, with the slotted table A, having guide C, of the guides *a'*, slides B, arm K, and intermediate mechanism, substantially as and for the purpose specified.

3. The combination, with the guides *a'* and back guide C, of the removable guide F, substantially as and for the purpose specified.

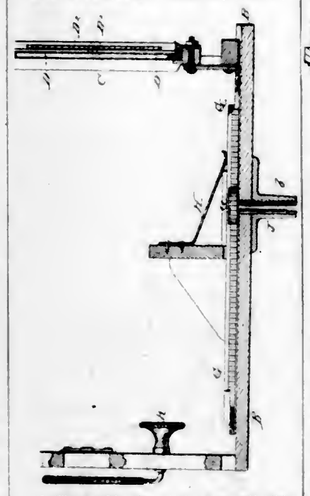
4. The combination of the table with legs N, having guides *o*, and supporting-base having the rods P, substantially as and for the purpose specified.

5. The combination, with the table having the slides O, and the supporting-base having the rods P, of the legs N, having the guides *n o*, substantially as and for the purposes specified.

6. The combination, with the receiving-table, of the spring-bar T, substantially as and for the purpose specified.

7. The combination, with the slides B, having the guides *a'*, connecting and cross-rods of the bar B, and spring B', substantially as and for the purpose specified.

195,428. SOLAR CAMERAS. David A. Woodward, Baltimore, Md. [Filed July 11, 1877.]



1. The combination of the frames C, slide or rack G, pinion *a*, with shaft *b*, and the spring H, as and for the purposes herein set forth.

2. The spring H and rack G, in combination with the cut-off L and knob B, constructed and arranged substantially as and for the purpose set forth.

3. The frame C, rack G, pitman *a*, shaft *b*, and spring H, in combination with the cut-off L, substantially as and for the purpose specified.

4. The frame C, having holder D, in combination with the rack G, spring H, and strips D' D', substantially as and for the purpose set forth.

195,429. COPYING-PRESSES. M. Van Zandt Woodhull, Washington, D. C. [Filed Aug. 11, 1877.]

Brief.—A portable copying-press having wooden upper and lower stationary plates and platen, the plates being connected by corner-rods, which form guides for the platen, the latter being raised and lowered by a revolving nut, having hinged lever-handle secured in upper plate, into which nut takes a stationary screw-spindle upon platen.

1. In a portable copying-press, an upper wooden bearing-plate, a wooden bed-plate, and an intermediate wooden platen, in combination with connecting-rods, one at each corner of the press, which bind together and brace the bed and upper plate, and guide the movements of the platen, as set forth.

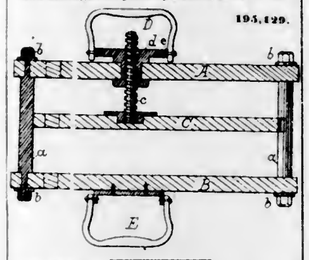
2. The upper wooden plate, the wooden bed-plate, the connecting-rods, one at each corner of the press, and the intermediate movable follower or platen, in combination with the screw fast to the platen, and the revolving screw-nut taking a central bearing in the upper plate.

3. In a letter-copying press, the combination of the upper plate, the revolving screw-nut, and a hinged lever-handle fast to the nut, substantially as and for the purposes shown and set forth.

4. In combination with the revolving screw-nut and its handle, supported by the upper plate, the auxiliary handle attached to the bed-plate, substantially as set forth.

5. The portable copying-press, consisting of the upper bearing-plate, the bed-plate, the intermediate platen and connecting-rods, the screw-spindle, the revolving nuts, and the two hinged handles, these parts being combined and arranged for joint operation, as set forth.

195,429.



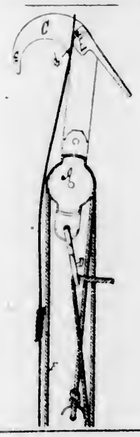
195,430. TOY MONEY-BOXES. Geo. Zuckschwerdt, New York, N. Y. [Filed July 14, 1877.]



1. The combination, in a money-box, of a sheet-metal body having an outwardly-projecting flange or bead on its upper and lower edges, a sheet-metal top, having a downwardly-projecting flange on its outer edge, fitting over the flange on the upper edge of the body, a sheet-metal bottom, having a groove for the reception of the flange on the lower edge of the body, and a screw-bolt for joining the parts together, substantially as and for the purpose described.

2. The combination, in a money-box, of a sheet-metal body, top, and bottom, a screw-bolt for joining the parts together, and a tubular standard, which surrounds the screw-bolt in the interior of the box and supports the top and bottom thereof, substantially as described.

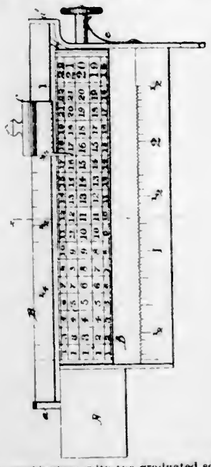
195,431.



195,421. DEVICES FOR TIGHTENING FENCE-WIRE. J. B. Barber, Cresco, Iowa. [Filed July 21, 1877.]

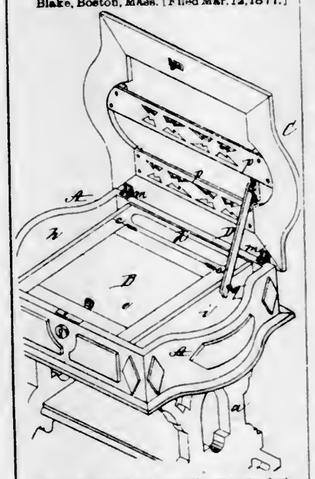
A wire-fence tightener, as herein described, consisting of hooks C C, provided with eccentric levers E E, blocks A A, hook D, and cord F, all constructed to operate substantially as specified.

195,422. SCALE-BEAMS. Heman Benedict and Benjamin A. F. Greer, Mount Vernon, Ohio. [Filed Sept. 20, 1876.]



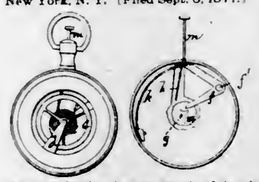
The combination, with the graduated scale-beam B, standards *a a'*, and sliding balance-weight C, having pointer *b*, of the lever-bar A and revolving scale-priced cylinder D, journaled in bar A and standard *a'*, all constructed and arranged relatively to each other as herein shown and described, as and for the purpose specified.

195,423. COMBINED DESK AND TABLE. C. Blake, Boston, Mass. [Filed Mar. 12, 1877.]



As a new article of manufacture, the desk-table described, consisting of the body A, having the compartments *b b*, lid B, pen-rest *d*, prop D, hollow outer lid C, with racks *p p* sunk in the rabbets in said cover, to bring their outer surfaces flush with the surface of the lid, as set forth.

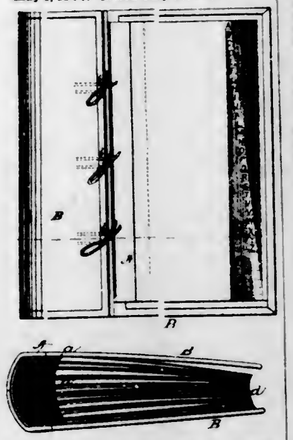
195,424. TOY WATCHES. L. L. Grandperret, New York, N. Y. [Filed Sept. 6, 1877.]



The combination, in a toy watch, of the pin *m*, spring *k*, lever *f*, spur-wheel *g*, balance-wheel *e*, and spring *e*, substantially as and for the purpose described.

REISSUES.

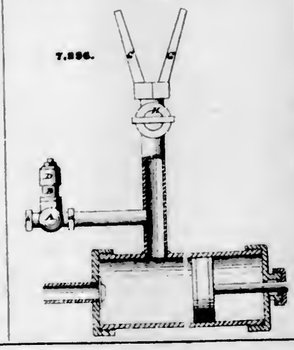
7,885. BINDERS FOR INVOICES. W. P. Bissell, Richmond, Va. Patent No. 100,269, dated May 1, 1877. [Filed July 10, 1877.]



1. As a new article of manufacture, the file herein described, consisting of a stub, A, having the ordinary stub-ends *a*, for the permanent attachment of invoices, bills, or letters, in the usual manner, and the index or lettered leaves *d*, arranged at certain intervals between the stub-ends *a*, so as to assign a sufficient number of said stub-ends to each leaf, as and for the purpose set forth.

2. The invoice, bill, or letter file herein described, consisting of a stub, A, having stub-ends *a* and index-leaves *d* secured at certain intervals between stub-ends, and provided with a cover, B, attached by means of strings, cords, or bands, engaging with loops or rings, as and for the purpose set forth.

7,886.



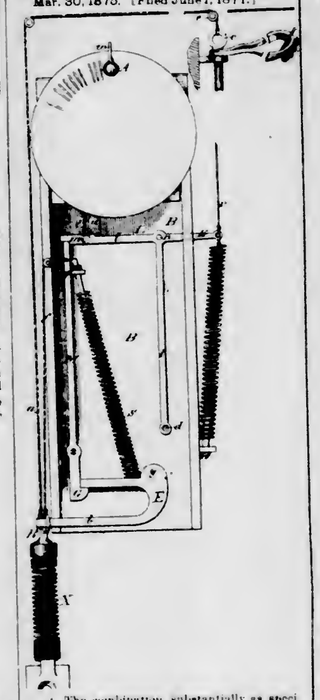
7,887. LINING HOSE AND TUBES WITH INDIA-RUBBER. Jas. B. Forsyth, Boston, Mass., assignor to himself and John H. Cheever, New York, N. Y. Patent No. 79,220, dated June 23, 1868. [Filed July 21, 1877.]

1. The process of lining hose or tubing above described, consisting in first preparing the compound rubber tube with a vulcanized interior and an exterior capable of being softened by heat, next inserting it in the tube to be lined, and, lastly, expanding and heating the lining-tube, so as to soften its exterior and force it into the meshes or pores of the tube to be lined, all substantially as set forth.

2. Hose or tubing made up of a tube of woven fabric or other like material and a prepared compound india rubber tube united together, substantially as set forth.

3. The process above described for coating hose or tubing with vulcanized rubber, both internally and externally, as and for the purpose set forth.

7,888. FIRE-ALARM-TELEGRAPH REGISTERS. Daniel T. Phelps and C. W. Edmonds, San Francisco, Cal. Patent No. 161,544, dated Mar. 30, 1875. [Filed June 1, 1877.]



1. The combination, substantially as specified, with a fire-alarm gong or bell, of a recording apparatus, consisting of a surface for receiving a record, moved by suitable mechanism, and devices for marking thereon, both controlled or released by the hammer of the bell.

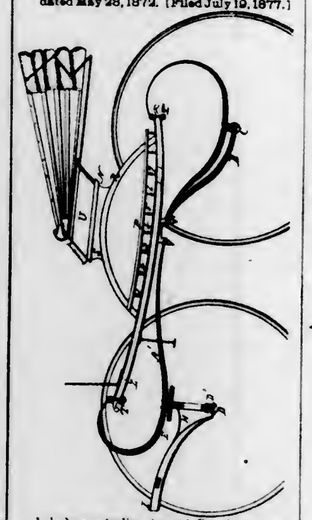
2. In a horse-detaching rig for horses employed in the fire department, the detaching mechanism R X *a c c' c'' f*, in combination with the hook-catch E *b*, bar-catch M G, provided with spring S, and tripping-lever L K fitted with spring T, and bell hammer-connecting wire *v*, substantially as and for the purposes herein specified.

3. The detaching mechanism described, R X *a c c' c'' f*, in combination with the hook-catch E *b*, bar-catch M G, provided with spring S and tripping-lever L *i*, with spring *q* and gong O, hammer-connecting wire *v'*, arranged and constructed as herein shown and set forth, substantially as and for the purposes specified.

4. In a fire-alarm registering device, the marker A, dial D, wires *t u c u*, and pin *p*, on the wheel *h* of the clock-work *h h' h'' h''' F*, in combination with the tripping-lever L K, provided with spiral spring T and connecting-wire *v*, catch-bar M G, with spring S, hook-catch E *b*, and detaching mechanism R X *a c c' c'' f*, substantially as and for the purposes herein set forth and specified.

5. The marker A, dial D, wires *t u c u*, and pin *p* on the wheel *h* of the clock-work *h h' h'' h''' F* or their equivalents, in combination with the tripping lever L *i*, provided with spring *q* and connecting gong O, hammer-wire *v'*, catch-bar M G, with spring S, hook-catch E *b*, and detaching mechanism R X *a c c' c'' f*, substantially as herein specified.

7,889. PLEASURE-VEHICLES. C. W. Saladee, Washington, D. C., assignor to W. W. Grier, Hulton, Pa. Patent No. 127,371, dated May 28, 1872. [Filed July 19, 1877.]



1. In buggy-bodies, the arch R, or its equivalent, in combination with the railing P and sills L, substantially as shown and described.

2. The slatted bottom O and K of the body, when the sills are provided with the railing P, or other appropriate side, substantially as and for the purpose set forth.

3. In combination with the arch R and railing P, the wood panels P', with or without the corresponding panel across the back of the arch, substantially as shown and described.

4. In combination with a slatted-bottom body, the extension sills L, as a substitute for "body-loops," substantially as shown and described.

5. Four C springs, in combination with the body, front spring bar, and hind axle of the vehicle, and with the under brace H, substantially as and for the purpose described.

6. The combination of the arched axle D, thills D', and brace or braces H, substantially as and for the purpose specified.

7,890. PLEASURE-VEHICLES. C. W. Saladee, Washington, D. C., assignor to W. W. Grier, Hulton, Pa. Patent No. 127,371, dated May 28, 1872. [Filed July 19, 1877.]

1. Half-elliptic side springs operated upon a carrier-brace, C, or its equivalent, substantially as and for the purpose set forth.

2. The under-brace H, constructed, applied, and operating in combination with a half-elliptic side or C spring, in such manner that the parallel action with each other shall prevent the rotation of the axles in gearing without perch, substantially as specified.

3. In a no-perch vehicle, two side springs arranged in different horizontal planes, and rigidly secured together at or near a point central between their outer ends, having substantially the same distance between the planes throughout their entire length, and adapted to vibrate in unison with each other, substantially as specified.

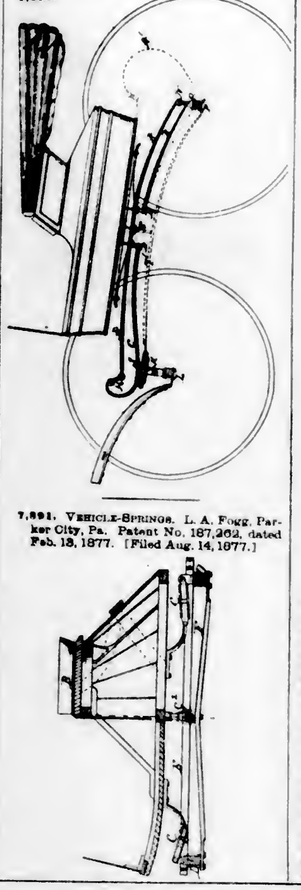
4. In combination with the springs A under-brace B, the braces B', arranged diagonally in front and back of the cross-center of the springs, or to either end from the cross-center of the springs, substantially as shown and described.

5. The shackle-clip P', provided with the bearings N O, substantially as and for the purpose set forth.

6. The clip-yoke E, having ears D formed thereon, substantially as and for the purpose specified.

7. In a no-perch vehicle, two side springs arranged in different horizontal planes, which are substantially parallel throughout, connected centrally, so as to vibrate in unison, and having their outer ends connected to opposite sides of the axle, substantially as and for the purpose specified.

7,891. VEHICLE-SPRINGS. L. A. Fowe, Parker City, Pa. Patent No. 187,262, dated Feb. 13, 1877. [Filed Aug. 14, 1877.]

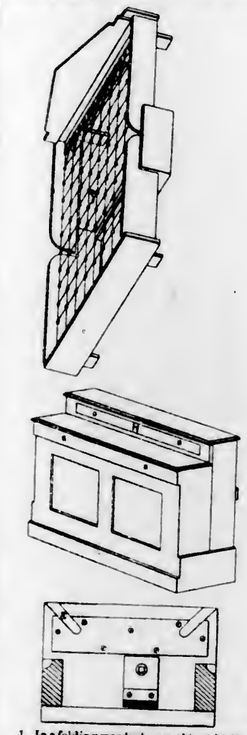


1. The combination, in a vehicle, of the body or bed, the running gear, and interposed compressible boxed springs, connected by suspension-arms or brackets, substantially as and for the purpose specified.

2. The combination of frame E E F', axle D, and rocker D' with the springs C and median brackets, connected by links C', to support a vehicle-body, as shown and described.

7,892. WARDROBE-BEDSTEADS. S. S. Burt, Dedham, Mass. Patent No. 179,513, dated July 4, 1876. [Filed Apr. 21, 1877.]

Brief.—The manner of attaching the flexible and elastic bed-bottom at its ends only to the folding frame or case places it under tension only when the frame is unfolded, and when the frame is folded the bed-bottom is left entirely slack and free to spread apart within the entire interior space of the folded frame to receive the bedding, &c. Hinged blocks are arranged within the ends of the base to rest under the inner ends of the hinged sections of the folding frame to prevent their premature folding.



1. In a folding wardrobe or cabinet bedstead, in which the bed, when folded, is received and contained in an upright inclosing case, the combination, with a hinged and folding bed-frame, of longitudinally-elastic or extensible and flexible bed-bottom, suspended from the bed-frame by its ends alone, and under tension only when the bed-frame is unfolded, substantially as set forth.

2. A folding wardrobe or cabinet bedstead, containing a flexible and elastic bed-bottom, supported within the case by its ends only, leaving sufficient unobstructed space beneath the mattress for the elastic requirements of the bed when spread for use, and permitting the bed-bottom and the bedding thereon to occupy such unobstructed space within the case when folded, substantially as specified.

3. In combination with the base and the elastic bed-bottom, the pivoted bed-frame sections, provided with the means herein described to prevent their premature folding, substantially as specified.

THE GRAPHIC CO N Y

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ORDER.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., October 5, 1877.

The second paragraph of Rule 53, edition of August, 1877, is amended to read as follows:

These statements shall not be open to the inspection of the opposing parties until both have been filed, or until the time for filing both has expired; nor then, until they have been examined by the proper officer and found to be satisfactory.

Also, the fifteenth line of page 30 should read:

On depositing a trade-mark for registration, $25.

(Signed) ELLIS SPEAR,
Commissioner.

NOTICE.

The next issue of the GAZETTE (that of October 2) will contain a full account of the late fire which destroyed the upper stories of the west and north wings of the Patent Office building. Plans of the building will be shown, accurately describing the portions destroyed and saved. In the two wings destroyed the location of each case containing models will be shown, together with an accurate list of the models which were in each case at the time of the fire. Every exertion will be made to make the record so complete that a reference to this number of the GAZETTE will give an intelligent and accurate idea of the extent of the loss.

Printed copies of any patent can be obtained commencing with issue of November 26, 1867, to date.

COMMISSIONER'S DECISIONS.

JACOB GORDON.—*Trade-Mark.*

[*Appeal from the decision of the Examiner of Trade-Marks in the matter of the application of Jacob Gordon for registration of Trade-Mark, filed June* 25, 1877.—*Decided August* 27, 1877.]

That a trade-mark is consumed with the article to which it is applied is no test of its invalidity.

If the mark is unessential in the structure of the article, and serves merely to distinguish it, the intimacy of incorporation is immaterial.

A trade-mark must have the *independent and sole* quality of distinguishing the goods as being of a particular manufacture, or as belonging to a particular party.

A strip of leaf-tobacco placed as a wrapper around the mouth-piece or end of a cigarette denied registration, the leaf serving more a mechanical than a distinctive purpose.

DOOLITTLE, *Acting Commissioner:*

The trade-mark sought to be registered is described as a narrow strip of leaf-tobacco placed as a wrapper around the mouth-piece or end of a cigarette, and which varies with the size of the cigarette.

It is urged by the Examiner that the matter claimed as a mark enters into the mechanical structure of the article itself, and therefore was not an arbitrary symbol nor a lawful trade-mark; that in *Harrington* vs. *Libby*, 12 OFFICIAL GAZETTE, 188, the court held that the forms and materials of packages were not the proper subjects of a trade-mark, and that the mark in question was a functional part of the cigarette, and was consumed with it.

It will not do, I think, to carry this doctrine to the extreme of saying that nothing can be regarded as a proper trade-mark which is so intimately connected with an article as to be consumed with it. For if that were the rule a mark upon a cake of soap, a symbol in the sole of a shoe, a peculiar seal over the mouth of a wine-bottle, and many other forms of devices which might be mentioned, and which are undoubtedly excellent trade-marks, would lose their character and value as such from the mere fact that the use or consumption of the article would also result in the destruction of the mark.

A distinction must be made in these cases between the material which is essential in the structure of an article and unessential matter placed thereon or incorporated therein, for the mere purpose of distinguishing the origin or ownership of the article.

Thus the box, barrel, or wrapper containing mer-

chandise, whatever its form, cannot, *per se*, be the trade-mark; but a name, symbol, figure, letter, form, or device, cut, stamped, cast, impressed, or engraved thereon, or in some other manner attached thereto, or connected with the article itself, may be a proper trade-mark. (*Moorman* vs. *Hoge*, 2 Sawyer, 78.) The court held, that the mark need not be inseparably connected with the package, as when blown into glass, but that it must have the *independent and sole* quality of distinguishing the goods as being of a particular manufacture, or as belonging to a particular party. I regard it, therefore, as no objection to the mark now sought to be registered that it is connected so intimately with the article to which it is attached as to necessitate its consumption with that of the article itself.

But does it perform the *sole* office of a trade-mark? Very little has been said on this point by attorneys for applicant, and I am constrained to agree with the Examiner of Trade-Marks, that the leaf of tobacco wrapped around the mouth-piece or end of the cigarette answers a practical and perhaps a very useful purpose. Being composed of tobacco, it is an addition to the material of the cigarette, strengthens the wrapper, is probably more agreeable to the taste than the paper of a cigarette, &c.

The useful properties of the article, therefore, seem to be the predominant ones, while the function the wrapper performs as a trade-mark is merely incidental. Perhaps this objection would not lie, if, as in the case cited by applicant, that of Monmers, for which a trade-mark was granted for a silk band around a champagne bottle, a silk band was attached to the cigarette, or a colored piece of paper or similar device connected therewith. For in such instance the device would answer no other purpose than that of a trade-mark—perform no mechanical function.

If applicant has introduced an improvement in the manufacture of cigarettes, and is entitled to protection thereon, it should be by a patent; but if not protected by a patent, other manufacturers of cigarettes cannot be prevented from using the like useful device.

The intent of the trade-mark law is to afford protection to symbols and not to inventions or mechanical devices. It being a common right to use any mechanical device which is deemed useful, the use of which is not restricted by a patent, it would seriously embarrass trade if, in the present instance, the exclusive right should be given to applicant to use his device as a trade-mark.

The principle here sought to be applied is clearly set forth in the case of *The Canal Co.* vs. *Clark*, 13 Wall., 311, wherein it is held, that no one has the right to appropriate to his own use as a trade-mark a device which, from the nature of the use to which it is put, others may adopt and employ for the same purpose.

The decision of the Examiner of Trade-Marks is affirmed.

When a patent has been allowed, and the application has not been forfeited by delay of six months, if the final fee of twenty dollars is paid before 12 o'clock on Friday, the patent will issue and bear date the following Tuesday.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—DISTRICT OF CONNECTICUT.

JOSEPH ZANE *et al.* vs. PECK BROS. & CO.

[*In equity.*—SHIPMAN, *J.*—*Decided August* 11, 1877.]

The patent of Nathaniel Jenkins for a self-closing faucet, issued June 27, 1865, is not anticipated by the French patent of Chretien Morand, dated November 14, 1851.

Where the change in the faucet made it more simple and economic, and was not formal, but in a certain degree structural, patentable invention was exercised, notwithstanding the general principle of operation was old.

It was not simply the "carrying forward or new or more extended application of the original thought," and was not "a change only in form, properties, or degree." (*Smith* vs. *Nichols*, 21 Wall., 112.

[*Thomas William Clarke*, for plaintiffs.
Benjamin F. Thurston, for defendant.]

OPINION OF THE COURT.

SHIPMAN, *J.*:

This is a bill in equity to restrain the defendants from the infringement of letters patent for a self-closing faucet, which were issued to Nathaniel Jenkins on June 27, 1865, and which have been duly assigned to the plaintiffs. The defendants admit infringement, and the sole question is as to the novelty of the alleged invention. The validity of the patent has been sustained by decree of the circuit court for the district of Massachusetts in a case where other anticipatory devices than those which are here relied upon were set up in defense. The present defendants are the licensees of the defendants in the Massachusetts case.

The invention consisted in opening a self-closing faucet by means of a quick-threaded screw-follower, the threads of which are inclined at so great a pitch that, when the power to turn the screw is removed, the pressure of the water and of a spiral spring under the valve forces the valve to its seat, where it is held by the pressure of the water. The specification says that another part of the invention consists in combining with the valve and screw-follower a swivel, so that the rotary movement of the spindle shall not be imparted to the valve, which shall have only an axial movement, and thus twisting or friction of the valve shall be prevented. This swivel connection of spindle and valve is frequently used in structures where rotation of the valve is not desired. The faucet has gone into extensive use.

The claims of the patent are—

1. The screw-follower H, in combination with the valve of a self-closing faucet, substantially as set forth, and for the purpose described.
2. The combination of the swivel P, screw-follower H, valve K, and spring O, substantially as and for the purpose described.

Self-closing faucets opening by means of a lever, and and also by means of a quick-threaded screw, have long been known. The invention in this case is the combination of quick-threaded screw, valve and spring, substantially as described in the specification.

In the pre-existing English patent of Moses Poole, dated April 15, 1845, and in the specification of William Thomas Cheetham left with the English Commissioner of Patents March 14, 1860, and in the English patent of Thomas Melling, dated October 6, 1857, no spring was used, and by reason of that omission those devices did not anticipate the Jenkins invention.

The French patent of Chretien Morand, dated November 14, 1851, is chiefly relied upon by the defendants as anticipatory of the plaintiffs' patent. The Morand device was designed in part to prevent what is called the "water-hammer," or the unpleasant sound which is caused by the reaction of the water when the valve is suddenly closed. The faucet is of two parts, of unequal size; the induction-way is of larger size than the eduction-way. There are two valves, also of unequal size. The outer valve is in rigid connection with and is turned by a quick-threaded screw-spindle. This valve is so connected with the inner one that the inner valve is guided longitudinally, and is forced to its seat by the same rotation of the screw-follower which operates upon the outer valve. The connection of the inner valve with the spindle is not by means of a swivel-joint. Below the inner valve is a spring, which, with the pressure of the water, causes the valves to be closed when the power that turns the screw is removed. The patentee remarks that while he prefers two valves, "it will be understood that in certain cases he can employ but one." The manner in which the faucet will then be constructed is not described. By the use of two valves, the body of water which is between the valves forms a cushion, which checks the force of the sound or of the blow of the water-hammer when the faucet is suddenly closed.

The principal elements which are employed to produce a self-closing faucet—to wit, the screw-follower with a quick-threaded screw, valve, and spring—are found in both the Morand and the Jenkins patents; but the double valves of Morand, and the general method in which the mechanism of the inner valve and the spring was arranged, with reference to each other and the water-way, caused his faucet to be cumbersome and lacking in simplicity and economy. It was a contrivance of many parts, and lacked general utility. Jenkins omitted one of the valves, and of course discarded the connection between the two, and made the passage-ways for the entrance and discharge of the water of the same size, and connected the valve and the screw-follower by a swivel, and generally materially simplified the construction and arrangement of the valve and spring mechanism. He thus made a simple and economical self-closing faucet, which has gone into general use. He has produced the old result of Morand in a more economical and beneficial manner. The invention of Jenkins is subsidiary to that of Morand; but he has essentially changed the Morand device in such manner that, by the change, the thing which is produced is practically a new structure, and his improved device is therefore patentable.

This change was not merely formal, but was, to a certain degree, a structural change and modification of the parts of the Morand faucet, which change required inventive and not merely mechanical skill, and required a sufficient exercise of the inventive faculty to justify the grant of an exclusive right to the use and sale of the article which was produced.

It was not simply the "carrying forward or new or more extended application of the original thought," and was not "a change only in form, properties, or degree." (*Smith* vs. *Nichols*, 21 Wall., 112.)

Let there be a decree for an injunction and an account.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date September 25, 1877.]

10,258.—Upright-Piano Cases.—STEPHAN BRAMBACH, New York, N. Y., assignor to SIMPSON & CO., same place. Application filed August 6 1877. Term of patent 7 years.

10,259.—Buttons.—ALBERT H. CARON, Rauenthal, Prussia. Application filed July 31, 1877. Term of patent 14 years.

10,260.—Pencil-Cases.—WILLIAM S. HICKS, New York, N Y. Application filed August 28, 1877. Term of patent 3½ years.

10,261.—Ornamenting Shoes and Other Articles.—DANIEL B. MOULTON, Lynn, Mass. Application filed September 7, 1877. Term of patent 3½ years.

10,262.—Handles for Spoons, Forks, &c.—GEORGE W. SHIEBLER, Newark, N. J. Application filed September 12, 1877. Term of patent 7 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date September 25, 1877.]

5,162.—Tonic or Cordial.—CH. BERTEAUX & RADOU, New York, N. Y., and Paris, France. Application filed July 2, 1877.
"The word-symbol 'CARMELITE MELISSA.'"

5,163.—Chill and Fever Pills.—WILLIAM W. BROWNFIELD, St. Louis, Mo. Application filed September 6, 1877.
"The word-symbol 'BREAKERS.'"

5,164.—Emery-Wheels, and Grinding Machinery in which they are Used.—EDGAR C. BURGESS, Weissport, Pa. Application filed July 7, 1877.
"The word-symbol 'KALMOID.'"

5,165.—Medicinal Preparation.—JEREMIAH CURTIS & SONS, New York, N. Y. Application filed November 17, 1877.
"The title or designation 'MRS. WINSLOW.'"

5,166.—Fine-Cut Chewing-Tobacco.—COTTERILL, FENNER & CO., Dayton, Ohio. Application filed July 16, 1877.
"The word-symbol 'CONTINENTAL.'"

5,167.—Spool-Cotton.—JABE O. KING, New York, N. Y. Application filed August 14, 1877.
"The fanciful letters 'N. Y. M.'"

5,168.—Cigars.—S. LOWENTHAL & CO., Cincinnati, Ohio. Application filed August 25, 1877.
"The word-symbol 'EL MODERNO.'"

5,169.—Flour.—S. S. MARVIN & CO., Pittsburg, Pa. Application filed April 21, 1877.
"The word-symbol 'BISCUIT.'"

5,170.—Wool-Oil.—MASURY, YOUNG & CO., Boston, Mass. Application filed September 6, 1877.
"The word-symbol 'SCOTCH' and the figure of the thistle."

5,171.—Carbonated Beverages.—THE FIRM OF JOHN MATTHEWS, New York, N. Y. Application filed September 3, 1877.
"A group of figures representing a bear, a soda-fountain, and a boy, arranged as shown."

5,172.—Cigarettes.—ADOLPH MOONELIS, New York, N. Y. Application filed June 6, 1877.
"A picture representing a tobacco plantation, with the word 'Matanzas' in connection therewith."

5,173.—Rubber Boots and Shoes.—NATIONAL RUBBER COMPANY, Bristol, R. I. Application filed September 12, 1877.
"The fanciful words 'SNOW EXCLUDERS.'"

5,174.—Starch.—W. E. PLUMMER & SON, Buffalo, N. Y. Application filed August 24, 1877.
"The word-symbol 'INTERNATIONAL.'"

5,175.—Hog-Cholera Medicine.—WILLIAM A. REDDICK, Niles, Mich. Application filed September 10, 1877.
"The coat of arms of the State of Michigan, with a hog in the shield."

5,176.—Night-Lamps.—EDWARD RORKE & CO., New York, N. Y. Application filed September 10, 1877.
"The word-symbol 'EVENING STAR.'"

5,177.—Food-Preserving Compound.—CHARLES G. AM ENDE, Hoboken, N. J. Application filed September 7, 1877.
"The word-symbol 'REGALIN.'"

5,178.—Flour.—JOHN DUNN, Oswego, N. Y. Application filed April 2, 1877.
"The title or designation 'HAMPTON MILLS.'"

5,179.—Cotton Flannel.—JOHN V. FARWELL & CO., Chicago, Ill. Application filed September 1, 1877.
"The word-symbol 'ALBANY MILLS' and the figure of a buffalo."

5,180.—Writing-Paper.—HOLYOKE PAPER COMPANY, Holyoke, Mass. Application filed February 21, 1877.
"A representation of the papyrus or Egyptian paper-plant."

5,181.—Buttons.—JOSEPH LEVI, New York, N. Y. Application filed June 21, 1877.
"A group of various-sized circles, arranged as represented."

5,182.—Hot-Air Furnaces.—ISAAC A. SHEPPARD & CO., Philadelphia, Pa. Application filed August 22, 1877.
"The word-symbol 'EXCELSIOR.'"

5,183.—Hermetically-Sealed Butter.—GREENLIEF W. SIMPSON, Somerville, Mass. Application filed August 17, 1877.
"The word-symbol 'TOPOCAN,' and the picture of the cow on the diamond field."

5,184.—Paints.—STANDARD OIL PAINT COMPANY, Cleveland, Ohio. Application filed April 17, 1877.
"The word-symbol 'SHAKER.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date September 25, 1877.]

1,187.—Title: **"Dr. Blank's Black Medicines," &c.**—OSCAR BLANK, St. Louis, Mo. Application filed September 15, 1877.

1,188.—Title: **"Griffiths' Medicinal Blackberry Brandy."**—DONNELL MANUFACTURING COMPANY, St. Louis, Mo. Application filed August 7, 1877.

1,189.—Title: **"Little Joker."**—G. W. GAIL & AX, Baltimore, Md. Application filed September 12, 1877.

1,190.—Title: **"Bassett's Combination Burgundy Pitch Plaster."**—D. H. BASSETT, Pittsfield, Mass. Application filed September 6, 1877.

SALE OF SPECIFICATIONS AND DRAWINGS.

Photolithographic copies of the drawings of all patents issued since November 26, 1867, have been produced, and will be sold to the public at 25 cents per patent, or, where twenty or more copies are ordered at one time, at 10 cents per patent.

Coupon-books, to the amount of $2 or more, can be purchased from the Chief Clerk of the Patent Office the coupons, for 10 cents each, may be filled out at any time, and, on presentation, will entitle the holder to a photolithographic copy of *any* drawing which has been reproduced.

The specifications of all patents issued since July 1, 1871, are in print, and will be furnished with the drawing without extra charge. The specifications of patents issued from November 20, 1866, to July 1, 1871, are in print, and where such is the case the Office will furnish them with the drawings, but the Office will not undertake to reprint copies of patents which have been exhausted.

In addition to the above, the Office has reproduced, and offers for sale at the price mentioned above, all drawings in the following classes, embracing patents granted from 1790 to date. The classes are those of the Examiners:

1. Aeration and Bottling.
2. Apparel.
4. Baths and Closets.
5. Beds.
6. Bee hives.
7. Beer and Wine.
8. Bleaching and Dyeing.
9. Boats.
10. Bolts, Nuts, and Rivets.
11. Bookbinding.
13. Brakes and Gins.
14. Bridges.
15. Brushes and Brooms.
17. Butchering.
18. Caoutchouc.
19. Carding.
20. Carpentry.
21. Carriages and Wagons.
23. Chemical Misc.
26. Cloth.
28. Cordage.
29. Crinoline and Corsets.
31. Dairy.
33. Drafting.
34. Driers and Kilns.
36. Electricity.
37. Excavators.
38. Felting and Hats.
40. Files.
42. Fire-arms.
44. Fuel.
45. Furniture.
47. Garden and Orchard.
48. Gas.
52. Gunpowder.
53. Hardware manufacture.
55. Harrows.
56. Harvesters.
58. Horology.
59. Horseshoes.
61. Hydraulic Engineering.
62. Ice.
65. Kitchen Utensils.
66. Knitting and Netting.
67. Lamps and Gas-fitting.
68. Laundry.
71. Manures.
72. Masonry.
73. Measuring Instruments.
75. Metallurgy.
76. Metal Working, bending and straightening.
77. Metal Working, boring and drilling.
78. Metal Working, forging, swaging, and riveting.
79. Metal Working, punching, cutting, and shearing.
80. Metal Working, rolling.
81. Metal Working Tools.
82. Metal Working, turning, planing, and milling.
83. Mills.
85. Nails
86. Needles and Pins.
87. Oils, Fats, and Glue.
88. Optics.
89. Ordnance.
90. Ore.
91. Paint.
92. Paper-making.
93. Paper manufactures.
94. Paving.
96. Plating.
97. Plows.
98. Pneumatics.
99. Preserving Food.
101. Printing.
102. Projectiles.
103. Pumps.
104. Railways, The Way.
105. Railways, Cars and Interior Fittings.)
106. Railway Cars, Exterior Mountings and Fittings.
107. Railway Track and Car Irons and Fittings, manufacture of.
108. Roofing.
111. Seeders and Planters.
112. Sewing-machines.
114. Ships (1) construction.
115. Ships (2) propulsion.
116. Signals.
117. Silk.
118. Spinning.
119. Stabling.
120. Stationery.
124. Stills.
126. Stoves and Furnaces.
127. Sugar.
130. Thrashing.
131. Tobacco.
132. Toilet.
134. Tubing and Wire.
135. Umbrellas and Fans.
137. Water Distribution.
138. Water wheels.
139. Weaving.
141. Wood screws.

And the subdivisions of—

Bench-planes.
Bale-ties.
Buttons and Machines.
Combs, &c.

About forty other classes are in progress, and it is hoped that all the drawings remaining, some thirty thousand in number, may be completed during the fiscal year.

The total number of patents or which drawings are complete and offered for sale as above will approximate one hundred and fifty thousand.

CIRCULAR.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., September 26, 1877.

Inventors and their Attorneys are informed that, so far as can be learned, none of the files of pending applications were lost in the recent fire, nor a single original document of any kind.

All models in the north and west halls of the Model Room are destroyed. These include the following classes:

Aeration and Bottling.
Agricultural Implements.
Agricultural Products.
Brakes and Gins.
Brushes and Brooms.
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Butchering.
Capstans and Windlasses.
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Hoisting Apparatus.
Metal-Working, (except about 500 models.)
Metallurgy.
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Presses, (except Printing.)
Quarrying and Rock Drilling.
Railway, (except Locomotives.)
Stabling.
Stone Sawing and Dressing.
Tobacco Machinery.
Wood-Working, (Tools and Machinery.)

A separate letter of inquiry concerning any particular case will receive attention.

W. H. DOOLITTLE,
Acting Commissioner.

All patents issued during the week are signed, sealed, and dated on Tuesday.

All letters to the Patent Office must be addressed to the Commissioner of Patents.

The drawing accompanying an application for a patent must be on a sheet ten by fifteen inches.

The "Rules of Practice" are furnished gratis on personal or written application to the Commissioner of Patents.

Copies of patents, arranged by classes of inventions, can be obtained at 10 cents per copy where the entire class is ordered.

The GAZETTE is made to bear the same date as the patents to which the claims, briefs, and drawings relate, although it is not actually mailed to subscribers until about two weeks later than its date.

Letters Patent of the United States do not reach the patentee or owner until about two weeks from the day of their date. The letters, nevertheless, have the force of patents from the time they are signed and sealed.

As 12 o'clock on Friday is the latest hour that a final fee can be received in order to get a patent into the "issue" of the following Tuesday, applicants are earnestly requested to make the final payment before Friday, if possible, so that the proper entries may be made on the books of the Office before closing the "issue."

Printed copies of specifications can be procured from No. 59,740, issue of November 20, 1866.

Where specifications are in print they are furnished with the drawings without extra charge.

The "Rules of Practice" contain full instructions, forms, &c., for making applications for patents.

Where specifications are printed, copies of same attached to drawings will be furnished without extra cost.

The Government fee on making application for a patent is fifteen dollars. The final fee is twenty dollars. Usually there are no other Government fees unless the application is appealed.

THE illustrated portion of the Patent Office Report for 1869 and for 1871 has recently been completed, and can be had, by those having the remaining volumes for those years, by applying to the Commissioner of Patents.

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Hallidie, A. S., assignee	195,501
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Haskin, H. P., Post hole auger	195 446
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Hively, A. E., Cutlery strop safe	195,604
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Hyde, J. L., Cork screw frame	195,450
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Jadwin, O. H., Accommodating pulley for cables used in propelling cars, &c	195,509
James, J. T., Planing attachment to saws	195 609
James, J. T., Saw	195 610
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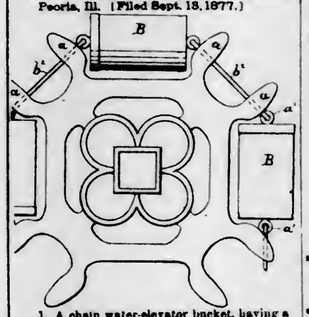
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Jurden, O., Washing machine	195 512
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Merrow, J. M., Machine for crocheting the tops of hosiery goods	195 520
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Simonson, G. G., and F. S. See, Harrow	195 661
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Streit, A., Pulley for machine belts	195,672
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Sweet, A. D., Vegetable and fruit slicer	195 463
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Taylor, J. K., Hand planter	195,465
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United States Gold and Silver Amalgamating Company, assignee	195 581
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Wescott, W. W., and J. Hollingsworth, Bee hive	195 606
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Wall, J. B., Combined harrow, seed planter, and roller	195,677
Ward, W. M., Bed bottom	195,550
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White Manufacturing Company, assignee	195 683
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Winger, H. H., Reed organ stop action	195,469
Winsor, J. S., Gate, (reissue)	7,897
Witter, C. M., Process of making oakum	195,684
Wolf, H. L. R., Paper box	195,685
Wood, A. L., assignee	195,639
Wood, H. C., Apparatus for distilling petroleum	195,652
Wooster, L. S., assignee, (reissue)	7,893
Wyman, H., Shedding mechanism for looms	195,686
Zinn, W. H., Watch winding device	195,687

TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED SEPT. 25, 1877.

195,436. CHAIN-PUMPS. James W. Avery, Peoria, Ill. [Filed Sept. 13, 1877.]



1. A chain water-elevator bucket, having a cast-iron bottom and a wrought-iron shell, constructed and connected to a chain carried on a sprocket-wheel, substantially as and for the purposes described.

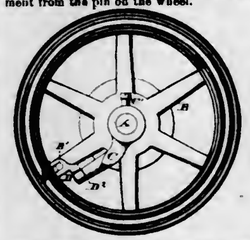
2. The bottom *b*, cast separately from the shell around the eye a^1 on the rod C, provided with an eye, a^2, substantially as and for the purposes described.

3. A bucket, B, having a cast-iron bottom, *b*, wrought-iron shell b^1, longitudinal rod C, provided with eyes a^1 a^2, and brace *d*, substantially as and for the purposes described.

4. In combination with the sprocket-wheel A, having elevated bearings and elongated forked sprockets, as arranged, the chain of buckets B, adjusted to be carried suspended in the spaces between the sprockets by the connecting-links, having their looped ends resting flatwise on the elevated bearings, substantially as and for the purposes described.

195,486. SEWING-MACHINE DRIVE-WHEEL AND SHAFT-LOCKING DEVICE. George W. Baker, Cleveland, Ohio. [Filed Aug. 21, 1877.]

Brief.—When desired to disconnect the loose wheel from the shaft to run it in either direction in winding the bobbin, the spring-latch, pivoted or hinged to the end of the rigid arm secured to the shaft, is thrown out of engagement from the pin on the wheel.



The combination, with the shaft A and pulley-wheel B, the latter provided with the stud B' near its periphery, of the arm C, rigidly attached to the shaft, and bearing the engaging-latch D and spring E, the said locking device constructed to engage near the periphery of the wheel, and resting within the dish of the wheel, substantially as and for the purposes set forth.

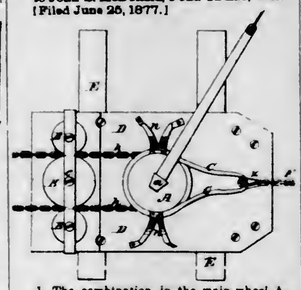
195,437.



195,487. VEHICLE-BODIES. Horace Beard, Wilton, N. H. [Filed Aug. 18, 1877.]

A longitudinal recess in the under side of the body of a carriage or vehicle, substantially as shown and described.

195,488. STUMP-EXTRACTORS. Wm. Berry, Taycheedah, assignor of one-half his right to John S. McDonald, Fond du Lac, Wis. [Filed June 26, 1877.]

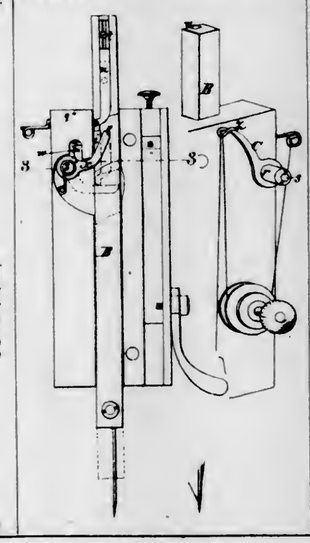


1. The combination, in the main wheel A, in one piece, of the grooved and cut chain-drum *x*, axles *b b*, socket-post *a*, and journal *c*, substantially as and for the purposes hereinbefore set forth.

2. The combination of the main wheel A, hub-bands C C, tension and adjusting wheels B B B, bed D on cross-runners E E, reversible cable-draft *h*, and swinging anchorage F, substantially as and for the purposes hereinbefore set forth.

195,489. SEWING-MACHINE TAKE-UPS. A. Bocher, New York, N. Y. [Filed Aug. 30, 1876.]

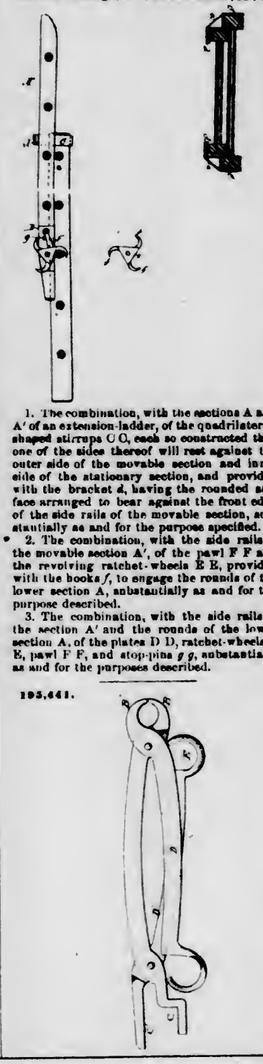
Brief.—A rock-shaft projecting from the face-plate carries on its outer end the take-up arm and on its inner portion an arm, which is thrown downward by a projection on the needle-bar and upward by a spring, the extent and rapidity of both motions being controlled by the shape of the inner arm and its impelling projection.



1. The combination of the reciprocating needle-bar B, the inclosed lever *x*, constructed with the incline *i*, and the retracting-spring *w*, rock-shaft *s*, and check-lever C, arranged and operating as herein shown and described, for the purpose set forth.

2. The regulating-slide *u*, adjustable within the upper end of the needle-bar, as described, in combination with the inclined lever *x*, retracting-spring *w*, and check-lever C, for the purpose set forth.

195,440. EXTENSION-LADDERS. L. C. Boyington, Chicago, Ill. [Filed June 20, 1877.]



1. The combination, with the sections A and A′ of an extension-ladder, of the quadrilateral-shaped stirrups C C, each so constructed that one of the sides thereof will rest against the outer side of the movable section and inner side of the stationary section, and provided with the bracket *d*, having the rounded surface arranged to bear against the front edge of the side rails of the movable section, substantially as and for the purpose specified.

2. The combination, with the side rails of the movable section A′, of the pawl F F and the revolving ratchet-wheels E E, provided with the hooks *f*, to engage the rounds of the lower section A, substantially as and for the purpose described.

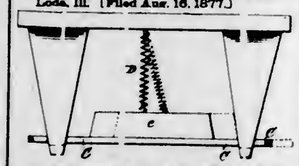
3. The combination, with the side rails of the section A′ and the rounds of the lower section A, of the plates D D, ratchet-wheels E E, pawl F F, and stop-pins *g g*, substantially as and for the purposes described.

195,441.

196,441. BLACKSMITH'S NIPPER AND CLINCHER. Nathan Brown, New Albany, Miss. [Filed Mar. 7, 1877.]

The bar A, formed with the nipping-jaw B and clinching-jaw C, in combination with the handles D D', formed with the jaws B' and C', respectively, for the purposes herein set forth.

196,442. CORN-PLANTERS. Thos. T. Butler, Lodo, Ill. [Filed Aug. 16, 1877.]



1. In a corn-planter, the seed-slide or shaking-bar, in combination with, and suspended in position by, one or more springs, substantially as and for the purpose set forth.

2. In a corn-planter, the spring D, in combination with the seed-slide or shaking-bar C, substantially as and for the purpose set forth.

196,443. MODES OF PRODUCING ELECTRO-PLATE-MOLDS. William B. Closson, Boston, Mass. [Filed July 17, 1877.]



The process, substantially as described, of making a mold from an object, such process consisting in first covering, with a thick coating of wax, the object or the part thereof to be molded; next removing a section of the wax to a portion of the surface of the object; next coating with powdered graphite or other proper substitute therefor the exposed surface and the sides or edges of the cavity thus formed in the wax; next electroplating to a suitable thickness the powdered surfaces of the cavity; and next removing from the wax covering another section thereof and afterward powdering and electroplating, as before, the exposed surfaces of the second cavity, continuing to make cavities and to powder and electroplate their surfaces until the whole surface of the object, or such part thereof as it may be desirable to have molded, may have been duly treated, each section of the mold thus made being formed or resting against one or more of the others, as set forth.

196,444. STEAM-GAGE SIPHONS. James S. Critchley, Cleveland, Ohio. [Filed June 29, 1877.]

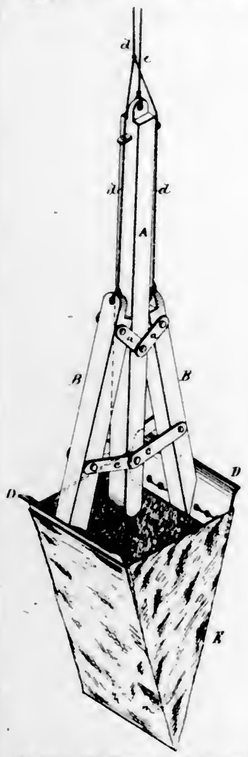


1. In steam gage siphons, the chamber D and siphon F, in combination with the nozzles or pipes B C, substantially as and for the purpose set forth.

2. The siphon F, chamber D, provided with one or more nozzles or pipes, in combination with the cock E, substantially in the manner as described, and for the purpose specified.

3. A steam-gage siphon, consisting of a siphon inclosed within a chamber having two nozzles or communicating-pipes, with one limb of said siphon in open relation to one of said nozzles, and the end or limb opening into the said chamber, in the manner substantially as described, for the purpose specified.

196,445. CHIMNEY-CLEANERS. Samuel H. Dickerson, Hudson, Mich. [Filed Mar. 7, 1877.]



The bar A with its cord *s*, and the bars B B with their cords *d d*, and connecting-rods *e e* and *c c*, in combination with the scrapers D D and the flexible bag E, connected to the scraper, constructed and arranged as and for the purpose herein set forth.

196,446. POST-HOLE AUGERS. Henry P. Haskin, Beloit, Wis., assignor of one half his right to Richd. Tattershall, same place. [Filed July 23, 1877.]



The combination of the auger shank or stem A and boring-plate B, eccentrically pivoted and fixed to and upon the auger-shank A, and provided with a circular lip or bit, L, formed thereon, and having the throat S, the whole being constructed and arranged substantially as and for the purpose shown and described.

196,447. SHOES. Jesse W. Hatch, Rochester, N. Y. [Filed May 7, 1877.]



1. In combination, a permanent inner sole, an upper, and an outer sole extended beyond the toe of the upper far enough to serve as a protecting edge for the upper, the upper and the outer sole being united by stitches made therein within the toe of the shoe outside the end of the inner sole, whereby the toe of the upper is so held as not to be cut over the edge of the inner sole.

2. A permanent inner sole made narrower and shorter than the outer sole from its shank forward, in combination with an upper and outer sole sewed together by stitches passing only into the upper and outer sole outside of the edge of the inner sole, in front of the shank, substantially as described.

3. A permanent inner sole, reduced in width and length in front of the shank, as described, in combination with an outer sole and an upper united together in front of the shank by stitches passing only into the upper and outside the edge of the inner sole, and at the shank and backward by stitches passing through the outsole, upper, and inner sole, all substantially as described.

4. The within-described method of manufacturing an extension-edge upper-protecting shoe, provided with a permanent inner sole, consisting in stitching the upper to the outer sole outside the edge of the permanent inner sole, forward of the shank, substantially as described.

196,448. VAPOR-BATH APPARATUS. James V. Hirley, Cincinnati, Ohio. [Filed June 23, 1877.]



In a portable vapor-bath apparatus, an impervious hooded cloak, provided with a neck-band to control the passage of vapor around the head of the person, and the hood, being provided with a sponge or an equivalent absorbent pad, to rest upon the top of the person's head, substantially as and for the purpose herein specified.

196,449. BALE-BAND-TIGHTENING MACHINES. Saml. Hughes, Charleston, S. C. [Filed Aug. 22, 1877.]

Brief.—The device admits of adjustment, so that any desired strain may be exerted on the several bands surrounding a bale, and when the bands have been subjected to such desired strain each band is automatically released, and the tie securely locked in place.

1. A band-tightener provided with band draft-rods and means for adjusting the same to resist any desired force, substantially as set forth.

2. The combination, with the face of the platen of a press, of a vertically-movable carriage carrying laterally-adjustable band-draft mechanism, substantially as set forth.

3. The combination, with the platen of a press and a vertically-movable carriage, of one or more band draft-rods, and means combined therewith whereby any desired tension may be imparted to the several bands on a bale, and the band ends automatically released when the desired tension has been secured, substantially as set forth.

4. The combination, with a vertically-movable carriage, of one or more casings or cylinders provided with rollers having conical or inclined treads, substantially as set forth.

5. The combination, with a band draft-rod, the upper end of which is secured in a yielding and adjustable manner within a casing or cylinder, of a band-clutch secured to the lower end of said draft-rod, and means for automatically releasing the band from the clutch when the desired power has been exerted on the band, substantially as set forth.

6. The combination, with a band draft-rod and a casing or cylinder, of a spring one end of which rests on the lower head of the casing, while the upper end reets against a vertically-adjustable piston, substantially as set forth.

7. The combination, with a spring casing or cylinder and a band draft-rod secured therein in an adjustable and yielding manner, of a band-clutch pivoted to the lower end of the draft-rod, and a clutch-rod connecting the long arm of the band-clutch with the spring casing or cylinder, substantially as set forth.

8. The combination, with the spring casing or cylinder, of the band draft-rod constructed with a screw-threaded upper end, a piston on said draft-rod, a spring interposed between the head of the cylinder and the piston, and an adjusting-nut for regulating the tension of the spring, substantially as set forth.

9. The combination, with a spring-casing and a draft-rod secured therein in a yielding and an adjustable manner, of a band-clutch provided with an inclined band-slot, and a rod connecting the clutch with the casing, whereby the separation of the clutch and casing operates to bring the band slot in line with the band and automatically release the same, substantially as set forth.

10. The combination, with the platen of a press, of a horizontal shaft or rod secured to the side of the platen and in close proximity to its working-face, and of buckle-stops, one or more, adapted to be laterally adjusted on said shaft, substantially as set forth.

11. The combination, with a buckle-stop or catch, of a swinging arm or frame carrying a weight on its outer end, substantially as set forth.

12. The combination, with a vertically-movable carriage and laterally-adjustable spring cases or cylinders having band draft-rods secured therein in a yielding and adjustable manner, of one or more buckle stops or catches, the latter serving to prevent the movement of the buckle as strain is applied to the band, substantially as set forth.

13. The combination, with a revolving shaft and the vertically-movable carriage provided with laterally adjustable band-draft mechanism, of flexible connections between the shaft and carriage, substantially as set forth.

14. The combination, with the carriage and laterally-adjustable spring casings or cylinders, of the carriage supports constructed to project beyond the tracks of the carriage, substantially as set forth.

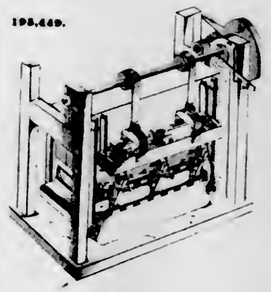
15. The combination, with a cotton or other press, of a band-tightener constructed to simultaneously apply the same or variable strains on the several bands of a bale, substantially as set forth.

16. The combination, with a cotton or other press, of a band tightener constructed to exert an equal or variable pressure either simultaneously or successively on the several bands of a bale, and automatically release said bands when the desired tension has been exerted thereon, substantially as set forth.

17. The combination, with a band draft-rod one end of which is secured in an adjustable yielding manner within a cylinder or casing, of a band clutch attached to the lower end of said draft-rod, substantially as set forth.

18. A band-tightener for cotton or other presses, wherein the draft-rods to which the bands are detachably secured are adapted to exert an equal or variable pressure either simultaneously or successively on the several bands of the bale, substantially as set forth.

196,449.



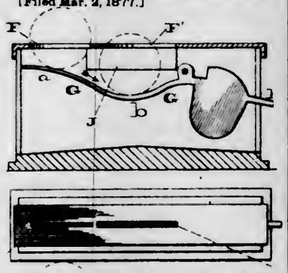


196,450. CORKSCREW FRAMES. J. L. Hyde, New York, N. Y. [Filed Feb. 12, 1877.]



The frame *a*, made with the slot *b*, as described, for the purpose set forth.

196,451. COUNTERFEIT-COIN DETECTERS. Edward Kronenberg, Philadelphia, Pa., assignor to Horace Baldwin, same place. [Filed Mar. 2, 1877.]



1. The case having a top plate formed with two slots, F F', of different lengths, and extending longitudinally end to end, in combination with the single balance G, projecting beneath both slots, and having an upwardly-extending portion, *a*, and downwardly-extending portion *b*, substantially as and for the purpose set forth.

2. The case and balance, in combination with an arm, H, secured to the balance and projecting through the case, substantially as and for the purpose set forth.

3. The case with a slotted top plate and the balance, in combination with depending guiding-bars J, substantially as and for the purpose set forth.

196,452. FIRE-PROOF JOINTS FOR BUILDINGS. Charles Marcotte, St. Louis, Mo. [Filed Aug. 3, 1877.]

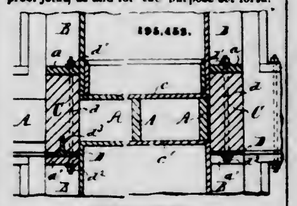
1. The filling or fire-proof material, in combination with joists, wooden plates, and stud partitions, as and for the purpose set forth.

2. The filling of fire-proof material above the floor and below the ceiling, in combination with joists and stud partitions, as and for the purpose set forth.

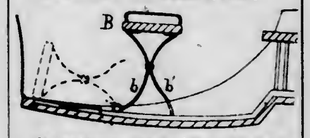
3. The truss, consisting of a plate with or without ribs, the rods and bolts, in combination with the filling C, plates *a a'*, joists and stud partitions, as and for the purpose set forth.

4. The filling C, plate D, rods *d*, bolts d^1 d^2, in combination with plates *a a'*, joists A, and stud partitions B, to form an improved fire-proof joint, as and for the purpose set forth.

196,453.

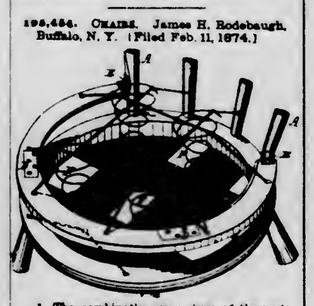


196,453. VEHICLE SEATS. Ferdnd. Reichle, Detroit, Mich. [Filed June 9, 1876.]



In combination with a vehicle, the detachable and adjustable seat B, provided with the spreading supports *b b'*, the legs *b* being provided with connections *a c*, and the legs *b'* having their feet free, substantially as and for the purpose shown and described.

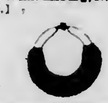
196,454. CHAIRS. James H. Rodebaugh, Buffalo, N. Y. [Filed Feb. 11, 1874.]



1. The combination, in a chair, of the seat-frame, a frame or hoop of corresponding shape hinged to the back posts, and spiral springs supported upon webbing strips fastened to to the seat-frame, and united with the hinged frame by cords crossing each other at right angles and knotted to the upper spirals, as and for the purpose set forth.

2. In combination with the chair-seat frame G and back posts A A, the hinged frame or hoop C, hinged to said posts at E E, the webbing strips *c c*, spiral springs F F, cords *f f*, and straps or cord *g*, all as and for the purpose set forth.

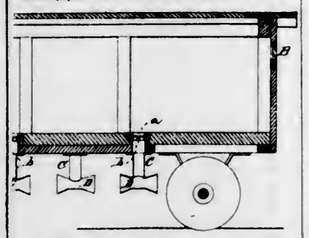
196,455. HAIR-CURLING DEVICES. Reuben M. Rose, Williamsburg, N. Y. [Filed May 16, 1877.]



As a new article of manufacture, a device for curling hair, consisting of a body of elastic rubber, having metallic fastening devices at its ends, substantially as set forth and shown.

195,456. VENTILATING GRAIN-CARS. Wm. S. Sampson, New York, N. Y. [Filed July 18, 1877.]

Brief.—Fresh air is supplied to the car through the openings at the ends, and is drawn out through the double funnel shaped ventilating pipes under the floor of the car. The downward draft is created by the flow of air through these pipes when the car is in motion.



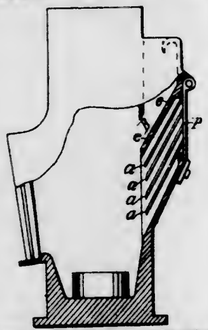
1. The combination, with the car, of the ventilators B B, tubes C C, and double funnel-shaped longitudinal tubes D D, open at both ends, substantially as and for the purpose hereinbefore set forth.

2. The combination, with a grain car, or car adapted to the transportation of equivalent freight, of the ventilators B B, tubes C C, longitudinal tubes D D, and wire-gauze *a*, substantially as hereinbefore set forth, for the purpose stated.

3. The combination, with a grain car, or car adapted to the transportation of equivalent freight, of the ventilators B B, tubes C C, longitudinal tubes D D, wire gauze *a*, and bars *b b* or their equivalent, substantially as hereinbefore set forth.

195,457. STAMP-MILL MORTARS. Hiram H. Scoville, Jr., Chicago, Ill. [Filed July 19, 1877.]

Brief.—As the stamp descends the water and crushed ore are splashed up upon and between the amalgamated plates, which retain any free metal.



In combination with a mortar for wet-crushing ores, a series of parallel plates, *a a a*, amalgamated on both sides and placed in the line of the splash, and a closing door, P, behind them, so that said plates, or either of them, may be removed, substantially as described.

195,458. BOTTLE-STOPPER FASTENERS. F. J. Seybold, Chicago, Ill. [Filed July 28, 1877.]



1. A stopper fastener consisting of a plate resting on the top of a bottle, jar, flask, can, or other receptacle, and to the under side of which plate is attached a stopper or nipple, and on top of which plate rests a slotted lever that by tipping and sliding engages with and fastens to a hook, loop, or other similar device on a neck-wire around a bottle or other receptacle.

2. A stopper-fastener constructed with a plate from which depends a plug or stopper into the mouth of a bottle or other receptacle, and with a lever pivoted on top of this plate in such a way as to tip down and engage with a hook, or its equivalent, reaching up from the neck-wire around the bottle, the other end of the plate being hinged to the bottle by a bend in the neck-wire, the construction being such that the lever being tipped downward at one end and engaged with a hook, loop, or other similar device, and then tipped back again until it rests on the plate, it will be secured there through the agency of a change in the relative position of the fulcrum.

3. In a stopper-fastener, the lever D, constructed with the slot L and loop or pivot C, in the manner shown and described, and for the purpose set forth.

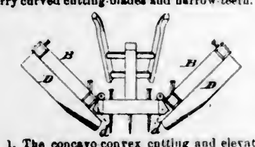
4. In a stopper-fastener, the plate E, constructed with the lugs F and pivot G, in the manner shown and described, and for the purpose set forth.

5. The neck-wire A, constructed with the hinge or bend H and the hook B, in the manner shown and described, and for the purpose set forth.

6. The slotted and sliding lever D, in combination with the plate E and the neck-wire A, in the manner shown and described, and for the purpose set forth.

195,459. CULTIVATORS. John W. Sohn, Hamilton, Ohio. [Filed June 4, 1877.]

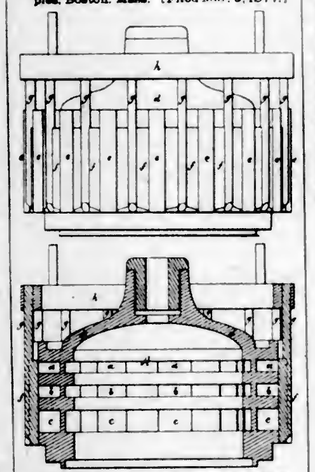
Brief.—A center harrow-frame with gravitating wings, the latter prevented by blocks from descending to a level position. The wings carry curved cutting-blades and harrow-teeth.



1. The concavo convex cutting and elevating blades D, arranged obliquely, in combination with the self-adjusting wings B, provided with teeth, substantially as and for the purpose specified.

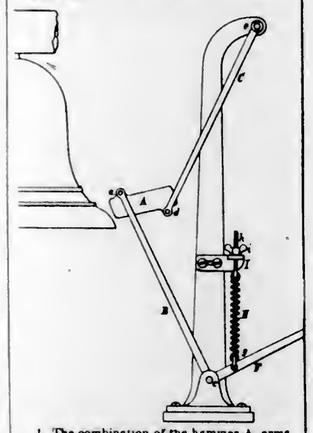
2. In a cultivator having self-adjusting wings, the combination of cultivating teeth, obliquely arranged elevators, and stops *d*, or their equivalents, as and for the purpose specified.

195,460. GATES FOR TURBINES. J. H. Staples, Boston, Mass. [Filed MAR. 9, 1877.]



The combination of the turbine induction-ring A, provided with flanged guides, and one or more series of inducts, as set forth, with the series of separate gates *f*, and their supporting-arms *g* and ring A, arranged with said ring A and its inducts and guides, substantially in manner and to operate therewith, as set forth.

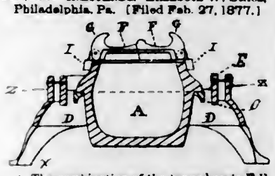
195,461. BELL-STRIKING APPARATUS. Geo. M. Stevens, Cambridge, Mass. [Filed Apr. 30, 1877.]



1. The combination of the hammer A, arms B and C, and spring H, substantially as and for the purpose hereinbefore set forth.

2. The combination of the hammer A, arms B and C, spring H, and adjusting screw and nut *h* and *i*, substantially as hereinbefore described.

195,462. INKSTANDS. Elizabeth W. Stiles, Philadelphia, Pa. [Filed Feb. 27, 1877.]

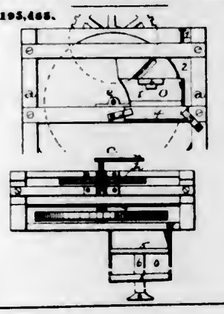


1. The combination of the hinged seals F F, provided with projections G G, with the band I, substantially as and for the purpose set forth.

2. The combination of a binnacle-balanced fluid-receptacle and of twin seals or covers, pivoted at the periphery of the orifice of the receptacle, and opening outwardly from the center thereof, whereby, when the seals are open, the equilibrium of the receptacle is maintained.

3. As a new article of manufacture, an inkstand consisting of the following elements, to wit, the raised annular ring-frame D, provided with perforated feet X and ears Z, the gimbal mechanism, and the receptacle A, with twin seals or covers F F, substantially as described.

195,465.



195,463. VEGETABLE AND FRUIT SLICERS. A. D. Sweet, Perrysburg, Ohio. [Filed June 26, 1877.]

1. In a vegetable and fruit cutter, the combination of the removable holder *o*, having the block 2 fastened to one end of the bar 4 to its under side, the pin 1, catcher 3, slide 5, and rod 6, substantially as shown.

2. The combination of the holder *o*, block 2, pin 1, bar 4, catches 3, slide 5, rod 6, wheel *d*, shaft *e*, and wheels *g h*, all arranged substantially as shown and described.

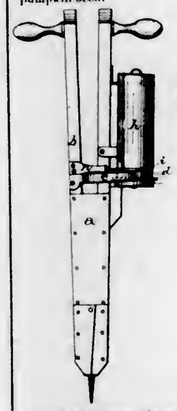
195,464. COUGH CANDY OR SUGAR. W. H. Towers, Boston, Mass., (Ellen F. Towers, administratrix.) [Filed Sept. 22, 1876.]

Brief.—The object of the invention to cover up or moderate the action of lobelia. Is usually employed in sirup, tincture, or extract.

The within-described pharmaceutical preparation composed of flaxseed, lobelia, and a saccharine substance, substantially as set forth.

195,465. HAND-PLANTERS. J. K. Taylor, Romeo, Mich. [Filed Aug. 9, 1877.]

Brief.—To one side of the corn-box is attached a pumpkin-seed box, having a slide, with a projecting lip, that is struck by pins on the rotary corn disk, forcing the slide back against a push-rod attached to one of the vertical vibrating arms, to intermittingly drop pumpkin-seed.



1. In a hand corn planter, the combination of the corn-box *r* and pumpkin-seed box *h*, secured to its side, both boxes being secured to one arm of the planter, and devices for moving the dropping-plate *e* and the slide *i* being fastened to the other, substantially as shown.

2. The combination of a corn box, *r*, a pumpkin-seed box, *h*, a revolving seed plate, *e*, a seed-slide, *i*, and a mechanism for constantly revolving the seed plate and intermittingly operating the slide, substantially as described.

3. The combination of the revolving feed-plate *e*, the projections 1 upon its top, the slide *i* for the pumpkin-seed box *h*, a spring hook, *c*, for revolving the feed-plate, and a push-rod, *n*, for forcing the pumpkin-seed slide backward, substantially as specified.

4. In a hand corn-planter, a pumpkin-seed box, *h*, secured to the side of the corn box *r*, and having its slide *i* operated so as to deposit pumpkin-seed in every third, fourth, or fifth hill of corn, substantially as described.

195,466. VALVE-GEAR FOR STEAM-ENGINES. A. J. Vandegrift, Covington, Ky. [Filed June 8, 1876.]

Brief.—The cut-off is actuated by a pendulum, which receives its power from the engine through the intervention of springs, which allow the pendulum to vibrate independently of the reciprocations of the engine.

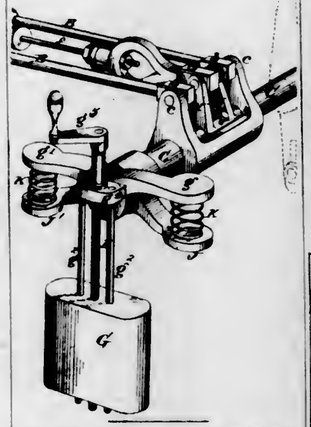
1. In combination with the main valve and cut-off valve, the intermediately-placed pendulum, said pendulum being moved by the positive action of the engine, and free to move in advance in such manner that it will accelerate the movement of the cut-off valve by its greater swing when the engine is inclined to run faster, thereby cutting off the steam earlier in the strokes by moving a greater distance in a given time than the main valve, and vice versa, substantially as described.

2. The combination of the main valve, cut-off valve, intermediate pendulum actuated by the positive action of the engine, whereby the movement of the cut-off is accelerated, and the interposed springs *k k*, substantially as described.

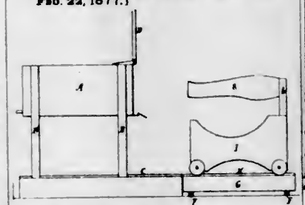
3. The combination of the rocker C, actuated by the engine, the arms J and J', (with or without the springs *k k*,) arms *g g'*, pendulum G, shaft I, and the connections with the cut-off, substantially as described.

4. The combination of pendulum-weight G, suspension-rods *g'*, hand-screw L, and crank *g'*, to provide for an adjustment in regular running speed of the engine at will while in motion.

195,466.



195,467. APPARATUS FOR SHAPING PANTALOONS. E. B. Vleta, Boston, Mass. [Filed Feb. 22, 1877.]



1. In combination with the drying box A and its supporting platform or railway C C, the truck G and the carriage I, provided with one or more trousers shapers, K, all substantially as described.

2. The combination, with the box A, provided with one or more recesses, *a a*, of the shaper or shapers K, supported by one or more posts, *b*, substantially as described, and for the purpose set forth.

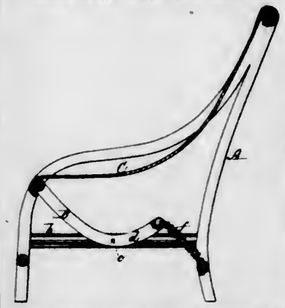
3. The combination of the carriage I and one or more trousers or garment shapers, K, applied thereto, all being for use substantially as explained.

4. The combination of a carriage, I, one or more trousers or garment shapers, K, and a drying or steaming chamber or box, A, provided with means of introducing into it steam, or of heating air in it, all being essentially as set forth.

5. The combination of one or more garment-shapers, K, a supporting carriage, I, therefor, and guides or rails C C, with a drying or steaming chamber or box, A, all being substantially as specified.

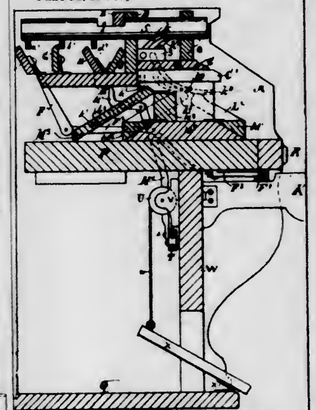
6. The combination of the guides or rails F F, H H, and C C, the truck G, the carriage I, one or more trousers or garment shapers, and a steaming or drying chamber or box, A, all being for use, and for the purpose or purposes substantially as set forth.

195,468. EASY-CHAIRS. G. A. Waterhouse, Quincy, Mass. [Filed July 5, 1877.]



The rocking frame B, pivoted between the sides of the frame A, and provided or not with a spring, *f*, in combination with the flexible strip C, forming the seat and back of the chair, and having one end attached to the rocking frame B, and the other end to the stationary frame A, substantially as and for the purpose described.

195,469. REED-ORGAN STOP-ACTIONS. H. H. Winger, Indianapolis, Ind., assignor to Charles O. Hillstrom, Chicago, Ill. [Filed June 14, 1876.]



1. The combination of the stop-rods 3, 4, and 5, having pins *d d' d''*, the hinged bar H, treadle X, and intermediate devices for operating the said bar from the treadle, as set forth.

2. The combination of the stops M^1 M^2 and swell M^3, the stop-rods having inclined notches, and the bent wires, each bearing, at one end against the inclined edge of the notch of one of the stop-rods, and at the other on an arm of one of the stops or swells, as specified.

3. The combination of the series of stop-rods 1 2 3, &c., each provided with a pin, the hinged bar J, arranged to operate on all the pins, and the treadle X', connected to and operating the bar J, as set forth.

4. The combination of the series of stop-rods, provided with pins, as set forth, the bar J, hinged to the table B, operated from a treadle, and one or more hinged bars operating on pins on some of the stop-rods, and connected to and operated by a knee lever, K or K', as set forth.

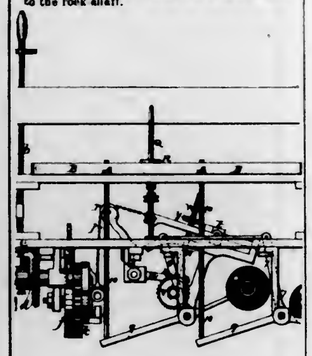
5. The end stop-rods, each provided with two pins, combined with the hinged bars J and F and devices for operating the latter, as specified.

6. The combination of the series of stop-rods, a hinged bar, J, operating on all of said stop-rods, and supplemental bars, constructed and arranged to operate each a part of the stops, as specified.

7. The hinged stop-bar H, combined with the stop-rods and their pins, and having recesses to permit the passage of some of said pins, as set forth.

193,470. COP-BUILDING MECHANISMS FOR SPINNING-MACHINES. A. P. Adams, West Warren, Mass. [Filed Mar. 27, 1877.]

Brief.—The cop is built up the same diameter from shoulder to shoulder by applying a building-motion to the quadrant, said motion being produced by means of an auxiliary cam connected to the rail, a builder-nut, and mechanism for operating the same, whereby the traverse of the rail is elevated at each reciprocation of said nut and its auxiliaries. The frame can be lowered, when the machine is in motion, by means of an arm and lever attached to the rock shaft.



1. In a spinning-machine, the combination, with the ring-rail and mechanism for imparting to the same a reciprocating motion, of a builder-nut, an auxiliary cam, and mechanism, substantially as described, for operating the said builder-nut and for connecting the said cam to the rail, whereby, in the operation of the machine, the traverse of the rail is raised at each traverse thereof, and the form of the initial cone is regulated, as and for the purposes set forth.

2. The combination of the heart *e* and an intermediate operating mechanism between the heart *e* and cam *m*, substantially as described, with the two levers *f* and *n*, and a builder-nut, the parts being connected and arranged to operate as described.

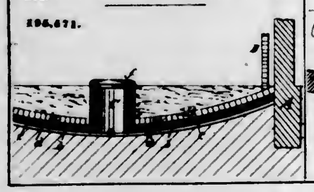
3. In a cop-building mechanism, the combination of the lever *f*, heart *e*, arm *h*, pawl *i*, lever *n*, cam *m*, and intermediate mechanism, substantially as shown.

4. In a cop-building mechanism, the combination of the lever *f*, lever *n*, arranged on the top thereof, heart *e*, intermediate mechanism, substantially as described, cam *m*, chain *p*, and a building-nut, substantially as set forth.

5. The combination of the pawl *n*, ratchet V, shaft W, suitable connecting-wheels, screw 2, and building-nut *t*, substantially as described.

6. The combination of the weighted shaft or shafts, levers 9, uprights 10, and ring-rail 8, with an arm and lever attached to the shaft, whereby the rail can be lowered when the frame is in full motion, substantially as specified.

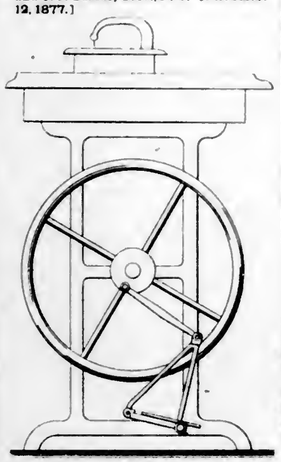
193,471.



193,472. WATER-PROOF CELLAR-BOTTOMS. James R. Anthony, Cedar Rapids, Iowa. [Filed June 30, 1877.]

A cellar-bottom consisting of an inverted arch composed of brick *a*, set in a bed, *b*, of water proof cement, supported on laths *c*, the latter resting upon strips or boards *d* arranged at intervals and converging to a central well, C, as and for the purpose specified.

193,473. TREADLE-MOTION. H. B. Barber and C. J. Barber, Scott, N. Y. [Filed Mar. 12, 1877.]



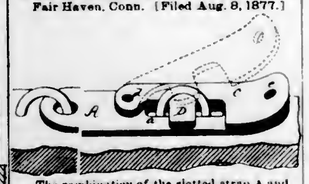
The combination, with the treadle and with the crank-rod, of a fly-wheel, a pitman of inverted V shape, pivoted to the supporting-rod of the treadle and the toe of the same, and to the crank-rod, to form an improved treadle-motion, substantially in the manner and for the purpose herein specified.

193,474. BOTTLE-STOPPERS. C. S. Barnard, West Meriden, Conn., assignor of one-half his right to John A. Thomas, same place. [Filed Aug. 8, 1877.]



In a bottle-stopper, the combination of an elastic plug, *a*, the vertical headed spindle *b*, the collar *d* on the upper surface of the plug, and the cam lever *e* hung to the said spindle above, and so as to bear upon the said collar, substantially as and for the purpose described.

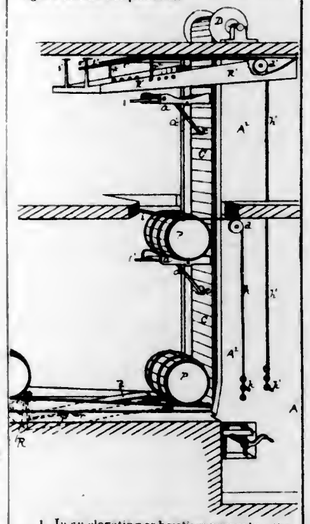
193,475. SEAL-LOCKS. Henry D. Barnes, Fair Haven, Conn. [Filed Aug. 8, 1877.]



The combination of the slotted strap A and bar C, hinged thereto with a transverse projection, D, across the slot, both strap and bar correspondingly perforated, and a sealed rivet through said perforations, substantially as described.

193,475. BARREL-HOISTING APPARATUS. Samuel A. Bates, Pittsburg, Pa., assignor to himself, J. J. McCormick, and R. Lidell, same place. [Filed July 9, 1877.]

Brief.—The stopping device to hold the packages on the inclined way is to engage with the tilting table, pivoted on the platform, only a sufficient time to allow one package to pass on the platform, which is then elevated, and when the extending arm on the table comes in contact with a trip arranged in the hatchway it causes the table to tilt, and the package to roll off the platform.



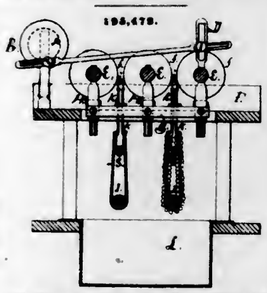
1. In an elevating or hoisting apparatus, the combination of an endless belt, C, a series of platforms or tables, *a*, attached thereto, a tilting device, *c*, in each table, and a movable trip, *i*, with connection thence to the operator's stand, for shifting the position of the same, substantially as set forth.

2. The combination of platform *a*, brace *a'*, step or socket *c*, tilting plate *s*, having an arm *c'*, and an adjustable trip device, *i*, substantially as set forth.

3. In an elevating apparatus, the combination of an inclined skidway and a pivoted or tilting stop device, arranged to be automatically operated by the elevating apparatus, substantially as described, whereby, upon the passage of each ascending platform, a package is carried forward to be received by the next succeeding platform.

4. The combination of pivoted stop R^1, having arms *s'*, bell-crank *g*, and cord *m*, arranged to be automatically operated by the ascending elevating apparatus, substantially as and for the purpose set forth.

193,476.



193,476. MACHINES FOR HARDENING AND SIZING HAT-BODIES. William H. Behrens, Orange, N. J. [Filed Aug. 17, 1877.]

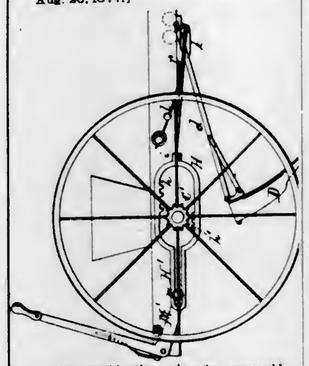
Brief.—The bats to be hardened and sized are placed in the bight of an elastic U shaped

belt-bed, which has imparted to it a vertical reciprocating motion by means of a series of rotary reciprocating pulleys, over and to which are attached the cords that connect with guide-rods attached to the upper ends of the U-shaped elastic beds. Pipes lead from a reservoir to and between the sides of the bed, to sprinkle sizing-liquid upon the bats while being operated upon.

1. In a hat hardening and sizing machine, the crank B, bars C and *g*, levers H H and D, pulleys *f*, cords *i*, rods *k*, and beds *m* and *n*, constructed and combined substantially as and for the purposes specified.

2. The adjustable reciprocating beds *m* and *n*, used alternately for hardening and sizing, in combination with the rods *k*, cords *i*, and pulleys *f*, substantially as specified.

193,477. HOE-SHIFTERS FOR GRAIN-DRILLS. James S. Bogle, Springfield, Ohio. [Filed Aug. 20, 1877.]



1. The combination, with the adjustable drag-bar rollers, of the reciprocating yoke H, provided with the toothed racks arranged on its opposite sides in the described relation to the actuating pinion, whereby when one rack is disengaged from said pinion the other will be in position to be engaged therewith.

2. The combination, with the yoke H, of the lever M for throwing the yoke into and out of gear with the actuating pinion, and the spring or its equivalent for holding said lever with the yoke disengaged from the pinion.

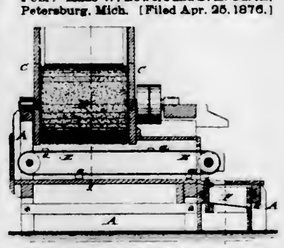
3. The combination, with the reciprocating piston for rocking the drag-bar rollers, of the slotted rack-bar for guiding said piston and locking the hoes in position, as described.

4. The combination, with the reciprocating piston and the rack-bar *k*, of the spring *l* for forcing the piston or pin into the sockets in the rack bar, as described.

5. The geared drag-bar rollers, in combination with the slotted crank-arm *g*, permitting the piston to work in a horizontal plane, as described.

6. The piston-rod connecting the rocking drag-bar rollers with the yoke adjustably connected with said yoke, as described.

193,478. DRY-WOOD GRINDERS FOR PAPER-PULP. Isaac W. Bowers and D. A. Curtis, Petersburg, Mich. [Filed Apr. 26, 1876.]



An apparatus for making dry-wood pulp, consisting of the revolving cylinder B, coated with glue, ground flint, ground quartz, and emery, the top-casing C provided with guide and feed-tube, the hopper D having outside

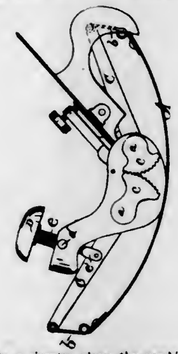
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193,479. PREPARED FOOD FOR ANIMALS. William H. Bowker and T. L. Sturtevant, Boston, Mass. [Filed June 14, 1877.]

A compound composed of dried blood or meat, charcoal, carbonized, roasted, or parched grain, and ground bone, in equal or varying proportions, substantially as and for purposes stated.

193,480. CIRCULAR PLANES. H. M. Clark, New Britain, Conn., assignor to the Stanley Rule and Level Company, same place. [Filed Aug. 6, 1877.]

Brief.—The ends of the flexible bottom are so connected as to necessitate their simultaneous movement, and adjust the ends to the same circle.



1. In a circular plane, the combination of the flexible bottom A and mechanism, substantially as described, connecting its two ends, for necessitating their simultaneous movement, substantially as described.

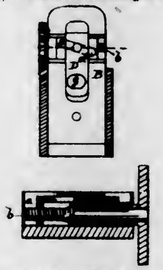
2. In a circular plane, the combination of the flexible bottom A, mechanism, substantially as described, connecting its two ends and necessitating their simultaneous movement, and a single adjusting or operating handle, substantially as described, and for the purpose specified.

3. In a circular plane, the combination of the stock B, flexible bottom A, link *b*, rocking lever C, and adjusting-screw *a*, substantially as described, and for the purpose specified.

4. In a circular plane, the combination of the flexible bottom A, links *b b*, levers C C, shafts *e e*, and segment-gears *c c*, substantially as described, and for the purpose specified.

193,481. BENCH-PLANES. Henry M. Clark, New Britain, Conn. [Filed Aug. 6, 1877.]

Brief.—The rim is longitudinally adjustable by means of a transverse slide, provided with an angular slot, to receive a stud on the under side of a longitudinal slide, to which the bit is attached, and suitable operating mechanism.

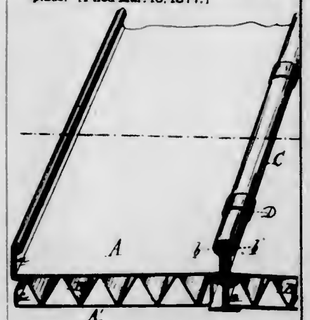


1. In a device for adjusting plane-irons, the transverse slide, provided with inclined slot and operating mechanism for moving said

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spout *b*, the carrier belt E *a*, the screen F, and the partition having slot *d*, all constructed, arranged, and combined in a frame, A, as and for the purpose specified.

193,482. SHEET-METAL ROOFS. James B. Clark, Ypsilanti, Mich., assignor of one-third his right to Edmund Hendricks, same place. [Filed Mar. 15, 1877.]



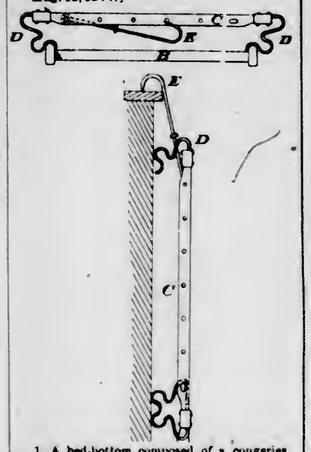
1. A sheet-metal roof-section composed of the sheets A A', secured together by the flanges *a a'* and roll *b* and corrugated sheet B, all constructed and arranged substantially as described and shown.

2. The combination, with a sheet-metal roof constructed in sections, each section having a vertical flange and roll, *b*, of the folded rib C, substantially as described and shown.

193,483. BUILDING PAPER OR BOARD. J. M. Cobb, Beloit, Wis. [Filed Aug. 28, 1876.]

As a new article of manufacture, an inodorous water-proof building-board consisting of straw board covered on both sides with a mixture of rosin and deodorized mineral oil, as described, and calendered so that both sides of the board will present the same appearance and have the same smooth hard finish, while at the same time the board will be soft and pliable, substantially as set forth.

193,484. BED-BOTTOM AND FIRE-ESCAPE. Robert O. Collis, Cincinnati, Ohio. [Filed Aug. 16, 1877.]



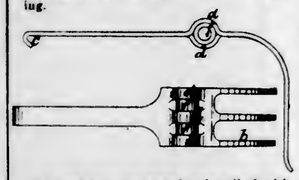
1. A bed-bottom composed of a congeries of ladder-like members, C, having hooks D, for end-to-end engagement of said members, and a grapnel, E, for engagement with a window-sill, substantially as set forth.

2. In combination with members C, such hooks, D, constructed of the form represented, and adapted to operate as elastic supports, as hooks, and as fenders, substantially as set forth.

3. The combination of the members C with their appendages D and E, and the rack B, notched bedstead A, and strap H.

195,485. WEFT-FORKS FOR LOOMS. Samuel Cook, Bury, England. [Filed Mar. 17, 1877; patented in England, May 16, 1872.]

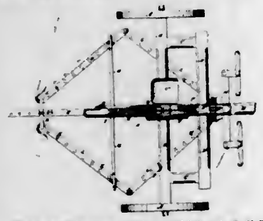
Brief.—The weft-fork is struck up from sheet metal, with bars or bands near the center, arranged alternately above and below. These bars serve to retain the pivotal tube or bushing.



The weft-fork constructed, as described, with bars or clamps *d*, in combination with tube or bushing *f*, as and for the purpose specified.

195,486. ADJUSTABLE HARROW, GROUND-MARKER, AND CORN-CULTIVATOR. Geo. H. Cooke, Rossville, Kans. [Filed June 30, 1877.]

Brief.—The harrow is flexible and expansible, and is raised or lowered by means of a three-armed lever which is pivoted upon the carriage and connected to the harrow by a chain and cross-bar.



The combination, with a vehicle, A B C D E, bent bar F, end-hooked tooth-bars I I J J, and adjustable cross-head K, of the three-armed lever N, chain O, cross-bar M, block L, and catch-bar R, all arranged to operate substantially as and for the purpose specified.

195,487. FENCES. Abram O. Corell, Brocton, N. Y. [Filed Aug. 11, 1877.]

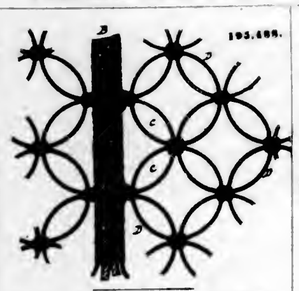


1. The combination of the notched coupler M, slanting joints P of the rails G, uprights A of the standard, and pickets B, when constructed and connected so as to form and lock securely the joints of the panels of a picket-fence, as described, and for the purposes set forth.

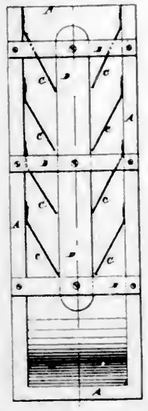
2. The combination of the braces D and E with the square-cut joints J of the rails G and H, fitting between the uprights A of the standard, to form and firmly brace and support the corners of a picket-fence, as described and set forth.

195,488. FLY-NETS FOR HORSES. Ellen Crebs, Huntsville, assignor to W. E. Miller, Carlisle, Pa. [Filed Sept. 3, 1877.]

A fly-net for horses composed of a central back piece, B, knots C, circular loops D, and oval loops e, all constructed and arranged as shown and described.



195,489. FREIGHT-CHUTES. W. C. Crompton, New York, N. Y., James Nicol, Newark, and Richard Hawley, Jr., Jersey City, N. J. [Filed Aug. 24, 1877.]



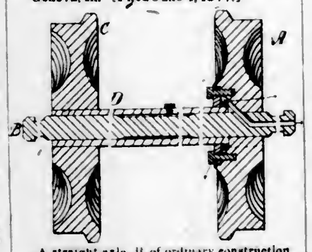
An improved freight-chute formed of the trough A, made with a curved lower end, the cross-bars B, the inclined spring guide-bars C, and the front guard-bar D, substantially as herein shown and described.

195,490. MANUFACTURE OF TIN-FOIL. John J. Crooke, Southfield, N. Y. [Filed May 24, 1877.]

1. The new manufacture of compound tin-foil, substantially as hereinbefore described, composed of a layer of lead, a layer of lead-tin alloy, and a layer of tin, united superficially in a solid sheet.

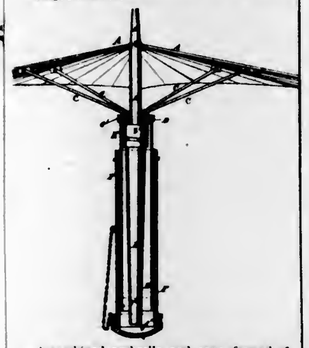
2. The improvement in the art of making foil, consisting, substantially as hereinbefore set forth, in uniting superficially a layer of tin with a layer of lead-tin alloy, and in uniting superficially a layer of the tin-plated alloy thereby produced with a layer of lead.

195,491. CAR-AXLES. Ebenezer Danford, Geneva, Ill. [Filed June 4, 1877.]



A straight axle, B, of ordinary construction and without enlargements or projections thereon, in combination with the long sleeve D, the wheel A, fixed upon the axle B, and the wheel C, fixed upon the sleeve D, the free end of said sleeve being secured to the inner side of the wheel A, to couple the wheels together, substantially as and for the purpose set forth.

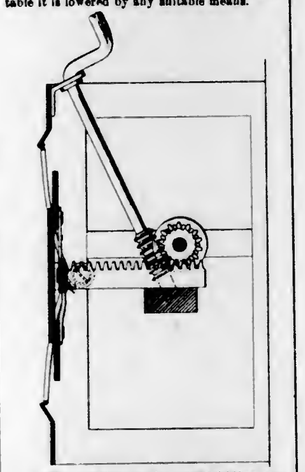
195,492. COMBINED CANE AND UMBRELLA. Thomas F. Darcy, New York, N. Y. [Filed Aug. 11, 1877.]



A combined umbrella and cane, formed of the ribs A, the handle B, the stretchers C, the runner D, and the tubes E F, and cap G, constructed and arranged to operate in connection with each other, substantially as herein shown and described.

195,493. CLOTH-FOLDING MACHINES. J. D. Elliot, Newton, Mass. [Filed Feb. 5, 1877.]

Brief.—Between the table and the jaws is left a space, which may be made greater or less, as desired. As the cloth accumulates on the table it is lowered by any suitable means.



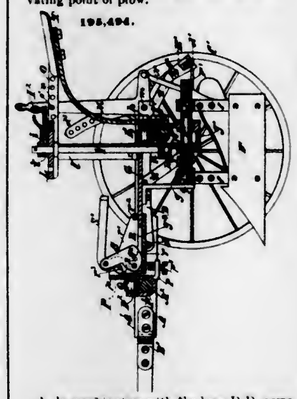
1. The combination, in a cloth-folding machine, of a table made adjustable vertically, and over which the folds are successively laid, stationary upper jaws at each end of the table, griping-jaws below, and a space between the said table and said griping-jaws, substantially as and for the purpose specified.

2. In a cloth-folding machine, the combination, with the holding-jaws, of a table made adjustable as to its extent between the said jaws, substantially as described.

195,494. SULKY-PLOWS. George A. Ellis, Philadelphia, Pa., assignor of one-half his right to T. L. Ricart, same place. [Filed Mar. 20, 1877.]

Brief.—Crank-axles, hinged to the frame, and turn on main axles. From the wheel-spindles a bar connects with a system of pivoted arms, levers, and spring-ratchets, which rock the cranks and raise or lower the frame and plows upon the wheels. Plow hung upon a fixed shaft or beam, the standards forming a socket around the beam. The plows may slide back upon the shaft when obstructed, and be thrown into place by a spring when released, and also be rocked upon the shaft by a lever, to level the plow. A vertical crank-shaft works in gearing upon the axle to slide the plow with its connecting parts, levers, and seat from one side to the other of the frame. Devices for elevating point of plow.

195,494.



1. In combination with the bars D D, arms d^2, and standards d^3, the levers E, rod *d*, and spring F', substantially as shown and described.

2. In combination with the frame A and axle C, the crank *e*, having openings for the journal-axles, and slots c^1, and being secured to said frame and axle, respectively, by means of bolts c^2 and screws c^3, substantially as shown and described.

3. The plowshare F, hung upon the beam or bar F', substantially as described, so as to slide or move longitudinally thereon.

4. In combination with the share F, beam F', and standards *f f*, the buffer-spring I, for the purpose described.

5. In combination with the beam F', arranged at a right angle with the axis of the wheels C', the plowshare F, suspended from said beam by the standards *f f*, and arranged to swing upon said beam, substantially as described and shown.

6. In combination with the beam F', plowshare F, and standards *f f* turning on the beam, the elbow-lever M and connecting rod N, said connecting-rod being arranged, substantially as described, so as to permit free lateral movement of the share, for the purpose set forth.

7. In combination with the rolling or sliding platform G and axle C, having a rack, c^4, the crank-shaft I' and pinion i^2, substantially as shown and set forth.

8. In combination with the transverse bar A^3 and platform G, the sliding or rolling carriage, composed of the plate P, strap P^1, and roller Q, substantially as shown and described.

9. In combination with the carriage P and platform G, the vertically-adjustable bracket R, substantially as shown and described.

10. The combination, with the bracket R and platform G, of the eccentric crank S and lever S', arranged and operating, substantially as shown and described, to raise and lower the point of the plow-share F.

195,495. FURNACES FOR DESTROYING GARBAGE. E. B. English and Wm. H. Burr, Philadelphia, Pa. [Filed May 14, 1877.]

1. The mode herein described of destroying garbage and other refuse matter—that is to say, by temporarily retaining or holding in suspension within a shaft or kiln masses of the material while it is directly acted upon by ignited gases applied under pressure, all substantially as set forth.

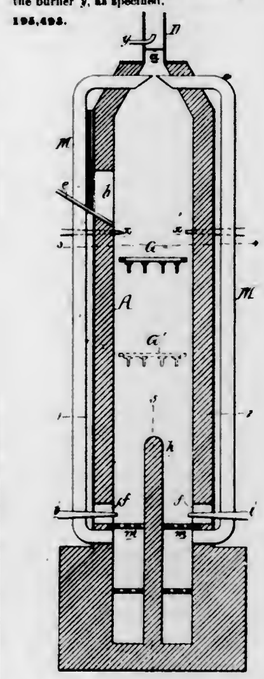
2. The combination, in a furnace or kiln, of the following elements, namely, a shaft or equivalent structure forming the body of the furnace or kiln, grates *m* at the base of the shaft, air-openings with gas or vapor burners adjacent to these grates, a grate or grates or other equivalent obstructions, G, within the shaft, and an outlet-pipe, D, all substantially as specified.

3. The combination of the furnace A and its burners near the bottom with the pipes M, opening communication between the top of the furnace and the space below the burners, as specified.

4. The combination, in a garbage-furnace, of the suspension-grate G with the partition h and burners *i*, as set forth.

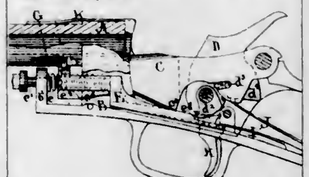
5. The combination of the chimney D with the burner *y*, as specified.

195,496.



195,496. BREECH-LOADING FIRE-ARMS. B. O. Fasoldt, Albany, N. Y. [Filed Jan. 2, 1877.]

Brief.—The cocking of the hammer depresses the breech-block and moves forward a spring-rod, which operates the extractor. When the breech-block approaches the limit of its downward movement, it bears upon the spring-rod, and unhooks it from the tumbler of the hammer, and allows it to be thrown back by its spring, giving the extractor a blow, by which the shell is ejected.



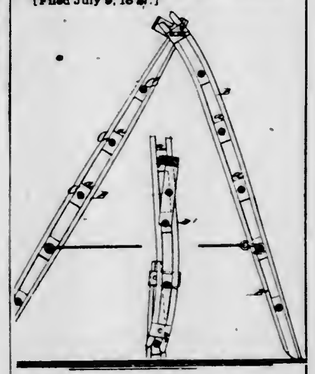
1. The combination, with a breech-loading fire-arm, of the automatic retractor herein described, consisting of the sliding bar E, spring-latch e^2, spring e^3, retractor-bar F, and spring G, as and for the purpose herein specified.

2. The hammer D, provided with a catch-piece, d^3, in combination with the sliding bar E, substantially as and for the purpose herein specified.

3. The hammer D and breech-piece C, in combination with the sliding bar E, substantially as and for the purpose herein specified.

4. The combination of the sliding bar E, having a spring-latch, e^2, with the retractor-bar F, as and for the purpose herein specified.

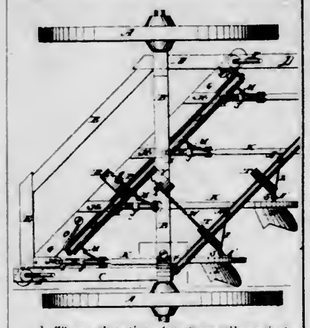
195,497. LADDERS. Moses Foss, Cairo, Ill. [Filed July 9, 1877.]



A ladder whose sections B B' are provided with open sides formed of bowed bars and intermediate blocks, the rounds being passed through said blocks, as and for the purpose specified.

195,498. GANG-PLOWS. Daniel M. Funk, Harrisburg, Oreg. [Filed July 30, 1877.]

Brief.—The frame is supported on two wheels, and consists of side beams, one of which extends forward of the axle-tree, and the other rearwardly, and connected by diagonal cross-bars. The plow beams are of iron, and are attached to an adjustable diagonal draw-bar. A diagonal shaft, with drum wheels and chains which are attached to the rear of the plow-beams, is mounted upon the after part of the frame, by means of which and a lever and keeper the plow can be raised from the ground.



1. The combination of the forwardly-projecting bar C, the rearwardly-projecting bar D, the cross-bar E, the swiveled screws F, and the lead-bar G with each other and with the wheels and axle A B for connecting the plow-beams with said wheels and axle, substantially as herein shown and described.

2. The combination of the straps H, the pivoted blocks I, and the pivoted bars J with the lead-bar G and with the beams K, to enable the pitch of the plows to be temporarily changed without changing the position of the lead-bar G, substantially as herein shown and described.

3. The combination of the shaft N, the chains M and P, and the lever and catch-plate Q R with the plow-beams K, the pivoted bars J, and the lead-bar G, substantially as herein shown and described.

4. The combination of the shaft and pulleys U T, the chains S and W, and the lever and catch-plate X Y with the plow-beams K, the frame C D E, and the axle B, substantially as herein shown and described.

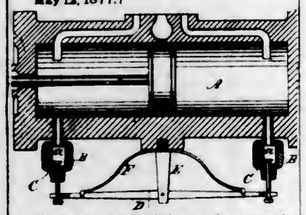
195,499. CARRIAGE-CURTAIN FASTENERS. William B. Gould, Montrose, N. J. [Filed June 5, 1877.]

A carriage-curtain knob composed of the nail or tack a and of the hollow sheet-metal cap or covering c, said cap or covering constituting in one piece the hollow head e, neck g, and hollow curtain f, the neck being of a single thickness, substantially as specified.

195,499.



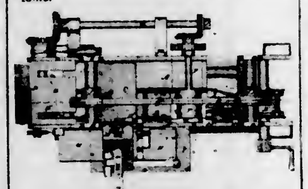
195,500. AUTOMATIC CYLINDER-COCKS. J. M. Graham, Bloomfield, assignor to himself and Geo. Elliott, Bedford, Ind. [Filed May 13, 1877.]



The combination, with the cups B, connected with cylinder A, of the lever D, connected valves C C, and the spring F, arranged to press at both ends of the lever D, as and for the purpose specified.

195,501. PAPER-BAG MACHINES. Thomas W. Grinter, Cincinnati, Ohio, assignor of one-half his right to Jos. F. Jewett, same place. [Filed Feb. 22, 1877.]

Brief.—The blanks have their bottom folds formed upon traveling tables, the upper surfaces of which have grooves, in which moves an endless traveling presser-band, which determines the line upon which the first fold is made. The tables in their forward movement engage with and carry along the reciprocating folding and pressing mechanisms, which consist of a sliding folding bar, which enters the end of the blank, and, after pushing it back into the diamond shape across the presser-band, turns down upon it, thus assisting to press it flat, when a second press plate folds down upon the blank, and both travel forward until near the paste-roll, when they are released by a cam upon the frame of the machine, and are returned to their original position ready for engagement with the next advancing table. From the paste-roll the blank passes to the curved folders, which give the final bottom folds.



1. A series of flexibly-connected traversing tables, operating substantially as hereinbefore set forth, upon each of which tables a blank is folded while the table is in motion.

2. The combination, substantially as hereinbefore set forth, of a series of traversing tables with folding mechanism, automatically operated by the movement of said tables.

3. A blank carrying and folding table, constructed, substantially as hereinbefore set forth, with a depression or recess therein parallel with its line of movement, and a clip or finger mounted thereon, for the purposes specified.

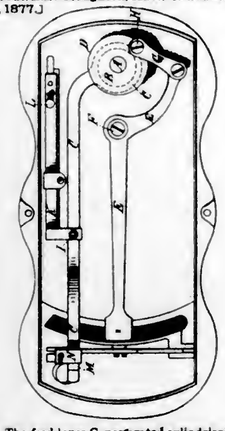
4. The combination, substantially as hereinbefore set forth, of a series of traversing blank-carrying tables, folding mechanism, substantially as described, automatically and successively thrown into operation by, and traveling temporarily with, said tables while acting upon the blanks and mechanism, substantially as described, which automatically releases and returns the folding mechanism to its normal position when the folding is completed.

5. The combination, substantially as hereinbefore set forth, of a paste-fountain below the path of the blank, a paste-wheel above said path, and an intermediate conveyer or segment which conveys paste across the path of said blank from the fountain to the roller.

6. The combination, substantially as hereinbefore set forth, of a series of traversing blank-carrying tables, a presser-band running in grooves or recesses in said tables, folding mechanism automatically thrown into operation by said tables, mechanism for retracting the folding mechanism when released by the tables, pasting mechanism, and mechanism for forming the final folds after pasting, the said folding, retracting, pasting, and forming mechanism being and operating substantially as set forth.

7. The mechanism for folding out the end of the blank, primarily consisting of the combination, substantially as hereinbefore set forth, of the cam-plate, the carrier-plate reciprocating thereon, and the slides carrying the opening and presser-plates, which slides are all actuated by a pin working in a groove of the cam plate, as hereinbefore described.

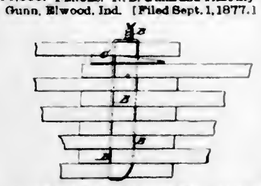
195,502. SEWING-MACHINES. William L. Grout, East Stoughton, Mass. [Filed Mar. 3, 1877.]



1. The feed-lever C, perforated cylindrically at one end to receive the shaft A and eccentric B, by which it is actuated, in combination with the adjustable fulcrum l, substantially as and for the purpose set forth.

2. The feed-lever C, mounted at one end upon the eccentric B, and thereby caused to vibrate upon the pivot l, in combination with the shuttle-carrier E, link G, and crank-pin H, when such crank-pin is erected upon the eccentric hub B D, substantially as and for the purpose set forth.

195,503. FENCES. N. B. Gunn and Timothy Gunn, Elwood, Ind. [Filed Sept. 1, 1877.]



In combination with a worm fence, the loops or band B and tightening wedge C, arranged substantially in the manner described.

195,504. GRIPING DEVICES FOR TRACTION-CABLES FOR PROPELLING CARS AND VEHICLES. Chas. A. Gustafson, San Francisco, Cal., assignor to Andrew S. Hallidie, same place. [Filed July 2, 1877.]

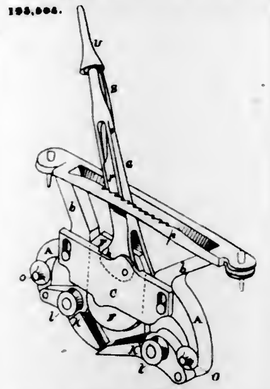
1. The semicircular frame A, with its shank arms or prongs b, in combination with the jaw C and vertically-moving jaws K K, operated by a slide, F, and lever G, substantially as and for the purposes described.

2. The jaw C, attached to a griper-frame, A, in combination with the curved or knee-lever jaws K, with the pulleys l, said arms being hinged at one end to the frame C, while their opposite ends are raised and lowered by a slide, F, and lever G, substantially as and for the purpose described.

3. The griper-frame A, provided with the attached jaw C, and having the hinged lever-jaws K K, with their pulleys l, operated as described, in combination with the inclines or cones O, substantially as and for the purpose described.

4. The pawl-plate r, secured, by a bolt near its upper end, in a mortise in the lever-handle, and provided with the arm S, in combination with the rotary handle U, with its cam-groove V, substantially as and for the purpose described.

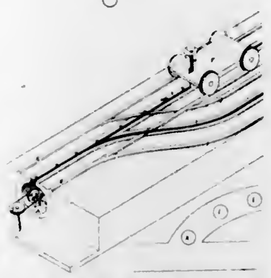
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195,505. ENDLESS-ROPE TRACTION-RAILWAYS. Andrew S. Hallidie, San Francisco, Cal. [Filed Apr. 9, 1877.]

Brief.—Horizontal pulleys deflect the rope through the tube of a siding. The griper is constructed to revolve a half-circle, that it may gripe either rope.





1. The combination, with the underground slotted tube or tunnel A, with its double line of pulleys d e, rope D, and end pulleys g, of the tube or siding I, pulley K, and horizontal pulleys l l, substantially as and for the purpose described.

2. The car F, provided with a reversible griper, in combination with the underground

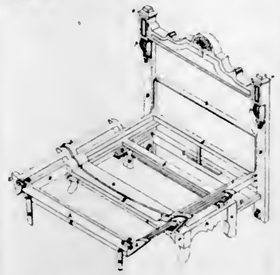
slotted tube A, in which an endless rope or cable, D, is arranged to traverse in opposite directions, substantially as and for the purposes described.

3. A griping device for connecting cars with an endless traveling rope, provided with the cylindrical or tubular stem O, and longitudinal rib or ribs h, in combination with a corresponding opening in the car-floor, substantially as and for the purpose described.

4. The underground slotted tube or tunnel A, provided with adjustable strips *t t* for regulating the width of the slot, substantially as above described.

195,506. SOFA-BEDSTEADS. A. Hansen, San Francisco, Cal. [Filed May 16, 1877.]

Brief.—A sofa-bedstead consisting of a main frame, a sliding back-frame, forming a headboard for the bedstead, and connected to the main frame by sliding guide-bars, and moving on rollers, a seat-frame hinged to the upper front corners of the main frame, to be thrown over and forward to form a portion of the bed, and a folding back-frame hinged to the rear edge of the main frame, to be turned down to complete the bed, and to stand in a vertical position within the sliding back-frame when the bedstead is converted into a sofa. Ornamental spring clamping-pieces are attached to the posts of the back-frame, to hold the pillow-shams or other parts of the bed-clothing in place.

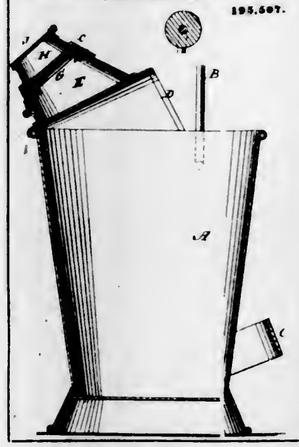


1. The main frame A and the movable back-frame B, in combination with the folding seat E and folding back G, so constructed as to be closed to form a sofa, or opened out to form a bed, substantially as herein described.

2. The seat-frame E and the back-frame G, hinged to the upper part of the frame A, so that when opened out they shall elevate the bed-bottom, substantially as and for the purpose herein described.

3. The ornamental pieces or attachments O *p*, said attachments being made movable and held to place by springs, so that they may be employed to hold portions of the bed-clothing in place, substantially as herein described.

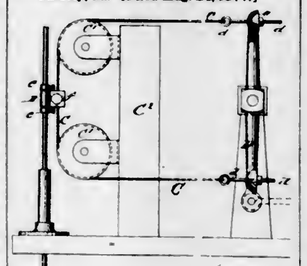
195,507.



195,507. MILK-PAILS. Wm. Heusermann, Sedalia, Mo. [Filed Aug. 11, 1877.]

The combination of the hinged nozzle H, having hinged cap J, with the pail A, provided with the hood D, pouring-spout E, and strainer G, substantially as and for the purpose set forth.

195,508. APPARATUS FOR OPERATING PUMPS. John A. Hurley and D. J. Hurley, Oil City, Pa. [Filed Aug. 24, 1877.]

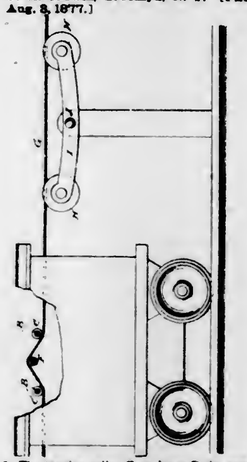


1. A pumping apparatus for oil wells, consisting essentially of a rock-beam oscillated by the pitman of the engine, of a cable or chain connected by ball-joints to the rock-beam, and stretched over guide-pulleys, and of an adjusting device by which the cable is rigidly connected with the pump-rod, substantially in the manner and for the purpose set forth.

2. The combination of the guided and reciprocated cable or chain C with the adjusting mechanism B, that is clamped to the cable and secured by collars to the pump-rod, substantially as described.

3. The combination of the reciprocating cable or chain C, having end bolts or connections *d*, with the slotted and concaved ends *a* of the rock-beam, ball-washers *b*, and fastening-nuts, substantially as specified.

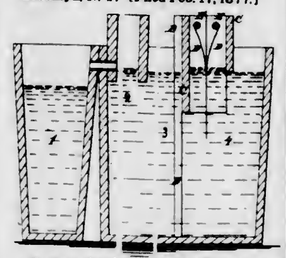
195,509. ACCOMMODATING PULLEYS FOR CABLES USED IN PROPELLING CARS, &c. O. H. Jadwin, Brooklyn, N. Y. [Filed Aug. 3, 1877.]



1. The tension-roller F on lever D, in combination with upper rollers C C, as a means for gradually attaching a car, vessel, or other body to a constantly-moving cable, G, in the manner and for the purpose substantially as herein set forth, shown, and described.

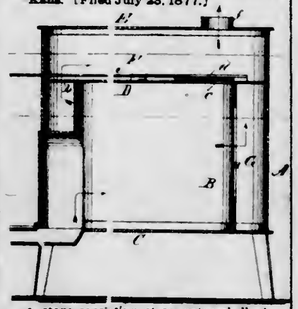
2. Pulleys H H, situated on the extremities of arm I, said arm being centrally pivoted at J, forming an accommodating pulley for the support of the cable, substantially as shown and described.

195,510. TINNING APPARATUS. J. B. Jones, Brooklyn, N. Y. [Filed Feb. 17, 1877.]



An apparatus for coating metals, consisting of the vessels 1 2 3 4, No. 2 having a flux-compartment at the top, communicating by overflow with No. 1, Nos. 2 3 being unpartitioned and forming one vessel, and No. 4 having a surface flux-compartment with scraping-plates thereto, as shown and described.

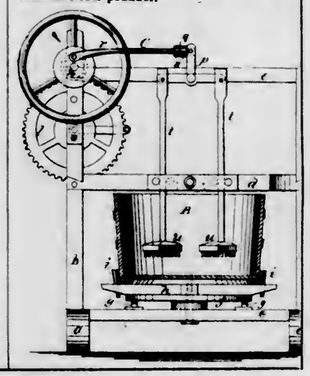
195,511. STOVES. Moses Jones, Hymer, Kans. [Filed July 23, 1877.]



A stove consisting of an outer shell, A, top, bottom, and division plates E C D, and inner shell B, forming intermediate flues F G, the shell A having outlet *f*, and the fire-box B being slitted at *a*, having apertures *b c*, and provided with handled damper *d e*, as shown and described.

195,512. WASHING-MACHINES. O. Jurden, Ackley, Iowa. [Filed June 26, 1877.]

Brief.—Rubber springs are placed at the point where the pitman connects with the three-arm lever, to take up the shock produced by an unusual accumulation of clothing beneath either pounder.



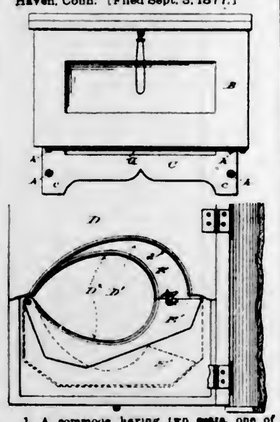
The combination, in a washing-machine, of the fly-wheel e, connecting rod C, having springs z, the three-arm lever p, and the pounders, consisting of rods t and heads u, substantially as shown and described.

195,515. NUT-LOCKS. Richard A. Kelly, Manchester, Iowa. [Filed Mar. 6, 1877.]



A lock for the nuts on two independent bolts, consisting of a long washer, one end of which is secured to one bolt and bent up against its nut, and the other bent end of which rests against the nut on the other bolt, but is left entirely free from and unsecured by either said bolt or nut, substantially as described.

195,516. COMMODES. Julius Kutscher, New Haven, Conn. [Filed Sept. 3, 1877.]



1. A commode having two seats, one of said seats being formed of two sections, which are pivoted to the other seat, so as to turn laterally toward or from each other, in order to adapt said commode to be used either by children or adults at will, substantially as set forth.

2. The combination of outer casing B, pivoted locking-bars G, having hooks or studs g g, and inner supporting casing C, having sockets h arranged in series, substantially as and for the purpose set forth.

3. A commode having a seat of variable height and variable aperture, in order to accommodate children or adults at will, substantially as set forth.

195,515. CENTRIFUGAL MACHINES FOR CREAMING MILK. William C. L. Lefeldt and Carl G. O. Lentsch, Schoeningen, Germany. [Filed Aug. 3, 1877.]

Brief.—The cream is separated from the milk by centrifugal force.

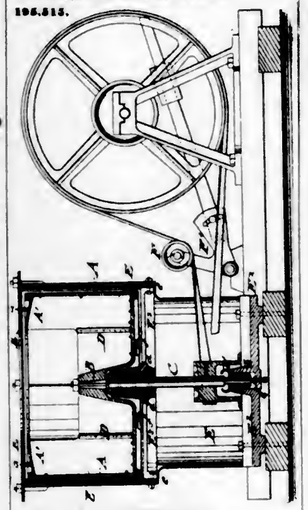
1. A centrifugal machine for creaming milk, consisting of a revolving cylinder or drum, with solid bottom and sides and top ring or flange, and of a surrounding safety-jacket or casing, substantially in the manner described, and for the purpose specified.

2. In a centrifugal machine for creaming milk, a revolving cylinder or drum, made of solid bottom and sides and with a top ring or flange, in combination with radial partitions, substantially in the manner described, and for the purpose specified.

3. The combination of the cylinder or drum, having conical center-bearer, solid bottom and sides, and top ring or flange, with detachable radial partitions, which are near the center of the height of the bearer, while the parts nearer the circumference of the drum are extended to the top flange, substantially as specified.

4. The combination of the revolving drum and driving-spindle with a surrounding safety-jacket, having cushioned arms with center-bearing, and a base-plate with supporting base-step, substantially as described.

195,515.



195,516. NUT-LOCKS. William Lyon, Newark, N. J. [Filed Mar. 10, 1877.]



A wedge having a flat and transversely serrated surface, in combination with a nut having an aperture or recess extending from one of its sides and communicating with the bolt-hole and with an ordinary threaded bolt, substantially as and for the purpose described.

195,517. EVAPORATING-PANS. Charles McCauley, New Orleans, La., assignor of one-half his right to John Thompson, same place. [Filed May 21, 1877.]

Brief.—The pipe-seats and steam-pipes are provided with a fastening device consisting of a pivoted arch and set-screw, so that the coil of pipe may be readily secured in the pan or removed therefrom.



1. In an evaporating pan, two or more pipe-seats, a, provided with metal arches C, the latter furnished with screws e for securing the pipes on their seats, as described, and for the purpose set forth.

2. The pipe sections F G, provided with legs K and handles l, in combination with an evaporating pan furnished with pipe-seats a and arches C, as described, and for the purpose specified.

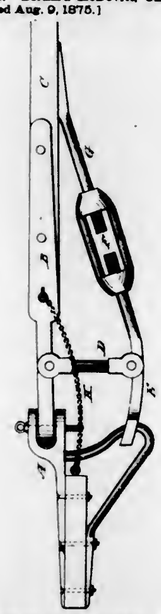
195,518.



195,519. SIGHTS FOR FIRE-ARMS. Marcus L. McCord, Nashville, Ill. [Filed June 25, 1877.]

A fire-arm having the bar D hinged at one end, provided with sight d' at the other, and folding back on a support, E, as and for the purpose specified.

195,519. SUPPORTS FOR STREET-CAR TONGUES. Bernard McDevitt, Chicago, Ill. [Filed Aug. 9, 1875.]



1. The combination of the tongue B C and pivoted bar D with the brace E G and interposed turn-buckle F, for adjusting and preserving the relative position of the parts, substantially as specified.

2. The safety-chain H, in combination with the bracket A and tongue B, substantially as specified.

195,520. MACHINES FOR UROCHETING THE TOPS OF HOSIERY GOODS. Joseph M. Merrow, Merrow Station, Conn. [Filed May 12, 1877.]

Brief.—For overstitching the top or edge of stockings or knit goods. The thread or yarn is carried by a vertically-reciprocating eye-pointed needle into the path of a latch-needle, having a combined vertical reciprocating and laterally-oscillating movement, by which the loops are laid around the edge of the fabric.

1. The bar p, arranged in guides permitting a longitudinal movement, and having a crochet-hook and a transversely-slotted head, o, in combination with the lever L, having an arm arranged in the slotted head o, and the lever N, arranged to oscillate the crochet-hook in a plane at right angles to the plane of oscillation of lever L, together with the actuating cam-cylinder M, substantially as and for the purpose described.

2. The combination, with the bar p, bearing the crochet-hook, of the bearing or guide G, having the right angular tubular parts q and r, the bar H, and guide I, for supporting and controlling the movement of the crochet-hook, substantially as and for the purpose described.

3. The bearing or guide G, consisting of the right-angular portions q and r, combined with the bar p, carrying crochet-hook, the bar H, the guide I, levers L N, cam-cylinder M, eccentric J, and connecting-rod K, substantially as and for the purpose described.

4. The combination of the angled and slotted lever N, the rod p, bearing crochet-hook, and the cam cylinder having cam-slot f', substantially as and for the purpose described.

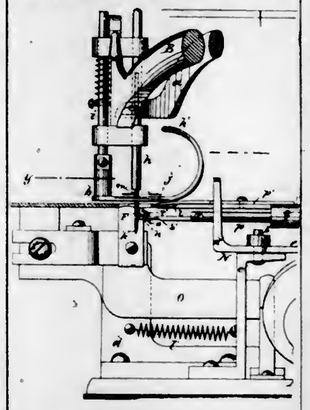
5. The presser-foot provided with the curved horn h', for the purpose herein described.

6. The work-plate C, provided with finger l in the same plane, in combination with the presser-foot having finger j arranged in its place, for the purpose of clamping the work and yet permitting the stitches formed around said finger to be feel out from the looping-point, as described.

7. The guard n, provided with projection r', in combination with the crochet-hook, for the purpose described.

8. The plate C, having finger p', combined with the crochet-hook, to facilitate the knocking over, as described.

9. The guard n, consisting of an imperforate plate arranged below the work-plate in the place of the needle, and with its edge adjacent to the same, in combination with the said needle and the irregularly-moving crochet-hook, for the purpose described.



195,521. BED-PANS. Clark S. Merriman, New York, N. Y. [Filed July 23, 1877.]

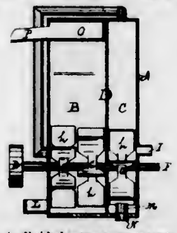


The bed-pan cover C, provided with the pocket D, as and for the purpose specified.

195,522. APPARATUS FOR BLEACHING AND ELEVATING CANE-JUICE. J. Miller, Bayou Des Allemand, La. [Filed Apr. 30, 1877.]

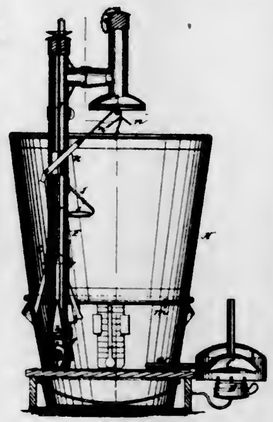
Brief.—The sulphur fumes are washed and purified by sprays of water, and are then brought into contact with the cane juice in the condition of spray produced by revolving paddles. The paddles elevate the juice into a raised box, from which it is conducted away.

195,522.



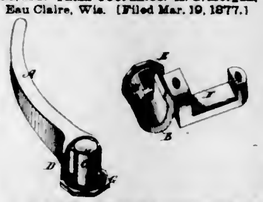
The box A, divided into compartments B C, curved plate E, shaft F, wheels G G, provided with paddle-blades h A, arranged as described, shelf O, troughs L P, pipes I M N, and connecting-pipe K, arranged as described, the whole constructed and operating substantially as set forth.

195,523. SHOWER-BATHS. J. R. R. Morford, La Harpe, Ill. [Filed Aug. 11, 1877.]



The combination, with the tub G and sprinkler L, of the screen N, hooks m, and cords n k, substantially as and for the purposes described.

195,524. THILL-COUPLINGS. H. G. Morgan, Eau Claire, Wis. [Filed Mar. 19, 1877.]

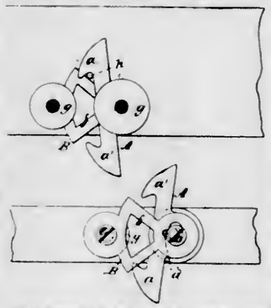


1. In a thill-coupling, the connecting-jaw F, having hollow cylinder B, provided with slot E and projection H, in combination with the thill-iron A, having cylinder C, cap G, and neck-iron D, the several parts being constructed, arranged, and combined to operate substantially as and for the purpose set forth.

2. In a thill coupling, the thill-iron A, having cap G, provided with the cylinder C and neck-iron D, constructed with a recess at one side, at the base of the cylinder, for engagement with the projection H of the hollow cylinder B, substantially as and for the purpose specified.

195,525. SHUTTER-FASTENERS. George W. Mudgett, Edgartown, Mass. [Filed June 25, 1877.]

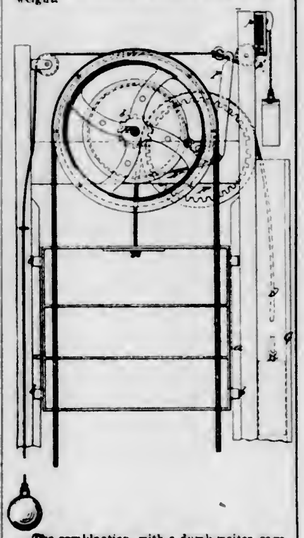
Brief.—A button, having nibs or catches formed on its opposite sides, is attached to the lower edge of the shutter or blind, swinging horizontally, there being also a sector-shaped portion, and the catches engaging automatically with a pin on window-sill or with an L-shaped hook projecting from the wall.



The button A, having the sector-shaped portion f, the nibs or catches a a' on opposite ends, projecting from the same side, provided with the pin A, and pivoted as described, in combination with the plate B, having the slot for receiving the screw b and pin d, substantially as and for the purpose herein set forth.

195,526. DUMB-WAITERS. Jas. Murtaugh, New York, N. Y. [Filed July 13, 1877.]

Brief.—Pulling one brake-rope causes the other also to operate by means of its suspended weight.



The combination, with a dumb-waiter cage having lift and brake mechanism, substantially as described, of the weights suspended by ropes attached to the upper ends of levers P, as and for the purpose specified.

195,527. DITCHING TILE-LAYING MACHINES. Robert E. Nevin, Enon Valley, Pa. [Filed July 9, 1877.]

1. The cutters F, arranged alternately upon opposite edges of the chain E, as and for the purpose described.

2. The combination of the horizontal frame A, the inclined bar, plate, or frame B, the journals C, the chain-wheels D, the cylindrical washers G, the endless chain E, and the

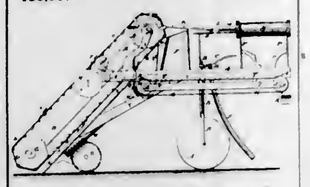
cutters F, and the guide-wheels H I with each other, substantially as herein shown and described.

3. The combination of the pulleys and band J R Q, the shaft S, the bevel-gear wheels U V, and the endless screw W with the journal of the chain-wheels D, that carry the chain and cutters E F, with the engine N, and with the frame-work A T X and the drive-wheels Z, substantially as herein shown and described.

4. The connected disks Z Z, having a worm-gear connecting with drive-shaft of chain E, as and for the purpose specified.

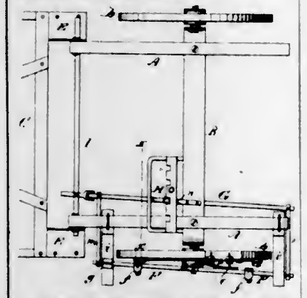
5. The combination of the frame T, the shafts S J', the rollers H' I', the endless belt G', and the inclined spout K' with the frame A and the digging mechanism of the machine, substantially as herein shown and described.

195,527.



195,526. DROPPING ATTACHMENTS FOR CORN-PLANTERS. Jacob W. Oberholtzer and Charles E. Wilcox, Hiawatha, Kans. [Filed July 13, 1877.]

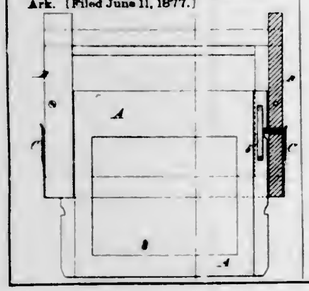
Brief.—To the spokes of one of the bearing-wheels is secured a circular ring, having cams that strike, in the revolution of the wheel, adjustable shoes attached to an arm journaled on the axle of the bearing-wheels, for imparting motion to the seed-slide. The arm carrying the shoes is provided at either end with blocks having journaled therein friction rollers, that move upon and against guides as the shoes are struck by the cam.



1. The combination, in a corn-dropper, of the circle *d*, carrying a cam, *e*, the bars F, having shoes *f*, the lever G, and seed-valve bar I, substantially as shown and described.

2. The blocks *g*, rollers *h*, and arms *i i'*, in combination with the bars F, substantially as shown and described.

195,529. REMOVABLE TOPS FOR SHOW-CASES. Thomas H. B. Parks, Arkadelphia, Ark. [Filed June 11, 1877.]



The frame B, provided with side grooves and the top piece or lip *a*, the spring-stops C, and the adjustable or sliding sash A, having side notches, as shown and described, the whole forming a device applicable as a detachable protector and transparent front or cover for boxes containing goods to be exhibited and sold, as specified.

195,530. PICTURE-FRAMES. L. Pattberg, Jersey City, N. J. [Filed Aug. 25, 1877.]



1. The sheet-metal molding A, made with the outwardly-projecting rim *b* and with the inner flat ring *d*, and intervening oblique body *c*, the oblique body being in direct contact with the ring *d*, substantially as herein shown and described.

2. The combination of the sheet-metal molding A, which is composed of the rim *b*, oblique body *c*, and inner ring *d*, with the frame B, and with the glass C, all arranged so that the oblique face *c* of the molding will reach directly to the glass, substantially as specified.

195,531. MEDICINAL COMPOUNDS. Mary C. Peden, Caverna, Ky. [Filed Aug. 3, 1877.]

A compound formed of burdock-root, poke-root, sarsaparilla-root, sulphur, whisky, and water, in the proportions and manner herein shown and described.

195,532. COMPOSITIONS FOR DRESSING COTTON YARNS. Wm. H. Perkins, Fall River, Mass. [Filed July 13, 1877.]

The cotton-dressing herein described, composed of unslaked lime, sal-soda, and soap, dissolved in fresh water and mixed with salt water, substantially in the manner described.

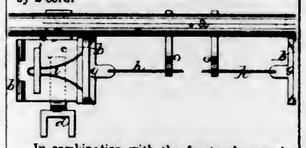
195,533. FENCE-POSTS. Thomas L. Pope, Waubeck, Iowa. [Filed Apr. 16, 1877.]



A cast-iron fence-post, A, provided with flanges *a b c d*, terminating at *e f*, and having ribs *g g* on the front and rear faces of the post for the purpose of giving lateral strength to the same, substantially as shown and described.

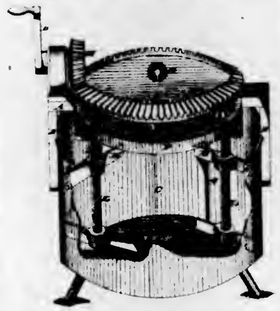
195,534. HORSE-DETACHERS. William O. Reopens and James L. Lumley, Bath, N. C. [Filed Aug. 28, 1877.]

Brief.—The thill-iron rests in a hinged box, secured by a clasp. The latter is pulled off by a cord.



In combination with the front axle *a* and the thills of the vehicle, the box *b*, provided with a cover, *c*, springs *f*, clasp *g*, a cord, *h*, and guides *e*, substantially as shown and described.

195,535. LARD-COOLERS. Howard Rieman, Baltimore, Md. [Filed Aug. 8, 1877.]



In a lard-cooler, the combination of the actuating-pinion E, bevel crown-wheel F, upright shaft G, and cross-bar H with the shafts L, pinions N, journal-sleeves K, and suitable agitators or stirrers, substantially as described.

195,536. WHIP-SOCKETS. George P. Rose, Freeport, Ill. [Filed Sept. 18, 1876.]



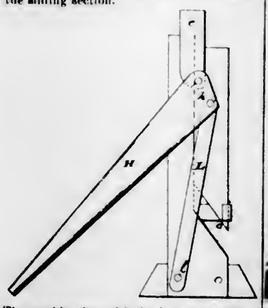
1. In a whip-socket, the section A, made from a single piece, provided at its upper end with the arms *c c*, bent to encircle the whip-stock, and bent upward at its lower end to form the part C, said part C being adjusted to clamp the whip-stock between it and the back, and provided with the arms *a a*, curved to encircle the stock, substantially as specified.

2. In a whip-socket, the combination, with the section A, bent at its upper end to form

the arms *c c*, and at its lower end to form the part C, as described, of the front part D, secured to the section A between the arms *c c* and the part C, substantially as and for the purpose specified.

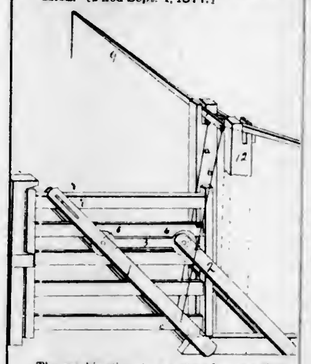
195,537. WAGON-JACKS. Karl E. Rudd, Cassopolis, Mich. [Filed Aug. 13, 1877.]

Brief.—To the upper end of the sliding section is fixed a guide, to serve in connection with guide-strap to prevent lateral movement of the sliding section.



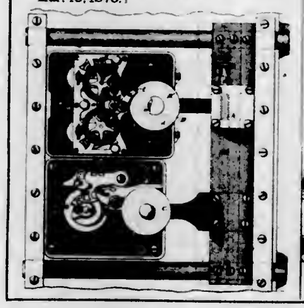
The combination, with the fixed and sliding sections of a wagon jack, of the hand-lever H, guide-bar *e*, and link L, the lower end of the latter being pivoted to the extreme lower end of the fixed standard, substantially as described.

195,538. GATES. Karl E. Rudd, Cassopolis, Mich. [Filed Sept. 4, 1877.]



The combination, in a gate, of connecting-bars 3 3', wheels 5 6, supporting-bars 1 2 with slot 7, the whole being connected and pivoted substantially as described.

195,539. COMBINED TIME-LOCKS, COMBINATION-LOCKS, AND BOLT-WORK FOR SAFES, &c. Jas. Sargent, Rochester, N. Y. [Filed Mar. 10, 1876.]



1. The combination, with a door-bolt, E, of a clock-lock, B, and a combination or key lock, A, applied independently on a safe, vault, or other door, so as to rest against or connect with said door-bolt, and provided with a device whereby the door-bolt may be retained in the unlocked position for shutting the door, the whole arranged so that the door-bolt cannot be withdrawn when locked until both locks have been unlocked.

2. The combination of a clock-lock and a combination or key lock, both constructed to be applied on a safe, vault, or other door, so as to rest against the door-bolt, and provided with a lock-bolt having an opening or an offset which is automatically brought in and out of coincidence with the tongue of the door-bolt, whereby the door-bolt may be retained in the unlocked position for shutting the door, and prevented from being withdrawn when locked until both locks have been unlocked.

195,540. PACKING CIGARS. J. W. Shaeffer, San Francisco, Cal. [Filed Aug. 4, 1877.]

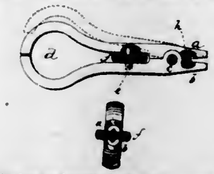


The method herein described of packing cigars, consisting in placing them end to end with their tips interlacing, substantially as herein described.

195,541. COMBINED CRANK AND TREADLE POWERS FOR DRIVING SAWS AND OTHER LIGHT MACHINERY. Henry Shear, Arcola, Ill., assignor to himself and E. Cornthwait, same place. [Filed Aug. 11, 1877.]

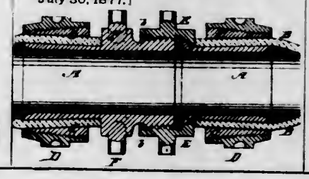
The combination of the shaft B, the double cranks C c', the connecting rods D, the treadles E, the pulley F, and the band G with each other, the frame A, and the working-shaft I of the machinery to be driven, substantially as herein shown and described.

195,542. WATCH-KEYS. Donald D. Smith, Rock Fall, Conn. [Filed June 19, 1877.]

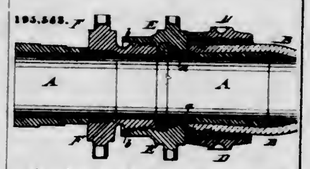


The herein described adjustable watch-key, consisting of the pair of recessed hinged jaws *a b*, combined with an adjusting-screw in rear, and spring *k* forward, of the pivot, substantially as specified.

195,543. HOSE-COUPLINGS. Frederick Stewart, St. Louis, Mo., assignor to himself and O. F. Scudder, same place. [Filed July 30, 1877.]

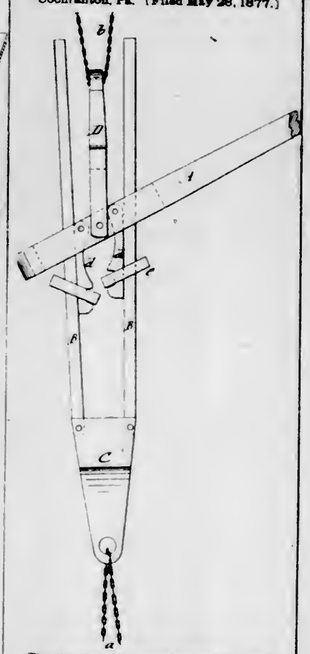


195,544.



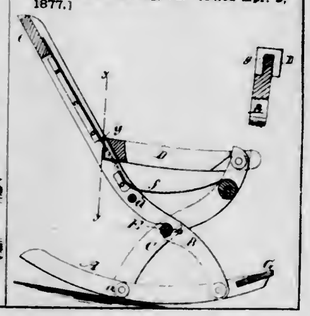
In a hose-coupling, the combination with sleeves, to which the hose is clamped by wedges to a smooth surface, of the female coupling E, connecting by end collars with one sleeve, and screwing over a male coupling, F, that is an extension of the other sleeve, as shown and described.

195,545. STUMP-PULLERS. H. M. Stitser, Coohranton, Pa. [Filed May 28, 1877.]



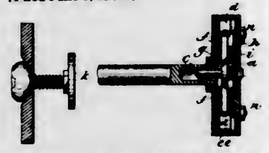
The pivoted and recessed pawls *d*, combined with the hand-lever A, the plain bars B, and the wedge-links *e*, loosely arranged to encompass the bars B and the recessed end of the pawls, for the purpose described.

195,546. FOLDING CHAIRS. Chas. H. Sutherland, Brownsburg, Va. [Filed Apr. 9, 1877.]



The combination, in a chair with rockers A, of the leg B, having notch *b*, adapted to engage with leg C by the rod E, the side posts having notches *g*, and the notched arms D, pivoted to the front legs, and adapted to lock the two adjustable parts of the frame in position when unfolded, all substantially as shown and described.

195,546. DEVICES FOR ADJUSTING PISTON-PACKING. Joseph Varos, Union City, Ind. [Filed June 5, 1877.]



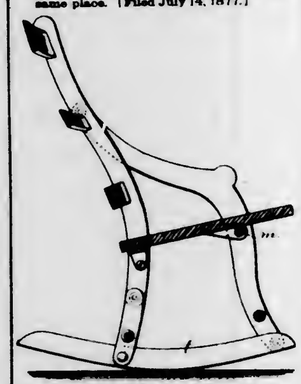
1. A cylinder-head provided with a wrench passing through it, in the manner and for the purposes set forth.

2. The combination, with a perforated cylinder-head provided with a conical valve-seat, of a wrench-head a portion of which is tapering or conical in form, and arranged to seat within the conical recess in the cylinder-head, substantially as described.

3. The combination, with a piston the packing of which is adapted to be expanded by means of an angular-ended belt passing through the follower, of a wrench the shank of which extends through the cylinder-head, substantially as set forth.

4. The combination of the follower *h*, rod *e*, cone *g*, ratchet *a*, pawl *b*, bars *f*, springs *d*, and packing-rings *z c*, substantially as set forth.

195,547. FOLDING CHAIRS. J. E. Wakefield, Worcester, Mass., assignor to E. W. Vaill, same place. [Filed July 14, 1877.]



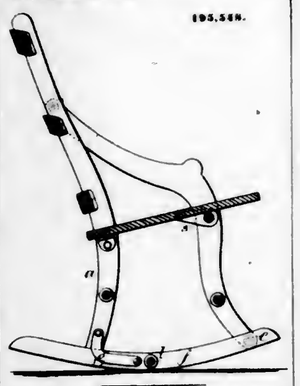
The combination, in a folding rocking-chair, of the supplemental back legs, the back frame, and the rockers pivoted together, the front legs pivoted to the rockers and to the back-frame, and the seat or seat-frame pivoted to the back legs, and connected by the links to the cross-rail m, substantially as set forth.

195,548. FOLDING CHAIRS. J. E. Wakefield, Worcester, Mass., assignor to E. W. Vaill, same place. [Filed July 9, 1877.]

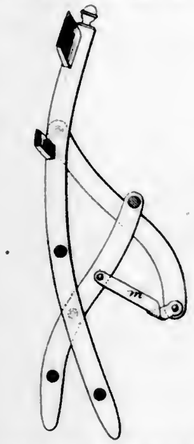
1. In a folding chair, the rigid seat or seat-frame *v* and links *s*, pivoted at one end to the seat-frame and at the other end to the support *r* for the seat, in combination with the back and back legs, formed as one frame, and the front legs *e*, pivoted at their upper ends to the back legs, the parts being constructed and arranged substantially as set forth, whereby the the seat, after being raised, folds downwardly in front of the front legs, substantially as set forth.

2. The combination, in a folding chair, of the rockers hinged to the front legs and connected by links *p* to the back legs, the back and back legs formed of one frame, the front legs pivoted to the back, the rigid seat or frame, and the links *s*, pivoted to the seat at their back ends and to the supports *r* at their front ends, and folding in the manner and for the purposes set forth.

195,548.

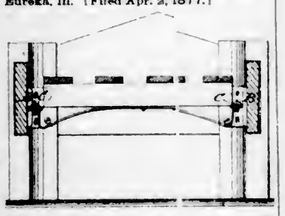


195,549. FOLDING CHAIRS. J. E. Wakefield, Worcester, Mass., assignor to E. W. Vaill, same place. [Filed Mar. 6, 1877.]



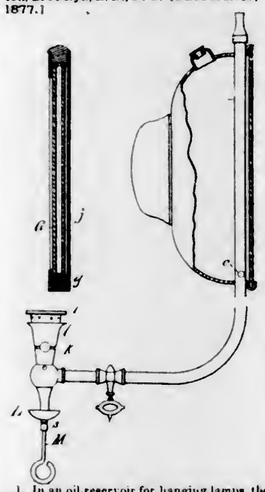
In combination with a chair having a back, folding X-legs and arms, the metallic links *m* pivoted at one end to the inner faces of the rear legs, and at the other end to the inner faces of the arms, the said links being bent so that their upper ends will receive the upper ends of the rear legs when unfolded, as set forth.

195,550. BED-BOTTOMS. William M. Ward, Eureka, Ill. [Filed Apr. 2, 1877.]



The combination, with the two-part longitudinal adjustable rods U U, of the curved cross-springs E, the cross-bars D', and long slats D, substantially as shown and described, for the purpose specified.

195,551. WALL-LAMPS. Henry Wellington, Brooklyn, E. D., N. Y. [Filed Mar. 16, 1877.]



1. In an oil-reservoir for hanging lamps, the combination of the front globular portion and the back plate, the two being united by spinning the former upon the latter and then soldering the joint, as shown and described.

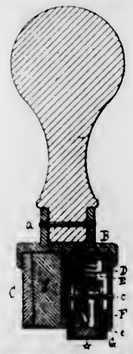
2. In combination with the cast-metal body of a vapor-burner carrying the needle-valve, drip-cup, and packing-tube, the cast-metal perforated top attached to said body by means of a screw, substantially as shown and described.

3. In combination with the burner-top I, perforated and screw threaded, as shown, the body K, having outwardly-curved portion *l* leading upwardly toward the flame, and carrying drip-cup L and needle-valve M, as and for the purposes explained.

4. The herein described cast-metal vapor-burner, the same being composed of the upper and lower parts I and K, to the latter of which are attached the supply-pipe, drip-cup, and needle-valve, the whole being constructed substantially as shown and described.

195,552. CANCELING-STAMPS. Walter D. Wesson, Providence, R. I., assignor of one-half his right to A. B. Foster, same place. [Filed May 16, 1877.]

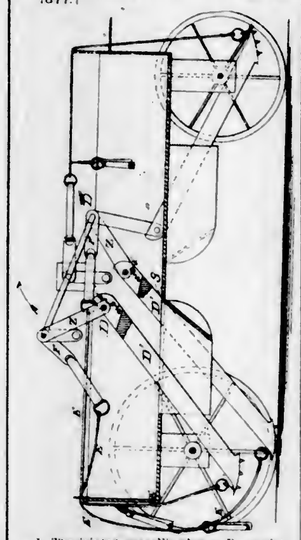
Brief.—The annular perforator punctures the stamp in a circle, and thus circumscribes the part, which is at the same time scarified or removed by the rotating mutilator, while the annular obliterator cancels the stamp by means of ink. The post-marking stamp is placed in the same cylinder that carries the canceler.



1. The combination of the rotating mutilator H, the annular perforator F, and the obliterator G, all arranged as specified, and operating substantially as shown and described.

2. The improved canceling-stamp herein described, consisting of the handle A, socket B, case C, nut D, spiral spring E, slotted perforator F, fixed pin *e*, obliterator G, spirally-slotted mutilator H, type I, and block J, substantially as described.

195,552. VEHICLE-PROPELLERS. Edwin G. Adams, Cohoes, N. Y. [Filed Mar. 24, 1877.]

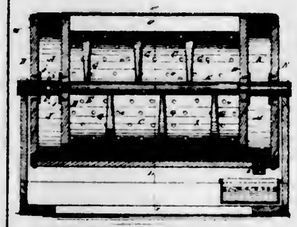


1. The jointed propelling-levers D, consisting of the upper portions Z, having shoulders d^3, pivoted to the cranks of the driving-axle, and the lower portions D' pivoted to said upper portions in connection with the lifting-cords E, attached to the ground-ends of said lower portions, as substantially as specified.

2. The combination of the heel or shoulder d^3 and the pin d^2 with the adjacent ends of the parts of the jointed levers D, substantially as herein shown and described.

3. The combination, in a vehicle propeller, with the jointed levers D' Z and driving-cranks B C, of the guides *g*, against which the levers move in their descent, substantially as specified.

195,553. FEATHER-RENOVATORS. Theodore J. Adams, Whitehall, N. Y. [Filed Sept. 18, 1877.]

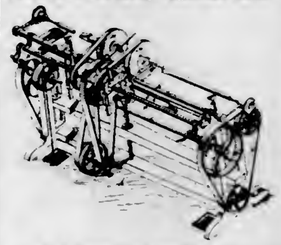


1. The combination of the cylinder B, having covered clearing-ports M N and lid *p*, perforated receptacle C, rotating agitator G, and hollow perforated gudgeon I i, constructed to form spaces J K C, substantially as set forth.

2. In a feather-renovator constructed substantially as described, the combination of an outer cylinder, provided with covered clearing-ports M N, a hollow perforated gudgeon, I i, and an inner perforated receptacle, C, having a rotating agitator, G, as set forth.

195,555. SPOKE-POLISHING MACHINES. O. Allen, Mount Morris, N. Y. [Filed Aug. 10, 1877.]

Brief.—Polishing-belt at each end, over which spokes are automatically fed from the center outward by a right and left hand screw-shaft, on which is placed divided nuts with clamps, which are tripped by cam-stops at the end of the outward movement of the spoke-carriages, which carriages are returned to the center of the machine by weights and cords.



1. In a machine for finishing spokes, two sets of holders, operated simultaneously in opposite directions by a right and left hand screw-shaft, substantially as herein set forth.

2. The combination of two sets of spoke-holders, a right and left hand screw-shaft for operating the same in opposite directions, and two endless rotating quartz-belts, substantially as and for the purposes herein set forth.

3. In a machine for finishing spokes, the combination of two endless rotating quartz-belts, two tightening-pulleys mounted on studs projecting from vertically-movable slides, a single pressure-bar, and a stationary center-screw with nut, whereby the two belts are adjusted simultaneously to the same tension, as herein set forth.

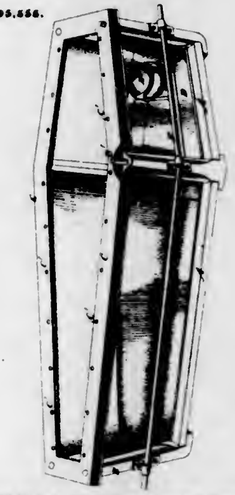
4. The combination of the two sets of spoke-holders, the laterally-movable rod, and the laterally-movable sleeve on said rod, as and for the purposes herein set forth.

5. The combination of the facer N with removable corner-pieces A A, pulley M, and shaft *e*, with crotch *d*, substantially as herein set forth.

6. The combination, with the spoke-holder, of the sleeve L^2 with flanges *f f*, the arms L^3 L^4, with interposed spring *k*, screw H, latch L^4, and stop S, substantially as and for the purposes herein set forth.

7. The combination, with the spoke-holder, of the arm L^3, with lug *m*, the set-screw *n*, track O, with slot *x* and incline *y*, and the cord *p*, with weight P, substantially as and for the purposes herein set forth.

195,556.



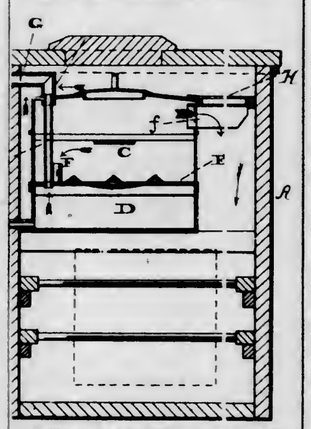
195,556. BURIAL-CASES. Joseph Aekins, Elida, Ohio. [Filed June 20, 1877.]

Brief.—As an improvement on Patent No. 186,516, January 23, 1877, a series of holes extend along the inner edge of the top plate, adapted for attaching the inner lining; and there is provided an interior frame with a head-rest.

1. The top plates C, constructed with a series of holes along the inner edge for receiving the threads for attaching the inner lining, substantially as set forth.

2. The interior frame D, constructed with a head-rest, D', substantially as set forth.

195,557. REFRIGERATOR AND WATER-COOLER. August Axt, Philadelphia, Pa., assignor of one-half his right to A. Gentzsch, same place. [Filed July 30, 1877.]

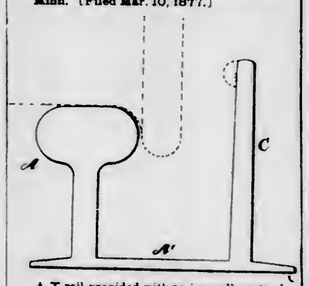


1. The ice-chamber C and water-cooler D, in combination with a perforated partition, E, cold-air pipe F, and warm-air pipe G, substantially as and for the purpose set forth.

2. The cooler D and the refrigerator-case A, in combination with the pipe G, having the opening *d* forming a common exit for heated matters of the cooler and refrigerator, substantially as and for the purpose set forth.

3. The ice-chamber C, with opening *f*, and the refrigerator-case A, in combination with the closing partition H, overhanging said opening *f*, substantially as and for the purpose set forth.

195,559. RAILROAD-RAILS. Lewis I. Baker and Lawrence O. Root, East Minneapolis, Minn. [Filed Mar. 10, 1877.]



A T-rail provided with an inwardly-extending broad base, A', having an inside vertical guard, C, with a bead at its upper edge formed on said web, substantially as and for the purpose set forth.

195,559. MACHINES FOR PUNCHING METAL PLATES. Stephen W. Baldwin, New York, N. Y. [Filed May 12, 1877.]

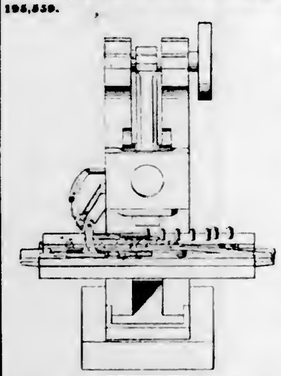
Brief.—The plate to be punched is placed on the bed of the machine under the templet, which is provided with holes corresponding to those to be punched in the plate. The independent punches are placed in these holes, and as they are brought under the countersunk press-head they are forced through, falling beneath the machine.

1. The combination of the templet and the feed-bar with the curved arm and spring attached thereto, and the cam acting on the arm of such feed-bar, substantially as described.

2. The bar, with its cam, in combination with the lever containing a projection which works into the notches of the templet, substantially as described.

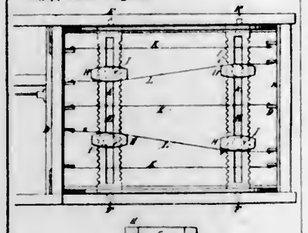
3. The press-head countersunk, in combination with the independent punches, tapered on their upper ends, substantially as described.

195,559.



195,560. STONE-SAWING MACHINES. Jos. M. Ballou, Hamilton, Ontario, Canada. [Filed Feb. 10, 1877.]

Brief.—The saws L can be set at any angle, by means of the rack E and clasps H, for cutting pyramidal figures.

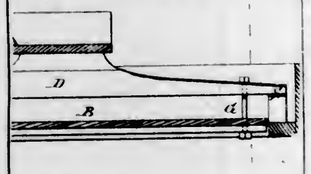


1. In a stone sawing machine, the combination of the slotted double racks E, having tenons F, with the uprights *a*, having grooves G, substantially as and for the purpose described.

2. The combination with a marble-sawing machine, of the clasps H, with cogs adjustably secured to the racks E, and provided with roller I on the inside, substantially as and for the purpose specified.

3. The combination of the tenoned racks E E, slots J J, clasps H H, pulley I, grooves G G, and bars C C, in a marble-sawing machine, as and for the purpose set forth.

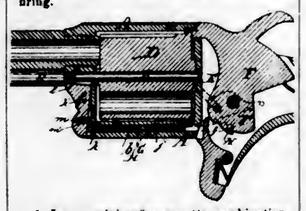
195,561. SPRING-SEATS FOR WAGONS. L. J. Bassoni, Newburg, N. Y. [Filed Aug. 24, 1877.]



In combination with the seat-reaches D and spring-supports therefor, the movable bottom B, suspended by hangers G from said reaches, substantially as described.

195,562. REVOLVING FIRE-ARMS. Thomas W. Bearcock, Pittston, Pa. [Filed Aug. 4, 1877.]

Brief.—A sliding locking-bolt, operated by a stud projecting from the side of the tumbler, engages with notches in an annular flange on the cylinder to look the latter in position for firing.



1. In a revolving fire-arm, the combination of the cylinder, having a circumferential notched flange, with a locking-bolt operating with a single sliding motion to engage with recesses or notches in said flange, substantially as described, for the purpose shown and specified.

3. The locking-bolt G for revolving fire-arms, herein described, consisting of a metallic rod having recess *j*, and flat spring *f* having beveled end *i* and recess *h*, the upper edge of the spring slanting down toward the body of the bolt, substantially as described, for the purpose set forth.

3. The frame A, having a longitudinal perforation, *b*, in its under-side piece, in combination with the sliding locking-bolt G, herein described, and pin *f*, substantially as described, for the purpose shown and specified.

4. The combination of the locking-bolt G, herein decribed, with the humfier F having beveled stud N, substantially as described, for the purpose set forth.

195,563. EXTENSION-LADDERS. John Berg, Chicago, Ill. [Filed Feb. 27, 1877.]



The combination, with the section A, having the clasps C C attached to the upper end of the side rails thereof, and provided with the anti-friction wheels *a a*, of the section A', having the back of the side rails rounded off at the upper end, and provided at the lower end with the hooks *d d*, substantially as and for the purpose specified.

195,564. LAMP-BRACKETS. Jos. W. Birch, New York, N. Y., assignor of one-half his right to L. H. Holmes, same place. [Filed Aug. 20, 1877.]

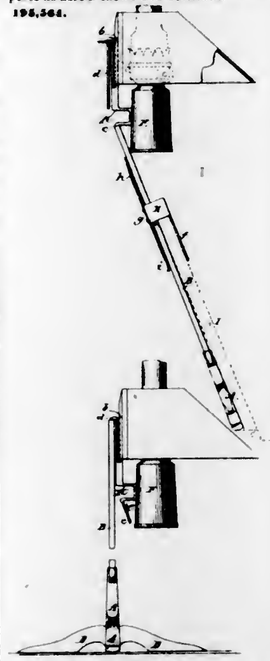
1. In a lamp bracket or support, the combination of the fixed base A, carrying the supporting tube-post B, the sliding adjustable clasp H, and the trifurcated bracket K, having tongues *b* and *d* attached to the lamp F, and by means of which the reflector is supported and the lamp attached to the supporting tube-post B, the whole arranged and operating as and for the purposes substantially as herein shown and set forth.

2. In a lamp bracket or support, the combination of the fixed base A, having auxiliary swinging arm D, tube-post B, attached to base A, the sliding adjustable clasp H, and the trifurcated bracket K, having tongues *b* and *c* attached to the lamp F, and by means of which the reflector is supported and the lamp attached to the aper of the supporting-post B, the whole arranged and operating as and for the purposes substantially as herein shown and set forth.

3. The trifurcated bracket K, having arms or fingers *b*, *c*, and *d* attached to the lamp F, and operating as and for the purposes as herein shown and set forth.

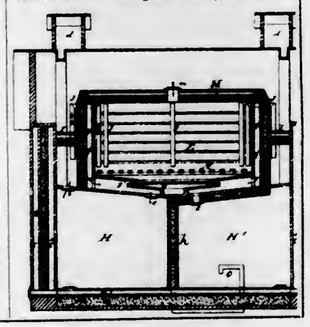
4. The adjustable sliding clasp H, having arm *f* depending from its face, and arched spring *g*, having arms *h* and *i* attached to its rear, the whole arranged to slide upon the tube post B, in the manner and for the purposes as herein shown and described.

195,564.



195,565. REFRIGERATOR-BUILDINGS. B. M. Birdsall, Clinton, Wis. [Filed Aug. 2, 1877.]

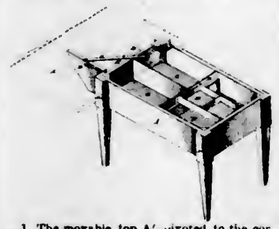
Brief.—The ice-chamber is above the cooling-rooms, and has non-conducting walls independent of the non-conducting walls of the house. The air from the cooling rooms rises through one set of registers, passes through siphon-shaped metallic pipes to near the bottom of the ice in the ice-chamber. The moisture is condensed in pipes, unites with the water from the ice, and runs through a pipe having a trap into any of the compartments for use. The sides, bottom, and ceilings of the rooms, and top of ice-chamber have registers, aided by air-pipes in the several corners of the building, that ventilate the entire structure, and provide for having the several rooms retained at different degrees of temperature.



1. The ice-reservoir E, having registers *e* arranged in its bottom, and surrounded by an air-jacket, having registers *i*, and provided with the U-shaped metallic flues J, in combination with the cooling-vaults, substantially as described.

2. The ice-house described, consisting of the cooling-compartments H H¹ H², the superposed ice-reservoir E, provided with non-conducting walls and circulating air-space, the U-shaped metallic flues J, the registers *e i*, the ventilating-flues, and the conducting-pipe, all constructed and arranged to operate substantially as described and shown.

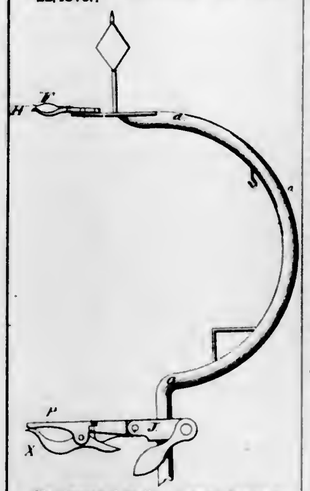
195,566. KITCHEN-TABLES. L. M. Bowdoin, Nevada City, Cal. [Filed Feb. 16, 1877.]



1. The movable top A', pivoted to the corner-piece C, in combination with the rod D, swinging bracket B', and table-body A, provided with compartments and detachable legs L, substantially as shown and described.

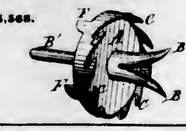
2. The hereinbefore-described table, consisting of the body A, provided with the pivoted turning cover A' and detachable legs L, the several parts being constructed and arranged to operate substantially as and for the purpose described.

195,567. MAIL-BAG CRANES. Frank W. Bridenbecker, Schuyler, N. Y. [Filed Mar. 22, 1876.]



The improved mail-bag crane herein described, consisting of the frame *a c*, having swinging arms H P, provided with springs or spring attachments P X, the lower arm P being hinged to an adjustable sleeve, J, substantially in the manner and for the purpose herein shown and specified.

195,568.

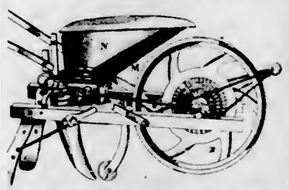


195,569. GLASS-BALL TARGETS. William Butterworth, Corning, N. Y., assignor to Corning Glass Works, same place. [Filed Sept. 7, 1877.]



A glass ball for target-shooting, provided with sand or its equivalent upon the outer surface thereof for the purpose of making a rough surface, substantially as and for the purpose herein set forth.

195,570. CORN-PLANTERS. Jas. Campbell, Harrison, Ohio. [Filed July 3, 1877.]



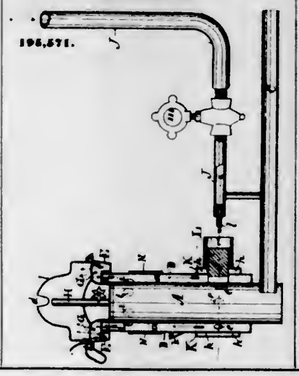
1. The combination, with the seed-hopper M and perforated dropper-plate R, of the curved pivoted cut-off W and the gravitating cone-shaped plunger O, substantially as and for the purpose described.

2. The combination, with the rotating perforated dropper-plate and fertiliser-hopper N, of the annular gage-plate and cut-off P, the slotted tumbler h, engaging a pin on said gage-plate, the rod *t*, and set-screw *p'*, substantially as and for the purpose described.

3. In combination with the covering-shares, the brace-rod K, having the elongated eye or slot at one end, adapted to engage any of the series of teeth in the clasp F, substantially as and for the purpose described.

4. In combination with the pilot-wheel B, the shield I and its revolving cutter *i*, arranged in line between the tread of said pilot-wheel and the center of the grain spout, substantially as and for the purpose described.

195,571.

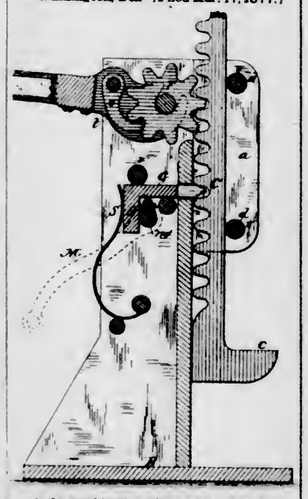


195,571. LAMPS. Chas. Capel, Macon, Ga., assignor of one-third of his right to Geo. D. Davis, Jersey City, N. J. [Filed Apr. 13, 1877.]

1. The combination, with a lamp, of the air-chambers *a* and *h*, communicating with each other by perforations *c*, the inlet-pipe L, the division-plate *f*, and the pipe J, all constructed to operate as and for the purpose described.

2. The lamp A, jacket D, perforations *i*, and the valve-sleeve N, constructed and combined to operate as and for the purpose described.

195,572. LIFTING-JACKS. E. T. Carswell, Wilmington, Del. [Filed Mar. 17, 1877.]

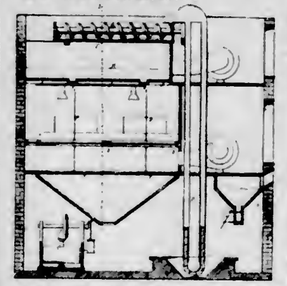


1. In combination with a lifting-jack having the sliding rack-bar and rotating cog-wheel, the detachable and removable spring-pawl lever, substantially as described.

2. The combination of the jack standard or frame, vertical sliding rack-bar, spring-pawl, G, and lever M, connected to the spring-pawl for the purpose of operating it, substantially as described.

3. The combination of the standard, vertically-sliding rack-bar, cog-wheel for operating the rack-bar, lever for operating the cog-wheel, spring-pawl for holding the rack-bar, and lever and eccentric for releasing the spring-pawl, substantially as described.

195,573. PROCESSES OF AND APPARATUS FOR DRYING BREWERS' GRAINS. Henry Chapman and Samuel H. Chapman, Philadelphia, Pa., assignors to said Henry Chapman. [Filed Dec. 29, 1876.]



1. The within-described process of drying brewers' grains and similar substances, consisting in first removing a portion of the water by means of centrifugal force, and then depealing the partially-dried grains in a kiln, and forcing or drawing a number of jets or streams of heated air through the mass, as set forth.

2. The combination of the hinged frames *i* with the cord or chain *p* and pulley *q*.

3. The combination of the hinged frames *i* with the hinged doors *s*, connected to and moving with the same, as set forth.

4. The combination of the elevator E, the trough F, and its screw G, the hopper H, a kiln or heating-chamber, and the receptacle L, all arranged as set forth.

195,374. BUTT-HINGE. Charles B. Clark, Buffalo, N. Y. [Filed Aug. 15, 1877.]

Brief.—The upper portion of the pintle, just below the scoop-shaped tip, is provided with a rectangular or polygonal projection, which projection fits into, and engages with, a corresponding recess formed into the upper knuckle-section of the hinge, the construction preventing the pintle from turning loosely in the knuckle by the motion of the hinge, while at the same time the locking device is entirely concealed from view.



A butt-hinge constructed with a rectangular or polygonal recess or mortise, C, in the upper knuckle-section B, in combination with a pintle, B′, similarly shaped below its shoulder, and adapted to sit and lock into said recess, said shoulder being constructed of a diameter equal to or larger than the exterior diameter of the knuckle, whereby the locking devices are concealed from view, as herein set forth.

195,375. CARPET-LINING PACKAGES. Judd M. Cobb, Beloit, Wis., and H. F. Evans, Chicago, Ill. [Filed Aug. 28, 1876.]

Brief.—Secures a package of moth-preventive in the center hole of a roll of carpet lining by means of a fastening strip secured to each.



The roll A, in combination with the interior tube B, filled as described, and a fastening-strip secured to both the roll and tube, substantially as and for the purpose set forth.

195,376. FOLDING CHAIRS. A. B. Cogswell, Burlington, Vt. [Filed May 11 1877.]

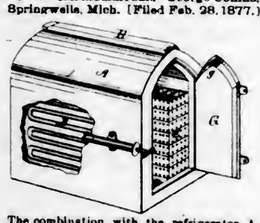
1. The seat C, pivoted to its front supports, and having its rear sustained by projections *b b* moving in slots *c c* in the lower portion of the rear supports B B, and sustained, when in use, by the rest *e*, said seat, when folded, falling between the supports B B, substantially as described.

2. The grooves or slots *c c*, formed in or upon the rear supports B B, for the purpose of governing the movement of the rear projections *b b* of the seat C, the upper extremities of these grooves or slots *c c* being curved to form the rests *s* to support the projection *b b* when the seat is in position for use, substantially as shown.

195,376.

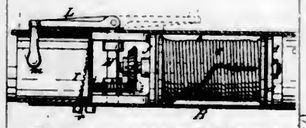


195,377. REFRIGERATORS. George Collins, Springwells, Mich. [Filed Feb. 28, 1877.)



The combination, with the refrigerator A, having a single charging-inlet for the refrigerant at the top, provided with a removable cover, of a hinged door, G, constructed with walls to form a refrigerant chamber, with an inlet-opening, *g*, to the same, at the top, adapted to communicate with the opening in the top of the refrigerator, for the purpose of distributing the refrigerant to the chamber in the door from the common inlet, substantially as described.

195,378. FISHING-LINE REELS. George T. Copeland, Brattleborough, Vt. [Filed Nov. 21, 1876.]



The improved fishing-line reel herein described, consisting of the spool *s* and shaft *g*, the shafts H K, bevel-gears *i i*, spring brake *r*, pivoted crank L, and case B, having slot *a* and guide *o*, as set forth.

195,379. PREPARATIONS OF CHEWING-GUM. Robert Cotter, Houston, Tex., assignor to R. Cotter & Co., same place. [Filed June 23, 1877.]

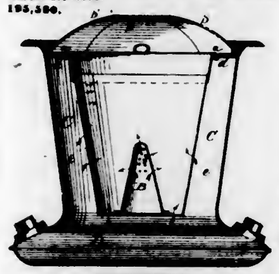
The process of preparing the gum of the sapota tree for chewing-gum, which consists in the successive steps of pulverizing, sifting, and subjecting to a gentle heat, as described.

195,380. SELF-WATERING FLOWER-VASES. Charles H. Crater, Owego, N. Y. [Filed Aug. 3, 1877.]

1. The combination of a perforated flower-pot and an exterior casing or vase, C, provided with a water reservoir, D, at the bottom, and constructed to form a close chamber, *c*, all around the flower-pot, substantially as and for the purposes herein set forth.

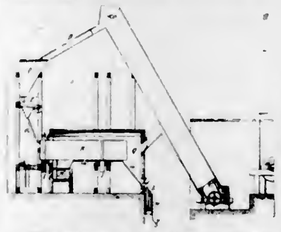
2. The hinged segmental shields S, in combination with the vase C, for the purposes herein set forth.

195,380.



195,381. APPARATUS FOR ROASTING ORES. Augustine B. Crosby, Greene, Me., assignor to United States Gold and Silver Amalgamating Company, of Virginia. [Filed Jan. 29, 1877.]

Brief.—An exhaust-fan at the base of the chimney-stack induces an air-current through the revolving roasters, and thus promotes the rapid purification of the contained ore. The evolved vapors and gases and the combustion products from the furnace-fires commingle at a common exit, and pass together through a kiln, wherein their contained heat is abstracted in drying and calcining the raw ore, and thence, through a series of condensing and washing chambers, to the chimney-stack. Provision is made for collecting and utilizing the wash-water.



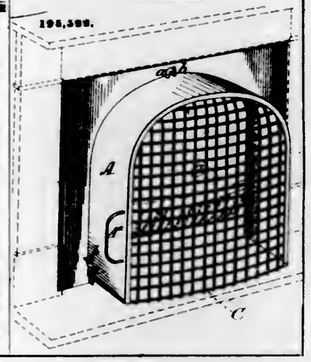
1. The combination of the roasting-cylinder H and feed-regulator F with the elevator C and the preparatory drying-chamber A, wherein the ore is heated before passing to the roasting furnace, as set forth.

2. The combination of the chamber Q and its valved outlet *d* with the box W, its cooling-coil L, and spout *y*.

3. The combination of the roasting-cylinder or cylinders H, the rollers I for supporting the same, and the cooling-pipes *m*.

4. The combination of the roasting-cylinder H with the feeding-spout G, terminating within the open end of the said cylinder, and having a weighted valve, all substantially as set forth.

195,382.

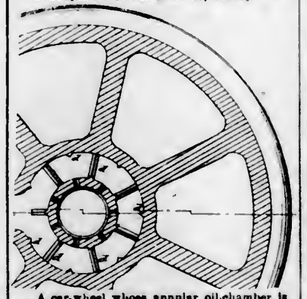


195,383. FIRE-FENDERS. R. R. Crouse, Bellaire, Ohio. [Filed May 19, 1877.]

Brief.—The device may be secured by the means represented; or it may be detachably hinged at one side, with socket and sliding bolt at the other.

A fire-fender consisting of a continuous radiating and reflecting hood, A, of sheet metal, and a guard or fire-screen proper, C, of woven wire, substantially as described.

195,384. CAR-WHEELS. W. Y. Cruikshank, Shamokin, Pa., assignor to J. Cruikshank, same place. [Filed Nov. 25, 1876.]



A car-wheel whose annular oil-chamber is divided by ribs *d* and provided with holes between each pair of ribs, substantially as and for the purpose specified.

195,385. HEAT-CONDUCTING MEDIA. Amos Densmore, Meadville, Pa. [Filed Sept. 21, 1877.]

The solution of nitrate of soda for transmitting heat in liquid-heating, circulating, and radiating apparatus, substantially as described.

195,386. GAS-ENGINES. F. Dieckmann, Cincinnati, Ohio. [Filed July 16, 1877.]

1. In a gas-engine, (hydrocarbon motor,) a cylinder having a closed end, at or near which explodents are admitted or discharged by means of the doubly valve-guarded ports or passages O O′ P P′, and an open end, provided at its mouth with inwardly-projecting packing, which encircles a pot-formed plunger of less diameter than the cylinder-bore, substantially as and for the purpose set forth.

2. In a gas-engine, a pair of aligned and rigidly-connected cylinders, A′ A″, having two opposing closed ends, at which the explodent is admitted and discharged by means of the doubly valve-guarded ports or passages O O′ P P′, and two open ends, which inclose, by suitable packing L, a pair of rigidly-connected pot-formed plungers, D D′, of less diameter than their cylinder-bores, substantially as set forth.

3. In a gas-engine, a cylinder having one closed end, at which the gases are admitted and discharged by means of the doubly valve-guarded ports or passages O O′ P P′, and an interiorly-projecting marginal packing for a pot-formed plunger of less diameter than said cylinder-bore, when said cylinder and plunger are provided with water-linings C H, substantially as set forth.

4. In a gas-engine, the combination, with the doubly valve-guarded inlet and outlet ports O O′ P P′ and the doubly valve-guarded fire-inlets 1 and 2, of a cylindrical tube, A, separated by fixed partition B into a pair of cylindrical open-ended compartments, A′ A″, having marginal packings L surrounding a pair of pot-formed plungers D D′, of less diameter, and rigidly connected by means of rods E.

5. In a gas-engine, the two rigidly-connected plungers D D′, working in rigidly-connected and suitably-ported cylinders A′ and A″, in combination with the doubly valve-guarded inlet and outlet ports O O′ P P′ and the doubly valve-guarded fire-inlets 1 and 2, whereby the force of explosion in one cylinder is made to coact with the pressure of the atmosphere made available by a partial vacuum in the other cylinder, substantially as set forth.

6. The positive valve, arranged at the outer end of each supply-passage, and closing and opening periodically to arrest and permit the entrance of the explodent, in combination with a valve at the inner end closing automatically against escape-currents, substantially as set forth.

7. The positive valve, arranged at the inner end of each exhaust passage, and closing and opening periodically to arrest and permit the exit of the imprisoned fluids, in combination with a valve at the outer end closing automatically against atmospheric access, substantially as set forth.

8. In combination with the inlet-passages O O′ and the outlet-passages S S′ and slide-valves T T′ 5 6, the four check-valves Y Y′ Z Z′, hinged by their upper edges and resting on slightly-inclined seats, as and for the purpose set forth.

9. In a gas-engine, the fire-inlets 1 2, closed periodically against ingoing currents by the positive valves 5 and 6 at their outer ends, and provided at their inner ends with door-valves 11 and 12, which open automatically to all ingoing currents, and which close automatically against all outgoing currents, substantially as set forth.

10. The intermittingly-oscillated torch or burner 14, for alternate ignition of the gases in the respective cylinders A′ and A″, in combination with the valve-rod 7 and rod 15, substantially as set forth.

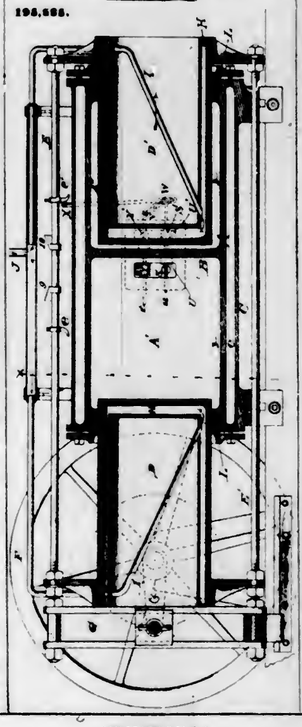
11. The combination of the oscillating torch or match 14 and the stationary burner 17, for reignition of said torch, in the manner set forth.

12. In the described combination, the oscillatory torch 14 and the fire-valves 5 and 6, shifted simultaneously with said torch by suitable connection with the tappets 9 and 10 upon rod E, said valves and torch being restored to their normal position by spring or counter-weight 26.

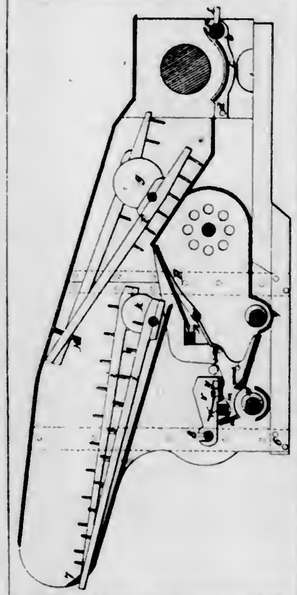
13. The combination, with a pair of conjoined cylinders, A′ A″, and fire-inlets 1 and 2, of the stationary jet 17, and of the torch 14 and fire-valves 5 and 6, operated from the tappets 9 and 10, or other moving members, in manner substantially as set forth.

14. The combination and arrangement, in a gas-engine, of the congeries of compound valves Y T, Y′ T′, U Z, U′ Z′, 11 5, and 12 6, adapted to operate in the manner and for the purpose set forth.

195,386.



195,387. THRASHING-MACHINES. William W. Dingee, Oshkosh, Wis., assignor to the Sawyer Manufacturing Company, same place. [Filed Jan. 10, 1876.]



1. The combination, substantially as specified, of the concave and the eccentrically-journaled cross-girt *a*.

2. In combination, the winnowing-shoe L, having the tail-board *x* and the tailings-shoe *c*, substantially as set forth.

3. In combination with the winnowing-shoe L, the tailings-shoe *c*, provided with the movable shelf *z* and movable finger-stripe *y*, substantially as set forth.

195,387. BOTTLE-STOPPERS. Frederick Doll, Newark, N. J., assignor to William H. Hall. [Filed Dec. 8, 1876.]



The combination of the cork tube C, cast with a cap on its upper end, and having lateral openings E, with the perforated screw-cap D, having a central chamber, and also a bearing to fit the top of tube C, all constructed to operate substantially as set forth.

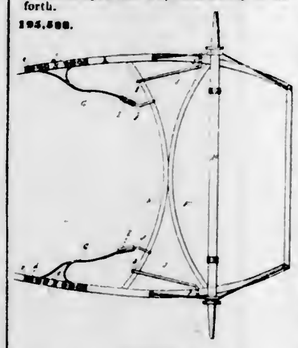
195,388. TROTTING-SULKIES. William J. Donley, Camden, N. J., assignor of one-half his right to Charles S. Caffrey, same place. [Filed July 31, 1877.]

1. The plates H H, having a series of holes, *d*, in combination with the shafts A A and stirrups or foot-irons G G, for the adjustment of the latter, substantially as set forth.

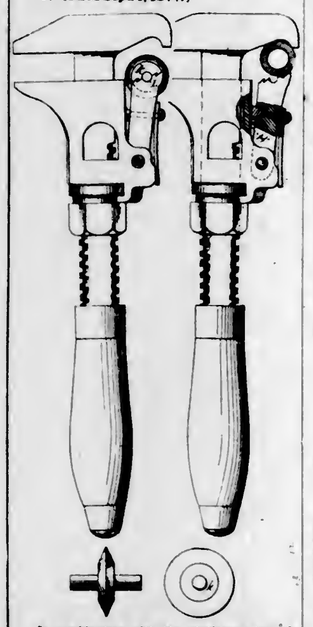
2. The stirrups or foot-irons G G, having their rods *f f* made in two pieces, connected together by means of coupling-nuts I I, or other suitable device, in combination with the shafts A A and cross-bar B, substantially as and for the purpose set forth.

3. The combination of the stay-rods J J, having sockets or eyes *g g* on their ends, with the shafts A A, cross-bar E, and stirrups or foot-irons G G, for resisting the strain of the foot-irons upon said bar, substantially as set forth.

195,588.



195,589. COMBINED WRENCH AND PIPE-CUTTER. Bernard Donohue, Yonkers, N. Y. [Filed Sept. 1, 1877.]



In combination with the stationary jaw of a wrench and the sliding jaw thereof, the spring-jaw, pivoted to the movable jaw, and provided with a recess for a rotary cutter, and the open-ended slots forming bearings for the journals of said cutter, substantially as set forth.

195,590. WHIP AND REIN HOLDERS. Geo. C. Eastman, Lewiston, Me. [Filed June 30, 1877.]

The combined whip and rein holder, as composed of the whip-holder A, the arm C, the standard E, the spring G, and the bent arm F, arranged and applied as set forth.

195,590.

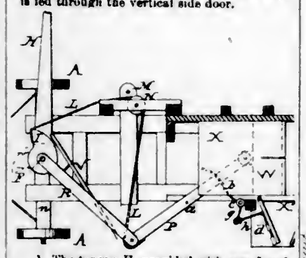


195,591. PROCESSES FOR MANUFACTURING POWDERED WHITE SUGAR. W. R. Elmendorst, Jersey City, N. J. [Filed July 20, 1877.]

The process of manufacturing pulverized white sugar herein described, which consists in first washing the raw sugar, and then in drying and pulverizing the washed sugar-crystals.

195,592. PORTABLE HAY-PRESSES. George Ertel, Quincy, Ill. [Filed Apr. 5, 1877.]

Brief.—The tongue, when released from the front axle, serves as a press-lever. The hay is fed through the vertical side door.



1. The tongue B, provided with cam I and mounted on rod F, in combination with the forked bars R, bar V, and rope L, substantially as set forth.

2. The combination of the tongue H, forked bars R, bar V, draw-rod P, and presser W, substantially as shown and described.

3. The combination of the forked bars R, draw-rod P, cord L, pulley-wheel N, and cam I, substantially as set forth.

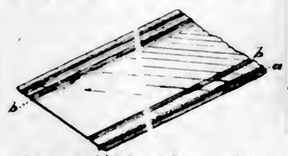
4. The rod F, in combination with the forked bars R and bar V, substantially as expressed.

5. The draw-rod P, provided with pin *a*, in combination with the rod *c*, furnished with arms *b* and *g* and with door *d*, and bars *e f*, substantially as specified.

6. In a hay-press, the vertical rod *c*, provided with arms *b g* and cord *h*, in combination with the bars *e f* and door *d*, substantially as set forth.

7. The combination of the rod *c*, arm *g*, cord *h*, and bars *e f*, substantially as and for the purpose set forth.

195,593. BUILDING-PAPER. H. F. Evans, Chicago, Ill. [Filed Aug. 28, 1876.]

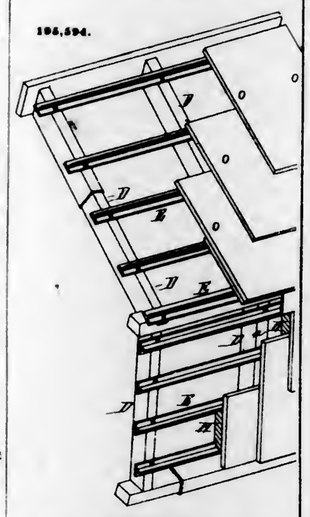


As a new article of manufacture, building-paper made with two parallel indented grooves, *a* and *b*, near each edge of the strip, the outside grooves *a* and the inside grooves *b* in opposite surfaces of the paper, substantially as and for the purpose set forth.

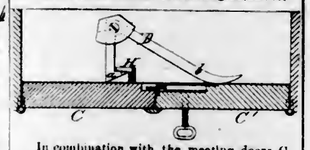
195,594. FIRE-PROOF ROOFS. Samuel Farquhar, Boston, Mass., assignor to himself and D. W. Farquhar, same place. [Filed July 28, 1877.]

A fire-proof roof, having in its construction wooden rafters D covered with sheet metal or other fire-proof material, and iron purlins E, in combination with a fire-proof covering secured thereto, and a backing, H, of fire-proof cement or other composition placed thereunder in the space between the rafters and the purlins, substantially as described, for the purpose set forth.

195,594.

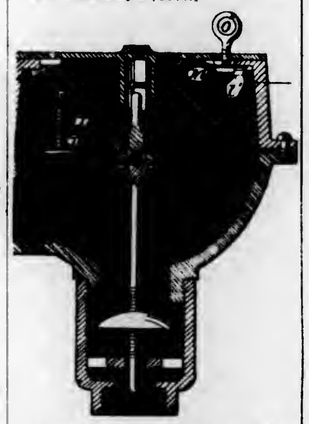


195,595. DOOR-FASTENINGS. Ernest Feige, East Saginaw, Mich. [Filed Aug. 16, 1877.]



In combination with the meeting doors C C' of a library or other case, the staple H and lever latch-hook D, pivoted and operated by the door C', substantially as hereinbefore set forth.

195,596. GAS-REGULATORS. Charles A. Fenn and Rudolph Groesinger, St. Louis, Mo. [Filed July 27, 1877.]

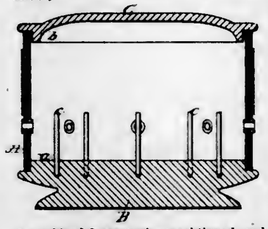


1. One or more buttons, J, on arm or arms I, extending from the valve-stem, said button arranged to rest on the diaphragm, as and for the purpose set forth.

2. The combination of the spring-catch M and lug *b*, as and for the purpose set forth.

3. The combination of the spring-catch M and screw-key O, substantially as and for the purpose set forth.

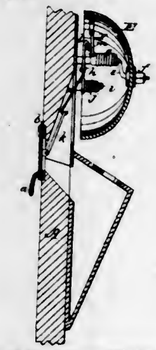
195,597. COMBINED SPOOL-HOLDER AND COLLAR-BOX. John Flynn and Charles A. Brown, Troy, N. Y., assignors to Charles A. Brown, same place. [Filed July 26, 1877.]



A combined fancy-work, spool-thread, and collar box, consisting of the base B, having the vertical spool-plug *c*, the body A, provided with eyelets, and the removable cover or lid C, as herein shown and described.

195,598. LETTER-BOX, BELL, AND DOOR-PLATE COMBINED. Costello B. Geer, Union City, Pa. [Filed Aug. 16, 1877.]

Brief.—The door-plate serves as a covering for the letter-box hole, which plate, when raised, sounds an alarm.



1. The bell E and its operating mechanism, the name-plate, having knob *a* and hinged to form the cover for the letter-hole in the door, the arm K, pivoted to the name-plate, the connected arm *h*, pivoted upon a stud, *i*, and the spring *j*, all combined, arranged, and constructed as shown and described, whereby when the name-plate is raised the arms K and *h* will be drawn down and the alarm sounded, as specified.

2. The combination of the bell E, the crank-shaped supporting-stem *e*, the hammer F having pin *m*, the spiral spring *g*, pivoted arm *h* having spiral spring *j* and grooved end, adapted to be deflected by the door-bell handle, for the purpose described.

195,599.

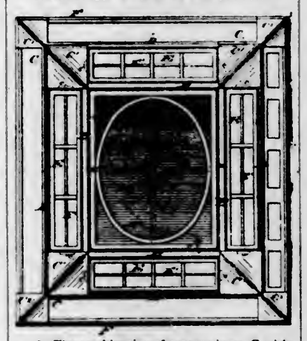


195,599. KNITTED FRINGES. H. Greasly, Philadelphia, Pa. [Filed May 9, 1877.]

Brief.—A series of knitted cords, composed of two threads, secure the tufts between the loops to prevent their being readily detached.

A knitted fringe, having knitted cords of two threads, within the loops of which the tufts are confined, as set forth.

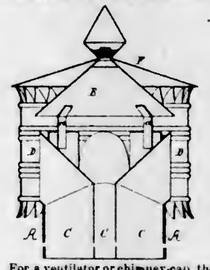
195,600. PICTURE-FRAMES. A. Greenwood, North Troy, Vt. [Filed Feb. 3, 1877.]



1. The combination of corner-pieces C with fixed frame B, moldings D, outer strips F, and picture-frames in the spaces between said parts, substantially as and for the purpose set forth.

2. The combination of corner-pieces C, fixed inner frame B, moldings D, and pivoted frames E, each of which is adapted to hold a series of pictures in each of its faces or sides, substantially as and for the purposes set forth.

195,601. CHIMNEY-CAPS. Ezra Hawkes, Boston, Mass. [Filed May 17, 1877.]

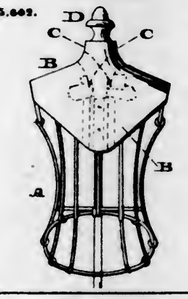


1. For a ventilator or chimney-cap, the tube A, series of tubes C, guard D, and cap B, combined and arranged substantially as set forth.

2. The combination of the caps B F, tube A, guard D, and tubes C, all arranged substantially as set forth.

3. The combination of the partitions E, tube A, guard D, tubes C, and caps B F, all arranged essentially as specified and shown.

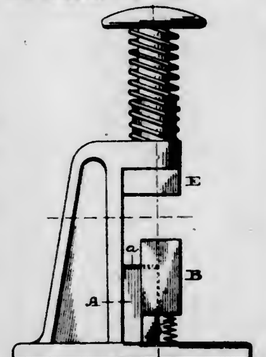
195,602.



195,602. SHOW-STANDS FOR EXHIBITING GARMENTS. John N. Heinel, Philadelphia, Pa. [Filed June 4, 1877.]

The frame A, in combination with the bosom, shoulders, and back-piece B, neck-piece C, and head D, substantially as and for the purpose set forth.

195,603. DEVICES FOR INSERTING METALLIC STAPLES. Henry R. Heyl, Philadelphia, Pa. [Filed Sept. 20, 1877.]



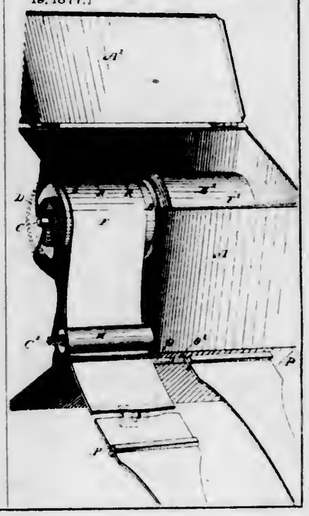
1. The reciprocating driver E, constructed with a flat face recessed, substantially as described, whereby the projecting ends of staples may be first bent over by entering the recess and then flattened down by pressure from the flat face.

2. The self-adjusting guide-block B, having staple-guiding grooves C C and a flat face, upon which to complete the clinching of the staple, substantially as and for the purpose set forth.

3. The combination of the stationary staple support or anvil A with the sliding guide B, grooved to partially embrace and guide the staple-legs, substantially as and for the purpose set forth.

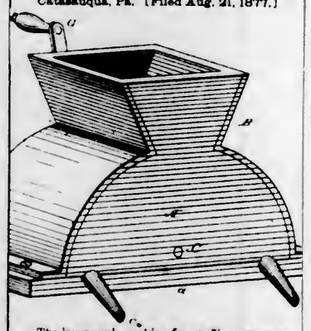
4. The combination of the stationary staple support or anvil A with the reciprocating slotted or recessed hammer, operating to insert a staple through layers of stock to be united and simultaneously bend over its projecting ends, substantially as and for the purpose set forth.

195,604. CUTLERY-STROP SAFES. Adam E. Hively, Columbia City, Ind. [Filed July 19, 1877.]



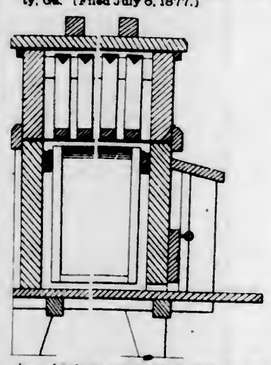
The combination of case A, cylinder B, spring D, shafts C and C', roller H, and strop F, with stops P, substantially as shown and described.

195,605. SAUSAGE-STUFFERS. W. R. Hook, Catasauqua, Pa. [Filed Aug. 21, 1877.]



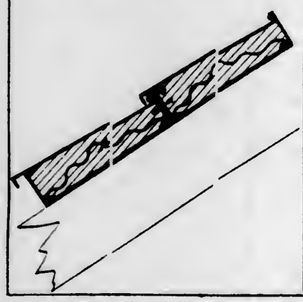
The improved machine for stuffing sausages herein described, consisting of semi-cylindrical box A, having flat bottom *a*, hopper B, and spouts *c c*, oscillating press-board D, and crank or handle G, all combined and arranged to operate substantially in the manner and for the purpose herein shown and specified.

195,606. BEE-HIVES. Jos. Hollingsworth and William W. Walcott, Rockdale County, Ga. [Filed July 6, 1877.]



In a bee-hive composed of two or more boxes placed on top of each other, pins or their equivalents interposed between said boxes for keeping them separate, substantially for the purposes herein set forth.

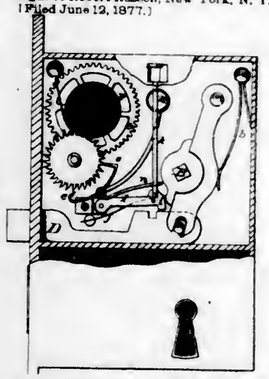
195,607. ROOFING-TILE. John W. Hoyt, Springfield, Mass., assignor of one-half his right to C. M. Dwight, same place. [Filed Mar. 12, 1877.]



1. A roofing-tile consisting of an inclosing metal shell with the interior thereof provided with a strengthening-bridge and filled with non-combustible material, substantially as and for the purpose described.

2. A prism-shaped roofing-tile consisting of four inclosed sides, substantially as and for the purpose described.

195,608. ALARM-LOCKS. Jos. H. P. Inslee, Mount Vernon, assignor of one-third his right to Robert Russell, New York, N. Y. [Filed June 12, 1877.]



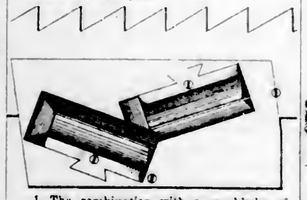
1. In a burglar-alarm, an alarm mechanism inclosed within the latch-case, a latch and its operative mechanism, and a detent device arranged to act at the same time upon both alarm and latch, the whole being so arranged that an attempt to draw the latch locks it fast and also sets the alarm going at the same time, substantially as set forth.

2. The combination of a latch, D, provided with a notch, *g*, or its equivalent, a lever, I, provided with a tooth, *i*, to engage said notch *g* and form a detent, and a suitable alarm mechanism, when the said alarm is arranged to be set going by the dropping of the tooth into the notch, substantially as set forth.

3. The combination of a spring-actuated alarm, substantially as shown, with the lever I, latch D, rod *k*, or its substantial equivalent, and the rod *k*, all arranged substantially as set forth.

195,609. PLANING ATTACHMENTS TO SAWS. John T. James, Love's Mills, Va. [Filed May 3, 1877.]

Brief.—A planer-plate, having roughening and smoothing bits, secured by dovetailed tenons in corresponding mortises, is detachably attached to a saw-plate.



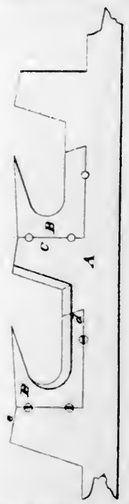
1. The combination, with a saw-blade, of roughing and smoothing planing-bits, the same arranged one above the other, and inclined in opposite directions, substantially as and for the purpose set forth.

2. The combination, with the planer-plate, provided with openings having dovetailed mortises leading thereto, of planing-bits constructed with dovetail tenons, substantially as and for the purpose set forth.

3. The combination, with a saw-blade, of a planer-plate, having planing-bits secured thereto, and the smoothing or finishing bit, having a bearing-plate secured in advance thereof, substantially as and for the purpose set forth.

4. The combination, with a saw-blade, of a planer-plate and roughing and smoothing bits, a guide-plate secured to the rear edge of the planer-plate, substantially as and for the purpose set forth.

195,610. SAWS. John T. James, Love's Mills, assignor to himself and Josiah Cole, Washington County, Va. [Filed May 3, 1877.]

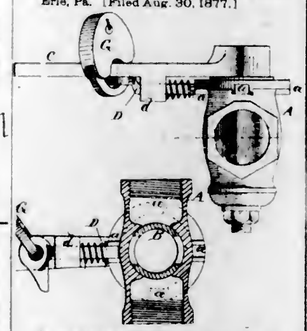


1. A saw consisting of a saw-blade formed with heel portions the outer edge of which extends nearly to a line through the points of the teeth, and insertible teeth secured between the same, substantially as described.

2. The combination, with saw-blade A, having heel portions C formed therewith, the outer edges of said heel portions extending nearly to a line through the points of the teeth, of the insertible chisel saw-teeth B, substantially as described.

3. The combination, with saw-blade A, provided with heel portions C, the latter having an inclined edge, *a*, of the insertible saw-teeth B, substantially as described.

195,611. LOCK-COCKS. Charles Jarecki, Erie, Pa. [Filed Aug. 30, 1877.]



In a stop-cock, the combination, with the body A and plug B, of the handle C projecting from the plug and provided with the sliding bolt D, one or more mortises, *a*, formed on the body A, and a lock, G, all substantially as and for the purposes herein set forth.

195,612. DRILL-ROD GRAPPLING-HOOKS. Thomas Johnson and Hendrik Hanson, Highland, Minn. [Filed June 4, 1877.]

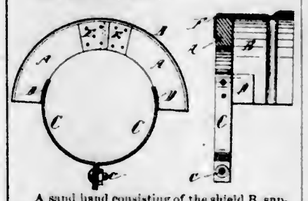
Brief.—When the device is lowered, so that the jaws are spaced down beside the broken drill, the cord attached to the eye of the slide is pulled, and the arms thereby rotated, and the jaws caused to grasp the article to be extracted.

The grappling apparatus herein described, consisting of bar A, oscillating rods B B', having jaws *e f*, and slide C, having eye *i* and sliding piece *l*, all constructed and combined to operate substantially in the manner and for the purpose hereinbefore set forth.

195,612.

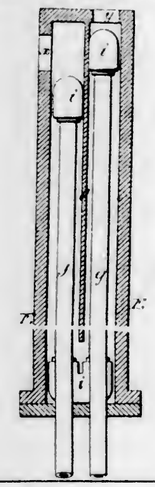


195,613. SAND-BANDS FOR VEHICLES. A. Kaiser, Prophetstown, Ill., assignor of one-half his right to H. R. Kent, same place. [Filed Jan. 31, 1877.]



A sand-band consisting of the shield B, supported by the bisected ribs A, provided with overlapping guard-plates F and extension-straps C, secured by a clamp-screw, *e*, and lugs D, substantially as and for the purpose set forth.

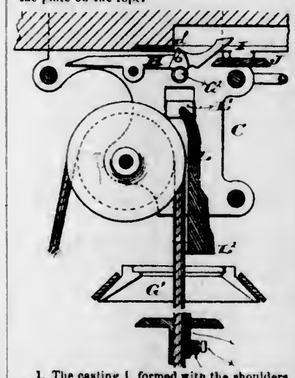
195,614. FEED-WATER HEATERS FOR STEAM-BOILERS. George Kratz, Evansville, Ind. [Filed Aug. 20, 1877.]



The within-described feed-water heater, consisting of a casing, E, having a steam inlet and outlet, and a partition, *d*, combined with water-pipes *f f* and *g g'*, connected together by U-couplings *i*, substantially as set forth.

195,615. HAY ELEVATORS AND CONVEYERS. Irwin S. Krick, Conneautville, Pa. [Filed Aug. 18, 1877.]

Brief.—The load, when elevated, is held suspended by the semicircular rims engaging with the plate on the rope.



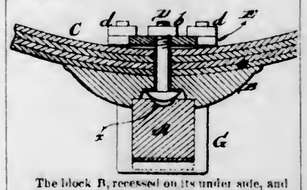
1. The casting I, formed with the shoulders *d d*, and provided with the pendent bar J, having beveled ends, substantially as and for the purposes set forth.

2. The gravitating latch H, formed with the shoulders *b*, in combination with the supporting-arms G^3 and casting I J, substantially as and for the purpose set forth.

3. The pivoted levers G G, formed with the rims G^1 G^1 and arms G^2 G^2, in combination with the cams L^1 L^1 and springs K K, substantially as and for the purposes set forth.

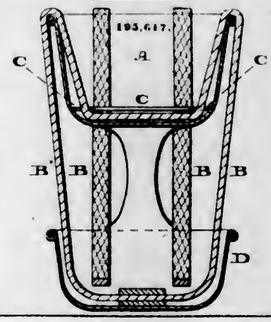
4. The plunger L, formed with the cams L^1 and head L^2, in combination with the levers G, as and for the purposes set forth.

195,616. VEHICLE-SPRING COUPLINGS. I. S. Krick, Conneautville, Pa. [Filed Aug. 18, 1877.]



The block B, recessed on its under side, and provided with the side flanges *a* on its concave upper face, in combination with the axle A, having the recess *x*, bolt D, springs C, plate E, made in one piece, clips G, and nuts *b d*, substantially as described, and for the purpose set forth.

195,617.

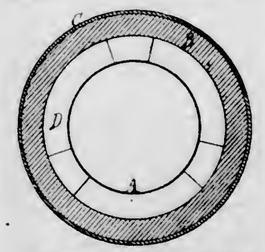


195,617. EVAPORATORS FOR HOT-AIR REGISTERS. William R. Lafourcade, Beverly, N. J. [Filed May 14, 1877.]

1. The elevated water-receptacle A and drip-pan D, in combination with the absorbent pieces B, substantially as and for the purpose set forth.

2. The elevated water-receptacle A, drip-pan D, and absorbent pieces B, in combination with the retainer C, substantially as and for the purpose set forth.

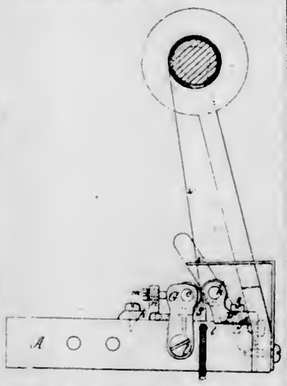
195,618. COVERINGS FOR STEAM-PIPES. G. H. Levie, Philadelphia, Pa. [Filed Aug. 28, 1877.]



1. In combination with the steam-pipe A, the exterior jacket B of plaster-of-paris and silicate, and the enveloping-shell C of paper or similar material, the annular dead-air space D around the pipe formed by cement lugs, substantially as and for the purpose set forth.

2. In combination with a covering for steam-pipes formed of plaster-of-paris, silicate, and paper cement, the lugs or shoulders, which form an annular dead-air space around the pipe, substantially as and for the purpose set forth.

195,619. MACHINES FOR MAKING SPIRAL SPRINGS. Byron H. Lockwood, Stamford, Conn. [Filed Jan. 13, 1877.]



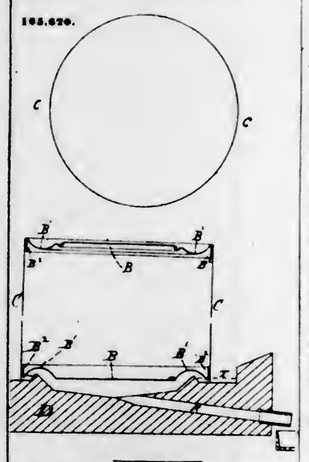
1. The bar A, having chamber *a* and the entrance opening *b* in its upper edge, in combination with the spirally-grooved former, substantially as specified.

2. In a machine for making spiral springs, the conductor-plate, perforated in a line tangent to the friction-rolls at their points of contact with the wire, and extending from the forming chamber nearly to said points, in combination with bar A, having perforation *b* and forming-plug *d e*, substantially as specified.

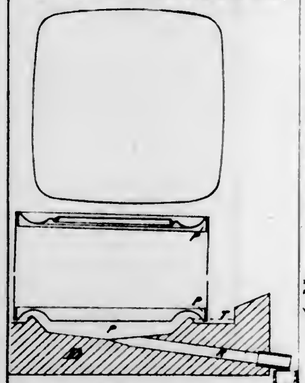
195,620. SHEET-METAL CANS FOR PRESERVING FOOD. Azel S. Lyman, New York, N. Y., assignor to himself and Watts, Parker & Co., same place. [Filed Apr. 24, 1877.]

A sheet-metal can for preserving food, having ends formed as shown, with the flange B^1 extending inward, the recess B^1 extending around, and the flat central portion B, in combination with the body C, as herein specified.

195,620.

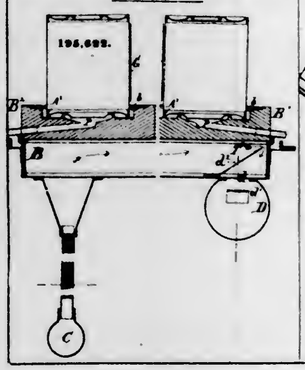


195,621. SHEET-METAL CANS FOR PRESERVING FOOD. Azel S. Lyman, New York, N. Y., assignor to himself and Watts, Parker & Co., same place. [Filed Apr. 24, 1877.]



A can with sides nearly flat, having heads generally angular, with rounded corners and slightly-curved flanges, combined with a body having corresponding sides and corners, so that, when it is driven over the flanges of the heads, it binds them, substantially as and for the purposes set forth.

195,622.



195,622. SOLDERING APPARATUS. Azel S. Lyman, New York, N. Y., assignor to himself and Watts, Parker & Co., same place. [Filed June 21, 1877.]

Brief.—Cans are first placed on fluxing-plates, then removed to soldering-plates, which may be lined with copper, flux of tallow, flame from aereo-gas. May conduct cold air to bottom of can through waste-solder passage.

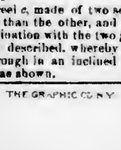
1. The soldering or fluxing plates B' B², formed with shallow recesses *b*, in combination with guides G, adapted to compel a vertical motion in applying and removing the cans, and allow the recesses *b* to remain filled without overflowing, as herein specified.

2. The soldering apparatus described, having the fluxing-plates B', receiving the spent products of combustion from the contiguous plates B², as herein specified.

3. In connection with a soldering-plate, B², adapted to be heated and kept evenly heated, as shown, the heat-shields E, in combination with the central recess or slot P, conduit *p*, and solder-recess, as herein specified.

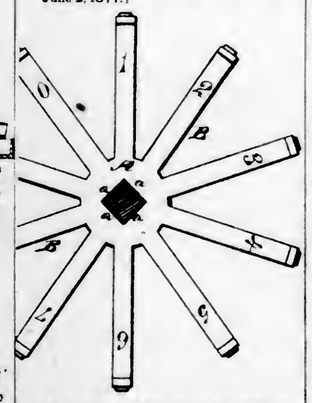
4. The discharge-pipe D, having apertures *d* and deflectors *d'*, in combination with the heating-plates B² B', adapted for inducting the partially-cooled products of combustion from the latter, as herein specified.

195,623. TICKET-CLASPS. Joseph W. Lyon, Chicago, Ill., assignor to Samuel Simons, same place; said Simons assignor to Rand, McNally & Co. [Filed May 8, 1877.]



The plate D G, constructed with the bend E and the tongue A, the tongue A being cut from and being a part of the plate D G, and the tongue A being concave on its under surface and convex on its upper surface, in the manner shown and described, and for the purpose set forth.

195,624. HAND-STAMPS FOR MARKING LOGS. Joseph L. Major, Manistee, Mich. [Filed June 2, 1877.]



The within-described device for stamping saw logs, consisting of the wheel A, with radial arms B, having numbers on their side, and raised reversed numbers on their ends, the wheel being secured on a handle, C, substantially as herein set forth.

195,625. CORN-HARVESTERS. Thomas D. McCormick, Massillon, Ohio. [Filed Sept. 5, 1877.]

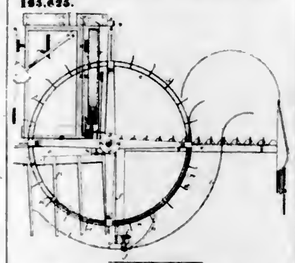
1. The reel *c*, made of two separate rings, one larger than the other, and superposed to it, in combination with the two guards *l s*, arranged as described, whereby the stalks are passed through in an inclined position, substantially as shown.

2. The combination of the reel *c*, the two guards *l s*, arranged in relation thereto, as shown, vertically-adjustable rod *j*, and a spring-hinge, *h*, whereby the guards can adjust themselves to a large or a small number of stalks passing through, substantially as set forth.

3. The combination of the hinge *h*, spring *i*, and rod *j*, the rod having one of the wings fastened to it in such a manner as to open the hinge when it turns partly around, substantially as shown.

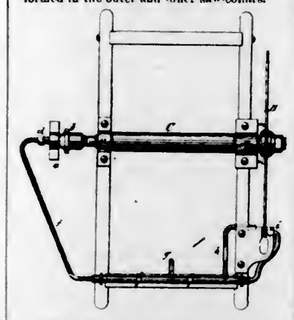
4. The post *g* for supporting the guards, in combination with the bar *f*, which projects to the rear of the finger-bar, substantially as described.

195,625.



195,626. DEVICES FOR COOLING SAWS. F. McDonough, Eau Claire, Wis. [Filed Nov. 4, 1875.]

Brief.—The saw is cooled by means of fine streams of water conveyed to the faces of the saw through a hollow journal and orifices formed in the outer and inner saw-collars.

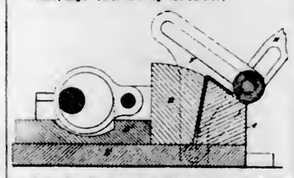


1. The hollow journal C, provided with outlets for the passage of water, in combination with the water-pipe *f*, all constructed and operating substantially as and for the purpose specified.

2. An inlet-pipe, *g*, in combination with one or more outlet-pipes, *h i*, so arranged as to throw one or more jets of water upon the saw B, substantially as and for the purpose specified.

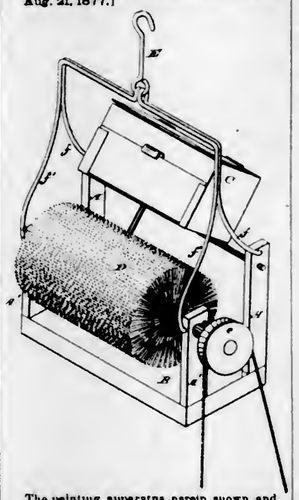
3. The method, herein described, of keeping saws cool while in use, by bringing to and throwing on the same jets of water from the center, substantially as specified.

195,627. MACHINES FOR BENDING FROG-PLATES FOR PLOWS. Thos. Meikle, Louisville, Ky. [Filed July 12, 1877.]



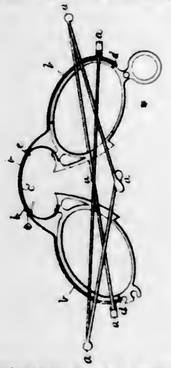
In a bending-machine, the combination of the former A, movable die B attached to the sliding frame B', slide plate F, oscillating levers H H, and roller G, for shaping the frog-plate by their successive operations, substantially as set forth.

193,628. PAINTING-MACHINES. James S. Mills, Strawberry Plains, Tenn. [Filed Aug. 21, 1877.]



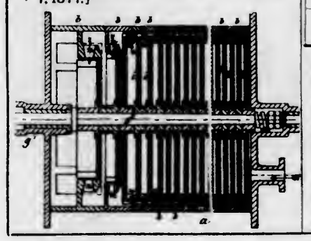
The painting apparatus herein shown and described, consisting of platform B, having uprights A A A' A', bail F, having hook E and legs *f f' f'*, tilting reservoir C, and rotary brush D, having operating-pulley *e*, all constructed and combined to operate substantially as and for the purpose hereinbefore set forth.

193,629. EYEGLASS-SUPPORTERS. F. H. Moore, Boston, Mass. [Filed June 9, 1877.]



The device above described, consisting of the piece *b*, provided with clasps *d c* and bows *a a*, and adapted to receive and hold an eyeglass, as set forth.

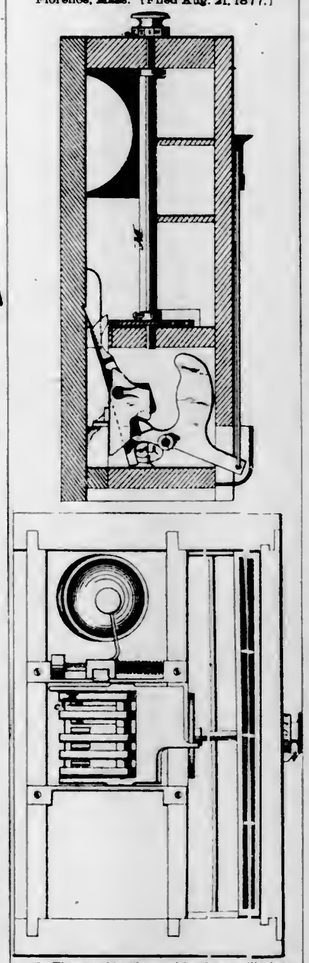
193,630. ROTARY ENGINES. James Moorhouse, Manchester, England. [Filed Feb. 7, 1877.]



1. In combination with a rotary engine, the dividing-plates between the compartments provided with openings forming communications, respectively, of varying area between said compartments, the turbine wheels in such compartments, and a driving shaft, substantially as and for the purpose set forth.

2. In combination with a rotary engine, the cylinder *a*, composed of separate sections *b*, ends *g g'*, held together by bolts *c*, and forming separate compartments, the turbine-wheels *i*, driving-shaft *j*, and openings a through the dividing-plates between the compartments, substantially as set forth.

193,631. TELL-ALARMS. Henry W. Morgan, Florence, Mass. [Filed Aug. 21, 1877.]



1. The combination, with the oscillating locking-plate and the horizontal tumblers, of the vertically-swinging levers, said levers being formed with the front weighted extensions, as described, whereby they tend to maintain a certain definite position upon their pivotal support without the use of springs, substantially as described.

2. The combination, with the horizontal tumblers, pivoted upon a suitable support, of the oscillating locking-plate, the latter having front vertical bearing upon the body portions of the tumblers, which are forward of said pivotal support, substantially as described.

3. The combination, with the tumblers, of the locking-plate, pivoted to the tumbler-supporting rod, and adapted to be operated by tumblers either in or out of the lock-combination to respectively unlocking and locking the drawer, substantially as described.

4. The combination, with the oscillating locking-plate adapted to be operated by the tumblers in a combination-lock, and formed with the finger-projection, of the disk, provided with a recess to register with the said finger-projection in unlocking the drawer, substantially as described.

5. The combination, with the locking-plate having side arms, respectively pivoted to the tumbler-supporting rod, and provided with the forward projecting finger, of the recessed disk, located within the drawer, and the connecting-rod having an indexed handle and suitable registering devices, substantially as described.

6. The combination, with the locking-plate and its oscillating arm, of the spring-pressed hammer and intermediate connections, substantially as described.

7. The combination, with the locking-plate arm and the pivoted cam-lever, adapted to be engaged therewith, of the locking-pin, spring-pressed slide, and the alarm mechanism, substantially as described.

8. In a drawer-alarm, the combination, with the pivoted cam-lever and spring-pressed slide, carrying the bell-hammer, of the locking-pin, adapted to fit into a recess formed in the upper wall-body of the lock-casing or lock-supporting frame-work, substantially as described.

9. The combination, with the spring-pressed slide, of the stop secured to the under side of the counter or fixed cover of the drawer, and adapted to automatically set the alarm upon closure of the drawer, substantially as described.

10. In a drawer-alarm, the loose or independent locking-pin, made with the right-angular projection on its upper side body, in combination with the lock-casing, formed with a recess adapted to receive the said projection and automatically lock the spring-pressed slide, substantially as described.

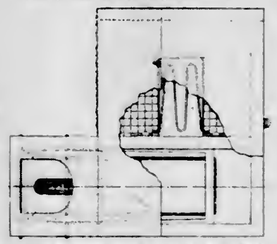
11. The combination, with the catch secured to the under side of the counter or drawer top, the oscillating locking-plate provided with side arm extension, and the cam-lever formed with a right-angular stud, of the lock-casing or partition-wall, which indirectly supports the said locking-plate, and which is provided with an opening in its rear body, adapted to allow of the vertical movement therein of the said cam-lever stud, substantially as described.

12. In a drawer-alarm, the combination, with the spring-pressed slide and cam-lever, of the locking-pin, provided with the projection formed right-angularly on its lower side body, and adapted to prevent the said pin from undue vertical rise, substantially as described.

13. In a drawer-alarm, the combination, with the locking pin, of the spring-pressed slide, made with a vertical recess in its side body, adapted to receive the said pin, substantially as described.

14. In a drawer-alarm, the combination, with the spring-pressed slide and the partition-wall, provided with a recess in its upper body, of the locking-pin, loosely secured between the wall and slide, said pin having right-angular studs formed, respectively, on different sides of its upper and lower body sides, substantially as described.

195,632. ANIMAL-TRAPS. John H. Morris, Seward, Nebr., assignor to Claudius Jones, same place. [Filed Aug. 4, 1877.]



1. In an animal-trap, the cage, the passage-way, the bait-receptacle, and the hinged lid,

these members being constructed and arranged substantially as hereinbefore set forth, whereby access is afforded to all parts of the trap.

2. The combination, substantially as hereinbefore set forth, of the entrance, the hinged door, and the flange or jamb.

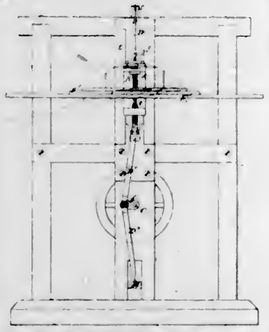
3. The combination, substantially as hereinbefore set forth, of the hinged door and the counterbalanced tilting platform, acting upon an incline or projection upon the under surface of the door.

4. In an animal-trap, constructed substantially as described, the hinged door, the tilting platform, and the bait box or receptacle, closing the rear end of the passage-way.

5. The communicating trough between the passage-way and cage proper, constructed as described, with an upward inclination, and so arranged in relation to the roof of the cage as just to leave room for the passage of the animal, in combination with a drop-gate pivoted in said trough.

195,632. SAW-SHARPENING MACHINES. J. Murphin, Malaga, N. J., assignor of one-half his right to Alfred B. Richman, same place. [Filed July 28, 1877.]

Brief.—Saw held by hand and guided by stops, against which the teeth are held, and through which spring-fingers project into notches between teeth, to prevent endwise slipping. The supporting-table is adjustable vertically, and may rock on axes at right angles.



1. The combination, with the vertically-reciprocating sash B', the file C', and the vertically-vibrating and adjustable table E', of the holder H, having handle *n*, and the stops *l*, having yielding catches *i*, substantially as specified.

2. The combination, with the vertically-reciprocating sash B', the file C', and the adjustable table E', of the stops *l* and their yielding catches *i*, substantially as set forth.

3. The combination, with the plate D, having guide-flanges *t*, the reciprocating sash B', arranged between said flanges, the file C', and feed-table E', of a treadle, E, a shaft having crank *f'*, the pitmen D' D², and a returning-spring, S, secured at one end to the sash, and at the other to the frame above said sash, substantially as specified.

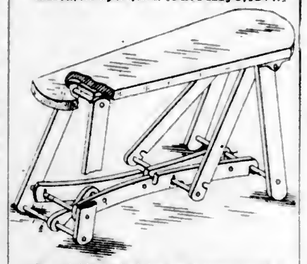
195,634. BARREL-HEADS. Wm. H. Murphy, Syracuse, N. Y., assignor to J. L. Thomson, same place. [Filed July 13, 1875.]

Brief.—A crozed hoop incases the head. Said hoop is rabbeted on the outside to fit the chine.



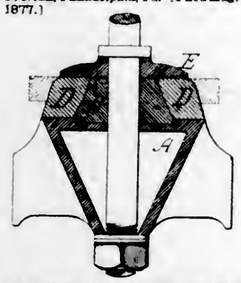
A head for paper barrels consisting of one or more pieces of wood or paper secured together by a crozed hoop bent round the edges thereof, the hoop being formed with a right-angular circumferential rabbet and an exterior supporting-flange to fit flown upon the edge of the barrel, substantially as described, for the purpose specified.

195,635. FOLDING IRONING-TABLES. Geo. Nason, Newport, R. I. [Filed May 9, 1877.]



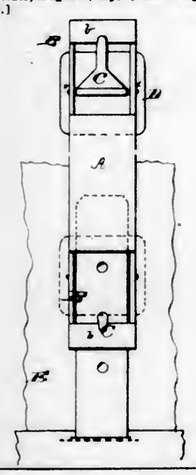
In a table embodying an ironing-board, a pair of rear legs hinged to said board, and a pair of front legs, from which said board may be elevated, the combination, with said board and legs, of a longitudinal brace-bar hinged to the front legs and to a hinged frame, and provided with notches for engaging with the rear legs, substantially as described.

195,636. VALVES FOR HYDRANTS. James F. Neall, Philadelphia, Pa. [Filed Aug. 11, 1877.]



The body A of the valve, the cone B, and washer E, all being in metallic contact with each other, in combination with the elastic ring D, confined between the said body A and washer E, all as set forth.

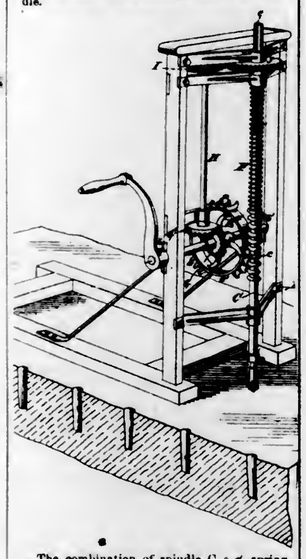
195,637. LOOPS FOR CARRIAGE-TOPS. Fred. A. Neider, Augusta, Ky. [Filed Aug. 11, 1877.]



The loop A, having ears *a a*, holes *c c*, and buckle-frames B B, open at their tops and provided with the cross-bars *b b*, all made in one piece, in combination with the slotted plates D D and tongues C C, substantially as described, and for the purpose set forth.

195,638. STONE-DRILLING MACHINES. S. C. Nichols, Cincinnati, Ohio, assignor to himself and Thos. B. Paxton, same place. [Filed Mar. 10, 1877.]

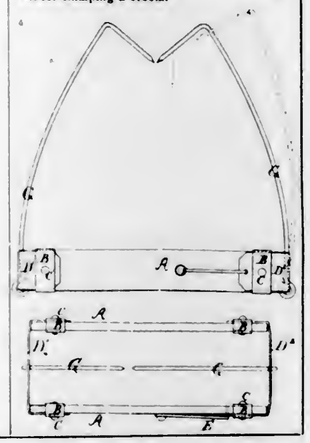
Brief.—The drill-spindle has a series of collars at equal distances apart, forming a rack capable of rotation. A wheel, provided with teeth in sets, engages with the collars to elevate the spindle, and permit it to fall at regular intervals. The gearing revolves the spindle.



The combination of spindle C *c c'*, spring F encircling said spindle, wheel E *e*, wheels G G' I J, and shaft H, substantially as and for the purpose specified.

195,639. BROOMS. William H. Paton, New York, N. Y., assignor to Allen L. Wood, same place. [Filed Feb. 22, 1877.]

Brief.—Two wooden bars connected at their ends by straps, to which are attached hooks, all for clamping a broom.

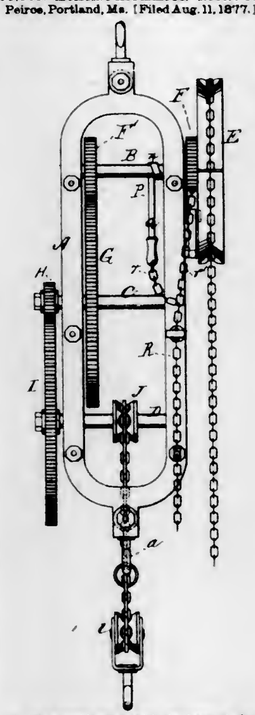


1. The broom-bridle or broom-protector described, having stretchers or bars A, elastic straps D' D², and fastening means E, adapted to be readily engaged and adjusted upon a broom and shifted from one to another, as herein specified.

2. In combination with an openable broom-band, having long parallel bars A A and connections D' D², with a fastening, E, the securing-hooks G G, adapted to serve as and for the purposes herein specified.

3. The side bars A, suitably fastened, and adapted to be secured to a broom, substantially as and for the purposes herein specified.

195,640. HOISTING APPARATUS. Robert O. Peirce, Portland, Me. [Filed Aug. 11, 1877.]



1. The combination, with the frame A, having shaft B, power-wheel E, and gear-wheel F', and the shaft C, having the fixed gear-wheel G and removable pinion H, of the shaft D, having the chain-wheel J and removable gear-wheel I, engaging said pinion H, substantially as specified.

2. The combination, with the driving-shaft B of a hoisting mechanism, having the ratchet-wheel F and a spring-actuated pawl engaging said ratchet, of a brake, P, secured at one end to the frame, then looped around the said driving-shaft, and extended beyond the same to form a handle, Q, and a chain, R, having branches *r r'* secured, respectively, to the brake and pawl, substantially as specified.

195,641. METALLIC BEDSTEADS. J. W. C. Peters, Chicago, Ill. [Filed July 25, 1877.]

1. In a metallic bedstead, upon which a support for the bedding is designed to be stretched, the combination of the side rails A, the nuts C, with the sleeve B attached to the standard E, substantially as and for the purpose set forth.

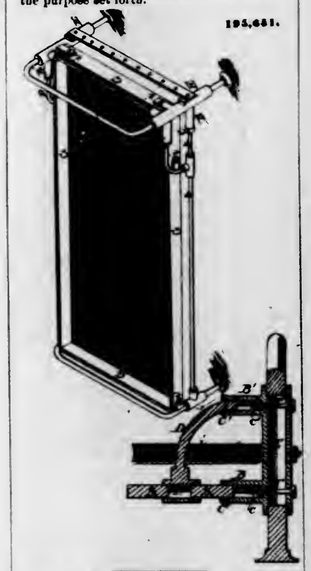
2. The combination of the side rails A of a bedstead, as described, provided with the arms or braces D, the nuts C and C', with the sleeves B and B', attached to the standards E, arranged substantially as and for the purpose set forth.

3. In a metallic bedstead, the side rails A, the nuts C, the sleeves B, and standard E, in combination with the set-screws F, taking into the nuts *c*, constructed substantially as and for the purpose set forth.

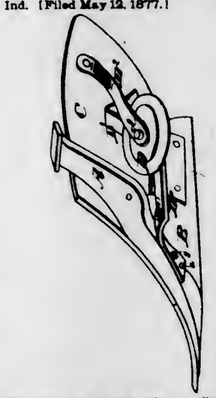
4. In a metallic bedstead, upon which a support for the bedding is designed to be stretched, the combination of the side rails A, having a tubular end, and the nuts C with the threaded projections B attached to the standards E, substantially as and for the purpose set forth.

5. In combination with a metallic bedstead, as described, the additional side rails G and end rails H, arranged substantially as and for the purpose set forth.

195,642.

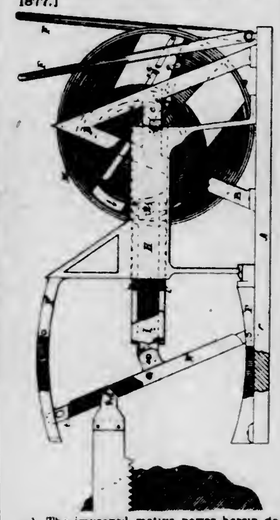


195,643. PLOWS. Josiah J. Platt, La Porte, Ind. [Filed May 12, 1877.]



The improved plow herein described, consisting of the standard A, share B, mold-board C, wheel D, arranged on the under side of the mold-board, and supported by the brace D', extending from the standard to the under side of the mold-board, and the brace D², extending from the side of the wheel to the top of the mold-board, substantially as described, and for the purpose set forth.

195,644. MOTORS FOR OPERATING CROSS-CUT-SAWS, &c. Etienne Poincot, Houma, La., assignor of one-half his right to Evelien Leboeuf, same place. [Filed Aug. 14, 1877.]



1. The improved motive power herein described, the same consisting of a stand, H, reciprocating bar I, and friction-roller *k*, in combination with a fly-wheel, M, provided with eccentric groove *l*, all arranged to operate by means of levers F F, as described, and for the purpose set forth.

2. In combination with the frame A, the guides P P' and lever N, the latter provided on its inner side with zigzag grooves *t*, and arranged to operate as described, and for the purpose specified.

195,645.



195,646. HOSE-NOZZLES. Louis Poh and Charles Shoop, Buffalo, N. Y. [Filed June 16, 1877.]

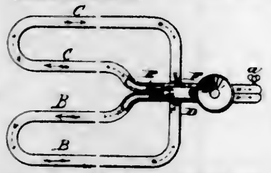
Brief.—To throw a solid stream or spray, or both, as desired.

The combination, with the induction-pipe C, provided with openings *h* and *i i*, and central discharge-pipe D, and surrounding sprinkler-chamber E, provided with openings *e e*, of the solid ping B, provided with a central water-passage, *f*, and side passages *g g*, arranged at an angle therewith, so as to form straight communications, respectively, between the openings *h* and *i i* and D and *e e*, as and for the purpose hereinbefore set forth.

195,645. MINERS' DRILLS. Edwd. L. Powell and Edward Seddon, Drifton, Pa. [Filed May 21, 1877.]

The improved miners'drill herein described, consisting of the handle A, having recess or socket *b* and slot C, and bit B having tenoned base *c*, fitting in socket *b*, in combination with the wedge D, substantially as and for the purpose herein shown and specified.

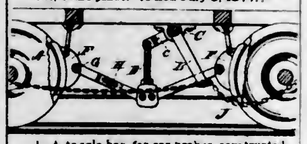
195,646. MILK-COOLERS. Osbert B. Prindle, Carthage, N. Y., assignor of one-half his right to Henry C. Hodgkins, same place. [Filed Jan. 12, 1877.]



1. The tubes B B and C C, provided with a combined inlet and outlet, substantially as and for the purpose herein set forth.

2. The tubes B C and partition E, said tubes being provided with upwardly-curved eduction-extensions, as shown, in combination with the tube D, pipe F, and valves *c*, all arranged, constructed, and operating substantially in the manner and for the purpose set forth.

195,647. CAR-BRAKES. Louis T. Pyott, Philadelphia, Pa., assignor to J. G. Brill & Co., same place. [Filed July 3, 1877.]



1. A toggle-bar for car-brakes constructed in two parts, and adjustable as to length to accommodate shoes of different thickness, as set forth.

2. The combination of the slotted toggle-bar, constructed in two parts, having serrated surfaces, and the clamping-bolt H, all arranged as herein set forth, for the purpose specified.

3. A holder for brake shoes constructed in two parts, each provided with part of a dovetail recess, as and for the purpose set forth.

4. The holder F, constructed in two parts, and having a part of the socket K to receive the end of the toggle-bar formed in each portion, as set forth.

5. The combination of the holder, constructed in two parts, and the transverse tie-rod G, all as herein set forth.

6. The combination of the rock-shaft C *e*, link D, toggle-bars E, formed in two parts, and extensible as to length, and brake-shoes J, all as herein set forth.

195,648. LANTERNS. Elias B. Requa, Jersey City, N. J. [Filed Aug. 27, 1877.]

1. In combination with the tubular deflectors, the foraminous disks and partitions, whereby the currents of air admitted to the burners are rendered steady and uniform and back-drafts are prevented, substantially as set forth.

2. In combination with the lantern-body, the reversely-set concavo-convex annular deflectors, located below the globe-holder, and adapted to deflect fresh air into the lantern when the same is suddenly shifted in a vertical direction, substantially as set forth.

3. In combination with the lamp-fount and lantern-body, an annular chamber communicating with the atmosphere below the lantern and with the lantern above the burner by means of the tubular deflectors and the apertures in the dividing-diaphragm, substantially as set forth.

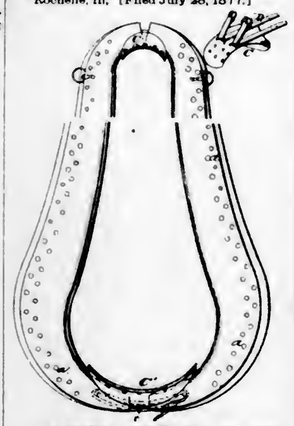
4. In combination with the arch-connecting piece, a tubular socket with an opening between the two ends for receiving the bail, the ends of said bail being inserted in said socket and bent upward through the opening to prevent removal, substantially as set forth.

5. In combination with the tubular standard, the hinged cross-piece for supporting the upper metallic section of the lantern, said cross-piece being hinged to one standard and adapted to be engaged and held by a locking device on the other, substantially as set forth.

195,649.



195,649. HORSE-COLLARS. S. D. Reynolds, Rochelle, Ill. [Filed July 28, 1877.]



1. A combined metallic collar and hame, consisting of the two malleable-iron castings made as open shells without stuffing or filling, the same being connected together at their lower extremities by a strap engaging therewith, and the loose piece or keeper C' adapted, as described, to move independently of both the said collar-shells and the connecting-strap, substantially as described.

2. The combination, with the shell castings, having bridge-pieces formed, respectively, thereon, of the detachable draft-clips and the latches secured on the inner sides of the bridge-pieces, and adapted to lock over the said draft-clips, substantially as described.

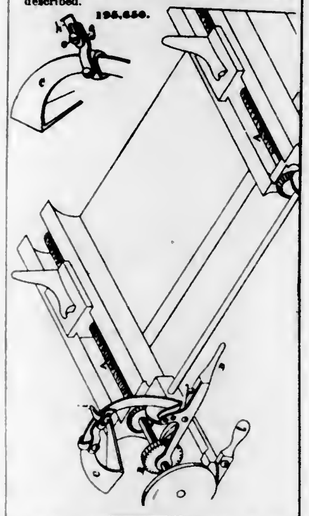
195,650. SAW-MILL SET-WORKS. James A. Robb, San Francisco, Cal. [Filed Feb. 16, 1877.]

Brief.—A supplemental stop, designed to shorten the throw of the lever, and correct the allowance usually made for the saw kerf.

1. The supplemental hinged stop *g h*, attached to the quadrant C, substantially as and for the purpose described.

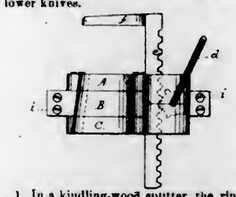
2. A supplemental hinged stop, consisting of the hinged plate *g* with its side extension or projection *i* and the slotted extension-plate *h*, arranged to be adjusted by means of the set-screw O, in combination with the quadrant C, set-lever D, ratchet B, and screw-shafts A, substantially as and for the purpose described.

195,650.



195,651. SPLITTING AND BUNDLING WOOD. Oscar Roelecko, Baltimore, Md. [Filed July 2, 1877.]

Brief.—The piece of wood to be split is placed endwise on the upper knife. The cap is then lowered, forcing the wood down upon the first knife, splitting it in the center, the two knives next below splitting it again, thus making four pieces which are split transversely by the three lower knives.



1. In a kindling-wood splitter, the rings or frames A B, the smallest being uppermost, with knives secured therein, as described, and with the interior space tapering from the bottom upward.

2. In a machine for splitting kindling-wood, the rings or frames A B, having knives secured therein with cutting-edges up, and the vertically-sliding rack *e*, having cap *f*, operated by the spur-wheel *d''* and crank *d*, substantially as shown and described.

195,652. APPARATUS FOR DISTILLING PETROLEUM. H. C. Rose, Cleveland, Ohio, assignor to the Republic Refining Company, same place. [Filed Jan. 24, 1877.]

1. The combination of the distilling-cylinders D to H, more or less in number, forming one continuous pipe or cylinder of uniform diameter, or nearly so, with the jacket M, and provided with the vapor-pipes 1 2 3, &c., substantially as and for the purpose set forth.

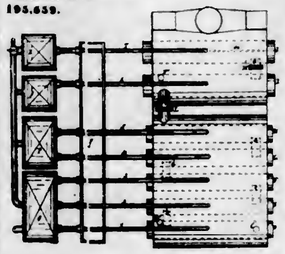
2. In combination with the distilling-cylinders, the inclosing-jacket M, substantially as and for the purpose set forth.

3. In combination with the distilling-cylinders I and J, surrounded by the jacket N, the cylinders D to H, surrounded by the jacket M, and provided with the vapor-pipes 1 2 3, &c., substantially as and for the purpose set forth.

4. In oil-stills, one or more receiving-tanks, charged with water in volume, wherein terminate the still-worms or vapor-pipes, said tanks being connected with exhausting apparatus, and in combination with said vapor-pipes, substantially as and for the purpose set forth.

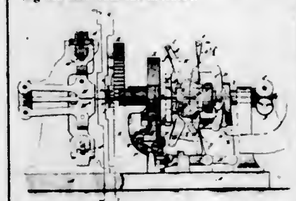
5. The combination of the cylinders D to H, jacket M, vapor-pipes 1 2 3, &c., the cylinders I J, jacket N, condensing-box S, and tanks O P Q, &c., substantially as and for the purpose set forth.

195,653.



195,653. MACHINES FOR FORGING HORSE-SHOE-NAILS. Joseph Roy, Philadelphia, Pa. [Filed Feb. 28, 1877.]

Brief.—Two pairs of hammer-dies, the head of each joined to its crank by an elastic bearing; two pairs of pawls for operating the feed-rolls, namely, to feed forward to the hammers and back again to the cutters that clip the nail from the rod; and a spring ejector, for throwing the nail from the machine.



1. The combination of the rollers Z Z', provided with ratchets, the double pawls A' A² E' E², hung as described, and the head V, together with mechanism for actuating the pawls, all constructed, arranged, and operating as and for the purpose described.

2. The combination of the cam *x* on wheel S, the lever O', slide-rod N', spring *u*, lever M', slide-arm L', and slide K', and pawl A', all constructed, arranged, and operating as and for the purpose set forth.

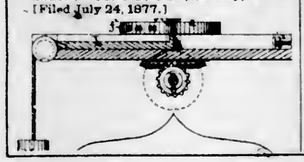
3. The combination of the cam-wheel S, provided with cams on its rim, as described, with the lever J', provided with the rollers *q r* on its short arm, and having its long arm connected with and operating the pawls controlling the feed mechanism of the machine, as specified.

4. The combination of lever J', slide-rod I', link H', lever G', and annular slide D', provided with arms C' C', connected with the feeding and retracting pawls to operate the same, as described.

5. The combination of wheel R, spring-fork *s'*, spring *c'*, cam *b'*, and cutters *y z*, all constructed, arranged, and operating in the manner and for the purpose set forth.

6. In combination with the hammer stocks and cranks, the adjustable springs *d'* and adjusting-screws *e'*, arranged and operating as and for the purpose stated.

195,654. MACHINES FOR MARKING SCALE-BEAMS. Oscar F. Russ, Albany, N. Y. [Filed July 24, 1877.]

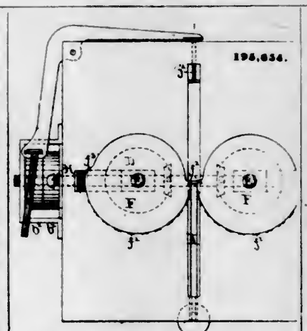


1. The combination with the body A and cap C, the main connecting-rod D and oscillating or adjustable bolt *b*, for the purposes herein set forth.

2. The combination of the slotted main rod D, cap C with pivoted block *d*, and terret H, substantially as and for the purpose described.

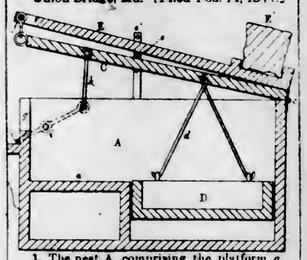
3. The auxiliary screw-fasteners *e*, in combination with the slotted rod D, cap C, block *d*, and terret H, substantially as and for the purpose described.

195,654.



The combination of the impression-wheels F, provided with projecting figures or other characters, with the carrier or slide I and the belt-shifting mechanism, substantially as and for the purpose herein specified.

195,655. HENS' NESTS. Thos W. Russell, Union Bridge, Md. [Filed Feb. 14, 1877.]

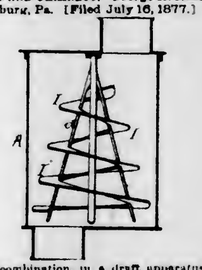


1. The nest A, comprising the platform *a*, perch *b*, lid C, wire *d*, jointed rods *h* and *k*, and egg-tray D, as and for the purposes specified.

2. The pivoted weight-board E and nest-lid C, joined by means of the link or connection *f*, as and for the purpose herein set forth.

3. The rod *h*, passing across the front opening of the nest, as specified, and pivoted at *i* to the sides of the nest, combined with the link *k* and hinged lid C, substantially as and for the purpose described.

195,656. DRAFT APPARATUS FOR STOVE-PIPES AND CHIMNEYS. George H. Russell, Newburg, Pa. [Filed July 16, 1877.]



The combination, in a draft apparatus or stove-drum, of the casing A, the conical frame B, and the coil I, all substantially as set forth.

195,657. HORSE-COLLARS. A. Rutherford, Walla Walla, Wash. [Filed May 19, 1877.]

1. In combination with the body A and cap C, the main connecting-rod D and oscillating or adjustable bolt *b*, for the purposes herein set forth.

2. The combination of the slotted main rod D, cap C with pivoted block *d*, and terret H, substantially as and for the purpose described.

3. The auxiliary screw-fasteners *e*, in combination with the slotted rod D, cap C, block *d*, and terret H, substantially as and for the purpose described.

4. The movable clevis J, provided with the projecting lip *f*, in combination with the draft-bar G, as and for the purpose herein described.

5. The combination, with the brackets E E', of the rod *h*, having loop *i* on its lower end, and passing through the movable clevis J, as and for the purpose herein described.

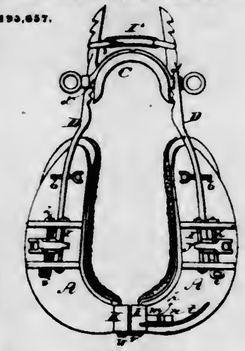
6. The combination of the brackets E E', draft-bar G, clevis J, and screw-rod I, substantially as and for the purpose described.

7. The bottom fastening of the collar, consisting of the rigid ratchet-bar *m*, pivoted ratchet-bar *n*, link *p*, and one or more springs, *s*, substantially as and for the purpose herein described.

8. The wire guard *t*, in combination with the ratchet-fastening, for the purpose described.

9. The right-angular slotted slide *v* at the bottom of the collar, in combination with the loop *w* and set-screw *x*, substantially as described, and for the purpose set forth.

195,657.



195,658. COIN-WRAPPERS. Roger L. Ryan, San Francisco, Cal. [Filed June 8, 1877.]



1. A coin wrapper or envelope, A, provided with a bead, *c*, along the edge of each side, and perforations *h i* across its face, substantially as and for the purpose described.

2. A coin wrapper or envelope, A, provided with a bead, *c*, along the edge of each side for the purpose specified.

3. An open-ended coin-wrapper, A, provided with a bead, *c*, along the edge of each side, and provided with the perforations *h i* and flap C, substantially as above specified.

195,659. PRODUCING A HOT-BLAST FOR METALLURGIC FURNACES. S. C. Salisbury, New York, N. Y. [Filed May 7, 1877.]

Brief.—The steam-pipe is coiled in the waste-heat space of the room, as is the pipe which leads the air to the superheating-retorts. The air is drawn in by means of a steam jet.

1. An apparatus to produce a hot-blast, consisting, essentially, of a hot-blast oven, a steam-generator, and a blast-injector, taking steam from said generator at a high pressure, in combination, substantially as set forth.

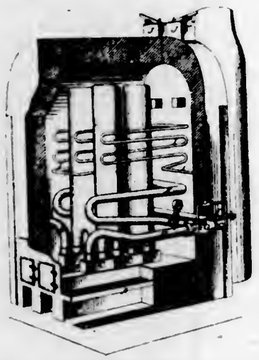
2. A hot-blast oven and a blast-injector taking steam from a steam-generator, substantially as described, combined with a hot-feed pipe, F, laid in the waste-heat space of said oven, for the purpose set forth.

3. In combination, a hot-blast oven and a blast-injector taking steam from a steam-generator through a superheater-pipe, I, laid in the waste-heat space of said oven, substantially as described.

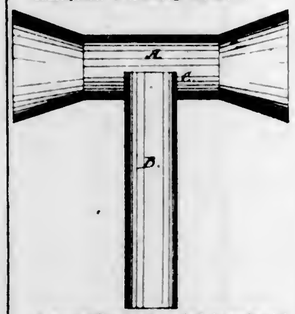
4. A hot-feed pipe, F, and retorts B B, combined with a blast injector, G, and a steam-pipe, I, to convey a jet of high-pressure superheated steam, as set forth.

5. The injector G, combined with the feed-pipe F, provided with a gate, *f*, for the purpose of regulating and controlling the flow of air to the blast-pipe.

195,659.

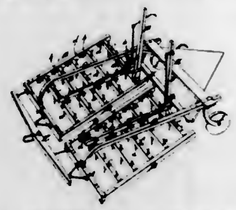


195,660. VENTILATORS. Henry M. Sanders, Worcester, Mass., assignor of one-half his right to J. Luther and Moses W. Wheeler, same place. [Filed Aug. 28, 1876.]



A car-ventilator composed of the horizontal pipe A and the vertical pipe B, the latter being the smaller of the two, and having its upper end C projecting into the former without touching its sides, whereby the air is enabled to circulate freely past the sides of the end C, and thus cause a greater draft, substantially as shown and described.

195,661. HARROWS. Filer S. See and Geo. G. Simonson, Prairie Home, Kans. [Filed July 28, 1877.]



1. The combination, with the side sills B having the pins *d*, of the transverse bars C provided with teeth *a*, and arms *b b* having eyes in their forward ends, which engage with said pins, substantially as described, and for the purpose set forth.

2. The side sills B having the pins *d*, in combination with the transverse toothed bars C, arms *b b* having eyes in their forward ends, bar D having ratchet-teeth *i*, links *e e*, lever D, and pawl A, substantially as described, and for the purpose set forth.

3. The curved arms G G, hinged to the front sills A of the harrow-sections, in combination with the seat H, caster-wheels I, and foot-rest J, substantially as described, and for the purpose set forth.

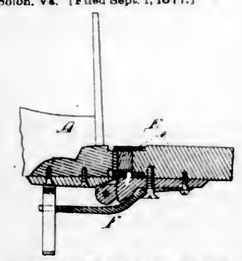
195,662. STOCKING-SUPPORTERS. Christopher C. Shelby, Jersey City, N. J. [Filed Feb. 24, 1877.]

Brief.—The improvement consists in bending the doubled or closed end over upon itself, and thus form a duplex clasp.



The fastener, consisting of a single piece of wire doubled near the center, and having the two arms adjacent for a short distance at their closed ends gradually expanded, and formed into a loop at their free ends, and having the closed lower end bent slightly back upon itself, and thus adapted to form a duplex holder or clasp for the material to be inserted, substantially as shown and described.

195,663. TWO-WHEELED VEHICLES. Ebon B. Simpson, Bridgewater, assignor of one-half his right to I. Marshall McCue, Mount Solon, Va. [Filed Sept. 1, 1877.]



1. A two-wheeled vehicle, having shafts or a tongue hinged to its body, and provided with springs at the hinges, and arms F, to prevent overtilting backward.

2. The combination of hinged shafts B, body A, springs *e*, and arms F, substantially as described.

3. The combination of hinged shafts B, arms F, and body A, substantially as set forth.

195,664. TOOTH-PICKS. James S. Smith, Middletown, Conn. [Filed Feb. 19, 1877.]

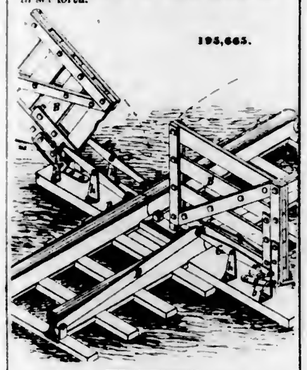


The metallic case M, having the continuous slot *a b*, in combination with the tooth-pick P, constructed and arranged to operate substantially as and for the purposes herein set forth.

195,665. RAILROAD-GATES. Wm. B. Smith, Dadeville, Ala., assignor of one-half his right to Benj. L. McLendon. [Filed Mar. 29, 1877.]

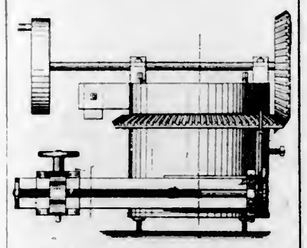
The combination, with the gates B B, pivoted at their outer lower corners, of the levers D, pivoted at their outer ends, the centrally-hung levers G, cranks *m*, and shaft or pin *i*, all substantially as and for the purposes herein set forth.

195,665.



195,666. MILLSTONE-DRESSING MACHINES. A. E. Smith, La Porte, Ind. [Filed Aug. 18, 1877.]

Brief.—The central tubular shell or standard is adapted to be attached to the eye of a millstone.



1. In a machine for dressing millstones, the combination of a dressing-tool and mechanism, such substantially as set forth, for continuously moving said tool in a uniformly-curved line on the face of the stone, for the purpose described.

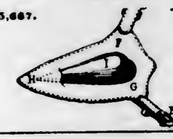
2. In combination with the horizontal shaft journaled on the tubular standard, the rotating shell and its beveled gear-wheel, the tangential arm attached to said shell and its traveling carriage, the leading-screw and its ratchet-wheel, and the pawl and lever and projection on the tubular standard for operating the same, all constructed and arranged to operate substantially as set forth.

3. In combination with the seat on the tubular shell, the yoke attached thereto, provided with set-screws, and the tangential arm adjustably secured to said seat by means of the yoke and set-screws, substantially as set forth.

4. In combination with the traveling carriage and the leading-screw, the hinged screw socket, adapted to be disengaged from the screw for the purpose of setting the carriage and the cutting-tool, substantially as herein set forth.

5. In combination with the upper and lower sections of the tubular standard, the rods extending upward between the outer wall of the standard and inner walls of the shell, for securing the sections of the standard together, substantially as set forth.

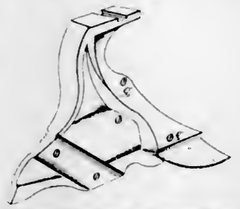
195,667.



195,667. APPARATUS FOR PREVENTING HORSES FROM CRIBBING. John E. Snead and R. A. Burns, Baltimore, Md. [Filed May 28, 1877.]

The cribbing-post F, composed of the base G and the elongated pad I, and provided with suitable means for attaching it to the head-stall of a halter, as shown and described.

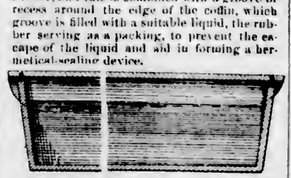
195,668. PLOWS. Joe T. Speer, Pittsburg, Pa. [Filed July 10, 1877.]



A standard cast with the continuous front-edge projection, forming a raised bearing for the mold-board, the share-seat, adapted to receive the share in its entire bearing-surface, and the recesses surrounding the bolt-holes on the land-side of the standard, substantially as described.

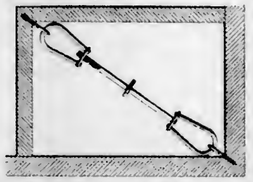
195,669. BURIAL-CASKETS. C. F. Spencer, Rochester, N. Y. [Filed Aug. 24, 1877.]

Brief.—The coffin-lid has a groove around the edges of its under surface, in which a metal strip is secured by means of a folded strip of rubber, and this is combined with a groove or recess around the edge of the coffin, which groove is filled with a suitable liquid, the rubber serving as a packing, to prevent the escape of the liquid and aid in forming a hermetical-sealing device.



In combination with the groove H, for containing liquid, in the edge of the coffin, and the coffin-lid, containing a similar groove, E, the metallic strip C and rubber strip F for confining said metallic strip in said groove, whereby a hermetical seal is formed and the liquid confined in the groove in the edge of the coffin when the lid is in place, substantially as set forth.

195,670. ADJUSTABLE CLOSETS FOR LOOMS. Sylvester N. Stewart, Philadelphia, Pa. [Filed Mar. 16, 1877.]



A detachable closet adapted to the corner of a room, in combination with a hook, eye, or staple secured to the wall, and a connection between the same and the frame of the closet, all substantially as set forth.

195,671.

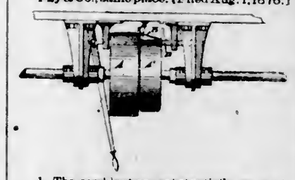


195,671. FENCE-POSTS. H. J. St. John, Cedar Rapids, Iowa. [Filed July 24, 1877.]

1. The fence-post A A'' herein described, consisting of the wrought-metal stiffening-rib or core B, having openings *a a*, and the cast-metal sections A' A', and holding-strips C, substantially as and for the purposes set forth.

2. As a new article of manufacture, the within-described post A, constructed as set forth, and consisting of the central strengthening-rib B and cast-iron sides A' A', with base, substantially as herein explained.

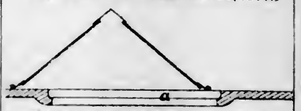
195,672. PULLEYS FOR MACHINE-BELTS. A. Streit, Cincinnati, Ohio, assignor to J. A. Fay & Co., same place. [Filed Aug. 1, 1876.]



1. The combination, substantially as specified, of a tight pulley, a loose pulley of lesser diameter, and a means in the nature of an incline for guiding the belt upward from the smaller to the larger pulley.

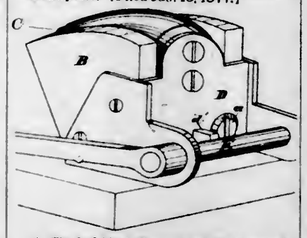
2. In combination with fixed and loose pulleys A A' and belt-shifting rod D, the inclined block E, arranged to operate substantially as and for the purpose specified.

195,673. PORTABLE ILLUMINATED COVERS FOR STOVES. Alex. B. Summers, Brooklyn, assignor to himself and J. A. Squires, New York, N. Y. [Filed June 20, 1877.]



The portable illuminated stove-cover described, having the sides and ends inclined to each other, with portions made transparent, as shown, and adapted to cover the entire space which is capable of being opened in the stove-top, and of being adjusted forward and backward thereon at will, as herein specified.

195,674. STOVE-PIPE-ELBOW MACHINES. Andreas Syversen, Chicago, Ill., assignor of one-half his right to Joseph S. Dennis, same place. [Filed Jan. 18, 1877.]

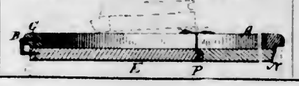


1. The bed-block B, provided with a curved recess, *b*, in combination with a curved former, C, arranged on an independent support, to reciprocate bodily in straight lines, substantially as and for the purpose set forth.

2. The bed-block B, having a curved recess, *b*, in combination with the curved former C, attached to an independent reciprocating support, and upper die F, substantially as and for the purpose set forth.

3. The bed-block B, in combination with the former C, slotted plate D, and lifting rock-shaft E, substantially as and for the purpose set forth.

195,675. BARREL-HEADS. J. L. Thomson, New York, N. Y. [Filed Apr. 6, 1877.]



1. A barrel-head consisting of the wooden hoop A and separate heading, of less diameter than the hoop, constructed and arranged so as to leave the circumferential angular recess between the under side of the hoop and the periphery of the heading, substantially as described.

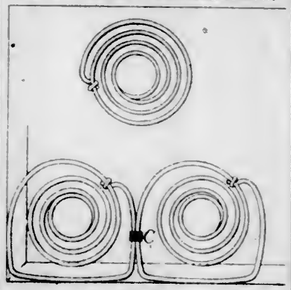
2. The barrel-head consisting of the hoop A, rabbeted circumferentially to form the flange B and a shoulder extending into the barrel, and provided upon its under side with the heading E, substantially as described, for the purpose specified.

3. The hinged barrel-head, consisting of two parts, one of which is fixed to the barrel, while the other part is hinged to the top of the fixed part, and constructed with a beveled edge, N, and rounded or cut off corners O, substantially as described, for the purposes specified.

4. The hinged head having the joint united by a tongue and groove, P, substantially as described, for the purpose specified.

5. The wooden hoop D, constructed with the flange D' fitting over the edge of the barrel, in combination with the flanged head, substantially as described.

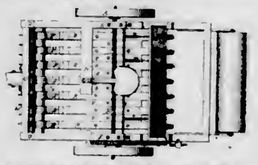
195,676. FURNITURE-SPRINGS. E. A. Turner, Brooklyn, N. Y. [Filed Aug. 9, 1877.]



1. As a new article of manufacture, a furniture-spring with a rectangular projection at the top, as shown and described, and for the purposes set forth.

2. The combination, in a seat, of two or more springs with a rectangular projection at the top, for forming a line of support to the front edge of the cushion, as described.

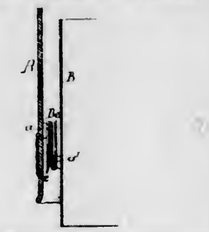
195,677. COMBINED HARROW, SEED-PLANTER, AND ROLLER. John B. Wall, Carthage, Mo. [Filed Feb. 20, 1877.]



1. The combination of the cutters M, harrow-frame, R, drills X, and roller A, substantially as set forth.

2. The frames R, hinged to the axle N, and provided with the beams U, in combination with the forks W, drills X, and roller A, substantially as set forth.

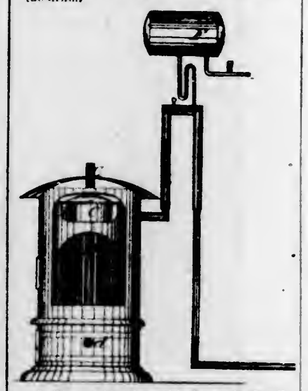
195,678. SLEEVE AND CUFF RETAINERS. M. M. Walk, Philadelphia, Pa. [Filed July 9, 1877.]



A sleeve, A, having the clasp D attached longitudinally on its inner side by a loop, *a*, in combination with the cuff B having the transverse loop *a'*, to which the clasp is adapted, substantially as described.

195,679. CAR-HEATERS. Charles A. West, Richmond, Va. [Filed Apr. 26, 1877.]

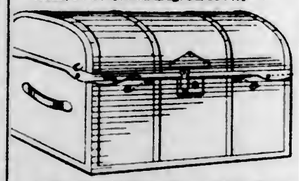
Brief.—The fire is surrounded by double tubes pendant from an annular water drum. Water circulates through the drum and tubes, and smoke escapes through the central opening in the drum.



1. The combination, with the smoke-flue C, passing through the upper part of the heater, and the depending water-pipes D, of the annular water-drum B, constructed and arranged, as described, for the passage of the heated vapors and products of combustion through its central opening to the flue C.

2. The combination, with the heater, expansion-reservoir, and circulation-pipes, of the trap, whereby the water from the heater is prevented from entering or passing through the reservoir, as described.

195,680. TRUNKS. Charles F. Weston, Orleans, N. Y. [Filed Aug. 14, 1877.]

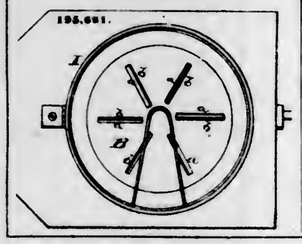


1. The combination, with a trunk, of the U-shaped iron device extending around the front and sides, for bracing and protecting the trunk lid and its hinges from the effects of strains and concussion.

2. The U-shaped iron protecting device for trunk-lids, in combination with the cross-tongues thereof, and the corresponding receiving-notches for said tongues, for the purpose stated.

3. The U-shaped iron protecting device, having the coincident screw-holes in its lapping sides, and adapted to be secured in place by screws, for the purpose stated.

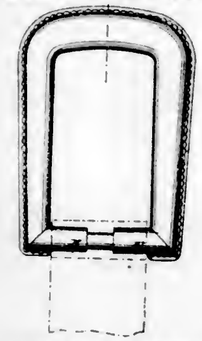
195,681.



195,681. VEGETABLE-CUTTERS. Solomon W. White, New Lexington, Ohio. [Filed Aug. 18, 1877.]

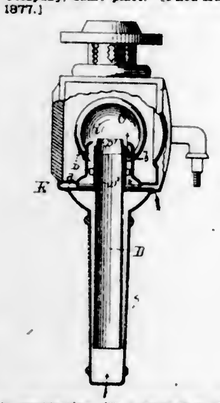
The combination of the base A, rotating slotted disk B, with knives *b*, miter-rim D, and cylinder C, with the frame E, miter-wheel G, stud *h*, and nut *f*, all substantially as and for the purposes set forth.

195,682. COMPOSITION-COVERED BUCKLES. Oscar Wiener, Newark, N. J., assignor to the Celluloid Harness Trimming Company, same place. [Filed Nov. 19, 1875.]



A composition-coated buckle provided upon its exterior periphery with a rib, which rib is omitted from that portion of the buckle about which the strap is secured, substantially as set forth.

195,683. CARRIAGE-LANTERNS. Thomas Wigley, Bridgeport, Conn., assignor of one-half his right to White Manufacturing Company, same place. [Filed Aug. 10, 1877.]



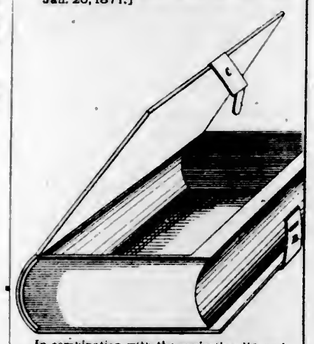
In combination with a carriage or similar lantern, A, the tube D, with short tube D^1 and connecting-sleeve D^2, the cap D^3, perforated double bottom E, air-chambers *b d*, and annular air-outlet *i*, all constructed substantially as and for the purposes herein set forth.

195,684. PROCESSES OF MAKING OAKUM. Charles M. Winter, Kankakee, assignor to William E. Geer, Chicago, Ill. [Filed Feb. 17, 1877.]

Brief.—Passes new fiber through an aqueous solution of sal-soda or similar alkali, lime, tar, and asphaltum, and cleanses it from the alkalies used by a bath of muriatic or like acid and water.

The process of making oakum by using a solvent made from sal-soda or similar alkali and lime, dissolved in water, for cutting and holding in solution the tar and asphaltum with which the fiber is saturated, and the cleansing of said fiber with the acid solution, substantially as specified.

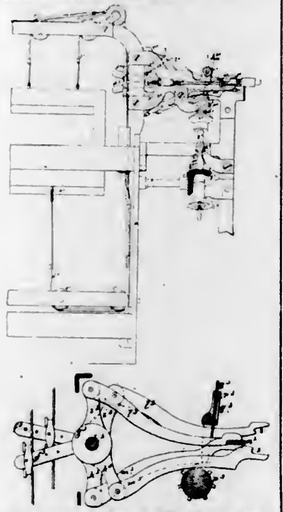
195,685. PAPER-BOXES. Henry L. B. Wolf, Dayton, Ohio, assignor of one-half his right to John W. A. Wolf, same place. [Filed Jan. 20, 1877.]



In combination with the projecting lid and bottom of a paper or straw board box, the paper clasp, composed of a slotted strip, B, and the strip C, provided with a narrow tongue, which can be inserted through the slot and turned up to form a fastening.

195,686. SHEDDING MECHANISMS FOR LOOMS. H. Wyman, Worcester, Mass. [Filed Sept. 17, 1877.]

Brief.—The shedding mechanism and pattern-surface are connected to the shedding-shaft, (which is provided with a clutch, by means of which the same may be connected with, or disconnected from, the crank-shaft,) in such a manner that the said pattern-surface may be turned either forward or backward, and the shedding devices caused to operate in unison therewith, to form sheds independently of the other parts of the loom.



1. A pattern-surface, shedding devices, and mechanism for connecting the one with the other, both when the pattern-surface is being turned forward and when it is being reversed, in combination with the shedding and crank shafts, and devices between the shedding and crank shafts to connect or disconnect them, whereby, when the crank and shedding shafts are disconnected, the pattern-surface may be reversed, and the shedding devices in operative connection therewith be actuated for any desired number of sheds, in accordance with the protuberances of the reversely-moving pattern-surface, to form and perfect sheds until the true shed is reached, substantially as described.

2. A crank-shaft, a shedding-shaft, striving and disconnecting mechanism to engage or disengage them, a pattern-surface, lifter and depressor, shed-forming devices, and mechanism for holding the latter in operative connection with the pattern-surface, in combination with a single crank, whereby, when the shedding-shaft is disconnected from the crank-shaft, the pattern-surface may be reversed and turned backward, by means of the single crank, for any desired number of sheds until the true shed is found, and the shedding devices may be operated in unison with the pattern-surface to form sheds, substantially as described.

3. In a fancy loom, a rotating pattern-surface and a lifter and depressor, in combination with shedding devices and connecting mechanism, whereby, by means of a single crank, the pattern-cylinder may be reversed after the completion of any shed, and the shedding devices be automatically operated in unison with it to form and complete the sheds indicated by the protuberances of the reversely-moving pattern-surface, substantially as described.

4. The shedding-shaft connected with and adapted to move the pattern-surface in either a forward or backward direction, and a lifter and depressor to form sheds, in combination with the crank-shaft and driving and disconnecting mechanism, to engage or disengage the shedding and crank shafts, substantially as and for the purpose described.

5. The crank-shaft and a shedding-shaft connected with and adapted to operate a pattern-surface and eveners and lifter and depressor, all at one end of the loom, in combination with a clutch to disengage the shed-operating devices from operative connection with the crank-shaft to form sheds when the crank-shaft is at rest, substantially as described.

6. A crank-shaft, in combination with a shedding-shaft, a clutch to disconnect the shedding-shaft from the control of the crank-shaft, lifter and depressor, a crank and link connected with the shedding-shaft to operate the lifter and depressor, and a wheel or pulley, all located at the same end of the loom, substantially as described, whereby the lifter and depressor may be operated without moving the crank-shaft, for the purpose set forth.

7. The lifter-bar, provided with a V-shaped edge, in combination with the pattern-surface and the upper and lower jacks P w^1, notched as described, and arranged with relation to each other to be operated by the lifter, substantially as shown and described.

8. The shedding-shaft and its crank and link, adapted to operate the lifter and depressor, and its toothed pinion, adapted to move the pattern-surface, in combination with a clutch adapted to engage or disengage the crank and shedding shafts, substantially as and for the purpose described.

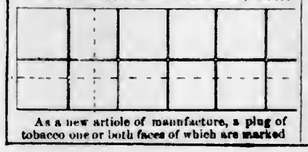
9. The three-armed jack-levers and jacks, arranged in pairs, one above and upon the other, in combination with the pattern-surface and lifter, adapted to pass between and engage and move the jacks and jack levers and their connected harness-frame, and with eveners to move the jack levers, substantially as described.

195,687. WATCH-WINDING DEVICES. W. H. Zinn, Boston, Mass. [Filed July 31, 1877.]



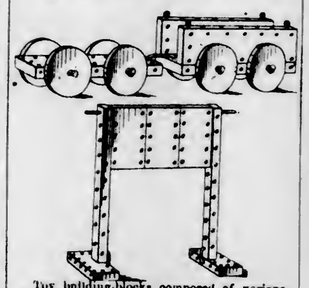
The combination, with the winding arbor or spindle of a watch-movement, of a spring handle or arm or arms, *b*, substantially as and for the purpose described.

195,688. MARKING PLUG-TOBACCO. G. B. Okell, Chicago, Ill. [Filed June 4, 1877.]



As a new article of manufacture, a plug of tobacco one or both faces of which are marked off by indented lines, which serve to secure the wrapper to the filling, and also as guides for cutting up the plug into small pieces of definite size and weight, substantially as and for the purpose set forth.

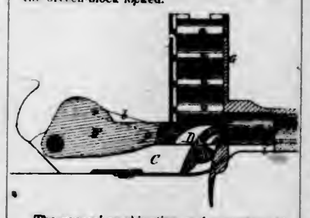
195,689. TOY BUILDING-BLOCKS. H. M. Quackenbush, Herkimer, N. Y. [Filed Mar. 30, 1877.]



Toy building-blocks composed of various sizes and shapes, and provided with a series of perforations arranged transversely therein, at opposite angles to each other, or widthwise and edgewise, in combination with the interchangeable pins or links, substantially as described.

195,690. MAGAZINE FIRE-ARMS. Enoch R. Quimby, Lynn, Mass. [Filed Mar. 21, 1877.]

Brief.—By operating a lever at the side of the arm the breech-block is unlocked and drawn back, when the lowest cartridge in the magazine drops into the receiver, and the spent shell drops out through an opening in the bottom of the receiver. By turning the lever back into its normal position the cartridge is pushed into the chamber, the breech is closed, and the breech-block locked.



The general combination and arrangement of parts, substantially as herein shown and described, consisting of the receiver C, magazine G, sliding breech-block D, and backing abutment D', essentially as and for purposes stated.

195,691. UPRIGHT PIANOS. W. B. Tremaine, Brooklyn, N. Y., assignor of one-half his right to L. G. Billings, same place. [Filed Apr. 20, 1877.]

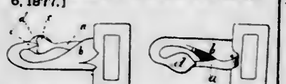


1. In upright pianos, a tubular action and case sustaining bar, arranged substantially as shown, and for the purposes herein specified.

2. In upright pianos, a combination of the tubular bar B with the reversible nuts C C and brackets D D D D, for sustaining the action as well as bracing the sides of the piano, when arranged substantially as herein shown and described.

REISSUES.

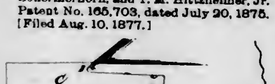
7,893. SNAP-HOOKS. Chas. W. Blakeslee, Litchfield, Conn., assignor of one-half interest to Levi S. Wooster. Patent No. 175,912, dated Apr. 11, 1876. [Filed Sept. 6, 1877.]



1. The tongue *a*, provided with the projections *c*, in combination with the hook-body *b*, provided with the shield *d*, all substantially as described.

2. A snap-hook consisting of the body *b*, having the shield *d* and rib *s* on its end, in combination with the tongue *a*, having the projections *c c* and slot *f*, substantially as shown and described.

7,894. REVERSIBLE PLOW-POINTS. Marcus M. Bowers, Richmond, Va., assignor, by mesne assignments, to himself, John P. Schermerhorn, and T. M. Hittzheimer, Jr. Patent No. 165,703, dated July 20, 1875. [Filed Aug. 10, 1877.]



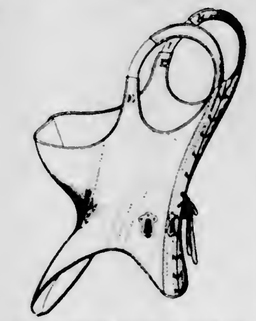
1. A plowshare having its forward end slotted vertically entirely through, and the sides or walls of said slot converging from the base at equal angles on top and bottom, the lines meeting at the plow-point and diverging from the base on either side, to form a wedge-shaped opening for the plow-point, as set forth.

2. A plow-point in the form of an equal-sided wedge, in combination with a plowshare having its forward end slotted vertically entirely through, and the sides or walls of said slot converging from the base at equal angles on top and bottom, the lines meeting at the plow-point and diverging from the base on either side, to form a wedge-shaped opening for the plow-point, as set forth.

3. An equal-sided wedge-shaped plow point, as described, in combination with the plowshare, having a central opening passing vertically entirely through the same, said plow-point being provided with a shank which is securely retained in the opening in the share, both laterally and vertically, independent of external fastenings, as and for the purposes set forth.

4. A detachable and reversible plow-point, C, with lips upon the upper and lower edges of its shank, in combination with a plowshare in which is a central opening formed to receive said shank, as and for the purpose set forth.

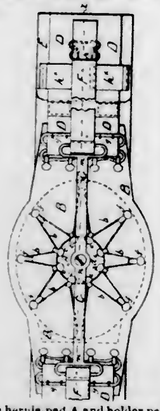
7,895. CORSETS. Catharine A. Griswold, New York, N. Y. Patent No. 116,666, dated July 4, 1871. [Filed Aug. 30, 1877.]



1. As an improved article of manufacture, a corset provided with shoulder-straps, curved so that their inner edges are elevated above their outer edges, as and for the purpose specified.

2. As an improved article of manufacture, a corset having projecting from its upper edge on each side, in front of the arms, extensions E E', constructed substantially as shown, to serve as yielding flexible side supports for the bust of the wearer, and as a point of attachment of shoulder-straps, as and for the purpose described.

7,896. HERNIA-TRUSSES. Leon T. J. Lubin, Boston, Mass. Patent No. 168,264, dated Sept. 26, 1875. [Filed July 19, 1877.]

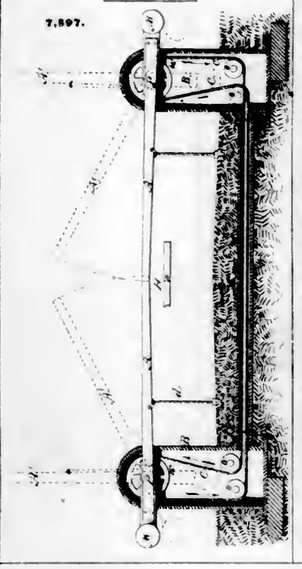


1. The hernia-pad A and holder pad or plate B, the two applied and connected together by an elastic cord, b, substantially as described, for the purpose specified.

2. The hernia-pad A, arranged to move in and out of its holder pad or plate B, the spring-band G, and the elastic straps D D, and a non-elastic band, E, all connected together and arranged substantially as herein described, and for the inward movement or pressure of the hernia-pad A in the outward movement of the holder-pad B, substantially as specified.

3. The non-elastic band E, with its loops A^*, in combination with the elastic strap or straps D, substantially as and for the purpose described.

7,897.



7,897. GATES. Jos. S. Winsor, Providence, R. I., assignor to Chas. Moise, same place. Patent No. 151,260, dated May 26, 1874; reissue No. 7,451, dated Dec. 26, 1876. [Filed July 21, 1877.]

1. The combination, with posts or standards B B, located on opposite sides of the gate-opening, of vertically-swinging gate-bars A A, pivoted to shafts secured to standards B B, the gate-bars A A having their shorter ends weighted to practically counterbalance the longer ends, substantially as and for the purpose set forth.

2. The combination, with posts or standards B B, located on opposite sides of the gate-opening, of the swinging gate-bars A A, pivoted to said standards, the bars A A, provided with weight M to practically counterbalance the gate-bars, substantially as and for the purpose set forth.

3. The combination, with two counterbalanced vertically-swinging gate-bars, of intervening mechanism, substantially as set forth, whereby both bars may be retained in any desired position and actuated simultaneously, substantially as and for the purpose set forth.

4. The combination, with the hollow standards B B, arranged to contain the operating mechanism, of the trough or tunnel I, arranged to contain the connecting mechanism by means of which the gate is operated and the mechanism protected, substantially as and for the purpose set forth.

5. A railroad-crossing gate, consisting of two vertically swinging gate-bars, connected by intervening mechanism, whereby they may be operated simultaneously, arranged to act both as a gate and a signal, substantially as and for the purpose set forth.

6. A gate consisting of two vertically swinging gate-bars, connected by intervening mechanism, whereby they may be operated simultaneously, said bars being constructed so that their inner ends shall interlock with each other when the gates are closed, substantially as and for the purpose set forth.

7. The combination, with the counterbalanced vertically-swinging gate-bars A A, pivoted to the posts or standards B B, of the connections c r, pulleys u x, and sheaves o o, substantially as and for the purpose set forth.

THE GRAPHIC CO. N.Y.

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NOTICE.

Unavoidable delay in the reproduction of some of the illustrations for the edition of the OFFICIAL GAZETTE to contain an account of the late fire has compelled its postponement until the edition of October 9. It is the desire of the Office, both in the written and illustrated history of this important event, to make it as complete as possible. The number of October 9 will contain, in addition to about fifty pages of letter-press description of the fire, twelve pages of illustrations of the most elaborate and interesting character.

ORDER.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., October 5, 1877.

The second paragraph of Rule 53, edition of August, 1877, is amended to read as follows:

These statements shall not be open to the inspection of the opposing parties until both have been filed, or until the time for filing both has expired; nor then, until they have been examined by the proper officer and found to be satisfactory.

Also, the fifteenth line of page 30 should read:

On depositing a trade-mark for registration, $25.

(Signed) ELLIS SPEAR,
Commissioner.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—DISTRICT OF MASSACHUSETTS.

GOODYEAR DENTAL VULCANITE COMPANY *vs.* CHARLES G. DAVIS. SAME *vs.* DEFENDANTS IN SIXTY-SEVEN OTHER CASES.

[*In equity.—Before* SHEPLEY, *J.—Decided October* 5, 1877.]

The validity of the Cummings patent, as well as its construction, must be considered as settled by the decision of the Supreme Court of the United States in *Smith* vs. *Goodyear Dental Vulcanite Company*

Cummings' invention includes alone the article or manufacture made by the process described, and is only infringed by using the materials described by him or their known equivalents, in the described process, or such as in the process are mere substitutes of one material for another without change in process or effect, producing thereby a product the equivalent of his in the properties and functions described.

The Cummings patent for a plate of hard rubber or vulcanite is not infringed by a plate made of celluloid, the product and process being essentially different.

The courts will endeavor to give such construction to a patent as will support the invention, and will not unnecessarily adopt one that would render the patent invalid.

[*Edward N. Dickerson and Benjamin F. Lee*, for complainants. *Wm. D. Shipman, Henry Baldwin, Jr., and E. Luther Hamilton*, for defendants.]

OPINION OF THE COURT.

SHEPLEY, *J.*:

The patent and its reissues granted for the invention of John A. Cummings of "an improvement in artificial gums and palates," or, as described in the claim, "the plate of hard rubber or its equivalent for holding artificial teeth, or teeth or gums, substantially as described," have been the subject of extensive and prolonged litigation. Since the affirmance by the Supreme Court of the United States in *Smith, appellant*, vs. *Goodyear Dental Vulcanite Company*, 3 Otto, 486, of the decree of the circuit court in the test case of *Goodyear Dental Vulcanite Company* vs. *Smith*, the validity of the reissued patent has been fully established. The decision of the Supreme Court in that case must be considered as final, not only as to the validity, but as to the construction of the patent, which was carefully considered in that case, both in the circuit and the appellate court, as it had previously been in the Wetherbee and the Gardiner cases.

In *Vulcanite Company* vs. *Smith*, in the first circuit, this court decided that the patent was not for a process or art, but for the new product resulting from the manipulation by the described new process, and for one of those products in which the process so inheres that the described product can only be made by the described process, and that the invention was one in which the process by which it is made is a part of the substance, the thing made, the manufacture. What the new product was, and wherein the novelty consisted in the process, we shall hereafter have occasion to consider. In the opinion (by Mr. Justice Strong) in the Supreme Court in the same case, the invention patented is thus described:

The invention, then, is a product or manufacture made in a defined manner. *It is not a product alone separated from the process by which it is created.* The claim refers in terms to the antecedent description, without which it cannot be understood. The process detailed is thereby made as much a part of the invention as are the materials of which the product is composed.

If the defendants, by practising the process described by Cummings, using the materials described by him, or such materials as are equivalents and were known equivalents at the date of his invention, in the described process, or such as, in the process, are mere substitutes of one material for another without any change

in the process or in the effect, have produced a product the equivalent of his in the described properties and for the described functions, then, and only then, have they infringed.

The product, the new article of manufacture patented, was a set of artificial teeth, consisting of a plate of hard rubber or vulcanite, with teeth or teeth and gums, secured thereto in the manner described in the patent, by embedding the teeth and pins in the vulcanizable compound, so that it shall surround the teeth and pins while the compound is in a soft state before it is vulcanized, so that when the compound is vulcanized the teeth are firmly secured by the pins embedded in the vulcanite, and there is a tight joint between the vulcanite and the teeth. This product was a new product, not alone because it substituted one material for another, the material, vulcanite, rigid enough for purposes of mastication, yet pliable enough to yield a little to the mouth, and at the same time light and inexpensive, in place of the hard, unyielding, expensive, and heavy metals previously used, but also in the additional fact that it was made by a process which, taken as a whole, was a new process, by the use of which process "the teeth can easily be baked into the gums, which form one piece with the plate.

The next question to be considered is, what was there new in the described process? The whole process of forming and making a set or case of teeth, including the plate, gums, and teeth, is fully described in the Cummings patent, and this process is so fully described in the case of *Vulcanite Company* vs. *Smith* that it becomes unnecessary to repeat it here. It is sufficient to state that in view of the state of the art there was nothing substantially new in that process until we reach this part of the description:

> The teeth are provided with pins projecting therefrom in such manner that the rubber which is to constitute the plate will close around them, and by means of them hold or secure the teeth permanently in position. The plaster-mold, with the teeth adhering therein, as just described, is now filled with soft rubber, a little at a time, pressed in with the finger, or in any other convenient way; and care is to be taken that the rubber is made to completely fit into the cavities and around the protuberances, including the pins, and is filled in to the thickness or depth desired to form the plate. I then lock the rubber plate in position by shutting the other half of the plaster-mold over it to insure its retaining its exact form while warming, and then heat or bake it in an oven, or in any other suitable way. The soft rubber or gum, so inserted in the mold, is to be compounded with sulphur, rubber, &c., in the manner prescribed in the patent of Nelson Goodyear, dated May 6, A. D. 1851, for making hard rubber, and is to be subjected to sufficient heat to vulcanize or harden it, substantially as directed in that patent. It is also to be colored in imitation of the natural gums, by mixing it with vermilion, or other suitable coloring matter, while in the soft state. After the plate has been heated sufficiently to harden it or convert it into hard rubber or "vulcanite," so called, the mold is removed and the plate is polished ready for use.

It will thus be seen that an essential element of the described product is "a plate of hard rubber or vulcanite," in which the teeth are embedded; and an essential ingredient in the described process is the soft rubber or gum, compounded with sulphur, rubber, &c., in the manner prescribed in the patent of Nelson Goodyear for making hard rubber, and that an essential step in the described process is the subjecting the compound of soft rubber or gum with sulphur "to sufficient heat to vulcanize or harden it, substantially as described in that patent," (*i. e.* the patent of Nelson Goodyear, of May 6, A. D. 1851.)

The equivalent of that product thus made by that process must therefore contain the equivalent of the plate of hard rubber, made and manipulated by a process equivalent to the described process of compounding a gum with sulphur, and applying it, and molding it, and incorporating it with the teeth and gums when in a soft state, and then subjecting it to heat, to harden and vulcanize it, in the manner described in the Goodyear patent, or in some equivalent manner, or by some equivalent process.

The defendants use, in making their set of artificial teeth, a plate made of "celluloid," substantially a new material, discovered and patented since the date of the Cummings invention. This substance is compounded of cellulose, or vegetable fiber and camphor. No rubber or other equivalent gum, and no sulphur or equivalent for sulphur in the process, enter into its ingredients. It is not a vulcanizable compound, and contains no vulcanizing agents in its composition. The camphor in its composition, instead of being a vulcanizing agent, causes the composition to soften instead of harden under the influence of heat. The product, when compounded, and before being subjected to heat, is not soft, like soft rubber under like conditions, but hard. In the manipulation of this material, the process of making a set of teeth, composed of the plate and teeth and gums, is an entirely different process from the process described in the Cummings patent, when compared with that part of the Cummings process which was new in the state of art, and the novelty of which part gave to the Cummings process, when considered as a whole, the ingredient of novelty and patentability. It is not placed in the mold in a soft, plastic condition, "a little at a time, pressed in with the finger, or in any other convenient way," but in a hard, rigid condition, like horn, or bone, or ivory. It is then subjected to heat, not to vulcanize or harden, but to soften it. It afterward, on being cooled or restored to its original temperature, returns to its original condition as a hard substance, as when first placed in the mold. No vulcanizing process, or even process of hardening by heat, and no equivalent for any such process, is practised. In the light of these comparisons it appears evident to the court that the use of celluloid in the manufacture of sets of artificial teeth, as practiced by the defendants, and the manufacture itself, the set or plate of teeth, differ as much, both as to process and product, from the process and product described and claimed in the Cummings patent, as that process and that product differed from those previous manufactures which existed before the Cummings invention, and were unsuccessfully relied upon as anticipating it.

It is true that this construction of the dental vulcanite patent narrows the scope of the patent. It is urged, with much force, that if this be the true construction, it would follow that if an inventor invented at the same time a new process and a new product he would by such a construction of his patent lose the benefit of it, unless the infringer used his process or an equivalent one to produce his product or an equivalent one. One answer to this objection is that in the case supposed the inventor might patent both the new process and the new product, and thus fully protect himself. In its application to this case it is believed that the objection is without force, for the reason that such a construction of the claim of this patent is the only one which makes the claim a valid claim. To abandon the construction which makes the product patented the new manufacture, when made by the described process, is to abandon that which gives it its vitality. It is better to adopt that construction which, although limiting the scope of the claim, secures to the inventor all that he actually invented, and no more, than to adopt one which would render the patent invalid, or one which, being broader than the invention of the patentee, should be a barrier in the way of future progress in discovery and invention.

Bill dismissed.

U. S. CIRCUIT COURT—DISTRICT OF MASSACHUSETTS.

THE ATLANTIC GIANT POWDER COMPANY *vs.* GEORGE W. MOWBRAY *et al.*

[*In equity.—Before* SHEPLEY, *J.—Decided October* 5, 1876.]

The substitution in a patented mixture of an ingredient which although not precisely the same in its action, produces all the valuable and beneficial results attending that for which it was substituted, and in substantially the same manner, is to be regarded as an equivalent and an infringement of the patent.

Nobel's patent for dynamite describes a mixture of nitro-glycerine and a substance which possesses a very great absorbent capacity, preferring infusorial earth, rendering the mixture more safe and convenient for transportation, storage, and use than nitro-glycerine, without loss of explosive power. These advantages are attained by the defendants by employing, instead of absorbent substances, mica scales, which become coated with the liquid. Although admitted to be an improvement, still it is subsidiary to Nobel's invention and an infringement of this patent.

[*Causten Browne and Jabez S. Holmes*, for complainants.
Charles F. Blake, for defendants.]

OPINION OF THE COURT.

SHEPLEY, *J.*:

This bill is founded on three patents, one being Reissue No. 5,798, for an improvement in methods of exploding nitro-glycerine, the claims in which are for a process or certain described modes of utilizing nitro-glycerine as an explosive by means of fire, heat, electricity, or an initial explosion, communicated to the mass under a condition of confinement, so as to produce an instantaneous explosion of the entire mass, and generally by effecting an impulse of explosion by the detonation of an explosive substance communicated to the mass under such condition as to produce an instantaneous explosion of the whole mass. This may be briefly described as the process patent. The second one is Reissue No. 5,800, in which there seven claims for as many different igniters or exploders for initiating the impulse of explosion in a charge of nitro-glycerine. This will be styled, for the sake of brevity, the exploder patent. The third patent, Reissue No. 5,799, for an improvement in explosive compounds, is for the combination of nitro-glycerine with infusorial earth, or other equivalent absorbent substance, as a new explosive compound. This compound is generally spoken of as dynamite, and therefore this may appropriately be called the dynamite patent. This last-named patent will first be considered.

In 1847, Ascagne Sobrero (soon after the discovery by Schönbein, in the same year, of gun-cotton) invented nitro-glycerine, an explosive substance prepared by treating glycerine with a mixture of nitric and sulphuric acids. For a long time after the invention of nitro-glycerine by Sobrero in 1847, in fact, until 1863, when Nobel's inventions began, although nitro-glycerine was well known to be a very powerful explosive as compared with gunpowder and gun-cotton, it was very little used for blasting purposes. This delay in the introduction of nitro-glycerine as an explosive to practical use appears to have been attributable, first, to the enormous danger to life and property attending its manipulation, transportation, and use in its fluid state; and, secondly, to a practical difficulty, amounting almost to an impossibility, of exploding the whole mass of fluid nitro-glycerine, no instantaneous decomposition of the whole mass following from the application of heat or of a blow, as in case of gunpowder or gun-cotton when fire is applied. To overcome this last objection was the object of the exploder and the process patents. The object of the dynamite patent was to remedy the first objection of enormous danger to life and property, and to combine the nitro-glycerine with some absorbent substance, whereby the condition of the nitro-glycerine is so modified as to render the resulting compound more practically useful and effective as an explosive, and far more safe and convenient for handling, storage, and transporation, than nitro-glycerine in its ordinary condition as a liquid. Objection is made to the reissue of the dynamite patent, on the ground that the description of the invention is broader in the reissue than in the original patent; but the description of the invention in the original patent appears to describe in general terms, although without minutely demonstrating all the peculiarities of operation in the new compound, all that is more specifically described in the reissue. The invention is described in general terms to "consist in mixing with nitro-glycerine a substance which possesses a very great absorbent capacity, and which at the same time is free from any quality which will decompose, destroy, or injure the nitro-glycerine or its explosiveness." A certain kind of silicious earth, known under the several names of silicious marl, tripoli, rotten stone, &c., the preferred variety being infusorial earth, is described as the inert matter which he mixes with the nitro-glycerine. The described advantages are, that it will, by reason of its great absorbent capacity, take up about three times its own weight of nitro-glycerine, and still retain its powder form, thus leaving the nitro-glycerine so compact and concentrated as to have nearly its original explosive power. The patent also points out the result of insensibility of the compound to ordinary concussions without loss of the great explosive power of the liquid nitro-glycerine, where it describes it "as being far more safe and convenient for transportation, storage, and use, than nitro-glycerine." It is true that the original patent does not undertake to enunciate the law of the explosion of nitro-glycerine by concussion, or to explain fully the peculiarities of operation attending the use of the compound. This was not necessary to the validity of the patent any further than might be requisite to instruct others as to the qualities to be inherent in other substances to be used as equivalents for the silicious earth described, and I hardly think essential for that purpose. If in this respect there was any need of more specific detailed description in addition to the general words in the patent, it has been

corrected, and, as far as I can judge, properly corrected in the reissue. Without giving that extended comparison and collocation of corresponding passages in the original and reissue which would be necessary to properly answer all the objections raised in the argument, I must content myself with stating that such careful comparison has failed to satisfy me that the reissued dynamite patent is open to objection on the ground of its being for an invention broader than, or different from, the one described in the original. The omission of the word "inexplosive" might seem to indicate, as it perhaps does, a disposition to enlarge the scope of the patent; but, as I think, when a question shall arise on that expression in the patent, the court will look to the specifications in both the original and the reissue, in aid of the true construction of the reissue, as stated *Forsyth* vs. *Clapp*, 1 Holmes, 283-4. I do not think the omission of that word renders the reissue defective. The construction which the court would give as to what would be an equivalent for the silicious earth would be the same under the reissue as on the original patent.

The patent to Shaffner for a mode of tamping, and for a combination of sand with nitro glycerine in the blast-hole, does not anticipate the invention of Nobel. It does not approach any nearer to it than the explosion of nitro-glycerine in the sand and gravel, in front of the stable at Titusville, approaches Mowbray's perfected invention of mica powder, although it suggested the train of experiments which resulted finally in that invention.

The defendants have used mica powder, an invention of the defendant Mowbray, a great improvement in the art of blasting with nitro-glycerine, the valuable properties of which have been signally demonstrated in the use which has been made of it in blasting operations in the Hoosac Tunnel, attaining the result of the highest efficiency and greatest economy consistent with perfect safety, as compared with all other highly-explosive substances.

Mica powder, so called, is prepared by pouring trinitroglycerine, at a temperature of about seventy degrees, in the proportions of about fifty-two and one-half pounds of tri-nitroglycerine to forty-seven and one-half pounds of mica scales, over mica scales prepared by triturating mica or Muscovy talc into scales of about one-thousandth of an inch in thickness, and exceedingly minute surfaces, and free from the powder or dust of mica, in such a manner that the surfaces of the minute mica scales are painted or coated with the tri-nitroglycerine, and the mass of forty-seven and one-half-pounds of mica scales retains or holds in suspension the fifty-two and one-half pounds of tri-nitroglycerine. To determine whether this, which must be admitted to be a great and patentable improvement upon the dynamite of Nobel, be an independent or a subsidiary invention, we must look carefully into the nature and scope and the limitations of the reissued dynamite patent, treating it, as we have already shown, as a valid patent for the invention described therein and in the original.

The invention is described in the original as consisting "in mixing with nitro glycerine a substance which possesses a very great absorbent capacity, and which at the same time is free from any quality which will decompose, destroy, or injure the nitro-glycerine or its explosiveness," thus forming out of the two ingredients "a composition which, without losing the great explosive power of nitro-glycerine, is very much altered as to its explosive and other properties, being far more safe and convenient for transportation, storage, and use than nitro-glycerine." In the original and the reissues there is a statement, in different forms of expression, and with more particularity in the reissues than in the original, of the advantage of the use of this compound, enabling the miner to fill up the bore-hole with the compound, while the cartridge containing the fluid nitro-glycerine must be of less diameter than the bore-hole, thus obtaining as much nitro glycerine in the same height of bore-hole with this powder as with nitro-glycerine in the pure state, increasing the safety of the miner by preventing leakage into the seams of the rock.

The claim in the original patent is for the composition of matter made substantially of the ingredients, and in the manner and for the purposes set forth. The reissues claim the combination of nitro-glycerine with infusorial earth or other equivalent absorbent substance as a new explosive compound. It is not perceived that the claim in the reissues is any broader than in the original. The defendants' explosive compound is prepared by mixing the nitro-glycerine with the mica scales before described. Are the mica scales an equivalent in the compound for the infusorial earth or other substance which possesses a great absorbent capacity, and which at the same time is free from any quality which will decompose, destroy, or injure the nitro-glycerine or its explosiveness? I am forced, upon mature reflection, to the conclusion that in this compound the mica scales possess all the properties which render the infusorial earth efficient and useful in the compound, as well as some additional properties of greater elasticity and resiliency, which add to their value. It is true that the infusorial earth is described as a porous substance, and is supposed to hold the nitro-glycerine suspended in the pores by capillary attraction, but it must also hold it in suspension by coating and adhering to the exterior surfaces of the particles. The mica scales, on the other hand, are supposed to hold the nitro-glycerine in suspension only as it is painted or coated on the exterior surfaces of the minute scales; but they each in the compound perform the same function as an absorbent of the nitro-glycerine. They each take up and hold by cohesive or molecular action, and each without chemical action or reaction, the nitro-glycerine in the compound. The mixture is a mechanical one, and it is not material to the function of the compound or its properties whether the absorption be effected by that mode of absorption by which a sponge, or the lacteals of the body suck in or draw up a liquid, or that by which some pulverulent substances absorb gases or moisture, whether the liquid is held absorbed or suspended in the inner surfaces of minute capillary tubes, or on the outer surfaces of minute scales. I have seen diatomes, small silicious scales, called animalcules, yet of vegetable origin, so minute that four hundred different forms catalogued and classified are arranged within the space of less than one-fourth of an inch square on the surface of the glass slide of a microscope. These small silicious scales make up the substance of large tracts and mounds of earth. If used as the inert matter with a mixture of nitro-glycerine, it would be difficult to say whether they were more closely the equivalent of the infusorial earth of Nobel or the mica scales of Mowbray. The Kieselgurgh or infusorial earth of Nobel is composed of the minute scales of the *diatomaceæ*. Each one of the properties and qualities ascribed by Nobel to the inert matter in his compound pertains to the mica scale in the mica powder, and the functions are the same in each. Nobel uses nitro-glycerine manufactured by a process which, with acids of the specific gravity used by him, produces mono or di nitroglycerine. Mowbray uses nitro-glycerine prepared by processes which yield a substantially pure tri-nitroglycerine, which is only another more concentrated and more highly nitrated form of nitro-glycerine, in mono-nitroglycerine one of the hydrogen atoms of glycerine being replaced by nytril, (constituting nitric acid,) in di-nitroglycerine two of the hydrogen atoms being so replaced by nytril, and in tri-nitro-glycerine three being so replaced. For the purposes of the compound the substances are substantially the same in kind, though differing in degree. In strictness, either by the old or the new graphical system of chemical notation, they would be differently described and represented. But notwithstanding this difference in chemical nomenclature, the practical fact remains, that the only difference is in the degree to which the glycerine is nitrated, and the three resulting products, as to the properties which constitute the peculiar character of nitro-glycerine as an explosive, and as one of the elements of the patented compound, differ only in degree and not in kind.

As to the other two patents—the exploder and the process patent—without any elaborate statement of reasons, I must content myself for the present with a very brief statement of the conclusions to which I have arrived. Initial exploders—the use of one explosive compound or substance to communicate the impulse or action of explosion to another—are old. These initial exploders have been made of fuses of gunpowder or other ignitable compounds and different forms of tubes or capsules, containing ignitable or explosive compounds, which communicated sufficient heat directly or indirectly by a shock adequate when arrested to produce sufficient heat to explode the mass by detonation or deflagration, or both. These initial exploders have been used to explode gunpowder and gun cotton, both of which can be exploded by detonation. In this state of the art, if there was anything patentable in the initial exploders of Nobel, the claims of the patent must receive so narrow a construction as would not charge the defendants as infringers.

Decree for injunction and account as to infringements of reissued Patent No. 5,799, for an improvement in explosive compounds, and that no infringement is proved of Reissues 5,798 and 5,800.

All letters to the Patent Office must be addressed to the Commissioner of Patents.

THE illustrated portion of the Patent Office Report for 1869 and for 1871 has recently been completed, and can be had, by those having the remaining volumes for those years, by applying to the Commissioner of Patents.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date October 2, 1877.]

10,263.—Carpets.—FRANK E. ALLEN, Yonkers, N. Y., assignor to ROXBURY CARPET COMPANY, Boston, Mass. Application filed September 26, 1877. Term of patent 3½ years.

10,264.—Lace Fabric.—ABRAHAM G. JENNINGS, Brooklyn, N. Y. Application filed August 17, 1877. Term of patent 3½ years.

10,265.—Bracelet.—HARVEY LANG, Kennett's Square, Pa. Application filed May 28, 1877. Term of patent 3½ years.

10,266.—Pocket-Book Clasps.—LOUIS MESSER, New York, N. Y. Application filed September 13, 1877. Term of patent 3½ years.

10,267.—Printed and Woven Fabrics.—WILLIAM MORRIS, London, England. Application filed December 9, 1876. Term of patent 7 years.

10,268.—Dish-Handles.—SAMUEL STEVENS, Jersey City, N. J. Application filed July 23, 1877. Term of patent 7 years.

10,269.—Show-Cards.—WILLIAM C. WILSON and THOMAS S. HARRISON, Philadelphia, Pa. Application filed May 14, 1877. Term of patent 14 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date October 2, 1877.]

5,185.—Plows.—AMES PLOW COMPANY, Boston, Mass., and New York, N. Y. Application filed September 17, 1877.
"The word-symbol 'CENTENNIAL.'"

5,186.—Capsules.—ROBERT GRAY DICK, Flatbush, N. Y. Application filed June 13, 1877.
"The two parallelograms aforesaid, as shown and described, the triangles aforesaid, as shown and described, the latter containing the title or designation 'Gray's' and the monograms 'G. A. C.'"

5,187.—Gin.—JOHN HINDS, New York, N. Y. Application filed September 10, 1877.
"The pictorial representation of a bird."

5,188.—Shoe-Dressing.—GEORGE D. HILL & Co., Baltimore, Md. Application filed September 18, 1877.
"The word-symbol 'ECLIPSE.'"

5,189.—Cheese.—JOHN H. HODGSON, Brooklyn, N. Y. Application filed September 12, 1877.
"A representation of a garter in an oval form, with a crown at the upper portion."

5,190.—Plug-Tobacco.—W. & A. LEAMAN, New York, N. Y. Application filed September 10, 1877.
"The word-symbol 'TEMPTATION.'"

5,191.—Playing-Cards.—VICTOR E. MAUGER, New York, N. Y. Application filed September 3, 1877.
"The word-symbol 'QUADRUPLICATES.'"

5,192.—Canned Oysters.—G. E. MALTBY & Co., New York, N. Y., Keyport, N. J., and Norfolk, Va. Application filed September 20, 1877.
"The word-symbol 'GAME COCK' and the figure of the cock."

5,193.—Cigars.—ROBERT S. STROBEL, Baltimore, Md. Application filed August 25, 1877.
"The word-symbol 'AQUILA DE ORO.'"

5,194.—Cigars, Cigarettes, and Smoking-Tobacco.—STRAITON & STORM, New York, N. Y. Application filed September 19, 1877.
"The word-symbol 'LILY OF THE VALLEY.'"

5,195.—Cigars, Cigarettes, and Smoking-Tobacco.—STRAITON & STORM, New York, N. Y. Application filed September 19, 1877.
"The word-symbol 'CLEOPATRA.'"

5,196.—Plain-Plug Chewing-Tobacco.—BENJAMIN A. VAN SCHAICK, Philadelphia, Pa. Application filed September 6, 1877.
"The word-symbol 'TRIANGLE.'"

5,197.—Stove-Polish.—THE JOSEPH DIXON CRUCIBLE COMPANY, Jersey City, N. J. Application filed September 18, 1877.

"The word-symbol 'PENCIL.'"

5,198.—Stove-Polish.—THE JOSEPH DIXON CRUCIBLE COMPANY, Jersey City, N. J. Application filed September 18, 1877.

"The word-symbol 'PARLOR.'"

5,199.—Cigars.—S. T. WILLETS & Co., New York, N. Y. Application filed September 3, 1877.

"The word-symbol 'GOLD.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date October 2, 1877.]

1,191.—Title: **"John Meagher's Celebrated Eye Water."**—JOHN MEAGHER, Minneapolis, Minn. Application filed September 20, 1877.

Printed copies of any patent can be obtained commencing with issue of November 26, 1867, to date.

Printed copies of specifications can be procured from No. 59,740, issue of November 20, 1866.

Where specifications are in print they are furnished with the drawings without extra charge.

The "Rules of Practice" contain full instructions, forms, &c., for making applications for patents.

The drawing accompanying an application for a patent must be on a sheet ten by fifteen inches.

Where specifications are printed, copies of same attached to drawings will be furnished without extra cost.

The "Rules of Practice" are furnished gratis on personal or written application to the Commissioner of Patents.

Copies of patents, arranged by classes of inventions, can be obtained at 10 cents per copy where the entire class is ordered.

The GAZETTE is made to bear the same date as the patents to which the claims, briefs, and drawings relate, although it is not actually mailed to subscribers until about two weeks later than its date.

Letters Patent of the United States do not reach the patentee or owner until about two weeks from the day of their date. The letters, nevertheless, have the force of patents from the time they are signed and sealed.

As 12 o'clock on Friday is the latest hour that a final fee can be received in order to get a patent into the "issue" of the following Tuesday, applicants are earnestly requested to make the final payment before Friday, if possible, so that the proper entries may be made on the books of the Office before closing the "issue."

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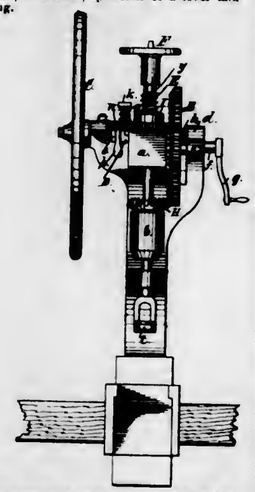
TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED OCT. 2, 1877.

195,692. HAND-DRILLS. Wales Aldrich, Dayton, Ohio, assignor of one-half his right to the Dayton Machine Company, same place. Filed July 18, 1877.

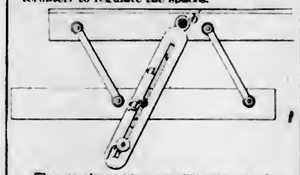
Brief.—The drill may be fed by hand or automatically through gearing connected with a worm on the shaft of the fly-wheel, which includes a wheel capable of being held out of or in gear, as desired, by means of a lever and spring.



The herein-described vertical drill, consisting of the frame A, with its brackets *a*, *b*, *c*, *d*, *e*, and D, parallel shafts *f* and *h*, pinions *i*, *j*, *l*, *n*, H, and I, stock G E, fly-wheel C, drive-wheel B, crank *g*, and hand-wheel F, the respective parts being constructed and arranged substantially as and for the purpose specified.

195,693. ATTACHMENTS TO PARALLEL RULERS. H. K. Averill, Jr., Plattsburg, N. Y. Filed Aug. 14, 1877.

Brief.—The slotted plate being adjusted by set-screw, the arms of the ruler are moved alternately to regulate the spaces.



The attachment to a parallel ruler of a bar, *a*, slide *d*, and clamp *f*, substantially as and for the purpose set forth.

195,694. HANDLES FOR CARRIAGE AND OTHER DOORS. G. W. Bears, Bridgeport, Conn. Filed June 28, 1877.

Brief.—The handle is formed of a single piece of bent wire inserted in parallel holes in a hub, and its ends soldered and concealed in said hub.

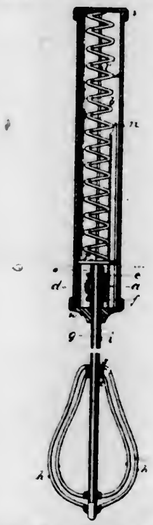


1. As an improvement in handles for carriage and other doors, the herein before described doubly-perforated hub, having a single bent rod or wire passing therethrough, with the joint between its abutting ends united, substantially as set forth.

2. The combination, substantially as herein-before set forth, of the shank or spindle, the hub perforated at right angles with the shank, and a skeleton handle or hand-piece, formed of a bent rod or wire passing through the hub, rigidly secured therein and having its ends abutted and united by soldering or otherwise, as set forth.

195,695. EGG-BEATERS. Thomas Bercher, San Francisco, Cal. Filed June 11, 1877.

Brief.—A rack actuates a combined bevel and spur wheel, which rotates two reversely-moving pinions, the latter rotating the beaters in opposite directions. The inner series of beaters are attached to a spindle that revolves within a sleeve, to which the outer beaters are attached.



The rack *c*, the combined spur and bevel wheel *d*, the pinions *e* and *f*, the sleeve *a*, and the guides *l* and *m*, in combination with the grooves *l'* and *m'*, the spiral spring *b*, and the beaters *h* and *j*, substantially as set forth.

195,696. NAILING-MACHINES. Charles T. Brandon, Toronto, Ontario, Canada, assignor of one-half his right to James S. McMurray and Thomas R. Fuller, same place. Filed June 14, 1877.

1. The face-plate D, provided with the side flanges D^1 and D^2, and adjustable beveled stops D^3, in combination with the hammer B, arranged and operating substantially as shown and described.

2. The form E, provided with the adjustable gage-pieces F F and filling-piece E^3, substantially as specified.

3. In combination with the form E and hammer B, the sliding blocks C^1 E^1 and strap E^2, substantially as shown and described.

4. The pivoted clamping-irons K K, with pressure-bar K^1, in combination with the form E, provided with the adjustable set-screws L and springs L^1, substantially as and for the purpose specified.

5. The dies G^2, finished with a beveled face on the under side to correspond with cap of the wash-board, as shown and described.

6. The stop-brackets I, in combination with the die-boxes G^2, substantially as shown and described.

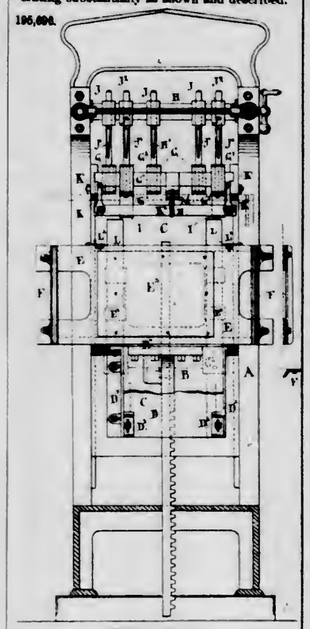
7. The spring cap-holder M, in combination with the beveled dies G^2 and stop-brackets I, as and for the purpose set forth.

8. The punch-blocks J^3, provided with the projecting arm J^4, and fitted with the punches J^5, whose points are finished on a bevel to correspond with the cap, in combination with the double die-boxes G^2, substantially as shown and described.

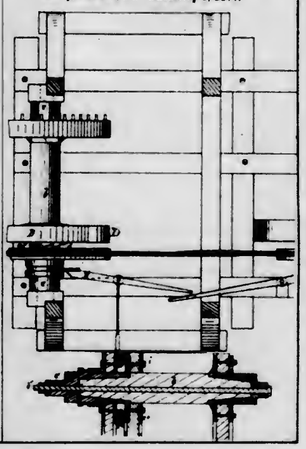
9. The combination of the spring cap-holder M, spring N, and pressure-bar K^1, substantially as shown and described.

10. The combination of the hammer B with face-plate D and notched table B^1, form E, sash C, clamping-irons K, die-boxes G and G^2, and punch-blocks J and J^3, arranged and operating substantially as shown and described.

195,696.



195,697. BULL-WHEELS AND OPERATING MECHANISM. G. Homer Brawley, Meadville, and Dewitt C. Brawley, Petrolia, Pa. Filed July 2, 1877.



THE GRAPHIC CO. N.Y.

1. The hollow externally-flanged gudgeon for separable bull-wheels, substantially as specified.

2. The hollow gudgeon having the external flange and the internal ribs, substantially as and for the purpose specified.

3. In combination with a bull-wheel, the clutch tug-wheel loosely mounted on the shaft or gudgeon of the bull-wheel, substantially as and for the purpose specified.

4. The combination, in a bull-wheel, of the shaft and wheel *b* D, with the independent tug-wheel mounted on the gudgeon of the bull-wheel, and the positive and friction-clutch mechanism arranged on the tag-wheel and wheel D, substantially as and for the purpose specified.

5. The combination, with a bull-wheel, of the band-wheel having the independent tug section and clutch, substantially as and for the purpose specified.

6. The bull-wheel having the independent tug-wheel and clutch mechanism, in combination with the band wheel having the independent tug section and clutch mechanism, substantially as and for the purpose specified.

7. The sectional flanged band-wheel shaft, substantially as and for the purpose specified.

8. The frictional clutch-flange for band-wheel shafts, substantially as specified.

196,698. WIRE-CLOTH FOR FOURDRINIER PAPER-MACHINES. William Buchanan and Charles Smith, Bloomfield, N. J., assignors to Eastwood, Buchanan & Smith, same place. Filed May 24, 1877.

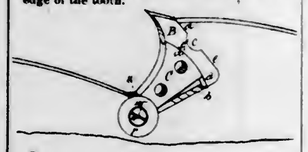
Brief.—In weaving this fabric a wire is laid beside the thread, and is removed by suitable mechanism as the cloth is finished.



The wire-cloth for Fourdrinier paper-machines, having for its extreme edge or selvage warp a thread of silk, A, or other fibrous material, substantially as and for the purpose set forth.

196,699. CLAMP-PIECES FOR INSERTIBLE SAW-TEETH. William Burger, Pittsburg, Pa. Filed Sept. 3, 1877.

Brief.—The tooth is secured in place in the plate by a binding piece, one end of which is pivoted in a seat in front of the edge of the tooth, against which it acts, and the other end formed to act as an eccentric on the face or edge of the tooth.



1. The combination of a saw-plate, an insertible tooth, and a binding device permanently attached to the plate by a flexible joint-connection, substantially as described with reference to Fig. 1.

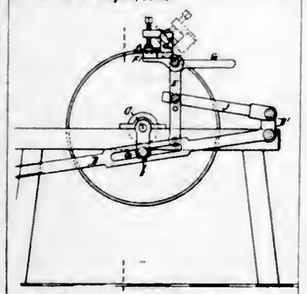
2. The combination of a saw-plate having a recess, E, therein, an insertible tooth adapted to a portion of such recess, and a binding device with an eccentric face arranged in a seat or socket in front of the edge of the tooth against which the binding device acts, substantially as described.

3. The insertible tooth B, having the edge *a' a'*, and curved face *d*, made eccentric to the swinging binding device, substantially as set forth.

4. As a means of securing an insertible tooth to a saw-plate, the binding-piece C, seated or pivoted at one end, and having its free end formed to act as an eccentric on the face or edge of the tooth against which it presses, and adapted to the form of such edge, substantially as set forth.

5. The combination of saw-plate A, binding-piece C, one or more washers, *r*, and rivet or screw *s*, substantially as set forth.

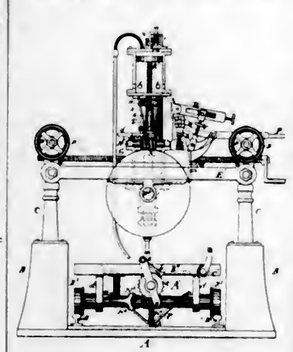
195,700. SICKLE-GRINDER. Alexander Cameron, Chicago, Ill., assignor, by mesne assignments, to G. H. Worthington and Jas. M. Worthington, Amherst, Ohio. Filed May 29, 1877.



1. The combination, with the crank-pin *b* of the shaft C, carrying the grindstone, of the slotted lever D, pivoted to the frame, and arranged to impart a rotary motion to the grindstone, and provided with the arm D', said arm being connected to the frame E by the connecting-rod J, for imparting a vibrating movement to the said frame jointly with the rotary movement of the grindstone, substantially as and for the purpose specified.

2. The combination, with the oscillating frame E and bar F, hinged to said frame, of the arm G, substantially as and for the purpose specified.

195,701. STONE CUTTING AND DRESSING MACHINES. Geo. Campbell, Toronto, Ontario, Canada, assignor of one-third of his right to Wm. A. Phippe, same place. Filed May 4, 1877.



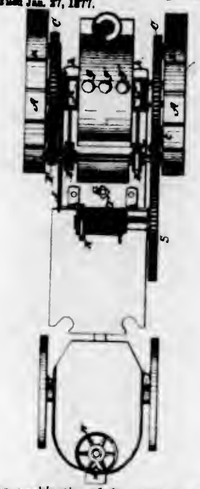
1. A foundation or bed, A, with two rails, B B', and two pedestals, B B, columns C C C C and screws therein, and bevel-wheels D D on top of same, and operated by other bevel-wheels D D on cross-shafts, and hand-wheels D' D', as specified and described, and for the purposes set forth.

2. A truck, A', with wheels B', corresponding in gage to the rails B B', a face-plate, B'', its periphery making a worm-wheel, and operated by the worm *c'*, also a worm-wheel, N', so placed on the axle D', having a clutch formed in its hub, and locked and unlocked by a corresponding clutch, N', sliding on a feather in the aforesaid axle D' by means of a handle, N', for this purpose, the iron cross P, with adjusting-screw *p*, the worm N', which operates the worm-wheel N' by means of the handle *a*, and reversing-pawl *b* for ratchet-wheel *c*, the whole in combination, as shown and described, and for the purposes set forth.

3. The cross-rails E E, adapted to be raised and lowered by the cross-shafts and bevel-wheels D D, as set forth.

4. The top rails E' E', as constructed with oblong bolt-holes, for allowing the said rails to be raised and lowered and placed in an inclined position, for dressing tapered stones, as set forth.

196,702. ROAD-ENGINES. J. G. Carr, Logan County, Ky. Filed Jan. 27, 1877.



1. The combination of the wheel A, perforated plate B, hooks *e*, gear-wheel C, and pinion F upon the crank-shaft E, the whole constructed and arranged substantially as and for the purpose set forth.

2. The apparatus employed for propelling the carriage, consisting of the wheels A and the devices by which they are connected with the engine-shaft E, in combination with the auxiliary mechanism, consisting of driving-gear S, rope and windlass R, substantially as specified.

3. The coupling-shaft provided with collars I, *k*, in combination with the supporting-plates *m* and *n*, segment-gear Q, and pinion M, arranged to give a free oscillatory movement to the guiding-wheels upon the coupling-shaft, and, at the same time, allow the guiding devices to be freely operated, substantially as specified.

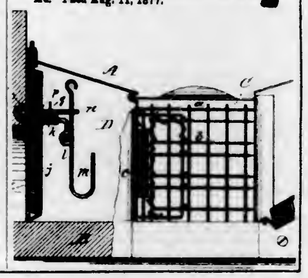
196,703. ANIMAL-TRAPS. George Comada, Baltimore, Md. Filed Aug. 11, 1877.



1. The gates D E, provided with crank-arms *f g*, in combination with the rod *e*, tilting platform F, arm *h*, horizontal rod *i*, catch *k*, constructed to operate substantially as and for the purpose set forth.

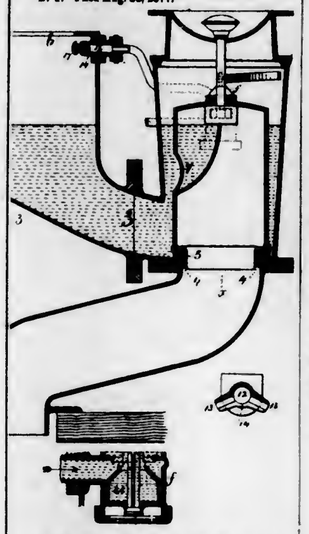
2. The cage or body A, with entrance-opening provided with a gate, *a*, and the removable box B, having gate *c*, and the gates D E, with their operating mechanism, substantially as and for the purpose specified.

196,704. ANIMAL-TRAPS. George Comada, Baltimore, Md. Filed Aug. 11, 1877.



The combination, with the central compartment C, having swinging door *b* and spring *c*, of the end compartments D E, which consist of the removable walls F G, springs *f*, bait-hooks *s*, pins *n*, eyes *p*, lugs *q*, and opening *o*, constructed to operate substantially as and for the purpose set forth.

196,705. WATER-CLOSETS. John Demarest, New York, N. Y. Filed Aug. 30, 1877.



1. The combination, with the basin *a* and valve-chamber *c*, of the hollow cylindrical discharge-valve, closed at the top and provided with a dam and an overflow-opening, substantially as set forth.

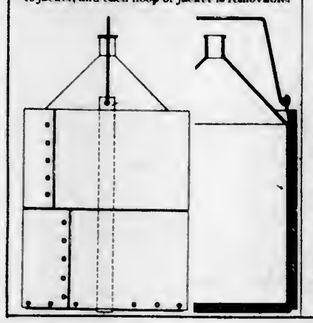
2. The water-supply valve made with a cylindrical main valve, *u*, fitting loosely the case *f*, and closing upwardly, and an auxiliary valve closing an opening through the main valve, substantially as set forth.

3. The valve-cylinder *f*, within the chamber containing the cylindrical valve *e*, and provided with holes in said case *f* for jets of water to cleanse the interior of the said chamber, substantially as set forth.

4. The spreader made of the tubes 12 and 13, and having a slit, 14, and provided with the adjusting-screw 17, substantially as set forth.

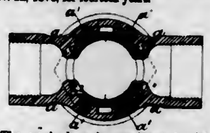
196,706. SHIPPING-CANS. Joseph S. Dennis and Lewis F. Betts, Chicago, Ill. Filed Sept. 3, 1877.

Brief.—Casing of loose wooden hoops. Lower hoop may be nailed to an infitting, or rest on a projecting, wooden bottom, having inserts for the straps. Metal straps pass between the casing and the can, or outside of casing and underneath the bottom. Hence the strap holds can and jacket together, while can is unattached to jacket, and each hoop of jacket is removable.



The can, the jacket, and the strap to which the bail is attached, combined substantially as specified.

196,707. OCCKS. John Dewrance, of 176 Great Dover Street Borough, and James Mallinson, Walwyn, England. Filed Aug. 24, 1877; patented in England, Nov. 23, 1876, for fourteen years.

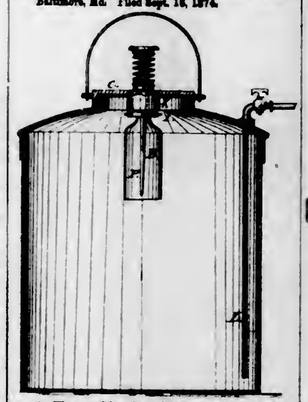


1. The packed cock, constructed with the wide marginal spaces *a'* at the sides of the water-way, so that the packing may never be exposed to the current of the fluid, substantially as hereinbefore set forth.

2. The combination, substantially as hereinbefore set forth, of the plug, the shell, and the groove-packing at right angles to the flow of the fluid, arranged at a distance from the edge of the fluid-way in the shell greater than the width of said way, whereby the current is entirely cut off while the way in the plug is passing the groove packing, and the packing thus protected.

3. A cock consisting of the shell provided with annular packing, groove-packing at right angles to the flow of the fluid, and wide marginal spaces separating the groove-packing from the fluid-way, the plug, having a water-way or peripheral opening of less width than said marginal spaces, and the compressing-glands, these parts being constructed and operating substantially as hereinbefore set forth.

196,708. FIRE-EXTINGUISHERS. Thomas Flagler, Baltimore, Md. Filed Sept. 16, 1876.



1. The combination of the cap C, having the ring K, with the segmental ring I, adapted to clasp the neck of the bottle, as set forth.

2. The combination, with a fire-extinguisher, of a clamp, I, adapted to grasp an ordinary bottle, and obviate the necessity for specially-constructed acid-receivers, as set forth.

196,709. MACHINES FOR MAKING LAMP-BLACK. J. K. Hallock, Erie, Pa. Filed June 4, 1877.

1. The arrangement, within a lamp-black machine having a depositing-plate, of a shaft, E, from which extend the pipes bearing the burners, said parts being so arranged and operated that the flame from the burners shall traverse said plate, substantially as herein set forth.

2. The combination, within a lamp-black machine which has a depositing-plate, to one side of which is applied a gas-flame, and to the other side a bath of water, of a centrally-located hollow shaft for supplying said gas and water to said plate, substantially as and for the purposes set forth.

3. The combination, within a lamp-black machine which has a depositing-plate, upon the upper surface of which is applied a bath of water, of a centrally-located hollow shaft, for supplying said water to said plate, substantially as and for the purposes mentioned.

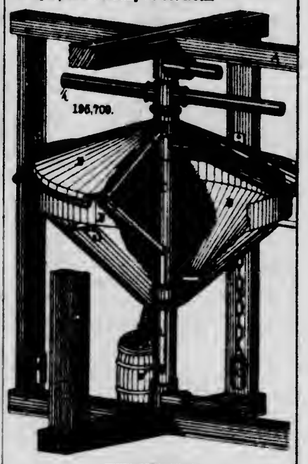
4. The combination, within a lamp-black machine which has a depositing-plate, upon one side of which is applied a bath of water, and the other side of which is traversed by an impinging gas-flame, of a water-motor, through which the water of the bath passes, and whereby the said water, besides serving as a bath, also serves as a motive power for propelling the mechanism of said machine, and thus causing said impinging flame to traverse said plate, substantially as set forth.

5. In combination with the depositing-plate and burners of a lamp-black machine, a surrounding hood, the same being adjustable toward or from said plate, for regulating the supply of air to said burners, substantially as herein set forth.

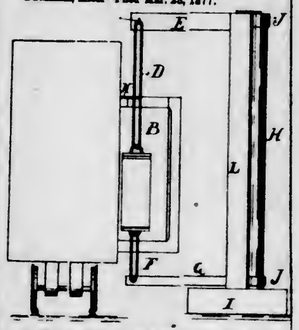
6. In combination with the depositing plate and burners, the hood herein shown, adapted to receive the lamp-black when scraped off of said plate, substantially as herein set forth.

7. A lamp-black machine, as described, having a chamber beneath the depositing-plate for receiving the lamp-black, and having operating therein a device for removing the said black therefrom, substantially as set forth.

8. The arrangement, within a lamp-black machine having a rotary burner, of a rotary scraper, substantially as set forth.



196,710. MAIL-BAG CATCHERS. William S. Hamlin, Buchanan, Mich. Filed Mar. 23, 1877.



1. The swinging mail-bag receiver B, provided with the knife N, attached to a railway-car, in combination with the supporting-arm E and open hook M on the arm E, all constructed and operating substantially as and for the purpose set forth.

2. The standard H, in combination with the arms E and G, attached thereto by adjustable straps J, to which they are pivoted, whereby the arms may be either swung up or turned to one side, substantially as and for the purpose set forth.

3. The swinging receiving-box B, in combination with a swinging cushion or buffer, O, suspended within the receiving-box near the rear end thereof, substantially as and for the purpose set forth.

195,711. DUST-BANDS FOR WATCHES. Otis Hoyt, Springfield, Ill. Filed July 24, 1877.



1. The dust band or ring *c*, having a projection or lip, *f*, made in the arc of a smaller circle, substantially as specified.

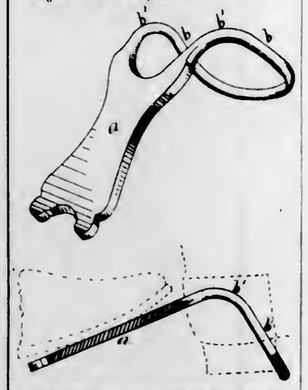
2. The bridge *d*, having a recess, *e*, in its outer edge, substantially as and for the purpose described.

3. The combination of the band *c* and lip *f* with the bridge *d* and top plate *a*, for forming a lap-joint over the outer edge of the bridge, substantially as set forth.

4. The notches *g*, in combination with the lip *f*, band *c*, bridge *d*, and plate *a*, for supporting the ends of the lip and forming a lap-joint, substantially as specified.

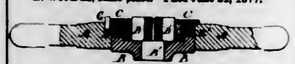
5. The combination of the band *c*, having the lip *f*, with the bridge *d*, top plate *a*, and pillar-plate *b*, having the annular shoulder *b'*, substantially as described.

195,712. BOOT-JACKS. Charles Hull, Moseley, near Birmingham, assignor to Charles L. Oliver, London, England. Filed June 5, 1877.



The metallic boot-jack consisting of the flat or tread portion *a* and the continuous arms *b*, curved as shown, to form an incline, the extreme outer portion of which serving as a rest for the device, all substantially as shown and described, and for the purpose set forth.

195,713. SCREW-CUTTING DIES. M. C. Johnson, Hartford, Conn., assignor of one-half his right to W. H. Woodruff, same place. Filed June 21, 1877.



1. The combination of the collet B, the cover C, the cutters D D', and the adjusting-screws E E', when constructed and arranged substantially as and for the purpose herein described.

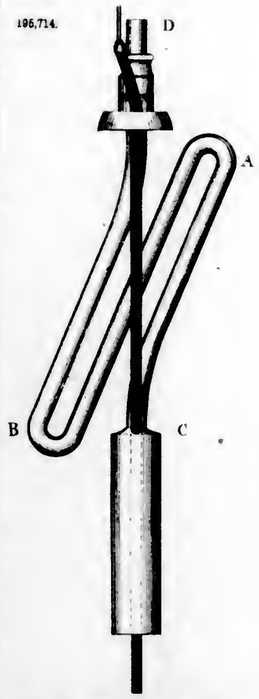
2. The combination of the covering-plate C, the cutters D D', and the collet B with the die-stock A, and a suitable mechanism for adjusting and securing the collet in the die-stock, substantially as herein described.

195,714. JET-PIPES FOR GAS-LAMPS. George Johnson, Buffalo, N. Y. Filed May 9, 1877.

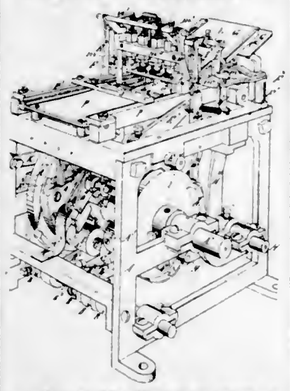
1. The curved pipe A B, placed intermediate between the burner or jet D and gas-conducting pipe C, substantially as and for the purpose specified.

2. The bent pipe A B, forming a part of the gas-pipe C, terminating in a gas burner or burners, and curved so as to obtain the descending portion between A and B, substantially as and for the purpose specified.

195,714.



195,715. MACHINERY FOR ATTACHING BUTTONS TO CARDS. Charles H. Kellogg, East Leverett, Mass., assignor of one-half his right to Samuel R. Newell and Nelson O. Newell. Filed May 19, 1877.



1. In a machine for securing buttons to cards or paper, the combination of the chute G, the series of tripa *i*, the slide *f*, and the levers H', as a means of delivering the buttons, one by one in each series, in position upon the platform adapted to be moved up by the carriage F to be secured to the card or paper, substantially as described.

2. The combination of the carriage F, the spindles *e'*, and the points *e'*, said carriage having both a vertical and a horizontal movement, as a means of carrying the buttons and card forward upon the platform into position where they are secured together, substantially as set forth.

3. The combination of the carriage F, the rotating spindles *e'*, each provided with a toothed wheel, *i*, and with two points upon the extreme lower end of each spindle, the rack *m*, and the pivoted arm F', as a means of carrying the buttons forward and placing them in a position with their eye-holes directly over the needle-points, in position to be secured to the card, substantially as described.

4. The combination of the needle-bars *h'*, provided with the shoulders *h'*, and needle-points on their upper end, and the jaws *k*, whereby the holes are pierced in the card, and the staples are formed ready to be inserted through the said holes and buttons, substantially as set forth.

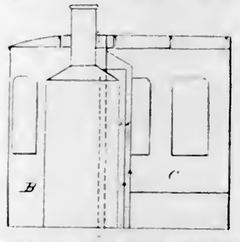
5. The combination of the piece *l*, the slotted pivoted pieces *r*, the needle-bars *h'*, provided with the shoulders *h'* and projections *s*, the jaws *k*, and the drivers *t*, whereby the staples are formed, moved up to position, and driven through the card and buttons to be clinched, substantially as described.

6. The combination of the jaws *k*, the drivers *t*, the tubular guides *s'*, and the plungers *w'*, as a means of holding the staples in place and clinching them to secure the buttons to the card, substantially as set forth.

7. The combination of the sliding piece S, the plate *y* hinged thereto, the piece R, acting as a stationary knife, and the vibrating cutters *x'*, as a means of feeding the wire and cutting it into proper lengths to be formed into staples, substantially as and for the purpose set forth.

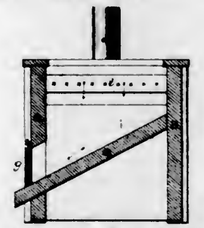
8. The combination of the plate A', the piece *z'*, pivoted thereto, and the set-screw *z'*, turned through a flange on said plate, all forming an adjustable cam to regulate the backward movement of the slide *f*, substantially as set forth.

195,716. VENTILATING STEAM STREET-CARS. E. Longstreth, Philadelphia, Pa., assignor to Burnham, Parry, Williams & Co., same place. Filed Sept. 3, 1877.



The partitions or walls D D, forming the air-spaces E E between the engine-room B and passenger-room C, substantially as described, and for the purposes set forth.

195,717. SAND-DRIERS. James Maguire, Mapleton Depot, Pa. Filed Aug. 27, 1877.



In a sand-drier, the combination of the frame *a*, furnace *c*, stack *d*, floor *e*, door *g*, and bars or wires *i*, whereby the products of combustion come directly in contact with the sand, so as to carry off the steam and moisture, substantially as shown and described.

195,718. DRYING AND PURIFYING STARCH BY CENTRIFUGAL ACTION. Fredk. Melhorness, St. Charles, Md., assignor of one-half his right to Thomas Kingsford, Oswego, N. Y. Filed Aug. 1, 1877.

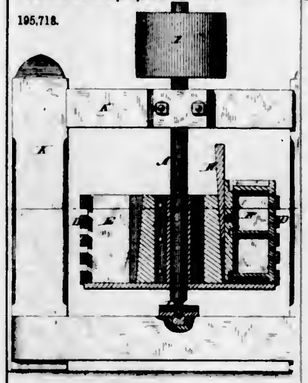
Brief.—Disclaims drying starch in bulk by centrifugal action.

1. The process hereinbefore described for drying and purifying starch in a liquid state by subjecting it, in lined and perforated boxes, to the action of centrifugal force, which expels the contained liquids and impurities, all substantially in the manner specified.

2. The combination, with a rotary cylinder provided with receptacles E, of the perforated boxes F, covers G, and keys H, all substantially in the manner and for the purposes set forth.

3. The combination of the shaft A, hub B, partitions C, hoops D, and boxes F, all constructed, arranged, and operating in the manner and for the purposes set forth.

195,718.



196,719. FOUNTAIN-PENS. John M. Might and C. W. H. Taylor, Toronto, Ontario, Canada. Filed May 22, 1877.

Brief.—Compressing the spring-ribs *b'* of the holder B also compresses the elastic ink-reservoir A, thereby causing the writing-fluid to feed down and supply the pen through conduit E. Cap F is used to lengthen the holder when writing, and to cover or protect the pen when the latter is not in use.



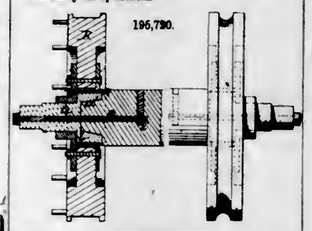
The hollow pen-holder B, having spring-ribs *b'*, separated by slits *b*, in combination with the rubber or pliable metallic reservoir A and plug C, provided with the ink-conduit E, substantially as and for the purpose specified.

195,720. BULL-WHEELS. Wm. H. H. Morris, Franklin, Pa., assignor to himself, Dewitt C. Brawley, and C. Homer Brawley. Filed July 2, 1877.

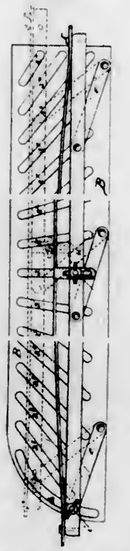
1. A bull-wheel having its wheels and gudgeons detachably connected to the shaft, whereby a separable and portable wheel is obtained, substantially as specified.

2. In a bull-wheel, the detachable wheel, provided with the detachable flanged disks, in combination with the gudgeon and tapered bolt for securing the wheel to the shaft, substantially as specified.

196,720.



196,721. ADJUSTABLE TEMPLETS FOR LAYING OUT BOILER-PLATES. J. Morgan, Pittsburg, Pa. Filed Aug. 27, 1877.

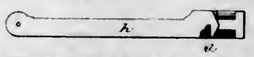


1. An adjustable templet, consisting of plate B, having a series of radial slots therein, and an adjustable parallel bar, substantially as described, whereby two or more series of points of different pitch may be laid out on a plate.

2. The combination of plate B, having a series of radial slots therein, an adjustable parallel bar, and an adjustable spring bar, arranged substantially as described, whereby two or more series of points of different pitch may be indicated in lines of different curves.

196,722. GAGES FOR TOBACCO-CUTTERS. Mark B. Morris, Young America, Ind. Filed Aug. 18, 1877.

Brief.—The gage is made to fit upon any tobacco-cutter, and has an adjustable stop-piece, to determine the size of piece of tobacco to be severed from the plug.



The combination of a machine, *a*, gage *d*, set-screw *e*, and stop *h*, for fitting in the notches, substantially as described.

196,723. FENCE-POSTS. Aaron J. Hollis, Pittsburg, Pa. Filed Aug. 10, 1877.

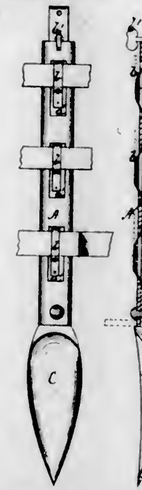
1. In a fence-post, the combination of the slotted section and spring or loop section, substantially as and for the purpose specified.

2. The combination of the concavo-slotted section and the convex section, provided with spring-tongues, substantially as and for the purpose specified.

3. The combination, in a fence-post, of the slotted section, the spring-tongued sliding section, and means, substantially as described, for locking up the sliding section, substantially as and for the purpose specified.

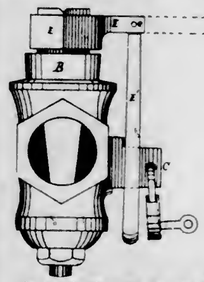
4. In a fence-post, the combination of the sections A, B, and C, the whole constructed substantially as specified.

196,723.



196,724. LOCK-COCKS. George H. Noyes, Erie, Pa., assignor of two-thirds of his right to E. S. Noyes and P. W. Noyes, same place. Filed Aug. 23, 1877.

Brief.—When unlocked, the handle is used as a wrench to turn the plug, so as to open or shut the cock.



In combination with the plug B of a stop-cock, the jointed hasp-like wrench E E', or its equivalent, for engaging with a staple-like lug, C, on the shell of said cock, substantially as and for the purposes mentioned.

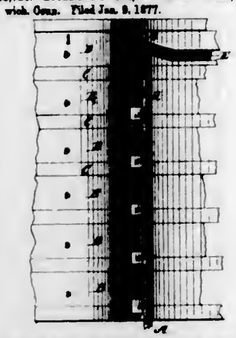
196,726.



196,725. LAMPS. Leverett R. Olmsted, Brooklyn, N. Y. Filed Apr. 10, 1877.

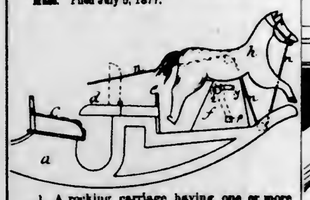
The herein described combination of an opaque open bottomed draft-chimney with the wick-tube of a lamp, the chimney being arranged with reference to said wick-tube, substantially as and for the purpose herein set forth.

196,726. LOCKS FOR DESKS, &c. Webster Park, Norwich, Conn. Filed Jan. 9, 1877.



The combination, with the drawer D, having the groove E, of the sliding bar A, having projections *a a*, engaging into the notches *b b* in the drawers B B, substantially as herein described.

196,727. HOBBY-HORSES. Jas. A. Peabody, Chelsea, Mass. Filed July 5, 1877.



1. A rocking carriage having one or more images of horses or other animals mounted thereon in such manner that motion may be imparted to such images independent of the rocking movement of the carriage, substantially as and for the purposes specified.

2. In a rocking carriage, the combination of the pivoted images *h h* and devices for actuating the same, substantially as shown and described.

3. In a rocking carriage, the combination of the pivoted images *h h*, arm *i*, actuating-spring *k*, rolls or bars *l* and *m*, and reins *n*, substantially as and for the purposes specified.

4. In a child's rocking carriage having movable images mounted thereon to be operated by the child, as described, the hinged seat-guard *d*, combined and arranged to support the child on the seat, substantially as specified.

5. In combination with such rocking carriage and independently-movable images, an alarm mechanism or bell arranged to be sounded by the movement of the images or carriage, substantially as described.

6. In combination with such movable images, mounted upon a rocking carriage, an adjustable alarm-bell so arranged as to be sounded by the movement of the images, or thrown out of contact therewith, substantially as specified.

7. In a rocking carriage, the combination of the rock-shaft *g* with its pendent wire *v*, the pivoted lever *r* with its arms *s s*, the spring striking-wires *t t*, and the gong *q*, all operating together, substantially as and for the purposes specified.

196,728. ADJUSTERS FOR PISTONS OR POLISH-RODS OF OIL-WELL PUMPS. Edward A. L. Roberts, Titusville, Pa. Filed Aug. 14, 1877.

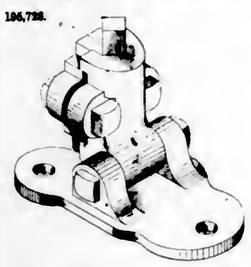
Brief.—The bearing-plate may be fastened to the upper or to the under side of the end of the walking-beam.

1. In an adjuster for piston-rods, a bearing-plate provided with perforated ears or lugs, in combination with a clamp-section having an eye or loop for connecting the two by a removable pin or bolt, substantially as and for the purpose specified.

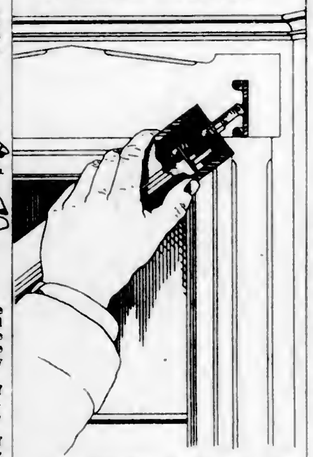
2. In an adjuster for piston-rods, the combination of clamp-sections having V or other grooves and guides, substantially as and for the purpose specified.

3. The combination of two clamp-sections, having guides, one of said sections having a check or stop shoulder, substantially as and for the purpose specified.

196,729.



196,729. CURTAIN ROLLERS AND BRACKETS. Al B. Shaw, Medford, Mass. Filed May 15, 1877.

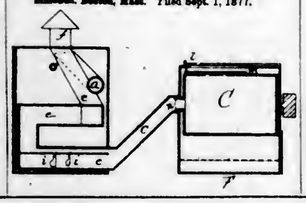


1. The combination of a roller, spring, and spindle with a locking device arranged to lock the parts together only by depressing one end of the roller, as in removal from the brackets, substantially as set forth.

2. In a curtain-roller operated by an internal spring, the combination of a sliding bolt, a ratchet-collar, and a hooked spindle, substantially as and for the purpose set forth.

3. The combination of a roller, spring, and brackets with a sliding bolt and a spindle having a hook on its outer end, which can only be removed from the bracket by dropping the opposite end of the roller, substantially as set forth.

196,730. APPARATUS FOR SMOKING HAMS. H. G. Simonds, Boston, Mass. Filed Sept. 1, 1877.



1. A smoking apparatus consisting of a smoke-conduit and meat-receptacle, *c*, a shelter-house, H, and an external smoke-producing furnace, F, combined and arranged to operate together and relatively to each other substantially as and for the purposes specified.

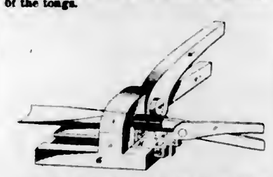
2. In a smoking apparatus, the combination of a smoke-house provided with a smoke-box, *c*, or its equivalent, a smoke-producing furnace, and a blower, all suitably connected by pipes to operate and produce the effects, substantially as and for the purposes described.

3. A meat-smoking apparatus consisting of a smoke-chamber, *c*, a smoke-producing furnace, F, and an aroma-generator, C, constructed, combined, and arranged to operate together substantially as and for the purposes specified.

4. A smoking and preserving apparatus, consisting of the house H, with its flue *e*, the furnace F, revolving cylinder C, pipes *a b c d*, with their dampers, and the blower B, constructed, combined, and arranged to operate together substantially as and for the purposes specified.

196,731. DIES FOR DRAWING METAL TUBES. S. P. M. Tasker, Philadelphia, Pa. Filed June 7, 1877.

Brief.—The die is divided and hinged, to permit the introduction of the tongs, and is slotted, so that the tongs may be drawn back, carrying the skelp. The lower jaw of the tongs fits over an eccentrically-pivoted lug on the carrier, which turns on its pivot after passing from the bed-plate, thus releasing the tongs. The carrier is provided with a follower-die, which fills the slot in the main die after the passage of the tongs.

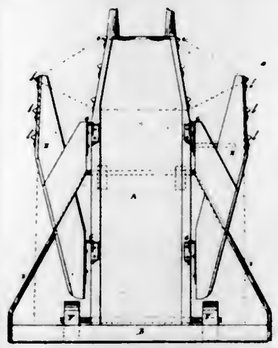


1. In combination with the carrier H and with the bed-plate G, tongs D and the clutch-lug *e*, eccentrically pivoted to said carrier, substantially in the manner and for the purposes set forth.

2. The drawing-tongs D, in combination with the clutch-lug *e*, carrier H, and hinged sectional die A B, substantially as specified.

3. The drawing-die A B, made in sections, hinged together, and provided with a slot for the passage of the drawing-tongs, in combination with the said tongs and a filling-up piece—viz., the follower-die—arranged to enter the slot after the tongs have passed through, and form part of the die during the subsequent drawing operation, substantially as and for the purpose described.

196,732. BAG-HOLDER AND TRUCK COMBINED. H. L. Tobien, Cleveland, Ohio. Filed Aug. 21, 1877.



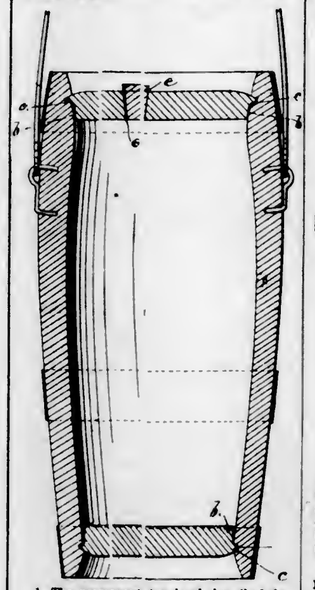
1. The adjustable wings H and springs I, in combination with the back A and foot-piece or platform B, provided, respectively, with hooks *c* and *b*, in the manner substantially as described, and for the purpose set forth.

2. In combination with the back A, the platform B, hinged thereto as described, wheels F, and braces D, substantially as described, and for the purpose specified.

3. The combination of the back A, adjustable wings H and hooks, springs I, platform B, braces D, and wheels F, in the manner substantially as described, and for the purposes set forth.

196,733. KEGS FOR WHITE LEAD, PAINT, &c. R. R. Turnbull, Cleveland, Ohio. Filed Apr. 16, 1877.

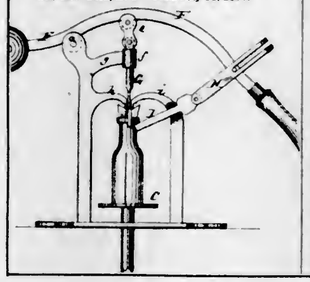
Brief.—The head has a large bung-hole, and a bung to fit it.



1. The permanent top head described for kegs, buckets, &c., made with the double-beveled edge *c*, the shoulder *b* beneath the same, projecting vertically into the keg, and also with the large bung-hole adapted for filling the keg without removing or disturbing the head or the staves, combined with a bung, *e*, having its beveled side or edge coincide with the bevel of such bung-hole, all as shown and set forth.

2. The keg or vessel described, adapted for holding white lead, paints, &c., provided with a permanent top head having the double-beveled edge, the downward-projecting shoulder, and the bung *e*, applied as set forth, and provided also with a bottom having the double-beveled edge and the upward-projecting shoulder, all substantially as shown and set forth.

196,734. CORK-FASTENING MACHINES. August Worcester, New York, N. Y. Filed July 18, 1877.



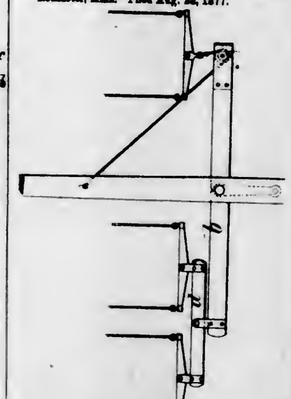
1. The combination of the posts D and E, having fingers *h i*, with the plunger G and sliding fork I, substantially as herein shown and described.

2. The combination of the lever F and its links *e* and H with the sliding fork I and plunger G, all arranged to operate substantially as herein shown and described.

3. The vertically-movable disk C, combined with the fingers *h i*, plunger G, sliding fork I, and operating-lever F, substantially as herein shown and described.

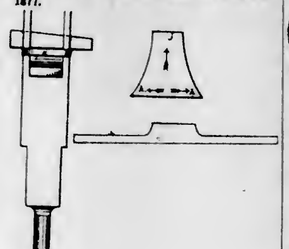
4. The combination of the vertically-movable disk C with the fixed fingers *h i*, and with the movable plunger G, which is suspended in line with the space between said fingers, substantially as herein shown and described.

196,735. DRAFT-EQUALIZERS. Allen K. Williams, Rochester, Minn. Filed Aug. 22, 1877.



In a three-horse evener, the combination, with the single-trees and whiffletree for the two horses, of a whiffletree for the third horse, a rope or chain, a pulley near the end of the evener *b*, and an attachment upon the pole for the rope or chain that passes forward from the pulley, substantially as set forth.

196,736. MANUFACTURE OF DRAW-BARS FOR RAILWAY-CARS. John T. Wilson, Pittsburg, Pa., assignor to Wilson, Walker & Co., same place. Filed May 21, 1877.

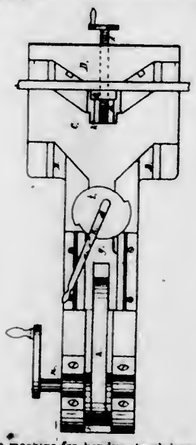


1. As an improvement in the art of making draw-bars for railway-cars, such as shown in Fig. 21, forging and bending the blanks shown in Figs. 5 and 15 into the forms shown in Figs. 10 and 17, respectively, welding one of the blanks shown in Fig. 10 to each arm of the blank shown in Fig. 17, and, finally, closing the face-plate by welding, all substantially as hereinbefore described.

2. A series of dies, substantially as shown and described, for making draw-bars for railway-cars, viz., the dies A and B, and the dies shown in Figs. 7, 11, and 18 of the drawings.

196,737. MACHINES FOR BENDING TRUCK-IRONS FOR RAILWAY-CARS. John T. Wilson, Pittsburg, Pa., assignor to Wilson, Walker & Co., same place. Filed Mar. 28, 1877.

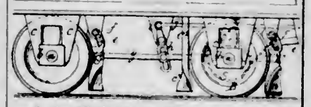
Brief.—A pivoted flanged cam connects the movable bending-die with its operating-pitman, and by turning this cam the travel of the die can be lengthened or shortened, as desired, and the machine enabled to bend different thicknesses of iron.



1. In a machine for bending truck-irons for railway-cars, the combination of the bending-dies C D with the clamping-screw *f* and nut *s*, substantially as herein described.

2. In a machine for bending truck-irons for railway-cars, the combination of the dies C D, screw *f*, and nut *e* with the eccentric *i*, sliding head *g*, and pitman *h*, substantially as herein described, and for the purpose set forth.

196,738. TRACK-CLEARERS FOR STREET-CARS. Loftin Wood, Brooklyn, N. Y. Filed May 10, 1877.



1. A rail-clearer or wheel-guard secured rigidly to the brake shoe or block, or formed thereon, the same being capable of a vertical motion, and operated by mechanism, substantially as described, whereby it may be elevated from the track, constructed and operating substantially in the manner described and specified.

2. A brake-block provided with guide-slots *e*, in combination with supporting pins *f*, allowing it to be raised or lowered, constructed and operating substantially as described and specified.

3. The combination, with a brake capable of being raised and lowered, and the mechanism for raising and lowering the same, substantially as specified, of a supplemental brake, S *t*, constructed and operating substantially in the manner described and specified.

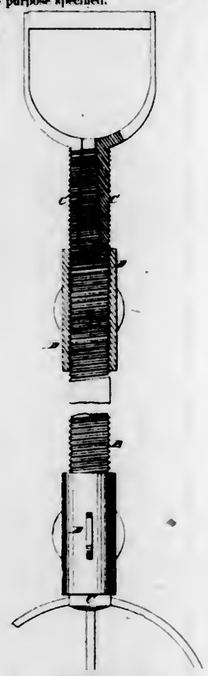
4. In a street-car, the combination, with the shoe-brake provided with a track-clearer, of the band-brake brought into action simultaneously with the raising of the shoe-brake, in the manner and by mechanism substantially as described and specified.

5. The combination, with a brake-shoe provided with a deflecting-guard, as described, of a track-brush attached directly to said guard, substantially in the manner described and specified.

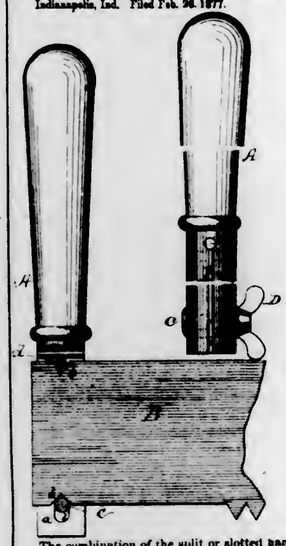
196,739. TOOL-HANDLES. J. H. Anthony, Commanche, Iowa. Filed Aug. 18, 1877.

The combination, with the ferrule D, of the handle B, longitudinally flattened and transversely grooved at upper end, and the clamp C, flattened and flanged on the inside, as and for the purpose specified.

196,739.

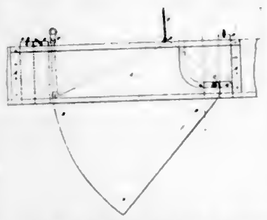


196,740. CROSSCUT-SAW HANDLES. E. C. Atkins, Indianapolis, Ind. Filed Feb. 26, 1877.



The combination of the split or slotted handle A, provided with the pin *d* and elongated bolt-hole *i*, the saw-blade B, provided with the notches *b b*, the bolt C, and thumb-nut D, substantially as and for the purposes herein set forth.

196,741. CENTER-BOARDS FOR VESSELS. Stephen B. Babbidge, Rockland, Me. Filed Aug. 11, 1877.

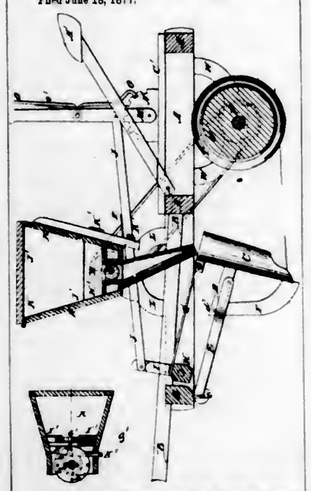


1. The well or trunk A, having horizontal grooves a^1 formed in its sides, in combination with the center-board B, having a pin, C, attached to its forward corner, entering the grooves in said well or trunk, to enable the center-board to be adjusted longitudinally, substantially as herein shown and described.

2. The well or trunk A, having the vertical or inclined grooves a^2 and the horizontal grooves a^1 formed in the sides thereof, in combination with the center-board provided with the pin C, to enable said center-board to be shipped and unshipped from the deck, substantially as herein shown and described.

3. The combination of the stop-water board D with the well A and the center-board B, substantially as herein shown and described.

195,742. SEEDER AND PLANTER. Uriah Baldwin, Isaac T. Shumard, and William K. Shumard, Stewartson, Ill. Filed June 18, 1877.



1. The roller H, connected with upper front end of plow C by springs G, in combination with rods E, pivoted below the springs to plows, and having hook ends that pass through rigid eyes *e'*, as and for the purpose specified.

2. The combination of the series of wheels T, made with V shaped rims, and the wheels or rollers U, made with concave faces, with the shaft V, the frame A, and the plows C, substantially as herein shown and described.

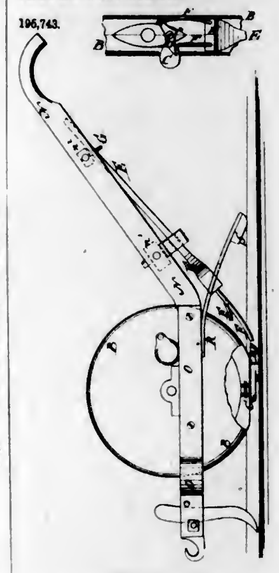
3. The wheel D', having pins b^1 of unequal length attached to its side, and the arm F^1, and the spring *g'*, attached to the dropping-slide G', in combination with the shaft of the swiveled feed-screw E, the hopper K, and the dropping slide G', substantially as herein shown and described.

4. The combination of the curved colters F with the plows C and the arms D attached to said plows, substantially as herein shown and described.

196,743. SEED-PLANTERS. Wm. S. Barton, Orangeburg, S. C. Filed July 9, 1877.

The combination of the valve C, provided with the double cam D, the prongs F of unequal length, the pivoted lever E, and the open keeper G, with the wheel B, and with the rounds a^1 a^2 of the handles N, substantially as herein shown and described.

196,743.



196,744. LANTERNS. George A. Beadler, Philadelphia, Pa. Filed Feb. 24, 1877.



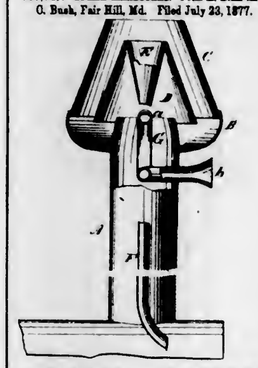
1. In a lantern, the spring handle H, connecting the top and base of the lantern, for the purposes herein set forth.

2. The combination, in a lantern, of the base, the top, the single handle, the globe E, with beads *a a* around its ends, and the catches *b b'* formed on or attached to the top and base, respectively, substantially as and for the purposes herein set forth.

3. The cap or dome D, formed of a single piece of metal, and having, on opposite sides, a portion, D', of the metal bent inward, substantially as and for the purposes herein set forth.

4. The cap or dome D, formed of a single piece of metal, and having, on opposite sides, a portion, D', of the metal bent inward, and provided with the lips or flanges *h h*, substantially as and for the purposes herein set forth.

196,745. SPARK-ARRESTERS. John A. Blair and Wm. C. Bush, Fair Hill, Md. Filed July 23, 1877.

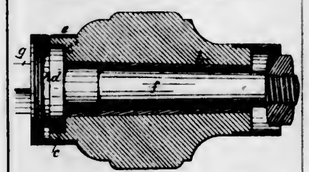


1. The hollow truncated cones C D, the inverted cone E, and receiver B, in combination with the smoke-stack A, substantially as shown and described.

2. The receiver B, attached to and inclosing the upper end of the smoke-stack A, in combination with said stack and pipes F, which extend downwardly on the outside of the stack from openings in the bottom of the receiver, as and for the purpose specified.

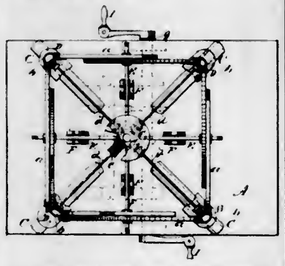
3. The combination of the cones D E, smoke-stack A, and blast-nozzle G *a b*, the latter being arranged below the cones, as and for the purpose specified.

196,746. SAND-BANDS FOR VEHICLE-HUBS. Erastus P. Brown, Farwell, Mich. Filed Aug. 25, 1877.



The combination, with the axle-arm *f*, constructed with a collar, *d*, hub *a*, constructed with the extension *e*, providing a chamber, *e'*, and hub-band e_1 of the disk *g*, fitting snugly within the end of the hub-band *e*, and constructed with the groove *k* and flange *h*, and secured to the axle-tree, so as to provide a chamber, *i*, between it and the collar *d* and ends of the extension *e*, substantially as set forth.

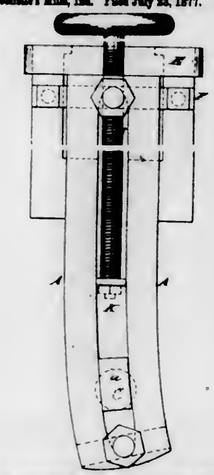
196,747. FIRE-ESCAPES. Joseph Davenport, Massillon, Ohio. Filed July 9, 1877.



1. The combination of the windlass G', plate G, carrying pulleys *c*, levers E, the platform A, having guides C, and the bars *a*, jointed together, as described.

2. The combination of the levers E, having their front ends under plate G pivoted to standards F, and extended out under the central joint of bars *a*, with a hay-tongs fire-escape, as and for the purpose specified.

196,748. SLIDE-VALVE ARRANGEMENT. H. B. Doolittle, Doolittle's Mills, Ind. Filed July 23, 1877.



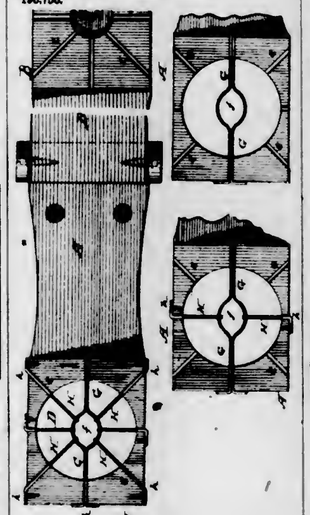
An attachment for reducing the throw of slide-valve in the steam-chests of engines, to adapt them to light work, consisting of a wrist-pin, C, yoke K, rigidly attached thereto, the screw J, swiveled to yoke, the end-curved guides A A, and the bars D D, having extensions D, connected by loop E and block F, all as shown and described, the working parts being thus below and fastened to the arm of rock-shaft.

196,749. COMPOSITIONS FOR MAKING HYDRAULIC CEMENT. Cleaveland F. Dunderdale, Brooklyn, N. Y. Filed May 3, 1875.

1. In a composition for making hydraulic cement, the combination of a refractory clay rich in alumina, and a fusible clay rich in silicic acid, with lime or its carbonate, for the purpose herein set forth.

2. A composition for making hydraulic cement, consisting of the artificial admixture of infusorial silica and a silicate of alumina with lime or the carbonate thereof, for the purpose as herein set forth and described.

196,750.

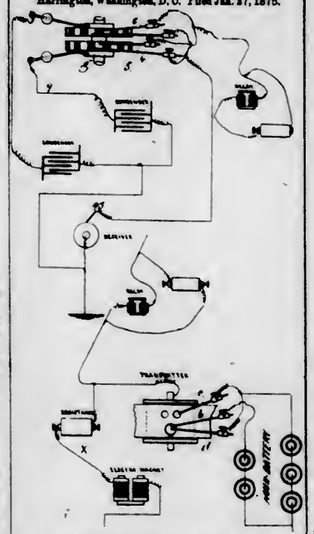


196,750. APPLE-CUTTERS. Thomas B. East, Marshfield, Me. Filed Sept. 7, 1877.

1. In an apple-cutter, the central cutter and core-extractor G, having slots for the radial cutters H, in combination with the slotted bed-piece A, substantially as and for the purpose set forth.

2. In an apple cutter and corer, the bed A, provided with opening D and grooves *e*, in combination with the cutter G, formed in two pieces, and having opening *f* and slots *g*, and radial cutters H, substantially as and for the purpose set forth.

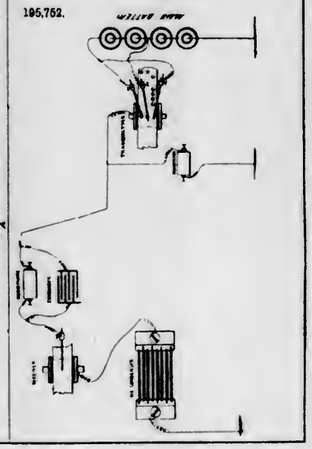
196,751. AUTOMATIC TELEGRAPH. Thomas A. Edison, Newark, N. J., assignor to himself and George Harrington, Washington, D. C. Filed Jan. 27, 1875.



1. The method herein specified of transferring the signals of one electric circuit into another circuit by revolving circuit-closing wheels with conducting and non-conducting surfaces and connections to condensers and to the chemical recording-instrument, substantially as set forth.

2. The transmitting-instrument provided with a circuit-closing point and opposing battery for lessening the battery-power in the middle portion of the pulsation for a dash, as set forth.

196,752.



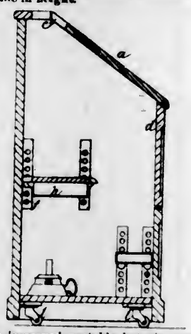
196,752. AUTOMATIC TELEGRAPHS. Thomas A. Edison, Newark, N. J., assignor to himself and George Harrington, Washington, D. C. Filed Jan. 27, 1876.

1. The air-condenserw inserted in the line at the receiving station of a chemical telegraph, for the purposes set forth.

2. In a chemical telegraph, the method specified of forming dashes by transmitting, by means of perforated paper, a strong current followed by a weak current, substantially as set forth.

196,753. PORTABLE HOT-AIR OR VAPOR BATHS. G. H. Ellis, London, England. Filed July 18, 1877. Patented in England, Mar. 3, 1877, for fourteen years.

Brief.—A case with head aperture, the inclined top opening upward and laterally, and held in that position by the front door, opened in the same direction. The seat with basin-slide beneath, and the hollow foot-rest, both adjustable in height.



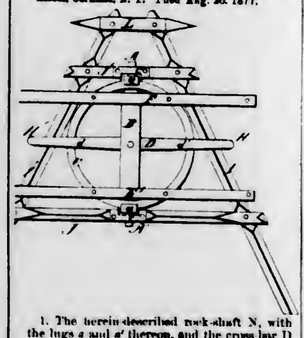
1. The improved portable hot-air or vapor bath or cabinet, adapted to permit all the person except the head to be inclosed therein, and having, also, a seat adjustable, as described, and a hollow foot rest or warmer, vertically adjustable upon pins or pegs, as and for the purpose set forth.

2. The combination, with a portable hot-air or vapor bath, of an adjustable seat, cut away at its sides, as described, and provided with a false bottom, adapted to hold a pan of hot liquid, substantially as set forth.

3. The combination, with a portable hot-air or vapor bath, of a hollow foot-rest adapted for holding a confined body of hot liquid, and a set of adjustable pins or pegs for supporting said foot-rest at any desired elevation, substantially as shown and described.

4. A portable hot-air or vapor bath constructed with an inclined top, *a*, and a front door, *d*, having its top edge beveled, as shown, and serving to uphold the opened top or lid, substantially as and for the purpose described.

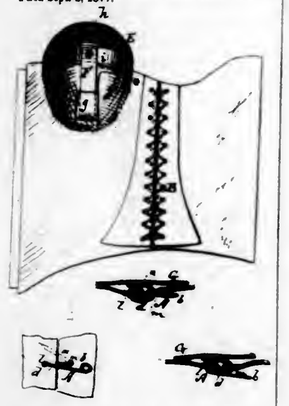
196,754. FIFTH-WHEELS FOR VEHICLES. William J. Elsen, Cortland, N. Y. Filed Aug. 20, 1877.



1. The herein-described rock-shaft N, with the lugs *a* and *a'* thereon, and the cross-bar D thereto attached, all made and operated substantially in the manner and for the purpose herein shown and specified.

2. The combination and arrangement of the said rock-shaft N, lugs *a* and *a'*, journals A and A', journal-boxes *c* and *c'*, fifth-wheel C, cross-pieces J and J', pieces L and I and I', and cross-bar D, all made, combined, and operated substantially in the manner and for the purpose herein described and shown.

196,755. CORSETS. Sherwood B. Farris, Brooklyn, N. Y. Filed Sept. 8, 1877.



1. The hook A, made with the handle *b*, substantially as herein shown and described.

2. The combination, in the hook A, of the oblique beak *a*, shank *d*, and handle *b*, substantially as herein shown and described.

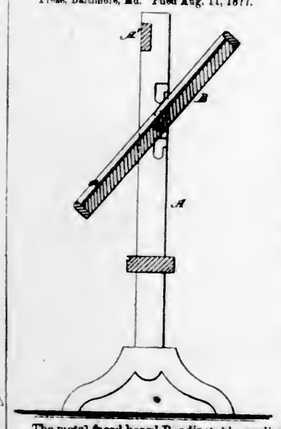
3. The separate piece or section B of the corset, said section having the projecting rib *e*, to be laced into an opening of the corset, substantially as specified.

4. The spring F, combined with the pocket *g* and fastening device *h*, and with the bosom-pad E, substantially as herein shown and described.

5. The combination of the stitched gore-piece *j* with the concealed hook K, and with a bosom-pad which has an opening beneath said gore, substantially as specified.

6. The combination of the wide spring G with the flexible flaps *l m*, which contain the clasps or fastening devices of the corset, and with a spring or springs, *n*, placed at a distance, and disconnected from said fastening devices, substantially as specified.

196,756. STANDS FOR SMOOTHING FABRICS. John F. Frase, Baltimore, Md. Filed Aug. 11, 1877.

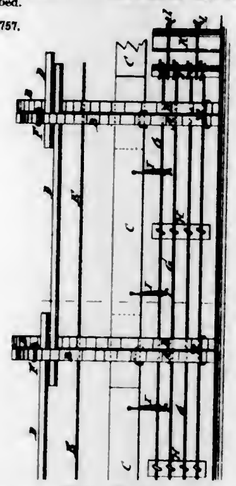


The metal-faced board B, adjustably applied to standards A, in the manner and for the purpose described.

196,757. FENCES. Franklin Fulkerson, Frankfort, Ind. Filed Aug. 24, 1877.

The combination, with the fence A B C D, of the wires G, connected by the blocks H J, supported from the boards C by the wires I, and connected with the posts K by the wires L, substantially as herein shown and described.

196,757.

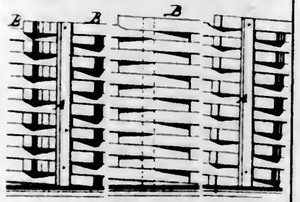


196,758. PROCESSES OF CURING MEATS. George S. Gray, Cincinnati, Ohio. Filed July 13, 1877.

The herein-described process of curing meats—that is to say, by causing the pickle to flow in a continuous stream over the meat which is immersed therein.

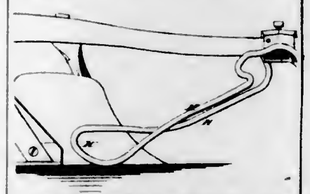
196,759. ZIGZAG FENCES. H. H. Hamlet, Wabash, Va. Filed Aug. 3, 1877.

Brief.—The top rails of the sections are notched together. The rails are secured to battens arranged in the notches formed by the crossing of the rails.



A worm-fence formed of battens A and notched rails B *a*, the former secured to the latter at their junction and near top and bottom, as shown and described.

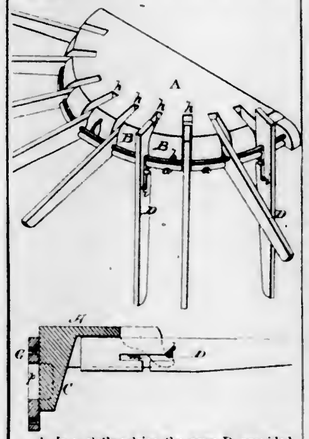
196,760. WEED-FOLDING ATTACHMENTS FOR PLOWS. Thos. M. Harbert, Burlington, Kans. Filed July 23, 1877.



The rod or bar H formed into bends, curves, and inclines, substantially as herein shown and described, to adapt it to be attached to a plow-beam for dividing, guiding, and folding down grass, weeds, &c., into the furrow, as set forth.

196,761. CLOTHES-DRIERS. Dewey K. Hickok, Morrisville, Vt. Filed Mar. 12, 1877.

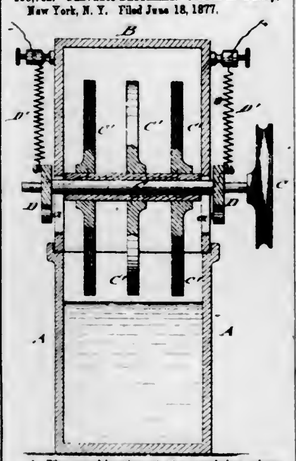
Brief.—The casting is formed with a downward projecting dovetail arm at the rear, tenoner is correspondingly shaped socket in a bracket, to be attached to the wall or other suitable place. The front of the casting is made with radial slots and lips, the latter having shoulders formed thereon, to receive and support the wire connecting the radial wooden arms, which fit in the radial slots with the casting. Each arm is made with an open T-shaped slot, having a notch formed in the upper forward corner thereof, to receive the connecting wire, whereby the arms can be opened to support the clothes, or folded so as to hang down out of the way, or be entirely removed from the casting.



1. In a clothes-drier, the arms D, provided with the T-shaped slot *m*, having notch *l* at its front end, substantially as and for the purposes herein set forth.

2. The casting A, constructed with downward-projecting tapering arm C, lips B, slots *k*, shoulder *a*, and wire *b*, in combination with the arms D, constructed with T-shaped slots *m*, and the bracket G having the flanges *n n*, all substantially as herein set forth.

196,762. GALVANIC BATTERIES. Charles A. Hussey, New York, N. Y. Filed June 18, 1877.



1. The combination of the revolving plate-carrying shaft with a swinging and spring-actuated stirrup-frame, for lowering plates into fluid or raising them out of the same, substantially as described.

2. The combination of the cell A, covering-casing B having arc-shaped slots *a*, revolving shaft C having plates C', and pivoted and spring-acted stirrup-frame D D', substantially as and for the purpose described.

196,763. CURTAIN-TASSEL CLAMPS. A. H. Knapp, Newton, assignor of two-thirds his right to Geo. H. March, Watertown, and Charles H. Cushman, Cambridge, Mass. Filed Feb. 24, 1877.



1. In a tassel-clip, having jaws A B for clamping against the shade-slat, a clamping-screw, C, for drawing the jaws tightly against the slat, having its head and rear end shielded in countersinks or depressions *c d* in the metal, substantially as and for the purpose herein specified.

2. The transverse plates or braces *h h*, constructed substantially as and for the purpose herein specified.

3. A tassel loop or eye, *f*, formed by cutting and swaging from the body of the clip, substantially as and for the purpose herein specified.

196,764. PUMP-PISTONS. Garrett W. Low, Erie, Pa. Filed Aug. 17, 1877.

Brief.—The outer and cylindrical part of the piston is formed in segments, with horizontal inward central flanges, notched to receive guide-pins of a disk forming the seat of a plate-valve, and resting upon an annulus and packing, a spider in the upper disk centering and holding a divided socket for the piston-rod.



1. The segments *a a a a*, having the interior flanges *f f*, and so constructed and arranged that a part of each segment projects beyond a part of its adjacent segments to form water-tight joints, substantially as described.

2. The segments *a a a a*, in combination with the elastic ring *c*, disk *e*, valve *x*, and pump-stock *b*, substantially as described.

3. The elastic ring *c*, in combination with segments *a a a a*, disk *e*, valve *x*, pump-stock *b*, and ring *i*, substantially as described.

4. The pins *z z z z*, in combination with segments *a a a a*, disk *e*, elastic ring *c*, and pump-stock *b*, substantially as described.

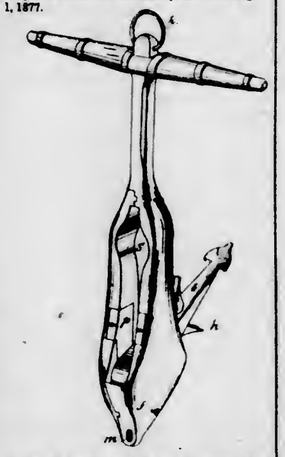
5. The rod *d* and the socket *g*, in combination with the bolt *e'*, disk *e*, and nut *h*, substantially as described.

196,765. GEM-SETTINGS. H. G. Mackinney, Providence, R. I. Filed Feb. 10, 1877.



As a new or improved manufacture, the described gem-setting, composed of the series of duplex tapering jaws and the base and connection rings, combined and arranged as set forth.

196,766. AUGERS. Obas. E. Marshall, Boston, Mass., assignor to Barbara H. Hill, same place. Filed Aug. 1, 1877.

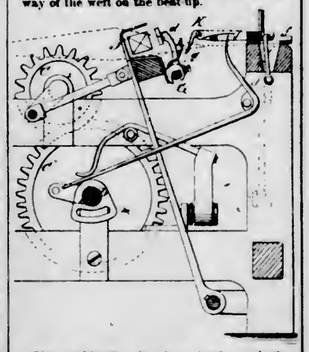


1. The slotted shank provided with side pieces *p*, for securing the trunnions of the arm in position.

2. The arm *b*, provided with barbs *b'* on each side thereof, and the shank provided with an opening, *s*, slots for the reception of the trunnions *k*, and loop *m*, combined and operating together as described.

196,767. STOPPING MECHANISMS FOR LOOMS. John Magoon, South Adams, Mass. Filed July 9, 1877.

Brief.—The protector-rod is provided with an auxiliary finger, adapted to clear the weft-fork of thread on the back stroke of the lay, should such thread have been left by the shuttle after the bobbin has become empty; or, if the thread has become entangled on the fork, the finger breaks the thread, and thus allows the fork to act regularly on the forward stroke of the lay. The action of the shuttle on the swell-fingers tilts the fork-clearer down out of the way of the weft on the beat-up.



The combination, in a loom having a single shuttle-box on one side and two or more on the other, of the protector-rod G, having the finger or fork clearer h and swell-fingers, with the fork K, and mechanism for operating the same, as and for the purpose specified.

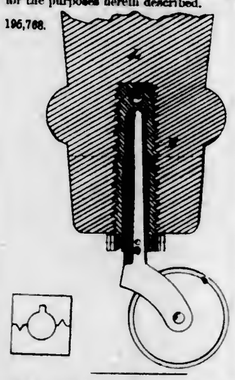
196,768. FURNITURE-CASTERS. Stephen Myers, St. Louis, Mo. Filed July 7, 1877.

Brief.—A slight novelty in combination and arrangement of old devices, the bayonet-fastening being utilized, in connection with a key-seat, extra-strong socket, flange, &c.

In a furniture-caster, the socket having a square key-seat within the same, and an exterior screw-worm terminating its threads in a cone-shaped point, and provided with a flange

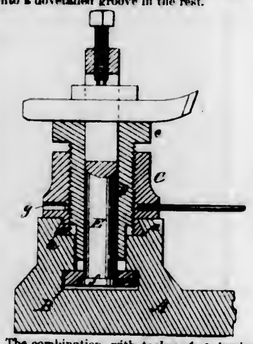
having in the central opening thereof a vertical and a horizontal groove, in combination with the caster-spindle to work therein, having a retaining-nipple, all substantially as and for the purposes herein described.

196,768.



196,769. TOOL-POSTS FOR LATHES. Robert Needham, Mount Washington, (Pittsburg,) Pa. Filed July 30, 1877.

Brief.—The tubular screw, upon which the cutter rests, is adjusted vertically by means of the nut, whose lower end is flanged, and fits into a dovetailed groove in the rest.



The combination, with tool-carriage having T-slot B and V-grooves *a*, of the nut C, having V flange *b*, end-flattened sleeve D, having flange *c*, post E, having head *f*, and the plate G, as shown and described, for the purpose specified.

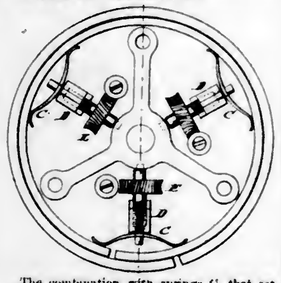
195,770. SHOE-FASTENERS. Victor Hivon, New York, N. Y. Filed Aug. 18, 1877.



1. The single wire A, formed into a zigzag spring, and provided with loops B and eyes *a b*, constructed and arranged as and for the purpose described.

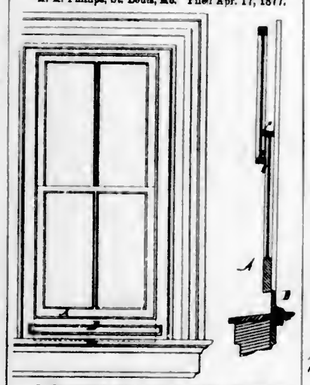
2. The hook C, of forwardly-bent doubled wire, having eyes *c* and loops *d*, as and for the purpose specified.

196,771. PISTON-PACKINGS. J. H. Ferdinand Otto, Reedsville, Wis. Filed Apr. 30, 1877.



The combination, with springs C, that set against the split rings of a piston, of the nuts D, sliding in guides *d*, the radial swiveled screws C', the worm-wheel E, and the end-nicked worm-shaft, all as shown and described.

196,772. VENTILATING WINDOW FRAMES AND SASH. A. K. Phillips, St. Louis, Mo. Filed Apr. 17, 1877.



1. In combination with a window-frame permanently constructed with a wide weather-strip, D, at the top or bottom, or at both top and bottom, a window sash or sashes having upon the lower or upper one, or on both, a wide bottom or top rail, A, corresponding nearly in width to the width of said weather-strip D, substantially as and for the purpose set forth.

2. The combination of a window-frame made with the weather strip or strips D therein with a window sash or sashes, which weather strip or strips D are wide enough to allow the sash or sashes to be moved vertically against the inner or outer face of said weather strip or strips in being lowered or raised, and so part the meeting rails of the upper and lower sashes as to admit air between them without permitting air to enter at either the top or bottom of said window.

196,773. BILLIARD-CUE TIPS. Rufus H. Sanborn, Newark, N. J. Filed Feb. 15, 1877.



1. As a new article of manufacture, the base A for the tip of a billiard-cue, made of celluloid or other pyroxyline compound, substantially as and for the purpose specified.

2. The combination of the celluloid base A above named and tip B, forming the tip for a billiard-cue, substantially as set forth.

196,774. ANIMAL-TRAPS. John M. Sackman, Ridgeville, Ind., assignor to himself and J. K. Hammeris, same place. Filed Aug. 9, 1877.

1. In an animal-trap, a bait-carrying wire having a bait-loop projecting at right angles thereto, said wire being provided with arms projecting in opposite directions, also at right angles to the length of the wire, whereby the swinging of the bait-loop in either direction raises one end of the wire upon one of said arms, and releases the trap, substantially as described.

2. In an animal-trap, the combination of an oscillating platform, a semicircular plate attached thereto, which turns in an arc of a circle with the oscillation of the platform, said plate being provided with a notch in its rim, and a latch which rests upon said rim during the oscillation of the platform, and falls into said notch to hold the trap set, when the platform reaches a horizontal position, substantially as described.

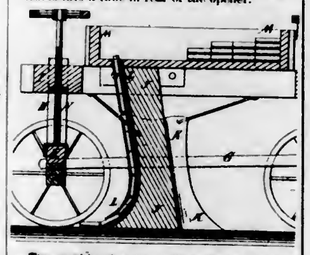
3. The combination of an oscillating platform, a semicircular plate attached thereto, and turning therewith, provided with a notch in its rim, and a bait-carrying wire provided with a downwardly-projecting bait-loop, and with arms projecting at right angles at one end, whereby the trap may be released by the direct action of the bait-carrying wire without intermediate levers, substantially as described.

196,774.



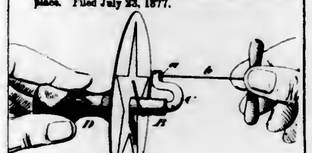
196,775. TILE-LAYING MACHINES. Jas. H. Sparkes, Clinton, Ill. Filed July 9, 1877.

Brief.—The tiles are fed from a box on the frame into a tube in rear of the opener.



The combination, in a tile-laying machine, of the box M, tube L, opener-standard J, and knife K, all connected, constructed, and arranged as shown and described.

196,776. BUZZ TOYS. Stuart A. Standiford, Philadelphia, Pa., assignor to Mrs. M. L. Standiford, same place. Filed July 23, 1877.



A toy buzz consisting of a disk, A, secured to the sleeve B, the wire C, bent as described, and provided with an eye, *a*, the handle D, and cord *b*, substantially as set forth.

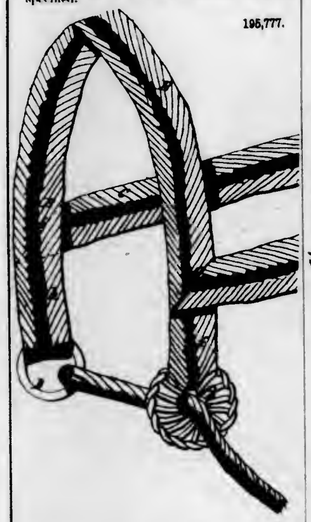
196,777. HALTERS. Charles Stone, Columbus, Ohio, assignor of one-half his right to Jas. W. Mack, same place. Filed Apr. 30, 1877.

1. A flat, woven, or braided halter, the strands *a a* of which, composing the warp of one side, are formed by fibers or threads twisted together in one direction, and the strands *b b*, composing the warp at the other side of the web, are formed by fibers or threads twisted together in the other direction, substantially as and for the purpose herein specified.

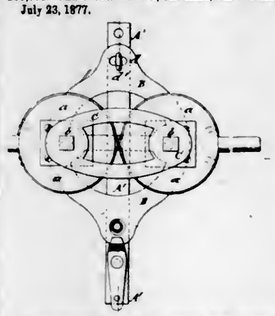
2. A continuous, flat-web halter, having a lie-eye, A, formed of the warp-strands and the filling-strand looped and knotted together, substantially as and for the purpose herein specified.

3. A continuous, flat-web halter, having the nose-band and headstall parts of its web doubled together near the tie ring and eye, substantially as and for the purpose herein specified.

196,777.



196,778. OARS. Jas. W. Wall, Cleveland, Ohio. Filed July 23, 1877.



The combination of the jointed and pivoted oar-sections and base-plate, having end slot and hole, with a cross catch-pin and binding-spring of a stationary strip of the gunwale, to admit oscillating motion of oar, and ready shipping and unshipping of the same, substantially as specified.

195,779. DISH-WASHING APPARATUS. S. S. Watson and John J. Scott, San Francisco, Cal. Filed July 9, 1877.

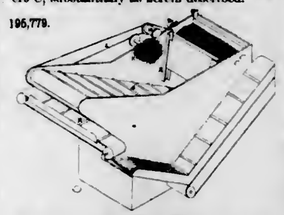
1. The combination, with the cleaning-brushes C, of the elevating-belt G, belt H, and chute I, provided with towels or other suitable material for partially drying the dishes, substantially as herein shown and described.

2. The combination, with the cleaning-brushes C, of the belts G H, chute I, and elevator J, all constructed and relatively arranged to operate substantially as herein shown and described.

3. In combination with the washing, elevating, and drying apparatus, as herein described, the elevator J, substantially as described.

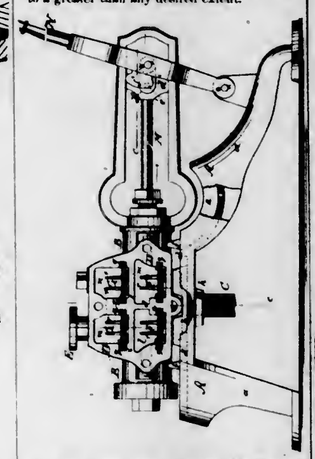
4. The shaft D, with its cranks or eccentrics E, and the levers or connecting-rods F F, for the purpose of operating the brushes or washers C, substantially as herein described.

196,779.



196,780. PUMPS. Robert White, Brooklyn, and Robert Wallace and David Morits, New York, N. Y. Filed Feb. 17, 1877.

Brief.—Each valve has at its outer end two projecting lugs in line with each other. For the reception of these lugs recesses are cut into the edges of the walls and vertical partitions of the valve-box. A stop on each valve strikes the face-plate, and prevents the valve tilting to a greater than any desired extent.



1. The pump-frame A, made with the bed *b* and surrounding ledge *d*, and with the depressed cavity *e*, all arranged to constitute a drain-box, substantially as herein shown and described.

2. The combination of the valve-box D, made with recesses or notches *q* at the face of its valve-chamber, with the removable face-plate H, and with the valve F, which has outwardly-projecting lugs *p p*, the body of the valve being as wide as the valve-chamber, but the lugs extending beyond said chamber, all arranged so that the valves can be horizontally withdrawn when the plate H is removed, substantially as herein shown and described.

3. The face-plate H of the valve-box, made with apertures *s*, *t*, and *u*, for the purpose of discharging water from the chambers *l*, *m*, and *n* of the pump, substantially as herein shown and described.

4. The combination of the cock J, which has the apertures *s' t' u'*, with the face-plate H, having apertures *s t u*, substantially as and for the purpose herein shown and described.

5. The combination of the operating-lever N by two separate pivots, with the connecting-link *d** and plunger-rod M, one of said pivots joining the lever to the said link, while the other pivot, *e**, joins the link to said rod M, substantially as herein shown and described.

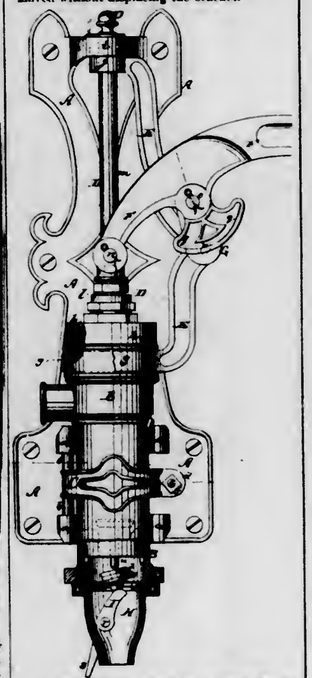
6. The operating-lever N, provided with the projecting wings or cheeks *f**, to operate in combination with the link *d** that joins said lever to the plunger-rod, substantially as specified.

7. The plunger I, constructed with metal plates *w y*, central rubber ring *a**, outer leather ring or rings *b**, and compression-nut *z*, all arranged so that by means of the plates *w y* the ring *a'* can be compressed horizontally and expanded circumferentially, substantially as herein shown and described.

8. The combination of the valve-box D with the perforated face-plate H, and perforated cock J, and with the supply-pipe C, all arranged to discharge water from the valve-box into the supply-pipe, as set forth.

196,781. WALL-PUMPS. Robert White, Brooklyn, and Robert Wallace and David Morits, New York, N. Y. Filed Feb. 17, 1877.

Brief.—The frame of the pump is supplied with a hinged strap, by which the cylinder is clamped into a vertical position, permitting the ready removal of the same. The upper end of the bracket is swiveled, by which the handle that works the pump is held in place by a socket formed at the upper end of the pump. The swivel-ring at the lower end of the bracket is placed under the cylinder-head, which permits the head to be unscrewed and the plunger removed without displacing the bracket.



1. The combination of the pump-frame A, having saddle-pieces *a a*, with the pivoted strap C and fastening device *e*, for the purpose of confining the cylinder B to said frame, substantially as herein shown and described.

2. The pump-bracket E, made with the lower ring *g*, and with the upper cylindrical extension, which is swiveled within the ring *i* of the frame A, substantially as herein shown and described.

3. The plunger-rod D, made in two pieces, *l m*, which are screwed together above the cylinder B, to be separated, and separately reached and handled above said cylinder, substantially as specified.

4. The combination of the bracket E, having the ring *g*, with the cylinder B and cylinder-head *h*, all arranged so that the ring *g* is placed beneath the head *h*, and held in place by said head, substantially as specified.

5. The combination of the pump-lever F, which is joined by a pin, *s*, to the plunger-rod D, with the link G and bracket E, the link being connected by one pivot with the lever, and by another pivot with the bracket, and arranged to vibrate on both pivots when the handle is operated, substantially as specified.

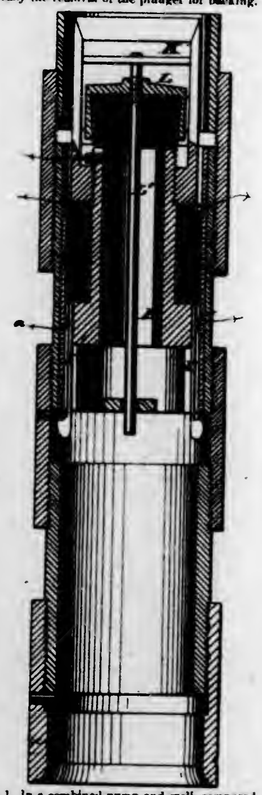
6. The combination of the lever F, having wings *q*, with the pivot-pin *o*, link G, pivot-pin *p*, and bracket E, all arranged so that the

wings confine the pin *p* to its position in the link and bracket, substantially as set forth.

7. The combination of the pumps, supply-pipe H, with the pin *r*, which is swiveled in said pipe directly below the valve *t*, and with the crank I, handle *s*, and valves *t* and *u*, all arranged so that both valves *t u* can be opened by turning said crank, substantially as specified.

195,782. PUMP AND WELL. J. Q. Adams, Kalamazoo, Mich. Filed Sept. 8, 1877.

Brief.—An improvement on patent to same, No. 182,143, September 12, 1876, in which a larger diameter is preserved through a greater portion of the pipe, rendering accessible that portion in which the valves work, having a perfect fit at the end of the stroke, and rendering easy the removal of the plunger for packing.



1. In a combined pump and well composed of two or more sections of pipe coupled together, that portion or section in which the plunger and lifting-valve work made of lesser interior diameter than the portion of the pipe or tube above the same, for the purposes herein set forth.

2. In a combined pump and well composed of two or more sections of pipe coupled together, a lining, *a*, of brass or other metal, within that portion or section in which the plunger and lifting-valve work, for the purposes herein set forth.

3. The set-screw *s*, in combination with the tube H, cage K, and packing J, as and for the purposes set forth.

4. The combination of the cup L, chamfered out as described, and the packing IJ, fitting therein, to form a check-valve, as and for the purposes set forth.

195,783. HORSE HAY-RAKES. W. Adriance, Poughkeepsie, N. Y. Filed Aug. 30, 1877.

1. The combination, in a horse-rake, of two independent shafts; two wheels mounted firmly on these shafts; two clutch-heads, one for each of said shafts, and connected to the same by ratchet-teeth and pawls; two tubular shafts mounted on the wheel-shafts, and connected to the rake-head; two clutch-slides feathered on the tubular shafts; two forked levers, which engage with the clutch-slides; a rock-shaft, which carries two foot-levers extending therefrom in opposite directions; and a disk, which is mounted on said rock-shaft, and which carries two eccentric pins that connect with the clutch-levers, all constructed and adapted to operate substantially as herein shown and described.

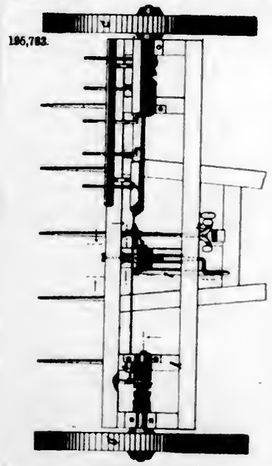
2. The combination, with the rake-head, the independent wheel-shafts, and the mechanism for throwing the clutch-slides in gear with their clutch-heads, of an intermediate shaft, which connects with the rake-head, and carries a toe for releasing the clutches automatically, substantially as set forth.

3. The combination, with the rake-head, the mechanism for raising the same by the action of the wheel-shaft, and the releasing mechanism, of a friction-brake adapted to be operated independently of the raising and releasing mechanism, whereby the downward motion of the rake-head may be checked, substantially as described.

4. The combination of Z shaped grooves in the rake-head with the Z-shaped upper ends of the rake-teeth, substantially as and for the purpose set forth.

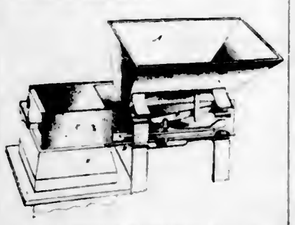
5. The combination, with the hand-levers, which serve to raise the rake, and with the rake-head, of a chain, an eyebolt, and an adjusting-nut, substantially as and for the purpose described.

195,783.



195,784. MOLDING APPARATUS. William Aikin and William W. Drummond, Louisville, Ky. Filed Aug. 21, 1877.

Brief.—The drawer and its bottom slide together until the bottom reaches the flask, when the bottom is stopped, while the drawer continues to advance, and delivers the sand into the flask. On its return the drawer strikes and carries back the bottom.

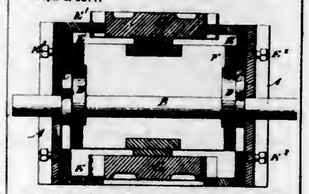


1. The combination, substantially as specified, of the hopper, the sand-transferring drawer, the movable bottom D, and an automatic latch or latches for locking the said bottom to and unlocking it from the drawer as the latter is drawn back and forth in transferring the sand from the hopper to the flask.

2. In combination, the hopper A, flask B, drawer C, bottom D, and sliding bars E, which move far enough to carry the bottom to the flask, and then are disengaged, substantially as set forth.

3. The combination of the hopper A, flask B, drawer C, bottom D, bars E, and latch F, substantially as set forth.

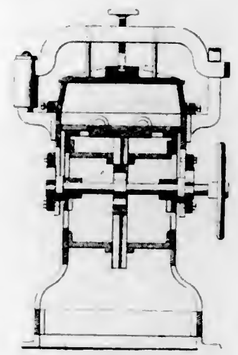
195,785. SAND-MOLDING MACHINES. William Aikin and William W. Drummond, Louisville, Ky. Filed Sept. 4, 1877.



1. As an improvement in the art of molding in sand by mechanical compression, first compressing the sand partly around the pattern by the movement of the templet-plate only, and then compressing it uniformly by the simultaneous movement of the pattern and templet-plate, and then withdrawing the pattern to complete the mold, substantially as set forth.

2. The combination of the templet-plate and its frame, and the pattern and its frame, and actuating mechanism, substantially as described, for imparting motion, first to the templet-plate and then to both it and the pattern, substantially as set forth.

195,786. SAND-MOLDING MACHINES. William Aikin and William W. Drummond, Louisville, Ky. Filed Sept. 4, 1877.



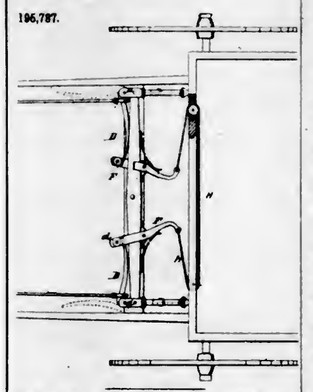
1. In combination with the stationary templet-plate and reciprocating pattern-head, the sand-box and half flask, and mechanism, substantially as set forth, for drawing the latter two down to form a mold by compression, substantially as set forth.

2. In combination with the stationary templet-plate and reciprocating pattern-head, the reciprocating sand-box, and the adjustable yoke of the eccentric for regulating the quantity of sand contained in the box, substantially as set forth.

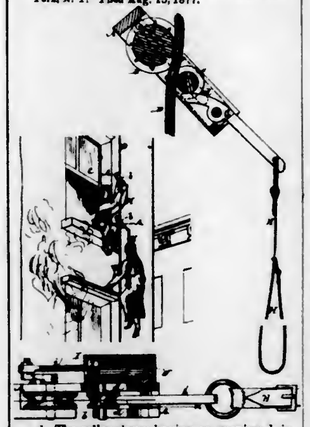
195,787. HORSE-DETACHERS. G. W. Atkins, Noble's Lake, Ark. Filed Oct. 17, 1876.

The trace-catches D, pivoted to the ends of the single-tree, and adapted to fold inward and lie alongside the same, the detaching-levers F, provided with slots in their front ends, and extending horizontally in rear of the single-tree, and the trip cord or strap H passing around pulleys placed farther apart than the said levers, as shown and described, for the purpose specified.

195,787.



195,788. FIRE-ESCAPES. Edward W. Averell, New York, N. Y. Filed Aug. 15, 1877.

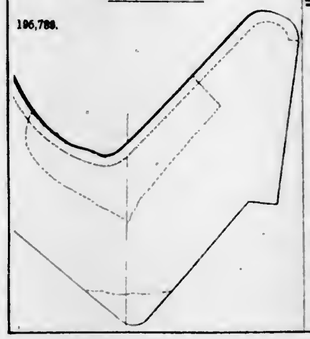


1. The roller-clamp having an opening, *b*, in one side or face of its frame A, in combination with the rollers B C, either of which is made adjustable relatively to the other and to the opening *b* in the frame, substantially as and for the purposes specified.

2. The cam or bent lever G, in combination with the adjustable roller C, the fixed roller B, and the frame A, having an opening, *b*, in its side, essentially as and for the purposes described.

3. The combination of a pneumatic governor with a roller-clamp for operation on a fixed or pendent rope or chain, substantially as and for the purposes specified.

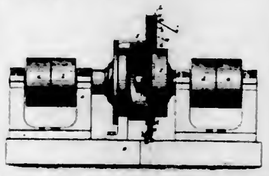
195,789.



195,790. UTILIZING SOUR TAN-LIQUOR BY DISTILLATION FOR PLUMPING HIDES. Henry J. Botchford, Leyden, N. Y. Filed Aug. 3, 1877.

The distillation, from the sour liquors of the tanner's vat, by the ordinary process of evaporation and condensation of the same, of the acetic and gallic and aceto-gallic acids therein contained, and the immediate utilization of the resultant in their solutions for the plumping of hides in the process of tauning into leather.

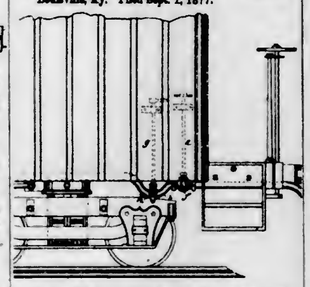
195,791. MACHINERY FOR SHARPENING SAFETY-PINS. William A. Butler and William Wallis, New York, N. Y., assignors to Thomas L. Butler, same place. Filed Aug. 24, 1877.



1. The combination of the rotating face-plate or head C, a series of rotating radial tubular work or pin holders, D, carried by said head, the stationary cam or eccentric guide H, and the rotating grinding wheel or stone I, substantially as specified.

2. The combination of the dogs *k* with the rotating tubular work or pin holders D and the rotating face-plate or head C, essentially as described.

195,792. CAR-HEATING APPARATUS. J. F. Callaway, Louisville, Ky. Filed Sept. 1, 1877.



In a railway-car-heating apparatus, the steam-pipe A, leading from the dome of the locomotive, and traversing the floor of the cars, and having a downward curve, *i*, below the floor, a valve, *h*, located in the curve, its rod *g* extending up into the car, and the valve and rod *f e*, the respective valves allowing escape of water of condensation, and controlling admission of steam, all combined, constructed, and arranged as shown and described.

195,793. TURBINE WATER-WHEELS. John M. Case, Columbus, Ohio. Filed Mar. 27, 1877.

Brief.—This wheel has a circular rim or disk having inclined cams formed upon opposite sides, so arranged that they engage with pins or projections formed upon the gates, and by rotating which the gates are opened, two at a time, upon opposite sides, thus enabling that part of the wheel which is working to be filled, and the pressure due to the head kept up, thus enabling the water to be used with economy at part gate.

1. The casing or cover constructed, substantially as herein described, with inner part G, an outer part, H, radial arms or chute-floors J, and vertical chute-walls I I', cast together, and adapted for the reception of chute-caps M and gates N O, substantially as set forth.

2. A chute constructed with an outer wall tangential to the wheel, or nearly so, and an inner wall converging therewith, placed upon the top of the casing, and in combination with a hinged gate, operating substantially as herein described.

3. The annular cam Q, formed with paired inclines *q q*, for operating gates on opposite sides of the wheel simultaneously, as set forth.

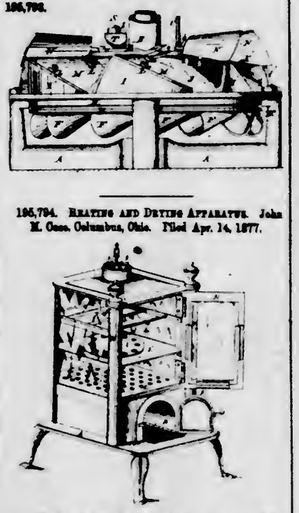
4. The combination of the pressure-cams E and springs T with the gates N and lugs *p*, as and for the purpose set forth.

5. The gates N, constructed with arms O and pivot-gudgeons *o o*, substantially as and for the purpose set forth.

6. The buckets constructed, as described, from sheet-metal plates, cut substantially as shown in Fig. 6, bent in the form represented in Fig. 7.

7. The combination of the wheels D E F, and casing G H I I' J M, and gates N O, constructed substantially as herein described, for the purposes set forth.

195,794. HEATING AND DRYING APPARATUS. John M. Case, Columbus, Ohio. Filed Apr. 14, 1877.



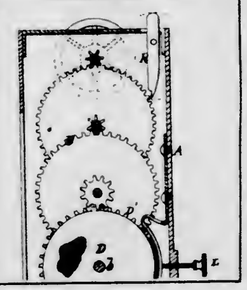
1. The metallic frame body A H I, when constructed substantially as shown.

2. The combination of the metallic frame H I H', constructed to form guides for the panels, with the side walls or panels K fitted to slide therein, substantially as herein shown.

3. The furnace D, constructed substantially as herein shown, in combination with the air-ports E, register-plate I', and escape-port N.

4. The combination, with the frame A H J, furnace D, air-ports E, and hot-air chamber F, of the rotary distributing-vane N, located above the top of the casing, and serving to impart a tangential motion to the air, as described.

195,795.

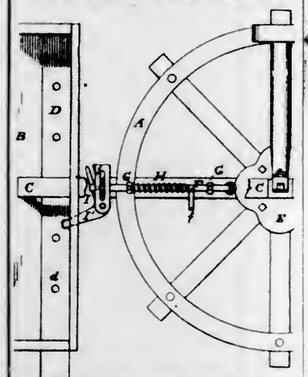


196,795. SPRING-MOTORS. Peter Cavalier, Yankton, Dak. Filed June 26, 1877.

Brief.—At the top, within the case, is a pivoted dog, to catch in the cogs of the upper wheel and instantly stop the machine.

In combination with a train of gearing arranged on shafts, one above the other, and operated by a coiled spring, the vertical casing, provided with ears at its bottom, slotted at the top, and provided with a pivoted bar, K, which extends through the top of the casing and acts as a stop to control the gearing, as set forth.

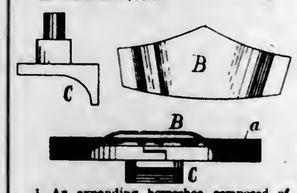
196,796. SEEDING ATTACHMENTS FOR HARROWS. E. H. Chamberlain, Little Rock, Ark. Filed Sept. 7, 1877.



1. A horizontally-revolving harrow, having attached to front portion of its draft-beam C, by devices *b* R *c*, a seed-dropping apparatus, driven by bell-crank I I', reciprocating rod F, and revolving cam E, upon the harrow-head, substantially as set forth.

2. The seeding attachment for horizontally-revolving harrows, consisting of seed holder and dropper B D, bell-crank I I', reciprocating rod F, spring H, and cam E, and the described (or equivalent) attaching devices *b* R *c*, substantially as set forth.

196,797. HORSESHOES. Chas. H. Chubbuck, Chicago, Ill. Filed Jan. 29, 1877.



1. An expanding horseshoe composed of sections pivoted together, in combination with a cushion-spring, B, connected with the heel ends of the shoe in such a manner that the compression of the spring by the weight of the animal will tend to spread apart or expand the shoe at its heel, substantially as and for the purpose set forth.

2. The sections A, pivoted together, and provided with recesses *a* in their heel ends, in combination with the cushion-spring B, bent as described, substantially as and for the purpose set forth.

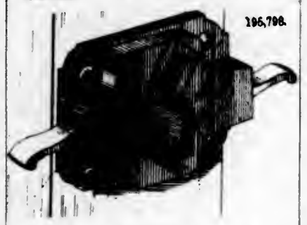
3. The toe-calk C, constructed with a stud, *c*, upon its upper side, one section of which is rectangular and the other cylindrical, in combination with the two sections of the shoe, substantially as described.

196,798. GATE-LATCHES. Charles B. Clark, Buffalo, N. Y. Filed Mar. 27, 1877.

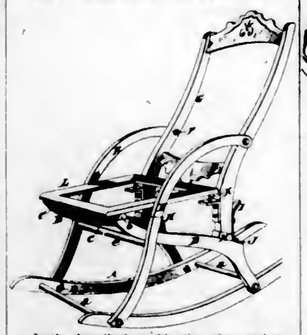
1. In a door or gate latch, an oscillating latch-lever, pivoted in a suitable casing or support, and provided at one end with a handle or thumb-bearing projecting through one side of the casing, and at the other with a latch-bolt at right angles projecting through a segmental aperture in the casing, substantially as set forth.

2. The combination, with the bolt and latch-lever, the latter being provided at its inner end with a segment of teeth or cogs, of a similar latch-lever provided with teeth or cogs, gearing into the teeth or cogs of the first-mentioned lever, and projecting on the opposite side of the casing, as and for the purposes specified.

196,798.



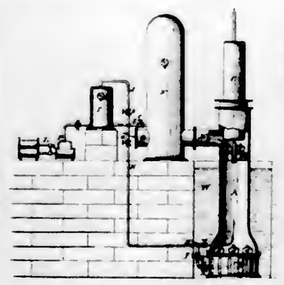
196,799. FOLDING ROCKING-CHAIRS. Henry Clostermann, Jr., Cincinnati, Ohio. Filed Aug. 8, 1877.



In the described combination, the members B and E, pivoted to the rear and front of the rockers A, respectively, and of which the members B rest upon a rung, *c*, of said members E, a back, G, pivoted to said members E, and resting in sockets H on said members B, and secured by buttons I, and a seat, L, hinged in front to said members B, and supported in rear by dowels K, that occupy sockets in the said seat, all being constructed and arranged substantially as set forth.

196,800. COMPRESSED-AIR WATER-ELEVATORS. D. C. Oregier, Chicago, Ill., assignor to Wm. McAlpine Oregier, same place. Filed Aug. 10, 1877.

Brief.—Highly-compressed air is forced into a pump while in operation, to prevent shocks, as steam does in the cylinder of a steam-engine, the depth of stroke being measurably regulated by the influx of air. An air-engine, a gagged condensing-cylinder, one or more pipes with check-valves, conducting air to the localities to be air-cushioned, and the check-valves and handles are the requisite apparatus. The pressure of the air is to be slightly in excess of that of the water in the pump.

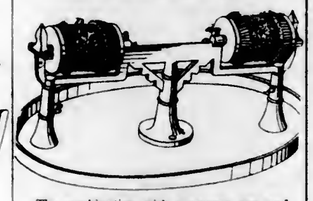


1. The combination, with a water-pumping engine, of an air-pump connected with said engine by the necessary pipes, valves, and air chamber or receiver, for the introduction of compressed air into the pump at any desired point in the stroke, for the purpose of supplying an air-cushion to receive the impact of the piston, and thus relieve the shocks to which the pumping-engine is ordinarily subjected, all substantially as specified.

2. The compression air-pump I, in combination with pipe P P, check-valve *a*, and receiver I, all substantially as and for the purpose described.

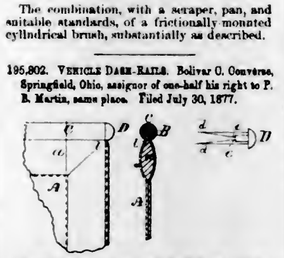
3. The receiver I, in combination with pipe J, pipe H H, branch pipe T, stop-valves *b a* Y, and check-valves K and X, all substantially as and for the purpose set forth.

196,801. BOOT-CLEANERS. Wm. Cosdry and Martin Quinn, Providence, R. I. Filed May 8, 1877.



The combination, with a scraper, pan, and suitable standards, of a frictionally-mounted cylindrical brush, substantially as described.

196,802. VEHICLE DASH-RAILS. Bolivar O. Converse, Springfield, Ohio, assignor of one-half his right to P. B. Martin, same place. Filed July 30, 1877.



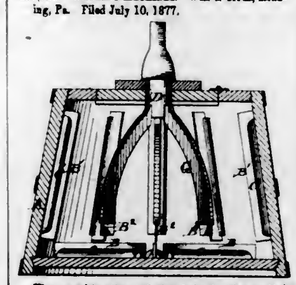
1. The combination, in a dash-board, of the facing-leathers and a slotted tube, between the edges of which the leathers are clamped against the opposite sides of an intermediate flat rib, substantially as described.

2. A tube, C, having a rib, B, in combination with the leather *l* of a dash-board, A, as and for the purpose set forth.

3. In combination with the ribbed open tube C, provided with a notch, *b*, and groove *c* in its rib B, the two-tanged nail D, for finishing the ends of the same, when applied for the purpose set forth.

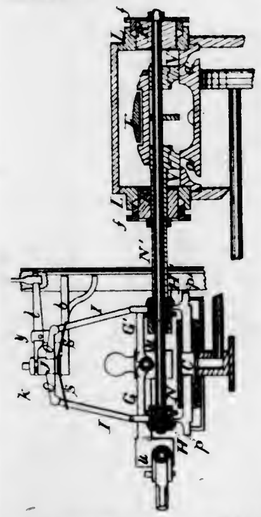
4. The finishing nail D, with double-barbed tangs, constructed substantially as shown and described, for the purpose set forth.

196,803. WASHING-MACHINES. Wm. I. Clous, Reading, Pa. Filed July 10, 1877.



The combination of the tub A, the radial strips B, connected to blocks C on its bottom, the side strips B^1, connected to blocks C', and the vertical center shaft D, with curved arms G, provided at their lower ends with rubber strips B^2, all constructed substantially as and for the purposes herein set forth.

196,804. AUTOMATIC EXPANSION-GEARING FOR STEAM-ENGINES. Andrew Cunningham, Troy, N. Y. Filed Feb. 2, 1877.



1. In a steam-engine having suspended arm-linked connections operated by the governor, the combination therewith of the eccentric-slide *u*, tripping-dogs G, valve-rods N N', substantially as described, and for the purpose set forth.

2. The pistons R R', valve-rods, and grooved attachments H H', in combination with the steam-cushioned rods *p p'* and chamber C, substantially as described.

3. In a steam-engine having the valve-chamber arranged within the steam-chest, substantially as described, the combination therewith of the valves and valve-rods, slide *u*, tripping-dogs G, and valve-rods N N', operated by the eccentric, all arranged substantially as set forth, in performing the triple effect of admission, cut-off, and exhaust of steam, as described.

4. The reversing-stops S, suspension-arms I, cross-pieces O J D, in combination with the governor, substantially as described, for the purpose of stopping the engine in case of accident.

196,805. MANUFACTURE OF AXLE-BOXES. David Dalzell, South Egremont, Mass. Filed Jan. 17, 1877.



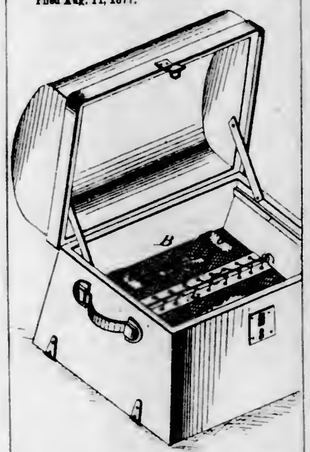
As an improvement in the art of manufacturing axle-boxes, making the same of a solid piece of wrought-iron by boring, reaming, and case-hardening the same, substantially as described.

196,806. TYPE-CASES. Alphonse A. V. de Caleuna, Paris, France. Filed Aug. 30, 1877.



The herein described typographical composing-case, consisting of one or more vertical series of drawers inclining downward to the front, and each drawer constructed with a series of grooves terminating at the front, the lower end of the grooves of one drawer exposed below the front of the next drawer above, substantially as and for the purpose specified.

196,807. TRUNKS. Julia De Quindre, Detroit, Mich. Filed Aug. 11, 1877.



1. In a trunk or like device, the diaphragm B, constructed as described, and forming a part of the trunk, and adapted for use as a fixed partition, and when not in use to be folded against the trunk side, substantially in the manner and for the purposes set forth.

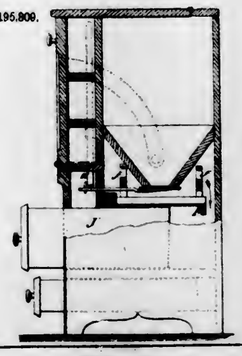
2. In combination with the pieces or strips B, attached to and combined with a trunk or like device, as shown, the strips *b'*, substantially as and for the purposes described.

196,808. SNAP-HOOKS. Loyal M. Doddridge, New Mount Pleasant, Ind. Filed Aug. 29, 1877.



The hook A, having its shank provided with the lateral slot or opening *c*, in combination with the spring B, inserted into a snug socket in said shank of hook, and through and past the opening or slot *c*, substantially as and for the purpose specified.

196,809.



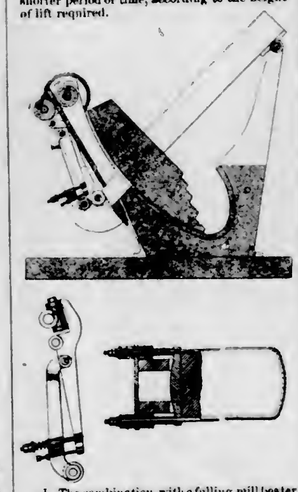
196,809. MEAL-BINS. J. C. Durbin, Columbus Junction, Iowa. Filed Mar. 19, 1877.

1. The combination, in a flour-chest, with a sieve, F, of the springs *f* and lever E, arranged as and for the purpose described.

2. The reciprocating sieve F, being open at the rear edge, in combination with the shorter flour-drawer J and longer bran-drawer, the flour-drawer forming with the rear wall a space for dropping the bran into the lower drawer, substantially as described.

196,810. FULLING-MILLS. Rudolf Eickemeyer, Yonkers, N. Y. Filed June 23, 1877.

Brief.—Consists in the combination, with the beater and a lifting-board hinged thereto, of continuously-driven lifting-rolls, one of which is mounted upon a pivoted frame, and a revolving cam-shaft, which intermittingly vibrates said frame, whereby the "board" is first compressed between the rolls, and the beaters lifted by their motion, and then permitted to drop, the rolls meantime revolving. By means of this mechanism the rolls gradually bite upon the lifting-board, and lift the beater by a smooth and easy motion. While the speed of the driving-shaft is uniform, the beater may be lifted to full height, or to any lesser extent required, and the beats made more frequently and in proportion to the lift of the beater. Adjustable mechanism is provided to operate the vibratory frame with any required interval between the vibrations, whereby the lifting-rolls are made to engage with the lifting-board for a longer or shorter period of time, according to the height of lift required.



1. The combination, with a fulling-mill beater and a lifting-board hinged to the beater, of continuously-driven lifting-rolls, a vibrating frame, and a cam-shaft, substantially as described, whereby the rolls are made to alternately compress the lifting-board for lifting the beater, and to release the board for permitting the beater to fall, as set forth.

2. The combination, with a fulling-mill beater its lifting-board, the continuously-revolving lifting-rolls, and a vibrating frame, of adjustable mechanism, substantially as described, for vibrating the frame at desired intervals, substantially as set forth, whereby the beater may be lifted much or little, and the number of beats in a given time increased or lessened, without varying the speed of the lifting-rolls.

3. In a fulling-mill, a lifting-board provided with a frame which incloses the wooden portion thereof, substantially as described, whereby the wooden portion may be readily removed when worn and a new one substituted.

4. The combination, with lifting-rolls which engage with the lifting-board in a fulling-mill, of a vibrating frame which supports one of said rolls, and springs or cushions which afford a yielding pressure of the roll on the lifting-board, substantially as described.

5. The combination, of the vibrating frame and a lifting-roll mounted in said frame in journal-boxes provided with axes which are

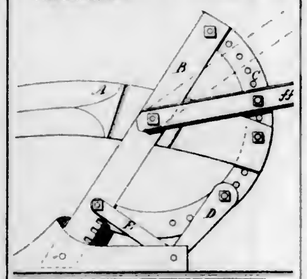
transverse to the axis of the lifting-roll, substantially as described, whereby the roll may effectively engage with a lifting-board which is thicker at one edge than at the other, as set forth.

6. The combination, with the vibrating frame, its lifting-roll, and its springs, of adjusting-screws for graduating the pressure of the lifting-roll, substantially as described.

7. The combination, with a fulling-mill beater and a lifting board, of a spring or cushion below the board which supports the weight of the beater, substantially as and for the purposes specified.

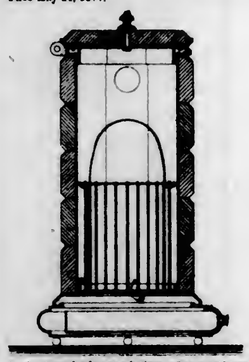
8. The combination, with a fulling-mill beater and a lifting-board, of a spring or cushion which supports the weight of the lifting-board, substantially as and for the purposes specified.

195,811. PLOWS. Jas. C. Ferguson, Cross Plains, Ala. Filed Jan. 31, 1877.



The combination, in a plow, of the beam A, standard B, the adjusting segment and brace C, placed vertically in the rear of the standard, the handles *f f*, standard D, and brace E, constructed as described and shown, and adapted to secure a land-side plow or a shovel plow and subsoiler, as set forth.

195,812. STOVES. Thomas Gemmell, Baltimore, Md. Filed May 11, 1877.



1. A stove-body consisting of a continuous or nearly continuous wall of terra-cotta or other heat-retaining substance, provided at its inner surface with a metal backing or casing conforming to the shape of, and fitting to, the said exterior wall, substantially as specified.

2. In combination with a stove-cylinder of composite construction, as described, a composite cover for the same, or one constructed of a metallic plate having an outer covering of terra-cotta or other heat-retaining material, the said composite cover being hinged directly to the said cylinder or to a ring forming the upper edge of the same, substantially as and for the purpose herein described.

195,813. MACHINES FOR FORMING SLED-RUNNERS. Sebastian Oilsinger, Rondout, N. Y., assignor of one-half his right to Abel A. Crosby, same place. Filed Jan. 26, 1877.

1. A machine for forming sled runners and braces of metal, consisting of a bed-plate with vertical sides, and provided with a clamping device composed of two legs, secured by a pivotal bolt which unites their front ends together, and resting on the bottom of the bed-plate, and operated by a lever passing beneath the bed-plate, and extending to the front of the same, combined with a former consisting of two parallel sides of the exact dimensions and shape of the runners and braces of the sled to be formed, the rear end of the former being hinged to the rear of the bed-plate, and having secured at its rear end a movable bending-plate, substantially as and for the purpose described.

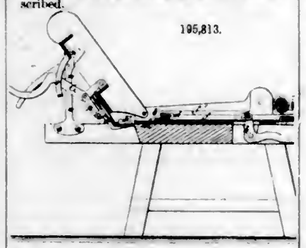
2. In a machine for forming sled runners and braces of metal, a former of the exact size and shape of the runners and braces to be formed, combined with a movable bending-plate hinged to the rear ends of the sides of the former, and provided with a sliding plate and operating-lever, the inner face of said bending-plate being of the same curve or angle as are the rear ends of the sides of the former, substantially as and for the purpose described.

3. In a machine for forming sled runners and braces of metal, a former with two sides of the shape and dimensions of the sled runners and braces to be bent thereon, combined with a bending-plate hinged to the rear ends of the sides of the former, the bending-plate extending across from one of the sides of the former to the other, and accurately fitting the curve or angle of the ends thereof, substantially as and for the purpose described.

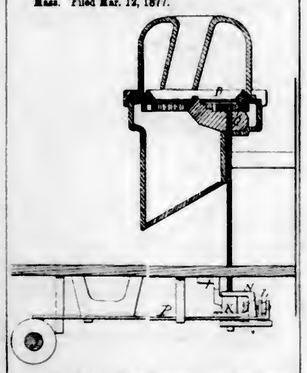
4. In a machine for forming sled runners and braces of metal, a clamping device secured to a bed-plate with vertical sides, and consisting of two legs with vertical sides united at one end by a pivotal bolt and at the other end by two levers and a connecting-rod, substantially as and for the purpose described.

5. The curved plate L at the rear of the bed-plate, for giving a hinged support to one of the two former-plates, as shown and described.

195,813.



195,814. FARE-BOXES. Abner C. Goodell, Jr., Salem, Mass. Filed Mar. 12, 1877.

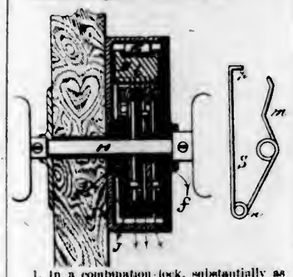


1. In a fare-box for railway-cars, &c., composed of an upright cylinder, within which is disposed a rotary perforated disk or carriage, and a series of tilting vanes pivoted thereto to alternately open and close its aperture, the combination, with such cylinder, carriage, and vanes, of a transparent dome or top having an internal integral chute, substantially as and for purposes stated.

2. A fare-box composed of a suitable cylinder or receptacle, a changeable carriage or table, and a transparent dome having an internal chute, said chute being integral with the dome, and the whole operating substantially as and for purposes stated.

3. The combination, with a car-axle or a wheel-hub, of the ratchet K, dog or pawl L, yoke N, and lever P, whereby the rotary motion of such axle or hub is adapted to effect advances of the table or carriage D, essentially as and for purposes stated.

195,815. COMBINATION-LOCKS. Ransom Goodrich, McLeansborough, Ill. Filed July 7, 1877.



1. In a combination-lock, substantially as herein described, the compound wheel consisting of the internally-geared rim J, having outside notch *e*, with incline *e'*, and the cogged segment J', formed with the projecting hub *a*, with groove *b* surrounding the same, in combination with the circular flange *d* on the lock-case, as and for the purposes herein set forth.

2. One or more springs, S, coiled around the stud *h*, and forming brakes *m*, coils *s*, and hooks *p*, in combination with bolt D, having notches *s* in its inner end, and the series of wheels of the lock, substantially as and for the purposes herein set forth.

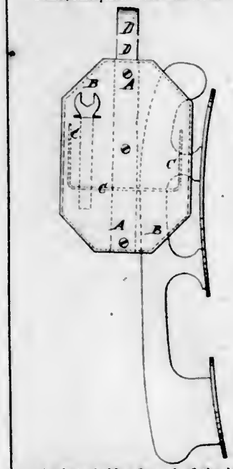
195,816. SAMPLING-PACKAGES. Wallace P. Groom, Brooklyn, N. Y. Filed Aug. 28, 1877.



1. The combination, in a sampling-package, of a reticulated inclosure, through which the sample may be inspected, a thread or other filamentous material for permanently inclosing said sample, or a portion of the same, and a seal for securing the inclosure, substantially as and for the purpose specified.

2. The combination, with a sampling-package having a portion of its contents separated from the rest by a thread, wire, or other filamentous material and secured by a seal, of a label attached by the same material which separates the sample, substantially as and for the purpose set forth.

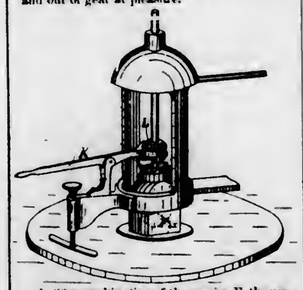
195,817. SKATE-HOLDERS. E. C. Henderson, Pictou, Nova Scotia, Canada, assignor to himself and Henry Fraser, same place. Filed Mar. 12, 1877.



A skate-holder formed of the bar A, the plates B, the springs C, and the strap D, substantially as herein shown and described.

195,818. MILLSTONE-DRESSERS. Jacob G. Haldeman, Indianapolis, Ind. Filed Feb. 19, 1877.

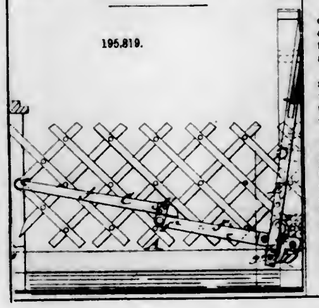
Brief.—A clutch device is interposed between the carrier driven by the millstone-spindle and the driving-shaft, and is operated by a pivoted hand-lever, whereby the dresser is thrown in and out of gear at pleasure.



1. The combination of the carrier F, the vertical shaft C, and devices, substantially as described, for connecting and disconnecting the same, when said carrier is adapted to the millstone-spindle, as specified.

2. The carrier F, with bevel-clutches, combined with the shaft C, lever K, clutch L, and frame, constructed to be applied to a millstone and to be connected to the dresser, as set forth.

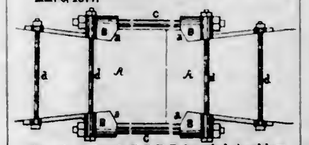
195,819.



195,819. GATES. Robert A. Horning, Kansas City, Pa. Filed Jan. 13, 1877.

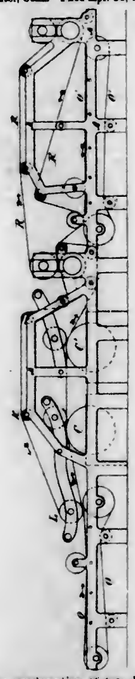
The combination, with double levers C C, connected with a gate, as shown and described, of a plate, D, having slot *g g'*, and a vertically-movable rod, having side pin *h*, substantially as and for the purpose specified.

195,820. TIMBER-SPLICES FOR BRIDGES. Albert W. Hubbard and Lewis B. Eddy, Cleveland, Ohio. Filed Mar. 6, 1877.



The clamp-heads B B B B, beveled shoulders *a a a a* on the timbers, and the bolts C C C C and *d d d d*, when constructed and arranged substantially as and for the purposes described.

195,821. PAPER-MACHINES. Philip W. Hudson, North Manchester, Conn. Filed Apr. 30, 1877.



1. The combination of two Fourdrinier machines for forming the outside surfaces of a sheet of paper with a cylinder-machine for making the interior filling, substantially as herein described.

2. The combination of the couching-roller L and the felt of a cylinder-machine with the wire apron O of a Fourdrinier machine, for transferring the Fourdrinier layer to the cylinder-felt, substantially as herein described.

3. The combination of the apron O, the felt E, the apron O', and the junction-felt R with suitable rollers arranged so that successive layers shall be taken up in the manner described—that is, so that the layers from the aprons O and O' shall be outside those from the cylinders C and C', substantially as herein set forth.

195,822. BURGLAR-ALARMS. Arthur G. Hutchinson and George F. Ransom, Cleveland, Ohio. Filed Sept. 6, 1877.

1. A burglar-alarm consisting of the slotted shell A, plunger B, and coiled spring C, the latter having butt-end bearing, respectively, against the plunger and the close top of the shell, in combination with the buttress F formed independent of, and in a horizontal plane below, the shell A, substantially as described.

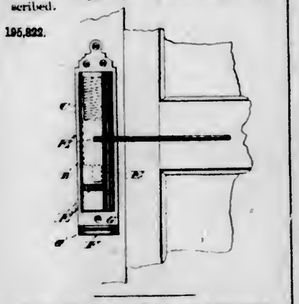
2. The combination, with the upright cylindrical casing A and the spring-actuated plunger B, adapted to operate therein, as described, of the buttress or support F and the close-bodied guard G, the said buttress and guard being located in a horizontal plane below the said casing A, substantially as described.

3. In a burglar-alarm, the longitudinally-slotted shell or casing provided with the lower cross-slot E^2, the latter being adapted, as described, to receive the trigger-arm when the alarm is not set, and thus permit the opening and closing of the door without injury to the operative parts of the alarm, substantially as described.

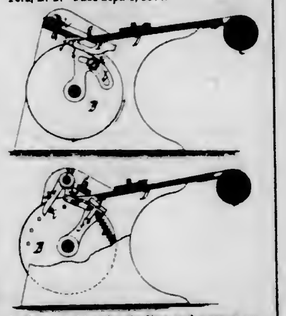
4. In a burglar-alarm, the combination, with the spring actuated plunger having a trigger-arm, of the longitudinally slotted shell provided with the cross-slot E^2 and suitable door-connecting mechanism, the same being adapted, as described, to operate the alarm upon closure of the open door, substantially as described.

5. In a burglar-alarm, the combination, with the longitudinally-slotted shell provided with cross-slot E^2, and the spring actuated plunger having a trigger arm, of the trip or catch secured to the door and adapted to engage with the said trigger-arm, substantially as described.

195,822.



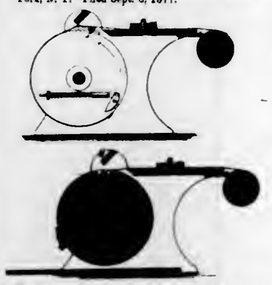
195,823. MACHINES FOR FEEDING AND CUTTING PAPER AND OTHER MATERIALS. Gustav L. Jaeger, New York, N. Y. Filed Sept. 6, 1877.



1. In a machine for feeding and cutting paper and other materials, the combination of a griper-cylinder, B, a web-support, D, between the roll of material and the griper-cylinder, a stationary cutting-blade, G, projection *i* on the griper-cylinder, and devices, such substantially as shown, secured to said cylinder, and carrying a knife, F, and against which devices the projection *i* on the griper-cylinder operates to move the said knife toward the stationary blade G, all substantially as and for the purpose set forth.

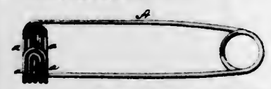
2. The combination, with the griper-cylinder and the shaft which carries the roll containing the material to be cut, of inclined bearings which allow the roll to follow for a short distance the draft of the griper-cylinder, substantially as and for the purpose set forth.

195,824. MACHINES FOR FEEDING AND CUTTING PAPER AND OTHER MATERIALS. Gustav L. Jaeger, New York, N. Y. Filed Sept. 6, 1877.



The combination, in a machine for feeding and cutting paper and other materials, of a griper-cylinder, a support for the web between the roll from which the web is taken and the griper-cylinder, a stationary cutting-blade secured to the frame containing the griper-cylinder, and a knife which is firmly fastened on the griper-cylinder, all constructed and adapted to operate substantially in the manner and for the purpose herein shown and described.

195,825. SAFETY-PINS. Joel Jenkins, New York, N. Y. Filed June 23, 1877.



As a new article of manufacture, a toilet-pin, A, with the guard thereof integral with the wire of the pin, which guard is composed of a series of parallel convolutions, *a*, lying closely together, forming a flat surface or bearing, which surface is bent over, making a recess with two parallel flat sides, within which recess is received the point of the pin, which is protected by the upper and lower surfaces of the guard, substantially as shown and described.

195,826. TREATMENT OF SEAL-SKINS. Jos. Kokosch, Paris, France. Filed June 18, 1877.

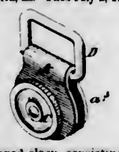
1. In the treatment of seal-skins, preparing such skins by first subjecting them to a process of shearing to reduce the length of the hair, as set forth; secondly, to a process of fulling to reverse the hair; and, finally, mordanting said skins, substantially as described, for the purpose specified.

2. In the treatment of seal-skins, preparing such skins by first subjecting them to a process of shearing; secondly, to a process of fulling; thirdly, mordanting said skins; and, finally, immersing them a number of times in succession into a dye, brushing each skin after every such immersion, in the manner and for the purposes specified.

3. In the treatment of seal-skins, a mordant consisting of quicklime, beech-ashes, sumach, and water, in or about in the quantities specified, for the purpose as set forth.

4. In the treatment of seal-skins, a dye consisting of gall-nuts, green copperas, copper scales, litharge, sal ammoniac, verdigris, catechu, rotten-stone, cinnabar, and water, in or about in the proportions as hereinbefore described, for the purpose specified.

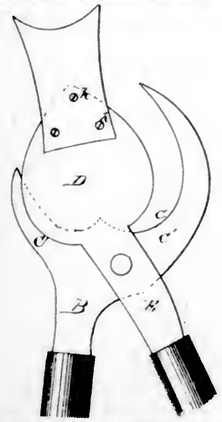
195,827. CLASPS FOR SUPPORTING GARMENTS. Wm. Lamb, O'Fallen, Ill. Filed July 2, 1877.



The improved clasp, consisting of a clip, A, formed in one piece, and provided with flanges a^2, the screw B, having angular shank *b*, the button or nut C, and the link D, substantially as set forth.

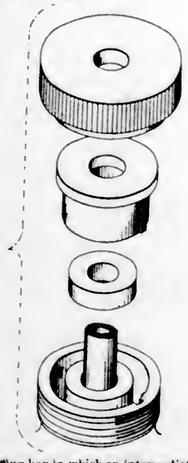
195,828. PRUNING-SHEARS. Charles Lloyd, Harriettsville, Ohio. Filed May 5, 1877.

Brief.—A slight change of configuration gives two curved jaws, either of which coacts with one or the other cutting-edge of the ordinary heart-shaped blade common in pruning-shears, the parts being so arranged and pivoted together that a downward cut will be made, and there being also preferably a detachable chisel near the tip of the two-edged cutting-blade.



In pruning-shears, the combination of the shank B formed with the two curved jaws C C', the shank E pivoted to the jaw C, and the heart-shaped blade D with double cutting-edges, the parts being so arranged that a downward cut will be made, substantially as herein set forth.

196,829. STUFFING-BOXES. John Lockhart, Philadelphia, Pa. Filed Aug. 22, 1877.



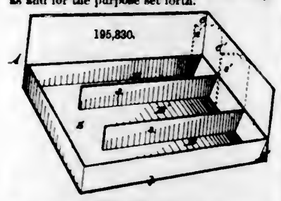
A stuffing box in which an intermediate follower, made substantially as described, so as to be incapable of turning, is interposed between a screw-cap or follower and a packing, substantially as specified.

196,830. COOKING-STOVES. Coleman T. Lyal, Albany, N. Y., assignor of one-half his right to John E. Miller, same place. Filed Mar. 7, 1877.

1. In a stove or range having chamber A' in its base for the circulation of the hot products of combustion beneath the plate *e*, the combination, with said chamber, of the removable drawer S, adapted to enter and occupy the same in its full extension from front to rear and from side to side, substantially as and for the purpose set forth.

2. The combination, with chamber A' in the base of a stove or range, of the drawer S, adapted to occupy said chamber in its full extension in all directions, and provided with flue-strips *a a*, ranging, when said drawer is in place, with the vertical flue-strips of the rear vertical flues of the stove, substantially as and for the purpose set forth.

196,830.



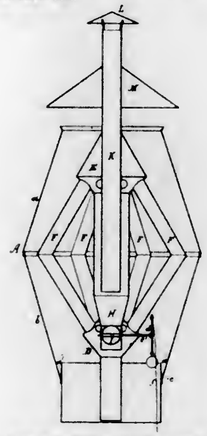
196,831. NAPKIN-HOLDERS. Ephraim Mears, Terre Haute, Ind., assignor to himself and Saml. M. Young, same place. Filed May 21, 1877.



A napkin-holder consisting of the hook A, having the tip *a*, and the extensible arms B B, pivoted to the shank of the hook, and provided with pointed hooks *c*, substantially as shown and described.

196,832. VENTILATORS. Patrick Mihan, Cambridgeport, Mass. Filed Sept. 7, 1877.

Brief.—Within the body are two cases, one of which is placed in the upper, and the other in the lower, part of the said body. These cases are connected by a series of bent steam-pipes leading out from one into the other. There is a damper in the lower part of the tube, the spindle of which is provided with a lever having a weight at one end and a chain or rope fixed to the other end.



1. For use in the body A, in manner and for the purpose described, the ventilator, substantially as set forth, composed of the two cases D E, the series of connecting-tubes F, the pipe H, damper I, and the descending and exit pipes H K, arranged and applied essentially as shown and described.

2. The combination of the two hoods L M, the body A, the pipes K H, damper I, cases D E, and their connecting-pipes F, arranged and applied substantially in manner and to operate as set forth.

196,833. APPARATUS FOR EXCAVATING DITCHES. W. H. Minter, London, Ohio. Filed May 1, 1877.

1. The anchor-bar C, provided with the anchors *d* and legs *g*, for the purpose set forth.

2. The anchor-bar C, provided with the sliding heads I and the arms *g*, combined with the anchors *d*, hinged to the said heads, substantially for the purpose set forth.

3. The platform D, adapted to extend across the ditch and rest upon the banks thereof, combined with the inclined slide-board E, secured to one edge of the platform, and adapted to extend thence down into the ditch, all constructed substantially in the manner and for the purpose set forth.

4. The platform D, adapted to extend across the ditch and rest upon the bank thereof, and provided with the inclined slide-board E, combined with runners *q* across the ends of said platform, to support the same and enable it to be advanced along the side of the ditch, as set forth.

5. The platform D, extending across and resting upon the sides of the ditch, and provided with an inclined slide-board, E, attached to the rear edge of said platform, combined with the stay-chain *t*, extending from the rear end of the inclined slide-board to the front edge of the said platform, as and for the purpose set forth.

6. The anchors *d*, platform D, and inclined slide-board E, combined with the anchor *p* and traversing tackle and pulley system *e h s*, substantially as shown and described, whereby the excavation is effected in the manner essentially as set forth.

195,833.



195,834. AIR-FORCING BEER-PUMPS. J. B. Mentler, Orugar, Ill., assignor to Peter Nafriger, same place. Filed Aug. 29, 1877.

1. The combination, with beer-vessel M, of pipes H G F, air-chamber E, duct D, having cock C, and air-pump A B, or air-injector, adapted to force beer up the pipe G, and faucet I K L, or stop-cock, substantially as described.

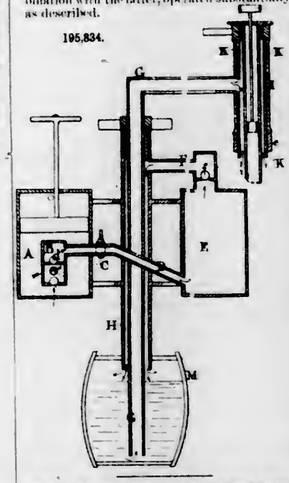
2. The draft-pipe G, air-pipe H, branch pipe F to lateral air-chamber E, connected by pipe D and cock C with air-pump A or air-injector, substantially as arranged, and for the purposes described.

3. The arrangement of the air-injector A on one side of and attached to the main or central pipe, to balance the lateral air-chamber E on the opposite side of said pipe, attached in like manner to said central or main pipes by means of arms or braces, so as to make the whole apparatus A E H G easily handled and readily portable in one piece, substantially as and for the purposes described.

4. The combination, in a beer-pump, of a central draft-pipe, G, and faucet, air-injecting pipe H F and lateral air-chamber E on one side, and of air-pump A on the other side, braced together upon said central pipe for convenience, and of unification of the parts, as described.

5. The combination, with beer-vessel M, of pipes H G F, air-chamber E, duct D, cock C, valve-chamber B, and air-pump A, adapted to force beer from the faucet I K L, and in combination with the latter, operated substantially as described.

195,834.



195,835. POTATO-BUG CATCHERS. Luther S. Munroe, Lynnfield, Mass. Filed July 30, 1877.



1. The receptacle *a*, provided with a high back portion, in combination with the laterally-adjustable handle and fastening device, to operate substantially as described.

2. The receptacle *a*, provided with a curved front edge, *c*, and with a hinged portion, *d*, arranged to operate all substantially as described.

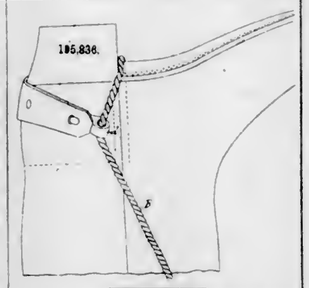
3. The receptacle provided with a high back, in combination with the pivoted adjustable handle, made movable in the direction of the length of the receptacle, and with a fastening device, to operate substantially as described.

195,836. HOLDING DEVICES FOR BOOTS AND SHOES. William B. Murphy, New Bedford, Mass. Filed Sept. 1, 1877.

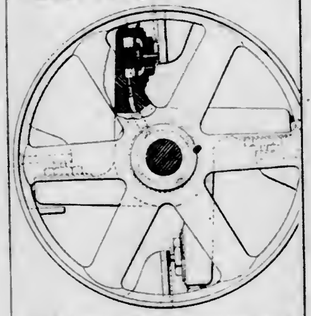
1. The combination, with the foot-band or strap B, of a brace to extend about the counter of the boot or shoe, substantially as described.

2. The combination, with the foot-band or strap B, of a brace composed of a strap and adjustable hooks *d*, substantially as described.

195,836.



195,837. DYNAMOMETERS. Augustus F. Nagle, Providence, R. I. Filed Aug. 6, 1877.

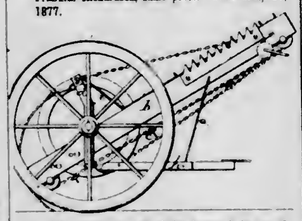


1. In a dynamometer, the combination, with a testing-pulley and a suitable pressure-gage, of one or more pressure-chambers, which communicate with the gage, and have a variable cubic capacity, substantially as described.

2. The combination, with a testing-pulley, of one or more pressure-chambers, provided in each instance with a diaphragm and a rod, substantially as described.

3. The combination, with the testing-pulley, the pressure-chambers, their diaphragms, and rods, of the stationary annular chamber, substantially as described.

195,838. HAY RAKES AND LOADERS. Chas. A. O'Dell, Jamestown, Mich., assignor of one-half his right to Franklin Richardson, same place. Filed Aug. 27, 1877.



1. The combination of the frame *b*, levers *d*, pivoted to the sides thereof and carrying the driving-wheels, and the frame *h*, having its rear end fastened to the lower end of the levers *d*, whereby the axle is dispensed with, substantially as described.

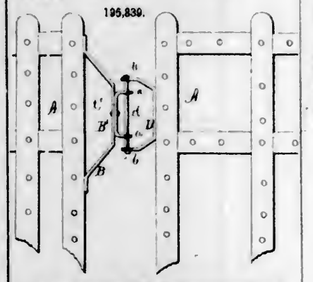
2. The frame *b*, having a series of holes, *o*, through its side, in combination with the levers *d*, whereby the lower end of the frame may be moved nearer to or farther from the ground and the rake-teeth, substantially as set forth.

3. The combination of the frames *h b*, supporting-rod *q*, levers *d*, a rope or chain, and a shaft for winding the rope or chain upon, for the purpose of raising or lowering the upper end of the frame *b*, substantially as described.

195,839. HARROW-COUPLINGS. William Ough, Bryan L. Loyd, and John Johnson, Atkinson, Ill. Filed Mar. 15, 1877.

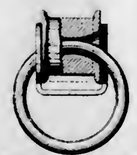
Brief.—A coupling for separate and independent sections of a harrow, so constructed as to admit of three movements, enabling the harrow-sections to adjust themselves readily to the ground.

195,839.



In combination with the harrow-sections A A, the coupling herein described, consisting of the bracket B, having straight slide B', the pivoted bracket C, with ears *a a*, the bracket D, with arms *b b*, and the rod *d*, all substantially as and for the purposes herein set forth.

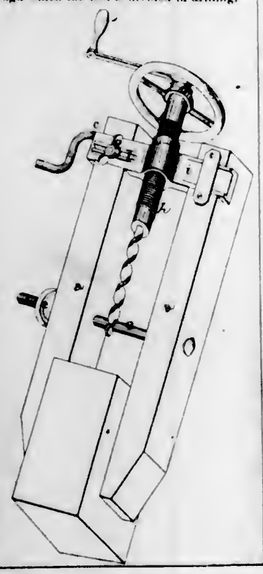
195,840. RINGS AND PULLEYS FOR NECK-YOKES. S. M. Palmer, Glens Falls, N. Y., assignor to Walter McDonald, same place. Filed Apr. 16, 1877.



A neck-yoke provided with a pulley whose bearing is flared at each end, and which is made to turn on the ring, as shown and described, for the purpose specified.

195,841. STONE-DRILLING MACHINES. Solomon Palmer, Sipes' Mill, Pa. Filed Sept. 12, 1877.

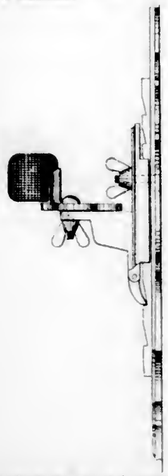
Brief.—The upper ends of the clamp have attached a slotted adjustable screw-frame, through which the tool is divided in drilling.



The combination of the two jaws *a*, clamping-screws *c*, drill *b*, and laterally-adjustable frame *i*, the parts being arranged to operate substantially as shown and described.

195,842. HEAD-RESTS. Isaac B. Peckham, Bangor, Me. Filed Feb. 17, 1877.

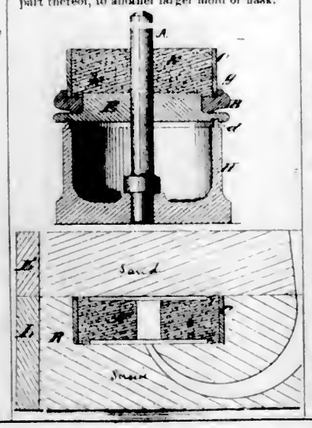
Brief.—The rack-plate, on which the vertically-adjustable slide-plate moves, is secured in any suitable place on railroad cars or steamboats, and a bracket, having a curved slot therein, projects horizontally from the slide-plate. The head-rest is adjusted in the curved slot by means of a set-screw.



A head-rest for cars and steamboats, consisting of a rack-plate with vertically adjustable slide-plate, secured by pawl and thumb-nut, and of a horizontally swinging and slotted head-rest clamped to a supporting-bracket of slide-plate, substantially in the manner and for the purpose set forth.

195,843. SAND-MOLDING APPARATUS FOR CASTING METAL ARTICLES. Alexander K. Rider, Walden, N. Y. Filed May 2, 1877.

Brief.—A molder's table having a vertical and central guide-stud, concentrically about which are formed molds for different articles, in some of which the stud constitutes a part of the pattern. Shows two forms of supporting-plates; one permits the whole pattern to be lowered through the plate from the sand-mold, and the other only a portion of the pattern. Uses a transfer-ring to transfer the mold, or a part thereof, to another larger mold or flask.



1. The combination, with the base or pedestal H, for supporting patterns and molds or parts thereof, of a central cylindrical guiding-stud rigidly attached to said base or pedestal, for holding and guiding the patterns, molds, or parts of molds in rigid concentric relation, substantially as and for the purpose specified.

2. The guide-sleeve S or S', in combination with the fixed guiding-stud A, and pattern or portions thereof, substantially as and for the purpose specified.

3. The protection-plate B or B', in combination with the guiding-stud A, and pattern or portion thereof, substantially as and for the purpose described.

4. The combination of the pedestal H, the protection-plate B, fitted concentrically to the top of the said pedestal, and having formed thereon a concentric snap, *g*, and the transfer-ring C, fitted to said snap, and protection-plate for holding said ring also in concentric relation, substantially as and for the purpose specified.

5. The blank mold R, in combination with the transfer-ring C, and its contained mold or portion of a mold, placed within and inclosed by said blank mold, substantially as and for the purpose described.

6. The combination of the supporting-base or pedestal H, guiding-stud A, guide-sleeve S or S', protection-plate B or B', and transfer-ring C, substantially as and for the purpose described.

195,844. RAIL-JOINTS. Barney Ross, Amwell, Ohio. Filed July 23, 1877.

Brief.—Tread, web, and flange of one rail are made to interlock and break joint with the same of the other rail.



The combination, with rail A, provided with the part A^2, recess H, and flange L, extending beyond the web, of the rail A^3, provided with the part A^3, recess F^2, and tread F^3, extending beyond the web of the rail, substantially as described.

195,845. APPARATUS FOR FORMING HEEL-COUNTERS FOR BOOTS AND SHOES. Etienne Salomon, Montreal, Quebec, Canada, assignor of one-half his right to F. M. Pepin and M. Joseph Coté, same place; said Coté assignor of one-half his right to Elizabeth Hynes, same place. Filed May 26, 1877.

1. In a machine for making heel-counters, the combination, substantially as specified, of the reciprocating slide for driving the die-block, the die-block arranged to move transversely to the line of motion of the slide, and the intermediate connecting link or toggle-bar.

2. In a machine for making heel-counters, the combination, substantially as specified, of the reciprocating slide, one or more linearly-disposed pairs of die-blocks arranged to move at an angle to the line of motion of the slide, and rods which connect each pair of die-blocks to the slide, so as to operate like toggle-joints between them.

3. In a machine for making heel-counters, the combination, substantially as specified, of the toothed arc on the main shaft, the pinion intermittently rotated thereby, the eccentric on the pinion-shaft, the eccentric-rod or rods, and the carriage bearing the mechanism for forming the upturn.

4. The combination, substantially as specified, of the reciprocating carriage N, the roller for forming the upturn, the bell-cranks on which it is hung, and the yoke for connecting the bell-cranks to the eccentric-rods which move the carriage.

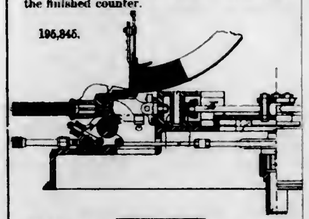
5. The combination, substantially as specified, of the driving-wheel on the counter-shaft, the loose driven wheel on the main shaft of the machine, the main shaft, and a friction-clutch between the said main shaft and the said loose driven wheel thereon.

6. The combination, substantially as specified, of the die, the cast-off, the spring for holding the cast-off in its normal position, and the lever for operating the cast-off.

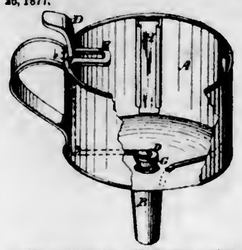
7. The combination, substantially as specified, of the reciprocating die-block, the die pivoted thereto, and the spring for holding the die in a slightly turned-up position until it enters the mold.

8. In a machine for forming heel-counters, the combination, substantially as specified, of the following instrumentalities, viz: first, a mechanism for automatically feeding the blanks to the molds; second, a die for pressing the counter into shape; third, means for forming the upturn; fourth, a cast-off for discharging the finished counter.

195,846.



195,846. COMBINED GRADUATED MEASURE AND FUNNEL. Simon Schippert, Burlington, Iowa. Filed June 26, 1877.

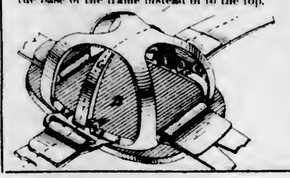


1. The combination, with the measuring cup and funnel, of the stop-valve secured to the end of a bell-crank lever, D, arranged and pivoted at the angle of the lever to the interior of the cup, as described, to be operated by the thumb in opening and closing the valve, as described.

2. The combination of the cup A, the funnel B, the stop-valve G, the vibrating bell-crank lever D, the guide and lock-plate E, and the spring F, these parts being constructed, arranged, and operating in the manner and for the purpose described.

195,847. TRACE-CARRIERS FOR HARNESS. J. L. Scholl, Burlington, Iowa. Filed July 19, 1877.

Brief.—The spring-tongues are pivoted to the base of the frame instead of to the top.



A trace-carrier consisting of the dome-shaped frame, the base-bars of which are provided with laterally-projecting loops and lugs to receive the tongues, which are pivoted thereto, and extend from the base to the crown of the frame, and arranged to be operated by springs, substantially in the manner and for the purpose specified.

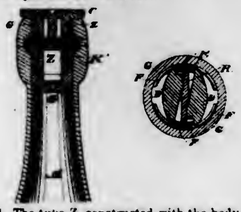
195,848. HARNESS-SADDLE TREES. John L. Scholl, Burlington, Iowa. Filed July 11, 1877.



1. A saddle-tree formed of three parts hinged together, and provided with spring-plates, substantially as described.

2. In a saddle-tree, the combination of the center-plate, the pad-plate, the check-plates, and the set-screws for adjusting the parts, substantially as described.

195,849. BOTTLE-STOPPERS, &c. Frederick J. Seybold, Chicago, Ill. Filed June 5, 1877.



1. The tube Z, constructed with the body B and stem or standard E, in the manner shown and described, and for the purpose set forth.

2. The tube Z, constructed with the flange P, body B, stem or standard E, and groove K, as shown and described, and for the purpose set forth.

3. The lever C N R, constructed with the handle or hand-piece C, shank N, and arms R, as shown and described, and for the purpose set forth.

4. The segments D, constructed with the shoulder O or its equivalent, as shown and described, and for the purpose set forth.

5. The flexible tube G, constructed with the shoulder K', as shown and described, and for the purpose set forth.

6. The lever C N R, in combination with the segments D and the tube Z, in the manner shown and described, and for the purpose set forth.

7. The lever C N R, in combination with the segments D, the tube Z, and the segments F, in the manner shown and described, and for the purpose set forth.

8. The combination of the tube Z with the tube G, in the manner shown and described, and for the purpose set forth.

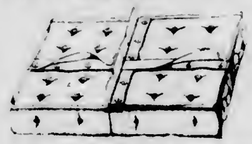
9. The combination of the tube Z with the tube G and lever C N R, in the manner shown and described, and for the purpose set forth.

10. The combination of the tube G with the tube Z, lever C N R, and segments D, in the manner shown and described, and for the purpose set forth.

11. The combination of the tube G with the tube Z, lever C N R, segments D, and segments F, in the manner shown and described, and for the purpose set forth.

12. The bottle-stopper consisting of the tube G, the inner tube Z, lever C N R, and segments D, in combination with a bottle, flask, jar, cask, keg, barrel, or other vessel, A, in the manner shown and described, and for the purpose set forth.

195,850. MATTRESSES. Sarah A. Shepherd, Washington, D. C. Filed May 23, 1877.



A mattress made in sections, having double flaps on the upper and lower edges of the adjoining sides of the sections, one flap having button-holes for connecting the sections by means of buttons on the mattress, and the outer one for covering the buttons, substantially as set forth.

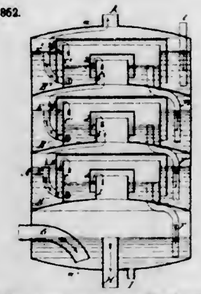
195,851. FENCE-POSTS. A. B. Sprout, Picture Rocks, Pa. Filed Dec. 1, 1876.



1. The combination, with the anchor-block having a sharpened driving and enlarged supporting extremity, of the metallic notched strip for supporting the fence-panel, said strip formed with a double reverse inclined side opposite to the side joining with the anchor-piece, substantially as set forth.

2. The combination, with the segmental anchor-block having the upper triangular support and the lower driving point, of the tapering notched strip and parallel wooden clamp, the two latter supporting and securing together the fence-panels by hook-bolts or staple-rivets, substantially as and for the purpose set forth.

195,852.



195,862. DISTILLING-COLUMNS. E. G. Stark, Chicago, Ill. Filed Aug. 7, 1877.

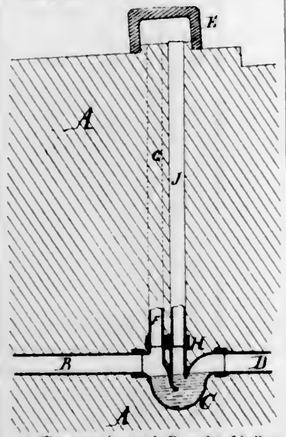
Brief.—By means of partitions and hoods the vapors are caused to pass through the condensed liquors more frequently than in the ordinary

columns, whereby the work is done more rapidly, and with a column of less height than those in common use.

1. A still-column consisting of the vessel A, vertically divided into chambers by partitions B, B^1, and B^2, intersected by two or more walls, *b c*, and two or more hoods, *d* D, in combination with the return-pipes E F, all constructed and arranged substantially as herein described, to operate as specified.

2. The vessel A, having horizontal partitions B B^1 B^2, vertical annular walls *b c*, hoods *d* D, return-pipes *f*, E, F, and H, and vapor-pipes G and K, all constructed, arranged, and operating substantially as described, for the purpose herein set forth.

195,853. MEANS FOR DISCHARGING SEWER-GAS FROM TRAPS. William D. Stewart, New York, N. Y. Filed Mar. 8, 1877.

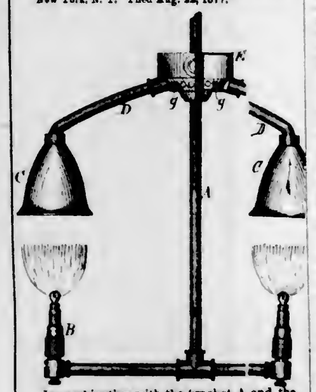


1. The mounting-block E, made of hollow ware, with a partition, E', and perforations *e*, adapted to serve as herein specified.

2. In combination with the trap C, house-connection B, and sewer connection D, the passage H and pipe J, in combination with a hollow mounting-block, E, adapted to discharge gas therefrom harmlessly into the open air, as herein specified.

3. In combination, the trap C, having the two openings F and H, arranged as shown, and the two pipes G and J, leading up from them, and the covering protection E, made easily removable, all substantially as herein specified.

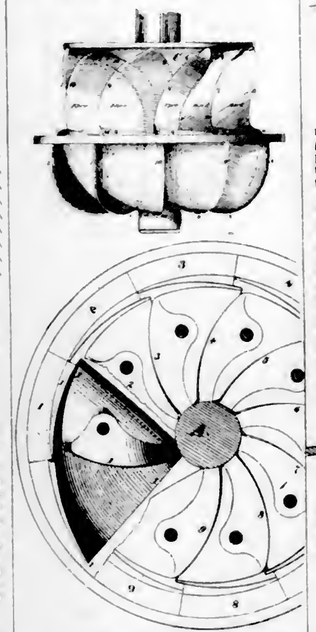
190,864. GAS OR LAMP FIXTURES. B. T. Steinhardt, New York, N. Y. Filed Aug. 22, 1877.



In combination with the bracket A and the ventilating tubes D and mouth-pieces C, the receiver E, located above the mouth-pieces, provided with apertures *g* leading into the room in which the burners are located, and connected with an exit-pipe, F, for ventilating the room in which the burners are located, substantially as set forth.

195,855. TURBINE WATER-WHEELS. E. B. Stilwell, Dayton, Ohio. Filed Jan. 9, 1877.

Brief.—There are three important features in this wheel, the first of which relates to the inclination to a vertical line of that part of the bucket-face opposite to the chutes, and with the curve of the bucket arranged to shorten the line of travel of water striking the upper line of the bucket. The second feature consists in an outward or downward and rearward extension of the buckets below the chute, thereby increasing the area of the buckets. The third feature is in combining with the Jonval the Fourneyron or outward system of discharging the water from the wheel.



1. A turbine water-wheel composed of buckets whose faces are inclined, and which extend centrally to the shaft, from thence downward, rearward, and outward, forming a combined vertical and centrifugal system for discharging of the water acting on the wheel, substantially as set forth.

2. A turbine water-wheel the buckets of which occupy the entire area of the wheel from the shaft outward, and which form the combined vertical and outwardly-discharging series of orifices, substantially as set forth.

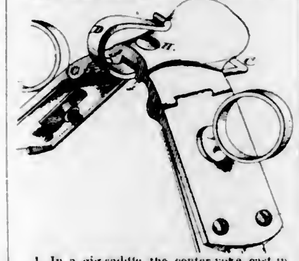
3. A turbine water-wheel the buckets of which occupy the entire area of the wheel from the shaft outward, with the faces inclined to a vertical line, which receive the water centrally upon the outer faces, and which discharge the same downwardly therefrom, substantially as set forth.

4. A turbine water-wheel whose buckets occupy the entire area of the wheel from the shaft outward, and in which the lower portions of the buckets which are below the chutes are of larger circumference, and have between their faces orifices for discharging the water outwardly from the buckets, substantially as set forth.

5. A turbine water-wheel whose buckets occupy the entire area of the wheel from the shaft outward, which have inclined faces and project outwardly below the chute, and overlapping each other, so as to form an outwardly-discharging orifice beneath the chute, substantially as set forth.

6. A water-wheel the buckets of which have inclined faces, and which project outwardly and under the chute-case, and which are inclined rearwardly to overlap each two buckets next in rear, and forming a combined outward and downward discharge for the water, as herein set forth.

195,856. GIG-SADDLE TREES. William H. Taylor, Baldwinsville, N. Y., assignor of one-half his right to Saml. Taylor, Hamilton, Canada. Filed Feb. 19, 1877.



1. In a gig-saddle, the center yoke cast in metal, with the cantle or seat upon the top, a groove or recess and lugs beneath, all in one piece, in combination with metallic jockey-extensions hinged thereto, substantially as and for the purpose set forth.

2. In a gig-saddle having the yoke and cantle or seat cast in one piece and hinged to metallic jockey-extensions, the crupper-loop C and check-hook D, made in separate pieces and notched together, in combination with said yoke, which is provided with a groove and guide-lugs on its under side, the whole being secured together by the bolt and nut H, substantially as described.

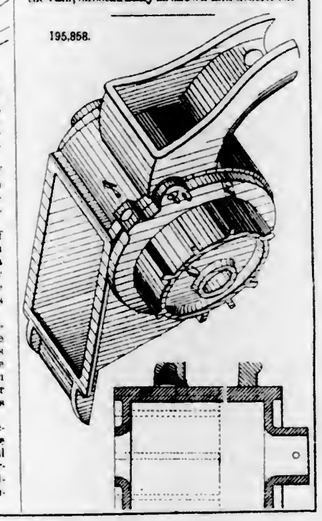
3. The pad-screws I, with nuts or sockets *i*, provided with extension-flanges having rivet-ing-pins *i'*, the latter adapted to enter perforations in the leather skirts, substantially as set forth.

195,857. BALE-TIES. John M. Van Derzee, New Baltimore, N. Y. Filed Sept. 5, 1877.



In combination with the wooden bands *a*, the metallic tie, consisting of the frame *d* having sharp cutting edge or edges *e*, recess *c*, and serrated cam *e*, whereby one end of the band is held by the frame and the other by the cam, substantially as shown and described.

195,858.



195,858. FORCE-FEED SEEDING-MACHINES. Willard A. Van Brunt and Spencer E. Davis, Horicon, Wis. Filed Dec. 5, 1876.

Brief.—Seed cup and spout cast in one piece. Laterally-adjustable seed-wheel cast hollow, and working through notched ring on outside of seed-cup. Yoke or equivalent devices for holding wheel in place.

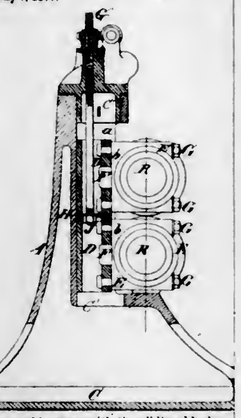
1. A confining or seed case for a force-feed seeding-machine, cast in one piece, with a delivery-spout, substantially as and for the purpose described.

2. The combination, with a confining or seed case and a ribbed or flanged force-feed wheel, of a notched ring applied and secured to one side of said case by an external cap, yoke, or equivalent, substantially as described.

3. The combination, with the seed-case, cast in one piece, and the notched disk applied outside the same, of a yoke, cap, or equivalent fastening, to hold said ring in place, as described.

4. The adjustable seed wheel, cast hollow, with a bearing at each end for the shaft, to which it is attached.

195,859. FRAMES AND BEARERS FOR CALENDER-ROLLS. Friedrich Voith, Heidenheim, Würtemberg, Germany. Filed July 7, 1877.



1. The combination, with the sliding blocks D, fitted to the cylindrical cavities C' in the said standards, of the bearings E, pivoted and having a bolt or bolts, G, for attaching the same to the said sliding blocks, substantially as and for the purpose specified.

2. The combination, with the sliding blocks D of the screws G', working in the cylindrical cavities C', of the standards A, for lifting said blocks and their attached rolls, substantially as and for the purpose set forth.

195,860. AERIAL MACHINES. J. B. Ward, San Francisco, Cal. Filed May 23, 1877.

Brief.—The blower-wheel is made with a gyroscopic motion, and its weight, at a high velocity, will assist to preserve the equilibrium of the machine. It is provided with vanes or fans, which are secured to, or pass through, it, so as to extend out upon each side. The vanes are set at an angle of fifteen degrees, so as to give the most favorable angle for the exit of the air. The ingress-tubes each supply one side or half of the blower. The elevating device consists of a propeller or screw wheel, which is centrally situated and operates within a case.

1. The gyroscopic wheel C, turning upon a horizontal axis, in combination with the double set of vanes D, forming a fan-blower, said vanes being set at an angle, as shown, and operating in combination with the supply-openings E and discharge, substantially as herein described.

2. The compound screw, consisting of a series of radial vanes, H H, surrounding the same center, and placed in line with and above each other, so as to form continuation of the first, substantially as and for the purpose described.

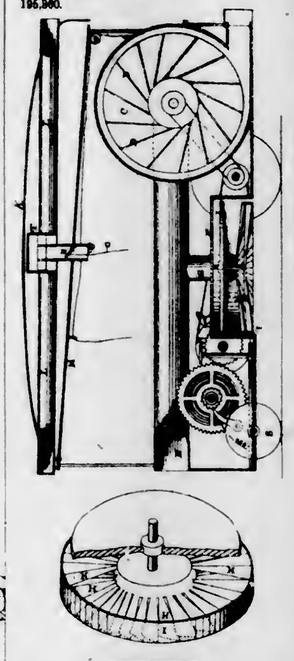
3. The guiding or directing plane M, hinged to the front of the frame or rod K, and provided with the air-cylinder T to contain air, upon which it is cushioned, substantially as herein described.

4. The directing-plane M, with its air or cushion cylinder T, in combination with the hollow piston-rod and the escape-valve N, substantially as and for the purpose herein described.

5. The frame or case K, made deeper at the rear than at the front, so that the plane M may stand at an incline, or be forced upward into the frame and expose the rear rim, substantially as described.

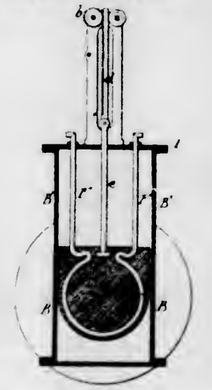
6. The frame or case K, in combination with the air-tubes or passage L L, passing longitudinally through it to reduce resistance and increase the supporting-surface, substantially as herein described.

195,860.



195,861. VALVES FOR HOT-BLAST PIPES. Thomas Whitwell, Stockton-on-Tees, England. Filed June 16, 1877.

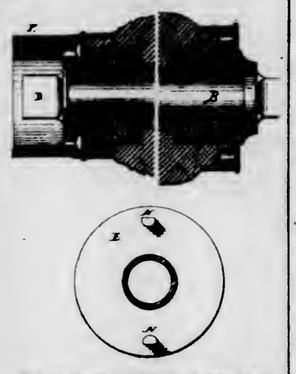
Brief.—For the purpose of cooling the valve and seat two bent pipes are used, one passing around the hot-air pipe near the seat, and the other embedded in the valve, the ends of the latter passing through stuffing-boxes. Cold air or water circulates through both.



1. The combination of the valve D and its valve-seat *a* with the pipe F, embedded in the valve adjacent to the bearing-surface of the valve and seat, as set forth.

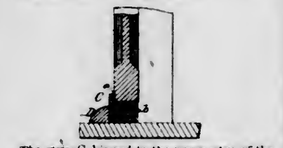
2. The combination of the casing B and the valve-seat *a* with the intermediate ring J and its internal air or water passage, as described.

195,862. VEHICLE-HUBS. James M. Whiting, Providence, R. I. Filed June 30, 1877.



The combination of flanged hub-box E C, hub A, cap F, packings G, H, K, and K', and rings L L, substantially as set forth.

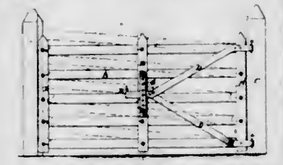
195,863. WEATHER-STRIPS. Michael W. Williams, Plymouth, Ohio. Filed Apr. 5, 1877.



The strip C, hinged to the tower edge of the door, in combination with the threshold D and groove *d*, arranged so that when the door is closed the strip shall stand in an upright position, its upper parts in close contact with the door, and its lower parts closely impinging the threshold, thus closing the space between the door and threshold, substantially as shown and described.

195,864. GATES. Wm. L. Wills, Big Lick, Va. Filed Aug. 10, 1877.

Brief.—The gate can be raised or lowered, as required, at its outer end, and held firmly by the pin entering one of the perforations of the bar.



1. In a gate, the hinges D D^1, connected at their inner ends, and forming a projecting arm or lever, D^2, for the purposes herein set forth.

2. The combination of the post C with hooks *a a*, the gate A B, connected hinges D D^1 with arm D^2, having pin *x* and the perforated bar G, all substantially as and for the purposes herein set forth.

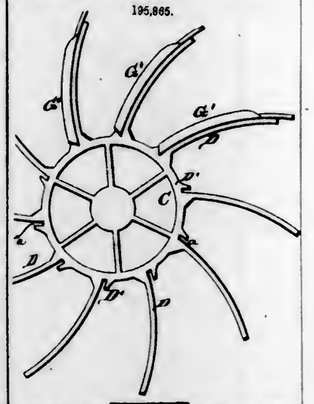
195,865. FAN-BLOWERS. Jerry P. Wilson, Manchester, Iowa. Filed Aug. 25, 1877.

Brief.—The skeleton-wheel or spider has curved arms, lips, and grooves. The flanged blades are secured to the arms by screws.

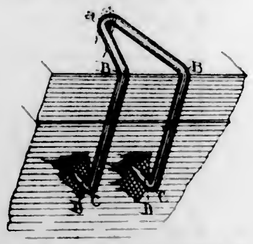
1. A wheel for blowers, having curved arms D, lips D^1, and grooves *a*, substantially as shown and described.

2. In blowers, the rim of the wheel, provided with curved arms D and lips D', in combination with the fans ti, inserted between the arms and lips and fastened to the arms, substantially as herein set forth.

195,865.

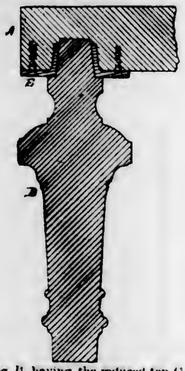


195,866. FASTENINGS FOR BOX-COVERS, &c. William L. Winne, Albany, N. Y. Filed Apr. 18, 1877.



The fastening device herein described, consisting of a metallic rod bent at *a*, B, and C, and provided with the two points D, as and for the purpose herein specified.

195,867. ATTACHING LEGS TO CHAIRS. E. B. Witherell, Medford, Mass. Filed Feb. 24, 1877.

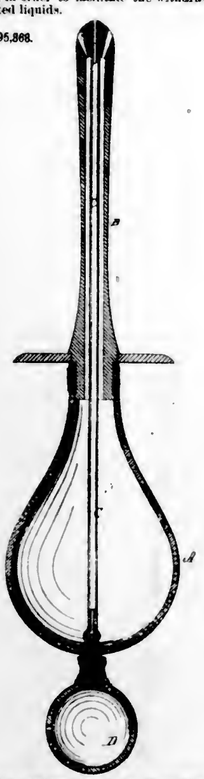


The leg B, having the reduced top C, upon which is permanently fitted the socket D, having the plate or flange E, provided with screw-holes, when used in combination with the frame A of a chair, all constructed and operating as and for the purpose set forth.

195,868. VAGINAL SYRINGES. Robert H. Woodward, New York, N. Y. Filed Mar. 29, 1877.

Brief.—An air-tube admits air to the vagina through the interior of the ejection-tube of the syringe, in order to facilitate the withdrawal of injected liquids.

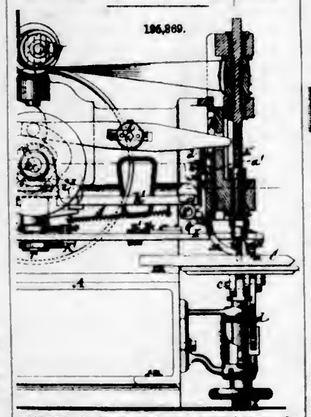
195,868.



1. The combination of an air-conducting tube with the tube B and the compressible bulb of a vaginal syringe, substantially as and for the purpose specified.

2. The combination of the drip-bulb D with the air-tube C, bulb A, and vaginal tube B, substantially as and for the purpose specified.

195,869.



195,869. MACHINES FOR BORING HEUER-BLOCKS. O. D. Woodbury and E. O. Woodbury, New York, N. Y. Filed May 1, 1877.

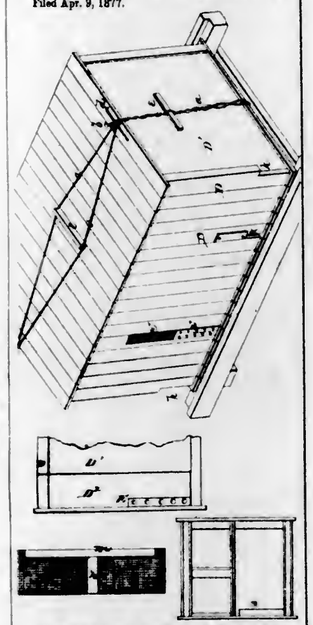
Brief.—The centering device has a point, which drops into a slight perforation in the block, and draws it under the drill. A presser-foot then holds the block down, the centerer meanwhile retiring, and the drill falls into the perforation just vacated by the centerer.

1. The combination of the work-centerer H, having a centering-point, *m*, the bar I, by which said centerer is reciprocated, the drill-stock E, means for lifting, lowering, and rotating said stock with its attached drill, the presser-foot M, and means for lifting said presser-foot after the drill has performed its work, the whole being organized for operation of said centerer, said drill, and said presser-foot in relation with each other and with the table B, substantially as specified.

2. The centerer H, with its attached bar I, having reverse automatic motions at intervals in direction of the length of said bar, and hung so as to be capable of universal adjustment, in combination with the male and female centering devices *u u'*, and the drill-stock E, carrying a drill, *i*, essentially as described.

3. The combination of the presser-foot M, the fixed guide N, the independent and intermittingly operated lifting-bar Q, having a shoulder, *a'*, the head *b'* of the presser-foot, the spring *c'*, and means for raising and tripping said lifting-bar, substantially as shown and described, and for the purposes herein set forth.

195,870. BEE-HIVES. Allen T. Wright, Kokomo, Ind. Filed Apr. 9, 1877.



1. The frame D, provided with the board D', and having the entrances *k* at its sides, substantially as and for the purposes herein set forth.

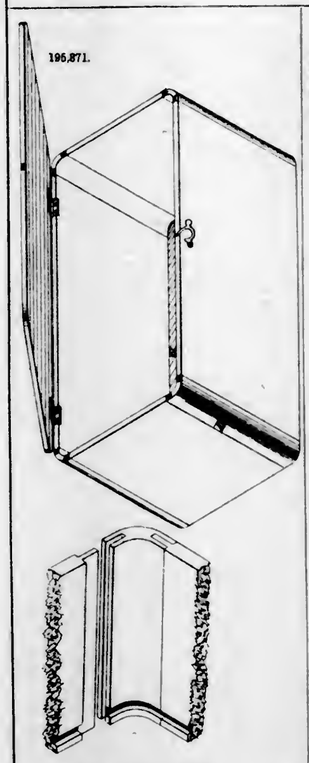
2. The screen E, with bar *m* and prop *n*, in combination with the frame D and board D', substantially as and for the purposes herein set forth.

196,871. WOODEN BOXES. Ferdinand Zuemkeler, Cincinnati, Ohio. Filed Sept. 13, 1877.

Brief.—The side and end pieces of the box are provided with tongues at each end, which fit in corresponding grooves formed in the corner-pieces. The bottom is rabbeted, and secured in a groove formed in the lower part of the side, end, and corner pieces.

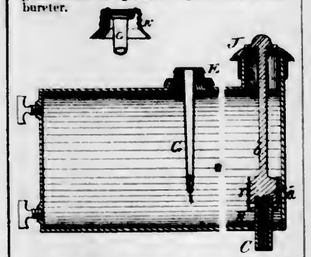
As a new article of manufacture, the box having the side and end pieces A tongued at their ends, and correspondingly-grooved corner-pieces D, both having croze E, for the reception of the rabbeted bottom G.

196,871.



196,872. OIL-RESERVOIRS FOR BURNERS OR CARBURETERS. Venedo P. Harris, Greensburg, Ind. Filed Aug. 16, 1877.

Brief.—Glass index-tube, with very small passages at upper and lower end, is withdrawn with the inlet-cap. Oil remains in it long enough to denote height of oil in the tank and grade of oil being fed to vapor-burner or carburetor.



1. The glass index-tube G, loosely attached to the cap E, for the purposes herein set forth.

2. In an oil-reservoir, the combination of the outlet-tube C, with its inner end extending above the bottom of the reservoir, the perforated cover I, provided with central stopper *a*, the strainer H, connected to said cover, the rod *b*, and cap or screw J, all substantially as and for the purposes herein set forth.

196,873. FEATHER DUSTERS. John W. Little, Muncie, Ind., assignor to Cornelia Little, same place. Filed May 29, 1877.

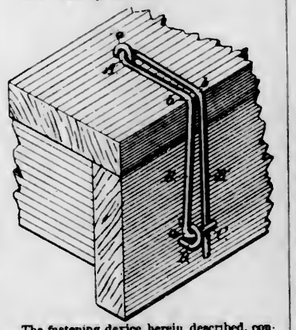
1. Feathers having their stems cut or notched, for the purposes herein set forth.

2. As a new article of manufacture, a duster composed of feathers having their stems cut or notched, substantially as herein set forth.

195,873.

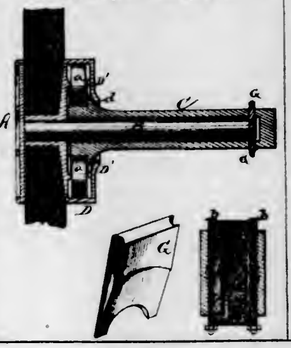


196,874. BOX-FASTENERS. William L. Winne, Albany, N. Y. Filed Apr. 28, 1877.



The fastening device herein described, consisting of a metallic bar bent to form the limbs B B', extending to the staple D, one or both of which are provided with a hook, C, in combination with the staple D, as and for the purpose herein specified.

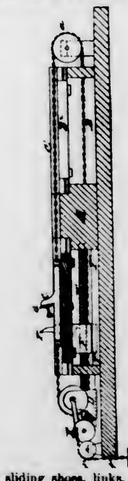
196,875. VEHICLE-WHEELS. Walter J. Drew, Grand Rapids, Mich., assignor of one-half his right to Wm. M. Robinson, same place. Filed Sept. 5, 1877.



A wheel-hub, A, provided with a hollow rim, D, having a sand-band, D', in combination with the axle B, friction-wheels *a*, stationary chair or box C, and keys G, all constructed substantially as and for the purposes herein set forth.

REISSUES.

7,898. APPARATUS FOR CARRYING RAILROAD-RAILS. Andw. J. Curtis, St. Albans, Vt. Patent No. 190,211, dated May 1, 1877. Filed July 12, 1877.



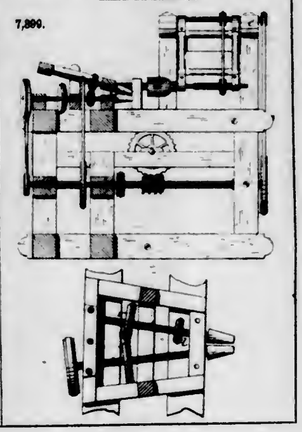
1. The sliding shoes, links, or carriers C, provided with projecting catches, in combination with the guide-rails B', the bed A, and suitable carrying and actuating devices, arranged substantially as described, whereby the upper surfaces of the shoes are located at or below the level of the bed, as and for the purpose set forth.

2. The shoes, links, or carriers C, having their upper surfaces arranged at or below the level of the bed, and provided with projecting catches, in combination with the bed, the driving-chains, and the guide-rails B', substantially as and for the purpose described.

3. The combination, with an endless chain, B, subject to expansion by hot rails, of a pulley, *b*, arranged in a slide-bearing, D, held by a movable weight, as shown and described.

4. The combination of the guides F with the screws, dogs, and latches for carrying the rails *en masse*, and operated substantially in the manner described.

7,899.



7,899. MACHINES FOR POUNCING HATS. National Hat Pouncing Machine Company, New York, N. Y., assignee, by mesne assignments, of Sidney S. Wheeler and Dual B. Manley. Patent No. 97,232, dated Aug. 14, 1866. Filed Aug. 1, 1877.

1. The combination, with a hat-block and gearing for driving it at a low speed, of a pouncing cylinder or its equivalent, and gearing for driving it at a high speed, substantially as described.

2. The combination of a rotating cutting cylinder or wheel for pouncing hats with a vibrating frame, substantially as described, whereby said cutting cylinder or wheel can be made to operate both on the crown and side of a hat-body, substantially as set forth.

3. The combination, with pouncing mechanism, of a rotating hat-block, which is also capable of movement in the line of its axis, substantially as described.

4. The combination, with a rotating hat-block which has also a movement in the line of its axis, of a rapidly-revolving pouncing-cutter which has also a movement in the line of its axis, substantially as described.

5. The combination of a slowly-revolving hat-block, a carriage for supporting the block and moving it in the line of its axis, a worm-gear, cog-wheel, and rack for moving the carriage forward, mechanism for disconnecting the gearing, and a spring for moving the carriage backward, substantially as described.

6. The combination, with feeding mechanism for slowly rotating a hat-body, of a rapidly-operated pouncing surface and a support for the hat-body, substantially as described.

7. The combination, with feeding mechanism for slowly rotating a hat-body, of a rapidly-operated pouncing-surface and a support for the hat body, the said pouncing-surface and support being separable for the insertion of the hat-body, substantially as described.

8. The combination, with a rapidly rotating pouncing-roller, of a slowly rotating roller for supporting the hat, substantially as described.

9. The combination of a conical rotating pouncing-surface and a conical supporting-surface, to hold the brim of a hat to the cutting surface, substantially as described.

10. The combination, with a rotary cutting-surface for pouncing the brims of hat-bodies, of rolls for feeding a brim to the cutting or pouncing surface, substantially as described.

7,900. PROCESSES FOR ENAMELING IRON-WARE. Eben C. Quinby and Joseph C. Whiting, St. Louis, Mo., assignors of one-half their right to Wm. W. Ater and J. J. Sylvester, same place. Patent No. 193,422, dated July 24, 1877. Filed Sept. 17, 1877.

1. The enamel glaze or crystal composed of silica, borax, soda, plaster-of-paris, and arsenious acid, substantially as and for the purposes set forth.

2. The combination, with the enamel glaze or crystal composed of silica, borax, soda, plaster of paris, and arsenious acid, of clay, substantially as and for the purpose set forth.

3. The combination of carbonate of magnesia with the enamel coat, composed of silica, borax, soda, plaster-of-paris, and arsenious acid, and clay, substantially as and for the purposes set forth.

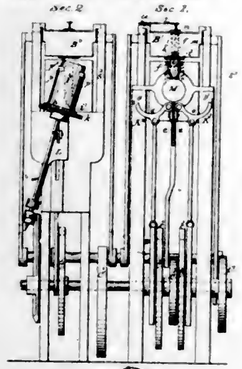
4. Sulphate of magnesia in the process of enameling sheet-iron ware, for the purpose of keeping the enamel glaze or coating in proper condition for dipping, substantially as set forth.

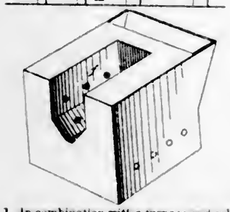
5. Arsenious acid in the process of enameling sheet-iron ware, for the purpose of causing a more tenacious adherence of the enamel to the iron, in the proportions substantially as set forth.

6. In the process of manufacturing sheet-iron mottled enameled ware, developing the mottles by heat and moisture in the presence of a soluble salt or salts incoporated in the enamel coating, as described, from the iron salt or salts produced on the surface of the metal during the cleaning process, substantially as set forth.

7. The process of enameling sheet iron ware, consisting of the making of an enamel glaze or crystal by the complete vitrification of silica, borax, soda, plaster-of-paris, and arsenious acid; the running of the same when so vitrified into water; the grinding of the same in water, with admixture of clay and calcined carbonate of magnesia; the straining and ripening of the resulting mixture; the treatment of the same with sulphate of magnesia, either in the mixing pan or the mill, or in both; the coating with the same, when thus treated, of the annealed and cleaned sheet or wrought iron surface; the drying of the coated article; and the burning in the muffle, all substantially as set forth.

7,901. SOLDERING-MACHINES. Peter Dillon and John Cleary, Sherbrooke, Quebec, Canada, assignors of one-third interest to G. H. Bradford. Patent No. 186,813, dated Jan. 30, 1877. Filed June 23, 1877.





1. In combination with a furnace and soldering bath, B^1, the vertically-placed soldering-bolt I^1, having an intermittent reciprocating movement, together with the bath, in a horizontal direction, and consisting of centrally-perforated copper point i^2, the connected tube i, and the valve o, with arm l and the lug a, substantially as shown and described, for the purpose specified.

2. The combination of the rising and falling and intermittently-rotated holder h, set at an inclination, as described, the traveling bath B^1, and the hollow bevel-pointed soldering-tube I^1, substantially as shown and described.

3. In combination with the soldering apparatus B^1 I^1, the sliding mold M, dog e e, and clips K^4 K^5, with their operating mechanism, substantially as and for the purpose specified.

4. The reciprocating bath B^1, having within it a hollow soldering-bolt, I^1, intermittently opened and closed, by which reciprocating movement of the bath longitudinal seams have the solder deposited along them and smoothed by the bolt on its return.

5. The combination of the reciprocating bath B^1 and attached soldering-iron with a stationary furnace, whereby the bath and iron are heated at each return to the furnace.

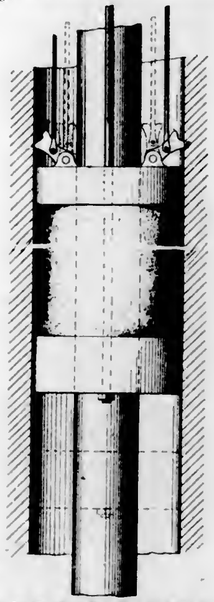
6. A hollow soldering bolt having a beveled end, in combination with the correspondingly-beveled clips K^4 K^5, substantially as and for the purpose described.

7. The combination of the stop a, lever l, valve o, and chamber m, substantially as and for the purpose described.

8. The combination of the friction beveled sector Q, friction-pulley x on the spindle w, and the cam C^4, connecting rod R^6, and levers b and d, whereby the table is elevated and depressed and a rotary motion given to it, substantially as and for the purpose set forth.

7,902. PACKING FOR OIL-WELLS. J. R. Cross, Cleveland, Ohio, assignor to Henry H. Doubleday, Washington, D. C. Patent No. 50,910, dated Nov. 14, 1865. Filed Sept. 17, 1877.

Brief.—The dogs engage with the wall of the well, and support the upper flange against the upward pressure required to compress the packing.



1. In an oil-well packer, locking dogs or spurs adapted to engage with the wall of the well, and sustain the pressure employed to force the packing material against the wall.

2. In an oil-well packer, the combination, with dogs which engage with the wall of the well, of devices, substantially as described, whereby said dogs may be withdrawn from close contact with the wall when it is desired to move the packer upward in the well.

3. In an oil-well packer, locking dogs or spurs provided with sharp edges or teeth, adapted to enter or engage with the wall of the well, and resist the pressure employed to press the packing material against the sides of the well.

THE GRAPHIC CO N.Y.

AN ACCOUNT

OF THE DESTRUCTION BY FIRE

OF THE

NORTH AND WEST HALLS

OF THE MODEL ROOM IN THE

United States Patent Office Building,

ON THE 24TH OF SEPTEMBER, 1877;

WITH

A BRIEF HISTORY OF THE PATENT OFFICE

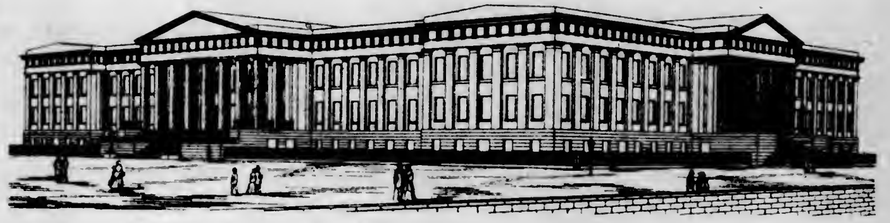
FROM 1790 TO 1877.

(ILLUSTRATED.)

WASHINGTON, D. C.;

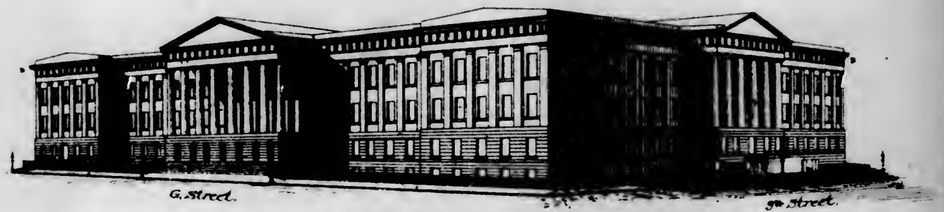
OCTOBER 24, 1877.

PERSPECTIVE VIEWS U. S. PATENT OFFICE BUILDING, 1877.



F. Street. 7th Street.

South East Angle of U.S. Patent Office Building.



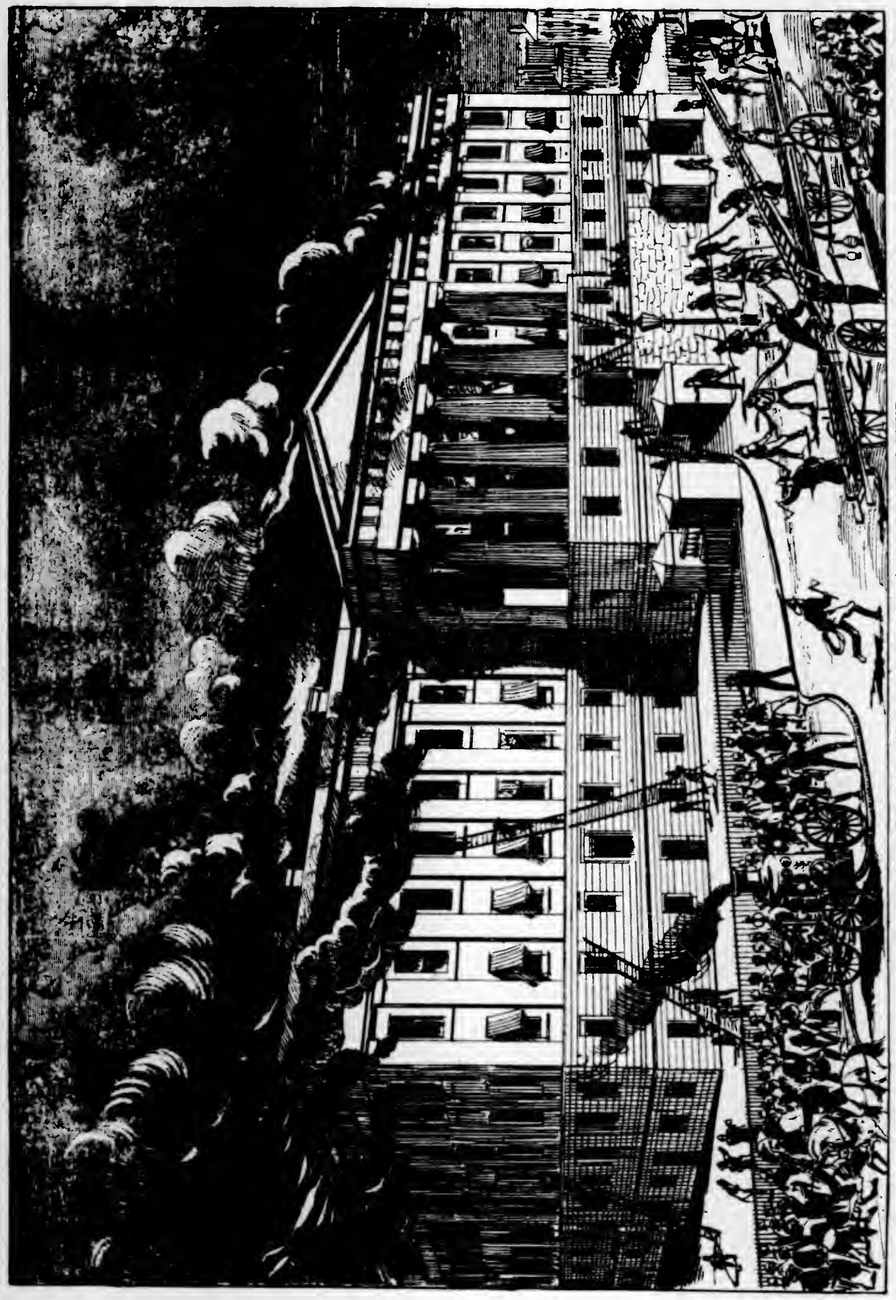
G. Street. 9th Street.

North West Angle of U.S. Patent Office Building.

* The upper portion of these wings entirely destroyed by fire Sep. 24th 1877.

Secretary of the Interior: C. Schurz
Assistant Secretary of the Int. Dept.: A. J. Bell.
Chf. Clerk of the Int. Dept.: Geo. M. Lockwood
Commissioner of Patents: Ellis Spear
Assistant Com'r: [illegible]
Chf. Clk. Patent Office: [illegible]
Commissioner of the Land Office: [illegible]
Chf. Clk. [illegible] U. J. Baxter
Commissioner of Indian Affairs: [illegible]
Chf. Clk. [illegible]

H. Peters Photo-Lithographer, Washington D.C.



GENERAL VIEW OF THE FIRE IN THE NINTH STREET END OF THE PATENT OFFICE.

AN ACCOUNT

OF

THE DESTRUCTION BY FIRE

OF

THE NORTH AND WEST HALLS

OF

THE MODEL ROOM

IN THE

UNITED STATES PATENT OFFICE BUILDING,

ON

THE 24TH OF SEPTEMBER, 1877,

TOGETHER WITH A

HISTORY OF THE PATENT OFFICE

From 1790 to 1877.

[ILLUSTRATED.]

WASHINGTON, D. C.,
OCTOBER 23, 1877.



VIEW OF THE U. S. PATENT OFFICE BUILDING,

FROM CORNER OF NINTH AND G STREETS,

Showing portions Destroyed by Fire, September 24, 1877.

Heliotype Printing Company. *220 Devonshire Street, Boston.*

AN AUTHENTIC ACCOUNT

OF THE

FIRE OF SEPTEMBER 24, 1877,

WHICH DESTROYED THE

NORTH AND WEST HALLS

OF THE

UNITED STATES PATENT OFFICE BUILDING;

Also, some Historical Data in Reference to the Organization and Early History of the Patent Office, &c.

THE FIRE.

Washington, with singular good fortune, has almost wholly escaped the terrible scourge of great and destructive fires which has so often visited other large towns and cities. Her wide streets and the absence of great business blocks and large manufacturing establishments will in part account for this marked feature of her history as a city. It is here, however, where the priceless archives of the Government are stored, that fire can do the most lasting and irreparable damage. There was a popular faith that whatever might be the security offered to the records of the Government elsewhere, the important and valuable archives of the Department of the Interior were sheltered in a building nearly, if not wholly, fire-proof. Here were the records of the Land Office, Bureau of Indian Affairs, and others of the many distinct bureaus connected with this Department. Here, too, were the records, original drawings, and models of the Patent Office, forming a collection of inestimable value and world-wide fame.

Shortly after eleven o'clock on Monday, the 24th of September, an alarm of fire was sounded. It was soon followed by the general alarm. But little attention was given to it by the people until the rumor flew through the city that the Patent Office was on fire. Columns of smoke were seen issuing from its roof, and a shower of flying cinders gave evidence that a serious fire had begun its work. It seemed almost incredible, however, that it could do much damage to the beautiful building upon which it had fastened itself. Yet the fact that so important a Government edifice was on fire created great excitement. The fire-engines and the crowd were on the ground at about the same time, and to the people in the streets the scene was as unexpected as it was sad and appalling. So great was the faith of the officers, clerks, and other employés of the Department, however, in the security of the building against fire, that for some time the alarm did not create very great apprehension as to the safety of the building or its valuable contents.

To understand how the upper portion of this so-called fire-proof structure, with the most valuable and interesting part of its contents, could so easily become a prey to the flames, and also for the sake of giving a concise and connected account of the disaster, we will first describe the construction of that part of the building where the fire originated, and from which it spread.

CONSTRUCTION OF THE ROOF.

"The roof was what is commonly known as a 'truss-roof.' The tie-rods, rafters, braces, and struts were of iron. The purlines, trusses, sheathing, and ceiling were constructed of pine wood. The pine sheathing of the roof was covered with sheet copper about one-fortieth of an inch in thickness. The chimney-tops were of iron, set over the flues upon the brick wall, about twelve inches below the roof, and they extended above the roof about two and a half feet. Over the gutters, running around the entire wing, was placed a pine grating, to keep them from clogging up in the winter and to protect them from the heat of the sun in the summer. This grating was made of inch boards, fastened together by cross-pieces of 2 by 3 inch scantling, and it was constructed in sections four feet in width by ten feet in length."

THE CONSERVATORY AND REJECTED MODELS.

Under the south end of the roof on the Ninth-street or west wing was located a conservatory, or hot-house, used for the purpose of preserving plants in the winter. The walls of this room were made of ⅛-inch boards, tongued and grooved; the floor was made of planks, resting on the ceiling of the model-room, and was covered with zinc, and the roof of the room was of glass. Wooden shelves were arranged for the accommodation of the plants, and just outside there was a small tank, from which necessary water was obtained. The only door leading into the conservatory was on the east side of the roof. Just north of the conservatory was a space occupied by the rejected models and exhibits. In this space, extending from the conservatory to the G-street or north wing, were stored about 12,000 rejected models. The law permits the Commissioner of Patents to sell these models after they have been two years in the Office, or to loan them to colleges or other literary and scientific institutions, or to return them to applicants. About four years ago a distribution of them was made, a few only of the most important ones being retained.

THE INFLAMMABLE LOFT.

Those which were in this space at the time of the fire, were the accumulations of the past four years, and were awaiting the disposition which the Commissioner of Patents had in contemplation. The staging and shelving of this loft, as well as the conservatory and its surroundings, were of very inflammable material. It

is stated by the contractor that more than 100,000 feet of white-pine lumber was used in the construction of the roof of the west wing, exclusive of the immense amount of the same material that had found its way into this part of the building in making room for the growing demands of the Office for space. The ceiling of the model-room was also liable to speedy destruction by fire. Instead of iron and brick forming the framework above this valuable repository, wooden timbers, with an occasional iron brace, were used, and they were covered with ordinary lath and plaster.

THE MODEL-ROOM AND ITS CONTENTS.

The model-room comprised the whole of the third story, immediately under the inflammable roof we have described, and consisted of four grand halls, opening into each other, and affording a promenade of about one-fourth of a mile around the four sides of a quadrangle.

These magnificent halls were fitted up with tiers of cases, the room being sufficiently high for two tiers, one above the other. Each case was eight feet in height by from sixteen to twenty feet in length. They were made of white pine, with glass sides and ends. They were so placed that there was sufficient room around each case to make them easy of access both to the casual visitor and to inventors and examiners. The cases could be opened and their contents inspected at any time in the immediate presence of an employé of the Patent Office. This great gallery was visited yearly by thousands of people, both for profit and pleasure. It contained about 200,000 models of American invention, besides many curiosities and mementoes, specimens of home manufacture, and priceless treasures of deep historic interest. Among them were Washington's commission as commander-in-chief of the American forces, his uniform, camp-chest, and other personal effects; the coat which General Jackson wore at the battle of New Orleans, the printing-press first used by Benjamin Franklin, and many other interesting relics and trophies, all of which relics were saved.

THE NATIONAL GALLERY.

The act of July 4, 1836, authorized the creation of this national gallery, and in these early days its future usefulness was recognized and every effort made to induce an exhibit of the manufacturing industries of the country therein. It is doubtful, however, whether its most enthusiastic advocate ever anticipated the extent and diversity of its future contents.

We have here, then, a roof, a loft, and four great halls filled with material as inflammable as it was valuable, all arranged as if to provide for the spread of fire, and no provision for flooding the floors, or to enenable firemen to successfully fight the flames.

ORIGIN OF THE FIRE.

How the fire originated will probably never be known with absolute certainty. A committee appointed by the Secretary of the Interior reached the conclusion that it caught in the wooden grating before referred to on the roof from a spark from the chimney, and burned through the copper sheathing, thus igniting the wooden portion of the roof underneath. Another theory is that the fire originated in the rejected model-room, from a defective flue immediately over the southeast corner of the Ninth-street portico, and near the conservatory, from the skylight of which smoke seemed to issue with the greatest force and volume when the fire was first discovered. When some of the employés of the building first reached the roof, a portion of the wooden grating we have mentioned was discovered to be on fire, while dense clouds of smoke were issuing from the skylights along nearly the entire length of the roof.

A DELAY IN GETTING WATER.

One of the first persons to reach the scene reports that the copper covering was so hot that the heat was perceptible through heavy shoe-soles. How long the fire was smouldering before it gained headway no one can tell. There was some delay in getting water to the fire as the firemen were obliged to carry their hose up two stairways and through some five hundred feet of corridors before a stream could be thrown. No access could be obtained to the loft where the rejected models were stored, save by a narrow and crooked stairway, and the tank of water which stood outside the south end of the attic could not be reached because of the rapidity with which the flames spread. To add to the difficulties under which the firemen labored, the fire was some eighty feet above the street, and twenty feet above the highest rise of Potomac water, so that the pressure from the hydrants was of no avail. About twenty minutes after the discovery of the fire the first stream of water was thrown on it, but by that time an acre of flame was sweeping over the entire west wing, bursting through the windows and portions of the roof with a fierceness that threatened the destruction of the entire building.

AID FROM ALEXANDRIA AND BALTIMORE.

For a time the exertions of the firemen seemed of no avail, and within the first half hour so serious was the danger that help was telegraphed for. The Alexandria engine was speedily on the ground and went to work at once. With the most generous promptness Baltimore responded with four engines, which came by rail with remarkable speed, and rendered the most efficient and timely aid in this and another fire.

FIGHTING THE FLAMES.

Lines of hose were run up the sides of the building and over the roof. Holes were cut, and floods of water poured into the upper stories. Men in the corridors worked hard to remove the records to places of safety, and firemen, perched on ladders outside, steadily fought the fire in the model-room halls on the west and north sides of the building. The Department and Bureau officers were everywhere present, and took the best measures to save the archives and public property from damage, and stay the flames. At about one o'clock orders were given to remove the books and papers from some of the more exposed offices. The Draftsmen's Division, containing the vital records of the Patent Office was in eminent danger, for it is situated directly under a portion of the west wing of the model-room, and two ventilators ran from it directly up to the burning portion of the building. Down these ventilators soon came a shower of live coals and molten metal, making it a difficult and dangerous task to remove the records. An employé stopped one of the apertures

with a coal-scuttle, and another held a water-cooler over the other, while willing hands labored to save this priceless property. In this division were 777 folios, containing 211,243 original drawings, whose value could not be estimated in money. These were all removed and replaced without the loss of a single drawing. The work of removing the records and office-furniture from all the exposed portions of the building went on with vigor, and at the same time every effort was made to save the models in the halls of the west and north wings, but without avail, and they were nearly all destroyed. By the time it was known that they were in serious danger the whole of the west hall was enveloped in fire.

THRILLING SCENES.

The scene when the fire was at its height was intensely exciting. The corridors were crowded with men working desperately to save property. Books, papers, office-furniture, and models lined the halls of the lower floors. The smoke, the long black lines of hose running up the stairways, and the streams of water that came pouring back, all added to the novelty of the occasion within, while the cordon of smoking, throbbing engines, the armed guards, the roped streets, and patrols of mounted police framed in by the background of a dense crowd of excited people of every class, all combined to form a picture that will not soon be forgotten. Just after the fire began a brisk breeze from the south sprang up, and, while it drove the flames irresistibly along the west hall, it kept them from the south hall, which contained the most valuable collection of objects of historic interest in our country.

THE CRISIS OF THE FIRE.

Between half past twelve and one o'clock the breeze increased in force and drove the fire around under the roof and through the model-rooms on the corner of Ninth and G streets; and about one o'clock it seemed to spring in one moment through the roof from Ninth to Eighth street, a whole block in length. This was the crisis of the fire. The roofs of the buildings along Ninth and G streets were covered with men wetting the fronts or tearing down awnings over windows and doorways. The flames leaped and curled far over G street, forcing even the hardiest of the firemen to leave the windows and doorways along this front. The intense heat created something like a panic among the people, and they rushed up Ninth and Eighth streets, and along G, toward Seventh, in confused crowds, while the horses were hurriedly hitched to the engine stationed at Eighth street and it slowly retreated up that street to a new position. But the breeze soon moderated, the flaming roof fell in, and thus the great danger that the fire would extend across the street was safely passed.

THE FLAMES STAYED.

At two o'clock the efforts of the firemen began to tell, and soon after it was plain that the destruction would be stayed at the eastern end of the north hall. As soon as this fact was apparent, the clerks, who had been busy in saving the contents of their offices, began at once to replace them, and all night long the faithful employés continued their efforts to repair as far as possible the damage which had been done. The detachments of regular soldiers and marines, as also of the city militia, which were on the ground early in the day and on guard at the various entrances to the building, remained all night, and rendered valuable aid in restoring order and protecting property.

SCENES OUTSIDE THE BUILDING.

During the night the scene outside the building was strange and dramatic. The large crowds had become tired of looking on and had gone to their homes. The splashed and begrimed engines were still in position. Pools of water stood in the gutters and hollows of the pavement around them. Piles of coal and wood were placed near the fire-boxes, and heaps of ashes and cinders bore witness of the energy of their fight with the flames. On each front of the building one or more engines was still at work, sending streams of water over the walls and along the uninjured part of the roof to the still smoldering embers of the burned model-rooms, and their hum was the only sound that broke the deep stillness of the night. Smoke and oil stained firemen stood around the working engines, near which groups of curious people still lingered to watch the tireless energy of these marvelous machines. The sentinel paced his round, and hasty messengers passed in and out at the various entrances, and the bright moon shone over the roofless walls and through the blackened window-spaces, producing an effect like that of looking on some ruin from a distant land that had been quickly and strangely transferred into the midst of this quiet city.

INSIDE THE BUILDING AT NIGHT.

Inside the building, the scenes were weird in the extreme. Lines of tallow-dips, the yellow flames of which flared and swayed as each passing person disturbed the stillness of the air, gave gloomy and fitful light to the long corridors. Workingmen stood ankle-deep in water, sweeping it along toward the stairways, down which it poured in torrents. Water dripped and splashed from the ceilings in the offices, in which books, desks, and other fixtures had been piled in dry places, while every device that ingenuity could suggest was used to gather and conduct the downfall of water out into the corridors. Men with candles hurried about, jostling each other as they splashed through the flooded halls, each intent on his own particular duty. In that part of the building which was uninjured, and in the great entrance-hall on F street, clerks were sorting out books and papers for which they were most responsible, and arranging so as to insure greater safety, while the Secretary and his immediate chiefs, as also the heads of bureaus and divisions, gave general oversight to the whole. Scenes without number, during both night and day, thrilling, amusing, and ludicrous, were constantly occurring to give spice to the vexations that were the necessary consequence of the serious occasion. Toward morning the Secretary and the other officers snatched a little badly-needed repose on the sofas in the rooms in the undisturbed portions of the building, while the clerks, equally tired out, pushed themselves into obscure corners and upon desks, for a few moments sleep. The day dawned on this curious condition of one of the most important of the Departments of the Government; one to which each morning brings the greatest bustle of business

activity, and which deals in a business way with a greater number of the people of this nation than any of the others.

With early morning came crowds of people, drawn together by motives as various as were the types they represented. In the area around the southwest corner of the building people of both sexes and all ages and colors swarmed over the piles of scorched and drenched papers and lithographic copies of drawings which had been thrown out during the night. Numbers of people gathered upon and about the Seventh and F street entrances, seeking admission in order that they might see for themselves the extent of the destruction that had taken place, and their persistence severely taxed the patience of the already overworked officials. In the destroyed model-rooms people could be seen, each one of whom searched with unwearied patience among the piles of *débris* that were yet hot for bits of the destroyed models, or some other object which would serve as a *souvenir* of the fire

Hundreds of men gathered on the walks and in the streets near the two principal entrances "waiting for work!" They hoped and expected that laborers would be needed to remove the *débris* and to assist in making a temporary roof. The eagerness with which they watched every one who went in or came out, and the patience with which they waited long after word had been given out that no more could be employed, told the story of their need.

THE MORNING'S GLOOMY VIEW.

In the morning, the appearance of the interior of the building was most gloomy. The flood of water had no way of escape save by the corridors and stairways, and it ran down these avenues in streams. It had soaked through the thick brick arches composing the ceiling of the second story, and had flooded the offices of the west and north wings on that floor. The rooms occupied by the Commissioner, Assistant Commissioner, Chief Clerk, and other prominent officials of the Patent Office on this floor, suffered severely, as did the Interior Department library-rooms. Desks, books, files, carpets, and all the thousand and one things that go to make up office-fixtures, were piled in the corridors of the uninjured portion of the building. But the same energy that was displayed in moving them out during the excitement the day before soon brought order out of the seeming chaos, and it may be said that the general business of the Department was scarcely interrupted.

THE LOSS.

With returning order came time to sum up the losses of the preceding day. It was found that the Patent Office was almost the only sufferer, aside from the damage to the building. The roof and the model-rooms and contents on the west and north sides were completely destroyed. In these two halls were 87,000 models. Among them were several thousand known as "pending" and "issue" cases. The former are those cases in which the applications are still pending in the examiners' rooms, and the latter belong to that class of cases allowed by the examiners, and still awaiting the payment of the final fees. The loss of these falls on the inventors. The loss of rejected models is not serious. These models, in all cases where they were required, have been returned to the parties furnishing them. Some, which were of use as illustrating mechanics or applied science, have been, from time to time, loaned to schools and seminaries, to be returned if called for. Most of those in the Ninth-street loft, about 12,000 in number, were practically valueless, and were kept only because of the possible injustice that might result if they were disposed of without notice to the applicants. Such notice would involve more clerical labor than the force in the Office could perform. The propriety of breaking them up and selling them for old metal had recently been seriously discussed. Such disposition of them is authorized under section 485, Revised Statutes.

PHOTO-LITHOGRAPHIC COPIES.

The loss by fire and water of photo-lithographic copies of drawings, it is estimated will amount to 40,000 sets, of 150 copies each, or about 600,000 copies in all. This material is to be classed as "stock in hand," and not as "original records." The drawings were copies only, and they can be replaced at an estimated expense of $60,000. Thirty patented drawings, in the class of wood-working machinery, which were in the hands of tracers in the model-rooms, were lost, as were also the models. Many of them can be restored in time from the specifications attached to the original letters-patent, but it will be attended with difficulty, and the exercise of great care and judgment in the designations of figures. Three original patented drawings of different classes of inventions, which were being traced in the model-room to fill orders from attorneys, were destroyed. Two of these, having been traced some three months back for photo-lithographic reproduction, were at once restored by being mounted upon card-board. The remaining drawing can be restored from the model. There were also some ten drawings, specifications, and models destroyed of incomplete applications, they being in the hands of model draftsmen in the west hall of model-room who were engaged in making drawings therefrom to fill orders. The applicants can be notified of the loss, and requested to furnish new models and specifications, upon receipt of which the Office will resume the work of completing the drawings. Eleven volumes of English patented drawings are missing. Nine of them were known to be in the model-room, and were undoubtedly destroyed. Duplicates have already been ordered from England. Many other minor losses occurred which would require too much space to mention. The total loss cannot be estimated in dollars and cents.

DESERVED COMMENDATION.

No more fitting commendation of the conduct of the various employés, during this most exciting and harassing period, can be made than by quoting from the report of the Commissioner of Patents to the Secretary of the Interior, which high praise has been embodied in a message of the President to both houses of Congress. He says:

"The coolness and energy displayed by Mr. Gardner, principal draftsman, in the management of his force, and care of invaluable records in his charge, merit special commendation. In his division, where no one was allowed to enter except employés of the Office, all the drawings were removed in their portfolios, as well as all files of rejected applications, and were subsequently restored to their places without loss.

"In fact, the only losses hitherto discovered of books and papers, save by fire, appear to have arisen from the intrusion of unauthorized persons who threw them from the windows or otherwise removed them in apparent wantonness.

"Indeed I cannot speak too highly of the conduct of the officers, clerks, and other employés of this bureau during this most trying emergency. They have made the interests of the Office their own, and by night and day, through fire and flood, have been, with few exceptions, faithful and untiring in their efforts to preserve public property and restore order. From their persistent fidelity it has resulted that through a succession of unlooked-for disasters there has been no delay or disturbance of the business of the Office, except what was occasioned by the absolute want of room in which the work could be done."

THE PATENT OFFICE BUILDING.

When the building was first contemplated, it was the design of the Government that it should be occupied exclusively by the Patent Office, and the funds earned by that Office were appropriated for its creation. The act of July 4, 1836, provided that "the President of the United States cause to be erected on some appropriate site a fire-proof building, with suitable accommodations for the Patent Office," and appropriated $108,000 out of the patent-fund for that purpose. The foundation was laid in the fall of 1836, and is the present building facing F street, minus the Ninth and Seventh street wings. It is 270 feet in length, and 69 feet deep. Both fronts were to be faced with split granite, laid in regular courses, with dressed joints. The body of the building was built of Virginia sandstone and was afterwards painted white. It was the intention of the architects that the grand portico on F, facing Eighth street, should be of magnificent proportions, and a correspondent, speaking of its erection, said that "the proportions were exactly those of the Parthenon at Athens, and that its construction would involve a large portion of the whole expense of the building." This wing or main building was completed and occupied by the Patent Office in the spring of 1840, and cost $422,011.65.

PROUD OF THE NEW STRUCTURE.

The Commissioner of Patents, in his annual report for 1840, speaks of the new building as follows: "The Patent Office building is sufficient for the wants of the Patent Office for many years, but will not allow accommodation for other objects than those contemplated in its erection." But he suggests "that the present edifice admits of such an enlargement as may contribute to its ornament, and furnish all necessary accommodation for the National Institute, and also convenient halls for lectures, should they be needed in the future disposition of the Smithsonian legacy." * * * "The National Gallery is ready for the exhibition of models and specimens, and cases are being prepared to preserve the same against injury or loss by exposure. I am happy to say that the mechanics and manufacturers are improving the opportunity to present the choicest contributions, and from the encouragement given, no doubt is entertained that the hall, considered by some so spacious, will in a short time be entirely filled; presenting a display of national skill and ingenuity, not surpassed by any similar exhibition in the world."

WHO BUILT AND OWNED IT.

This was the feeling which the organization of the Patent Office model-room inspired, not only in the officials of the Office, but in the great masses of the people interested in the arts it created and fostered. It is almost amusing to remember that this glowing description of the place was written when the model-room only occupied at the most about one-fifth of the space required for the recent collection. In these early days, crude as the appliances then were, there is no question but that this building and its gallery were looked upon with great pride, not only by the officials having charge of it, but by the people all over the land having business with it or interested in adding to its construction and adornment.

No less then than now, this building was looked upon as the special property of the inventors of the country. The profits which they added to the income of the Office laid the foundation for it, and, with a just and reasonable pride from that day until this, they have piled up their contributions of both money and material for its support. And who would say that their pride in it was not just and reasonable? And instead of abating with the progress of the age it is on the increase, and it is not too much to say that, if an emergency demanded, the inventive skill of the country would from its own private purse provide the means to repair the damage that has been done, and then go on adding improvements to its construction until it becomes what it was intended to be, a grand temple, a fit monument to the skill, industry, and liberality of the American artisan.

THE BUSINESS DEMANDS MORE ROOM.

Notwithstanding the statement of the Commissioner of Patents in 1840, "that the present building would be ample for the needs of the Patent Office for a long time to come," so rapid was its growth that the same Commissioner, in his report of 1844, says, "The models of patented inventions are crowding so much as to prevent classification. * * There seems to be no alternative but to extend the building," and in each succeeding year thereafter, until 1849, the Commissioner, each year, took occasion to call attention to the necessity for an enlargment of the building, and on the 3d of March of that year, Congress appropriated $50,000 out of the patent fund to begin the east wing, the one fronting on Seventh street. It was completed and occupied in 1852, and cost $600,000, $250,000 of which was taken from the earnings of the Patent Office. Neither this wing nor the original one fronting F street was materially injured by the late fire, and both are believed to be substantially fire-proof.

THE DEPARTMENT OF THE INTERIOR.

The same act which appropriated the $50,000 for the commencement of the east wing, created the Department of the Interior, and transferred the Patent Office from the State Department to it as its most important bureau. Hardly had the east wing been completed and occupied before it became evident that still more room

was necessary to meet the growing demands of the Office for space, and on August 31, 1852, Congress passed an act for the erection of the west wing, along Ninth street, the one in which the fire originated, to correspond with the east wing on Seventh street, and appropriated $150,000 to begin it. Indeed, the entire building was contemplated in this year, and plans made for the present structure. The west wing was completed and occupied in 1856, and cost $750,000. The north wing, along G street, which completed the entire structure, was begun in 1856, and entirely finished in 1867, and cost $575,000. Up to the time of the fire there had been spent upon its construction, repair, and furniture, nearly $3,000,000. A writer, speaking of it just after it was finished, said that it is "a building of grand proportions, massive in construction, and one of the most beautiful structures that could be conceived."

FOUNDATION OF THE AMERICAN PATENT SYSTEM.

Nearly every civilized nation on the globe has provided in a greater or less degree for the encouragement and protection of inventive skill and industry; and for generations exclusive privileges have been granted to the producers of things new and useful in art, science, literature, and mechanics. Upon the experience and practical workings of the various systems of the Old World, our laws and practice have been founded, the English theories entering most largely into them. Prior to the adoption of the Federal Constitution, some of the States, or provincial governments, granted to inventors exclusive privileges, but for obvious reasons these were of little or no value. By act of April 10, 1790, the first American patent system was founded. Thomas Jefferson inspired it, and may be said to have been the father of the American Patent Office. He took great pride in it, it is said, and gave personal consideration to every application that was made for a patent during the years between 1790 and 1793, while the power of revision and rejection granted by that act remained in force. It is related that the granting of a patent was held to be in these early times quite an event in the history of the State Department, where the clerical part of the work was then performed.

JEFFERSON'S GREAT INTEREST IN PATENTS.

It is a matter of tradition, handed down to us from generation to generation by those who love to speak of Mr. Jefferson and his virtues and eccentricities, that when an application for a patent was made under the first act, he would summon Mr. Henry Knox, of Massachusetts, who was Secretary of War, and Mr. Edmund Randolph, of Virginia, who was Attorney-General, these officials being designated by the act, with the Secretary of State, a tribunal to examine and grant patents; and that these three distinguished officials would examine the application critically, scrutinizing each point of the specification and claims carefully and rigorously. The result of this examination was that during the first year a majority of the applications failed to pass the ordeal, and only three patents were granted. In those days every step in the issuing of a patent was taken with great care and caution, Mr. Jefferson seeking always to impress upon the minds of his officers and the public that the granting of a patent was a matter of no ordinary importance. During the year 1791, thirty-three patents were granted, and in 1792 the number was eleven, and in 1793 twenty, making sixty-seven in all under the first statute.

THE FIRST BOARD OF COMMISSIONERS.

The law of 1790, laying the foundation of the system which has grown to such proportions, constituted a tribunal, as before stated, consisting of the Secretary of State, the Secretary of War, and the Attorney-General of the United States, whose duty it was, according to the language of the act, "to grant patents for any such useful art, manufacture, engine, machine, or device as they should deem *sufficiently useful and important*." This language in the act was held to give this board authority to refuse patents for want of novelty in invention or insufficiency of utility or importance, which authority was, as before remarked, exercised with great rigor.

THE FIRST PATENT LAWS AND THEIR DEFECTS.

The first act required that patents should not be granted for more than fourteen years, and there was no provision for an extension. It required that "a written specification be filed with the Secretary of State containing a description of the article desired to be patented, accompanied with drafts or models, and explanations and models." It also required that the specification should be so particular, and the models so exact, as not only to distinguish the invention or discovery from other things before known and used, but also to enable a workman or other person skilled in the art or manufacture whereof it was a branch, or wherewith it might be nearest connected, to make, construct, or use the same, to the end that the public might have the full benefit thereof after the expiration of the patent term." This law also directed the Secretary of State to furnish copies of any such specification, and to permit any such models to be copied by any person making application therefor. The act also provided for the repeal of any patent obtained surreptitiously or by false suggestion, and that in all suits brought for the repeal of a patent so obtained, the original patent or specifications should be *prima facie* evidence of priority of invention. It provided no remedy for interfering applications, and apart from the thorough inspection it required it was, read by the light of the present practice, exceedingly defective. It was in many respects more equitable to all classes than the law which superseded it. There was no provision for an appeal from the decision of the tribunal above named by the act of 1790, and the strictness with which it exercised its powers was the cause of serious complaint. Inventors contended that these officers exercised arbitrary powers, and that they were, by education and interest, hostile to the classes who sought the benefits of the Patent law.

THE FIRST PATENT FEES.

There is no doubt but that this was true to a greater or less extent, or rather it is true that they reluctantly granted patent privileges from a well-settled conviction that a too liberal exercise of that power would be detrimental to the interests of the country. Mr. Jefferson, however, if not his associates, held to the view that the patent law was not framed to collect revenue, but to encourage the production of something new and useful,

and, therefore, believed in dealing liberally with those to whom patent-rights were granted, and the act of 1790 prescribed the following fees for the granting of patents, which are in striking contrast with those exacted by the act of 1793, which was framed by those who were supposed to favor the classes seeking patent privileges. "For receiving and filing the petition, fifty cents; for filing specifications, per copy sheet containing one hundred words, ten cents; for making out the patent, two dollars; for affixing the great seal, one dollar; for indorsing the day of delivering the same to the patentee, including all intermediate services, twenty cents." When the patent under this act passed the ordeal of the board, it still required the certificate of the Attorney-General and the signature of the President to make it complete. The impetus given to inventive genius by the act of 1790 created interests hostile to the power of revision and rejection which it authorized, and so rapidly did they develop that in 1793, by the act of February 24, this power was destroyed, much to the detriment of the material interests of the country.

HOSTILE INTERESTS CRITICISE MR. JEFFERSON.

Just who drew the act of 1793 is not known, but that it met with Mr. Jefferson's opposition is a matter of history. It is said that he pointed out the consequences which would result from breaking down the barriers thrown around the granting of patents by the act of 1790, and held that the promiscuous granting of exclusive privileges, or "the creation of monopolies," as he called them, in any art or industry, was against the theory of popular government and pernicious in its effects. But the interests which contended for a thorough revision of the original act were too strong for Mr. Jefferson's objections; for at that time, although his patriotism was not questioned nor his motives impugned, he was looked upon as clinging to theories tenaciously, to the detriment of the practical needs and efficiency of the public service. After the act of 1793 became a law, the control of the patent business still continuing in the State Department, the practice which prevailed and the construction which was put upon the law was that the granting of patents under it was a mere ministerial act, and that the term "useful" as used in this act was only in contradistinction to hurtful, injurious, or pernicious. Some contended that this construction by the Department was dictated by a desire to rebuke the authors of the act, and to demonstrate the correctness of the views, as to its effects, expressed by its opponents. But the highest authority that can be reached ascribes it to a disinclination on the part of the Secretary to exercise a power of so great importance where it was not clearly and distinctly granted, and the same authority remarks "that it may be reasonably doubted whether it was the intention of Congress to confer such a power on the Secretary of State alone, since no provision is made by it for an appeal or other remedy for an incorrect decision adverse to the applicant. Besides, any person occupying that station might be supposed as little qualified, by an acquaintance with the appropriate branches of science or of the arts, to decide such questions as any other officer of the Government. And were he to undertake the task of such an examination as would be necessary to a decision in each case, he would have little time for other official duties."

This reasoning is borne out by the entire language of the act, and there can be little doubt that Mr. Jefferson's construction of it, that it took away from him all power of revision, was in strict accordance with its letter and spirit.

DISCRIMINATION IN FAVOR OF AMERICAN CITIZENS.

The act of 1790 made no distinction between citizens of the United States and aliens as to their rights under the patent law, but the act of 1793 refused patents to persons not citizens of the United States. By an act passed April 17, 1800, the law was so amended as to give aliens who had resided two years in this country the same rights as citizens, provided they filed an affidavit with their application, setting forth their desire and inclination to become citizens of the United States. The act of 1793 was in general construction much the same as that of 1790, except that the power of rejection was destroyed, and the duty of granting patents lodged with the Secretary of State alone. It still required, however, the certificate of the Attorney-General as to the correctness of form to be affixed, and also the signature of the President. This statute provided that interfering applications should be submitted to the arbitration of three persons, one of whom was to be chosen by each of the applicants, and the third to be appointed by the Secretary of State. The decision of this tribunal was to be final, and if either party refused to go into arbitration, the patent was to issue to the opposing party. There was no provision for an extension of a patent.

ECCENTRICITIES OF THE FIRST SUPERINTENDENT.

During the years from 1790 to 1802 a single clerk in the State Department performed the work of the Patent Office, and a dozen pigeon-holes contained the entire records. In that year quite a noted scientific gentleman by the name of Dr. Thornton was appointed by Mr. Jefferson to the Office, and he was thereafter styled its "Superintendent." For twenty-six years he was the autocrat of the Patent Office, and some queer stories are related as to his management of its affairs. An official of the Department relates that during his superintendence he conceived himself to be invested with much discretionary power, for he held to the maxim that "the patent law was made solely for the encouragement of authors and inventors, and not to collect revenue." He would therefore exercise his judgment about the payment of fees, the result being, that after his death there was quite a deficit between the amount that was and that which should have been to the credit of the patent fund in the Treasury. His successor, in commenting upon the fact, conveys the impression that it was the liberality with which the doctor dealt with patentees, and not any personal dishonesty on his part which caused the deficit. This lack of system, however, brought about good results, for it created the practice of recording all patents granted, which had never before been done with any regularity, although the law required it. During Dr. Thornton's administration of the Office it was no unusual thing to find the doctor a co-patentee, while he was determining all questions which might arise under the law and the practice which he himself dictated.

DR. THORNTON'S CORRESPONDENCE.

Dr. Thornton took great interest in the Office, and he dictated its action with a power that knew no master. The duties of his position not being onerous, he conducted an extended correspondence upon scientific subjects with the patent officials of the Old World and scientists generally, which he left as a part of the archives of the Office when he died, "as a monument of his fidelity to and interest in the advancement of American mechanics." A story is told of him that during the war of 1812, when the British captured the city of Washington and destroyed the Capitol building, a loaded cannon was trained upon the Patent Office for the purpose of destroying it, and he is said to have put himself before the gun, and in a frenzy of excitement exclaimed, "Are you Englishmen, or only Goths and Vandals? This is the Patent Office, a depository of the ingenuity and inventions of the American nation, in which the whole civilized world is interested. Would you destroy it? If so, fire away, and let the charge pass through my body." The effect is said to have been magical upon the soldiers, and to have saved the Patent Office from destruction.

THE FIRST INVESTIGATION.

A Mr. Jones succeeded Dr. Thornton as Superintendent of the Patent Office, and from 1828 till 1830 administered its affairs. Dr. J. D. Craig succeeded to the position in the last-named year and remained until 1836. The first record of an investigation into the conduct of the officials of the Patent Office was during his administration, when one William P. Elliot, a former employé of the Office, charged Mr. Craig with exercising arbitrary powers in issuing three or more patents for the same invention; with paying no attention to interfering applications, and with failing to keep a record of the applications; with destroying the correspondence of the Office for forty years prior to his tenure, and his total incompetence to discharge the duties of his office. The Secretary of State ordered an investigation into the charges on the 17th of December, 1833, and the testimony offered is of a very amusing character. It demonstrates the fact that Dr. Craig had run the Office to suit himself, regardless of law or custom. The Secretary of State censured the Superintendent, and laid down some plain business rules for the future government of the Office, which, it is said, were strictly followed.

"THE KEEPER OF THE PATENTS."

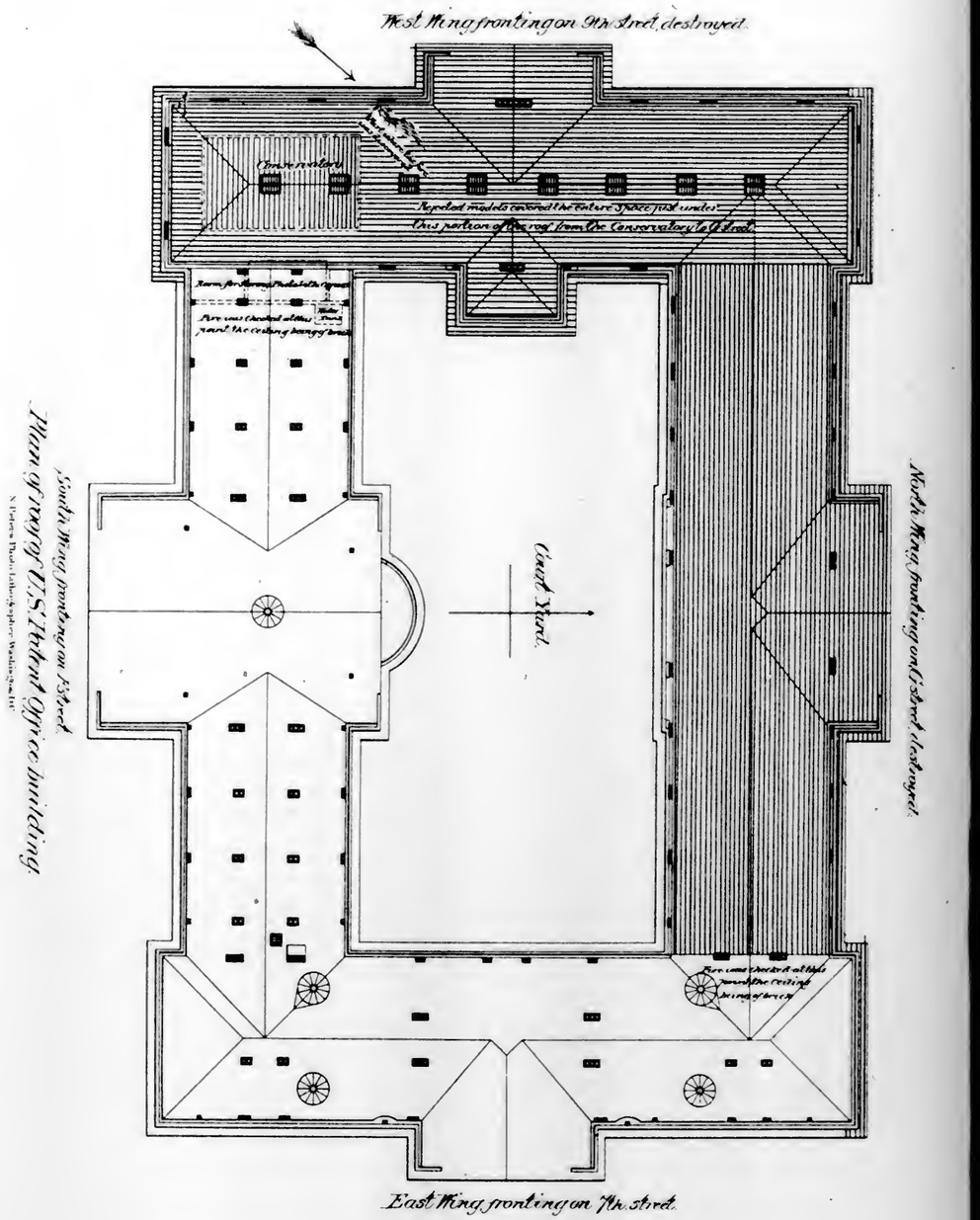
On the 28th of April, 1810, Congress passed an act authorizing the President to erect or procure by purchase a building suitable for the accommodation of the General Post Office, and of the "office of the Keeper of the Patents," in such situation and finished in such manner as the interests of the United States and the safety and convenience of those officers, respectively, and the arrangement of the models in the Patent Office should, in his opinion, require. The sum of $20,000 was appropriated for the purposes expressed in the act, and a building purchased on the site now occupied by the Post Office Department. By act of March 7, 1812, a further appropriation of $9,553.91 was made to repair it. Previous to this time the Patent Office was in the building at present occupied by the War Department, and even at this early day so important a branch of the public service had it become that it was deemed best to provide more space for it. In 1812 it was removed to a building standing on the site occupied by the present Post Office Department building, where it remained until destroyed by fire in 1836.

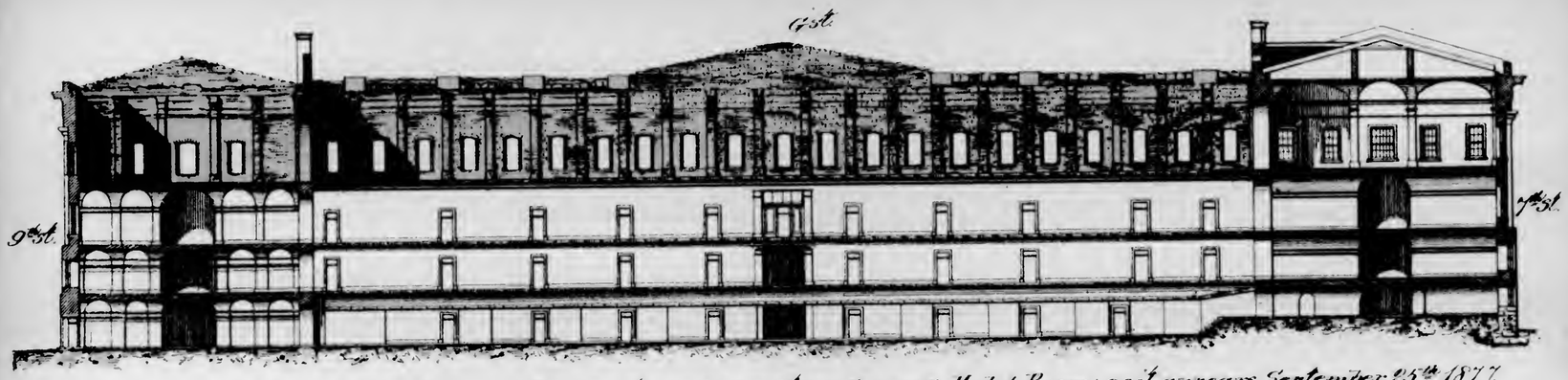
PROGRESS OF INVENTION.

During the years from 1790 to 1812 inventors confined themselves almost wholly to agricultural and commercial objects. Implements for tilling the soil and converting its products and machinery for navigation attracted most attention. Manufactures, except of a purely domestic character for domestic purposes, were hardly known. The arts were poorly understood and little cultivated. The necessities of the new world drove its enterprise into other channels, and its people looked to Europe for manufactured products not directly connected with the necessities of life or demanded by the development of its commerce and agriculture. The war of 1812, however, forced our people to attempt production in many branches of manufacture and industry heretofore almost wholly uncultivated, and the result was the most remarkable development of human ingenuity ever known to any age or country. It is a source of great regret that no well-preserved history of American inventions dating from this time is in existence, and that no classified list of models which were in the Office at the time of the fire in 1836 can be obtained. The earliest date that can be reached is January 21, 1823, and that is only partially complete, but it gives the number in the most important classes as follows:

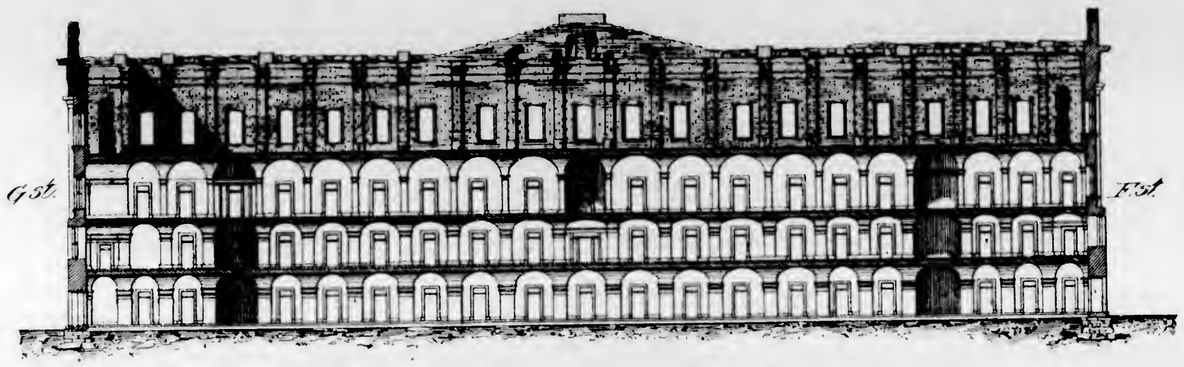
List of models in the Patent Office January 21, 1823.

Propelling-boats	38
Carding-machines	8
Making Carriage-wheels	4
Plows	65
Thrashing-machines	20
Winnowing-machines	25
Bridges	13
Saw-mills	26
Water-mills	17
Windmills	7
Water-wheels	26
Pumps	66
Presses	56
Looms	45
Stocking-looms	3
Spinning-machines	28
Fire-engines	10
Steam-mills	14
Nail-cutting Machines	95
Machines for Making Barrels, &c	1
Mud-machines	7
Flax-dressing Machines	6
File-cutting Machines	6
Machines for Cutting Dye-woods	6
Cloth-shearing Machines	16
Straw-cutting machines	10
Boring-machines	3
Locks	12
Guns	2
	635
For various other purposes	1,184
Total	1,819





Transverse Section of G street wing. Upper portion representing burned Model Room, as it appears September 25th 1877.



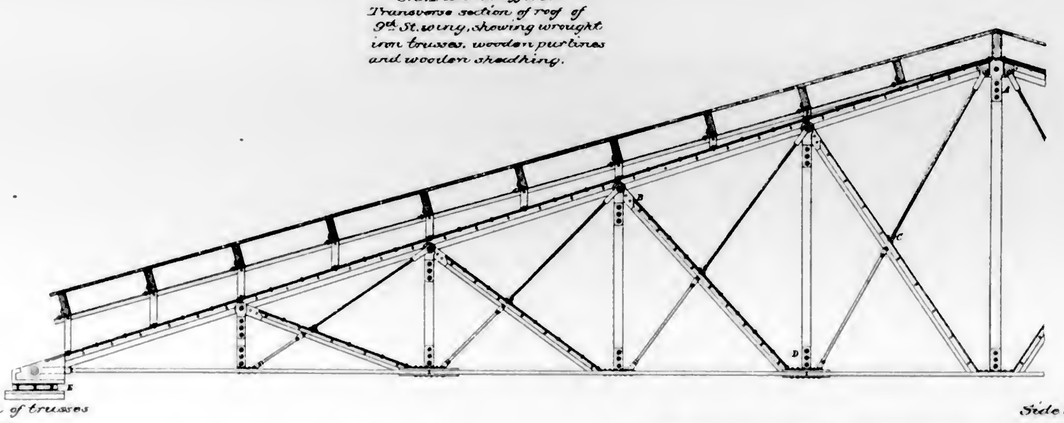
Longitudinal Section of 9th street wing, showing location of floors &c.

Upper portion represents burned Model Room.

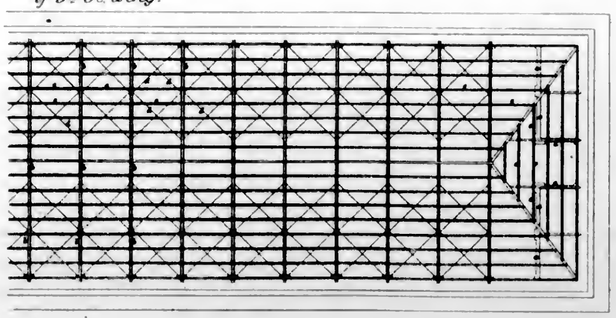
N. Peters Photo Lithographer, Washington D.C.

U.S. Patent Office.

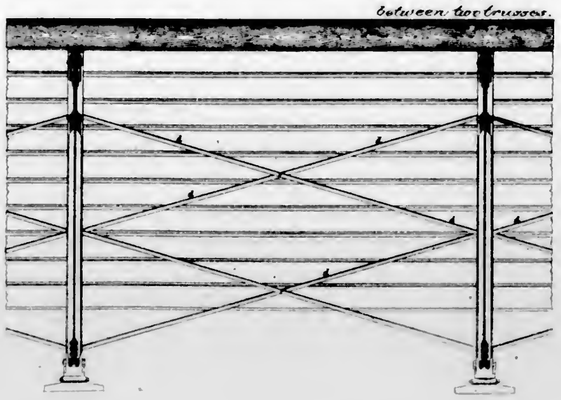
Transverse section of roof of 9th St. wing, showing wrought iron trusses, wooden purlins and wooden sheathing.



Ground plan of trusses of 9th St. wing.



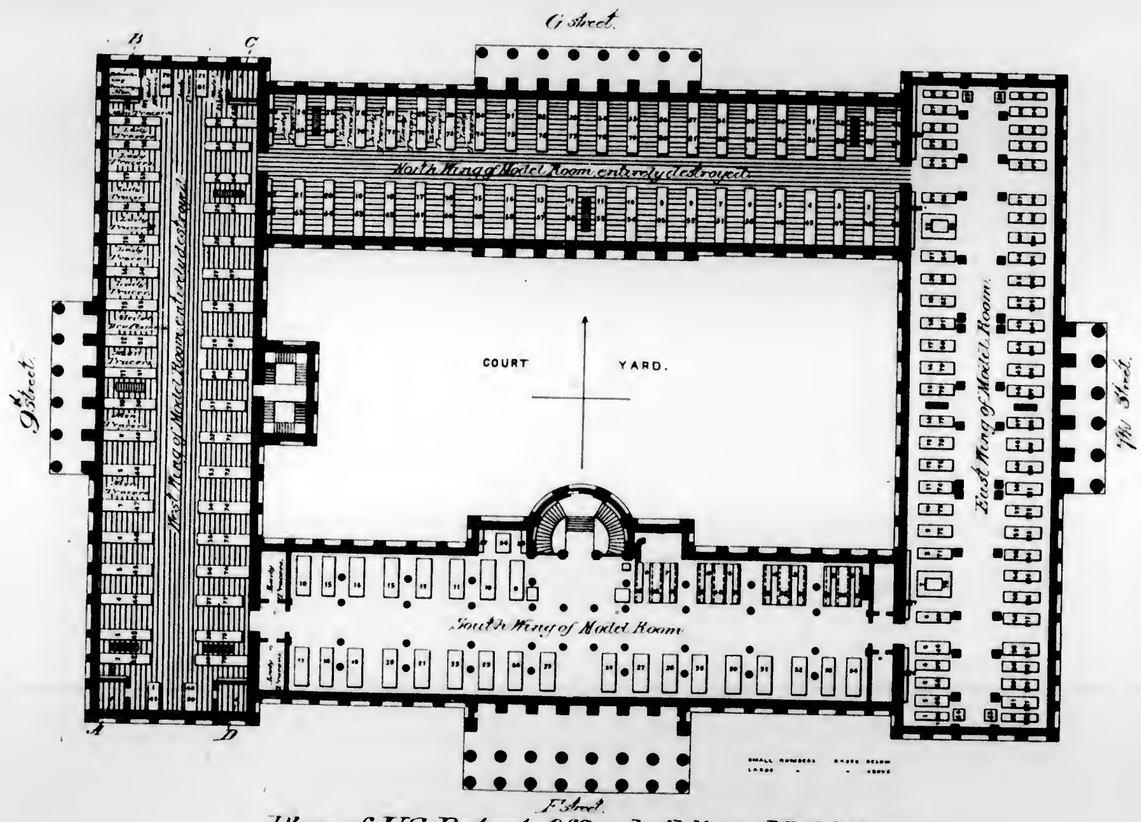
Side view of spaces between two trusses.





Interior view of the West Wing of U.S. Patent Office Model Room as it appeared on the morning of Sep. 25th after the fire of Sep. 24th 1877.

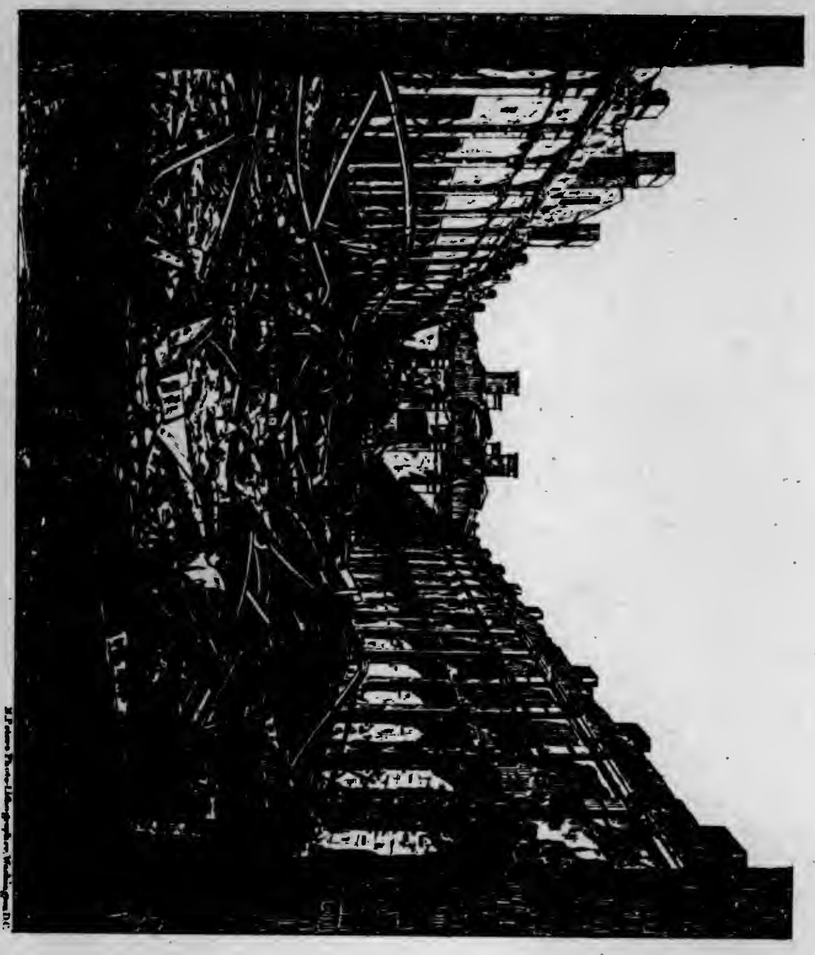
N. Peters Photo-Lithographer, Washington D.C.



Plan of U.S. Patent Office building.-Model Room,

Showing location of classes as arranged before the fire and space occupied by Tracers, &c.

N. Peters Photo-Lithographer, Washington D.C.



Interior View of the North Wing, U.S. Patent Office Model Room, as it appeared, Sep. 25th after the Fire of September 24th 1877.

These models were classified as follows:

CLASSIFICATION OF THE MODELS.

I.—*Agriculture.*—Plows; Harrows; Cultivators; Planting, Seeding, Mowing, and Thrashing Machines; Rakes; Wheat-fans; Straw-cutters, &c.

II.—*Factory Machinery.*—For Cotton, Wool, Flax, Hemp, Paper-rolling and Slitting Mills, Nail-cutters, &c.

III.—*Navigation.*—Ships, Boats, Marine Railways, Canal-locks, Mud-machines, Dry-docks, &c.

IV.—*Land Works.*—Railways, Roads, Bridges, Excavating and Boring Machines, Pile-engines, &c.

V.—*Common Trades.*—Brick-making and Planing-machines, Trip-hammers, Bellows, Turning-lathes, Chains, Washing-machines, Household Furniture and Utensils; also, Boots, Shoes, Saddles, Harness, &c.

VI.—*Wheel Carriages.*—Coaches, Chairs, Wagons, Carts, Waywisers, Mail-bags, Boats, &c.

VII.—*Hydraulics.*—Pumps, Fire-engines, Hose-valves, &c.

VIII.—*Calorific and Steam Apparatus.*—Furnaces, Fireplaces, Stoves, Boilers, Stills, Steam-engines, &c.

IX.—*Mills.*—Water and other Wheels, Grist-mills, Saw-mills, and the various parts of their machinery.

X.—*Lever and Screw Power.*—Applied to Printing, Coining, and other Presses.

XI.—*Arms.*—Cannons, Mortars, Muskets, Rifles, Pistols, Percussion, and other Locks, Swords, &c.

XII.—*Mathematical Instruments.*—For Surveying, Mining, and Nautical purposes.

XIII.—*Chemical Compositions.*—Patent Medicines, Cements, Dyes, &c.

XIV.—*Fine Arts.*—Musical Instruments, Paints, Varnishes, Gildings, Sculpture, Architecture, and Gardening.

ABUSES OF THE FIRST LAWS.

From 1790 to the re-organization of the Patent Office in 1836 there were granted 11,348 patents, a large number of which, on account of lack of novelty or usefulness, were valueless, but among them were some of the most important inventions of the age. The abuses which grew out of the promiscuous granting of patents without further inquiry than as to the payment of the fee and the form of the application attracted public attention in the early part of the present century, but it was not until 1836 that opposition to this system was strong enough to invoke congressional action. Early in that year Senator Ruggles of Maine, who was the early champion of a reform of the abuses which the act of 1793 made possible, moved in the Senate for "a select committee of five to take into consideration the state and condition of the Patent Office and the laws relating to the issuing of patents for new and useful inventions and discoveries." The committee was appointed, and on the 28th day of April, of the same year, made an extended report, setting forth the abuses which had grown up as a necessary consequence of the act of 1793, and presented a bill for a re-organization of the Patent Office, which became a law on July 4, 1836.

REPORT OF THE SENATE COMMITTEE OF 1836 ON THE DEFECTS OF THE LAW OF 1793.

Senator Ruggles, in making this report to the Senate, on the 28th of April, 1836, in speaking of the practical operations of this law and its effect upon inventors and the public, says:

"Under the act referred to, the Department of State has been going on, for more than forty years, issuing patents on every application, without any examination into the merits or novelty of the invention. And the evils which necessarily result from the law as it now exists must continue to increase and multiply daily till Congress shall put a stop to them. Some of them are as follows:

A SUMMARY OF THE EVILS.

"1. A considerable portion of all the patents granted are worthless and void, as conflicting with and infringing upon one another, or upon public rights not subject to patent privileges, arising either from a want of due attention to the specification of claim, or from the ignorance of the patentees of the state of the arts and manufactures, and of the inventions made in other countries, and even in our own.

"2. The country becomes flooded with patent monopolies, embarrassing to *bona fide* patentees, whose rights are thus invaded on all sides; and not less embarrassing to the community generally, in the use of even the most common machinery and long-known improvements in the arts and common manufactures of the country.

"3. Out of this interference and collision of patents and privileges, a great number of lawsuits arise, which are daily increasing in an alarming degree, onerous to the courts, ruinous to the parties, and injurious to society.

"4. It opens the door to frauds, which have already become extensive and serious. It is represented to the committee that it is not uncommon for persons to copy patented machines in the model-room; and, having made some slight immaterial alterations, they apply in the next room for patents. There being no power given to refuse them, patents are issued of course. Thus prepared, they go forth on a retailing expedition, selling out their patent rights for States, counties, and townships, to those who have no means at hand of detecting the imposition, and who find, when it is too late, that they have purchased what the venders had no right to sell, and which they obtain thereby no right to use. This speculation in patent rights has become a regular business, and several hundred thousand dollars, it is estimated, are paid annually for void patents, many of which are thus fraudulently obtained.

PIRATED INVENTIONS.

"In this collision and interference of patents, the original and meritorious inventor sees his invention, to the perfection of which he has devoted much time and expense, pirated from him, and he must forego the reward which the law was intended to secure to him in the exclusive right it grants, or he must become involved in numerous and expensive lawsuits in distant and various sections of the country to protect and confirm his rights. If he be wise he will generally avoid the latter and submit to the former alternative of injustice, to which the Government, as the law now is, makes itself accessory. The practice is scarcely less reprehensible of taking out patents for what has been long in public use, and, what every one has, therefore, a right to use. The patentee in such cases being armed

with the apparent authority of the Government, having the sanction of its highest officers, the seal of state, scours the country, and, by threats of prosecution, compels those who are found using the thing patented to pay the patent price or commutation tribute. This exaction, unjust and iniquitous as it is, is usually submitted to.

"The extent of the evils resulting from the unrestrained and promiscuous grants of patent privileges may be imagined when it is considered that they are now issued, since this year commenced, at the rate of more than a thousand a year; a considerable portion of which are doubtless void for want of originality in the inventions patented, either in whole or in some of the parts claimed as new.

"A necessary consequence is that patents, even for new and meritorious inventions, are so much depreciated in general estimation that they are of but little value to the patentee, and the object of the patent laws, that of promoting the arts by encouragement, is in a great measure defeated.

A REMEDY FOR THE EVIL.

"To prevent these evils in future is the first and most desirable object of a revision and alteration of the existing laws on this subject. The most obvious, if not the only means of effecting it, appears to be to establish a check upon the granting of patents, allowing them to issue only for such inventions as are in fact new and entitled, by the merit of originality and utility, to be protected by law. The difficulty encountered in effecting this is in determining what that check shall be, in whom the power to judge of inventions before granting a patent can safely be reposed, and how its exercise can be regulated and guarded to prevent injustice, through mistake of judgment or otherwise, by which honest and meritorious inventors might suffer wrong."

With this history before them and these views of the necessities of the service, the Twenty-fourth Congress framed the act of 1836, which so completely revolutionized the American patent system. The experience of years has demonstrated the value of their work.

THE COMMITTEE'S REPORT ON THE BUSINESS OF THE OFFICE.

In relation to the business of the Office, this report says: "The greatly increasing number of patents granted affords some indications of the improvements which have been going on in the useful arts from year to year. The average number issued annually from 1790 to 1800 was but 26; from 1800 to 1810, the average number was 91; from 1810 to 1820, it was 200, and for the last ten years the average number has been 535. During the year 1835 there were issued 776; and there have been granted in the first quarter of the present year 274, being more in three months than were issued in the whole of the first period of ten years. In the 22 years preceding the war of 1812, the average annual number was 73. The first quarter of the present year indicates an aggregate for the year of 1,096; the amount of the duties on which will be upward of $32,000. The whole number issued at the Patent Office, under the laws of the United States, up to the 31st of March last, is 9,731. This is more than double the number which have been issued either in England or France during the same period. In England, for ten years preceding 1830, the average number of patents granted in one year was 145."

NUMBER OF PATENTS GRANTED EACH YEAR FROM 1790.

The number of patents granted each year from 1790 to July 4, 1836, is as follows:

In 1790, 3; in 1791, 33; in 1792, 11; in 1793, 20; in 1794, 22; in 1795, 12; in 1796, 44; in 1797, 51; in 1798, 28; in 1799, 44; in 1800, 41; in 1801, 44; in 1802, 65; in 1803, 97; in 1804, 84; in 1805, 57; in 1806, 63; in 1807, 99; in 1808, 158; in 1809, 203; in 1810, 223; in 1811, 215; in 1812, 238; in 1813, 181; in 1814, 210; in 1815, 173; in 1816, 206; in 1817, 174; in 1818, 222; in 1819, 156; in 1820, 155; in 1821, 168; in 1822, 200; in 1823, 173; in 1824, 228; in 1825, 204; in 1826, 323; in 1827, 331; in 1828, 368; in 1829, 447; in 1830, 544; in 1831, 573; in 1832, 474; in 1833, 586; in 1834, 630; in 1835, 757; in 1836, 723.

The fees which were the results of this business had accumulated a surplus on January 1, 1837, in the Treasury to the credit of the patent fund over and above all expenses incurred of $156,907.73.

In remarkable contrast to the above results stands the record of business transacted by the Office after its re-organization in 1836. The statement for the period extending from 1837 to 1877 is as follows:

Comparative statement of the business of the Patent Office from 1837 to 1876, inclusive.

Year.	Applications.	Caveats filed.	Patents issued.	Cash received.	Cash expended.	Surplus.	Deficit.
1837	.....	.....	435	$20,289 08	$33,506 98	.....	$4,217 90
1838	.....	.....	520	42,123 54	37,402 10	$4,721 44	.....
1839	.....	.....	425	37,260 00	34,543 51	2,716 49	.....
1840	735	228	473	38,056 51	39,020 67	.....	1,964 16
1841	847	312	495	40,413 01	52,666 87	.....	12,253 86
1842	761	391	517	36,505 68	31,241 48	5,264 20	.....
1843	819	315	531	35,315 81	30,776 96	4,538 85	.....
1844	1,045	380	502	42,509 26	36,244 73	6,264 53	.....
1845	1,246	452	502	51,056 14	39,395 65	11,680 49	.....
1846	1,272	448	619	50,264 16	46,158 71	4,105 45	.....
1847	1,531	553	572	63,111 19	41,878 35	21,232 84	.....
1848	1,628	607	660	67,576 69	58,905 84	8,670 85	.....
1849	1,955	595	1,070	60,752 98	77,716 44	3,036 54	.....
1850	2,193	602	995	86,927 05	80,100 95	6,816 10	.....
1851	2,258	760	869	95,738 61	86,916 93	8,821 68	.....
1852	2,639	998	1,020	112,656 34	95,916 91	16,739 43	.....
1853	2,673	901	958	121,527 45	132,869 83	.....	11,342 38
1854	3,324	868	1,902	163,789 84	167,146 32	.....	3,356 48
1855	4,435	906	2,024	216,459 35	179,540 33	36,919 02	.....
1856	4,960	1,024	2,502	192,588 02	199,931 02	.....	7,343 00
1857	4,771	1,010	2,910	196,132 01	211,582 09	.....	15,450 08
1858	5,364	934	3,710	203,716 16	193,193 74	10,522 42	.....
1859	6,225	1,097	4,538	245,942 15	210,278 41	35,663 74	.....
1860	7,653	1,084	4,819	256,352 59	252,820 80	3,531 79	.....
1861	4,643	700	3,340	137,354 44	221,491 91	.....	84,137 47
1862	5,038	824	3,521	215,754 99	182,810 39	32,944 60	.....
1863	6,014	787	4,170	195,593 29	189,414 14	6,179 15	.....
1864	6,932	1,063	5,020	240,919 98	229,868 00	11,051 98	.....
1865	10,664	1,937	6,616	348,791 84	274 199 34	74,592 50	.....
1866	15,289	2,721	9,450	495,665 38	361,724 28	133,941 10	.....
1867	21,276	3,597	13,015	646,581 92	639,263 32	7,318 60	.....
1868	20,420	3,705	13,378	681,565 86	628,679 77	52,886 09	.....
1869	19,271	3,624	13,986	693,145 81	486,430 78	206,715 03	.....
1870	19,171	3,273	13,321	669,456 76	557,149 19	112,307 57	.....
1871	19,472	3,366	13,033	678,716 46	560,595 08	118,121 38	.....
1872	18,246	3,090	13,590	699,786 39	665,591 36	34,135 03	.....
1873	20,414	3,248	12,864	703,191 77	691,178 98	12,012 79	.....
1874	21,602	3,181	13,599	738,278 17	679,288 41	58,989 76	.....
1875	21,638	3,094	16,288	743,453 36	721,857 71	21,795 65	.....
1876	21,425	2,697	17,026	757,987 65	652,542 60	105,445 05	.....
1877	14,871	2,216	10,416	556,062 18	448,476 44	107,585 74	.....

The figures for 1877 comprehend the operations of the Office from January 1, 1877, to and including September 30, 1877. The rapid increase of the patent business since 1836 can be readily seen by a comparison of the figures given in the two statements of the business of the Office. From 1790 to 1837, a period of forty-six years, 11,445 patents were granted, yielding a profit to the Office of $156,907.73. From January 1, 1837, to September 30, 1877, a period of about forty-one years, there were issued 192,332 patents, including re-issues, which, together with the other business, placed to the credit of the patent fund on September 30, 1877, $1,099,940.41.

From 1793 to 1868, the moneys earned by the Patent Office were kept as a separate fund in the Treasury, known as "the patent fund." The Commissioner of Patents drew against it for the expenses of his Office, and the surplus, over and above the expenses, was kept intact and credited to this fund, and permitted to accumulate. On July 20, 1868, Congress passed an act "that all money to the credit of the patent fund, or in the hands of the Commissioner of Patents, and all moneys thereafter received at the Patent Office, for any purpose or from any source whatever, shall be paid into the Treasury as received, without any deduction whatever." By this act the accumulation of the profits of the Patent Office for 75 years was turned into the common fund of the Treasury, and appropriations made for its support the same as for the other Departments of the Government. Although a separate account is kept with the Patent Office, there is no fund now intact in the Treasury representing its accumulations and known as "the patent fund."

PROVISIONS OF THE LAW OF 1836.

The committee appointed by the Senate in 1836 presented with its report a bill for the re-organization of the Patent Office, which became a law on the 4th of July of the same year. By this statute the Patent Office was created a bureau of the Department of State, whose chief officer was to be called Commissioner of Patents; he was to be appointed by the President, by and with the advice and consent of the Senate. By the same act a chief clerk of the Patent Office was provided for, who was to have custody of the seal and of the records and models of the Office, and was to perform all the duties of the Commissioner during his absence.

It also provided for an examining clerk at a salary of $1,500 a year, whose duties were the same as those of a principal examiner at present. Two clerks at $1,200 each and one at $1,000 were provided for, and also a machinist at $1,250 and a messenger at $700. The Commissioner and chief clerk were both required to give bonds for the faithful performance of the duties of their office. Under this statute patents were to be issued for a term not exceeding fourteen years, the fee for the same being $30. The patents might be extended for a period of seven years upon payment of an additional sum of $30, if the Secretary of State, the Commissioner of Patents, and the Solicitor of the Treasury, who were by the act appointed a board to hear and decide upon the evidence for or against the extension, should decide favorably. Notice of the extension was to be published in a Washington newspaper, and the board was to sit at the time and place given in the notice. This statute provided nearly the same regulations in relation to specifications, drawings, and models as the original act of 1790. The same oath or affirmation as to the originality of the inventions was also preserved. The most important feature of all was, however, the system of examination into novelty and usefulness which this act provided, and which has had such marked influence upon the patent interests of the country.

THE STATUTE ESTABLISHING A SYSTEM OF EXAMINATION.

This section of the law provided "that the Commissioner shall make, or cause to be made, an examination of the alleged new invention or discovery; and if, on any such examination, it shall not appear to the Commissioner that the same had been invented or discovered by any other person in this country prior to the alleged invention or discovery thereof by the applicant, or that it had been patented or described in any printed publication in this or any foreign country, or had been in public use or on sale with the applicant's consent or allowance prior to the application, if the Commissioner shall deem it to be sufficiently useful and important it shall be his duty to issue a patent therefor. But whenever, on such examination, it shall appear to the Commissioner that the applicant was not the original and first inventor or discoverer thereof, or that any part of that which is claimed as new had before been invented or discovered or patented or described in any printed publication in this or any foreign country, as aforesaid, or that the description is defective and insufficient, he shall notify the applicant thereof, giving him briefly such information and references as may be useful in judging of the propriety of renewing his application, or of altering his specification to embrace only that part of the invention or discovery which is new. In every such case, if the applicant shall elect to withdraw his application, relinquishing his claim to the model, he shall be entitled to receive back twenty dollars, part of the duty required by this act, on filing a notice in writing of such election in the Patent Office, a copy of which, certified by the Commissioner, shall be a sufficient warrant to the Treasurer for paying back to the said applicant the said sum of twenty dollars. But if the applicant in such case shall persist in his claim for a patent, with or without any alteration of his specification, he shall be required to make oath or affirmation anew in manner as aforesaid; and if the specification and claim shall not have been so modified as in the opinion of the Commissioner shall entitle the applicant to a patent, he may, on appeal, and upon request to writing, have the decision of a board of examiners, in be composed of three disinterested persons, who shall be appointed for that purpose by the Secretary of State, one of whom, at least, to be selected, if practicable and convenient, for his knowledge and skill in the particular art, manufacture, or branch of science to which the alleged invention appertains, who shall be under oath or affirmation for the faithful and impartial performance of the duty imposed upon them by said appointment. Said board shall be furnished with a certificate in writing of the opinion and decision of the Commissioner, stating the particular grounds of his objection, and the part or parts of the invention which he considers as not entitled to be patented; and the said board shall give reasonable notice to the applicant, as well as to the Commissioner, of the time and place of their meeting, that they may have an opportunity of furnishing them with such facts and evidences as they may deem necessary to a just decision; and it shall be the duty of the Commissioner to furnish to the

board of examiners such information as he may possess relative to the matter under their consideration; and on an examination and consideration of the matter by such board, it shall be in their power, or of a majority of them, to reverse the decision of the Commissioner, either in whole or in part, and, their opinion being certified to the Commissioner, he shall be governed thereby in the further proceedings to be had on such application: *Provided, however,* That before a board shall be instituted in any such case the applicant shall pay to the credit of the Treasury, as provided in the ninth section of this act, the sum of twenty-five dollars, and each of said persons so appointed shall be entitled to receive for his services in each case a sum not exceeding ten dollars, to be determined and paid by the Commissioner out of any moneys in his hands, which shall be in full compensation to the persons who may be so appointed for their examination and certificate as aforesaid."

Under this act the present system of examination was instituted. The machinery which it constituted in case of an appeal being desired from the primary examiner remained in force until March 2, 1861, when Congress passed an act creating a tribunal consisting of three persons, to be known as Examiners-in-Chief. Previous to the establishment of this board it had been the practice of the Office to detail three examiners to perform the work at present devolving upon the board of Examiners-in-Chief. But sometimes persons not connected with the Office were called upon to act as judges in an appeal case. As a new board was organized for each case, there was often a want of harmony among its members regarding rules of proceedure and lack of legal training evident in the decisions reached. When the patent business began to increase rapidly, this system failed to meet the demands of the Office in consequence of the great amount of litigation which arose. Hence the present Board of Appeal was constituted, whose duty it is to hear and determine all questions on appeal from the decisions of the primary examiners.

INTERFERING APPLICATIONS.

The statute of 1836 embodied most of the methods for disposing of interfering applications that are now in force. It also provided for an arrangement and classification of models in the Office, so that they should be easy of access for study and inspection. This statute also laid the foundation for the creation of the present valuable scientific library of the Office, and $1,500 was appropriated for it. Up to the time of the fire, in 1836, $1,000 had been spent upon a few unimportant books, which were all destroyed except a single volume of Repertory of Arts. This is now preserved in the United States Patent Office library as the only existing relic of the conflagration of December 15, 1836.

DISCRIMINATION AGAINST ALIENS.

The statute of 1836 retained the discrimination in favor of American patentees, but they were so modified as to only require a residence of one year, and provided that a subject of Great Britain should pay $500 upon making his application, and for all other foreign applicants the fee was $300. This discrimination was kept up in favor of American inventors until the act of March 2, 1861, abolished it. This law provided that there should be no discrimination against aliens unless the country to which they owed allegiance discriminated against citizens of the United States.

THE CAVEAT SYSTEM.

The law of 1836 created what is known as the caveat system, by which an inventor could, by paying $20, file in the Patent Office a caveat setting forth the design and purpose of his invention, its principal and distinguishing characteristics, and praying for protection of his right until he could mature his invention. This paper was to be filed in the confidential archives of the Office, and when the patent was taken out, the sum of $20 deposited as a fee for filing the caveat was to apply upon the regular fees for issuing the patent.

This section also provided that if within one year from the time of filing the caveat any interfering application should be filed it was the duty of the Commissioner to deposit this specification, drawings, and model in the confidential archives of the Office, and to give notice to the person filing the caveat of such interfering application, and he must within three months mature his patent and file his description, specification, drawings, and models, or lose the benefit of the security which the filing of his caveat gave him. This act continued in force exactly as it was passed until March 2, 1861, when the fee was reduced to $10, as at present, and the refunding of any part of the sum or placing it to the credit of the inventor when application was finally made for a patent, was forbidden.

CONGRESS ASSUMES THE SOLE RIGHT TO EXTEND PATENTS.

The tribunal which was created by Congress (see preceding section under heading, "Provisions of the act of 1836") for the purpose of hearing and determining applications for extension of patents, continued to exercise that power until May 27, 1848, when Congress passed an act which transferred that duty to the Commissioner of Patents alone. The Commissioner had sole authority for the extension of patents until March 2, 1861, when Congress passed an act extending the patent term to 17 years, and providing that a patent thereafter granted should not be extended. Extensions were, however, made after the passage of this law, of patents granted prior to 1861, but upon patents granted after that date it required a special act of Congress in each case for the Commissioner to grant an extension. And it still requires special legislation to secure an extension.

THE NEW ORGANIZATION.

Soon after the passage of the law of 1836 the Patent Office was re-organized, and Henry L. Ellsworth, of Connecticut, was appointed Commissioner of Patents, J. W. Hand chief clerk, Chas. M. Keller examiner of patents, and Henry Stone draftsman. Thomas Johns had charge of files, records, and preparation of official copies and recording of assignments. John J. Roane was appointed clerk for preparing and recording all patents issued. Hazard Knowles machinist, in charge of models, and Henry Bishop messenger.

This organization of the Patent Office was regarded by many as exceedingly extravagant, although its entire force consisted of eight people. Immediately after its organization the Commissioner set at work fitting up a model-room in an upper room of the old Post Office building, which was 40 by 80 feet, and the Commissioner spoke of the model-room as "one of the grandest evidences of inventive genius on the globe." The good results of the system of examination established by this act were early manifest, for in the first part of 1836, under the old system, 625 patents were granted, while in the last half of 1836, under the new law, there were only 97. More than two-thirds of all the applications made were rejected for either want of novelty or usefulness.

ANOTHER COMMITTEE REPORT.

After the conflagration of 1836, by which public attention was again directed to the Patent Office, Senator Ruggles, as chairman of the special committee to examine into the extent of the loss by the burning of the Patent Office, said, in relation to this system of examination, "That the provision interdicting the granting of patents for what is not new and original, is the most valuable feature of the act of July last." In the same report, in speaking of the duties of the examiner, he gives the following as the views of the committee as to his duties, and what his qualifications should be:

QUALIFICATIONS OF A GOOD EXAMINER.

"It is his business to make himself fully acquainted with the principles of the invention for which a patent is sought, and to make a thorough investigation of all that has been before known or invented either in Europe or America, on the particular subject presented for his examination. He must ascertain how far the invention interferes in any of its parts with other previous inventions or things previously in use. He must point out and describe the extent of such collision and interference, that the applicant may have the benefit of the information in so shaping or restricting his claim of originality as not to trespass upon the rights of others. The applicant should also be referred to the sources of this information, that he may be able to satisfy himself on the particular points of interference. This frequently leads to a lengthy correspondence, before the applicant can be persuaded that his invention or some rejected part of it is not new. He often employs skillful and persevering counsel to urge and enforce by argument new views of the principles of his invention, who sometimes brings to his aid much mechanical astuteness. The examiner must also see that the specification accords with the drawing, and that the model is in conformity with both.

"An efficient and just discharge of the duties, it is obvious, requires extensive scientific attainments, and a general knowledge of the arts, manufactures, and the mechanism used in every branch of business in which improvements are sought to be patented, and of the principles embraced in the ten thousand inventions patented in the United States, and of the thirty thousand patented in Europe. He must moreover possess a familiar knowledge of the statute and common law on the subject, and the judicial decisions both in England and our own country, in patent cases. This service is important, as it is often difficult and laborious. Here is the first check upon attempts to palm off old inventions for new, or to interfere with the rights of others previously acquired. This is also the source whence the honest and meritorious inventor may look for aid and direction in so framing his specification as that he may be able to sustain his patent when issued and find security and protection against expensive and fruitless litigation.

"Suitable qualifications for these duties are rare, and cannot be obtained without such compensation as they readily command in other employment. It will, undoubtedly, be wise in the Government to affix such salary to this office as will secure the best talent and qualifications. Although an appeal is allowed by law, yet, if a high character is given to it, this will be the best, as it is the most appropriate tribunal for judging of these subjects, and its decisions commanding respect and confidence, there will be but little inclination to take exceptions to its judgment. Thus will be cut off a fruitful source of lawsuits, and our court calendars will cease to be crowded with cases arising out of the interfering rights of patentees. Meritorious inventors will be secure in their rights, and the public relieved from imposition and embarrassment. These are among the first of the objects and merits of the act of last session."

FORCE OF THESE VIEWS IN 1877.

These views are of as much force to-day, in their application to the duties of an examiner, as they were in 1836, and it is not improper to commend here the judgment and foresight of those who uttered them, as well as framed the law upon which the Patent Office has been founded, and upon which all legislation in relation thereto has been built. It is a most creditable monument to their ability and integrity that nearly every essential feature of the law of 1836 is in full force and effect in the administration of the affairs of the Patent Office at the present time.

It has been modified and enlarged in accordance with the growing interest which centered in and about the office, and of course the machinery which it set in motion has been increased and improved in accordance with the ever-changing demands of the age. These improvements are manifold and enter into every branch of public business. What was theory in 1836 is to-day the perfection of practical operation, each part of the machinery being so close and regular in its workings as to cause scarcely a jar in the vast business it transacts.

As a matter of interest to many who are not familiar with the actual work of an examiner under this law, and the existing rules and practice of the office, we proceed briefly to describe it:

After an application for a patent is completed by filing specification, petition, oath, and drawing, the case is sent to the examiner of the class to which it belongs. His duty is to grant or refuse a patent, as may appear right, after due examination. He is required, first, to diligently scrutinize the specification, to determine if is in proper form and suitable language, himself correcting slight inaccuracies in grammar or orthography; and, second, to compare the description of the device in the specification with the drawing and model, as well as with the applicant's statement of the nature of his invention and his specific claims, all of which must agree with one another. If objectionable in form or substance, or if any of the parts named conflict with each other, the attention of the applicant is called to the deficiencies in the first office letter, and he has an opportunity to correct them by amendment.

EXAMINATION RELATES TO BOTH NOVELTY AND UTILITY.

This examination relates to both the novelty and utility of the alleged invention. The latter question is easily disposed of, since, under the rulings of the office and the courts, every invention is considered "useful" if not actually found pernicious or dangerous. It sometimes occurs that a mechanical device is pronounced inoperative and a patent refused, but in such a case the applicant is allowed to file affidavits to the contrary. In fact, if the applicant's faith in the utility of his invention is strong enough to lead him to pay the office-fees, he is thought to be the best judge of this question.

The question of novelty is hard to decide. This is determined by a reference to American and f reign patents, printed scientific works in all languages, and all the information the examiner is able to collect from all sources relating to the art upon which he is especially employed.

The drawings of American patents are arranged by classes for the readiest reference. The English drawings are in bound volumes, with copious indexes and digests. These are kept in the library. In many examiners' rooms are manuscript digests, prepared with great labor, and setting forth the subject-matter of all patents belonging to the particular class under that examiner's special supervision. The library is filled with works on mechanics, and some that relate to every branch of industry.

With all these facilities, which are very imperfectly set forth here, the work of the examiner is intricate and delicate. It is an occurrence most rare for a device to be presented which is in all its features fully anticipated, either in some former patent or printed publication. The question usually turns upon distinctive claims for special features in the device, wherein it is alleged to differ from others of the same kind, and the solution of this question involves the nicest discrimination, both as to mechanical construction and interpretation of language and of law.

APPEALS FROM EXAMINER'S DECISIONS.

After a rejection of his claims, or any part of them, the applicant may amend them, and the new claims are again examined. A second rejection upon the same reference is "final," whereupon the applicant may, if he desires, take an appeal to the Board of Examiners-in-Chief. Should the Board sustain the examiner in his decision, an appeal lies to the Commissioner in person. Should the examiner be reversed, the case is remanded to him for issue.

After rejection by the examiner, the applicant may amend at any time within two years; but if no action is made in that time, the application is considered abandoned.

All applications are examined in the order of their receipt by the examiner. The only exception to this rule are re-issues, extensions, and original applications in which the invention is deemed of special value to the Government, and a request for its speedy examination is made by the head of an Executive Department.

QUALIFICATIONS OF AN EXAMINER IN 1877.

Close study, thorough knowledge of the art, keen discernment, and the highest intellectual training are demanded of the examiner. His decision, if favorable to the patent, is final; if unfavorable, it is liable to withstand the scrutiny of an active attorney who will bend all his energies to have it reversed, of the Board of Appeal, of the Commissioner of Patents, or possibly of the supreme court of the District of Columbia, to all of whom the case may successively be appealed. If he allows the case, and the patent ever gets into litigation, his action may be reversed by a United States court. Every action the examiner makes, every letter he writes, is preserved as part of the record, and he makes none without the possib lity before him of some such review.

THE AMERICAN SYSTEM COMPARED WITH THAT OF OTHER COUNTRIES.

The examination of an application prior to the grant of a patent, and the restriction of the patent to what is new therein, is the essence of the American patent system. The same plan has been recently adopted in a modified form by the government of the Dominion of Canada, and was favorably considered by the World's Patent Congress at Vienna in 1873, and by official representatives of the British and French governments, although it has not yet been adopted in those countries.

Several of the South American republics have patent systems copied mainly from that of the United States, but all these are yet in their infancy.

Until recently German patents were granted only by favor of the crown. A law, based on the English system, was enacted May 25, 1877, and a representative of the German government is now on his way to this country to examine and report upon the operation of our law.

An approximation to the whole number of patents ever issued for mechanical inventions in civilized countries would give, to the United States, 200,000; Great Britain, 100,000; France, 60,000; all other countries together, 12,000; and these numbers give not a bad idea of the industrial progress of the world during the century. A careful investigation will demonstrate that the progress in mechanics has been just about in proportion to number of patents granted.

Of course there are objections, and serious ones, too, that could be urged against the American system, and experience has indicated some important changes, which will no doubt receive the attention of the Commissioner of Patents in his forthcoming report. A careful review of the different systems in operation in the old world, however, demonstrates the fact that our practice produces more favorable results than any other, and is generally more satisfactory to all concerned, besides being more economical.

The English law allows a patent to any one who makes application in due form. The fees for a patent for fourteen years amount to about $800, and to save these fees an inventor usually employs experts to carefully examine the records of English patents. It may happen, however, (and frequently does,) that from two to ten patents are granted to different parties for the same device. Indeed, there is nothing to prevent a person from copying verbatim a patent granted yesterday and procuring a duplicate for himself to-day, as the grant is to the person who "communicates," (and pays the fee,) and not necessarily to the inventor. The owners of patents must establish their rights in the courts before their claims are respected.

In making application for an English patent a specification and an elaborate drawing are required, but no model. The drawings are copied by photo-lithography, (an improvement borrowed from the United States Patent Office within the past year,) and the patent published as soon as granted.

In France applications are published in official form, accompanied by drawings. If a patent is granted the owner pays a tax of 100 francs—say $20—per annum for fourteen years. At the expiration of the patent by lapse of time or failure to pay the tax, it is published for the information of the people, and becomes public property.

The American system requires a model, drawing, and specification with each application, and a fee of $15. This fee pays for the examination, and in return for it the applicant is informed, from the best official data, as to whether his alleged invention is new in whole or in part. If it posseses novelty, he can obtain a patent by the payment of an additional $20, making $35 in all, as the fee for a patent for seventeen years. (When a case is appealed from adverse decision of the examiner there are small additional fees.) The patent is published as soon as granted, and a certified copy of the specification and a photo-lithograph of the drawing sent to every United States court, where it is open to public inspection. Other copies are kept for sale by the Patent Office, and a digest of the case, containing the claims and vital part of the drawing, is published in the weekly OFFICIAL GAZETTE, which is sent free to eight libraries in each congressional district, and is sent to subscribers at $5 per annum.

THE FIRE OF 1836.

On the morning of the 15th of December, 1836, the Post Office building was discovered to be on fire, and, although many of the archives of the General Post Office Department were saved, not a thing was preserved in the Patent Office, save one volume from the library, of little value to any one. There is no graphic description and very little on record of interest in reference to this important event.

Mr. William T. Steiger, who is still living, and was a clerk in the Office, and resided on E street, directly opposite the Patent Office, says that he was awakened about half-past three o'clock in the morning by the information that the Office was on fire. He dressed himself and ran out, and although the fire had evidently been burning some time, only four or five persons were on the ground. He ascended the steps of the Patent Office building and tried to get in at the east door, but could not do it on account of the dense smoke issuing from it. He then made efforts to spread the alarm, running down Pennsylvania avenue, and from there to C street, where the Commissioner lived. When he and the Commissioner returned to the building they made efforts to reach the Patent Office, but the fire had made such progress their attempts were futile, and everything was destroyed.

CAUSE OF THE FIRE.

The Committee on Post Offices and Post Roads submitted, January 20, 1837, a report on the destruction of the Post Office, in which they said that they had examined 32 persons, and that the evidence taken was conclusive that the fire originated in the cellar under the city post-office, but in which room they were unable to say with certainty. They were also unable to charge the fire to any particular cause, although they remarked that the ashes which came from the wood-fires about the building were stored in a pine box holding from 15 to 20 bushels. This box was in a room in which the Patent Office had its winter wood stored. "It is in evidence," the committee remarks, "that a year before, fire had been discovered in this box but had been extingnished before any damage was done." And the committee adds that "it is possible that the fire originated in this box." A correspondent of the "Jonrnal of Commerce" ascribes the cause of the fire to the ash-box, and says:

"These ashes are the perquisites of some of the minor officials, and were gathered in the cellar until they were called for by the purchasers. And when it is remembered that the dry pine wood used for kindling the fires was stored in the same room, there seems to be no necessity for resorting to supposed incendiarism in accounting for the mischief."

REPORT OF THE SENATE COMMITTEE ON THE EXTENT OF THE LOSS.

On the 19th day of December, 1836, on motion of Senator Ruggles, of Maine, a committee of five was appointed to examine and report the extent of the loss sustained by the burning of the Patent Office, and to consider what measures ought to be adopted to repair the loss, and to establish such evidences of property in patented inventions as the destruction of the models and drawings may have rendered necessary for its security. On the 9th of January, 1837, the committee made an extended report in which they say "the Patent Office contained the largest collection of models in the world.

"It was an object of just pride to every American able to appreciate its value as an item in the estimate of national character, or the advantages and benefits derivable from high improvement in the useful arts—a pride which must now stand rebuked by the improvidence which exposed so many memorials and evidences of the superiority of American genius to the destruction which has overtaken them.

RAPID PROGRESS OF AMERICAN INVENTORS.

"The number of models was about seven thousand. Many of them displayed great talent, ingenuity, and mechanical science. The American inventions pertaining to the spinning of cotton and wool and the manufacture of fabrics, in many respects exceed those of any other nation, and reduced so much the expense of manufacture, that the British manufacturers were reluctantly obliged, at the expense of no little national pride, to lay aside their own machinery and adopt our improvements, to prevent our underselling them even in their home market. In this department were the inventions of Browne, Thorpe, Danforth, Couilliard, Calvert, and some others. The beautiful operative model of Wilkinson's machine for manufacturing weavers' reeds by one operation, was considered one of the most ingenious mechanical combinations ever invented. Of this character was Whittemore's celebrated machine for making wool-cards. There were several models of valuable

improvements in shearing and napping cloth, patented to Swift, Stowell Dewey, Parsons, Daniels, and others.

"In another department were several models of machines for manufactnring cut and wrought nails. The machinery for this purpose, which has redneed so much the price of that important article, was of purely American origin, and was invented by Briggs, Perkins, Reed, Odiorne, and several others.

"The models of improvements in grist-mills, saw-mills, water-wheels, &c., were numerous.

AMERICAN INVENTIONS IN THE USE OF STEAM.

"The application of steam-power to the driving of all kinds of machinery for propelling boats, locomotives, mills, and factories, has brought out a great number of American inventions and improvements, displaying a degree of talent, ingenuity, and science highly creditable to our country. Some of the models in this department were very valuable. America claims the honor (contested, indeed, by England) of the first successful attempt to apply the power of steam to the propelling of vessels. The name of Fulton is associated with one of the noblest efforts of genius and science. It has often been regretted that no model was preserved of his steamboat, which was the first to demonstrate the practicability of making steam subservient to the purposes of useful navigation. There was, however, deposited in the Patent Office a volume of drawings elegantly executed by his own hand, delineating the various parts of the machinery he employed, and embracing three beautiful representations of his steamer making its first triumphant struggle against the opposing current of the Hudson. The steamer was represented passing through the Highlands, and at two or three other interesting points on the river, with a beautiful sketching of the surrounding scenery smiling as it were at the victory which science and art had at last achieved over the power of the winds and the waters, and at the opening era of steam navigation, the benefits of which have since been so widely diffused. It contained also an account of his experiments on the resistance of fluids, and various estimates of the power required to propel vessels of various tonnage and form through the water at a greater or less speed. This volume, which should have been preserved among our choicest archives, shared the fate of everything else in the Office. What sum would be too great to be expended in replacing it?

AGRICULTURAL MACHINERY AND IMPLEMENTS.

"The department of agriculture contained a great number of models of highly useful improvements in the implements of husbandry. The number of inventions which had for their object the advancement of the agricultural interests was about fifteen hundred; those which pertained to navigation were little short of a thousand. The inventions and improvements in factory machinery, and in the various manufactures, were upwards of two thousand. In the common mechanical trades there were as many more. It were vain to attempt to enumerate or classify them within the reasonable space of a report of committee. There was no art or pursuit to which ingenuity and invention had not lent their aid.

"That this great national repository should have received so little consideration heretofore as to be left so long exposed to conflagration, which has at last swept every vestige of it from existence, cannot be too deeply deplored. But the reproach does not rest at the door of the present Congress. The act passed at its first session, re-organizing the Office, containing many important provisions for its management, and the appropriation for erecting a fire-proof building for the accommodation and preservation of the records, models, &c., which is now under construction, attests the interest inspired and the attention devoted to it, though, unfortunately, too late to rescue it from destruction."

REFLECTIONS ON THE USE OF MODELS.

If this statement of the condition of the Patent Office was true in 1836, what might be said for the model-room of the present time? Seven thousand models comprised what was then called the grandest collection in the world. If such solicitude was felt for its welfare when the patent system was just gaining a foothold, what could be said of it at the present day? And how varied and great are the interests affected, and what multitudes are thrilled at the destruction which has overtaken so large a portion of these representatives of American skill and industry.

The 7,000 models of 1836 had expanded to nearly 200,000 in 1877. They were arranged, before the fire, in classes, each class in chronological order. This vast collection illustrated to the eye of the visitor, almost at a glance, the growth of each art. Some of them, such as sewing-machines, harvesters, and the like, were purely original American inventions. This collection was the one thing of all others which foreign visitors were eager to see, and it was universally admired and commended by them. There was nothing equal to it in the world. Besides being a grand example of the progress of American industry, it was a useful school for those who take an interest in mechanics, whether for profit or pleasure. It is in daily use by people of every class who are interested in industrial arts, as a record in which every stage of progress is to be found and opportunities for future improvements indicated.

As to its usefulness there has never been a question, opinions only varying as to the extent of its value for the purpose for which it is used. The intelligence which founded the Patent Office fully appreciated the value of the collection for which the foundation was then laid. The views of the committee upon this subject were fully set forth in a report made by Senator Ruggles, after the fire of 1836, from which the following quotations are made:

"The specifications, models, and drawings are required that, after the patent-term shall have expired, the public may have the benefit of a disclosure of the invention, so full and intelligible that any one can apply its principles to practical use or make the foundation of further improvements.

VALUE OF MODELS.

"It is a still more erroneous idea that no drawings or models of new inventions are of use to the public unless the machinery they represent is susceptible of a practical application to the use designed. Mechanical science, like all others, is matured and perfected by degrees, and by calling to its aid the investigations and ingenuity of various minds. Most inventions are but the foundation of progressive improvements. It is

necessary to know what has been done in order to know what remains to be accomplished. Every age avails itself of the experience and discoveries of that which has preceded it. Were it otherwise, knowledge would be stationary, and every generation, instead of being wiser than others gone by, would be employed in learning over again what had been acquired before. The drawings and models of even those inventions which are imperfect or incapable of producing the desired effect serve to show how far others have progressed, and either furnish hints for the full accomplishment of the design or as beacons to enable others to avoid fruitless labor and expense. Whoever would attempt to improve the arts must begin where others have left off; hence the model-rooms of the Patent Office were constantly visited by men of genius and science from all sections of the country, and from Europe, where they were able at once to discover how far American invention had gone, and where they frequently derived important hints from inventions and contrivances of apparently but little value.

MODELS INDISPENSABLE FOR THE USE OF PATENT OFFICIALS.

"They would seem, also, to be almost indispensable, in deciding upon new applications for patents, to enable the proper officers to judge of the originality of the invention, and to prevent the issuing of interfering patents. It often requires a very close examination of the principles of a machine, and a careful comparison of models and drawings, to discover how far they interfere with previous inventions. The provision interdicting the granting of patents for what is not new and original is the most valuable feature of the act of July last. But it will be impossible for the Commissioner to administer the law in that particular, according to its intent, without models and drawings of inventions previously patented. The consequence would be, in effect, the restoration of a great portion of the evils of the former system in multiplying conflicting rights, leading to much perplexity and expensive litigation. Much of the ground traveled over in the last forty years would have to be traveled over again before the point could be reached at which we had arrived prior to the late conflagration.

RESTORATION OF LOST MODELS RECOMMENDED.

"The committee therefore believe that it is important to the interest of the country, as well as to the security of individual rights, that measures be immediately adopted to replace, as far as practicable, the records, drawings, and models which have been destroyed. After much inquiry and consideration the committee are satisfied that, notwithstanding the apprehensions and anxiety so generally entertained, a restoration is practicable to a very gratifying extent. The first step must be to procure, for the purpose of being copied and recorded anew, the original patents. In most instances descriptions and specifications of the inventions, and in, perhaps, a sixth or eighth part of the cases, drawings also have been annexed to the patents when granted. Drawings have been attached only when referred to in the specifications. The whole number of patents is a little upwards of ten thousand. It is believed that from six to seven thousand may be obtained for record. Many of the deficient drawings may be obtained from patentees, or may be supplied by the assistance of those whose familiar knowledge of the inventions will enable them, aided by the specifications, to delineate them with much accuracy. Many copies heretofore certified from the record to be used as evidence in the courts will supply others.

MANY MODELS NEED NOT BE REPLACED.

"Of the models, such as were trifling and unimportant, containing no new principle or combination of mechanism, and not useful for any of the purposes before alluded to, it will not be necessary to replace. The whole number of models was about 7,000. It is the opinion of the Commissioner and others most conversant with the subject that 3,000 of the most important can be replaced, which will form a very interesting and valuable collection—less numerous, indeed, but more select, and scarcely less useful, than that which has been destroyed. Some of these would be replaced by voluntary contribution. But the greatest portion of them—even of those whose restoration would be most desirable—the committee are satisfied can only be had by means in the hands of the Government. If it were in the power of the Government to compel patentees to replace the models and drawings lost by its improvidence, it would be an onerous and unjust tax upon those who, by their ingenuity, and at their own expense, built up an institution which, in its connection with manufactures, with agriculture, and even commerce itself, has done much to advance the prosperity of the country. They have paid into the Treasury $156,907.73 more than has been required to meet the expenses of the Office, including the salaries of the officers employed in it; and the committee cannot hesitate in recommending the appropriation of that balance to carry into effect the provisions of the bill which is herewith submitted."

THE LAW OF 1837—DUTIES OF THE COMMISSIONER.

In addition to this report, this committee presented a bill in conformity with their views. This bill became a law on the 3d of March, 1837. It gave any person in possession of a patent issued prior to the 15th of December, 1836, the right to record the same anew in the Patent Office, without charge, together with the descriptions, specifications, and drawings belonging to the same. This law also imposed upon the Commissioner of Patents the duty of obtaining, as far as practicable, copies of patents, specifications, drawings, &c., for the purpose of having them transcribed and recorded. It also gave the Commissioner authority to record any authenticated copy of the original record, specification, or drawing which he could obtain, and he was also permitted under this act to record any drawing produced as a delineation of the invention, if it was re-enforced by an oath and referred to in the specification, even if it was not originally annexed to the patent.

PROVISIONS FOR OBTAINING COPIES OF DESTROYED MODELS AND DRAWINGS.

It made it the duty of the several clerks of the judicial courts of the United States to transmit to the Commissioner a statement of all authenticated copies of patents, descriptions, specifications, and drawings

executed prior to the 15th day of December, 1836, which were on file in his office, and it also made it obligatory on this class of officers to make out and transmit to the Commissioner for record a certified copy of every such patent, description, specification, or drawing as the Commissioner should specially require.

CERTIFIED COPIES TO BE PRIMA FAÇIA EVIDENCE.

The second section of this act provided that all copies of this record of specifications and drawings certified to by the Commissioner or chief clerk should be *prima facie* evidence of the particulars of the invention and of the patent granted. Therefore, in any United States court, in all cases, copies of the original record of the specifications and drawings would be evidence without proving the loss of the originals. And to compel patentees to record anew, it provided that no patent issued prior to the fire of the 15th day of December, 1836, should be received in evidence in any of the courts of the United States after the 1st of June, 1838, unless it had been recorded prior to that time in the Patent Office, as provided in the first section of the act, and a drawing of the invention, if separate from the patent, verified as aforesaid and deposited in the Patent Office prior to its being offered as evidence; and no assignment of such patent was to be useful as evidence unless it had been recorded anew under the same conditions as prescribed for the original patent. The third section of the act made it the duty of the Commissioner, upon the application of the patentee or other person interested therein, whenever it should appear to him that the patents so applied for had been destroyed by the burning of the Patent Office building on the 15th day of December, 1836, or otherwise lost prior to that time, and which patent was to bear the date of the original, to attach his certificate, showing that it was made and issued pursuant to this act. It made it obligatory, however, upon the patentee to deposit in the Patent Office, before this duplicate patent should issue, copies of the original model, drawings, descriptions, and specifications, duly verified under oath, which copies were to be admissible as evidence and held to protect the rights of the patentee to such extent, and that only, as they would have been protected by the original patent and specification.

DUPLICATE MODELS TO BE OBTAINED.

The fourth section of the act made it the duty of the Commissioner to obtain duplicates of such models as were destroyed by the fire of the 15th December, 1836, as were most valuable and interesting, and whose preservation would be most important to the public; and it appropriated a sum not exceeding $100,000 for that purpose. It also authorized a temporary board of commissioners, composed of the Commissioner of Patents, and to be appointed by the President, to consider and determine the best mode of obtaining models of suitable construction, and also what models should be procured in pursuance of the act. Section 5 provided that whenever a patent should be returned for correction or reissue, and the patentee should desire to have several patents issued for distinct and separate parts of the thing patented, he might do so upon the payment of $30 for each additional patent, but before any one of them should be corrected and reissued a duplicate model and drawing of the thing as originally invented, verified under oath, was to be deposited in the Patent Office. The same section also provided that there should be no improvement made to any patent heretofore granted, nor any new patent be issued for an improvement to any machine, manufacture, or process to any person, nor any disclaimer be admitted to record, until a duplicate model and drawing of the thing originally intended, verified under oath, should have been deposited in the Patent Office.

It also provided that there should be no patent granted for an invention, improvement, or discovery, the model of which shall have been lost, until another model, if required by the Commissioner, should be deposited in the Patent Office. The compensation to be paid for these duplicate models and drawings was to be determined by this board of commissioners, under the limitations and restrictions of the act. The 6th section provided that in all cases, after the passage of this act, duplicate drawings, whenever the case would admit drawings, should be furnished by the applicant and considered as part of his specification.

The 8th section made all applications for improvements, re-issues, &c., subject to the same examination and revision as an original patent, and placed them exactly on the same footing in the Office as though it were a new application for an original patent or improvement. The 10th section gives the Commissioner power to appoint agents in the principal cities of the United States to receive models, specifications, and specimens, and to forward the same to the Patent Office, the transportation of which was to be charged to the patent fund. The 11th section authorized the appointment of an additional examiner and an additional clerk, and authorized the appointment of temporary clerks to carry out the provisions of the act. The last section of the act appropriates all money in the Treasury of the United States prior to July 4, 1836, to the credit of the patent fund, for the payment of the expenses of the Patent Office, and authorized the Commissioner to draw against it for that purpose. Under the provisions of this act the Commissioner began a correspondence with every person who had secured a patent up to the 15th of December, 1836, and in his report for the year 1837 he mentions that "2,000 patents had been restored during the year, and that by the steps he had taken he thought the most valuable records would be restored." In his report for 1837 he also notes the fact that he had nearly completed an alphabetical and classified digest of all the patents granted by the United States up to the time of the fire. This index was afterwards completed, and is the only record of the early transactions of the Office in existence.

The Commissioner, in his report for 1838, speaks of the models and drawings restored as amounting to several thousand, and he seems to have regarded the Office as pretty fairly re-organized in this year, although it was not until 1849 that the restoration of the destroyed models, drawings, &c., authorized by the act above cited was discontinued. Out of the $100,000 appropriated for this purpose, only $88,237.32 was expended. The labor attending this expenditure was very great, and extended over a period of twelve years, during which time the Office was constantly in correspondence with thousands of inventors in different parts

of the country. A few of the most valuable models and drawings destroyed could not be duplicated at any cost, but nearly all that were of importance were restored.

EXAMINER OF INTERFERENCES.

The act of July 8, 1870, remodeled and restated much of the law which had been enacted prior to that date in relation to the granting of patents. It created the office of Assistant Commissioner, as also that of Examiner of Interferences, which officer was to have primary jurisdiction in determining the extent of interfering applications. Prior to the creation of this office each examiner had jurisdiction, and determined interferences in the particular class over which he presided. The Examiner of Interferences hears and determines upon the law and the evidence all cases of interference which arise in the Office. It may be said to be a purely judicial position, and is, perhaps, more strictly so than any other in the Office.

VALUE OF PHOTO-LITHOGRAPHY TO THE PATENT OFFICE.

Perhaps one of the most valuable auxiliaries to the business of the Office, and one of the most important scientific inventions of the age is the system of photo-lithography which it now employs in the reproduction of its records. For years the increasing business of the Office and growing demand for copies of drawings and illustrations seriously taxed the patience and ingenuity of its officials. Patentees and those interested in certain classes of patents were obliged to have tracings or drawings made at large expense, occasioning vexations delays and a vast amount of hard work. In 1861, during the administration of Mr. D. P. Holloway, an effort was made to reproduce drawings by the common silver print photograph. Before the experiment was fully tried, however, the war so disturbed the patent business that it was discontinued. But from the first issue of July 1, 1869, the Office resumed reproduction by this process, twelve copies of each patent being made. Some of them are still in existence, and, as compared with the present complete and economical system, are great curiosities.

FIRST ATTEMPT AT PHOTO-LITHOGRAPHING.

On January 1, 1870, the person then doing this work made his first attempt at photo-lithographic reproduction. So successful was the effort that on July 1 of the same year the first contract was entered into for reproducing the current issues by this process. Twelve copies of each patent were published on sheets 10 by 15 inches. Applications for these copies increased rapidly, and, although the system was in its infancy, it gave such satisfaction and promised so well for the future that on July 1, 1871, the second contract for this work was entered into, three hundred copies of each patent being ordered on sheets 7½ by 11, the present size. This number was found to be in excess of the demand and was soon reduced to 150 copies of each patent, which is the number still reproduced. During this year the success of this system was so fully established and the benefits derived, both by the public and the Office, so great, that the reproduction of back work by classes of inventions was instituted, and up to the present time the following full classes have been reproduced:

LIST OF DRAWINGS REPRODUCED.

1. Aeration and Bottling.
2. Apparel.
4. Baths and Closets.
5. Beds.
6. Bee-hives.
7. Beer and Wine.
8. Bleaching and Dyeing.
9. Boats.
10. Bolts, Nuts, and Rivets.
11. Bookbinding.
13. Brakes and Gins.
14. Bridges.
15. Brushes and Brooms.
17. Butchering.
18. Caoutchouc.
19. Carding.
20. Carpentry.
21. Carriages and Wagons.
23. Chemical Miscellaneous.
26. Cloth.
28. Cordage.
29. Crinoline and Corsets.
31. Dairy.
33. Drafting.
34. Driers and Kilns.
36. Electricity.
37. Excavators.
38. Felting and Hats.
40. Files.
42. Fire-arms.
44. Fuel.
45. Furniture.
47. Garden and Orchard.
48. Gas.
52. Gunpowder.
53. Hardware manufacture.
55. Harrows.
56. Harvesters.
58. Horology.
59. Horseshoes.
61. Hydraulic Engineering.
62. Ice.
65. Kitchen Utensils.
66. Knitting and Netting.
67. Lamps and Gas-fitting.
68. Laundry.
71. Manures.
72. Masonry.
73. Measuring Instruments.
75. Metallurgy.
76. Metal Working, bending and straightening.
77. Metal Working, boring and drilling.
78. Metal Working, forging, swaging, and riveting.
79. Metal Working, punching, cutting, and shearing.
80. Metal Working, rolling.
81. Metal Working Tools.
82. Metal Working, turning, planing, and milling.
83. Mills.
85. Nails.
86. Needles and Pins.
87. Oils, Fats, and Glue.
88. Optics.
89. Ordnance.
90. Ore.
91. Paint.
92. Paper-making.
93. Paper manufactures.
94. Paving.
96. Plating.
97. Plows.
98. Pneumatics.
99. Preserving Food.
101. Printing.
102. Projectiles.
103. Pumps.
104. Railways, The Way.
105. Railways, (Cars and Interior Fittings.)
106. Railway Cars, (Exterior Mountings and Fittings.)
107. Railway Track and Car Irons and Fittings, manufacture of.
108. Roofing.
111. Seeders and Planters.
112. Sewing-machines.
114. Ships (1) construction.
115. Ships (2) propulsion.
116. Signals.
117. Silk.
118. Spinning.
119. Stabling.
120. Stationery.
124. Stills.
126. Stoves and Furnaces.
127. Sugar.
130. Thrashing.
131. Tobacco.
132. Toilet.
134. Tubing and Wire.
135. Umbrellas and Fans.
137. Water Distribution.
138. Water-wheels.
139. Weaving.
141. Wood-screws.

And the subdivisions of—

Bench-planes.
Bale-ties.
Buttons and Machines.
Combs, &c.

VALUE OF THIS METHOD OF SUPPLYING AND PRESERVING DRAWINGS.

In these classes there are 95,000 patents, a copy of any one of which can be obtained for 25 cents, or in any number exceeding twenty for 10 cents each. Before this system was inaugurated, the average cost would have been $2 per sheet. Recognizing the great value of this class of reproduction, the Office is at present engaged in completing the remainder of the classes, and it is the intention of the Commissioner that they shall be entirely completed during the present year. Then a copy of any patent granted by the United States can be procured promptly, and at the prices before mentioned. The sale of these copies, in addition to being of incalculable benefit to the public, is also a very considerable item in the earnings of the Office, as an average of at least 2,000 copies are furnished each business day of a year, and the number is being steadily increased and will be greatly augmented when the full list of classes is reproduced. But the greatest value of the system is the almost perfect security it gives to the records of the Office in case of fire, a practical illustration of which is furnished by the recent conflagration. The original drawings of the issue of September 4, 1877—some 300 in number—were in the model-room

at the time of the fire for the purpose of identifying the models for classification. They were entirely consumed, as were also the models belonging thereto; and had it not been that they had been reproduced, great loss and annoyance would have been caused to the patentees, the public, and the Office. This reproduction was done at a very small cost, and in fact will return a profit to the Office in the copies sold, besides causing no loss or annoyance to any one. The Office can repair the damage at its leisure, and in the mean time protect all the rights of the patentee. As another illustration of the value of this system, the late fire furnishes this striking example: The following list of drawings in the class of Wood Working, which were in process of being traced by employés in the model-room, preparatory to being photo-lithographed, both models and drawings were destroyed, and the only means at present by which a drawing-record can be restored is from the description as contained in the specifications which were preserved. These the Office must replace at considerable outlay and trouble:

DRAWINGS TO BE REPRODUCED FROM SPECIFICATIONS.

Making Wooden Screws.

No. 6,668. Garside and Betjamann, August 28, 1849.
No. 8,416. Lewis, S., October 7, 1851.

Circular Saw Mills.

No. 14,241. Hurlbut, W. W., February 12, 1856.

Circular Sawing Machines.

No. 37,816. Hughes, H. E., March 3, 1863.
No. 438. Russell, I. D., March 17, 1857.
No. 15,304. Rice, O., July 8, 1856.

Drag Saws.

No. 41,397. Richmond, F. J., January 26, 1864.
No. 56,426. Mac Lennan, D. R., July 17, 1866.
No. 16,883. Scotton, S., March 24, 1857.
No. 17,454. Scotton, S., June 2, 1857.

Head Blocks.

No. 1,074. Baldwin, E., January 31, 1839.
No. 30,623. Dyer, E. G., November 13, 1860.
No. 11,036. Russell, D., June 6, 1854.
No. 11,618. Russell, T. H., August 29, 1854.
No. 2,566. Sheffield, J., April 16, 1842.
No. 3,667. Stetson & Co., July 15, 1844.

Making Laths.

No. ——. Pierson, W., December 31, 1833.
No. 3,715. Gilman, E. C., August 23, 1844.

Reciprocating Saw Mills.

No. 425. Brown, I., February 3, 1857.
No. 34,942. Burns, W. R., April 15, 1862.
No. 2,444. Cook and Co., February 1, 1842.
No. 6,891. Dugard, T., November 20, 1849.
No. 42,276. Deputy, J. J., April 12, 1864.
No. 42,277. Deputy, J. J., April 12, 1864.
No. 10,130. Frazee, B., October 18, 1853.
No. 2,704. Hammilton, J., July 2, 1842.
No. 3,053. Hamilton, J., April 15, 1843.
No. ——. Naylor T. B., June 2, 1836.
No. 7,325. Parsons, E. H. and S., April 30, 1850.
No. 714. Secor, J., April 28, 1838.
No. 3,858. Stigleman & Co., December 16, 1844.

Of the models destroyed the following classes have been reproduced and can be purchased from the Office for 25 cents each, or 10 cents each for twenty and upward:

DRAWINGS ALREADY REPRODUCED.

Class.	No. of Patents.
1 Aeration and Bottling	1,127
4 Baths and Closets	742
6 Bee-hives	723
10 Bolts, Nuts, and Rivets	41
13 Brakes and Gins	1,200
14 Bridges	625
15 Brushes and Brooms	1,063
17 Butchering	394
20 Carpentry	1,542
21 Carriages and Wagons	5,700
31 Dairy	2,175
37 Excavators	743
40 Files	93
47 Garden and Orchard	1,167
53 Hardware manufacture	158
55 Harrows	901
56 Harvesters	4,050
59 Horseshoes	137
61 Hydraulic Engineering	443
72 Masonry	510
75 Metallurgy	1,500
76 Metal Working, bending and straightening	92
77. Metal Working, boring and drilling	325
78. Metal Working, forging, swaging, and riveting	358
79. Metal Working, punching, cutting, and shearing	366
80. Metal Working, rolling	288
81. Metal Working Tools	391
82. Metal Working, turning, planing, and milling	304
83. Mills	2,006
94. Paving	565
97. Plows	3,286
98. Pneumatics	1,540
103. Pumps	2,310
104. Railways, The Way	2,280
105. Railways, (Cars and Interior Fittings).	5,267
106. Railways, (Cars, Exterior Mountings, and Fittings)	
107. Railway Track and Car Irons and Fittings, manufacture of	153
108. Roofing	421
111. Seeders and Planters	3,075
119. Stabling	891
130. Thrashing	1,380
131. Tobacco	769
134. Tubing and Wire	246
137. Water Distribution	2,008
138. Water-wheels	1,280
And the subdivisions of—	
Bench-planes	252
Bale-ties	541
Total	50,231

Printed copies of specifications from November 20, 1866, to date, are also furnished by the Office.

EFFECT OF THE FIRE ON "PENDING" AND "REJECTED" CASES.

The result of the late fire was by no means as disastrous as that of 1836, although twenty times the amount of property was destroyed. In 1836 the model, written, and illustrated records of the Office were all consumed, while very little original was destroyed by the fire of

September 24th except models. Of these there were three distinct classes: the patented, the "pending," and the rejected models. A few words will indicate their value respectively, and the possible results of the loss.

When an application is sent to the examiner, the model goes with it, and is placed, during the pendency of the application, on its proper shelf in his model-cases. So great is the number of applications, however, in some classes, that for a few years past the examiners' cases were overcrowded, and it became necessary, at short intervals, to remove all but the newest models to small rooms in the west hall of the model-room, where they were kept as part of the secret archives of the Office. There they remained until the application was finally disposed of, either by allowance or abandonment. These constitute the class of pending models, of which several thousand were destroyed, a classified list of which is hereafter presented.

Their value is difficult to ascertain. Many of the cases will undoubtedly be rejected, when the models will cease to have value except as curiosities. In case of allowance of any, the inventor will be invited to furnish a new model, which, after careful comparison by the examiner with the specification and drawing, will, if found satisfactory, be placed in its proper case precisely as if it were the original.

The pecuniary loss in these cases falls on the inventor alone. Hard as this may appear, where an expensive model has been destroyed through no fault of his own, there is no law under which he can find relief. He may, however, decline to furnish another model. This, of course, is at his option.

In allowed applications the models, while awaiting payment of the final fee and issue of the patent, are kept in close cases also in the west hall. These belong to the class of "pending" models, but are technically known as "issue" models, and also numbered several thousand. A circular has been sent to each of the inventors, inviting him to furnish a duplicate, on th receipt of which the case will be remanded to the examiner. If he finds the model acceptable, it can be regarded as if original.

The rejected models are referred to and their value fully explained in the estimate of the losses treated of in the first part of this article.

It will be seen that while the aggregate money value of these models is very great, the loss is nevertheless widely distributed, and by no means irreparable.

The questions which arise on the restoration of models and the continuance of the model system involves many conflicting interests, which will doubtless receive a great deal of attention and discussion. Many arguments, both *pro* and *con*, might be presented to sustain different theories advanced, but they are not needed to demonstrate the fact that the subject is an intricate as well as an important one, upon which there is great diversity of opinion. Speculations or arguments, then, as to the value of individual sentiments, or what will or what should be the action of Congress or the recommendations of the Commissioner of Patents, would be of little value here. The questions which this conflagration brings up for settlement must be disposed of after a careful investigation and consideration of all the interests involved. If it should be decided to restore any of the models destroyed, how many, and of what classes, will perhaps be the most delicate question to determine, and one which will call for the exercise of great discretion, care, and judgment. No doubt a large number of the models destroyed would be restored voluntarily by the patentees themselves, for they very generally have an ambition to have their inventions on exhibition, where they can be constantly under the eye of those whose interest in patent matters calls them to a study of the contents of this National Museum of Mechanics for either profit or pleasure. Indeed, the Commissioner is in daily receipt of propositions looking to the restoration of destroyed models, but to all such inquiries there can be but one answer, and that is, that pending legislation by Congress the Office cannot take the subject into consideration, and while there is no objection to receiving duplicates of the models destroyed they can have no legal value whatever or be of any use to the Office or inventor except as exhibits to illustrate the progress of that branch of industry to which they belong.

Every possible effort has been made to preserve and arrange the model-collection undisturbed by the fire, as well as that part of it injured by water or removal, and it has been carefully cared for and placed in as perfect order as the crowded condition of the two uninjured halls, in which it is stored, will admit. The Commissioner has had taken from the débris and carefully preserved as many of the models made of metal as it was possible to gather in a fair state of preservation, and when opportunity offers will have them carefully assorted and cleaned. Many of them are nearly, if not quite, as perfect as before the fire, and it is believed that from 5 to 10 per cent. may yet be identified, and be for all practical purposes as valuable as ever.

The Patent-Office, since its foundation, has earned, over and above its expenses, nearly two millions of dollars, and this amount represents but an insignificant part of the sum it has placed to the credit of the wealth of this nation. This sketch of its operations might be extended almost indefinitely, for the history of the Patent-Office is an important part of the record of the material progress of the land. To follow in minute detail every change which has taken place in its management, or to advance arguments and theories as to its future—which events and the judgment of the power which controls it may decide without foundation—will hardly be expected in an article having for its primary object the placing of an important event in its history in an authentic shape for future reference. Interest in the subject has led, however, to the addition of some historical data and incidents not directly connected with the particular event which made this record necessary. The object sought is to interest all who may chance to look over them, and especially those whose interests or inclination brings them into friendly relations with this important branch of the public service. This bureau deals with a greater number of the people of the country than any other, and its operations affect, directly or indirectly, nine-tenths of the people of this nation. To the arts it has created and fostered, the country owes much of its present development, and it may not be unreasonable to expect that, if sound judgment and discretion dominates in shaping the legislation that the present emergency makes necessary, its future usefulness will be greater even than its past.

EXPLANATION OF THE ILLUSTRATIONS.

The plans, sectional views, &c., of the United States Patent Office building as it appeared before and after the fire of September 24, 1877, herewith presented, will be found an interesting part of the history of that important event. The first is a perspective view of the building as it appeared before the fire, the only inaccuracy being in the steps of the entrance on F street, which were somewhat changed when the street was cut down some years since. The lower figure of this view, showing the Ninth and G street wings, is the only drawing of this portion of the building in existence, and was made especially for this work. The autographic signatures of the officials of the Interior Department and heads of the different bureaus occupying the building at the time of the fire are affixed to this illustration.

The second view minutely shows where the fire first appeared on the roof above the rejected model room, and the exact points on either side where it was arrested.

The third view shows the construction of the roof.

The fourth view shows the location of the various classes in the portions of the model room destroyed, and by reference to the printed lists of models consumed the exact location of the models of the various classes of inventions can be determined.

The fifth are sectional views of the Ninth and G street wings, the upper portion showing the walls of the burned model room. These views also show the construction of this part of the building.

The sixth and seventh views represent the two halls of the model room as they appeared on the morning after the fire. These views are reproduced from drawings made from photographs taken by Mr. L. E. Walker, the photographer of the United States Treasury Department, and convey as perfectly as possible the appearance of the model-room floor on the G and Ninth street wings. The Heliotype views of the exterior and roof of the building are highly commended, as they present a faithful picture of those parts and the shutes erected from the windows on both sides of the burned portions for removing the *debris*, as well as the masses of iron girders, &c., piled around the building. They are not referred to by number, as they are a different class of views from the others and can be readily recognized. The plans of the basement and first and second floors show precisely the location of, and duties performed in, each room at the time of the fire.

The last sketch is of importance as showing by comparison the immense growth of the Patent Office consequent upon the rapid stride of American art and ingenuity within the past thirty years. The whole collection presents, as clearly as may be, the exterior and interior of the building from every point of view which can render anything to satisfy curiosity or give instruction

LIST OF MODELS DESTROYED IN THE WEST HALL, UNITED STATES PATENT OFFICE, BY FIRE, SEPTEMBER 24, 1877.

NOTE.—The figures on the left indicate the number of the case in which the models were kept; those on the right the number of the class. The lesser number in the space occupied by the cases indicates the number of the case on the ground-floor of the model-room, and the greater number the case in the gallery.

West Hall, West Side, Ground Floor.

MODELS IN PENDING ISSUE CASES.

Case.	Class.
1. Grinding-mills	83
1. Clay	25
1. Glass	49
1. Dryers and Kilns	34
1. Lamps and Gas-fittings	67
1. Stoves and Furnaces	126
2. Apparel	2
2. Beer and Wine	7
2. Bleaching and Drying	8
2. Caoutchouc	18
2. Chemical Apparatus and Specimens	23
2. Crinoline and Corsets	29
2. Educational	35
2. Felting and Hats	38
2. Fishing	43
2. Fuel	44
2. Fine Arts	41
2. Games and Toys	46
2. Gas	48
2. Ice	62
2. Jewelry	63
2. Music	84
2. Metallurgy	75
2. Manures	71
2. Ore	90
2. Oils, Fats, and Glue	87
2. Paint	91
2. Printing	104
2. Paper-making	92
2. Plating	96
2. Preserving Food	99
2. Photography	95
2. Stationery	120
2. Toilet	132
2. Umbrellas and Fans	135
3. Brushes and Brooms	17
3. Butchering	13
3. Brakes and Gins	6
3. Bee-hives	31
3. Dairy	47
3. Garden and Orchard	56
3. Harvesters	55
3 Harrows	97
3. Plows	111
3. Seeders and Planters	119
3 Stabling	131
3. Tobacco	4. Metal-working 76, 77, 78, 79, 80, 81, 82
4. Sheet Metal	113
4. Wood-working Tools and Machinery	142, 143, 144, 145
4. Builder's Hardware	16
4. Cutlery	30
4. Leather-working	69
4. Boots and Shoes	12
4. Harness	54
4. Hose and Belting	60
4. Trunks	133
4. Clasps and Buckles	24
4. Tanning	129
5. Aeration and Bottling	1
5. Baths and Closets	4
5. Carriages and Wagons	21
5. Governors	50
5. Hoisting	57
5. Journals and Bearings	64
5. Mechanical Powers	74
5. Pneumatics	98
5. Pumps	103
5. Presses	100
5. Steam	121, 122, 123
5. Stone, Lime, and Cement	125
5. Water-distribution	137
5. Water-wheels	138

PATENTED MODELS.

Case.	Class.
6. Carriages and Wagons	21
7. Carriages and Wagons	21
8. Carriages and Wagons	21
9. Carriages and Wagons	21
10. Carriages and Wagons	21
11. Carriages and Wagons	21
12. Carriages and Wagons	21
13. Stone Sawing, Dressing, &c	125
14. Stone Sawing, Dressing, &c	125
14. Glassware, Manufacture and Articles	49
15. Hoisting	57
16. Hoisting	57
17. Hoisting	57
18. Hoisting	57
19. Hoisting	57
19. Ventilating Ships	98
19½. Ventilating Buildings and Cars	98
20. Ventilating Buildings and Mines	98
21. Butchering	17

West Hall, East Side, Ground Floor.

PATENTED MODELS.

Case.	Class.
21½. Brushes and Brooms	15
21½. Apple-parers	65
22. Brushes and Brooms	15
22. Butchering	17
22. Baskets, manufacture of	144
23. Brushes, and Machines for manufacture of	15
21. Hay-tedder	56
24. Smut-mills	83
25. Thrashing-machines	130
26. Presses	100
27. Presses	100
28. Presses	100
29. Tobacco	130
30. Mining	125
31. Mining	125
32. Horse-power	74
33. Mechanical Power	74
34. Journals and Bearings	64
34. Lubricators	64
35. Mechanical Powers	74
36. Mechanical Powers	74

PENDING ISSUE MODELS.

Case.	Class
37. Furniture	45
37. Kitchen Utensils	65
37. Beds	5
37. Laundry	68
37. Steam	121, 122, 123
38. Dental	32
38. Coffins	27
38. Driers and Kilns	34
38. Drafting	33
38. Electricity	36
38. Fire-arms	42
38. Horology	58
38. Lamps and Gas-fittings	67
38. Measuring-instruments	73
38. Optics	88
38. Ordnance	89
38. Projectiles	102
38. Ships, Construction	114
38. Ships, Propulsion	115
38. Signals	116
38. Surgery	128
39. Bridges	30
39. Cloth	26
39. Cordage	28
39. Carding	19
39. Carpentry	20
39. Excavators	37
39. Hydraulic Engineering	61
39. Masonry	72
39. Paving	94
39. Knitting and Netting	66
39. Railways	104, 105, 106
39. Roofing	108
39. Sewing-machines	112
39. Spinning	118
39. Weaving	139
40. Driers and Kilns	34
40. Lamps and Gas-fittings	67
40. Stove and Furnace	126

West Hall, West Side of Gallery.

PENDING REJECTED MODELS.

Case.	Class.
41. Metallurgy	75
41. Ore	90
41. Chemical Apparatus, (every description)	
41. Beer and Wine	7
41. Ice	62
41. Gas-apparatus	48
41. Manure	71
41. Plating	96
41. Preserving Food	99
41. Paint	91
41. Oils, Fats, and Glue	87
41. Fuel	44
41. Caoutchouc	18
41. Bleaching and Dyeing	8
41. Stills	

PENDING REJECTED MODELS IN SMALL ROOM IN SOUTHWEST CORNER OF WEST HALL GALLERY, INDICATED IN THE DRAWING BY A.

	Class.
Railways	104, 105, 106
Carpentry	20
Masonry	72
Roofing	108
Paving	94
Excavating	37
Hydraulic Engineering	61
Bridges	14

PENDING REJECTED MODELS.

Case.		Class.
41½.	Specimens of Chemicals.	
41½.	Preserving Food, &c. Specimens.	
41¼.	Ore Specimens.	
41¼.	Medical Compounds and other Specimens belonging to Chemical Miscellaneous.	23
42.	Aeration and Bottling	1
42.	Carriages and Wagons	21
42.	Baths and Closets	4
42.	Pneumatics	98
42.	Pumps	103
42.	Water Distribution	137
42.	Water-wheels	138

PATENTED MODELS.

43.	Bridges	14
44.	Hydraulic Engineering	61
45.	Hydraulic Engineering	61
46.	Excavators	37
47.	Excavators	37
48.	Paving	94
49.	Masonry	72
50.	Carpentry	20
50.	Roofing	108
51.	Carpentry	20
52.	Fire-escapes	20
53.	Fences	39
53.	Ladders	20
54.	Fences	39
55.	Fences and Gates	39
56.	Fences and Gates	39
56.	Traction Engines and Wheels	21
57.	Gates	39
57.	Step Ladders	20
57.	Car Wheels and Axles	106
58.	Dairy	31
59.	Dairy	31
59½.	Dairy	31
60.	Dairy	31

West Hall Gallery, Small Room Northwest Corner, indicated on the drawing by B.

PENDING REJECTED MODELS.

Ships' Construction	114
Ships' Propulsion	115
Surgery	128
Coffins	27
Fire-arms	42
Ordnance	89
Printing	101
Stationery	120
Book-binding	11

West Hall Gallery, East Side.

PATENTED MODELS.

61.	Stabling	119
	Dairy	31

West Hall Gallery, Small Room Northeast Corner, indicated on the drawing by C.

PENDING REJECTED MODELS.

	Class.
Bee-hives	6
Dairy	31
Brushes and Brooms	15
Fences	39
Harvesters	50
Plows	97
Stabling	119
Tobacco	131
Chemical Specimens	23
Sewing-machines of the year 1874	10

West Hall, East Side of Gallery.

PATENTED MODELS.

Case.		Class.
61½.	Stabling	119
62.	Stabling	119
63.	Stabling	119
64.	Stabling	119
65.	Brakes and Gins	13
66.	Brakes and Gins	13
66.	Bee-hives	6
67.	Bee-hives	6
68.	Baths and Closets	4
69.	Baths and Closets, (only on bottom shelf)	4

OLD REJECTED MODELS.

69.	Wood-working Tools and Machinery.	
70.	Wood-working Tools and Machinery.	
71.	Wood-working Tools and Machinery.	
72.	Wood-working Tools and Machinery.	
73.	Horology	58
73.	Optics	88
73.	Signals	116
73.	Electricity	36
73.	Measuring-instruments	73
74.	Same as Case 73.	

PENDING REJECTED MODELS.

Case.		Class.
75.	Furniture	45
75.	Kitchen Utensils	66
75.	Laundry	68
76.	Same as Case 75.	
77.	Horology	58
77.	Optics	88
77.	Signals	116
77.	Electricity	36
77.	Measuring Instruments	73
77.	Drafting	33
78.	Metal-working	76, 77, 78, 79, 80, 81, 82
78.	Casting	22
78.	Nails	85
78.	Needles and Pins. Manufacture of	86
78.	Wood-screws. Manufacture of	141
78.	Wire-working	140
78.	Safes	109
78.	Sheet metal	113
78.	Bolts, Nuts, and Rivets	10
78.	Builder's Hardware	16
78.	Builder's Hardware. Manufacture of	53
78.	Cutlery	30
78.	Locks and Latches	70
79.	Hoisting	57
79.	Mechanical Powers	74
79.	Presses	100
79.	Stone, Lime, and Cement	125
79.	Glass	49
79.	Clay	25
79.	Steam	121, 122, 123
79.	Valves	136
79½.	Mills	83
79½.	Threshing	130
80.	Metallurgy	75
80.	Ore	10
80.	Chemical Miscellaneous	23
80.	Beer and Wine	7
80.	Ice	62
80.	Glass	48
80.	Manures	71
80.	Plating	96
80.	Preserving Food	90
80.	Paint	91
80.	Oils, Fat, and Glue	87
80.	Bleaching and Dyeing	8
80.	Caoutchouc	18

West Hall Gallery, Small Room, Southeast Corner, indicated on the drawing by D.

PENDING REJECTED MODELS.

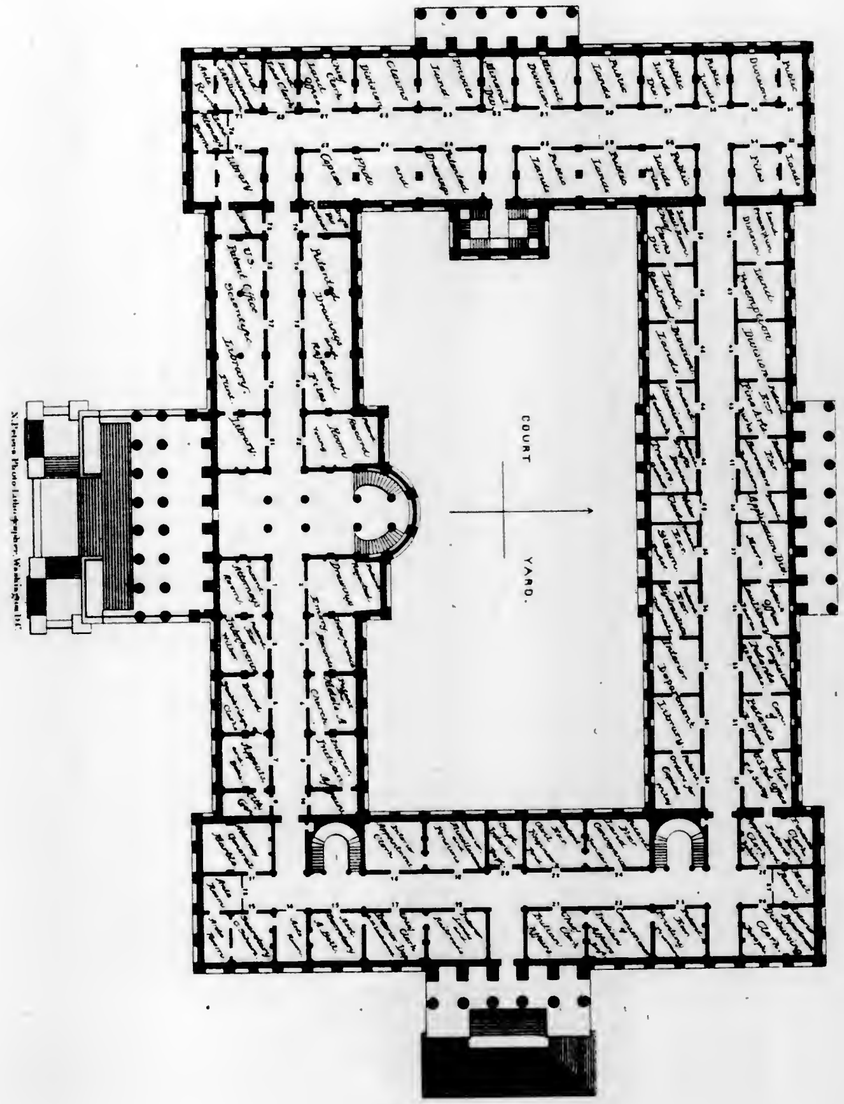
	Class.
Fine Arts	41
Knitting and Netting	66
Leather. Machines for operating upon	69
Boots and Shoes	12
Harness	54
Weaving	139
Spinning	118
Sewing-machines	112

LIST OF MODELS DESTROYED IN NORTH HALL.

NOTE.—The figures on the left indicate the number of the case in which the models were kept; those on the right, the number of the class; all of which are patented models. The lesser number in the space occupied by the case indicates the number of the case on the ground-floor of the model-room, and the greater number the case in the gallery.

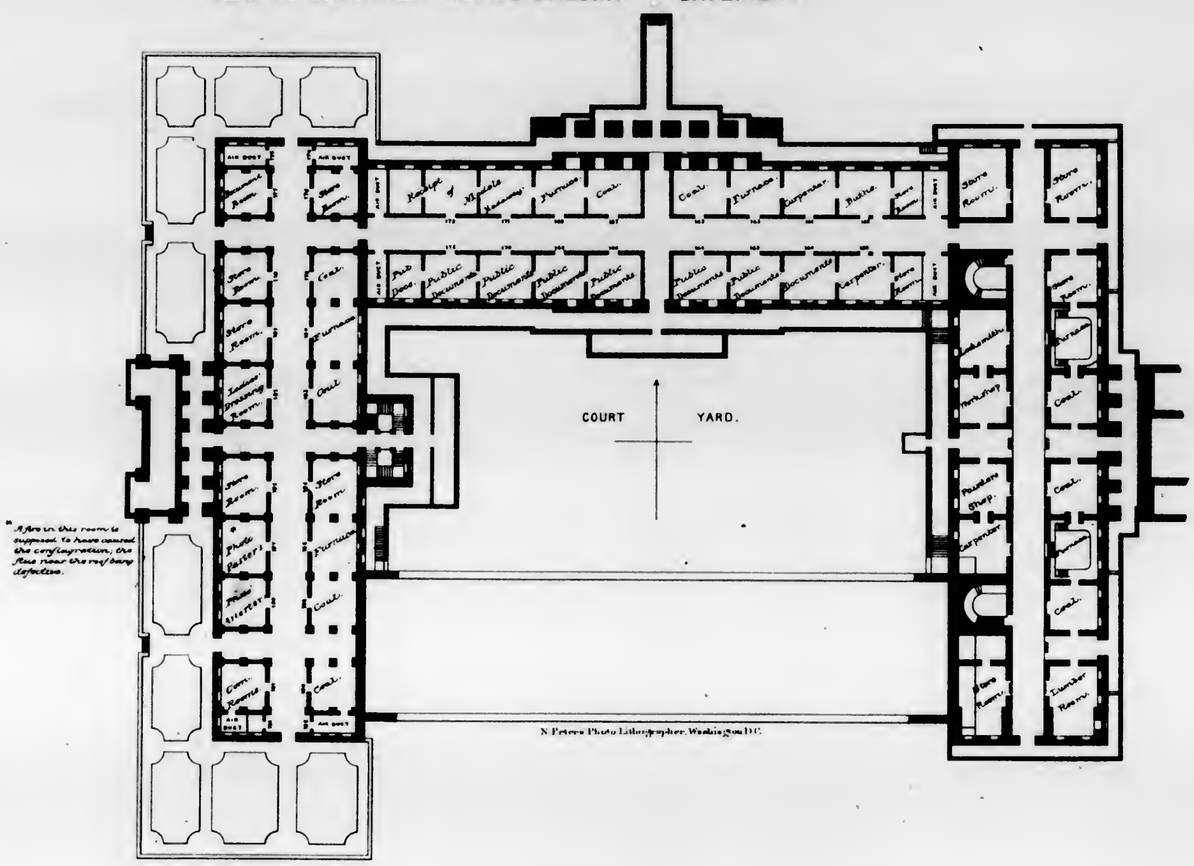
North Hall, South Side, Ground-Floor.

Case.		Class.
1.	Metal-working	
2.	Harrows	55
3.	Drain-plows	97
4.	Cultivators	97
5.	Gang-plows	97
6.	Hand-plows	97
7.	Hand-plows	97
7.	Steam-plows	97
8.	Seeding-machines	111
9.	Seeding-machines	111
10.	Seeding-machines	111
11.	Corn-planters	111
12.	Corn-planters	111
13.	Corn-harvesters	56
13.	Hand Seed-planters	111
13.	Hoes and Rakes	47
13.	Corn-stalk Choppers	56
13.	Hand Cultivators	97
14.	Potato-planters	47
14.	Potato-diggers	97
14.	Potato-assorting Machines	97
15.	Grain and Grass Harvesters	56
15.	Flax-pullers	56
15.	Clover-harvesters	56
15.	Cotton-cultivators	97
15.	Cotton-choppers	97
15.	Cotton-pickers	56
16.	Harvesters	56
17.	Harvesters	56



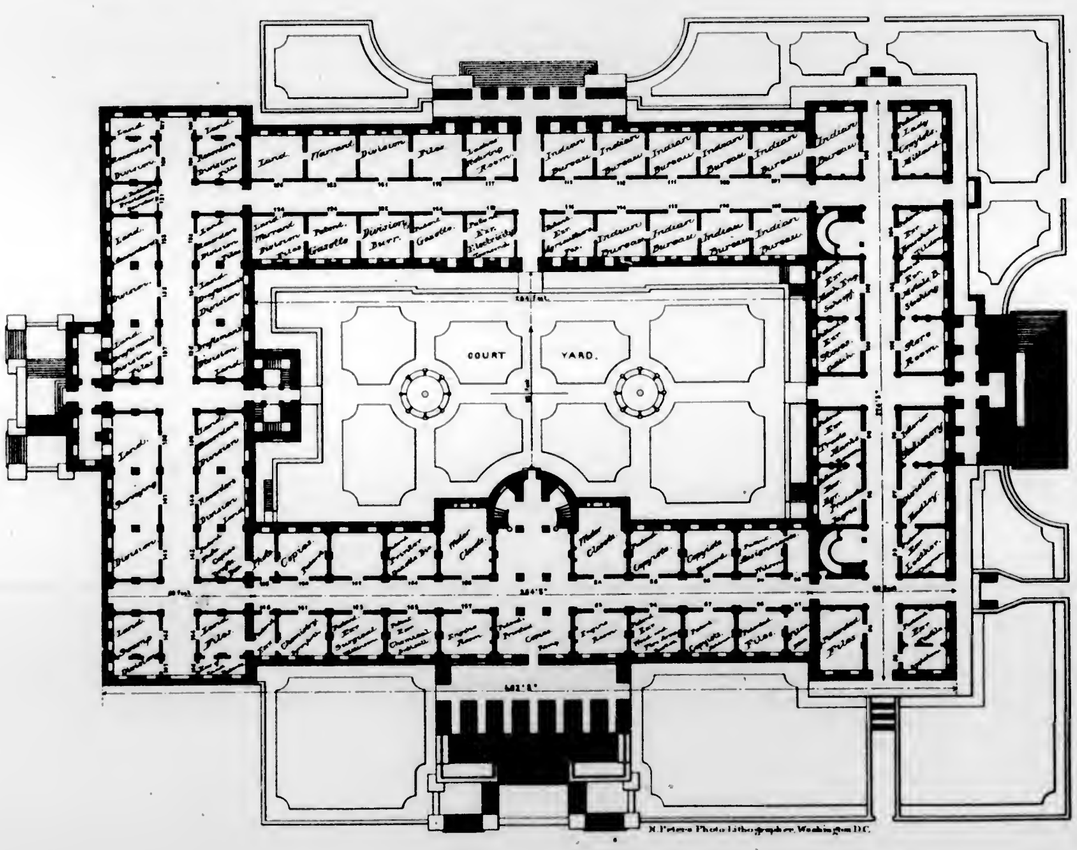
PLAN OF U.S. PATENT OFFICE BUILDING 2ND FLOOR.

PLAN OF U.S. PATENT OFFICE BUILDING BASEMENT.



* A fire in this room is supposed to have caused the conflagration, the flue near the roof being defective.

PLAN OF U.S. PATENT OFFICE BUILDING 1ST FLOOR.



Case.	Class.
18. Harvesters	56
19. Harvesters	56
20. Harvesters	56
21. Horse Hay-rakes	56
22. Hay-forks	56
22. Grain-cradles	56
22. Scythes	56

North Hall, North Side, Ground Floor.

23. Grain-cleaners	130
24. Grain-binders	56
25. Grain-separators	130
26. Grain separators	130
27. Corn shellers and huskers	130
28. Ore Amalgamators, Jiggers, Separators, and Washers	90
29. Metallurgy	75
30. Metllurgy	75
31. Casting	22
32. Metal-working	
34. Metal-working	
34. Metal-working and Manufacture of Railway Irons	107
34. Horseshoes. Manufacture of	59
35. Metal-working	
36. Metal-working	
37. Sheet-metal Working	113
38. Metal-working	
38. Files	40
39. Metal-working	
39. Tubing and Wire	134
39. Wire-working	140
40. Metal-working	
41. Metal-working	
41. Needles and Pins	86
42. Grinding and Polishing	51
43. Metal-working	
43. Bird-cages, (belonging to class)	140
44. Metal-working	

North Hall, South Side of Gallery.

Case.	Class.
45. Railways	104
46. Railways	104
47. Railways	104
48. Railways	104, 106
49. Railways	105
50. Railways	105, 106
51. Railways	106
52. Railways	106
53 Railways	105
54. Railways	105
55. Railways	105
56. Water Distribution	137
56. Pumps	103
57. Water Distribution	137
57. Pumps	103
58. Pumps	103
59. Pumps	103
60.	103
61. Water-wheels	138
62. Water-wheels	138
63. Pneumatics	98
63. Aeration and Bottling	1
64 Pneumatics	98
65. Pneumatics, (Wind-wheels and Blowers)	98
66. Pneumatics, (Wind-wheels)	98

North Hall, North Side of Gallery.

Case.	Class.
67. Garden and Orchard	47
68. Garden and Orchard	47
69. Ore Crushing, Grinding, and Stamping	90
70. Mills, Bark, Cane, Grain, Paint, Sugar, &c	83
71. Mills, Middlings Separators, Bran Dusters	83
72. Mills, Flour, Bolts, &c	83
73. Mills	83
74 to 87 inclusive, Wood-working Machinery	
88. Car Springs, Vises, and Railroad Tanks	

SCHEDULE OF THE REJECTED MODELS STORED UNDER THE ROOF OF THE WEST HALL AT THE TIME OF THE FIRE, SEPTEMBER 24, 1877.

West Hall, West Side of Space between the Ceiling and Roof.

Old Rejected Models. (Given in the same relative arrangement in which they were at the time of the fire, commencing at the southern extremity.)

	Class.
Carriages and Wagons	21
Harvesters	56
Garden and Orchard	47
Harrows	55
Plows	97
Seeders and Planters	111
Apparel	2
Crinoline and Corsets	39
Educational	35
Fine Arts	41
Fishing	42
Games and Toys	46
Jewelry	83
Music	84
Photography	95
Toilet	129
Umbrellas and Fans	135
Book-binding	11
Felting and Hats	38
Paper-making	98
Paper Manufacture of	93
Printing	101
Stationery	120
Aeration and Bottling	1
Baths and Closets	4
Pneumatics	98
Pumps	103
Water-distribution	137
Water-wheels	138
Beds	5
Furniture	45
Kitchen Utensils	65
Laundry	68
Boots and Shoes	12
Clasps and Buckles	24
Harness	54
Leather	60
Hose and Belting	60
Tanning	129
Trunks	133
Brakes and Gins	13
Bee-hives	6
Dairy	31
Fences	39
Stabling	119
Tobacco	131
Brushes and Brooms	15
Driers and Kilns	34
Lamps and Gas-fittings	67
Stove and Furnaces	126
Steam	121, 122, 123
Governors	50

West Hall, East Side of Space under Roof.

Old rejected models. (Given in the same relative arrangement in which they were at the time of the fire, commencing at the southern extremity.)

	Class.
Railways	104, 105, 106
Hydraulic Engineering	61
Bridges	14
Carpentry	20
Excavators	37
Masonry	72
Roofing	108
Paving	94
Clay	25
Builders' Hardware	16
Locks and Latches	70
Cutlery	30
Safes	109
Coffins	27
Metallurgy	75
Plating	96
Stills	124
Chemical, Miscellaneous	23
Bleaching and Dyeing	8
Caoutchouc	18
Ore	90
Beer and Wine	7
Oils, Fats, and Glue	87
Ice Machines and Tools	62
Sugar	127
Preserving Food, &c	99
Gas-machines	43
Fuel	44
Mills	84
Thrashers	130
Fire-arms	42
Ordnance	88
Projectiles	102
Boats	9
Ships	114
Ships, Propulsion	115
Dental	32
Surgery	128
Artificial Limbs	3
Carding	19
Cloth	26
Knitting and Netting	66
Sewing-machines	112
Silk, Appliances for working	117
Spinning	118
Weaving	139
Hoisting	57
Presses	100
Journals and Bearings	74
Stone, Lime, and Cement	125

	Class.
Metal-working	76, 77, 78, 79, 80, 81, 82
Railway-track and Car Irons, Manufacture of	107
Wire-working	140
Wood Screws, Manufacture of	141
Sheet-metal	113
Bolts, Nuts, and Rivets, Manufacture of	10
Hardware, Manufacture of	53
Tubing and Wire	131
Casting	22
Files, and Manufacture of	40
Grinding and Polishing	51
Horseshoes, and Manufacture of	59

EXHIBITS.

(On each side of the space between the ceiling and roof, over the west hall, exhibits were spread over the floor and were destroyed.)

SAVED REJECTED MODELS.

The following list of rejected models in the classes noted as destroyed were saved:

Class.
111. Old dates of Cotton-seed Planters.
78. Machines for Upsetting Tires.
78. Machines for Mending Tires.
78. Tire Coolers.
78. Machines for Making Tires.
78. Manufacture of Carriage Axles.
81. Farriers' Tools.
78. Anvils.
76. Machines for Twisting Metals.
10. Nut Locks.
59. Horseshoes, (not machines for making.)
10. Screw Plates and Dies. (Hand.)
10. Screw Taps.
53. Manufacture of Spinning Rings.
53. Manufacture of Metal-cap Tubes.
53. Manufacture of Sewing-machine Shuttles.
141. Wood Screws, (not machines for making.)
85. Picture Nails, (not machines for making.)
85. Wrought Nails and Spikes, (not machines for making.)
85 Cut Nails and Tacks, (not machines for making.)
85. Staples.
113. Machines for Threading Sheet-metal Caps.
23. Eyelet-making Machines.
98. Tuyeres.
98. Air and Gas Engines.
98. Meters—Air, Gas, and Water.

LIST OF MODELS SAVED.

The following is a list of models saved from the classes destroyed in the north and west halls of the United States Patent Office Model Room by the fire of September 24, 1877.

Name.	Device.	Date.
Samuel Pratt	Screw Nail	Oct. 25, 1853
H. L. Hendall	Wood Screw	Jan. 14, 1859
N. G. Thorn	....do	Mar. 29, 1859
Charles Miller	....do	Dec. 20, 1859
William H. Nichols	Coffin Screw	July 26, 1859
George R. Wilmot	Screws and Tacks	Apr. 9, 1861
Leonard Marsh	Wood Screw	Oct. 15, 1861
J. A. Ayres	....do	Apr. 14, 1863
E. S. Pierce	Double Screw	Dec. 10, 1867
J. Gardner	Coffin Screw	Oct. 29, 1867
H. J. Harwood	Wood Screw	June 11, 1867
C. T. Grilley	Coffin Pad Screw	July 2, 1867
E. B. Fisher	Nicking Screw Heads	Apr. 23, 1867
S. W. Young	Wood Screw	July 16, 1867
R. J. Nunn	....do	Sept. 3, 1867
P. Bradford	Coffin Screw	Feb. 5, 1867
G. H. Howard	....do	Feb. 19, 1867
J. K. Stockton	Wood Screw	May 6, 1873
H. A. Harvey	....do	Dec. 24, 1867
Do	....do	Nov. 19, 1867
Do	....do	July 9, 1867
James Hooper	Screw Attachment	Apr. 6, 1869
T. C. Richards	Heads for Screws	July 6, 1869
Carl Bocking	Wood Screw	Apr. 6, 1869
J. A. Bidwell	....do	Mar. 28, 1871
D. F. Fetter	Drive Screw	Jan. 10, 1871
A. B. Lipsey	Wood Screw	Mar. 21, 1871
O. D. Barrett	....do	Sept. 30, 1873
J. S. Russell	....do	Dec. 30, 1873
William Bourn	....do	May 13, 1873
Ladd and Corning	....do	Aug. 26, 1873
Bidwell and Chisholm	....do	Jan. 14, 1873
John Frearson	....do	Dec. 9, 1873
S. P. Burdick	....do	Apr. 1, 1873
F. W. Cabot	Coffin Screw	Nov. 16, 1875
Litchfield and Bocklin	Wood Screw	Mar. 30, 1875
Allen Cummings	....do	Mar. 30, 1875
Litchfield and Bocklin	....do	Mar. 30, 1875
H. P. Blake	Wood Screw Cap	Feb. 23, 1875
W. F. Arnold	Knob Screw	Dec. 14, 1875
William M. Smith	Coffin Screw	Sept. 7, 1875
T. J. Sloan	Wood Screw	Aug. 20, 1846
C. T. Griller	Screw	Apr. 20, 1852
C. T. Griller	Capping Wood Screw	Apr. 20, 1852
Kendall and Hunt	Wood Screw	Sept. 28, 1858
Whitney and Wilson	....do	Mar. 30, 1858
George Freeman	....do	Sept. 11, 1860
William G. A. Banwill	....do	Nov. 22, 1864
J. A. Bidwell	....do	May 24, 1864
H. A. Harvey	....do	Apr. 26, 1854
George L. Morris	Nicking Screw Heads	June 12, 1866
J. W. Bishop	Capping Screw	Nov. 6, 1866
John Absterdam	Wood Screw	Oct. 23, 1866
T. T. Prosser	....do	Sept. 11, 1866
William Weaver	Screws and Bolts	Feb. 13, 1866
George L. Morris	Wood Screw	Nov. 20, 1866
J. Krieg	Piano Wood Screw	Dec. 29, 1866
P. N. Jacobus	Screw	Aug. 4, 1868
F. Washburn	Wood Screw	Dec. 1, 1868
J. A. Bidwell	....do	Feb. 18, 1868
John S. Armstrong	....do	Nov. 12, 1872
William N. Matthews	....do	July 30, 1872
E. S. Wiles	....do	Apr. 30, 1872
F. W. Brooks	....do	Oct. 1, 1872
L. K. Feller	Wood Screw Washer	Nov. 10, 1874
Moritz Kricks	Stair Carpet Screw	June 23, 1874
H. A. Harvey	Nicking Screw Heads	Sept. 8, 1874
Russell S. Bond	Set Screw	Sept. 5, 1876
A. F. Bradley	Capping Wood Screw	Mar. 14, 1876
Jo Gobels	Screw Nail	May 30, 1876
C. D. Rogers	Wood Screw	May 30, 1876
T. J. Sloan	....do	June 18, 1876
E. A. Leland	....do	June 6, 1876
H. A. Doty	....do	Feb. 8, 1846
Charles F. Hovey	Screw Thread	Apr. 4, 1876
Van Stone and Howard	Screw Threaded Rod	June 30, 1877
J. Plenkharp	S rews	Mar. 20, 1877
W. L. Hudley	Screw Tap Guide	Nov. 11, 1862
B. T. Loomis	Screw Tap and Reamer	Apr. 17, 1866
Hugh Kerr	Screw Tap	Nov. 11, 1862
Howell and Birdsall	....do	Feb. 9, 1864
Stone and Cole	....do	Dec. 2, 1856
B. F. Bell	....do	Apr. 24, 1866
G. A. Ohl	....do	Jan. 16, 1866
William Manley	....do	May 19, 1868
Clark and Ferrell	....do	Nov. 24, 1868
Walter K. Foster	....do	Oct. 27, 1868
C. L. Fehrenson	....do	Jan. 18, 1870
William Newsham	....do	July 5, 1870
John Gunn	Screw Tap and Cutter	Mar. 12, 1872
William Tucker	Screw Tap	July 16, 1872
J. Cook	....do	Oct. 29, 1874
S. W. Martin	....do	May 16, 1876
C. H. Morgan	....do	Apr. 28, 1874
James Cook	....do	June 21, 1874
S. W. Martin	....do	June 13, 1876
J. J. Grant	....do	Jan. 4, 1876
J. W. Melvin	....do	Nov. 7, 1876
C. G. Curtis	....do	May 2, 1876
S. W. Martin	....do	May 23, 1876
William J. Stevens	....do	May 12, 1863
C. C. Walworth	....do	Oct. 6, 1863
G. C. Snyder	....do	June 9, 1857
Rider and Wiggins	....do	July 9, 1867
William Humphrey	....do	Aug. 17, 1869
James Flower	....do	June 24, 1873
G. H. Fox	....do	May 16, 1871
A. E. Barthel	Screw Tap and Dies	June 10, 1874
Thomas S. Wild	Screw Tap	Mar. 9, 1875
Edward Reynolds	....do	Nov. 23, 1875
J. E. Swett	....do	Aug. 3, 1875
M. C. Johnson	....do	Mar. 20, 1877
J. B. Douglas	....do	Apr. 24, 1877
P. W. Gates	Screw Cutting Dies	May 8, 1847
J. A. Richards	Screw Cutting Dies and Taps.	June 27, 1857
L. Goodfellow	Screw-Cutting Dies	Dec. 6, 1853
S. Goodfellow	....do	July 26, 1859
A. P. Pitkin	....do	May 31, 1859
J. Teachout	....do	June 30, 1857
William and R. Foster	Screw-Tap	Dec. 20, 1859
Peter Hoffner	Screw Cutting Die	Feb. 8, 1859
William N. Adams	....do	May 3, 1857
Jennings and Swett	....do	Mar. 7, 1865
B. S. Hill	....do	May 2, 1865
William J. Holroyd	....do	Nov. 21, 1865
William Pimlott	....do	Oct. 31, 1865
J. Roberts	....do	Aug. 29, 1865
E. C. C. Kellogg	....do	May 23, 1865
C. Dreher	....do	Nov. 7, 1865
E. Schenker	....do	July 4, 1865
John Pierce	....do	Jan. 3, 1865
D. McArthur	....do	Dec. 31, 1867
George C. Swett	....do	July 16, 1867
George B. Brayton	....do	Nov. 26, 1867
Young and Hoard	....do	July 16, 1867
Henry Gill	....do	Sept. 3, 1867
Walter Ashton	....do	Aug. 6, 1867
Strayer and Hazelhurst	....do	June 25, 1867
William T. Cole	....do	Aug. 20, 1867
J. K. Nelson	....do	Apr. 9, 1867
James D. Driggs	....do	Oct. 8, 1867

Name.	Device.	Date.
A. Phinney	Screw Cutting Die Holder.	May 18, 1869
James M. Carpenter	Screw Cutting Dies	Mar. 9, 1869
A. Ballauff	....do	July 13, 1869
James O. Morse	....do	Sept. 28, 1869
T. Shrewsbury	....do	Sept. 21, 1869
E. S. Pierce	....do	Feb. 23, 1869
A. W. Owen	....do	Aug. 10, 1869
John Carroll	....do	Oct. 3, 1871
J. J. Grant	....do	Oct. 24, 1871
Brown and Gifford	....do	Oct. 3, 1871
L. R. Taught	....do	May 30, 1871
T. L. Van Dorn	....do	Dec. 16, 1873
Bates and Murray	....do	Apr. 1, 1873
J. J. Grant	....do	June 24, 1873
J. W. Hardle	....do	Dec. 16, 1873
William E. Ward	....do	Jan. 14, 1873
Robert F. Fowler	....do	July 29, 1873
T. Gaillard	Turn Buckles	Mar. 18, 1873
George R. Stetson	Screw Cutting Die	Aug. 24, 1875
J. C. Sherman	....do	Oct. 5, 1875
F. E. Wells	....do	May 4, 1875
Andrew Saunders	....do	Nov. 16, 1875
V. J. Reece	....do	Sept. 7, 1875
J. J. Grant	....do	Aug. 31, 1875
R. C. Nugent	....do	Aug. 17, 1875
T. E. Wells	....do	Mar. 23, 1875
H. Grilling	....do	Apr. 6, 1875
Beddow and Jackson	....do	Sept. 28, 1875
George R. Stetson	....do	Mar. 2, 1875
V. J. Reece	....do	Dec. 7, 1875
N. A. Griffith	....do	May 4, 1875
V. J. Reece	....do	June 15, 1875
Bishop and Johnson	....do	Feb. 13, 1877
J. Hochheimer	....do	Mar. 20, 1877
J. Schaub	....do	Aug. 21, 1877
J. Flower	....do	Apr. 17, 1877
R. C. Fay	....do	Jan. 9, 1877
A. J. Smart	....do	Jan. 30, 1877
P. McGlew	....do	June 10, 1856
E. P. Gleason	....do	June 19, 1860
J. Teachout	....do	Mar. 27, 1860
Z. L. Jacobs	....do	May 15, 1860
F. H. Higgins	....do	Jan. 23, 1866
C. C. Walworth	....do	Jan. 5, 1864
James Smith	....do	Dec. 13, 1864
F. S. Gregs	Screw Cutting Die and Tap.	Aug. 14, 1866
C. G. Cross	Screw Cutting Die	Feb. 20, 1866
M. M. Young	....do	June 12, 1866
P. Kennedy	....do	Jan. 30, 1866
N. Zeillier	....do	July 21, 1866
G. Grubel	Screw Cutting Die and Tap.	Aug. 18, 1868
D. Saunders	Screw-Threading Tube	Apr. 14, 1868
J. S. Dutton	Screw-Plate	Oct. 6, 1868
A. Hovermann	Screw Cutting Die	Sept. 15, 1868
N. Nelson	....do	Nov. 1, 1870
J. W. Mahlon	....do	Nov. 29, 1870
J. E. Weaver	....do	June 14, 1870
Stephen P. M. Tasker	....do	July 26, 1870
William T. Cole	....do	Dec. 27, 1870
George D. Dean	....do	May 19, 1874
George W. Mingus	....do	May 31, 1870
Zina S. Ogden	....do	Nov. 1, 1870
Alexander Saunders	....do	Aug. 25, 1874
Cudworth and Stetson	....do	Jan. 25, 1876
F. D. Bliss	....do	June 30, 1874
J. M. Carpenter	....do	June 6, 1876
H. C. Meyer	....do	May 28, 1872
W. W. Clement	....do	Oct. 1, 1872
J. B. Doolittle	....do	Apr. 23, 1874
J. F. C. Rider	....do	Mar. 23, 1876
John S. Campbell	....do	June 6, 1876
L. W. Stockwell	....do	June 6, 1876
Billings and Price	....do	June 11, 1876
J. J. Grant	....do	Feb. 22, 1876
D. W. Barnham	....do	Dec. 26, 1876
E. Saunders	....do	Apr. 25, 1876
W. F. Patterson	Screw Driver	Mar. 24, 1875
Nathan Whitmore	Cop Tube	June 6, 1857
William Cundell	Guard Caps for Spinning	Nov. 10, 1864
James Eaton	Cop Tube	Apr. 13, 1858
Do	Cop Tube Die	June 30, 1855
C. B. Morse	Spinning Ring	Apr. 14, 1868
A. A. Stone	Shuttle Tip Die	Jan. 18, 1870
David L. Hill	Flyer Guides	Jan. 19, 1864
I. Manning	Tension Wheel	June 18, 1872
H. L. Pierce	Spinning Ring	Nov. 18, 1873
Horace Fisher	Knitting Burr	Nov. 10, 1863
A. A. Stone	Spindle Head Die	Jan. 18, 1870
C. E. Trowbridge	Spinning Rings	May 21, 1872
D. W. Hale	Shuttle Die	Jan. 7, 1873
Frank Tully	Spinning Rings	Jan. 7, 1873
C. E. Trowbridge	....do	Nov. 26, 1872
Daniel Foxwell	Metal Card Die	Jan. 20, 1874
H. M. Johnson	Spindle Die	Apr. 27, 1875
Forehand and Wadsworth	Spinning Ring	Apr. 13, 1875
R. Crain	Pipe Tongs	Aug. 3, 1869
Daniel C. Stillson	Wrench	Oct. 12, 1869
A. G Barrett	Pipe Wrench	Jan. 31, 1871
S. F. Ganigas	Pipe Tongs	May 30, 1865
James Stratton	....do	Nov. 14, 1871
M. H. Freeman	Pipe Wrench	May 14, 1867
Charles Pomeroy	....do	Nov. 16, 1869
Still-on and Chapman	Pipe Tongs	Oct. 31, 1865
M. Hastinge	Pipe Wrench	Aug. 24, 18 9
V. K. McHenry	....do	Oct. 12, 1869
W. H. Barwick	....do	June 6, 1871
J. S. Hamilton	....do	Nov. 7, 1871
W. M. Gray	Bed Key	Dec. 10, 1867
B. F. Bee	Wrench	Feb. 23, 1869
George W. Huntoon	Tap Wrench	Feb. 7, 1871
John W. Close	Pipe Wrench	Feb. 5, 1867
J. S. Ordner	....do	May 28, 1867
A. Noyes	Machine for Making Tires.	Apr. 4, 1849
Maria, Vaughn, administratrix of J. C. Vaughn.	Machine for Making Wheel Tires.	Sept. 30, 1851
Do	....do	June 24, 1851
P. G. Gardner	....do	Mar. 11, 1851
W. M. Lee	Machine for Making Car Wheels.	Oct. 19, 1854
J. H. Gage	Machine for Making Wheel Tires.	June 21, 1859
William Paterson	....do	Mar. 29, 1859
J. N. H. Brubaker	Tool for Handling Wheel Tires.	Nov. 29, 1859
William and J. H. Mosher	Machine for Handling Wheel Tires.	Sept. 6, 1859
N. Washburn	....do	Mar. 29, 1859
S. Jaqua	....do	Jan. 29, 1861
S. Jaqua	....do	Dec. 16, 1862
T. H. Miller	Machine for Rolling Axles.	Aug. 27, 1861
G. Schreyer	Machine for Making Axle Skeins.	Mar. 7, 1861
I. C. Singer	Machine for Bending Tires.	Mar. 10, 1863
S. Van Stone	Machine for Making Car Wheels.	June 4, 1867
William H. Bryant	Drawing Tires from Engine Driving Wheels.	Nov. 12, 1867
S. Hall	Machine for Bending Metal.	Feb. 26, 1867
Niman and Fidler	Machine for Bending Tires.	Apr. 30, 1867
G. Huntington	Machine for Bending Metal.	Oct. 15, 1867
D. Wetzel	Machine for Bending Tires.	Nov. 19, 1867
L. L. Crane	Forging Machine	May 7, 1867
F. Wiles	Machine for Bending Tires.	Aug 13, 1867
William Willbide	....do	Sept. 28, 1869
John Metzer	Bending Tire	June 15, 1869
John Naugle	....do	Nov. 23, 1869
T. Ryan	Wrought Iron Wheels	Aug. 10, 1869
Wm. A. Lewis	Metal Axles	Oct. 10, 1871
D. F. Pomeroy	Bending Tires	Oct. 10, 1871
E. W. Ives	Axle Box	Apr. 25, 1871
J. M. Bryan	Bending Tire	June 2, 1868
W. S. Mc Intosh	Rolling Axles	June 16, 1868
Jno. L. Ferre	....do	May 26, 1868
Wm. Richardson	Bending Machine	Jan. 28, 1868
B. W. Foster	Machine for Axles	Mar. 24, 1868
T. E. Vickers	Machine for Tires	June 30, 1868
R. Tyrrell	Bending Tires	June 23, 1868
Jacob Naylor	....do	Mar. 24, 1868
J. Lamplugh	Welding Tires	Oct. 20, 1868
W. W. Simmons	Dies for Axles	Dec. 8, 1868
Stansbury and Stansbury	Bending Tires	Aug. 25, 1868
C. Young	Axles	May 8, 1866
Do	....do	May 8, 1866
D. Ballou	Bending Tire	June 5, 1866
Wm. Harris	Rolling Tire	Nov. 13, 1862
G. Farner	Bending Tire	Feb. 25, 1862
S. H. Hartman	Machine for Axles	Aug. 26, 1862
Mosher, Mosher and Harris.	Bending Tires	Feb. 14, 1860
William Bailey	....do	Aug. 14, 1860
Robert L. Wright	....do	May 23, 1854
William A. Lewis	Axles	Oct. 10, 1871
R. W. Davis	Metal Fellies	Jan. 30, 1877
Levi Dodge	Metal Dio	July 19, 1859
J. C. Richardson	Axles	Mar. 11, 1873
Do	....do	Dec. 16, 1873
W. J. Parmlee	Axle Boxes	Apr. 1, 1873
F. E. Coleman	Bending Tire	Apr. 29, 1873
S. J. Dennis	Axle	May 13, 1873
G. J. Rablet	Bending Tire	May 2, 1871
W. W. Knowles	Axle Boxes	June 8, 1875
Henry Hammond	Dies for Axle Boxes	Apr. 16, 1875
Lones, Lones, Vernon and Holden.	Machine for Axles	Dec. 16, 1873
Schmek and Smith	Axles	Mar. 4, 1873
J. Tomlinson	Bending Tire	Feb. 4, 1873
J. Kritch	Axles	Dec. 7, 1875
G. A. Morse	Axle Boxes	Feb. 27, 1877
Stransbury and Stransbury.	Bending Tires	Aug. 24, 1875
Joseph Klepper	....do	July 30, 1861
Henry Bloedel	Tire Cooler	Dec. 26, 1865
E. Stodtmeister	....do	Dec. 21, 1869
F. Miller	Setting Tire	May 25, 1869
D. Squlers	....do	Apr. 6, 1875

Name.	Device.	Date.
T. E. Barton	Bending Tire	July 31, 1837
D. Morris	Tire Cooler	Sept. 23, 1843
G. W. Cramer	Tire	Dec. 15, 1863
G. H. Williams	do	June 9, 1857
J. Wampach	Tire Cooling	Aug. 4, 1868
W. Beers	Tire Bending	Oct. 8, 1872
Clapp and Van Patten	Axle Dies	June 16, 1874
E. B. Edwards	Rolling Axles	Sept. 8, 1874
Henry Barringer	Machine for Upsetting Tire.	July 8, 1856
Cowles and Deming	Clamping and Upsetting Tire.	Aug. 19, 1856
E. J. Dodge	Machine for Upsetting Carriage-tire.	Aug. 31, 1858
Zina Doolittle	Machine for Upsetting Carriage-axles.	July 6, 1858
G. W. Cooper	do	June 29, 1858
Iris Hobson	Reducing Wheel-tires	June 15, 1858
S. S. Greene	Shrinking Tires	May 29, 1860
Olmstead and Walker	Machine for Upsetting Tires.	Aug. 7, 1860
Henry Barringer	do	June 19, 1860
A. P. Cassel	Machine for Shrinking Tires.	Oct. 16, 1860
C. V. Statler	Machine for Upsetting Tires.	Aug. 7, 1860
Leonard Kile	do	Apr. 10, 1860
George McKown	do	Mar. 20, 1860
O. Foster	do	Aug. 7, 1860
A. Voorhees	Machine for Shortening Tires.	Mar. 22, 1860
Marvin Mead	Machine for Upsetting Tires.	Jan. 14, 1862
J. W. Lawson	do	June 24, 1862
G. Danielson	do	Sept. 23, 1862
John M. Brahn	do	Sept. 23, 1862
F. R. Wilson	do	Dec. 9, 1862
Alfred Ingalls	do	Apr. 20, 1862
L. B. Lathrop	Machine for Shrinking Tires.	Feb. 4, 1862
Charles Seymour	Machine for Upsetting and Straightening Tires.	Sept. 2, 1862
Joseph Robison	Machine for Upsetting Tires.	Sept. 23, 1862
George McKown	do	June 17, 1862
Ferris and Bacon	Machine for Shrinking Tires.	Sept. 13, 1864
Melchi Scott	Tire or Hoop Bender	June 21, 1864
L. A. Dole	Machine for Upsetting Tires.	Jan. 12, 1864
Samuel Martin	do	Apr. 5, 1864
Joseph Olmstead	Machine for Shrinking Tires.	Jan. 12, 1864
L. W. Loomis	Machine for Upsetting Tires.	Sept. 18, 1866
Alonzo Stow	do	June 19, 1866
George T. Ridings	Tire Machine	July 10, 1866
Thomas Pratt	do	Oct. 23, 1866
Edward Cook	Machine for Upsetting Tires.	May 29, 1866
James P. Howell	Machine for Shrinking Tires.	Apr. 24, 1866
H. W. Caswell	do	Aug. 28, 1866
Thomas Tully	do	Aug. 21, 1866
G. Huntington	do	Aug. 14, 1866
William Massey	Machine for Contracting the Circumference of Wrought-iron Bands.	July 3, 1849
Hiram Abbott	Machine for Upsetting Tires.	Nov. 13, 1855
Aaron Whitcomb	do	Aug. 21, 1839
Hargen and Gibbs	do	July 7, 1857
R. W. Gates	do	Jan. 6, 1857
Crowell and Smith	do	May 17, 1859
Benjamin Upton	do	May 21, 1861
Salmon and Bliss	do	Feb. 19, 1861
C. W. Wilkins	do	Feb. 12, 1861
C. Weitman	Machine for Shrinking Tires.	Nov. 19, 1861
M. P. Larry	Machine for Upsetting Tires.	May 5, 1863
Ira D. Card	do	Aug. 25, 1863
J. J. Ross	Machine for Cutting and Punching Iron.	Aug. 1, 1865
C. L. Crowell	Tire Machine	Aug. 15, 1865
Hiram L. Howard	Machine for Upsetting Tires.	Dec. 12, 1865
J. M. Kellog	Machine for Shrinking Tires.	Oct. 31, 1865
Melchi Scott	do	Sept. 26, 1865
John L. Lloyd	do	Jan. 31, 1865
C. V. Statler	do	Jan. 10, 1865
C. Weitman	do	Dec. 19, 1865
A. Steadman	Machine for Upsetting Tires.	June 6, 1865
G. Huntington	do	June 13, 1865
J. B. and M. R. Jackson	Machine for Shrinking Tires.	Nov. 12, 1867
D. A. Boland	Machine for Upsetting Tires.	Oct. 17, 1865
G. M. Berdsley	Machine for Upsetting Tires.	Apr. 9, 1867
A. E. Wing	Machine for Shrinking Tires.	Feb. 26, 1867
L. Wilkinson	do	Nov. 5, 1867
J. J. Sandgreen	Machine for Shrinking, Punching, and Upsetting Tires.	Oct. 29, 1867
A. Rogers	Machine for Shrinking Tires.	Aug. 13, 1867
C. V. Statler	Combined Shrinking and Punching Machine.	Nov. 19, 1867
J. Robinson	Machine for Shrinking Tires.	Feb. 26, 1867
C. H. Wakefield	do	Mar. 5, 1867
D. Ellenwood	do	June 25, 1867
C. Jackson	do	Apr. 2, 1867
J. J. Ross	Cutting, Punching, and Upsetting Iron.	Nov. 12, 1867
A. A. Kent	Cutting, Punching, and Upsetting Tires.	Nov. 19, 1867
J. Gettemy	Tire Bending and Shrinking.	Dec. 24, 1867
A. S. Hart	Machine for Upsetting Tires.	Dec. 21, 1869
G. W. Dalbey	do	Aug. 17, 1869
N. P. Quick	Machine for Upsetting Tires and Anvilling.	July 20, 1869
J. W. Cleveland	Machine for Upsetting Tires.	May 4, 1869
Elias Shopbell	do	Aug. 31, 1869
Dennis C. Burdick	Punching, Shearing, and Shrinking Iron.	Mar. 2, 1869
E. R. Carter	Upsetting Machine	May 4, 1869
Joseph Adkins	Shrinking Tires	Mar. 30, 1869
S. D. Hicks	Upsetting, Punching, Shearing, and Saw Gummer.	Nov. 9, 1869
William M. Hughes	Upsetting Tires	Feb. 23, 1869
J. C. Jordan	Upsetting, Punching, and Cutting Tires.	June 23, 1869
Ross and Brown	Upset Punch and Shears	Sept. 21, 1869
Ross and Brown	do	Sept. 21, 1869
O. Patee	Upset Tire, &c	June 29, 1869
Albert Wiuship	do	May 4, 1869
H. B. Sevey	Cutting, Punching, and Upsetting Tire.	July 18, 1871
E. Hitt and A. Lent	Upsetting Tire	Oct. 31, 1871
J. C. Jordan	Cutting, Punching, and Bending Tire.	June 13, 1871
W. Bowden	Tire Machine	Nov. 21, 1871
M. L. Munger	Machine for Upsetting Iron.	Jan. 24, 1871
D. L. Badley	Upsetting Tire	Aug. 12, 1873
Robert Gibbs	do	Sept. 2, 1873
C. J. Peterson	do	Mar. 4, 1873
Hiram B. Sevey	Metal-working Machine	Sept. 9, 1873
John L. Yeager and A. H. Yeager.	Upsetting Tires	Sept. 16, 1873
George L. Jones	Metal-working Machine	Sept. 2, 1873
Daniel Stratton	Tire-shrinker	Mar. 9, 1875
J. H. Mertz	Tire-upsetting Machine	Sept. 21, 1875
William Holdsworth	do	Oct. 26, 1875
M. G. Schenck	do	July 6, 1875
H. W. Roland	Tire-shrinking Machine	Oct. 19, 1875
George D. Jacoby	Tire-upsetting Machine	Dec. 21, 1875
C. J. Rennold and N. Stoddard.	do	Feb. 9, 1875
J. D. Hobbs	Tire-shrinking Machine	Sept. 21, 1875
H. S. Vinton	Tire-upsetting Machine	Apr. 6, 1875
Matthias Schon	do	Dec. 7, 1875
L. W. Tyler	Bending, Upsetting, and Cutting Tire.	May 27, 1877
R. Bandhauer	Combined Metal-working Machine.	Mar. 20, 1877
John Macy	Shrinking Tire	Apr. 28, 1868
S. E Lockwood	Punching and Upsetting Apparatus.	Mar. 3, 1868
John Elliot	Tire-shrinking Machine	Jan. 7, 1868
John F. Sargent	Tire-upsetting Machine	Apr. 14, 1868
E. B. Decker	Tire-shrinking Machine	Jan. 7, 1868
Hiram Culver	Tire-upsetting Machine	Dec. 22, 1868
A. H. Ford	do	May 26, 1868
W. Britton	Tire Shrinking and Punching Machine.	June 9, 1868
William Hunt	Compound Machine for Upsetting, Punching, and Cutting Metal.	Sept. 20, 1870
John T. Woodward	Bending and Upsetting Machine.	June 21, 1870
Samuel Roe	Tire Machine	Oct. 25, 1870
William Bowden	Upsetting Tire	Aug 30, 1870
William Sleeper	Shrinking, Punching, Upsetting, and Bending Metal.	Sept. 13, 1870
Elias Shopbell	Machine for Upsetting Wagon-tires.	Jan. 2, 1866
T. Sullivan	do	Apr. 26, 1870
P. J. Ayre	do	Mar. 8, 1870
William Wert	Machine for Shrinking Tires.	Jan. 25, 1870

Name.	Device.	Date.
Hiram B. Sevey	Machine for Cutting, Punching, and Upsetting Metal.	July 9, 1872
C. S. Shark	Machine for Shrinking Tire.	Nov. 8, 1870
A. Young	Machine for Upsetting Tires.	Oct. 15, 1872
M. D. King	do	Dec. 31, 1872
George G. Burgess	Machine for Upsetting Rods.	May 28, 1872
H. Harrison	Machine for Upsetting Tires.	Dec. 1, 1874
J. Naugle	Machine for Bending and Shrinking Tires.	Jan. 30, 1872
M. Schon	Machine for Upsetting Tires.	Mar. 10, 1874
O. C. Tebbs	do	Dec. 15, 1874
Marquis D. King	do	Mar. 3, 1874
H. W. Moore	Compound Metal-working Machine.	Apr. 11, 1876
William Bowden	Machine for Upsetting Tires.	June 2, 1874
G. L. Jones	Compound Metal-working Machine.	Nov. 17, 1874
Samuel Albright	Machine for Upsetting Tires.	Aug. 11, 1874
Samuel Maharay	Upsetting Tire Machine.	Dec. 12, 1876
N. Sawyer	do	Nov. 21, 1876
D. W. Copeland	do	Sept. 12, 1876
Charles H. Reynolds	do	Feb. 1, 1876
E. B. Rose	do	May 30, 1876
George S. Jones	Compound Metal-working Machine.	July 4, 1876
W. H. Jones and J. A. Stuart.	Shrinking Tire Machine	Apr. 11, 1876
N. W. Griffith	Upsetting Tire Machine.	Nov. 7, 1876
George D. Jacoby	do	Apr. 11, 1876
J. H. Kock	do	Mar. 28, 1876
William McInturf	do	July 11, 1876
Ed. W. Holt	do	Sept. 5, 1876
V. N. Mitchell	Machine for Paring Horses Hoofs.	June 2, 1857
Hillmer and Williams	Blacksmiths' Buttresses.	Apr. 21, 1857
J. E. Draper	Tool for Clinching Horse-shoe Nails.	Aug. 6, 1861
D. A. Wilson	do	Oct. 17, 1865
John E. Tucker	Foot Rest for Horses	Feb. 5, 1867
D. W. Bush	Tool for Clinching Nails on Horseshoes.	Aug. 27, 1867
S. D. Freet	Tool for Paring Horses' Hoofs.	Mar. 5, 1867
John Koyl	Nail Clincher	Sept. 3, 1867
Hayes and Duncan	Tool for Sharpening Horseshoe Calks.	Dec. 24, 1867
Nicholas Repp	Nail Clincher for Horse-shoes.	June 8, 1869
Enos Morley	do	Sept. 28, 1869
Fisher and Mack	do	Mar. 30, 1869
Butler, Durham and Wann	Sharpening Horseshoe Calks.	Jan. 19, 1869
David Kirk	Nail Clincher for Horse-shoes.	Jan. 26, 1869
F. Lehman	Horse Hoof Parer	Nov. 16, 1869
John Temple	do	June 15, 1869
Rogers and Thompson	Shoeing Device	Feb. 2, 1869
S. S. Blackburn	Rest for Shoeing Horses.	Apr. 27, 1869
T. C. Williams	Foot Lifter for Blacksmiths.	Apr. 4, 1871
Samuel J. Forbes	Blacksmiths' Tool	Oct. 10 1871
D. Mater	Nail Clincher for Horse-shoes.	Aug. 8, 1871
Isaac Baker	Hoof Parer	Oct. 10, 1871
G. Stansel	Horse Foot Rest	Oct. 17, 1871
George W. Shafer	Horse Hoof Parer	Apr. 22, 1873
S. Davis	Blacksmiths' Buttresses	July 4, 1871
Joshua Legg	Horseshoers' Rest	Aug. 12, 1873
John Kunz	Nail Clincher	Jan. 7, 1873
Thomas Armstrong	Hoof Spreader	Mar. 11, 1873
A. Shiran and W. J. Givens.	Hoof Trimmer	Feb. 16, 1875
C. R. Donner	Horseshoeing Tool	Aug. 24, 1875
Joseph Van Matre	Blacksmiths' Tongs	June 5, 1877
Michael Baltes	Farriers' Tool	Sept. 14, 1875
Charles Schnoor	Horseshoeing Apparatus	Jan. 5, 1875
J. Smith	Horseshoeing Swages	Mar. 27, 1877
R. Denholm	Horseshoe Calk Sharpener.	Mar. 27, 1877
J. Hilger	Hoof Parers	May 15, 1877
J. H. Gregory	Blacksmiths' Tongs	May 8, 1877
Crafts and Weeks	Hoof Parer	Jan. 1, 1850
Galentine, Galentine and Russell.	Hoof Expander	Dec. 23, 1856
Noah Warlick	Horseshoeing Apparatus	Aug. 29, 1854
D. J. Hendrickson	Nail Clincher	Feb. 16, 1858
James Houck	do	Apr. 25, 1858
A. Baker	Hoof Parer	Aug. 7, 1860
G. R. Stevens	Horseshoeing	July 3, 1860
Joel E. Giles	Nail Clincher	Feb. 23, 1864
T. B. and L. W. Holly	Blacksmiths' Tool	Nov. 25, 1862
William Tansley	Hoof Parer	Apr. 22, 1862
Warren and Johnston	Farriers' Tool	May 24, 1864
D. H. Williams	Nail Clincher	May 29, 1866
J. B. Wilder	do	July 14, 1868
E. A. Bushnell	Sharpening Calks	Aug. 11, 1868
John Tipton	Hoof Expander	Jan. 21, 1868
Henry Klue	Sharpening Calks	Dec. 1, 1868
R. Stout	Horseshoeing Tool	Apr. 5, 1870
H. M. Close	Sharpening Calks	June 30, 1868
Andrew J. Dexter	Blacksmiths' Tongs	July 19, 1870
Ernest Baker	Buttresses	Oct. 8, 1872
John Shimer	Horseshoeing Jack	Mar. 12, 1872
John N. Rhamy	Buttress	June 11, 1872
J. C. Johnson	Hoof Parer	Oct. 8, 1872
D. J. Tonst	Buttresses	Mar. 19, 1872
M. C. Malone	Hoof Shears	Apr. 30, 1872
Sidney Ogden	Farriers' Tongs	Apr. 23, 1872
J. F. Kernon	Blacksmiths' Tool	Mar. 5, 1872
W. H. Lyman	Nail Clincher	July 2, 1872
F. B. and William O. Sutton.	Hoof Trimmer	May 12, 1874
Washington Bryant	do	Feb. 24, 1874
D. Booker and T. N. Tosh	do	Mar. 17, 1874
J. W. Gordon and G. F. Sleeper.	Buttresses	June 13, 1876
Charles Blakeslee	Hoof Cleaner	May 2, 1876
Burroughs and Carrothers	Hoof Parer	May 9, 1876
J. Slautterback	Nail Clincher	Oct. 31, 1876
Oscar Rogers	Hoof Parer	Aug. 8, 1876
Charles H. Shepard	Hoof Expander	Sept. 25, 1876
George Greiner	Hoof Trimmer	Sept. 22, 1876
T. W. McIntosh	Hoof Spreader	Sept. 15, 1876
Devoe, Rogers and Beals	Blacksmiths' Tool Box	Jan. 30, 1872
Charles H. Shadt	Anvil	Feb. 12, 1861
L. Kirkup	do	Jan. 1, 1867
O. and S. E. Brigham	do	Feb. 3, 1857
C. F. Moore	Blacksmiths' Hardies	Aug. 1, 1871
Daniel Goodnow	Mechanics' Tool	July 13, 1876
Alonzo Hitchcock	Anvil Beds	Mar. 28, 1876
B. A. Ellison	Reversible Anvil	July 23, 1874
Joseph Bolt	Anvil and Vise	Aug. 8, 1876
G. Hornby	Anvil	May 19, 1874
James Jenkins	do	Sept. 12, 1876
R. D. Chandler	Anvil and Vise	June 29, 1869
Lyman Derby	Nut Lock	June 19, 1863
Raymond and Brassington	do	Feb. 14, 1865
Harris and Browning	do	Jan. 29, 1867
E. A. Ellsworth	do	Dec. 3, 1867
William Harris	do	Dec. 24, 1867
Charles Buckley	do	Sept. 24, 1867
D. P. Hart	do	Aug. 6, 1867
John R. Cribbs	do	Mar. 16, 1869
L. L. Dewcese	do	June 22, 1869
R. White	do	June 8, 1869
J. B. Smith	do	Mar. 9, 1869
L. L. Dewcese	do	June 22, 1869
Morgan Payne	do	Dec. 21, 1869
J. H. Fisher	do	Oct. 19, 1869
Thomas Hogan	do	July 20, 1869
A. Ruff	do	Aug. 3, 1869
G. C. Stemper	do	May 18, 1869
J. W. Hilton	do	Mar. 30, 1869
H. L. Pordie	do	Dec. 5, 1871
W. H. Phipps	do	June 13, 1871
W. H. Van Cleve	do	Nov. 7, 1871
J. Hovey	do	Aug. 22, 1871
John P. Verree	Elastic Washer	Dec. 26, 1871
H. L. Pardie	Nut Lock	Dec. 5, 1871
Do	do	Dec. 5, 1871
L. J. Smith	do	May 23, 1871
H. L. Purdie	do	Dec. 5, 1871
S. T. Lamb	do	Nov. 21, 1871
James L. Estill	do	Nov. 28, 1871
L. Fay	do	Mar. 14, 1871
A. McKenney	do	Aug. 1, 1871
S. I. Thompson	do	Mar. 16, 1871
James L. Connel	do	Aug. 1, 1871
William P. Horton	do	Oct. 10, 1871
J. Maitland	do	Dec. 12, 1871
Samuel Van Stone	do	Aug. 15, 1871
John W. Cochrane	do	June 10, 1871
A. W. Bunnell	do	Sept. 5, 1871
Do	do	Sept. 5, 1871
A. McKenney	do	Aug. 22, 1871
H. G. Pearson	do	Apr. 11, 1871
C. F. Keller	do	May 4, 1869
C. O. Yale	do	May 16, 1871
P. Phillips	do	Apr. 6, 1869
M. Grover	do	Sept. 14, 1869
S. C. Adams	do	June 15, 1869
George Talmer	do	Feb. 2, 1869
James J. Steward	do	June 1, 1869
George Talmer	do	June 1, 1869
Ewing and DeFord	do	Sept. 7, 1869
F. Oakley	do	Aug. 17, 1869
K. Brown	do	Apr. 27, 1869
H. McConn	do	Mar. 16, 1869
Do	do	May 25, 1869
William Morehouse	do	May 25, 1869
Charles H. Everhart	do	Aug. 22, 1876
Charles Pickles	do	Aug. 29, 1876
William Metcalf	do	Mar. 21, 1876
Frank Braillier	do	July 18, 1876
P. S. Haldeman and A. J. Stewart.	do	Aug. 15, 1876
Samuel Henry	do	May 16, 1876
J. N. Arvin	do	June 6, 1876

Name.	Device.	Date.
T. C. Conrad	Nut Lock	Aug. 22, 1876
F. B. Wigley	do	Jan. 11, 1876
K. H. Loomis	do	July 18, 1876
James E. Fred	do	May 2, 1876
K. C. Nailor	do	Aug. 29, 1876
N. E. Brown	do	June 20, 1876
A. J. Scott	do	Oct. 17, 1876
A. J. Potter	do	Aug. 8, 1876
H. Livingston	do	Mar. 21, 1876
Daniel Deshon	do	Aug. 22, 1876
L. A. Rebasz	do	July 18, 1876
John F. Wiles	do	Jan. 4, 1876
William McLinens	do	June 13, 1876
A. A. Bushong and J. B. Fitzpatrick.	do	Aug. 1, 1876
T. Weaver	do	Oct. 10, 1876
Michael Neil	do	Nov. 21, 1876
Daniel R. Pratt	do	Oct. 17, 1876
J. H. Champion	do	Nov. 28, 1876
C. Miller and M. S. Davis	do	Mar. 21, 1876
C. Dull	do	Nov. 14, 1876
A. W. Burlingame	do	Mar. 28, 1876
I. Van Kuran	do	May 30, 1876
John T. Parks	do	Feb. 1, 1876
C. Hall	do	Nov. 7, 1876
A. Thompson and J. F. Thompson.	do	Oct. 31, 1876
J. J. Adgate	do	Feb. 29, 1876
Hugh Carlile	do	Feb. 22, 1876
George F. Gordon	do	Mar. 14, 1876
D. R. Baird	do	Oct. 10, 1876
Daniel Dull	do	Apr. 25, 1876
William Onions	do	Mar. 7, 1876
M. H. Dooley	do	Dec. 5, 1876
Jacob A. Camp	do	Nov. 14, 1876
S. Caldwell	do	May 29, 1877
J. T. Collins and E. B. Grant.	do	July 3, 1877
J. A. Nicholls	do	July 17, 1877
Thomas McDonough	do	Aug. 21, 1877
S. S. Crecker and A. Wilcox.	do	Aug. 14, 1877
T. J. Sawyer	do	Aug. 28, 1877
J. J. Walden	do	July 31, 1877
W. H. Williams	do	July 6, 1869
B. W. Nichols	do	Apr. 20, 1869
William C. Mason	do	Oct. 12, 1869
G. W. R. Bayley	do	Mar. 2, 1869
A. Roff	do	Apr. 13, 1869
P. L. Gibbs	do	Oct. 26, 1869
C. H. Crosby	do	Jan. 12, 1869
William E. Ball	do	Apr. 27, 1869
M. W. Griswold	do	Oct. 19, 1869
William P. Porter	do	June 1, 1869
Hazelton and Southard	do	May 4, 1869
John Davis	do	Apr. 20, 1869
G. G. Hickman	do	Sept. 10, 1867
V. Lapham	do	Nov. 12, 1867
Harris and Browning	do	Jan. 29, 1867
William P. Vernier	do	Nov. 10, 1863
J. H. Gridley	do	Feb. 26, 1867
H. F. Armstrong	do	June 27, 1865
Lawrence and White	do	July 23, 1861
T. Whitmore	do	Oct. 8, 1867
L. Paige	do	Jan. 3, 1871
G. G. Hickman	do	Aug. 14, 1866
Levi Till	do	July 3, 1866
D. Cummings	do	June 16, 1868
A. D. Smith	do	June 16, 1868
S. W. Kirk	do	Mar. 31, 1868
O. S. Freeland	do	Feb. 22, 1870
Thomas Shaw	do	Apr. 28, 1868
M. Langhorn	do	Feb. 15, 1870
Daniel R. Pratt	do	Feb. 1, 1870
E. T. Ligan	do	May 24, 1870
D. Cummings	do	Aug. 23, 1870
S. H. Wheeler	do	Oct. 11, 1870
J. Mootecroft	do	Sept. 27, 1870
A. G. Bluns	do	Apr. 5, 1870
Robert White	do	July 19, 1870
M. A. Cushing	do	Dec. 6, 1870
G. G. Hermance	do	Feb. 1, 1870
Casper Gilman	do	July 2, 1872
William H. Vancleve	do	Mar. 12, 1872
William E. Ball	do	Aug. 20, 1872
J. A. Morrison	do	Apr. 30, 1872
C. F. Brush	do	Jan. 30, 1872
J. Muetree	do	Dec. 10, 1872
H. C. Stouffer	do	Apr. 2, 1872
George P. Rose	do	Mar. 5, 1872
A. T. Morris	do	Jan. 16, 1872
George Hart	do	June 25, 1872
W. P. Horton	do	Dec. 24, 1872
A. M. Rouse	do	Dec. 31, 1872
H. C. Stouffer	do	Jan. 9, 1872
I. Allen	do	July 30, 1872
L. Winslow	do	July 30, 1872
R. G. Paterson	do	June 4, 1874
R. Rutter	do	May 31, 1870
J. Bell	do	Oct. 4, 1870
Robert Gilliland	do	Sept. 20, 1870
T. B Young	do	May 3, 1870
T. T. Prosser	do	May 31, 1870
E. D. Taylor	Nut Lock	Apr. 5, 1870
Southwait and Baker	do	Apr. 5, 1840
Dyer, Parker and Way	do	Nov. 8, 1870
McGonaughey and Adams	do	May 17, 1870
F. Myers	do	Oct. 18, 1870
U. B. Vidal	do	May 31, 1870
N. Thompson	do	Feb. 8, 1870
Do	do	Feb. 22, 1870
John Miller	do	Nov. 1, 1870
James Dennis	do	Aug. 9, 1870
Huffman and Johnston	do	June 7, 1870
F. Myers	do	Oct. 18, 1870
H. Bagle	do	May 31, 1870
R. D. McGowan	do	Aug. 30, 1870
D. R. Pratt	do	June 25, 1870
C. Dutman	do	May 24, 1870
E. R. Shepard	do	May 3, 1870
William J. Stowell	do	Aug. 11, 1868
J. Rogers	do	June 30, 1868
H. W. McAuley	do	Oct. 25, 1870
B. D. Sanders	do	Oct. 20, 1868
William Mullins	do	Apr. 7, 1868
Elliott and Seely	do	Feb. 4, 1868
William Morehouse	do	Oct. 13, 1868
James Christy	do	Apr. 21, 1868
Samuel Garber	do	July 7, 1868
A. V. B. Orr	do	Mar. 17, 1868
Logan and Fisher	do	Sept. 22, 1868
B. D. Sanders	do	Oct. 20, 1868
George P. Darrow	do	Aug. 25, 1868
William Hamilton	do	Dec. 29, 1868
F. Tuder	do	Oct. 20, 1868
A. N. Towne	do	July 14, 1868
George W. Byley	do	July 24, 1860
S. Noblet	do	Sept. 21, 1858
T. C. Hayes	do	July 23, 1872
A. B. Davis	do	Jan. 23, 1872
L. Arnold	do	July 21, 1872
J. Dinsmore	do	May 28, 1872
George J. Harris	do	June 25, 1872
Daniel Sawyer	do	Sept. 24, 1872
E. M. Turner	do	Apr. 23, 1872
Furst and Ottlinger	do	Dec. 31, 1872
L. L. Dunlap	do	Oct. 8, 1872
E. H. Dooley	do	Jan. 16, 1872
S. A. Todd	do	Dec. 10, 1872
Jos. S. Kirkpatrick	do	Aug. 13, 1872
John Saeger	do	July 9, 1872
F. A. Bishop	do	Dec. 10, 1872
Peabody and Champlin	do	May 7, 1872
John Miller	do	Aug. 20, 1872
K. H. Loomis	do	Nov. 26, 1872
T. E. Rhine	do	Nov. 19, 1872
Peter Hayden	do	Oct. 1, 1872
K. H. Loomis	do	Jan. 23, 1872
P. L. Gibbs	do	May 28, 1872
A. Morley	do	May 28, 1872
S. B. Lowe	do	Feb. 20, 1872
T. W. Kirkwood	do	Apr. 2, 1872
J. L. Williams	do	Oct. 1, 1872
J. N. Winslow	do	June 4, 1872
A. C. Smith	do	Nov. 5, 1872
F. H. Bradley	do	July 23, 1872
D. Cummings	do	Nov. 5, 1872
J. L. Randolph	do	Dec. 27, 1870
G. L. Hillard	do	Oct. 8, 1872
C. W. Penfield	do	June 23, 1874
Jos. Ellenburger	do	Mar. 24, 1874
E. B. Waigate	do	Apr. 7, 1871
T. B. Wrightley	do	Feb. 7, 1874
D. R. Pratt	do	Oct. 27, 1874
George C. Thomas	do	Dec. 22, 1874
C. R. Watrons	do	Apr. 7, 874
A. B. Buell	do	Feb. 10, 1874
H. S. Ferman	do	Oct. 20, 1874
Conner and Fuller	do	Apr. 7, 1874
Caspar Dittman	do	Sept. 8, 1874
H. Rosamyer	do	Aug. 3, 1869
C. Hutchinson	do	Oct. 6, 1874
H. P. Hood	do	Jan. 20, 1874
S. Brimson	do	July 28, 1874
William M. Spacht	do	Feb. 3, 1874
C. C. Shelby	do	Apr. 28, 1874
S. Hummel	do	Mar. 10, 1874
William M. Watson	do	Jan. 13, 1874
D. W. De Forest	do	June 23, 1874
M. McDevitt	Unlocking Nut-Lock	Apr. 14, 1874
A. C. Fletcher	Nut-Lock	July 7, 1874
D. F. Tatt	do	Oct. 20, 1874
J. B. Sweetland	do	Apr. 14, 1874
J. C. Thomas	do	Jan. 13, 1874
Sikes and Sikes	do	May 12, 1874
D. Z. Lantz	do	Apr. 28, 1874
D. R. Pratt	do	Oct. 27, 1874
William Duncan	do	Aug. 25, 1874
Richard H. Doane	do	July 21, 1874
Fisher and Fisher	do	Sept. 29, 1874
A. F. Diamond	do	Dec. 29, 1874
J. C. Tiffany	do	Jan. 20, 1876
J. B. Atwood	do	Mar. 17, 1874
S. W. Baldwin	do	June 9, 1874
Thomas J. McTighe	do	Jan. 27, 1874
F. L. Bates	do	Nov. 10, 1874

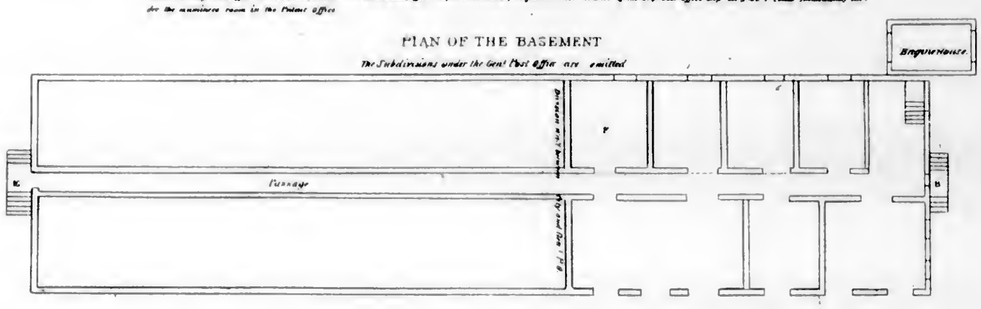
Name.	Device.	Date.
S. T. Lamb	Nut Lock	Feb. 10, 1874
George P. Fuller	do	Feb. 22, 1876
John Morton	do	Apr. 18, 1876
Smith and Gill	do	May 23, 1876
J. J. Adgate	do	Feb. 15, 1876
James E. Withers	do	Jan. 25, 1876
Amos Walton	do	May 16, 1876
W. S. Roberts	do	Dec. 8, 1874
S. D. Enochs	do	Dec. 26, 1876
A. Paul	do	May 2, 1876
C. Holton	do	Apr. 25, 1876
O. P. Cobb	do	Mar. 28, 1876
I. Van Kuran	do	Feb. 15, 1876
Jas. Curran	do	May 16, 1876
Deeds & Toole	do	Feb. 1, 1876
M. A. Spafford	do	May 30, 1876
F. M. F. Cazin	do	Jan. 18, 1876
R. P. Thomas	do	Feb. 29, 1876
George W. Henry	do	Jan. 4, 1876
S. A. Brumbaugh	do	Feb. 1, 1876
Harry Simpson	do	Dec. 19, 1876
F. W. Carpenter	do	Feb. 1, 1876
O. P. Latham	do	July 4, 1876
William H. Young	do	Dec. 5, 1876
John Nelson	do	May 16, 1876
Peter Zeiher	do	Nov. 28, 1876
J. H. Webster	do	Jan. 25, 1876
J. Foster	do	Mar. 21, 1876
John Nelson	do	Mar. 14, 1876
Edw. G. Felthousen	do	Sept. 26, 1876
F. R. Gridley	do	Apr. 22, 1873
L. J. Miller	do	Apr. 29, 1873
P. F. King	do	Aug. 19, 1873
Charles E. Watrous	do	Dec. 30, 1873
H. P. Hood	do	Jan. 21, 1873
C. Dittman	do	Nov. 25, 1873
M. F. McIntire	do	Mar. 18, 1873
K. H. Loomis	do	Sept. 9, 1873
A. C. Smith	do	Dec. 30, 1873
M. L. Ballard	do	Apr. 7, 1873
J. B. Sweetland	do	Dec. 30, 1873
L. Leeds	do	Dec. 30, 1873
H. W. Dott	do	Aug. 26, 1873
William Bowman	do	Nov. 25, 1873
John Wetmore	do	June 24, 1873
Eichenberger and Binkley	do	Apr. 1, 1873
Charles A. Howard	do	Nov. 25, 1873
John McCallison	do	Apr. 8, 1873
A. C. Hull	do	July 3, 1873
Hood & Combs	do	Feb. 4, 1873
Thompson & Rice	do	Feb. 11, 1873
Antill & Sloan	do	Aug. 19, 1873
R. W. Hamilton	do	Aug. 8, 1871
W. Todd	do	June 14, 1873
M. G. Hubbard	do	Feb. 11, 1873
E. B. Wingate	do	Jan. 14, 1873
C. H. Taylor	do	Sept. 16, 1873
Edward Turner	do	Apr. 1, 1873
William H. Nichols	do	Jan. 28, 1873
I. E. Nagle	do	Apr. 1, 1873
F. P. Thompson	do	July 29, 1873
Sanford Peatfield	do	Oct. 28, 1873
A. Williams	do	Jan. 14, 1873
A. Porter	do	May 27, 1873
H. C. Lowe	do	Sept. 16, 1873
Daniel Sawyer	do	Sept. 23, 1873
W. B. Wait	do	Apr. 22, 1872
Edward Czarnieckl	do	June 24, 1873
G. D. Keen	do	Apr. 1, 1873
Edward Kaylor	do	Dec. 9, 1873
R. W. Davis	do	Mar. 18, 1873
E. A. Cooper	do	Nov. 11, 1873
John A. Reed	do	July 8, 1873
C. L. Holland	do	Apr. 20, 1875
M. Hays	do	Apr. 15, 1873
J. Russell	do	Apr. 25, 1873
F. C. Hamilton	do	Oct. 5, 1875
John G. Perry	do	Sept. 7, 1875
H. L. Heaton	do	May 18, 1875
A. E. Harris	do	Sept. 28, 1875
J. C. Wright	do	Sept. 21, 1875
W. P. Olden	do	June 22, 1875
D. & S. A. Baton	do	Aug. 24, 1875
D. B. Snyder	do	Feb. 23, 1875
John Miller	do	Jan. 19, 1875
B. J. Noonan	do	Feb. 9, 1875
R. Cramer	do	Apr. 13, 1875
R. Long	do	Nov. 9, 1875
G. B. Rager	do	Nov. 16, 1875
M. G. Hubbard	do	Apr. 20, 1875
J. J. Adgate	do	Jan. 26, 1875
J. M. Kent	do	July 27, 1875
J. J. Adgate	do	Mar. 16, 1875
J. C. Wright	do	July 15, 1875
William C. Gold	do	Apr. 13, 1875
C. J. Cummings	do	Feb. 2, 1875
Shoemaker & Jones	do	Sept. 21, 1875
O. T. Welch	do	Mar. 30, 1875
O. B. Latham	do	June 22, 1875
L. Chapman	do	Oct. 19, 1875
S. Brunson	do	Apr. 20, 1875
J. J. Gray	do	Feb. 9, 1875
W. F. Marthens	do	June 22, 1875
J. M. Whitmore	Nut Lock	July 20, 1875
C. Holton	do	Sept. 21, 1875
J. B. Atwood	do	Oct. 11, 1875
Barker & Barker	do	Oct. 19, 1875
R. C. Watson	do	Oct. 11, 1875
E. Barrowelongh	do	Feb. 9, 1875
S. T. Hughes	do	Mar. 23, 1875
C. Henderson	do	Oct. 5, 1875
Keating and Bristor	do	Nov. 16, 1875
D. D. Jones	do	July 6, 1875
T. Vernon	do	Apr. 3, 1877
J. McCray	do	May 15, 1877
E. P. Landfear	do	Jan. 2, 1877
T. L. Williams	do	May 1, 1877
A. Johnson	do	Mar. 6, 1877
J. W. Eaton	do	July 3, 1877
William Lyon	do	July 31, 1877
L. Sterne	do	Jan. 2, 1877
J. C. Wright	do	Apr. 24, 1877
William Tunstill	do	Jan. 2, 1877
William Dicks	do	Feb. 6, 1877
Hahn and Myers	do	May 22, 1877
H. C. Stouffer	do	May 20, 1877
W. C. Harner	do	May 8, 1877
William C. Gold	do	Jan. 23, 1877
Brown and Huly	do	May 15, 1877
J. Hollinsworth	do	July 3, 1877
F. Swingly	do	Jan. 9, 1877
Mercer and Pownall	do	May 8, 1877
George Neilson	do	Apr. 17, 1877
J. D. Kennard	do	Apr. 17, 1877
E. R. Shepard	do	May 22, 1877
B. P. Sargent	Expanding Horseshoe	Oct. 25, 1853
William H. Towers	do	Dec. 20, 1853
John C. Jones	Elastic Horseshoe	Aug. 3, 1852
D. Cummings	Horseshoe	May 12, 1857
William H. Towers	do	July 25, 1854
William Cooper	do	June 20, 1857
N. B. Carpenter	do	May 13, 1856
William Somerville	do	Sept. 29, 1857
John Henderson	do	May 20, 1856
S. Short	do	July 8, 1856
E. Maynard	Horseshoe Calk	Feb. 24, 1857
N. E. Hinds	Horseshoe	Feb. 22, 1859
John Maddock	do	Sept. 21, 1858
Daniel Holmes	do	Apr. 16, 1-42
J. D. Kendall	do	Nov. 12, 1861
R. A. Goodenough	do	May 20, 1860
C. H. Perkins	Horseshoe Calk	Apr. 9, 1861
A. Van Valkenburgh	Ox-Shoe	May 8, 1860
E. Cate	Horseshoe	Feb. 5, 1861
E. Wheeler	do	Mar. 2, 1858
T. M. Coleman	do	June 12, 1860
J. H. Jennings	Horseshoe Calk	May 21, 1861
Joseph Carlins	Horseshoe	Jan. 17, 1860
James Kennely	do	Mar. 31, 1863
L. Hale	Horseshoe Cushion	May 29, 1860
Isaac Peacock	Horseshoe	May 5, 1863
Pierre Thiry	do	July 22, 1862
O. A. Howe	do	Sept. 15, 1863
A. S. Wilkinson	do	July 3, 1866
Emanuel Pleyel	Horseshoe	Oct. 6, 1863
C. M. Werner	do	Apr. 10, 1866
A. S. Wilkinson	do	Feb. 12, 1867
Do	do	July 17, 1864
G. W. Lewis	do	Oct. 29, 1867
William H. Hall	Horseshoe Cushion	May 1, 1866
George Custer	Horseshoe Calk	Feb. 12, 1867
A. S. Wilkinson	Horseshoe	July 10, 1866
Patrick Henley	do	Dec. 24, 1867
E. C. Gero	do	July 17, 1866
A. S Wilkinson	do	Aug. 21, 1866
C. M. Warner	do	Feb. 19, 1867
A. S. Wilkinson	Horseshoe Calk	Aug. 14, 1866
W. H. Shurtleff	Horseshoe	Sept. 10, 1867
H. B. Ferren	do	Sept. 15, 1868
H. W. Southworth	Horseshoe Pad	Aug. 11, 1868
John Wagner	Horseshoe	Mar. 10, 1868
J. L. Wetherell	Horseshoe Pad	July 28, 1868
C. O. Stevens	Horseshoe	Aug. 18, 1868
W. H. Harmar	do	Feb. 4, 1868
N. W. Hubbard	do	Feb. 18, 1868
Jamerson and Chambers lain.	do	Dec. 8, 1868
J. Heyl	do	July 21, 1868
George E. Rust	Horseshoe Cushion	Jan. 7, 1868
A. S. Hopson	Horseshoe	Mar. 31, 1868
John M. Clark	do	July 10, 1866
A. S. Wilkinson	do	July 10, 1866
Do	do	Aug. 7, 1866
Do	do	July 17, 1866
J. W. Falkner	Horseshoes	Apr. 10, 1866
A. S. Wilkinson	do	Aug. 14, 1866
F. Shinn	do	June 5, 1866
John H. Brown	do	Jan. 9, 1866
E. Swender	do	Oct. 2, 1866
A. S. Wilkinson	do	Aug. 7, 1866
C. M. Warner	do	Sept. 25, 1866
A. S. Wilkinson	do	July 10, 1866
J. J. Payton	do	Nov. 12, 1866
H. H. Baker	do	Oct. 9, 1866
A. S. Wilkinson	Horseshoe Stoppings	Aug. 28, 1866
John Augustine	Horseshoe	Aug. 23, 1866

EXPLANATIONS

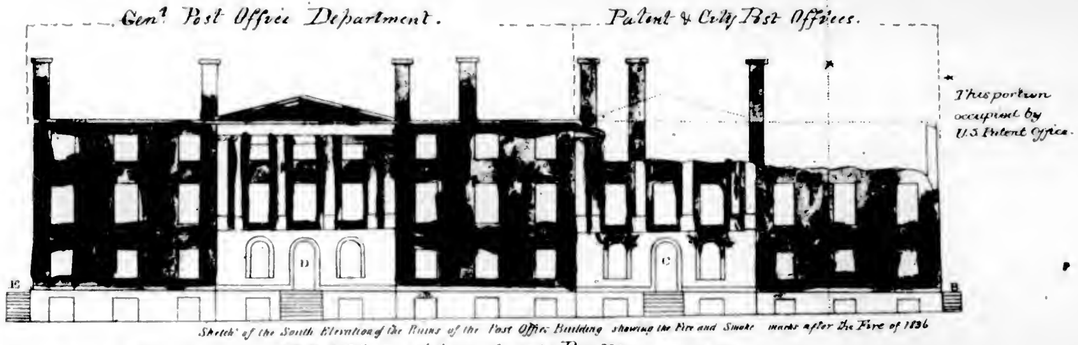
The part coloured brown upon the plan shows the extent of the City Post Office Letter room—the dotted line continued across from the Blue line shows the position between the Letter room & Dr Jones's room—The 3d Story of the wall where the City Post Office which was standing after the conflagration does not appear in the drawing, having been pulled down.—B Steps before the East or Patent Office Entrance on F.—C East range to City Post Office on E.—D Entrance to Genl Post Office Dept on E.—E Steps before the west entrance of the Genl Post Office Dept on F.—F Cellar immediately under the examiners room in the Patent Office

PLAN OF THE BASEMENT

The Subdivisions under the Genl Post Office are omitted



Genl Post Office Department. Patent & City Post Offices.



Sketch of the South Elevation of the Ruins of the Post Office Building showing the Fire and Smoke marks after the Fire of 1836

on file with the Report of the Comm^e H.R. 24th Cong. 2^d Sess. (enlarged.) Doc. 134. By Wm J. Stone

RUINS of the POST and PATENT OFFICES Burnt Dec. 15th 1836.

Incumbents.
Hon: Amos Kendall Postmaster Genl
" Henry L. Ellsworth Comm^r of Patents
Doc^r William Jones City Post-master.

N. Side of F^y. Street between 7th & 8th Washington D.C

N. Peters Photo Lithographer Washington D.C

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Name.	Device.	Date.
Behel and Buell	Horseshoes	May 20, 1806
Frederick Judson	Horseshoe Calk	May 22, 1806
T. H. Jare	Horseshoe	May 29, 1806
O. Bonnet	do	Aug. 7, 1806
A. S. Wilkinson	do	July 10, 1806
Henry Schreiner	do	May 22, 1806
William Hinns	do	Oct. 23, 1806
John Austin	do	Jan. 2, 1806
A. S. Wilkinson	do	July 17, 1806
William Lilzenbury	do	Aug. 21, 1806
William E. Hubbard	do	June 29, 1835
H. H. Baker	do	July 16, 1846
A. H. Knapp	do	May 29, 1806
George Custer	do	June 29, 1864
Alexander Tyrrell	do	July 26, 1864
Merrill and Maxwell	Oxshoe	July 19, 1864
L. Carpenter	Horseshoe	June 20, 1844
Joel Penn	do	May 24, 1844
Ward and Munger	do	May 24, 1844
John M. Johnson	do	May 24, 1844
William H. Peeker	do	Oct. 30, 1844
James F. Mallett	do	Aug. 6, 1844
George W. Griswold	Horseshoe Calk	Oct. 1, 1844
Morgan Crittenton	Horseshoe	Oct. 18, 1844
Stickney and Taylor	do	Oct. 4, 1844
C. Weetman	Horseshoe Calk	Apr. 18, 1865
Charles H. Johnson	do	Apr. 25, 1865
H. H. Palmer	Horseshoe	Nov. 21, 1865
George Custer	do	July 4, 1865
Oliver F. Mcdill	do	April 11, 1865
L. M. Gallegan	do	May 9, 1865
Wilson Hodges	do	July 4, 1865
William Dishrow	do	Jan. 31, 1865
A. Weetman	do	Aug. 8, 1865
Do	do	Sept. 5, 1865
William Coes	do	Apr. 25, 1865
J. R. Moore	do	Nov. 14, 1865
S. D. Bissell	Horseshoe Calk	July 15, 1865
John Hastings	Horseshoe	July 25, 1865
James McPherson	do	Dec. 21, 1865
Alexander Tyrrell	do	Apr. 25, 1865
James L. Pike	do	Feb. 7, 1865
Joseph Jorey	do	July 5, 1859
H. Schreiber	do	Oct. 29, 1867
H. B. Davis	Horse Bracket, (Marsh Shoe.)	June 14, 1859
C. Weetman	Horseshoe	May 7, 1867
B. R. Watson	do	Feb. 19, 1867
T. R. Bishop	do	Feb. 12, 1867
Behel and Perrine	do	Nov. 12, 1867
A. S. Wilkinson	do	Sept. 24, 1867
W. J. Berne	Horseshoe Calk	July 16, 1867
A. S. Wilkinson	Horseshoe	Feb. 12, 1867
A. S. Wilkinson	do	Apr. 23, 1867
F. Chorlier	do	Apr. 23, 1867
D. L. McDonell	do	Mar. 12, 1867
J. W. Wheeler	do	Nov. 5, 1867
David Stewart	Manufacture of Iron	Dec. 17, 1867
Silas Stout	Horseshoe	Oct. 22, 1867
Henry Sellidorf	Horseshoe Armor.	Oct. 8, 1867
A. S. Wilkinson	Horseshoe	May 28, 1867
H. Lake	Oxshoe	Oct. 29, 1867
A. S. Wilkinson	do	Feb. 12, 1867
Do	do	May 2, 1867
T. B. Bishop	Electric Sole (Specimens)	Nov. 12, 1867
William J. Berne	Horseshoe Calk	Nov. 5, 1867
A. S. Wilkinson	Horseshoe	Feb. 12, 1867
John Austin	do	Feb. 12, 1867
James Forbes	Horseshoe Calk	Sept. 24, 1867
J. W. Hodges	Horseshoe	Oct. 22, 1867
T. B. Bisdop	do	Dec. 31, 1867
George Sewell	do	Feb. 12, 1867
A. S. Wilkinson	do	Feb. 12, 1867
Thomas Waterhouse	do	Dec. 26, 1869
H. G. Haldrick	Horse Shoe and Boot	Oct. 26, 1869
K. Goddard	Horseshoe	May 25, 1869
Perley Ladin	Horseshoe Calk	July 27, 1869
Baseline and Wheeler	Horseshoe Cushion	Sept. 21, 1869
J. H. Tyler	Horseshoe	Apr. 20, 1869
Smith and Evans	do	Mar. 12, 1867
J. Carman	do	June 22, 1869
H. S. Hitner	do	Nov. 23, 1867
Charles Tillard	do	Sept. 21, 1869
J. Jorey	do	Mar. 30, 1869
William R Watson	do	Mar. 2, 1869
Jno. A. Heyl	do	Mar. 9, 1869
J. Johnson	Horseshoes	May 4, 1869
Do	Horseshoe Pad	June 28, 1869
P. C. Johnson	Horseshoe	Aug. 10, 1869
E. Whitehead	Horseshoe Calk	Aug. 10, 1869
G. S. Harris	do	Dec. 14, 1869
Handy and Kleibacker	Supplemental Horseshoe	May 11, 1869
William J. Berne	Detachable Horseshoe Calk.	May 11, 1869
J. Johnson	Horseshoe	May 4, 1869
R. H. Parks	do	Apr. 20, 1861
F. Ladin	Hor-eshoe Calk	Dec. 7, 1869
E. Osgood	Horseshoe Compound	May 18, 1869
David Roberge	Horseshoe	May 25, 1869
George A. Parker		Jan. 5, 1869

Name.	Device.	Date.
J. J. Mervey	Horseshoe Calk	Aug. 29, 1871
J. Bracket	Horseshoe	Mar. 21, 1871
Rudolph Seiffert	do	Sept. 26, 1871
David Grim	do	Nov. 14, 1871
Daniel Corbin	Horseshoe Pad	Jan. 10, 1871
William H. Halsey	Horseshoe	May 30, 1871
Robert F. Cook	do	Nov. 28, 1871
T. Johnson	Horseshoe Pad	Feb. 11, 1873
Thomas M. Clark	Horseshoe Calk	Jan. 21, 1873
John J. Mervey	do	Mar. 4, 1873
Uriah Snyder	Horseshoe	Nov. 11, 1873
Moses G. Clark	do	Apr. 15, 1-73
James E. Johnson	do	Sept. 30, 1873
Albert Leach	do	Aug. 5, 1873
John Rowe, Jr. and F. B. Brown	Horseshoe	Aug. 26, 1873
Charles Goodenough	do	Aug. 26, 1873
Charles H. Todd	do	Dec. 9, 1873
T. H. O Neill	do	Apr. 15, 1873
John D. Abbott	do	Sept. 9, 1873
A. W. Smith	do	Sept. 9, 1873
A. D. Mott	do	Sept. 14, 1875
J. K. Christopher	do	Mar 23, 1875
George Custer	do	May 4, 1875
A. Albright	Horseshoe Calk	Oct. 25, 1873
Alex Moffitt	do	May 6, 1873
A. C. Snowden	do	Sept. 14, 1875
Aaron W. Smith	do	Dec. 28, 1875
S. N. Stevenson	Horseshoe and Swage	Aug. 17, 1875
M. S. Roberts	Horseshoe	Sept. 14, 1875
Thomas Skelton	do	May 4, 1875
R. French	Oxshoe	Jan. 26, 1875
John B. Wood	Horseshoe Pad	Feb. 2, 1875
John Weustail	Horseshoe	July 6, 1875
J. E. Davis	Oxshoe	Jan. 5, 1875
Aaron W. Smith	Horseshoe	Dec. 7, 1875
J. H. Dorgan	do	Aug. 10, 1875
Samuel Stone	do	Nov. 2, 1875
J. Russell	do	Aug. 3, 1875
J. T. Walker	do	Sept. 21, 1875
Robert Lee	do	Jan. 26, 1875
N. G. Blatterwick	do	Dec. 7, 1875
C. Hartman	do	June 1, 1875
T. R. Bishop	do	Mar. 9, 1875
McVeen and Price	Horseshoe Fastenings	Mar. 30, 1875
Alex Dunbar	Horseshoe	Nov. 23, 1-75
Z. V. Perdy	do	Dec. 21, 1875
E. W. Bamnes	do	Oct. 19, 1875
L. E. Brown	do	Oct. 5, 1875
S. B. Henry	do	Feb. 23, 1875
D. Carey	do	Apr. 13, 1875
J. D. Feldhausen	do	Apr. 27, 1875
J. B. Geling	do	Mar. 30, 1877
G. M. McMullen	Horseshoe Calk	May 23, 1876
E. Walk	do	July 11, 1876
George W. Phillips	Horseshoe Pad	July 18, 1876
E. C. Tebbis	Horseshoe	Jan. 12, 1876
D. W. Horn	Horseshoe Pad	June 20, 1876
M. H. Wilcox	Horseshoe	Aug. 1, 1876
William E. Yates	do	Oct. 31, 1876
George Smith	do	Aug. 8, 1876
William Lewis	do	Nov. 14, 1876
Thomas Skelton	do	July 12, 1865
R. Japoria	do	Dec. 25, 1868
J. Jory	do	Feb. 25, 1868
B. Ladd	do	Sept. 1, 1868
G. P. Milligan	do	July 21, 1868
William T. Harmer	do	Feb. 4, 1868
J. Hasseltine	Horseshoe Pad	May 19, 1868
L. A. Smith	Horseshoe	Aug. 4, 1868
J. J. Mervesp	do	Dec. 15, 1868
George W. Skinner	do	Feb. 15, 1868
P. Murray	do	Apr. 7, 1868
J. W. Carkendall	do	June 2, 1868
Joseph Barker	do	Dec. 22, 1868
Samuel Mason	do	Nov. 24, 1868
J. N. Clark	do	Aug. 18, 1868
William Hines	do	Apr. 7, 1868
L. H. Kellogg	do	Nov. 24, 1868
T. W. Elson	do	Feb. 23, 1868
G. T. Chapman	do	Aug. 25, 1868
A. E. Kroger	do	July 21, 1868
J. E. Potter	do	July 14, 1868
J. S. Toan	do	Nov. 24, 1868
W. C. Wilmore	do	Sept. 22, 1868
P. C. Johnson	Horseshoe Calk	June 16, 1868
C. H. Perkins	Horseshoe	June 30, 1868
Z. V. Purdy	do	Sept. 8, 1870
H. D. Lyman	do	Mar. 8, 1870
H. G. Hedrick	Horseshoe Pad	July 19, 1870
H. G. Hedrick	Horseshoe and Boot	Feb. 22, 1870
A. L. Murphy	Horseshoe	July 5, 1870
John Vanderlin	Horseshoe Pad	Nov. 29, 1870
J. Roberson	Horseshoe	Apr. 17, 1870
D. G. Hedrick	do	Mar. 1, 1870
Dewrie & Harris	Horseshoe Boot	July 5, 1870
H. Ingraham	Horseshoe	Jan. 25, 1870
B. Roberts	do	Mar. 15, 1870
Kinghon & Kinghorn	do	Mar. 1, 1870
S. J. Baker	do	Feb. 6, 1872
		June 14, 1870

Name.	Device.	Date.
E. Cate	Horseshoe	Apr. 5, 1870
G. Custer	Horseshoe Calk	Apr. 12, 1870
G. Copeland	Horseshoe	May 3, 1870
John S. Robertson	do	Nov. 8, 1870
J. D. Barnum	Horseshoe Calk	June 7, 1870
A. W. Smith	Horseshoe	June 11, 1872
William H. Treleight	do	Mar. 5, 1872
William S. Edwards	do	Jan. 23, 1872
Abraham Soles	do	June 4, 1872
U. Thompson	Horseshoe Stretcher	Feb. 6, 1872
Silas Sloat	Horseshoe	Jan. 23, 1872
Henry Moran	do	Mar. 5, 1872
Charles Parish	do	July 16, 1872
P. A. La France	do	July 3, 1866
J. Stickney	do	Dec. 3, 1872
J. E. Byers	Horseshoe Calk	June 11, 1872
B. P. Hutchinson	Horseshoe	Nov. 19, 1872
Nosh Clouse	do	July 30, 1872
J. Stickney	do	May 7, 1872
H. B. Ferran	do	Aug. 20, 1872
Kensing & Hooper	do	Dec. 29, 1874
Richard Austin	do	May 12, 1874
John Kerman	do	May 5, 1874
L. W. Griswold	do	Aug. 25, 1874
John H. Guesh	Horseshoe-Pad	Oct. 27, 1874
P. M. Papin	Horseshoe	Apr. 7, 1874
William Fawcitt	do	May 19, 1874
J. Jory	do	Feb. 10, 1874
G. McGregor	Horseshoe-Calk	Feb. 10, 1874
D. O. Bradfield	do	Nov. 3, 1874
R. F. Cook	Horseshoe	Sept. 29, 1874
George Briden	do	Sept. 29, 1874
William D. Harris	do	Mar. 17, 1874
S. Milbury and G. A. King	Marsh Horseshoe	Feb. 10, 1874
Girard Dunning	Horseshoe	Feb. 24, 1874
J. Jory	do	Nov. 24, 1874
Daniel L. Corbin	do	Apr. 21, 1874
Edward Murraine	do	June 20, 1876
Dunning & Halfaker	do	Apr. 7, 1874
Daniel Locke and J. N. Bashaw.	Marsh Horseshoe	Dec. 19, 1876
J. D Rosenberger	Horseshoe-Calk	Dec. 26, 1876
T. W. Murphy	Horseshoe	Feb. 8, 1876
E. Murraine	do	Oct. 10, 1876
Victor Hurst	do	Oct. 10, 1876
T. W. Murphy	do	Jan. 11, 1876
James Lathrop	do	Apr. 4, 1876
E. L. Tevis	do	Jan. 18, 1876
L. Joery	do	Dec. 12, 1876
Charles J. Carr	do	May 12, 1876
G. O. Bergland	Marsh Horseshoe	Dec. 26, 1876
Bradfeet & Perkins	Horseshoe	Aug. 1, 1876
Rattray & Robinson	do	June 20, 1876
L. C. Chase	do	Dec. 12, 1876
A. F. Olds	Horseshoe-Pad	Jan. 18, 1876
T. B. Bishop	do	May 2, 1876
Henry Gourdier	Horseshoe	Mar. 28, 1876
C. W. Atkinson	do	Apr. 3, 1877
Seth T. Bane	Horseshoe Toe-Weight	Feb. 20, 1877
J. C. Brightman	Horseshoe	Apr. 17, 1877
M. McBarren	Horseshoe-Pad	Mar. 27, 1877
C. E. Stockder	do	Apr. 10, 1877
J. P. Sheffield	Horseshoe	Mar. 27, 1877
H. D. Cornish and C. P. Hunt.	do	June 23, 1877
Franz Ernst	do	Feb. 20, 1877
E. E. Selxas	do	June 16, 1877
S. P. Fisher	do	Apr. 17, 1877
J. R. Cancio	do	May 15, 1877
C. H. Perkins	do	June 19, 1877
W. M. Temple	do	June 12, 1877
S. A. Phelps	Horseshoe Toe-Weight	June 12, 1877
Q. M. Young	do	June 19, 1877
R. B. Huger	Horseshoe	July 31, 1877
E. Murraine	do	June 26, 1877
J. A. Conkey	do	Aug. 7, 1877
T. Henry	do	Aug. 7, 1877
T. W. Murphy	do	Aug. 28, 1877
M. S. Woodward	Measuring Horse's Feet	Oct. 29, 1867
H. B. Ferren	do	Sept. 15, 1868
Do	do	Sept. 15, 1868
H. Herreneschmidt	Tempering Metal (specimen with horseshoes.)	Oct. 31, 1876
Thomas Sumner	Steam-Hammer	June 27, 1854
P. L. Weimer	do	Jan. 31, 1854
L. Kirk	do	Sept. 19, 1848
C. W. and I. P. Williams	do	Aug. 12, 1856
William Ball	Operating Steam-Stamps	May 27, 1856
Bonny & Willard	Operating Steam Trip-Hammer.	Aug. 17, 1858
P. Danvers	do	Sept. 14, 1858
C. W. and J. P. Williams	do	Oct. 4, 1864
T. Beach	do	Sept. 4, 1860
Shifton & Mitchell	Machine for Forging Pipe Joints and other similar articles.	Oct. 16, 1866
J. T. Turner	Valve-Gear for Steam-Hammers.	July 19, 1864
C. R. James	Operating Hammers and Stamps.	June 19, 1866
James Watt	Valve-Gear for Steam-Hammers.	Jan. 23, 1866
E. L. Kinaley	do	May 8, 1866

Name.	Device.	Date.
J. G. N. Alleyner	Improvement in Forging-Apparatus.	Nov. 27, 1866
H. Hamilton	Valve-Gear for Steam-Hammers.	Mar. 27, 1866
D. Joy	do	Nov. 6, 1866
Do	Steam-Hammers	Aug. 4, 1868
F. B. Miles	Valve-Gear for Steam-Hammers.	July 21, 1868
D. Davis	Forging-Apparatus	Sept. 15, 1868
C. Vogle	Compressed-Air Forge-Hammers.	Aug. 30, 1870
O. C. Ferris and F. B. Miles.	Steam-Hammers	July 5, 1870
T. R. Morgan	Cylinders for Steam-Hammers.	Apr. 23, 1872
William Sellers	Steam-Hammers	Oct. 22, 1872
William Manson	Atmospheric Hammers	June 23, 1874
Do	Atmospheric-Power Hammers	June 23, 1874
T. Hill	Steam-Hammers	May 9, 1876
J. B. Collins	Exhaust-Pipe for Steam-Hammers.	June 6, 1876
William Walker	Steam-Hammer	Sept. 26, 1876
J. Masmyth	Operating Forge-Hammers by Steam.	Apr. 10, 1843
R. R. Taylor	Arrangement of Valve-Ports and Passages for Operating Steam-Hammers.	Nov. 29, 1853
J. Watt	Valve-arrangement for Steam-Hammers.	Dec. 6, 1853
L. Kirk	Steam Trip-Hammers	Apr. 3, 1847
Weimer & Francisco	Operating the Valve of Steam-Hammers.	Jan. 27, 1857
B. Hotchkiss	Trip-Hammers	June 14, 1859
R. R. Taylor	Steam-Hammers	Jan. 1, 1861
B. Hotchkiss	Atmospheric Trip-Hammers.	Sept. 15, 1863
R. Morrison	Valve for Steam Hammers.	June 23, 1863
Do	Valve-Gear for Steam-Hammers.	Jan. 19, 1863
E. A. Raymond	Improvement in Forging-Apparatus.	Nov. 28, 1865
C. W. Willard	Valve Gear for Steam-Hammers.	Aug. 15, 1865
J. Watt	do	Oct. 10, 1865
W. D. Grimshaw	Atmospheric Hammers	Jan. 10, 1865
W. & C. Sellers	Valve-Gear for Steam-Hammers.	Oct. 29, 1867
R. Mitchell	Cylinder for Steam-Hammers.	Nov. 5, 1867
D. R. Quick and J. A. Gardiner.	Steam-Hammers	Aug. 12, 1873
W. H. H. Lisum	Steam Drop-Presses	Apr. 20, 1875
S. D. Wilson	Steam-Hammer	Oct. 5, 1875
J. F. Allen	Pneumatic Engines for Hammers.	July 31, 1877
A. Harbie	Tuyere	Nov. 17, 1868
John Shugert	do	May 9, 1839
L. D. Brown	do	June 14, 1843
John Selsbee	do	Aug. 8, 1837
Ellis Kaign	do	Apr. 2, 1841
L. E. Clow	do	Sept. 23, 1843
R. A. Goodrich	do	Feb. 24, 1843
John W. Rogers	do	Mar. 17, 1868
R. D Porter	do	Mar. 27, 1849
L. C. Miner	do	July 31, 1847
T. E. C. Brinly	do	Dec. 11, 1866
Joseph Dorwart	do	Jan. 14, 1851
S. H. Camp	do	Aug. 21, 1849
E. Harris	do	Jan. 9, 1849
J. Brown	do	Jan. 21, 1868
Sinnott and McIntyre	do	Sept. 18, 1866
C. F. Espick	do	Aug. 11, 1868
John Treat	do	Oct. 2, 1866
R. W. Clark	do	Jan. 14, 1868
Z. H. Munn	do	Dec. 15, 1843
Evan Koons	do	Feb 6, 1866
John Bayliss	do	Aug. 7, 1866
Levi Wilkinson	do	May 22, 1866
John Kriegbaum	do	May 8, 1866
D. S. Loy	do	Mar. 20, 1866
William Graham	do	Aug. 5, 1851
George W. Dean	do	May 17, 1859
J. P. Markham	do	Aug. 16, 1859
S. L. Bond	do	July 26, 1859
F. A Denlerberger	do	Sept. 4, 1866
L. M. Doyle	do	Sept. 18, 1866
A. T. Alterton	do	June 5, 1866
R. D. Kincaid	do	Mar. 27, 1866
J. Weller	do	May 29, 1866
J. R. Harrington	do	Feb. 21, 1865
Taylor and Holmes	do	Apr. 25, 1865
B. Fish	do	Sept. 25, 1866
G. M. Robinson	do	July 3, 1866
W. P. Cain	do	Dec. 26, 1865
B. G. Noble	do	July 25, 1865
D. S. Loy	do	July 25, 1865
Do	do	Mar. 5, 1867
R. Platt	do	Mar. 25, 1865
D. J. Martin	do	Mar. 20, 1866
J. N. White	do	Apr. 24, 1866

Name.	Device.	Date.
Ramee and Owen	Tuyere	Sept. 24, 1867
S. R. Niles	....do	Nov. 1, 1864
J. F. Maguire	....do	July 24, 1866
William Sharp	....do	Jan. 12, 1864
M. W. Barrett	....do	July 19, 1864
William Walden	....do	Aug. 23, 1864
W. M. Everett	....do	Aug. 9, 1864
S. C. Gray	....do	Aug. 2, 1864
C. H. Edwards	....do	Dec. 4, 1860
Tolman and Blodgett	....do	July 10, 1860
M. Mead	....do	June 12, 1860
E. Koons	....do	Jan. 1, 1867
C. C. Farnscrook	....do	Dec. 10, 1867
A. Ordway	....do	May 15, 1860
George O. Miller	....do	Jan. 3, 1854
John B. Himberg	....do	Dec. 10, 1867
John Bayliss	....do	Sept. 17, 1867
S. W. Finch	....do	Apr. 27, 1858
Peter Sweeney	....do	July 20, 1852
B. E. Dixon	....do	Nov. 23, 1858
H. Dearn	....do	July 9, 1867
C. H. Thompson	....do	Feb. 7, 1860
W. W. Ball	....do	Aug. 6, 1867
S. C. McMullen	....do	Nov. 14, 1848
H. S. Berry	....do	Nov. 9, 1858
B. H. Hibber	....do	Aug. 13, 18 7
A. Maynard	....do	May 21, 1850
John Pawling	....do	Jan. 22, 1850
Frederick Fisher	....do	Oct. 15, 1867
J. R. Hobbs	....do	Sept. 12, 1846
John Shugert	....do	Mar. 31, 1836
J. W. Crannell	....do	Oct. 22, 1867
A. H. Hart	....do	Mar. 21, 1848
M. Powe	....do	Feb. 26, 1867
C. W. Grannis	....do	June 16, 1846
C. McKay	....do	Nov. 14, 1846
R. Brewer	....do	Nov. 21, 1842
William W. Snow	....do	May 20, 1842
Richard Brewer	....do	Nov. 21, 1842
A. Bissey	....do	June 23, 1838
Joseph Kay	....do	June 8, 1869
Joseph J. Pierce	....do	Mar. 9, 1869
B. K. Taylor	....do	Aug. 24, 1869
S. Epley	....do	Oct. 26, 1869
William Starlin	....do	Jan. 26, 1869
P. Sweeney	....do	June 29, 1869
Do	....do	Feb. 2?, 1871
E. Davidson	....do	Oct. 12, 1869
John Horton	....do	June 22, 1869
J. F. Harley	....do	Dec. 7, 1869
J. C. Wilson	....do	Apr. 6, 1869
J. W. Barron	....do	Sept. 7, 1869
J. Bauer	....do	July 18, 1871
E. Tracy	....do	Mar. 21, 1871
A. M. Worthing	....do	Nov. 21, 1871
Thomas S. Clark	....do	Aug. 8, 1871
S. Parsons	....do	Dec. 26, 1871
J. Wood	....do	May 9, 1871
J. Cappon	....do	June 27, 1871
P. L. Weimer	....do	Aug. 8, 1871
John Nelson	....do	Nov. 21, 1871
J. Woodworth	....do	Aug. 13, 1867
Hawa and Vaughn	....do	Jan. 14, 1873
George Horsch	....do	Apr. 29, 1873
V. R. Taylor	....do	Apr. 13, 1875
F. H. Lloyd	....do	Aug. 10, 1875
P. H. Standish	....do	Nov. 23, 1875
Krien and Franck	....do	May 11, 1875
F. Bolender	....do	Nov. 16, 1875
H. J. Chandler	....do	Nov. 23, 1875
C. A. Wolff	....do	Apr. 24, 1877
J. S. Van Winkle	....do	June 26, 1877
P. L. Weimer	....do	Aug. 14, 1877
P. Sweeney	....do	Oct. 11, 1870
B. Fish	....do	Mar. 3, 1868
Thomas Clark	....do	Dec. 29, 1868
H. Laird	....do	Feb. 25, 1868
O. G. Newton	....do	Oct. 27, 1868
William H. Myers	....do	June 2, 1868
L. M. Bailey	....do	Jan. 21, 1868
L. Donnell	....do	Apr. 28, 1868
A. G. Mann	....do	Mar. 22, 1870
James O. Jones	....do	Jan. 18, 1870
P. L. Weimer	....do	June 28, 1870
Edward Youngs	....do	Aug. 9, 1870
Roots and Roots	....do	Oct. 18, 1870
Joseph Rogers	....do	Sept. 27, 1870
T. W. McCune	....do	May 10, 1870
William Werts	....do	Feb. 27, 1872
Thomas and McLanahan	....do	July 12, 1870
T. Jilson	....do	Aug. 20, 1872
T. Birch	....do	Jan. 2, 1872
John Fearson	....do	May 21, 1872
J. H. Gartside	....do	Oct. 1, 1872
A. Warren	....do	Apr. 16, 1872
M. Leater	....do	Aug. 22, 1876
C. H. Burbridge	....do	Sept. 3, 1876
N. F. Blodgett	....do	June 2, 1874
C. M. Morgan	....do	Jan. 4, 1876
J. S. Van Winkle	....do	Aug. 22, 1876
Spidle and Holmes	....do	Mar. 14, 1876
T. F. Wetherbee	....do	May 2, 1876
E. Martin	Metal Alloy	Aug. 23, 1859
Monrier and Vallent	Metal Alloy	Mar. 3, 1857
T. J. Jackson	....do	Oct. 31, 1848
N. C. Fowler	....do	Feb. 7, 1865
A. Randall	....do	Dec. 21, 1869
William Rose	....do	July 7, 1863
J. S. Barden	....do	Sept. 21, 1869
H. Aiken	....do	Apr. 1, 1873
J. B. Staples	....do	Aug. 23, 1870
E. Savage	....do	Apr. 26, 1870
R. S. Williams	....do	July 15, 1873
William S. Barnes	....do	Oct. 21, 1848
John Felx	....do	Nov. 25, 1873
J. K. Gulle	....do	Dec. 8, 1874
M. H. Campbell	....do	Aug. 25, 1874
D. E. Forbes	....do	Jan. 16, 1872
William Morand	....do	Apr. 7, 1874
Thomas Harrington	....do	Apr. 13, 1875
Morell and Wilder	....do	Nov. 23, 1875
B. Silliman	....do	Apr. 11, 1876
Samuel Doubleday	....do	June 20, 1876
Samuel Doubleday	....do	Mar. 16, 1875
W. S. Ward	Axle Dies	Sept. 15, 1874
W. J. Farmlee	Rolling Axles	Mar. 31, 1874
B. Brunor	Wrought Metal Wheels	Nov. 22, 1870
J. S. Horney	Manufacturing Car Wheels.	Feb. 24, 1874
Joseph Nichalls	Axle Dies	Jan. 18, 1870
M. B Flynn	Bending Tires	Jan. 13, 1874
C. W. Cardot	Axles	Sept. 4, 1877
T. W. LeRoy	Axle Boxes	Oct. 3, 1876
G. K. Dearborn	Rolling Axles	June 20, 1876
S. Hobler	Bending Tire	Mar. 3, 1874
J. M. Stndebacker	Cooling Tire	Aug. 29, 1876
Joseph Pailca	Setting Tire	Jan. 16, 1872
J. H. Williams	....do	Oct. 18, 1870
C. B. Guy	Cooling and Setting Tire	Feb. 22, 1870
Silas Buck	....do	June 30, 1874
Shogren and Adams	....do	May 31, 1870
P. Copper	....do	May 29, 1860
G. H. Thatcher	....do	Dec. 12, 1846
J. Courtelyon	....do	Sept. 29, 1868
R. B. Wheatley	....do	Mar. 17, 1868
R. Cawthorne	....do	June 16, 1868
George J. Roblet	Bending Tire	July 16, 1872
Brown and Gould	Tire Cooler	Jan. 15, 1869
William Van Geison	Nail Head Cover	Dec. 29, 1857
Nicholls and Strong	Nail and Screw	June 11, 1861
A. B Judd	Nail Head	Mar. 28, 1865
W. E. Doolittle	Knob Screw	July 20, 1869
H. Hickman	Picture Nail	June 22, 1869
F. W. Smith	....do	Dec. 28, 1869
J. W. Bishop	....do	May 11, 1869
Thomas C. Richards	....do	Jan. 10, 1871
L. Wolf	....do	Mar. 21, 1871
J. Plunket	Billiard Table Bolt Head	July 11, 1871
H. L. Judd	Picture Nail	Sept. 26, 1871
T. C. Richards	....do	Oct. 3, 1871
William E. Sparks	Picture Nail Knob	Aug. 22, 1871
G. Vontschger	....do	Mar. 4, 1873
C. Walsh	Cap Nail	Sept. 30, 1873
T. C. Richards	Picture Nail	Nov. 9, 1875
J. P. Stockton	....do	Nov. 9, 1875
T. C. Richards	Ornamental Nail Heads	July 27, 1875
Do	Picture Nails	Nov. 16, 18 5
O. W. Taft	....do	Aug. 24, 1875
J. McCarthy	Coffin Screw	Feb. 27, 1877
L. L. Crocker	Cut Nail	Apr. 17, 1849
L. Houghton	Rivet Nail	Apr. 15, 1873
H. A. Harvey	Wire Staples	Apr. 2, 1867
W. E. Lockwood	Nail	July 9, 1867
A. S. Wilkinson	Horseshoe Nail	Feb. 12, 1867
D. S. Humphrey	Fence Hook	Dec. 31, 1867
H. A. Harvey	Nail	July 2, 1867
William N. Hall	....do	Jan. 21, 1871
William P. Patton	Nail or Tack	May 19, 1863
William C. Worthen	Weather Filing Nail	Nov. 28, 1871
J. M. Cooper	Making Nails	Mar. 30, 1869
J. B. Sargent	Blind Staple	Dec. 1, 1868
B. T. Nicholls	Nails	Aug. 12, 1873
J. S. Boston	Dowel Brad	June 27, 1871
J. W. Bishop	Harness Bolt	Mar. 16, 1869
H. M. Paterson	Horseshoe Nail	Oct. 26, 1875
E. P. Hincks	Tack	Dec. 7, 1875
H. S. Smythe	Fence Nail	Dec. 14, 1875
A. Marotzki	Nail	Sept. 21, 1874
L. Weaver	....do	Feb. 20, 1877
A. W. Kingsland	Horseshoe Nail	Mar. 29, 1877
D. B. Loring	....do	Aug. 7, 1877
John H. Wygant	Spike	May 22, 1855
William Ballard	Spike and Nails	July 17, 1841
O. Newton	Spike	Sept. 29, 1857
H. Bates	....do	Apr. 7, 1877
G. W. R. Bailey	....do	Dec. 6, 1859
R. J. Dewhurst	....do	July 4, 1865
D. R. Pratt	....do	Nov. 28, 1865
A. Arnold	....do	Mar. 14, 1865
Wm. Montstorm	....do	June 27, 1865
J. McMartry	....do	June 25, 1867
G. W. McGill	....do	June 4, 1867
Do	....do	Apr. 9, 1867
A. Prentiss	Spike and Nail	Apr. 2, 1867
J. A. Whitney	Spike	Oct. 1, 1867
M. Foster	....do	Dec. 17, 1867

Name.	Device.	Date.
H. T. Love	Railroad Spike	June 1, 1867
John Merlett	Spike	Apr. 9, 1867
L. Postawka	Railroad Spike	July 23, 1867
C. L. Heywood	Spike	Sept. 7, 1869
S. Winkley	....do	Mar. 16, 1869
W. S. Shoemaker	....do	Nov. 23, 1869
William V. Wallace	....do	Oct. 19, 1869
P. J. Dwyer	....do	Oct. 5, 1869
T. R. Timby	....do	Nov. 14, 1871
Do	....do	Dec. 21, 1875
Do	....do	Dec. 21, 1875
C. Gaylord	....do	Apr. 11, 1871
Toratrick and Bocklin	....do	Jan. 17, 1871
Do	....do	Jan. 17, 1871
G. N. Sanders	....do	Aug. 26, 1873
Do	....do	June 22, 1875
Do	....do	Feb. 9, 1875
G. N. Sanders and G. W. Sanders.	....do	July 15, 1873
G. N. Sanders	....do	Feb. 2, 1875
Do	....do	Dec. 28, 1875
T. Redfiru	....do	June 17, 1873
C. K. Marshall	....do	Apr. 13, 1875
J. J. Adgate	....do	June 12, 1875
J. M. Kent	....do	May 11, 1875
J. B. Sargent	Picture Nail Head	Aug. 21, 1860
N. Judd	....do	Apr. 1, 1862
A. B. Bailey	Coffin Screw	Oct. 14, 1862
H. V. Chess	Screw Head	Mar. 29, 1864
F. J. Seymour	Picture Nail	June 26, 1866
H. P. Brooks	....do	Feb. 20, 1866
A. D. Judd	....do	Nov. 6, 1866
B. H. Bradley	....do	Nov. 10, 1868
T. C. Richards	Picture Nail Head	Dec. 31, 1868
E. D. Ives	Picture Nail	Feb. 18, 1868
John Gardner	....do	Jan. 7, 1868
S. A. Barker	Coffin Nail Cap	Jan. 11, 1870
Squires and Warner	Picture Nail	Apr. 12, 1870
A. Paterson	....do	Aug. 16, 1870
H. L. Judd	....do	June 14, 1870
T. C. Richards	....do	Dec. 27, 1870
Do	....do	Dec. 20, 1870
H. C. Suthers	....do	June 21, 1870
John Uster	....do	Apr. 16, 1872
E. Kolben	Nail Button	Jan. 2, 1872
S. E. Cary	Picture Nail	Mar. 26, 1872
C. B. Jenkins	....do	Dec. 10, 1872
Do	....do	May 26, 1874
John O. Niles	....do	Jan. 6, 1874
F. J. Seymour	....do	July 28, 1874
James Weathers	Ornamental Knob	Apr. 11, 1876
Brown Boardman	Blind Staple	Mar. 30, 1858
P. Miles	Tack	June 14, 1870
F. Douglas	Blind Staple	Nov. 12, 1867
B. Boardman	....do	May 1, 1866
C. H. Palmer	....do	June 3, 1873
T. O. Gard	....do	Jan. 7, 1873
H. R. Underhill	Horseshoe Nails	Dec. 31, 1872
William H. Van Gilson	Nail	Feb. 25, 1862
T. A. Mitchell	Carpet Tack	Mar. 29, 1870
Z. I. Pratt	Nails	June 2, 1874
P. Wineman	Horseshoe Nails	July 25, 1876
J. Lowensohn	Nails	Mar. 17, 1874
William T. Stelger	Spike	Jan. 8, 1842
Do	....do	Jan. 8, 1842
James Buckelew	....do	Sept. 3, 1842
William Emmon	....do	Sept. 3, 1842
L. Kirkup	....do	Jan. 2, 1866
H. Merrill	....do	Nov. 6, 1866
John O. Montignane	....do	Feb. 16, 1864
Watts, Wilcox and Tompkins.	....do	Mar. 22, 1864
Dunn and Dunn	....do	Nov. 3, 1868
Do	....do	Nov. 8, 1870
R. K. Walton	....do	Oct. 6, 1868
W. W. Martin	....do	Jan. 28, 1868
J. Balmer	....do	May 26, 1868
J. Montgomery	....do	Feb. 22, 1870
J. H. Champlin	....do	Feb. 18, 1868
C. Fisher	....do	June 2, 1874
H Stebbs	....do	Nov. 12, 1872
John Newman	....do	Nov. 28, 1876
Eleazar Bliss	....do	June 27, 1876
J. N. Adams	Machine for Jointing Stove Pipe.	Feb. 5, 1867
J. L. Mason	Sheet Metal Screw-Caps	Apr. 13, 1869
Cope and Maxwell	Swaging Machine	May 7, 1867
William T. Gillander	Machine for forming Heads on Sheet Metal Caps.	Dec. 3, 1867
A. B. Seymour	Screw-Cap Machine	May 29, 1865
John L. Mason	....do	Apr. 13, 1869
Thomas Houghton	....do	Sept. 21, 1869
C. C. Blakeslee	....do	July 11, 1871
John H. Stone	....do	Nov. 28, 1871
F. Rhine	Screw-Thread Dies	June 22, 1875
A. Taplin	Screw-Cap Machine	Apr. 13, 1875
Neuber and Terry	....do	Dec. 23, 1873
J. G. Hallas	....do	Feb. 6, 1877
William A. McCoole	....do	Apr. 29, 1873
E. B. Coleman	Bolt-Heading Machine	Sept. 15, 1856
Burtoo, Rogers and Fisher	Anvil and Vise	July 17, 1866
Charles Peters	Anvil	May 4, 1852
E. Hodgdon	Anvil	July 20, 1875
T. B. Hillyer	Anvil and Vise	May 29, 1877
C. Fisher	Cast Iron Anvil	Apr. 24, 1877
H. B. Sevey	Blacksmith's Anvil	Apr. 10, 1877
William E. Canedy	Anvil and Vise	Nov. 21, 1876
A. L. Blackman	Machine for Swaging Car Wheels.	Mar. 9, 1875
H. N. Amerman	Machine for Tire Bending.	June 9, 1874
Horatio Ames	Rolling and Twisting Iron.	Oct. 9, 1647
L. J. Masterson	Twisting Metal	Nov. 3, 1874
Samuel Holmes	Twisting and Bending Metal Bars.	Aug. 19, 1873
L. J. Masterson	Twisting Metal	June 30, 1874
Thomas Smith	....do	June 4, 1872
Richard P. Rothwell	Machine for Compacting Wire Rope.	Nov. 12, 1872
A. D. Williams	Machine for Twisting Metal.	Oct. 3, 1871
Churchill & Hobson	Eyelet Machine	Sept. 30, 1873
S. N. Smith	....do	Mar. 21, 1871
Smith & Young	Separating Eyelet Machine.	Feb. 21, 1871
John C. Rhodes	Eyelet Machine	Oct. 3, 1871
Thomas Garrick	....do	Oct. 17, 1871
H. C. Bishop	....do	July 6, 1869
Thomas Garrick	....do	July 6, 1876
D. Delkescamp	....do	Nov. 2, 1869
G. B. Brayton	....do	May 11, 1869
S. W. Adams	....do	Mar. 26, 1867
S. W. Young	....do	May 21, 1867
L. Richard	....do	Jan. 1, 1867
S. W. Young	....do	May 21, 1867
D. K. Hoxie	....do	Dec. 10, 1867
George B. Brayton	....do	Dec. 31, 1867
William R. Sanford	....do	Jan. 17, 1871
L. E. Hicks	....do	Dec. 17, 1850
S. W. Young	....do	Jan. 23, 1866
Wilson & Low	....do	Apr. 24, 1866
E. Parker	....do	Aug. 21, 1864
W. R. Landfear	....do	June 5, 1866
E. B. Butler	....do	Aug. 7, 1866
J. F. Richards	....do	Oct. 4, 1864
T. Garrick	....do	Apr. 10, 1866
E. E. Marsh	....do	May 1, 1866
William R Landfear	....do	Mar. 6, 1866
John W. Hoard	Eyelet Stock	May 8, 1866
G. B. Brayton	Eyelet Machine	Dec. 8, 1868
George P. Tew	....do	June 23, 1868
D. K. Hoxie	....do	Feb. 20, 1868
Thomas Garrick	....do	June 21, 1870
Do	....do	June 21, 1870
Tallman & Hoxie, administrators.	....do	Aug. 30, 1870
Do	....do	Aug. 30, 1870
S. N. Smith	....do	Dec. 27, 1870
S. A. Smith	....do	Sept. 13, 1870
S. W. Young	....do	Apr. 19, 1870
Do	Eyelet Stock	Apr. 25, 1876
Do	....do	Apr. 11, 1876
J. D. Robinson	Eyelet Machine	Sept. 15, 1874
James Buckland	....do	Apr. 11, 1876
S. W. Young	Eyelet Stock	Oct. 31, 1876
L. F. Betts	Manufacturing Screw Caps.	Apr. 2, 1872
F. W. Perry	Manf. Screw Cap	Feb. 3, 1874
V. E. Strayer	Screw Threading Apparatus.	Sept. 19, 1876
J. L. Mason	Chuck for Forming Screw Caps.	Dec. 15, 1874
Do	Screw Cap Machine	Mar. 31, 1868
P. H. Howell	....do	Apr. 28, 1874
M. K. Pierce	....do	June 14, 1870
Perry & Smith	Screw Cap Chuck	Dec. 15, 1874
Carl Recht	Screw Cap Machine	June 28, 1868
H. E. Anderson	Screw Cap Swage	Nov. 24, 1868
C. H. Chandler	Screw Cap Machine	Sept. 6, 1864
John Rand	....do	Aug. 7, 1844
J. L. Mason	Screw Cap Chuck	Mar. 30, 1858
John S. Tottle	Cylinders for Cotton Gins.	Oct. 14, 1856
R. Nutting	Manufacturing Wire Cloth.	Sept. 27, 1859
C. W. Goodbne	Wire Napkin Ring	July 25, 1871
John McMurray	Wire Guards	Jan. 23, 1872
F. J. Emery	Metal Ornaments	May 6, 1849
James Russell	Card-setting Machine	Oct. 8, 1867
J. W. C. Peters	Woven Wire	June 24, 1873
Do	Woven Mattress	Oct. 15, 1872
D. McFarland	Card-setting Machine	Dec. 7, 1869
John Farnham	Woven Wire Fabric	Aug. 27, 1872
A. Barbarin	Preventing Untwisting Wire Ends.	Dec. 10, 1867
S. Beatty	Perforated Wire	Apr. 26, 1870
J. H. Haskell	Coiling Wire	June 30, 1874
How & Grannis	Manufacturing Wire Heddles.	Sept. 30, 1841
George C. Perkins	Woven Wire Mattress	Nov. 22, 1870
E. H. Russell	Spiral Band	Mar. 28, 1871
Henry Kellogg	Flat Wire Spring	Oct 10, 1865
A. C. Garrett	Wire Fabric	Nov. 16, 1865
J. W. C. Peters	Woven Wire	Dec. 10, 1872

Name.	Device.	Date.
J. W. C. Peters	Wire Fabrics	Mar. 5, 1872
William Beck	Metal Fish Net	Oct. 25, 1870
W. W. Dutcher	Tool for Temple Teeth	Nov. 27, 1866
F. Rowell	Carpet Rag Looper	June 2, 1874
William Collier	Wire for Wire Goods	Sept. 6, 1870
Baham, Wilson & French	Removing Wire Teeth from Cards.	Aug. 4, 1868
N. Chapman	Setting Temple Teeth	Oct. 11, 1875
Tophff & Tunnington	Woven Wire	Jan. 16, 1866
T. A. Dickinson	Card-setting Machine	Mar. 10, 1868
Aba Z. Boda	Woven Wire	Nov. 24, 1875
A. B. Prouty	Card-setting Machine	Oct. 13, 1874
Peter Philip	Heddle Machine	Aug. 9, 1870
Charles J. Hill	Machine for producing reduced copies of Medals.	Apr. 5, 1867
T. Lippiatt	Engine Lathe	May 28, 1867
Do	do	Aug. 1, 1866
Thomas Baggott	Wire Cloth	Aug. 2, 1868
Hertle & Thompson	Manufacturing Wire Heddles.	July 14, 1868
Samuel E. Guild	Setting Card Teeth	Mar. 3, 1876
D. H. McFarland	do	June 25, 1867
William W. Hayden	Ornamenting Lamp Stands	June 4, 1863
A. Schwitter	Rose Engine	May 10, 1864
A. Schwitzer	Engine-turning Machine	Sept. 1, 1863
J. K. Proctor	Cylinders for Burring Machines.	Oct. 29, 1872
Coats & Russell	Machine for Sticking Card Teeth.	Aug. 1, 1854
Dutcher & Church	Machine for Assorting Temple Teeth.	Mar. 21, 1876
E. Parmenter	Machine for Ornamenting Jewelry, Plate, &c.	May 2, 1865
Hertle & Thompson	Machine for Making Wire Heddles.	Apr. 19, 1870
H. R. Van Eps	Wire Fabrics	Apr. 10, 1877
C. H. Jackson	Hand Truck	Sept 11, 1877
H. W. Chapman	Fire Escape	Sept. 11, 1877
P. B. Martin	Rotary Engine	Sept. 11, 1877
J. H. Thorp	Compound for Artificial Stone.	Sept. 11, 1877
F. Fairbanks and L. G. Spencer.	Platform Scales	Sept. 11, 1877
E. L. Ford	Duplex Printing Machine and Folding Apparatus Combined.	Sept. 11, 1877
F. Jakel	Fire Escape	Sept. 11, 1877
Jordan Garlin	Cotton-Seed Planter	June 20, 1835
R. S. Thomas	do	July 30, 1841
Williams and Bausman	do	Jan. 23, 1855
Samuel Miller	do	Apr. 19, 1853
A. H. Morrel	do	May 13, 1855
L. D. Law	do	Dec. 22, 1857
Justice and Galbreath	do	May 5, 1857
T. J. Rogers	do	Sept. 1, 1857
T. W. White	do	Oct. 20, 1857
Joseph Ball	do	Oct. 13, 1857
William Badger	do	Jan. 13, 1857
J. F. Orr	do	Feb. 3, 1857
J. P. Crutcher	do	Apr. 12, 1859
P. B. Baker	do	Dec. 13, 1859
Kesler and Reinhard	do	Dec. 27, 1859
R. M. Brooks	do	Dec. 27, 1859
Smith and Collier	do	Sept. 13, 1859
J. W. Huntley	do	Aug. 16, 1859
C. C. Garrett	do	Mar. 8, 1859
T. T. and H. W. Collier	do	Sept. 13, 1859
J. P. Allen	do	Oct. 4, 1859
Z. N. Moniel	do	July 5, 1859
E. P. Beauchamp	do	Aug. 9, 1859
Charles Learned	do	May 10, 1859
L. B. Brown	do	Jan. 15, 1861
Daniel Herlong	do	Jan. 15, 1861
L. Miner and N. Felts	do	July 18, 1840
William A. Gates	do	Nov. 16, 1852
J. T. and L. P. Walt	do	Aug. 15, 1854
G. W. Cooper	do	Mar. 7, 1854
John M. Jones	do	Jan. 22, 1856
A. W. Washburn	do	Mar. 25, 1856
J. A. Stewart	do	July 1, 1856
J. L. Hunn	do	Feb. 12, 1856
D. J. Beecher	do	Sept. 2, 1856
Charles R. Belt	do	Oct. 21, 1856
D. B. Neal	do	Feb. 23, 1858
Arnold McDonald	do	June 15, 1858
E. T. Bostrom	do	June 29, 1858
J. Ross	do	Apr. 6, 1858
H. P. Allen	do	Aug. 31, 1858
Donovan and Fowler	do	Nov. 13, 1858
C. W. McClanahan	do	Nov. 27, 1860
J. P. Allen	do	Aug. 14, 1860
Z. Doolittle	do	July 10, 1860
N. E. Badgley	do	May 1, 1860
W. Price	do	June 5, 1860
R. C. Nash	do	Dec. 18, 1860
William G. Murphy	do	Aug. 16, 1859
Myers and Wellman	do	Jan. 31, 1865
Frank M. Bacon	do	Sept. 26, 1865
J. C. Tobias	do	Aug. 27, 1867
J. Cox	do	June 11, 1867
B. and N. Platt	do	Aug. 1, 1865
Thomas W. White	Cotton-seed Planter	Apr. 16, 1861
J. Johnson	Combined Cotton-seed Planter and Fertilizer Distributer.	July 16, 1867
James P. Selser	Cotton-seed Planter	Feb. 26, 1867
O. Richardson	do	Dec. 31, 1867
U. T. Stewart	Cotton Planter and Cultivater.	June 18, 1867
J. L. A. Edwards	Cotton Planter	Apr. 9, 1867
E. H. and E. B. Goelet	Seeding-machine	Nov. 26, 1867
F. E. Moran	Cotton-planter	Feb. 26, 1867
J. Armstrong	do	Nov. 26, 1867
J. M. Merrymon	do	Mar. 5, 1867
W. C. Banks	do	Aug. 6, 1867
Wilcox and Caldwell	do	July 16, 1867
J. Shearer and M. B. Armstrong.	do	July 13, 1869
A. H. Woolton	Combined Corn and Cotton Planter.	Sep. 21, 1869
D. H. A. Sanders	Cotton-seed Planter	Apr. 6, 1869
A. V. M. Sprague	do	July 6, 1869
J. M. Elliott	do	July 20, 1869
Nathan Breed	do	June 1, 1869
S. W. Thompson	Cotton-seed Separator and Planter.	Oct. 19, 1869
J. G. Ham	Seed and Manure Dropper.	Aug. 10, 1869
A. R. Nixon	Cotton-seed Planter	Dec. 21, 1869
A. W. Brian	do	June 15, 1869
Matthew McMillian	do	Nov. 30, 1869
W. F. Tunnard	do	Sept. 7, 1869
O. P. Humber	do	Nov. 16, 1869
A. R. Wiggs	Combined Cotton and Corn Planter.	Nov. 23, 1869
W. J. Arrington	Cotton-seed Planter and Drill.	July 6, 1869
John G. B. Gill	Cotton-seed and Corn Planter.	Aug. 31, 1869
A. D. Brown	Cotton-seed Planter	Feb. 23, 1869
Alexander R. Wiggs	Cotton-planter	May 11, 1869
R. C. Wren	Machine for Preparing Cotton-seed for Planting.	Dec. 4, 1855
C. Battle	Cotton-seed Planter	Mar. 13, 1860
Benjamin Owen	do	June 26, 1860
C. A. Ross	do	Dec. 4, 1860
R. M. Brooks	Cultivators	June 26, 1860
Abner Cary	Cotton-seed Planter	Feb. 14, 1860
L. Acree	do	Feb. 14, 1860
N. R. Carrington	Seed-planter	Mar. 6, 1860
J. T. Ham	Cotton-seed Planter	Oct. 9, 1860
S. P. Sweeney	do	Apr. 3, 1860
W. A. and J. F. Suddith	do	June 26, 1860
O. L. Gibson	do	Sept. 11, 1860
M. D. Wells	do	Nov. 6, 1866
F. H. Brown	do	June 26, 1866
Basil Spencer	do	Nov. 8, 1864
A. F. Harrison	Cultivators	May 8, 1866
Albany Packham	Cotton-seed Planter	May 26, 1866
J. L. Russell	do	July 10, 1866
N. E. Badgley	do	Oct 16, 1866
W. A. Horrall	do	Oct. 30, 1866
F. H. Brown	do	Oct. 2, 1866
John Pierce	do	Jan. 30, 1866
B. Owen	do	Mar. 20, 1866
Tell and Phifer	do	Nov. 20, 1866
J. G. Clark	do	Oct. 2, 1866
W. L. Gebby	do	Dec. 4, 1866
J. W. McGaffey	do	July 17, 1866
E. Carter	Sugar-cane Planter	Dec. 18, 1866
N. B. Sherwood	Cotton-seed Planter	June 5, 1866
N. E. Badgley	do	Nov. 6, 1866
Runstetler and Windeck	Cotton and Corn-planter	Mar. 10, 1868
E. L. Barnett	Cotton-planter	June 30, 1868
B. Smith	Cotton seed Planter	June 2, 1868
C. Richmond	do	May 12, 1868
A. J. Going	do	Dec. 29, 1868
N. Foster	Cotton and Corn planter	Feb. 11, 1868
Doolittle and Crowder	Cotton-seed Planter	Feb. 18, 1868
A. J. Going	do	Mar. 10, 1868
N. B Sherwood	do	Mar. 3, 1868
Gilbert Jessup	do	Sept. 8, 1868
Daniel Best	Apparatus for Coating Seed-wheat with Sulphate of Copper.	Nov. 16, 1872
John Wilkie	Machine for Bluestoning Seed-grain.	Apr. 14, 1874
P. C. Ingersoll	Preparing Cotton-seed for Planting.	June 25, 1867
William Blessing	do	July 3, 1866
O. G. Newton	Harrow	June 2, 1874
W. A. Wood	Dividers for Harvesters	Mar. 24, 1863
S. Colburn	Finger Guard for Harvesters.	June 13, 1855
W. A. Wood	Finger Guard for Harvesters.	Dec. 28, 1858
M. B. Riggs	Finger Guard for Harvesters.	Oct. 28, 1862
A. Wissler	do	Dec. 5, 1865
J. P. Manny	do	July 6, 1858
C. H. McCormick	do	Nov. 5, 1861
O. Hussey	do	Aug. 7, 1847
J. Christy	do	June 2, 1868

Name.	Device.	Date.
T. Neys	Finger Guard for Harvesters.	Dec. 21, 1869
D. Watson	do	June 13, 1857
J. H. Manny	do	June 26, 1855
G. J. Wardwell	do	Feb. 15, 1870
A. Shogren	do	Aug. 2, 1859
W. T. Ketchum	do	Jan. 15, 1859
E. M. Allen	do	Mar. 9, 1868
H. Cutler	do	Mar. 14, 1871
R. W. McClelland	do	Aug. 2, 1864
J. J. Barnes	do	Feb. 11, 1868
J. W. Brokaw	do	Sept. 14, 1858
J. V. Trump	do	Aug. 3, 1858
C. S. Williamson	do	Mar. 26, 1867
M. P. Hathaway	do	Aug. 14, 1866
Entrikin and Davis	do	Apr. 13, 1858
S. Manning	Finger for Lifting Lodged Grain, &c.	Sept. 17, 1867
H. L. Hervey	Cutter Bar for Harvesters	Mar. 18, 1856
M. G. Hubbard	do	Jan. 20, 1857
Do	do	Oct. 11, 1864
William G. Smith	do	Nov. 5, 1860
C. W. Glover	do	June 12, 1856
Do	do	July 15, 1856
R. Dutton	do	Feb. 11, 1868
H. A. Link	do	Aug. 3, 1869
S. Gillam	do	May 29, 1866
H. Marcellus	do	May 3, 1859
H. W. Mason	do	Aug. 30, 1870
T. R. and S. Knowels	do	Feb. 18, 1868
C. T. Bush	do	Sept. 5, 1865
C. Howell	do	Sept. 14, 1858
Paterson and Colborn	do	Mar. 8, 1859
Jones and Prentice	do	Sept. 7, 1869
Baltzby and Hobson	do	Sept. 22, 1857
W. A. Wood	do	Nov. 19, 1867
J. Gore	do	Feb. 16, 1858
F. Russell	do	Feb. 14, 1860
C. P. Russell	do	Oct. 13, 1863
W. N. and A. Whiteley	do	Jan. 18, 1859
G. W. N. Yost	do	Jan. 17, 1856
G. E. Burt	do	Dec. 29, 1868
W. A. Wood	do	July 1, 1856
E. C. Shortt and C. Oberly	do	Apr. 12, 1870
J. P. Manny	do	July 7, 1857
J. H. Whitenack	Harvester Cutter	Mar. 6, 1866
Chester Bullock	Harvester Cutter Bar	Dec. 8, 1857
R. W. McClelland	do	Mar. 22, 1864
William Michael	do	Feb. 9, 1869
E. T. Ford	do	Nov. 3, 1868
W. A. Wood	do	Dec. 2, 1862
J. Urmy (additional model.)	do	July 24, 1855
D. Russell	do	Jan. 30, 1855
G. L. Dulaney	do	Nov. 23, 1869
R. Bean	do	Mar. 20, 1860
G. Esterly	do	Apr. 22, 1856
E. B. Forbush	do	Nov. 27, 1849
S. Colburn	do	Sept. 4, 1855
J. M. Taft	do	Nov. 2, 1869
William Morrison	do	Nov. 22, 1859
G. W. N. Yost	do	Feb. 12, 1856
Do	do	June 10, 1856
F. E. Rogers	do	June 28, 1870
T. D. Aylesworth	do	Sept. 6, 1859
Clark and Clark	do	Oct. 25, 1870
G. L. Dulaney	do	May 18, 1869
George Fetter	do	Apr. 3, 1861
C. P. Gronberg	do	Sept. 7, 1858
Cook and Duncan	do	Mar. 14, 1871
Pluche and Pluche	do	June 10, 1856
J. H. Manny	do	Mar. 25, 1856
A. J. Manny	do	Nov. 28, 1865
L. N. Wehrly	do	Aug. 7, 1866
S. T. Lamb	do	Oct. 2, 1860
S. Bartlett	Harvester	Feb. 25, 1862
J. Haines	do	Sept. 4, 1855
Do	do	May 22, 1855
C. Bullock	do	Dec. 21, 1858
E. C. West	do	June 25, 1845
T. N. Lupton	do	Aug. 17, 1855
P. Lylla	do	Sept. 17, 1855
William Burgess	do	Aug. 16, 1855
E. A. Morrison	do	Jan. 30, 1855
Dietz and Dunham	do	Jan. 2, 1855
B. F. Nicholson	do	May 15, 1855
W. Garrettson	do	July 6, 1852
E. B. Forbush	do	Apr. 17, 1855
J. A. Wagner	do	May 24, 1853
John Hinton	do	May 22, 1849
J. B. McCormick	do	June 2, 1857
Cox and Newton	do	Nov. 15, 1857
W. T. Mills	do	Feb. 1, 1859
C. B. Brown	do	Sept. 4, 1855
Robert J. Morrison	do	Feb. 13, 1855
W. G. Huyett	do	June 14, 1853
Fisk Russell	do	Aug. 14, 1855
Little and Little	do	July 3, 1855
A. Whiteley	do	Apr. 24, 1855
O. B. Judd	do	Jan. 16, 1855
C. H. McCormick	do	Jan. 31, 1845
John L. Hardeman	do	Aug. 21, 1855
O. C. Green	do	Aug. 28, 1855
Robert Beans	Harvester	Aug. 28, 1855
Hanger and Ryan	Rotary Harrow	Mar. 31, 1874
H. Culver	Harrow and Cultivator	Mar. 9, 1869
William W. Egerton	Harrow	Nov. 7, 1876
C. E. Pierce	Harrow and Cultivator	Feb. 15, 1870
B. W. Taylor	Harrow	Jan. 25, 1876
R. McAdams	Harrow and Cultivator	Aug. 18, 1874
J. A. Casey	Sulkey Harrow	June 21, 1870
C. P. Gronberg	Harvester Cutter Bar	Sept. 7, 1858
Anderson and Johnson	do	May 30, 1871
William S. McCormick	Finger Guard	Nov. 5, 1861
Allen and Ross	Harvester	May 15, 1867
E. M. Birdsall	Harvester Cutter Bar	Oct. 12, 1869
Hotchkiss and Adriance	do	June 21, 1859
J. Atkins	do	Feb. 11, 1868
C. Cadwell	Harvester	Aug. 14, 1866
W. A. Wood	Harvester Cutter	Dec. 10, 1867
Cook and Duncan	do	Mar. 14, 1871
Clark and Clark	do	Oct. 25, 1870
B. Hess	Harvester	Feb. 27, 1866
M. Lewis	Harvester Cutter	June 9, 1868
J. H. Whitnack	do	Mar. 6, 1866
E. P. Russell	do	Mar. 19, 1861
J. L. Fountain	do	Mar. 19, 1857
J. M. Taft	do	—— —, 1869
John H. Owens	do	—— —, 1869
George Esterly	do	Apr. 22, 1856
S. T. Lamb	do	Oct. 2, 1860
M. G. Hobbard	do	Sept. 13, 1864
A. R. Reese	do	July 28, 1857
Pluche and Pluche	Harvester Cutter Bar	June 10, 1856
M. Hallenbeck	do	Nov. 3, 1868
W. A. Vertrees	do	Feb. 28, 1860
J. S. Love	do	Mar. 11, 1856
G. S. Reynolds	do	July 23, 1861
M. B. Riggs	do	Jan. 4, 1862
J. Urmy	do	July 24, 1855
D. H. Thayer	Finger Guard for Harvesters.	Mar. 26, 1861
S. Hull	do	Sept. 14, 1869
E. Smith	do	Apr. 22, 1862
T. D. Burrall	do	Dec. 16, 1856
C. Wheeler	do	May 26, 1863
F. Wittram	do	Dec. 28, 1869
G. L. Du Lany	do	June 8, 1869
W. S. McCormick	do	Nov. 5, 1861
A. A. Hotchkiss	do	Mar. 15, 1864
—— Brown	do	Aug. 24, 1869
J. Schneider	do	Dec. 28, 1869
D. L. Emerson	do	Dec. 10, 1861
C. Cadwell	do	Jan. 22, 1867
H. C. Smith	do	Mar. 2, 1858
J. Burch	do	Sept. 28, 1869
W. A. Sweet	do	Dec. 8, 1863
A. Reese	do	Apr. 22, 1862
D. Warren	do	Dec. 16, 1862
A. Lowmiller	do	Feb. 20, 1866
Whitely Fassler Kelly	do	Aug. 13, 1867
A. Van Duzer	do	Feb. 9, 1858
B. and W. Johnson	do	Aug. 10, 1869
R. Dutton	do	Feb. 11, 1868
L. G. Kniffen	do	Apr. 12, 1864
I. H. Coller	Cutter Bar for Harvesters	Sept. 1, 1863
J. T. Norris	do	June 16, 1868
O. Stoddard	do	May 11, 1858
R. W. McClellan	do	May 22, 1864
S. S. Allen	do	Nov. 8, 1853
S. Hull	do	Aug. 4, 1863
H. F. Shaw	do	Sept. 14, 1865
A. J. Manny	do	Sept. 10, 1869
Davis and Waldron	do	Jan. 7, 1862
C. P. Wing	do	Apr. 5, 1864
C. H. McCormick	do	Nov. 5, 1861
N. J. Hubbard	do	Dec. 9, 1856
R. Dutton	do	July 17, 1866
G. Stone	do	Jan. 8, 1856
H. Bonhotbezer	do	Sept. 14, 1869
M. G. Hubbard	do	Nov. 11, 1856
W. J. Oxer	do	May 24, 1870
A. Winterburn	do	June 27, 1865
H. C. Aydelott	do	Aug. 16, 1870
S. W. Tyler	do	Mar. 29, 1859
Moor and Patch	do	Nov. 25, 1856
E. M. Burdsell	do	Oct. 12, 1869
W. F. Ketchum	do	Jan. 18, 1859
C. K. Myers	do	Feb. 8, 1870
John Kelly	do	Apr. 29, 1856
R. T. Roney	do	Apr. 29, 1856
W. H. Hovey	do	Apr. 29, 1856
J. T. Yonart	do	May 27, 1856
J. S. Smith and Codie	do	Aug. 31, 1869
M. G. Hubbard	do	June 16, 1857
C. O. Gardner	do	Mar. 1, 1870
R. J. Morrison	do	Jan. 13, 1857
Stephen Hull	do	Dec. 20, 1862
J. W. Prentiss	do	Nov. 28, 1865
C. Howell	do	Oct. 10, 1857
Stoler and Sisson	do	Dec. 17, 1861
R. Dutton	do	Feb. 11, 1868
R. T. Roney	do	Sept. 11, 1860
G. W. N. Yost	do	June 10, 1856
I. S. Love	do	Oct. 7, 1856
D. Russell	do	May 26, 1854

Name.	Device.	Date.
W. G. Kenyon	Cutter Bar for Harvesters	July 18, 1871
Long, Blake and Allstatler	....do	Dec. 1, 1857
J. L. Able	....do	Nov 29, 1870
J. A. Hebbard	....do	Apr. 5, 1870
J. T. Polson	....do	Oct. 3, 1871
W. G. Kenyon	....do	Mar. 28, 1871
Manny and Marcellus	....do	Mar. 6, 1855
J. Kline	....do	May 10, 1870
A. Bolander	....do	May 21, 1871
T. Garrick	....do	Mar. 14, 1871
A. Crosby	....do	July 12, 1870
Marshall Harrison	....do	Sept. 19, 1871
R. Allstatler	....do	May 31, 1870
P. Gregg	....do	Apr. 25, 1871
J. H. Manny	....do	Apr. 19, 1853
G. Wheeler	....do	Sept. 2, 1856
F. S. Pease	....do	Nov. 14, 1848
H. Knowles	....do	July 2, 1850
D. Stukey	....do	Sept. 6, 1870
R. J. Morrison	....do	Aug 14, 1855
S. Bell	....do	Feb. 28, 1854
J. M. Connel	....do	July 19, 1870
H. Marcellus	....do	Apr. 13, 1858
J. H. Manny	....do	June 24, 1855
B. Murray	....do	June 13, 1854
A. J. Cook	....do	Sept. 3, 1854
Fyfe and Hara	....do	Mar. 7, 1871
J. H. Manny	....do	June 21, 1853
Shirk and Shirk	Harrow	Feb. 8, 1870
A. Brown	Finger Guard	Oct. 22, 1867
G. F. Quick	....do	July 19, 1864
T. C. Hargraves	Cutter Bar	Dec. 17, 1861
A. Hussey	....do	Apr. 14, 1857
S. Copeland	....do	Feb. 19, 1861
Do	Finger Guard	May 16, 1865
L. G. Kniffin	Cutter Bar	Dec. 24, 1861
M. G. Hubbard	....do	Sept. 13, 1864
W. A. Ventrees	Harvester	Feb. 28, 1860
R. H. C. Preston	Finger Guard	Sept. 10, 1861
I. S. Love	Cutter Bar	Mar. 11, 1856
William H. Seymour	....do	Dec. 15, 1856
W. A. Kirby	....do	Apr. 15, 1856
—— Van Brunt	Van Brunt & Barber Seeding Machine.	July 22, 1862
S. Millinger	Fruit Gatherer	Aug. 7, 1866
D. T. Gillis	Harrow	Dec. 22, 1874
J. F. Adams	Fruit Gathorer	Feb. 29, 1876
Holbrook, Howe & Nourse	Swivel Plow	May 17, 1870
Do	....do	May 17, 1870
E. G. Matthews	Plow	Jan. 30, 1872
H. J. Heaton	Cultivator	Dec. 16, 1862
G. W. Van Gorder	Sulkey Harrow	Mar. 4, 1873
L. J. Corbin	Seed Planter	Jan. 13, 1874
Isaac Law	Harrow	Aug. 31, 1869
F. H. Manny	Seed Sower	May 31, 1870
E. G. Matthews	Plow	Feb. 6, 1877
A. J. Shunk	Fruit Gatherer	Feb. 20, 1877
C. C. Garrett	Seed Planter	Mar. 12, 1867
J. F. Gazley	Harrow	May 27, 1873
Orson Billings	Harvester	Sept. 12, 1871
Amos Foot	....do	Apr. 13, 1869
A. G. W. Foster	Seed Planter and Guano Distributor.	Mar. 31, 1874
Feelghum and Lawrence	Corn Planter	July 1, 1873
A. C. Evans	Seeding Machine	Nov. 24, 1874
William P. Dale	Cultivator	Mar. 11, 1873
William S. Barton	Seed Planter	June 13, 1874
George W. Hendricks	Corn Planter	Aug. 6, 1872
Hunt and Haines	Seed Planter	Jan. 5, 1858
M. Easterbrook	Mowing Machine	May 22, 1866
E. J. Dickey	Seed Planter	Jan. 23, 1849
Savage and Doty	....do	May 20, 1873
H. Hufendeck	Drill	Jan. 1, 1867
M. Lewis	Cutter Bar	June 2, 1868
S. Hull	....do	Dec. 2, 1862
S. Comfort	....do	Apr. 7, 1857
John H. Owen	....do	Apr. 20, 1869
J. L. Fountain	....do	Nov. 17, 1857
G. S. Reynolds	....do	June 23, 1861
E. P. Russell	....do	Mar. 19, 1861
M. Hallenbeck	....do	Nov. 3, 1868
Do	....do	May 18, 1858
A. Brown	....do	Aug. 24, 1869
Allen and Ross	....do	Oct. 29, 1867
C. W. Woodford	Horseshoe Nail Machine	Mar. 5, 1872
Stephen Butterfield	Nail Machine	Jan. 25, 1876
Dillon and Cleary	Soldering Machine	Jan. 30, 1877
Charles Krebs	Countersink	May 12, 1868
W. T. Nichols	Road Scraper	Mar. 21, 1871
J. Case	Corn Planter	Jan. 16, 1855
M. M. Sprinkle	Planter and Fertilizer	June 1, 1869
J. H. Caruthers	Corn Planter	July 26, 1853
D. N. Thayer	Snow Shovel	Sept. 19, 1865
P. C. Kierns	....do	Feb. 6, 1877
A. Q. Adams	....do	Jan. 10, 1871
Hotchkiss and Adriance	Guard Finger, &c	June 21, 1859
Hardy and Morris	Rotary Pump	Mar. 5, 1861
Joseph L. Abell	Cutter Bar, &c	Nov. 29, 1870
Joseph Wood	Railroad Switch	Feb. 16, 1858
K. L. Mills	Water Motor	Jan. 2, 1877
A. J. Stott	Hydraulic Engine	Mar. 6, 1877

Name.	Device.	Date.
A. Whiteley	Attaching Wheels to Harvesters, &c.	Apr. 24, 1855
Anderson and Johnson	Cutter Bar, &c	May 30, 1871
A. Wemple	Mowing Machine	Jan. 29, 1867
W. J. Nicholson	Corn Planter	July 31, 1877
John F. Alt	Flower Pot	Aug. 7, 1877
J. F. Winchell	Seeding Machine	Aug. 3, 1874
J. B. Bushnell	....do	Aug 29, 1876
G. W. N. Yost	Harvester	Aug. 18, 1868
Do	....do	Mar. 23, 1869
Do	....do	Apr. 15, 1873
Woodard and Snyder	Saw-Mill	Apr. 9, 1872
John Thompson	Plow	Apr. 17, 1844
F. P. Sheldon	Machine for Threading Screws.	Nov. 30, 1875
William H. Paine	Propelling Cars	Feb. 8, 1876
A. Meyer	Insect Powder Ejector	June 1, 1871
J. Neff, jr	Cultivator	Sept. 20, 1870
Joseph Jones	Wheel Plow	Aug. 16, 1858
A. H. Jareckl	Pipe Tongs	Apr. 22, 1873
Dudley Hills	Plow Gatherer	Oct. 7, 1844
A. W. Gifford	Screw Machine	Sept. 28, 1875
—— Hallidie	Endless Rope Railway	July 16, 1872
A. E. Hovey	Propelling Cars	Apr. 18, 1876
George B. Field	Spading Machine	Jan. 4, 1859
Charles M. Du Puy	Specimen of Iron and Steel, (*f*).	Jan. 23, 1872
B. T. Currier	Cutting up Cotton Plants	Mar. 6, 1860
Coalman and Young	Harvester	Feb. 15, 1870
E. Clark	Middlings Purifier	Dec. 31, 1872
Joseph Irwin	Cutting Apparatus for Harvesters.	July 7, 1857
J. Atkins	Harvester-cutter	Feb. 11, 1868
Brown, Worcester & Griswold.	Guard-finger for Harvester.	Oct 24, 1867
Benjamin Hess	Harvester	Feb. 27, 1866
O. J. Newton	Harrow	June 2, 1874
Hanger & Ryan	Rotary Harrow	Mar. 31, 1874
George A. Pounder	Harrow	Aug. 1, 1876
William W. Egerton	....do	Nov. 7, 1876
B. W. Taylor	....do	Jan. 25, 1876
R. McAdams	Combined Harrow and Seeder.	Aug. 18, 1874
J. A. Casey	Combined Harrow and Cultivator.	June 21, 1870
C. E. Pierce	Roller, Harrow, and Seeder.	Feb. 15, 1870
H Culver	Harrow and Cultivator	Mar. 9, 1869
William J Carroll	Cotton-bale Tie	Jan. 23, 1866
J. R. Spear	Bale Tie	Dec. 1, 1857
James Akin	....do	May 1, 1860
Jno. D. Strait	Mowing-machine Gearing.	Oct. 19, 1869
Robert Shepard	Land-leveler	Apr. 1, 1862
Robert J. Boyd	Road-scraper	Dec. 29, 1868
A. Wilkinson	Bee-hive	Jan. 24, 1871
F. M. Lechner	Mining-machine	Jan. 25, 1876
O. H. Smith	Logging-dog	Apr. 4, 1876
A. E. Hovey	Rope-gripper for Propelling Vehicles.	Apr. 18, 1876
M. T. McCormick	Oil-well Wall Cleaner	Nov. 14, 1876
J. S. Winson	Automatic Gate	May 26, 1874
F. H. Craft	Pulley	Feb. 29, 1876
A. Betts	Device for Changing Speed of Machinery.	Nov. 11, 1873
Simpson and Pope	Tackle-block	July 25, 1876
H. F. Shaw	Cutting Apparatus for Mowing-machine.	June 4, 1870
P. Manny	Cutting Apparatus for Harvester.	Aug. 25, 1857
W. T. B. Read	Harvester	June 2, 1857
A. R. Reese	Guard-finger for Harvester.	July 28, 1857
T. B. Collins	Harrow	June 29, 1869
W. F. Ketchum	Finger-guard for Harvester.	Apr. 25, 1854
William F. Cochrane	Bolting Flour	Jan. 6, 1863

The following is a list of all the models that were saved from all classes of the issues of September 11 and 18, 1877:

Oscar Edgars	Rotary Engine and Pump.	Sept., 1877
E. Ruhlmann	Garden Wheel Hoe	Sept. 11, 1877
J. H. Pattee	Cultivator	Sept. 11, 1877
E. L. Ford	Printing and Folding Machine.	Sept. 11, 1877
A. P. Henery	Cultivator	Sept. 11, 1877
F. Jakel	Fire-escape	Sept. 11, 1877
A. J. Martin	Grain Drill	Sept. 11, 1877
William L. Hofer	Adding-machine	Sept. 18, 1877
William H. Hoyt	Register for Freight-cars	Sept. 18, 1877
Isaac Mazer	Purifying Raw Animal Fats.	Sept. 18, 1877
John Besanson	Cleaning Plush and Cloth	Sept. 18, 1877
John Braun	Lawn-mowers	Sept. 18, 1877
H. Colford	Spark-arrester	Sept. 18, 1877
G. C. Steinbauer	Boots and Shoes	Sept. 18, 1877
D. A. Woodward	Solar Camera	Sept. 18, 1877
R. Smith	Plowshare	Sept. 11, 1877

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COMMISSIONER'S DECISIONS.

MARTIN *vs.* BOGLE, RUNYAN, AND PATRIC.—*Interference.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the interference between the application of A. J. Martin, filed May* 6, 1875, *J. S. Bogle, filed May* 3, 1875, *and A. Runyan, filed March* 17, 1875, *and the patent of C. E. Patric, dated January* 26, 1875, *for* "IMPROVEMENTS IN GRAIN-DRILLS."—*Decided August* 23, 1877.]

The contestant in an interference controversy, who first perfected the operative device, awarded priority notwithstanding his adversary was the first to apply it in series, in the manner designed for use.

The arrangement in series may have been more satisfactory and permitted nicer adjustment of subordinate mechanism, but it proved operativeness no more than the test of the single device itself.

The fact that in one instance a claim is for a single device, and in another for a series of them, does not constitute difference of invention. The state of the art, and the Office latitude in allowing claims, may level the distinction.

The preliminary statement rigidly adhered to, where there was substantial departure therefrom in the interference contestant's testimony.

SPEAR, *Commissioner:*

The first issue, as stated by the Examiner of Interferences, is as follows:

A pivoted gage or valve, arranged to operate within the channel of a vertical distributing-wheel, and vary or regulate the size and capacity of the measuring-channel.

This is stated in the third claim of Martin more clearly, as follows:

In combination with a vertically-rotating feed-wheel, having a continuous seed-channel between its hub and rim, a gage or valve loosely pivoted, so as to be free to turn or move on its bearings or supports within the seed-channel of said wheel, and vary or regulate the size or capacity of said channel at the will of the operator, substantially as described.

I do not deem it necessary to go into any discussion whatever on the question of priority on this issue. The Examiner and the Board both found Patric to be the prior inventor, and so far as relates to the parties to this controversy, I see no reason to differ with them on this point. But the patent of H. L. and C. P. Brown, No. 35,501, granted June 10, 1862, clearly anticipates the invention claimed. In that patent is shown the vertical distributing-wheel with a seed-channel between its flange and hub, and with a pivoted valve arranged to operate within the seed channel, so as to adapt the channel to different sizes of grains, or to regulate the flow, as may be desired.

The controversy on this point included all the parties named above. Upon the second issue only Martin, Bogle, and Runyan are in the controversy. That issue is stated by the Examiner of Interferences to be—

The combination of a series of flanged distributing-wheels, with a series of gates operating between the flanges of said wheels and their shaft or hubs, and connecting directly to an adjusting-rod or shaft located outside of the periphery of said wheels.

This subject-matter is in Martin's fifth claim, and Bogle's first and second claims, but does not appear to be claimed by Runyan, but is shown in his application.

I agree with the Board that the date of Martin's invention in respect to this subject-matter is the early part of 1874, probably some time in January. I also agree with them in finding that Bogle cannot assert any claim whatever earlier than the latter part of 1874, or January, 1875. His conversations prior to that time, giving them the most favorable construction possible, can, in my judgment, cover no more than he now concedes to Patric. But granting that he had any definite conception or purpose in respect to the cup with its vertical wheel and valve, with its outside pivoting, or a series of such cups and valves, he exercised no diligence, and offers no substantial excuse for the delay.

It was urged at the hearing that Bogle had been the only one, of all the contestants, to reduce the invention to practice. If it be meant by this that he was the first and only one to apply a series of these cups and valves upon the hopper of a grain-drill, and test the same in the field, this may be admitted, as shown in the testimony; but if it be understood to mean that he was the first to operate the cup and valve, and to test it as a separate piece of mechanism, capable of measuring the grain which passed through it, then the record does not bear out this statement. For, in February, 1874, Martin had the cup and valve with the vertical wheel, the valve being pivoted upon its proper shaft outside the wheel, the parts being adapted to each other, capable of adjustment, and the operation

being precisely like that of Bogle; and this was many months before the time which Bogle can fix as the date of any substantial embodiment of his invention.

I regard the test of the single valve, by passing grain through it and moving the valve to give the proper variation to the channel, as substantially the same sort of a test, so far as the valve and cup are concerned, as Bogle's test of the series upon the hopper of the grain-drill in the field. Bogle's test might have been more satisfactory, so far as it related to the accurate adjustment of the levers and connecting mechanisms by which the bar carrying the valves was moved; and the whole argument on this point appeared to me to relate rather to these additional parts for moving the rocking-shaft, on which all the valves were fixed, and by which they were simultaneously moved.

Certainly, if Bogle's cup and valve are operative, then those of Martin's are also, for the two are precisely alike, though both differ from Runyan's.

The invention made by Martin was designed to be applied to a machine in series, and not singly; and the test of a dozen is no more than the test of one. Further, if there be any invention or merit in the application of these devices in a series, or the testing of them in a series, instead of singly, then Bogle has not illustrated his invention before the Office, for neither his drawing nor model shows more than one of the cups with its valve.

Doubtless the model and drawing, in connection with the specification, sufficiently illustrate the invention. Being shown how one of these devices could be applied to a machine, it is plain that any mechanic skilled in the art could apply a number of them in the same way. Nor does the fact that the Office has allowed a claim for a single device, and another claim for a series of devices, justify the assertion that the inventions are distinct and not the same. The Office has uniformly allowed some latitude to applicants in stating, in different forms, claims for substantially the same invention. (*Perry* vs. *Lay*, Com. Dec., 1869, p. 3.)

I am unable to agree with the Board in respect to the claim of Runyan. In the first place, his testimony is indefinite and unsatisfactory; and further than this, it is in fatal disagreement with his preliminary statement. No motion appears ever to have been made for the correction of his preliminary statement, and he must be held strictly to it. It was to meet precisely such cases as this that the rule relating to preliminary statements was made.

In one of his preliminary statements he says that he completed his first model in March, 1874, and to this he must be held. Even if he were allowed to go back, his testimony would be of little account. This was later than the date of the completion of the full-sized working mechanism by Martin.

Runyan does not appear to have followed the matter with very great diligence, and the final result produced by him is not very satisfactory. It is doubtful whether, if the matter had been left to him alone, the invention would have been of any practical value.

What I have said in regard to the priority of Martin on the second issue is applicable to the third and fourth. There the contest is between Martin and Bogle. The element of the series does not come into the question, and the priority of Martin is clear.

Upon the second issue, therefore, I reverse the decision of the Examiners-in-Chief, and upon the third and fourth affirm their decision on all three points, awarding priority of invention to Martin.

C. WILLIAM SIEMENS.—*Interlocutory.*

[*Interlocutory appeal in the matter of the application of C. William Siemens (Div. B) for a reissue of Letters Patent No. 89,441, April 27, 1869.—Decided August 4, 1877.*]

To include on reissue matter which was neither described nor claimed, but that was actually contained in the original invention, is simply the rightful exercise of the remedy.

The failure to describe in the original patent is no bar to doing so in the reissue application within the limits of the invention.

[*C. S. Whitman*, attorney for applicant.]

DOOLITTLE, *Acting Commissioner:*

Applicant acquiesces in all the actions of the Examiner, except to the objection that the clause stating "that the regenerators have to each other such a ratio as corresponds to the respective quantities of air and gas required to insure complete combustion." This the Examiner insists is new matter. Applicant replies that it is not technically new matter, such as would, on objection being made thereto, require an appeal to be taken to the Board of Examiners-in-Chief.

New matter in a reissue application, applicant contends, is correctly defined by Judge Nixon in the case of *Putnam* vs. *Yerrington*, 9 O. G., 1-69, as follows: "By the introduction of new matter I understand such an enlargement of the original specification and claims as to include combinations or results which did not necessarily flow from the invention as originally stated and described."

In the same decision the court observes that a patentee, by a reissue, "is entitled to all the uses to which his patent may be applied, and to all the beneficial results which legitimately follow the use of his instrumentalities." But I find that this is not an attempt to incorporate new features not indicated in the original patent. In the original patent four regenerators are shown to be arranged in pairs and varied in size. The purpose of this variation in size was not explained. There must have been some reason for the difference in size between the gas and air regenerators. This omission to describe this part of his original invention applicant now attempts to supply. Nothing can be clearer than that the remedy for reissue was especially provided for such a purpose. No attempt on the part of the Examiner is made to show that the description of the part in question is inconsistent with the invention patented.

The effect of the admission of the description, the Examiner says, would be to broaden the scope of the original invention. It may broaden the claims; but if the feature mentioned was clearly shown in the original patent, I fail to see now it broadens the invention actually made to now describe it.

Should the Examiner deny that the feature in question has the functions now ascribed to it, that would be a legitimate objection, and the nature of the objection would be new matter; but as the case now stands I must regard the action of the Examiner on this point as amounting simply to a refusal to allow a patentee to describe the functions of a feature shown in his original application.

For this reason the decision of the Examiner is reversed.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date October 16, 1877.]

10,274.—Hat and Coat Racks.—JOSEPH R. PALMENBERG, New York, N. Y. Application filed September 3, 1877. Term of patent 7 years.

10,275.—Cigar-Box.—GUSTAV FUCHS, New York, N. Y. Application filed September 24, 1877. Term of patent 7 years.

10,276.—Handle for Pottery or Glass Ware.—THEODORE HAVILAND, New York, N. Y. Application filed September 14, 1877. Term of patent 7 years.

10,277.—Dessert-Set.—WATSON J. MILLER, Chicopee, Mass., assignor to E. G. WEBSTER & BROTHER, New York city. Application filed October 2, 1877. Term of patent 7 years.

10,278.—Inkstand-Base.—BLOOMFIELD BROWER, New York, N. Y. Application filed October 6, 1877. Term of patent 7 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date October 16, 1877.]

5,207.—Fishing-Tackle.—ABBEY & IMBRIE, New York, N. Y., and Redditch, England. Application filed June 26, 1877.

"A symbol formed by two fish-hooks crossing each other near the lower end of the shanks, with their barbs toward each other and nearly meeting above, inclosing the monogram 'A & I.'"

5,208.—Yeast-Powders.—HENRY E. BOTHIN, San Francisco, Cal. Application filed June 14, 1877.

"The fanciful words 'MRS. MILLS' CREAM.'"

5,209.—Paper Collars.—CLEVELAND COLLAR COMPANY, Cleveland, Ohio. Application filed September 8, 1877.

"The word-symbol 'SILVER THREADS.'"

5,210.—Soap.—CURTIS DAVIS & CO., Boston and Cambridge, Mass. Application filed April 29, 1876.

"The word-symbol 'GOLD DUST.'"

5,211.—Cigars, Cigarettes, and Smoking and Chewing Tobacco.—GUSTAV FUCHS, New York, N. Y. Application filed September 24, 1877.

"The word-symbol 'TRASH.'"

5,212.—Boots and Shoes.—PHILIPP FISCHER, Jersey City, N. J. Application filed September 14, 1877.

"A bust portrait of myself, used in connection with the words 'License Stamp of the Philipp Fischer Shoe Company.'"

5,213.—Hams.—T. ROBERT JENKINS & SON, Baltimore, Md. Application filed September 22, 1877.

"The representation of the arms of North and South Carolina and the word 'CAROLINA.'"

5,214.—Woolen Goods, such as Cassimeres, Doeskins, &c.—JAMES E. JONES, Weare, N. H. Application filed September 17, 1877.

"The words 'WEARE WOOLEN CO.,' and the monogram composed of the letters 'J. E. J.'"

5,215.—Fine-Cut and Plug Chewing-Tobacco.—MOORE, JENKINS & CO., New York, N. Y. Application filed April 28, 1877.

"The word-symbol 'TELEPHONE.'"

5,216.—Smoking Tobacco.—P. LORILLARD & CO., Jersey City, N. J. Application filed September 29, 1877.

"The word-symbol 'TIN TAG.'"

5,217.—Lye and Potash.—EMANUEL LAUFERTY, New York N. Y. Application filed September 29, 1877.

"The word-symbol 'ALKA.'"

5,218.—Cologne.—CHARLES LUBRECHT, Brooklyn, N. Y. Application filed September 22, 1877.

"The word-symbol 'IMPERIAL.'"

5,219.—Baking-Powder.—MIDDLETON & BROTHER, Philadelphia, Pa. Application filed September 18, 1877.

"The word-symbol 'IMPERIAL RUSSIAN,' and a representation of the coat of arms of the Empire of Russia."

5,220.—Axes.—WILLIAM MANN, Jr., & Co., Lewistown, Pa. Application filed September 1, 1877.

"The word-symbol 'RED WARRIOR.'"

5,221.—Foot-Salve.—HENRY NORMAN, Lynn, Mass. Application filed October 9, 1876.

"The letters 'N. F. S.'"

5,222.—Cigars, Cigarettes, and Chewing and Smoking Tobacco.—SALOMON ORGLER, Hoboken, N. J. Application filed September 28, 1877.

"The word-symbol 'CLIMAX.'"

5,223.—Axle-Grease.—GILBERT POTTER, Jr., Brooklyn, N. Y. Application filed September 12, 1877.

"The words 'NEW YORK,' used in connection with the words 'Axle Compound,' and the figures of the two loaded trucks with their horses."

5,224.—Dentifrices.—CHARLES SUEZ, Paris, France. Application filed August 18, 1877.

"The word-symbol 'EAU DE SUEZ,' accompanied by a cross."

5,225.—Smoking and Chewing Tobacco.—THOMPSON MOORE & CO., New York, N. Y. Application filed September 20, 1877.

"Three parallel stripes or bands, each of a different color, arranged as follows: the upper one yellow, the middle one blue, the lower one red."

5,226.—Flour.—WOODWARD & DWIGHT, St. Louis, Mo. Application filed September 29, 1877.

"The word-symbol 'JACK FROST.'"

5,227.—Laundry-Soap.—GEORGE A. WRISLEY, Chicago, Ill. Application filed September 1, 1877.

"The word symbol 'LINEN.'"

5,228.—Medicinal Saleratus.—BENJAMIN T. BABBITT, New York, N. Y. Application filed September 20, 1877.

"The pictorial representation of a loaf of bread, upon which a vase-shaped vessel, having an overflowing sponge of aerated dough surmounting it, is represented."

5,229.—Caustic Potash.—BENJAMIN T. BABBITT, New York, N. Y. Application filed September 20, 1877.

"An open-worked star."

5,230.—Laundry Hard Soap.—BENJAMIN T. BABBITT, New York, N. Y. Application filed October 5, 1877.

"An oblong symbol impressed into the soap, as shown, and containing the representation of two arrow-heads, impressed still deeper into the recess formed by the symbol, and depressed within it, as shown."

5,231.—Saleratus.—BENJAMIN T. BABBITT, New York, N. Y. Application filed September 20, 1877.

"A device representing a sheaf of wheat standing erect, with the heads drooping naturally all around from the column of stalks."

5,232.—Borax Soap-Powder.—BENJAMIN T. BABBITT, New York, N. Y. Application filed September 20, 1877.

"A five-pointed open-worked or outlined star, as shown."

5,233.—Yeast-Powder.—BENJAMIN T. BABBITT, New York, N. Y. Application filed September 20, 1877.

"A pictorial representation of an open-worked or outlined five-pointed star, with a series of small but solid stars surrounding the larger one, as shown."

5,234.—Canned Meats.—THE N. K. FAIRBANK COMPANY, Chicago, Ill. Application filed September 27, 1877.

"The figure of a lion."

5,235.—Fertilizers.—JOHN R. LONG & CO., Baltimore, Md. Application filed September 27, 1877.

"A monogram composed of the three letters 'L,' 'P,' and 'C.'"

5,236.—Canned Oysters.—CALEB S. MALTBY, New Haven, Conn. Application filed October 6, 1877.

"The letters and character 'H. & M.'"

5,237.—Canned Oysters, Fruits, and Vegetables.—CALEB S. MALTBY, New Haven, Conn. Application filed October 6, 1877.

"The word-symbol 'OLD RELIABLE.'"

5,238.—Water-Proof Dressing for Boots and Shoes.—GEORGE A. PEIRCE, Boston, Mass. Application filed October 3, 1877.

"The figures or representations of a boot the foot of which is immersed in water, and the representation of a dry boot, in connection with the word-symbol 'DRY FOOT.'"

5,239.—Size for House and Fresco Painters.—D. ROSENBERG & SONS, New York, N. Y. Application filed August 6, 1877.

"The newly-formed word 'FRESCOINE.'"

5,240.—Castile-Soap.—DARIER DE ROUFFIA & CO., Marseilles, France. Application filed September 28, 1877.

"A representation of a horse."

5,241.—Inks.—SANFORD MANUFACTURING COMPANY, Chicago, Ill. Application filed August 14, 1877.

"The representation of a keg, with a person drawing ink into an inkstand."

5,242.—Jewelry.—THE FRANKLIN JEWELRY COMPANY, Philadelphia, Pa. Application filed September 29, 1877.

"A pictorial medal containing a portrait head of Benjamin Franklin, and the title or designation 'FRANKLIN JEWELRY COMPANY.'"

5,243.—Black Silks.—EDWARD WARBURG & CO.; New York, N. Y. Application filed May 28, 1877.

"The pictorial representation of the cathedral of Milano."

5,244.—Dry Hop-Yeast.—JAMES E. WOODRUFF, Quincy, Ill. Application filed September 19, 1877.

"The symbol consisting of the representation of a horseshoe, a four-leaf clover, and the word-symbol 'GOOD LUCK.'"

5,245.—Cigars.—S. T. WILLETS & CO., New York, N. Y. Application filed September 3, 1877.

"The word-symbol 'SILVER.'"

5,246.—Polishing Preparations.—ENOCH MORGAN'S SONS' COMPANY, New York, N. Y. Application filed July 31, 1877.

"The title or designation 'ENOCH MORGAN'S SONS.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date October 16, 1877.]

1,197.—Title: "**The 'Handy Packet' Indigo Bluing.**"—WILLIAM P. DRAPER, Springfield, Mass. Application filed October 8, 1877.

1,198.—Title: "**The Universal Detergent Toilet Soap.**"—JAMES B. MEARS, Brooklyn, N. Y. Application filed October 3, 1877.

1,199.—Title: "**Print for Signs.**"—AZARIAH MOORE, Muncie, Ind. Application filed October 10, 1877.

1,200.—Title: "**Brandenburg Freres, Bordeaux.**"—ANTHONY ORCHS, New York, N. Y. Application filed October 6, 1877.

1,201.—Title: "**Jamaica Pills.**"—C. F. RANDOLPH, Altoona, Pa. Application filed September 21, 1877.

1,202.—Title: "**Jamaica Syrup.**"—C. F. RANDOLPH, Altoona, Pa. Application filed September 21, 1877.

1,203.—Title: "**Flat Iron Polisher.**"—ROWE & CO., New York, N. Y. Application filed September 21, 1877.

1,204.—Title: "**Bock Y. Ca. Trade-Mark.**"—ROBERT S. STROBEL, Baltimore, Md. Application filed August 31, 1877.

1,205.—Title: "**Trefoil Inkstand.**"—BLOOMFIELD BROWER, New York, N. Y. Application filed September 27, 1877.

1,206.—Title: "**Vinton's California Golden Honey Syrup.**"—OLIVER M. VINTON, New York, N. Y. Application filed September 14, 1877.

NOTICE.

A few extra numbers of the OFFICIAL GAZETTE of October 9, containing an account of the fire of September 24, illustrated with fine photolithographic views, are for sale by the Patent Office at twenty-five cents each. A limited number of the same issue, illustrated with photolithographic plates and four heliotype views, taken just after the fire, can be had for fifty cents per copy. As the supply is limited they cannot be furnished in large numbers.

ORDER.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., October 5, 1877.

The second paragraph of Rule 53, edition of August, 1877, is amended to read as follows:

These statements shall not be open to the inspection of the opposing parties until both have been filed, or until the time for filing both has expired; nor then, until they have been examined by the proper officer and found to be satisfactory.

Also, the fifteenth line of page 30 should read:

On depositing a trade-mark for registration, $25.

(Signed) ELLIS SPEAR,
Commissioner.

The Government fee on making application for a patent is fifteen dollars. The final fee is twenty dollars. Usually there are no other Government fees unless the application is appealed.

SALE OF SPECIFICATIONS AND DRAWINGS.

Photolithographic copies of the drawings of all patents issued since November 26, 1867, have been produced, and will be sold to the public at 25 cents per patent, or, where twenty or more copies are ordered at one time, at 10 cents per patent.

Coupon-books, to the amount of $2 or more, can be purchased from the Chief Clerk of the Patent Office; the coupons, for 10 cents each, may be filled out at any time, and, on presentation, will entitle the holder to a photolithographic copy of *any* drawing which has been reproduced.

The specifications of all patents issued since July 1, 1871, are in print, and will be furnished with the drawing without extra charge. The specifications of patents issued from November 20, 1866, to July 1, 1871, are in print, and where such is the case the Office will furnish them with the drawings, but the Office will not undertake to reprint copies of patents which have been exhausted.

In addition to the above, the Office has reproduced, and offers for sale at the price mentioned above, all drawings in the following classes, embracing patents granted from 1790 to date. The classes are those of the Examiners:

1. Aeration and Bottling.
2. Apparel.
4. Baths and Closets.
5. Beds.
6. Bee-hives.
7. Beer and Wine.
8. Bleaching and Dyeing.
9. Boats.
10. Bolts, Nuts, and Rivets.
11. Bookbinding.
13. Brakes and Gins.
14. Bridges.
15. Brushes and Brooms.
17. Butchering.
18. Caoutchouc.
19. Carding.
20. Carpentry.
21. Carriages and Wagons.
23. Chemical Miscellaneous.
26. Cloth.
28. Cordage.
29. Crinoline and Corsets.
31. Dairy.
33. Drafting.
34. Driers and Kilns.
36. Electricity.
37. Excavators.
38. Felting and Hats.
40. Files.
42. Fire-arms.
44. Fuel.
45. Furniture.
47. Garden and Orchard.
48. Gas.
52. Gunpowder.
53. Hardware manufacture.
55. Harrows.
56. Harvesters.
58. Horology.
59. Horseshoes.
61. Hydraulic Engineering.
62. Ice.
65. Kitchen Utensils.
66. Knitting and Netting.
67. Lamps and Gas-fitting.
68. Laundry.
71. Manures.
72. Masonry.
73. Measuring Instruments.
75. Metallurgy.
76. Metal Working, bending and straightening.
77. Metal Working, boring and drilling.
78. Metal Working, forging, swaging, and riveting.
79. Metal Working, punching, cutting, and shearing.
80. Metal Working, rolling.
81. Metal Working Tools.
82. Metal Working, turning, planing, and milling.
83. Mills.
85. Nails.
86. Needles and Pins.
87. Oils, Fats, and Glue.
88. Optics.
89. Ordnance.
90. Ore.
91. Paint.
92. Paper-making.
93. Paper manufactures.
94. Paving.
96. Plating.
97. Plows.
98. Pneumatics.
99. Preserving Food.
101. Printing.
102. Projectiles.
103. Pumps.
104. Railways, The Way.
105. Railways, (Cars and Interior Fittings.)
106. Railway Cars, (Exterior Mountings and Fittings.)
107. Railway Track and Car Irons and Fittings, manufacture of.
108. Roofing.
111. Seeders and Planters.
112. Sewing-machines.
114. Ships (1) construction.
115. Ships (2) propulsion.
116. Signals.
117. Silk.
118. Spinning.
119. Stabling.
120. Stationery.
124. Stills.
126. Stoves and Furnaces.
127. Sugar.
130. Thrashing.
131. Tobacco.
132. Toilet.
134. Tubing and Wire.
135. Umbrellas and Fans.
137. Water Distribution.
138. Water-wheels.
139. Weaving.
141. Wood-screws.

And the subdivisions of—

Bench-planes.
Bale-ties.
Buttons and Machines.
Combs, &c.

About forty other classes are in progress, and it is hoped that all the drawings remaining, some thirty thousand in number, may be completed during the fiscal year.

The total number of patents of which drawings are complete and offered for sale as above will approximate one hundred and fifty thousand.

Printed copies of specifications can be procured from No. 59,740, issue of November 20, 1866.

Where specifications are in print they are furnished with the drawings without extra charge.

The "Rules of Practice" contain full instructions, forms, &c., for making applications for patents.

The drawing accompanying an application for a patent must be on a sheet ten by fifteen inches.

CIRCULAR.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., September 26, 1877.

Inventors and their Attorneys are informed that, so far as can be learned, none of the files of pending applications were lost in the recent fire, nor a single original document of any kind.

All models in the north and west halls of the Model Room are destroyed. These include the following classes:

Aeration and Bottling.
Agricultural Implements.
Agricultural Products.
Brakes and Gins.
Brushes and Brooms.
Bridges.
Butchering.
Capstans and Windlasses.
Carpentering
Carriages and Wagons.
Dairy.
Excavating.
Fences.
Grinding Mills.
Grain Cleaning.
Garden and Orchard.
Glass.
Hydraulics and Pneumatics.
Hoisting Apparatus.
Metal-Working, (except about 500 models.)
Metallurgy.
Mechanical Powers.
Presses, (except Printing.)
Quarrying and Rock Drilling.
Railway, (except Locomotives.)
Stabling.
Stone Sawing and Dressing.
Tobacco Machinery.
Wood-Working, (Tools and Machinery.)

A separate letter of inquiry concerning any particular case will receive attention.

W. H. DOOLITTLE,
Acting Commissioner.

All letters to the Patent Office must be addressed to the Commissioner of Patents.

Where specifications are printed, copies of same attached to drawings will be furnished without extra cost.

The "Rules of Practice" are furnished gratis on personal or written application to the Commissioner of Patents.

Copies of patents, arranged by classes of inventions, can be obtained at 10 cents per copy where the entire class is ordered.

The GAZETTE is made to bear the same date as the patents to which the claims, briefs, and drawings relate, although it is not actually mailed to subscribers until about two weeks later than its date.

Letters Patent of the United States do not reach the patentee or owner until about two weeks from the day of their date. The letters, nevertheless, have the force of patents from the time they are signed and sealed.

THE illustrated portion of the Patent Office Report for 1869 and for 1871 has recently been completed, and can be had, by those having the remaining volumes for those years, by applying to the Commissioner of Patents.

As 12 o'clock on Friday is the latest hour that a final fee can be received in order to get a patent into the "issue" of the following Tuesday, applicants are earnestly requested to make the final payment before Friday, if possible, so that the proper entries may be made on the books of the Office before closing the "issue."

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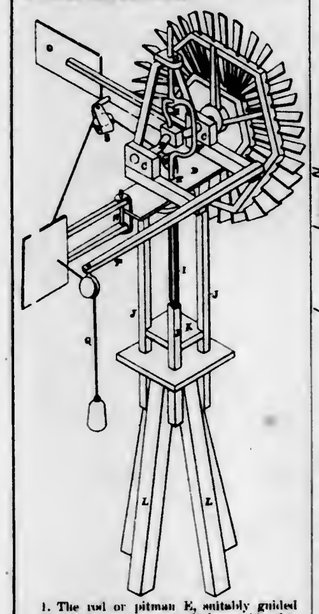
TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED OCTOBER 16, 1877.

196,065. WINDMILLS. Americus M. Abbott, Stockton, Cal. Filed Oct. 2, 1877.

Brief.—A means for producing a direct vertical motion of the rod or pitman, which extends from the crank through the turn-table of the windmill, so that there will be no motion of the rod from side to side.

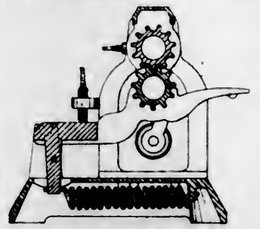


1. The rod or pitman E, suitably guided and bent into a curve at F, in combination with the connecting-rod H and crank of a windmill, so that the center of motion of the crank is in the direct line of the operation of rod E, substantially as and for the purpose herein described.

2. The turn-table consisting of the tube I, with its attached plate D, and tube being fitted to turn in the perforated blocks K of the frame and allow the passage of the reciprocating rod E, the whole constructed to operate substantially as herein described.

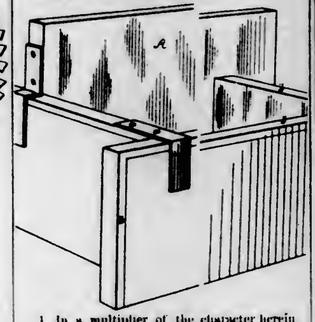
3. The vertical timbers J J and brace K, and the diagonal timbers L, having their upper ends cross-bolted between the timbers J J, in combination with the operating mechanism of a windmill, as set forth.

196,066. FLUTING-MACHINES. Henry B. Adams, New York, N. Y. Filed June 7, 1876.



The combination, in a fluting-machine in which one of the rollers revolves in fixed bearings and the other in vertically-movable bearings, the latter being pressed toward the former by the stress of a spring, of the said rollers and spring with an adjustable stop, by which the movement of the one roller toward the other is limited and the said limitation varied at will, as and for the purpose described.

196,067. MULTIPLYING SHOW-CASES FOR EXHIBITING CARPETS, &c. Charles W. Armstrong and Robert A. Tyrrel, Detroit, Mich., assignors, by mesne assignments, to said Armstrong. Filed July 23, 1877.



1. In a multiplier of the character herein specified, the combination, with three or more mirrors of about equal height, of the mirror A, extending above the tops of the others, as and for the purpose set forth.

2. In combination with the mirrors which form the sides of a pattern-multiplier, the sustaining backs or frames applied thereto and extending below the lower edges of said mirrors, to protect the same from injury, the backs or frames being recessed in the manner and for the purposes explained.

196,068. BENCH-PLANES. Leonard Bailey, Hartford, Conn. Filed June 20, 1877.

Brief.—The plane-bit is adjusted by means of a disk borne upon a screw, and provided with a pin working in lateral grooves in the under side of the bit. The body is of cast metal, with the sides concaved or hollowed near the ends, for giving the user a firm grasp of the tool.



1. A metallic plane-body having the sides curved or hollowed, as described, and for the purpose set forth.

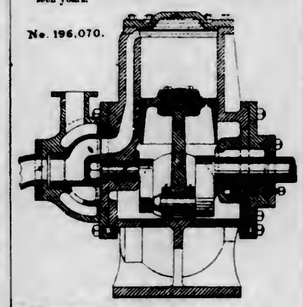
2. In combination, the screw *e*, nut *f*, and pin-disk *j*, borne upon the screw, and the grooved plane-bit, all substantially as described.

196,069.



196,070. TRIPLE-CYLINDER STEAM-ENGINES. Peter Brotherhood, Notting Hill, England. Filed June 23, 1875. Patented in England, June 5, 1873, for fourteen years.

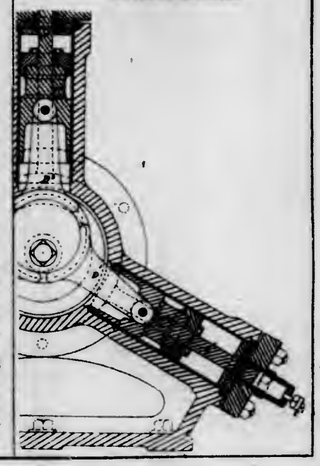
No. 196,070.



196,069. STEAM-COOKERS. Albert A. Brooks, Battle Creek, Mich., assignee of one-half his right to Homan D. Crocker, same place. Filed July 23, 1877.

Brief.—The vessels are connected with one another by a steam-tube passing up outside the same. By means of a slide steam may be admitted into any one or all of them, and the steam from those vessels in which the articles are sufficiently cooked may be allowed to pass off into the room.

In a steam-cooker, the combination of the water-vessel *a*, cooking-vessels *e*, steam-tube *d* passing up the outside of the vessels *e*, openings *g h*, and slides *i*, whereby the steam may be cut off from any one or two of the vessels without interfering with the cooking in the other vessels, substantially as shown and described.



1. The combination of three cylinders, the rotary valve having a central and a circumferential opening and inlet and outlet passages, the triple-cylinder passages communicating with said valve-passages, the central chamber from which the cylinders radiate and which has a closed head, the passages in said head, the valve-driving shaft passing through this head, and the valve-inclosing cover, in which the end of the valve is mounted, these members being constructed and operating conjointly, substantially as hereinbefore set forth.

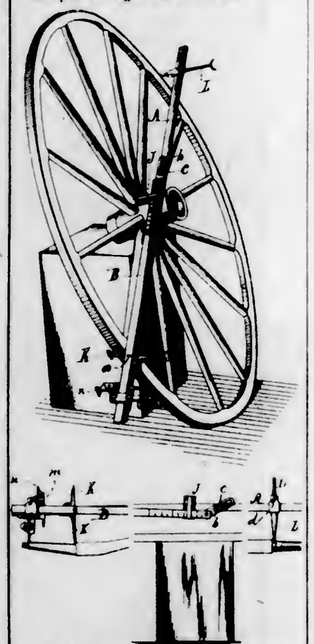
2. The combination of the piston, provided with a central opening and a boss surrounding said opening, the flanged socket-piece, the ring fitting upon the outer or top surface of the boss and a corresponding surface of the socket-piece, and the connecting-rod pivoted to the socket-piece, these members being constructed and operating, substantially as hereinbefore set forth, to transfer strain from the pivot to the end of the connecting-rod and compensate wear between the rod and socket-piece by the insertion of packing between the boss and flange of the socket-piece.

3. The combination, substantially as hereinbefore set forth, of the cylinder, the piston, the compression-plunger, and the fluid-supply pipe connected with the plunger-chamber.

4. The combination of the rotary valve, the cylinders, their pistons, the compression-plunger chambers, and the supply-pipes leading from the valve-chamber to the plunger-chambers, these members being constructed and operating substantially as hereinbefore set forth.

196,071. AXLE-GAGES. Wm. C. Carson, Boise City, Idaho, assignor to W. B. Morris, same place. Filed July 25, 1877.

Brief.—The gage is set to indicate any desired angle of inclination and taper of the spindle, to accommodate itself to the "dish," and accomplish the "gather" of the wheel.



1. In an axle-set and gage, the combination of the main bar A, carrying adjustable bifurcated arm-rest L and bifurcated standard K, attached near its left-hand end, index-bar B, having a graduated scale cut on its face, the two bars being secured together by means of a screw passing through both bars A and B, and the body of standard K forming a pivot on which bar B be oscillated, the movement of bar B being limited and controlled by means of slotted yoke *b*, attached to its right-hand end, and secured to bar A by thumb-screw *c*, bar B also carrying a sliding rule, J, provided with two sets of graduations, such arrangement being adapted for taking the height and dish of a wheel, as and for the purposes as herein shown and set forth.

2. In an axle-set and gage, the combination of the main bar A, carrying arm-rest L and standard K, index-bar B, having a graduated scale on its face, and provided with sliding rule J, and a taper-taking or double-calipering device, having a depending arm which indicates the point to which the spindle is to be set, such device being applied and adjusted upon the left-hand end of the bar B, beyond the point at which it is pivoted to the bar A, the whole arranged, applied, and operating substantially as and for the purposes as herein shown and set forth.

3. In an axle-set and gage, the combination of the main bar A, carrying bifurcated arm-rest L and bifurcated standard K, index-bar B, having a graduated scale on its face, and carrying sliding rule J and a taper-taking or double-calipering apparatus, and a graduated gage, *m*, carrying an adjustable arm, *n*, the point of which indicates the point to which the axle-spindle is to be set when gathering the axle, the whole arranged, applied, and operating as and for the purposes as herein shown and set forth.

4. The taper-taking or double-calipering device, consisting of a body provided with socket *k* and set-screw *l*, by means of which it is secured and adjusted on the index-bar of the axle-set, adjustable arm *c*, having depending finger c^2, sliding gage *g*, having depending arm *i*, the whole applied and operating as and for the purposes as herein shown and set forth.

5. The sliding rule J, provided with two sets of graduations, the scale on the right being in inches and divisions thereof, while the scale on the left is contracted one-eighth from the standard inch, such rule being adopted for use with an axle-set and gage, in the manner as herein shown and set forth.

6. The short gage *m*, consisting of the body having on its face a series of graduations, and the adjustable sliding arm *n*, the point *n* of which is used, when attached by the main bar A of the axle-set, to indicate the point to which the axle-spindle is to be bent when setting the axle for the gather, substantially as and in the manner as herein shown and set forth.

196,072. COMBINED CHECK-ROW AND DRILL PLANTER. Justin F. Champlin, East Aurora, N. Y., assignor of one-half his right to Emanuel Meyers, same place. Filed Apr. 26, 1877.

Brief.—Within the hopper is mounted a double feed-wheel, having peripheral depressions and a circumferential groove, for alternately dropping or drilling seed, a cut-off being provided to stop the flow of seed from one or the other. The discharge-valves are actuated automatically and intermittingly by chains and levers, the levers being struck by arms on a sprocket-wheel mounted on the axle of the feed-wheels.

1. In a combined check-row and seed-drill planter, a distributing device consisting of a cylinder having peripheral depressions and a circumferential groove, revolving within a casing having two induction-openings, covered by a slide, by means of which either one of said openings may be uncovered to change the planter from a check-row to a drill planter, and vice versa, substantially as described, for the purpose indicated.

2. The combination, with the cylinder G, having the peripheral depressions *g'* and circumferential groove *g*, of the casing I, provided with apertures h' h'' g'', a hopper, H, and a slide, K, in the hopper, substantially as described and stated.

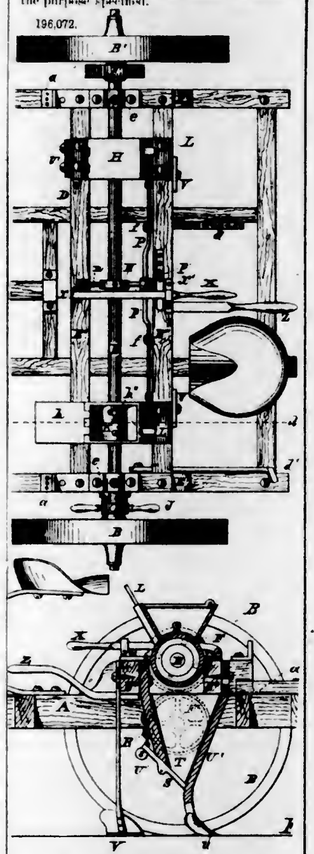
3. The combination, with the cylinder G, having a series of depressions, *g'*, and a continuous groove, *g*, arranged side by side in its circumference, of the casing I, carrying the seed-box H, said casing having the slide K arranged to cover either the depressions *g'* or the groove *g*, and the slide L arranged to pass into the said groove *g*, the whole constructed and arranged to operate substantially as and for the use and purpose specified.

4. The combination, with the shaft E, of the sprocket-wheel N, oppositely-located levers I' I'', pivoted to the beam E''', chains R, valves S, and lever N, having the U-shaped bearer *p*, spring *p'*, and guide *x'*, as stated.

5. The combination, with the levers I' I'', of the lever N, having its fulcrum at *x*, and provided with the U-shaped bearer *p*, spring *p'*, and guide *x'*, with its stop-pin, as and for the purpose specified.

6. A combined check-row and drill planter, consisting of the mounted frame A, auxiliary hinged frame D, carrying the transverse shaft E, having two cylinders, G, provided with a series of depressions, *g'*, and a continuous groove, *g*, arranged to be separately uncovered by the slide K, hoppers T, provided with valves S, operated as specified, plows U, and scrapers V, the whole constructed and arranged to operate substantially in the manner as and for the purpose specified.

196,072.



196,073. BOOTING-JACK. Henry P. Chapin, Georgetown, Mass. Filed Aug. 21, 1877.



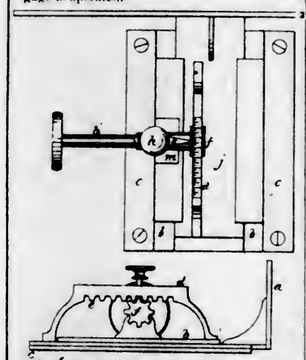
1. The combination of the standard A and the curved arm D applied to it, as described.

and provided with mechanism for operating it, (the said arm,) substantially as set forth.

2. The combination of the curved arm D with the spring I, pedal H, connection-bars E G, and the lever F, all being arranged and applied substantially as specified.

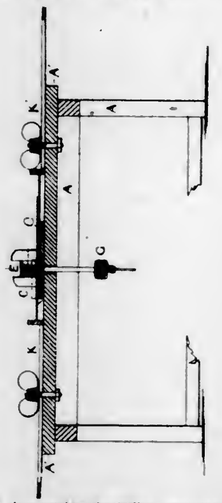
196,074. BOLTING-GAGES. Geo. W. Church, Gardiner, Me. Filed Aug. 31, 1877.

Brief.—The gage is attached to a frame having a yoke, provided with a scale and rack, and adjustable in a frame having suitable guideways, an index-finger, and carrying a screw-socket, through which passes a screw-shaft having a pinion on its end, by which the gage is operated.



The combination, with the table of a circular saw, of the gage *a*, sliding bed *j*, scale *d*, finger *k*, wheel *f*, rack *e*, and bed *c*, with its guides *b*, as herein set forth.

196,075. PAPER-FOLDING MACHINES. R. A. Connell, Washington, D. C. Filed Aug. 6, 1877.



1. In a machine for folding paper, the combination of the table A', the raised platform B, swinging platform C, and the vertically-moving cross-bar E and its operating mechanism, substantially as and for the purpose set forth.

2. In a machine for folding sheets of paper, the combination of the swinging folder C, the vertically-moving cross-bar E, the adjustable stops or guides K K', and the side guide A'', whereby sheets of paper may be held in position and folded in such a manner that one of their leaves will be wider or longer than the other, substantially as and for the purpose set forth.

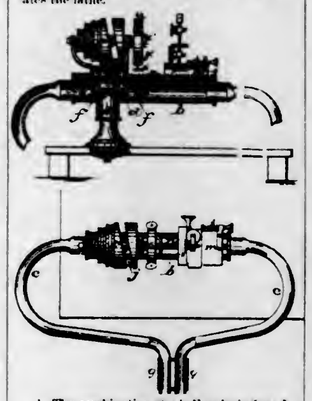
196,076. SALT-BOTTLES. Charles P. Crosman, West Warren, Mass. Filed Aug. 10, 1877.



The above described pulverizer, consisting of the flexible spiral corrugated wire E, rigidly connected to the perforated cup or cover B, in combination with the salt bottle or caster A, all being constructed and arranged as and for the purposes set forth.

196,077. JEWELERS' LATHES. Jelle A. de Vries, Pella, Iowa, assignor of one-half his right to A. Kruidenier, same place. Filed Aug. 15, 1877.

Brief.—The bed-piece is hollow, and contains a blower, which, by throwing up a connecting-arm, is driven by the same power that operates the lathe.



1. The combination of a hollow bed-piece, *b*, piston *f*, moving back and forth therein, the arm *j*, and a slotted spindle, *r*, substantially as specified.

2. The combination of the bed-piece *b*, piston *f* and operating mechanism, and a tube, *c*, the said tubes being provided with an air-chamber, *g*, substantially as set forth.

3. The combination of the tubes *c* and an air-chamber, *g*, the chamber being passed over both tubes, and both tubes being perforated, so as to cause the air in the chamber to equalize the pressure of the air as it escapes from both of the nozzles, substantially as shown.

4. The combination of the rest *h*, provided with the movable spring-jaws which catch the nozzle *i* and support it in any desired position, substantially as described.

5. The spindle *k*, made adjustable back and forth upon the top of the bed-piece *b*, and provided with a clamping device consisting of the spring-catch 1 and screw 2, for holding it in position, substantially as described.

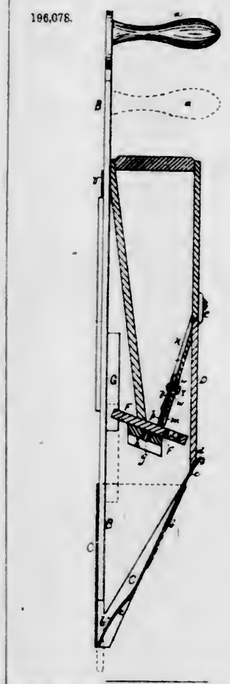
196,078. HAND CORN-PLANTERS. Sam T. Ferguson, Minneapolis, Minn., assignor to the Monitor Flow Works, same place. Filed June 15, 1877.

1. In a hand corn-planter, the inclined dropper-plate F and converging seed-chamber, in combination with the half-support *h* and operating-slide B G, substantially as described.

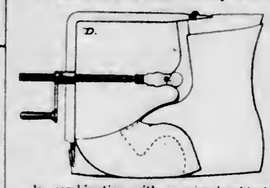
2. The combination and arrangement of the beveled metal nose C, having the guides *b b'*, made in one piece therewith, and the spring face-plate *r*, substantially as hereinbefore described.

3. The combination and arrangement of the spring face-plate *r* and the bevel-edged door D, in the manner and for the purpose hereinbefore explained.

196,078.

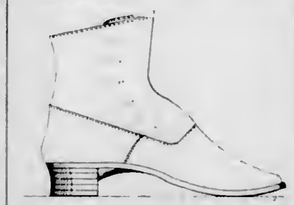


196,079. CRIMPING APPARATUS FOR BOOTS AND SHOES. P. Fischer, New York, N. Y. Filed Sept. 20, 1877.



In combination with a crimping-block, a metallic frame, D, adapted to be attached to the ankle and toe portions of the block, and provided with an adjusting-screw and clamping-jaws, substantially as and for the purpose set forth.

196,080. GAITER-BOOTS. P. Fischer, New York, N. Y. Filed Aug. 18, 1877.

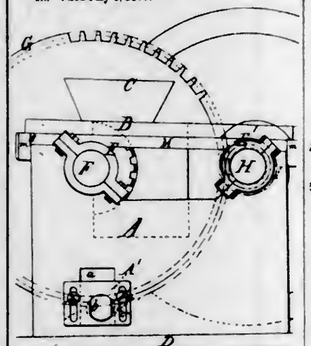


A button-gaiter consisting of two parts, the one forming the vamp and quarters, and the other the leg portion and button-flap, the two being formed substantially as described, and united to each other, so that in the finished shoe the button-flap is on the outside and the seam inside.

196,081. TANNING COMPOUNDS. Frederick Funke, Detroit, Mich. Filed June 11, 1877.

An improvement in the art of tanning, the compound composed of wheat flour mixed with boiling water, pure brewers' yeast, sugar of lead, salicylic acid, sulphuric acid, milk, yellow-oak bark extract, cooking-salt, alum, and cider-vinegar, all compounded substantially as and in about the proportions stated.

196,082. ORE-CRUSHERS. Philetus W. Gates, Chicago, Ill. Filed July 3, 1877.



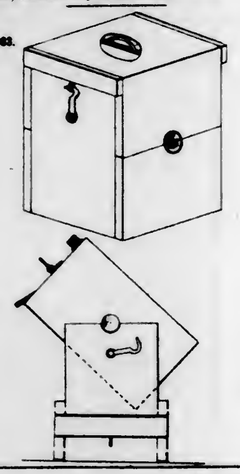
1. The combination of the upright independently-vibrating crushing or breaking jaw, revolving crushing or breaking cylinder, and a tappet-wheel or a cam acting as a tappet-wheel, the combination being such that the tappet-wheel or cam moves the jaw up to its work directly, and the jaw is free to move away from or toward the tappet-wheel or cam without moving the tappet-wheel or cam along with it, substantially as and for the purpose described.

2. The gears G I, in combination with the driving-shaft H, tappet-wheel J, or cam acting as a tappet-wheel, vibrating jaw L, and cylinder F, the combination being such that the tappet-wheel or cam moves the jaw up to its work directly, and the jaw is free to move toward or from the tappet-wheel or cam without moving the cam or tappet-wheel along with it, and simultaneously with the movement of the jaw the cylinder is slowly revolved, all substantially as set forth.

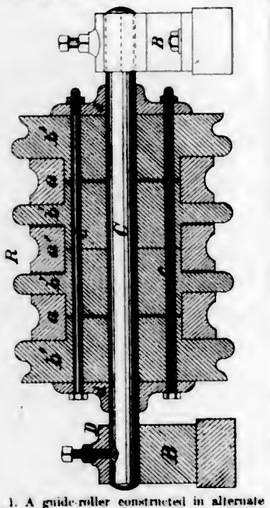
3. The fulcrum-pivot K of the jaw L, held eccentrically in adjustable vertically-sliding and reversible blocks which are fitted in oblong slots *a* of the frame A, substantially in the manner and for the purpose described.

4. The combination of the movable jaw L with a yielding sustaining device, for the purpose of holding the jaw out of contact with the tappet-wheel or cam, which moves it when there is no material between the crushing surfaces, substantially as described.

196,083.



196,083. GUIDE-ROLLERS FOR WIRE-ROPE TRAMWAYS, ELEVATORS, &c. Samuel Haigh, Cincinnati, Ohio. Filed June 16, 1877.



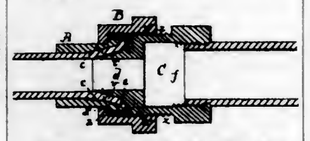
1. A guide-roller constructed in alternate sections, *a a' a*, of vulcanized fiber, and *b b' b'*, of metal and wood, or either, arranged as shown, and for the purposes described.

2. The axle-bearing herein described, consisting of the block B, the cap D, and the set-screw *e*, in combination with the fixed axle C and the guide-roller R, all constructed and arranged substantially as specified.

196,083. GANS FOR TRANSPORTING LIQUIDS. John Graves, New York, N. Y. Filed Sept. 6, 1877.

A box or case for oil or other cans, formed of two sections, separated at the center on two of its sides, the sides of the lower section thereof having bearings to support the trunnions upon the sides of the can, the upper section, when separated from the lower one, being capable of use as a bench or stand to elevate the lower section and can, when in use, as specified.

196,084. PIPE-COUPLINGS. Hugh Guyer, Albany, assignor of two-thirds his right to Samuel Baker, same place, and John H. Reynolds, Troy, N. Y. Filed Apr. 13, 1876.



1. The combination, with the flaring bore *c* of sleeve A, bush *d*, and screw-coupling B, working on the bush-sleeve C, of the annular teeth or rings *r*, substantially as and for the purpose set forth.

2. The combination, with the sleeve A, having the flaring bore *c* and beveled end *e*, screw-collar B, provided with collar *a'*, working against collar *a* of said sleeve, of the bush-sleeve C, provided with the tapering bush *d*, incline *c'*, and screw-thread *z*, working with screw-thread *z'* of collar A, and the screw-sleeve *f*, whereby a lead pipe may be connected with an iron pipe, substantially as and for the purpose set forth.

196,085. GUIDE-ROLLERS FOR WIRE-ROPE TRAMWAYS, ELEVATORS, &c. Samuel Haigh, Cincinnati, Ohio. Filed June 16, 1877.

1. A guide-roller constructed in alternate sections, *a a' a*, of vulcanized fiber, and *b' b' b'*, of metal and wood, or either, arranged as shown, and for the purposes described.

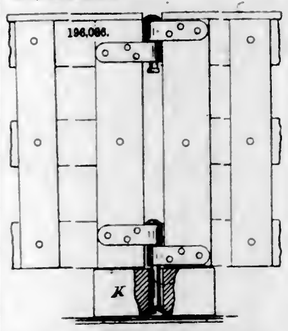
2. The axle-bearing herein described, consisting of the block B, the cap D, and the set-screw *e*, in combination with the fixed axle C and the guide-roller R, all constructed and arranged substantially as specified.

196,086. FENCE-SUPPORTS. Joseph R. Hall, Oxford, Ind. Filed Aug. 4, 1877.

1. The combination, with the panels of a fence, of the hinge-straps and bolts or pintles, enlarged at their lower ends to prevent withdrawal, substantially as described.

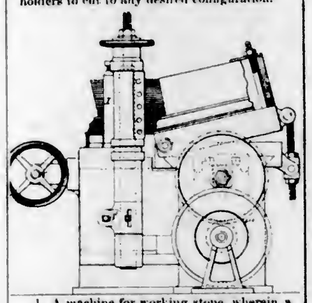
2. The combination, with the panels of a fence, of the hinged straps, the bolts or pintles, enlarged at their lower ends to prevent withdrawal, and the supporting-blocks K, substantially as described.

196,086.



196,087. STONE-PLANING MACHINES. Joseph Hamilton, Battersea, and Frederick Frasi, Woolwich, England. Filed May 16, 1877. Patented in England, June 7, 1876, for fourteen years.

Brief.—The tools may be adjusted in their holders to cut to any desired configuration.



1. A machine for working stone, wherein a sliding table adapted to be inclined to any desired angle for carrying the stone to be operated upon is made to travel past one or more piles of cutting-tools, carried in tool-holders that can be adjusted in position to and from the face of the stone, the tools being capable of adjustment in their holders, so as to conform with their cutting-edges to the configuration of the surface to be produced, substantially as herein described.

2. In stone-working machinery, such as is above referred to, the slab or table, constructed substantially as specified, for carrying the stone, so that it can be adjusted to various degrees of inclination relative to the cutters, substantially as and for the purpose herein described.

3. In stone-working machinery, with a sliding table adapted to be inclined at any angle, the several sets of cutters, arranged so that the cutting-edges of one set project somewhat beyond those of the preceding set, substantially as and for the purpose herein described.

4. The tool-holder 1, provided with a series of tools, H, arranged substantially as specified, and capable of separate adjustment, as and for the purpose specified.

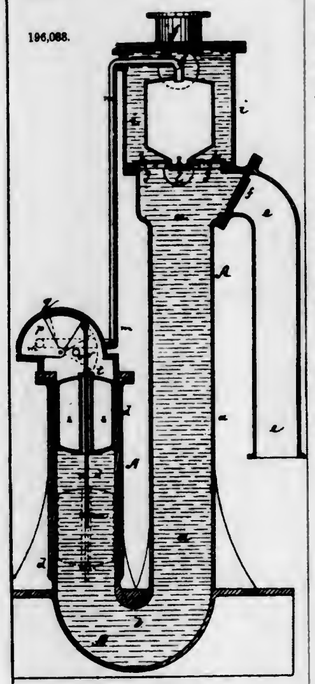
5. A machine for working stone, wherein a sliding table, adapted to be inclined to any desired angle, for carrying the stone to be operated upon, is made to travel past one or more piles of cutting-tools, carried in tool-holders that can be adjusted in position to and from the face of the stone, substantially as specified.

196,088. STEAM AND VACUUM PUMPS. Gustav Hambruch, Berlin, Germany. Filed July 13, 1877.

1. The combination of the pipe A, which is constructed of the long and short columns *a d*, with the vessel *i*, pipes *e j*, valves *f g*, condenser *k*, pipes *m o*, vibrating valve *p*, rod *r*, having shoulders *t u*, and float *s*, all constructed to operate substantially as herein shown and described.

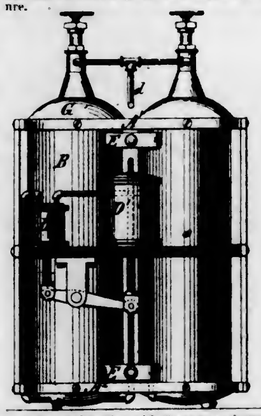
2. In combination with the pipe *a* and vessel *i*, the condenser *k* and its downwardly-opening valve *l*, substantially as and for the purpose specified.

196,088.



196,089. FIRE APPARATUS. James L. Hastings, New York, N. Y. Filed Jan. 16, 1877.

Brief.—The water-discharge pump is worked by the gas from the holders. The surplus gas is returned to one of the holders; from thence it is drawn out and recompressed by a pump used for that purpose, and is then returned to the remaining holders, from whence it again passes to operate the discharge-pump. The compressor-pump has the difference to make up between the exhaust-gas and the original pressure.



1. In combination with the gas or air tanks or holders B, one or more used for holding the compressed air or gas, and one or more used for receiving the exhaust air or gas, as described, the automatic pump C, or its equivalent, connecting with such pressure and exhaust, substantially as described, and the air pump or compressor D, having suitable connections with the exhaust and pressure tanks for recompressing the exhaust air or gas and forcing the same into the pressure-tanks, substantially as and for the purposes set forth.

2. In combination with the gas tanks or holders B, as described, the conical valve J^1 J^2, constructed and operating substantially as set forth.

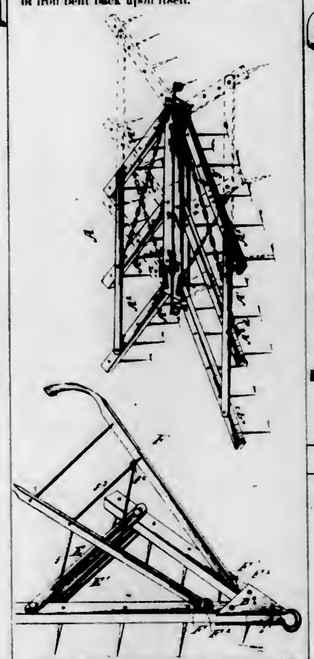
3. The combination and arrangement, in the automatic pump C, of the chambers B^1 B^2, floats C^1, and levers L for operating the valves M moving in valve-chambers, and having inlet and outlet passages *o o'*, and the self-acting valves d^1 d^2, moving in chambers provided with inlet and outlet passages, the whole operating substantially as and for the purpose set forth.

4. The combination, with the gas-tanks B, automatic pump C, air pump or engine D, of a motor engine to work the air-pump, substantially as and for the purpose set forth.

5. The combination and arrangement, with the gas-tanks B, of the clamp-braces E and their connecting-rods *e*, substantially as and for the purpose set forth.

196,090. HARROWS. Wm. H. Hatfield, Cedar Grove, Ga. Filed Aug. 10, 1877.

Brief.—The frame is flexible and separable. The rear corresponding beams may be detached and converted into a cultivator-harrow. The front beams are double, made of a single piece of iron bent back upon itself.



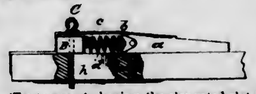
1. In a double harrow, the combination, with the double folding center bar B and the series of hinged or pivoted tooth-bars A^1 A^2 A^3, of the hooks d^1, pivoted on the ends of the halves B^1 B^2 of the double center bar B, chains D, and reversible fastening *d* on one of the intermediate tooth-bars A^2, as and for the purpose set forth.

2. The combination, with a pair of removable pivoted arms, A^3, having sockets or loops F^6, an angular bar, B^3, and slotted retaining-plates E^1 and E^2, of the handles F, constructed with the cross-bar f^3, standards f, constructed with the loops f^6, and having their lower ends threaded and provided with the set-nuts f^7, when arranged and operating substantially as and for the purpose set forth.

3. In a harrow, the double arm or tooth-bar A^3, made of a single bar of metal, having its halves *g* and *g'* doubled back parallel to each other, so as to leave an intervening space between them, substantially as set forth.

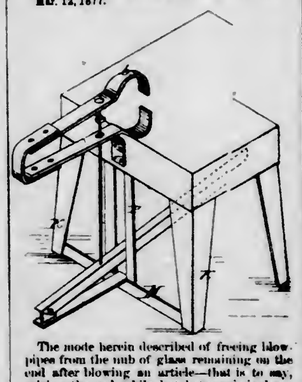
196,091. WAGON-TONGUE AND DOUBLE-TREE. Alex. Hawkins and Geo. H. Wetzel, Lancaster, Ohio. Filed July 6, 1877.

Brief.—Spiral spring placed between double-tree and projection on the tongue, to make yielding draft attachment.



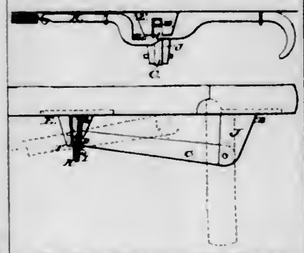
The tongue A, having the elongated slot *h*, shoulder *a* with projection *a'*, and curved plate *b* with slot *g*, in combination with the tree B, having projection *c*, the pin C, and coil-spring *d*, constructed to operate substantially as specified.

196,092. CLEANING GLASS FROM THE ENDS OF BLOW-PIPES. Ralph G. Hemingray, Covington, Ky. Filed Mar. 12, 1877.



The mode herein described of freeing blow-pipes from the nub of glass remaining on the end after blowing an article—that is to say, seizing the nub while hot between pinchers, and separating it by an endwise pull.

196,093. TABLE-LEG SUPPORTS. Nicholas A. Hull, Peru, Ind., assignor of one-half his right to Chas. B. Rathbun, same place. Filed May 8, 1877.



The table-leaf support consisting of the plate E, having the slotted post J, the pivoted arm C, having the shoulder D, the plate E, having the stud F and projection G, the bar H, cut away at *a*, and having the shoulder *d*, and lip I, when constructed, arranged, and combined as set forth.

196,094. APPARATUS FOR AGING WHISKY AND OTHER SPIRITS. Henry C. Johnson, Meadville, Pa. Filed Sept. 22, 1877.

Brief.—The liquor to be treated while in barrels, and subjected to a temperature of about 110° Fahrenheit, is agitated by peculiar mechanism, which gives a shock to the platform supporting the barrels and to the contained liquor. The aging-room is heated by steam or hot-air pipes. The building may be constructed of iron, with a glass roof, for utilizing the sun-heat for heating the aging-room.

1. In an apparatus for aging liquors, the combination, with a movable platform, of a bumper or other obstruction placed in the line of its travel, for the purpose of suddenly arresting its motion, substantially as set forth.

2. In an apparatus for aging liquors, the combination, with a movable platform, of a series of spring or other elastic bumpers, substantially as set forth.

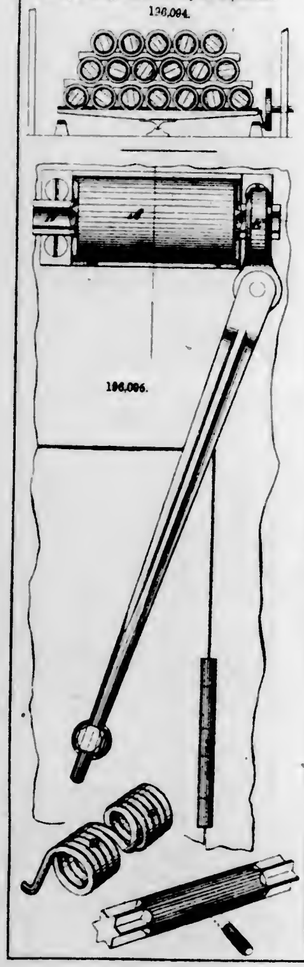
3. In an apparatus for aging liquors, a movable platform for supporting the casks, the same being mounted upon or combined with a knife-edge support, and operating substantially as herein explained.

4. In apparatus for aging liquors, a movable platform supporting the casks and receiving motion from a power located without the aging-room, a closed room having metallic walls, and a heating apparatus, also located without the room, but connected therewith by a series of pipes which distribute the heat uniformly, the several parts being combined and arranged substantially as hereinbefore set forth.

5. In apparatus for aging liquor, a closed room having metallic walls and glass roof, and a movable support for the casks, located within such rooms, the whole combined and arranged substantially as shown and described.

6. In an apparatus for aging liquors, a movable platform for supporting the casks, and a series of pipes arranged to distribute hot air to suitable register-openings in the walls or floor of the room containing said platform, said pipes leading from a hot-air furnace located outside of the walls of the room, the whole arranged and operating substantially as explained.

196,094.



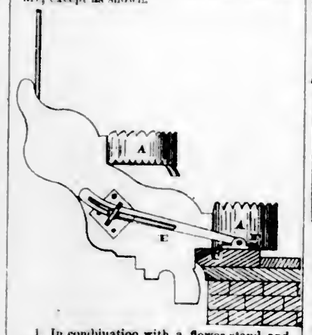
196,095. DOOR-SPRINGS. George S. Knapp, Chicago, Ill., assignor of a part of his right to I. H. Kellogg and G. A. Arnold, same place. Filed July 25, 1877.

Brief.—A suitable case attached to the frame above the door incloses a double spring having a central loop or stirrup, a rock-shaft with fluted ends passing through the case, and there being a central pin, which retains the shaft in place, and also receives the force of the spring. There is also a removable boss or hub pivoted to a lever or swinging arm, resting on the door, which hub may be reversed, adapting the spring to either a right or left hand door.

The combination of the case A, the double spring C, having the stirrup *b*, the rock-shaft B, having the protruding fluted ends, the pin D, serving both to secure the shaft in place and to receive the force of the spring, and the removable and reversible boss or hub E, having the arm F pivoted thereto, in the manner shown, for the purpose set forth.

196,096. FLOWER BRACKET AND STAND. Joseph T. Lambert, Dayton, Ohio. Filed July 5, 1877.

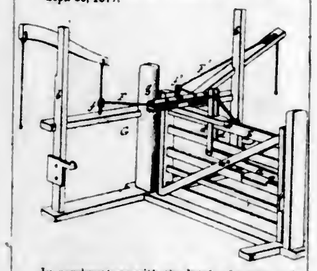
Brief.—The base of the bracket is rigidly fastened to the window-sill, and, by means of the slotted hinged arms, is readily swung to either side of the window, as may be desired. The flower-trays are made close, to retain moisture, except as shown.



1. In combinatioo with a flower stand and bracket, the slotted arm E, secured to the bracket by a set-screw passing through the slot in the arm, said arm being adapted to support the bracket when seeing inside or outside of a window, and to act as a supporting leg when the bracket is used as a stand, substantially as described.

2. In a flower stand and bracket, the combination, substantially as specified, of the shelf *a*, and the tray *a'*, provided with front A and back *a'*, which project below the bottom of the tray to embrace the shelf.

196,097. GATES. Jenkins Manker, Clay City, Ill. Filed Sept. 20, 1877.



In combination with the latch of a gate and vertical arms *d d'*, having the cross-bolt D, the pivoted block G, carrying the sheaves *g g'* and cords F F', the several parts constructed and relatively arranged substantially as shown, and for the purpose set forth.

196,098. MACHINES FOR MANUFACTURING PARCHMENT-PAPER. Wm. Martin, Pittsburg, Pa. Filed July 14, 1877.

1. In a machine for making parchment, the scrapers L, arranged in pairs, and movable back and forth in suitable guides, to clean both sides of the paper, substantially as shown.

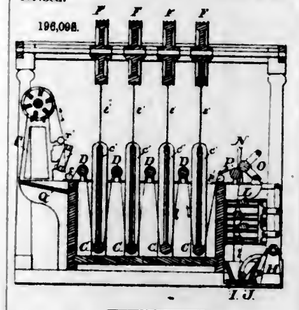
2. The combination of the scrapers L, arranged in pairs, and connected to the operating-lever N by means of suitable connecting-rods, substantially as described, whereby the scrapers can be opened outward to allow the paper to be passed between them, and then closed, so as to catch against both sides of it.

3. In combination, the roller O, supported in an adjustable frame, fixed roller P, with the scrapers L adjustable back and forth in pairs, tank I, and roll J, whereby the paper is immersed in the acid, and then has its sides cleaned, substantially as set forth.

4. In a machine for making parchment, the long rolls D, extending entirely across the top of the machine to support the paper as it rises from the baths, having their surfaces made concave, whereby the sheets are prevented from wrinkling, substantially as described.

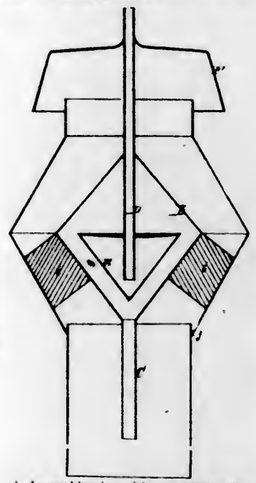
5. The combination of the rollers D, rollers C, cords *c'* *f'*, rods *c'*, and pulleys F, whereby the rollers C may be raised up to the rollers D, substantially as and for the purposes described.

196,098.



196,099. VENTILATORS. Patrick Mihan, Cambridgeport, Mass. Filed Sept. 7, 1877.

Brief.—In this ventilator there is combined, with a flue in its upper part, a close heat-radiator or steam receiver or vessel, an induct for supplying it with steam, and an educt for discharging the steam from it; and there is also within the said radiator or steam-receiver a foraminous vessel or deflector, which is so applied to the eduction-pipe as to cause the steam that may be received into the radiator to escape therefrom into the deflector, and thence into and through the educt.



1. In combination with a ventilating-flue, A, a steam heat-radiator, B, substantially as described, and it inductnet C and educt D, arranged in the upper part of said flue, as and for the purpose set forth.

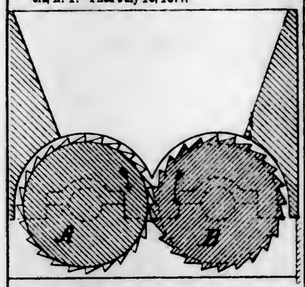
2. The combination of the foraminous deflector E, substantially as described, with the heat-radiator B and its induct C and educt D, placed in the upper part of a ventilating-flue, A, all being arranged and to operate as set forth.

3. The combination of the cap or hood F, ventilating-flue A, steam heat-radiator B, as explained, and its induction and eduction pipes C D, all arranged and applied substantially as set forth.

4. The combination of the cap or hood F, ventilating-flue A, radiator B, deflector E, and the induction and eduction pipes C D, all being arranged and applied essentially as shown and described.

5. The ventilating-flue A, provided with the radiator B and its induction and eduction pipes C D, and with the trough *e* and its educt *f*, arranged as specified.

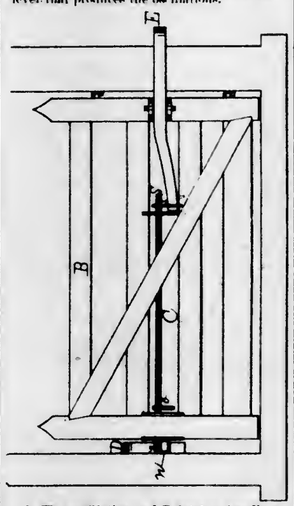
196,100. GRINDING-MILLS. Darius O. Newell, Yonkers, N. Y. Filed July 16, 1877.



The combination of the cutting-roller A and the feeding-roller B, geared to revolve together in opposite directions and with different speeds, and having the plane surfaces of their beveled teeth opposed at their point of intermeshing, substantially as described.

196,101. FARM-GATES. Henry Becher, Liberty, Ohio. Filed Aug. 25, 1877.

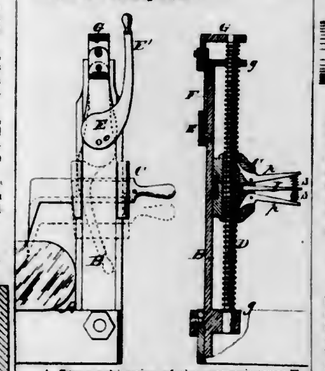
Brief.—The gate is opened and closed by an oscillating rod carrying a pivoted latch, the same being operated by rods connected to a lever that produces the oscillations.



1. The oscillating rod C, latch *n*, handle *o*, and catch D, in combination with a farm-gate, constructed and arranged substantially as set forth.

2. The oscillating rod C, latch *n*, catch D, forked arm S, lever E, and hand-levers G and H, in combination with the gate B, substantially as described.

196,102. SAW-MILL DOGS. G. W. Rodebaugh, Jackson, Mich. Filed Aug. 27, 1877.



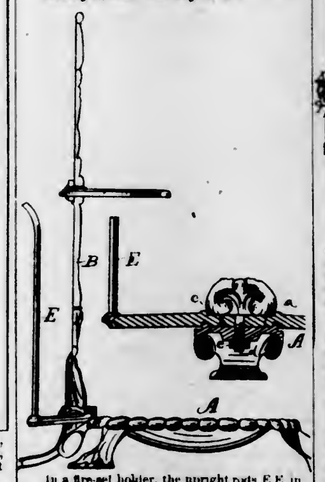
1. The combination of the eccentric-lever E E', pivoted to the standard B at *g*, with the connecting-strap F, articulated to the arm G of the reciprocatory shaft D, carrying the dog-head, the parts being so arranged that a downward movement of the lever will embed the dog into the log and lock it there, the lever assuming a perpendicular position against the standard out of the way, substantially as described.

2. The pawls *p p*, pivoted within the head C, as shown, one being adapted to engage with the toothed reciprocatory carrying-shaft D, to prevent an upward movement of the head, and the other to engage with said shaft to prevent a downward movement, when combined with the springs *s s*, interposed between their outer ends, substantially as described, for the purpose specified.

3. The laterally-sliding dog, provided with a series of notches, *b*, in combination with the mortised head, tooth *a*, and spring *m*, substantially as described, for the purpose specified.

4. The combination of the adjustable head C, adapted to slide on the guiding-standard B, with the carrying-shaft D, pawls *p p*, guides *g g*, eccentric-levers E E', and connecting-strap F, all arranged and operating in the manner and for the purpose specified.

196,103. FIRE-IRON HOLDERS. Enos E. Stow, Plantsville, assignor to the Peck, Stow & Wilcox Company, Southington, Conn. Filed Aug. 13, 1877.



In a fire-set holder, the upright rods E E, in combination with the base A and upright B of an ordinary shovel and tongs stand, substantially as described, and for the purposes set forth.

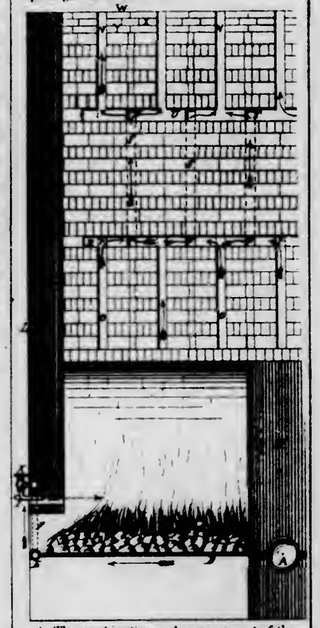
196,104. PIPE AND HOSE COUPLINGS. Thomas Addison, Elizabeth, N. J. Filed July 28, 1877.



The pipe-coupling consisting of the tube A, having projecting lugs *a a*, in combination with the tube B, having the straight grooves *b b*, which terminate in the circumferential grooves *d d*, that terminate in the wedge-shaped recesses or notches *e e*, said recesses projecting at right angles, or nearly so, from the circumferential grooves, substantially as herein shown and described.

196,105. AIR-BLAST KILNS FOR BURNING BRICK, TILES, LIME, &c. Henry W. Adams, Philadelphia, Pa., assignor of one-half his right to J. Q. A. Ziegler, same place. Filed July 23, 1877.

Brief.—The kiln is supplied with air-pipes, by which the air is forced directly into the furnaces, and thence into the flues, the flues being so constructed in the setting of the kiln as to form flues extending through the entire kiln. The roof or cover is composed of two or more layers of completed bricks, which are so placed as to leave small openings at the top of the flues. When intense heat is desired, the small openings are covered.



1. The combination and arrangement of the central pipe A, the hollow grate-bars D, the respective pipes E, the upright pipes F, the pipes G, the branch pipes H, and the blast-nozzles I, with the furnaces of a kiln, substantially in the manner and for the purposes hereinbefore set forth.

2. The arrangement of the furnaces of a kiln with jets of air discharging over the furnace-doors directly into the arches of the kiln, and parallel therewith, substantially in the manner and for the purposes set forth.

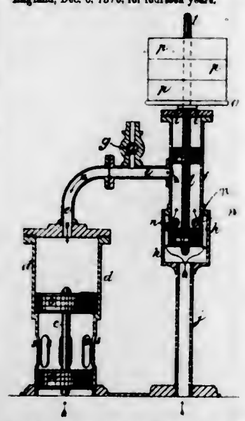
3. The combination of the central air-pipe A with the respective ash-pits of a kiln, through the various branch pipes and perforated grate-bars, substantially in the manner and for the purposes hereinbefore described.

4. The perpendicular flues O, the horizontal flues P R, the perpendicular flues S, the horizontal flues T U, and the perpendicular flues V, constructed and arranged, in a kiln of bricks, tiles, and other similar substances, substantially in the manner and for the purposes shown and described.

5. The construction of flues through a kiln of bricks, tiles, lime, and other similar materials, extending from the heating-chambers or from the bottom or near the bottom of the kiln to the top of the same, and opening to the external air, for the purposes hereinbefore described.

6. The cover W X Y, composed of bricks or tiles, in combination with the flues, all constructed and arranged substantially in the manner and for the purposes set forth and described.

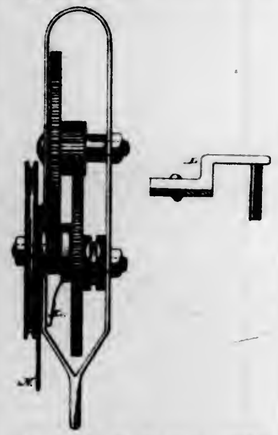
196,106. SAFETY-VALVES. Robert C. Anderson, Wood Green, England. Filed June 14, 1877. Patented in England, Dec. 6, 1876, for fourteen years.



1. In a pressure-regulator, the combination, substantially as shown and described, of the parts *f*, *g*, *h*, *i*, *j*, *k*, *l*, *m*, *n*, *o*, *p*, *q*, and *r*, for the purpose set forth.

2. The combination of the cylinder *f*, valve *g*, valve *m*, ports *n*, weights *p*, and connections *q r* with the piston *b* and main valve *a*, substantially as and for the purpose set forth.

196,107. ELEVATORS. Darter S. Bailey, Dover, Me. Filed May 16, 1877.



The casting L and the brake N, substantially as described, and for the purpose herein specified.

196,108. MACHINES FOR FEEDING AND DRIVING NAILS. Bror F. Bergh, Milford, Mass. Filed Mar. 17, 1875.

1. The combination of the pieces 9 and 10 and the mechanism for selecting and delivering the nails, substantially as described.

2. The vessel to receive the nails, formed of the two boxes or cylinders 12 and 14, one stationary, the other moving on its axis, and the latter supplied with shelves, all substantially as set forth.

3. The nail-channel, having a shelf at its upper extremity, and triangular in cross-section below the shelf, substantially as and for the purpose specified.

4. The combination, with nail-delivery channels, of the plate 18, provided with the checks *d d'* and pickers *e e'*, adapted, when moving in one direction, to take a nail from one channel, and when moving in the opposite direction to take a nail from the other channel, all substantially as described.

5. The combination of plate 18, bearing the pickers and chucks, with the spring *f*, cam *g*, and ram *h*, as described.

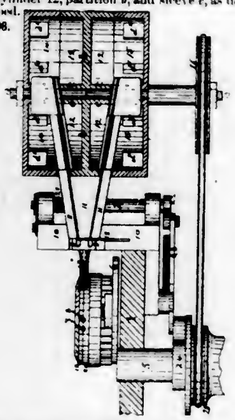
6. The combination of the driver 8, the plates 19 and 20, provided with grooves for forming the nail-channel and the driver-channel, the nail-tube 17, and mechanism, substantially such as is above described, for selecting and delivering the nails at proper intervals into the tube 17.

7. In combination, a plurality of receptacles for receiving the nails in bulk, a plurality of roadways, each opening directly into the nail-tube 17, and each provided with a check and picker, as shown, and a mechanism for throwing into operation either picker, as may be desired, all arranged together and in relation to the driver substantially as specified, so that each nail passes from its roadway under the driver before another is delivered from either of the roadways.

8. The combination of the main shaft 5 of the pegging-machine and the cam 24 and pulley 28 with the connecting-rod 23 and pulley 16 of the attachment above described, in the manner set forth.

9. The combination of shaft 13, boxes 14 and 15, cylinder 12, partition *b*, and sleeve *c*, as described.

196,108.



196,109. STEAM-TRAPS. George W. Blake, New York, N. Y., assignor to the Angell & Blake Manufacturing Company, same place. Filed Apr. 3, 1877.



1. A draw-bar provided not only with the tooth B, the pivoted spring C, and the notched plate *e*, arranged as described, but with the link-chamber *a* open at top and its front end, as set forth.

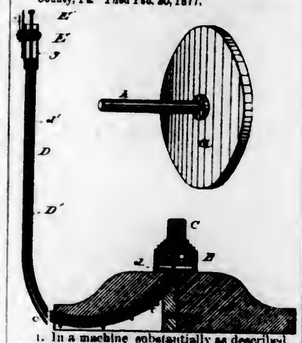
2. A draw-bar provided with the tooth B, spring C, link-discharger F, and the cranked shaft G, and supporting-latch I, arranged, applied, and to operate as specified.

3. A draw-bar provided not only with the two link-chambers *a b* arranged in it, and having holes *f g* through their bottoms, all as described, but also having the tooth B and the spring C, all being substantially and to operate as set forth.

1. The combination, with the duplicate bowed or leaf buckling springs E E and their intermediate bar or holder F, of the case A, having its inlet B constructed and arranged to connect with opposite ends of the trip or chamber thereof containing said springs, substantially as specified.

2. The combination, with the duplicate bowed or leaf buckling springs E E and their intermediate bar or holder F, of the adjusting and supporting screws G G, on which one of said springs rests, and the valve D, having its stem *f* connected with the other of said springs, essentially as described.

196,110. MACHINES FOR INDICATING THE FORCE OF BLOWS. H. J. Blakeslee, Concord Township, Erie County, Pa. Filed Feb. 20, 1877.



1. In a machine substantially as described, a spring-anvil adapted to receive the blows and communicate them to an indicating-gage, substantially as and for the purposes set forth.

2. In a machine for the purpose set forth, the combination, with the anvil, of the bent tube D and spring-rod D' for operating the gage mechanism, substantially as described and shown.

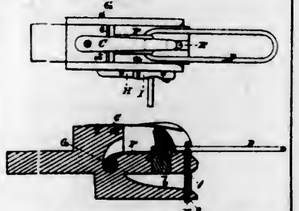
3. The spring B, made from a single piece of steel, and having its ends *b b'* terminating on opposite sides to form bearings for the spring to rest upon, substantially as described and shown.

4. In a machine for the purpose set forth, the removable wheels G G', secured rigidly to arm *h h'*, and set at an inclination in sockets in the base, substantially as described and shown.

5. The combination, with the tube D and rod D', of the rack-rod E', pinion *e'*, and indicating-hand *f*, substantially as described and shown.

6. In a machine for the purpose set forth, the combination, with the base A, mounted upon removable wheels, of the anvil C, spring B, tube D, rod D', and the indicating-gage E, all substantially as described and shown.

196,111. CAR-COUPLINGS. Anson Burbee, Claremont, N. H. Filed Mar. 21, 1877.



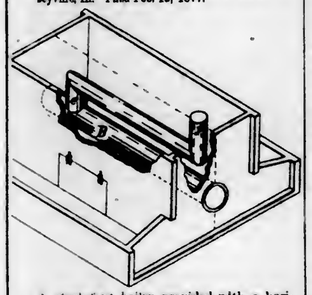
1. A draw-bar provided not only with the tooth B, the pivoted spring C, and the notched plate *e*, arranged as described, but with the link-chamber *a* open at top and its front end, as set forth.

2. A draw-bar provided with the tooth B, spring C, link-discharger F, and the cranked shaft G, and supporting-latch I, arranged, applied, and to operate as specified.

3. A draw-bar provided not only with the two link-chambers *a b* arranged in it, and having holes *f g* through their bottoms, all as described, but also having the tooth B and the spring C, all being substantially and to operate as set forth.

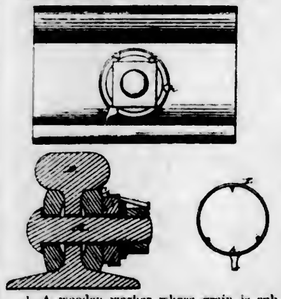
4. A draw-bar provided not only with the two link-chambers *a b* arranged in it, and having holes *f g* through their bottoms, as described, but also having the tooth B, the spring C, and the link-discharger F, arranged with the upper of said chambers, and to operate as explained.

196,112. AGRICULTURAL BOILERS. John Carson, Jeffersville, Ill. Filed Feb. 19, 1877.



A stock-feed boiler provided with a horizontal tubular furnace, B, adapted for firing at both ends, and provided with a vertical outlet for smoke immediately above the fire in the end *m*, these parts being contained wholly within the walls of the boiler, substantially as and for the purpose described.

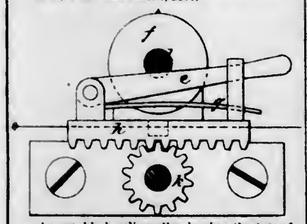
196,113. NUT-LOCK AND WASHER FOR BOLTS. David Cumming, (deceased,) New York, N. Y., Algernon S. Sullivan, administrator. Filed Mar. 26, 1877.



1. A wooden washer whose grain is substantially parallel with the axis of the bolt, in combination with a metal hoop inclosing the perimeter, but not the face, of the washer, and provided with means for securing the washer, substantially as described.

2. A wooden washer whose grain is substantially parallel with the axis of the bolt, in combination with a metal hoop inclosing the perimeter, but not the face, of the washer, and provided with means of securing the washer, and in combination with the stop *k* and nail X, substantially as and for the purpose set forth.

196,114. PARLOR GAME-BOARDS. G. Distler, Cypress Hills, N. Y. Filed Mar. 6, 1877.



A portable bowling-alley having the tube *f*, bolt *d*, the spring *g*, and arm *e*, in combination with the rack *h* and pinion *k*, all constructed and arranged to operate as and for the purpose described.

196,115. DRIVE-CHAINS. William D. Ewart, Chicago, Ill., assignor to Ewart Manufacturing Company, same place. Filed Jan. 15, 1876.



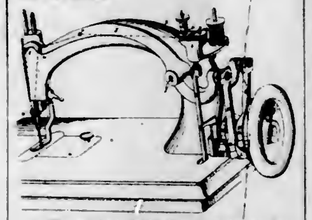
1. A link for drive-chains, having a central opening to receive the sprockets or teeth of the drive-wheels, provided with an open hook cast thereon, and adapted to be coupled to or uncoupled from other centrally-open links without bending the hook, substantially as described.

2. The hook B, provided with ribs *b b*, substantially as and for the purposes set forth.

3. A sprocket-link for drive-chains, constructed with an open hook, B, on one end bar, and a small supplementary strip of soft metal, *c*, attached to the hook, so that it may be bent down across the opening of the latter in coupling links together, substantially as described.

196,116. SEWING-MACHINES. James E. A. Gibbs, Steel's Tavern, Va. Filed July 1, 1876.

Brief.—The tension for the upper portion is in two parts, the one next the needle exerting a less pressure on the thread than the other, and a pull-off (operated by the feed mechanism, so as to be adjusted to length of stitch) acts between them at each stitch. The lower thread-tension is explained in the first clause of claim, this tension being adjustable while the machine is in operation; also, improvements in construction of bobbin-case and bobbin-case holder.



1. The method of obtaining tension on the under or bobbin thread, which consists in passing the same between the bobbin-containing case and an external independent, yielding presser which bears upon or against the bobbin-case, whether the presser acts directly upon the thread itself or upon an intermediate disk or disks, substantially as set forth.

2. The combination, substantially as set forth, of the bobbin-containing case and the tension-producing presser, adjustable while the machine is in operation, for the purpose of regulating the tension.

3. The freely-revolving bobbin and the bobbin-containing case, in combination with an external independent bobbin-case holder, which exerts a yielding and adjustable pressure upon the bobbin-case, both to produce tension on the bobbin-thread and to permit the free passage of the needle-thread over or around the bobbin-case, substantially as set forth.

4. The recessed bobbin-case, and tension washer or disk, fitting said recess, in combination with the external yielding presser, substantially as and for the purposes set forth.

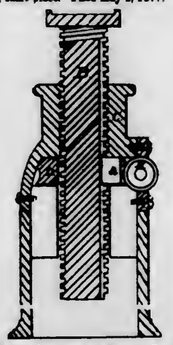
5. The combination, with the tension-producing presser, of the bobbin-containing case, formed with threading-eyes, or their equivalent, for holding in position across the face or side of the case the thread to be subjected to the action of said tension-producing presser.

6. The combination, substantially as set forth, of these elements, viz: the bobbin-case holder, the bobbin-containing case, the thread-guard on said case, the needle and the hook arranged to work on the one side of said guard, and the guide or eye arranged for the passage of the under thread to the goods on the other side of said guard, the combination being and acting substantially as described.

7. A self-holding and self-adjusting bobbin-case holder and carrier pivoted to the body of the machine, and adapted to carry the bobbin and bobbin-case toward and away from the hook and needle, and to any position desired, in order to adjust the bobbin or bobbin thread, substantially as set forth.

8. The two-part tension and intermediate pull-off, in combination with the feed-operating mechanism connected with the pull-off, so that the adjustment of the feed shall cause a corresponding adjustment of the pull-off for the purpose of varying the delivery of thread to correspond with variations in the length of stitch.

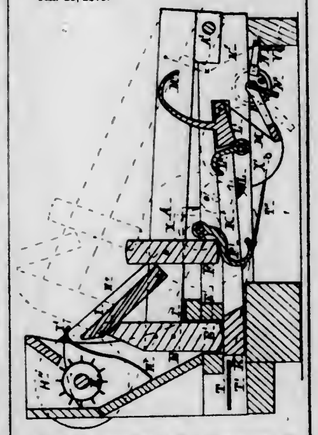
196,117. HOISTING-JACKS. Wm. A. Greenleaf, Indianapolis, Ind., assignor of one-half his right to Ewald Orer, same place. Filed May 1, 1877.



1. In combination with the nut C and grooved screw B, the worm-collar D, furnished with the feather *a*, and operated by means of the worm-screw E, constructed and arranged and operating substantially as set forth.

2. In combination with the nut C, screw B, collar D, worm-screw E, the ratchet-lever G, constructed, arranged, and operating substantially as set forth.

196,118. BRICK-MACHINES. John G. Henderson, H. T. Henderson, and Milton Rhoden, Keokuk, Iowa, assignors to H. T. Henderson and Milton Rhoden. Filed Jan. 23, 1875.



1. The combination of the tilting apron H' or equivalent, with mechanism for operating, and the clay-separating wheel H, acting separately, to form a double drop, substantially as set forth.

2. The combination of the pawl I and the pivoted beater-beam A with the tilting apron H', substantially as set forth.

3. The combination of wheels X X', having arms F I,'' with the beater E and the discharger K, acting together, substantially as set forth.

4. The combination of wheel O, lever N, beam A, and stop V, substantially as and for the purpose set forth.

5. The combination, in a brick-machine, of a clay-separator, the mold F', the beater E, and the pivoted beam A, substantially as set forth.

6. The combination of the beater E with an automatic brick-discharger, constructed and geared to act with it intermittently, substantially as set forth.

7. The combination of the beater E, an automatic brick-discharger, and a driving mechanism constructed to regulate variously the relative numbers of the strokes of the beater and discharger, so as to give different numbers of strokes of beater to the brick, substantially as set forth.

8. The combination of the hammer E, fixed mold E', the sliding bottom K, a clay-feed, and a clay-holder, substantially as set forth.

9. The process of forming a brick by feeding clay into a mold at intervals, compressing it therein by repeated blows from a hammer, and passing it under a cutter to remove the surplus clay, substantially as set forth.

10. The combination of a brick-mold, a beater, and a cutter to remove surplus clay from the brick, with mechanism constructed to operate the beater more than once to each brick, substantially as set forth.

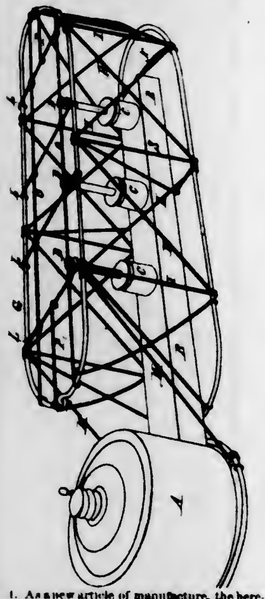
11. The combination of a clay-feeder, a brick-mold, and a beater with mechanism constructed to operate the feeder and beater alternately and then the beater alone more than once to finish the brick, substantially as set forth.

196,119. PACKINGS FOR PISTON-RODS, &c. Elizabeth Holt, Pittsburg, Pa. Filed Apr. 5, 1877.



The packing-ring composed of a series of coils of woven fibrous material and india-rubber, retained permanently in relation to each other by means of a sheet of wire-gauze, having two of its edges folded within the body of the fibrous material, substantially in the manner and for the purpose described.

196,120. LAMP-STOVES. Martin L. Hull, Cleveland, Ohio. Filed Mar. 28, 1877.



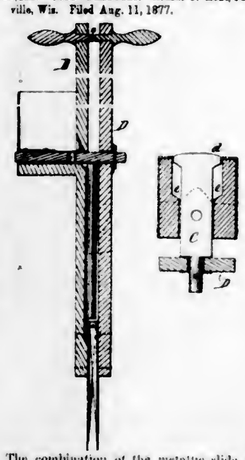
1. As a new article of manufacture, the herein-described open frame-work for lamp-stoves, comprising a support for the cooking utensils, and also one for the main oil or fluid supply reservoir, the latter being attached at one end or side of the former, and the whole made up of round or flat metal, and adapted for use substantially as explained.

2. In combination with an open-work frame of wire or flat metal, comprising a support for the cooking utensils and one for the oil or supply reservoir, the reservoir A, having tube B and burners attached, substantially in the manner shown and described.

3. In combination with the upper and lower rings G F, the standards I I and S, and the cross-braces H H, substantially as described.

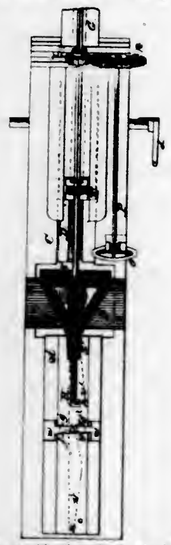
4. In an open frame-work for lamp-stoves, having an upper and lower ring secured together by standards and cross-pieces, as explained, the transverse and longitudinal wires L, T, O, and P, the whole being combined and arranged substantially as set forth.

196,121. CORN-PLANTERS. Arthur O. Kent, Janesville, Wis. Filed Aug. 11, 1877.



The combination of the metallic slide, secured to one of the sides, D, of the planter, and provided with projecting shoulders *d*, and the corn-box, provided with corresponding shoulders *c*, as and for the purpose described.

196,122. MACHINES FOR STUFFING HORSE-COLLARS. Levi H. Kindy, Seville, Ohio. Filed Apr. 13, 1877.



1. The combination of gear-wheel M, pinion N, rack G, and stuffing-rod H, substantially as and for the purpose described.

2. The combination of gear-wheel M, pinion N, rack G, stuffing-rod H, and feeder S, substantially as and for the purpose described.

3. The combination of feeder S with platform provided with notched slot, and collar-block having a central pin, whereby said collar-block can be held in several different fixed positions, to permit all parts of the collar to be stuffed without removing the same from the block, substantially as described.

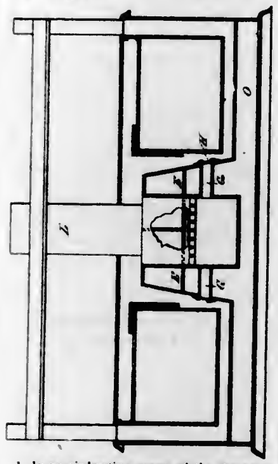
4. In a horse-collar-stuffing machine, the grooved collar-block provided with sliding plates *e e'* and downwardly-projecting pin engaging in the notched slot *f g*, substantially as and for the purpose described.

5. In a horse-collar-stuffing machine, the combination of the stuffing-rod, provided with pinion I, with gear-wheel K, whereby a rotary motion may be imparted to said stuffing-rod.

6. The feeder S, provided with a removable extra bottom, T, in combination with a stuffing-rod provided with a bent or enlarged end, substantially as and for the purpose described.

7. In a horse-collar-stuffing machine, the stuffing-rod H, provided with a bent end, *h*, substantially as and for the purpose described.

196,123. RANGES. John H. Kite, Philadelphia, Pa. Filed Aug. 2, 1877.



1. In an air-heating range of the character herein specified, (single or double oven,) a cold-air flue located beneath the sheet-flue under the oven, said air-flue occupying the entire bottom of the range, and adapted to conduct air from a point beneath the sheet-flue at one end of the oven, and most remote from the fire-pot, and thence to a chamber surrounding said fire-pot, from whence the heated air is carried by a suitable flue to a room or rooms above, substantially as shown and described.

2. In an air-heating range, (single or double oven,) the combination of a sheet-flue surrounding the oven, and adapted to conduct the products of combustion across the top, bottom, and sides thereof, an air-heating flue leading from a point beneath the vertical flue at the end of the oven most remote from the fire-pot to a chamber surrounding said fire-pot, and a single plate forming the division between the air and smoke flues, substantially as and for the purposes set forth.

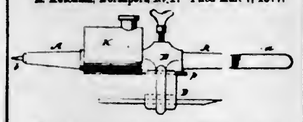
3. The combination of a cold-air flue, O, leading along the entire bottom of the range, and having its inlet at a point most remote from the fire-pot, a hot-air chamber surrounding said fire-pot, and divided into two compartments by means of a plate, E, an air-pipe, L, leading to a room or rooms above, and the sheet-flue, which carries the products of combustion between the air-flue and the oven, for the purposes named.

4. The horizontal dust-flue G, controlled by a damper, H, and leading from the ash-pit B, through the hot-air flue, to the descending smoke-flue located between the oven and said air-flue, as and for the purposes set forth.

196,124. COMPOSITIONS FOR DESTROYING INSECTS. J. M. Madding, Grand View, Ind. Filed May 11, 1876.

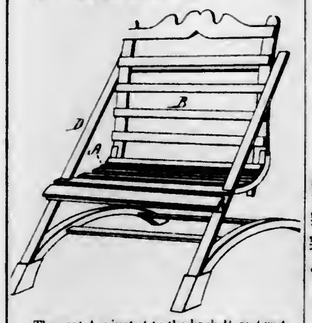
The compound herein described, consisting of tobacco-juice, lime-water, sulphur, copperas, oil, and soda ash, for destroying insects.

196,125. TOOL-HOLDERS. John W. Olmsted and Bunce R. Ketcham, Northport, N. Y. Filed Mar. 7, 1877.



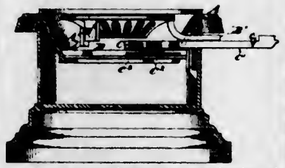
The tool-holder herein described, consisting of the bar A, having a handle, *a*, at one end, and a prong, *b*, at its other end, the cross-frame B, constructed as described, and provided with a movable bar or follower, D, operated by the set-screw E, and the tank K, the said parts being arranged substantially as shown and described, for the purposes set forth.

196,126. SETTEES. Charl Erick Pettersen, Providence, R. I. Filed June 18, 1877.



The seat A, pivoted to the back B, and resting on the inclined springs D D, substantially as described.

196,127. STOVE-GRATES. Daniel W. Smith, Cleveland, Ohio, assignor of one-half his right to Myers, Osborn, & Co., same place. Filed July 28, 1877.



1. In a stove or heater, the combination of an outer ring, B, supported upon a central section, C, said central section arranged in the manner described, to be disengaged from the said outer ring, and when disengaged to be slid in or out, and to throw the bearing of the outer ring upon the adjacent walls of the stove or base section, substantially as described.

2. The combination of the outer ring B, provided with the bearing B', the sliding section C, provided with the arms C', and the stationary independent ways D, substantially as and for the purposes described.

3. The combination of the ring B, with supports B', the sliding section C, with supporting arms C', and the stationary supports A, for sustaining the grate as the central section is being slid out, substantially as and for the purposes described.

4. The combination of the outer ring B, with its arm B', and the sliding section C, with its arm C', the two arranged in the manner described, to be shaken simultaneously by a handle, F, substantially as and for the purposes described.

5. The combination, with the abutting shoulder made in the recessed wall of the stove, of the latch secured above the said shoulder, and adapted, in the manner described, to engage with and automatically lock the lever-arm of the outer grate-section against horizontal movement, substantially as described.

6. The central section C, with its arm C', in combination with the outer ring B and ways D, the construction being essentially as described, so that when the central section is in position to be slid out it shall be disengaged from the outer ring, and slide independently in the ways D, substantially as and for the purposes described.

7. The combination, with the lower grate-section having radially-projecting arms and the supporting cross-bar, of the sliding ways built well out from the inner stove-wall or base-section, and adapted, as described, to allow of the free movement of the said grate-section, substantially as set forth.

8. The combination, with the lower grate-section having the radial arms, and supported upon the central bar, provided with end cross-pieces, of the ways built well out from the inner stove-wall or base-section, and formed with guide-flanges on their respective longitudinal outer sides, the ways being adapted, as described, to give direct sliding bearing to the said end cross-pieces, substantially as set forth.

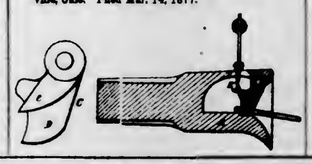
9. The combination of the lever-arms of the two grate-sections with the independent handle, adapted, in the manner described, to engage with the said arms, and automatically release the lever-arm of the upper grate-section from the latch which locks it against horizontal movement, substantially as described.

196,128. COMBINED WIND-WHEEL AND WATER-POWER. Albert Snook, Oswego, Ill. Filed Apr. 7, 1877.



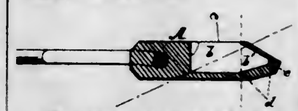
The combination of the windmill B, pump G, having pipes *g g''*, tank H, pipe J, having stop-cock K, water-wheel I, and tanks H M, substantially as described, and for the purpose specified.

196,129. CAR-COUPLINGS. Noah F. Spafford, Strongsville, Ohio. Filed Mar. 14, 1877.



Tongue C, provided with a hook, D, having its rear end curved inwardly, and on each side a curved shoulder, *e*, in combination with the link and head A, substantially as and for the purpose described.

196,130. SOLDERING-IRONS. Russell Burton, Bracoria, Tex. Filed Mar. 21, 1877.

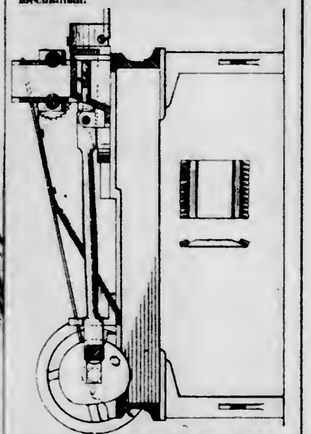


1. The soldering-iron A, made of a single homogeneous piece of metal, having a chamber for the reception and retention of solder, as at *b b'*, said chamber being partly opened and partly covered, and with an increased heating portion of metal, as at *d*, near the capillary discharging-orifice *c*, substantially as and for the purpose described.

2. The hand soldering-iron A, having a plane-faced surface on top and a chamber, *b b'*, below, with imperforate rear and side walls *e e* and *d'*, and communicating with a discharging-orifice, as at *c*, and having an opening into said chamber, through which, by a single act of charging such chamber, a piece of unmelted solder sufficient in size for one full charge of the chamber may be introduced, substantially as described.

196,131. MATCH-SPLINT MACHINES. Henry M. Underwood, Kenosha, Wis., and W. P. Holliday, Detroit, Mich.; said Underwood assignor to said Holliday. Filed Apr. 23, 1877.

Brief.—Match-splints are formed by means of plates having upon each end a series of angular tubular cutters, supported upon a triangular block attached to a triangular bridge-frame, provided with oblique winged guides or supports for the splints, and reciprocating in dovetail guides on the main frame; a feed-box arranged immediately over a series of spirally-grooved feed-rolls, and suitable operating mechanism.



1. A reversible cutter-plate formed from a single piece of steel, having a series of tubular cutters constructed on each end, upon an angular face of the plate, so as to form an elevation in rear of and on a line with the base of the tubes, substantially as shown, for the purposes specified.

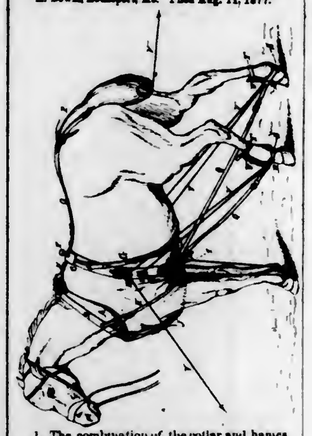
2. The combination of a plate having cutters at an angle to it, and longer than its thickness, with a triangular bridge-frame, and with oblique wings or supports in rear of and in line with the cutters, so as to prevent the curling of the splints.

3. The triangular bridge-frame for carrying two cutter-plates, and for counterbalancing the pressure from the two blocks of wood in the feed-box, constructed substantially as described.

4. The combination of the triangular frame, the reversible tubular cutters, and the feeding mechanism, constructed substantially as described.

THE GRAPHIC CO. N.Y.

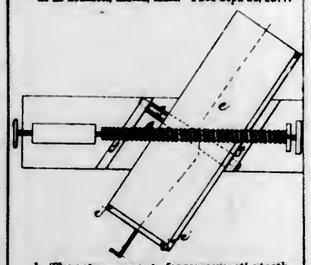
196,132. HARNESS FOR BREAKING HORSES. Charles H. Bowin, Rockport, Me. Filed Aug. 11, 1877.



1. The combination of the collar and hames A B, the adjustable girth C, provided with the handle F, the stirrup-straps G, the pulleys D E, and the strap K, the hame-tugs H, the cross-bar I, provided with the roller L M, the two connecting-straps J N, the crupper-strap O P, and the sliding strap Q, having the short straps S T U connected with each end, substantially as herein shown and described.

2. The combination of the ropes V with the pulleys D E attached to the girth C, and with the sliding strap Q, and its short straps S T U, substantially as herein shown and described.

196,133. APPARATUS FOR REMOVING CARD-TEETH. A. A. Brackett, Milton, Mass. Filed Sept. 26, 1877.

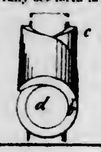


1. The rotary comb A, for removing the teeth of card-clothing, herein shown and described, provided with teeth *a*, which, on a line parallel with the axis of the comb, are arranged to correspond or register with the rows of wire staples forming the teeth of the card-clothing, substantially as described.

2. In combination with the rotary comb A, constructed as described, the slide *e*, for supporting the card-clothing, the guides *f f*, and the friction-roller *g*, said guides and roller being diagonal to the axis of the comb, and located on a stationary bed under the same, substantially as set forth.

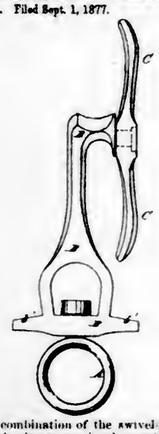
196,134. LOOM-PICKERS. Jas. Brunsand, Hyde Park, Mass., and Thomas Hampson, Wigan, Great Britain, assignors of one-third their right to John D. Sherman, Hyde Park, Mass. Filed Mar. 29, 1877.

Brief.—The blow of the picker against the shuttle tends to spread the plug and more firmly bind together the several parts. The construction is fully set forth in the claim.



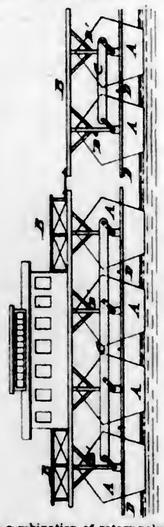
The herein-described picker, consisting of the core or plug *d*, in combination with the band or strap *b c*, twisted as described, whereby the picker is provided with vertical and horizontal loops, as and for the purpose specified.

196,135. BUTTON-SWIVELS. Norman Brooks, Clifton, Kans. Filed Sept. 1, 1877.



The combination of the swiveled ring A, the hook B, having a cross-head or projecting arms, *b'*, formed upon the end of its shank, and the pivoted button C, with each other, substantially as herein shown and described.

196,136. BUOYANT PROPELLING-WHEELS FOR VESSELS. Laurence Brown, Chatham, New Brunswick, Canada. Filed July 30, 1877.

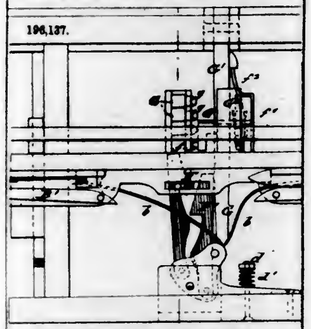


The combination of rotary polygonal drums A, connected by cranks and crank-rods, the superstructure B, standards B', and laterals D, as and for the purpose specified.

196,137. HAND-LOOMS. Wesley F. Clements and Jas. H. Cagle, Davidson River, N. C. Filed May 21, 1877.

Brief.—The heddle-jacks and the pattern-block are placed at right angles to the batten, thereby permitting the use of a single treadle. The hook-piece connected to the treadle is provided with a shoulder, for engaging with the steps of the different heddle-jacks, and with a hook or finger that runs in the groove of the pattern or guide block. A guide-rod carries the hook-piece back to the starting-point, and a spring throws it into engagement with the pattern-grooves. The "wag-staff," which throws the pickers, is provided with slides or hooks having cam-shaped edges, that are operated by an oscillating finger on the batten. The wag-staff is pivoted in a spring-box, to check the backward motion of the lay.

196,137.



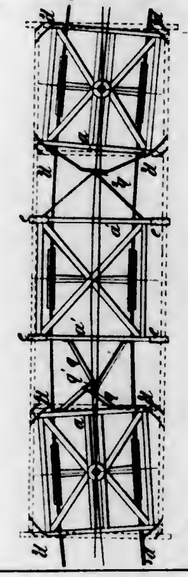
1. The combination of the shuttle-boxes, sliding picker-blocks, connecting-cords, oscillating or wag staff, and slides or hooks, having cam-shaped edges, with the central oscillating finger of the batten, substantially in the manner described, and for the purpose specified.

2. The combination of the oscillating staff and slides or hooks, having cam-shaped edges, with the recessed and spring-cushioned supporting-box, substantially as described.

3. The combination, in a hand-loom, of the heddle-jacks G and guide-block G^3, placed at right angles to the batten, and operated by a single treadle, G^1, and suitably-operating mechanism, as and for the purpose set forth.

4. The combination of spring-acted treadle G^1, pivoted and laterally-swinging hook-piece G^2, grooved guide-piece G^3, having grooved end spring *f* and guide *f'*, and heddle-jacks G, having steps *g*, to work the heddles successively by one treadle, substantially as described, and for the purpose specified.

196,138. RAILWAY-TRUCKS. James Cleminson, Westminster, England. Filed July 3, 1877.

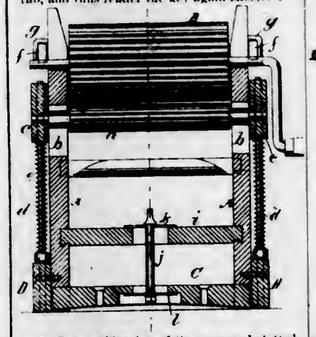


1. The combination, in a railway or tramway carriage, of a pivotal axle-frame, *a*, an axle-frame, *a'*, capable of moving bodily sidewise, to adjust itself into position relatively to the frame *a* in passing around a curve, and independent brackets *g*, extending from said axle-frames *a a'*, and connected with each other at a point nearer to the center of the pivotal axle-frame *a* than to the center of the axle-frame *a'*, substantially as set forth, whereby adequate radiation of the pivoted axle-frame *a* in passing over a curve is provided for.

2. The combination, in a railway or tramway carriage, of a pivotal axle-frame, *a*, an axle-frame, *a'*, capable of moving bodily sidewise, and rigid and independent brackets *g*, extending from said axle-frames, and connected by an intermediate link, *g'*, substantially as set forth, whereby play between the axle-frames *a a'* is provided for, and ruptures and breakages incident to a too rigid connection are avoided.

196,139. WASHING-MACHINES. Aaron M. Cornelius, Oregon City, Oreg. Filed May 21, 1877.

Brief.—The washing-machine is held in place in the tub by means of a slotted bar, screwed to the bottom of the tub, over which bar the standards of the machine fit, and another slotted bar rigidly secured to the standards, and a connecting key with T-shaped head, adapted to be slipped through the slots in the bars and then turned sidewise, locking the parts securely together. The lower bar is concave on its under side, and only touches the tub at its ends beneath the standards, and when the key-connection becomes loose through wear this bar can be screwed down nearer the bottom of the tub, and thus render the key again effective.

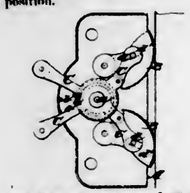


1. The combination of the concaved slotted fastening-piece C, having the plate *l*, the key *j*, and the slotted cross-bar *i* of a washing-machine, substantially as herein shown and described.

2. The supports A, notched at their lower ends and provided with the openings *b*, staples *g*, and slots for receiving the shaft of the roller B, the cross-bars H, spring-followers *c*, rollers *a* B, and key *f*, in combination, substantially as herein shown and described.

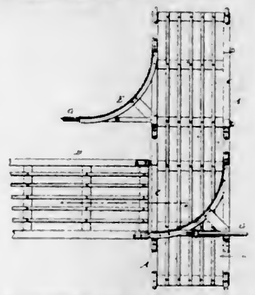
196,140. SABER-HOLDERS. Zelotes Curtis, Janesville, Wis. Filed Aug. 3, 1877.

Brief.—A complex arrangement of slotted and spring-acted bell-crank levers turning on a common pivot operate pivoted and serrated cams, all within a shell or case, and adapted to hold the sash, by frictional pressure, in desired position.



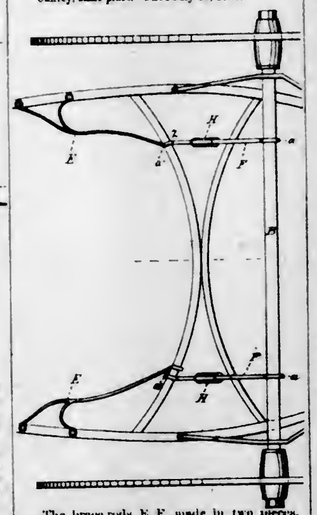
A sash-fastener constructed of symmetrically-pivoted eccentric-cams having toothed circumferences, and of two spring-acted bell-crank levers that turn on a common pivot, the inner ends of the bell-crank levers engaging the cams, substantially in the manner set forth.

196,141. ADJUSTABLE SWITCHES FOR ICE-RUNS. H. F. Dernell, Athens, N. Y. Filed Sept. 22, 1877.



In combination with the inclined ice run or chute A, the inclined lateral chutes D and hinged switches E, with or without poles G, substantially as specified.

196,142. TROTTING-SULKIES. Wm. J. Donley, Camden, N. J., assignor of one-half his right to Charles S. Caffrey, same place. Filed July 31, 1877.



The brace-rods E F, made in two pieces, connected together by means of coupling-nuts H, in combination with the axle B and cross-bar G, for regulating the gather of the wheels, substantially as set forth.

196,143. ROAD-SCRAPERS. Jas. H. Edmondson, Valparaiso, Ind. Filed Aug. 24, 1877.

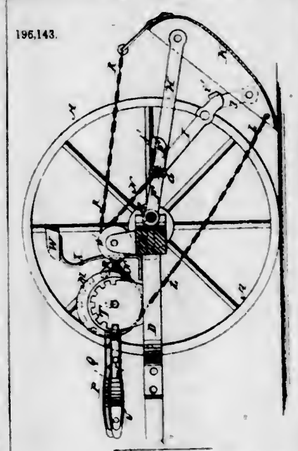
1. The shaft E, provided with the arms F, having hooks *f'* upon their outer ends, the shaft G, the bars I, having hooks *i'* upon their lower ends, and the bars H J, in combination with the axle B and the scraper K, substantially as herein shown and described.

2. The combination of the branched chain L and the double pulley M, and its lever and spring-catch P Q, with the scraper K, and its shafts, arms, and bars E G F H I J, and the axle B, substantially as herein shown and described.

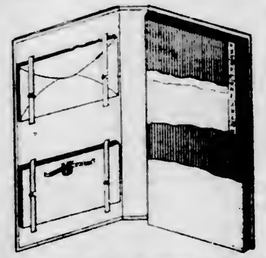
3. The combination of the chain N, guide-pulley O, and double pulley M, and its lever and spring-catch P Q, with the axle B, with the shaft G, and with the shaft E, arms F, bars H I J, and scraper K, substantially as herein shown and described.

4. The combination of the chain R, the guide-pulley S, and the pulley, lever, and spring-lever catch T U V, with the scraper K and the shafts, arms, and bars E G F H I J, substantially as herein shown and described.

196,143.



196,144. MANIFOLD COPYING-BOOKS. Wm. H. Elbe and William McDonald, Brooklyn, N. Y. Filed Sept. 1, 1877.



The combination of an oil-proof half-cover with an index, forming a part of a manifold copying-book, substantially as shown and described.

196,145. CANDLESTICKS. J. Failing, Umatilla, Oreg. Filed May 28, 1877.

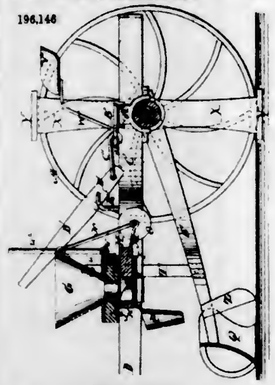


A candlestick made of a split cylindrical socket part, with encircling spring below the top rim, and with an interior spring-follower, to force the candle upward when burned down to the rim, substantially in the manner and for the purpose set forth.

196,146. CORN-PLANTERS. Alfred F. Hammond, Berlin, (Loramie's P. O.,) Ohio. Filed May 12, 1877.

In a combined planter and marker, the combination of the transporting-wheels A A and hoppers G, the revolving bars N, carrying the broad flat feet Y, the friction-wheels O, the pivoted suspending-rods X, bars M, the pivoted levers K, and dropping-slides arranged beneath the apertured bar F, said feet projecting across the periphery of the wheels, which are in alignment with the hoppers and friction-wheels, all as shown and described, to operate as and for the purpose specified.

196,146



196,147. MANUFACTURE OF FLOOR-CLOTH FROM RUBBER. John H. Hayward, Jersey City, N. J. Filed May 15, 1877.

1. The hereinbefore described process of first manufacturing or preparing sheet-rubber so that its surface will be free from foreign substances and ready to receive and retain paint, and then painting or stamping it with a suitable article of paint, substantially in the manner and for the purposes set forth.

2. As a new article of manufacture, a floor-cloth, or covering for other purposes, composed of vulcanized sheet-rubber so manufactured or prepared that its surface is free from earthy or other foreign deleterious substances, and painted or stamped with a suitable article of paint, in the manner and for the purpose substantially as set forth.

3. In the manufacture of sheet-rubber to be used for floor-cloth, the interposition of a fine wire gauze or cloth between the plastic rubber and the calender-rollers during the process of rolling it into sheets, in the manner and for the purposes set forth.

196,148. MINERAL LAMP-WICK. Charles F. A. Hinrichs, Brooklyn, N. Y. Filed June 26, 1877.

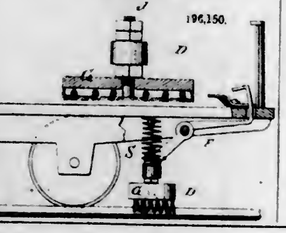
The improved mineral wick consisting of grains of porous material united by plaster, as set forth.

196,149. CALICO-PRINTING ROLLERS. John Mope, Providence, R. I. Filed Jan. 30, 1877.



A hollow mandrel for calico-printing rolls, consisting, essentially, of a slightly-tapering tube, the ends of which are secured to collars permanently fastened to the mandrel-shaft, substantially as described.

196,150.

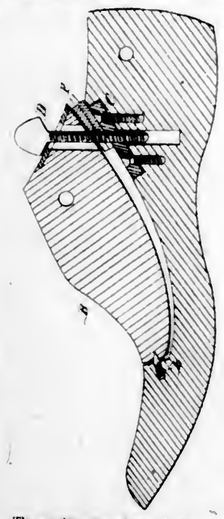


196,150. RAIL-CLEANERS FOR CARS. Geo. Isaacs and Samuel Isaacs, New York, N. Y. Filed Aug. 11, 1877.

1. The lever F, arranged as shown, in combination with the turn-button *b*, track-cleaning brushes D D, and springs S, substantially as and for the purposes described.

2. Brushes D D, having metal backs and cases therefor, in combination with the square-headed bolts J, lever F, and springs S, as shown and described.

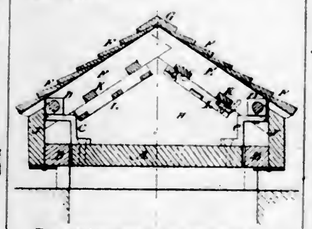
196,151. LASTS. Joseph R. Jacques, Hancock, Mich. Filed Aug. 24, 1877.



The combination of nut C, thumb-screw D, and one or more wedges, F, to render adjustable the rear end of instep-block B, as shown and described.

196,152. ROOF AND STOCK-PEN FOR PLATFORM-SCALES. Adam E. Karsner, Florida, Ohio. Filed Sept. 10, 1877.

Brief.—The object of this invention is to cover a platform-scales, and protect it from the weather, and arranged to secure stock when being weighed.



The combination of the brackets C, the pivot-bars D, the hinged parts E F of the roof, the triangular doors H, the sideboards J, and the gates L with each other, and with the platform A of a platform-scales, substantially as herein shown and described.

196,153.

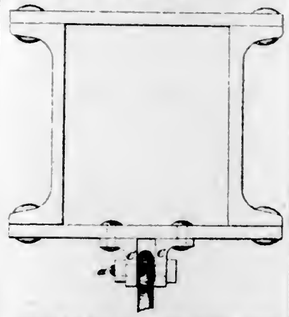


196,153. SASH-HOLDERS. D. F. Keefe, Glens Falls, N. Y. Filed Sept. 14, 1877.

Brief.—A slight degree of novelty in the combination of old devices, the case being skeletonized and screw-threaded, to adapt it for ready insertion.

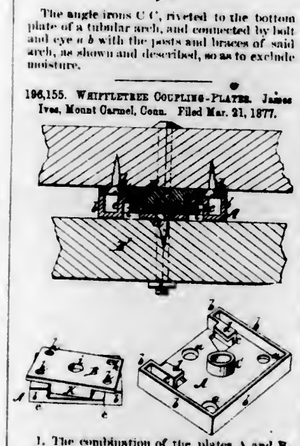
The screw-threaded and slotted plug or case C, having combined with it the bearing-frame D, in combination with the stud *e* and helical spring S, substantially in the manner and for the purpose described.

196,154. TUBULAR BRIDGES. George E. King, Des Moines, Iowa. Filed Aug. 3, 1877.



The angle-irons C C, riveted to the bottom plate of a tubular arch, and connected by bolt and eye *a b* with the posts and braces of said arch, as shown and described, so as to exclude moisture.

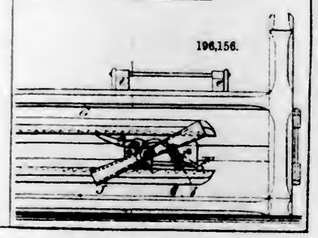
196,155. WHIFFLETREE COUPLING-PLATES. James Ives, Mount Carmel, Conn. Filed Mar. 21, 1877.



1. The combination of the plates A and B, the plate A being constructed with the rim-stops *c*, lips *d d*, and central hollow arbor C, and the plate B with semicircular flange *j*, lug K, and lips *l l*, substantially as and for the purpose described.

2. The combination of the plate B, having lug K and plate L, provided with lips *l l*, with the plate A, having shoulders *e e* and lips *d*, whereby the plates are capable of being united by a horizontal movement, and when united have a limited vibration in right and left directions, and are prevented from an upward movement, all as and for the purposes set forth.

196,156.



196,158. BALING-PRESSES. Hilamon B. Laird, San Luis Obispo, Cal., assignor of a part of his right to Lazare Landeker, same place. Filed Aug. 24, 1877.

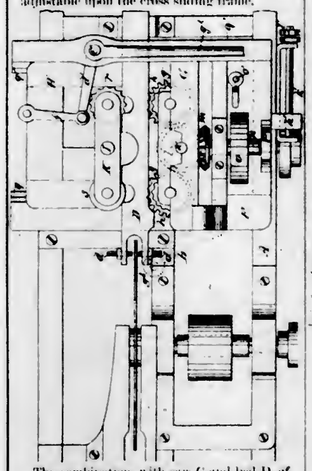
Brief.—The upper and lower pawls alternately engage the ratchet-bars.

1. The combination, in a baling-press, of the follower-head F, shaft H, carrying the heads I, the pawls *a*, lever-sockets J, and ratchet-bars G, substantially as shown and described.

2. The combination of the stop K with the shaft H, as and for the purpose specified.

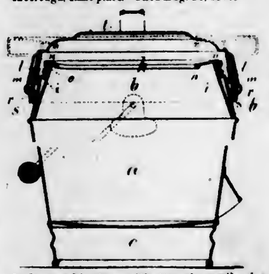
196,157. RESAWING-MACHINES. John Lamb, Ottawa, Ontario, Canada. Filed Aug. 3, 1877.

Brief.—The lumber is fed to the saw by means of two fluted rolls, journaled in a cross sliding frame, and two rolls mounted on a pivoted frame arranged upon a frame laterally adjustable upon the cross sliding frame.



The combination, with saw C and bed D, of the rolls g^1 g^2, fluted and journaled in a cross sliding frame, F, and the rolls *r s*, arranged in a frame, K, the latter turning on a pivot, I, and in a sliding frame, H, as and for the purpose specified.

196,158. ODORLESS COMMODES. Timothy W. McKeever, New York, N. Y., assignor to Benhame & Stoutenborough, same place. Filed Aug. 10, 1877.



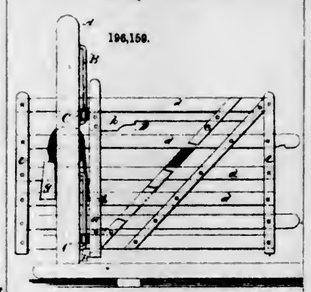
1. In combination with the slop-pail *a b c*, the India-rubber packing *s* between the rims *m n*, and resting upon the conical portion *b* of the pail, to form a tight joint, substantially as set forth.

2. The slop-pail *a b c*, made with the inward flange *f*, rim *o*, and movable seat *b*, in combination with the cover *t*, having an elastic edge, *s*, that rests upon the conical portion *b* of the pail, substantially as and for the purpose set forth.

196,159. GATES. Malcom J. McPherson, West Campbell, Mich. Filed Aug. 24, 1877.

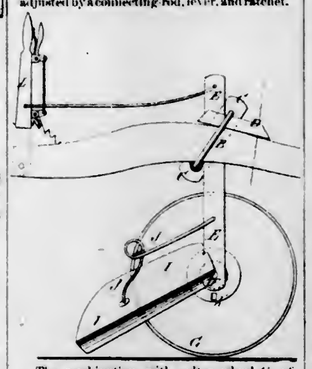
The combination, with post A and gate *d e*, of the support *a b c*, having eyes C, that work on rods B, and connected with a weight, *a*, by a rope passing over the post-pulley F, as shown and described.

196,160.



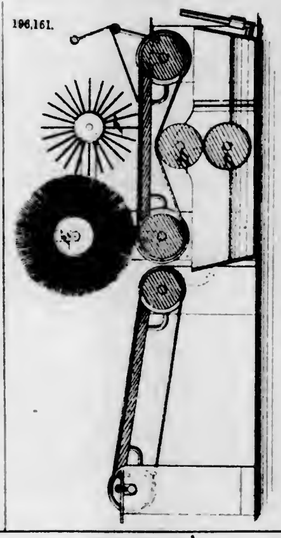
196,160. ROTARY CUTTER AND SHIELD FOR PLOWS. William H. Mellen, Fern Valley, Iowa. Filed July 13, 1877.

Brief.—The angular weed-turning plate is attached to the standard of the rolling coulter, and held in an angular position in front of the mold-board by a spring. The pitch of both is adjusted by a connecting-rod, lever, and ratchet.



The combination, with coulter wheel G, of the bent plate I, pivoted in front to standard E, and provided with spring *d* to press its rear, as all constructed, arranged, and operating together as and for the purpose specified.

196,161.

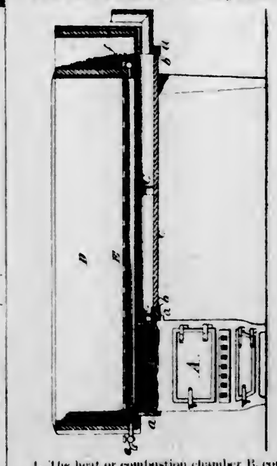


196,161. MACHINES FOR GUMMING LABELS. Lazarus Morrocthan, New York, N. Y. Filed Aug. 18, 1877.

1. A machine for gumming labels and other articles, consisting, essentially, of a revolving feed-belt, a revolving supply-belt, a reservoir for the adhesive substance, and device for distributing the same on the supply-belt, and of a pressure-brush above the supply-belt, substantially in the manner and for the purpose specified.

2. The combination, with the revolving supply-belt and pressure-brush, of a guard-brush, its surface at the point of contact moving in opposite direction to the pressure-brush, to prevent the labels from lapping on the pressure-brush, substantially as and for the purpose specified.

196,162. APPARATUS FOR STEAMING FOOD FOR STOCK. A. Newkirk, Cleveland, Ohio. Filed Aug. 22, 1877.

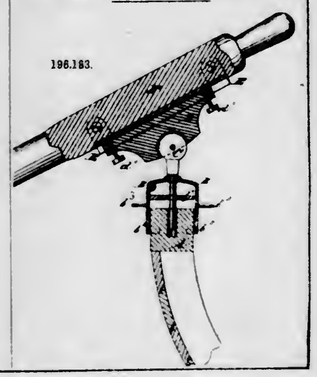


1. The heat or combustion chamber B, composed of the grooved metallic frame *a*, with bottom *c* fitted in said grooves *b*, and the strengthening-bars C C, in combination with a stove, A, to which it is removably attached, and the steaming-box D, substantially as described.

2. The steaming-box D in an apparatus for steaming food, provided with a perforated false bottom, E, a water-reservoir, *f*, a pipe or cock for connecting the steam-generating space beneath the false bottom and the reservoir, and the gage-cock *e*, in combination with a stove, A, and a heat or combustion chamber, B, substantially as described.

3. The steaming-box D, having the metal corner-pieces F, for securing the walls of said box, and adapted to fit over and in combination with the frame *a* of the heat or combustion chamber B, substantially as and for the purpose specified.

196,163.



196,163. ADJUSTABLE ROWLOCKS. Wm. B. Padgett, Batesville, Ark. Filed Sept. 12, 1877.

The combination of the hinged U-plate B, provided with the flange *b'* and the pins *b''*, the pivot-pin C, the block D, provided with the dovetailed tongue and the set-screws *d'*, and the plate E, provided with a dovetailed groove, with each other, for connecting an oar with the side of a boat, substantially as herein shown and described.

196,164. KNIFE AND BUTTER-EXTRACTOR. Joseph N. Parker, Augusta, Me. Filed Aug. 2, 1877.

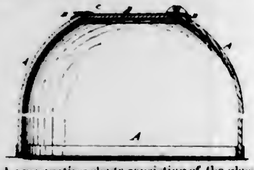


1. A knife and extractor composed of the handle C and blade D, in combination with, and connected to, the handle C' and blade D' by the detachable joint A *x* and B *x*, or its equivalent, substantially as and for the purposes set forth and described.

2. The combination of the blades D and D' with the handles C and C', cut out as shown at *a a a a*, and connected by the detachable joint A *x* B *x*, or its equivalent, as shown and described.

3. A knife and extractor, constructed with two blades with handles thereto, connected by a detachable joint, as set forth and described.

196,165. VENTILATING GLASS SHADES AND COVERS FOR PLANTS. Semeo J. Pardessus, New York, N. Y. Filed June 4, 1877.



A propagating shade consisting of the glass body A and glass plate D, together with the hinged rims B C, as and for the purpose specified.

196,166. DRAWING-PENS. Bethune Perry, Alcalon, Cal. Filed Aug. 3, 1877.

An improved drawing-pen, consisting of the stem A, the spindle B, the sleeve C, the concaved and notched disks D E, the spring G, and the nuts F H, substantially as herein shown and described.

196,167. BRUSHES. Jas. P. Poland, Arlington, Mass. Filed Sept. 5, 1877.

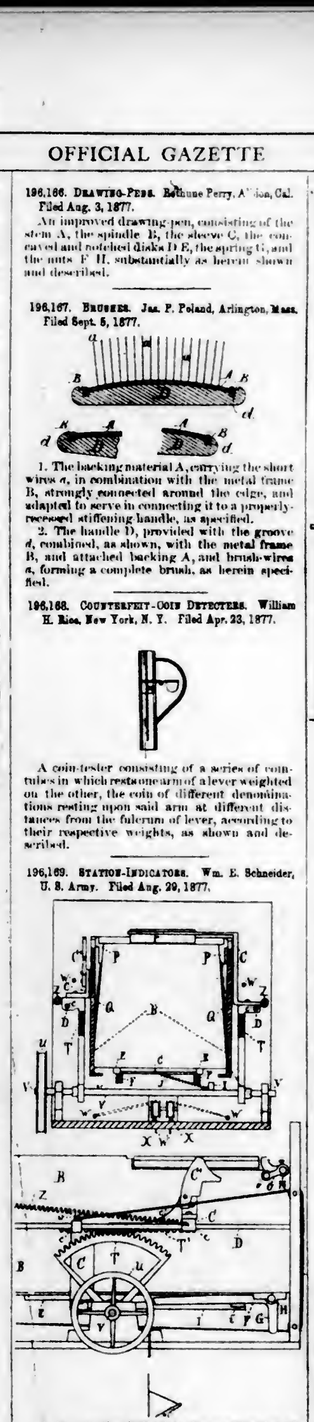
1. The backing material A, carrying the short wires *a*, in combination with the metal frame B, strongly connected around the edge, and adapted to serve in connecting it to a properly-recessed stiffening handle, as specified.

2. The handle D, provided with the groove *d*, combined, as shown, with the metal frame B, and attached backing A, and brush-wires *a*, forming a complete brush, as herein specified.

196,168. COUNTERFEIT-COIN DETECTERS. William H. Rice, New York, N. Y. Filed Apr. 23, 1877.

A coin-tester consisting of a series of coin-tubes in which rests one arm of a lever weighted on the other, the coin of different denominations resting upon said arm at different distances from the fulcrum of lever, according to their respective weights, as shown and described.

196,169. STATION-INDICATORS. Wm. E. Schneider, U. S. Army. Filed Aug. 29, 1877.



1. In a station-indicator, the combination of the sliding carriage C having movable lug O with the shaft N having crank O, for the purpose of operating the arms L L, substantially as herein shown and described.

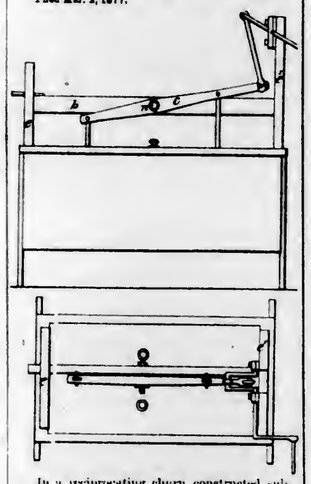
2. In a station-indicator, the combination of the sliding frame C and the arm I having hook *i* with the shaft H having short projecting arms G, for the purpose of operating the arms F F, substantially as herein shown and described.

3. In a station-indicator constructed substantially as herein shown and described, the combination of the toothed segment T, rack-bar T', and sliding frame C, for the purpose of operating the indicator in the manner specified.

4. In a station-indicator, the cross-arm R arranged as shown, and operated by the sliding-frame C, for the purpose of withdrawing the indicator-cards into their receptacle, substantially as specified.

5. In a station-indicator, the ledges P P mounted on spring-standards Q Q, for the purpose of receiving the indicator cards from the arms L L, substantially as herein shown and described.

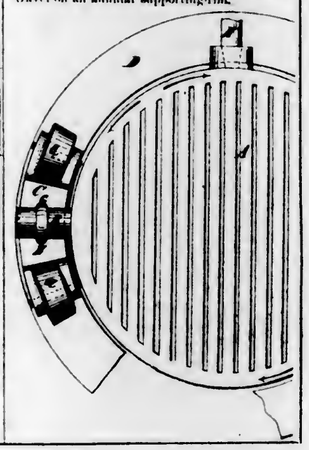
196,170. CHURNS. David H. Vedder, Ulcers, N. Y. Filed Mar. 2, 1877.



In a reciprocating churn constructed substantially as herein described, the two end extension-boards *c c'*, each constituting a support for the removable bar *b*, to which the walking beam is pivoted, one of the said boards, *c'*, also constituting a support for the crank-shaft arranged to operate the walking-beam at its longer end, all constructed as herein shown and specified.

196,171. GRATES FOR FURNACES, STOVES, &c. W. H. Warner, Brooklyn, N. Y. Filed July 16, 1877.

Brief.—The grate is secured, in trunnion-bearings, to arc-shaped carriages, situated outside of the circumference of the grate, which travel on an annular supporting-rim.



1. The combination, with a grate capable of movement to and fro in a horizontal plane, of carriages arranged at opposite points entirely outside or beyond the circumference of the grate, substantially as and for the purpose set forth.

2. The combination, with a grate capable of being rocked or tilted out of a horizontal plane, of collars or bosses on its trunnions and grooves or recesses in the bearings or supports for the trunnions, substantially as set forth, whereby the grate is precluded from contact with its supports.

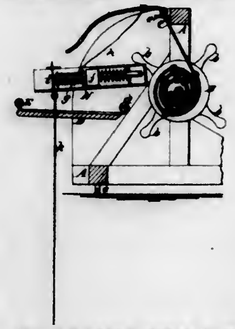
3. The combination, with a grate and its supports, of carriages for traveling on the said supports, and provided with bearings for trunnions extending from the grate, substantially as and for the purpose set forth.

4. The combination, with a grate, its supports, and carriages for the grate, provided with bearings receiving the trunnions of the grate, of collars or bosses on the trunnions and grooves or recesses in the carriages, receiving the collars or bosses, substantially as set forth, whereby the grate is precluded from contact with its carriages and the carriages with any object which could impede their action.

5. The combination, with a grate, carriages therefor, and a path or track for said carriages, of wheels or rollers in the latter inclined toward the direction of their travel.

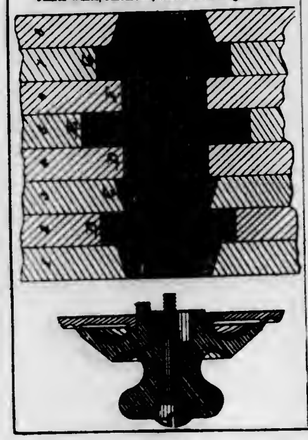
6. The combination, with a grate and carriages therefor traveling on suitable supports, of wheels or rollers for said carriages, tapering conically in the direction of their axes, substantially as and for the purpose set forth.

196,172. FIRE-ESCAPES. Henry K. Warner and Zimri Warner, Lake City, Minn. Filed June 18, 1877.



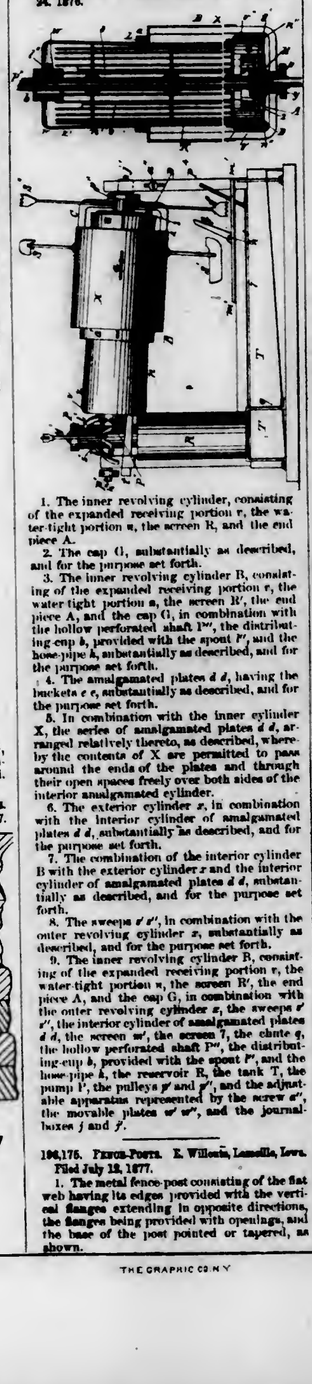
The reel B, ladder C, platform D, catch G, cord E, chute F, spool K, and cord L, in combination, substantially as shown and described.

196,173. SPINDLES FOR SAFE AND VAULT DOORS. James White, Cincinnati, Ohio. Filed Aug. 15, 1877.



An arbor or spindle composed of a series of plates secured one to another, and inserted in the wall or door of a safe, vault, or other receptacle for valuables, substantially as shown and described.

196,174. ORE WASHING AND AMALGAMATING MACHINES. John H. Wilhelm, Denver, Colo. Filed Oct. 24, 1876.



1. The inner revolving cylinder, consisting of the expanded receiving portion *v*, the water-tight portion *u*, the screen R, and the end piece A.

2. The cap G, substantially as described, and for the purpose set forth.

3. The inner revolving cylinder B, consisting of the expanded receiving portion *v*, the water-tight portion *u*, the screen R', the end piece A, and the cap G, in combination with the hollow perforated shaft P'', the distributing-cup *b*, provided with the spout P', and the hose-pipe *h*, substantially as described, and for the purpose set forth.

4. The amalgamated plates *d d*, having the buckets *c c*, substantially as described, and for the purpose set forth.

5. In combination with the inner cylinder X, the series of amalgamated plates *d d*, arranged relatively thereto, as described, whereby the contents of X are permitted to pass around the ends of the plates and through their open spaces freely over both sides of the interior amalgamated cylinder.

6. The exterior cylinder *x*, in combination with the interior cylinder of amalgamated plates *d d*, substantially as described, and for the purpose set forth.

7. The combination of the interior cylinder B with the exterior cylinder *x* and the interior cylinder of amalgamated plates *d d*, substantially as described, and for the purpose set forth.

8. The sweeps *s' s''*, in combination with the outer revolving cylinder *x*, substantially as described, and for the purpose set forth.

9. The inner revolving cylinder B, consisting of the expanded receiving portion *v*, the water-tight portion *u*, the screen R', the end piece A, and the cap G, in combination with the outer revolving cylinder *x*, the sweeps *s' s''*, the interior cylinder of amalgamated plates *d d*, the screen *w'*, the screen T, the chute *q*, the hollow perforated shaft P'', the distributing-cup *b*, provided with the spout P', and the hose-pipe *h*, the reservoir R, the tank T, the pump P, the pulleys *p'* and *p''*, and the adjustable apparatus represented by the screw *s''*, the movable plates *w' w''*, and the journal-boxes *j* and *j'*.

196,175. FENCE-POSTS. E. Willcutt, Lansdale, Iowa. Filed July 12, 1877.

1. The metal fence-post consisting of the flat web having its edges provided with the vertical flanges extending in opposite directions, the flanges being provided with openings, and the base of the post pointed or tapered, as shown.

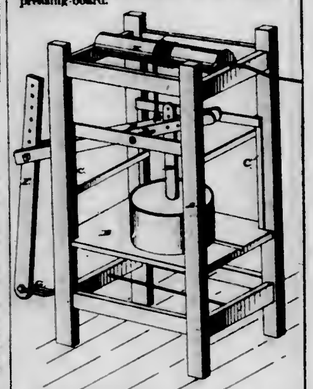
2. The metallic post having the two flanges or wings, *c*, each provided with the mortises *c* and the intermediate recesses *c d*, as shown and described, and for the purposes set forth.

196,175.



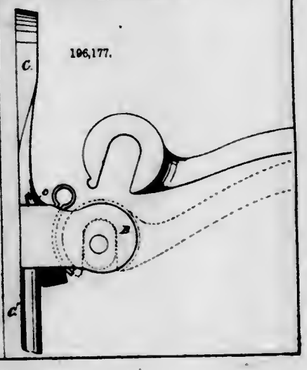
196,176. CHEESE-PRESSES. William H. Ahrens, San Luis Obispo, Cal. Filed Aug. 4, 1877.

Brief.—The weight of the article to be pressed and the movable frame within the standards serve to do the pressing without additional weights. The platen or movable frame is suspended from a lever, which has its outer end pivoted to an adjustable support, and from its inner end a bar extends down to rest upon the pressing-board.



The combination of the movable platen and frame B C, adjustable and pivoted lever E, rod D, bar H, and adjustable support F, the several parts relatively arranged to each other and the frame A, substantially as and for the purpose described.

196,177.



196,177. THILL-COUPLING. John W. Anderson, New York, N. Y. Filed Aug. 18, 1877.

1. The hooked or open slotted thill-iron, having a notch or lip upon its rear face, combined with the clip having ears and a stationary pivot-pin, and with a rubber block and a detent whose lower end will engage said lip and prevent accidental detachment of the thill-iron, substantially as described, and for the purpose set forth.

2. The combination, with ears B B, of the eccentrically-located pivot-pin, the oblong tumbler or cam embracing the latter, the hook-shaped thill-iron provided with a notch or lip, and the detent and rubber block, as shown and described.

3. The clip C C', formed in one piece with the ears, and having a lip, *e*, located just above the edge of the ears, in combination with the detent, for the purpose described.

196,178. PROCESSES FOR SEPARATING STONES, &c., FROM GRAIN, &c. John Arbuckle, Brooklyn, N. Y. Filed Apr. 4, 1877.

The within described process of separating stones or other like impurities from grain, corn, coffee, or other similar materials, by heating said materials and dumping the kernels or beans while hot into a tank containing water, whereby the stones or other like impurities are caused to sink down, while the kernels or beans can be skimmed off from the surface of the water, substantially as set forth.

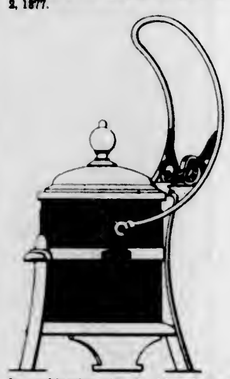
196,179. PEGS OR FASTENINGS FOR BOOTS AND SHOES. B. Ashworth, Somerville, Mass. Filed Sept. 1, 1877.



1. A peg or fastening for uniting two or more thicknesses of leather, cut from a strip of sheet metal, sharpened at its entering end and bent into form, with a slot extending its entire length, and of uniform size throughout, all substantially as shown and described, for the purpose set forth.

2. A peg or fastening for uniting two or more thicknesses of leather, cut from a strip of sheet metal, having edges bent inwardly, leaving a slot its entire length, and of uniform size from end to end, so that when driven a portion of the stock will be inclosed within the tubular or hollow fastening, as set forth.

196,180. COVERED ARTICLES OF PLATED WARE. S. William Babbitt, West Meriden, Conn., assignor to Wilcox Silver Plate Company, same place. Filed Oct. 2, 1877.

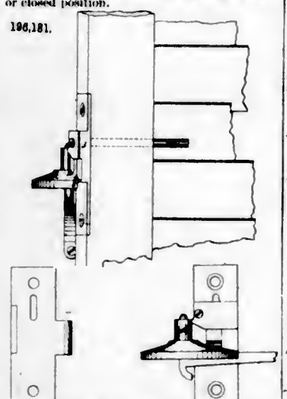


In combination with the hinged cover, the bail-shaped handle, hinged below and extending above the cover, and the connection between the cover and the said handle, whereby the said handle may be used as a bail in carrying the article, and also as a means for opening the cover, substantially as specified.

196,181. LOCK-HINGE FOR WINDOW-BLINDS. Daniel W. Beal, Rockland, Mass. Filed Aug. 7, 1877.

Brief.—A suitable shank driven into the wall carries an upwardly-projecting pintle, and the socket-plate attached to the blind has its under side grooved and shouldered. There is also a weighted holding device and a suitable lifting-lever, the holding-plate being adapted to fit over and engage a portion of the pintle-shank, thus holding the blind either in open or closed position.

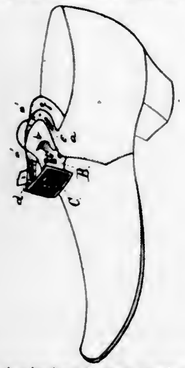
196,181.



1. The combination, with the pintle and its shank, of the socket-plate to be attached to the blind, and a holding-plate adapted to engage the shank and hold the blind open or closed.

2. The locking-plate, provided at its under side with the groove *x* and shoulder *x* to co-operate with the shank, substantially as described.

196,182. SHOES AND SHOE-FASTENERS. Garnett R. Bickers, Farmville, Va. Filed Sept. 4, 1877.



1. A shoe having a fastener attached to its vamp or tongue, the said fastener being adapted to directly secure the quarters of the shoe, whereby the lateral displacement of the fastener or quarters is prevented, substantially as described.

2. A shoe having its quarters elongated to form fastening-straps, in combination with a fastener secured to the vamp, tongue, or front of the shoe, substantially as described.

3. In combination with the shoe A, the fastener B, secured to the vamp or tongue thereof, and having the vertical center-pin *b'* and covering-plate C, substantially as described.

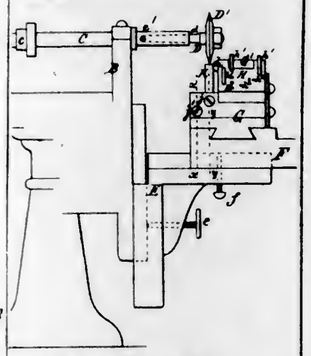
4. In combination with the fastener B, having pin *b'* and plate C, the quarters *a a*, provided, respectively, with the slotted plate *d* and slotted and perforated strap *a'*, substantially as described.

5. The fastener B, having the catch *b* and hinge *c* struck up from the body of the plate, and having the headed pin *b'* and plate C, substantially as described.

196,183. DIE-GRINDING MACHINES. Jason A. Bidwell, Cleveland, Ohio. Filed May 9, 1877.

Brief.—The support or table with a nail-die blank is adjustable vertically, laterally, and to and from the grinder, and has notches and set-screws, against which the blank is held by hand while the proper groove is being formed; also, a hinged table with sliding brace and holding-pins to present the grooved dies to a facing-grinder.

196,183.



1. In a grinding-machine, the combination of a grinding-wheel and the adjustable slide G, having steps J J', substantially as set forth.

2. In a grinding-machine, the combination of the wheel D', the slides E, F, and G, and the swinging plate H, substantially as set forth.

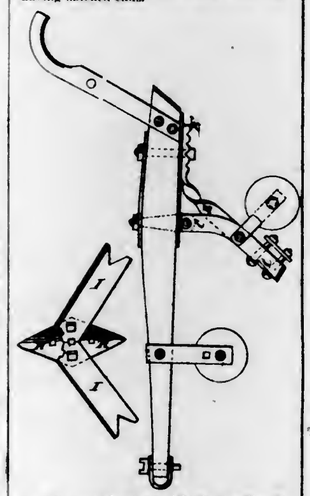
3. The swinging plate H and the steps J J' applied upon the adjustable slide G, in combination with a grinding wheel, substantially as and for the purpose set forth.

4. The swinging plate H, having holes h^2, steady-pins h', and a brace, I, substantially as set forth.

5. The slide G, having steps J J' and set-screws *j j'*, substantially as and for the purpose described.

196,184. PLOWS. Thomas A. Blanchard, Appling, Ga. Filed Aug. 16, 1877.

Brief.—Standard pivoted to a tapering eye-bolt, and adjusted by a rear brace made to adjust under the handles. The reversible sweep with wings to turn, so as to work either point, and having notched ends.



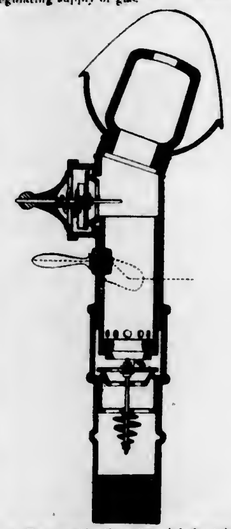
1. The combination, with the handles B bolted to and near the end of beam, of the slotted brace E, extended along the bottom of beam and under the ends of handles, as and for the purpose set forth.

2. A reversible sweep, consisting of wings I, beveled and notched in front and attached to the plate H, as shown and described.

3. The reversible wing I of a sweep, notched at the outer end, as shown and described, to allow the end of wing to pass close to the plants without danger of covering them with dirt.

196,185. INHALERS. William Boekel, Philadelphia, Pa. Filed July 20, 1877.

Brief.—Combined with the tube and its mouth-piece is an internal sliding sleeve for regulating supply of gas.



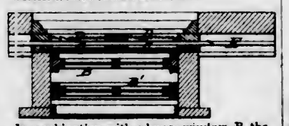
1. The combination of an inhaler-tube and its mouth-piece, an inhaling-valve, and an internal sliding sleeve, by which communication is established through the inhaler-tube, between the inhaling valve and mouth-piece, or between the mouth-piece and the external air, substantially as set forth.

2. The combination of an inhaler-tube, an inhaling-valve working on a seat therein, and an internal sliding sleeve, having an elastic bearing-piece for locking the inhaling-valve, substantially as set forth.

3. The combination of an inhaler-tube, an inhaling-valve working on a seat therein, and an internal sliding sleeve having a series of openings establishing communication between the inhaling-valve and mouth-piece, and a slot or opening registering with a longer slot formed in the inhaler-tube, and which is removed from said last-named slot and closed by the movement of the sleeve, substantially as set forth.

4. The combination of an inhaler-tube, provided with an inclined or helical slot, and an internal sleeve having a thumb-piece fitted to and working in said slot, substantially as set forth.

196,186. DOUBLE WINDOWS WITH BLINDS AND SCREENS. Elbridge Boyden and Alfred D. Warren, Worcester, Mass. Filed June 11, 1877.

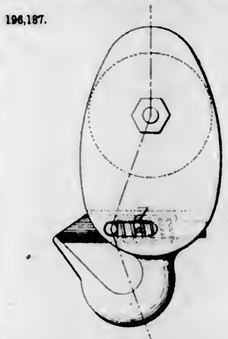


In combination with a house-window, B, the double or supplementary window B', applied outside, and adapted to be moved out of position and into a pocket or receptacle in or upon the house-wall above, below, or at one side of the said window, all combined and arranged substantially as and for the purposes set forth.

196,187. PULLEY-BLOCKS. Charles B. Bristol, New Haven, Conn. Filed Sept. 11, 1877.

In combination with a pulley-block and the hook rigidly attached thereto, or made a part thereof, a mechanism, substantially such as described, to automatically close the mouth of the hook, and substantially as specified.

196,187.



196,188. COMBINED BEVEL, SQUARE, COMPASSES, CALIPERS, &c. William E. Brock, New York, assignor to John J. Tower, Brooklyn, N.Y. Filed July 23, 1877.



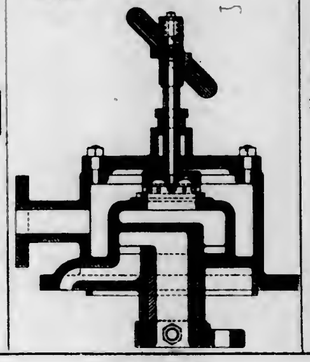
1. The combination, in an instrument for drawing angles or for other purposes, of two parts pivoted together, and each composed of an inside square, *a b c*, and an outside square, *d e f*, united in angular relation, substantially as and for the purpose set forth.

2. The combination, with one of two parts, each consisting of the united squares *a b c* and *d e f*, and pivoted together, as described, of a flange, *h*, to adapt the instrument for use as a bevel-square, substantially as and for the purpose specified.

3. The combination, with the two parts, each consisting of united inside and outside squares *a b c* and *d e f*, pivoted together, as specified, of bars *g*, and suitable scales marked on the said squares or bars, or both, for use as gages for tools, wire-screws, or other articles, substantially as described.

4. The combination, with the two parts, pivoted together, each consisting of united squares *d e f* and *a b c* and the bar *g*, of socketed points *k*, to adapt the instrument for use as a planer-scribe or for compasses or dividers, substantially as and for the purpose set forth.

196,189. ROTARY VALVES FOR STEAM-ENGINES. P. Brotherhood, Notting Hill, England. Filed June 23, 1876. Patented in England, June 5, 1873, for fourteen years.



1. The combination of the rotary valve having a perforated extension and the sliding disk within said extension, substantially as hereinbefore set forth, to regulate the admission of steam to the valve.

2. The combination, substantially as hereinbefore set forth, of a rotary valve, a sliding disk therein, a rotating governor, and a rod connecting the governor with the disk, whereby, as the speed of rotation of the governor increases, the rod moves endwise, carrying with it the disk, and decreases the area of the steam-inlets to the valve, as set forth.

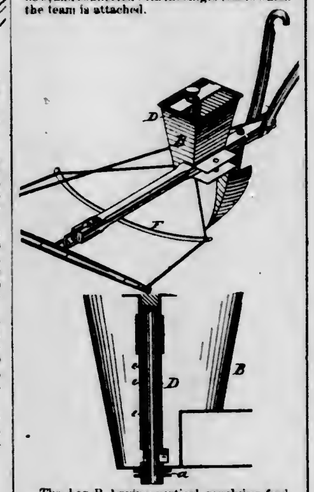
3. The combination of the valve-chest, the rotary valve, the hollow shaft projecting therefrom through the valve chest cap, the vibrating bar suspended upon the hollow shaft, the sliding disk and its rod, these members being constructed and operating substantially as hereinbefore set forth.

4. The rotary valve constructed with a hollow cylindrical hub projecting through the valve-chest head, which communicates with the exhaust-passage in the valve, and provided with a crank, substantially as hereinbefore set forth.

5. The combination, substantially as herein-before set forth, of the valve-chest, the rotary valve, its cylindrical hub projecting through the valve-chest head, and the hollow shaft passing through the valve-chest cap.

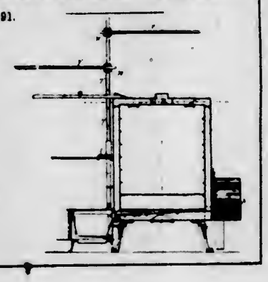
196,190. PLOW ATTACHMENTS FOR DISTRIBUTING FERTILIZERS. Wm. Penn Brown, Holland's Store, assignor of one-half his right to J. S. Fowler, Brown's Ferry, S. C. Filed June 27, 1877.

Brief.—To an ordinary plow-beam is attached a hopper having a vertical tube, provided with holes for material to be sown to escape. To the lower end of the tube is secured a pulley, that receives motion from a cord attached to a bow, and connected with the single tree to which the team is attached.



The box B, having vertical revolving feed-tube D, provided with perforations *e e* and pulley *a*, in combination with the pivoted bow F and operating-cords, substantially as and for the purpose herein shown and specified.

196,191.



196,191. COOKING-STOVES. A. V. Callahan, Philadelphia, Pa. Filed Jan. 25, 1877.

1. The combination of the oven with the double-chambered tank K and the circulating-pipe M, contained within the lower flue of the oven, and serving to establish the only communication between the two chambers of the tank, as and for the purpose set forth.

2. The combination of the stove and the vertical rods T, secured to the same, with the vertically-adjustable strips W *t*, adapted for the reception of clothes-drying arms V, as set forth.

196,192. DRY MEASURES. Joseph T. Capewell, Woodbury, Conn., assignor to W. S. Capewell, same place. Filed Feb. 20, 1877.



1. The herein-described shot and powder measure, consisting of the two cylinders, one constructed with a head and the other with both ends open, and one sliding within the other in telescopic form, combined with the handle, serving also as a set-screw to secure the two cylinders in their desired relative position, substantially as described.

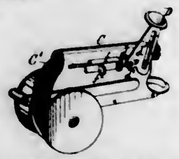
2. In a shot-charger consisting of two cylinders, one arranged within the other, the head of one closed, and both ends of the other open, and so as to move one within the other in telescopic form when the graduations for the adjustment of the measure are placed upon the surface of the inner cylinder, substantially as described.

196,193. DRAWER-PULLS. Daniel J. Clark and Wm. A. Clark, West Meriden, Conn. Filed Aug. 30, 1877.



In a drawer pull, the combination of a bifurcated knob-spindle and the socket, the one constructed with truncinions *a*, the other with corresponding seats, and closed the one upon the other, substantially as described.

196,194. CIGAR-LIGHTERS. J. Neal Clawson, Philadelphia, assignor to George Selden, Erie, Pa. Filed July 26, 1877.



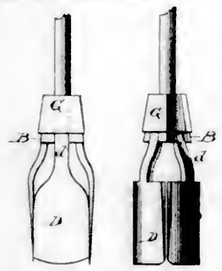
1. In a pocket-lighter, the combination of the cap or extinguisher with a slide, arranged and operating substantially as described.

2. The combination, in a pocket-lighter, of the slide *d*, extinguisher D, and slotted connecting-link *d'*, or its equivalent, for the purpose and substantially as described.

3. The combination, with the slide *d*, of the hinged plate or extension-piece *f*, provided with the feeding spur, substantially as and for the purpose specified.

4. The combination, with the wick-tube C, of the cap D, slide *d*, connecting-link *d'*, and controllable feeding-spur *f*, arranged and operating substantially as and for the purpose set forth.

196,195. POST-HOLE DIGGERS. John A. Clinton, Bentonville, Ohio. Filed June 6, 1877.



In a post-hole digger, the tapering four-sided block B, provided with longitudinal slots *b*, tapering in reverse direction, in combination with the spades D, having tapering shanks *d*, and the sliding or movable sleeve G, all constructed substantially as and for the purposes herein set forth.

196,196. GAS-REGULATORS. Isaac Cook, St. Louis, Mo., assignor of two-thirds his right to P. M. Clark and B. R. Lippincott, same place. Filed Sept. 3, 1877.



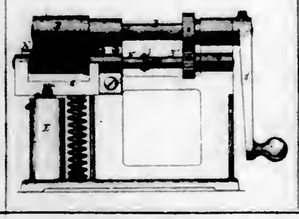
1. The combination of valve-stem J, standard H with guides *h h'*, and inverted cup K, substantially as and for the purpose set forth.

2. The combination, with the round guides *h h'*, of the stem J with angular or rib bearings, substantially as and for the purpose set forth.

3. The combination of cup D', valve-seat G, valve and stem I and J, and inverted cup K, substantially as set forth.

4. The combination of the bottom plate C, provided with vertical pipes D and E, forming the inlet and outlet for the gas, the cup D', valve I, stem J, and inverted cup K, as and for the purpose set forth.

196,197. MACHINERY FOR SPLITTING AND BEVELING LEATHER. Christian Dancel, New York, and Edmond C. Smith, Brooklyn, N. Y. Filed Sept. 6, 1877.



1. The combination of the upper plain gage-roller D, the lower vertically-moving corrugated feed-roller I, enlarged at its rear end, the edge-gage N at the inner end of the gage-roller, and the laterally and longitudinally adjustable knife K, having its cutting-edge curved upward to correspond to the enlarged end of the feed-roller, substantially as and for the object set forth.

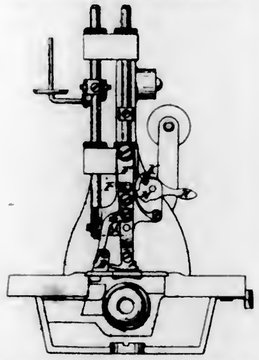
2. The combination of the upper plain gage-roller D, the longitudinal knife K, and the vertically-adjustable corrugated feed-roller I, enlarged at its rear end, substantially as and for the object set forth.

3. The combination, with a gage-roller and with a knife the cutting-edge of which is curved upward at one end, of a corrugated vertically-moving feed-roller, the diameter of which increases toward one end to correspond to the curved edge of the knife, substantially as and for the purpose described.

4. The combination, with the gage-roller D, the feed-roller I, head G, and driving-shaft B, of two shafts, H H', connected by a universal joint, *b*, and a swivel-box, *c*, all constructed and adapted to operate substantially as set forth.

196,198. GATHERING DEVICES FOR SEWING-MACHINES. George H. Dimond, Bridgeport, Conn., assignor to Wheeler & Wilson Manufacturing Company. Filed July 26, 1877.

Brief.—The upper feed dog is mounted on the lower end of an arm pivoted at its upper end to the head of the machine, and provided with a lever, which, by being struck by a projection from the carrier of the lower feed dog, has communicated to it a horizontal movement. The upper and lower feed dogs are independently adjustable as to throw, to provide for gathering either the upper or lower of two pieces of fabric, and for feeding both pieces along together without gathering either.

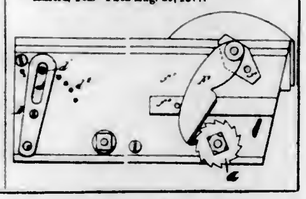


1. The combination of the lower feed dog, its carrier provided with projection D, the upper feed dog and its lever F, having arm E, as and for the purpose set forth.

2. The combination of the upper feed lever F, having arm E, vibrating lever P and its retracting-spring, and the lower feed dog carrier, having projection D, as and for the purpose set forth.

3. The combination, with the head of the machine, of the upper feed lever F and its adjusting devices H I K, as and for the purpose set forth.

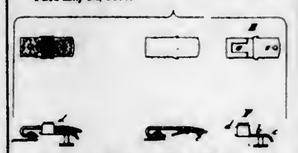
196,199. COTTON-GIN FEEDERS. Stephen J. Derris, Milford, Tex. Filed Aug. 29, 1877.



1. In a cotton-gin feeder, the slotted levers D *d* and their pivots, in combination with the belt-roller B, adjusting-screws *d'*, and the receptacle A, having apertures *d''* arranged in the arc of a circle, substantially as and for the purpose set forth.

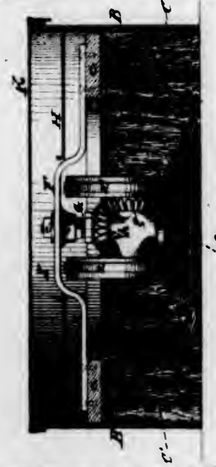
2. The receptacle A, having apertures *d''* arranged in the arc of a circle, in combination with the slotted levers D *d*, adjusting-screws *d'*, rollers B B, having annular partitions or rings *b b*, belts C, cylinder E, pawl F, and ratchet G, substantially as and for the purpose set forth.

196,200. STUDS OR CLASPS FOR FASTENING GLOVES, &c. William Henry Douglas, Stourbridge, England. Filed May 24, 1877.



The plate W, having spring and nut *e* on its under side, in combination with the part F, having the link plate *b*, hole *c*, and band or bridge *d*, substantially as described.

196,201. CARPET-SWEEPERS. Edward F. Downer and George Kampf, Utica, N. Y. Filed Apr. 5, 1877.



1. The combination of the cylinder B, containing the rotating brush C C', and its operating mechanism, with the casting A and removable dust-pan *a*, said casting having scrapers D D and tongue E, substantially as and for the purpose herein shown and specified.

2. The combination of the rotating circular brush C C' with the cylinder B, slotted diaphragm H, and closely-fitting top cover K, whereby a dust-chamber, I, is formed above the brush, substantially as and for the purpose herein shown and specified.

196,202. BOBBIN-WINDERS FOR SEWING-MACHINES. Wm. Duchemin, Boston, Mass. Filed Apr. 27, 1877.

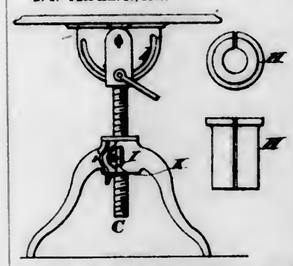
Brief.—The thread passes between tension-plates and through a fixed guide to a vibratile guide, by which it is laid on the bobbin. A spring-plate presses against the under side of the bobbin, and, when the bobbin is full, rests against a projection, and raises the driving-pulley from the fly-wheel of the sewing-machine.

1. A bobbin-winder consisting of the bobbin-holding frame *a*, provided with tension devices *g k*, fixed thread-guide *i*, thread-guide or carrier *b*, adapted to be vibrated by the thread, and pivoted in the rear of the fixed guide *i*, whereby the radius of the guide or carrier *b* is made longer than the intervening space between the guides *b i*, as set forth.

2. In combination with a bobbin-winder composed of a bobbin-holding frame, *a*, adapted to be pivoted to the frame of a sewing-machine, and having a friction-pulley which bears upon the fly-wheel of the machine, and automatic devices, substantially as described, for guiding the thread to the bobbin, the spring-plate *e*, adapted to be displaced by the accumulation of thread on the bobbin, and a projection, *s*, on the frame of the sewing-machine, adapted to co-operate with the plate *e* in stopping the winding operation.

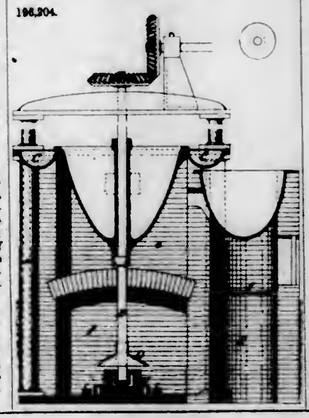
3. The adjustable guide *i*, combined with the bobbin-holding frame *a* and vibratory guide *b*, substantially as and for the purpose specified.

196,203. ADJUSTABLE TABLES. Geo. H. Dyett, Utica, N. Y. Filed Mar. 17, 1877.



A tripod having its legs rigidly connected together by a divided cylinder, I, having perforated flanges *i i* and clamping-screw K, in combination with the divided nut H and screw-threaded table-standard C, substantially as described, and for the purpose set forth.

196,204.

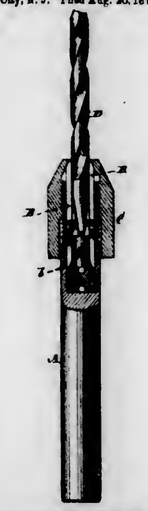


196,204. PROCESSES AND APPARATUS FOR SEPARATING SILVER AND OTHER PRECIOUS METALS FROM LEAD. Asahel K. Eaton, Brooklyn, N. Y. Filed Apr. 12, 1877.

1. The process of separating silver or other precious metals from lead, which consists in alloying zinc with the combined metals and then subjecting the molten bath to centrifugal action, whereby the isolated lead is caused to overflow the edge of the containing-vessel, leaving the light silver alloy in a concentrated condition, substantially as herein set forth.

2. The combination of the rotating bowl, the annular trough, and the receiving-pan, substantially as described.

196,205. DRILL-CHUCKS. Chas. Eltersch, New York, N. Y., assignor of one-half his right to A. H. Briggs, Jersey City, N. J. Filed Aug. 20, 1877.

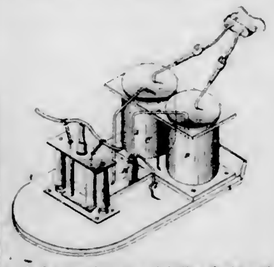


1. The combination, with the spring-jaws of the chuck and their conical closing-nut, of a pin or projection on the drill arranged to engage with the slots between the jaws, substantially as and for the purpose herein set forth.

2. The extension-piece *k* or *k'*, in combination with the slotted spring-jaw ferrule or tube B and drill D, constructed to engage, at or near its rear end, with the slots between the jaws of the chuck, essentially as described.

196,206. INHALERS AND RESPIRATORS. I. S. Emery, New Haven, Conn. Filed Aug. 27, 1877.

Brief.—Compressed air is forced into the lungs, and a vacuum-chamber connects, by a pipe, with the mouth, and is to aid in removing the air. The compressed-air pipe and exhaust are alternately closed by stop-cocks.



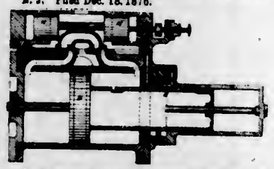
1. In a respiratory or inhaling device, substantially as herein described, the combination of the condensed-air chamber or receptacle with a vacuum chamber and air-pump, and with a mouth piece or pieces and connecting

pipes or tubes, substantially as and for the purposes set forth.

2. The combination of a vessel, B', with pipes *b* and *b'*, and the air-pump, and the chamber B, and mouth-piece F, and pipe or tube *d*, substantially as described.

3. In a respiratory or inhaling device, substantially as herein described, the combination, with its mouth-piece, of the sprayer G, substantially as set forth.

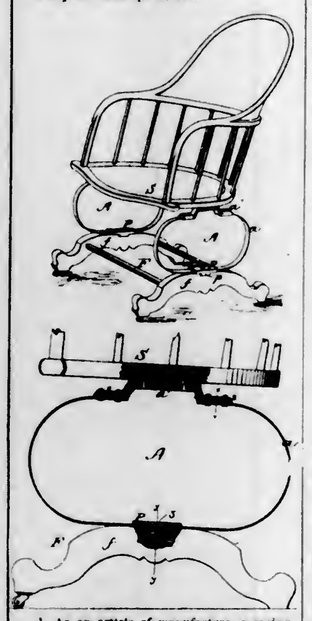
196,207. COMPOUND ENGINES. John Fish, Summit, N. J. Filed Dec. 18, 1876.



1. A contractible packing-ring, having ports for the distribution of steam to the auxiliary cylinders of the slide-valve moving pistons in a compound trunk-engine, in combination with the trunk, having steam-passages to connect with ports in the above-mentioned contractible packing-ring, substantially as specified, and as herein set forth.

2. The guide-bar attached to the trunk-casing, in combination with the trunk, having steam-passages which connect with ports in the contractible packing-ring, substantially as specified, and for the purpose as herein set forth.

196,208. OSCILLATING CHAIRS. Ezra E. Fisher, Brattleborough, Vt., assignor to himself and Chas. Wood, same place. Filed Apr. 10, 1877.



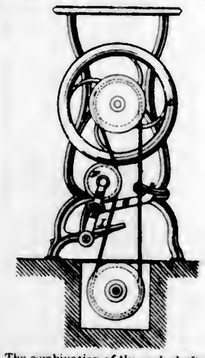
1. As an article of manufacture, a spring composed of the elastic elliptical strip *a*, adapted to be attached to a base or foundation, and the rigid portion *a'*, having the raised central portion 1 and offsets 2 2, and adapted to be attached to a seat, as set forth.

2. The spring A, composed of the elastic elliptical strip *a* and the rigid portion *a'*, having the raised central portion 1 and offsets 2 2, combined with the seat S, as set forth.

3. The plate P, having downwardly-projecting lugs *p*, combined with the screw *s*, spring A, and foundation frame F, as set forth.

4. The combination of the springs A, constructed as described, the seat S, the plates P, and the foundation frame F, all arranged and operating substantially as set forth.

196,209. MECHANISMS FOR OPERATING SEWING-MACHINES. Victor Febvre, François Pouget, and Germain Bonniot, Lyons, France. Filed Sept. 19, 1877.

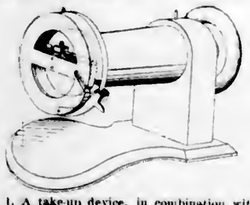


1. The combination of the rock-shaft *i*, hung in the frame of a sewing-machine, and carrying the treadle I, with the forked lever E, which carries the stretching-pulley F, and with the arm G, having brake *g*, and pivoted to the lever E, between the stretching-pulley and the rock-shaft *i*, all being so arranged that both brake and stretching-pulley are operated by a pressure on the treadle I, substantially as and for the purpose herein shown and described.

2. The combination of the rock-shaft *i*, treadle I, and slotted lever E, carrying pulley F, with the arm G, carrying brake *g*, the arm G being adjustably connected to the lever E by a bolt, *k*, passing through the slot in said lever, substantially as and for the purpose herein shown and described.

196,210. TAKE-UP MECHANISMS FOR SEWING-MACHINES. Joseph L. Follett, New York, N. Y. Filed May 18, 1877.

Brief.—A take-up having a combined rotary and translatory motion is arranged in the head of the machine, and is operated from the shaft that drives the needle.



1. A take-up device, in combination with mechanism for imparting to said device a combined rotary, translatory, and periodically accelerated movement, as described.

2. A take-up consisting of a bar having upon a disk or crank at one of its ends a fixed bearing, and a bearing intermediate between the two ends eccentrically movable with respect to said fixed bearing.

3. The combination with and arrangement within the head of a sewing machine of a rotary take-up, substantially as and for the purposes set forth.

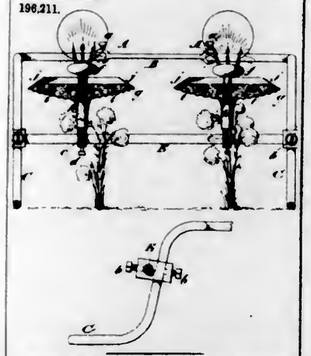
196,211. INSECT-DESTROYERS. Eugene H. Fordtran, Flatonia, Tex. Filed Oct. 3, 1877.

Brief.—The shafts for receiving the house are bent outward at right angles; thence backward and downward on a reversed curve, forming runners. Upon the vertical portion of the runners is placed a horizontal bar, of such height from the ground as to agitate the bushes. Upon the bar are placed suitable lamps and pans for attracting and catching the insects.

1. The shafts A C, constructed and connected by a bar, B, as shown and described, in combination with a cross-bar, E, made fast at a distance above the runners, to brush against the plants and support the traps, as set forth.

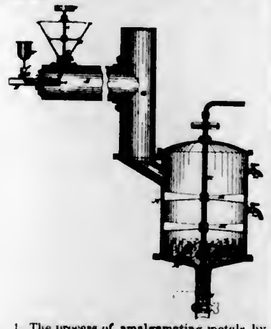
2. The combination of the adjustable standards c with bar E, and a supporting and carrying device, substantially as herein shown and described.

196,211.



196,212. PROCESSES AND APPARATUS FOR AMALGAMATING ORES. Thomas A. D. Forster and George J. Firmin, Norristown, Pa. Filed June 1, 1876.

Brief.—Pulverized ore is fed through the hopper. Mercury enters through the inner pipe, and is blown by steam from the larger pipe encircling it against and through the falling ore. The blast carries the ore and amalgam to the washer, where they are ground and washed.



1. The process of amalgamating metals by projecting mercury into or against a stream of pulverized ore by means of a current of steam or air under pressure, substantially as described.

2. The method of amalgamating metals by a continuous process or operation, consisting in feeding the ore, in a pulverized condition, into a vessel or receiver, where, in the act of falling, it is impinged upon by a current of steam or air, which carries said ore, in the form of a blast, through said cylinder, mercury being at the same time carried along, and producing amalgamation without cessation of the feed, substantially as set forth.

3. The combination of cylinder A, hopper or feeding device B, steam or air pipe D, and mercury-pipe E, the said parts being relatively so arranged that, when the ore, mercury, and steam or air are admitted to the several parts, a blast will be created, and the material carried to or toward the delivery-duct G, as set forth.

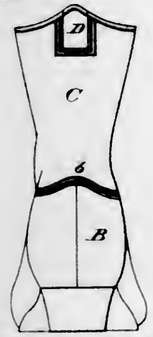
4. In combination with the steam or air pipe D, pipe A, and hopper B, the mercury-pipe E, said last-mentioned pipe projecting beyond the delivery end of the other, as and for the purpose set forth.

5. In combination with the cylinder A, hopper B, vessel H, and steam and mercury pipes D E, the duct G, affording an unimpeded passage for the blast after amalgamation, and serving to render the process continuous, as set forth.

6. The washer herein described, consisting of a vessel, H, having conical bottom H', hollow shaft K, rollers L L, wings M M, well I, and bib-cocks *n n*, the several parts being constructed and combined for operation substantially as shown and described.

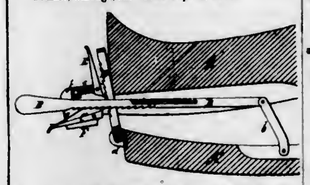
7. The continuous process of amalgamation, consisting in admitting the pulverized ore and mercury into a vessel, wherein they are impinged upon by a current of steam or air, which promotes rapid and thorough amalgamation, and forces the ore and mercury together into a receiver, substantially as described.

196,213. SHOES. George Francis, Albany, Wis. Filed Apr. 17, 1875.



The improved shoe herein described, consisting of the vamp A, quarters B B, and leg portion C, provided with the gusset D, all united together in the manner as shown, and for the purposes set forth.

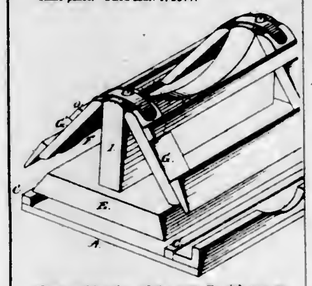
196,214. APPARATUS FOR SHAPING PANTALOONS. G. Franke, Chicago, Ill. Filed Sept. 4, 1877.



1. A press for shaping the legs of pantaloons constructed in two parts, A A', in combination with mechanism, operated from one end of the said press, for separating the ends of the parts A A' independently of each other, substantially as described.

2. The press consisting of sections A and A', and arranged with ratchet-bar B, link *b*, pawl C, ratchet-bar D, and pawl E, as and for the purpose substantially as herein described and shown.

196,215. PAPER-PLACKETS. Amos F. Gerald, Augusta, Me., assignor of one-half his right to William Harvey, same place. Filed Mar. 9, 1877.



The combination of the part F with the upright I and the arms G G, fastened and operated with springs, in connection with the part A, cleats C C, and gage D, substantially as and for the purposes described.

196,216. HOSE-NOZZLES. John Gilchrist, Paisley, Scotland, and Alexander Anderson, Lowell, assignors to William E. Whitehead and Abel T. Atherton, Lowell, Mass. Filed Aug. 13, 1877.

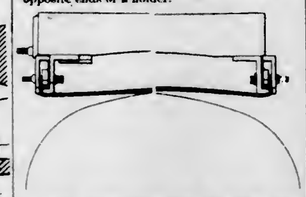


1. In a hose-nozzle, the combination of the tube A, with cone D, having swell or outer cone *d*, and the exterior sleeve B, with conical mouth C, substantially as and for the purposes herein set forth.

2. In combination with a hose-nozzle having a conical mouth-piece, an interior cone, constructed and arranged substantially as and for the purposes herein set forth.

196,217. TOOLS FOR POUNCING HATS. F. R. Going, Boston, Mass. Filed Mar. 21, 1877.

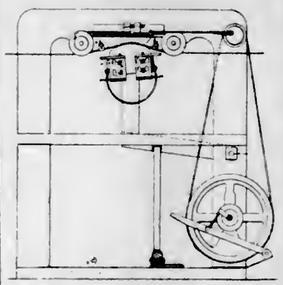
Brief.—A strap carrying the pouncing material is stretched from adjustable brackets at opposite ends of a holder.



1. The combination, with the handle, the belt, and its holding-brackets, of the plates to hold the pouncing-surface, substantially as described.

2. The combination, with the carrier to sustain the pouncing material, of a flexible strap, and clamps or plates to confine a ribbon of pouncing or rubbing material to the flexible strap, substantially as described.

196,218. HAT-POUNCING MACHINES. F. R. Going, Boston, Mass., and Stephen R. Going, Brooklyn, N. Y. Filed Mar. 23, 1877.



1. The support adapted to sustain the body and crown of the hat, and permit the movement of the body over it, so as to present the tip or side crown uppermost, as described, in combination with a reciprocating elastic pouncing hand or tool to sustain the pouncing material, to operate substantially as described.

2. A pouncing-tool composed of a reciprocating elastic band or belt, adapted to carry the pouncing material, in combination with a non-rotating supporting-surface for the hat-body, such surface being made lower at its end in the direction of the feed, to permit the pouncing-tool to feed the hat-body over the support, substantially as described.

3. The combination, with the rollers and slide, and devices, substantially as described, to operate it, of the belt or band and its connecting mechanism, substantially as set forth.

196,219. ARTIFICIAL-STONE COMPOUNDS. George A. Goodrich and Fletcher M. Ipsin, Newton, Iowa. Filed Aug. 27, 1877.

Brief.—Mixes tar and water and lets stand, after which the water is strained and used to mix with Portland cement and sand to the consistency desired.

In the process of making artificial stone, tar-water for the purpose of mixing sand and cement, or their equivalent substances, substantially as described.

196,220. WATER-PACKINGS FOR OIL-WELLS. James P. Gordon, Coal Valley, Ill., and Samuel H. Gordon, Karns City, Pa. Filed Aug. 27, 1877.

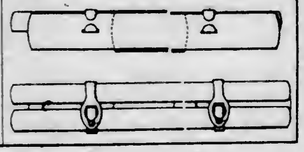


1. The stationary conoidal packer F, in combination with the movable conoidal cylinder D and the parts A B C of the apparatus, for driving said cylinder D under the packer to force it outward, all in the manner and for the purpose set forth.

2. The combination, with the packer F, of the indented follower *f* and the indented lip of band or coupling G, for the purpose of clamping the lower edge of the packer to the cylinder F, in the manner and for the purpose specified.

3. The combination, with the described packing device—viz., the parts B D E *f* G—of the drop-band A, constructed and operating as described, for the purpose stated.

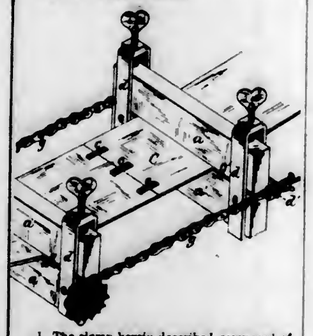
196,221. CORSET-STEELS. Herbert I. Gould, Providence, R. I. Filed Aug. 14, 1877.



1. The combination, with two narrow corset-springs, respectively provided with clasps and steels, of an underlying stay, which is united at each end, and centrally with one of the narrow springs, substantially as described, whereby, when applied to a corset, the lateral strain will be borne by the fabric at the outer edge of the stay, as set forth.

2. The combination, with two narrow corset-springs, respectively provided with clasps and steels, of an underlying stay, which is composed of two or more leaves of different lengths, piled at the center, and united to one of the narrow springs, substantially as described.

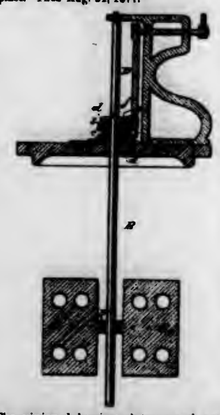
196,222. **BELT-TIGHTENERS.** Gilbert Greene, New Lots, N. Y. Filed Oct. 1, 1877.



1. The clamp herein described, composed of an upper bar, *a*, having a tongued or rounded lower edge, and bar *a'*, having a grooved upper edge, and both fitted and operated in frame *d*, substantially as and for the purposes set forth.

2. The combination of the clamp A, composed of frame *d*, with means for attaching at one end chains *g*, and carrying bars *a* and *a'*, and operating as described, with clamp A', similarly constructed, and shaft *f* and sprocket-wheels *f'*, to which the opposite ends of said chains may be fixed, substantially as described.

196,223. **CHURNS.** John B. Guinn, Athens, Tenn., assignor of one-half his right to Jas. T. Gregory, same place. Filed Aug. 21, 1877.



The pinion *d*, having slots *s s* and notch *c*, in combination with the dasher-staff B and the pin *f*, substantially as described, for the purpose herein set forth.

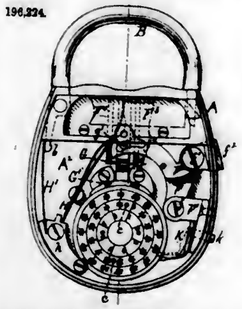
196,224. **PERMUTATION-PADLOCKS.** Geo. Hamilton, Meadville, Pa. Filed Aug. 21, 1877.

Brief.—The combination is set and the lock opened by a separate thumb-piece. The combination may be indicated by ticks, caused by pressing a spring against the notched disks.

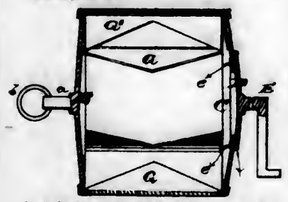
1. In a permutation-padlock, the index-rings C C' C² and disks D D' D², connected together as described, tumblers E E' E², arm F, having slot *f²*, thumb-piece *f³*, catch G, having teeth and pin *g'*, arm F³, spring H, and latch F⁴, the whole constructed, combined, and arranged to operate substantially as described.

2. In a permutation-padlock, the index-rings C C' C² and disks D D' D², connected together as described, said disks being constructed with notches *d d'*, tumblers E E' E², arm F, having slot *f²*, thumb-piece *f³*, catch G, having teeth and pin *g'*, arm F³, spring H, latch F⁴, spring K, and pin *k*, the whole constructed, combined, and arranged to operate substantially as described.

196,224.



196,225. **COFFEE-ROASTERS.** Noah Harris, Xenia, Ind. Filed Aug. 11, 1877.

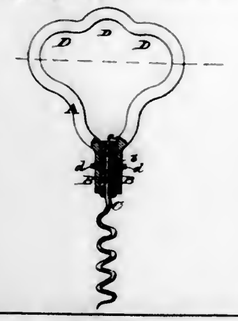


1. A drum or cylinder having secured to its inner surface longitudinal flanges G G', arranged in alternating series, the flanges G made wider in the center and tapering toward both ends, and the flanges G' wider at the ends and tapering toward the center, substantially as and for the purpose set forth.

2. A coffee-roaster composed of a sheet-metal cylinder, having attached thereto the longitudinal alternating flanges G G' and two cast-iron heads, one of the heads having a central journal and a ring, and the other head having a mica-covered opening, substantially as and for the purposes set forth.

3. The frame herein described, consisting of the two parts I I', provided with T-shaped buttons J and standards H, and fastened together by the pins *k*, substantially as and for the purposes set forth.

196,226. **CORKSCREWS.** George Havell, Newark, N. J. Filed Aug. 9, 1877.

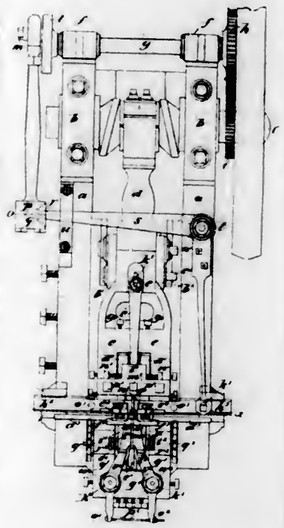


1. The spring-handle A, forming the jaws B, between which a screw is pivoted, said handle provided at its upper end with three indentations, D D D, for the purpose of keeping the fingers of the operator separate, and thereby preventing injury and unpleasant feeling to the operator when the cork is being drawn, as set forth.

2. In combination with the screw of a spring-handle corkscrew, sleeves *c* and an interposed collar, *b*, secured on the upper part of the screw, and the collar provided with ears or pivots *d d* to enter the ears of the spring-handle, as set forth.

196,227. **HORSESHOE-NAIL-FINISHING MACHINES.** Randolph Hervey, Montreal, Quebec, Canada. Filed May 1, 1877.

Brief.—The nail-blanks passing down the two chutes are permitted to fall, one at a time, by arms on a vibrating lever, situated between them, and caused to enter, first one and then the other. The blanks fall into one of two notches in a laterally-reciprocating slide, and are brought first to the beveling-dies and then to the pointing-cutter. The carrying-slide is operated through a spring-lever, and its movement arrested for a short time at each extremity by adjustable stops. Two adjustable arms, resting against yielding blocks, pass over and slightly beyond the cutter to center the blank, and inclined plates resting on these arms catch under the heads of the nails, and slightly raise them from the die to facilitate their discharge.



1. The combination of the rest *c*, having one or two hammers, *d'*, and punch *e'*, with the vibrating slide *h²*, having openings *i²* and *i³*, and with the bevelling-dies *a'* and clipping-dies *b²*, substantially as and for the purposes set forth.

2. The combination of the spring-arm *w*, sliding bar *h²*, having openings *i²* and *i³*, and tube *e²*, substantially as and for the purposes set forth.

3. The combination of the sliding bar *h²*, having openings *i²* and *i³*, with plates *p²*, substantially as and for the purposes described.

4. The combination of the guides *i²* with the auxiliary guides *e²* and cutting-die *b²*, substantially as and for the purposes set forth.

5. The combination of the sliding bar *h²*, pendulum *l²*, having projections *n²* and *n³*, and tube *e²*, substantially as and for the purposes set forth.

6. The combination of the guides *i²* with springs *s²*, substantially as and for the purposes set forth.

7. The combination of the guides *i²*, springs *s²*, and bolt *p²*, substantially as and for the

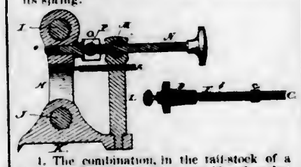
purposes set forth.

8. The dies *b²*, having recesses forming the openings *e²*, and rest *q'*, having openings *f'*, with guides *i²* and *z²*, substantially as and for the purposes set forth.

9. In an elongated blank beveling and clipping machine, the combination of a sliding or vibrating bar, *h²*, for holding the blank, substantially as described, with the beveling and clipping dies, substantially as set forth.

196,228. **WATCH-MAKERS' LATHES.** Caleb Hopkins, Waltham, Mass. Filed Sept. 21, 1876.

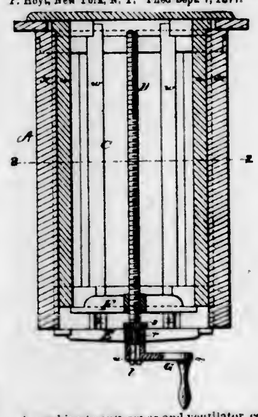
Brief.—The hinged tail-stock can be swung back and forth by a screw, which works in a self-adjusting nut, and has its end attached to a self-adjusting socket-piece. The back end of the pump-center is inclosed in a plain taper bush, which may be instantly withdrawn from the lathe-spindle when desired. The center is formed with a longitudinal groove, which terminates in a short lateral cut; and the taper bush carries a set-screw, which travels in the groove, and enters the cut when the center is drawn back and slightly turned, and thereby prevents the center from being forced out by its spring.



1. The combination, in the tail-stock of a lathe, of the self-adjusting nut M and socket P with the working screw N, the post I, the swing part H, the saddle K, and pivot J, substantially as described.

2. The combination of the plain detachable taper bush D at the back end of the lathe-spindle with the pump-center C and the lathe-spindle A, substantially as described.

196,229. **VAULT COVERS AND VENTILATORS.** Ezra P. Hoyt, New York, N. Y. Filed Sept. 7, 1877.



A combined vault cover and ventilator, consisting of a fixed outer frame or curb, A, a cover, B, adapted to close upon the top of said curb, a ventilating cage, C, formed on or attached to the bottom of said cover, and adapted to slide vertically within said curb, and an axial rotary screw, D, connected to said curb and cage, respectively, by a swivel spider, E, and a nut spider, F, said screw serving to raise and lower the cover and ventilating cage, and to support the same automatically at different heights, and also to securely lock the same when closed, as herein set forth.

196,230. **ROLLER-SKATES.** Robert Hutton, Brooklyn, N. Y., assignor of one-half his right to Philip Haffner, same place. Filed Aug. 13, 1877.

1. A roller-skate with a rear roller having its axis borne within slots, whereby said axis may shift in a straight line within said slots, substantially as and for the purpose described.

2. In a roller-skate, the axis of the rear roller combined with finger-plates and spring, to facilitate the shifting of the axis within its bearings, substantially as and for the purpose described.

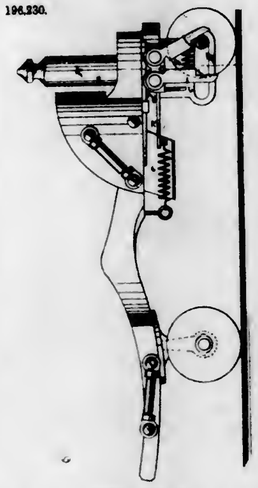
3. In a roller-skate, a circular revolving plate constructed with supporting finger-plates, substantially as and for the purpose described.

4. In a roller-skate, a vertical spindle, constructed with a collar having a convex under surface, which collar is located near the lower end of said spindle, substantially as and for the purpose described.

5. In a roller-skate, a vertical spindle with a conical bearing at its upper end, and a collar with a convex under surface, substantially as and for the purpose described.

6. In a roller-skate, a revolving circular plate combined with a spring, whereby said circular plate may be assisted to assume and maintain a given position, substantially as described.

196,230.



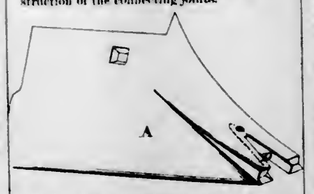
196,231. **PUMP-ROD ADJUSTERS FOR OIL-WELLS.** A. H. Jaroski, Erie, Pa. Filed June 29, 1877.



The trunnioned head A, having groove E, with overhanging lip *e* and mortise back of and transverse the mouth of said groove, in combination with the sliding bar D, with hook-shaped jaw and operating-nut *d*, said parts being arranged as and operating in the manner and for the purposes set forth.

196,232. **REVERSIBLE PLOW-POINTS.** C. W. Jenkins, Richmond, Va. Filed Aug. 30, 1877.

Brief.—The novelty is in the details of construction of the connecting joints.

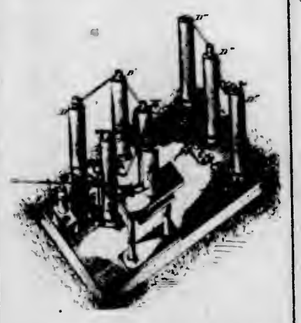


1. The plow-point B, having the shank C, provided with the V-shaped extension C'', with concave top and bottom sides, and a mortise, *d*, through it, in combination with the share A, having socket D, with recess at its inner end, and the pin or key *k*, substantially as and for the purposes herein set forth.

2. The combination of the plow-point B, provided with the shank C, having beveled sides *a*, guides *b*, and V-shaped mortised extension C'', and the share A, having socket D, with inner recess and grooves, as described, and the locking-pin or key *k*, substantially as and for the purposes herein set forth.

196,233. **HYDRAULIC PRESSES.** Francis S. Kinsey, New York, N. Y. Filed Sept. 17, 1877.

Brief.—A continuous action of the pump forces the water into a chamber, in which the air is compressed. This chamber is connected with adjacent receiving or magazine chambers, whence it may be led and applied to the ram through a pipe.



1. A compression-chamber and one or more magazine-chambers, having their upper parts connected by suitable means to permit charging and equalization, and their bases connected to a common receiver, whence the pressure is supplied, substantially as set forth.

2. The compression-chamber D, having the stop-cock *p*, and provided with a pipe and stop-cock check valve, or combined stop-cock and check valve, connecting it with the magazine-chamber D', the pipe F and stop-cock *a'* connecting with the joint H or receiver, the pipe *a'* and stop-cock *b'* connecting with the tank B, and the pipe *t* connecting with a pump capable of continuous operation, substantially as set forth.

3. As a means of equalizing pressure, a common joint, H, or receiver, having pipes leading to the base of chambers wherein water under pressure is confined, and a pipe or pipes leading to the ram-cylinder of a hydraulic press, substantially as set forth.

4. The cylinder of a hydraulic press, having a pipe above, whence pressure is derived, and a pipe below, whence resistance is relieved, substantially as set forth.

5. A valve or stop-cock placed in the lower parts of a curved pipe, intermediately between two chambers, for compressing or storing compressed air, substantially as set forth.

6. The compression-chamber D, having the cock *p*, and provided with the pipe *b* or other suitable duct, and with the pipe F, having the stop-cock *d*, in combination with the joint H and one or more pipes, *k*, connecting with one or more chambers, D', either separate or connected, substantially as shown and described.

7. In combination with a continuously-acting pump, a chamber in which the air is compressed by a rising column of water, which chamber is connected with the supply-tank by means of a pipe provided with a safety-valve, substantially as stated and shown.

196,234. **COMBINED SPIRIT-LEVEL AND SQUARE.** J. E. Kitchin, Hartsville, N. J. Filed Sept. 17, 1877.

1. The rectangular block A, provided with the annulus B, having upon its face graduations *e f*, in combination with the weighted index-hand C, formed with pointers *h i* and sight *j*, substantially as and for the purpose set forth.

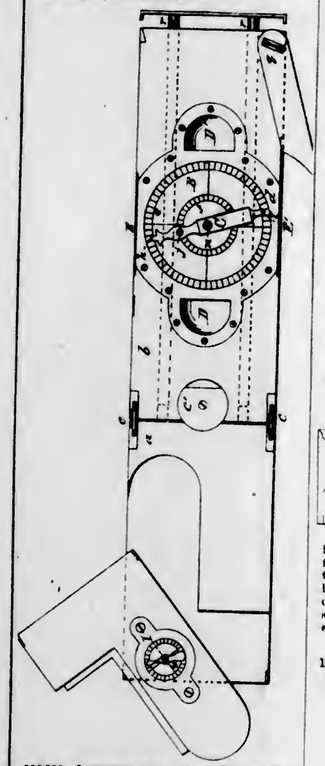
2. The annulus B, having rim *o* and ears *g'*, and the adjusting-screws *g*, by which the annulus is regulated, substantially as and for the purpose specified.

3. The combination, with the index-hand C and pin *k*, of the rod or rods *l* and springs *m*, substantially as and for the purpose described.

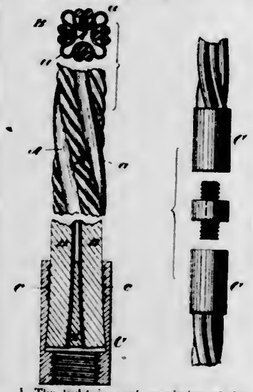
4. The annulus B, constructed as described, and formed with rim *o* and openings *p*, in combination with the block A and sights D D' E

E', substantially as and for the purpose set forth.

5. The combination, with the block A and annulus B, with index-hand C, of the bar G and sliding rod or rods *r*, substantially as and for the purpose described.



196,235. LIGHTNING-RODS. George S. Knapp, Chicago, Ill. Filed Jan. 27, 1877.



1. The lightning-rod consisting of the spirally-fluted sheet-metal body A and the exterior strands B, seated thereon, as shown.

2. The lightning-rod coupling consisting of the two metal sockets C, made of a conical or tapering form in the interior, and united by a screw-neck, as shown, in combination with the two ends of the rod inserted therein, and secured by the central pins, as shown.

196,236. GOVERNORS FOR STEAM-ENGINES. Joseph Kurten and Louis Kramer, St. Louis, Mo. Filed Sept. 3, 1877.



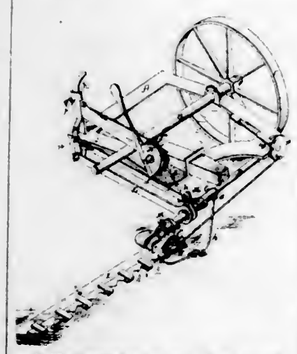
The combination, with lever C, of the standard G and hanging weight E E, for the purpose set forth.

196,237. METHODS OF LABELING PLUG-TOBACCO. L. Lottier, Jr., Richmond, Va., assignor to L. Lottier, Sr., same place. Filed June 8, 1877.



A method for securing thin and flexible labels or tags to plug-tobacco, consisting of, first, placing a sticky base, composed as set forth, upon the plug, and then applying a label, upon the under side of which is glue or other suitable adhesive substance, and then subjecting the plug to pressure, as is herein set forth.

196,238. MOWING-MACHINES. Michael F. Lowth, T. J. Howe, and H. N. Labars, Owatonna, Minn. Filed May 23, 1877.



1. The combination of the coupling-arm D, pivoted adjustably at one end, as described, the rocking sleeve G, mounted at the other end thereof, with the shoe H, and the cutter and finger bars, substantially as and for the purposes set forth.

2. The combination of the connecting-bar J, provided at its end with a slot, *j*, the tilting lever K, having a pin, *s*, and the rocking sleeve G, having lug *k*, substantially as described.

3. The push-bar L, having hook *l*, in combination with the rocking sleeve G, having the recess, all constructed and operating substantially as set forth.

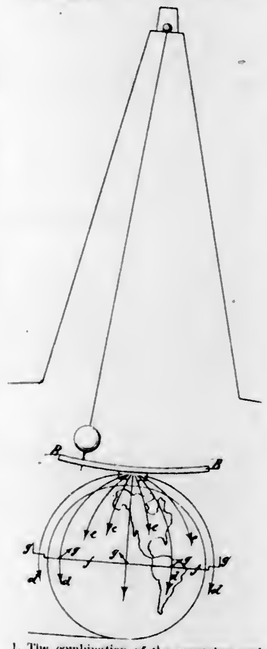
4. The combination of the slotted connecting-bar, rocking sleeve, coupling-arm, and push-bar, all arranged as described, whereby the cutter is allowed automatically to follow the contour of the ground, substantially as set forth.

5. The combination of the rocking sleeve G with frame M, chain *z*, and lever N, substantially as and for the purposes set forth.

6. The combination of the longitudinally-movable washer O, having the inwardly-projecting stud *o*, with the finger-bar having a perforation at *x*, substantially as and for the purposes set forth.

7. The combination of the rocking sleeve G, placed on the bar D, and carrying the frame M, having cam projection *m*, as described, with the shoe H, and cutter and finger bars, substantially as set forth.

196,239. APPARATUS FOR ILLUSTRATING THE EARTH'S AXIAL ROTATION. Charles Mandel, New York, N. Y. Filed May 8, 1877.



1. The combination of the pendulum with the slotted frame or supporter B, and a globe or map representing the surface of the earth, constructed and arranged to operate substantially as set forth.

2. The combination of the pendulum, the supporter B, and the globe or map with the indicators *d e*, constructed and arranged to operate substantially as set forth.

3. The combination of the pendulum, the supporter B, the indicators *d*, and the ring or rack *f*, with the pinions and hands or pointers *g*, constructed, arranged, and operating substantially as set forth.

196,240. VIBRATING PROPELLERS. Samuel Marden, Newton, Mass., assignor of one-half his right to C. W. Lord, same place. Filed Sept. 10, 1877

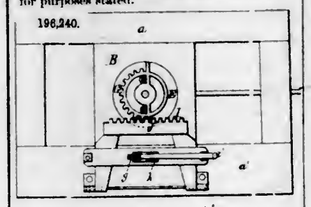
1. The mechanism herein explained for effecting the reversal of the blades D D, the same consisting of the segmental circular rack or pinion G and tilting rack-bar J, the pinion being affixed to, and operating, the propeller shaft and blades, and the rack-bar hinged to the guideways, and engaging at proper times the pinion, the whole being substantially as and for purposes stated.

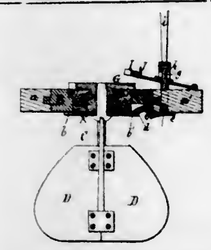
2. The tilting latch or locking lever *c*, in combination with the stop-plate K and rod *f*, substantially as and for purposes stated.

3. The combination of the rack-bar J and sectoral pinion G with the propeller shaft and blades and intermediate mechanism, substantially as described, whereby, upon descent of the said bar to engage the pinion, the lock which holds the propeller in position is released automatically, the whole being essentially as and for purposes stated.

4. The combination, with the rack-bar J, of the eccentric *h* and lever *i*, substantially as and for purposes stated.

196,240.



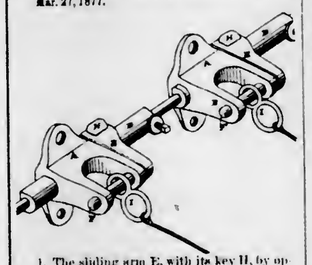


196,241. LAWN-MOWERS. Timothy D. Marsh, Jersey, Ohio, assignor of one-half his right to Frank M. Crane, same place. Filed Oct. 18, 1876.



A lawn-mower consisting of the truck and frame A, the cross-bar B, placed loosely on pins formed on or attached to the levers J J, which are pivoted to the frame, the cutter I, connected to the lower ends of the levers, the latch *b*, and the operating mechanism, organized and arranged substantially as shown and described.

196,242 DEVICES FOR RELEASING ANIMALS FROM STALLS. Saml. B. Martin, San Francisco, Cal. Filed Mar. 27, 1877.



1. The sliding arm E, with its key H, by operating which the arm may be secured to, or released from, the bar D, said arm being provided with a pin, F, which enters the holes C in the lugs B, to secure or release a halter, substantially as herein described.

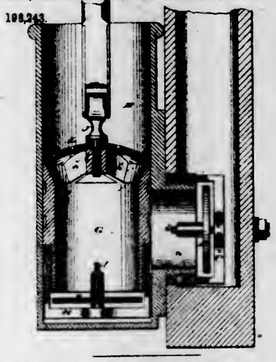
2. A series of independent securing and releasing devices, each consisting of a fixed plate, A, with lugs B, pin F, secured to the sliding arm E, key H, and bar D, in combination with the rod J, by which all the devices may be actuated at one movement, substantially as herein described.

196,243. PUMPS. E. McCoy, Ottumwa, Iowa, assignor to McCoy & Co., same place. Filed Sept. 1, 1877.

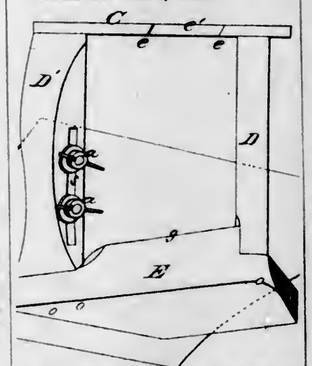
1. The combination of the plunger G, cage H, valve I, perforated cup L, and eyebolt J, substantially as and for the purposes herein set forth.

2. The combination of the cylinder B with projecting valve-seat *a*, having exterior screw-threads, the cage C, and valve D, substantially as and for the purposes herein set forth.

196,243

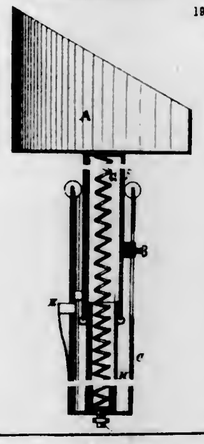


196,244. COTTON-SCRAPERS. Charles W. McMurry, Gadsden, Tenn. Filed July 11, 1874.



In a cotton-scraper, the frame for supporting the scraper, constructed of the top beam C, having ears *e e*, with inclined slots *e'*, the rear upright D, the slotted and sharp-edged upright D', and the inclined triangular sole-plate E, having its land-side edge rounded, as shown at *f*, and thickened by the longitudinal flange *g*, all substantially as and for the purposes herein set forth.

196,245.



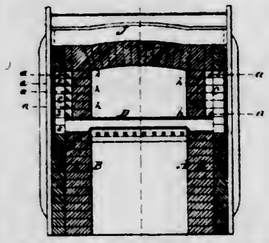
196,245. WEIGHING-SCOOPS. Michael L. Mory, Chico, Cal. Filed Aug. 24, 1877.

1. The scoop A, with its hollow stem B fitted to slide between the outer and inner handle and case C H, and provided with the anti-friction rollers D D', in combination with the spring G and scale K, substantially as herein described.

2. The scoop A, with its stem B and hollow double handle and spring-case C H, in combination with the thimble or socket I and screw J, for adjusting and regulating the spring G, substantially as herein described.

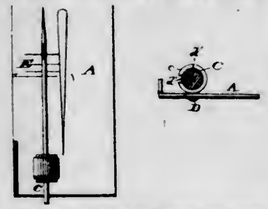
3. The scoop A, with its stem B moving in the handle C, and provided with the balance-spring and scale, in combination with the spring-stop E, to prevent the movement of the stem B, substantially as herein described.

196,246. REVERBERATING FURNACES. John Morrison, Pittsburg, Pa. Filed May 9, 1877.



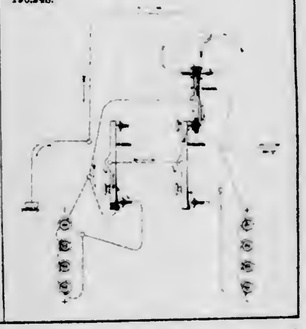
The improved metallurgic furnace hereinbefore described, having constructed in its walls, at the fire chamber, the air-distributing flue *c* and the series of small intensifying flues *a*, and having the chamber J extending transversely across its crown, said chamber having communication with the flues *a* through the gathering flues *b*, and with the furnace through the cumulative delivery slits *f f*, all the several parts being constructed and combined substantially as and for the purpose described.

196,247. NEEDLE-SETTERS FOR SEWING-MACHINES. Lucius S. Newcomb, Utica, N. Y. Filed Feb. 14, 1877.



The combination, with a needle gage-plate of a needle-setter constructed with the slotted rubber cylinder and metallic sleeve, the same being pivoted to and adapted to have a rotary motion upon the needle gage plate, substantially as described.

196,248.



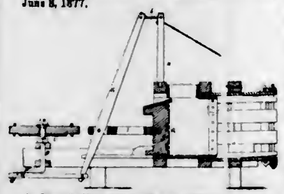
196,248. QUADRUPLEX TELEGRAPH. Henry C. Nicholson, Kenton, Ky., assignor to the Western Union Telegraph Company, New York city. Filed Sept. 1, 1877.

1. The combination, substantially as specified, with the main line at one station, of two main batteries, or a divided battery and two keys, one key being adapted to close the circuit of one of the batteries or sections, and the other to close the circuit of the other battery or section, as well as to determine the polarity of the battery-current sent by the first key.

2. The combination, substantially as specified, with the main line at one station, of two main batteries, or a divided battery, normally entirely disconnected from the line, and two keys, one key being adapted to close the circuit of one of the batteries or sections, and the other to close the other battery or section, as well as to determine the polarity of the battery-current sent by the first key.

3. The combination, substantially as specified, of the key C' and the circuit preserving and reversing lever.

196,249. BALING-PRESS. Zelora Phillips, Hasen Township, Prairie County, assignor of one-half his right to M. M. Yeakle, Prairie Centre, Ark. Filed June 8, 1877.

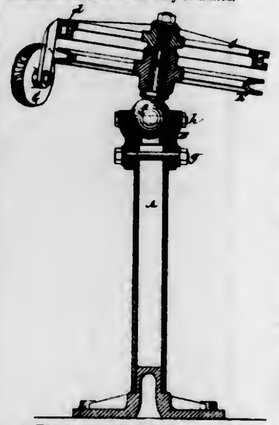


1. In a baling-press, the combination of the crank-shaft B, ratchet-wheel C, sweep D, dogs or links *a a*, lever K, and spring *d*, all constructed and arranged to operate substantially as and for the purposes herein set forth.

2. The combination of the shaft B with crank B', pitman E, walking-beam G, arm I, and plunger J, substantially as and for the purposes herein set forth.

196,250. GUIDE-PULLEYS FOR ROPES AND BANDS. George H. Reynolds, New York, N. Y., assignor of one-half his right to C. H. Delamater and G. H. Robinson, same place. Filed Apr. 3, 1877.

Brief.—The device is designed for supporting and guiding the ropes used to drive or transmit motion to machinery in mines.



1. The combination of the axial pintle or pivot D, upon which the angle-sheave rotates, the supporting post or column A, and the positively-clamping ball-and-socket joint *f* B, connecting the said pintle or pivot directly with the said post or column, and providing for the adjustment and securing of the said pivot or pintle at various angles relatively to the said post or column, substantially as herein described.

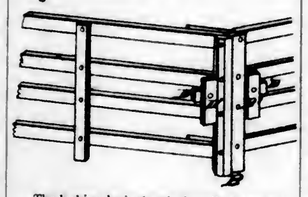
2. The combination, with the divided clamping-socket B, which forms part of the ball-and-socket joint connection between the pintle or pivot D and the post or standard A, of the bolt *g*, which clamps the two sections of said socket securely to the post or standard without clamping the ball *f* on the pintle or pivot, and the bolts *h h*, which clamp the said sections on the said ball *f*, substantially as herein described.

3. The carrier C, in combination with the angle-sheave E and the pintle or pivot D, whereby said sheave-carrier is adjustable in concert with the angle-sheave, substantially as specified.

4. The combination, with the sheave-carrier C, of the rope guiding and carrying sheaves G G, made adjustable on and around said carrier, essentially as described.

5. The combination of the angle-sheave E, the carrier C, the rope guiding and carrying sheaves G G, adjustable around said carrier, the universally-adjustable pintle or pivot D, the clamp B, and the post or column A, substantially as specified.

196,251. FENCES. Lucien B. Richardson, North English, Iowa. Filed Aug. 18, 1877.



The locking device herein described, adapted to be applied to the two adjacent panels of a board fence having horizontal boards, consisting of the horizontal bar D, with the vertical bars D' D' attached thereto, each of the bars D' embracing two adjacent horizontal boards of the fence, substantially as described, and for the purpose set forth.

196,252. STEM WINDING AND SETTING WATCHES. Henry M. Robottom, Liverpool, Great Britain, assignor of one-third his right to William P. Thompson, same place. Filed Aug. 18, 1877.



1. The combination of the winding-arbor B, provided with the yielding ratchet plate or disk F, the gear-wheel E, provided with the ratchet-teeth on its side face, and the pinion-stem D, substantially as and for the purpose specified.

2. In combination with the winding-pinion B, the center-pinion or hand-shaft C, and stem D, having the rotary and longitudinal movements, the rotating and laterally-moving wheel E, with ratchet-teeth on its side face, and the yielding ratchet plate or disk F, mounted on the winding-pinion.

3. In combination with the rotating and sliding winding and setting wheel E, having ratchet-teeth on its side face, the yielding ratchet-plate F, provided with the hub having the cylindrical body and beveled or conical end, for the purpose described.

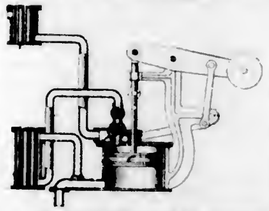
4. In combination with the rotating disk F and the rotating and sliding wheel E, having ratchet-teeth on their contiguous faces, a locking-hub, *g*, to prevent the wheel E from moving laterally until it has first turned backward, to cause the raising of the disk by the ratchet-teeth.

5. In a stem-winding mechanism for watches, the combination of a driving and a driven wheel provided with circular rows of ratchet-teeth on their contiguous faces, and held together by a spring-pressure, substantially as shown.

6. The combination of the hand-controlling pinion C, the driving-wheel E, capable of a transverse sliding movement, a spring arranged to urge the wheel away from the pinion, and the stem D, serving both to rotate the wheel and force it into gear with the pinion.

196,253. AIR-COMPRESSING APPARATUS. John B. Root, Fort Chester, N. Y. Filed Apr. 17, 1877.

Brief.—The air being admitted into the cylinder at one end to be compressed, and being, after its compression on one face of the piston, expelled from the same end of the cylinder. The cooled compressed air is admitted to the cylinder at the other end, to act, by its expansion, on the other face of the piston.



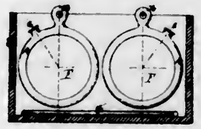
1. The combination, with an air-compression pump, a cooling-receiver for compressed air, and a working cylinder and piston, in and by which the expansive force of the compressed air is utilized, of a variable cut-off valve applied between the said receiver and said cylinder, for the purpose of regulating the compression of air in said receiver and its expansion in said cylinder, and thereby regulating the degree of heat obtained by said compression, substantially as described.

2. The combination, with said air-compression pump, said cooling-receiver, and said working cylinder and piston, of a refrigerator connected with the eduction-passage of said cylinder, substantially as and for the purpose set forth.

3. The combination, with an air-compression apparatus in which the air is used expansively after compression, of a check-valve arranged within or applied to the exhaust-passage of the cylinder in which the expansive force of the air is utilized, substantially as and for the purpose specified.

196,254. PURIFYING SALICYLIC ACID BY DIALYSIS. Ernst Schering, Berlin, Germany. Filed Aug. 9, 1877.

Brief.—Crystals of salicylic acid are dissolved in alcohol, and placed in the purifier or dialyzer. The crystals of salicylic acid are obtained by treating carbolate of soda with carbonic acid, precipitating with sulphurous acid, treating the impure salicylic acid thus obtained with zinc-dust, and finally dissolving in alcohol and cooling.



1. The process of purifying or dialysing salicylic acid herein described, consisting in the filtration of the acid through animal membrane, substantially as and for the purpose set forth.

2. A dialysator consisting of a tank, E, heating-coil F, and filters formed of porcelain rings, having membranaceous sides, as and for the purpose set forth.

196,255. GAS-REGULATORS. John C. Schooley, New York, N. Y., assignor to Jeremiah W. Curtis, same place. Filed Sept. 1, 1877.

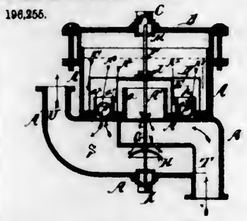
1. The combination of the hollow plug C, permanent guide-plate M, cap R, and valve-rod F, substantially as and for the purpose set forth.

2. The combination of the perforated conduit P with the inverted cup D, substantially as and for the purpose set forth.

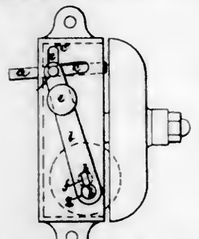
3. The case A, hollow plug K, with its guide-plate L, and the valve-rod F, combined and arranged as and for the purpose set forth.

4. The annular perforated conduit P, the inverted cups D and E, the valve-rod F, and the guide-plates M and L, combined and arranged as and for the purpose set forth.

196,255.



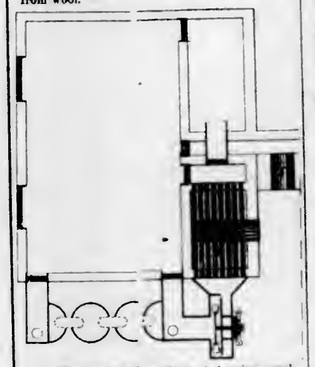
196,256. COMBINED WINDOW-CATCH AND BURGLAR-ALARM. Howard B. Schuremas, Newark, N. J. Filed Sept. 12, 1877.



In an alarm mechanism, the combination, with the arbor provided with the square end *k*, of the catch *b*, adapted to the end *k*, and having an opening, *g*, the bolt *a*, provided with a pin, *a'*, jointed to the crank, and the case having an L-shaped slot, *c c*, as set forth.

196,257. SEPARATING VEGETABLE MATTER FROM WOOL. Godefroy Sirtaine, Verviers, Belgium. Filed Mar. 6, 1875. Patented in England, July 19, 1873, for fourteen years.

Brief.—Combines the commercial manufacture of hydrochloric acid and of ammonia with the separation of burrs and vegetable matter from wool.



1. The described method of cleaning wool, consisting, essentially, in the following series of steps: first, subjecting the mass to the joint action of currents of acid gas and hot air; second, withdrawing the acid gas; and, third, subjecting the mass to the action of alkaline gas.

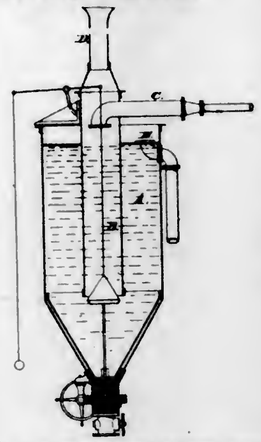
2. The method described, consisting, essentially, in subjecting the wool to the action of acid and alkaline gases, and then recovering the acid and alkaline in solution, as set forth.

196,258. MANUFACTURE OF HYPOCHLORITES OF LIME AND MAGNESIA FROM THEIR SILICATES AND ALUMINATES. Ernest Solvay, Brussels, Belgium. Filed May 24, 1877.

Brief.—The silicates and aluminates used are those formed, in the manufacture of hydrochloric acid or chlorine, by decomposing an earthy chloride and silica or silicate of alumina by steam or air at a great heat.

The process herein described of producing hypochlorite of lime or magnesia and pure silica, or silica and alumina, by treating the silicate of lime or the silicate and aluminate of lime with chlorine gas, substantially as set forth.

196,259. APPARATUS FOR CONTINUOUS DECANTATION IN THE AMMONIA-SODA PROCESS. Ernest Solvay, Brussels, Belgium. Filed May 6, 1876.

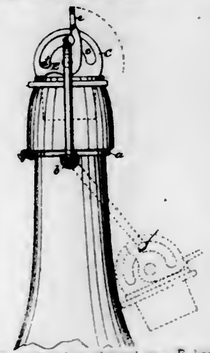


1. In an apparatus for continuous decantation, the combination, with the tube B, of the chimney D, forming a continuation thereof for the escape of steam, substantially as set forth.

2. In an apparatus for continuous decantation, the combination, with the tube B, of the conical valve K, for regulating the flow of the solution into the vessel A, and preventing the precipitate from being washed up off the bottom, substantially as set forth.

3. The combination of the vessel A having a conical bottom, tube B with its chimney and valve, and the induction and eduction pipes C E, the whole arranged to operate substantially as and for the purposes specified.

196,260. STOPPER-FASTENERS. John L. Stewart, Ellicott City, Md. Filed Sept. 11, 1877.

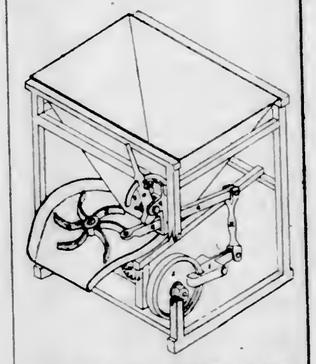


1. The pivoted quadrantal cam E, having depressions or locking-seats *d' d'* and a thumb-piece, *e*, combined with the slotted support C, having locking-seat *d*, and with the elastic stopper and the swing-bail, substantially as and for the purpose described.

2. The pivoted quadrantal cam E, formed with double plates united by a thumb-piece, *e*, and having a curved slot with locking-seats *d' d'*, in combination with the central slotted support C, carrying the stopper, and having a locking-seat, *d*, and with the swinging bail, substantially as and for the purpose described.

196,261. FEEDERS FOR STAMP-MILLS. Charles C. Stevenson, Gold Hill, Nev. Filed May 5, 1877.

Brief.—As the stamp drops the tappet strikes the lever G, which, through the connecting-rod, clutch, and shaft beneath the tray, operates the scraper. The adjustable regulating device permits a greater or less throw of the lever.



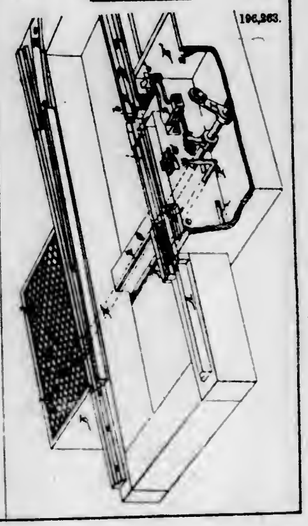
1. The combination, with the lever G, of the adjusting device, consisting of the lever O, with its cam-shaped foot pivoted between the two arms Q Q, segmental bar or rack S, and set-screw P, substantially as and for the purpose described.

2. The combination, with the horizontal movable scraper or scrapers E, of the shaft D, gear-wheels M N, shaft K, wheel J, clutch I, connecting-rod H, and lever G, substantially as and for the purpose specified.

196,262. PROCESSES OF REDUCING SILVER ORES. C. A. Stetefeldt, San Francisco, Cal. Filed Mar. 15, 1877.

The process of obtaining silver from its ores, which consists in subjecting the roasted and chloridized silver ores to the action of zinc or zinc amalgam and quicksilver, substantially as above described.

196,263.



196,263. RAILROAD-SWITCHES. B. J. Stukenborg and Joseph Bell, Cincinnati, Ohio. Filed Mar. 19, 1877.

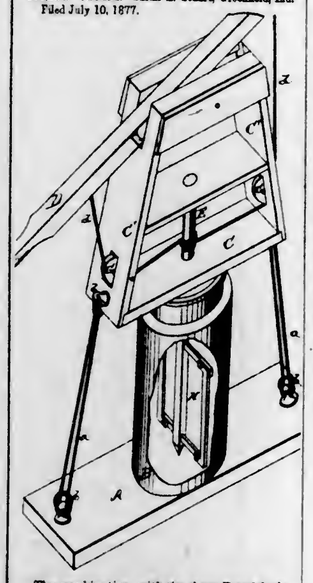
1. In combination with the switch-rail D, the tilting plates F F', connected operatively thereto, and located on the outside of the track, substantially as and for the purpose specified.

2. In combination with switch-rail D and tilting plates F F', the horizontal oscillating shaft H, having operating levers I, and connected to switch-rail through pitman and bell-crank connection, substantially as and for the purpose specified.

3. In combination with metal-lined pits E E' and tilting plates F F', the bearings *e e' e''* secured in the former, and the trunnions *f f' f''*, and retaining lugs *g g' g''*, secured upon the latter, substantially as and for the purpose specified.

4. In an automatic switch, substantially such as described, the gas-jet I', arranged in the pit for warming the parts in cold weather, to prevent the formation of ice thereon.

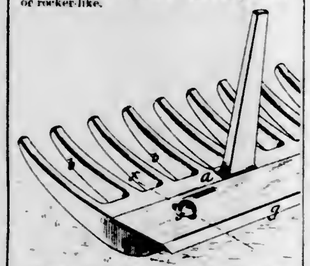
196,264. CHURNS. Sarah L. Stuart, Greenfield, Ind. Filed July 10, 1877.



The combination, with the churn B and dasher-rod E, of the base A, the frame C, carrying the operating-lever, pulleys, and cord, the rings *b b*, and the cord *a*, substantially as and for the purposes herein set forth.

196,265. COMBINED GRASS-CUTTER AND RAKE. John H. Stump, Baltimore, Md. Filed June 25, 1877.

Brief.—Rake cast with curved teeth and projecting head, to which is removably attached a grass knife, outer face of rake being curved or rocker-like.



The rake *a*, having a curved face, *c*, in combination with a removable knife, *e*, constructed and arranged substantially as and for the purpose set forth.

196,266. ROTARY HYDRAULIC ENGINES. Jas. Talley, Jr., Kansas City, Mo. Filed June 8, 1877.

Brief.—The wheel may be run in either a vertical or horizontal position. The buckets are sloping, and terminate against flanges at each side. The flanges are scalloped, to allow the spent water to escape on the exit side of the wheel. There are annular packing-rings on each side, to confine the water to the periphery of the wheel.



1. The wheel B, provided with sloping buckets *b'* on its periphery, confined between annular flanges *b*, as described and shown.

2. The wheel B, mounted on the shaft C and set eccentrically in the chamber A^1, the shaft C_1 having bearings *c c* in the case A^1 A^2, and an adjusting-step, c^1, and screw c^2, all arranged substantially as described and set forth.

3. The sliding gate a^1, placed in the casing A, and arranged to close the outlet E, as and for the purpose set forth.

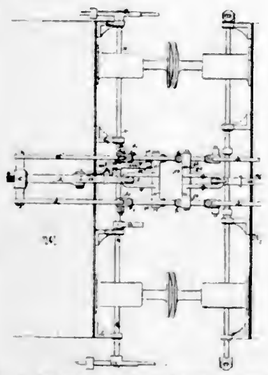
4. The adjustable cap G, mutually interchangeable for the outlets E and F, so as to close either, as required to convert the machine into a vertical or a horizontal one, as and for the purpose set forth.

5. The wave-line chute *d d'*, forming the outlet to the induction-pipe D, as and for the purpose set forth.

6. The wave-line chute *d d'*, constructed widest at the first end, *d*, and thence gradually narrowing to a point, d^2, as described and set forth.

7. The end piece A^2 of the case A, with the tapering duct a^2, and arranged to conduct the spent water from the chamber A^1 to the outlet F, as and for the purpose set forth.

196,267. CAR-COUPLINGS. Gottfried D. Theegarten, Mühlheim on the Rhine, Prussia, assignor to himself, Julius Krause, and Julius Gast, Berlin, Prussia, Germany. Filed Sept. 27, 1877.



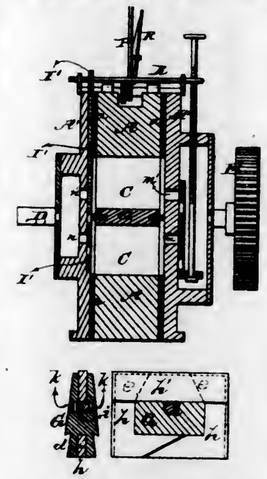
1. The combination of a horizontally and vertically movable link or shackle-frame and a hinged coupling-link with suitable mechanism for raising and lowering and stretching and loosening the link, and a draw-bar or hook, substantially as and for the purpose set forth.

2. The combination of the sliding rack-piece *b* and the catch-lever *h* with the link or shackle-frame, coupling-link, draw-bar, and suitable mechanism for locking the rack-piece and releasing the same, substantially as herein described.

3. The combination of the transverse sliding and rocking shaft *k* and the lever *m*, having rear horizontal piece *m'*, with the jointed link or shackle-frame and coupling-link, the catch-lever *h*, rack-piece *b*, and draw-bar *a*, substantially as and for the purpose set forth.

4. The shaft *k*, having arms or levers *n n*, in combination with the shackle-frame, having blocks *l l'*, as and for the purpose set forth.

196,268. ROTARY STEAM-ENGINES. W. C. Thompson, Tipton, Tenn. Filed May 5, 1877.



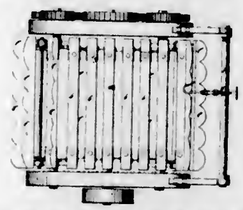
1. The piston G, having a continuous groove in its edges for the reception of the L-shaped packing-bars *h*, having overlapping adjoining ends and split upper ends with shoulders *e*, and packing-bars *h'*, having their ends cut to correspond with the ends of the bars *h*, in combination with the hollow plugs *k k* and movable valve *i*, substantially as described, and for the purpose set forth.

2. In a rotating engine, the exhaust-valve I', arranged in a groove on the inside of the head, for the purposes set forth.

3. The combination of the inlet-valve I, exhaust-valve I', arranged in a groove on the inside of the head, rod K, shaft L, with arms *p p*, and lever P, pawl R, and rack S, all constructed as and for the purpose set forth.

196,269. HOG-SCRAPING MACHINES. R. C. Tompkins, New York, assignor to himself and Amasa Spring, White Plains, N. Y. Filed Mar. 29, 1877.

Brief.—The curvilinear form of the scraper-blades facilitates the scraping the uneven portions of the carcass.

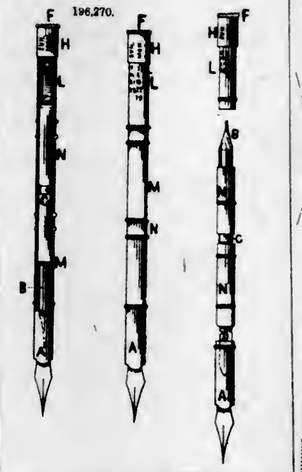


The scraper-blades C, having a curvilinear profile, attached to bases *b*, and staggered in their positions upon the endless chains, substantially as and for the purpose described.

196,270. COMBINATION WRITING-INSTRUMENTS. C. H. Trask, Lynn, Mass. Filed Mar. 9, 1877.

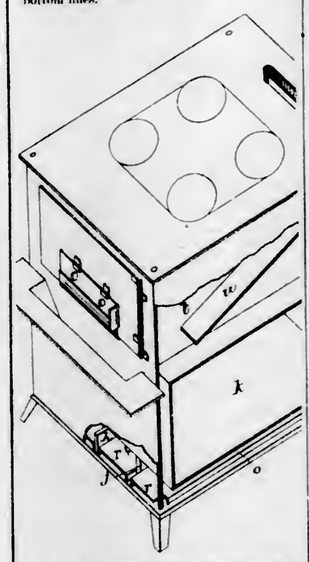
As an article of manufacture, the above-described combination writing instrument, consisting of the pencil B, rubber eraser C, knife D, having the file E, cap F, having a roughened top, calendar H I, and tubes M and N, with the pen holder A, all being constructed and arranged to operate substantially in the manner described, as and for the purposes set forth.

196,270.



196,271. COOKING-STOVES. John H. Troutman and W. H. H. Green, Aubrey Township, Johnson County, Kans., assignors to Green, Troutman & Co. Filed Aug. 9, 1877.

Brief.—The entire stove is divided, by division-plates, into two equal parts, either one of which may be used alone, or both may be used together. Each half of the stove is again divided, by similar division-plates, into two flues. The stove is provided with top, side, back, and bottom flues.

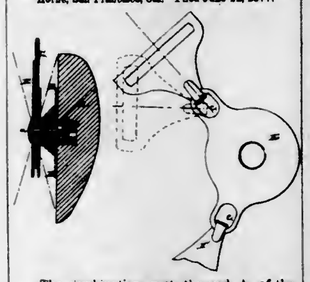


1. In a cooking-stove, the combination of the flanges or partitions *f g h i j*, dampers *q s*, and flues *n o p q*, substantially as specified.

2. In a cooking-stove, the combination of the dampers *s*, located in the top flues of the stove, with the flues *t*, down the side of the stove, over the oven-door, and the flues *p q*, substantially as described.

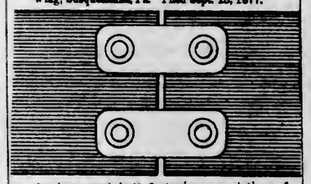
3. In a cooking-stove, the combination of the dampers *m*, at the rear of the stove, and the flues *n o p q* with the side dampers *s* and flues *t*, either set of dampers being adapted to be used alone, substantially as specified.

196,272. ELASTIC TRUSSES. Geo. A. Tyer and W. J. Horne, San Francisco, Cal. Filed June 11, 1877.



The combination, with the pad A_1 of the plate B, provided with screw-sleeve *b*, the conical volute springs C, the plate D, strap-holding plate E, and the center-bolt *a*, having an adjusting-nut at one end, constructed and arranged substantially as described and shown.

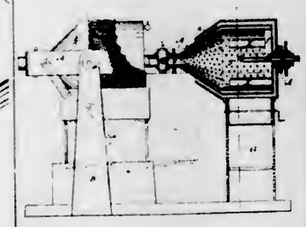
196,273. BELT-FASTENINGS. Alfred C. Tyler, Philadelphia, assignor of one-half his right to Theodore T. Wing, Susquehanna, Pa. Filed Sept. 15, 1877.



An improved belt-fastening, consisting of strips or plates of rawhide prepared by immersion in neat's-foot oil, substantially as set forth, and adapted to be secured to the ends of a belt, substantially as shown and described.

196,274. COMBINED COFFEE ROASTER AND COOLER. Joseph R. Underwood, Fayetteville, N. C. Filed Mar. 29, 1877.

Brief.—The cylinders may be changed to a vertical position by means of the frame, and the roasted coffee discharged into the cooling-cylinder. The cylinders being returned to a horizontal position, and a charge of fresh coffee inserted, the roasting and cooling operations proceed simultaneously.



7. The combination, with the furnace G and the standard B, of the frame A and its contained roasting-cylinder, arranged to be lifted from the furnace, and having a surrounding hot-air casing, with an opening below adapted to register with the opening in the top of the furnace, for the purpose described.

8. The sliding sampler N, combined with the revolving cylinder, carrying a lifter, *f*, to deliver the beans to the sampler, substantially as described.

1. A roasting cylinder or receptacle combined with a cooling cylinder or receptacle, rotated together upon the same axis, and having a communication provided with a suitable cut-off, through which the contents of the roasting-cylinder may be passed to the cooling-cylinder, substantially as and for the purpose described.

2. A rotating cylinder for cooling coffee and condensing the aromatic exhalations of roasting coffee on the same as it is being cooled, combined with means, substantially as described, for applying water to the outside of said cylinder to produce the cooling effect upon the hot coffee within, as and for the purpose described.

3. The revolving cooling cylinder or receptacle combined with a water-tank or its equivalent, as described, said arranged upon bearings to be moved into or out of the water or cooling medium, for the purpose described.

4. The rotary roasting and cooling cylinders combined with and journaled in a frame arranged to change from a horizontal to a vertical position, and having a common communication, O, for both the coffee and the aromatic vapors, as described.

5. The cooling-cylinder, arranged to be turned, as described, and provided with an absorbent jacket and a drip-cup, for the purpose set forth.

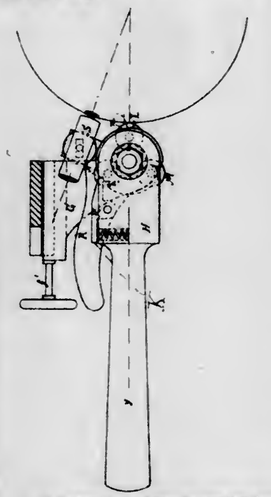
6. The combination, with the pivoted frame carrying the cylinders, of the water-tank, arranged upon hinged supports, and connected with said frame upon the opposite side of the pivot from the cylinders, as and for the purpose described.

196,275. DENTIFRICES. Edward G. Ward, Jersey City, N. J. Filed Apr. 14, 1877.

A dentifrice composed of soap-tree bark, or the fluid extract thereof, in combination with pulverized chalk, substantially as and for the purpose described.

196,276. ROLLER-SEAMING. Francis A. Walsh, Chicago, Ill., assignor of one-half his right to Francis A. Bowen, same place. Filed Mar. 13, 1877.

Brief.—The seaming-lever has in its bifurcated end a rotating disk, in which three seaming-rollers are mounted, and brought into operation one after another as the seaming progresses. Adjacent and on an independent lever is mounted the under folding or seam-supporting roller, provided with a retracting-spring. The two levers have a common fulcrum or journal.



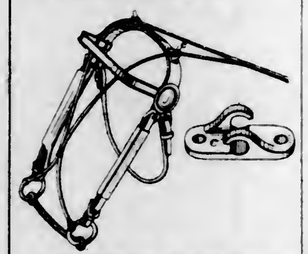
1. In a seaming machine, the combination, with the seaming-lever H, of the disk J, carrying the grooved seaming-rollers L, M, and N, substantially as specified.

2. The combination, with the disk J, carrying the grooved seaming-rollers L, M, and N, and provided with the notches *h*, *i*, and *j*, of the pawl K and spring M, for adjusting and

holding the disk, substantially as and for the purpose specified.

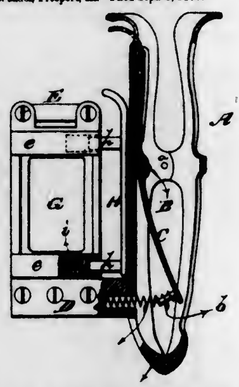
3. The combination, with the disk J, carrying the grooved seaming-rollers L, M, and N, as described, of the lever R, provided with the longitudinally-movable shaft S', carrying the roller r, substantially as and for the purpose specified.

196,277. BRIDLES. Orville F. Webster, Ann Arbor, Mich., assignor of one-half his right to William W. Nichols, same place. Filed Aug. 27, 1877.



In combination with the crown-band of a bridle and the overdraw check-lines, metallic guides, having overlapping transverse arms, secured to the band, to receive and hold the check-lines, all substantially as shown and described.

196,278. REIN-HOLDER AND WHIP-SOCKET. John W. Waddel, Freeport, Ill. Filed Sept. 8, 1877.



1. The L-shaped piece B, riveted to the inside of the whip-socket A, to form a fulcrum for the lever or binding-plate C, as herein set forth.

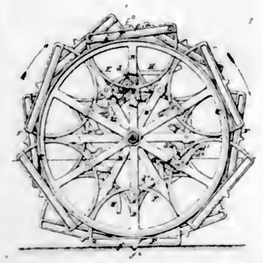
2. In combination with the whip-socket A, the arm D, frame G, with clamps E and tubes e, the springs i, and bars H, with pins k, all substantially as and for the purposes set forth.

196,279. FEED-BAGS. John Weir, New York, N. Y. Filed Aug. 4, 1877.



As an improved article of manufacture, a feed-bag, A, provided with a flexible hopper-shaped diaphragm, B, fixed to the walls or sides of the bag at some distance below the tops, as shown, and provided at its inner margin with an elastic binding, C, all as and for the purpose set forth.

196,280. TRACTION-WHEELS. Reinhard Yoch, West Belleville, Ill. Filed Aug. 24, 1877.



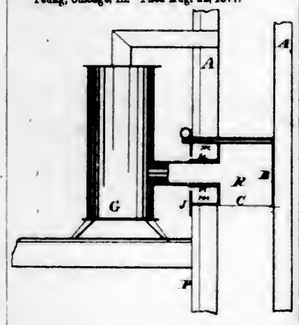
1. The combination, with the wheel, of the rail-sections F, having the broad flat sole *f* and flat cap or crown *f'*, said sections being arranged in two sets around the wheel, and attached thereto, in manner substantially as specified, to insure a traveling-surface for the wheel.

2. The combination, with the wheel and rail-sections F, of the guide-bars E, connected to guide-cranks D, substantially as set forth.

3. The combination of sections F, bar E, compound crank D, and cam G, substantially as set forth.

4. In combination with section F, bar E, crank D, and cam G, the cam H, as and for the purpose set forth.

196,281. CHIMNEY ATTACHMENTS FOR HEATERS. A. Young, Chicago, Ill. Filed Aug. 22, 1877.



The attachment B D E, inclosed by the four walls of the chimney A A', projecting through the front or inner wall of the chimney, and, by means of a safety face-plate, J, forming an air-chamber round the thimble s, the top of the attachment being provided with a damper for turning heat from the chimney into the drum H, as and for the purpose set forth.

196,282. CAR-STARTERS. John P. Zimmerman, Bellefonte, Pa., assignor of one-half his right to Henry W. Fontz, same place. Filed Apr. 11, 1877.

1. The lever B, carrying reversible eccentric D, and draft-chains E E, extending to both ends of the car, in combination with the axle 4, carrying intermediate wheel A, as and for the purpose set forth.

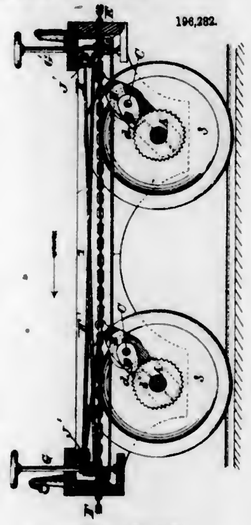
2. The combination, with the lever B, of the rope or chain F', sheave J', and rear hand-wheel shaft G', as and for the purpose set forth.

3. The combination, with the lever and reversible eccentric, of the ropes or chains F F', for retracting the lever, as and for the purpose set forth.

4. The combination of the reversing cord or chain I and pulley H with the eccentric D, as and for the purpose set forth.

5. The combination of the lever B, shaft C, eccentric, and pulley, arranged substantially as and for the purpose set forth.

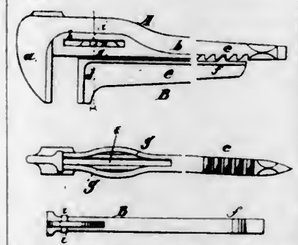
196,282.



REISSUES.

7,910. WRENCHES. Byron C. Bradley, Chicago, Ill. Patent No. 156,139, dated Sept. 22, 1874. Filed Sept. 24, 1877.

Brief.—The walls, of malleable iron, may be cast straight, and then be spread apart to receive the projections; or they may be cast with an outward bend, and after projections have been inserted into the grooves may be straightened.



1. The part A, consisting of the jaw *a* and handle *b*, in combination with the movable part B, consisting of the jaw *d* and handle *e*, the two parts being held together and arranged to slide upon each other by means of grooves and projections on each side, substantially as specified.

2. The combination of the two parts A and B, the former having a recess, *m*, slots *h*, and notches *c*, and the latter having an ear, *n*, provided with projections *i* and projection *f*, substantially as and for the purposes specified.

7,911. ADJUSTABLE WATCH-KEYS. John S. Birch, New York, assignor, by mesne assignments, to W. A. Cummings and C. C. Cummings, Brooklyn, N. Y. Patent No. 70,727, dated Nov. 12, 1867. Filed Sept. 6, 1877.



The combination, in a watch-key, of a barrel which consists of two adjustable jaws, which are separated diagonally of the post-socket, and constructed and adapted to apply to the winding-post through the ordinary hole of the cap of the watch, and an adjustable device which holds said jaws on posts of different sizes, substantially as described.

7,912. BOOTS AND SHOES. T. J. Greenwood, Warren, Ill., assignor to himself and T. D. Thornton. Patent No. 190,753, dated May 15, 1877. Filed Aug. 6, 1877.



1. A seamless back made of a quarter, A, having symmetrical front sections B, spread or sprung forward, and a back tongue, D, all of one piece, in connection with a correspondingly-shaped top quarter, C, stitched thereto, substantially in the manner set forth.

2. A quarter for seamless-back shoes cut from a continuous blank, having the lines *a b*, as shown and described, and with holes *d* to form symmetrical front sections that may be spread or sprung out from points near the highest part of the instep, substantially as specified.

3. A quarter for seamless-back shoes cut from a continuous blank, and having the lines *a b*, as shown and described, to form symmetrical front sections, and an upwardly extending back tongue, adapted to receive the double-pointed gore, substantially as described.

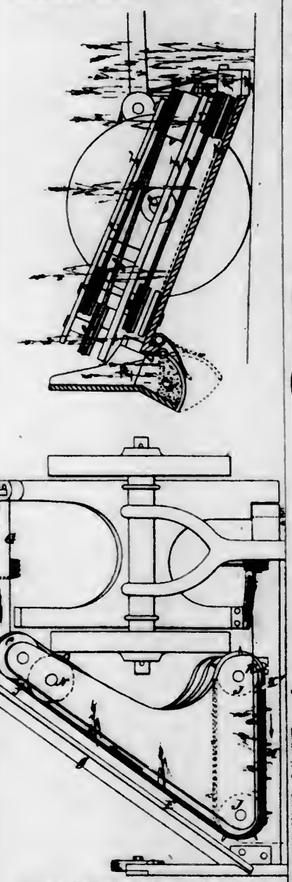
7,913. MODES OF PREPARING SHEET-COPPER FOR BOILERS AND OTHER VESSELS. Andrew O'Neill, Arsenia, Conn., assignor to Samuel A. Cotter. Patent No. 86,660, dated Apr. 6, 1869. Filed July 23, 1877.

1. As a new article of manufacture, the tinned sheet-copper herein described, the same having a bright or polished copper surface, and the whole being cold-rolled, as and for the purposes described.

2. The improvement in the manufacture of tinned sheet-copper, consisting in tinning one surface, cleaning or brightening the other surface, and subjecting the sheet, while cold, to pressure between rollers, substantially as set forth.

3. The sheet of tinned copper prepared by cleaning and rolling, and protected by a varnish upon the copper surface, as and for the purposes set forth.

7,914. HARVESTERS. James Pike, Troy, N. Y. Patent No. 32,366, dated May 7, 1861. Filed Aug. 23, 1876.



1. The combination, in a harvesting-machine, of two driving or supporting wheels, a platform to receive the grain, an automatic self-raking device sweeping the grain, first parallel with the cutters to one side, and then to the rear, and a finger-bar and cutting apparatus so arranged, together with the platform, that the grain may be cut and delivered across the platform independent of the up-and-down movement of the main frame.

2. The combination of a dumping-box having a bottom hinged to the frame parallel to the cutters, and located in the rear of the track of the supporting-wheels, with a raking device, substantially such as described, delivering the cut grain to said box in a compact form for binding.

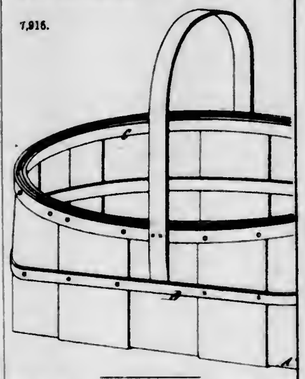
7,915. FRUIT-BASKETS. M. L. Stray and O. A. Stray, Euclid, Ohio. Patent No. 56,290, dated Oct. 30, 1866. Filed Sept. 3, 1877.

1. In a basket of the character herein specified, the combination of splints forming, severally, portions of the bottom and walls of the basket, the same being at right angles to each other at the flat bottom of the basket, and angularly bent upward, and overlapped at their vertical edges to form the upright walls of said basket, substantially as shown and described.

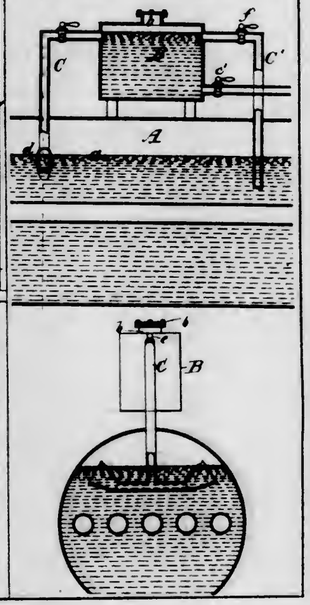
2. In a basket of the character herein specified, the combination of splints at right angles to each other, the same being bent up vertically at the edge of the flat bottom, and one being lapped beyond the other to form the corner of the rectangular basket, in the manner shown and described.

3. As a new article of manufacture, the herein-described rectangular fruit-basket made up of two series of cut-away splints at right angles to each other, and in each series adjacent to each other, the adjacent splints of each series overlapping at their edges to form the upright walls of the basket, the several parts being secured and arranged substantially as shown and described.

7,916.



7,916. BOILER-CLEANERS. Thomas O. Kemp, Beamsville, Ontario, Canada, assignor to James F. Hotchkiss, Bay City, Mich. Patent No. 166,782, dated Aug. 17, 1875. Filed Sept. 22, 1877.



1. The method of collecting impurities from the water-level of steam-boilers, raised thereto by ebullition, by carrying them beneath said level and upward into a reservoir with an ascending current induced by the displacement of a cooler body of water in said reservoir, and depositing the impurities therein by precipitation, substantially as specified.

2. As an element in a sediment-collector for steam-boilers, a pipe for the ascending current, suspended within the boiler, in combination with and terminating in a submerged inlet-pipe, having mouths extending to the water-level, and forming a steam-trap, substantially as described.

3. In a sediment-collector, bell-mouths suspended within the boiler at the water-level, and leading to a submerged pipe, and an ascending pipe combined with a reservoir, and a descending pipe extending within the boiler, and reaching just below the water-level, substantially as and for the purposes described.

4. The pipe C, having the submerged inverted T end and bell-mouths *d*, combined with the reservoir B, pipe C', and cocks *e f*, substantially as and for the purposes specified.

5. A bell-mouth or device having an enlarged receiving area for gathering the sediment, and suspended within the boiler by means of a pipe extending into the same from the upper shell thereof, the said bell-mouth and pipe constituting the induction channel for the upward current, carrying the sediment, combined with a reservoir and a return-pipe leading from the same to the boiler-water, the whole forming a means of circulation for the boiler-water, and for removing impurities therefrom, substantially as herein set forth.

7,917. FIFTH-WHEELS FOR PLATFORM-WAGONS. W. Fisher, Homer, N. Y. Patent No. 153,327, dated July 21, 1874. Filed Aug. 20, 1877.

1. A fifth-wheel running-gear for vehicles, having outside futchell A, made of one continuous piece, the inside futchells D D, crossbar C, center bar F, fifth-wheel G, and filling-blocks B B and E, made substantially as and for the purposes set forth.

2. In a fifth-wheel running gear for wagons, the outside futchell A, made in one continuous piece, and bent in Y shape, in combination with the filling-block E, substantially as described.

3. In a fifth-wheel running gear for wagons, the inner futchells D D, with elevating arches, and the filling-block F, said futchells being bolted to the filling-block, as shown, and branching outwardly from said block in Y form, substantially as set forth.

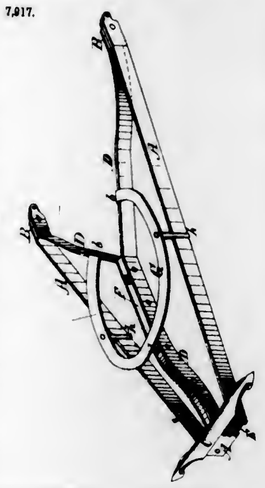
4. In a fifth-wheel gear for vehicles, the combination of the outer futchell A, formed in one continuous piece, with the inner futchells D D, secured to the filling-block F, substantially as described.

5. In a fifth-wheel gear for vehicles, the inside futchells D D, made substantially as described, in combination with the center bar F, as and for the purposes set forth.

6. The filling-blocks B B and E, in combination with outside and inside futchells of a running gear, substantially as and for the purposes set forth.

7. A wagon-trestle having the fifth-wheel G elevated above the outside futchell A by the forged posts *h h*, and supported upon and attached to the arched curved portions of the inside futchells by flanges *b b*, substantially as described.

7,917.



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DECISIONS OF THE COURTS.

SUPREME COURT OF THE UNITED STATES.

THE ILLINOIS CENTRAL RAILROAD COMPANY, APPELLANT, *vs.* SAMUEL H. TURRILL; THE MICHIGAN SOUTHERN AND NORTHERN INDIANA RAILROAD COMPANY, APPELLANTS, *vs.* SAMUEL H. TURRILL; THE CHICAGO AND ALTON RAILROAD COMPANY, APPELLANT, *vs.* SAMUEL H. TURRILL; THE CHICAGO, BURLINGTON AND QUINCY RAILROAD COMPANY, APPELLANTS, *vs.* SAMUEL H. TURRILL; THE PITTSBURGH, FORT WAYNE AND CHICAGO RAILWAY COMPANY, APPELLANTS, *vs.* SAMUEL H. TURRILL.

[*Appeals from the Circuit Court of the United States for the Northern District of Illinois.—Decided October Term*, 1876.]

The scope of the Cawood patent (1 Wall., 491) more fully defined and its validity sustained.

The words "or in any other convenient manner" construed to mean, by means adapted to the work the machine is intended to perform.

That the omission of certain elements in a prior patented machine might enable a mechanic to alter and employ the remnant, like the infringed machine, is no test of the patentability of the latter.

This is to be determined by the question whether the information necessary to construct and use the latter machine can be read out of the prior specification.

Because the invention has been used in an imperfect condition, or altered slightly in one particular without serious loss, it is no proof that it was no invention, or that the use of it in its altered condition was no infringement.

In settling an account for infringement the question is not what profits the infringed has made in his business, or from his manner of conducting it, but what advantage he has derived from the use of the infringed invention.

Mr. Justice STRONG delivered the opinion of the court.

These five cases may very conveniently be considered together, since they all present, in the main, the same questions.

The Cawood patent, for alleged infringements of which the suits were brought, has heretofore been the subject of consideration in this court, where it has been at least partially construed, and its limits have been defined. (1 Wall., 491.) It is a patent "for an alleged new and useful improvement in the common anvil or swedge-block, for the purpose of welding up and reforming the ends of railroad rails when they have exfoliated or become shattered from unequal wear." Such is the general description given by the patentee in his specification, followed by a more detailed one, which needs careful consideration in order to discover what the invention claimed distinctively was. The patentee refers to an annexed drawing, made a part of the specification, and claimed as giving a perspective view of the machine or invention. It represents a bed-sill on which is placed an anvil or swedge-block of cast-iron, across the face of which there are recesses or dies shaped like the side of the rail to be repaired. A solid and fixed block, cast as a part of the anvil, is also represented with its side face shaped to the side of the rail when placed in its natural position, and a movable press-block held down upon the anvil by dovetailed tongues and grooves, and operated by two eccentric cams, moving it back and forward, toward and from the fixed block. The face of the movable block is also shaped to fit the side of the rail next to it, and the two blocks grasp the rail on each side while its ends are being reformed, the movable one having sufficient travel to allow the rail to be extricated without altering its vertical position. A rail of the T form is also represented in position between the two press-blocks.

Having thus exhibited his invention by the drawing, the patentee proceeds to describe how he usually makes it and the manner of its use. After having stated that he usually makes his improved anvil and swedge-block between four and five feet long, and sixteen inches wide across the face, with two forms or recesses at one end, right and left, of a form corresponding to the sides of the rail, he adds:

> Close to these is a cast or raised block nearly as high as the rail, and with its farthest edge also shaped to fit the sides of the rail, when it lies across the anvil in its natural position. Next this [says he] I attach to the face of the anvil, by dovetailed tongues and grooves, or in any other convenient manner what I call a movable press-block, with a similar but reversed shaped edge, lying opposite the other, so as to inclose the rail between the two, as in the jaws of a vise. The blocks I work by eccentric cams on a shaft which is attached to the anvil by two standards, with bearings either cast on or bolted to the edge of the same, so that half a turn of the crank will move the press-block over a space a little more than half the width of the rail.

The mode of use is then described. The rail and the piece of iron to be welded on having been heated, the former is swung from the fire into the space between the blocks, when, by half a turn of the cams, the blocks are closed upon it. The welding-piece is then laid on top of the rail and leveled up by a swage held by the smith, of the form of that section which projects above the blocks. Such is the description. It is succeeded by the claim, as follows:

I do not claim the anvil-block nor its recesses, but what I do claim as my invention, and desire to secure by letters-patent, is the movable press-block, having its edge formed to the sides of the rail, in combination with another block with its edge of a similar but reversed form, (the movable block to be operated by two cams, or in any other convenient manner,) for the purpose of pressing between them a T or otherwise shaped rail, thereby greatly facilitating the difficult operation of welding and renewing the ends of such rails after they have been damaged, in the manner herein described and set forth.

What, then, in view of this specification and claim, was the invention patented? In *Turrill* vs. *Railroad Company*, 1 Wall., 491, this court declared it to be "such a movable press-block as is described, having its edge formed to the side of the rail, in combination with such other block as is described, with its edge of similar but reversed form, arranged as described, and combined and operating in the particular way described, for the special purpose of effecting the desired result." This was enough for that case as it then appeared; but the present case requires a more minute analysis. Viewing the claim as interpreted by the preceding description, to which it refers, and by the drawing, it is not difficult to discover what the patentee supposed he had invented. It was not any kind of movable press-block combined and operating in any way, with any kind of fixed block, to effect any useful result. His avowed purpose was to form a mechanism for welding up and reforming the ends of exfoliated and crushed rails, or, rather, to hold them in a convenient position for such welding and reforming, at the same time preserving their shape. His manner of accomplishing this result was evidently considered by him as of the very essence of his invention. On one side of the rail, when on the anvil, it is to be supported by a fixed block, part of the anvil itself, shaped reversely so as to fit the shape of the rail; and on the other it is to be supported and held in place by a movable block with a face adjusted to the shape of the rail on that side, the movable block capable of advance toward the fixed block, and of retrogradation after the rail is placed on the anvil. The rail is also, when in place, to be supported under its base by the anvil. This is fairly deducible from the manifest purpose of the inventor, from his drawing, and from his specification. It is necessary to the result supposed to have been obtained, for, unless supported at the base, the heated end of the rail would be in danger of being driven downward between the blocks by the blows of the sledge or hammer used in welding, while the part of the rail not operated upon, being cooler, would remain suspended between the blocks. And that the invention contemplates a bottom support for the rail on the anvil is made clear by the drawing. That shows no space between the anvil and the base of the rail. On the contrary, it exhibits a bottom support on the anvil, as well as lateral support by the modeled faces of the two blocks. The rail is thus confined on three of its sides, as in a mold; and the words of the specification, fairly construed, convey the same meaning. Thus it is said the fixed block is cast nearly as high as the anvil, with its farthest edge shaped to fit the side of the rail, when it lies across the anvil in its natural position. The rail, then, is to lie upon the anvil, having the anvil as a bottom support. Unless it does the shaped edge of the blocks cannot fit its side.

Having thus endeavored to ascertain what is the true idea of the patent, we are prepared to examine the devices which the appellants contend were in existence and use before Cawood made his invention. Of these there are three only that have been pressed upon our attention. The first is the angle-iron machine. Between this and the Cawood machine there are points of resemblance, but there are also very substantial differences. The purposes and objects sought to be accomplished by the machines are entirely unlike. It is always of importance to consider the object an inventor of a machine had in view, because thus the operation of its different parts and the functions performed by each can be better understood. The purpose of the angle-iron machine is to facilitate making angle-iron. That of the Cawood is to aid in mending rails already made. The angle-iron machine is a device to assist in welding together, at right angles with each other, two iron bars, making a fillet in the interior angle to strengthen the rail when made. To effect this, the fixed block on the anvil has necessarily a peculiar construction, unlike that in the Cawood machine. It is beveled or rounded off at the top of the face opposite the movable block, so as to give room for the formation of the fillet. Consequently, that face cannot answer reversely to the face of the movable block. And not only is the face of the fixed block uniformly and necessarily unlike that of the fixed block in the Cawood machine, but its function is entirely different. It is to furnish support for one of the two bars designed for the formation of the angle-iron. One entire limb of the angle-iron is laid upon top of the block, unconfined laterally, and there exposed to the hammer, the block being the anvil. The iron is thus left free to spread out in both directions, instead of being prevented from spreading laterally by the press-block, as in the Cawood machine. There is nothing to preserve a shape already formed. The other bar of the angle-iron, or its other limb, hangs suspended from the upper edge of the fixed block, and is not supported against the blows of the hammer at any other part of its height than the under side of the limb which lies on the block, instead of being supported concurrently at two parts of its height by the grasp of the two blocks, and supported also under its base. In the Cawood machine the hammering is not over the blocks or upon them, but exclusively on the rail between them. The fixed block in that is not cast quite so high as the rail, and the new piece is welded on and shaped, not on or over either block, but yet above the surface of that part of the anvil that constitutes the block. The patentee, after stating that the raised block of the anvil is cast "nearly as high as the rail," (the two blocks thus being made to support the under side of the crown of the rail, and confining the lower half of the crown laterally,) says, "the welded piece is laid on top of the rail in the usual way, and leveled up and shaped by a swedge held by the smith, of the form of that section which projects above the blocks." Thus the iron is not permitted to spread laterally under the blows of the hammer over the press-blocks and down between them. In fact, the blocks have nothing to do with the formation of that section of the rail that projects above them. It is very evident, therefore, that the fixed block in the angle-iron machine is not intended or adapted to perform the office which the fixed block does perform in the Cawood. In fact, it cannot perform it. Besides, in the angle-iron machine, no provision is made for a bottom support of a rail. The height of the blocks above the body of the anvil is not regulated with reference to any bottom support, and the bar between the jaws is held as in a vise. Support beneath the flange or base of the rail when in place for reparation is, as we have seen, a feature of the Cawood improvement. It would defeat the purposes and uses of the angle iron machine. The bottom serves for an anvil in the Cawood to resist the downward force of the blows on the top of the rail, and to prevent forcing the heated iron into the neck of the rail and increasing its length. But one of the objects, and a result secured in the angle iron machine, is increasing the length and width of that portion of the bar operated upon by the hammer—the part which lies upon the fixed block. There is, also, a wide difference in the functions of the movable blocks of the two machines. That of the angle-iron machine is principally to act as one of the jaws of a vise to hold the bar against the fixed block or raised part of the anvil while the welding is being made and while the fillet is being formed in the interior angle. It is not to preserve the shape of an already formed rail, or to resist the lateral pressure caused by the hammering. Yet such are the functions of the Cawood movable block. We think, therefore, that if the purposes of the two devices be considered, as well as their possible modes of use, the arrangement of their several parts respectively to each other and the different functions of those parts, it cannot be held that the angle-iron machine contained the invention or involved the principle of the invention described in the patent granted to Cawood.

The second device which the appellants insist anticipated the Cawood invention is what is denominated the bayonet-machine, used at the Springfield armory before 1850, and since, for forging parts of bayonets. In some particulars there are resemblances between the devices; but there are obvious dissimilarities, not only in the purpose and results sought to be obtained, but in the relation of the parts to each other, in the work to be done by those parts, in the manner and effect of their combination, and in their mode of operation. The differences are sufficient, in our opinion, to justify the conclusion that the machines are different devices, embodying distinct principles. The bayonet-machine is in form and in substance nothing but a hinge-vise with a peculiar shape of the jaws, intended to facilitate operations upon the shank and socket of a bayonet. The jaws are fitted to hold the bayonet in place, while the shank is turned upward through and above their upper surface, in order that a flat piece of iron may be welded upon the shank and prepared to be afterward converted into a socket. The lateral surfaces of the jaws come into actual contact with each other, except for a short space equal to the diameter of the bayonet-shank. They hold only the lower segment of the shank, allowing the upper segment to project a considerable distance above the upper surface. The inner surfaces do not constitute a mold. They do not maintain the shape of the shank inclosed within and between them during the process of top-welding and shaping. They are intended for no such purpose, nor are they fitted for it. Their sole function appears to be to sustain the shaft of the bayonet in an upright position while a flat piece of iron is being welded upon its end. It is only in a very limited sense that the machine can be called an anvil. One side of it is stationary, the upper portion of its front forming what may be called a fixed jaw. The other side, being merely an arm, vibrates upon a hinge, or upon journals attaching it to the fixed side, at or near its base. Such are the leading features of the machine. Comparing them and the operation of the machine with those of the Cawood, it is very evident the devices are not substantially the same. The Cawood is an improved anvil, not a vise. It has a fixed block cast upon an anvil, and its movable block rests upon the anvil, attached to it, and moving toward and from the fixed block horizontally, in a plane parallel with the anvil's upper surface, instead of moving on the arc of a circle. The two blocks together form a mold, and they are combined with each other through the anvil. These are very substantial differences from the bayonet-machine. The combination through the the anvil is essential for the work intended to be done. It gives the immediate support of the anvil to the bottom of the rail as its tread or crown is being hammered, while in the bayonet-machine the iron inclosed is supported from beneath, during the process of welding, exclusively by the jaws, at a considerable distance from the point of connection between them. Again, in the Cawood the inner surface of the blocks are designed and fitted to maintain the shape of the rail while it is hammered—an office not contemplated for the jaws of the bayonet-machine. The bayonet-socket is fashioned to its desired shape after the release of the iron from the jaws. So also, the relation of the blocks and jaws to the rail or iron when in place to be operated upon is different in the two machines. In the Cawood the blocks come nearly to the top of the rail, affording lateral support to almost the whole of each side, while in the other there is no such lateral support; and the hammering is entirely between the blocks instead of being partly over or upon them.

Still another important difference is apparent. In the bayonet-machine the movable jaw is pushed back by a spring interposed between the two arms of the vise, and forced forward by leverage sufficient to overcome the resistance of the spring, and hold it compressed while the jaws are in contact with each other. It is obvious that no such means of moving the movable block would answer for Cawood's machine. It is true he did not claim operating it by cams exclusively. He claimed moving the block by cams or "in any other convenient manner;" but that meant by means adapted to the work the machine was intended to perform. These several differences are too many and too great to be considered merely formal. Not only the object of Cawood's device was novel, but so, also, was the function of the blocks, their combination with each other, and the mode of operation. The general appearance of the bayonet-machine and, as we have said, its distinc-

tive character, was that of a vise. We think, therefore, it cannot be regarded as containing the principle embodied in the Cawood invention. We cannot think it could teach how to make the improvement in the common anvil or swage-block for reforming and welding the ends of railroad rails, which was devised by Cawood, and which has gone into large use.

It is next contended that the patent was anticipated by the Church machine, patented in England in 1846. We have before us the specification and a model constructed from that specification. It requires but little attention. It is described as a machine which may be usefully employed for straightening and flattening the rails for railways, as well as other similar uses. As the model represents it, the machine is totally incapable of performing the work of the Cawood machine. It is not an anvil. There is no fixed block cast as a part of an anvil. There is a stationary die, part of a frame, against which one side of the rail is placed to resist the lateral pressure exerted upon it by a sliding lateral die on the other side of the rail, and above is a horizontal bar, which is forced downward by a series of jointed levers, carrying another die upon the upper surface of the rail. It is plain this description and this model could never have informed any one of the device Cawood invented. It does not show how the blocks or jaws can be combined so as to leave the upper face of the rail to be repaired exposed for the action of a swage and a hammer. It is said, however, if the upper horizontal bar with its die and jointed levers were taken away, a mechanic might understand how the remnant could be altered and employed as a Cawood machine is employed and for the same uses. That, however, evades the question to be answered, which is, whether the specification was sufficient to enable a mechanic skilled in mechanical arts to construct and carry into practical use the Cawood machine, or, in other words, whether whatever is essential to the Cawood machine could be read out of the prior specification. We think no such information was given by the English patent.

That the old slide-vise contains the principle of the Cawood machine has not been contended with much earnestness, and certainly it cannot be successfully. Nothing, then, is found in the case sufficient to show that the patent is void for want of novelty of the invention, and the court was not in error in holding it valid.

We come next to the question whether machines employed by the defendants in repairing the ends of railroad rails are infringements of the patent. Those which have been used by the several companies defendants, and which are claimed to have been infringements, were, in addition to the Cawood, seven in number. They were "The Illinois Central," "The Etheridge," "The Whitcomb or Cleveland block," "The Michigan Southern," "The Bayonet vise," "The Beebee and Smith," and "The Baine reversible rolls," all of which, except the last, were held by the circuit court to be infringements. Of these the Illinois Central Railroad Company has used only the Illinois Central, the Bayonet vise, and the Beebee and Smith; the Pittsburgh, Fort Wayne, and Chicago Railroad Company has used the Whitcomb or Cleveland block; the Chicago and Alton Railroad Company has used only the Whitcomb; the Chicago, Burlington, and Quincy Railroad Company has used only the Cawood and the Etheridge; and the Michigan Southern and Northern Indiana has used only the Beebee and Smith, the Bayonet vise, and the Whitcomb. We have had before us models and drawings of them all, and we have considered the testimony respecting them which is found in the records. It is but faintly contended, if at all, that the Illinois Central, the Etheridge, and the Whitcomb machines are not infringements of the Cawood. The principle of each of them, the object sought for, the combination and arrangement of the parts, and the mode of operation for the purpose of effecting the described result, are so manifestly the same as that described in the complainant's patent that a detailed examination of them is unnecessary. But it is earnestly insisted that neither the use of the Bayonet vise, nor that of the Michigan Southern machine, nor that of the Beebee and Smith, used by some of the defendants, can rightfully be held to infringe the patent, and such is our opinion.

We have already called attention to the fact that a very limited construction must be given to the claim of the Cawood patent in view of the state of the art when the patent was granted and of the explanations contained in the specification. It was said in *Turrill* vs. *Railroad Company*, *supra*, "special devices are described as combined and arranged in a particular manner, and operating only in a special and peculiar way, for a special purpose, and to effect a special result." To repeat the definition of the invention given in that case, it is "of such a movable press-block as is described, having its edge formed to the side of the rail, in combination with such other blocks as is described, with its edge of similar but reversed form, arranged as described, and combined and operating in the particular way described, for the special purpose of effecting the desired result."

If the claim be thus limited; if such was the invention Cawood made, the use of the Bayonet vise and of the Michigan Southern cannot, we think, be regarded as an infringement. Both the machines were manifestly copied from the Springfield machine, which we have endeavored to show did not anticipate or contain the principle of Cawood's invention. Each is substantially a vise and not an anvil. The combination of the blocks is unlike that of the Cawood improved anvil. It is not through the anvil, and the rail when in place for welding and shaping does not rest on the anvil. The iron to be hammered rests upon the jaws, and consequently it is much more liable to displacement than it would be if arranged as described by Cawood. In each only a part of the force of the blows reaches the anvil, for the movable block is supported by an arm attached by a hinge or by journals to the base of the block. It is true that by the change in the shape of the jaws one of the functions of the Cawood machine is secured—that of preserving the shape of the rail during the process of hammering; but that is only one of the elements of the Cawood. Neither of these two machines can be said to be an improved anvil or swage-block. In neither are the two blocks combined by means of an anvil. In neither is a raised block cast as a part of the anvil. In neither is there any such movable press-block attached to the anvil as is described in the Cawood patent, combined and operating with the other parts of the machine in the manner described; and in neither of them is there any part of an anvil immediately below and fitted to support the rail when in place for being repaired. Each of them has, however, all the parts and substantially the arrangement and combinations of the Springfield machine, and in principle they are identical with it, the only appreciable difference being in the shape of the jaws. If, therefore, they are infringements of the Cawood patent that patent is void for want of novelty, for it was anticipated by the Springfield. If, on the other hand, the Cawood machine was novel, as we think it was, if it was not anticipated by the Springfield, the conclusion is inevitable that neither the Michigan Southern nor the Bayonet vise is an infringement.

Much of what we have said is applicable to the Beebee and Smith machine, the use of which the circuit court also held to be an infringement of the Cawood patent. To the inquiry, what constitutes an infringement of that patent, it is indispensable to keep in mind what the invention patented is. It is not, we repeat, any mode by which the result sought and obtained is secured, but a machine that attains the desired end by means of described agencies, combined in a described manner, and operating in a described way. Thus the patent was considered in 1 Wallace. Now, we think, the Beebee and Smith machine, though arriving at the same result, does not profess to attain it by means of the agencies described in the Cawood patent, or any agencies that can be regarded as equivalents combined in the manner described by Cawood, and operating in the same or an equivalent way. True, it is a machine for holding a rail while the exfoliated or crushed end thereof is undergoing reparation; but it performs its functions in a manner peculiar to itself, unlike the mode in which the Cawood operates. The construction of the two machines is very dissimilar. In the Beebee and Smith there is no fixed block or jaw a part of the anvil. Neither is there any movable block or jaw attached in any manner to the anvil, or connected in any manner with a fixed block or with the anvil. There are two jaws sliding up and down in a V-shaped notch in an anvil entirely unconnected with each other, and kept in place only by their own weight and that of the superincumbent rail. They are not advanced toward each other or retired by cams or any equivalent mechanism. When by force of gravity they descend into the V-shaped cavity, and thus approach each other, the rail rests upon them and not on the anvil, and when grasped by them all the force of the blows necessary in welding is expended upon them through the rail, and only remotely upon the anvil. Bringing the jaws together by their gravity cannot be said to be an equivalent for cams or levers or any other mechanical device. The Beebee and Smith machine, then, has neither such a fixed block nor such a movable press-block as is described in the Cawood machine, nor are the two blocks combined in substantially the same way, and the mode of operation is substantially unlike that described by Cawood. It is impossible, therefore, to hold that its use is an infringement of the complainant's patent.

We do not care to expend much time in refuting the argument of the appellee that a bottom support for the rail in the use of the Cawood invention is injurious, that it is, therefore, no essential part of the device patented to him. Considerable evidence has been given tending to show that the face of the anvil under the jaws has been chipped off or cut out, and that thus altered the thing invented works as well, if not better, than it would if the alteration had not been made. In the nature of things, this is impossible, and no amount of testimony can convince us that such is the fact. Manifestly, the chipping off was made to evade the patent. The best mode of using the device would doubtless be to construct the blocks so as to fit exactly the sides of the rail. Thus, its shape and its height would be maintained during the process of hammering and shaping the crown. But this exact fit may not always occur, and whenever it does not, the bottom-support on the anvil is of importance. This is made evident by the fact that when experiments have been made by chipping off the anvil at the bottom of the blocks or jaws, if more than about three eights of an inch was removed, it has been found advisable to support the rail by a roller, as in the Cleveland vise, or by introducing a key. It proves nothing to show that rails may be repaired without any support at their base. Because the invention has been used in an imperfect condition, or altered slightly in one particular without serious loss, is no proof that it was no invention, or that the use of it in its altered condition was no infringement.

It follows, from what we have said, that the decrees must be reversed and set aside, so far as the defendants have been held accountable for the use of the Beebee and Smith machine, or the bayonet vise, or the Michigan Southern. But so far as the Whitcomb, the Etheridge, the Cawood, or the Illinois Central have been used, the defendants are answerable to the complainant.

We come, then, to the inquiry whether there was error in the ascertainment of the profits made by the use of those devices. This inquiry is exceedingly embarrassed by the very unusual manner of proceeding in the court below. After having determined that the Cawood patent was valid, the court, instead of deciding whether there had been any infringement, by a decretal order referred to a master to find what machines used by the defendants were infringements, and to state an account between the parties. In obedience to this order the master reported that seven machines used by the defendants infringed the patent, and on that assumption he returned stated accounts. This report the court corrected, holding that one of the seven machines was not an infringement, and sent the case back to the master to report the damages sustained by the plaintiff from the use by the defendants of the other machines, giving him liberty to reconsider his finding as to the cost of fuel and labor in repairing rails on the common anvil and the plaintiff's machine, with liberty also to hear additional evidence and report such conclusions as might be warranted by the whole testimony. Under this second reference the master submitted another report, to almost the whole of which exceptions were taken. The court sustained those which related to the ascertainment of profits made by the defendants and the measure thereof; and also sustained those which related to the allowance of profits for the use of the complainant's machine by the defendants before he had title to the patent or any part or in-

terest therein. The effect of this was to set aside the entire report of the master, so far as it stated an account between the parties. That subject was then all at large, and without further reference the court proceeded itself to find the amount of profits the defendants had respectively made by the use of the invention owned by the plaintiff, and found the same to be that for which the final decrees were subsequently entered. The decree in each of the cases was for much less than the master had reported; but how it was made up we are not informed. No account was stated accompanying the decrees. Though the bill prayed for an account, and though an account was decreed, the record shows no account. Nothing in the decree shows us how many rails had been repaired, or what portions of the rails. Nothing in the decree exhibits what was the comparative cost of repairing with the patented machine and with the common anvil. The cases have come to us, therefore, in such a condition that we are called upon to perform the duties of a master. This ought not so to be, and probably we would be justified in reversing all the decrees and sending the cases back for a statement of accounts. But the litigation has been long protracted at great expense to the parties, and this consideration has induced us to examine the evidence submitted to the master and reported by him, in order to discover whether there has been an over-estimate of profits in those cases where the defendants used only the machines the use of which was a plain infringement of the Cawood patent. Without entering into details we are constrained to say that, in our opinion, there has been no such over-estimate. We think the weight of the evidence leads to the conclusion that the number of feet mended on the infringing machines, the gain in mending, compared with the cost of mending on the common anvil, (which the court must have determined was about thirty-six cents per foot,) considering the saving of labor and fuel, were such as justified the decrees that were made. There is undoubtedly great differences in the statements of the witnesses; but, we think, it is not difficult to see where is the preponderance of the evidence. The master's estimate was manifestly too high. We cannot say that of the court was. And after the action of the court upon the master's first report it must be presumed that no profits were allowed for any use of the Cawood patent before the plaintiff became its owner.

There is nothing more in these cases that we feel called upon to notice, except the suggestion that repairing railroad rails was unprofitable compared with what might have been done. It has been argued that it would have been better for these defendants if, instead of repairing the crushed and exfoliated ends of the rails, they had cut off the ends and relaid the sound parts, or had caused the rails to be rerolled. Experience, it is said, has proved that repairing worn out ends of rails is not true economy, and hence it is inferred that defendants have derived no profits from the use of the plaintiff's invention. The argument is plausible, but it is unsound. Assuming that experience has demonstrated what is claimed, the defendants undertook to repair their injured rails. They had the choice of repairing them on the common anvil or on the complainant's machine. By selecting the latter they saved a large part of what they must have expended in the use of the former. To that extent they had a positive advantage growing out of their invasion of the complainant's patent. If their general business was unprofitable it was the less so in consequence of their use of the plaintiff's property. They gained, therefore, to the extent that they saved themselves from loss. In settling an account between a patentee and an infringer of the patent the question is not what profits the latter has made in his business, or from his manner of conducting it, but what advantage has he derived from his use of the patented invention.

We will pursue the subject no farther. It follows from what we have said that in those cases in which the defendants have been charged with the profits made from the use of the Bayonet Vise, or the Michigan Southern machine, or the Beebee and Smith machine, the decrees of the circuit court are erroneous, while in the other cases, the defendants having used only the Cawood, or the Etheridge, or the Illinois Central, or the Whitcomb, (the infringing machines,) we discover no error. Our judgments, therefore, are as follows:

The Illinois Central Railroad Company vs. *Turrill.*

The decree of the circuit court is reversed, and the cause is remanded for further proceedings in accordance with this opinion.

The Michigan Southern and Northern Indiana R. R. Co. vs. *Turrill.*

The decree of the circuit court is reversed, and the cause is remanded for further proceedings in accordance with this opinion.

The Chicago and Alton R. R. Co. vs. *Turrill.*

The decree is affirmed.

The Chicago, Burlington, and Quincy R. R. Co. vs. *Turrill.*

The decree is affirmed.

The Pittsburgh, Fort Wayne, and Chicago R. R. Co. vs. *Turrill.*

The decree is affirmed.

FIELD, *J.*—Mr. Justice SWAYNE and myself dissent from so much of the opinion and judgment in these cases as approves the estimate of damages made by the court below.

U. S. CIRCUIT COURT—SOUTHERN DISTRICT OF NEW YORK.

ISAAC EPPINGER *vs.* HENRY A. RICHEY AND JOHN J. BONIFACE.

[*In equity.—Before* SHIPMAN, *J.—Decided September* 1, 1877.]

The patent of Isaac Eppinger for bunch and plug tobacco, granted June 17, 1873, is valid, notwithstanding the essential difference from what preceded it in the art lies solely in the shape or form of the coil of tobacco.

The difference in form being productive of new and valuable results, it could not be said to be a matter of fancy or the exercise of mechanical skill.

Invention is evidenced from the long-existing evil which was thereby remedied, and which would have been cured long since in the art had it depended simply on mechanical skill.

The utility of the article shown from its extensive sale, and the unanimity with which rivals engaged in its manufacture.

[*Benjamin F. Lee*, attorney for plaintiff.
Samuel J. Glarney, attorney for the defendants.]

SHIPMAN, *J.:*

This is a bill in equity to restrain the defendants from the infringement of letters patent, dated June 17, 1873, for an improvement in plug and bunch tobacco. The infringement is admitted. The novelty of the alleged invention and its patentability are denied.

Licorice or some other moist and sweet substance is used in the manufacture of plug or bunch chewing-tobacco, in order to impart moisture and sweetness to the manufactured article. The preservation of these two qualities is greatly desired by the consumer. When tobacco is thus prepared there is danger that the moist tobacco, if exposed to the air, will ferment or will mold and "dry-rot." It is, therefore, important to make the plug or bunch as compact as possible, in order to preserve moisture and to prevent mold.

Before the date of the invention this kind of chewing-tobacco was made by inclosing strands of sweetened "filler" tobacco in a binder. The wrapped tobacco was then spun upon a wheel, or twirled or rolled by hand into a roll, and, after being incased in a wrapper, was coiled and packed for market; or was subjected to extreme heat, and afterward to pressure, before being put up in packages. Moisture was removed by this "hot-house" process, and thus danger of fermentation was obviated, but the quality of the tobacco was made inferior. Another method of manufacture was by incasing the sweetened filler-strands in an unsweetened binder and also in a wrapper. The rope was then bent and braided, and the two ends of the braid were fastened by a cap of wrapper-tobacco. The braids were subjected to sidewise pressure, but could not be subjected to pressure endwise, in consequence of their shape, and therefore were not compressed sufficiently to exclude the air, and the tobacco was liable to become moldy. Each braid soon became quite dry in the pocket of the consumer, and lost its flavor.

The patentee gives, in his specification, the following description of the patented improvement:

Improved mode of manufacturing plug or bunch tobacco of the kind above stated consists in forming the strand of "filler" tobacco, which is treated with licorice or other sweetening substance in the usual manner. I envelop this filler in a "binder," which is a brighter and larger leaf, and around the binder I wrap what is called a "bright wrapper-leaf," which is used in its natural condition without treatment. The rope thus formed is, in fact a long flexible cigar, with a sweetened filler. It is not twisted or spun. It is dry and clean on the exterior, the binder effectually isolating and separating the filler from the exterior wrapper. It does not require to be sweated, and it can be shipped and transported for long distances by water or land conveyance without danger of molding or spoiling.

The wrapper is of little use for chewing purposes. Therefore, in order to make good chewing-tobacco, the filler and binder should be of such proportions to the wrapper that, while the wrapper will suffice as a protector and preserver of the filler, there will be no appreciable loss in the plug or bunch for chewing purposes.

In Figure 1 is shown a rope or strand such as I have described, *a* being the filler, *b* the binder, and *c* the wrapper. The rope or strand thus made is coiled into a bunch around a central core, one end of the rope, either single or doubled, serving for the core, and the remainder of the length being coiled around this coil, as represented in Fig. 2, the central core *d* and external coil *e* being thus in one piece, and constituting part of the same continuous strand or rope. The coil or bunch thus made by hand is not however, completed, nor is it fit for sale or use, being loose and unfinished in appearance and condition.

The next step is to finish it, which is effected in the polishing-pot or finisher—a strong receptacle, of suitable shape and size to contain a number of plugs, provided with a follower forced down upon the plug or plugs in the pot by hydrostatic pressure, or other sufficiently powerful agency.

The bunches are first placed in the pots on end, and the follower is then forced down with great pressure upon them. After being allowed to set for about twenty minutes, the follower is removed and the bunches are taken out and replaced in the pot on their sides, and side by side, and pressed again in like manner. They can then be pressed on their edges; but this, however, is optional, and not absolutely necessary, as the two pressings have compacted and solidified the plug sufficiently for all ordinary purposes.

The plug thus compacted is represented in Fig. 3, and is ready for packing.

In conclusion, I wish to state that I do not here broadly claim plug or bunch tobacco put up in coils, with a central core, and then subjected to pressure; nor do I claim, separately, the combination of a filler, binder, and wrapper.

The claim of the patent is for—

Plug or bunch tobacco made as herein described the same consisting of a rope or strand composed of a sweetened or prepared filler inclosed in a binder, in turn enveloped in a wrapper, the said rope being coiled around a central core, forming a continuous part of the rope, and the bunch thus made being subjected to a pressure, as and for the purposes set forth.

The advantages of this improved or new article of manufacture are very marked. The moisture of the tobacco is preserved. Air and dampness are excluded by the compactness into which the tobacco is pressed. It can be shipped to warm or damp climates without liability to deterioration by mold, and a single coil can be carried in the pocket of the consumer without becoming dry or friable.

The article has had a very large sale, and has commanded a much higher price than the same quality of tobacco when put up in any other form. The price of the patented article has been fifty-one or fifty-two cents per pound, exclusive of government tax, while the same qualities of twist or braid tobacco are sold at twenty-seven cents per pound, exclusive of tax. The utility of the article is indicated by its remarkable success as an article of merchandize; a success which is not attributable to the quality of the tobacco of which it is composed, or to the novelty of the style of manufacture, but to the inherent advantages which it possesses in the particulars which have been mentioned.

The novelty of the invention was clearly proved. It manifestly differs from the ordinary spun or rolled plug-tobacco in this: that in such tobacco the filler and binder is rolled together, while in the patented article the binder simply encircles the filler. "Twist" or "braid" tobacco was made in the same manner as the patented article is made—by encircling the sweetened filler with two separate wrappings of unsweetened tobacco; but twist-tobacco is simply braided and subjected to lateral pressure. Each plug is a flat braid, into the interstices of which air freely enters, and, having a comparatively thin and flat surface, the plug cannot be made compact by endwise pressure. The shape and the method of the formation of the coil, which render endwise pressure practicable, and which enable the coil to be compactly compressed without injury to the strands of the filler, constitute the particulars in which the patented article differs from braid-tobacco.

The important question which arises in the case is as to the patentability of the invention. A rope of strands of sweetened filler, inclosed in a binder, which, in turn, is enveloped in a wrapper, antedated the patent, and is disclaimed. Plug-tobacco has always been coiled and braided in various forms, and has been subjected to pressure. The peculiarity of the invention is in the form and shape of the coil. Can any particular method of coiling, although both endwise and sidewise pressure are thereby made available for the purpose of excluding air, and although the method enables the con-

sumer to use the whole coil in its desired state of moisture, be the subject of a valid patent?

The argument of the defendants' counsel is, that the combination of filler, binder, and wrapper is old, and is disclaimed, which is true; and that subjecting a coiled rope of such tobacco to pressure is old, and is disclaimed, which is true; that coiling or twisting a moist rope of tobacco has always been practised, which is also true; and that the particular form of the coil is a matter of fancy, and that the form of the coil cannot involve the exercise of the inventive faculty. This is the precise question which is at issue.

The article of plug tobacco has been long in use, and has been in constant demand. As it has been prepared for market it has been liable to spoil in warm and damp weather, and to grow moldy in any temperature.

It is fair to presume that the ingenuity of tobacco manufacturers and tobacconists has been exercised in an attempt to find a remedy for this liability to pecuniary loss. The evils were notorious, but no remedy was found until this invention was made.

If the remedy consists in the shape of the coil, and if the particular twist of the coil requires no greater exercise of the inventive faculty than is involved in the shape of a bow, into which a ribbon may be twisted, it is strange that an evil which had long existed had not previously been avoided. Two facts exist in this case. One is that an important improvement has been attained. The second is that the improvement is in a staple article, which has been manufactured in this country for a long series of years. Without the testimony of the patentee and the first manufacturer in regard to the number of experiments which were required before the invention was hit upon, and in regard to the difficulty which was experienced in perfecting the manufacture, it is manifest from the length of time during which tobacco has been manufactured, from the constant demand for it, and from the well-known evils to be overcome, that the inventive faculty must have been brought into exercise, or else that mechanical skill would long since have avoided any danger of fermentation or mold.

The utility of the patented article has been evinced by its large sales, and by the unanimity with which rival tobacconists have commenced its manufacture. The inventor evidently gave to the public an article which it wanted, and which it had not previously known. Without giving to the general use of the invention, as a test of its patentability, any greater importance than the Supreme Court in the case of *Smith vs. Goodyear Dental Vulcanite Co.* (11 O. G., 246) indicate should be given to this circumstance, I am of opinion that the facts in the case fully establish the conclusion (1) that however simple the change in the method of manufacture apparently may have been, yet it was a change which required invention for its accomplishment; and (2) that the improvement resulting from the changed method of manufacture has been so great that the article which is produced is, within the meaning of the patent acts, a new and useful article of manufacture.

Let there be a decree for an injunction, and an account.

U. S. CIRCUIT COURT—NORTHERN DISTRICT OF NEW YORK.

HORACE M. RUGGLES *vs.* CHARLES EDDY AND JACOB SHAVER.

[*In equity.—Before* WHEELER, *J.—Decided June term*, 1877.]

The exceptions to the master's report on extent of infringement and amount of damages declared to be well taken, it appearing that a narrower construction of the patent had been made by him than was warranted.

The infringement held to be not merely of the new parts or elements, but of the combination of new and old, as a whole.

If the invention, as an entirety, was infringed, then the whole profits are the profits of infringement.

After defining the scope of the patent reference was again made to the master to ascertain infringement and damages, with leave to the parties litigant to introduce additional evidence because of the new construction placed upon the patent.

WHEELER, *J.*:

Upon hearing in this cause on the master's report therein exceptions of the orator thereto and argument of counsel, it seems to me that the master has placed a too narrow construction upon the orator's patent, and has left the case differently from what he would if he had placed what seems to be the proper construction upon it. The decree heretofore made in the cause has, of course, established fully the validity of the patent, whatever it was, in all its parts, and since that the extent of it has not been open to be varied by proof, or to be effected in that way further than to apply its specifications and descriptions to the subjects of it. The extent of it, as gathered from the schedule annexed to the letters, is that of a monopoly of the combination and arrangement of cylinders, chambers, cornices, partitions, and flues into a stove in two stories, according to the plan of the inventor set forth, as a whole, and not merely that of a monopoly over any of the parts separately, or any combination or arrangement of any number of them less than all together. The master appears to have construed it as applying only to some of the several parts that are new, and to the arrangement or combination of these new parts. This is materially different from the extent of the patent as it appears to me to be, and so the basis on which he has proceeded would seem to be erroneous. The extent of the monopoly must first be correctly defined, then the extent of the infringement ascertained, and from that basis the consequent profits or damages found. Here the monopoly is of the combination of those several parts, old or new, into that style of stove, and not merely of the new parts, and the infringement was of that combination as a whole, whatever the extent of the infringement may have been. The extent of the infringement was a fact to be found by the master from the pleadings and proofs before him, and he has, necessarily, found it to be of a small part only of the stove, because he considered the monopoly to be of a small part only of the stove. Had he considered the patent to be as extensive as it is now considered to be, as stated, he must have found the infringement much larger than he did, and might have found the whole of the defendants' stove to have been such, according to his views of the proofs. If he had found the whole stove to be an infringement the whole profits would have been the profits of the infringement. If not, he might be able to find the profits accruing from the infringement ascertained on this basis, although he could not on the basis he took. The fourth and fifth exceptions raise this question, and as the decision of it by the master according to these views might, on the evidence before him, have led him to a different and further result, the case must go back to him for further examination and report.

On account of the construction put upon the patent by the master, the parties may have varied their proofs from what they would otherwise have produced, although it does not appear that they have; and it may be necessary, in order to do full justice, to take further proofs. And it may save future expense, in case the master shall find the infringement to be less than the whole stove, to report the whole profits, as well as the profits of the infringement he finds.

The case is, therefore, referred back to the Hon. Charles Mason, master, for further examination upon the pleadings and proofs already taken before him, and such further evidence as may be offered by the parties and admitted by him, and for further report of the profits or damages on account of such infringement as he shall find of the orator's patent according to the foregoing views of its extent, and the whole profits of the ten thousand and ninety-seven stoves mentioned in the answer of the defendants, in case the profits on account of the infringement found by him shall be less than the whole profits, to be proceeded with pursuant to the decretal order filed in this cause on the 22d day of June, 1872.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date October 30, 1877.]

10,286 and **10,287.—Cassimeres.**—ALEXANDER CARMICHEL, Westerly, R. I. Applications filed October 17, 1877. Term of patents 3½ years.

10,288.—Ornamental Scroll-Work for Jewelry.—LOUIS HECKMANN, Plainville, Mass., assignor of two-thirds his right to WM. H. WADE and EDWD. P. DAVIS, same place. Application filed August 25, 1877. Term of patent 7 years.

10,289.—Ornamental Chain-Links.—KARL F. HECKMANN, Wrentham, Mass., assignor to J. T. BACON & Co., same place. Application filed September 21, 1877. Term of patent 7 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date October 30, 1877.]

5,275.—Kerosene-Oil.—A. C. DIETZ & Co., San Francisco, Cal. Application filed October 9, 1877.
"The word-symbol 'PRIZE MEDAL.'"

5,276.—Smoked Meats.—F. A. FERRIS & Co., New York, N. Y. Application filed September 29, 1877.
"A parallelogram composed of a number of parallel lines or stripes."

5,277.—Hair Goods.—NICOLAS HELMER, New York, N. Y. Application filed October 16, 1877.
"The word-symbol 'MULTIFORM.'"

5,278.—Smoking-Tobacco.—WILLIAM S. KIMBALL & Co., Rochester, N. Y. Application filed September 28, 1877.
"A representation of the head of a negro, inclosed within the arbitrary words 'NIGGER HEAD.'"

5,279.—Plug Chewing-Tobacco.—P. LORILLARD & Co., of Jersey City, N. J. Application filed September 14, 1877.
"A representation of a Greek cross."

5,280.—Horseshoe-Nails.—W. M. MOONEY & Co., Au Sable Chasm, N. Y. Application filed September 8, 1877.
"A monogram of the letters 'A. C.'"

5,281.—Pens.—PERRY & Co., (limited,) New York, N. Y. Application filed October 1, 1877.
"A character or symbol having the conformation of the letter **U**."

5,282.—Modical Compound.—DAVID E. BECKER, Easton, Pa. Application filed October 13, 1877.
"The word-symbol 'CAMPHENYL.'"

5,283.—Fluid Medicinal Compound or Balsam.—J. AUSTIN ROGERS, Boston, Mass. Application filed April 6, 1877.
"The word-symbol 'ARABIAN.'"

5,284.—Packages of Fresh Fish.—S. H. DAVIS & Co., Detroit, Mich. Application filed October 4, 1877.
"The representation of a steam-propeller with the initials of our firm, 'D. & Co.,' on a flag flying upon a proper flag-staff on the vessel."

5,285.—Oil of Peppermint.—FRITZSCHE BROTHERS, Hoboken, N. J., and New York, N. Y. Application filed October 9, 1877.
"The words and symbols 'FRITZSCHE, SCHIMMEL & CO.,' running across the top, on the outer arc of a circle, printed in black, in large capitals, on a white ground, and also the medals as arranged and described."

5,286.—India-Rubber Goods.—GOODYEAR RUBBER COMPANY, New York, N. Y. Application filed December 28, 1876.
"The compound word 'Crack-Proof.'"

5,287.—Medicinal Compound.—MARIA L. LEE, Philadelphia, Pa. Application filed September 22, 1877.
"First, the words 'Dr. Samuel H. P. Lee's;' second, the facsimile of the signature of Dr. Samuel H. P. Lee, to wit 'Saml. H. P. Lee;' and, third, a vignette likeness, or picture of the head and neck of a man, the same being the likeness of the late Dr. Samuel H. P. Lee."

5,288.—Piano-Fortes.—HENRY F. MILLER, Boston, Mass. Application filed September 17, 1877.
"The word-symbol 'MILLER.'"

5,289.—Medicinal Preparation.—OSCAR G. MOSES, New York, N. Y. Application filed September 24, 1877.
"The letters 'P. U. L. M. O. N. A.' arranged so as to form the word symbol 'PULMONA.'"

5,290.—Water-Proof Cellars.—TOBIAS NEW, Brooklyn, N. Y. Application filed October 5, 1877.
"The word-symbol 'SANITARY.'"

5,291.—Coloring Matter.—NÜRNBERGER ULTRAMARIN FABRIK, (JOHANNES ZELTNER,) Nuremberg, Bavaria. Application filed October 13, 1877.
"A monogram composed of the letters 'N. U.'"

5,292.—Shirts.—GEORGE RICHARDSON, Philadelphia, Pa. Application filed October 6, 1877.
"The figure of the Goddess of Liberty within a circular border."

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date October 30, 1877.]

1,217.—Title: **"The Magnetic Remedy."**—JULIA BLANKMAN, New York, N. Y. Application filed April 14, 1877.

1,218.—Title: **"Novelty Corset Works."**—DONALDSON BROTHERS, New York, N. Y. Application filed October 23, 1877.

1,219.—Title: **"The Ready Cleanser."**—CHARLES F. GERRY, Sudbury, Mass. Application filed October 15, 1877.

1,220.—Title: **"Neurotic, the Great External Remedy for Neuralgia."**—HOLLEMAN & Co., Morganton, N. C. Application filed October 16, 1877.

1,221.—Title: **"The Goodyear Practical Syringe."**—GOODYEAR RUBBER COMPANY, New York, N. Y. Application filed October 23, 1877.

1,222.—Title: **"The Goodyear Superior Syringe No. 1."**—GOODYEAR RUBBER COMPANY, New York, N. Y. Application filed October 23, 1877.

1,223.—Title: **"The Goodyear Improved No. 1 Household Enema Syringe."**—GOODYEAR RUBBER COMPANY, New York, N. Y. Application filed October 23, 1877.

1,224.—Title: **"Horsford's Acid Phosphate."**—RUMFORD CHEMICAL WORKS, Providence, R. I. Application filed October 18, 1877.

1,225.—Title: **"Vreeland's Medicated Wine of Wild Cherries."**—BENJAMIN VREELAND, Passaic, N. J. Application filed October 18, 1877.

1,226.—Title: **"Vreeland's Tonic Wine of Wild Cherries."**—BENJAMIN VREELAND, Passaic, N. J. Application filed October 18, 1877.

1,227.—Title: **"Spalding's Celebrated Prepared Glue."**—HALL & RUCKEL, New York, N. Y. Application filed October 23, 1877.

As 12 o'clock on Friday is the latest hour that a final fee can be received in order to get a patent into the "issue" of the following Tuesday, applicants are earnestly requested to make the final payment before Friday, if possible, so that the proper entries may be made on the books of the Office before closing the "issue."

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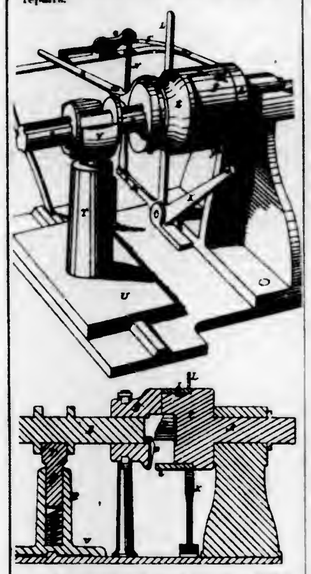
TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED OCTOBER 30, 1877.

196,516. DISENGAGING CLUTCH-COUPLINGS FOR SHAFTING. Napoleon Beauregard, San Francisco, Cal., assignor of one-half his right to Burroughs P. Brunner, same place. Filed Aug. 13, 1877.

Brief.—On the rotating permanent clutch is placed loosely an interlocking ratchet-band provided with lugs, and when the brake is brought into contact with one of the lugs the band will be held stationary, and as soon as the sliding clutch comes around against the said ratchet-band the sliding clutch will be forced out of engagement of the permanent clutch, and disconnect the two parts. When the clutch is disengaged, the connecting-shaft upon the sliding bearing-standard can be moved to one side upon a track when necessary for repairs.



1. The permanent clutch-box C, provided with a loose or independent band, F, which is provided with one or more inclined teeth, G, corresponding with the projections on the clutch-box, in combination with the counterpart or sliding clutch-box E and a suitable brake, substantially as and for the purpose described.

2. The loose or independent band F, provided with inclined or ratchet teeth G and lugs J, in combination with a clutch-coupling and brake, K, substantially as and for the purpose described.

3. A clutch-coupling having its permanent portion provided with the independent or loose band F, with its lugs J, in combination with the brake K, lever L, arm M, connecting-rod N, and spring-dog O, all combined and arranged to operate substantially as and for the purpose described.

4. The system of levers K L M, pivoted as described, and connected by the rod N with the dog O, in combination with the shifting-lever Q of the sliding clutch-box, substantially as and for the purpose described.

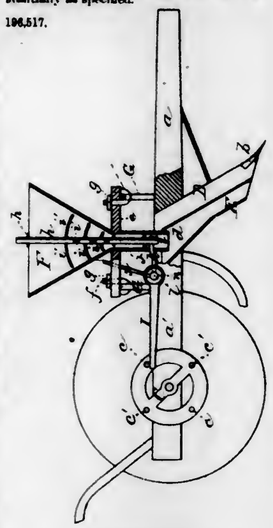
5. An upright standard, T, provided with a box or other bearing, V, for a horizontal shaft, and having its base U arranged to move upon a track or way at right angles to the shaft, substantially as and for the purpose described.

196,517. WALKING-PLANTERS. Joseph M. Brown, Florence, Tex. Filed Aug. 20, 1877.

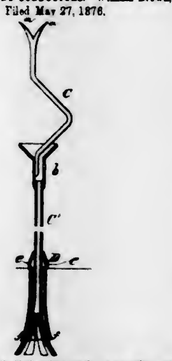
1. The combination of the hopper F, rigidly secured to bridge G, and having the endwise-reciprocating dropper-rod A, with spurs *i'* of the rock-shaft *i*, having arms *k x* engaging said rod, the adjustable shouldered lever L, the set-nut *n*, the feed-wheel C, having tappets *c c'*, and the master-transporting-wheel R, substantially as specified.

2. The spring S, secured at one end of the frame, and bearing with the other upon a projecting spur, *p*, upon a rock-shaft, *i*, in combination with the hopper F and feed-rod A, substantially as specified.

196,517.



196,518. LIGHTNING-CONDUCTORS. William Brown, Duncannon, Pa. Filed May 27, 1876.



The improved lightning-rod, consisting of the rod C, having a number of attracting-points, *a*, tubular conductor C', having at its upper end the funnel *b*, and at its lower end the fingers *f*, and the tube D, having perforations *e*, substantially as and for the purpose set forth.

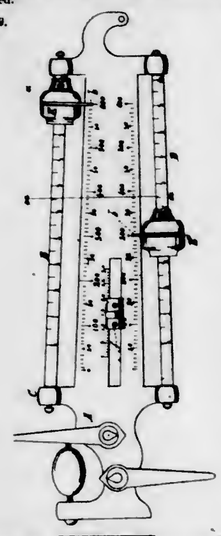
196,519. SCALE-BEAMS. Dana L. Columbia, Chicago, Ill. Filed July 27, 1876.

1. The revolving and sliding poise E, in combination with the non-rotating index *b*, and beam A, and rotating beam B, substantially as and for the purpose described.

2. The poise E, arranged to revolve with the beam B, and to show the unit of whichever scale is brought into use, substantially as set forth.

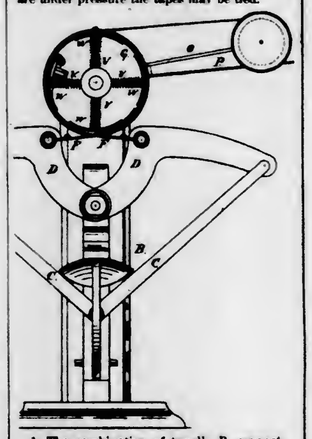
3. The combination of the beam A, pivoted beams B D, revolving poise E E', and sliding poise *f*, all combined and arranged to operate in the same vertical plane, substantially as described.

196,519.



196,520. CIGAR-BUNDLERS. Emanuel Detwiler, Milwaukee, Wis. Filed June 11, 1877.

Brief.—Tapes for bundling the cigars are, by means of a contracting and rotating device, placed in the metal band that compresses the cigars into bundles, so that while the cigars are under pressure the tapes may be tied.

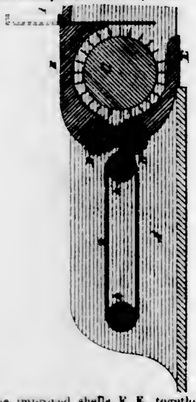


1. The combination of treadle B, connecting-rods C C, contracting-levers D D with the squeezer F F, connected to levers D D, substantially as specified.

2. Contracting and expanding apparatus Q, consisting, essentially, of shaft R, segments S, cylinder T, springs U, spokes V W, cords Y, and slide A, substantially as described.

3. Squeezer I; and F, in combination with contracting and expanding apparatus Q, substantially as specified.

196,521. MACHINES FOR SEPARATING FUR. Henry N. Easton, Danbury, Conn. Filed May 2, 1877.

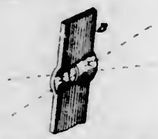


1. The improved shells E E, together or separately, in combination with the picker or brush roll C, the feed rolls D D, and the apron B, substantially as and for the purpose set forth.

2. The combination, with the shells E E and the picker or brush roll C, of the slide 1, substantially as and for the purpose set forth.

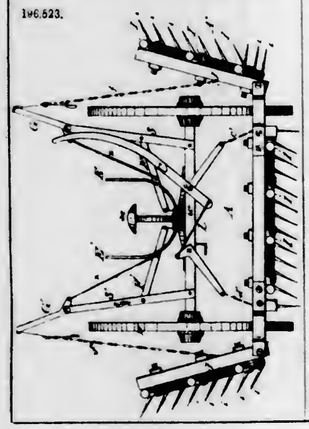
196,522. HEDDLES FOR LOOMS. J. Melledge Flagg, Providence, R. I. Filed Dec. 20, 1876.

Brief.—The object of the construction is to reduce the friction upon the warp-threads. The indentations made upon the opposite sides of the heddle widen from the eye outwardly to the edges of the heddle. The contact point of the thread is thereby confined to the edge of the eye itself.



The within-described heddle, consisting of a metallic strip or bar, B, having a yarn-hole and indentations *x x'* on opposite sides thereof, which widen from the hole toward the edges of the said strip or bar, as and for the purpose set forth.

196,523.

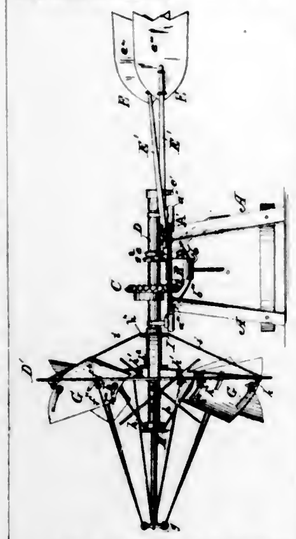


196,523. COMBINED SULKY HARROW AND CULTIVATOR. Peter F. Fleming, Salisbury, Mo. Filed Sept. 2, 1876.

The combination of levers E E', vertical standards S S', rising from axle *e*, arms F F', elbow-levers G G', working directly over the centers of the wheels, chains *f f'*, and connecting-links, with wing-toothed sections A' A'', for raising and lowering the same, substantially as set forth.

196,524. WINDMILLS. Thomas E. Gray and John D. Knox, Topeka, Kans. Filed Aug. 18, 1877.

Brief.—The shaft of the wheel is constructed in two parts, one of which is hollow, the other solid, and slides in the hollow part. The fans are supported by a frame composed of the arms and braces, having their inner ends fixed to the flanges of the hub, and may be moved to and from the wind, and locked in position by the lever acting on the collars.



1. A fan, G, constructed with the slots *f'' h''' k'*, and provided with the movable bearings or hinges *f''' h'' k*, and adapted to be supported on spokes or arms of the wind-wheel, substantially as and for the purpose set forth.

2. In a wind-wheel, the fan G, composed of the bars *g' g' g' g'*, grooved on their inner edges, and constructed with the slots *k' f'' h'''* for the reception of adjustable hinges and panels *g''*, substantially as set forth.

3. The combination of the hollow main shaft D, constructed with a slot, *d*, and provided with a suitable hub, I, adapted to carry the fan-frame, shaft F, having pin *e'*, and spring *d''*, substantially as set forth.

4. The combination, with the hollow shaft D, constructed with slot *d*, sliding shaft F, having cross-pin *e'*, and collar *e*, arranged as shown, of the spring *d''*, collar *e'*, and pivoted lever *h'''*, substantially as and for the purposes set forth.

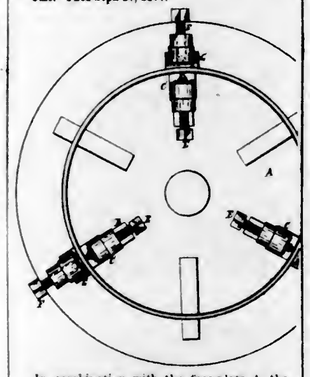
5. The turn-table A', composed of the fixed plate *a*, revolving plate *a'*, having lips or flanges *a''*, bar B, brace *b''*, and bearings *f f*, substantially as set forth.

6. The combination, with the fan arms *k'* and braces *i* and *h*, arranged and supported on the main shaft D, as described, of the rim *k*, secured on the outer ends of the fan-arms, and outside of the outer ends of the fans G, for the purpose specified.

7. The combination, with the fans G, hinged to the arms *k'*, and actuating-rods *f'*, of the shaft F, having pin *e'*, hollow main shaft D, and spring *d''*, substantially as and for the purposes set forth.

8. The combination, with the wind-wheel D', of the vanes E, pivoted to the turn-table A', and crossed in rear of the shaft D, and provided with a spring, *e'*, substantially as set forth.

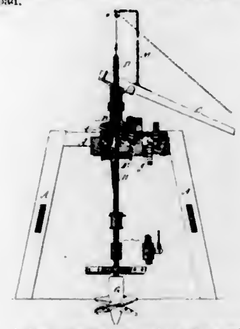
196,525. LATHE-CHUCKS. John Herriot, Cleveland, Ohio. Filed Sept. 17, 1877.



In combination with the face-plate A, the bifurcated lugs C, provided with the adjusting-screw E and adjusting-screw F, having secured thereto a sliding gib, G, substantially in the manner as described, and for the purpose specified.

196,526. WELL-BORING APPARATUS. C. E. Hewitt, Racine, Wis. Filed Aug. 3, 1877.

Brief.—The lever and drum, upon which power is applied to actuate the auger, may, by clutch and connecting gearing, be applied to turn the drum, which hoists the auger and its load.



1. In a well-boring machine, the combination of the boring rod or shaft D, the drum B, having the sweep C, the upright overhanging arm M, and rope *w*, as and for the purpose described.

2. In combination with the rotary boring-shaft D, the cam-plate *k*, feeding-dog *i*, and spring *k*, substantially as shown.

3. The boring rod D and its actuating drum B, in combination with the drum E, arranged in close proximity to the rod, intermediate gearing connecting the drums B E, and the lifting-cord connecting the drum E and the boring-rod, substantially as shown.

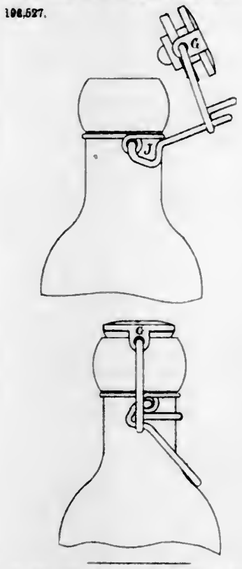
4. The auger G, cast in one piece with the two short overlapping blades and the conical point, and provided with the adjustable knives on its edges, as shown.

196,527. BOTTLE-STOPPER FASTENERS. William H. Hicks, Brooklyn, N. Y. Filed Oct. 8, 1877.

1. The combination, in a stopper-fastener, of an arm jointed to a bottle at vibrating points, a link provided with means to connect with a stopper, and to connect with and slide on said vibrating arm, to raise and lower a stopper toward and away from the mouth of a bottle, with said stopper and bottle, all arranged to operate substantially in the manner and for the purposes set forth.

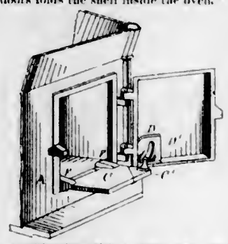
2. The combination, substantially as hereinbefore described, of an arm provided with projections near its vibrating points, and arranged to vibrate on a bottle to raise and lower a stopper, with a link or links connecting with said stopper, and arranged to connect with and slide on said vibrating arm, in the manner and for the purposes set forth.

196,527.



196,528. COOKING-STOVES. Benjamin F. Holbrook, Wakefield, Mass. Filed July 20, 1877.

Brief.—The shelf is hinged in two parts, and to one of the parts is secured an arm, with a knob at its extremity, which works in a slotted clamp on the oven-door. The closing of the doors folds the shelf inside the oven.



In combination with a stove-oven and a stove-door, a shelf composed of the parts C and C', hinged together, the lever E, attached to the part C' of the shelf, said lever having a knob, E', at its other extremity, and the slotted clamp D, attached to the oven-door, all of said parts being arranged and combined together substantially in the manner and for the purpose described.

196,529. AUTOMATIC MUSICAL INSTRUMENTS. H. B. Horton, Ithaca, N. Y. Filed Apr. 3, 1877.

1. The valve-sheet K, constructed upon one or both sides with lateral indentations *l' l'*, &c., to give a quick movement to the music, substantially as described.

2. The valve-sheet K, constructed with apertures *k k*, note-apertures *k' k'*, &c., and lateral indentations *l' l'*, &c., substantially as and for the purposes described.

3. In combination with the valve-sheet K, constructed with apertures *k k*, the cog-wheels E E and disks G G, mounted on shaft U, for holding the valve-sheet down in place and advancing it over the pipes, substantially as described.

4. In combination with the cog-wheels E E, the ratchet-wheels F F' and clicks *h h'*, for operating the valve-propelling mechanism and giving a quick movement thereto, substantially as described.

5. In combination with the bellows A, the arms H H', secured thereto and operated thereby, and provided with clicks *h h'*, substantially as and for the purposes described.

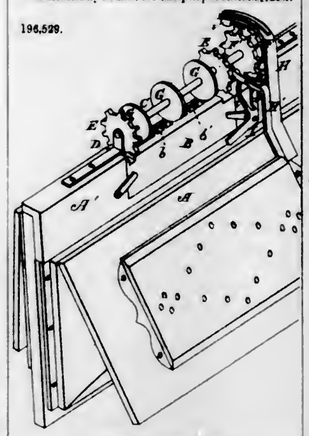
6. In combination with arm H' and click *h'*, the bent lever I, substantially as and for the purposes described.

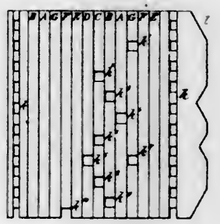
7. The combination and arrangement of arm H', click *h'*, bent lever I, and wheel F', for giving a quick or alternate movement with the wheel F to the valve-sheet, substantially as described.

8. The combination and arrangement of the arms H H', clicks *h h'*, bent lever I, shaft C, wheels E E F F', and disks G G G, substantially as shown and described, and for the purposes specified.

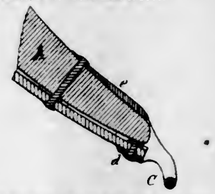
9. In combination with the wind-chest or bellows A A', the reed-board B', made readily detachable from the body of the instrument, substantially as and for the purposes described.

196,529.





196,530. HAME-EYES. Emmit G. Lotta, Friendship, assignor of one-fourth his right to Pratt & Letchworth, Buffalo, N. Y. Filed Mar. 6, 1877.



A hame-eye cast in a single piece, and composed of the eye C, brace-bar *c*, and short flange *d*, forming an open socket for the end of the hame, and adapted to be secured in place, substantially as described.

196,531. LINING AND PACKING PAPER. Oliver Long, Brooklyn, N. Y., assignor of one-half his right to C. M. Cook, Chicago, Ill. Filed Apr. 20, 1876.

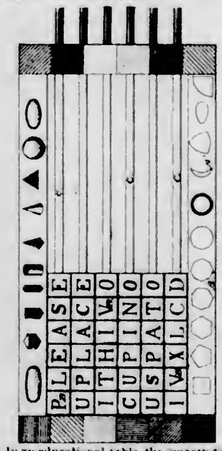
Brief.—Elastic in the direction of its thickness. For use as carpet-lining, stair-pads, &c., as well as the packing of fragile articles.

The combination of a surface-coating of granulated or finely divided, but not powdered, cork, with a backing of paper, to which said cork is secured by an adhesive substance, to form a lining or packing paper, substantially as described.

196,531.



196,532. EDUCATIONAL APPLIANCES. C. E. Martin, Chicago, Ill. Filed June 18, 1877.



1. In an educational table, the smooth faced frame, having pictured objects upon the frame, combined with the square rods or bars, carrying lettered blocks, arranged to operate substantially as described.

2. The combination of the frame, the square rods or bars, having rounded ends, the square blocks centrally mounted upon the same, so that the rods and blocks revolve together, substantially as described.

3. As a new article of manufacture, the educational apparatus having a double-faced frame, with pictured objects upon the said face, the square rods, the cube-shaped blocks mounted upon the said rods, and adapted to slide, but not to turn, upon the same, all arranged and operating substantially as described, and for the purpose set forth.

196,533. PAINT-MIXERS. John W. Masury, New York, N. Y. Filed Apr. 25, 1877.

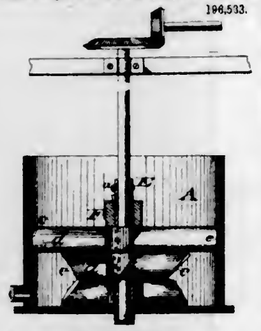
1. In a mixer for liquid colors, the combination, with the tub or cylinder and the driving-shaft, (the latter having its lower end stepped in the cylinder, and its upper end supported in bearings at a sufficient distance above the top of the cylinder to allow the blades to be raised on the shaft above the top of said cylinder,) of one or more blades attached to a tube or sleeve, which latter is removably secured to the driving-shaft, substantially as and for the purpose set forth.

2. In a mixer for liquid colors, the combination, with the tub or cylinder and the driving-

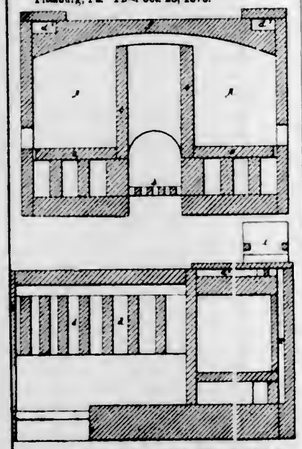
shaft, (the latter having its lower end stepped in the bottom of the cylinder, and its upper end supported in bearings at a sufficient distance above the top of the cylinder to allow the blades to be raised on the shaft above the top of the cylinder,) of two or more blades formed with reversely curved and oppositely-inclined arms, said blades being attached to a tube or sleeve which is removably secured to the driving-shaft, substantially as and for the purpose set forth.

3. In a mixer for liquid colors, the combination, with the driving shaft, arranged relatively to the tub or cylinder, whereby the sleeve to which the blades are secured may be raised above the cylinder or tub, of two or more blades arranged to cross each other, and secured to a single tube or sleeve, which latter is removably secured to the driving-shaft, substantially as and for the purpose set forth.

196,533.



196,534. HEATING-FURNACES. William S. McKenna, Pittsburg, Pa. Filed Oct. 23, 1876.



1. In a heating or tending furnace, the combination, with the chamber A, the vertical flues *d d*, arch *f*, fine openings *g g*, flues d^1 d^1, d^2 d^2, and d^3 d^3, substantially as described and shown.

2. In a heating or tending furnace, the heating-hearths *e*, in combination with the flue d^1 beneath the same, flues *d d*, chamber A, and the openings *g g*, substantially as described and shown.

3. In a heating or tending furnace, the openings *j j* and doors *k k*, beneath the heating-hearths, substantially as described and shown.

196,535. IRON POSTS AND ATTACHMENTS FOR WIRE FENCES. Samuel Miller, Lansdale, Iowa. Filed Jan. 31, 1877.

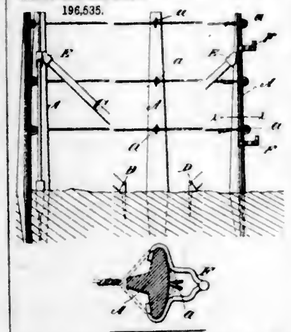
Brief.—The fence post is cast in one piece, with a rounded outer face, and split eyes thereon to receive and hold the wire. Braces, sockets, hinge and latch plates are especially adapted for use in connection with said posts.

1. As a new article of manufacture, the herein-described post, cast complete in one piece, with the outer rounded face, and the split eyes on the middle of said face, as shown.

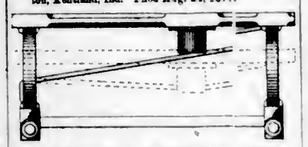
2. In combination with the posts A, the sockets D E and brace C, constructed as shown.

3. In combination with the posts A, constructed in the manner shown, the hinges F and keeper G, constructed as shown, and adapted to clasp the edges of the posts, as shown and described.

196,535.



196,536. VEHICLE-SPRING BRACES. Madison Newton, Kentland, Ind. Filed Aug. 24, 1877.

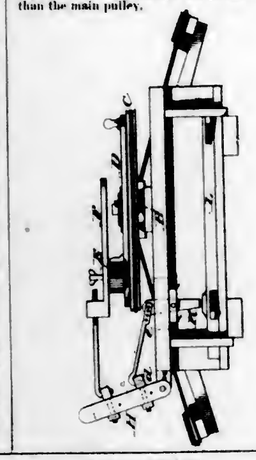


1. In a vehicle, a spring-bearing, substantially as shown and described, arranged and operating to neutralize the slack of a stay, as shown.

2. The flexible stay, in combination with the spring-bearing, spring, and bolster, substantially as shown and described.

196,537. CHECK-ROWERS. Madison Newton, Kentland, Ind. Filed Apr. 2, 1877.

Brief.—Upon the rope-wheel is adjustably secured an eccentric-bar, (for changing the length of stroke of lever,) which is connected with the vertical pivoted and slotted lever by a slotted adjustable bar and screw-rod. To this vertical bar, near the bottom, is also attached a second connecting-rod, the opposite end of which is secured to a vertical lever, which reciprocates the seed-slide. The receiving and delivering pulleys are placed lower than the main pulley.



1. The combination of the slotted bar F, the rotating pulley-wheel C, lever H, with adjustable connections, and handle of a corn-dropper, substantially as described.

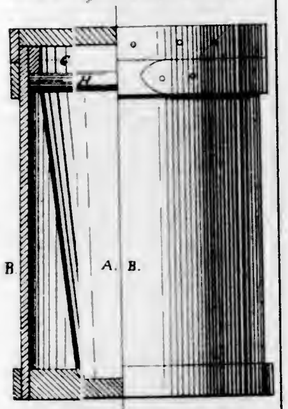
2. The combination of the wheel C, eccentric or bar D, slotted bar F, lever H, and the handle of a corn-dropper, their connections being adjustable, substantially as described.

3. In a check-rower, the eccentric or bar D, rotating wheel C, equalizer F G, and lever H, in combination with a corn-dropper, substantially as described.

4. The side pulleys of a check-rower, arranged in a lower plane than the front pulleys thereof, in combination with the cord and rotating wheel, substantially as and for the purpose described.

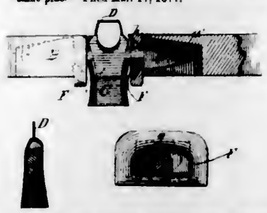
196,538. BUTTER AND LARD PACKAGES. James P. Perkins, Burlington, Wis. Filed July 6, 1877.

Brief.—Outer case of wood or paper; inner vessel of earthenware, glass, or glazed paper.



The combination of the jar A, when provided with rim B, and outer casing B, when constructed, as described, with wooden band or filling G, substantially as and for the purposes set forth.

196,539. CAR-COUPLINGS. Robert G. Rankin, Waverly, Md., assignor of one-half his right to J. S. Green, same place. Filed Mar. 17, 1877.



1. The arrow-headed coupling link having the shoulders *a*, which act as buffers between the draw-heads, and prevent the points of the links being injured by contact with the inner rear walls of the draw-heads when the cars come together, substantially as described.

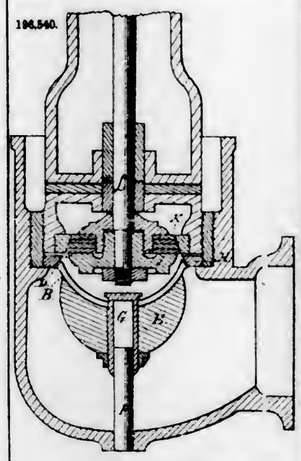
2. The arrow-headed coupling-link, weighted upon one side, and provided with a loop or handle, D, whereby the link can be adjusted and rotated for the purpose of uncoupling, substantially as described.

3. The draw-head constructed with mouth F, having the straight upper edge A and the curved or concaved lower edge *g*, whereby the link is securely held and kept always in the center of the draw-head, substantially as described, for the purpose specified.

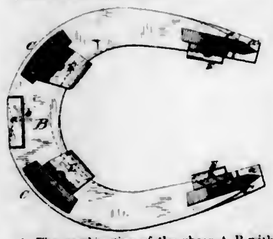
196,540. HYDRANT-VALVES. Julius W. Rohn, Milwaukee, Wis. Filed Sept. 3, 1877.

Hydrant-valve B, with its float E, ring H, and standard F, arranged substantially as described.

196,540.



196,541. HORSESHOES. John N. Schuldt, Philadelphia, Pa. Filed Apr. 13, 1877.

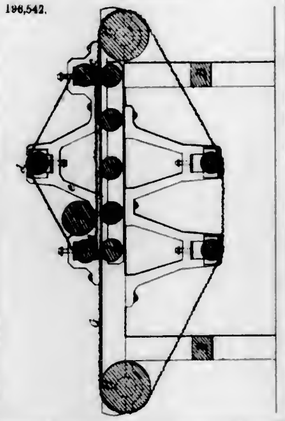


1. The combination of the shoes A B with a set of clamps applied around the inner edge of the shoes, without any projecting surfaces outside of the hoof, and without extending across or into the space occupied by the frog, substantially as described.

2. The overshoe B, having the calks C C, in combination with clamps E, adapted to be screwed to the calks, and to lock over the inner edge of the shoe A, substantially as described.

3. The overshoe B, having a recess or recesses to fit around the calks of the shoe A, and having the calks C, adapted for attachment to the clamps, substantially as described.

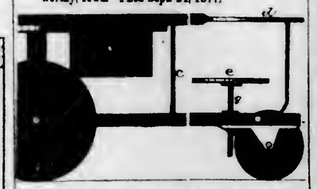
196,542.



196,542. MACHINES FOR THE MANUFACTURE OF THICK PAPER. David Scrymgeour, Boston, assignor to W. T. Cook, Foxborough, Mass. Filed Aug. 3, 1877.

The combination, with the endless wire-cloth shake-apron of a Fourdrinier paper-machine, of an auxiliary reticulated apron disposed over the first, and operating with it in such manner that the web of pulp passes between the two, and is subjected to pressure, which expresses the water, and permits it to escape from both sides, substantially as and for the purposes stated.

196,543. MILKING-STOOLS. Oliver G. Scriven, Langworthy, Iowa. Filed Sept. 24, 1877.



1. The combination of a milking-stool, a guard, *d*, disk *c*, and screw *g*, substantially as described.

2. In a milking-stool, the combination of the seat *a*, triangular frame *b*, braces or supports *c*, and the wheels *i*, substantially as set forth.

196,544. GRATES. Walter M. Shanks, Allegheny, Pa. Filed Mar. 20, 1877.



1. A self-righting pivoted grate having the center of gravity below the axis, and constructed in sections, substantially as described, whereby an automatically-determined opening is always made at the top of the grate.

2. A pivoted grate having a horizontal axis, and constructed of independent movable sections, forming an incomplete cylinder, said sections being movable concentrically about the axis, substantially as described, and for the purpose specified.

3. The combination of two pivoted end plates, *d*, rigidly connected, and a number of independent horizontal segments, *b*, pivoted thereto, the whole constituting a revolving grate and smoke-consumer, substantially as described.

4. The combination of segments *b*, having the pins *e*, with the pivoted end plates *d*, provided with a circular series of openings or bearings for the pins, substantially as shown.

5. The combination of segments *b*, having the pins *e*, with feathers *f*, with the pivoted end plates *d*, having bearings with the concentric recesses *g*, substantially as set forth.

196,545. CARTRIDGE-LOADING MACHINES. William S. Smoot and Henry H. Hamilton, Ilion, N. Y., assignors to E. Remington & Sons, same place. Filed Jan. 12, 1877.

1. In a cartridge-loading machine, a series of movable tubular dies, E, arranged to inclose and sustain the shells and guide the balls therein, substantially as shown and described.

2. In a cartridge-loading machine, a shell-carrying wheel, D, provided with tubular dies E, arranged to move endwise therein, for the purpose of passing upon and off from the shells, substantially as shown and described.

3. The combination of the plate or table A, wheels D F, dies E, mounted in the wheel D, and arranged to move vertically, and feeding mechanism, substantially such as shown and described, for carrying the shells into the edge of the wheel F, below the dies.

4. In combination with a shell-carrying wheel, a feeding device consisting of a vertical tube, G, having an opening at its lower end, and a swinging dog or arm, H, arranged to operate substantially as shown and described.

5. The combination of the carrying-wheels D F and the vertically-moving dies E with the feeding mechanism, substantially such as described, the arm T, and the track *i*, whereby the dies are elevated, the shells placed thereunder, and the dies permitted to descend upon the shells.

6. In combination with the wheel D, provided with the vertical tubular dies E, the vertically-moving arm or pin K, arranged to force the dies firmly upon the shells prior to their being carried under the powder-hopper.

7. In combination with the wheel D and tubular dies E, the vertical pin L, arranged to enter the shells through the dies, for the purpose of seating the re-enforce or other displaced parts.

8. In combination with the powder-hopper M, the perforated false bottom *o*, weighted lever *l*, and pendent ball *u*, substantially as and for the purpose shown and described.

9. In combination with the hopper M, false bottom *o*, and weighted lever *l*, the pawl *p*, hammer *s*, and gong *s*.

10. In a cartridge-loading machine, the combination, substantially as shown and described, of an alarm or indicator with the powder-hopper, in such manner that the weight of the powder prevents the action of the alarm, until the supply of powder falls below a fixed limit.

11. In combination with the ball-wheel O and the wheel D, provided with the dies E, the vertically-moving pins or arms Q, R, and S, serving, respectively, to force the balls into the dies, to seat the balls in the shells, and to force the dies down for the purpose of closing the shells upon the balls.

12. The track or support *i*, arranged, as shown, to sustain the dies E, while the balls are being seated therein, in order to prevent the shells from being reduced at the mouth prematurely.

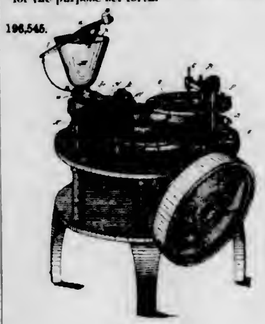
13. In combination with the wheel D and dies E, the vertically and laterally moving arm T, for the purpose of raising the dies from the shells.

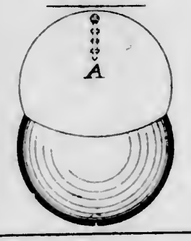
14. In combination with the wheels D F, dies E, and track or support, the arm T, journaled upon the vertically-moving shaft, and the sliding wedge *g*, bearing against the arm, as and for the purpose described.

15. The reciprocating slide *f*, provided with the pawl *e* and wedge *g*, and connected with the swinging dog H, as shown and described.

16. In a cartridge-loading machine, the combination of shell and ball carrying wheels, having their holes or seats lettered or otherwise marked to correspond with each other, for the purpose set forth.

196,545.





196,546. TOBACCO-POUCHES. C. A. Spence and H. T. Spence, Cincinnati, Ohio. Filed July 11, 1877.

The tobacco pouch made up of parts A B C of leather, adapted to be cut by a single operation of a die, and united as described, as an improved article of manufacture.

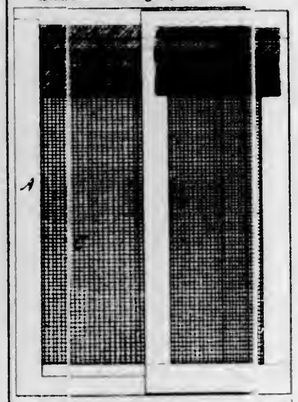
196,547. PROCESSES OF MANUFACTURING IRON AND STEEL. M. A. Sutherland, New York, N. Y. Filed Mar. 13, 1877.

1. In the process of treating pig-iron to form wrought-iron or steel, compounding therewith iron-scale, oxides of iron, and manganese, charcoal, and tin-scrap, substantially as specified.

2. In the process of treating pig-iron to form wrought-iron or steel, the combination therewith of iron-scale, oxides of iron and manganese, charcoal, and tin-scrap, substantially as set forth.

3. The process of decarbonizing pig-iron to form wrought-iron or steel, which consists in treating it on an open hearth and upon a bed of iron scale and oxide of iron, with a compound of manganese oxide, carbon, and starchy material, substantially in the proportions and in the manner set forth.

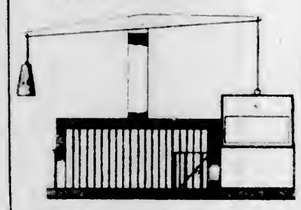
196,548. WINDOW-SCREEN. John S. Wilson, Indianapolis, Ind. Filed Aug. 11, 1877.



1. A window or door screen consisting of a frame, A, and nettings or screens C D, arranged and adapted to be used in the manner and for the purposes set forth.

2. In combination with a screen frame, the screen or netting C, left open at the top, and the screen D, arranged on the apartment side so as to cover the opening at the top of screen C and overlap it, thus leaving a space between them, to allow egress and prevent ingress of insects, in the manner and for the purposes set forth and described.

196,549. ANIMAL-TRAPS. John C. Ambrose, Hillsborough, Ohio. Filed Aug. 11, 1877.



In a trap constructed substantially as described, the box g, having an opening, f, through each side, and being arranged to rise above the top of the box b, so that the animal can see straight through, as described and shown.

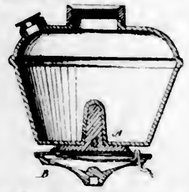
196,550. SUN-DIALS. Axel W. Anderson, Bedford, Pa., assignor to himself and William B. Heckerman, same place. Filed Sept. 1, 1877.

The dial C, formed on an epicycloid curve, as described, in combination with ring A and band B, as specified.

196,550.



196,551. LAMP-FOUNTS. Ernst W. Andree, Milwaukee, Wis. Filed June 18, 1877.



A lamp-fount holder, B, in combination with the removable fount A, the fount-holder being provided with a stop and a spring-catch, whereby the fount is automatically locked in position, substantially as shown.

196,552. CIGARS. Theodore H. Babcock, Brooklyn, and Francis O. Upton, New York, N. Y., assignors of one-third their right to Saml. Babcock, Middletown, Conn. Filed Sept. 15, 1877.

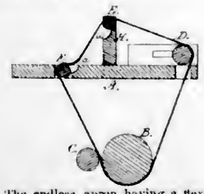
1. As a new manufacture, a cigar permeated at one end by a composition or material ignitible by friction, substantially as set forth.

2. The method of providing a cigar with an end ignitible by friction, by saturating the said end with a liquid composition which becomes hard when dry, and is ignitible by friction.

3. A cigar one end of which is permeated by a composition ignitible by friction only when brought into contact with a specially-prepared frictional surface, as set forth.

196,553. CIGAR-MACHINES. William B. Barton and Richd. Barton, New York, N. Y. Filed Oct. 20, 1876.

Brief.—The pocket is formed both in the movable and stationary frames, and the apron enters and leaves it from one end the same side. The apron is endless, and controlled by an adjustable tender and tightener.



1. The endless apron having a flexible or elastic center and rigid edges, substantially as and for the purpose set forth.

2. The combination of the apron constructed as described and a cigar-forming cavity for holding the material for the cigar, as set forth.

3. The combination of the apron constructed as described, the cigar-holding and forming-cavity, and rolls E F, and frames H A, as set forth.

4. The combination of an endless band, frames H A, provided with cigar-forming cavities *a a*, and rollers E F, constructed as described.

5. The combination of an endless apron, frames H A, provided with cigar-forming cavities *a a*, and rolls E F, driving roll B, and the tender C *d*, substantially as set forth.

6. The combination of an endless apron, frames H A, provided with cigar-forming cavities *a a*, and rollers E F, the drum B, and the tension device D, substantially as and for the purpose set forth.

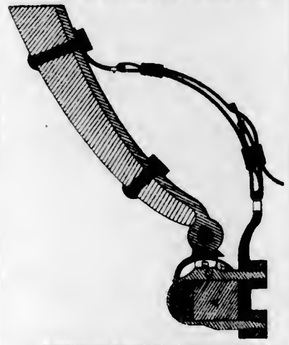
7. The combination of an endless apron, frames H A, provided with cigar-forming cavities *a a*, and rolls E F, drum B, and the tender C, as described, and the tension device, as set forth.

8. The combination of an endless apron, frames H A, provided with cigar forming and holding cavities *a a*, and rolls E F, the frame H being hinged or pivoted, and the drum B, substantially as set forth.

9. The endless apron herein described, in combination with the movable and stationary frames H A, provided with cigar forming and holding cavities *a a*, and rollers E F, the drum B, concave tender C, tension device D, constructed substantially as described.

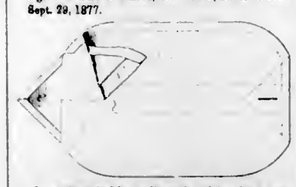
10. The combination of frames H A, one movable, the other stationary, having cavities *a a*, the rollers E F, and the endless apron, in the manner substantially as described, by virtue of which the belt passes into and out of the cigar forming and holding cavity at the same point, substantially as set forth.

196,554. ANTI-RATTLING SPRINGS FOR THILL-COUPLINGS. H. Beard, Wilton, N. H. Filed Oct. 12, 1877.



A metallic spring which rises nearly in the form of a half-circle until it reaches its highest point, where it bends abruptly, and is folded downward upon itself along the convex surface until it reaches the place of the greatest swell, where it assumes a wedge-like shape, and has a horizontal concavity across its front, substantially as shown and described, to be used in the manner and for the purpose set forth.

196,555. CUFFS. Edgar K. Betts, Lansingburg, assignor to Earl & Wilson, New York, N. Y. Filed Sept. 29, 1877.



1. A detachable cuff, made with a back cut narrower than the remaining parts, sewed on both sides, and turned right side out to form beaded edges at both sides, and prevent the edges from gaping or opening, substantially in the manner and for the purpose set forth.

2. A detachable cuff with light center part, made with a back cut narrower than the remaining parts, and extended at the ends, so that the parts, when sewed on both sides and turned right side out, form beaded edges at both sides, and the extensions folded inwardly will strengthen the button-holes of the center part without decreasing its pliability, substantially as and for the purpose set forth.

196,556. CUFFS. Edgar K. Betts, Lansingburg, assignor to Earl & Wilson, New York, N. Y. Filed Sept. 29, 1877.

1. A detachable cuff with light center-band, made of a continuous back part, shorter intermediate stiffening-layers, and front sections, turned over to the front, and of a connecting center face-strip, stitched to the inner edges of the intermediate and face sections, substantially as set forth.

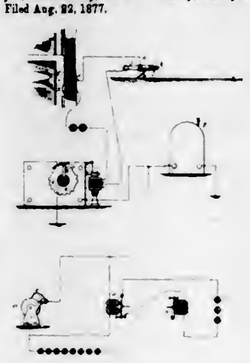
2. A detachable cuff with light center band, made of a continuous back part, shorter intermediate stiffening-layers, and front sections that are turned over to the front and connected by a center face-strip sewed to the cuff, so as to form beaded edges for the center part, substantially as shown and described.

3. A detachable cuff with light center-band, made of a continuous back part, shorter intermediate and front sections that are turned over to the front, and connected by a center face strip stitched to the inner edges of the shorter sections and lapped over the ends of the cuff to form strengthening stays for the button-holes, substantially as and for the purpose set forth.

196,556.



196,557. CIRCUIT-BREAKERS FOR ELECTRO-MAGNETIC BURGLAR-ALARMS. James J. Bradley, Newark, N. J., assignor to George W. Hubbell, Enos Runyon, Jabez Fearey, and F. T. Fearey, same place. Filed Aug. 22, 1877.



1. The combination, with the spring circuit-closing lever *g* and connections for a door, of the swinging spring-detent *k*, substantially as and for the purposes set forth.

2. In a burglar-alarm for windows, the combination, with the spring bolt *o* and notched sash, of the insulated spring *r* and circuit-connections, as set forth.

196,558. LETTER-FILES. T. H. Brown, Jr., Chicago, Ill., assignor to Stephen Clary, same place. Filed June 9, 1877.

1. The combination of the perforated index-sheets, the rigid rod or rods upon which they are hinged to rise and fall, and the close inclosing-box provided with a hinged lid, having attached thereto the spring device, which presses upon the index when the lid is closed and is released when the lid is opened, substantially as specified.

2. The box, the index-sheets, and the hinged box-lid, in combination with a spring device attached to the lid, which presses upon the index-sheets when the box is closed, and is released when the box is opened, substantially as specified.

3. The letter-file box, the lid of which is provided with a downward flange at the front, and having a flap from the lower portion of the box, constructed to close upon the outside of the lid-flange and to be there secured, substantially as specified.

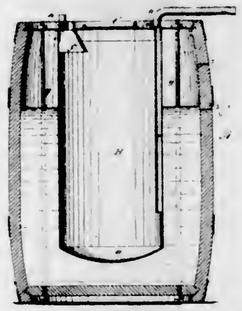
4. In a letter-file box, the flap of the box having the bevel-faced hook, in combination with the flange of the lid provided with the eye, substantially as specified.

196,558.



196,559. STEAM-GENERATORS. Thos. F. Butterfield, De Witt, Iowa. Filed July 13, 1877.

Brief.—The barrel has a cast-metal head. Secured to the under side of this head, and suspended therefrom, is a furnace, having feed-door, smoke-flue, and air-inlet. The water to be heated is put into the tank in direct contact with the furnace.



1. The improved steam-generator for agricultural use, consisting of the barrel A, the cast-metal head thereof provided with the circular flange *h*, and the suspended furnace B, attached to the under side of the head, as shown and described.

2. As a new article of manufacture, the cast-metal head for the barrel A, the same having the circular flange *h* formed in one piece therewith, and a central opening or aperture, as shown and described.

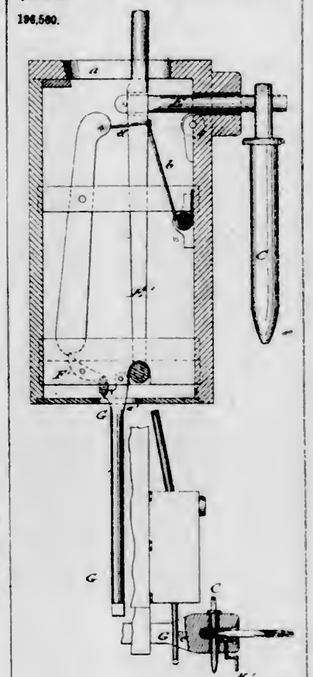
196,560. CAR-COUPLINGS. Christmas P. Byrd, North Cambridge, Mass. Filed Sept. 14, 1877.

1. The pin C of a car-coupling suspended by means of an eye at the top to a slide, E, whose withdrawal drops it into the link, as described.

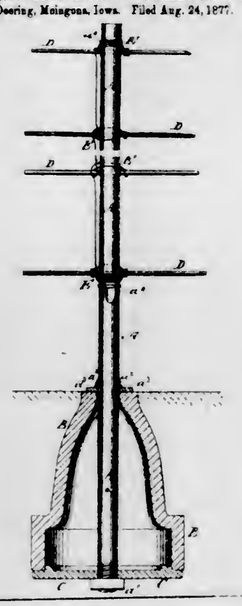
2. The combination, with a draw-head having pin *c* arranged as specified, of the swinging rod G, having an arm connected by a link with the trigger of the pin-dropping mechanism, as and for the purpose set forth.

3. The combination of the draw-head, having a projecting pin, with a releasing-lever, a pin suspending and dropping mechanism arranged above the draw-head, and with the coupling-pin, to drop the coupling-pin on the concussion of the draw-head, substantially as specified.

196,560.



196,561. FENCE-POSTS. G. W. Chandler and S. E. Deering, Moingona, Iowa. Filed Aug. 24, 1877.



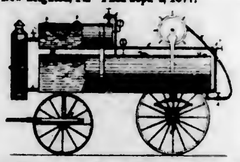
The base H, made of hard-burnt clay, in the shape of a bell, with a cylindrical projection around its lower part, and provided with a burnt-clay bottom plate, C, in combination with the iron rod or post A, substantially as herein shown and described.

196,562. MEANS FOR GENERATING CARBONIC-ACID GAS IN FIRE-EXTINGUISHERS. Joseph M. Connelly, New Brighton, Pa. Filed Aug. 3, 1877.

1. As a means of generating carbonic-acid gas in fire-extinguishing apparatus, the combination of granulated bicarbonate of soda, porous sulphate of alumina free from water of crystallization, and water, substantially as described.

2. The combination of granulated bicarbonate of soda, porous sulphate of alumina, water, and steam, substantially as and for the purpose set forth.

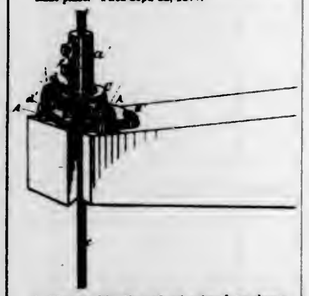
196,563. FIRE-EXTINGUISHERS. Thos. E. Connelly, New Brighton, Pa. Filed Sept. 4, 1877.



1. In a fire-extinguishing apparatus, the combination of chambers A and B, connecting-pipes *c* and *e*, and cocks *d* and *d'*, substantially as described, whereby the contents of the two chambers may be intermixed by means of a circulation established through the connecting-pipes.

2. The combination of closed chambers A and B, having two or more connecting-pipes with stop-cocks therein, and a device for artificially creating a current in one of the connecting-pipes, substantially as and for the purpose set forth.

196,564. SPOKE-ROD ADJUSTERS. Wm. H. Curtis, Oil City, Pa., assignor to himself and Robt. B. Armor, same place. Filed Sept. 22, 1877.



1. The combination of rod *c*, head or sleeve *a a'*, having a polygonal hole through the same for the reception of the rod, and one or more binding-screws for clamping the rod, substantially as set forth.

2. The combination of plates A and C, of suitable form for attachment to a walking-beam, and properly recessed for the reception of a perforated ball, substantially as set forth.

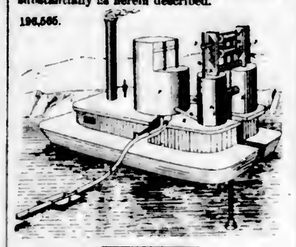
3. A base-plate recessed on one side, in combination with a detachable top plate, a ball-and-socket joint, and piston-rod, substantially as set forth.

196,565. DREDGING-MACHINES. Ezra F. Dennison, San Francisco, Cal. Filed Aug. 30, 1877.

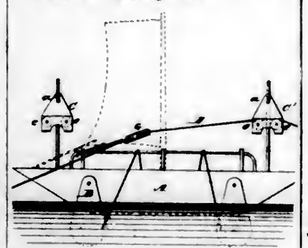
1. A dredging apparatus consisting of one or more steam vacuum-pumps, A B, provided with a suction pipe or pipes, C D, and exhaust-pipes G, the reservoir pressure-tank F, and the flexible floating tube I J, all combined and operated substantially as and for the purpose described.

2. The device for operating the steam and water valves of the vacuum-cylinders, consisting of the cams or toes P, mounted upon the stems Q, and moving in the rhomboidal guide-slots S, in combination with the double inclined planes O, connecting the opposite valves, substantially as herein described.

196,566.

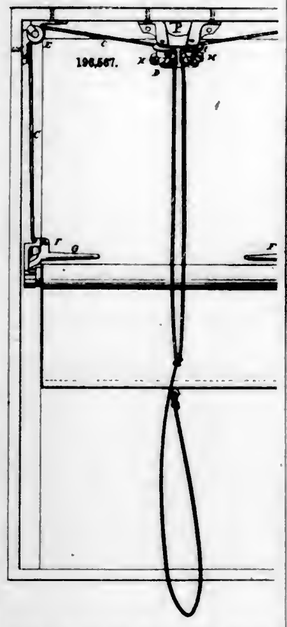


196,568. FERRY-BOATS. Joseph G. Desmore, West Dresden, Me. Filed Aug. 18, 1877.



The combination of the swinging elevated brackets C C', constructed as described, carrying pulleys *e e*, and the guide-block G and rope or chain J, with the boat A and rope D, as and for the purpose set forth.

196,567.

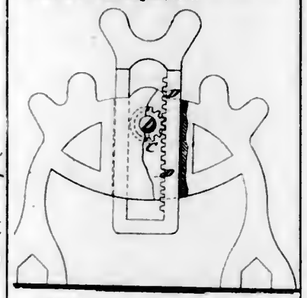


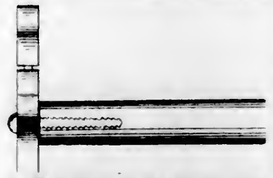
196,567. CURTAIN-CORD HOLDERS. A. S. Dickinson, New York, N. Y. Filed Feb. 19, 1877.

Brief.—A block or frame is secured in an inclined position to the upper central portion of the window-sill, said block having two similar sockets for the reception of stops D. Two stops or holders, D, are arranged in said sockets, and receive the cords attached to the curtain-roller, and these cords pass through the holders, and at a suitable distance below them are united in any suitable manner, the object of said construction being to hold the roller in a horizontal position at all times.

The centrally-arranged cord-stops, having roller-surface H and spirally-grooved surface O, journaled in block or frame P, which is provided with guards K and with central projection J, and arranged in inclined position, so as to clamp by slacking the cords, in combination with the curtain, roller, cords, and guide-pulleys, substantially as and for the purpose set forth.

196,568. BILLIARD-BRIDGES. F. E. Doughty, New York, N. Y. Filed Aug. 24, 1877.





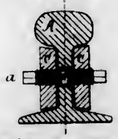
1. The combination, with a billiard-bridge, of a vertically-adjustable cue-rest, substantially as and for the purpose set forth.

2. The combination, with a billiard-bridge, of a vertically sliding and guided cue-rest, adjusted by the turning of the bridge-handle, substantially as and for the purpose specified.

3. The combination of the billiard-bridge with the guided and sliding cue-rest, and with adjusting-gear operated by the bridge-handle, substantially as specified.

4. The combination of the billiard-bridge, having guide-recess, with adjustable cue-rest, having slotted shank with internal rack, and with intermeshing pinion at end of bridge-handle, to raise or lower cue-rest by turning of said handle, substantially as described.

196,569. RAILROAD-RAIL JOINTS. William G. Dunn, Fairland, Ind. Filed July 17, 1876.



The combination of the rails having notched ends, the flat plates C C, and right and left threaded bolt *a*, having an enlargement, *s*, as set forth.

196,570. HARVESTERS. Samuel Dyer and Mallinge Dyer, Mansfield, Ohio. Filed July 25, 1877.

1. In combination with the driver's seat of a reaper, mower, or harvester, suitable connections with wheel-brakes and the cutter-bar gearing, whereby the brakes will be applied and the cutter-bar stopped immediately upon the driver leaving or being thrown from the said seat, substantially as and for the purposes described.

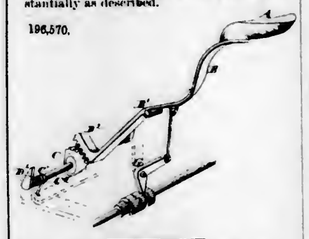
2. A reaper, mower, or harvester seat the stem or standard of which is a lever fulcrumed upon the frame of the machine, and constructed and arranged to operate simultaneously the wheel-brakes and any suitable device for throwing the cutter-bar into or out of motion, substantially as described.

3. In combination with the lever or seat-standard B, the gear-connection B' C and the brake-connecting mechanism, substantially as and for the purposes described.

4. The combination of driver's seat A, seat-standard B, and wheel-brakes, substantially as and for the purposes described.

5. In a safety brake attachment, the two gears respectively formed on the seat-standard and brake-shaft, and adapted to relatively engage as either line or miter gearing, substantially as described.

196,570.



196,571. COMBINED OVERALLS AND JUMPER. Saml. H. Emanuel, Gloucester, Mass. Filed Aug. 24, 1877.



The improved garment formed of overalls and jumper, made without side seams and divided across the waist, the elastic straps *c*, attached at some distance from the lower edge of the jumper, and the flap C, having buttons located at its edge, and the waist band E', all combined, constructed, and arranged as shown and described.

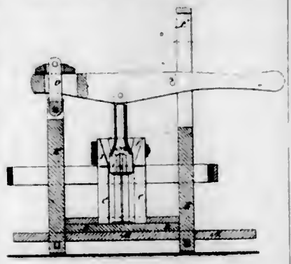
196,572. SHUTTERS. Willard S. Everett, Hyde Park, Mass. Filed Sept. 15, 1877.



1. In a blind-awning, the combination of the top hinged frame B, having pivoted slats C, operating-bar D, and hinged detachable wings E, with the main shutter-frame A, as and for the purpose set forth.

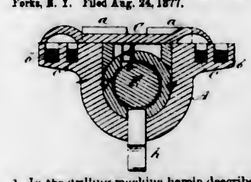
2. The combination, with adjustable shutter-slats, of supplementary slats, hinged at or near the upper edge of the slats, for keeping out the sun, but admitting air, substantially as described.

196,573. BUTTER-MOLDS. Augustus W. Faris, Red Sulphur Springs, W. Va. Filed Sept. 29, 1877.



The combination of the mold C, made in two parts, attached to the stationary bar D, and the hinged bar F, the hopper I, made in two parts, hinged to each other, the knife L, the follower M, the lever N, and its flexible connection O P, with each other, and with the posts E, the apron B, and the bed-plate A, substantially as herein shown and described.

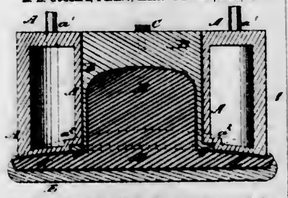
196,574. ROCK-DRILLS. William W. Gaines, An Sable Forks, N. Y. Filed Aug. 24, 1877.



1. In the drilling-machine herein described, the serpentine groove *e*, formed by the segments G G, arranged between the piston-heads *g g*, substantially as described.

2. The key-piece or guide *h*, passed through the bottom of the cylinder A, in combination with the segments G G, substantially as described.

196,575. DIES FOR SHAPING AND FINISHING HATS. R. L. Goddard, Palmer, Mass. Filed Sept. 10, 1877.



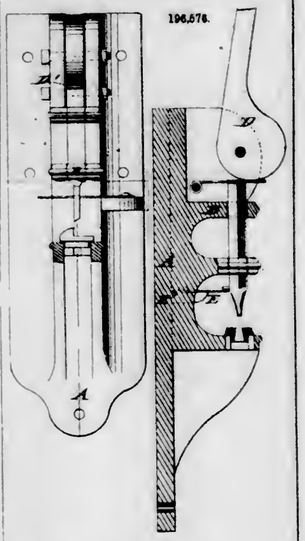
A hat-press in which the pot B is held in the shell A by cross-bar C and flange *b'*, the former made fast to the top of shell, and the latter fitting a shell-rabbet, *a'*, as shown and described.

196,576. MACHINES FOR PUNCHING OR SHEARING. Elmrod Goeder and Bernard Lavin, Kaukauna, Wis. Filed Sept. 1, 1877.

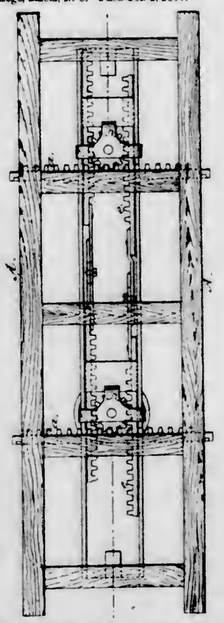
Brief.—To remove the tool, the pivoted spring is disengaged from the lower part thereof, and the lower die removed. The tool passes down through the aperture for the lower die.

The combination of a vertically-guided and interchangeable tool with the pivoted actuating cam-lever and interchangeable equalizing-plate acting on the top of the tool, and with a pivoted spring engaging the lower part of the tool, substantially as and for the purpose specified.

196,576.



196,577. HEAD-BLOCKS FOR SAW-MILLS. Constantine A. Hage, Salem, N. C. Filed Oct. 8, 1877.



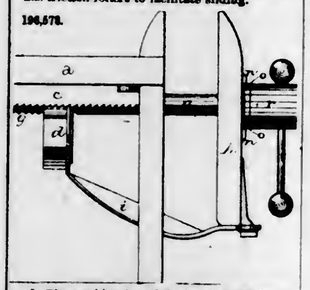
1. The combination of the beam B and carriage A with racks *s* and *a*, and pinions for operating the same, substantially as set forth.

2. The beam B, provided with racks *c*, slotted and joined by bolts, whereby they are rendered adjustable in length, substantially as and for the purpose set forth.

196,578. VISES. Marvin T. Henson and Martin Osborn, Port Jefferson, Ohio, assignors of one-third their right to Squire Baker, same place. Filed Oct. 9, 1877.

Brief.—The pawl slides on the front side of the nut for engagement and disengagement with the ratchet. The upper end of the nut has friction-rollers to facilitate sliding.

196,578.

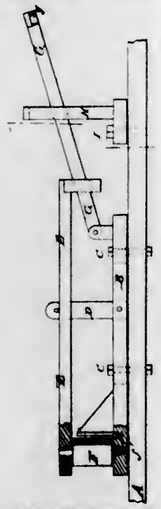


1. The combination of the bench *a*, ratchets *c*, having their inner sides beveled away, block *d*, having enlarged end provided with friction-rollers *j*, and screw *g*, with the rod *i* and jaw *h*, substantially as shown.

2. The screw *g*, provided with a stop, *l*, in combination with the bearings *a*, ring *o*, and jaw *h*, pivoted upon the rod *i*, substantially as specified.

196,579. HORSE-DETACHERS. Joseph T. Himmeger, La Rue, Ohio. Filed Sept. 14, 1877.

Brief.—A downward pressure upon lever G raises the free end of bar E, permitting whiffletree F to be drawn out.



The combination of the lower bar B, whether made with or without the notched slots, the standard D, the pivoted upper bar E, the lever G, and the slotted standard H, provided with the spring J, with each other and with the double-tree F, provided with the pin or bolt *f'*, having projecting ends, substantially as herein shown and described.

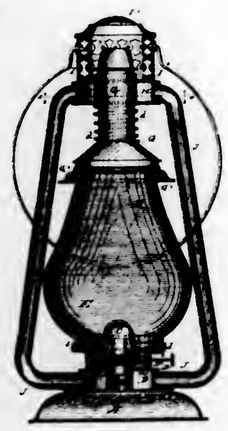
196,580. LANTERNS. L. G. Huntington, New York, N. Y. Filed Sept. 27, 1877.

1. In a lantern, the combination of a perforated air-chamber above the chimney, an air-chamber surrounding the burner, and air-tubes connecting the same, whereby all the air fed to the burner is drawn from the outside into the upper chamber, and throughout the air-tubes to the chamber surrounding the burner, substantially as set forth.

2. In a lantern, the combination of the upwardly-projecting flange *b*, globe E, and chimney D, the connections between the flange and the lower portion of the globe and between the chimney and upper portion of the globe being air-tight, substantially as described.

3. The combination of the base A and burner C, constructed to form the air-chamber *a*, the globe E, tubes J J, air-chamber H, chimney G, and perforated hoop I, all constructed substantially as and for the purposes herein set forth.

196,580.



196,581. LAMPS. Hiram L. Ives, Troy, N. Y. Filed July 24, 1877.

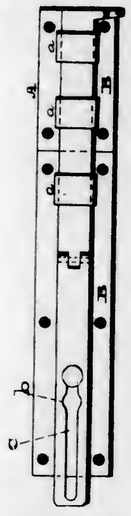
1. A bell-shaped or flaring chimney, E, with recessed top *e* and regulating draft-cap F, in combination with a burner and lamp, as set forth.

2. In combination with an Argand-burner or round wick, the deflector D, constructed substantially as described, the bell-shaped recessed chimney E, and cap to the same, for the purposes set forth.

196,582. COMBINED SHUTTER FASTENER AND BOWER. B. M. Johnson, Hainesport, N. J. Filed Aug. 24, 1877.

The face-plates A A', keepers *a a*, and stud D, in combination with the hinged bolt B, one section of which is formed with the slot C, having a swell, *b*, intermediate of the ends of the slot, substantially as and for the purpose set forth.

196,582.



196,583. APPARATUS FOR TEACHING ARITHMETIC. R. W. Kavanaugh, Chaplin, Ky. Filed Aug. 3, 1877.

1. An apparatus for teaching arithmetic, consisting essentially of a slotted face-plate, figure-cards inserted back of the same, a traversing pointer, and of a series of object-holders arranged along the upper and lower parts of the face-plate, so as to appear or disappear simultaneously with the progress of the pointer, substantially as specified.

2. The combination of the sliding center-post, carrying the unit-figure 1 with the sliding and spring-acted sleeve of the pointer, having forked pawls and a fixed double ratchet, to produce axial motion of pointer, but fixed position of unit-figure, substantially as described.

3. The combination of the axially-turning pointer D, having forked pawls *f*, with the fixed double ratchet *f'*, releasing spring-arms E, and sliding and spring-acted object-holders F, substantially as set forth.

196,584. SIEVES. George W. Ketcham, Newark, N. J. Filed June 1, 1877.

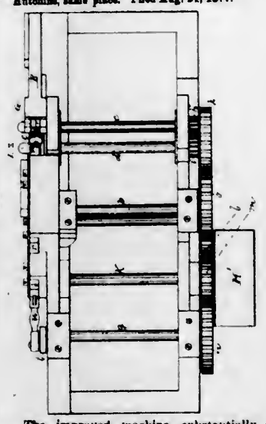
1. In a metallic sieve, the combination of an outer base-hoop, a separate inner base-hoop, and the depending flange of the gauze bottom, arranged parallel with each other, the said parts being bent or folded together as a unit in the same direction, substantially as set forth.

2. In a metallic sieve, the combination of an outer base-hoop, a separate inner base-hoop, the latter being provided with indents, serving as pockets for supporting the ends of the cross-wires, the depending flange of the gauze bottom, when the said hoops and flanges are bent or folded together as a unit in one direction, substantially as set forth.

196,584.

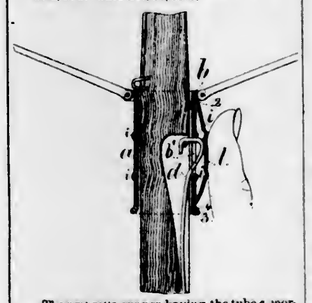


196,585. HORSESHOE-NAIL MACHINES. Wm. Kaya, Montreal, Quebec, Canada, assignor to Lucy J. M. Hutchins, same place. Filed Aug. 21, 1877.



The improved machine, substantially as specified, consisting of the blank-forming dies G L, swaging rolls D E, two spouts, C F, adjustable shoulder or shelf *f*, and the finishing-dies H M, arranged and combined as described, and provided with mechanism for revolving the swaging-rolls, and also with mechanism for actuating the movable dies L M, all being as set forth.

196,586. UMBRELLA-RUNNERS. Abram B. Knapp, Elizabeth, N. J., assignor to Ellis, Knapp & Co., New York, N. Y. Filed Nov. 27, 1876.



The nmbrella runner having the tube *a*, mortise *b'*, and rings *i i* at the ends of the mortise, and the thumb-shield *l* contiguous to said slot, with both ends connected to the tube *a*, as set forth.

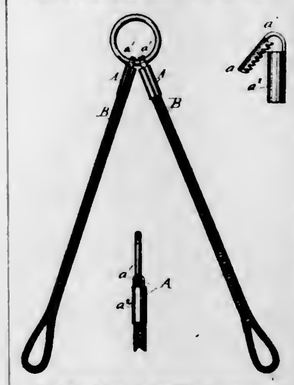
196,587. NECK-TIE RETAINERS. Frederick W. Koch, St. Clair, Pa. Filed Aug. 3, 1877.



1. The center piece B, having opening *b*, and the jaws *a a*, in combination with the wings A, substantially as and for the purpose set forth.

2. A combined neck-tie shield and retainer made of a single piece of wire bent to form the wings A A, center piece B, with jaws *a a* and opening *b*, and the eyes *d*, all substantially as and for the purposes herein set forth.

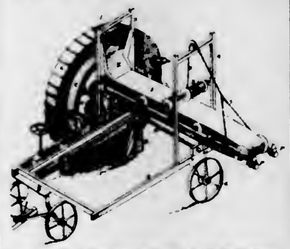
196,588. CLASPS FOR SUSPENDER-ENDS. Granville H. Leonard, Easthampton, Mass. Filed Aug. 24, 1877.



The clasp-holder A described, consisting of the semi-cylindrical portion *a'*, having serrated edges, and the covering portion *a*, adapted to hold around end B, as set forth.

196,589. EXCAVATING-MACHINES. J. H. McMurphy, Merced, and E. W. Chapman, San Francisco, Cal.; said McMurphy assignor to said Chapman. Filed Aug. 4, 1877.

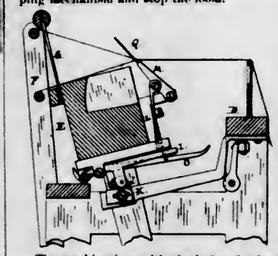
Brief.—The earth is turned by the plow into the channel of the wheel, retained there by the guard, removed by the scraper, and delivered, by the chute, upon the carrier, and by it dumped at one side.



The wheel A, provided with a plain groove, B, and mounted beside a traveling frame, E, to which a shield, G, is attached, in combination with the scraper I, chute K, endless drapor or carrier J, and extensible frame P, supported by the windlass R, ropes S, and frame Q, the several parts constructed and relatively arranged to operate in the manner herein shown and described.

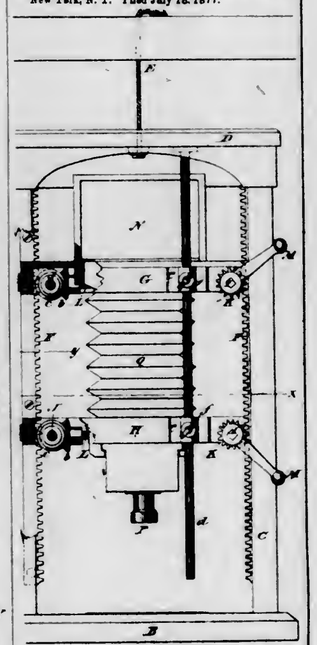
196,590. STOP-MOTIONS FOR LOOMS. J. H. Mortimer, Johnston, R. I., assignor of one-half his right to A. S. Wyan, same place. Filed June 13, 1877.

Brief.—The feelers are thrown up into the shed in front of the weft, and are detained in that position by the weft until the dagger has passed the knocking-off lever, when the feelers fall down into a recess in the lay. Should the weft be absent, the fingers are free to fall, and the dagger is elevated to strike the shipping mechanism and stop the loom.



The combination, with the lathe of a loom, of the levers I J, operated by cam-surfaces K N, levers O P, with their springs, rod L, and lever M, provided with suitable fingers Q, substantially as described, and for the purpose specified.

196,591. PHOTOGRAPHIC CAMERAS. John C. Moss, New York, N. Y. Filed July 18, 1877.



1. A camera suspended by a rope or other flexible connection from a single point, and in the same sling with the object to be copied, as shown and described.

2. A camera having at each end thereof four pinions connected to rotate simultaneously, in combination with a frame containing four racks, substantially as shown and described.

3. The bar *d*, in combination with the frames G H, each having a clamp for binding the rod,

substantially as shown and described.

4. The combination of the bed A′, having the support B′, the beam C′, and the rope D′, substantially as shown and described.

196,592. COMBINED CANE AND UMBRELLA. Alexander Mangle, Newark, N. J. Filed Sept. 22, 1877.



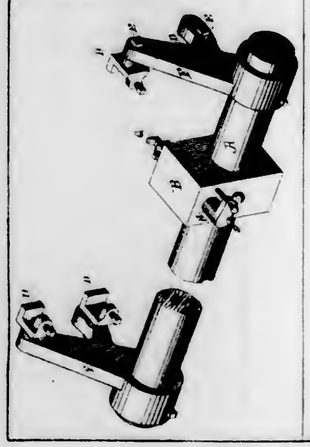
1. In a cane and umbrella combined, the combination of a tubular umbrella-stick, having split handle, with a cane stored at the interior of stick and handle, substantially in the manner set forth.

2. As an improvement in cane and umbrella combined, the tubular stick, having a split handle, formed of a fixed and a movable section and a suitable closing device, in combination with a cane stored at the interior of stick and handle, substantially as and for the purpose specified.

3. The combination of a tubular umbrella-stick, having a split handle made of fixed and hinged sections, and sliding ferrule, with a cane stored at the interior of the stick and split handle, substantially as described.

196,593. LATHES FOR TURNING PAPER-MILL ROLLS. Caleb Parent, Hamilton, Ohio. Filed June 29, 1877.

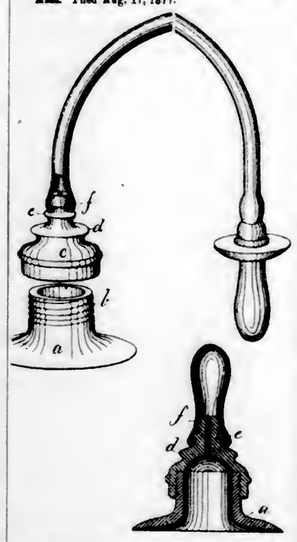
Brief.—Paper-mill rolls that have become worn can be resurfaced without removing them from their places.



1. The combination of the tool-block B, guide-rail A, bracket-arms F, clamps D, and bolts E, substantially as and for the purpose specified.

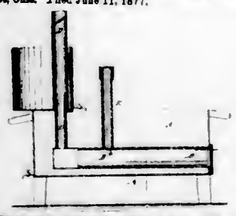
2. The combination of the tool-block B, guide-rail A, and bracket-arms F, substantially as described.

196,594. NURSING-SHIELDS. John W. Patch, Boston, Mass. Filed Aug. 17, 1877.



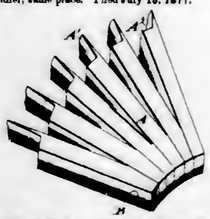
In combination with the screw-threaded nipple-protector *a*, the detachable piece *c*, having one or more shoulders, *d e f*, in a manner and for the purpose as herein set forth and described.

196,595. EVAPORATORS. John M. Randolph, Somerset, Ohio. Filed June 11, 1877.



In an evaporator, the sliding fire-box B, open at the front, and having aperture *b*, in combination with the pan A, having a lower section surrounding said fire-box, and the dampered smoke-pipes D E, as shown and described.

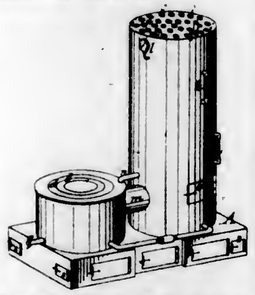
196,596. FIRE-KINDLERS. Lemon M. Rood, Cleveland, Ohio, assignor of one-half his right to Jacob A. Beidler, same place. Filed July 13, 1877.



1. The kindler consisting of pieces A, fastened closely together at B, and diverging therefrom, the said pieces being, respectively, provided with the lighting extremities A′, substantially as described.

2. The fan kindler consisting of pieces A, brought together and fastened at B, the same diverging therefrom, and being provided at their opposite ends with the lighting extremities A′, the whole being coated, partially or entirely, with a resinous mixture, substantially as described.

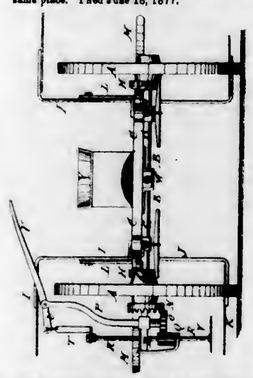
196,597. DUPLEX STEAM-BOILERS. James B. Rivers, Baltimore, Md. Filed Sept. 29, 1877.



2. In combination with an annular steam-boiler, as above described, a vertical boiler having an interior fire-place and vertical flues above said fire-place, said boilers being connected by two or more water-pipes or passages, and a hollow base connecting the smoke-flues of both boilers, as and for the purpose described.

1. A vertical annular steam-boiler having an interior furnace or fire-place (open above when desired) connected, by means of descending flues and the base of said boiler, with a distinct vertical boiler or steam-reservoir having vertical flues extending from the base to the top, substantially as and for the purpose described.

196,598. SUGAR-CANE HARVESTERS. Philip Sotz, Baton Rouge, La., assignor to himself and J. O. Holt, same place. Filed June 18, 1877.



1. The combination of the sliding bars D, the connecting-bars E, the gear-wheels F H, the adjustable bars I J, that carry the knives K, and the adjustable braces L, with each other, and with the wheels A and frame C, substantially as herein shown and described.

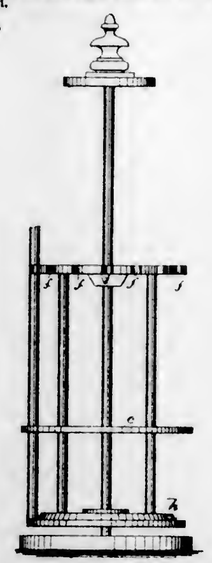
2. The combination of the guide-bars M with the outwardly-projecting rear ends of the sliding bars D, substantially as herein shown and described.

3. The combination, in a cane-cutter, of the vertically-adjustable shaft R, horizontal cutter V, long pinion Q, and swivel bearing-bar T with the gear-wheels O N, supporting-bar P, lever U, and the wheel and axle A′ B, as and for the purpose set forth.

196,599. BROOM-RACKS. Sylvester W. Sheldon, New York, N. Y. Filed Sept. 22, 1877.

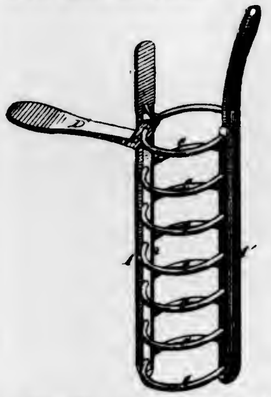
A broom-rack consisting of three rod-connected disks, the upper having notches *f*, the middle one having holes *g*, and the lowest disk having a beveled ledge, *h*, as shown and described.

196,599.



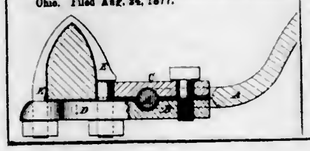
196,600. SPECULUMS. Alex. Shiland, West Troy, N. Y. Filed Mar. 30, 1877.

Brief.—A thumb-lever is rigidly secured to the upper ring of a ring-folding speculum, and serves to open and shut the blades.



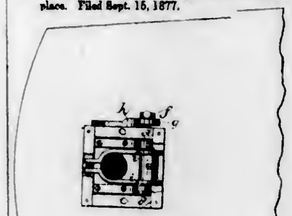
The dilators A A′, having a series of rings, C C, hinged thereto and set at intervals apart, in combination with the handle D, having ears D straddling the dilator A, and pivoted to the upper ring, substantially as described, and for the purpose set forth.

196,601. THILL-COUPLINGS. David R. Silver, Sidney, Ohio. Filed Aug. 24, 1877.



The combination, with a grooved bar, C, held at one end by a detachable screw, of the yoke D, extended to form the part B, and the clip E, having a shoulder, under which the free end of part C is rigidly held, as shown and described.

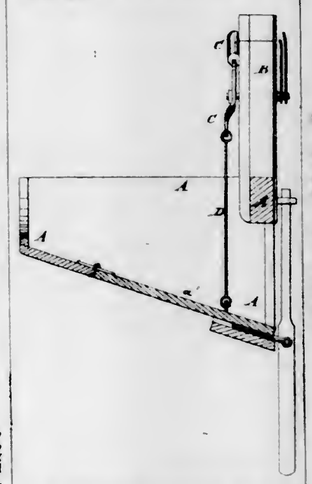
196,602. RUDDER-CHUCKS FOR VESSELS. Charles M. Tarr, Gloucester, Mass., assignor to A. Voss, same place. Filed Sept. 15, 1877.



The combination of the eccentric shaft *e*, clamps *i*, rudder-stem, pawl and ratchet, and an inclosing-case, substantially as described.

196,603. GRAIN-TALLIES. P. Thomas, North Huron, N. Y., assignor to himself and Alvah H. Seavey, same place. Filed Sept. 22, 1877.

Brief.—The invention consists in the combination of a pivoted connecting-bar and a pivoted or hinged sliding bar with the hinged bottom of the hopper, and with a lever that operates a register, said sliding bar projecting downward into the basket, so that the basket or measure cannot be removed without the withdrawal of the bar and the consequent operation of the register.



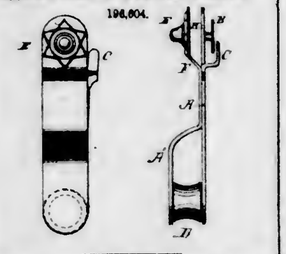
The combination of the pivoted connecting-rod D and the pivoted or hinged sliding bar E with the hinged bottom *a′* of the hopper A and with the lever C that operates the register B, substantially as herein shown and described.

196,604. CHECK-REIN SUPPORTS FOR HARNESS. A. B. Tracy, Mayville, N. Y. Filed Sept. 13, 1877.

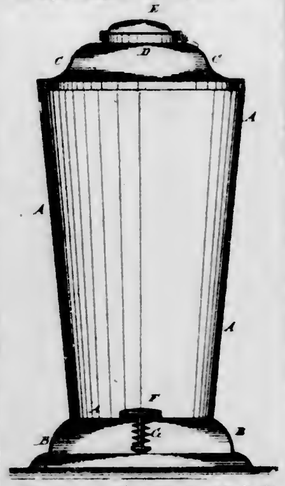
1. The plate A, provided with button B, in combination with curved plate A′ and pulley D, substantially as and for the purpose described.

2. The combination of the plates A and A′ of the check-rein support with the stud C and support F, as and for the purpose described.

196,604.



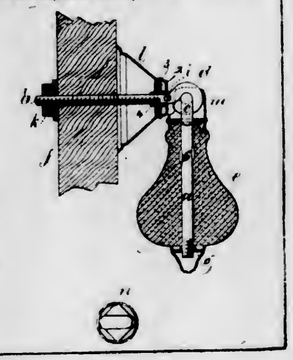
196,605. LIQUOR SHAKER AND STRAINER. William H. Trepus, Chicago, Ill. Filed Sept. 29, 1877



The cup A, provided with the foot B, the cover C, the strainer and cap D E, and the valve and spiral spring F G, to adapt it for use, substantially as herein shown and described.

196,606. DRAWER-PULLS. George W. Tucker, Waterbury, Conn. Filed Aug. 20, 1877.

Brief.—Projections upon the securing-bolt in connection with a washer, prevent the bolt from turning in the knob. A polygonal cap incloses the link-joint, and secures it from rotary movement, as the sides of the links rest in the angles of the cap.

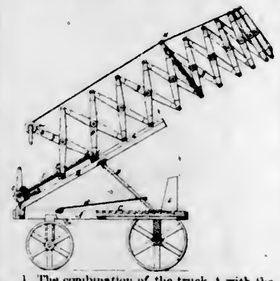


1. In combination with the bolt *b* and rose or cone *l*, the cap 3, washer 2, and auxiliary nut 4, for the purposes and as set forth.

2. In combination with the eyes *c d* of the bolts *a b*, the cap *m*, made polygonal to receive the eye *c* between its opposite angles, and slotted for the bolt of the eye *d*, which eye is between the other two opposite angles of the cap, substantially as set forth.

3. In combination with the joint of the drawer-pull and the nut *g*, the projections upon the bolt *a*, entering the wood of the drawer-pull, to prevent the latter turning upon the former, as set forth.

196,607. FIRE-ESCAPE. John W. Tutewiler, Indianapolis, Ind. Filed July 27, 1877.

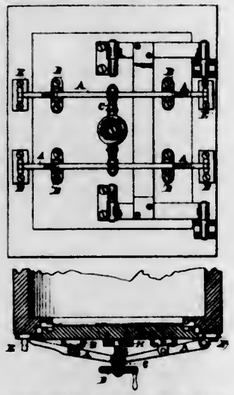


1. The combination of the truck A with the inclined platform B, adjustable support B', rack C, rope *d*, and cranked rod *e*, substantially as specified.

2. The adjustable inclined platform B, with its operating devices, consisting of the support B', rack C, rope *d*, and cranked rod *e*, in combination with the fire-escape ladder or lazy-tongs D D, screw E, cogged gearing G, and cranks H H, all arranged and operating substantially as shown and described.

3. The double lazy-tongs D D, constructed as shown and described, having the standards M M, cranked shaft I, and spools *i i* arranged thereon, in combination with the rope *k* and pawl and ratchet *m*, substantially as specified.

196,608. FIRE AND BURGLAR PROOF SAFES. Herman Urban, Cincinnati, Ohio, and George Berkmyer, Covington, Ky. Filed Aug. 14, 1877.

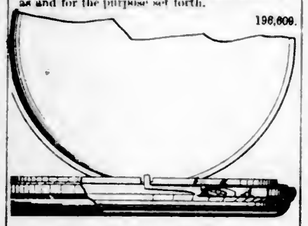


In combination with the door of a safe or vault, the levers A, jointed on shaft C, and screw G, passing through said shaft, and swiveled to the door for operating the levers, said levers crossing the door and having their fulcrum-bearings on the jambs, and said door hung to the lever near its opposite edges, substantially as hereinbefore specified.

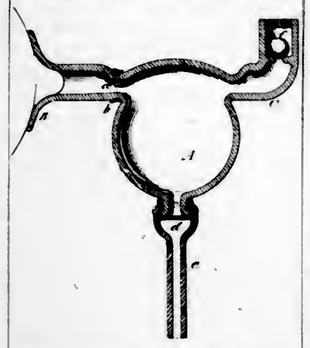
196,609. WATCH-CASE SPRINGS. Detlef C. Voss, New York, N. Y., assignor to himself and E. A. F. Wachter, same place. Filed Sept. 29, 1877.

A watch-case spring having a slotted adjustable catch-lever, turning on a rivet of the spring, and having a projecting end to lock into a recess of the watch case, substantially as and for the purpose set forth.

196,609.

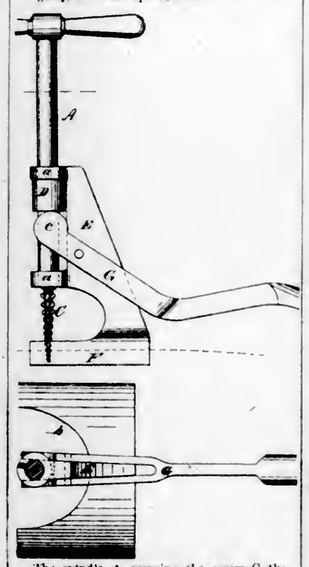


196,610. NURSING APPARATUS. George F. White, Middletown, N. Y. Filed July 23, 1877.



The combination of the drinking-tube *c* and valve *d* with the bulb A, having the neck *e*, mouth B, air-exhausting tube C, and valves *b f*, as and for the purpose set forth.

196,611. BUNG-EXTRACTORS. Wm. A. Wiley, Allegheny, Pa. Filed Sept. 29, 1877.



The spindle A, carrying the screw C, the lever G, and standard E, in combination, substantially as herein shown and described.

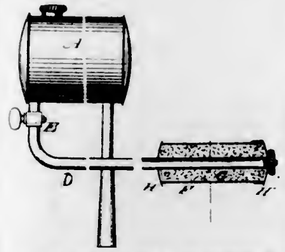
196,612. SKEWER-PULLERS. F. A. Will and Julius Finck, San Francisco, Cal. Filed Aug. 30, 1877.



1. A skewer-puller consisting of the handle A, permanent jaw B, with its concave extremity, and the movable jaw C, arranged to be operated by pressing upon the thumb-lever D, substantially as and for the purpose described.

2. A skewer-puller consisting of a concave permanent jaw, B, and movable jaw C, provided with teeth *c c*, and provided with an ordinary cutlery-handle, substantially as above specified.

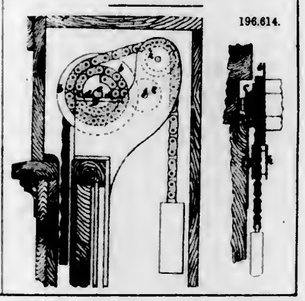
196,613. FISHING AND WHARF LAMPS. Leonidas L. Wilson and Levi B. Keagle, Centre Point, Iowa. Filed Sept. 22, 1877.



1. The wire gauze tube F and asbestus filling G, in combination with the perforated tube D, substantially as shown and described.

2. The reservoir A, tube D, perforated as described, and having the stop-cock E, the wire-gauze tube F, having cap H, and containing the asbestus filling G, in combination, as specified.

196,614.

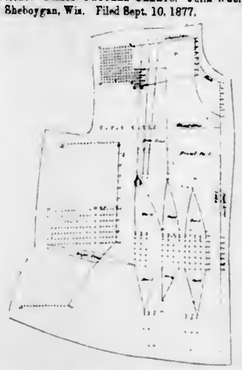


196,614. REVOLVING SHUTTERS. Henry Woodburne, Ulverston, England. Filed Sept. 4, 1877.

1. The combination, with the shutter and its roller, of a rolling support for the axis of the roller that allows the roller to move laterally as revolved, and the shutter to hang vertically, substantially as set forth.

2. The roller and shutter on bearings that allow of a lateral movement, in combination with the counterpoise, a chain or belt to the same, and a pulley against which the chain or belt presses as the shutter is drawn up or down, substantially at set forth.

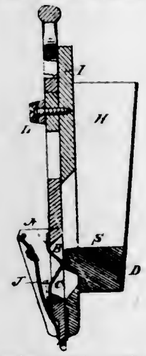
196,615. DRESS-PATTERN CHARTS. Julia Wuerfel, Sheboygan, Wis. Filed Sept. 10, 1877.



The set of pattern charts herein described, shaped, and having the perforations and graduated scales, as illustrated in Figs. 1, 2, 3, 4, 5, and 6, for the purpose set forth.

196,616. CORN-PLANTERS. Adrian O. Abbott, Adrian, Mich. Filed Oct. 6, 1877.

Brief.—A spring plate constructed to form measuring cup and feeder therefor, adjustably attached at one end to plunger, and having the other end free, thereby adapting it to operate in connection with rigid cut-off. A yielding open-top jaw, located on side of planter next the operator, forms sight-cup.



1. A hand corn-planter constructed with a yielding jaw, forming a sight-cup, from which the seed is forced into the ground.

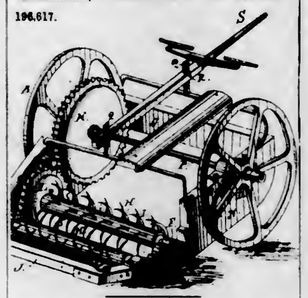
2. The plunger F, provided with a spring-plate, A, attached adjustably thereto at one end and free at the other, and constructed, substantially as shown, to form a variable measuring cup and a feeding cup therefor.

3. The combination of the hopper H, the plunger F, carrying the adjustable spring-plate A, and the open-top yielding jaw J, located on the side next the operator, and serving as a sight cup, as set forth.

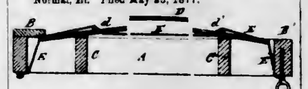
196,617. SOIL-PULVERIZERS. Jesse Adams, Lewisville, assignor of one-half his right to John S. Smear, Waveland, Ind. Filed Mar. 21, 1876.

In a machine for pulverizing the soil, the combination of the frame N, pivoted on the axle, the adjustable draft-pole S, and standards Q Q with cylinders F and G, having teeth H H, and bars J J, having knives I I, substantially as herein shown and described.

196,617.



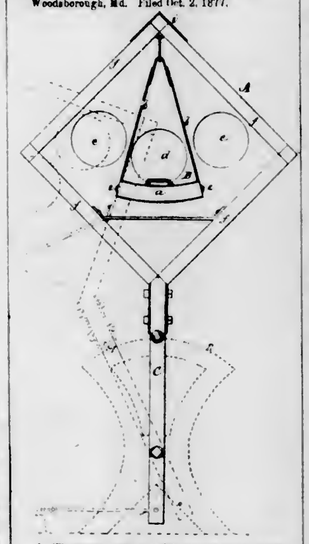
196,618. SPRING BED-BOTTOMS. Joseph P. Allison, Normal, Ill. Filed May 23, 1877.



1. The combination, in a bed, of the curved and slotted spring-slats D and the longitudinal strengthening-wires E, secured to the end pieces of the bed, and adapted to be tightened or slackened, substantially in the manner herein shown and described.

2. The combination, with the bed-frame A B B' C C', of the curved and slotted spring-slats D, and the longitudinal strengthening-wires E, passing under, up through, and over the ends of the slats, and secured as described, whereby the wires can be tightened or slackened, in the manner herein specified.

196,619. RAILWAY-SWITCH SIGNALS. G. W. Anders, Woodsborough, Md. Filed Oct. 2, 1877.



1. The combination, with the pivoted switch-lever, of a signal lantern provided with the differently-colored immovable panes *c d e* and the freely-suspended swinging lamp, as shown and described, to operate as specified.

2. The lantern-case composed of the narrow sides having right-angular flanges *f*, the illuminated fronts attached thereto, and the cover for the vent-holes in the top, all as shown and described.

196,620. SPLICING-BARS FOR VEHICLE-AXLES. L. Arthur, Mechanicsburg, Pa. Filed Sept. 13, 1877.

Brief.—A temporary splice-bar to be applied in case of a broken axle.



1. The hereinbefore-described splicing-bar C, having the spindle D, and provided with clamps E and F, in combination with the axle A, substantially as and for the purpose described.

2. The splice-bar C, constructed as described, and provided with the clamps E and F, having thumb-screws *a* and *b*, substantially as and for the purpose specified.

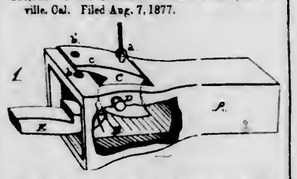
3. The splice-bar C, having its upper face adapted to fit between the nuts of the axle-clips, substantially as and for the purpose specified.

196,621. NAPKIN-HOLDERS. August Barion, San Francisco, Cal. Filed Nov. 2, 1876.



The napkin-holder consisting of the two tubes A A, each provided with a spiral or worm fastener, B B, as shown, and adapted to interlock for securing the tubes together when not required for use, all substantially as set forth.

196,622. CAR-COUPLINGS. Lewis T. Beaver, Placerville, Cal. Filed Aug. 7, 1877.



The combination, with the bumper-head A, having the recessed chamber B and provided with pin-hole *b*, of the eccentric C, pivoted in said chamber, and having a horn, *c*, projecting over the top of the bumper-head, and provided with a pin-hole, *b'*, coincident with the hole *b*, constructed and arranged substantially as described and shown.

196,623. SCRAPING-TOOLS. Jacob Blum, Stapleton, N. Y. Filed Apr. 25, 1877.

Brief.—A tool with a double-slotted handle, with a knife secured by adjustable clamps.



The handle A, constructed with the longitudinal slots *b* and F, extending vertically and horizontally through the handle, and having the adjustable gage-screw D, passing through said handle, in combination with the adjustable clamp E, passing through the slot F, for confining a knife or scraper, C, in the slot *b*, substantially as and for the purpose described.

196,624. BOTTLE-STOPPERS. Thomas H. Brady, New Britain, Conn. Filed Apr. 13, 1877.



1. In a bottle-stopper, the cam-plate D, provided with a projecting lever or handle at one side, and the side opposite said handle, made substantially flush with the base, so as to rotate freely between the arms of the bail, substantially as described.

2. In a cam-plate for bottle-stoppers, the cams *d d*, having radial notches or grooves formed in the surface of their inclines, substantially as described, and for the purpose specified.

3. The combination of the base, provided with cams, central stud, and annular chamber, and the cam-plate D, formed on a circle adapted to come within the annular chamber, and provided with the wing *e* and lever *f*, substantially as described, and for the purpose specified.

196,625. BAILERS FOR OIL-WELLS. Dewitt C. Brawley, Petrolia, Pa. Filed Aug. 9, 1877.

Brief.—A bottom section of the pump-barrel telescopes with the barrel, a valve-rod within it swiveling upon a transverse pin. A valve at the lower extremity of this rod rises above and falls beneath side ports in the lower section as the barrel rises and falls.

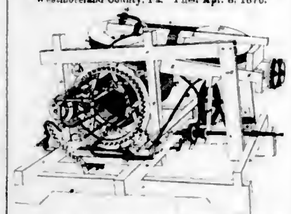
1. In a bailing-pump for Artesian wells, a telescopic section whose bore is continuous with the pump-body, in combination with a valve arranged and seated upon or within the telescoping section, and adapted to be operated by the sliding section, substantially as specified.

2. A bailing-pump having a projecting valve-section of less diameter than the body of the pump, said section having a limited longitudinal movement on the body of the pump, so as to seat and unseat a valve arranged in or upon the same, substantially as specified.

3. A bailing-pump provided with a valve capable of opening downward, so that the weight of the load shall aid in unseating it, substantially as described.

4. A bailing-pump provided with a valve-stem suspended from the body, a lower sliding valve-section, and a valve attached to the valve-stem in the valve-section below a seat placed therein, and adapted to be opened and closed by the movements of the sliding valve-section, substantially as described.

196,626. GRAIN-BINDERS. Harry H. Brideuthal, Jr., Westmoreland County, Pa. Filed Apr. 8, 1876.



1. The combination of the rings H G, blades J, arms K, and the driving-pinion N, substantially as and for the purposes herein specified.

2. The combination of the ring H, pinion N, rods L o^1, arms c^2 d^2, and the reversing-gear L', substantially as and for the purposes herein specified.

3. The combination of the frame *a*, cylinder O, curved rods y t^1, segment V, arm w, pin r, and the knotting-gear lever m', substantially as and for the purposes herein set forth.

4. The combination of the frame *a*, ring H, swinging frame K, and the knotting-frame *h*, substantially as and for the purposes shown and described.

5. The combination of the cylinder O, lever m, reciprocating frame *h*, segment 7, and the hook *c*, substantially as and for the purposes herein specified.

6. In combination with the hook *c*, or its equivalent, the reciprocating hook *d*, substantially as and for the purposes herein specified.

7. The combination of the hook *d*, frame *h*, rod *o*, and the twisting-hook slide 7, substantially as and for the purposes set forth.

8. The reciprocating frame *h*, shoulder 24, hook *c*, and the reciprocating holding-fork *r*, these members all arranged to operate in combination, substantially in the manner and for the purposes herein specified.

9. The combination of the cylinder O, arm *n*, slides *p q*, and the pivoted holding-fork *r*, substantially as and for the purposes herein specified.

10. In combination with the swinging blades J, the projecting rods or tines *k*, substantially as and for the purposes herein specified.

11. The combination of the reciprocating rail J^2, fork-arm 20, arm S^3, stud-plate 21, and the connecting-rod B, substantially as and for the purposes set forth.

12. The gavel-pusher arm A and the discharging-fork 20, all mounted upon and operated by the reciprocating rail J^2, substantially in the manner and for the purposes herein specified.

13. In combination with the main frame D, the swinging frame E, the straw-separator, and hand-twister mounted thereon, substantially as and for the purposes set forth.

14. The swinging frame E, shafts X S, pulleys C 14, and the belt 15, these members all arranged substantially in the manner and for the purposes herein specified.

15. The combination of the clutch-pulley L', wheel 18, disk F^2, lever 16, rods 17 Z, arm O^2, and the frame E, substantially as and for the purposes set forth.

16. The herein-described band-twister T, consisting of a series of curved overlapping leaves springing gradually from and projecting beyond the end of the shaft S, as and for the purposes set forth.

17. In combination with the frame E and the twister T, the hood or case R, substantially as and for the purposes set forth.

18. The combination of the frame E, hollow spindle *g*, separating-disk F, arm *f*, rod 15, rock-shaft O^2, roller Q, and the twister T, substantially as and for the purposes set forth.

19. The combination of the driving-pulley F^1, hooked belt *s*, separating disk F, and the blocks D', substantially as for the purposes herein described.

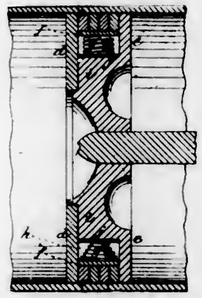
20. The combination of the pulley W, shaft S, bevel-gear 44, and the pulley F^1, as and for the purposes set forth.

21. The disk F, annular internal cavity O D, openings 25 and 28, rim n^1, and the point 5, these members all constructed to operate substantially in the manner and for the purposes herein specified.

22. In combination with the frame *k* and the reciprocating knotting-frame *h*, the spring *l*, substantially as and for the purposes herein specified.

196,627. PISTON-PACKING FOR BLOWER-CYLINDERS. Thomas H. Bourke, Youngstown, Ohio, assignor of two-thirds his right to Lloyd Booth and John Miller, same place. Filed June 16, 1877.

Brief.—A piston-head the periphery of which is pressed outward by springs between two concentric inner circles, said periphery consisting of annuli made up of segments of wood with flexible material, of smaller diameter between each, said springs being held by struck-up tongue from the side of the innermost concentric band or plate.



1. The combination, with segments *a*, forming the piston-packing proper, of the thin strips of woven fabric *c*, interposed between said packing-segments to give them freedom for independent movement over and upon said thin strips, as described.

2. The ring *f*, cut at a single point, forming a continuous seat and support for packing-segments, arranged to break joints with the springs *g*, arranged within an unobstructed annular space, *h*, and supporting said divided ring and packing-segments at all points alike, as described.

3. The annular unobstructed space *h*, the springs *g*, the ring *f*, and the band *j*, arranged within said annular space for operation with the segmental packing-rings *c*, as described.

4. The springs combined with a thin metal strip, to which they are secured by upset lips, for the purpose stated.

5. The combination, with the thin metal strip of springs, the segmental wooden packing, and the ring-seat thereof, of the interior piston-hub upon which said strip is seated.

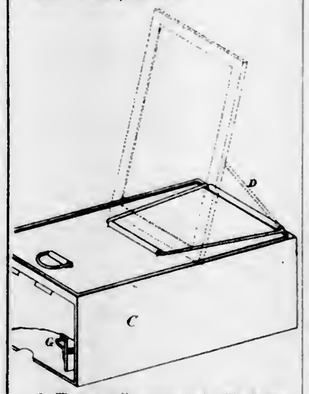
6. In horizontal blowing-cylinders, the lower group of helical springs, in combination with the springs of spiral form, for the purpose described.

196,628. FEED-COOKERS. Charles S. Burns, Cincinnati, Ohio. Filed July 7, 1877.

1. The combination of the outer cylinder B, having the elbow *b* permanently attached thereto, the cylinder D, and the grate-sections D^1 D^2, the construction being such as is described, so that the cylinder D and grate-sections can be removed from the outer cylinder without interference with the smoke-stack.

2. The ash-pan E, having legs *e* extended in an upward direction, as described, and provided with the handles *e'*, as and for the purpose set forth.

196,629. TOILET-CASES. Charles Carroll and Francis B. Lee, New Orleans, La.; said Lee assignor to said Carroll. Filed Apr. 17, 1877.



1. The case C, constructed with flanges, grooves, or guides G, for the reception of a hair-brush, as and for the purpose set forth.

2. The combination, with a toilet-case, C, of the mirror A, hinged by means of a link, D, of suitable length, to adapt it to be folded flat on the top of the case or set up for use, as set forth.

3. The dressing-case C, constructed with separate compartments for the brush and comb, and with a folding mirror adapted to be set up for use on said case, substantially as herein set forth.

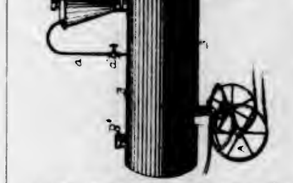
196,630. SASH-FASTENERS. Frederick Casper, Plainfield, N. J. Filed June 27, 1877.



Brief.—A sliding bolt, operated by a bent lever and thumb-piece, is combined with a toothed rack, into which a pinion is geared, which rack and pinion run together as the sash is moved up and down, the sliding bolt serving to lock or unlock the devices, thus holding the sash in desired position.

The combination, with the toothed rack *c* and pinion *b*, of the sliding bolt *k*, bent lever *l*, working upon the fulcrum *i*, and vertical sliding thumb-piece *n*, substantially as set forth.

196,631. SEWER-TRAPS. Wm. H. Collis and Edward Deady, San Francisco, Cal. Filed May 23, 1877.



A street-sewer trap consisting of the well H, sunk below the level of the main sewer-bottom G, in combination with the pipes F, leading from the corner or other openings, all constructed and arranged substantially as shown, and for the purpose herein described.

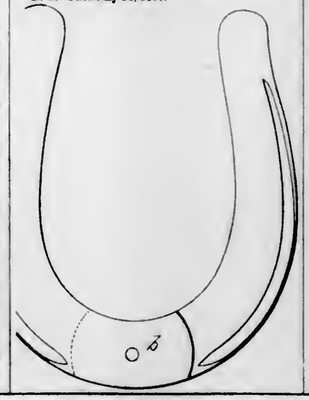
196,632. FIRE-EXTINGUISHING APPARATUS. Joseph H. Connelly, New Brighton, Pa. Filed May 9, 1877.

1. In a fire-extinguishing apparatus, the combination of chamber B, having suitable inlet and outlet ports, with dasher B^3, and hopper D opening into such chamber by means of a gate or valve, *d*, substantially as set forth.

2. The combination of chamber B, hopper D, valve *d*, pipe *a*, and cock *a'*, substantially as set forth.

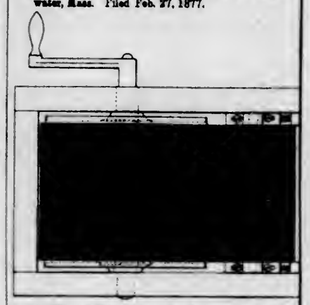
3. The combination of chamber B, dasher B^1, hopper D, valve *d*, pipe *a*, and cock *a'*, substantially as set forth.

196,633. HORSESHOES. David W. Copeland, Theresa, N. Y. Filed July 28, 1877.



A lap-joint horseshoe having extended laps *b*, beveled at their ends, and the correspondingly-beveled shoulders *d* at the roots of the laps, substantially as specified.

196,634. PAPER-MACHINES. Mark H. Cornell, Bridgewater, Mass. Filed Feb. 27, 1877.

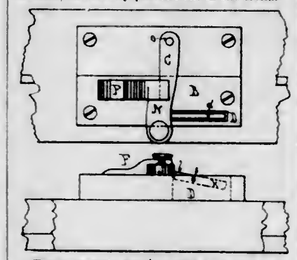


1. The combination of the foraminous cylinder C with the pulp-vat A and the main pulp-receiving cylinder B of a paper-making engine or machine, such cylinder C being arranged in such vat, and with respect to the cylinder B, and to revolve freely therewith, all substantially as, and for the purpose, and to operate as explained.

2. In a machine for making paper, the combination of a single cylinder, C, having a solid or non-foraminous periphery, with the pulp-vat A and the main foraminous pulp-receiving cylinder B of a paper-making machine, such cylinder C being arranged in said vat, and with the said cylinder B, in manner and to operate therewith as set forth.

196,635. FASTENERS FOR THE MEETING-RAILS OF SASHES. Amos Cummings, Boston, Mass., assignor of one-half his right to Herbert H. Ham, same place. Filed May 23, 1877.

Brief.—A slight novelty in combination of old devices, sufficiently pointed out in the claim.



The automatic gravity-catch *d*, in combination with the stops F and F^1, and the notched button C, substantially as and for the purpose hereinbefore set forth.

196,636.



196,636. ROLLING POCKET-TABLETS. H. T. Cushman, North Bennington, Vt. Filed Dec. 8, 1876.

1. The roller D, constructed with pencil-pocket, in combination with case A and flexible slate F, all as shown and specified.

2. As an article of manufacture, a flexible slate mounted upon a roller, provided with a pencil-pocket, and adapted to be rolled or coiled, for protection and transportation, into a tubular case, substantially as described and set forth.

196,637. AUTOMATIC TIME-TABLE ANNUNCIATORS. Lewis Dart, Springfield, Mass., assignor to himself, Horace W. Bullock, and O. W. Bullock, same place. Filed Mar. 14, 1877.

Brief.—An instrument automatically operated to pronounce the times of departure of trains in their regular succession.



1. In an automatically-operating time-table annunciator, the combination of the time train D, Fig. 3, moving train A, Fig. 3, Plate 3, cylinder b^1, Fig. 2, geared train A', Fig. 2, Plate 2, hands a^1 a^2, dial A, reversible sign-slats B, and their connecting devices, substantially as and for the purpose set forth.

2. In an automatically-operating instrument for the purposes specified, a time-train, D, Fig. 3, Plate 3, in combination with arbor d^1, Fig. 3, disk d, arms d^6, nut d^8, catch arbor z, slide-catch z^1, elbow-shaped wire z^2 on arbor z, and a moving train, A, Fig. 3, Plate 3, substantially as and for the purpose set forth.

3. The combination of the moving train A, Fig. 3, Plate 3, and skeleton cylinder B^1, Fig. 2, Plate 2, operating together, substantially as and for the purpose set forth.

4. The combination of skeleton cylinder B^1, Fig. 2, Plate 2, piston i, lever k, flexible rack-arm s^3, geared train A', Fig. 2, Plate 2, hands a^1 a^2, dial A, spiral springs r and f, pedals x, rods x' and y, arms w, sectors q, and rotating reversible sign-slats B, substantially as and for the purposes specified.

5. The combination, in train D, Fig. 3, of arbor d^{10} and its gear-connection with said train, disk d, arms d^6, nut d^8, lever n, rod c^{11}, arbor z, slide-catch z^1, and bent arm z^2, as and for the purposes specified.

6. The combination, with train A, Fig. 3, of the disk b, Fig. 9, Plate 1, with its slots b^2 cut at equal intervals, and rod y' and its connecting elbow, and vertical trip rod, substantially as and for the purpose set forth.

7. The combination, in skeleton cylinder B^1, Fig. 2, Plate 2, of the heads B^2 and B^3, bars B^4, pedal-pin bars d^{10}, pins d^{11}, spring g, and adjusting-screws h, substantially as and for the purpose set forth.

8. The combination of piston i, Fig. 2, lever k, flexible rack-arm s^3, and spiral springs f and e, substantially as and for the purpose set forth.

9. The bent arm G and its adjusting-screw l^1, substantially as and for the purpose set forth.

10. The combination of the pedals x, rods x', horizontal rods y, arms w, and sectors q, substantially as and for the purpose set forth.

11. The rotating reversible sign-slats B, Fig. 1, substantially as and for the purpose set forth.

12. The disk d, Fig. 4, with its adjustable arms d^4, and nut d^5, as and for the purpose specified.

13. The arms d^6, Figs. 5 and 6, with their pins c and slot c', substantially as and for the purpose set forth.

14. The pedals x, vertical rods x', horizontal rods y, and geared sectors q, in combination with the reversible sign-slats B, reversed by spring-action following the action of the sectors q, substantially as and for the purpose set forth.

15. The cylinder-head B^2, Fig. 10, with its projecting rim and its adjusting-screws h, substantially as and for the purpose set forth.

16. The disk b, Fig. 9, with its slots and latches a^3, substantially as and for the purpose set forth.

17. The pedal-pin bar d^{11}, Fig. 8, with its perforations d^9, Fig. 2, and the adjustable pins d^{11}, substantially as and for the purpose set forth.

18. Arbor z, Fig. 3, with its adjustable slide-catch z^1, and bent arm z^2, substantially as and for the purpose set forth.

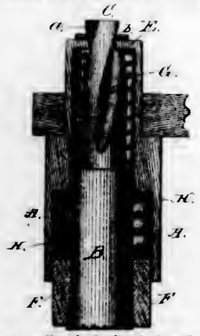
19. The skeleton cylinder B^1, having removable pedal-pin bars d^{12}, as and for the purpose set forth.

20. The combination of train A, Fig. 3, of disk b, Fig. 9, and skeleton cylinder B^1, Fig. 2, Plate 1, substantially as and for the purpose set forth.

21. Disk d, train D, Fig. 3, arms d^6, nut d^8, bifurcated lever n, and rod c^{11}, combined, as and for the purpose set forth.

22. The combination of the partial and fully unlocking devices in train A, Fig. 3, with disk b, Fig. 9, the bent arm z^2, arbor z, slide-catch z^1, disk d, arms d^6, arbor d^1, and train D, Fig. 3, substantially as and for the purpose set forth.

196,638. CANCELING-STAMPS. Anthony Dasi, Newark, N. J., assignor of one-half his right to George Wieckhofer, same place. Filed Sept. 15, 1877.



The canceling device herein described, consisting of the canceling-post B, having spirally-grooved stem C, enlarged lower end and pin b, the cushion-block F, springs G H, cylindrical shell A, having tubular extension D, slotted top plate and lips e, and a suitable holder, all constructed and relatively arranged as herein set forth.

196,639. AUTOMATIC SMOKING ADVERTISING DEVICES. Albert H. Dean, Bridgeport, Conn., assignor to Ives, Blakeslee & Mott, same place. Filed Aug. 10, 1877.

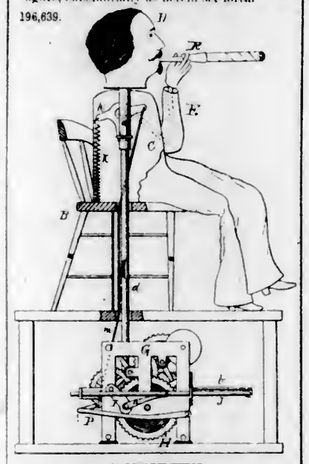
1. The combination, in an automatic smoker, of the figure C, movable head D, with tubular pivot e, having projecting pin i, the movable arm E, with pivot f, the three-armed lever k, spring k, and a clock mechanism connected with said lever, substantially as and for the purposes herein set forth.

2. The combination, in an automatic smoker, of the figure C, movable head D, with tubular pivot e, the tube d, cylinder K, and the piston L, connected to and operated by a clock mechanism, substantially as and for the purposes herein set forth.

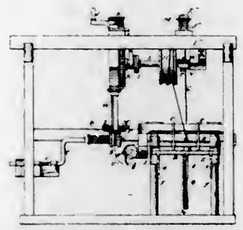
3. The combination, in an automatic smoker, of a clock-work, H, rotating cam-arm I, pivoted arm P, connecting-wire w, and three-armed lever k, for simultaneously operating the movable head and movable arm of the figure, substantially as herein set forth.

4. The combination, in an automatic smoker, of a clock work, H, rotating cam-arm 1, the pitman a, and reciprocating bar J, for operating the piston L, and the pivoted bar P, for operating the movable head and arm of the figure, substantially as herein set forth.

196,639.



196,640. GRAIN-BINDERS. Ezra Dederick, Milwaukee, Wis. Filed May 21, 1877.



1. The combination of arms A and C with bars B and D, sliding thimbles E, standards F, levers M and O, chains P, and springs R and S, constructed, arranged, and operating substantially as set forth.

2. The combination of shaft L with pinion K, a coupling and uncoupling device, a retracting-spring, cord G, pulley H, and compressing arms, substantially as set forth.

3. The combination of crank C', having a knob and disk G', with binding-cord, coupling device, shaft H, and retracting-spring K', substantially as set forth.

4. The combination of shaft S, V-shaped binding-hook J', shears N', helical spring R', cord N^2, and pulleys O', P^2, and Q', substantially as set forth.

196,641. CORN-PLANTERS. Lewis Defenbaugh, Kokomo, Ind. Filed Sept. 10, 1877.

Brief.—Two plowshares are adjustably connected to turn furrows in opposite directions, leaving at the bottom a narrow ridge, which is penetrated by a tubular conveying-boot secured in the space between, and in rear of, the plows. Between the plow-beams, at the rear, is secured a spacing-block, upon which is mounted a seed hopper and disk, that is caused to rotate by levers struck by pins on a wheel journaled in rear of the shares.

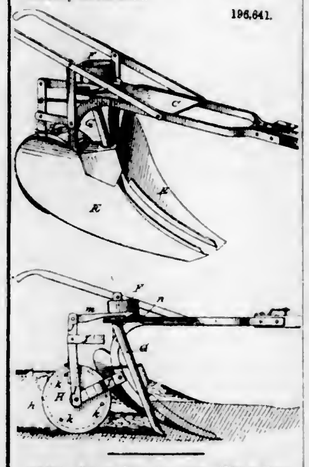
1. A corn-planter provided with two plow-shares—right and left hand—arranged to turn both furrows outward, and thus leave a trench or ditch, combined with an automatic dropping mechanism to deposit the seed in regular quantities and at regular intervals, as set forth.

2. A corn-planter provided with two shares, E E—right and left hand—arranged parallel with each other, but with an intervening space, combined with the seed-hopper and automatic distributer, and the pointed boot G, located between the shares, for the purpose set forth.

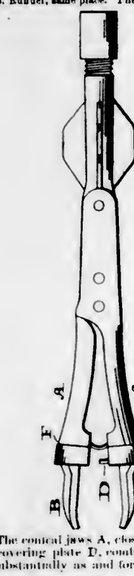
3. The right and left hand shares E E, set parallel with, but more or less distant from, each other, and an automatic seed distributer and hopper attached thereto, combined with the tubular boot G and the conveying-roller H, provided with the marking-ribs k, for the purpose set forth.

4. The revolving seed-hopper F, provided with the rotating rack plate n, combined with the hook-bar m, and the vibrating lever J, actuated by pins k k set in the wheel H, substantially as set forth.

196,641.



196,642. BOILER-TUBE CLEANERS. William Dunn, Philadelphia, Pa., assignor of one-half his right to D. B. Ruffner, same place. Filed Mar. 20, 1877.

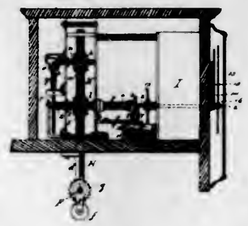


1. The conical jaws A, closing noses B, and base-covering plate D, combined and operating substantially as and for the purpose set forth.

2. The conical jaws A, with cylindrical bases, closing-noses B, and base-covering plate D, combined and operating substantially as and for the purpose set forth.

3. The conical jaws, with the shoulders F on the cylindrical bases, substantially as and for the purpose set forth.

196,643. COMBINED SPEED AND DISTANCE RECORDER AND INDICATOR. Francis M. Dunlap, Allegheny, and Robert Magill, Pittsburg, assignors of a part of their right to Benj. F. Aspor and D. P. Hoyle, Pittsburg, Pa. Filed Mar. 29, 1877.



1. In a combined speed recorder and indicator, the combination, with the tubular main shaft (of the distance-marking mechanism, and the tubular shaft of the time-marking mechanism, operated by clock-work 1, of the central shaft 2, passing completely through said tubular shaft, and communicating by gearing, substantially as described and shown, with the worm shaft H, for the purpose set forth.

2. The combination of beveled gears B B' and L-shaped frame C, swinging on the collar of wheel B, and constituting a bearing for wheel B', substantially as described, whereby the position of wheel B' may vary to accommodate irregularities in the motion of axle A.

3. The combination of shaft F, having crank e, shaft G, carrying pinion g, idler f, and fixed pinion h, pinion g having one tooth more than pinion h, substantially as set forth.

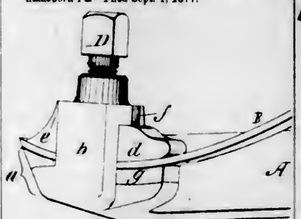
4. The combination of worm k, wheel m, shaft n, miter-wheels o and o', shaft p and its worm q, wheel r, and shaft 2, with an index, 16, and dial 13, substantially as described, whereby the distance is indicated on the dial.

5. The combination of worm l, wheel s, and shaft t, bearing the cam or tripper 3, with one or more trip-hammers, 7, substantially as described, whereby the hammer or hammers are caused to fall at given intervals of distance.

6. The combination of shaft t and tripper 3 with the recessed spring-arms 4 and subjacent secondary spring-arms 6, substantially as set forth, whereby arm 6 allows the descent of the tripper, but is lifted by it in ascending.

7. In combination with the clock-movement 1, and operated by one of the shafts thereof, a time-marking wheel, 12, its teeth, at suitable intervals, being provided with two or more points, or not, substantially as and for the purposes specified.

196,644. CUTTERS FOR LATHES. John Du Bois, Williamsport, Pa. Filed Sept. 1, 1877.



1. A lathe-tool consisting of a stock or body adapted for use in a tool-post, and a thin blade or sheet of steel lying upon and adjustably secured to the stock, and sustained immediately under its cutting edge thereby, substantially as shown.

2. The lathe-tool consisting of the stock A, adapted for use in a tool-post or holder, and provided with the overhanging nose a, and the thin blade of steel B, secured horizontally and adjustably thereon, and sustained to the extreme cutting edge by the nose, as shown.

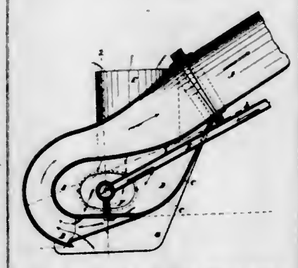
3. The combination, in a lathe-tool, of a thin steel blade or sheet and a sustaining-stock adapted for use in a tool-post or holder, and provided with a nose or point extended under and sustaining the blade at its extreme forward edge, the two being flush with each other at the front end, as shown.

4. In a lathe-tool, the combination of a thin steel blade, a stock or holder, substantially such as shown, having a point or nose extending under and sustaining the extreme forward end of the blade, and a clamping-block, secured firmly on top of the blade, and extending forward nearly to the edge of the nose, to prevent it from breaking or chattering.

5. The combination of the stock A, having the oblique mortise, and the nose a and screw D, with the thin steel blade B, and the block d resting thereon.

6. The combination of the stock A, having the nose, the mortise, and the screw, with the removable blocks d and g, and the thin blade B, as shown.

196,645. DREDGING APPARATUS. James B. Eads, St. Louis, Mo. Filed July 3, 1877.



1. The combination of the suction-pipe A with the scraper B, gage-plate C, with chamber D, inlets E, jet-pipes and nozzles F, and side plates G, for the purposes herein stated.

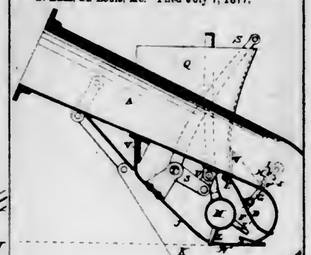
2. The combination of the scraper B with the water-chamber D and inlets E, substantially as and for the purposes set forth.

3. The combination of the water-chamber D and inlets E with the jet-pipes F, substantially as and for the purposes set forth.

4. The combination of the inverted chamber formed by the gage-plates C, the side plates G, and the scraper B with the suction-pipe A, for the purpose set forth.

5. The combination of the jet-pipes and nozzles F with an inverted chamber, as described, for the purposes mentioned.

196,646. HYDRAULIC DREDGING-MACHINES. James B. Eads, St. Louis, Mo. Filed July 7, 1877.



1. The combination, with the gage-plate J, of the adjustable scraper B at the lower end of suction-pipe A, substantially as set forth.

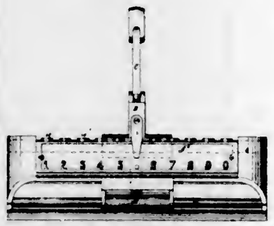
2. The combination, with the gage-plate J and the scraper B, of the plate D, forming the top of the water-passage F, and connected to the scraper, so as to rise and fall therewith, substantially as and for the purpose set forth.

3. In combination with the gage-plate J and vertical plates of the water-ducts Q, forming, respectively, the bottom and sides of the water-passage F, the adjustable top plate D, substantially as and for the purpose set forth.

4. The combination of the gage-plate J with slots or orifices N and adjustable jet-nozzles L, substantially as set forth.

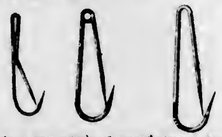
5. The combination, with the scraper part A B D and gage-plate part J Q, adjustable upon each other by the mechanical arrangement, of levers and links S U W, governing said adjustment.

196,647. PERFORATING-STAMPS. William W. Eaton, Norwich, Conn. Filed Mar. 13, 1877.



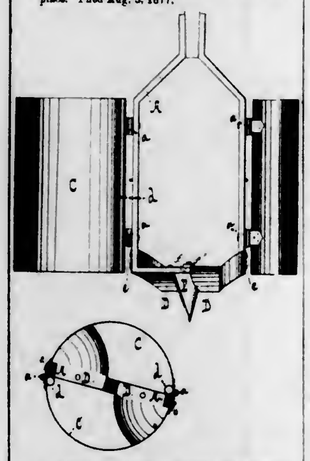
The sliding head B, provided with a lever, C, vertically-sliding bar *c'*, plunger *a*, guide-pin *f*, and graduated table B', in combination with the stationary head A', provided with plungers *a' a'*, perforations *c c*, and countersink *i i*, the whole substantially as described, and for the purpose set forth.

196,648. FISH-HOOKS. Butler Edgar, Espy, Pa. Filed Oct. 13, 1877.



As a new article of manufacture, a barbless fish hook, which may be removed without injury to the fish, consisting of a single wire forming a shank and hook, and doubled or bent to form a tongue, the latter extending to, or nearly to, the point usually provided with a barb, substantially as described.

196,649. EARTH-AUGERS. Daniel G. Fields, Harrisville, Tex., assignor of three-fourths his right to Jos. White, Taylor White, and Marcus A. Hunter, same place. Filed Aug. 3, 1877.



1. In an earth auger, a hinged door having its edge folded or bent to form an air-tube, substantially as described.

2. In an earth-auger, a pair of hemi-cylindrical doors having on one or both an air duct or ducts, substantially as described.

3. The auger herein described, consisting of the frame A, doors C, having air ducts *d*, cutters D, and bit F, all combined and arranged as set forth.

4. In combination with the earth-auger, the interchangeable bits E E', having shouldered and threaded shank *f*, and the nut *f''*, as shown and described.

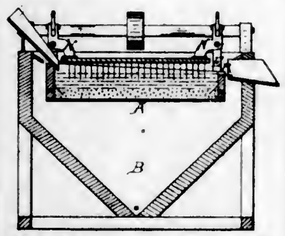
196,650. LUBRICATORS. George H. Flower, Chicago, Ill. Filed Sept. 3, 1877.

Brief.—The oil-chamber being filled with oil, steam is admitted at both sides of the apparatus, and condenses both in the condenser and water-tube. The column of water formed in the condenser descends into the oil-chamber, and displaces an equal amount of oil through the connecting-ducts into the water-tube. From this point the oil is floated upward through a tube of water into the cylinder.



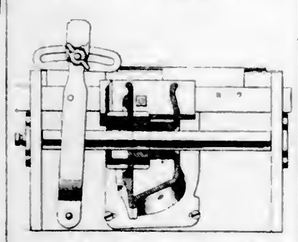
A lubricator consisting of a condensing-tube, an oil-chamber, and a water-tube, connected together and operating essentially as described, and for the purposes set forth.

196,651. ORE-WASHERS. Wm. B. Frue and Walter McDermott, Detroit, Mich. Filed Mar. 15, 1877.



In a machine for washing and separating ores, the combination, with the box B, of the perforated ore-table A, reciprocating horizontally in the said box, and the stationary agitator O, suspended over the said ore-table, substantially as and for the purposes set forth.

196,652. GRAIN-DRILLS. Jesse P. Fulghum, Milton, assignor of one-half his right to Wayne Agricultural Company, Richmond, Ind. Filed Mar. 12, 1877.

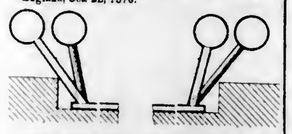


1. A feed-cup for seed-drills, having on one inner side a tubular journal or bearing, B', cast on or rigidly attached thereto, whereon the feed-wheel both rotates and slides axially, as set forth.

2. In combination, a feed-cup having on one inner side a tubular journal or bearing, B', cast on or rigidly attached thereto, and on which a feed-wheel both rotates and slides, and in the other side a ring or disk, through which said wheel passes, as set forth.

3. The combination of the feed-cup, having on one inner side a tubular journal or bearing, cast on or rigidly attached thereto, and on which the feed-wheel both rotates and slides, the sliding bar, and brackets, for the purpose of moving said wheel on the line of its axis, substantially as specified.

196,653. METHODS OF PRODUCING EVENLY-CONGEALED ICE-SURFACES. John Gamgee, Chelsea, Great Britain. Filed Oct. 16, 1877. Patented in England, Oct. 28, 1876.

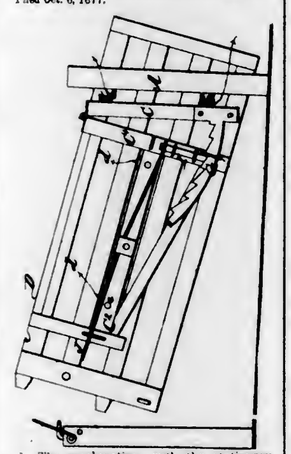


In ice skating rinks, the combination of the freezing pipes passing through the water to be frozen with independent feeding-mains, adjoining pipes leading from the different mains, whereby the current of refrigerating-liquid occurs from opposite sides for each alternate tube, substantially as hereinbefore described and set forth.

196,654. REFRIGERATING MEDIUMS. John Gamgee, Chelsea, Great Britain. Filed Oct. 16, 1877. Patented in England, July 27, 1874.

An aqueous solution of glycerine as a medium for transferring the low temperature produced by ether or other volatilizable liquid to the water or body to be refrigerated, as hereinbefore described.

196,655. GATES. Frank Gordon, Green Spring, Ohio. Filed Oct. 6, 1877.



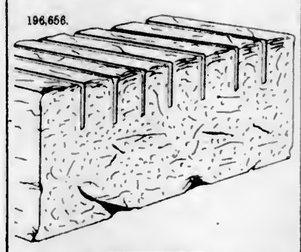
1. The combination, with the stationary post A, of the bar C, hinged thereto to swing to either side, the bar C', with frame C², hinged to the bar C at the upper end, so as to move outward from the same, and the gate D, hung upon rollers on the side of the frame C², substantially as and for the purposes herein set forth.

2. In combination with the bars C C', frame C², and gate D, the curved rack G and bolt I, with or without the lever J, all constructed and arranged substantially as and for the purposes herein set forth.

196,656. ARTIFICIAL FUEL OR KINDLER. Amisa P. Gotham, Chicago, Ill. Filed Oct. 8, 1877.

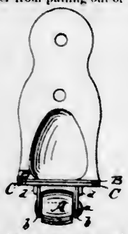
The process herein described of making artificial fuel or fire kindling, by treating native peat, after being cut into blocks and dried, first to a bath of inflammable liquid, and then to a second bath of resinous material, to first saturate the block with the elements of combustion, which is then sealed, to prevent evaporation, by forming in the block an integral wall of considerable depth, as distinguished from a surface coating or film.

196,656.



196,657. CASTERS FOR TRUNKS. William B. Gould, Montrose, N. J. Filed Sept. 26, 1877.

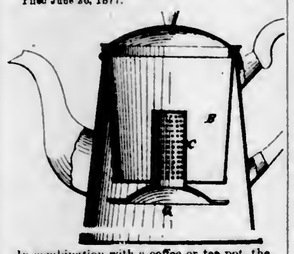
Brief.—The inside plate through which the caster-plate is dropped has strengthening lugs upon the two sides of its rectangular opening. The rivet is of such length as to prevent the caster-frame proper from pulling out of the inclosing frame.



1. The plate B, having ears *b b*, and roller A, combined with the plate C, which is perforated to admit the ears *b b*, and with the projecting pin *a*, whose ends prevent the withdrawal of the plate B from the plate C, substantially as herein shown and described.

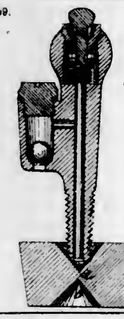
2. The plate B, having ears *b b*, and roller A, combined with the perforated plate C, having the projecting lips *d*, substantially as herein shown and described.

196,658. COFFEE-POTS. John O. Grove, Staunton, Va. Filed June 26, 1877.



In combination with a coffee or tea pot, the cup B, having perforated bottom, the perforated tube C, and inverted funnel G, substantially as and for the purposes herein set forth.

196,659.



196,659. BUNGS. Eduard Guenther and F. Hoeppner, New York, N. Y. Filed Aug. 6, 1877.

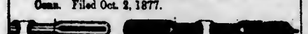
The barrel-bung made with two pyramidal cavities coming to a point, and so located that the side of one pyramidal cavity is substantially in line with the opposite side of the other cavity, and at nearly right angles with that side of the other cavity which is in the same plane of the bung, substantially as specified.

196,660. SHOE-FASTENINGS. John S. Hall, San Francisco, Cal. Filed July 30, 1877.



The combination, with the bead A, secured directly to the edge of the opening in a glove or shoe, of the gripe-fastenings K, sliding in said opening, and connected together by a cord, constructed and arranged substantially as described and shown.

196,661. CORSETS. Thomas F. Hamilton, New Haven, Conn. Filed Oct. 2, 1877.



In a corset, the combination, with the pocket for the stay or stays, of an auxiliary pocket or lining, of paper or similar material, stitched to and made a part of the pocket proper, substantially as described.

196,662. FASTENERS FOR MEETING-RAILS OF SASHES. William E. Hammond, Kensington, assignor to Peck, Stow & Wilcox Company, Southington, Conn. Filed Aug. 24, 1877.

Brief.—The locking-pin of the lever is provided with a neck and enlarged head, which takes over a flange on the keeper, and is thus automatically locked and unlocked.



In a sash-lock provided with a transverse sliding bolt at the end of the sweep for locking it in place, the narrow neck at the lower end of the bolt, and the head *d* rigidly secured thereto, in combination with the keeper C, having an open end flange, *g*, with the depression A, operating together to unlock the sweep when the head is depressed below the horizontal plane occupied by the flange, and vice versa, substantially as described, and for the purpose set forth.

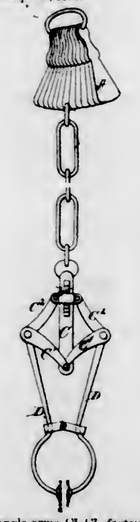
196,663.



196,663. ORNAMENTING GLASSWARE. Andrew Harcum, Scott Township, Allegheny County, Pa. Filed Sept. 21, 1877.

As an improvement in the method of ornamenting glass, applying the tipping glass in a pulverized condition to the heated article, and then reheating the same, substantially as specified.

196,664. DRESS-ELEVATORS. George Havell, Newark, N. J. Filed Sept. 27, 1877.



1. The toggle-arms C¹ C², fastened to the loop *b* and to the pivoted levers D D, for the purpose of opening and closing the latter, substantially as set forth.

2. In a dress-elevator, the combination, with the pivoted levers D D, of the bar C, toggle-arms C¹ C² and C³ C², loop *b*, and spring-bar G, with ratchet-teeth, all substantially as and for the purposes herein set forth.

196,665. NAPKIN RINGS AND HOLDERS. John Heberling, Iowa City, Iowa, assignor of one-half his right to O. W. Marquardt, same place. Filed Sept. 27, 1877.



1. A napkin-ring made in sections, hinged together, and provided with a hook or catch, C, for suspending it from the collar or other neck-wear of a person.

2. The combination of the parts A B, hinged together, and provided with the projection C, hook projection C, and the interior spring D, substantially as and for the purposes herein set forth.

196,666. PROCESSES FOR MANUFACTURING PAPER-PULP. Douglas Hickox, Springfield, Ill. Filed Aug. 30, 1876.

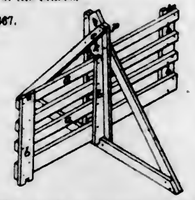
The process or treating *Abutilon avicennæ*, straw, or other similar vegetable substances in the manufacture of paper-pulp, consisting in first cutting or breaking the plant into small pieces, then boiling the same, then allowing it to ferment, then reducing it to pulp in a rag or pulping engine, and subjecting it to a stream of water, and finally grinding between ordinary millstones, substantially as described.

196,667. PORTABLE FENCES. E. S. Hotham, Potsdam, N. Y. Filed Jan. 16, 1877.

Brief.—Sills and braces are connected in triangles, and arranged transversely to the fence. The perpendicular parts of the panels

nichest at their ends to ride upon the sill and to receive a wedge at top, held down by the apex of the braces.

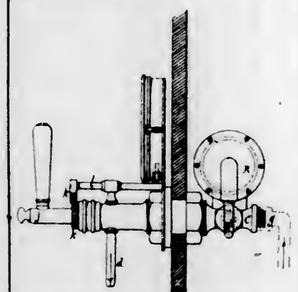
196,667.



1. The panels constructed, as herein described, with notches on their upright cleats, for attachment to the posts, substantially as and for the purposes specified.

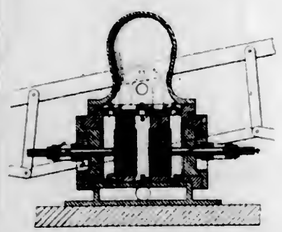
2. The combination, with a post formed, as herein described, with a recess above for a key to slide in, of a key, *k*, and panels, as and for the purposes specified.

196,668. REGISTERING AND MEASURING FAUCETS. Emile Japy and Constant Daillier, Paris, France. Filed Nov. 11, 1876.



The combination, in a measuring-faucet, of the measuring-receiver R, with a reciprocating piston therein, the rotating plug *a* opening at one end to the supply, and leading by alternate rotations through the aperture *c* into the measuring-receiver on opposite sides of the piston, and by an opening, *c'*, from the measuring-receiver to the discharge *d*, and a registering device to record each rotative movement of the plug, substantially as described.

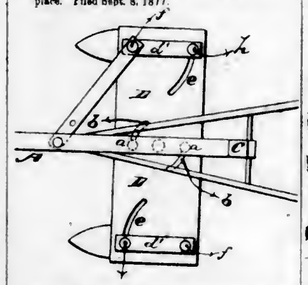
196,669. PUMPS FOR FIRE SERVICE. William Jeffers, Pawtucket, R. I. Filed Sept. 19, 1877.



1. The combination, with a pump having two pistons, of a tilting hand-brake and jointed levers, which are connected with the brake and pistons, and which hold the pistons at the inner end of their stroke when the hand-brake is in a horizontal position, substantially as described, whereby each piston has imparted to it two complete strokes to each tilting movement or full stroke of the hand-brake, as set forth.

2. The combination with the pump-cylinder, reciprocating pistons, and spring-valves, of a brake which imparts to the piston or pistons a double stroke at each single movement or stroke of the brake, substantially as described.

196,670. CULTIVATORS. Asa Jones, Snow Hill, N. C., assignor of one-half his right to John H. Dail, same place. Filed Sept. 8, 1877.



The combination, with the plow-beam A, of the adjustable board D, slotted at each end at *e*, and in the center at *b*, with the adjusting-plows G E fastened thereto by means of the bolts *f h*, and operating in the manner as set forth.

196,671. PROCESSES OF HARDENING PLASTER-OF-PARIS. Allan E. Kay and Robert A. Kay, Newark, N. J. Filed Aug. 31, 1877.

Brief.—The articles to be hardened are soaked in alum liquefied by the application of heat, then dried and coated with varnish or lacquer.

The hereinbefore-described process for hardening plaster-of-paris by immersing articles constructed therefrom in melted liquid alum, substantially as specified.

196,672. PROCESSES OF TREATING SKINS. Jas. Kent, Gloversville, N. Y. Filed Aug. 2, 1877.

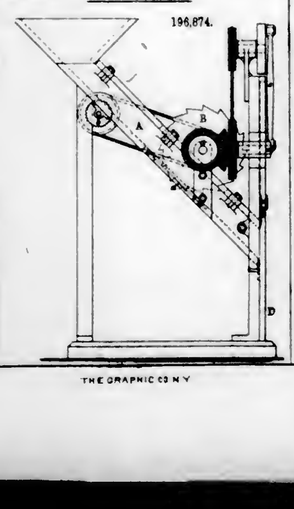
The process of treating the unhaired skins of Mocha sheep and lambs by first submitting them to the action of an alkaline solution that is capable of entering below the outer cuticle and acting on the scud beneath, to prepare it for a ready and uniform removal; and, secondly, in the removal of the scud and exposure of the middle substance of the skin to the operation of an emery-wheel or buckling-machine, substantially as and for the purpose set forth.

196,673. SAMPLES OF LEATHER. James Kent, Gloversville, N. Y. Filed Sept. 20, 1877.



An improved leather sample consisting of sections *a b*, one or more of each, the former an exposed surface of tanned, dressed, and finished leather, the latter of tanned leather with the hair, fur, or wool remaining thereon, all of one piece, as shown, and for the purpose described.

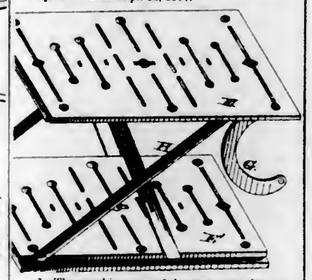
196,674.



196,674. MEAT-CUTTING DEVICES. Charles Kieser, Baltimore, Md. Filed June 13, 1877.

A conveyer-box having suitable receiving and delivering ends combined with a circular-saw cutting mechanism and a reciprocating knife-cutting mechanism, substantially as and for the purposes hereinbefore specified.

196,675. REFRIGERATORS. John A. Kunkel, Jersey City, N. J. Filed Sept. 14, 1877.



1. The combination of the two opposite perforated walls of a refrigerator-chamber, the two interior perforated slides E E', rigidly connected by bruce-rods H, links G, and hinged door B, as described.

2. The combination of the two perforated slides E, rigidly connected so as to move together, with the opposite perforated walls of a refrigerator-chamber, for the purpose set forth.

196,676. COMBINED PENCIL HOLDER AND SHARPENER. Ezra B. Lake, Bricksburg, N. J. Filed Mar. 15, 1877.

Brief.—Passage-way *a*' permits the dust to pass into the cup or enlargement C.



1. The grater or file B, in combination with the tube A, having a slot with pinched edges, *a*', substantially as described.

2. The enlarged chamber C, in combination with the tube A and file or grater B.

196,677. PRODUCTION OF WATER-PROOF GUMS. D. M. Lamb, New York, N. Y. Filed Sept. 27, 1877.

Brief.—Obtains water-proof gum by removing from the perfectly ripe plants of *Asclepias* family the matters soluble in carbon bisulphide.

1. The method of preparing milkweed for utilization, consisting in taking the same, after it has fully matured by standing in the field until it has ripened, and, while in a dry and bleached state, treating the same by cutting, pulping, and fermenting operations, and by the removal of free oil or fatty matter, substantially as herein set forth, in order that water-proof gum may be extracted therefrom, free or nearly free from coloring matter, and from excess of said free oil or fatty matter.

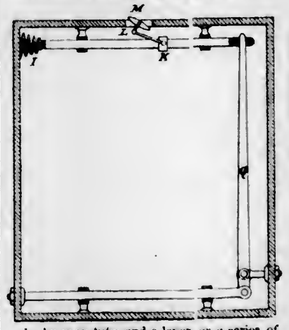
2. The method of extracting water-proof gum from fermented milkweed pulp, consisting in grinding or bruising said pulp after it has been dried, in order to liberate the gum particles, and then applying bisulphide of carbon to dissolve and carry off the latter, substantially as herein specified.

3. The combined process of producing milkweed gum, consisting in reducing the dry weed successively to chaff and pulp, then fermenting, drying, and grinding the same, and finally extracting the liberated gum particles by the repeated use of bisulphide of carbon as a solvent, substantially as herein set forth.

4. The product of the said process, consisting of milkweed gum free from excess of free oil or fatty matter, and having a trace of sulphur as left therein by the bisulphide of carbon used in its extraction, as specified.

196,678. AUTOMATIC REGULATORS FOR VENTILATING AND OTHER PASSAGES. Henry M. Lane, Norwood, Ohio. Filed May 7, 1877.

Brief.—One or more open-ended tubes connected to valves in the air-passages by means of one or more levers, and to an opposing spring or weight, which, by preventing lost motion, utilizes the entire molecular action of the tubes consequent on changes of temperature.



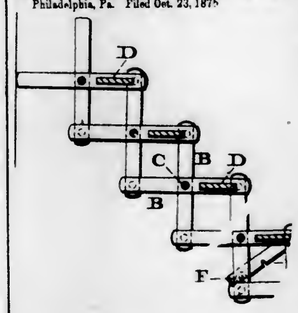
1. An open tube and a lever, or a series of them, in the described combination, with an opposing spring or weight, for prevention of lost motion, and with one or more ventilating or other registers, as and for the purpose set forth.

2. In a railway-car or other vehicle, the combination of tube J, fixed at one end and having its other end pivoted to a lever, Q, which lever is pivoted to a rod, J', having connection K L, with one or more valves or shutters, M, controlling ventilating or other air passages, and subject to the counter-pressure or tension of a spring, I, or its equivalent, substantially as set forth.

3. In combination with a tube, A, having one fixed end, or with a congeries of rods or tubes, connected with such tube A by levers, in the manner described, the devices F O P for the automatic operation of one or more warming, ventilating, or safety apparatus, substantially as set forth.

4. The open-ended tube J, adapted to form a curtain-rod of a railway-car or other vehicle, in the manner set forth.

196,679. COMBINED LADDER AND STEPS. Joel Lane, Philadelphia, Pa. Filed Oct. 23, 1875.



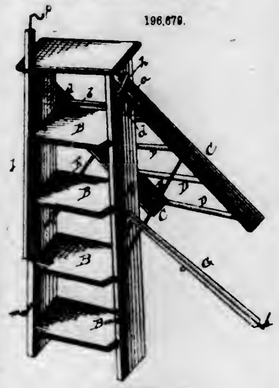
The combined steps and ladder herein described, operating after the manner of a lazy-tongs, consisting of the jointed side bars B, rounds C, steps D, and the locking-arm E and stud F, substantially as shown and specified.

196,680. STEP-LADDERS. Albert Larkin, Almond, N. Y., assignor of one-half his right to H. S. Hall, same place. Filed Mar. 31, 1877.

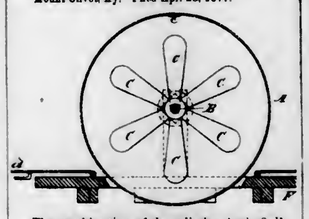
1. The combination of the main step-ladder A B, having its sides contracted toward the top, the auxiliary reversible ladder C D, having its sides parallel and provided with slots *a a*, the rod *b*, supported by plates *d* in rear of the main ladder and passing through the slots in the auxiliary ladder, and the rods or hooks E, pivoted to the auxiliary ladder, and adapted to hold the same to the main ladder either as a brace or as an extension, substantially as and for the purposes herein set forth.

2. The combination, with a step-ladder, A B, of the sliding bar I, provided with the hook *p* and angular or crank-pin *s*, substantially as and for the purposes herein set forth.

196,679.

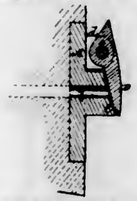


196,681. COFFEE-ROASTERS. Albert E. J. Langer, Mount Olivet, Ky. Filed Apr. 23, 1877.



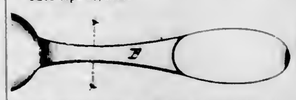
The combination of the cylinder A, shaft B, arms C, and the apertured cover F, having the posts E and covers *d*, substantially as shown and described.

196,682. VENT-STOPPERS FOR ORDNANCE. Peter B. Lawson, Cold Spring, N. Y., assignor to Robert P. Parrott, same place. Filed Mar. 29, 1877.



The valve-seat C, constructed with an inclined face, and having the vent *b* through it, in combination with a gravitating valve, D, operating to close said vent from the interior of the gun, essentially as described.

196,683. SPOON-HANDLES. Philip Lesson, Newark, N. J., assignor to E. Ketcham & Co., New York, N. Y. Filed Sept. 13, 1877.



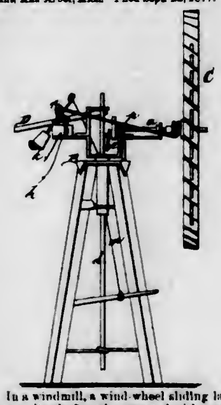
In combination with the narrow solid portion of the sheet-metal handle, constructed with the longitudinal recesses *a* in its opposite edges, the sheet-metal strengthening piece B, bent around the narrow part of the same within the longitudinal recesses, and having its edges joined together at the rear surface of the handle, substantially as shown and described.

196,684. FOUNTAIN-CUPS FOR ANIMAL-CAGES. Otto Lindemann, Edgewater, N. Y. Filed Sept. 29, 1877.



The combination, with a bird-cage, of the removable fountain-cup B, having the spout C arranged to pass between two adjacent wires of the cage, and the lug *d*, having inwardly-beveled edges arranged to pass between, and extending laterally in opposite directions, to hug the two wires, as described.

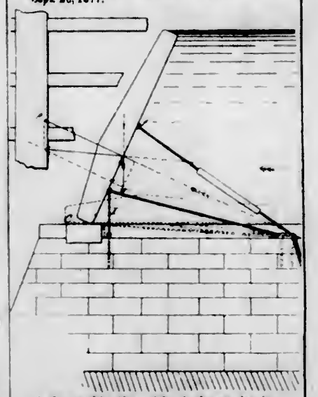
196,685. WIND-WHEELS. John Lowry and Dwight Hunt, Ann Arbor, Mich. Filed Sept. 22, 1877.



1. In a windmill, a wind-wheel sliding laterally upon its shaft, and connected with a rocking vane located parallel with the wheel, substantially as and for the purposes set forth.

2. The combination, with the turn-table B and shafts *a*, of a laterally-movable wind-wheel, C, connecting-rod *p*, rocking shaft A, with vane D and arm *n*, and the weighted arm *i*, all substantially as and for the purposes set forth.

196,686. CANAL-LOCK GATES. William L. Marshall, First Lieutenant of Engineers, U. S. Army. Filed Sept. 26, 1877.



1. In combination with a lock-gate having a movable or shifting axis, a flat sill, against the top of which said gate is forced, substantially in the manner described.

2. In combination with a sill having a flat top, against which the lock-gate is forced when elevated, a series of slide-bars the tops of

which are practically in the same horizontal plane, substantially as and for the purposes set forth.

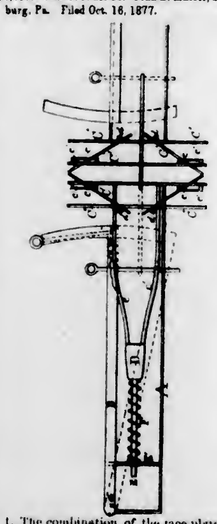
3. The combination of the flat sill, the slide-bars, and the sleepers, the tops of all being located practically in the same horizontal plane, affording a bed for the gate when down, substantially as shown and described.

4. In combination with a canal-lock gate adapted to be operated by the buoyant effort of the water, a multiple series of tie-rods attached to said gate, at least one rod being located below, and at least another above, any possible center of pressure, substantially as and for the purposes explained.

5. In combination with a canal-lock gate, a flat horizontal sill and two or more tie-rods, arranged, with respect to said gate, substantially as described, so as to cause the retained water to maintain the gate in an elevated position, and its weight to force it downwardly upon the top of the sill to form the water-joint, as explained.

6. In combination with a canal-lock gate having a movable or shifting horizontal axis, a double series of tie-rods, or their equivalents, hinged two and two, at about the same distance from the heel of the gate, substantially as shown and described.

196,687. CAR-COUPLINGS. John B. Mateer, Shippensburg, Pa. Filed Oct. 16, 1877.



1. The combination of the face-plates C C, the upper and lower rods *e e'*, connected to a single guide-rod, E, substantially as and for the purpose described.

2. The guide-plates C', in combination with the face-plate C, as and for the purpose described.

3. The combination of the brace-rods *e e*, supporting-plate *f*, bolt *b*, and spring F, substantially as and for the purpose described.

196,688. FOLDING CHAIRS. George McAleer, Worcester, Mass. Filed July 21, 1877.



1. The combination, in a folding rocking-chair, of the rockers C C, the front legs B B, connected at their upper ends by a stretcher, *d*, and the rear legs A A, extended upward and connected together to form the back of the chair, substantially as herein set forth.

2. In a folding rocking-chair, the combination of the front legs B B, provided with the rear stretcher *d*, and the back frame, provided with the stretcher *c*, substantially as and for the purposes herein set forth.

3. The combination of the front legs B B, provided with stretcher *d*, the arms E E, provided with stretcher *b*, and seat *d*, substantially as and for the purposes herein set forth.

4. The combination of the leg-frames A and B, rockers C, seat D, and arms E, together with the crossing-slats and stretchers, all constructed and arranged to operate substantially as and for the purposes herein set forth.

196,689. FOLDING CHAIRS. George McAleer, Worcester, Mass. Filed July 21, 1877.



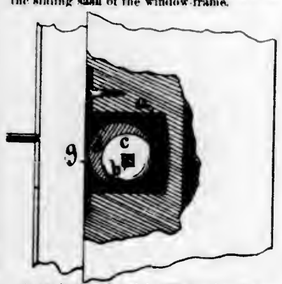
1. The combination of the leg-frames A and B with the intermediate members E, arranged substantially as described.

2. The combination, with the leg-frames A and B, of a seat, stretcher, and the pivoted intermediate members, substantially as described.

3. The combination of the legs A and B, seat C, rockers D, and members E, when the whole are arranged substantially as described, for the purpose specified.

196,690. SASH-HOLDERS. Enos Mead, Dexter, Iowa. Filed June 23, 1877.

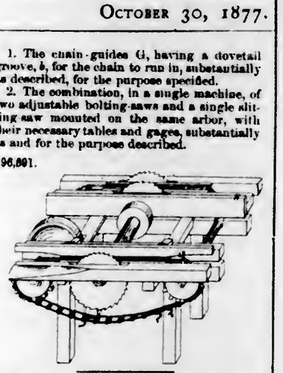
Brief.—A fixed eccentric, operated by shank and knob, bears upon a flexible or spring friction-plate, which plate has one free end, and is rigidly secured at the other end to the window-jamb, the construction interposing this spring friction-plate between the eccentric and the sliding sash of the window-frame.



As an improved sash-holding device, the revolving handle *b c*, having a fixed eccentric, *d*, in combination with the spring friction-plate *g*, rigidly secured to the window-jamb at one end only, to operate against a sliding sash, *h*, substantially as and for the purposes shown and described.

196,691. MACHINES FOR SAWING STAVES. J. Miller, Bay City, Mich., and Smith Head, Millersburg, Pa.; said Head assignor to said Miller. Filed Apr. 4, 1877.

Brief.—The slabs for the stave-bolts and the bolts are fed to three circular saws mounted on the same arbor—one pair for edging the slabs into stave-bolts having parallel sides, the third for cutting the bolt into staves by means of a carrier-chain working in dovetailed grooved guides, for keeping the links of the chain away from the saws until it is run out of the guides, if it should break or uncouple.



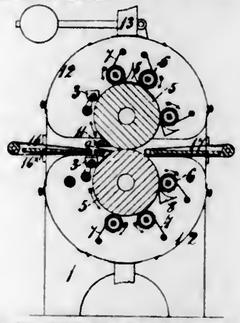
1. The chain-guides G, having a dovetail groove, *h*, for the chain to run in, substantially as described, for the purpose specified.

2. The combination, in a single machine, of two adjustable bolting-saws and a single slitting-saw mounted on the same arbor, with their necessary tables and gages, substantially as and for the purpose described.

196,691.

196,692. MACHINES FOR FINISHING PRINTED SHEETS OR PAPER. Jas. Morris, Liverpool, England. Filed Aug. 2, 1877.

Brief.—Improvement on patent of January 20, 1874. The printed sheet passes between surfacing-rollers, one heated. The "set-off" is removed from the rollers by means of powder deposited from bags directly upon the set-off rollers, and brushed off by revolving brushes or buffers. The brushes also revolve against straight edges to clear the dust from them, which is caught in troughs. Paper is carried to and from the rolls by tapes operating as an endless carrier. Vibratory motion is given to the open-work powder-sifters, and the whole machinery is surrounded by a case, to confine and carry off the dust.



1. The vibrating perforated or open-work containers, arranged to deposit whiting or powdery matter directly onto the set-off rolls, and in combination with said roll, for the purpose set forth.

2. The rotating brushes, in combination with the set-off rolls, and arranged to act directly thereon, for removing the whiting or like material and ink from the surface of the rolls, substantially as specified.

3. The straight edges or pieces 7, against which the bristles, or their equivalents, of the brushes 6 strike, for the purpose set forth.

4. The troughs, receptacles, or containers 8, for collecting the refuse matter thrown off from the brushes 6, substantially as set forth.

5. The adjustable fingers 9, arranged substantially as and for the purposes set forth.

6. The tapes, cords, or apron 16, and also 17, made to travel, for the purposes set forth.

7. In a machine for finishing printed sheets, the combination of the brushes 6 and straight edges or pieces 7, arranged and operating substantially as and for the purposes set forth.

8. In a machine for finishing printed sheets, the combination of the brushes 6, straight edges or pieces 7, and troughs 8, arranged and operating substantially as and for the purposes set forth.

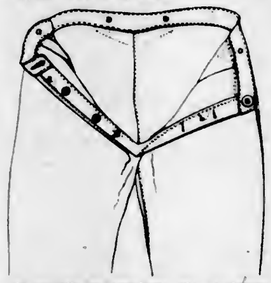
9. In a machine for finishing printed sheets, the combination of the heated rolls 5 and adjustable fingers or needles 9, arranged and operating substantially as and for the purposes set forth.

10. In a machine for finishing printed sheets, the combination of set-off rolls, adapted to be heated, a series of traveling aprons or tapes to feed the printed sheets regularly and evenly to the set-off rolls, and devices, substantially as herein described, for removing the ink from the set-off rolls, whereby a printed sheet or web may be continuously treated, in the manner and for the purpose specified.

11. In a machine for finishing printed sheets, the combination of the heated rolls 5, brushes 6, straight edges or pieces 7, and troughs 8, arranged and operating substantially as and for the purposes set forth.

12. In a machine for finishing printed sheets, the combination of the heated rolls 5, brushes 6, straight edges or pieces 7, troughs 8, and adjustable fingers 9, arranged and operating substantially as and for the purposes set forth.

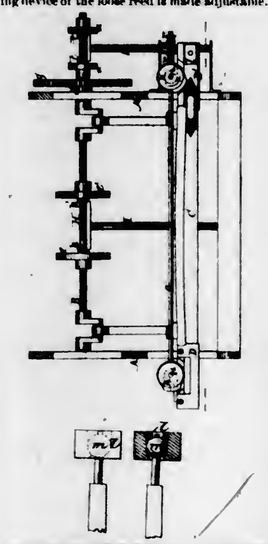
196,693. OVERALLS. David Hunstadter, San Francisco, Cal. Filed Oct. 28, 1876.



In overalls or pantaloons, the continuous strip B, extending the entire length of both sides of the fly, and secured thereto at every point, substantially as described and shown.

196,694. LOOMS. Edwin Oldfield, Norwich, Conn. Filed Feb. 7, 1877.

Brief.—The invention relates to the take-up mechanism and to devices connected with the shuttle-actuating mechanism. The take-up roll is provided with an internal spiral spring. The action of the take-up mechanism coils the spring, which tends to revolve the roll in the proper direction. The roll is thus in condition to take up the cloth as soon as any slack is produced in the process of weaving. The cams in the shuttle-box serve as checks as the shuttle enters the box, and then a positive motion is imparted to them to draw the shuttles to the inner end of the box. The picker moves in a rectilinear direction. The spring-retaining device of the loose reed is made adjustable.



1. The combination, with the picker-staff of a loom and with its picker-head, of a roller arranged upon the end of the picker-staff and seated within the picker-head, substantially as described, whereby said picker-head is caused to lie flat on the shuttle-race, and to move in a rectilinear direction, for the purpose of preventing the tendency of the shuttle to fly out of the box by the blow of the picker-head, as herein set forth.

2. The combination, with the shuttle, the shuttle-race, and the shuttle-boxes, of elastic cam-shaped cushions and mechanism, substantially as described, for imparting thereto a revolving motion, whereby a secondary motion is imparted to the shuttle after the same has entered a shuttle-box, substantially as and for the purposes shown and described.

3. The combination, with the take-up actuating mechanism and with the take-up roll, of a spring, N, retaining-pawls *h i*, ratchet-wheel O, and releasing-lever *k*, substantially as and for the purpose described.

4. In combination with the reed and the rail, the pivoted bell-crank levers *a'*, springs *c'*, shaft *e*, to which said springs are attached, and ratchet and pawl, arranged to operate substantially as described, whereby the tension of the springs can be regulated, and the rail, which is held up against the bottom part of the reed, allowed to spring back a short distance whenever it reaches the cloth-marking point, as set forth.

196,695. COMPOUND ORDNANCE. William Palliser, London, England. Filed Oct. 15, 1877.

Brief.—Interior of wrought tubes coiled in opposite directions. Exterior of cast-iron.

1. A composite gun consisting of a coiled wrought-iron A tube, of a coiled wrought-iron B tube (in one length or in two separate lengths) shrunk thereon, and of a heavy cast-iron breech-casing, C, stopping short at some distance from the muzzle, and holding the B tube by means of a screw-collar, *c*, substantially as herein described.

2. In composite guns constructed according to the first claim, the collar or shoulder *a'* on the A tube, operating in combination with a shoulder on the B tube, the collar *b*, and screw-ring *c*, for affording longitudinal support to the breech end of the A tube, substantially as herein described.

3. A composite gun consisting of a coiled wrought-iron A tube, of a coiled wrought-iron B tube (in one length or in two separate lengths) shrunk thereon, and of a heavy cast-iron breech-casing, C, the B tube being made to press against a shoulder on the A tube by means of a screw-ring, *c*, screwed into the casing C, and bearing against a collar on the B tube, substantially as and for the purposes herein described.

196,696. SHUTTER-FASTENINGS. Emery Parker, New Britain, Conn., assignor to Russell & Erwin Manufacturing Company, same place. Filed Aug. 20, 1877.

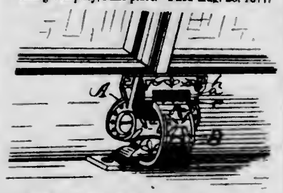
Brief.—The peculiarities of construction and method of hanging both the bar and its keeper to their respective base-plates are exhaustively set forth in the claims.



1. The bar A, having a right-angular stud, with a partially encircling flange, said bar being adapted for hanging within a countersunk opening in its base-plate, substantially as described, and for the purpose specified.

2. The keeper C, having stud *b'*, and flange *c'*, extending partially around the end of said stud, in combination with the base-plate D, having a semi-countersunk opening, substantially as described, and for the purpose specified.

196,697. SASH LIFT AND LOCK. Emery Parker, New Britain, Conn., assignor to Russell & Erwin Manufacturing Company, same place. Filed Aug. 20, 1877.



A sash lift and lock composed of plate A, having depressions *b b*, lugs *c c*, opening *e*, and stop *h*, and hubless lift, having trunnions *d d*, all formed and arranged, relatively to each other, substantially in the manner described, and for the purpose specified.

196,698.

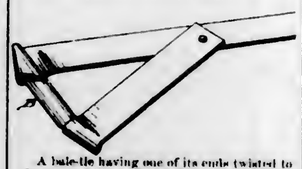
196,698. SECTIONAL CHIMNEYS. Isaac D. Peck, Bedford, Iowa, assignor of one-half his right to Edwin Houck. Filed Sept. 4, 1877.

1. The combination of the casings B C, the sections of which are secured together by hooks and eyes, and provided with the air-tubes *b* and valve-openings *c*, with the flues A A', substantially as and for the purpose set forth.

2. The combination of the sectional chimney or flue A A', sectional surrounding casings or pipes B B' C C', having valves *c c*, openings *e e*, and air-tubes *b b'*, plate *f*, corrugated metal plate G, and protecting plate or shield H, substantially as herein shown and described.

196,699. BALE-TIES. Joseph W. Petty, New Orleans, La. Filed Sept. 15, 1877.

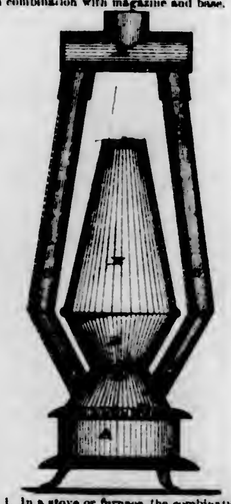
Brief.—A round bar is formed by twisting in a spiral form the loop end of the band, thereby facilitating the operation of tying.



A bale-tie having one of its ends twisted to form a round bar, B, standing at or nearly at right angles outward from the edge of the band, and the extreme end of said band carried inwardly and riveted to the body of the band, substantially as shown, and for the purpose set forth.

196,700. STOVES AND FURNACES. Alonzo C. Rand, Minneapolis, Minn. Filed Sept. 27, 1877.

Brief.—Cone shaped combustion chamber, in combination with coking chamber of inverted cone shape. Gas and flame pipes having small apertures and cones situate therein, all in combination with magazine and base.



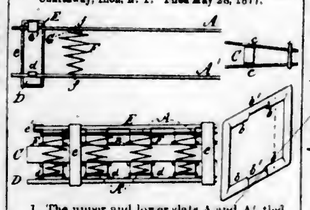
1. In a stove or furnace, the combination of a conical combustion chamber with a coking chamber of inverted cone shape, and exterior gas and flame pipes leading from the combustion chamber, substantially as herein set forth.

2. The combination of the conical combustion-chamber C, the inverted cone-shaped coking chamber D, magazine E, exterior gas and flame pipes G, and the air-inlets *x x*, arranged at the junction of the chambers C and D, and at the lower ends of the pipes G, all substantially as and for the purposes herein set forth.

3. The cones *b b*, arranged in the pipes G, for the purposes set forth.

4. The combination of the base A, combustion chamber C, with grate J, coking chamber D, magazine E, pipes G, with cones *b*, and the air-inlets *x y*, all substantially as and for the purposes herein set forth.

196,701. BED-BOTTOMS. J. W. Read and Albert L. Howell, Mohawk, assignors to themselves and James Chattaway, Ilion, N. Y. Filed May 28, 1877.



1. The upper and lower slats A and A', tied together at the lower ends, in combination with the fulcrum-bar C uniting all the slats, and the bars D and E, and controlling-straps *e*, whereby the intermediate upper slats can be moved independently, and the upper and lower slats moved together, substantially as and for the purpose described.

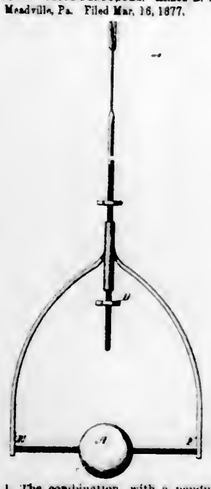
2. In a bed-bottom, the combination of the elastic upper slats A, the cross-bar E, the supporting-spring, F, the lower elastic slats A', the supporting cross-beam D, the staples *d*, and the straps *e*, substantially as set forth.

3. The clasp B, having inner edges *b*, centrally divided, substantially as set forth.

4. The bolster or swinging cross-bar E, resting upon the upper slats A, and connected at each end with the two outer slats by means of clasp fastenings *c*, substantially as and for the purpose set forth.

5. In a bed-bottom, the springs F, the strap G, the upper swinging frame consisting of the cross-beam E, and the two extreme outer slats A, in combination with the inner slats A, the latter swinging independently of the said frame, and being kept laterally the proper distance apart and from the frame by the strap G, substantially as set forth.

196,702. CLOCK-PENDULUMS. Almon B. Richmond, Meadville, Pa. Filed Mar. 16, 1877.



1. The combination, with a pendulum-rod, of a weight or ball, and means for moving the ball to the right or left of the rod in order that the center of gravity may be changed, substantially as and for the purpose specified.

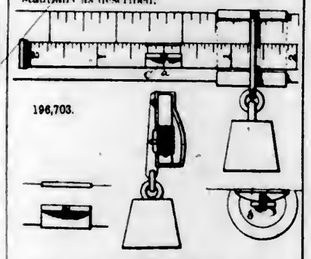
2. The ball A, or its equivalent, and the screw-rod attached to E and F, in the manner described, and for the purposes set forth.

196,703. SCALE-BEAMS. Charles M. Rider, Newark, Ohio. Filed Apr. 20, 1877.

1. A scale-beam provided with an adjustable weighing tape or belt adapted to ascertain the weight of the contents of a vessel or other receptacle, as between the total weight and the weight of the vessel or receptacle itself, substantially as described.

2. The combination of a movable tape or belt, a scale-beam, and an independently-operating tape-moving slide, substantially as described.

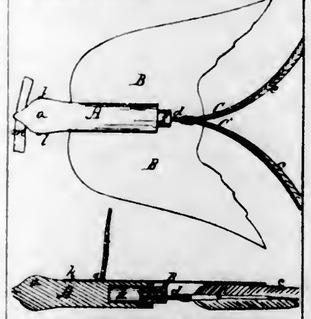
3. In a scale-beam, the combination of a movable tape or belt, a socket or catch thereon, and a slide operating independently of said tape, or in connection with said tape, substantially as described.



196,703.

196,704. TOY BIRDS. Charles Robinson, Cambridgeport, Mass. Filed Aug. 31, 1877.

Brief.—A toy bird having a suspensory cord, to be held in the hand, and provided with a swiveled tail, arranged to revolve when the toy is whirled in the air.

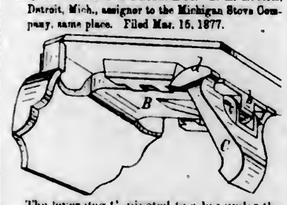


1. A toy bird composed of a wooden body, A, formed with a head and beak, a back and wing piece, B, of paper or equivalent light material, and a revolving tail, C, made of feathers, substantially as and for the purpose herein specified.

2. The combination of the bored body A, revolving tail C, and coupling tube or bearing *f*, substantially as and for the purpose herein specified.

3. The beak *h*, provided with a piece of ribbon or braid, *w*, as herein specified.

196,705. STOVE-LEG FASTENINGS. T. H. Roberts, Detroit, Mich., assignor to the Michigan Stove Company, same place. Filed Mar. 15, 1877.



The lever-stop C, pivoted to a lug under the shank-plate B of a stove leg, substantially as and for the purpose set forth.

196,706. LIGHTING DEVICES. Israel M. Rose, Green Point, N. Y. Filed Oct. 26, 1877.

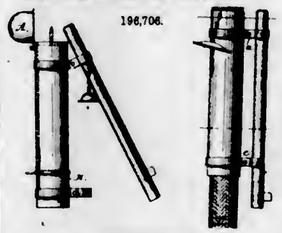
1. A lighting-instrument composed of a tinder strip, wick, or candle holder, H, and having a magazine-holder connected therewith, substantially as described, so that the exposed end of the magazine may be ignited by passing it over any convenient roughened surface.

2. The combination, with the holder H, provided with a magazine-holder, of the closing rap or cover A, having a roughened surface, substantially as described.

3. A magazine for the purpose described, composed of a series of superposed pellets of combustible composition, capable of ignition by friction, and inclosed in a wrapper or envelope of such material as may be destroyed as said pellets are burned, substantially as described.

4. A magazine for the purpose described, composed of a series of superposed pellets of combustible composition, capable of ignition by friction, coated with glue, gum arabic, or other suitable material, and inclosed in a wrapper or envelope of such material as may be destroyed as said pellets are burned, substantially as described.

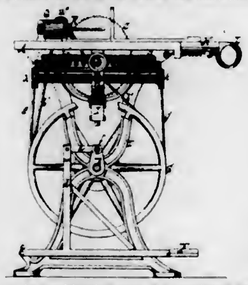
5. The magazine composed of a series of superposed pellets of combustible composition, when said pellets are separated by isolating disks, substantially as described.



196,706.

196,707. CIRCULAR SAWING MACHINES. Morris Rose, New York, N. Y. Filed Sept. 22, 1877.

Brief.—The direction in which the work-supporting table moves is determined by two hinged guides working in inverted slides on the main table. Holes may be bored parallel to the direction in which the saw cuts by a drill-spindle carrying a suitable tool, mounted in bearings in the main frame, and operated from the driving-shaft. The tension of the belt by which motion is transmitted from the horizontal driving shaft to a vertical arbor carrying a ring, provided with circular grooves for belts and cogs, which can be thrown into gear with a pinion upon the saw-arbor to operate the saw without the use of a belt, can be regulated by two vertically adjustable guide-pulleys mounted upon a horizontal shaft attached to a hanger secured to the under side of the main table.



1. In combination with the revolving saw-carriage B, stationary table A, and fixed disk or segment M, having a series of notches in its outer edge, the radial arm K and horizontal spring-latch L, connected with the saw carriage, and arranged to slide on the radial arm to engage and disengage the notches in the outer edge of the disk or segment, substantially as and for the purpose described.

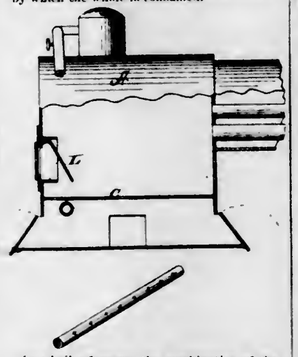
2. The combination, with a revolving saw-carriage, a stationary table, a latch for adjusting the saw-carriage, and a movable work-supporting bed, of two hinged guides which determine the direction in which the work-supporting bed moves, substantially as and for the purpose set forth.

3. The combination, with the saw-carriage, of a horizontal driving-shaft, a vertical arbor carrying a pulley and a cog wheel, or another pulley, and two guide-pulleys mounted on a horizontal shaft which can be adjusted up or down, substantially as and for the purpose shown and described.

4. The combination, with the revolving saw-carriage and the work-supporting bed, of a drill-spindle which receives a revolving motion from the driving shaft that imparts motion to the saw, substantially as and for the purpose set forth.

196,708. DEVICES FOR PROMOTING COMBUSTION. S. M. Schindel, Hagerstown, Md. Filed Apr. 28, 1877.

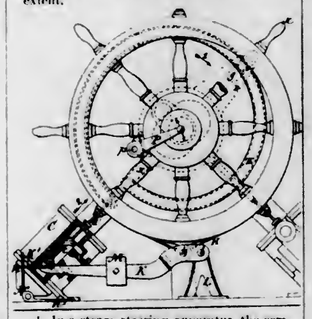
Brief.—The air deflected downward by the deflector on the door is met by the steam injected upward from the perforated pipe under the grate, forming a chemical union with the volatile gaseous material arising from the fuel, by which the whole is consumed.



In a boiler-furnace, the combination of the angular deflecting plate L, attached to the furnace-door for distributing air downward at an angle over the fire, and a perforated steam-pipe under the grate for supplying steam under the fire, substantially as and for the purposes herein set forth.

196,709. STEAM-STEERING APPARATUS FOR VESSELS. F. E. Bickels, New York, N. Y. Filed Aug. 28, 1877.

Brief.—The hand-steering wheel may be detached from the steam apparatus or used as an auxiliary. The friction-brake controls the motion of the steam-steering wheel, so that it shall not shift the valves beyond the desired extent.

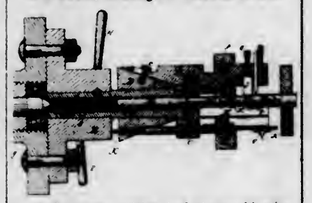


1. In a steam steering apparatus, the combination of a valve-motion operated by both the steersman and the steering-engines, by means of an eccentric-pin and grooved cam, or the equivalents thereof, with a friction-wheel connected to said eccentric, and an adjustable friction-brake, to absorb the surplus momentum of the steering-engines, and keep them from moving farther than desired, substantially as described.

2. The bell-crank lever N, or its equivalent, in combination with the adjustable brake of a steam steering apparatus, to release the engines from the brake, so that the whole power can be used to rapidly move the rudder, substantially as described.

3. The locking-lever P, in combination with the ratchet wheel *p'*, attached to the engine-shaft, and steering-wheel of a steam steering apparatus, substantially as and for the purpose described.

196,710. MACHINES FOR CUTTING SCREW-THREADS. A. H. Siegfried, Salem, assignor of one-half his right to H. Gerhart, Lewisburg, Pa. Filed Mar. 10, 1877.



1. In a screw-cutting tool, the combination of the pivoted die carrying arms E with the sliding cone D and ring F, connected by the rods G, substantially as shown.

2. In combination with the pivoted die carrying arms E, cone D, and spring N, the levers H and I, constructed and arranged to operate as shown.

3. In combination with the rotary screw-cutting tool provided with, the die-closing arm, the adjustable inclined arm or dog O, for closing the dies while the tool is in motion.

4. In a rotary screw-cutting tool, the combination of a lever, I, for holding the dies in a closed position, and a longitudinal rod, K, arranged as shown, and for the purpose described, to admit of the dies being released and opened while the tool is in motion.

5. A screw cutting die constructed substantially as shown, provided with the sliding central spindle M, urged outward by a spring, as shown, whereby the object to be threaded may be centered and supported while being advanced between the rotating cutters.

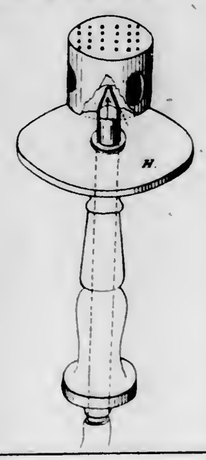
6. In combination with the pivoted die carrying arms E, provided with the inclines *d*, the sliding cone D, and the ring F, connected by the screw-rods G, as shown, so that they may be adjusted to compensate for wear.

7. The threading dies J, seated in mortises in the arms E, in combination with the adjusting-screws Q and the eccentrics R, as shown.

8. In combination with the rotary threading-tool, the radially-movable cutter T, the adjusting-screw U, provided with the studs or arms, and the pivoted arm P, capable of adjustment in such manner as to cause the advance or retreat of the cutter, as required.

9. In combination with a screw-cutting tool provided with the adjustable threading dies H, a central spindle provided with a gage-thread, X, by which to adjust and center the dies, as shown and described.

196,711. BRANDING-STAMPS. Robert G. Smeaton, Milwaukee, Wis. Filed July 21, 1877.

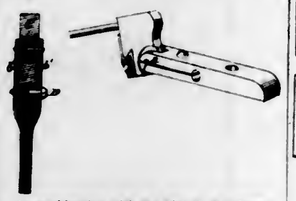


THE GRAPHIC CO. N.Y.

A branding stamp-canceler provided with a plate or disk, H, for the protection of the hand of the operator, substantially as set forth.

196,712. PIANO-HAMMERS. George C. Smith, Hamilton, assignor of one-fourth of his right to Alvin O. Hall, Cincinnati, Ohio. Filed July 12, 1877.

Brief.—The clamp for holding the circular head has a set-screw to adjust the pressure of its jaws.



In combination with the disk C, the clamping jaws *b'* and screw D, substantially as and for the purpose specified.

196,713. TOY BUBBLES. David T. Snelbaker, Cincinnati, Ohio, assignor to Harvey McMurchy and Thos. E. Snelbaker. Filed June 8, 1877.

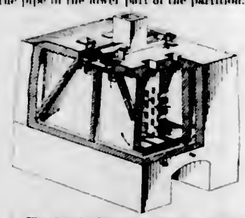


1. A twist-string buzz-wheel composed of two plates of metal, A B, jointed at the center to inclose the string-apertures, seamed at the periphery, and stamped so as to form a whistling chamber, D, one of the plates having a whistling-aperture, *a'*, leading thereto.

2. The combination of stamped plate A, having a whistling-aperture, *a'*, stamped plate B, having two or more whistling-apertures, *a''*, and dividing-diaphragm F, substantially as and for the purpose specified.

196,714. COKING COAL AND DESULPHURIZING THE COKE. Levi Stevens, Washington, D. C. Filed Oct. 15, 1877.

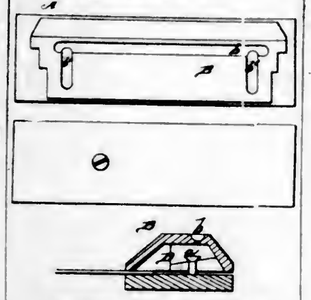
Brief.—Charges coal into the chamber on one side of the central partition, from which the hot gases pass through the openings in the partition into the hot coke in the other chamber. The gases, in passing out of the top of this chamber, meet the air, and the hot products of combustion pass around the chambers to the chimney. The chambers are thus highly heated. The chambers are alternately charged, and superheated steam enters through the pipe in the lower part of the partition.



1. The herein-described process of coking coal, which consists in passing the gases evolved from the coking coal contained in one chamber into and through the coke contained in an adjoining chamber, produced from a previous charge, and kept at a high temperature, whereby said coke takes up carbon from the hydrocarbon gases of the coking coal, and is thereby rendered compact and firm, in the manner substantially as described.

2. The process of coking and desulphurizing coal, which consists in passing the gases from the coking chamber into highly-heated coke contained in an adjoining chamber, and subsequently passing steam heated to about 1,000° Fahrenheit into said highly-heated coke, whereby the latter is desulphurized, substantially as described.

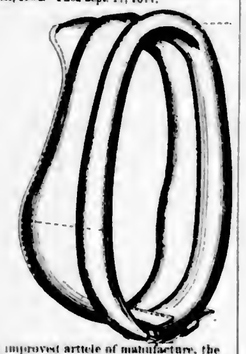
196,715. DOOR-SILLS. Samuel M. Stewart, New Harrisburg, Ohio. Filed Aug. 25, 1877.



1. In combination with a door-sill, a removable carpet-strip, provided on the top with suitable grooves for collecting and carrying off any water that might enter under the door, the whole constituting an improved threshold, as set forth.

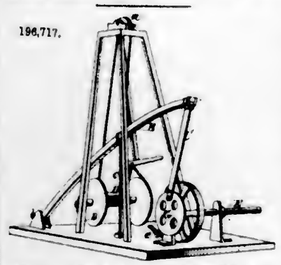
2. The strip B, provided on its upper surface with grooves *b* and *b' b'*, and on its under side with lugs D D, having dovetailed grooves *d d*, with inclined sides *x x*, in combination with the sill A, having screws *a a* fastened therein, substantially as and for the purposes herein set forth.

196,716. HORSE-COLLARS. Saml. A. Steadman, Manchester, Iowa. Filed Sept. 17, 1877.



As an improved article of manufacture, the herein-described horse-collar, which is open at the lower end, has both the rim and the pads made continuous from end to end, and has the rim formed at the top with an upward inclination, all substantially as and for the purposes specified.

196,717.

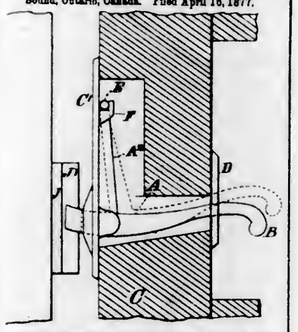


196,717. MACHINES FOR DRILLING OIL-WELLS. J. Stengel, Andrews Station, Cal. Filed Aug. 7, 1877.

Brief.—A spring-bar is securely fixed in a socket, and the other end is connected to the pitman operated by the driving-shaft. The tools are fastened to the spring-bar by a temper-screw and rope for drilling.

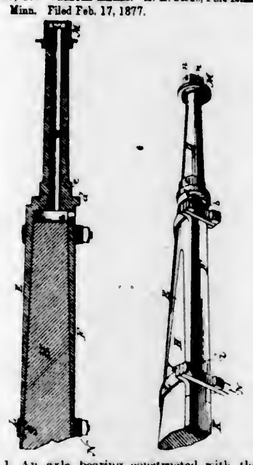
The combination and arrangement of the spring-bar B, held at one end in the fixed socket, the pitman C, connected with the free end of the bar, and receiving motion from the driving-shaft E, and the rope *c*, or other means for connecting the bar with the drilling-tools, constructed substantially as and for the purpose described.

196,718. GATE-LATCHES. Robert E. Stephens, Owen Sound, Ontario, Canada. Filed April 16, 1877.



A gate-latch composed of the bars A A', provided with the arms B, beveled catches G G', upper arms A', having projections or pins E, in combination with the plate D, plate C', provided with hooks F, and plate J, having rib J', as and for the purposes specified.

196,719. VEHICLE-AXLES. A. K. Stone, Pine Island, Minn. Filed Feb. 17, 1877.



1. An axle-bearing constructed with the plates E F, to form a socket for the end of the wooden axle H, and perforated lugs J J, to receive the screw ends of the clips, substantially as set forth.

2. An axle-bearing constructed with the plates E F, to form a socket for the end of the wooden axle H, combined with the interior transverse ribs *g g*, for the purpose set forth.

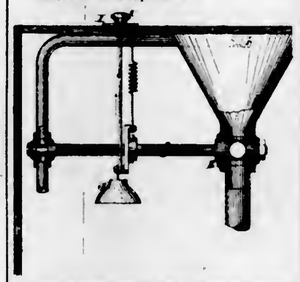
3. An axle-bearing constructed with the plates E F, to form a socket for the end of the axle H, and a recess, *i*, combined with the stiffening-plate K, provided with corresponding projections to interlock with said recess, as and for the purpose set forth.

196,720. SEAMS FOR BOOTS AND SHOES. Geo. Stribley, Cincinnati, Ohio. Filed July 28, 1877.

1. The above-described method of connecting the sides, fronts, or quarters, and seam-stays of boots and shoes, by attaching the strip by blind-stitching, so as to leave overlaps on the sides, folding the overlaps one upon the other, and both upon the stay-piece, and then securing them by two rows of through-and-through-stitching immediately inside of the blind-stitching, substantially as specified.

2. The improved article of manufacture herein described, consisting of a boot or shoe having a seam formed by a strip secured by blind-stitching and flaps on the respective parts to be united, which flaps are folded upon each other and upon the strip, and are secured by through-and-through stitching.

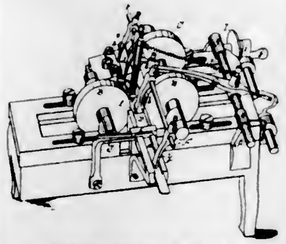
196,721. WATER-CLOSETS. Mirum Sulzbacher, New York, N. Y. Filed Sept. 13, 1877.



The combination, in a water-closet, of a hopper having a water-supply pipe connecting with said inlet, a waste-pipe connected to the open bottom end of the hopper, a faucet in the supply-pipe, a faucet in the waste-pipe, a horizontal rock-shaft extending from the plug of the supply-faucet to the plug of the waste-faucet, a lever mounted on said rock-shaft, a vertical rod connected to said lever and extending up through the seat of the closet, and a spring or weight, or both, attached to said lever, the whole being adapted to operate substantially as described.

196,722. BUTT-GRINDING MACHINES. L. P. Summers, New Britain, Conn., assignor to P. & F. Corbin, same place. Filed July 16, 1877.

Brief.—Fully open butts fed to the machine are automatically folded and conveyed between two grindstones, where the ends are ground, when they are conveyed and turned one-quarter around, and presented to a third stone, which grinds the side edges. A third conveyer then operates to force them against an opener, when they are delivered from the machine in an opened condition.



1. The bridge *k* and end of bed D, with opening between, in combination with the reciprocating conveyer *a*, substantially as described, and for the purpose specified.

2. The bridge *k*, end of bed D, and reciprocating conveyer *a*, in combination with the feed-chute J, extending between the parts *a* and *k* D, substantially as described, and for the purpose specified.

3. The combination of the bed D, wheels B B, conveyer *b*, provided with holding-face and ledge *l*, and mechanism for reciprocating, raising, and lowering said conveyer, substantially as described, and for the purpose specified.

4. The combination of the reciprocating conveyer *a*, bridge *k*, bed D, wheels B B, conveyer *b*, and mechanism for operating said conveyers, substantially in the manner above described, and for the purpose specified.

5. The rocking-lever G, mounted on rod *f*, the latter adjusted in bearings for freely moving longitudinally as well as rocking, in combination with the reciprocating shaft H and inclined slotted arm *k*, substantially as described, and for the purpose specified.

6. The combination of reciprocating shaft H, the inclined slotted arm *k*, rocking-lever G, adjusted to make the double movement described, the conveyer-bar F, and series of conveyers connected thereto, substantially as described, and for the purpose specified.

7. The conveyer-bar F and its operating mechanism, in combination with socket *o*, conveyer *c*, arm *p*, post *q*, and returning-spring, substantially as described, and for the purpose specified.

8. The combination of the bed E, gage *r*, wheel C, conveyer *d*, and mechanism for reciprocating, raising, and lowering said conveyer, substantially as described, and for the purpose specified.

9. The combination of the bed E, picker *s*, reciprocating-conveyer *c*, and its operating mechanism, substantially as described, and for the purpose specified.

10. The combination of the beds D E, wheels B B and C, conveyers *b*, *c*, and *d*, conveyer-bar F, and its operating mechanism, substantially as described, and for the purpose specified.

11. The combination of the beds D E, wheels B B and C, picker *s*, conveyers *b*, *c*, *d*, and *c*, conveyer-bar F, and its operating mechanism, substantially as described, and for the purpose specified.

12. The conveyer-bar F, having a reciprocating movement both laterally and vertically, the conveyer *b* moving therewith, in combination with the conveyer *a* and its connecting-arm *y*, substantially as described, and for the purpose specified.

13. The combination of the feed-chute J, bridge *k*, conveyer *a*, beds D E, wheels B B, conveyer *b*, conveyer and turner *c*, conveyers *d c*, picker *s*, conveyer-bar F, and mechanism for moving said bar both laterally and vertically, substantially as described, and for the purpose specified.

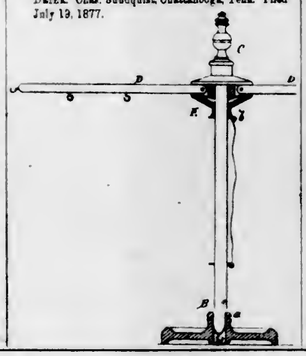
14. The combination of conveyer bed, grinding wheel or wheels, and a conveyer operated by suitable mechanism to move forward when depressed, to rise at the end of its forward movement, move backward when thus raised, and to fall before moving forward again, substantially as described, and for the purpose specified.

15. In a machine for grinding butts, the conveyer *b*, provided with a holding-face and the ledge at one side of said holding-face, substantially as described, and for the purpose specified.

16. In a machine for grinding butts, the conveyer and turner *c*, hung to turn freely, and provided with a holding-face, and ledges *n n* on two adjoining sides of said face, substantially as described, and for the purposes specified.

17. The combination of conveyer bed, grinding wheels B B, placed one on each side of said bed, the grinding wheel C, placed in line with one of the wheels B, at one side of said bed, and mechanism for automatically conveying the butts along the conveyer bed, and presenting their respective edges to said wheels for grinding, substantially as described.

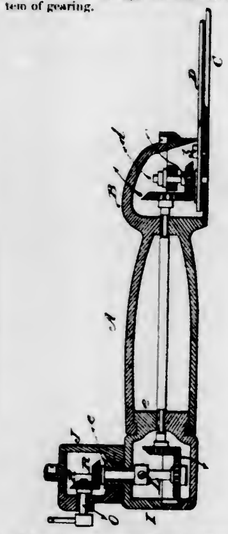
196,723. COMBINED MOSQUITO-BAR AND CLOTHES-DRIER. Chas. Sundquist, Chattanooga, Tenn. Filed July 19, 1877.



The combination of the reversible perforated post B, cap C, having radial grooves, as described, the pivoted arms D D, the sliding collar E, and the pin *h*, substantially as and for the purposes herein set forth.

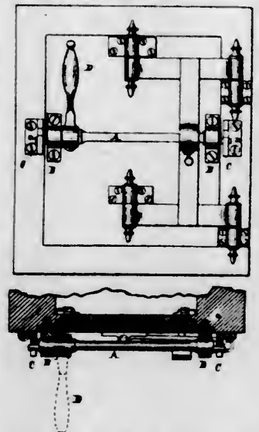
196,724. CLIPPING DEVICES. Geo. W. Tallman, New York, N. Y. Filed Aug. 25, 1877.

Brief.—The moving cutter is pivoted to the bifurcated stationary cutter, and is rapidly vibrated by a cam working in a slot in the rear end of the cutter, that is revolved by a crank or other motor through the medium of a system of gearing.



In a clipping-machine, the combination, with the hollow handle A and casing B, of the stationary knives C C, pivoted knife D, formed with the eye D', eccentric E, with the shafts and gear-wheels for rotating the same, and the swiveled heads I J, substantially as described, and for the purpose set forth.

196,725. FIRE-PROOF SAFES. Herman Urban, Cincinnati, Ohio, assignor to Macneale & Urban, same place. Filed July 27, 1877.

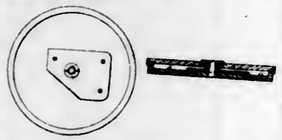


In combination with the door and casing of a safe or vault, the operating device composed of shaft A, journaled in bearings B B, secured to the door, and having cranks *a a* projecting

over the edges of the door in a position to engage with the lugs C C', which are secured on the casing, for the purpose of closing or withdrawing the door from its casing by turning the lever D, the parts being constructed and located, with relation to the door and its casing, substantially as shown and described.

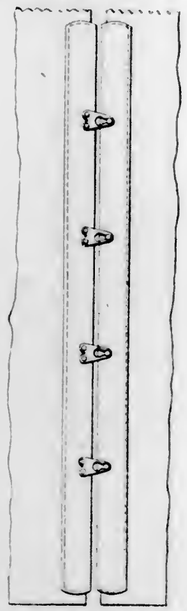
196,726. DIAL-FASTENINGS FOR WATCHES. Lansing Van Doren, Washington, D. C. Filed Apr. 12, 1877.

Brief.—A conical shaped nut passes through the dial, and fits upon a sleeve on the bridge under the dial



In a watch, a dial-fastening extending from the pillar-plate up to and through the dial, substantially in the manner and for the purpose herein set forth.

196,727. CORSETS. John M. Van Orden, New York, N. Y. Filed Aug. 9, 1877.



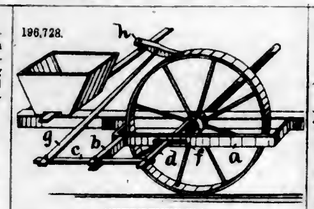
1. A corset-stay or clasp formed of steel covered with an impervious covering, as celluloid, when said covering is adapted to serve as a means of attaching the same to the woven fabric, as described.

2. The method of connecting a corset stay or clasp to the woven fabric of the corset by means of stitching through the impervious covering, as shown and described.

196,728. ATTACHMENTS FOR CORN-PLANTERS. R. Wagoner, Jr., Newton, Iowa, assignor of one-third his right to Levi W. Mills, same place. Filed Apr. 2, 1877.

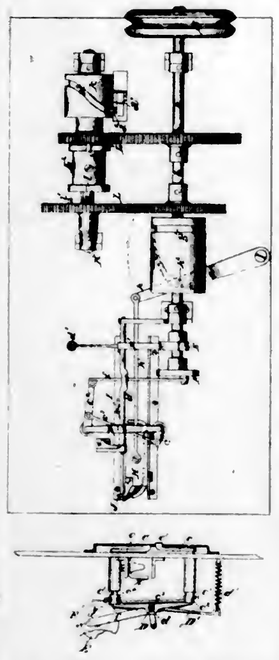
The attachment for corn planters, composed of the bracket *a*, having the fulcrum *b* and slot *f*, the vibrating lever *c*, the reciprocating lever *d*, having a pin on its end, to engage a cam-groove in or on the hub of the carriage-wheel, and the lever *g*, carrying a latching device, *h*, to engage the seed slide, substantially as and for the purposes shown and described.

196,728.



196,729. BUTTON-HOLE SEWING-MACHINES. Mary E. Wallace, Newport, Ky. Filed Aug. 8, 1877.

Brief.—Two feed-dogs are attached, by arms, to vertical spindles, which are operated alternately by a presser-bar centrally pivoted, and actuated by a cam on the main shaft. An auxiliary shaft is provided, whereby a double stroke of the needle-bar is produced to one of the shuttle.



1. In a sewing machine, the combination, substantially as specified, of two feed-dogs, which feed alternately and in diverging directions to advance the material in a zigzag line.

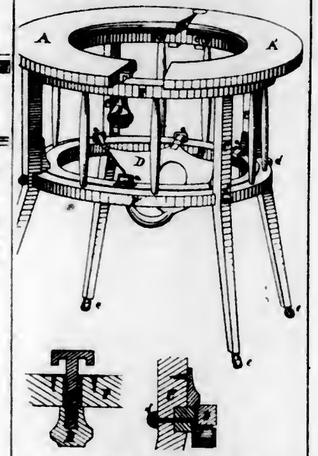
2. In a sewing machine, the combination, substantially as specified, of two feed-dogs, which feed alternately and in diverging directions with the needle, the loop-hook, and the shuttle.

3. In a sewing-machine, the combination, substantially as specified, of the needle-arm, driving shaft, the shaft for driving the shuttle mechanism, and the intermediate sets of gearing, either set of which may be used for transmitting motion from the one shaft to the other, as the needle is caused to make one pass or two passes to one of the shuttle.

4. The combination, in a sewing machine, of the feed-dogs C C', having arms *c c* and vertical spindles *c' c'*, and secured together by pitman *e* to crank-arms *c' c'*, as shown, with driving-pitman *f*, and crank-wheel F, arranged to operate substantially as and for the purpose specified.

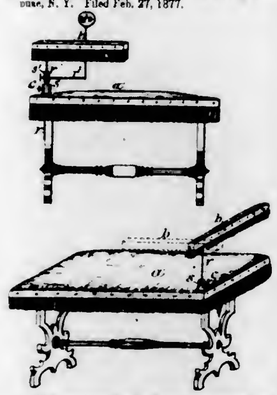
5. In a sewing-machine, the combination, substantially as specified, of the feed-dogs C C', attached by arms *c c* to vertical spindles *c' c'*, the presser-bar D, its shaft *d'*, lever D', and cam E.

196,730. BABY-WALKERS. J. P. Wick, Parma, Ohio. Filed July 21, 1877.



The combination of the supports C C C C', the circular rims F F', the seat D, the hinge-pieces A A', the T-shaped lock E, and the buckles *a a a a*, as and for the purposes described and set forth.

196,731. PHOTOGRAPHIC CHAIRS. John Winter, Syracuse, N. Y. Filed Feb. 27, 1877.



1. The combination and arrangement of the seat *a*, divested of back and side or end rests, and the arm or bolster *b*, supported at one end by the vertical bar *r*, connected adjustably, both radially and vertically, to the seat, substantially in the manner specified and shown, for the purposes set forth.

2. The combination and arrangement, with the arm *b*, supported at one end by the bar *r*, as described, of the head-rest *h*, attached to the end of the vertical portion of the right-angled bar *r'*, and connected with the supporting-bar *r* of the arm by a sleeve, *s'*, on the end of the horizontal portion of the bar *r'*, substantially as and for the purpose set forth.

196,732. OSCILLATING PUMPS. Gustavus R. Winkler, Williamsport, Pa. Filed Aug. 27, 1877.

Brief.—A cylinder in horizontal position, enlarged centrally where the two equal parts are united by screws passing through both. A central shaft passing longitudinally and centrally through the whole length of the cylinder, and having its bearings therein, carries a central and eccentric piston at each side thereof, with yielding springs, by means of which water is admitted into and expelled through ports in the ends of the cylinder.

1. In an oscillating pump, the scroll-plunger H, substantially as described.

2. The combination of the scroll-plunger and an eccentric-shaft for operating the same, substantially as and for the purposes set forth.

3. The combination, with the scroll-plunger, of the disk F, for dividing the cylinder of the pump into two parts, substantially as and for the purposes set forth.

4. The combination, with the shell of the pump, of an oscillating plunger and two sets of inlet and outlet ports, arranged substantially as described and shown.

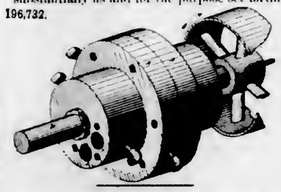
5. The combination of the shell A A', heads B B', and cylinders C C', cast in two pieces, substantially as described and shown.

6. The combination, with the shell, heads, and internal cylinders, of the eccentric disk F, slotted plunger H, inlet and outlet ports, and partitions *g g'*, substantially as described and shown.

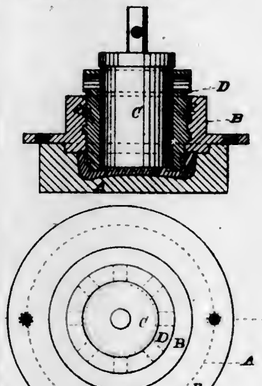
7. The squared portion *b* of the shaft, in combination with the slotted cam E and spring *e*, substantially as described and shown.

8. The combination, with the scroll-plunger, of the eccentric for operating the same, and the guiding-disks for controlling its motion, substantially as and for the purpose set forth.

196,732.



196,733. FORMING FEMALE SCREW-THREADS IN GLASS JARS, INSULATORS, &c. Theo. F. Woodward, Winslow, N. J. Filed Sept. 22, 1877.



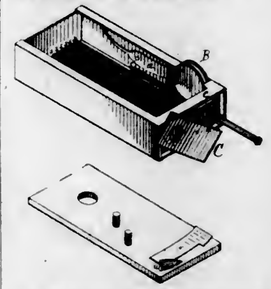
1. A sleeve having one or more screw-threads for forming the female screw-threads of fruit-jar covers, insulators, and other articles, combined with a mold in any suitable manner, and with a plunger working within the sleeve to press the molten glass between the formative part of the sleeve and the inner surface of the mold, substantially as set forth.

2. The sleeve D, having a carrying screw-thread, *a*, and one or more formative screw-threads, *b*, in combination with the follower B, having a screw-thread, *a'*, around its central eye, and with the mold A, the sleeve having a central plunger, C, arranged and operating substantially as and for the purpose set forth.

3. The combination of the sleeve D, having one or more formative screw-threads, *b*, and a carrying screw-thread, *a*, with the mold A and the follower B, whereby, the sleeve being screwed down to its lowest position before the pressure of the plunger, an accurate thickness is given to all that part of the article being molded around the end of the plunger, and the superfluous material finds its way to the central part in contact with the end of the plunger, substantially as and for the purpose set forth.

196,734. MATCH-SAFES. Newton D. Wright and C. C. Hill, Rockford, Ill. Filed Apr. 16, 1877.

Brief.—The lid C is serrated on its under side, is pivoted, and held open and closed by springs. As the match is ejected, it releases the lid C from its holding-spring, when it revolves, carrying its roughened surface over the head of the match, and igniting the same as it is thrust out of the box for use.

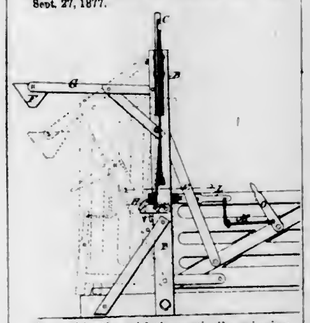


1. The serrated wheel, in combination with the lid pivoted to the box, and having on its under side a spring and detent, as set forth.

2. The combination, in a match-box, of the spring-lid C and a device for ejecting the match, as and for the purpose described.

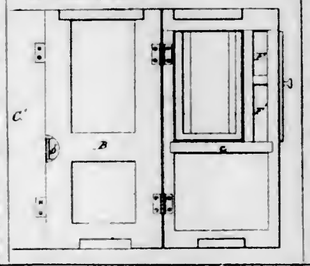
3. The combination, in a match-box, of the serrated wheel B and spring *a* with a lid, C, and spring *c*, substantially as described.

196,735. GATES. Irvin Yost, Thornville, Ohio. Filed Sept. 27, 1877.

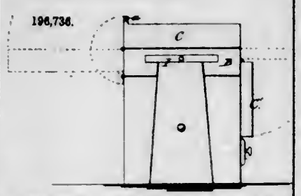


In combination with the vertically-swinging gate and posts B B, the stirrup E, pivoted to the gate on each side thereof, the parallel counterbalance-levers G, connected to said stirrup, all as shown and described.

196,736. KITCHEN-CABINETS. Geo. P. Ziegler, York, Pa. Filed July 18, 1877.



196,736.

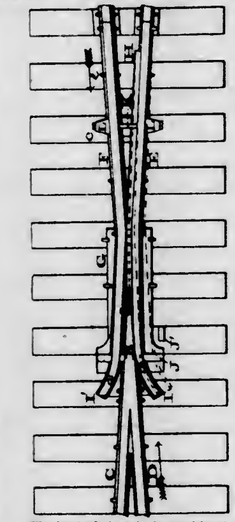


The combination, with the hinged cover B, of the leaf C, hinged to said cover, and having raised strips *a* upon one side to form a sink-bench, and a plain surface on the other, and the leaf C', hinged to the opposite side of said cover, and provided with a sliding stop to support the same, substantially as and for the purpose described.

REISSUES.

7,929. RAILROAD-FROGS. Geo. W. Billings, Chicago, Ill. Patent No. 137,882, dated Apr. 15, 1873. Filed June 23, 1877.

Brief.—A spring rail re-enforced by rubber springs applies to the frog-point, and is cleft therefrom by the flanges of a passing train.



1. The hooked rivet O, in combination with the rails and bed plate or plates G, as and for the purpose set forth.

2. A railway-frog consisting of the re-enforced spring-rail E, section B, stop J', guide-bar J, in combination with the spring *a*, winged housing L, and rod or bolt K, substantially as and for the purpose set forth.

3. The combination of the spring rail E, housings L, and their respective inclosed rubber springs, the follower *c*, the bolt K, and its end nuts, with the guide-bar J, substantially as set forth.

4. The housing L, with its wings, in combination with an inclosed rubber spring, a follower, *c*, a movable rail, and an inserted bolt, having a bearing at one end in said follower, and at the other end in an opposing fixed rail or abutment, substantially as set forth.

7,930. FIRE-EXTINGUISHERS. J. Dillon, New York, N. Y. Patent No. 146,386, dated Jan. 13, 1874. Filed Sept. 20, 1877.

1. A fire-extinguisher consisting of a hose-reel and a suitable hose thereon, adapted to be permanently connected while on the reel with the water-pipe of a building having water under pressure, substantially as described.

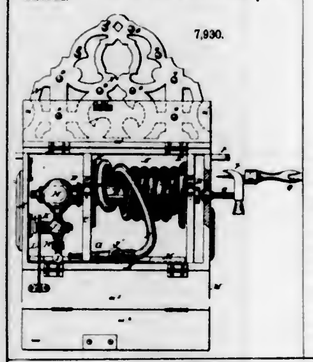
2. In a fire-extinguisher adapted to be permanently connected with a water-pipe of a

building having water under pressure, a hose-reel having means for the connection of the hose with the reel, and for the connection of the reel with the water-supply pipe, substantially as described.

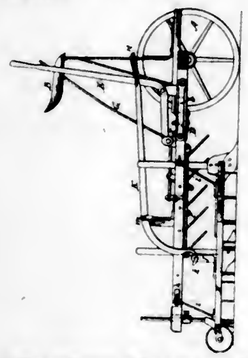
3. In a fire-extinguisher adapted to be permanently connected with a water-pipe of a building having water under pressure and provided with suitable hose, means for opening a connection with the water-pipe, so that the hose before being unwound will be filled with water under pressure, substantially as described.

4. In a fire-extinguisher adapted to be permanently connected with the water-pipe of a building having water under pressure, the combination of a hose-reel, a hollow shaft, and suitable hose, said parts being constructed and arranged so that the hose may be filled with water while upon the reel, substantially as described.

7,930.



7,931. GANG-PLOWS. William Frahling, San José, Cal. Patent No. 196,335, dated Jan. 16, 1877. Filed Oct. 2, 1877.

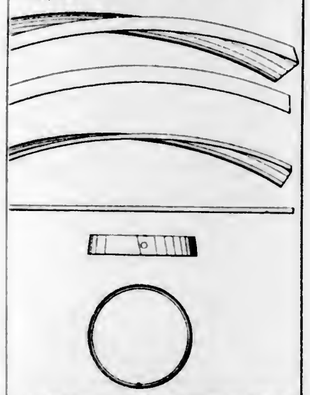


1. The combination of the frame *a*, rigidly attached to the axle, with triangular plow-carrying frame C and bent lever E, pivoted directly to and arranged to lift the plow-frame from the front, all substantially as shown and described.

2. The forward frame *a*, provided with the wheels A A, seat B, and lever E, in combination with the plow-frame C, pivoted as described, and provided with the rake F and lever G, all constructed to operate substantially as and for the purpose set forth.

3. The plow consisting of the parts *a* and C, constructed as described, in combination with the swinging harrow H and lever K, all constructed to operate substantially as and for the purpose set forth.

7,932. BARREL-HOOPS. Louis Reed, New York, N.Y. Patent No. 147,384, dated Feb. 10, 1874. Filed May 11, 1877.



1. As a new manufacture, a wooden barrel-hoop of equal thickness across from edge to edge, made flaring to fit the taper of the barrel.

2. The method herein described of fabricating wooden flared barrel-hoops of equal thickness across from edge to edge, consisting of giving to the block of wood from which strips of which the hoops are to be made are cut a permanent curve, and then cutting from the edge of such block successive strips of substantially rectangular cross-section, which, when bent flatwise, will form hoops of equal thickness across from edge to edge.

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DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—NORTHERN DISTRICT OF NEW YORK.

JAMES W. HERRING AND OTHERS *vs.* WILLIS S. NELSON AND OTHERS. SAME *vs.* WILLIAM G. GAGE AND OTHERS.

[*In equity.—Before* JOHNSON, *J.—Decided September*, 1877.]

Reissue letters patent, granted John Deuchfield April 20, 1872, examined and sustained.

Sub-combinations of elements that coact in the production of a perfected joint result can be rightfully claimed in conjunction. They constitute a true combination in the sense of the law, and not a case of juxtaposition.

A reisane patent need not be rigidly confined in description to what was described before. It may include whatever else was suggested or substantially indicated as part of the original patented invention.

Differences in the descriptions and claims of the old and new specifications are not the tests of substantial diversity. The description may be varied and the claim restricted or enlarged, provided the identity of the subject-matter of the original patent is preserved.

The doctrine of *Vance* vs. *Campbell*, 1 Black, that the use of a lesser number of elements than are contained in the patented combination is no infringement because not the same invention does not apply to the practice of reissuing patents. It is true the law requires that reisaues shall be for the same invention as the originals on which they are based, but it is no departure to make separate claims to sub-combinations which were originally joined in one.

The validity of a unitary combination which contained a lesser number of elements than was stated and claimed in the original patent, upheld in the reisane.

A reissue patent being valid on its face, the presumption is that the patentee is the first inventor of that which the patent purports to secure.

The presumption is not a mere formal one, but it to be overthrown by parol testimony it must be done upon clear and satisfactory proof. A case of doubt upon the evidence is not enough, for that leaves the presumption operative

Assuming its similarity to the Deuchfield (the patentee) device, the rejected application does not make out that the thing described was ever used, nor is such a description a patent or publication within the statute.

That an infringer has added something to the devices combined by a patentee does not enable him to use the combination without being answerable.

[*James A. Allen* and *Geo. F. Comstock*, for plaintiffs.
Henry R. Selden, for defendants.]

JOHNSON, *J.*:

The bills in these causes were exhibited by the plaintiffs, as assignees, for the county of Oswego, of certain reissued and extended letters patent, originally granted to John Deuchfield April 20, 1858, and numbered 19,984, for the term of fourteen years. The letters patent were reissued to Deuchfield January 16, 1872, and were extended April 17, 1872, for a further term of seven years from the time of the expiration of the original and reissued patent, April 20, 1872. The defendants are charged with infringing the first claim of the reissue patent.

In defense, it is insisted that the reissued letters patent are not for the same invention as the original patent, and that new matter has been introduced into the specification, contrary to the provisions of section 53 of the patent act of 1870. In the second place, it is claimed that the patentee was not the first inventor of what, if anything, was new in the invention claimed under the first claim of the reissued patent. This position is sought to be sustained by proof, first, that some one else made the invention, if any; second, by proof of several patents which, it is claimed, anticipate the Deuchfield patent; and, third, by proof of what is alleged to have been the prior use, in various instances, of that which is claimed as the invention of Deuchfield.

The reissued patent, No. 4,712, dated January 16, 1872, is for an alleged new and useful improvement in cooling and drying meal, which Deuchfield claimed to have invented. The amended specification, annexed thereto, stated that Deuchfield had invented a new and improved arrangement of means for cooling and drying meal, and declared the invention to consist in the peculiar arrangement of a suction-fan, conveyer or conveyers, and elevators, as thereinafter described, whereby the meal, during its passage from the grinding-stones to the bolts, is thoroughly dried and cooled within a limited space, the whole forming a simple and economical device.

The specification was accompanied by lettered drawings, which are referred to in the description.

A represents millstones, and A′ are the curbs. The stones are arranged in the ordinary way. B represents the beds on which

the stones are placed. C represents the spouts which convey the meal from the stones, and D is a chest, which is placed horizontally in the flooring E, and with which the lower ends of the spouts C communicate. Within the chest D a longitudinal shaft, F, is placed having a spiral flange, *b* on it, as shown clearly in Fig. 1. The chest D is equal in length to the bed B, so that all the spouts C of the several stones A may communicate with it. Within the chest D there is also placed a zigzag partition, E, provided with opening *c*, having slides *d*, and with one end of the chest D elevators F' communicate, said elevators discharging their contents at *e*, as shown in Fig. 2. G is a fan, which is placed within a suitable box, H. The box H communicates with a spout, I, the lower end of which communicates with one end of the chest D, as shown at *f*. The upper end of the spout I communicates with one end of a chest, J, as shown at *g*. The chest J contains a longitudinal shaft, K, having a screw or spiral flange, *h* on it, as plainly shown in Fig. 1, and within the chest J a series of vertical plates, *i*, is placed and arranged, as clearly shown in Fig. 1, to form a zigzag passage, as indicated by arrows 1. The end of the chest, opposite to that where the spout I communicates, is provided with an opening, *j*. Both shafts F K are rotated by any proper means in the direction indicated by the arrows 2.

The operation is next described as follows:

The meal passes from the stones A down the spouts C and into the lower part of the chest D, and is conveyed by the spirally-flanged shaft F into the elevator F', the shaft F, which is a conveyer moving the meal in the direction indicated by the arrows 3. The meal is carried up by the elevators and discharged at *e* directly into the bolts, or into troughs, and may be conveyed by hopper-boys, or any suitable conveying device, into the bolts. While the meal is thus passed through the stones A, spouts C, and the chest D, a suction blast is produced by the fan G, said blast absorbing the moisture or vapor which the meal contains, and which is heated or warmed by the friction of the stones A. The meal, therefore, is dried and cooled and, in consequence of the time consumed during its passage through the spouts C and chest D, will be perfectly acted upon by the blast so that all free moisture will be absorbed. A portion of the finer and lighter particles of flour will follow the blast, and will be ejected up through the spout I, and through the serpentine or winding passage formed by the parts I, and will settle in the outer end of the chest J and be conveyed by the conveyor or flanged shaft K to a spout, *j*, through which it falls into the elevators F', and unites with the meal which is received by the elevators direct from the chest D.

This compound arrangement for operating on the meal while passing through the chest D and on the scalped flour in the chest J, returning the latter to the elevators, while it is extremely well adapted for large flouring-mills, running at high speeds, and with a strong suction-blast, may not be either necessary or even practicable in all cases. When the grinding friction evolves only a moderate degree of heat, the chest J and its apparatus may be dispensed with, for the blast, being moderated to correspond, so small a quantity of the fine flour will be drawn through the spout I that such flour may be ejected on the mill-floor, and may be disposed of in any convenient way, so as to enter the bolts.

are claimed only the arrangement and combination of the suction-fan G and spout I with the meal-chest D, receiving the meal from the grinding stones, and provided with a conveyer-shaft, F, and elevator F', substantially as and for the purpose set forth. The other and original claim, now the second, embraces the arrangement and combination of both chest D and J, both (conveyer) shafts F and K, and the elevators, fan and spouts connected therewith, substantially as and for the purposes therein shown and described. Under the patent, as originally issued, it is, therefore, quite plain that no infringement could be made out without showing a use of the complete combination with all its elements, for that was the thing patented. No device was claimed, as the invention of the patentee, which entered into the combination. The invention claimed consisted only in the combination, and in this sense, at least, it is true that in such a case the combination disappears when any element is omitted, as was said by Mr. Justice Nelson in *Vance* vs. *Campbell*, 1 Black, 429, and as since has been frequently repeated. Under the first claim of the reissued patent, if it be valid, an infringement may be made out by showing a use of the combination specified in that claim, which omits a number of elements combined in the second or original claim. Under the first claim, therefore, the operation of the reissued patent is greatly enlarged beyond that of the original patent. It, according to its terms, entitles the patentee to exclude everybody from using the combined elements of that claim, while the original claim would be effectual only to exclude the use by others of the elements of the first claim, when combined with the other elements of the original claim. The learned counsel for the plaintiffs is, therefore, in error when he contends that the change produced by the introduction of the first claim of the reissued patent is a narrowing of the claims of the patentee, by abandoning to the public the use of a part of that which, under the original claim, was secured to the patentee. Such is not the case ation or effect of that which has been done by the alteration of the specification. Under the original claim two things were necessary to an infringement, each of which was expressed in the single original claim. Under the reissue and its first claim, one only of those two *things being done, works an infringement*, so that *the enlargement is of the* right of the patentee, the narrowing is of the *right of the*

In the original arguments on the part of the plaintiffs the combination was sought to be sustained as a patentable combination; but in the further argument the attempt is made to treat this arrangement of means, claimed in the original patent, and in the second claim of the reissued patent as not patentable, upon the ground that it constitutes only an aggregation of several results, within the doctrine of *Hailes* vs. *Van Wormer*, 20 Wallace, 353, 358, and *Rechendofer* vs. *Faber*, 22 Wallace, 347; but what has been already said on that topic seems to me to be sufficient to show that the combination for which the original patent was granted was not liable to the objection that the results of the combination were an aggregate of separate results, and not the joint product of the several elements of the combination. The case is one, not of juxtaposition merely, but of combination in the sense of the law.

The next question to be considered is that which arises upon the consideration of the two patents, with their specifications and drawings, whether the reissued patent is for the same invention as that for which the original was issued, and thus within the authority of the Commissioner of Patents, under section 53 of the patent act of 1870. That the original patent was inoperative or invalid, by reason of a defective or insufficient specification, or by reason of the patentee claiming as his own invention or discovery more than he had a right to claim as new, and that the error arose by inadvertence, accident, or mistake, and without any fraudulent or deceptive intention, has been conclusively established by the action of the Commissioner, to whom alone the decision of these questions belonged. (*Seymour* vs. *Osborne*, 11 Wall., 516, 543, 4, 5.) But this decision leaves undetermined "the question whether there is such a repugnancy between the old and the new patent that it must be held as matter of legal construction that the new patent is not for the same invention as that embraced in the original patent." I purposely omit the additional words used in the decision cited, which says, "embraced and secured in the original patent," because one of the very plain grounds of reissue specified in the statute is that the original patent fails to secure the invention by reason of the imperfection of the claim, or description of the invention. (Curtis on Patents, section 282, b., *note 1, and cases there cited.*) *Moreover, the statute, in the section cited, allows the new patent to be issued with cor-* not open under such an issue in a suit for infringement. Instead of that the conclusion in such case must always be in favor of the validity of the reissued patent, unless it appears, upon a comparison of the two instruments, that the reissue, as matter of legal construction, is not for the same invention as the original.

Surrenders are allowed, in order that what was imperfect before may be made perfect, and in order that what was before ambiguous may be made clear and certain; and, for that purpose, the patentee may add whatever was substantially suggested or indicated in the original specifications, drawings, or Patent Office model. New features may not be introduced, for the reason that every interpolation of the kind is forbidden by the act of Congress. Errors and defects may, however be corrected under the condition specified; and the prohibition that new features shall not be introduced must not be understood as taking away the right to include in the reissue whatever was substantially suggested or indicated in the surrendered specifications, drawings, or Patent Office model.

In the case now before the court the drawings attached to the reissued patent are the same as were annexed to the original. The mechanical structure, so far as the machine comes under the first claim of the reissue, is exactly the same as was described in the original specification up to that point. Nor is anything added to the description of the further mechanical structure of the machine as originally described. Looking at the mode of operation of the machine, as set forth in the original specification, the reissued patent makes no alteration in it so far as the machine falls under the first claim of the reissue. The whole controversy upon the question turns upon this. The mechanical arrangements are all unchanged, the mode of operation of the several parts is correctly described. The results of the action of the whole are correctly stated, and it is obvious that while the combined action of all the parts produces the complete result, yet that the mere cooling and drying of the meal is the result of that part of the machinery which is now covered by the first claim of the reissued patent. All that has been added is the new claim which embodies in words that which the specifications and drawings could not fail to disclose to any intelligent examination. The verbal addition to the specification of the paragraph which declares that the collection of the separated fine part of the meal and its return to the general mass may or may not be made, as circumstances make desirable, is not, in my opinion, new matter within the prohibition of the statute. If to the original specification only a new claim had been added, substantially like that which forms the first claim of *the reissued patent*, the legal effect of the original patent would have been the

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DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—NORTHERN DISTRICT OF NEW YORK.

JAMES W. HERRING AND OTHERS *vs.* WILLIS S. NELSON AND OTHERS. SAME *vs.* WILLIAM G. GAGE AND OTHERS.

[*In equity.—Before* JOHNSON, *J.—Decided September*, 1877.]

Reissue letters patent, granted John Denchfield April 20, 1872, examined and sustained.

Sub-combinations of elements that coact in the production of a perfected joint result can be rightfully claimed in conjunction. They constitute a true combination in the sense of the law, and not a case of juxtaposition.

A reissue patent need not be rigidly confined in description to what was described before. It may include whatever else was suggested or substantially indicated as part of the original patented invention.

Differences in the descriptions and claims of the old and new specifications are not the tests of substantial diversity. The description may be varied and the claim restricted or enlarged, provided the identity of the subject-matter of the original patent is preserved.

The doctrine of *Vance* vs. *Campbell*, 1 Black, that the use of a lesser number of elements than are contained in the patented combination is no infringement because not the same invention does not apply to the practice of reissuing patents. It is true the law requires that reissues shall be for the same invention as the originals on which they are based, but it is no departure to make separate claims to sub-combinations which were originally joined in one.

The validity of a unitary combination which contained a lesser number of elements than was stated and claimed in the original patent, upheld in the reissue.

A reissue patent being valid on its face, the presumption is that the patentee is the first inventor of that which the patent purports to secure.

The presumption is not a mere formal one, but it to be overthrown by parol testimony it must be done upon clear and satisfactory proof. A case of doubt upon the evidence is not enough, for that leaves the presumption operative

Assuming its similarity to the Denchfield (the patentee) device, the rejected application does not make out that the thing described was ever used, nor is such a description a patent or publication within the statute.

That an infringer has added something to the devices combined by a patentee does not enable him to use the combination without being answerable.

[*James A. Allen* and *Geo. F. Comstock*, for plaintiffs. *Henry R. Selden*, for defendants.]

JOHNSON, *J.*:

The bills in these causes were exhibited by the plaintiffs, as assignees, for the county of Oswego, of certain reissued and extended letters patent, originally granted to John Denchfield April 20, 1858, and numbered 19,984, for the term of fourteen years. The letters patent were reissued to Denchfield January 16, 1872, and were extended April 17, 1872, for a further term of seven years from the time of the expiration of the original and reissued patent, April 20, 1872. The defendants are charged with infringing the first claim of the reissue patent.

In defense, it is insisted that the reissued letters patent are not for the same invention as the original patent, and that new matter has been introduced into the specification, contrary to the provisions of section 53 of the patent act of 1870. In the second place, it is claimed that the patentee was not the first inventor of what, if anything, was new in the invention claimed under the first claim of the reissued patent. This position is sought to be sustained by proof, first, that some one else made the invention, if any; second, by proof of several patents which, it is claimed, anticipate the Denchfield patent; and, third, by proof of what is alleged to have been the prior use, in various instances, of that which is claimed as the invention of Denchfield.

The reissued patent, No. 4,712, dated January 16, 1872, is for an alleged new and useful improvement in cooling and drying meal, which Denchfield claimed to have invented. The amended specification, annexed thereto, stated that Denchfield had invented a new and improved arrangement of means for cooling and drying meal, and declared the invention to consist in the peculiar arrangement of a suction-fan, conveyer or conveyers, and elevators, as thereinafter described, whereby the meal, during its passage from the grinding-stones to the bolts, is thoroughly dried and cooled within a limited space, the whole forming a simple and economical device.

The specification was accompanied by lettered drawings, which are referred to in the description.

A represents millstones, and A' are the curbs. The stones are arranged in the ordinary way. B represents the beds on which

the stones are placed. C represents the spouts which convey the meal from the stones, and D is a chest, which is placed horizontally in the flooring E, and with which the lower ends of the spouts C communicate. Within the chest D a longitudinal shaft, F, is placed having a spiral flange, *b* on it, as shown clearly in Fig. 1. The chest D is equal in length to the bed B, so that all the spouts C of the several stones A may communicate with it. Within the chest D there is also placed a zigzag partition, E, provided with opening *c* having slides *d*, and with one end of the chest D elevators F′ communicate, said elevators discharging their contents at *e*, as shown in Fig. 2. G is a fan, which is placed within a suitable box, H. The box H communicates with a spout, I, the lower end of which communicates with one end of the chest D, as shown at *f*. The upper end of the spout I communicates with one end of a chest, J, as shown at *g*. The chest J contains a longitudinal shaft, K, having a screw or spiral flange, *h* on it, as plainly shown in Fig. 1, and within the chest J a series of vertical plates, *i*, is placed and arranged, as clearly shown in Fig. 1, to form a zigzag passage, as indicated by arrows 1. The end of the chest, opposite to that where the spout I communicates, is provided with an opening, *j*. Both shafts F K are rotated by any proper means in the direction indicated by the arrows 2.

The operation is next described as follows:

The meal passes from the stones A down the spouts C and into the lower part of the chest D, and is conveyed by the spirally-flanged shaft F into the elevator F′, the shaft F, which is a conveyer moving the meal in the direction indicated by the arrows 3. The meal is carried up by the elevators and discharged at *e* directly into the bolts, or into troughs, and may be conveyed by hopper-boys, or any suitable conveying device, into the bolts. While the meal is thus passed through the stones A, spouts C, and the chest D, a suction blast is produced by the fan G, said blast absorbing the moisture or vapor which the meal contains, and which is heated or warmed by the friction of the stones A. The meal, therefore, is dried and cooled, and, in consequence of the time consumed during its passage through the spouts C and chest D, will be perfectly acted upon by the blast so that all free moisture will be absorbed. A portion of the finer and lighter particles of flour will follow the blast, and will be ejected up through the spout I, and through the serpentine or winding passage formed by the parts I, and will settle in the outer end of the chest J and be conveyed by the conveyer or flanged shaft K to a spout, *j*, through which it falls into the elevators F′, and unites with the meal which is received by the elevators direct from the chest D.

This compound arrangement for operating on the meal while passing through the chest D and on the escaped flour in the chest J, returning the latter to the elevators while it is extremely well adapted for large flouring-mills, running at high speeds, and with a strong suction-blast, may not be either necessary or even practicable in all cases. When the grinding friction evolves only a moderate degree of heat the chest J and its apparatus may be dispensed with, for the blast being moderated to correspond, so small a quantity of the fine flour will be drawn through the spout I that such flour may be ejected on the mill-floor, and may be disposed of in any convenient way, so as to enter the bolts.

I do not claim forcing a current of air between a pair of millstones while the same is in operation, for the purpose of keeping the stones in a cool state and preventing the heating of the grain for such means, although not very efficient, have been previously used; but I am not aware that parts arranged as herein shown so as to allow the meal to be subjected to the blast during its entire or nearly entire passage from the stones to the bolts and insure the perfect drying and cooling of the meal, have been previously used.

I claim, therefore, as new, and desire to secure by Letters Patent—

1. The arrangement and combination of the suction-fan G and the spout I with the meal-chest D, receiving the meal from the grinding stones and provided with a conveyer-shaft, F, and elevator F′, substantially as and for the purpose set forth.

2. The arrangement and combination of the chests D J, shafts F K, elevators F′, fan G, and spout I, substantially as and for the purpose herein shown and described.

The specification annexed to the patent as originally issued April 20, 1858, differed in some respects from that attached to the reissued patent. In the original Deuchfield declares himself to have invented "a new and improved arrangement of means for cooling and drying meal *during its passage from the grinding-stones to the bolts*," the underlined words being omitted in the reissue. In the original it is declared that the invention consists in the peculiar arrangement of a suction-fan, conveyers, and elevators; the reissue by the insertion of the word "conveyer" in the singular is made to read "conveyer or conveyers," and thus the way is prepared for the omission of one feature of the combination originally claimed. This severance of the combination is further prepared by the paragraph of the reissued specification, commencing as follows: "This compound arrangement, &c.," which is inclosed by quotation marks in the statement of the reissued specification. The proposed severance is consummated by the insertion of the first claim, under which, as framed, are claimed only the arrangement and combination of the suction-fan G and spout I with the meal-chest D, receiving the meal from the grinding stones, and provided with a conveyer-shaft, F, and elevator F′, substantially as and for the purpose set forth. The other and original claim, now the second, embraces the arrangement and combination of both chest D and J, both (conveyer) shafts F and K, and the elevators, fan and spouts connected therewith, substantially as and for the purposes therein shown and described. Under the patent, as originally issued, it is, therefore, quite plain that no infringement could be made out without showing a use of the complete combination with all its elements, for that was the thing patented. No device was claimed, as the invention of the patentee, which entered into the combination. The invention claimed consisted only in the combination, and in this sense, at least, it is true that in such a case the combination disappears when any element is omitted, as was said by Mr. Justice Nelson in *Vance* vs. *Campbell*, 1 Black, 429, and as since has been frequently repeated. Under the first claim of the reissued patent, if it be valid, an infringement may be made out by showing a use of the combination specified in that claim, which omits a number of elements combined in the second or original claim. Under the first claim, therefore, the operation of the reissued patent is greatly enlarged beyond that of the original patent. It, according to its terms, entitles the patentee to exclude everybody from using the combined elements of that claim, while the original claim would be effectual only to exclude the use by others of the elements of the first claim, when combined with the other elements of the original claim. The learned counsel for the plaintiffs is, therefore, in error when he contends that the change produced by the introduction of the first claim of the reissued patent is a narrowing of the claims of the patentee, by abandoning to the public the use of a part of that which, under the original claim, was secured to the patentee. Such is not the operation or effect of that which has been done by the alteration of the specification. Under the original claim two things were necessary to an infringement, each of which was expressed in the single original claim. Under the reissue and its first claim, one only of those two things being done, works an infringement, so that the enlargement is of the right of the patentee, the narrowing is of the right of the public. It is further claimed on the part of the plaintiffs that the claim under the original specification was not of a true combination, producing a result from the coaction of the elements, but that the results were the consequence of the successive and independent action of the parts, each producing its own result. In a certain sense this would seem to be true, because the cooling of the meal may be conceived of as one independent result, and the saving and resting to the common mass that part of the meal which, in the cooling process, has been mechanically separated from the rest, may also be conceived of as another independent result. But this, in my opinion, is a over-refinement not required by the principles of the patent law. When regarded as part of a practical improved arrangement of means for converting grain into flour, both results, the cooling and the saving, contribute to the one common result—cooling without waste, and thus getting the largest practicable amount of merchantable flour. It cannot be doubted that, if the whole process of reducing grain to flour were new, the complete machinery employed, even including the combined Deuchfield device, could be included and maintained in a single patent or in a single combination. This view is, as I understand it, supported by the decision of Mr. Justice Curtis in *Farbush* vs. *Cook*, 20 Law Rep., 664, cited in Curtis on Patents, section 111, note 2. The learned judge says:

> To make a valid claim for a combination it is not necessary that the several elementary parts of the combination should act simultaneously. If those elementary parts are so arranged that the success ve action of each contributes to produce some practical result, which result, when attained is the product of the simultaneous or successive action of all the elementary parts, viewed as one entire whole, a valid claim for thus combining those elementary parts may be made.

In the original arguments on the part of the plaintiffs the combination was sought to be sustained as a patentable combination; but in the further argument the attempt is made to treat this arrangement of means, claimed in the original patent, and in the second claim of the reissued patent as not patentable, upon the ground that it constitutes only an aggregation of several results, within the doctrine of *Hailes* vs. *Van Wormer*, 20 Wallace, 353, 358, and *Rechendofer* vs. *Faber*, 22 Wallace, 347; but what has been already said on that topic seems to me to be sufficient to show that the combination for which the original patent was granted was not liable to the objection that the results of the combination were an aggregate of separate results, and not the joint product of the several elements of the combination. The case is one, not of juxtaposition merely, but of combination in the sense of the law.

The next question to be considered is that which arises upon the consideration of the two patents, with their specifications and drawings, whether the reissued patent is for the same invention as that for which the original was issued, and thus within the authority of the Commissioner of Patents, under section 53 of the patent act of 1870. That the original patent was inoperative or invalid, by reason of a defective or insufficient specification, or by reason of the patentee claiming as his own invention or discovery more than he had a right to claim as new, and that the error arose by inadvertence, accident, or mistake, and without any fraudulent or deceptive intention, has been conclusively established by the action of the Commissioner, to whom alone the decision of these questions belonged. (*Seymour* vs. *Osborne*, 11 Wall., 516, 543, 545.) But this decision leaves undetermined "the question whether there is such a repugnancy between the old and the new patent that it must be held as matter of legal construction that the new patent is not for the same invention as that embraced in the original patent." I purposely omit the additional words used in the decision cited, which says, "embraced and secured in the original patent," because one of the very plain grounds of reissue specified in the statute is that the original patent fails to secure the invention by reason of the imperfection of the claim, or description of the invention. (Curtis on Patents, section 282, b., note 1, and cases there cited.) Moreover, the statute, in the section cited, allows the new patent to be issued with corrected specifications, and, in case of a machine patent, reference to be had for this purpose to the drawings and model, the only prohibition in that behalf being that they may only be amended by each other. There is also a general prohibition that no new matter shall be embraced in the specification. A further provision is made that, where there is neither model nor drawing, amendments may be made upon proof satisfactory to the Commissioner that such new matter or amendment was a part of the original invention. It results from these provisions, taken together, that what is found in the specification, drawing, or model of the original patent may be embraced in the reissued patent. (*Seymour* vs. *Osborne*, 11 Wall, 516.) That in redescribing his invention the patentee is not rigidly confined to what was described before, but that he may include in the new description whatever else was suggested or substantially indicated in the old, provided it was embraced in the invention as actually made and perfected. Differences in the description and claims of the old and new specifications are not the tests of substantial diversity, but the description may be varied and the claim restricted or enlarged, provided the identity of the subject-matter of the original patent is preserved. Within this range whatever change is required to protect and effectuate the invention is allowable. (*Parham* vs. *Am. Button Hole, &c., Co.*, 4 Fisher Pat. Cases, 468; *Ballin* vs. *Taggert*, 17 How., 84.) In the case of *Stevens* vs. *Pritchard*, 10 OFFICIAL GAZETTE, 505, Mr. Justice Clifford has stated the doctrine with great clearness and precision, so as to afford a plain guide in the application of the law as to reissues. The learned justice says:

> Reissued patents are presumed to be for the same invention as the original, unless the contrary appears. Matters of fact are not open under such an issue in a suit for infringement. Instead of that the conclusion in such case must always be in favor of the validity of the reissued patent, unless it appears, upon a comparison of the two instruments, that the reissue, as matter of legal construction, is not for the same invention as the original.
>
> Surrenders are allowed, in order that what was imperfect before may be made perfect, and in order that what was before ambiguous may be made clear and certain; and, for that purpose, the patentee may add whatever was substantially suggested or indicated in the original specifications, drawings, or Patent Office model. New features may not be introduced, for the reason that every interpolation of the kind is forbidden by the act of Congress. Errors and defects may, however, be corrected under the condition specified; and the prohibition that new features shall not be introduced must not be understood as taking away the right to include in the reissue whatever was substantially suggested or indicated in the surrendered specifications, drawings, or Patent Office model.

In the case now before the court the drawings attached to the reissued patent are the same as were annexed to the original. The mechanical structure, so far as the machine comes under the first claim of the reissue, is exactly the same as was described in the original specification up to that point. Nor is anything added to the description of the further mechanical structure of the machine as originally described. Looking at the mode of operation of the machine, as set forth in the original specification, the reissued patent makes no alteration in it so far as the machine falls under the first claim of the reissue. The whole controversy upon the question turns upon this. The mechanical arrangements are all unchanged, the mode of operation of the several parts is correctly described. The results of the action of the whole are correctly stated, and it is obvious that while the combined action of all the parts produces the complete result, yet that the mere cooling and drying of the meal is the result of that part of the machinery which is now covered by the first claim of the reissued patent. All that has been added is the new claim which embodies in words that which the specifications and drawings could not fail to disclose to any intelligent examination. The verbal addition to the specification of the paragraph which declares that the collection of the separated fine part of the meal and its return to the general mass may or may not be made, as circumstances make desirable, is not, in my opinion, new matter within the prohibition of the statute. If to the original specification only a new claim had been added, substantially like that which forms the first claim of the reissued patent, the legal effect of the original patent would have been the same as that now asserted for the reissued patent. The remarks with which Mr. Justice Clifford commences his opinion in the case already cited of *Stevens* vs. *Pritchard*, I think, substantially sustain this view. The learned justice says:

> Cases arise where a patentee having invented a new and useful combination, consisting of several elements, which in combination, compose an organized machine, also claims to have invented new and useful inventions, consisting of fewer members of the same elements, and in such cases the law is well settled, that if the several combinations are new and useful, and will severally produce new and useful results, the inventor is entitled to a patent for the several combinations provided he complies with the requirements of the patent act, and files in the Patent Office a written description of each of the alleged new and useful combinations, and of the manner of making constructing and using the several inventions. He may, if he sees fit, give the descriptions of the several combinations in one specification, and in that event he can secure the full benefit of the exclusive right to each of the several inventions by separate claims referring to the specification for the description of the invention without the necessity of filing separate applications for each of the inventions. Separate descriptions of the respective inventions in one application are as good as if made in several applications; but the claims must be separate, and it would follow that if the patentee, by inadvertence, accident, or mistake, should fail to claim any one of the described combinations he might surrender the original patent, and have a reissue not only for the combination claimed in the original specification, but for any which were so omitted in the claims of the original patent.

For this proposition is cited as authority the case of *Gill* vs. *Wells*, 22 Wall., 24. It is mainly upon what is said in that case that the defendants rely to sustain their proposition that the reissued patent is void, as not for the same invention as the original patent. The position is this, that where a patent is for a combination of old elements, producing a new and useful result, the invention consists only in the combination, and

that, therefore, when one element is relinquished, the combination being gone the invention is gone likewise. This proposition is in a certain sense true and accurate in reference to a patentee of such a combination bringing an action for an infringement. There is no infringement when all the elements are not employed, leaving out of view the consideration of equivalents, which, for the present purpose, is not material. Numerous cases sustain this view and the law is unquestioned. (*Vance* vs. *Campbell*, 1 Black, 429; *Prouty* vs. *Ruggles*, 16 Peters, 341; and *Gould* vs. *Rees*, 15 Wall., and many others.) But upon the doctrine of these cases in respect to actions for infringements it is sought to establish a distinction between patents for combinations of old elements, and all other patents in regards to reissues, and to deny the power to reissue such a patent for a combination of any fewer elements than were contained in the original combination. Now, the patent act makes no such distinction. Its terms are general and relate alike to all patents. The position is set up and rests upon this argument. The reissue must be for the same invention. This consists in the combination, which disappears when one element is omitted. But this argument, true or unsound, does not apply to a case in which among the old elements some are single and some are subcombinations entering into the general and larger combination. This doctrine was necessarily affirmed, because acted upon in judgment in the corn-planter case, 23 Wallace, 181.

To the opinion of the majority of the Supreme Court in that case was opposed the able statement of the learned judge who delivered the opinion of the court in *Gill* vs. *Wells*, 22 Wall., 1, of the grounds on which he had in that case maintained the view that is now sought to be applied to and to control the decision of the present case. But the majority of the court did not apply those views to the decision of the corn-planter case, but held that the reissues were for things contained within the machines and apparatus described in the original patents, and were therefore not subject to the objection of diversity of invention.

In *Gill* vs. *Wells*, above cited, the reissues omitted one well-described ingredient of the patented combination, and substituted in its place several other devices not equivalents for the omitted element, nor claimed to be such, and the court held that this was inadmissible, and that the reissues were not for the original invention. (S. C., p. 28.)

The case of *Campbell* vs. *Vance*, before cited, does not, as a judgment, settle any doctrine material to the question of reissues. There was no reissue in the case, and the decision granting a new trial was put upon the ground that the plaintiff had been improperly excluded as a witness.

In *Russell* vs. *Dodge*, 93 U. S., 460, the only point decided was that the alleged invention or inventions contained in the original and reissued patent lacked novelty, and were not, therefore, patentable.

After a careful examination of all the cases which have been cited I am of opinion that upon a comparison of the original and reissued patents it cannot be held as matter of legal construction that the reissued patent is for an invention not contained in the original patent, and that the reissued patent is therefore not void upon that ground. The decision of the Patent Office in granting the reissue covers the grounds of fact upon which the action of the Commissioner could, in the proceedings before him, have been contested.

The reissued patent being valid upon its face the presumption is that the patentee was the first inventor of that which the patent purports to secure. (*Seymour* vs. *Osborne*, 11 Wall., 538; *Tucker* vs. *Tucker Manufacturing Co*, 10 OFFICIAL GAZETTE, 464, CLIFFORD, *J*.) And this is not a mere formal presumption, but if to be overthrown by parol testimony must be overthrown upon clear and satisfactory proof. A case of doubt upon the evidence is not enough, for that leaves the presumption operative. (*Brady* vs. *Atlantic Works*, 10 OFFICIAL GAZETTE, 702.)

The prior patents adduced by the defendants to show an anticipation of the plaintiff's invention do not appear to me in their principles and modes of operation to approach near enough to the plaintiff's invention to require particular comment. No one of them shows a current of air created by a suction-fan, and drawn through the opening of the millstones, down the meal-spouts, and into and along the enlarged meal-box shown in the drawings, and the conveyer or shaft, and accompanying the meal in its progress to the elevators, and by its operation taking away the heat and moisture of the meal, which is the substance of the plaintiff's invention.

The rejected application of Mann for a patent is not to be considered as a bar to the patent represented by the plaintiffs. The corn-planter patent, 23 Wall., 209-211, assuming its similarity to the Deuchfield device, the rejected application does not make out that the thing described was ever used; nor is such a description a patent or publication within the statute.

The defense of want of novelty, by reason of the alleged prior invention by one Striker, does not appear to me to have any serious basis. The story which he tells of Deuchfield's application to him at a grocery store on a Sunday evening, February 1, 1857, to contrive some way of keeping the mill (the Ulhorn) dry; that, after a brief conversation, Deuchfield employed him to come on the next day to begin the work; that on the Monday morning he went to the mill and made the drawing which he produces, dated and signed by him on that day, as he testifies, and then proceeded with the work, having as his guide this working-drawing, which represents the mill as having five run of stones, while upon the overwhelming proof it never had but four, makes a story incredible enough upon the face of it to be disbelieved. But it is shown to be necessarily untrue by the evidence of several persons with whom Deuchfield had previously conversed respecting a plan which he had devised for drying the meal, and thus freeing the mills from the injurious effect of moisture, and also by his consultation with the owners of the mill, and the final consent on their part that he might proceed to put in the contrivance which he had devised, as he proceeded to do on the 3d of February, 1857, employing Striker for the purpose. It is true that Deuchfield was not called as a witness, but the proof shows that he was a man broken in health and aged at the time of the examination, and as there was other independent proof upon the point satisfactory in character the omission is not material. It only calls for closer scrutiny of the question.

The other questions of anticipation rest upon oral proof, either of the time when certain contrivances were introduced into particular mills, or the substantial identity of such devices with that covered by Deuchfield invention.

I am satisfied, upon the most careful examination which I am capable of, that in each case the weight of the oral evidence is with the patentee, and that without the presumption arising from the patent I should be constrained to hold upon these questions with the plaintiffs. But I can, with difficulty, understand how it can be supposed that in any of the cases of alleged anticipation the proof for the defense can be taken to go beyond a case of doubt, and in such a case the presumption arising from the patent must stand. To discuss these several questions in detail can be of no public service, and I have not the time to devote to it.

The infringements by the defendants are clearly made out by the testimony on the part of the defendants as well as by that of Bignall on the part of the plaintiffs. In each case the first claim of the reissued patent is infringed by devices in all material respects like those contained in the reissues, and embracing all the elements of that combination. That the defendants have added something to the devices combined by the patentee does not enable them to use his combination without being answerable.

A decree in favor of the plaintiffs must be made in the usual form restraining further infringement, establishing the reissue, and directing a reference to a master to take an account and ascertain the profits made by the defendants and the damages suffered by the plaintiffs by reason of such infringements. Either party has leave to apply for further directions and, upon the coming in and confirmation of the master's report, for a final decree.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date November 6, 1877.]

10,290.—Font of Ornamental Printing-Types.—DAVID WOLFE BRUCE, New York, N. Y. Application filed October 22, 1877. Term of patent 14 years.

10,291.—Font of Ornamental Printing-Types.—HENRY BREHMER, Stapleton, assignor to DAVID WOLFE BRUCE, New York, N. Y. Application filed October 22, 1877. Term of patent 14 years.

10,292.—Font of Ornamental Printing-Types.—JULIUS HERRIET, New York, N. Y., assignor to DAVID WOLFE BRUCE, same place. Application filed October 18, 1877. Term of patent 14 years.

10,293 to **10,295**, inclusive.—**Carpets, &c.**—JOHN HAMER, Dutchess county, assignor to FALCONER & CARROL, Matteawan, N. Y. Applications filed October 26, 1877. Term of patents 3½ years.

10,296 and **10,297.—Glassware.**—JENKIN JONES, Pittsburg, Pa. Applications filed October 26, 1877. Term of patents 3½ years.

10,298 to **10,304**, inclusive.—**Oil-Cloth.**—CHARLES T. MEYER and VICTOR E. MEYER, Bergen, N. J., assignors to EDWARD C. SAMPSON, New York, N. Y. Applications filed October 26, 1877. Term of patents 3½ years.

10,305.—Spice-Caddies.—EDWIN NORTON, Chicago, Ill. Application filed October 24, 1877. Term of patent 14 years.

10,306 and **10,307.—Carpets.**—THOMAS J. STEARNS, Boston, Mass., assignor to ROXBURY CARPET COMPANY, same place. Applications filed October 24, 1877. Term of patents 3½ years.

10,308.—Hinges.—ELBRIDGE J. STEELE, New Britain, Conn., assignor to STANLEY WORKS, same place. Application filed October 22, 1877. Term of patent 7 years.

10,309.—Hat-Rack.—LEANDER E. FISH, Cincinnati, Ohio, assignor to JAMES L. RYMAN, same place. Application filed July 19, 1877. Term of patent 7 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date November 6, 1877.]

5,293.—Soap.—DAY & FRICK, Philadelphia, Pa. Application filed October 9, 1877.

"The symbol of a pair of scales."

5,294.—Cigars, Cigarettes, and Smoking and Chewing Tobacco.—E. C. HAZARD & CO., New York, N. Y. Application filed September 26, 1877.

"The term or designation 'PARROT.'"

5,295.—Plug-Tobacco.—H. W. HUNT, Brooklyn, N. Y. Application filed October 15, 1877.

"The word-symbol 'MEDAL.'"

5,296.—Paint.—GUTTA PERCHA PAINT COMPANY, Cleveland, Ohio. Application filed October 9, 1877.

"The figure or representation of a frog."

5,297.—Optical Instruments.—JOSEPH B. LAURENÇOT, Hoboken, N. J. Application filed October 17, 1877.

"A picture of the sun in outline, represented in the usual conventional manner."

5,298.—Smoking-Tobacco.—Z. I. LYON & CO., Durham, N. C. Application filed October 18 1877.

"The word-symbol 'PRIDE OF DURHAM.'"

5,299.—Smoking-Tobacco.—CHARLES R. MESSINGER, Toledo, Ohio. Application filed October 15, 1877.

"The word-symbol 'GERMAN.'"

5,300.—Smoking-Tobacco.—CHARLES R. MESSINGER, Toledo, Ohio. Application filed October 15, 1877.

"The letters 'O. C.,' arranged one on each side of the representation of an eye."

5,301.—Cigars.—FERDINAND SMITH, Providence, R. I. Application filed October 15, 1877.

"The word-symbol 'ROYAL GEMS.'"

5,302.—Whisky.—L. & A. SCHARFF, St. Louis, Mo. Application filed October 18, 1877.

"The word-symbol 'AMELIORATED,' and the female figure beneath."

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date November 6, 1877.]

1,228.—Title: "**Corn & Rock.**"—JOHN H. ALLEN & CO., New York, N. Y. Application filed October 30, 1877.

1,229.—Title: "**Dr. Galvin's Celebrated Croup Tincture.**"—JAMES W. GARNEY & CO., Scranton, Pa. Application filed October 30, 1877.

1,230.—Title: "**S. H. Kennedy's Pinus Canadensis Ointment.**"—CHARLES F. GOODMAN, Omaha, Neb. Application filed October 27, 1877.

1,231.—Title: "**McGill's Patent Binders.**"—GEORGE W. MCGILL, New York, N. Y. Application filed October 26, 1877.

1,232.—Title: "**McGill's Paper Fasteners, Assorted Sizes.**"—GEORGE W. MCGILL, New York, N. Y. Application filed October 26, 1877.

1,233.—Title: "**McGill's Patent Button Head Fasteners.**"—GEORGE W. MCGILL, New York, N. Y. Application filed October 26, 1877.

1,234.—Title: "**Miscellaneous.**"—GEORGE W. MCGILL, New York, N. Y. Application filed October 26, 1877.

1,235.—Title: "**McGill's Patent T. Binders.**"—GEORGE W. MCGILL, New York, N. Y. Application filed October 26, 1877.

1,236.—Title: "**Double Shanks.**"—GEORGE W. MCGILL, New York, N. Y. Application filed October 26, 1877.

1,237.—Title: "**McGill's Patent Split Shank Fasteners.**"—GEORGE W. MCGILL, New York, N. Y. Application filed October 26, 1877.

1,238.—Title: "**McGill's Patent T. Fasteners.**"—GEORGE W. MCGILL, New York, N. Y. Application filed October 26, 1877.

1,239.—Title: **Dr. John Meagher's Wonderful Cure for Scrofula or King's Evil.**"—DR. JOHN MEAGHER, Minneapolis, Minn. Application filed October 27, 1877.

1,240.—Title: "**Dr. John Meagher's All-Healing Salve.**"—DR. JOHN MEAGHER, Minneapolis, Minn. Application filed October 27, 1877.

1,241.—Title: "**Van Buskirk's Fragrant Sozodont.**"—HALL & RUCKEL, New York, N. Y. Application filed October 23, 1877.

1,242.—Title: "**Kimm's Holland Worm Cakes.**"—GEORGE G. STEKETEE, Grand Rapids, Mich. Application filed October 29, 1877.

1,243.—Title: "**Kimm's Ague Cure.**"—GEORGE G. STEKETEE, Grand Rapids, Mich. Application filed October 29, 1877.

1,244.—Title: "**Kimm's $1.00 Premium Aromatic Bitters.**"—GEORGE G. STEKETEE, Grand Rapids, Mich. Application filed October 29, 1877.

1,245.—Title: "**Kimm's 50c. Premium Aromatic Bitters.**"—GEORGE G. STEKETEE, Grand Rapids, Mich. Application filed October 29, 1877.

1,246.—Title: "**Eddystone.**"—THE EDDYSTONE MANUFACTURING COMPANY, Philadelphia, Pa. Application filed October 30, 1877.

1,247.—Title: "**Simpson's Topocan Brand Diamond Creamery Butter.**"—GREENLIEF W. SIMPSON, Boston, Mass. Application filed August 17, 1877.

1,248.—Title: "**McGill's Flat Head Paper Fasteners.**"—GEORGE W. MCGILL, New York, N. Y. Application filed October 26, 1877.

1,249.—Title: "**McGill's Round Head Paper Fasteners.**"—GEORGE W. MCGILL, New York, N. Y. Application filed October 26, 1877.

INDEX OF INVENTIONS PATENTED NOVEMBER 6, 1877.

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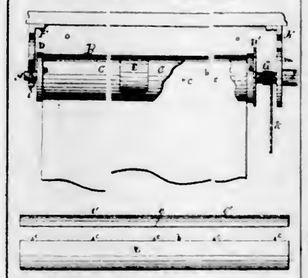
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OF

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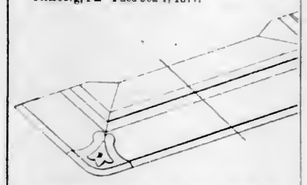
196,737. CURTAIN ROLLER AND BRACKET. Reuvel E. Abbott, Akron, Ohio. Filed Mar. 1, 1877.



1. The combination, with the curtain-roller B, constructed with a flattened side, *b*, and provided with pins or spurs *c*, and roller-heads D D', constructed with the sockets *d d*, of the slats or retaining-bars C C, which have their outer ends inserted in the sockets *d d*, and their inner ends brought together on the side *b* of the roller, and secured in place by a spring-clasp, E, or other suitable fastening, substantially as and for the purpose herein set forth.

2. The combination of the roller B, the head D, provided with a journal, *g*, the head D' provided with an enlarged journal, G, the brackets F H, provided with the slots *e*, and the bracket H, having a spring-case, I, substantially as and for the purposes specified.

196,738. FENDERS FOR FIRE-PLACES. Henry Adler, Pittsburg, Pa. Filed Oct. 1, 1877.



A sheet-metal fender, the front, apron, and ends being constructed in one piece, curved, bent, and braced, substantially as herein described.

196,739. CHIP-BREAKERS FOR PLANING-MACHINES. Edwin Benjamin, Chicago, Ill. Filed Jan. 10, 1876.

Brief.—The chip-breaker is pivoted to two bridges of unequal length, which are pivoted at their opposite ends to the bed, and provided with a spring-acted rod, for keeping the chip-breaker point close to the lumber, so that the edge of the board being worked will not be peeled off by the cutters.

The combination of the longer bridge J and shorter bridge D with the chip-breaker C and spring-rod attachment G I, as set forth.

196,740. GRAVE-TABLETS. Franklin C. Bradway, Lincoln, assignor of one-half his right to J. Hukill, Tazewell County, Ill. Filed Sept. 4, 1877.

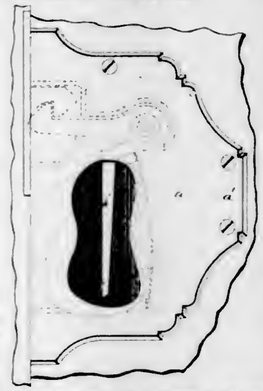


1. The herein described rectangular hollow grave-tablet, composed of artificial stone, molded or formed in one piece, and having the parallel sides and ends and the top U, substantially as specified.

2. The herein described hollow grave-tablet, provided with the holes *b*, for handling and ventilation, substantially as specified.

3. The combination of a grave-tablet composed of artificial stone of materials as above set forth, having paneled sides, ends, and top, with holes through the sides and ends for purposes of ventilation and handling, and having an intermolded marble tablet in the middle of the top thereof, substantially as and for the purposes above set forth.

196,741. LATCHES FOR CAR-DOORS. Jacob Capron New York, N. Y. Filed June 1, 1877.



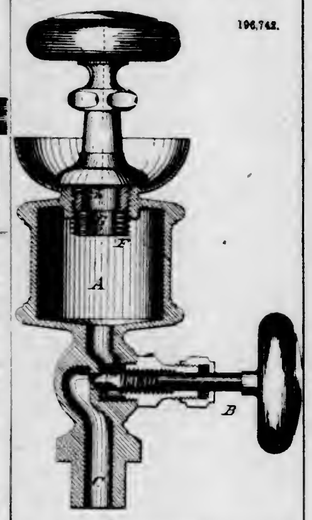
In combination with the casing of the lock having the opening a^1, the web *b*, having handles b^1 b', as described.

196,742. LUBRICATORS. Frank Collignon, Buffalo, N. Y. Filed Mar. 1, 1877.

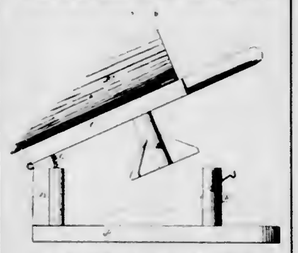
1. As an improved article of manufacture, a lubricator provided with a stop-valve, B, below, and a bell-shaped receiver above, fitted with a screw-plug having a square-faced seat, *f*, overlapping a threaded screw-shank, F, of less diameter than said valve-seat, said screw-shank being provided with filling and vent passages, terminating directly below said seat *f*, with their exit-passage parallel therewith, whereby the escaping gases and lubricant are ejected against the walls of and collected within said bell-shaped receiver, all as herein-before set forth and described.

2. In lubricators, a bell-shaped receiver having a valve-seat in the bottom of the bowl, in combination with a screw-plug provided with a square-faced seat, *f*, and filling and vent passages whose exit-passage is parallel with said seat *f*, as hereinbefore set forth and described.

196,742.



196,743. APPLE QUARTERING AND CORING MACHINES. Sarah Cooper, Morrisonville, Pa. Filed Feb. 3, 1877.



1. As an improved article of manufacture, an apparatus for cutting and coring apples, consisting of the levers C, provided with the conductor F and cutter and corer E, uprights B B', spring G, and base A, the several parts being combined and arranged to operate substantially as shown and described.

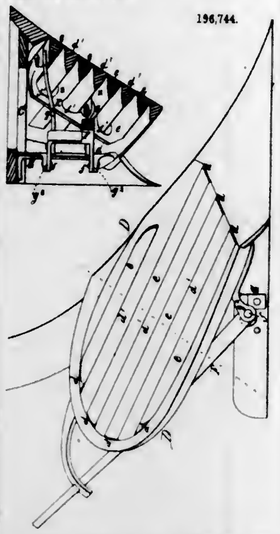
2. In a machine for cutting and coring apples, the combination of the lever C, provided with the conductor F, and cutter and corer E, with the uprights B B' and base A, substantially as specified.

3. In a machine for cutting and coring apples, the combination of the cutter and corer E with the lever C and conductor F, substantially as and for the purpose specified.

196,744. PLOWS. Rudolph Goreth, Belleville, Ill., assignor to Otto C. Meusebach, same place. Filed June 30, 1877.

Brief.—The mold board has slots or openings extending along its length. These are filled with slats or strips, which are attached to an under frame, and vibrated by a lever to clean the mold board.

196,744.



1. The movable bars *e*, in combination with the skeleton mold board D, substantially in the manner and for the purpose set forth.

2. The combination of the bars *e*, braces E, links *g g'*, levers H and F, and the slotted mold-board D, substantially as set forth.

196,745. WATER-SUPPLY PIPES. Charles L. Driesslein, Chicago, Ill. Filed Sept. 22, 1877.



1. The auxiliary water-supply pipes D, laid in the street above the ground or pavement, around or along a square or block of buildings, and provided with a series of plugs, I, in combination with the water-main C, with which the auxiliary pipe is connected, so that water may be admitted to or shut off therefrom, substantially as and for the purpose set forth.

2. The auxiliary pipes D, extending around two sides of a block or square, connected with the mains in two opposite streets, and laid in an inclined plane, as described, substantially as and for the purpose set forth.

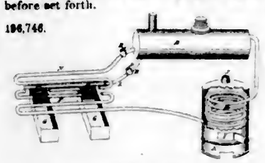
3. The auxiliary pipes D, arranged upon the street, above the surface thereof, as described, in combination with the main supply-pipes C, the service or connecting pipes E, coupling F, and valves G, substantially as described.

4. The service-pipes E, in combination with the branch coupler F, main pipe C, valves G, and plugs H, substantially as and for the purpose set forth.

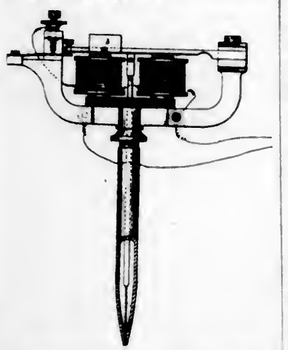
196,746. DEVICES FOR DRYING AND CONDITIONING LEAF-TOBACCO. Robert Dunlop, Louisville, Ky., assignor of one-half his right to Thomas Meikle, same place. Filed Aug. 9, 1877.

The discharge-strainers H H, by which spray is produced, in combination with the pipe L, drum B, and pipe N, with its loops F, coils K, furnace A, and pans G G, as above described, arranged, constructed, and operated substantially as and for the purpose herein-before set forth.

196,746.



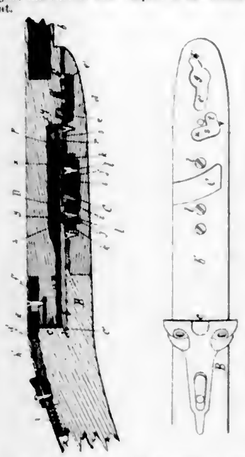
196,747. STENCIL-PENS. Thomas A. Edison, Menlo Park, N. J. Filed Apr. 23, 1877.



The combination, with the electro-magnet and reed or lever vibrated by the same, of the perforating-needle, tubular pen, and circuit-breaker operated by the reed or lever, substantially as set forth.

196,748. BREECH-LOADING FIRE-ARMS. Geo. H. Fox, Boston, Mass. Filed June 22, 1877.

Brief.—The barrels swing in a horizontal plane on an imaginary pivot outside of the frame, to open and close the breech. A fin or guide swiveled in the frame guides the movement of the barrels, and, by being made longitudinally adjustable on said frame, serves to adjust the barrels with respect to the breech-seat.



1. The fin or guide C, in combination with the plate *b*, forming part of or attached to the barrels, and provided with groove D, substantially as herein shown and explained, whereby such fin constitutes a means of compensating for wear between the barrels and breech, of preventing throwing forward of the barrels on explosion of the charge, and of enabling the barrels, in fitting new guns, to find their true position with respect to the recoil-seat of the breech, the whole being essentially as and for purposes stated.

2. The dovetailed guide or fin C, swiveled to and longitudinally adjustable in the plate *b*, essentially as and for purposes stated.

3. The combination of the dovetailed guide C and its pivot or shank E with the blocks *i i* and *j j*, the latter being inclosed within the ledges *k k*, and the whole operating substantially as and for purposes stated.

4. The locking-bolt *e'*, as arranged within the barrels, and operating in connection with a push-pin in the breech *c*, substantially as and for purposes stated.

5. The pin *a'*, in combination and operating with the stud or screw *d*, to guide the barrels to the fin C, substantially as and for purposes stated.

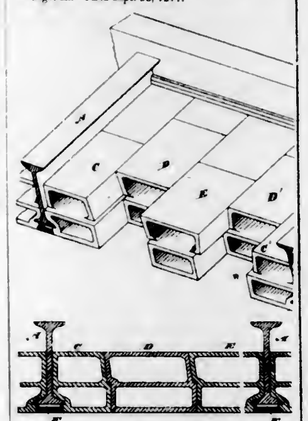
6. The combination of the extractor *m* with the slide-plate *p* and stud *g*, substantially as explained, so that when the extractor is partially or wholly withdrawn such plate and pin may be removed, substantially as and for purposes stated.

196,749. DOUBLE-BARRELED GUNS. Geo. H. Fox and H. F. Wheeler, Boston, Mass. Filed June 22, 1877.



A pair of gun-barrels united by means of one or more splines and grooves, essentially as and for purposes stated.

196,750. FIRE-PROOF FLOORS. Edward Gleason, Chicago, Ill. Filed Sept. 28, 1877.



1. A flat arch composed of tiles C D EC' D', constructed with shouldered sides and ends, substantially in the manner described and shown, and arranged in combination with the girders A A, as set forth.

2. The tiles herein described, either hollow or solid, provided with shouldered sides and ends, substantially as shown and herein described.

3. The separate tile plates F, under the bases of the girders, rabbeted into the lower edges of the tiles C and C', substantially as described and shown, for the purpose set forth.

196,751. PULP-ENGINES. Simeon L. Gould, Gardiner, Me. Filed Aug. 13, 1877.

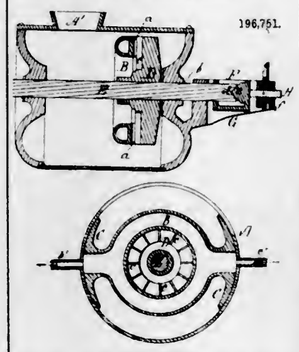
1. In paper pulp engines, the annular stationary grinding bed B and rotary disk, in combination with the case or curb A, when the contiguous faces of the two are flat, and the whole so arranged that the stuff in circulation takes a course through the center of the bed B, passes between the latter and the disk D, and is discharged at the circumference of the two, the said bed being secured to the walls of the case, as stated, and the disk supported upon a shaft which passes through the bed, the whole being arranged and operating substantially as and for purposes stated.

2. In paper-pulp engines, the combination, with the curb or case, and the shaft extending through said curb, of the water-box outside the curb, containing a quantity of water, which surrounds the end of the shaft and its step, and maintains a low temperature of the same, as well as constituting a lubricant thereto, the whole being substantially as and for purposes stated.

3. The general construction of a paper-pulp engine, as herein shown and described, consisting of the case A, annular flat-faced grinding-bed B, rotary flat-faced disk D, and water-box F, the whole being substantially as and for purposes stated.

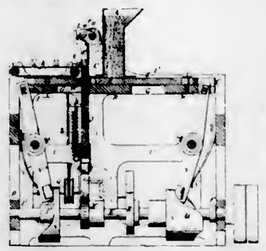
4. The hollow annular grinding-bed provided with water inlet and outlet ports, substantially as and for purposes stated.

196,751.



196,752. BRICK-MACHINES. Matthaus Haaslacher, Brooklyn, N. Y. Filed Dec. 14, 1876.

Brief.—A series of plungers work underneath the hopper, in combination with a corresponding series of plungers that resist the pressure of the clay, thereby forming the bricks, and at the same time traveling with the bricks and former series of plungers to the point of delivery, when a vertical slide operates to eject said bricks. They are then pushed onto an endless conveying-band.



1. The combination of the plungers T, the grooves S, counter-plungers W, slide J, and hopper A, to form and press the cake, substantially as herein set forth.

2. The combination of the hopper A, plungers T, grooves S, counter-plungers W, slide J, guide *y*, and endless band K, substantially as described and set forth.

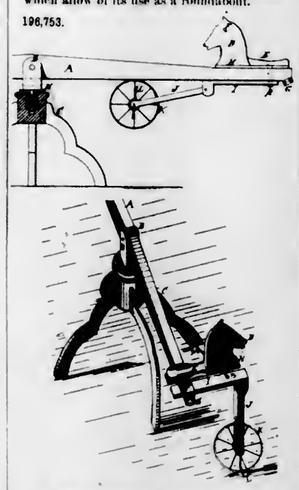
3. The combination of the hopper A, plungers T, grooves S, counter-plungers W, slide J, flap L', and endless band K, substantially as herein shown and described.

4. The combination of the hopper A, plungers T, the grooves S, counter plungers W, slide J, flap L', band K, slides I H, cams I' X I', and levers V V'', substantially as described.

196,753. ROUNDABOUTS. Henry H. Hawthorne, Philadelphia, Pa. Filed Apr. 4, 1877.

Brief.—The two ends of the seesaw are provided with adjustable velocipede attachments, which allow of its use as a roundabout.

196,753.



1. The combination of the beam A, horse-heads D D, seats E E, handles F F, gum pads or springs G G, central pivot B, and stand C, operating as a seesaw, substantially as herein shown and described.

2. The combination of the beam A, horse-heads D D, seats E E, handles F F, bars H and I, pivot-pins *p p*, vertical supports J J, wheels K K, cranks L L, hooked rods M M, swivel B, metallic socket N, and stand C, operating as a roundabout, substantially as herein shown and described.

3. The beam A, pivoted to the stand C to rotate in a horizontal plane, in combination with the horse-heads D D and seats E E, projecting at right angles, and provided with vertical supports J J, wheels K K, and cranks L L.

196,754. SHOES. Moses How, Haverhill, Mass. Filed June 8, 1877.



The improved shoe heretofore described, having vamp formed with the piece C, which extends up from the vamp outside of the angle formed by the edges of the quarters, and adapted to be secured to the quarters on each side of the opening by means of the laces, all substantially as described.

196,755. HAT-PRESSING MACHINES. Henry A. Jamieson, Brooklyn, N. Y., assignor to himself and Wm. Foster, same place. Filed July 31, 1876.

1. The connections P *p*, leading water to and from a suitable reservoir, in combination with the water-piston D² and its inclosing-cylinder and with the flexible diaphragm C, its casing A, and the die-pot B and its connections, as and for the purposes herein specified.

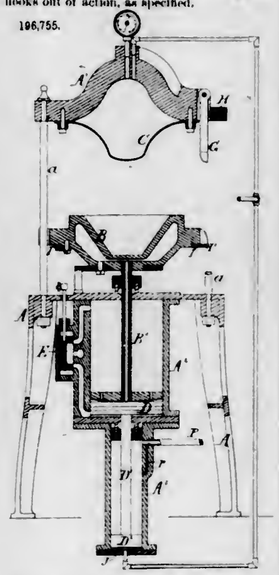
2. In combination with the steam-piston D, water-piston D², press A' B C, and connection-pipe *m*, the rubber seat *n* at the base of the cylinder A², and surrounding the junction therewith of the water-passage *m*, as and for the purposes herein specified.

3. The tubular connection B', extending from the die-pot B, operated as specified, and communicating between the interior of the die-pot and the interior of the steam-cylinder A², in combination with the steam-piston D and steam controlling means E, as and for the purposes herein specified.

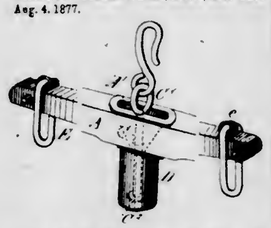
4. In combination with the top A, diaphragm C, and die-pot B, the engaging-hooks G and the adjacent engaging surfaces of the die-pot B, constructed and arranged as shown.

5. In combination with the top A, diaphragm C, die-pot B, and hooks G, the liberating-ring I, with inclined projections for throwing the hooks out of action, as specified.

196,755.



196,756. DRAFT ATTACHMENTS FOR PLOWS, CULTIVATORS, &c. Thomas W. Lerch, Canton, Ohio. Filed Aug. 4, 1877.



1. The tree A, provided with the slot A', in combination with rod C and spring D, the rod supporting the spring and vibrating in said slot, substantially as set forth.

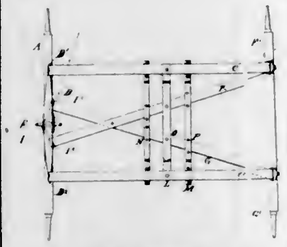
2. The combination, with rod C and ring C', of the tree A, having the slot A', and a bearing-plate surrounding said slot, substantially as set forth.

196,757. SIDE-SPRING VEHICLES. Thomas J. Magner and Charles L. Thomas, Bernalsville, N. Y. Filed July 16, 1877.

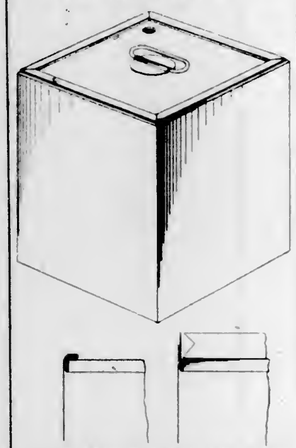
1. The combination of the side springs C C, pivoted above the rear axle and to the bolster, the lower springs F G, crossing each other in advance of the center, pivoted below the axles, and the cross-braces N O P, connected to the side springs and to the cross-springs at the rear of the crossing-point, as set forth.

2. The yoke E, provided with lateral projecting arms forming a cross-piece, I, to the ends of which the cross-springs F G are secured, as set forth.

196,757.



196,758. METALLIC CANS OR VESSELS. Charles P. Manfield, Fairhaven, assignor to Edward T. Covell, New Bedford, Mass. Filed Oct. 11, 1877.



1. The formation of a can-seam by first forming on the head or end an inwardly folded or interior double flange, with an extension projecting above the outer surface of said head or end, by then forming with the body of the can and the extension aforesaid a lap-joint, which is bent down inwardly at right angles to the sides, to be flat upon the head, constituting a stiffening and protecting frame to the can, as herein shown and described.

2. The union of the body of a can with the heads or ends thereof by means of a seam, consisting of the combination, with an internal flange formed at right angles to the body of the can, of a twofold double lap-joint on the head, the one lying internally against the side or body, the other externally against the respective heads of the can, the latter holding confined the flange on the body, substantially as shown and set forth.

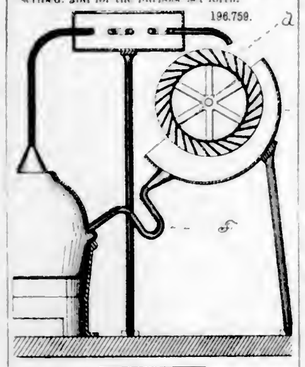
3. The angular interior and exterior double flange formed on the heads or ends of a metallic can or vessel, forming a union with the can-body, in the manner and for the purposes herein specified.

196,759. PROCESSES FOR UTILIZING MERCURY AS A MOTIVE POWER. Thomas D. Miller, Pittsburg, Pa., assignor of one-half his right to Thornton A. Shinn, same place. Filed Oct. 24, 1877.

1. The method of obtaining motive power, consisting in sublimating mercury, conducting the vapors to the desired height, precipitating them, then utilizing the weight of the mercury upon the motor, and finally returning it to the sublimating-retort to be reused, substantially as described, and for the purpose set forth.

2. In combination, the retort *a*, the precipitating-pipe *b*, the condensing trough or box C, the overshot wheel *d*, the sheathing E, and the return-pipe with trap F, substantially as described, and for the purpose set forth.

196,759.



196,760. POTATO-DIGGERS. Hiram More, Chicago, Ill. Filed July 17, 1877.

Brief.—The tines are rigidly secured to the cross-bar, and of the same width as the side pieces. A removable share or point is used when desired, and secured with wires to the tines.

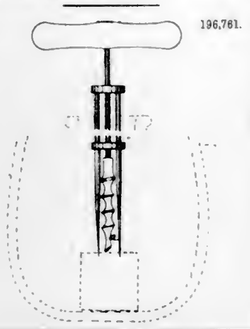


1. The separate parallel and stationary tines B and side pieces A, adjusted to pass below the potatoes and bring them to the surface, combined with a roller, C, mounted in bearings attached to said side pieces A A, to smooth the ground for the reception of the potatoes when discharged.

2. The separate tines B, arranged as described, combined with the removable share or point E, which covers the points of all said tines, and is attached thereto by means of loops and a rod hooking over the shaft F, for the purpose set forth.

3. The tines B and side pieces A, as described, and the revolving clearer, having a pulley at its end, combined with a leveling-roller, C, mounted in bearings attached to the side pieces A; and provided with a pulley, for the purpose of communicating motion from said roller to said clearer.

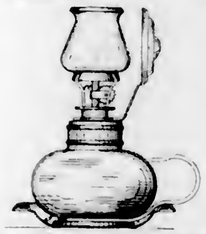
196,761.



196,761. CORKSCREW AND EXTRACTOR COMBINED. Nathaniel Oak, Exeter, Me. Filed Sept. 12, 1877.

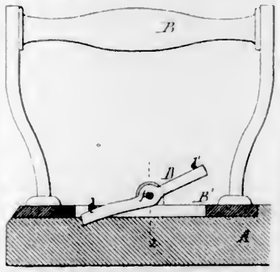
A combined corkscrew and extractor, formed with a central shaft with a spiral point and handle, with surrounding pointed wires mounted in disks, and provided with limited linear adjustment relative to the central shaft, and to revolve thereon, all substantially as described and shown.

196,762. LAMPS. Leverett H. Olmsted, Brooklyn, N. Y. Filed Sept. 27, 1877.



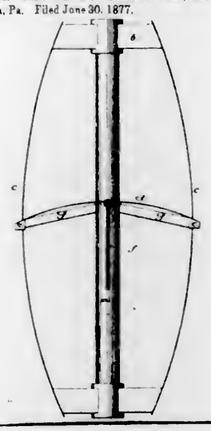
A lamp-tray provided with a spring for grasping and holding a detachable lamp, and thereby retaining the lamp upon the tray.

196,763. SAD-IRONS. Levis Passmore, Bridgewater, Va. Filed May 21, 1877.



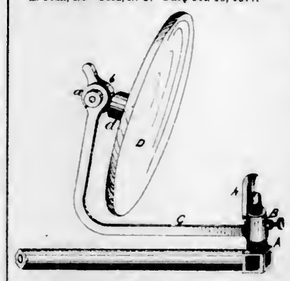
In a sad-iron having a detachable handle fitted with a dovetail to the base, the combination of a recess, *b*, in the base with a lever, D, pivoted loosely to the plate B′ of the handle, and having a lower arm adapted to the said recess, and an upper and lighter arm projecting forward and upward, all substantially as set forth.

196,764. STEAM-TRAPS. Charles F. Pike, Philadelphia, Pa. Filed June 30, 1877.



The combination of the tube *a*, having longitudinal bars *c* attached thereto, and curved bar *d*, provided with a rod for communicating motion to a valve, as and for the purpose specified.

196,765. REFLECTORS FOR GAS-BURNERS. William E. Prall, New York, N. Y. Filed Oct. 15, 1877.



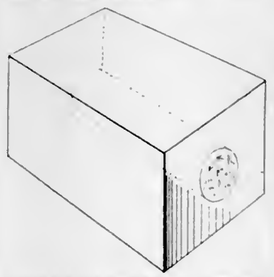
1. The combination of the reflector D, friction-sheaves *a* and *b*, arm C, cone B, and shield *h* with burner A, constructed substantially as and for the purpose set forth.

2. In combination with the burner A, the shield *h*, attached to the revolving cone B, substantially as herein described.

3. The combination of the reflector D, shield A, and cone *b* with the gas-burner A, so arranged as to have a revolving movement around the flame, as and for the purpose herein described.

4. The combination of the adjustable reflector D and arm C with the burner A, when so attached as to cause them to rotate together in a manner which will keep the flat surface of the gas-flame always toward the reflector, substantially as shown and described.

196,766. FLOATING SOAPS. Adolph Quentin, Milwaukee, Wis. Filed July 18, 1877.



An article of manufacture, a cake of soap having a core of cork, the proportions of said materials being one cubic inch of cork to five cubic inches of soap, substantially as and for the purposes set forth.

196,767. BLASTING-CARTRIDGES. Addison C. Rand, New York, N. Y. Filed Oct. 13, 1877.

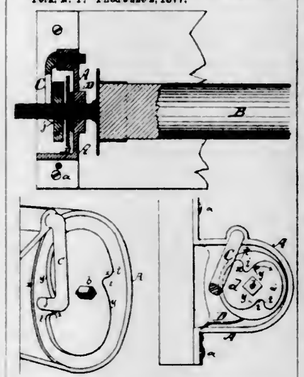


1. A cartridge for blasting having a main and cover charge, the latter of which is less readily deliquescent than the former, substantially as and for the purpose described.

2. A cartridge for blasting having a main and a cover charge, the latter of which is less readily deliquescent than the former, with a water-proof disk between the two, substantially as and for the purpose described.

3. A cartridge for blasting having a hollow metal receptacle, D, for the exploder inserted in its charge, substantially as and for the purpose described.

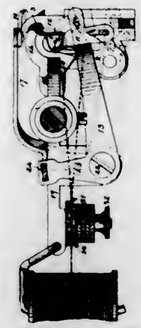
196,768. CURTAIN-FIXTURES. Johann Reichert, New York, N. Y. Filed June 2, 1877.



The combination, with the bracket A, its spring D, and vertically-hanging click having a projection, *j*, of the disk *d*, having notches *i*, shoulders *x*, and cams *t y*, the latter constructed to throw out the click when the curtain is drawn down, and the edges *t* to keep out the click when the roller is revolved by the spring, all adapted for use with the ordinary solid wood roller B, as set forth.

196,769. EMBROIDERING ATTACHMENTS FOR SEWING-MACHINES. John H. Ross and D. M. Somers, New York, N. Y. Filed Sept. 18, 1877.

Brief.—A reciprocating thread-carrier operates in connection with a vibrating thread guide or looper and a stop upon the presser-foot, to form and lay upon the surface of the fabric a series of loops, which are secured in place thereon by a row of stitches.



1. A reciprocating thread-carrier, 12, provided with a hook or fork, 3, and a stripper, 5, substantially as described.

2. A thread-guide, 2, having an eye, 8, substantially as described.

3. The combination, substantially as described, of a stop, 7, a moving thread-guide, 2, and a reciprocating thread-carrier, 12, with mechanism for operating the same.

4. The combination of the actuating-lever 13, and means for connecting the same to the operative parts of a sewing-machine, with the thread-carrier 12 and thread-guide 2, substantially as described.

5. The combination of the levers 17 and 13 with the carrier 12 and guide 2, substantially as described.

6. The presser-foot provided with the channel 3 and stop 7, in combination with the thread-carrier 12 and operating mechanism, substantially as described.

7. In combination with the presser-foot provided with stop-bar 1, the thread-carrier 12, having stripper 5, substantially as described.

8. The twist-controller 9, in combination with the thread-guide 2, substantially as described.

9. The combination of guide 11, hook 29, tension-spring 41, and tension device, substantially as described.

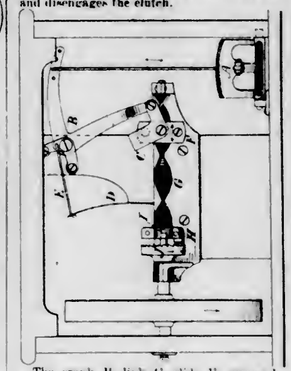
10. The combination of the driving-lever carrying a link, 10, having an elongated slot, with the lever 13 and reciprocating thread-carrier 12, substantially as described.

11. In combination with the tension device, thread-carrier 12, and thread-guide 2, the lever 13, having a guide-eye, 11, substantially as described.

12. The combination of the hook 30 with lever 13, provided with guide-hook or eye 11, and the thread-guide 2, substantially as described.

196,770. TREADLES. Haas Shogren, Portland, Oreg. Filed Apr. 13, 1877.

Brief.—The spring L grasps the screw G, causing friction, whereby the slide engages and disengages the clutch.



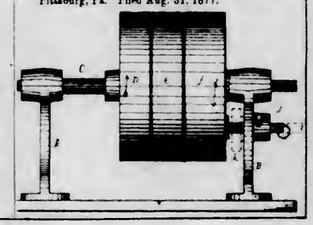
The crank B, link C, slide F, spring L, screw G, clutch H, journal I, ratchet J, spring D, and rod E, combined substantially as described, and for the purpose set forth.

196,771. PROCESSES OF PRODUCING THE MONO OR ACID PHOSPHATE OF AMMONIA. John E. Siebel, Chicago, Ill. Filed Feb. 19, 1877.

1. The process herein described for producing monophosphate or acid phosphate of ammonia in a single operation, by the action of sulphate of ammonia on bone-ash or similar material, as set forth.

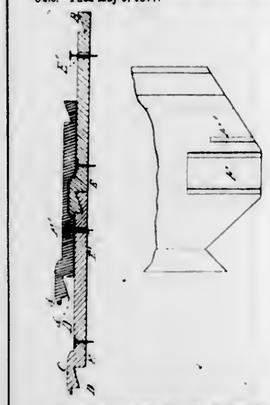
2. The process herein described for producing monophosphate or acid phosphate of ammonia in a single operation, by the simultaneous action on each other of sulphate of ammonia, sulphuric acid, and bone-ash or similar material, as set forth.

196,772. COUNTER-SHAFT PULLEYS. Georg Seger, Pittsburg, Pa. Filed Aug. 31, 1877.



The pulley *f*, furnished with cogs *g*, in combination with the wheels *l* and *k* and pulleys *e* and D, substantially as herein described, and for the purpose set forth.

196,773. **ROOFING-TILES.** Hiram Snipe, Greentown, Ohio. Filed May 9, 1877.



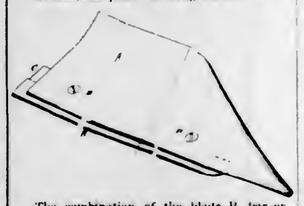
1. In an earthenware tile, the groove D, of the depth of the tile, and tongue *d'*, in combination with the groove B, depressed in the upper surface of the tile, constructed and arranged substantially as shown and set forth.

2. In a roofing-tile, the diagonal water-channels A', depressed in the tile, substantially as set forth.

3. An earthenware tile constructed substantially as described, to fasten its lower end through a tile below it, but independently of said lower tile, by means of a groove, F', and nail or projection E, substantially as set forth.

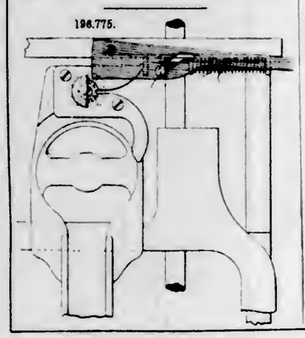
4. A roofing tile having a dovetail mortise in its under surface for fastening said end, substantially as set forth.

196,774. **PLOWS.** Marshall Turley, Council Bluffs, Iowa, assignor of one-third of his right to John A. Churchill, same place. Filed Aug. 21 1877.



The combination of the blate B, bar or clamp C, bolts D D, nuts E E, and share A, all substantially as and for the purposes specified.

196,775.



196,775. **GRAIN-BINDERS.** Charles B. Withington, Janesville, Wis., assignor to C. H. & L. J. McCormick, Chicago, Ill. Filed May 12, 1877.

1. A wire-inserting device actuated by a spring, which forces the wire into the twister as the latter makes its half-turn, to bring the wire to the back of the binding-head, substantially as hereinbefore set forth.

2. The combination, substantially as hereinbefore set forth, of an intermittently-rotating twister-pinion, a wire-carrying arm, and a wire-inserting device, actuated by a spring, whereby the wire is forced into the twister by the wire-inserting device, which then makes way for the passage of the wire-carrying arm.

3. The combination, substantially as hereinbefore set forth, of a reciprocating binding-arm and twister, with an endwise-moving, laterally-swinging wire-inserting device, mounted upon a fixed portion of the binding-frame, whereby the wire-inserting device is actuated by the movement of the binding-head.

4. A wire-inserting device consisting of the combination, substantially as hereinbefore set forth, of the endwise-moving spring-rod, the wire-inserting plate or bar pivoted thereon, and the pin working in a diagonal slot in the bar.

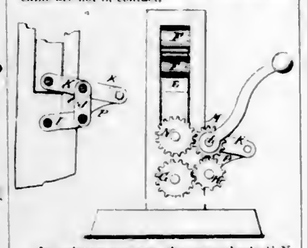
196,776. **ALBUMS.** Bernard J. Bock, Brooklyn, N. Y. Filed July 9, 1877.



The photograph-album composed of sheets with openings to receive the pictures, and having a fly-leaf connected to the follower *c*, in combination with the receiving box, spring *r*, lid *k*, and frame *k*, substantially as set forth.

196,777. **CLOTHES-WRINGERS.** D. G. Beers, Sandy Hook, Conn. Filed May 28, 1877.

Brief.—The bar K is extended beyond its point of junction with the bar J, and a stationary piece, P, is provided, connected to the bar K by slot and pin, whereby the said bars and the gear-wheels attached thereto are held in position when the rolls of the wringing-machine are not in contact.



In a clothes-wringer, the gear-wheels G N M H and bars I J, combined with the bar K, extended beyond its junction with the bar J and the stationary piece P, said parts K P being connected by slot and pin, as shown and described.

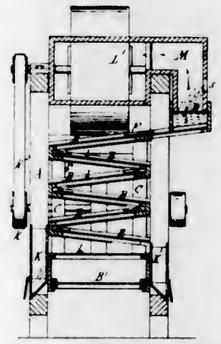
196,778. **BOOTS.** E. F. Bickford, Malden, assignor to Boston Rubber Shoe Company, Boston, Mass. Filed Aug. 21, 1877.

An improved article of manufacture, a rubber boot provided with a rounded standing loop, of substantially the same material as the boot, said loop being made in the shape of a staple, and having its ends flattened and connected, or otherwise suitably secured, between the inner and outer layers of sand-boot, substantially as and for the purpose herein set forth.

196,778.



196,779. **GRAIN-SEPARATORS.** Jonathan L. Booth, Rochester, assignor to Howes, Babcock & Co., Silver Creek, N. Y. Filed Aug. 29, 1877.

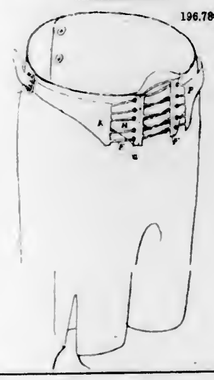


1. The combination, with a shaking screen, B, of an adjustable tight plate, F, provided with a spreading-dam, *f*, substantially as and for the purpose herein-before set forth.

2. The combination, with the shaking screen B, provided with tight plate F, having a spreading-dam, *f*, of the preliminary screen D, inclined at right angles to the inclination of the screen B, and arranged so as to discharge the grain upon the screen B above the plate F, for spreading the grain over the entire width of the screen B, substantially as set forth.

3. The combination, with a shaking screen, B, of the adjustable tight plate F, bolts *g*, having heads *g*², and cross-bar *f'*, substantially as and for the purpose herein-before set forth.

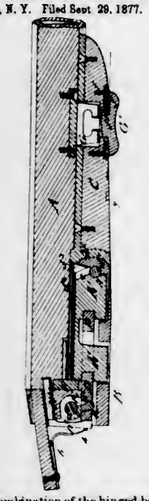
196,780.



196,780. **MEN'S DRAWERS.** Henry Borkhim, San Francisco, Cal. Filed Apr. 13, 1877.

The combination of the waistband, having broad tabs F H, provided with eyelets, with the belts or bands K P and two series of parallel draw-strings, E E, substantially as and for the purpose herein shown and described.

196,781. **BREECH-LOADING FIRE-ARMS.** Victor Bevy, New York, N. Y. Filed Sept. 29, 1877.



1. The combination of the hinged barrel having recessed lugs with the detachable breech-piece having sliding and spring-acted lock-bolt, operated by a crank-shaft and lever, and with an auxiliary bolt that locks the barrel above the extractor, and is worked jointly with the main lock-bolt, substantially as and for the purpose set forth.

2. The breech-piece B, having rounded-off end, loose cross-pin *d*, and projecting center lug *d*², in combination with the barrel A, having lugs A', of which the front lug is recessed to fit on the cross-pin, and with the concaved and recessed end of the detachable fore-stock C to form a compound pivot for the barrel while admitting the disconnection of barrel, fire-stock, and breech-piece, substantially as specified.

3. The combination of the following elements: the breech-piece B, having rounded-off end, loose cross-pin, and projecting center lug, the hinged barrel A, having front lug A' fitted to pivot-pin, sliding extractor F, and sliding wedge-piece and pin *d*² *d*³, and the detachable fore-stock C, having concaved and recessed retaining end to produce swinging of barrel and working of extractor, substantially as set forth.

4. The combination of the barrel A, having recessed lug G, with the detachable fore-stock C, having a button, G', with locking shank end entering recessed lug G, the button being retained by a binding spring-stop device, *f*, so as to admit of rigid connection of barrel and fore-stock, and the convenient detaching, substantially as specified.

196,782. **BRICK-MACHINES.** Rowland W. Brownhill, Walsall, England. Filed July 17, 1876.

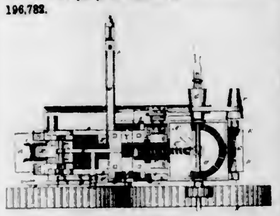
Brief.—A vertical beater or plunger drives down the clay or other material from a hopper into the mold, where said material is pushed to one side and compressed into shape by two steam-heated plungers, operating from opposite sides by the action of two cams placed upon shafts on each side of the hopper. The brick is delivered to a traveling belt, both intermittently elevated and moved to carry off the same.

1. The pistons E and F, having pressers *d* and *e*, in combination with the mold S, having a chamber adapted to receive the pressers *d* and *e*, the casings C, having chambers adapted to receive the pistons E F, the actuating-cams H I, and the weights G, substantially as and for the purpose described.

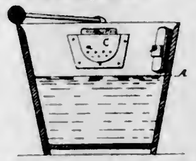
2. The disk *q*, pawl *r*, ratchet *s*, gear-wheel *t*, and pinions *k*, in combination with the bevel-wheels *l* and *m*, the shaft *n* carrying the endless-belt pulley, the pivoted lever *x* carrying shaft *n*, and the projecting pin *e* on the main gear-wheel for operating said lever, substantially as and for the purpose described.

3. The combination of the guide-standards A A, the arm *c'*, carrying a plunger, the link P, rock-arm Q, shaft *g*, swinging standard R, lever T, and spiral flange or cam U attached to one of the main wheels, substantially as and for the purpose described.

196,783.

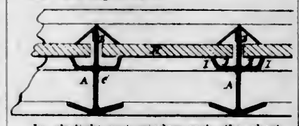


196,783. **SCRUBBING-PAILS.** Frank H. Burk, New York, N. Y. Filed Aug. 13, 1877.



The bucket A, provided with receptacles C D, fastened permanently inside the bucket, and constructed and secured, as set forth, to permit the drip-water to fall within the bucket, and the latter to be inverted without displacing the said receptacles, all as specified.

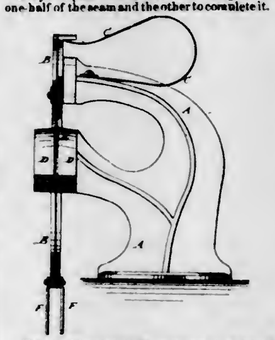
196,784. **SKYLIGHTS.** Frank M. Campbell, St. Louis, Mo. Filed Aug. 21, 1877.



In skylight and window sash, the sheet-metal bar A, made of one piece of metal, having a straight web from top to bottom in cross-section, intermediate flanged glass-supports and gutters D E, and bottom projecting stiffening-flanges F G, all constructed substantially as and for the purpose described.

196,785. **PIPE-ELBOW-REAMING MACHINES.** Greene Oheata, East Saginaw, Mich. Filed Oct. 6, 1877.

Brief.—Operates one treadle to bring down one-half of the seam and the other to complete it.



The combination of the two-armed standard A, the collars B B, the springs C C, the blocks and plate D D E, and the treadle-rods F F with each other, substantially as herein shown and described, to adapt them for use as set forth.

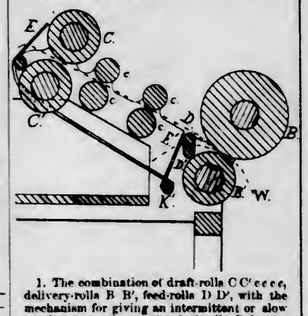
196,786. **WATCH-CASE SPRINGS.** Allison N. Clark, Plainville, Conn. Filed Sept. 14, 1877.



The herein-described spring, having one or more depressions upon its inside face, in combination with the pin resting in one of said depressions, substantially as described, and for the purpose specified.

196,787. **WORSTED-ROVING FRAMES.** H. N. Graves, Philadelphia, Pa. Filed Aug. 20, 1877.

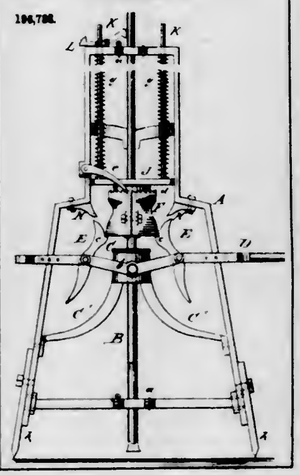
Brief.—The rolls which feed the tufting-sliver forward have either an intermittent or slow continuous motion. The end of the sliver is seized by the delivery-rolls, which draws them forward faster than they are supplied by the feed-rolls, thus causing them to break and separate into tufts, which are united with the ground-sliver by twisting.



1. The combination of draft-rolls C C' *e e e*, delivery-rolls B B', feed-rolls D D', with the mechanism for giving an intermittent or slow continuous motion to the feed-rolls D D', for the purpose of producing a spotted or tufted roving, as shown and described.

2. The combination, with the feed-rolls D D', delivery-rolls B B', and draft-rolls C C', &c., of the guides E E' and connecting mechanism, whereby the two guides are operated in unison, and the two threads thereby delivered to the delivery-rolls at the same point, substantially as set forth.

196,788.



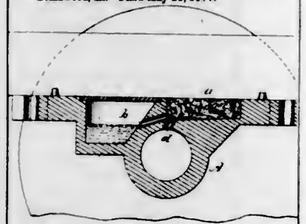
196,788. ROCK-DRILLS. Uriah Cummings, Buffalo, N. Y., assignor to himself and Arthur W. White, same place. Filed May 21, 1877.

Brief.—A pawl pivoted to the frame of the machine engages with ratchets on the upper end of the clutch-head, and imparts to the drill-bar an intermittent rotary motion during the ascending strokes. The lifting-dogs are secured to a vibrating lever. The upper end of the lifting-dogs are provided with notches, which engage with the lower end or edge of the clutch-head in the upward movement of the vibrating lever, and are released by means of tripping devices attached to the main frame.

1. Lifting-dogs E applied to a vibrating lever, D, in combination with tripping devices N, and a clutch-head, applied on a drill-rod, substantially as described.

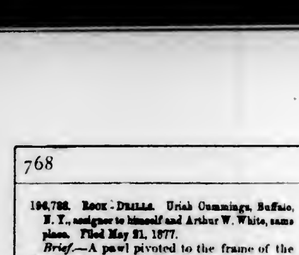
2. In combination with the clutch-head F and raising and tripping devices, the ratchet-teeth *d* and pawl *e*, arranged as described.

196,789. SELF-OILING AXLE-BOXES. James Dawber, Braidwood, Ill. Filed May 21, 1877.



The journal-box casting A, provided with the chambers *a b* and passages *c d*, substantially as herein shown and described.

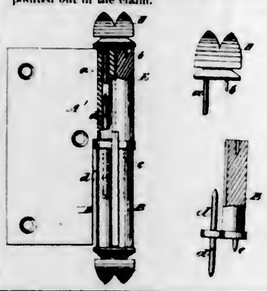
196,790. SMOKE-VENTILATORS. Craig K. Edwards, Boston, Mass. Filed Oct. 6, 1877.



An improved ventilator, formed by the combination, with each other and with the pipe A, of the strips *a* B D F, the bands C E G H, the cover I, the supporting strips J, and the flaring ring-flange K, constructed and arranged substantially as herein shown and described.

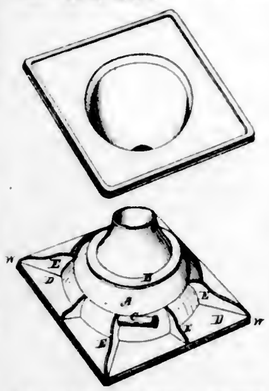
196,791. HINGES. Benjamin Fahnestock and Henry F. Peckham, Watsonville, Cal. Filed Sept. 14, 1877.

Brief.—A slight novelty in the construction of a double-pin reversible hinge, sufficiently pointed out in the claim.



The leaf A, having formed on it two eyes, B B, and the leaf A′, having formed on it an eye, E, in combination with the reversible eye F and its pins *d d′ e*, arranged substantially in the manner and for the purposes described.

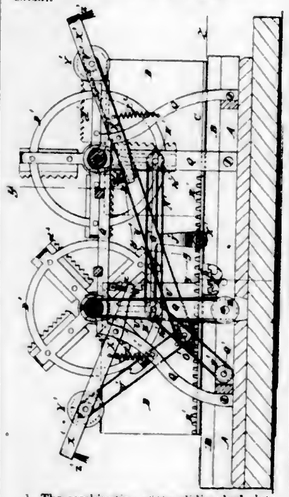
196,792. WATER-CLOSETS. Morton Folsom, Boston, Mass. Filed June 12, 1877.



An earthenware or porcelain water-closet bowl, provided at the top with the double flange, curved inwardly and projecting horizontally outward, substantially as shown and described.

196,793. MACHINES FOR SCOURING AND DRESSING SHEEP AND GOAT SKINS. Charles T. Ford and Saml. A. Ford, Salem, assignors to Chas. W. Perkins, Peabody, Mass. Filed Apr. 16, 1877.

Brief.—The machine consists of one or more vertical tables resting upon a sliding bed-plate. The skin is placed upon the table with the flesh side out, and revolving wheels, provided with radial arms bearing rollers, brushes, and slickers, scour and polish the skin to any desired extent.



1. The combination of the sliding bed-plate C, the vertical table or tables D, and the wheels or sets of radial arms D′, provided with rollers, brushes, and slickers, with each other and with the ways B, the shafts W C′, and the frame Q, substantially as herein shown and described.

2. The combination of the forked arms F′, the rods G′, and the arms J′ with the hubs of the wheels or arms D′, the frame Q, and the sweeps *c′* formed upon the bed-plate C of the vertical tables D, substantially as herein shown and described.

3. The combination of the rubber or other springs I′ M′ with the adjustable supports H′ for the armed rods F′ G′ J′, and with the adjustable supports K′ for the friction-rollers L′, connected with the lower arms J′ of said armed rods F′ G′ J′, substantially as herein shown and described.

4. The combination of the table D, the springs E′ with the shafts W C′ and the wheels D′, substantially as herein shown and described.

5. The combination of the bands N′ O′, or equivalent connecting-rods and wheels, and the pulleys and shaft P′ Q′, with the wheel-nuts of the adjustable supports H′ for the armed rods F′ G′ H′, substantially as herein shown and described.

6. The combination of the racks E, the gear-wheels F H J K, and the double clutch L with the bed-plate C of the vertical tables D, substantially as herein shown and described.

7. The combination of the clutch-lever M, the sliding bar N, the lever O, and the catch-bars P with the double clutch L and the frame Q, substantially as herein shown and described.

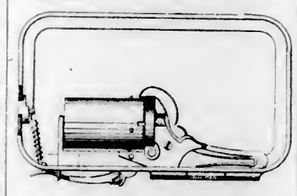
8. The combination of the toe *a′* and the adjustable stop-pins *c′* with the clutch-lever M and the bed-plate C, provided with the series of holes *c*, substantially as herein shown and described.

9. The combination of the grooved wheels Y′, the brushes Z′, and the pivoted bars or frames *x′* with the frame Q and the sliding vertical tables D, substantially as herein shown and described.

10. The combination of the rack R′, the gear-wheel S′, and the bands U′ with the bed-plate C of the vertical tables D and with the grooved wheels Y′, substantially as herein shown and described.

11. The combination of the gear-wheels A^3, the stationary gear-wheels B^3, and the holding-bar C^3 with the shafts W C′ and the rollers *d′* of the wheels or arms D′, substantially as herein shown and described.

196,794. COMBINED POCKET-BOOK AND REVOLVER. Oscar Frankenau, Nürnberg, Germany. Filed Sept. 14, 1877.



1. A pocket-book or cigar-case having a revolver or fire-arm inclosed within its frame or fitted thereto in stationary bearings, so as to be fired without removal therefrom, substantially as and for the purpose set forth.

2. A pocket-book having a chamber or receptacle adapted to hold a revolver, and pockets for money or other valuables, as and for the purpose set forth.

3. A pocket-book having a partition provided with an internal concaved or bulging partition adapted to receive a revolver, as and for the purpose set forth.

4. A pocket-book frame having an end-opening located in line with the barrel of a revolver inclosed in said frame, as and for the purpose set forth.

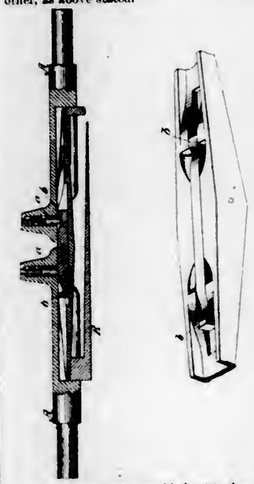
5. A pocket-book frame having a hinged trigger, a suitable catch device for the same, and a revolver attached to the frame of the pocket-book, as and for the purpose set forth.

6. A pocket-book having a frame with an aperture for the passage of the balls, a hinged cap for closing such aperture, an internally-located revolver, an external trigger, and devices, substantially as shown, for connecting the latter with the cap for opening and closing the aperture in the frame simultaneously with the releasing or locking of the trigger, as and for the purpose set forth.

7. In a combination pocket-book and revolver, the combination of the swinging trigger with the sliding and guided spring-post of the cap, hinged to the inside of the frame and fitted to the ball-aperture of the same, so as to open or close by the releasing or locking of the trigger, substantially as specified.

196,795. SHUTTLE-MOTIONS. Edmund H. Graham, Biddeford, Me., assignor of three-eighths of his right to R. W. Randall, same place. Filed Oct. 23, 1876.

Brief.—The invention includes the construction of the shuttle, and of the mechanism for giving a positive motion to the same. The shuttle has an immovable spindle and a pivoted "nose," which is adapted to be swung to one side when it is desired to place the cop or bobbin upon the spindle. The shuttle is transferred from one arm to the other, being alternately locked and released by automatic mechanism. The body of the shuttle has a socket on each side of the center, and inclined planes leading to the same. The spring-bolts of the arms are forced back by these inclines until they come opposite to the sockets, when the spring causes that one which is not kept back by the slide to enter its socket. This locks the shuttle to the arm. The slide in the shuttle acts as a releaser, and is provided with inclines to act upon the spring-bolts. These inclines are adapted to alternately release the shuttle, which is thus transferred from one arm to the other, as above stated.



1. A shuttle-body provided with the slide *b b*, inclined planes, and recesses, constructed as described, and for the purpose specified.

2. The arms constructed with channels having overlapping edges, and provided with pins or bolts having spiral springs, substantially as described.

3. The combination of the arms A A and the pins *a a* with the shuttle, constructed as described, for the purpose of carrying the woof through the warp upon a loom weaving textile fabrics.

4. A shuttle provided with a pivoted nose, C, constructed as described, whereby the cap may be placed upon the immovable spindle B, as and for the purpose specified.

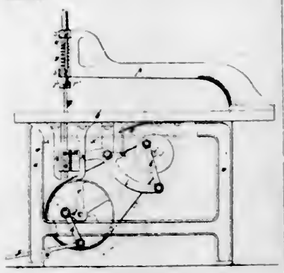
196,796. SCROLL-SAWING MACHINES. Joseph Glover, Paterson, N. J. Filed Oct. 18, 1877.

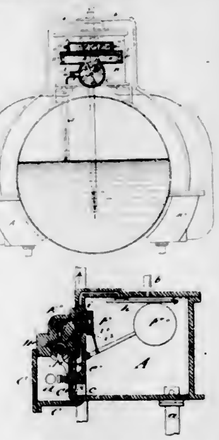
Brief.—The saw is operated by means of a lever pivoted to a hanger attached to the under side of the table, the outer end of said lever carrying an adjustable box working in a cross-head, provided with a saw-clamp, and the inner end of the lever connected, by a rod, to a disk operated by a belt from the driving-shaft. The upper saw-rod is provided with a pin, the ends of which bear on vertical slides on the arm upon the table, for preventing the rod from turning.

1. The combination of the die or adjustable box *B*, bolt *B*, lever *l*, secured to cross-head *w*, working in slides *s s*, with spring *o*, connecting-rod *k*, disk *j*, counter-shaft *i*, belt *f*, pulley *e*, driving-shaft *c*, crank *d*, connecting-rod *h*, treadle *g*, as described, and for the purpose shown and set forth.

2. In a scroll-sawing machine, the combination of the cross-head *w*, working longitudinally, and being supplied with clamp *w′*, set-screw *w²*, running in guides *s s*, with saw *q*, rod *r*, spring *z*, pin *u*, collar *r′*, screw *r²*, arm *p*, being supplied with guides *s s*, slides *t t*, as described, and for the purpose shown and set forth.

196,797. AUTOMATIC FEED-WATER REGULATORS. Estéban Gorriti, Navarre, and Pedro Unanue, Guiposcoa, Spain. Filed Sept. 29, 1877.





1. The combination, with a steam-boiler, of two water-chambers that are connected, by a steam and water pipe, with the boiler, and alternately filled and discharged by a reciprocating disk-valve and interior alternating slide-valves operated by floats, substantially in the manner and for the purpose set forth.

2. The combination of the water-supply chambers A B, that are alternately filled and discharged by the action of a reciprocating disk-valve and interior slide-valves, with water-chests A′ B′ arranged near the bottom of the boiler, and connected by valved water-pipes with the bottom parts of the water-chambers, and by steam-pipes with the top parts of the opposite water-chambers A B, to operate as pumps for supplying the water to the chambers and boiler, substantially as specified.

3. The combination of water-chambers A B, having steam induction and eduction channels and water-exit ports, with a steam-casing and disk-valve, C′, and with slide-valves D D′ and E E′, of which the former is connected to the disk-valve, and operated by the direct action of the steam, while the latter is worked by the steam from the inside of the chambers, in conjunction with the interior slide-valves and ports, substantially as specified.

4. The water-chambers A B, having central front casing C, disk valve C′, steam induction and eduction channels, and water-exit ports, in combination with the slide-valves D D′ and E E′, and with the alternately-working interior slide-valves F and their steam entrance and exhaust channels, for the purpose of alternately charging and discharging the water by the admission and exhaustion of the steam, substantially as and for the purpose described.

5. The combination of the front casing C, having steam and water ports, and of disk-valve C′, having radial arm *f*, with notched reciprocating slide-valve D D′, to change position of disk-valve from one side to the other alternately with motion of slide-piston D, substantially as described.

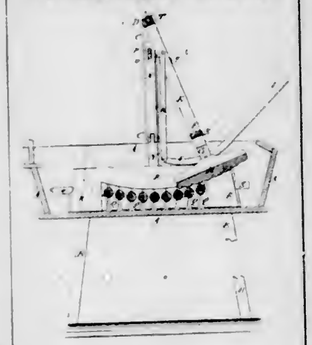
6. The combination of water-chambers A B, having interior supply and exhaust channels, and alternately-working guided slide-valves F, with the slide-pistons D E and casing D′ E′, to alternately change their position and exhaust the steam in the casings, substantially as specified.

196,798. PORCELAIN BOWLS FOR WATER-CLOSETS. Chas. Harrison, New York, N. Y. Filed June 4, 1877.



An earthenware or porcelain water-closet bowl provided with the swelled front B, and having the whole of its inner surface inclined in greater or less degrees toward the soil-opening, substantially as shown and described.

196,799. WASHING-MACHINES. H. B. Harrington and M. Stoddard, Stockbridge, N. Y. Filed Apr. 2, 1877.



1. The rub-board H, having its face grooved diagonally in both directions, with grooves made straight upon one side and inclined upon the other, substantially as herein shown and described.

2. The combination of the slotted curved bar M, the jointed bars N, the pins O, and the rubber or other springs P with the series of rollers L and with the standards C, substantially as herein shown and described.

3. The combination of the guard-boards E with the slotted plates Q, the slotted curved bars M, and with the sides of the suds-box, substantially as herein shown and described.

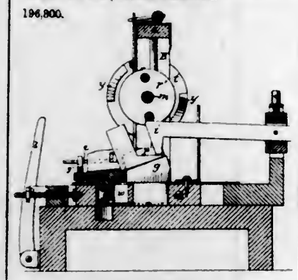
4. The rubber shaft D, provided with a single-toothed wheel that catches, when said shaft is turned over, against a side stud or pin on the upright bar C, as and for the purpose specified.

196,800. MACHINES FOR FORMING INSERTIBLE SAW-TEETH. Wm. Hawkins, San Francisco, Cal. Filed July 9, 1877.

1. The combination of an anvil, *g*, saw-tooth holder *r e*, vertically operating and adjustable hammer *i*, and the horizontal side compressing or forming hammers *o p*, combined, arranged, and operated substantially as and for the purpose above described.

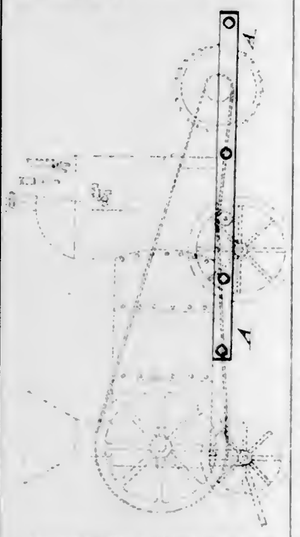
2. The hammer *i*, attached to a slide operated by the lever *l*, in combination with two horizontally-moving hammers, *o p*, substantially as and for the purpose described.

196,800.



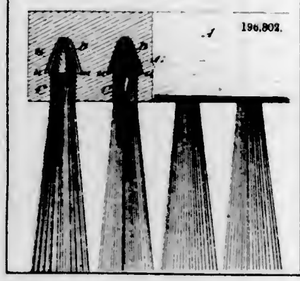
196,801. SAW-FRAME ATTACHMENTS. G. W. Higgins, Shelbyville, Ind. Filed Feb. 3, 1877.

Brief.—The frame which carries the circular saw is detachably connected to the frame of the portable engine.



In portable sawing-machines, the saw-frame A B, made independent of, and detachably fastened to, the vehicle-frame, substantially as shown and described, so that said frame, when the saw is not in use, may be slid upon frame of vehicle, to allow the vehicle to turn short and conveniently among the trees and obstructions of the woods.

196,802.

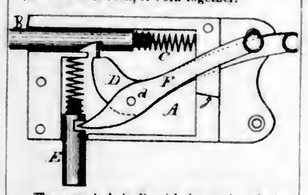


196,804. BRUSHES. Benjamin R. Hill, Sr., Pompton, N. J. Filed Sept. 29, 1877.

A brush having the roots of its tufts secured into the head or block A by means of wedges G, forced into dovetail holes D, substantially as described.

196,803. SASH-FASTENERS. Wm. P. Hudson, Cleveland, Ohio. Filed Apr. 4, 1877.

Brief.—A suitable shell or case carries two bolts, playing at right angles to each other, one operated by an angle-lever, and the other by a straight lever, both levers working on the single pivot, and alternately fastening the upper and lower sash, or both together.



The case A, bolt B, with its spring C, the angled lever D, the transverse bolt E, with its spring, and the straight lever F, both levers working on pivot *d'*, when constructed, combined, and arranged to operate substantially as described and shown, for the purpose set forth.

196,804. SASH-HOLDERS. Robert B. Huguin, New York, N. Y. Filed Oct. 18, 1877.

Brief.—A brake is passed through slots in a hinged arm, and upon incline-lugs on its lower end rest the journals of a rubber roller. The arm adjusts to and from the face-plate by a screw carrying a coiled spring between washers on its inner end.



1. The combination of the axle-holding projections F F' upon clamp E with brake G, substantially as and for the purposes specified.

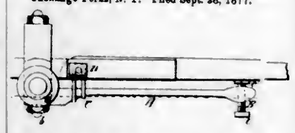
2. In combination with projections F F' and brake G, the rest G', situated underneath and between projections F F', substantially as and for the purposes specified.

3. The arrangement of the plate A and arm B, having a rear-extended hinged neck, B', dropping perpendicularly to the bearing B'', with roller suspended upon the bearing B'', between the hinge-pin M and the face of the plate A, the weight of the sash carrying the same downward and outward onto the sash, the projection of the roller being limited by the adjusting screw H to the weight of the sash to be held, substantially as and for the purposes specified.

4. The arrangement of the spring I, between the washers J and K on the neck of the screw H, adjusting the arm B and roller to the sash, substantially as and for the purposes specified.

5. The lug-extensions S S', for steadying the roller through the clamp E, and projections F F', substantially as and for the purposes specified.

196,805. WAGON-TONGUE SUPPORTS. J. M. Hunter, Chenango Forks, N. Y. Filed Sept. 28, 1877.



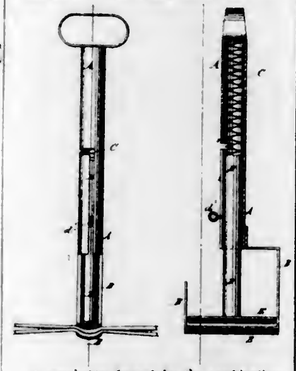
1. A wagon-tongue support having its rear end conformed to and connected with the axle, as shown, and its forward end enlarged and provided with a screw, substantially as and for the purposes described.

2. The adjustable reversible screw B, provided with the flat plates *c* and *c'*, as shown and described.

3. A reversible wagon-tongue support composed of the support A, in combination with the clamp C, the adjustable reversible screw B, with plates *c* and *c'* mounted at each end, substantially as and for the purposes described.

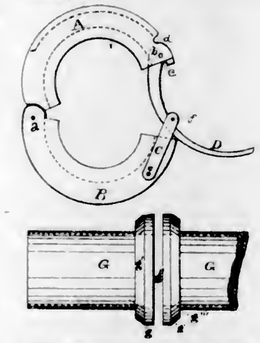
196,806. REIN-HOLDERS. Gregory Jennings, West Cairo, Ohio. Filed Sept. 10, 1877.

Brief.—The holder is adapted to be secured to some portion of the harness, and is provided with an automatic clasping device.



A rein-holder formed by the combination, with each other, of the slotted tube A, provided with the hook B, the spiral spring C, and the rod D, provided with the cross-head E and the screw *d'*, substantially as herein shown and described.

196,807. HOSE AND PIPE COUPLINGS. William H. Jolliffe and Theodore C. Schneider, Baltimore, Md. Filed Aug. 25, 1877.



1. The semi-annular clamping parts A B, hinged together and locked by the lever D engaging with the yoke C, whereby the part *f* of the yoke is held in the coinciding notches on the lever and clamp, as shown and described.

2. The end pieces G for hose-coupling, having a flange the rear edge *g'* of which is beveled and the rear part *g'''* straight, in combination with the hinged clamping-socket interiorly beveled to correspond with the edge *g'* of the flanges, whereby an annular space is left around the rear part *g'''* of the flange, as and for the purpose specified.

196,808. FEED-WATER HEATERS AND PURIFIERS. N. A. T. Jones, Plymouth, assignor of three-fourths of his right to William Allen, William P. Allen, and Geo. L. Allen, Worcester, Mass. Filed Aug. 3, 1877.

1. The combination, in a feed-water heating and purifying apparatus, of a water space or reservoir having direct communication with the steam-chamber of the generator, an exhaust-steam space or series of passages separated from the water-space, and a connecting passage and valve, whereby communication can be opened or closed between the steam-supply of the water-reservoir and the exhaust-steam space, substantially as and for the purpose hereinbefore set forth.

2. A feed-water heater and purifier having a water space or reservoir separate from the exhaust-steam passages, and provided with a live-steam inlet and a blow-off pipe, whereby the contents of said reservoir can be discharged or blown off dry by the action of live steam direct from the boiler, and without interfering with the continuous generation of steam, substantially as hereinbefore set forth.

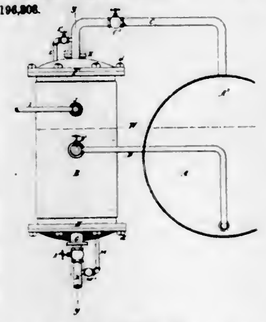
3. In combination, substantially as set forth, the boiler A, heating and purifying tank B, live-steam connection-pipe C, feed-water connection-pipe D, valves C' D', and exhaust-steam connections G H, for the purposes described.

4. In a feed-water heating apparatus, in combination substantially as hereinbefore set forth, the exhaust-steam spaces E' E'' F' F'' and passages *b' b''*, the water-heating space or reservoir B' surrounding said passages, the direct steam-supply pipe C, the blow-off pipe K, the water-pipes I D, and the valves C' D' K', for the purposes described.

5. The peculiar constructed duplicate heads E F, having semi-chambered screw-threaded hubs or bosses *e k*, radial partitions *e f*, and pipe-butts G H, in combination with the sheet-metal shell E', connecting-tubes *b' b''* in triangular uniform groups, and pipes C K screwed into the caps and bosses *e k*, substantially as herein shown and described.

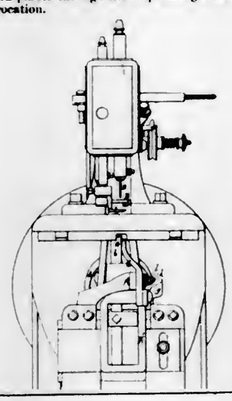
6. In combination with the head F and steam-pipe C, the pipe L and valve L', as and for the purpose set forth.

196,808.



196,809. WAX-THREAD SEWING-MACHINES. Jeremiah Keith, Providence, R. I. Filed June 5, 1876.

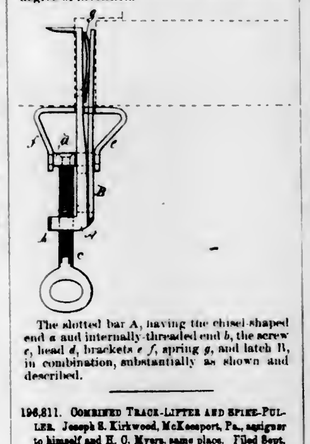
Brief.—A hooked needle feeds the material to be sewed, and operates in conjunction with an awl and loop-opener, the latter drawing the thread into the path of a double-nosed shuttle, which passes through the loop during each reciprocation.



A wax-thread sewing machine having the following elements or instrumentalities in combination, and to operate substantially as set forth, viz: an awl to puncture the material to be sewed, a hook-needle to aid in making the stitches and to feed the material along, a threader to lay the waxed thread into the hook of the needle, a loop opener or spreader and cast-off, a presser to hold the material in place while the needle and the awl may be passing into and out of it, and a double-nosed shuttle, as described, that during each of its reciprocating movements shall carry a binding thread through a loop formed by the loop opener or spreader, all being arranged essentially in manner, and having mechanism for actuating them, as set forth.

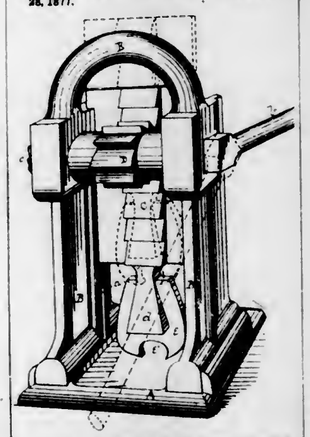
196,810. DOOR-SPRINGS. Georg E. Kerbeck, Chapin, Ill. Filed Sept. 10, 1877.

Brief.—The claim sufficiently points out the degree of invention.



The slotted bar A, having the chisel-shaped end *a* and internally-threaded end *b*, the screw *c*, head *d*, brackets *e f*, spring *g*, and latch B, in combination, substantially as shown and described.

196,811. COMBINED TRACK-LIFTER AND SPIKE-PULLER. Joseph S. Kirkwood, McKeesport, Pa., assignor to himself and H. C. Myers, same place. Filed Sept. 28, 1877.



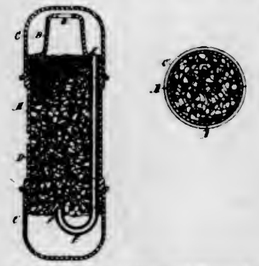
1. The removable and reversible unjointed or solid claw *e*, in combination with the equilateral draw-head *d*, substantially as set forth.

2. The cross tie or handle E, in combination with standards, rack and pinion, operating-lever, ratchet, and pawl, as set forth.

3. In a combined spike-puller and track-lifter, a lifting-bar, *h*, having a hook or projection at its lower end to engage the track, and a swinging or pivoted dog or hook at its upper end, in combination with a removable key to lock and release the dog, substantially as set forth.

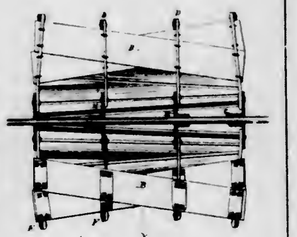
4. The lifting-bar *h*, having dog *r* and key *s*, in combination with rack-bar C, having a recess, *u*, substantially as described.

196,812. INHALERS. James Lewis, Chicago, Ill. Filed July 31, 1877.



In an inhaling apparatus, the combination, with the case A, filling D, caps C and C', and mouth-piece B, provided with the opening *a*, of the tube E, entering the upper end of and passing through the chamber of the case, and reserved to enter said chamber at a central point in the lower end thereof, substantially as specified.

196,813. PADDLE-WHEELS. Henry Marcotte, U. S. Army. Filed Aug. 6, 1877.

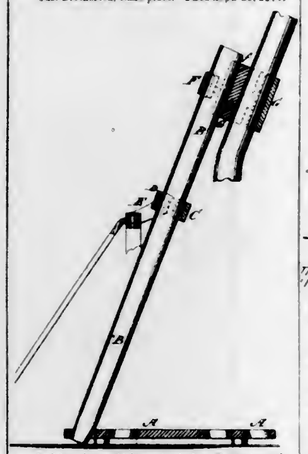


1. In a paddle-wheel, the combination, substantially as specified, of the end arms C, constructed with two bucket-seats in different radial lines, and the bucket B, secured at one end of the wheel to the outer, and at the opposite end to the inner, bucket-seat, the arms joined by the bucket being secured to their hubs in different axial planes, for the purpose set forth.

2. In combination with the buckets B and arms C, arranged as described, the inner arms D, secured to hubs H in pairs right and left, and rings to support the buckets, substantially as described.

3. A paddle-wheel all the buckets of which have a twofold angulation with reference to the axis of the wheel, each bucket also having a twofold angulation with reference to the adjacent ones, substantially as specified.

196,814. UMBRELLA-HOLDERS. Asa T. Martin, Jr., Waverly, Iowa, assignor to himself, M. F. Potter, and Jas. Brotherton, same place. Filed Sept. 29, 1877.

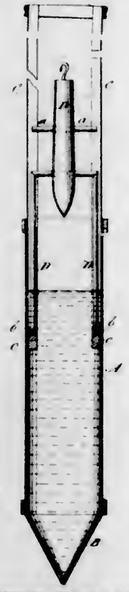


1. The clamp C D, swiveled to the U-bar E, in combination with the perforated plate A, for holding an umbrella handle or extension-staff adjustably, substantially as herein shown and described.

2. The double clamp F G and the extension-staff B, in combination with the swiveled clamp C D and the perforated plate A, for holding an ordinary umbrella, substantially as herein shown and described.

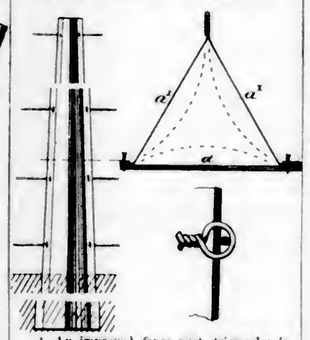
196,815. TORPEDOES FOR OIL-WELLS. C. A. McCoy, Edenburg, (Knox P. O.,) Pa. Filed Oct. 6, 1877.

Brief.—The case is surrounded by rubber rings, to prevent concussion in lowering. The plunger carries two caps.



In combination with the shell A B and guides C C, the weight D, cross bar *a*, rods D D, and anvils *c c*, arranged to operate substantially in the manner described.

196,816. IRON FENCE-POSTS. W. T. McNeill and G. A. Lambert, Worcester, Mass. Filed Aug. 2, 1877.



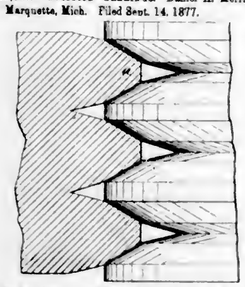
1. An improved fence-post, triangular in shape, formed from one or more thin sheets of metal, substantially as hereinbefore set forth.

2. The improved triangular fence-post made from thin sheets of metal, and having longitudinal ribs produced by folding or rolling the metal, substantially as hereinbefore set forth.

3. The improved hollow metallic post for wire fences, formed from thin sheets or plates locked together at their edges, and galvanized or coated with a complete metal surfacing by immersion in the molten metal, both after the post is formed, substantially as and for the purpose set forth.

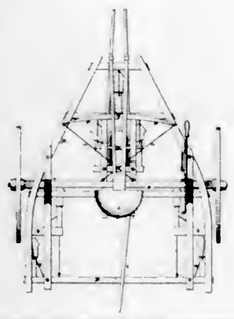
4. In a fence-post, the combination of the plates *a* a^1 a^2, tapered vertically, and connected at their edges and top, substantially as herein described.

196,817. FRICTION-GEARINGS. Daniel H. Merritt, Marquette, Mich. Filed Sept. 14, 1877.



A friction-wheel having ribs or teeth that are trapezoidal in transverse section, and have between their bases triangular grooves of a more acute angle than the teeth or ribs, substantially as shown and described.

196,818.

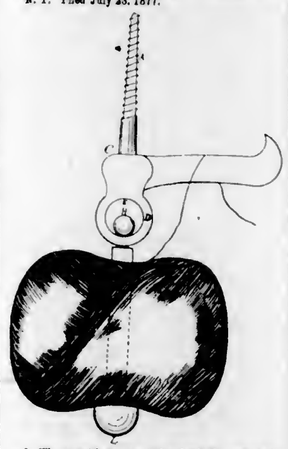


196,818. WHEEL-CULTIVATORS. W. Mettler, Frankfort, Ill. Filed June 21, 1877.

Brief.—The center standards are pivoted to a laterally oscillating frame. A lever, an evener, and crossed rods from the evener to the lever and oscillating frame allow the two center plows to be moved laterally, and remain at right angles with the line of draft. Slide braces to standards hinged with standards, so that all turn together on giving way of the break-pin.

The cross-bar *e*, pivoted at its center to the top of the adjustable main frame B, in combination with the cross-rods *a* and frame *c*, for the purpose of moving laterally the frame *c*, with its two shovels attached below, having rear push-braces with break-pins, in the manner and for the purpose set forth.

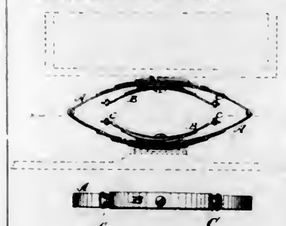
196,819. TWINE-HOLDERS. Andw. J. Morrison, Troy, N. Y. Filed July 23, 1877.



1. The combination of the shaft K, provided with knobs H and L and neck I, with the flanges D D, having circular openings E and G, operating substantially as and for the purpose above specified.

2. A twine-holder consisting of screw A, cutter B, shoulder C, flanges D D, having circular openings E and G, and shaft K, all substantially as shown and described.

196,820. VEHICLE-SPRINGS. Frederick Oppenheim, San Francisco, Cal. Filed Oct. 12, 1877.



In combination with the main spring A and auxiliary spring B, which has notched ends, the noiseless cushion C, which is attached to the auxiliary spring B at its contact point or points, substantially as and for the purpose specified.

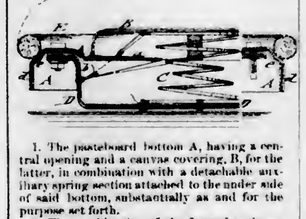
196,821. VEHICLE-SEATS. Frederick Oppenheim, San Francisco, Cal. Filed Oct. 2, 1877.

1. The combination of the fixed seat B and folding seat C with the extra seat-board D and doubly-jointed hinges *d*, substantially as herein shown and described.

2. The combination of the folding seat C, having side rails *b b*, with the fixed seat B, folding seat-board D, having rails *c c*, the distance between the rails *c c* being less than that between the rails *b b*, substantially as herein shown and described.

3. The combination of the folding seat C with the fixed seat B and folding back E, all operating so that the back E is folded forward when the seat C is folded upon the fixed seat, substantially as herein shown and described.

196,821.



196,822. CLUTCHES FOR SHAFT-COUPLINGS. A. A. Osborn, San Francisco, Cal. Filed July 9, 1877.

Brief.—The sliding-cup couplings are first brought together by a lever, and motion is imparted to one shaft until it is moving at the same rate of speed as the other shaft; then the positive clutches are thrown in contact, when the shafts are connected together as if they were one.

The combination, with shafts *a* and *b*, of the movable parts *c g* of the coupling, and the stationary portion *c'*, having the movable portion *f*, with their operating-levers, the several parts constructed and relatively arranged as herein shown and described.

196,823. COTTON-SEED AND CORN PLANTERS. J. R. Palmero, Gonzales, Tex. Filed July 23, 1877.

A planter provided with a stirrer composed of the rock-post A', cross-bar B', and wire C', the latter being curved, looped, and pointed, to operate in connection with the hopper, as shown and described.

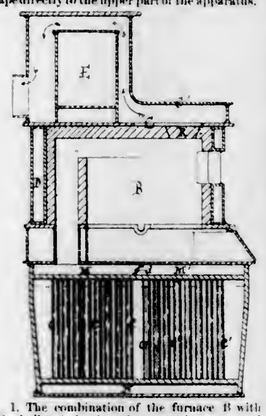
196,824. CHAIR SEATS AND BACKS. Paul Rath, Jersey City Heights, N. J. Filed Aug. 18, 1877.

1. The pasteboard bottom A, having a central opening and a canvas covering, B, for the latter, in combination with a detachable auxiliary spring-section attached to the under side of said bottom, substantially as and for the purpose set forth.

2. The combination of the flanged and concaved pasteboard section D and spiral springs C with the pasteboard bottom A, having a central opening, and a canvas covering, B, for the latter, substantially as and for the purpose set forth.

196,825. STEAM-GENERATORS. David Renshaw, Cohasset, and George E. H. Tower, Cambridge, Mass. Filed Mar. 16, 1877.

Brief.—The products of combustion can be made to dive through one set of pipes below the fire, and rise through the other to a chamber communicating with flues rising at the sides of the fire; or they may be allowed to escape directly to the upper part of the apparatus.

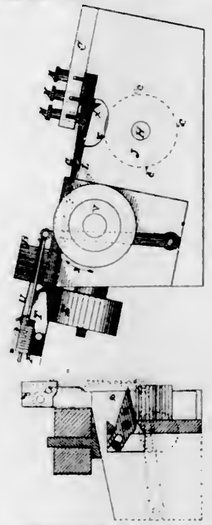


1. The combination of the furnace B with the boiler A, having pipes *c* and *c'*, arranged and adapted to operate in the manner described.

2. In combination with the boiler A, constructed as described, beneath the furnace B, the cooking apparatus C, C', and E, as and for the purpose specified.

3. In combination with the furnace B and boiler A, the damper *d*, for regulating the supply of heat to the boiler, as described.

196,826. TYPE-SETTING MACHINES. Dexter Reynolds, Albany, and Joseph Thorne, Port Richmond, N. Y. Filed Mar. 7, 1877.



1. The combination of a type-case, B, having a fixed bottom for supporting each column of type, ejecting-finger, and a continuously-revolving endless-belt type-conveyer, E, when so constructed and arranged with relation to each other that single types from any two or more cells of such case can be ejected together therefrom, and thereafter conveyed away upon and by such belt in a position at right angles to their length.

2. A rotary carrier, J, provided with several blades *e*, in combination with an ejecting-finger, G, provided with a spring, I, to return it to its normal position, and guide-plate K, to automatically hold it down and prevent its too early return.

3. In combination with the ejecting-fingers G, the plate N, to take up their rebound.

4. The combination of the continuously-revolving belt E, stop O, arresting the type, but under which the belt passes, the pusher P, to remove the type from the belt, the channel Q, into which they are discharged, and the arm S, to raise them on their feet and shove them down in line.

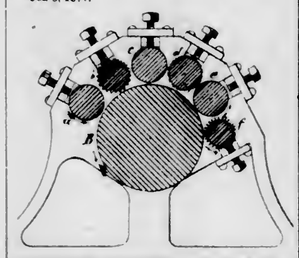
5. In combination with the rotary carrier J, the ejecting-finger G, constructed with lug x^1, by which it is moved forward, and lug x^2, by which, after it has made its full forward movement, it is raised up free from such carrier, substantially as described.

196,827. WHIP AND CANE HANDLES. Walter H. Rice, Westfield, Mass., assignor of one-half his right to E. W. Dickerman, same place. Filed Mar. 19, 1877.



In combination with the handle of a whip or cane, the reed plate B and reeds *d* d^2, substantially as described.

196,828. MACHINES FOR PREPARING FEATHERS FOR DUSTERS. Gilbert M. Richmond, Chicago, Ill. Filed Oct. 3, 1877.



1. The rollers B and *a*, in combination with the roller *b*, for removing the pith, all constructed and operating substantially as and for the purpose set forth.

2. The rollers B, *a*, *c*, and *e*, in combination with the roller *b*, for removing the pith, and polishing roller *d*, all constructed and operating substantially as and for the purposes specified.

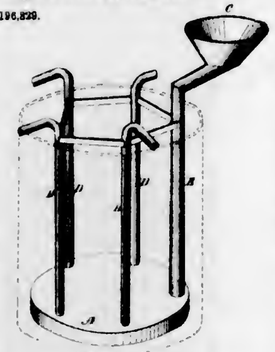
3. The fluted roller *f*, in combination with the rollers B, *a*, *c*, and *e*, roller *b*, for removing the pith, and polishing roller *d*, substantially as and for the purposes set forth.

196,829. MILK-COOLERS. Charles G. Eggs, Turin, N.Y. Filed July 5, 1877.

A milk-cooler for use in connection with transportation-cans, consisting of the rover-

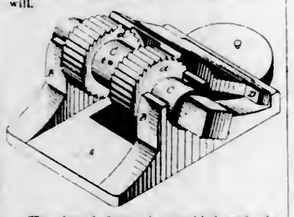
vent A, funnel and supply-pipe C B, with three or more discharge-tubes, D D D, the whole arranged as shown and described.

196,829.



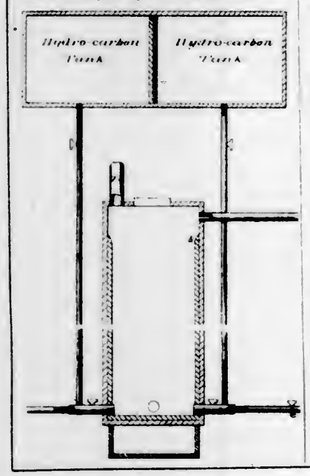
196,830. WIRE-STRETCHERS. Charles F. Roth, Winterset, assignor of two-thirds of his right to J. J. Hutchings and H. W. Munger, Madison, Iowa. Filed Apr. 19, 1877.

Brief.—The rotating barrel is removable from its bearings, and the dog also, so that the parts can be put together and taken apart at will.



The slotted frame A, provided with the open bearings B B and recessed shoulder D, in combination with the shaft C, provided with double ratchet *d d*, and removable dog E, all constructed to operate substantially as and for the purpose set forth.

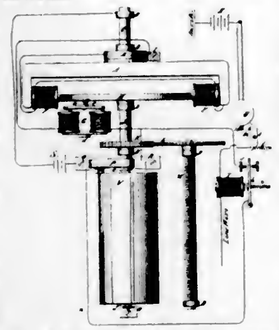
196,831. MANUFACTURE OF OXIDE OF TIN. J. Milton Sanders, New York, N. Y., assignor to Jas. H. Coval, same place; said Coval assignor of one-third his right to G. I. Kelty, same place. Filed Jan. 3, 1877.



The method herein specified of manufacturing oxide of tin, consisting in subjecting the scrap tinned iron to a heat sufficiently strong to volatilize the tin, and oxidize the same by the atmosphere passing into the furnace, and then receiving the tin oxide in a chamber, in which it is separated from the products of combustion, substantially as set forth.

196,832. AUTOGRAPHIC-TELEGRAPH INSTRUMENTS. W. E. Sawyer, New York, N. Y. Filed July 9, 1877.

Brief.—An electro-magnetic connection between the motive power and recorder or transmitter is maintained through a local circuit, which is automatically broken, thereby disconnecting the recorder or transmitter from the motor for an instant. An independent regulating device then sends a current through the main line, the main-line relays closing said local circuits, thereby simultaneously connecting motors with transmitters or recorders throughout the line.



1. In an autographic telegraph instrument, the combination, with transmitting or recording apparatus, of an electro-magnetic connection situated between the same and the motive-power mechanism.

2. In an autographic-telegraph instrument, the combination, with transmitting or recording apparatus to which motion is imparted by an electro-magnetic connection situated between the same and the motive power mechanism, of an electro-magnetic detent operating to arrest the motion of such apparatus when such electro-magnetic connection is destroyed.

3. In an autographic-telegraph instrument, the combination, with transmitting or recording apparatus to which motion is imparted by an electro-magnetic connection situated between the same and the motive-power mechanism, of an electro-magnetic detent operating to release such apparatus when such electro-magnetic connection is made.

4. In an autographic-telegraph instrument, the combination, with transmitting or recording apparatus to which motion is imparted by an electro-magnetic connection situated between the same and the motive-power mechanism, of an electro-magnetic detent operating to arrest the motion of such apparatus when such electro-magnetic connection is destroyed, and to release such apparatus when such electro-magnetic connection is made.

5. In an autographic telegraph, the combination, with a line-wire relay, of an electro magnet or magnets actuated by the same, which connect the motive mechanism with the transmitting or recording apparatus.

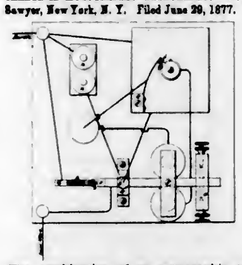
6. In an autographic telegraph, the combination, with a line-wire relay, of an electro magnet or magnets which connect the motive mechanism with the transmitting or recording apparatus, and an electro-magnetic detent.

7. In an autographic telegraph, the combination, with an electro-magnetic connection situated between the transmitting or recording apparatus and the motive-power mechanism, of an apparatus for periodically transmitting electrical impulses over the line to actuate such electro-magnetic connection.

8. In an autographic telegraph, the combination of a relay, T, local battery S, and electro-magnetic controlling apparatus with an apparatus independent of the transmitting or recording instrument for periodically transmitting an electrical impulse over the line.

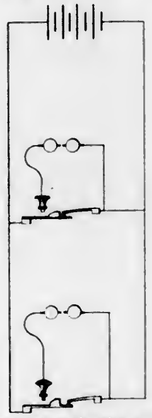
9. In an autographic telegraph, the combination of a commutator, P, and its spring Q, local battery S, and a relay, T, with electro-magnetic controlling apparatus.

196,833. DEVICES FOR EFFECTING THE STATIC DISCHARGE IN AUTOGRAPHIC TELEGRAPHY. W. E. Sawyer, New York, N. Y. Filed June 29, 1877.



The combination of an autographic-telegraph transmitting or receiving instrument, a regulator therefor, periodically operated by the transmission of a line-current, and a commutator, which puts the line to earth or to a discharging-battery previous to putting it to the regulator, substantially as shown and described.

196,834. ELECTRIC ENGINEERING AND LIGHTING SYSTEMS. W. E. Sawyer, New York, N. Y. Filed Aug. 10, 1877.



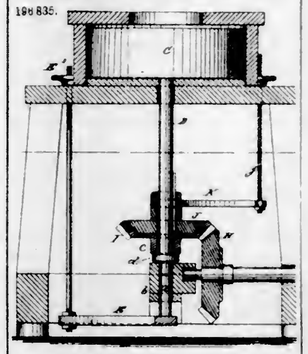
1. In an electric engineering or lighting system in which two or more electric lamps or electric engines are supplied with electricity from a generator common to both or all of them, the combination, with an electric lamp or an electric engine, of a secondary circuit the switch for which destroys the continuity of the secondary circuit at the instant that it directs the flow of current through the lamp or engine, and destroys the continuity of the circuit through the lamp or engine at the instant that it completes the secondary circuit, with or without a resistance, plain or adjustable, around such lamp or engine, substantially as shown and described.

2. In an electric engineering or lighting system in which two or more electric lamps or electric engines are supplied with electricity from a generator common to both or all of them, the combination, with two main conductors leading one from each pole of the generator in a course preferably parallel, of branches connecting the two main conductors at the requisite intervals, in which branches are placed electric lamps or electric engines provided with circuit-continuity-preserving apparatuses, so that the flow through any branch may never be broken whether the lamp or engine in that branch is or is not in operation.

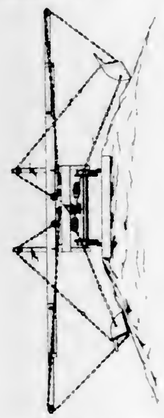
196,835. MILL-GEARING. Garrett W. Schroers, Muscatine, Iowa. Filed Sept. 10, 1877.

In combination with the driving-wheel H and a wheel, I, which turns loosely on its spindle D, the vertically-adjustable friction-wheel J, drivers N N, springs *s s*, lever K and its adjusting devices, substantially in the manner and for the purposes described.

196,835.



196,836. STEAM PLOWING AND SCRAPING ATTACHMENTS TO CARS. Samuel T. Shankland, Laramie, Wyo. Filed Aug. 18, 1877.



1. The combination, with a scraper for railroad grading that receives a back and forward motion from a slide-connection of a movable front with a stationary back car, of an automatic dumping attachment, substantially as and for the purpose described.

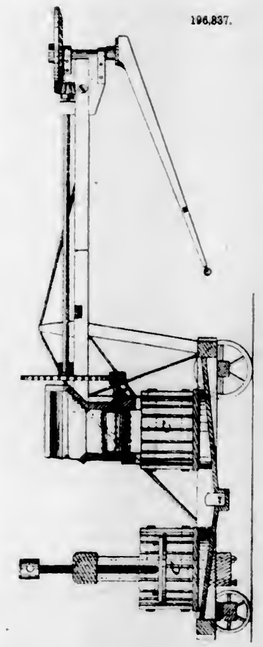
2. The combination, with a scraper for railroad grading that receives a backward and forward motion transversely to track by a slide-connection of a movable with a stationary car, of an adjustable dumping attachment, that dumps the scraper automatically at any desired distance from the track, substantially as specified.

3. The combination, with a scraper for railroad grading that receives a back and forward motion transversely to track by a slide-connection of a movable and stationary car, of an adjustable dumping-chain, extending from back of scraper over a crane of stationary car, and over suitable pulleys to movable car, substantially as and for the purpose set forth.

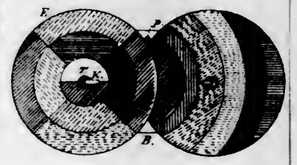
196,837. PORTABLE CIDER-MILLS. Ladore V. Sikes, East Otto, N. Y. Filed Sept. 14, 1877.

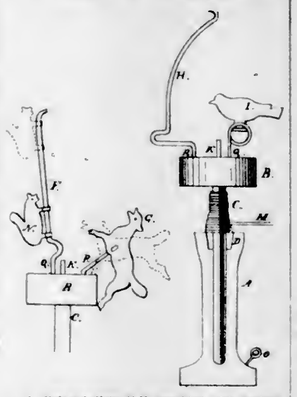
A cider-mill in which the press and grinder are arranged at opposite ends of a track, B, on a platform inclined from said ends to the middle, and there provided with gutter *a*, as shown and described.

196,837.



196,838. TOY WHIRLIGIGS. Charles E. Stoller, Milwaukee, Wis. Filed June 7, 1877.





1. Colored disks E E, provided with eyelets T T, hung loosely on pins K K, in combination with table B, shaft C, stand A, and cord M, substantially as specified.

2. The disk E, mounted eccentrically upon the table or shaft, and provided with the transverse curved and colored bands E', drawn concentric with said table or shaft, substantially as described.

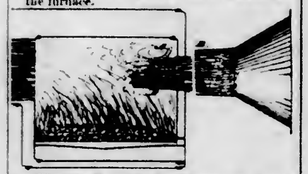
3. In combination with a perforate table or support, B, the pivoted animal figure G and sliding animal figure N, substantially as and for the purpose set forth.

4. In combination with disks E E and table B, the wire pin O, to retard the revolution of the disks, substantially as described.

5. The stand or handle A, with enlarged hole or countersink D at the top of handle A, as and for the purpose substantially as specified.

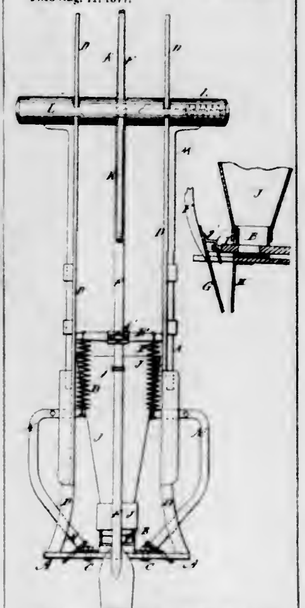
196,839. ATTACHMENTS FOR FEEDING STRAW TO FURNACES. Loyal O. Taber, Eaton, N. Y. Filed Mar. 29, 1877.

Brief.—Projecting arms from the inner end of the tube support the fuel after it passes into the furnace.



The tube B, provided with projecting arms D, substantially as and for the purposes set forth.

196,840. COMBINED PLANT-SETTER AND SEED-PLANTER. Joshua O. Terrill, Owensborough, Ky. Filed Aug. 11, 1877.



The combination of the box and bolts B C, the hopper J, and the dropping-slide I with the base-plate A, the oscillating rod F, and the operating mechanism of the machine, substantially as herein shown and described.

196,841. CAR-TICKET NIPPERS. James Thomas, San Francisco, Cal., assignor of part of his right to Chas. E. Broad and Nelson Spinks, same place. Filed Dec. 1, 1876.

Brief.—The act of cutting out or off a portion of the ticket depresses the first of a series of pivoted levers, whereby the alarm is sounded, the registering mechanism actuated, and the ticket-clippings secured.

1. The knife K, provided with fork F *f f'*, adapted to operate, by means of the ticket-nip, on the oscillating lever *e m w*, anchor-escapement *b b* W, actuating mechanism for the same, as herein shown, and the registering dial R, substantially as and for the purpose specified.

2. The knife K, provided with fork F *f f'*, adapted to operate, by means of the ticket-nip, on lever *e m k'*, cam *k n*, arm *r r'*, hammer attachment with spring E J *y y*, and the fixed gong G, all arranged, as herein shown, for sounding an alarm only when a ticket is nipped off, substantially as specified.

3. The combination of the knife K, provided with fork F *f f'*, adapted to operate, by means of the ticket-nip, on the oscillating lever *e m m*, to actuate the alarm and registering mechanism herein shown, or their equivalents, substantially as and for the purpose specified.

4. The knife K, provided with the finger *a*, in combination with the notched trigger T *n' s'*, and the oscillating lever *e m w*, provided with pin *w'*, and return-spring *d*, all arranged as herein shown, whereby said lever, when depressed, may be caught by the trigger and held for a certain interval of time, so that the ticket-nips may have time to fall freely into the nip-compartment X, after having been cut from the ticket-stub, substantially as herein set forth.

5. The knife K, provided with fork F *f f* and finger *a*, in combination with the trigger T *n s'*, oscillating lever, with anchor-escapement *e m b b'* W, and the registering and alarm mechanism described, or their equivalents, substantially as and for the purposes herein set forth and specified.

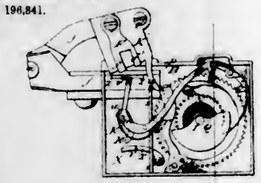
6. The lever *e m m*, provided with cam *k n* and spring *F*, in combination with the shaft J, provided with arm *r r'*, spring *y y*, and hammer E, all arranged for striking the fixed gong G, substantially as and for the purposes herein set forth and specified.

7. The spring *r*, united onto the box-cover *p* and resting on the stop S, in combination with the ticket-guide *z z*, knife K, and oscillating lever *e m m*, substantially as and for the purposes herein set forth and specified.

8. The nipper-box B, fitted to the lower jaw *j'*, and provided with nip-compartment X, partitions 2 2 3 3, opening O, with fixed needle *n* for the registering-dial R, perforations *o o o* for the gong G, and hinged door D, fitted with lock L, as described, substantially as and for the purposes herein set forth and specified.

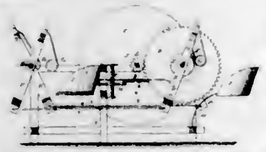
9. The combination, substantially as specified, of the escapement-lever, the cutter or knife, and the fork for operating on the escapement-lever through means of the nips cut from the ticket or slip.

196,841.



196,842. MECHANICAL MOVEMENTS. Albert S. Todd, Poltneyville, N. Y. Filed Aug. 24, 1877.

Brief.—A series of pawl-levers rigidly attached to each other and to a ratchet-shaft, so as to enable each lever, singly, to rotate the driving-shaft by both forward and backward stroke.



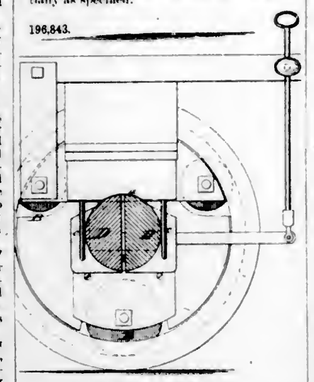
The pawl-levers E E, rigidly attached to ratchet-shaft B, and connected by rods with the middle fulcrumed lever H, as shown and described, to enable a single lever, E', to turn the shaft at both the forward and backward stroke.

196,843. TRACTION-WHEELS. William H. Treadwith, New York, N. Y. Filed Sept. 1, 1877.

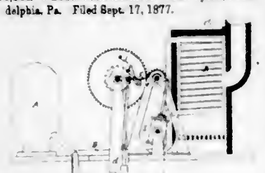
1. The combination of a movable interior or web section having rollers or wheels and of an outer revolving traction-wheel with a compound axle attached rigidly to web section, as and for the purpose specified.

2. The combination of the movable web-sections having anti-friction rollers and the outer revolving traction-wheels with the compound axle, the sections of which are arranged symmetrically to the axis of the wheels, and connected rigidly to the web-sections, substantially as specified.

196,843.

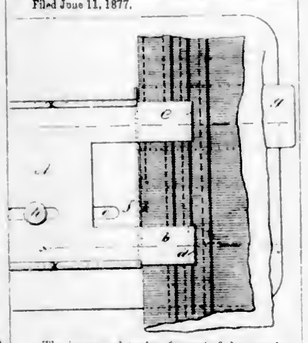


196,844. WATER-TUBE BOILERS. Chas. Tyson, Philadelphia, Pa. Filed Sept. 17, 1877.



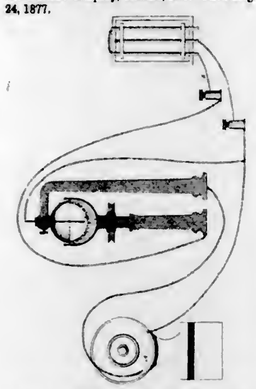
The air-chamber A, pipes B B', and furnace C, having the flue *a* and grate H, combined with the pipe E, valve F, and pump D, submerged in the tank G, the whole operating as a means of generating steam for, and supplying it to, the engine I, substantially as specified.

196,845. TUCKERS. Eliza Ann Vance, Gallipolis, Ohio. Filed June 11, 1877.



The improved tucker formed of the two slotted plates A B, provided with coincident slots *a c*, and secured together by flanges *x x*; the plate A having the two parallel arms *a* and *c*, each provided with hooks *d d*, and the plate B having the ledge *f* and arm *g* extending under arm *c d*, all constructed and arranged, as shown and described, to form a new article of manufacture.

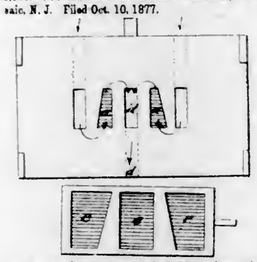
196,846. COMPOUND SWITCHES IN DYNAMO-ELECTRIC MACHINES EMPLOYED IN THE ART OF ELECTRO-PLATING. Edward Weston, Newark, and Edward E. Quimby, Orange, assignors to Western Dynamo-Electric Machine Company, Newark, N. J. Filed Aug. 24, 1877.



1. The principal wires or main circuit connecting the machine with the vat, in combination with a bridge-wire or short circuit electrically connecting the two principal wires together between the machine and the vat, and an instrumentality adapted to simultaneously open the main circuit and close the short circuit when the rotation of the machine is partially or wholly arrested, and also adapted to open the short circuit and close the main circuit when the machine, after having been started, has attained a predetermined speed of rotation, substantially as and for the purposes set forth.

2. The combined circuit-breaker and closer herein described, consisting of a mass of mercury contained in a cup adapted to rotate with more or less speed, according to the rotation of the dynamo-electric machine, and of two conductors insulated from each other, and supported in suitable proximity to the mass of mercury to enable one conductor to form an electrical connection with the mercury while the mercury is occupying the position, due to the preponderating influence upon it of centrifugal force, and to enable the other conductor to form an electrical connection with the mercury in the position which it assumes in obedience to the preponderating influence of gravity.

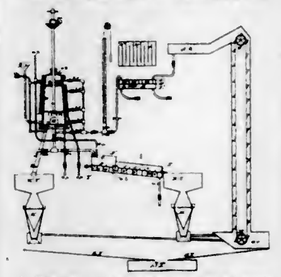
196,847. CUT-OFF VALVES. Thomas Whittaker, Passaic, N. J. Filed Oct. 10, 1877.



1. As an improvement in slide-valves, the combination, with the top plate of the cylinder, having tapering steam-ports and induction and eduction channels, of a balanced slide-valve with correspondingly tapering cavities, to which longitudinal and transverse motion is imparted for regulating the speed of engine, substantially as and for the purpose set forth.

2. The combination of the top plate of a steam-cylinder, having tapering steam-ports and induction and eduction channels, with a balanced slide-valve having correspondingly tapering cavities, the valve being guided by a transversely-reciprocating slide frame or plate connected to governor, substantially as and for the purpose specified.

196,848. PROCESSES OF SEPARATING METALS. Conrad Wierand, Virginia City, Nev. Filed July 28, 1876.



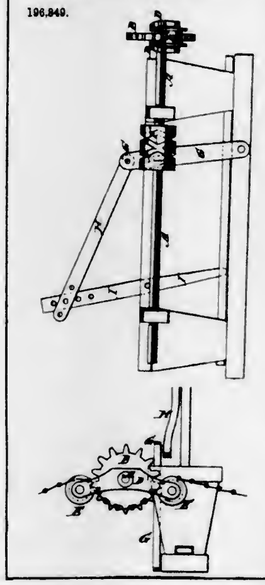
1. The process of separating mixed amalgams, as described, consisting in diluting the mixed amalgams to quick fluidity in quicksilver, then allowing the mixture thus obtained to stand, whereby the suspended amalgams will separate according to their specific gravities, then drawing off and straining separately, substantially as set forth.

2. The process of aiding the separation of amalgams of different specific gravities, as herein described, which consists in passing through these amalgams mixed with quicksilver to quick fluidity and free mobility of particles among themselves, a regulated continuous downward current of quicksilver, the velocity of which is greater than the rising tendency of the heavier amalgams, and at the same time less than that of the lighter amalgams, substantially as set forth.

3. The process for keeping the stand-pipe free from amalgam, which consists in causing a part of the feeding-stream of mercury to flow continuously beneath its foot to the digester, substantially as herein set forth.

4. The apparatus for operating the dynamic form of the process, consisting, essentially, of the digester D, provided with the gate G and perforated plate *p*, and furnished with the jackets J J J and pipes *z p*, *c p*, and *c' c'*, in combination with the revolving and adjustable agitator *a a*, colander *c c*, feed-pipes *t f*, *b f*, *u f*, and *f p*, gage-pipe *g p*, quicksilver pipe *q p*, heating-boxes H H, feeding-tank *f t*, cooler C, and partition P, provided with the trap *q f*, all constructed and arranged substantially as described.

196,849.

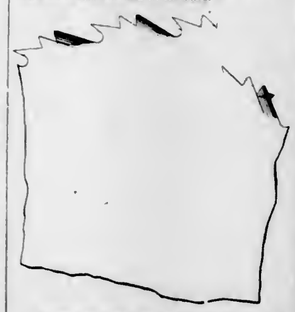


196,849. CHECK-ROW ATTACHMENTS FOR CORN-PLANTERS. Edward M. Wilcox, Whitewater, Wis., assignor to Lucius A. Winchester and John S. Partridge, same place. Filed June 9, 1877.

An attachment for check-row planters, consisting of shaft A, sprocket-wheel B, frame D, with pulleys E, S-cam F, pivoted bars G H, and lever I, all connected, constructed, and arranged as shown and described, for the purpose specified.

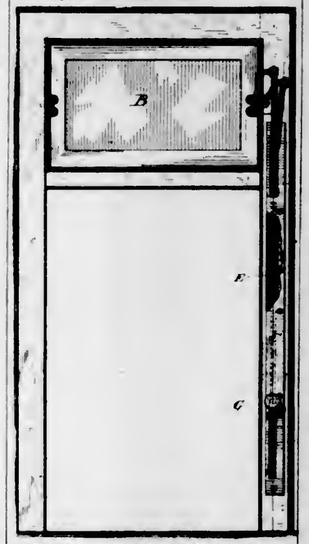
196,850. SAWS. Christopher J. Wilson, Macon, Ga. Filed Sept. 22, 1877.

Brief.—The clearing-tooth projects forward, so as to have both edges inclined, and has a curved recess formed in its base.



A saw provided with three teeth in each set, the front one being a base-recessed clearer in line with the saw-plate, and the other two being cutters vertical on one edge, inclined on the other, and sharpened as well as rounded on the points, as shown and described.

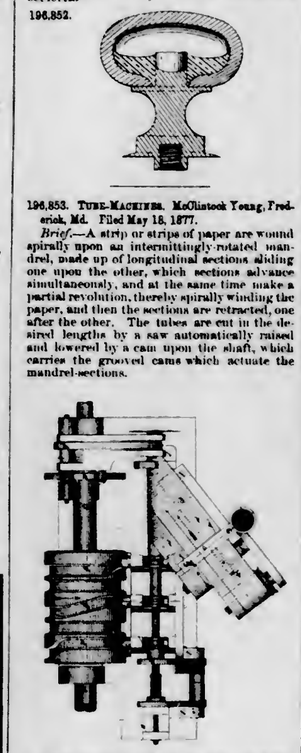
196,851. TRANSOM-LIFTERS. John F. Wollensak, Chicago, Ill. Filed Sept. 17, 1877.



The plate C, slotted at both ends and attached to the door-jamb, in combination with the guide or operating rod E, connected to the lifting-arm of the transom, and carrying the ing A at one end, and the adjustable knob G at the other end, substantially as described, for the purpose specified.

196,852. TUBE-MACHINES. McClintock Young, Frederick, Md. Filed May 18, 1877.

Brief.—A strip or strips of paper are wound spirally upon an intermittingly-rotated mandrel, made up of longitudinal sections sliding one upon the other, which sections advance simultaneously, and at the same time make a partial revolution, thereby spirally winding the paper, and then the sections are retracted, one after the other. The tubes are cut in the desired lengths by a saw automatically raised and lowered by a cam upon the shaft, which carries the grooved cams which actuate the mandrel-sections.



1. The reciprocating intermittently-rotating mandrel, to which the strip is fed at an acute angle, and by which it is wound spirally, substantially as hereinbefore set forth.

2. The combination, substantially as hereinbefore set forth, of a paper-carrying roller, a mandrel upon which the paper strip is wound, and to which it passes at an acute angle therewith, and a paste-reservoir intermediate the roller and mandrel, whereby a spiral tube is formed and its coils united.

3. The combination, substantially as hereinbefore set forth, of a mandrel for spirally winding the paper, two paper-carrying rollers, from each of which the strip of paper passes to the mandrel at an acute angle therewith, and a paste-reservoir for supplying paste to the paper on the way to the mandrel, whereby a tube of double thickness is formed and its coils united.

4. The combination of the two paper-carrying rollers, arranged relatively to each other, so that the strip fed from one roller half-way overlaps that drawn from the other, a pasting device for supplying paste to the inner surface of one of the strips, and a mandrel to which both strips pass at an acute angle, these members being constructed and operating substantially as hereinbefore set forth, whereby two united tubes are formed, each with abutting edges and close joints.

5. The combination, substantially as hereinbefore set forth, of the paste-trough over which, and in contact with the paste therein, the paper strip is drawn, and the cap bar or cover, under which the paper passes, adjustably secured in position, whereby more or less paste may be caused to adhere to the paper, as set forth.

196,853. TUBE-MACHINES. McClintock Young, Frederick, Md. Filed May 18, 1877.

Brief.—A strip or strips of paper are wound spirally upon an intermittingly-rotated mandrel, made up of longitudinal sections sliding one upon the other, which sections advance simultaneously, and at the same time make a partial revolution, thereby spirally winding the paper, and then the sections are retracted, one after the other. The tubes are cut in the desired lengths by a saw automatically raised and lowered by a cam upon the shaft, which carries the grooved cams which actuate the mandrel-sections.

1. The reciprocating intermittently-rotating mandrel, to which the strip is fed at an acute angle, and by which it is wound spirally, substantially as hereinbefore set forth.

2. The combination, substantially as hereinbefore set forth, of a paper-carrying roller, a mandrel upon which the paper strip is wound, and to which it passes at an acute angle therewith, and a paste-reservoir intermediate the roller and mandrel, whereby a spiral tube is formed and its coils united.

3. The combination, substantially as hereinbefore set forth, of a mandrel for spirally winding the paper, two paper-carrying rollers, from each of which the strip of paper passes to the mandrel at an acute angle therewith, and a paste-reservoir for supplying paste to the paper on the way to the mandrel, whereby a tube of double thickness is formed and its coils united.

4. The combination of the two paper-carrying rollers, arranged relatively to each other, so that the strip fed from one roller half-way overlaps that drawn from the other, a pasting device for supplying paste to the inner surface of one of the strips, and a mandrel to which both strips pass at an acute angle, these members being constructed and operating substantially as hereinbefore set forth, whereby two united tubes are formed, each with abutting edges and close joints.

5. The combination, substantially as hereinbefore set forth, of the paste-trough over which, and in contact with the paste therein, the paper strip is drawn, and the cap bar or cover, under which the paper passes, adjustably secured in position, whereby more or less paste may be caused to adhere to the paper, as set forth.

196,866. ATTACHING SHANKS TO DOOR-KNOBS. A. E. Young, Boston, Mass. Filed Sept. 10, 1877.

The method herein described of attaching the socket or shank to a hollow knob, consisting in partly filling the knob with cement and inverting the same, so that the cement may settle and harden around the shank, and thus leave an open space for the expansion of the cement, substantially as and for the purpose set forth.

196,852.

6. The combination, substantially as herein-before set forth, of an intermittently-rotating mandrel, having an endwise to-and-fro motion imparted to it at intervals, a roll or rolls from which the paper is fed to said spirally wound upon the mandrel, and a cutter for severing blanks from the tube.

7. The combination of the grooved roller, the coiled tension-spring, bent or forked at its lower end, and the set-screw to both hold and adjust the spring, these members being constructed and operating substantially as herein-before set forth.

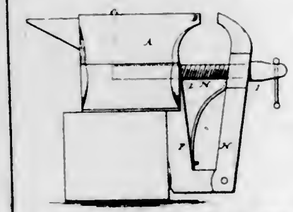
8. The mandrel composed of longitudinal sections, reciprocated to advance and turn the sections together, and then retract them, one at a time, by mechanism substantially such as described, whereby a retrograde movement of the tube on the mandrel is avoided.

9. The combination, substantially as herein-before set forth, of the long core or center bar, to which one section of the mandrel is secured, a sleeve sliding on said core, and carrying another section of the mandrel, and a second sleeve sliding over the first, and carrying the remaining mandrel-section.

10. The combination of the series of cams, the mandrel-sections, their collars, the racking frames engaging with the collars, and rollers carried by the frames and engaging the cams, those members being constructed and operating substantially as herein-before set forth.

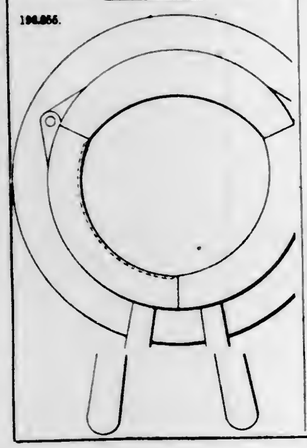
11. The combination of the sectional mandrel, the center bar thereof, its ratchet-wheel and pawl, the pin in the bar end, the tubular slotted shaft and its detent, these members being constructed and operating substantially as herein-before set forth.

196,854. ANVIL-VISES. Albt. H. Anderson, Nebraska City, Nebr. Filed Mar. 20, 1877.



The anvil A, constructed with the biting-edge D, and having the threaded aperture L on its rear end, in combination with the angular bar F and vise-jaw H, provided with the aperture I, in which, in connection with the aperture L, the vise screw N operates, the upper edge of the jaw H being flush with the upper surface of the anvil A, and all the parts mentioned being arranged and constructed substantially as shown and described.

196,855.



196,856. METHODS OF MAKING GLASS LABELS AND APPARATUS THEREFOR. Philip Arbogast, Pittsburg, Pa., assignor of one-half his right to John L. Dawes, Sons & Co., same place. Filed Sept. 18, 1877.

1. The method herein described of simultaneously making two or more glass labels and analogous articles, consisting in blowing the prepared and reheated ball in a mold having the required curvature or form, and then cutting up the product into the articles required, substantially as described.

2. The method herein described of simultaneously making two or more glass labels and analogous articles of different curvatures or form, consisting in blowing the prepared and reheated ball in a mold having its inner surface constructed in the required different curvatures or forms, and then cutting up the product into the articles required, substantially as specified.

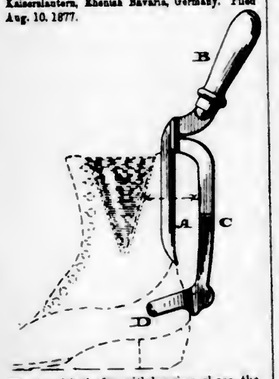
3. The described mold for glass labels, &c., constructed with its inner face in sections of relatively different curvature or form.

196,858. OVERALLS. Leon Aronson, San Francisco, Cal., assignor to Tobias, Brown & Co., New York, N. Y. Filed Aug. 15, 1877.



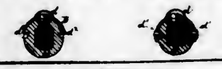
As a new article of manufacture, the overalls or pants herein described, having the waistband, buckle-straps, and front and rear pocket-facings cut in one piece.

196,857. BOOT-JACKS. Johann Heinrich Aufderheide, Kaiserslautern, Rhenish Bavaria, Germany. Filed Aug. 10, 1877.



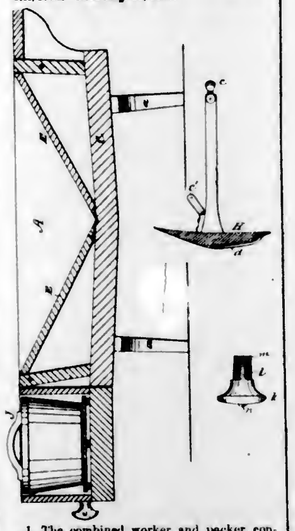
The hand-jack for withdrawing shoes, the same consisting of the set-back shank C and handle B, in combination with the horn A, projecting downward from the upper end of the shank, and the jaw D, secured to the lower end of said shank and projecting under the horn, substantially as and for the purpose set forth.

196,859. GUARDS FOR DOOR-KNOB SCREWS. Charles M. Baker, Warwick, N. Y. Filed July 10, 1877.



The semi-cylindrical tension metal ribbon or guard D, having the recess *d* in its concave face, and provided with suitable locking device at its ends, whereby, when the guard is clasped about the sleeve of a door knob, the knob-screw is prevented from escaping from its seat, as described.

196,860. BUTTER-WORKERS. Royal W. Barnard, Fayette, Iowa. Filed Aug. 13, 1877.



1. The combined worker and packer, consisting of the foot H, provided with a suitable handle, and having its face smooth and tapered upon one side, and provided with lips or flanges *d d* on the other, substantially as and for the purpose described.

2. The combination, with the tank A, having flared sides, double-inclined bottom, and central outlet, of the removable inclined boards E E, as and for the purpose described.

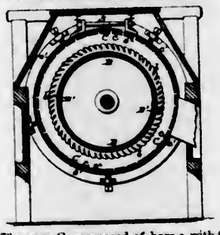
3. The combination, with the tank A, having eyes *h*, of the vertically-adjustable tank I, having guides *f* and hooks *g*, as and for the purpose described.

4. The finishing-cover J, having an outwardly-flared flange, *i*, adapted to pass inside the firkin and tuck down the butter, for the purpose described.

5. The combination, with a butter-worker having an outlet-orifice, of a plug or stopper, D, consisting of the knob *k*, cork *l*, wooden plug *m*, and screw *n*, as and for the purpose set forth.

196,860. APPARATUS FOR SCOURING AND POLISHING GRAIN. Marcus D. Beardsley, St. Louis, Mo. Filed Feb. 3, 1877.

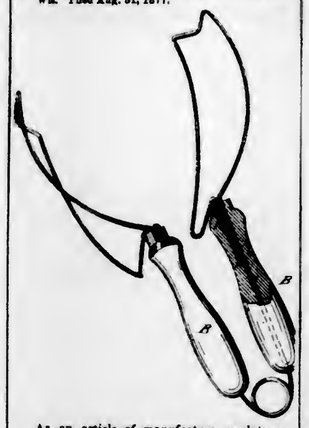
Brief.—The bars are made thin and flexible to vibrate in action, and are held by their encircling adjustable hoops, which allow of the removal or insertion of one or more bars.



1. The case C, composed of bars *c*, with flat sides inward, presenting angular corners, and combined with the spiral ribbed cylinder B, substantially as set forth.

2. The case C, formed of bars *c*, having flat sides inward, presenting angular corners, and secured to flexible encircling hoops or bands, substantially as set forth.

196,861. PLATE-LIFTERS. William Beattie, Portage, Wis. Filed Aug. 31, 1877.



As an article of manufacture, a plate or dish lifter formed of wire, and provided with handles B B, into which the ends of the wire are inserted, substantially as described, for the purpose herein shown and specified.

196,862. FIREMEN'S HELMET AND DRESS. Julius Bechtold, Brooklyn, N. Y. Filed Apr. 13, 1877.

Brief.—The usual air-containing jacket is more closely fitted and held by means of openings in the side and arm straps, &c. The helmet has an air-receptacle divided, by an iron frame-work, from its containing portion.



1. The hollow jacket A, made of a double thickness of air-tight material, and provided with holes for the arms, and with the openings *c c* beneath the same, to cause it to fit the wearer, substantially as and for the purpose herein shown and described.

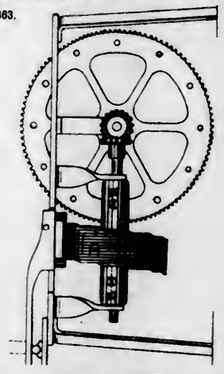
2. The helmet B, provided with the inner straps or bands *k k*, which hold it elevated to form a proper air-chamber above the head, substantially as specified.

196,863. QUILTING-MACHINES. August Beck, New York, N. Y., assignor to Louis Dryfoos, same place. Filed June 27, 1877.

Brief.—The sewing-frame is mounted on rollers, and reciprocated through the medium of a cam-wheel, supported in hangers secured to the under side of the machine, said cam being made with uneven sides, whereby the frame, when reciprocated, will, with the sewing mechanism thereto attached, produce zigzag lines of stitches.

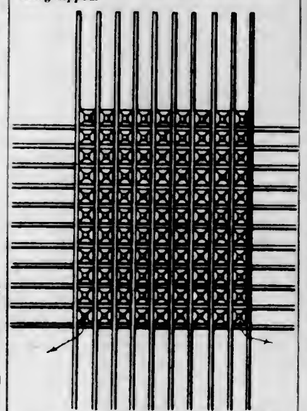
The combination, with a movable sewing-frame carrying the sewing mechanism, of a pattern wheel or cylinder having cut in the edge of the rim thereof the pattern according to which the lateral reciprocating movement is to be imparted to the sewing-frame to produce, in connection with the regular feed of the sewing mechanism, a given quilting-pattern, substantially as shown and set forth.

196,863.



196,864. PREPARING MATCHES FOR DIPPING. Peter Beer, Detroit, Mich. Filed Sept. 15, 1877.

Brief.—The pointed ends of matches, after being sawed in the block, are still further spread by two series of separators arranged at right angles to each other, for the purpose of preventing the heads adhering to each other while being dipped.



1. The method of preparing matches in the block for dipping, which consists in pointing the heads or ends of the match-splints, and in separating the splints by means of separators running at right angles to each other, substantially as described, and for the purpose set forth.

2. Two series of separators arranged at right angles with each other between the rows of splints in a match-block, for the purpose of separating the match-splint ends while being dipped, substantially as described.

196,865. WEIGHING-SCALES. Charles L. Bellamy, Arlington, N. J. Filed Aug. 27, 1877.

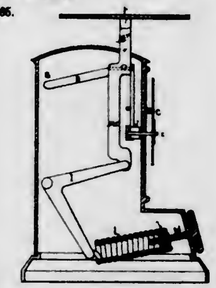
1. In a weighing-scale, the combination, with the dish or platform-supporting standard, of the right-angled lever I and spring L, connected to the inclosing-case by an adjusting-screw, arranged to operate substantially as shown, and for the purpose set forth.

2. In weighing-scales, the combination, with the platform-supporting standard, of the right-angled lever I, spring L, and screw M, having the loosely-fitting nut *l*, by which the spring is attached to the said screw, substantially as and for the purpose set forth.

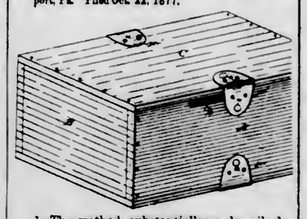
3. The combination of the T-shaped platform or dish supporting standard E with the lever I, spring L, screw M, and the pointer-operating mechanism, substantially as and for the purpose set forth.

4. The platform-supporting standard E and the pointer-operating mechanism, in combination with the frame D, supporting bar and arms G G, right-angled lever I, spring L, and screw M, having nut *l*, substantially as and for the purpose set forth.

196,865.



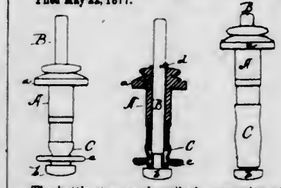
196,866. PACKING-CASES. John I. Berry, Williamsport, Pa. Filed Oct. 22, 1877.



1. The method, substantially as described, of securing the covers of packing boxes or cases to the boxes by straps of tin secured, first to the sides of the box or case before the packages are placed therein, and then by bending the strap over upon the cover, and securing the same thereon by nailing from the outside and clinching, at the same time, by a clincher inserted from the outside, as set forth.

2. The packing box or case constructed of thin veneers, and having the cover secured thereon by means of straps F' nailed from the outside, and adapted to be clinched upon the inside, after the box is packed and the cover is in position, by means of a proper clincher inserted from the outside, substantially as described.

196,867. APPARATUS FOR STOPPERING BOTTLES, &c. John L. Bernard, Island of Guernsey, Great Britain. Filed May 22, 1877.

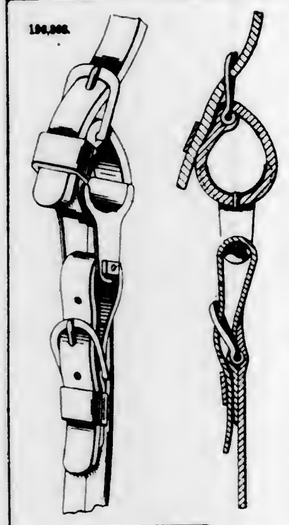


The bottle-stopper described, consisting of the cylindrical plug A, having shoulder *a*, the rod B, provided with head *b*, the india-rubber tube C, formed with the bulge *c*, and the pin *d* of its equivalent, all constructed and arranged substantially as described and shown.

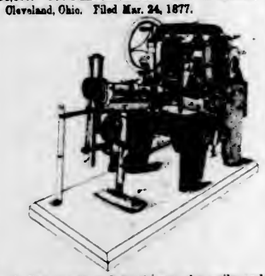
196,868. SHAFT-TUG LININGS. Ezekiel C. Bickford, Philadelphia, Pa. Filed June 9, 1877.

As an article of manufacture, a semi-cylindrical metallic lining for the bottoms of shaft-tugs, said lining being provided with V-shaped end pieces, connected by cross-bars, substantially as shown and described.

196,868.



196,869. CUT-NAIL MACHINES. Jason A. Bidwell, Cleveland, Ohio. Filed Mar. 24, 1877.



1. In a machine for making tacks, nails, and the like, the combination, with the oscillating frame, of the discharging-pin H, pin h^1, cam C, bell-crank C^1 C^2, connecting-rod c', and adjustable abutment H^1, substantially as described.

2. The combination of the finger g, of the finger-bar G^1, the coupler g^2, and bracket g^3, substantially as described.

3. The combination, with the independent annular gear-rings M^3 M^3 and collar placed between their adjacent ends, of the racks M^4 M^5, guide-bar M^6, attached to the rack-frame, and guide M^7, substantially as described.

4. In a nail or tack machine, the combination, with racks M^4 M^5 and means, substantially as described, for reciprocating said racks, of a revolving feed-barrel, provided with annular gear-rings and means for locking said gear-rings to the said barrel as they are turned in one direction, substantially as described.

5. In a tack or nail machine, the combination, with a frame having the racks M^4 M^5 rigidly secured thereto, of a revolving feed-barrel, O, annular gear-rings M^3 M^3, provided with spring-pawls n n^1 and ratchets or lugs m^2 m^2 upon the feed-barrel, substantially as described.

6. The combination, with the revolving barrel O, of grooved ring or collar O^2, fork O^4, spring-latch O^5, and plate-holder R, substantially as described.

7. The plate-holder R, consisting, essentially, in the combination of the main body of the same, of the jaws R^2, pivoted to the forward end of the body, and the adjusting-screw R^1, formed with a conical engaging-point, substantially as described.

8. The combination of the pinchers R and its annular slot r, the feeding collar O^3, the latch O^5, and nose-piece O^6, substantially as described.

9. In a machine for making tacks, nails, and the like, the combination, with the oscillating frame, of the discharging-pin H, pin h^1, cam C, bell-crank C^1 C^2, connecting-rod c', and adjustable abutment H^1, substantially as described.

10. The combination of the presser P, telescope-arm P^1 P^2, and post P^3, substantially as described.

11. The combination, with the presser P, swiveled to the longitudinally-adjustable arm P^2, of the hinged bar P^4, standard P^5, and spring P^6, substantially as described.

12. The combination, with the rotary feeding-collar O^3, forked carrier O^4, and slide connected to a spring by a cord, of the ratchet-bar S^2 and pawl S^3, substantially as described.

13. The combination of collar O^3, forked carrier O^4, bar S, pawl S^1, and ratchet-bar S^2, substantially as described.

14. The combination of the hammer or heading-die I^2 and two-part clamp or socket P with the supporting-wedge and locking-plate D^3, substantially as described.

15. The combination, with the bell-crank lever L^2 and suitable actuating mechanism, of the divided rod L^4, adjusting-nut L^5, bell-crank lever M, racks M^4 M^5, and annular gear-rings on the revolving feed-barrel O, substantially as described.

16. The combination, with the bell-crank lever M and means for actuating the same, of the racks M^4 M^5, gear-rings M^3 M^3, guide M^7, bar M^2, and link M^1, substantially as described.

17. The combination, with the plate-holder R, provided with an adjusting-screw, R^1, and annular groove r', of a revolving barrel, O, collar O^1, and spring-latch O^5, substantially as described.

18. The finger-bar G^1, journaled on the point or pivot in line with the axis of the hammer or heading-die, substantially as described.

19. The finger-bar G^1, in combination with springs g^1 g^1, substantially as described.

20. In combination with the feeding mechanism of a machine for making tacks, nails, screw-blanks, and the like, the apartments e e^1, rests e^2 e^3 e^4 e^5, all contained in a single frame or structure, said structure being made readily detachable from the main frame A, substantially as described.

21. The combination of the beveled knife K, its counter-bevel seat, and the stationary die K^1, whereby said die is held down firmly in position, substantially as described.

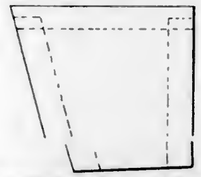
196,870. TOY MONEY-BOXES. James H. Bowen, Philadelphia, Pa. Filed Sept. 18, 1877.



1. A toy bank composed of a human or other animal figure and a hollow target and coin-receptacle, into which the coin is deposited by means of a plunger, supported by the figure, and operated to project the coin by a movable portion of the same, substantially as set forth.

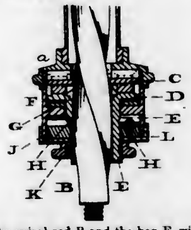
2. A hollow target and coin-receptacle, in combination with a figure supporting a plunger, and having a head operated by the engagement and disengagement of the plunger, to imitate motions incident to aiming and discharging a weapon, substantially as and for the purpose set forth.

196,871. MANUFACTURE OF ELASTIC FABRICS. M. E. Bowra, Upper Norwood, England. Filed Mar. 16, 1877.



The manufacture of compound elastic fabrics by combining strips of cloth obtained from attenuated knitted or woven fabrics with strips of sheet india-rubber, prepared as above described, and while the latter are held at tension, and shrinking the same on heated plate, as explained.

196,872. EXTENSION-CHANDELIERS. John F. Brown, Philadelphia, Pa., assignor to Cornelius & Co., same place. Filed Sept. 20, 1877.



1. The spiral rod B and the box F, with annular bed G, in combination with the clutch-disks C D and friction-springs H, on opposite sides of said bed, substantially as and for the purpose set forth.

2. The spiral rod B, clutch-disks C D, and springs H, in combination with the adjusting-nut K, substantially as and for the purpose set forth.

3. The loose cap L, closing the bottom of the box F and forming the bearing for the adjusting-nut K, substantially as and for the purpose set forth.

4. The encircling-ring J, carrying the projecting springs H, and interposed between the annular bed G and bottom cap L, substantially as and for the purpose set forth.

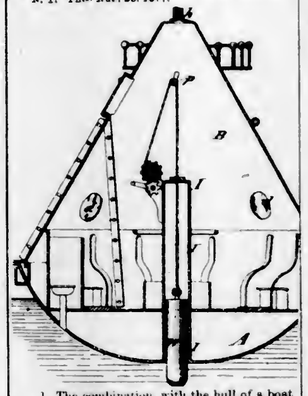
5. The spiral rod B and clutch-disks C D, in combination with the screw-collar E, spring H, and adjusting-nut K, substantially as and for the purpose set forth.

196,873. VEHICLE-WHEELS. Chas. E. Bush, Tecumseh, assignor of one-half his right to Alfred Boyer, Cherokee County, Ala. Filed Aug. 4, 1877.



The combination, with the felly and tire C, made in a single piece and L-shaped in cross-section, of the metal hub A, screw-threaded sleeves D, and the spokes B, screw-threaded at their inner ends, and provided at their outer ends with the tenons b, substantially as described, and for the purpose set forth.

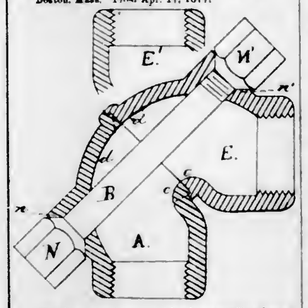
196,874. LIFE-BOATS. Thomas W. Casey, Brooklyn, N. Y. Filed Aug. 28, 1877.



1. The combination, with the hull of a boat having the concavo-convex bottom A and conical, conoidal, or pyramidal top B, and central ballast-weight W, attached to a rope for raising or lowering said weight, of a loop or pulley, p, placed in the interior of the top B, near the apex of said top, substantially as and for the purpose set forth.

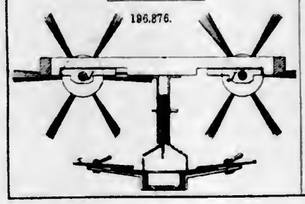
2. The hull of a life-boat or vessel consisting of a concavo-convex bottom, A, and a conical, conoidal, or pyramidal top, B, attached to said bottom, in combination with a central tube, I, attached to and passing through said bottom, for the reception of a ballast-weight, substantially as and for the purpose specified.

196,875. PIPE-COUPLINGS. Elisha S. Chapell, South Boston, Mass. Filed Apr. 17, 1877.

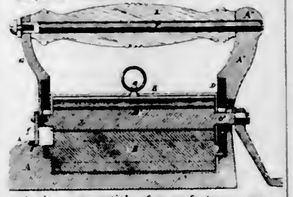


The improved adjustable pipe-coupling herein described, consisting of two parts, A E, curved at e d, and having diagonally cut-off ends, facing each other, the parts being provided with conical seats n n', and united by the screw-threaded bolt B and conical cap-nuts N N', substantially as and for the purposes herein shown and specified.

196,876.



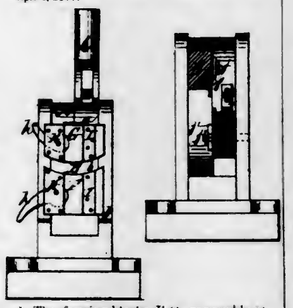
196,876. PLOUGH-IRONS. Jehial H. Cleveland, Buffalo, N. Y. Filed Mar. 9, 1877.



1. As a new article of manufacture, a combined sad and fluting iron, consisting of a recessed base, A, having the slotted rear support A', provided with a fixed handle-rod, F, front support G, attached to said rod with one end, and provided with the pivoted connecting-piece g, having the projection g' engaging with the catch h on said base on the other end, and two fluting rollers, B B', of which the upper one is provided with a bail, K, and handle C, the whole constructed and arranged substantially as and for the use and purpose stated.

2. In a combined sad-iron and fluter, a front support and guide-piece for the upper roller, said support being removably attached to a stationary handle-rod, and provided with a recess for the pivot of said roller, and with a brace, g, pivoted to said support, and provided with a projection, g', engaging a catch, h, on the base of said iron, as hereinbefore set forth and described.

196,876. PLOUGH-IRONS. Jehial H. Cleveland, Buffalo, N. Y. Filed Mar. 9, 1877.



1. The forming-blocks F G, removably attached to the levers A B, and having their adjacent faces formed so as to fit each other, one being convex and the other concave, and adapted to the bending of tires or other similar pieces, substantially as described and set forth.

2. The lugs or projections H I on the blocks F G, removably attached to the levers A B, the face of the lugs I being corrugated, and the lugs H being provided with retaining-cams h, to lock pieces in between the said lugs H and I, for the purpose of upsetting them by the pressure imparted from the levers A B, as and for the purpose set forth.

196,878. FLUTING-IRONS. Jehial H. Cleveland, Buffalo, N. Y. Filed Mar. 9, 1877.

1. As a new article of manufacture, a combined sad and fluting iron, consisting of a recessed base, A, having the slotted rear support A', provided with a fixed handle-rod, F, front support G, attached to said rod with one end, and provided with the pivoted connecting-piece g, having the projection g' engaging with the catch h on said base on the other end, and two fluting rollers, B B', of which the upper one is provided with a bail, K, and handle C, the whole constructed and arranged substantially as and for the use and purpose stated.

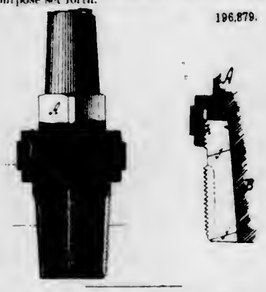
2. In a combined sad-iron and fluter, a front support and guide-piece for the upper roller, said support being removably attached to a stationary handle-rod, and provided with a recess for the pivot of said roller, and with a brace, g, pivoted to said support, and provided with a projection, g', engaging a catch, h, on the base of said iron, as hereinbefore set forth and described.

196,879. SCREW-TAPS. James Cook, Brooklyn, N. Y. Filed July 19, 1877.

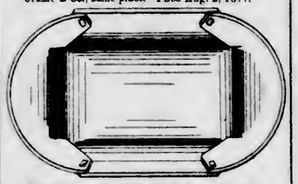
1. The combination, in a screw-tap, of a stock, a barrel provided with a screw-thread at its inner end, a series of frames fitting into recesses in the barrel, and provided with segmental screw-threads at their inner ends, detachable cutters which fit said frames, and a nut which catches over a flange or shoulder on the stock, and which fits the screw-threads of the barrel and of the cutter-supporting frames, all constructed and operating substantially as shown and described.

2. The combination, with the stock A and barrel B, of cutter-supporting frames provided with oblique recesses for the reception of the cutters, the ends of said recesses being parallel to each other, substantially as and for the purpose set forth.

196,879.



196,880. PAPER DISHES. Wm. E. Orume and Peter M. Aulebaugh, Dayton, Ohio, assignors to Aulebaugh, Orume & Co., same place. Filed Aug. 2, 1877.



A paper or straw-board dish made from a blank, A, with cut-out side portions and slits b, turned up and united, substantially as shown and described, so that there are no broken or scored bottom edges, as and for the purpose specified.

196,881. TREATMENT OF MINERAL PHOSPHATES. P. G. L. G. Designolle, Paris, France. Filed Oct. 13, 1877.

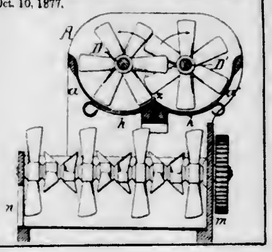
Brief.—Method of obtaining from mineral phosphates, or poor and calcareous phosphatic earths, monobasic or tribasic phosphate of lime, superphosphates, and phosphorus by means of sulphurous acid.

1. The process herein described of eliminating carbonate of lime and of enriching poor mineral phosphates, also of transforming tribasic phosphate of lime into monobasic phosphate in solution by the employment of sulphurous acid, either in closed vessel under pressure or in open vessel, substantially as herein described.

2. In the manufacture of rich superphosphates, treating monobasic phosphate in solution, previously concentrated by evaporation by means of burned gypsum or plaster-of-paris, substantially as herein described.

3. In the manufacture of phosphorus, the use and application of solutions of monobasic phosphate of lime obtained by the sulphurous acid treatment, substantially as herein described.

196,882. APPARATUS FOR MIXING PLASTIC COMPOSITIONS. Augustus Dietz, Philadelphia, Pa. Filed Oct. 10, 1877.

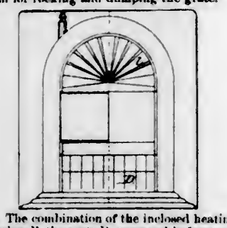


1. A mixing apparatus in which a vessel, A, is combined with two shafts, D and D', caused to revolve in the direction of the arrow, each shaft carrying a series of oblique blades, some inclined in one direction, and others in a contrary direction, and the blades of one shaft crossing and co-operating with those of the other as the said shafts revolve, all substantially as set forth.

2. The combination of the upper vessel and its revolving mixers, openings, and doors, with the lower vessel, having two shafts, arranged at right angles to those above, and carrying blades, all of which are inclined in the same direction, as set forth.

196,883. WARMING-STOVES. Robert E. C. Diver, Memphis, Tenn. Filed June 18, 1877.

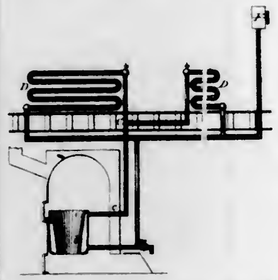
Brief.—A warming-stove with open grate and inclosed heating-chamber in rear of grate, and having the upper casing overhanging the grate, and serving as a flue. Peculiar mechanism for rocking and dumping the grate.



1. The combination of the inclosed heating-chamber B, the grate D, arranged in front and near the bottom thereof, and the flue chamber C', arranged above said heating chamber and overhanging the grate, as described.

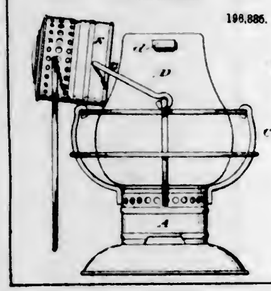
2. The combination of the swinging grate D, the forked plate K, and the rocking-rod *i*, as set forth.

196,884. COMBINED FIRE-POT AND WATER-HEATER. E. P. Doyen, Portland, Me. Filed Mar. 31, 1877.



The combination, with a hot-air furnace, of a fire-pot adapted to serve as a reservoir for water, and the system of pipes C E, radiators D, and expansion-tank F, substantially as described, for the purposes herein shown and specified.

196,885.



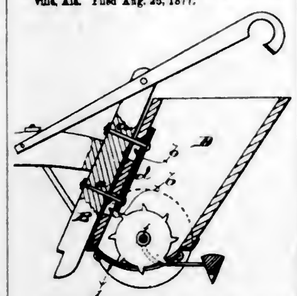
196,885. LANTERNS. Anthony M. Dubarn, Newport, Ky., assignor to Napoleon Du Brul, Cincinnati, Ohio. Filed Oct. 8, 1877.

1. The combination of base or body A, rigidly-attached cage or fender C, hinged guard-wires G, and removable top or dome E, substantially as set forth.

2. The perpendicular guards G of a lantern, made with hinged joints between the dome E and base or body A, to enable the removal of the globe, substantially as set forth.

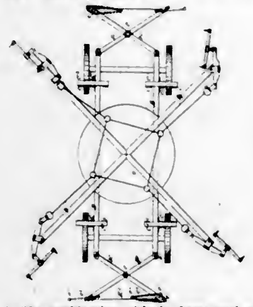
3. The combination, with the removable top or dome E, of the teats *d* upon the globe D, substantially as set forth.

196,886. COTTON-PLANTERS. Jas. W. Elliott, Prattville, Ala. Filed Aug. 25, 1877.



A cotton-seed hopper, D, attached to the plow-stock B by means of the bolts *a a* fastened in said stock, and passing through slots *b b* in the front portion of said hopper, and connected together by the plate *d*, as and for the purpose set forth.

196,887. HORSE-POWERS. John H. Elward, St. Paul, Minn. Filed May 22, 1877.



1. The combination, with the frame-work of a horse-power, of the truss-brace E E' E' *e*, substantially as set forth.

2. The combination, with the frame-work of a horse-power, of the rising and falling supporting-standard C, substantially as set forth.

3. The combination, with the sliding standard C, of the locking-plates 1, substantially as set forth.

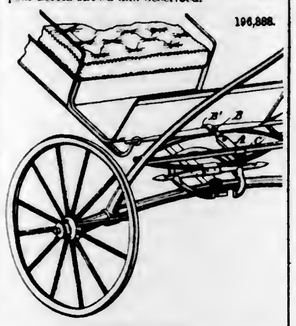
4. The combination, with the T-piece C' and stakes *c*, of the pivoting and locking staples *c'*, substantially as set forth.

5. The combination, with the frame-work of a horse-power, of the sliding and rotating standard, Fig. 4, substantially as set forth.

6. In a horse-power, the combination, with the sweep-levers and the links of the draft-equalizer, of levers pivoted to the sweep-levers, and provided at their inner ends with detachable fastenings, adapted to connect the pivoted levers with the equalizer, or with the sweeps, at the will of the operator, substantially as set forth.

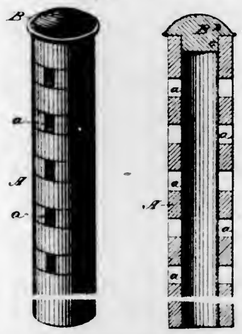
196,888. VEHICLE SHAFT-HOLDERS. W. H. Froman and J. A. Froman, Elizabethtown, Ky. Filed Aug. 13, 1877.

As an improvement in shaft-holders, the combination of the hinge C with the socket-piece A, having adjustable hook B B', the said socket-piece projecting back of the hinging-point *c*, substantially as and for the purpose herein shown and described.



196,888.

196,889. FENCE-POSTS. Erastus L. Gillham, Merritt, Ill. Filed Feb. 17, 1877.



As an article of manufacture, a fence-post made of clay, and consisting of a hollow cylindrical body, A, of equal width throughout, and having slots *a a* and separate cap-piece B, substantially as and for the purpose herein shown and specified.

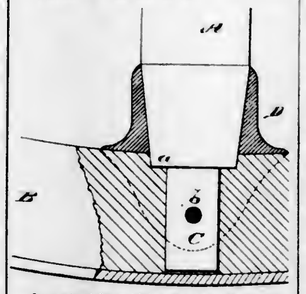
196,890. PORTABLE HOT-AIR AND VAPOR BATHS COMBINED. Gerald Gordon, Cincinnati, Ohio. Filed Oct. 18, 1877.



1. The vapor-bath generator consisting of stand A, lamp B, pan C, and deflector E F.

2. A water-proof or impervious cloak or cape, K, for use in medicated or vapor bathing, composed of a woven fabric coated with a mixture of linseed oil and powdered asbestus.

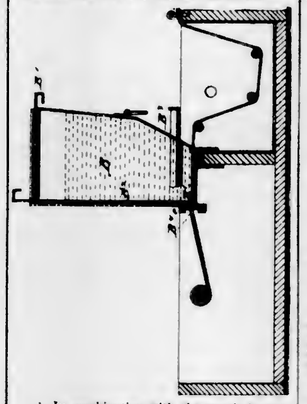
196,891. SPOKE-SOCKETS. George F. Graves, Mount Upton, N. Y. Filed Oct. 13, 1877.



In a wheel for vehicles, the metal ferrule D, formed with the lips D' D', in combination with the spoke A, having tenon C and shoulder *a*, the felly B, and the rivet *b*, substantially as and for the purposes set forth.

196,892. APPARATUS FOR PREPARING SURGICAL BANDAGES. Frank Green, Columbia, S. C. Filed Apr. 30, 1877.

Brief.—The bandage, as it is passed through slots in a hopper, is automatically coated with plaster-of-paris of any requisite thickness.



1. In combination with the supply-hopper having bottom slots for the passage of the bandage, a vertically-sliding gage for regulating the thickness of the plaster of paris, substantially as specified.

2. The combination, with a supply-hopper for plaster-of-paris having bottom slots for the passage of the bandage, of a regulating gage or slide at the exit-slot and a cut-off slide above the bottom, substantially in the manner set forth.

3. The combination of the plaster-of paris hopper B, having guides *c* near the exit-slot, with a lateral slide, B', to be adjusted to width of bandage, substantially as shown and described.

196,893. HANGING CIRCULAR SAWS. Frank Hamilton, Washington, D. C. Filed Aug. 9, 1877.

Brief.—The saw is attached to a flexible shaft, and can be operated in any desired direction, and at any desired distance from the driving-power, and is readily changeable from one of said directions to any other while in motion.

1. A tree-feller and sawing-machine composed of a circular saw, a sleeve or handle for supporting and for changing the position of the saw, and a flexible shaft for operating the saw, substantially as set forth.

2. The combination, substantially as described, of a flexible shaft, a sleeve or handle free to revolve around said shaft, and a sleeve adapted to support a tool-holder.

3. The combination, substantially as described, of a flexible shaft, a short rigid adjustable shaft, *a*, operated thereby, and adapted to carry a saw or other instrument, and a locking device adapted to hold such rigid shaft to its adjusted position.

4. The combination, substantially as described, of a circular saw, a flexible shaft for driving the same, and a revolute tubular handle or sleeve for shifting the position of the saw.

5. The combination, substantially as described, of a circular saw, a flexible shaft, and a sleeve having a joint for changing the position of the tool-supporting sleeve relative to the handle.

6. The combination, substantially as described, of a circular saw, a flexible shaft, a joint for changing the position of the saw-supporting sleeve, and a handle for shifting the position of the saw.

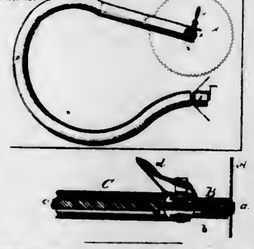
7. The combination of the shaft *a*, short flexible shaft *b*, shaft *c*, and sleeves B and C, substantially as shown.

8. The combination, with a flexible shaft, of the sleeves B and C and locking-lever *d*, substantially as described.

9. The combination, with a flexible driving-shaft, of a non-flexible shaft connected thereto, a sleeve surrounding the same, and a short flexible shaft connecting the non-flexible shaft with the tool or tool-stock, substantially as and for the purposes set forth.

10. As a means for changing the position of the tool-holder, the connecting-joint between the parts C and B, the spring-lever *d*, and the series of holes *i*, substantially as shown and described.

196,893.



196,894. MANUFACTURE OF WATER-PROOF VULCANIZED FIBER. Thompson Hanna, Pittsburg, Pa., assignor of one-half his right to Thompson S. Hanna, same place. Filed Oct. 13, 1877.

1. The within-described method of rendering vulcanized fiber water-proof or moisture-proof, consisting in submitting it to a bath of nitric acid, or its described equivalents, substantially as specified.

2. As a new article of manufacture, vulcanized fiber having its substance moisture-proof.

196,895. MANUFACTURE OF VULCANIZED FIBER. Thompson Hanna, Pittsburg, Pa., assignor of one-half his right to Thompson S. Hanna, same place. Filed Oct. 13, 1877.

1. In the described processes of manufacturing vulcanized fiber, the method of utilizing the waste or cleansing bath, holding chloride of zinc in solution, consisting in submitting it to the action of chemical reagents, substantially as set forth.

2. In the process of utilizing the said cleansing bath, holding chloride of zinc in solution, the method of recovering the zinc by submitting the solution to the action of another solution in water, of a salt having, in its combination, an acid whose anhydrous constituent has superior affinity for the zinc, whereby the two form a new combination, substantially as specified.

196,896. CAR-COUPLINGS. William Harrison, Linneus, Mo. Filed Apr. 21, 1876.

1. The combination of the sliding case, having inclines, as specified, the coupling device having beveled shoulders and a draw-head, substantially as shown and described.

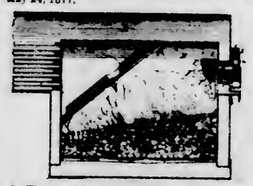
2. The combination, with the draw-head, of the sliding case, having inclines *c* and notches *d*, and the coupling device D, having beveled or pointed shoulders *a*, as shown and described, whereby, when the coupling device is raised by the forward movement of the case, the points *a* will enter said notches and lock the two parts D C together, as specified.

3. The combination of the coupling device, the sliding case, and pivoted slotted lever with the draw-head, substantially as and for the purpose specified.

196,896.



196,897. DEVICES FOR FEEDING AIR TO BOILER-FURNACES. Henry F. Hayden, Washington, D. C. Filed May 24, 1877.



1. The combination, with the air-duct D, of the perforated distributing pipe or chamber projected within the fire-pot, and having the pendent perforated wings or arms, substantially as and for the purpose described.

2. The combination, with the air-duct D and distributing pipe or chamber F, of the upright air box or chamber E, with its inlet-openings and adjustable cover or valve, substantially as described.

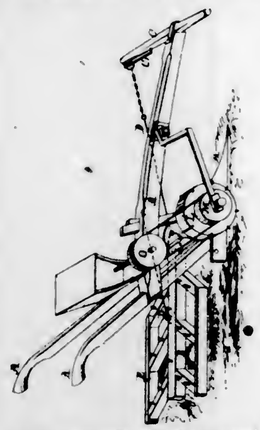
3. The distributing pipe or chamber F, projected within the fire-pot, and provided with numerous minute perforations, increasing in size and frequency, either or both, as they approach the sides or ends of said pipe or chamber, as described.

196,898. NAPKIN RINGS AND HOLDERS. John Heberling, Iowa City, Iowa, assignor of one-half his right to Georg W. Marquardt, same place. Filed Sept. 27, 1877.

1. A napkin-ring provided on its exterior with projections or indentations for the attachment of a detachable napkin supporter, as herein set forth.

2. A donble hook or clasp provided with an interior spring, and adapted to be attached to a napkin-ring, substantially as and for the purposes herein set forth.

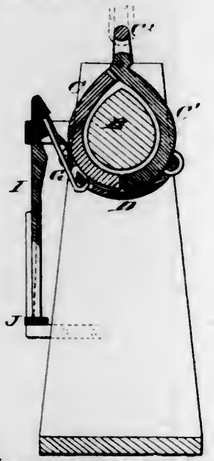
196,899. COMBINED PLOW, HARROW, AND SEEDER. John Hoffacker, English Lake, assignor of one-half his right to Louis Knopf, C. H. Knopf, and Michael Knopf, Richmond, Ind. Filed Oct. 3, 1876.



1. The combination of plow A, ground-wheel L, connected belt-pulleys M and O, for operating seed-dropper G, harrow E, hitched upon the furrow side of the plow beam, chain D, and equalizing double-tree C.

2. The equalizing double-tree C, having elongated loop C', and harrow-chain D, connected to said loop by a sliding ring, as shown.

196,900. STIRRUPS. Harvey M. Hollingsworth, Clinton, Tenn. Filed Sept. 22, 1877.



1. In combination with a stirrup, a clamp for connecting the same with the stirrup-strap, a catch for holding the clamp closed, and a device for automatically releasing said catch, as and for the purposes set forth.

2. In combination with a stirrup, the clamp C C', strap or link D, spring catch G, notched bar I, and cross-bar J, all substantially as and for the purposes set forth.

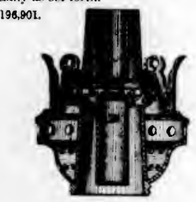
196,901. LAMP-BURNERS. Francis Holt, Newark, N. J. Filed Oct. 26, 1877.

1. A wick-tube made of a single piece of metal, and provided with openings, as described, near its center, and at a point below the flame, for preventing the heat from communicating with the oil-reservoir, substantially as set forth.

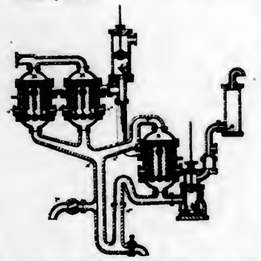
2. In a lamp-burner, a wick-tube, C, provided with the openings *a*, and having the metal above and below said openings made bulged or flaring outward, substantially as and for the purposes herein set forth.

3. The combination, in a lamp-burner, of a perforated or slotted wick-tube, C, and an exterior hood, G, said hood extending slightly above the openings in the wick-tube, but falling short of the point of combustion sufficiently to prevent the downward conduction of heat, an air passage being formed around the wick-tube at the terminus of the hood, all substantially as set forth.

196,901.



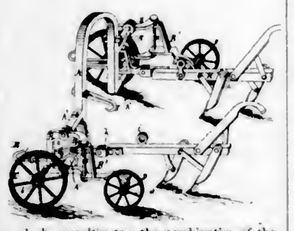
196,902. COMPOUND CONDENSING APPARATUS FOR STEAM-ENGINES. John Houpt, Springtown, Pa. Filed July 2, 1877.



1. The primary surface-condensers R R and secondary surface-condenser S, in combination with the pipes r' r''' and connection P, substantially as and for the purpose set forth.

2. The primary surface-condensers R R and secondary surface-condenser S, in combination with the pipes r', r'', and r''', and with the connection P, intermediate of the pipes r' and r''', substantially as and for the purpose set forth.

196,903. CULTIVATORS. Henry S. Heyman, Stanwood, Iowa. Filed Sept. 27, 1877.



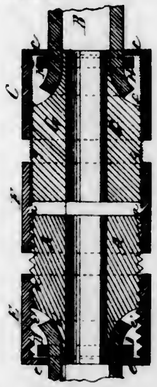
1. In a cultivator, the combination of the arched axle A, with parallel arms A' A'' at each end, the frames B B, attached to said arms and projecting forward thereof, the spindles *b b*, projecting from said frames in front of the axle, and the wheels C C, placed on said spindles, substantially as and for the purposes herein set forth.

2. In a cultivator, the combination, with the arched axle A, having arms A' A'', the frames B B, and the wheels C C, of the hinged or swiveled frames B' B', having spindles *d d* and the wheels D D, substantially as and for the purposes herein set forth.

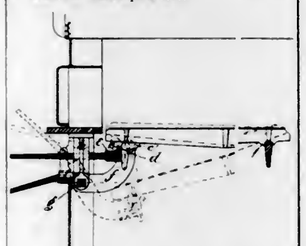
196,904. HOSE-COUPLINGS. Simon Ingersoll, Stamford, Conn. Filed Apr. 14, 1877.

The improved hose-pipe coupling described, consisting of the conical center piece A, with screw-threads *a*, cone *a'*, the coupling-pieces E and C, with flange *e* and *e*, the rings D and H, the cone-piece G, and the union-piece F, all arranged to operate in combination with the hose B, having splits *b*, substantially as set forth and specified.

196,904.



196,905. FURNACE-GRATES. Thomas James, Braddocks, Pa. Filed Sept. 8, 1877.



1. A furnace-grate composed of independent and removable bars *a*, sustained at their front ends upon a vertically-movable support, and resting upon a rock bar or bars having alternating studs on opposite sides, in combination with the bed-plates of a furnace, substantially as described, whereby the grate may be lowered at its front end below the level of the bed-plate, so as to deliver into the ash-pit.

2. In combination with the rock-shaft *d*, supporting the front ends of the grate-bars, and constituting bearings for said shaft, the arms *f*, rigidly connected by rod *g*, and journaled, as shown, whereby the forward end of the grate, or a section thereof, may be lowered.

3. The combination of the grate-bars *a* with a forward support, comprising a pivoted or hinged frame, by which the grate or a portion thereof may be lowered below the level of the bed-plate, and a rock bar or bars having alternating studs on opposite sides, by which said bars may be alternately raised and lowered to agitate the fire, substantially as described.

196,906. MACHINES FOR MAKING INLAID WORK. E. Jobson, Chicago, Ill. Filed July 2, 1877.

Brief.—Two vertically-reciprocating punches operate in connection with an intermediate die-plate, to punch or cut figures or pieces out of strips of veneer, and transfer the pieces from one strip to another.

1. In a machine for punching blanks for inlaid work, the combination of reciprocating dies with stationary intermediate die-plate, whereby the blank is cut and transplaced in one operation, substantially as described.

2. In a machine for punching blanks for inlaid work, the combination of reciprocating dies and stationary intermediate die-plate with

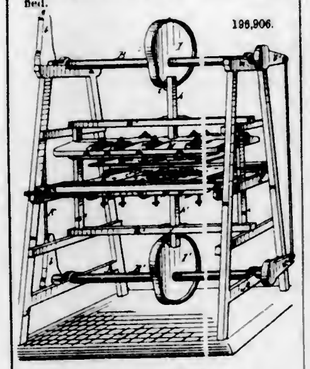
spring-plates secured to and operating in advance of the said dies, substantially as and for the purposes set forth.

3. The die-plate C, composed of sections *c* placed between bars E, and adjustably secured upon bars F by screws *e* and G, and angular plates *f*, substantially as described and shown.

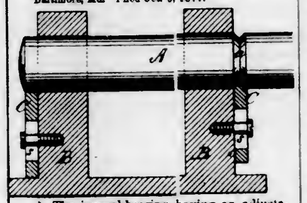
4. The punch-heads H H', having stems *h h'* and T-shaped grooves *i*, for adjustably securing the sectional punches M by means of bars N, bolts L, and set-screws *s*, substantially in the manner described and shown.

5. The stationary die-plate C, the reciprocating plates Q, and punches M, driven by shafts R and R', and cams I and I', all arranged within a frame, A, substantially in the manner described, and for the purpose specified.

196,906.



196,907. BEARINGS FOR SHAFTS. Levin T. Jones, Baltimore, Md. Filed Oct. 6, 1877.

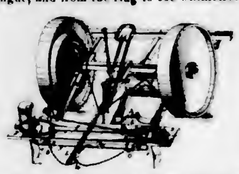


1. The journal-bearing having an adjustable plate or plates, adapted to support and prevent endwise play of a journal grooved to receive said plate on its extremity or extremities, substantially as specified.

2. The combination, with the pillow-blocks B and the vertically adjustable guide-plate C, of the shaft A, having annular grooves *a*, adapted to receive the upper end of said plate, substantially as specified.

196,908. CORN-PLANTERS. Henry Jones, Coshocton, Ohio. Filed July 16, 1877.

Brief.—Interchangeable motion is communicated to the seed-slide by crank and gear and cam mechanism. To the cross-bar is journaled a rock-shaft having upturned ends, that rest in notches in the bar behind the spring-arms, for carrying them out of contact with notched dropping-disk as the shaft is rocked forward by the elevation of the tongue. Chains extend forward from clevises to a ring attached to the tongue, and from the ring to the whiffletrees.



1. In a corn-planter, the slide F, carrying the spring-arms G G', and provided with pin k^1, for attachment of crank and gear mechanism, and with pin k^1, for connecting the lever and cam mechanism, substantially as and for the purposes set forth.

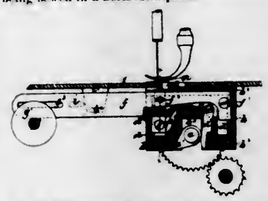
2. In a corn-planter, the rock-shaft N, having an arm, *o'*, adapted to be moved by the tongue of the planter when the main frame is raised from the ground, substantially as and for the purposes set forth.

3. The combination, with the seed-slide F and spring-arms G G', of the rock-shaft N, adapted to be moved by the raising of the main frame, and having arms which disengage the said spring-arms from their ratchets, substantially as described and shown.

4. In a corn-planter, the combination of the two clevises O O', joined by a chain, P, which is connected centrally with the whiffletrees, substantially as described and shown.

196,909. FEED MECHANISMS FOR SEWING-MACHINES. Thos. K. Keith, Haverhill, Mass., assignor to Moses How, same place. Filed Sept. 4, 1877.

Brief.—To the primary feed is added a secondary feed-dog, with mechanism whereby, at the will of the operator, the same may be raised or lowered into or out of action, and which, when raised, serves to reciprocate the material being sewed in a horizontal plane.



1. In combination with the stitch-forming mechanism of a sewing-machine, and with the primary feed 2, adapted to propel the work in a single direction, the secondary feed-dog *a* and mechanism, substantially as described, for reciprocating the latter in substantially a horizontal plane, and for raising and lowering the same, whereby the dog, when raised, supersedes the primary feed and reciprocates the work, instead of propelling it in one direction, substantially as and for the purpose specified.

2. The cross-head *d*, carrying the feed-dog *a* and adjustable blocks d^1 d^2, combined with the bracket *b*, having guides b^1, and the shaft *c*, having cam c^1, substantially as described.

3. The combination of the feed 2, the secondary reciprocating feed-dog *a*, and the horizontally-sliding cross-head *d*, carrying a pivoted lever, *f*, secured to and serving to adjust the dog vertically and independently of the primary feed, as set forth.

4. The combination of the longitudinally and vertically movable lever *f* and feed-dog *a* with mechanism, substantially as described, whereby the vertical movement of the lever is prevented, excepting when the feed-dog *a* is at the end of its stroke nearest the needle, substantially as and for the purpose specified.

5. The combination of the lever *f* with shaft g^2, provided with pin *g* and stops g^3 g^4, whereby its rotation is limited and the lever *f* raised or lowered, substantially as and for the purpose specified.

196,910. HAY ELEVATOR AND CARRIER. C. Kistner, Freeport, Ill., assignor to W. G. & W. Barnes, same place. Filed Sept. 24, 1877.

Brief.—The recess in the track-beam affords space to receive the pivoted dog when unlocked from the pulley-block by pressure against the rear stop-plate.

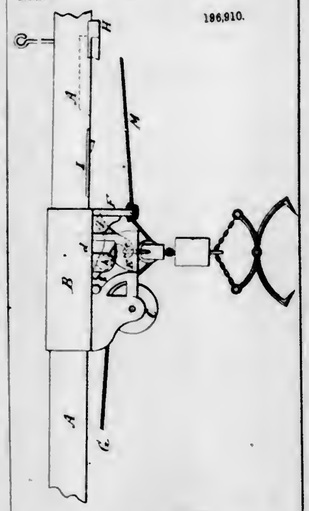
1. The combination of the slotted track-beams A with the stop-plate H, having beveled step *i* reseding up into the slot in the track-beam, substantially as and for the purpose herein shown and described.

2. The combination of the slotted track-beams A, having the stepped plate H, with the catch-plate I, having beveled lug *l*, substantially as and for the purpose herein shown and described.

3. The combination of slotted sleeve B, having pivoted dog D, track A, and stop-plates H I, substantially as and for the purpose herein shown and described.

4. The combination of carriage B, having pivoted dog D, pulley-block *p*, having bail O, ropes G M, track A, and stop-plates H I, all constructed and combined to operate substantially as and for the purpose hereinbefore set forth.

196,910.



196,911. MACHINE-BELTING. Conrad Kohsel, Hanover, Prussia. Filed Oct. 9, 1877.



The machine or driving belt herein described, consisting of a warp and weft of a textile material, and cords formed of twisted wires or strips of metal, arranged at intervals apart parallel with the warp, and completely covered by the latter and the weft, as and for the purpose set forth.

196,912. PIANO-ACTION FRAMES. Hellmuth Kranich and Jacques Bach, New York, N. Y. Filed June 29, 1877.

Brief.—The invention relates to the construction of metal action-frames for upright pianos.

1. A piano-forte-action holder or rest consisting of a metal box or shell, A, open at the back, and adapted to receive and hold a wooden hammer-rail, substantially as described.

2. A holder for a piano-forte action, as specified, supported from the iron or metal string-frame, substantially as described, whereby the several parts of the piano-forte may be so connected that their proper relations will be preserved.

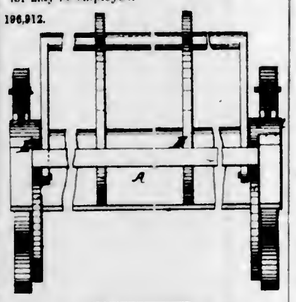
3. The combination, with a piano-forte-action holder, as described, of devices for securing it directly to the iron or metal string-frame, substantially as and for the purpose set forth.

4. The combination, with a piano-forte-action holder, as described, supported by devices on the iron or metal string-frame, of legs adapted to support it when detached from other parts of the piano-forte, substantially as set forth.

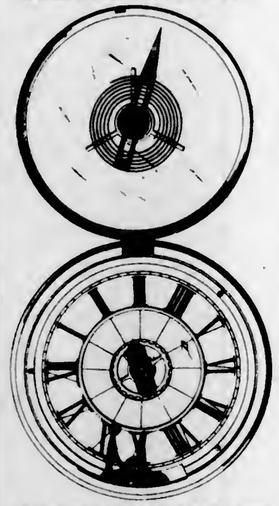
5. The combination, with a piano-forte-action holder, of a hammer-rest rail cast with its

supporting-arms in one piece of metal, and pivoted to the holder, substantially as set forth, whereby derangement of the action incident to the warping or shrinking of such rail is obviated and short stops or rests therefor may be employed.

196,912.



196,913. WATCHMEN'S TIME-DETECTERS. William W. Le Grande, Louisville, Ky. Filed Oct. 22, 1877.



1. In watchmen's time-checks, a gradually-moving registering-hand that is automatically moved in a radial line by the clock-train while performing its circuit over the dial, for the purpose hereinbefore set forth.

2. A radially-sliding registering-hand connected to the glass front of the clock, and moving with it when the same is opened, for the purposes herein set forth.

3. A radially-sliding registering-hand connected to the glass front of the clock, and operated by an exterior spring-button for puncturing the disk, substantially as herein set forth.

4. The combination of a radially sliding registering-hand, provided with a projecting guide-pin, and a spiral guide attached to or formed on the inside of the glass front, for the purposes herein set forth.

5. The combination of a radially-sliding registering-hand, a clock mechanism for rotating the same, and a spiral guide for sliding it radially, substantially as herein set forth.

6. In a watchman's time-detecter, a locking device for locking the clock automatically and unlocking the same by the action of the registering-hand, substantially as herein set forth.

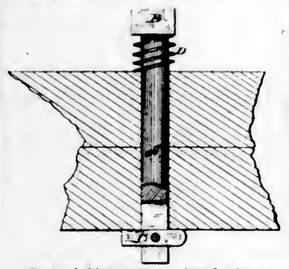
7. The combination of a rotating and radially-sliding registering-hand and a locking device opened only at set times by said hand, for the purposes herein set forth.

8. The combination of a clock mechanism, a spiral guide, a rotating and radially-sliding registering-hand, and an automatic locking device, substantially as and for the purposes herein set forth.

9. The combination of the latch J with curved arm s and the weighted lever L, having notches s s', substantially as and for the purposes herein set forth.

10. In a watchman's time check or register, a front having a spiral groove in the inner surface, substantially as shown and described, for the purpose set forth.

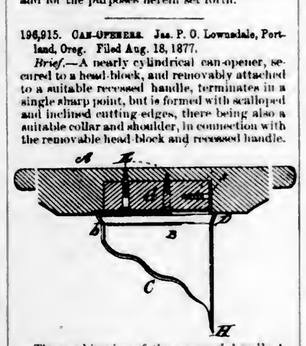
196,914. BOLT-LOCKS. Edward J. Lockwood, Danbury, Ohio. Filed Oct. 2, 1877.



The headed bolt or pin A, slotted at its end, and provided with a spring, D, and with a key, C, pivoted in the slot, substantially as and for the purposes herein set forth.

196,915. CAN-OPENERS. Jas. P. O. Lowndale, Portland, Oreg. Filed Aug. 18, 1877.

Brief.—A nearly cylindrical can-opener, secured to a head-block, and removably attached to a suitable recessed handle, terminates in a single sharp point, but is formed with scalloped and inclined cutting-edges, there being also a suitable collar and shoulder, in connection with the removable head-block and recessed handle.

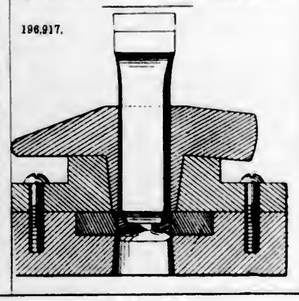


The combination of the recessed handle A with the cylindrical-shaped cutter B, having the single point H, scalloped cutting-edges C, collar D, and shoulder s, and the head-block G, removably attached in the recess of the handle, substantially as described.

196,916. CONDITION-POWDERS FOR HORSES AND CATTLE. Joshua H. Marshall, Roudout, N. Y., assignor to himself and Harvey Webster, same place. Filed Oct. 14, 1876.

An improved feed for animals, which consists of bloodroot, gentian-root, licorice-root, elecampane, fenugreek, grains of paradise seed, anise-seed, ginger, charcoal, flaxseed meal, and wheat shorts, mixed, in or about the proportions as set forth, with a basis of food.

196,917.



196,917. DIES FOR FORGING ADZ-EYE TOOLS. David Maydole, Norwich, N. Y. Filed July 27, 1877.

The die for drawing down the eyes of hammers, hatchets, picks, and other adz-eye tools, consisting of the base B^1, the separable forming upper part B, secured thereon, and the separable and reversible cutting-plate B^2, applied between the parts B B^1, as and for the purposes set forth.

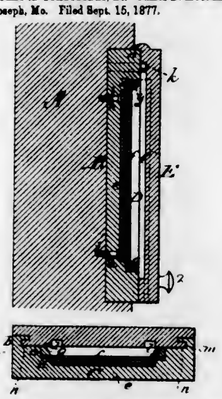
196,918. COMPOSITIONS FOR FIRE-KINDLERS. Wm. McArthur, Philadelphia, Pa. Filed Sept. 3, 1877.

Brief.—This composition can be applied to any form of fire-kindler; but preference is given to a kindler of the form as shown in the drawing, the slotted end of the kindler being dipped in the composition.



The within-described composition for fire-kindlers, the said composition consisting of benzine, balsam of fir, and resin, combined substantially in the manner and proportions set forth.

196,919. DEVICES FOR DEPOSITING AND COVERING PICTURES IN TOMBSTONES, &c. James D. McClain, St. Joseph, Mo. Filed Sept. 15, 1877.



1. The combination, with the stone A, having recess B, of the memento-case C, having recess D, with successive ledges *b c d*, inside grooves *m*, and pins or studs *k*, and the slide E, having grooves *l* and tongues *n*, substantially as specified.

2. The memento-case C, having the picture-recess D, with inside ledges *b c d*, the inside lateral grooves *m*, and the pins or studs *k*, and the sliding lid E, having lateral tongues *n* and longitudinal grooves *l*, combined, arranged, and operating substantially as specified.

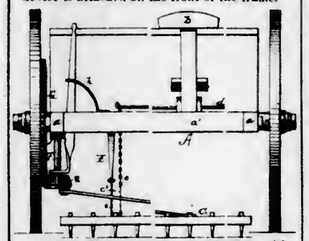
196,920. CIGAR-BOXES. Henry Meyers, New York, N. Y. Filed Sept. 22, 1877.



As a new article of manufacture, the within-described bottle-shaped cigar-case, divided transversely at or near its center to form the body C and cover D, the said body having a rim, *e*, and shoulder *f*, adapted to the lower edge of the cover, whereby, when the latter is in place, the outer surface of the case will be flush, substantially as and for the purpose described.

196,921. HARROWS. Robert Mitchell, Lincoln, Nebr., assignor of one-half his right to Richard W. Taylor. Filed May 8, 1877.

Brief.—The harrow-frame is suspended by chains from the axle-tree, and is drawn by springs secured to the forward frame. A vibratory motion is given to the harrow traction-wheel and connecting machinery. A seeding device is attached on the front of the frame.

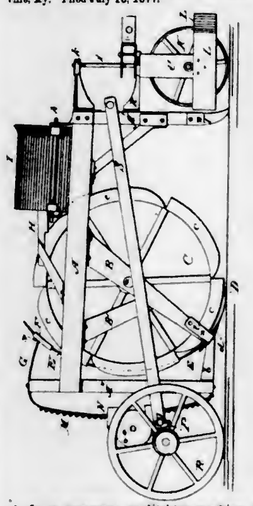


1. In a sulky-harrow, the combination, with the main frame, of the harrow-frame C, suspended loosely from its center to such main frame, and adapted to be vibrated from side to side, and springs E E', by which said harrow-frame is drawn forward, substantially as described and shown.

2. In a sulky-harrow, the harrow-frame C, adapted to be vibrated from side to side, in combination with the spring-arms E E' and connecting-rods *e e'*, whereby the harrow-frame is drawn forward by springs without interfering with its vibrating movement, substantially as described and shown.

3. The combination, with the main frame A of a sulky-harrow, of the harrow-frame C, suspended loosely from the main frame by chains *c c'*, the pitman and vertical shaft for vibrating such harrow-frame, and the spring-arms E E' and rods *e e'* for drawing the same forward, substantially as described.

196,922. DITCHING-MACHINES. George W. Nevill, Cavarna, assignor of one-half his right to John E. McKay, same place, and William Beard, Munfordsville, Ky. Filed July 18, 1877.



1. In an excavator or ditching-machine, an earth cutting and carrying wheel, C, provided with segmental notched or serrated curved flanges *c c*, having square front edges, substantially as and for the purpose herein shown and described.

2. As an improvement in excavators or ditching-machines, the combination of an earth cutting and carrying wheel, C, having side flanges *c c*, with a flexible spring-back, E, and elastic bracket G, substantially as and for the purpose herein shown and described.

3. The combination of the flexible spring-back E with the flexible spring-bracket G and sleeve F, substantially as and for the purpose herein shown and described.

4. The combination of the flanged wheel C, plow D, flexible spring-back E, sleeve F, and spring-bracket G, substantially as and for the purpose herein shown and described.

5. The combination of the flanged wheel C, castings B B', having the combined scrapers and braces *l l*, and plow D, whereby the wheel and plow are prevented from diverging from each other, substantially as and for the purpose herein shown and described.

6. The combination of the flanged wheel C, scraper H, and hinged tilting board I, substantially as and for the purpose herein shown and described.

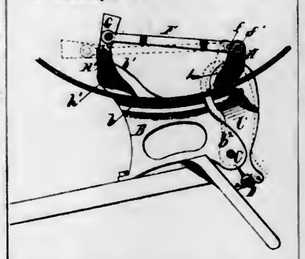
7. In an excavator or ditching-machine, the steering or guide wheel K having a shield or guard, L, to prevent its edges from cutting into the sides of the ditch, substantially as and for the purpose herein shown and described.

8. As an improvement in excavators or ditching-machines, the frame A A' A'', which carries the cutting and carrying wheel C, plow D, and segmental rack M, in combination with a rear or supporting axle, Q, provided with a sleeve, N, having friction-rollers *s*, so that the frame may adjust itself vertically by the rack M sliding through said sleeve, substantially as and for the purpose herein shown and described.

9. The combination of the sleeve N, having anti-friction-rollers *s*, pinion O, and segmental rack M, substantially as and for the purpose herein shown and described.

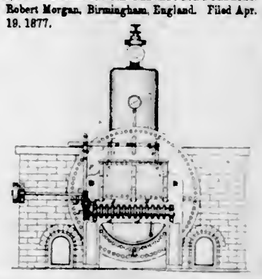
10. The combination of the axle Q, having segmental rack *s*, with the pivoted beam P', having lever P'' and spring-catch *r*, substantially as and for the purpose herein shown and described.

196,923. TIRE-UPSETTERS. John G. Mole, Batavia, Ill. Filed May 1, 1877.



The combination, substantially as herein shown and described, of the stationary concave bed or anvil B *b*, the movable bed or eccentric-lever C *c'*, the dogs H and H', their connecting-rod F, and the actuating-lever G, as and for the purpose set forth.

196,924. AUTOMATIC FUEL-FEEDERS FOR FURNACES. Robert Morgan, Birmingham, England. Filed Apr. 19, 1877.

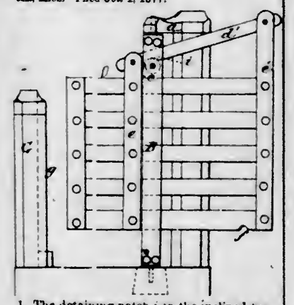


1. In a furnace, the combination, with a fuel-feeding hopper, of a feed-door, O, connected with operating mechanism, and having a vertical reciprocating movement, whereby an automatic feed of the fuel from the hopper into the furnace is produced, substantially as described and shown.

2. In a boiler-furnace, the combination of a vertically-reciprocating feed-door and grate-bars having a movement in the direction of their length, operated by power through suitable mechanism, substantially as described.

3. The combination, with the shaft and its pinion C and pinion-shaft E, of the crank-shaft B, pinion E, vertical lever P, and cross-arm S, all operating together in the manner and for the purpose set forth and shown.

196,925. FARM-GATES. Charles A. Mosher, Canopolis, Mich. Filed Oct. 1, 1877.



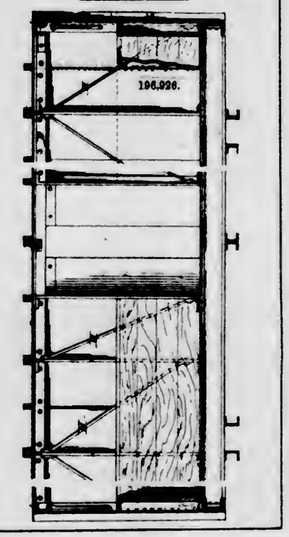
1. The detaining-notch *i* in the inclined top bar *d'* of the gate, in combination with the roll *c* in the swiveling-post B, substantially as herein set forth.

2. The combination of the grooved post G, gate D, having notch *f* in its bottom rail, and post B, having transverse pin *h*, substantially as described.

3. The longitudinally-sliding gate D, having notch *f* in the rear end of one of its rails, in combination with a supporting-post provided with a transverse rod or pin projecting therefrom in the path of said notch.

4. The combination, with a longitudinally-sliding gate, of a post having a vertical groove for the reception and support of the front end thereof, and a securing device in the swiveling-post, whereby the gate is held from being swung open or slid back.

196,926.



196,926. RAILWAY BOX-CARS. Samuel W. Murray, Milton, Pa. Filed Oct. 10, 1877.

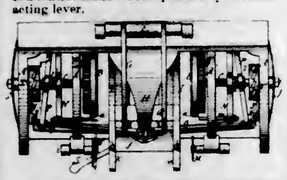
1. In combination with the flanged panels forming the walls and roof of the car, the flat bars secured between said panels, whereby the strength of the car is increased and a support for the interior lining of the same is formed.

2. In combination with the flanged panels forming the sides of the cars, the flat bar secured between the panels and bent at right angles at the ends and attached to the lower sills of the car, and the angle-irons supporting the roof, substantially as set forth.

3. The combination, in a box-car, of the flanged panels forming the sides and roof of the same, the bars secured between the flanges, and the metallic caps fitting over said flanges and bars, substantially as and for the purposes set forth.

196,927. BARREL-MACHINES. Jas. Naylor, Jr., Rochester, N. Y. Filed July 29, 1876.

Brief.—The staves are supported upon inclined rests while being equalized by two circular saws preparatory to entering the machine, are bilged by a fixed curved plate formed on the main frame, and having a narrow tongue for holding the center of the staves as they are forced into place by the drivers, after which they are fed into two simultaneously adjustable and revolving disks, in which the barrel is set up and held while the truss-hoops are driven on by arms passing through perforated cross-plates, and attached to followers adjustable upon the disk-shafts by levers pivoted to the collars of the followers, and connected, by rods, to a central crank-wheel operated by a double-acting lever.



1. In a barrel-machine, such as described, the disks H B, having an end movement and receiving simultaneous motion by means of connecting-gearing, and the ways I I, located under the said disks, pivoted at the lower end, so as to be adjustable vertically, and constructed with an open throat at the top, and a concentric depression directly below and in front of the disks, for the purpose of forcing the ends of the bent staves into contact with the disks, as shown and described, and for the purpose specified.

2. In a barrel-machine, the combination of the ways I I, the bilger H, and the driver or drivers G G, for bilging the staves as they enter the disks, substantially as described.

3. The bilger H, constructed with a spring end to prevent breakage of the staves, as herein described.

4. In a barrel-machine, the combination, with the ways I I and bilger H, of the gages L L, for placing the staves into position to be driven into the machine, as and for the purpose specified.

5. In a barrel-machine, the combination, with the ways I I and bilger H, of the saws M M, for equalizing the staves preparatory to entering the machine, as herein shown and described.

6. In a barrel-machine, the combination, with the revolving disks B B, of the followers N N, provided with the projecting arms *n n*, resting outside the disks, and having an endwise motion to drive the truss-hoops upon the barrel, as herein described.

196,928. OVERFLOW AND DISCHARGE VALVES FOR WASH-BOWLS, TUBS, BATHS, &c. Henry Ogden, Providence, R. I. Filed July 23, 1877.

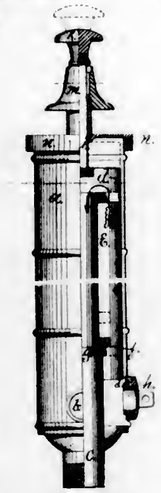
Brief.—A tubular valve is arranged in a vertical cylinder. When lifted up from its seat the water flows out from that level; but when closed the water can only flow from a much higher level, and the water-sealing is thus effected.

1. The combination, with the case *a*, provided with the inlet *b* and outlet *c*, of the cylinder *d*, closed on top, the overflow E, valve-seat *g*, and elastic valve *f*, all arranged with reference to each other, substantially as and for the purpose described.

2. In combination with the outlet-pipe *c*, extending upward to the valve *g f*, the overflow *k* and closed cylinder *d* of the case *a*, provided with the inlet *b*, outlet *c*, screw-cap *n*, and the plug *h*, substantially as and for the purpose specified.

3. The combination, with the cylinder *d*, overflow E, and valve *f g*, of the stem *i*, provided with the spline *l*, arranged to support the valve and cylinder *d*, substantially as and for the purpose set forth.

196,928.

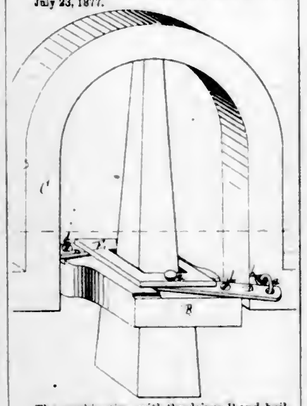


196,929. PROCESSES OF PRESERVING MEATS. Moses Ottenheimer and Louis Ottenheimer, Baltimore, Md. Filed Oct. 24, 1877.

Brief.—The animal is killed according to Hebrew custom, and objectionable portions removed. It is then salted, spiced, &c.

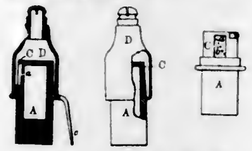
In the preparation of meat upon the Hebrew plan, the process of preserving the same by cleansing, salting, washing, preserving by spices, canning, and heating, in the manner and for the purpose substantially as herein described.

196,930. MILLSTONE-DRIVERS. John Planck, Constantine, Mich., assignor of one-half his right to B. A. Tharp and John P. Hartzler, same place. Filed July 23, 1877.



The combination, with the driver R and bail U of a millstone, of the rectangular equalizing-frame E, the levers D, pivoted to the said driver and equalizing frame, and the links and bolts *a b*, connecting the said levers to the heels of the bail, whereby the bail is rotated by the pulling of the levers upon the same, substantially as described and shown.

196,931. GAS-BURNERS. William G. Pugh, Baltimore, Md. Filed Oct. 10, 1877.

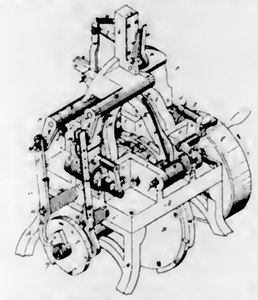


1. A gas-burner consisting of the following elements in combination—that is to say: the base A, having diagonally arranged apertures *a*, the sleeve C, adapted to have a limited circumferential movement, as described, and provided with the slot *b*, and the burner D, secured to or forming a part of the said sleeve, and constructed to be moved circumferentially therewith, substantially as and for the purpose specified.

2. The combination, with the slotted sleeve *b*, burner D, and perforated base A, of the arm *e*, for regulating or shutting off the supply of gas to the burner, substantially as shown and described.

196,932. MACHINES FOR FINISHING HORSESHOE-NAILS. Silas S. Putnam, Boston, Mass. Filed May 19, 1875.

Brief.—A V-shaped movable stop is placed beneath the receiving conductor, and so operated as to catch and raise the nail into the exact position with respect to the faces of the hammers necessary to the perfect formation of the point. A curved guard-piece on the side of the cam-wheel prevents one pair of the hammers from being thrown together at the instant that the nail is released from the griping mechanism of the conductor.



1. The conductor *k*, with its movable stop *l*, for catching the nail when first dropped therein, in combination with a mechanism for griping and holding the nail while being subjected to the blows of the hammers, and releasing it when finished, substantially as set forth.

2. The spring-lever N, in combination with the cam-wheel P and the nail-griping device, whereby a yielding pressure of the latter is secured, substantially as and for the purpose set forth.

3. In combination with the lever e and its spring, the rock-shaft *w*, provided with the crank *b'*, cam *a'*, and spring-lever N, operated by a suitable cam, substantially as described.

4. In combination with the arm *u* and V-shaped stop *l*, the arm 26, for preventing the arm *u*, when depressed, from striking the adjacent hammer, substantially as set forth.

5. The guard *c'*, in combination with the cam-wheel D and the arms 17 and 18 of the hammers H I, substantially as and for the purpose set forth.

6. In combination with the cam-wheel D, the hammer-arms 15 16 17 18, arranged substantially in the manner and for the purpose described.

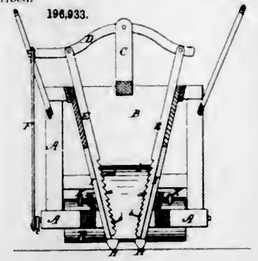
7. In combination with the hammer-spring *d*, the sleeve *e* on the shaft *f*, the toothed disk *g*, pawl *h*, lever *i*, and screw 29, for regulating the tension of the spring, substantially as described.

196,933. COTTON-PLANTERS. Daniel W. Reed, Allenton, Ala. Filed Oct. 2, 1877.

1. In a cotton-planter, the combination of the reversely-reciprocating seed-discharge bars, the spring-sections of the hopper, and the screws for adjusting the lower ends of the sections, substantially as shown and described.

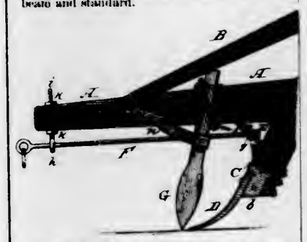
2. In a cotton-planter, the reversely-reciprocating toothed bars E E, having their lower ends corrugated or notched for the purpose of forming roughened surfaces between which the seed may be rubbed while being discharged, the hopper B, and the oscillating lever D, all combined and arranged as shown and described.

196,933.



196,934. PLOWS. Jesse Rich and Moses Rich, Hastings, Mich. Filed Sept. 12, 1877.

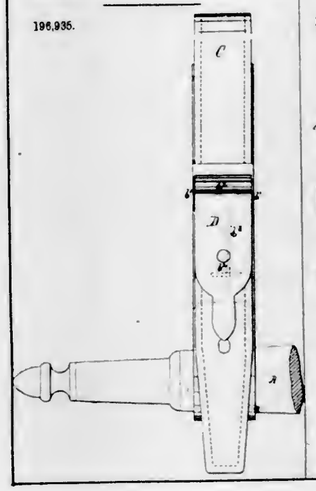
Brief.—Construction of mold-board. Rear end of draft-rod movable up or down upon notched brace, which passes diagonally through beam and standard.



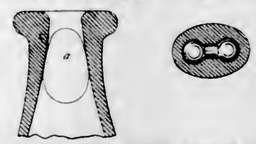
1. The mold-board D, having a forward curve upon the inside, a backward curve upon the outside, and the sharp curve *e* upon the upper part, substantially as described.

2. In combination with the beam A and standard C, the notched brace E, passing diagonally through the beam and standard, the key *f*, and the draft-rod F, all constructed substantially as and for the purposes herein set forth.

196,935.



196,936. APPARATUS FOR STOPPERING BOTTLES, &c. Thos. Rule, Durham, England. Filed May 22, 1877.



The bottle-stopper described, adapted to be contained in the bottle and forced into the neck of the same by pressure from within the bottle, consisting of an oval-shaped india rubber shell, and an inelastic core, constructed and arranged substantially as described and shown.

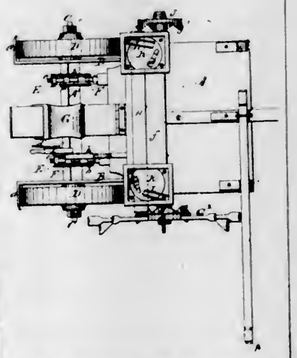
196,937. FLOWER-POTS. William F. Russell, Wheeling, W. Va. Filed Mar. 7, 1877.

Brief.—A flower-pot with saucer in a single piece, the bowl having two or more holes near the bottom for watering the plant.



As a new article of manufacture, the pot A, provided with holes *b b b* through its sides, just above the bottom, and saucer C, the whole made in one piece, substantially as described.

196,938. CORN-PLANTERS. Sven Rydbeck, Red Wing, Minn. Filed June 16, 1877.



1. The combination, with the platform A, pivoted arms B, and the shaft C journaled therein, of the sleeve or tree A' on axle C, the sectors E, having a peripheral groove, and a hook, *e*, a lever, F', and chains F, secured at one end to the platform, passing around the sectors, and engaging with the hook, substantially as specified.

2. The seed-box having a circular rabbet, *j*, a central bearing, *k*, a curved slot, *s*, and a drop-opening, *x*, in combination with a disk, K, having a spindle, *j'*, a spur, *l*, and a drop-opening, *s*, and a reciprocating slide having a transverse slot, *t*, adapted to receive said spur, substantially as specified.

3. The driver's seat G, hinged to the rear end of the vertically-adjustable platform A, overhanging the axle, and provided with a prop bearing thereon, substantially as and for the purpose specified.

196,939. ATTACHING DEVICES FOR LEATHER STRAPS. Thomas H. Sabin, Green Centre, Ind. Filed July 14, 1877.



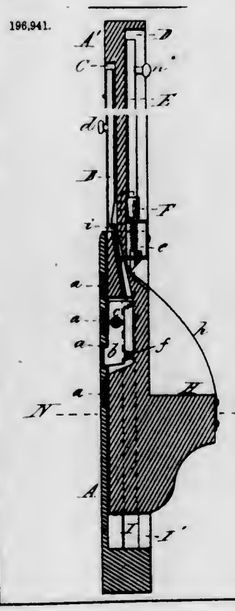
The combination, with the side-flanged bottom plate C', provided with corrugations, as shown, of the top plate C, fitting between the flanges *c c* of the plate C', and provided with corrugations corresponding to those of the bottom plate, the whole adapted, with the screws *a a*, to clasp and hold a strap, substantially as shown and described.

196,940. CLASPS FOR CORSETS. Orramus K. Scofield, St. Joseph, Mo. Filed Sept. 15, 1877.



The fastening clasp, consisting of the beveled and shouldered catch block or blocks, and the spring-catch and pressure-piece opposite said catch, and forming therewith a pair of jaws, between which the catch block or blocks are received and pressed into engagement with said catch, substantially as specified.

196,941.

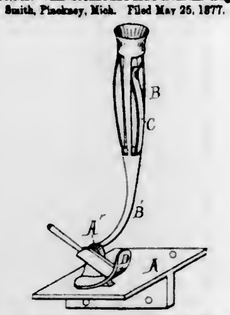


196,941. ADJUSTABLE STILTS. C. S. Shute, Springfield, Mass. Filed Sept. 7, 1877.

1. The combination, in an adjustable stilt, of the socket-piece A, provided with the recesses *a a*, and the sliding piece A', provided with the pivoted catch *b*, spring *f*, and rod B, all constructed and arranged substantially as herein described.

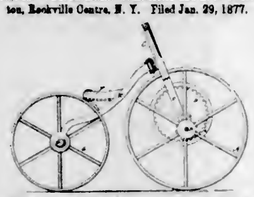
2. The combination, in a stilt, of the spring-loop A, arranged with and secured to the foot-piece, and the latch-rod and spring *e*, arranged in the handle, to secure and release the said loop when desired, substantially as described.

196,942. WHIP-SOCKET AND LINE-HOLDER. Augustus Smith, Pinckney, Mich. Filed May 25, 1877.



The combined whip-socket and line-holder A A' B B' D, substantially as described, as a new article of manufacture.

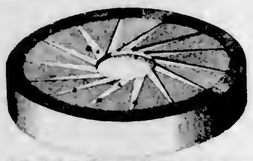
196,943. VELOCIPEDES. John Smith and E. T. Thurston, Rockville Centre, N. Y. Filed Jan. 29, 1877.



A velocipede having drive-shaft test to wheel A, and provided with end pinions *b*, the latter being operated by internally-geared wheels D, loosely pivoted on side studs *c*, and provided with treadles *d*, as shown and described.

196,944. MILLSTONE-DRESSER. Edward D. Speer, Springfield, Ill., assignor to the Brookville Paper Company, Brookville, Ind. Filed Mar. 29, 1877.

Brief.—Dresses a burr-stone as described, for reducing to pulp for the manufacture of paper.

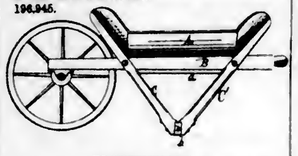


A dress for millstones for pulping porous material for the manufacture of paper, consisting of the tangential tapering straight furrows A, the intermediate lands picked with lines parallel to the track-edges *a a* of the furrows, and the skirt B, divided into sections defined by lines in continuation of the track-edges *a*, each section being picked with lines parallel to, but closer together than, the lines of the adjoining land, substantially as specified.

196,945. WHEELBARROWS. William H. Stevens, Cold Water, Mich. Filed Apr. 5, 1876.

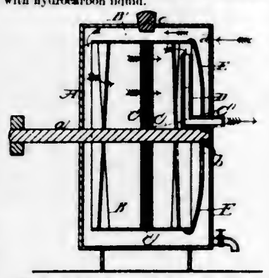
A railroad-wheelbarrow adapted to be knocked down for transportation, and having straight legs converging at the bottom and meeting under the center of the tray, a connecting cross-girt and covering-straps securing the legs and girt together, all constructed, arranged, and attached together, substantially as described and shown.

196,945.



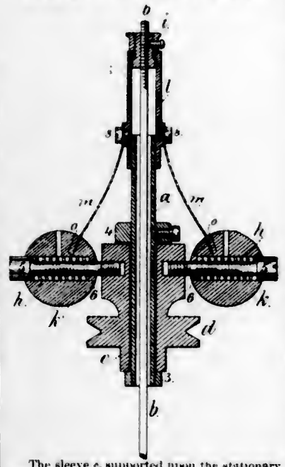
196,946. CARBURETERS. Jas. Stratton, Philadelphia, Pa., assignor to Osborn Conrad, same place. Filed Dec. 14, 1876.

Brief.—Air is drawn into a meter-wheel, where it is carbureted by being forced through absorbent material within the drum, saturated with hydrocarbon liquid.



The case A, with inlet *d* and exit pipe D, in combination with the single air-drum B, having similar open heads at opposite ends, central diaphragms C, inclosing absorbent material C', and closing-cap E, all as and for the purpose set forth.

196,947. GOVERNORS FOR STEAM-ENGINES, &c. E. A. Sutcliffe, New York, N. Y. Filed Dec. 4, 1876.

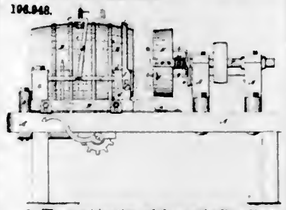


The sleeve *c*, supported upon the stationary spindle *a*, and carrying the radial arms *g* and governor-balls *k*, in combination with the springs *m*, sleeve *l*, swivel-nut *i*, and valve-rod *b*, substantially as and for the purposes set forth.

196,948. MACHINES FOR CRIMPING AND CROZING STAVES. Benjamin W. Sutherlen, Wykoff, assignor of one-half his right to Wm. S. Mace, Fillmore, Minn. Filed Aug. 14, 1877.

Brief.—The barrel is placed upon a sliding carriage held at one end by a binding-strap, and at its middle by an adjustable lever, and fed to a vertically-adjustable cutter-head mounted in a shaft revolving in fixed bearings, and provided with suitable tools for chamfering, beveling, and crozing the staves. The crozing-tool is jointed to the periphery of the cutter-head, and can be adjusted as desired with relation to the other tools.

196,948.



1. The combination of the vertically adjustable chuck or hoop attached to the carriage and the cutter-head mounted on a spindle rotating in fixed bearings, as shown and described.

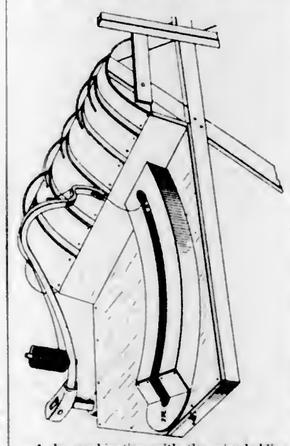
2. The combination of the annular chuck, the binding-strap, and notched plates, and the set-screw for securing said chuck, substantially as shown and described.

3. In a barrel-making machine, the combination, with the sliding carriage, of the clamping-lever, the retracting-spring, the standard extended above the fulcrum of the lever, and the hook having a horizontal arm or claw, and pivoted to the side of the carriage, the free end of the lever being beveled and provided with a series of steps or shoulders, all as shown and described, to operate as and for the purpose specified.

4. In a barrel-making machine, the cutter-head having a detachable section of its beveled periphery pivoted in the plane of said periphery, and provided with a cutter at its free end, the section being adjusted by suitable means, thus forming a crozing attachment, substantially as shown and described.

5. In a barrel-making machine, the combination, with the crozing device, consisting of an arm pivoted to the periphery of the cutter-head, of the sliding U-shaped bar, the link, the spiral spring coiled around the shaft contiguous to the cutter-head, and the lever for adjusting the crozing-tool, all as shown and described.

196,949. GRAIN-BINDERS. Wm. A. Sutphin, Washington, D. C. Filed Nov. 1, 1877.



1. In combination with the wire-holding spool and suitable wire carrying and delivering mechanism, a twister and circumclosing-thimble, operating substantially as described.

2. The combination, substantially as hereinbefore set forth, of a twister and a circumclosing-thimble, upon which the end of the wire is wound to retain it preparatory to transferring to the shank of the twister.

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3. A twister provided with a tapering notch substantially longitudinal with the axis thereof, whereby the end of the band is positively held during the gathering of the bundle and twisting of the band.

4. The combination of a twister and cutter having relative longitudinal movement, substantially as described.

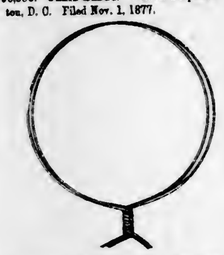
5. A twister constructed substantially as described, in combination with a cutter having relative movement longitudinal with the axis of the twister, whereby the twisted band is severed from the spool-wire.

6. The combination, substantially as hereinbefore set forth, of a twister and a cutter with a thimble, upon which the end of the wire is wound to retain it preparatory to transferring to the shank, where the band is twisted and severed from the spool-wire.

7. The combination of the rack and cam-groove with the thimble, cutter, and twister, substantially as described.

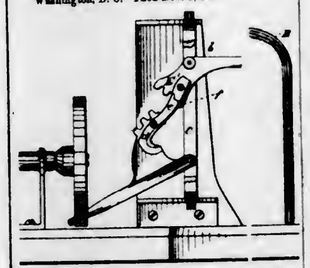
8. The combination of the retaining-ledge and cam-groove with the thimble, cutter, and twister, substantially as described.

196,950. GRAIN-BANDS. Wm. A. Sutphin, Washington, D. C. Filed Nov. 1, 1877.



A duplex or double wire grain-band, substantially as described.

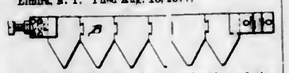
196,951. MECHANICAL MOVEMENTS. Wm. A. Sutphin, Washington, D. C. Filed Nov. 1, 1877.



1. The combination, substantially as hereinbefore set forth, of the wheel, the crank-arm journaled therein and provided with the segmental rack, the post, and the vibrating and swinging arm provided with its rack, whereby a reciprocating rising and falling motion is imparted to the arm.

2. The combination, substantially as hereinbefore set forth, of the post, the crank-arm provided with rack and groove, and the swinging arm provided with rack and locking-arm, whereby the arm E is raised and lowered in one part of its movement, and locked and carried in a straight path in another part thereof.

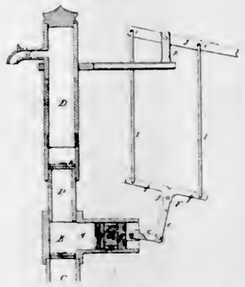
196,952. HARVESTER-CUTTERS. Charles N. Swart, Elmira, N. Y. Filed Aug. 18, 1877.



1. In a cutter-bar, the combination of the bar A, provided with a longitudinal dovetailed groove, *a*, having notches *x x* formed in the sides of said groove at suitable intervals, and the knife-sections B, formed with dovetailed lugs or projections *b* on their under sides, substantially as and for the purposes herein set forth.

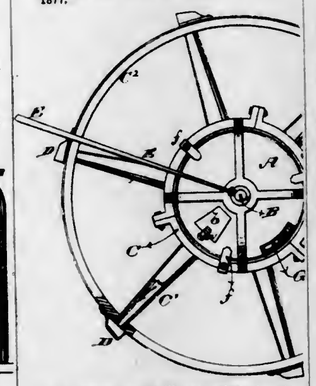
2. The combination of a longitudinally-grooved cutter-bar with a series of cutters, each having a projection on its lower face, and a projection and a recess on its sides, substantially as described, and for the purpose set forth.

196,953. FORCE-PUMPS. Johnathan Tallent, Rico-ville, Tenn. Filed Aug. 13, 1877.



The piston G, consisting of heads *g g'*, the former having concave face, connected by rod *h*, around which the packing H is wrapped, substantially as and for the purpose set forth.

196,954. SULKY CORN-PLANTER AND GRAIN-DRILL. Thomas Terry, Mount Olivet, Ky. Filed Sept. 15, 1877.



1. A planter and drill consisting of a stationary hopper inclosed within the hub of a rotating wheel, having hollow spokes and openings in the rim for the passage of the grain, as herein set forth.

2. The combination of the cylindrical hopper, surrounding hub, hollow spokes, and perforated rim, provided on its exterior, over the openings, with concave shoes, or their equivalents, opposite each hollow spoke, substantially as and for the purposes set forth.

3. The cylindrical hoppers, surrounding hub, hollow spokes, and perforated rim, provided on its exterior, over the openings, with concave shoes opposite each hollow spoke, in combination with the reciprocating feed-slide, having holes *i i* and V-shaped ends, operated alternately by the drivers attached to the wheel, substantially as described, and for the purpose set forth.

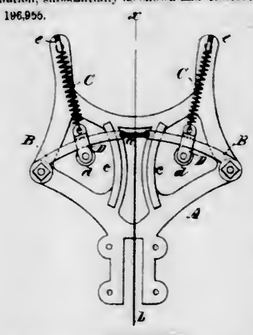
4. The combination of the cylindrical hopper A, axle B, and lever E, substantially as described, and for the purpose set forth.

196,955. TENSION ATTACHMENTS FOR SCROLL-SAWS. J. R. Vellacott, Buffalo, N. Y. Filed Apr. 16, 1877.

Brief.—The saw is strained by means of two curved levers connected by a flexible link, and drawn upward by spiral springs attached to stirrups, in which are journaled rollers traveling in the under sides of the curved levers, for equalizing the strain upon the saw.

The curved levers H, elastic link *s*, stirrups D, rollers *d*, spring C, and frame A, in combination, substantially as shown and described.

196,955.



196,956. BEER-COOLERS. Hermann Voigt, Milwaukee, Wis. Filed May 5, 1877.

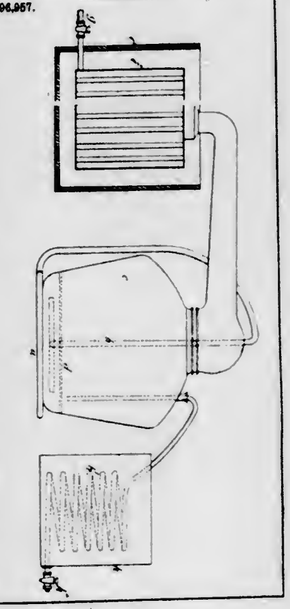


1. The floating pan A, stiffened by exterior hoops *e*, and having pipe C, all constructed substantially as described and shown.

2. A beer-cooler, for the purpose described, consisting of the floating pan A, the rubber hose D, and the faucet E, all arranged as shown and specified.

3. The faucet E, constructed substantially as described, in combination with the floating pan A and hose-connection D, as and for the purpose set forth.

196,957.



THE GRAPHIC CO. N.Y.

196,957. APPARATUS FOR PURIFYING AND CONDENSING SULPHURIC ACID. Roger W. Wallace, London, England. Filed Aug. 7, 1877. Patented in Great Britain, May 30, 1876.

Brief.—Still and condenser for distilling by means of a blast of hot air.

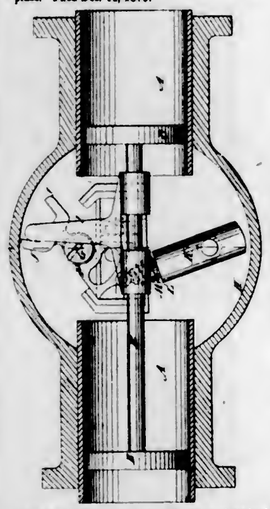
1. The combination of the still c and pipe *b*, leading through and below the false perforated bottom *d* of said still, and connected to an air-heater, with condenser *e*, consisting of a chamber surrounded by a jacket, and traversed by pipes *f*, communicating with the space between the chamber and said jacket, substantially as described.

2. The combination of the still *c*, having the perforated false bottom *d*, with pipe *b*, leading into said still, and below said perforated bottom, from a suitable air-heating apparatus, substantially as and for the purpose set forth.

3. The still *c*, having a pipe-connection with the coil *h'* arranged in the cooling-tank *h*, in combination with the condenser *e*, substantially as and for the purpose set forth.

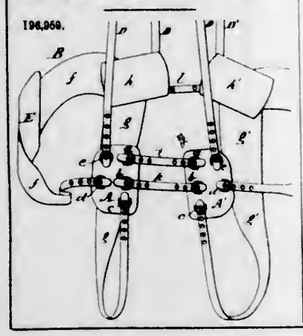
4. The condenser *e*, consisting of a jacketed chamber traversed by pipes *f*, connecting with its jacket, said pipes being filled with sulphuric acid, substantially as and for the purpose set forth.

196,958. WATER-METERS. Daniel P. Weir, Salem, Mass., assignor to himself and John Jackson, same place. Filed Dec. 11, 1875.

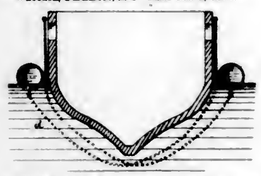


The combination of valve C, the end-forked lever F, pivoted at G in the valve-chamber, and operated by an arm, I, the pivoted tube K, rod L, and spring M, the whole movement being thus on the inside of meter, as and for the purpose specified.

196,959.

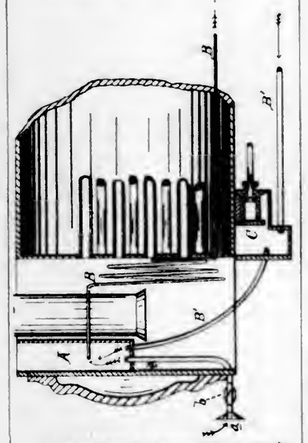


196,960. METHODS OF BUOYING VESSELS. James C. Wheeden, Baltimore, Md. Filed Oct. 5, 1877.



The method of preventing vessels from careening, by placing air-tight casks in the water along each side, to which a line is secured, and passed under the keel and up the opposite side, and made fast.

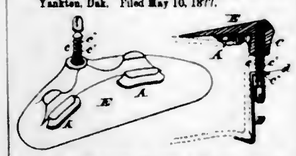
196,961. CAR-HEATERS. Lyman T. White, Eaton Rapids, Mich., assignor to Mary E. White, same place. Filed Mar. 15, 1877.



1. In apparatus for heating railway-cars, the combination, with a locomotive engine, of the pipe B, heated by the hot gases of combustion issuing from the fines of the locomotive boiler, the return-pipe B', a suitable connecting box or chamber, and the steam-driven air-pump C, whereby a constant stream of hot air is forced through pipes extending throughout the train and returned to the locomotive to be reheated, substantially as described.

2. In apparatus for heating railway-cars, the combination, with a locomotive-engine, of the hot-air chamber A, hot-air pipe B, return-pipe B', air-pump C, and air-supply pipe *a*, substantially as described and shown.

196,962. CHIN-RESTS FOR VIOLINS. Hiram W. White, Yankton, Dak. Filed May 10, 1877.

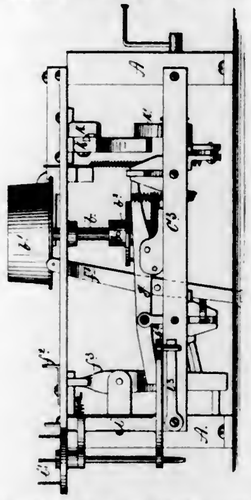


1. The chin-plate E, provided with lugs A A, to adapt the plate to fit the margin of violins, as and for the purpose set forth.

2. The screw C, having its body *c* enlarged and provided with grooves *c'*, in combination with a chin-rest and clamp-hook for violins.

3. The combination, with the screw C, having ribs *c'*, beveled on one side, of the clamp-hook D, having beveled portion *d*, as and for the purpose set forth.

196,963. WIRE-DRAWING MACHINES. Jos. S. Winsor, Providence, R. I. Filed Aug. 10, 1877.



1. The combination, with the main driving-shaft *a*, of the pinion a^1, the bevel-gear a^2, the shaft *b*, and clutch b^1, arranged to drive the draw-head b^1, and be connected with and disconnected from the same, by means substantially as described, as and for the purpose specified.

2. The combination, with the lever *a* and means, substantially as described, for stopping and starting the draw-head, of the yielding die-holder f^3, levers f^1, f^2, and *g*, and stop f^4, substantially as described.

3. The combination, with the shaft carrying the draw-head, clutch b^2, and pawl *c*, of the lever *d*, foot-treadles f^5, and connecting-lever *g*, substantially as described.

4. The combination, with the starting and stopping mechanism of a wire-drawing machine, of a detachable reel journaled in a movable frame, and mechanism, substantially as described, for connecting said movable reel-frame with said starting and stopping mechanism, whereby the machine is automatically stopped when an undue strain is exerted on the reel, substantially as described.

5. The combination, with the draw-head b^1, of the brake *h*, held against the wire on the draw-head, the foot-treadle h^2, and hinged lever h^3, arranged to release the brake, substantially as and for the purpose described.

6. In an organized machine for drawing wire, the combination, with a swinging die, f^3, and the draw-head, of the vibrating lever f^1 and cam f^2, the free end of said lever being arranged relatively to said die, whereby the wire may be started and drawn through the die by means of suitable tongs attached to said vibrating lever, substantially as described.

7. The combination, with the driving-shaft of a wire-drawing machine provided with a cam, K', of a stationary jaw secured to the frame of the machine, and a hinged jaw arranged to be actuated by the cam on the driving-shaft, said jaws furnished with suitable cutting-dies for pointing the wire, substantially as described.

196,964. COFFEE AND PEA-NUT ROASTERS. Cassius L. Hall, Ypsilanti, Mich. Filed Jan. 24, 1877.

1. The cylinder consisting of the wire-cloth I, heads J, central shaft *d*, radial stays A, with nuts *i*, and the surrounding bands K, all substantially as and for the purposes herein set forth.

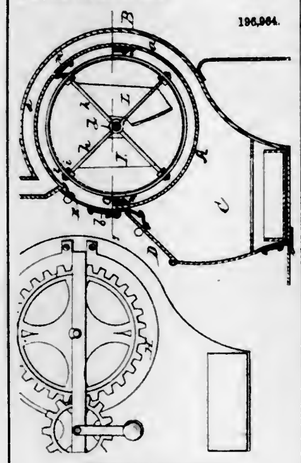
2. The front dampers *b* and rear dampers *a*, in combination with the inner and outer shells A and B, substantially as and for the purposes herein set forth.

3. The combination of the inner shell A, provided with interior ribs *m* and dampers *b n*, the outer shell B, having furnace C and exit G, both arranged at the front of the machine, with the flue *a*, surrounding the inner shell, and the movable frame O, with the roasting-cylinder thereon, all substantially as and for the purposes herein set forth.

4. The curved or twisted wings l, l, in combination with the radial stays *k*, center shaft *d*, and cylinder I J, substantially as and for the purposes herein set forth.

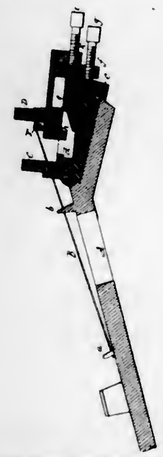
5. The sliding frame O, carrying the roasting-cylinder, and provided with the gears R P and crank S, substantially as and for the purposes herein set forth.

196,964.



REISSUES.

7,933. STRINGING-DEVICES FOR PIANO-FORTES. J. D. Elliot, Bowton, assignor to the Rogers Upright Piano Company, Boston, Mass. Patent No. 179,903, dated July 18, 1876. Filed Feb. 5, 1877.

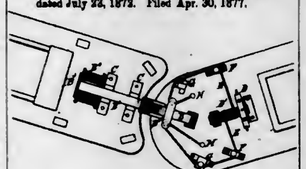


1. In a pair of slides provided with straining-screws and wire fastening-pins, as described, the straining-screw *i* of the upper slide F, applied to screw or work against the lower slide E or a projection, *l*, therefrom, in combination with the screw *g* of said lower slide, arranged to impinge or screw against the support-bar *c* or a projection therefrom, all being substantially as set forth.

2. In the piano-forte-string straining mechanism, as described, either or each wire-straining slide of the pair E F, as provided with the ear *f* or *k* extended down its rear end, and having its moving-screw *g* or *i* screwed through such ear, as represented.

3. The rotative straining or tension pins of a piano-forte, combined with a removable stop to allow the adjustment of, and prevent the strain upon the wires from turning the pins, substantially as described.

7,934. COUPLING AND STEERING APPARATUS. Wm. Frick, Chester, Pa., assignor to C. H. Frick. Patent No. 82,614, dated Sept. 29, 1868; Reissue No. 5,000, dated July 23, 1872. Filed Apr. 30, 1877.



1. In combination with two boats arranged for the purpose of steering one by the other, an elastic or yielding connection by springs or rubber between the two boats, so that the bow of the rear boat shall be caused to bear upon the center line of the other boat, and at the same time said connection shall be yielding, to prevent the destruction of the connection.

2. Two canal-boats combined and arranged, as described, one to steer the other, and so constructed and arranged that their hulls below the water-line shall not come into contact, substantially as above described.

3. Two canal-boats combined and arranged, as described, for the purpose of steering one by the other, so that the bow of the rear boat and the stern of the front boat shall not be in contact below the water-line; second, so that the center of the bow of the rear boat must be connected with the center of the forward boat at or near its stern, so that the center of the bow of the rear boat may bear against the central line of the stern of the forward boat above the water line while in the act of steering; and, third, that the connection between the two must be flexible enough to permit of a free vibration and oscillation of the two boats in all directions in reference to each other caused by disturbance in the level of the water.

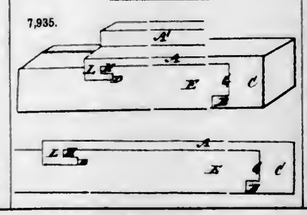
4. Boats combined with the coupling and steering mechanism, substantially as herein described, whereby the boats are maintained at a fixed distance apart, so as to permit the free flow of the currents between the hulls when turning a curve, and said boats are steered one from another, as set forth.

5. The hinged coupling-bar B B', when fastened permanently to one boat, and attached to the other by standards C C, in such manner as to permit a free vertical, longitudinal, and lateral oscillation while controlling the alignment of the boats, substantially as set forth.

6. The combination of said hinged coupling-bar, standards, and cross-heads C C, connected by springs B', arranged to operate substantially as and for the purpose set forth.

7. The combination of the wheel, the tiller-rope, and the hinged bar connecting the two boats, arranged to operate substantially as set forth.

7,935.



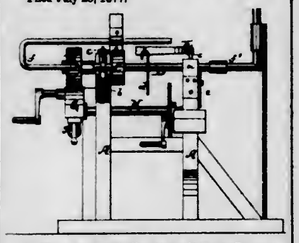
7,935. KEYS FOR MUSICAL INSTRUMENTS. John P. Lord, Manchester, N. H., assignor to Ulysses Frost, Deep River, Conn. Patent No. 144,399, dated Nov. 11, 1873. Filed May 26, 1877.

1. A key for piano-fortes, organs, and other musical instruments, having the same veneer or covering which is applied to its top continued or extended over and down its front end, substantially as and for the purposes specified.

2. The method of uniting the caps A and A' with their respective keys E and E', by means of the lipped ends or portions L D and C B, substantially as shown and described.

3. The combination of the ornamented glass or crystal caps A and A', constructed as described, with their respective keys E and E', substantially as herein described, and for the purpose set forth.

7,936. IRONING-MACHINES. Patrick O'Thayne, New York, N. Y. Patent No. 63,901, dated Mar. 26, 1867. Filed July 25, 1877.

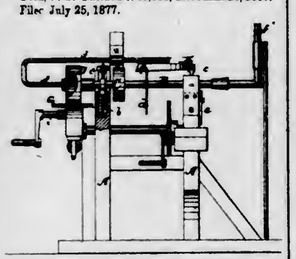


1. The segmental vibrating platform G, combined with the rotary smoothing-iron D, substantially as herein shown and described.

2. The combination of the cylindrical revolving smoothing-iron D and its hollow shaft B, which has its bearings in the yielding boxes *a*, having standards c, with the adjustable rest *e*, lever E, rod, and treadle, substantially as herein shown and described.

3. The segmental platform G, placed upon the shaft H, and provided with the clamps *g g*, in combination with the smoothing-iron D and frame A, substantially as and for the purpose specified.

7,937. IRONING-MACHINES. Patrick O'Thayne, New York, N. Y. Patent No. 63,901, dated Mar. 26, 1867. Filed July 25, 1877.



The straight reciprocating ironing-board G, combined with the revolving smoothing-iron, which is adapted to be heated, the axis of said iron being placed parallel to the upper surface of said ironing-board, substantially as herein shown and described.

7,938. TOY SCROLL-SAWING MACHINES. Samuel N. Trump, Wilmington, Del. Patent No. 129,874, dated July 23, 1872. Filed Oct. 9, 1877.

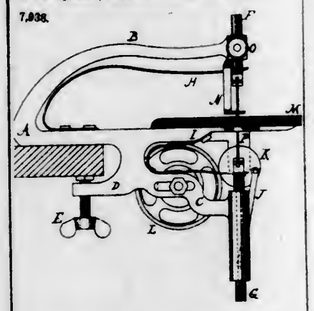
Brief.—The frame is provided with a projection upon the lower arm, which forms a jaw by which the frame can be attached to a stand or table. The strain of the saw is equalized and a uniformity of motion produced by means of a curved upper spring, one end of which embraces the upper spindle, and a compensating-spring, one end of which embraces the lower spindle.

1. A toy scroll-sawing machine having the cast-metal frame A, said frame having the curved upper arm B, carrying the spindle F,

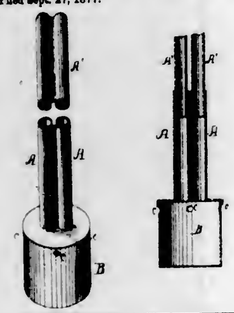
the projection D, forming the jaw through which passes the set-screw E, by which it is secured to a table having the lower arms C and F, which carry the spindle G, the pitman-pulley K, and the drive-wheel L, and having the circular table M attached thereto by screws, substantially as described.

2. In a toy scroll-sawing machine, the combination of the saw-blade, the tension-spring H, operating upon the upper spindle, and the compensating-spring I, operating upon the lower spindle, substantially as described.

7,938.



7,939. LIGHTNING-RODS. Lawson Adams, Omaha, Nebr. Patent No. 193,469, dated July 24, 1877. Filed Sept. 27, 1877.



1. The process of making grocers' scoops of a single piece of wood, substantially as herein described, and for the purpose specified.

2. As a new manufacture, a scoop formed from a single piece of wood, and having a curved bowl, B, a closed head, C, and inclined handle D, substantially as described.

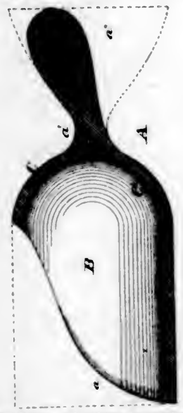
3. A wooden scoop, A, having a curved bowl, B, and closed head C, substantially as described.

1. One or more sections of connected copper pipe, formed from single sheets rolled in double scroll form, as and for the purposes hereinbefore in detail set forth.

2. The sections A A' of copper pipe, or other suitable material, and the copper (or other metal or material) tank B, constructed in the form, and used in combination, as and for the purposes hereinbefore set forth.

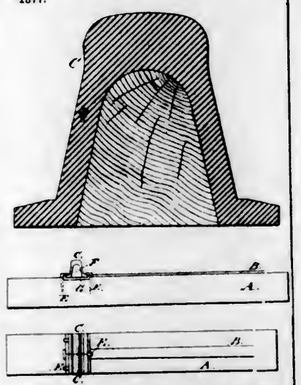
7,940. PROCESSES FOR MAKING WOODEN SCOOPS. R. Richardi, Belleville, Ill. Patent No. 186,261, dated Dec. 12, 1876. Filed Sept. 26, 1877.

Brief.—A wooden scoop having a curved bowl, a closed head, and an inclined handle is formed from a single piece of wood by turning the blank into the shape of a goblet. The bowl is then hollowed out; then forming the handle at the proper inclination, and completing the scoop by cutting the bowl obliquely, and sharpening its front edge.



1. The process of making a wooden scoop formed from one piece of wood, and having a handle inclined to the bowl of the scoop, turning the bowl of the scoop, and then resetting the piece, so that the intended handle is in line with the lathe-centers, and then turning the handle.

7,941. RAILROAD-TRACKS. Lowell Hall, Grand Rapids, Mich., assignor, by mesne assignments, to the Hall Manufacturing Company, same place. Patent No. 173,944, dated Feb. 22, 1876. Filed Aug. 15, 1877.



1. The improved bridge-rail C, having substantially the relative proportions herein described, and having the sides of the head vertical and the webs inclined outward from the head down to the bottom flanges of the rail at an angle of substantially fifteen degrees, as and for the purpose herein specified.

2. The improved bridge-rail C, having the relative proportions herein described, and having the sides of the head vertical and the webs inclined at an angle of substantially fifteen degrees, in combination with the compressed wood filling D in the hollow section, substantially as and for the purposes set forth.

3. The combination, with the tie A, having grooves G, of the chair-bar B, swaged at the ends thereof for fitting in said grooves, as described, and for the reception of rails C, and secured therein in the manner substantially as and for the purpose specified.

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COMMISSIONER'S DECISIONS.

JESSE H. TEMPLE.—*Interlocutory Appeal.*

[*Appeal from the decision of the Principal Examiner in the matter of the application of Jesse H. Temple for patent for* "PROCESS FOR THE CURE OF PULMONARY DISEASES," *filed June* 18, 1877.—*Decided September* 15, 1877.]

An application primarily for a process invention, but containing matter capable of illustration, was subsequently amended to include such matter instead, a drawing being filed and a description inserted re ative thereto. Both were much more minute in detail and feature than was warranted by the language originally employed: *Held*, first, that the amendment was rightly objected to as "new matter," it conforming to no part of the case, as it existed at the time of its filing (Rule 32, Office Practice;) second, that the clause of Rule 32, Office Practice, permitting the admission of an amendment on satisfactory proof that it is part of the original invention does not apply, because the matter is one capable of illustration by drawing and model. The prohibition in Rule 32 against the introduction of "new matter" is not a mere question of Office fees, but is to limit the power of amendment, so that it is possible to determine when an application is completed.

SPEAR, *Commissioner:*

Applicant in this case was clearly precluded from the enlargement which he seeks to make of the original application by the terms of the rule. Rule 32 requires that all amendments of the model, drawings, or specification in case of original applications, which are capable of illustration by drawing or model, must conform to at least one of them as they were at the time of the filing of the application. Further changes than this can only be made by filing a new application. Now, in the original application no drawing or model was submitted. The only reference which I find to anything which can be represented by drawing or model is in the clause quoted by the Examiner. The applicant says, in the original specification, "to do this I use a pad of peculiar construction, with one side porous and absorbent." Further on he mentions that this pad, or the porous portions of it, may be made of flannel. It appears, upon inspection of the papers, that it is not that description simply which he now illustrates by the drawing and model, but a new description.

In the first specification there is a lack of many elements included in the claim now submitted, which elements appear to be an essential part of the invention. I do not find in the original specification the non-porous layer B B, the flexible layer A A, straps D D, or their fasteners, or the straps E and F F. In respect to all these elements the amendments do not conform to the original application.

The last clause of Rule 32, relating to the amendment of the specification upon proof satisfactory to the Commissioner that the proposed amendment is a part of the original invention, in case the invention does not admit of illustration by drawing, plainly does not refer to such as the present application.

It is assumed that this case originally admitted of illustration by drawing, and it is on this assumption that the amendment is offered. The clause referred to contemplates applications for processes and the like which are not capable of illustration by drawing or model, and in which some element of the process or compound had been omitted.

In the case before me the applicant does not seek to introduce any omitted element in the process. In such event the amendment might be admitted under the last clause of the rule. He relinquishes the claim for the process, and introduces another invention, necessary, it may be, or certainly useful, in carrying out the process, but still another invention, for the exclusion of which, as an amendment to the original application, the rule is especially intended.

It is not a mere question of fees in such a case as this, although that is not to be left out of consideration, but a necessary adherence to a well-defined order of business.

If an application once rejected may be amended by the addition of any new matter whatever, then no limit can be placed upon such amendment, and it would be impossible to determine when an application is filed or completed.

The Examiner is clearly within the rule, and his action is sustained.

The "Rules of Practice" are furnished gratis on personal or written application to the Commissioner of Patents.

DECISIONS OF THE COURTS.

SUPREME COURT OF THE UNITED STATES.

WILLIAM ROEMER, APPELLANT, *vs.* EDWARD SIMON, SAMUEL SIMON, WILLIAM SIMON, AND MORRIS SCHWERIN.

[*Appeal from the Circuit Court of the United States for the District of New Jersey.—Decided October term*, 1877.]

Where the patent described in the bill of complaint is introduced in evidence, the patentees or assignees are presumed to be the original and first inventors of the described improvement.

Having proved the alleged infringement, the burden of proof is cast upon the respondents to show that the patent is invalid unless the patent is materially defective in form.

Parties defendants sued at law for infringement are not allowed to set up the defense of a prior invention, knowledge, or use of the thing patented, unless written notice thereof is given thirty days before the trial.

Such notice must state the names of the patentees and the dates of their patents alleged to have been invented, and the names and residences of the persons alleged to have invented, or to have had the prior knowledge of the thing patented, and where and by whom it had been used.

Since the passage of the act of July 8, 1870, the regulation in equity suits is, that defenses such as are described in section 61 of that act may be pleaded in any equity suit for relief against an alleged infringement, and that proof of the same may be given upon like notice in the answer of the respondent, and with like effect.

On appeal, questions not involved in the assignment of errors will be passed over without examination.

An agreement with a complainant not to manufacture the device of a certain firm does not work an estoppel, it being a controverted fact as to the identity of such device with that alleged to be infringed.

Proof of prior use in a foreign country will not supersede a patent granted here unless the alleged invention was patented in some foreign country.

Proof of such foreign manufacture and use, if known to the applicant for a patent, may be evidence tending to show that he is not the inventor of the alleged new improvement.

The respondents having given due notice of the defense of prior invention and use, stating the names and residences of the persons having the prior knowledge, and where and by whom the alleged invention had been used, added further that it had been known to and used by others to them unknown, and prayed leave that when discovered they might be permitted to insert and set forth their names in the answer: *Held*, that on motion to insert, in accordance with the notice, and no objection made, the court was justified in entering the additional names and residences *nunc pro tunc*.

Mr. Justice CLIFFORD delivered the opinion of the court.

Patentees or assignees in a suit for infringement, where the patent described in the bill of complaint is introduced in evidence, are presumed to be the original and first inventors of the described improvement, and if they have proved the alleged infringement the burden of proof is cast upon the respondents to show that the patent is invalid, unless the patent is materially defective in form.

Parties defendants sued as infringers are not allowed, in an action at law, to set up the defense of a prior invention, knowledge, or use of the thing patented unless they have given notice of such defense in writing thirty days before the trial, and have stated in that notice "the names of the patentees and the dates of their patents alleged to have been invented, and the names and residences of the persons alleged to have invented or to have had the prior knowledge of the thing patented, and where and by whom it had been used." (16 Stat. at Large, 208; Rev. Stats., section 4920; *Seymour* vs. *Osborne*, 11 Wall., 539: *Blanchard* vs. *Putnam*, 8 Id., 427.)

Since the passage of the act of the 8th of July, 1870, the regulation in equity suits is that defenses such as are described in section 61 of that act "may be pleaded in any equity suit for relief against an alleged infringement, and that proof of the same may be given upon like notice in the answer of the respondent, and with like effect." (16 Stat. at Large, 208.)

Service was made and the respondents appeared and filed an answer, in which they deny that they have ever in any way infringed the letters patent described in the bill of complaint, and they also set up several other defenses, as follows: (1) That the specification filed in the Patent Office contains less than the whole truth relative to the invention, or more than is necessary to produce the described effect. (2) That the patent was surreptitiously and unjustly obtained for that which was, in fact, invented by another. (3) That the alleged invention had been patented prior to the supposed invention by the complainant. (4) That the alleged invention had been described in a certain publication prior to the alleged invention by the patentee. (5) That the complainant was not the original and first inventor of the supposed improvement, that the same had been previously invented and known and used by the persons named in the answer, and by many other persons whose names are unknown to the respondents, which, when discovered, the respondents pray leave to insert and set forth in the answer.

Proofs were taken on both sides, and the parties went to hearing upon bill, answer, replication, and the proofs exhibited in the record. Both parties were fully heard, and the court entered a decree in favor of the respondents, dismissing the bill of complaint, and the complainant appealed to this court.

Three errors are assigned, in substance and effect, as follows: (1) That the court did not give due effect to the agreement between the parties, which was introduced in evidence by the complainant. (2) That the evidence introduced by the respondents to prove use and knowledge of the thing patented prior to the patent granted to the complainant was insufficient to establish that defense. (3) That the court erred in admitting evidence to prove such prior use and knowledge, of which no notice had been given in the answer.

Questions not involved in the assignment of errors will be passed over without examination.

1. By the articles of agreement the respondents agree that "they will not manufacture or use the clasp or catch manufactured by a certain firm therein mentioned without the consent of the complainant, his executors, administrators, or assigns." They did not agree not to manufacture or use the thing patented in the complainant's patent. Instead of that the charge in the bill of complaint is, that the respondents have manufactured and sold to others large quantities of traveling-bags in violation of the complainant's rights and privileges under his letters patent. Attempt is made to show that the clasp or catch manufactured by the firm referred to in the agreement is the same as that of the complainant; but that is a question of fact open to controversy, which is sufficient to show that the agreement does not work an estoppel, as supposed by the respondents. (Curtis on P., 4th ed., section 217.)

Much reference to the specification is unnecessary, as the defense that the respondents have not infringed the supposed invention is not pressed in the argument for the appellee. "My invention," says the patentee, "consists in the application of two staples or clamps, one at or near each end, to the frame of a traveling-bag in such a manner that when the bag is packed full the staples or clamps shall fasten the ends or corners together." In the same connection he also describes a mode of fastening the staples or clamps to the frame of the bag by a strap which passes over the center of each staple, and he adds that the staple or clamp "is made of strong iron, turned down at each end." Sufficient description is given of the staple or clamp, but the strap is not described except by being exhibited in the drawings.

Clamps, the patentee admits, have before been applied to small and fancy bags instead of a lock at or near the center of the frame, and therefore he does not claim the application of clamps or staples, broadly; "but," says the patentee, "what I claim as my invention, and desire to secure by letters patent, is a frame for traveling-bags having staples and straps," meaning the described staple and strap adjusted at the top thereof, relieving the lock from strain, as combined, arranged, and described.

Suffice it to say that it is obvious, from an inspection of the specification, that the real invention, if any, is in the staples or clamps, and, perhaps, in the arrangement of two of them at the top of the frame. Doubtless one method of arrangement may be better than another; but the particular method of attachment to the frame cannot be very material, as any mechanic, if furnished with the clamps, could affix the device in various equivalent ways.

Five witnesses, admitted to be credible, were examined by the respondents, whose testimony clearly shows that the thing patented had been previously known and used very extensively in this country by the persons named in the answer and by many others.

Exclusive rights of the kind are granted only to inventors or discoverers of some new and useful art, machine, manufacture, or composition of matter, or some new and useful improvement thereof, and the law is well settled that nothing short of invention or discovery will support a patent for any such alleged new and useful improvement. Certain other important conditions are also annexed to the exercise of the right to obtain such a muniment of title for such an invention or discovery—as, for example, the improvement must not only be new and useful, but it must be one not known or used by others in this country, and not patented or described before the invention or discovery in any printed publication in this or any foreign country, and must not have been in public use or on sale more than two years prior to the application for a patent. (16 Stat. at Large, 201; Rev. Stat., section 4886; *Collar Co* vs. *Van Dusen*, 23 Wall., 563; *Dunbar* vs. *Myers*, 4 Otto, 196.)

Antecedent patents here or elsewhere are not set up in the answer, and it is clear that proof of prior use in a foreign country will not supersede a patent granted here, unless the alleged invention was patented in some foreign country. Proof of such foreign manufacture and use, if known to the applicant for a patent, may be evidence tending to show that he is not the inventor of the alleged new improvement, but it is not sufficient to supersede the patent if he did not borrow his supposed invention from that source, unless the foreign inventor obtained a patent for his improvement, or the same was described in some printed publication.

Doubt upon that subject cannot be entertained; but it is equally clear that if the alleged improvement had been previously patented here or in a foreign country, or if it had been previously known or used by others in this country, or if it had been in public use or on sale for more than two years prior to his application for a patent, the letters patent cannot be sustained. (16 Stat. at Large, 201.)

Competent proof of a prior patent anywhere is entirely wanting, nor is there any satisfactory evidence that the invention was previously described in any printed publication; but the evidence shows beyond any reasonable doubt that the thing patented was known and used extensively by others in this country before the invention or discovery made by the patentee, as set forth and described in the bill of complaint. Such was the finding of the court below, and the evidence is so full to the point, and is so fully set forth in the record and in the opinion delivered in the circuit court, that it is not necessary to reproduce it in the present opinion.

Suppose that is so, still it is insisted by the complainant that the testimony of two of the witnesses should have been excluded, because their names and residences were not set forth in the answer as persons alleged to have had a prior knowledge of the thing patented.

Written notice of the names of the witnesses intended to be called by the defendant or respondent to prove such a defense is not required by the act of Congress. Instead of that the requirement is, that the defending party shall state the names of the patentees and the dates of their patents, and when granted, and "the names and residences of the persons alleged to have invented or to have had the prior knowledge of the thing patented, and where and by whom it had been used." (16 Stat. at Large, 208.)

Notice of the kind is required, in order to guard the moving party from being surprised at the trial by a defense of a nature which he could not be presumed to know or be prepared to meet, and to prevent such consequences the defendant or respondent is required to state "the names and residences of the persons alleged to have previously invented the improvement or to have the prior knowledge of the thing patented, and where and by whom it had been used." (*Teese* vs. *Huntington*, 23 How., 10.)

Prior use and knowledge of the thing patented may be pleaded as a defense to a suit for infringement; but the respondent cannot be allowed to give evidence to support such defense, if seasonable objection be made, unless it appears that he gave notice in his answer of the names and residences of the persons alleged to have had such prior knowledge of the thing patented. (*Blanchard* vs. *Putnam*, 8 Wall., 427.)

Seasonable objection was made in that case by the plaintiff, the suit being an action at law, and the court

held that the evidence was not admissible without an antecedent compliance with the conditions of the patent act; but the case before the court is clearly distinguished from that in several particulars. Due notice was given in the answer that the invention and every material and substantial part thereof had been previously invented and used by, and was known to, certain persons therein named, twelve in all, and the respondents, in due form, stated the names and residences of the persons alleged to have had such prior knowledge, and where and by whom the invention had been used. Superadded to that they also alleged that the supposed invention had previously been known to and used by many other persons to the respondents unknown, and they prayed leave, as before remarked, that when discovered they might be permitted to insert and set forth their names in the answer. Pursuant to that reservation two witnesses were examined upon that subject by the respondents without objection, nor does the record, irrespective of the opinion of the court, show that any objection to the admissibility of the evidence was ever made.

Previous notice of the examination of these two witnesses, it seems, was not given, but the presiding justice states that if seasonable objection had been made the evidence would have been excluded. None such was made, and it is well settled law that the failure to interpose any such objection before the final hearing is a waiver of the required notice in an equity suit. (*Brown* vs. *Hall*, 6 Blatch., 405.)

Explicit notice was given in the answer that such a defense would be made, and that leave to amend the answer would be asked in case the names and residences of other persons having like knowledge in that regard should be discovered, and when such a discovery was made the respondents in due form applied to the court for leave to insert their names and residences in the answer. Viewed in the light of these circumstances, we are all of the opinion that it was clearly competent to allow the proposed amendment. (*Teese* vs. *Huntington*, 23 How., 10.)

Authority to grant the amendment being established, it follows that the court might properly allow it to be entered *nunc pro tunc*, as originally prayed in the answer. Due notice was there given that such defense would be made, and that the respondents would move to insert the names and residences of other persons when discovered. Such notice prevented surprise, and fully justified the court in allowing the amendment and making the order in the form exhibited in the record.

Suppose the rule were otherwise, still a new hearing would not benefit the complainant, as the testimony of the other three witnesses is abundantly sufficient to establish the defense of prior knowledge and use.

Decree affirmed.

When a patent has been allowed, and the application has not been forfeited by delay of six months, if the final fee of twenty dollars is paid before 12 o'clock on Friday, the patent will issue and bear date the following Tuesday.

Copies of patents, arranged by classes of inventions, can be obtained at 10 cents per copy where the entire class is ordered.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date November 13, 1877.]

10,310.—Mirror-Frames.—JOSEPH CRAWFORD, New York, N. Y. Application filed October 12, 1877. Term of patent 3½ years.

10,311.—Font of Ornamental Printing-Types.—JULIUS HERRIET, New York, N. Y., assignor to DAVID WOLFE BRUCE, same place. Application filed October 18, 1877. Term of patent 14 years.

10,312.—White-Lined Pipkins.—JOHN E. JEFFORDS, Philadelphia, Pa. Application filed July 21, 1877. Term of patent 3½ years.

10,313.—Basket Tea-Pots.—JOHN E. JEFFORDS, Philadelphia, Pa. Application filed July 21, 1877. Term of patent 3½ years.

10,314.—Woven Borders for Towels.—RICHARD T. WEBB, Randallstown, Ireland. Application filed August 8, 1877. Term of patent 3½ years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date November 13, 1877.]

5,303.—Dentifrices.—MYRON ALBERT CARMAN, Canandaigua N. Y. Application filed October 23, 1877.

"The pictorial representation of a child in short morning-dress in the act of cleaning his teeth."

5,304.—Grain-Cleaning Machinery.—C. DUPREZ ET CIE, Rheims, France. Application filed October 19, 1877.

"A cross in the form of a large letter 'X,' having the letters 'S. D. C. R.' in the angles thereof."

5,305.—Lead-Poncils.—EAGLE PENCIL COMPANY, New York, N. Y. Application filed October 23, 1877.

"The arbitrary numerical symbol '2½.'"

5,306.—Whisky.—HOFFHEIMER BROTHERS, Cincinnati, Ohio. Application filed October 17, 1877.

"The fanciful words 'Arkansas Traveler.'"

5,307.—Cigars, Cigarettes, and Smoking and Chewing Tobacco.—JAMES H. PAGE, Boston, Mass. Application filed October 22, 1877.

"The word-symbol 'Leader.'"

5,308.—Boxes.—ROBERT SNEIDER, Brooklyn, N. Y. Application filed March 27, 1877.

"A series of small circles, produced in imitation of perforated card board."

5,309.—Illuminating-Oil or Burning-Fluid.—WILLIAM E. SEWELL, New Orleans, La. Application filed October 22 1877.

"The word-symbol 'SEPTOLINE.'"

5,310.—Toilet-Soap.—THE ALLAN HAY COMPANY, New York, N. Y. Application filed October 19, 1877.

"The arbitrarily-selected words 'ARMY & NAVY.'"

5,311.—Toilet-Soap.—THE ALLAN HAY COMPANY, New York, N. Y. Application filed October 19, 1877.

"The word-symbol 'KALISTON.'"

5,312.—Plug-Tobacco.—H. K. and F. B. THURBER & CO. New York, N. Y. Application filed October 10, 1877.

"The arbitrarily-selected words 'LITTLE BREECHES.'"

5,313.—Flour.—WARDER & BARNETT, Springfield, Ohio. Application filed October 20, 1877.

"The word-symbol 'Bob White.'"

5,314.—Salt.—BALFOUR, GUTHRIE & CO., San Francisco, Cal. Application filed May 31, 1877.

"The letter 'M' in a circle resting upon a star of eight points."

5,315.—Flour.—WARDER & BARNETT, Springfield, Ohio. Application filed October 20, 1877.

"The word-symbol 'GOLDEN FLEECE.'"

5,316.—Manufactured Wire in the Coil.—ANDREW S. HALLIDIE, San Francisco, Cal. Application filed July 30, 1877.

"The word-symbol 'PACIFIC.'"

5,317.—Sugars.—HAVEMEYERS & ELDER, New York, N. Y. Application filed September 29, 1877.

"The fanciful designation 'IDEAL.'"

5,318.—Starch.—THOMSON KINGSFORD, Oswego, N. Y. Application filed October 20, 1877.

"The word-symbol 'SNOW FLAKE.'"

5,319.—Cod-Liver Oil.—THEODORE METCALF & CO., Boston, Mass. Application filed August 13, 1877.

"The word-symbol 'BURNETT.'"

5,320.—Polishing Material.—ENOCH MORGAN'S SONS COMPANY, New York, N. Y. Application filed July 31, 1877.

"Three parallel bands, two of silver and one of blue, which latter is the central band, as shown."

5,321.—Metallic Fasteners.—GEORGE W. MCGILL, New York, N. Y. Application filed October 23, 1877.

"The word-symbol 'ROUND-HEADS.'"

5,322.—Washing Compounds.—JAMES PYLE, New York, N. Y. Application filed November 2, 1877.

"The word-symbol 'PEARLINE.'"

5,323.—Medical Preparations.—SAMUEL T. WALCOTT, Baltimore, Md. Application filed October 17, 1877.

"A shield or escutcheon, crossed by a bar dexter, bearing the motto 'Quæ necent docent.' In the upper sinister quarter the shield is divided by a number of upright pales. In the lower quarter, on the same side, is displayed the representation of a pestle and mortar. On the dexter side of the shield, and partly hidden by the bar, is displayed the figure of a tree."

5,324.—Whisky.—JAMES E. PEPPER, New York, N. Y. Application filed October 15, 1877.

"The word-symbol 'OLD OSCAR PEPPER.'"

5,325.—Sugars.—HAVEMEYERS & ELDER, New York, N. Y. Application filed September 29, 1877.

"The fanciful designation 'COLUMBIA.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date November 13, 1877.]

1,250.—Title: **"Damson Bun Pie."**—BUTTON BROTHERS & Co., New York, N. Y. Application filed November 1, 1877.

1,251.—Title: **"Gray's Celebrated Wine Bitters."**—J. R. GORHAM, Jr., Newburg, N. Y. Application filed November 2, 1877.

1,252.—Title: **"Kurr's Liquid Hoof Ointment."**—HENRY H. KURR & Co., Boston, Mass. Application filed November 3, 1877.

1,253.—Title: **"Cast Tool Steel Casting."**—AARON J. NELLIS, Pittsburg, Pa. Application filed November 3, 1877.

1,254.—Title: **"Dr. Sykes Sure Cure for Catarrh."**—CHARLES R. SYKES, Chicago, Ill. Application filed October 1, 1877.

1,255.—Title: **"Trott's Horse Liniment," &c.**—C. H. TROTT, Boston, Mass. Application filed November 6, 1877.

1,256.—Title: **"Yarnall's Exterminator for Destroying Rats, Mice, Roaches," &c.**—AMOS H. YARNALL'S SONS, Philadelphia Pa. Application filed November 6, 1877.

1,257.—Title: **"Yarnall's Unequalled Cattle Powder."**—AMOS H. YARNALL'S SONS, Philaelphia, Pa. Application filed November 6, 1877.

Where specifications are in print they are furnished with the drawings without extra charge

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The "Rules of Practice" contain full instructions, forms, &c. for making applications for patents.

All patents issued during the week are signed, sealed, and dated on Tuesday.

Printed copies of specifications can be procured from No. 59 740, issue of November 20, 1866.

All letters to the Patent Office must be addressed to the Commissioner of Patents.

The drawing accompanying an application for a patent must be on a sheet ten by fifteen inches.

Where specifications are printed, copies of same attached to drawings will be furnished without extra cost.

The Government fee on making application for a patent is fifteen dollars. The final fee is twenty dollars. Usually there are no other Government fees unless the application is appealed.

The GAZETTE is made to bear the same date as the patents to which the claims, briefs, and drawings relate, although it is not actually mailed to subscribers until about two weeks later than its date.

Letters Patent of the United States do not reach the patentee or owner until about two weeks from the day of their date. The letters, nevertheless, have the force of patents from the time they are signed and sealed.

THE Illustrated portion of the Patent Office Report for 1869 and for 1871 has recently been completed, and can be had, by those having the remaining volumes for those years, by applying to the Commissioner of Patents.

As 12 o'clock on Friday is the latest hour that a final fee can be received in order to get a patent into the "issue" of the following Tuesday, applicants are earnestly requested to make the final payment before Friday, if possible, so that the proper entries may be made on the books of the Office before closing the "issue."

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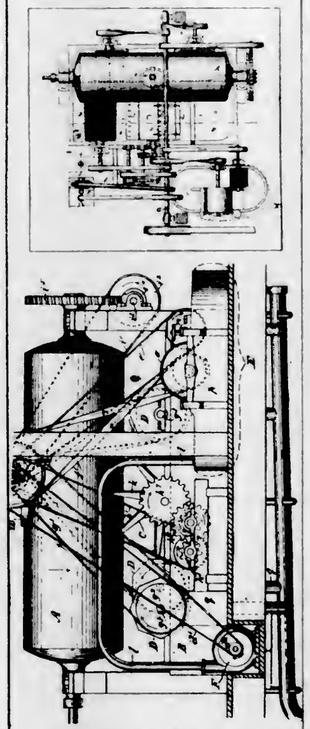
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TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED NOVEMBER 13, 1877.

196,965. APPARATUS FOR PREPARING PAPER-PULP. Hiram Allen and Lyman S. Mason, Sandy Hill, N. Y., assignors to said Hiram Allen and Loren Allen, same place. Filed Feb. 23, 1877.



1. The combination of the boiler A, having the man-hole *a*, the circuit-vat B, supplied with water, of greater capacity than the boiler, and arranged below the latter, and furnished with the current-producing wheel C and rotary strainer D, and mechanism, substantially such as described, by which the boiler, current-producing wheel, and strainer are revolved, as set forth.

2. The combination of the circuit-vat B, supplied with water and furnished with the current-producing wheel C and rotary strainer D, the pulping-engine E, the pump F, with its connections *m l*, and mechanism, essentially such as described, by which the current-producing wheel, pump, and pulping-engine are actuated, as set forth.

3. The combination of the boiler A, having the discharge-passage *a*, the circuit-vat B, arranged under the boiler, supplied with water, and furnished with the current-producing wheel C and rotary strainer D, the pulping-engine E, the pump F, with connecting-passages *m l*, and mechanism, essentially as described, by which the boiler, current-producing wheel, strainer, pump, and pulping-engine are actuated, as set forth.

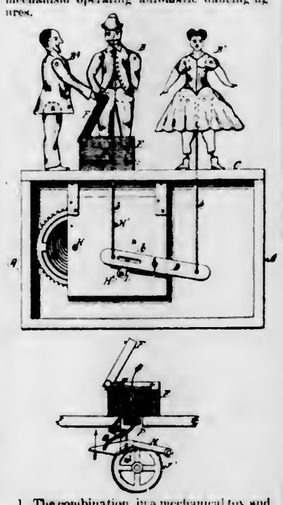
4. The combination of the vat B, (in the form of a circuit, supplied with water, and having the continuous, substantially level, unobstructed bottom *c*,) the wheel C, having paddles extending from about the level of the top of the water in the vat to near the bottom thereof, and the separate rotary strainer or strainers D, all arranged to operate as described.

5. The combination of the circuit-vat B, having the substantially level, unobstructed bottom *c*, the wheel C, having paddles *k* inclined to the radii and direction of rotation of the wheel, and the separate rotary strainer or strainers D, all arranged to operate as set forth.

6. The combination of a circuit-vat, B, current-producing wheel C, and fingers *j*, projecting from the outer portion of the paddles of the wheel, substantially as described.

196,966. TOY MONEY-BOXES. Joseph Blanc, Philadelphia, Pa., assignor of one-half his right to J. Q. A. Ziegler, same place. Filed Sept. 11, 1877.

Brief.—The weight of the deposited coin tips a lever, which gives a concealed clock mechanism operating automatic dancing figures.



1. The combination, in a mechanical toy and savings bank, of the box A, dancing figures B and B', wires or rods *b b*, vibrating lever D, crank L, axle H', wheels J J' and J², pinions K, K', and K², coiled spring G, lever O, pawl N, pin or stud *m*, box E, hinged lid F, and figure B², connected therewith, lever R, pin or stud *m'*, rod *r*, arm S, and spring T, all arranged to operate substantially as and for the purpose set forth.

2. The combination of the figures B and B', rods or wires *b b*, vibrating lever D, crank L, wheel J², pin or stud *m*, pawl N, lever R, and plate *p*, substantially as shown and described.

3. The combination of the box E, hinged lid F, figure B², lever R, wheel J², pin or stud *m'*, rod *r*, arm S, and spring T, substantially as shown and described.

196,967. REFRIGERATOR-CARS. Robt. Burrows, Chicago, Ill. Filed Mar. 17, 1877.

Brief.—Between the car proper and the surrounding "jacket" are horizontal air passages, having openings at each end of the car. These openings are provided with Emerson ventilators, for the purpose of regulating the force of the passage of air, or which, by being closed, form dead air spaces of the otherwise air passages. For interior novel construction, see claims.

1. The air spaces E E E' E', communicating with the exterior air by means of openings at or near the ends of the car, which openings are provided with valves, by which they may be opened and closed at will, whereby the said air spaces may be rendered either free or dead as requirement shall dictate, substantially as described.

2. The continuous air spaces F F, having openings to the exterior air, provided with ventilators capable of being opened and closed, and capable further of regulation or adjustment, whereby the draft through the said air spaces may be either that incidental to the openings and movement of the car only, or of greater force and volume, substantially as specified.

3. The partition H, passing through the door-posts, and between the two courses of studding, and rabbeted into the sills and plates, substantially as described.

4. The sills, door-posts, studding, and the like, grooved or channeled longitudinally, so as to form air cells between these timbers and the surfaces with which they come in contact, for the purpose of interrupting the passage of heat, substantially as described.

5. The grooved timbers, having those grooves which are on opposite sides of the same so placed that each groove on one side shall be opposite the ridge between two grooves on the other, in order that, with the smallest possible sacrifice of strength to the material, the heat which passes between the air cells on one side shall be intercepted by air cells on the other, substantially as specified.

6. The car-roof formed with the outer casing C, inner casing I, intervening partition H', having dead air spaces above and below it, layers of deodorized water-proof paper L L, and carlings W W, having through them the openings K K, substantially as described.

7. In combination with the walls and roof of a railway-car, the truss-work formed of lengths of iron tubing M M, reaching from side to side, and through the walls, and sustained at their centers by bolts N N, passing through the purlin in the roof, substantially as described, and for the purposes set forth.

8. The ice-chest consisting of the perforated ice-holder P, inclosed completely by the case Q on all sides except that nearest the end of the car, with an air-chamber intervening between the said ice-holder and case at the bottom and the side toward the fan, into which the air passes, finding an outlet only by way of the said ice-holder P, substantially as described.

9. The combination of the perforated ice-holder P, case Q, salt-box S, pipe T, and valve-cylinder V, substantially as described, and for the purposes set forth.

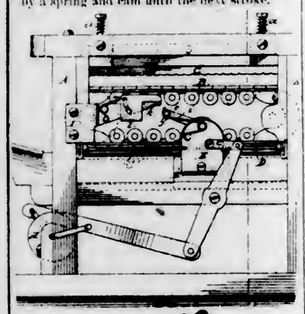
10. The door-posts provided, as shown, upon those faces that are contiguous to the doors with grooves *k*, into which the cushions on the edges of the doors press when the doors are shut, thus preventing air, dust, cinders, &c., from penetrating to the interior of the car, as set forth.

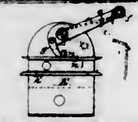
196,967.



196,968. SIZING-MACHINES FOR FELT, &c. Morgan Chittenden, Danbury, Conn., assignor to himself, P. Robinson, and Theodore Demuth, same place. Filed Aug. 17, 1877.

Brief.—Power being applied to the crank-shaft, motion is imparted to the lever by means of the pitman, and thus to the cross-head, which moves forward and backward on the guide-rods, the flange bearing and clamping the endless apron, and giving it a reciprocating as well as rotary motion until, the friction-wheel coming in contact with the inclined plane, the cam and flange are released. On its return stroke the friction-wheel engages with the horizontal plane, and, passing it, is again thrown in contact with and clamps the belt or apron by a spring and cam until the next stroke.

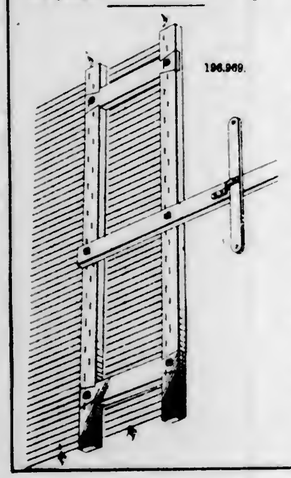




1. In a sizing machine, the combination, with an endless apron, B, a clamping device, E, provided with spring-lever *e*, dog or cam *g*, and flange *h*, pin *n*, and flange *h'*, and sliding on guide-rods D, substantially as shown and described.

2. In a sizing-machine, the combination, with an endless apron, B, and a clamping-piece, E, substantially as described, of a tripping device, I, provided with inclined plane *k* and horizontal plane *l*, arranged substantially as shown and herein specified.

3. In a sizing-machine, the combination of an endless apron, B, and a clamping device, E, provided with a spring-lever, *e*, having friction-wheel *f*, dog *g*, and flange *h*, flange *h'*, and pin *n*, with a tripping device, I, provided with inclined plane *k* and horizontal plane *l*, all constructed and arranged substantially as shown and specified.



196,969. SMOOTHING-HARROWS. C. K. Christensen, Newark Township, Rock County, Wis. Filed Apr. 26, 1877.

Brief.—The harrow-teeth are made of thin wire, secured in the beams, and bent back to be almost flat with the earth, thus forming a brush to pulverize the ground and cover light seeds.

A smoothing harrow composed of the frame A A' and the series B E E' of small straight wires arranged closely together, as and for the purpose described.

196,970. CARRIAGE-DASH FRAMES. Wm. T. Cooley, Chicago, Ill. Filed Apr. 25, 1877.



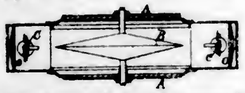
The combination, with the dash-frame A, provided with the depending brackets C C, each having the series of bolt-holes *e* and the groove *f*, of the removable foot-pieces D D, each provided with the lug *g*, having the flange *f'* to fit the groove in the bracket, substantially as and for the purpose specified.

196,971. COMPOUNDS FOR ARTIFICIAL MARBLE. R. P. Coughlin, Cincinnati, Ohio. Filed Mar. 21, 1877.

Brief.—The hydraulic cement and water are mixed to the desired consistency, and the other ingredients added.

An artificial marble consisting of hydraulic cement, in combination with a solution of Glauber's salts, sulphate of manganese, and water, substantially as specified.

196,972. DEVICES FOR ILLUMINATING CLOCK-DIALS, SIGNS, &c. Thomas Dickinson, Buffalo, N. Y. Filed Sept. 27, 1877.



The reflecting deflectors B B, reflectors O O, in combination with gas jets or burners C C and transparent dial-surface A, substantially as herein shown and described, and for the purposes set forth.

196,973. CHILDREN'S CARRIAGES. Jerome F. Downing, Erie, Pa. Filed Oct. 4, 1877.

1. In a child's carriage, the scoop-shaped hinged back A, constructed as described, and having a rim, A^1, formed with curved extensions A^2, which pass through holes in the arms, and are held by set-screws a^1, as described, whereby the back can be adjusted, as set forth.

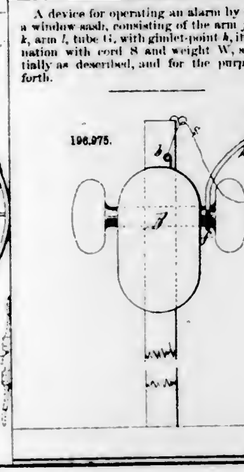
2. In a child's carriage, the arms B, curved at their rear section and provided with orifices, in combination with the adjustable hinged back A, having a curved section, a^2, and provided with curved extensions A^2, the whole arranged to operate substantially as described.

3. In a child's carriage, the adjustable hinged back A, having its lower section a^2 so constructed as to make a close joint with the rear *d* of the body D, in combination with the body having its rear end *e* hollowed out and of a circular form, to allow the back to be lowered therein, substantially as described.

4. In a child's carriage, the pivoted reversible foot-rest E, constructed as described, in combination with the seat Y, substantially as described.

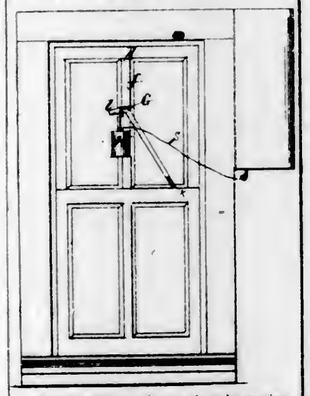
5. In a child's carriage, the pivoted reversible foot-rest E, constructed as described, in combination with the seat Y and adjustable hinged back A, substantially as described.

6. In a child's carriage, the canopy-holder, consisting of the main stem G and branches G^1 G^2 (G^2, pivoted to each other, and held in position by set-screws g g^1 g^2, the whole constructed and arranged to operate substantially as described.



196,973.

196,974. BURGLAR-ALARMS. C. C. Dusenbury, New York, N. Y. Filed Sept. 20, 1877.



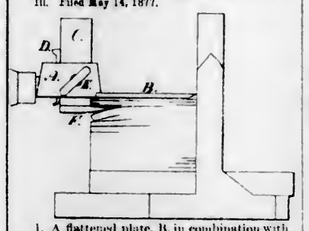
A device for operating an alarm by moving a window sash, consisting of the arm *j*, crank *k*, arm *l*, tube G, with gimlet-point *h*, in combination with cord S and weight W, substantially as described, and for the purpose set forth.

196,975.

196,975. BURGLAR-ALARMS. C. C. Dusenbury, New York, N. Y. Filed Oct. 12, 1877.

A device for operating an alarm-clock or similar contrivance by the turning of the door-knob, consisting of the semicircular end *f*, the arm *g*, with hook *p*, and arm *h*, in combination with cord S and weight W, substantially as described, and for the purpose set forth.

196,976. GAGES FOR HANDLING AND DISTRIBUTING PAPER, CIRCULARS, &c. Hugh W. Hill, Decatur, Ill. Filed May 14, 1877.

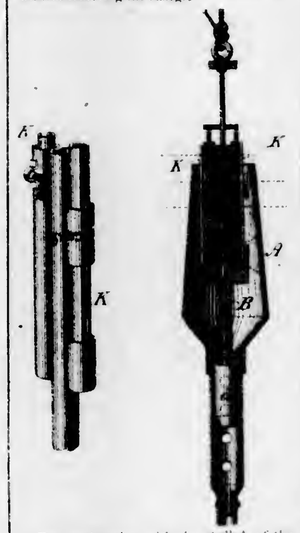


1. A flattened plate, B, in combination with a sharpened point, plate, or projection, F, said plate B and projection F being constructed and arranged on the principle herein set forth, and provided with and connected by an adjusting element, by means of which the distance between said plate B and projection F may be varied or made permanent, at pleasure, as shown and described in this drawing and specification.

2. Shaft A, plate B, bar C, projection F, set-screw E, and key D, in combination, constructed and arranged to operate in the manner and for the purpose set forth.

196,977. TORPEDOES FOR OIL-WELLS. Frederick D. Hinman, Petrolia, and Frederick L. Seely, Franklin, assignors to the Producers' Torpedo Company, Franklin, Pa. Filed Oct. 10, 1877.

Brief.—The tube containing the caps is made detachable, so that the torpedo can be reprimed without removing the charge.



The combination, with the shell A, of the removable tube K, substantially as and for the purposes set forth.

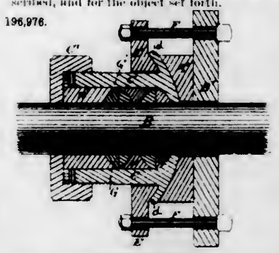
196,978. STUFFING-BOXES FOR STEAM-ENGINES. T. H. Hopkins, Pittsburg, Pa. Filed Feb. 14, 1877.

1. In combination with a piston-rod, the box C, provided with the flange *d* and bottom D, seated on the block A', all constructed and operating in manner as described, for the object set forth.

2. The combination of the cylinder head or plate A, block A', box-bottom D, flanges *d* and E, and bolts F, all operating in manner as described, for the purpose of the box C adjusting itself to any irregular action of the piston-rod.

3. The cylinder head or plate A, block A', box C, bottom D, flange *d*, ring or flange E, bolts F, packing G G', and glands H H', all constructed and operating in manner as described, and for the object set forth.

196,976.



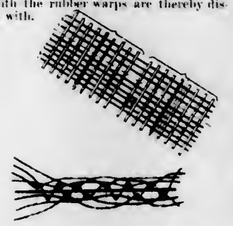
196,979. MEDICATED RING-PESSARIES. Robert H. Kline, Philadelphia, Pa. Filed Oct. 12, 1877.



A ring pessary made of fibrous material, filled with medically saturated sponge and other medicaments, substantially as set forth and described.

196,980. ELASTIC FABRICS FOR SUSPENDERS, &c. W. Lepworth, Chelsea, Mass. Filed Jan. 31, 1877.

Brief.—The fabric is twilled on both sides. The rubber warp-threads are bound at every sixth pick, and the body-threads commonly used with the rubber warps are thereby dispensed with.



The improved elastic fabric herein described, composed of an india-rubber warp and binders, and three face and three back threads for each rubber warp, constituting the body of the fabric, the face and back threads forming a three-leaf twill on the face and back of the fabric, covering the india-rubber warp, the latter being bound at each sixth pick, all as and for the purpose set forth.

196,981. DEVICES FOR LIGHTING AND EXTINGUISHING GAS. Edward Lindsley, Cleveland, Ohio. Filed Sept. 13, 1877.

1. In a gas burner designed for lighting and extinguishing by varying the pressure within the main, the combination of the shell B, provided with the mercury-cell B' and mercury cells D^1 D^2, a movable shell or dome, C, bearing pipes E and F, the mercury cup or cell G, and pipes H^1 H^2, substantially as and for the purposes described.

2. The mechanism for supplying and cutting off gas at the day burner, consisting of the movable pipe F, provided with small orifice *f*, mercury-cells D' G, and tubes H^1 H^2, substantially as and for the purposes described.

3. The combination, with the mercury cells and burner-pipes, of the pins K and pendulous cam K^1, whereby the main burner, by an increase and subsequent diminution of pressure, is fixed in an open condition, and by a subsequent increase and diminution of pressure the gas is cut off from the main burner, substantially as and for the purposes described.

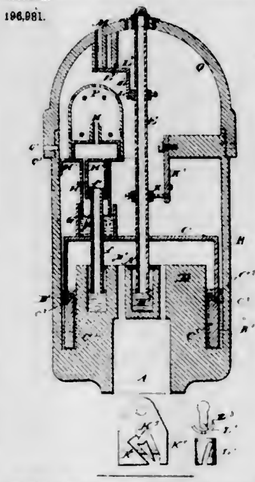
4. The combination, with the pin I, secured to an attachment of the movable shell or dome C, of the lever I^1 I^2 and passage M, substantially as and for the purposes described.

5. The combination, with the wind-cap, of the ventilation-openings Q' and channel or groove Q^2, substantially as and for the purposes described.

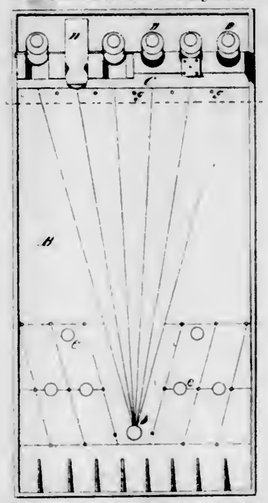
6. In combination with the depending edge of the shell or dome C, the recess C^2, provided with waste-passages c^2, substantially as and for purposes described.

7. The pipe F, provided with an open lower end and small perforation, *f*, in combination with the movable shell C and mercury-cell D^1, substantially as and for the purposes described.

196,981.



196,982. GAME APPARATUS. William J. Lyman, East Hampton, Mass., assignor of one-half his right to A. W. Rice, New Haven, Conn. Filed Aug. 20, 1877.



1. In combination with the board B and target C, the pins *d* and cups *e*, arranged as described, to leave a V-shaped space having its apex at *b*, and its base formed by the front of the target, as and for the purpose set forth.

2. In combination with the board B, the target C, formed of a block having the figures D hinged at its rear side, capable of being swung

over by the fall passing through apertures *h* therein, and arranged to radiate from the point *h*, substantially as shown and described.

196,983. SPONGE-CUPS. M. M. Macdonald, Syracuse, N. Y. Filed June 26, 1877.

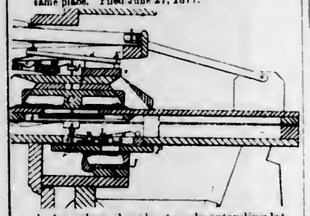


1. The combination, with the water-tank, of the socket, the ink cup, and the sponge receiver, substantially as set forth.

2. The combination of a circular ink-cup divided into compartments, a sponge-receiver arranged centrally of the ink cup, and a pen-guard, G, having a central opening, and surrounding and rotating about the sponge receiver, substantially as set forth.

3. The combination, with the ink cup and the sponge-receiver, of the cover inclosing both the ink cup and the sponge, substantially as set forth.

196,984. REED-ORGANS. Mason J. Matthews, Boston, Mass., assignor to Mason & Hamlin Organ Company, same place. Filed June 27, 1877.



1. An enlarged scale of reeds extending laterally beyond the compass of the keys of the manual, and combined therewith by intermediate levers, arranged to operate the valves *k* through the medium of the push-pins *f*, substantially as described.

2. In combination with a series of intermediate levers, arranged to operate the valves *k* through the medium of the push-pins *f*, and connecting the keys of the manual with an enlarged scale of reeds, a coupling mechanism, arranged to operate substantially as described.

3. The lever L, having a metallic flange-joint mounted on the ventrillo-chest J P, in connection with the operating reed-valves of a cabinet-organ, substantially as and for the purpose set forth.

4. The combination of the regulating-screw *o* in the lever L, the opening *o'*, and strip *r* with the operating reed-valves of a cabinet-organ, substantially as set forth.

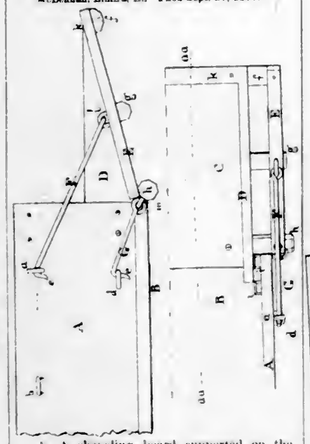
196,985.



196,985. RAZOR-STROPS. John Matson, Scott, N. Y., assignor to himself, Morgan Matson, and Wm. D. Hunt, same place. Filed Mar. 19. 1877.

A razor strop consisting of stock A, loose strap B, folding handle C, ring D, and hook E, all constructed and arranged as shown and described.

196,986. SHOVELING-BOARDS FOR WAGONS. John K. McLennan, Elmira, Ill. Filed Sept. 27, 1877.



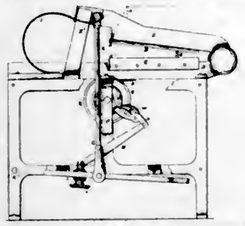
1. A shoveling board supported on the wagon bottom by means of a re-entering angle formed by beveled edge *a* and transverse bar A or recess, in combination with lateral hooked rods F F G G, attached, respectively, to the several side bars E E and cross-bar *h*, or to the junction of the latter with said bar E and to their respective staples *a b d*, substantially as and for the purposes described.

2. The combination, with the board C, of side bars E E, provided with the respective cross-bars *f g h*, the double set of lateral hooked rods F F, attachable to staples *a b*, and hooked rods G G, attachable to staples *d d* on the wagon sides, said rods G G acting as hinges when the board C is drawn upward to close the wagon end, substantially as and for purposes described.

3. The board C, beveled at front lower edge, having cleeks D D, side bars E E, braces *f g h*, or lateral extensions of said board, the bars E and *h*, provided with respective hooks F G, substantially as and for the purposes specified.

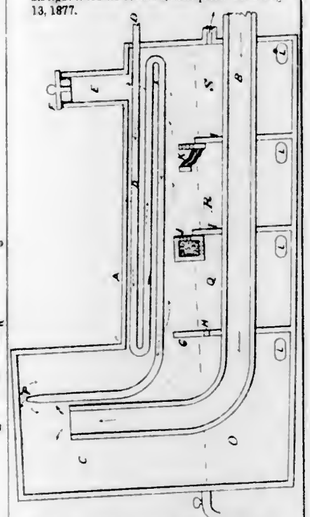
4. The combination, with the wagon A B, of the board C, cross-bars *f g h*, lateral bars E E, hooks F G, and eyes *a b d*, substantially as and for the purposes described.

196,987. MACHINES FOR CUTTING INDEXES. Wm. McMillan, Cleveland, Ohio. Filed July 10, 1877.



The combination of the stationary knife C, having return cutter *a'*, and the knife D, attached to the vibrating arm E, pivoted in a line with the knife C to give a shear-cut, and having a corresponding return cutter, *a*, the connecting-rod G, and spring I, guide-bar E', feed-table S, with a rack, R, operated by spur Q, friction-wheel V, pawl T, lever N, and lever M, attached to an adjustable sliding pivot, L, and set-screw L', arranged in the slot of the treadle H, all constructed substantially as and for the purpose described.

196,988. FEED-WATER HEATERS AND CLEANSERS. John F. Morse, Oshkosh, Wis., assignor of one-half his right to Martin T. Battin, same place. Filed Aug. 13, 1877.



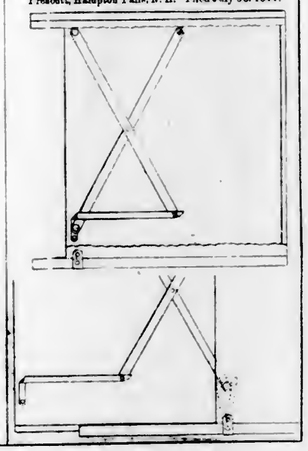
The feed-water heater and cleanser, constructed with tank A, steam-pipe B, passing through the water-chambers O, Q, R, S, &c., formed by partial partitions G, having perforations H and I I, having strainers J or K, the steam-chamber C, the coiled feed-water pipe D, and contracted nozzle P, and the loose weighted valve F, all combined substantially as shown and described, for the purposes specified.

196,989. SNAP-HOOKS. George D. Mosher, New Hartford, Conn. Filed July 26, 1877.



In combination, the body *a*, the pivoted tongue *b*, bearing the horn *d'*, projecting downwardly and rearwardly, and the helical spring *e*, borne upon said horn, and provided with the finger or leaf *e'*, bearing and sliding upon the bottom of the socket *c*, all substantially as described.

196,990. HANGERS FOR DOORS, GATES, &c. Edwin Prescott, Hampton Falls, N. H. Filed July 30. 1877.



1. The combination, with a door, of crossed levers pivoted at one end, one to the door and the other to the building, and connected at their other ends, one by a stud with a guide, and the other with a radius-bar, the joint of the radius-bar with one of the crossed levers being arranged to pass between the stud in the end of the other lever and the pivoted point of the two levers, substantially as described.

2. The combination, with a door, of pivoted crossed door and post levers, a stud, a guide, and a radius-bar, connected with each other and with the door and building, as described, whereby all the levers to sustain and project the door are arranged on the same side of the door, and all the points of connection are made within the space bounded by the bottom and top of the door, substantially as described.

3. The combination, with the door lever and its stud, of a guide having sides arranged to co-operate with the stud, to assist in retaining the door in any desired position, substantially as described.

4. The combination, with one member of the pair of crossed levers, of a radius-bar bent or shaped to permit the bar to be connected with the lower portion of the door, at a point substantially midway between the highest and lowest points reached by the other end of the radius-bar in its movements, and to permit the passage of such other end of the radius-bar between the stud and the crossing-points of the two levers

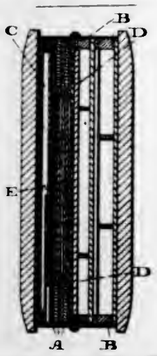
5. In combination, two pivoted crossed levers, one adapted at one end to be connected with a post or fixed part of a building, and to move at its other end substantially vertically with relation to a door, and the other adapted to be connected at one end with the door, and to move substantially vertically over the post or a fixed part of the building at the opposite side of the lever, the movable end of one lever being also arranged to pass between the pivotal point of the two levers and the connecting-point of the end of the other lever, substantially as described.

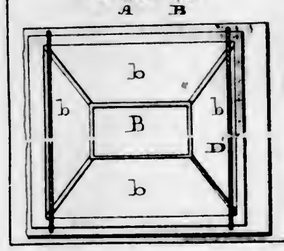
196,991. DENTAL IMPRESSION-CUPS. Wm. M. Reynolds, New York, N. Y. Filed Nov. 4, 1876.



As a new article of manufacture, impression-cups made of soft rubber or other elastic material, and flanged upon all sides, substantially as and for the purposes hereinbefore set forth.

196,992.





196,992. TOURISTS' ALBUMS. F. L. Sarmiento, Philadelphia, Pa., assignor to Walter A. Fellows and Julia Sarmiento, same place. Filed Mar. 30. 1877.

Brief.—Consists of an album formed with leaves for holding pictures, and trays for containing mineralogical, geological, and other subjects collected for exhibition, and also of a portfolio for holding writing or sketching material. The trays are provided with detachable transparent coverings.

1. The tourist's and scientist's album, provided with picture-leaves A, in combination with trays B, formed of a series of compartments, *b b*, all as set forth, and for the purpose described.

2. The combination, with an album, of the portfolio-tray C and loop E, substantially as and for the purpose set forth.

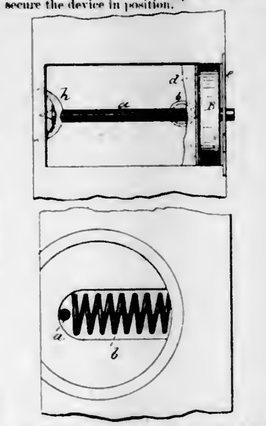
3. The album having trays B, with transparent covers D, substantially as and for the purpose set forth.

4. The album having trays B, covers D, and holding-cords D', combined and operating substantially as and for the purpose set forth.

5. The picture-leaves A, object-trays B, and portfolio-tray C, bound together, and forming an improvement in albums, substantially as and for the purpose set forth.

196,993. SASH-HOLDERS. Ives Scoville, Oakland, Cal. Filed Feb. 26, 1877.

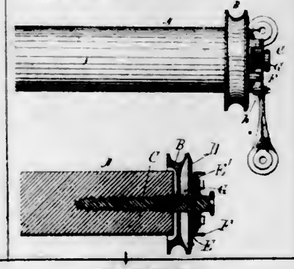
Brief.—A suitable box or case with elongated slots carries a friction-roller, which is secured to the end of a lever-rod, and actuated by a spiral or other spring. There is also a triangular plate, perforated for the farther end of the rod to move vertically, and with its ends bent down, and pressed into the sash-frame to secure the device in position.



1. The combination, with the roller B and spring *b*, of the lever-rod *a* and the triangular plate A, by which the rod is connected to the sash, substantially as and for the purpose set forth.

2. The triangular plate A, rod *a*, spring *b*, roller B, and plates *c c*, having elongated openings *d f*, substantially as and for the purpose specified

196,994. CURTAIN ROLLER AND BRACKET. Herman Beehansen, Memphis, Tenn., assignor of one-half of his right to George R. G. Jones, same place. Filed June 29. 1877



1. The screw C, having an angular bearing, *c*, internally to the cylindrical bearing *c'*, to receive the sheave B having a similar-shaped aperture, by which said screw can be driven into its roll, and the friction or retaining mechanism can be placed upon and removed from said screw.

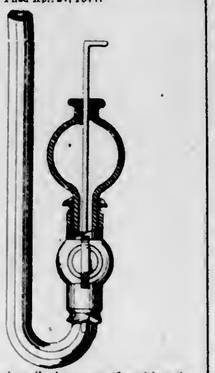
2. The screw C, having a disk, G, cylindrical or annular portion or bearing *c'*, and angular portion *c*, in combination with a sheave, ratchet, and washers of a curtain fixture, substantially as and for the purpose set forth.

3. In combination with devices for rolling and detaining the curtain, the screw C, having a disk, G, annular bearing *c'*, and angular portion *c*, internally of its bearing, and all in one piece, substantially as and for the purpose set forth.

4. The screw C, having the annular shoulder *c'*, angular portion *c*, and disk G, in combination with the sheave B, spring D, and washers or plates E F E', substantially as and for the purpose specified.

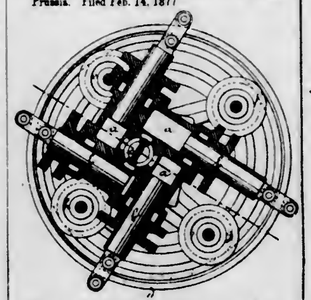
5. The screw C, having an angular portion, *c*, in combination with sheave B, having a corresponding socket, and intervening friction or retaining mechanism, substantially as and for the purpose set forth.

196,995. PACKING THE JOINTS OF BAROMETERS. J. P. Simmons, Fulton, N. Y., assignor to H. A. Simmons, same place. Filed Apr. 27, 1877.



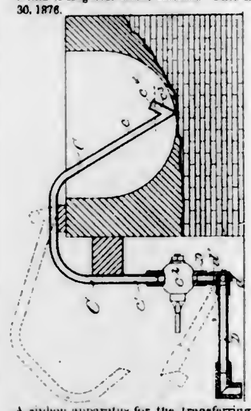
The herein-described process of packing the joints of barometers, in which the wire *b* is employed, as set forth, a piece of chamois-skin, *a*, saturated with silicate of soda, is forced into the joint and allowed to dry, and another piece, *c*, is then smeared on the inner face with the silicate of soda, passed around the joint, and wrapped with thread while yet soft, all as specified.

196,996. ROTARY ENGINES. Johann Slavik, Rheydt, Prussia. Filed Feb. 14. 1877



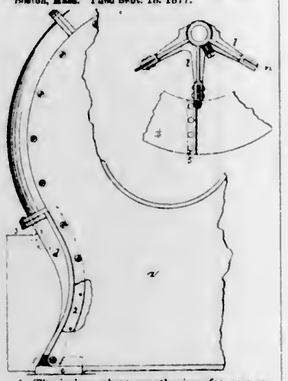
The combination of an eccentric rim, *d*, running on sheaves *e f g h*, with the piston-rods, (one in a fixed position, the other three sliding freely on the ring,) in such a manner that the rotary motion derived from the pressure in the cylinders is transferred on the said rim, which can be used as a belt-pulley, both to use the power when steam or water pressure is employed in the apparatus, and to transfer power to the machine when it shall act as a pump.

196,997. APPARATUS FOR TRANSFERRING MOLTEN METALS. Josephine Steits, St. Louis, Mo., administratrix of Augustus Steits, deceased. Filed Aug. 30, 1876.



A siphon apparatus for the transferring of molten metals from one receptacle to another, consisting of the pipe C, having an L at c^2, stopcock c^3, the elbow d, and branch D, all combined and operating as described.

196,998. FAN-BLOWERS. Benjamin F. Startevant, Boston, Mass. Filed Sept. 18, 1877.



1. The independent mouth-piece frame, provided with feet to support the blower-case, and with flanges for attachment with the side pieces and segments.

2. The independent mouth-piece frame, provided with flanges for attachment with the side pieces, substantially as described.

3. The independent mouth-piece frame, provided with a flange for attachment with the segments.

4. The independent mouth-piece frame, provided with flanges, in combination with the detachable mouth-piece, substantially as described.

5. The combination, with the side plates and arms, of independent but attached cross pieces and blades, the latter being riveted or attached to the cross-pieces and side plates.

6. The single set of central arms l, forked, as at s, in combination with the cross pieces held in such forks, and with the fan-blades riveted to the cross-pieces and to the side plates, all substantially as described.

7. The independent mouth-piece frame, provided with feet to support the blower-case, substantially as described.

8. The side plate a, provided with an outwardly-projecting seat, to strengthen the side plate and sustain the bracket, substantially as described.

196,999. TORPEDOES FOR OIL-WELLS. Edward E. Swett, Knox, assignor to the Prodducers' Torpedo Company, Franklin, Pa. Filed Oct. 10, 1877.

1. The combination, with the shell of an oil-well torpedo, of a rod working endwise in the shell, a weight carried by the rod, and a sheath or case for the weight attached to the bottom of the shell, substantially as and for the purposes set forth.

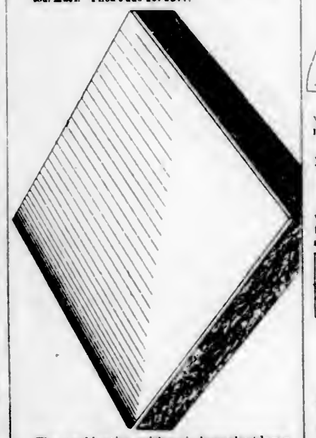
2. The combination, with the shell of an oil-well torpedo, of a strut made in coupled sections, adjustable in length, and capable of being fixed together or rigidly connected to afford a firm and steady support of the required length for the torpedo, and bear the shock of the weight in exploding, substantially as set forth.

3. The combination, substantially as hereinbefore set forth, of the shell, the weight carried by a rod working through the shell, the sheath or case attached at its upper end to the shell, and the jointed adjustable strut coupled by its upper section to the lower end of the sheath.

196,999.



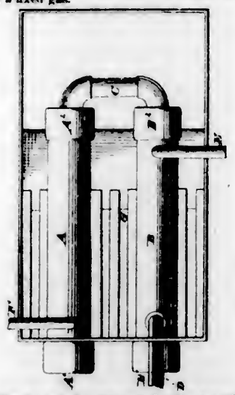
197,000. BOILER-COVERINGS. Robert Thomas, Boston, Mass. Filed June 19, 1877.



The combination, with an independent layer or sheet of hair felt, of an independent layer or sheet of asbestus paper cemented thereto, to form a portable covering fabric, having one face of hair felt and the other of asbestus paper, all substantially as and for the purpose described

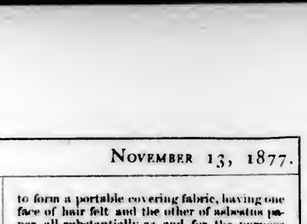
197,001. APPARATUS FOR THE MANUFACTURE OF ILLUMINATING-GAS. Thomas Tully, Springfield, Ill. Filed Aug. 9, 1877.

Brief.—Steam is decomposed by passing it through a retort containing hot scrap-iron, and the resulting hydrogen is passed into a second retort, into which is also admitted a stream of oil, so that the hydrogen will carry forward the oil vapors and combine with them, forming a fixed gas.



The described apparatus for the manufacture of illuminating gas from hydrocarbon oil and water, consisting of the independent retorts A and B, connected by screw-plugs A^1 B^1 and pipe C, the same being respectively charged with scrap-iron and fire-brick, and supported in the same horizontal plane within the furnace G, said retort A being provided with steam-pipe F, and retort B being provided with oil-inlet pipe E and gas-outlet pipe D, substantially as described.

197,002. OVER-GAITERS. W. W. Whitcomb and J. C. Daggett, Boston, Mass. Filed Mar. 16, 1877.



A fitted seamless over-gaiter made from wool, in one piece, substantially in the manner and for the purpose specified.

197,003. DOMINOES. Edward Alden, Brooklyn, E. D., N. Y., assignor to Max Kamak, New York city. Filed May 1, 1877.

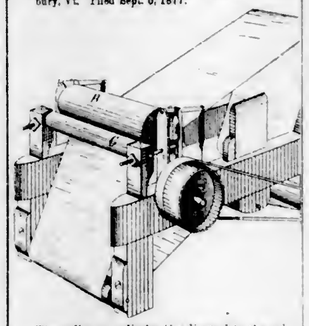
Brief.—The spots consist of metallic cups, which are forced tightly into holes in its surface, so as to leave the bottom of the cups slightly projecting.



1. The combination, with the wooden body A, of the metallic pips a, held therein in the manner and for the purposes set forth.

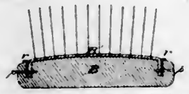
2. The herein-described domino, consisting of the perforated blank cut from the natural wood, and the metallic pips, cross-bar, and pivotal point, secured thereto in the manner shown and described.

197,004. PAPER-MACHINES. John Bacon, St. Johnsbury, Vt. Filed Sept. 6, 1877.



The roller or cylinder C, adjusted to the cylinder B, substantially as and for the purpose described.

197,005. METALLIC BRUSHES. Wm. Barbour, Reading, assignor to G. F. Baker, Hyannis, Mass. Filed July 7, 1877.

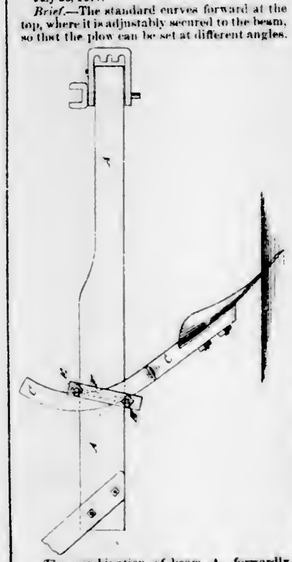


1. The combination of the rigid back B, having the groove g, the elastic backing B', and the ring r, as set forth.

2. A brush composed of a rigid back, B, having a groove, g, sunk in its face, a sheet of tooth-holding backing, B', and a ring, r, said ring being forced with the edges of the backing B' into the groove g, as set forth.

197,006. PLOWS. J. M. Bassett, Athens, Ga. Filed July 23, 1877.

Brief.—The standard curves forward at the top, where it is adjustably secured to the beam, so that the plow can be set at different angles.



The combination of beam A, forwardly-curved standard C, and clamp E F, substantially as and for the purpose specified.

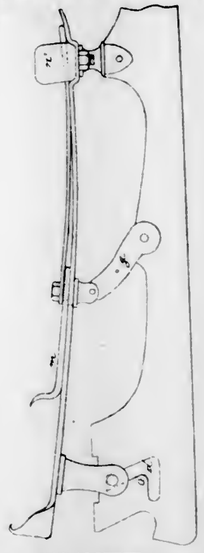
197,007. SKATES. Johann Peter Becker, Jr., Remscheid, Germany. Filed Oct. 3, 1877.

1. The resilient foot-plate, in combination with means for operating the sole and heel clamps by its depression, and means for retaining it in a depressed position, substantially as described.

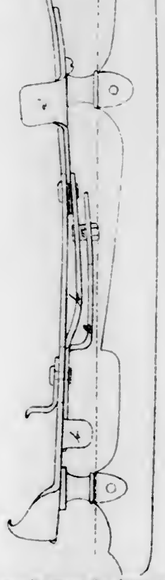
2. The resilient foot-plate, combined with the clamps a' a', pusher g, and slot d, substantially as described.

3. The combination of the resilient foot-plate with the slot d in the rail, substantially as described.

197,007.

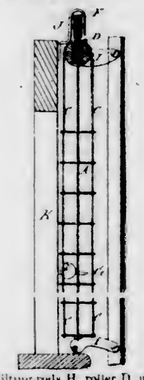


197,008. SKATES. Johann Peter Becker, Jr., Remscheid, Germany. Filed Oct. 3, 1877.



The lever-adjustment for skates consisting of the plates a, slotted as described, and provided with clamps a', with the lever b, slide m, and adjusting-piece c, substantially as described.

197,009. WINDOW-SHADES. Frederick J. Becker, Rokah, Minn. Filed Sept. 22, 1877.



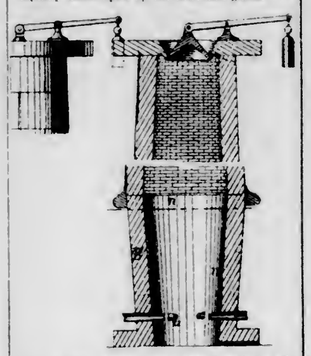
1. The tilting rods H, roller D, and the upper levers I, arranged as specified, and for the purpose of tilting the slats A.

2. The slats A, cords B and C, roller D, pulleys E and F, lever G, rods H, levers I, and hanger J, combined, arranged, and operating substantially as described, and for the purposes set forth.

3. The vertical rods H and links or parallel rods I, the lower ones of which are fastened to the sill outside of or in advance of the frame, as described, for the purpose of preventing the blowing about of the slats by the wind.

197,010. BLAST-FURNACES. John F. Bennett, Pittsburg, Pa. Filed Aug. 2, 1877.

Brief.—The peculiar form of the inner walls, their relative dimensions, and the tuyeres inserted into the furnace beyond the lining, cause a deposit of carbon upon the latter, thereby protecting it from scouring by the charge, and the gases are made to pass up through the body of the charge, which is thereby more equally acted upon by the heat and gases.



1. A blast-furnace composed interiorly of two frustums of cones, placed base to base, and having, first, its greatest area in cross-section not less than twice nor greater than three times the area of the base; second, the area of the throat equal to or not more than one-half greater than the area of the base; and, third, the lower frustum being about one-half the height of the upper, substantially as set forth.

2. In a blast-smelting furnace, the air-blast tuyeres a, two or more in number, projecting into the interior of the furnace, beneath the charge and above the space designed to contain the molten metal, substantially as and for the purposes set forth.

3. In combination with a blast-furnace having an interior form of two frustums of cones placed base to base, the tuyeres a, projecting into the interior, substantially as described, whereby a lining of carbon is deposited on the inner walls by the action of the furnace.

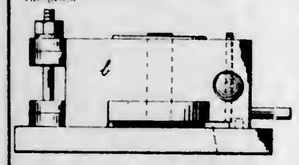
4. The tuyeres *a*, arranged so that a circle drawn through their nozzles shall divide the horizontal plane of the furnace at that level into two equal, or nearly equal, parts, in combination with a furnace having its greatest area in cross-section not less than twice nor greater than three times the area of the base, substantially as set forth.

5. The tuyeres *a*, arranged as described, in combination with a furnace having its greatest area in cross-section not less than twice nor greater than three times the area of the base, the area of the throat being not less than equal and not more than one-half greater than the base, and the cone or bell equal to one-half the area of the throat, substantially as described.

6. The combination, in a blast furnace, of a throat having an area equal to or slightly in excess of the base, and a charging-hole and bell of about one-half the area of the throat, substantially as set forth.

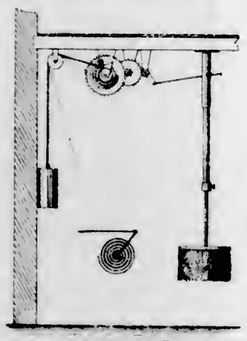
197,011. APPARATUS FOR MAKING METALLIC SPOOLS. Geo. W. Billings, Chicago, Ill. Filed June 14, 1877.

Brief.—The steam with taper ends, placed in the aperture in the bed plate, is supported by the clamping jaws. The first head having been formed upon the taper end, and that turned over upon it by means of a taper set, the whole is reversed, and the second head secured in the same manner, the first resting upon the bed plate, in the aperture provided therefor in the jaws.



The clamping jaws *b* and *c*, the recess *e*, formed therein parallel to the surface of the bed-plate for the head, and the recess *f* for the stem at right angles with the surface of the bed plate, in combination with the bed plate and its recess *k*, in the manner and for the purpose substantially as set forth.

197,012. AUTOMATIC FANS. John B. Boone, Galveston, Tex. Filed Aug. 24, 1877.



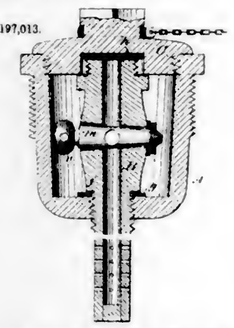
1. The combination of a rotary reciprocating socket-tube, the supporting-plate attached to the ceiling, and a vertically adjustable fly-brush, substantially as set forth.

2. A fly-brush and fan, constructed of a spiral band-spring attached at the inner end to a point of support, and provided with wings or strips along the convolutions of the spring, substantially as specified.

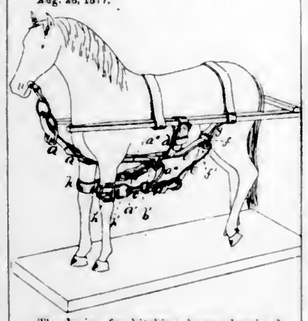
197,013. TAP ATTACHMENTS TO BEER-BARRELS. J. H. Bruns, Rudolph Laig, and H. Von Dohren, New York, N. Y. Filed Oct. 18, 1877.

Brief.—The device, after being inserted into a barrel, is intended to receive a faucet.

A tap attachment for barrels, consisting of the cup A, having the cover C and the faucet B, combined as herein shown and described.

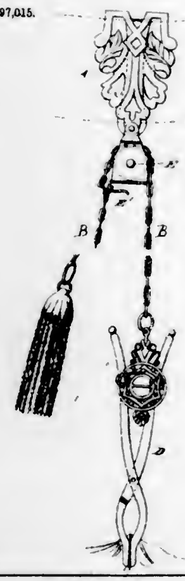


197,014. DEVICES FOR HITCHING HORSES. Wm. T. Burton and John B. Burton, Boston, Mass. Filed Aug. 28, 1877.



The device for hitching horses herein described, consisting of the martingale *a*, diverging into the straps *a' a''*, the plate *b*, rollers *b'*, straps *c*, rollers *f'*, straps *g*, shaft girth *d*, leg bands *h*, and hooks *e*, all constructed, combined, and arranged substantially as and for the purpose herein set forth.

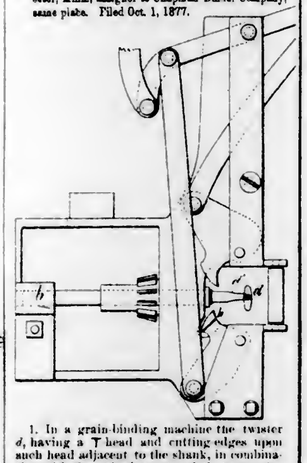
197,015.



197,015. DRESS-ELEVATORS. Emil C. Calm, New York, N. Y. Filed Sept. 29, 1877.

The combination, in a dress-elevator, with the guide-pulley E and hook E', on belt-hook A, of the chain B, connected with the dress-clamp D, and passing over the pulley E, substantially as and for the purpose specified.

197,016. GRAIN-BINDERS. Edwin Chapman, Rochester, Minn., assignor to Chapman Binder Company, same place. Filed Oct. 1, 1877.



1. In a grain-binding machine the twister *d*, having a T-head and cutting-edges upon such head adjacent to the shank, in combination with the swinging cutter A that separates the coil against the cutting-edges of the head, substantially as set forth.

2. In combination with the twister having a tapering shank, T-head, and cutting edges, the swinging cutter A and swinging hook *o*, substantially as set forth.

197,017.

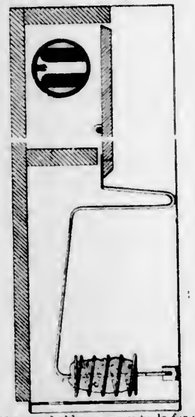


197,017. DOSE-MEASURERS. George Colmer, Springfield, La. Filed Oct. 6, 1877.

The combination of a transparent graduated tube, F, stopple *a*, syringe A, and adjustable stop-rod J, substantially in the manner and for the purposes specified.

197,018. ANIMAL-TRAPS. John B. Cusner, Bridgeport, Conn., assignor to himself and Carlos B. Curtiss, same place. Filed Sept. 17, 1877.

Brief.—The trap, composed of two compartments, has a passage-way, in which is pivoted a drop-door. The bait-holder, which consists of a skeleton wire cup, is supported upon a wire bent so as to have pivot-bearings, and then rises vertically and extends forward, being hook-shaped at its forward end, to support or catch the inner end of the drop-door. The trap is sprung by the victim nibbling upon the bait, and is reset by it on passing up the door in its course to the cage.



1. The bait holder or receptacle for animal-traps, constructed as described, consisting of a skeleton cup mounted on a pivoted support, an extension of which constitutes a catch or device by which the door or gate of the trap is operated.

2. The improved animal trap hereinbefore described, consisting of the door or gate pivoted in the passage-way, the bait-holder acting upon the door, the cross-piece to limit the upward movement of said door and prevent the return of the animal after resetting the trap, the drop-gate in the opening leading to the cage, and the cage proper, these members being constructed and arranged substantially as hereinbefore set forth, whereby, when the door is closed, it affords a direct passage for the animal to the cage.

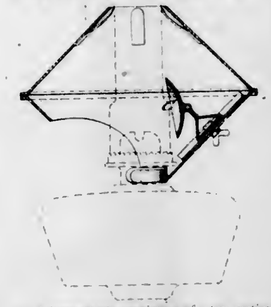
197,019. ATTACHMENTS FOR PUMPS. Jas. R. Dever, Goshen, Ind., assignor of one-half his right to A. S. Zook and Danl. Zook, same place. Filed May 7, 1877.

Brief.—The box to be attached to the pump has two communicating chambers, a drop-valve, a hollow revolving cut-off, and supply and discharge pipes, whereby cool fresh water may be obtained from the well without drawing off or pumping the water out of the upper portion of the stock, and whereby is also provided an anti-freezing valve for use in winter.

1. The combination, with a water-supplying device or pump-stock, of a pipe the lower end of which taps the water-course of the stock or device above the lower valve, and the upper end of which extends to the upper side of the platform or floor, and below the discharge spout or opening, for the purpose specified.

2. The combination, with a pump-stock, A, or other water-supplying device, and pipes E and F, of a box, D, and cut-off *d*, all constructed and arranged substantially as and for the purposes set forth.

197,020. COMBINED LAMP-SHADE AND REFLECTOR. John W. Drake, Tolono, Ill. Filed Oct. 13, 1877.



1. A lamp-shade consisting of a top section and a supporting bottom section, the bottom section being of inverted conical shape, and having an opening for the light, in combination with an interior adjustable reflector that throws the light through the opening, substantially as and for the purpose set forth.

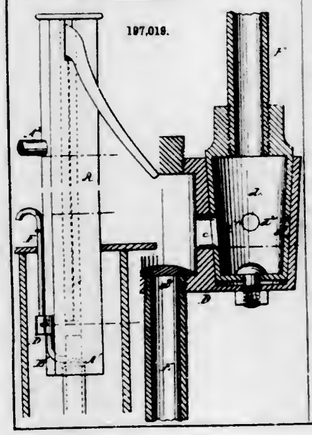
2. A lamp-shade composed of a top section and a supporting bottom section, of which the latter has a side opening for the exit of light, with an adjustable and detachable reflector arranged at the inside of the shade, at a point diametrically opposite the light-opening, substantially as set forth.

3. The combination of the supporting bottom section of the lamp-shade, having side opening for the exit of the light, with one or more detachable ring-sections, for enlarging or diminishing the light-opening, substantially as shown and specified.

197,021. PRINTING-PRESSES. Edward Dummer, Boston, assignor of one-half his right to D. W. Watson, Malden, Mass. Filed Mar. 6, 1877.

Brief.—The crank-shaft which oscillates the platen is moved to make the impression by an open clutch on a sleeve loosely mounted on its end, which sleeve is geared to the driving-shaft. Segment-gears govern the backward motion of the platen when the shaft drops away from the clutch. Sprocket-pulleys on the driving-shaft below, and pulleys in spring-bearings above, the vertical bed carry endless chains having lever-arms, in which are journaled the inking-rollers. In the back part of the shell which covers the central mechanism is mounted, opposite the bed, the vertical ink-distributing disk.

197,019.



1. In an oscillating printing-press, one or more inking-rolls carried over the form or bed and ink-plate by chains or bands, said chains or bands passing about pulleys R on the main driving-shaft O, and the pulleys T, the sets of pulleys being pressed from each other by means of springs *g*, substantially as hereinbefore set forth.

2. The combination of the bed B, revolving disk or ink-plate G, and chains or bands S, passing about pulleys R and T, and carrying the inking-roll or rolls, substantially as hereinbefore described.

3. The combination of the chains or bands S, pulleys R and T, springs *g*, and levers *w*, bearing the inking-roll V, substantially as hereinbefore set forth.

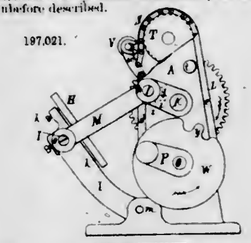
4. In an oscillating press, the combination of the gear L, shaft K, bearing the cranks J, and clutch N, substantially as hereinbefore described.

5. The combination of shaft O, cam W, bearing the teeth or projection *y*, shaft K, bearing the teeth or projection *z*, substantially as hereinbefore described.

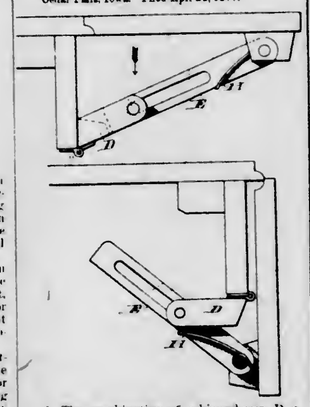
6. The combination of shaft O, pulleys R, chains or bands S, pulleys T, pinion Y, gear L, shaft K, crank-arms J, side arms N, and oscillating platen H, substantially as and for the purpose hereinbefore set forth.

7. The standards A, bed B, shell or cover F, and ways or inking-roll guides *d* and *e*, constructed and combined substantially as hereinbefore described.

197,021.



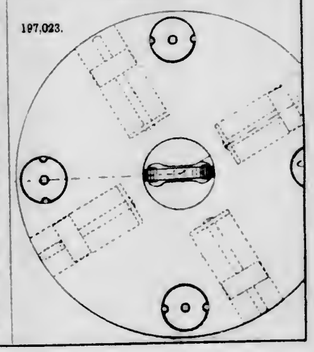
197,022. TABLE-LEAF SUPPORTS. Geo. E. Eberhart, Cedar Falls, Iowa. Filed Apr. 20, 1877.



1. The combination of a hinged arm, D, a slotted bar, E, and a spring, H, with a table and its folding leaf, substantially as described.

2. The forked arm D, hinged to the table, the slotted bar E, jointed to said arm and to the folding leaf of the table, and a spring bearing upwardly upon said bar, the whole constituting a jointed spring table-leaf-supporting brace, substantially as described.

197,023.

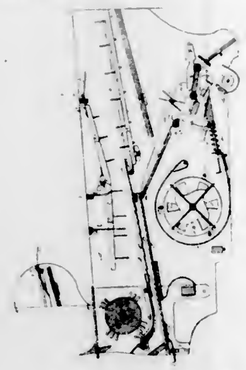


197,023. MILLSTONE-BALANCER. Ralph K. Ent, North Topeka, Kans. Filed Sept. 22, 1877.

A mill-stone having a number of symmetrically arranged horizontal guide-tubes with adjustable weights, and a separate number of symmetrically arranged vertical guide-tubes and adjustable weights for adjusting the standing and running balance of the stone without one interfering with the other, substantially in the manner and for purpose set forth.

197,024. GRAIN-SEPARATORS. Arthur B. Farquhar, York, Pa. Filed June 20, 1877.

Brief.—Improved construction and arrangement of the parts of the straw and grain separator of a thrashing machine.



1. In a separator or thrasher and cleaner, the sheaf-board or side-table constructed with a loop or eye, e^2, carried by a pivoted lever, e^1, and engaging with a hook, e^3, substantially as and for the purpose described.

2. The conveyer F, constructed with a bottom, f, and screen or riddle f^1, framed to and arranged above the bottom f, the screen or riddle f^1 being formed with extensions f^2, extending over the ends of the bar r, and between the lower rakes i^2, substantially as set forth.

3. In combination with the conveyer F, rakes i^2, and intermediate grating f^3, composing the separating-platform, and arranged as described, the bent rakes l, journaled to the crank-l above the separating platform, with their rear ends supported in bearings P, so that they operate over the conveyer and the intermediate grating f^3, and over the front ends of the rakes i^2, substantially as shown, and for the purposes set forth.

4. The combination, with a series of rakes, l, supported and operated by a crank-shaft, L, above the conveyer F, of a series of hinged pendent arms, t, and a series of rigid pendent arms, t^1, arranged as and for the purpose set forth.

5. In combination with a conveyer, F, provided with guide rods f^4 moving in guide-bearings f^5 on the frame A, of a supporting spring-bar, P^2, arranged centrally below the rear end of the conveyer F, for the purposes set forth.

6. The combination, with the conveyer F and intermediate grating f^3, of the rakes l, constructed with the arms l^2 P, supported, arranged, and operating substantially as set forth.

7. The combination of the incline grain-chute M, formed with a series of sections, m^1 m^2 m^3, rollers n^1 n^2 n^3, agitator S, and fan R, substantially as set forth.

8. The combination, with the conveyer F, intermediate grating f^3, and grating i, of the series of rakes i^2, operating between the bars of the grating i, and the series of curved or bent rakes l, supported and operated over and partially in the rear of the series of rakes i^2, substantially as set forth.

197,025. LEAF-TURNERS. Daniel J. Ferry, Philadelphia, Pa., assignor of one-half his right to John I. Rogers, same place. Filed Oct. 11, 1877.

1. The combination, in a leaf-turner, of a stationary bearing-pin, a series of base-pieces journaled and vibrating thereon, a series of springs by which the base-pieces are independently vibrated, a series of turning-fingers, each of which is hinged or pivoted to one of the base-pieces, and a device by which the fingers are maintained in an upwardly-inclined position during operation, and released and depressed to a horizontal position thereafter, substantially as set forth.

2. The combination, in a leaf-turner, of a stationary bearing-pin, a series of base-pieces journaled upon and vibrating thereon, each carrying a pivoted turning-finger provided with a toe or projection below its point of attachment with the base-piece, and a cap-plate having a recess at one side and secured upon the bearing-pin above the toes of the turning-fingers, so as to maintain the fingers in an upwardly-inclined position during the period of their vibration and permit of their depression thereafter, substantially as set forth.

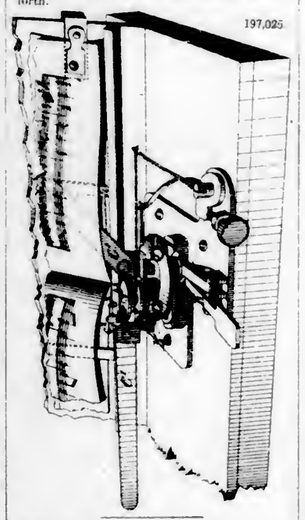
3. The combination, in a leaf-turner, of a stationary bearing-pin, a series of base-pieces journaled thereon, each carrying a pivoted turning-finger, a series of springs by which the base-pieces and fingers are independently vibrated, a retaining-bar, substantially as described, by which one or all of the base-pieces are locked in position, and a releasing-lever actuating the retaining-bar to independently release the base-pieces, as set forth.

4. The combination of the retaining-bar, the releasing-lever, and the setting-lever, substantially as set forth.

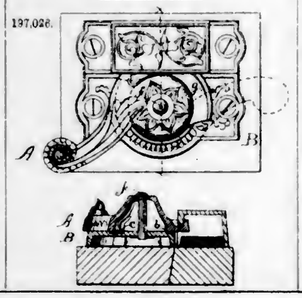
5. The combination, with the series of vibrating base-pieces, of a sliding retaining-bar having on one side a series of teeth, and a releasing-lever having a pivoted pawl, which alternately moves the retaining-bar by engaging one of its teeth, and afterward is forced by a spring into position for engaging the adjacent tooth, substantially as set forth.

6. The combination, with the sliding retaining-bar and its side teeth, of the releasing-lever, the pivoted pawl having an inclined toe, and the pawl-spring, substantially as set forth.

197,025



197,026.



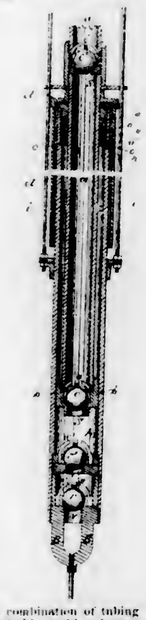
197,026. FASTENERS FOR MEETING-RAILS OF SASHES. Otto F. Fogelstrand, New Britain, assignor to Hart, Bliven & Mead Manufacturing Company, Kensington, Conn. Filed Aug. 20, 1877.

1. In a sash-fastener, the lever A, with the large hub at one end, the edges of which hub are concentric with the pivot-pin f, except for a short distance on one side, where its periphery is cut away, and having the eccentric groove g formed in the upper surface of said hub, and with its open end terminating at the side which is opposite the handle portion of said lever, all substantially as described, and for the purpose specified.

2. In a sash-fastener, the base-plate B, having the depression c and shoulders c c, in combination with the concentric bearing or ledge b and stop g on the under side of the lever A, substantially as described, and for the purpose specified.

197,027. OIL-WELL PUMPS. Loud S. Fulton, Pittsburg, Pa., assignor to John Biggerstaff, same place. Filed Aug. 20, 1877.

Brief.—Two concentric tubes constitute the barrel and the piston. The outer tube has one or more upwardly opening caged valves at or near the base, and a pin-valve to open as it touches the ground. The inner tube has a like caged valve at each end. The pump is operated by a vertically-reciprocal movement of either tube.



1. The combination of tubing a, barrel b, having suitable packing between them, and cap or shield d, attached to and working with the tubing, substantially as set forth.

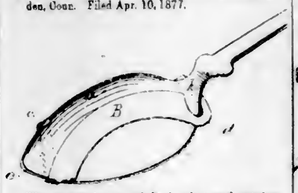
2. In an oil-well pump, a cap or shield, d, attached to and working with the tubing, whereby the stuffing-box and polished rod or tubing are protected from sand and dirt, substantially as set forth.

3. In an oil-well pump, the combination of tubing a, having one or more valves therein, barrel b, having one or more valves therein, a stuffing-box or packing arranged between the barrel and tubing, and suitable connections outside the tubing for working the barrel, substantially as described.

4. The combination of tubing a and barrel b, having suitable packing between them, valves c and r, and cap or shield d, attached to and working with the tubing, substantially as set forth.

5. In an oil-well pump, the combination of tubing a, having lugs i thereon, barrel b, and packing-ring o, substantially as set forth, whereby the whole pump may be drawn from the well together.

197,028. MUSTACHE-GUARDS. Albert Furniss, Meriden, Conn. Filed Apr. 10, 1877.



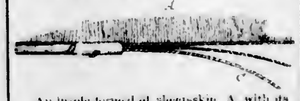
The mustache-guard B, having end catches c d, the former provided with the hook e, and the whole adapted to be applied to and rind upon the edges of a spoon or similar vessel, substantially as specified.

197,029. JAPANNING WOOD. Adam Gigrich, Amityville, N. Y., assignor to Winter & Ball, Jersey City, N. J. Filed Aug. 20, 1877.

1. The umbrella or parasol handles japanned in imitation of horn, shell or other substances, and having the different surfaces colors smooth and at the same level, substantially as set forth.

2. The method herein specified of japanning in imitation of horn and other substances by applying spots or portions of one or many colors to last coating while both are in a sufficiently liquid condition to flow together and assume a uniform level, substantially as set forth.

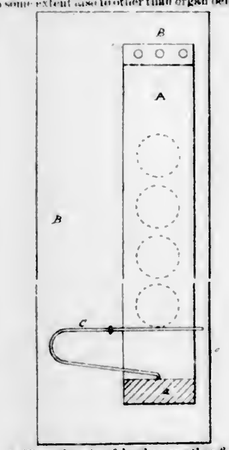
197,030. INSOLES FOR BOOTS AND SHOES. John T. Gilmen, Brooklyn, N. Y. Filed Oct. 13, 1877.



An insole formed of sheepskin, A, with its wool for the inner layer, heavy paper B for the intermediate layer, and heavy japanned drilling C for its outer layer, gummed together and bound with a worsted or silk binding, D, substantially as herein shown and described.

197,031. ORGAN-BELLOWS VALVES. A. K. Hobart, Cambridgeport, assignor to Mason & Hamlin Organ Company, Boston, Mass. Filed June 27, 1877.

Brief.—A spring secured to the end of the flap-valve takes up the slack. It is applicable to some extent also to other than organ bellows.

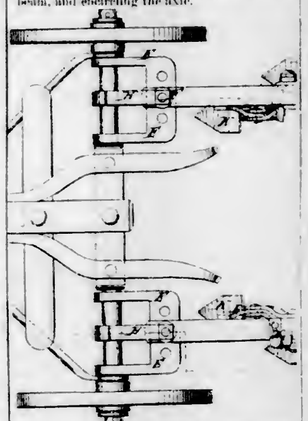


1. The valve A, of leather or other flexible material, secured to the bellows B at one end, and to a block, a, and spring C at the other, substantially as described.

2. The flexible valve A of an organ or other bellows, having a spring applied, substantially as described, whereby the same is extended uniformly and made self-adjusting.

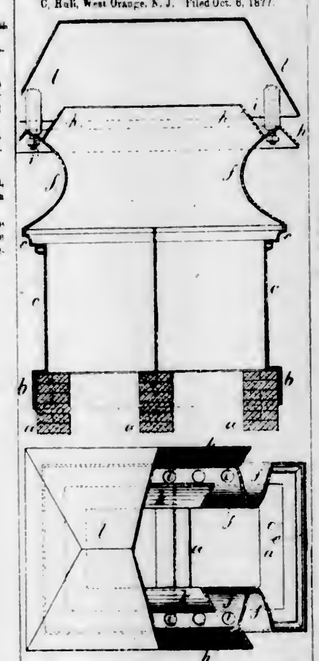
197,032. CULTIVATORS. Fredk. L. Hilsabeck, Shelbyville, Ill. Filed Aug. 24, 1877.

Brief.—A clevis coupling for plow beam and axle, and a central curved bar bolted to the beam, and encircling the axle.



The combination of U bars E and bent bars H, bolted together, to connect the axle and plow beams, as shown and described.

197,033. VENTILATORS FOR CHIMNEYS, &c. Maurice C. Hall, West Orange, N. J. Filed Oct. 6, 1877.



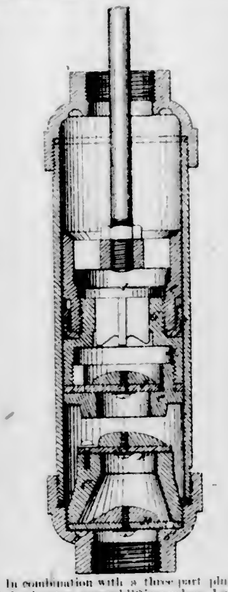
1. The concave sides f, terminating at their upper portions in the pyramidal rim h and deflector k, the internal area between the sides f and deflector k corresponding in size, or nearly so, in combination with the cap l, substantially as and for the purposes set forth.

2. In combination with the metallic chimney top made of the base b, body c, and top e, the protecting cap having concave sides f, deflectors h and k, and cap l, as set forth.

3. The combination, with the concave sides f, of the deflector h and k, the internal area between the deflector k corresponding, or nearly so, to that between the concave sides, substantially as set forth.

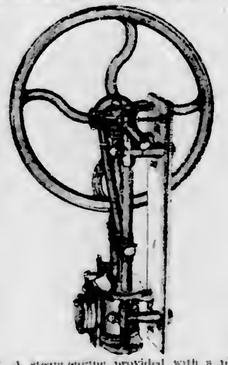
4. In a cap for a flue, the concave sides f, forming deflectors for external currents of air, and also a base to rest upon the upper part of the chimney, substantially as specified.

197,034. LIFT-PUMPS. Augustus Johnson, Morgan, Ill. Filed Sept. 14, 1877.



In combination with a three-part plunger, G, having two upward-lifting valves, I and J, the check-valves D and E in box C, substantially in the manner and for the purpose described.

197,035. RECIPROCATING ENGINES. John A. Kaufhein, Chattanooga, Tenn. Filed Nov. 6, 1877.



1. A steam-engine provided with a plain cylinder, which is adapted to be revolved between the cylinder-heads, and adjusted in any desired position, said cylinder-heads being secured by guide-rods which extend the entire length of the engine, substantially as set forth.

2. The combination, with independent cylinder-heads and steam-chest, of a plain cylinder, the latter being secured in any desired position by means of the guide-rods, substantially as set forth.

3. The combination of an independent steam chest and cylinder with cylinder-heads, the latter constructed with projecting annular seats or flanges, for receiving the ends of said cylinder, and guide-rods extending the entire length of the engine, and securing the cylinder and cylinder-heads in place, substantially as set forth.

4. The combination of an independent steam chest and cylinder with cylinder-heads, the latter constructed with projecting annular seats or flanges, having a seat or ledge formed on their inner surfaces, to allow the piston to make a complete stroke through the entire length of the cylinder, substantially as set forth.

5. The combination, with guide-rods extending the entire length of the engine, of independent steam-chest, cylinder, and cylinder-heads, the latter provided with steam-passages to conduct steam from the steam chest to the ends of the cylinder, substantially as set forth.

6. The combination, with the valve-seat constructed with a raised annular flange, of a cylindrical steam-chest and chest-cap, the several parts being secured together by bolts extending through the seat, chest, and cap, substantially as set forth.

7. An engine provided with guide-rods, which serve to support the bearings for the crank-shaft at one end, and the opposite ends to connect the cylinder heads, substantially as described.

8. The combination, with guide-rods which extend the entire length of the engine and secure the cylinder heads in place, of a cross-head, provided with Greek cross bearings, substantially as set forth.

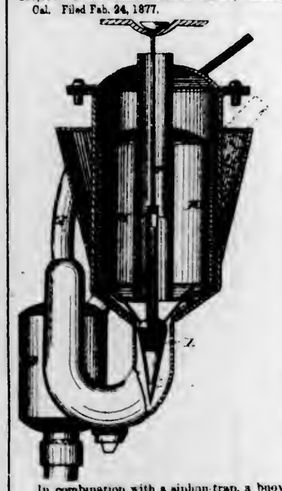
9. The combination, with guide-rods which extend the entire length of the engine and secure the cylinder and cylinder-heads in place, of a cross-head, consisting of a shaft journaled in adjustable Greek cross bearings, substantially as set forth.

10. The combination, with guide-rods which extend the entire length of the engine and secure the cylinder and cylinder heads in place, of a cross-head, consisting of a shaft journaled in adjustable Greek cross bearings, and the connecting-rod secured to a Greek cross bearing sleeved on said cross-head shaft, substantially as set forth.

11. The combination, with guide-rods constructed with shoulders to form seats for one cylinder-head, of removable cylinder, cylinder heads, and steam chest, substantially as set forth.

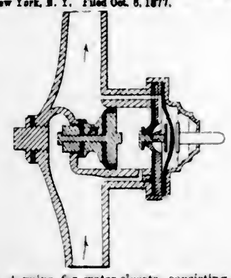
12. The combination, with guide-rods extending the entire length of the engine, of standards for supporting said rods, and the crank shaft journaled in Greek cross bearings, which latter are seated against said standards, substantially as set forth.

197,036. SEWER-TRAPS. John H. Mankie, Oakland, Cal. Filed Feb. 24, 1877.



In combination with a siphon-trap, a buoy, K, and cork L above the siphon, substantially in the manner and for the purposes set forth.

197,037. WATER-CLOSET VALVES. Paul Magnus, New York, N. Y. Filed Oct. 6, 1877.



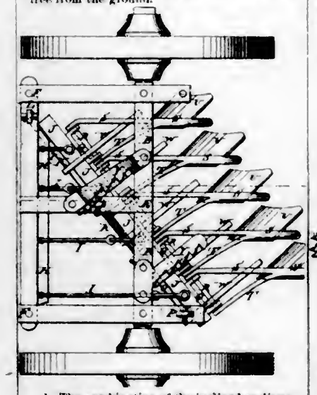
1. A valve for water-closets, consisting of two interior valves and an intermediate water-chamber, connected to the main supply-pipe by entrance and exit channels at opposite sides of the valves, one of the valves being opened by exterior means, the other by the pressure of the water, substantially as set forth.

2. The combination, in a valve for water-closets, of an actuating stem or piston, with an interior valve, a diaphragm or packing interposed between stem and valve, and an interior water-chamber having supply and discharge channels, to open valve by exterior pressure and close the same automatically by interior water-pressure, substantially as set forth.

3. The combination, in a valve for water-closets and other purposes, of an interior main valve that opens or closes the main supply-pipe, said valve having a larger top and a smaller bottom surface, of a smaller interior valve that is opened by exterior pressure and closed by interior water-pressure, and of an intermediate water-chamber between the valves that is connected by a supply channel directly, and by a discharge-channel through the smaller valve with the main supply-pipe, to regulate, by the interior pressure of the water in the main pipe or water-chamber, the automatic opening or closing of the main valve, substantially as specified.

197,038. WHEEL-CULTIVATORS. Irwin Macy and J. C. Watkins, Harrisburg, Oreg. Filed July 13, 1877.

Brief.—The frame is mounted upon wheels, and consists of an axle-tree, a bar of iron, U-shaped, with its free ends extending in rear of the axle-tree, to which it is secured by bolts, and the tongue, which is secured to the middle of the axle-tree and to the middle of the bar. A hanging bar is supported parallel with the axle-tree, to which a diagonal bar, in two sections, is attached by adjustable vertical supports. The plow-beams are each independently attached to the diagonal beam, and each section of the diagonal beam is provided with a lever and keeper, to lift and hold the plows free from the ground.

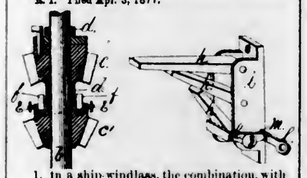


1. The combination of the inclined or diagonal bar J, made in two parts or sections, the draw-rods I, and the braces T, with the plow-beams S and the frame-work of the machine, substantially as herein shown and described.

2. The combination of the adjustable perforated bars L N P with the inclined or diagonal bar J, to which the plow-beams are attached, and with the frame-work of the machine, substantially as herein shown and described.

3. The combination of the levers X and catch-bars Y with the arms W, the diagonal bar J, and the plow-beams S, substantially as herein shown and described.

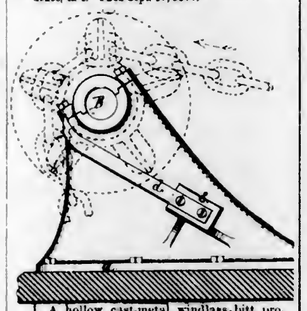
197,039. WINDLASSES. Frank S. Manton, Providence, R. I. Filed Apr. 3, 1877.



1. In a ship-windlass, the combination, with the driving-pinions C and C', of the locking-keys *f f* and screws E E, arranged in connection with the collars *d d* and shaft *b*, so that the pinions may be readily locked and unlocked, and the locking-keys be secured to the collars, substantially as and for the purpose set forth.

2. The combination, with the pawl *h* or pawls A A A, of the hinged loop-lever K and pin M, arranged to raise the pawl or pawls and secure the same, substantially as and for the purpose described.

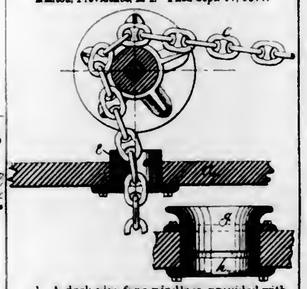
197,040. WINDLASS-BITTS. Frank S. Manton, Providence, R. I. Filed Sept. 17, 1877.



1. A hollow cast-metal windlass-bitt provided with the bearings B and laterally-projecting flanges *a a*, constructed and arranged substantially as and for the purpose described.

2. The combination, with the bracket E, of the clearing-guard *d*, the blade of which is straight, substantially as and for the purpose described.

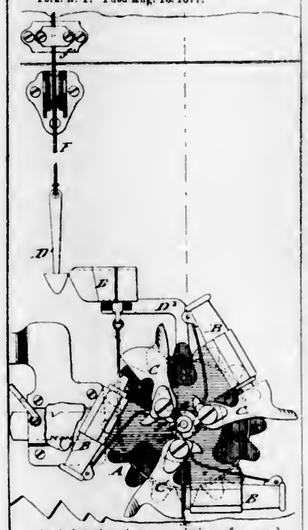
197,041. DECK-PIPES FOR WINDLASSES. Frank S. Manton, Providence, R. I. Filed Sept. 17, 1877.



1. A deck-pipe for a windlass, provided with the bolster *e*, substantially as and for the purpose described.

2. A deck-pipe, consisting of the upper pipe *g*, provided with the curved rim, surrounding or partially surrounding the pipe, and the lower ring *h*, substantially as and for the purpose described.

197,042. BURGLAR-ALARMS. Samuel Mangold, New York, N. Y. Filed Aug. 18, 1877.



1. A burglar-alarm consisting of a revolving main plate having fixed barrels and spring-hammers, a hammer-operating device of the center post, and of an actuating cord attached to door-casing, and coupled to main plate to work alarm by the opening of the door, substantially as and for the purpose set forth.

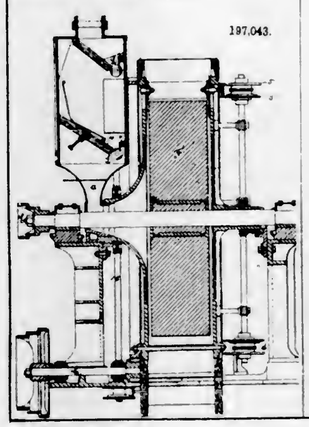
2. The combination of the revolving main plate A, having circumferential groove or wings, with an operating wire cord, *a*, casing D, and coupling-link D' of actuating-cord, substantially as described.

3. The combination of pendent coupling-link, suspended from end of actuating-cord, with winged and flanged casing resting on bracket of a supporting arm, and with a wire cord operating main plate, substantially as specified.

4. The combination of the fixed center post A', having rigid pin *g'*, with revolving main plate A, having barrels B and spring-hammers C, with end lugs *g'*, to raise and drop the hammers for successive discharge of barrels, substantially as set forth.

5. The combination of a revolving burglar-alarm, operated by opening of door, and having toothed and notched slide-bar, with a fixed guide-plate of door, having a pivoted catch to lock slide-bar in position from the inside, substantially as specified.

197,043.



197,043. BARLEY-PEELING MILLS. Moritz Martin, Bitterfeld, Prussia. Filed Dec. 1, 1876. Patented in Italy, June 30, 1875. Patented in Great Britain, Nov. 27, 1876.

Brief.—Regulates the feed and delivery by slotted valves, operated by adjustable disks provided with teeth, and receiving motion from the revolving barrel through worm and gear mechanism.

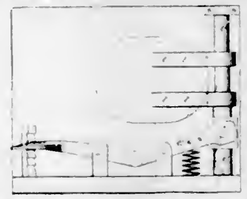
1. The combination of the disks 5 5 with the valves, the construction being such that said disks are adjustable with relation to each other so as to govern the time of opening and shutting the valves they operate, substantially as described.

2. The valve-controlling mechanism consisting of disks 5, provided with slots *e* and teeth *f*, mounted upon a revolving shaft, substantially as described.

3. A grist feeding and discharging mechanism consisting of valves L and *l*, automatically operated by the revolving barrel, substantially as described.

4. The combination, with disks 5 5, of their supporting shaft and the worm and gear for actuating them, substantially as described.

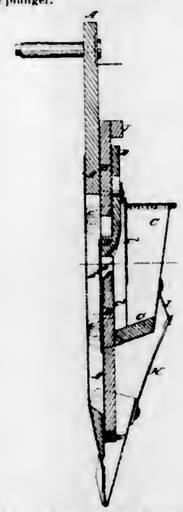
197,044. FURNACE-DOORS FOR STEAM-ENGINES, LOCOMOTIVES, &c. Jas. M. Marshall, Knoxville, Tenn. Filed Aug. 3, 1877.



The combination of a swinging furnace-door turned by a spirally-grooved shaft and slide-block with a compound and spring-acted treadle, and with a fixed and toothed rack for holding the door open at any width, substantially as set forth.

197,045. HAND CORN-PLANTERS. Peter McCollum, Fayette, Mo. Filed Aug. 24, 1877.

Brief.—The pivoted foot is held in position by an adjustable spring bearing against a notched projecting plate. The hopper is adjusted by slotted lugs, to regulate the friction of the plunger.

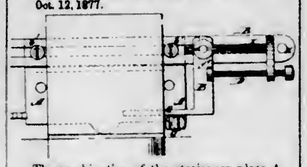


1. In a hand corn-planter, the combination, with the main board A and seed-box C, of the pivoted foot-piece G, and the spring H, pivoted to said foot-piece, so as to be turned aside, and having its free end resting on the seed-box, so as to slide thereon, as and for the object stated.

2. The combination of the outwardly-projecting plate I, having stop-lugs, and the pivoted and sliding spring H with the pivoted foot-piece G, main board A, and seed-box C, as and for the purpose set forth.

3. The seed-box C, having slotted side lugs, and the bolts *c'*, in combination with the main board A and plunger B, for adjusting the seed-box to regulate the friction of the plunger, as herein set forth.

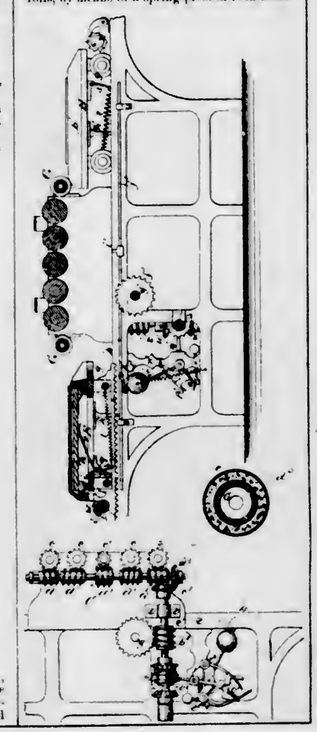
197,046. SHOULDER-PLATES FOR SPOKE-FINISHING MACHINES. William McNeal, Stockton, N. J. Filed Oct. 12, 1877.



The combination of the stationary plate A, the slotted sliding plate B, the adjustable bars E, provided with the tapered arms G, the adjusting-screws D, and the stop-screws I with each other, to adapt the device to be applied to a spoke-finishing machine, substantially as herein shown and described.

197,047. IRONING-MACHINES. Henry Monk, Troy, N. Y. Filed Sept. 1, 1877.

Brief.—The traveling ironing boards are provided with raised cleats, those upon one board being at a greater distance apart than the cleats upon the other. By means of these cleats the moistening-rolls are raised out of contact with the ironing-board. The board upon which the shirt rests is hinged at one end to the traveling carriage, the other end being thrown up, after passing through the ironing-rolls, by means of a spring-pressed rock-lever.



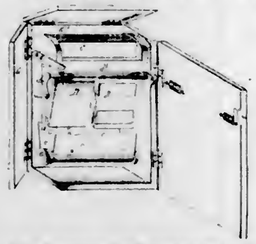
1. The frame E, mounted on wheels *g*, the table *k*, connected by hinges *i* with the frame E, and the spring-actuated lever r, in combination, substantially as shown and described.

2. A moistening roll consisting of a hollow perforated core, a coating of sponge, and an envelope of cloth, substantially as herein shown and described.

3. The combination, in an ironing-machine, of the moistening-rollers G G', having formed on them collars c^2, and the frames E, having ribs b^1, substantially as herein shown and described.

4. The worms *d* d^1 d^2 and the worm-wheels e e^1, in combination, for driving the ironing-rolls in different directions and at different speeds, substantially as specified.

197,048. AUTOMATIC MUSICAL INSTRUMENTS. Elias P. Needham, New York, N. Y. Filed July 13, 1877.



1. In combination with the reed chamber C, the endless perforated sheet *a*, the perforations in which correspond with the air-inlets of said reed-chamber, to produce a tune or chord, and otherwise arranged to form a valve to exclude the air except at such perforations, substantially as described.

2. The combination, with the endless perforated sheet *a* and reed chamber C, of the shaft *d'*, pulleys E E, and pressure-rolls E' E', arranged to propel the sheet *a*, substantially as and for the purpose specified.

3. The combination, with the crank *d*, shaft *d'*, pulleys E E, and rolls E E', of the crank *f*, one or more of them arranged to operate the bellows, substantially as and for the purpose set forth.

4. The combination, with the shaft *d'*, of the pulleys E E and rolls E' E', when either the pulleys or the rolls, or both, are made of elastic or yielding material, and arranged to move the perforated sheet of a musical instrument, substantially as and for the purpose described.

5. The combination, with the shaft *d'* and pulleys E E, of the rolls E' E', secured to a hinged or otherwise movable part of the case, and arranged, substantially as described, so that the endless sheet can be inserted and passed over the pulleys, and the rolls E' E' forced against the sheet, as and for the purpose specified.

6. The combination, with the reed-chamber C, bellows D, and endless sheet *a*, of the case A, provided with the hinged side B, arranged to be secured to the case, and opened to facilitate the insertion of the endless sheet *a*, substantially as and for the purpose set forth.

7. The combination, with the automatic reed instrument described, of the detachable resonant cover E, arranged to be removed for the purpose of inserting the endless sheet, substantially as set forth.

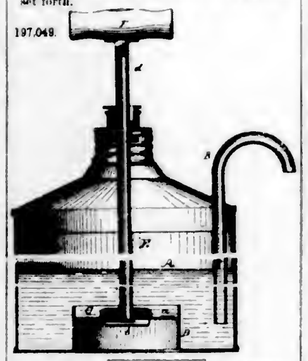
8. An automatic musical wind-instrument in which an endless sheet of paper or other suitable material, perforated with holes corresponding with the notes in the tune or chord produced, and also with the air ducts of the reeds, operates as a valve, and regulates the admission of the air to said reeds directly without any intervening mechanism, substantially as described.

9. The combination, with an automatic wind-instrument, operated by an endless sheet or belt, substantially as shown and described, of an exterior case provided with the hinged end G, arranged to facilitate the substitution of one endless sheet for another, substantially as described.

197,049. BEER-PUMPS. John Hall, Chicago, Ill. Filed Oct. 13, 1877.

The combination, with the can or vessel A and discharge-pipe B, of the cylinder D, piston C, provided with the valve *a*, and hollow piston-rod E, provided with the check-valve *b* and opening *d*, and handle F, all constructed to operate substantially as and for the purpose set forth.

197,049.



197,050. TRUSSES. Barak T. Nichols, Hastings-on-the-Hudson, N. Y. Filed July 30, 1877.

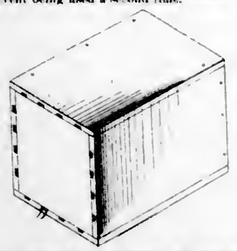
Brief.—A long hooked arm extends from the pad, of which it forms a part, down between the thighs.



The pad A, constructed as shown, and having the curved tongue B, with end hook C, in combination with straps D E F, arranged as and for the purpose specified.

197,051. CIGAR-BOXES. Martin A. Penn, Washington, D. C. Filed May 14, 1877.

Brief.—The sides are grooved for the reception of removable shelves, and in the bottom of the grooves is an incision to permit the box to be broken off as fast as emptied, to prevent being used a second time.



1. A packing-box subdivided into compartments by shelvings firmly secured in grooves extending entirely around the inside of the box, and so weakened at desired points by incisions in the bottom of the grooves that it cannot be unpacked without detection or destroying the box, substantially as shown, and for the purposes specified.

2. A packing-box subdivided into sections by grooves and weakened by incisions in the bottom of the grooves, in combination with shelves *b*, packed with cigars or other small articles, secured thereon by ribbon or other suitable means, substantially as shown, and in the manner described.

197,052. MACHINES FOR SPLITTING HOOP-POLES. J. A. Peoples, Chicago, Ill., assignor to Roswell Hart, Rochester, N. Y. Filed Sept. 8, 1877.

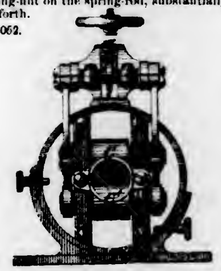
Brief.—The frame which carries the splitting-knife and centering-rolls is fitted to, and adjustable in different positions in, a flanged segmental bearing-piece.

1. The combination, in a hoop-splitting machine, of a segmental bearing-piece and a frame carrying a splitting-knife and centering-rolls, and fitted to and adjustable in different positions in said bearing-piece, substantially as set forth.

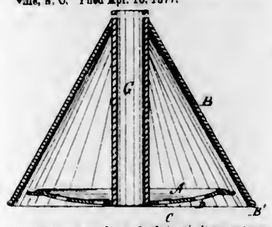
2. The combination, with the movable supporting-frame, of a splitting-knife secured centrally to transverse jaws therein, two centering-rolls having the capacity of movement in said jaws toward and from the center line of the knife, links by which the rolls are connected to a rock-shaft on opposite sides thereof, respectively, and a spring acting upon an arm on said rock-shaft, and tending to resist the outward movement of the rolls, substantially as set forth.

3. The combination of the circular supporting-frame, the rock-shaft mounted in bearings external thereto, the spring-rod pivoted to an arm on the rock shaft, and a spring acting between the bearing of the rock-shaft and an adjusting-nut on the spring-rod, substantially as set forth.

197,062.



197,053. CLOTHES-POUNDERS. J. C. Pickens, Waynesville, N. C. Filed Apr. 18, 1877.



A clothes-pounder embodying in its construction a cone, B, having a stem, G, the open end or mouth of the cone being provided with a globular presser-plate, A, placed with its convex side outward, and formed with a series of perforations, C D, and arranged so that it will have an annular space, F, between its edge and the rim of the cone B, and supported and held in position by the narrow inga E, substantially as shown.

197,054.



1. A packing-box subdivided into sections by grooves and weakened by incisions in the bottom of the grooves, in combination with shelves *b*, packed with cigars or other small articles, secured thereon by ribbon or other suitable means, substantially as shown, and in the manner described.

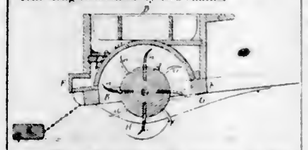
197,054. FENCE-POSTS. Richard J. Redmond, Oxford, N. Y. Filed Feb. 28, 1877.

Brief.—The horizontal rails meet at the posts, where their ends are held by the brackets. An upright board covers the ends of the rails, and held by the lower flange and the wire staples.

A cast-iron fence-post with the flange A, the flanges or brackets B, and the staples D, in combination with the board F, substantially as described, and for the purposes herein set forth.

197,055. SOIL BREAKER AND IRRIGATOR. Elisha Robbins, Cornit, Mass. Filed Aug. 14, 1877.

Brief.—The wheels are adjustable on crank-axles. A reservoir is mounted over the toothed cylinder and a sprinkler in the rear thereof, through perforations in the cross-section E. A rear drag is secured by two chains.

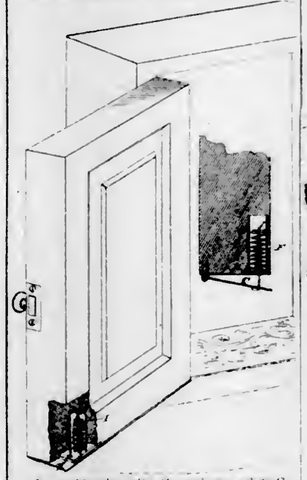


1. The combination of the reservoir D and the sprinkler E with the rotary breaker and its supporting-frame.

2. The combination of the reservoir D and the sprinkler E with the rotary toothed breaker A *a*, its frame B, and the levers G G and their wheels H H, all being substantially as set forth.

3. The sprinkling-reservoir, provided with the arched bottom, arranged and constructed with the rotary toothed breaker and its supporting-frame, substantially as set forth.

197,056. WEATHER-STRIPS. J. F. Rowlett, Richmond, Ind., assignor to Caroline N. Rowlett and Hannah A Rowlett, same place. Filed Aug. 21, 1877.



In combination with the swinging plate C, the coiled spring F and connecting-wire I, the latter being passed over the spring and bent under the plate C, substantially in the manner and for the purpose specified.

197,057. STEAM-ATOMIZERS. Peter Bundquist and Theo. Angelo, New York, N. Y. Filed Oct. 9, 1877.

Brief.—A gas-pipe surrounds the steam-supply pipe, and furnishes means of superheating the steam at a point near the atomizing-tube.

1. In a steam-atomizer, the combination of a steam-supply pipe, having superheating-vessel and atomizing-tube, with an exterior gas-supply tube, forming a burner below the superheating-vessel, substantially as and for the purpose set forth.

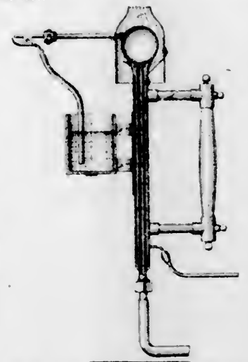
2. In a steam-atomizer, the interior steam-supply pipe, having superheating-vessel with atomizing-tube, in combination with an exterior gas-tube, forming a burner below superheating-vessel, and with a chimney inclosing the superheater, substantially in the manner and for the purpose set forth.

3. In a steam-atomizer, the combination of the interior steam-pipe, having superheating-vessel with atomizing-tube at upper end, with an exterior gas-pipe, forming burner below superheater, and having a supporting-handle attached thereto for directing the spray, substantially as set forth.

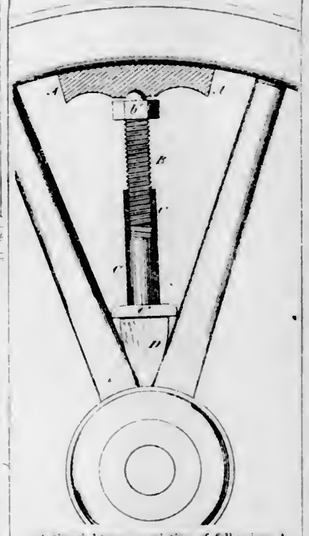
4. In a steam-atomizer, the combination of interior steam-pipe and exterior gas-tube, having supporting-handle, with spring-clamps applied adjustably to the exterior tube, and having rests for the vessel or cup containing the medicinal liquid, substantially as described.

5. In a steam-atomizer, a superheating-vessel interposed between the steam-supply pipe and atomizing-tube, in combination with a heating device for changing the saturated steam into dry steam of high pressure, substantially as set forth.

197,057.



197,058. TIRE-TIGHTENERS. Abel G. Shecard, Malvern, Iowa. Filed Sept. 1, 1877.



A tire-tightener consisting of felly-piece A, screw B *b'*, having rounded point at end, nut C, having foot *c'*, and the wedge D, all constructed and adapted to be applied substantially as shown and described.

197,059. FIRE-ESCAPES. T. F. Stevenson, Brooklyn, N. Y. Filed Sept. 12, 1877.

The fire-escape ladder composed of metal tubes and independent wire frames connecting such tubes, the wires of two frames passing through each tube, substantially as set forth.

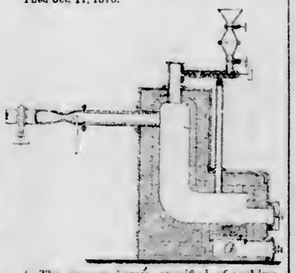
197,059.



197,060. BOUGIES. Stephen St. John, Port Jervis, N. Y. Filed Oct. 16, 1877.

A flexible neutral bougie, formed of a compound of glycerine and gelatine, medicated or not, substantially as specified.

197,061. PROCESSES AND APPARATUS FOR THE MANUFACTURE OF GAS. Myron H. Strong, Brooklyn, N. Y., assignor to Lemuel W. Serrell, trustee for said Strong, Sidney Cornell, Henry M. Pierson, and W. E. Lawton. Filed Oct. 11, 1876.



1. The process herein specified of making gas, consisting in introducing carbon in a pulverized condition, in detail or small regular quantities, into the top of a highly heated retort, admitting steam into that retort, and passing the resulting gases through highly heated carbon, for the purposes set forth.

2. The process herein specified of making gas, consisting in the introduction of carbon into a highly-heated retort in the presence of steam, supplying pulverized carbon, separately and in detail, upon a bed of incandescent carbon, and then passing the resulting gases through that incandescent carbon, substantially as and for the purposes set forth.

3. The process herein specified of making gas, consisting in the introduction of pulverized carbon into a highly-heated retort in the presence of steam, the introduction of a second supply of carbon into the retort upon a bed of incandescent carbon, and passing the gases through the incandescent carbon, and, to make the process continuous, reheating the retort when it has cooled below a decomposing temperature by the internal combustion of the coke resulting from the manufacture of gas.

197,062. PROCESSES AND APPARATUS FOR THE MANUFACTURE OF GAS. Myron H. Strong, Brooklyn, N. Y., assignor to Lemuel W. Serrell, trustee for said Strong, Sidney Cornell, Henry M. Pierson, and W. E. Lawton. Filed Jan. 24, 1877.

1. The process herein specified of making gas, consisting in heating steam to a high temperature, and bringing the steam into contact with carbonaceous material supplied gradually or in detail into a retort, and passing the two together down through the heated retort, and then completing the process and fixing the resulting gases by passing such gases through a bed of incandescent carbon, substantially as specified.

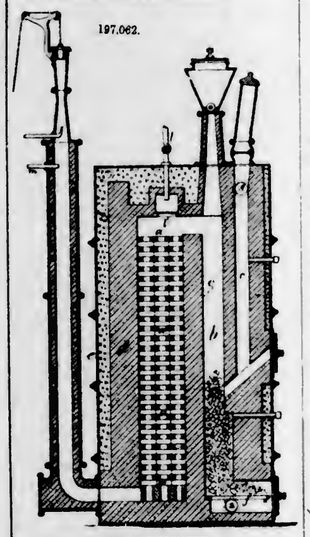
2. The compound retort with two vertical chambers, *a b*, separated by a partition-wall, *c*, and the whole inclosed in one casing, the retort *a* having a filling of fire-brick or similar material, in combination with means for supplying steam at the lower end of the chamber

a, and for supplying carbon gradually or in detail at the upper end of the chamber *b*, and a fire-bed at the bottom of such chamber *b*, substantially as specified.

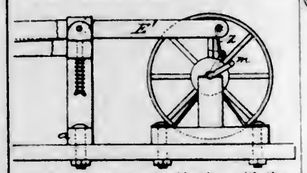
3. The retort *b*, having a fire-bed, *f*, at the bottom, the superheating-retort *a*, and the carbureting-chamber *c*, in combination with the steam-supply pipe *m*, the connection from the retort *a* to the retort *b*, the gradual fuel-supply apparatus at the top of the chamber *b*, the inclosing casing, and the gas-delivery tube connected to the third chamber and the fire-bed, substantially as set forth.

4. The compound retort made with two vertical chambers, in combination with the fire-bed at the bottom of the second chamber, the air-supply pipe at the junction of the two chambers, and the chimney and exhauster connected to the bottom of the first chamber.

197,062.



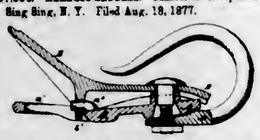
197,063. FLAX-BRAKES. J. H. Tablot, Mount Juliet, Tenn. Filed Feb. 10, 1877.



1. In a brake, the combination, with the main slat-frame, of the vibratory upper slat-frame having pivots and spring-bearings, and a lever extending to the rear, substantially as specified.

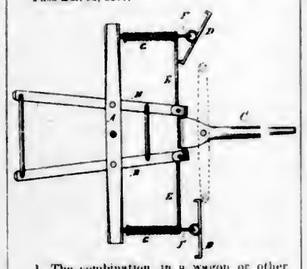
2. The combination of the pivoted bar *g*, provided with spring-bearings, the rear extensions E' of the upper section of the brake-frame, the spring-link *z*, and the crank *m*, substantially as specified.

197,064. HARNESS-SADDLES. Samuel E. Tompkins, Sing Sing, N. Y. Filed Aug. 18, 1877.



The eye *b'*, formed upon the seat B, and the pin or projection *a'*, formed upon the saddle-tree A, for connecting said seat and saddle-tree with each other, substantially as herein shown and described.

197,065. DRAFT ATTACHMENTS FOR WAGONS. Marshall Turley, Council Bluffs, Iowa, assignor of one-half his right to Septimus J. Hanna, Chicago, Ill. Filed Mar. 13, 1877.



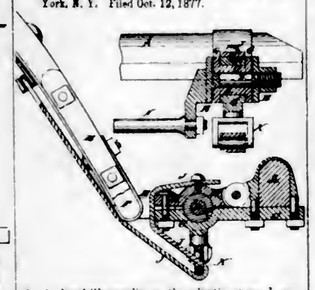
1. The combination, in a wagon or other wheeled vehicle, of the single-trees, the sliding rods F F, the springs G G, and supports or bearings for the said springs and rods, the said supports extending forward from the ends of the forward axle in lines at right angles to the said axle, substantially as and for the purposes specified.

2. The combination, in a wagon or other wheeled vehicle, of the axle A, the hounds B B, the rectangular braces E E, extending laterally from the hounds, and then passing to the ends of the said axle at right angles to the axle, and the single-trees D D, arranged substantially as specified with relation to the said braces, for the purposes set forth.

3. The combination, in a wagon or other wheeled vehicle, of the hounds B B, having therein the slots *e e*, the tongue C, having loose bearings in the said slots, and the single-trees D D, arranged substantially as specified with relation to the ends of the axle A, to avoid draft upon the said tongue, and for the purposes specified.

4. The combination of the axle A, slotted hounds B B, braces E E, sliding rods F F, springs G G, single-trees D D, and tongue C, the latter having loose bearings in the slots of the said hounds, all arranged substantially as specified with relation to each other, for the purposes set forth.

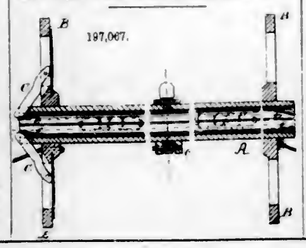
197,066. THILL-COUPLINGS. John W. Wallace, New York, N. Y. Filed Oct. 12, 1877.



1. In thill-couplings, the elastic strap J, secured to upper side of bar H, binding on the bolt I, passing through loop K of bar C, and fastening over a hook on shaft F, as described.

2. The two clips E E of a thill-coupling, connected by a rod, N, attached to arms of said clips, as and for the purpose specified.

197,067.



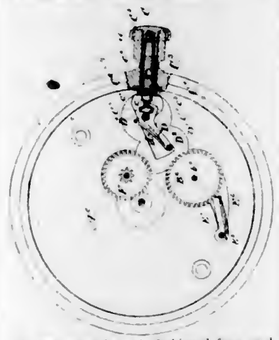
197,067. INSTRUMENTS FOR CLEANING TELEGRAPH-WIRES. Joseph Walsh, New York, N. Y. Filed Oct. 6, 1877.

1. The longitudinally-divided tube A, having the hinges *b* and hasp *c*, and provided with spring-knives *e*, substantially as and for the purpose herein shown and described.

2. The combination of the segmental flanges B with the divided tube A, substantially as herein shown and described.

3. The combination of the knife-blades C with the flanges B, substantially as herein specified.

197,068. WATCHES. Richard Whittaker, Toronto, Ontario, Canada. Filed Nov. 20, 1874.



1. The scape-bar *a'*, fashioned from and forming a part of the solid top plate A^1, arranged substantially as described, and for the purpose specified.

2. The combination of the barrel-arbor B, constructed as herein specified, plate A^1, stud *b'*, and winding-up wheel B^2, substantially as herein set forth.

3. The combination of the click-spring E with the head of the click E^1, substantially as specified.

4. The combination of the spindle C, provided with a collar, C^1, and stud *c'* of the slotted sleeve C^2, and bevel-wheel C^4, these parts being constructed and operating conjointly, as shown and described.

5. The spindle provided with a collar, C^1, groove c^3, and flange c^4, in combination with a single or a double armed spring shifting-bar arranged and operating substantially as described, and for the purposes specified.

6. The combination of the bevel-wheel C^4, wheel D^1, pivoted on the pin D^4, and wheel D^2, pivoted on the spring shifting-bar D, these parts being arranged and operating substantially as described, and for the purpose specified.

7. The wheel D^2, pivoted on the spring shifting-bar D, and operated in the manner hereinbefore described, in combination with the minute-wheel F, arranged and operating substantially as described, and for the purpose specified.

8. The wheel D^2, pivoted on the spring shifting-bar D, and operated in the manner hereinbefore described, in combination with the winding-up wheel B^2, arranged and operating substantially as described, and for the purpose specified.

9. The spindle-socket C^3, with recess *c* and projecting stud c^5, in combination with the spindle C, arranged and operating substantially as described, and for the purpose specified.

10. The push-piece I, with winding-button I^2 attached, in combination with the spindle C^3, with nut *i* attached, substantially as set forth.

11. The case lock-spring H, with reduced end *h* entering the hollow pendant *a* from either right or left hand side, through and working in a slot, *a''*, in combination with the push-piece I, arranged and operating substantially as described, and for the purpose specified.

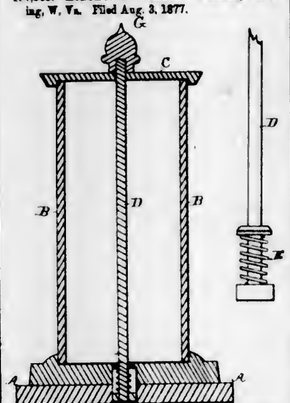
12. The toothed wheels D^{10} and D^7, severally pivoted on the arms D^3 and D^8, and operated in the manner hereinbefore described, in combination with the minute-wheel F and winding-up wheel B^2, as shown in Fig. 8, these parts adapting the invention to hunting-case watches, and being arranged and operating substantially as and for the purpose specified.

13. The dial-feet G^1, attached to the dial G, in combination with the clasp-springs G^1, arranged and operating substantially as described, and for the purpose specified.

14. The lower plate A^1, with sink A^5 cut through the entire thickness of the plate to allow of depth and strength in the construction of the shifting-bar D and winding-and-setting mechanism, arranged substantially as described, and for the purpose specified.

15. The bushing C^5, fitted within the pendant *a*, with collar C^7, having a concave face to receive the convex back of the bevel wheel C^4, arranged substantially as described, and for the purpose specified.

197,069. MONUMENTS. Conrad W. Wickham, Wheeling, W. Va. Filed Aug. 3, 1877.



1. The hereinbefore-described tombstone-monument, constructed in sections B, made of plate-glass, substantially as described.

2. In a tombstone-monument, the base A, middle section B, composed of slabs of plate-glass, and cap C, in combination with the rod D, screw-head G, spiral spring E, and washers F, all constructed and arranged substantially in the manner shown and described.

197,070. METAL-SCREW-THREADING MACHINES. S. L. Worsley, Taunton, Mass. Filed June 30, 1877.

Brief.—The spindle containing the die is revolved with a slow motion while cutting the thread, and is quickly reversed when the operation is completed. The clutch for governing the motion of the spindle is actuated by a cam on a shaft, which carries at one end a star-wheel, intermittingly rotated by a revolving finger, and provided with teeth of varying degrees of coarseness. The motion of the shaft is slightly accelerated when the finger strikes the coarse teeth, and the cam so turned that it will actuate the clutch. The revolving die is brought up to the blank against the resistance of a spring by the mechanism specified in the fourth claim. The arm for feeding the blanks to the clamping-jaws is operated by a cam on a sleeve, which sleeve is automatically clutched to its shaft at the time the feeder is to be operated, and is afterward unclutched, and allowed to remain stationary and hold the feeding-arm up.

1. The clutch C, consisting of the hub *l*, having arms C^1, the bolts *m*, right-angled levers *n*, springs *o*, sliding sleeve D, combined and adapted to engage with the wheels *i k*, having holes or slots *p*, substantially as shown and described.

2. The finger *c'* and star-wheel a^1, having teeth differing in pitch, for giving a differential motion to the clutch-actuating cams, substantially as shown and described.

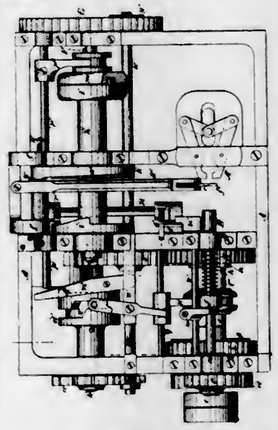
3. The combination, in a screw-cutting machine, of the cam d^1, lever *f'*, sliding bar *q*, forked arm E, and clutch C, with the rotating and sliding mandrel B, shaft *e*, having loose spur-wheels *i k* and fixed spur-wheel *d*, and the sleeve *o*, having spur-wheel *e*, substantially as and for the purpose set forth.

4. The cam *c'*, arms *r' s'*, shaft H, and bar *v'*, having the head u^1, and arm w^1, in combination with the mandrel B, having the collar *f*, substantially as shown and described.

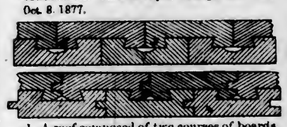
5. In a screw-cutting machine, the combination of the cam d^1, having projection d^2, lever w^1, bar p^1, forked arm p^2, spring q^1, clutch-collar w^1, shaft F, sleeve h^1, cams c^1 k^1, with the sliding mandrel B, feeding-arm B^1, and devices, substantially as herein shown, for communicating motion to said mandrel and feeding-arm, as herein set forth.

6. The arms f^3, projecting from the fingers c^2 d^3, for disengaging the finished screws from the jaws A^1, as shown and described.

197,070.



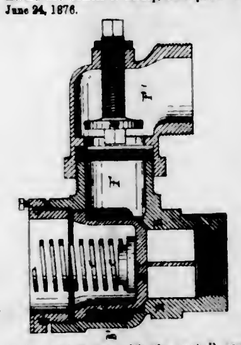
197,071. ROOFS FOR RAILWAY-CARS AND OTHER STRUCTURES. John M. Ayer, Chicago, Ill. Filed Oct. 8, 1877.



1. A roof composed of two courses of boards, arranged so that each board in either course covers the line of junction of two boards in the other course, and dovetailed together, face to face, substantially in the manner and for the purpose set forth.

2. A roof consisting of the upper and lower pieces, dovetailed together in the manner described, and provided with the gutters *t t*, substantially as specified.

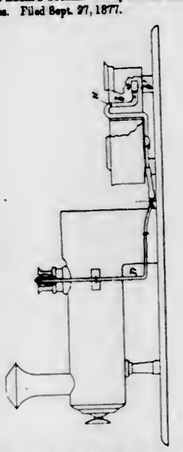
197,072. SAFETY-VALVES. Henry G. Ashton and J. E. Maynadier, Boston, Mass., assignors to Henry G. Ashton and Charles J. Bishop, same place. Filed June 24, 1876.



1. In combination with the seat B, casing B', and outlet-pipe F F', a safety-valve, D, fitted so closely as to prevent any considerable part of the waste-steam escaping past the periphery of the valve D, and to compel substantially the whole of the waste-steam to pass through the outlet-pipe F F', and open to the atmospheric pressure on its outer surface, all as set forth.

2. In combination with a safety-valve, the seat B, casing B', outlet-pipe F F', and the adjusting-valve H, substantially as described.

197,073. SAFETY-VALVE ATTACHMENTS TO UTILIZE THE ESCAPE-STEAM. Henry G. Ashton, Somerville, Mass. Filed Sept. 27, 1877.



1. The combination, with a safety-valve having a chamber, *a*, partitioned off, as described, from the top of the valve, so that the outer surface of the valve is exposed to atmospheric pressure, and with the feed-water tank of the pipe D, one end of the pipe opening into the chamber *a*, and the other into the feed-water tank, all substantially as described.

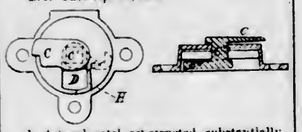
2. In combination with the safety-valve and the feed-water tank, the pipe D, having an orifice, *u*, in it near the surface of the water in the feed-water tank, as shown.

3. In combination with the safety-valve and the feed-water tank, the pipe D, having an orifice, *t*, in it at the lowest part of it, as shown.

4. In combination with the feed-water tank and the safety-valve, having an opening in it through which the air can enter the steam-chamber *a*, the pipe D, having the two orifices *t* and *u*, one at the lowest part of the pipe and the other near the surface of the valve in the tank, whereby, when its steam in the chamber *a* and pipe D condenses, the air can enter the pipe D through the orifice *u* in one direction, and through the chamber *a* in the other direction, without preventing the water of condensation escaping from orifice *t*, all as shown.

5. In combination with the feed-water tank and the safety-valve, the pipe D, closed at its rear end and provided with a series of small holes, as set forth.

197,074. TRUNK-LATCHES. John Arnold, Newark, N. J. Filed Sept. 12, 1877.



1. A trunk-catch constructed, substantially as shown and described, with key-hole D, protecting-rib H, and catch C^6, made to operate by the key-hole guard C.

2. The combination of the push-piece C, pivot C^7, and catch C^6, all constructed, as shown, of a single piece, in combination with the imitation key-hole D, all as shown and described.

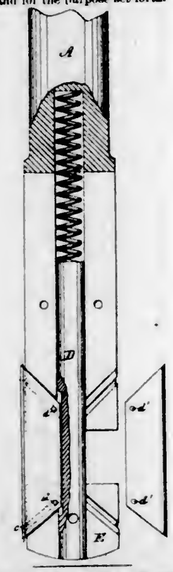
197,075. EXPANSION ROCK-DRILLS. J. A. Albright, Fayetteville, Tenn., assignor of one-half his right to J. H. Holman, same place. Filed Sept. 6, 1877.

Brief.—The cutting-blades are automatically projected laterally from the drill-stock by the impact upon the bottom end piece, and are again withdrawn into the drill-stock by the action of the spring when the drill is drawn up.

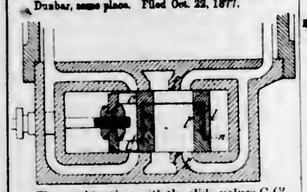
1. The combination, with a drill-stock and a spring seated end piece, E, having stem D, of the beveled cutting blades, arranged in guides to be projected laterally by the impact of the end piece, substantially as described, and for the purpose set forth.

2. The combination of the centrally-bored drill-stock A, having removable part B, the spring C, the centrally-divided end piece E, with rigid stem D, and the beveled cutting-blades F, having pins *d d'*, substantially as described, and for the purpose set forth.

197,075.

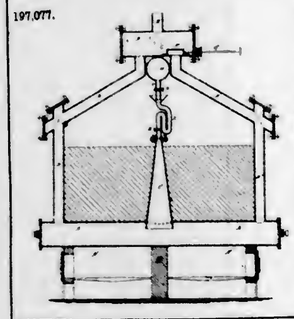


197,076. **BALANCED VALVES.** Robert W. Aitken, Buffalo, N. Y., assignor to Robert Dunbar and George H. Dunbar, same place. Filed Oct. 23, 1877.



The combination, with the slide-valves C C', provided with overlapping sleeves *l l'*, capable of telescopic adjustment, of the beveled elastic packing-ring *n*, interposed between the beveled end of one sleeve and the base of the other sleeve, for forming a steam-tight joint, substantially as hereinbefore set forth.

197,077.



197,077. **PROCESSES AND APPARATUS FOR THE MANUFACTURE OF ILLUMINATING-GAS FROM COAL AND OIL.** H. W. Adams, Philadelphia, Pa. Filed Sept. 18, 1877.

1. The through or double retort A A', in combination with the exit-pipes B B', the chest D, the exit-pipe E, and the slide-valve F, having rod G, constructed and operated substantially in the manner and for the purposes hereinbefore set forth.

2. The neck C, in combination with the through or double retort A A', having stand-pipes B B', constructed and operated substantially in the manner and for the purposes shown and described.

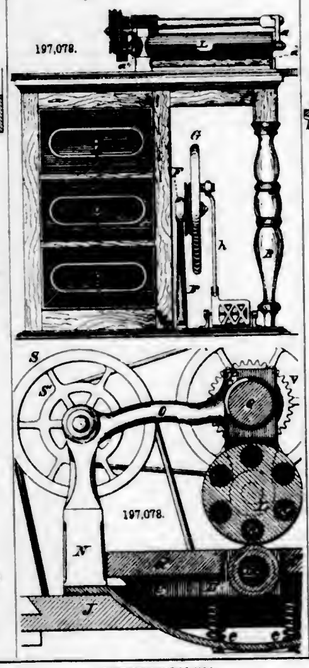
3. In combination with the retorts, the chest D, the exit-pipes B B' entering it, and slide-valve F, having rod G, constructed and operated substantially in the manner and for the purposes hereinbefore shown and described.

4. The petroleum-reservoir H, having pipe I, provided with stop-cock K, in combination with condnit-pipe L, having stop-cock M, and the enlarged neck C of the through or double retort A A', having stand-pipes B B', the neck C entering the retort centrally, substantially in the manner and for the purposes described.

5. The process of producing illuminating-gas, which consists in passing the gases and vapors distilled from a fresh charge of coal through a bed of hot coke, partially-distilled coal of an earlier charge, and, after the fresh charge has been partially distilled, admitting oil, petroleum, or other similar substance to or near the middle of the retort containing such charges, and passing the vapors from the oil and other similar material, together with the gas and vapors from the coal, through the hot coke or partially-distilled coal of an earlier charge, for producing a fixed gas.

6. The process of producing illuminating-gas, which consists in passing the aqueous and tar charged vapors distilled from a fresh charge of coal through another charge of red-hot coke or partially-distilled coal, until the said vapors are exhausted and the charge from which they proceed becomes red hot and begins to yield good fixed gas, and then changing the course of the said gas and passing it directly out of the retort to the hydraulic main without further contact with the heated surfaces of the secondary charge.

197,078.



197,078. **IRONING-MACHINES.** Jacob W. Abel, Buffalo, N. Y. Filed Sept. 24, 1877.

Brief.—The ironing-rolls carry pulleys, and are attached to a slide, whereby said pulleys may be brought in line with driving mechanism located under one side of the case; or, when not in use, the ironing mechanism may be slid back into the top of the case, so as not to occupy unnecessary space.

1. In an ironing apparatus, a frame supporting slides E and *l*, the former carrying the operating and the latter the ironing mechanism, the whole being constructed and arranged substantially as and for the purpose set forth.

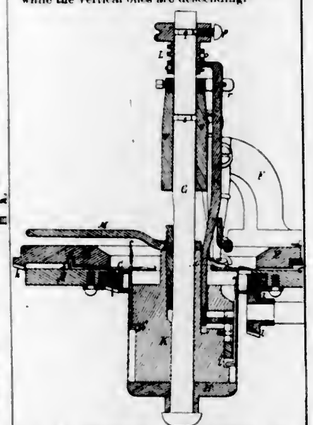
2. The combination, with the slide J, of the bed-plate K, standard N, having the arm O, head P, arm Q, and bearings *a a'*, and the rollers L L', said roller L' being fitted within a yielding bed-plate, as and for the purpose stated.

3. The combination, with the roller L, of the standard N, pulleys S S', pulley U, gear wheel V, and wheel V', as described.

4. The combination, with the bed-plate K, of the bearing-pieces *b b'*, forming bearings for the roller L', platforms *d d'*, rods *f*, springs *e*, plates *g*, and the bail *i*, as specified.

197,079. **MACHINES FOR KNITTING OVER-GAITERS, &c.** Hiram P. Balloa, Needham, assignor to himself and L. A. Hatch, Boston, Mass. Filed June 23, 1877.

Brief.—A connecting-bar, attached at one end to the movable part of the cam and at the other to the spirally-grooved rotary head, operates to move the vertical needles up and down. Said cam and vertical needles may be moved in a determined arc by a lever resting on the cam-plate between two stops, which limit its movement. One yarn-guide is movable. The horizontal and vertical needles are relatively adjustable. A cam on the cam-ring forces upward certain of the horizontal needles while the vertical ones are descending.



1. In combination with the spindle G and the adjustable part *w'* of the needle-cam K, the helically-grooved rotary head L and the bar or rod *s'*, arranged with and applied to such spindle and movable part, substantially as set forth.

2. In combination with the vertical needle-cam K, mechanism for turning it around laterally and stopping it, as and for the purpose explained, such mechanism being the arm M and the stops N O, arranged substantially as set forth.

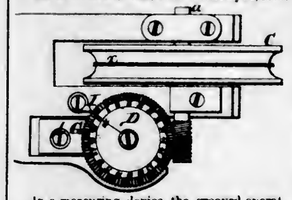
3. In combination with mechanism for turning the needle-cam laterally and stopping it at the extremes of its arc of motion, as and for the purpose described, the vertical needles' thread-guide applied so as to be movable into or out of action with such needles, as specified.

4. In combination with the two sets of needles, mechanism for effecting the vertical adjustment of the vertical set relatively to the horizontal set, such mechanism being the screw *u*, its eccentric-stud *t*, and the groove *z*, applied to the arch and the spindle, substantially as specified.

5. In combination with the two sets of needles, mechanism for forcing upward certain of the horizontal needles while the next adjacent

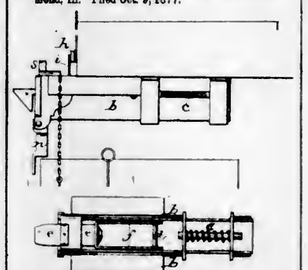
vertical ones may be descending, such mechanism being the cam *b*, applied to the cam-ring D, such being substantially as and for the purpose as explained.

197,080. **DRILL-CABLE MEASURES.** Milo W. Barse and H. W. Moore, Olean, N. Y. Filed July 21, 1877.



In a measuring device, the grooved operating-wheel C, having its face graduated, as set forth, and provided with serrations *x*, in combination with the prolonged shaft *a*, having the worm *b*, graduated toothed wheel D, centrally pivoted to the adjustable slide G, and index I, substantially as described, and for the purpose set forth.

197,081. **CAR-COUPLINGS.** William O. Baskin, Hammond, Ill. Filed Oct. 9, 1877.

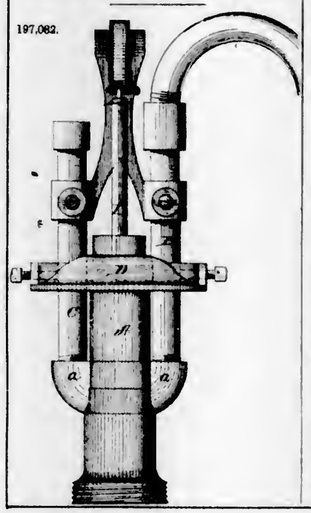


1. The draw-head *b*, having the pivoted U-shaped frame *f* placed therein, and to which the draw-bars *e* are swiveled, substantially as shown.

2. The draw-head *b*, having the loop *s* formed upon its top, for the purpose of coupling the car to a locomotive, substantially as shown.

3. The combination of the draw-head *b*, pivoted frame *f*, swiveled draw-bar *e*, and levers for operating the draw-bar either from the side or the top of the car, substantially as specified.

197,082.



197,082. **DOUBLE-ACTING PUMPS.** Roscoe Bean, Hudson, Mich. Filed Oct. 11, 1877.

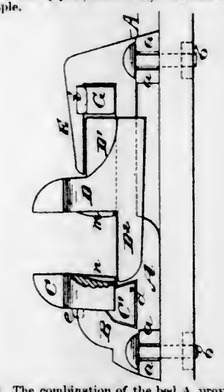
1. The combination of a pump-cylinder, A, discharge-pipe B, tube or rod C, and the stationary platform-flange D, the entire pump proper being adjustably suspended below said platform, substantially as and for the purposes herein set forth.

2. The adjustable handle-standard, forked at its lower end, and formed with sleeves or sockets having set-screws, as described, in combination with a pump having upwardly-projecting tubes, or one tube and one rod, substantially as herein set forth.

3. In a pump, a force and suction rod, I, used as an air-chamber, in combination with two buckets attached to it, the upper or force bucket being made about one-half the capacity of the lower or suction bucket, and the air-discharge between the two buckets, as herein set forth.

197,083. **VISES.** Asel H. Ball, Belle Plaine, Iowa. Filed Sept. 22, 1877.

Brief.—Bolts the bed of the vise to a lever, and uses as wire-tightener. Clamps wire in vise, and places end of lever against the end or stretching post, draws taut, and secures with staple.



1. The combination of the bed A, provided with the top B and dovetailed tapering groove *d*, and the jaw C, provided with the dovetailed tapering tongue C', sliding jaw D, and the stop *e*, substantially as and for the purposes set forth.

2. The sliding jaw D, provided with the extension D' and arms D² D², in combination with the bed A, hook E, and stationary jaw C, substantially as and for the purposes set forth.

3. The combination of the grooved bed A, with hook E and lip B, the detachable stationary jaw C, the sliding jaw D, with extension D' and arms D², and the key G, all constructed substantially as and for the purposes set forth.

197,084. **CLOVER THRASHING AND HULLING MACHINES.** John C. Birdsall, South Bend, Ind. Filed Mar. 29, 1877.

1. The combination of screen I and the bottom board I', shorter than the screen, both delivering upon the riddle K of the shoe, with the shoe, the fan, and the adjustable deflector, substantially as described.

2. The combination, with the fan and the riddle K, of the screen I and bottom I', the said screen projecting beyond the bottom, and having its movement independent of the riddle, and delivering directly upon it, substantially as described.

3. The combination, with the wind-board, of the vertical rack and pinion on the shaft carrying the index-arm, substantially as described.

4. The combination, with the wind-board N, rack-bar N³, and pinion N⁴, of the index-arm N², substantially as described.

5. The combination, with the wind-board N, adjustable at its heel, of the rack-bar N³, pinion, and actuating index-arm N², substantially as described.

6. The combination, with the fan and shoe, of the wind-board N, connecting rack and pinion, and index-arm N², substantially as described.

7. The combination, with the hulling-cylinder, of the pocket F² and hinged door *f'*, substantially as described.

8. The combination, with the hulling-cylinder, of pocket F², the latter formed in the lower front side of the cylinder-casing, and provided with lid *f²*, substantially as described.

9. The combination, with the fan, shoe, and screen I, of the wind-board N, vertical rack-bar N³, and pinion on the shaft carrying index-arm N², substantially as described.

10. The combination, with the wind-board N, of the vertically-adjustable pivotal support *s*, the angularly-curved arm provided with slot and clamping-screw or pin *s'*, substantially as described.

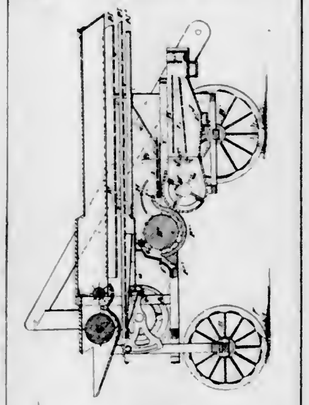
11. The combination, with the fan and vibrating upper riddle K, of the wind-board N, rack-bar N³, pinion N⁴, and index arm N², substantially as described.

12. The combination, with the fan and vibrating shoe, of the vertically-adjustable wind-board N, pivoted at *u*, and the supporting angular arm provided with curved slot and clamp *u'*, substantially as described.

13. The band-wheel *q* on shaft, said shaft gearing with, and having a concentric adjustability about, the crank-shaft operating the bolts, whereby said band-wheel may serve at once as a belt-tightener, and to transmit motion to the bolts, substantially as described.

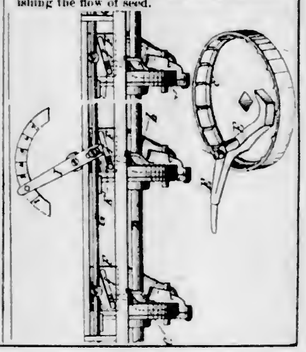
14. The combination, with the frame A, of the shoe J, located with its upper edges beneath the main sills A', and limited to vibrate crosswise of the machine without either edge passing out from beneath the sills, substantially as and for the purposes described.

197,084.



197,085. **GRAIN-DRILLS.** James S. Bogle, Springfield, Ohio. Filed July 19, 1877.

Brief.—To the longitudinally-sliding rod are secured diagonal slotted plates, through which the rear ends of the pivoted gages project for adjusting them, thereby increasing or diminishing the flow of seed.



1. An adjustable pivoted gage arranged and vibrating within the channel of the distributing-wheel, in combination with a slide reciprocating in a line a right angles, or thereabout, to the path of movement of the gage, for adjusting the latter, as described.

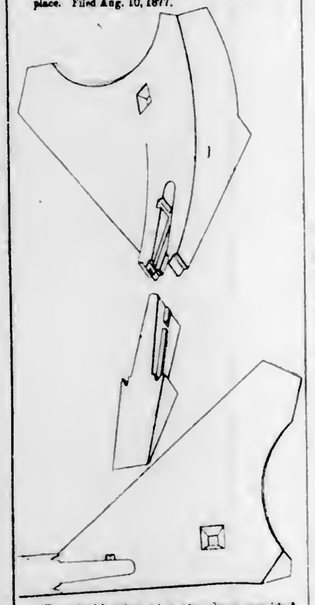
2. The sliding rod G, provided with the slotted plates F, in combination with the adjustable gages E, arranged and working within the channels of the distributing wheels, as described.

3. The slotted plates F, combined with and made adjustable on the sliding rod or bar G, for regulating or adjusting the throw of the gages, as described.

4. The pivoted gages E, arranged and made adjustable in the channels of the distributing-wheels, as described, in combination with the slides F, or their equivalent, and adjusting index-lever 1, substantially as and for the purpose set forth.

5. The adjustable gages E, in combination with the annular ledge or templet e', formed on the distributing wheel, for effecting the uniform setting of the gages, as described.

197,086. REVERSIBLE PLOW-POINTS. M. M. Bowers, Richmond, Va., assignor of a part of his right to T. M. Hiltshimer, Jr., and John F. Schermerhorn, same place. Filed Aug. 10, 1877.



The combination of a plowshare provided with a tapering opening vertically through it from top to bottom, and having a longitudinal groove on each wall of said opening, the wedge-shaped plow-point, having a tapering shank with a central rib on each side, and one or more spaces in the share and between the ribs for the insertion of a wedge or key, substantially as set forth.

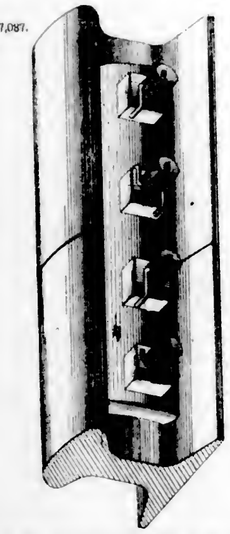
197,087. NUT-LOCKS. Martin Bourke, Youngstown, Ohio, assignor of one-half his right to D. M. Wilson, same place. Filed Mar. 6, 1877.

Brief.—Wire may be of copper or an unoxidizable metal.

1. The combination of a bolt having a circular aperture transversely through its shank, a nut, and a key circular in cross-section passing through the bolt, and having its ends bent in opposite directions outside of the face of the nut, as and for the purpose set forth.

2. The combination of a bolt having a transverse circular aperture through its shank, a nut, and a key circular in cross-section passing through the bolt, and having its ends bent in opposite directions outside of the face of the nut, one or both ends of the key being bent against a side of the nut, as and for the purpose set forth.

197,087.

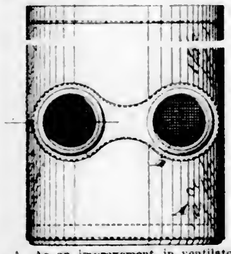


197,088. ORNAMENTATION OF THE SURFACES OF HARD MATERIAL. John F. Boynton, Syracuse, N. Y. Filed Nov. 1, 1877.

1. The process herein described for ornamenting articles made of shell, bone, marble, or other hard substance, such as above mentioned, consisting in impregnating the surface with a halogen or equivalent, as set forth, as and for the purpose described.

2. The new manufacture herein described, consisting of shell, or similar material of a hard nature, ornamented by means of one or more halogens in its pores, as described.

197,089. FEED-BAGS. Robert Brass, Brooklyn, N. Y. Filed Apr. 30, 1877.



1. As an improvement in ventilators for feed-bags and other purposes, the combination of the ring-frame C, having beaded shoulder and overlapping and binding rear and front flanges with the ventilating screen and the pronged face-ring, substantially in the manner described, and for the purpose specified.

2. The combination of the ring-frame C, having beaded shoulder and an outer overlapping flange, with the ventilating screen secured by the binding-flange into the bead of the shoulder, to resist tearing out of the screen, substantially as described.

197,090. MACHINES FOR MINING AND UNDERCUTTING COAL. Marcus F. Brown, Chicago, Ill. Filed July 19, 1877.

1. In a machine for mining or undercutting coal, the combination of an oscillating self-adjustable chain-carrying arm with a cutter-chain composed of alternate blocks and links pivoted to each other, the former having their points projecting inwardly and embracing the sprocket-wheels between their spurs, and the latter provided with recesses for the reception of cutting points, as specified.

2. A self-adjusting chain-carrying arm constructed in two parts, and so arranged that the outer part slides over the inner for nearly its whole length, and having a groove formed in the parallel sides of the outer part to receive and guide the chain, substantially as and for the purpose specified.

3. The combination, with the wheels H and H^1 and chain-carrying arm, of the hollow strap h, forming the oil-chamber h^4, substantially as described.

4. In combination with the arm G, the hangers I, bolt g', screw-shaft I', standard, and oscillating nut i', to enable the arm G to be transversely inclined and held in position, substantially as described.

5. In combination with the hanger I and shaft C', the annular wheel J, for the purpose described.

6. For feeding a coal-cutting machine, the rotary engine B, in combination with the shaft b, worm-gear b', worm b'', the sliding box b''', and the hollow drum D, in the manner and for the purpose described.

7. The bed-plate C, in combination with the engines A and B and the cross-bearers E, formed of a single piece of iron, as and for the purpose set forth and described.

8. The cross-bearer E, pivoted to the frame C, in combination with the tongue and pin E'', in the manner and for the purpose described.

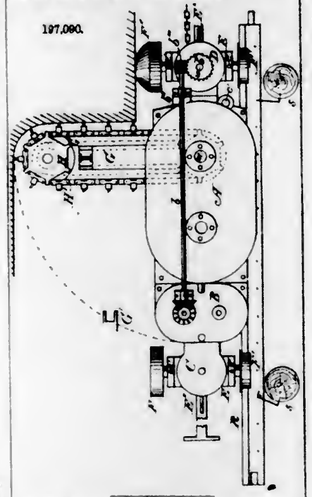
9. In combination with the cross-bearer E, the screw e', the block E', and axle T, as and for the purpose described.

10. The dome-shaped wheel F'', or its equivalent, for the purpose described.

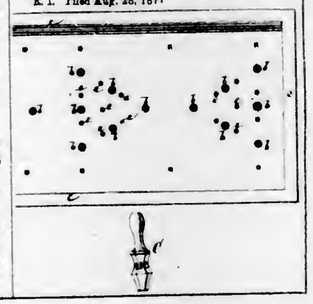
11. The rail R, perforated with a series of holes for the reception of the dog r, in the manner set forth.

12. For a coal-cutting machine, the bifurcated cutting-points, constructed and secured to the chain as shown and described.

197,090.



197,091. GAME APPARATUS. John Brown, Providence, R. I. Filed Aug. 28, 1877



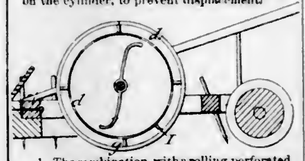
1. The combination, with a cushioned table, and with one or more balls and cues for use in connection therewith, of the polygonal pins, having numbered sides, essentially as described.

2. In a game apparatus consisting of the combination of a table, balls, pins, and cue, the pin-spots, arranged in geometrical figures, substantially as described and shown.

3. The polygonal pins C, having numbered sides and a supporting-base, and adapted to be thrown down by a ball, substantially as described.

197,092. SEED-PLANTERS. John W. Burris, Marshall, Tex., assignor of one-half his right to John J. Hannantine, same place. Filed Sept. 18, 1877.

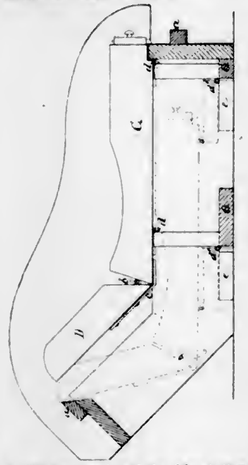
Brief.—The cylindrical rolling hopper is made to receive replaceable bands having different sized orifices, and slots fitting over pins on the cylinder, to prevent displacement.



1. The combination, with a rolling perforated seed-dropping hopper adapted for planting cotton-seed, of replaceable differently-perforated bands adapted to the hopper-apertures, for planting corn or pease, as herein set forth.

2. The rolling perforated seed-dropping hopper having the locking-pin 1, in combination with replaceable differently-perforated bands H, having each a locking pin-hole, 1, matching eyed ends p, and a fastening draw-pin, P, substantially as herein set forth.

197,093. SOFA-BEDSTEADS. William E. Buser, Chillicothe, Ohio. Filed Mar. 30, 1877.



1. The combination of the false bottom C and head-piece D, having their adjacent ends cut obliquely to form a bevel-joint, and the hinges b, applied on the upper side of said parts C D, whereby said head-piece is supported in an inclined position by means of the joint when the false bottom is elevated, as set forth.

2. In combination with the body of the lounge, the spring-catch having a beveled bolt, the false bottom C, and the swing-boards E, the latter being constructed and arranged to support the false bottom and to carry it over the end of the body, as and for the purpose specified.

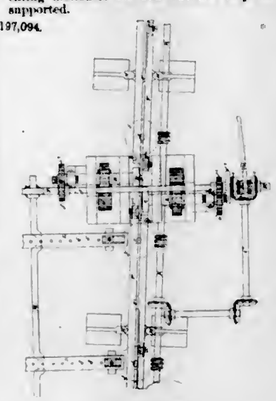
197,094. MACHINES FOR ROLLING TUBES AND BARS. John O. Butler and Ambrose E. H. B. Butler, Kirkstall Forge, Leeds, England. Filed Sept. 5, 1877.

1. In a machine for rolling and straightening bars or tubes, the combination of the separate grooved tables F, having guide-blocks for supporting the bars or tubes laterally, the vertical guides H, the screw-shafts J, located beneath the tables and provided with worm-wheels j, the worm-shaft K, having worm-pinions k, and the rotating disks, all as shown and described.

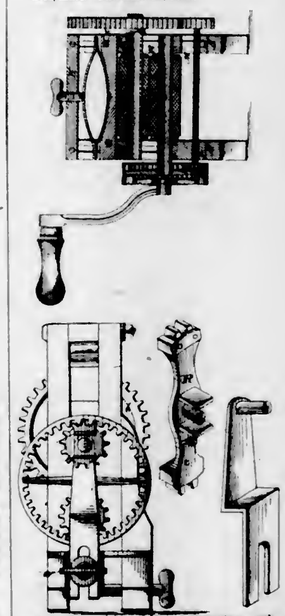
2. The reciprocating horizontal bars or tables L L, provided with holes to receive pegs, the crank-shaft M, and connecting rods or links, substantially as shown and described, for the purpose of revolving the bars or tubes while hot or cooling, to prevent their warping, as set forth.

3. The method herein described for preventing bars or tubes from warping while cooling, consisting in imparting reciprocating rotary motion to the same by a rectilinear reciprocating motion of the bed whereon they are supported.

197,094.



197,095. CLOTHES-WRINGERS. Geo. Campbell, Pittsfield, Mass. Filed Feb. 24, 1877.



1. In a wringer, the combination, with a stirrup and a suitable tension device, of independent journal-boxes for the wringer-rolls and driving-shaft, the several boxes supported in the stirrup, whereby an equal pressure may be exerted on both ends of its wringer-rolls without throwing the gearing out of connection, substantially as described.

2. In a wringer, the combination, with a stirrup and the independent and vertically-adjustable boxes of the wringer-roll journals, of a pressure-bar secured to said stirrup, a rigid cross-bar secured to the wringer-frame, and a spring interposed between said cross-bar, substantially as described.

3. The combination, with a pair of wringer-rolls journaled in independently-adjustable bearings, and a stirrup within which is secured one set of said boxes and the end of a movable cross-bar, of a rigid cross-bar secured to the wringer-frame, and an elliptic spring interposed between said cross-bars, substantially as described.

4. The combination, with the shaft of one of the wringer-rolls and an internal gear-wheel secured thereto, of a removable cross-bar, the latter constructed for the ready attachment of the crank, substantially as described.

5. The combination, with the internally-toothed spur-gear actuating the rolls, of a removable gear attachment constructed with cogged extremities, the same diametrically fitting in the said internal gear, and provided with a gear-locking device, substantially as described.

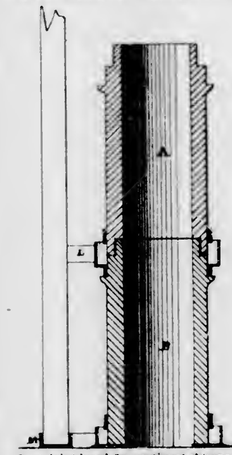
6. The combination, with the internally-toothed spur-gear actuating the rolls, of the removable gear-supporting standard, the latter being vertically adjustable, as described, whereby pinions of different diameters may be engaged with the main internal gear, substantially as described.

7. The combination, with the removable gear-supporting standard, of a stand secured to the wringer-frame, and provided with a set-screw for adjusting the height of the said standard, substantially as described.

8. In a wringer, the detachable gear-supporting standard, made of angle-iron, having a journal-bearing at its upper extremity, and an elongated open slot at its opposite extremity, substantially as described.

9. The combination, with the clamping-plates connected by ball-and-socket joint to their respective adjusting-screws, of angular guide-rods, the latter sliding freely in slots cut in the frame-standards, substantially as set forth.

197,096. SECTIONAL CHIMNEYS. Leonard E. Clawson, San Francisco, Cal. Filed Oct. 4, 1877.



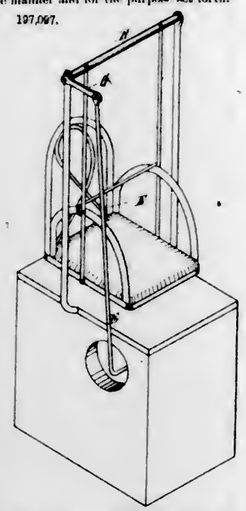
1. A joint-band for sectional chimneys, consisting of rings or collars G H, and intermediate band F of larger diameter, arranged to form a chamber or recess around the joint, which can be filled with cement or plaster through openings I, substantially as above specified.

2. The pan or socket M, connected with the lower joint-band, in combination with the connections L, for bracing and steadying the chimney from the studding of the house, or from a specially-erected studding, substantially as above specified.

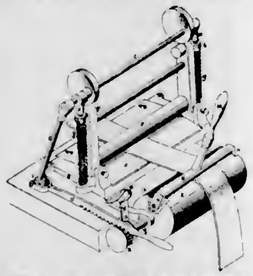
197,097. AUTOMATIC SWINGS. Thomas Connolly and James F. Bickell, Chelsea, Mass. Filed July 28, 1877.

The chair or seat K, with its rods *a c*, in combination with the rocker-shaft H, rocker-arm G, connecting-rod E, crank *e*, and the wheels and mainspring of a train of clock-work, arranged and operating substantially in the manner and for the purpose set forth.

197,097.



197,098. **LEATHER-SPLITTING MACHINES.** Horatio N. Cook, San Francisco, Cal. Filed June 1, 1877.

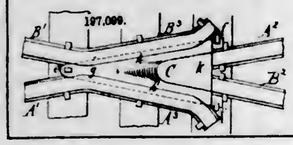


1. The combination, with leather splitting or cutting mechanism, of the roller K, eccentrically pivoted clutch-bar N, and lever-handle M, substantially as and for the purpose specified.

2. The toothed wheel R, attached to and rotated by the roller K, pivoted clutch-bar N, and lever-handle M, which draws the leather through a leather splitting and tapering machine, in combination with a lever-arm, S, attached to the eccentric-shaft I and toothed lever-handle U, by means of which the same motion and power that draws the leather will cause the pressure-roller F to be forced downward upon it, substantially as and for the purpose described.

3. The clutch-bar N, with its lever-handle M, attached to a roller, K, which is provided with a toothed wheel, R, in combination with the lever-arm S, attached to the shaft I, adjustable nut *t*, and lever-handle U, the under side of which is forced into a rack, and the upright plate V, with its guard W, for retaining the pressure-roller at a given point, substantially as and for the purpose described.

197,099.



197,099. **RAILWAY-FROGS.** Charles L. Cooke, Buffalo, N. Y., assignor of one-half his right to William V. Kish, same place. Filed Oct. 22, 1877.

1. The triangular wheel-supporter C, having its tip *g* arranged at a height to support the flange of the wheels passing over it, the diverging side portions *h h'*, arranged in line with the tip *g*, rear portion *k*, arranged in line with the heads of the rails, and convex central portion *i*, rising gradually from the tip *g* to the rear portion *k*, substantially as and for the purpose set forth.

2. The combination, with the triangular wheel-supporter C, having its tip *g*, side portions *h h'*, rear portion *k*, and central portion *i*, constructed, as described, of the diverging rails A^1 B^1, intersecting rails A^1 B^1 A^1 B^1, outer rails A B, and guard-rails D D^1, substantially as and for the purpose set forth.

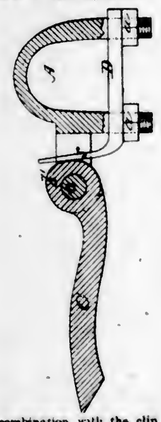
197,100. **DOUBLE-WINGED CULTIVATORS.** Charles J. Cooper, Oxford, Ala. Filed Aug. 13, 1877.

Brief.—A pair of standards carrying shovels and scraper-wings are united at the top in a screw-shank, the halves being separate, and held together by the nut.



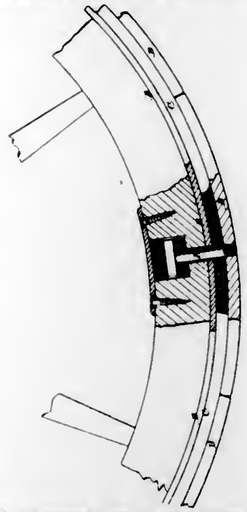
The feet D, provided with plows G and wings G^1, and forming half-round threaded tenons *a a*, in combination with the mortised beam A and nut *b*, as set forth.

197,101. **THILL-COUPLINGS.** David W. Copeland, Theresa, N. Y. Filed July 28, 1877.



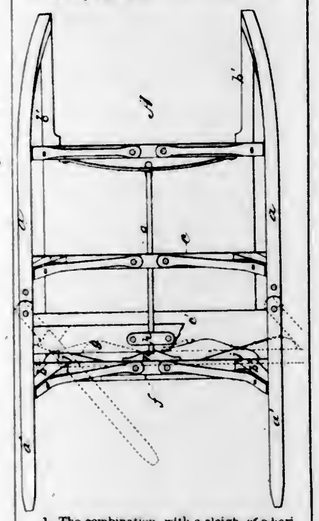
The combination, with the clip A, having bearing-arms *b*, the coupling-bolt *c*, and the plate D, having the spring-arm *a*, extending up obliquely between the said arms *b*, and protected thereby, of the thill-iron C, having a cam, *b'*, adapted to compress said spring-arm when the thills are in use, and to release it when they are raised or lowered to the ground, substantially as and for the purpose specified.

197,102. **VEHICLE-WHEEL TIRES.** George Cornwall, Garden City, N. Y. Filed Apr. 16, 1877.



The combination, with an ordinary wheel surrounded by an elastic band, C, of an outer tire made in independent sections, D, connected with the wheel, substantially as shown and described.

197,103. **SLEIGHS.** Hahum Corson, Rochester, N. H. Filed July 21, 1877.

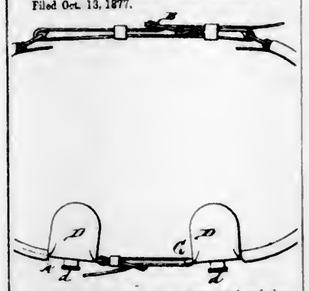


1. The combination, with a sleigh, of a horizontally-vibrating rear extension and a catch therefor, the runners of said extension being pivoted to those of the sleigh, substantially as specified.

2. The combination, with the sleigh having the recessed end beam *c'*, of the rear extension, having its runners pivoted to the sleigh-runners *a*, and its cross-beam *f*, having projections engaging said recesses, substantially as specified.

3. The combination, with the sleigh A and its horizontally-swinging rear extension, of a catch, and an endwise-movable latch-rod engaging said catch, substantially as specified.

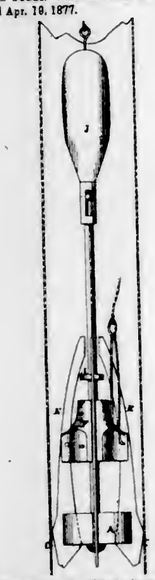
197,104. **TRUSSES.** John H. Corwin, Newburg, N. Y. Filed Oct. 13, 1877.



1. The combination, in a truss-pad, of the plate C, with bosses *b*, the hinged pad D, springs *k*, and cap *d*, substantially as and for the purposes herein set forth.

2. The combination, substantially as hereinbefore described, of the elliptic springs A A, plates C C, provided with bosses *b b* and caps *d d*, hinged pads D D, springs *k k*, and straps B G, all arranged substantially as described.

197,105. **DEVICES FOR PERFORATING ARTESIAN-WELL TUBES.** John M. Orcal, Los Angeles, Cal. Filed Apr. 19, 1877.

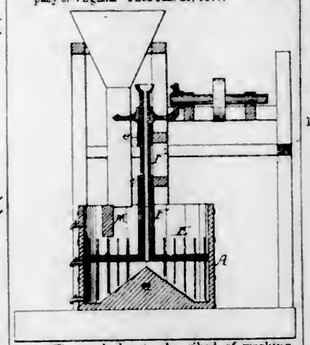


1. The cutters C, with their arms E, curved, as shown, and centrally pivoted to the suspended block F, in combination with the movable block A, attached to the spindle B, and capable, as is the spindle, of being forced down without axial rotation between the knives, so as to expand them and cut the surrounding tube, substantially as herein described.

2. The cutters C and arms E, curved so that each end approaches the center, and pivoted to the suspended block F, in combination with the vertically-moving spindle B, with its expanding-block A and disk I, so fitted that the knives or cutters will be forced outward by a downward movement of the spindle and retracted by withdrawing it, substantially as herein described.

3. The weight J, with its slotted tube, or equivalent device, connected with the spindle B, so that it may be raised and dropped to force the spindle and block A down and expand the cutters, or give an upward blow to return the cutters, substantially as herein described.

197,106. **PROCESSES AND APPARATUS FOR LEACHING ORES.** Augustine B. Crosby, Greene, Me., assignor to United States Gold and Silver Amalgamating Company of Virginia. Filed Jan. 29, 1877.

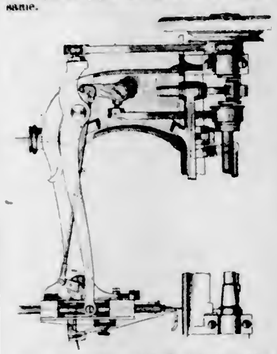


1. The mode herein described of washing roasted ore by first slowly stirring it with water in a tub, until the ore sinks toward the lower part of the tub, leaving the deleterious matter in solution near the top, then introducing fresh water into the lower part of the tub, and permitting the water and soluble matter to escape at the top while the stirring is continued, all substantially as set forth.

2. The combination of the stirrer E and tubular shaft F with the tub A, having discharge-openings and a stationary partition, M, extending above the stirrer across the side adjacent to the upper discharge-opening, as and for the purpose set forth.

197,107. **TAKE-UP MECHANISMS FOR SEWING-MACHINES.** Cyrus S. Cushman, Philadelphia, Pa., assignor to Nesbitt D. Stoops, same place. Filed Oct. 18, 1877.

Brief.—The take-up lever has a positive motion imparted to it through a bell-crank lever, connected, by an arm, to a second lever, which, in turn, is operated by an eccentric on the main shaft by means of a connecting-arm. Across the thread-slot in said take-up lever extends a spring, which exerts a yielding pressure on the thread, thereby preventing the knotting of the same.



1. In combination with the take-up lever, a bell-crank lever pivoted to the standard which supports the upper works, and an eccentric on the driving-shaft for operating said lever, the said lever being connected to the take-up lever by means of a rod or link, and to the eccentric by means of a depending rod or link and an eccentric strap, substantially as set forth.

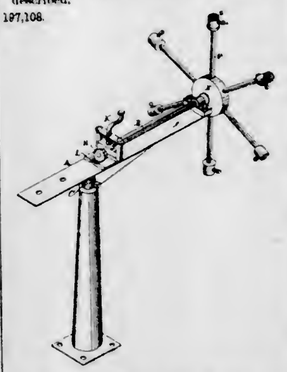
2. In combination with the take-up lever, an auxiliary take-up, consisting of a spring secured to the take-up lever, and adapted to work across the thread slot in the same, whereby the thread is held right until the needle-eye reaches the fabric, substantially as and for the purposes set forth.

197,108. **TINNERS' MACHINE-STANDS.** William Dale, San Lorenzo, Cal. Filed Aug. 10, 1877.

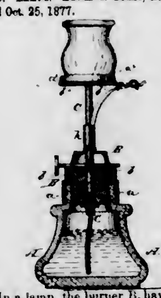
1. A tinner's machine or tool stand, consisting of the revolving plate or table A, having the rotating shaft B, with its radial arms F, and sockets G, for receiving and holding the tools or machines, said shaft being provided with a mechanism whereby either tool may be rigidly held in the proper position for use, substantially as herein described.

2. The device for securing the arms and shaft, consisting of the pinion H and corresponding serrated leaf L, with the movable box J and screw K, substantially as herein described.

197,108.



197,109. **LAMPS.** Edwin S. Drake, Brooklyn, N. Y. Filed Oct. 25, 1877.

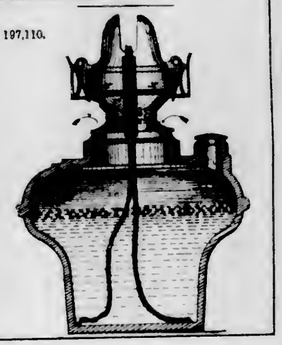


1. In a lamp, the burner B, having its lower end forming a socket, *b*, for inclosing an elastic plug, D, to form the connection with the lamp-reservoir, substantially as herein set forth.

2. The combination of the reservoir A with flange *a*, the burner B, forming the socket *b*, the wick-tube C, and the elastic plug D, substantially as and for the purposes herein set forth.

3. In a night-lamp, the shade provided with a metallic rim removably hinged to a standard connected to the wick-tube, substantially as herein set forth.

197,110.



197,110. SAFETY-LAMPS. Edwin S. Drake, Brooklyn, N. Y. Filed Sept. 11, 1877.

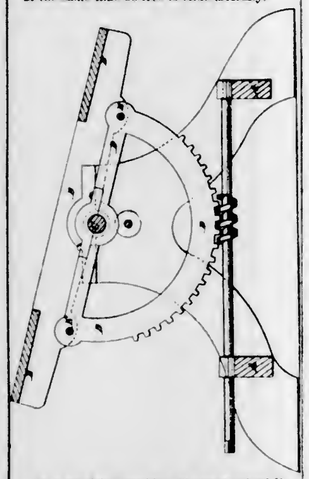
1. A lamp fount and lamp-burner constructed substantially as described, whereby all the air supplied to the flame must pass through the fount and up around the wick-tube to the interior of the deflector.

2. A lamp fount constructed to provide for the admission of air at some point or points upon its upper surface, and all the air traversing the surface of the oil then passing through the burner to the flame.

3. A lamp fount constructed as described, in combination with a burner constructed as described, and its proper chimney, or equivalent device for inducing a circulation of air, the whole operating substantially as set forth.

197,111. MORTISING-MACHINES. Simeon Duck, Victoria, British Columbia, assignor to himself and Joshua Davies, same place. Filed Aug. 24, 1877.

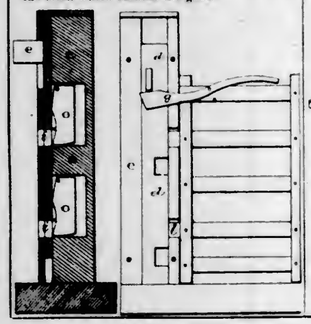
Brief.—The table is connected to the segmental gear by two rods passing through the ends of said gear, and attached to the table, by means of which the table may be tilted, and at the same time be free to slide laterally.



In a mortising machine, the worm-wheel D, rocking upon a journal on the main shaft C', upon which the table B tilts and slides, and connected with said table B by two rods, E, attached to said table, and passing through and sliding in holes in the ends of the said gear D, so that the table may be tilted by the gear D, while sliding freely upon it, substantially as herein shown and described.

197,112. GATE-LATCHES. William F. Eaton, Wabash, Va. Filed Sept. 7, 1877.

Brief.—The projections on the pivoted supports hold the latch, when elevated, until the gate closes, when the projection on the gate strikes the pivoted supports, thereby dropping the latch which secures the gate.

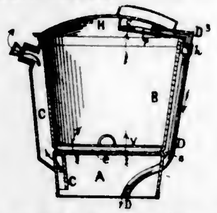


1. The post *c*, having a groove cut in its side for the vertically-moving latch, in combination with a lever, *g*, for raising the latch, and the covering-board, having notches in its inner edge corresponding to the notches in the latch, substantially as shown.

2. In combination with the vertically-moving latch *d*, having notches in its side, the eccentrically-pivoted supports *e*, having lugs or projections on their sides to support the latch, and the projections *l* on the end of the gate for pushing the supports backward, substantially as described.

197,113. STEAM COOKING-KETTLES. Wm. G. Flanders, Boston, Mass. Filed Apr. 23, 1877.

Brief.—An upper steam-chamber may take the place of the cover. This chamber has a rotary register, which is operated by a bar fitted in the cavity of the slide. When the register is open, the tapering opening in the perpendicular wall is closed.



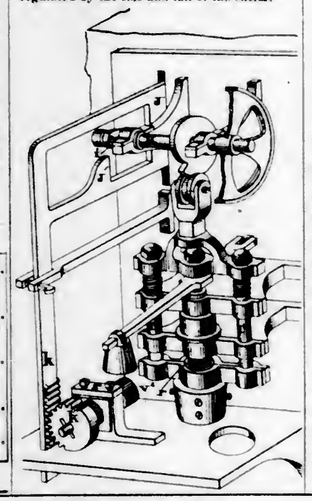
1. The double-chambered culinary vessel, made in detachable parts A, B, and E, each provided with a steam-escape pipe, D, and the upper part E having a rotary register composed of two perforated plates, N M, one of which may be rotated to close the apertures therein, as shown and described, for the purposes specified.

2. In combination with the cover H of the boiler, the self-closing valve *e*, as constructed to open by the pressure of steam within the boiler, and allow its escape through the tube D into the fire, and prevent the passage of odors through said tube and valve in the opposite direction, substantially as and for the purposes set forth.

3. In combination with the rotary register N M and bar K, the slides F and R, the latter having a tapering opening, P, arranged to operate with the steam-escape tube D, substantially in the manner described, as and for the purposes set forth.

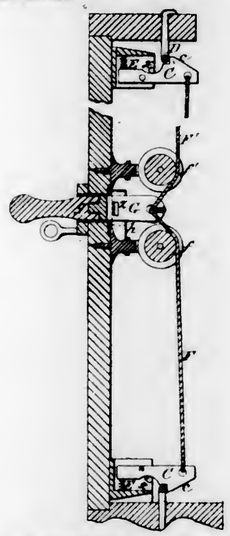
197,114. BUNG-CUTTING MACHINES. Jacob Franzmann, Cincinnati, Ohio, assignor of one-half his right to Henry Verwig, same place. Filed Feb. 19, 1877.

Brief.—The automatic intermittent feed is regulated by the rise and fall of the cutter.



197,115. LOCKS FOR BARN-DOORS. Ira Frost, Venice, Ohio. Filed Sept. 29, 1877.

Brief.—Two spring-latches at the inside top and bottom of the door are operated through cords, which run over pulleys, and are operated by a sliding arm with removable knob, which extends inward from the exterior of the door. The bolt of a lock passes through a rectangular opening in this sliding arm, and thus secures the door.



1. The combination of the latch-levers C, cords F F', and sliding arm G.

2. The combination of lock K and sliding arm G, connected with the top and bottom latches of a door, substantially as set forth.

3. The combination of the sliding arm G, having a removable knob, I, with an interior latch-operating mechanism.

4. The combination of latches t', cords F F', pulleys *f f'*, and sliding arm G, as set forth.

5. The pull-arm G, having the screw-shank *g*, the shoulder *g'*, and the cross-opening *x*, in combination with the screw-socket key-handle I, the latch-operating cords, and the supplemental locks K, as described.

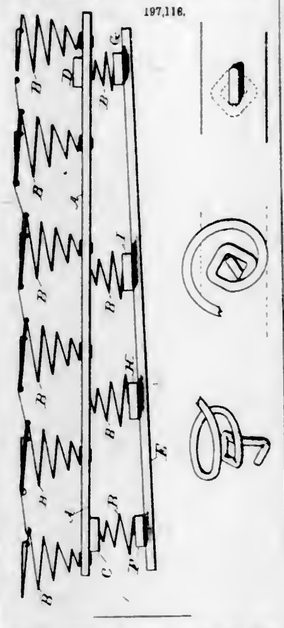
197,116. SPRING BED-BOTTOMS. Obed L. Fuller, Marseilles, Ill. Filed July 19, 1877.

1. In a spring bed-bottom, the slats A, held together at the head by a slat, C, placed underneath, and at the foot by a slat, D, placed on top, in combination with the slats E F G and their springs B, substantially as described.

2. The combination of the slats A C D, and their springs B, with the slats H I, and their springs B, arranged on the slats E, between the slats F G and their springs, substantially as described, and for the purpose set forth.

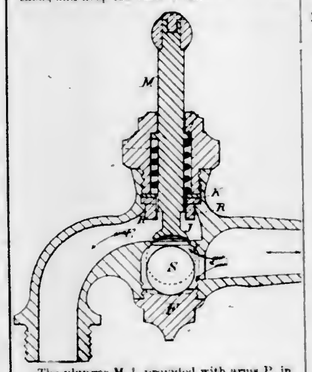
3. The spring bed-bottom hereinbefore described, having springs B, provided with a square seat or bottom, and fastened to the slat by clinching the end of the spring at right angles with the square or seat, substantially as described.

197,116.



197,117. FAUCETS. John Graham, Chicago, Ill. Filed Mar. 13, 1877.

Brief.—The valve can be held open by forcing down the stem, and turning it one-fourth around. The arms will then engage with the cams, and keep the valve open.



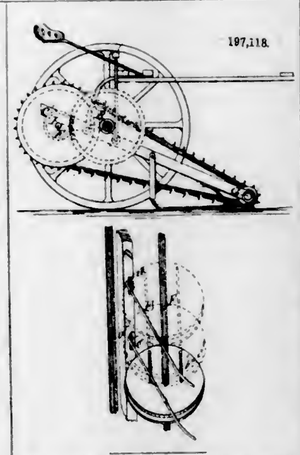
The plunger M J, provided with arms P, in combination with the faucet and collar K, cams R R, and valve S, as and for the purpose set forth.

197,118. HAY-TEDDERS. William F. Goodwin, Stelton, N. J. Filed Feb. 9, 1877.

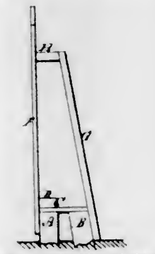
1. In a hay tedder, in combination with an endless elevating apparatus, a series of vibrating tedder-arms, substantially as set forth.

2. In a hay-tedder, the combination, with an endless elevating apparatus, of a draft mechanism, arranged as described, so that the position of the tedder-frame is determined by the direction of the draft, substantially as set forth.

197,118.

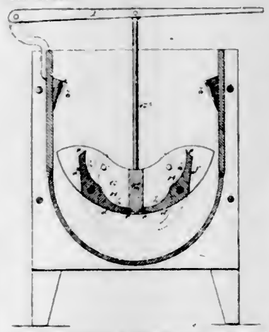


197,119. FENCES. David Gordon, Clinton, Pa. Filed Jan. 2, 1877.



In a fence, the combination of short posts A B, rails D H, and braces F G, constructed and arranged substantially as and for the purpose herein specified.

197,120. CHURNS. Henry C. Green, Chicago, Ill. Filed Oct. 13, 1877.



1. In a churn-dasher, the horizontally-pivoted floats H H, formed on their inner sides with the double concaves *h h*, on their outer sides with the convex surfaces *d* and beveled surfaces *d'*, and their top and bottom edges *e e* beveled.

2. The combination of a churn-body provided with interior fluted bars *b*, a dasher composed of the connected end pieces G G and pivoted floats H H, the rod G', and lever I, all constructed substantially as and for the purposes set forth.

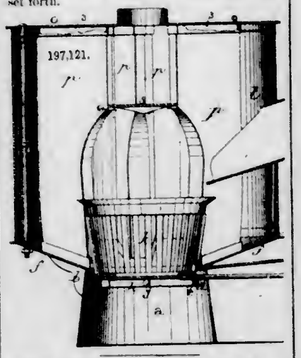
197,121. HEATING-FURNACES. Adam Guettermann, Belleville, Ill. Filed Sept. 10, 1877.

1. The combination of the base *a*, having the grooved ring *d e* and the supports *b*, with the flanged base-plate *f*, substantially as shown.

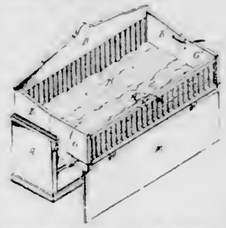
2. The flues *p*, having their inner sides inclined to form a support for the fire-pot, and thus leave an air-space between the fire-pot and base-plate *f*, substantially as specified.

3. The combination of the deflecting-plate *r* and hot-air flues *p*, the plate being arranged between the flues, to deflect the heat outward around the sides of the flues, substantially as set forth.

197,121.



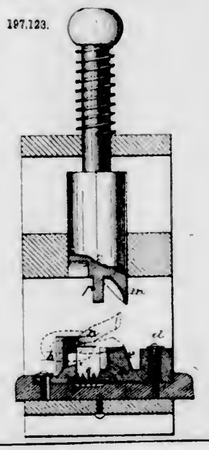
197,122. COMBINED DESK AND CHEST. Henry S. Hale, Philadelphia, Pa. Filed Aug. 28, 1877.



1. The combination of the structure A B B' D, forming part of a desk, with the frame E, hinged to the front of the said structure, and the lid M, hinged to the said frame E, all substantially as set forth.

2. The combination of the permanent structure and the frame E, hinged to the same, with the end pieces G G' and frame K, hinged to the said frame E, all substantially as set forth.

197,123.



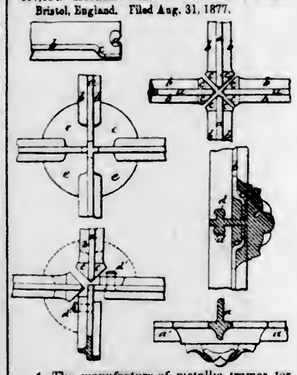
197,123. DIES FOR WELDING CHAIN-LINKS. John Haley, New Brighton, Pa. Filed June 30, 1877.

1. The combination of the die *c*, having the lip *m*, with the die *a*, the lip forming a guard over the end of the link, to prevent the formation of a fin, substantially as shown.

2. The combination of the descending die *c*, the horizontally-moving die *a*, and the fixed die *b*, substantially as set forth.

3. The combination of the descending die *c*, a horizontally-moving die, *a*, that is moved forward by the lip *m* on the die *c*, and the fixed die *b*, provided with the arms *n*, substantially as specified.

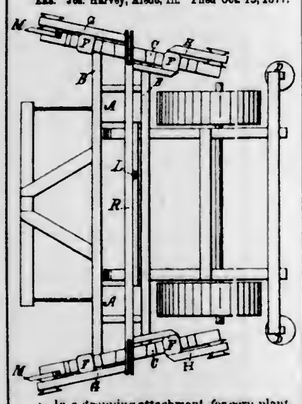
197,124. METALLIC WINDOW-SASHES. J. T. Harris, Bristol, England. Filed Aug. 31, 1877.



1. The manufacture of metallic frames for windows and skylights, by forming the sash or other bars with a part or parts, *c* or *d'*, below the line of the rabbet or molding *b*, to receive and be held by the cast-metal boss *e*, which boss extends only up to the said rabbet or molding, substantially as and for the purpose herein set forth and shown.

2. In combination with the part or parts *c* or *d'* below the line of the rabbet or molding *b*, the dovetail holes *d d*, substantially as and for the purpose herein set forth and shown.

197,125. DROPPING ATTACHMENTS FOR CORN-PLANTERS. Jos. Harvey, Aledo, Ill. Filed Oct. 15, 1877.



1. In a dropping attachment for corn-planters, the combination, with the stake O, of the wire or cord E, provided with the weight Q, substantially as and for the purpose specified.

2. In a dropping attachment for corn-planters, the combination of the wire or cord E, provided with the ring *k*, and the stake O, substantially as and for the purpose specified.

3. The stake O, provided with the horizontal portions *e* and *e'*, substantially as and for the purpose herein shown and described.

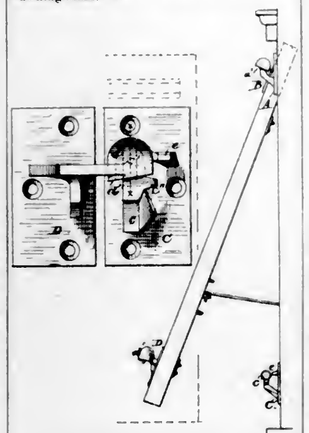
4. The combination, with a corn-planter, of the sheave D, frame C, with its sheave-rollers, and the cord or wire E, arranged relatively to each other, as herein shown and described, whereby the cord or wire is left on the smooth track made by the wheel of the planter, as specified.

5. The combination, with the wire or cord E, having cylinders N, or their equivalents, and the frame C, provided with the sheave-rollers, of the levers G H, links K, oscillating arms I J, seed-bar, and intermediate mechanism, substantially as and for the purpose specified.

6. The combination of the wire or cord E, frame C, with its sheave-rollers and guard M, sheave D, levers G H, links K, oscillating arms I J, cross-bar R, lever L, and seed-bar, substantially as and for the purpose herein shown and described.

197,126. HINGES FOR AWNING-BLINDS. Cyrus L. Hasbrouck, Syracuse, N. Y. Filed Oct. 19, 1877.

Brief.—A hemispherical cap and ball of the upper hinge, operating like a universal joint, is combined with a similar form of the lower hinge, having additionally inclined bearings, guard, open slot, and jaw, the construction permitting the easy detachability of the lower hinge, and the swinging outwardly of the shutter or blind, supported by the ball and socket of the upper hinge alone, to form a convenient awning-blind.

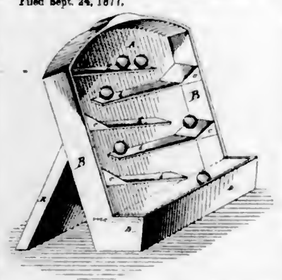


1. A hinge having a hemispherical cap upon one of its arms and a ball upon the other, the cap resting upon the ball, and the parts being constructed and arranged so as to admit of both vertical and horizontal movement, substantially as described.

2. The combination of the plate A, having arm *a* and ball *a'*, with the plate B, having arm *b* and cap *b'*, substantially as and for the purposes described.

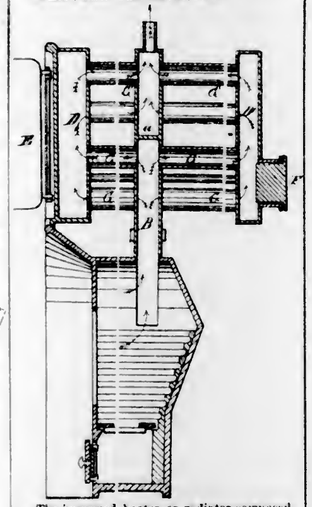
3. The combination of the plate C, having arm *c*, ball *c'*, inclined bearing *c''*, and guard *e*, with the plate D, having arm and cap *d'*, and provided with slot *d* and jaw *d''*, substantially as and for the purposes set forth.

197,127. TOYS. Eli P. Hasbrouck, Syracuse, N. Y. Filed Sept. 24, 1877.



A toy consisting of the inclined back board A, frame B, having opening *a* at top and receptacle D at bottom, provided with lid *m*, inclines *b c*, and support E, all constructed and arranged to operate in connection with a ball, substantially as described.

197,128. HOT-AIR FURNACES. Wm. E. Henderson, Winona, Minn. Filed Mar. 25, 1876.



The improved heater or radiator composed of the vertical and parallel hollow heads B D D', provided, respectively, with the horizontal diaphragm *a*, doors E E, and removable plug F, and the two groups of tubes G G', connecting the heads, and arranged in alignment, all as shown and described, for the purposes specified.

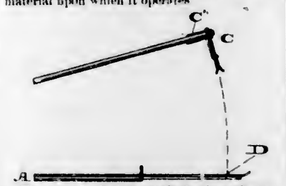
197,129. LUBRICATING-OIL COMPOUNDS. Eli E. Hendrick, Carbondale, Pa. Filed Apr. 3, 1877.

Brief.—Equal quantities of white lead and whale-oil are placed in a retort, heated, and stirred, and petroleum added to produce the consistency required.

A lubricating-oil compound composed of petroleum-oil, animal oil, and the carbonate or white lead of commerce, substantially as described.

197,130. TUCK-MARKERS. Frank Henry, Philadelphia, Pa. Filed May 3, 1877.

Brief.—A lever, formed substantially in the shape of a segment of a circle, is pivoted at one end to a bar, and has its other end free, whereby, as the bar descends, a rocking motion is imparted to the lever, which, through the medium of a spring attached to its pivoted end arresting its too easy ascent, creases the material upon which it operates.



The lever C, of substantially the shape shown, pivoted at one end to a motion-imparting device, and having its other end free, in combination with the downwardly-pressing spring C'', the two constituting, with the ridge D, a tuck-marking device, in which the rectilinear motion of the motion-imparting device is converted into a rocking motion of the lever C, substantially as described.

197,131. SHUTTLES FOR LOOMS. Charles J. Higgins, Hallowell, Me. Filed Oct. 20, 1877.

Brief.—Improvement upon the construction covered by Letters Patent No. 148,135. Instead of a compressible spring placed inside the hollow sliding spindle, there is substituted a tensile spring, which surrounds the stationary spindle. Said spring is secured to the head of the stationary and to the heel of the hollow spindle. The spindle is very tapering, to admit of its ready insertion into the cop, and is provided with a short spring at the heel to assist in retaining the cop. By the above construction great elasticity is secured, and the cop is prevented from breaking and wasting.

197,131.



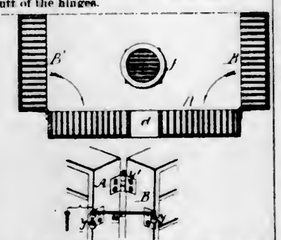
1. The combination, with the stationary spindle B and sliding spindle D, of the tensile spring E, connected to the said sliding spindle, and to stationary spindle, or the head thereof, substantially as and for the purposes specified.

2. The sliding spindle D, constructed of the form shown, and provided with the spring or projection F, substantially as and for the purposes set forth.

3. The combination, with the body of a loom-shuttle and its stationary spindle, of a sliding spindle and tensile spring, E, connected with the base of said sliding spindle, and to the rear of the stationary spindle, or the head thereof, substantially as and for the purposes set forth.

197,132. BOOK-CASES. Charles F. Hill, Hasleton, Pa. Filed June 25, 1877.

Brief.—The sections may be secured together by two sets of loose butt-hinges, rendering them capable of being held rigidly in line when the bolts are all inserted, but, when the bolt is removed from one set, allowing the sections to be swung at right angles to each other, and retained in that position by a horizontally-disposed rod, the bent ends of which enter the butt of the hinges.



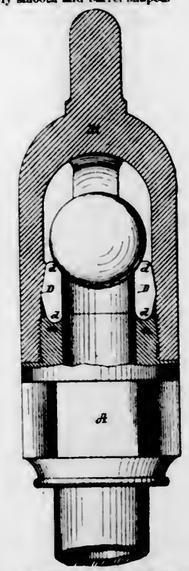
1. A book-case composed of a number of sections, each section having a glazed front, through which the titles of the books can be observed, and open at the back, and one section having an opening, *d*, the said sections being hinged together and combined, as set forth, so that they can form an inclosure or part of an inclosure, from which books can be handed through the opening, all as set forth.

2. The combination of the end sections B B' with a central section, A, made in two parts, A^1 and A^2, connected together by two sets of loose bolt-hinges, *x x'*, as specified.

3. The combination of the central section A and end section B or B' with the two sets of loose bolt-hinges *y y'*, and brace *w*, as described.

197,133. REVERSIBLE SEATS FOR BALL-VALVES. A. K. Hills and Wm. E. Berens, Buffalo, N. Y. Filed Sept. 24, 1877.

Brief.—A reversible ball-valve seat held within a cage, said valve-seat piece being exteriorly smooth and barrel-shaped.

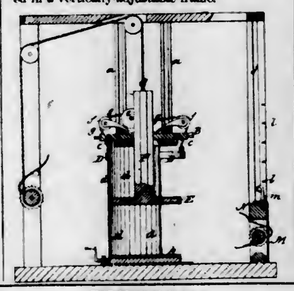


1. As a new article of manufacture, a valve-seat consisting of an annular double-tapering ring, D, having the seats *d*, as specified.

2. The combination, with the cage B, having a screw thread and a tapering bearing within its band, of the seat D, provided on its exterior with a double taper, and the body A, having its upper edge recessed at *a*, the whole being constructed and arranged substantially as and for the purpose specified.

197,134. MACHINES FOR MAKING BARRELS. Wm. K. Hoback, Bentonville, Ark. Filed Mar. 20, 1877.

Brief.—The divided and contractible band for clamping the staves in position, the circular anvil for supporting the staves and clinching the nails as they are driven, and the upper concentrically-grooved former for receiving the upper ends of the staves, are simultaneously raised or lowered by a rope and windlass. The end of the hoop is drawn tightly around the staves by means of a clamp attached to the end of a rope operated by a windlass mounted in a vertically-adjustable frame.



1. The combination, with a vertically-adjustable frame, N, spring-catches, notched guides *j*, windlass M, and clamp, as and for the purpose specified.

197,135. EGG-FORKS. George H. Hunting, New York, N. Y., assignor to James H. Ferguson, same place. Filed Oct. 30, 1877.



1. An egg-fork composed of a single or whole stem or handle, and duplicate reversely-bowed jaws, formed of elastic fingers of a bow shape, and having their outer ends inverted or turned outward, substantially as specified.

2. The combination, with a single or whole stem or handle, of the reversely-bowed jaws, having an elastic action in relation with each other, independently of or in addition to the elasticity of the fingers with which said jaws are provided, substantially as specified.

3. The combination, with the fixed jaw B, having bowed fingers, and the whole stem or handle A, to which said jaw is attached, of the pivoted reversely-bowed jaw B' of fingers, the tail-piece or projection *g* on said jaw, and the spring *k*, essentially as shown and described.

4. The stop *l* on the shank *d* of the fixed jaw B, in combination with the tail-piece *g* of the pivoted jaw B', and the spring *k*, substantially as and for the purpose specified.

197,136. BOOK-DISPLAYING RACKS. Henry Hass, Mount Vernon, N. Y. Filed Oct. 26, 1877.



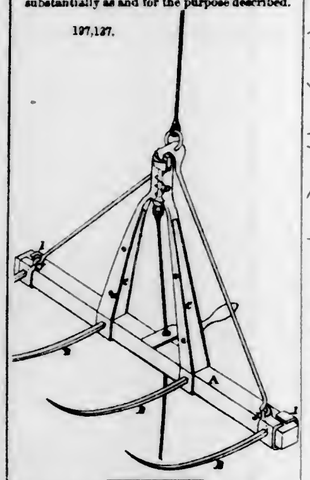
In a book-rack, the combination, with a suitable base-plate, A, of a series of supporting-ledges, *b b b*, and swinging retaining-balls *c c c*, so that books or other papers of various sizes can be placed on the rack one above the other, leaving a part of the faces of the books, together with their titles, exposed to view, substantially as herein shown and described.

197,137. HORSE HAY-FORKS. Byron Jackson, Woodland, Cal. Filed Sept. 19, 1876.

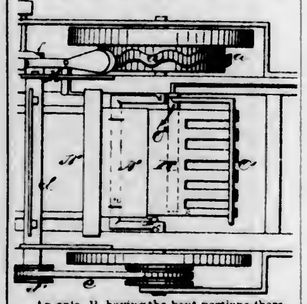
1. The fork-head A, in combination with the converging arms C, clasping the head and receiving the inner tines, and the clips I, having the exterior tines passing through them, said clips being provided with the eyes J, for the attachment of the bail in a line with the tine, so as to relieve the head from strain and wear, substantially as herein described.

2. The clips I, clasping the ends of the fork-head, and having the tines B passing through their center, said clips having the eyes J placed upon their inner corners, and in a line between the bail and the centrally-placed tines, substantially as and for the purpose described.

197,127.

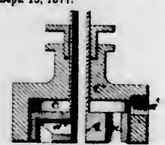


197,138. HARVESTER-DROPPERS. John T. Jeter, Jacksonville, Ala. Filed July 23, 1877.



An axle, P, having the bent portions thereof extended below and supporting a flexible apron or grain-platform, N, to which the slotted plate R is hinged, in combination with the arm O, pivoted to the frame, and carrying at its lower end the supporting-arm O^2 of the slotted frame, and near its upper end the cut-off O^1, substantially as described, and for the purpose set forth.

197,139. ROTARY VALVES. Daniel Job, Niles, Ohio. Filed Sept. 15, 1877.



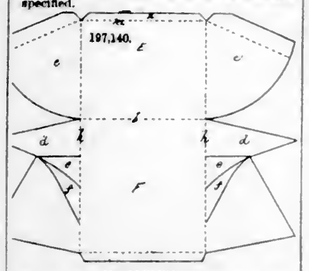
The combination, with steam-ports d^1 d^2, of the rotary valve, provided with a hollow stem and passages a^2 leading to the exhaust-passage a^1 and steam-passage a, whereby both ends of the cylinder may be open to the exhaust when steam is cut off, substantially as described.

197,140. ELEVATOR-BUCKETS. Erik Johnson, Chicago, Ill., assignor to Towner K. Webster, same place. Filed Apr. 30, 1877.

Brief.—By cutting the blank in the form shown the ends of the bucket are made strong.

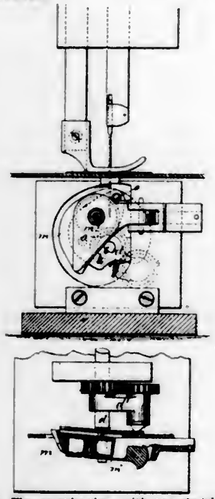
An elevator-bucket, substantially such as shown and described, made from a single piece of sheet metal cut to form the parts E F and wings *c*, *d*, *e*, *f*, and *g*, and provided with the rivets *a'* and band C, as and for the purpose specified.

197,140.



197,141. SEWING-MACHINES. John T. Jones, Ilion, N. Y. Filed Apr. 20, 1877.

Brief.—A stationary shuttle held in position by spring-plates carrying a flat-headed bobbin, with a hollow center or body, such body fitting over a pillar, and being held by an eccentric-screw with an eccentric-head. The hook is rotated in an epicycloidal line, and carries the loop around the nose of the shuttle, dropping it near the center of both the shuttle and the hook-shaft.



1. The combination, with the shuttle and needle in a sewing-machine, of the loop-spreading hook and mechanism, substantially as described, whereby the hook is rotated and the point caused to travel in an epicycloidal line to carry the loop around the nose of the shuttle and deliver it near the center, as set forth.

2. The yielding leader-pins made with round heads and inclined projections at one side, in combination with the shuttle having corresponding slotted holes, substantially as set forth.

3. The shuttle *m*, sustained by yielding pins against a fixed plate, in combination with the yielding holding-plate *m'* and loop-spreading hook, and mechanism for moving such hook in an epicycloidal line, substantially as set forth.

4. The combination, with the shuttle-body and bobbin, of the holding-stud and eccentric screw with an eccentric head, substantially as and for the purposes set forth.

5. The combination, with the shuttle *m* and its yielding pins *o* and spring-holder *m'*, of the supporting-shafts *d* with one side removed, substantially as specified.

197,142. TRUSSES. Robert R. Jones, Asheville, N. C. Filed Aug. 18, 1877.

The solid semi-ovoid pad A, having on its convex side the recesses *a*, in combination with the semi-ovoid shell E, arranged over the solid pad, the intermediate spring B, attached at one end to the shell and at its other end to the disk C in the recess *a*, and the set-screw D passing through the solid pad and said disk, substantially as and for the purpose described.

197,142.



197,143. JOURNAL-BEARINGS. John N. Kaufhold, Chattanooga, Tenn. Filed Nov. 6, 1877.

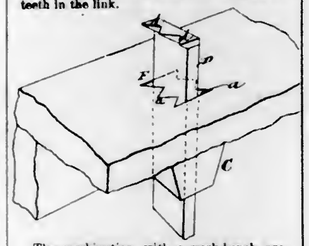


1. A Greek-cross bearing, having one of its sides divided by a longitudinal slit and means for contracting such divided portion of the bearing, substantially as set forth.

2. A Greek-cross bearing, having one of its sides divided by a longitudinal slit, and adjusting bolt and nuts, connected with the divided arm, for the purpose of contracting the box when desired, substantially as set forth.

197,144. BENCH-HOOKS. John Kime, Victor, Iowa. Filed Sept. 29, 1877.

Brief.—The hook is reversible, provided with teeth in one of its edges only, and adjustable vertically by a set-screw in bench, provided with tapering recesses corresponding with the teeth in the link.



The combination, with a work-bench, provided with a mortise, F, in its tapering recesses *a a* in two of its sides, of the plate B with socket C, reversible hook D, provided with teeth on one of its edges only, and the set-screw G, substantially as described, and for the purpose set forth.

197,145. GREEN-CORN STRIPPERS. Wm. A. L. Kirk, Hamilton, Ohio. Filed Aug. 28, 1877.

Brief.—A toothed bar, preferably handled, and provided with side guards, has its row of teeth conoid-shaped, the implement being adapted for removing the pulp of green corn, cooked or uncooked, from the cob, the pulp and juice being readily extracted by its use, and the hull of the grain left upon the cob.

1. The toothed bar, whose teeth are conoidal, substantially as and for the purpose described.

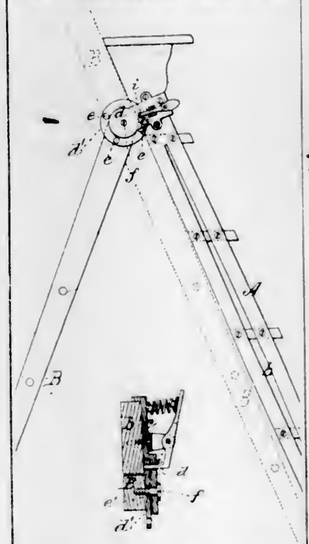
2. The toothed bar, whose teeth are conoidal, combined with a handle, substantially as described.

3. The toothed bar, whose teeth are conoidal, combined with a handle and guards, substantially as described, for the purpose specified.

197,146.



197,146. EXTENSIBLE STEP-LADDERS. H. F. Kochsmeier, Freeport, Ill., assignor of one-half his right to W. F. Burmert, same place. Filed Aug. 25, 1877.



The combination, with the ladder-section A, having disks *d* projected backward from its upper end, and provided with perforation *i*, and a spring-actuated lever-catch extending through said perforation, of the rear support B, having disks *d'*, with spaced perforations *e* and pivot-bolt *f* connecting said disks, all constructed and arranged substantially as specified.

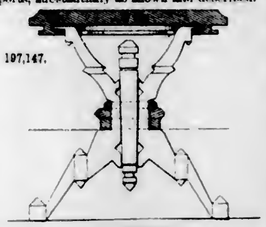
197,147. TABLES. Camille Kramer, Cohoes, N. Y. Filed July 9, 1877.

1. A stand or base composed of three or more legs held within a ring by means of a central pin, substantially as herein shown and described.

2. The combination, with the ring and the central wedge-pin, of legs so formed as to constitute, also, the supporting-braces of a table-top or other elevated part of furniture, substantially as shown and set forth.

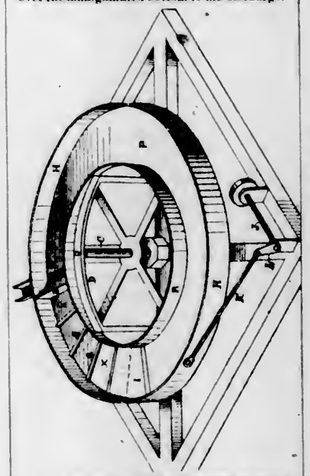
3. The combination, with a stand or base consisting of the legs united by means of the ring and wedge-pin, as described, of a table-top or other elevated part of a piece of furniture having an annular groove or groove-sections for the reception of the braces or supports, substantially as shown and described.

197,147.



197,148. AMALGAMATING-PANS. Guido Kustel and O. Hofmann, San Francisco, Cal. Filed Aug. 24, 1877.

Brief.—The pulp is fed to the oscillating pan on one side of the partition, and, by the oscillation of the pan, is made to pass around over the amalgamated bottom to the discharge.



1. A circular sluice-amalgamator mounted upon a central bearing, and provided with one or more depressions or recesses, X, for containing quicksilver, an amalgamated bottom, P, quicksilver-trap I, and a discharge-opening, F, substantially as and for the purpose described.

2. The amalgamating sluice H P R, mounted on a suitable support, and provided with one or more depressions, X, for containing quicksilver, near the feed end, a quicksilver-trap, I, an amalgamated bottom, P, and a discharge-opening, F, in combination with the driving-shaft J, with its crank L and pitman K, for imparting to said sluice an oscillating or vibratory motion, substantially as and for the purpose described.

197,149. HASPS FOR FREIGHT-CARS. Benj. F. Lamason, Milton, Pa. Filed Oct. 23, 1877.

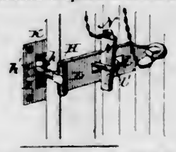
Brief.—The hasp is hinged, and the short part carries a button, which is turned so as to register with and enter a securing-slot in the door-jamb.

1. A fastening device for sliding doors consisting of a metallic shank having a permanent cross-piece, shoulder, or button at one end adapted to be held in or removed outwardly through the walls of the car, and a hinged hasp adapted to be secured to a staple on the door, whereby said door is prevented from being forced outwardly, substantially set forth.

2. In combination with the fastening device, the door and its sill, the dowel-pins secured in said sill, and fitting in recesses in the edge of the door, or vice versa, whereby the door at said sill is prevented from being forced outward, substantially as specified.

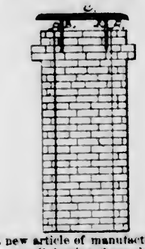
3. The combination of the slotted plate to be attached to the car, the shouldered shank, the slotted hasp, and a locking device, the whole constructed to operate substantially as described.

197,149.



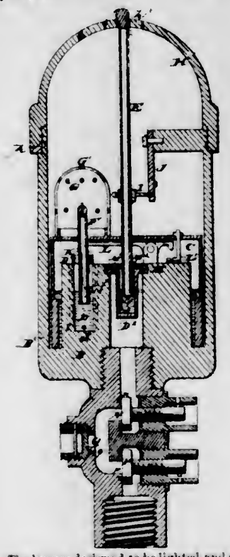
197,150. CHIMNEY-CAPS. Friedrich Lichtenfels, Newark, N. J. Filed July 19, 1877.

Brief.—The supports are adjustably secured in the sockets, so that the same size of cap is adapted to chimneys differing somewhat in size.



As a new article of manufacture, the metal chimney-cap C, having the sockets B, in combination with the supports A, substantially as and for the purpose specified.

197,151. DEVICES FOR LIGHTING AND EXTINGUISHING GAS. Edward Lindsley, Cleveland, Ohio. Filed Sept. 13, 1877.



1. The burner designed to be lighted and extinguished by varying the pressure within the main, consisting of the case containing the mercury-cells D^1, D, D^3, and D^2, the lever and float mechanism K L L^1, and pipes E and F, substantially as and for the purposes described.

2. The combination, with the day-burner pipe, of connecting mercury-cells D D^2, and

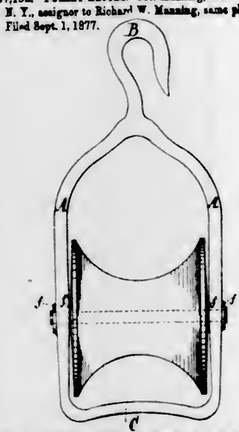
float and lever mechanism K L L', substantially as and for the purposes described.

3. The combination, with the day-burner pipe, provided with small orifice *f*, of connecting mercury-cells D D', and float and lever mechanism K L L', substantially as and for the purposes described.

4. The combination, with the inverted dome C, provided with the pipe E and the mercury-cell B', of the removable mercury-cell D', substantially as described.

5. The combination, with the pipe E, of a guide-washer, M', substantially as and for the purposes described.

197,152. PULLEY-BLOCKS. Jos. Manning, New York, N. Y., assignor to Richard W. Manning, same place. Filed Sept. 1, 1877.



The metal pulley-block or shackle A, having the arched enlargement in the upper portion above the wheel, and the upwardly-curved connecting and strengthening brace C in the lower portion, and provided with the bearing-bosses *f*, and the suspending-hook B, all cast in one piece, as herein shown and described, for the purpose set forth.

197,153. LAMP-CHIMNEYS. Geo. W. Martin, Chelsea, Mass. Filed May 1, 1876.



1. As an improved article of manufacture, a lamp-chimney of glass, having applied to its outer surface a transparent heat-resisting cement, and to such one or more layers of metallic leaf or foil, subsequently burnished and covered by varnish and bronze, all as set forth.

2. The described improvement in the art of preparing glass with reflecting metallic coating, such consisting in first applying to the surface of the glass a thin layer of a transparent heat-resisting cement, and next covering such coating or layer with one or more layers of metallic leaf or foil, and next burnishing and pressing to the glass or coating the leaf or foil on its outer surface, and finally covering it with varnish and bronze, and burnishing the latter, all as set forth.

197,154. FEATHER-RENOVATORS. Abraham McConnell, Oxford, Ohio. Filed May 19, 1877.

Brief.—Steam can be admitted at opposite sides into either the feather-receptacle or into the steam-chamber which entirely surrounds it.

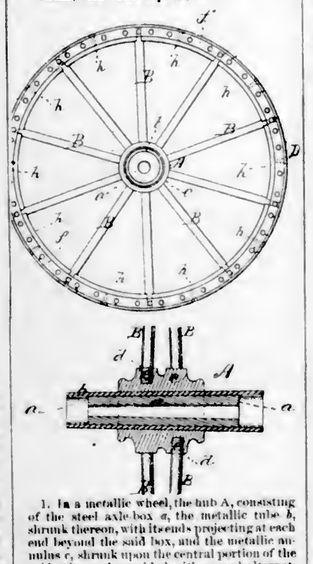


1. The closed drying-chamber *b'*, surrounding the sides, bottom, ends, and top of a feather-renovator of two sections, in combination with the opposite bottom-inlets *c c' c' c'* of the V-ways, the connecting-tubes *g*, and the vent-pipe *j*, all constructed as and for the purpose described.

2. In a feather-renovator, the V-way pipes, one, *c*, entering the drying-chamber *b'*, and the other, *c'*, the feather-receptacle, near the bottom and at opposite sides of said chambers, and provided at their junction with the two-way cock or valve *d*, in combination with the steam-supply pipes and the connecting-tubes *g*, all substantially as and for the purpose described.

3. The inner holes *h h*, forming the exits of the ways *c' c'*, at opposite sides and near the bottom of the feather-receptacle, in combination with branch steam-supply pipes C' C', the two-way valves or cocks *d*, V-ways *c c'*, and drying-chamber *b'*, as described.

197,155. VEHICLE-WHEELS. Ira W. Mead, Falls Village, assignor of one-half his right to Lyman Munson, Canaan, Conn. Filed Sept. 29, 1877.

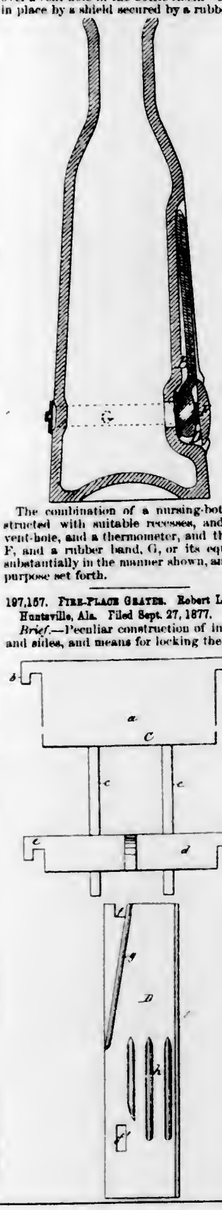


1. In a metallic wheel, the hub A, consisting of the steel axle-box *a*, the metallic tube *b*, shrunk thereon, with its ends projecting at each end beyond the said box, and the metallic annulus *c*, shrunk upon the central portion of the said tube, and provided with spaced alternating threaded spoke-sockets *d*, as and for the purpose specified.

2. In an iron wheel, the hub A, composed of steel axle-box *a*, and the metallic tube *b*, and annulus *c*, in combination with the spokes B, screwed into said hub, the edge rings *f*, the fellies *h*, and the tire D, shrunk on with its edges bearing upon the said rings, substantially as specified.

197,156. NURSING-BOTTLES. Ludwig Meyer, Berlin, Prussia. Filed Apr. 13, 1877.

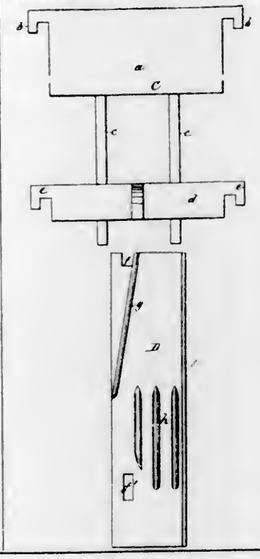
Brief.—The bulb of a thermometer rests in a recess in a glass nursing-bottle, and directly over a vent-hole in the bottle itself. It is held in place by a shield secured by a rubber band.



The combination of a nursing-bottle, constructed with suitable recesses, and with a vent-hole, and a thermometer, and the shield F, and a rubber band, G, or its equivalent, substantially in the manner shown, and for the purpose set forth.

197,157. FIRE-PLACE GRATES. Robert L. Mitchell, Huntsville, Ala. Filed Sept. 27, 1877.

Brief.—Peculiar construction of inner back and sides, and means for locking the same.

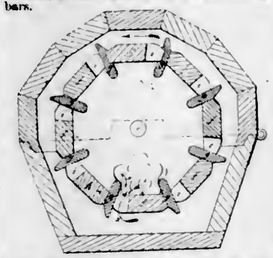


1. The back C, having hooks *c*, in combination with the sides D, having slots *f f'*, and the removable locking fire-pot back E, substantially as and for the purpose specified.

2. The combination, with the back A and side B, of the inner back C, consisting of the supporting partitions *c*, the plate *a*, and the bar *d*, having hooks *b c*, the sides D, having strips *g* and slots *f f'*, and the detachable fire-pot back E, substantially as described.

197,158. WASHING-MACHINES. William Morehouse, Buffalo, N. Y. Filed July 11, 1877.

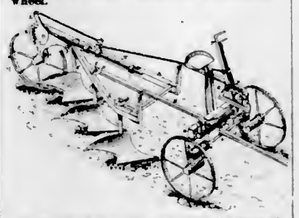
Brief.—The rubbing-bars project outwardly beyond the perimeter of the cylinder, thus forming buckets, whereby the suds are forced in through the series of openings in the intervening plates, against and through the clothes held in the wedge-shaped spaces formed by the inwardly-projecting ends of the said rubbing-bars.



The washing-machine cylinder herein described, consisting of the combined series of alternating bars *f* and *g*, each bar *f* being provided with a series of openings, *i*, and each bar *g* projecting farther within and without the cylinder than the bars *f*, as and for the purpose specified.

197,159. GANG-PLOWS. Charles Mowrey, Stockton, Cal. Filed Aug. 4, 1877.

Brief.—The plow-frame is supported upon three wheels—two in front and one in the rear—all of which are vertically adjustable. The forward end of the frame is mounted upon a rocking bolster, by means of which and a lever and keeper the forward end of the frame can be raised or lowered without disturbing the position of the forward wheels. The plows are rigidly attached to the frame, and their vertical adjustment depends upon the simultaneous action of the rocking bolster and the hindmost wheel.



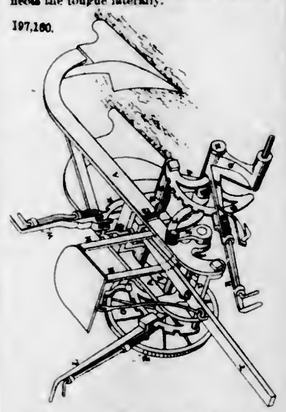
1. The bent arms H, supporting the front of the frame A, and journaled in the links or arms M, which project from the shaft N, said shaft turning in boxes upon the bolster O, and provided with the lever P, so that the plow-frame A may be raised and lowered, substantially as herein described.

2. The levers P and L, with their operative devices, as shown, in combination with the sliding guide T and connecting rods S and U, substantially as and for the purpose herein described.

197,160. GANG-PLOWS. Charles Mowrey, Stockton, Cal. Filed Mar. 23, 1877.

Brief.—The cranks and mechanism for uniting the plow-beams to the axle and elevating them. A lever to set the movable wheel-crank, and another to operate the entire axle, and both wheels to adjust the height of the plows. A casting forming axle-boxes, frame-braces, and lever rack. A hollow box to slide upon the axle, and fitted to receive the rear end of the pivoted tongue. It also forms bearings for a vertical crank-screw, which passes through the tongue, and raises or lowers it. To the box and the tongue a lever is attached, which deflects the tongue laterally.

197,160.



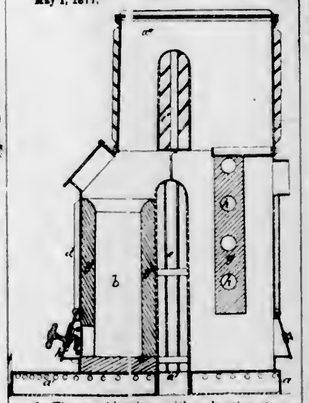
1. The plow-beams A, having the shaft E and arms F, connecting them with the axle, in combination with the arms J, united by the links K to the axle H, and the operating-lever L, whereby the plows are allowed to enter the ground or caused to rise out of it, substantially as herein described.

2. In combination with the beams A, connected with the axle H by the shaft E, arms F, the links K, arms J, and operating-lever L, the wheel, with its crank arm Q, mounted upon the axle H, substantially as herein described.

3. The rack X and the boxes D, formed in one casting, and so fitted to the frame A A as to support each other and the frame, substantially as herein described.

4. The box W, fitted to the shaft E so as to be moved from side to side, in combination with the lever W', tongue T, and screw V, said box being constructed to receive the end of the tongue, and to form journal-boxes, within which the crank-screw V turns, and elevates or depresses the pole, substantially as herein described.

197,161. STOVES. James Musgrave, Thomas F. Shillington, and John A. Hanna, Belfast, Ireland. Filed May 1, 1877.

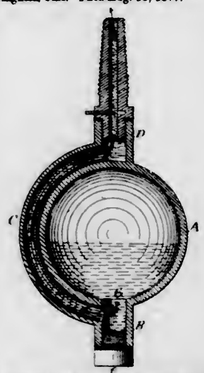


1. The combination, with a heating-stove having a combustion-chamber and rear descending and ascending draft-chambers, of the rectangular detachable portion a^2, divided into two connecting chambers by the air-space c^2, and adapted to join the combustion and the draft chambers when in position on the stove, constructed and arranged substantially as described and shown.

2. In a heating-stove, the combination of the water-base, the front fire-chamber, the back fire-chamber, the intermediate air-space *c*, the tubes *h*, and the air-door *k*, substantially as and for the purposes set forth.

3. In a slow-combustion heating-stove, substantially as described, the combination, with the fire-chamber *b*, of the draft-opening at the bottom of same, the grating or bars *s* in said opening, and the hinged air-door *k*, all constructed and arranged substantially as described and shown.

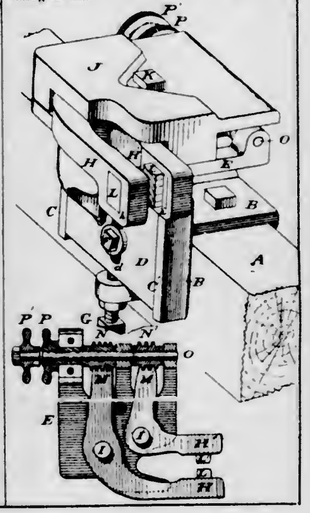
197,162. LUBRICATORS. Andrew G. Myers, Dayton, assignor of one-half his right to Abram S. Myers, Springfield, Ohio. Filed Aug. 16, 1877.



In combination with an oil-vessel, A, provided with stems or short tubes B D, and an external channel, C, one end of which leads into the oil reservoir, the detachable nozzle E, and the detachable plug *c*, interchangeable with each other, whereby the lubricator may be used either on stationary or rotating objects, substantially as herein set forth.

197,163. SAW-GUIDES. Edward Myers and Samuel R. Smith, Cincinnati, Ohio, assignors to Lane & Bodley Company, same place. Filed Sept. 27, 1877.

Brief.—Two L-shaped levers, whose inner extremities embrace the saw, and whose outer extremities mesh in two worms upon a common axis, and are capable of being rotated separately or simultaneously, so as to move either jaw independently or both together, and either to the right or left, while the saw-mill is in operation, are clamped between a vertically-adjustable guide-stock and a cap-plate, which serves as a rest or bearing for the log while being sawed.



1. In combination with the vertically-adjustable bracket B C C', the adjustable cap J, which serves the double purpose of clamp for the guide-jaws and rest for the timber being sawed, substantially as set forth.

2. The pair of L-shaped levers H I M H' I' M', whose inner extremities constitute guide-jaws H H', and whose outer extremities M M' intermesh with independent but co-axial worms N N', capable of independent or of simultaneous rotation by means of suitable hand-wheels P P', substantially as and for the purpose set forth.

3. In combination with a pair of guide-jaws, substantially as described, and with the stock E and screw-bolt K, the plate J, for protecting and clamping the jaws and for supporting the timber, substantially as set forth.

4. The guide-jaw stock E, in the described combination with bracket B C C', adjusting-screw ti, and clamp-screw F.

197,164. SPICE-CADDIES. Edwin Horton, Chicago, Ill. Filed Oct. 24, 1877



1. A can or caddy having its top door or lid provided with a groove or recess, stamped or otherwise formed, under the joint made in hinging on the cover, which is closed by the lid, for the purposes herein set forth.

2. A can provided with a partition at the bottom, inside the lower door, made wholly or partially of thin soft metal, or its equivalent, for the purposes herein set forth.

3. As an article of manufacture, the caddy A, constructed, as shown, with the projecting roll at the top for holding the label, the two side braces, the beveled outwardly-projecting door, and the inside partition, all substantially as and for the purposes herein set forth.

197,165. LAMPS. Leverett H. Olmsted, Brooklyn, N. Y. Filed June 22, 1877.



1. In a lamp of that class having a chimney-holder constructed to support the chimney, with its lower edge elevated above the cap at, or nearly at, a level with the top of the wick-tube, a wick-adjusting wheel applied within the opening between the chimney and the cap, and constructed for direct application to it of the thumb or finger, whereby the usual button for turning said wheel is dispensed with, substantially as herein described.

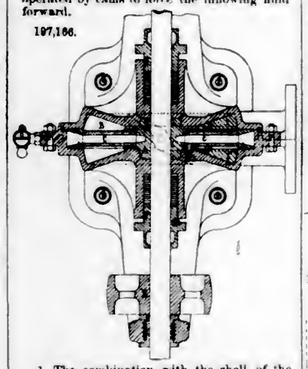
2. In a lamp in which the wick-tube is exposed between the cap and the bottom of the chimney-holder, the wick-adjusting wheel turning loosely on its axle or pivot, and adapted to be turned by direct application to it of the thumb or finger, substantially as herein described.

3. A wick-tube provided with a wick-raising attachment connected directly thereto at or near the top thereof, and outside of and above the lamp-cap, and directly independent thereof, of any attachment of the same.

197,166. ROTARY PUMPS. Victor U. J. Ortmans, Brussels, Belgium. Filed May 23, 1877.

Brief.—An upright mounted shell dividing centrally, within which revolves a disk carrying butterfly-valves in its recesses, which are operated by cams to force the inflowing fluid forward.

197,166.



1. The combination, with the shell, of the disk A, running at its periphery in a groove in said shell, and the butterfly-valves, adapted to close into cavities in the sides of such disk, substantially as described and shown.

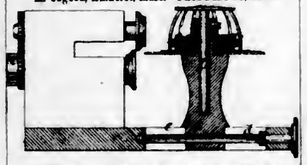
2. The combination, with the shell, of the disk A, running at its periphery in a groove in said shell, the butterfly valves closing into cavities in the sides of such disk, and the obturator-block I I', pressing close against the sides of the disk, substantially as described and shown.

3. The combination, with the disk A, having the depressions or cavities A', of the butterfly-valves, provided with the advance and trailing ends B B', and the shoulders B², substantially as described and shown.

4. The combination, with the disk A, of the butterfly-valves B B', the cams L, and the groove M, substantially as described.

5. The combination, with the obturator-blocks I I', of the plates N N', and the pipes N'', for utilizing the pressure of the fluid in the pump, substantially as described and shown.

197,167. MACHINES FOR TRIMMING HAT-BRIMS. O. M. Osgood, Amherst, Mass. Filed June 14, 1877.



1. The combination, in a machine for trimming hat-brims, of a cutting mechanism, a block supporting standard, a gage, and a hat-block, both the gage and the block being adapted to revolve on the standard, substantially as shown and described.

2. The combination, in a machine for trimming hat-brims, of a cutting mechanism, a block supporting standard, a mechanism for adjusting said standard toward and from the cutter, a gage, and a hat-block, both the gage and the hat-block being adapted to revolve on the standard, substantially as and for the purpose set forth.

3. In a machine for trimming hat-brims, a hat-block composed of a base provided with radially-adjustable supporting-points, a flexible shell fitting over said points, and a top plate secured to a pin extending through the center of the base, all constructed and operating substantially as shown and described.

197,168. BREECH-LOADING ORDNANCE. Wm. Palliser, London, England. Filed Oct. 15, 1877.

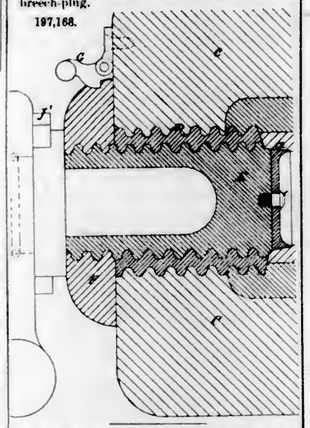
1. The combination of the screwed steel bush of the charging-hole with the gun-lining, having a rear screwed portion, and arranged to engage with said bush, as and for the purpose set forth.

2. The combination of the screwed plug E with the hinged collar F, latch G, and spring-pin H, substantially in the manner and for the purposes herein set forth.

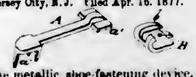
3. In a breech-loading cannon, the combination of a charging-hole having a greater diameter than the bore of the gun, and provided with a curved-face screw-thread, with a breech-plug having a screw-thread of corresponding conformation.

4. In a breech-loading cannon, the combination of the steel bush of the charging-hole and the breech-plug, said steel bush being provided, both externally and internally, with curved or rounded fluted screw-threads adapted for engaging with screw-threads of corresponding shape in the charging-hole and in the breech-plug.

197,168.

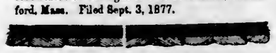


197,169. SHOE-FASTENERS. George D. Paul, Orange, assignor of one-half his right to Parker P. Paul, Jersey City, N. J. Filed Apr. 16, 1877.



The metallic shoe-fastening device, consisting of the fastener A, provided with attaching-prongs at one end, and a transverse locking-head, *a'*, at the opposite end, and the catch B, provided with recesses *b*, as shown and described, adapted to receive the transverse head, for the purpose set forth.

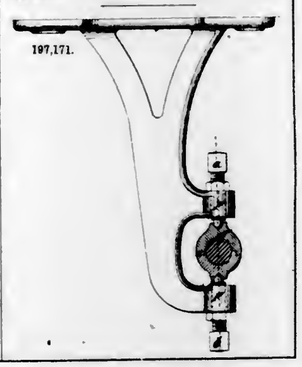
197,170. ROOFING. Lewis Peirce, Salem, assignor of four-tenths of his right to Geo. T. Sheldon, Chelmsford, Mass. Filed Sept. 3, 1877.



1. In a roofing composed of two or more layers of prepared cloth, or its equivalent, a layer of paper interposed between the layers of cloth, substantially as herein set forth.

2. In a roofing composed of two or more layers of prepared cloth, or its equivalent, a layer of paper interposed between the roof and the cloth, and another layer of paper interposed between the layers of cloth, as herein set forth.

197,171.



197,171. SHAFT-HANGERS. Paul Pryibil, New York, N. Y. Filed Oct. 16, 1877.

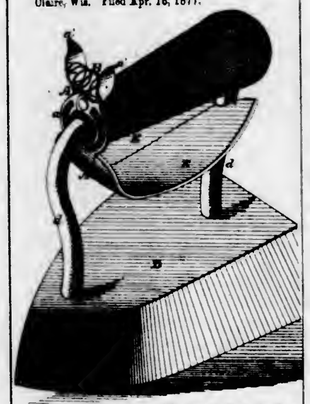
The combination, with the hanger, of the screws *a* and *b*, and the box constructed with a center seat for one of said screws, and an oblong arc-bottomed seat for the other of said screws, substantially as and for the purpose specified.

197,172. BARBED FENCES. Frank G. Randall, Joliet, Ill. Filed June 21, 1877.



The barb S, constructed of two pieces of wire twisted together, leaving the four ends of the two wires turned out to form barbs, and twisted laterally in between the two wires of the cable *c*, in the manner and for the purpose set forth.

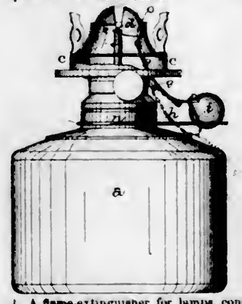
197,173. SAD-IRON HOLDERS. William Reinhard, Eau Claire, Wis. Filed Apr. 16, 1877.



1. In combination with the holder C, the pivoted jaws A, having the curved portions *a* and thumb-pieces *a'*, and the spring B, interposed between said thumb-pieces, substantially as and for the purpose specified.

2. The hereinbefore-described flat-iron holder, consisting of the jaws A, constructed as shown, and pivoted together, the flexible pad C, attached to said jaws, the spring B, placed between the upper ends of the latter, and the shield E, attached to their lower ends, said parts being combined to operate in the manner and for the purpose substantially as set forth.

197,174. LAMP-EXTINGUISHERS. Frank Rhind, Brooklyn, N. Y. Filed Nov. 27, 1876.



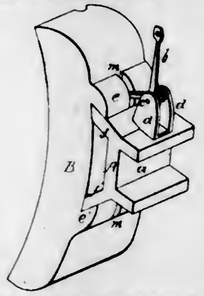
1. A flame-extinguisher for lamps, consisting of a pivoted part, *d*, that forms one-half of the cone of the burner, substantially as shown.

2. The combination of the pivoted part *d* with an operating-lever, *g*, substantially as shown and described.

3. The combination of the lever *g*, pivoted part *d*, and a weight attached to the lever by means of a cord or chain, substantially as specified.

4. The combination of the pivoted part *d*, lever *g*, chain *h*, weight *i*, and holder *n*, substantially as described.

197,175. CAR-BRAKES. Winfield S. Richardson, Philadelphia, Pa. Filed Sept. 13, 1877.



The combination of the sole-plate B and its inclined lugs *e e'*, having slots *m*, with the brake-shoe A, its inclined projections *f f*, slot *i*, and a pin or hook adapted to the slots *m* and *i*, and serving to retain the sole-plate in position laterally on the shoe, as set forth.

197,176. BUTTON-FASTENINGS. William Richardson, Boston, Mass. Filed Oct. 4, 1877.

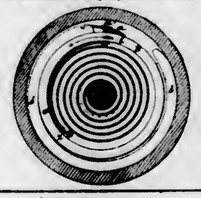


1. A metallic button-fastening, adapted to receive the shank of a button, provided with yielding sides, shaped as shown, and flaring ends, and having lugs, by which the yielding sides are supported on the material to which the button-fastening is secured, as described.

2. A metallic button-fastening, having yielding sides, conversely shaped to each other, adapted to embrace the shank of a button, and fastened in position by loops *g*, and provided with the stops *f*, as described.

197,177. FRICTION-CLUTCHES. Charles H. Robinson, St. Paul, Minn. Filed May 7, 1877.

Brief.—The rubber strap inclosed within the shell contracts upon itself, and crowds against the friction-surface in a radial direction, securing efficient action to propel revolving bodies.

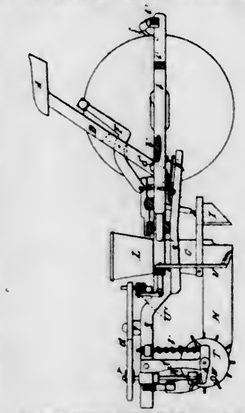


1. A friction-clutch for propelling revolving bodies, consisting of a strap, of rubber or other similar elastic or contractible material, inclosed within a case, substantially as and for the purpose set forth.

2. A rubber strap, in combination with the clamp *a* and screw *a'* and spool, substantially as and for the purpose set forth.

3. The spring S, bent at *s*, forming piece *e* and stop *i*, constructed and arranged to operate substantially as and for the purpose set forth.

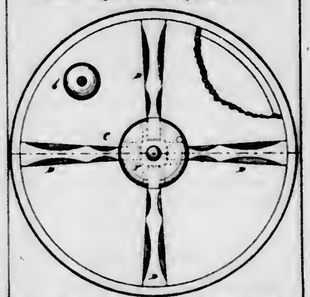
197,178. CORN-PLANTERS. Jean Rosenkrans, Allen Township, La Salle County, Ill. Filed Aug. 24, 1877.



1. In combination with the feed-grain boxes L, having oscillating valves M, and dropper-spouts O, having tongues *p*, the rod P, lever Q, shaft R, with crank *r* and pinion *t*, and wheel T, all constructed and arranged within a frame, G, having runners H and plows I, substantially as described, to operate as specified.

2. The combination, with the frame B and adjustable seat-standard D, of the lever F, pivoted in the said seat-standard, the extension *g'* of the front frame, the rod *r*, and chain V, whereby the position of the seat-standard and its seat can be changed without interfering with the operation of the lever F, substantially as described and shown.

197,179. CLAMPS FOR BARREL-HEADS. Thomas O. Seaman, Chicago, Ill. Filed Sept. 24, 1877.



1. A clamp consisting of a toggle having two or more arms or levers, the free ends of which are adapted to enter the inner face of the chine, substantially as and for the purposes specified.

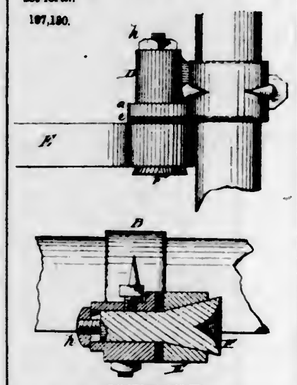
2. A clamp consisting of the combination of the center block E, the arms D D, two or more, and the rotary locking-disk F, substantially as and for the purposes specified.

197,180. THILL-COUPLINGS. H. A. Seymour and Oscar Allen, Mount Morris, N. Y. Filed Oct. 20, 1877.

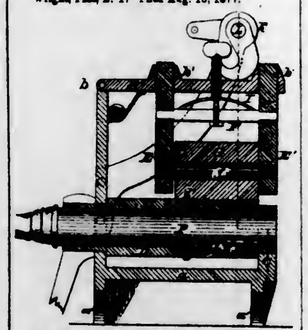
The combination with the clip B, of the cross-piece H, formed with the sleeve D and collar *a*, the thill-iron E, the conical-headed bolt F,

flattened on one or more sides, the nut A, and the set-screw I, all constructed and arranged substantially as and for the purposes herein set forth.

197,180.



197,181. EMBOSSING-MACHINES FOR WEARING-APPAREL. John Steinlein, Egg Harbor, N. J., and Geo. Wright, Pike, N. Y. Filed Aug. 13, 1877.



1. A machine for producing raised or sunken ornaments upon wearing-apparel, consisting, essentially, of a suitable frame and two rollers, one of which, being provided on its circumference with the design to be produced, is hollow, or otherwise adapted in construction to be heated, and the other is made of flexible rubber, having a smooth periphery, and capable of forming a counterpart of the former under pressure, substantially in the manner and for the purpose stated.

2. In an embossing-machine for wearing-apparel, a hollow roller adapted to be heated from its interior, having on its outside a removable shell provided with raised or sunken ornaments in its circumference, in combination with a flexible rubber roller having a smooth periphery, capable of forming counterparts of the ornaments upon a series of removable interchangeable shells when in place and under pressure, substantially as and for the purposes set forth.

3. The combination, with the upper roller of an embossing-machine, of the bars E E', having their angular shanks *e e'* fitting correspondingly-shaped sockets *b b'* in the plate B, the cross-bar F, loosely connecting said bars E E', spring I, and set-screw H, as and for the purpose specified.

197,182. GRAIN-BINDERS. Wm. A. Sutphin, Washington, D. C. Filed Nov. 8, 1877.

1. A frame or carriage having a wheel and pawls pivoted thereto, in combination with a driving-chain traveling continuously in one direction over suitable pulleys, and connected to said wheel by a wrist-pin, substantially as described, whereby a reciprocating movement is imparted to the sliding carriage and a semi-rotation given to the wheel at each interval of rest of the carriage at the ends of its movement in reciprocating.

2. The combination of a carriage, driving-chain, wheel, and pawls on the carriage, and fixed stops on the binder-frame, substantially as described, whereby the pawls will be automatically disengaged from the ratchet or stop on the wheel, and the movement of the carriage limited.

3. The combination, substantially as herein before set forth, of a reciprocating carriage, a wheel, provided with a cam-groove, journaled thereto, a sliding bar, and a binding or wire-carrying arm, whereby, as the wheel is given a semi-rotation, the binder-arm will be vibrated, or its needle end caused to rise and fall.

4. The combination of a reciprocating carriage, a wheel provided with a segmental rack, journaled thereto, and a twister, substantially as described, whereby a rotary motion is imparted to said twister by the semi-rotation of the wheel during the interval of rest of the carriage.

5. The combination of a carriage having a wheel and pawls pivoted thereto, a driving-chain connected to said wheel by a wrist-pin, a binding-arm, and a twister, substantially as described, so that by the continuous motion in one direction of the driving-chain the carriage will be reciprocated with an interval of rest at each end of its movement, the binder-arm vibrated, and the twister rotated.

6. The combination of a grain receptacle, a reciprocating binding-carriage having an interval of rest at the ends of its movement, a wheel journaled to said carriage, a binding or wire-carrying arm and twister, substantially as described, whereby the grain in the receptacle is gathered into a gavel, encircled with the band, and during the interval of rest of the carriage the binding of the bundle completed.

7. The combination of a reciprocating binder-carriage having intervals of rest at the ends of the reciprocation, a binder-arm, and a twister automatically operated to twist the wire during said intervals, substantially as described.

8. The combination of a binding or wire-carrying arm and a spring-compressor attached to said arm at or near the pivot on which it vibrates, and substantially longitudinal thereto, substantially as described.

9. The combination of the band-carrying arm with a fork or prongs, substantially as described, whereby the bundle will be held in a fixed relation to the binding-arm during the delivery of said bundle.

10. The combination of a spool and ratchet-wheel with a pawl controlled by the band, substantially as described.

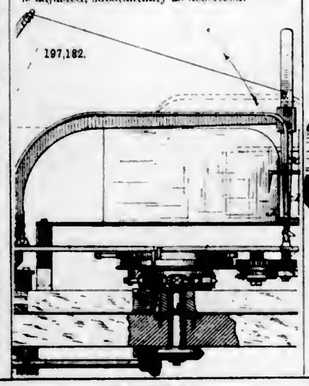
11. The combination of a spool, a pawl and band-guide, a binding-arm, and a band drawn from the spool over the guide by the binding-arm, substantially as described.

12. A dummy-gavel, substantially as herein before set forth.

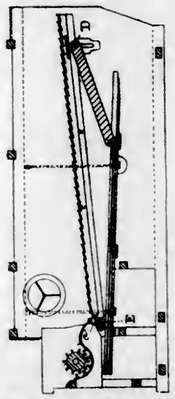
13. The combination, substantially as herein before set forth, of a twister, a dummy gavel, and a binding-arm, whereby, during the absence of a gavel of grain, the band will be received by the dummy-gavel and the regular movements of the binder continued without liability of knotting the band or breaking the end thereof away from the twister.

14. A binding mechanism supported on a horizontally-vibrating binder-frame, in combination with a driving-shaft, D², concentric with the tubular journal on which the binder is adjusted, substantially as described.

197,182.

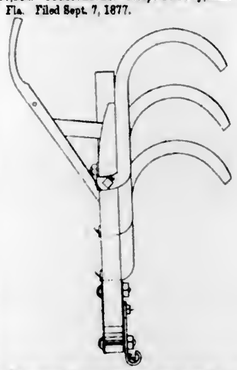


197,183. GRAIN-SEPARATORS. Jas. B. Beitt, Indianapolis, Ind., assignor of one-half his right to Lewis W. Hasselman, same place. Filed July 3, 1877.



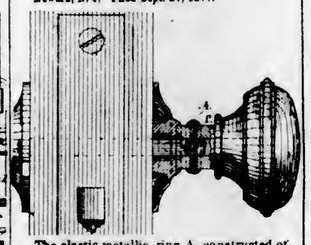
The separating-floor composed of reciprocating sections *c*, mounted at the rear upon crank-shaft D, and provided at their front ends with inclined guide-pieces *c'*, in combination with the bar E, substantially as herein shown and described.

197,184. CULTIVATORS. Joseph P. Terry, Lake City, Fla. Filed Sept. 7, 1877.



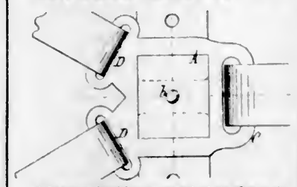
The curved plow-standards having the right-angular arm *c*, the lip *f*, and the flange *g*, in combination with the beams having lateral notches or slots, as shown and described.

197,185. DOOR-KNOB FASTENINGS. Jas. A. Thomson, Newark, N. J. Filed Sept. 27, 1877.



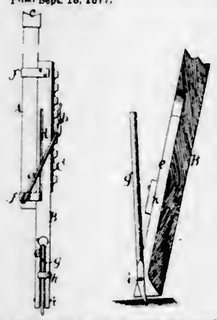
The elastic metallic ring A, constructed of concave section, to fit the head or end of a pin, P, passing through the collet and spindle of a door-knob, and provided with a partial notch, to pass readily over the projecting end of the pin, and made with overlapping ends at the elastic joint, so that when sprung into its place on the shank of the knob the joint may be fully concealed.

197,186. HARNESS-BUCKLES. Wm. F. Van Keuren, Buffalo, N. Y., assignor of one-fourth his right to Pratt & Letchworth. Filed Mar. 17, 1877.



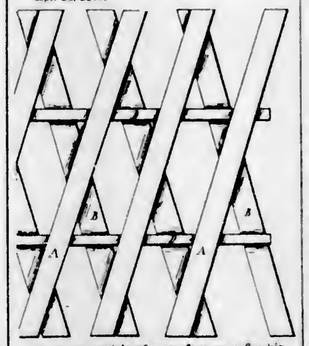
A harness buckle composed of the frame A, provided with central bar B, having a stud, *b*, and a front loop, C, and two angular rear loops, D D, substantially as and for the purpose herein before set forth.

197,187. DOOR-SHOURERS. August Voege, Brooklyn, N. Y. Filed Sept. 18, 1877.



In an adjustable brace or prop, the combination of one or more slides, A B, rack C, reversible pawl b, spring-collar *a*, sleeves *f*, cap *c*, screws *e*, lever or retaining pin *g*, pivot *i*, turn-button *h*, and guide-slot *d*, substantially as described, and for the purposes set forth.

197,188. FIRE-KINDLERS. John P. Wagner, Cleveland, Ohio, assignor to John Herig & Sons. Filed Apr. 14, 1877.

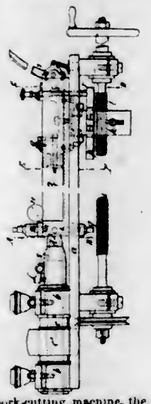


As a new article of manufacture, a fire-kindler consisting of a section of wood strips, A, arranged parallel in relation to each other, and a section of strips of wood, B, arranged parallel in relation to each other, and diagonally in their relation to and in combination with the strips A, to which they are united by interposed binders D D, inserted in gains cut in said sections of strips, and the structure treated with a coating of combustible material specified, in the manner substantially as described.

197,189. MACHINES FOR CUTTING CORK. Thomas A. Warrington and Charles Harwood, London, England; said Harwood assignor to said Warrington. Filed May 22, 1877.

Brief.—A knife in front of cutter-head scores the block, and prevents the coiling of the chip to obstruct the machine.

197,189.



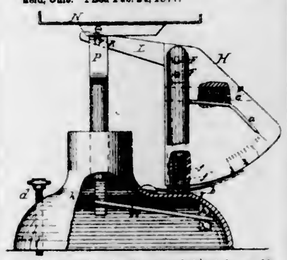
1. In a cork-cutting machine, the combination, with the spindle and the cutter *d*, of the knives *i*, constructed and arranged substantially as described and shown.

2. The combination, with the sliding head *j* and screw *l*, of the split nut *k*, the parts of which are hinged together, and the bolt and spring *t*, for holding the said parts in position, constructed and arranged substantially as described and shown.

3. The combination, with the sliding head *j*, of the stones or other sharpeners *n*, secured thereto, and the adjusting-screws *o*, for sharpening the cutter when the head is brought into contact with the same, constructed and arranged substantially as described and shown.

4. The guide or guides *g*, the knives or blades *i*, and the slide or sliding head *j*, with its adjuncts, combined and operating as above described, and for the purposes specified.

197,190. PENDULUM-SCALES. H. M. Weaver, Mansfield, Ohio. Filed Feb. 24, 1877.



1. In a scale, the bent weighted lever H, provided with apertures *e' f'*, in which are inserted the adjustable counter-balances *e f*, substantially as set forth.

2. In a scale, the bent lever H, furnished on one side with a dial-face and mounted in properly-constructed bearings, substantially as set forth.

3. The bent lever H, provided with knife-edges I T and bearings E K, in combination with the forked arm P, substantially as set forth.

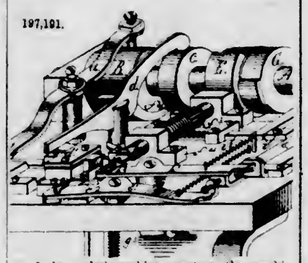
4. In a weighing-scale, a brake for stopping the vibration of the part or parts of the scale, substantially as set forth.

5. In a weighing-scale, a counter-balance capable of adjustment for the purpose of regulating the capacity of the scale, as set forth.

6. The bent lever H, provided with knife-edges I T, in combination with the forked platform-bearing arm P, connection W, knife-edges k, and lug X, substantially as expressed.

197,191. MACHINES FOR MAKING CHAINS. George B. Whitney, North Attleborough, Mass. Filed July 2, 1877.

197,191.



1. In a chain-making machine, the combination, with intermittent feed and clamping mechanism, of two reciprocating jaws, a reciprocating former located between said jaws, and a cutter, substantially as described.

2. In a chain-making machine, the combination, with intermittent feed and clamping mechanism, of two reciprocating jaws, a reciprocating former located between said jaws, a cutter arranged to cut desired length of blank, and a yielding fork, substantially as described.

3. In a chain-making machine, the combination, with a reciprocating former and a yielding fork adapted to hold the blank against the former, of two reciprocating jaws, one of which has a rotary movement, substantially as described.

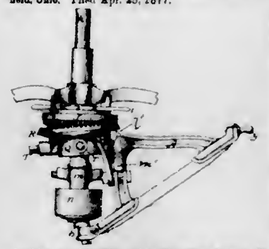
4. In a chain-making machine, the combination, with an intermittent feed mechanism and cutter, a reciprocating former, and means for holding the blank in contact therewith, of two reciprocating jaws, working on opposite sides of the former, one of said jaws arranged and adapted to force the blank partly around the former, and when the blank is closed by the opposite jaw to withdraw the link, partly rotate the same, and carry it forward, to allow the following blank to pass through the finished link, substantially as described.

5. The combination, with the driving-shaft and cam secured thereto, of the reciprocating shaft, provided with the jaw *f'*, and means, substantially as described, for imparting partial rotation to the reciprocating shaft, substantially as described.

6. In a chain-making machine, the combination, with the cutter *e'*, former *g*, and jaw *h'*, of the reciprocating and rotating jaw *f'* and means, substantially as shown and described, whereby a continuous chain is made from a coil of wire, substantially as described.

7. In a chain-making machine, the combination, with a reciprocating former, of two reciprocating jaws, and means, substantially as described, whereby one of said jaws forces the blank partially around the former, and after the opposite jaw has closed the link said jaw removes the link from the former, partly rotates the link, and returns the same to allow the next blank to be inserted in said link, substantially as described.

197,192. HARVESTERS. William E. Whiteley, Springfield, Ohio. Filed Apr. 25, 1877.



1. The combination of a vibrating frame, F, having boxes *l m* to support a shaft, *k*, for the master-wheel, differential gear-wheels J K (one of which oscillates) upon the shaft outside of said main wheel, crank *o* outside of said frame, and a vibrating frame, A, whereby motion is transmitted to the cutters.

2. The shaft *k*, resting at one end in the box *l*, combined with the box *m*, to receive the other end of said shaft, said box *m* being provided with cross bearings for the gimbale T T, and with an end socket to receive the crank-shaft *o*.

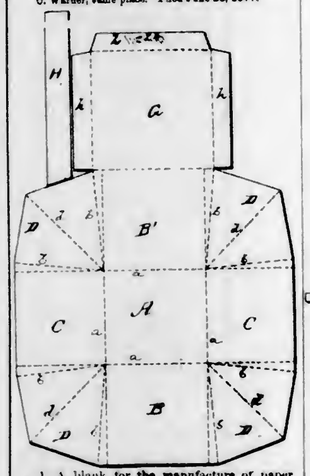
3. The differential wheels J R, one of which oscillates, combined with the sectional shield-plate secured to the pawl-case, to prevent dirt, &c., from dropping off the wheel into said gearing.

4. The oscillating gear K, provided with lugs *i*, radiating from the center, and projecting beyond the outer periphery of said wheel, and arm *m'*, parallel with the axis of said wheel, combined with the vibrating frame A, constructed with straddling feet adapted to stand upon said lugs, and an arm or cross-bar adapted to seat upon the arm *m'*, the whole to be secured there by bolts, as set forth.

197,193. UTILIZING BESSEMER-STEEL SCRAP. Oliver Williams, Catasauqua, Pa. Filed Mar. 29, 1877.

The mode herein described of utilizing Bessemer-steel scraps—that is to say, by placing a mass of the scraps on the bed of the furnace, a mass of cast-iron on the scraps, and, when the cast-iron is melted, puddling it with the steel, all as set forth.

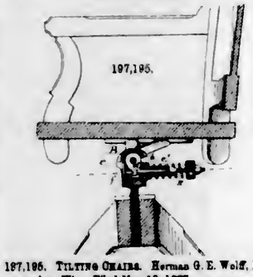
197,194. PAPER BOXES. James F. Winchell, Springfield, Ohio, assignor to Russell A. Scarff and Arthur O. Warner, same place. Filed June 28, 1877.



1. A blank for the manufacture of paper boxes, consisting of the bottom A, front B, back B', ends or sides C, double triangular corner-pieces D, cover G, with flanges k and handle H, all cut in one piece, substantially as shown.

2. A paper box consisting of the bottom A, front B, back B', sides C, double triangular corner-pieces D, cover G, with flanges k and handle H, all constructed and fastened together in the manner substantially as set forth.

197,195.

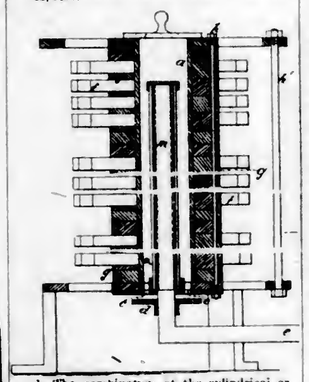


197,196. TILTING CHAIRS. Herman G. E. Wolff, Milwaukee, Wis. Filed May 12, 1877.

Brief.—A metallic plate, having a central curved portion provided with projecting lugs, is attached to the chair bottom, and is connected with a casing on the upper end of the screw by a pivot-bolt passing through the lugs and the ends of the casing. A rod extending horizontally from the rear of the casing, having a spiral spring and screw adjustment thereon, carries at its front end a plate having knife-edges formed thereon, which engage with notches in the lugs projecting from the metallic plate. When the chair is tilted, the lugs, turning on the pivot-pin, press against the knife-edges, which draws the rod and compresses the spring, thus giving an easy motion to the chair.

In a revolving chair, the frame *a a*, provided with the curved plate *b* and lugs *b*, in combination with the casing C, provided with the shoulders *c c'*, rod E, provided with the sliding plate *c'*, having the beveled or knife-blade projections *f' f'*, and the spiral spring *s*, all combined to operate substantially as and for the purpose set forth.

197,196. THERMO-ELECTRIC PILES. Ocell Wray and Leonard Wray, Jr., Ramsgate, England. Filed Feb. 12, 1877.



1. The combination of the cylindrical or other shaped casing *a*, made of or coated with earthen-ware or other suitable insulating material, and constituting a central cylindrical or other suitably-shaped heating-chamber, with any number of thermo-electric bars *f* arranged radially around it in such a manner that their inner ends will abut against and be in direct contact with the heated surface of the central heating-chamber or its insulating envelope, as and for the purpose substantially as herein set forth.

2. The central cylindrical or other suitably-formed heating-chamber, constructed with a vertical opening, which is closed by doors *j j*, as shown at Figs. 11 and 12, when the said chamber is heated by means of solid fuel, such as charcoal, coal, or coke.

3. The combination of a number of thermo-electric bars in horizontal layers or vertical series, with horizontal insulating disks or plates between them, and provided with blocks or projections to support the superincumbent weight, the whole being arranged and bound together as herein set forth, so that a thermo-electric pile may be formed of any convenient number of sections, according to the required power, instead of being formed of a large number of loose or separate thermo-electric bars, as heretofore.

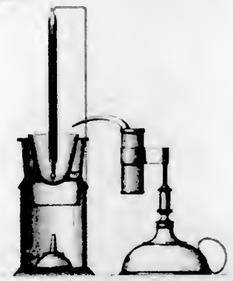
4. The combination, with the separating or insulating disks, plates, or frames *g*, of the blocks *g'*, which may be either fixed on or form part of the said disks, plates, or frames, or may be detached therefrom, and separately built up thereon, for the purpose of supporting the superincumbent weight, and relieving the thermo-electric bars *f* from undue pressure, as shown and described in reference to Figs. 4 and 5.

5. The combination, with the negative bar *f*, of a positive bar, *i*, provided with an enlarged or dovetailed end, as and for the purpose herein set forth.

6. The combination, with the negative bars *f*, of connecting-pieces *f*², provided with elongated tails or ends, which are inserted in the negative bars, as and for the purposes herein set forth and described in reference to Figs. 6, 7, and 8.

197,197. APPARATUS FOR TESTING THE IGNITING TEMPERATURE OF HYDROCARBON FLUIDS. F. B. Squire, Cleveland, Ohio. Filed Aug. 4, 1877.

197,197.



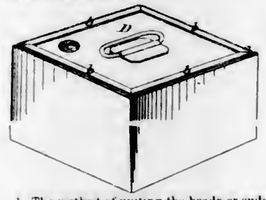
1. In an apparatus for ascertaining the igniting temperature of hydrocarbon fluid, the combination of a water-bath with a fluid-holding reservoir, having a sharpened upper edge, or a reservoir having, practically, no surface for holding a film of fluid above the level of the main body thereof, substantially as herein shown and described.

2. In an apparatus for ascertaining the igniting temperature of hydrocarbon fluid, the combination of a fluid-holding reservoir and a vertically and circumferentially adjustable flame-holding or flame-supporting device, adapted to admit of the movement of the flame over or across the surface of the fluid at a regular specified vertical distance therefrom, substantially as and for the purpose herein specified.

3. In an apparatus for ascertaining the igniting temperature of hydrocarbon fluid, the combination of a fluid-holding reservoir, and a thermometer graduated from the upper part of the bulb into equal spaces, independently of the thermometrical scale, to indicate the depth of its immersion in the said fluid, and for the purpose of adjusting the igniting-flame to a required distance above the surface of the same, substantially as herein described.

REISSUES.

7,942. METALLIC VESSELS. Edward T. Covell, New Bedford, Mass. Patent No. 167,504, dated Sept. 7, 1875. Filed Oct. 23, 1877.



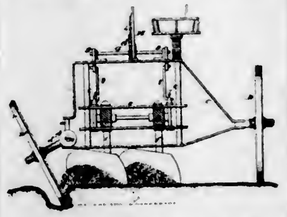
1. The method of uniting the heads or ends with the body of metallic cans or vessels by forming upon the heads upright flanges at right angles, which are turned over the sides of the body of the can and bent inwardly upon the heads, whereby the use of internal mandrels or inside supports may be dispensed with, and both heads secured to the body by the same means and same manner, substantially as set forth.

2. A metallic can or vessel the heads or ends of which are united with the body thereof by means of a flange bent down inwardly on the top and bottom heads, said flange being formed by the turning of the head-flange over the side of the can-body, substantially as herein shown and set forth.

3. In a metallic vessel, the combination of a sunken metallic head or end, an outer head or filling-piece, and projecting edges formed by the can-body and sunken head, and inwardly bent down upon the outer head or filling-piece, as and for the purposes described.

4. The combination, in a metallic can or vessel, of the following elements, namely: a sunken metallic head or end, an outer wooden head or filling-piece, an external covering metallic plate, and projecting edges inwardly bent upon said covering-plate, substantially as shown and described.

7,943. SULKY-PLOWS. William L. Cassaday, New Carlisle, Ind. Patent No. 176,836, dated May 2, 1876. Filed Aug. 29, 1877.



1. A sulky-plow, one of the wheels of which is adjustable to an inclined position from the vertical, substantially as and for the purposes described.

2. The skeleton axle C, united to the frame or axle proper by the posts *c c*, and having a fixed wheel-spindle at one end and at the other end a spindle capable of oblique adjustment, whereby the wheel is adjusted to stand vertical or at an inclined angle from the other, substantially as shown and described.

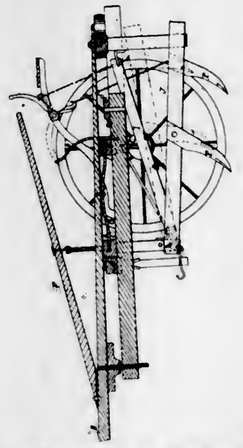
3. The skeleton axle-tree C, provided with guide-braces *c*, in combination with the slotted plates *e e* sliding thereon, and with the plow beam or beams A A, whereby the plows are adjustable to any desirable depth and width of furrow, substantially as and for the purpose described.

4. The combination of the beam or beams A A, plates *e e*, axle-tree C, links *l*, shaft G, with arms *g*, and lever H, whereby the said plow is operated, substantially in the manner and for the purpose set forth.

5. The block d^1, swiveled upon the axle *a* and held at any point of adjustment thereon by set-screws *s*, in combination with the wheel-spindle d^1, placed at right angles therewith, the two adjustably connected by ratchet-disks, whereby the wheel D^1 may be adjusted to various angles to the axle, substantially as shown and described.

6. In a sulky-plow, the wheel D^1, provided with an angular pointed rim, r, in combination with the frame C, having the adjustable spindle and axle *a*, and the wheel-spindle d^1, substantially as shown and described.

7,944. CULTIVATORS. Henry L. Boston, Sidney, Iowa, assignor to Wm. A. Knowlton. Patent No. 37,166, dated Dec. 16, 1862. Filed June 25, 1877.

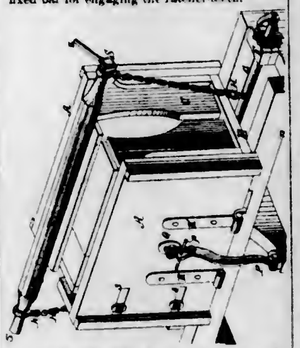


1. The arrangement of the sliding bars C C', draft-pole D, bar E, and lever F, in connection with the frames J J, having the plows P attached, all arranged as and for the purpose hereinbefore set forth.

2. The combination, with a double-tree pivoted in rear of the supporting-axle of the cultivator, of pendants located in advance of said axle, and rigid draft-rods directly connecting the outer ends of the double-tree with the lower ends of said pendants, substantially as described.

7,945. TOBACCO-PRESSES. Simon B. Minnich, Leandsville, Pa. Patent No. 173,736, dated Feb. 22, 1876. Filed Mar. 16, 1877.

Brief.—The cross-beam resting on the follower may be shifted sidewise while under pressure. The hand-lever is provided with a fixed bar for engaging the ratchet-teeth.



1. In combination with the hinged sides A and sections C to form the ends, the hinged lock-brace P Q, for uniting or retaining the parts under pressure, substantially as and for the purpose specified.

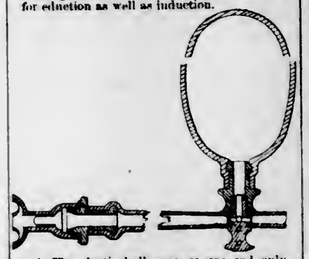
2. In combination with the removable hinged sides A, provided with slots *s*, the adjustable end pieces C, as and for the purpose mentioned.

3. The rotary press-beam S, in combination with the lever Z, for rotating the same, in order to adjust the pressure without relaxing the chain, substantially as herein set forth.

4. In a bifurcated lever, L, the simple central pin or bolt, for operating the teeth of the ratchet, and so that either of the double sides of the lever may be turned up and used, the whole constructed and operating as herein specified.

7,946. ENEMA-SYRINGES. Francis B. Richardson, Boston, Mass. Patent No. 31,626, dated Mar. 5, 1861. Filed Aug. 4, 1877.

Brief.—A two-part connection joins the bulb to a single continuous rubber tube, which serves for eduction as well as induction.

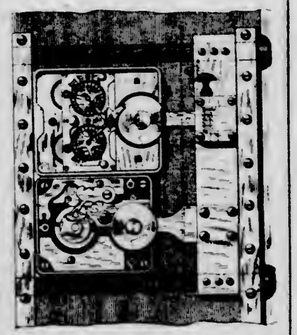


1. The elastic bulb open at one end only, and the syringe tube or conduit, in combination with a two-part tubular metallic connection attached the one part to the bulb and the other part to the syringe tube or conduit, and adapted to be joined so as to put the tube or conduit and the bulb in communication, substantially as set forth.

2. The bulb-and-tube connection, made in two separate tubular parts, *b c*, respectively inserted in or applied to an elastic bulb open at one end only, and to the tube or connection of the valve-chambers, and so as to operate therewith, or connect the bulb and valve chambers, substantially in the manner and for the purpose described.

3. A syringe having a removable elastic bulb open at one end only, and provided at that end with a screw-threaded metallic connection, which is adapted to be detachably connected with a corresponding part on the syringe, and can be used interchangeably with different forms of pipes, substantially as set forth.

7,947. COMBINED TIME-LOCK, COMBINATION-LOCK, AND BOLT-WORK FOR SAFES. Jas. Sargent, Rochester, N. Y. Patent No. 195,539, dated Sept. 25, 1877. Filed Oct. 8, 1877.



1. The combination, with the bolt-work of a safe or vault door, of a time-lock and a combination or key-lock, both applied independently on a safe, vault, or other door, so as to rest against or connect with the bolt-work on said door, and provided with a device whereby the bolt-work may be retained in the unlocked position for shutting the door, and be automatically locked by the time-lock and mechanically by the combination or key lock when the bolt-work is cast, the whole so arranged that the bolt-work cannot be withdrawn when locked till both locks have been unlocked.

2. The combination of a time-lock and a combination or key lock, both constructed to be applied on a safe, vault, or other door, so as to rest against the bolt-work, and provided with a lock-bolt or obstruction having an opening or offset, which is automatically brought into and out of coincidence with the tongue of the bolt-work, whereby the bolt-work may be retained in the unlocked position for shutting the door, and prevented from being retracted when locked until both locks have been unlocked.

3. The combination, with the bolt-work of a safe or vault door, of a combination or key lock controllable mechanically from the exterior of said door, with a time-lock having a lock-bolt or obstruction for locking and unlocking controllable from the interior of the door, both of said locks being arranged so as to rest against or connect with the bolt-work, the time-lock being automatically unlocked by the operation of the time-movement, both of said locks being independent of each other, and arranged to control the locking and unlocking of the bolt-work, so that said safe or vault door cannot be opened when locked until both of said locks have been unlocked or have released their dogging action to enable the door to be opened, substantially as described.

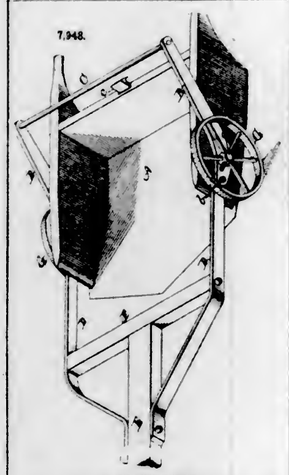
7,948. ROAD-SCRAPERS. Friedrich W. Schuls, Mount Pleasant, Iowa, assignor, by mesne assignments, to Isaac Stubs and O. H. Smith, same place. Patent No. 155,759, dated Oct. 6, 1874. Filed Oct. 15, 1877.

1. In a road-scraper, the frame-bars B B, journaled at their forward ends to the box A, and provided with supporting-wheels G, in combination with the draft-bars D, in such manner that the said box may be turned over upon the draft-bars and supported on the wheels, substantially as and for the purpose specified.

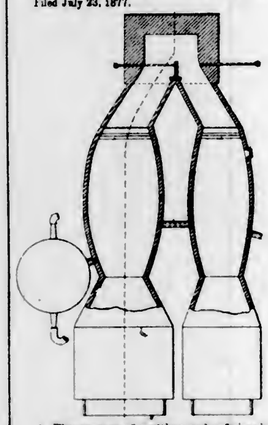
2. The combination of the spring-catch *e* with the frame B D C, the wheels G, and the box A, whereby the said frame may be securely locked to the said box, substantially as and for the purpose specified.

3. In combination with the tongue E, cross-bar F, and bars D D, connected to the tongue and pivoted to the front ends of the sides of the box A, the frame B B C, pivoted to the ends of bars D, and carrying the wheels G G, so that the scraper-box and frame B C may be folded forward and lie upside down upon the tongue and bars D, as set forth.

7,948.



7,949. TREATING IRON. William Sleicher, Jr., Troy, N. Y. Patent No. 168,293, dated Sept. 28, 1875. Filed July 23, 1877.



1. The process of melting and refining iron by adding in the cupola a fuel of about two-thirds coke and about one-third charcoal, and subjecting the metal to the action of a flame reflected or reverberated upon a bed or hearth, to which the metal is run from the cupola, substantially as herein specified.

2. The combination of a reverberatory furnace, having a spout for running off refined metal, a chimney in communication with said furnace, and a cupola having a trough wholly exterior of the chimney, but leading the metal direct to the furnace, substantially as herein set forth.

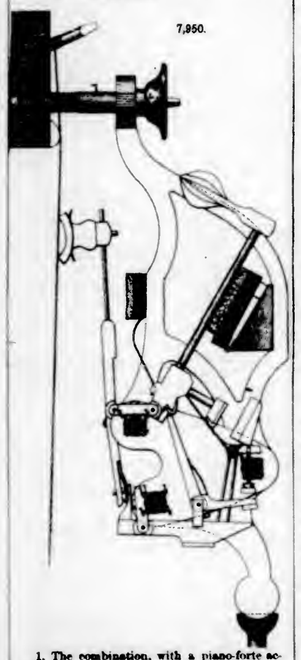
3. In combination, a cupola, a pair of independent reverberatory furnaces, and a chimney common to both, the furnaces being capable of joint or independent action in the process of melting and refining iron, substantially as set forth.

4. In combination with a cupola, a high and a low independent reverberatory furnace, leading from one to the other by a trough or spout, and a chimney common to and communicating with both furnaces, substantially as and for the purpose specified.

7,960. PIANO-ACTION FRAMES. C. F. T. Steinway, New York, N. Y., assignor, by mesne assignments, to himself and Wm. Steinway. Patent No. 81,306, dated Aug. 18, 1868. Filed Oct. 26, 1877.

Brief.—The frame supporting the action is of metal, is secured to the wrest-plank, and is made adjustable thereto.

7,950.



1. The combination, with a piano-forte action, of a metallic frame composed of hangers or standards, and of metallic traverses which are secured to or in said hangers or standards, and which form the support for the parts constituting the mechanism of the action, substantially as herein shown and described.

2. The combination, with the action of an upright piano-forte, and with the wrest-plank thereof, of hangers secured directly to the wrest-plank, and connected together by traverses which support the various parts composing the action, substantially as and for the purpose set forth.

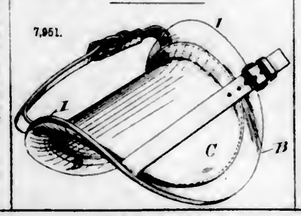
3. The combination, in an action-frame for piano-fortes, of metallic hangers or standards with flanged metallic rods or flanged tubes filled with wood, and forming traverses connecting the hangers or standards, substantially as and for the purpose described.

4. The combination, in a metallic action-frame for piano-fortes, of intermediate braces with the hangers or standards, substantially as and for the purpose described.

5. The combination, in a metallic action-frame for piano-fortes, of an adjusting screw with each of the hangers or standards of the action-frame, substantially as and for the purpose set forth.

6. The combination, in a metallic action-frame for upright piano-fortes, of rounded segments or spheres at the ends of the hangers with adjusting-screws acting on said hangers, substantially as and for the purpose described.

7,951.



7,951. OAPS FOR HORSE-COLLARS. James F. Welsh, Hazel Green, Wis., assignor to George Lane. Patent No. 108,071, dated Oct. 4, 1870. Filed Oct. 31, 1877.

1. A cap for horse-collars consisting of a flexible metal plate with a smooth leather lining, substantially as described.

2. The combination of the flexible metal plate A and the smooth leather lining B, provided with the upturned edges I, substantially as set forth.

3. The combination of the leather lining B, the metal plate A, and the leather covering C, all united, substantially as shown and described.

7,952. MANUFACTURE OF ARTIFICIAL LEATHER. J. Harrington, Ryde, Isle of Wight, England, assignor, by mesne assignments, to the Shawmut Manufacturing Company, Hartford, Conn. Patent No. 166,485, dated Oct. 5, 1875. Filed Sept. 17, 1877.

Brief.—The invention consists in the preparation of artificial leather from long-fibered paper, stained and colored, then pressed in molds of shellac, waterproofed, and toughened by glycerine.

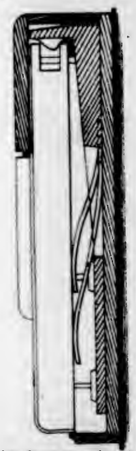
1. A mold made of shellac, as and for the purpose described.

2. In the manufacture of artificial leather from paper, the process herein described of coloring the surface of the paper to the desired tint, varnishing or waterproofing it, and embossing it on a mold formed in fac-simile of leather, substantially as described.

3. In the manufacture of artificial leather from dyed or colored and varnished paper, the herein-described process of producing a surface in fac-simile of leather, consisting in pressing such prepared paper upon a fac-simile mold cast from the surface of the skin, to be reproduced in fac-simile in paper, substantially as described.

4. In the art of manufacturing artificial leather from paper having its body of the color desired for the ground, the described process of coloring the surface to the desired tint, applying glycerine to render the paper pliable, waterproofing or varnishing the paper, and embossing it on a mold made, as described, in fac-simile of leather, substantially as described.

7,953. PIANO AND ORGAN KEYS. Elias P. Needham, New York, N. Y., assignor of one-half interest to Ulysses Pratt, Deep River, Conn. Patent No. 140,528, dated July 1, 1873. Filed Apr. 10, 1875.

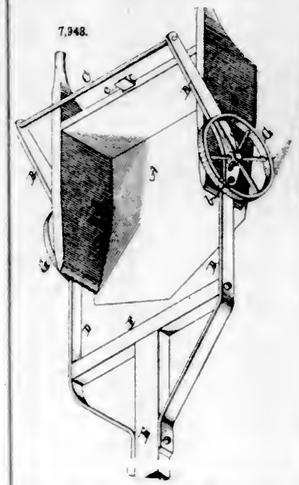


1. A key for organs, piano-fortes, and other musical instruments, having its upper front edge rounded, substantially as herein described.

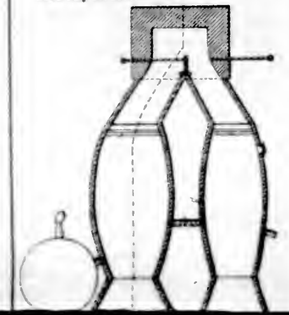
2. A key for organs, piano-fortes, or other musical instruments, having a veneer or covering-cap which extends in one piece along the top and over or down the front of the key, and which presents an unbroken rounded surface over the upper front edge thereof, essentially as and for the purpose herein set forth.

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7,948.

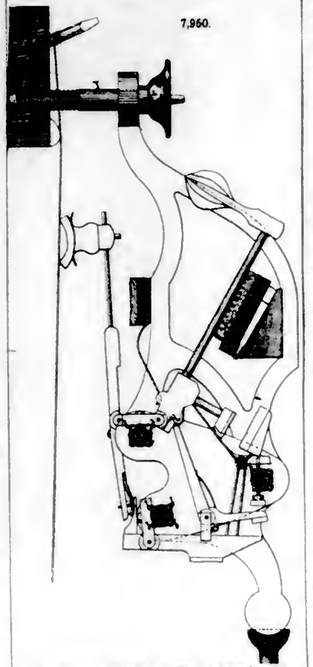


7,949. **TREATING IRON.** William Sleicher, Jr., Troy, N. Y. Patent No. 188,293, dated Sept. 28, 1875. Filed July 23, 1877.



Brief.—The frame supporting the action is of metal, is secured to the wrest-plank, and is made adjustable thereto.

7,950.



1. The combination, with a piano-forte action, of a metallic frame composed of hangers or standards, and of metallic traverses which are secured to or in said hangers or standards, and which form the support for the parts constituting the mechanism of the action, substantially as herein shown and described.

2. The combination, with the action of an upright piano forte, and with the wrest-plank

7,951. **CAPS FOR HORSE-COLLARS.** James F. Walsh, Hazel Green, Wis., assignor to George Lane. Patent No. 108,071, dated Oct. 4, 1870. Filed Oct. 31, 1877.

1. A cap for horse-collars consisting of a flexible metal plate with a smooth leather lining, substantially as described.

2. The combination of the flexible metal plate A and the smooth leather lining B, provided with the upturned edges l, substantially as set forth.

3. The combination of the leather lining B, the metal plate A, and the leather covering C, all united, substantially as shown and described.

7,952. **MANUFACTURE OF ARTIFICIAL LEATHER.** J. Harrington, Ryde, Isle of Wight, England, assignor, by mesne assignments, to the Shawmut Manufacturing Company, Hartford, Conn. Patent No. 188,485, dated Oct. 5, 1875. Filed Sept. 17, 1877.

Brief.—The invention consists in the preparation of artificial leather from long-fibered paper, stained and colored, then pressed in molds of shellac, waterproofed, and toughened by glycerine.

1. A mold made of shellac, as and for the purpose described.

2. In the manufacture of artificial leather from paper, the process herein described of coloring the surface of the paper to the desired tint, varnishing or waterproofing it, and embossing it on a mold formed in fac-simile of leather, substantially as described.

3. In the manufacture of artificial leather from dyed or colored and varnished paper, the herein-described process of producing a surface in fac-simile of leather, consisting in pressing such prepared paper upon a fac-simile mold cast from the surface of the skin, to be reproduced in fac-simile in paper, substantially as described.

4. In the art of manufacturing artificial leather from paper having its body of the color desired for the ground, the described process of coloring the surface to the desired tint, applying glycerine to render the paper pliable, waterproofing or varnishing the paper, and embossing it on a mold made, as described, in fac-simile of leather, substantially as described.

7,953. **PIANO AND ORGAN KEYS.** Elias P. Needham, New York, N. Y., assignor of one-half interest to Ulysses Pratt, Deep River, Conn. Patent No. 140,528, dated July 1, 1873. Filed Apr. 10, 1875.

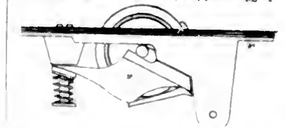


A rein-holder formed by the combination, with each cheek of the slotted tube A, provided with the hook B, the spiral spring C, and the rod D, provided with the cross-head E and the screw d, substantially as herein shown and described.



196,804. **RAIN-HOLDER.** Hobart R. Hayden, New York, N. Y. Filed Oct. 18, 1877.

Brief.—A brake is passed through slots in a bracket arm, and upon turning them on its lower end cut the journals of a rubber collar. The arm adjusts to and from the dasher-plate by a screw carrying a coiled spring between washers on its inner end.



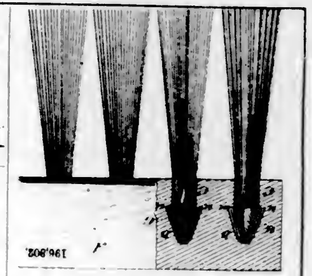
1. The combination of the axle-holding pedestals F F' upon clamp E with brake G, substantially as and for the purpose specified.

2. In combination with pedestals F F' and brake G, the rod G', situated underneath and between projections F F', substantially as and for the purpose specified.

3. The arrangement of the plate A and arm B, having a rear-extended hinged neck, B', dropping perpendicularly to the bearing B'', with roller suspended upon the bearing B'', between the hinge-pin M and the face of the plate A, the weight of the said carrying the same downward and outward into the mesh, the projection of the roller being limited by the adjusting screw H to the weight of the seat to be held, substantially as and for the purpose specified.

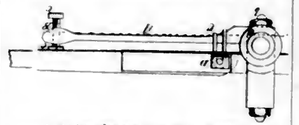
4. The arrangement of the spring I, between the washers J and K on the neck of the screw H, adjusting the arm B and roller to the seat, substantially as and for the purposes specified.

5. The leg-extensions S S', for elevating the roller through the clamp E, and projections F F', substantially as and for the purpose specified.



196,802.

196,805. **WAGON-TONGUE SUPPORT.** J. M. Hunter, Chemung Forks, N. Y. Filed Sept. 28, 1877.



1. A wagon-tongue support having its bar end confined to and connected with the axle, as shown, and its forward end mortised and provided with a screw, substantially as and for the purposes described.

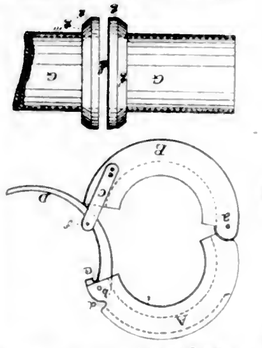
2. The adjustable threaded screw H, provided with a nut, I, and washer J, substantially as and for the purposes described.

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196,806. **FEED-WATER HEATERS AND PURIFIERS.** M. A. T. Jones, Plymouth, assignor of three-fourths of his right to William Allen, William F. Allen, and Geo. L. Allen, Worcester, Mass. Filed Aug. 3, 1877.

1. The combination, in a feed-water heating and purifying apparatus, of a water space or receptacle having direct communication with

196,807. **HOSE AND FIRE COUPLINGS.** William H. Joslin and Theodore O. Schessler, Baltimore, Md. Filed Aug. 20, 1877.



1. The hose-sections G, for interlocking with the sockets C, whereby the part f of the yoke is held in the coupling sockets on the lever and clamp, as shown and described.

2. The end pieces (i for hose-coupling, having a flange the rear edge g of which is beveled and the rear part g'' straight, in combination with the hinged clamping socket having a flange beveled to correspond with the edge g of the flanges, whereby an annular space is left around the rear part g'' of the flange, as and for the purposes specified.

1. The arrangement of the sliding bars C C', draft-pole D, bar E, and lever F, in connection with the frames J J, having the plows P arranged, all arranged as and for the purpose set forth.

2. The combination, with a double tree pivoted at the center of the sliding bars C C', and held at any point of adjustment thereon with the frames J J, having the plows P arranged, all arranged as and for the purpose described.

3. A spreader having a removable cradle-bar, e, provided with slots s, the adjustable bar D, and the draft-pole D, all arranged as and for the purpose described.

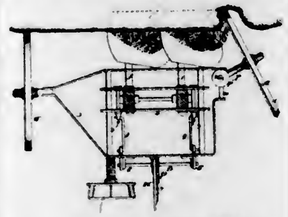
4. The combination of the beam or beams A A, plates e e, axle-tree C, links t, shaft G, with arms g, and lever H, whereby the said plow is operated, substantially in the manner and for the purpose set forth.

7,944. CULTIVATOR. Henry L. Mason, Quincy, Iowa, assignor to Wm. A. Knowlton, Paint Rock, Ill. Patent No. 171,166, dated Dec. 16, 1875. Filed June 26, 1877.

1. A sulky-plow, one of the wheels of which is adjustable to an inclined position from the vertical, substantially as and for the purpose described.

2. The skeleton axle C, united to the frame or axle proper by the posts c c and having a fixed wheel-spindle at one end and at the other end a spindle capable of oblique adjustment, whereby the wheel is adjusted to stand vertical or at an inclined angle from the other, substantially as shown and described.

3. The skeleton axle-tree C, provided with guide-braces c, in combination with the slotted plates e e sliding thereon, and with the plows adjustable to any desirable depth and width of furrow, substantially as and for the purpose described.



7,945. TOBACCO-PRESSES. Bloom R. Minnick, Lancaster, Pa. Patent No. 173,756, dated Feb. 22, 1876. Filed Mar. 16, 1877.

Brief.—The cross beam resting on the follower may be shifted otherwise than under pressure. The hand-lever is provided with a fixed bar for engaging the ratchet-teeth.

1. In combination with the shifting slides A and sections C to form the ends, the hinged lever P, C, for uniting or retaining the parts under pressure, substantially as and for the purpose specified.

2. In combination with the removable hinged plate A, provided with slots s, the adjustable end pieces C, as and for the purpose set forth.

3. A spreader having a removable cradle-bar, e, provided with slots s, the adjustable bar D, and the draft-pole D, all arranged as and for the purpose set forth.

4. The combination of the beam or beams A A, plates e e, axle-tree C, links t, shaft G, with arms g, and lever H, whereby the said plow is operated, substantially in the manner and for the purpose set forth.

5. The rotary press-beam S, in combination with the lever Z, for rotating the same, in order to adjust the pressure without relation to the sides, substantially as herein set forth.

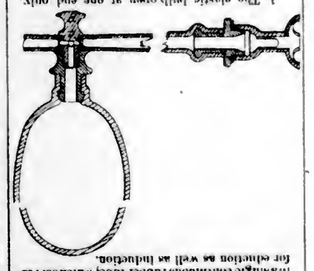
6. In a sulky-plow, the wheel D, provided with an angular pointed tire, t, in combination with the frame C, having the adjustable spindle a and axle e, and the wheel-spindle d, substantially as shown and described.

7,946. EXPANSION-BURNER. Francis B. Rosenbaum, Boston, Mass. Patent No. 173,696, dated Mar. 6, 1876. Filed Aug. 4, 1877.

Brief.—A two-part connection joins the bulb to annular continuous rubber tubes, which serve for elevation as well as induction.

1. The elastic bulb open at one end only, and the mixing tube or conduit, in combination with a two-part tubular metallic connection attached the one part to the bulb and the other part to the mixing tube or conduit, and adapted to be joined so as to put the tube or conduit and the bulb in communication, substantially as set forth.

2. The bulb and tube connection, made in two separate tubular parts, b c, respectively inserted or applied to an elastic bulb open at one end only, and to the tube or conduit, and the valve-chambers, with or connect the bulb and valve-chambers, substantially in the manner and for the purpose described.



7,947. COMBINED TIME-LOCK, COMBINATION-LOCK, AND BOLT-WORK FOR SAFES. Jas. Burgess Bonbo-ne, N. Y. Patent No. 186,539, dated Sept. 25, 1877. Filed Oct. 6, 1877.

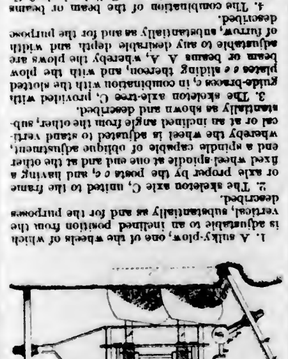
1. The combination, with the bolt-work of a safe or vault door, of a combination or key lock, both constructed to be applied on a safe, vault, or other door, so as to rest against the bolt-work, and provided with a lock bolt or obstruction having an opening or orifice, which is automatically brought into and out of coincidence with the tongue of the bolt-work, whereby the bolt-work may be retained in the unlocked position for shutting the door, and prevented from being retracted when locked until both locks have been unlocked.

2. The combination of a time-lock and a combination or key lock, both constructed to be applied on a safe, vault, or other door, so as to rest against the bolt-work, and provided with a lock bolt or obstruction having an opening or orifice, which is automatically brought into and out of coincidence with the tongue of the bolt-work, whereby the bolt-work may be retained in the unlocked position for shutting the door, and prevented from being retracted when locked until both locks have been unlocked.

3. The combination, with the bolt-work of a safe or vault door, of a combination or key lock, both constructed to be applied on a safe, vault, or other door, so as to rest against the bolt-work, and provided with a lock bolt or obstruction for shutting the door, and prevented from being retracted when locked until both locks have been unlocked.

4. The combination, with the bolt-work of a safe or vault door, of a time-lock and combination or key-lock, both applied independently on a safe, vault, or other door, so as to rest against the bolt-work, and provided with a lock bolt or obstruction for shutting the door, and prevented from being retracted when locked until both locks have been unlocked.

5. The combination, with the bolt-work of a safe or vault door, of a time-lock and combination or key-lock, both applied independently on a safe, vault, or other door, so as to rest against the bolt-work, and provided with a lock bolt or obstruction for shutting the door, and prevented from being retracted when locked until both locks have been unlocked.



7,948. ROAD-ROLLERS. Frederick W. Scelle, Mount Pleasant, Iowa, assignor, by mesne assignments, to Jesse Blake and C. B. Smith, same place. Patent No. 186,758, dated Oct. 6, 1874. Filed Oct. 15, 1877.

1. In a road-scraper, the framework B B, journaled at their forward ends to the box A, and provided with supporting-wheels C, in combination with the draft-bars D, in such manner that the said box may be turned over upon the draft-bars and supported on the ground, substantially as and for the purpose specified.

2. The combination of the spring-catch e with the frame B B C, the wheels C, and the box A, whereby the said frame may be securely locked to the said box, substantially as and for the purpose specified.

3. In combination with the tongue E, connected to the frame B, and bars D D, connected to the box A, and pivoted to the front ends of the sides of the box A, the frame B B C, pivoted to the ends of bars D, and carrying the wheels C C, so that the scraper-box and frame B C may be tilted forward and its blade down upon the tongue and bars D, as set forth.

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COMMISSIONER'S DECISIONS.

CHARLES C. DOTEN.—*Appeal.*

Appeal from the decision of the Principal Examiner in the matter of the application of Charles C. Doten for letters patent for "IMPROVEMENT IN ADDRESSING-MACHINE," *filed June 4, 1877.—Decided September 19, 1877.*]

That a claim is unintelligible is an objection from which interlocutory appeal lies to the Commissioner.

To describe the mode of using a device is not ordinarily descriptive of the device itself, and a claim containing a phrase of such character is not limited in scope thereby. It does not state any element in the machine, the leading feature, nor even the general principle upon which the machine is constructed.

SPEAR, *Commissioner:*

The objection to the first claim is stated by the Examiner, in his answer, to be "that it was vague, and depended for its novelty entirely upon a device described only by its function." Substantially the same objection was made against the second claim, and, to some extent, against the third. The Examiner also cites references for the first and second claims, and makes the further objection that this is proper subject-matter of appeal to the Board of Examiners-in-Chief.

The law requires that an applicant for patent shall not only describe his invention in such full, clear, concise, and exact terms as to enable any person skilled in the art or science to which it appertains to make, construct, compound, and use the same, but he shall also particularly point out and distinctly claim the part, improvement, or combination which he claims as his invention or discovery.

Clearness of description and exactness in the use of terms are necessary in order that the Office and the public, it the patent be granted, may understand the invention. If the description or the terms of the claims be unintelligible, then there can be no examination and no decision, and there is nothing from which any appeal can be taken.

Objections to a specification of this nature must be brought to the Commissioner by interlocutory appeal; but where the description is sufficiently clear, and where the decision of the Examiner relates to the scope of the claims or the patentability of that which he understands to be included in the terms of the claim, then the rejection is for lack of patentable subject-matter, and under the law appeal may be taken to the Board of Examiners-in-Chief.

In the case before me the objection of the Examiner was, that the claim was vague, and depended for its novelty entirely upon a device described only by its function. Further, the Examiner stated that a claim thus covering any device which will perform a given function is too broad to be patentable. Although, therefore, the Examiner states that the claim is vague, it is clear that he does not intend to convey the idea that it is unintelligible. He understands it to be too broad. The first clause of the claim is as follows:

An addressing-machine having a slip-feeding device operated to variable extents, at will, by a movement of the machine upon the paper to be addressed.

The particular thing specified in this claim is an addressing-machine having a slip-feeding device. The implement is one intended to be moved by hand. The remaining part of the claim simply describes the method of manipulating the apparatus. A description of a mode of using a machine is not ordinarily—certainly is not in this case—any description of the machine itself. No such description, therefore, can serve as a limitation to a claim. It does not state any element of the machine, nor even the general principle upon which the machine is constructed, nor the leading feature in the machine. What remains of the claim which can be called distinct and unmistakable are the words quoted above. This, the Examiner says, without citing any reference, is not patentable in view of the state of the art.

The claim which I have quoted is similar to the others objected to for similar reasons, but, in addition to the objection stated, the Examiner cited references. It is clear, therefore, that the question is one which should be appealed to the Board of Examiners-in-Chief.

This appeal, therefore, is dismissed.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—NORTHERN DISTRICT OF NEW YORK.

CHARLES N. BLACK AND ELIZA W. FITZGERALD, ADMINISTRATORS, *vs.* JOSEPH B. HUBBARD AND CHARLES NORTH.

[*In equity.—Before* WHEELER, *J.—Decided August*, 1877.]

R., the agent of the patentee, authorized the firm of H., C. & N., for a valuable consideration, to construct for use, at their place of business, the device (a furnace) involved in the patent The defendants, who had acquired all the rights of the firm of H., C. & N., were sued for infringement, because of the use of the device: *Held*, first, that after the transaction with H., C. & N., the patentee had no right or interest with respect to the particular device and its use during the time of his original patent, and acquired none by the extension of his patent afterward; second, that those who *constructed* the device under the authority of the patentee, and the defendants who acquired it of them, have had and still have the right to *use* it at the particular place, clear of any claim of infringement by the patentee or his representatives.

Although the right to use may not have been acquired by lawful conveyance (according to the statutes) of that right as a subject of conveyance by itself, it was acquired by constructing the device for use, with the consent of the patentee obtained and paid for.

WHEELER, *J.*:

This cause has been heard on bill, answer, replication, testimony, and argument of counsel. In *Bloomer* vs. *Millinger*, 1 Wall., 340, the Supreme Court, in considering the right to use a thing patented, acquired of, or made by authority of, the patentee, both during the time of the original and also of an extension of the patent, by CLIFFORD, *J.*, delivering the opinion of the court, says:

> Patentees acquire the exclusive right to make and use, and to vend to others to be used, their patented inventions for the period of time specified in the patent; but when they have made and vended to others to be used one or more of the things patented, to that extent they have parted with their exclusive right. They are entitled to but one royalty for a patented machine, and consequently, when a patentee has himself constructed a machine and sold it, or authorized another to construct and sell it, or to construct and use and operate it, and the consideration has been paid to him for the right, he has then to that extent parted with his monopoly and ceased to have any interest whatever in the machine so sold, or so authorized to be constructed and operated. When such circumstances appear, the owner of the machine, whether he built it or purchased it, if he has also acquired the right to use and operate it during the lifetime of the patent, may continue to use it until it is worn out, in spite of any and every extension subsequently obtained by the patentee or his assignees.

In this case it clearly appears, from the testimony of Lewis Rider and Charles North, that Rider was an agent or attorney of the patentee of the invention in question, and that as such agent he authorized Hubbard, Coman & North, in consideration of one hundred and fifty dollars paid, to construct a furnace, involving the patent, for use at their tannery, and that such a furnace was constructed there in pursuance of that license, the use of which at that place is the infringement complained of. Upon the principles stated applied to these facts, after that transaction, the patentee, Moses Thompson, the orator's intestate, had no right or interest in respect to the furnace so built, or the use of it there, during the time of his original patent, and acquired none by his extension afterward. And those who constructed it under his authority, and the defendants who acquired it of them, have had and still have the right to use it at that place clear of any claim for infringement by him or by the orators who are his representatives. (*Wooster* vs. *Sidenberg*, 13 Blatch., 88.) And the construction of the furnace under that authority, although prior to the patent for improvement in bagasse-furnaces, obtained December 15, 1857, would, according to those principles, as well as by force of the express provisions of the statutes, (Rev. Stat. U. S., section 4899,) give the right to use the furnace there against that patent.

It is objected, in argument, that there is not sufficient proof of the loss of the power of attorney to Rider; nor of the written instrument executed by him to Hubbard, Coman & North, to lay foundation for proof of their contents; nor sufficient proof of their contents, if admissible, to show any lawful conveyance of the right to use this furnace. But in the view taken of this case these objections are immaterial. Hubbard, Coman & North may not have acquired the right to use the furnace by lawful conveyance, according to the statutes, of that right as a subject of conveyance by itself. The defendants do not stand upon such a conveyance. They acquired the right to use it by constructing it with the consent of the patentee obtained and paid for, to such construction, for use. To make out their defense it is only necessary for the defendants to show the construction with such consent by competent proof. These are facts that might be proved by any evidence ordinarily competent to prove such facts. The testimony of Rider, when credited, abundantly shows that he was the agent of the patentee, in a general way, to dispose of the right to use the furnaces. This would include the right to part with the monopoly by consenting to the construction of furnaces involving the invention. The testimony of both him and North shows that this furnace was constructed with his consent, given on behalf of Thompson, the patentee, and the consideration for it paid. And the testimony of North further shows that the defendants acquired all the rights of Hubbard, Coman & North in the furnace, which would carry the right to use that furnace there as long as it should last. For these reasons it is considered that the orators have not maintained any claim against the defendants as set up in their bill of complaint.

The bill of complaint of the orators is dismissed with costs.

U. S. CIRCUIT COURT—DISTRICT OF NEW JERSEY.

REISSNER & FRAY *vs.* ANNESS & BLAUVELT.

In Equity—By NIXON, *Dist. J.—Decided November*, 1877.

Where, in answer to a bill of complaint for infringement, the defendants filed a plea involving three distinct grounds of defense, such plea was held bad for duplicity.

The several matters, although relating in a general way, to but a single defense—viz., the invalidity of the complainants' patent—were essentially independent of one another, and by their retention destroyed the very office of the plea, which is to secure singleness in the issue.

The general rule is, that a plea must not contain more defenses than one. It is not limited to one fact. It may embrace various facts; but they must all conduce to a single point on which the defendant rests his defense. (Stor. Eq. Pl., section 654.)

If there is more than one distinct ground of defense to be urged, the defendant should set the matter forth by way of answer and not by plea.

The defendants were accordingly permitted, either (1) to set down the pleas that had been filed as an answer, or (2) to elect within a time specified which of the several grounds of defense they would stand upon, and when such election had been made, the other grounds would be overruled.

[*B. F. Lee*, for complainants.
A. v. Briesen, for defendants.]

NIXON, *J.*:

The bill of complaint is filed against the defendants for infringement of certain Letters Patent, No. 7,751, reissued to John A. Fray, June 19, 1877, for "improvements in coal-oil stoves," to which the defendants have put in a plea embracing three distinct defenses, and which are, in effect, three several pleas, substantially as follows:

(1) That the reissue to Fray was unlawful, because he had previously obtained a patent in Canada for the same invention, granted May 15, 1873, for the term of five years, and the reissue here was not limited to expire at the same time with the foreign patent.

(2) That new matter was introduced into the reissue which was not shown and described in the original patent.

(3) That, for the purpose of deceiving the public, the description in the reissued letters patent was made to contain less than the whole truth relative to the alleged invention.

The plea or pleas were set down for argument, and the first question raised was whether the same were not bad for duplicity.

The counsel for the defendants insists that they are not, because, although three distinct matters are alleged against the right of the complainants to recover, they all relate to a single defense—to wit, the invalidity of the complainants' patent.

The office of a plea, in equity practice, is to present to the court a *single point* of defense. The rule is not a harsh one for the defendant, because, when he desires to avail himself of more than one matter of defense, he can resort to an answer, which affords him ample opportunity; whereas, in common law proceedings, double pleas are allowed, for the reason that the defendant has no other mode of presenting his various defenses to the court.

The use of a plea, and the reasons for its allowance, are, that it saves time, trouble, and expense; but if parties are permitted to multiply pleas, setting up different facts in avoidance of the plaintiff's claim, nothing is gained in these respects, and an answer is the proper course of pleading.

The general rule is, that a plea must not contain more defenses than one. It is not limited to one fact. It may embrace various facts; but they must all conduce to a single point on which the defendant rests his defense. (Sto. Eq. Pl., section 654.)

The counsel for the defendants claims that he has only one plea, and that he has the right to allege therein three grounds of invalidity of the complainant's patent.

The trouble about this view of the case is, that each one is an independent defense, having no relation to the other, and that, although included in one plea, their allowance involves all the consequences of three separate and distinct pleas. If they may set up three, then why not one hundred, upon each of which, if the complainants put in replications, there will be an issue joined, and we shall be in the midst of the complications and difficulties which a single plea was designed to prevent.

The counsel for the complainants on the argument assumed that the defendants were obliged to stand upon the first ground of defense alleged, and that the two remaining grounds should be stricken out. But I think the true rule of practice in such cases was indicated by Ch. Kent in *Saltus* vs. *Tobias*, 7 John., ch. 216, where he allowed the defendant to elect which plea he would abide by.

The proper order in the case is, that the pleas as filed may be set down as an answer at the option of the defendants; and, if they do not choose to do this, that ten days be given to them to elect which of the several grounds of defense they will stand on, and, when such election is made, that the other grounds be overruled.

And it is ordered accordingly.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date November 20, 1877.]

10,315.—Carpet.—EUGÈNE DANIEL, Paris, France, assignor to ALEXANDER SMITH & SONS CARPET COMPANY, Yonkers, N. Y. Application filed October 26, 1877. Term of patent 3½ years.

10,316.—Match-Safes.—OTTO F. FOGELSTRAND, New Britain, assignor to HART, BLIVEN & MEAD MANUFACTURING COMPANY, Kensington, Conn. Application filed November 6, 1877. Term of patent 7 years.

10,317 and 10,318.—Cassimeres for Cloakings.—HORACE A. KIMBALL, Providence, R. I. Applications filed October 31, 1877. Term of patents 3½ years.

10,319.—Snap-Hooks.—ELEAZER KEMPSHALL, New Britain, Conn. Application filed November 3, 1877. Term of patent 14 years.

10,320.—Clips for Suspending Cards.—GEORGE W. MCGILL, New York, N. Y. Application filed July 6, 1877. Term of patent 7 years.

10,321.—Burial-Caskets.—W. MAX REID, Amsterdam, N. Y. Application filed October 19, 1877. Term of patent 3½ years.

10,322.—Towels, &c.—CHARLES J. WEBB and RICHARD T. WEBB, Randallstown, Ireland. Application filed October 2, 1877. Term of patent 7 years.

10,323.—Buckles.—WILBUR F. OSBORNE, Ansonia, Conn. Application filed October 2, 1877. Term of patent 3½ years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date November 20, 1877.]

5,326.—White Lead.—ANCHOR WHITE LEAD COMPANY, Cincinnati, Ohio. Application filed July 18, 1877.

"The term or designation 'ANCHOR,' whether employed in the form of a word or of a figure, or both."

5,327.—Machines for Cutting Paper, Linen, Cloth, &c.—DOOLEY MANUFACTURING COMPANY, Boston, Mass. Application filed February 19, 1877.

"The word-symbol 'DOOLEY.'"

5,328.—Lager-Beer.—G. F. HEUBLEIN & BROTHER, Hartford, Conn. Application filed September 27, 1877.

"The letters, sign, and word 'G. F. H. & Bro.,' inclosed within a diamond-shaped border-line."

5,329.—Ring Pessaries.—ROBERT H. KLINE, Philadelphia, Pa. Application filed October 10, 1877.

"The word-symbol 'SACHET DE MÉDECIN.'"

5,330.—Canned Oysters, Fruits, and Vegetables.—J. G. KRAFT & CO., Baltimore, Md. Application filed November 2, 1877.

"The letters 'I X L,' arranged together as shown."

5,331.—Medical Compound.—LAWSON CHEMICAL COMPANY, Cleveland, Ohio. Application filed June 11, 1877.

"The fac-simile of signature of Peter Lawson."

5,332.—Plug Chewing-Tobacco.—LIGGETT & MYERS, St. Louis, Mo. Application filed June 14, 1877.

"A series of transverse lines or indentations which cross the plug."

5,333.—Whisky.—B. LIEBER, SONS & CO., New York, N. Y. Application filed October 29, 1877.

"The representation of Bartholdi's statue of Liberty."

5,334.—Whisky.—MORE, REYNOLDS & CO., San Francisco, Cal. Application filed October 26, 1877.

"The star-shaped figure, with the letters of the word 'Purity' placed in the radiates of the figure."

5,335.—Preparation for Cure of Whooping-Cough.—NOVELTY CHEMICAL COMPANY, New York, N. Y. Application filed October 25, 1877.

"The word-symbol 'CASTANEINE.'"

5,336.—Apparatus for Making Extracts of Coffee, Tea, &c.—PRESSURE EXTRACT COMPANY, Trenton, N. J. Application filed September 11, 1877.

"The word-symbol 'THE PRESSURE EXTRACT.'"

5,337.—Fertilizers.—M. L. SHOEMAKER & CO., (limited,) Philadelphia, Pa. Application filed October 24, 1877.

"The word-symbol 'AMMONITE.'"

5,338.—Packed Oysters, Fruits, and Vegetables.—SMITH & WICKS, Baltimore, Md. Application filed October 29, 1877.

"The figure of the Maltese cross."

5,339.—Plug Chewing-Tobacco.—THE DAUSMAN & DRUMMOND TOBACCO COMPANY, Alton, Ill. Application filed August 25, 1877.

"A single longitudinal line running along the middle of the plug, with a series of transverse lines at equal distances from each other, and crossing the former at right angles."

5,340.—Playing-Cards.—THE NEW YORK CONSOLIDATED CARD COMPANY, New York, N. Y. Application filed October 24, 1877.

"The flower and leaved stalk of the sunflower."

5,341.—Playing-Cards.—THE NEW YORK CONSOLIDATED CARD COMPANY, New York, N. Y. Application filed October 24, 1877.

"The figure of the nude boy upon the spade and the figures of Cupid holding the crown."

5,342.—Playing-Cards.—THE NEW YORK CONSOLIDATED CARD COMPANY, New York, N. Y. Application filed October 24, 1877.

"A central circular figure representing what is known in architecture and ornamental design as a 'Catharine wheel,' and a series of sprigs, bearing leaves, fruit, and flowers, radiating from the said central circular figure."

5,343.—Cement for Uniting Wood, Glass, China, Leather, &c.—EDGERTON BROTHERS, Wheeling, Mo. Application filed August 17, 1877.

"The representation of a number of articles for the repair of which, when fractured, the cement is suitable."

5,344.—Candy.—ERNEST GREENFIELD & SON, New York, N. Y. Application filed October 26, 1877.

"The word-symbol 'ATLANTIC CABLE.'"

5,345.—Plug-Tobacco.—HIRAM W. HUNT, Brooklyn, N. Y. Application filed October 15, 1877.

"A metallic label, of the shape of a Maltese cross, with the letters 'M. T. C.' and character '+' impressed thereon."

5,346.—Rat, Mouse, and Roach Exterminator.—W. B. HORNER, Newcastle, Pa. Application filed October 20, 1877.

"The representations of the rats, the scrolls with the words printed thereon, and the stone walls, as shown."

5,347.—Cigars, Cigarettes, Cheroots, and Smoking and Chewing Tobacco.—KIMBALL, GAULLIER & CO., New York, N. Y. Application filed November 1, 1877.

"The pictorial representation of a rider on horseback, a female figure, and two unmounted horses."

5,348.—Cigars, Cigarettes, Cheroots, and Chewing and Smoking Tobacco.—KIMBALL, GAULLIER & CO., New York, N. Y. Application filed November 1, 1877.

"The word-symbol 'GUATEMALA.'"

5,349.—Laundry Preparation.—SUSANNAH LIVINGSTON, Chicago, Ill. Application filed October 8, 1877.

"The name 'MRS. LIVINGSTON'S' and the word-symbol 'AFRICAN.'"

5,350.—Plug-Tobacco.—MERCHANTS TOBACCO COMPANY, Boston, Mass. Application filed October 15, 1877.

"The words 'Metal Label.'"

5,351.—Plug-Tobacco.—MERCHANTS TOBACCO COMPANY, Boston, Mass. Application filed October 15, 1877.

'A bright oval metallic label, provided with points by which it can be attached to the ontside of a plug of tobacco, said label having impressed upon it the letters and figures 'Merchants Tobacco Co., Pat. 1869,' and the center of said metallic label being an oval apertnre."

5,352.—Liniment.—MORLEY BROTHERS, Austin, Texas. Application filed October 31, 1877.

"The pictorial representation of a horse, with an attendant holding the same."

5,353.—Adhesive Paste.—ASA L. SHIPMAN'S SONS, New York, N. Y. Application filed October 24, 1877.

"The word-symbol 'STICKALINE.'"

5,354.—Shirts, Shirt-Fronts, Drawers, and Overalls.—SAMUEL STERNBERGER, Philadelphia, Pa. Application filed November 2, 1877.

"The word-symbol 'PLANET,' and the figure of a circle or sphere with an equatorial circle, representing a planet."

5,355.—Thrashing-Machines and Separators.—EAGLE MACHINE WORKS, Indianapolis, Ind. Application filed November 9, 1877.

"The word-symbol 'Oscillator.'"

5,356.—Sewing-Machines, Needles, and Attachments.—JOHNSON, CLARK & CO., New York, N. Y. Application filed November 2, 1877.

"The word-symbol 'NEW HOME.'"

5,357.—Starch.—THOMSON KINGSFORD, Oswego, N. Y. Application filed November 6, 1877.

"The representation of two United States flags, one floating to the right and the other to the left, each supported by a staff, the staffs crossing each other, near the lower parts thereof, over a Centennial medal."

5,358.—Hams.—DAVID C. LINK, New York, N. Y. Application filed November 6, 1877.

"The word-symbol 'VIENNA.'"

5,359.—Yeast.—MOHAWK YEAST COMPANY, Waterford, N. Y. Application filed November 8, 1877.

"The word-symbol 'MOHAWK.'"

5,360.—Buttons.—WILFORD L. PALMER, New York, N. Y. Application filed October 26, 1877.

"The word-symbol 'VULCANOID.'"

5,361.—White Lead.—WHITTIER, FULLER & CO., San Francisco, Cal. Application filed November 6, 1877.

"The word-symbol 'PIONEER.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date November 20, 1877.]

1,258.—Title: **Print, "El Comercio."**—HEPPENHEIMER & MAURER, New York, N. Y. Application filed November 2, 1877.

1,259.—Title: **Print, "Water Lily."**—HEPPENHEIMER & MAURER, New York, N. Y. Application filed November 2, 1877.

1,260.—Title: **"Murison's Catarrh and Bronchial Cigarettes, &c.**—JAMES MURISON, St. Louis, Mo. Application filed November 12, 1877.

1,261.—Title: **"A. Z. Ringwalt's Celebrated Hair Liquid."**—ADAM Z. RINGWALT, Lancaster, Pa. Application filed October 24, 1877.

1,262.—Title: **"Elliott's Carbolic Snuff."**—WELLS & ELLIOTT, New York, N. Y. Application filed November 12, 1877.

SALE OF SPECIFICATIONS AND DRAWINGS.

Photolithographic copies of the drawings of all patents issued since November 26, 1867, have been produced, and will be sold to the public at 25 cents per patent, or, where twenty or more copies are ordered at one time, at 10 cents per patent.

Coupon-books, to the amount of $2 or more, can be purchased from the Chief Clerk of the Patent Office; the coupons, for 10 cents each, may be filled out at any time, and, on presentation, will entitle the holder to a photolithographic copy of *any* drawing which has been reproduced.

The specifications of all patents issued since July 1, 1871, are in print, and will be furnished with the drawing without extra charge. The specifications of patents issued from November 20, 1866, to July 1, 1871, are in print, and where such is the case the Office will furnish them with the drawings, but the Office will not undertake to reprint copies of patents which have been exhausted.

In addition to the above, the Office has reproduced, and offers for sale at the price mentioned above, all drawings in the following classes, embracing patents granted from 1790 to date. The classes are those of the Examiners:

1. Aeration and Bottling.
2. Apparel.
4. Baths and Closets.
5. Beds.
6. Bee-hives.
7. Beer and Wine.
8. Bleaching and Dyeing.
9. Boats.
10. Bolts, Nuts, and Rivets.
11. Bookbinding.
13. Brakes and Gins.
14. Bridges.
15. Brushes and Brooms.
17. Butchering.
18. Caoutchouc.
19. Carding.
20. Carpentry.
21. Carriages and Wagons.
23. Chemical Miscellaneous.
26. Cloth.
28. Cordage.
29. Crinoline and Corsets.
31. Dairy.
33. Drafting.
34. Driers and Kilns.
36. Electricity.
37. Excavators.
38. Felting and Hats.
40. Files.
42. Fire-arms.
44. Fuel
45. Furniture.
47. Garden and Orchard.
48. Gas.
52. Gunpowder.
53. Hardware manufacture.
55. Harrows.
56. Harvesters.
58. Horology.
59. Horseshoes.
61. Hydraulic Engineering.
62. Ice.
65. Kitchen Utensils.
66. Knitting and Netting.
67. Lamps and Gas-fitting.
68. Laundry.
71. Manures.
72. Masonry.
73. Measuring Instruments.
75. Metallurgy.
76. Metal Working, bending and straightening.
77. Metal Working, boring and drilling.
78. Metal Working, forging, swaging, and riveting.
79. Metal Working, punching, cutting, and shearing.
80. Metal Working, rolling.
81. Metal Working Tools.
82. Metal Working, turning, planing, and milling.
83. Mills.
85. Nails.
86. Needles and Pins.
87. Oils, Fats, and Glue.
88. Optics.
89. Ordnance.
90. Ore.
91. Paint.
92. Paper-making.
93. Paper manufactures.
94. Paving.
96. Plating.
97. Plows.
98. Pneumatics.
99. Preserving Food.
101. Printing.
102. Projectiles.
103. Pumps.
104. Railways, The Way.
105. Railways, (Cars and Interior Fittings.)
106. Railway Cars, (Exterior Mountings and Fittings.)
107. Railway Track and Car Irons and Fittings, manufacture of.
108. Roofing.
111. Seeders and Planters.
112. Sewing-machines.
114. Ships (1) construction.
115. Ships (2) propulsion.
116. Signals.
117. Silk.
118. Spinning.
119. Stabling.
120. Stationery.
124. Stills.
126. Stoves and Furnaces.
127. Sugar.
130. Thrashing.
131. Tobacco.
132. Toilet.
134. Tubing and Wire.
135. Umbrellas and Fans.
137. Water Distribution.
138. Water-wheels.
139. Weaving.
141. Wood-screws.

And the subdivisions of—

Bench-planes.
Bale-ties.
Buttons and Machines.
Combs, &c.

About forty other classes are in progress, and it is hoped that all the drawings remaining, some thirty thousand in number, may be completed during the fiscal year.

The total number of patents of which drawings are complete and offered for sale as above will approximate one hundred and fifty thousand.

THE illustrated portion of the Patent Office Report for 1869 and for 1871 has recently been completed, and can be had, by those having the remaining volumes for those years, by applying to the Commissioner of Patents.

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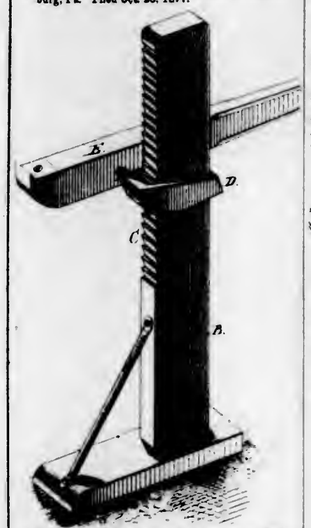
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TITLES, DRAWINGS, AND CLAIMS

OF

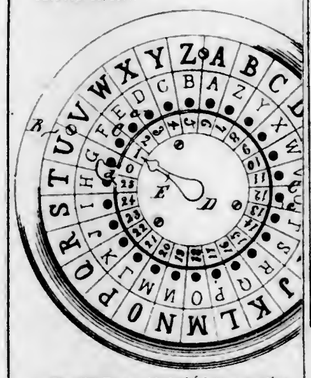
PATENTS GRANTED NOVEMBER 20, 1877.

197,198. LIFTING-JACKS. Isaiah Arther, Mechanicsburg, Pa. Filed Oct. 23, 1877.



In a lifting-jack, the post B, provided with the notched plate C, in combination with the clamp D and lever E, the several parts being constructed, arranged, and combined to operate substantially as and for the purpose described.

197,199. CRYPTOGRAPHIC DEVICES. T. S. Baldwin, St. Louis, Mo., assignor to J. L. Stanage, same place. Filed June 15, 1877.



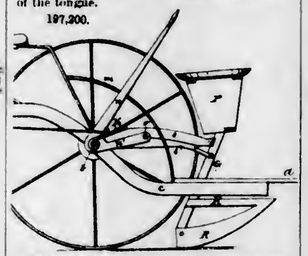
1. The disk D, provided with letters or other characters, constituting a third series, with relation to and in combination with two disks, B and C, having the separate alphabets arranged in inverse order, as and for the purpose set forth.

2. The pivoted index or pointer E, in combination with the stationary disk D having letters in radial spacing-lines, as and for the purpose set forth.

197,200. CORN-PLANTERS. H. H. Baltzly, Assumption, Ill., assignor of one-half his right to Richard Peck, same place. Filed Aug. 27, 1877.

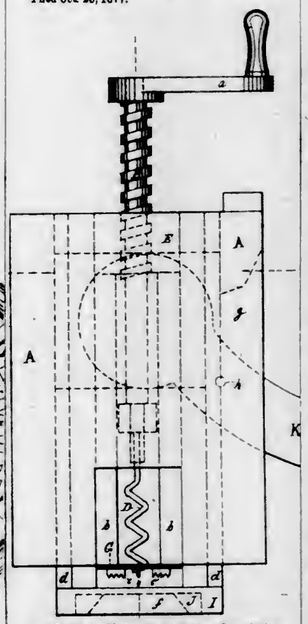
Brief.—To the axle an independent frame carrying openers, conductor-spout, and seed-boxes is attached, and adjustable independent of the tongue.

197,200.



In a corn-planter, the supporting frame composed of the parts *s*, *s'*, *o*, and *f*, adapted to carry the boxes P and cutters R, and pivoted directly to the axle *b*, with capability of unlimited vertical movement above and independent of the tongue *d*, the bell-crank lever *s s'*, and ratchet-bar *m*, all arranged and operating substantially as and for the purposes set forth.

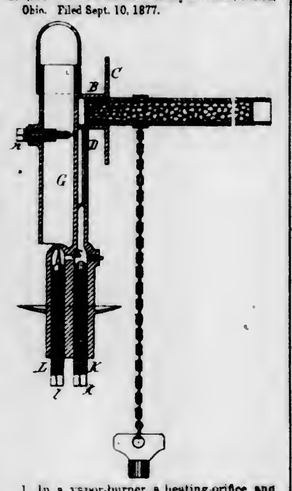
197,201. CORKSCREWS. John E. Baum, Freeland, Pa. Filed Oct. 20, 1877.



1. The slide H, having a frame, I, and plate J, with an opening, *f*, in combination with the case A, and screw-rod B, having a corkscrew, D, the slide being operated by means of the lever K or other suitable device, pushing it down against the bottle to remove the cork, and in lifting the slide up into its upward position, substantially as and for the purpose set forth.

2. The combination of the screw-rod B, provided with the corkscrew D, the case A, having a nut, E, and toothed plate G, the slide H, and the lever K, substantially as and for the purpose set forth.

197,202. VAPOR-BURNERS. Henry S. Belden, Canton, Ohio. Filed Sept. 10, 1877.



1. In a vapor-burner, a heating-orifice and an illuminating-orifice, arranged as described, so that the gas-jets can be regulated independently of each other, and can be supplied from a mixing-chamber, substantially as set forth.

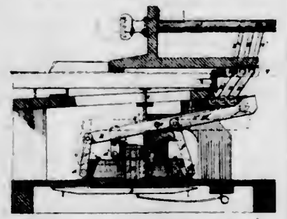
2. In a vapor-burner, a retort composed of a horizontal tube, B, having an annular flange, C, in combination with a vertical gas-feed tube, D, substantially as set forth.

3. In combination with the horizontal tube B and vertical gas-tube D, the orifice I, contiguous to said tubes B D, and the screw-valve N, passing horizontally through the mixing-chamber, substantially as set forth.

4. The retort-tube B, formed with a flange, C, and vertical feed-tube D, in combination with a mixing-chamber, G, having a horizontal orifice, I, adapted to supply a flame against all of said parts.

5. A vapor-burner provided with the vertical mixing-chamber G and the vertical feed-tube D, connected at their lower ends by the throat E, in combination with the vertical screw-plugs K L, which serve to regulate the flow of oil and the flow of gas into chamber G, substantially as set forth.

197,203. ORGAN STOP-ACTIONS. Newell M. Boynton, Worcester, Mass., assignor to Loring & Blake Organ Company, same place. Filed July 7, 1877.



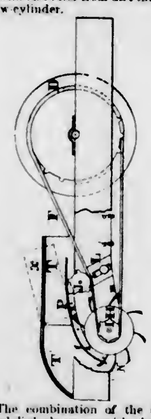
1. In combination, substantially as hereinbefore set forth, the pull-bar I, the rocker bar or lever H, its upper end pivoted to the pull, and its fulcrum at *g*, with the spring-lever F, fulcrumed at *e*, and at one end connected to the mute D, its opposite end being provided with an inclined surface, I, acted upon and depressed by the lever H, for opening the mute, in the manner described.

THE GRAPHIC CO. N.Y.

2. In combination, substantially as hereinbefore described, the offset arms or levers H, fulcrumed at *g*, with their lower ends provided with rollers J, with the centrally-fulcrumed levers E, having inclined surfaces I, the connecting links F, and pins *d*, for opening the nuts D, said parts being constructed and operating as set forth.

197,204. COMBINED ROLLER AND HARROW. Washington Concannon and William F. Drago, Valparaiso, Ind. Filed Sept. 4, 1877.

Brief.—An adjustable tightener and cleaner plays on the chain, and an additional cleaner, in shape of spring which is secured on the inside of the frame's curved housing, protects the chain and idler from dirt thrown up by the harrow-cylinder.

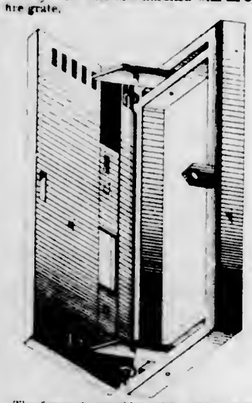


1. The combination of the spring curved pointed link-cleaner *m* with the gear I I and chains F, as described and shown.

2. The two-part housing T T', housing P, wheel J, cleaner *m*, roller D, pulverizer H I, and chain F, combined as and for the purpose set forth.

197,205. FLAT-IRON HEATER AND REFLECTOR. Wm. J. Cox, Hamden Junction, assignor of one-half his right to J. Southward, Mount Sterling, Ohio. Filed Apr. 16, 1877.

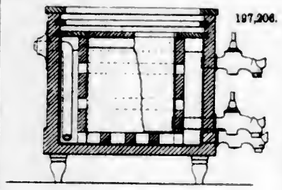
Brief.—For use in connection with an open fire grate.



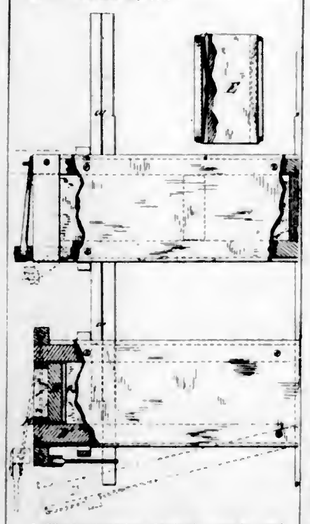
The frame A, provided with arms D, to sustain the lid in oblique position, in combination with the lid B, having slides C C, substantially as and for the purposes set forth.

197,206. REFRIGERATORS. C. S. Crist and Edward Bogran, New York, N. Y. Filed May 19, 1877.

The box with double water-tight walls and partitions, and the inlet-pipe *c*, and the outlet *d*, arranged to receive the water at the bottom and to discharge it at the top, in the manner and for the purpose described.



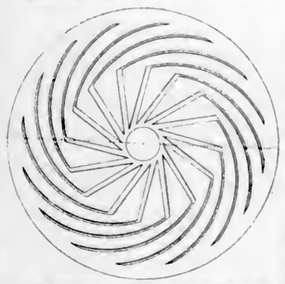
197,207. BALING-PRESSES. P. K. Dederick, Albany, N. Y. Filed Mar. 17, 1877.



1. The combination of a single press-box and plunger operating therein with two or more baling-chambers, arranged parallel to each other, and connected together so as to move simultaneously, and with guides arranged at right angles to the line of the press-box, whereby the chambers can be moved back and forth past the end of the press-box in right lines and simultaneously, substantially in the manner and for the purposes specified.

2. A series of independent springs attached to the hinged side of the baling-chamber or to the edges of the independent baling-head E, for the purpose of increasing the friction by which said baling-head is held against the walls of the chamber, substantially as described.

197,208. MILLSTONE-DRESSER. Edmund Deer, Annapolis, Ind. Filed July 28, 1877.

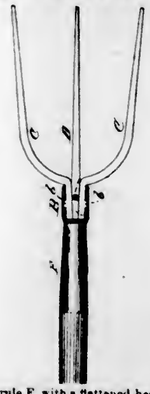


1. A millstone-dress in which the inner end of the furrow shall be straight and the outer end curved or circling, with the deep portion of the straight end on the opposite side to that of the circling end, substantially as herein shown and described.

2. A millstone-dress in which the outer ends of the furrows shall have the feather-edge on one side, and the inner ends shall have the feather-edge on the other side, substantially as herein shown and described.

3. A millstone-dress consisting of two sets of furrows, one of which said sets of furrows shall commence at or near the eye of the stone and terminate between the eye and the periphery thereof, and the other of which shall commence at or near the point of termination of the first, and terminate at or near the periphery of the stone, in which the outer set shall have the shallow or feather edge nearest the periphery of the stone, so that the feeding of the grain over this portion shall be done by centrifugal force, substantially as specified.

197,209. AGRICULTURAL FORKS. Wm. Dressler, Jr., St. Joseph, Mo. Filed Oct. 10, 1877.



The ferrule F, with a flattened head, B, having a tapering socket, rectangular in cross-section, and provided with the recesses *a a* in its sides, in combination with the side tines C C, having shoulders *b b*, the central tine D, having wedge-shaped shank, and the wedge E, substantially as described, and for the purpose set forth.

197,210. TEMPLE-ROLLER-DRILLING MACHINES. W. W. Datcher, Kopedale, Mass., assignor to Datcher Temple Company, same place. Filed May 12, 1877.

Brief.—The power-shaft has a cam on its end to reciprocate the drill, and a cam to operate a bell-crank frame, to which are hung three pawls, which engage three ratchet-wheels on a shaft whose two sections may revolve together or separately, and which carry, respectively, the temple-roller and a spiral cam. The center ratchet-wheel is loosely mounted. The side ratchets are keyed each to a section of the main shaft. The center ratchet at the end of its revolution changes the pawl of one side ratchet to one-half the distance of its usual engagement to turn the temple-roller one-half the usual arc, and at the same time permits the pawl in the other side ratchet to operate its ratchet, and the spiral cam to advance the roller longitudinally. Thus the temple-roller is drilled with holes, forming a series of circles, the holes of adjacent circles breaking spaces.

1. The combination, with a drill to drill holes in a temple-roller, of mechanism to change the relative positions of the drill and roller, to drill holes in the periphery of the temple-roller, substantially as described.

2. The combination, with a rotating temple-roller-carrying shaft, of a drill to drill holes in such roller, substantially as described.

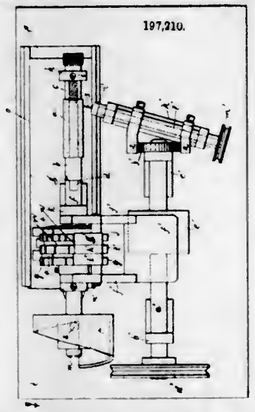
3. In a machine for drilling holes in temple-rollers, a drill and a rotating roller-carrying shaft, in combination with a mechanism to move the shaft and roller longitudinally, substantially as described.

4. The combination, with the roller-carrying shaft and mechanism to rotate it, of mechanism to control the pawl that moves the ratchet and shaft, to cause it to change the extent of rotation of the shaft just as each succeeding series of holes is to be drilled, to space the holes of each series, substantially as described.

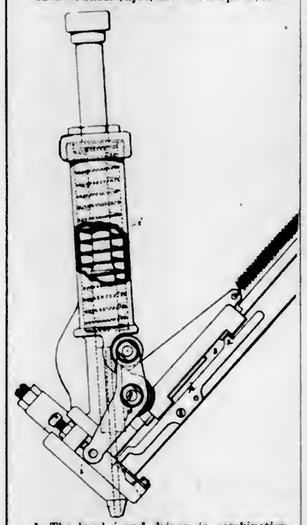
5. The combination, with the ratchets *j* and *q* and their pawls, of a pawl-controlling ratchet, to lift and lower the pawls to operate the ratchets *j q* at the proper times, substantially as described.

6. The slide *o* and shafts *f m*, and their ratchets and pawls, in combination with a cam to move such shafts, ratchets, and temple-roller longitudinally, substantially as described.

197,210.



197,211. NAILING-MACHINES FOR BOOTS AND SHOES. Chas. W. Glidden, Lynn, Mass. Filed Apr. 30, 1877.



1. The head *i* and driver, in combination with the diagonally-moving knife-carrying slide, and the lever and its roller actuated by the driver-bar to move the knife into operative position to assist in severing the nail, substantially as described.

2. The combination, with the lever, of the eccentric stud and roller, substantially as described.

3. The slide and its lever and devices to adjust the movement of the slide, in combination with a knife or cutter, substantially as described.

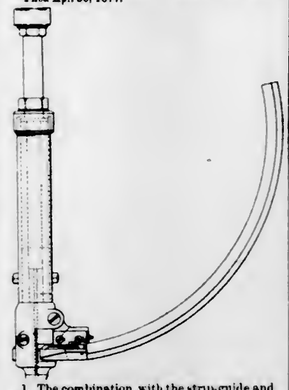
4. The strip-guide, provided with shoulders and spaces, in combination with hooks and spring *h*, to hold the strip-guide in place, or to permit its removal, substantially as described.

5. A movable strip-guide, substantially such as described, in combination with a diagonally-movable cutter and cutter-carrier, to operate substantially as set forth.

6. A strip-guide mounted in guideways and held pressed in one direction by a spring, in combination with a cam to reciprocate the strip-guide backward from the driver and along over the nail-strip when the latter is held, substantially as described.

7. A diagonally-moving cutter and a driver, in combination with a reciprocating strip-guide and a movable cam to operate the strip-guide and move it away from the driver, substantially as described.

197,212. NAILING-OR TACKING MECHANISMS FOR BOOTS AND SHOES. Chas. W. Glidden, Lynn, Mass. Filed Apr. 30, 1877.

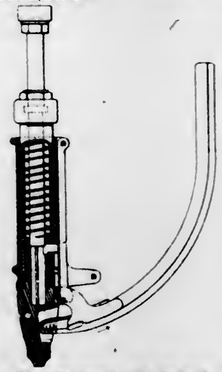


1. The combination, with the strip-guide and foot, provided with a driver passage, of a reciprocating blade adapted to be entered between adjacent tacks or nails, and to be moved laterally to place a tack to be driven in line with the driver-passage, and close one side of such passage, substantially as described.

2. The reciprocating blade-holder and its pivoted blade, in combination with the head and slide, and mechanism to move the slide and blade laterally, substantially as described.

3. The combination, with the blade and slide, of a locking device to hold the blade in position while the driver co-operates with it to drive the tack or nail, substantially as described.

197,213. NAILING OR TACKING MACHINES FOR BOOTS AND SHOES. Chas. W. Glidden, Lynn, Mass. Filed Apr. 30, 1877.

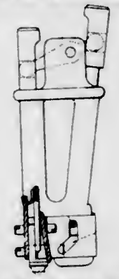


1. The combination, with the head, of the movable sleeve and attached rising and falling strip-guide, substantially as described.

2. The combination, in a tack or nail driving machine, of a strip-guide and mechanism to move it backward over the tack or nail strip, substantially as described.

3. A stationary knife and a tack or nail driver, in combination with a rising and falling strip-guide adapted to place the point of the tack or nail beyond the knife and into the driver-passage, substantially as described.

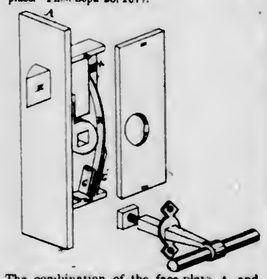
197,214. TACKING-MACHINES FOR BOOTS AND SHOES. Chas. W. Glidden, Lynn, Mass. Filed Apr. 30, 1877.



1. In a tacking-machine, the combination, with a strip guide or holder, of a longitudinally-reciprocating wedge-pointed triangular knife, adapted to remove the body of the tack to be driven from the direction of the body of the adjacent tack of the strip, before severing the tack from the strip and driving it, substantially as described.

2. The driver and driver-passage, and strip-guide placed at an inclination therewith, in combination with a longitudinally-reciprocating wedge-shaped triangular cutter to operate upon the tack next to be severed from the strip and driven, substantially as described.

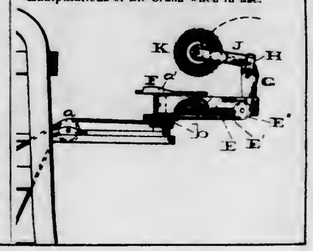
197,215. CARRIAGE-DOOR LOCKS. Josias D. Good, Mount Joy, Pa., assignor to Saml. T. Lytle, Jr., same place. Filed Sept. 28, 1877.



The combination of the face-plate A, and back and side plates, when cast in a single piece, and furnished with guide-ledges K, oblique flanges G G', single bent spring K, working at one end against the depending portion of latch E, the whole arranged and operating substantially as and for the purpose specified.

197,216. BOOT AND SHOE POLISHING MACHINES. O. M. Haller, Philadelphia, Pa. Filed Apr. 25, 1877.

Brief.—The shank that supports the brush has an axial motion and a hollow body, through which the belt is carried. A clevis connects the shank to a hollow standard by pivots. The shank incloses a bolt loosely, upon which it has an axial motion. The lower end of the bolt is engaged with a horizontal arm loosely, and has a sliding motion in a longitudinal slot in the arm. The arm incloses a spring, that acts upon the contiguous pulleys in such a way as to keep the belt taut during the various manipulations of the brush when in use.



1. The polishing brush, in combination with the shank J, clevis H, standard G, and arm E, substantially as and for the purpose set forth.

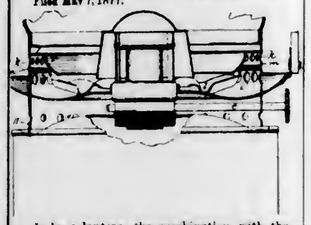
2. The rotary standard G and sliding bolt G′, in combination with the arm E, substantially as and for the purpose set forth.

3. The brush K and belt E′, in combination with the arm E and spring-pressed pulleys E″, substantially as and for the purpose set forth.

4. The shank J, carrying the brush K, and made hollow for the passage of the belt E′, substantially as and for the purpose set forth.

5. The axial rod *a′*, forming the axis for the pulley *b* and arm E, and supporting the rest F, substantially as and for the purpose set forth.

197,217. LANTERNS. Edgar K. Hayes, Boston, Mass. Filed May 7, 1877.



1. In a lantern, the combination, with the bottom plate, of an air controlling or feeding ring, having its interior rim waved or irregularly shaped, to operate substantially as described, in connection with openings for the passage of air under the ring.

2. The combination, in a lantern, of the deflector, the bottom plate, a series of air openings, *i*, and an air controlling feed-ring having its inner edge waved, to operate substantially as described.

3. The ring provided with two series of openings, *i k*, and the deflector, in combination with an air controlling and feeding ring, substantially as described, the series of auxiliary openings serving to supply air drawn from the interior of the lantern under the edge of the feed-ring, substantially as set forth.

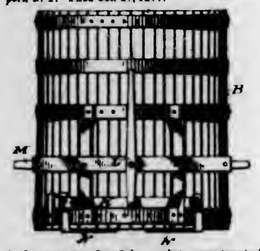
4. The air-controlling feed-ring provided with a shoulder, *s*, and with an interior waved edge, to operate to break or check the current of air and discharge it, substantially as described.

5. The combination, with the auxiliary openings *k*, of a smoke-preventing ring, located above the air-controlling feed ring, to operate substantially as described.

6. In a lantern, the series of air-openings *i k*, the bottom plate and deflector, in combination with an air-controlling feed-ring and a smoke-preventing ring, all adapted to operate substantially as described.

7. In combination, the deflector, the ring provided with main and auxiliary air openings, the air-controlling feed-ring provided with a waved inner edge, a burner, an oil-receptacle, a globe, and a flanged top, and an auxiliary flange of greater diameter than the flange of the top, all to operate substantially as described.

197,218. OIL-PRESSES. Samuel P. Hedges, Greenport, N. Y. Filed Oct. 27, 1877.



1. In a press for fish, a slat, constructed substantially as shown and described, slanting from about the center of the slat outwardly to the bottom.

2. In a press for fish, the combination of a tub with the axles H M, braces G G and N N, and stays O O, substantially as shown and described.

3. In a press for fish, the hoop B, bottom C, hinged and bolted, substantially as shown and described.

197,219. BOUQUET-HOLDERS. Thomas B. Hodge, Providence, R. I. Filed Aug. 30, 1877.

Brief.—The plate is placed on the under side of the lapel of the coat, and the loop forced through the button-hole a sufficient distance to introduce the stems of flowers, where they are held by the force of the spring.



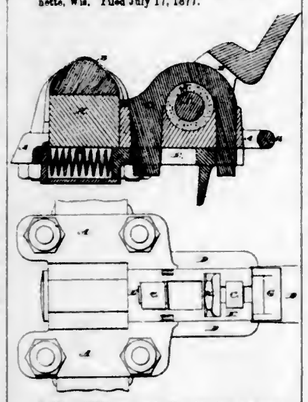
The plate or back A, spring-lever D, and loop E, the whole constructed and operating together substantially as described, for the purposes specified.

197,220. PRODUCTION OF WOODEN BOTTLE-STOPPERS AND BUNGS. Frank A. Howig, San Francisco, Cal., assignor to himself, Frank B. H. Wing, and Randolph F. Radebaugh, same place. Filed July 23, 1877.

1. A new process for treating wood for making elastic bottle-stoppers and bungs, consisting in removing the resinous and gummy matters by treatment with strong alkaline solutions, and then subjecting it to steam or hot water, and subsequent treatment with glycerine and paraffine or wax, or their equivalents, substantially as set forth.

2. Elastic wooden bottle-stoppers or bungs impervious to liquids and gases, prepared substantially in the manner and for the purpose set forth.

197,221. THILL-COUPLINGS. William Johnston, Marinette, Wis. Filed July 17, 1877.



1. The thill-iron and clip having a sprung-acted slide, in combination with a cap, which holds the iron in place, and whose ends engage with the slide, all constructed and arranged as described.

2. The combination of the base-plate A with the two clips B B, the coupling-cap C, in combination with draw-iron D, the slide E, the spring F, and the eye G, for receiving the safety-strap, constructed and operating as and for the purpose set forth.

197,222. DEVICES FOR ATTACHING CHECKS TO BAGGAGE. De Lancy Kennedy, Jr., New York, N. Y. Filed June 7, 1877.

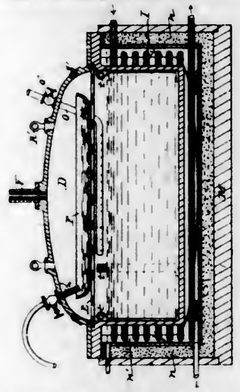


1. A hinged hasp provided with a tongue or prongs to pass through the slot or holes in a baggage-check, and a lock or other suitable device for securing it, in combination with a baggage-check, substantially as described.

2. A plate, A, to be firmly secured to the baggage, and provided with a hinged hasp, B, having a tongue or prongs to hold the interposed check, and a lock or other suitable device for securing it, substantially as specified.

197,223. APPARATUS FOR MAKING ICE. Eugene Kroet, New Orleans, La. Filed Apr. 6, 1877.

Brief.—An air-tight congealer is surrounded by the ordinary refrigerating-pipes immersed in an uncongealable liquid, and contains near its top a shallow pan for sulphuric acid or other absorbent of moisture. A pipe-connection is made with the congealer for producing a vacuum, while two other pipes pass also through the cover, for admitting the absorbent and for spraying the water to be frozen. L-shaped rods are placed against the inner sides of the congealer for lifting the block of ice.



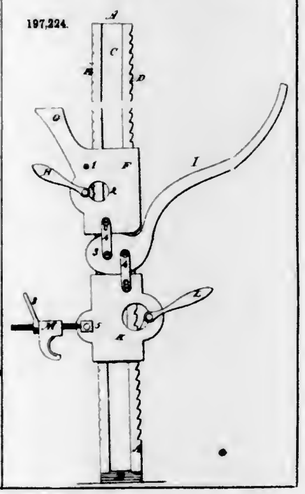
1. In an ice machine, the combination, with a closed congealer, of exhausting mechanism, and a vessel for containing an absorbent of moisture, the latter being situated within the congealer, substantially as described.

2. In combination with the congealer A, the spray-pipe O and pan F, substantially as described.

3. The combination, with the congealer A, of the pipes *h*, O, and V, for introducing water and acid, and for the withdrawal of air, substantially as described.

4. The congealer A, surrounded by coil *j* and casing I, and provided with a cover, D, in which is suspended, by a grating, E, or other suitable means, a dish, F, as described, and for the purpose set forth.

197,224.



197,224. TIRE-TIGHTENERS. Chambers S. Lindley, Mount Pleasant, Iowa, assignor of one-half his right to A. T. Brooks, same place. Filed June 21, 1877.

1. The staff A, provided with base B, grooves C, ratchets D, and notches E, substantially as shown and described.

2. The header F, provided with arms or shoulders G and eccentric-pawl H, substantially as specified.

3. The lever I, provided with double eccentrics 3 3 and hubs 6 6, in combination with staff A, header F, and pawl H, substantially as specified.

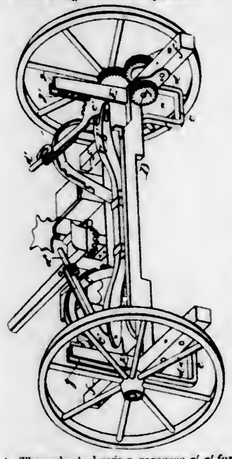
4. The lever I, as herein described, in combination with staff A, header F, follower K, and pawl L, as and for the purpose specified.

5. The staff A, in combination with the follower K, pawl L, shoe or clamp M, and devices for securing the same to a spoke, as shown and described.

6. In a machine for tightening tires, the staff A, follower K, lever I, header F, pawls H and L, and clamp M, connecting-rods 4 4, and pads 9 9, all constructed, combined, arranged, and operating in the manner and for the purpose specified.

197,225. COMBINED SEED-DRILL, CULTIVATOR, HARROW, &c. Byron E. Osborn, Throopville, N. Y. Filed Jan. 23, 1877.

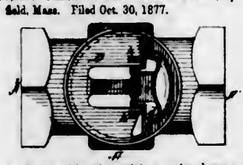
Brief.—Construction of frame adapted to receive various agricultural implements.



1. The axle A, having recesses *a′ a′* formed as herein described, in combination with the frame D, provided with uprights E E, having grooves *g g* clamping the portions *d d* of the axle, substantially as described, for the purpose shown and specified.

2. The combination, with the axle A, constructed as herein described, of the bar C, forming brackets *b′ b′*, ratchet-levers *c′ c′*, and frame D, provided with uprights E E, the latter having grooves *g g* and racks *g′ g′*, all constructed, arranged, and operating substantially as described, for the purpose shown and specified.

197,226. CHECK-VALVES. Louis C. Rodier, Springfield, Mass. Filed Oct. 30, 1877.

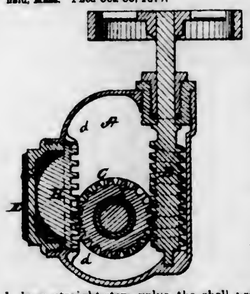


1. In combination with a valve hung upon trunnions, a spring arranged to hold the valve to its seat, substantially as herein set forth.

2. The plate D, struck up to form the spring D′ and lips *h h*, substantially as and for the purposes herein set forth.

3. The combination of the shell A with interior seat *a* and bearings *c c*, the valve C with trunnions *d d* and incline *i*, and the plate D, struck up to form the spring D′, all constructed substantially as and for the purposes herein set forth.

197,227. GATE-VALVES. Louis C. Rodier, Springfield, Mass. Filed Oct. 30, 1877.



1. In a straight-stem valve, the shell provided with a side opening directly opposite the valve-seat, having a screw-plug, or its equivalent, for closing the same, as herein set forth.

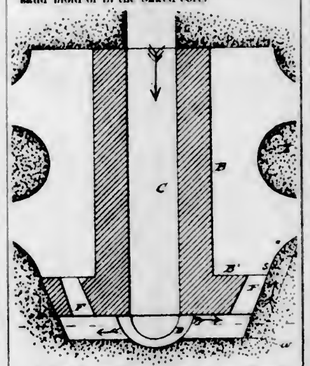
2. A gate-valve composed of two disks, C and D, the disk C being provided with cylindrical post C′, having concave seat *b*, and the disk D, provided with semi-spherical projection D′, substantially as and for the purposes herein set forth.

3. The loose circular worm-gear I, having its inner edge convex, as described, in combination with the two disk-valves C D, having concave and convex joint, substantially as herein set forth.

4. The combination of the shell A, with inclined seats *a a*, worm shaft B, valve C D, with loose worm gear I, the rack H, opening E, and screw-plug G, all constructed substantially as and for the purposes herein set forth.

197,228. MOLDS FOR CASTING CAR-WHEELS. John K. Sax, Pittston, Pa. Filed Aug. 8, 1877.

Brief.—The channels may be made in the sand mold or in the baked core.



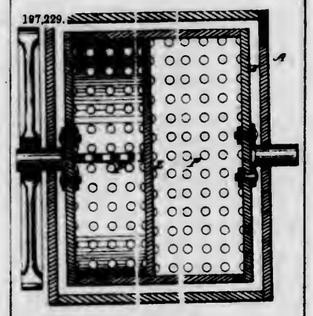
1. The central detachable baked core B, with its enlargement B′, adapted to form a dry sand bottom to the hub portion of the mold, in combination with the basin D, larger in diameter than the central core-opening, and channels leading from the basin to the hub portion of the mold, substantially as specified.

2. The central detachable core B, having a central channel, C, and an enlargement, B′, at the lower end, and provided with conduits F, substantially as set forth.

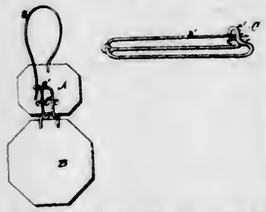
197,229. WASHING-MACHINES. Ives Scoville and P. Bartlett, Oakland, Cal. Filed Feb. 26, 1877.

The cylinder A of a washing machine, having arranged therein a rotary cylinder, B, perforated as shown, and divided into compartments by perforated partitions F F, arranged at right angles to each other, and a solid partition, Z, said partition being constructed and arranged within the cylinder substantially as and for the purpose set forth.

197,229.



197,230. JEWELRY PINS AND HOOKS. R. L. Shanks, Greenwich, N. Y. Filed Aug. 16, 1877.

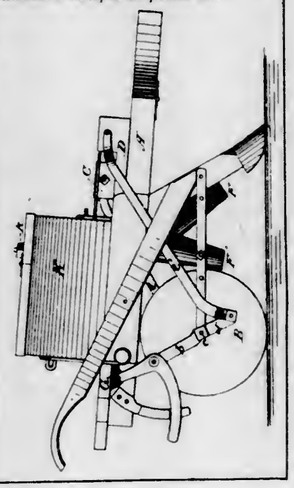


1. A pin and hook made of one piece of wire, having its body formed of parallel side wires, and a hook with an upturned end provided with a space between the wires composing it, for the reception of the point of a pin, the opposite end of which is looped and intertwisted with the continuous single wire, substantially as and for the purpose set forth.

2. A jewelry hook and pin consisting of an ornament, A, provided at its lower end with a hook, C, formed of a continuous bent wire, *c*, with an upturned end, *c′*, and a space between the bent wires composing it, for the reception of the free end of the bent wire *c*, the hook C also serving to suspend a pendant, B, provided with an eye at its upper end, substantially as shown and described.

197,231. COMBINED CORN-PLANTER AND FERTILIZER-DISTRIBUTER. Alex. D. Shoemaker, Spring Church, Pa. Filed Apr. 9, 1877.

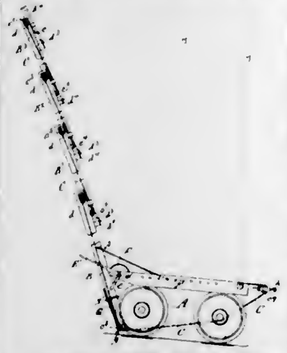
Brief.—The fertilizer-delivery tube may be adjusted to drop fertilizer simultaneously with the seed or on top of the planted hill.



In a combined corn-planter and fertilizer-distributer, the bed-plate A, having brackets *b b*, axle or shaft *c*, wheel or disk B, crank *d*, and adjustable crank *d'*, in combination with the rods *e e'*, feed slides C D, feed-tube F, and hinged adjustable feed-tube F', substantially as and for the purpose herein shown and specified.

197,232. FIRE-ESCAPES. Daniel O. Stridfer, St. Louis, Mo. Filed May 17, 1877.

Brief.—The several sections of ladder are elevated by means of a rope attached near bottom of top section, and thence passed up between the outside of said section and the second, and over pulley on top of second section; thence down the outside of said section, and over pulley on the side of the same near the lower end, and thence up again and over pulley on top of the third section, and soon through the whole series, the lower end of rope then being passed back and over a detachable pulley on rear of truck, and thence to a windlass, the sections being elevated either by attaching the horses to the detachable pulley or by windlass. Anti-friction rollers are provided, in combination with the pulleys at top and bottom of sections, and also upon inner ends of the rungs. A brake is provided at bottom of lower section.



1. The herein-described tackle, secured at *c* to a top ladder, and passing said rope along the outside of said ladder to pass over a grooved roller at *c'*, top of the next ladder, thence passing down its side over a roller at *c''*, and thence over a roller of a succeeding ladder, and so on, as herein shown and described, in combination with a system of ladders that nest within each other, and with the carriage carrying a windlass, by means whereof the mounting and dismounting, and raising and lowering, of said ladders can be accomplished, as and for the purposes set forth.

2. The hand-brake G, pivoted at *g*, and arranged with relation to a rope, C, passing over a roller, *c'*, on a ladder, B, having the holdfast *g'*, to operate as and for the purpose set forth.

3. The pulley *c'*, the hook *h*, in combination with the rope C and series of ladders, to operate as and for the purpose set forth.

4. The rollers *d*, arranged with relation to the grooved rollers over which the rope passes, and made of larger diameter than said grooved rollers, and operating in combination with a system of ladders, as and for the purposes set forth.

5. The hand crank attachment, consisting of segment ratchet-bar E, lever E', crank-arms *e*, in combination with a ladder, (or system of ladders,) and a carriage A, to operate as and for the purposes set forth.

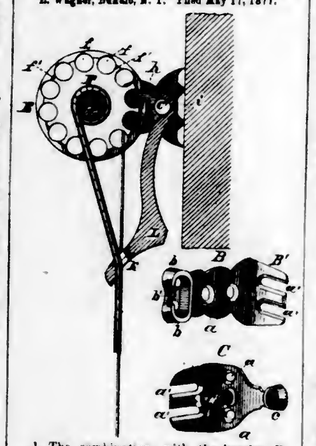
6. The hook I, having the hold at *i*, and catches at *i'*, the pin *i''*, in combination with two or more ladders, as and for the purpose set forth.

197,233. STOVE-PLATFORMS. Wm. W. Wadsworth, New York, N. Y. Filed Aug. 10, 1877.



In a sheet-metal stove-platform, a bead or rib around the edge of the same, filled with a plastic non-combustible substance, which is secured in its place by the edge of the platform, which is turned over it, substantially in the manner described.

197,234. REVERSIBLE CURTAIN-FIXTURES. Fredk. E. Wagner, Buffalo, N. Y. Filed May 17, 1877.



1. The combination, with the bracket B, having the double bearings *b b* and the excision *b'*, as stated, of the bracket C, provided with the bearing *c*, and the pivot C', located as described, both brackets being produced entire in the process of casting, substantially as herein before set forth, for the object specified.

2. The lever H, having the two pawls *h h'*, as described.

3. The lever H, having the two pawls *h h'*, heel L, and eye *k*, as stated.

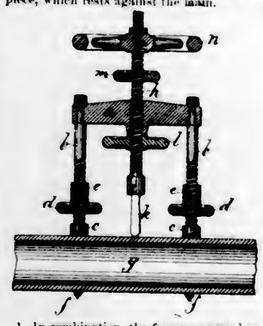
4. The lever H, constructed with two semicircular bearings, *h'' h'''*, and the semicircular bridge *i*, as stated, for the object set forth.

5. A ratchet-wheel for curtain-fixtures composed of the flange E, having the projection F, of less diameter than said flange, and provided with a series of circular depressions, *f*, of more than a semicircle, whereby the points *f'* of the teeth are left wider than their body, substantially as described, for the object stated.

6. A reversible curtain-fixture, composed of the roller A, bracket B, with the double bearings *b*, bracket C, with the pivot C', located as described, ratchet-wheel F, with the projecting flange F, and the lever H, having the pawls *h h'*, the whole constructed and arranged substantially as hereinbefore set forth and described, for the object stated.

197,235. MACHINES FOR TAPPING MAINS. Levi W. Wells, Hopewell, Canada. Filed Oct. 18, 1877.

Brief.—The screw-threaded portion of the drill-shaft passes through an unthreaded opening in the cross-bar, and carries below the said bar a feed-wheel and above it a hoisting-wheel. The device is clamped to the main by chains, which are attached to hooks on nuts working on the screw-bolts projecting from the cross-bar. Each screw-bolt is provided with a foot-piece, which rests against the main.

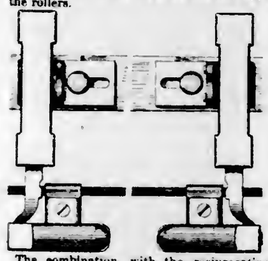


1. In combination, the frame or cross-bar *a*, screw-bolts *b b*, with their movable seat *c c*, hand-wheels *d d*, with their double-hooks *e e* and chains *f f*, central screw-shaft *h*, with its screw-threaded wheels *l m* or its equivalent, and the hand-wheel *n*, as and for the purpose set forth.

2. In a tapping-and-drilling machine, the herein-described clamping apparatus, consisting of the screw-bolts *b b*, movable feet *c c*, hand-wheels *d d*, hooks *e e*, and chains *f f*, as and for the purpose set forth and described.

197,236. TEMPLES FOR LOOMS. Daniel Wright, Lowell, Mass. Filed June 13, 1877.

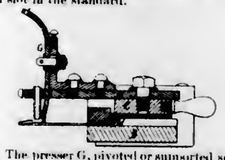
Brief.—The reciprocating bars that carry the temple-rollers and troughs are connected together by a rod, to prevent the uneven wear of the said bars, which would otherwise be caused by the action of the cloth on the free end of the rollers.



The combination, with the reciprocating temple-bar and its case, of a steadying-rod to obviate the uneven wear upon the bar, substantially as described.

197,237. YARN-GUIDES AND NEEDLE-BARS PRESSERS FOR KNITTING-MACHINES. Walter Aiken, Franklin, N. H. Filed Aug. 21, 1877.

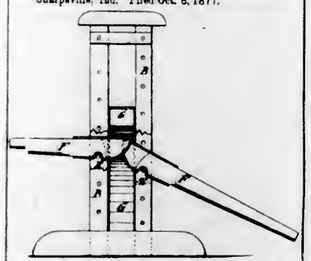
Brief.—The barb-presser is pivoted, so as to be capable of vibration in passing over the needles in either direction. Its limit of vibration is adjustable by means of set-screws in the sides of the slotted arm, and is vertically adjustable by means of a clamp-screw working in a slot in the standard.



1. The presser G, pivoted or supported so as to be capable of being vibrated, essentially as described, in combination with the arm D, having stops for limiting the vibration of such presser, and with the tubular yarn-guide and the series of hooked needles, and mechanism for operating them, substantially as set forth.

2. The pivoted presser, and its stops and means of vertically adjusting the pivot, in combination with the tubular yarn-guide and the series of needles, and with mechanism for operating them, essentially as specified.

197,238. STUMP-EXTRACTORS. Cornelius Barlow, Sharpsville, Ind. Filed Oct. 6, 1877.

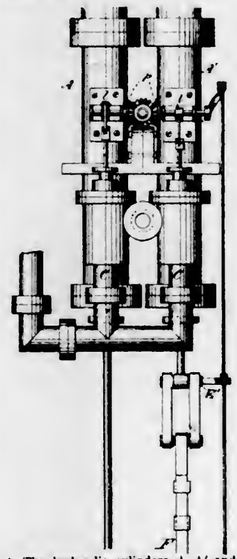


In a stump-puller, the combination, with a lifting-lever, G, of the levers F F, provided with detachable fulcrum-pins E, and the four perforated posts B, the levers F being fulcrumed under and resting against the bottom of the lifting-lever, as shown and described, so as to dispense with hooks and chains and the labor of hooking and unhooking them.

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197,239. HYDRAULIC AND WIRE-ROPE PUMPING SYSTEMS. Wm. P. Barclay, Virginia City, Nev. Filed Oct. 6, 1877.

Brief.—The long cylinders, in connection with wire ropes, give ample time for the action of any cushion that may be employed to give out and take up their elasticity at the commencement of the stroke. The column of water in discharge-pipe serves to balance the weight of the wire-rope.



1. The hydraulic cylinders A A' and the wire ropes F, in combination with two series of pumps, substantially as and for the purpose herein shown and described.

2. The combination of two sets of valves, *e f*, the levers *i*, and the miter-gears *p q*, substantially as herein shown and described.

3. The combination of the cross-head E' and rod *s* with valve-operating mechanism, for moving two or more sets of valves in opposite directions, substantially as shown and described.

4. A vertical stand-pipe connected with the discharge-opening of hydraulic cylinders, for containing a column of water for partly counterbalancing the piston and its load, substantially as shown and described.

197,240. ORNAMENTAL GLASS PANELS. Geo. Bassett, Chicago, Ill. Filed Aug. 11, 1877.

The ornamental panel herein described, consisting of two face layers of a rigid material, having designs or ornamental figures cut therein, and an intermediate layer of glass plates separated from each other, and retained in position by cement, as and for the purpose set forth.

197,241. STRAW HATS. John P. Beatty, Norwalk, Conn. Filed Oct. 11, 1877.

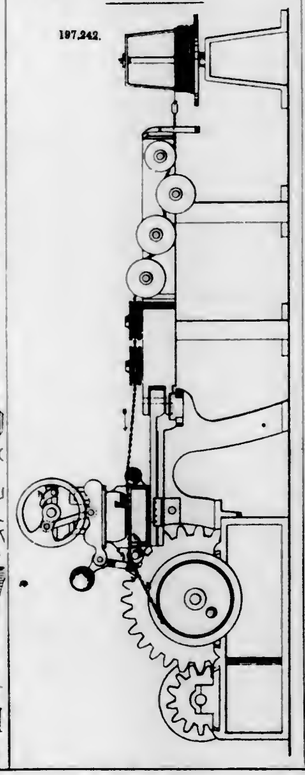
Brief.—Braids or plats together strands formed by laying together two or more single strands of straw.



1. A continuously plaited or braided straw hat formed by plaiting or braiding together throughout the whole hat strands formed substantially in the manner and for the purpose described.

2. A continuously plaited or braided straw hat, the brim of which is stiffened by plaiting or braiding together strands formed by laying together two or more lesser strands, substantially in the manner and for the purpose described.

197,242. MACHINES FOR SCALING, CLEANING, AND POLISHING WIRE. Nickolaus Bets, St. Ingbert, Germany. Filed Oct. 17, 1877.



1. The combination of a set of vertical and horizontal tension and cleaning rolls with a claw-guide, scouring-box, and reel, arranged as shown and described, for the purpose specified.

2. In a wire cleaning and polishing machine, a cleaning-box filled with polishing material, and provided with a guide-roll at one end, and half-rolls and projecting seats at the opposite end, in combination with a vertically sliding and guided plunger, a fulcrumed and weighted supporting-lever, and with a releasing button or knob at the end of the wire-drawing chain to drop wire and plunger after the chain has passed over box, substantially in the manner and for the purpose set forth.

3. In a wire cleaning and polishing machine, the combination, with the stretching and cleaning rollers, and with the horizontal winding up or drawing reel, of a polishing-box and plunger placed intermediately between rolls and reel, and supported on a laterally swinging and guided carriage, so that the box can adjust itself to the direction of the winding-up wire, substantially in the manner and for the purpose set forth.

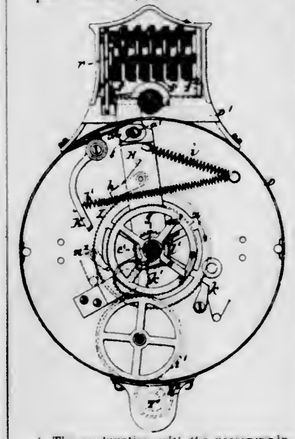
197,243. CHIN-ADJUSTERS. Thomas Foyston, New York, N. Y. Filed Oct. 9, 1877.



1. The chin-adjuster herein described, consisting of a chin-rest, a fixed base-piece, and a stem and socket, adjustable one upon the other, as and for the purpose set forth.

2. The upper rest B, curved to fit the chin, and provided with the internally-threaded socket *b'*, in combination with the swiveled and screw-threaded shank C and the base A', as and for the purpose set forth.

197,244. PASSENGER-REGISTERS. John H. Brown, New York, N. Y., assignor to James Goodfellow, same place. Filed Mar. 6, 1877.



1. The combination, with the passenger-index G, the trip-index S, and the dial E, common to both indexes, of the loose pawl-lever H, the hollow spindle *g*, the pawl *h*, the ratchet-wheel I, the spring *i*, the stop-pawl *k*, the spindle *c'* of the trip-index S, the gears *d' e' f' g'*, and the lock T, in gear with the hollow spindle *g* of the passenger-index, substantially as specified.

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2. The slotted trip M, in combination with the lever H, having a trip-operating stud or pin, *s*, the hammer K of the bell, and the spring *b'*, essentially as described.

3. The combination, with the passenger-index G and a bell, L, applied to the register, of the pawl-lever H, provided with a pin, *s*, the trip M having a slot, *a'*, in it, the hammer K, and the spring *b'*, essentially as and for the purpose herein set forth.

4. The combination, with the pin *o* of the bolt R and the slotted tube A, of the forked pawl-lever J, the pawl *r*, the counting and registering wheels *f f' f''*, the pawl-lever H, the passenger-index G, operated by said pawl-lever, the pin *s* on said lever, the slotted trip M, the hammer K, with its spring *b'*, and the bell or goog L, substantially as specified.

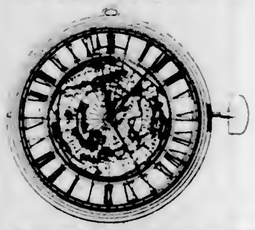
5. The combination, with the trip-index S and the passenger-index G, of the toothed driver *r'* on the spindle *g* of the passenger-index, the driving-pawl *o'*, the ratchet-wheel *w'*, the lock T, and gears connecting said lock and said indexes for operation in relation with each other, as shown and described.

197,245. METHODS OF REPAIRING RUBBER-LINED HOSE. Cornelius Callahan, Chelsea, Mass., assignor of two-thirds his right to Edwin E. Sibley, same place. Filed Oct. 26, 1877.



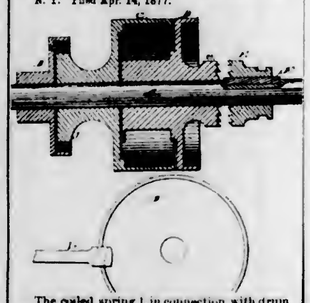
The method herein described of repairing rubber-lined hose, the same consisting in bringing into contact and cementing the rubber surfaces, and then restoring the strength and fiber of the cover by knitted or longitudinal threads.

197,246. GEOGRAPHICAL CLOCKS. William A. Oates, Union, Oreg., assignor of one-half his right to R. S. Oates, same place. Filed Aug. 24, 1877.



A universal time-piece, whose panoramic map or face-plate revolves, is divided into twenty-four hours as well as three hundred sixty degrees, and is provided with an index adjustable on the hub of hour-wheel independently of hour hand, as and for the purpose specified.

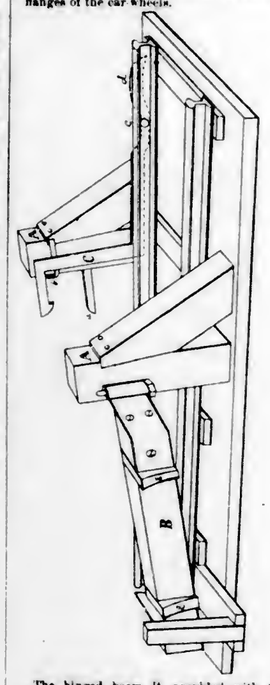
197,247. CAR-STARTERS. Abel D. Oslin, Seneca Falls, N. Y. Filed Apr. 14, 1877.



The coiled spring I, in connection with drum C and wheel D, operating together with clutch E, dog L, ratchet J, and wheel B, all substantially as shown and described.

197,248. AUTOMATIC RAILWAY-BUFFERS. C. Sumner Chase, East Freetown, Mass. Filed Oct. 1, 1877.

Brief.—A hinged buffer-beam is released from its position across track by treadle operated upon by wheel of approaching car, said treadle constituting one arm of the lever-latch. The beam swings away by its own gravity, and is assisted by a push-spring. One side of beam has wheel-rests, to protect it from the flanges of the car-wheels.



The hinged beam B, provided with the blocks *e e*, in combination with the posts A A, the lever-catch C, the spring *b*, and the guide-pin *a*, when arranged and operating for the purpose herein shown and described.

197,249. FAUCETS. Wm. F. Class, Cleveland, Ohio, assignor to Warwick Manufacturing Company, same place. Filed Oct. 17, 1877.

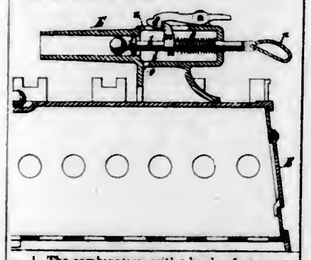
Brief.—When the plug is turned off, the vent admits air into the chamber thereof, thus causing the remaining liquid to run off at once.



1. A faucet consisting of the plug A and tube B, the latter provided with one or more vents, C, extending through its body at the juncture of the passages extending through the plug A and tube B, whereby the fluid is prevented from dripping through the air-vents, substantially as described.

2. The tube B, provided with one or more air-vents, leading from the outside air to the opening, constituting the seat for plug A, whereby the latter, when open, operates to cut off the admission of air, and when closed allows air to enter the upper portion of the chamber of said plug, substantially as described.

197,250. TOY MONEY-BOXES. Samuel Clark, Brooklyn, N. Y. Filed Oct. 3, 1877.



1. The combination, with a bank, of a target having a central opening, and a rest for supporting a coin behind its said opening, so as to form the bull's-eye, and a device for firing a projectile through the said opening against the coin so as to knock it into the bank, substantially as specified.

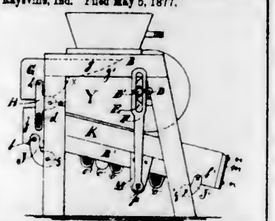
2. The combination, with a target having a central opening, of a rest in the rear thereof for supporting a coin behind said opening to form the bull's-eye, substantially as specified.

3. The combination, with a target having a central opening and a rest in the rear thereof for supporting a coin behind said opening, of a slideway extending rearwardly close to the adjacent end of the back, substantially as and for the purpose specified.

4. The combination of the cannon E, ejector or push-piece *p*, rod *l*, the hammer *m*, cap-receptacle *n*, catch *s*, and the spring *o*, fitting between the hammer *m* and the breech-piece of the cannon, substantially as and for the purpose specified.

5. The combination, with a target having a central opening and a device for firing an unattached projectile through the said opening against a coin behind it, of a bank provided with perforations, from which the projectile may escape after following the coin into the bank, substantially as specified.

197,251. GRAIN-SEPARATORS. Cassius R. Clifford, Rayesville, Ind. Filed May 5, 1877.



1. The combination of the riddle G, provided with sides having curved and inclined lower edges, and the side boards Y of the mill formed with corresponding edges, as set forth.

2. The slotted links H, having offsets *x'*, and pivoted through said offsets to the frame, in combination with the riddle G, pivoted to the upper ends of the links, and with the shoe K, having pins projecting into the slots of the links, as set forth.

3. The combination, with the shoe K and its screens, of the detachable cap L, having openings *o' o''*, arranged as specified.

4. The combination of the shoe K, supported by links J J', pivoted to the frame at points inside the points of attachment to the shoe, the riddle G, and links H, pivoted each at one side to the frame, at the top to the riddle, and having slotted lower ends receiving pins on the shoe, as set forth.

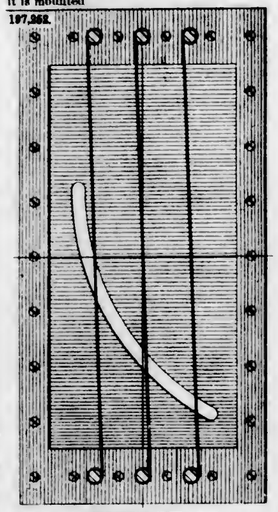
5. The combination of the shoe K, cross-bars extending below the same, and the links J J', pivoted at points inside the points of attachment to the shoe, as set forth.

197,252. SOUND-BOARDS FOR MUSICAL INSTRUMENTS. William Courtenay, New York, N. Y. Filed May 18, 1877.

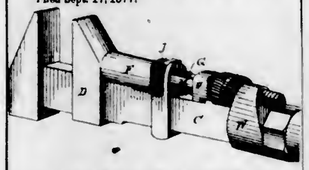
1. As a new article of manufacture, a sounding-board for pianos or other musical instruments, composed of vulcanized fiber stretched or molded into form, substantially as and for the purpose set forth.

2. The combination of a sounding-board for pianos or other musical instruments, composed of vulcanized fiber stretched or molded into form, as specified, with the frame upon which it is mounted

197,252.



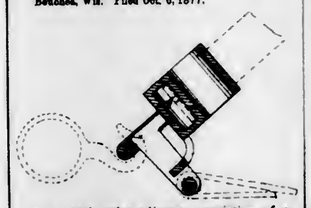
197,253. WRENCHES. Calvin R. Covell, Stockton, Cal. Filed Sept. 17, 1877.



1. The mutilated nut J, surrounding the stem G, and having the angular corner or stop R, in combination with the spring P, substantially as herein described.

2. The movable jaw D and sleeve F, with the nut J, in combination with the stem G, having the adjusting thread and nut T, the guide U, and bar C, substantially as herein shown and described.

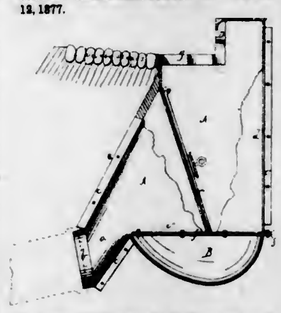
197,254. NECK-YOKE ADJUSTERS. John Dalton, Beuchea, Wis. Filed Oct. 6, 1877.



1. A neck-yoke adjuster, consisting of a sleeve-shaped support for the breast-strap, of a bottom ring for connecting with the neck-yoke, and of a backward-extending and braced loop for the holdback-strap, all made in one piece, and applied substantially as and for the purpose set forth.

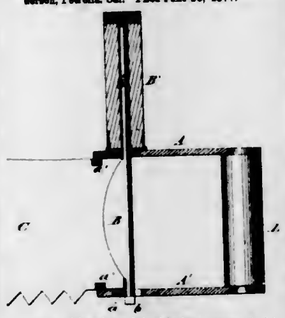
2. The combination of a breast-strap sleeve with a neck-yoke connecting-ring, at right angles thereto, and a holdback-strap loop, strengthened by a lateral and vertical brace, the latter connecting with the end stay of the sleeve, substantially as specified.

197,255. RECEIVERS AND STENCH-TRAPS FOR STREET-SEWERS. Thomas Dark, Buffalo, N. Y. Filed Feb. 13, 1877.



The metal receiver made of the two parts A A *a b*, with the slanting front *c* and straight back *d*, and connected together by the flanges *c c'*, and in combination with the bowl or trap B, substantially as hereinbefore specified.

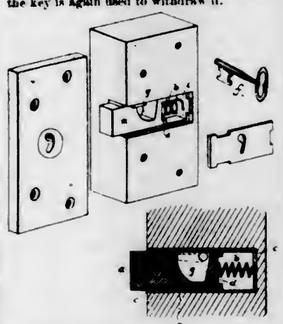
197,256. SAW-HANDLES. J. M. Dudley and John Anderson, Petrolia, Cal. Filed June 20, 1877.



The combination of the binding-straps A A', fitted to saw C and handle D and having lower slot *a*, with the clamp-bolt B, having cross-piece *b*, extension *b'*, and second handle B', screwed thereon, substantially as and for the purpose specified.

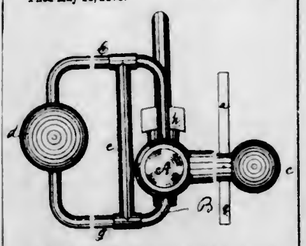
197,257. SASH-FASTENERS. Cyrus Eberly, Columbus, Ohio. Filed Oct. 9, 1877.

Brief.—A bolt or catch carries a chambered spring, and is actuated by a key, there being a key-space cut in the bolt approximating in shape to the quadrant of a cylinder, and also a stud sliding in a slot of the casing, to prevent the bolt from being thrown out too far, the construction being such that the pressure of the spring will ordinarily retain the key in position for convenient use, and when the key is removed the device becomes a simple spring-catch, operating as a secure fastening until the key is again used to withdraw it.



The combination of the sliding bolt *a*, having the stud *e* and the open key-space *g*, the spring *b*, case *c*, having slot to receive stud *e*, and key *f*, the whole arranged so as to operate substantially in the manner described, for the purpose set forth.

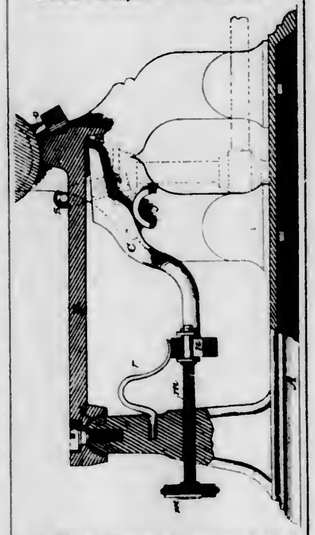
197,258. FEED-WATER REGULATORS FOR STEAM-BOILERS. Nathaniel T. Edson, New Orleans, La. Filed May 10, 1875.



1. Shaft A, with its steam and water passages *f* and *g*, in combination with lever B, composed of steam and water pipes C and D, vessel *d*, and weight *e*, as and for the purposes specified.

2. The combination of the glass tube *c* with shaft A and its steam and water passages, and with steam-pipe C and water-pipe D, substantially as and for the purposes set forth.

197,259. PHOTOGRAPHIC BURNISHERS. William G. Estrekin, Philadelphia, Pa. Filed Mar. 31, 1874.



1. The combination of a pressure feed-roll yielding burnishing-tool having a universal joint with a yoke-wedge lever, substantially as described.

2. The burnisher-plate D, in combination with adjustable pins *s*, substantially as described.

3. The plate D, provided with the universal joint *p u*, in combination with the wedge yoke lever C, having a slotted end, fulcrums *f*, thumb-screw *w*, and spring *r*, substantially as described.

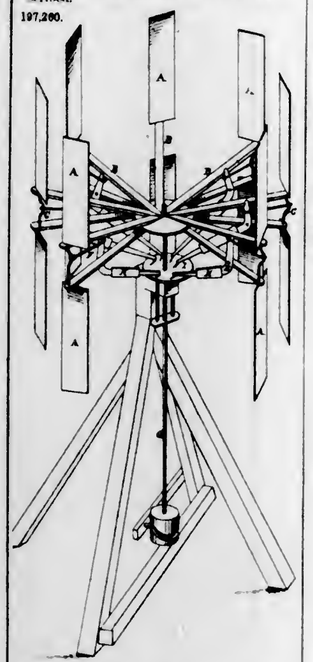
197,260. WINDMILLS. Henry C. Fallis, Orangeville, Cal., assignor of one-half his right to Valentine Gast. Filed Sept. 27, 1877.

1. The radial arms B, secured to the central plate and shaft G, and having their outer ends separated, so as to form bearings for the vertically placed fans A, substantially as herein described.

2. The fans A, secured to the vertical crank-rods C, so as to present unequal surfaces on each side of the rods, in combination with the bell-crank levers D and adjustable weights H, substantially as and for the purposes herein described.

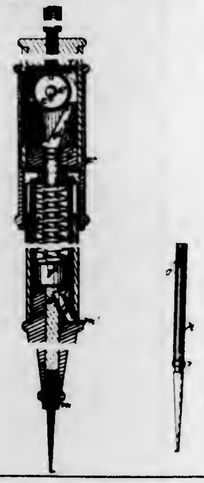
3. The vertically-moving plate I, sliding loosely upon the central shaft G, and operating to raise the levers D, and throw the vanes out of the wind, substantially as herein described.

197,260.



197,261. DENTAL PLUGGERS. Jos. B. Finney, Pittsburg, Pa., assignor to himself and L. S. Smith, same place. Filed Oct. 6, 1877.

Brief.—Pressure upon the end of the tool connects a pivoted catch with the power-wheel, and rotates the tool.



1. In a dental mallet or plugger, the combination of the power mechanism, the ram, and a device adapted to be intermittently connected to the power, said device pivoted to the ram, the whole adapted to be automatically operated by pressure on the plugging-tool, substantially as specified.

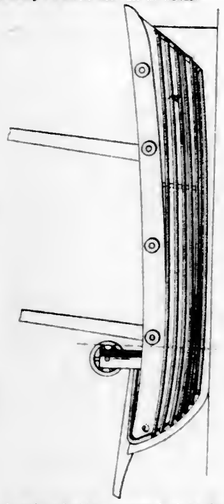
2. The combination, in a dental mallet, of power mechanism, spring-ram, dog, or pawl pivoted thereto, and devices, substantially as described, for deflecting the dog, so as to disengage it from the power by the retraction of the ram when the tool is relieved from pressure, substantially as described.

3. In an automatic dental mallet, the combination of the hollow stem, provided with a spring-ram and slotted screw-sleeve, adapted to both close the stem and control the power of the spring-ram.

4. The detachable tool or tool-holder, having the recess for the reception of a locking-dog, and the shoulder to limit the play of the tool in its holder, substantially as specified.

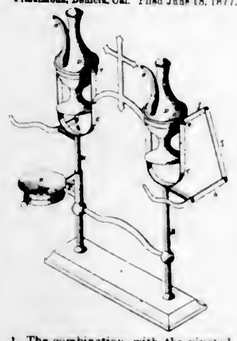
197,262. TORPEDO-GUARDS. John H. Fisher, Mount Washington, Md. Filed Nov. 1, 1877.

Brief.—A series of pipes is placed on each side of the hull of a vessel, and at a suitable distance from the same. The pipes are connected with each other and with a force-pump, and may be filled with air or water.



A series of pipes arranged along the sides of the hull of a vessel, and connected with each other, as and for the purpose herein shown and described.

197,263. DEVICES FOR TILTING URNETS. Thos. A. Pitsimons, Benicia, Cal. Filed June 18, 1877.

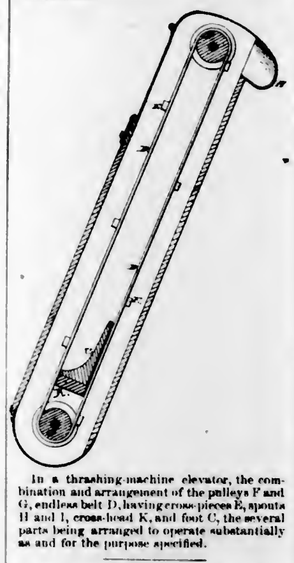


1. The combination, with the pivoted cruet or pitcher D and cruet-holder C, of the arm *f*, lever A, and connecting-rod *g*, when arranged to operate in the manner herein shown and described.

2. A self-waiting altar-cruet, consisting of the upright standards B B, U-shaped cruet-holders C, pivoted cruets D, arms, connecting-rods, and levers *f g h*, swinging bracket P, and water-bowl R, the several parts relatively arranged as herein shown and described.

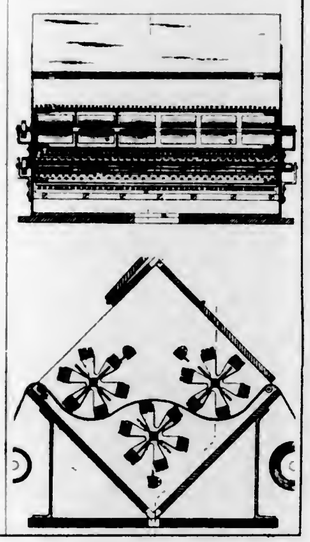
197,264. GRAIN-CONVEYERS. Francis D. Franks, Prairie Grove, Iowa. Filed Feb. 3, 1877.

Brief.—To convey the grain from the thrasher to the sacks.



In a thrashing-machine elevator, the combination and arrangement of the pulleys F and G, endless belt D, having cross-pieces E, spouts H and I, cross-head K, and foot C, the several parts being arranged to operate substantially as and for the purpose specified.

197,265. CARPET-CLEANERS. Jesse A. Graham, Cincinnati, Ohio, assignor to Jos. W. Wayne, same place. Filed May 24, 1877.



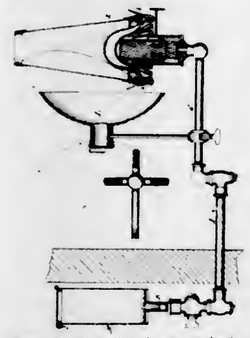
1. In a threshing-machine elevator, the combination with the brush-cleaner parallel with said drum, for the purpose specified.

2. The revolving brush-drum, in combination with a fan adapted to revolve within said drum, substantially as described.

3. The combination, in a carpet-cleaning machine, of a closed chamber, having suitable exhaust-flues, within which chamber the cleaning is performed, with the cleaning mechanism, consisting of revolving brush-drums, the revolving fans within said drums, and the brush-cleaners located parallel with the drums and in the path of the brushes as they revolve, the whole being constructed and arranged to operate in the manner specified.

197,266. OVEN-LAMPS. Thore F. Greenleaf, Westborough, Mass. Filed Oct. 6, 1877.

Brief.—The reservoir is situated outside of the oven wall, and has attached to it an adjustable tubular bracket, extending through the oven-wall, and carrying a suitable reflector and burner for illuminating the inside of the oven.



In combination with the reservoir A, arranged outside of the wall of a baker's oven, and with a burner, K, and reflector L, the pipes B F and the adjustable pipe G, arranged substantially in the manner described.

197,267. EXPLOSIVE COMPOUNDS. Sanford C. Gotham, Petrolia, Pa. Filed June 28, 1876.

The within-described compound for blasting-powder, consisting of nitro-glycerine, chlorate of potash, nitrate of potash, and powdered oak-bark, in substantially the proportions described, and for the purpose set forth.

197,268. GAS-BURNERS. Robert Hale, Minneapolis, Minn. Filed Oct. 26, 1877.



1. The burner-tube A, provided with its cup-shaped enlargement *a*, in combination with the spreader B, provided with the hollow screw-shank *b*, substantially as and for the purpose set forth.

2. The burner-tube A, provided with the enlargement *a*, in combination with the spreader B and reflector D, substantially as and for the purpose set forth.

197,269. NAILING-MACHINES. Samuel Harris, Jr., East Cambridge, Mass., assignor to Joseph Greeley and Samuel Shepherd, Nashua, N. H., and Horace L. Hazelton, Boston, Mass. Filed Aug. 22, 1877.

1. In a nailing-machine, the combination, with a rotating hopper having a series of longitudinal openings, of an automatically-vibrating raceway, pivoted outside of said hopper and composed of two parallel channels, one end of said raceway projecting within said hopper, and the other being provided with diverging channels, the several parts being arranged to operate substantially as and for the purposes set forth.

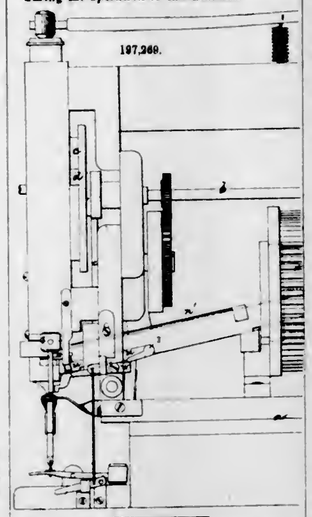
2. The vibrating double-channeled raceway, pivoted at a point exterior to the main hopper, and provided with the diverging channels 11 11, in combination with the slotted stationary nail-guide *z*, substantially as shown and described.

3. The combination of the slotted nail-guide *z*, the nail-tube 9, the angular block 12, and the diverging channels 11 11, as and for the purpose specified.

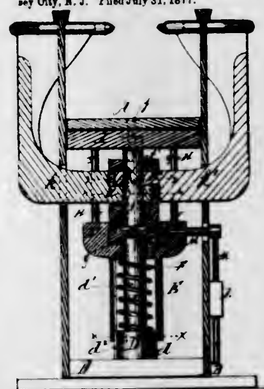
4. The fingers *a'* *a'* projecting from the end of the reciprocating raceway at each side thereof, and adapted to play in the slots 13 13, as and for the purpose set forth.

5. In a nail-driving machine, a cutting device, constructed and operating substantially as described, so as to cut off the points of headed nails, as desired, before driving and during the operation of the machine.

197,269.



197,270. STEP AND TURNSTILE REGISTERS FOR CARS, &c. Timothy Hawkes and Thomas F. Watson, Jersey City, N. J. Filed July 31, 1877.

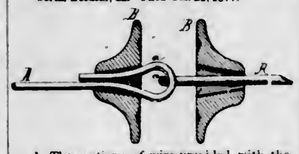


1. The platform A, plate I, rods H, slide E E', the spring F, the fixed base D D', and the registering device M N S' L L', constructed and operated substantially as and for the purpose set forth.

2. The guide-piece G, the spindle J, the hubs K and K', with their tappets *k'* and arms *k* and *k'*, and the rails R, arranged and operated substantially as and for the purpose set forth.

3. The spindle J, with its spiral grooves *j'*, and the hubs K and K', and their tappets *k'*, constructed as and for the purpose set forth.

197,271. CHECK-ROW PLANTERS. Lysander L. Haworth, Decatur, Ill. Filed Oct. 25, 1877.

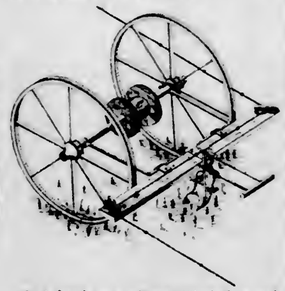


1. The sections of wire provided with the looped ends, and adjustable or sliding buttons for securing said ends and forming the knots or stops on the check-row cord or wire, substantially as described.

2. The combination, in a check-row cord or wire, of the sections or lengths A of wire, provided with the looped ends *a* and the sliding buttons B, substantially as and for the purpose described.

197,272. HAND CHECK-ROW PLANTERS. Lysander L. Haworth and Geo. D. Haworth, Decatur, Ill. Filed Sept. 22, 1877.

Brief.—Hand-planter carried upon a truck, and operated by a check-row cord.



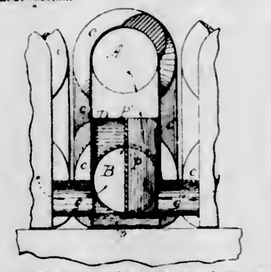
1. A hand corn-planter attached to and adapted to be propelled and operated by a hand check-row cord or marker-truck.

2. In a hand marker-truck, a hand or walking planter attached to and adapted to be propelled and operated by means of the vibrating frame or frame-bar of said truck, in combination with guides or pulleys for the check-row cord or marker, substantially as described.

3. The combination of the hand marker-truck, the check-row cord or marker, and a hand-planter attached to and propelled by the truck, substantially as described.

197,273. STEAM AIR-HEATERS. Edward Hays, Rochester, N. Y. Filed Aug. 3, 1877.

Brief.—Made in sections of two parallel pipes connected by head-chambers. Head-chambers divided diagonally by vertical partition turned to horizontal position, and joined to two of the side walls midway the chamber. Steam entering inlet-pipe is directed upward by partition, circulates through the parallel pipes, is returned to head-chamber again, and, striking the other side of vertical partition, passes into next section.

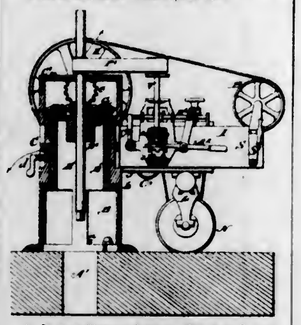


1. The combination, in a steam-heater section, of a two-part partition, composed of a vertical oblique portion, I', and cap or cover I'', with the adjacent and connected side walls *a b* and water-pan *p*, substantially as shown and described.

2. The spirally and obliquely ribbed pipes A B and chambers C D, in combination with the partition P P', inlet and outlet passages *d g*, and pan *p*, substantially as shown and described.

3. A steam air heater or radiator, composed of a series of spirally and obliquely ribbed sections, standing on edge, each section containing a two part partition, P P', and water-pan *p*, the adjacent sections of the series being connected by short pipes *d g*, forming a right line, substantially as shown and described.

197,274. MILLSTONE-DRESSERS. Levi S. Hogeboom, Three Rivers, Mich. Filed Sept. 8, 1877.



1. In a millstone-dresser, the arm I, supporting the entire operating mechanism, held between flanges C^2 on the rotating casing C, and made adjustable by means of set-screws k^2, substantially as and for the purposes herein set forth.

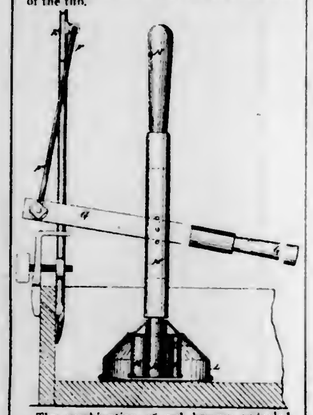
2. The combination of the reciprocating carriage J, vertically-adjustable arm K, and the laterally adjustable frame L, carrying the emery wheel N, substantially as and for the purposes herein set forth.

3. The arrangement of the band-wheel H, the stationary idle-pulley O, adjustable idle-pulley O', and pulley M on the emery-wheel N, said three pulleys moving with the carriage J, and the adjustable pulley R on the arm I, substantially as and for the purposes herein set forth.

4. The combination of the clutch *x*, lever A^3, notched sliding bar B^3, spring C^3, spring-arms b^3, and the adjustable stops c^3 on the carriage J, substantially as and for the purposes herein set forth.

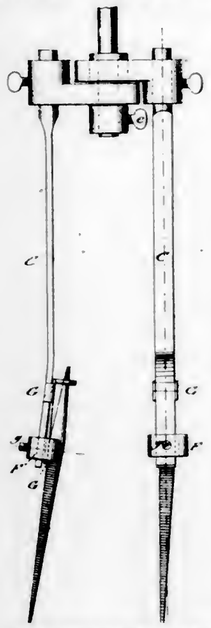
197,275. WASHING-MACHINES. Jacob H. Jeffery, Orland, Ind. Filed July 30, 1877.

Brief.—By means of the swiveled head and the swinging rod the standard supporting the washing apparatus can be moved to any part of the tub.



The combination of rod having swiveled head E and eye *e'*, swinging rod F, having hook end, lever G, and the slotted standard H, as set forth.

197,276. GIN-SAW-FILING MACHINES. W. J. Johnson, Hernando, Miss. Filed Sept. 29, 1877.



1. The combination of the file-stock with the shifting heads of the file-shanks and suitable set-screws, the upper head turning on a sleeve of the lower head, and sliding, with the latter, on the file-stock, substantially as described.

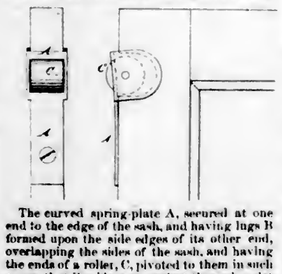
2. The combination of the file-stock and adjustable shifting heads of the file-shanks with an adjustable collar and clamp-screw of the file-stock below the heads, substantially as specified.

3. The combination of the file-carrying spring-shank with a spring-retaining tongue-clasp, substantially as and for the purpose set forth.

4. The combination of the inclined end of the spring-shank C, tongue G, having perforated end flange and binding-side flanges, laterally-shifting clasp F, and set-screw *g*, substantially as specified.

197,277. SASH-HOLDERS. Luther Jones and James Stroud, New York, N. Y. Filed Oct. 19, 1877.

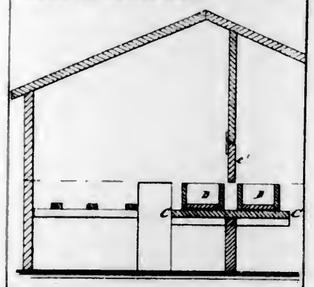
Brief.—A curved spring-plate carrying a pivoted roller has lugs upon its edges, overlapping the sides of the sash, and serving as guides, the construction specially adapting the device for use in street-cars, stages, &c., to prevent the sash from binding or sticking to the casing.



The curved spring-plate A, secured at one end to the edge of the sash, and having lugs B formed upon the side edges of its other end, overlapping the sides of the sash, and having the ends of a roller, C, pivoted to them in such a way that its side may project through a slot in the said spring-plate A to bear against the casing, substantially as herein shown and described.

197,278. HEN-HOUSES. Alpheus H. Kling, Perrysburg, Ind. Filed Sept. 1, 1877.

Brief.—A partition across the house has a hinged door, through which a sitting hen can be passed while on her nest, in order to separate her from the other hens.



A hen-house having movable nest-boxes D on a platform, C, the latter divided by hinged door or doors *c'*, as and for the purpose specified.

197,279. CHARTS FOR OBJECT-TEACHING. Sylvanus J. Lackey, Cleveland, Ohio. Filed Nov. 8, 1877.



1. As an improvement in charts for object-teaching, a card or sheet folded as described, and adapted thereby to be divided into the emblematic pieces 1, 2, 3, 4, 5, 6, 7, 8, and 9 by a single straight cut, substantially in the manner and for the purpose set forth.

2. The series of card-pieces 1, 2, 3, 4, 5, 6, 7, 8, and 9, formed as described and shown.

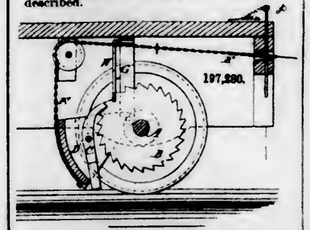
3. The combination and arrangement of the pieces 1, 2, 3, 4, 5, 6, 7, 8, and 9, to form the emblematic chart represented by Fig. 8 of the drawing.

197,280. CAR-STARTERS. William H. Lynn, Freeport, Ill., assignor to himself and Thompson Wilcoxon, same place. Filed Oct. 12, 1877.

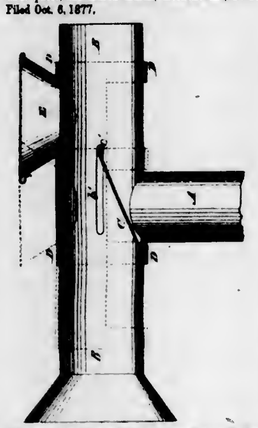
1. The combination, with the ratchet-wheel B and the chain E, of the lever D, carrying weighted pawl C, and pivoted eccentrically to the axle upon an independent support, substantially as described, and for the purpose set forth.

2. The releasing-spring H, combined with the lever D, pawl C, and ratchet-wheel B, and arranged beside the teeth of the latter, to release the engagement of the pawl, substantially as shown and described.

6. The combination, with the car-starting devices, consisting of a lever, pawl, ratchet-wheel, and chain, of a forked locking device, I, arranged in vertical guides to encompass, clutch, and hold the chain, and maintain the devices disengaged, substantially as shown and described.

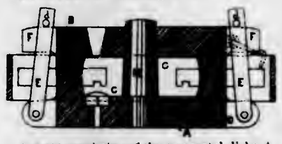


197,281. SPARK-ARRESTERS. Charles Mattoni, Jr., Belmont, assignor to himself, Gideon O. Orandall, same place, and Aaron Marks, Hornellsville, N. Y. Filed Oct. 6, 1877.



The combination of the horizontal cylinder B, the inclined plate C, the outer sliding cylinder D, and the funnel E, with the stack or flue A, operating together, substantially as herein shown and described.

197,282. CHILL-MOLDS FOR WHEELS. Geo. McArthur, San Leandro, Cal. Filed Aug. 6, 1877.



A mold consisting of the two metal disks A and B, provided with the recesses C, slots G G, and mandrel H, the two disks being clamped together by the clamping device, consisting of the irons E E, pivoted to the lugs on one disk at *e e*, and engaging with the lugs F F on the other disk, as herein described, and for the purpose set forth.

197,283. HAMMERS FOR DRESSING STONE. Alex. McDonald, Belmont, Mass. Filed Oct. 24, 1877.

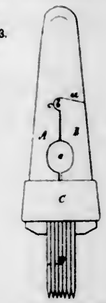
1. The tapered and separate head parts A and B, provided with the rib *b* and groove *c*, arranged as set forth.

2. The tapered and separate head parts A and B, provided with the rib *b*, groove *c*, and collar C, arranged as set forth.

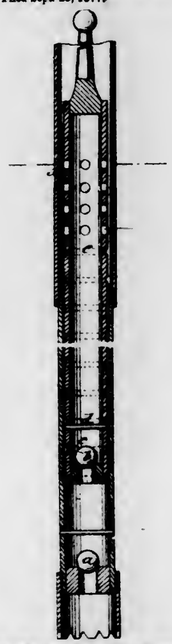
3. The tapered and separate head parts A and B, provided with the rib *b*, groove *c*, oblique shoulder *a*, and handle-socket *e*, arranged as represented.

4. The tapered and separate parts A and B, provided with the collar C, the rib *b*, groove *c*, handle-socket *e*, and oblique shoulder *a*, arranged as set forth.

197,283.



197,284. LIFT-PUMPS. George C. Merrill, East Saginaw, and Charles C. Utter, Saginaw City, assignors to themselves and Chas. H. Plummer, Saginaw City, Mich. Filed Sept. 29, 1877.



1. The combination of a valved pump-chamber with a valved tubular plunger, having outer annular grooves for water-packing, discharge-holes at the upper end, and an air-chamber at the top end, substantially in the manner and for the purpose set forth.

2. A tubular plunger having outer annular grooves at suitable intervals on that part within the pump-chamber, discharge-holes at the upper part, and an air-chamber at the top end, substantially in the manner and for the purpose specified.

3. The combination of the slotted guide-casing having hinged front section with the sliding rack bar, and hinged fingers to admit the throwing of the fingers into horizontal position for arranging them in the leaves of the music, substantially in the manner and for the purpose specified.

197,285.



197,285. LEAF-TURNERS. Adolph Merkt, New York, N. Y. Filed Sept. 29, 1877.

1. A music-leaf turner made of a guide-casing having a top slot with angular or curved central portion, and of a movable rack-bar sliding therein, and having hinged and swinging fingers, substantially in the manner set forth.

2. The combination of a guide-casing having top slot with angular or curved center portion with a movable rack-bar having hinged fingers, and with suitable mechanism for working the rack-bar in either direction, either by hand or foot, or both, substantially as set forth.

197,286.



197,286. TRUSS-BRIDGES. Richard B. Osborne, New Castle County, Del. Filed June 30, 1877.

Brief.—The lower chord of the truss is a curved truss, drawn into position by main braces placed radially thereto. The bases of the end sections rest on rollers, to accommodate expansion and contraction.

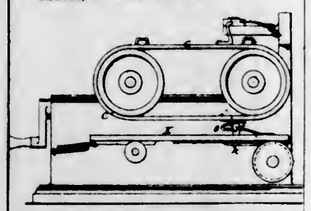
1. The combination of an ordinary main truss, an arched truss forming the bottom chord thereof, and main rods or king-bolts running through both the main truss and the arched truss, substantially as and for the purposes specified.

2. A bridge structure having incorporated therein an ordinary main truss and an arched truss, forming the lower chord thereof, and a series of main rods or king-bolts standing in the radial lines of a circle of which the arched bottom chord is an arc, as and for the purposes set forth.

3. The arched bottom chord, having bracing and counterbracing, as shown, combined with the main truss, and with the main rods of said truss passing through both the main and arched trusses, substantially as described, whereby while the main truss retains its powers, the arch must retain its shape and act in concert with the main truss.

4. A bridge having incorporated in its structure an ordinary main truss and an arched bottom chord, consisting also of a truss combined with self-adjusting and movable skew-backs, substantially as and for the purposes specified.

197,287. MECHANICAL MOVEMENTS. Bernard Owens, St. Louis, Mo. Filed Oct. 1, 1877.



1. The combination, with the pulleys adjustable in distance asunder, of the belt with operating-wiper, substantially as set forth.

2. The combination of belt with wiper or lug L and the bar K, with lug or projection J, substantially as set forth.

3. The combination, with the wiper I and lug J, of the spring-catch O, substantially as set forth.

4. The combination of the pulleys A and B, made adjustable in distance from one another, and the belt made elastic to allow the distance movement in the pulleys.

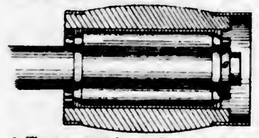
5. The combination, in a belt passing around pulleys made adjustable in distance, of the inelastic portion C and elastic portion C', substantially as and for the purpose set forth.

197,288. SIGNS. Joseph Perkins, San Francisco, Cal. Filed Nov. 6, 1876.



Letters of paper, wood, metal, or other material, made with lugs or connections so arranged that they may be fastened together or set up to form signs independent of any other support between the letters, substantially as herein described.

197,289. ANTI-FRICTION JOURNAL-BOXES. Alvin L. Peters, Anoka, Minn., Gersham M. Peters, Buffalo, N. Y., and Orrin E. Peters, Lancaster, Ohio. Filed Nov. 9, 1877.



1. The several devices, as described, for holding the series of rollers in the hub or journal-box—viz., the flanged or shouldered box, nut, or journal, or their equivalent—to conform with the bevels of the rollers, the rings either as an entire circular piece or sections thereof, either flat or one or both sides round or oval, and the connecting-bars all revolving simultaneously together.

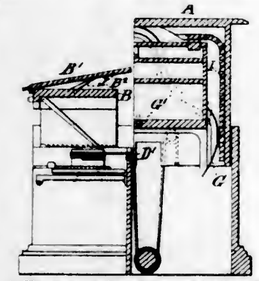
2. The bearings with the shoulder beveled or notched, combined with the nut, or its equivalent, correspondingly beveled or notched, as shown in Fig. 4.

3. The several parts, as described, combined for the purpose of overcoming the friction on the bearings of revolving wheels, shafts, and cylinders.

4. A cylinder or frame made of notched plates or flanges fastened together by rods or bolts, (see Fig. 8,) which, when in position in the hub or boxing, retains the rollers in their respective places, revolving simultaneously with them.

197,290. DESKS. David L. Ransom, Buffalo, N. Y. Filed Apr. 24, 1877.

Brief.—The front and back sections of the desk are separately adjustable vertically. The front section has an additional hinged top, that is independently adjustable to any desired angle of inclination. The back section is provided with swinging side pieces, which support a flexible sliding lid when in its elevated position.

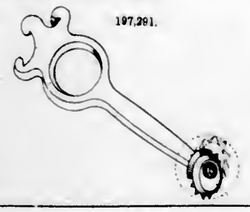


1. The combination of two vertically-adjustable tables, operated by means substantially as specified, one forming a front adjustable writing-desk, the other a cabinet for holding books, papers, &c., both of which are separately adjustable, so that a flat drawing-table, adjustable to the height desired, may be formed, or the back and front tables adjusted to form a convenient cabinet and writing-desk, as described.

2. The combination of the table A, side pieces G, and table B, arranged substantially as specified, for holding and supporting the desk or cabinet A, when elevated, as shown in Fig. 3.

3. In a vertically-adjustable desk, A, the combination of the side pieces G, pins G', and curtain or flexible cover I, for the purposes described.

197,291.

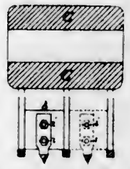


197,291. IMPLEMENTS FOR EXTRACTING CARTRIDGE-SHELLS. W. G. Rawbone, Toronto, Ontario, Canada. Filed Oct. 1, 1877.

Brief.—The toothed disk catches into the inside of the shell when the handle is turned.

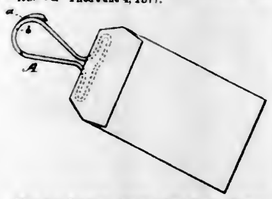
A head for a cartridge-case extractor, consisting of two beveled disks, both of which are eccentrically mounted on the end of an extractor-bar, and one of which is fixed and the other capable of being rotated, substantially in the manner shown, and for the purpose hereinbefore described.

197,292. PADDLE-WHEELS. Dwight B. Rich, Boston, Mass., assignor of one-half his right to David Loring, same place. Filed Oct. 11, 1877.



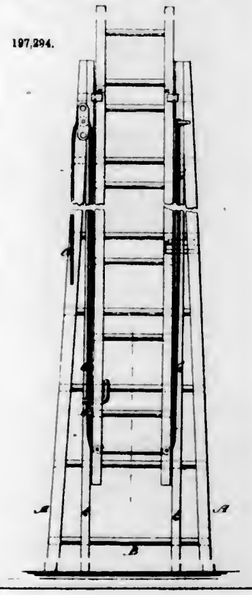
In a steamboat paddle-wheel, the braces *c c* attached to the buckets *b b b*, and operating in the manner and for the purpose specified.

197,293. TAG-FASTENERS. Walter R. Rossell, Norfolk Va. Filed June 4, 1877.



The tag-fastener herein described, formed of the continuous piece of wire A, having a loop at its inner end, and at its outer end the loops *a b*, in contact with each other, and having pointed ends projecting downward, the pointed end *c* projecting also outward, substantially as shown and described.

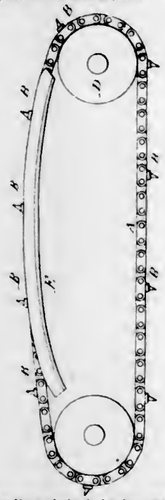
197,294.



197,294. LADDERS. Samuel B. Seymour, Mount Morris, N. Y. Filed Aug. 11, 1877.

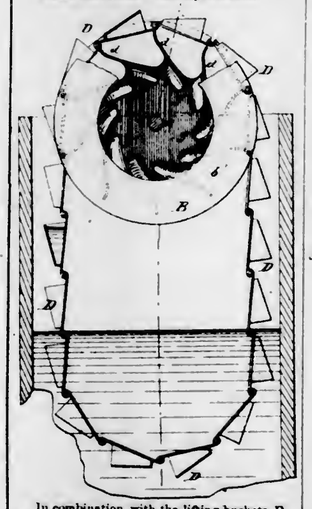
The combination of the converging side bars A A and parallel strips C C, connected by rounds B with an extension-ladder, adapted to slide within and be guided by said strips, as and for the purpose specified.

197,295. LOG-CARRIERS. William R. Shedman, Williamsport, Pa. Filed Oct. 26, 1877.



The endless chain A, having spiked transverse bars B, the driving-wheel D, and the curved track-bars E, in combination, substantially as herein shown and described.

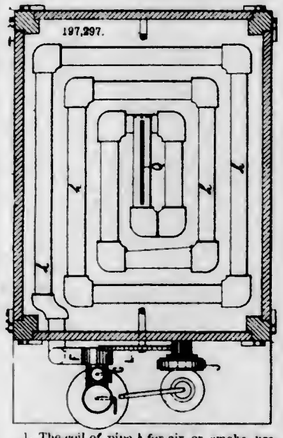
197,296. WINDLASS WATER-ELEVATORS. Russell T. Stokes, Garnett, Kans. Filed Sept. 22, 1877.



In combination with the lifting-buckets D, the center-discharge wheel B, constructed with inclined partitions *d* and laterally-discharging chutes or spouts *g*, arranged over a trough, C, substantially in the manner described.

197,297. APPARATUS FOR DRYING FRUIT, SMOKING MEAT, &c. Benjamin J. Tayman, Philadelphia, Pa. Filed Sept. 18, 1877.

Brief.—When fruits or vegetables are to be dried, they are placed in trays. Meats are to be hung by S-shaped hooks on the stirrup-rods.

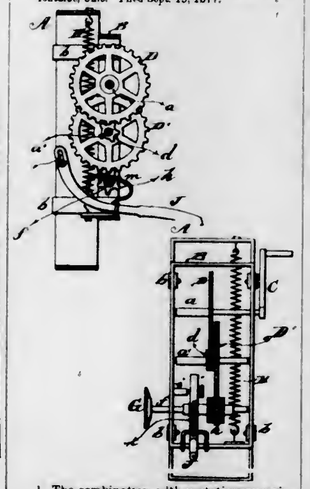


1. The coil of pipe A for air or smoke, provided with the slot or opening Q in its last section, the end thereof being closed, in combination with the exhaust-fan F, having the supplemental pipe and valve G, in the manner and for the purposes described.

2. The revolving frame O, with the swinging stirrups, in combination with the coil of pipe for air or smoke, having its last section slotted and the end closed, and an exhaust-fan provided with a supplemental pipe and valve, arranged substantially as described, and for the purposes set forth.

3. The ventilator S, in combination with the revolving frame O, the coil of pipe, and the exhaust-fan with its supplemental pipe and valve, all arranged in the manner and for the purposes set forth.

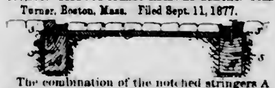
197,298. SAW-GRINDERS. Enoch P. Terrell, Bellefontaine, Ohio. Filed Sept. 15, 1877.



1. The combination, with a stationary main frame, A, of a frame, B, sliding thereon, and connected therewith by a spring, H, and hooked arms *b b*, and carrying the shaft *f* of the grinding wheel, the gear-wheels D D, *d d*, and the lever J and crank C, substantially as described, and for the purpose set forth.

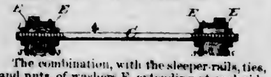
2. The combination, with a stationary frame, A, and sliding frame B, constructed as set forth, and connected with the frame A by a spring, H, and hooked arms *b b*, of the gear-wheels D D' *d d*, laterally-movable grooved shaft *f*, carrying the grinding-wheel G, and lever J, having the staple *m*, substantially as described, and for the purpose set forth.

197,299. TIES FOR STREET-RAILWAY TRACKS. John Turner, Boston, Mass. Filed Sept. 11, 1877.



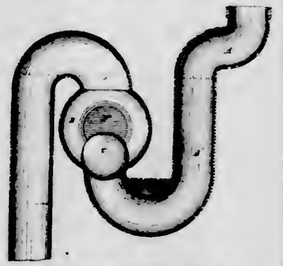
The combination of the notched stringers A A, the metallic ties C, lying level with the upper faces of the stringers in the notches below the rails, having bent ends bearing against the outer sides of the stringers, and secured thereto by horizontal spikes *s* and vertical spikes *s'*, as specified.

197,300. TIES FOR STREET-RAILWAY TRACKS. John Turner, Boston, Mass. Filed Sept. 11, 1877.



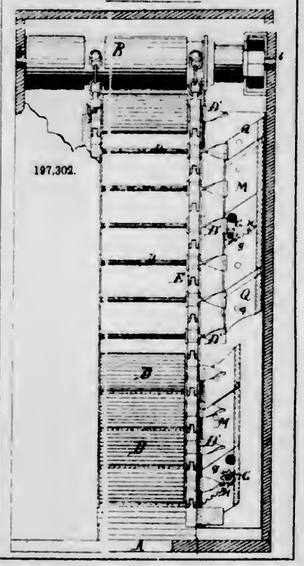
The combination, with the sleeper-rails, ties, and nuts, of washers E, extending at each side above the tops of the sleepers, for the purpose set forth.

197,301. WASTE-PIPE TRAPS. James L. Turner, New York, N. Y. Filed Apr. 16, 1877.



The combination, in waste-pipe traps, substantially as described, of the bend in chamber A, the furrowed curve Z, the elongated and enlarged or bulbous shaped chamber B, and the sinking ball C, as herein applied, for the purposes specified.

197,302.



197,302. SHUTTERS. William B. Turner, New York, N. Y., assignor to Wm. Menzies and Wm. Menzies, Jr., same place. Filed Mar. 23. 1877.

1. The twisted parts D' of the slats D, in combination with guides bearing thereon, as herein specified.

2. The slats D and twisted parts D', in combination with guides M M, having freedom to move outward and inward, and with mechanism G H for inducing such motion, so as to control the positions of the slats D D', as herein specified.

3. The shafts *g* and gear-wheels G, in combination with the guides M N, and with racks H thereon, for readily adjusting the guides out- and inward, so as to change the inclination of the slats D D' at will, as herein specified.

4. The slats D D', turned by the moving of the guides M N, with the double motion described—that is, both outward or both inward, and at the same time the one upward and the other downward—so as to favor the turning motion, as herein specified.

5. The extension-pieces Q, connected with the guides M N, and moved outward and inward therewith, operated, as shown, to control the slats in shifting onto and off from the guides M N, as herein specified.

6. The sections M N of the guides, made separately adjustable to allow the slats at different levels in the same window to be set at different angles, as herein specified.

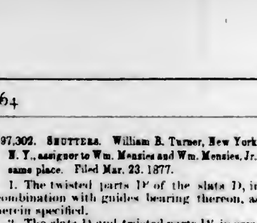
7. The movable plates T, connecting the sections of guides N with the extensions Q of the adjacent sections N, arranged and operating as and for the purposes herein specified.

197,303. MEANS FOR PREVENTING FRAUD IN STAMPS, CHECKS, BONDS, &c. Thomas C. Van Nuys, Bloomington, Ind. Filed Nov. 1, 1877.

1. The improvement in the art of preventing fraud in the use of stamps, checks, bonds, drafts, bills, labels, tickets, and all other written or printed matters, consisting in first impregnating the paper with a soluble salt or salts of either nickel or cobalt, or the two combined, and then canceling, writing, or stamping, or printing upon the paper so treated with a soluble sulphide, so as to produce an insoluble colored sulphide in the texture of the paper, substantially as set forth.

2. Paper suitable for use in making stamps, checks, bonds, and other instruments of value, consisting of paper such as ordinarily used for these purposes, impregnated with a solution of a salt of either nickel or cobalt, or both, as and for the purpose set forth.

197,304. CAR-WHEELS. Nathan Washburn, Hartford, Conn. Filed Sept. 6, 1877.



A car-wheel having the comparatively-unused portion *b* of the tread of cast-iron, and the other portion, *c*, of the tread of another metal, as steel, bearing the lateral projections *d* cast thereupon and enveloped by the iron in the process of casting, all substantially as herein described.

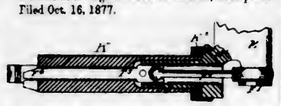
197,305. FEED-GUIDES FOR PRINTING-PRESSES. D. Weckerlin, Brooklyn, N. Y. Filed Jan. 31, 1877.



1. The metal feed-gage, consisting of plates 3 8, the front one of which is adjustable to and from the other, by means substantially as described.

2. The metal feed-gage, consisting of a horizontal spring shank, 4, and plates 3 8, one of which is adjustable to and from its companion, substantially as described.

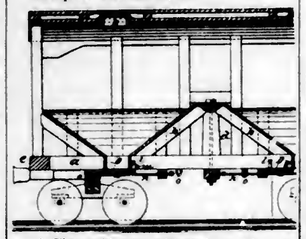
197,306. SOLE-EDGE-TRIMMING MACHINES FOR BOOTS AND SHOES. Chas. J. Addy, Boston, Mass., assignor of one-half his right to Essex S. Abbott, same place. Filed Oct. 16, 1877.



1. The combination of the swiveling tubular handle K and the vibrating knife F^5 F^6, operating within the handle, substantially as described, and for the purpose set forth.

2. The combination of the vibrating knife F^5 F^6, handle K, and knife-driving mechanism F^3 F^4 with the movable head E, all operating substantially as described, and for the purpose set forth.

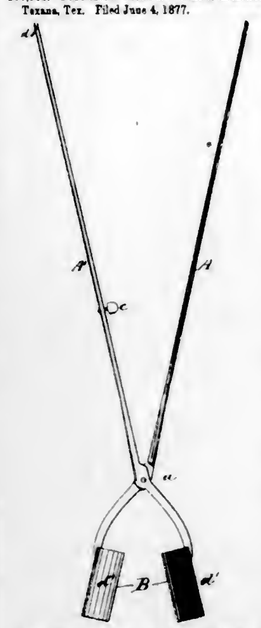
197,307. GRAIN-CARS. James Anderson, Jr., Anderson, Ohio, assignor to himself and Thos. L. Anderson, same place. Filed Mar. 24, 1877.



1. The combination, with the hopper-door, of sliding loop *l*, staple *m*, rod *n*, and the staples *o*, substantially as and for the purpose specified.

2. The combination, in a grain-car with a double hopper, of beams *a*, struts *b*, key-piece *c*, and post *d*, all constructed and arranged as shown and described.

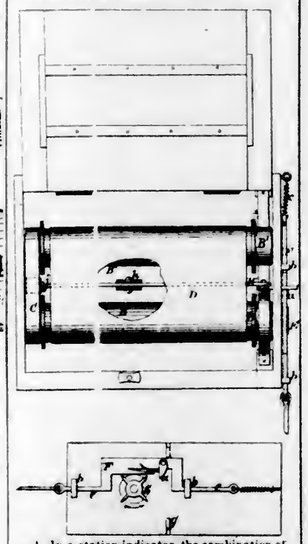
197,308. POST-HOLE DIGGERS. John J. Armstrong, Texana, Tex. Filed June 4, 1877.



The improved post-hole digger herein described, consisting of the arms A A', the former having slot *b*, pivoted at *a*, and lying, when closed, close together from their pivoting-point upward, the said arms being semi-circular in their horizontal cross-section, bail or loop *d*, catch-lug *c*, and semi-cylindrical augers or cutters *d'* *d''*, all combined, arranged, and operating substantially in the manner herein shown, for the purpose set forth.

197,309. STATION-INDICATORS. George W. Averell, Massey, N. Y. Filed May 2, 1877.

Brief.—The operating-slide, by which the cylinders are rotated, is turned in its bearings so as to bring its operating-pawl on the opposite side of the cylinder, in order to reverse the motion of the cylinders, and wind the apron in the opposite direction.



1. In a station-indicator, the combination of the reversible angular slide F, having horizontal guide-rods *e* and pawl *a*, with the guides *b*, drums B B', spur-wheel E on the journal of one of the drums, and the strip or apron D, containing the names of the successive stations, all substantially as and for the purposes hereinbefore described.

2. The combination, with the reversible actuating-slide F and the drums B B', of a frame which carries brake-shoes, substantially as and for the purpose shown and described.

3. The combination, with the reversible actuating-slide F, the drums B B', and the belt C, which connects said drums, of a tightening lever, H, substantially as and for the purpose herein set forth.

197,310. HYDRAULIC HOISTING APPARATUS. Cyrus W. Baldwin and Wm. Burdon, Brooklyn, N. Y. Filed Aug. 3, 1877.

1. In a hydraulic hoisting apparatus, a water-piston adapted, by means substantially as described, arranged within the cylinder, to travel at full stroke to raise heavy loads to the highest point, and to travel but half such distance to raise light loads to the same point, substantially as set forth.

2. The combination of a centering mechanism with the piston and chains, for the purpose of preventing the piston from tipping and binding in the cylinder whether the chains are changed for a full or half stroke of the piston, substantially as described.

3. A safety apparatus for the elevator, consisting of a ball or roller, adapted by the breaking of one or both chains to be automatically thrown down between the hoisting-drum and an abutment on the base of the cylinder, to stop the rotation of said drum and arrest the falling car, substantially as described.

4. The combination of the pivoted centering mechanism and the double chains with the piston and chain-drum, substantially as described, for the purpose specified.

5. The chains L, provided with cross-bar P, to engage with the hooks Q of the centering mechanism to permit the full stroke of the piston, substantially as described.

6. The chains L, provided with the end cross-bar O, to engage with the pivoted hook R, to permit the half-stroke of the piston, substantially as described.

7. The hook R, adapted, at the will of the operator, to engage the chains for a half-stroke of the piston, and to disengage them for a full stroke of the piston, substantially as described.

8. The centering mechanism, consisting of the cross-rod I in the piston, the arms K hung thereon and provided with catches, and the grooved drum J, journaled in the lower ends of the arms, substantially as described.

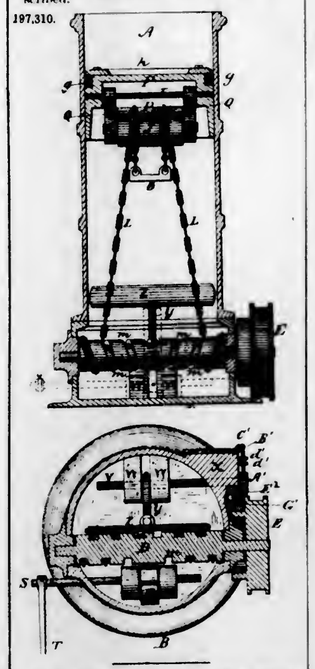
9. The combination of the horizontal spring guide-plate Z with the chains, substantially as described, for the purpose specified.

10. The spring guide-plate Z, swiveled upon its supporting-arm Y, combined with the double chains, substantially as described, for the purpose specified.

11. The toe A', combined with the shaft of the guide-plate and its spring-connection, and with the pivoted arm E' and ball or roller G', substantially as described, for the purpose specified.

12. The ball or roller G', held in the recess of the block X, and adapted to be thrown down into the space H' between such block and the hoisting drum by the pivoted upright arm E', the latter being operated by the plate Z and its connections, substantially as described.

197,310.



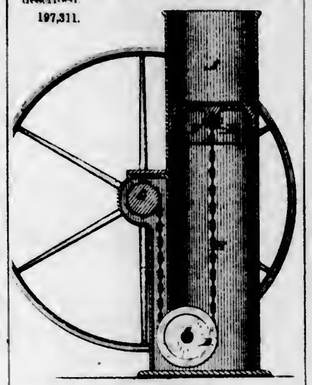
197,311. HYDRAULIC ELEVATORS. Cyrus W. Baldwin and Wm. Burdon, Brooklyn, N. Y. Filed Sept. 13, 1877.

Brief.—Two cylinders are placed side by side, one of which carries the water-piston and the other the winding-drum. The drum and piston are connected by one or more chains. To the shaft of the drum is fixed the large driving-pulley.

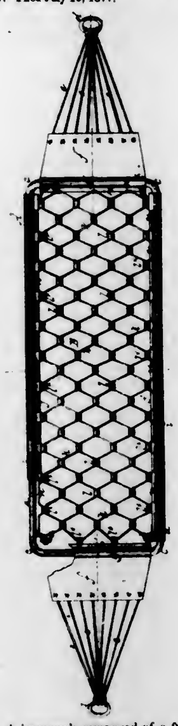
1. A hydraulic elevator, consisting of two cylinders placed side by side, one of which carries the water-piston, and the other the winding-drum or shaft, said drum and piston being connected by one or more chains or ropes passing over intermediate guide-pulleys or sheaves, substantially as described, for the purpose specified.

2. In a hydraulic elevator, an upright cylinder or pipe carrying a piston, and an upright cylinder or pipe carrying a revolving drum, which is connected to the piston by a flexible connection, both cylinders being mounted upon the same base, within which is located pulleys or sheaves for guiding the chains from the drum to the piston, substantially as described.

197,311.



197,312. HAMMOCKS. Chauncey Barnes, South Orange, N. J. Filed July 19, 1877.



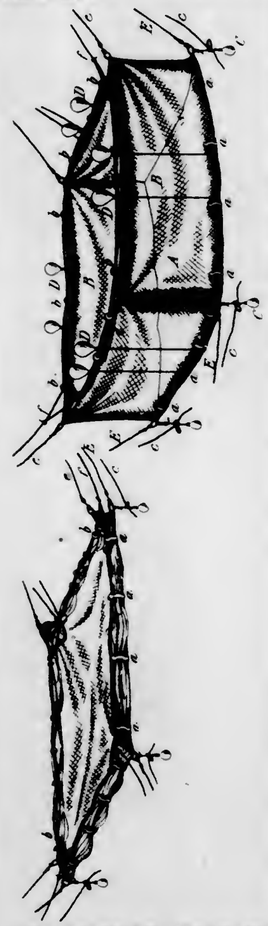
1. A hammock composed of a frame, A, an elastic open-work bottom, B, and suspension-rings *d*, cords *e e*, lappets *f*, and sleeves *g g*, secured to the end bars of the frame A, substantially in the manner and for the purpose herein shown and described.

2. The combination, with the frame A, its end bars *h h*, and its side bars *a a*, of canvas sleeves *g g' i*, provided with thongs *h h' j*, to which the bottom B is secured by means of the cords *n*, substantially in the manner and for the purpose set forth.

3. The combination, with the frame A, its detachable side bars *a a*, canvas sleeves *i*, and flanges *j*, of cords *n n*, passing through holes *o* in said flanges, and through the loops *P P* of the bottom B, substantially as and for the purpose shown and described.

197,313. SEINES FOR FISHING. Loring Bates, Cohasset, Mass. Filed Apr. 7, 1877.

Brief.—In certain localities—as where there are sharp rocks—a perforated canvas bottom is used for the box-shaped net. Weighted stakes are also sometimes used to support the corners of the net.



1. The combination, with a net or seine having a bottom and surrounding sides, of the clasps *a a*, or their equivalent, for the purpose described.

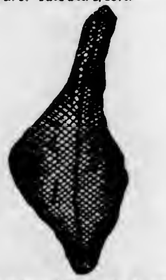
2. In a net made with a bottom and surrounding sides, provided with devices for temporarily securing the sides down, the floats *b b* and D D, detachable weights C C, working-lines E E and *e e*, and double pursing-lines *f f*, reeving through the floats *b b*, as and for the purpose described.

3. In a net made with a bottom and surrounding sides, and provided with devices for temporarily securing the sides down, the perforated canvas or cloth bottom, as and for the purpose described.

4. The combination of the stakes G G, receiving and supporting stones *k k*, or their equivalent, and the endless line E E, with a net made with a bottom and surrounding sides, and provided with devices for temporarily retaining the sides down, all substantially as and for the purpose described.

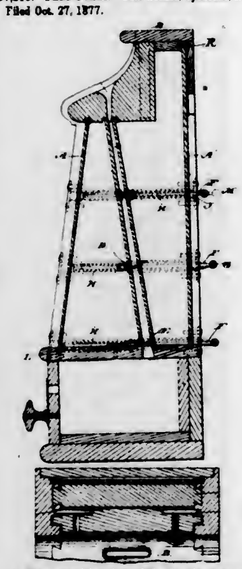
5. The improved method of operating seines or fishing-nets having a bottom and surrounding sides, by first sinking below the surface of the water, with all or part of the said sides gathered, folded, and temporarily secured down as flush with the bottom edge or edges as practicable, and afterward raising the said sides to their normal position while still under the water, substantially as described, and for the purposes set forth.

197,314. PROCESSES FOR PRESERVING MEATS DURING TRANSPORTATION AND STORAGE. John J. Bate, Brooklyn, N. Y. Filed Dec. 1, 1876.



The herein described process of preserving meat during transportation and storage by enveloping the same in a covering of fibrous or woven material, and subjecting it when thus enveloped to the continuous action of a current of air of suitably low and regulated temperature, substantially as and for the purpose set forth.

197,315. FARE-BOXES. Geo. Beadle, Syracuse, N. Y. Filed Oct. 27, 1877.



1. The combination of the box having dovetailed recesses in its sides, the cross-bar R, and top B, each provided with corresponding dovetailed projecting ends, with the front and rear sides, chute, and locks, substantially as described.

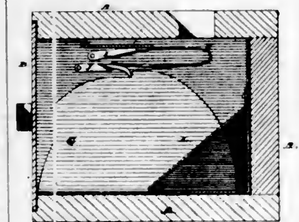
2. A fare-box provided with a change-chute, consisting of two or more downwardly-diverging plates of glass, the space between which is divided into two or more sections by means of sliding gates, whereby the fares may be retained in such sections for inspection, as shown and described.

3. The combination of the bottom L, front glass A, back glass A', downwardly-diverging change-chute divided into sections by means of sliding gates, and the cover B, as shown and described.

4. The combination of the rods F, provided with slots, the gate D, the ends of which are inserted in said slots, the springs H, placed around said rods and abutting against the said gate, with the side of the box provided with an aperture, and a removable plate placed over the same, to facilitate the removal of the gate, substantially as described.

197,316. CASH-DRAWERS FOR STREET-CARS. Geo. Beadle, Syracuse, N. Y. Filed Oct. 27, 1877.

Brief.—When the drawer is opened, the projecting bolt or lug strikes the lever of the register, and causes an alarm to be sounded and the register to record the fact. A further outward pull of the drawer releases the hinged top, which is thrown upward by the spring. The chute is dropped by releasing its holding-stops held in place by the spring.



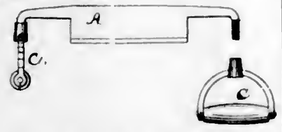
1. The drawer B, provided with the bolt E, and register C, provided with the lever D, in combination with casing A, substantially as described.

2. The drawer B, provided with the hinged portion B, stop I, and spring K, in combination with the casing A, substantially as described.

3. The drawer B, provided with the chute G, inclined bottom L, lever J, and spring K, substantially as shown and described.

197,317. DRAWING-KNIVES. Simeon Bedford, Newark, N. J. Filed Aug. 22, 1877.

Brief.—The handles can be adjusted at any angle with reference to the bent end of the handle and blade.



The drawing-knife A, having the handles C so hung that the draft in use shall be across the line of the base F thereof, substantially as and for the purpose specified.

197,318. OIL STOVES OR LAMPS. Ebenezer Blackman, New York, N. Y. Filed Oct. 23, 1877.

1. The combination, in a stove or lamp, of wick-adjusting mechanism arranged in the oil fount or reservoir, and adapted to move with the wick in adjusting it, and adapted to be operated from outside the oil fount or reservoir to release its hold on the wick and take hold of a different portion, substantially as specified.

2. The combination, with the oil fount or reservoir of a stove or lamp, of wick-adjusting mechanism consisting of jaws provided with teeth for engaging with the wick, and adapted to be opened or spread apart to release the wick, or brought into proximity with each other to embrace the wick, substantially as specified.

3. The combination, with the oil fount or reservoir of a stove or lamp, of jaws adapted to embrace the wick, and a screw-shaft adapted to be manipulated outside the fount or reservoir for the purpose of raising or lowering said jaws, substantially as and for the purposes specified.

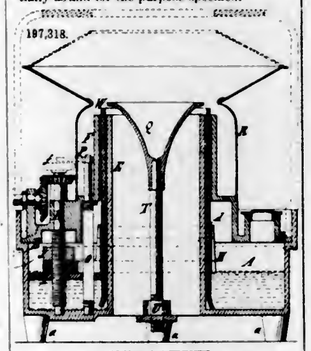
4. The combination, with the oil fount or reservoir of a stove or lamp, of jaws pivoted in place, and adapted to embrace the wick, and means for raising and lowering, as well as opening and closing, said jaws from outside the said fount or reservoir, substantially as specified.

5. The combination, with the oil fount or reservoir of a stove or lamp, of jaws adapted to embrace the wick, and pivoted together at one end, a spring connecting said jaws at their free ends, and a device for spreading or opening said jaws, substantially as and for the purpose specified.

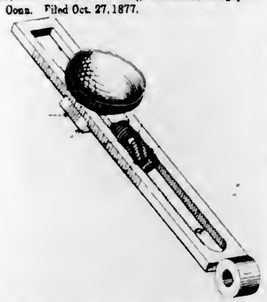
6. The combination, in an oil-stove or lamp with jaws pivoted together, and adapted to embrace the wick, of a stock-piece for supporting said jaws, substantially as specified.

7. The combination of the oil fount or reservoir A, its cap-piece or cover B, wick-tube E F, wick-adjusting jaws H, with their spring S, elevating-screw K, and spreading or opening rod O, and the deflectors Q R, substantially as and for the purpose specified.

197,318.



197,319. GUN-SIGHTS. Hugo Borchardt, Bridgeport, Conn. Filed Oct. 27, 1877.



1. A slotted leaf provided with female screw-threads formed upon the two opposite sides of the slot, in combination with a centrally-placed impelling-screw connected with or operating to move the slide.

2. An impelling-screw connected with and operating the slide of a gun-sight, provided with a thumb-piece formed by cutting the equidistant grooves, representing the division-lines of a scale, across a portion of the thread of such screw.

3. A slide for a rear rifle-sight provided with sharp-edged side flanges for embracing the leaf, and affording upon the outer side of either flange a plane surface inclined toward the edge of the leaf, and terminating in the central portion thereof, whereby the relative positions of the usual scale-marks on the edge of the leaf and on the inclined surface of the flange, respectively, are made readily observable.

197,320. GRAIN-DRILLS. Jas. S. Bogle, Springfield, Ohio. Filed May 3, 1875.

1. A cut-off gage arranged within the channel of the distributing wheel, with its swinging end facing the moving grain, and adapted to intercept all except what passes through the discharge-outlet.

2. The gage with its swinging or adjustable end facing the moving grain, in combination with the rotating disk of the distributing-wheel.

3. The adjustable gage E, pivoted in rear of the driving-shaft, its forward end operating behind a stationary flange on the casing-plate, substantially as described.

4. The gage E, provided with slotted or open ends, whereby it may be attached to or removed from the rock-shaft F, at will, without removing the shaft or displacing any of the remaining gages.

5. The enlarged run or reservoir in the seed-cup, formed at its discharging end, adjacent to the measuring-channel, in the arc of a circle, of which the pivot of the adjustable gage is the center, whereby the bed of said gage, under its various adjustments, is kept flush with the curved edge of said seed-run, for preventing the grain from crowding in the measuring-channel and passing above the gage, substantially as described.

6. The distributer-casing provided with the opening in the flange c^1, to permit the displacement of dirt or other obstructing material that may accumulate on the top of the gage.

7. The distributer-casing provided with the open shaft-bearing c^2 for the rock-shaft F, permitting the removal or adjustment of the distributers without displacing said shaft.

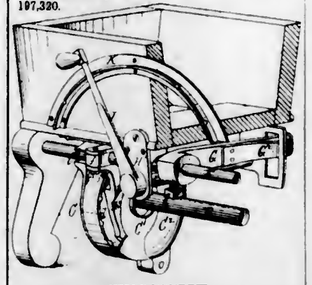
8. The adjustable gages attached to and operated by a rock-shaft, in combination with an indicator arm or lever moving in a direction at right angles to the direction of movement of the gages.

9. In a seeding-machine, the spring G^3, in combination with the governing-arm G and pinion P, substantially as and for the purpose described.

10. The indicator-plate K and spring J, in combination with the shaft I, pinion P, governing-arm G, and spring G^3, for adjusting the gages, arranged and operating substantially as described.

11. In a seeding-machine, the pendent slotted bracket H, provided with a bearing for the rock-shaft I, in combination with the arm G, arranged and operating as described.

197,320.



197,321. COOKING, HEATING, AND DRYING APPARATUS. Daniel K. Boswell, Indianapolis, Ind. Filed Oct. 20, 1877.

Brief.—A wooden closet-like case inclosing an elevated removable oven, and a removable stove containing fire-box and flue-box, adapted to be slid in and out of the case. Cooking is done by air taken in at the base of the case, and heated before allowed to act upon the cooking-vessels. Products of combustion do not come in contact with the cooking-utensils.

1. The combination of the stove E', flue P, elevated oven S, and case A, substantially as set forth.

2. The hot-air flue P, in connection with the hot-air chamber L below, and perforated bottom Q of oven S above, and damper O', in manner and for the purposes specified.

3. The elevated oven S, connected at its bottom with hot-air flue P, and having sliding registers R and V, for regulating the admission and escape of hot air, substantially as shown and described.

4. The described furnace or fire-box E and flue-box G, inclosed within a hot-air chamber, having a registered inlet or series of inlets, N, in the front of the case.

5. The described series of reverted or return flues g' g'' g''' g'''', with inlet *e*, damper K, having rod or handle *k*, for actuating said damper, central flue-strip g^5, and exit *g*, substantially as set forth.

6. The shields or guard-plates H H', extending above the stove, and interposed between

10. A stove constructed with a vertical duct, formed by deflecting-plate H^1 and inclosing-plate I', said duct being in communication with the atmosphere of the room, and with an air-chamber, L, formed by the top of the fire-box E and top plate J, the latter having openings therein for the insertion of sauce-pans and similar utensils, so that the lower parts of such vessels may come in contact with the hot air in chamber L, substantially as set forth.

11. The combination of the outer closet-like case, having glass windows in its ends, and the removable oven having open ends, against which windows the said open ends abut, and are thereby closed, substantially as set forth.

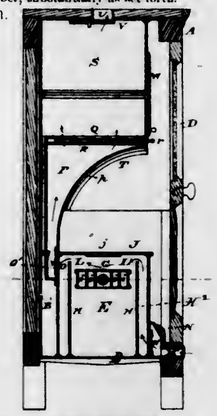
the stove sides and the walls I' of the inclosing-shell, with which they form chambers, the front one of which communicates exteriorly with the atmosphere, and interiorly with the various cooking-places, in the manner set forth.

7. In combination with the duct H^1 and hot-air chamber L of the stove, the passage P, oven or baking-space S S', and registers R R', and dampers V V, substantially as and for the purpose designated.

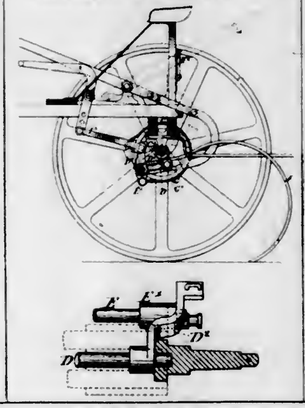
8. The combination of the vertical duct, formed by deflecting-plate H^1 and inclosing-plate I', and the chamber L, between the top of the fire-box E and the plate J, said chamber being formed to contain heated air without communicating directly with the fire or smoke of the stove, but being in communication with the air of the room, substantially as and for the purpose set forth.

9. The removable hot-air flue P and oven S S', applied within the external case A and in relation to the stove E, whereby the entire space above the boiler-plate is convertible from a cooking and baking chamber to a drying-chamber, substantially as set forth.

197,321.



197,322. HORSE HAY-RAKES. Edward T. Bousfield, Bedford, England. Filed July 19, 1877.



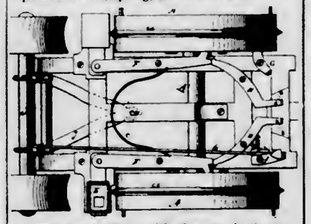
1. The tine-rod E, capable of being rocked in its bearings in the cradle D^2 by a treadle, 1, or its equivalent, in combination with the rings G^1 on the traveling wheels, and the friction-bands G, applied to said rings, and tightened thereon by the rocking of the tine-rod, substantially as herein described.

2. The looped tine-rods, secured to the tine-bar E by a head, F^1, clamps F^2, and screw-bolt F^3, as described.

3. The rocking cradle, consisting of the fulcrum-rod D, rocking tine-rod E, and crank-arms D^2, for carrying the tines, as described.

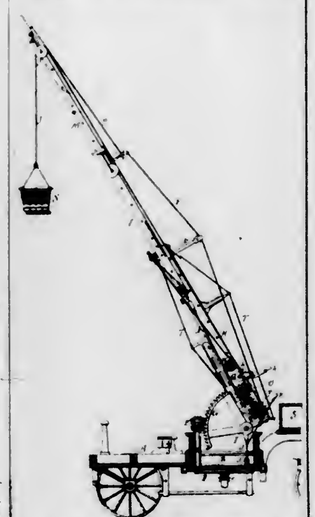
197,323. SEED-PLANTERS. Charles H. Boyd, Dresden, Ohio. Filed Sept. 3, 1877.

Brief.—To the hubs of the bearing-wheels are attached disks provided with ribs, for actuating the seed-slides through the medium of pivoted levers, spring, and foot-levers.



The combination, with the wheels A, provided with disks having ribs *g*, and seed-receptacles having seed-ducts D, of the slides E, pivoted levers F, elliptic springs *c*, and foot-levers H, the several parts constructed and relatively arranged to operate substantially as herein shown and described.

197,324. FIREMEN'S LADDERS. Nathan S. Boynton, Port Huron, Mich., assignor to himself, William L. Bancroft, and Jas. Goulden, same place. Filed Sept. 3, 1877.



1. The combination of the turn-table E, an independent operating ring, D, and a shaft, *e*, capable of being locked to, or moving independently of, said turn-table.

2. The combination of a turn-table, to which is pivoted a ladder, with an operating ring, and with mechanism by which the said ring is caused to either turn the table or raise the ladder, as set forth.

3. The combination of the turn-table E and its shaft *i*, provided with teeth F, with the shaft *e* and its worm F, having a rack, *f*, as set forth.

4. The combination of the turn-table E and ring B or body of the truck with levers J',

carried by said turn-table, and serving to clamp the same to the said ring or body, substantially as described.

5. The combination of the levers J² with the bar J¹ suspended from the shaft I, and with an operating lever, K.

6. The combination of the main ladder H, having windlasses O and P, geared together, with the sliding ladder L, operating rope *k*, and stay-ropes V.

7. The combination of the windlass O and operating shaft R with the windlass P, capable of moving independently of its shaft, as set forth.

8. The combination of the windlass P and its ratchet *q* with the shaft *s'*, its perforated disk *s²*, arm *s*, and pawl *r*, and with the weighted pawl *t*.

9. The combination of the windlass P and its recessed plate *u* and the windlass-shaft and its pinion *u²* with the disk *v*, plate *w*, springs *w'*, and set-screws *w²*, as set forth.

10. The combination of the ladder L and its stay-ropes W with the ladder H, its bars X, and winches Y, as set forth.

11. The combination of the poles of the ladder H, having recesses provided with lugs *x*, with the bars X, hinged to the said ladder H, and having curved spring-arms Z, as described.

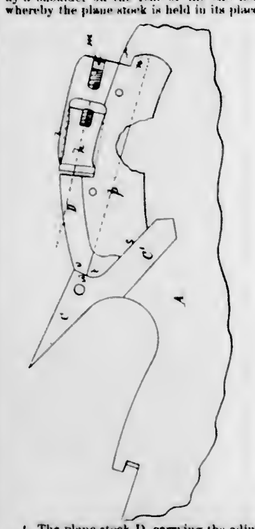
12. The combination of the stay-ropes W with the hinged arms X, having bent ends with elongated eyes for the passage of the rope, as set forth.

13. The combination of the pulley *j'* and the rope *j* with the forked spring-bar *j²* for preventing the displacement of the rope, as set forth.

14. The combination of strips 4 with the seat made in halves hinged to the truck, and with sliding rods 5.

197,325. PLANING-SAWS. Ira S. Brown and Charles M. Brown, Providence, R. I. Filed Mar. 7, 1877.

Brief.—The saw-plate is provided with a recess, in which is inserted a plane-stock formed of two side plates, and having a dovetail groove, in which is secured an adjustable planing-bit. The stock has a heel formed in its rear, fitting in a corresponding recess in the plate, and a toe in its forward part, which is overlapped by a shoulder on the rear of the saw tooth, whereby the plane-stock is held in its place.



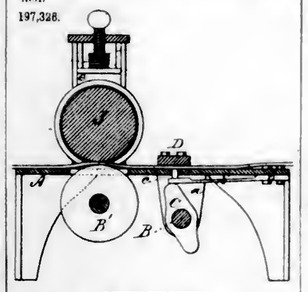
1. The plane-stock D, carrying the adjustable cutter A, and provided with the side plates *p p*, in combination with the saw tooth C, having shoulder *w*, for overlapping the toe of the plane-stock and locking the same in position, substantially as herein set forth.

2. The side plates *p p*, forming the sleeve or socket *z* below the plane-stock D, in combination with the saw-plate A, formed with the nose *z*, and the recess *x* in the slot *b*, substantially as and for the purposes herein set forth.

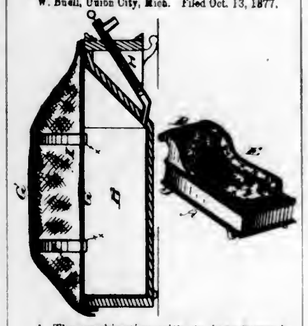
197,326. LEATHER-PUNCHING MACHINES. Ralph Brownson, St. Paul, Minn. Filed Oct. 6, 1877.

The combination of the creasing-wheel J, the feed-wheel F, ratchet H, spring S, punch or punches *c*, table A, head-block D, and shaft R, having tappets C G, substantially as specified.

197,326.



197,327. WATER AND VAPOR BATH AND COUCH. J. W. Buell, Union City, Mich. Filed Oct. 13, 1877.



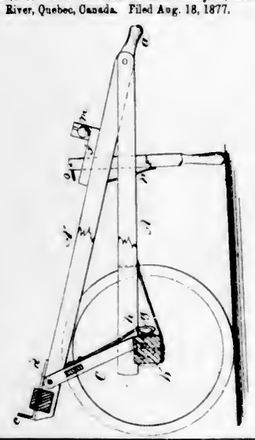
1. The combination, with the base-frame A, with bath-tub B within the same, of the removable seat-frame C, with head D and back E, substantially as and for the purposes set forth.

2. A lounge provided with a bath-tub and a pump, arranged substantially as described, and for the purposes set forth.

3. The combination of the lounge base-frame A, bath-tub B, covers G G', and spring hoops or bows I, substantially as and for the purposes set forth.

4. The spring-bows I, provided with hooks *i*, in combination with the bath-tub B and its lining, and the slots *x* therein, substantially as and for the purposes set forth.

197,328. HAND-TRUCKS. Edward L. Byron, Moe's River, Quebec, Canada. Filed Aug. 18, 1877.



1. The spring bows I, provided with hooks *i*, in combination with the bath-tub B and its lining, and the slots *x* therein, substantially as and for the purposes set forth.

197,328. HAND-TRUCKS. Edward L. Byron, Moe's River, Quebec, Canada. Filed Aug. 18, 1877.

1. The frame C, having spring-hooks *g*, in combination with the frame A' and axle *b*, having mortises *f* and pins *h*, substantially as shown and described.

2. The eccentric *u* and strap *u*, in combination with the bars *f l*, for clamping the same to the frame A', substantially as shown and described.

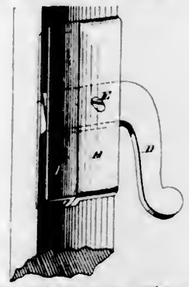
197,329. STRINGING SLEIGH-BELLS. S. A. Chapman, Waterbury, Conn. Filed June 30, 1877.



As an improved manufacture, a string of sleigh-bells, consisting of a series of hinged metal plates with bells attached thereto, and provided with suitable end fastenings, all substantially as described.

197,330. SASH-HOLDERS. Jesse Chandler, Barry, Ill. Filed May 21, 1877.

Brief.—A bent-handled lever, flat-sided, with beveled end, is pivoted under a suitable plate, in such manner as to permit the end of the lever to be readily thrust under a beveled plate on the inside window-stop, the construction adapting the device for, and being mainly intended to, use in connection with a patented weather-strip, No. 186,059, Jesse Chandler, January 9, 1877, forming therewith an air-tight joint between the meeting-rails of the sashes.



An improved sash-lock or tightener, consisting of the pivoted bent-handled lever D, cap-plate H, and beveled plate G, the end of the lever being beveled in such manner as to thrust under and engage with the beveled plate, all contrived, arranged, and operating substantially as described and shown, for the purposes specified.

197,331. SPOOL-PRINTING MACHINES. C. M. Chase and Arthur O. Gould, Boston, Mass., assignors to said Gould. Filed Aug. 25, 1877.

Brief.—A series of reciprocating dies are arranged in two cylinders, placed in opposite sides of a vertical feed-tube. The cylinders have an intermittent rotary motion, and while at rest the dies are operated by cams to print on both ends of a spool held in the lower end of the automatic feed-tube.

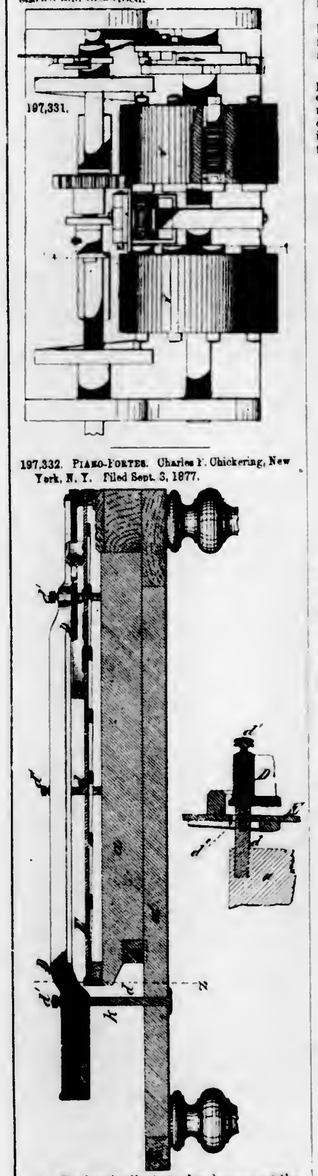
1. In a machine for printing or embossing the ends of spools, the combination of the intermittently-rotating die-carrying cylinders and reciprocating die-carriers, substantially as shown and described.

2. In a machine for printing or embossing the ends of spools, the combination of the intermittently-rotating die-carrying cylinders, the die-carriers reciprocating therein, and the operating-cams mounted upon the driving-shaft, substantially as shown and described.

3. In a machine for printing or embossing the ends of spools, the combination, with the intermittently-rotating die-carrying cylinders, of a spring-stop operating to prevent motion in said cylinders while the die-carriers are being pressed forward by the cam-surfaces, substantially as set forth.

4. In a machine for printing or embossing spools, the combination, with the feed-tube, of a depending arm hinged thereto, and carrying a collar, which surrounds said tube and supports the spool-stops upon opposite sides thereof, and the operating-cam adapted to force the hinged arm against the action of a returning spring, the several parts being arranged, with reference to the die-carriers, substantially as shown and described.

197,331.



1. The longitudinal wooden braces *a* of the bed, provided with the extensions *a'*, reaching forward from the junction of the braces with the belly-rail *b* to the front-rail *c* of the bed, substantially as and for the purpose set forth.

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2. The metallic string-frame D, supported upon and secured to the pillars *d*, projecting vertically from the wooden bed, as and for the purpose described.

3. The longitudinal ribs of the metallic frame, extending forward to the transverse rib *f*, projecting downward in front of the wrest-plank, and constituting the connections *f''* with the inner transverse rib *f'*, as and for the purposes set forth.

4. The pillars *k k k*, arranged in front of the belly-rail, as shown, in combination with the front portion of the iron frame, substantially as and for the purpose described.

5. The sounding-board E, the treble or upper portion of which is provided at its front edge with the re-enforcing strip E', in combination with one or more piers, *h*, by which the desired portion of the front edge of the sounding-board is supported, substantially as and for the purpose set forth.

197,332. PIANO-FORTES. Charles F. Chickering, New York, N. Y. Filed Sept. 3, 1877.

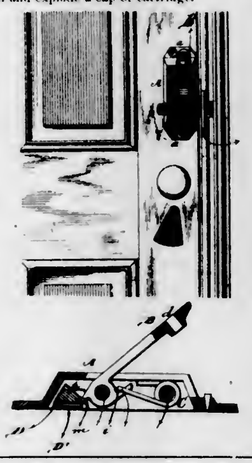
197,333. BUTT-HINGES. John K. Clark, Buffalo, N. Y. Filed July 21, 1877.



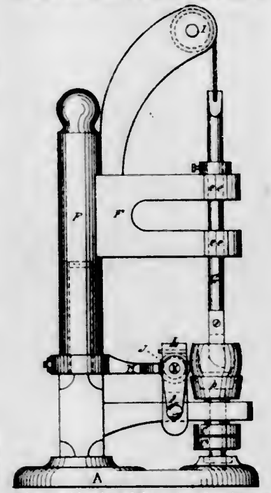
A butt-hinge having its pintle-head constructed with a shoulder of equal diameter to that of the knuckle of the hinge, and provided with a lug or projection immediately below said shoulder, and forming part of the head, and having the upper knuckle-section constructed with a slot or recess on the rear face of the hinge, into which said lug or projection fits and locks, substantially as and for the purpose set forth.

197,334. BURGLAR-ALARMS. Geo. S. Clements, New Lexington, Ohio, assignor of one-half his right to J. C. Decker, same place. Filed Oct. 27, 1877.

Brief.—On an attempt to open the door or window to which the device is attached the bolt by which the hammer is retained in cocked position is moved, and the hammer allowed to fall and explode a cap or cartridge.



197,335. MACHINES FOR MAKING PLUMBAGO CRUCIBLES. John C. Clime, Philadelphia, assignor of two-thirds his right to Henry Wile, same place, and E. B. Seidel, Robeson Township, Pa. Filed Aug. 24, 1877.



1. The hammer B, provided with the tube or receiver *d*, recess *i*, and projection *m*, in combination with the spring C, case A, and bolt D, substantially as and for the purposes set forth.

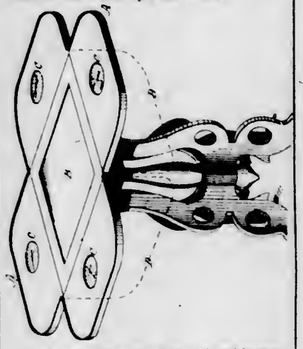
2. The tapering bolt D, provided with the notch *w* and incline *p*, and the spring D', in combination with the case and hammer, substantially as and for the purposes set forth.

197,335. MACHINES FOR MAKING PLUMBAGO CRUCIBLES. John C. Clime, Philadelphia, assignor of two-thirds his right to Henry Wile, same place, and E. B. Seidel, Robeson Township, Pa. Filed Aug. 24, 1877.

The combination of the sector M and worm-wheel J with the frame F and base A for swinging the frame in opposite directions to give reciprocating lateral movements to the former C, to press it outward from the center of the mold in the formation of the crucible, and return it to the center for its removal from the crucible, substantially as set forth.

197,336. GAME-TABLES. George Cooper, Brooklyn, N. Y., assignor to H. Emilie Cady, same place. Filed Mar. 20, 1877.

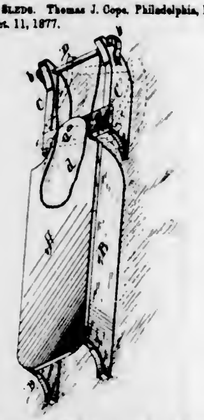
Brief.—The four hinged leaves of the table serve four players at cards, and the central depression may be used to hold a checker-board. The counters are covered with glass, and moved from the under side by a turn-button.



1. A game-table having four hinged leaves, each provided with the rim A and counter C, substantially as and for the purpose set forth.

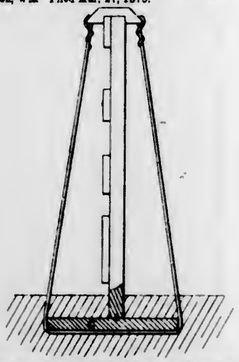
2. A game-table having four hinged leaves, each provided with the rim A and counter C, and having the shallow central well B, all constructed substantially as and for the purpose set forth.

197,337. SLEDS. Thomas J. Cope, Philadelphia, Pa. Filed Oct. 11, 1877.



In combination with the runners B B and the top A, having its forward end extended beyond the runners, the auxiliary runner-frame, composed of the runners C C, round D, and cross board D', provided with the stirrups *b b* and strap *d*, substantially as and for the purposes herein set forth.

197,338. FENCE-POSTS. Peter O. Cornell, Binghamton, Wis. Filed Mar. 27, 1875.



In combination with a fence-post having a shoe or base grooved upon its under side, a non-vibrating cap-piece, and a guy-wire secured at one end to the cap-piece, extending downward to the base through the groove therein, thence upward to the cap-piece, to which it is detachably secured, substantially as specified.

197,339. SIGNAL-CARTRIDGES. Henry H. Coston, Washington, D. C. Filed Sept. 10, 1877.

Brief.—A cartridge to be fired from a gun, which displays fire balls of one or more colors arranged according to a code.

1. An aerial pyrotechnic signal applied in a case having a priming or cap, which is ignited by the aid of the gun within which it is placed, and is elevated into the air by the explosion of gunpowder contained within the signal-case, and which, when in the air and burning outside of its case, serves for signaling according to a given adopted code, substantially as described.

2. A pyrotechnic signal which shows one or more colors while burning in the air, applied within a case which is adapted for being placed in a gun or other fire-arm, and for having its contents ignited by the direct fire of an exploded cap or primer on the gun-nipple, or on the end of the signal-case, and when thus ignited is, with the case, projected into the air, and, while in the air, has its burning signaling composition discharged from the case, so as to signal according to a given code, substantially as set forth.

3. A pyrotechnic signal shell or case having a percussion cap or priming on its bottom, and containing signaling composition or compositions, and made of metal or other material impervious to water, said signal-shell being made either with or without a flange, and adapted for use either in a muzzle-loading or a breech-loading fire-arm, and is expelled, either in part or whole, from the fire-arm when its charge of gunpowder is ignited, substantially as described.

4. A pyrotechnic signal-shell having its propelling-charge of powder capable of ignition from the ordinary percussion-cap or firing-pin of a fire-arm, which charge, when ignited, expels the case, either in whole or in part, and sets on fire the signaling composition, substantially as described.

5. A primed or percussion-capped shell having a charge of gunpowder for its own propulsion, a fire communicating and propelling fuse, a quick-match, and a set of gunpowder-charges for the propulsion and ignition of a set of signal-lights, substantially as and for the purpose set forth.

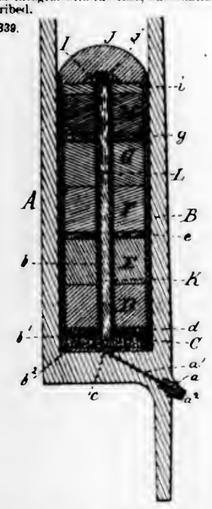
6. The shell or case B, having the removable bottom b^2, the diaphragm b^1, the tube *b*, and the cap J, substantially as set forth.

7. In a projectile-case, B, and forward of a rigid diaphragm, b^1, the signaling compositions D F H, the intermediate incombustible partitions E G *i*, and the gunpowder-charges *d e g* I, arranged substantially as and for the purpose set forth.

8. In the signal-carrying projectile-case B, the diaphragm b^1, whereby the gunpowder-charge for propelling the projectile in the air and the gunpowder charge or charges for propelling the signals into the air are kept separate from each other while not ignited, substantially as set forth.

9. A signal or signal compositions placed in a capped or primed case above a charge of powder, and kept apart from said charge of powder by means of a transverse separating device integral with the case, substantially as described.

197,339.



197,340. PLOWS. William A. Cowley, Stamford, N. Y. Filed Jan. 23, 1877.

Brief.—The curved foot of the beam is pivoted in the point of the plow. The handles are upon the extreme rear end of the beam, which slides from side to side upon a brace between the mold-boards. The mold-boards are hinged at the base, and linked to the beam, which causes either to act as mold-board or land-side. If the beam be set in the center, it will be a double shovel plow. An eccentric-lever and foot-pawl adjust and hold in position a colter-holder to slide upon the beam.

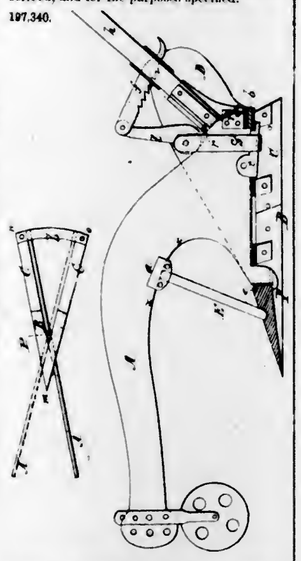
1. In a side-hill reversible plow, the combination of the adjustable beam A, swinging laterally upon a hooked pivot, P, near the point of the plow, and sliding upon the rear guide and brace-bar *b* of the frame and land-sides C C, as shown and described.

2. The laterally-adjustable beam A, in combination with the mold-boards D D, hinged to the frame and land-sides C C, and secured in place by the connecting-rods *r r'*, whereby the swinging of the plow-beam automatically changes the position of the mold-boards to throw the furrow on either side, substantially as shown and described.

3. The adjustable colter E, with slide *a*, as above described, and for the purpose specified.

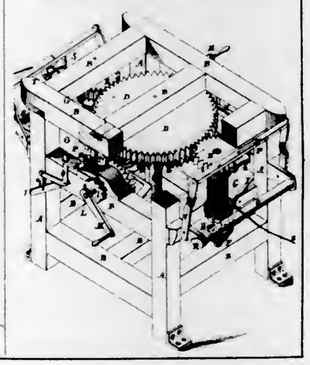
4. In the construction of a flat-land or side-hill reversible plow, the combination of a beam, A, swinging laterally upon a hooked pivot, P, in the point and bed of the plow, and secured in place by means of an eccentric-lever, *l*, strap S, clamping-jaw *t*, and rods *r' r r*, or their equivalents, and in connection therewith two automatically-adjusting mold-boards, D D, attached by hinges or other suitable device to the point B and land-sides C C, and an adjustable colter, E, all substantially as herein described, and for the purposes specified.

197,340.



197,341. OYSTER-DREDGING MACHINERY. William T. Orandell and Hesekiah F. Ward, Tracy's Landing, Md. Filed July 31, 1877.

Brief.—Clutches for engaging the loose winding spools or drums, and causing them to rotate with their shafts, are connected with hand-levers at the corners of the frame. By throwing the clutches into gear the holding-pawls, which engage with the operating shafts, and which pawls are also connected with said hand-levers, are thrown out of engagement, and vice versa.



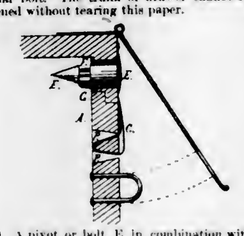
1. In combination with the spool G and the operating-shaft L, provided with the ratchet-wheel *l*, the clutch H, lever I, pawl N, bell-crank O, and link *o*, substantially as and for the purpose specified.

2. In an oyster-dredging machine, the combination, with the spool G, of the roller Q, journaled within a fixed frame, and the roller S, journaled within the swiveled frame T, and supported by a vertically-adjustable frame, substantially as and for the purpose set forth.

3. As an improvement in mechanism for dredging oysters, the shafts C, F, and L, the combined spur and crown-gear wheel D, the pinions E and K, the spools G, the clutches H, the clutch-levers I, the cranks M, the ratchet-wheel *l*, the pawl M, the bell-crank O, the link *o*, the roller Q, journaled within a stationary frame, and the roller S, arranged to swivel and to be adjusted vertically, said parts being combined with each other and with the supporting-frame, in the manner and for the purpose substantially as shown and described.

197,342. SEAL-LOCKS. Luigi d'Auria, Baltimore, Md. Filed Oct. 18, 1877.

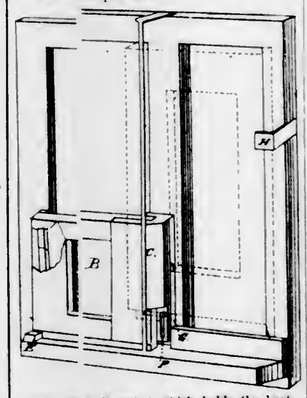
Brief.—A paper privately marked is placed through slots in the body of the trunk or drawer, and the ends then secured in the lid by a peculiar bolt. The trunk or drawer cannot be opened without tearing this paper.



1. A pivot or bolt, E, in combination with a loose ring, F, and tube G, substantially as shown and described.

2. The pivot E, ring F, and tube G, in combination with the hook D or buckle D' and cheek C, the whole applied to a trunk, door, or other furniture, substantially as shown and described.

197,343. CAR-DOORS. William O. Davies, Milwaukee, Wis. Filed Apr. 10, 1877.



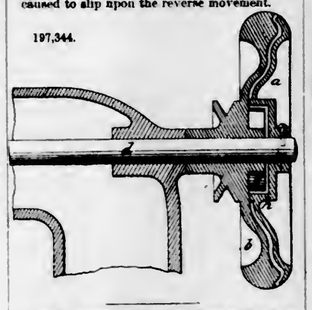
The door B, rod C, which holds the back end of same, hook which holds the front end of the door-block E, slotted piece F, with an offset in its upper end, headed pin G, passing through slot F, and clasp H, all in combination, substantially as described.

197,344. COMPOUND HAND OR BALANCE WHEELS FOR SEWING-MACHINES. William Dawes, Leeds, England. Filed Oct. 5, 1877. Patented in England, July 5, 1877.

1. A compound balance-wheel for a sewing-machine, constructed in two parts, *a b*, having similarly-shaped adjoining webs, in combination with the clutching mechanism secured between the two, the loose half being provided with a band-groove for the band of the fly-wheel, the whole constructed and arranged to operate substantially as set forth.

2. The combination of the loose portion *b*, having band-groove *c* and the annular boss or projection *e*, provided with a series of seats, *f f*, for the reception of the rollers or balls to play in, and the fast portion *a*, having a ring, *k*, for inclosing the boss and rollers or balls, both the fast portion *a* and the band or balance portion *b* having their webs constructed so as to coincide with each other, substantially as described, whereby the said parts may travel together when moving forward and the loose part caused to slip upon the reverse movement.

197,344.



197,345. INDEXES. Charles H. Denison, Bay City, Mich. Filed Nov. 9, 1877.



1. A book the front edge or ends of which are provided with one or more series of segmental recesses, cut substantially in the manner described in the foregoing specification, each recess cut to the leaf to be indicated, said leaves, on their exposed part, bearing the appropriate letter, name, or character, and the front and back covers bearing on their outside faces a series of duplicate letters, names, or characters, each member of which is arranged directly opposite its original belonging to the adjacent series of recesses, substantially as described, so that when the book is lying on either side it can be opened to any desired letter, name, or character by a single movement.

2. A book the front edge or ends of which are provided with one or more series of segmental recesses cut substantially in the manner described in the foregoing specification, each recess cut to the leaf to be indicated, said leaves, on their exposed part, bearing the appropriate letter, name, or character, said letter, name, or character being also placed on the opposite side of said leaves, and of all the leaves in the book on the same side of the recesses directly opposite the corresponding recesses, so that when the book is open at any page the student can turn to any desired letter, name, or character by a single motion, substantially as described.

197,346. CLOAKS. Charles Denneler, Philadelphia, Pa. Filed Oct. 20, 1877.

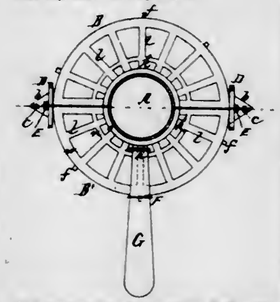
1. A cloak or garment, having its sleeves between the lining and outside material thereof, substantially as specified.

2. The combination, with a cloak or garment, of arm-supporting sleeves secured thereto, substantially as specified.

197,346.

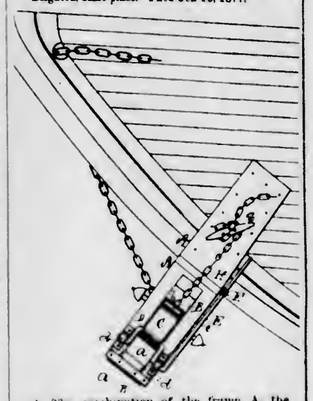


197,347. STOVE-PIPE SHELVES. Harrison Doolittle, Plain City, Ohio. Filed Sept. 20, 1877.



The combination of the sections B B', with the lugs *b b*, slots or holes *c c*, the rings D, the clamps or wedges E, the projections *f*, with ring F, fastening *k*, and the handle G, all substantially as and for the purpose set forth.

197,348. ANCHOR-TRIPPERS. Joseph P. Dorr, Jr., Indian River, Me., assignor to himself and H. H. Leighton, same place. Filed Oct. 16, 1877.



1. The combination of the frame A, the abutment *b*, pawl C, crank D, and the arm E, all arranged and applied substantially as set forth.

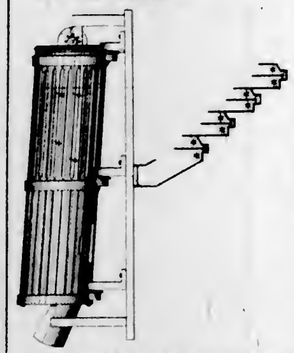
2. The combination of the tripping-chain H and the catch F with the cat-head A, and the

frame *a*, pawl C, crank D, and arm E, arranged and applied to the said cat-head substantially as specified.

3. The combination of the belaying-cleat G with the cat-head A and the chain H, frame B, pawl C, crank D, and arm E, arranged and applied to the said cat-head as set forth.

4. The combination of the abutments *a b* with the frame B, and the pawl C, and bell-crank D, applied thereto, and to operate therewith, as explained.

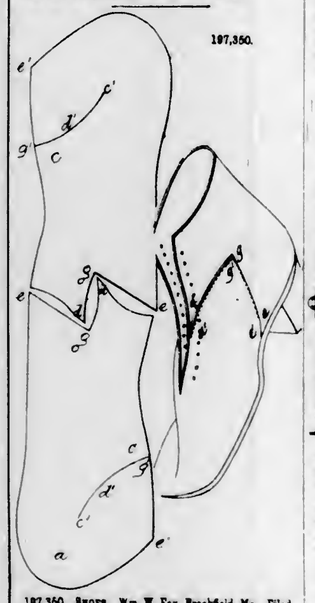
197,349. ORE-MILLS. Horace K. Drake, Brooklyn, N. Y. Filed Nov. 3, 1877.



1. An inclined **revolving** cylinder inclosed at its upper part for a suitable distance, and the remaining portion provided with longitudinal slots, substantially for the purposes herein set forth.

2. An inclined revolving cylinder constructed of a series of bars T-shaped in cross section, connected together and arranged to form a portion of the cylinder closed, the remaining portion slotted, and a series of longitudinal ribs or flanges on the inside, all substantially as and for the purposes herein set forth.

197,350.

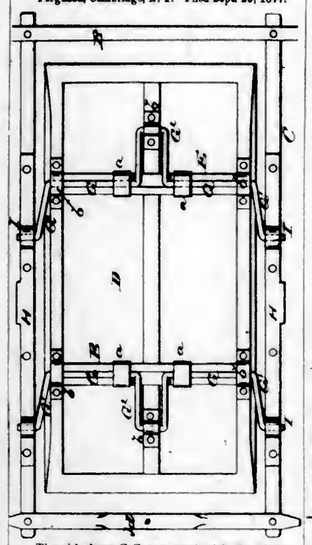


197,350. SHOES. Wm. W. Fay, Brookfield, Mo. Filed Aug. 21, 1877.

1. The pattern for the upper of a shoe or bootee in one piece of stock, having the angular cuts *e g d*, straight cut *e' g'*, and sweeping cut *e e'*, substantially as described and shown.

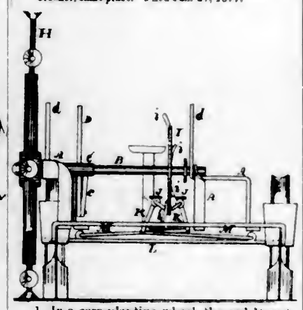
2. A shoe or bootee made of the pattern herein described, the vamp and quarters being cut from a single piece of material, with the angular cut *e d g*, straight cut *g' e'*, and sweeping cut *e e'*, and being closed by the rectangular seam from the instep to the ankle and shank, substantially as shown and described.

197,351. TORSION-SPRINGS FOR VEHICLES. Chas. H. Ferguson, Cambridge, N. Y. Filed Sept. 29, 1877.



The side bars C C, provided with the plates H H, having boxes I I, in combination with the body D, having the longitudinally-grooved cross-bars E E, and staples *b*, and the continuous springs G, each having a central double crank, G^2, and end cranks G^1, substantially as described, and for the purpose set forth.

197,352. CORN-PLANTERS. Hickman E. Foster, Decatur, Ill., assignor of one-half his right to Rufus C. Crocker, same place. Filed Jan. 27, 1877.



1. In a corn-planting wheel, the rod H and spring G, in combination with the hollow spoke, substantially as and for the purpose set forth.

2. The rod H, spring G, and the hollow spoke, in combination with shaft B, disk I, arms *i i i i*, bent rods K K, connecting-rods M M, and seed-slide L, as shown and described.

197,353. VEGETABLE-CUTTERS. Anthony H. Gordon, Albany, N. Y. Filed July 20, 1877.

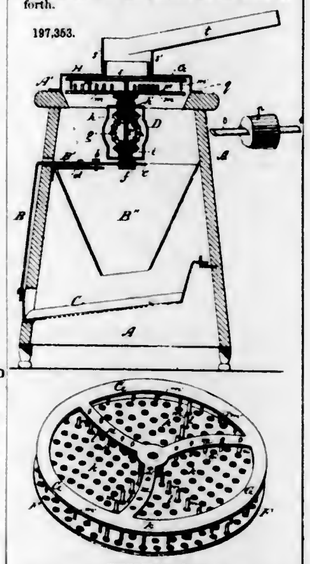
Brief.—The knives are secured by forcing the soft-metal taps, in which they are embedded, into screw-holes in the disks.

1. As an improvement in vegetable comminutors or granulators, the combination of a horizontal rotating wheel, G, armed with vertical cutters *m'*, with the horizontal disk F, rotating in the opposite direction, and having perforated sections *k*, divided by the radial arms *l*, having vertical cutters *m*, substantially as and for the purpose herein shown and specified.

2. As an improvement in vegetable comminutors or granulators, the cutters *m m'*, consisting each of a sharp-edged pin or knife, *o*, embedded in the center of a taper soft-metal tap, *p*, substantially as and for the purpose herein shown and described.

3. The improved vegetable comminutor or granulator herein described, consisting of the box A, having oscillating chute screen or riddle C, bent rod B B', and hopper B'', in combination with the hinged top part A', having box D, containing the operating mechanism, cutter-disks F G, rotating in opposite directions, cover H, and feed-slide *t*, all constructed and combined to operate substantially in the manner and for the purpose hereinbefore set forth.

197,353.



197,354. LIFT-PUMPS. William M. Gibson, Phœnix, R. I. Filed Oct. 6, 1877.

Brief.—This pump is operated by a vertically-reciprocating cylinder moving upon a valved piston at the lower end of a close-fitting pipe, in which the water ascends to a receptacle inclosed with the lateral air chamber, from which receptacle the water is forced, by the elevation of the external cylinder and the resistance of the compressed air, through an ascending tube, to the desired place of delivery.

1. The combination, with the bucket-valve of a pump, of the leather cup g^2, arranged to form the packing of the bucket and the check valve in one piece, substantially as and for the purpose described.

2. The combination, with the bucket g^1, of the leather cup g^2, forming the packing and the check-valve in one piece, and the screws g^3, arranged to secure the leather, substantially as and for the purpose described.

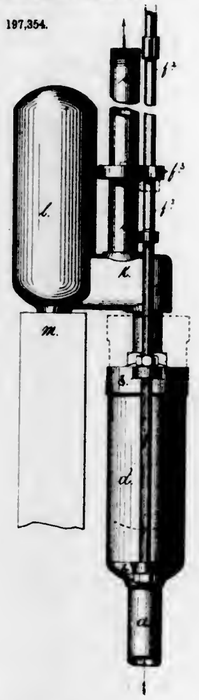
3. The combination, with the air-chamber *l* and chamber *k*, of the pipes *h* and *i*, arranged to form an offset, so that the actuating rod can be operated on a line with the axis of the pump-cylinder, as and for the purpose described.

4. The combination, with a reciprocating pump-cylinder, of the pipe *h*, chamber *k*, and pipe *i*, and the rods *f f* secured to the cylinder, the rod *f*, and guide f^3, the whole arranged and operating substantially as and for the purpose described.

5. The combination, with the tube *d*, of the end E, provided with the ears or lugs E' E', the end *b*, provided with the ears *b' b'*, and the rods *f f*, arranged to form the reciprocating pump chamber, substantially as and for the purpose described.

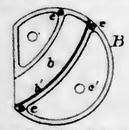
6. The combination, with a pump arranged substantially as described, of the pin P, arranged to support and secure the pump, as and for the purpose described.

197,354.



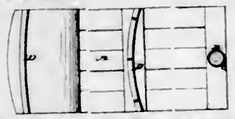
197,355. SASH-FASTENERS. Fullerton A. Grove, Kirksville, Mo. Filed July 6, 1877.

Brief.—The back of the case of a curved sliding gravity-bolt is cast in two pieces, with division along the side of the curve, so as to permit of readily polishing the bottom of the groove.



In a sash support and lock having an arc-shaped gravity-bolt, the front plate C, having on its inner side spuds which fit into corresponding pits *e* in the case back B, which latter is made in two parts, as shown, whereby the lower side of the bolt-groove *b* may be smoothly finished.

197,356. ICE-SLIDES. Wardell Guthrie, Chicago, Ill. Filed Nov. 11, 1876.

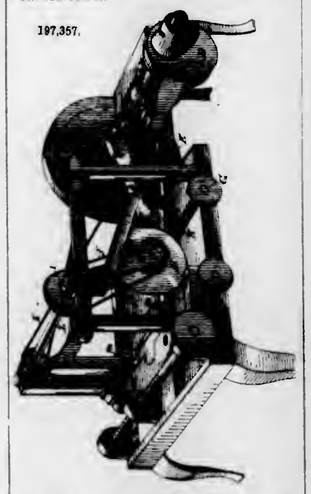


The ice-slide A, provided with the pivot B at one end, and runners D D at the other, whereby the delivery end may be swung from side to side, substantially as described.

197,357. MACHINES FOR BENDING, CUTTING, AND PUNCHING METAL BARS. Robert Hale, Minneapolis, Minn. Filed Oct. 26, 1877.

Brief.—Improvement on machine patented to applicant August 28, 1877. The reciprocating cross-head carries punches, which are so attached that they may be turned to vertical positions until the bending is completed, when they are turned down, and punch the bent bar upon the next forward movement of the cross-head. Either the saw or the reciprocating cutter can be connected with the eccentric on the driving-shaft. Saw, cutter, and eccentric are adjustable, so that the desired length of bar can be cut.

197,357.



1. The combination, in a machine for cutting and punching metal bars and plates, of the movable die-plate J', provided with the dies *e'*, cross-head C, carrying the vertically-swinging punches *m m*, sliding or swinging cutter, connection E', adjustable guide E, movable bearing *d*, and eccentric D, substantially as and for the purpose set forth.

2. In a metal cutting and bending machine, the adjustable swinging saw frame I, collars *l l*, connection *b*, and eccentric D, in combination with the saw H, shaft L, bands K and J, with suitable intermediate pulleys and bearing *d*, substantially as described.

3. The improved machine, constructed and operated substantially as herein shown and described.

197,358. SIGNALS FOR RAILWAY DRAW-BRIDGES. William Gilbert and Jacob Garrabrant, Jersey City, N. J. Filed Oct. 10, 1877.

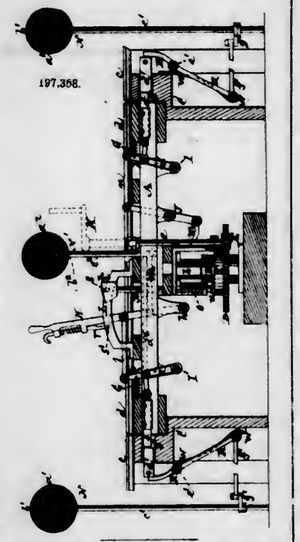
1. The combination, with the horizontally-swinging or rotating draw-bridge A, of the locking-bolts *f f*, controlled by weights or springs G G, the abutments C C', the lever H, with its connections for withdrawing said bolts, and the signals N N, arranged in advance of either end of the bridge, and controlled by the adjustment of the lever H, substantially as specified.

2. The combination, with the swinging or rotating draw-bridge A, of the locking-bolts *f f*, the sockets or keepers *g g*, the springs G G, the lever H, the rock-shafts I I, the arms *i i k*, the rods *l m n*, the double arm or lever J, and the signals N N, with means, substantially as described, for controlling said signals by the locking and unlocking action of the bolts *f f*, essentially as described.

3. The lever H, provided with a spring-bolt or catch, *r*, in combination with the frame L, having opposite end notches *s s'*, the sliding rod M, having a releasing cam, *t*, the rotating brid, A, the cam T, having a raised portion, *u*, the rod *l*, the arms or levers *k*, the levers *i i*, the rod *m*, the lever J, the rod *n*, the springs G G, the bolts *f f*, controlled by said springs and lever H, and the signals N N, with means for controlling said signals by the locking and unlocking action of the bolts *f f*, substantially as specified.

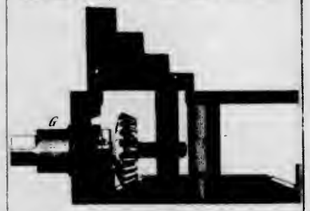
4. The combination of the swinging frames or levers E with the bolts *f f*, the followers *d'*, the rod *f'*, the crank *g'*, the spindle e^1 of the signals N N, and the cam T, or its equivalent, substantially as specified.

197,358.



197,359. CHUCKS FOR METAL-LATHES. James O. Hallas and James N. Webb, Waterbury, Conn. Filed Apr. 21, 1877.

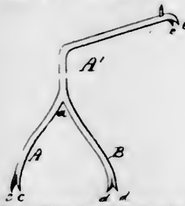
Brief.—All the jaws can be operated simultaneously, in the usual manner, by the toothed ring and pinions. An independent adjustment can be given to a jaw by the mechanism specified in the first claim. Each jaw moves within a bearing, which has a surface slightly above the face of the jaw for the work to rest upon.



1. The combination of the radially-moving jaws, a screw-spindle for each jaw, a pinion on each spindle, a gear to connect all said pinions, an externally screw-threaded sleeve, *a*, on one or more of said spindles, a sleeve, G, internally threaded to receive said sleeve *o*, the combination and arrangement being substantially as and for the purpose described.

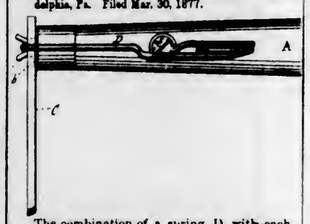
2. In a chuck having radially-moving jaws, the combination, with said jaws, of bearings H, elevated above the surface of said jaws, substantially as described.

197,360. SHINGLING-BRACKETS. Isaac W. Hammond, Concord, N. H. Filed Aug. 21, 1877.



The elastic spring shingling bracket herein described, made in one piece, of the iron or steel rods A, A', and B, welded together at *a*, and split at the ends to form the bifurcated legs *c d d c c*, substantially as and for the purpose herein shown and specified.

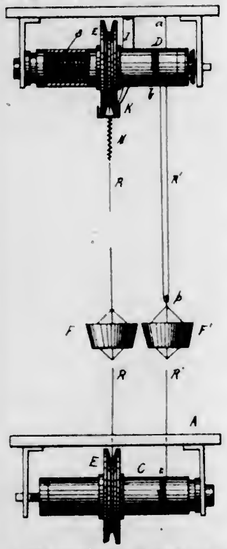
197,361. TRACE-HOLDERS. John Hartman, Jr., Philadelphia, Pa. Filed Mar. 30, 1877.



The combination of a spring, D, with each end of the single-tree A, and the notched or forked pin *b*, substantially as and for the purpose set forth.

197,362. SPRING-ELEVATORS. Ralph Haskins, Boston, Mass. Filed Feb. 6, 1877.

Brief.—May be used in ordinary house without especial construction.



1. The combination of the spring-roller D, provided with the pulley E, the cord R, and the holder or receptacle F, as and for the purpose specified.
2. The combination of the spring-roller D, cord R, holder or receptacle F, and the spring-roller C, as and for the purpose set forth.
3. The combination, with the upper roller D, of the hanger I, the brake K, and support L, as and for the purpose described.

197,363. DEVICES FOR PROTECTING AND IRRIGATING FRUIT-TREES. Joel A. Headington, Marion, Mo. Filed Aug. 31, 1877.



A tree protector and invigorator consisting, essentially, of a circular or segmental plate, A, having a central annular opening, *a*, and slit *a'*, and twisted spirally, so as to form an adjustable cone or funnel shaped basin, which may be suspended upon the trunk by wires *c*, or other suitable means, in combination with the chemical or medicated soap C, or its equivalent, and the cotton, wool, or other packing, substantially as and for the purpose hereinbefore set forth.

197,364. ORNAMENTAL CHAIN-LINKS. J. L. Heeley, Attleborough Falls, Mass., assignor to Davidson Brothers, New York, N. Y. Filed Oct. 5, 1877.



1. The combination, in a chain-link, of three or more loops, with two cross-heads, having on their outer edges tongues or grooves, by means of which said loops are attached thereto, so as to form links of triangular or polygonal cross-section, substantially as set forth.
2. The combination, in a chain-link, of two cross-heads, provided with suitable grooves or tongues, two or more loops or rings, adapted to engage with said grooves or tongues in the cross-heads, and a rod which extends through holes in the cross-heads, and is provided with loops or rings at its ends, substantially as and for the purpose set forth.
3. The combination, in a chain-link, of two cross-heads, provided with suitable tongues, two or more loops or rings, provided with grooves to engage with the tongues in the cross-heads, and filling-pieces adapted to engage with the grooves in the loops or rings, substantially as shown and described.
4. The combination, with two flat approximately circular disks, having notches or tongues on their peripheries, and each a centrally-attached loop or hook, of three or more loops, secured to the peripheries of said disks by means of said notches or tongues, so as to connect the same and form links of triangular or polygonal cross-section, substantially as set forth.

197,365. BED-BOTTOMS. Julius Hermann and Fredrick Hermann, Campbellsport, Wis. Filed Aug. 24, 1877.



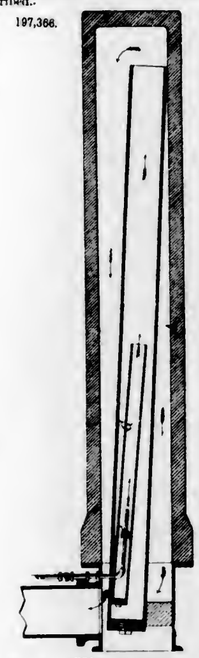
The combination of the end slats A C D, the latter having upward-projecting pins *c c*, blocks B' B' B', and coiled springs *a a*, with the longitudinal bed-slats *b b*, having slots *d* and holding-slats *e*, all combined and operating substantially as described, for the purpose shown and specified.

197,366. APPARATUS FOR THE MANUFACTURE OF ILLUMINATING-GAS. Ignatz Herzog, Ridgefield, N. J. Filed Sept. 13, 1877.

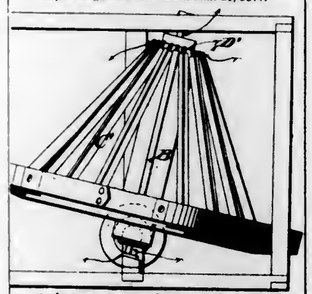
Brief.—Oil is first vaporized in the interior supply-pipe and its surrounding jacket or tube within the retort, and the vapors there generated are passed into the exterior retort, where they are converted into a fixed gas.

The combination, with a gas-retort and with a pipe for introducing therein a hydrocarbon liquid, of one or more jackets, which surround the inclined arm of the supply-pipe, and extend in an inclined position toward the rear end of the retort, said jacket or jackets being closed in front and open at the rear, substantially as and for the purpose shown and described.

197,366.



197,367. HORSE-POWERS. James M. Hin and Joseph Forsyth, Brighton, Tenn. Filed June 23, 1877.



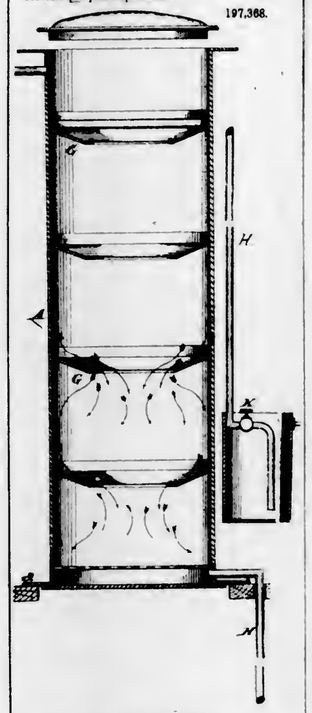
1. In a master-wheel for a horse-power, the iron band D, concentric with the shaft, and sunken into the radial arms, substantially as and for the purpose set forth.
2. The combination of the tapering band-wheel shaft E and the beveled bottom rim or floor G' of the master-wheel, as herein set forth.

197,368. RECTIFYING APPARATUS. Ben J. Hobson, Covington, Ky., assignor to himself and William H. Richardson, same place. Filed Mar. 22, 1875.

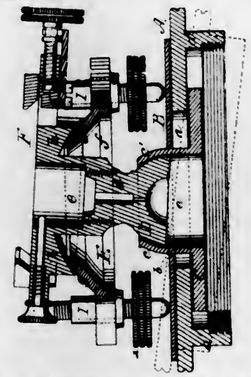
1. The combination, substantially as specified, of the rectifying or leaching vessel, the loose shelves or rings, which are packed at suitable intervals in, and adapted to sink with, the filtering material as it settles, and are so narrow as to preserve the open character of the vessel from top to bottom, and the perforated shelf at the bottom, just above the discharge-pipe.

2. In combination with the rectifying or leaching vessel A, the trapped hydrostatic draft-tube H, operating substantially as and for the purpose specified.

197,368.



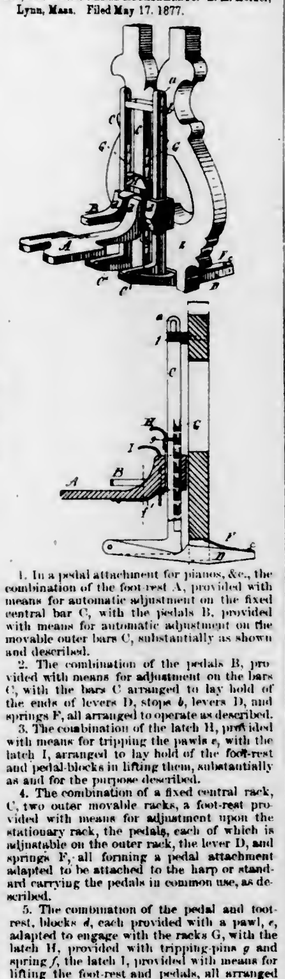
197,369. TRIPOD-HEADS FOR SURVEYING-INSTRUMENTS. Daniel Hoffman, Philadelphia, Pa. Filed Oct. 20, 1877.



1. The combination, with the plate A, having central opening *a*, and the plate C, having the socket *d* extending through said opening, of the ball D, having threaded neck *d*, the leveling-screw plate F, having ball *g*, and the instrument-plate F, having neck *e* and socket A, substantially as specified.
2. The combination, with the base-plate A, having central opening *a*, and the socket-plate C, having neck *e*, of the carrying plate B, having aperture *b*, fitting said neck, and the leveling mechanism of a tripod-head, substantially as specified.

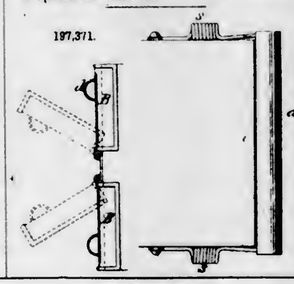
3. A tripod-head having a ball-and-socket joint for the base-plate, in combination with the instrument-plate F, having a spherical bearing, *g h*, concentric with said ball-and-socket joint, and leveling-plate E, substantially as specified.

197,370. PIANO PEDAL ATTACHMENTS. E. M. Holder, Lynn, Mass. Filed May 17, 1877.



1. In a pedal attachment for pianos, &c., the combination of the foot-rest A, provided with means for automatic adjustment on the fixed central bar C, with the pedals B, provided with means for automatic adjustment on the movable outer bars C, substantially as shown and described.
2. The combination of the pedals B, provided with means for adjustment on the bars C, with the bars C arranged to lay hold of the ends of levers D, stops *b*, levers D, and springs F, all arranged to operate as described.
3. The combination of the latch H, provided with means for tripping the pawls *e*, with the latch I, arranged to lay hold of the foot-rest and pedal-blocks in lifting them, substantially as and for the purpose described.
4. The combination of a fixed central rack, C, two outer movable racks, a foot-rest provided with means for adjustment upon the stationary rack, the pedals, each of which is adjustable on the outer rack, the lever D, and springs F, all forming a pedal attachment adapted to be attached to the harp or standard carrying the pedals in common use, as described.
5. The combination of the pedal and foot-rest, blocks *d*, each provided with a pawl, *e*, adapted to engage with the racks G, with the latch H, provided with tripping-pins *g* and spring *f*, the latch I, provided with means for lifting the foot-rest and pedals, all arranged to operate as described.

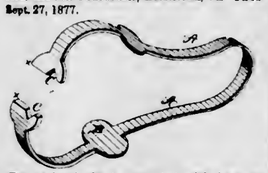
197,371.



197,371. IRONING-BOARDS. Josiah Howell, McKeesport, Pa. Filed Aug. 24, 1877.

1. The improved ironing-board, consisting of the rectangular board A, pivoted spring clamping-bar *a*, having the side springs *s*, and the two hinged clips B B, U-shaped in cross-section, moving in the plane of the board, and attached to the board near the middle of one end, so that when opened they will pass through the neck portion of a shirt, all combined and operating substantially as described and shown.
2. The combination, with an ironing-board, of the two hinged clamps B B, attached to the middle part of one end, and opening in the plane of the board, so as to be insertible through the neck-opening of a shirt, substantially as described and shown.

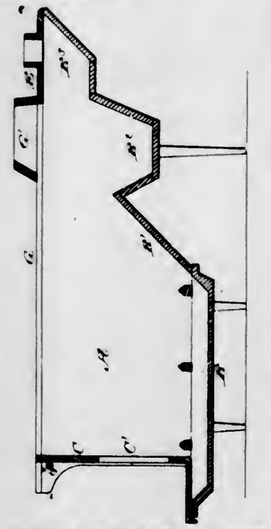
197,372. TABLE-TONGS. Jas. Huffman, Mount Crawford, and Jos. Funkhouser, Keezletown, Va. Filed Sept. 27, 1877.



The spring-body A, provided with jaws, in which are the notches C C, and on which are formed the surfaces from C to *x*, as and for the purposes set forth.

197,373. PANS FOR BOILING SAP. Oliver B. Huggins, Pittsburg, N. H. Filed Oct. 6, 1877.

Brief.—The flame sweeps over the bridge-walls down into the chambers, and is thus retarded and intensified ere it reaches the pan placed on the frame.



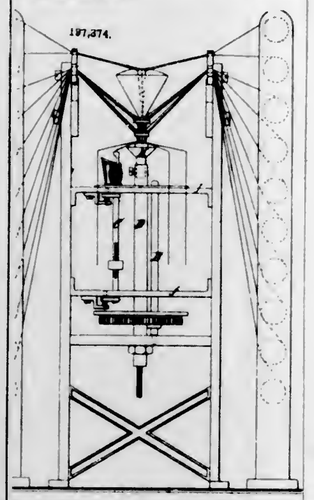
The within-described arch or furnace for boiling sap, consisting of the sides A A, front C, bottom B, bridge wall B', chamber B², rear chamber B³, with top plate E, bars G, and frame G', all constructed, arranged, and combined, substantially as and for the purposes set forth.

197,374. BRAIDING-MACHINES. George F. James, Manchester, England, assignor of one-half his right to Walter Twiss Glover, same place. Filed June 26, 1877. Patented in England, June 10, 1876.

Brief.—A conical tube, which serves to guide and gradually contract the strands about the powder, is arranged beneath the hopper, and above the point where the strands which form the outer covering are braided together.

The stationary hollow spindle D, in combination with the conical tube H and perforated plate F, operating substantially as and for the purpose described.

197,374.



197,375. CAR-AXLES. Nathaniel Jones, Syracuse, N. Y. Filed Nov. 9, 1877.



The combination of the wheel A, provided with the journal C and bored-out or hollow axle D, and the wheel B, provided with the journal C', axle D', and sleeve or collar H, all substantially as described, and for the purposes set forth.

197,376. HOT-BEDS FOR RAILS. William R. Jones, Braddocks, Pa. Filed Mar. 29, 1877.

Brief.—The messenger-rolls are arranged upon a carriage, and support the rails while being conveyed from the saws to the hot-bed to cool. The carriage is provided with projections above the rolls, which support the rails against the curved line of stops to impart the needed camber. The stops having been lowered, the rails pass over them, and are deposited from the carriage upon the rails of the hot-bed.

1. The combination of rail-carriage C, having head-blocks or projections, as shown, with a curved line of stops, substantially as described, whereby, when the carriage recedes from the saws, it carries the rail against the stops, and thus imparts the proper curvature.

2. The combination of the rail-carriage frame, two or more head-blocks or projections, *d*, the carriage-rolls, and a curved line of stops, substantially as described, whereby the retrogression of the carriage from the saws effects the desired treatment of the rail.

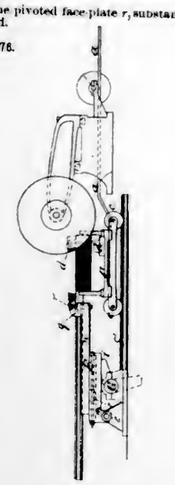
3. In combination with the rail-carriage, provided with two or more head-blocks or projections, *d*, a curved line of stops capable of being adjusted to any desired curvature, substantially as set forth.

4. The combination of the carriage-frame and two or more head-blocks or projections projecting above the level of the top of the carriage-rolls, substantially as and for the purpose specified.

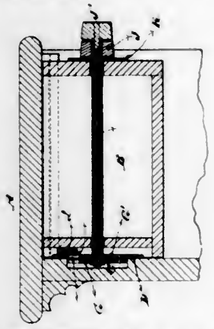
5. The combination of the support *e*, swinging part *n*, movable part *s*, threaded lug *o*, and screw *p* with a suitable stop for the rail, substantially as set forth.

6. The combination of arm E, or part *s* thereof, with the swiveled bifurcated stop *q*, carrying the pivoted face-plate *r*, substantially as specified.

197,376.



197,377. TILL-CHECKS. Benj. F. Kelly, Shelocta, Pa. Filed Aug. 18, 1877.



1. The combination of the ring D with lug *d*, having point *x*, and the perforated wheels G G', having notches *a*, substantially as and for the purposes set forth.

2. The combination of the ring D with lug *d*, the wheels G G' with notches *a*, the tube H, rod I, knobs J J', and dial K, all arranged with a drawer, B, and its casing or frame A, substantially as and for the purposes set forth.

197,378. FENCE-BARBS. Charles E. Kelley, Worcester, Mass., assignor to Henry Roberts, Newark, N. J. Filed Aug. 2, 1877.



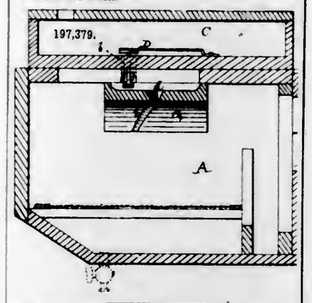
A barb for wire fences formed with points *a* and an intermediate enlarged shank or body, *b*, substantially as herein described, and for the purposes set forth, the said body having the transverse channels cadapted to be clasped between the spring bows or bend of the twisted wire, all substantially as specified.

197,379. CAR-AXLE BOXES. Charles J. Keim, Catasauqua, assignor to Charles D. W. Bower and Louis H. Lambert, same place, and Benj. B. Lynn, Bethlehem, Pa. Filed Sept. 27, 1877.

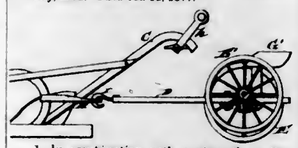
L. An automatic lubricator for journal-boxes, in which the valve for letting on and shutting off the oil is controlled and operated by the unequal expansion and contraction of two or more pieces of metal, substantially as herein set forth.

2. The combination of the journal-box A, with oil-reservoir C, having outlet *b*, the valve D, brass G, and the automatic device I I' J, substantially as and for the purposes herein set forth.

197,379.



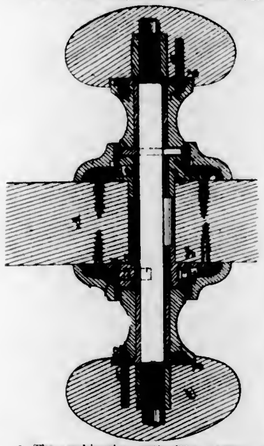
197,380. RIDING-PLOWS. Jas. Kennedy, Minnesota City, Minn. Filed Oct. 13, 1877.



1. In combination with a plow, the sulky attachment, consisting of the slotted beams D D, axle *a*, wheels E E', adjustable seat G', swiveled hook I, and bar H, all substantially as and for the purposes set forth.

2. The rod L, with arms *h h*, forked at their lower ends, forming clamps, and provided with bolt *i*, in combination with the handles of a plow, substantially as and for the purposes set forth.

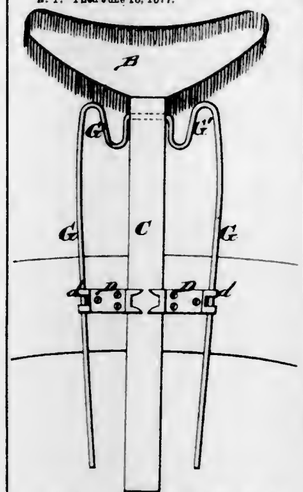
197,381. ATTACHING KNOBS AND ROSES TO DOORS. J. H. La Bau, Brooklyn, N. Y. Filed June 19, 1877.



1. The combination, with either screw-knob and its spindle, of a sliding clutch-sleeve or knob-shank, and a key applied to the knob-spindle between said sleeve and the door, substantially as specified.

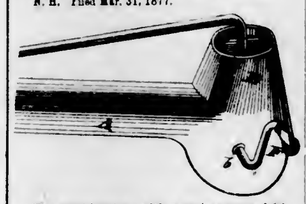
2. The combination, with either rose having one or more interior spring catches or hooks, of a rose-locking plate, having one or more notches or recesses for said catches to engage with, essentially as described.

197,382. HEAD-RESTS. Thaddeus Leisure, Boonville, N. Y. Filed June 18, 1877.



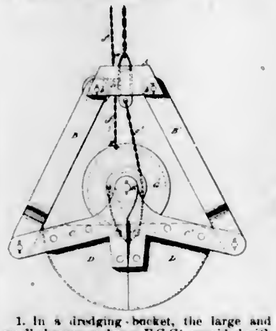
An attachment to ordinary sitting-chairs, consisting of the plates D D, having their inner ends bent in angular form to form a square loop, and their outer ends provided with eyes *d*, the center-bar C, spring-wire arms G G, and head-rest B, substantially as shown and described.

197,383. NUTMEG-GRATERS. Josiah E. Livingstone, Goffstown, assignor to Chas. H. Livingstone, Salem, N. H. Filed Mar. 31, 1877.



The combination, with a spring-pressed follower, of the solid roller having a metallic grating-face, and journaled in line beneath the follower between cheek-pieces F, which extend below the periphery of the roller, and protect the same from contact with external objects while in use, substantially as described.

197,384. DREDGING-BUCKETS. George Lord, Baltimore, Md. Filed July 28, 1877.



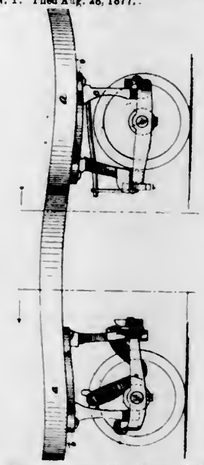
1. In a dredging-bucket, the large and small sheaves or drums F G G', provided with spiral grooves, as and for the purpose herein set forth.

2. In a dredging-bucket, the hinges C C', extended beyond the sections D D', and forming an elevated bearing for the sheaves, when constructed and arranged as and for the purpose described.

3. A dredging-bucket, consisting of the cross-head A, levers B B', sections D D', hinges C C', sheaves F G G', and the chains *a f g g'*, all constructed and arranged substantially as shown and specified.

4. In a dredging-bucket, a hinge attached to the shell, and extended beyond the outer end of said shell, to any distance required, as and for the purpose described.

197,385. ROLLER-SKATES. Hans Lumbye, Brooklyn, N. Y. Filed Aug. 28, 1877.

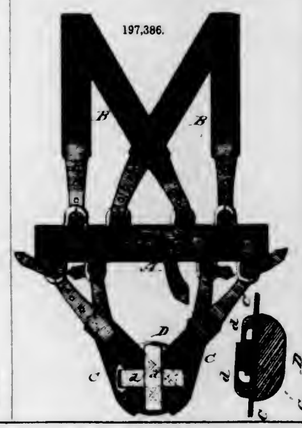


1. The supporting-frame *b*, provided with the dependent arms *c* and *d*, and attached to the foot-board *a*, in combination with the axle-frame *p*, all constructed and arranged to operate substantially as shown and described, for the purpose set forth.

2. The supporting-frame *b*, provided with the dependent arms *c* and *e*, and attached to the foot-board *a*, in combination with the axle-frame *q*, provided with the segment of circle *r*, all constructed and arranged to operate as shown and described, for the purpose set forth.

3. The method herein shown and described for securing an automatic relative adjustment of the foot-board and running parts of the skate on inclination of the foot-board by means of axial arms, having a curved surface, and travelers to move upon and follow such curve at one end of such frames, and a union of the frames by a pivotal point at their other ends.

197,386.

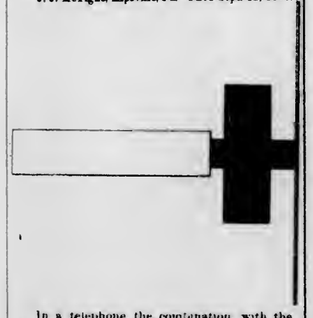


197,386. TRUSSES. John McShary, Mansfield, Ohio. Filed Sept. 17, 1877.

1. In a truss, the elastic bands C C, crossing each other between the legs of the wearer and passing through loops *d d*, arranged at right angles to each other on the back of the pad D, substantially as herein set forth.

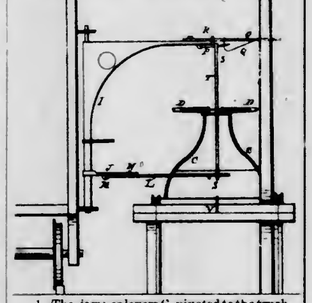
2. The combination of the waist-belt A, suspenders B B, adjustable cross-bands C C, and the adjustable pad D with loops *d d*, all substantially as and for the purposes herein set forth.

197,387. TELEPHONES OR SPEAKING-TELEGRAPHS. J. J. McTighe, Alpsville, Pa. Filed Sept. 12, 1877.



In a telephone, the combination, with the vibrating armature and magnet, of an electro-magnet whose core consists of two or more separate pieces, substantially as described.

197,388. MAIL-BAG CATCHES. Courtland F. Merry, Burgh Hill, Ohio. Filed Sept. 28, 1877.



1. The jaws or levers G, pivoted to the truck, and provided with springs D, in combination with the spring F, and truck mounted upon the track or way, substantially as and for the purpose specified.

2. The pivoted or hinged jaws G, in combination with the truck and way, as and for the purpose substantially as described.

3. The crane I, arm J, and rod L, in combination with the finger P and rod O, substantially as and for the purpose set forth.

4. The rod O, jointed to the crane, in combination with the finger P and T-headed hook R, arranged to operate conjointly with the post U and rod L, substantially as and for the purpose set forth.

5. The spring Q and rod O, in combination with the crane-finger P and hook R, substantially as and for the purpose specified.

6. The crane having connected therewith the hinged rod L, rod O, and finger P, with its hook, in combination with the jaws, mounted upon a truck, said post U, substantially as described, and for the purpose set forth.

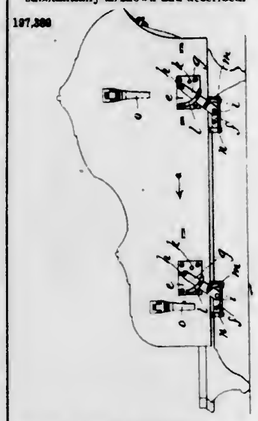
197,389. BED-LOUNGES. Sigismund M. Michelson and Louis Nax, St. Joseph, Mo. Filed Aug. 9, 1877.

1. The combination, in a bed-lounge, of a fixed seat and movable back, with bars *g* connected to said seat by a pivot, and to said back by loops or staples, whereby the back may be lifted and shifted to clear the braces I, and, when so lifted, may be turned into a horizontal position, for the purpose set forth.

2. In a bed-lounge, the combination, with the back and with the seat, of connecting-bars, constructed and operating substantially as described, whereby the back, when lowered for use as a bed, may be shifted lengthwise to form either a short or a long bed, at option.

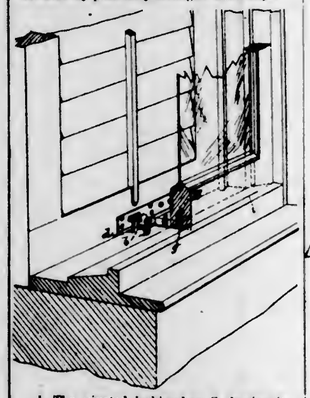
3. The combination, with the back and seat of a bed-lounge, of the plates *e*, provided with a tongue, *i*, swing-bar *g*, and stop *k*, and of the plates *f*, provided with the tongues *m* and *n*, substantially as shown and described.

197,389



197,390. SHUTTER-FASTENING. E. Mix, Orange, N. J. Filed Sept. 12, 1877.

Brief.—A circular vertical opening in lower rail of sash takes over a metal pivoted arm, the doubled end of which passes over a pin in the sill. This arm is secured to the usual shutter-hook by peculiarly-arranged metal clips.



1. The pivoted locking-bar G, having its turned-up portion or lip *f* doubled or turned over to provide for its engagement either with the window-sash or with a projection or staple, *g*, in the window-frame, or with both, substantially as shown and described.

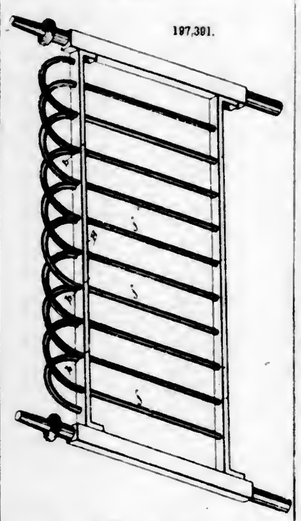
2. The combination, with the hook D, having an eye, *h*, of the locking-bar G and one or more flexible clamps or clips, *i*, and washer *k*, essentially as specified.

197,391. WROUGHT-IRON FENCES. Richard Morgan, Johnstown, Pa. Filed Aug. 21, 1877.

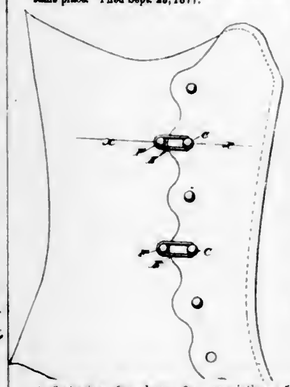
Brief.—The top rail has a series of perforations arranged in pairs at equidistant intervals. The short end of the curved top of each rod is inserted into one of the perforations, and the straight end through the perforation next but one to it.

As an improvement in metallic fences, the rigid confinement of the extremities of the curved portion of the rods *f* in holes *b* in the upper rail B, substantially as set forth.

197,391.

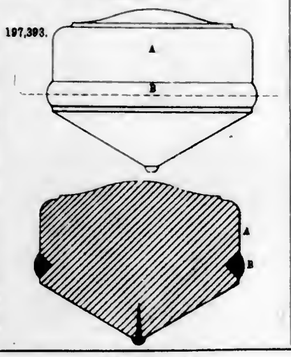


197,392. SHOE-FASTENERS. Charles L. Morehouse, Cleveland, Ohio, assignor to Violetta Morehouse, same place. Filed Sept. 29, 1877.



A fastening for shoes, &c., consisting of base-plate D, with the hinge-stud C and catch-stud F, rising therefrom, and link E, attached to stud C, all substantially as shown and described, and for the purpose stated.

197,393.

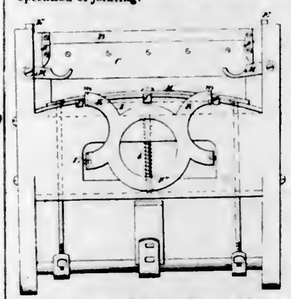


197,393. SPINNING-TOPS. John W. Murphy, Baltimore, Md., assignor of one-half his right to William Webb, same place. Filed Apr. 27, 1877.

In combination with the wooden top A, the metallic ring B, located exteriorly of the said top, and within a groove extending circumferentially of the same, substantially as and for the purpose specified.

197,394. STAVE-JOINTING MACHINES. Jas. Naylor, Jr., Rochester, N. Y., and Philip Vollmar, Seaforth, Ontario, Canada. Filed Aug. 31, 1877.

Brief.—The stave-blank is placed upon a curved flexible bed-piece and a series of ribs, the upper surfaces of which are coincident with the inner surfaces of the barrel, and held parallel to the knife by an oscillating gage provided with offsets upon its upper part, for holding the blank against a spring attached to the knife-bed while the edge is cut by a straight edged and faced knife, mounted in a vertically-reciprocating bed operated by a treadle and spring, said frame having projections upon its upper ends, which operate upon cams pivoted in recesses in the upper part of the main frame, for bending the blank over the former, and pressing it at each end before and during the operation of jointing.



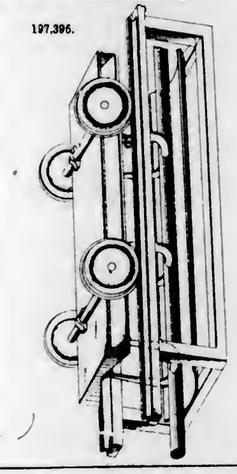
1. In a machine for jointing staves, the combination of the flexible bed-piece H with the form I, and the straight edged and faced knife C, arranged and operating in the manner as herein shown and described.

2. The gages K K, oscillating at L, the imaginary center of the barrel, and having the offsets *m m* for holding the stave securely on its bed, substantially as described.

3. The knife-bed B, having projections N N, in combination with the cams M M, constructed in the manner and for the purpose specified.

4. The combination of the knife-bed B, of the pivoted slides B K, of the lower guide F, all arranged substantially in the manner as herein shown and described, and for the purpose specified.

197,396.



197,395. MACHINERY FOR MAKING LAMP-BLACK. Peter Neff, Gambier, Ohio. Filed July 13, 1877.

Brief.—A car moving on rails, and having a circular or reciprocating motion over fixed burners.

1. In a machine for the manufacture of lamp-black, a depositing-surface made movable relative to the burners, substantially as and for the purposes described.

2. In machinery for the manufacture of lamp-black, a depositing-surface attached to a car or vehicle, whereby it may be moved relatively to the burners, substantially as and for the purposes described.

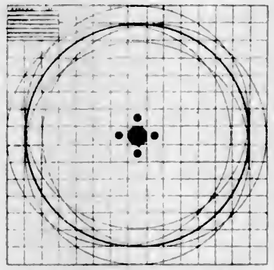
197,396. BOTTLE-STOPPER FASTENERS. Wm. North, Sheepridge, near Huddersfield, England. Filed Oct. 26, 1877.



1. The stopper A, having the cut-away part E, and provided with the catch D, in combination with the catch F, substantially as and for the purpose set forth.

2. The spring catch F, in combination with the stopper A and angular projection C, substantially as and for the purpose set forth.

197,397. TARGET-SHEETS. J. Palmer O'Neil, Pittsburg, Pa. Filed Oct. 9, 1877.



1. A target-sheet having a series of circles marked thereon whose centers are off of the center of the main or target circle, substantially as and for the purpose specified.

2. A target-sheet spaced off by intersecting lines, and having a series of circles marked thereon whose centers are off the center of the main or target circle, substantially as and for the purpose specified.

197,398. TARGETS FOR TESTING PENETRATION OF SHOT. J. Palmer O'Neil, Pittsburg, Pa. Filed Oct. 9, 1877.

Brief.—A portion of the shot charge passes through a hole in the center of the target. These shot are stopped by sheets of pasteboard set in the adjustable rack.

1. In a device for testing the distribution and penetration of shot and quality of powder, the combination of a target and a rack for test-cards, arranged in rear thereof, substantially as specified.

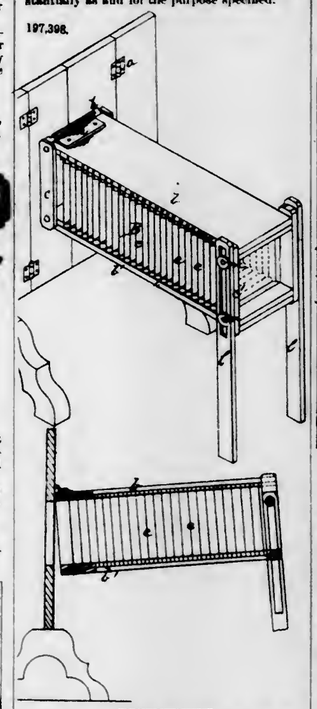
2. In a device for testing the penetration of shot and quality of powder, the adjustable test-card rack, substantially as and for the purpose specified.

3. In a device for testing the distribution and penetration of shot, the combination of the target and detachable test-rack, the parts constructed and adapted to be folded for transportation, substantially as specified.

4. The test-rack for testing the penetration of shot, consisting of boards *b b'*, grooved at intervals, and connected, to form a frame for the reception of cards *c*, substantially as specified.

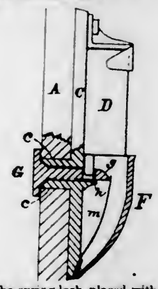
5. The combination, with the test-rack B, of the extension-supports *l l* and set-screws, substantially as and for the purpose specified.

197,398.



197,399. HASP-LOCKS FOR CAR-DOORS. Augustus H. Palmer and Amasiah D. Barber, Jr., Utica, N. Y. Filed Sept. 10, 1877.

Brief.—A guard-plate below the perpendicularly-placed lock covers a spring and the end of a tongue, which is thrown outward by it when the bolt releases it.



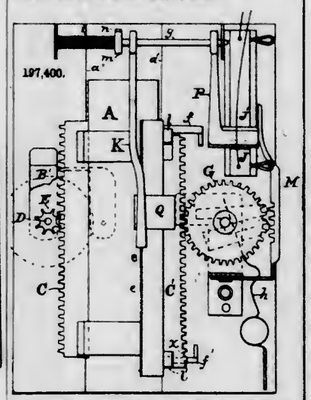
1. The spring-lock placed with its bolt in a perpendicular position, the plate C, provided with the hollow tenon *c*, and secured to the casing A, the guard F, covering spring and end of tongue *g*, substantially as and for the purposes described.

2. The plate G, provided with tongue *g*, having aperture *h*, in combination with lock D and spring *m*, substantially as set forth.

197,400. FIRE-ALARM-TELEGRAPH SIGNAL-BOXES. Augustus C. Palmer and Augustus H. Palmer, Utica, N. Y. Filed Apr. 25, 1877.

Brief.—Sliding bar having teeth to operate circuit-breaking key is provided on one side with a rack engaging with a toothed wheel for raising the bar, and on the other with rack engaging with a retarding device. At the end of the upward movement of the bar the toothed wheel is automatically thrown out of engagement and the key into engagement with the circuit-breaking teeth. At the end of its downward movement, key thrown out of engagement and lifting-wheel into engagement.

197,400.



1. The carriage A, having the rack C', formed as shown, to throw the wheel G out of gear, as set forth.

2. The wheel G, with its shaft, having bearing in the eye *s*, and the dogs *e* and *e'*, in combination with the projections *f* and *f'*, fastened to the carriage, substantially as shown.

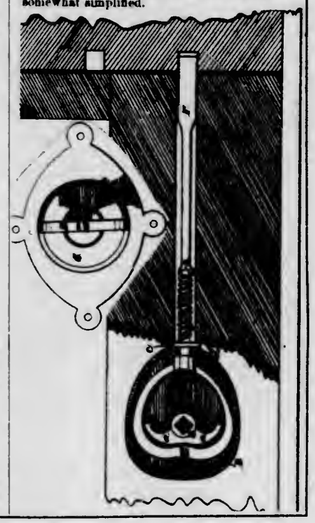
3. The rectangular arm P on the shaft *g*, the plate J', having spring *o*, and the fixed piece J, as and for the purposes described.

4. The pivoted bar *k*, having the roller *r*, in combination with the plate Q on key K and the projections *l* and *l'*, fixed to the carriage, as and for the purposes described.

5. The gear-wheel G, provided with the toothed spring M, as and for the purposes described.

197,401. SASH-FASTENERS. Henry B. Parrott, Dayton, Ohio. Filed Aug. 17, 1877.

Brief.—The lifting-button, turned either way to withdraw the bolt, forms a flat bearing for lifting the sash, and the whole construction is somewhat simplified.



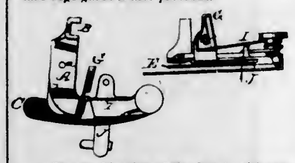
1. In a lock for window-sashes, the collar E, to which is connected the bolt F, operated by the hub C and radial arms *a*, whereby, upon turning the button D in either direction, the bolt is withdrawn, substantially as set forth.

2. The arrangement of the button D, in combination with the rail of a window-sash, whereby, when turned either way to withdraw the bolt, it forms a flat bearing for raising the sash, substantially as shown.

3. The herein-described device for locking and elevating a window-sash, consisting of the case B, bolt F, with its spring *d*, collar E, hub C, with its curved arms *a*, escutcheon G, and button D, the whole being constructed and applied in the manner and for the purpose specified.

197,402. **RUFFLERS FOR SEWING-MACHINES.** Britton Pecison, Fort Wayne, Ind. Filed Mar. 3, 1877.

Brief.—The ruffler-blade is pivoted on an extension of the presser foot, and is reciprocated by the contact of the needle-bar on its downward stroke with an inclined surface, adjustable to vary extent of throw. A separator-blade and edge-guide is also provided.



1. The combination of the foot A, with needle-hole *a*, the pivoted arm D, carrying the ruffling-blade E, and the spring I, substantially as and for the purposes herein set forth.

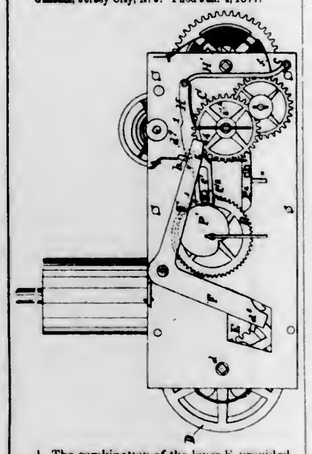
2. The adjustable cam or gage G, attached to the projection H on the arm D, in combination with the ruffling-blade, foot, and spring, substantially as and for the purposes herein set forth.

3. The combination of the foot A, the pivoted arm D, with ruffling-blade E, and the flexible movable blade C, substantially as and for the purposes herein set forth.

4. The pivoted gage J, in combination with the foot A and ruffling-blade E, for the purposes herein set forth.

5. The combination of the foot A, with needle-hole *a*, pivoted arm D, with projection H and ruffling-blade E, the adjustable cam or gage G, spring I, smooth blade C, and gage J, all constructed substantially as and for the purposes herein set forth.

197,403. **TIME GAS LIGHTING AND EXTINGUISHING APPARATUS.** Titus Powers and J. B. Hulbert, New York, N. Y., assignors to themselves and Isabella M. Gassam, Jersey City, N. J. Filed Jan. 4, 1877.



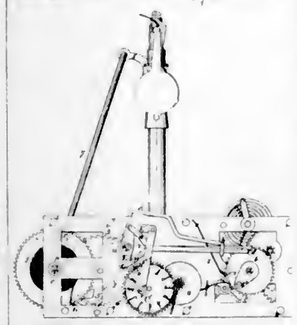
1. The combination of the lever E, provided with the projections d^2 and d^3, the bar H, the wheel D, provided with the pin d^3, and the wheel C, provided with the pins 1 1', one or both driven by a clock-movement, together with pinion d^1, wheel E, crank d^4, and rod d^5, all constructed to operate as and for the purpose described.

2. The combination of the bar H, spring *f*, cam P^1, toothed wheel P, dog P^2, notched wheel I, all constructed to operate as and for the purpose described.

3. The combination, with the train of wheels D d^1 E, crank d^4, and rod d^5, provided with a piston-head, of the air-cylinder R, the piston-head working within the cylinder, and the cylinder or piston-head being provided with air-apertures, as and for the purpose described.

197,404. **GAS-LIGHTING APPARATUS.** Titus Powers, New York, N. Y., assignor to himself, J. R. Hulbert, and Isabella M. Gassam, same place. Filed Feb. 16, 1877.

Brief.—The gas-cock is operated automatically morning and night to turn the gas off and on, special devices being used to vary the time of this movement for different seasons of the year.



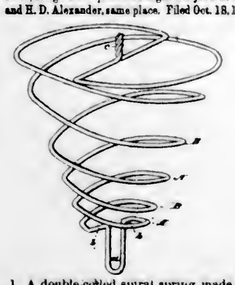
1. The combination of the crank-pin c', rock-lever E, connecting-rod C', and levers H H', constructed and arranged to operate as and for the purpose described.

2. The combination of the wheel *b*, carrying the pins t^1 and s^1, the arm C', carrying a pin, ^{1}, the wheels C D, pinion *e*, dog *s*, and levers E H H', and connecting-rod C', all constructed and combined to operate as and for the purpose described.

3. The combinations of the levers H H' 1 2 3 4 5 6, the wheel *d* and *k*, the pinion d^1, and stop-pins *l* and *m*, all constructed and arranged to operate as and for the purpose described.

4. The wheels and pinions *d k* d^1, spring *g*, levers 1 2 3 4 5 6, pins *l* and *m*, arm *p*, connecting-rod *q*, and arm *s*, all combined and arranged to operate as and for the purpose described.

197,406. **BED-SPRINGS.** Waterman J. Read, Mohawk, N. Y., assignor of a part of his right to Byron A. Stone and H. D. Alexander, same place. Filed Oct. 18, 1877.



1. A double-coiled spiral spring made from one piece of wire bent at the middle, and twisting each end to form two coils, A and B, the rounds of one coil, A, lying between the rounds of the other coil, B, and both coils tending in the same direction, substantially as and for the purpose hereinbefore set forth.

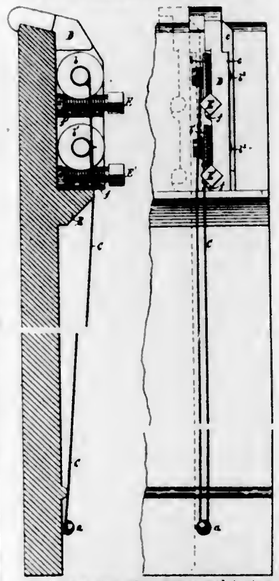
2. A double-coiled spiral spring made from one piece of wire bent at the middle to form the loop *a* and shoulders *b b*, and then twisting each end to form two coils, A and B, the rounds of one of the coils, A, lying between those of the other coil, B, and both coils tending in the same direction, and united to each other at the top, substantially as and for the purpose hereinbefore set forth.

197,408. **POTS FOR PLANTS.** Henry F. Reinacke, Jersey City Heights, N. J. Filed Oct. 5, 1877.



The combination of a series of cylinders or polygons, A B C, &c., of gradually-decreasing size, and a conical frame composed of posts F F, such posts being provided with notches adapted to support the cylinders or polygons, substantially as herein shown and described.

197,407. **STRINGING AND TUNING DEVICES FOR PIANOS.** Charles E. Rogers and Alfred F. Rogers, Boston, Mass. Filed June 12, 1877.



1. As a means of stranding and tuning a piano-string, the worm-wheel *b* or b^1, provided with a hub to receive the string, in combination with a worm or screw shaft, E or E', placed between the worm-wheel and the bridge, over which the string is drawn in a position at right angles, or nearly so, to the line of draft of the string, with its screw-thread engaging with the teeth upon the periphery of the worm-wheel, substantially as and for the purposes described.

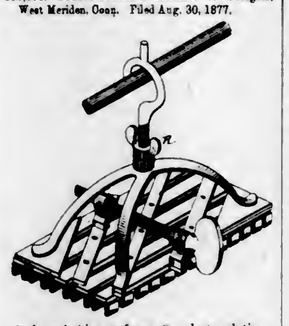
2. The hook D, provided with one or more slots, *d*, one or more ears, *c*, and one or more transverse ribs, *f f*, constructed and arranged substantially as and for the purposes described.

3. The hook D, provided with one or more slots, *d*, and one or more transverse ribs or lips, *f f*, constructed and arranged substantially as described.

4. The hook D, provided with one or more slots, *d*, one or more transverse lips, *f*, and one or more longitudinal strengthening-ribs, *c c*, all constructed and arranged substantially as described.

5. The combination of the hook D, provided with one or more slots, *d*, and one or more worm-wheels, *b* or b^1, provided with headed journals b^2, fitted to rotate in and adapted to be moved longitudinally of said slot or slots, substantially as and for the purposes described.

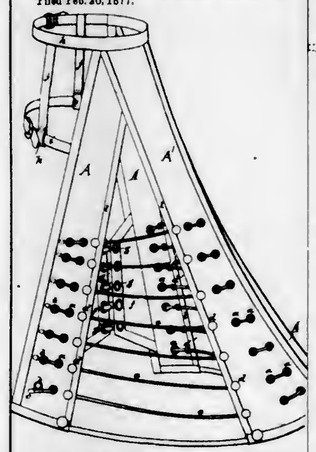
197,408. **ELECTROPLATING-FRAMES.** J. W. Rogers, West Meriden, Conn. Filed Aug. 30, 1877.



1. In a holder or frame for electroplating, the combination of the fixed nut I, set-nut R, and screw-hook, substantially as described.

2. The combination, in an electroplating-frame, of the adjustable parallel bars, and spring hooks or clamps on said bars, the hooks on one bar corresponding to the hooks on the next bar, substantially as described.

197,409. **PANIERS.** Morris Rosenstock, Hoboken, N. J. Filed Feb. 20, 1877.



1. A panier or bustle having the bands or belts *h i*, secured together by means of vertical strips, as and for the purpose set forth.

2. In combination with the bands *h i*, the vertical strips *j k*, having their upper ends secured permanently to the upper band, and their lower ends formed with loops adjustable on the lower band, as and for the purpose set forth.

3. A panier or bustle having flaps *f f*, provided with hooks *g*, having eyelets on heads and eyelets *g'*, for rigidly securing said flaps together, as and for the purpose set forth.

4. A panier or bustle consisting of two belts, *h i*, pieces A, having eyelets *a*, springs *e*, flaps *f*, and hooks and eyes for securing said flaps together, as and for the purpose set forth.

197,410. **PROCESSES OF PRINTING PHOTOGRAPHIC PICTURES.** Andrew Roth, New Orleans, La. Filed Sept. 4, 1877.

The process herein described of printing photographic pictures on paper, stone, or other material, the same consisting in coating the plate before sensitizing with a preparation composed of gelatine, tannin, rosin, alcohol, honey-soap, and water, about in the proportions named, substantially as and for the purpose described.

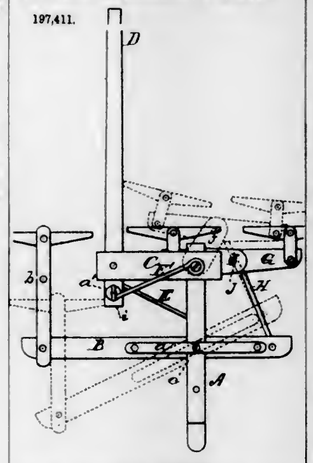
197,411. **DRAFT-EQUALIZERS FOR HARVESTERS.** H. Samson, Fillmore, Minn. Filed June 5, 1877.

1. The draft attachment for harvesting machines, consisting of the pole, its end cross-piece, and the main draft-bar, adapted to be secured to the frame, substantially as specified.

2. The combination, with the main draft-bar A and its cross piece C, of the rearwardly-extended pole D and the crossed braces E E', secured at one end to the extended rear end of said pole, and at the other to the said draft-bar, substantially as specified.

3. The combination, with the angular draft attachment D C A and the pivoted cross-bar B, having on its longer end the single-tree bar *b*, of the pivoted rod H, the double-tree G, and a pivoted plate or rod, I, coupling the pole and double-tree, substantially as specified.

197,411.



197,412. **LEAD-PENCILS.** Philip Schrag, New York, N. Y., assignor to Eberhard Faber, same place. Filed Sept. 22, 1877.

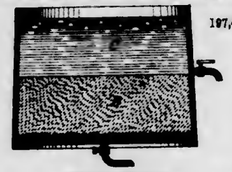


The hollow wooden pencil-stock A, having the reduced tapering split end B, in combination with the separate projecting sheet-metal screw-threaded ferrule C, and the sheet-metal screw-threaded clamping-cap D, substantially as shown and described.

197,413. **PREPARATION OF MASH.** Anton Schwarz, New York, N. Y. Filed July 19, 1877.

Brief.—The process described differs from the processes in common use in the boiling of the wort which has been drawn from the mash, and returning the same to the mash, and allowing it to percolate through the mass without agitation after the first mashing.

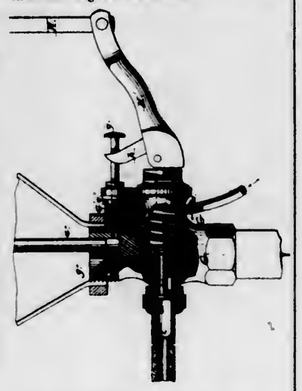
The within-described process for brewing beer, which consists in drawing off above the malt which settles down on the bottom of the mash-tun after the agitation ceases the wort which collects on the top of said malt during the time of rest, then heating the same to the boiling-point, and causing the boiling liquid to percolate through the malt (after the formation of sugar in the malt has been completed) without any further mashing or agitation, thereby dissolving the mucine and gluten contained in the malt without disturbing the effect of the diastase, substantially as specified.



197,413.

197,414. **COCKS FOR AIR-COMPRESSORS.** William D. Seal, Washington, D. C., assignor to himself and W. T. Haller, same place. Filed Apr. 25, 1877.

Brief.—The water and air valves are both operated by a lever, with a rod connecting with the oscillating chamber above.



1. The combination of the valve-casing G, provided with the passages g'' G''', which communicate through an opening, s^2, the inlet-pipe T and its check-valve, communicating with the passage g'', and the valve s^1, closing the opening s^2, the stem of the check-valve bearing on the valve s^1, with the described appliances for operating the valve s^1, as set forth.

2. The valve s^1 and spring *w*, in combination with lever H', and valve *t t'*, arranged and operating as set forth.

3. Lever H', arm *h*, valve-stem head *g*, spring *g'*, air-valve G', air pipe G'', and air-inlet pipe *x*, arranged and operating as set forth.

197,415. **PRUNING-HOOKS.** Walter L. Shaw, Bullskin Township, Fayette County, Pa. Filed Sept. 20, 1877.

Brief.—The stem of the hook rests and slides in a groove of the chisel-stock, to which stock the chisel is directly attached, there being a hand-ring to steady the hook while the chisel is moved thereon. The sliding hand-ring is connected to the hook-stock by a suitable recess and slot, and there is also a ferrule, which serves as a stop for the hand-ring, as well as to strengthen and bind the chisel-stock.

1. The combination, in a pruning-hook, of the hook provided with the stem adapted to rest in a groove in the chisel-stock; a chisel-stock grooved to receive the hook-stem and slide thereon; a chisel connected directly to the chisel-stock, and operated thereby; and the hand-ring for steadying and controlling the hook while the chisel-stock is slid thereon, substantially as specified.

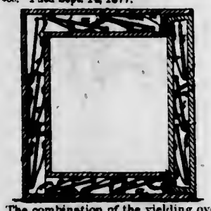
2. In a pruning-hook, the hook having the open slotted stem, as at *h i*, in combination with the hand-ring, notched as at *s*, substantially as and for the purpose specified.

3. In combination with the grooved chisel-stock, the ferrule or ring, having a lip which enters the groove of the chisel-stock, substantially as and for the purpose specified.

197,415.



197,416. ELECTRO-MAGNETIC BURGLAR-ALARMS FOR SAFES. Chas. S. Shivler, New York, N. Y., assignor of one-half his right to George W. Tompkins, same place. Filed Sept. 14, 1877.



1. The combination of the yielding overlapping non-conductors or insulators *b*, the springs controlling said insulators, and a series of conductors rendering the electric circuit continuous through the interior of the protecting-case when the door of the same is closed, substantially as and for the purpose described.

2. The combination of the armature-lever G and the locking-lever H, both forming a part of an alarm-circuit, and the wires of the opposite poles of the battery of said circuit, one wire of which is connected with the said armature-lever and the other with the said locking-lever, substantially as and for the purpose described.

3. The combination, with the locking-lever H, for locking the armature-lever G, of clock-work and a cam-wheel driven by said clock-work, for preventing the closing of the alarm-circuit during prescribed periods of time, substantially as specified.

4. The combination, with the locking-lever H and the armature-lever G, each forming part of an alarm-circuit, of a circuit-closer, R, for testing said circuit, substantially as described.

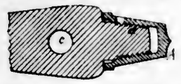
5. The combination, with the locking-lever H and armature-lever G, both forming a part of an alarm-circuit, of a circuit-breaker, R′, for opening said circuit, substantially as and for the purpose set forth.

6. The combination, with the locking-lever H, forming part of an alarm-circuit, and clock-work for actuating the same, of a releasing device, R″, for releasing the said lever from the action of the clock-work, substantially as and for the purpose specified.

7. The joint *e′* in the locking-lever H, for enabling said lever to lock the armature-lever G, when the said lever H is engaged by the releasing device R″, substantially as described.

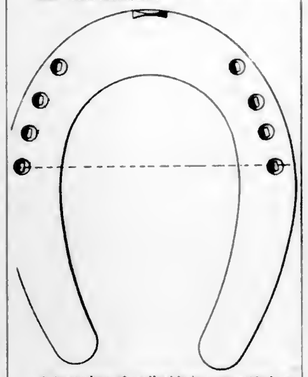
197,417. FERRULES FOR TOOL-HANDLES. Adolph Shoeninger, Chicago, Ill. Filed Mar. 9, 1877.

Brief.—The tool-handle is provided with an interiorly-threaded conical metal ferrule.



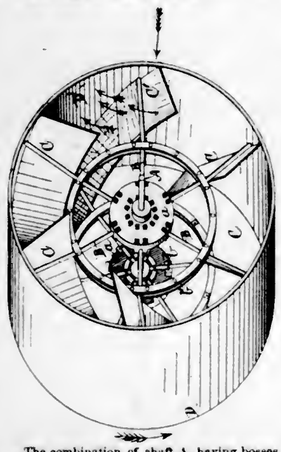
The cast-metal tip A described, having a smooth conical exterior, a similarly-shaped screw-threaded socket, *a*, and nail hole *b*, constructed and arranged substantially as described and shown.

197,418. HORSESHOES. Nathan Sifferman, Dayton, Ohio. Filed June 5, 1877.



A horseshoe of malleable iron, provided on its upper face with countersunk orifices opening into the crease, whereby the nails can be driven into the hoof at any desirable inclination.

197,419. SCREW-PROPELLERS. William D. Smith, Keithsburg, Ill. Filed June 16, 1877.



The combination of shaft A, having bosses *a*, radial arms B, blades C, and rim D, with stay-bar *b′* and yokes *b*, said blades and rim being secured together, and said rim being detachable from said shaft, substantially as set forth.

197,420. APPARATUS FOR THE MANUFACTURE OF GAS. Wm. Smith, Pittsburg, Pa. Filed Sept. 27, 1877.

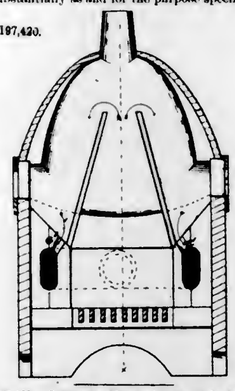
Brief.—Gas is made from oil.

1. In a gas apparatus of the class described, the combination of a series of vertical retorts having deflecting ribs, forming the central flue and side flues, with a series or chambered and perforated side walls, and central fire-chamber, substantially as and for the purpose specified.

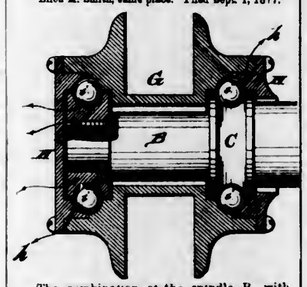
2. The longitudinally grooved and perforated tile lining for gas-retort furnaces, in combination with the ribbed retorts, substantially as specified.

3. The oval flask-shaped gas-retort provided with the deflecting-ribs, the neck, and oil-inlet, substantially as and for the purpose specified.

197,420.

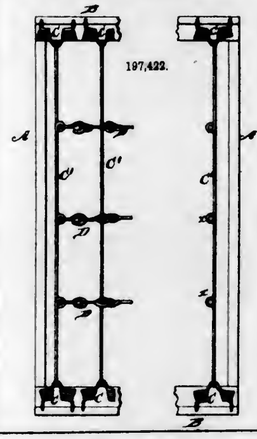


197,421. CARRIAGE-WHEEL AXLES. John Smith, Fall River, Mass., assignor of one-half his right to Ellen M. Smith, same place. Filed Sept. 1, 1877.



The combination of the spindle B, with stationary grooved collar C and detachable grooved collar D, the hub G, the annular plates H H, with circular flanges *h h*, and the bolts *i*, all constructed substantially as and for the purposes set forth.

197,422.



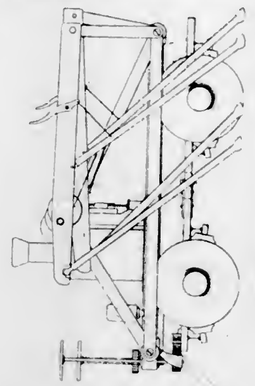
197,422. BED-BOTTOMS. William W. Snell, Rushford, Minn. Filed Oct. 13, 1877.

1. In a spring bed-bottom, the double springs C, each made of a single piece of wire, bent to form the center-loop *a*, springs *b b*, and hooks *d d*, in combination with rods C′ C′, connecting the springs, substantially as and for the purpose set forth.

2. The combination of the double springs C, rods C′, and chains D, substantially as and for the purposes set forth.

3. The combination of the side rails A A, beveled cross-bars B B, double springs C, rods C′, and chains D, all constructed substantially as and for the purposes set forth.

197,423. ROAD-ENGINES. George T. Snyder, Natrona, Pa. Filed Sept. 20, 1877.



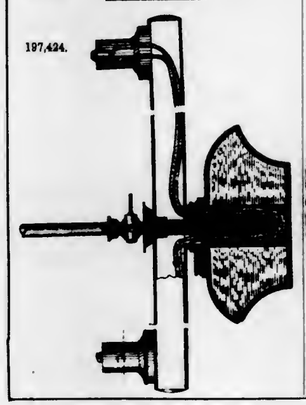
1. The combination, in a road-motor, of the crank-shaft, provided with one or more cams and crank-arms, the horizontal pivoted driving-bars, and suitable legs or pushers hinged to the driving-bars, substantially as and for the purpose specified.

2. In a road-motor, the combination, with a horizontal driving-bar, of two or more legs or pushers hinged thereto, provided with lifting and locking mechanism arranged on the driving-bar, substantially as and for the purpose specified.

3. In a road-motor, the pusher or leg, having the notched or slotted hoof or foot, substantially as and for the purpose specified.

4. In a road-motor, the combination, with the bed, of two or more trucks pivoted thereto by king-bolts arranged in a central line, and connected by a jointed sliding coupling pole or perch, substantially as and for the purpose specified.

197,424.

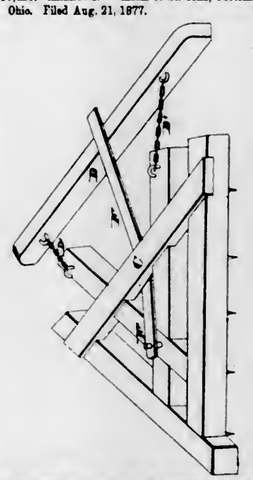


197,424. CARBURETING ATTACHMENTS FOR GAS-BURNERS. Christian G. Spengler, Hoboken, N. J. Filed May 23, 1877.

1. The combination, in an apparatus for carbureting illuminating-gas, of a gas-supply pipe, a cistern for hydrocarbon liquid, a vaporizing-chamber which communicates with the cistern and supports the burner-tip, and a wick which extends from the cistern into the vaporizing-chamber, substantially as and for the purpose set forth.

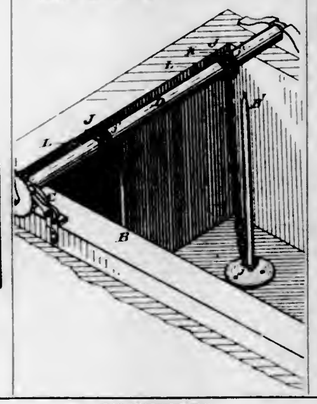
2. The combination, in an apparatus for carbureting illuminating-gas, of a gas-supply pipe, a cistern for hydrocarbon liquid, a hollow arm, (one or more,) which communicates with the cistern, a vaporizing-chamber, which communicates with the hollow arm and supports the burner-tip, and a wick, which extends from the cistern through the hollow arm into the vaporizing chamber, all constructed and operating substantially as shown and described.

197,425. HARROWS. William J. St. Clair, Freeland, Ohio. Filed Aug. 21, 1877.



The combination, with the harrow and drag-bar D, of the flexible side connections D′ and the horizontal lever-bar F, the latter being secured to the central part of the harrow, bent rearward beneath the cross-bar C, and adapted, as described, to have sliding bearings, and exert a strong downward pressure upon the said drag-bar, substantially as described.

197,426. TANNERS' APPARATUS FOR HANDLING HIDES. Charles Steinmann and John Metzger, Cincinnati, Ohio, assignors to C. Steinmann & Co., same place. Filed Oct. 1, 1877.

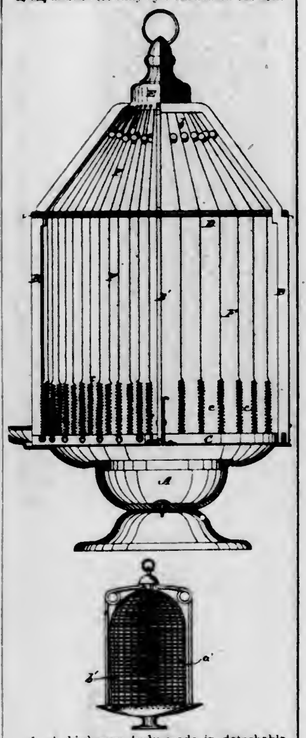


1. The combination, with a tanner's pit, of the spears B B′, chains J J′, and a windlass, D, or other hoisting-tackle, substantially as and for the purpose set forth.

2. The combination, in a tanner's pit, of the spears B B′, chains J J′, windlass D, or other hoisting-tackle, and wall-eyes L L′, or their equivalents, substantially as set forth.

197,427. BIRD-CAGES. Owen W. Taft, Brooklyn, N. Y. Filed Nov. 3, 1877.

Brief.—In one modification the parts of the body are hinged or jointed, and held in operative form by collective tensions on each wire. In another the latticed portion of body is a coil, steadied by vertical cords or links, which is expanded vertically by a tension on the coil.



1. A bird-cage body made in detachable parts, and arranged to be held in its complete integral form by a tension exerted upon its wires, substantially as and for the purpose described.

2. The combination of the shouldered standards B B′, the notched ring D, the cap-piece E, the base-ring C, and the tension-wires F, formed with spiral coils, and arranged to hold the parts together, substantially as described.

197,428. RECTIFYING APPARATUS. J. H. Thierman, Louisville, Ky. Filed Aug. 28, 1877.

Brief.—The three interchangeable cylinders are mounted on trucks, and provided with induction and eduction pipes. When the first cylinder becomes foul, the second can be substituted, and the third can be substituted for the second when required.

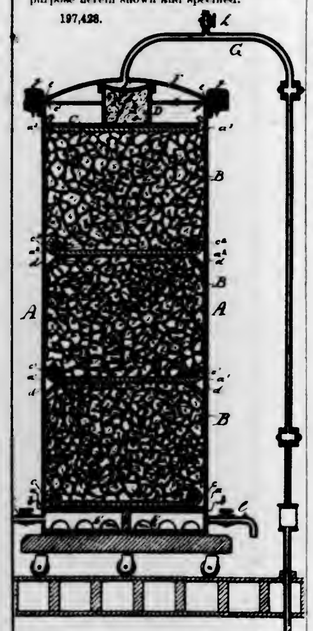
1. The cylinder A, having brackets *d d*, in combination with the blankets *a′ a²* and wire rings *c′ c²*, by which it is divided into several compartments, B B, substantially as and for the purpose herein shown and specified.

2. The combination of the rectifying-cylinder A, having circumferential flange *e′*, perforated top partition C, having a central perforated cotton chamber, D, and top-piece F, having flanged screen or sieve *g′* fitting over the chamber D, and annular flange *e*, all constructed and combined so as to form an open

annular chamber in the top of cylinder A, surrounding the cotton-chamber D, substantially as and for the purpose herein shown and specified.

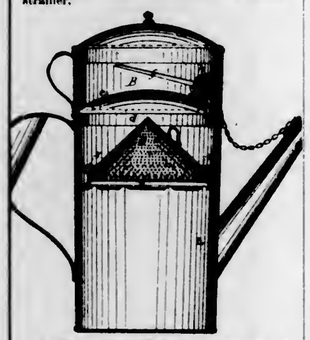
3. As an improvement in rectifying apparatus, the interchangeable cylinders A^1 A^2, mounted on trucks and provided with induction-pipes H, and exit-pipes G, provided with couplings *p p p*, substantially as and for the purpose herein shown and specified.

197,428.



197,429. COFFEE-POTS. William G. Thomason, Woodberry, Md. Filed Oct. 6, 1877.

Brief.—A water-holding vessel having a concave bottom, and provided with a valve operated by a lever for the admission of water into the pot. The coffee-pot is also provided with a perforated flange to support the conical strainer.



1. The condenser B, having its bottom concaved from the lower side, and provided with the valve *e*, constructed as described, and operated by the lever *f*, whereby water from the condenser runs through into the boiler.

2. The perforated flange *a*, supporting the perforated conical steeper *p*, having the upturned rim *r*, as shown and described, and for the purpose specified.

197,430. WATCH-ESCAPEMENTS. John Thomson, Rochester, N. Y. Filed Oct. 18, 1877.

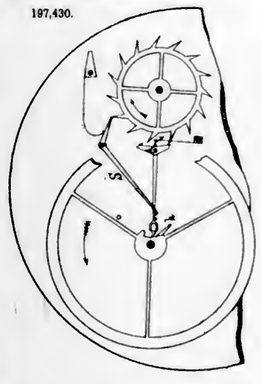
1. In combination with the impulse-lever which actuates the balance-wheel and the escape-wheel, an escape-lever provided with pallets constructed and arranged to give an alternate short and long drop to the escape-wheel, whereby the momentum of the train-work is utilized to set the impulse-lever in position to give the impulse to the balance-wheel, substantially as set forth.

2. In combination with the escapement-lever, the banking-stop and its spring, whereby said escapement-lever is held in position until the discharging-pallet of the balance-wheel enters the fork of the escapement-lever, and the accidental unlocking or "overbanking" of said escapement-lever is prevented, substantially as set forth.

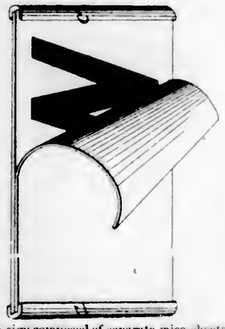
3. The combination of the impulse-pallet A of the balance-wheel and the impulse-lever S, having their bearing-surfaces constructed in the form of a cycloidal or epicycloidal curve, whereby a rolling motion is obtained and the friction reduced to a minimum, substantially as set forth.

4. In combination with the banking-stop V, the inclined teeth *x x*, for limiting the movement of the escapement-lever, substantially as and for the purposes specified.

197,430.



197,431. SIGNS. John O. Wall, Washington, D. C., assignor of one-third of his right to Arthur E. Miley, same place. Filed Aug. 2, 1876.



1. A sign composed of separate mica sheets, solidified or made integral by transparent cement, having the letters on the inner surface of such mica sheet, for the purposes stated.

2. A sign composed of separate mica sheets, solidified or made integral by transparent cement with the letters on the inner surface of such mica sheet, and with frosting between them for isolating the letters, whereby the letters may be made more prominent, as herein set forth.

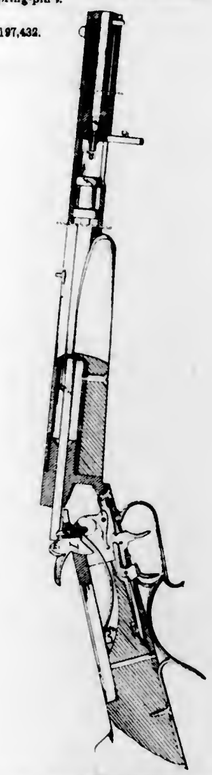
197,432. BREECH-LOADING GALLERY-RIFLES. Thos. M. Wallis, Philadelphia, Pa., assignor to Wm. Wurfflein, same place. Filed Feb. 8, 1877.

Brief.—Passed by Board of Examiners-in-Chief.

1. The combination of the firing-rod and the barrel with its chambered bore with the removable charging device, consisting of the cup *b* for the projectile, the nipple *d* for the percussion-cap, and arm *c*, all substantially as set forth.

2. The combination of the firing-rod, having a notched rear end, with the hammer I and its spring-pin *i*.

197,432.



197,433. PUTTING UP CALCIMINING MATERIALS. J. F. Walter, Jr., Brooklyn, N. Y. Filed Oct. 10, 1877.



A package containing materials for calcimining or distemper painting, in proper proportions for use, in which the pigment or body material is in a pulverized state, and in which the glue or binding material, in a liquid state, is in a jar, bottle, or other vessel, surrounded by, inclosed within, and protected by, the pulverized pigment or body material, substantially as specified.

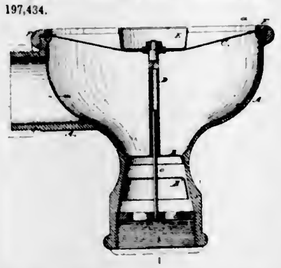
197,434. GAS-REGULATORS. John P. Warner, Baltimore, Md., assignor of three-fourths of his right to T. G. Stewart, I. Mitchel, and E. Raine, Jr. Filed Mar. 9, 1877.

1. A governor or gas regulator having its lower end tapered, and provided with a cup-valve, B, fitting the taper, and the secondary valve B', held in place by a diaphragm, C, substantially as shown, and for the purpose described.

2. In the gas-regulator herein described, the recessed faces of the shell A and cap F, in combination with the diaphragm C and packing-wire *a*, all constructed and arranged as shown and described.

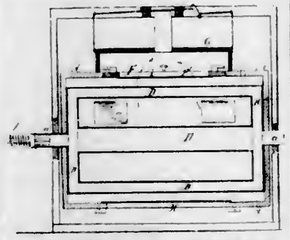
3. The governor or gas-regulator herein described, consisting of the shell A, double-cup valve B B', stem D, diaphragm C, weight-cup E, recessed cap F, and recessed shell A for the packing-wire *a*, all constructed and arranged substantially as shown and specified.

197,434.



197,435. FEATHER-RENOVATORS. Davis L. Weatherhead, Mount Holly, N. J., assignor to himself and T. E. Akins, same place. Filed May 21, 1877.

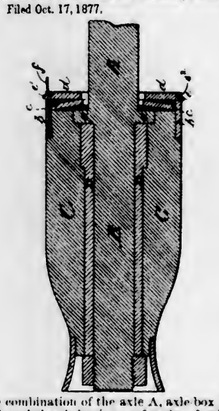
Brief.—The adjustable cap creates a draft through the screened openings.



1. The combination of the adjustable cap G with the screened openings H and F' in the rotating cylinder A, for the purpose set forth.

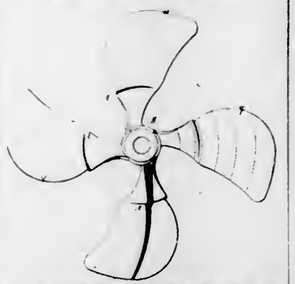
2. The combination of the spring safety-valve E with the hollow trunnion *a'* of the cylinder communicating with the steam-chamber D, all substantially as and for the purpose set forth.

197,436. SAND-BANDS. Samuel O. Wharton, Warsaw, Ind. Filed Oct. 17, 1877.



The combination of the axle A, axle-box D, hub C, and ring *b*, having perforation *c'*, with the packing-ring *c*, retaining ring or cover *d*, having studs *e e'*, and spring catch *f*, all arranged and operating substantially as described, for the purpose herein shown and specified.

197,437. SCREW-PROPELLERS. James W. Whittaker, Philadelphia, Pa., assignor of one-half his right to W. P. Street, same place. Filed May 31, 1877.

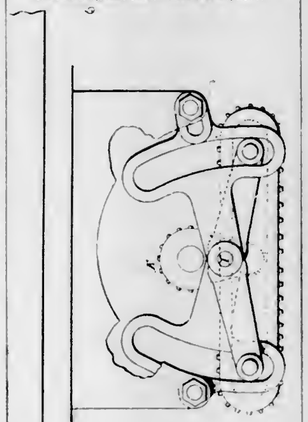


1. A screw-propeller each blade of which presents on its working face, from the periphery *a* to about the line A, a section of a true screw of one uniform pitch, and from the said line A to the hub B a section of a uniformly true screw of a less pitch, as and for the purpose set forth.

2. A screw-propeller each blade of which is rounded or sharpened from both sides, as and for the purpose described.

3. A screw-propeller constructed substantially as described, each blade being cut away or reduced in area at its after edge only from about the line A to the periphery of the screw, substantially as specified.

197,438. MECHANICAL MOVEMENTS. Sturges Whitlock, Birmingham, Conn. Filed Oct. 26, 1877.



1. The combination of the endless rack C, the pinion E, and crank N, with a parallel mechanism to support the said rack, substantially as described.

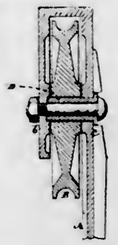
2. The combination of an endless reciprocating rack, the driving-pinion working therein, and the crank serving as a guide to maintain the proper relative position of the said rack and pinion, substantially as described.

3. The combination of an endless reciprocating rack, the driving-pinion working therein, and the crank serving as a guide to maintain the proper relative position of the said rack and pinion, and a parallel mechanism to support the said rack, substantially as described.

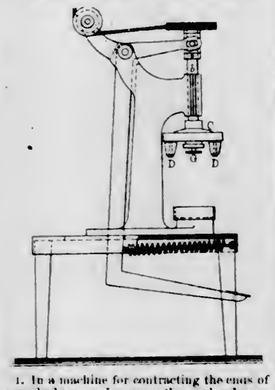
197,439. BEARINGS FOR SHEAVES AND PULLEYS. O. H. White, New York, N. Y. Filed Oct. 24, 1877.

The combination, with the frame A and pin or bolt C, of the reversible and removable sleeve-bearing D provided with a locking-head or projection on one of its ends engaging with a projection or recess on the exterior of the frame, substantially as and for the purpose herein described.

197,439.



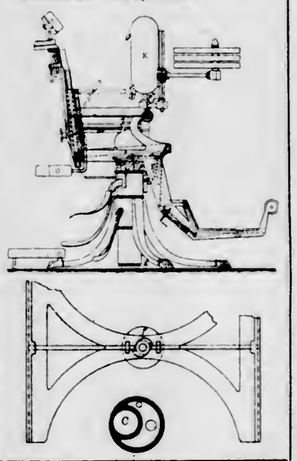
197,440. SHEET-METAL-CAN MACHINES. William A. Wicks, Baltimore, Md. Filed July 12, 1877.



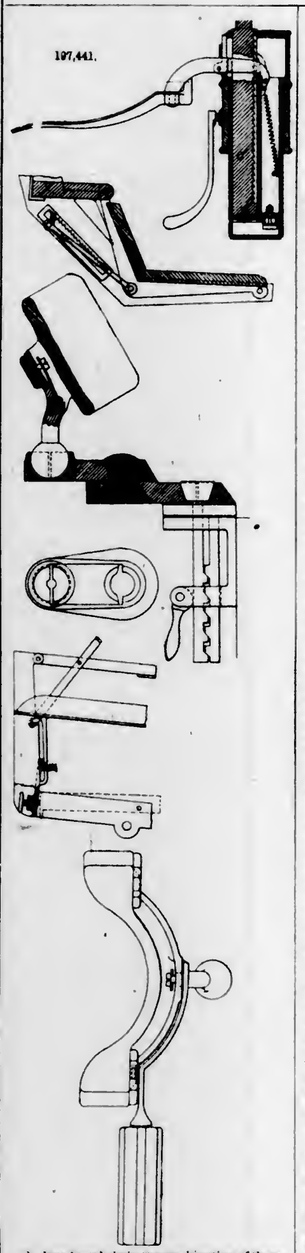
1. In a machine for contracting the ends of a can body around or upon the can-head, a revoluble head, having inverted conical projections on the under side thereof, substantially as herein shown and described.

2. In combination with the revoluble head C, having the conical projections D on the under side thereof, the yielding presser-plate G, substantially as and for the purpose herein set forth.

197,441. DENTISTS' CHAIRS. Burd M. Wilkerson, Baltimore, Md. Filed Apr. 17, 1877.



197,441.



1. In a dental chair, the combination of these elements—a vertically movable seat-support, a lifting mechanism therefor, which normally is out of engagement with the support, and mechanism distinct from the lifting mechanism to hold the said support at any point to which it is raised by the lifting mechanism, and to permit it, when desired, to pass gradually and without shock from that elevated point to a lower one, the combination being and acting substantially as set forth.

2. The combination, substantially as set forth, of a vertically-movable seat-support, mechanism for elevating said support, and a fluid column for upholding said support at any elevation to which it may be raised.

3. A dental chair supported upon a plunger adapted to be elevated within a sheath by suitable means, the said sheath communicating with a fluid supply by means of a duct or opening provided with an inlet-valve, whereby the fluid is allowed to follow the plunger as the latter is elevated, and to sustain it at any point, substantially as described.

4. A dental chair mounted upon a plunger adapted to be elevated within a sheath by means of a ratchet and pawl, the said sheath communicating with a fluid-reservoir by means of a suitable valve, whereby the fluid is allowed to rise beneath the plunger as the latter is elevated, and to sustain it at any point, substantially as described.

5. A plunger placed within a sheath and supporting a dental chair, said plunger being adapted to be elevated by means of a ratchet and pawl, and sustained at any point by means of a fluid medium entering said sheath as the plunger rises, as set forth.

6. The combination, in a dental chair, of a seat-supporting plunger, mechanism for lifting the same, a fluid column for upholding said plunger at any point, and locking devices for griping said plunger when so upheld, substantially as herein shown and set forth.

7. A foot-lever for operating the elevating devices proper, constructed in sections hinged or pivoted together, substantially as set forth.

8. In a dental chair, elevating mechanism and a locking device connected together, whereby the latter is released in the act of bringing the elevating mechanism into position for use, substantially as described.

9. In combination with the swinging end of the jointed foot-lever, a flexible or jointed connection between the same, and the mechanism for clamping the plunger, whereby the latter is released in the act of straightening out the lever, substantially as described.

10. In combination, with a non-rotating pedestal and a vertically-movable seat-support, an intermediate rotary cylinder which receives and carries the seat-support, and has its bearing in said pedestal, and elevating mechanism which is carried by said cylinder, and is adapted to raise the seat-support independently of both the rotary cylinder and non-rotating pedestal, substantially as herein set forth.

11. A chair-body mounted upon a plunger sustained at any desired height by means of a fluid medium, the said chair-body being adapted to tilt, and being provided with means for securing it at any desired angle, substantially as described.

12. A seat pivoted centrally, or nearly so, and capable of slight oscillations upon said pivot, in order that the seat may adapt itself to the position assumed by the occupant of the chair, substantially as described.

13. In a dental chair, a seat pivoted centrally, or nearly so, so as to be capable of slight oscillations for the purpose described, in combination with a locking device for securing the seat at varying angles, as required, substantially as set forth.

14. The front plate of the chair, below the seat-frame, inclined inwardly, in combination with the upper fixed foot-board and the lower foot-board, substantially as shown and described, whereby the upper board is carried so far to the rear as not to interfere with the free use of the lower foot-board.

15. In combination with a dental chair, and forming a part thereof, a movable foot-board, adapted to be elevated, lowered, and secured by the foot of the operator, substantially as described.

16. In combination with the fixed foot-boards of a dental chair placed in different planes, an intermediate adjustable foot-board, adapted to be operated by the foot of the operator, substantially as set forth.

17. In a dental chair, a movable back sliding in a right line, and provided with a clamping device which is attached to the said back, and constitutes a handle for elevating the same, substantially as described.

18. In a dental chair, a movable back connected to the fixed frame by tongues and grooves, and provided with a locking device which constitutes a handle for elevating it, substantially as described.

19. In a dental chair, a supplemental or child's seat, forming an integral part of the chair, arranged to occupy, when in use, a position above the main seat, and adapted, when not in use, to be folded or turned out of the way of the main seat, substantially as set forth.

20. In combination with a dental chair, a child's seat adapted to form an elastic back for the chair when the latter is occupied by an adult patient, substantially as described.

21. In combination with a dental chair, a supplemental or child's seat, pivoted to the back or body of the chair, and adapted, when folded down, to form a supporting device for the back of the adult patient, substantially as set forth.

22. The supplemental or child's seat having its supports extended above the seat when opened in order to form arms therefor, substantially as set forth.

23. In a dental chair, a head-rest pivoted twice about parallel axes and once about a ball-and-socket joint, as set forth.

24. A head rest support formed of links or sections united by conical or tapering pivots seated in correspondingly-shaped sockets capable of expanding and contracting, and bounded, in part, by movable blocks which transmit the movement from one cone and socket to the next throughout the series, whereby the several joints will be tightened by the operation of a single device, substantially as set forth.

25. In combination with the head-rest of a dental chair, an arm-support for the operator, substantially as described.

26. In a dental chair, an arm-rest adapted to be secured at either side of the head-rest, substantially as described.

27. In combination with the head-rest of a dental chair, a swiveling arm-rest, substantially as described.

28. A head-rest for a dental chair consisting of a pair of pads connected by means of a slack strap, as set forth.

29. In combination with a dental chair, a spittoon pivoted twice about vertical axes, whereby it may be made to occupy any position within the circle described by the extreme radius of the supporting-arms, substantially as described.

30. The combination, with the spittoon of a dental chair, of a water-reservoir connected with and carried by the chair, and adapted to deliver a supply of water to the spittoon, for the purpose of rinsing the same, substantially as set forth.

31. In combination with the spittoon of a dental chair, a water-reservoir adapted to deliver a supply of water through an annular opening near the rim of the spittoon, substantially as described.

32. A trap suspended within a spittoon by means of wires attached to a removable ring of greater diameter than the neck of the spittoon, substantially as described.

33. In combination with a dental chair, a foot-stool for the operator, attached thereto, substantially as described.

34. A support for a dental chair consisting of three legs radiating from a common center, at equal distances apart, the back leg extending rearward centrally of the chair, in combination with a fourth radial leg extending directly to the front, and bisecting the angle formed by the two side legs, as set forth.

35. In combination with the water-reservoir K, a cock consisting of the tube r'', having at its inner end a valve operated by a sleeve resting over the outer end of said pipe, and a wire passing within the same and attached to the valve, as described.

36. The combination of the water-reservoir K, having a pipe the opening of which is controlled by a valve combined with the funnel s, having the annular opening r''', communicating with the supply-pipe leading from the reservoir, all substantially as described, and for the purpose set forth.

37. The combination, substantially as set forth, with the seat-supporting plunger, its cylinder or sheath, and the elevating mechanism, of the fluid-reservoir provided with a large inlet-valve, which permits the fluid to follow a rapid ascent of the plunger, and a smaller outlet-valve, which permits the fluid to be displaced by the descending plunger slowly, so as to insure the gradual and easy descent of the chair-seat.

38. The plunger-cylinder arranged within the fluid-reservoir, and terminating at its upper end, below the top of said reservoir, so that any fluid that may happen to be drawn up through the cylinder can pass back therefrom into the reservoir, as shown and set forth.

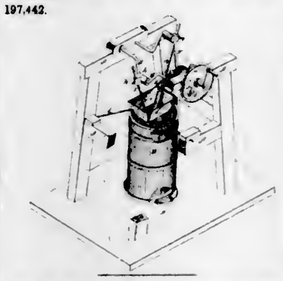
197,442. ICE-CREAM FREEZERS. William E. Wise, Williamsport, Pa. Filed Sept. 19, 1877.

1. In combination with the cream-can, revolved as described, the beaters G and I, adjustable in sleeves f and h, and operated by crank-arms F and H, substantially as and for the purposes set forth.

2. In combination with the crank-arms F and H, constructed and operated as set forth, and having sleeves f' and h, the beaters G and I, substantially in the manner and for the purposes set forth.

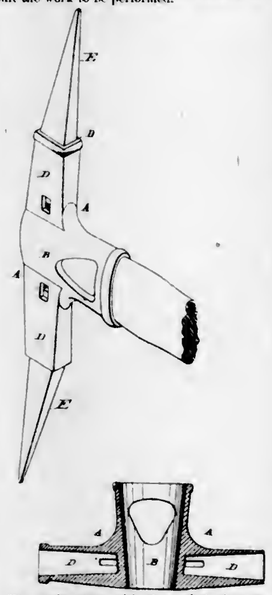
3. The top D, having chute d and braces d', and combined with can C and frame A, substantially in the manner and for the purposes described.

197,442.



197,443. PICKS. J. L. Woolley, Boulder, Colo. Filed Feb. 17, 1877.

Brief.—The points may be reversed on their axes and secured in position, thereby projecting the points proper in different directions to suit the work to be performed.



The combination, with the socket piece or head A, having eye B and rectangular sockets D, of the pick-points E, beveled on one side and reversible on their axes, as and for the purpose set forth.

197,444. APPARATUS FOR MEASURING HEIGHTS. N. F. Yagn, Moscow, Russia, assignor of one-half his right to Lewis I. Surville, same place. Filed June 16, 1877.

1. The combination of the manometer B and casing boards E with the adjustable scale c, provided with slits or cuttings, as set forth.

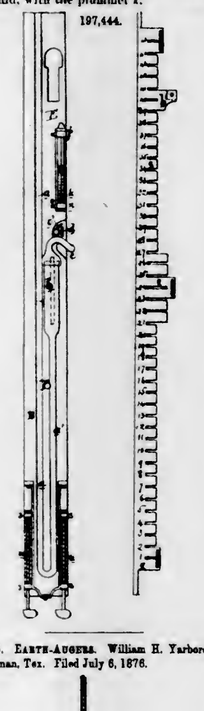
2. The combination of the support D and its platform with the measuring gage B and the spring-shoes l, as specified.

3. The combination of the manometer B and scale c with the micrometrical screw c' and the casing or boards E.

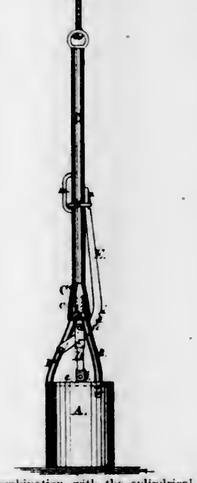
4. The combination of the manometer B with the plummet k, support D, and chain 2, as and for the purpose set forth.

5. The combination of the tube n, containing liquid, with the plummet k.

197,444.



197,445. EARTH-AUGERS. William H. Yarborough, Sherman, Tex. Filed July 6, 1876.



The combination, with the cylindrical cutter A, arms B B', and stem C, of the forked arm D, plunger e, notched lever E, and ring s, the several parts constructed and arranged substantially as herein shown and described.

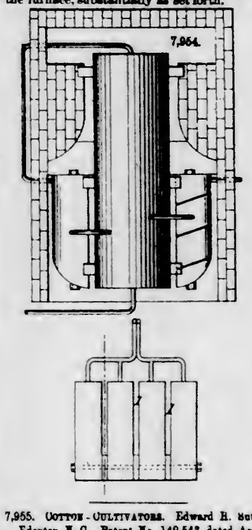
REISSUES.

7,954. STEAM-BOILER FURNACES. Charles D. Smith, Philadelphia, Pa., assignor to D. J. Morrell. Patent No. 165,690, dated July 20, 1875. Filed Aug. 28, 1877.

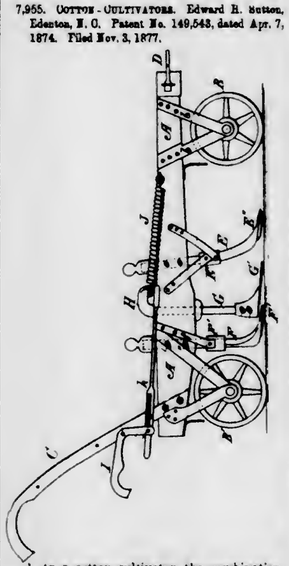
1. An auxiliary heater, composed of sections of columns, two or more of said sections being located on each side of a steam-boiler and the grate-bars, and having independent connection with the steam-space, but common connection with the water-space, of said boiler, substantially as described.

2. In the combination, with a boiler-furnace, of a heater, composed of one or more columns, having oblique passages between them leading from the fire-box to a space between the outer surfaces of the water-columns and the inner side walls of the furnace, for the purpose of increasing the heating-surfaces of the columns and enhancing the draft through the furnace, substantially as set forth.

7,954.



7,955. COTTON-CULTIVATORS. Edward H. Sutton, Edenton, N. C. Patent No. 149,543, dated Apr. 7, 1874. Filed Nov. 3, 1877.



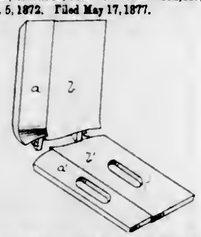
1. In a cotton cultivator, the combination of the hand-lever I, slotted rod A, arm H, spring J, standard G, and cutter G', as and for the purpose described.

2. The combination, in a cultivator, of the wheels B and B', in the line of draft, with the adjustable cutters E'' and F', as and for the purpose described.

3. The combination, in a cultivator, of the wheels B and B', in the line of draft, with an oscillating standard, G, and swinging cutter G', as and for the purposes described.

4. The combination, in a cultivator, of the wheels B and B', in the line of draft, with the adjustable cutters E" F', and the swinging or oscillating cutter G', as and for the purposes described.

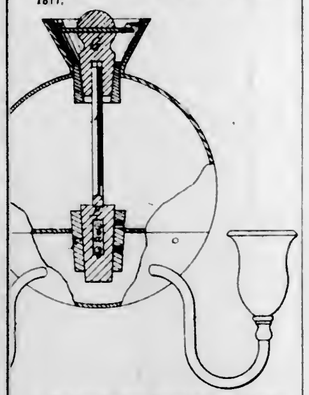
7,956. HORSESHOE-NAIL MACHINES. Chas. W. Woodford, Montreal, Quebec, Canada, assignor to Clifton B. Beach, Cleveland, Ohio. Patent No. 194,411, dated Mar. 5, 1872. Filed May 17, 1877.



1. The method of severing or dividing nail-plates into horseshoe-nails or nail-blanks by cutting waste and nail alternately from the end of the plate by the alternate action of properly-shaped cutters and bed-knives, substantially as set forth.

2. The cutters *a b* and bed-knives *a' b'*, adapted, by their joint operation, to cut, from a plate of metal, horseshoe-nails with long tapering points, substantially as described.

7,957. LAMPS. David Whiteford, Chicago, Ill. Patent No. 188,999, dated Mar. 27, 1877. Filed June 13, 1877.



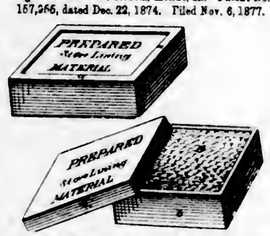
1. The combination, in an atmospheric lamp, of these elements: an oil-fountain, a stopper for closing the filling orifice in the fountain, a valve or cock for controlling the flow of oil from the fountain, caused to open when the stopper is inserted, and to close when the stopper is withdrawn, one or more burner carrying bent or curved arms, and a chamber intermediate between the fountain and the arms, and communicating with the atmosphere, the combination being and acting as set forth.

2. The oil-fountain and the valve, adapted to rotate in a seat at the bottom of the fountain, in combination with the removable stopper which closes the filling-orifice, and is adapted to engage and operate the valve, as and for the purposes set forth.

3. The valve-operating removable stopper, in combination with the funnel surrounding the filling orifice of the fountain, and the ribs on the interior of the funnel, substantially as and for the purposes set forth.

4. In combination with the oil fountain, the removable intermediate oil chamber or receptacle, communicating with the atmosphere, arranged beneath the fountain and detachably connected therewith, and provided with arms leading to burners, substantially as shown and described.

7,958. COMPOSITIONS FOR LINING AND REPAIRING STOVES. Loren B. Witherell, Davenport, Iowa, assignor to David W. Sickels, Moline, Ill. Patent No. 187,266, dated Dec. 22, 1874. Filed Nov. 6, 1877.



As a new article of manufacture, a stove-lining and repairing material, consisting of native or clear fire-clay, mixed with burnt and powdered fire-clay, substantially as and for the purpose herein specified.

7,959. COMPOUNDS FOR PRESERVING FISH. Henry Sellman, Hoboken, N. J., and Herman Roessing and Julius Wolff, New York, N. Y., said Roessing and Wolff assignors to said Sellman. Patent No. 186,308, dated Aug. 3, 1875. Filed Jan. 12, 1876.

Brief.—Adds to two gallons of vinegar one and a half pound of allspice, one-quarter of a pound of Chili pepper, four pounds of sliced onions, two pounds of sliced horse-radish, one pound of bay-leaves, one-half pound of cloves, one-half pound of ginger, one-half pound of coriander-seed, and two and a half ounces of capers.

In a compound for preserving and flavoring fish, vinegar, allspice, and Chili pepper, with the flavoring substances substantially as described.

7,960. FLEXIBLE POWER-CONVEYERS FOR DENTAL ENGINES. Eli T. Starr, Philadelphia, Pa., assignor to Samuel S. White, same place. Patent No. 157,646, dated Dec. 8, 1874. Filed May 15, 1877.

Brief.—A short linked chain passing through a flexible non-rotating tube conveys the power. Two parts of the hand-piece swivel upon each other.



1. A chain-cable driving-shaft for dental engines, constructed, substantially as herein before set forth, of short links capable of flexing freely, yet rigid under torsional strain, the same constituting a new article of manufacture.

2. The combination of a rotating power-driven shaft, the flexible short-linked chain-cable driving-shaft, the socket or chuck, and the hand-piece.

3. The combination of the hand-piece, the flexible non-rotating sheath connecting the hand-piece with the frame of the engine, and a short-linked chain-cable driving-shaft rotating within said sheath.

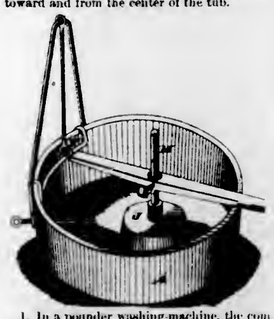
4. A dental-engine sectional hand-piece, constructed, substantially as hereinbefore set forth, with one of its sections adapted to be secured to the flexible sheath, another section connected with said section by a swivel-joint, so as to permit it to turn freely axially without endwise movement or separation when swiveling or turning, and a third section detachably connected with the swiveling section, and enveloping a rotating chuck or tool-holder in the same axial plane as the hand piece, and adapted to be connected with the flexible shaft.

5. The combination, substantially as hereinbefore set forth, of a flexible power-driven shaft, a flexible non-rotating sheath enveloping the shaft, a sectional hand-piece, shell, or casing connected with and swiveling upon the sheath without endwise movement or separation when swiveling or turning, and a tool chuck or holder mounted axially in the hand-piece and connected with the driving-shaft.

6. The combination, substantially as hereinbefore set forth, of a dental-engine hand-piece, composed of sections capable of swiveling one upon the other without separation or endwise movement when turning, by means of a swivel-joint between the sections, with a rotating chuck or tool-holder mounted axially in bearings therein, whereby the hand-piece may be turned freely axially without interfering with the free rotation of the tool or changing its angular direction.

7,961. WASHING-MACHINES. Geo. H. Waldo, Prattsburg, N. Y. Patent No. 187,994, dated Mar. 6, 1877. Filed Oct. 19, 1877.

Brief.—The fulcrum of the operating lever is adapted to be freely moved in any direction toward and from the center of the tub.



1. In a pounder washing-machine, the combination, with an actuating-lever having a pounder attached thereto, of a fulcrum adapted to be moved toward or from the center of the tub in any direction, the said lever and movable fulcrum being connected in such a manner that the pounder may be freely moved either in a vertical, lateral, or longitudinal direction, substantially as described.

2. In a pounder washing-machine, the combination, with an actuating-lever having a pounder attached thereto, of a laterally-vibrating fulcrum, located above the edge of the tub, with which it is connected, said fulcrum adapted to be freely moved by the actuating lever, substantially as described.

3. In a pounder washing-machine, the combination, with an actuating-lever having a pounder attached thereto, of a pendulous support attached to a standard removably secured to the side of a tub, substantially as described.

4. In a pounder washing-machine, the combination, with a fulcrum adapted to be moved toward or from the center of the tub in any direction, of an actuating-lever provided with a vertically-adjustable pounder, substantially as described.

5. In a pounder washing-machine, the combination, with a fulcrum adapted to be moved toward or from the center of the tub in any direction, of an actuating-lever provided with a pounder adapted to have a rocking movement, substantially as described.

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COMMISSIONER'S DECISIONS.

E. O. HOWLAND.—*Interlocutory Appeal.*

[*Appeal from the decision of the Primary Examiner in the matter of the application of Edgar O. Howland for Letters Patent for* "IMPROVED LIFTING-JACK," *filed May* 31, 1877.—*Decided November* 3, 1877.]

Several specific devices embodying the same general features of construction may be retained in a single application, provided a generic claim is made which will cover each, and which is patentable.

A generic claim of such scope and character is indicative of the same basis of invention for each device, and, where it cannot be maintained, there is such diversity as will require a division of the application.

Notwithstanding they may be all retained, the applicant is not at liberty to make specific claim to more than one of the devices.

[*Howson & Son*, for applicant.]

DOOLITTLE, *Acting Commissioner:*

Applicant appeals from the action of the Primary Examiner, who refuses to entertain certain claims that are presented, on the ground that they cannot be construed to include the various modifications illustrated in the seventeen (17) figures of applicant's drawings.

Objection is likewise taken to the retention of certain figures of the drawing as being for distinct organizations, and not for simple modifications of the principal subject-matter of the application.

In so far as the mere withdrawal of the claims, which are now reasserted, is concerned, it may be stated that no such action on the part of applicant can argue his intention of finally abandoning them, or of regarding their rejection as well taken. One of many causes may have led to their temporary relinquishment, and he is at liberty at any time to renew them before the application finally issues, provided there is subject-matter in the case to support them.

The practice of the Office in regard to the admissibility of several specific devices, embodying the same general features of construction, in a single application has not changed materially since the R. N. Eagle decision, p. 137, C. D. 1870. It may be stated, in brief, that whenever a generic claim can be predicated which is good in view of the state of the art, and which will include the modifications or specific devices described or exhibited in the drawings, then those may all be retained in a single application; for it is manifest, from the fact that the claim applies with equal aptitude to each, that there are generic features of identity which indicate the same basis of invention. On the other hand, where no claim of the character indicated can be maintained, it is equally true that there is such diversity as will require a division of the application; this restriction being pursued until the matter retained in any single case can be safely said to relate to but one invention, or, in other words, can be contained in the broadest patentable claim that is capable of being drawn to it.

The decision in the Eagle appeal proceeds, in substance, to say that whenever several distinct modifications or constructions are retained in one application by reason of the test of a generic claim, proving their substantial identity in invention, it is none the less incumbent upon the applicant to confine his claims, other than the generic ones, to some single species, that he may elect.

This requirement is in strict consonance with the policy of the Office, to refuse to examine several diverse constructions on the payment of a single fee, for otherwise the applicant would obtain the same benefit as if he had paid a separate fee for each construction, while the Office is in equal measure deprived of a portion of its legitimate revenues.

Applying these principles to the case in hand, I find that claims 1 and 2 are sufficiently broad to cover both the jack and the capstan, (Figs. 16 and 17.) So long as these claims are retained, or others equivalent in scope, the presence of Figs. 16 and 17 cannot be seriously objected to.

Likewise, Fig. 15 comes within the terms of claim 5, as now presented, and should consequently be allowed

to remain. How far the future status of the case may change all this it is not easy to foresee. The Examiner, though, is admonished to require a division and restriction if such generic claims as cover all the modifications are relinquished at any time hereafter, and to decline the consideration of all specific claims save those which relate to the jack, the device which applicant has evidently elected to retain *in specie*.

The objections of the Examiner are overruled.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—SOUTHERN DISTRICT OF NEW YORK.

WILLIAM S. THOMSON, CHARLES H. LANGDON, AND GEORGE C. BATCHELLER *vs.* SOLOMON L. JACOBS, ABRAHAM STROUSE, REBECCA MAYER, AND MAX ADLER.

[*In equity.—Before* BLATCHFORD, *J.—Decided November*, 1877.]

Reissue Letters Patent No. 6,100, granted H. A. Lyman, October 27, 1874, (Thomson, Langdon & Co., assignees,) declared to be valid, in view of the previous state of the art and of the invention exercised in producing its subject-matter.

[*George Gifford and J. C. Clayton*, for complainants.
Starr & Ruggles, for defendants.]

STATEMENT OF THE CASE.

This was a suit brought under Reissue No. 6,100, granted to the assignees, Thomson, Langdon & Co., October 27, 1874, for "improvements in corsets." The corset is known to the trade as "Thomson's Glove-Fitting Corset."

OPINION.

BLATCHFORD, *J.*:

I think that the claim of the reissued patent, No. 6,100, covers a patentable improvement, and involved and required invention to arrive at it, in view of the state of the art; that what is embodied in such claim was not a mere change in form, proportions, and degree; and that the invention is not anticipated by any of the earlier articles produced in evidence. As the infringement is conceded, the plaintiffs are entitled to the usual decree with costs.

DECREE.

This cause having come on to be heard upon the bill of complaint herein, the answer thereto of all the defendants, the replication thereto of the complainants to such answer, and the proofs, oral, documentary, and written, taken and filed in said cause, and having been argued by counsel for the respective parties—

Now, therefore, in consideration thereof, it is ordered, adjudged, and decreed, and the court doth hereby order, adjudge, and decree, as follows, viz: That the Letters Patent Reissue No. 6,100, granted and issued on the 27th day of October, 1874, to William S. Thomson, Charles H. Langdon, and George C. Batcheller, the complainants herein, as assignees of Henry A. Lyman, for improvements in corsets, being the letters patent referred to in the bill of complaint herein, are good and valid in law;

That the said Henry A. Lyman was the first and original inventor and discoverer of the improvements in corsets described and claimed in the said reissued Letters Patent No. 6,100, and the specification annexed thereto, and that the said William S. Thomson, Charles H. Langdon, and George C. Batcheller, the complainants herein, are now, and ever since the 27th day of October, 1874, have been, the exclusive owners of said reissued Letters Patent No. 6,100, and of all claims for infringing the same at any time;

That the said Solomon L. Jacobs, Abraham Stronse, Rebecca Mayer, and Max Adler, the defendants herein, have infringed upon the said reissued Letters Patent No. 6,100, and upon the exclusive rights of the complainants under the same—that is to say, by making and selling corsets containing and embodying the invention, discovery, improvements, and combinations, substantially as set forth and claimed in the aforesaid reissued Letters Patent No. 6,100, in manner and form as charged in the said bill of complaint.

And it is further ordered, adjudged, and decreed, that the complainants do recover of the defendants the profits and gains which the said defendants have received or made, or which have arisen or accrued to them from the infringement of the said reissued Letters Patent No. 6,100, by the manufacture, use, and sale of corsets, as described and claimed in said reissued letters patent since the 27th day of October, 1874; and also the damages which the complainants have sustained by reason of the said infringement of said reissued Letters Patent No. 6,100.

And it is further ordered, adjudged, and decreed that it be referred to Joseph Gutman, Jr., Esq., of New York city, who is hereby appointed and constituted master of this court *pro hac vice*, to ascertain, and take and state, and report to the court an account of the number of infringing corsets made, and also the numbers used and sold by the said defendants, and also the gains and profits which the said defendants have received, or which have accrued or arisen to said defendants from infringing the said exclusive rights of the said complainants, by the manufacture, use, or sale of the said improvements patented in the said reissued Letters Patent No. 6,100; and *also* to assess, ascertain, and state the amount of the damages which the complainants have sustained by reason of said infringements.

And it is further ordered, adjudged, and decreed that the complainants on such accounting have the right to cause an examination of the said defendants, *ore tenus* or otherwise, and also the production of the books, vouchers, and documents of the said defendants; and that the said defendants attend before the said master, from time to time, within this district, as said master shall direct.

And it is also further ordered, adjudged, and decreed that a perpetual injunction be issued in this suit against said defendants, restraining them and their agents, clerks, servants, and workmen, and all claiming or holding under or through them, from making, using, or selling, or in any manner disposing of corsets constructed according to or embodying the invention or improvements described and claimed in the said reissued Letters Patent No. 6,100, pursuant to the prayer of the said bill of complaint.

And it is further ordered, adjudged, and decreed that the complainants do recover of the defendants the costs of this suit to be taxed.

And it is ordered that the question of increase of damages, and all other questions, be reserved until the coming in of the master's report.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date November 27, 1877.]

10,324.—Fancy Cassimeres.—FREDERICK S. BOSWORTH, Providence, R. I., assignor to THE WEYBOSSET MILLS, same place. Application filed November 16, 1877. Term of patent 7 years.

10,325.—Dish-Handles.—JOHN W. BURGESS, Orange, N. J. Application filed November 14, 1877. Term of patent 7 years.

10,326.—Fancy Cassimeres.—OSCAR F. CHASE, Thompson, Conn. Application filed November 15, 1877. Term of patent 3½ years.

10,327.—Toy Money-Box.—JAMES FALLOWS, Philadelphia, Pa. Application filed November 2, 1877. Term of patent 7 years.

10,328.—Dinner, Tea, and Toilet Sets.—EDWIN HAVILAND, Plainfield, N. J. Application filed November 14, 1877. Term of patent 3½ years.

10,329 to 10,331, inclusive.—**Oil-Cloth.**—CHARLES T. MEYER and VICTOR E. MEYER, Bergen, N. J., assignors to EDWARD C. SAMPSON, New York, N. Y. Applications filed November 6, 1877. Term of patents 3½ years.

10,332.—Rocking-Chair Frames.—THEODORE J. PALMER, New York, N. Y. Application filed August 11, 1877. Term of patent 7 years.

10,333.—Badge.—ALONZO SCHWARTZ, New York, N. Y. Application filed October 27, 1877. Term of patent 7 years.

10,334.—Cooking-Stoves.—NICHOLAS S. VEDDER, Troy, N. Y. Application filed November 16, 1877. Term of patent 3½ years.

10,335.—Cooking-Stoves.—NICHOLAS S. VEDDER, Troy, and TOBIAS S. HEISTER, Lansingburg, N. Y., assignors to said VEDDER. Application filed November 16, 1877. Term of patent 3½ years.

10,336.—Group of Statuary.—JOHN ROGERS, New York, N. Y. Application filed November 12, 1877. Term of patent 14 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date November 27, 1877.]

5,362.—Cigars.—JAMES M. DAVIS, Bergen Point, N. J. Application filed November 6, 1877.
"The word-symbol 'TELEGRAPH.'"

5,363.—Cigars.—JAMES M. DAVIS, Bergen Point, N. J. Application filed November 6, 1877.
"The word-symbol 'CASH.'"

5,364.—Cigars.—JAMES M. DAVIS, Bergen Point, N. J. Application filed November 6, 1877.
"The word-symbol 'HIGH TONED.'"

5,365.—Cigars.—EDWARD HILSON, New York, N. Y. Application filed October 23, 1877.
"The word-symbol 'BULL'S-EYE.'"

5,366.—Cigars, Cigarettes, and Cigarros.—S. JACOBY & CO., New York, N. Y. Application filed November 6, 1877.
"The word-symbol 'PUCK.'"

5,367.—Dentifrice.—CHARLES LUDRECHT, Brooklyn, N. Y. Application filed November 3, 1877.
"The word-symbol 'ORIENTAL.'"

5,368.—Plug-Tobacco.—MERCHANTS TOBACCO COMPANY, Boston, Mass. Application filed October 26, 1877.
"A boy standing under and against the trunk of a tree; an apple on the head of a boy; a soldier shooting at the apple. Soldiers and castles are represented in the background. The word-symbol 'CONFIDENCE' is printed upon the label under the figures, as shown."

5,369.—Hair-Dye.—JOHN J. RALYA, Indianapolis, Ind. Application filed November 3, 1877.
"The word-symbol 'MAGIC COLORIS.'"

5,370.—Smoking-Tobacco.—SPAULDING & MERRICK, Chicago, Ill. Application filed November 6, 1877.
"The fanciful words 'The Joker' and 'Killickinick,' with a scene in colors representing three men sitting at a table playing cards."

5,371.—Woven Cotton and Woolen Fabrics.—SIMONS & FROWEIN, Elberfeld, Germany. Application filed November 6, 1877.
"The representation of a coat of arms containing a lion and a fish."

5,372.—Cigars.—LOUIS COHN, Chicago, Ill. Application filed October 31, 1877.
"The fanciful words, 'This Cigar is 'A humbug;' if you don't believe it, try it.'"

5,373.—Paper.—CRANE & CO., Dalton, Mass. Application filed November 12, 1877.
"The word-symbol 'PARCHMENTINE.'"

5,374.—Petroleum.—W. H. CROSSMAN & BROTHER, New York, N. Y. Application filed November 13, 1877.
"The word-symbol 'Phœnix.'"

5,375.—Petroleum.—W. H. CROSSMAN & BROTHER, New York, N. Y. Application filed November 13, 1877.
"The fancifully-selected word-symbol 'VULCAN.'"

5,376.—Carriage-Robes.—THOMAS GOODALL, Sanford, Me. Application filed September 12, 1877.
"Words letters, figures, and illustrations, as follows: At the top is placed a five-pointed star, surrounded with rays. In the center is a cut representing mills. Surrounding this cut is a circular border, and at the bottom, and attached to the circular border, is ornamental work. The ornamental work is surmounted by a spread eagle, which is within the circular border. At the left of the ornamental work is the letter 'S,' at the right the letter 'M.'"

5,377.—Canned Goods.—GITHENS & REXSAMER, Philadelphia, Pa. Application filed November 12, 1877.
"The word-symbol 'IMPERIAL.'"

5,378.—Plug Chewing-Tobacco.—HARRIS, BERBE & CO., Quincy, Ill. Application filed November 12, 1877.
"The representation of a graduated scale impressed into the surface of a plug of tobacco, as shown."

5,379.—Baking-Powder.—WILLIAM HASLAGE, Pittsburg, Pa. Application filed November 12, 1877.
"The word-symbol 'OLD COUNTRY' and the letters 'O. C.'"

5,380.—Coal.—IOWA AND MISSOURI COAL AND LAND COMPANY, Burlington, Iowa. Application filed October 17, 1877.
"The word-symbol 'BLUE JACKET.'"

5,381.—Plug Chewing-Tobacco.—LIGGETT & MYERS, St. Louis, Mo. Application filed November 13, 1877.
"A series of channels or indentations running transversely across the breadth of the plug, and arranged parallel to and equidistant from each other. Occupying each central space between said lines is placed one of a series of shorter lines equidistantly from and parallel to each other. Thus the effect produced is an alternate long and short line parallel to each other, and at right angles to the sides of the plug."

5,382.—Extracts for the Handkerchief and Cologne.—FRANCIS A. MARSH, Syracuse, N. Y. Application filed October 29, 1877.
"The word-symbol 'JAPANOLA.'"

5,383.—Wine.—LOUIS ROEDERER, Reims, France. Application filed April 17, 1877.
"The title or designation 'LOUIS ROEDERER, REIMS,' impressed upon a plain white label, in connection with the descriptive words 'Dry Wine,' as shown."

5,384.—Wine.—LOUIS ROEDERER, Reims, France. Application filed April 17, 1877.
"The title or designation 'L. ROEDERER,' impressed upon a black label, having a straight-line border, in connection with the descriptive words 'Verzenay Grand Mousseux, Qualité Supérieure,' as shown."

5,385.—Cough-Candy.—RICHARDSON & CO., St. Louis, Mo. Application filed June 12, 1877.
"The representation of the Scotch coat of arms."

5,386.—Hats and Bonnets.—THE TWEEDY MANUFACTURING COMPANY, Danbury, Conn. Application filed October 20, 1877.
"The word-symbol 'FACILE PRINCEPS.'"

5,387.—Roofing Cement and Felt.—WARREN, LORER & CO., Philadelphia, Pa. Application filed November 9, 1877.
"The representation of a star and the title 'WARREN'S.'"

5,388.—Woolen and Worsted Fabrics for Gentlemen's Clothing.—WASHINGTON MILLS, Lawrence, Mass. Application filed November 9, 1877.

"The word-symbol 'VIENNA.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date November 27, 1877.]

1,263.—Title: **"Bucklino's Triple Extract Bouquets."**—THOMAS B. BAILEY, Milford, Mass. Application filed November 17, 1877.

1,264.—Title: **"The Best Domestic."**—JAMES M. DAVIS, Bergen Point, N. J. Application filed November 6, 1877.

1,265.—Title: **Print, "Amulet."**—HEPPENHEIMER & MAURER, New York, N. Y. Application filed November 19, 1877.

1,266.—Title: **Print, "Four in Hand."**—HEPPENHEIMER & MAURER, New York, N. Y. Application filed November 15, 1877.

1,267.—Title: **Print, "America."**—HEPPENHEIMER & MAURER, New York, N. Y. Application filed November 15, 1877.

1,268.—Title: **Print, "Four in Hand."**—HEPPENHEIMER & MAURER, New York, N. Y. Application filed November 15, 1877.

1,269.—Title: **"Lawson's Curative."**—LAWSON CHEMICAL COMPANY, Cleveland, Ohio. Application filed November 19, 1877.

1,270.—Title: **"Genuine Pride of Durham Smoking Tobacco."**—Z. I. LYON & CO., Durham, N. C. Application filed November 15, 1877.

1,271.—Title: **"Pedro."**—PAPER FABRIQUE COMPANY, Cincinnati, Ohio. Application filed November 19, 1877.

1,272.—Title: **Dr. D. D. Judson's Genuine Healing Balsam."**—PEMBROKE C. ROGERS, Cortlandville, New York, N. Y. Application filed November 17, 1877.

1,273.—Title: **Blatticide, a Destroyer of Cockroaches and Water Bugs."**—HENRY THAYER & CO., Cambridge, Mass. Application filed November 17, 1877.

1,274.—Title: **"Dr. Dixford's Instant Pain Relief," &c.**—GEORGE E. KINGSBURY, Boston, Mass. Application filed November 19, 1877.

1,275.—Title: **"Merchants Tobacco Company."**—MERCHANTS TOBACCO COMPANY, Boston, Mass. Application filed November 6, 1877.

1,276.—Title: **"Merchants Tobacco Company."**—MERCHANTS TOBACCO COMPANY, Boston, Mass. Application filed November 6, 1877.

SALE OF SPECIFICATIONS AND DRAWINGS.

Photolithographic copies of the drawings of all patents issued since November 26, 1867, have been produced, and will be sold to the public at 25 cents per patent, or, where twenty or more copies are ordered at one time, at 10 cents per patent.

Coupon-books, to the amount of $2 or more, can be purchased from the Chief Clerk of the Patent Office; the coupons, for 10 cents each, may be filled out at any time, and, on presentation, will entitle the holder to a photolithographic copy of *any* drawing which has been reproduced.

The specifications of all patents issued since July 1, 1871, are in print, and will be furnished with the drawing without extra charge. The specifications of patents issued from November 20, 1866, to July 1, 1871, are in print, and where such is the case the Office will furnish them with the drawings, but the Office will not undertake to reprint copies of patents which have been exhausted.

In addition to the above, the Office has reproduced, and offers for sale at the price mentioned above, all drawings in the following classes, embracing patents granted from 1790 to date. The classes are those of the Examiners:

1. Aeration and Bottling.
2. Apparel.
4. Baths and Closets.
5. Beds.
6. Bee-hives.
7. Beer and Wine.
8. Bleaching and Dyeing.
9. Boats.
10. Bolts, Nuts, and Rivets.
11. Bookbinding.
13. Brakes and Gins.
14. Bridges.
15. Brushes and Brooms.
17. Butchering.
18. Caoutchouc.
19. Carding.
20. Carpentry.
21. Carriages and Wagons.
23. Chemical Miscellaneous.
26. Cloth.
28. Cordage.
29. Crinoline and Corsets.
31. Dairy.
33. Drafting.
34. Driers and Kilns.
36. Electricity.
37. Excavators.
38. Felting and Hats.
40. Files.
42. Fire-arms.
44. Fuel.
45. Furniture.
47. Garden and Orchard.
48. Gas.
52. Gunpowder.
53. Hardware manufacture.
55. Harrows.
56. Harvesters.
58. Horology.
59. Horseshoes.
61. Hydraulic Engineering.
62. Ice.
65. Kitchen Utensils.
66. Knitting and Netting.
67. Lamps and Gas-fitting.
68. Laundry.
71. Manures.
72. Masonry.
73. Measuring Instruments.
75. Metallurgy.
76. Metal Working, bending and straightening.
77. Metal Working, boring and drilling.
78. Metal Working, forging, swaging, and riveting.
79. Metal Working, punching, cutting, and shearing.
80. Metal Working, rolling.
81. Metal Working Tools.
82. Metal Working, turning, planing, and milling.
83. Mills.
85. Nails.
86. Needles and Pins.
87. Oils, Fats, and Glue.
88. Optics.
89. Ordnance.
90. Ore.
91. Paint.
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93. Paper manufactures.
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97. Plows.
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102. Projectiles.
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104. Railways, The Way.
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116. Signals.
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127. Sugar.
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132. Toilet.
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135. Umbrellas and Fans.
137. Water Distribution.
138. Water-wheels.
139. Weaving.
141. Wood-screws.

And the subdivisions of—

Bench-planes. Buttons and Machines.
Bale-ties. Combs, &c.

About forty other classes are in progress, and it is hoped that all the drawings remaining, some thirty thousand in number, may be completed during the fiscal year.

The total number of patents of which drawings are complete and offered for sale as above will approximate one hundred and fifty thousand.

As 12 o'clock on Friday is the latest hour that a final fee can be received in order to get a patent into the "issue" of the following Tuesday, applicants are earnestly requested to make the final payment before Friday, if possible, so that the proper entries may be made on the books of the Office before closing the "issue."

When a patent has been allowed, and the application has not been forfeited by delay of six months, if the final fee of twenty dollars is paid before 12 o'clock on Friday, the patent will issue and bear date the following Tuesday.

Letters Patent of the United States do not reach the patentee or owner until about two weeks from the day of their date. The letters, nevertheless, have the force of patents from the time they are signed and sealed.

The GAZETTE is made to bear the same date as the patents to which the claims, briefs, and drawings relate, although it is not actually mailed to subscribers until about two weeks later than its date.

The Government fee on making application for a patent is fifteen dollars. The final fee is twenty dollars. Usually there are no other Government fees unless the application is appealed.

Where specifications are printed, copies of same attached to drawings will be furnished without extra cost.

Printed copies of specifications can be procured from No. 50,740, issue of November 20, 1866.

All letters to the Patent Office must be addressed to the Commissioner of Patents.

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Eade, C., Bed bottom	197 621
Eastman, A., assignee	197,559
Eilrich, C., Cradle	197,461
Farnham, A. M., Heating ovens by steam	197 462
Faust, G. L., assignee	197,642
Ferguson, C. J., Lock hinge	197,622
Fichtenmayer, M. P., assignee	197,520
Field, W. H., assignee, (reissue)	7,968
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Fitch, W. and E. T., assignees	197,672
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Fraser, E. J., and J. L. Boone, Timing attachment for racing vehicles	197,593
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Gorham, A., Filter for faucets or hydrants	197,627
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Green, E. T., Machine for cutting boot and shoe heels, (reissue)	7,969
Gregg, I. Jr., Machine for re-pressing brick	197 628
Gross, W., Picture nail	197,513
Guffy, W., assignee	197,564
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Hall & Kilburn Manufacturing Company, assignee, (reissue)	7,970
Hammer, G., Cork cutting machine	197,514
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Harrison, C., Drip tray for water closet bowls	197,629
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Haworth, G. D., Pulley for check row cords	197,550
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Hayes, G. W., assignee	197,696
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Henderson & Co., assignees	197,524
Herrick, G. W., Stove damper and flue strip	197 632
Hiler, S, Vitrified knob	197,468
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Hobart, E. F., Temporary binder	197,469
Hoghton, C. M., Check rower	197,633
Holmes, F. L., Stove and furnace grate	197,634
Homan, H. L. and G. W., Horseshoe	197,553
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Hume, G. H., Detaching apparatus for check reins	197 635
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Hunt, C. W., Counter shaft for driving machinery	197,472
Hunt, F. B., assignee, (reissue)	7,973
James, S. H., Bolt and nut	197 473
Jeffery, E. A. Griddle	197,516
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Jewett & Root, assignees	197 573
Johnson, E., and J. Robey, Manufacture of a filtering medium for the purification of water, &c	197 637
Johnson, L., Shoe	197,517
Johnson, M., Cultivator tooth	197,638
Johnson, W. J., Wire stand for picture holders	197 554
Jones, E. T., Hand stamp for tickets	197,518
Jones, N, Truss	197,639
Jones, W. D., Apparatus for manufacturing hydrated sulphurous acid	197 474
Josef, P. P., Machine for planing wood	197,475
Joyce, N. K., Air register	197,476
Junemann, H., Compound for clarifying malt liquors	197,640
Keating, T. F., assignee, (reissue)	7,966
Kelsall, W. G., assignee	197,518
Kneeland, J. C, Machine for piling paper	197,477
Knowles, L. J., Belt shipping mechanism for looms	197,641
Kroener, W., Manufacture of caps	197,478
Laird, W. A., Horse detacher	197 642
Lalance & Grosjean Manufacturing Company, assignee	197 624
Lallement, P., Velocipede, (reissue)	7,972
Lanyon, R., Ore crusher	197,643
Larson, O. H., Beer faucet	197,556
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Lee, J., Convertible chair, (reissue)	7,970
Leonard, J. N., Stop motion for thread stretchers	197,519
Leonard Silk Company, assignee	197 549
Letts, J. S. and E. W., Dish cleaning machine	197,480
Leuchsenring, R., Illuminated clock	197,520
Light, J. H., Bee hive	197,481
Lillis, F. C., Faucet	197,557
Livermore, F. D., Heating stove	197 644
Longacre, F. D, assignee	197,565
Luckhaupt, A., Machine for dressing staves	197,521
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Lyons, M. F., Portable derrick	197,645
Maass, J. A., and J. A. Traut, Door check	197,530
Maher, G. W., Machine for relishing the rails of sash, doors, and blinds	197,646
Mallory, Wheeler & Co., assignees	197,594
Martin, J., Tire tightener	197,647
Mathers, G. C., Frame for mosquito nets	197,483
Matteson, E., Folding stool	197,558

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McCullough, M. J., Steam cooker	197,649
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McKee, G., assignee, (reissue)	7,972
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Mead, G., Disintegrating apparatus for reducing grain, &c	197,484
Meehan, P. W., Pipe clamp	197,560
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Michigan School Furniture Company, assignee	197,448
Michigan Stove Company, assignee	197,632
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Miller, F., and D. Waterbury, Harrow tooth	197,703
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Miller, J., Machine for forming clips on horseshoes	197,651
Milligan, J. F., Cooling circular saws	197,650
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Moore, G. R., assignee	197,672
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Munroe, J. G., Trace fastener	197,654
Myers, S., Fruit drier	197,502
Neill, G. W., Upright piano action	197,526
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Oesterle, J. G., Washing machine	197,488
O'Neall, J. M., Band cutting feeder for thrashing machines	197,659
Onslow, C., Platform weighing scales	197,489
Osmun, W. H., Jr., assignee	197,457
Padberg, F., and C. Hummel, Utilizing scrap leather	197,636
Palmer, H. L., Stove board, platform, &c	197,490
Parker, C., assignee	197,696
Payne, E., Rail joint	197,493
Perry, A. G., Plow	197,660
Peterson, R., assignee	197,680
Pilkington, H. L., assignee	197,486
Pitcher, J. E., Invalid chair	197,491
Pitcher, J. E., Convertible rocking chair and crib	197,492
Plott, W. D., assignee	197,562
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Prahar, L., Clasp for pocket books	197,563
Price, V. C., assignee, (reissue)	7,966
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Quinby, L. C., Feather renovator	197,663
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Ralston, J. B., Universal joint	197,495
Rauch, W., assignee	197,514
Raymond, S., Heating stove	197,664
Redman, J., Plow attachment	197,665
Reed, S. H., Roof	197,564
Reeves, J. E., Joint for carriage tops	197,666
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Roberts, A. J., Machine for making horseshoes	197,566
Roberts, W. S., Coupling for sucker rods	197,667
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Saladee, C. W., Road wagon	197,668
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Schafer, C. W., assignee	197,673
Schappa, A. M. Hand screw clamp	197,672
Schmidt, F. E., Button hole sewing machine	197,528
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Schwanengel, C. W., Grocer's scoop	197,673
Scully, W., Machine for grinding and polishing hollow ware, (reissue)	7,963
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Siddall, W., Ballot box	197,529
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Silvester, W., Bale tie	197,570
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Stanard, G. S., Panel fastening for stoves	197,573
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Stoops, N. D., and C. S. Cushman, Sewing machine	197,679
Stuart, D., and L. Bridge, Heating stove	197,680
Stuntz, C. R., Composition for producing sulphuretted hydrogen	197,574
Sturmberg, C. W., Wire belting	197,681
Tarble, H. J., assignee	197,621
Taylor, C. R., Harrow tooth	197,682
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Taylor, W. H., Drawer lock	197,683
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Teed, L. P., Paving composition	197,685
Thetue, C., Book stitching machine	197,575
Thomson, J., Stem winding device for watches	197,686
Thomson, J., Watch regulator	197,687
Tilton, E. W., Circular saw	197,688
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Tizzard, S. B., Wall fender for furniture	197,690
Tonret, E. L., assignee	197,540
Towers, W. M., Plow	197,691
Towson, W. W., Car axle	197,692
Traut, J. A., and J. A. Maass, Door check	197,530
Treat, R. M., and G. H. Daley, Horse hay rake, (reissue)	7,974
True, N. E., assignee	197,699
Tucker, S. D., Sheet delivering apparatus for printing machines	197,693
Tucker, S. D., Sheet delivering apparatus for printing machines	197,694
Tucker, S. D., Sheet delivering apparatus for printing machines	197,700
Turnbull, L., assignee	197,435
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Union Manufacturing Company, assignee	197,638
Utter, M. L., Cultivator	197,503
Van Hoevenbergh, H., Parlor croquet apparatus	197,504
Vanier, Z., Brick machine	197,576
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Vanwormer, W. H., Counter support for boots and shoes	197,696
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Vetter, J., Combined lock and latch	197,531
Walker, J. T., Machine for impressing, embossing, compressing and shaping metals, &c	197,697
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Walsh, J. R., Street car draw bar	197,532
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Ward, M. N., Sash fastener	197,702
Warner, J. W., Clothes drier	197,701
Warren, W. L., assignee	197,642
Waterbury, D., and P. Miller, Harrow tooth	197,703
Watson, E. J., Animal shearing device	197,704
Weber, P., and H. Damme, Axle skein	197,705
Weiss, A. R., Gas torch, (reissue)	7,975
Weyhe, W., Steam pump	197,578
Wheeler, E. L., and J. G. McCarter, Machine for finishing welt seams	197,559
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White, E. L., assignee	197,600
White, G. F., Dish washer	197,580
White, J., Spindles and their bearings	197,579
Wiley, J. F., assignee, (reissue)	7,966
Wilkerson, B. M., Apparatus for raising and lowering articles of furniture	197,707
Wigginton, H. T., Animal trap	197,706
Wight, W. S., Pantographic engraving machine	197,507
Williams, R. D., Revolving fire arm	197,708
Winkless, W., Fire escape	197,709
Witwer, I., Book support	197,581
Woerd, C. V., Micrometer regulator for watches	197,710
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Wolven, J. A. B., assignee	197,695
Woodward, E., M. Brock, and G. W. Copeland, Lasting machine for boots and shoes	197,607
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Worcester, E. J., Machine for grinding lawn mower cutters	197,711
Wright, L., Ground plate attachment for camera obscuras	197,534
Wroath, J., and J. H. Beauregard, Cover for pots and kettles	197,591
Yale Lock Manufacturing Company, assignee	197,683
Yale Manufacturing Company, assignee	197,684
Young, G. M., Car coupling	197,535
Young, W. R., Combination padlock	197,582
Zug, C., Apparatus for annealing	197,508

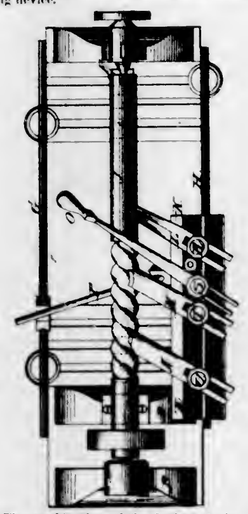
TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED NOVEMBER 27, 1877.

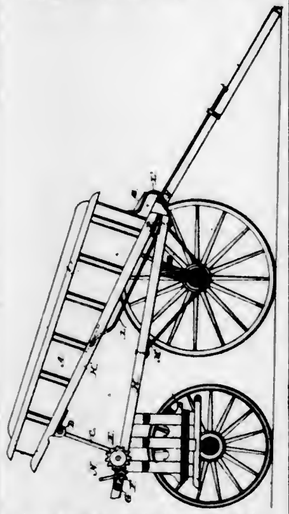
197,446. ROPE-MOLDING MACHINES. Charles Allen, Trenton, N. J. Filed Aug. 30, 1877.

Brief.—The feeding device is connected to the material or blank to be operated upon, and the molding produced serves as a further feeding device.



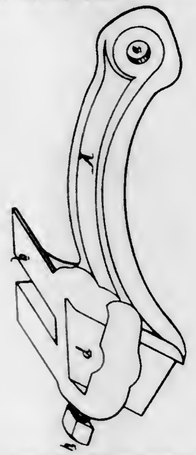
The combination of the feeding device I, tool-holder K, levers O P, tools L M S, and tool rest G H with the mandrel of a lathe and means for operating the same, substantially as shown and described.

197,447. DUMPING-WAGONS. Hamilton Bailey, Harrisburg, Pa. Filed Aug. 21, 1877.



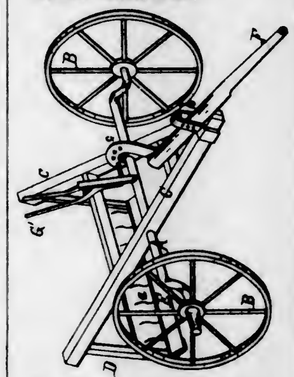
In a dumping-vehicle having the bed A hinged to the truck-rails B B, the hinged prop C, attached to said bed A near its front end, in combination with chains K K, shaft E', gears E F N, and pawl G, all arranged for operation, substantially as set forth.

197,448. COLTER OR JOINTER ARMS FOR PLOWS. F. R. Beal and Spencer Clark, Northville, Mich., assignors to Michigan School Furniture Company, same place. Filed May 23, 1877.



The colter or jointer supporting arm described, consisting of the arm A, having the bolt-hole *a*, for securing the said arm to the side of a plow-standard, the flange *b*, provided with a slot, extending through one side of the same, the socket *d*, adapted to inclose the arm of a colter or jointer, and the set-screw *k*, all constructed and arranged substantially as described and shown.

197,449. POTATO-DIGGERS. Jesse H. Bennitt, Hamburg, Mich. Filed July 30, 1877.



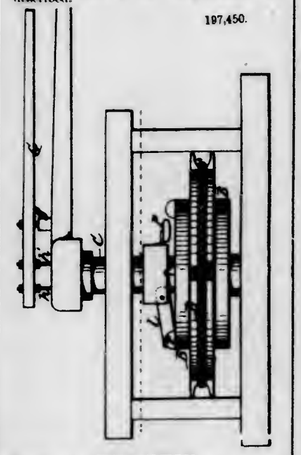
The combination of the cranked axle A, wheels B, frame C, braces D, fingered shovel E, adjustable tongue F, lever G, latch G', and quadrant *c*, substantially as and for the purpose set forth.

197,450. HOISTING-MACHINES. Henry Blackmer, Sencca Castle, and William Ringer and David Van Ostrand, Geneva, N. Y. Filed May 18, 1877.

1. In a hoisting-machine, the combination, with the drum B, of the lever G, rods *h h'*, pawl *l*, and brake *p*, arranged as herein described, so that the pawl and brake receive simultaneous motion in opposite directions by the action of the lever as and for the purpose specified.

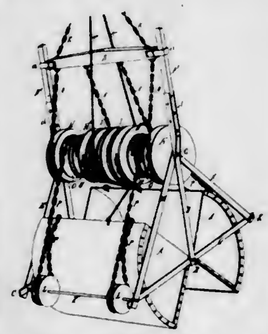
2. In a hoisting-machine such as described, the combination, with the lever G and rods *h h'*, provided with the pawl *l* and brake *p*, of the slots *i i* in the shaft C of the winding-drum B for the passage of said rods, as shown and described.

197,450.



197,451. EXCAVATORS. Sumner H. Bodfish, Washington, D. C. Filed Oct. 13, 1877.

Brief.—The closing-chains pass down under sheaves pivoted in a horizontal line with the main hinge of the buckets, and thence upward, and take hold on the upper edges of the buckets. A uniform draft upon the buckets in closing is thus produced.



1. In a machine of the character herein specified, the combination, with the hinged bucket or shell, of a chain one end of which is secured to the upper portion of said shell, and adapted to pull downwardly upon said bucket in a direction tangent thereto, said chain moving in the same direction with, and unwinding from, the curved exterior surface of the bucket, upon which it constantly bears as the bucket is being closed, the arrangement being substantially as shown and described, so that the closing power shall be uniform throughout the path of the bucket, for the purposes explained.

2. In a machine of the character herein specified, the combination of the hinged bucket or shell, a loose sheave, and a closing-chain attached to the shell, and run under said sheave, the arrangement being substantially such as described, so as to make the closing-chain pull upon the shell in a direction practically tangent to its curved surface, for the purposes set forth.

3. In a machine of the character herein specified, the combination of the hinged buckets, the metallic frame supporting the same and carrying the axles for the sheaves, the sheaves for changing the direction of the closing chains, located outside of said buckets, and the closing-chains, the several parts being arranged substantially as shown and described.

4. In a machine of the character herein specified, the combination of the hinged buckets in a direction tangent thereto, and the closing-chains, adapted to pull upon said buckets with uniform power, and means, substantially such as shown and described, for multiplying the closing power, for the purposes set forth.

5. In a machine of the character herein specified, the combination, with the hinged clam-shell buckets, of opening chains or cables, the same being attached at or near the upper edges of the buckets, and run under sheaves located upon an axle directly above the hinge B, common to the buckets, substantially as described, so that the bucket may be opened to its fullest extent, for the purposes explained.

6. In a machine of the character herein specified, the combination, with the hinged buckets, of closing chains or cables adapted to pull downwardly upon said buckets in directions tangent thereto, and with uniform power, and opening-chains arranged to run under loose sheaves, which are mounted directly over the bucket-hinge, substantially as described, so as to open the buckets to their fullest extent, substantially as and for the purposes set forth.

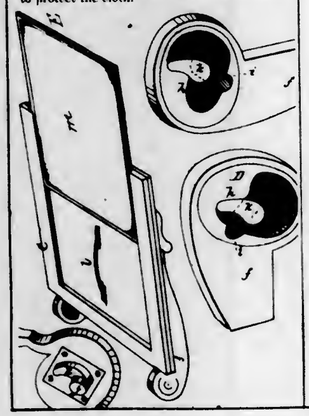
7. The combination, with the frame C D E E, of the hinged buckets A A, sheaves L L, and closing-chains P P' P'' P'', substantially as shown and described.

8. The combination, with the frame C D E E, of the hinged buckets A A, closing-chains P P'', sheaves L L, drums H O H' O', and chains N N', substantially as shown and described.

9. The combination, with the frame C D E E, of the hinged buckets A A, the shaft G, sheaves I I, and opening chains or cables T T, substantially as shown and described.

197,452. DREDGE. John F. Boys, San Francisco, Cal. Filed Feb. 4, 1876.

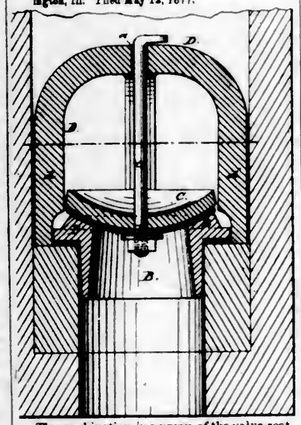
Brief.—The side standards are each provided with a fixed pivot and cam, which engage with irregular-shaped recesses and elongated slots in the brackets of the desk-top, a projecting portion of the wall of the recess resting under the cam when the desk-top is raised, and on top of the cam when the top is lowered. The elongated slot which receives the pivot permits a horizontal sliding motion of the top on the pivot, to engage and disengage the cam with the projecting portion of the wall of the recess. The desk-top is provided with a reversible top, lined on one side with cloth, and held in position by a spring, it being reversed to protect the cloth.



1. A desk body or standard having the pivot or pin *j* and cam *k*, in combination with a folding desk-top having brackets with irregular-curved recesses *g* and elongated slot *i*, substantially as and for the purpose set forth.

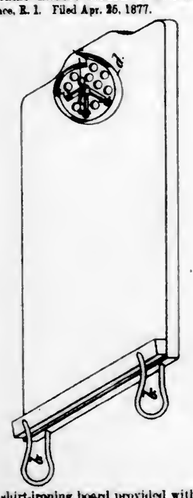
2. A folding desk-top, as described, having a reversible cover, E, lined on one side with a suitable fibrous material, *m*, said cover being held in position by a spring, *l*, for the purpose specified.

197,453. PUMP-VALVES. Sylvester Bradley, Bloomington, Ill. Filed May 12, 1877.



The combination, in a pump, of the valve-seat B, removable downwardly-projecting armed frame D, and the puppet-valve C, the several parts constructed and arranged as herein shown and described.

197,454. SHIRT-IRONING BOARDS. J. W. Cadwell, Providence, R. I. Filed Apr. 26, 1877.

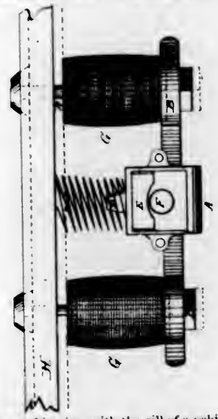


1. A shirt-ironing board provided with the adjustable band-former *d*, arranged to secure the upper end of the shirt-front, and the springs *b b*, forming loops into which the lower part of the shirt can pass, arranged to secure the clamping-piece *c* to secure the lower part of the front, substantially as and for the purpose described.

2. The combination, with an ironing-board, of the band-former *d*, arranged to form the band, guide the iron, and answer as a rest, substantially as and for the purpose specified.

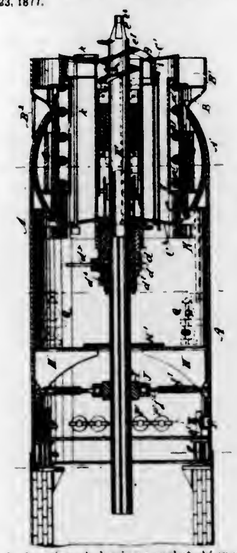
3. The adjustable shirt-band former, provided with a raised rim, substantially as and for the purpose set forth.

197,455. CAR AXLE-BOXES AND SPRINGS. A. Calder, London, Ontario, Canada. Filed June 4, 1877.



The combination, with the sill of a vehicle, of the journal-box A, having the stud D, coiled spring C, and extension-pieces B, provided with rubber springs or bearings G, secured directly to the under side of the sill H, substantially as and for the purpose specified.

197,456. TUNNELING AND EXCAVATING MACHINES. Hawley N. Cargill, Grand Rapids, Mich. Filed Apr. 23, 1877.



1. A casing, A, having a socket, A', in combination with a casing, B, having a globular portion, substantially as herein shown and described.

2. The hinged plates B^2, in combination with the casings A B, substantially as shown and described.

3. The combination of the casing B, having forward projecting rim B^1, and longitudinal rollers G, with the cylinder F and sliding and revolving excavating-cylinder C, as and for the purpose set forth.

4. An excavating-cylinder, C, having concave front and rear heads, and a central tube, D, and provided with rollers *a'*, in combination with the cylinder F and casing B, for guiding and supporting the excavators, substantially as set forth.

5. The combination of the excavators or cutters *f g*, arranged in opposite and reversed manner, with the cylinder C, as and for the purpose herein set forth.

6. The combination of the longitudinally-adjustable cutter *g* and screw h^3 with the excavating-cylinder C, as and for the purpose specified.

7. The movable back piece *i*, in combination with the cutter *g*, substantially as shown and described.

8. One or more laterally-swinging cutters, g^1, shaft g^2, having arms g^4, and link for connecting it with the cutter g^3, and the cylinder C, in combination, substantially as herein shown and described.

9. The combination of the hook or grapple *k* and the shaft k^1 with the excavating-cylinder C, for removing stones or obstructions, arranged in advance of the excavators, as herein set forth.

10. The screw d^3, fitted to threads in the rear end of the tube D, and the guide G', containing rollers *e*, for guiding the tubular shaft E, substantially as shown and described.

11. The combination of the tubular guide and anchor shaft E, having cutters e^1 and spiral blade e^2, with the excavating-cylinder C, revolving upon said shaft, as and for the purpose set forth.

12. The combination of the collar d^2, having the screw d^3, or its equivalents, the friction-strap d^1, guide d^4, and shaft E, substantially as shown and described.

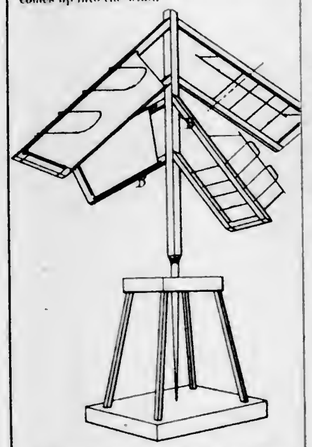
13. The combination of the solid bulk-head H and packing plate H^2 with the stationary cylinder A, excavating-cylinder C, and guide and anchor shaft E, for forming an equilibrium of pressure against the excavating machinery, as herein set forth.

14. The combination of the ring I, sockets J, radial screws j^1, and internally-threaded sleeves j^2 with the cylinder A, and guide and anchor shaft E, and excavating-cylinder C, as and for the purpose set forth.

15. The combination of the hydraulic cylinders O, having attached air-cylinders O^1, with the casing A and excavating-cylinder C, as and for the purpose stated.

197,457. WINDMILLS. John Clark, Pontiac, Mich., assignor to William H. Osmun, Jr., same place. Filed May 23, 1877.

Brief.—There are two or more sets or pairs of inclined sail-frames, not in the same plane, but one set or pair above the other, and each provided with a flap-sail, which rises into the plane of motion as the arm to which it is hung comes up into the wind.

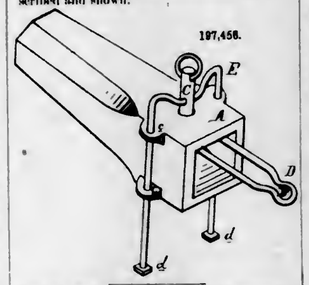


In a windmill, substantially as described, the combination, with the vertical shaft, of the inclined sail-frames, arranged in pairs in different planes, each frame being provided with a flap-sail, substantially as shown and set forth.

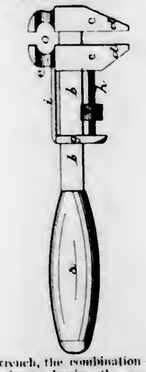
197,458. CAR-COUPLINGS. Oscar M. Cole, Portland, Mich. Filed June 23, 1877.

1. The combination, with the draw-head A and pin C, of the guide-rod E, bent into the form shown, and passed through the pin below its head, and through lugs *c* on the sides of the draw-head, and the stops *d* on the ends of said rod, constructed and arranged substantially as described and shown.

2. The link D, having its sides closed together near one end to form an eye, D', constructed and arranged substantially as described and shown.



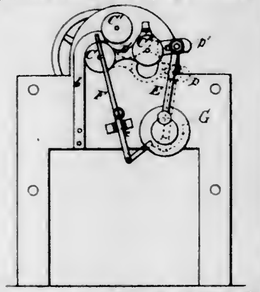
197,459. WRENCHES. Charles A. Corman, Cochituate, Mass. Filed Oct. 3, 1877.



In a wrench, the combination of handle *a*, shank *b*, jaws *c*, having the groove *o* across their inner sides, slide *g*, screw *h*, nut *l*, and brace *i*, all the parts being constructed and arranged to operate substantially as shown.

197,460. SPRING-COILING MACHINES. E. C. Dicey, Sterling, Ill., assignor of one-half his right to Harry C. Albee, same place. Filed Apr. 14, 1877.

Brief.—As the wire advances between the stationary and adjustable roller, the latter is raised by a yoke and crank connection with the driving shaft. The coiled wire is severed by a blow from a cam and spring-acted chisel.



1. In a machine for making springs, the combination of two stationary feeding-rolls with an automatically-adjustable forming-roll, hung in yokes and vibrating on one of the stationary rollers, substantially as specified.

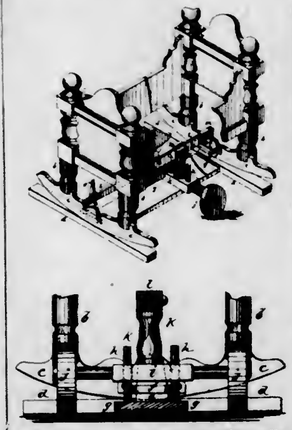
2. The slotted vibrating yokes D and D', carrying the forming-roll C^2, in combination with the connecting-rods E and E', and driving-shaft H, for the purpose of giving to the roll C^2 a vibratory movement, as set forth.

3. The shaft H, provided with a cam, G, having a spirally-inclined surface, with an abrupt termination acting directly upon and in combination with the cutting-off chisel F, as and for the purpose set forth.

4. The adjustable spring *b*, acting as a guide and anvil, in combination with the cutter F and spring *d*, as and for the purpose specified.

5. In a spring-forming machine, the positively-driven feeding-rolls and automatically-adjustable forming-roll, in combination with the spring anvil *b* and abruptly-terminating spiral cam-acted cutter, substantially as hereinbefore specified.

197,461. CRADLES. Carl Ellrich, Chicago, Ill. Filed July 3, 1877.

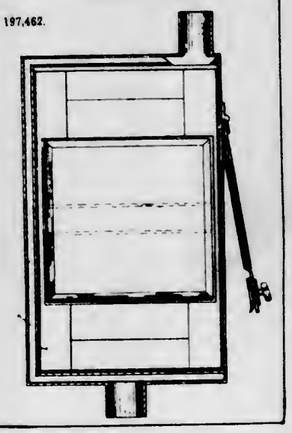


1. The base *d g* for supporting the cradle, in combination with the axle *i*, wheels *j*, and devices for raising and lowering the base on the axle, substantially as and for the purposes specified.

2. The supporting-base *d g* and guide-pins *h*, in combination with the axle *i*, wheels *j*, lever *l*, post *k*, and standard *e*, substantially as described.

3. The body *a*, posts *b*, rockers *c*, bands *f*, and base *d g*, in combination with the axle *i*, wheels *j*, lever *l*, post *k*, standard *e*, and locking-standard *e'*, all constructed and arranged substantially as and for the purposes specified.

197,462.

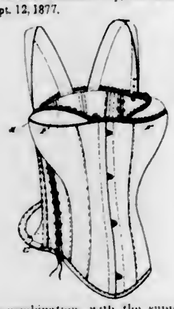


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197,462. HEATING OVENS BY STEAM. Asa M. Farnham, Chicago, Ill., assignor of one-half his right to Parker H. Hale, same place; and said Farnham and Hale assignors of one-third of their right to Leopold Buxbaum, same place. Filed Apr. 13, 1877.

The process of baking articles of food by means of heat transmitted through the walls of the oven from a current of live steam circulating around the oven, substantially as and for the purpose set forth.

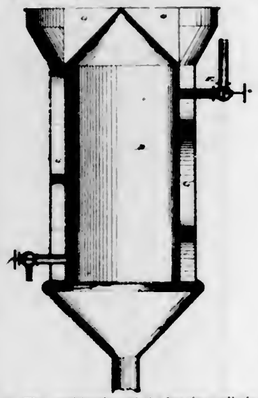
197,463. CORSETS. Lavinia H. Foy, New Haven, Conn. Filed Sept. 12, 1877.



1. The combination, with the supporting-rim of a skirt-supporting corset, of braces arranged at or near the ends G of the rim, substantially as and for the purposes set forth.

2. The combination, with the upper edges *d d* of the breast parts F F of a corset, of the folding spring and self-adjusting bosom-forms, substantially as and for the purposes set forth.

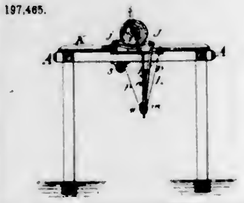
197,464. GRAIN-HEATERS. E. H. Gratiot, Platteville, Wis. Filed Oct. 28, 1876.



1. The combination of the heating-cylinder B and the grain-mixers G G', substantially as and for the purposes hereinbefore set forth.

2. The combination of the heating-cylinder B, the connecting steam or hot-air pipe E, having gage-cock *e*, and the grain-mixers G G', substantially as and for the purpose hereinbefore set forth.

197,465.

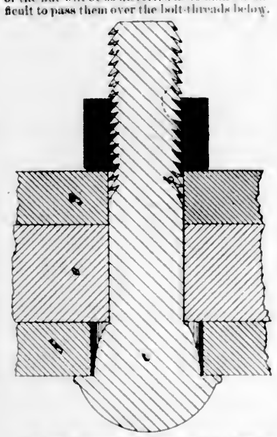


197,465. LOG-TURNERS. Robert E. Gleason, Muskegon, Mich., assignor of one-half his right to Luke Turnbull, same place. Filed Sept. 11, 1876.

In a saw-mill, the combination of the log-way C and endless chain G, carrying spurred saddles for elevating the log from the boom to the floor of a mill, and the pivoted levers J for receiving the log from such endless chain and rolling the same upon the skidway, substantially as described and shown.

197,466. BOLTS AND NUTS. Hayward A. Harvey, Orange, N. J. Filed Nov. 15, 1876.

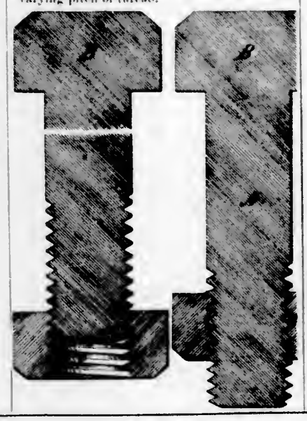
Brief.—This invention consists in forming barbed threads on both nut and bolt, so that when mechanical force is used in clamping the object through which the bolt passes the threads of the nut will be so distorted as to make it difficult to pass them over the bolt-threads below.



The combination of a bolt having a barbed thread, substantially such as described, with a nut having a reversed barbed thread, substantially as and for the purposes set forth.

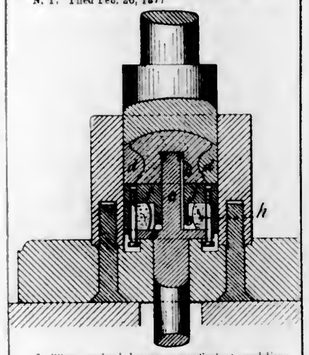
197,467. NUT AND BOLT LOCKS. Hayward A. Harvey, Orange, N. J. Filed June 4, 1877.

Brief.—At a point on the shank of the bolt, near to the final position of the nut, the thread of the bolt is changed from a regular pitch to a pitch which gradually increases. The thread of the nut has the same pitch as the regularly threaded part of the bolt. Hence, when the nut reaches the varying pitch of the bolt-thread, the two threads are mutually interlocked and lock bolt and nut. The varying pitch may be in the threads of the nut, and the regular pitch in the thread of the bolt; or both bolt and nut, being threaded in different directions, may have varying pitch of thread.



The combination, with each other, of a bolt and a nut, one or both of which has a screw-thread of differential or varying pitch, as and for the purpose set forth.

197,468. VITRIFIED KNOBS. Selah Hiler, New York, N. Y. Filed Feb. 20, 1877

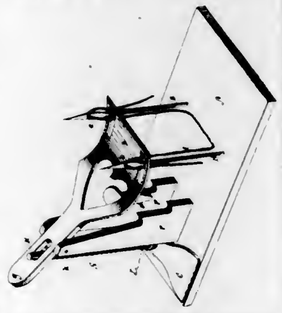


1. The method herein specified of molding recessed knobs, by leaving in the clay a combustible plug, core, or ring, and burning the same out in vitrifying the knob, substantially as set forth.

2. The combination, with the knob-mold, lifter, and plunger, of the auxiliary follower or lifter *f*, spring *h*, and plug or core *c*, substantially as and for the purposes set forth.

3. The mineral door-knob, made of the hollow shank and knob portions united, as specified, the knob portion having an undercut recess for receiving the inner end of the metal spindle socket, substantially as set forth.

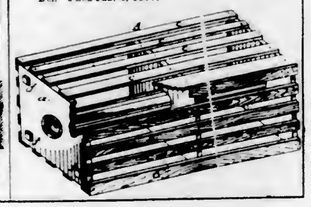
197,469. TEMPORARY BINDERS. Edward F. Hubart, St. Louis, Mo., assignor to Wm. Brown, same place. Filed May 18, 1877.



1. The pivoted spring-follower F, provided with the stops *s'* and curved slotted foot *b*, in combination with the spikes B B and base A, as shown and described.

2. The combination of the follower F, spikes B B, rod E, spring S, clip C, and base A, provided with the posts P P and fulcrum D, as shown and described.

197,470. FRUIT-CRATES. Edwin Hopkins, Milford, Del. Filed Jan. 4, 1877.

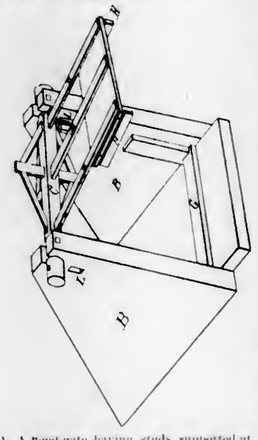


1. The ventilator B, composed of the end pieces *d d* and slats *e e*, substantially as and for the purpose set forth.

2. In combination with a shipping-case, a central ventilating attachment, extending from end to end of said case, and composed of slats having spaces between them to admit the air, substantially as set forth.

3. The combination of the case A, having end rests *f f*, and ventilator B, as and for the purposes set forth.

197,471. FLOOD-GATES. George S. Houghton, Columbus, Wis. Filed July 26, 1877.

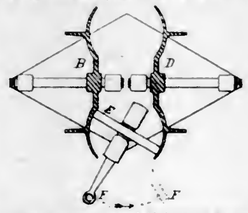


1. A flood-gate having studs supported at the bottom by a rib, G, and at the top attached to a revolving beam, arranged substantially as and for the purposes herein specified.

2. The blocks H H, hinged to the ends of the gate, substantially as and for the purposes herein specified.

3. The combination, with the sides B B, having lever-holes L L, of the beam C, having pins K K', whereby the gate may be raised by the lever, substantially as and for the purposes herein specified.

197,472. COUNTER-SHAFTS FOR DRIVING MACHINERY. Chas. W. Hunt, West New Brighton, N. Y., assignor to F. M. Hunt, same place. Filed Oct. 24, 1877.

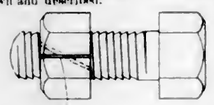


1. The vibrating wheel E, between two opposite disks, B and D, substantially as described.

2. The wheels B and D, having their faces shaped like a spherical ring, substantially as described, in combination with the vibrating friction-wheel E.

197,473. BOLTS AND NUTS. Samuel H. James, Lyddington, near Uppingham, England. Filed Mar. 16, 1877. Patented in England, Oct. 25, 1876.

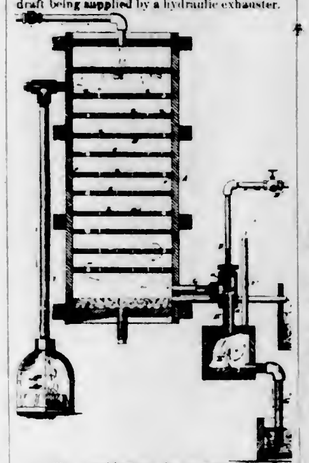
1. A split or severed nut, provided with undercut or barbed threads, substantially as shown and described.



2. The combination, with a split or severed nut having undercut or barbed threads, of an under-cut screw-threaded bolt or screw, substantially as shown and described.

197,474. APPARATUS FOR MANUFACTURING HYDRATED SULPHUROUS ACID. W. Davidson Jones, Hagaman's Mills, N. Y. Filed Nov. 3, 1877.

Brief.—Sulphur is burned in the furnace H, and the resulting gases conveyed, by a pipe, I, to the upper part of a hydrating case, where the gases come in contact with water in fine streams. The water and gases pass downward through perforated diaphragms, the necessary draft being supplied by a hydraulic exhauster.



1. The combination, in an apparatus for hydrating sulphurous-acid gas, of a hydrating-case, a furnace wherein the sulphur is burned, and the vapor-pipes so connected therewith as to conduct the vapors from the burning sulphur in the furnace directly to the action of the water near the upper part of the hydrating-case, so that in their descent the gas is hydrated, substantially as shown, described, and set forth.

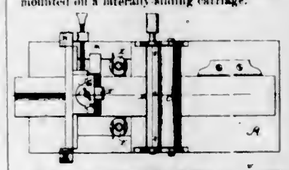
2. In an apparatus for hydrating sulphurous-acid gas, consisting of the furnace wherein the sulphur is burned, a hydrating-case, and the pipes connecting the furnace with the hydrating-case, the combination therewith of a hydraulic exhauster, whereby a draft is created through the said apparatus, substantially as and for the purpose shown and described.

3. The combination of the case A, pipes G, D, E, F, and G', chambers *a* and E', as and for the purposes shown and set forth.

4. The combination of the case A, pipes G, D, and E, and chamber *a*, all substantially as shown, described, and set forth.

197,475. MACHINES FOR PLANING WOOD. Pamp P. Jasaf, Buffalo, N. Y., assignor to himself, John F. Haberstro, and Gottlob E. Schneider, same place. Filed Aug. 11, 1876.

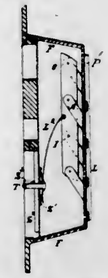
Brief.—Two tongued and grooved flooring-boards are formed from a single board at one operation by means of two grooving-cutters mounted on vertical spindles, and an upper and a lower tonguing and dividing cutter mounted on a laterally-sliding carriage.



The combination of the slotted bed A with the vertically-adjustable planer-head D, feed-roller C, matcher-heads E K, upper and lower dividing cutter-heads F F, arms H H, laterally-adjustable carriages G G, and vertically-adjustable carriages K K, constructed substantially as shown and described, and for the purpose specified.

197,476. AIR-REGISTERS. Norma K. Joyce, Brooklyn, N. Y. Filed Aug. 20, 1877.

Brief.—Peculiar means for operating the leaves. Pin-sockets cast in the sides of the frame, combined with angle-plates outside of the frame. Leaves removable separately from back of register.

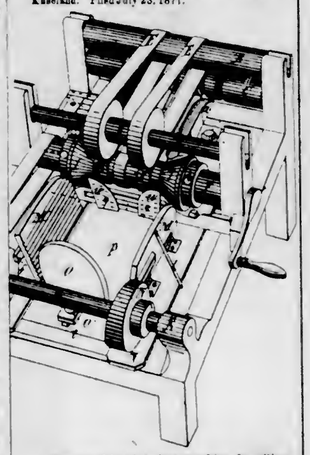


1. The rigid link L', thumb-piece T, independent spring S', and slide-slot S', located in the face of an air-register, in combination, in the manner and for the purposes described.

2. The thumb-piece T, independent spring S', and rigid link L', in combination with the fans L and link L' of an air-register, arranged and operating as set forth.

3. The frame F, provided with the pin-sockets S S on the inner edges of two of its sides, the leaves L L, provided with the pivots P P, in combination with the angle-plates P' P', as shown and described.

197,477. MACHINES FOR PILING PAPER. Joseph C. Kaseland, Northampton, Mass., assignor to Mark H. Spaulding, same place, trustee for said Joseph C. Kaseland. Filed July 23, 1877.



1. The combination, in a machine for piling paper, of the feed-belts E and E', the rolls or shafts for carrying said belts, and the guides *a*, all substantially as and for the purpose herein described.

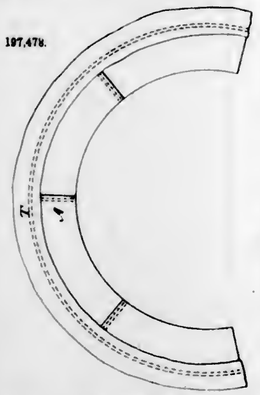
2. In a machine for piling paper, the combination of the feed-belts E and E', the rolls or shafts for carrying said belts, and the conical rotary guides I, all operating substantially as and for the purpose specified.

3. The combination of the feed-belts E and E', the table P, the vibrating plates M, the plates *a*, and the foot-board O, all operating to deposit and pile paper in a package evenly, substantially as herein set forth.

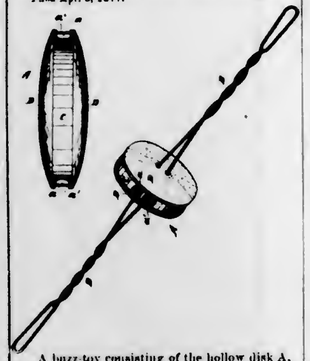
197,478. MANUFACTURE OF CAPS. William Kreeger, Boston, Mass. Filed Sept. 20, 1877.

The combination of the tape T and stiffening A with the top, band, and rattan hoop of the cap, substantially as described.

197,478.

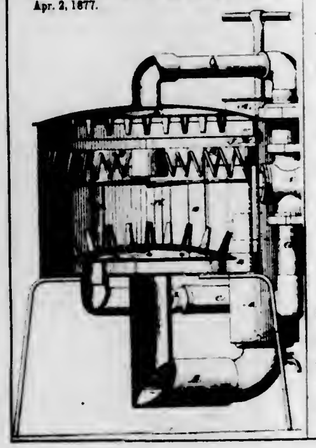


197,479. TOY BUBBER. Jacob Lauth, Chicago, Ill. Filed Apr. 3, 1877.



A buzz-toy consisting of the hollow disk A, having therein holes to receive the cord B, and made of the annular band C, having therein one or more slots, *a a*, crossed by the bars *a' a'*, and the said band being capped by the concavo-convex disks D D, all substantially as and for the purposes specified.

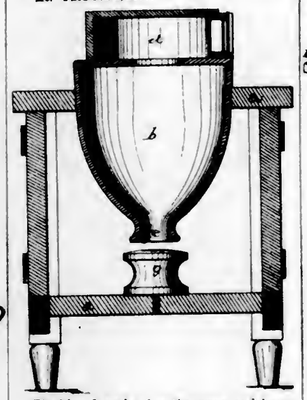
197,480. DISH-CLEANING MACHINES. Jeremiah S. Lotts and Elizabeth W. Lotts, Ripon, Wis. Filed Apr. 2, 1877.



1. The combination and arrangement of the pump A, connected with the pan N and drums E and D by the pipes *c*, *g*, and B.

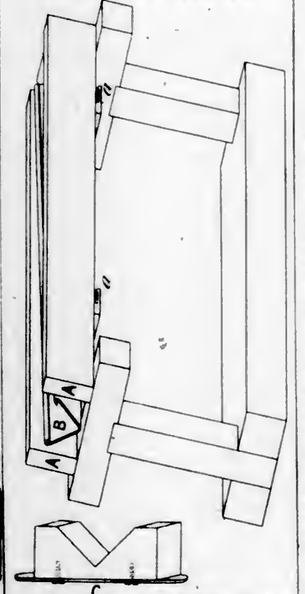
2. The drums E and D and the rack S for holding the dishes, all suitably arranged and operating in the manner and for the purpose set forth.

197,481. BEE-HIVES. John Harden Light, Calhoun, Mo. Filed Oct. 3, 1877.



The hive *d*, made of earthenware, and having the inwardly-curved sides and flaring mouth *e*, the outside of the lower end of the hive being made to conform to the inside, all substantially as shown and described.

197,482. ICE-FLOORS FOR REFRIGERATOR-BUILDINGS. John C. De La Vergne, Jersey City, N. J., and Edwin M. Davies, New York, N. Y. Filed Oct. 16, 1877.



In refrigerators, the combination, with the joists A A and the gutter B, of the movable crutch C and catches *a a*, as and for the purpose set forth.

197,483. DISINTEGRATING APPARATUS FOR REDUCING GRAIN, &c. George Mead, Detroit, Mich. Filed May 26, 1877.

Brief.—Provides a series of open and closed reducing-surfaces, upon which the beaters reduce the grain by percussion.



1. In a disintegrating machine, the combination, with the case A A', of a single vertical grinding-disk, having lateral and peripheral beaters, a hopper for delivering the grain on one side of the disk, and the open and closed grinding-surfaces, substantially as and for the purposes set forth.

2. In a disintegrating-machine, the combination, with the vertical grinding-disk D, having lateral and peripheral beaters *e*, of the series of concentric closed and open grinding-surfaces, whereby the grain is first broken upon the closed or solid surfaces, and drops by gravity onto the open surface, through which it is driven by the beaters, constructed and arranged substantially as described and shown.

3. In a disintegrating-machine, the series of open and closed concentric grinding-surfaces *f f' f²*, constructed and arranged substantially as described and shown.

4. In a disintegrating-machine, the combination, with the single vertical disk D, provided with lateral and peripheral beaters *e*, and adapted to be adjusted horizontally, of the open and closed concentric grinding-surfaces *f f' f²*, over and between which the beaters pass, constructed and arranged substantially as described and shown.

5. In a disintegrating-machine, the combination, with the shaft *a*, of the collars *d*, fixed on such shaft on each side of the bearing, the sleeve *b'*, having lug *b*, and the screw *c*, constructed and arranged substantially as described and shown.

197,485. ROAD-ENGINES. Charles D. Monnot, Canton, Ohio. Filed June 18, 1877.

Brief.—The steering-wheels are drivers, and mounted on an axle connected with the motor by a system of pawls, ratchets, and gear-wheels, so that they may be driven in either direction, or the axle turned horizontally, to guide the vehicle without affecting the relations of the working parts. Power of the engine used for steering by means of a worm-segment.

1. The vertical bar B, provided with pulley H, and horizontal bar I, having the pulleys G and E in its ends, and endless cord J K, the whole adapted to extend and retract lengthwise the mosquito-net at will, substantially as described.

2. The combination of the vertical bar B, having the pulley H in its top end, and the horizontal bar I, having pulleys G and E mounted in its ends, with the permanent bar C and sliding bar C', the latter provided with loop or stirrup D, and the cords F and J K, adapted to distend the net for use and fold it up when not in use, substantially as described.

197,483.

197,484. DISINTEGRATING APPARATUS FOR REDUCING GRAIN, &c. George Mead, Detroit, Mich. Filed May 26, 1877.

Brief.—Provides a series of open and closed reducing-surfaces, upon which the beaters reduce the grain by percussion.

1. In a disintegrating machine, the combination, with the case A A', of a single vertical grinding-disk, having lateral and peripheral beaters, a hopper for delivering the grain on one side of the disk, and the open and closed grinding-surfaces, substantially as and for the purposes set forth.

2. In a disintegrating-machine, the combination, with the vertical grinding-disk D, having lateral and peripheral beaters *e*, of the series of concentric closed and open grinding-surfaces, whereby the grain is first broken upon the closed or solid surfaces, and drops by gravity onto the open surface, through which it is driven by the beaters, constructed and arranged substantially as described and shown.

3. In a disintegrating-machine, the series of open and closed concentric grinding-surfaces *f f' f²*, constructed and arranged substantially as described and shown.

4. In a disintegrating-machine, the combination, with the single vertical disk D, provided with lateral and peripheral beaters *e*, and adapted to be adjusted horizontally, of the open and closed concentric grinding-surfaces *f f' f²*, over and between which the beaters pass, constructed and arranged substantially as described and shown.

5. In a disintegrating-machine, the combination, with the shaft *a*, of the collars *d*, fixed on such shaft on each side of the bearing, the sleeve *b'*, having lug *b*, and the screw *c*, constructed and arranged substantially as described and shown.

197,485. ROAD-ENGINES. Charles D. Monnot, Canton, Ohio. Filed June 18, 1877.

Brief.—The steering-wheels are drivers, and mounted on an axle connected with the motor by a system of pawls, ratchets, and gear-wheels, so that they may be driven in either direction, or the axle turned horizontally, to guide the vehicle without affecting the relations of the working parts. Power of the engine used for steering by means of a worm-segment.

1. The combination of the bevel-gears D D', mounted on the main axle, and connected therewith by means of a clutch, the bevel-pinion *a'*, the crown-wheel *a²*, the bevel-pinion *a³*, and shaft *a*, arranged below the boiler, and driven from the crank-shaft B³, substantially as set forth.

2. In a traction-engine, a worm-segment connected with the steering-axle, and operated by a worm which is connected with, and rotated in opposite directions by, the motive power of the engine.

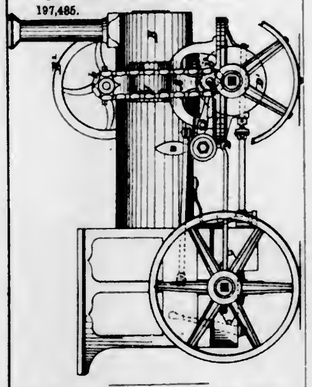
3. In a traction-engine, a driving-wheel having its hub chambered and provided with two ratcheted faces, and adapted to be driven alternately in opposite directions by an elastic pawl or clutch.

4. In a traction-engine, an axle composed of an outer tubular part, upon which the driving-wheels are mounted, and an inner shaft, which actuates the pawls or clutches in the hubs of the driving-wheels.

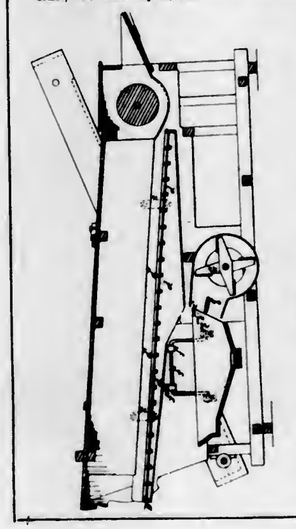
5. The combination, with the axle K, of the levs S S' S², hand-wheel T, and bearing-plate U, substantially as set forth.

6. In a traction-engine, the combination of driving-wheels mounted upon the steering-axle and device for elevating one end of the boiler, and thereby increasing the weight which is supported upon the driving-wheels.

197,485.



197,486. GRAIN-SEPARATORS. Robert H. Monteith, Eau Claire, Wis., assignor of a part of his right to Chas. H. Bigelow and Hugh L. Pilkington, St. Paul, Minn., and Archie McVicar and David P. Barnes, Eau Claire, Wis. Filed May 14, 1877.



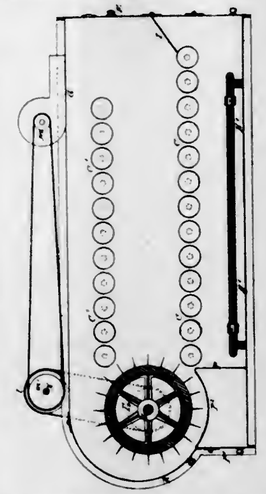
1. In a combined threshing-machine and separator, a vibrating straw-carrier and separating-floor, composed of rods or wires *d*, stretched lengthwise of said carrier, and forming the separating-screen, combined with and supported by transverse slats or bars *d'*, arranged to uphold and carry the straw above the wires *d*, as described.

2. The vibrating separating-floor and straw-carrier, vibrating shoe, and tailings-elevator, all connected with and operated from the stacker-shaft, substantially as described.

3. The slats *e e' e²*, arranged horizontally in short narrow steps, having a sharp descent intermediate between the vibrating hopper bottom of the separating-floor and the screens in the shoe, in combination with the narrow centrally-pivoted valve *g*, arranged and operating as and for the purpose described.

4. In a combined threshing-machine and separator, a tailings-elevator having a concave floor, in combination with the carrying blocks or buckets on the endless belt having a convex surface matching the concave floor, as described.

197,487. WOOL-DRIERS. Fredk. Meers, Trowbridge, England. Filed Aug. 24, 1877.



1. In a combined wool drying and bumbling machine, the combination of the casing having doors E R, the screens I I^c G, air-inlets N', and an exhaust-fan and heating apparatus located within said casing, the bumbling-wheel, and two superposed series of carrying-rolls, all constructed and operating to carry the wool continuously from one series of rollers to the other, subjecting the wool at each rotation to the action of the bumbling-wheel until thoroughly cleansed and dried, substantially as described, for the purpose specified.

2. The combination of the casing and the screens I I^c with the carrying-rolls and the bumbling wheel, substantially as described, for the purpose specified.

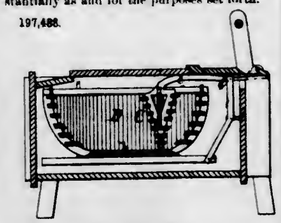
3. The combination of the bumbling wheel, the carrying-rolls, and the exhaust-fan with the pulleys L *l*, counter-shaft N, pulleys *m' m*, bevel-wheel D¹, spindle D², pinions *d d¹ d² d³*, worms D, and pinions *e*, all constructed and operating substantially as described, for the purpose specified.

4. The combination of the casing, the screens I I^c, the heating apparatus, the bumbling wheel, the carrying-rolls C C', and an exhaust-fan provided with a perforated screen, G, all constructed and operating substantially as described, for the purpose specified.

197,488. WASHING-MACHINES. Johann G. Oesterle, Francisco ville, Mich. Filed May 26, 1877.

In a washing-machine, the combination of the cradle B, suspended and reciprocated within a water-tight tank, and having solid and corrugated sides and bottom and open slatted ends, with the V-shaped slatted squeezer, reciprocated within and in the opposite direction from the motion of the said cradle, substantially as and for the purposes set forth.

197,488.



197,489. PLATFORM WEIGHING-SCALES. Charles Onslow, Port Ewen, N. Y. Filed Feb. 17, 1877.



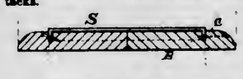
1. The rollers A, with the flexible bands on opposite sides.

2. The scale-beam attached to the end of one of the rollers, substantially as and for the purpose set forth.

3. The arms C C, that connect the rollers, and their connection at *m*, substantially as and for the purpose set forth.

197,490. STOVE-BOARDS, PLATFORMS, &c. Henry L. Palmer, Brooklyn, N. Y. Filed Sept. 7, 1877.

Brief.—An underlying and supporting body of wood having a channel cut in its upper surface, into which the turned-down edge of the metallic covering is inserted and secured by tacks.



1. An underlying and supporting body of a non-heat conducting mat, tablet, platform, or stove-board, provided with the channel C.

2. The improvement in the art of making mats, tablets, platforms, and stove-boards, consisting in channeling the upper surface of the underlying and supporting body itself, in the manner and for the purpose set forth.

3. A wooden supporting-body of a stove-board or platform, provided with an external exposed edge, formed from the supporting-body itself, outside of a channel, C, in its top, made to receive the edge of a top sheet.

4. As an improved article of manufacture, a non-conducting platform, consisting of a top of sheet material, S, combined with an underlying and supporting body, the edge of the former being turned down and inserted in the channel C, and secured in place by nails, screws, or like instrumentalities, as set forth.

5. The combination, in a non-conducting platform, of an underlying and supporting body consisting of the segments S' S', with the sheet-material top S applied thereto, substantially as and for the purposes set forth.

6. As an improved article of manufacture, a non-conducting platform, consisting of a supporting-body provided with an exposed external edge, and of a top sheet provided with edges, turned down, inserted in a channel in the upper side of the supporting-body, and secured thereto by tacks, nails, or other like instrumentalities, as shown and described.

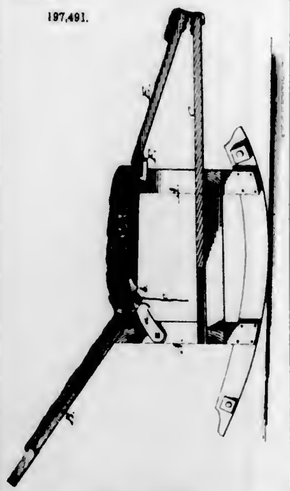
7. An underlying and supporting body, B, provided with a channel, C, in combination with an overlying sheet provided with the folded rim R', covering and concealing the channel C, as shown and described.

197,491. INVALID-CHAIRS. Jonathan E. Fitcher, Madison, Ind., assignor of one-half his right to Thomas T. Crittenden and Howard R. Crittenden, Washington, D. C. Filed Apr. 27, 1877.

1. A combined chair and bed, consisting of a frame, A, provided with a pivoted back, B, and with a slide, C, having a leg-supporter, E, pivoted or hinged to its front end, and a button, F, or its equivalent, the whole being constructed and arranged in the manner substantially as and for the purposes set forth.

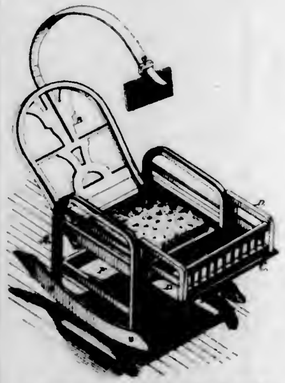
2. The combination of the ratchet-bar *a* and pin *b* with the frame A and pivoted back B, in the manner substantially as and for the purpose set forth.

197,491.



197,492. CONVERTIBLE ROCKING CHAIR AND CRIB. Jonathan E. Pitcher, Madison, Ind., assignor of one-half his right to Thomas T. Crittenden and Howard B. Crittenden, Washington, D. C. Filed Feb. 28, 1877.

Brief.—By the addition of the sliding piece with its front and sides to the chair it can be converted into a crib.



1. A chair, lounge, or bed combined, consisting of the frame A, provided with a pivoted back, B, and sliding pieces C and F, substantially as and for the purposes set forth.

2. A chair and crib or cradle combined, consisting of the frame A, provided with a pivoted back, B, sliding piece C, having side pieces D, substantially as and for the purposes set forth.

3. A chair and crib combined, consisting of the frame A, provided with a pivoted back, B, and slide C, having removable front and side pieces D, substantially as and for the purposes set forth.

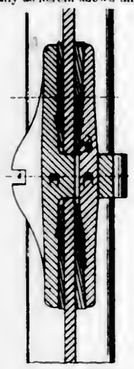
197,493. RAIL-JOINTS. Edward Payne, Chicago, Ill. Filed Nov. 7, 1877.

1. A joint-piece constructed, substantially as herein shown and described, so as to interpose between the abutting ends of rails a block which, while forming continuity of the top flange or tread, shall afford lateral support to both the abutting rails by a fixed and a movable lapping clasp or fish-plate, as set forth.

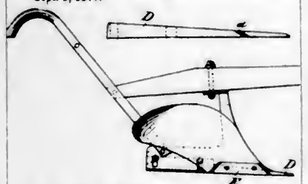
2. In a joint-piece such as herein shown and described, the combination, with either or both the fish-plates, when serrated or toothed, as described, of locking-wedges or spring-keys, substantially as shown and set forth.

3. The combination, with the joint-piece, such as herein described, of a tightening-wedge applied externally to the movable fish-plate, substantially as herein shown and set forth.

197,493.

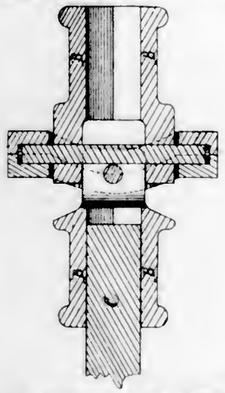


197,494. PLOWS. James Posey, Manjoney, Md. Filed Sept. 1, 1877.



In a plow, the wedge-shaped reversible point D, provided with double countersunk holes *a* and *a'*, and an oblique groove, *d* and *d'*, on either side, for the insertion of the forward end of the reversible wing E, in combination with the right-angular-shaped adjustable heel G, the forward end of which abuts against or braces the base of the point D, substantially as and for purposes set forth.

197,495. UNIVERSAL JOINTS. John B. Ralston, Rockford, Ill. Filed June 26, 1877.

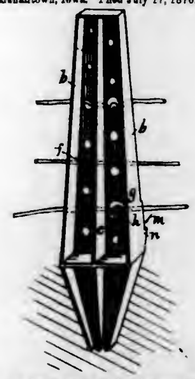


1. In a universal joint, the combination, with the shaft-heads, of a two-part waving or undulating ring, provided with sockets for the reception of the journals for the shaft-heads, substantially as described.

2. The combination, with the shaft-heads, of a two-part waving or undulating ring, the contiguous faces of which are constructed with projections and depressions, whereby the sections of the ring are firmly held in place, substantially as described.

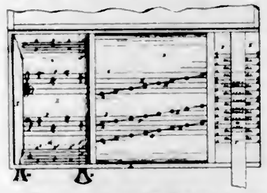
3. The combination, with the shaft-heads, of a sectional waving or undulating ring, each section of which is provided with semi-cylindrical grooves, to form bearings for the journals, which are thus adapted to have free rotary movement within the ring, and capable of ready replacement when worn, substantially as described.

197,496. FENCE-POSTS. Hiram Reynolds, Des Moines, assignor of one-half his right to William H. Roundy, Marshalltown, Iowa. Filed July 17, 1876.



As an improved article of manufacture, the metal fence-post *a b c d*, having wire-holding hooks *g* and surrounding openings *h*, and the board bearing and fastening devices *m n* and *r r*, formed integral therewith, substantially as and for the purposes shown and described.

197,497. DEVICES FOR TEACHING MUSICAL TRANSPOSITION. J. Chester Simonton, Tiro, Ohio. Filed Aug. 21, 1877.



1. The apron L, having thereon musical staffs O and P, and staffs P' and Q, with their respective letters, notes, and characters, and operated by the knobs M and rollers, in relation to and in combination with the tablet B', and movable scales of notes E, F, and G, substantially as herein described, and for the purpose set forth.

2. In combination with the tablet B' and musical staffs C D thereon, the scales of notes E, F, and G, operated by the slide I and screw J, in the manner substantially as and for the purpose set forth.

3. The combination and arrangement of the movable apron L, and characters thereon described, tablets B', and staffs C D thereon, scales of notes E, F, and G, and scales D' E', and slide F'', substantially as described, and for the purpose specified.



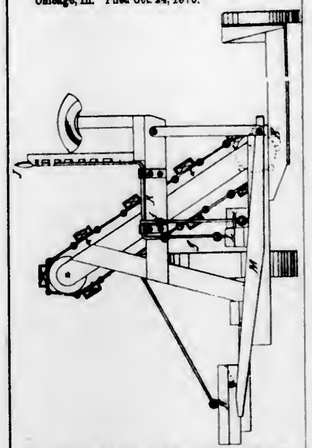
197,498.

197,498. CORD FASTENINGS FOR CLOAKS, &c. Morris Silberstein, New York, N. Y. Filed June 11, 1877.

1. The cord fastening made of the cord loop *a*, with the cross-piece *b* of the cord itself intertwined, substantially as set forth.

2. The slide for the cord fastening, made of rings covered with crocheted cords or threads, and united together so as to leave an opening for the cords, substantially as set forth.

197,499. HARVESTERS. John F. Steward, Plano, assignor to Elijah H. Gammon and William Deering, Chicago, Ill. Filed Oct. 24, 1876.

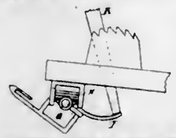


1. The combination of the lever M and platform N with the lever J, shaft K, arm *f*, and coupling-rod *h*, substantially as specified.

2. The combination of the lever J, shaft K, arms *e* and *f*, and links *g* and *h*, with the tongue L, pivoted lever or bar M, and platform N, substantially as and for the purpose specified.

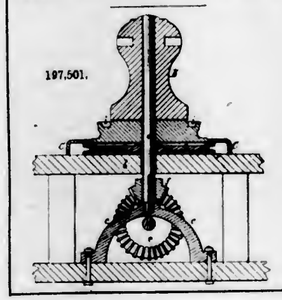
3. The bar M, pivoted at its inner end to the frame of a harvester, in combination with and connected to the tongue L and foot-board N, substantially as and for the purpose described.

197,500. MOWERS. John F. Steward, Plano, assignor to Elijah H. Gammon and William Deering, Chicago, Ill. Filed Mar. 15, 1877.



The combination of the pivoted connecting-bar G, provided with an extension, I, located in line with the axis of vibration of bar G, and the lever K, operating directly upon said extension, substantially as described and set forth.

197,501.

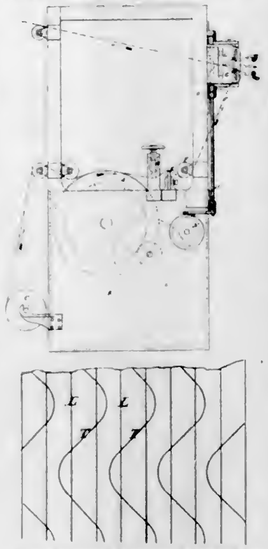


197,501. WINDLASS AND CAPSTAN ATTACHMENTS. Thomas J. Southard, Richmond, Me., assignor to T. J. Southard & Son, same place. Filed May 17, 1877.

1. The combination of the sprocket-wheel *g* and the bevel-gears *e f*, arranged as described, with the capstan B and windlass A, and their shafts, disposed as set forth.

2. In combination with the sprocket-wheel *g* and open cap C, as described, applied to the capstan B, the chain-guide wheel *k*, arranged with the port or opening *h* of the cap, as and for the purpose substantially as set forth.

197,502. APPARATUS FOR THE MANUFACTURE OF PAPER FOR PACKING GOODS, &c. James A. Turner and J. T. Stoneham, West Gorton, England; said Stoneham assignor to said Turner. Filed Dec. 18, 1875. Patented in England, May 5, 1875.



1. The described apparatus for manufacturing the said material by causing a web of paper served with adhesive material to travel longitudinally, while one or two sets of yarns, threads, or wires are guided by oscillating bars to traverse to and fro across the paper, consisting of the rollers G G, the plates H H', the vertical spindle O, having an arm, upon which an anti-friction roller, *n*, is mounted, and the roller N, having an undulating cam path cut in its periphery.

2. In apparatus for the manufacture of the said material, the oscillating bars H H', provided with holes, through which yarns T-T' are passed, for guiding the yarns, threads, or wires, so that they are laid in zigzag form on the traveling paper, constructed and operating substantially as herein described.

3. The combination of the roller A, tank B, beam C, deflecting-rule D, scraper E, guide-roller F, and pressing-rollers G G.

197,503. CULTIVATORS. Morris L. Utter, Rockford, Ill. Filed Aug. 14, 1877.

Brief.—The construction of the couplings and hangers and the attachment of the plow-beams to the frame. Lever and connections with plow-beams and frame. Slip-bracket for standard. Crank-disk to elevate seat. Socket-blocks for attaching the fender bars. The downward movement of the latter is limited, and they may be removed or inserted without moving bolts or nuts.

1. The combination, with the axle-tree, the converging beams C, secured thereto, and cross-bar E, of the pendent bars *b*, secured to the ends of cross-bar E by brackets, and the brace-rods *f* and *f'*, the brace-rod *f* being secured to the pendent arm and arm of the axle, while the brace connects the lower end of the pendent arm with the cross-bars, substantially as described.

2. The joint-plates *c* and *d*, washer *e*, and joint-bolt *e'*, these parts constructed, arranged, and operating, as herein described, to produce a double hinge-joint, reversible and interchangeable, capable of use on either side of the machine, as and for the purpose hereinbefore set forth.

3. The combination, with the levers M, located in front of the driver's seat, of the supporting-chains or linked rods, connected at their forward ends to levers M, and also to the frame at a point practically in the same vertical plane with the forward ends of the drag-bars, and at their rear ends connected to the longitudinally-adjustable plates K, substantially as described.

4. In a standard-bracket, the combination of the bed-plate H, the slotted slip-arm *h*, fitted to receive the shovel-standard, screw-bolt *h'*, upon which the slip-arm works, swivel-socket *g*, and eyebolt *g''*, whereby the shovel is allowed to turn back to pass obstructions, as hereinbefore set forth.

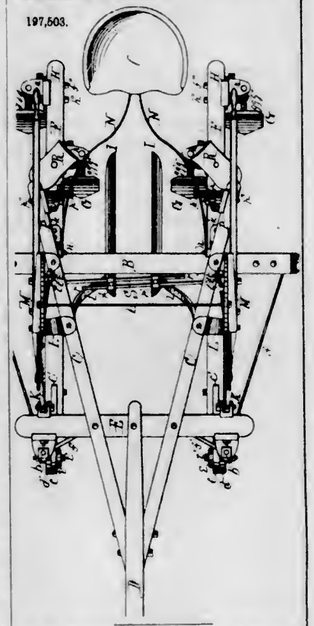
5. The swivel-block *i'*, in combination with the shield and chambered socket, substantially as herein described, to limit the oscillatory movement of the shield, as hereinbefore set forth.

6. The chambered socket secured to the drag bar, and made adjustable thereon by means of the screw-eyebolt, as herein described, in combination with the swivel-block, secured to curved supporting-bar to limit the downward movement of the shield, as herein before set forth.

7. The rosette-plates herein described, secured to the inner face and rearward-projecting ends of the converging beams, the inner plate made adjustable to raise or lower the stud projecting eccentrically from its inner face, for the purpose of raising and lowering the driver's seat, as and for the purpose hereinbefore set forth.

8. The adjustable seat-plates P, in combination with the curved bars N, pivoted at their forward ends to the frame, and the seat O, made longitudinally adjustable on the seat-bars, and arranged to turn the seat forward, substantially as set forth.

197,503.

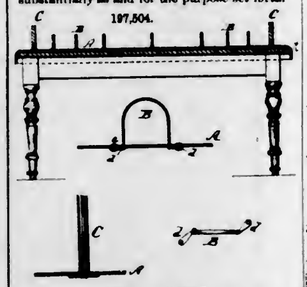


197,504. PARLOR-CROQUET APPARATUS. Henry Van Hoevenbergh, Elizabeth, N. J. Filed Mar. 3, 1877.

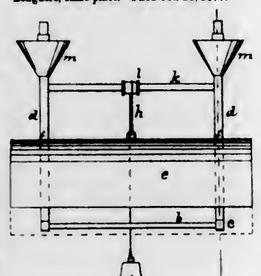
1. In a parlor-croquet, the arch B, made with the obliquely-projecting ears *d d*, that extend in opposite directions at an angle to the plane of the wicket larger than ninety degrees, substantially as specified.

2. In combination with the cloth A, the arches B and stakes C of a parlor-croquet apparatus, secured to said cloth by ears and rivets and a nail and washer, respectively, substantially as and for the purpose set forth.

197,504.



197,505. PROVISION-SAFES. John Walter, Zeiglersville, Pa., assignor of one-half his right to Francis D. Longacre, same place. Filed Oct. 26, 1877.

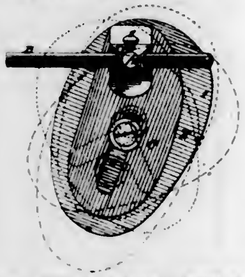


1. A suspension provision-safe having the uprights *d d*, provided with the water-cups *m m*, substantially as and for the purpose set forth.

2. The combination, in a suspension provision-safe, of the tray *a*, uprights *d d*, water-cups *m m*, and cross-rod *k*, having pulley *l*, with the convex cover *c*, operated by the cord and weight *h i*, substantially as and for the purpose set forth.

197,506. HERNIA-TRUSSES. John C. Ward, Albany, N. Y. Filed Oct. 3, 1877.

Brief.—The slotted adjusting pad-plate carries a sleeve integral with it, and this sleeve is perforated for the passage of a round-wire spring and for two set-screws.



In a truss, the pad-arm C, having at its upper end the sleeve D, perforated to receive the round connecting bar B, and set-screws, and slotted near its lower end, all constructed of a single piece, in combination with the adjustable pad *e*, substantially as and for the purpose set forth.

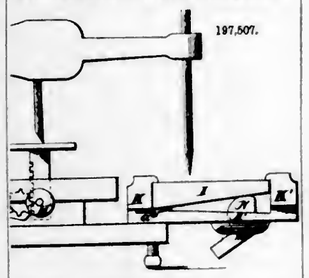
197,507. PANTOGRAPHIC ENGRAVING-MACHINES. W. S. Wight, Garrettsville, Ohio. Filed Aug. 2, 1876.

1. In a pantographic engraving-machine, the combination, with a fixed pantograph support, of a vertically-swinging bed-plate and a vertically-adjustable working-table, substantially as and for the purpose described.

2. In an engraving-machine, the form or tracing table I, in combination with the flanged side pieces K K′ and cam N, substantially as and for the purpose described.

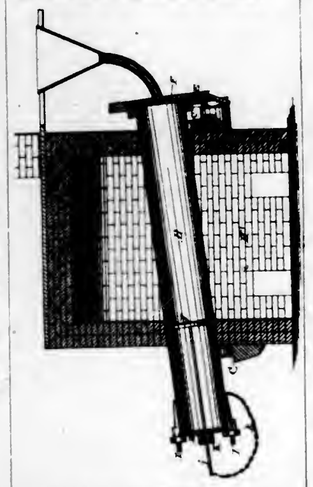
3. In an engraving-machine, the hinged form or tracing table I, in combination with the flanged side pieces K K′ and cam N, substantially as and for the purpose described.

197,507.



197,508. APPARATUS FOR ANNEALING. Christopher Eng, Pittsburg, Pa. Filed Oct. 26, 1877.

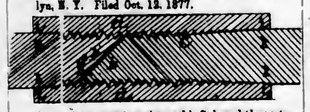
Brief.—Nails are introduced to the cylinder through the funnel, and permitted to gradually pass through by withdrawing the plunger.



1. In combination with the inclined revolving tube B, placed in the furnace H′, the stopper J *j*, substantially as described.

2. In combination with the revolving tube B, the removable cap H, fastening devices I, cap F, stopper J, rod *j*, and chain *k*, substantially as set forth.

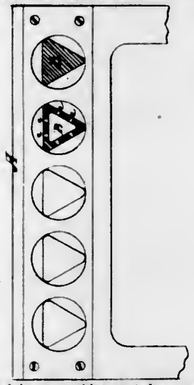
197,509. ROD-COUPLINGS. Arthur V. Abbott, Brooklyn, N. Y. Filed Oct. 12, 1877.



1. A sleeve with right and left hand threads, in combination with the locking and threaded ends of rods, substantially as and for the purpose described.

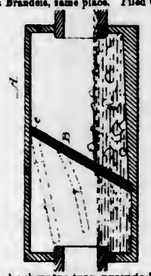
2. A sleeve having a conical bore from each end, diminishing toward the center, and right and left hand screw threads, in combination with the rods having locking, tapered, and threaded ends, substantially as and for the purpose specified.

197,510. GRATE-BARS FOR FURNACES. John Ashcroft, Brooklyn, N. Y., assignor to Sarah Jane Ashcroft, same place. Filed June 15, 1877.



A revolving or rocking grate-bar, a cross-section of which shows the outline of a triangle or with three sides, the intersections thereof being sharp or slightly-rounded edges.

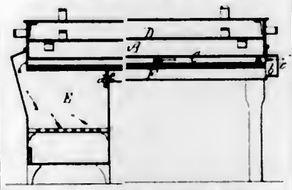
197,511. BACKWATER-TRAPS. Ludwig Brandeis, Brooklyn, N. Y., assignor of one-half his right to Giulia Brandeis, same place. Filed Oct. 30, 1877.



1. A backwater-trap provided with a valve, B, consisting of two or more sections hinged together, as set forth.

2. The case A, having end openings for the reception of the ends of sewer-pipes, two chambers, one with a flat and the other with an inclined bottom, and with side bearings *e e* and bottom bearing *i* for a valve, B, as set forth.

197,512. STEAM COOKING APPARATUS. Jefferson Chase, Orange, Mass. Filed Oct. 25, 1877.



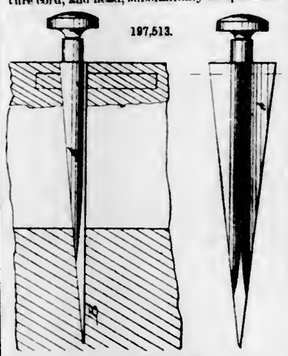
1. The general combination of parts, as herein shown, consisting of the pan A, with its flue C and foraminous shelf D, the furnace E, and flue F, the whole being substantially as and for purposes stated.

2. The combination, with the pan A and furnace E, of the flues C and F, as herein shown, whereby the outlet of the flue F serves to allow of escape of smoke and gases both through such flue and the flue C, substantially as and for purposes stated.

197,513. PICTURE-NAILS. William Gross, New York, N. Y., assignor to himself and Chas. Rommelsbacher, same place. Filed Oct. 12, 1877.

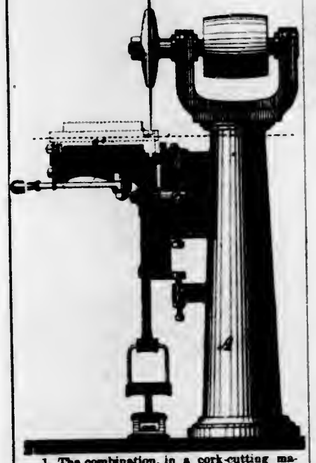
A picture-nail having a tapering shank, with broad flat base, center rib, and cutting-edges, terminating in a point, and a cylindrical neck at the front part, to support the picture cord, and head, substantially as specified.

197,513.



197,514. CORK-CUTTING MACHINES. Geo. Hammer, Reutlingen, Germany, assignor of one-half his right to William Rensch, Philadelphia, Pa. Filed Oct. 19, 1877.

Brief.—In subdividing slabs of cork to be used for stoppers, the material is economized, and the slabs or blanks cut so that two of their sides shall be inclined relatively to their ends by means of a revolving cutter mounted in bearings upon a column having vertical guide-ways, in which works a vertically-adjustable table, provided with a pivoted and angularly-adjustable cork-support and stationary guide, between which and adjustable stops the blank is held during the operation.



1. The combination, in a cork-cutting machine, of a cutter, a table movable toward and from the same, and a cork-support pivoted upon the table, and adjustable at desired inclinations relatively to the line of cut, substantially as set forth.

2. The combination of the stationary guide, the sliding table, the pivoted cork-support and its hand-lever, and adjustable stops, secured, respectively, upon the table and the guide, substantially as set forth.

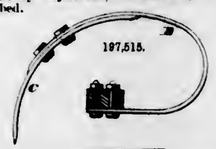
197,515. HARROW-TEETH. Moses Hill, Cleveland, Ohio. Filed Aug. 31, 1877.

Brief.—The harrow-tooth proper is reversible and adjustable, and has differently-shaped points. The steel spring is curved from the forward side of the beam.

1. A harrow-tooth consisting of a metal section, B, curved upward from its attachment to the frame, thence backward over the same, and having its free end in a horizontal plane above the lower surface of the frame, in combination with a detachable point, C, substantially as described.

2. A harrow-tooth consisting of a metal section, B, curved as described, and a double detachable point, C, of corresponding width and curve, the latter made reversible, and also vertically adjustable, substantially as described.

197,515.



197,516. GRIDDLES. Edwin A. Jaffey, Jersey City, N. J. Filed May 5, 1877.

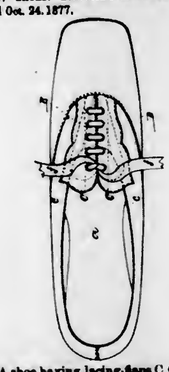


1. A griddle, as an article of manufacture, provided with a mold-ring plate, B, hinged about the center of the same, and provided with one or more molds or openings extending through the said plate, all substantially as herein described and shown.

2. The combination of a bar, *b*, triangular loop *c*, and handle *d*, of wood or other suitable material, to form a handle, substantially as and for the purpose set forth.

3. The mold or opening in the plate B, having its wall beveled or flared from the center out to each side, as shown in Fig. 5, and as herein set forth.

197,517. SHOES. Laburton Johnson, Bradford, Mass. Filed Oct. 24, 1877.



1. A shoe having lacing-flaps C C, a tongue, D, and an elastic gore, B, arranged with each other and the instep of the upper, substantially as set forth.

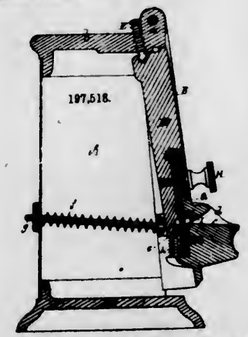
2. A shoe having its quarters united by an elastic gore, forming with them the instep portion of the upper, and having separate lacing-flaps, fastened to such quarters and arranged with the gore, as set forth.

3. A shoe having its quarters united by an elastic gore, forming with them the instep portion of the upper, and having separate lacing-flaps and a tongue, fastened to such quarters and arranged with the gore, all substantially as specified.

197,518. HAND-STAMPS FOR TICKETS. Ellis T. Jones, Norwich, Conn., assignor to himself and William G. Kelsall, same place. Filed July 17, 1877.

Brief.—A swinging frame carrying a bed is pivoted to a standard. Said frame carries a stamping-slide provided with the type, a screw bearing in a socket in its upper end. When the ticket is placed on the bed, and the swinging frame pushed inwardly, the stamping-slide approaches the bed and makes the impression. A spring returns the swinging frame to its original position.

197,518.



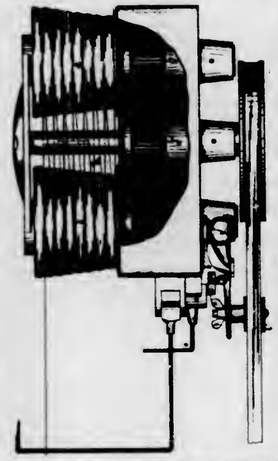
1. In combination with the bed C and the swing-frame B, pivoted to the upper part of the standard A, so as to swing within it, the stamping-slide D and its projection *e*, and the spring A and screw E, arranged with such bed and frame, as set forth.

2. The combination of the removable type-holder F and its clamp-screw H, the stamping-slide D, swing-frame B, bed C, bearing E, and the standard A, all arranged and applied substantially as set forth.

3. The combination of the card-relieving spring I, the stamping slide D, swing-frame B, and bed C, the bearing E, and the standard A, all arranged and applied substantially as set forth.

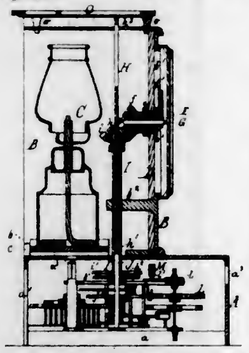
197,519. STOP-MOTIONS FOR THREAD-STRETCHERS. John H. Leonard, Warehouse Point, Conn., assignor to the Leonard Silk Company, same place. Filed Sept. 22, 1876.

Brief.—For stretching silk thread. The thread passes around grooves on the cone-pulleys. A feeler rests on the thread passing from the pulleys, and if it break falls against a tripping-lever, which frees a pivoted pawl from its engagement with a ratchet-tooth, so that the idler rises, loosening the driving-belt, and so stopping the rotation of the cone-pulleys.



In combination, the pivoted lever *j*, armed with its idler, pawl *l*, tripping-lever *o*, and feeler *n*, all substantially as described, and for the purpose set forth.

197,520. ILLUMINATED CLOCKS. Robert Leuchsenring, New Bedford, Mass., assignor of one-half his right to Martin P. Fichtenmayer, same place. Filed Aug. 24, 1877.



1. The clock-frame A B, constructed with a horizontal support, *b b*, in rear of its dial-plate and above its clock-motion, for the reception of a lamp, C, for giving illumination to the dial-plate, and with a horizontal open support in rear of and above the dial-plate for the reception of a rack, O, upon which a vessel can be placed for heating food or other articles for use in the sick-room or nursery, substantially as described.

2. The shaft H, extended up through the top of the portion B of the case, and made a means of adjusting the clock-motion from the outside of the top of the frame, whereby the handling of the clock, when set against the wall or in any other position, is rendered unnecessary, substantially as described.

3. The clock-case with an opening, a^2, in the top plate of the portion A, and with an opening for the escape of the heat from the lamp, which opening also serves for the insertion of the winding-key from the top of the clock through the opening a^2, substantially as and for the purpose described.

4. The hand-screw N, extended from the outside of one side of the clock-case into the case, and passed through the nut M of the guide-lever l of the escape-spring L, and prevented from moving longitudinally by a pin, n^1, in combination with a clock-case having the inspection-aperture a^1 in its front and lower portion A, substantially as described.

5. A clock constructed with means on the inside of its case for illuminating its dial at night, and with a support for a vessel or holder on the outside of its case, whereby food and medicines or other articles are warmed above its top with the heat of the flame which is employed for illuminating its dial-plate, substantially as described.

6. The combination of the minute-shaft J of a clock-motion, the wheels h^1 k k' i', the shaft H, tube I, shaft G, tube F, and bevel wheels f g h i, whereby the motion of the clock is transmitted to the dial-hands f' g', substantially as set forth.

197,521. MACHINES FOR DRESSING STAVES. Adam Lockhaupt, Columbus, Ohio. Filed Oct. 13, 1877.

Brief.—A series of stave-blanks are securely held by automatically-operating dogs in a reel formed of two vertical heads, having bearing-collars for the ends of the shaft which carries the cutters for dressing the outer surfaces of the blank, and connected by cross-bars, and adapted to have a continuous revolution, while their inner and outer surfaces are simultaneously dressed by two series of cutters revolving in opposite directions, and between said cutters the blanks are successively carried. The stave-blanks are clamped between springs, formed to overlap each other, preparatory to being dogged.

1. In a stave-cutting machine, the combination, with the revolving cutter-head for dressing the outer surface of the stave and the revolving cutter-head for dressing the inner surface of the stave, of the reel adapted to have a continuous revolution, said reel being formed with the two vertical heads connected by cross-pieces, substantially as described.

3. The combination, with the revolving reel and the dogs carried thereby, of the stationary cams, the same being formed as described, whereby the said dogs are automatically fastened into the ends of the stave under the operation of the machine, substantially as described.

4. The combination, with the revolving reel and the dogs carried thereby, of the cam-grooves formed in the stationary frame, the same being adapted to operate as described, whereby the said dogs release the stave at the proper time for discharging the same, substantially as and for the purpose described.

5. The combination, with the stave-supporting reel and the dogs, of rests or bars F, substantially as and for the purposes described.

6. The combination, with the revolving reel, of the springs E^1 and E^2, formed to overlap each other, and adapted, as described, to clamp the stave between them preparatory to the latter being dogged, substantially as and for the purpose described.

7. The combination, with the revolving reel, of springs E^1, secured to the guard or other stationary part of the frame and the springs E^2, the latter being attached to a stationary cross-piece and bearing upon said springs E^1, substantially as and for the purpose described.

8. The combination of the reel, the bar for supporting the stave, the springs E^1 E^2 for adjusting it, and the dogs F^1 for clutching it, substantially as and for the purposes described.

9. The combination, in a stave-cutting machine, of a horizontal revolving cutter-head for dressing the outer surface of the stave, a horizontal revolving cutter-head for dressing the inner surface of the stave, and a revolving reel constructed to revolve around one of the revolving cutter-heads, and to feed the staves to the knives, substantially as and for the purposes described.

10. The combination, with the stave-feeding reel, of the revolving cutter-head inclosed within it eccentrically, and a stationary curtain or shield, E, substantially as and for the purposes described.

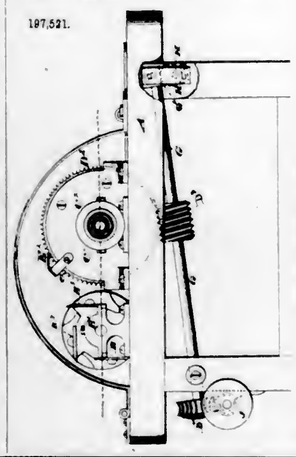
11. The combination, with the reel having the periphery of one of its heads suitably cogged, of the shaft provided a worm or end less screw, and adapted to be engaged therewith or disengaged therefrom, substantially as and for the purpose described.

12. The combination, with the reel D^1 and the worm-gear D^2, of the eccentric H, for releasing and engaging them at will, substantially as and for the purposes described.

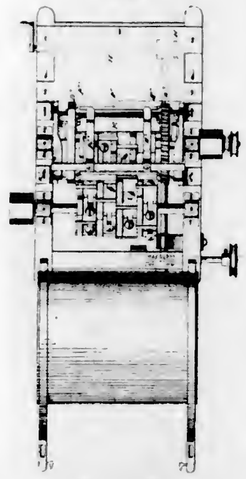
13. The combination, with dogs F^1, of strippers F^2, substantially as described.

14. In a stave-cutting machine, the combination, with the bearings made with the elongated slots K^1, of the cutter-head shaft journaled in the bearing-collars D, the whole being formed and adapted to operate substantially as described.

197,521.

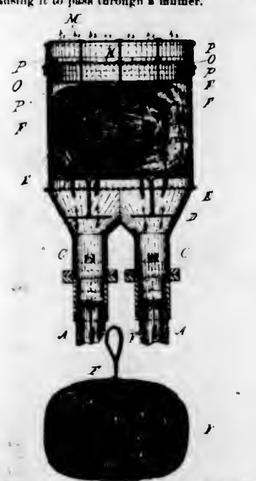


197,521.



197,522. STEAM-MUFFLERS FOR VACUUM CAR-BRAKES. James McGowan, Worcester, Mass. Filed Sept. 22, 1877.

Brief.—The noise produced by escaping steam employed for producing the vacuum by which the brakes are applied is absorbed by causing it to pass through a muffler.



1. The combination, with the ends of the steam-pipes A and C, of the hollow cones D and perforated pendent plates L, substantially as and for the purposes set forth.

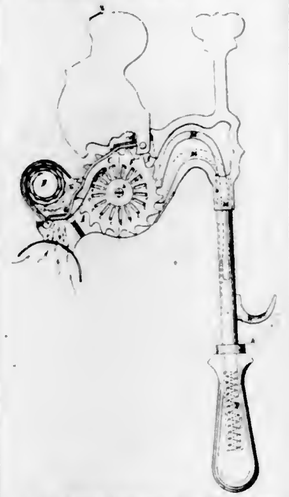
2. As a new article of manufacture, a muffler for steam vacuum brakes, made of wire of different sizes—that is to say, an inner ball made of wire of a given gage, and surrounded by wire of a finer gage, substantially as described.

3. The combination, with the chamber E and coiled-wire steam-muffler F, of the supporting bridge or bar J, substantially as and for the purposes set forth.

4. The combination, with the chamber E and perforated cover or top M, of the rim O, provided with perforated heads P P, substantially as and for the purposes set forth.

5. The combination, with chamber E, of pipes C, conical parts D, cross-bar J, muffler F, and perforated top M, substantially as and for the purposes set forth.

197,523. GAS-LIGHTING TORCHES. Edward L. Ingill, Brooklyn, N. Y. Filed Sept. 24, 1877.



1. A lighting apparatus provided with suitable mechanism for pulling or drawing the igniting-tape over and beyond the anvil, substantially as herein described.

2. A lighting apparatus provided with an expended-tape chamber, for receiving and confining the tape after the pellets thereon have been exploded, substantially as herein described and set forth.

3. A lighting apparatus provided with a reserve-tape chamber for holding an extra coil of tape in readiness to replace the coil of tape being discharged, substantially as herein described.

4. The combination, with the supply-chamber B, of the expended-tape chamber C, whereby the coil of tape is unrolled from the former and recoiled into the latter, substantially as herein described and set forth.

5. In a gas-lighting apparatus, the combination, with the supply-chamber B, of the hammer G, for stripping or unrolling the tape as it is drawn from said magazine, substantially as described.

6. In a gas-lighting torch, a revolving wheel for feeding, winding, and holding upon itself the percussion-tape, substantially as herein described.

7. A ratchet-wheel, F, provided with lateral projections *c*, so as to form a cylinder with one or more notches or slits for securing the loose end of a coil of tape and drawing it from the magazine, substantially as herein set forth and described.

8. The spring-acting ratchet-rod M, secured to and acting with the trigger h, in combination with the ratchet-wheel F, by which said wheel is caused to revolve, and wind the tape, and lift the hammer to explode the pellets over the anvil at regular intervals, substantially as herein described and set forth.

9. The combination of the lateral projections *c* with the wheel F, forming a chamber for the reserve-tape, substantially as herein described.

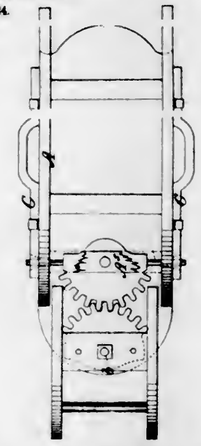
10. The combination of the curved hammer-spring G with the frame or case A, whereby said hammer serves as a dividing-wall between the magazine B and expended-tape chamber C, substantially as herein set forth.

11. In a gas-lighting torch, a gas shield or arch, I, for attracting and spreading the gas under the igniting-point as it escapes from the burner, substantially as herein described and set forth.

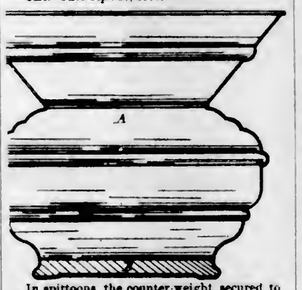
197,524. COASTING-SLEDS. Henry S. Miller, Philadelphia, Pa., assignor to Henderson & Co., same place. Filed Nov. 10, 1877.

The combination, with the main frame of a sled, of a pivoted supplementary frame having guide-runners, a segment-gear secured upon the supplementary frame concentric with its pivot, and meshing with a segment-gear pivoted to the main frame, and longitudinal slide-bars moving in guides upon the main frame, and engaging pins upon the sides of its segment-gear, substantially as and for the purpose set forth.

197,524.

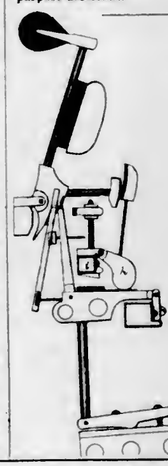


197,525. SPITTOONS. George Mittinger, Cleveland, Ohio. Filed Sept. 17, 1877.



In spittoons, the counter-weight secured to the metal frame by spinning the sheet metal upon the weight, in combination with the bottom sheet, cemented by luting of lead or suitable material, substantially as and for the purpose described.

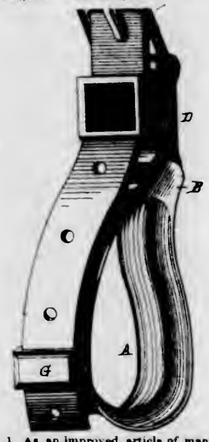
197,526.



197,526. UPRIGHT-PIANO ACTIONS. Geo. W. Hall, Boston, Mass. Filed Oct. 10, 1877.

In an upright-piano action, the combination of the straining-bar i and the pivoted supporting-arm A with the back-catch and the fly-supporting arm or bed, all being arranged substantially as set forth.

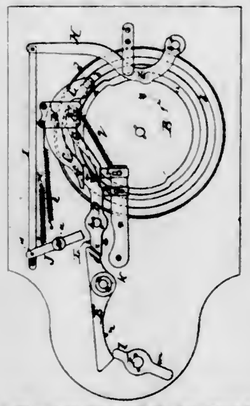
197,527. SHAFT-TUGS. William Oberrifer, Gardenville, N. Y. Filed Oct. 6, 1877.



1. As an improved article of manufacture, a metallic shaft-tug consisting of a pear-shaped ring, of which one side is inwardly and the opposite side outwardly curved, said tug being provided with the lugs B B', cross-bar C, and loop G, the whole produced in the process of casting, as and for the use and purpose specified.

2. The combination, with the ring A, having one side slightly curved inwardly and the opposite side curved outwardly, and provided with the loop G, of the buckle-piece D, secured to the body A by the lugs B B' and cross-bar C, and the belly-band H, passed around said body A, through said loop G, substantially as and for the use and purpose specified.

197,528. BUTTON-HOLE SEWING-MACHINES. F. E. Schmidt, Brooklyn, N. Y. Filed Sept. 13, 1877.



1. The combination, with the feed wheel B, provided with the grooves *a* and *b*, of the lever D, provided with the adjustable projection L, sliding feed-dog C, levers H and J, and connecting-rod I, as and for the purposes specified.

2. The sliding feed-dog C, combined with the intermediate lever D, operating lever E, and with the shaft F, having the toes *l* and *m*, substantially as specified.

3. The intermediate lever D, provided with the adjustable screw or projection L, and combined with cam B, having groove *a*, and with the setting lever H, rod I, regulating-lever J, and spring M, substantially as herein shown and described.

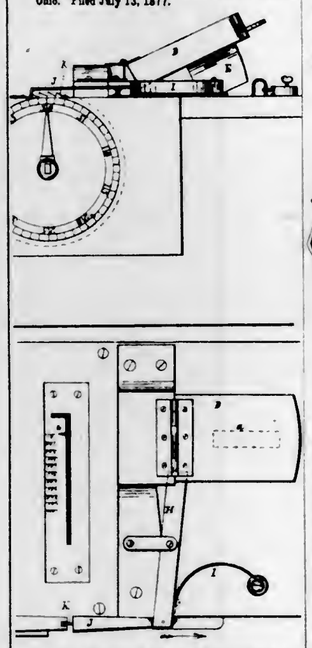
4. The lever J, combined with the lever D, having a projection, L, with the cam B, having groove *a*, with the rod I, lever H, and spring M, the rod I being slotted to allow a certain amount of independent play to the lever J, substantially as specified.

5. The sliding brake-dog G, having the pin *p*, entering the feed-groove *b* of the wheel B, and combined with the spring *q* and regulating slide *r*, substantially as specified.

6. The combination of the regulating-slide *o* with the intermediate lever D, projecting screw L, feed-dog C, regulating-levers H and J, rod I, and grooved wheel B, substantially as specified.

7. The combination of the fixed stop *s* with the operating-lever E, intermediate lever D, feed-dog C, and spring *e*, substantially as herein shown and described.

197,529. BALLOT-BOXES. William Siddall, Pioneer, Ohio. Filed July 13, 1877.



1. In combination with the ballot opening or slot *a* of a ballot-box, the hinged check or guard F, spring G, tongue E, and hinged cover D, substantially as described, and for the purpose set forth.

2. The lever H, spring I, and pawl J, in combination with the hinged cover D and ratchet-wheel K, in the manner substantially as described, and for the purpose specified.

197,530. DOOR-CHECKS. Justus A. Treat, New Britain, Conn., and J. A. Maass, New York, N. Y. Filed Oct. 25, 1877.

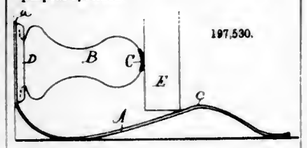
Brief.—The body of the stop is made of a single piece of sheet metal bent into the desired shape, with outwardly-extending arms, which arms slip into, and engage with, two open-end boxes formed in the base-plate, a short elastic band fitting closely over the center, to serve as the cushion or buffer. There is also in the combination a band of spring-steel having one vertical arm, passing under and secured by the same screw as the base-plate, and the other portion forming a horizontal arm, resting on the floor, its free end curved slightly upward, and formed with a projection for engaging the edge of the door, to hold it in desired position.

1. In a door-check, the sheet-spring body B, having arms *d d*, in combination with the base D, having open-end boxes *h*, for the reception of the arms *d d*, substantially as described, and for the purpose specified.

2. In a door-check, the sheet-metal body B, in combination with the elastic band C, surrounding the metal, substantially in the manner described, and for the purpose specified.

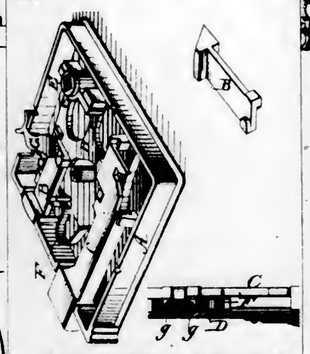
3. The door-securer A, consisting of spring metal, having projection *e* on the floor-arm and screw-hole in its vertical arm, in combination with a door-check binding the arm *a* in place, substantially as described, and for the purpose specified.

197,530.



197,531. COMBINED LOCK AND LATCH. John Vetter, Springfield, Ohio. Filed Oct. 12, 1877.

Brief.—The yoke and tumbler are in one piece, which has a vibrating and sliding motion.



1. In a combined lock and latch, a yoke for operating the latch-bolt and a tumbler for fastening the lock-bolt, made in one piece, substantially as described and shown.

2. In a lock and latch, a combined yoke and tumbler, D, having a pivotal motion to actuate the latch-bolt, and a sliding motion to secure and release the lock-bolt.

3. The combination of the case A, provided with a stud or studs, *g*, latch-bolt B, locking-bolt C, spring F, and the combined yoke and tumbler D, substantially as shown.

4. The combination of the yoke D, reversible latch B, pivoted stop G, and the spring F, substantially as shown.

5. In combination with the yoke D and the reversible latch connected thereto, the pivoted stop G, serving to maintain the connection between the yoke and latch, and also to prevent the retraction of the latter.

6. In combination with the latch-bolt, having the studs *a a* on opposite sides and at opposite edges, the yoke, having an opening to receive said studs, and the pivoted stop G and its actuating spring, as shown.

7. The combination of a swinging yoke, having the latch-bolt attached, a stop, G, to prevent the retraction of the latch-bolt, and a spring bearing at opposite ends against the yoke and stop, and serving to operate them both, substantially as shown.

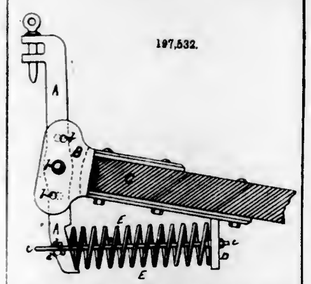
8. In a combined lock and latch, a single spring, arranged to operate the yoke and tumbler, and stop, substantially as shown.

197,532. STREET-CAR DRAW-BARS. Jas. R. Walsh, St. Paul, Minn. Filed Oct. 13, 1877.

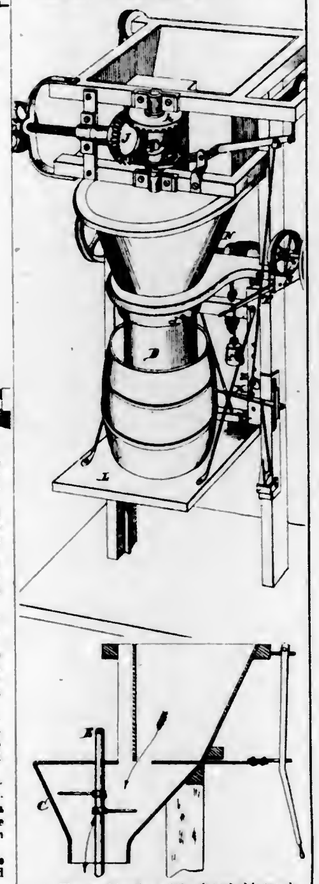
1. The hanger or frame B, secured to the platform C, in combination with the adjustable lever A, arranged and operating substantially as described.

2. The combination and arrangement of the looped rod *c*, spring E, and adjustable lever A, substantially as described.

197,532.



197,533. FLOUR-PACKERS. Frederick Wolf, Cincinnati, Ohio. Filed Nov. 27, 1875.



1. The combination of the detachable trunk D, the hopper-gate B, the intermediate funnel C, expanding toward the top and communicating with the trunk at its contracted lower end *c*, and the shaft E, provided with arms *a*, arranged in the funnel above the lower end thereof, all as set forth.

2. The combination of the sliding platform L M, the screw-shaft E, driving-pinion *h*, clutch H, and connecting mechanism whereby the said clutch is operated on the movement of the platform, substantially as set forth.

3. The combination of the sliding platform, winding-drum N, and connecting chains or bands secured through the medium of a yielding or spring coupling to the platform, as set forth.

4. The combination of the sliding platform of a flour-packer, a balance-weight and cord, and a drum of gradually-increasing diameter, whereby the leverage exerted by the weight increases in proportion to the increased weight upon the platform, as set forth.

197,534. GROUND-PLATE ATTACHMENTS FOR CAMERA-OBSCURAS. Lorenzo Wright, Pawtucket, R. I. Filed Apr. 25, 1877.

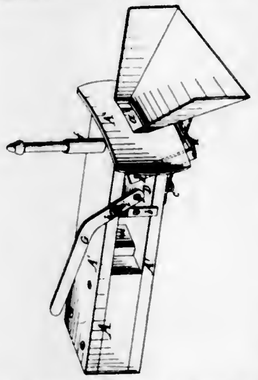


1. In combination, substantially as specified, the adjustable focus-glass *a*, consisting of two frames—an outer frame, F, and an inner frame, *c*—the inner frame, containing the ground glass, being adjustable by applying the screws *a*, or equivalents, by means of which the ground glass is carried forward or backward, and a coincidence of foci obtained, in manner and form, and for the purposes, set forth.

2. In combination, substantially as specified, with the adjustable focus-glass A and outer glass-frame F, the inner adjustable glass-frame *c*, in manner and form, and for the purposes, set forth.

3. In combination, substantially as specified, with the adjustable focus-glass A, outer glass-frame F, and inner glass-frame *c*, the screw *a*, slot *e*, guide-lug *f*, and metal plate *d*, all in manner and form, and for the purposes, set forth.

197,535. CAR-COUPLINGS. George M. Young, Montgomery, N. J. Filed Nov. 8, 1877.

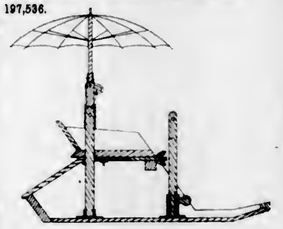


A swinging scoop, hinged to the under side of a draw-head, to direct the coupling-link into said draw-head, in combination with a sliding block, located between the parallel bars A' of said draw-head, to sustain the coupling-pin, and a strap, *d*, operating under the hinge-extension *c'*, to raise said scoop, substantially as and for the purpose described.

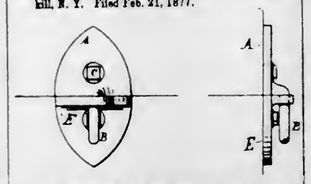
197,536. UMBRELLA-SUPPORTS FOR VEHICLES. J. H. Andrus and Thos. L. Hammond, Waverly, Iowa. Filed Sept. 18, 1877.

The combination, with the jointed shade-staff, the upper section arranged to rest upon the lower section, the slotted ears, and clamping-bolt, of the horizontal clamping-rod located beneath the wagon-seat, and adapted to adjust the relative position of the staff by means of a thumb-screw, substantially as set forth.

197,536.

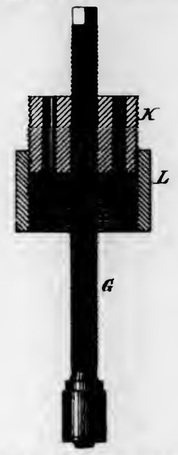


197,537. MOLDERS' FLASKS. Asbury Barker, Peekskill, N. Y. Filed Feb. 21, 1877.



In a molder's flask, the combination of plate A having pin B, plate E having flange D, with orifice for pin B, and screw C having conical shoulder *c'* and square portion *c*, plates A and E, each having countersunk holes *c* and spurs *d d*, as and for the purposes set forth.

197,538. APPARATUS FOR AND PROCESSES OF EXTRACTING CASINGS FROM OIL AND OTHER WELLS. William T. Beam and Andrew Shidel, Franklin, Pa. Filed Nov. 3, 1877.



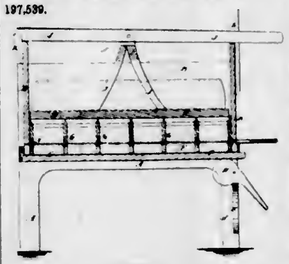
1. The mode of supporting and suspending the casing of a well, which is located between the interior tubing and outer casing of said well upon said tubing, so that the exterior casing may be withdrawn from the well, substantially as shown and described.

2. The combination of the cylinder L, cylinder block K, and shaft G, the whole forming a device for supporting the casing of a well upon its interior tubing, substantially as shown and described.

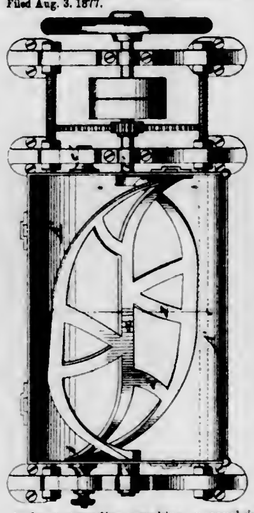
197,539. BRICK-MAKING MACHINES. Wm. J. Blair, Oil City, Pa. Filed Aug. 24, 1877.

The combination of the pivoted bottom C, the cam D, the mold F, the guide-partitions G, the follower H, the standard I, and the lever J with the box B and the frame A, substantially as herein shown and described.

197,539.



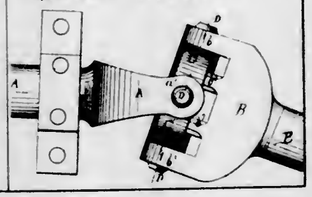
197,540. KNEADING-MACHINES. Ovide Boland, Paris, France, assignor to Eugene L. Touret, same place. Filed Aug. 3, 1877.



1. In a kneading-machine, a revolving kneader or mixer, constructed of short end shafts, and of spirally-curved and braced blades, that connect the shafts and the ends of fixed arms, which extend in radial but diametrically-opposite directions from the shafts, substantially in the manner specified.

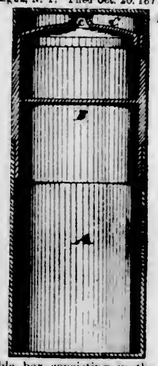
2. A revolving kneader or mixer, constructed of short end shafts, with beveled arms extending radially but in diametrically-opposite directions therefrom, and of three spirally-curved and transversely-braced blades, of which the middle blade extends from the end of one of the arms along the axis of the shafts to the end of the opposite arm, while the outer blades extend from the ends of the shafts, respectively, to the outer ends of the opposite arms, substantially as and for the purpose described.

197,541. UNIVERSAL JOINTS. Phineas Burgess, Brooklyn, E. D., N. Y. Filed Sept. 6, 1877.



A universal joint in which the flattened ends of the parts A B of the shaft have inner lugs a^1 b^1 formed upon them, at such a distance from the outer or ordinary lugs a^1 b^1 as to rest against the inner side of the coupling-ring C, interposed between them and the said outer lugs, and receive and support the inner ends of the coupling-bolts D, substantially as herein shown and described.

197,542. BOXES OR PACKAGES. Myron A. Carman, Canandaigua, N. Y. Filed Oct. 20, 1877.



A double box consisting in the combination, with the lower box-section having an open top, of the upper box-section, adapted to seat therein, said upper box-section being made with a close top, formed with the small discharge-opening therein, substantially as described.

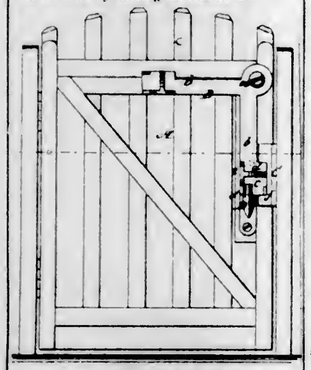
197,543. BASIN-STOPPERS. H. W. Carnes, Brookline, Mass. Filed Oct. 20, 1877.



The lever C, in combination with the stopper B and the strainer A of a wash basin, connected together and operating in the manner and for the purpose substantially as specified.

197,544. GATE-LATCHES. William H. Carpenter, St. Joseph, Mo. Filed Sept. 10, 1877.

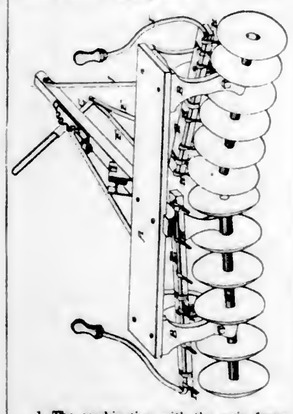
Brief.—The catch-plate C acts as a stop to the gate, and the lugs *f f* limit the vibration of the latch by striking the retainer D.



The rectangular reversible latch, constructed with fins *d* and lugs *f f*, in combination with the flanged catch-plate C and retainer D, substantially as described.

197,545. WHEEL-HARROWS. Jay S. Corbin, Gouverneur, N. Y. Filed May 14, 1877.

Brief.—The disk-gangs have separate pivotal bearings in hangers firmly bolted on the main frame, and are adjusted in the line of draft by a pawl and ratchet and rods from the inner ends of the gang-shafts.



1. The combination, with the main frame, of hangers, rigidly connected thereto, and independent disk-gangs, vibrating upon the hangers, substantially as set forth.

2. The combination, with the main frame, of hangers B B, rigidly attached thereto, and independent disks-gangs, pivoted to the lower ends of said hangers, and vibrating in both horizontal and vertical planes, substantially as set forth.

3. In combination with the main frame and the disk-gangs, the hangers B B, provided with the enlarged pivot bearings or seats, and the thimble-bearings *b b*, provided with pivots, which are supported in said seats, substantially as set forth.

4. The combination, with a gang of rotating harrow-disks, of a revolving scraper-bar, placed in a different plane from the disk-shaft, to permit the scrapers to enter the concave side of the disks, substantially as described.

5. The combination, with a gang of rotating harrow-disks, of a lever, connected to the gangs for setting the same at an angle with the line of draft, substantially as described.

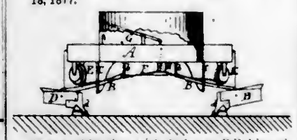
6. The combination, with a gang of rotating harrow-disks, of a lever for setting the same at an angle with the line of draft, and a rack and dog for holding the disks in position when set, substantially as described.

7. In a wheel harrow, the disks attached to an axle by means of an irregular hole through the center of the disk, which permits it to touch the axle in but two points, and a tapering wedge, the two points and the wedge being equidistant, substantially as described.

8. The combination, in a wheel harrow, of independent disk-gangs, a lever, G, and connecting-rods F F, one or both rods being provided with holes *f*, whereby the inner end of one disk-gang may be arranged in advance of the inner end of the other disk-gang, substantially as set forth.

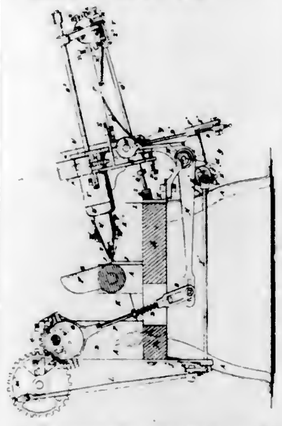
9. The combination, in a wheel harrow, of the main frame A, hangers B B, thimbles *b b*, connecting-rods F F, lever G, and scrapers H H, substantially as described.

197,546. TRACK-CLEARERS FOR STREET-RAILWAYS. Peter Diemer, Cleveland, Ohio, assignor of one-half his right to Joseph Stanley, same place. Filed Oct. 18, 1877.



The combination, with the levers B B, hinged or pivoted to the short brackets *b b*, and having the mold-boards attached to their rear ends, of the double-grooved wheels E E, cords or chains F F, pulley H, and lever G, all constructed and arranged to operate substantially as and for the purpose set forth.

197,547. RAIL-PLATE FEEDERS. William H. Field, Taunton, Mass. Filed Aug. 18, 1877.



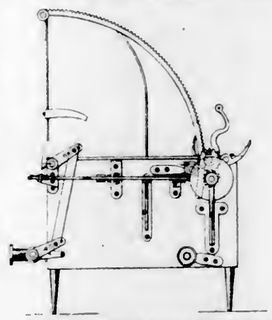
1. The combination, with barrel-bracket, of lever N and spring O', the latter pivoted to the arm of the former, as and for the purpose described.

2. The spring V, constructed in the form of a staple, as and for the purpose specified.

3. The rod P, arranged to slide in socket O, and upheld by a spring, R, as and for the purpose specified.

4. The combination of the rod Q', the cam-lever U', the spiral spring X', the set-screw Y', the two set-screws Z', and the spring A^1 with the jaws V W and the bar P', substantially as herein shown and described.

197,548. WOOL-RIPPING MACHINES. Benjamin Hall, Norwich, Conn. Filed July 11, 1877.



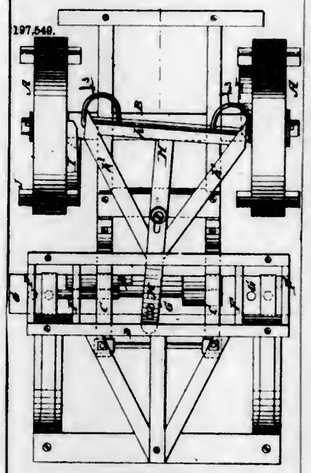
An inner perforated tank, combined with an outer tank or box, having a rotary water-gate attached thereto, by means of which water is admitted, a rotary motion being given to the water by the curved end of tank, the water thus rinsing wool or other stock, and escaping by overflow, all arranged substantially as described.

197,549. CORN-PLANTERS. Allen F. Hall, Omega, Ill. Filed May 21, 1877.

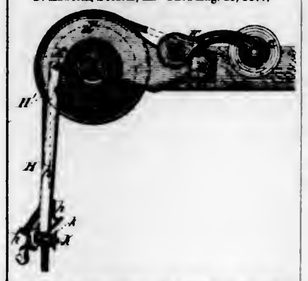
Brief.—The driving-wheels have secured to their inner sides semicircular cams, that are so placed that as one disengages with the dropping-slide lever the other engages, thereby imparting an intermittent movement to the slide.

In a corn-planter, the wheels A, provided with the semicircular distance-measuring cams I, combined with and constructed to hold the dropping-slide levers H, and insure a uniform distance between the hills, as set forth.

197,549.



197,550. PULLEYS FOR CHECK-ROW CORDS. George D. Haworth, Decatur, Ill. Filed Aug. 25, 1877.



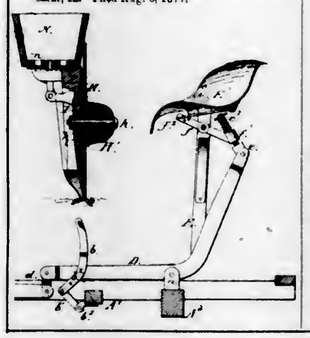
1. The combination, with the pulley-holder, of the laterally-vibrating guide or arm, substantially as and for the purpose described.

2. The laterally-swinging guide or arm H, pivoted to the pulley-holder, and provided with the rollers *k k* at its outer end, substantially as described.

3. The combination, with the pivoted pulley-holder, of a secondary guiding sheave or pulley, G, applied to said pulley-holder, and operating substantially as described.

4. The combination, with the pulley-holder, D, of the pivoted guide or arm H, and the secondary sheave or pulley G, attached to said holder, substantially as and for the purpose set forth.

197,551. CORN-PLANTERS. George D. Haworth, Decatur, Ill. Filed Aug. 6, 1877.



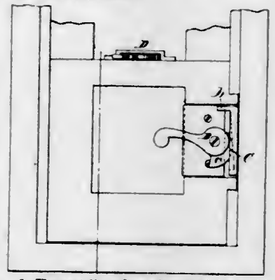
1. The rotating colter H, provided with the hollow or dished hub H', having the central spindle or axle-pivot *k*, formed in one piece therewith, in combination with the tapering perforated journal I' and through-bolt *k'*, substantially as described.

2. The bent lever D, by means of which the main frame is adjusted, as described, in combination with the toggle-lever *b b'*, for adjusting or controlling and locking said seat-lever, substantially as described.

3. The seat E', pivoted in the standard E, in combination with the adjusting-lever D, intermediate lever *f*, and connecting-links *e e'*, arranged and operating substantially as described.

4. The spirally-threaded rotary cleaners Q Q', arranged and operating in combination with the ground-wheels B B, as described.

197,552. BASE-HOLDERS. David O. Hink, Maryville, Mo. Filed Sept. 14, 1877.



1. The part C, made as described, in combination with the cam-lever B, as and for the purpose specified.

2. The combination of the cam-lever B and keeper F, having the wedge-shaped recess, as herein shown and described.

197,553. HORSESHOES. Henry L. Homan and George W. Homan, Easton, Mo. Filed Oct. 19, 1877.

The combination of the grooved screw-shanked calks with the shoe and the securing-wedge, substantially as and for the purpose set forth.

197,554. WIRE STANDS FOR PICTURE-HOLDERS. W. J. Johnson, Newton, Mass. Filed Apr. 7, 1877.

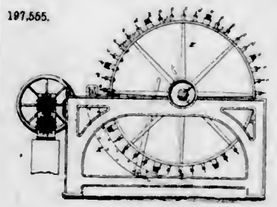


The wire stand or easel herein described, having legs *b b d* formed of twisted wire, and provided with springs *a*, adapted to receive and retain a card or similar thin article, substantially as set forth.

197,555. MACHINES FOR EXTRACTING FIBERS FROM PITA. Carlos De La Baquera, New York, N. Y. Filed Sept. 10, 1877.

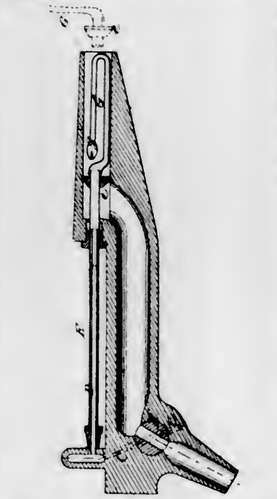
The roll E, having the scutching blades *c*, combs *d e*, and brushes *k*, constructed and arranged substantially as described, in combination with the adjustable concave K, as and for the purpose specified.

197,555.



197,556. BEER-FAUCETS. Ole H. Larson, Fort Dodge, Iowa. Filed Oct. 6, 1877.

Brief.—The floating ball is ejected by the sliding tube.



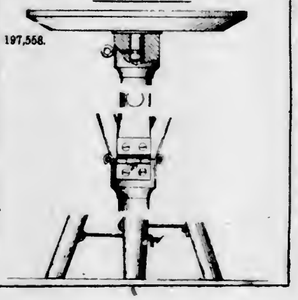
The combination, in a faucet, with the fixed tubes *b* D and the flexible tube G, having end float, of the sliding plunger-tube E *c*, arranged and operating as and for the purpose specified.

197,557. FAUCETS. Frank C. Lillis, Lockport, N. Y. Filed Oct. 25, 1877.



In a locking-faucet, the combination of the barrel A, fixed nut E, and screw-plug F with the packing H and thimble I, all arranged, constructed, and operating substantially in the manner and for the purpose set forth.

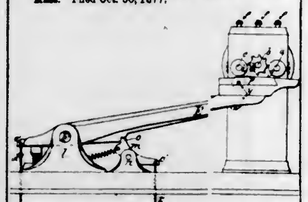
197,558.



197,558. FOLDING STOOLS. Elisha Matteson, Norwich, Conn. Filed May 7, 1877.

A camp stool or portable seat having three legs hinged to a pedestal, which is provided with a movable seat, secured in position by a set-screw, and with braces for holding the legs in position, the whole being constructed so as to be folded together, in the manner and for the purpose shown and described.

197,559. MACHINES FOR FINISHING WELT-SEAMS. John G. McCarter, Milford, and Edgar L. Wheeler, Hudson, assignors to Ambrose Eastman, Boston, Mass. Filed Oct. 30, 1877.



1. The longitudinally-fluted rubbing-wheel A, in combination with the wheels *g* and *i*, and horn E, substantially as and for purposes stated.

2. The wheels *g h i*, in combination with the horn E and setting up wheel *x*, substantially as described.

3. In a machine for finishing the welt-edges of boots or shoes, the combination, with the work-supporting horn, and feeding, trimming, and finishing devices, of a blacking reservoir, carried by the horn, and means for conveying the blacking from the reservoir to the welt-edges, substantially as described.

4. The yielding horn E, in combination with the wheels *g h i*, substantially as and for purposes stated.

5. The combination, with the upper yielding, pressing, and feeding wheels, of the oscillating work-supporting horn, and a locking device which, when in position, holds said horn rigidly up against the upper yielding wheels.

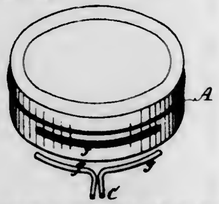
6. The combination, substantially as set forth, of the wheels *g h i*, with the horn F and the wheel *x*, and knife *p* mounted thereon, and the device for locking said horn rigidly in working position, these parts being arranged for joint operation, as set forth.

197,560. PIPE-CLAMPS. Patrick W. Meehan, Providence, R. I., assignor to Saml. M. Smith, same place. Filed July 16, 1877.



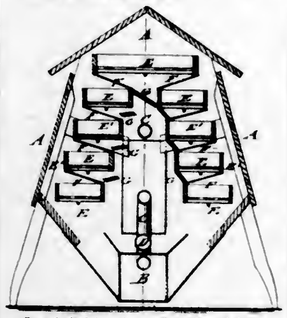
The sleeve *b*, tapering each way from the middle, having serrations arranged annularly over its entire length, the barbed edges of which, on each side of the central line, are turned inwardly, for the purpose of holding the ends of the hose or pipe, substantially as described.

197,561. BLACKING-BOXES. Charles H. Morse, Rochester, and Marion Sholes, Brockport, N. Y. Filed Oct. 12, 1877.



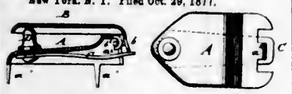
The box A, constructed with the groove *f* struck into its side, and the handle C, constructed with the segmental shank *g*, said shank fitting in said groove flush with the exterior surface of the box, and soldered in place, as herein described.

197,562. FRUIT-DRIERS. Samuel Myers, Adamsborough, assignor to himself and W. D. Plott, Sharpsville, Ind. Filed Sept. 29, 1877.



In a fruit-drier, the combination of the casing A, having central heater B, and perforated air-supply pipe, with the sliding drawers or trays E, arranged at some distance from the side of the case, and relatively as shown, intermediate diagonal partitions F, and pivoted valves or heat-gages G, for regulating the heat according to the condition of the fruit on the trays, substantially as and for the purpose set forth.

197,563. CLASPS FOR POCKET-BOOKS. Louis Prahar, New York, N. Y. Filed Oct. 29, 1877.



The hook a^2, formed upon the rear end of the lower plate A, and the loop or keeper b^2, formed upon the tail b^1 of the top plate B, in combination with the said plates A B and with the spring C, substantially as herein shown and described.

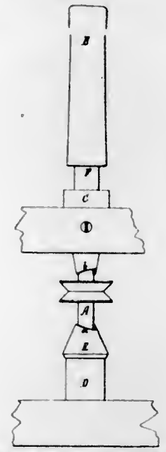
197,564. ROOFS. Samuel H. Reed, Greensburg, Pa., assignor to himself and West Guffy, same place. Filed Oct. 6, 1877.



The gutter C, formed by making in a sheet of metal the fold *e*, as herein shown and described.

197,565. SPINDLE BOLSTERS AND STEPS FOR SPINNING-MACHINES. George Richardson, Lowell, Mass. Filed Jan. 23, 1877.

Brief.—The bolster is provided with a tubular guard, extending upward upon and encompassing the spindle, to prevent waste of oil and damage of bobbin. The step-cover is chambered, grooved, and extended downward into oil-chamber, to prevent escape of oil. This cover, as well as the upper and lower ends of the bolster, is helically grooved, to prevent filaments or waste working into the bearings.



1. The step-cover E, constructed with its upper end formed with a helix curve, or oblique or inclined to the axis of such cover or that of the spindle, substantially as and for the purpose set forth.

2. The bolster C, having either or each end formed with a helix curve, or oblique or inclined to the axis of bolster or to that of the spindle, substantially as and for the purpose set forth.

3. In combination with a spindle, A, and bolster C, and with a bobbin B, therefor, chambered at its lower end, and provided with an adhesive spindle-bearing extending from and over such chamber, a tubular guard, F, open at its upper end and extended up from the bolster, and encompassing the spindle without any contact therewith or any bearing therefor, or serving directly or indirectly as a support thereto.

4. In combination with the open step D, and with the spindle A, provided with the groove *g*, arranged in it, as set forth, the cover E, chambered around the said groove and the spindle-pivot, and extended down within, and opening into, the oil-chamber of the step, all substantially as shown and described.

197,566. MACHINES FOR MAKING HORSESHOES. A. J. Roberts, Boston, Mass. Filed Mar. 27, 1877.

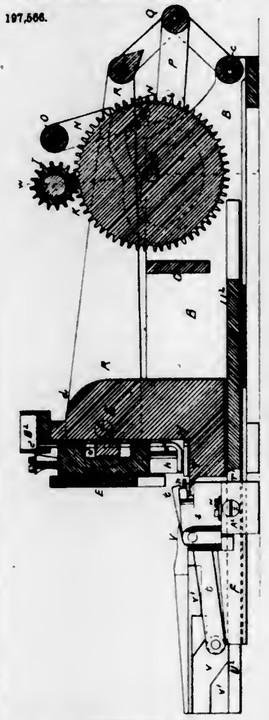
Brief.—The bar is fed to the machine at a plane lower than that in which the former reciprocates, and the severed portion is raised to the plane of operation of the former by the mechanism specified in the second claim. Side dies surround and sustain the shoe while it is being pressed, punched, and creased. A long rod, which moves forward as the former moves backward, and vice versa, discharges any shoe that adheres to the side dies, and a forked lever knocks off the shoe from the former. The perforated ends of the water-tubes surrounding the punching and creasing die are covered with felt.

1. The cams L M and W W of a common shaft, H, in combination with the punching and creasing die-head S, which is connected with cam L through toggle-lever frame Q, connecting-rod P, and lever N, the sliding former V, which is connected with cam M through slide-bar U^3 and lever U, and the side formers Y, carried by levers X, which are operated upon by the cams W W, all as described, and as and for the joint operation specified, upon a metal bar to form and make the same into a horseshoe, as described.

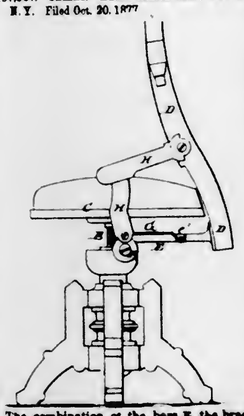
2. The arm a^*, having abutment b^*, combined with the bar cut-off lever *f*, so as to receive the bar as cut off, and to lift it into the plane of operation of the horseshoe-former V, all as described, for the purpose specified.

3. The vertically-moving head-block S, constructed with the punching-die k and pressing-face, in combination with the former V, anvil T, formers Y, the pusher-rod l^*, lever U, and the cam K, the whole constructed and arranged to operate substantially as described.

197,566.



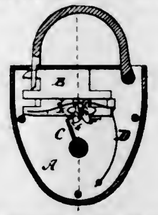
197,567. CHAIRS. Martin Schravendeel, New York, N. Y. Filed Oct. 20, 1877.



The combination of the bars E, the brackets F, and the springs G with the back D and the seat C of a chair, and whether the arms H be used or not, substantially as shown and described.

197,568. PERMUTATION-LOCKS. Martin Schwaemler, New York, N. Y. Filed Sept. 4, 1877.

Brief.—A projecting finger is pivoted to the bolt, and when it snaps into a notch on the key, (after the requisite number of rotations,) it constitutes the lever by which the bolt is moved.



1. The combination of the lock-bolt B with the finger E pivoted thereto, and with the friction-spring *d*, which acts on said finger, substantially as herein shown and described.

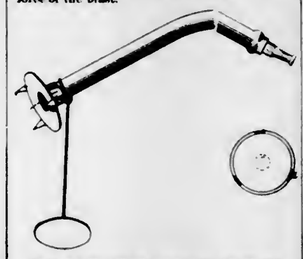
2. The combination of the lock-bolt B and pivoted finger E with the star-wheel F, substantially as herein shown and described.

3. The combination of the lock-bolt B, pivoted finger E, and star-wheel F with the mark *g* and aperture *h* in the face-plate, substantially as herein shown and described.

4. The combination of the lock-bolt B, pivoted finger E, and rabbeted key C with the spring-pin *i* for entering a cam-groove in said key, substantially as herein shown and described.

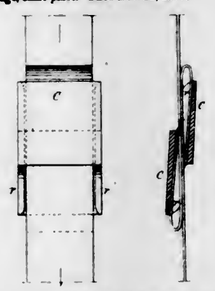
197,569. BLOWING-TOYS. Thomas S. Seabury, St. James, N. Y. Filed Oct. 26, 1877.

Brief.—Forcibly blowing through the mouth-piece, with the bottom plate closed by the disk, holds the same firmly in place against the action of gravity, and apparently against the force of the blast.



The combination of a plate-like holder, provided with a central opening through it, with a nipple, and a tube of flexible material connected with the nipple of said holder, and provided with a mouth-piece, substantially as and for the purpose specified.

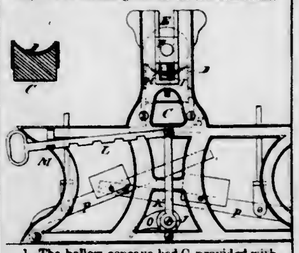
197,570. BALE-TIES. William Silvester, Pittsburg, Pa., assignor of one-half his right to Walter Armitage, same place. Filed Nov. 12, 1877.



A socket for bale-ties, having the two wings *e e* connected at their rear part, and having ribs *r r*, as described, and for the purpose specified.

197,571. CLOTH-FINISHING MACHINES. Herman Springborn and Christian H. Bank, Holyoke, Mass. Filed Sept. 20, 1877.

Brief.—The invention is an improvement upon Patent No. 193,193, granted July 17, 1877; and consists in combining with the hollow concave bed a detachable jacket of unoxidable metal, which covers the top and sides of the bed, and in a locking device for the cam-shaft.



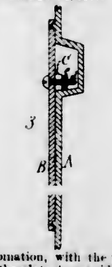
1. The hollow concave bed C, provided with a detachable sheet-metal jacket, D, covering the top surface and sides of said bed, as and for the purpose set forth.

2. The combination, in a cloth-finishing machine, of the notched bar L, keeper M, and lever K with the cam-shaft J, cam O, and weighted levers P, as and for the purpose described.

197,572. BRONZING ARTICLES OF IRON. J. M. Spring, New Britain, Conn., assignor to P. & F. Corbin, same place. Filed Nov. 11, 1876.

The method herein specified of producing an artificial bronze surface upon iron, consisting in smoothing and coloring the surface by brass rubbed upon the iron, and then retaining the same and finishing the surface by a coating of varnish.

197,573. PANEL-FASTENINGS FOR STOVES. Gaylord S. Stanard, Buffalo, N. Y., assignor to Jewett & Root, same place. Filed Nov. 1, 1877.



The combination, with the panel or ornament B, of the plate A, provided with recess C, having lips *f f* and screw-bolt *d*, substantially as and for the purpose hereinbefore set forth.

197,574. COMPOSITIONS FOR PRODUCING SULPHURETED HYDROGEN. Chauncey R. Stuntz, Columbia Township, Hamilton County, Ohio. Filed Nov. 18, 1876.

Brief.—When the gas is prepared in fragile vessels, the powder is mixed with from one-half to two-thirds of its weight of inert sand or clay, which renders the residual coke friable, so that it can be removed with safety.

A composition powder for the production of sulphureted hydrogen, consisting of coal-tar and sulphur, substantially as described.

197,575. BOOK-STITCHING MACHINES. Carl Theiss, Minden, Prussia, Germany. Filed July 30, 1877.

Brief.—The material to be stitched is fed forward to the action of the needle by means of adjustable upper and lower feed-belts, held in place by laterally-adjustable guides and presser-rolls. A lubricating-receptacle, provided with an aperture at its lower end, is secured to the presser foot, through which aperture the needle reciprocates, being thereby covered over its entire surface with said lubricant, facilitating its passage through the material.

1. The combination, with the reciprocating needle, of a lubricating receptacle attached to the presser-bar, and having an aperture at its lower end for the passage of the needle, substantially as and for the purpose set forth.

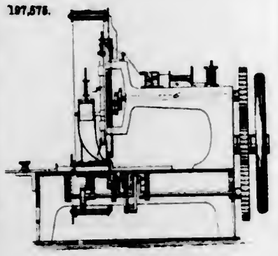
2. The combination, with the needle, of a tapering lubricating-reservoir, having an aperture at its lower end for the passage of the needle, and a spring-acted piston at its upper end, for keeping up a regular supply of the lubricant, substantially as set forth.

3. The combination, with the presser-foot and feed plate, of adjustable upper and lower feed-belts, substantially as and for the purpose set forth.

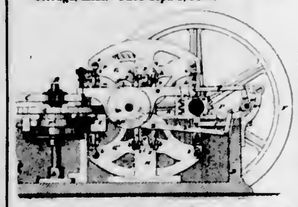
4. The combination, with the presser-foot and feed plate, of adjustable upper and lower feed-belts, and of fixed and laterally-adjustable guides, substantially as specified.

5. The combination of the feed-plate, presser-foot, and upper and lower feed-belts with side guides, and with pressure-rolls bearing on the upper feed-belt, substantially as set forth.

197,576.



197,576. BRICK-MACHINES. Zéphirin Vanier, Westborough, Mass. Filed Sept. 1, 1877.



1. The fly-wheel F, shaft E, cams a a', and toggle-arms I, I', in combination with mechanism for throwing the toggle-arms into engagement with the cams at intervals, as shown and described.

2. The combination of the narrow toggle-arm I', narrow-faced cam a', the wide-faced cam a, toggle-arm I, having the lip f, the beams G G', and followers J J', for pressing the clay in the molds and loosening it therefrom, substantially as shown and described.

3. The cam M, lever o', arm b', lever w, and connecting-rods c c', in combination with the toggle-arms I, I' for throwing them into engagement with the cams a a', substantially as shown and described.

4. The combination, in a brick-machine, of the rocking beams G G' and the vertically-reciprocating followers J J', arranged and operating, as herein described, with the intermittingly-rotating table A, having pairs of molds a, as and for the purpose specified.

5. The combination of the cam B', sliding bar r³, carrying the roller r⁴, and rack r², the drum r¹, ratchet q', spring-pawl s², and table A, substantially as shown and described.

6. The bolt b², table A, and the sliding bar r³, having the lug a², in combination, substantially as herein shown and described.

7. The combination of the plate r⁵ with the table A, substantially as shown and described.

8. The pin s², projecting from the beam G, and the lever Q, in combination, substantially as and for the purpose shown and described.

9. The table S, carrying the roller j, drum k', and endless belt l', the wheel U, and pulley s', in combination, substantially as shown and described.

10. The wheel M, having the roller p', and cam-lever o', in combination with the table S, for giving the table an intermittent vertical motion, substantially as shown and described.

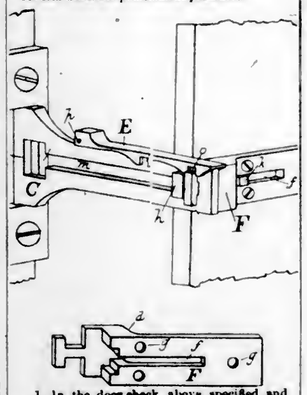
11. The convex projections k, formed on the beams G G', for receiving the blocks s and toggle-arms L L', substantially as shown and described.

12. The springs d, in combination with the shafts c of the beams G G', substantially as shown and described.

13. The blocks f, L-shaped supports h, having angular bearings i, and the shaft e, having the rounded projections e, and rolling on a flat surface, as described, in combination, substantially as shown.

197,577. DOOR-CHECKS. Charles S. Whipple, New London, Conn., assignor to himself and Geo. W. Goddard, same place. Filed Sept. 27, 1877.

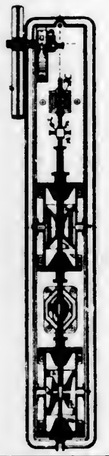
Brief.—As an improvement on Patents Nos. 189,823 and 189,823, April 17, 1877, the combination includes an additional short bar having a T-shaped head, and moving along a suitable slot and recess of the T-latch; and there is also double-notched stop-latch pivoted near the inner end of the slotted arm, upon the top thereof, and adapted to hold the door open in several different positions at pleasure.



1. In the door-check above specified and analogous devices, the combination of the short bar, having a T-head, h, and shoulder k, with the T-latch F, having a slot, f, and recess e, for use with a slotted arm and hinge, substantially as and for the purpose described.

2. In the door-check above specified and analogous devices, the stop-latch E, pivoted at p, and having one or more notches, o, upon both sides of the arm C, substantially as and for the purpose described.

197,578.



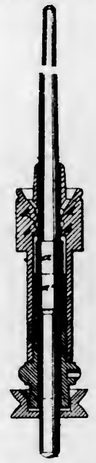
197,578. STEAM-PUMPS. Wilhelm Weyhe, Bremen, Germany. Filed Sept. 13, 1877.

1. In a steam-pump, the combination, with channeled pistons operating in pairs in axially-opposite cylinders, and having a rod provided with a spur, of a fixed slotted guide-plate and a pivoted spring-pressed plate or shuttle, operating on the piston-rod connecting the pair of pistons to effect the rotation of the latter, thereby reversing the action of the fluid in the cylinders, substantially as and for the purpose herein set forth.

2. The combination, in a steam-pump having the steam and pump pistons attached to a reciprocating and oscillating piston-rod, of a steam-piston consisting, essentially, of an expansible shell having channels upon its surface, for conducting live and exhaust steam to and from the ends of the cylinder, the fixed and adjustable end heads, and suitable adjusting and retaining devices, substantially as and for the purpose set forth.

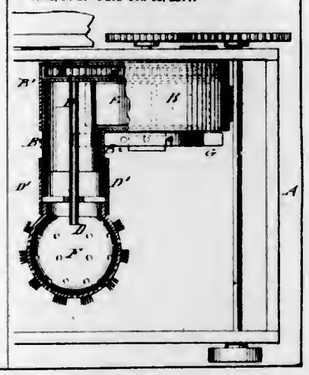
197,579. SPINDLES AND THEIR BEARINGS. James White, North Adams, Mass. Filed May 12, 1877.

Brief.—The collar or shoulder, with its bearing resting upon the surrounding box, acts as a valve or stop to prevent the oil from the chamber above flowing down along the spindle, except at such times as may be desired.



A spindle having a collar or shoulder resting on the lower bearing of the surrounding box, and acting as a valve or stop to prevent the oil from flowing down along the spindle, substantially as set forth.

197,580. DISH-WASHERS. George F. White, Middletown, N. Y. Filed Oct. 10, 1877.



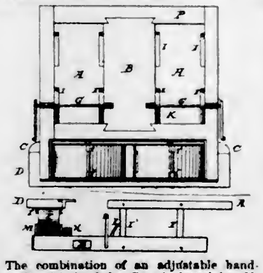
1. In a dish-washing machine, the combination of the adjustable casing B, having a fixed tube, B', the revolving perforated brush-head F, having a driving-shaft, D, and tube D', and the revolving paddle-wheel E with the water-receptacle A and suitable mechanism or gearing for actuating the brush-head and paddle-wheel, substantially as and for the purpose set forth.

2. The combination of the adjustable casing B, having a gaged entrance-opening for the water, fixed extension-tube B², and interior revolving paddle-wheel E with a tube, D', and brush-head or wheel, attached thereto and revolved on the tube B² by a central spindle geared with the shaft of the paddle-wheel, substantially as specified.

3. The combination of the swinging casing B with a perforated band or support, G, of the dish-washer, and with a suitable locking device for securing the casing at any suitable inclination, substantially as and for the purpose described.

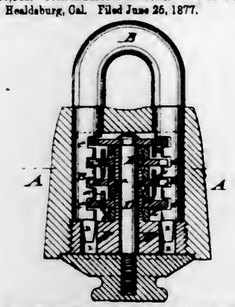
197,581. BOOK-SUPPORTS. Isaac Witwer, New Holland, Pa. Filed May 28, 1877.

Brief.—A book-support composed of three parallel sections has its outer sections independently and vertically adjustable, in order that a book laid thereon may have the upper surface of its two sides in the same horizontal plane. A hand-rest, also vertically adjustable, is attached to the same frame, and has a projecting edge, which overlaps and holds open the bottom edge of the book.



The combination of an adjustable hand-rest, D, with its ledge C and slotted bar M, the independently-adjustable side tablets A A, pawl K, and shaft G, and central piece B, arranged and operated substantially as and for the purpose specified.

197,582. COMBINATION-PADLOCKS. Wm. R. Young Healdsburg, Cal. Filed June 26, 1877.

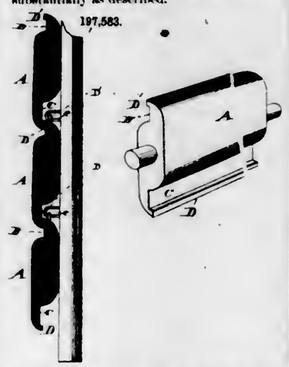


In combination with the case A of the padlock, the end plate D', having the recesses x x, and screw-threaded on its circular edge, the notched shackle or staple B, having the end projections z z, and the tumbler and bolt D, all arranged as shown and described.

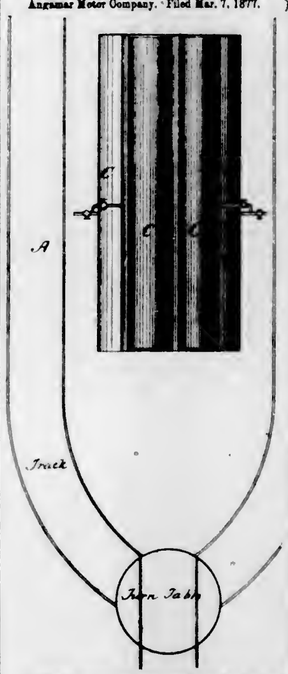
197,583. BLINDS. Abram Allen, Lansing, Mich., assignor to Allen & Hall, same place. Filed Oct. 9, 1877.

The slats A, the opposite sides of which, near their edges, are provided with rabbets HC, formed parallel to the sides of the slats, and with right-angular lips D D', in combination with a connecting-rod E, which latter is connected to the several slats by means of staples secured to the upper edges of the slats and to the connecting-rod, whereby said staples are received in the rabbets, and the connecting-rod has full bearing on the flat surface of the slats when the same are in a closed position, substantially as described.

197,583.



197,584. STEAM-MOTORS FOR CITY PASSENGER-CARS. Eugene H. Angamar, New Orleans, La., assignor to Angamar Motor Company. Filed Mar. 7, 1877.



1. The process or improvement in the art of supplying motive heat to railroad-cars, substantially as herein described, the same consisting, essentially, in supplying the engine-boiler with water previously heated by means independent of the car, and sustaining such initial heat, during the trip or any part thereof, by a furnace or other equivalent source of heat transported with the car.

2. The combination of a railroad-car, a steam-boiler and engine for driving the same, a furnace independent of the car for heating the feed water before its injection into the car-boiler, and a furnace or other source of heat transported with the car for generating or imparting heat to keep up the initial temperature of the boiler-water, substantially as described.

3. The combination of the furnace B, the boilers C for supplying to the car-boiler heated water not under pressure, the boilers C for supplying to the car-boiler heated water under pressure, the tubes leading from the two sets of boilers to the car-boiler, and the controlling-cocks, coupling and locking device, whereby the car-boiler can be first partially filled from boilers C', and the filling completed from boilers C, substantially as described.

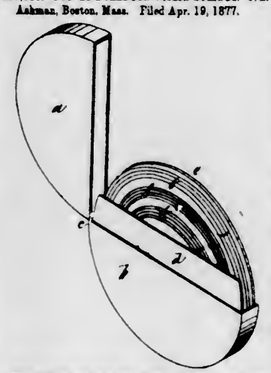
4. The combination of the horizontal boiler E with the furnace F, the flues f leading directly from the furnace to the rear end of the boiler, the flues f² arranged under the flues f and leading back to the front end of the boiler, the flues f³ arranged above the flues f and leading out of the boiler, the connection f⁴ between flues f and f², and the connection f⁵ between flues f² and f³, substantially as described.

5. The combination of the removable grate and locking device with a slotted bucket for inserting and removing the grate and coals, substantially as described.

6. The combination of the funnel-shaped air-draft flue K with the register k² and the boiler-furnace, arranged under the car, substantially as described.

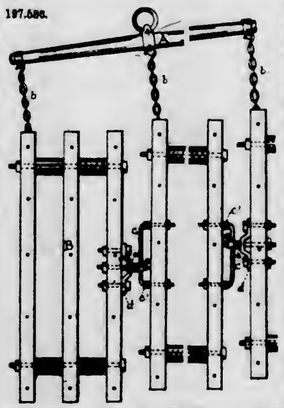
7. In a locomotive steam-engine boiler, the combination of a single steam-dome and two or more tubular connections extending therefrom within the boiler to the opposite extremities of the steam-space thereof, whereby the steam can pass through either connection to the dome when the other connection is closed by the water, substantially as described.

197,585. POCKET-BOXES FOR VIOLIN-STRINGS. J. B. Ashman, Boston, Mass. Filed Apr. 19, 1877.



The within-described pocket-box for containing violin-strings, consisting of the two narrow semicircular portions a b, the latter being provided with flanges d e, to confine the strings in place when the box is open, substantially as set forth.

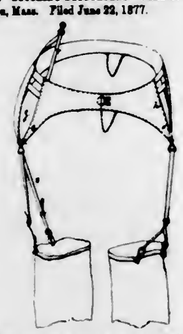
197,586.



197,586. HARROWS. Anson B. Baker, Woodhull, Ill. Filed July 2, 1877.

The improvect coupler for harrows, consisting of the rod *c*, passing through the collar *c'* on the outside of the beam of one section and secured on the inner side of beam by a nut, and the brace *d*, shaped as shown in the drawing, with square hole to receive the bolt end of hook *e*, having the shoulder *c'* resting against the brace attached to another section, the coupler being arranged centrally to the beams, as shown and described, affording an independent movement to each section.

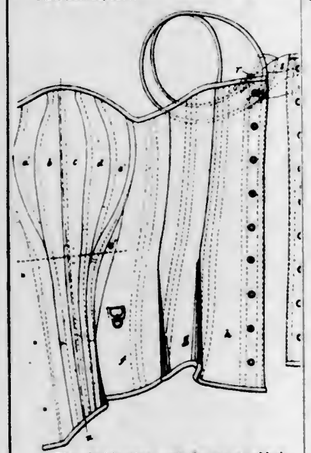
197,587. STOCKING-SUPPORTERS. Julia D. Banfield, Boston, Mass. Filed June 22, 1877.



1. The waistband composed of front and back portions, shaped as shown, to fit the hips, in combination with bands to connect such portions at the hips, substantially as and for the purpose described.

2. The combination, with the waist-belt, of the straps *r*, adapted to be connected with a garment above the waistband, substantially as described.

197,588. CORSETS. Julia D. Banfield, Boston, Mass. Filed Nov. 16, 1877.



1. The combination, with the corset, of haircloth, or its described equivalent, inserted between the face and lining of the corset, and cut and secured in the corset to form a full-bust corset, substantially as described.

2. The combination, with a corset, of stiffening-pieces of folded cloth having a stiff weft, substantially as described.

3. In a full-bust corset, the outwardly-curved or expanded upper portion *i*, formed above the top of the bust proper, substantially as and for the purpose described.

4. In a full-bust corset, a bust-forming piece or pieces, made broad at or near the center of the bust, then contracted above such broad portion, then made again broad to form the upper edge of the corset, substantially as described.

5. A corset the front portion of which is composed of three pieces, *b c d*, shaped as shown and described, and extended from the bottom to the top of the corset, and of pieces and gores *a e* at the side thereof, all substantially as described.

6. The gore-pieces *a'*, cut to present a widened portion, 11, at the top, substantially as and for the purpose described.

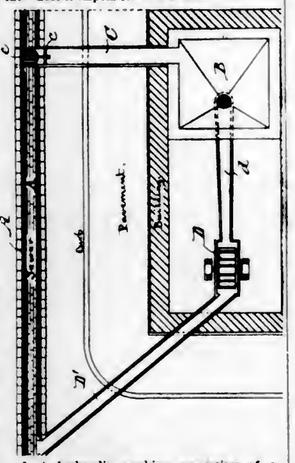
7. As a new article of manufacture, a full-bust corset provided with means for drawing the upper and lower portions of the bust toward each other to adjust the extent of protuberance of the bust, substantially as described.

8. The bust, and connecting-pieces joined thereto, at the upper and lower portions of the bust, in combination with the adjusting cord or tape, to operate to draw down the top of and expand the bust, substantially as described.

9. One or more bust-forming pieces located at the central portion of the bust, such pieces having one side made straight and the other side curved or bulged, as at 2, and made smaller above and below the broadest part of the curved portion 2, substantially as described.

197,589. MODES OF UTILIZING WATER-POWER IN SEWERS. Lorenz Bargmann, St. Louis, Mo. Filed June 27, 1877.

Brief.—The water from a sewer is led through a grating to a reservoir, and thence beneath the wheel it impels to a lower exit.



1. A hydraulic machine, consisting of a water-wheel, D, the pipe *d*, reservoir B, and sub-sewer C, said parts being arranged with relation to a main sewer, for the reception of the impelling current in same, as and for the purpose set forth.

2. The combination of the grating *c*, sub-sewer C, and main sewer A, as and for the purpose set forth.

3. The combination of the gate attachment *c'*, sub-sewer C, and main sewer A, as and for the purpose set forth.

4. The combination of the reservoir B, its plug-valve *d'*, pipe *d*, sub-sewer C, and main sewer A, as and for the purpose set forth.

5. The pipe D', water-wheel D, pipe *d*, and reservoir B, in combination with sewer A, as and for the purpose set forth.

197,590. SACK-PACKERS. Roman A. Barnard, Moline, Ill., assignor to the Barnard & Leas Manufacturing Company, same place. Filed Oct. 20, 1877.

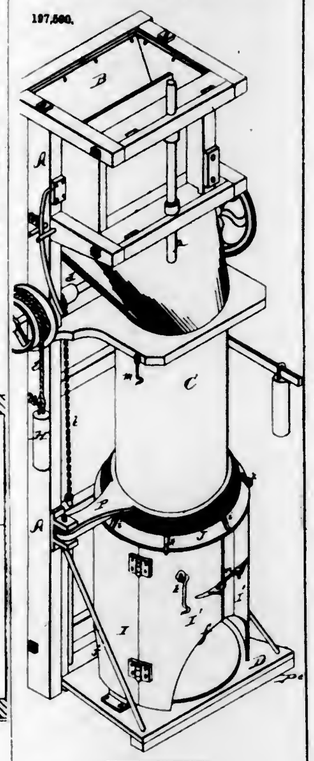
1. In a sack-packer, the combination of a stationary cylinder through which the material passes, a stationary revolving packing-auger working therein, and a descending cylinder or casing for inclosing the sack while being packed, as set forth.

2. The cylinder I, having beveled top *h*, in combination with the beveled ring J, provided with hooks *i*, substantially as and for the purposes herein set forth.

3. In a sack-packer, the cylinder I, constructed, as described, with doors I', bottom openings *f*, and beveled top *h*, substantially as and for the purposes herein set forth.

4. The feeder L L', constructed as described, and attached to the revolving auger-shaft *a*, for the purposes herein set forth.

197,590.



197,591.



197,591. COVERS FOR POTS AND KETTLES. John H. Beauregard and John Wrouth, Sandy Hill, N. Y., assignors of one-third their right to James McCarty, same place. Filed Oct. 16, 1877.

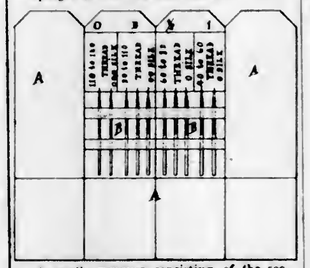
Brief.—A spring-fastening attached to the cover engages with the bail and holds the cover firmly in position.

1. In combination with a kettle and its bail and removable cover, an adjustable spring-connection attached to the cover, and adapted, in the manner described, to be interposed between the bail and the cover, for the purpose of securing the cover firmly against the top of the kettle, as set forth.

2. The handle F, attached to the cover B, and provided with a mechanism, substantially as described, whereby the bail of the kettle is compelled to hold the cover down against the kettle, substantially as herein set forth.

3. The combination of the cover B, socket C, spring K, handle F, stem E, and ratchet H, to be used in connection with a pot or kettle and its bail, substantially as and for the purposes herein set forth.

197,592. NEEDLE-WRAPPERS. George H. Bleloch, Springfield, Mass. Filed Mar. 12, 1877.



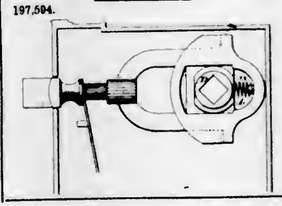
A needle-wrapper consisting of the sections B B, in which the needles are stuck, and the sections A A A, constructed and combined substantially as described, whereby, when said sections A A A are folded, a portion of the length of the needles is left in sight on both sides of the wrapper, as set forth.

197,593. TIMING ATTACHMENTS FOR RACING-VEHICLES. John L. Boone and Edwin J. Fraser, San Francisco, Cal. Filed Apr. 27, 1878.



A timing attachment, C, for vehicles, having a shank, D, and clamp E, and provided with a lever, *g*, or equivalent device, adapted to be operated by the foot of the driver, substantially as herein described.

197,594.

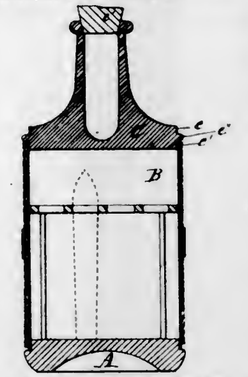


197,594. REVERSIBLE LATCHES. John A. Brook, New Haven, Conn., assignor to Mallory, Wheeler & Co., same place. Filed Oct. 26, 1877.

The combination, in a knob-latch, of a yoke, with a latch-bolt swiveled thereto, a hub, supported in the case independent of the other parts of mechanism, constructed with longitudinal spindle-seat, with a transverse opening into said spindle-seat, and a vertical arm, extending upward and downward from said hub, and a follower constructed to engage the said yoke and hub, with a portion thereof in such relative position to the opening in said spindle-seat that when the spindle is in its seat it will hold the follower, and when the said spindle is removed it will allow the follower to be drawn outward, and with shoulders to engage the said arms on the hub, substantially as and for the purpose described.

197,595. CONVERTIBLE GOODS-BOXES. Charles A. Brown, Troy, N. Y. Filed Nov. 2, 1877.

Brief.—With the perforated plate elevated upon its legs within the box, and the cover placed with its hollow neck uppermost, the device constitutes a cigar-box and match-holder; but with the plate lying on the bottom of the box, its feet pointing upward, and the cover placed with its neck pointing downward, provided for by the double rabbet on its periphery, it is adapted to cuffs, collars, &c.



1. A box having a reversible nut and a reversible perforated tray, whereby, when the same are reversed or inverted, as described, the box is reduced in bulk and the character of its interior changed, substantially as specified.

2. A box having a reversible lid, in which is formed a supplementary box, substantially as described.

3. A box, combined with a lid, having a handle and two shoulders, adapting the lid to be placed in reversed positions in the box, substantially as and for the purposes specified.

4. A box, combined with a perforated plate or tray, standing on feet, the said tray being capable of being inverted within the box, substantially as and for the purposes specified.

5. The lid C, having the hollow neck or handle *c*, combined with the stopper or lid *c'*, substantially as shown.

6. The device herein described, consisting of the following parts, in combination—that is to say, the box A B, lid C, having the hollow neck *c* and stopper *c'*, and perforated tray *d* and its supports, substantially as herein set forth.

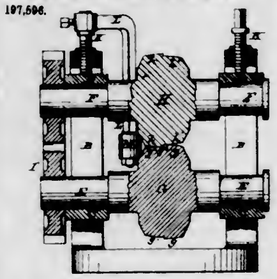
197,596. MACHINES FOR SPLITTING AND FLARING HOOP-IRON. William Brown, St. Louis, Mo. Filed Oct. 24, 1877.

Brief.—Extending down from a set-screw bearing upon a box of the upper roller-shaft is an arm provided with a friction-roller. Adjacent to the cutting-edges the rolling-surfaces are beveled, and impart to the hoop-iron a curve in the plane of its width. Should the iron have too great a roller-pressure, and consequently too great a curve imparted to it, it will move the depending arm outward, and turn the set-screw so as to relieve the rolls.

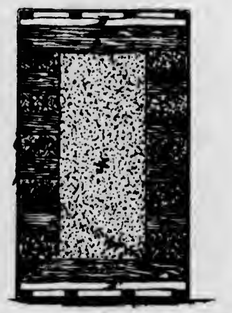
1. The combination, in the rollers G and H, of the shears *g*' and beveled surfaces *g g' h h'*, substantially as and for the purpose set forth.

2. The combination, with the set or temper screw K, of the arm L and beveled rollers G H, operating substantially as set forth.

197,596.



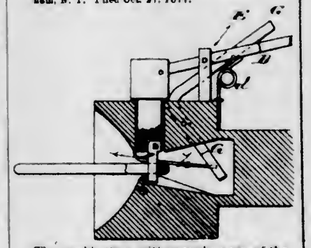
197,597. HAY AND FEED BALES. Charles Brown, New York, N. Y. Filed Feb. 12, 1877.



1. A pressed bale of long hay, cut hay, and ground feed or whole grain, combined, in which said component parts or ingredients are separated in mass one from the other, essentially as specified.

2. A pressed bale of hay and ground feed or whole grain combined, but separately massed, and in which the ground feed or whole grain is surrounded or inclosed by alternate layers of long hay and cut hay, essentially as shown and described.

197,598. CAR-COUPLINGS. William W. Burhans, Durham, N. Y. Filed Oct. 27, 1877.



The combination, with a coupling-pin, of the lever D, pivoted in a post, E, the spring *d*, and latch G, all constructed and arranged substantially as and for the purposes set forth.

197,599. GATES. Mordecai Carter, Plainfield, Ind. Filed Sept. 24, 1877.

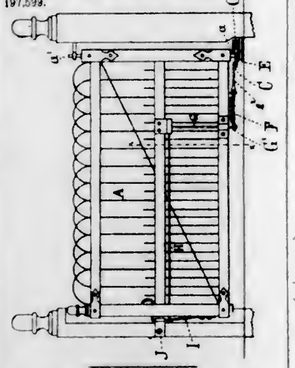
1. In an automatic gate, the combination of the levers H, rods C, three-armed lever E, and spring F, for the purpose of opening and closing the gate, substantially as herein shown and specified.

2. In an automatic gate, the combination of the three-armed lever E, spring F, shaft G, having arms G' and G'', and rod H, for the purpose of operating the latch I, substantially as herein shown and specified.

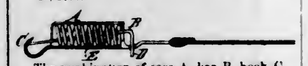
THE GRAPHIC CO. N.Y.

3. The combination of bent levers D, rods C, three-armed lever E, spring F, shaft G, having arms G^1 and G^2, rod H, latch I, and gate A, forming an automatic gate, substantially as herein shown and specified.

197,599.



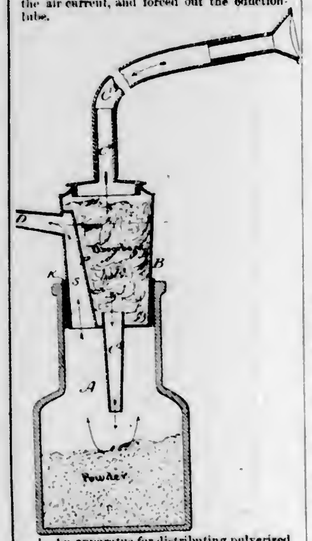
197,600. CLAMPS. Thos. J. Carroll, Bridgeport, Conn., assignor to Edward L. White, same place. Filed Oct. 12, 1877.



The combination of case A, bar B, hook C, finger-piece D, and spring E, operating together, substantially as and for the purpose described.

197,601. APPARATUS FOR DISTRIBUTING POWDER. Jas. J. Cassidy, Boston, Mass. Filed Apr. 10, 1877.

Brief.—Air is blown into the eduction-pipe and through the absorbent, which consists of cotton or something similar, to absorb the moisture of the breath, and prevent its contact with the powder. The powder is agitated by the air current, and forced out the eduction-tube.



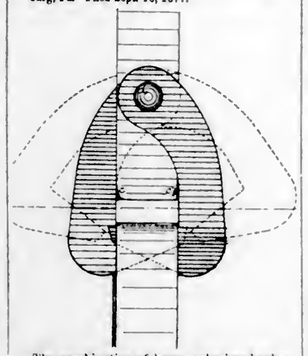
1. An apparatus for distributing pulverized material or powder, consisting of the hollow or chambered stopper B, having induction-pipes C^1 C^2, absorbent E, and eduction-pipe D, in combination with the receptacle A, as set forth.

2. The stopper B, having the induction pipes C^1 C^2, in combination with the absorbent E, as set forth.

3. The hollow or chambered stopper, having the pipes C^1 C^2, absorbent E, space S, and pipe D, as set forth.

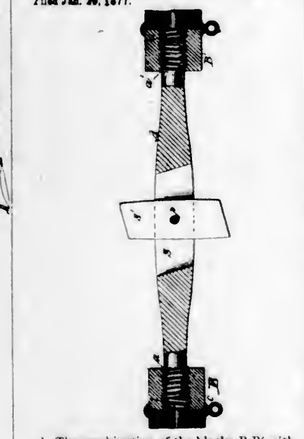
4. The hollow or chambered stopper, having an absorbent, E, combined with the section C^2 of the induction-pipe, said section projecting above the bottom of the stopper, substantially as and for the purpose set forth.

197,602. COTTON-BALE TIES. William Clark, Pittsburg, Pa. Filed Sept. 18, 1877.



The combination of hoop, swinging hooks, and stops, substantially as set forth.

197,603. SWIVELS. Frank H. Clark, Newark, N. J. Filed Jan. 20, 1877.



1. The combination of the blocks B B' with the brace A, having the key S', substantially as shown and described.

2. The combination of the brace A with the key S', substantially as shown and described.

3. The combination of the right and left hand screws *a a'* with the brace A and key S', substantially as shown and described.

4. The rubber faced blocks B B', in combination with the screws *a a'*.

197,604. HYDROCARBON-BURNERS. George W. Coleman, Kalamazoo, Mich. Filed Aug. 23, 1877.

Brief.—Oil passes down pipe A, and is admitted by the cocks either to the retort or to the pan to be burned and furnish the initial heat. Water passes down pipe A^1, is converted into steam in the "boiler-pipe," the steam and oil-gas mingle in the connecting-pipes, and the resulting gas is burned in the burner beneath them.

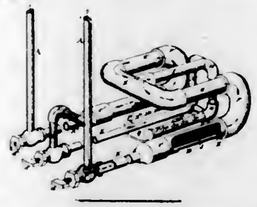
1. The gas-retort composed of the horizontal pipes D and G, and their connecting-pipes F, in combination with the burners P and their connecting-pipe, substantially as herein set forth.

2. The combination of the steam-boiler, composed of the pipes D' and G', and their connecting-pipe F', the connecting-pipe H, and retort D F G, and the burners P and their connecting-pipes, substantially as herein specified.

3. The combination of the outer horizontal pipe D, internal tubular diffuser E, having a series of jet-openings, *f*, and the coil J, arranged around the diffuser E, between the same and the outer pipe, with the burner P, and the pipes connecting the burner and pipe D, substantially as and for the purpose described.

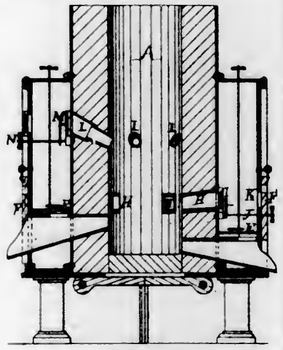
4. In combination with the steam-boiler and retort, constructed and arranged as described, the pan Q and its supply-pipe R, for the purpose of starting the operation of the apparatus, substantially as set forth.

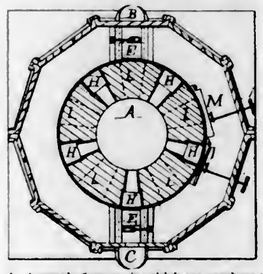
197,604.



197,605. CUPOLA-FURNACES. Victor Collins, Detroit, Mich. Filed May 26, 1877.

Brief.—The blast enters the casing, is there heated, and then, by manipulating the various valve-rods, is made to enter either the slag and tap holes, (when starting the furnace,) or the lower or upper series of tuyeres, at pleasure. The casing is bolted together in sections, which can be singly renewed.



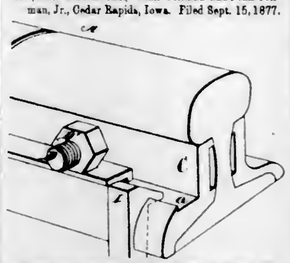


1. A cupola-furnace in which are combined a furnace proper, A, an inclosing iron jacket around the base of the same, constructed in stave sections, and bolted together, so that one or more sections may be removed conveniently, an air-blast reservoir between said jacket and the base of the furnace proper, A, a blast-pipe entering said air-blast reservoir, and systems of tuyeres with regulating-valves leading from such air-blast reservoir into said furnace proper, the several parts constructed and arranged substantially as and for the purposes set forth.

2. The valves E and gates F, in combination with an air chamber inclosing the base of a cupola-furnace, whereby its tap and slag holes can be used as tuyeres, substantially as described.

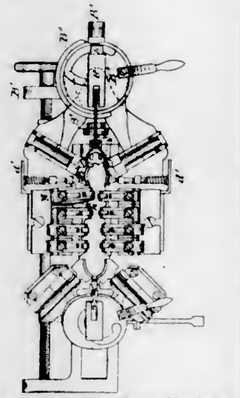
3. The combination, with the tuyeres H L, of the slides I M, and the lever-spindles operating the same, the several parts constructed and arranged substantially as and for the purposes described.

197,606. NUT-LOCKS. John Collman and John Collman, Jr., Cedar Rapids, Iowa. Filed Sept. 15, 1877.



The combination, with the ears A, bolts D, and nuts D', of the fish-plate C, formed with the rim *a*, the bar G, and the spikes I, all substantially as and for the purposes set forth.

197,607. LASTING-MACHINES FOR BOOTS AND SHOES. George W. Copeland, Malden, and Erastus Woodward and Matthias Brock, Boston, Mass., assignor to the Copeland Lasting Machine Company. Filed Nov. 8, 1877.



1. In a lasting-machine, the combination of a heel-centering foot or plate, adapted to automatically adjust the heel lasting mechanism to the slope of the surface of the insole, with mechanism for folding the upper over upon the surface of said insole, substantially as and for the purpose described.

2. In a lasting-machine, the combination of a reciprocating down-hold, G, with a heel-lasting mechanism, substantially as described.

3. In a lasting-machine, an automatic adjusting heel down-hold, as described.

4. In a lasting-machine, the combination of a heel down-hold with devices for folding the upper upon the insole at the heel when the same acts as a guide and support in directing and assisting the action of the folding mechanism, as set forth.

5. In a lasting-machine, the combination of a centering foot and a heel down-hold alternately actuated, substantially as described, for the purpose set forth.

6. In a lasting-machine, the combination of a centering device and down-hold successively actuated with mechanism for folding the upper upon the insole at the heel, substantially as and for the purpose set forth.

7. In a lasting-machine, a centering-foot adapted to automatically adjust the folding-plates on a plane with the bottom of the last, substantially as shown and set forth.

8. In a lasting-machine, the combination of the adjustable carriage B, provided with means for supporting an oscillating plate, and said oscillating plate, substantially as described.

9. In a lasting-machine, the combination of the centering-foot F, pivoted at e^6, with the rod J^2 and cam B^4, substantially as described.

10. In a lasting-machine, the combination of the heel down-hold G, connecting-rod e^7, and actuating-cam B^4.

11. In a lasting-machine, the combination of the heel down-hold, recessed on the upper outer edge, as shown, with the spring e^8, substantially as and for the purpose described.

12. A down-hold provided with a horizontal movement parallel or substantially parallel with the plane of the insole, followed by a descending movement upon the same, in combination with folding-plates, for the purpose set forth.

13. The combination of the cross-heads, provided with wings d^5, with the spring-fingers d, all adapted to operate, substantially as shown and described.

14. In a machine for lasting boots and shoes, a toe-rest provided with automatic lateral, longitudinal, and vertical adjustment, in combination with toe-lasting mechanism, substantially as described.

15. In a lasting-machine, a toe-rest provided with and supported on a universal joint, in combination with mechanism for automatic vertical adjustment, for the purpose set forth.

16. A toe-rest supported on a universal joint, and adapted to be raised by the lift of the cross-heads, for the purpose set forth.

17. The combination of an abutment and a toe stretching and smoothing pad alternately actuated, substantially as described, for the purpose set forth.

18. The toe-lasting and folding plate, provided with spring-clamps *x*, adapted to close upon the ends of the toe stretching and smoothing pad simultaneously with the closing of the folding-plates, as described.

19. The combination of the abutment and toe stretching and smoothing pad with the actuating mechanism described.

20. A girth supporting finger provided with automatic vertical adjustment at its end, as described.

21. A girth-supporting finger provided with automatic vertical adjustment at its end, for the purpose of relieving it from strain, as and for the purpose described.

22. The combination of a girth-supporting finger, provided with means for vertically oscillating its end, with a spring of sufficient power to relieve a severe strain on the ends of the finger, as described.

23. The combination of a girth or straps for stretching, shaping, and clamping an upper to a last with girth supporting fingers, provided with longitudinal adjustability, whereby the length of the girth may be increased or diminished to the length of the last.

24. The combination of the girth-supporting finger N with the spring *n*, whereby an automatic longitudinal adjustment is effected.

25. The combination of a girth-supporting finger, having automatic longitudinal adjustment, with means for regulating the extent of said adjustment by the closing of the toe and heel-carriage or either, as set forth.

26. In a machine for lasting the uppers of boots and shoes, the combination of an automatic toe-lasting mechanism and the improved oscillating heel-lasting mechanism described.

27. In a machine for lasting the uppers of boots and shoes, the combination of an automatic toe-lasting mechanism, the side girth-lasting mechanism provided with an automatic longitudinal adjustment, and heel-lasting devices, as described.

28. In a lasting-machine, an oscillating heel-lasting mechanism adapted to be automatically adjusted by the slope of the insole, for the purpose set forth.

29. The girth described, consisting of an elastic central section protected upon its upper surface, in manner substantially as described, for the purpose set forth.

30. In a boot and shoe lasting machine, the combination of the shaft E, provided with the right and left screws *a' a'* and hand-wheel *a*, with the arm *a'*, projecting from the carriages A B, substantially as described.

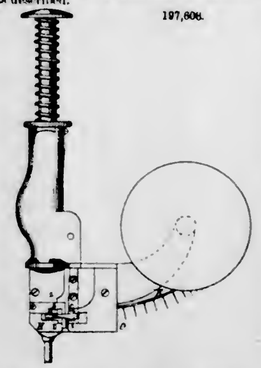
197,608. TACKING-MACHINES. George W. Copeland, Malden, and Erastus Woodward and Matthias Brock, Boston, Mass., assignors to said Copeland. Filed Apr. 24, 1877.

1. In a tacking-machine, the combination, with feeding and driving mechanism, of springs *t t*, adapted to hold a tack-strip, through which nails are driven singly as presented to the driver, all substantially as shown and described.

2. The pawl H and holder K, provided with the incline *k* between two openings in the holder, whereby the tack-strip is held in place and fed at each upward movement of the driver, substantially as specified.

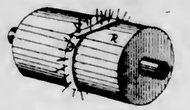
3. The hinged plate M, constructed as described, in combination with the guideway O, for the purpose of maintaining the tack in proper position in the driveway, substantially as described.

197,608.



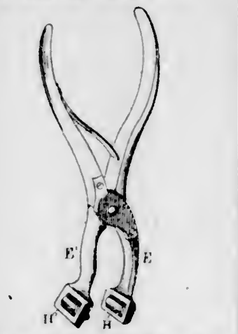
197,609. TACK-HOLDING STRIPS. George W. Copeland, Malden, and Matthias Brock, Boston, Mass., assignors to said Copeland. Filed June 4, 1877.

Brief.—The tacks are inserted in a strip of thick paper, or other similar material, and held in place by pasting a thin covering over their heads, so that they may be easily forced through the holding-strip by the driver, when used in connection with a tack-driving machine.



A flexible strip containing metallic tacks, held in position by means of an adhesive covering placed over their heads, all substantially as shown and described.

197,610. LASTING APPARATUS. George W. Copeland, Malden, assignor to the Copeland Lasting Machine Company, Boston, Mass. Filed Nov. 1, 1877.



1. The lasting-pliers made with long jaws E E', provided with smoothing-rollers H H', substantially as described, and for the purpose set forth.

2. The lasting-pliers made with long jaws E E', provided with smoothing-rollers adapted to be held rigidly in place, so as to serve as bosses.

197,611. COMBINED SHUTTER FASTENER AND BOWER. J. M. Crawford, Philadelphia, Pa. Filed Sept. 8, 1877.



1. A shutter-fastener consisting of two brackets which are brought together when the shutters to which they are applied are closed, and form a truss, one of said brackets being provided with a hinged or yielding side, substantially as shown and described.

2. The bracket B, having sides B^1 B^2, and slot or opening b^3, substantially as shown and described.

3. The L-shaped bracket B, having slotted side B^1, and latch or dog b, substantially as shown and described.

4. The plate C, having brace or projection C^1, in combination with hinged plate D, substantially as shown described.

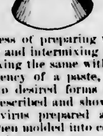
5. In combination with the plate C, having brace C^1 and hinged plate D, the pivoted bar E, substantially as shown and described.

6. In combination with slotted bracket B, having dog b, the plate D, hinged to the plate C, and having a lug, D^1, or lugs d^2 d^3, substantially as shown and described.

7. The combination, with a shutter-bower provided with the dog b, of a lock, comprising a spring bolt or catch, with which said dog engages to lock the shutters in a bowed position, substantially as described and shown.

8. In combination with swinging bar E, having flange e, the plate D, having hook d^4, for the purposes shown and described.

197,612. PREPARED VACCINE MATTER. William O. Cutler, Chelsea, Mass. Filed Mar. 21, 1877.

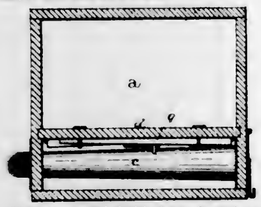


1. The process of preparing vaccine virus, by pulverizing and intermixing different pustules, then mixing the same with fluid lymph to the consistency of a paste, and molding such mass into desired forms for use, substantially as described and shown.

2. Vaccine virus prepared as herein described, and then molded into cones or other suitable forms for use.

197,613. FEED-COOKERS. Samuel J. Daily, Kansas City, Mo. Filed Oct. 3, 1877.

Brief.—A tub having in one end thereof an iron pipe for a furnace, separated from main body of tub by a perforated partition, the perforations being opened or closed by a slide of peculiar construction, for admission or exclusion of hot water and steam.

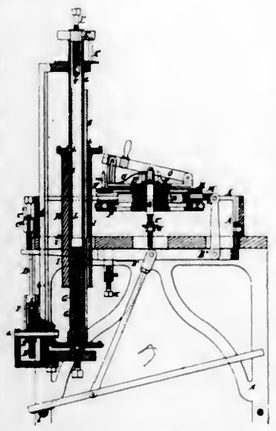


The tub a, provided with the perforated partition d, in combination with the pipe c and a slide or slides, g, for closing the perforations f, substantially as shown and described.

197,614. TYPE-WRITERS. Edmund T. Davis, New York, N. Y. Filed May 1, 1877.

Brief.—Type project unequal distances from the type-wheel, which is moved on guide-ways, by means of the treadle, against the platen. This wheel is rotated by means of an operating handle having bevel guide, which is pressed on pins projecting unequal distances for space-regulation, and corresponding in number with the characters on the wheel. Variable word and letter space is effected by rotation of the cylindrical platen by means of treadle and connecting mechanism. Line-space of desired width is produced by the depression of the spring-seated adjustable rack-bar inside the platen, and provided with supplemental rack-bar and pawls. Type-wheel bears on its circumference an ink-table, and the inking of the type is effected by means of ink-rollers in spring-pressed swinging bearings. Several type-wheels with different fonts of characters may be employed.

197,614.



1. The ways A^1, carriage M, and type wheel P, in combination with the paper-cylinder H, as herein specified.

2. In combination with the slender, and consequently yielding, paper-roller H, the revolving type-wheel P, clamping-ring P^2, and fastening means p^3, when the types X are set to project forward to unequal distances from the axis, as and for the purposes herein set forth.

3. The thrust-pins M^3, in combination with the levers J^2, ink-rollers J, and springs J^3, and with the carriage M and type-wheel P, the latter having both a rotating and bodily movement, as herein specified.

4. The ink-table P^4 on the type-wheel P, in combination with the inking-rollers J, paper-cylinder H, and means, substantially as described, for imparting a bodily as well as rotary motion, as herein specified.

5. In combination with type-wheel P, revolving and moving bodily, as described, the adjustable pins m on the carriage M, and the lever O, recessed on its under face, the recess or the pins or both being formed with inclined surfaces adapted to serve as and for the purposes described.

6. The internal bar L and rack l, in combination with the tubular shaft G and rack g, spring G^1, paper-cylinder H, pawls h h^1, and with the type-wheel P, as herein specified.

7. The pin g^2 in the tubular shaft G, in combination with the bar L, having a slot, l^2, and with the adjusting-screw L^1, adapted to adjust the space between the lines, as herein specified.

8. The arm L^3 on the internal bar L, in combination with a corresponding arm on the opposite side, and with the tubular shaft G, provided with slots adapted to perform the double functions of finger-pieces for the depression of the bar L and as turning means for effecting the rotation of the whole, at will, as herein specified.

9. The paper-cylinder H, with means for turning it around to any desired extent, at will, in addition to the provisions for feeding, as shown, in combination with two or more type-wheels, P, arranged to apply from different directions, as herein specified.

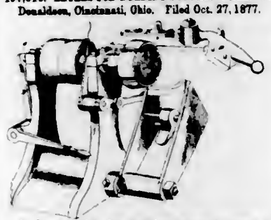
197,615. SPRING DRAFT-TUGS. Frank Dawson, Williamsport, Pa., assignor to C. D. Brewer, same place. Filed Oct. 30, 1877.

In a spring trace-tug, the swiveled rods D D, each provided with an eye or hook, D^1, rubber spring C, washer a, and nut b, in combination with the closed case or barrel A, having heads B B screwed into the ends thereof, all constructed as described, whereby the rods are made entirely independent and free from each other, and all the parts protected from dust and dirt, substantially as herein set forth.

197,615.



197,616. LATHES FOR TURNING POTTERY-WARE. W. Donaldson, Cincinnati, Ohio. Filed Oct. 27, 1877.

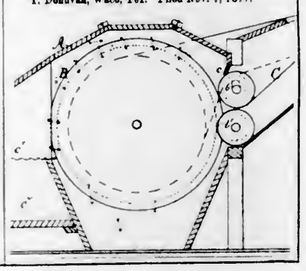


1. In a lathe for turning potter's ware, a chuck for grasping the ware interiorly, whose jaws are operated simultaneously by a reciprocating axial rod actuated to produce the gripe by a spring, substantially as and for the purpose specified.

2. In combination with the rod O and spring T, for operating the jaws, the adjustable abutment U, substantially as and for the purpose specified.

3. In combination with a lathe having a chuck to interiorly grasp the ware, the swinging cutter-frame C, the topping-cutter E, and bottoming-cutter D, arranged substantially as described, and operating in the manner set forth.

197,617. COTTON CLEANER AND CONDENSER. John T. Donovan, Waco, Tex. Filed Nov. 7, 1877.



1. In a cotton-cleaner, a pair of screens of, respectively, coarse and fine mesh, the latter alone communicating with an air-forcing device, substantially as described.

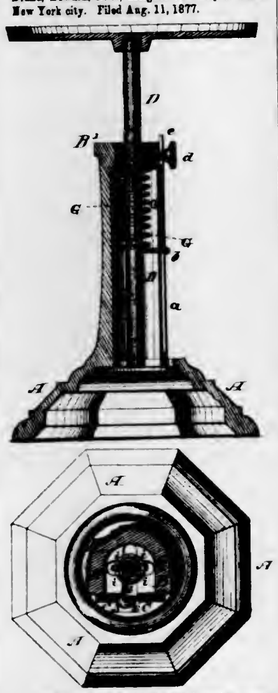
2. In a cotton-cleaner, a revolving screen having flanged extremities, as and for the purpose described.

3. In combination with the rotary screen B, the stationary screen c', of relatively coarser mesh, as and for the purpose described.

4. In combination with the screen B and rollers b b', the rubber strip c, substantially as described.

5. In combination with the casing A, the screens B and c', rollers b b', and endless belt C, all substantially as described, and for the purpose set forth.

197,618. SPRING-SCALES FOR WEIGHING. Mahlon S. Drake, Newark, N. J., assignor to Henry C. Dean, New York city. Filed Aug. 11, 1877.



1. The cap B^1, provided with interior screw-threads to receive and hold the upper end of the spring, for the purposes herein set forth.

2. The base A and top cap B^1, formed with guides having points i, in combination with the rod d, for the purposes herein set forth.

3. The combination of the top cap B^1, the spring G screwed therein, and the rod D, as and for the purposes herein set forth.

197,619. BALING-PRESSES. John Drake, Desdeon City, Tex., assignor to himself, E. D. Chadick, and W. H. Taylor, same place. Filed Mar. 19, 1877.

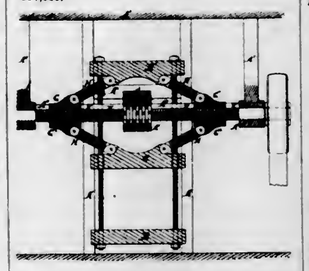
1. The central thrust-bearing A^1, in combination with the right and left screw E, having annular projections or collars e, nuts G, and toggles H, and with the two platens and their connections, as specified.

2. The guides A^4 a and nuts G g', in combination with each other and with the screw E e, thrust-bearing A^1, and with the toggles and two platens and connections, as specified.

3. The nuts G G^1, compounded as specified, in combination with the fastening g and projections g' and guides A^4 a, and with the right and left screw E, toggles H, and the two platens and their connections, as and for the purposes herein specified.

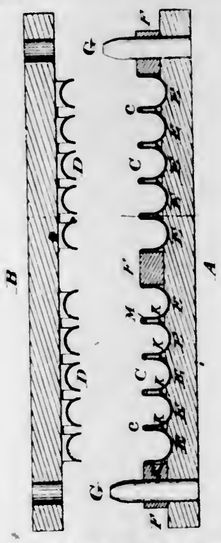
4. The framing described, having the cross-piece A^3, longitudinal pieces A^2, and uprights A^1, in combination with the guides A^4, supports A^7, and top A^6, adapted to serve with the thrust-bearing A^1, and with the screw E, nuts G, toggles H, cross-head B^1, and platens B C, as and for the purposes herein specified.

197,619.



197,620. CIGAR-MOLDS. Cyriac Du Brul, Cincinnati, Ohio, assignor to Napoleon Du Brul, same place. Filed Sept. 7, 1877.

Brief.—The molds are of tin, and the lower members are located in recesses in a wooden backing, and each is flanged at the top with spaces below the flanges, whereby they can yield slightly when the upper members enter the lower.



1. The lower member of a cigar-mold, consisting of a back, A, having depressions E and kerfs a, and a series of matrices, C, united to each other and to the back by straight cross-pieces K, said matrices being fitted to and occupying said depressions in such a manner as to leave spaces or interstices M between them, as and for the purpose set forth.

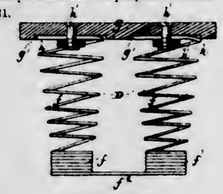
2. In combination with the series of upper matrices D, secured by shouldered cross-strips L to backing B, the series of lower matrices C, united by straight strips K, said matrices and strips being supported in the grooved and indented backing A, substantially as set forth.

3. The lower member of a cigar-mold, having sheet-metal matrices C partly embedded in the indented backing A E, and separated by spaces or interstices M, as and for the purpose set forth.

197,621. BED-BOTTOMS. Charles Eade, Honesdale, Pa., assignor of one-half his right to H. J. Tarbis, same place. Filed Oct. 1, 1877.

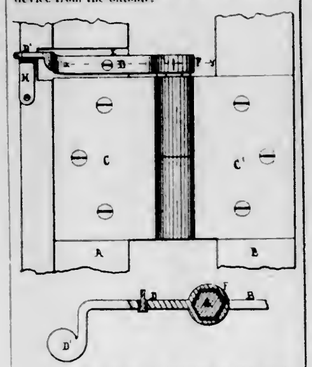
The combination, with the springs D D, consisting each of two springs, f f, the lower ends of which are coiled into tubes, of the cross-pieces b b, having pins c c, caps or connecting-pieces g g, buttons h h, and screws h^1 h^1, substantially as and for the purpose set forth.

197,621.



197,622. LOCK-HINGES. Charles J. Ferguson, Philadelphia, Pa. Filed June 26, 1877.

Brief.—A pivoted thumb-lever on the jamb or window-frame, carrying at its outer end a polygonal socket, moves up and down in vertical plane, and engages a correspondingly-shaped cap on the moving flap of the hinge. There is also a suitable latch to hold the inner extremity of the lever up and the outer one down, to prevent tampering with the locking device from the outside.

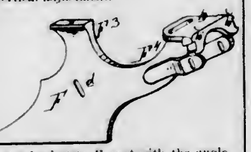


1. A thumb-lever, D, pivoted to the jamb or frame of the window, the said lever moving upward and downward in a vertical plane, and projecting from the inside to the outside, its outer extremity fitting down by an inner polygonally or other suitably shaped socket, F, upon the top of a cap, G, upon the moving flap of the hinge, which cap is correspondingly shaped to enter said socket, substantially as and for the purpose described.

2. The combination of a lever, D, pivoted to the window-frame, extending from the plane of the shutter when closed to a cap, G, over the pintle of the hinge, and locking down upon the said cap, and a latch, H, within to hold the inner extremity up and the outer one down upon the cap, to prevent the lever being pushed up from the outside, substantially as described.

197,623. PLOWS. John Finnegan, Ann Arbor, Mich. Filed Sept. 1, 1877.

Brief.—The rear arm of the standard is cast with a platform, on which rests the plow-beam, adjustable in a cross-slot. It also has slotted wings cast on it for handle-supports, and center slots for their end attachment, allowing them vertical adjustment.



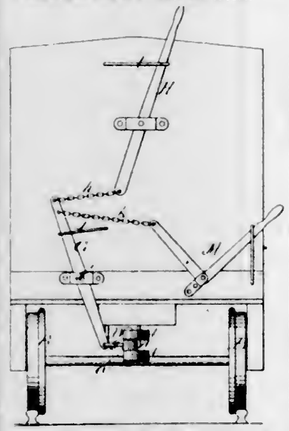
The standard-plate F, cast with the angle-plate b and wings F^2 F^3, substantially as and for the purpose set forth.

197,624. SHEET-METAL VESSELS. Jos. Gerard, Woodhaven, assignor to Lalance & Grosjean Manufacturing Company, New York, N. Y. Filed Oct. 31, 1877.



The method of forming a blank for a struck-up or spun sheet metal vessel, substantially as herein described, the same consisting in cutting the said blank from a rectangular sheet, one or more corners at said sheet being left intact to form the handle or handles, base for a handle, a spout or lip, or bail ears, substantially as set forth.

197,625. CAR-COUPLINGS. Frank Gibford, Newton, Iowa, assignor of one-fourth of his right to Uriah Gibford, New York, N. Y. Filed Nov. 3, 1877.



1. In combination with the draw-bar *a*, the detachable plates *b*, secured to the upper and lower surfaces of the draw bar, substantially as specified.

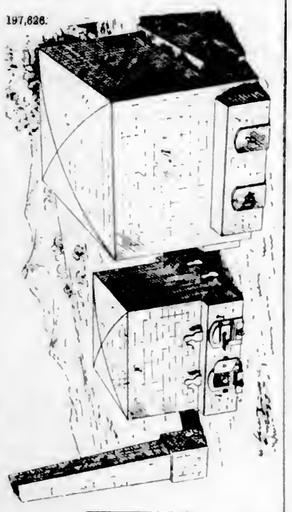
2. The draw-head herein described, having the angular channeled head and the beveled lugs *c*, substantially as specified.

3. The laterally vibrating draw-bar C, the master-lever G, and the chain *g*, the top lever H, the chain *h*, the side angular lever M, and chain *k*, operating as and for the purpose specified.

197,626. STONEWARE-KILNS. Charles Gladding, Lincoln, Cal. Filed July 30, 1877.

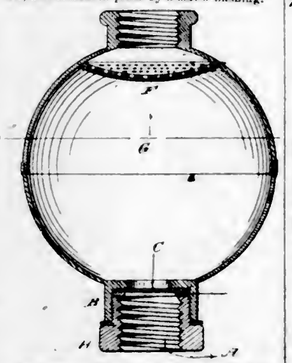
The combination, with the kiln A, with its furnace, flues, and passages, as described, of the secondary kiln F, having the independent charged furnaces I, provided with the cut-off dampers J, substantially as and for the purpose herein described.

197,626.



197,627. FILTERS FOR FAUCETS OR HYDRANTS. A. Gorham, Brooklyn, N. Y. Filed Nov. 15, 1877.

Brief.—One of the strainer-plates is removable, and is held in place by a screw-bushing.



The combination of screw bushing H, having an external and internal screw-thread, and screw-socket H, holding detachable strainer C firmly in place, with the sphere G and its stationary strainer, substantially as and for the purpose described.

197,628. MACHINES FOR RE-PRESSING BRICKS. Isaac Gregg, Jr., Philadelphia, Pa. Filed Sept. 24, 1877.

1. The combination, in a re-pressing machine, of an anvil, a mold-box placed edgewise thereon, and a pressure-plate acting on the brick within the mold-box at right angles to its thickness, substantially as set forth.

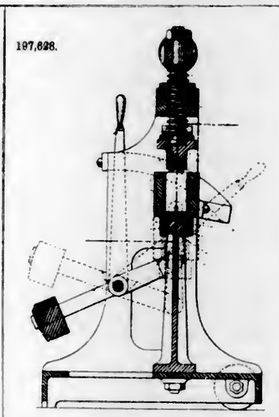
2. The combination, in a re-pressing machine, of a stationary anvil, a mold-box moving thereon, and a pressure-plate and screw, substantially as set forth.

3. The combination, in a re-pressing machine, of a stationary anvil, a lubricating-pad secured thereto, and a mold-box moving on the anvil over the surface of the lubricating-pad, substantially as set forth.

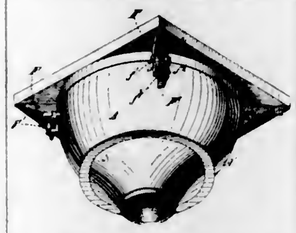
4. The combination of the frame, the stationary anvil, the sliding mold-box, the guide-rods, the pressure-plate, and the screw, substantially as set forth.

5. The combination of the rock-shaft and its arms, pivoted links connecting said arms with a mold-box, and a lever mounted upon the rock-shaft, with a limited range of radial motion, substantially as set forth.

197,628.



197,629. DRIP-TRAYS FOR WATER-CLOSET BOWLS. C. Harrison, New York, N. Y. Filed Oct. 4, 1877.



1. A water-closet bowl and a drip-tray, substantially such as described, connected together by a tongued and grooved joint, substantially as shown and described.

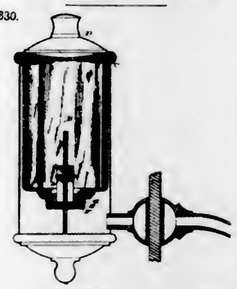
2. A drip-tray, substantially such as described, having a central opening conforming to the shape of the top of a water-closet bowl, and provided upon its under side with an annular projection conforming to the shape of the top of the bowl, for the purpose of affording an excess of material, in which a recess can be formed without weakening the tray.

3. The brackets F, extending downward from the under surface of the tray, in combination with the bowl A.

4. The combination of two or more brackets, depending downward from the under side of a drip tray, with two or more lateral projections or lugs formed upon the exterior of the water-closet bowl to which the drip-tray is applied, substantially as and for the purposes set forth.

5. A drip-tray, substantially such as described, and a water-closet bowl, connected together by a water-tight joint, formed by the junction of two surfaces, portions of which are more or less curved or inclined, substantially as shown, and for the purposes set forth.

197,630.



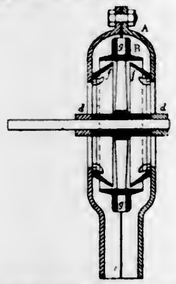
197,630. LAMPS. Henry C. Hart, Adrian, Mich. Filed Apr. 28, 1877.

1. In a German student's or similar lamp, a metallic reservoir-holder, combined with a transparent oil-reservoir, substantially as described.

2. The combination of the bead C of the glass reservoir B and the cover D, substantially as described.

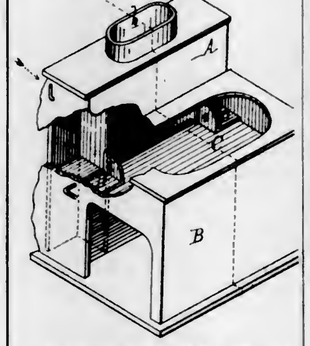
3. The screw-cap F, provided with bracket *f* and flange *d*, in combination with the screw-threaded neck *b* and shoulder *c*, substantially as described.

197,631. HYDRAULIC ROTARY MOTORS. A. Heiner, Baltimore, Md. Filed Sept. 4, 1877.



In a rotary motor, the wheel B, having the flanges *e* extending from the sides thereof, in combination with the casing or shell A, provided with the flared flanges *f*, projecting inwardly from the sides of the said casing or shell, substantially as and for the purpose herein set forth.

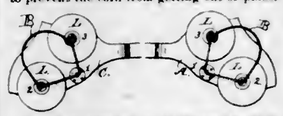
197,632. STOVE-DAMPER AND FLUE-STRIP. Geo. W. Herrick, Detroit, Mich., assignor to Michigan Stove Company, same place. Filed July 30, 1877.



The comomed damper and flue-strip D D *a*, constructed and arranged substantially as and for the purposes described.

197,633. CHECK-ROWERS. Chas. M. Hoghton, Delavan, Ill. Filed May 18, 1876.

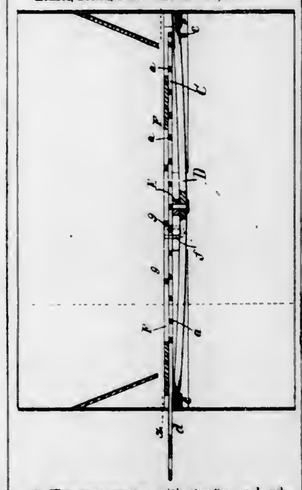
Brief.—A frame or guard is hinged to the bolts that form journals for the pulley-wheels, to prevent the cord from getting out of place.



1. The combination of the hinged guard or cord-retainer B, pulleys L L, and holders A and C, substantially as and for the purpose set forth.

2. The bolts 1 and 2, provided with eyes, and attached to holders A and C, in combination with hinged guard B, constructed substantially as described.

197,634. STOVE AND FURNACE GRATES. Fred L. Holmes, Boston, Mass. Filed Oct. 10, 1877.



1. The combination, with the fire and ash pots of a heating apparatus, of two grates, placed one above and in contact, or nearly so, with the other, and adapted, in the manner described, to be reciprocated in opposite directions at the same time, substantially as and for the purposes described.

2. In combination with the fire and ash pots of a heating apparatus, two grates, placed one above the other, and in contact, or nearly so, therewith, each of said grates being provided with a series of bars extending obliquely across the same from side to side, with the bars of one grate crossing the bars in the other grate, and adapted, in the manner described, to be reciprocated in opposite directions at the same time, substantially as described.

3. In combination with the fire and ash pots of a heating apparatus, the grates C and F, bar D, pivoted lever E, adapted to engage at its opposite ends with each of said grates, and the operating-rod *d*, formed upon or connected to one of said grates, all arranged and adapted to operate substantially as and for the purposes described.

4. In combination with the fire and ash pots of a heating apparatus, the two grates C and F, the pivoted lever E, connected at one end with the grate C, and at the other end with grate F, and the operating-rod *d*, formed upon or secured to one of said grates, all arranged and adapted to operate substantially as and for the purposes described.

197,635. DETACHING APPARATUS FOR CHECK-REINS. Geo. H. Hume, Paola, Kans. Filed Oct. 20, 1877.



1. The hook G, provided with the pivoted bar G', in combination with the check-rein D, ring H, and line I, substantially as and for the purposes set forth.

2. The check-rein D, attached to hook G, and provided with pivoted bar G', and line I, secured to rein C by means of loops *d d*, in combination with terret B, substantially as described, and for the purpose set forth.

197,636. UTILIZING SCRAP-LEATHER. Charles Hommel and Francis Padberg, New York, N. Y. Filed July 14, 1877.

1. The method of utilizing scrap sole-leather, consisting in forming a union of the pieces by means of tongues and grooves cut edgewise in the edges of the contiguous parts.

2. Sheet-leather, as an article of manufacture, formed of scrap sole-leather united by tongues and grooves formed edgewise in the edges of the parts at the place of union.

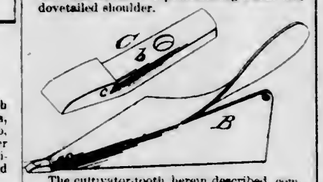
3. Boot and shoe soles and heels composed of tongue-and-groove pieces of leather united or secured to each other by rivets or stitching, substantially as described.

197,637. MANUFACTURE OF A FILTERING MEDIUM FOR THE PURIFICATION OF WATER, &c. Edward Johnson, Blackheath, and James Eobey, Greenwich, England. Filed Oct. 11, 1877. Patented in Belgium, Sept. 18, 1877.

The manufacture of a filtering medium by steeping granular baked clay in a solution of organic matter, or passing such solution through beds of such clay, which is then dried, and afterward charred without access of air.

197,638. CULTIVATOR-TEETH. Moses Johnson, Three Rivers, Mich., assignor to the Union Manufactering Company, same place. Filed Oct. 26, 1877.

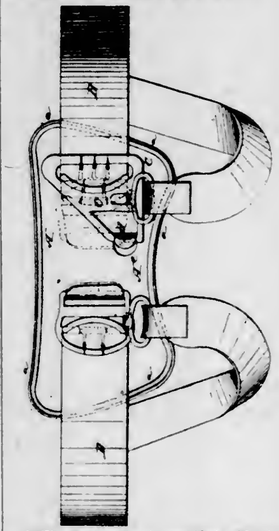
Brief.—A plate of metal is cut and pressed to form a tooth of the shape of a turn plow. It is then bolted to a point having a seat and dovetailed shoulder.



The cultivator-tooth herein described, composed of the wing or mold-board A and land-side B, having the flange or sole a, made of a single piece of metal, in combination with the point C, provided with the beveled shoulder *c* and rounded seat *b*, as and for the purpose set forth.

197,639. TRUSSES. Nathaniel Jones, Syracuse, N. Y. Filed Nov. 13, 1877.

Brief.—A piece is struck up and turned out from the body of the plate as a fastening for a common buckle. A triangular buckle-plate is used with belt attachment at lower corner, to prevent displacement of the body-belt.



1. The truss-plate A, provided with the catches or loops, forming a part of said plate, turned outward and inward toward the center

of the plate, whereby an ordinary buckle may be attached and detached, as described, in combination with suitable straps, as and for the purpose set forth.

2. The triangular buckle, provided with a fastening device at its inner lower side, in combination with a plate and suitable catch or loop, substantially as and for the purpose set forth.

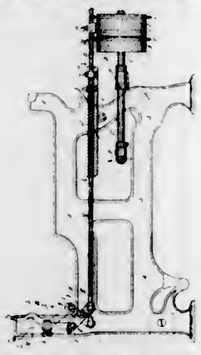
197,640. COMPOUNDS FOR CLARIFYING MALT LIQUORS. Henry Jünemann, Boston, Mass. Filed June 12, 1877.

Brief.—The compound for fining malt liquors, consisting of a solution composed of water, argol, vinegar, isinglass, and salt, combined in about the proportions named.

The compound for fining malt liquors, consisting of a solution composed of water, argol, vinegar, isinglass, and salt, combined in about the proportions named.

197,641. BELT-SHIPPING MECHANISMS FOR LOOMS. Lucius J. Knowles, Worcester, Mass. Filed Nov. 3, 1877.

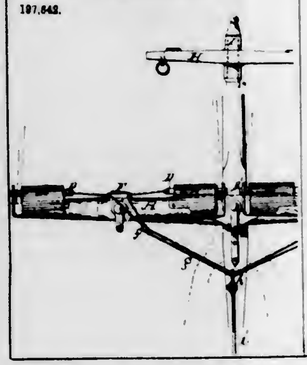
Brief.—The shipper rod is mounted in a pivoted frame provided with struck up ends, between which is arranged the spiral shipping spring. The shipper-handle is connected to the rod by a pivoted link having a notched slot, in which works the stud of the said handle. The notch acts as a detent, to hold the handle in its forward position. The handle, link, and rod are all in the same plane, whereby a single movement of the handle ships the belt.



1. The combination, with the side of the loom-frame A, provided with projecting pin or stud *c* and shipper-rod H, of supporting-plate I, provided with bent bearing ends *b b*, spring J, and stop-piece *d*, substantially as and for the purposes set forth.

2. The combination, with rod H and shipper-handle L of a power-loom, of the hinged or pivoted notched and slotted link-piece K, said parts being arranged in relation to each other, as and for the purposes set forth.

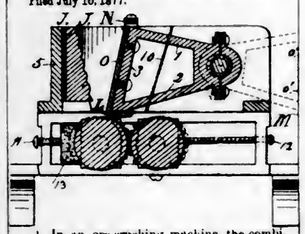
197,642.



197,642. HORSE-DETACHERS. Wm. A. Laird, Ossian, Iowa, assignee of one-half his right to G. L. Faast and W. L. Warren, same place. Filed Sept. 21, 1877.

The combination of spring-bolts D D D D and their direct connecting-cords with staples F, rings *f f*, links *g*, ring *h*, and cord *i*, substantially as described.

197,643. ORE-CRUSHERS. Robert Lanyon, La Salle, Ill., assignor to John Lanyon and Josiah Lanyon. Filed July 10, 1877.



1. In an ore-crushing machine, the combination, with the frame having an open top and rear, of the series of breakers hung directly on and driven by the main shaft, the combination permitting the turning over of these breakers upon such shaft to swing and retain them out of operative action, substantially as and for the purpose set forth.

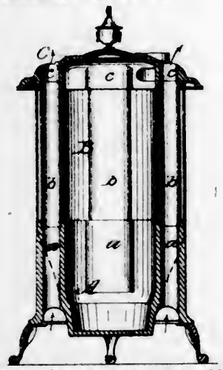
2. In combination, the series of movable jaws or jaw-frames, the shaft B, the series of eccentrics thereon, and the guide-bars N and L, substantially as and for the purpose described.

3. In combination, the series of breaking-jaws K K', &c., the shaft B, and its series of eccentrics on which said jaws are hung, journal-boxes 7, and adjustable bearings 6 within such boxes, substantially as and for the purpose set forth.

4. In combination with the driving-shaft B, the series of breaker-frames K K', &c., sustained thereon and operated directly therefrom, and the rest-bar M, the frames being adapted to be turned over on the shaft as a center, and to rest when out of action upon upon the bar M.

5. The side walls of the machine, provided with inclined grooves 10 10, adapted for the reception of a plate, 9, to form a rear wall of a hopper when the breaker-jaws are swung out of operative action.

197,644. HEATING-STOVES. Frederick D. Livermore, Rochester, Minn. Filed May 21, 1877.



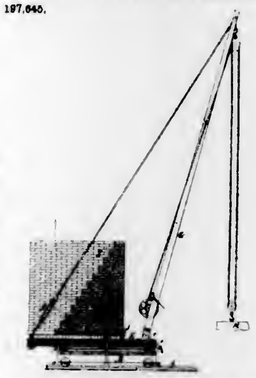
The combination of the base A, cast with the flues *a* thereto, the flues *b* and body B, of sheet metal, and the top C, cast with the flues *c* therein, and applied as shown.

197,645. PORTABLE DERRICKS. Michael F. Lyons, New York, N. Y. Filed Oct. 29, 1877.

1. The balance derrick described, having the load I and frame G, supported on the platform E, in combination with the circular railway *b c*, and with the straight railway A, for the purposes specified.

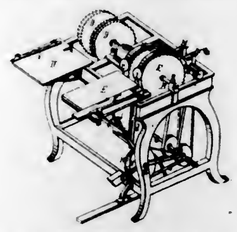
2. In a balance-derrick, the provisions, J K L, for allowing the shifting of the balance-weight I outward and inward, as required.

197,646.



197,646. MACHINES FOR RELISHING THE RAILS OF SASH, DOORS, AND BLINDS. Geo. W. Maher, Albion, Mich. Filed July 19, 1877.

Brief.—Sash, door, and blind rails are relished, and the necessary wedges cut from the waste timber, without handling the rail at each successive step, by means of two gangs of circular saws of varying diameter in the same arbor, a longitudinally-adjustable table, a vertically-adjustable table, two cut-off saws having their bearings in arms which form guards for the saws, and suitable operating mechanism.

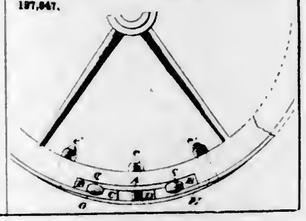


1. In a relishing-machine, the combination of two gangs of circular saws upon the same arbor, the saws in each gang regularly increasing in size, a table for each gang of saws, one table provided with guides, and adapted to present the rail diagonally to its proper gang of saws, the other table adjustable vertically, and adapted to present the rail in a right line to its proper gang of saws, and cut-off saws, all arranged upon one table, substantially as described and shown.

2. In a relishing-machine, substantially as described, the arms N, forming guards for the saws, in combination with the head-block and arbors M, substantially as and for the purpose set forth.

3. The combination, with the table E^1, of the slide E^2, thumb *j*, lever G, pulley H, cam I, belt J, tightener-pulley *k*, and rod F, for automatically raising the table E^1, substantially as described.

197,647.

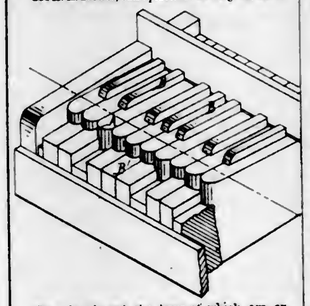


197,647. TIRE-TIGHTENERS. James Martin, Goliad, Tex. Filed May 16, 1877.

1. The combination, with a tire provided with flanged ends, of an engaging-bar formed with flanged ends, and wedges secured between the ends of the tire and engaging-bar, substantially as and for the purpose set forth.

2. The combination, with a tire and engaging-bar, each of which is formed with flanged ends, and wedges secured between the ends of the tire and engaging-bar, of a binding-iron, which latter serves to constitute a continuous bearing for the wheel, substantially as and for the purpose set forth.

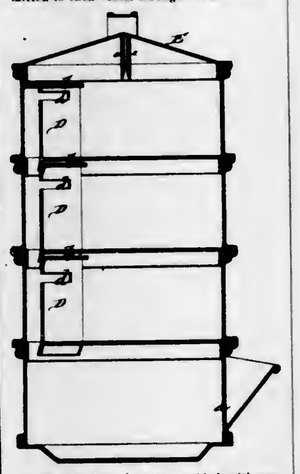
197,648. KEY-BOARDS FOR PIANOS AND ORGANS. M. H. McChesney, Jackson, Mich., assignor to himself and M. K. Bertree, same place. Filed Aug. 13, 1877.



In a key-board the keys of which are arranged and grouped in the usual manner, the extension of the shafts of the flat and sharp keys to the front of the natural keys, each of said extended shafts carrying a full-sized playing surface or key, substantially as represented and set forth.

197,649. STEAM-COOKERS. Mary J. McCullough, Lawrence, Kans. Filed Oct. 13, 1877.

Brief.—A vertical partition divides each food-receiver into two equal parts, the top of the partition fitting into grooves formed by parallel flanges on the vessel-cover. Steam is carried from the boiler in the tube and admitted to each vessel through a slot.

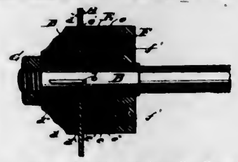


1. The food-receiver G, provided with concave slotted box D and central partition H, in combination with the cover E, having flanges *e e*, substantially as and for the purposes set forth.

2. The food-receiver 1, provided with the central box or conductor J, with partition H, substantially as and for the purposes set forth.

197,650. MEANS FOR COOLING CIRCULAR SAWS. J. F. Milligan, St. Louis, Mo., assignor to J. W. Branch, same place. Filed Mar. 4, 1876.

Brief.—The saw is cooled by means of an inner and outer collar, and a loose collar arranged immediately inside the inner collar, each of said collars being provided with annular chambers and passages. The loose collar is also provided with a perforation, through which is admitted a current of water into the chamber of said collar, part of the current passing through the passages in the inner collar onto the inner side of the saw, and part through perforations in the blade into the chamber of the outer collar, and through the passages in said collar onto the outer side of the saw.



1. The combination of the collar F, perforation *f*, chamber *f'*, collar E, chamber *e*, and shaft B, substantially as described.

2. The combination of the collar F, perforation *f*, chamber *f'*, collar E, chamber *e*, passages *e' e'*, &c., and shaft B, substantially as described.

3. The combination of the collar F, perforation *f*, chamber *f'*, collar E, chamber *e*, passages *e' e'*, &c., chambers *e'''*, *d*, and *d''*, passages *d''' d'''*, &c., saw A, perforations *a a*, &c., and shaft B, substantially as described.

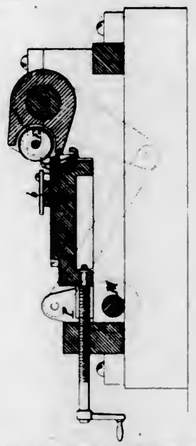
4. The combination of the collar F, perforation *f*, chamber *f'*, collar E, chamber *e*, passages *e' e'*, and chamber *e'''*, substantially as described.

5. The combination of the chambers *e'''* and *d*, shaft B, saw A, and perforations *a a*, &c., substantially as described.

6. The combination of the collars D and E, chambers *e e''' d d''*, passages *e' e' d' d'''*, shaft B, saw A, and perforations *a a*, &c., substantially as described.

7. The combination of the collars D, E, and F, perforation *f*, chambers *f' e e''' d d''*, passages *e' e' d' d'''*, shaft B, saw A, and perforations *a a*, &c., substantially as described.

197,651. MACHINES FOR FORMING CLIPS ON HORSE-SHOES. Joel Miller, Philadelphia, Pa. Filed Oct. 22, 1877..



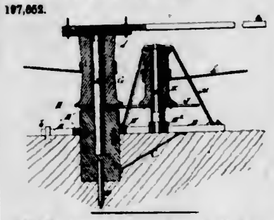
The combination of the vibrating presser with a bed, B, having in its front edge a recess, *d*, and provided with means whereby a horseshoe blank may be secured in position on the bed, all substantially as specified.

197,652. STUMP-EXTRACTORS. Aaron H. Miller, La Porte, Ind. Filed Nov. 15, 1877.

1. The combination of the extended framework B B' B'', let into post A, braces C, and point D, all constructed substantially as and for the purposes herein set forth.

2. In a stump-extractor having a vertical center post, A, with horizontal frame-work, and a vertical pivot or shaft, E, the combination of the drum G, with cog-wheel H, drum K, with cog-wheel J, shaft L, and spider M, all constructed substantially as and for the purposes herein set forth.

197,652.



197,653. FURNACE-GRATES. Alexander W. M. Moore, London, England. Filed Oct. 31, 1877. Patented in England, May 29, 1877.



A furnace-grate composed of a series of tubes arranged parallel to each other, and each constructed with an open front end and an aperture on the lower side of its rear end, and recessed at *a'*, in combination with the rear supporting-bar and the front rocking shaft, having protuberances for vibrating the grate-bar, substantially as described.

197,654. TRACE-FASTENERS. J. G. Munroe, Wytheville, Va. Filed July 5, 1877.



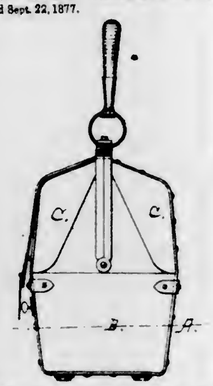
The improved trace-fastener herein described, consisting of the recessed and slotted plate A, in combination with spring *k*, bearing-pin *m*, and pivoted latch C C', having lug *j* and slot *e*, substantially as and for the purpose hereinbefore set forth.

197,655. ORNAMENTAL CHAINS. David D. Nevins, Attleborough Falls, Mass. Filed Oct. 6, 1877.



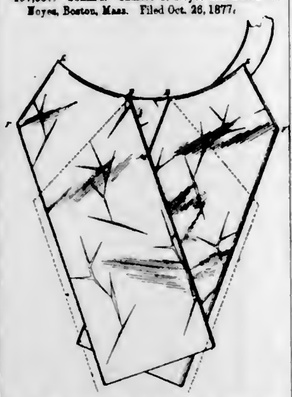
A chain composed of links A, formed of short pieces of wire, having loops a^1 made in their middle parts, and having their ends bent outward, rearward, and inward to form rings or loops a^2, substantially as herein shown and described.

197,656. SATCHELS. Conrad Noll, Newark, N. J. Filed Sept. 22, 1877.



The hand bag having the wood end pieces B C, constructed substantially as described, so as to leave space for the falling of the flexible part in closing the bag, said pieces being covered with leather or other flexible material, and having the sides E nailed to the edges of said ends, substantially as and for the purposes set forth.

197,657. SCARF. Charles C. Noyes and David W. Noyes, Boston, Mass. Filed Oct. 26, 1877.



1. The combination of the scarf, as improved by the extended corners F E B, with the ordinary neck tie shield, substantially as described, and for the purpose set forth.

2. The improved scarf, constructed with the extended corners B E F, as described, and for the purpose set forth.

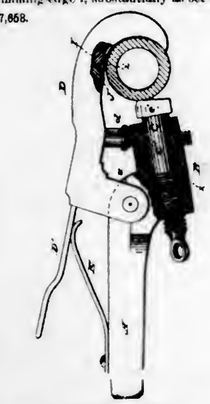
197,658. PIPE TONGS AND CUTTERS. Anton Ochsner, New Haven, Conn. Filed Aug. 22, 1877.

Brief.—Puts into the curved jaw an extra cutter to trim the rough edge of cut pipe. May use spiral spring, or spring of any suitable form, between handles.

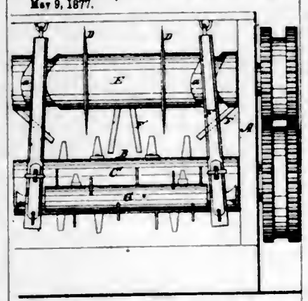
1. The combination of main handle A, having tubular block B attached to it, with curved jaw D, handle D', stop d, and spring E, forming an implement adapted to be used either with a griping jaw or a cutting chisel, substantially as set forth.

2. The combination, in a pipe-cutter, of a straight jaw and suitable handles, with a curved jaw, having groove J and pin I, having trimming edge i, substantially as set forth.

197,658.



197,659. BAND-CUTTING FEEDERS FOR THRASHING-MACHINES. J. M. O'Neall, Fort Worth, Tex. Filed May 9, 1877.



1. The combination of the traveling apron, the rotating shaft, having cam-grooves, and the laterally vibrating rake, consisting of the supporting-arms H and a toothed cylinder, G, carried thereon, substantially as shown and described.

2. The combination of the toothed roller G and pivoted supporting-arms H, loosely connected to the frame, as described, with the traveling apron H, as and for the purpose specified.

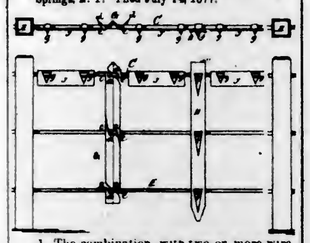
197,660.



197,660. PLOWS. Alvy G. Perry, Hickory Flat, Miss. Filed Feb. 24, 1876.

In combination with the plowshares and the standards, the detachable and interchangeable mold-boards, whereby the plow is adapted to turn right or left furrows, substantially as described.

197,661. WIRE FENCES. Abel Putnam, Jr., Saratoga Springs, N. Y. Filed July 14, 1877.

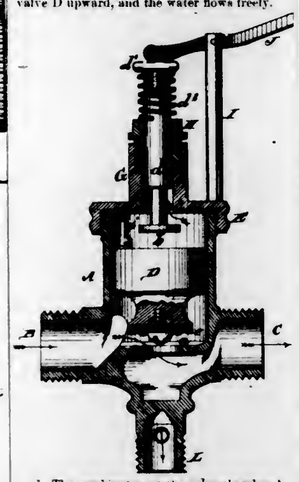


1. The combination, with two or more wire fence-rails, C and E, of the stays or pickets G G, slit at the edges to form the strips *c*, said strips being bent around the wires to connect the stays thereto, and so as to project laterally from the wires to form the spurs or barbs *d*, substantially as and for the purpose specified.

2. The combination, with the wire C, of the guard J, provided with the spurs or barbs *g g*, and connected to the wire by coiling the spurs around the wire, substantially as and for the purpose specified.

197,662. WATER-CLOSET VALVES. John H. Quinn, Boston, Mass. Filed Aug. 25, 1877.

Brief.—The nature of the invention consists in the construction and arrangement of a valve for water-closets, and is operated by lifting the lever of the water-closet when the valve *b* is opened. The pressure of the water forces the valve D upward, and the water flows freely.



1. The combination of the valve-chamber A, inlet B, outlet C, and plunger-valve D with the valve *b*, chamber G, tube *k*, and outlet L, substantially as described, and for the purpose set forth.

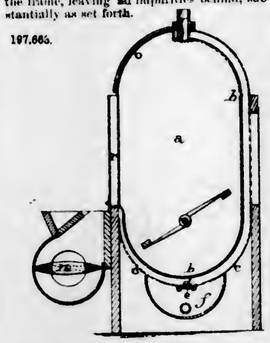
2. The cap E, with chamber G, spring-valve *b*, operating lever J, and connecting-tube *k*, in combination with the valve-chamber A, plunger D, and bottom outlet L, substantially as and for the purposes herein set forth.

197,663. FEATHER-RENOVATORS. Levi C. Quinby, Monticello, Iowa. Filed June 18, 1877.

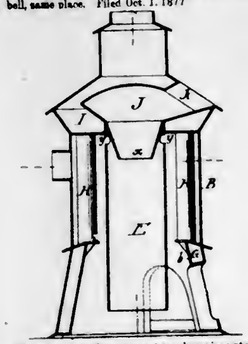
1. In combination with a feather-renovator, the hinged frames or guides *s*, sliding door fitting therein, and a fan, *s*, whereby, when the door is removed, the fan may be used to blow the feathers out of the frame, substantially as set forth.

2. In a feather-renovator, the combination of the end pieces *a*, covering *b*, jacket *c*, reservoir *f*, valves *e*, stirrer, door *r*, fan *s*, and a driving mechanism, whereby, after the feathers have been cleaned, they can be blown from the frame, leaving all impurities behind, substantially as set forth.

197,665.



197,664. HEATING-STOVES. Seymour Raymond, Middletown, Pa., assignor to himself and Joseph Campbell, same place. Filed Oct. 1, 1877.



The combination, in a base-burning stove, of the illuminating-section A, body B, magazine E, and hot-air chamber I with the air-heating pipes H, arranged between the magazine E and body B, above the illuminating-section A, all substantially as set forth.

197,665.



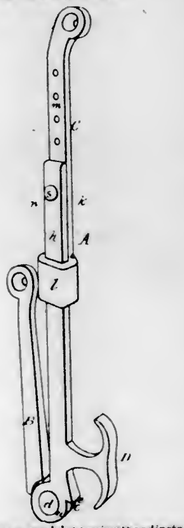
197,665. PLOW ATTACHMENTS. Jos. Redman, South Carrollton, Ky. Filed Oct. 12, 1877.

Brief.—An inclined board or plate secured to the front end of a plow-beam by a block, wedge, and clamps. The front end is curved to gather the weeds, which are cut and crushed by teeth, and pressed to the ground by the grooved rear end.

1. The rake attachment for plows herein described, consisting of the rake-board D, armed with teeth *g*, block E, having slot *e*, and beveled cut or recess *r*, bolts *a a a a*, clamps G G, nuts *b b b b*, and auxiliary rake E, all constructed and combined to operate substantially as and for the purpose herein shown and specified.

2. In combination with the plow A B C, the rake attachment herein described, consisting essentially of the parts D E F G G and adjusting-wedge H, substantially as and for the purpose herein shown and specified.

197,666. JOINTS FOR CARRIAGE-TOPS. J. E. Reeves, St. Joseph, Mo. Filed Sept. 15, 1877.

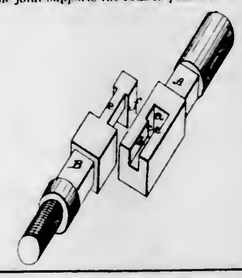


1. The buggy-top joint having the adjustable extension or slide C looped on the shank *h* of the main arm, the perforations *m n*, and fastening *s*, substantially as specified.

2. The buggy-top joint consisting of the short arm B and the looped extensible arm A, having the downwardly projecting ⊥-shaped handle D, substantially as specified.

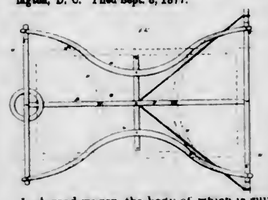
197,667. COUPLINGS FOR SUCKER-RODS. William S. Roberts, Martinsburg, assignor of one-half his right to Ira C. Shaw, Parker Township, Pa. Filed Oct. 9, 1877.

Brief.—When coupled and inserted into a tube of suitable diameter, the rods cannot become separated, and when without the tubing the joint supports the rods in position.



In a device for connecting sucker-rods for oil-wells, parts A and B, groove *b*, opening *a*, projection *c*, and head *f*, substantially as shown and described.

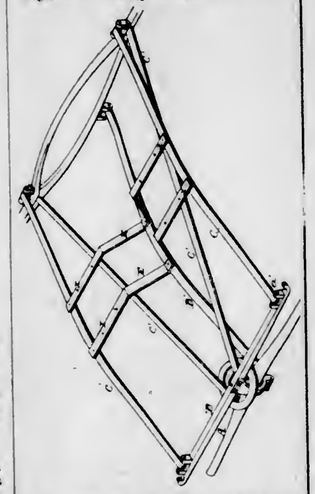
197,668. ROAD-WAGONS. Cyrus W. Saladee, Washington, D. C. Filed Sept. 3, 1877.



1. A road-wagon the body of which is supported upon bent bars extended beyond the length and breadth of the body, and having their central portion rigidly secured to the bottom of the body, and their ends to the main supporting-springs over the front and rear axles, substantially as and for the purpose set forth.

2. In a road-wagon, the combination of the body A, supporting-bars H, end springs C, spring-perch B, axle-stays D, and central braces E, the whole constructed and arranged to operate substantially as and for the purpose set forth.

197,669. ROAD-WAGONS. Cyrus W. Saladee, Washington, D. C. Filed Sept. 21, 1877.



1. A road-wagon having the front and rear axles connected by a rigid perch or perches, and provided with side or end springs, and with a lower central spring, B', connected to the body by braces, substantially as set forth.

2. The combination, with the rigid frame, consisting of the rear axle-bolster and perch, of a spring-platform, the lower spring of which extends longitudinally below the center of the body and is connected thereto by braces, substantially as specified.

3. The combination, with the rigid supporting-frame of a road-wagon, of a spring-platform, consisting of a lower central spring, B', and side springs C C connected to the body and central spring by braces E, substantially as set forth.

197,670. ROAD-WAGONS. Cyrus W. Saladee, Washington, D. C. Filed Sept. 5, 1877.

1. A road-wagon constructed with a spring perch composed of two or more half-elliptic springs, one over the other, extended in connect the front and rear axles, substantially as and for the purpose set forth.

2. In a road-wagon, the spring-perch composed of two or more half-elliptic springs extended to connect the front and rear axles, and having its cross-central portion rigidly fixed in relation to the body and main supporting-springs of the vehicle, substantially as described.

3. The combination of the perch-springs B B, central brace E, and the axle-stays D, constructed to operate substantially as and for the purpose set forth.

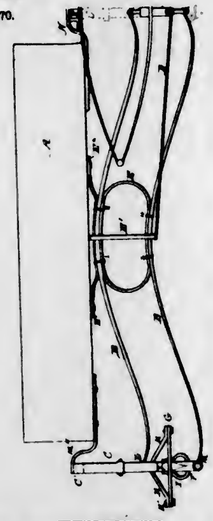
4. The combination of the perch-springs B B, cross brace or braces E', and the body A, constructed and arranged to operate substantially as and for the purpose set forth.

5. The combination of the longitudinal brace E², spring-perch B B, and body A, substantially as and for the purpose set forth.

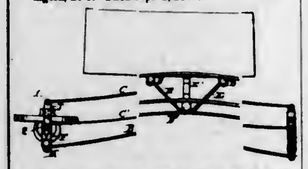
6. The combination of the head-block or spring-bolster J, fifth-wheel G, brace H, and spring shackle and plate I², constructed and arranged to operate substantially as and for the purpose set forth.

7. The combination of the spring-perch B B, main supporting-springs, cross-brace E', spring-bolster J, and the front and rear axles of the vehicles, constructed and arranged to operate substantially as and for the purpose set forth.

197,670.



197,671. **ROAD-WAGONS.** Cyrus W. Saladee, Washington, D. C. Filed Sept. 1, 1877.



1. A road-wagon having on each side of the body two or more semi-elliptic springs, and beneath the body a spring-perch, the whole arranged to afford a spring-support for the body and to connect the bolster and front and rear axles, substantially as set forth.

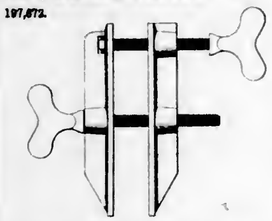
2. The combination, in a road-wagon, of the upper and lower side springs C C' on opposite sides of the body, perch B, cross-bars D D, connecting the springs C C', and brace E, uniting the bars D D', as set forth.

3. The lateral cross-brace E', combined with the body A, perch B, springs C C', bars D D', and brace E, substantially as and for the purpose set forth.

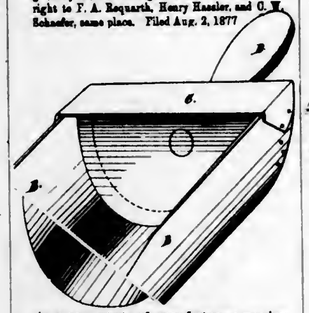
197,672. **HAND SCREW-CLAMPS.** Albert M. Schappe, New Haven, Conn., assignor to W. and E. T. Fitch, same place. Filed Oct. 26, 1877.

As an article of manufacture, a hand-screw clamp consisting of a pair of cast-metal T-shaped jaws, constructed with enlargements for the passage of the screw through the respective jaws, and combined with two parallel screws, substantially as described.

197,672.

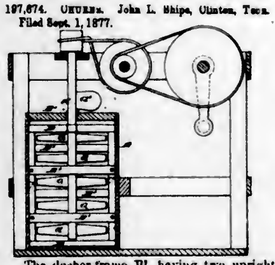


197,673. **GROCERS' SCOOPS.** Charles W. Schwarzengal, Dayton, Ohio, assignor of three-fourths of his right to F. A. Roquarth, Henry Hassler, and C. W. Schaefer, same place. Filed Aug. 2, 1877



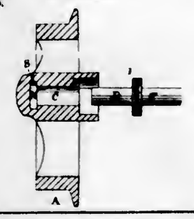
As a new article of manufacture, a wooden scoop with steamed and bent blade B, having its grain running longitudinally, end piece, metal brace-piece C, and handle D, the parts being connected substantially as and for the purpose described.

197,674. **CHURNS.** John L. Ships, Clinton, Texas. Filed Sept. 1, 1877.



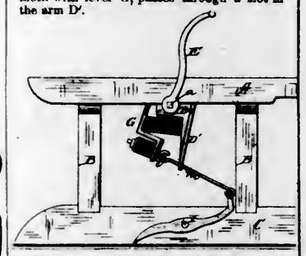
The dasher-frame B', having two upright side pieces, C, and connecting top and bottom bars D, with horizontal bars D' alternating on opposite edges of said side pieces, in combination with the dasher-shaft E, passing vertically through the top and bottom bars of the dasher-frame, and provided with horizontal paddles G, substantially as and for the purposes set forth.

197,675.



197,676. **SLED-BRAKES.** Henry W. Smith, Rainsburg, Pa. Filed Oct. 11, 1877.

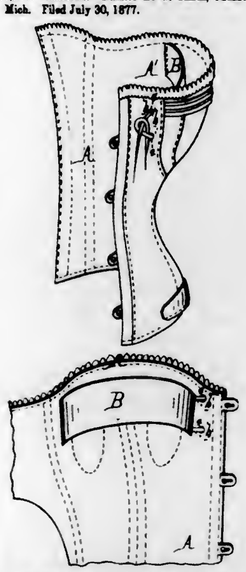
Brief.—The rod *m*, connecting the brake-tooth with lever G, passes through a slot in the arm D'.



1. The combination of the block D, secured upon the rock-shaft *a*, and provided with the slotted arm D', the spring *h*, and the hinged lever G, connected to the brake-tooth, substantially as herein set forth.

2. The combination of the tooth I, rod *m*, eyebolt *i*, lever G, springs *h h'*, and block D, with slotted arm D', all constructed substantially as and for the purposes herein set forth.

197,677. **CORSETS.** Emmet Le G. Smith, Jackson, Mich. Filed July 30, 1877.



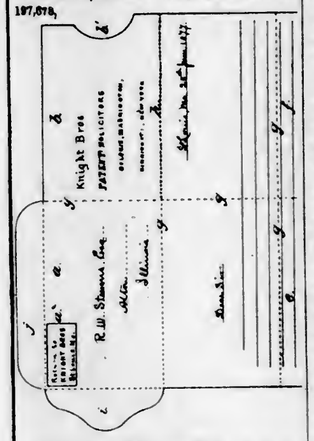
The combination, with the bust-forms A, of the bands B, extending across the same, and secured by cords *b*, passed through the corset, and tied on the outside, whereby the said bands can be adjusted without removing the corset, substantially as described and shown.

197,678. **LETTER SHEET AND ENVELOPE COMBINED.** Richard W. Stevens, Alton, Ill., assignor of one-third his right to George B. Moore, St. Louis, Mo. Filed July 19, 1877.

1. The sheet provided with laps *i j* and line *h* of perforations, substantially as set forth.

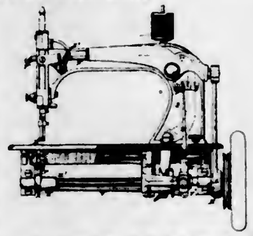
2. The sheet provided with laps *i j*, line *h* of perforations, and gap *b' b''* at the margin, substantially as and for the purpose set forth.

197,678.



197,679. **SEWING-MACHINES.** Nesbitt D. Stoops and Cyrus S. Cushman, Philadelphia, Pa.; said Cushman assignor to said Stoops. Filed Sept. 18, 1877.

Brief.—The shuttle-lever is connected to an eccentric on the driving-shaft through the medium of a short arm, the plane of movement of such arm being below the axis of said driving-shaft, whereby an accelerated motion is given to the shuttle as it passes through the needle-thread. The bell-crank take-up lever is operated independently of the needle-bar by a rod connecting it to a cam-cylinder on the driving-shaft, whereby a positive and accelerated motion is imparted to said take-up, said rod being adjustably secured to the lever by a set-screw and nut operating in a slot in said bell-crank lever. The feed-dog receives its vertical motion from a cam on the driving-shaft, and is reciprocated horizontally by an adjusting-rod, which acts against a tapering cam, also on the driving-shaft, which rod, through proper mechanism, can be adjusted with relation to said cam, thereby regulating the throw of said feed-dog.



1. In combination with the driving-shaft of a sewing-machine, the lever for actuating the shuttle, connected with the crank on the driving-shaft, at a point below the axis thereof, substantially as herein shown and described, whereby an accelerated motion is imparted to the shuttle on its forward movement, while passing through the loop of the needle-thread, and a retarded movement on its return stroke, as and for the purpose set forth.

2. In combination with the driving-shaft of a sewing-machine and the lever which actuates the needle-bar, a lever for actuating the shuttle-carrier, connected to a crank on the driving-shaft by means of a link, arranged, substantially as described, in relation thereto, whereby an accelerated movement is imparted to the shuttle on its forward movement, as it is passing through the loop of the needle-thread, and a retarded movement is imparted to said shuttle on its return movement, as and for the purposes specified.

3. The combination, with the driving-shaft, shuttle-carrier, and mechanism for operating the same, of a take-up lever connected to a lever operated by a cam-cylinder on the driving-shaft, and operating independently of the needle-bar, whereby a variable positive motion with respect to the needle is imparted to the take-up, and said take-up is retarded during the passage of the shuttle through the loop of the needle-thread, substantially as and for the purposes set forth.

4. In combination with the driving-shaft of a sewing-machine, the feed-dog O, and adjusting-bar V, the cam H', acting upon the adjusting-bar, and the cam K', acting directly upon the feed-dog, substantially as described, whereby the requisite vertical and horizontal reciprocating motions are imparted to the feed-dog, substantially as described.

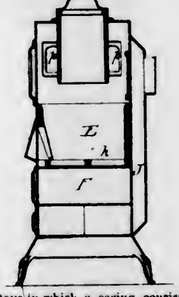
5. In combination with the driving-shaft of a sewing-machine, and the feed-dog, and adjusting-bar, the cams mounted on said driving-shaft, whereby the proper backward, forward, and vertical movements are imparted to said feed-dog, substantially as set forth.

6. In combination with the adjusting-bar of the feed-dog, the rock-shaft, and its operating mechanism, the index-lever and scale, whereby the length of the stitches can be determined, substantially as set forth.

7. In combination with the driving-shaft of a sewing-machine and the cam-cylinder mounted thereon, the bell-crank take-up lever and its operating-lever, whereby a variable positive motion in both directions, with respect to the needle-bar, is imparted to the take-up, substantially as and for the purposes set forth.

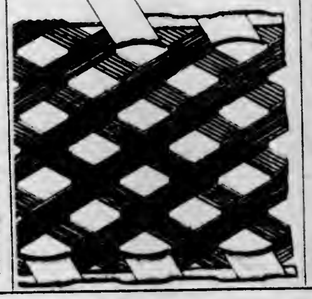
8. The combination of the slotted bell-crank lever I', its actuating-rod S', and the set-screw and nut by which the two are adjustably connected, substantially as described, whereby the throw of the take-up may be regulated as desired.

197,680. **HEATING-STOVES.** David Smart and Lewis Bridge, Philadelphia, Pa., assignors to David Smart and Richd. Petersen, same place. Filed June 6, 1877.



A stove in which a casing, consisting of a flat front and rear of oval shape, or shape approximating thereto, and sides conforming therewith, a fire-place, E, grate *h*, and ash-chamber F contained within the casing, and extending from front to rear of the same, are combined, all substantially as set forth.

197,681. **WIRE BELTING.** Carl W. Sturmberg, Elberfeld, Prussia. Filed Oct. 20, 1877.



1. A wire belt constructed of a series of transverse strands, each bent to a zigzag shape, and the whole interlaced, and either with or without an edge-facing of leather or similar material, substantially as described.

2. A wire belt constructed of a series of transverse strands, arranged in groups or sets, each bent to a zigzag shape, and the whole interlaced, either with or without an edge-facing of leather or similar material, substantially as set forth.

197,682. **HARROW-TEETH.** Carlo B. Taylor, South Bend, Ind. Filed Oct. 27, 1877.



1. The shoe *d*, made triangular in cross-section, and placed in the angle of the spring and tooth, substantially as shown.

2. The triangular washer or plate *c*, secured to the under side of the tooth *c*, substantially as set forth.

3. The combination of the spring *a*, tooth *c*, and shoe *d*, the shoe being made triangular in cross-section, and serving to unite the tooth and spring together, substantially as described.

4. The combination of the spring *a*, tooth *c*, shoe *d*, constructed as described, washer *c*, and the bolts by means of which the parts are secured together, the tooth having two or more holes through it, so as to change its angle to the spring, substantially as shown.

197,683. **DRAWER-LOCKS.** Warren H. Taylor, Stamford, Conn., assignor to the Yale Lock Manufacturing Company, same place. Filed Sept. 13, 1877.



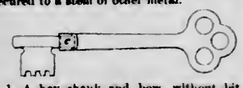
1. A ring for a lock, provided with a central key-aperture, in which the key will turn loosely to spread and disengage the tumblers, having lugs to be struck by the key-bits to turn the ring concentrically with the key after the tumblers have been disengaged by the partial rotation of the key, and having a cam or talon on its periphery to engage with and throw the bolt, substantially as described.

2. In combination with the bolt and spreading-tumblers of a key-lock, a ring provided with a central key-aperture and a cam and lugs, substantially as specified, and arranged to oscillate concentrically with the rotation of the key after the tumblers have been spread and disengaged, as set forth.

3. A non-rotating nosing or key-barrel of a lock adapted for a sheet-metal key, counterbored to form an annular internal projecting ledge, *c*, integral with the barrel, to support the external disk *d*, and notched on opposite sides, substantially as described.

197,684. **KEYS.** Warren H. Taylor, Stamford, Conn., assignor to the Yale Lock Manufacturing Company, same place. Filed Feb. 23, 1877.

Brief.—A bow and shank of a single piece of sheet metal, without bit or stem, is rigidly secured to a stem of other metal.



1. A key shank and bow, without bit or stem, formed of one piece of sheet metal, and provided with a tenon for uniting it with the stem, substantially as described.

2. The combination of a tenoned sheet-metal key shank and bow with a cylindrical slotted key-stem carrying a bit or wing, substantially as described.

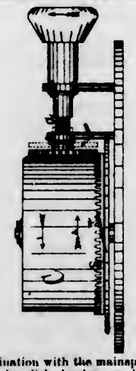
3. A key having a bow and shank composed of a single piece of sheet metal without bit or stem, and rigidly secured to a stem of other metal.

197,685. PAVING COMPOSITIONS. Lorenzo P. Tood, Erie, Pa., assignor of two-thirds his right to Thos. F. Hobbs and W. W. Lyle, same place. Filed June 22, 1877.

1. A paving compound composed of lime, sand, gravel, and tar, in about the proportions, and compounded in the manner, substantially as herein set forth.

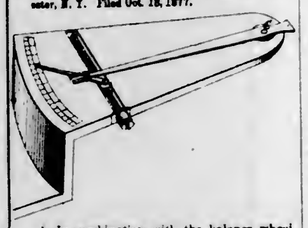
2. As a new article of manufacture, a paving or building block composed of lime, sand, gravel, and tar, used in about the proportions, and compounded, substantially as described, and allowed to cool and solidify in molds, as set forth.

197,686. STEM-WINDING DEVICES FOR WATCHES. J. Thomson, Rochester, N. Y. Filed Oct. 18, 1877.



In combination with the mainspring-barrel, and with the disk having an independent movement with respect thereto, the gearing forming part of said mainspring-barrel, the pawl adapted to operate therein, and the adjustable pinion secured to the stem-winder, the whole constructed to operate substantially as specified.

197,687. WATCH-REGULATORS. J. Thomson, Rochester, N. Y. Filed Oct. 18, 1877.



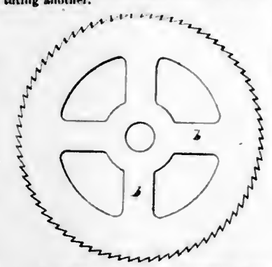
1. In combination with the balance-wheel spring of a watch, the pivoted regulator-lever, forked at its outer end, the regulator-screw, and the pivoted index-lever, connected with the screw, and having a pin adapted to the forked end of the regulator lever, whereby, by adjusting the screw, the forked lever and index-lever are moved back and forth, substantially as set forth.

2. In combination with the regulator-lever and index lever, an adjustable block, to which the index lever is pivoted, mounted on a micrometer-screw located in a transverse recess in the bridge of the watch, whereby the fulcrum of the indicator lever may be changed in order to provide for a perfect adjustment of the regulator lever, substantially as set forth.

3. In combination with the regulator-lever, a concavo-convex disk fitting over the cap-jewel, whereby the friction at the fulcrum of the lever is obviated, substantially as set forth.

197,688. CIRCULAR SAWS. Edward W. Tilton, Oshkosh, Wis. Filed Aug. 18, 1876.

Brief.—That portion of the saw between the eye and the periphery is made partially open, leaving arms connecting the outer rim to the hub or central portion. The outer rim may be made detachable from the central portion, for renewing the rim when worn and substituting another.

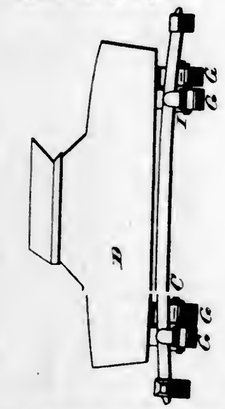


1. A circular saw made with openings, leaving a central part, in which is the eye, connected to the rim by radial arms *b b*, as set forth.

2. A circular saw having central parts, radial arms, and a removable rim, as set forth.

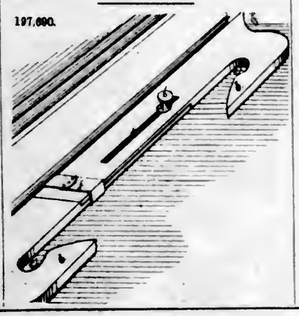
3. A circular saw having radial arms and a removable rim, the arms and rim being united in the manner set forth.

197,689. CARRIAGE-SPRINGS. Henry Timken, St. Louis, Mo. Filed Oct. 27, 1877.



In combination with the side bars C C and body D, the springs G G, attached to the under side of the body at opposite sides, then crossing each other, and connected to the side bars on opposite sides, substantially as herein set forth.

197,690.



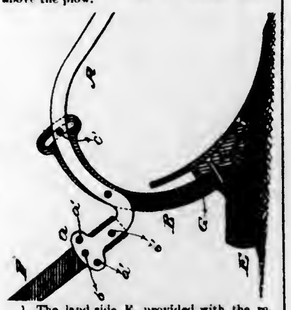
197,690. WALL-FENDERS FOR FURNITURE. Samuel B. Tizzard, Dayton, Ohio. Filed Sept. 11, 1877.

1. A wall-fender consisting of a body, A, having integral hooks or barbs *b*, for embracing the hind feet of any article of furniture, and preventing the same from defacing the wall, as set forth.

2. In a wall-fender for furniture having hooks or barbs *b*, the body A, made in two parts, adapted to slide on each other, and be held by a set-screw, whereby the fender may be lengthened or shortened to suit any piece of furniture, as and in the manner specified.

197,691. PLOWS. Wm. M. Towers, Rome, Ga. Filed Sept. 29, 1877.

Brief.—The shovel-block formed upon the land-side with lugs to fit a slotted standard. Plow-beam with an upward bead, forming a handle-adjusting device, and a lateral offset above the plow.

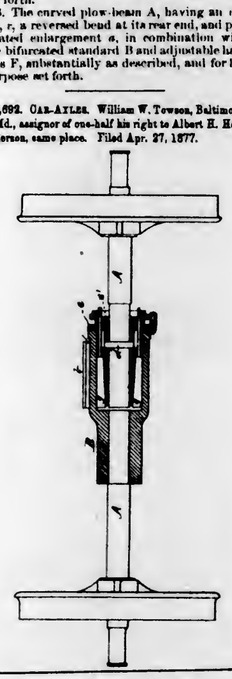


1. The land-side E, provided with the recessed projecting arm G, having the projections *d d'*, in combination with the bifurcated standard H, substantially as described, and for the purpose set forth.

2. The curved plow-beam A, having a reverse bend at its rear end and offset *e*, substantially as described, and for the purpose set forth.

3. The curved plow-beam A, having an offset, *e*, a reversed bend at its rear end, and perforated enlargement *a*, in combination with the bifurcated standard B and adjustable handles F, substantially as described, and for the purpose set forth.

197,692. CAR-AXLES. William W. Towson, Baltimore, Md., assignor of one-half his right to Albert H. Henderson, same place. Filed Apr. 27, 1877.

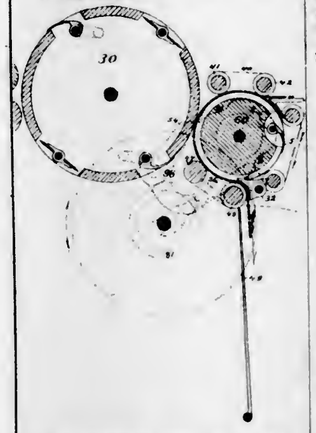


1. In combination with the cylindrical coupling B, the sections A A of the axle, one or both of which sections are provided with collars *d*, secured thereto and resting within recesses in the ends of the said coupling, and the flanges *c*, the said flanges being made in sections, to allow of their being placed over or beyond the said collars on the axle, and bolted to the ends of the said coupling, substantially as herein set forth.

2. In combination with the sections A A of the car axle, adapted to rotate independently of each other and within the coupling B, an independent set or system of radially-adjustable sections of an anti-friction casing for each section of the axle, the adjustability of the sections of the said casing being obtained by means of tapering bolts resting upon the same, and a threaded ring adapted to cause a combined longitudinal movement of the said bolts, substantially as herein described.

3. In combination with a coupling provided with flanges and two sections or parts, A, of the axle, having collars, as shown, gum or other flexible washers located between the said collars and flanges, substantially as and for the purpose herein set forth.

197,693. SHEET-DELIVERING APPARATUS FOR PRINTING-MACHINES. Stephen D. Tucker, New York, N. Y. Filed Nov. 6, 1877.



1. An independent rotating sheet-accumulating carrier, combined with a rotating folding-blade carrier, said carriers being mounted upon parallel axes, and provided with means for directing the sheets from one to the other, all substantially as described.

2. An accumulating-carrier and a folding-blade carrier mounted upon parallel axes, and combined with means which deliver sheets from one to the other, all substantially as described.

3. An accumulating-carrier, in combination with a folding-blade carrier, each of said carriers being provided with gripers for transferring sheets from one to the other of said carriers, all substantially as described.

4. An independent rotating sheet-accumulating mechanism, provided with means for receiving sheets at one point and for delivering the same at two points, in combination with an independent folding mechanism mounted upon an axis parallel with that of the accumulating mechanism, and with independent mechanism for the delivery, all substantially as described.

5. The combination of an accumulating-carrier with a folding-blade carrier of two, three, or more times its diameter, which latter is furnished with two, three, or more folding devices, all substantially as described.

6. The combination, with the accumulating-carrier and the folding-blade carrier, of the rocking cam 98, whereby the former carrier is operated to collect or associate sheets and deliver the same to the latter, substantially as described.

7. The combination, with carriers, as 60 30, provided with gripers, of a cam, as 98, having arms 54 26, substantially as described.

8. The combination of the swinging cam 98, adjusting-screw 9, and carriers 60 and 30, substantially as described.

9. The combination of the cam 98, eccentric-rod 100, and carriers 60 and 30, substantially as described.

10. In combination with a sheet-gage, a mechanism constructed substantially as described, and operating automatically to deflect a traveling sheet, so that alternate sheets shall pass said gage.

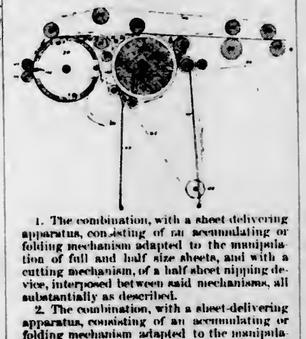
11. The lifting-rod 91, in combination with the tapes 72 73 and gage 97, substantially as described.

12. The combination of folding-rollers 66 67, slowly-moving receiving-rollers 56 57, folding-rollers, as 74 141, and stops 96 97, whereby the rearmost of a pair of sheets, separated a distance apart as the latter emerges from the rollers 66 67, is caused to gain upon the foremost sheet of the pair, and the two thus move into register at about the same time against their respective stops, all substantially as described.

13. A rotating folding-blade carrier provided with two sets of sheet seizing and releasing gripers, and with means for rendering one set of said gripers inoperative, all substantially as described.

14. The combination, with a rotating carrier supplied with devices for collecting or accumulating many sheets thereon, of a switch to deliver said sheets in a single mass or body therefrom, and a folder-carrier furnished with means for receiving and folding said sheets, all substantially as described.

197,694. SHEET-DELIVERING APPARATUS FOR PRINTING-MACHINES. Stephen D. Tucker, New York, N. Y. Filed Nov. 21, 1877.



1. The combination, with a sheet-delivering apparatus, consisting of an accumulating or folding mechanism adapted to the manipulation of full and half size sheets, and with a cutting mechanism, of a half sheet nipping device, interposed between said mechanisms, all substantially as described.

2. The combination, with a sheet-delivering apparatus, consisting of an accumulating or folding mechanism adapted to the manipulation of full and half size sheets, and with a cutting mechanism, of full sheet and half sheet nipping devices, substantially as described.

3. An accumulating-carrier provided with means for receiving sheets at one point and for delivering the same at two points, in combination with two fly-frames, all substantially as described.

4. The combination, with an accumulating-carrier provided with two points of delivery, of two switches, for controlling the movements of the sheets at said points of delivery, all substantially as described.

5. An accumulating-carrier provided with means for receiving sheets at one point and for delivering the same at three points, all substantially as described.

6. A folding-blade carrier provided with three folding-blades, one or more of which is removable, all substantially as described.

7. The combination of cutting mechanism, sheet-nipping device, as rollers 31 32, and independent sheet accumulating and folding mechanisms, all substantially as described.

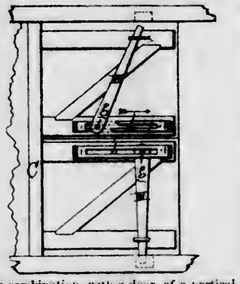
8. The combination, with cutting mechanism, independent sheet accumulating and folding mechanisms, and a movable sheet-directing mechanism, of a sheet-nipping device interposed between said cutting mechanism and accumulating or folding mechanism, all substantially as described.

9. An accumulating-carrier provided with means for receiving sheets at one point, and for delivering the same at three points, in combination with two fly-frames and a folding mechanism, all substantially as described.

10. The combination, with an accumulating-carrier, having two sheet-discharging mechanisms, of tapes interposed between said mechanisms, all substantially as described.

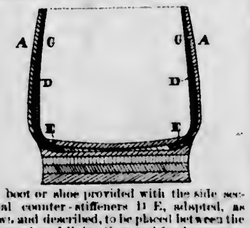
197,695. DOOR-FASTENINGS. Geo. A. Varney, Rockwood, assignor of one-half his right to Joseph A. B. Wolven, Flat Rock, Mich. Filed July 30, 1877.

Brief.—A horizontal slotted guide-bar, in which the heel of the vertical fastening-bar is pivoted, constitutes the distinguishing feature over other door-fastenings of this general description.



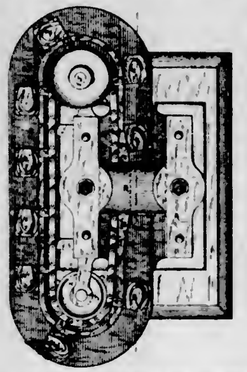
The combination, with a door, of a vertical bar, sliding at its outer end in a staple, and pivoted at its heel in a horizontal slotted guide-bar, substantially as described and shown.

197,696. COUNTER-SUPPORTS FOR BOOTS AND SHOES. William H. Vanwormer, Pierceton, Ind., assignor of two-thirds his right to Carson Parker and George W. Hayes, same place. Filed Oct. 20, 1877.



A boot or shoe provided with the side sectional counter-stiffeners D E, adapted, as shown and described, to be placed between the counter A and lining G, as and for the purpose stated.

197,697. MACHINES FOR IMPRESSING, EMBOSSING, COMPRESSING, AND SHAPING METALS, &c. James T. Walker, Albany, N. Y. Filed Nov. 7, 1877.



1. One or more detachable dies independently connected to an endless chain or carrier arranged on a platform, in combination with a pair of revolving smooth-surfaced rollers, substantially as and for the purposes herein set forth.

2. The combination of an endless chain or carrier, having one or a series of dies hinged thereto, the horizontal platform, and the revolving rollers, with mechanism for operating the rollers and the traveling dies, substan-

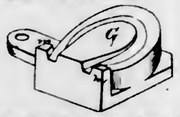
tially as and for the purposes herein set forth.

3. An endless track or guideway, *b*, arranged on a horizontal platform, in combination with the endless chain or carrier, having one or a series of dies connected thereto, and two revolving rollers, one above and the other below the platform, for the purposes set forth.

4. The switch *d*, in combination with the endless track *b*, the endless chain and its dies, and the two rollers, for the purposes set forth.

5. The combination of the endless chain or carrier H, having dies G hinged to the sides thereof, and supported on the horizontal platform E, the shafts J J, with sprocket-wheels I I, and the rollers C D, all substantially as and for the purposes herein set forth.

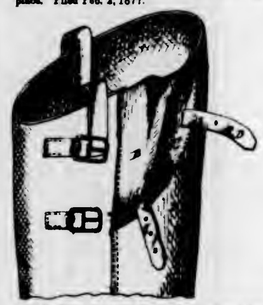
197,698. HORSESHOE-MACHINES. James T. Walker, Albany, N. Y. Filed Nov. 16, 1877.



1. In a horseshoe-machine, one or more detachable and independent and automatically-traveling horseshoe-shaping dies, in combination with a pair of smooth-surfaced pressure-rollers, between which the die or dies pass, for the purposes set forth.

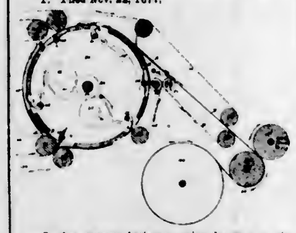
2. A horseshoe-die, G, formed upon its upper surface with the frog *h*, projections *m*, incline *i*, and inclined tapering tread *e*, substantially as and for the purposes herein set forth.

197,699. BOOTS. William H. H. Walker, Mercer, Me., assignor of one-half his right to Norris E. True, same place. Filed Feb. 2, 1877.



A high-top boot or boot-pac, as described, with a portion of its leg-front cut away at one side, and provided with a leather gusset, B, the outer leather flap-covering C, attached to the side of the leg-straps D, and suitable fastenings, all constructed substantially as and for the purpose specified.

197,700. SHEET-DELIVERING APPARATUS FOR PRINTING-MACHINES. Stephen D. Tucker, New York, N. Y. Filed Nov. 22, 1877.



1. An accumulating carrier having a circumference equal to the length of the number, plus one, of sheets to be collected together in a set, upon its surface, in combination with means for collecting or accumulating many separate sets of sheets thereon, and with means for delivering the same in succession therefrom, all substantially as described.

2. A sheet-delivering carrier having a circumference equal to the length of the number, plus one, of sheets to be collected together in a set upon its surface, in combination with means for so collecting sheets thereon, whereby sheets delivered in succession upon said carrier will be associated together in sets, all substantially as described.

3. A sheet-dellvering carrier having a circumference equal to the length of the number, plus one, of the sheets to be collected together in separate sets upon its surface, in combination with means for so collecting sheets thereon, and with a corresponding number of folding-blades, whereby sheets delivered in succession upon said carrier will be associated and folded together in sets, all substantially as described.

4. A sheet-delivering carrier combined with means for collecting or accumulating many separate sets of sheets thereon, and provided with one point of reception and two points of delivery for said sheets, all substantially as described.

5. A sheet-delivering carrier combined with means for collecting or accumulating separate sets of sheets thereon, and with three or more folding-blades and mechanisms operating the same at proper intervals so as to fold said bodies of sheets, all substantially as described.

6. A sheet-delivering carrier combined with means for collecting or accumulating separate sets of sheets thereon, and with three or more folding-blades and mechanisms for operating the same at proper intervals to fold said sets of sheets, in combination with two sets of co-operating folding-rollers, all substantially as described.

7. A sheet-accumulating carrier provided with three or more sets of gripers, in combination with mechanisms actuating said grippers so as to release the sheets at two points of delivery from said carrier, all substantially as described.

8. In combination with a cutting mechanism adapted to sever a web into suitably-sized sheets, a delivering carrier whose circumference is equal to the length of three or other uneven number of such sheets, and means for accumulating sheets thereon, whereby sets of two sheets may be collected or accumulated and delivered as a single product, all substantially as described.

9. In combination with a cutting mechanism adapted to sever a web into suitably-sized sheets, a delivering carrier whose circumference is equal to the length of three or other uneven number of such sheets, and which is provided with three or other corresponding uneven number of folding-blades, and means for accumulating sheets thereon, whereby sets of two sheets may be collected or accumulated and simultaneously folded as a single product, all substantially as described.

10. In combination with a cutting mechanism adapted to sever a web into suitably-sized sheets and a delivering carrier whose circumference is equal to the length of three or other uneven number of such sheets, and which is provided with three or other uneven number of folding-blades, and mechanisms operating the same at proper intervals, two independent pairs of folding-rollers with which said folding-blades co-operate, all substantially as described.

11. The combination, with a cutting mechanism adapted to sever the web into suitably-sized sheets, of a delivering-carrier whose circumference is equal to the length of three or other uneven number of such sheets, and which is provided with three or other uneven number of folding-blades, and with a corresponding number of gripers, and with means for accumulating sheets thereon, all substantially as described.

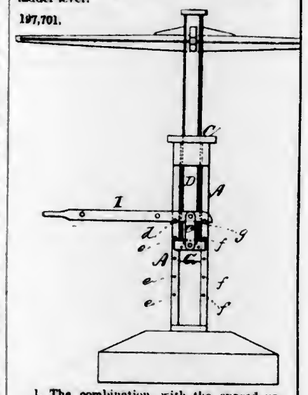
12. A folder-carrier supporting two or more rotary folding-blades, in combination with two flying cams and mechanisms for automatically reciprocating them laterally into and out of position to operate said folding-blades, all substantially as described.

13. A rotating carrier provided with two or more sets of sheet-controlling gripers, in combination with two revolving cams for operating said gripers, all substantially as described.

197,701. CLOTHES-DRIERS. Joseph W. Warner, La Varas, Minn. Filed Aug. 11, 1877.

Brief.—The revolving post is supported within spaced uprights, and stepped in a sliding guide-block, connected by pivoted links to a ladder-lever, adjustably fulcrumed on pins inserted in a graded series of perforations in said uprights, whereby the post carrying the clothes frame may be raised to any height desired by adjusting the pins and depressing the ladder-lever.

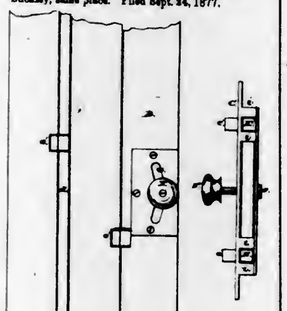
197,701.



1. The combination, with the spaced uprights A A, having cap C, and the reel-post D rotating therein, of the guided slide-block G, the vertically-vibrating ladder-lever I, and the pivoted links *e*, connecting the slide-block and lever, substantially as specified.

2. The combination, with the uprights A A, having perforations *e f*, and cap C, the reel-post D, journaled in said cap, and the slide-block G, of the ladder-lever I, connecting-links *e*, and fulcrum and stop-pins *d g*, substantially as specified.

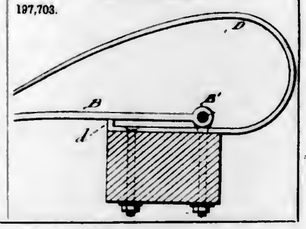
197,702. SASH-FASTENERS. Moses H. Ward, Cedar Rapids, Iowa, assignor of one-half his right to D. J. Buckley, same place. Filed Sept. 24, 1877.



1. In a window-sash fastener, substantially as described, the combination of the pivoted double-faced cam G, with bolts E, having ribs *s*, and with spring *a*, which takes at either end in or upon bolts E, substantially in the manner and for the purposes set forth.

2. In a window-fastener, as above claimed, the plate C, provided with lugs *i i*, &c., and cap D, the bolts E E', with offset shoulders *r r'*, the cam G, and spring *a*, all constructed and operating substantially as set forth.

197,703.



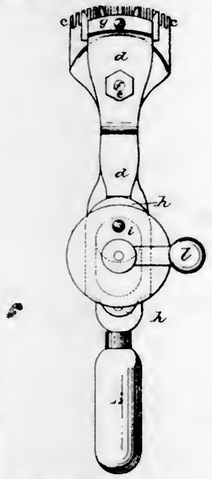
197,703. HARROW-TEETH. Daniel Waterbury and Frank Miller, Kalamazoo, Mich. Filed Nov. 20, 1877.

Brief.—Inner end of curved spring secured under shank of hinged tooth, and having lug which separates tooth and spring sufficiently to prevent lodgment of dirt, and permit the insertion of wedges between them to raise the tooth and change its working depth.

The combination of the harrow-tooth B, hinged at its inner end, and the curved spring D, passed under the end of the tooth, and formed with the flange *d*, substantially as and for the purposes herein set forth.

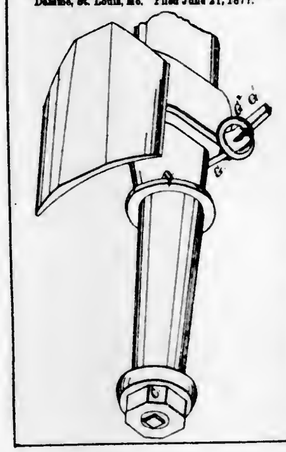
197,704. ANIMAL-SHEARING DEVICES. Edward J. Watson, Bridgeport, Conn. Filed Oct. 19, 1877.

Brief.—The lever that carries the moving cutter is so connected to a lever next the handle that the rotating eccentric works them like toggle-levers.



The combination of the frame *c*, knives *c g*, lever *d*, pivoted upon the standard *f'*, lever *k*, pivoted at one end to the frame, and the lever *d* at the other, and having the slot in which the eccentric *i* turns, lever *l*, and handle *b*, the parts all being arranged to operate substantially as shown.

197,705. AXLE-SKEINS. Philip Weber and Henry Damme, St. Louis, Mo. Filed June 21, 1877.

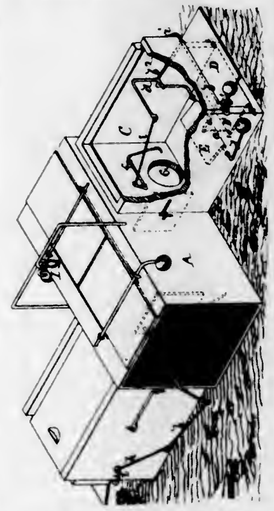


1. The axle-skein having a sand-plate extending over the wheel, as and for the purpose set forth.

2. The clip passing through the casting between the axle-socket and the sand-plate, and provided with brace-rod G' and stay-chain hook G', as set forth.

197,706. ANIMAL-TRAPS. Henry T. Wiggins, Arkansas, Mo. Filed Aug. 10, 1877.

Brief.—The entrance is provided with balanced double doors, one hinged at the top and one hinged at the bottom, and connected by rods, so as to operate simultaneously, closing and opening at the same time. Within the box is hinged a weighted treadle, so arranged as to throw a bent wire over a hooked arm projecting from the door D, thus holding the doors open. The trap is sprung by pressure on the treadle E, or nibbling at the bait on hook *f*. The trap is reset by the victim when passing from C to A. The top of the cage is provided with automatic doors.



1. In an animal-trap, the combination of the box C, double doors D D', arm *b'*, treadle E, bent wire *d*, link *e*, and bait-wire *f*, all substantially as and for the purposes herein set forth.

2. The combination, with the box C, double doors D D', arm *b'*, treadle E, wire *d*, and link *e*, of the cage A, with passage G, drop-wire G', connecting-links *h*, and crank *i*, on the rod *b*, substantially as and for the purposes herein set forth.

197,707. APPARATUS FOR RAISING AND LOWERING ARTICLES OF FURNITURE. Basil M. Wilkerson, Baltimore, Md. Filed Nov. 14, 1877.

Brief.—The tubular plunger supporting the article is raised by the rack and pinion or by hand. As the plunger is raised, fluid passes through the large valve in its bottom. When the lifting is discontinued, the valve closes, and the fluid below it supports the plunger. When it is desired to lower the plunger, the small valve in the bottom is opened, allowing the fluid to escape upward, permitting the descent of the plunger.

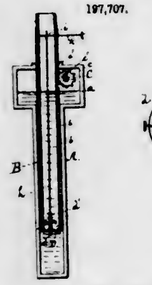
1. In a furniture-stand, a fluid-reservoir and a tubular plunger, separate therefrom and communicating therewith by means of an opening furnished with one or more valves, as set forth.

2. In combination with the tube A and reservoir *a*, the perforated plunger B, having valve *d*, substantially as described.

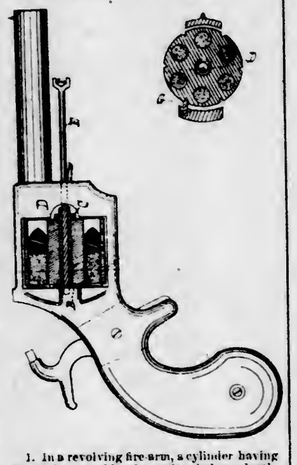
3. In combination with the tube A and reservoir *a*, the tubular plunger B, pinion C, and crank shaft E, substantially as described.

4. In combination with the hollow plunger B, the double valve D *d*, as and for the purpose described.

197,707.



197,708. REVOLVING FIRE-ARMS. Richard D. Williams, Baltimore, Md. Filed Dec. 23, 1876.



1. In a revolving fire-arm, a cylinder having its ratchet capable of rotation independently of the cylinder, and provided with means for securing it in any position in the line of its rotation, substantially as described.

2. In a revolving fire-arm, a cylinder having an even number of chambers, and having between the chambers a series of V-shaped notches for holding the cylinder in position when the weapon is full-cocked, in combination with a latching device situated on one side of the vertical center of the weapon, substantially as described.

3. In a revolving fire-arm, a cylinder having its ratchet and center-pin or tube made integral, and adapted to be secured to the cylinder by means of a nut, substantially as set forth.

4. The combination, with the cylinder, of the ratchet B, tube or rod D, and nut C, substantially as described.

197,709. FIRE-ESCAPES. William Winkless, Newport, Ky. Filed July 26, 1877.

1. The combination of upper and lower winches A B, guiding-cables D D, cage C, and suspension operating rope E, substantially as and for the purpose specified.

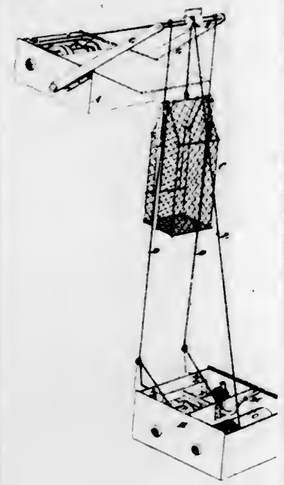
2. The combination of upper and lower winches A B, guiding-cables D D, cage C, having idlers L for kinking said cables, and suspension operating rope E, substantially as specified.

3. In combination, the winch A and its cover K, adapted to serve as a platform, hinged crane-arms G G', and cage C.

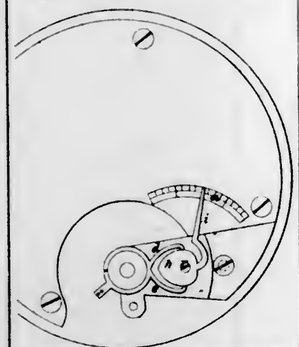
4. In combination with the winch A, ropes D D, and cage C, the extensible platform K, operating substantially as and for the purpose specified.

5. In combination with the winch-frame B and cables D D, the lever M, substantially as and for the purpose specified.

197,709.



197,710. MICROMETER-REGULATORS FOR WATCHES. Chas. V. Woerd, Waltham, Mass., assignor to American Watch Company, same place. Filed Nov. 3, 1877.



A micrometer-regulator for watches, consisting of the heart-shaped cam *h*, with index *i*, in combination with the arms *d e*, constructed and operated substantially as above described.

197,711. MACHINES FOR GRINDING LAWN-MOWER CUTTERS. Edward J. Worcester, Worcester, Mass. Filed Oct. 30, 1877.

Brief.—Lateral motion of spiral blade of cutting cylinder between an under and upper roller, the latter having a yielding bearing, reciprocates the cutter and its holding-frame in their journals, and holds the blade, throughout its spiral, to the stone. Belt tightened by tipping large wheel. Upper pressure roll may be omitted when spiral blades are moved in only one direction, and is moved out of the way when straight blades are to be ground.

1. In a machine for grinding spiral lawn mower cutters, the combination of a stationary supported revolving grinding-wheel, a cutter-head-supporting carriage, moving in a direction parallel with the axis or surface of said wheel, and a bearing roll or guide arranged in front of the grinding-surface for supporting and revolving the cutter-blade in accordance with its spiral surface, substantially as hereinbefore described, for the purposes set forth.

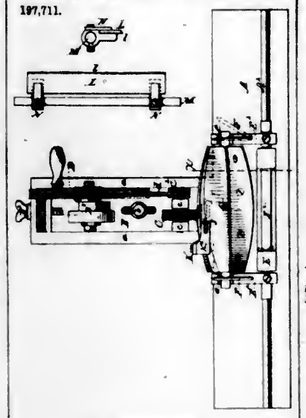
2. In combination, substantially as herein before set forth, the carriage E, provided with adjustable arms E', V-shaped depressions *e*, and holding devices F, the grinding-wheel C, and guide-roll I, for the purposes stated.

3. In combination, substantially as herein before set forth, the cutter-head-supporting carriage E E', the grinding-wheel C, the supporting and directing roll I, the top guide-roll J, and the adjustable spring-standard K, for the purposes stated.

4. In combination, substantially as herein before described, the bed-frame A, with guideways A' *a*, the cutter-head support carriage E E', the adjustable auxiliary bed B, the grinding-wheel C, the guiding and supporting roll I, pulley C', and crank-pulley D, for the purposes set forth.

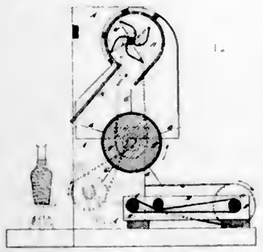
5. In combination with the carriage E E', grinding-wheel C, and supporting-roll I, the auxiliary bar M, provided with clamping-jaws N, substantially as and for the purpose hereinbefore set forth.

197,711.



REISSUES.

7,962. PAPER-PULP DISTRIBUTERS. Isaac Jennings, Fairfield, Conn. Patent No. 188,371, dated Mar. 13, 1877. Filed Nov. 3, 1877.



1. The combination of the frames A B and the endless carrier with the drum F, provided with the fingers G, for throwing particles of paper-pulp upon articles to be coated, substantially as herein shown and described.

2. The combination of the fan-blower H and the drum F, provided with the fingers G, with the endless carrier and the frames A B, substantially as herein shown and described.

7,963. MACHINES FOR GRINDING AND POLISHING HOLLOW WARE. William Scully, Detroit, Mich., assignor to the Detroit Iron and Brass Manufacturing Company. Patent No. 189,506, dated Apr. 10, 1877. Filed Nov. 6, 1877.

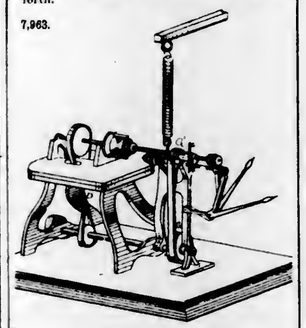
1. The combination of a chuck adapted to receive an article of hollow ware with an adjustable frame carrying one or more rotating spindles, and having an emery-wheel projecting beyond and covering or partially covering the ends of the spindles, substantially as and for the purposes set forth.

2. The combination of a chuck adapted to receive an article of hollow ware with a frame carrying one or more rotating spindles susceptible of longitudinal adjustment, and having an emery-wheel projecting beyond and covering or partially covering the end of the spindle or spindles, substantially as and for the purposes set forth.

3. The combination, with a rotary tail spindle and chuck adapted to receive and secure an article of hollow ware, of a swinging frame and a gang of grinding-wheel spindles susceptible of longitudinal adjustment in their bearings, all of which spindles are driven from the same shaft, substantially as described.

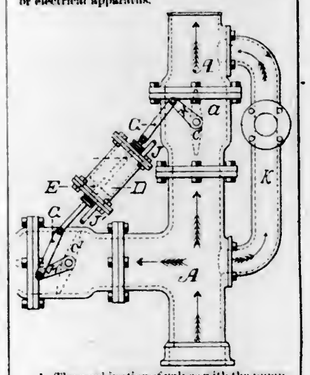
4. In a grinding machine, substantially as described, the swinging adjustable frame carrying a gang of spindles, all driven by belts on the main shaft, and susceptible of independent longitudinal adjustment to and from the surface of the work, substantially as set forth.

7,963.



7,964. MEANS FOR OPERATING VALVES OF CITY WATER-MAINS. Henry P. M. Birkinbine, Philadelphia, Pa. Patent No. 134,348, dated Dec. 31, 1872. Filed Jan. 5, 1877.

Brief.—When more than the ordinary pressure is required in the mains, as in case of fire, the water is cut off between the pumping-main and the reservoir, and simultaneously communication is opened between the pumping-main and the distributing-mains, so that the water is pumped directly into the latter. The engine operating the valves is controlled from any desired points by hydraulic, pneumatic, or electrical apparatus.



1. The combination of valves with the pumping-main and distributing-main, operated by suitable mechanism, substantially as described, so that one shall open simultaneously with the closing of the other, substantially in the manner and for the purpose set forth.

2. The combination of the cylinder D, its piston and connecting-rods, and the valves C and C', with the pumping and distributing mains, substantially in the manner and for the purpose set forth.

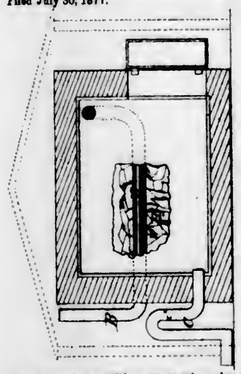
3. The pipes J and J', in combination with the cylinder D, and leading therefrom to the pumping or other station, for the transmission of power by means of hydraulic or other pressure, for operating the piston E, substantially as set forth.

4. A back-pressure valve, in combination with a distributing or supply main or mains, so placed that when the connection between the pumping apparatus and reservoir or other receptacle is closed, the increase of pressure will cause the back-pressure valve to close, and, by preventing the water flowing into said reservoir, cause the augmented pressure to be exerted from the pumping apparatus directly upon the distributing main or mains, and when the extra pressure is removed the back-pressure valve will open and allow the water to flow from the reservoir by its own gravity, substantially in the manner and for the purpose set forth.

5. The pipe K, provided with a safety-valve, in combination with the pumping-main, substantially as and for the purpose set forth.

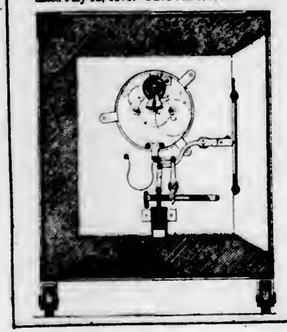
6. The system of diverting the water which is being forced, by means of a pumping apparatus, into a reservoir, stand-pipe, or other receptacle, and directing it into the distributing-mains by means of valves operated by suitable mechanism, substantially as described, so as to get the force of said pumping apparatus into the distributing main or mains, and thus produce a pressure or force greater than that due to the head of the reservoir for putting out fires, substantially as set forth.

7,965. REFRIGERATORS. Harvey W. McKnight, Easton, Pa. Patent No. 147,957, dated Feb. 24, 1874. Filed July 30, 1877.



In combination with a preserving-chamber or refrigerator having an induction pipe or opening for admitting air at or near its top or ceiling, a siphon eduction pipe or passage communicating with the interior of said chamber, at or near its bottom or floor, for the escape of air, substantially as set forth.

7,966. TIME-LOCKS. Corydon F. Atwood, Hancock, Wis., assignor, by mesne assignments, to J. F. Wiley, V. O. Price, and T. F. Keating. Patent No. 106,291, dated July 12, 1870. Filed Oct. 3, 1877.



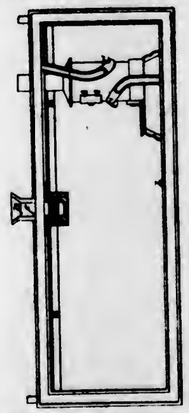
1. In a time-lock, the combination, with the time mechanism, of an annular disk, to be rotated by the time mechanism, in conjunction with the dial-arbor, at the proper time for unlocking, and a pivoted oscillating hook or catch for holding the locking mechanism in the locked position, which catch is unhooked or released for unlocking when oscillated by the rotation of the annular disk, substantially as described.

2. In a time-lock, the combination of a pivoted oscillating hook or catch, a pivoted lifting or setting arm or lever, to be set by hand in the act of locking, and a spring for holding these two parts in engagement until released by the action of the time mechanism, substantially as described.

3. In a time-lock, the combination of a pivoted oscillating hook or catch and a spring for restoring the catch to its position for re-engagement with the lifting arm or lever after unlocking, substantially as described.

4. In a time-lock, the combination of an annular disk, to be rotated by the time mechanism, in conjunction with the dial-arbor, at the proper time for unlocking, a pivoted oscillating hook or catch normally held in position for locking by a spring, and a pivoted setting arm or lever, to be lifted by hand for engagement with the hook or catch, by which lifting and engagement the time-lock is set into the condition for locking previous to shutting the door, so as to be locked by the act of shutting the door, substantially as described.

7,967. RAILROAD-CAR HEATERS. Edwd. H. Ashcroft, Lynn, Mass., assignor to Jas. Dunsmore, Mendville, Pa. Patent No. 54,962, dated May 15, 1866; Reissue No. 2,817, dated Apr. 14, 1868; Reissue No. 4,853, dated Sept. 21, 1875. Filed Nov. 22, 1877.



1. The combination of a hot-water circulating and heat-radiating apparatus with a railway-car, substantially as described.

2. The combination, with a railway-car, of a heater, an elevated water-receptacle, and a rising pipe connected with the heater and water-receptacle, substantially as described.

3. The combination, with a railway-car, of a heater, a heating-coil, an elevated and a depressed water-receptacle, a rising pipe, which opens into the heating-coil and elevated water-receptacle, and a descending pipe, which opens into the heating-coil and depressed water-receptacle, and which depressed and elevated water-receptacles are connected otherwise than through the heating-coil, substantially as described.

4. The combination of a heater, a water-receptacle, circulating currents of warm or hot water, and the radiating-surfaces of the conducting-pipe or water-receptacle, with a railway-car, substantially as described.

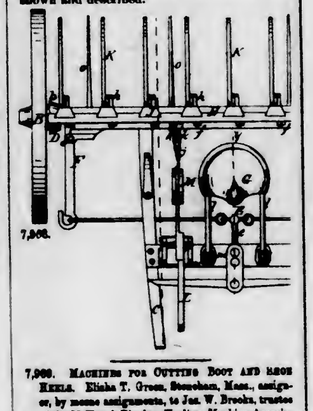
7,968. HORSE HAY-RAKES. Lentina Bailey (widow of H. A. Bailey) and A. B. Burdick, Racine, Wis., assignee to Wm. H. Field, Port Chester, N. Y. Patent No. 95,804, dated June 26, 1866. Filed Dec. 5, 1876.

1. In a horse hay-rake, the combination of a revolving traction-wheel and partially revolving rake-head with a friction-brake arranged to gripe around the revolving hubs of the wheel, or equivalent part, and with mechanism for applying and releasing said brake to dump the load at the will of the operator.

2. An apparatus for connecting the teeth of a horse hay-rake to the revolving parts, said apparatus consisting of a cone-clutch, one part of which is connected to the revolving part and the other to the teeth, as set forth.

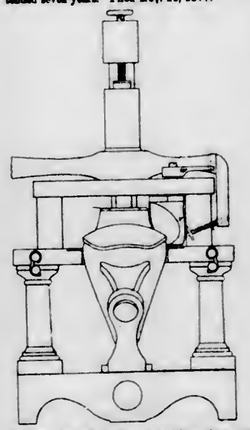
3. The metal bands J, provided with lips *g* and grooves *i*, and retained on the rake-head by the upper end of the rake-teeth K, passing through them and the rake-head, substantially as and for the purposes herein set forth.

4. The rake-head H, attached to clutches D D, fitted loosely on the axle A, and operated by means of levers by the driver from his seat G, for the purpose of automatically raising the rake to discharge its load, substantially as shown and described.



7,968.

7,969. MACHINES FOR CUTTING BOOT AND SHOE HEELS. Elisha T. Green, Stoneham, Mass., assignor, by mesne assignments, to Jas. W. Brooks, trustee of the McKay & Bigelow Heeling Machine Association. Patent No. 80,376, dated Oct. 9, 1860; extended seven years. Filed Nov. 16, 1877.



1. In a heel-trimming machine, the combination, with the knife or cutter, of a cam-groove or cam adapted, substantially as herein described, to control the angle of presentation of the knife to the heel, substantially as and for the purpose set forth.

2. In a machine for trimming the heels of boots and shoes, the combination of the knife and its stock with a cam-groove or cam to control the angle of presentation of the knife to the heel during the operation of trimming, acting together with guiding-surfaces at the top and bottom of the heel, the combination being and operating substantially as set forth.

3. In a machine for trimming the heels of boots and shoes, a knife-stock joined with its moving devices to permit the free torsional movement, as described, in combination with a guiding-surface at the top of the heel, the

knife being also guided at the seat of the heel, substantially as described.

4. In a machine for trimming the heels of boots and shoes, a knife-stock or knife-carrier provided with a joint permitting free torsional movement, a guiding-surface at or near the cutting edge of the proper shape for the top of the heel, in combination with a cam or cam-groove to control the angular presentation of the cutting edge to the heel during the operation of trimming, the knife being also guided at the heel-seat end of the heel, substantially as set forth.

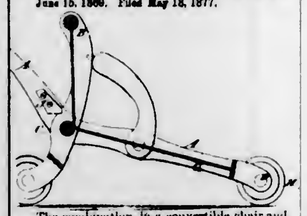
5. In a machine for trimming the heels of boots and shoes, the combination, with the knife-stock and a cam-groove or cam to automatically vary the angle of presentation of the edge of the cutter to the heel, of an adjusting device to adjust the position of the knife-stock with reference to the heel and the cam, to operate substantially as shown and described.

6. A heel trimming machine embodying the following instrumentalities, viz: a holding or clamping mechanism made in two parts, to be separated for the introduction and removal of a heel, a knife and knife-stock jointed to permit free torsional movement, a guiding-surface for the knife at the top lift end of the heel, (the knife being also guided at the heel-seat end of the heel,) a suitably-shaped cam-groove or cam to determine the angle of presentation of the cutting-edge, and a mechanism to apply power to the apparatus, to cause the heel to be cut all about by the knife, substantially as described.

7. The combination of a heel-cutting mechanism, acting substantially as specified, with a mechanism for relatively adjusting in the direction of the length of the shoe the tread and seat formers, by which the rake or pitch of the rear of the heel may be varied without substitution of other formers.

8. In a heel-trimming machine, a support adapted to hold the shoe in such position that the edge of the sole at the heel comes in contact with the knife-guard, in combination with a knife adapted to be guided by the heel-seat portion of the sole, substantially as described.

7,970. CONVERTIBLE CHAIRS. James Lee, New York, N. Y., assignor to the Hale & Kilburn Manufacturing Company, Philadelphia, Pa. Patent No. 91,350, dated June 15, 1869. Filed May 18, 1877.



The combination, in a convertible chair and carriage, of the crossed bars A and B, pivoted together at C, wheels H H, mounted on the respective bars, and stops for supporting the bars at varying angles of inclination, substantially as set forth.

7,971. FLEXIBLE SYRINGES. Morris Matson, New York, N. Y. Patent No. 61,764, dated Feb. 5, 1867. Filed Nov. 6, 1877.

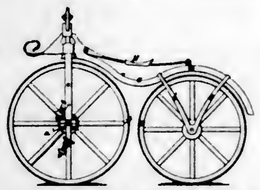
Brief.—The induction-tube is rigid to afford support for the hand, and divided into sections convenient for packing.



1. In an elastic-bulb syringe, an inlet-tube made in sections for convenience of packing, and made entirely of hard material, so as to form a support for the hand, substantially as described.

2. In an elastic bulb syringe, the combination of the bulb A, section D, readily detachable therefrom, rigid inlet-tube I, pipe G, and flexible tube E, the inlet-tube being made in sections for convenience of packing, and divisible at another point than at the valve, substantially as shown.

7,972. VELOCIPEDES. Henry M. Richardson and Geo McKee, Boston, Mass., assignees, by mesne assignments, of Pierre Lallement. Patent No. 50,915, dated Nov. 30, 1866. Filed Oct. 26, 1877.



1. In a velocipede, a pivoted frame at the forward end of the axle-connecting or seat-supporting bar, a driven wheel and its fixed axle supported therein, said axle being provided with oppositely-projecting cranks adapted to be trod by the feet of the operator to propel the velocipede, substantially as described.

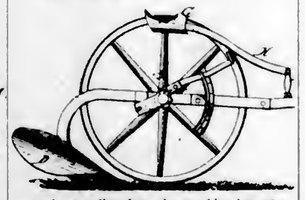
2. In a velocipede having a seat fixed with relation to the axles, the combination, with such a fixed seat, of a forward wheel, its cranked axle and arms to support the forward axle, said arms being pivoted in the fixed seat or bar, to permit it to be changed in position to turn the wheel to the right or left to change the direction of movement of the velocipede, substantially as described.

3. In combination, a fixed saddle-seat, a forward-driven wheel, and its axle, provided with cranks at each side the wheels, arms to support the axle, and handles to turn the arms and wheel to the right or left of a line drawn longitudinally through the fixed saddle-seat, substantially as described.

4. In combination, a forward-driven wheel, an axle provided on each side of such wheel with a crank, and treadles or foot-rests connected with such cranks, and balanced to remain in upright position.

5. In combination, the two wheels A and B, arranged one in front of the other, the cranked axle *a*, the treadles, and the guiding arms, to operate substantially as and for the purpose described.

7,973. SULKY-PLOWS. Benj. Slusser, Sidney, Ohio, assignor, by mesne assignments, to F. B. Hunt, J. B. Fisher, and A. McCallum. Patent No. 80,427, dated July 28, 1868; Reissue No. 6,563, dated July 27 1875. Filed Nov. 3, 1877.



1. In a sulky-plow, the combination of a crank-axle and plow-beam, or frame of the plow, the latter being hinged or loosely pivoted to the former, so as to permit the plow to rise and fall, substantially as and for the purpose specified.

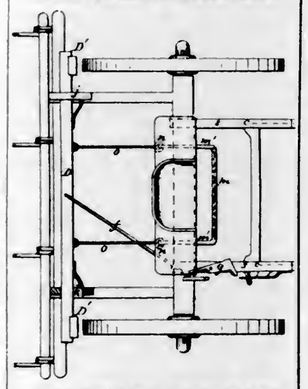
2. In a sulky-plow, the combination of a crank-axle, plow-beam, and lever, the latter operating to raise and lower the plow when required, but without interfering with its independent movement, substantially as set forth.

3. In a sulky-plow, the plow supported by means of a beam, bent as described, and a crank-axle mounted on wheels, the beam being pivoted to the crank, so as to move therewith, substantially as and for the purpose specified.

4. The seat G, supported on standards pivoted to the axle, as described, and connected with the draft-pole by means of the rod H and hinged post I, so that the seat will always be maintained in proper position, substantially as set forth.

5. In a sulky-plow having a crank-axle and a vertically-adjustable plow attached to the crank, so as to move with it, a driver's seat arranged and combined therewith, and which maintains its vertical position without being affected by the movement of the crank and plow, substantially as and for the purpose specified.

7,974. HORSE HAY-RAKES. Robert M. Treat, Morris, Conn., and Wm. H. Field, Port Chester, N. Y., assignees, by mesne assignments, of said Robert M. Treat and the heirs of Geo. H. Daley, deceased. Patent No. 36,897, dated Nov. 11, 1862. Filed Dec. 13, 1876.



1. In a wheeled horse hay-rake, the combination of a revolving traction-wheel, a partially-revolving rake-head, and a friction-clutch, connected with the rake, and forming the means of locking the rake-head and traction-wheels directly together by friction without the use of intermediate pulleys, cranks, or other gearing, substantially as described.

2. The combination and arrangement of the lever-frame *m m' m''*, brackets *n n*, link-connecting rods *o o*, and brake D D' D'' with a horse hay-rake, mounted upon wheels, and having a driver's seat, substantially in the manner and for the purposes described.

7,975. GAS-TORCHES. A. R. Weiss, Brooklyn, N. Y. Patent No. 187,072, dated Feb. 6, 1877. Filed Oct. 17, 1877.



1. A gas torch composed of a suitable mechanism for feeding a fulminate tape, and exploding the same by the blow of a hammer, in combination with a handle and mechanism for operating the torch from the lower end, substantially as and for the purposes set forth.

2. A gas torch composed of a mechanism for feeding and igniting a fulminate ribbon, operated in connection with a sliding and spring-acted piston-rod from the handle of the torch, substantially in the manner and for the purpose set forth.

3. The combination of the trigger D', sliding piston-rod *e*, and guide-tube C C', straight or curved, with a sliding and spring-acted mechanism for feeding and igniting the pellets of a fulminate ribbon at the end of the torch, substantially as shown and described.

4. The sliding and spring-acted feeder, having extension with end shoulder or seat, in combination with a trigger-acted and sliding piston-rod to push the feeder forward for ignition of pellet, and carry feeder and piston back for resetting trigger, substantially as set forth.

5. The magazine F', having guide-pin near the anvil and exit-opening back of the bell to guide ribbon to anvil and to the outside, substantially as specified.

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COMMISSIONER'S DECISIONS.

DOLE BROTHERS.—*Trade-Mark.*

[*In the matter of the application of Dole Brothers for registration of Trade Mark, filed April 8, 1876.—Reference.—Decided September 20, 1877.*]

The rule in relation to "lawful trade-marks rightfully in use on July 8, 1870," as laid down in India-Rubber Comb Company, 8 OFFICIAL GAZETTE, 905, and Rubber Clothing Company, 10 OFFICIAL GAZETTE, 111: *Held*, to apply in excluding the words "Egg Macaroni" from registration.

At the time of their first adoption by applicants' assignor, they were properly descriptive of an article known long before, and, moreover, up to July 8, 1870, it does not appear that the words had been used alone, but in connection with other designating matter. They are not a lawful trade-mark rightfully in use at that time.

DOOLITTLE, *Acting Commissioner:*

April 8, 1876, the above-named applicants filed an application for the registration of a trade-mark consisting of the words "Egg Macaroni," to be used on packages containing macaroni manufactured by them.

The application was finally refused, on appeal, for the reasons that the term was either descriptive or deceptive. It being alleged by applicants that eggs were not used in the manufacture of their article, it was shown by the Office that the term was then deceptive, designating a specific article of the same class as was shown by an article published in the "Magazine of Domestic Economy," vol. 4, pp. 85 and 86, W. S. Orr & Co., London, 1839, setting forth the employment of eggs in the making of the article in question.

Applicants now file affidavits with the intent of showing that this term, "Egg Macaroni," was a "lawful trade-mark rightfully in use on the 8th day of July, 1870," so as to bring it within the rule prescribed in the cases of the India-Rubber Comb Company, 8 OFFICIAL GAZETTE, 905, and Rubber Clothing Company, 10 OFFICIAL GAZETTE, 111.

In view of the clause in section 4939, R. S., providing that "this section shall not prevent the registry of any lawful trade-mark rightfully in use on the 8th day of July, 1870," it was there held, that in respect to the names of persons, firms, or corporations merely, which were forbidden by the statute to be thereafter recorded as trade-marks, they might be shown by unquestionable proof, such as an adjudication by a competent court, or long and notorious use and acquiescence by the trade, to have been the lawful trade-marks of particular persons or firms prior to July 8, 1870. But the rule also prescribes that the name must have first been adopted by the party seeking to record it, that it had been used as a trade-mark for a long time, and that no one else could use the same name for the same purpose without deceiving the public as to the origin and ownership of the goods. It was distinctly set forth in the India-Rubber Comb Company case that the doctrine of the courts as to what constituted a lawful trade-mark was the same prior to the act of 1870 as subsequent thereto, and the rule was based solely upon certain decisions, holding that, under circumstances such as have been mentioned, the names of individuals and corporations would be protected as trade-marks. The circumstances must be of the strong character described, and be clearly established to bring a case within the rule.

The affidavits submitted herein do not have this effect.

In the first place, although we have the affidavits of Mr. Pfeiffer, the assignor of the present parties, that he invented and adopted the words "Egg Macaroni" to designate the article made by him in 1868, yet, as has already been shown, it was a common right long prior to that time to describe macaroni as "egg macaroni." In view of the state of the art, the term was then simply a proper one to designate a particular kind of macaroni.

Second, it does not appear that even for the short time elapsing between 1868 and 1870, the words "Egg Macaroni" were solely used as the trade-mark.

In the application of the parties it is admitted that the name or word "Pfeiffer's" was formerly employed, by the said Pfeiffer above the words "Egg Macaroni," and also that the words had been generally used above a landscape view. A part of the affiants also swear

that for a period of about eight years, "more or less," they had known, used, and dealt in the article known as "Egg Macaroni," now manufactured by Dole Brothers, of Boston, and during that period the said macaroni had been known by the designation of "*Pfeiffer's* Egg Macaroni."

I do not regard either the nature of the case or the proof as sufficient in showing that the words "Egg Macaroni" were a lawful trade-mark rightfully in use by applicants prior to July 8, 1870.

The application is, therefore, again refused.

HENRY LAW.—*Interlocutory Appeal.*

[*In the matter of the interlocutory appeal of Henry Law, application filed May* 17, 1877, *for* "IMPROVED WINDOW-BLIND ACTUATOR."—*Decided October* 18, 1877.]

A device for opening and closing window-blinds cannot be included in the same application with another for locking and unlocking the blinds, it appearing that there is no community or dependence of operation between the two.

The fact that the two devices would probably be used together because of their convenience is no test of their right to be included in a single application.

There must be intercommunication of parts or mutual dependence of the distinct devices to entitle them to be thus incorporated.

DOOLITTLE, *Acting Commissioner:*

Rule 15 authorizes the claiming of two distinct devices in one application where they are "dependent upon each other and mutually contribute to produce the new result."

Now, there are two independent results described in this application which are produced by two independent mechanisms. The opening and closing of the blinds by mechanism from the inside of the room is an old device. Applicant admits that "shutters have been made in various forms to open and shut from the inside," so that an additional locking and unlocking device does not appear necessary to complete the operation of the former one. And on the other hand the very fact that applicant claims to be the first to devise means for locking and unlocking blinds from the inside of a room without the need of first opening the window shows also that neither apparatus has awaited on the other for its successful operation.

The only question remaining to be determined, then, is, Has applicant combined these two devices so that the operation of each contributes, either simultaneously or successively, to a unitary result?

Not a single part of the mechanism for opening and closing the blinds is described as affecting the operation of any part of the locking mechanism, nor is the latter dependent on the former in any respect whatever. Both mechanisms perform precisely no other function when used together on one window than when used separately a thousand miles apart.

It is certainly convenient to have them both on one window, as thereby the opening and closing of the window for either purpose is avoided; so it would be convenient, in conjunction with these devices, to have another for operating the slats in a blind without opening the window. But the admission of more than one invention in an application is not to be determined on such grounds. There must be intercommunication of parts or mutual dependence of the distinct devices to entitle them to be incorporated in the same application, and these requisites are lacking in the present instance.

The decision of the Examiner is affirmed.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—EASTERN DISTRICT OF MISSOURI.

ADAMS & WESTLAKE MANUFACTURING COMPANY *vs.* ST. LOUIS WIRE GOODS COMPANY.

[*In equity.—Before* TREAT, *J.—Decided September term*, 1877.]

The swaging of the several parts of the sieve together being an essential element of the invention set forth in plaintiff's patent, a preliminary injunction was refused, it appearing that the defendant accomplished the joining by double-seaming.

Doubted whether it is a proper subject for a design patent to make sieves with a flare, so that they can be nested, one within another; and, if so, the design lacks novelty.

[*Coburn & Thacher*, for plaintiff.
S. S. Boyd, for defendant.]

MOTION FOR PRELIMINARY INJUNCTION.

TREAT, *J.:*

The bill was based on Letters Patent No. 106,597, August 23, 1870, for "improvement in sieves," and on Letters Patent No. 4,637, February 7, 1871, for "design for sieves," granted Robert J. Mann. This opinion was stenographically reported, and afterward revised by the judge.

I have received a note from counsel for plaintiff, in which they desire the result of the action of the court to be certified to them. I have not had time to write an opinion in this matter. But as this case has been presented in a hurried way, as the court was very much occupied at the time, and as it will come up hereafter on its merits, I will merely state the conclusions so far as this motion is concerned.

The claim in the patent is for—

The combination of the loop *a* and sieve-cloth *c*, when the edge of the sieve-cloth is clasped in the hoop and there fastened by swaging, substantially as shown.

Without going into an elaborate disquisition with regard to these matters, it must suffice that this patent has been twice established as a valid and subsisting patent, and for the purposes of this motion must be so treated by this court.

Thereupon, only one inquiry is presented: Is the sieve, as used by defendant, an infringement thereon?

[Illustrating.] This is defendant's sieve separated into parts.

If we go through the mechanical combination involved in their use by the defendant, and into the mechanical combination for which the plaintiff as assignee has a patent, we will find, according to the claims of the patent, the essential element is, that the sieve is placed into proper position with regard to the loops and swaged, which results in tightening the sieve below, and produces this convenient effect in the form indicated, whereby the rim remains, so that the plaintiff's sieve, thus produced, may effect results which sieves of this character are intended to produce. Now, plaintiff does not claim, and cannot claim, that the wire

sieve is, simply in connection with the rim, patentable, because both of those things existed anterior to his patent.

What, then, is his patent? It is that, in connection with a metallic rim, he produces a curve by swaging, which works out the results here shown. On the other hand, defendant takes the wire sieve, which is not new at all, connected with the rim, which is fastened by what is known in the mechanical arts as "double-seaming." There is nothing new in double-seaming. It is a mode known long before this patent as one for fastening not only lid-heads of cans, &c., but for a variety of other purposes.

Hence, for the purposes of the present motion, it is only necessary for this court to determine, first, that the essential element in plaintiff's patent is a combination of a loop with a sieve-cloth, whereby the edge of the sieve-cloth is clasped within the loop and fastened by swaging.

Now, the connection of a sieve-cloth with the loop in itself is not his patent unless the swaging follows. And he had no patent except for the combination. It is a combination patent. Swaging is the important element in determining this patent.

What is swaging? It is a mechanical device whereby compression is produced in a variety of forms other than a plane surface, whether it be curved, hexagonal, or otherwise. The essential element and advantage of the patent of the plaintiff is, that by swaging he fastens his sieve to the rim by a swaging process, which tightens the sieve itself, and thereby necessarily produces the rim below, so that the sieve itself does not rest on a line with that rim. Thus, if it were brought over externally with regard to it, the sieve would rest on the rim, but, by being swaged in the mode here indicated, not only produces the rim, but tightens the sieve-head by but one operation, and, so far as the swaging is concerned, produces the required result.

The defendant simply resorts to an old and well-known mode of double-seaming, which is entirely distinct and different from plaintiff's mode. Double-seaming is simply double-bending a metallic material so that the wire of the sieve passes through one loop with another over it, and thus, by fastening the sieve together, retains its position without any swaging at all. There is nothing new in the double-seaming process as a mode of fastening. You may fasten a preserve or any other can by the double-seaming process, which is entirely simple in itself—old and well known to every housewife and every mechanic. But swaging is an entirely different matter. It is the producing of a given form and given result by the use of what are known as "swaging-tools," which tools produce from the two parts any form that you desire produced. Thus a straight impression [illustrating] parallel, as two books, produced by compression, is no swaging at all. By swaging you may make them take any desired form. If you wish to produce a curved form, and one tool is pressed convex against a concave surface, the material between will take the curved form.

There is nothing new at all or strange in placing two things parallel with each other, and with sufficient application of force squeezing them together. There is nothing new in that. It is as old as the use of two parallel forces. But by the use of swaging you may give any form you desire, consequent upon the use of swaging-tools. This patent, then, is for the use of a swaging-tool, in the manner described in the claim, which accomplishes the result therein stated.

The defendant uses no swaging-tool, but resorts to the old and well-known mode of double-seaming. This is the essential element on which this bill is founded.

The second element is for a design patent.

But before passing on that I will remark that, looking at the affidavits filed by the plaintiff and defendant with regard to the alleged infringement of the combination patent, if the matter rested solely on the affidavits, the weight of testimony would be entirely against the plaintiff. But there are certain matters, as the Supreme Court of the United States has decided, as consonant with right reason, which the court can always consider independent of affidavits—of such general principles as are supposed to be known to every one of ordinary intelligence. Now, every one of ordinary observation and intelligence has known for a long period of time what double-seaming is, and though he may not have known the name he may or may not have known what swaging is. The testimony before the court shows what swaging is, and in the light of these matters the court determines that it is an essential element to plaintiff's patent that swaging should be used in connection with his loop and tightening process.

The second matter involved in his bill is what is called a "design patent," concerning which there are one or more affidavits presented. This is the question to be considered first. What is a design patent? Complainant insists that he is assignee of the design patent, whereby through flaring—a conical section—these sieves may be nested. Without going into the discussion whether this is, within the meaning of the patent law, a design patent, which is extremely doubtful, it must suffice to say that, in the light of the affidavits and common experience, the alleged design is nothing new. And even if it fell within the meaning of the patent law—a patentable design—there is no novelty in it. Putting one thing in another, and making it a little flaring instead of rectangular, is an old matter.

Third. Plaintiff claims that this defendant has infringed his trade-mark. He says that his product is called a "metallic sieve," and puts it on the market as "Mann's metallic sieve." This is his trade-mark.

Defendant's sieve bears the name of this corporation—"The St. Louis Wire Goods Company." Defendant sends its product on the market under its specific brand. So far as any pretense exists here that the trade-mark exists in the words "metallic sieve," disconnected from the words "Mann's metallic sieve," there can be no foundation for an injunction. The metallic sieve is nothing new. It is well known. But if this defendant had designated his sieve "Mann's metallic sieve," he would have infringed his trade-mark. He stamps on the metallic sieve his own name, thus indicating that it is his own manufacture, and consequently he does not fall within any rule known to trade-marks.

This matter has been thrust upon me in the midst of other business, and I have not had time to write an opinion; but it is immaterial in this stage of the inquiry. I treat the patent as valid, and I treat as an essential element of that patent the swaging process

whereby plaintiff's result is produced. As defendant's result is obtained by other than the swaging process, there is no infringement.

The defendant's product is produced by double-seaming, which is entirely distinct and separate from swaging, and known long before this patent was issued.

As to the design patent, it is doubtful whether it falls within the purview of the patent law. If it does it has no novelty.

As to plaintiff's trade-mark, it is not used by defendant, and hence the motion for provisional injunction is refused.

U. S. CIRCUIT COURT—NORTHERN DISTRICT OF NEW YORK.

THE GOULD'S MANUFACTURING COMPANY *vs.* JOHN P. COWING *et al.*

[*In equity.—Before* JOHNSON, *J.—Decided September* 14, 1877.]

The scope of a patented invention having been defined, and the court having declared that the damages could not exceed the profits arising from the use of the improvement, a failure to show any such profits makes nominal damages alone recoverable.

It is no compliance with the requirement of the court that the profits arising from the use shall be proven to show that wherever the particular patented improvement was introduced, other kindred devices could not be sold.

The report of the master which gave to such showing the erroneous effect of proof of profit arising from the use and estimated damages accordingly was consequently overruled.

[*Mr. Perkins*, for complainant.
Mr. Foote, for defendant.]

JOHNSON, *J.*:

This case came up on exceptions taken by the defendants to the report of the master under the interlocutory decree directing an account upon the infringement of the plaintiffs' patent. This decree was made in March, 1874, Judge Woodruff presiding. Under it an account was taken before Mr. Pomeroy, acting as master. Upon his report exceptions were taken by the defendants, which were heard before Mr. Justice Hunt. The learned judge allowed the exceptions, and in the first instance ordered that the plaintiffs were entitled only to nominal damages, but subsequently allowed the plaintiffs a further opportunity to produce evidence. Upon the decision of the case an elaborate opinion was delivered, which is to be found in 12 Blatchford's Reports, 343.

It was held that the invention was one only of an improvement in the pump, and not of the entire pump. Numerous parts of the pump were in general use prior to the patent, and were not claimed therein, and were free to be used by the defendants. The patented invention claimed was a special construction of a side chamber, whereby the same was adapted to use with the valve-casings bolted on the outside, and the damages could not exceed the profits upon such improvement.

It was further held that, as the plaintiff failed to show the profits or damages arising from the use of the improvement, the master should have decided that nominal damages only could be recovered. This decision furnishes the law of this circuit upon the questions involved, and in an especial sense it furnishes the law of this case, which no judge has a right to review or modify except upon appeal. Being convinced of its correctness, I have as little inclination as I have right to depart from it. Upon the further reference the report which is now before the court on exceptions, taken by the defendant, the clerk of this court, acting as master, has made substantially the same report as was made by the first master, founding his decision upon proof that after the plaintiff's pump had been introduced into certain oil-regions other pumps could not be sold in those regions. This is relied upon as taking from the former decision all its force, and absolving the party from the necessity of giving proof, as that decision holds, of the profits or damages arising from the use of the improvement. The force of the former decision cannot thus be avoided. The fact newly introduced has no bearing upon the question, but leaves the rule announced in the former decision of Mr. Justice Hunt uncomplied with. The attempt to get rid of that decision in this way must necessarily fail. To a court which has decided that evidence of a particular fact is necessary it is no answer to say that it cannot be given. The consequence of that state of things is, that the party on whom the burden rests must fail. This is the situation of the plaintiffs in the case before the court. They have not given the evidence which the court has held they must give to entitle them to more than nominal damages. It must be attributed to the impossibility of showing any damages within the rule laid down by the court. The exceptions must be allowed and the report reduced to nominal damages, and there must be a final decree on that basis. If the views of the plaintiff are to prevail, the only remedy is in the Supreme Court upon appeal. To the decision of Mr. Justice Hunt, heretofore made in this cause, is now to be added the decision of the same learned judge, made in this court in *Black*, administrator, vs. *Munson*, filed June 19, 1877, in which the same doctrine laid down by him in this case is reaffirmed and applied to the circumstances of *Black* vs. *Munson*.

Let there be a decree for the plaintiffs with nominal damages only.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date December 4, 1877.]

10,337.—Gate and Fence.—JOHN MCLEAN, Brooklyn, N. Y. Application filed November 20, 1877. Term of patent 3½ years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date December 4, 1877.]

5,389.—Woolen Yarns.—BARNES, BANCROFT & CO., Buffalo, N. Y. Application filed November 15, 1877.
"The word-symbol 'NIAGARA.'"

5,390.—Ice.—JOHN GAMGEE, Washington, D. C. Application filed October 25, 1877.
"The word-symbol 'BELL BLOCK.'"

5,391.—Railway-Cars.—JOHN GAMGEE, Washington, D. C. Application filed October 25, 1877.
"The word-symbol 'CRYOGEN.'"

5,392.—Artificial-Ice Chambers.—JOHN GAMGEE, Washington, D. C. Application filed October 25, 1877.
"The word-symbol 'GLACIARIUM.'"

5,393.—Medical Preparations.—HEGEMAN & CO., New York, N. Y. Application filed September 3, 1877.
"An eagle with outstretched wings on a druggist's mortar and pestle, and bearing a scroll in his beak."

5,394.—Cosmetics.—FRANCIS F. MARSHALL, New York, N. Y. Application filed November 14, 1877.
"The word-symbol 'SECRET DE BEAUTÉ.'"

5,395.—Lamp-Burners.—THE WILMOT MANUFACTURING COMPANY, Bridgeport, Conn. Application filed November 14, 1877.
"The word-symbol 'TRIUMPH.'"

5,396.—Medicines.—ROSWELL VAN BUSKIRK, Newark, N. J. Application filed October 15, 1877.
"The word-symbol 'POOR MAN'S ANTIDOTE.'"

5,397.—Sewing-Machines.—R. M. WANZER & CO., Hamilton, Ontario, Canada, and Buffalo, N. Y. Application filed May 10, 1877.
"The words 'Time Utilizer,' in connection with the representation of an hour-glass."

5,398.—Plug-Tobacco.—L. & E. WERTHEIMER, New York, N. Y., and San Francisco, Cal. Application filed October 9, 1877.
"An engraving or print representing President Hayes in a standing position, and the letters 'L. & E. W.' in monogram."

5,399.—Disinfectant and Deodorizer.—LUKE A. WILDER, Boston, Mass., and JAMES A. FERGUSON, New York, N. Y. Application filed October 29, 1877.
"The monogram 'I. D. & D.'"

5,400.—Cigars.—B. FRANK WEYMAN, Pittsburg, Pa. Application filed November 15, 1877.
"The word-symbol 'THE CRITIC.'"

5,401.—Leaf-Tobacco.—BECKER BROTHERS, Baltimore Md. Application filed November 14, 1877.
"A figure of a bee."

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date December 4, 1877.]

1,277.—Title: "**Witch Hazel Salve.**"—BENJAMIN W. DYER, New York, N. Y. Application filed November 26, 1877.

1,278.—Title: "**Witch Hazel Cough Balsam.**"—BENJAMIN W. DYER, New York, N. Y. Application filed November 26, 1877.

1,279.—Title: "**Hubbard's Prize Gift Cigar.**"—WILLIAM HENRY HUBBARD, Rochester, N. Y. Application filed October 25, 1877.

1,280.—Title: "**True Mineral Waters.**"—JOHN MATTHEWS, New York, N. Y. Application filed November 21, 1877.

1,281.—Title: "**Soda Water from Matthews Apparatus.**"—JOHN MATTHEWS, New York, N. Y. Application filed November 21, 1877.

1,282.—Title: "**Persian Mead.**"—JOHN MATTHEWS, New York, N. Y. Application filed November 21, 1877.

1,283.—Title: "**Soda Water.**"—JOHN MATTHEWS, New York, N. Y. Application filed November 21, 1877.

1,284.—Title: "**Ginger Ale from the Matthews Apparatus.**"—JOHN MATTHEWS, New York, N. Y. Application filed November 21, 1877.

1,285.—Title: "**Liberty Brand.**"—JAMES B. PACE, Richmond, Va. Application filed November 16, 1877.

1,286.—Title: "**Mistura Copaiba Comp.**"—FREDERICK S. STEVENS, Bridgeport, Conn. Application filed November 14, 1877.

1,287.—Title: "**Alterative Syrup.**"—FREDERICK S. STEVENS, Bridgeport, Conn. Application filed November 14, 1877.

1,288.—Title: "**New Patent Screw Wrenches.**"—THE COLLINS COMPANY, Collinsville, Conn. Application filed November 27, 1877.

1,289.—Title: "**Collins & Co. 'Hartford' Cast Cast-Steel Plows.**"—THE COLLINS COMPANY, Collinsville, Conn. Application filed November 27, 1877.

1,290.—Title: "**New Patent Screw Wrenches.**"—THE COLLINS COMPANY, Collinsville, Conn. Application filed November 27, 1877.

SALE OF SPECIFICATIONS AND DRAWINGS.

Photolithographic copies of the drawings of all patents issued since November 26, 1867, have been produced, and will be sold to the public at 25 cents per patent, or, where twenty or more copies are ordered at one time, at 10 cents per patent.

Coupon-books, to the amount of $2 or more, can be purchased from the Chief Clerk of the Patent Office; the coupons, for 10 cents each, may be filled out at any time, and, on presentation, will entitle the holder to a photolithographic copy of *any* drawing which has been reproduced.

The specifications of all patents issued since July 1, 1871, are in print, and will be furnished with the drawing without extra charge. The specifications of patents issued from November 20, 1866, to July 1, 1871, are in print, and where such is the case the Office will furnish them with the drawings, but the Office will not undertake to reprint copies of patents which have been exhausted.

In addition to the above, the Office has reproduced, and offers for sale at the price mentioned above, all drawings in the following classes, embracing patents granted from 1790 to date. The classes are those of the Examiners:

1. Aeration and Bottling.
2. Apparel.
4. Baths and Closets.
5. Beds.
6. Bee-hives.
7. Beer and Wine.
8. Bleaching and Dyeing.
9. Boats.
10. Bolts, Nuts, and Rivets.
11. Bookbinding.
13. Brakes and Gins.
14. Bridges.
15. Brushes and Brooms.
17. Butcheving
18. Caoutchouc.
19. Carding.
20. Carpentry.
21. Carriages and Wagons.
23. Chemical Miscellaneous.
26. Cloth.
28. Cordage.
29. Crinoline and Corsets.
31. Dairy.
33. Drafting.
34. Driers and Kilns.
36. Electricity.
37. Excavators.
38. Felting and Hats.
40. Files.
42. Fire-arms.
44. Fuel
45. Furniture.
47. Garden and Orchard.
48. Gas.
52. Gunpowder.
53. Hardware manufacture.
55. Harrows.
56. Harvesters.
58. Horology.
59. Horseshoes.
61. Hydraulic Engineering.
62. Ice.
65. Kitchen Utensils.
66. Knitting and Netting.
67. Lamps and Gas-fitting.
68. Laundry.
71. Manures.
72. Masonry.
73. Measuring Instruments.
75. Metallurgy.
76. Metal Working, bending and straightening.
77. Metal Working, boring and drilling.
78. Metal Working, forging, swaging, and riveting.
79. Metal Working, punching, cutting, and shearing.
80. Metal Working, rolling.
81. Metal Working Tools.
82. Metal Working, turning, planing, and milling.
83. Mills.
85. Nails.
86. Needles and Pins.
87. Oils, Fats, and Glue.
88. Optics.
89. Ordnance.
90. Ore.
91. Paint.
92. Paper-making.
93. Paper manufactures.
94. Paving.
96. Plating.
97. Plows.
98. Pneumatics.
99. Preserving Food.
101. Printing.
102. Projectiles.
103. Pumps.
104. Railways, The Way.
105. Railways, (Cars and Interior Fittings.)
106. Railway Cars, (Exterior Mountings and Fittings.)
107. Railway Track and Car Irons and Fittings, manufacture of.
108. Roofing.
111. Seeders and Planters.
112. Sewing-machines.
114. Ships (1) construction.
115. Ships (2) propulsion.
116. Signals.
117. Silk.
118. Spinning.
119. Stabling.
120. Stationery.
124. Stills.
126. Stoves and Furnaces.
127. Sugar.
130. Thrashing.
131. Tobacco.
132. Toilet.
134. Tubing and Wire.
135. Umbrellas and Fans.
137. Water Distribution.
138. Water-wheels.
139. Weaving.
141. Wood-screws.

And the subdivisions of—

Bench-planes.
Bale-ties.
Buttons and Machines.
Combs, &c.

About forty other classes are in progress, and it is

hoped that all the drawings remaining, some thirty thousand in number, may be completed during the fiscal year.

The total number of patents or which drawings are complete and offered for sale as above will approximate one hundred and fifty thousand.

As 12 o'clock on Friday is the latest hour that a final fee can be received in order to get a patent into the "issue" of the following Tuesday, applicants are earnestly requested to make the final payment before Friday, if possible, so that the proper entries may be made on the books of the Office before closing the "issue."

When a patent has been allowed, and the application has not been forfeited by delay of six months, if the final fee of twenty dollars is paid before 12 o'clock on Friday, the patent will issue and bear date the following Tuesday.

Letters Patent of the United States do not reach the patentee or owner until about two weeks from the day of their date. The letters, nevertheless, have the force of patents from the time they are signed and sealed.

The GAZETTE is made to bear the same date as the patents to which the claims, briefs, and drawings relate, although it is not actually mailed to subscribers until about two weeks later than its date.

The Government fee on making application for a patent is fifteen dollars. The final fee is twenty dollars. Usually there are no other Government fees unless the application is appealed.

Where specifications are printed, copies of same attached to drawings will be furnished without extra cost.

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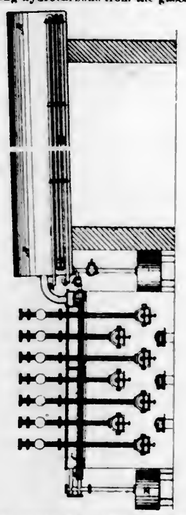
TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED DECEMBER 4, 1877.

197,712. PROCESSES FOR MANUFACTURING ILLUMINATING-GAS. Henry Aitken, Falkirk, North Britain. Filed Apr. 15, 1875. Patented in England, July 24, 1876.

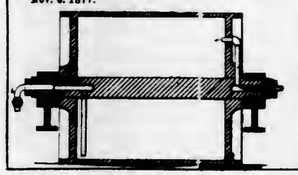
Brief.—Gases resulting from the destructive distillation of coal are maintained at a warm temperature, whereby the deposit of their volatile hydrocarbons is prevented; or the tars deposited from the gases are maintained at a temperature of about 190° Fahrenheit, so that the rich gases and volatile hydrocarbons which have been absorbed by them are revaporized and mixed with the gases. The gases are also passed through caustic lime for drying them, and then passed over or through tars or oils rich in volatile hydrocarbons, heated to a temperature of about 190° Fahrenheit. The water in the gas-holder tank is covered with a layer of "intermediate paraffine-oil" saturated with paraffine-spirit, for preventing the water from absorbing hydrocarbons from the gases.



1. The process of treating the gases obtained by the destructive distillation of coal and other substances, substantially in the manner and by the means herein described, so that they are maintained at a warm temperature, whereby they are either prevented from depositing the volatile hydrocarbons and rich gases in the tars, or by revolatilizing the said hydrocarbons and rich gases which have been absorbed in the tars, so that these gases become saturated therewith and their illuminating power is improved, as hereinbefore set forth.

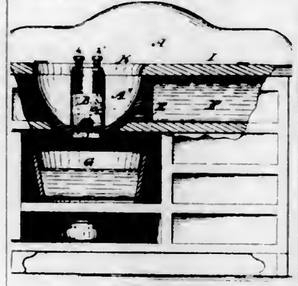
2. The process of removing aqueous vapors from gases, and thereafter passing the gases in or through volatile hydrocarbons, thereby increasing their illuminating power, substantially as hereinbefore described.

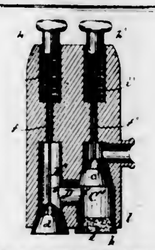
197,713. STEAM-ROLLERS FOR COMPOSITION PAVEMENTS. Nathan B. Abbott, Brooklyn, N. Y., assignor to himself and J. P. Ornaford, same place. Filed Nov. 6, 1877.



The combination, in the steam-roller for composition pavements, of a cylinder with closed heads and inlet and discharge openings, and a pipe passing from the boiler to the said axle, substantially as set forth.

197,714. WASH-STANDS. Nathan O. Bond, Fairfax Court-House, Va. Filed Oct. 9, 1877.





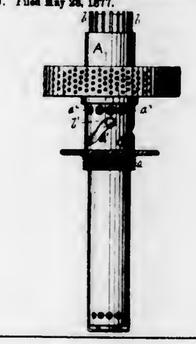
1. The covered reservoir F, having a shoulder, *m*, to form a support or rest for the stationary wash-bowl A', substantially as and for the purpose set forth.

2. The combination, with a wash-bowl, of the valve-chambers B' C', provided with spring stem-valves *c' d'*, and inlet and outlet water-passages *b' b'*, substantially as and for the purpose specified.

3. In a wash-stand, the covered reservoir F, in combination with a wash-bowl, A', having valves *c' d'*, and pipe E, substantially as and for the purpose specified.

4. In combination with a wash-stand having the reservoir F and wash-bowl A', the valve-chambers C', having the internal flange *l* and the flaring plug *e*, provided with the groove *k*, substantially as set forth.

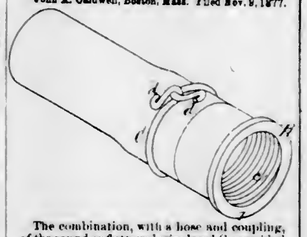
197,715. LAMP-BURNERS. Thos. M. Brintnall, New York, N. Y., and Rudolph C. Weilbacher, Newark, N. J. Filed May 28, 1877.



1. In a lamp-burner, the wick-case B B', connected together by a metallic strip, *b²*, and provided with fingers or prongs *b b*, substantially as and for the purpose set forth.

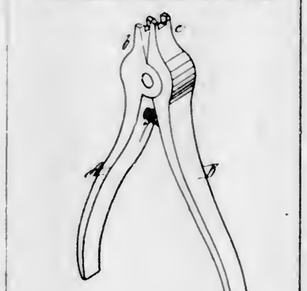
2. In a lamp-burner, the wick-case B B', having fingers or prongs *b b*, tube A, slot *a'*, and pin *b'*, the whole constructed and arranged to operate substantially as described.

197,716. STRAPS FOR SECURING HOSE TO COUPLINGS. John A. Caldwell, Boston, Mass. Filed Nov. 9, 1877.



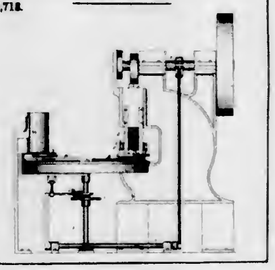
The combination, with a hose and coupling, of the round or flattened wire band C, provided with enlargements *d*, the ends of the band being twisted around each other and locked together, thus securing the hose to its coupling, substantially as described.

197,717. IMPLEMENTS FOR FASTENING HOSE-STRAPS. John A. Caldwell, Boston, Mass. Filed Nov. 9, 1877.



The within-described implement for tightening and fastening metallic straps or bands used for securing hose to couplings, consisting of the levers A B, pivoted together, and having jaws *b c*, provided with grooves or notches *f f*, located out of line with each other, when constructed to operate substantially in the manner and for the purpose set forth.

197,718.



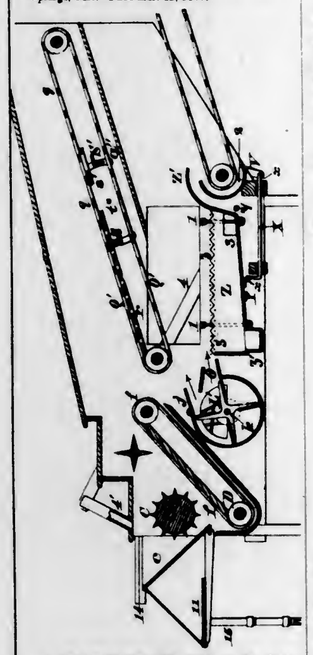
THE GRAPHIC CO N.Y.

197,718. TILE-MACHINES. Horace B. Camp, Cuyahoga Falls, Ohio. Filed Aug. 14, 1877.

Brief.—When one of the lower dies is in position beneath the upper die, with a portion of clay therein, the shell descends and surrounds it, and the upper die descends within the shell and presses the clay into the desired shape, the excess of clay escaping through holes in the ends of the shell.

1. In a machine for making pressed forms, the combination, with an upper and under die, of the shell J, all arranged and operating substantially as and for the purpose hereinbefore set forth.
2. In combination with the upper die F and shell J, the circular platform L, bearing a series of lower dies, all arranged and operating substantially as and for the purpose hereinbefore set forth.
3. The herein-described tile-machine, consisting of the upper die F, shell J, platform L, and lower dies K, all operated by suitable machinery, substantially as shown, in the manner herein described.
4. In combination with dies F and K and shell J, the pins c c, arranged and operating substantially as and for the purpose hereinbefore set forth.
5. In combination with the dies F and K and shell J, the holes i i, for the purpose specified.
6. In combination with the platform L and dies K, the cylinder W and plate X, substantially as and for the purpose hereinbefore set forth.

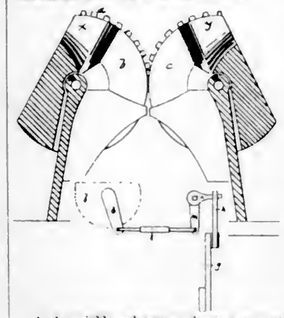
197,719. THRASHING-MACHINES. Wm. Carr, Yellow Springs, Ohio. Filed Mar. 12, 1877.



1. In combination with crank w, the drag-link V, rock-shaft X x x', and connecting-rod Y y, for imparting a lateral vibration to the suspended shoe Z z 1, substantially as herein described, and for the purpose set forth.
2. The combination of knockers S S', walking-beam T t, connecting-rod U, and drag-link V, substantially as herein described, and for the purpose set forth.
3. The combination, in a thrashing-machine, of an elevator-shaft, 7, having one end journaled in a vertically-adjustable bearing, 9 9' 10, in order that pulley 8 of said shaft may serve as a tightener for belt M', substantially as herein described and set forth.
4. The combination, in a thrashing-machine, of the band-cutter's support 13, hinged to the feeder's platform at 11, and having coupled to its free edge one or more extension-legs, that rest upon the ground, substantially as herein described, and for the purpose set forth.

197,720. EXHAUST MECHANISMS FOR LOCOMOTIVE-ENGINES. Josiah P. Clark, Portland, Me. Filed Aug. 1, 1877.

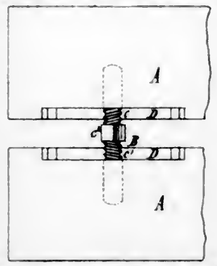
Brief.—The exhaust-valve is connected to the reversing-lever of the engine, whereby the valve is opened to its largest capacity when the engine is started in either direction.



1. A variable exhaust mechanism connected with and operated by the reverse-lever shaft of the locomotive, substantially as and for the purposes set forth.
2. An exhaust for locomotive steam engines, having the valves *b* and *c*, as described, in combination with the arm *g*, crank *h*, arm *k*, shaft *l*, crank *m*, and crank *o*, said cranks *m* and *o* being connected by means of an extensible rod.

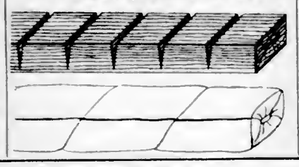
197,721. SCREW-FASTENINGS FOR JOINTS. George W. Cornell, Clarence Centre, N. Y., assignor of two-thirds his right to D. F. Biegle and David Sharrer, same place. Filed Apr. 19, 1877.

Brief.—Two pieces of wood are united by means of a right-and-left-hand screw, provided with a nut, and operated by a wrench.



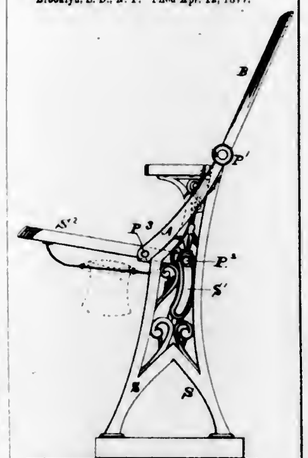
The combination, with the two pieces of wood A A, provided in their contiguous ends with recesses D, constructed as described, of the screw-fastening B, composed of right and left handed screws c c', adapted to screw directly into the wood, and an intermediate shank, c^2, to which a suitable wrench may be applied, substantially as and for the purpose hereinbefore set forth.

197,722. MANUFACTURE OF PLUG-TOBACCO. David W. De Forest, Brooklyn, N. Y. Filed Nov. 22, 1877.



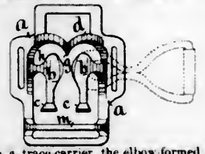
1. The method herein described of forming plugs of tobacco, consisting in cutting or partially cutting the filler into sections, and finally covering all the sections with an ordinary wrapper, and pressing or finishing the plug.
2. The plug herein described, having a cut or partially cut sectional filler, and a wrapper inclosing said sections.
3. A tobacco-plug having a sectional filler, and a wrapper pressed upon and holding said sections together, as described.

197,723. OPERA-CHAIRS. Cornelius B. Demarest, Brooklyn, E. D., N. Y. Filed Apr. 12, 1877.



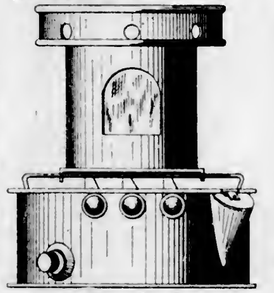
1. The standards S S, provided with the curved slots S' S', and the seat S^2, provided with the pivots P^1 P^1 and I^{st} I^{st}, the latter sliding pivots taking in the slots S' S', in combination with a movable chair-back attached to and operated by the seat, as shown and described.
2. The combination of the movable back B, provided with pivots, located near a line drawn centrally and transversely across it, which are held in axial bearings in the standards S S, with the folding seat S^2, pivoted on each side, forward of the rear end, to rigid extensions from the back B, and provided on its rear end with the sliding pins I^{st} I^{st}, which take and slide in slots in the standards S S.
3. The combination of the movable back B, provided with pivots, located near a line drawn centrally and transversely across it, which are held in axial bearings in the standards S S, with the folding seat S^2, pivoted on each side, forward of the rear end, to rigid extensions from the back B, and provided on its rear end with the sliding pins I^{st} I^{st}, which take and slide in the curved slots S' S'.
4. The folding seat S^2, pivoted to extensions of the movable back B, and provided with sliding pins I^{st} I^{st}, arranged to move in the slots S' S', the back B, pivoted axially in axial bearings in the standards S S, and the standards S S, provided with the slots S' S', each substantially as shown and described, and all in combination.
5. The pivoted back B, pivoted folding seat S^2, and standards S S, provided with the slots S' S', in combination.
6. The movable back B, provided with pivots on each side, nearly on a line drawn transversely through its center, which take in bearings provided in the standards on each side, and are provided with the detents H H, to hold the back and standards together.
7. The pivot P P of a movable back of a folding chair, provided with the detent H, which engages with the inside of a collar, constituting a bearing for the pivot, as shown and described.
8. The pivot P of the folding chair back B, provided with the detent H, in combination with the bearing P^1, in the manner and for the purposes shown.
9. A series of seats provided with movable backs, pivoted in the standards, which, by their pivots, acting as detents on each side, engage in bearings in a series of standards on each side of each, (except those at the ends,) and hold the series together as one structure, the backs performing the functions of tie-rods throughout the series, all substantially as shown and described.

197,724. TRACE-CARRIERS. William E. Dippert, Des Moines, Iowa, assignor of one-half his right to Thos. G. Orwig, same place. Filed June 4, 1877.



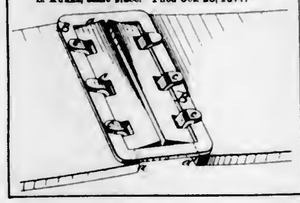
1. In a trace-carrier, the elbow-formed and wing-shaped keepers *b*, having heads or knobs *c* on their ends, and standing out from the base *a* parallel to each other, so as to form the eccentric cavities A, substantially as and for the purposes shown and described.
2. The base-ring *a*, the elbow-formed keepers *b*, and the beak-formed keeper *d*, arranged and combined to operate substantially as set forth.
3. As an improved article of manufacture, a trace-carrier composed of the base *a a*, the elbow-formed keepers *b b*, the beak-formed keeper *d*, and the guard *m*, substantially as and for the purposes shown and described.

197,725. OIL-STOVES. Levi S. Enos, Aimond, N. Y., assignor of one-half his right to H. S. Hall, same place. Filed May 17, 1877.



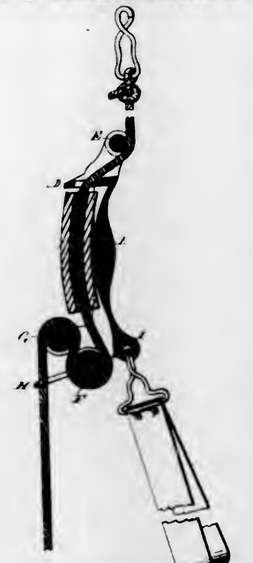
1. In an oil-stove, the combination of a water-pan, C, on top of the reservoir, and a water-chamber, D, surrounding the same, the pan and chamber being connected by passages *d*, substantially as herein set forth.
2. In an oil-stove, water-tubes *b* passing through the oil-reservoir, substantially as herein set forth.
3. The combination, with the oil-reservoir A, of the top pan C, the surrounding chamber D, passages *d*, and tubes *b*, substantially as and for the purposes herein set forth.

197,726. BELT-FASTENERS. William Ferguson, Canton, Ohio, assignor of one-half his right to Herman L. Kuhns, same place. Filed Oct. 23, 1877.



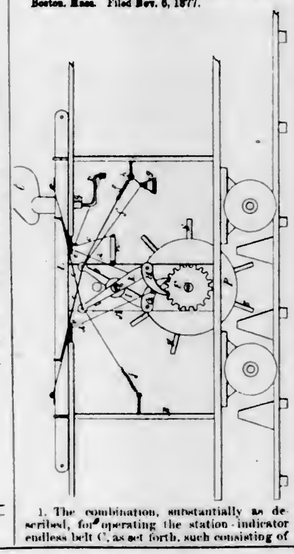
In combination with the abutted ends of a belt, recessed as described, the rectangular frame B, and a series of double hooks, C, all constructed and operating as and for the purpose specified.

197,727. FIRE-ESCAPES. Charles A. Gregory, Montreal, Quebec, Canada, assignor of one-half his right to D. B. Tawsley, same place. Filed Sept. 21, 1877.



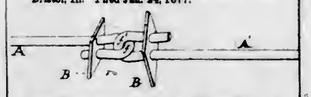
The handle B, constructed as set forth, with sheaves E F G at the ends, clevis H, and projection D, in combination with rubber tube C, sliding on rope A, passing over the sheaves, as set forth.

197,728. STATION-INDICATORS. George M. Guild, Boston, Mass. Filed Nov. 6, 1877.



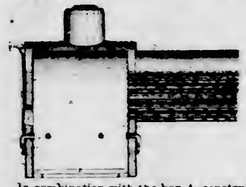
1. The combination, substantially as described, for operating the station-indicator endless belt C, as set forth, such consisting of the gear F, pawls G H, levers I K, springs *f f*, slide-bar L, and the lines *c c d d*, connecting the levers and pawls with such slide-bar, all being arranged and applied essentially in manner and to operate as set forth.
2. The combination of the alarm-bell *g* and its carrying-line *f'* with the described mechanism for actuating the station-indicator endless belt.
3. The combination of the vane *i*, shaft *q*, crank *p*, and the line *s* with the ear and the door *n* of the opening *a* of the case of the station-indicator, all being arranged to operate as explained.
4. The combination for securing each name-plate to the endless belt, such consisting in the notches in the plate and the staples and spring applied to the belt, all being arranged as represented.

197,729. BARBED FENCE-WIRE. George G. Hunt Bristol, Ill. Filed Jan. 24, 1877.



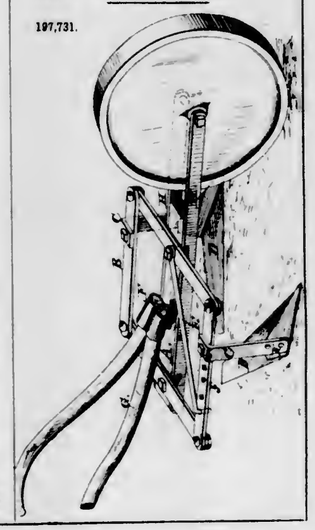
The combination of the bent sections A and A' when such sections are provided with one or more barbs B, in the manner as and for the purpose specified.

197,730. AIR-FEEDING ATTACHMENTS FOR LOCOMOTIVES. William S. Hotchinson, Chicago, Ill. Filed Oct. 10, 1877.



In combination with the box A, constructed with flue-boiler B and water-chambers *b*, the pipes *r*, secured within tubular bolts between the walls *a a'* of the water-chambers, and bent down upon the exterior of the outer wall at *r'*, as shown, and the steam-jet nozzles *o*, arranged around the box below the flue, and near the base of the box, so as to enter the lower open ends of the pipes *r* below the bends *r'*, all of the said parts being constructed and arranged as herein shown and specified.

197,731.



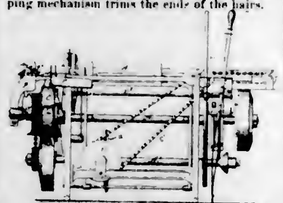
197,731. GARDEN-WEEDERS. Moses Johnson, Lockport, N. Y., assignor of one-half his right to Moses C. Richardson, same place. Filed Sept. 29, 1877.

1. The adjustable quadrangular frame B, pivoted to frame A, and provided with spring-clutch E', standards C, and knives D, projecting obliquely to embrace the space between the standards, all arranged to operate substantially as shown and described.

2. The frame B, pivoted to beam A, and provided with vertical bar I and spring-clutch E', substantially as shown, and for the purpose specified.

197,732. LOOMS FOR WEAVING HAIR-CLOTH. M. R. Kenyon, Providence, R. I. Filed July 7, 1877.

Brief.—A rotary carrier-drum is provided with pickers or nippers, to seize a hair and present it to the jaws of the shuttle. A stop mechanism acts to prevent the rotation of the drum as soon as a hair is caught by the pickers; otherwise the drum will rotate until a hair is seized. A weft-stop mechanism is also provided to detect the failure of the shuttle to obtain a hair. This mechanism operates the reversing pulley, and returns the shuttle immediately to the drum. This is repeated until a hair is seized by the shuttle. Automatic clipping mechanism trims the ends of the hairs.



1. The combination, with the hair-receptacle F, of the rotary carrier-drum C, provided with the pickers *i i* and stationary cam *k*, and adapted to pick the hair from the receptacle and present the same to the shuttle, substantially as described.

2. The combination, with the rotary carrier-drum C, provided with the cams *n n*, of the stopping mechanism, substantially as described, whereby the carrier is stopped when a hair has been caught by a nipper, substantially as described.

3. The combination, with the rotary carrier-drum C and pickers *i i*, of the wires *l l*, detecter-arm M, and stopping mechanism, said wires being adapted to guide the detecter arm onto the hair, substantially as set forth.

4. The combination, with the picker arm i^2, pivoted to the rotary carrier-drum, and provided with the heel i^3 and the picker arm i^4, hinged in the drum and connected with the arm i^2, of the stationary cam *k*, whereby both picker-arms may be opened and closed simultaneously under the action of the stationary cam *k*, substantially as set forth.

5. The combination, with the cam *n* secured to the rotary carrier-drum C, of the pivoted jaw o^1, the lever *o*, and stop-lever *p*, and detecter-arm *m*, adapted to stop the revolution of the carrier-drum when a hair is secured, substantially as set forth.

6. The combination, with the rotary carrier-drum, provided with guide-wires, of the detecter-arm *m*, the pivoted arm m^1, and stop m^2, and mechanism, substantially as described, whereby the clutch of the driving pulley is disconnected, substantially as set forth.

7. The combination, with the rotary carrier-drum C, provided with the adjustable cam-plate E, of the standard *q* and pivoted lever q^1, the guide q^2, and shears q^3, arranged to clip the hair, substantially as and for the purpose described.

8. The combination, with the detecter stop mechanism, consisting of the arm *m*, the hinged arm m^1, and stop m^2, of the revolving cam m^3 and vibrating arm m^4, adapted to release the detecter stop mechanism, substantially as and for the purpose specified.

9. In a hair-loom, the combination of the following instrumentalities: a reciprocating shuttle, provided with a pivoted spring-pressed jaw and mechanism adapted to open said jaw, a revolving carrier-drum, provided with pickers adapted to present the hair to the shuttle, and a detecter stop mechanism adapted to control the operating mechanism of the rotary carrier-drum, whereby the same will revolve until a picker has delivered a hair, and stop as soon as the hair is delivered, substantially as set forth.

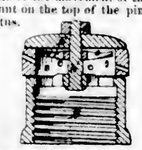
10. The combination, with two drums loosely secured to the driving-shaft, each drum constructed with an annular-face ratchet on its inner side, of two spring-pressed clutches and an intermediate lever, substantially as set forth.

11. The combination, with the lay B, of the detaching mechanism, consisting of the rod *z*, projecting head z^1, and pivoted slide z^2, adapted to detach the shipper-rod by the reciprocation of the lay, substantially as and for the purpose set forth.

12. In a hair-loom, the combination, with the reciprocating shuttle, of the rotary carrier-drum, provided with any required number of pickers, and a reversing mechanism, substantially as described, operated through the weft-fork when a hair is missed, and adapted to reverse the motion of the shuttle, substantially as and for the purpose specified.

197,733. LAWN-SPRINKLERS. W. A. Kirby and D. M. Kirby, Auburn, N. Y. Filed Nov. 9, 1877.

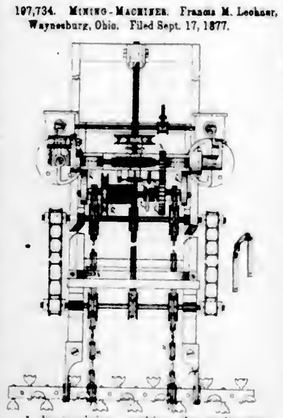
Brief.—An interiorly screw-threaded end piece for hose or pipe has a spider at top, affording a seat for the rigid attachment of a pin, upon which is revolved, by the flow of the water, a series of propeller-arms. Exterior to this is a band or ring, with tangential perforations, from which the water issues in a direction opposite to the movement of the ring. A cap and a nut on the top of the pin complete the apparatus.



1. A lawn-sprinkler formed with a thick metal ring, having perforations tangent, or nearly so, to its interior periphery, as and for the purpose described.

2. In a lawn-sprinkler, the combination of a hose coupling, a ring with perforations tangent, or nearly so, to its interior periphery, and a cap, substantially as and for the purpose described.

197,734. MINING-MACHINES. Francis M. Lechner, Waynesburg, Ohio. Filed Sept. 17, 1877.



1. In a mining-machine, the combination, with the carriers, of the driving-shaft E', adjustably supported between said carriers, substantially as set forth.

2. The combination, with the screw K, of a divided nut, O O', its conical support, and the inclosing-shell L, substantially as set forth.

3. In a mining-machine, the combination, with the sills, the sliding carriers, and the driving-chain E, of devices for locking the chain to the sills, substantially as set forth.

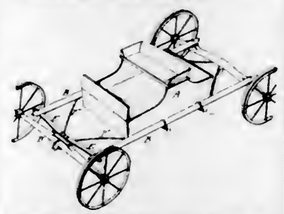
4. In a mining-machine, scrapers operated in vertical planes to remove the cuttings from the kerf or drift, substantially as set forth.

5. In a mining-machine, a worm adjustable upon the driving-shaft for actuating the feeding devices, substantially as set forth.

6. In a mining-machine, the shaft F', made adjustable for tightening the driving-chain *f'*, substantially as set forth.

7. In a mining-machine, the overhanging scraper-chain supports, substantially as set forth.

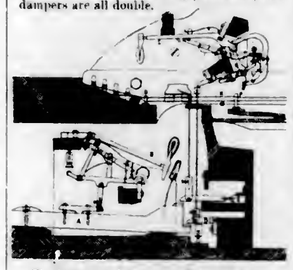
197,735. BUCKBOARD-WAGONS. Chas. D. Le Grand, Wilkesbarre, Pa. Filed Oct. 16, 1877.



The combination, in a buckboard wagon, of the body A with the transverse strips *a* secured to longitudinal side bars B, the latter resting at the rear upon the axle D, and at the front upon the opposite ends of the half-spring E secured to the front axle, to which the bars B are also connected by means of a brace, F, all substantially as and for the purpose set forth.

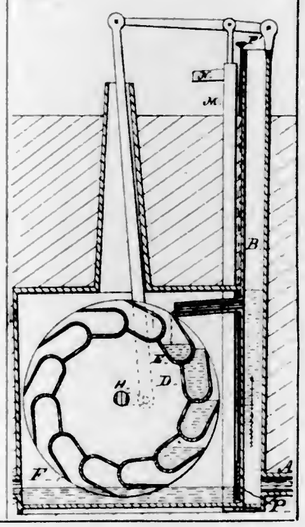
197,736. PIANO-FORTES. Otto Lemcke, Schkeuditz, Prussia. Filed June 29, 1877.

Brief.—The sets of strings, hammers, and dampers are all double.



The key A, and hammers B and C, in combination with two sets of strings, M and N, located between the hammers, substantially as and for the purpose described.

197,737.



197,737. APPARATUS FOR RAISING WATER FROM RUNNING STREAMS. Stephen Lindsey, Bonhnell, Ill. Filed Oct. 2, 1877.

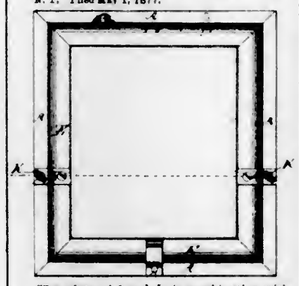
Brief.—A breast-wheel is arranged within a case sunk a little lower than the stream, and an ascending gate placed at the influx and open port at the efflux. A tube in advance of the influx permits the ascent of water to a spout, whence it flows to the periphery of the wheel, where it falls into deep buckets, and the wheel operates a pump, which lifts water to a still higher delivery-spout for use.

1. The line of under-drain, conpined with a chamber set into it so the water will pass through, and with an inclosed wheel and pump to be operated by the water, substantially as set forth.

2. The combination of a line or under-drain, A G, a chamber, F, wheel D, stand-pipe B, gate P, and pump M, arranged substantially as set forth.

3. The line of under-drain, provided with stand-pipe B, and an underground wheel and pump, to be operated by the water, substantially as set forth.

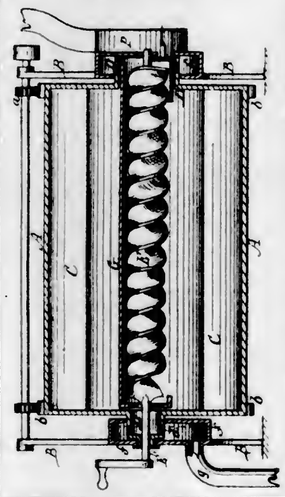
197,738. PICTURE-FRAMES. Chas. Lippe, New York, N. Y. Filed May 1, 1877.



The plates I I and L, in combination with the frames E and A and eye-screws K K, substantially as described, and for the purpose set forth.

197,739. BATING COMPOUNDS FOR HIDES OR SKINS. Wm. McMurtrie, Oxford Township, Warren County, N. J. Filed Nov. 23, 1877.

The bating compound consisting of dry glucose and dried sour cheese, or their equivalents, thoroughly incorporated with each other, in the condition and for the purposes substantially as described.



197,740. MALT AND GRAIN DRIERS. Aaron Palmer, Rochester, N. Y., assignor of two-thirds his right to Joseph A. Holmes, Arlington Heights, Ill., and W. H. Osthout, Rochester, N. Y. Filed Apr. 9, 1877.

1. In a malt or grain drier, in combination with the cylinder A, provided with the buckets C C, the hollow journals D D, provided with perforations *d d*, and the hollow drum-spaces *f f*, inclosing said journals, but allowing free rotation, the whole arranged as set forth, so that the hot air is received through one end and discharged through the other, as shown and described, and for the purpose specified.

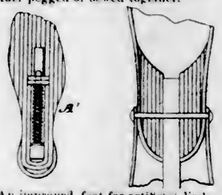
2. In a malt or grain drier, the combination, with a cylinder, A, provided with buckets C C, enlarged hollow perforated journals D D, and the hollow drums *f f*, of an induction hot-air pipe, *g*, at one end, and an exhaust-fan, P, at the other, connecting with the said drums, for the purpose of producing an exhaust through the cylinder, in contradistinction to a blast, as herein shown and described.

3. In a malt or grain drier, the combination, with the cylinder A, provided with the buckets C C, of the central trough or hopper G and the screw-conveyer E, arranged as set forth, to feed the charge into and withdraw it from the cylinder by the rotation of the conveyer in opposite directions, as herein shown and described.

4. In a malt or grain drier, the combination of the trough G with the conveyer E, the trough being a half cylinder, and capable of turning either above or below the conveyer, as and for the purpose specified.

197,741. ARTIFICIAL LIMBS. George L. Ridsdale, Marinette, Wis. Filed July 20, 1877.

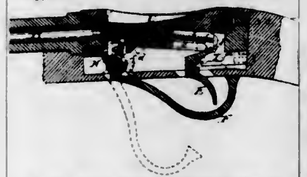
Brief.—The foot is made of pieces of sole-leather pegged or sewed together.



An improved foot for artificial limbs, composed of the united strips of sole-leather A, covered *b*, the usual way with a thin leather cover, A', substantially as described.

197,742. BREECH-LOADING FIRE-ARMS. John Schudt and Johann P. Schnoh, New York, N. Y. Filed Oct 23, 1877.

Brief.—By the forward movement of the guard-lever an arm thereof engages the breech-block and its firing-bolt, and depresses the former and retracts the latter. A spring-catch on the firing-bolt engages with a shoulder on the rear under side of the breech-block, and holds it in cocked position till released by the trigger.



1. The breech-block C, combined with the sliding firing-pin D, whose shank is made hollow, for receiving the spring *b*, and with the nose *d* on said firing-pin, and with the spring-catch *e*, to operate substantially as herein shown and described.

2. The lever G, rigidly connected with the trigger-guard F, and combined with the breech-block C, sliding nose *d* on the firing-pin, and with the spring *b* and catch *e*, to operate substantially as herein shown and described.

197,743. PITMAN-HEADS FOR OIL-WELLS. Jno. Sharp, Carbon Centre, Pa. Filed Oct. 26, 1877.

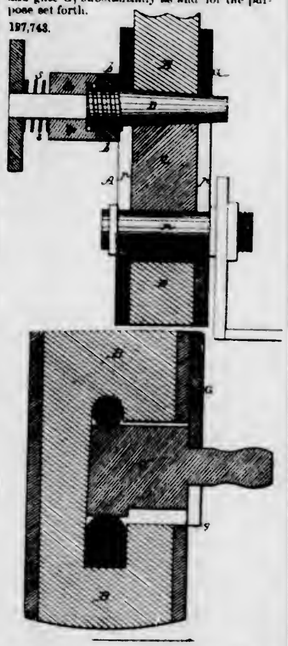
1. The self-fastening taper key D, with its corresponding opening over the follower, in combination with the clutch *a* and part *b*, substantially as shown and described.

2. The follower C, in combination with the gate G.

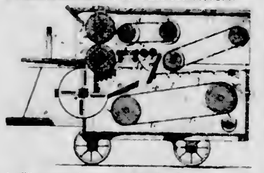
3. The slot in the head of the pitman, one side of it being partly cut out to admit the follower, substantially as set forth.

4. The combination of the frame A, the taper key D, clutches *a* and *b*, the follower C, and gate G, substantially as and for the purpose set forth.

197,743.



197,744. HOP-VINE STRIPPER AND SEPARATOR. M. O. Smith, Starkville, N. Y. Filed Oct. 18, 1877.



1. The combination of feed-rolls, a yielding receiving-table, and a toothed stripper, substantially as set forth.

2. The combination of feed-rolls, a toothed stripper, a receiving-table, and one or more conducting or bearing rolls, the parts being so arranged that the stripper serves also to draw the vines over the rolls, substantially as set forth.

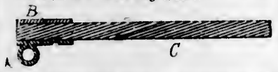
3. The combination of a pair of feed-rolls, a toothed stripper, a receiving-table, one or more conducting-rolls, and a perforated carrier-belt, said stripper being arranged to conduct the vines from the feed-rolls to the carrier-belt, and the rolls and carrier-belt being arranged at proper intervals to allow the hops to drop through while retaining the vines, substantially as set forth.

4. The tongues *g*, secured to table G or elsewhere, and projecting beneath the rolls H H into the air-passage formed by the deflecting wall O and the sides of the casing of the machine, substantially as and for the purpose specified.

5. The combination of the toothed endless conveying-belt J and the bar L, provided with clearing-teeth, substantially as described.

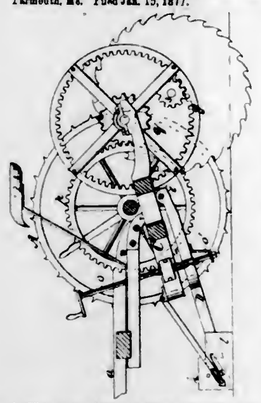
6. The arms or rests B, secured to the frame of the machine, and projecting laterally therefrom at either side of the feed-opening, substantially as and for the purpose set forth.

197,745. BREASTPIN-FASTENING. Charles E. Smith, Brooklyn, N. Y. Filed Aug. 6, 1877.



In a breastpin-fastening, the combination of the slotted tongue C with the transversely-corrugated strip B and flanged strip A, substantially as and for the purpose described.

197,746. ICE-CUTTING MACHINES. Chas. C. Springer, Yarmouth, Me. Filed Jan. 15, 1877.



1. The main frame C, hung upon the axle B, and carrying at its rear end, behind the axle, the saw *l*, and at its forward end, in front of the axle, the shoe *k* and adjustable frame D, by which the saw is held in the ice the required depth, substantially as described.

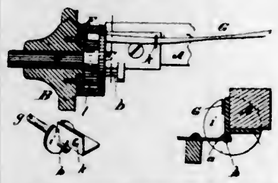
2. The frame D, which carries the guide, pivoted underneath the main frame C, and connected therewith by the screw-shaft, as set forth.

3. The combination of the slotted shoe *l* and slotted brace *m* with the adjustable frame D and main frame C, substantially as described.

4. The hinged frame D, carrying the guide *k* and its slotted plate *l*, adapted for adjustment, with respect to the main frame C, by means of the slotted brace *m* and the screw-shaft *o*, substantially as described.

5. The combination of the shoe *l*, connected to the frame D by means of a set-screw, which passes through an inclined slot in said shoe and the slotted bar *m*, as set forth.

197,747. HORSE HAY-RAKES. John F. Thomas, Ilion, N. Y. Filed Feb. 10, 1877.



1. In a hay-rake, the combination of the axle A, the wheels B, having the internally-toothed flanges F and the spring-rods G, mounted on the axle and engaging within the flanges, as shown.

2. In a hay-rake, the combination of the axle A, the internally-toothed flanges F on the wheel-hubs, and the spring-rods G, mounted on the axle and arranged to move endwise, as shown and described.

3. In combination with the rods G, arranged to operate as shown and described, the lever H, pinions I J, rod K, and foot-lever L, as shown.

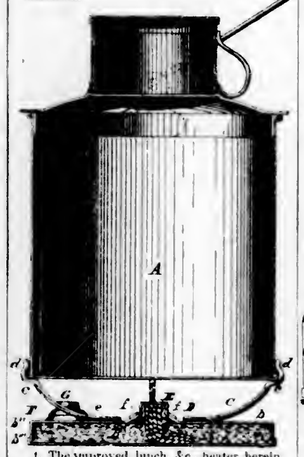
4. In combination with the pinion J, arranged as and for the purpose described, the adjustable stop-arm M, mounted on the front frame.

5. The combination, in a hay-rake, of the axle A and the front or draft frame D, united by hooks *a*, constructed and arranged to operate as set forth.

6. In combination with the catch Q, arranged as shown, for the purpose of locking the rake-teeth down, the lever L, for throwing the dumping devices into action, arranged to strike and release the catch, as and for the purpose described.

197,748. HEATERS. George L. Thorne and George C. Farnsworth, Buffalo, N. Y. Filed Oct. 5, 1877.

Brief.—Spring-clamps are soldered to the upper surface of the flat oil-reservoir, which support any pail or other suitable cooking-vessel. The heater may be carried in the hand, the reservoir, by the action of the spring clamps on the bottom seam of the pail, suspending therefrom.



1. The improved lunch, &c., heater herein before described, consisting, essentially, of a vessel, A, having a projecting bottom seam, and a reservoir, B, provided with a wick-tube, D, closed by a cap, E, said vessel A being removably secured to the reservoir B by means of clamps or supports C, arranged to grasp said vessel A above its projecting bottom seam, which forms a shoulder to prevent the reservoir from dropping, as and for the purpose specified.

2. The herein-described heater, consisting of the flat reservoir B, having centrally a wick-tube, D, provided with a cap, E, and the radial upwardly-projecting supports C, having the offsets *c* and the projecting guard-pieces *d*, the whole being constructed and arranged to operate substantially as and for the purpose specified.

3. As a new article of manufacture, a heater adapted to be used in conjunction with an ordinary dinner-pail or other vessel, consisting, essentially, of a flat reservoir, B, containing liquid fuel, and provided with a wick-tube, D, and supports C, having the offsets *c* and upwardly-projecting guards *d*, the whole being constructed and arranged substantially as and for the use and purpose specified.

4. The wick-tube D, having a flaring flange and the perforations *f*, in combination with the cap E, having the corresponding flange *e*, as and for the use and purpose specified.

197,749. PORTABLE HEATERS. George L. Thorne, Buffalo, N. Y., assignor of one-half his right to Geo. L. Farnsworth, same place. Filed Oct. 27, 1877.

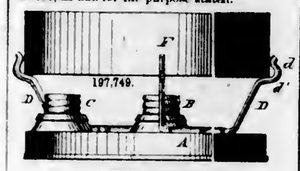
Brief.—The flat circular liquid-fuel reservoir is provided on its upper surface with pivoted locking-supports, for holding a vessel containing articles to be cooked. For use of hunters, fishermen, and tourists.

1. The combination, with the heater A, of the pivoted supports D, as and for the purpose specified.

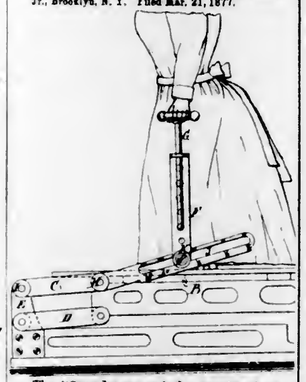
2. The combination, with the vessel A, of the pivoted supports D, provided with means for locking, as specified.

3. The combination, with the heater A, having the pivoted supports D, of the vessel F, as specified, said vessel F being arranged to form a cover for the heater A, as stated.

4. The combination, with the vessel A, of the pivoted locking-supports D, having the hooks *d*, and tubes E, having the open bent ends *c*, as and for the purpose stated.



197,750. HEALTH-LIFTS. Edward A. Tuttle, New York, assignor of one-half his right to Silas Tuttle, Jr., Brooklyn, N. Y. Filed Mar. 21, 1877.



The lifting-levers and the coupling-bars, connected directly to the platform, without other intermediate levers, and said levers arranged for shifting the purchase or leverage lengthwise thereon, substantially as described.

197,751. GLOVE WRIST-CLASPS. Nelson Vrooman, Johnstown, N. Y. Filed Sept. 7, 1877.



In combination with the arm B of a glove wrist-clasp, the spring C, provided with notches or depressions *e e*, and lug *d* on the lateral surface of the arm A, and operating substantially in the manner and for the purpose specified.

197,752. STONE PAVEMENTS. Henry B. Walbridge, Brooklyn, N. Y. Filed Sept. 12, 1877.



1. In a pavement of the character herein specified, the combination of the sunken wheel tracks and the prepared border and guiding blocks, arranged to break joints with each other, substantially as shown, for the purpose of obviating rutting, as specified.

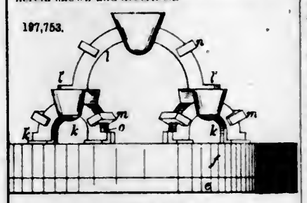
2. The combination of the solid blocks E E with their grooved wheel-tracks B B, their notched sides F F, with the paving-blocks inserted therein, and the cobble-stone horse-track D D, substantially as shown and described.

197,753. MOLDS FOR CASTING WHEEL-TIRES. Nathan Washburn, Hartford, Conn. Filed Sept. 6, 1877.

Brief.—Puts the steel part of the tire, consisting of part of the tread and all of the flange, while very hot, into mold, and casts the remainder, of iron, onto it. Each cap-run ner feeds four sprues. Turns or twists base-runners to break off the fins on them. Places tire, while hot, in a mold, and casts iron body onto it.

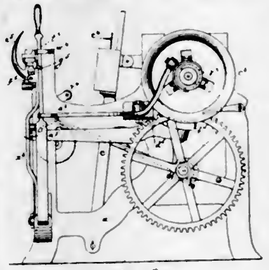
In a mold or casting apparatus, the combination of the removable cap-runners and the removable base-runners, all substantially as herein shown and described.

197,753.



197,754. LOOMS. Horace Wyman, Worcester, Mass. Filed May 15, 1877.

Brief.—The improvements relate to the shuttle-box mechanism and the weft-stopping mechanism. The clutch-arm of the box mechanism is provided with a pivoted finger, which acts as a detent, in connection with a notched arm secured to the eccentric-fulcrum of the box-lever. The actuating-pawl of the pattern mechanism is suspended automatically by a special combination of devices, and an auxiliary pattern is provided for determining the period of said suspension. This auxiliary pattern is geared with the take-up roller, whereby it moves in unison with said roller, whether the latter moves forward or backward. The weft-fork is provided with a spring to hold it in balanced position and prevent its jumping. A rising and falling grid acts in connection with this mechanism, and both are mounted on the lay. The backwardly-extended arm of the fork has a hook, which, when the weft is present, catches on the vertical arm of a rock-shaft provided with a dagger, thus preventing the shaft from rocking when the spring-arm engages with the roller. The dagger is thus kept down. Should the weft be absent, the hook aforesaid is brought opposite a slot in the said vertical arm, the stop-rod is operated, and thereby two shippers are simultaneously thrown into action—viz., the brake-shipper and the clutch-shipper.



1. The arm *i* and its attached eccentric, in combination with the shuttle-box lever, having its fulcrum on the eccentric, and with a rotating shaft and mechanism to move it intermittingly a semi-rotation and then hold it at rest, substantially as described.

2. An intermittingly-operated shaft, and double arms connected therewith, in combination with knee-levers, controlled by a pattern-surface and a pivoted holder, *s*, to hold the arm until the clutch-finger for moving the arm carrying shaft is in engagement with the clutch-gear, substantially as described.

3. The brake-shipper and V-shaped brake-pulley, in combination with a brake-lever and shoe and an eccentric-fulcrum for the brake-lever, substantially as described.

4. The brake-lever, the brake-shipper, and the handle e^5, provided with a finger, g^5, in combination with the shipper-lever f^5, to operate substantially as described.

5. The brake-shipper and shipper-lever arranged with relation to each other, as described, in combination with a stop-bar to operate both levers simultaneously, whereby one applies the brake and the other uncatches the friction-pulleys, as described.

6. The grid and weft-fork and its hook j^3, in combination with a rock-shaft, provided with a dagger, and an arm, u^1, provided with a slot, 20, to operate substantially as described.

7. A weft-fork, a spring to hold it in balanced position, a grid connected with a rising and falling rod adapted to move with the lay, in combination with a lever and a cam to operate the grid, substantially as described.

8. The grid, in combination with the weft-fork and a spring to hold it in balanced position and co-operate with the grid, substantially as described.

9. A weft-fork, provided with a backwardly-extended hook, j^3, in combination with a spring to hold such fork in balanced position, substantially as set forth.

10. The combination, with the weft-fork and its hooked arm j^3, of the rock-shaft, provided with a dagger, its arm u^1, and the spring o^7, and a roller to operate it, substantially as described.

11. A guide-bar and hooked arm, k^6, connected with a lever, the latter adapted, substantially as described, to move through suitable connections, the pattern-chain for the shuttle-boxes, in combination with a lever, u^6, and a pattern-surface to lift it to hold the guide-bar in position to be engaged by the hooked lever, to suspend the action of the box-chain for a certain period, substantially as set forth.

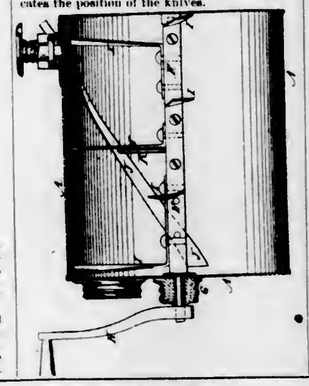
12. The guide-bar k^6, a hooked lever, u^6, a pattern-surface, and intermediate connections, to lift the hooked lever and guide-bar, in combination with an auxiliary pattern-surface to disengage the lever u^6 from the guide-bar, substantially as described.

13. The guide-bar, hooked lever u^6, and its pins c^7 f^7, in combination with the pivoted lever g^7, to operate the lever with relation to the pins of the auxiliary pattern, substantially as described.

14. An auxiliary pattern-surface to determine the period of suspension of the action of the box-pattern, a roller to control the take-up of the fabric, and gearing to connect them, combined as described, whereby the pattern-surface and roller move automatically together in unison when the roller is moved either forward or backward, substantially as described.

197,755. AIR-TIGHT PAINT-MIXING CANS. Isaac Banister, Newark, N. J. Filed Nov. 13, 1877.

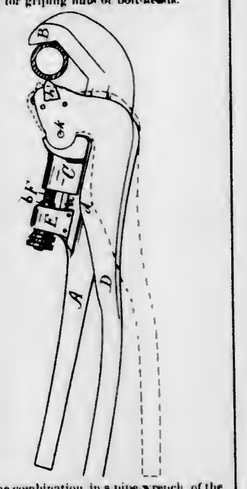
Brief.—The knives are all on three sides of the shaft. The can is set away with discharge-tube upward, the knives turned to the upper part of the can, so as not to be embedded in the sediment. The position of the crank indicates the position of the knives.



The combination, with an air-tight paint-can, A, of a shaft, F, provided with radial knives I and a spiral knife, J K, arranged upon three sides of said shaft, leaving its fourth side free, substantially as herein shown and described, and for the purpose set forth.

197,756. PIPE WRENCH OR TONGS. Edward D. Barrett, Southington, Conn., assignor of one-half his right to J. B. Savage, same place. Filed July 18, 1877.

Brief.—A flat-faced jaw may be inserted in end of lever D, thus converting the tool into a wrench for gripping nuts or bolt-heads.

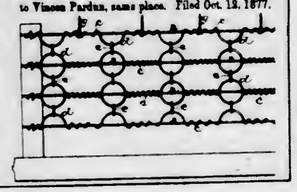


1. The combination, in a pipe-wrench, of the following instrumentalities, viz., first, the bar A B, provided with longitudinal depressions in its sides, and the ways *a a* above said depressions running parallel to the main direction of said bar; second, the lever D, having flanges *d d* crossing the bar A, one on each side, at a point wholly forward of the pintle *k*, and provided with the knuckles *e* formed on the said flanges; third, the sliding block C, provided with knuckle *g* and hung to the knuckles of the lever D; also provided with a female screw-thread and fitted to slide on the ways *a a* of the bar A; fourth, the lug E, also fitted to said ways *a a* and secured from longitudinal movement thereon; and fifth, the screw F passing through the lug E, in which it is secured so as to revolve but not move longitudinally, and with its opposite end engaging the female thread in the sliding block C, substantially as described, and for the purpose specified.

2. In a pipe-wrench, the lever D, provided with longitudinal flanges *d d*, making part of the lever U-shaped, and extending upward at the end of said U-shaped portion to form the short cross-arm of said lever and the two knuckles *e e*, in combination with the block *f*, secured between the ends of said flanges and provided with the circular depression on the side, which matches the knuckle *g* of the block, to which the lever is hung, substantially as described, and for the purpose specified.

3. In a pipe-wrench, the longitudinal ways *a a* on bar B, provided with dovetailed under sides, substantially as described, and for the purpose specified.

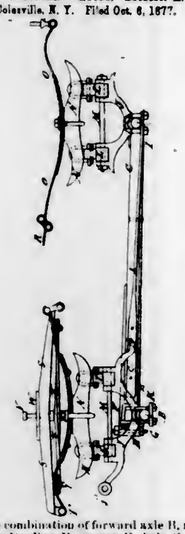
197,757. BARBS FOR WIRE FENCES. Francis L. Bostor, Oskaloosa, Iowa, assignor of one-third his right to Vincen Pardun, same place. Filed Oct. 13, 1877.



1. The wires *c*, applied to a wire fence so as to form the loops *d*, substantially as shown.

2. The combination of the wires *a*, wires *c*, wrapped around them and forming the loops *d*, barbs *e*, applied to the loops, and barbs *g*, substantially as described.

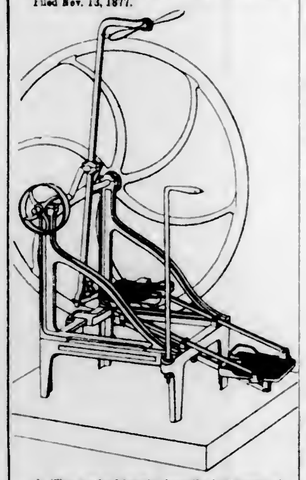
197,758. PLATFORM-WAGONS. Ebenezer H. Booth, West Colesville, N. Y. Filed Oct. 6, 1877.



1. The combination of forward axle B, reach C, blocks D, clips E, straps F, bolt G, and eye-plate H, as set forth.

2. The combination, with the wagon-body, of two frames, N, springs L O, X frame S, having lugs T, bolt V, plate W, and the adjusting-rods X, as and for the purposes specified.

197,759. MOTORS. E. E. G. Bordenas, Paris, France. Filed Nov. 13, 1877.



1. The method herein described of suspending upon the ends of three oscillating levers two pedals, so that the one shall be above and the other below its points of suspension, substantially as herein shown and described.

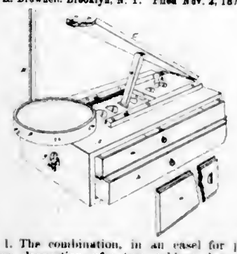
2. The combination, with pedals hung upon three levers, as herein described, of a crank-shaft and connecting-rod, extended as shown, and provided with handles, in the manner and for the purposes herein set forth.

197,760. TOBACCO-BOXES. Lloyd T. Brewer, St. Clair, assignor of one-half his right to Thomas W. Thomas, Frackville, Pa. Filed May 21, 1877.



The box herein described, as a new article of manufacture, consisting of the rim A, the hinged lids B C, hinged and opening on opposite sides, the catches G G, and the longitudinal partition D, forming the compartments E E, constructed, arranged, or combined substantially as and for the purposes hereinbefore described.

197,761. EASELS FOR POTTERY-DECORATION. Wm. H. Brownell, Brooklyn, N. Y. Filed Nov. 2, 1877.



1. The combination, in an easel for pottery-decoration, of a turn-table and an adjustable arm-rest, as herein shown and described.

2. The turn-table D, having pins *i* projecting from its periphery, and the arm-rest C, having the notched end, in combination, substantially as and for the purpose shown and described.

3. The adjustable ruler E, pivoted to the side of the box A, and arranged to be used in conjunction with the turn-table, as herein shown and described.

4. The easel for pottery-decoration, consisting of the box A, having drawers *a b*, the adjustable arm-rest C, the turn-table D, and ruler E, as shown and described.

197,762. NUT-LOCKS. Madison Colhoun, Costa, N. Mex. Filed Oct. 6, 1877.

Brief.—A washer with an angular aperture, and its ends bent down to embrace the sides of the nut, is fitted over an angular portion of the bolt, and held in place by a thin nut screwed on above, and having a portion bent down against the nut.

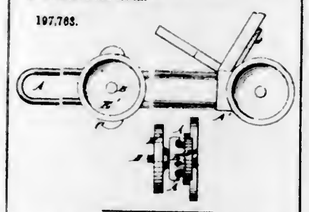


The combination of the plate C, having its ends bent down and an oblong hole formed through its center, and the plate D, having a screw-hole formed through its center, and provided with points *d'* susceptible of being bent down with the nut B and the flattened end of the bolt A, substantially as herein shown and described.

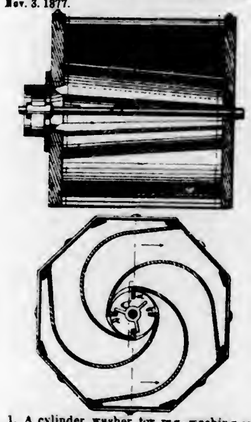
197,763. BOOK-SUPPORTS. Almon Clarke, Sheboygan, Wis., assignor to himself and Charles A. Spencer, same place. Filed July 23, 1877.

In an adjustable book-rest, the combination of the sliding supporting-arm A with a fixed screw-post, B, toothed base-disk D, grooved clamp-piece E, having toothed guide-portion, and thumb-nut E', to adjust the height and inclination of supporting-arm, substantially in the manner set forth.

197,763.



197,764. RAG-WASHING MACHINES FOR PAPER-MAKING. Frank A. Cloudman, Cumberland Mills, Me., assignor to S. D. Warren & Co., Boston, Mass. Filed Nov. 3, 1877.



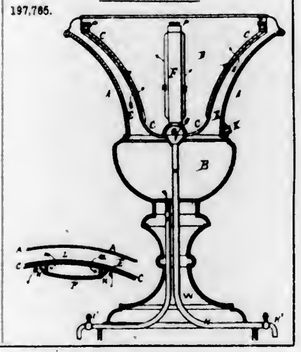
1. A cylinder washer for rag-washing engines, having spiral interior buckets extending from the circumference to the central outlet, substantially as set forth.

2. A cylinder washer for rag-washing engines, having spiral interior buckets extending from the circumference toward and slightly past the central outlet, the inner edges of said buckets being flanged, substantially as and for the purpose described.

3. A cylinder washer for rag-washing engines, having spiral interior buckets extending from the circumference toward and slightly past the central outlet, and being secured at an angle of inclination from the rear to the front head, substantially as and for the purpose specified.

4. In cylinder washer for rag-washing engines, a spiral interior bucket made of a continuous single piece of wood, substantially as and for the purpose described.

197,765.

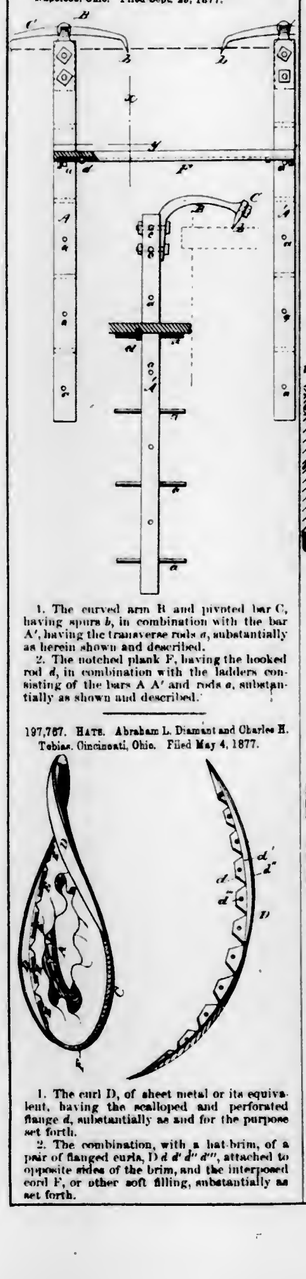


197,765. FLOWER-POTS. John A. Conway, Toledo, Ohio. Filed Sept. 27, 1877.

1. The combination of water and earth chambers B and D with drain-pipes H and I, screen G, vapor-chamber E, and influent opening K.

2. Perforated plates L, in connection with inner lining C, protections F and N, and cleaning-apertures P, substantially as set forth.

197,766. ADJUSTABLE LADDERS. George Crawford, Napoleon, Ohio. Filed Sept. 29, 1877.



1. The curved arm B and pivoted bar C, having spurs *b*, in combination with the bar A', having the transverse rods *a*, substantially as herein shown and described.

2. The notched plank F, having the hooked rod *d*, in combination with the ladders consisting of the bars A A' and rods *a*, substantially as shown and described.

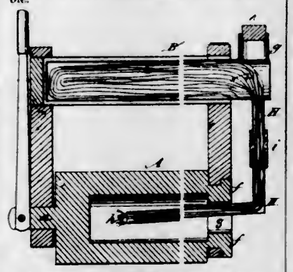
197,767. HATS. Abraham L. Diamant and Charles H. Tobias, Cincinnati, Ohio. Filed May 4, 1877.

1. The curl D, of sheet metal or its equivalent, having the scalloped and perforated flange *d*, substantially as and for the purpose set forth.

2. The combination, with a hat-brim, of a pair of flanged curls, D *d d' d'' d'''*, attached to opposite sides of the brim, and the interposed cord F, or other soft filling, substantially as set forth.

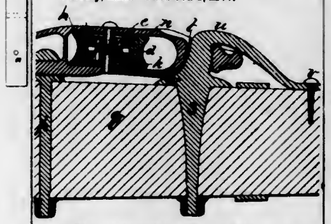
197,768. SAD-IRONS. William B. Delson and John B. Sherwood, Moberly, Mo. Filed Oct. 6, 1877.

Brief.—Within the hollow handle is contained the oil-reservoir. The reservoir and wick-tube are connected together and removable.



In combination with the reversible hollow sad-iron A and its tubular handle B, the removable oil-reservoir G and a wick-tube composed of the parts H, H', and *i*, and the filling-tube *g*, substantially in the manner and for the purposes described.

197,769. ANTI-FRICTIONAL SHEAVES FOR PULLEY-BLOCKS. Jacob Edson, Boston, and W. H. Haynes, Sudbury, Mass. Filed Oct. 6, 1877.



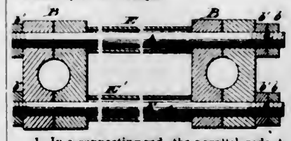
1. The combination, with a regulator, *s*, of the anti-frictional rollers *c c c*, provided with annular rounded chambers *i i*, as set forth.

2. The combination, with the sheave-case *n* and its eye *t*, of the hooked holding-bolt *s u*, as herein described.

3. The combination, with the sheave-case *n* and its eye *t*, of the holding-bolt *s u*, with its cheek-piece *w*, as set forth.

197,770. PITMEN. Henry Essex, Moundville, Pa. Filed Nov. 15, 1877.

Brief.—Two rods are used instead of one, covered with tubes or sleeves, thereby adding materially to its strength.



1. In a connecting-rod, the parallel rods A A', provided with the tubes or sleeves intermediate between the boxes B B', and with the clamping-nuts or their equivalents, substantially as and for the purpose described.

2. The combination of the two rods A A', divided boxes B B', sleeves E E', and nuts *b b'*, arranged and operating substantially as and for the purpose set forth.

197,771. COMBINED CLOCK AND GAS-REGULATING MECHANISM. Geo. P. Gaster, Reading, Pa. Filed Mar. 14, 1877.

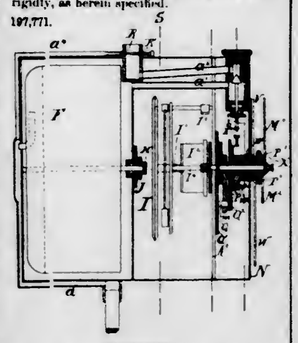
1. The combination of a clock with mechanism for winding the same by the motion of a gas-meter actuated by the flow of gas to a burner or burners, substantially as and for the purpose herein specified.

2. The clock-dial N, clock-hands M^1 M^2, and actuating-spring P, in combination with means H^1 I for winding the same by the motion of gas, a provision for slipping to avoid over-winding, one or more gas-burners, C, a provision, *a'*, for allowing a continuous small flow of gas, and a shield, D, for protecting the flame when reduced, all combined and operating as and for the purposes herein specified.

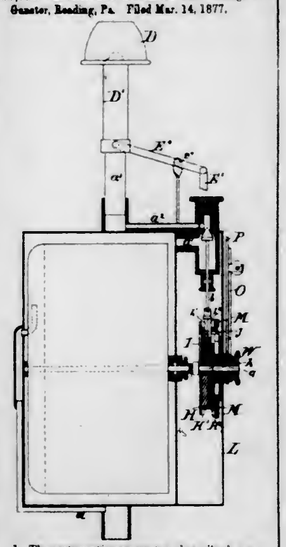
3. A motor actuated by the motion of gas, a clock wound up thereby, means for contracting the volume of the flame at a certain period and for enlarging it at another period of time, both determined by the clock, and means for adjusting one or both periods at will, as herein specified.

4. In combination with a clock actuated by the motion of gas, and serving to enlarge and contract the flame at adjustable periods, the dial N, ordinary clock-hands M^1 M^2, adjusting-handles V W, and pinching-nut X, the latter being adapted to hold the adjustable parts rigidly, as herein specified.

197,771.



197,772. RAISING AND LOWERING GAS. George P. Gaster, Reading, Pa. Filed Mar. 14, 1877.



1. The automatic apparatus described, composed of a gas-burner, a controlling-valve, and operating mechanism, worked by a gas-meter as a motive power, as herein specified.

2. The two independently-adjustable cams H^1 H^2, in combination with each other and with a gas-controlling valve and driving means, as herein specified.

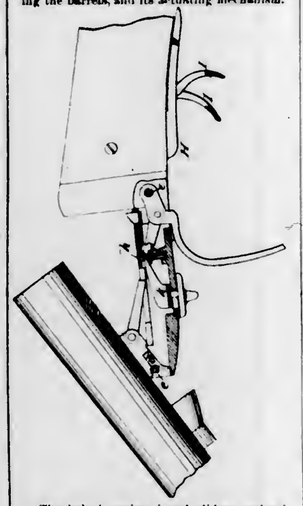
3. The construction of the cam or cams described, with the slide A^1, serving as the cam-projection, actuated by the spring I and spiral cam M, so as to be moved rapidly outward, in combination with a gas-controlling valve and burner, as herein specified.

4. The dial L, graduated unequally, as shown, in combination with mechanism for automatically changing the rate of consumption of the

gas, and with the changeable indexes O P and means for adjusting them, as herein specified.

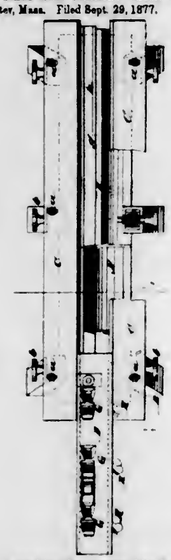
197,773. BREECH-LOADING FIRE-ARMS. George D. Goodall, Middletown, Conn. Filed Aug. 11, 1877.

Brief.—The novelty lies in the bolt for locking the barrels, and its actuating mechanism.



The bolt *h*, spring *i*, and sliding wedge *k*, in combination, substantially as shown and described.

197,774. BLIND-SLAT PLANERS. Robert S. Griffin, Worcester, Mass. Filed Sept. 29, 1877.

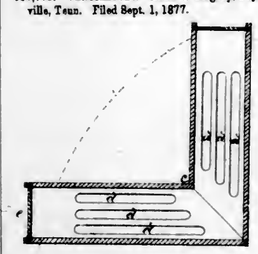


1. In a machine for planing blind-slats, the combination of a plane, D, having the bottom rib D', surface-dressing cutters G, and edge-dressing cutters R, relatively arranged as herein shown, with the bed-frame A and the lateral guides C, as and for the purpose set forth.

2. In a machine for planing blind-slats, the combination of the laterally adjustable guides C, screws *a*, and thumb screws and nuts *b* with the frame A and reciprocating plane D, as and for the purpose set forth.

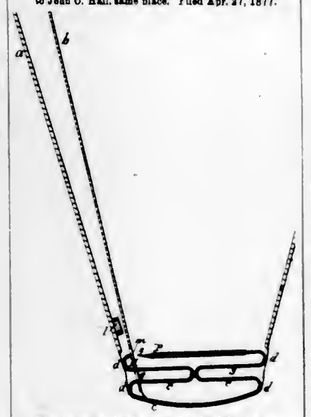
3. The combination of the pivoted retractor *e* and the spring-pressed foot *d* with the plane D, bed A, having chute N, stop *g*, and guides C, as and for the purpose set forth.

197,775. VENTILATORS. Rosh S. Grigsby, Fayetteville, Tenn. Filed Sept. 1, 1877.



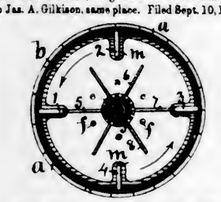
A ventilating angle-pipe for fruit or vegetable banks or piles, having slots *d* and end doors *e*, a sufficient portion of solid pipe being left between the slots and ends to allow said slots to be entirely within the bank or pile, as shown and described.

197,776. TEMPORARY BINDERS FOR LETTERS, PAPERS, &c. Henry H. Hall, Brooklyn, N. Y., assignor to John O. Hall, same place. Filed Apr. 27, 1877.



The cover or leaf *a*, provided with the projections l, in combination with the fly-leaf *b* and the holders *c c*, having jointed and perforated points, all substantially as specified.

197,777. CHURNS. John Haptonstall and Francis B. Preston, Adel, Iowa, assignors of one-third their right to Jas. A. Gilkison, same place. Filed Sept. 10, 1877.

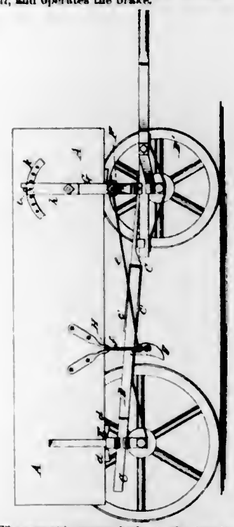


1. The churn-vessel *a a b*, having a series of fixed or stationary breakers, 1 2 3 4, on its inside when said breakers are elevated from the bottom, and thereby adapted to admit a disk-form dasher to rotate underneath the breakers, in the manner and for the purposes set forth.

2. In a rotary dasher, the disk *c*, having a series of slots or openings, *m*, in its circumference, in combination with a churn-vessel having a corresponding series of fixed breakers, 1 2 3 4, substantially as and for the purposes shown and described.

197,778. WAGON-BRAKES. Alfred Hart, San Marcos, Tex., assignor to himself and Horace C. Storey, same place. Filed Aug. 3, 1877.

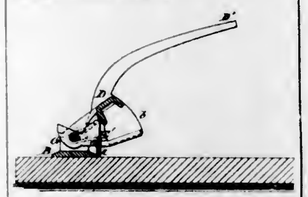
Brief.—The wagon-body is supported by arms G, and swings forward when descending a hill, and operates the brake.



The movable wagon-body A, the longitudinally-adjustable perch C, cranked shaft H, carrying-shoes *g*, pivoted supporting-arms G, connecting-rods *e*, and a suitable locking device applied to one of said arms and the wagon-body, in combination with the front and rear bolsters F E, front and rear hounds, and the running gear, as and for the purpose set forth.

197,779. PILL-MACHINES. John Hill, South Norwalk, Conn. Filed June 25, 1877.

Brief.—The pill-mass having been adjusted upon the tablet beneath the clearing teeth or comb, and divided by depressing the handle attached to the vibrating bar carrying the knives, after which the return of the bar causes the comb to clean the cutting-teeth, both the vibrating bar having the knives and the pivoted bar having the clearing-teeth are thrown back out of the way, to permit the bits of pill-mass to be rolled into pills.



1. A series of cutters, *b*, fixed to a vibrating bar, D, in combination with pivoted bar E', having clearing-teeth E, substantially as described.

2. The pivoted toothed bar E', having a flange, *e*, and angular stop-arms f, in combination with the knife-bar D and spring *d*, substantially as described.

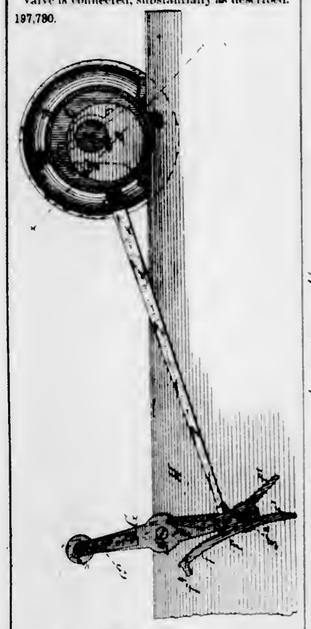
197,780. VALVE-GEAR FOR STEAM-ENGINES. John D. Hasles, Meadville, Pa. Filed Oct. 27, 1877.

1. The combination, in a valve-gear for reversing engines, of an inner eccentric, B, and an outer eccentric, C, the one moving automatically upon the other in reversing the engine, substantially as described.

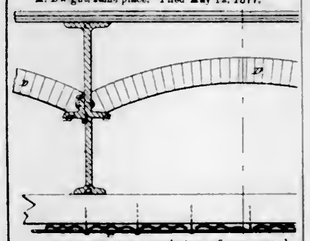
2. The combination, with the inner and outer eccentrics, having an automatic movement relatively to each other, of a shifting-block adapted to engage with either of two wrist-pins, for the purpose described.

3. The combination, with the inner and outer eccentrics, operating as described, of the shifting block F, attached to the connecting-rod, and the vibrating arm or lever G, to which the valve is connected, substantially as described.

197,780.



197,781. FIRE-PROOF FLOORS. John W. Hoyt, Springfield, Mass., assignor of one-half his right to Caroline M. Dwight, same place. Filed May 12, 1877.



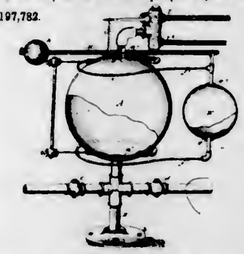
A fire-proof floor consisting of compound iron beams, with intermediate flanges, in combination with a brick arch resting on said intermediate flanges, and a chamber formed between the brick arch and the furring and lathing, substantially as and for the purpose described.

197,782. STEAM-TRAPS. Timothy Kieley, New York, N. Y. Filed June 4, 1877.

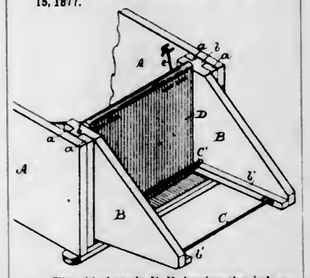
1. The combination, with the receivers A and E and the valve mechanism, of the beam H, arranged with its fulcrum on the stationary receiver, as shown and described, for the purpose specified.

2. The combination, with the receivers A and E, the valve mechanism, and the beam H, having its fulcrum on the stationary receiver, of the flexible pipes f^1 f^2, coiled around one of said receivers, as described, whereby the requisite length and flexibility of pipe are obtained and economy of space is secured, substantially as and for the purpose specified.

197,782.



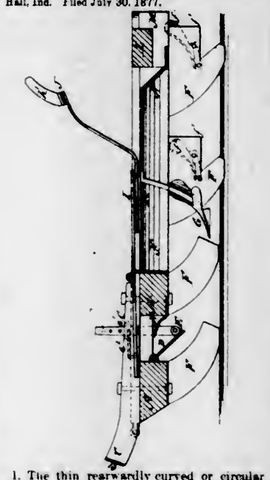
197,783. END-GATES FOR WAGONS. James M. King and Jonathan H. King, Swan Creek, Ill. Filed Oct. 15, 1877.



1. The side-boards B B, having the ledges *b' b'*, operating in combination with the hinged end gate D, substantially as and for the purpose specified.

2. The side-boards B B, united by brace-rods C C, and having the tongues *b b* operating in combination with the hinged gate D and wagon-body A, having the slats *a a*, substantially as and for the purpose specified.

197,784. CIRCULAR-TOOTHED PULVERIZER AND CULTIVATOR. John M. Ludlow and Sanford C. Pruitt, Hall, Ind. Filed July 30, 1877.

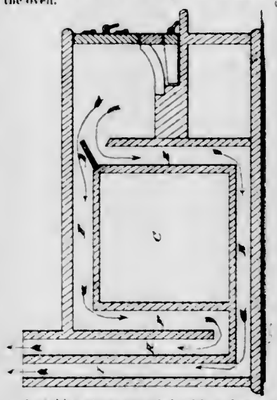


1. The thin rearwardly curved or circular teeth F, provided with the rearward projections f^1 and the mold-boards f^2, for loosening the soil, cutting in pieces sods, clods, lumps, stalks, &c., destroying weeds, and moving the soil laterally, substantially as herein shown and described.

2. The combination of the inclined beams M and the teeth F f^1 f^2, with the beams A, the bars B, and the teeth F, substantially as herein shown and described.

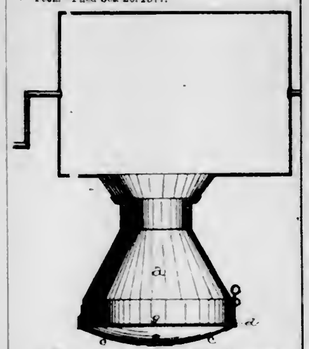
197,785. COOKING-STOVES. George A. McFadden, Jordan Station, Ky. Filed Sept. 14, 1877.

Brief.—A flue on the top and back of the oven connects with a flue at the rear of this back flue. A flue at the front and bottom of the oven connects with a flue back of the rear flue mentioned. The products are controlled by a damper at the upper forward corner of the oven.



A cooking-stove provided with a damper, D, at the upper forward corner of the oven C, with a flue, F, extending along the top of the oven C, down its rear side, and connecting with a flue, H, at its lower rear corner, and provided also with a flue, E, extending down the forward side of the oven C, along its bottom, and connecting with a flue, I, at its lower rear corner, substantially as herein shown and described.

197,786. CHURNS. William McMurry, Obion County, Tenn. Filed Oct. 26, 1877.



1. The body *a*, provided with the cover *c*, having the flange *d* and strainer *e*, substantially as shown.

2. In combination with a revolving churn-body, the funnel-shaped body *a*, lid *c*, flange *d*, strainer *e*, and disk *g*, substantially as described.

197,787. MODES OF ORNAMENTING METALLIC ARTICLES. Frank W. Mix, Terryville, Conn. Filed Apr. 22 1876

The described improvement in the art of ornamentally surfacing metallic articles, which consists in subjecting the article to be so surfaced to the action of one or more revolving milling tools while supported upon a bed or table having a movement within a fixed plane relative to such tool, and advancing and withdrawing the work under the conditions herein-

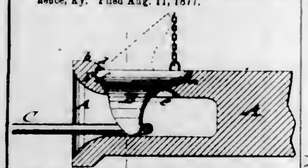
before explained, thereby producing by abrasion the ornamental effects, substantially as shown and described.



197,787.

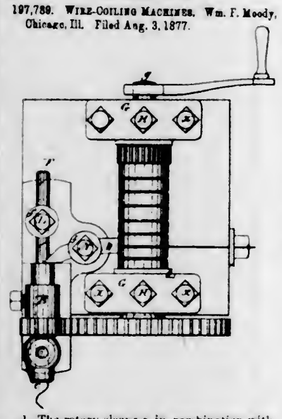


197,788. CAR-COUPLINGS. Warren Montfort, Eminence, Ky. Filed Aug. 11, 1877.



The hook shaped drop-pin B, tapering downwardly, and having a front projection, *f*, in combination with a top-slotted draw-head having recess *b'*, overhanging shoulder *d*, and seat *e*, as and for the purpose specified.

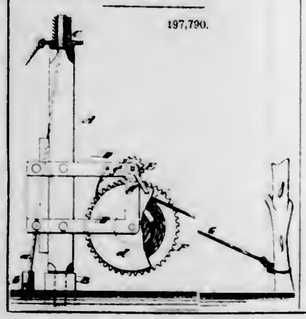
197,789. WIRE-COILING MACHINES. Wm. F. Moody, Chicago, Ill. Filed Aug. 3, 1877.



1. The rotary sleeve e, in combination with the stationary rod F, having a spiral groove or thread, for the purpose described and represented.

2. In combination with the revolving sleeve e and stationary rod F, the guide D, to guide the wire into said groove, for the purpose described and represented.

197,790.

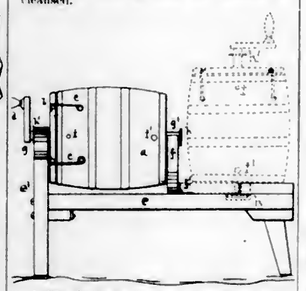


197,790. GRUBBER AND STUMP-EXTRACTOR. John Motheral, North McGregor, Iowa. Filed Sept. 29, 1877.

The grubber and stump-extractor herein described, consisting essentially of the oscillating post or standard A, bottom and top bearings B C, guy-rods *a*, stakes *b*, frame D, spur-wheels E F, disk *d*, having a grooved hub, and the rope or chain G, all constructed and relatively arranged as herein set forth.

197,791. WASHING-MACHINES. Henry O. Mulhollen, Jasper, and Daniel E. Goldsmith, Mecklenburg, N. Y. Filed Aug. 7, 1877.

Brief.—The barrel, internally ribbed, and provided with a perforated tube, forming an internal air, steam, and water chamber, is supplied with clothing while in an upright position, the air-tight cover applied, and then, by means of the hinged half-platform, crank, and flanged journals, it is tilted to a horizontal position, and supported, by its journals, between the hinged half-platform and a grooved upright, and revolved until the clothing is cleansed.



1. The barrel *a*, having a cover, *b*, held thereunto by the hooks *c*, and made air-tight by a rubber-packed joint, and with a crank, *d*, and flanged journal *g h'* on the cover, and a journal flanged bearing *g' h* on the other end, and provided with internal ribs *j* and the chamber *l*, arranged and operating as shown and described.

2. The combination of the stool *e*, upright *e'*, half-platform *f''*, hinged half platform *f*, with the barrel *a*, having a crank, *d*, and flanged journals, as set forth.

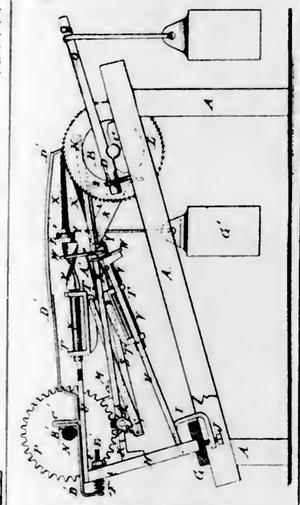
197,792. COMBINATION-HOES. David A. Nelson, Tyler, Tex., assignor to himself and Sarah Ann Cain, same place. Filed Sept. 14, 1877.

Brief.—The nature of the invention is fully set forth in the claim, and shown in the drawing.



The sectional eye consisting of the part *a*, having the nib *c* and staple *d*, and the part *b*, having the mortised nib, in combination with the band *k*, wedge *f*, and a slotted hoe or tool blade, all constructed and relatively arranged substantially as and for the purpose set forth.

197,793. MACHINES FOR FILING GIN-SAWS. Patrick O'Neill, Murfreesborough, Tenn. Filed Aug. 11, 1877.

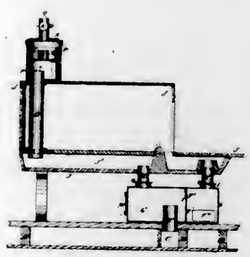


1. The combination, with the frame carrying saw-shaft, of the frame H, adjustable in grooved cross-bar G, and the forked frame K, having arm *k'*, as and for the purpose described.

2. The combination, with the frame K, of the carriages T, frames U, holders V, and plates W, as and for the purpose set forth.

3. The springs A', attached to frame K, and having free ends passing through plates W, to hold the files by an elastic pressure, as specified.

197,794. AIR-FEEDERS FOR STOVES, &c. Gardner O. Palm, Andersonburg, Pa. Filed May 21, 1877.



1. The combination of the air-box G, provided with the partition g^3, the damper g^2, the doors g^5 and g^4, the inlet-pipe F, and the two outlet-pipes H K, with a stove, J, and an air trough, C, leading out to the outer air, substantially as herein shown and described.

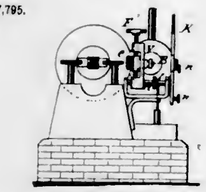
2. The combination of the covered sunken channel *f'*, or equivalent pipe, and the air-heating pipe O, with the stove J and the air-box G, substantially as herein shown and described.

3. The combination of the heater P, provided with the ring-register R and the pipe Q, and damper S, with the stove J and the air-heating pipe O, substantially as herein shown and described.

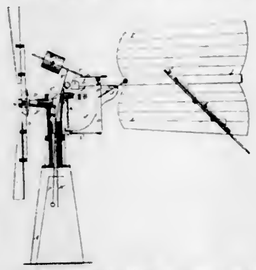
197,795. VALVE-GEAR. William H. Pierce, Toledo, Ill. Filed Sept. 10, 1877.

The combination, with a lever, K, having pins *a a'*, and the shaft N and slotted arm V, of the adjusting devices *c* F'', arranged as and for the purpose specified.

197,795.



197,796. WINDMILLS. John Jas. Reed, Lyons, Iowa. Filed Oct. 27, 1877.

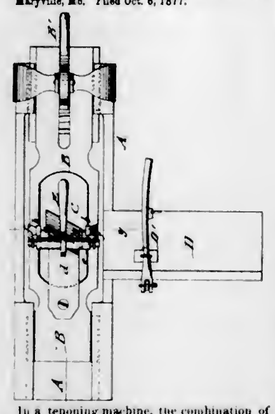


1. A windmill, in which the vane L is connected with the rotating barrel C that carries the wind wheel by a plate or frame, J, hinged to the said barrel, and to which the said vane is hinged, substantially as herein shown and described.

2. The combination of the lever O, the connecting-rod Q, and the arm R with the hinged vane L, and with the rotating barrel C that carries the wind wheel, substantially as herein shown and described.

3. The combination of the inclined boards or wings S, with the sides of the vane L, substantially as herein shown and described.

197,797. TENONING-MACHINES. Stephen M. Redfield, Maryville, Mo. Filed Oct. 6, 1877.



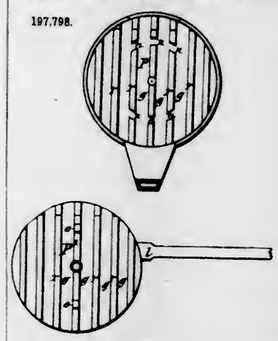
In a tenoning machine, the combination of the reciprocating frame B, having guide-posts *a*, the adjustable planes C C, provided with sliding arms *b*, the springs *d' d*, bails *g*, and cam-levers E, with the frame A and feed-table D, substantially as and for the purpose herein set forth.

197,798. COFFEE-MILLS. Alex. Reynolds, Oswego, N. Y. Filed Nov. 2, 1877.

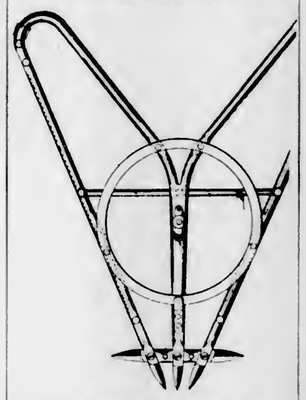
1. In a mill arranged vertically and oscillated as described, the plates P and P'', having vertical ribs *r* and grooves *g*, gradually diminishing in depth toward the bottom of the plates, and one of said plates provided with one or more spurs, *s*, and the opposite plate having notches *n* through rite *r*, substantially as shown and described, for the purpose set forth.

2. The combination and arrangement, in a coffee-crusher, of the vertical stationary plate P, provided with a circumferential flange, and the oscillating plate P', fitted to the interior thereof to form the cover of the crusher or mill, and having the lever *l* attached horizontally to a socket on the rear of said plate, substantially as and for the purpose described.

197,798.



197,799. PLATFORM-GEARS FOR WAGONS. Benjamin F. Bir, Mason, Mich. Filed Oct. 16, 1877.



1. A gear for platform and spring wagons, consisting of a longitudinal center bar and diverging side arms or pieces, extending forward and backward to the spring bar, and formed in one piece with the center bar, substantially as herein set forth, for the purpose specified.

2. A gear for platform and spring wagons, consisting of a center piece and diverging side pieces, formed in one piece with said center piece, and having the side and center pieces strengthened by longitudinal and transverse trusses, substantially as and for the purpose set forth.

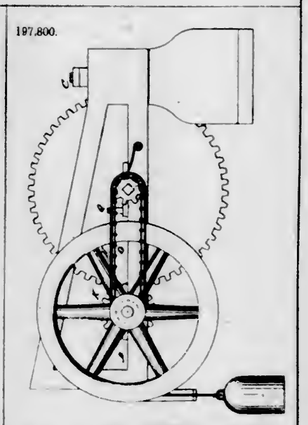
197,800. SOUNDING-MACHINES. Frank E. Schrom, Whitewater, Wis. Filed Oct. 12, 1877.

Brief.—A sounding-machine in which an endless belt is combined with the line-reel, by which the depth of the water is indicated to the eye in a convenient manner, the belt being constructed of a chain covered with leather or suitable material marked with suitable graduations.

1. A mechanism for indicating the depth of water in sounding, in which an endless indicating-belt is combined with the line-reel, substantially in the manner described.

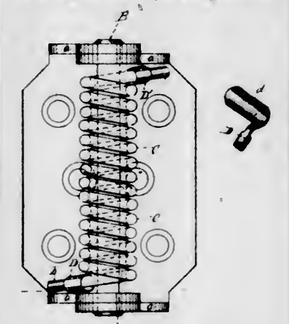
2. The combination of a covering, N, with the indicating belt or chain O, substantially as described.

197,800.



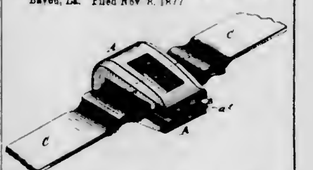
197,801. SPRING-HINGES. Augustus Schweinfurt, Philadelphia, Pa. Filed Apr. 30, 1877.

Brief.—Each end of the wires which form the spring is held in a clip, which is formed with a curved extension and an eye-piece, the former resting against and encircling that part of the pintle which would be passed against the spring, and thereby preventing abrasion.



The clips D, formed with an eye, *d*, and concave projection *e*, in combination with the spring C and joint-pin or pintle B, substantially in the manner and for the purpose set forth.

197,802. BALE-TIES. William M. Seaman, Bullitt's Bayou, La. Filed Nov. 8, 1877.



1. For a bale-tie, the U shaped buckle A, corrugated on the inside to receive the bent or corrugated ends of the band C, substantially as and for the purpose specified.

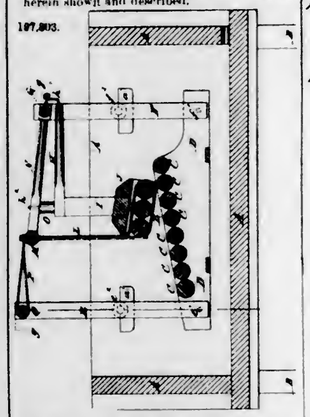
2. The notches *a'* in the buckle A, made at diagonally opposite edges of the opening B, in combination with its corrugations, substantially as and for the purpose set forth.

197,803. WASHING-MACHINES. James Craig Smith, Ashton, Ill. Filed Sept. 10, 1877.

Brief.—The clothes are cleansed between the two rubbing frames, which are suspended within the tub and connected together, so that they will reciprocate in opposite directions.

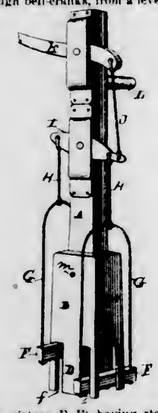
An improved washing-machine, formed by the combination of the two rubbers C D and J K, the two pairs of levers E and F, the three cross-bars Q M G, the two pairs of side bars H N, the rubber blocks O, the canvas L, and the rubber or metal spring P with each other and the suds-box A B, substantially as herein shown and described.

197,803.



197,804. DOUBLE-ACTING PUMPS. Washington Teter, Flint Ridge, Kans. Filed Oct. 15, 1877.

Brief.—The pistons are operated beneath the surface of the water, forcing it laterally and upward through the pump-stock, each piston having beneath it a cross-head connected to a ball, the balls receiving motion, transmitted through bell-cranks, from a lever at top.



1. The pistons E E', having stems *e'* and heads F, arranged to operate with submerged chambers *d d'*, chamber C, valves *c c'*, and pump-stock A, substantially as described, and for the purpose specified.

2. The pistons E E', having stems *e'* and cross-heads F, which extend through guide-slots *f* in the sides D', combined with the valved chamber C and chambers *d d'*, substantially as and for the purposes specified.

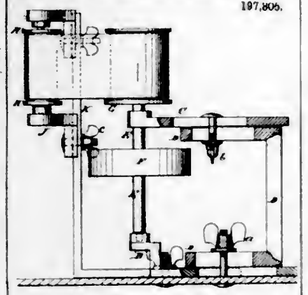
3. The pistons E E', stems *e'*, cross-heads F, yokes G, rods H J, rock-bar I, and handle K, combined with the chambers E E' C and tube A, substantially as described, and for the purpose specified.

197,805. WOOL-COMBING MACHINES. Robert S. B. Thurston, Pawtucket, R. I. Filed July 30, 1877.

Brief.—For removing the cleaned fiber from the teeth of the comb. The pulleys around which the drawing-off belts pass are adjustable both vertically and laterally, to tighten or loosen the belt, as desired, or to place it in a proper position relative to the teeth of the comb.

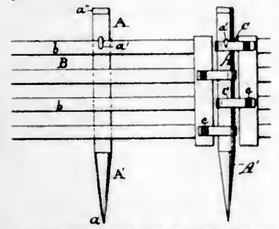
The combination, with endless belt, carried by the pulleys G H H, of the longitudinally-slotted pieces B C and brackets D, the former secured adjustably upon the latter, substantially as and for the purpose specified.

197,806.



197,806. FENCES. John Walter, Zeiglerville, Pa. Filed Oct. 29, 1877.

Brief.—The post is driven into the ground until the hook is settled upon the highest loop, thereby holding the panel firmly upon the ground.



The combination of the post A, having one or more hooks, *a'*, and a pointed foot, *a*, with the panels B, having loops C, substantially as and for the purposes specified.

197,807. COLLARS. Washington Wilson, New York, N. Y. Filed Nov. 8, 1877.



A collar, A, having sectional bands B, starting from the center of the collar, or any point between the center and ends thereof, and continuing with a graduated curve to and beyond the ends of the same, substantially as described and shown, and for the purpose set forth.

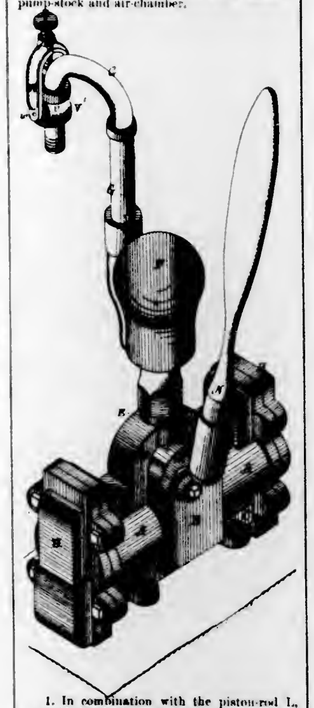
197,808. COMBINED BUCKLE AND HOOK. Theodore L. Wiswell, Olathe, Kans., assignor of two-thirds his right to Geo. F. Mead and Amos N. Sylvester, same place. Filed Oct. 6, 1877.



The combination of plate A, having hook and buckle-tongue, with the ring C and leather strap D, the latter arranged to close the opening of the hook and hold the ring in place, substantially as and for the purpose specified.

197,809. DOUBLE-ACTING PUMPS. John S. Adams, Elgin, Ill. Filed Aug. 10, 1877.

Brief.—A horizontal double-end shaft, carrying a piston at each end, is reciprocated by power applied central to its length, producing the effect in a cylinder at each end of a suction and a force pump confluent into central pump-stock and air-chamber.



1. In combination with the piston-rod I, provided at its longitudinal center with a vertical slot, *i*, and recesses *i'*, the rock-shaft M, having the arms *m*, connected by the pin *m'*, and the washers *m''* placed upon said bar, substantially as and for the purpose specified.

2. In combination with the rock-shaft M, provided with the lever *m'''*, the walking-beam S, having the arm *s' s''*, the tension-blocks T, and the tension-rods U, said parts being arranged to operate in the manner and for the purpose substantially as shown.

3. The casing of the pump, consisting of the cylinders A, central chamber B, inlet-pipe C *c*, outlet-pipe D *d* E, and heads H, which are each provided with a recess, *h*, and vertical pipe *h'*, substantially as and for the purpose set forth.

4. In combination with the ends of the pipes C and *h'*, arranged, respectively, above the bottoms of the chamber *d* and recess *h*, the valves I, hinged at their upper ends to or upon the ends of said pipes, and capable of opening outward and upward, substantially as and for the purpose shown and described.

5. As a means for packing the pistons K, an expansible inner metal ring, *k*, and an outer ring or covering of flexible material, *k'*, said plate being constructed and combined substantially as specified.

6. As a means for supporting the pump, and preventing lateral motion of the same when placed at the bottom of a well, the base O, arranged to embrace the strainer P, and provided with a spur, which projects downward from its lower side, substantially as and for the purpose shown.

7. The standard G, provided with the cylindrical enlargement *g* and annular passage *g'*, in combination with the walking-beam S and its pivotal bearing R, substantially as and for the purpose set forth.

8. As a means for combining the tension-rod U with the walking-beam S, the blocks T, having the pivotal ears *t* and longitudinal grooves *t'*, substantially as and for the purpose shown and described.

9. In combination with the end of the pipe G, having the spur *g''*, the coupling V, recessed at its upper end to receive the end of said pipe G, and provided with the cylindrical boss *v*, annular water-chamber *v'*, stirrup W, and set-screw *w*, substantially as and for the purpose specified.

197,810. STUMP-BURNERS. Willis Armstrong, James F. Smith, and John F. Armstrong, Owensville, Ind. Filed Oct. 26, 1877.

The stump-burner consisting of the metal hood, having the chimney, handles, and fuel and draft openings, as specified.

197,811.

197,811. LIFT-PUMPS. Jacob S. Baker, New Freedom, Pa. Filed Oct. 23, 1877.

Brief.—A lift-pump with hollow piston-rod is operated by a disk and wrist-pin at the end of a horizontal shaft, detained by a counter-balance during the accumulation of power imparted by suitable apparatus.

1. The hollow piston-rod G, having upwardly-opening valve *f* and piston *h*, and bent around at its upper end to form a spout, in combination with the pump-cylinder H, having upwardly-opening valve *g*, the connecting-rod *b*, and the driving mechanism C, substantially as described.

2. The counter-balance J, combined with the driving mechanism and the hollow reciprocating piston-rod, substantially as and for the purpose described.

197,812. HAME-FASTENERS. J. R. Basiger and G. W. Feely, Harrisonville, Mo. Filed Sept. 15, 1877.

In combination with a strap, A, and buckle D, the metal plate B, bent at *b*, and formed with the slot *d* and loop C, and fastened to the strap by one or more rivets, substantially as and for the purposes herein set forth.

197,813. GUIDES FOR SASHES AND DOORS. Johnson H. Beard, Providence, Ky. Filed Sept. 3, 1877.

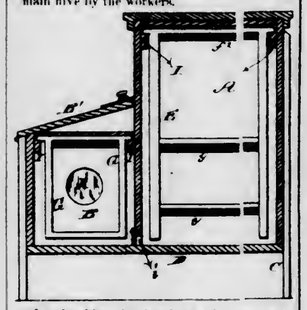
1. The combination, with a pair of sliding windows or doors, of the upper and lower wedge-shaped guides *g g' g'*, whereby the window or doors, when both are closed, are in the same vertical line, and when one is opened it is brought behind the other, substantially as specified.

2. The combination, with a pair of sliding windows or doors, of the upper and lower wedge-shaped guides *g g' g'* and springs *h*, whereby, when one of the windows or doors is brought to its closed position, it is forced to a vertical line common to both, substantially as described.

3. The central strip *e* and gum blocks *i i'*, combined with the upper and lower wedge-shaped guides *g g' g'* and a pair of sliding doors or windows, substantially as described.

197,814. BEE-HIVES. Jacob N. Becker, Oakfield, Mich. Filed Oct. 6, 1877.

Brief.—The main part is for the brood-chamber, and the side compartment for the surplus honey. The arrangement facilitates the deposit of the honey, and prevents annoyance to main hive by the workers.



In a bee-hive, the chambers A B, connected together by the passage *i*, and provided with the comb-frames E and G, hinged bottom D, underlying both chambers and provided with staples for the reception of the pivoted hooks *d d*, and the hinged cover B', substantially as described, and for the purpose set forth.

197,815. TRACE-FASTENINGS. Frank W. Beckwith, Flint, Mich. Filed Oct. 20, 1877.

The ferrule A or its equivalent, shank B, loop C, with rearwardly-projecting lip *a*, all formed in one piece, in combination with U-shaped spring D, which is pivoted to ferrule A near its outer end, substantially as shown, and for the purpose set forth.

197,816. BRIDGE-GATES. Nicolaus Behrens, Chicago, Ill., assignor of one-half his right to Christopher Hilkens, same place. Filed June 12, 1877.

1. The combination, with the frame C, of the drum E, extending across the carriage-way, and rotated by the swinging of the draw, and the flexible gate, composed of bars K, adapted to be dropped down across the carriage-way, and rolled up upon said drum in the manner of a window-curtain, substantially as described and shown.

2. The bridge-gate K, constructed as described, drum E, having gear-wheels *e*, upright shaft F, having gear-wheels *f* and *h*, and wheel I, all arranged between the standards C, and in combination with the draw-span of a bridge, having segment-gear *e*, all constructed and operating in the manner herein described and shown.

197,817. PROCESSES OF BALING COTTON. Leslie Belden, New York, N. Y. Filed Oct. 15, 1877.



1. The process of baling cotton hereinbefore described, which consists in first reducing the mass of cotton to a rectangular prism by means of a press, and of then binding around it a series of ties, which ties are held together by transverse clamps passing through the substance of the bale, and put in position when the cotton is still compressed in the press.

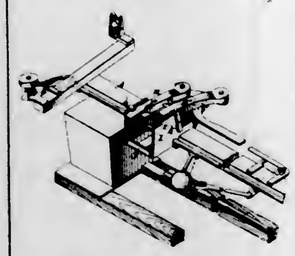
2. As a new product, a bale of cotton having approximately the shape of a rectangular prism, as distinguished from a bale of cotton having approximately a cylindrical shape, substantially as described.

3. A bale of cotton having compressing ties surrounding it laterally, and transverse clamps passing through the substance of the cotton, for the purpose of drawing and holding together the opposite sides of said bale, substantially as described.

4. A bale having the lateral surrounding-ties and transverse clamps passing through the substance of the bale, and attached to said surrounding ties, substantially as described.

5. A bale having the lateral surrounding-ties T and the transverse clamps A, which clamps consist of a looped wire or cord looped around the surrounding tie, substantially as described.

197,818. CORN-PLANTERS. James E. Bering, Decatur, and Alden Barnes and Monroe Barnes, McLean County, Ill. Filed Aug. 9, 1877.



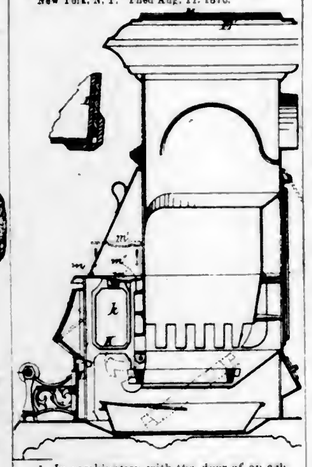
1. The pawls H H', having cams *h''* on their adjacent sides, for elevating them alternately in their return movements for passage over the tappet J, substantially as described, and for the purpose specified.

2. The pawls H H', having guard-arms *h*, combined to operate with the tappet J and cam tracks I, substantially as described, and for the purpose specified.

3. In combination with pawls or arms H, for actuating the seeding mechanism of a corn-planter, stops *i*, for locking the parts when desired, substantially as described, and for the purpose specified.

4. The pawls H H', having inclined under forward surfaces, combined to operate with the tappets J, for raising the guard-arms h from the stops *i*, substantially as and for the purpose specified.

197,819. HEATING-STOVES. Nathaniel A. Boynton, New York, N. Y. Filed Aug. 11, 1876.



1. In combination with the door of an ash-pit, a fender which is supported by and moves with said door, substantially as and for the purpose set forth.

2. A heating-stove provided with a hot-air chamber in front of the grated front of and extending below its fuel-chamber, such hot-air chamber being formed by the forward extension of the walls of said stove, and forming a continuation of the ash-chamber, substantially as and for the purpose shown and described.

3. In combination with the hot-air chamber K, the glazed light-openings *k*, formed within its ends, substantially as and for the purpose specified.

4. In combination with the open upper end of the hot-air chamber K, and with the grate F, the movable hearth *n'*, inclosing said space, except at the front of said grate, at which point is left a vertical opening, substantially as and for the purpose shown.

5. In a heating-stove provided with an open grate, a supplemental draft-damper located in rear of the ash-pit, substantially as and for the purpose set forth.

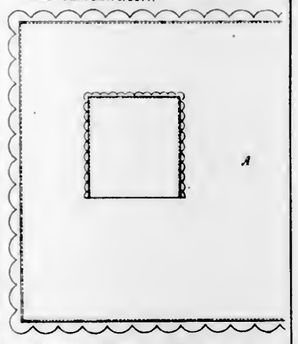
197,820.



197,820. FOUNTAIN-PEN HOLDERS. Ernest E. Brailly, Bellaire, Ohio. Filed Apr. 26, 1877.

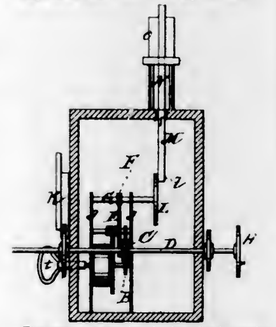
As an improved article of manufacture, the hereinbefore-described fountain-pen, provided with the tapering tube E, having a needle, D, extending through the same, and operated by the pressure-bar B, having spring *b* and bell-crank C, substantially as and for the purpose described.

197,821. LAP-ROBES. Lucius Briggs, Grosvenor Dale, Conn. Filed Nov. 6, 1877.



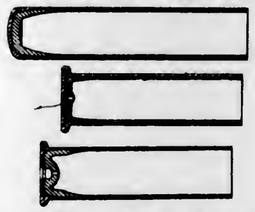
A lap-robe, A, provided with one or more hand guards or pockets, B, and loops or auxiliary pockets C, all being as and arranged essentially and for the purposes as set forth.

197,822. SPRING-MOTORS. Edmond W. Brodnax and Benj. Cohen, Eutaw, Ala. Filed Sept. 15, 1877.



The spring-motor herein described, consisting of train A, inclosed in a suitable case, N, fly-wheels H and L, horizontal pitman P, guide-slot *q*, vertical pitman M, reciprocating rod N, and a standard, O, for supporting the fulcrum of a lever or its equivalent, the whole adapted for operative connection with various machines, substantially as shown and specified.

197,823. METALLIC CARTRIDGE-SHELLS. James H. Bullard, Springfield, Mass. Filed Sept. 29, 1877.

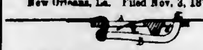


1. The improvement in the art of manufacturing cartridge-shells, which consists in first forming two separate cups of different metals,

one of which is re-enforced at the head by inserting the latter within the outer cup at any time after the first drawing operation, and subsequently completing the same, forming a cartridge-shell with an interior re-enforced casing of different metal from the outer, substantially as and for the purposes set forth.

2. A cartridge-shell, consisting of an outer shell, an inner lining of non-corrosive metal, extending to the outer end of the outer shell, said inner lining being re-enforced at the butt and provided at its base with a pocket or recess for the fulminate, substantially as and for the purposes set forth.

197,824. BALE-TIES. George Bull and Louis Koch, New Orleans, La. Filed Nov. 3, 1877.



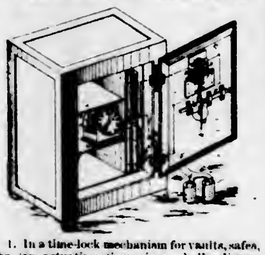
A bale-tie composed of two sections, A B, the former provided with slots *b* and *c'* and cross-ridge *e*, and the latter with an angular bend, as described, and inward-bent ends *c i'*, for the purpose set forth.

197,825. HAND-RAKES. Timothy I. Campbell, East Key, N. Y., assignor to Campbell Brothers, same place. Filed June 22, 1877.



The combination of the rake-head C, having recess *c*, with the tapering rake-handle D and brace or fastening B, consisting of tapering socket-piece A, having laterally-projecting wings *b b* and annular shoulder *a*, substantially as described, for the purpose herein shown and specified.

197,826. ELECTRO-MAGNETIC TIME-LOCKS. Chas. E. Chimnock, Brooklyn, N. Y. Filed Apr. 20, 1876.



1. In a time-lock mechanism for vaults, safes, &c., an actuating time-piece wholly disconnected and separate from the door or door-frame of the vault or safe, in combination with an electric circuit connecting the same with the locking-stop D, arranged to lock the bolt E of an ordinary or suitable vault or safe lock, substantially as and for the purpose herein set forth.

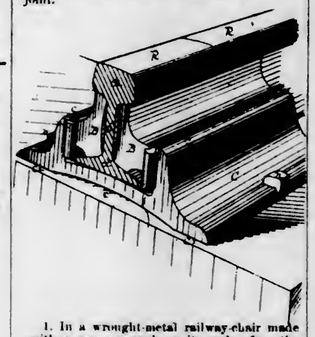
2. In a time-lock mechanism, the circuit-wires *a'* and *b'* and the electro-magnets B, in combination with the time-piece A, entirely disconnected and detached from the door or door-frame of the vault or safe, and the locking-stop D, provided to lock the bolt E of an ordinary or suitable vault or safe lock, the whole constructed, combined, and arranged substantially as and for the purpose herein set forth.

3. In a time-lock mechanism, the combination, with the time-piece A, circuit-wires *a' b'*, and the locking-stop D, arranged to lock the bolt E, of the vault or safe lock of a circuit closer and breaker, operating with such rapidity in the running of the time-piece that the closing of the circuit shall not be of sufficient duration to operate the locking-stop, but which, in the event of the stoppage of the time-piece, shall continuously close the circuit to operate the said locking-stop, substantially as herein set forth.

4. The adjustable circuit-closer N, in combination with the dial-plate I of actuating time-piece A, wholly disconnected and detached from the door, the electric-circuit wires, the electro-magnets, the locking-stop, and the bolt E, the whole constructed, combined, and arranged substantially as and for the purpose herein set forth.

197,827. RAIL-JOINTS. Wilson B. Chisholm, Cleveland, Ohio. Filed Nov. 6, 1877.

Brief.—The load of a passing train tends to spring the abutments of the chair toward each other, thereby securely clamping the rail ends between the fish-bars, and forming a secure joint.

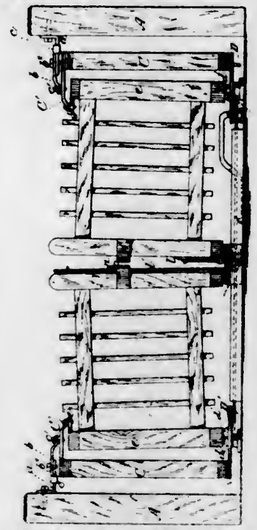


1. In a wrought-metal railway-chair made with a crown or arch on its under face, the upwardly-projecting flanges *c*, having inner walls, vertical or nearly so, and extending up opposite the web of the rail, so as, bearing directly or indirectly against interposed bars B, to force the latter into close engagement with both the base and head of the rail, substantially as set forth.

2. The railway-chair C, having a crowning or arched bottom, *c'*, and upwardly-projecting flanges *c*, in combination, by means of suitably-interposed keys or wedges, with bars B, the upper and lower edges of which engage the head and base of each rail end, substantially as and for the purposes set forth.

3. The keys *e*, having upset or enlarged ends, in combination with bars B, rails R, and chair C, having a crowning spring-bottom and upwardly-projecting flanges, substantially as set forth.

197,828. GATES. James W. Clark, Etna, Ohio. Filed Oct. 6, 1877.



1. The top hinge composed of arm *a*, adjustable bar *b*, lugs *c*, and arm C', substantially as described.

2. The bottom hinge composed of stationary pivot, entering the bottom of vertical gate-bar *e*, and revolving disk, supported by the pivot *d*.

3. The double-bent operating-lever H, having the inclined middle portion *i'*, substantially as set forth.

4. The combination of the spring rod *l'*, having a vertically-guided projecting pin, *o*, the open-slotted semicircular bend attached to the front edge of opposite swinging gate, and the bottom catch arranged in the middle of the road, substantially as set forth.

197,829. HORSESHOE-CALK SHARPENERS. Morgan Colton, Woodstock, Ill. Filed Oct. 27, 1877.

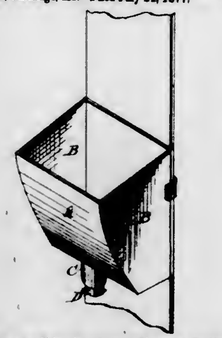


1. In a machine for sharpening horseshoe-calks, a cylindrical rotating file journaled in an adjustable yielding frame, and the whole arranged in a self-adjusting box or case, substantially as and for the purposes set forth.

2. The box or case C, carrying the entire operating mechanism, and supported by a loose socket-pivot, substantially as and for the purposes set forth.

3. The file-frame D D', carrying the cylindrical file G, provided with pins *a a* and springs *b b*, and adjusted by means of a lever, I, and set-screw L, substantially as and for the purposes set forth.

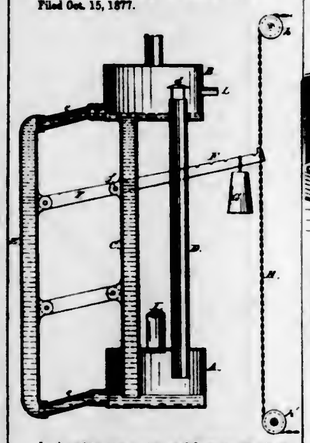
197,830. WATER-ELEVATOR BUCKETS. Irvin Coppock, Carthage, Mo. Filed July 21, 1877.



1. In a well-bucket attached to an endless chain, an air-valve arranged in the bottom of the bucket, for the purposes herein set forth.

2. The combination of the bucket A B, having tube C, with side openings *b b*, and the hollow valve D, with head D', ring *h*, packing *i*, and side openings *d*, substantially as and for the purposes herein set forth.

197,831. COMBINED SAFETY APPARATUS AND DAMPER-REGULATOR. Alonzo W. Oram, Haverhill, Mass. Filed Oct. 15, 1877.



1. A safety apparatus and damper-regulator consisting of an upper and lower vessel suitably connected, and a flexibly-jointed pipe connected to a lever and chain for operating the damper, substantially as and for the purpose specified.

2. In a safety apparatus and damper-regulator, the flexibly-jointed pipe E, attached to vessels A B, the connecting-pipe C, and lever F, with chain H, connected to the damper of a boiler, substantially as shown and described.

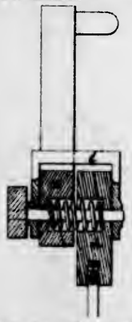
3. The combination of the vessels A B, pipes C D, and flexibly-jointed pipe E with the lever F and chain H, connected to the damper of a boiler, substantially as shown and described.

4. The vessel A, having inlet-pipe I, vessel B, with outlet-pipe K and overflow L, the pipe C, and the pipe D, provided with cap *d*, in combination with the flexibly-jointed pipe E and lever F, connected to chain H and the damper of a boiler, substantially as and for the purpose described.

5. A safety apparatus and damper-regulator consisting of the upper and lower vessels A B, pipes C D, and flexible pipe E, provided with joints *e e*, pivoted lever F, and chain H, connected to the damper of a boiler, all constructed and arranged as shown, and for the purpose specified.

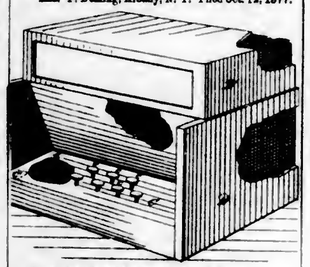
197,832. PENDULUM-CLOCKS. Henry J. Davies and W. D. Davies, Brooklyn, N. Y. Filed Nov. 8, 1877.

Brief.—A device for adjusting or correcting the heat of a pendulum, regardless of the vertical position of the clock.



The combination, with the anchor, its arbor, and the head or movable joint of the crutch-wire fitted on said arbor, of a spring applied to force said anchor and said crutch-wire apart, and a curb, yoke, or guard arranged to resist the pressure of the spring, and to form friction surfaces for the anchor and crutch-wire, or either, substantially as specified.

197,833. SOUND-DEADENING CASES FOR TYPE-WRITERS. P. Deming, Albany, N. Y. Filed Oct. 12, 1877.



1. A sound-muffling case for type-writers, constructed substantially as described, provided with a door for ready access to the work, and a window for observing the same, substantially as set forth.

2. A sound-muffling case for type-writers, constructed substantially as described, provided with a door for ready access to the work, and a window for observing the same, and having the keys exposed so as to be operated without opening the case, substantially as set forth.

197,834. ARTIFICIAL ANIMAL-BLACK. Paul G. L. G. Desgranges, Paris, France. Filed Oct. 11, 1877.

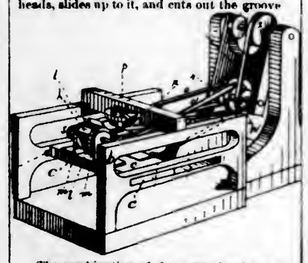
1. In the manufacture of artificial bone-black, the process, herein described, of supplying a carbon-producing ingredient by subjecting leather clippings or other analogous substance to the action of caustic soda solution under heat and pressure.

2. The process of manufacturing artificial bone-black, consisting of mixing a gelatine magma with bibasic phosphate of lime and neutral phosphate of magnesia, and calcining the mass until charring is completed, as and for the purposes herein described.

3. An artificial bone-black in which the proportions of the phosphates are varied according to the purposes for which the black is to be used, all substantially as herein described and set forth.

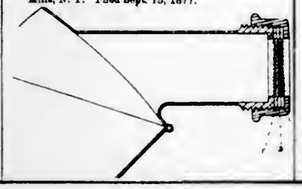
197,835. DOVETAILING AND GROOVING MACHINES. Joseph Dill, Boston, Mass. Filed May 15, 1877.

Brief.—The stick to be operated on is clamped to the frame, and the table, carrying cutter-heads, slides up to it, and cuts out the groove



The combination of the cutter-head *k*, having cutters *l l m m* attached, and the cutter-head *n*, having the horizontal cutters *p p* attached, both cutter-heads being placed upon the carriage *c*, for the purpose of producing the dovetail groove *x y* in a stationary piece of stock, all arranged substantially and operating as above set forth.

197,836. MILK-PAILS. Henry Dodge, Washington Mills, N. Y. Filed Sept. 15, 1877.

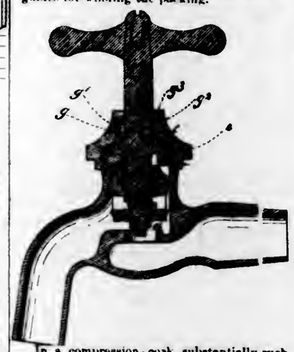


1. The compound diaphragm, composed of a series of layers of wire-gauze superimposed upon each other, and secured firmly in place by the single cap and screw, as described.

2. Uniting and consolidating the edges of the wire-gauze by a rim of solder, as herein specified, and for the purposes set forth.

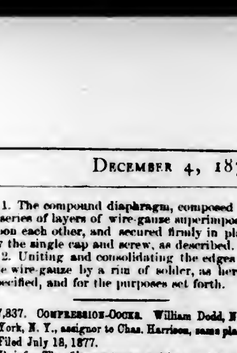
197,837. COMPRESSION-COCKS. William Dodd, New York, N. Y., assignor to Chas. Harrison, same place. Filed July 18, 1877.

Brief.—The filamentous packing resists the action of both hot and cold water. The collars between which the packing is placed serve as guides for winding the packing.



In a compression-cock, substantially such as described, a valve-chamber cap, recessed substantially as shown, in combination with the loose collars *g* and *g'* upon the valve-stem, and the filamentous packing *g'*, wound upon the valve-stem between the collars *g* and *g'*, and adapted to be compressed thereby, to form a water-tight joint between the stem and the cap, when the cap is screwed home upon the end of the valve-chamber, substantially as set forth.

197,838. SEWER AND OTHER TRAPS. Wm. F. Downey, Washington, D. C. Filed Aug. 27, 1877.



1. In combination with the chamber A and the horizontal induction-pipe C, entering above the bottom of the chamber along which the sewage-water flows through the outlet-pipe D, the swinging valve E, hung so as to normally close the induction-pipe against the entrance of backwater or sewer-gas, but at the same time to yield to light pressure in the direction of the outflow, substantially as set forth.

2. In combination with the chamber A, pipe C, and valve E, hung substantially as described, the pipe F, for relieving the valve from back pressure, substantially as set forth.

197,839. GAGES FOR TOBACCONISTS. R. H. Edmunds, Jr., Ridgeway, S. C. Filed Oct. 4, 1877.

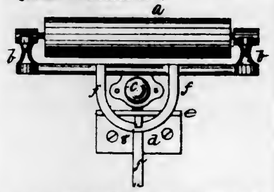
As a new article of manufacture, a tobacconist's gage, consisting of a board having divisions, headed by numbers, indicating the various numerals by which plug-tobacco is known, and also numbers in pairs, one of which numbers indicates the price of the whole plug, and the other the price of a cer-

tain portion thereof, the said pairs of numbers being placed at specified distances from a common base-line, and arranged so that the difference between the two indicates the cost of the portion of the plug not sold, as specified.

197,839.

¼ inch		½ inch		10 inch		1 inch		1½ inch	
Cents.	Price.	Cents.	Price.	Cents.	Price.	Cents.	Price.	Cents.	Price.
				45	45				
						30	35	40	45
		30	30					30	40
						30	45		
15	15			30	30	25	35		
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		30	45			10	15	15	45
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15	30	10	15	15	25			30	60
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197,840. BELT-SHIFTERS. Thomas H. Egney, Bangor, Me. Filed Oct. 20, 1877.



1. In a belt-shifter, the combination of the roll *a*, frame *b*, and universal joint *c*, whereby said roll is enabled to move simultaneously upon both the horizontal and perpendicular axes of said joint, as and for the purposes specified.

2. The combination of the roll *a*, frame *b*, and joint *c* with the forked lever *f* and guiding-flange *e*, all arranged to operate in the manner specified, for the purposes set forth.

197,841. AUTOMATIC CASING-SPEARS FOR OIL-WELLS. Francis J. Fox, Monroeville, Pa., assignor of one-half his right to Carson Brothers, same place. Filed Oct. 20, 1877.

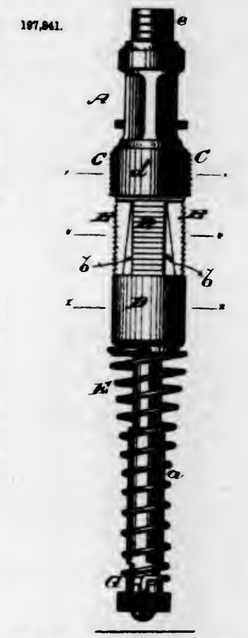
1. In a casing-spear, the stem A, constructed, as described, with round part *a*, and tapering part *b*, and cylindrical grooved part *d*, substantially as and for the purposes herein set forth.

2. The combination of the coiled spring E, sleeve D, and toothed segments B, all constructed substantially as and for the purposes herein set forth.

3. The combination of the spear A, spring E, sleeve D, segments B, and slides C, all constructed substantially as and for the purposes set forth.

4. The tenon foot G, in combination with the stem, spring, sleeve, and nut, as and for the purposes herein set forth.

197,842. GAS-GOVERNORS. William Foulis, Glasgow, North Britain. Filed Aug. 16, 1877.



1. The cylinder F, having annular chamber H, and forming a valve, in combination with a gas-regulator, as and for the purpose set forth.

2. The cylinder F, forming a valve, *a*, in combination with a casing, A, having valve-seat B, as and for the purpose set forth.

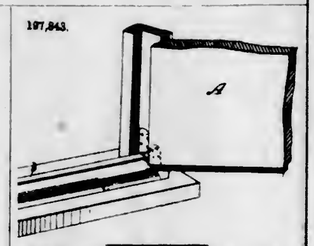
3. The gas regulator or governor consisting of casing A, having inlet D and exit E, cylinder F, intermediate of the inlet and exit, and valve-seat B, as and for the purpose set forth.

197,843. WEATHER-STRIPS. Melvin Frink and Jas. Frink, Farmington, Mo. Filed Aug. 3, 1877.

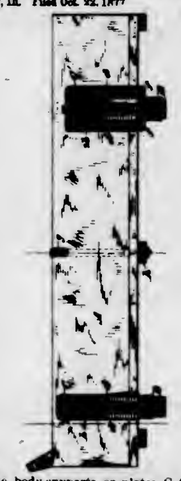
1. The combination of the sill *c*, packing-strip *c*, and overlapping hinged plate *b*, substantially as and for the purpose herein shown and specified.

2. In combination with the sill *c*, having packing *c* and hinged strip *b*, the door A, having plate *a* and packing strip *d*, substantially as and for the purpose herein shown and specified.

197,843.



197,844. WAGON-BODIES. James P. Gordon, Coal Valley, Ill. Filed Oct. 22, 1877.

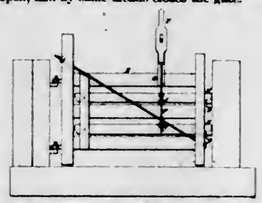


1. The body supports or plates C C, having the broad projections *c c*, penetrating and in combination with the body A, and the bolsters B B, substantially as and for the purpose set forth.

2. The plates or supports C C, having the broad projections *c c* and flanges *d d*, in combination with the body A and bolster-standards *b b*, substantially as and for the purpose specified.

197,845. GATES. George W. Gordon, Beverly, Ohio. Filed Oct. 15, 1877.

Brief.—The operator raises or depresses the lever H, according to side of approach, which releases the latch, and then pushes the gate open, and by same means closes the gate.

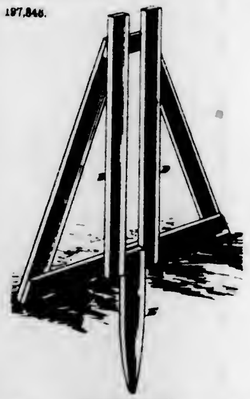


The combination, with a single lever, H, pivoted at the middle over the gate, of the rod G, double hook F, having eyes *f f*, pivoted latches E, and notched catch-bars D, all constructed and arranged in connection with a farm-gate, as and for the purpose specified.

197,846. FENCES. Charles S. S. Griffing, Columbus, Ohio. Filed Nov. 21, 1877.

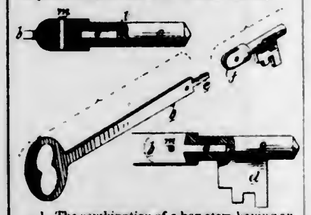
In combination with the fence, the posts of which are formed with vertical parallel boards D D and connected braces, substantially as shown, the anchors E E, with parallel edges corresponding to the spaces between the boards D D, substantially as set forth.

197,846.



197,847. KEYS FOR LOCKS. Wm. M. Griscom, Reading, Pa. Filed Feb. 19, 1877.

Brief.—The bow and shank is composed of a single piece of sheet metal, without bit or stem, and rigidly secured to a stem of the metal by a barbed tenon, which is formed upon the shank, and fitted into a mortise in the stem. A pin or rivet is added for further security.

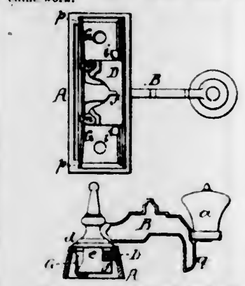


1. The combination of a key-stem having an opening, *i*, with a sheet-metal shank having a notched or barbed projection, *e*, substantially as set forth.

2. The combination of the stem *c*, having a recess, *f*, and opening *i*, and the sheet-metal shank *b*, having a projection, *e*, either notched or plain, with the transverse pin *m*, as described.

197,848. FASTENERS FOR THE MEETING-RAILS OF SASHES. William M. Griscom, Reading, Pa. Filed Nov. 2, 1877.

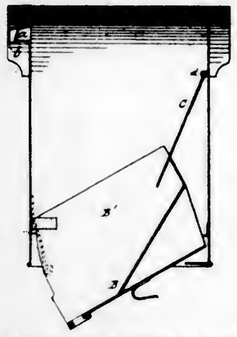
Brief.—A quadrangular-shaped base, with tapering sides and ends, has an opening in the top large enough to admit the spindle with its enlargement, and swinging lever, after which a retaining plate is introduced, overlapping the projection, and preventing withdrawal of the spindle. To complete the device a spring is introduced beneath lips on the retaining-plate, and bears against the enlargement of the spindle, all the parts being put together without special fitting or machine work.



1. The combination of the lever B, its spindle *e* and projection *f*, with the base A and its opening A, and with the retaining-plate D, arranged to overlap the said projection, all substantially as set forth.

2. The combination of the base A, the enlargement of the lever B, the retaining-plate D, with its lips *m*, and the spring G, substantially as described.

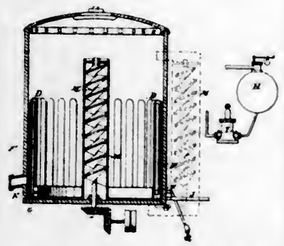
197,849. LETTER-BOXES. Robert Hale, Minneapolis, Minn. Filed Oct. 26, 1877.



1. A bottom plate, B, arranged at an obtuse angle, and provided with side plates B', having stop E', in combination with a box having lug E, and adapted for receiving postal matter, substantially as described.

2. The combination of swinging curtain C, a hinged inclined bottom, and a postal box, substantially as described.

197,850. APPARATUS FOR DIGESTING AND MACERATING FIBERS BY CHEMICAL REAGENTS. William W. Harding, Philadelphia, Pa. Filed Feb. 22, 1877.



1. The combination of the pipes D and F and chambers E and G with the digesting-vessel A, in the manner and for the purpose set forth.

2. The combination of the pump M with the vessel A and pipes D and F and chambers E and G, for circulating the liquor in said vessel, as and for the purpose set forth.

3. The combination of the boiler H, vessel A, pipes D and F, and chambers E and G, substantially as and for the purpose set forth.

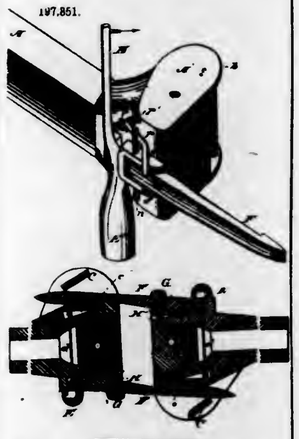
4. In a digester for macerating under pressure at high temperatures, the combination of tubes and chambers therewith connected, free to expand and contract without strain upon their joints, and separating the heat-conveying fluid from the contents of the digester, substantially as and for the purpose set forth.

197,851. CAR-COUPLINGS. James A. Hinson, Oskaloosa, assignor of one-half his right to A. A. Judson, Fairfield, Iowa. Filed May 18, 1877.

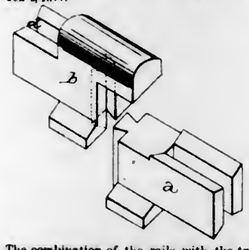
1. In a car-coupling, the combination of the recessed draw-head A', vertical slanting guide-plate C, pivoted vertical lock-plate D, rod *d*, and weighted lever E E', substantially as and for the purpose herein shown and specified.

2. The combination of the draw-head A', having brackets or bearings *f f*, pivoted coupling-hook F, lock-pin G, and spring or elastic cushion H, substantially in the manner and for the purpose hereinbefore set forth.

197,851.

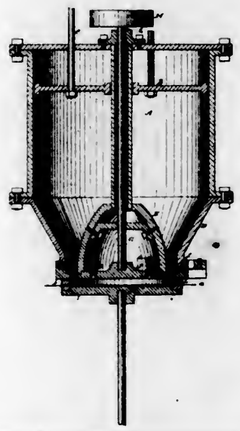


197,852. RAIL-JOINTS. Josephus Hipsley, Sr., Allegheny, and John R. Hipsley, Pittsburg, Pa. Filed Oct. 4, 1877.



The combination of the rails with the two blocks *a b*, the blocks having slots in their outer ends to catch over the rails, and suitable fastenings on their inner ends to lock them together, substantially as shown and described.

197,853. MANUFACTURE OF EARTHENWARE VESSELS. Martin J. Hensel, Akron, Ohio, assignor of two-thirds his right to Hill Sewer Pipe Company, same place. Filed Sept. 12, 1877.



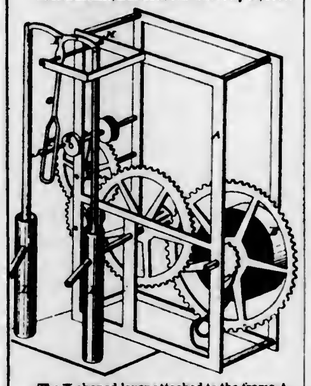
1. In a press for making the bodies of earthenware vessels, by forcing the material through an annular orifice, a loose disk upon the bottom of the mandrel which forms the bore of the vessel, adapted to be rotated, in combination with an independent plate, adapted to be raised against the point of discharge of the press, substantially as and for the purpose hereinbefore set forth.

2. In combination with the cylinder A, head B, and mandrel E, the disk J, shaft G, and plate K, all arranged and operating substantially as and for the purpose hereinbefore set forth.

3. In combination with the mandrel E and plate J, the downward-opening valve *e*, for the purpose specified.

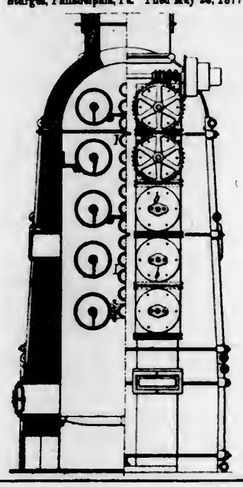
4. In combination with the plate K, the ring L and wire *a*, arranged and operating, substantially as and for the purpose hereinbefore set forth.

197,854. PUMPS OPERATED BY SPRINGS OR WEIGHTS. A. L. Hunsaker, Hunsaker, Cal. Filed July 30, 1877.



The T-shaped lever attached to the frame A, as described, and having the lower end of its vertical arm O provided with a slot, P, with which the crank-pin J engages, and having the piston-rod of a pump, L, attached to each of its horizontal arms, the several parts relatively arranged with each other, and in connection with a train of gears and spring-power, substantially as above described.

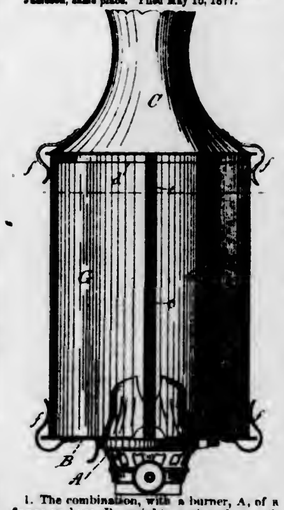
197,855. ROASTING ORES. William L. Imlay, Camden, N. J., assignor of one-half his right to George Sturges, Philadelphia, Pa. Filed May 26, 1877.



1. The mode herein described of oxidizing or desulphurizing ores—that is to say, by causing them to traverse in one direction through a series of externally-heated retorts, from which the products of combustion are excluded, but through which a draft of previously-heated air is passed in a course contrary to that pursued by the ores, all substantially as set forth.

2. An oxidizing or desulphurizing apparatus in which the joints of the retorts, or the joints between adjacent retorts, or both, are embedded or inclosed on all sides in the walls of the structure, as and for the purpose set forth.

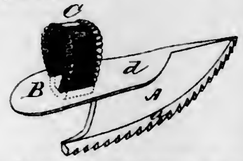
197,856. LAMP-CHIMNEYS. Samuel B. Inglis, Pittsburg, Pa., assignor of one-half his right to Edward T. Jamieson, same place. Filed May 16, 1877.



1. The combination, with a burner, A, of a flange or base, B, uprights *c*, ring *d*, cap C, and spring-holders *f*, substantially as described, and adapted for the reception and retention of glasses or other mediums G.

2. In combination with the described uprights *c* and glasses G, the cap C, having spring-holders *f* and pins *e*, substantially as specified, for the purpose of securing both glasses and cap in position.

197,857. INSTRUMENTS FOR SUCKERING TOBACCO-PLANTS. R. B. Jameson, South Union, Ky. Filed Sept. 22, 1877.



1. An instrument for suckering tobacco-plants, consisting of the serrated blade A, the side ledge B, and the thumb-loop C, substantially as specified.

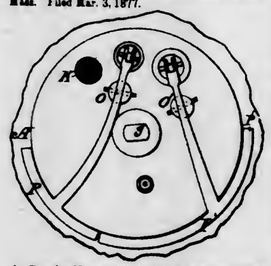
2. The suckering instrument for tobacco-plants, consisting of the blade A, having a convex beveled serrated edge, *a*, the thumb-ledge B, extending in rear of said blade and terminating in rear of its front, and the thumb-loop C, secured to said ledge, substantially as specified.

197,858. BROOMS. Harry M. Jenkins, Baltimore, Md. Filed Nov. 19, 1877.



A metallic band for brooms, made of a single piece, with the ends suitably united together, and provided with longitudinal corrugations on its sides, each side curved or sprung inward in the center, and formed with an upward projection or lip, substantially as and for the purposes herein set forth.

197,859. WATER-METERS. Jonathan Johnson, Lowell, Mass. Filed Mar. 3, 1877.



1. The jet K, provided with the orifice *n* and strainer, and inserted in the case A of a fluid-meter, substantially as and for the purpose specified.

2. The receiving-chamber, weighter, inlet-valves, and jet K, in combination with the wheel-chamber and measuring-wheel, with its attached registering apparatus, substantially as and for the purpose specified.

3. A fluid-meter, provided with a measuring-wheel, H, having two sets of hinged floats, *c* and *d*, placed at different inclinations, as and for the purpose set forth.

197,860. SAND-PAPER HOLDERS FOR BUFFING SHOE-SOLES. Joseph B. Johnson, Lynn, Mass. Filed July 10, 1877.

Brief.—Sand-paper held by headed bolts, with knife-edges to cut into edges of the sand-paper, with shoulders for retracting springs and with nuts, such bolts being drawn inward by a slide and attached cams.

1. The slider F and its cams G G and the shouldered and headed rods C, combined and arranged with the body and felt cover of the buffing-roller, as set forth.

2. The combination of the slider F and its cams G G with the shouldered and headed rods C and their springs D D, all being arranged in and applied to the roller-body and its felt covering, substantially as shown and described.

3. The combination of the slider F and its cams G G with the headed rods C C, provided with screws *e* and nuts *d*, all being arranged in the body, and with respect to the felt covering thereof, and to operate substantially as set forth.

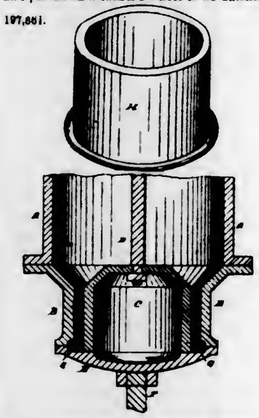
4. The headed slide-rods C, provided with knife-edges *b*, or so made as to cut into the abrasive cover, as described, while being applied to them, as specified.

197,861. PROCESSES OF MAKING EARTHENWARE VESSELS. Thomas Johnson, Akron, Ohio, assignor to the Buckeye Sewer Pipe Company, same place. Filed Aug. 27, 1877.

Brief.—The tempered clay in the cylinder is forced downward until it fills the annular

space and the groove in the dies forming the rim for the crock-body. The lower die is then withdrawn, and the clay pressed out to a suitable length to form the sides of the crock and then cut off. The bottom is afterward put on and placed on a turner's wheel to be finished.

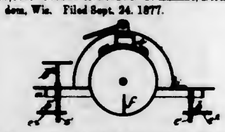
197,861.



1. The herein-described process of constructing earthenware-vessel bodies by forcing the material thereof through an annular orifice, arresting its flow at the point of discharge until it shall have filled a groove surrounding the annular orifice at that point to form a rim for the crock body, then permitting the material to flow in a tube to the desired length, substantially as shown.

2. In combination with the dies B and C, having an annular space between them for forming the body of the vessel, the die E, and the annular groove formed in the dies E and B, for the formation of the rim of the vessel, substantially as set forth.

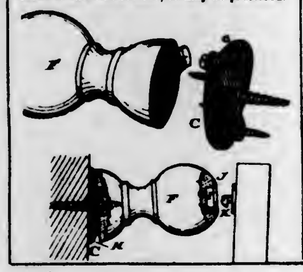
197,862. COFFEE-ROASTERS. F. Kasiske, North Freedom, Wis. Filed Sept. 24, 1877.



In a coffee-roasting apparatus constructed substantially as herein described, the adjustable clamps *b b'*, consisting of downward-projecting screw-threaded pins *c' c'*, having vertically-adjustable lateral blades or clamps *c² c²*, substantially as described, for the purpose herein shown and specified.

197,863. DOOR-CHECKS. Anthony Kohl, Ossenville, Ind. Filed Sept. 7, 1877.

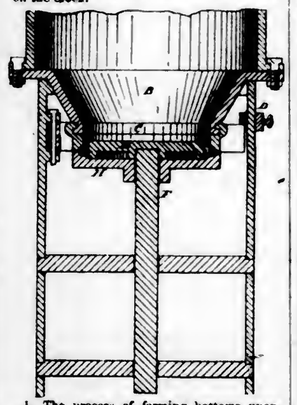
Brief.—An interposed metallic spring between the base of the knob and a peculiarly-shaped base-plate gives a slight rocking movement, and holds the knob in slightly-inclined position, thus facilitating the engagement of a suitable catch with a recess in the knob or buffer, the devices being adapted for attachment to the wall or floor, as may be preferred.



The door stop and catch consisting of the recessed and rocking knob F, secured to a gable roof formed or equivalent-shaped base, C, attached either to the floor or wall, in combination with the interposed metallic spring H, holding the knob in slightly-inclined position, escutcheon J, and catch K, substantially as set forth.

197,864. MANUFACTURE OF EARTHENWARE VESSELS. Russell H. Kent and Jos. A. Baldwin, Akron, Ohio, assignors to the Buckeye Sewer Pipe Company, same place. Filed Sept. 1, 1877.

Brief.—The clay is forced into the annular orifice and grooved dies. The lower grooved die is then lowered, and the clay pressed downward until the crock is the desired length. Then the inner die is lowered until it rests upon the lower die. The ring is then opened, and the mass of clay cut off across the bottom of the upper die, which leaves a bottom on the crock.



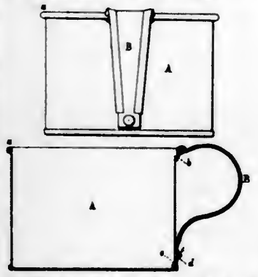
1. The process of forming bottoms upon earthenware vessels, the bodies whereof consist of sections of tube forced from a receptacle through an unclosed annular orifice, by cutting across the clay remaining in the receptacle, while the body is connected with it, a suitable distance above the core which forms the inside of the body to leave a bottom thereon, substantially as shown.

2. The opening die C, in combination with the inner die E, substantially as and for the purpose hereinbefore set forth.

3. The opening die C, in combination with the dies E and H, arranged and operating substantially as and for the purpose hereinbefore set forth.

4. The combination of the dies B E H and ring C, all arranged and operating substantially as and for the purpose hereinbefore set forth.

197,865. SHEET-METAL CUPS OR CANS. George W. Knapp, Baltimore, Md. Filed Nov. 7, 1877.



1. The handle of a sheet-metal cup or can, bent so as to clasp the beaded edge of the same, the upper end of said handle being passed through a slot in the body of the cup or can from the interior of the same, substantially as and for the purpose described.

2. The lower end of the handle provided with the depression *d*, combined with the lower part of the body of the can, having a slot to receive the lower extremity of said handle, and a projection to enter the depression *d*, substantially as specified.

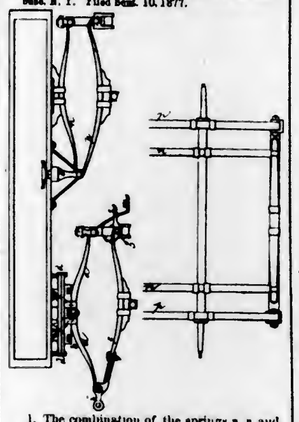
3. A sheet-metal cup or can having the upper slot *b* and the lower slot *c*, and projection corresponding with the depression *d* in the handle B, as described.

4. A sheet-metal can having the upper portion of the body thereof, between the slots *b* and *c*, depressed inwardly or flattened, substantially as and for the purpose herein set forth.

5. The handle of a sheet-metal cup or can, provided with a depression in the inner surface thereof, and near to the lower end of the same, adapted to fit over a correspondingly-shaped projection on the outer surface of the cup or can body, substantially as and for the purpose herein described.

6. The outer surface of the body of a sheet-metal cup or can, provided with a projection fitted to enter a correspondingly-shaped depression in the handle of the same, substantially as and for the purpose herein set forth.

197,866. PLATFORM-SPRINGS. Fred. Kocher, Syracuse, N. Y. Filed Sept. 10, 1877.

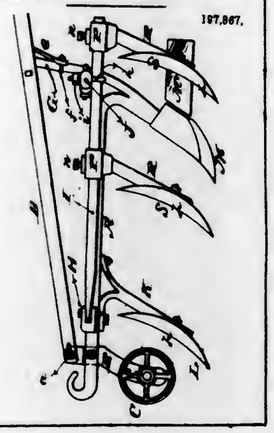


1. The combination of the springs *a p* and brackets *o*, affixed to the carriage-body, with the cross-spring and spring-bar uniting the rear ends of said springs, as herein described.

2. The rod *e* and pipes *h*, for uniting the ends of the forward springs and the draw-irons, as and for the purposes specified.

3. The combination of the forward springs *a f g*, and back springs *n p*, and cross-spring, and their connections, with the carriage-body, as herein described.

197,867.



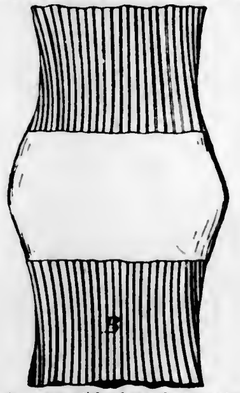
197,867. CULTIVATORS. Irwin S. Krick, Commeantville, Pa. Filed Aug. 25, 1877.

1. The combination, with the adjustable handlee D and the vertical rod G, of the sleeve E, having tubular socket E', brace-rods *e*, and clip *f*, for the purpose hereinbefore set forth.

2. The combination, with the beam A, gage-wheel C, and breaking-tooth L, set at an angle, of the plow M, provided with hinged wings M', yoke N, with bolts *k k*, and the hinged adjustable spreaders O and thumb-bolts *m*, substantially as described.

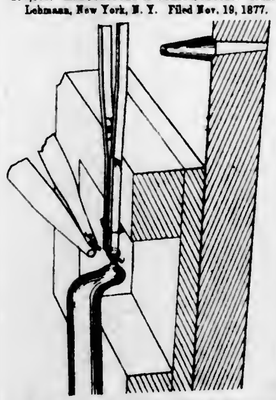
197,868. STOCKING-PROTECTORS. Chas. F. Langford, Brooklyn, N. Y. Filed Jan. 31, 1877.

Brief.—For preventing children's stockings from becoming soiled or worn at the knees. The protector is drawn on over the stocking until the enlarged middle portion fits over the knee-joint, and it is retained in position by the elasticity of the ends, which embrace the limb both above and below the knee.



As a new article of manufacture, a knee-protector, consisting of a tube of textile material, with ribbed ends and intermediate portion made larger in circumference than the ends, as herein set forth and described.

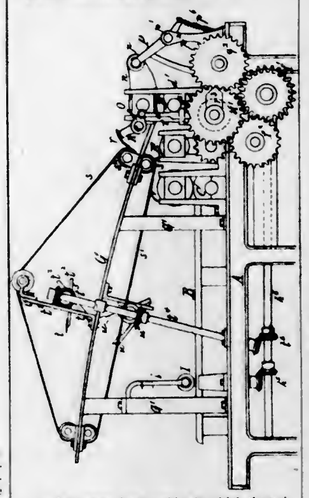
197,869. MANUFACTURE OF GLASS BUTTONS. Isaac Lehmann, New York, N. Y. Filed Nov. 19, 1877.



The process of making glass buttons by subjecting the hot glass, while plastic and after it has been spun or worked in a heated state around the shank of the button, to pressure, on the face of the latter, of or by a tool constructed both to flatten and to ornament said face, whereby a glass button of oblate-spheroidal form, and ornamented on its face, free from seam or joint and sharp edges or projections liable to cut or requiring subsequent removal, is produced, substantially as specified.

197,870. PAPER-BAG MACHINES. William Liddell, Sandy Hill, N. Y., assignor of one-half his right to Howland & Co., same place. Filed Aug. 3, 1877.

Brief.—Improvement on Patent 186,092. The web of paper receives a narrow central slit as it enters the machine, is then formed into a tube, which is cut into bag-lengths, except a narrow strip, which serves to open the upper side of the projecting end of the bag as it is fed through the rolls, and rotating spring-arms open the lower side, and the upper and lower belts hold it in contact with the rolls until the diamond fold is made, when the lower belt is released, and the bag passes under the pressure-roll, and is finally severed from the preceding bag. Paste is applied, and the bottom flaps folded over after being creased by the revolving blades, by the means shown in the former patent.



1. In a paper-bag machine in which the web is folded into a tube and severed without the employment of an inside former, the combination, with the main cutter *k*, provided with a central space, *k'*, of the preliminary cutter *h*, arranged in rear of the tube-forming mechanism, so as to form a central slit in the web of paper before the sides thereof are folded over, substantially as and for the purpose hereinbefore set forth.

2. The combination, with the roller D', of one or more elastic rotating arms, *q*, for pressing the lower portion of the mouth of the paper tube against the lower roller D', substantially as hereinbefore set forth.

3. The combination, with the main cutter *k*, provided with space *k'* and preliminary cutter *h*, of the rollers D D' O, endless belts *s s'*, and rotating elastic arms *q q*, substantially as and for the purpose hereinbefore set forth.

4. The combination, with the roller D', of the endless belt *s'* and two elastic rotating arms, *q q*, arranged on opposite sides of the belt, substantially as shown and described.

5. The combination, with the rollers D O, of the endless belt *s* and roller *p*, arm P, and rock-shaft *p'*, arranged in front of the roller E, substantially as shown and described.

6. The combination, with the stationary lower feed-roller D', of the movable upper roller D, constructed so as to be raised away from the roller D, except when the main knife is about to cut by mechanism, substantially as described, for the purpose hereinbefore set forth.

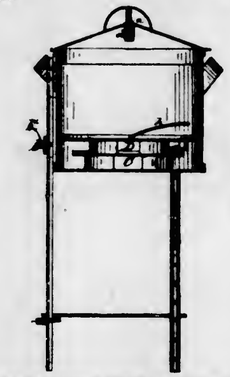
7. The combination, with the cutter mechanism E E' and lower stationary feed-roller D', of the upper roller D, mounted in movable bearings *d*, cam *d²*, and rod *d³*, substantially as and for the purpose hereinbefore set forth.

8. In a machine for making paper bags, the upper feed-table G, constructed with a convex upper side, in combination with the conveyer-belts *s s'* and bottom-creasing mechanism, substantially as and for the purpose hereinbefore set forth.

9. The combination, with the upper feed-table G and conveyer-belts *s s'*, of the rotating creasing-blades *t t*, arranged above the table, and rotating grooved plates *u u*, arranged below the table, for creasing the bottom of the bag, substantially as and for the purpose hereinbefore set forth.

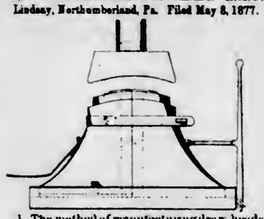
197,871. CULINARY APPARATUS. Luke Lightfoot and John J. Hawk, Downey, Iowa. Filed Sept. 24, 1877.

Brief.—Two false bottoms of peculiar construction supported upon depending hangers—the upper one perforate, the lower imperforate.



The combination, with a culinary vessel, of two pans, C D, serving as false bottoms, the lower one imperforate and the upper one perforated, substantially as and for the purpose herein shown and specified.

197,872. MANUFACTURE OF DRAW-HEADS. Alex. P. Lindsay, Northumberland, Pa. Filed May 8, 1877.



1. The method of manufacturing draw-heads, substantially as set forth, consisting in, first, making a blank of the desired shape, and substantially as shown, with a re-enforced end; second, in upsetting the re-enforced end by compression to form the cap; and, third, in punching or cutting out the interior portion of the cap to form the mouth of the draw-head, substantially as set forth.

2. The combination, with a two-part die for manufacturing draw heads, of an oblong impression-block, adapted to snugly fit within a correspondingly-shaped recess formed in the face of the die, substantially as set forth.

3. The combination, with the two-part die and impression-block, of a cutting-block and templet, substantially as set forth.

4. The combination, with the bed-piece of a steam-hammer, of a two-part die, said parts grooved to receive the shank of a draw-head, an impression-block to force the metal toward the outer edge of the die, and a cutting-block and templet, substantially as described.

197,873. PLATE-PRINTING PRESSES. James Lister, Oakland, Cal. Filed July 9, 1877.

Brief.—The plates are secured to a series of beds, which are hinged together at their edges, forming an endless band, which is carried by revolving polygonal drums, the beds passing between a supporting and an impression cylinder. A series of gas-jets are arranged beneath the beds and in the drums.

1. In a plate-printing press, a sectional table composed of equal and uniform parts, closely and endlessly hinged together, in combination with the impression-roller, substantially as shown and described.

2. In a plate-printing press, a sectional table

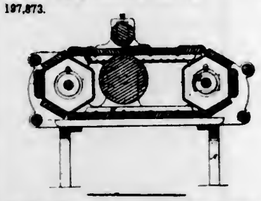
endlessly hinged together, in combination with the two polygonal drums and the ways at the top and bottom of the frame, substantially as shown and described.

3. In a plate-printing press, a sectional table endlessly hinged together, mounted on polygonal drums, in combination with the impression-roller and anti-friction cylinder, substantially as and for the purposes shown and described.

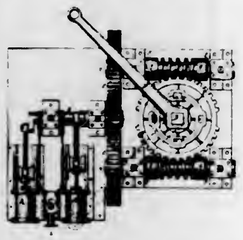
4. In a plate-printing press, a sectional table, mounted on polygonal drums, in combination with the impression-roller, the anti-friction cylinder, and the heating apparatus, substantially as and for the purposes shown and described.

5. The combination of the sectional table and the heating apparatus, applied to its under surface, between the drums, substantially in the manner shown and described.

197,873.

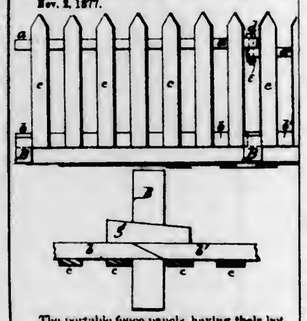


197,874. STEERING-GEAR FOR VESSELS. Joseph P. Manton, Providence, R. I. Filed Apr. 30, 1877.



The combination, with a rudder-post provided with a circular plate, of an annular worm-gear surrounding said plate, and connected therewith by a detachable key or keys, and screws which mesh with the worm gear, and are operated by suitable steam-driven gearing, substantially as described.

197,875. FENCES. A. J. Marks, Beaver, Pa. Filed Nov. 2, 1877.



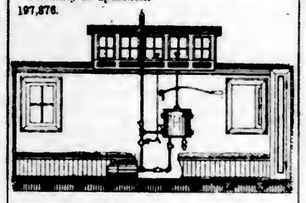
The portable fence-panels, having their bottom rails separably connected together, and their top rails connected by a vertical bolt passing through their lapping ends, substantially as set forth, in combination with the sill H, having a wedge-groove, *f*, and the wedge or key *a*, as and for the purposes specified.

197,876. SIGNALS FOR FREIGHT-TRAINS. Charles E. Marsh, Indianapolis, Ind. Filed Sept. 1, 1877.

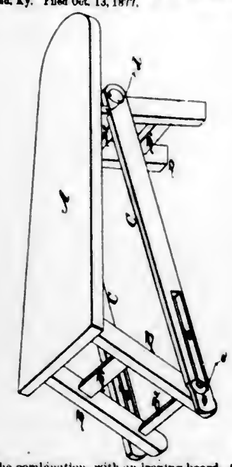
1. The combination of a hand air-pump and whistle, connected together, without intervening valves, substantially as specified.

2. A hand air-pump without valves, in combination with and operating a whistle, substantially as specified.

197,876.

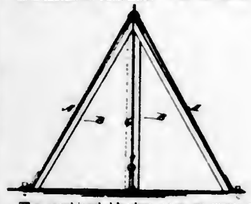


197,877. IRONING-TABLES. Jas. B. McBrayer, Ashland, Ky. Filed Oct. 13, 1877.



The combination, with an ironing-board, A, of the hinged legs B B, having tenons *a a*, the braces C C, having slots *b b*, with notches *b' b'*, the legs D D hinged between the braces, and provided with top piece D^2, having stops *d d*, and the lugs *h h* on the under side of the board, all constructed substantially as and for the purposes set forth.

197,878. BLANKET-CASE AND SHELTER-TENT. Otho E. Michaelis, St. Paul, Minn. Filed May 12 1877.



The combined blanket case or wrap and shelter tent, consisting of the rectangular central part A, having on each of its longer edges the two triangular flaps B, said flaps being provided on their contiguous edges and at their outer ends with straps and buckles, or their equivalents, *a a* and for the purposes set forth, and the device being further provided, at proper points along its edges, with loops or rings for reception of tent-pegs, as set forth.

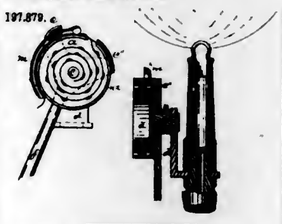
197,879. GAS-LIGHTING APPARATUS. R. R. Moffatt, Brooklyn, N. Y., assignor of one-third his right to O. R. Brewer, same place. Filed Oct. 10, 1877.

1. In a gas-lighting apparatus, the standard *d*, constructed substantially as specified, for attaching the apparatus to a gas-fixture by screwing the burner into position, as herein set forth.

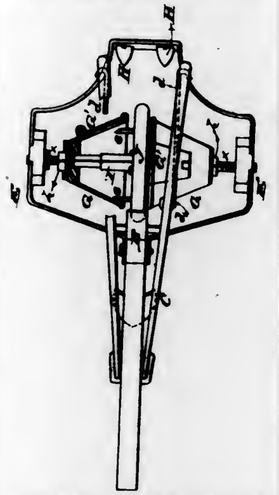
2. The combination, in a gas-lighting attachment, of the cylindrical magazine *e*, firmly secured to the standard *d*, and provided with a rotating cam, *e'*, and feeding device *e''*, arranged substantially as and for the purpose herein specified.

3. The combination of the lever *f*, the cam *e'*, and the feed *e''*, substantially as and for the purpose herein specified.

197,879. *c*



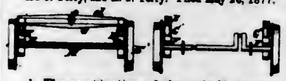
197,880. GRAIN-DRILLS. Richardson Montfort, Butler, Ga. Filed Aug. 18, 1877.



1. The combination, with the square axle I, screw-threaded at its ends, and provided with the flanged nuts *h h*, of the hoppers G and blocks *m*, having recesses *n*, substantially as described, and for the purpose set forth.

2. A grain-drill and fertilizer-distributer, consisting of the square axle I, screw-threaded at its ends, nuts *h h*, having flanges fitting in the recesses *n n* of the conical blocks *m*, adjustable hoppers G G, wheel J, shovel B', block D, rigidly attached to the plow-standard, and adjustable frame E, provided with covering-plows H, the whole constructed, arranged, and operated in the manner and for the purpose set forth.

197,881. STEAM STREET-CARS. Jay Noble, St. Louis, Mo., assignor of one-half his right to Wm. R. Allen, Ira O. Terry, and A. O. Terry. Filed May 26, 1877.



1. The combination of the axle H, springs G, equalizer-bar *e*, and central body-bearing *f*, substantially as and for the purpose set forth.

2. The base-frame D, supporting the boiler M and operating parts of the street-car, and supported vertically on three bearings, G' G' *f*, substantially as and for the purpose set forth.

197,882. SAFETY-POCKETS. By Nunamaker, Earlham, Iowa. Filed Apr. 2. 1877.



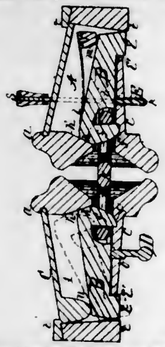
1. The movable tooth-jaw *a*, spring *b*, toggle-joint *c c*, lever *f*, in combination with the pocket, as and for the purpose above set forth.

2. Receiving-catch *g*, catch-pin *h*, guide *i*, pivoted arm *k*, and spring *o*, in combination with pocket A, as and for the purposes herein set forth.

3. The ratchet-wheel *m*, pallet or pawl *n*, and spring *l*, in combination with the pocket A, as and for the purposes herein set forth.

4. The jaw-catch *p*, lock *q*, and movable tooth-jaw *a*, in combination with pocket A, substantially as and for the purposes herein set forth.

197,883. CAR-COUPLINGS. Thomas B. Nutting and David U. Graveline, Byron, Ill. Filed Oct. 29, 1877.



1. The combination, with a draw-head, constructed with an opening, *e'*, at its rear end, and having the inner surface of the bumper head outwardly beveled at *h'*, of the draw-bar, formed with a rear projection, *e*, and its forward portion beveled at *h*, substantially as described.

2. The combination, with a draw-head, having an opening, *e'*, in its rear end, and its forward portion beveled at *h'*, of a draw-bar loosely arranged therein, the same constructed with a depending rear portion, *e*, a hook, *f*, at its forward end, and the beveled portion *h*, substantially as described.

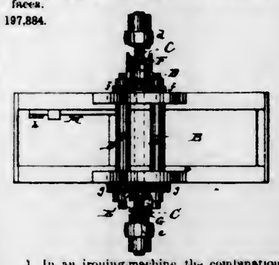
3. The combination, with a draw-bar constructed with a depending portion, *e*, and a hook, *f*, at its forward end, of a draw-head, provided with an opening, *e'*, and a lid, having the pendant *s*, substantially as described.

4. The combination, with a draw-head, constructed with an opening, *e'*, and beveled portion *h'*, the draw-bar, formed with a depending portion, *e*, and beveled portion *h'*, of the shaft E and loop-connection *p*, substantially as described.

197,884. IRONING-MACHINES. Patrick O'Thayne, New York, N. Y. Filed June 8, 1877.

Brief.—The articles to be ironed are placed upon a table reciprocated by a rack and pinion, the latter being mounted on a transverse shaft, which also carries on each of its ends a loose pulley. Upon the same shaft, and on opposite sides of the machine, are mounted two gears of unequal diameter, each engaging with pinions upon the ironing-rollers. Between each of the loose pulleys and each of the gears is mounted a double clutch sliding upon the transverse shaft, and operated by a single shifting-bar, in such manner that when the clutch upon one side of the machine is engaged with the pulley the clutch upon the opposite side will be connected with the gear which turns the ironing-rolls. Thus the clothes, when first subjected to the action of the rolls, the surface-speed of the latter being equal to the motion of the reciprocating table, will be merely dried. The two clutches being then thrown into opposite engagement, and the motion of all the parts reversed, the clothes will again pass under the rolls, which, being driven by the larger gear, will polish the ironed surfaces.

197,884.

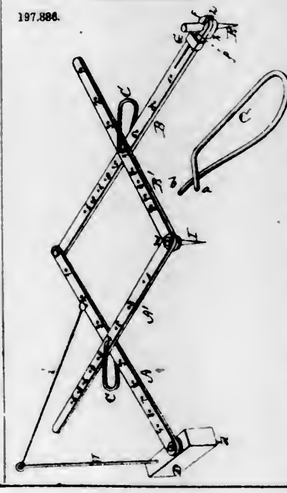


1. In an ironing machine, the combination of a movable ironing-table, B, and of one or more ironing-rollers, I and J, with toothed wheels E and D, of different diameters, engaging with the pinions *f* and *g*, and with moving clutches for varying the relative speed of the said roller or rollers and table during the operation of the machine, substantially as specified.

2. The combination of the toothed wheels D and E on the shaft C with the clutches F and G, shipping-bar H, and loose pulleys *d e*, all arranged so that the clutch which is out of connection with one of the toothed wheels, will connect with one of the pulleys on same side of machine, substantially as described.

3. The reciprocating table B, combined with the parallel sliding bar M, having stops *h* and *i* that project into the path of the table, and with the link L, shipping-bar H, toothed wheels D and E, of different diameters, and one or more ironing-rollers, I J, all arranged so that by the alternate contact of the table with the stops *h* and *i*, its own motion and that of the roller or rollers will be reversed and their relative speed changed, substantially as specified.

197,886.

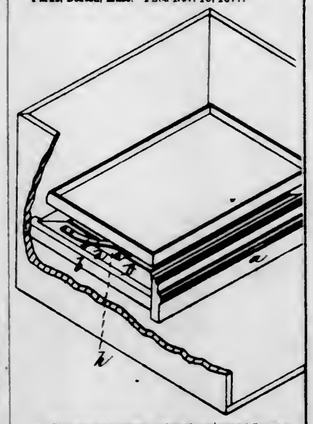


197,885. PANTOGRAPHS. Preston L. Page, Minneapolis, Minn. Filed Nov. 17, 1877.

1. In a pantograph consisting of the graduated perforated bars A A' and B B', the spring-clamps C C, constructed as described, with vertical parts *a* and spring ends *b*, substantially as and for the purposes herein set forth.

2. The combination of the bars A, A', and B', spring-clamps C C, constructed as described, the slotted bar B, with pencil E, pivoted block D, spring-support J, and cord *i*, all constructed substantially as and for the purposes herein set forth.

197,886. SELF-LEVELING BERTHS FOR VESSELS. D. Parks, Boston, Mass. Filed Nov. 13, 1877.

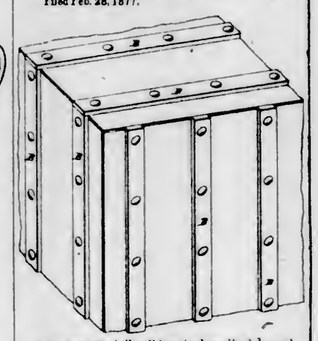


1. The combination, with the pivoted frames C D, pivoted at points in lines at right angles to each other, of the bed-bottom E, provided with weighted projection G, forming the connecting medium between the bed-bottom and pivoted frames, substantially as herein shown and described.

2. The frames C D, with their pivots, consisting of toothed projections *h q*, in combination with the racks *g p*, on which they rest, substantially as and for the purpose described.

3. The combination of the frame B, provided with the springs *e*, bed-bottom having weighted connecting projection G, and the pivoted frames C D, the several parts relatively arranged with each other, substantially as herein shown and described.

197,887. JAIL-CELLS. Peter J. Pauly, St. Louis, Mo. Filed Feb. 28, 1877.

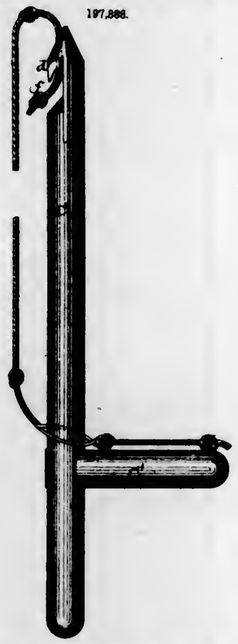


The metallic jail-cell herein described, bound with hardened steel bars B, arranged at distances so close together as to prevent the passage of a prisoner or prisoners, and constructed substantially as specified.

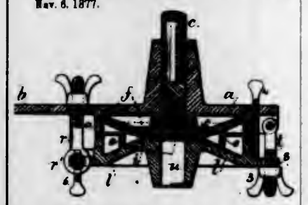
197,888. INSTRUMENTS FOR BINDING GRAIN. Jean A. Pène, Paris, France. Filed Nov. 2, 1877.

The grain-binder consisting of the staff C, having at one end the slotted hook *d*, and provided with the cross-piece C', serving as a stop for the cord-loop, substantially as described.

197,888.



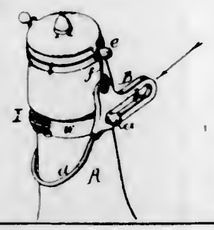
197,889. MILLS FOR GRINDING TORTILLA, &c. John H. Pendleton, Brooklyn, assignor to himself, Alex. H. Tiers, and Cornelius Tiers, New York, N. Y. Filed Nov. 6, 1877.



1. The revolving burr *f*, having the volute compressing and grinding blades *e* upon its surface, in combination with the case *a* and shell *l*, having reverse volute cutting-ribs *i* and a central delivery-opening, *s*, as specified.

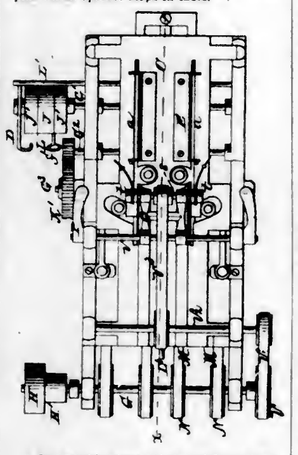
2. The combination, with the revolving burr *f*, blade *e*, case *a*, and shell *l*, having a central opening, of the hinge *r'* upon the bolt *r*, the clamping hinged bolt *t*, and the adjusting-screws 4 and 5, substantially as specified.

197,890.



197,891. MACHINES FOR MAKING WASH-BOARD LEGS. Wm. F. Perryn, Toledo, Ohio. Filed Oct. 11, 1877.

Brief.—The wash-board-leg blanks are placed in hoppers having openings in their lower parts, and arranged immediately over slots in the table, through which they pass, and are fed by automatic spring-dogs, over a sliding carriage, to cutters for dressing the backs of the blanks, cutters mounted on vertical spindles, actuated by springs, to run out or in, and cutters or saws attached to a horizontally-swinging frame attached to and having arms actuated by cams, for cutting straight or irregular grooves a portion of the length of the blank. The belt is shifted by a novel arrangement of arms, a horizontal rod having pins which operate stops in table.



1. In a machine for making wash-board legs, the hoppers E, provided at their ends with the openings *c c'*, and arranged over the slots *a* in the table C, for the purposes herein set forth.

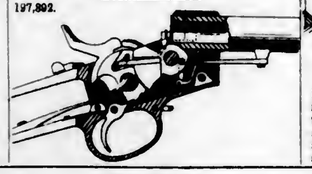
2. The combination of the table C with slots *a*, the hoppers E with openings *c c'*, and the automatic spring dogs or catches *d* on the reciprocating carriage D, substantially as and for the purposes herein set forth.

3. The belt-shifting devices L L' L' L', with pins or lugs *m m*, in combination with the stops *s s* on the reciprocating carriage, all constructed substantially as and for the purposes herein set forth.

4. The combination of the fixed spindles S with cutter-heads K, the spindles S' with cutter-heads K', mounted in the hinged frames F, and the horizontal spindle *s*, provided with saws or cutter-heads *t*, and mounted in a swinging frame, O, all arranged to operate substantially as and for the purposes herein set forth.

5. In combination with the hinged frame O, carrying the horizontal spindle *s*, the rod *v*, with arms P, the pins or studs *w*, and the cams *x* on the shaft G', substantially as and for the purposes herein set forth.

197,892.



197,892. BREECH-LOADING FIRE-ARMS. Joseph C. Petmecky, Austin, Tex. Filed Oct. 3, 1877.

Brief.—The act of cocking the hammer throws down the breech-block and ejects the shell through the medium of a link attached to the breech-block and working in a slot in the hammer.

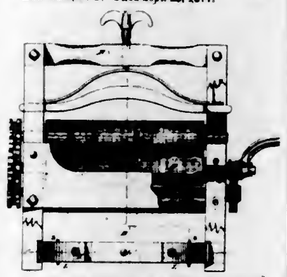
1. In a breech-loading fire-arm, the link I, provided with the studs A i at its ends, in combination with the breech-block G, having a hole for the insertion of the stud A, and the hammer H, having a groove, *x*, for the working of the stud *i*, substantially as herein set forth.

2. The combination of the pivoted breech-block G, the pitman L, pivoted to one side of the center, and the spring J, all constructed and operating substantially as described, whereby, when the breech has been opened to a certain point, the pitman is changed to the other side of the center, and the breech-block is thrown open by the spring with sufficient force to eject the shell.

3. The combination of the breech-block G, hammer H, and connecting-link I, constructed as described, with the pitman L and spring J, whereby the arm may be cocked, opened, and the shell ejected in one motion, as herein set forth.

4. The stop S, constructed and pivoted as shown and described, in combination with the hammer H, for the purposes herein set forth.

197,893. CLOTHES-WRINGERS. Napoleon B. Phelps, New York, N. Y. Filed Sept. 12, 1877.

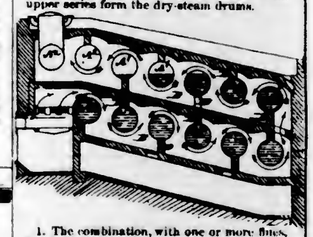


1. The combination, in a wringing-machine, of a purchase driving gear attached to a crank, and mounted and revolving independently upon an extension of the shaft of the lower roller, and driving a gear of larger size attached to a counter-shaft, the latter driving a suitable gear for driving the gearing on the shafts of the rollers on the opposite end of the wringer from that to which the purchase-gear is applied.

2. The clamping-pads L, supported and adjusted by the cross-bar B and the thumb-screws S, substantially in the manner shown and described.

197,894. STEAM-BOILER FURNACES. Julius Pohlig, Siegen, Prussia. Filed May 1, 1877.

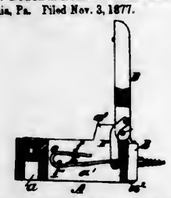
Brief.—The products of combustion are made to take a zigzag course under the two series of boilers by means of baffle-plates. The furnace is divided horizontally by an inclined diaphragm, the water-vessels being set at the same incline. The two highest vessels of the upper series form the dry-steam drums.



1. The combination, with one or more flues, B, of one or more series of transversely-arranged boiler-sections or cylinders, A A' A', the rear ones of which are on a rising grade relatively with each other, and the alternately-arranged upper and lower baffle-plates D, essentially as described.

2. The feed-water pipe E, provided with a series of nozzles, *h*, to provide for the attachment of one or more reserve pipes, I, in combination with the upper and lower series of cylindrical boiler-sections A A', and the pipes F at the opposite ends of said sections, substantially as and for the purpose herein set forth.

197,895. BURGLAR-ALARMS. William H. Reiff, Philadelphia, Pa. Filed Nov. 3, 1877.

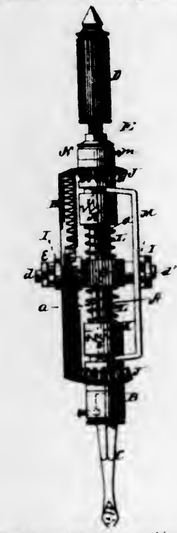


1. The improved burglar-alarm consisting, essentially, of the body A, having longitudinal slot *a'*, cartridge-bore *a*, and dovetailed groove *a'*, doubled spring E, having bend or hook *e* at one end, and kerf *e'* at the other, bent link F, and hammer D, all constructed and combined as shown and described, and for the purpose set forth.

2. The combination, with the block or body A, having the longitudinal recess *o* and the hammer D, of the bent link F and doubled or U-shaped spring plate E, as shown and described.

197,896. RATCHET-DRILLS. William H. Richards, Pittsburg, Pa. Filed Oct. 20, 1877.

Brief.—The pinions are held in correct mesh with the driving gear by a guide-bar, whose ends work in circumferential grooves in their hubs.



1. The guide-bar M, in combination with the cross shaft G, main shaft A, and pinions J J, having circumferential grooves *x x* in their hubs, substantially as and for the purposes herein set forth.

2. The combination of the center shaft A, having longitudinal groove *a* and feed-screw E, the head B, movable covering-point D, cross-shaft G, with journals *d d'*, main wheel H, with handle I, pinions J, with grooves *x* and teeth *i*, the clutches K, springs L, guide-bar M, and collar N, all constructed and arranged, substantially as and for the purposes herein set forth.

197,897. APPARATUS FOR CLASSIFYING AND CONCENTRATING ORES. Geo. M. Rice, 2d, Worcester, Mass. Filed Aug. 6, 1877.

1. In an apparatus for classifying and separating ores, the combination, substantially as hereinbefore described, of the close chamber A, having the air-blast inlet C and exit-opening K, as shown, the receptacles F', F', F', F', &c., ranging along the lower part of said chamber in a downwardly-inclined series from the inlet C, with the feed-spout K, for delivering the granular ore in a thin uniform stream across the air-blast inlet, and the chutes L, leading from the receptacles, for the purposes set forth, said parts all being constructed and combined for operation, as hereinbefore set forth.

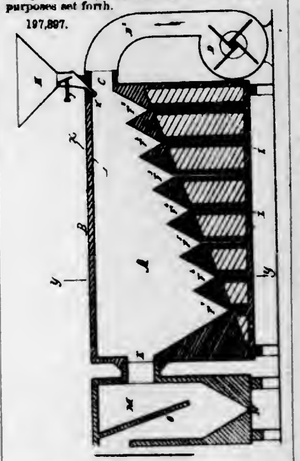
2. The combination, with the rectangular casing B, having parallel sides and horizontal cover, of the series of partitions G, each succeeding partition being of less vertical height than the preceding ones, thereby giving downward enlargement of the air-space without lateral enlargement, and the intervening channels and spouts L, as and for the purposes set forth.

3. In combination with the feed-hopper H and blast-passage C, the delivery-mouth K, formed, as shown, with its lateral width increasing from the neck H' downward, while its dimension from front to rear diminishes, as and for the purpose set forth.

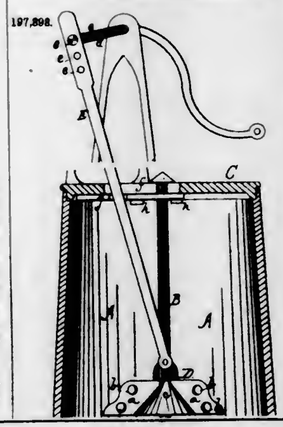
4. In combination with the blast-passage C in an ore-separator, the laterally-expanded mouth-piece K, with its rear plate provided with perforations K', for the purpose set forth.

5. In combination with the chamber A, having inlet C and exit-passage E, receptacles F, and blast-flue D', the dust-chamber M, with the partition O, substantially as and for the purposes set forth.

197,897.



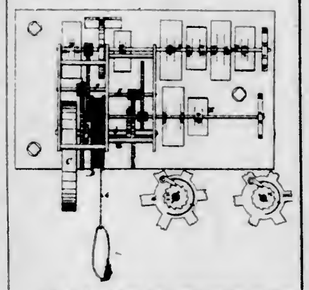
197,898.



197,898. RECIPROCATING CHURNS. Leonard C. Roberts, Hunda, N. Y. Filed May 15, 1877.

The combination, with the churn-body A, lid C, and central fixed post B, of the dasher D, constructed with the central conical part *c* and the radiating inclined spreading arms *a*, having perforations *b*, substantially as and for the purpose described.

197,899. FIRE-ESCAPES. Sylvester Root, Kentland, Ind. Filed Aug. 7, 1877.



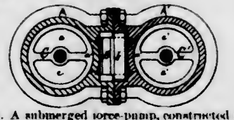
1. In a fire-escape, the combination of the coiled spring, the drum, the chain, the loose gear, the ratchet and click, and the fly-brake, substantially as shown and described, for the purpose specified.

2. In a fire-escape, the combination of the fly-brake E with the shaft *b*, drum B, chain A, and spring C, substantially as shown and described, for retarding the recoiling of the spring, as specified.

3. In a fire-escape, the spring C, shaft *b*, drum B, the loosely-mounted gear, and ratchet and click, in combination with the fly-brake E, the loose gear, and its ratchet and click, and the fly-brake D, all as shown and described.

197,900. DOUBLE-ACTION PUMPS. Leonard J. Russell, Redwood Falls, Minn. Filed Mar. 24, 1877.

Brief.—A force-pump in which two cylinders having valves in their pistons, and connected by exit-ports to one common water-chamber, in which an oscillating valve is so placed as to act for both cylinders.



1. A submerged force-pump, constructed as described, and consisting of the open topped and closed-bottom cylinders A A', water-chamber B, arranged between them, the vertical double-acting combined valve and chute *b* in the bottom of the chamber B, and the valved pistons C, all arranged to operate substantially as set forth.

2. The cam E, parallel bars *e e'*, yoke *f*, and shaft *d*, in combination with the piston-rods *g* and pump-pistons C, arranged and operated substantially as hereinbefore set forth.

197,901. MACHINES FOR CUTTING FABRICS. David P. Sargent, Haverhill, Mass. Filed May 7, 1877.

Brief.—The slotted plate is hinged at one end of the base, and is provided with two rubber strips parallel with the slot, which force the fabric down upon the cutting-block. The plate is provided with measures for the purpose of indicating the length of the cut or the amount cut from the piece. The cutting blade is composed of a number of projecting parts, each perforated to receive a stop-screw.

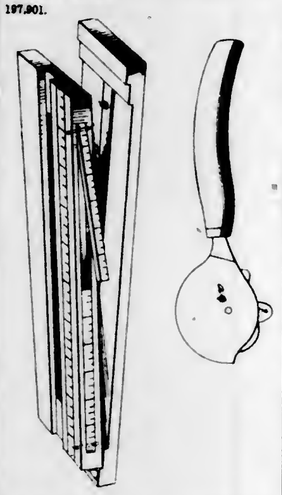
1. In an implement for holding fabrics to be cut, the combination, with the base thereof, which has a raised longitudinal strip to receive the impress of the cutting blade, of a slotted clamping-plate hinged to said base at one end, and adapted to hold the goods upon both sides of said longitudinal strip, substantially as and for the purposes set forth.

2. In combination with a slotted clamping plate hinged at one end to a suitable base, and adapted to hold a fabric to be cut, in the manner specified, a gage or rule hinged to said

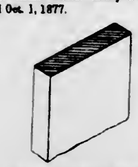
plate at one side thereof, and serving to measure the length of the piece to be detached, substantially as shown and described.

3. In combination with the herein-described casing for a fabric-cutter, a series of cutting-blocks axled within said casing, and adapted to be removed or clamped in place for use, in the manner and by means substantially such as herein specified.

197,901.



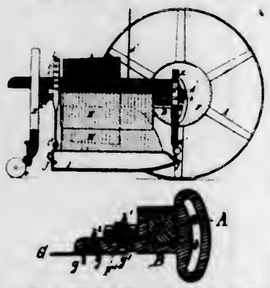
197,902. LAMP-WICKS. Henry C. Scott, Chicago, Ill. Filed Oct. 1, 1877.



1. A wick of refractory material, strengthened by an exterior coating.

2. A wick of refractory material having an exterior coating, perforated, as described.

197,903. APPARATUS FOR REMOVING AND COLLECTING BUGS FROM VINES, &c. Andrew Scotland and J. M. Simpson, Maltaville, N. Y. Filed Sept. 8, 1877.



1. The vertically adjustable pan J, as described, having the partition M, in combination with the yielding partition N and brushes I, substantially as described.

2. The combination of a perforated partition for the passage of air and for deflecting the insects, the suspended pan J, vibrating in a longitudinal and transverse direction when in use, and revolving brushes i, inclined upward and converged toward the back of the machine, and the gearing for operating the brushes, substantially as and for the purpose described.

3. The combination of the yielding partition N, having a fixed fulcrum, e, and the movable partition M of the pan J, whereby the pan is permitted to sway and to be vertically adjusted, substantially as set forth.

4. The flexible perforated central screens or partitions M N, for the passage of air, whereby the vermin are prevented from being thrown beyond the pan J, substantially as set forth.

5. The combination of the revolving brushes i, gears F f and H h, adjustable axles A', and the caps B, having slots b concentric to the bearings b^1, substantially as and for the purpose described.

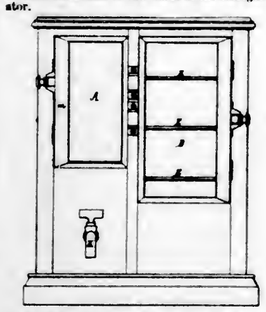
6. The axles A' in slots b, in combination with the vertically-adjustable wheeled carriage, consisting of the frame C C' D, the sliding post E, having a wheel, e, and a set-screw, e^1, and the wheels A, whereby the revolving brushes i are adjusted and operated, substantially as set forth.

7. The cap B, having a curved slot, b, an extension, b^2, with a bearing-box, b^1, and a square opening, c, whereby it is attached to the beam C, substantially as set forth.

8. In a machine for collecting bugs, slugs, &c., from potato-vines, the combination of the axles A', fitted in slots b, wheels A, spur and bevel gears F f, and pinions H h, with their shafts and revolving brushes i, substantially as and for the purpose described.

197,904. REFRIGERATORS. Darwin A. Simons, Manchester, N. H. Filed Apr. 24, 1877.

Brief.—The partition between the ice-box and the provision-chamber is, like the removable shelves, made of metallic rods, and, by withdrawing a supporting-bolt, may be dropped from its place, being guided by vertical ribs on each side close to the walls of the refrigerator.



The refrigerator provided with the ice and refrigerating chambers A D, and the water-tank B, arranged as described, and also having the movable grid-partition F and its two pairs of sustaining-ribs g g', and the series of movable grid-shelves E, all being substantially as represented.

197,906. MACHINES FOR REMOVING AND MELTING SNOW. Hector Sinclair, Greenwich, Conn. Filed Oct. 10, 1877.

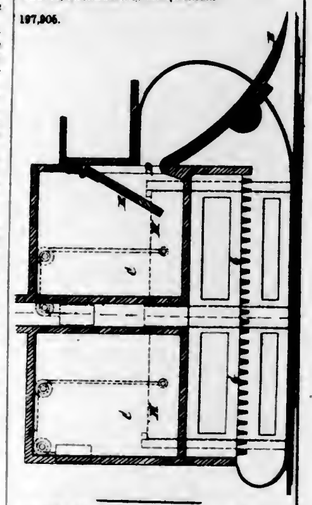
1. The combination of shovel B, close tank C, having front overflow-opening D, and furnace G, all so arranged that the snow will be forced up the incline of the shovel, fall therefrom into the tank, be there melted by direct heat from the furnace, overflow and run down the shovel in the form of water, as and for the purpose set forth.

2. In a snow melting and removing machine, the combination of a snow-shovel, snow and water tank, and a furnace, all so arranged that snow will fall from the top of the shovel into said tank, and be there melted by the direct heat of the furnace.

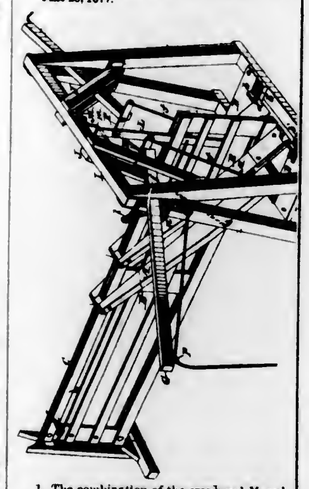
3. The drop door or gate E, in combination with the tank C, having an overflow-opening, D, and the shovel B, arranged as described.

4. A machine for melting snow, provided with a shovel and with a tank for receiving and melting the snow lifted by the shovel, having its parts organized so that one and the same opening serves to pass the snow into the tank and to provide for the overflow of warm water therefrom over and down the shovel, substantially as specified.

197,905.



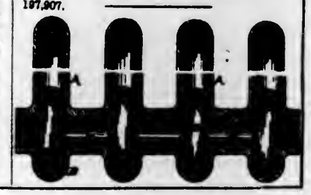
197,906. GATES. Geo. H. Smith, Freeport, Ill. Filed June 25, 1877.



1. The combination of the crank-rod M, rod k, latch-bar L, and cord o, arranged on the lifting-levers G, substantially as shown and described.

2. The combination of lifting-levers G, eyeneers F, rods f f, bifurcated gate-supporting bars A K, and gate C, said bars being pivoted to the gate at points on either side of the lengthwise middle, as shown and described.

197,907.

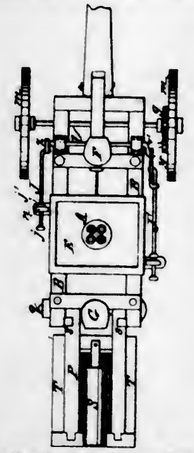


197,907. STEAM-RADIATORS. Wm. B. Snow, Brooklyn, N. Y. Filed July 21, 1877.

A steam-radiator composed of the separate sections A, having the enlarged base portions B, projecting below the steam-passage, and connected only by the hollow screw-nipples b, fitting in the central screw-threaded sockets of said enlarged base portions, substantially as and for the purpose set forth.

197,908. POTATO DRILL AND PLANTER. John M. Spickler, Taylor Ridge, Ill. Filed Oct. 2, 1877.

Brief.—Centrally located on the frame is a chambered hopper for feeding potatoes, the potatoes being deposited in but two chambers at a time, by hand, and from thence they are automatically released by valves at the bottom.



1. The four-chambered open-top fixed barrel A, in combination with the supply-tray E, the pivoted valves H H', and the connecting-tube C, said valves being adapted for operation with each pair of the chambers in planting potatoes in hills, as herein set forth.

2. The combination, with the four-chambered fixed open-top barrel A, the supply-tray E, and the pivoted valves H H', of the pitmen-rods J J', the bell-crank levers k k', connecting-rods o o', and the operating crank-shaft l, as herein set forth.

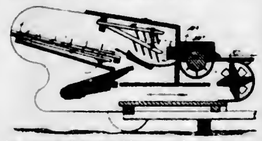
3. The combination, with the four-chambered fixed open top barrel A and the pivoted valves H H', of the pitmen-rods J J', having the dead-motion connection j j', with the valve bell-levers and the crank-shaft l, having the right-angled cranks z z', for operation as described.

4. The four-chambered fixed open-top barrel A, the pivoted valves arranged to operate in relation thereto, as described, and the supply-tray E, in combination with the feeders' seats F G, arranged on opposite sides of the chambered barrel, as herein set forth.

5. The feeders' seats F G, arranged on opposite sides of the fixed open-top chambered barrel A, in combination with the driver's seat S, arranged upon the separate frame P in rear of the feeders' seats, as herein set forth.

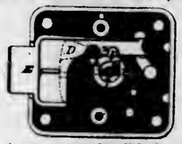
6. The combination of the lapping-jointed timbers of frame B and P and the stops or arms s, as and for the purpose set forth.

197,909. THRASHING-MACHINES. George W. Tate, Mebanesville, N. C. Filed Sept. 23, 1877.



In an overshot thrashing-machine, the combination of the feed-table C, cylinder D, toothed concave D^1, with end plates D^2, hinged to the feed-table, and forming the cap or upper casing of the cylinder, and adjustably fastened to the frame by bolts b, passing through slots a in the plates, substantially as and for the purposes set forth.

197,910. DRAWER-LOCKS. Warren H. Taylor, Stamford, Conn., assignor to the Yale Lock Manufacturing Company, same place. Filed Sept. 13, 1877.



1. A ring or annular disk for a lock, provided on its periphery with two bolt-cams for alternate engagement with the lock-bolt, and with a third cam to be operated on by a spring, and having within its margin a pin or projection to be struck by the key-bit to turn the ring concentrically with the key, and thus throw the lock-bolt, substantially as described.

2. The combination of a three-cammed ring or disk with a bolt, bolt-spring, and cam-spring, whereby, when the unlocking has been performed by the key and its turning force has been withdrawn, the bolt will assume and be held in the half-locked position for ambushing and automatically locking when the drawer is closed, substantially as described.

3. A non-rotating nosing or key-barrel of a lock adapted for a sheet-metal key, composed of an internal ledged and notched tube rigidly incased in an external tube, and provided with a rotating slotted disk between the ledges, substantially as described.

4. In combination with the cap, the notched piece O, having a key-hole through it, whereby mortises are formed for securing the key-barrel, substantially as described.

197,911. PADLOCKS. Jas J. Turner, Richmond, Ind., assignor of one-half his right to John F. Miller, same place. Filed Oct. 13, 1877.

Brief.—The key cannot be withdrawn unless the padlock is locked. The key-retaining tumbler is dogged by a projection upon the inner end of shackle.



1. In a padlock, the combination, substantially as specified, of the key-confining tumbler, the shackle and, the dogging-pawl, arranged in the path of and operated upon by the free end of the shackle of said tumbler.

2. In a padlock, the combination, substantially as specified, of the key-confining tumbler, provided with a hook-head for engaging the shackle, the dogging pawl, and the shackle.

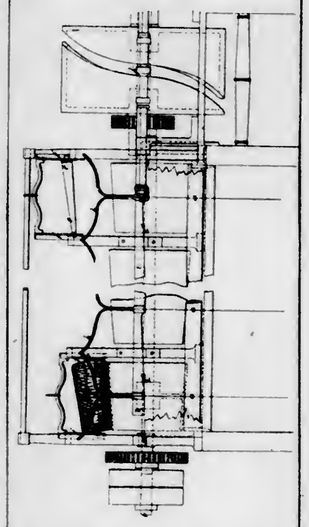
3. In a padlock, the combination, substantially as specified, of the key-confining tumbler, provided with a hook-head for engaging the shackle, the dogging-pawl, the sliding bolt, and the shackle.

197,912. MACHINES FOR WINDING YARN, &c. H. G. Warburton, Leicester, Great Britain. Filed Dec. 2, 1876. Patented in England, Sept. 12, 1876.

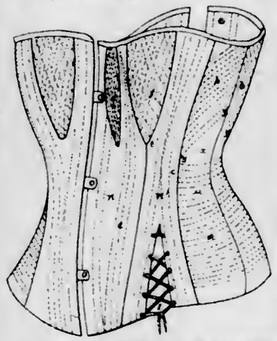
Brief.—The tapering winding tubes or bobbins are revolved by frictional contact with the tapered drums, and the yarn is wound on in a conical form, being passed through guides having a reciprocating motion, which thus cause the yarn to be crossed backward and forward in winding.

The combination of the tapering winding-tubes with the thread-guides h h and the rail i, having inclined planes i^a i^a, adapted to bearings in the frame, as specified.

197,912.



197,913. CORSETS. Ira De Ver Warner, New York, N. Y. Filed Oct. 30, 1877.



1. A corset provided with a series of bones, a, extending from front to back, over the hip, substantially as set forth.

2. A corset having a flexible section, x, at the side between the hip and arm portions, as specified.

3. The series of bones b, arranged at an angle to each other above the hip portion, as set forth.

4. The combination, with the series of bones a, of the front section, slit and laced at t, as specified.

5. The divided back section, having central lacing and gores k on each side of the lacing, as set forth.

197,914. SCOOPS. Nathaniel Waterbury, Baltimore, Md. Filed July 27, 1877.

1. In a scoop, the head or end B, having an undercut shoulder or flange, b, substantially as and for the purpose set forth.

2. The blade A, in combination with the head B, having an undercut shoulder, b, substantially as and for the purpose set forth.

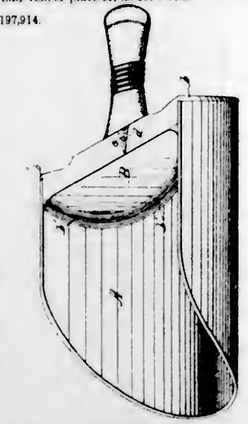
3. The wooden head B, having the curved tapering wooden flange *b'*, with the grain crossing each other, as described, in combination with the blade A, substantially as and for the purpose set forth.

4. The head B, having an undercut shoulder, *b*, in combination with a threefold veneer plate, A, substantially as and for the purpose set forth.

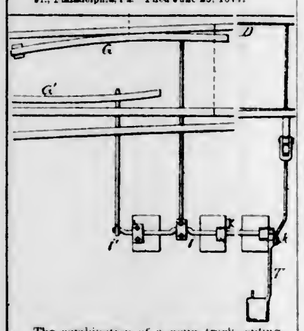
5. As a new article of manufacture, a grocer's scoop consisting of the head B, having the undercut or beveled flange *b* and the interiorly-concaved projection *b'*, the threefold veneer plate A, and the whole saturated with paraffine, substantially as and for the purpose set forth.

6. As a new article of manufacture, a grocer's scoop consisting of the head B, having the undercut or beveled flange *b* and the interiorly concaved projection *b'*, and the threefold veneer plate A, as set forth.

197,914.



197,915. RAILROAD-SWITCHES. William Wharton, Jr., Philadelphia, Pa. Filed June 25, 1877.



The combination of a main track, siding, switch, and two movable guard-rails, G G', with a shaft, K, having a crank connected to the switch, an operating arm, T, for locking the switch in either of its two positions, and two cranks, one connected to each of the two movable guard-rails, which are connected to the track independently of each other, all substantially as set forth.

197,916. MOWERS. William H. Whiteley, Springfield, Ohio. Filed July 10, 1877.

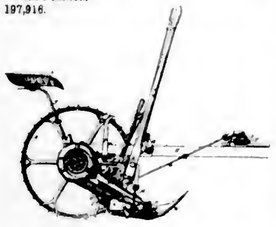
1. The frame E, provided with the slotted box *i*, the slot of which flares to the rear, combined with the shoe G and cutting apparatus, and the coupling pin I, working in said slot, and the tilting lever L, substantially as set forth.

2. The slotted box *i*, combined with the coupling pin I and the shoe G, whereby the cutting apparatus is free to tilt on its axis to raise or depress the points of the cutters.

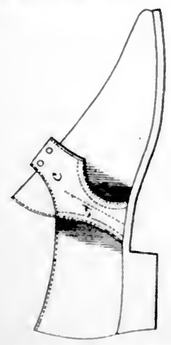
3. The tilting lever, mounted upon the adjustable frame E, and arranged to operate through the aperture of the triangular driving-arm *q*.

4. The bracket J, constructed in one piece, with bearings for the levers K and L, and with racks *l m* for engagement of the holding-latches of said levers.

197,916.



197,917. BOOTS AND SHOES. William W. Whitcomb, Boston, Mass. Filed Nov. 2, 1877.



1. In a boot or shoe, the intermediate part A, made of two thicknesses of leather, and the edges of the vamp and quarters of the uppers joined together by inserting and fastening them between the two thicknesses of the intermediate part, substantially as and for the purposes hereinbefore set forth.

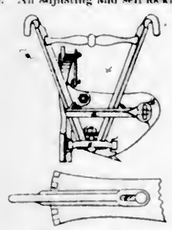
2. In a boot or shoe, the combination of the intermediate part B with the pockets *b* and *b'*, formed upon or near the edges of the two principal parts of the uppers to be joined together, substantially as and for the purposes hereinbefore set forth.

3. In a boot or shoe, the intermediate part A, extended to form the tie-strap C, or its equivalent, substantially as described.

4. In a boot or shoe, the intermediate part B, extended to form the tie-strap C, or its equivalent, substantially as described.

197,918. PLOWS. Harry Wiard, Syracuse, N. Y. Filed Oct. 15, 1877.

Brief.—An adjustable cross-bar and handle-brace. An adjusting and self-locking clevis.

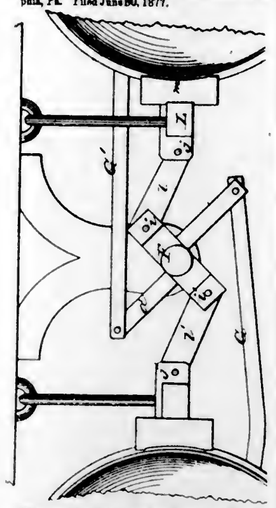


1. The adjustable bar *a*, constructed, arranged, and combined with the mold-board, land-side, and handles, as and for the purposes specified.

2. The spreader-rocker *s*, turning in sockets in the land-side and mold-board, and to which the ends of the handles are affixed by a cap and bolt, substantially as described, and for the purposes specified.

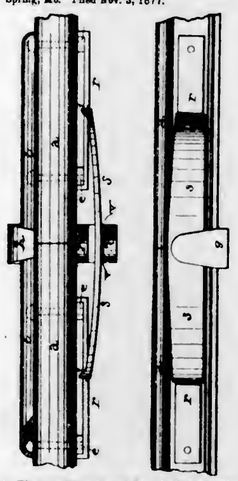
3. The combination of the clevis *i*, having slots *i'* and cogs or lugs *l* thereon, with the end of the plow-beam, having cogs *m* projecting from its sides, so that the cogs *l* enter between cogs *m* when the clevis is drawn forward to retain it at the elevation desired.

197,919. CAR-BRAKES. Samuel Williams, Philadelphia, Pa. Filed June 30, 1877.



The combination, with the swinging brake-beam and shoe *m*, of the rods *l l'*, pivoted to said beam, the rock-shaft F, having lugs *i i'*, to which said rods are pivoted, and the arms *a a'*, at right angles to the plane of said lugs, the connecting-rods G G', pivoted to lever H and arm *d*, and to arms *a a'* upon said rock-shaft, substantially as specified.

197,920. NUT-LOCKS. Anderson Woodward, Mill Spring, Mo. Filed Nov. 3, 1877.



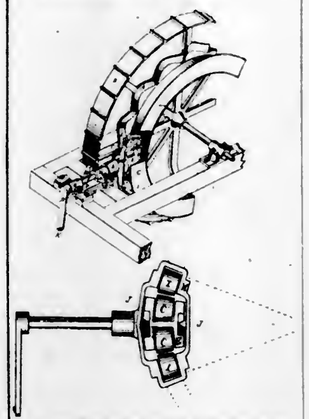
1. The combination of the chair *g*, provided with the flange *h*, with the guard *l*, substantially as described.

2. The chair *g*, provided with the three flanges *h n o*, and so formed as to catch over the flange on the bottom of the rail, substantially as set forth.

3. The combination of the locks *r*, having the flanges and holes, as described, with the spring *s* and flange *o*, substantially as shown.

4. The combination, with the key *c*, spring *s*, and locks *r*, of the chair *g*, having the flange *o*, and the nuts and bolts, substantially as described.

197,921. MOWING-MACHINES. Merritt L. Wood, Valley Springs, Dak. Filed Nov. 14, 1877.

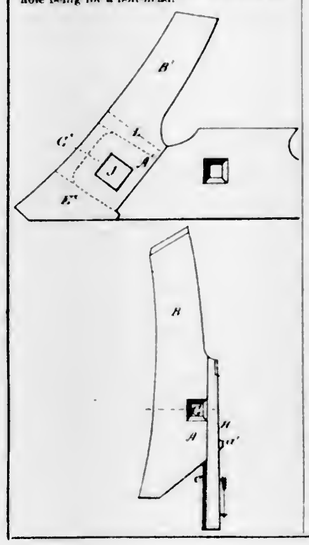


1. The drive-wheel having the double track, consisting of the cam A and flange G, in combination with the trucks E H and shaft F, constructed substantially as described, and for the purpose specified.

2. The pivoted plate P, bearings M O, and shaft F, all arranged and combined substantially as described, and for the purpose specified.

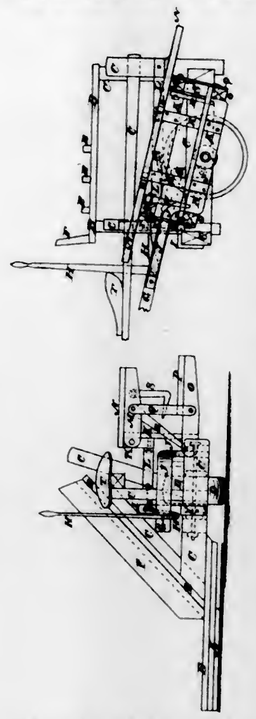
197,922. SAND-MOLDS FOR PLOWS. Geo. W. Yeargin and Thomas L. Wells, Dyersburg, Tenn. Filed Oct. 6, 1877.

Brief.—Makes a sand core for a countersunk hole at same time the mold is made, the hole being for a bolt-head.



REISSUES.

7,976. HARVESTERS. Richd. Emerson, Sycamore, Ill., assignor to himself and H. H. Mason. Patent No. 179,387, dated June 27, 1876. Filed Oct. 6, 1876.



1. A suspended binders' frame attached to the main or carrying frame by a pivotal connection, in combination with a tongue independently hinged to the main frame, and mechanism connecting the tongue with the binders' stand, whereby a change in the angle between the tongue and the main frame will cause a differential change in the angle between the binders' frame and the main frame, substantially as described.

2. A suspended binders' frame attached to the main or carrying frame by a pivotal connection, in combination with a tongue vibrating upon a pivot on the main frame out of line with the connection of the binders' stand therewith, and having an independent connection to the latter, substantially as described.

3. A tilting or rocking main frame, in combination with a binders' stand attached thereto by a pivotal connection, a tongue hinged to the main frame out of line with the pivot of the binders' stand, and a brace-bar attached to both the tongue and binders' stand, substantially as described.

4. A tongue, G, hinged to the main frame in advance of the main axle, in combination with a binders' stand pivoted to the main frame about in line with the main axle and connected to the tongue, substantially as described.

5. A supporting bar or rail pivoted to the main frame about in line with the main axle, in combination with a binders' stand, P, hinged thereto, substantially as described.

6. The hinged tongue G, in combination with the binders' stand pivoted to the main frame, connecting-brace J, and binders' table N, arranged and operating substantially as described.

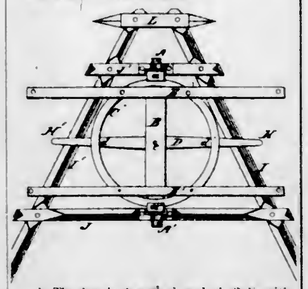
7. The combination of the upright frame K, the connecting-brace J, and tongue G, substantially as described.

8. The combination of the upright frame K, the braces J I, the frame C, and the tongue G, substantially as described.

9. The combination of the hinged binders' table M N with the upright frame K, the braces J I, the frame C, and the tongue G, substantially as shown and described.

10. The combination of the hinged binders' platform O P with the upright frame K, the braces J I, the frame C, and the tongue G, substantially as shown and described.

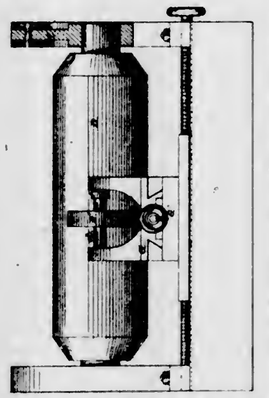
7,977. FIFTH-WHEELS FOR VEHICLES. William J. Elsom, Cortland, N. Y. Patent No. 195,754, dated Oct. 2, 1877. Filed Nov. 26, 1877.



1. The herein-described rock-shaft N, with the lugs *a a'* and journals A and A' thereon, and the cross-bar D thereto attached, all made and operated substantially in the manner and for the purposes herein shown and specified.

2. The combination and arrangement of the said rock-shaft N, lugs *a* and *a'*, journals A and A', journal-boxes *c* and *c'*, fifth-wheel C, cross-pieces J and J', pieces I and I and F, and cross-bar D, all made, combined, and operated substantially in the manner and for the purposes herein described and shown.

7,978. MACHINES FOR GRINDING OBJECTS CYLINDRICALLY. J. Morton Poole, Wilmington, Del., assignor to himself, Wm. T. Porter, and T. S. Poole, same place. Patent No. 99,000, dated Jan. 18, 1870. Filed Oct. 10, 1877.



The combination of a traversing grinding mechanism, and yielding bearings for supporting the object to be operated upon, for the purpose specified.

7,979. SELF-RAISING LARD. Thos. H. Rosser, Selma, Ala. Patent No. 192,716, dated July 3, 1877. Filed Nov. 8, 1877.

1. A self-raising lard composed of lard having incorporated therewith materials capable of yielding, by decomposition, carbonic-acid or other gas suitable for raising bread.

2. A self-raising lard composed of lard having incorporated therewith tartaric acid, bicarbonate of soda, alum, and starch, or their described equivalents, substantially as and for the purpose specified.

7,980. MILLSTONE-DRIVERS. Wells E. Sergeant, Minneapolis, Minn. Patent No. 170,454, dated Nov. 30, 1875. Filed Nov. 13, 1877.

1. The combination of a mill spindle, a bail, and an intermediate rock-shaft, with inclined or cranked arms, arranged to transmit motion from the spindle to the bail.

2. In a millstone-driving mechanism, the combination of a spindle, A, a bail, B, and a transverse rock-shaft or driver, mounted in bearings in one of said parts, and provided with two inclined or crank arms to act upon the other of said parts, substantially as described.

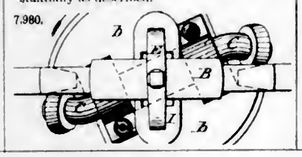
3. A shaft or driver, C, provided with two inclined or cranked arms or ends, having rollers thereon, said shaft being constructed and adapted for use as a millstone-driver, substantially as shown.

4. The combination, substantially as shown, of a spindle, a bail suspended freely thereon, and an intermediate rocking-shaft or driver, with two radial or crank arms, arranged so that motion is transmitted through its arms and body from the spindle to the bail, and that the swinging of its arms will enable it to accommodate itself to the changing relation of the bail and spindle, and at the same time maintain its connection between them.

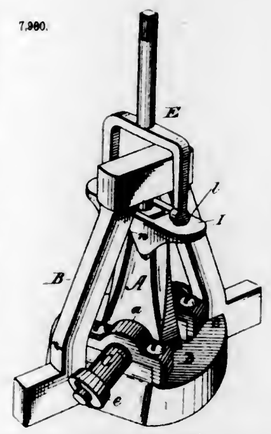
5. A millstone-driving mechanism, consisting of the spindle A, provided with the shoulders c and the shaft C, with or without the rollers e mounted thereon, in combination with the bail B, all constructed to operate substantially as described.

6. The spindle A, provided with the shoulders a, and the cross-bar I, arranged to rest and rock on the shoulders s, in combination with the forked spindle E, provided with the shoulders l and loosely connected to the bar I, all constructed and arranged to operate substantially as described.

7,980.



7,980.



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COMMISSIONER'S DECISIONS.

PRACTICE IN INTERFERENCE CASES.—REFERENCE.

[*Decided November 7, 1877.*]

A, the successful contestant in an interference proceeding between pending applications, suffered his case to be forfeited subsequently by the non-payment of the final fee. If other parties come into the Office thereafter who claim the subject-matter of the award, A can neither be notified nor joined in any new controversy that may arise.

His application is no longer "pending" in the sense of the law, which permits pending applications to be placed in interference.

His former adversaries, however, although debarred by the award from making title in themselves, should, if their cases are still pending, be made parties to the new interference with the subsequent applicants in order to fix the rights and status of the latter.

If such new contest results in favor of the subsequent applicants, a patent should issue, notwithstanding the date of completed invention is later than that found for A.

In event A renews his forfeited application, as provided by law, he will be subject to contest with any new and successful party whose application has been filed in the interval.

DOOLITTLE, *Acting Commissioner:*

The following question of practice is submitted by an Examiner: A, B, C, and D filed applications for the same inventions, respectively, as follows: April 18, 1874, January 19, 1875, December 17, 1875, and December 20, 1875.

An interference was finally declared between these applicants March 13, 1876, and decided in favor of A, July 31, 1876. Accordingly a patent was allowed A; but failing to pay the final fee of $20 within six months after notice of allowance, his application became forfeited January 31, 1877, as provided by section 4885, R. S.

August 10, 1877, and September 1, 1877, E and F also filed applications for the same invention. Query: "What shall be done with the applications of E and F?"

The law requires that "whenever an application is made for a patent which, in the opinion of the Commissioner, would interfere with any pending application, or with any unexpired patent," he shall proceed to determine who is the prior inventor. The first thing to determine in the present case is, which are pending applications.

The application of A, to whom priority was awarded, cannot be considered as longer pending, in view of the language of sections 4885 and 4897, R. S. The former section provides that where the final fee is not paid within six months from the time at which the patent was passed and allowed, and notice thereof was sent to the applicant or his agent, the patent shall be withheld. Section 4897 authorizes in such cases the making of a second application "the same as in the case of an original application," by the same person, or his legal representatives, within two years after the allowance of the original application. Such second application is, to all intents and purposes, a new application, taking date from the date of its renewal, subject to a new examination as to form and merits, and also subject to inquiry as to the matter of abandonment, by public use, for more than two years prior to the date of its renewal, or as to other matters constituting an abandonment of the invention to the public.

A forfeited application stands on no better footing than an application abandoned under section 4894, by reason of non-prosecution of the same within two years after the last action thereon by the Office. It is dead, and cannot be used for purposes of reference, or as a basis for an interference, it no longer being a pending application.

It follows, then, that A's forfeited application must be left out of consideration in the determination of this question.

Although the previous judgment of priority against B, C, and D is good against them as to the subject-matter of the interference with A, yet their applications must be considered as pending for some purposes. It being within two years since the determination of that interference, the applications mentioned must be regarded as pending to allow any claim which can be based by the respective applicants on matters not involved in said interference. Thus, being "pending" applications within the terms of the law, the respective

dates of their filing must be regarded as making a *prima facie* case against the later applicants, E and F, and the latter parties must, at least, overcome this *prima facie* right, if they insist on the prosecution of their applications.

Although B, C, and D can in no event receive a patent for the invention for which another was declared to be the first and original inventor, they need not rest on the *prima facie* case, but, if they choose, may contest the claim to priority of E and F.

Should E or F succeed in establishing priority against B, C, and D, and at the same time fail to prove an earlier date of invention than A, nevertheless the successful party would be entitled to a patent as against A, as he was not a party to the former interference, and could not, therefore, be bound by the judgment therein. Should A, however, file a second application within the two years provided by law, he would be subject to an interference with this or any other new and successful party whose application may in the meantime have been filed.

DECISIONS OF THE COURTS.

SUPREME COURT OF THE UNITED STATES.

THE KEYSTONE BRIDGE COMPANY, APPELLANT, *vs.* THE PHŒNIX IRON COMPANY.

[*Appeal from the Circuit Court of the United States for the Eastern District of Pennsylvania.—Decided October term*, 1877.]

The specification and claim in both of complainants' patents having clearly indicated that certain characteristic features were regarded as of the essence of the invention, the court declined to enlarge the scope of the patents beyond what was thus explicitly set forth.

If the patentees have not claimed the whole of their invention, and the omission has been the result of inadvertence, the error can be corrected by the remedy of reissue.

It is the duty of the Patent Office to examine, scrutinize, limit, and make the claim which an applicant is required to present under the law to conform to what he is entitled to.

The courts have no right to enlarge a patent beyond the scope of its claim as allowed by lawful authority.

When the terms of a claim in a patent are clear and distinct (as they always should be) the patentee in a suit brought for infringement is bound by it. (*Merrill* vs. *Yeomans*, 94 U. S., 573.) He can claim nothing beyond it.

Upon suit brought patentees cannot show that their invention is broader than the terms of their claim; or if broader, they must be held to have surrendered the surplus to the public.

Mr. Justice BRADLEY delivered the opinion of the court.

The appeal in this case is brought to review the decree of the circuit court dismissing the bill of complaint, which charges an infringement of two certain patents belonging to the complainants. These patents were for improvements in iron truss-bridges. The first was granted to J. H. Linville and his assignee, J. I. Piper, January 14, 1862; the second to the same parties, October 21, 1865. The particular claims upon which the contest arises before us are the first claim in the former patent, and the third in the latter. Both of these claims relate to the lower chords of the truss, the primary office of which is to hold the lower parts of the structure together and keep them from spreading, but which are also employed in the construction of the patentees to sustain the cross-sills which support the railroad.

We do not think we ought to disturb the decree of the circuit court in this case. We regard the construction of the claims in question, insisted upon by the appellee, as substantially correct. Those claims are the first in the patent of 1862, and the third in that of 1865. It is manifest that, in the former, the form of the chords is deemed material, or, at least, it is made so by the terms of the specification and claim. They are flat bars placed on edge, so as to sustain superincumbent weight, as well as perform the office of tension-braces. They are made in this form in order that the floor-beams of the railroad may be directly laid on them. This is apparent from the whole tenor of the specification. The patentee, in describing his invention, commences by saying:

> My invention consists, first, in a novel construction of the lower chords and mode of applying the same in combination with the posts and other parts of the truss.

Again:

> The bottom chords are each composed of a series of wide thin eye-bars, of wrought-iron, of a length corresponding with the distances between the posts on one side of the truss, placed on edge to enable them to give vertical support to the roadway, &c.

Then, after showing that these eye-bars or chords are made wider at the ends where the eye-holes are made for inserting the connecting pins or bolts, which connect the different sections together, and explaining the general construction of the bridge and its different parts, he concludes with the following claim:

> I do not claim the use of eye-bars or links as chains of suspension-bridges; but what I claim as my invention, and desire to secure by letters patent, is—
>
> 1. The construction of the lower chords of truss-bridges of series of *wide and thin* drilled eye-bars, C C, *applied on edge* between ribs S S on the bottoms of the posts, and connected by pins P P, supported in the diagonal tension-braces D and E, all substantially as herein described.

Words cannot show more plainly that the claim of the inventor does not extend to any other eye bars or chords than such as are made wide and thin and applied on edge. As those constructed by the defendant are cylindrical in form, only flattened at the eye for insertion between the ribs or projections of the posts, it is plain that no infringement of this claim of the patent has been committed.

The other claim in question—namely, the third claim of the patent of 1865—is for the employment in truss-bridges of just such wide and thin chords as above described, whose ends are enlarged or widened by being upset (when heated) by compression into molds, in the manner described in the specification of the patent. The mode of upsetting, widening, and shaping the ends of the bars is by placing the ends, after the bars have been rolled into proper shape and size, and the ends heated, into a die-box of the regular form, and then firmly locking them in place, and with great power pressing them up endwise with a movable head-die until the hot iron fills the die-box. By this pressure the ends are upset, widened, and compressed into the desired shape. It is claimed that by this process the ends are made stronger and better able to sustain the great strain to which they are subjected when in place in the truss. The defendant upsets the ends of the chords made by it before putting them into the die-box, then places them in the box and flattens them into shape in much the same way that is described in the patent. The process is not in all respects the same, but perhaps sufficiently alike to constitute an infringement if the claim of the patent were only for the process of forming the widened ends. But it is not so, and probably the patent could not be sustained if it were, for spike-heads, nail-heads, bolt-heads, and many other things of that sort are formed by upsetting and compressing hot iron in the same way. It is only the use in truss-bridges of flat bars or chords, with the ends upset and widened in this manner, which the patentees claim as their invention. Their claim is for a particular product, made by a particular process, and applied to a particular use. The patent of 1865 refers to that of 1862, and the invention sought to be patented is claimed as an improvement on the prior one. The patentees say:

> Our invention consists of certain improvements in the construction of the wrought-iron truss-bridge for which letters patent of the United States were granted to us on the 14th of January, 1862. In the truss-bridge shown in the accompanying drawings the general arrangement of the parts is similar to that shown in our previous patent just referred to—the improvements forming the subject-matter of this invention relating to the following particulars: [Then, after specifying certain improvements in the posts, and in the upper chords of the truss, the patentee proceeds as follows:] Third, the use of bottom chords of thin wrought-iron plates, the eye of which at each end, instead of being cut out of a rolled plate and drilled or forged into shape, is upset under strong compression, so as to give at the eye of the bar a degree of strength equal or superior to that of the bar at any point between the eyes.

Then, describing the various parts of the truss in its improved construction, in speaking of the bottom chords, (which are those in question,) the patentees say:

> The bases of the posts A are connected at their bases longitudinally by the lower chords D, of which four may be placed parallel to each other, on each side of each panel. They are made of *thin bars of rolled iron*, of sufficient depth, and *placed on edge*, so as to support the roadway, and are attached to the bases of the posts by the connecting-pins N, which pass through the hole or eye near the end of these bars.

Again, in summing up, the patentees say:

> The lower chords D consist of *wide thin* rolled iron bars, with enlarged ends, which are made by upsetting the rolled bars by compressing them into the desired shape in molds into which the heated iron is forced under immense pressure, &c.

And then, in order to exclude the idea that they claim the mode of compressing the ends, they add:

> We do not claim the upsetting of iron bars in the manner described, nor any peculiar mode of performing the operation, but merely the use of chord-bars for bridges, the eyes of which are thus formed so as to give additional strength to the bar where it is so much needed.

The claims are then set forth categorically in the usual manner, the third claim (the one in question) being in these words:

> 3. The use for the lower chords of truss-frames of *wide and thin* rolled bars with enlarged ends, formed by upsetting the iron, when heated, by compression into molds of the required shape, for the purpose of increasing the density, toughness, and strength of the eye of the rod, and enlarging the eye, without diminishing its transverse section, substantially as hereinbefore described.

Here, again, the patentees clearly confine themselves to "*wide and thin*" bars. They claim the use in truss-bridges of such bars when the ends are upset and widened in the manner described. It is plain, therefore, that the defendant company, which does not make said bars at all, but round or cylindrical bars, does not infringe this claim of the patent. When a claim is so explicit the courts cannot alter or enlarge it. If the patentees have not claimed the whole of their invention, and the omission has been the result of inadvertence, they should have sought to correct the error by a surrender of their patent and an application for a reissue. They cannot expect the courts to wade through the history of the art and spell out what they might have claimed, but have not claimed.

Since the act of 1836 the patent laws require that an applicant for a patent shall not only by a specification in writing fully explain his invention, but that he "shall particularly specify and point out the part, improvement, or combination which he claims as his own invention or discovery." This provision was inserted in the law for the purpose of relieving the courts from the duty of ascertaining the exact invention of the patentee by inference and conjecture, derived from a laborious examination of previous inventions, and a comparison thereof with that claimed by him. This duty is now cast upon the Patent Office. There his claim is, or is supposed to be, examined, scrutinized, limited, and made to conform to what he is entitled to. If the Office refuses to allow him all that he asks he has an appeal. But the courts have no right to enlarge a patent beyond the scope of its claim as allowed by the Patent Office, or the appellate tribunal to which contested applications are referred. When the terms of a claim in a patent are clear and distinct (as they always should be) the patentee, in a suit brought upon the patent, is bound by it. (*Merrill* vs. *Yeomans*, 94 U. S., 573.) He can claim nothing beyond it. But the defendant may at all times, under proper pleadings, resort to prior use and the general history of the art to assail the validity of a patent or to restrain its construction. The door is then opened to the plaintiff to resort to the same kind of evidence in rebuttal; but he can never go beyond his claim. As patents are procured *ex parte*, the public is not bound by them, but the patentees are. And the latter cannot show that their invention is broader than the terms of their claim; or if broader, they must be held to have surrendered the surplus to the public.

The construction which we have felt bound to give to the patent obviates the necessity of expressing any opinion upon the other point made by the court below—namely, that the patents only covered the use of the chords in question in truss-bridges, and not the making of such chords, which latter is all that the defendant company is shown to have done.

The decree of the circuit court must be affirmed with costs.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date December 11, 1877.]

10,338.—Inkstand.—JOHN B. DOBELMANN, Brooklyn, N. Y. assignor to HART, BLIVEN & MEAD MANUFACTURING COMPANY, Kensington, Conn. Application filed November 6, 1877. Term of patent 7 years.

10,339.—Toilet-Frames.—EMORY W. HUTCHINS, Fremont, and ADRIAN A. HUTCHINS, Clyde, Ohio. Application filed September 29, 1877. Term of patent 7 years.

10,340.—Pendulums.—ELIAS INGRAHAM, Bristol, Conn. Application filed November 20, 1877. Term of patent 14 years.

10,341.—Cuff and Collar Box.—ASHER N. LUCHS, New York, N. Y. Application filed November 10, 1877. Term of patent 7 years.

10,342.—Box-Stoves.—NICHOLAS S. VEDDER, Troy, N. Y. Application filed November 16, 1877. Term of patent 3½ years.

10,343.—Franklin Stove.—NICHOLAS S. VEDDER, Troy, and TOBIAS S. HEISTER, Lansingburg, N. Y., assignors to said VEDDER. Application filed November 16, 1877. Term of patent 3½ years.

10,344.—Cooking-Ranges.—NICHOLAS S. VEDDER, Troy, and TOBIAS S. HEISTER, Lansingburg, N. Y., assignors to said VEDDER. Application filed November 16, 1877. Term of patent 3½ years.

10,345.—Parlor-Stove.—NICHOLAS S. VEDDER and FRANCIS RITCHIE, Troy, and TOBIAS S. HEISTER, Lansingburg, N. Y., assignors to said VEDDER. Application filed November 16, 1877. Term of patent 3½ years.

10,346.—Fancy Cassimeres.—FREDERICK S. BOSWORTH, Providence, R. I., assignor to THE WEYBOSSET MILLS, same place. Application filed November 16, 1877. Term of patent 7 years.

10,347.—Casket-Moldings.—WILLIAM M SMITH, Meriden, Conn., assignor to MERIDEN BRITANNIA COMPANY, same place. Application filed November 30, 1877. Term of patent 7 years.

10,348.—Casket-Screw.—WILLIAM M. SMITH, Meriden, Conn., assignor to MERIDEN BRITANNIA COMPANY, same place. Application filed November 30, 1877. Term of patent 7 years.

10,349 to 10,351, inclusive.—Step-Plate.—MORITZ KRICKL, New York, N. Y. Applications filed November 28, 1877. Term of patents 7 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date December 11, 1877.]

5,402.—Medical Compounds.—JOHN M. CONNELL, Boston, Mass. Application filed November 19, 1877.
"The word-symbol 'EAST INDIAN.'"

5,403.—Soap.—DAY & FRICK, Philadelphia, Pa. Application filed October 9, 1877.
"The word-symbol 'BLEACHER.'"

5,404.—Medicinal Preparation.—DUNDAS DICK, New York, N. Y. Application filed November 22, 1877.
"The new and arbitrary word 'THERMALINE.'"

5,405.—Fever-and-Ague Pills.—GROVES & LOWRY, Eugene, Ind. Application filed November 16, 1877.
"The fanciful title 'Washington.'"

5,406.—Pickles.—RICHARD A. GRAY, Covington, Ky. Application filed November 21, 1877.
"The fanciful words 'LINDEN CLUSTER.'"

5,407.—Oysters.—HAAS BROTHERS, San Francisco, Cal., and New York, N. Y. Application filed April 30, 1877.
"The figure of a gigantic oyster-shell or half-shell having a blue-pointed pennon-staff lying upon or against it."

5,408.—Lubricating-Oils.—ILSLEY, DOUBLEDAY & CO., New York, N. Y. Application filed November 22, 1877.
"The cut representing a stationary steam-engine, and the autograph signature of the firm of ILSLEY, DOUBLEDAY & CO."

5,409.—Clocks.—FLORENCE KROEBER, Hoboken, N. J. Application filed November 26, 1877.
"The word-symbol 'MARIPOSA.'"

5,410.—Black Ribbons.—WALTER H. LEWIS, New York, N. Y. Application filed August 16, 1877.
"The design composed of the wreath, the arms of Italy and France, and the ribbon, &c., used in connection with the words 'Italian Faille.'"

5,411.—Plug Chewing-Tobacco.—JAMES B. PACE, Richmond, Va. Application filed November 16, 1877.
"The combination of the words 'Liberty Brand' with the figure of Liberty behind the bust of Washington."

5,412.—Cigars.—MANUEL RIQUELME, New Orleans, La. Application filed November 24, 1877.
"The word-symbol 'PUNCH.'"

5,413.—Butter.—P. H. VAN RIPER & CO., New York, N. Y. Application filed November 27, 1877.
"The arbitrarily-selected word-symbol 'RED BRAND.'"

5,414.—Butter.—P. H. VAN RIPER & CO., New York, N. Y. Application filed November 27, 1877.
"The arbitrarily-selected word-symbol 'BLUE BRAND.'"

5,415.—Liver-Medicine.—J. G. WEBB & CO., St. Louis, Mo. Application filed November 19, 1877.
"The letter 'W.'"

5,416.—Pulverized Sugar.—CHARLES J. HAWLEY, San Francisco, Cal. Application filed November 23, 1877.
"The word-symbol 'BAR.'"

5,417.—Clocks.—FLORENCE KROEBER, Hoboken, N. J. Application filed November 26, 1877.
"The word-symbol 'GALENA.'"

5,418.—Canned Fish-Chowder.—WILLIAM UNDERWOOD & CO., Boston, Mass. Application filed November 15, 1877.
"The word-symbol 'NEW ENGLAND.'"

5,419.—Clocks.—FLORENCE KROEBER, Hoboken, N. J. Application filed November 26, 1877.
"The word-symbol 'PENSACOLA.'"

5,420.—Lubricating-Oil.—WILLIAM H. D. CHAPIN, Corry, Pa. Application filed November 1, 1877.
"The word-symbol 'TUNA.'"

5,421.—Packed and Preserved Fish and Meats.—J. O. HANTHORN & CO., Astoria, Oreg. Application filed October 15, 1877.
"The figure of a hand, with a portion of the arm half-way up to the elbow. In the hand is clasped a fish."

5,422.—Liquid Crab Orchard Salts.—SIMON N. JONES, Louisville, Ky. Application filed August 30, 1877.
"The fac-simile of signature of 'SIMON N. JONES' and the shield and crown."

5,423.—Medicines for the Cure of Kidney and Bladder Diseases.—MCHUGH & JOHNSON, New York, N. Y. Application filed October 1, 1877.
"The word-symbol 'AQUARENIS.'"

5,424.—Refined Petroleum.—CHARLES PRATT & CO., New York, N. Y. Application filed October 16, 1877.
"The word-symbol 'RADIANT.'"

5,425.—Medicated Shaving-Soap.—THEODORE RICKSECKER, New York, N. Y. Application filed October 15, 1877.
"The representation of a lion's head, holding a scale (balance) in his mouth, and the monogram 'T. R.'"

5,426.—Rubber Goods.—QUINCY A. SCOTT, Pittsburg, Pa. Application filed November 16, 1877.
"The word-symbol 'BAMBOO.'"

5,427.—Medicinal Preparations.—J. H. ZEILIN & CO., Philadelphia, Pa. Application filed December 3, 1877.
"The word-symbol 'SIMMONS.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date December 11, 1877.]

1,291.—Title: **"L. B. Hinman's Asthmatic Respirators and Catarrh Cure."**—L. B. HINMAN, New Haven, Conn. Application filed November 21, 1877.

1,292.—Title: **"This Box Contains an Order," &c.**—MERCHANTS TOBACCO COMPANY, Boston, Mass. Application filed November 30, 1877.

1,293.—Title: **"One of the Caddies in this Case Contains an Order," &c.**—MERCHANTS TOBACCO COMPANY, Boston, Mass. Application filed November 30, 1877.

1,294.—Title: **"Pyro-Quinia," &c.**—MERRICK, OTIS & CO., Boston, Mass. Application filed November 2, 1877.

1,295.—Title: **"Barbour's Russian Remedy."**—RUSSIAN REMEDY COMPANY, Philadelphia, Pa. Application filed November 15, 1877.

1,296.—Title: **"Universal Pile Pills."**—F. E. SMITH & CO. Middlebury, Vt. Application filed November 30, 1877.

1,297.—Title: **"The International Starch Co.'s Corn Starch."**—THE INTERNATIONAL STARCH COMPANY, Buffalo, N. Y. Application filed November 19, 1877.

1,298.—Title: **"The International Starch Co.'s Laundry Starch."**—THE INTERNATIONAL STARCH COMPANY, Buffalo, N. Y. Application filed November 19, 1877.

1,299.—Title: **"Prof. Liebig's Double Bottle Hair Renewer."**—CHARLES C. FISCHER and ERNEST I. FISCHER, Philadelphia, Pa. Application filed December 4, 1877.

1,300.—Title: **"Franklin Howes' Medical Discovery."**—FRANKLIN HOWES, Northampton, Mass. Application filed December 5, 1877.

1,301.—Title: **"Flat Tops."**—GEORGE W. MCGILL, New York, N. Y. Application filed December 4, 1877.

1,302.—Title: **"Round Tops."**—GEORGE W. MCGILL, New York, N. Y. Application filed December 1, 1877.

1,303.—Title: **"Round Caps."**—GEORGE W. MCGILL, New York, N. Y. Application filed December 1, 1877.

1,304.—Title: **"Ricksecker's Nurser."**—THEODORE RICKSECKER, New York, N. Y. Application filed October 13, 1877.

1,305.—Title: **"Chinese Paper Ware."**—RINALDO H. STILWELL, Stockton, N. J. Application filed December 3, 1877.

1,306.—Title: **"Dr. A. Q. Simmons' Genuine Vegetable Liver Medicine."**—J. G. WEBB & CO., St. Louis, Mo. Application filed November 19, 1877.

SALE OF SPECIFICATIONS AND DRAWINGS.

Photolithographic copies of the drawings of all patents issued since November 26, 1867, have been produced, and will be sold to the public at 25 cents per patent, or, where twenty or more copies are ordered at one time, at 10 cents per patent.

Coupon-books, to the amount of $2 or more, can be purchased from the Chief Clerk of the Patent Office; the coupons, for 10 cents each, may be filled ont at any time, and, on presentation, will entitle the holder to a photolithographic copy of *any* drawing which has been reproduced.

The specifications of all patents issued since July 1, 1871, are in print, and will be furnished with the drawing without extra charge. The specifications of patents issued from November 20, 1866, to July 1, 1871, are in print, and where such is the case the Office will furnish them with the drawings, but the Office will not undertake to reprint copies of patents which have been exhausted.

In addition to the above, the Office has reproduced, and offers for sale at the price mentioned above, all drawings in the following classes, embracing patents granted from 1790 to date. The classes are those of the Examiners:

1. Aeration and Bottling.
2. Apparel.
4. Baths and Closets.
5. Beds.
6. Bee-hives.
7. Beer and Wine.
8. Bleaching and Dyeing.
9. Boats.
10. Bolts, Nuts, and Rivets.
11. Bookbinding.
13. Brakes and Gins.
14. Bridges.
15. Brushes and Brooms.
17. Butchering.
18. Caoutchouc.
19. Carding.
20. Carpentry.
21. Carriages and Wagons.
23. Chemical Miscellaneous.
26. Cloth.
28. Cordage.
29. Crinoline and Corsets.
31. Dairy.
34. Drafting.
34. Driers and Kilns.
36. Electricity.
37. Excavators.
38. Felting and Hats.
40. Files.
42. Fire-arms.
44. Fuel.
45. Furniture.
47. Garden and Orchard.
48. Gas.
52. Gunpowder.
53. Hardware manufacture.
55. Harrows.
56. Harvesters.
58. Horology.
59. Horseshoes.
61. Hydraulic Engineering.
62. Ice.
65. Kitchen Utensils.
66. Knitting and Netting.
67. Lamps and Gas-fitting.
68. Laundry.
71. Manures.
72. Masonry.
73. Measuring Instruments.
75. Metallurgy.
76. Metal Working, bending and straightening.
77. Metal Working, boring and drilling.
78. Metal Working, forging, swaging, and riveting.
79. Metal Working, punching cutting, and shearing.
80. Metal Working, rolling.
81. Metal Working Tools.
82. Metal Working, turning, planing, and milling.
83. Mills.
85. Nails.
86. Needles and Pins.
87. Oils, Fats, and Glue.
88. Optics.
89. Ordnance.
90. Ore.
91. Paint.
92. Paper-making.
93. Paper manufactures.
94. Paving.
96. Plating.
97. Plows.
98. Pneumatics.
99. Preserving Food.
101. Printing.
102. Projectiles.
103. Pumps.
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106. Railway Cars, (Exterior Mountings and Fittings.)
107. Railway Track and Car Irons and Fittings, manufacture of.
108. Roofing.
111. Seeders and Planters.
112. Sewing-machines.
114. Ships (1) construction.
115. Ships (2) propulsion.
116. Signals.
117. Silk.
118. Spinning.
119. Stabling.
120. Stationery.
124. Stills.
126. Stoves and Furnaces.
127. Sugar.
130. Thrashing.
131. Tobacco.
132. Toilet.
134. Tubing and Wire.
135. Umbrellas and Fans.
137. Water Distribution.
138. Water-wheels.
139. Weaving.
141. Wood-screws.

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Straw Sewing Machine Company, assignee, (reissue)	7,985
Straw Sewing Machine Company, assignee, (reissue)	7,986
Stumpf, C. V., Sofa bedstead	198,164
Swartz, J. H., Rotary water meter	197,949
Swathel, W. F., Machine for making tooth picks	197,950
Sweetser, S. D., assignee	198,059
Sylvester, C. F., Shoe fastening	198,165
Tatham, B., Apparatus for manufacture of drop shot	198,057
Taylor, H., Valve motion for steam engines	197,951
Thompson, J. A., Sink gas trap	197,952
Thorn, T., Shutter bower	198,166
Townsend, S., and J. Vickers, Gate hinge	198,167
Trayser, P., Cotton seed planter	197,953
Tuerk, F. W., Jr., Water motor	197,954
Van Lew, E. L., assignee	198,115
Van Wyck, T. J., assignee	198,079
Vaughn, W. W., and S. Jackson, Well boring apparatus	198,058
Vickers, J., and S. Townsend, Gate hinge	198,167
Vitt, A. H., Grain toller	198,059
Von Sydow, W., Mixing and mashing machine	197,955
Vose, S. D., and J. D. Pierce, Stove pipe thimble	198,168
Wade, W. H., assignee	198,169
Wagner, A. H., Grinding mill	197,985
Wakeman, F. E., assignee	198,130
Wakeman, H., Pencil sharpener	198,169
Walker, J., Hoe	197,956
Wanzer, R. M., assignee	197,996
Ward, J. B., Combined railway and conduit	198,060
Wardwell, S. W., Jr., Sewing machine table	198,170
Watrous, J. S., Mode of raising cream	198,171
Wayne Agricultural Company, assignee	197,953
Weber, M., Spring air gun	198,061
Weed Sewing Machine Company, assignee	198,153
Wells, N. M., Jr., Cheese vat	198,172
Wertz, J. S., Car coupling	198,173
Western Union Telegraph Company, assignee	198,087
Western Union Telegraph Company, assignee	198,088
Western Union Telegraph Company, assignee	198,089
Whipple, C. F., and E. E., Draft attachment for wagons	197,986
Whiteley, W. M., Double acting pump	198,062
Williams, C., assignee	198,054
Williams, D., Sled propeller	198,063
Winans, W. G., assignee	197,949
Wisner, A., Fastening for attaching buttons to boots and shoes	197,957
Wisner, J. E., assignee, (reissue)	7,988
Wood, W., and H. W. Woodbury, Water engine	197,987
Wood, W. M., and R. D. Evans, Signal lantern	198,011
Woodbury, H. W., and W. Wood, Water engine	197,987
Woodford, C. W., assignee, (reissue)	7,991
Worch, E., Game board	198,174
Wright, I. M., Bee hive	198,175

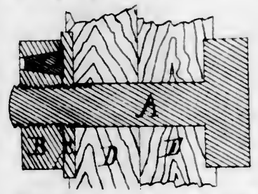
TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED DECEMBER 11, 1877.

197,923. NUT-LOCKS. Geo. J. Carney, Lowell, Mass. Filed Oct. 29, 1877.

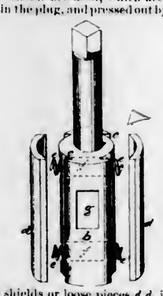
Brief.—A hole is formed in either the nut, washer, or bolt-head, into which is driven a soft-metal plug; and to effect the locking, said plug is further punched or forced, and made to engage with notches formed in the opposite metal. To unlock, a wrench is used to force the soft metal past the notches.



In combination with a notched or serrated seat, a bolt, washer, or nut provided with a hole, extending through it and filled with soft metal, adapted to be driven into the notches or serrations, to lock the bolt, washer, or nut thereto, substantially as and for the purpose set forth.

197,924. STEAM AND OTHER COCKS OR TAPS. R. J. Oriekmer, London, England, assignor of one-half his right to J. E. C. Koch, same place. Filed Aug. 31, 1877.

Brief.—To prevent the plug of the cock from sticking fast when expanded by heat, loose pieces or shields are used, which are fitted to recesses in the plug, and pressed out by springs.



1. The shields or loose pieces *d d*, in combination with the springs *e e*, and with the recesses *c c* in a tapered or cylindrical plug, substantially as and for the purpose herein described and shown.

2. A cylindrical plug, *b*, formed with recesses *c c*, to receive loose pieces or shields *d d*, and with holes *f f*, to receive springs *e e*, substantially as and for the purpose herein described and shown.

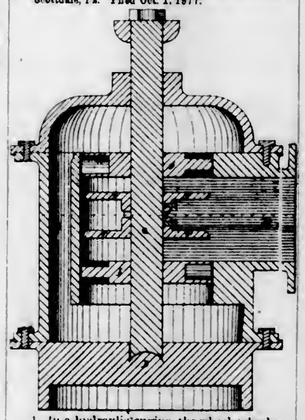
197,925. REVOLVING DRY-GOODS STANDS. John Danner, Canton, Ohio. Filed Oct. 30, 1877.

1. In combination with the central vertical strips A, the division-boards *f h*, secured to the edges of the vertical strips, forming a receptacle for the central post, supports for the shelves, and partitions between goods, substantially as set forth.

2. In combination with central vertical strips and partitions *f h*, the series of shelves *e g i*, resting upon them, and having the grain of the wood at right angles to said partitions, dispensing with any support above or under the sides or ends of the shelves, substantially as shown and described.

3. In combination with the vertical central post of a revolving stand or case, the independent metallic legs or braces *q*, cast and formed at one operation, with slotted openings *r* to receive screws, by which said post is rigidly secured on both sides of each corner to its support, substantially as shown and described.

197,926. HYDRAULIC ENGINES. George H. Everson, Scottdale, Pa. Filed Oct. 1, 1877.



1. In a hydraulic engine, the wheel cylinder A, fore-bay B, and discharge-sluices C around the wheels and diaphragms, constructed in one piece, and arranged substantially as herein described and shown, and for the purpose set forth.

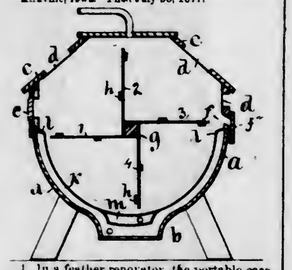
2. The combination of the diaphragms *g g* with the wheels *f*, substantially as herein described, and for the purpose set forth.

3. The step D, formed within a recess, substantially as shown, the said recess extending only part way through the bottom of the case, so that the step D shall constitute the bottom of the recess, and receive shaft *e*, as herein described, and for the purpose set forth.

197,927. FIRE-ESCAPES. Elisha E. Everitt, Philadelphia, Pa. Filed May 1, 1877.

The combination, in a folding ladder, of a rope or ropes, B, with rungs A, having holes or slots, through which and round the rung the rope is caused to pass, in the manner described.

197,928. FEATHER-RENOVATORS. Daniel Farrar, Kirkville, Iowa. Filed July 30, 1877.



1. In a feather renovator, the portable case *a b c*, elevated trap *f f''*, the removable tank *k*, the combined steam-distributer and sediment-chamber *w*, and the stirring-reel *g h*, when arranged and combined substantially as shown and described, to operate in the manner and for the purposes set forth.

2. The trap *f f''*, formed by means of the escape-passage *f*, and its box formed covering *f''*, substantially as and for the purposes shown and described.

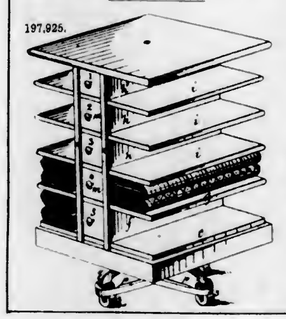
3. The feather-renovating apparatus composed of the case *a b*, the cover *c d d c*, the trap *f f''*, the tank *k*, having the trap *w*, the reel *g h*, the steam-generator *n*, and the conducting-tubes *s t w*, arranged and combined to operate substantially as shown and described.

197,929. BOOTS AND SHOES. John Green, Joliet, Ill. Filed Oct. 25, 1877.

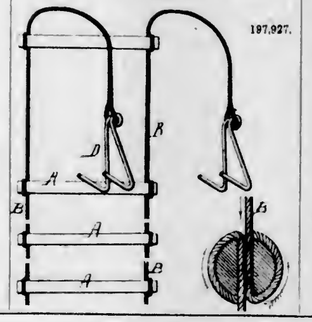


In a boot or shoe, a heavy tip, made from harness leather, or other suitable thick leather, such tip having a slit, *b*, along the edge which is joined to the vamp, in combination with a short vamp inserted and secured between the two parts of the tip, substantially as and for the purposes set forth.

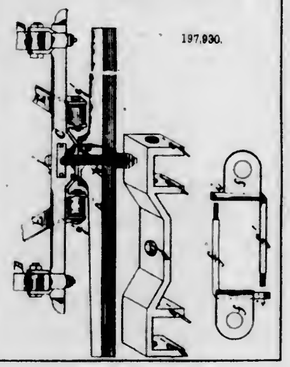
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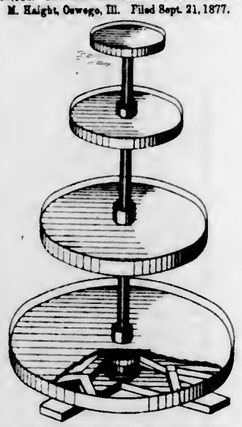


197,930. SIDE-SPRING VEHICLES. William W. Grier, Hulton, Pa. Filed Oct. 13, 1877.

1. The fifth-wheel for no perch vehicles, having a winged upper friction-plate provided with ears for securing the lower springs, substantially as specified.

2. The clip having suitable ears *f*, single strap *f'*, and eye *i*, the whole constructed substantially as described, and adapted to form with a like section the double clip F, for the purpose specified.

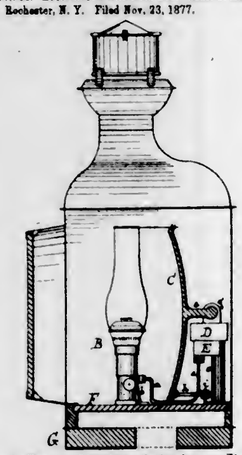
197,931. FLOWER AND MERCHANDISE STANDS. D. M. Haight, Oswego, Ill. Filed Sept. 21, 1877.



1. In combination with a series of reels or shelves and a supporting-rod formed in sections, as described, a series of collars or couplings adapted to perform the double function of supporting the said reels or shelves, and also for connecting the sections of the said rod together, as and for the purposes described.

2. In combination with the base A and the series of reels or shelves D D' D² D³, the supporting-rod B, formed of gas or other pipe, in sections, and a series of couplings or connections, C, as and for the purposes described.

197,932. LOCOMOTIVE HEAD-LIGHTS. Chas. T. Ham, Rochester, N. Y. Filed Nov. 23, 1877.



1. The combination of the burner B, reflector C, reservoir D, and supply-tube *a*, arranged and operating substantially as described.

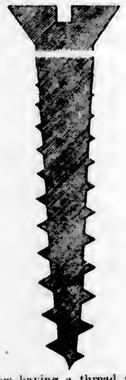
2. The combination of the burner B, hinged reflector C, and adjusting-screw *h*, arranged to operate substantially as described.

3. The combination of the burner B, hinged reflector C, reservoir D, supply-pipe *a*, and the slide-board F, substantially as described.

4. The combination of the burner B, hinged reflector C, reservoir D, supplementary reservoir E, and supply-tube *a*, substantially as described.

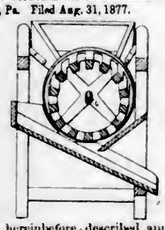
5. The combination of the burner B, hinged reflector C, reservoir D, perforated slide-board F, and perforated base-board G, substantially as described.

197,933. WOOD-SCREWS. H. A. Harvey, Orange, N. J. Filed Apr. 20, 1877.



A screw having a thread which, for any portion of its length, has a differential pitch and a correspondingly variable depth, substantially as described.

197,934. PICKLE-ASSORTERS. John H. Heins, Sharpsburg, Pa. Filed Aug. 31, 1877.



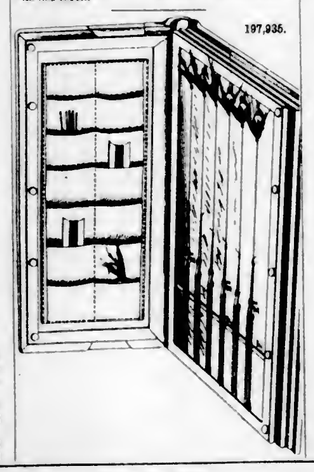
The hereinbefore-described apparatus for separating pickles, consisting of cylinder B, hopper *g*, and chutes *l m*, arranged and operating with relation to each other, substantially as set forth.

197,935. BOOKS FOR CARRYING FISHING-FLIES. H. H. Holt, Kalama, Wash. Filed Aug. 27, 1877.

Brief.—The fly-book has at one end of the leaves small hooks to receive the fly-hooks, and at the other end elastic straps or cords with hooks attached, to receive the looped end of the snoods and hold them in position.

In combination with the elastic bands or cords for holding one end of the snood, the bar F, which holds the bands or cords in place when the snoods are disconnected, substantially as set forth.

197,935.



197,936. MOUNTING PICTURES. John W. Junker, Pittsburg, Pa. Filed Sept. 29, 1877.



The combination of the door *a*, having a glass panel, *c*, frames *d e*, secured to each side of the glass, picture to fit in the frame *e*, and backing to hold picture in position, substantially as shown.

197,937. BRACELETS. Friedrich Lichtenfels, Newark, N. J. Filed Oct. 24, 1877.

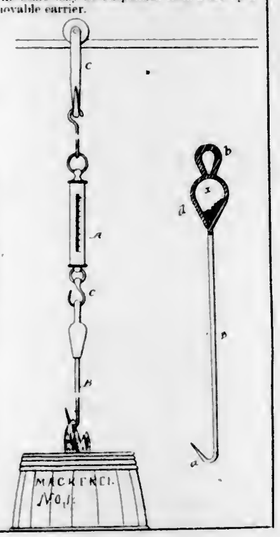
Brief.—An auxiliary piece is hinged to the bracelet, covers the entire joint, and is locked in place by a suitable device.



The bracelet B, having the clasp C, covering the front and edges of the joint A, substantially as and for the purposes specified.

197,938. WEIGHING DEVICES. Frank H. Lindsley, Dover, N. J. Filed Oct. 18, 1877.

Brief.—A spring-scale with adjustable hook and handles combined for weighing different articles without removing them from the receptacles in which they are kept to the scale. The scale may be suspended from a bar by a movable carrier.

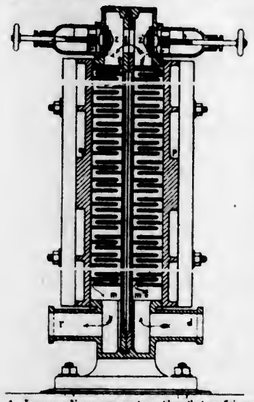


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1. The suspended scales A and detachable tool B, consisting of a handled, hooked, and socketed rod, constructed and adapted to each other, as and for the purpose herein set forth.

2. The said tool having a hollow receptacle, *s*, as and for the purpose set forth.

197,939. BEER-COOLERS. Johann P. Lippe, Dresden, Saxony. Filed Nov. 6, 1877.



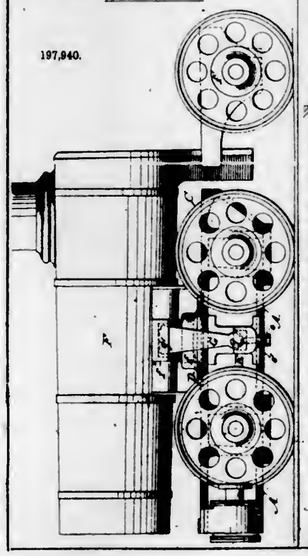
1. In a cooling apparatus, the flat refrigerating tubes, soldered with their ends into the tube-plates *t t'*, and shifted, with respect to each other, laterally, so that they are as closely as possible in contact alternately with the back-plate *n* or *n'*, and with the corresponding door *q* or *p*, as and for the purpose described.

2. In a cooling apparatus, the tube-plates *t t'*, in combination with the doors *n* and *o*, the flanges *b b'*, and the ribs or partition-walls *c c'*, with the ribs or partition-walls *s s'*, as and for the purpose specified.

3. In a cooling apparatus, consisting of the two divisions A and B, the valves *x* and *x'*, in combination with the branch pipes *i* and *k*, and with the opening *l* in the partition-plates *m m'*, as specified, and for the purpose stated.

4. In a cooling apparatus, the tube-plates *t t'*, in combination with the doors *n* and *o*, the flanges *b b'*, and the ribs or partition-walls *s c'*, substantially as described.

197,940.



197,940. LOCOMOTIVE-TRUCKS. Wm. Mason, Taunton, Mass. Filed Apr. 11, 1877.

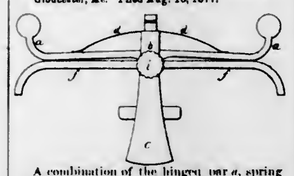
1. In combination with a locomotive-boiler, a truck pivoted to the boiler, having driving-wheels and cylinders attached thereto, as described, and rigid trailing-wheels, substantially as described.

2. In combination with the boiler and a pivoted truck, intermediate adjustable means for determining the friction of the pivoted bearings, substantially as described.

3. In combination with the adjustable socket-bearing E and the rocking brace-bar, the socket-bearing *f'*, as described.

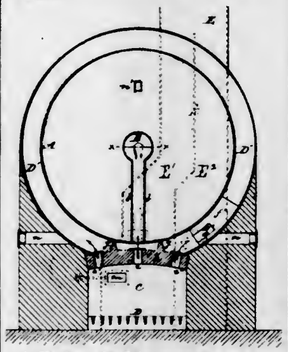
4. The combination of the following elements: the truck A, the boiler F, intermediate bearings D *f*, and adjustable brace-bars G, for determining the friction of the bearings, substantially as described.

197,941. REIN-HOLDERS. William S. Mann, New Gloucester, Me. Filed Aug. 10, 1877.



A combination of the hinged bar *a*, spring *d*, plates *f*, thumb-screw *i*, and clamp, composed of the parts *c* and *c*, arranged to form a rein-holder, and operating substantially as herein set forth.

197,942. RETORTS FOR MAKING GUNPOWDER-CHARCOAL. Moses Nichols, Newburg, N. Y. Filed July 26, 1877.



1. The inner flue B, in combination with the retort A, substantially as described.

2. The central flue B in the retort, in combination with the flue E' in the chimney, for operation as set forth.

3. The annular flue D', surrounding the retort, and divided as described, in combination with the flue E' in the chimney, substantially as shown and described.

4. The arrangement of the partition *f* in the annular flue D', to direct the greater portion of the gases of combustion toward the front upper side of the retort, as shown and described.

5. The combination, in a retort, of the inner and outer doors G H, substantially as and for the purposes set forth.

6. The air-flues *s*, in combination with the annular flue D', for the purpose specified.

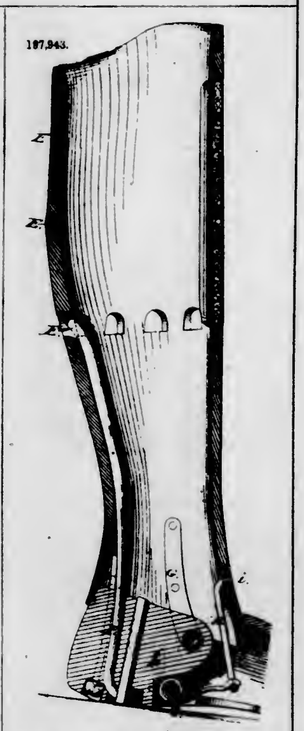
197,943. ARTIFICIAL LIMBS. Edwin Osborne, Philadelphia, Pa. Filed Oct. 22, 1877.

Brief.—A soft pad is inserted in an opening in the wooden socket just over the shins. Both an elastic and inelastic cord are connected directly with the pivoted heel.

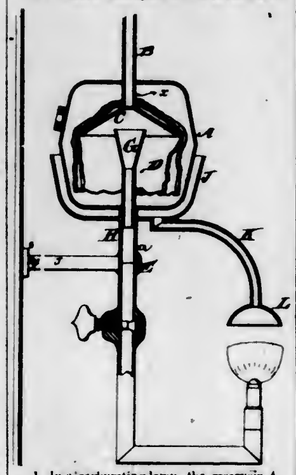
1. The pad I, inserted in a slot cut in the forward portion of the leg, substantially as and for the purposes herein set forth.

2. The combination, in an artificial leg, of the rigid cord E and the elastic cord F, both attached and operating directly upon the pivoted heel; as and for the purpose described.

197,943.



197,944. CARBURETING-LAMPS. Jason J. Palmer and F. G. Palmer, Philadelphia, Pa. Filed June 9, 1877.



1. In a carbureting-lamp, the reservoir A, in combination with the casing J, permanently suspended from a wall, and provided with the pipe H, to which the detachable pipe E is united by the ground-joint *a*, substantially as described, and for the purpose set forth.

2. In a carbureting-lamp, the air-distributing funnel C, provided with the absorbent D, in combination with the gas-collecting funnel G, the latter being arranged beneath and

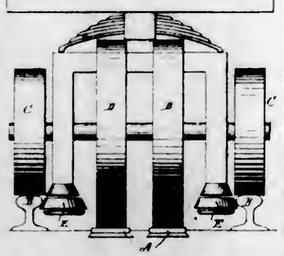
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within the former, and both within the reservoir A, substantially as described, and for the purpose set forth.

3. The combination of the fount A, air-pipe B, with side apertures *x*, inverted funnel C, and absorbent D, substantially as and for the purposes herein set forth.

4. In combination with the fount or reservoir A, the casing J, pipe K, and smoke-bell L, for the purposes set forth.

197,945. RAILWAYS AND LOCOMOTIVES. Gustav F. W. Rehle, Moscow, Russia. Filed Sept. 7, 1877.

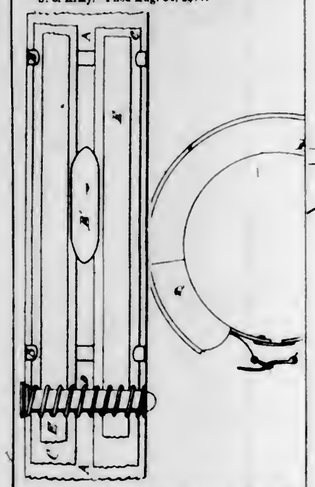


1. The driving-wheels D D and car-wheels C C, in combination with separate and main rails A A B B, substantially as described.

2. The driving-wheels and car-wheels, in combination with separate and main rails and guiding rollers, substantially as described.

3. The car-wheels, in combination with the guiding-rollers seated upon friction-rollers, and having guide-plates and inclined rolling-surfaces, and the main rails, substantially as described.

197,946. CARTRIDGE-BELTS. William W. Rogers, U. S. Army. Filed Aug. 31, 1877.

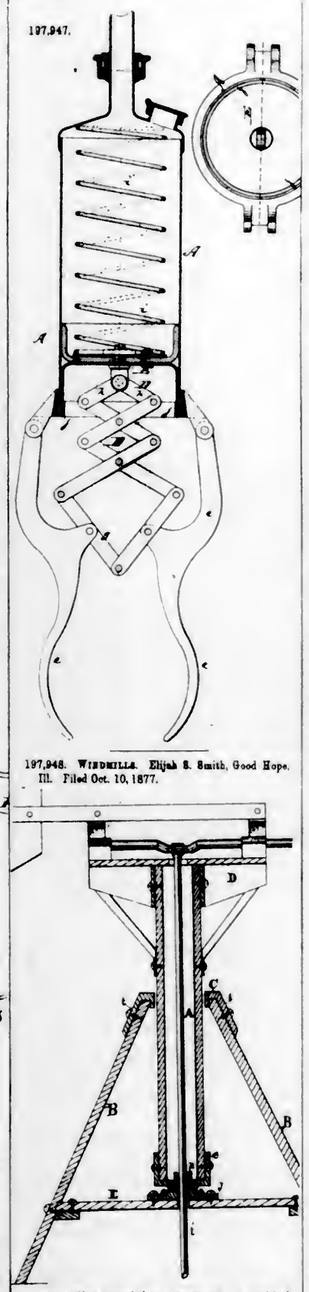


In combination with a belt, A, provided with the cover G and guides B B', the sliding carrier-belt composed of the metal strips or bands C, leather straps E, and cartridge-holders D, constructed and arranged substantially as set forth.

197,947. OIL-CANS. Friedrich Sebelling, Hamburg, Germany. Filed Sept. 24, 1877.

Brief.—The can may be filled by suction, as well as emptied by forcing.

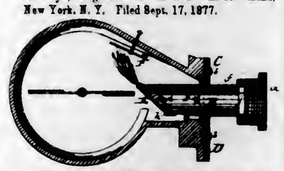
The can A, provided and combined with the shears or handles a, lazy-tongs D, plunger E, and spring *i*, all arranged to operate substantially as and for the purpose herein specified.



197,948. WINDMILLS. Elijah S. Smith, Good Hope, Ill. Filed Oct. 10, 1877.

The hollow revolving standard A, provided with the cross or T head D and plate *t*, in combination with the frame or derrick B B, provided with the cap C and plate J, substantially as shown, and for the purpose set forth.

197,949. ROTARY WATER-METERS. John H. Swarts, Brooklyn, assignor to himself and Wm. G. Wiman, New York, N. Y. Filed Sept. 17, 1877.



1. The inlet-pipe B, made to project into the meter-box proper, and extend within the inner periphery thereof, in line with the buckets of the wheel, substantially as and for the purpose shown and described.

2. The inlet-pipe B, placed adjustably into the mouth of the meter-box, and combined with regulating-plates C D, substantially as specified.

3. The inlet-pipe B, made with a triangular or tapering discharge-opening within the inner periphery of the meter-box, and in line with the buckets of the wheel, substantially as specified.

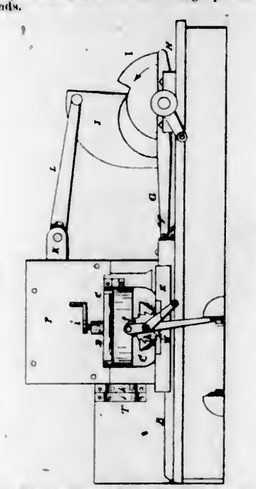
4. The tapering or triangular valve E, provided with the lips *g g* and combined with the inlet-pipe B, having the tapering openings, substantially as specified.

5. The pivoted inlet-pipe B, hung on trunnions or pins *d d*, having tapering discharge opening, and combined with a meter-box, substantially as herein shown and described.

6. A water-meter provided with the pivoted direction-plate F, which is combined with the adjusting-screw *k*, substantially as herein shown and described.

197,950. MACHINES FOR MAKING TOOTH-PICKS. W. F. Swathel, Cleveland, Ohio. Filed July 13, 1877.

Brief.—The bolt from which wooden tooth-picks are to be made is held during the operation in a laterally-moving and longitudinally-reciprocating head-block, arranged to remain stationary while the slitting-cutters are operating. The picks are slit by a series of rotary cutters mounted on a vertically-reciprocating slide attached to a cam-slide working between two counter-slides, and connected by a link to a pivoted arm operated by a cam upon the end of the crank-shaft. The card is cut from the bolt by a knife formed of two parts—one concave, the other convex—by means of which the picks are cut with two parallel and two elliptical or curved sides terminating in pointed ends.



1. The cam I, arm J, and link L, in combination with the slide-cam K, rollers *s*, and counter-slides K' K'', substantially as and for the purpose set forth.

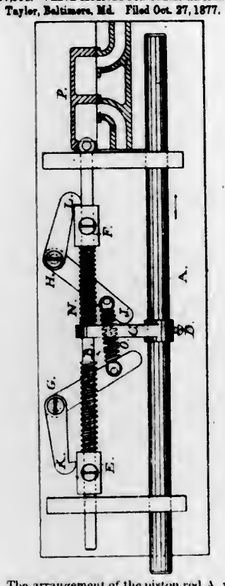
2. The clamp-head D, having a lateral and reciprocating movement, in combination with the rotary cutters N and cutters T, substantially as and for the purpose set forth.

3. Rollers *s*, cam-slide K, and counter-slide K', in combination with the counter-slide K'' and rotary cutters N, connected with the reciprocating slide M, substantially as and for the purpose specified.

4. The cutters T, consisting of the two pieces *f f*, constructed and arranged, in relation to each other and rotary cutters N, operating conjointly, substantially as described, and for the purpose set forth.

5. The spring Q, reciprocating slide M, and rotary cutters N, in combination with the head-block C, constructed and arranged to operate conjointly with the cutters T, substantially as and for the purpose set forth.

197,951. VALVE-MOTIONS FOR STEAM-ENGINES. H. Taylor, Baltimore, Md. Filed Oct. 27, 1877.



The arrangement of the piston-rod A, valve-rod B, arm C, latch-blocks E and F, rock-arms G and H, springs M and N, spring O, and valve P, said parts being constructed and operating substantially as herein shown and described, and for the purpose set forth.

197,952. SINK GAS-TRAPS. John A. Thompson, Chicago, Ill. Filed Oct. 20, 1877.



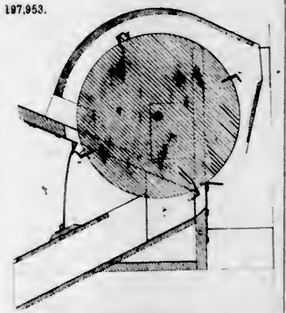
A sink gas-trap consisting of the disk D, provided with the bead F and packing G, the said bead and packing arranged, substantially as described, with relation to each other and the disk.

197,953. COTTON-SEED PLANTERS. Paul Trayser, Richmond, Ind., assignor of one-half his right to Wayne Agricultural Company, same place. Filed July 3, 1877.

1. The hopper A, constructed with the movable side pieces N N, operating in the manner herein set forth.

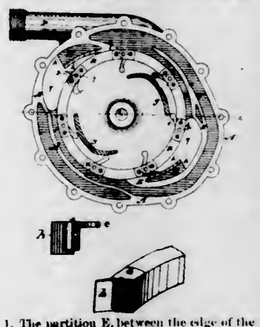
2. The wheel B, the cups *i i i i*, and cams *a a a a*, constructed and operating as herein described.

3. The combination and arrangement of the wheel B, cams *a a a a*, cups *i i i i*, curved arms M M, and side pieces N N, all arranged and operating in the manner and for the purpose as herein described.



197,954. WATER-MOTORS. Frederick W. Tuerk, Jr., Chicago, Ill. Filed Apr. 17, 1877.

Brief.—The water passes into the case under pressure through the chute, being controlled by a stop-cock. One bucket will always be within the passage nearest the inlet, and another within the corresponding part of the passage on the opposite side of the wheel, and each, moreover, open, owing to the flanges.



1. The partition E, between the edge of the case and the wheel, diverging about the opening *p*, and at its terminus approaching close to the rim of the wheel, substantially as and for the purposes described.

2. The passages F and F', constructed substantially as described, whereby the pressure of the water acts at the same time and in the same manner upon opposite sides of the wheel, as specified.

3. The passage F and that part of the passage F' corresponding to the same, each made larger at its beginning than farther on, the length of the narrower or shallower part being equal to the distance between two consecutive buckets, whereby the pressure of the water acts continuously upon each bucket in its turn until the said bucket reaches the opening *q*, substantially as specified.

4. In combination with the buckets *b*, working in recesses in the rim of the wheel, and held in place by pivots, which, on one side, pass through the said rim, and on the other through cap-plates, the said buckets being less in breadth than the rim of the wheel to the extent of the thickness of the said cap-plates, the ring flange *l*, constructed and arranged substantially as and for the purpose specified.

5. In combination with the buckets *b*, constructed and arranged substantially as described, the arms *c* projecting inward from the outer edges of the said buckets, and working in recesses formed in the side of the wheel-rim, for the purpose set forth.

6. The combination of the arms *c* and flanges *g*, for opening the buckets gradually as the wheel revolves, substantially as described.

7. The curved projections *k'*, arranged as described, to close the buckets *b* gradually at the proper time as the wheel revolves, as set forth.

8. The method herein described of reclosing the buckets, which consists in causing the water, after it has done its work in impelling a bucket forward, so to change its course as to strike against the back of the same bucket, substantially as specified.

9. The curved and wedge-shaped chambers H, perforated or slotted on their sides next the wheel, and placed, as described, relatively to the openings *p*, whereby the buckets are closed by the escaping water, as set forth.

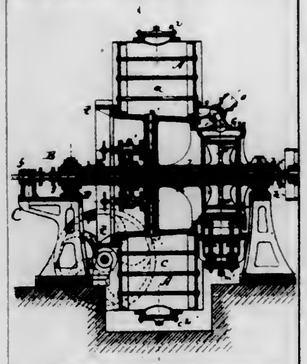
10. The combination of the chute P, case A, partition E, flanged projection *i*, and openings *p*, constructed as described, for the purpose set forth.

11. The combination of the buckets *b*, arms *c*, flanges *g*, flanges *k'*, wheel B, and shaft *s*, substantially as described.

12. The combination of the chute P, passages F and F', openings *p*, buckets *b*, arms *c*, flanges *g*, flanges *k'*, wheel B, and shaft *s*, substantially as described.

197,955. MIXING AND MARBLING MACHINES. W. Von Sydow, Barfelde, Prussia, Germany. Filed Sept. 13, 1877.

Brief.—The annular chamber A is divided by radial partitions into several chambers. By means of connections through the hollow shaft steam may be admitted into one or more of the chambers, as required.



1. The mashing apparatus, consisting of the annular drum A, having separate chambers *a b c d*, &c., said chambers communicating by pipes *a' c'*, &c., with the axle B of the drum A, and by pipes *a q c*, &c., with the mashing or masticating chamber G, substantially as and for the purpose herein shown and described.

2. The combination of the drum A with the masticating-drum G, masticating wheel T, and one or more segments, *k l m n*, all so arranged that the drum A may be made to communicate directly with the masticating apparatus, substantially as specified.

197,956. HOES. Jonathan Walker, Norton, Mich., assignor of one-half his right to Charles Culver. Filed Sept. 10, 1877.



1. A hoe having one serrated or toothed cutting edge, A', and the three other right-angled edges sharp and straight, substantially as and for the purposes described.

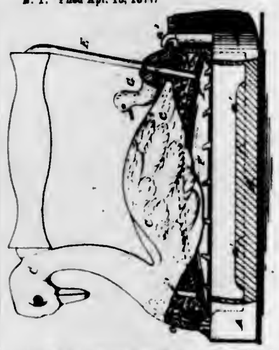
2. A hoe composed of plate A, having one serrated or toothed cutting-edge, A', and three right-angled straight cutting-edges, *a*, and a handle, C, connected to the plate A by the bent bifurcated prongs B, constructed in the manner and for the purpose described.

197,957. FASTENINGS FOR ATTACHING BUTTONS TO BOOTS AND SHOES. Albt. Wisner, Bridgeport, Conn. Filed Oct. 18, 1877.



A boot or shoe having its buttons secured by round pin-pointed staples passed through the material and clinched without a plate, the legs lying side by side, and each point turning upward by the opposite leg into the body of the material, substantially as described.

197,958. SAD-IRONS. Daniel A. Barnes, New York, N. Y. Filed Apr. 13, 1877.



1. The combination, with the parts A C, of the plate F, resting with its rear upon a lip of part C, secured by a screw in front, and locking at the end with a catch, a^3, as and for the purpose substantially as set forth.

2. The button G, pivoted to rod E, and engaging with the hook a^3, as and for the purpose specified.

197,959. BUTTONS AND BUTTON-FASTENINGS. C. E. Bates, West Cheshire, Conn. Filed Nov. 9, 1877.

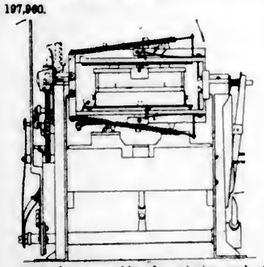


The combination of a button composed of two concave-convex disks, arranged relatively to each other as described, and with an internal flange on each, with a securing device adapted to pass through the garment and turned in between the said two disks, and secured by closing the said disks one upon the other, substantially as described.

197,960. FOUNDRY APPARATUS. J. P. Broadmeadow, Bridgeport, Conn., assignor of one-half his right to W. L. Ramsa, same place. Filed Aug. 1, 1877.

Brief.—By moving opposite lever downward compression of mold is effected; upward, the flask clamp is semi-revolved, reversed in the same semicircle by engaging one of two recesses of the lever with one of two knobs on a gear-wheel. At each semi-revolution of flask-clamp its upper cover is automatically unlatched, opened and held open, and the other piston returned from its compressed to its uncompressed position. A spring-mounted frame around and projecting above the follow board elevates half-flask enough to make room for enough uncompressed sand to just fill, when compressed, the half-flask. During compression this frame is pressed downward against its springs till it encompasses the follow board. This frame may or may not be used. Mold in one half-flask; reverse flask-clamp; reverse follow board, leaving pattern; put on and fill, and strike second half-flask. Either new cover with an entering follow-board, close clamp, and finish by compression, or heap the second half-flask with sand, strike off with a strike, leaving a bank of sand higher than the half-flask, and cover with a non-entering board, and then compress. Each piston may have a sprue-former to pass through the covering follow board.

197,960.



1. A clamp capable of revolution and of compressing and holding compressed articles inclosed between its jaws, and consisting of end plates, frames, pistons, hinges, latches, and mechanism, substantially such as described, for holding the pistons in place after one of them has been forced toward the other, the clamp being constructed and capable of acting substantially as specified.

2. A clamp, substantially such as specified, in combination with a cross-head, as described, whereby either piston of the clamp may be forced toward the other.

3. In combination with pistons in a frame, mechanism, substantially such as described, for holding the pistons in the position to which they have been forced by a cross-head, the combination being and acting substantially as described.

4. In combination with a clamp, substantially such as specified, a rod acting in the hollow shaft thereof, and capable of unlatching the latch then uppermost, the combination being and operating substantially as herein set forth.

5. In combination with the clamp and the rod which unlatches one of the latches thereof, the mechanism whereby said rod is operated by the rock-shaft, the combination being and operating as described.

6. In combination with a clamp, substantially such as specified, the lever and the interposed mechanism, whereby the movement of the lever partially revolves the clamp, the combination being and operating substantially as described.

7. In combination with the frames and latches, and the shafts on which the frames revolves, the springs for lifting the frame of the clamp then uppermost into a vertical position, or nearly so, the combination being and operating substantially as described.

8. In combination with the pistons and the mechanism for holding them in the position to which they have been forced, and the spring for lifting the frames, the stop which releases the dog-lever from the rack-plate when the springs elevate the frame, the combination being and acting substantially as described.

9. The lever, rock-shaft, and cross-head, in combination with the apparatus for unlatching the uppermost latch, and the mechanism whereby the clamp may be partially revolved, so that the same lever may be used for compressing the sand, unlatching the latches, and revolving the clamp, substantially as set forth.

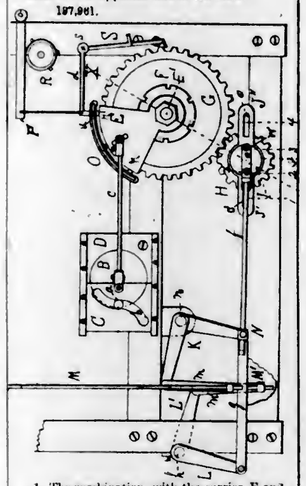
10. A follow-board with a compressible frame, constructed and capable of use substantially in the manner described.

11. In combination, a follow-board with a compressible frame and a half-flask, the two capable of holding the necessary quantity of sand before compression, and capable of use substantially as described.

197,961. SHUTTLE-BOX MECHANISMS. A. B. Capron, Stafford Springs, Conn., assignor of two-thirds his right to Julius Converse, same place, and Luther M. Capron, Worcester, Mass. Filed Aug. 2, 1876.

Brief.—Improvements upon the mechanism covered by Letters Patent No. 171,989, January 11, 1876. A sliding plate instead of a vibrating bar is operated by the crank. Bell-crank levers, provided with checks or pawls, are connected to the pattern-levers, and act to stop the gear-wheels when they are disconnected from the "carrier." Instead of the eccentrics, a crank plate provided with a link, and a sleeve provided with a slotted bar, are used to convert the rotary into rectilinear motion. The series of boxes is connected to a series on the opposite side of the loom.

197,961.



1. The combination, with the carrier E and plungers *p*, operated by pattern mechanism, plate-wheels F F', and oscillating gear-wheels G G', of a sliding plate, C, all constructed and operating as described, and for the purposes set forth.

2. The combination, with the oscillating gear-wheels G G', swinging arms *d d'*, and checks S S', of a suitable pattern mechanism, as described, and for the purposes set forth.

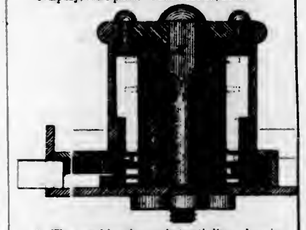
3. The combination, with the oscillating gear-wheels G G' and pinions H H', of a sleeve, J, and crank plate I, with link *e*, as described, and for the purposes set forth, all connected with a series of shuttle-boxes, substantially as described.

4. The combination, with the oscillating gear-wheels G G', pinions H H', sleeve J, crank-plate I, and link *e*, of a pattern mechanism, as described, and for the purposes set forth.

5. The combination, with a bell-crank lever, K, arms L and L', and shaft *b*, all arranged and connected with two series of shuttle-boxes, as described, of a tripping mechanism, N, and driving-rod *f*, connected with any suitable operating mechanism, in the manner described, and for the purposes set forth.

6. The combination, with one or more series of shuttle-boxes, of a tripping mechanism, N, driving-rod *f*, oscillating sleeve J, crank-plate I, with link *e*, pinions H H' gear-wheels G G', carrier E, plungers *p*, operated by a pattern mechanism, sliding plate C, swinging arms *d d'*, and checking-levers S S', substantially as described, and for the purpose set forth.

197,962. PERMUTATION-LOCKS. Henry Clarke, Baltimore, Md., assignor to the Clarke Combination Lock Company, same place. Filed June 28, 1877.



1. The combination, substantially as herein before set forth, in a keyless combination-lock, of the central shaft or spindle, a perforated face-plate, pins moving endwise through the face-plate, and independent adjustable endwise moving tumblers, corresponding with said pins, arranged around the spindle.

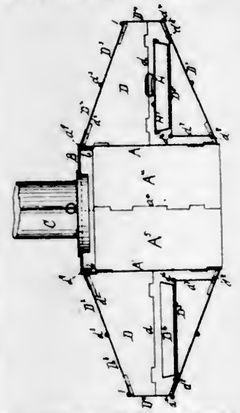
2. The combination, substantially as herein before set forth, of the turning locking-plate, the notched endwise-moving tumblers, provided with cams or inclines, and the holding-spring, whereby the tumblers are wedged by the plate against the spring, and thus firmly held to prevent their being tampered with.

3. The combination, substantially as herein before set forth, of the central shaft or spindle, the perforated face-plate disk, the pins working therethrough, the independent adjustable endwise-moving tumblers, corresponding with said pins, and the endwise-moving turning band, surrounding the disk and tumblers, and completely inclosing the latter.

4. The combination, substantially as herein before set forth, of the flanged base-plate and the turning locking-plate fitting therein, the two plates being held together by means of suitable washers or their equivalent, as described.

197,963. PORTABLE STOVE AND OVENS. Walter Clifford, Camp Baker, Mont., assignor to H. L. Clifford, Charlevoix, Mich. Filed June 25, 1877.

Brief.—The body of the stove, and also of the ovens, is permanently hinged in sections, so as to admit of being folded without separating the parts, for easy transportation.

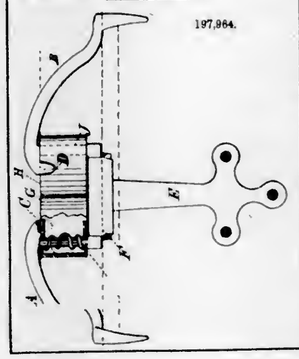


1. As a new article of manufacture, a portable stove, consisting of the sections A A^1 A^2 A^3 A^4 A^5, permanently hinged together, top B, collar B^1, and pipe C, the whole constructed and arranged substantially as described.

2. As a new article of manufacture, an oven, consisting of the sections D^1 D^2 D^3 D^4 and bottom, permanently hinged together, panel D^5, arm d^1, and pin d^2, the whole constructed and arranged substantially as described.

3. As a new article of manufacture, an oven, consisting of the sections E^1 E^2 E^3 E^4, permanently hinged together, and elbow-shaped rests e^1, the whole constructed and arranged substantially as described.

197,964.



197,965. LOCKS FOR DRAWERS. George H. Cowles, Bridgeport, Conn., assignor to N. G. Miller, same place. Filed Aug. 16, 1877.



1. In a flat-key lock, the rotating hollow cylinder C, slotted at its outer end, and having the flange *a* and slots *b b* at its inner end, substantially as described, and for the purpose specified.

2. In a flat-key lock, the bolt D, provided with wing *f* and slot *g*, the same being adapted for operation in connection with the prongs on the end of the key, substantially as described, and for the purpose specified.

197,966. WHEELS FOR DRESSING BOOT AND SHOE SOLES. Geo. Danforth and William Smith, Cochituate, Mass. Filed Nov. 9, 1877.

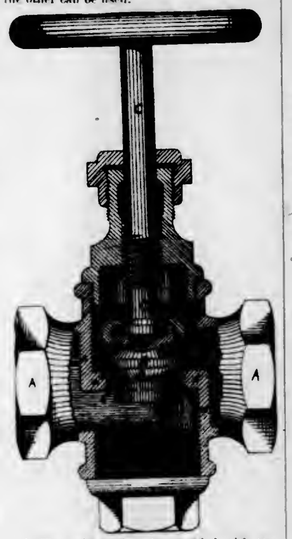
Brief.—The roller is provided with a hook for retaining the sand-paper or emery-cloth.



The combination of the revolving shaft *a*, wheel *a*, partially-revolving shaft *s*, located in the wheel, and provided with the hooks *r*, for catching in the ends of the cloth or paper, substantially as shown and described.

197,967. GLOBE-VALVES. Thomas Davis, St. Paul, Minn. Filed Oct. 30, 1877.

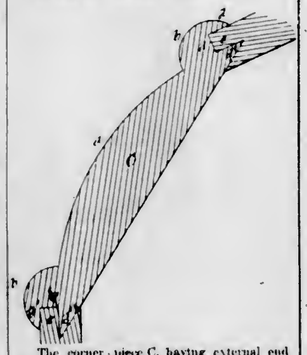
Brief.—The valve is double-sided, and has a double seat, so that when one side is worn the other can be used.



1. The valve-casing A, provided with the two openings D D', in combination with the double-seated valve-port *e e'*, arranged and operating substantially as hereinbefore described.

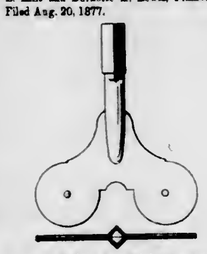
2. The valve B, having the two seats *d d'*, in combination with the casing A and division-walls *c a'*, provided with the double-seated valve-port *e e'*, arranged and operating substantially as hereinbefore specified.

197,968. COFFINS AND CASKETS. Lewis W. Drake, Hazleton, Pa. Filed Oct. 12, 1877.



The corner-piece C, having external end beads *b b* and rectangular end grooves *d d*, the latter being between angular tongues *d' d'*, as shown and described, for the purpose specified.

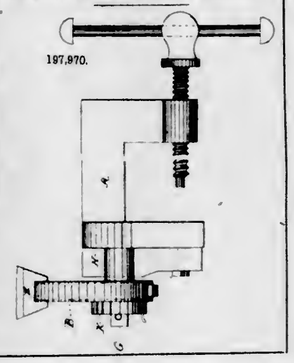
197,969. MANUFACTURE OF CLOCK-KEYS. Frederick L. Ellis and Burdette A. Lewis, Plainville, Conn. Filed Aug. 20, 1877.



1. A clock-key in which the barrel and handle portion consists of two halves of sheet metal, with a swaged groove in each half, extending up into and terminating in the solid metal of the handle, and the halves rigidly and permanently bound together by a closely-fitting collar, made stationary on the extreme lower end of the barrel, substantially as described, and for the purpose specified.

2. In a clock key, the rigid barrel, consisting of two halves of struck-up metal and the closely-fitting collar, made stationary on the extreme lower end of the barrel, substantially as described, and for the purpose specified.

197,970.



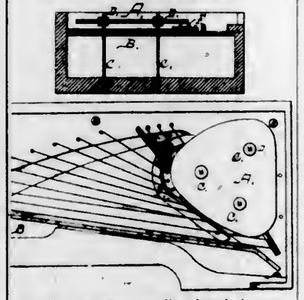
197,970. SHIP-CARPENTERS' CLAMPS. Benjamin F. Hardesty, Washington, La. Filed Mar. 6, 1877.

1. The clamp A, jaw H, cam B, having socket C and flange D, movable head E, ratchet K, and button M, combined and arranged as described and shown, and for the purpose specified.

2. The cam B, having socket-arm C, flange D, and set-screw O, in combination with the movable head E, pin G, and jaw H, as and for the purpose shown and described.

3. The cam B, movable head E, pin G, jaw H, ratchet K, and pawl L, in combination with the clamp A, as and for the purpose described and shown.

197,971. PIANO-FORTE SOUNDING-BOARDS. Silas P. Hinde, Newark, N. J. Filed Apr. 28, 1877.

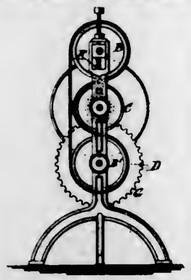


1. The auxiliary sounding board A, sustained by one or more centrally attached supports, C, only, in combination with the sounding-board B, substantially as and for the purpose specified.

2. In combination with the board B, the auxiliary board A, entirely detached from the sides of the piano, and made adjustable upon the supports C by means of the check-nuts D, substantially as and for the purpose set forth.

197,972. MACHINES FOR BENDING HOOPS. Edward Holmes and Britain Holmes, Buffalo, N. Y. Filed June 12, 1877.

Brief.—Wooden-hoop blanks of different thicknesses are bent by means of three rollers mounted in a vertical frame, the middle roller being smaller than the others, and an endless belt passing over the upper and lower rollers and in the rear of the middle roller. The upper roller is mounted in elastic bearings.



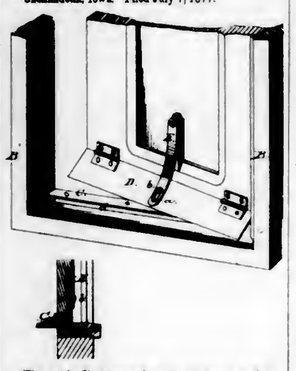
The combination of the rollers B C B' and endless belt D, one of the rollers being set in boxes D', and provided with springs E, or their equivalents, to produce the necessary strain upon the belt, and to allow different thicknesses of hoop material to pass through, substantially as described.

197,973. MEDICAL COMPOUNDS. David Manbeck, Des Moines, Iowa. Filed Sept. 18, 1877.

1. A medical compound for vaporizing or fumigating purposes, made of mullein and tar, in the manner described, and for the purposes set forth.

2. As a new article of manufacture, a cigar or cigarette of which the filling is mullein and vegetable tar, prepared in the manner and for the purposes set forth.

197,974. WEATHER-STRIPS. William C. Mathews, Shenandoah, Iowa. Filed July 7, 1877.



The strip D, tongued along its upper edge to fit into a corresponding groove in the door, in combination with the carpet-sill C, rectangular at its outer edge, and forming, with the door-sill F, a rabbet, and jamb B', forming, with outer edge of carpet-strip C, the groove *e*, as and for the purpose set forth.

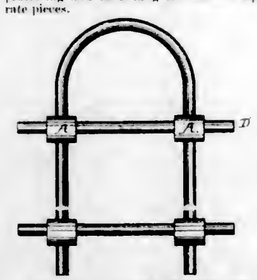
197,975. LOCKS FOR DRAWERS. Elihu L. Perkins, Bridgeport, Conn., assignor to N. G. Miller, same place. Filed Aug. 18, 1877.



In a flat key lock, the cylinder A, having flange *a* at its outer end, and secured to the lock-plate, in combination with the hollow rotating cylinder secured within the main cylinder, and having a portion of the outer end projecting over the inside bore of said cylinder, in which end portion is a narrow key-slot, the length of which is the same as the inside diameter of the hollow rotating cylinder, substantially as described, and for the purpose specified.

197,976. METALLIC FENCES. Chas. J. Ealing, Pittsburg, Pa. Filed Dec. 8, 1876.

Brief.—The pickets pass between parallel rods above and below, being held in transverse supports, which at their ends embrace these rods, and hold plates fitting into the spaces otherwise formed, and cover the ends, protecting and concealing the internal separate pieces.

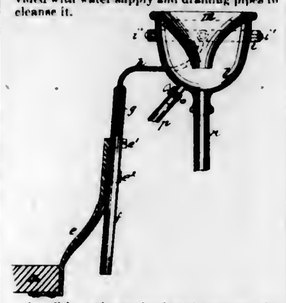


1. The herein described fastening device, consisting of the piece A, provided with suitable openings for the rods, and with side and end wings *a b*, all constructed and adapted to connect together the cross rails and pickets of a fence, substantially as specified.

2. The combination of the metallic piece c, constructed with wings *d*, opening *x*, and adapted to fit within the fastener A, in combination with the said fastening device, constructed as specified, and with the cross-rails and pickets D D, substantially as specified.

197,977. DENTAL SPITTOONS. William M. Reynolds, New York, N. Y. Filed Mar. 30, 1877.

Brief.—A spittoon suspended in gimbals is adjustably connected with a dental chair by a rod sliding in a clamping-bracket attached to the chair, whereby a universal adjustment of the spittoon is obtained. It is also provided with water-supply and draining pipes to cleanse it.



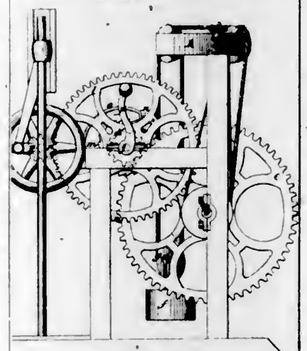
1. With a spittoon for dental purposes, the combination of the gimbal *h i*, substantially as hereinbefore set forth.

2. The combination of the spittoon *l m* and flexible discharge-pipe *s*, substantially as and for the purposes hereinbefore set forth.

3. In combination, the spittoon *l m*, gimbal *h i*, rod *g*, hollow shaft *f*, and bracket *e*, all constructed and operating substantially as hereinbefore set forth.

4. The adjustable spittoon *l m*, in combination with the cock *o* and pipe *s*, as and for the purposes hereinbefore set forth.

197,978. CHURN-POWERS. Chas. M. Riddle, Venango County, Pa., assignor of one-half his right to I. R. Riddle. Filed July 27, 1876.



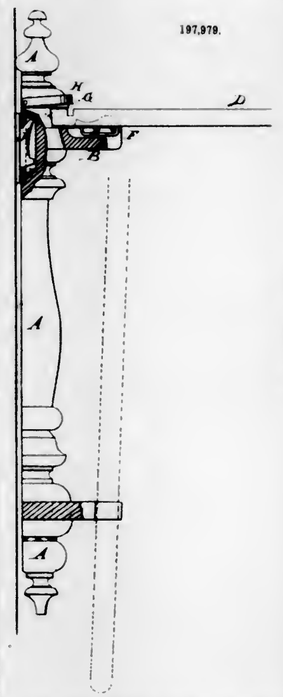
1. In a mechanism for operating churn-plungers, the herein-described arrangement of a loosely-mounted gear wheel, *l*, operating the fly wheel and plunger, and provided with a spring-pawl, *n*, the ratchet with which said pawl engages, and the gear-wheel *k*, for transmitting motion to and from the drum *d* and wheel *c*, being also mounted upon the same shaft, the said parts being all constructed as herein shown and described, and alternately operated by the crank-handle and by the weight *f*, substantially as specified.

2. In a mechanism for operating churn-plungers, the arm *x*, formed with a taper and screw thread, as described, and adapted, by means of its split, to embrace the plunger when the nut *x'* is tightened up, the said arm being arranged to work within the vertical way *c*, and connected with the fly-wheel by a crank-rod, substantially as set forth.

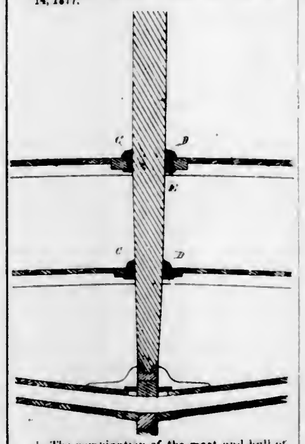
197,979. PORTABLE CLOTHES-RACKS. Gotlieb F. Rockwardt, Little Falls, N. J. Filed Mar. 12, 1877.

The combination of the pivoted scud-ring band B with the shoulder G of the standard A, and with the notched ends of the bars D, substantially as herein shown and described.

197,979.



197,980. DECK-SUPPORTS FOR SHIPS' MASTS. Elisha Robbins, Cotuit, assignor to E. F. Robbins, Reading, and Nathaniel T. Gorham, Boston, Mass. Filed Aug. 14, 1877.

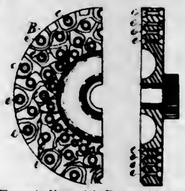


1. The combination of the mast and hull of a vessel with an inelastic step for the foot of the mast, and with an elastic collar encompassing the mast and supporting it where in each deck over such step.

2. The combination of the cap ring D with the wedge-shaped elastic collar C and the deck and mast, all as set forth.

3. The combination of the lower annulus with the deck and mast, the elastic collar, and the cap-ring, all being arranged and applied substantially as explained.

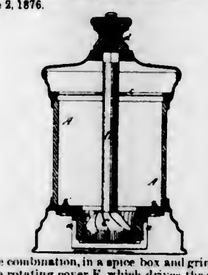
197,981. CRUSHING AND GRINDING MILLS. Thomas Roberts and Thos. Cadugan, Springfield, Ohio; said Cadugan assignor to said Roberts. Filed Feb. 26, 1877.



1. The grinding-disk B, provided with a series of circular holes, *e*, extending through the same, countersunk, and the intermediate spaces between them formed with fissures, as and for the purpose hereinbefore specified.

2. In a grinding-mill having a spiral crushing-cylinder, as shown and described, the disk B, with its holes *e*, mounted upon the same shaft, and operated in combination therewith, substantially as set forth.

197,982. COMBINED SPICE BOX AND GRINDER. Oscar Seifert and Julius W. Manger, Newark, N. J. Filed June 2, 1876.



The combination, in a spice box and grinder, of the rotating cover E, which drives the stem D, having the cone C, and the box body A, having the fixed grinding-shell B, as and for the purpose substantially as described.

197,983. CARRIAGE FOOT-RESTS. Moses Seward, New Haven, Conn. Filed Dec. 20, 1876.



As an article of manufacture, the herein-described carriage-rest, consisting of a bar with suitable supports, and constructed with raised serrated portions on the surface, forged in one and the same piece with the bar, substantially as described.

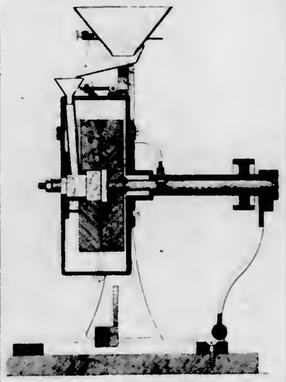
197,984. HOLDERS FOR SCREW-CUTTING DIES. F. P. Sheldon, Providence, R. I. Filed June 17, 1876.

Brief.—The die is made conical, and fits a corresponding opening in a screw-cap working on a threaded spindle. A feather or pin on the end of the spindle prevents the die from turning in the cap.



The combination of a die block, a holding-socket, and a spindle, substantially as described, with a tongue and groove connection, *d*, between the spindle and the die block, as specified.

197,985. GRINDING-MILLS. Aubert H. Wagner, Chicago, Ill., assignor to Anna G. Wagner, same place. Filed Sept. 27, 1877.



1. The combination, substantially as herein before set forth, in a convertible grinding-mill, of the frame, the casing surrounding the stones journaled therein, the long pipe-box bearing rigidly secured to the casing and provided at its outer end with a recessed portion for the reception of a driving-pulley, the spindle mounted in said bearing and driven by the pulley, and the running stone rigidly fixed upon the inner end of the spindle, whereby the stone runs steadily and preserves its proper relative position in the casing, whether the driving-shaft is secured in a vertical or horizontal position in the frame.

2. A cast-metal main frame for convertible grinding-mills, constructed substantially as described, provided with a hinged arm or prop adapted to support the driving-shaft of the mill in a horizontal position.

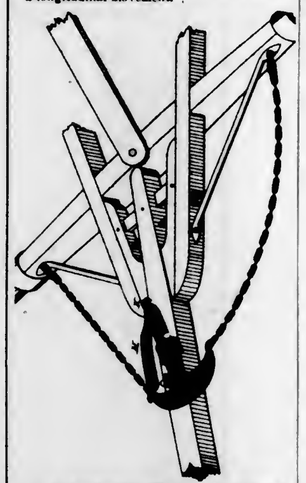
3. The combination, substantially as herein-before set forth, of the main frame provided with the cross-piece A^1 and arm or prop A^2, the casing in which the stones are mounted journaled in said frame, and the driving-shaft, whereby the casing may be rocked upon its journals to convert the mill from a horizontal to a vertical one, or vice versa, and the shaft be securely held in either position.

4. The combination, substantially as herein-before set forth, of the casing, hung upon trunnions and provided with two feed-openings, with a detachable feeding apparatus adapted to be secured to the casing to feed the mill from either opening.

5. The combination, substantially as herein before set forth, of the casing, the bed-stone pivoted in adjustable eyebolts working therethrough, the turning cam-plate mounted in the casing and acting upon the bolts, the springs or washers encircling the bolts outside the casing, and the rod for operating the turning-plate to adjust the stone, whereby the stone may be adjusted toward or from the running stone, and is free to yield to conform thereto.

197,986. DRAFT ATTACHMENTS FOR WAGONS. C. F. Whipple and E. E. Whipple, Chicago, Ill. Filed May 8, 1877.

Brief.—A draw-plate having an axial and a longitudinal movement.



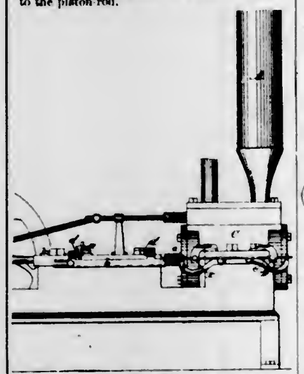
1. In combination with the draw-plate and connecting-chains of a draft attachment, the bolt E, with its slotted head B, adapted to receive the shank of the draw-plate, and to allow it both a longitudinal and an axial movement upon the tongue, substantially as described, and for the purposes set forth.

2. In a draw-plate of a draft attachment, the strap-hook K, solid with the draw-plate, fitted to the eye of the hammer-strap, substantially as described.

3. In combination with a draw-plate, A, having a solid strap-hook, K, evener-bolt D, and hammer-strap H, the bushing *b*, substantially as and for the purpose described.

197,987. WATER-ENGINES. Henry W. Woodbury and William Wood, Keene, N. H. Filed June 16, 1877.

Brief.—The exhaust-valves are in the ends of the cylinder, and are operated by cams attached to a rod operated by an arm connected to the piston-rod.



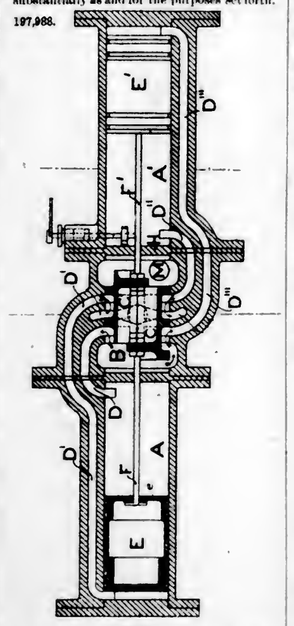
1. The cylinder C for a water-engine, having direct exhausts in both heads of the same, together with the valves V, combined and arranged substantially as set forth.

2. The bar *b*, constructed with the cams *c c*, passing through the slots of the valve-rods *r r*, substantially as described.

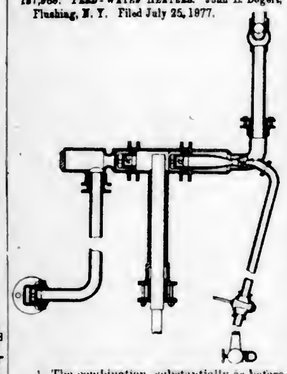
197,988. PISTON WATER-METERS. Alvah O. Austin, Oakland, assignor to Anthony Chabot, Alameda County, Cal. Filed Sept. 26, 1877.

The hollow pistons E E′, working in the cylinders A A′, when, by means of the rods F F′, they operate the valves C C within the chamber B, for the purpose of controlling the supply to and escape of the water from the cylinders through the passages D D′ D″ D‴, substantially as and for the purposes set forth.

197,988.



197,989. FEED-WATER HEATERS. John L. Bogert, Flushing, N. Y. Filed July 25, 1877.



1. The combination, substantially as before set forth, of the feed-pump, the pipe thereof, and the injector-nozzle, arranged to discharge a jet of steam into said pump-pipe, to both heat the water and urge it onward.

2. The combination, substantially as before set forth, of the feed-pump, the pump-pipe, the injector-nozzle arranged in said pipe so as to admit steam which both heats the water passed through the pump and urges it onward, and the condensing-tube, also arranged in the said pipe.

3. The combination, substantially as before set forth, of the feed-pump, the pump-pipe, the injector-nozzle, the condensing-tube, and the receiving-tube, the last three being arranged in the said pump-pipe so that the steam admitted therein by the injector-nozzle both heats the water which is passed through the pump and urges it onward.

4. The combination, substantially as before set forth, of the feed-pump, the injector-nozzle arranged in the pump-pipe to admit steam which both heats the water passed through the pump and urges it onward, the exhaust-steam passage from the steam-cylinder, and the pipe connecting the said injector-nozzle and said passage.

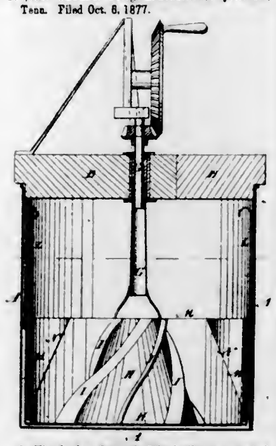
5. The combination, substantially as before set forth, of the feed-pump, the injector-nozzle, the exhaust-steam passage from the steam-cylinder, the pipe connecting the said nozzle and passage, and the check-valve for said pipe.

6. The combination, substantially as before set forth, of the feed-pump, the injector-nozzle, the exhaust-passage from the steam-cylinder, the pipe connecting the said nozzle and passage, and the abstracting mouth facing the direction in which the steam passes through the said passage.

7. The combination, substantially as before set forth, of the feed-pump, the injector-nozzle, the exhaust-passage from the steam-cylinder, the pipe connecting said injector-nozzle and said passage, and the cock for regulating the supply of exhaust steam to said nozzle.

8. The combination, substantially as before set forth, of the feed-pump, the injector-nozzle, the suction-pipe of the pump, and the suction check-valve located between the injector-nozzle and the tank.

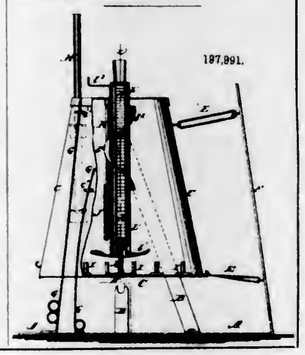
197,990. CHURNS. George H. Bradshaw, Fayetteville, Tenn. Filed Oct. 6, 1877.



1. The dasher formed of the hollow truncated cone H, provided with the flanges I, and connected with the shaft G by two or more straps or rods, substantially as herein shown and described.

2. The combination of the ring M, provided with the flanges N, with the churn-body A and the dasher H I, substantially as herein shown and described.

197,991.



197,991. CHURNS. Elias Brough, Greenville, Mich. Filed June 25, 1877.

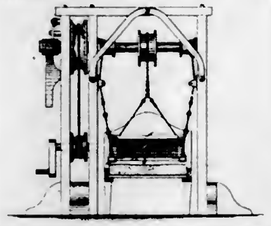
1. The standard F and springs G combined and connected with a swinging churn, as and for the purpose described.

2. The combination of the open tube I_2 provided with the loose flange I_3, the spiral flange I', and the crank P, with the churn-body C, substantially as herein shown and described.

3. The combination of the tube N with the open tube L and the churn-body C, substantially as herein shown and described.

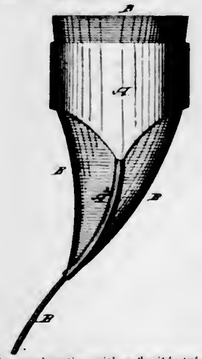
197,992. INVALID-BED ATTACHMENTS. Burlington D. Brown, Shamrock, Mo. Filed Aug. 18, 1877.

Brief.—A portable apparatus to straddle a bedstead has a horizontal shaft with three rollers thereon, the outer ones which receive the cords from the corners of the bed-bottom being of a smaller diameter than the central roller, which receives a cord from a hinged section, whereby, when the shaft is rotated, the bed-bottom will be raised from the bedstead, and the occupant caused to assume a sitting position.



The combination of the stretched main canvas and hinged shorter canvas, both having suspension-cords, with the cords and winding-rollers of the hoisting apparatus, of which the rollers of the main canvas are smaller than the roller or rollers of the shorter canvas, to produce the joint working of the canvases for lifting and bringing of the patient into sitting posture, substantially as and for the purpose described.

197,993. STENCH-TRAPS. Stephen Buhrer, Cleveland, Ohio. Filed Nov. 17, 1877.



1. The combination with a flexible tubular valve of a holder or retainer upon one or both of its edges, substantially as and for the purpose specified.

2. The frame A A′, in combination with a tubular flexible valve, substantially as and for the purpose shown.

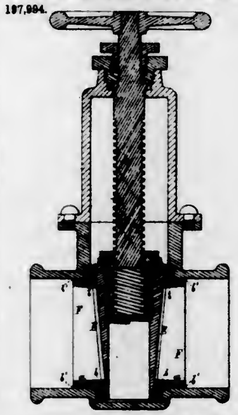
3. The frame A and retainer A′, so arranged in relation to each other that when the part A rests upon a horizontal plane the part A′ shall be at an incline from the perpendicular, substantially as and for the purpose shown.

4. The tubular flexible valve B, made to extend above and beyond the ring of the frame A, and form a fold or flange for the purpose of a gasket or packing, substantially as and for the purpose shown.

197,994. STOP-COCKS. Marshall Burnett, Hyde Park, Mass. Filed Nov. 20, 1877.

Brief.—A vertical gate double-seated, each duct having a shallow cylinder dipping into the respective ducts, and bearing internally the face against which the valve slides, said face, of hard metal, being dovetailed into soft-metal packing expanded around it by force.

197,994.

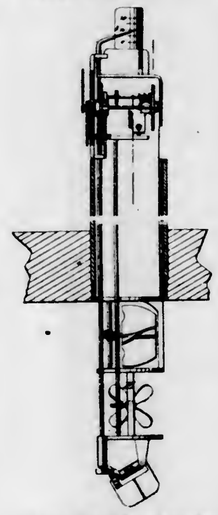


1. The combination of the metallic valve-seat facing E and its tubular holder F, substantially as described, with the stop-cock case, valve, and educt, all being arranged as set forth.

2. The holder F, provided with the dovetailed annular groove *b*, in combination with the ring or facing E, having the convexity *c*, the dovetailed tongue *e*, and the concavity *d* thereto, all as set forth.

3. The facing having the dovetailed tongue, the concavity *d* and convexity *c*, arranged with it, as described, and for fixation of such facing to its holder, as set forth.

197,995. SHIPS' LOGS. David Carroll, Spring Creek, Pa. Filed Sept. 14, 1877.



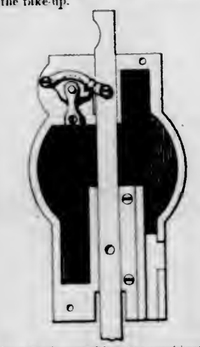
1. A nautical log constructed of water-wheels or screws extending below the bottom of the vessel, and being placed at right angles to each other, and of suitable transmitting and registering devices inside of the vessel, for indicating the forward and drift motions of the vessel, substantially in the manner described, and for the purpose specified.

2. The nautical log constructed of water-wheels or screws arranged below the bottom of the vessel, one in the direction of the axis of the vessel, the other at right angles thereto, and of a speed-indicator arranged for forward and drift motion below the screws, in connection with suitable registering apparatuses and graduated scale, substantially as specified.

3. The combination of the longitudinally and laterally swinging and spring-acted speed-indicator, formed of four rectangular blades, with the segment and forked gear of a vertical transmitting shaft having pointer at end, and with an arc-shaped graduating-plate having a vertical and lateral scale, substantially as and for the purpose specified.

197,996. TAKE-UP MECHANISMS FOR SEWING-MACHINES. James F. Chamberlain, Hamilton, Ontario, Canada, assignor to Richard M. Wanser, same place. Filed Oct. 23, 1877.

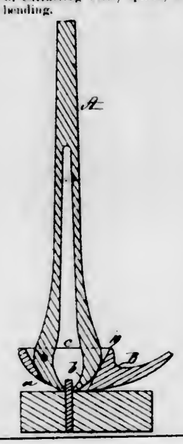
Brief.—The take-up lever is operated by a link connecting it to the needle-bar. Upon said bar is a lug engaging a corresponding projection on the lever, by which, as the needle-bar descends, the initial movement is given to the take-up.



In a sewing machine, the combination, with the lever which actuates the take-up lever, the needle-bar, and the connecting-link, of a stud or projection on the needle-bar, adapted to operate in conjunction with the free end of the take-up actuating lever, whereby the initial movement to the take-up is effected, substantially as set forth.

197,997. SPIKE-EXTRACTORS. John C. Chapman, Boston, Mass. Filed Nov. 1, 1877.

Brief.—A bifurcated lever is provided with two spring-jaws, fitting in a slotted foot-piece, one of said jaws being pivoted to the foot-piece, and the other left free to spring out against the inclined end of the slot, for the purpose of extracting bolts, spikes, or nails without bending.



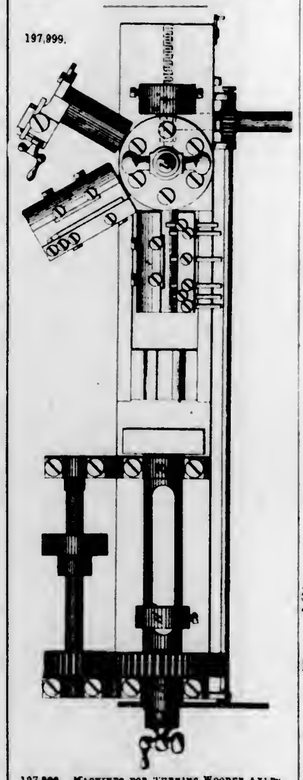
The bifurcated bar or lever A, provided with two spring gripingjaws, *a b*, in combination with the slotted foot piece B, one of the jaws being pivoted thereto, and the other being free to spring out and bear against the inclined end of the slot e therein, all constructed to operate substantially in the manner and for the purpose set forth.

197,898. REGULATORS FOR GAS-BURNERS. John Cooper, Boston, Mass. Filed Nov. 18, 1877.



In combination with the base or cup of a gas burner, provided with one or more holes, e, through which the gas flows, the check *d*, arranged to be rotated as described, all substantially as and for the purpose herein set forth.

197,899.



197,899. MACHINES FOR TURNING WOODEN AXLES. Thomas Coulter and Hector McKenzie, Bridgeport, Conn. Filed Nov. 22, 1877.

Brief.—The axle blank is held in a hollow open mandrel, having a self-adjusting chuck at its forward end, and an adjustable center at its rear, while the axle arm and collar are being formed by suitable tools arranged in a revolving head mounted in a reciprocating slide, a guide for steadying each tool as it is presented to the axle, and feed mechanism whereby the tool-carrying slide can be fed to the axle-blank mandrel, and automatically stopped at any predetermined point in its forward movement.

1. In a machine for turning axles, the hollow open mandrel to receive the body of the axle, combined with a centering device for adjusting the axle-arm to its proper relative position to the tools, and substantially as described.

2. In a machine for turning axles, the combination of the mandrel for receiving the body of the axle, and tools for working the surface of the said axle, the chuck consisting of the self-adjusting jaws, arranged in slides, and means for forcing the said jaws to grasp the axle, substantially as described.

3. The combination, in an axle-turning machine, of the hollow mandrel, with a self-adjusting chuck at its forward end and an adjustable center at its rear, substantially as described.

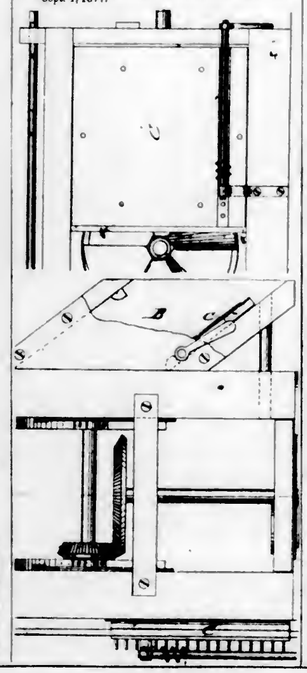
4. The combination, in an axle-turning machine, of the hollow mandrel with a self-adjusting chuck at its forward end, an adjustable center at its rear, and adjustable collar H on said mandrel, substantially as described.

5. The combination of an axle-holding mandrel and two or more tools arranged so that either may be presented to the axle, with a stationary guide between the said holding device and the said tools, with which the working tool will engage, substantially as described.

6. In a machine for turning axles, having a mandrel for holding the axle, and a tool holder for carrying two or more tools for turning the axle arm, the combination therewith of the tools, consisting of the barrel 3, back-rest 5, and adjustable tool-stock 6, substantially as and for the purpose described.

7. The combination, with a mandrel for holding the axle-tools, arranged on a slide working toward and from said axle, in line parallel thereto, a feed substantially such as described, combined with a clutch, lever, and stop, whereby the said slide will be arrested at any predetermined point in its forward movement, substantially as described.

198,000. PROPELLING AND DRY-DOCK ATTACHMENTS FOR VESSELS. James Curtis, Middletown, Mo., assignor to himself and Isaiah Null, same place. Filed Sept. 1, 1877.



1. The combination, with water inlets and outlets, of the balanced propelling-wheels, arranged in the planes of the sides of the vessels, or within or back of said planes, as and for the purpose described.

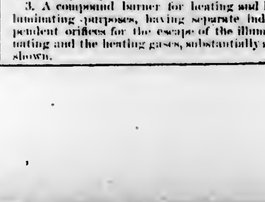
2. The trunks or tanks B, oblique, depressible, and provided with hinged water-tight covers, in combination with the balanced propelling wheels of a vessel, as and for the purpose set forth.

3. In a vessel having balanced propelling wheels and tanks, substantially as shown and described, the sliding side gates C, provided with scrapers *a* at the front edge, as and for the purpose specified.

4. The combination of the chamber or dry-dock attachment, formed by the tightly-closing gates of the water inlet and discharge openings or trunks around the propellers, with air-inlet, water inlet, and pumping pipes, substantially as and for the purpose described.

198,001. ANTI-FRICTION JOURNAL-BOXES. Elijah G. Davey, Batavia, Ill. Filed June 9, 1877.

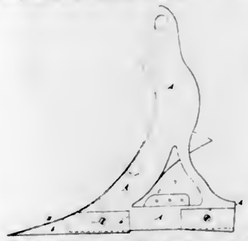
Brief.—The angular faces on the collars keyed to the journal incline toward each other, and parallel with planes of the inclined faces of the rim within the casing-box, having between them anti-friction wheels held by a ring, to prevent a longitudinal movement of the journal.



The combination, with the rim E_2 having the inclined faces *d d*, and collars F F, provided with the angular faces *c c*, of the ring G, and series of anti-friction wheels *f f*, substantially as and for the purpose specified.

198,002. PLOWS. William W. Dawson, Madisonville, Tex. Filed Sept. 1, 1877.

Brief.—The land side of the point and the heel-piece are made thicker and deeper than the land side itself, to project outward and downward and receive the wear.



The point B, made with a land side, *b'*, fitting into a rabbet in the land-side of the standard A, and made thicker and deeper than said rabbet, so as to project beyond and below said land-side to receive the wear, substantially as herein shown and described.

198,003. GAS-BURNERS. Thomas B. Dexter, Lynn, Mass. Filed Oct. 23, 1877.

1. The combination, in one device, substantially as shown and described, of an illuminating gas-burner and an aero-gas burner, either or both of which may be adjusted for action at will.

2. A compound burner for both illuminating and heating purposes, consisting of a central burner for illuminating gas, and an external burner for illuminating gas mingled with atmospheric air, the two combined substantially as shown, so that either or both flames may be produced at will.

3. A compound burner for heating and illuminating purposes, having separate independent orifices for the escape of the illuminating and the heating gases, substantially as shown.

4. A compound burner constructed substantially as shown, whereby it is adapted for burning alternately two different kinds of gas, the one illuminating gas, and the other a mixture of the same with atmospheric air, each through its own form of flame-orifice, said burner having its orifices arranged in such relation to each other that the flame from either shall ignite gas issuing from the other.

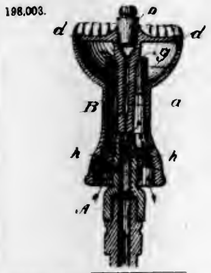
5. The combination of an outside adjustable shell or heating-burner having a central illuminating burner therein, with a central pillar, A, substantially as shown and described.

6. The combination of the pillar A, containing the perforated diaphragm, with the adjustable outside shell B, provided with air-inlets *h*, gas-outlets *d*, the central tubular stem *a*, and tip *b*, substantially as shown.

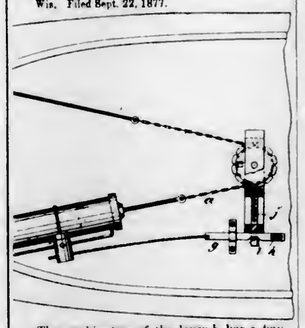
7. A compound burner for heating and illuminating purposes, having a tip or orifice adapted to produce an illuminating flame, and a separate orifice or orifices to produce a heating-flame, with means for controlling the admission of gas to the respective orifices separately, substantially as shown.

8. The burner having the concave top, the grooved edge or periphery, and the orifices opening in said groove, as shown, whereby the flame is given an inward tendency above the burner.

198,003.

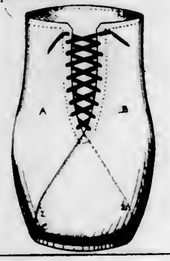


198,004. STEERING APPARATUS. J. P. Dorr, Oconto, Wis. Filed Sept. 22, 1877.



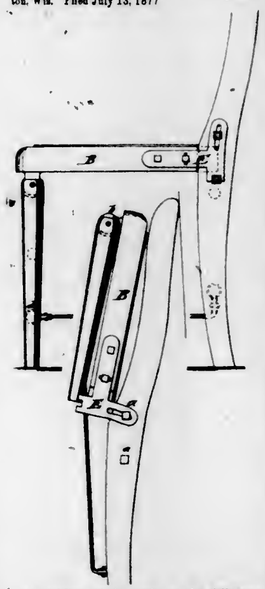
The combination of the lever *h*, bar *g*, having the cam-notch *l*, the spring-bolt *j*, and sheave *e*, substantially as shown and described.

198,005. SHOES. Thomas Dowling, New Orleans, La. Filed Sept. 13, 1877.



A shoe-upper composed of sections A and B, made in single pieces, each provided with extensions *c* and *d*, as described, and for the purpose specified.

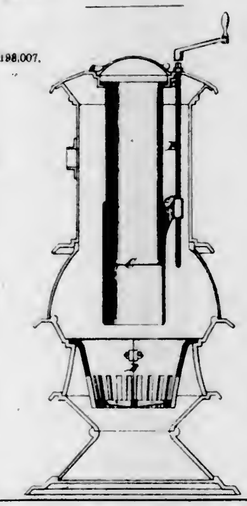
198,006. FOLDING CHAIRS. Xenophon Earle, Appleton, Wis. Filed July 13, 1877



1. A folding chair made of the following connected pieces: a back, a swinging seat with locking side pieces, hinged front legs, and rounds connecting center bar or side bars, substantially as and for the purpose set forth.

2. The combination of the back, having fixed side bolts *a*, with the seat B, having pivoted and guided side pieces E, that either lock by slotted and recessed parts the seat and back together, or admit the folding of the seat on releasing the slide-pieces from the lock-bolts of the back, substantially as described.

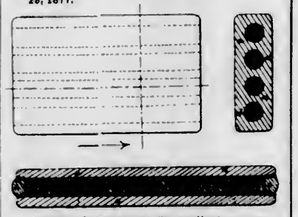
198,007.



198,007. HEATING-STOVES. David B. Eberly, Pine Village, Ind., assignor to himself and T. J. Farden, same place. Filed May 17, 1877.

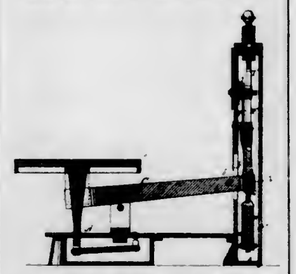
The combination, substantially as specified, of the stationary grate-basket, the stationary upper section of the magazine or feed-chamber, and the lower section thereof, adjustable up and down by means of a hand-screw, for regulating the amount of fuel exposed to combustion above the top of the grate-basket.

198,008. MAGNETIC BATTERIES FOR CURATIVE PURPOSES. Guillaume Edard, Paris, France. Filed June 29, 1877.



A magnetic apparatus for medical purposes, consisting of a perforated or hollow body, containing one or more tubes filled with magnetic iron ore dust, in which is embedded a magnet whose opposite poles terminate at the ends of the tube or tubes, all arranged substantially as specified.

198,009. SPRING-SCALES FOR WEIGHING. Rudolph Ehmer, New York, N. Y. Filed Nov. 15, 1877.



1. The scale-lever C, constructed with the box-shaped back end, and with the central slot *g* between the two boxes *s*, formed at its sides, substantially as herein shown and described.

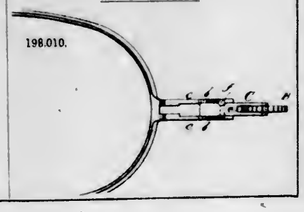
2. The combination of the lever C, having the box-shaped back end, with the upright rod G, having projecting pivots *k*, that are supported in said boxes, substantially as specified.

3. The combination of the lever C with the upright rod G, spring H, and rack M, the spring H being directly attached to the lower end of the upright rod G, which rod rests in or on the lever C, substantially as specified.

4. The combination of the lever C, rod G, and rack M with the spring *l*, which rests in the socket *w* on the rod G, and with the spring H, which connects directly with the lower end of the rod G, substantially as herein shown and described.

5. The combination of the yoke I with the spring H, that is directly attached to the yoke, lever C, rod G, having pins *k* that rest on the lever C, and with the inclosing box F, the yoke being constructed to straddle the parts H and G, substantially as specified.

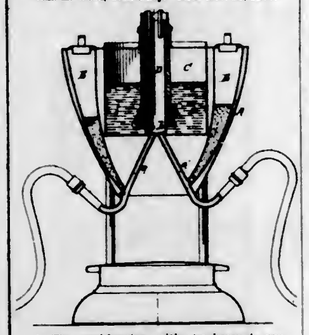
198,010.



198,010. HEEL-SPURS. George W. Elliott, Boonsborough, Md. Filed Oct. 9, 1877.

That heel spur, in combination with the spring-jawa *b b*, formed with curved edges *c c* and tenon *f*, the pivoted shank C, bearing a rowel, B, and grooved to receive the said tenon, substantially in the manner and for the purposes explained.

198,011. SIGNAL-LANTERNS. Robley D. Evans and Wm. M. Wood, U. S. Navy. Filed Nov. 15, 1877.

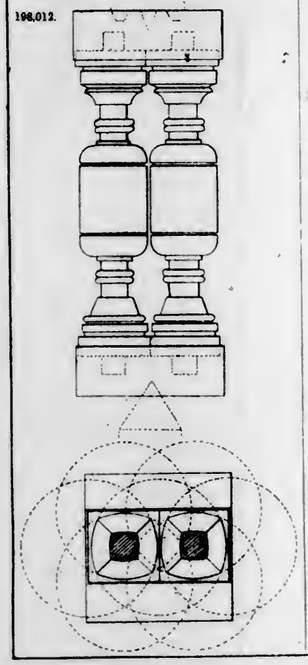


1. The combination, with the lamp A, provided with an oil or alcohol chamber and wick-tube, of the chambers E and tubes *e*, communicating directly with the wick-tube, substantially as and for the purpose specified.

2. The combination, with the lamp A, provided with an oil or alcohol chamber and wick-tube, of the chambers E, tubes *e*, and mechanism, substantially as described, for forcing air through said tubes, substantially as and for the purpose specified.

3. The combination, with the tubes *e* and wick-tube, of the valves *b*, substantially as and for the purpose herein shown and described.

198,012.



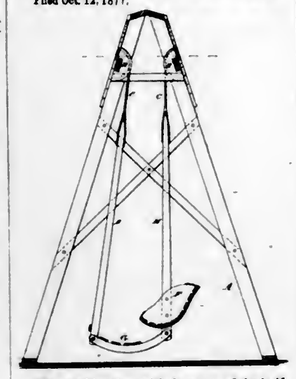
198,012. METHODS OF TURNING ANGULAR BODIES HAVING CONVEX SURFACES. Salomon Fischlowitz, New York, N. Y. Filed Nov. 17, 1877.

Brief.—Angular bodies having convex sides can be turned in a common lathe by means of two block-retaining boxes secured to the lathe-centers, and provided with a longitudinal groove, and mortises in said groove for the tenoned ends of the block. The diametrically-opposite sides are first turned, and next the opposite sides.

1. For turning angular bodies having convex sides on common lathes, a block-retaining box secured to the lathe-centers, and having a longitudinal groove equal in width to, but twice the length of, the square of the blocks from which the bodies are turned, each square or semi-section of the groove having mortise-holes for the tenoned ends of the blocks, substantially as and for the purpose set forth.

2. The method or art of turning angular bodies having convex sides on a common lathe, consisting in mounting two blocks sidewise of each other on revolving boxes of the lathe, and turning off, first, the diametrically-opposite sides of the same, then changing the position of the blocks and turning off the next sides, and so on until all the sides are finished, substantially as shown and described.

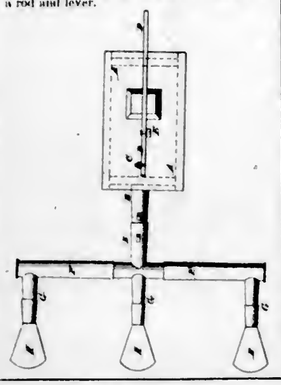
198,013. SWINGS. Joseph Hyde Fisher, Chicago, Ill. Filed Oct. 12, 1877.



The combination, with frame A, of the half-pulleys B, straps C, bars D E, seat F, and foot-board G, all arranged substantially as and for the purpose specified.

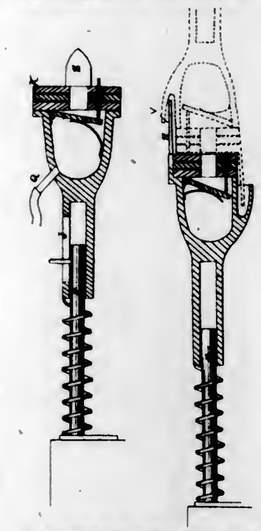
198,014. APPARATUS FOR APPLYING POISON TO PLANTS. Jas. L. Goodin, Montgomery, Tex. Filed Oct. 6, 1877.

Brief.—The tank is filled with a poisonous liquid, which is discharged upon the rows of plants through the perforated heads. The discharge is regulated by a valve attached to a rod and lever.



The combination of the tank A, provided with the valve-stem C, lever D, and standard E, the pipes B F G, and the perforated heads H, with each other, substantially as herein shown and described, to adapt it for use, as set forth.

198,015. RAILWAY AIR-BRAKES. Henry W. Green and George W. Hoag, San Jacinto, and T. P. Cleaveland, Mountain House, Cal. Filed Nov. 8, 1877.

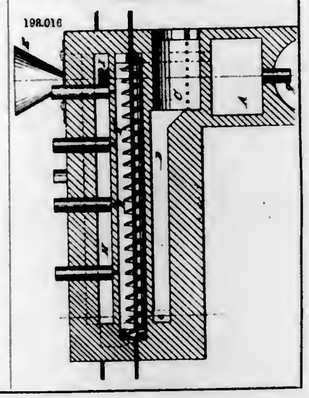


1. In combination with a railway-car having the ordinary draw-head bumper C, the supplemental bumpers D, attached to the trucks of the car, and connected with the air or steam pipes Q, and provided with intercommunicating air or other passages, which are automatically opened when two cars come together, substantially as and for the purpose above described.

2. The supplemental spring-bumper D, with its chambered head, and having the elastic face or buffer-plate K, with its opening L and spring-valve M, in combination with the air-pipe Q, which conducts air to the brake-cylinder, substantially as and for the purpose described.

3. The supplemental yielding bumper D, with its chambered head and elastic face or buffer-plate K, and provided with the projecting arm S on one side, and recess V on the opposite side, substantially as and for the purpose described.

198,016



198,016. ORE-ROASTING FURNACES. Edward G. Hall, Healdsburg, Cal. Filed Dec. 11, 1876.

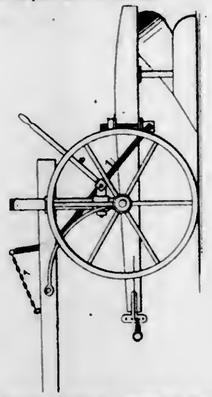
1. The combination, in a roasting-furnace, of the sliding hopper E, the screw-conveyer L, with flanges tapered at the feeding end, and the chamber K, having inlet under said hopper, as and for the purpose described.

2. The combination of the discharge-flues *f f*, the chamber A, located directly beneath the fuel-chamber, and the discharge *g*, as and for the purpose set forth.

3. The combination, with the fire-chamber C, flues D D, passages *e*, and return-flues G, of the central flue H, connecting with passages I J, as and for the purpose specified.

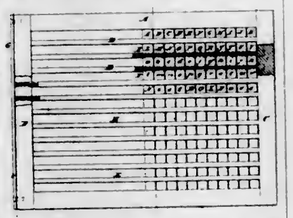
198,017. SULKY-PLOWS. John Hamaker, White Cloud, Iowa. Filed Nov. 6, 1877.

Brief.—A rocking bail having attached to one of its journals an operating-lever, and to its front end a chain, which may be lengthened or shortened, so as to regulate the distance to which the plow shall be lowered.



The bail L having the journals 5, in combination with the plow *a*, lever 6, and chain 7, substantially as described.

198,018. ORTHOGRAPHIC AND NUMERICAL FRAMES. Henry O. Harden, Stontsville, Ohio. Filed Sept. 29, 1877.



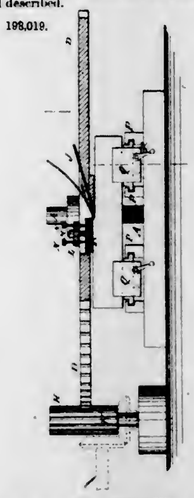
The combination, with grooved side bars A B and end bar C, of the bars D D, secured on each side of the tenons of the side bars, the opening thus formed being covered detachably by strip G, as and for the purpose specified.

198,019. MACHINES FOR CUTTING VENEERS. Wm. E. Harris, New York, N. Y. Filed Nov. 2, 1877.

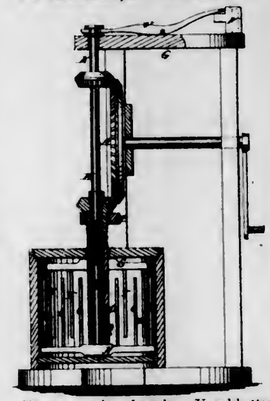
Brief.—Veneers of any desired thickness can be cut by means of a horizontal wheel carrying a suitable knife, and a vertically adjustable gage-block for determining the thickness of the veneer to be cut, and provided upon its under surface with a series of rollers, and a tappet, which operates in connection with a tappet upon a disk which supports said wheel, and mounted on a vertical threaded shaft, the threads having such a pitch that the distance between is exactly equal to the thickness of the veneer to be cut, and a suitable head-block for holding the bolt during the operation.

The combination of the upright shaft A, having a screw-thread cut upon its lower part, the screw-disk C, provided with tappet G, and the horizontal wheel D, provided with the rollers E, the tappet F, and one or more knives, J, and the long pinion-wheel H, meshing into gear-teeth formed in the rim of the said horizontal wheel D, substantially as herein shown and described.

198,019.



198,020. ROTARY CHURNS. John W. Haselrigg, El Dara, Ill., assignor to himself, W. T. Haselrigg, and V. P. Hustead, same place. Filed May 5, 1877.



The combination of the lever U and button V with the grooved upper end of the shaft K and the top board G of the frame, for throwing the apparatus into and out of gear, substantially as herein shown and described.

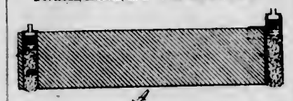
198,021. WHIP-SOCKET FASTENINGS. O. E. Hendey, Waterbury, Conn., assignor to himself and Henry A. Matthews, same place. Filed Oct. 22, 1877.

Brief.—The whip-socket is secured to the dash-frame by means of the conical screw D.



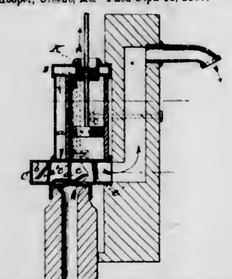
The bolts D, nicked on top, tapered on shank, and provided with end thread, in combination with the forks or lugs B of a whip-socket, as and for the purpose specified.

198,022. LUBRICATORS. A. M. Higgins and Newton Devereux, Manton, R. I. Filed Oct. 26, 1877.



The combination, with an engine-slide, A, of the bottom-perforated oil-reservoir B, arranged at the end of slide, substantially as shown and described.

198,023. DOUBLE-ACTING FORCE-PUMPS. George W. Hooper, Greene, Me. Filed Sept. 10, 1877.



1. The valve-box C, having chambers *b c c* and valves, in combination with the cylinder A and water-way *a*, arranged with their respective openings, substantially as described.

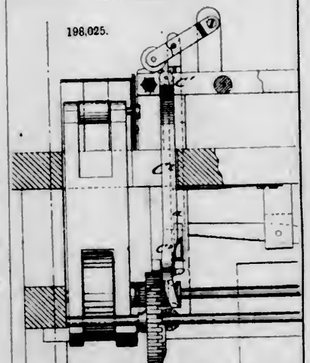
2. The water-reservoir K, having combined with it the packing-rings *s s*, the movable disk *p*, and covering-plate *r*, held in place substantially in the manner specified.

198,024. HAT-BOXES. Frederic Jinkins, Orange, N. J. Filed Oct. 12, 1877.



A hat-box having its body extended above the base of the rim, formed with a lip or flange, and adapted to engage with a flange on the rim portion, as and for the purpose specified.

198,025.



198,025. CIRCULAR SAWING MACHINES. George J. Kents, Emporium, Pa. Filed Sept. 14, 1877.

Brief.—The lumber is fed to the saw by means of a weighted top roller, a lower spiked roller, and an intermittently-spiked roller.

The feed mechanism and saw are thrown in and out of gear with the driving-shaft by a lever arrangement actuated by a clutch device, which also regulates the cutting off of the lumber.

1. In a sawing-machine, the combination of a lumber holding and feeding mechanism, consisting of an intermittently-revolving spiked front roller, a vertically-movable spiked roller, and a top pressure-roller with a revolving and intermittently-oscillated circular saw, substantially in the manner described, and for the purpose specified.

2. The combination of the lever arrangement with swinging pressure-roller, spiked bottom roller, and vertically and spring acted standards, to release or hold lumber, as required, substantially as described.

3. The combination of the operating lever arrangement with the lumber-feeding and holding mechanism, and with clutch device of driving shaft, the latter operating spiked front rollers and circular saw to throw machine in or out of work, substantially as specified.

4. The combination of clutch device of driving-shaft, having intermeshing pinion, and of a cog wheel having segmental cam at one side and cam groove at opposite side, with transmitting pinion and gear of spiked front roller, and with swinging frame of circular saw, to secure alternate feeding of lumber and cutting of saw.

5. The combination of the operating lever arrangement and vertically sliding, forked, and spring acted standard C^3 with clutch device of driving shaft, swinging saw-frame, top pressure roller, and spiked intermittently-revolving front roller, substantially as described, and for the purpose specified.

198,026. FIRE-ESCAPES. Marcellus Kertson, Newark, N. J. Filed May 3, 1877.



A fire escape, consisting of a rope provided with suitable attaching mechanism at one or both ends, and along its length with wooden balls formed with rounded ends, and with an opening for the passage of the rope, and secured in place by pins extending through the ball and rope, substantially as set forth.

198,027.



198,027. STEAM-PIPE COUPLINGS FOR RAILROAD-CARS. Francis King, Baltimore, Md., assignor of one-half his right to John L. Sinn, Washington, D. C. Filed Nov. 20, 1877.

1. The upright or end pipes A A', in combination with the tubes a a, socketed balls a' a', and suitable connecting-pipes between said balls a' a', substantially as and for the purpose set forth.

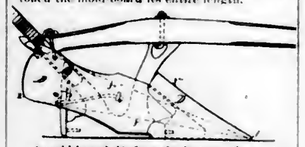
2. The pipes A A', tubes a a, socketed balls a' a', tubes b b, in combination with the right-angled pipe and socketed ball-joint or connection E F, and anitable pipes connecting the said pipe-and-ball socket to the pipes A A', substantially as and for the purpose set forth.

3. The pipes A A', having the elbows a b, in combination with the pipe B and extensible or sliding tube or pipe D, suitably connected to said pipes A A', substantially as and for the purpose set forth.

4. The pipes A A', in combination with the elbows, consisting of the tubes a a and socketed balls a' a', the pipes B D c, socketed ball E, pipes F C, coupling d, and tube c', substantially as and for the purpose set forth.

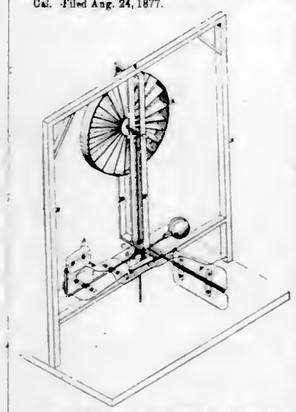
198,028. PLOWS. Samuel A. Knox, Worcester, Mass. Filed May 3, 1877.

Brief.—Mold board and point concave at the front and convex at the rear. From the point to each rear corner a straight edge will touch the mold-board its entire length.



A mold-board, D, for swivel-plows, the working surface E of which consists of combined concave and convex surfaces, arranged in relation to each other, as shown and described, to produce or form two direct inclined planes, diverging from the point 1 to the points 2 2, substantially as and for the purposes set forth.

198,029. WINDMILLS. Richard R. Lander, Turlock, Cal. Filed Aug. 24, 1877.



1. The wheel-frame consisting of the uprights B B, and carrying the wheel A, and the outer frame B' B', in combination with the open-bottomed cups C C', the one cup inverted into the other, and the connecting or pump rod P, all constructed and arranged substantially as and for the purpose set forth.

2. The vanes F and I, standing at right angles with each other and united by a link, J, together with the swinging supplemental vane K, linked to the vane I, the whole operating as a regulator, substantially as herein described.

198,030. STUFFING-BOXES FOR PROPELLER-SHAFTS. F. H. Lauten, New York, N. Y. Filed Nov. 3, 1877.

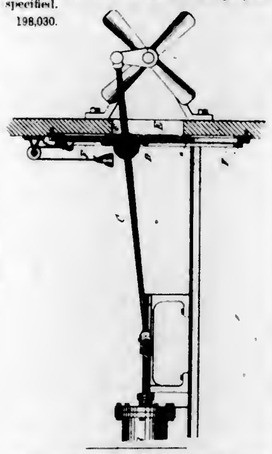
1. The movable section of the shell or hull of a vessel reciprocating against or within the main frame of the hull, in combination with the pitman-rod C or its equivalent, substantially as and for the purpose specified.

2. The combination and arrangement of the pitman C with the sliding plate E, whereby the gate is raised and lowered at each revolution of the crank, substantially as specified.

3. The combination and arrangement of pitman C, ball-easing D, and sliding plate or box E, substantially as described.

4. The combination and arrangement of connecting-rod C, ball-easing D, sliding plate or box E, plate or plates F F, and crank-shaft G, in connection with the hull or framing of a vessel, substantially as and for the purpose specified.

198,030.



198,031. LIGHT-WEIGHT ROPES. Alfred D. Leday, San Francisco, Cal. Filed Oct. 13, 1877.

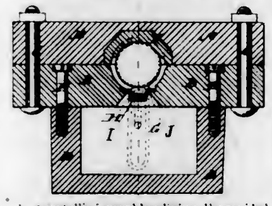
Brief.—The strands are smaller than in ordinary rope of the same size, and are twisted or plaited in such a manner as to form a hollow cylinder, into which is drawn a cloth tube filled with granulated cork.



1. A rope of large diameter and of light weight, constructed of strands A, lining B, and filling C, of granulated cork or other similar material, substantially as herein described.

2. A rope constructed of strands A, so twisted, plaited, or woven as to form a cylindrical cavity within the rope, in combination with a filling of cork or other similar material, substantially as and for the purpose set forth.

198,032. CAR-AXLE BOXES. Trenton W. Lillard, Leray, Va., assignor to himself and Benj. F. Grayson, Jr., same place. Filed Oct. 8, 1877.

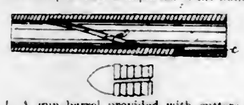


1. A metallic journal-box lining, F, provided with inclined grooves, in combination with lower bearing B, having grooves that conduct the oil to the endless wick, for the purpose set forth.

2. The bearing B, provided with subjacent recess, in combination with a small bar, H, spring I, and loop J, to hold wick, as shown and described.

198,033. RIFLE-BARRELS. William Littlejohn, Jefferson, Tex. Filed Mar. 12, 1877.

Brief.—The cutters in rear of the ribs are for the purpose of cutting grooves in the sides of the bullet, for the reception of the ribs by which rotary motion is imparted to the bullet.

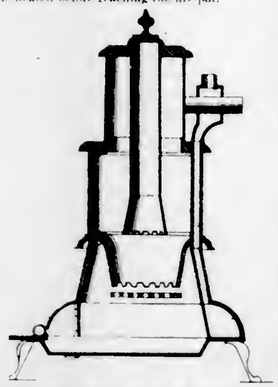


1. A gun-barrel provided with cutters or plows c for grooving the ball, substantially as described.

2. In a gun-barrel, the cutters or plows c, in combination with the guides or ribs a a', substantially as described.

198,034. STOVES. Thos J. March, Limerick Station, Pa. Filed Oct. 6, 1877.

Brief.—The draft may be either direct through the register in the front of the base or through the rear vertical flue, thence through the horizontal flue in the rim of the base to the fire-pot. The rear vertical flue has connection with the smoke-pipe, whereby the air is heated before reaching the fire-pot.



1. In a magazine stove, the combination, with the rear vertical air-flue, of the horizontal air-flue formed in the rim of the base of the stove, substantially as described.

2. In a magazine-stove, the rear vertical air-flue, having both its inner and outer walls provided with mica lights or sheets, in combination with the air-flue formed in the rim of the base of said stove, substantially as described.

3. In a magazine-stove, the horizontal air flue formed in the rim of the base of the stove, and provided with dampers or similar means, as described, for controlling communication of the said flue with the fire-chamber, substantially as described.

4. The combination of the rear vertical air flue and the base air-flue, the latter being formed with the two horizontal front openings, which are provided with doors or similar damper mechanism, substantially as described.

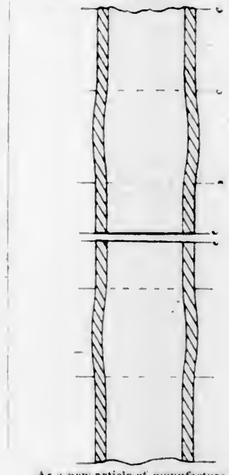
5. The combination, with the base air-flue, of the rear vertical air-flue, whose inner and outer walls are formed with mica lights, one set of said lights being in a horizontal plane above, and the other set being in a plane passing through the fire-pot section, substantially as described.

6. The combination, with the rear vertical air-flue and heating-pipe connections, of the base air-flue, made with the openings in its door, whereby said base-flue may have direct communication with the air of the room beneath the stove, substantially as described.

7. The combination, with the rear vertical air-flue and heating-pipe connections, of the base air-flue, having communication with the fire-chamber, which is adapted to be closed, said base-flue being also provided with openings, whereby it may communicate with the air of the room, substantially as described.

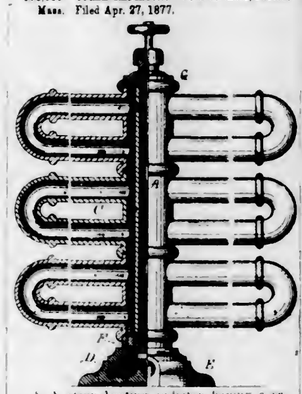
8. The combination, with the rear vertical air-flue, of the air-flue formed in the rim of the base of the stove, and made with the two openings, whose communications with the fire-chamber are adapted to be closed, said base-flue having openings to communicate directly with the air of the room, which are provided with plates or other damper mechanism, substantially as described.

198,035. TUBING. Geo. Matheson, McKeesport, Pa. Filed May 4, 1877.



As a new article of manufacture, a tube enlarged at its outer or in its outer and inner diameter at or about the part between the lines C D, substantially as herein described, and for the purpose set forth.

198,036. STEAM-RADIATORS. John H. Mills, Boston, Mass. Filed Apr. 27, 1877.



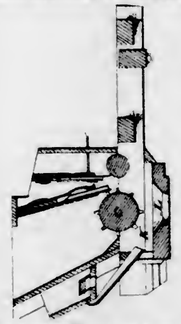
1. A steam-heating radiator, having a series of receiving and returning arms, B, projecting horizontally from the central vertical supply and return chambers A, which, being combined and held together by a central tube, C, or its equivalent, operate substantially as shown and described.

2. In a steam-radiator constructed of vertical sections, having a central supply and return chamber, A, surrounding the induction tube C, the single joint or point of contact between each two adjoining sections, as shown and described.

3. In sectional steam-radiators the combination of a steam-chamber, D, in the foot E, the central tube C binding the sections together, supplying steam to the top of the radiator, and receiving the water of condensation at the bottom, the seat F of the valve being secured to one end of said tube and the cap G to the other end, as shown and described.

4. The combination, in a steam-radiator, of a hollow foot or base, E, a central vertical steam-induction tube, C, within the central vertical sectional return-chamber A, the tube C conducting the steam to the top section, which in turn supplies the steam downward to its neighbor, as shown and described.

198,037. MANURE-DRILLS. Augustine B. Miller and R. P. Ludwig, Sanmerville, Va. Filed June 28, 1877.

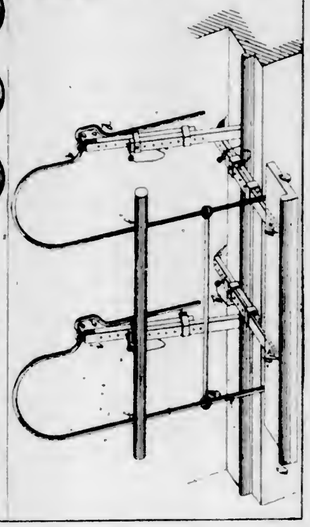


1. In a manure-drill, the combination, with the lower chamber formed centrally below the axle, of the bottom-board and grooves in which the latter slides, the said board being provided with spout-openings, and adapted, as described, whereby it may be readily connected or disconnected with the machine, substantially as described.

2. In a manure-drill, the combination, with the removable bottom-board of the lower chamber, adapted to support suitable discharging-spouts, of the front cross-bar, adapted to engage with suitable drag-attachments, the said cross-bar being made readily detachable from the draft-frame by loose pin engagement therewith at one of its extremities, substantially as described.

3. In a fertilizer-hopper, the adjustable partition-board made with the independent spring-sections extending in unbroken connection across the entire side of the hopper, substantially as described.

198,038. RACK ATTACHMENTS FOR PIANOS, ORGANS, &c. Elenora A. Norton, New Bedford, Mass. Filed Oct. 23, 1877.



1. A new article of manufacture, being an auxiliary rack or attachment to existing racks of pianos, organs, melodeons, and other key-board instruments, and adapted to be adjusted with relation to the eyes of the performer, substantially as herein described.

2. The curved wire brackets, one arm of which is shaped to engage with the ordinary rack of a key-board instrument, while the other is bent to hold the music-supporting shelf in its proper relation to the rack, substantially as shown and described.

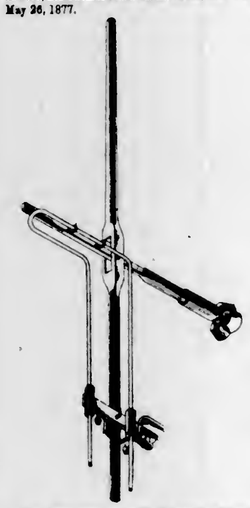
3. The combination, with said wire brackets, constructed to be detached from the music-supporting shelf, of one or more transverse bars, upon which bar or bars the said wire brackets may be rotated, so as to admit of their folding into the same plane, or nearly so, with said cross-bars, substantially as shown and described.

4. The combination, with the wire brackets, of a detachable music-supporting shelf, provided with knuckles or sleeves for the reception of a hinge-pin on the shelf-supporting ends of said wire brackets, substantially as shown and described.

5. The combination, with the wire brackets, the cross-bars, and the shelf, of adjustable braces adapted to support and steady the wire bracket, as herein shown and described.

6. The combination, with the wire brackets, the cross-bars, and the shelf, of adjustable braces hinged to said shelf, and supporting and steadying the rack, as herein shown and described.

198,039. **WASHING-MACHINES.** James M. Overshiner, Elwood, and Thomas Shannon, Anderson, Ind. Filed May 26, 1877.



1. The combination, with the vertical shaft and double angular guide-rod, of the fixed tubes, in which the free extremities of the said rod have loose sliding support, substantially as described.

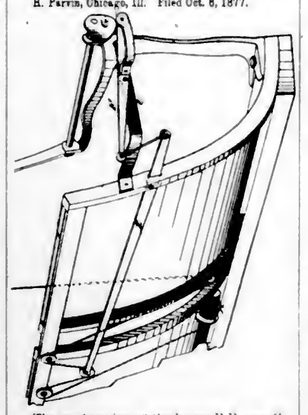
2. The combination, with the double angular guide-rod and vertical shaft engaging therewith, of the tubes formed rigidly with the swivel-clamp, substantially as described.

3. The combination, with the vertical shaft and eyebolts secured to its upper body, of the double angular guide-rod, the free extremities of the latter having sliding movement in the rigid tube-supports of the swivel-clamp, substantially as described.

4. The combination, with the actuating-lever, the vertical shaft, and the double angular guide-rod, of the swivel-clamp, provided with a tube horizontally pivoted to its upright ears, and formed with a vertical side extension, having the two fixed tubes thereon, one above the other, substantially as described.

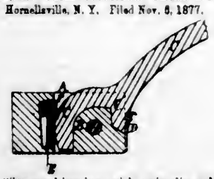
5. The combination, with the cluster of inverted bowls, the upright shaft, the double angular guide-rod, and the actuating-lever, having universal joint movement, of the swivel-clamp supporting the entire apparatus, substantially as described.

198,040. **LEVER TAKE-UPS FOR GRAIN-BINDERS.** T. H. Parrin, Chicago, Ill. Filed Oct. 6, 1877.



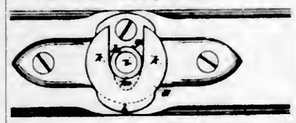
The combination of the levers F E, cam G, sheaves *g h i*, substantially as and for the purpose herein shown and described.

198,041. **THILL-COUPLINGS.** Carlton E. Pickering, Hornellsville, N. Y. Filed Nov. 6, 1877.



The combination, with axle-clip yoke, having arms A A, of pivoted block B, having curved rear and notched front, the thill-iron C, having double hook with pin in front, the front spring-catch D, having hole for said pin, and the packing E, all arranged as shown and described.

198,042. **WHIFFLETREE-COUPLINGS.** H. K. Porter, Boston, Mass. Filed May 19, 1877.

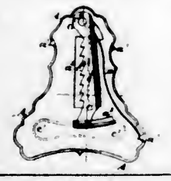


1. A whiffletree center each half whereof is formed with the sole-plate *g* and the interlocking plate *k k*, having a section or space cut away from the center to the periphery of the interlocking plate, whereby each interlocking plate is insertible between the plates of the other half of the center, and astride the annular nipple or ring formed therein, substantially as described and shown.

2. In an interlocking whiffletree-center, the two annular bearings *h*, and the semicircular gears in the locking plates *k k*, whereby each half of the center is provided with both a convex and concave semicircular pivotal bearing, substantially as described and shown.

3. In a whiffletree center provided with the sole and locking plates, as described, the connections *m* and *l*, for uniting said plates, substantially as described and shown.

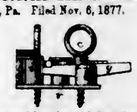
198,043.



198,043. **FASTENINGS FOR POCKET-BOOKS.** Daniel M. Read, New York, N. Y. Filed May 28, 1877.

The combination of the top plate A, provided with the slots a^2 a^3, and the spring latch C D, serrated and grooved, and provided with a pivot-hole and a knob, with the base-plate B, provided with a shoulder or boss, b^1, and a pivot, b^2, struck up out of the said plate, substantially as herein shown and described.

198,044. **BURGLAR-ALARMS.** Edwin D. Reichard, Reading, Pa. Filed Nov. 6, 1877.



1. The combination of the plate *a*, screws *c*, swiveled standard *e*, having trigger *g* pivoted therein, hammer *h*, eye *l*, and spring *i*, the parts being arranged and combined to operate as shown.

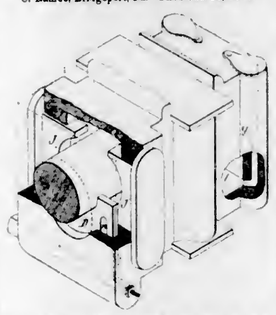
2. In a burglar-alarm, the trigger *g*, pivoted upon the swiveled post *e*, and adapted to be turned across the edge of the window or door, so as to prevent them from being opened, substantially as described.

198,045. **ROLLER-SKATING SURFACES.** George M. Rollins, Brooklyn, N. Y., assignor to Helen M. Rollins, same place. Filed Mar. 24, 1877.

Brief.—Eighty-nine per cent. of hard asphaltic rock, ten per cent. of soft asphalt, and one per cent. of resinous oil are reduced to a plastic mass and floated or evenly spread on a brick, stone, or wood foundation, and the surface smoothed or evenly polished.

A roller-skating surface, consisting of a composition of asphalt, bitumen, and resinous oil, laid while warm, and finished by manipulating it continuously until it becomes cold, as herein set forth.

198,046. **CAR-AXLE BOXES.** Lindsey Rossiter, Port Carbon, assignor of one-third his right to Elizabeth C. Rambo, Bridgeport, Pa. Filed Oct. 16, 1877.



1. An axle-box in which the axle is combined with a plate, D, and blocks J J on opposite sides of the journal, substantially as described.

2. The combination of the chamber I of the box with a channel extending from near the top of the box and communicating with the said chamber at the bottom of the same, all as and for the purpose set forth.

198,047. **GRAIN-DRILLS.** Alonzo Runyan, Clarke County, Ohio. Filed Mar. 17, 1878.

1. The distributer-cup, consisting of the two pieces A and B, the latter cut away at the lower part, A, and provided with a circular notch, *c'*, for the reception of latch *b* and its segmental lug *b'*, as shown and specified.

2. Latch *b*, pivoted at the rear lower part of side piece B at the point *c*, and provided with the projecting part *b'*, as and for the purpose hereinbefore set forth.

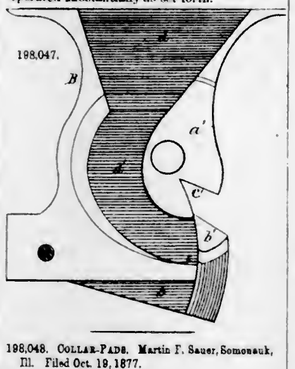
3. The slotting-block *a'* of part B for confining the grain to the channel *a''*, provided with the notch *c'* for the reception of the free end of latch *b*, substantially as and for the purpose set forth.

4. In combination with the single-flanged

wheel *a*, with diagonal grooves *g g* running backward on the inside of its flange, the abutting-block *a'* of part B, notch *c'*, and the segmental projection *b'* of latch *b* and rod or shaft C, to which it is connected and operated, substantially as herein set forth and described.

5. In a distributer for grain-drills, an adjustable feed, consisting of the inter-projecting part *a'* of the half-shell B, provided with a semicircular notch, *c'*, a horizontal latch, *b*, provided with a segmental lug, *b'*, projected into the cavity of grain-wheel *a*, having diagonal grooves *g g* in flange *i*, combined and operated substantially as set forth.

198,047.



198,048. **COLLAR-PADS.** Martin F. Sauer, Somonauk, Ill. Filed Oct. 19, 1877.



The two pads A A, connected by flexible strap B, and made independent of and applicable to any collar, as shown and described.

198,049. **CLOTHES-DRIERS.** Joseph Schaier, Syracuse, N. Y., assignor of one-half his right to Phillip Scheller, same place. Filed Feb. 28, 1877.

1. The combination and arrangement with the sliding collar *a* of the two ropes *r r*, connected, respectively, at one end to opposite sides of said collar, passing over pulleys *p p* at opposite sides at or near the top of the post, and connected at the other end with the windlass W, all arranged with the hollow post A, substantially in the manner described, for the purpose set forth.

2. The sliding collar *a*, provided with hangers *s s* and pins *u*, and the spider *b*, having an enlarged central orifice and the circumferential recess *i'* around the top thereof, and provided on its under side with the circumferential tread *i*, constructed and combined, substantially as described and shown, for the purpose specified.

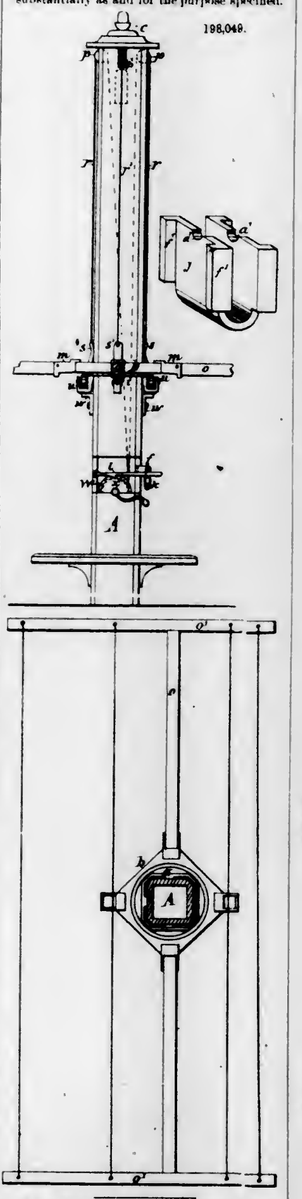
3. The combination with the radial arms *o* of the bars *o' o'*, attached at the center to the end of and at right angles to said bars or arms, substantially as and for the purpose specified.

4. The combination and arrangement of the hollow or box-post A, closed on all sides, provided with a removable cover at the windlass W, and with the pulleys *p p* at opposite sides at or near the top, the collar *a* having hangers *s*, provided with friction-rollers *u*, and pins *u*; the spider *b* having an enlarged central orifice and the circumferential recess *i'* around the top thereof, and provided on its under side with the circumferential tread *i*, the ropes *r r*, attached respectively at one end to opposite sides of the collar *a*, passing over pulleys *p p*, to the interior of the post A, and connected at the opposite end to the windlass *w*, all constructed and arranged substantially in the manner specified and shown, for the purpose set forth.

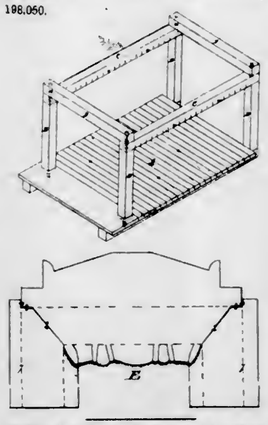
5. The combination, with the herein-described hoisting apparatus, of counterpoises placed inside the post A, and connected with the sliding collar *a* by ropes *r'*, or their equivalents, passing over pulleys *p'* at or near the top of the post, as and for the purpose set forth.

6. The boxes J in the form of a U, having open bearings *a'* for pulleys in their upper ends, and provided on the outside of the vertical limbs with parallel flanges *f'*, constructed substantially as and for the purpose specified.

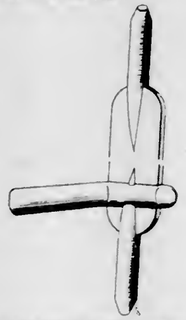
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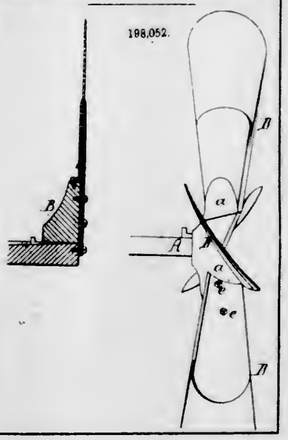


198,051. **STAY-END CLIPS.** M. Seward, New Haven, Conn. Filed Feb. 5, 1877.



As an article of manufacture, the herein-described stay-end clip, consisting of the plate with the screw at each end, and a brace-arm projecting from the plate, substantially as described.

198,052.



198,060. **SECTIONAL TOY THEATERS.** John W. Scott, New York, N. Y. Filed Oct. 6, 1877.

1. The framing of a toy theater, consisting of the bottom plate A, having grooves *a*, upright posts B, side pieces C, having grooves *c*, and cross-pieces D, constructed and combined in the manner and for the purpose substantially as described.

2. The proscenium scene E, having cuts 2 3 4, bent and fastened together through metal tags *e*, substantially as and for the purpose specified.

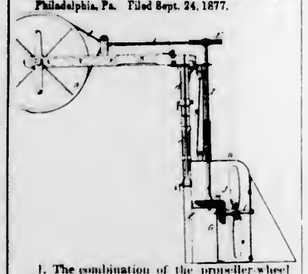
198,052. SCREW-PROPELLERS. Wm. W. Shoe, Philadelphia, Pa. Filed Nov. 19, 1877.

1. The combination, in a propeller, of detachable blades D with a hub, B, having arms *a*, whose rear faces are inclined in respect to a vertical plane passing through the propeller-shaft.

2. The combination, in a propeller, of a hub through which the propeller-shaft passes, with detachable blades secured to the hub and to the shaft, as set forth.

3. A propeller-hub having arms *a* with inclined rear faces, substantially as set forth.

198,053. STEERING-PROPELLERS. William W. Shoe, Philadelphia, Pa. Filed Sept. 24, 1877.



1. The combination of the propeller-wheel J, shaft F, and intervening gears with the post A, hung to pintles on the stern-post of a boat, so as to be readily turned on or removed therefrom, all substantially as and for the purpose set forth.

2. The combination of the post, carrying the propeller-wheel and shaft F, with the tiller-arm B, carrying the driving appliances, all substantially as specified.

3. The combination of the post A, carrying the wheel J and shaft F, with the tiller-arm B, carrying the device to which the power is applied, and rendered detachable from the post A, as specified.

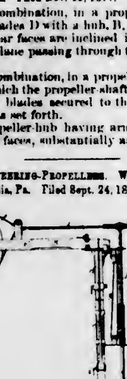
4. The combination of the wheel J and its driving mechanism, the post A, and shaft F, each made in two parts, connected together so as to permit vertical adjustment of the lower part in respect to the upper part, and a device, substantially as described, for retaining said lower part in the position to which it may be adjusted.

5. The combination of the upper and lower portions A' and A² of the post A with the side plates *a*, serving to connect the two parts together, all substantially as described.

6. The combination of the post A with sleeves *d*, carrying pintles *b*, and capable of being adjusted vertically on said post A, as set forth.

7. The combination of the post A with the lower sleeve *d* and its cam-lever *d'*, as specified.

198,054. RAILROAD-SWITCHES. Calvin W. Simonds, North Boscawen, N. H., assignor to Chas. Williams and Albert H. Russell, Somerville, Mass. Filed Feb. 19, 1877.

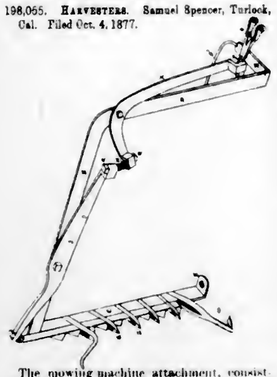


1. The projection upon the shifting mechanism, having curved faces *m m*, substantially as and for the purpose set forth.

2. The combination of the levers *a a a a*, bar *c*, pins *d d*, curved plates *x x*, weight *w*, switch C, and shifting lever E E, and projections D D' D'' D''', substantially as and for the purpose set forth.

3. The pivoted shoes *h h'*, attached to the train and having slots with curved sides *s s* therein, substantially as and for the purpose set forth.

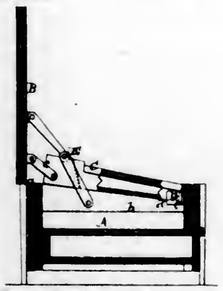
198,055. HARVESTERS. Samuel Spencer, Turlock, Cal. Filed Oct. 4, 1877.



The mowing machine attachment, consisting of the two standards C D, connected by the bridge-piece B, and having the feet E E for attachment to the inner and outer ends of the finger-bar, sickle and finger upon the standard C, lever J fulcrumed on the bridge-piece, bell-crank K pivoted to the standard D, and supplemental pitman O, all constructed and arranged substantially as and for the purpose set forth.

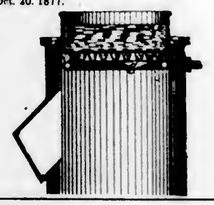
198,056. WRITING-DESKS. David J. Stein, New York, N. Y. Filed Sept. 6, 1877.

Brief.—The lid of the case is connected to the inclosed desk-top by means of jointed links, and the desk-top, at its opposite end, is connected to the case by a hinge, so constructed as to permit it to be thrown back against the outer open lid to have access to the interior of the case.



The combination, in a writing-desk, of the case A, its hinged lid B, the desk-top C, link-arms *e*, laterally-projecting pins *d*, and brackets *c*, all constructed and adapted to operate substantially as described.

198,057. APPARATUS FOR MANUFACTURE OF DROP-SHOT. Benjamin Tatham, New York, N. Y. Filed Oct. 20, 1877.

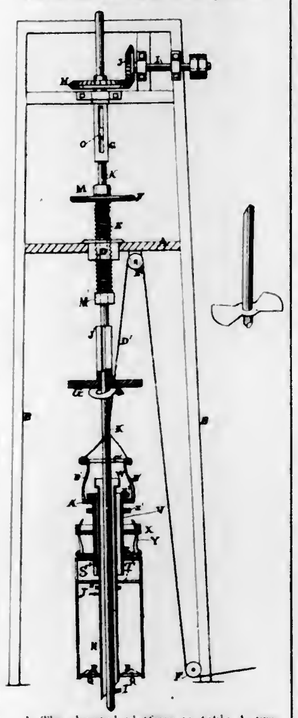


1. The elevated platform or table A, provided with the permanent nut D and hollow vertical screw E, and having the frame-work G with its vertical tubular shaft G, with its bevel-gear H, and horizontal driving-shaft I, with its bevel-gear J, in combination with the forcing or boring rod K, with its collars M M', substantially as and for the purpose described.

2. The forcing and boring rod K, in combination with the auger Q N and its sleeve V, said sleeve being provided with flanges Z Z' for retaining the ring A' with its upright connections B' B' and the ring C', substantially as and for the purposes described.

3. The short tube P, attached to the forcing and boring rod K, and arranged to force the curbing into the bore by the action of the same screw E which lowers the boring apparatus, substantially as specified.

198,058. WELL-BORING APPARATUS. W. W. Vaughn and S. Jackson, Stockton, Cal. Filed Sept. 17, 1877.



1. The combination, in an apparatus for manufacturing drop-shot, of a shield or cylinder with the dropping-pan, said shield or cylinder being closed at the top and open to the atmosphere at the bottom, for retaining heat and keeping currents of cold air from the outside surface of the pan, substantially as set forth.

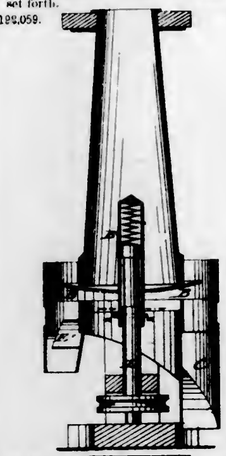
2. The combination, in an apparatus for manufacturing drop-shot, of a dropping-pan, with a gas-flame or other supply of artificial heat supplied to the bottom of the pan for regulating and controlling the temperature of the metal in said pan, substantially as described.

3. The combination, in an apparatus for manufacturing drop-shot, of a dropping-pan, a gas-flame or other supply of artificial heat situated in the interior of the shield, directly under the bottom of the dropping-pan, and of a shield or cylinder for retaining heat and keeping currents of cold air from the outside surface of the dropping-pan, substantially as set forth.

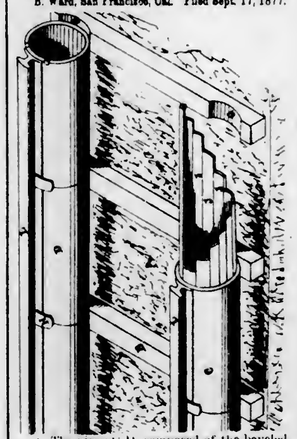
198,059. GRAIN-TOLLERS. Adolphus B. Vitt, Union, Mo. Filed Nov. 10, 1877.

A grain-toller for custom mills, consisting of a grain-conducting tube, of a revolving and spring-cushioned disk, and of an encircling casing, with a fixed and adjustable partition, and separate exit-spouts for the main and toll portions of the grain, substantially as set forth.

198,059.



198,060. CONDUCTOR RAILWAY AND CONDUIT. John B. Ward, San Francisco, Cal. Filed Sept. 17, 1877.



1. The pipes C D, composed of the beveled staves or longitudinal strips J, so placed that their meeting ends form a continuous spiral, in combination with the outer binding tube or rings K, substantially as and for the purpose described.

2. The pipes C D, composed of the beveled staves and binding rings, and fitted to the supporting ties B, so as to receive and support the rails L, substantially as herein described.

3. The pipes or tubes C D, fitted to receive the rails L, and provided with the stems I, with their heads constructed to secure the rails, substantially as herein described.

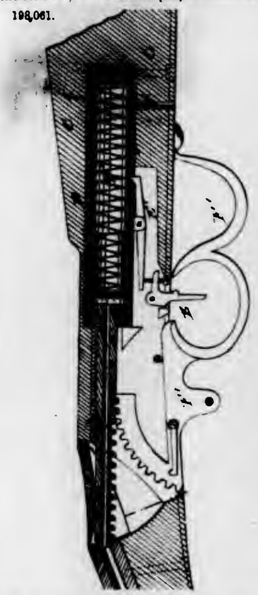
198,061. SPRING AIR-GUNS. Michael Weber, Zurich, Switzerland. Filed Oct. 17, 1877.

1. In an air or spring gun, the combination of a sliding air-conducting tube or tubular bolt, having its front end shaped to enter the breech of the barrel, and provided with a rear head or piston and a bottom rack, with the barrel, the stock, the air-cylinder, the spring-propelled compressing-piston, the segmental rack and operating lever, and a trigger device, all constructed and relatively arranged as herein set forth, for the purpose specified.

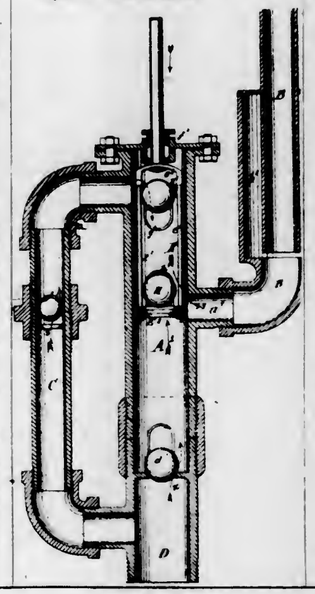
2. The combination of the air-cylinder D and spring-piston D', pushed back by the movable air-tube F, with the lever-catch E' and hair-trigger E, to set the spring-piston for the discharging of the gun, substantially as specified.

3. In an air-gun, the combination of the swinging shield or guard with the barrel, breech, and sliding air-tube, said shield being dropped below the breech when the air-tube is carried back, and raised by the return of the air-tube, as and for the purpose described.

198,061.

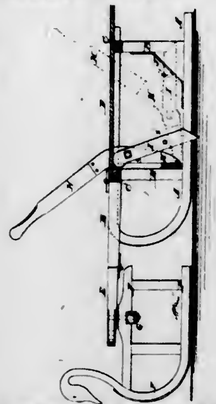


198,062. DOUBLE-ACTING PUMPS. W. M. Whiteley, Joplin, Mo. Filed Nov. 13, 1877.



The double-valved piston E, in combination with the pump-barrel A, suction-pipes D C, and discharge-pipe B, the whole constructed and operating substantially as and for the purpose specified.

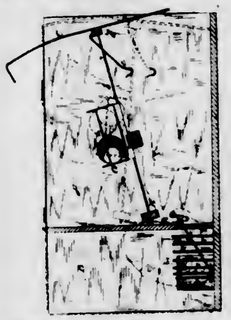
198,063. SLED-PROPELLERS. Daniel Williams, West Philadelphia, Pa. Filed Oct. 29, 1877.



1. The combination, with runner F, having cross-bar G to receive both feet of rider, and pivoted to flexible bar E, of the sled A-B (C-D), provided with bent levers H, projecting beyond their pivots, and having connected dogs I, the latter held by pins P, as shown and described.

2. The combination of the inclined braces J with the sled, to receive the pin i and raise the dogs I from the ground, substantially as herein shown and described.

198,064. ANIMAL-TRAPS. Lawson H. Adkins, Americus, Ga. Filed Oct. 11, 1877.



The within-described improved animal-trap, consisting of the chambers A and B, lifting-bar H, with arms *b b*, having at one end the sliding door C, and at the other end the adjustable balancing weight E, the cage G, with ball H, and the door I, connected by chains *k* with the weighted ends of the arms *b*, all constructed and arranged to operate substantially as and for the purposes herein set forth.

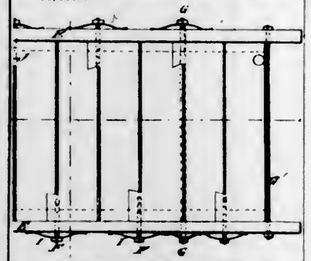
198,065. NAPKIN RING AND HOLDER. James Anson, Le Roy, N. Y. Filed Oct. 22, 1877.



1. A napkin-ring formed of two parts folded upon each other, as described, which may be expanded to pass around the neck, so as to form a clasp or holder, in the manner specified.

2. The part *a*, provided with the orifice and knob, as set forth, in combination with the part *b*, and connected thereto by the joint *c*, to form the supporting clasp for the napkin, in the manner shown and described.

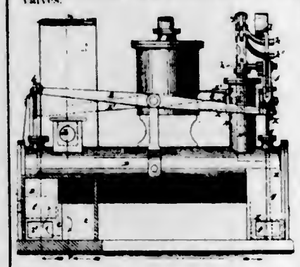
198,066. **EVAPORATING-PANS.** William B. Atkinson and Henry O. Atkinson, Franklin, Ky. Filed July 13, 1877.



In combination with the sections of an evaporating-pan, the sides E, supports H, rods G', nuts F, and springs I, substantially as shown and described.

198,067. **AIR-COMPRESSORS.** Benjamin T. Babbitt, New York, N. Y. Filed Aug. 20, 1877.

Brief.—The air compressing cylinders operate by the alternate charges of water supplied under pressure from the tank. The floats in the upright cylinders are set in motion and act upon the rocking beam, giving motion to the valves.



1. The combination, with the duplicate air-compressing cylinders or mains D D', of the water-trunk or receiving duct A for supplying said mains, the valve-chambers B B', having ports *b b'* in their opposite sides, the connecting chambers or passages *c*, and the slide valves C C', substantially as specified.

2. The combination, with the air-compressing cylinders or mains D D', which operate by alternately charging them with water to compress the air within them, of the upright chamber or ducts M M', near the discharging ends of said mains, the floats N N', the tripping or tilting weighted beam S, set in motion by said floats, inlet and outlet valves for the water at opposite ends of said mains, and the mechanism connecting said valves and actuated by the tripping or tilting weighted beam, essentially as and for the purpose herein set forth.

3. The combination of the side rocking beams I, I' with the end rocking beams G K and the water inlet and outlet valves C C' I I' of the apparatus, substantially as specified.

198,068. **RIDING ATTACHMENTS FOR PLOWS.** John Bailey and George Marshall, Belleville, Ill. Filed Mar. 21, 1877.

Brief.—The cross-bar rigid to the plow-beam, with a pivot stud for the lever and crank-wheel, and an arm for a seat and foot rest. The gage-wheel upon an arm extending forward from the cross-bar and raised by a cogged lever.

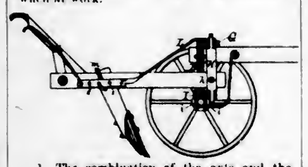
1. In a one wheel plow attachment, the cross-bar C, rigidly secured to the plow beam by means of a broad bearing plate, C', and constructed with an arm, C², adapted to form a support for a seat and a foot rest, and a stud or spindle, *e*, forming a bearing for a crank-lever, which carries the wheel, as and for the purpose set forth.

2. The lever K and arm L, attached to or near the bar C, in combination with the cog-segments *k* and *l*, substantially as and for the purpose set forth.

3. The bar C, rigidly attached to the beam B, in combination with the wheel E, bell-crank lever D, spring-catch G, or equivalent, and notched quadrant or rack F, substantially as and for the purpose set forth.

198,069. **CULTIVATORS.** Ira Barber, La Porte, Ind. Filed Mar. 12, 1877.

Brief.—The plate re-enforcing the axle and carrying the pivoted vertical post. Rod extending back from the upper end of the pivot-post, and provided with a hand-latch and other devices to hold the beam in an elevated position, or to regulate the depth of penetration when at work.

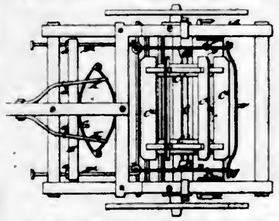


1. The combination of the axle and the plate I with pivot-post H and cross-bar G, all being constructed, arranged, and combined substantially as shown and described.

2. The rigid bar L, attached to the upper frame-work by a pivot joint, and provided at its lower end with notch *x* and several pin-holes and a pin, such lower end passing through a slot in the cross-plate *m*, secured in the plow-beams, in combination with said frame-work and the plow-beams, substantially as described, whereby the plow may be hitched up when not in use, and may also be adjusted at different positions, so as to regulate the depth of its cut.

198,070. **CORN-STALK CUTTERS.** Wilson Barnes, Maquoketa, Iowa. Filed Nov. 3, 1877.

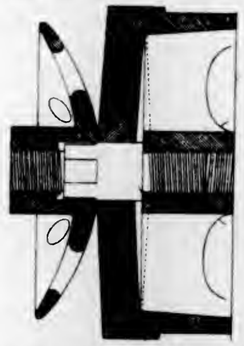
Brief.—The cutter is swung in a flexible hanging frame, and this is attached to forward bearings, which rest against a spring.



1. The combination, with the revolving cutter, of the draw-bars D² D², frame A, one or more springs, G, spring-bar E, and nuts *a a* and *b b* on the draw-bars, substantially as and for the purposes herein set forth.

2. The combination, with the revolving cutter C C' C², of the arms D D, cross-bar D', and draw-bars D² D², all connected together by loose joints to form a flexible frame, substantially as and for the purposes herein set forth.

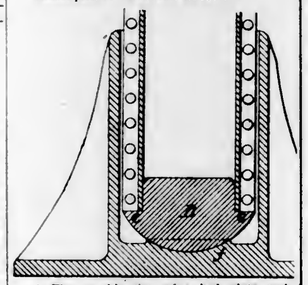
198,071. **PUMP AND CHECK VALVES.** Geo. F. Blake, Boston, Mass. Filed Nov. 13, 1877.



1. As a new article of manufacture, an india-rubber valve, having its under surface concaved or made dishing from its edge to its center, substantially as described.

2. In combination, a centrally held india-rubber valve and a valve-seat, constructed substantially as described, whereby the central portion of the valve, when brought to its seat, moves after the outer portion of the face of the valve comes to a seat on the valve-face, all substantially as described.

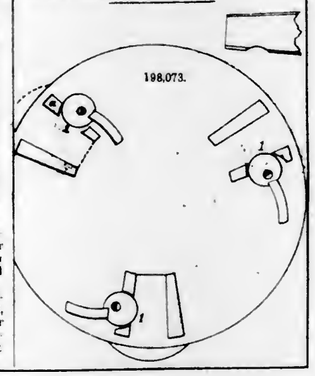
198,072. **COLUMNS.** Adolphus Bonzano, Phœnixville, assignor to himself, David Reeves, Wm. H. Reeves, and John Griffen, same place, and Thomas C. Clark, Philadelphia, Pa. Filed Nov. 19, 1877.



1. The combination of a bed-plate and sleeve with a column, a foot on which has a central bearing on the bottom of the said sleeve, all substantially as specified.

2. The combination of the bed-plate and its sleeve with a column having a ball-and-socket bearing within the sleeve, all substantially as set forth.

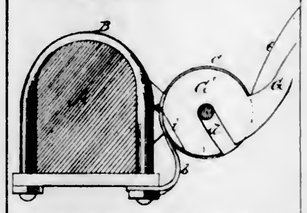
198,073.



198,073. **STOVE-LEGS.** William Bourn, Geneva, N. Y. Filed Apr. 10, 1877.

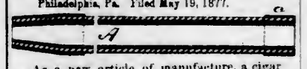
The stove-leg fastening herein described, consisting of a cam located in a recess formed within the flange of the socket, and passing, when in use, into a curved recess formed in the leg of the stove, it being in combination with said leg, substantially as shown and described.

198,074. **THILL-COUPLINGS.** Wm. H. Bruce, Nunda, N. Y. Filed May 25, 1877.



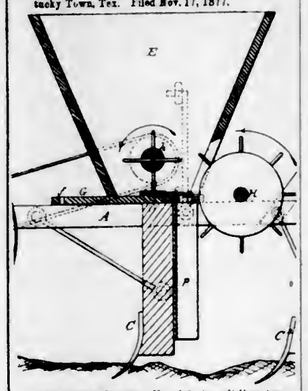
In a thill-coupling, the clip B, provided with ears C C and fixed pin D, and formed with concave or seat *a*, having recess for the spring *b*, in combination with the thill-iron G G', formed with slot *d*, and flat portion *i*, and spring *b*, all constructed substantially as and for the purpose herein set forth.

198,075. **ASBESTUS CIGARETTES.** William Brisbane, Philadelphia, Pa. Filed May 19, 1877.



As a new article of manufacture, a cigar-ette-holder composed of an asbestus tube, A, provided with a mouth-piece, B, at the rear end, and a band, *c*, at the front end, substantially as and for the purposes set forth.

198,076. **COTTON-PLANTERS.** David Bronaugh, Kentucky Town, Tex. Filed Nov. 17, 1877.



The slotted hopper E, with its sliding bottom G, having slot *o* and brush *c*, in combination with the toothed shaft *h*, toothed drum *n*, plow C, and seed-tube *p*, the whole constructed, arranged, and operated in the manner and for the purpose set forth.

198,077. **SAW-SETS.** George W. Bugbee, Cincinnati, Ohio, assignor to J. A. Fay & Co., same place. Filed June 23, 1877.

Brief.—The invention has reference to the means for adjusting and regulating the feeding mechanism and the position of the hammers.

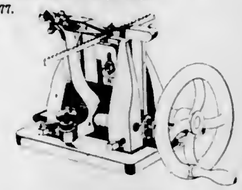
1. The combination, substantially as specified, of the hammer-helve, the cam, the stud through which the cam acts on the helve, and the screw for adjusting the stud.

2. The combination, substantially as specified, of the hammer, latterly adjustable on its fulcrum pin, and the tempa screws for maintaining the hammer in position after adjustment.

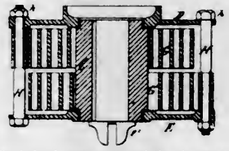
3. The combination, substantially as specified, of the feed-lever, constructed with two oppositely-projecting arms, the cam acting on one of said arms, the set-screw in the other arm for regulating the feed, the reacting spring, and the pawl adjustable in, or in about, the line of feed.

4. The combination, substantially as specified, of the adjustable lever feed arm, the pawl, the adjustable pivot-pin thereof passing through a slot in said arm, and the temper-screw bearing on said pivot-pin.

198,077.



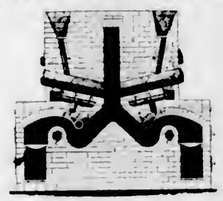
198,078. **BACKLASH-SPRINGS FOR MILL-SPINDLES.** Gustav Buschmann and John H. Brown, Chicago, Ill. Filed Sept. 19, 1877.



The helical springs G and G', placed apart and within a casing, consisting of hub C, top and bottom plates D and E, and bolts H, all constructed and arranged substantially as described, and to operate in combination with spindle A and pinion B, in the manner herein set forth.

198,079. **ORE ROASTING AND SMELTING FURNACES.** George W. Cheney, Washington, D. C., and Don C. Butterfield, New York, assignors to themselves, T. J. Van Wyck, and Charles M. Nichols, Jr., Brooklyn, and John T. Salter, New York, N. Y., and Sanford D. Sweetser, East Hampton, Mass. Filed Mar. 30, 1877.

Brief.—The retorts are inclined, so as to retain the ore fed into them from the hoppers, and allow the molten metal to flow to the hearth below. Intended especially for lead ore.



1. In a furnace for reducing ores, the combination of two fire-boxes, a central solid apron of masonry, having double divergent slopes, and supported on its base between said fire-boxes, and a central vertical fine directly above the apex of the apron, substantially as and for the purposes set forth.

2. In a furnace for reducing ores, the combination of two fire-boxes, a central solid masonry apron with double divergent slopes, and supported on its base between said fire-boxes, two receiving chambers, each situated between the apron and one of the fire-boxes, and a central vertical fine directly above the apex of the apron, substantially as and for the purposes set forth.

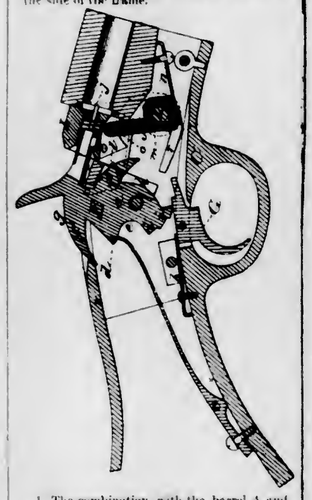
3. In a furnace for reducing ores, the combination of the retorts I I', with air-pipes O *o* leading into them, to promote combustion of the gases, substantially as described.

4. In a furnace for reducing ores, the combination of the hoppers J, provided with valves K, the feeding-channels *k*, of small diameter relatively to the retorts, and inclined inwardly and entering the retorts near the center thereof, and the retorts I, inclined inwardly at a less angle than the feeding channels, all substantially as and for the purposes set forth.

5. In furnaces, the water-pipes F F', with wings *c c*, substantially as and for the purposes set forth.

198,080. **BREECH-LOADING FIRE-ARMS.** Warren M. Clark, Waverly, N. Y. Filed Sept. 1, 1877.

Brief.—The breech-block is operated, to open and close the breech, by means of a lever at the side of the frame.

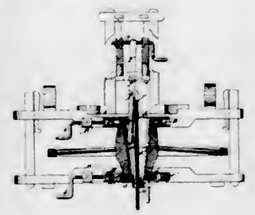


1. The combination, with the barrel A and the vertically-sliding breech-block I, of the jointed lever J, having prismatic eye *m*, the rock-shaft L, extending through said eye, and the thumb-lever M at the side of the lock-case, substantially as specified.

2. The barrel A, having slot *e'* and guides *n*, the breech-block I, having a firing-pin, *j*, the jointed lever J, having eye *m*, the rock-shaft L, and the spring *s*, combined and operating substantially as set forth.

198,081. **HUB-BORING MACHINES.** James C. Cornell, Lowder, Ill. Filed Apr. 16, 1877.

Brief.—The knife or cutter is drawn forward by a hook passing through the hub, having a screw-thread and nut at the outer end. The hub rests on friction-wheels, which are adjustable.

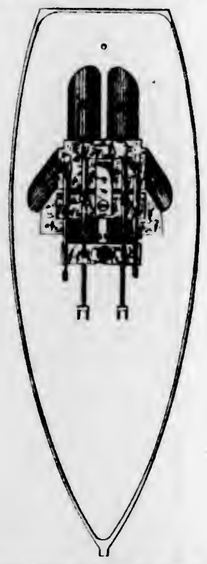


1. A hub-boring machine, consisting of a bench, with adjustable hub-supporting carriages, fastening top band, adjustable cutting knife, connecting feed-screw shaft and hub, revolving grab and crank mechanism, substantially in the manner set forth.

2. The adjustable hub-supporting carriages B, having inner and outer notches *d* for shafts of friction-wheels, to support hub in level position, with smaller or larger end toward knife, substantially as described.

3. The combination of the sliding carriage B, having friction-rollers *d* and pivot-bolts *c'*, with a top band, D, slotted at the ends, and provided with binding thumb-nuts *e* and friction-rollers, substantially as specified.

198,082. PROPELLING VESSELS. Samuel H. Cowles, Oakville, Conn., assignor of one-half his right to B. B. Brower, Sacramento, Cal. Filed Oct. 11, 1877.

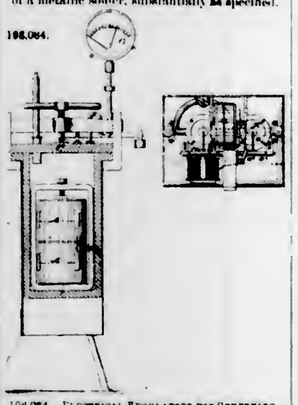


The combination of the cylinders B B, ejutes or passages D D, extending through the stern of the boat, the passages D' D', one on each side of the cylinders, and extending forwardly through the sides of the boat, the pistons C C, and gates G G and G' G', constructed and arranged to operate substantially as and for the purposes herein set forth.

198,083. FENCE-WIRE. Edward M. Crandal, Chicago, Ill., assignor of one-half his right to O. H. Kirkham, same place. Filed Aug. 28, 1877.

A fence-wire consisting of two or more wires twisted together, and firmly united each to the other continuously from end to end by means of a metallic solder, substantially as specified.

198,084.



198,084. ELECTRICAL REGULATORS FOR GOVERNING THE FLOW OF GAS TO HEATING APPARATUS. Jos. Davidson, Berlin, Prussia, Germany. Filed Sept. 6, 1877.

Brief.—A chronometric device shuts off the gas after a predetermined amount of flow. An electrical device regulates the intensity of flow, and arrests the chronometer during intervals that the gas is not flowing. Thus the chronometer records or shows only the time during which gas flows. A manometer breaks the circuit, and is actuated by pressure of steam generated by the gas flame.

1. The combination of an electro-magnet, an armature, electrical-conducting wires, and a manometer leaving circuit closing and breaking pointers, with a gas-supply valve and a conduit-pipe, substantially as and for the purpose set forth.

2. The combination of an electro-magnetic regulator and a chronometer or time-piece mechanism with a gas controlling or regulating valve, and a valve for shutting off the flow of gas entirely, substantially as and for the purpose set forth.

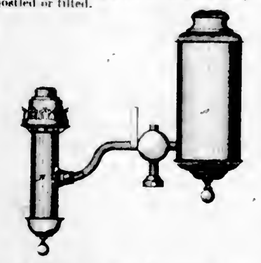
3. The manometer having a circuit-breaking pointer, and the indicating and circuit-closing pointers, in combination with electrical conducting wires, magnet, armature, and a gas-supply valve, substantially as and for the purpose set forth.

4. The dial piece of the chronometer, having a projecting arm for arresting the motion of the pendulum when the main supply-valve is closed, as and for the purpose set forth.

5. The armature provided with an arm for starting and stopping the pendulum of the chronometer mechanism, as and for the purpose set forth.

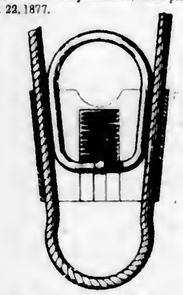
198,085. PETROLEUM-LAMPS. Wilhelm Dette, Berlin, Prussia, Germany, assignor to Bennett B. Schneider, New York city. Filed Oct. 26, 1877.

Brief.—The object of the valve is to check the flow of oil to the burner when the lamp is jostled or tilted.



In a lamp or chandelier having a hollow arm or tube connecting a reservoir and a burner, a valve arranged at any point within such hollow arm or tube, operating independently of other devices by the fluid coming in contact with said valve, substantially in the manner and for the purposes herein set forth.

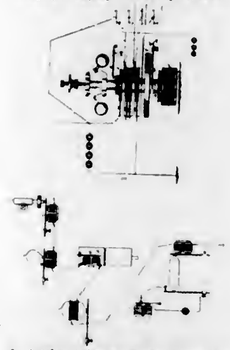
198,086. BAG-FASTENERS. Harry Dunn, Nashville, Tenn., assignor of two-thirds his right to Horace H. Harrison and Harry Harrison, same place. Filed Oct. 22, 1877.



1. The combination, in a bag-fastener, of an exterior casing having inclined interior sides or surfaces, with an interior wedge, which is forced inward by a spring, is connected to the casing, and is provided with a handle by which the wedge may be withdrawn against its spring, substantially as described.

2. The combination, in a bag-fastener, of an exterior casing having interior inclined surfaces, with an expansive wedge-block, substantially as described, whereby the wedge-block may be adjusted to compress and hold corrds of various sizes without protruding from the casing, as set forth.

198,087. TELEPHONIC TELEGRAPHS. T. A. Edison, Menlo Park, N. J., assignor to the Western Union Telegraph Company. Filed May 16, 1876.



1. A telegraphic circuit and battery, a series of revolving break-wheels, and a series of finger-keys, arranged in a derived circuit between the line and the earth, substantially as set forth, whereby the revolving break-wheels are short-circuited through the finger-keys, substantially as specified.

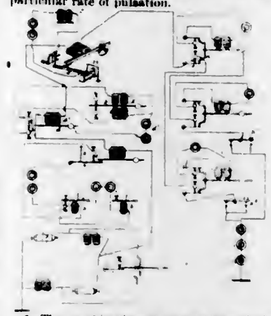
2. The combination, in a telegraph, of an electro-magnet, a sounding box or tube containing a column of air, and a reed acting as a valve at the mouth of the tube, so that the column of air is vibrated by pulsations in the electro-magnet, substantially as set forth.

3. An iron resonant tube or sphere, surrounded with a wire helix, and included in a telegraphic circuit, substantially as set forth.

4. The combination of an electro-magnet, vibrating reed, sounding-box or resonator of corresponding pitch, and a local circuit breaking apparatus, actuated by the vibrations of a column of air in said resonator, substantially as set forth.

198,088. TELEPHONIC TELEGRAPHS. T. A. Edison, Newark, N. J., assignor to the Western Union Telegraph Company. Filed Apr. 6, 1876.

Brief.—Two or more reeds vibrating at different rates and sending pulsations to line. Circuit-changer placed between reeds and line, and operating at a speed somewhat less than that of either reed, allows vibrations from one reed only at a time to pass to line. Harmonic receivers tuned to respond each to a particular rate of pulsation.



1. The combination of several acoustic instruments, each transmitting a different series of waves or impulses, with an automatic circuit-changer, whereby but one series of waves is allowed to pass over the wire at the same time, for the purpose set forth.

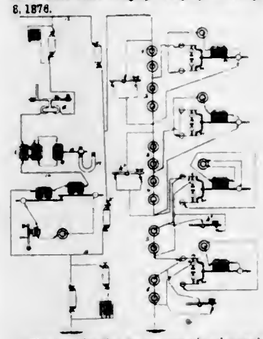
2. The combination of an acoustic main line receiving instrument, operated by a series of waves within a main circuit of another acoustic instrument, corresponding in its vibrating time, within a local circuit operated by the main line instrument, substantially as set forth.

3. The combination, with an acoustic receiving-instrument, of a repeating-sounder for intercepting false signals, substantially as set forth.

4. The reed *d*, vibrated by a magnet in the main line circuit, in combination with the reed *k*, local circuit, magnets, and contact-points *h i*, substantially as set forth.

5. The combination of a polarized acoustic receiving-instrument in the bridge-wire of a Wheatstone balance with induction devices in the line, substantially as and for the purposes set forth.

198,089. TELEPHONIC OR ELECTRO-HARMONIC TELEGRAPHS. T. A. Edison, Newark, N. J., assignor to the Western Union Telegraph Company. Filed Apr. 6, 1876.



1. The combination, in an acoustic telegraph, of opposing batteries, a vibrating reed, and a short circuit to one of the batteries, opened and closed by the action of such reed, substantially as set forth.

2. In an acoustic-telegraph instrument, a torsion-rod, *s*, and an electro-magnet for vibrating the same, substantially as set forth.

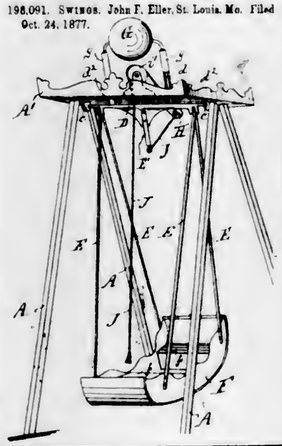
3. The combination, in an acoustic telegraph instrument, of two reeds, one having a slightly different vibration from the other, and a local circuit to a sounder passing through such reeds, substantially as and for the purposes set forth.

198,090. INKS FOR CANCELING. Charles O. Egerton, Baltimore, Md. Filed Oct. 29, 1877.

1. A canceling-ink consisting of two or more coloring materials, one of which is practically insoluble, and an abrading material, substantially as described.

2. The ink herein described, consisting of iodine, indigo, iron-mut, brick-dust, red and blue aniline, muriatic acid, and alcohol, substantially as set forth.

198,091. SWINGS. John F. Eller, St. Louis, Mo. Filed Oct. 24, 1877.



1. In a swing, the bracket B, having the mortises b^2 b^2, the lug-projection C with the shoulder-bearing *c*, as and for the purpose set forth.

2. The swinging bar D, having knife-edges d^1 d^1, in combination with the shoulder-bearings *c*, as and for the purpose set forth.

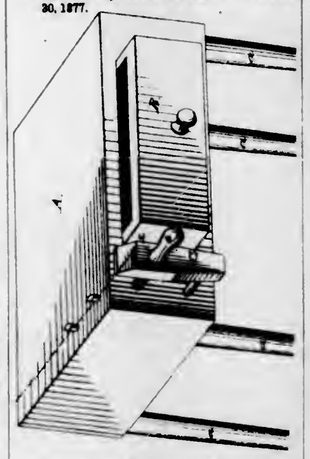
3. The counter-weight G, having hollow stems *g*, in combination with the pins *d d*, as and for the purpose set forth.

4. The combination of the hinged sectional wings *f'* with the seats *f*, as and for the purpose set forth.

5. The combination of the cord J, roller j^2, arms H E^1, bar D, having knife-edges d^1, the bearings *c*, hangers E, seat F, the canopy A', legs A, all said parts being constructed to operate in the manner and for the purpose set forth.

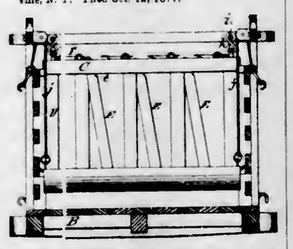
6. The combination, with the parts mentioned in the preceding claim, of the pins *d d*, and counter-balance G, to operate as set forth.

198,092. COMBINED TOY WORK-BENCH AND TOOL-CHEST. Adolph Eriebach, Boston, Mass. Filed Oct. 30, 1877.



The combined toy work-bench and tool chest herein shown, consisting of the structure A, serving as bench and chest, provided with detachable legs *a*, sliding box or drawer B, and adjustable vise C, when constructed and arranged in the manner and for the purpose set forth.

198,093. STOCK-CARS. Charles R. Evans, Hornellsville, N. Y. Filed Oct. 12, 1877.

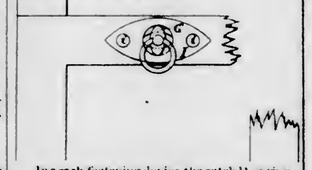


1. The combination, with the frame C and stationary and movable stanchions, of the trough G, suspended as shown, said frame and trough being capable of being raised or elevated to the top of the car and secured thereto, substantially as and for the purpose set forth.

2. The frame C, suspended upon rods *i* by links *k*, to admit of its being swung to the top of the car or to or against the sides thereof, said frame being framed with elongated slots *d*, for the reception of the upper ends of movable stanchions E, and held in a vertical position by latches F having openings *g*, substantially as and for the purpose set forth.

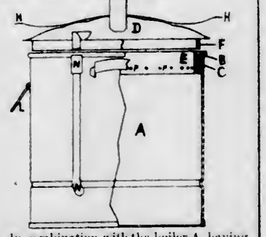
198,094. FASTENERS FOR THE MEETING-RAILS OF SASHES. Francis M. Faircloth, Jr., Jersey City, N. J. Filed Oct. 24, 1877.

Brief.—A flat slide-bolt with beveled ends, actuated by one or more springs, is mortised into the meeting-rails of the lower sash, and engages with a striking plate mortised into the upper sash. This slide-bolt is connected by swivel-joint to a stem, allowing it to be turned or partially turned at pleasure; and this stem is provided with two catches, forming a cross-piece, and serving to hold the slide-bolt either in advanced or retracted position, the stem having also a folded end or ring, which drops down by gravity into a recess formed for its reception.



In a sash fastening device, the catch D, spring or springs E, swivel stem G, and engaging arms G^1, in combination with the plate I, having a corresponding hole adapted to allow the locking and liberation of the fastening, as herein specified.

198,095. STEAM COOKING-KETTLES. W. G. Flanders, Boston, Mass. Filed Oct. 30, 1877.



1. In combination with the boiler A, having the flange E, groove B, packing C, and cover D, having the projection F, the spring-hooks H and loops L, or their equivalents, all being constructed and arranged to operate substantially in the manner described, as and for the purposes set forth.

2. In combination with the boiler A, having the flange E, groove B, and packing C, spring-hooks H and loops L, the detachable upper portion K, having the flange E, groove B, packing C, spring-hooks H, and loops L, all arranged substantially as described, as and for the purposes set forth.

198,096. BRICK-MOLDS. Samuel Felwell, Memphis, Tenn. Filed May 31, 1877.

Brief.—The bottom of the mold has a vertical movement on suitable guides, and is pressed outward by spiral springs. The brick, when molded, is readily detached because of the air-space afforded between the bottom of the mold and the brick.



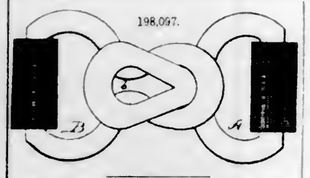
1. The combination of the movable bottom B, guides C, and spiral springs D, all arranged and operating as herein set forth, for the purpose specified.

2. The combination, to form a brick-mold, of the body A, bottom B, guides C, springs D, and temper-screws E, all as set forth.

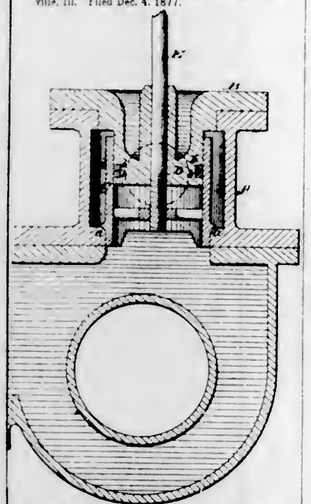
198,097. COCKEYES. Michael Fries, Rac City, Iowa. Filed Sept. 11, 1877.

The cockeye B, constructed as described, with a slot or passage, *b*, between the head or loop and the tongue, and adapted to receive an ordinary cockeye, A, for the purpose of forming a trace carrier, as herein set forth.

198,097.

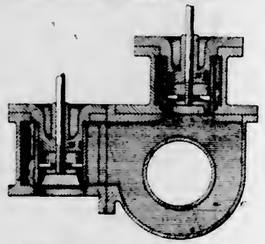


198,098. PUPPET-VALVES. Hamlin F. Frisbie, Danville, Ill. Filed Dec. 4, 1877.



The cylindrical valve C, chest A, with seat *a*, cover B, with head D, having packing-rings *b*, and the chamber *d*, surrounding the valve, all constructed and combined together substantially as and for the purposes herein set forth.

198,099. STEAM-ENGINE CYLINDERS. Hamlin F. Frisbie, Danville, Ill. Filed Dec. 1, 1877.



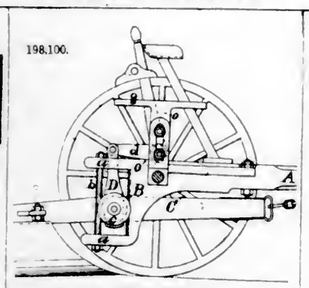
A steam-cylinder provided at each end with a surrounding jacket, C, forming a continuous steam chamber, *a*, with a passage, *b*, from said chamber into the cylinder, extending nearly around the end thereof, to admit of an instantaneous ingress and egress of steam, each jacket being provided with an inlet and an outlet chest having valves therein, substantially as herein set forth.

198,100. SULKY-PLOWS. Henry Fuller and Thomas L. Boyd, Franklin, Ohio. Filed June 5, 1877.

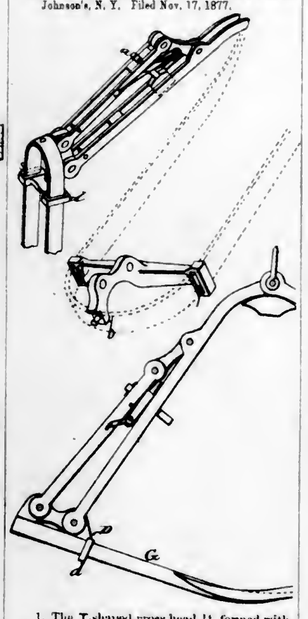
Brief.—Plates upon each side of the tongue, and extending rearward and downward, form guides for the plow-beam. A lever and rock-shaft suspend the plow-beam, whose hanger has friction-rollers. The tongue, with the beam and plates, adjusts laterally upon the axle.

The frame consisting of the plates B, guides *b*, and tongue A, in combination with the pivot provided with grooved rolls *c*, upon which the plow-beam C works, substantially as described.

198,100.



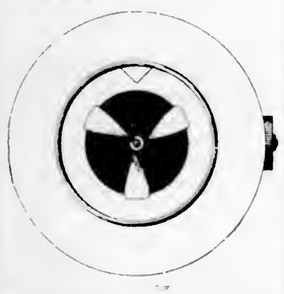
198,101. HORSE HAY-FORKS. Emmet V. B. Gardner, Johnson's, N. Y. Filed Nov. 17, 1877.



1. The T shaped cross-head D, formed with the slots *d d* and rest *b*, substantially as and for the purposes herein set forth.

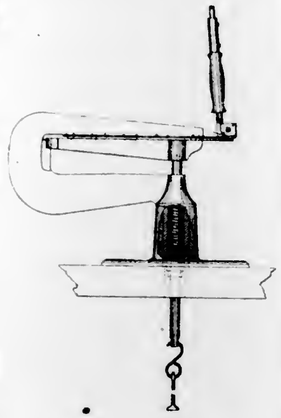
2. The combination of the cross-head D, provided with slots *d d* and rest *b*, and the tines G G, made of a single piece of metal bent in the center, substantially as and for the purposes herein set forth.

198,102. MASH-TUBS. Joseph Geomeo, Buffalo, N. Y. Filed June 14, 1877.



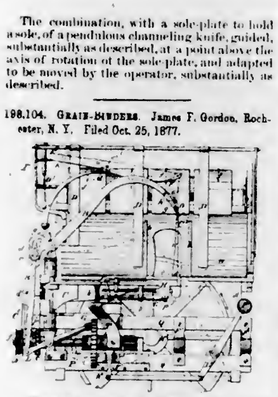
The combination, in a mash-tun, of a stirrer provided with radial screw-blades and an angular vertical projection in the inner walls of the mash-tun, substantially as and for the purpose specified.

198,103. SOLE-CHANNELING MACHINES. Louis Goddu, Winchester, assignor to McKay Metallic Fastening Association, Boston, Mass. Filed Sept. 18, 1877.



The combination, with a sole-plate to hold a sole, of a pendulous channeling-knife, guided, substantially as described, at a point above the axis of rotation of the sole-plate, and adapted to be moved by the operator, substantially as described.

198,104. GRAIN-BINDERS. James F. Gordon, Rochester, N. Y. Filed Oct. 25, 1877.



1. The combination of the binding-arm B and actuating-arm L, both extended in rear of their pivots, with a connecting-bar, R, attached to their rear ends, substantially as shown, whereby an unobstructed space is left for the grain under the entire length of the binding-arm.

2. The vertical rock-shaft, provided with the twister-carrying arm, and with the binder-arm mounted on a horizontal pivot, in combination with operating mechanism, substantially such as shown, arranged to rock the shaft and to hold the binder-arm down, and prevent a vertical motion of the same during its movement backward with the grain.

3. The combination, in a grain-binder, of a slotted bracket or guide, *g*, a pivoted slotted binder-arm, and an actuating pin or roller, *e*, arranged to play in the slots of said parts, substantially as shown and described.

4. The combination, in a grain-binder, of the slotted pivoted binder-arm, the slotted bracket *g*, the connecting-rod R, with pin *e*, and the actuating-lever L, substantially as shown.

5. The vertical rock-shaft, having the binder-arm and the wire-guiding arm F, both mounted thereon.

6. In a grain-binder, the combination of a reel, E, provided with a pulley, I, and mounted on a yielding support, *e'*, a friction-band, K, and the binding-wire, substantially as shown, whereby the wire is caused to control its own tension.

7. The binder-arm B, wire-guide F, reel E, and tension devices, all arranged to vibrate horizontally about a common center, as shown.

8. In a grain-binder, a device, *o*, constructed substantially as shown and described, in combination with a binding-arm and a compressing-cord, substantially as shown, whereby the cord is caused to encircle the bundle, and released at its end to permit the escape of the same.

9. In a grain-binder, the combination, substantially as herein shown and described, of a compressing-cord, C^2, a device for taking the same up when released, and a movable device, *o*, substantially such as shown, arranged to carry the free end of the cord around the bundle, and at the proper time release said end and seize the cord at a point one side of the bundle, as described.

10. In a grain-binder, the combination of a compressor-cord, C^2, or its equivalent, a binder-arm or equivalent device for passing the same around the bundle, and a drum, N, driven by friction, arranged to take up said end when released or slackened, substantially as shown and described.

11. In a grain-binder, the combination of a vibrating binder-arm, a continuously-rotating take-up drum, N, driven by friction, and a compressing cord, C^2, or its equivalent, having one end attached to the drum, and the other connected with the binder-arm, substantially as shown.

12. In a grain-binder, the combination of the compressor-cord C^2 and the device *o*, arranged to operate as shown and described, with the hook i^2, as and for the purpose set forth.

13. In a grain-binder, the combination of a slotted table and a twister-head mounted on a carrier below the table, and extending upward through the slot and above the face of the table, as shown.

14. The pivoted wire-clamping jaw *j*, in combination with the centering-plate i^4, substantially as shown.

15. A track, T, and roller e^1, in combination with the swinging twister-carrier C, as and for the purpose set forth.

16. The combination of the twister and its actuating-wheel mounted on the vibrating carrier C, with mechanism, substantially such as shown, for imparting an intermittent motion to the actuating-wheel and twister.

17. A pawl, p^3, in combination with a fixed bar, n^3, or its equivalent, wheel G^1, and twister-carrier C, substantially as and for the purpose set forth.

18. In combination with the rolls n^2 and n^4, having the carrier-apron mounted thereon, the teeth e^2 and e^4, mounted on crank-pins on the outer ends of the rolls, outside of the edges of the apron, as and for the purpose described.

19. In a twisting mechanism for grain-binding machines, a guard-plate provided with an annular opening, having an inlet closed by an extension, e^5, and a spring-guard, e^6.

20. A twister, *t*, longitudinally furrowed, so as to form a series of hooks, the same being divided into an upper and lower portion by a groove, a^1, in combination with the annular guard e^5, substantially as and for the purpose set forth.

21. In a harvesting and binding machine, the combination of the shifting binding mechanism, the special counter-balance P^1 therefor, and intermediate connecting mechanism, substantially such as shown, whereby the binding mechanism and weight are moved in opposite directions and the proper balance of the machine maintained at all times.

22. In combination with a binding-arm, or similar device to carry it around the bundles of grain, a compressing-cord having one of its ends held by a frictional device in such manner that it may yield when subjected to a given strain.

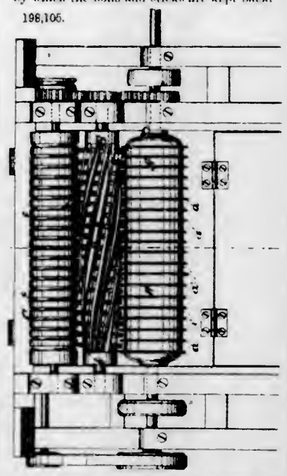
23. In a grain-binding machine, the combination of a binding or wire-carrying arm with a compressing-cord connected therewith, and held at one end by friction, so that it will act with a uniform unchanging pressure upon the grain.

24. In a grain-binding machine, a vertically-reciprocating and horizontally-vibrating binder-arm, having its end extended in rear of its horizontal axis, and operating devices connected with said extended end, whereby an unobstructed grain-space is afforded under the binder-arm, as shown.

198,105. COTTON SEPARATOR AND CLEANER. Richd. R. Gwathney, Louisville, Ky. Filed June 8, 1877.

Brief.—The retarding-roller is covered with a number of rows of pins arranged spirally. Between these rows and in the spaces are floats made of metal and turned up one edge, by which the bolls and sticks are kept back.

198,105.



1. In a boll and seed-cotton separator, the stripper or retarding roller B, having pins *b* and floats *b'*, as and for the purpose set forth.

2. In a boll and seed-cotton separator, the combination of the cylinder A, having teeth *a*, and the roller B, having rows of pins *b* and floats *b'*, said cylinder and roller being so arranged as to permit the seed-cotton to pass between them, as and for the purpose set forth.

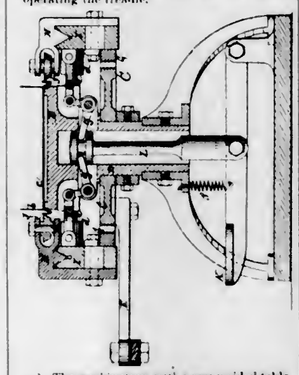
3. The combination of the roller B, having pins *b*, and the roller C, having grooves *c* for the passage of said pins, as and for the purpose set forth.

4. The combination of the cylinder A, having teeth *a*, roller B, having pins *b*, and roller C, having grooves *c*, as and for the purpose set forth.

5. In a boll and seed-cotton separator, the combination of the cylinder A, for removing seed with cotton, the roller B, for keeping back the bolls and sticks, the agitator D, for breaking the bolls, a brush, E, for transferring seed cotton to beater, and a beater, F, for dusting, as and for the purpose set forth.

198,106. CAN-SEAMING MACHINES. William Handy, Brooklyn, N. Y. Filed Nov. 15, 1877.

Brief.—By steam or other power partially rotates alternately in opposite directions a wheel mounted on the can-support, which wheel gears with racks, and thus reciprocates the four slides carrying seaming rollers. The slides are reciprocated to and from the can by operating the treadle.



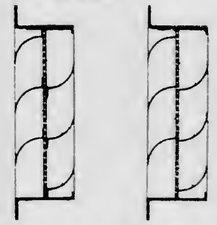
1. The combination, with a many-sided table constructed to receive the top or bottom of the can over it, of a series of slides corresponding in number and arrangement with the sides of the table, and provided with seam-closing rollers, said slides being adjustable in or out relatively to the sides of the table, and being made to reciprocate in like courses simultaneously around the table, substantially as specified.

2. The combination, with a many-sided table constructed to receive the top or bottom of the can over it, of a series of reciprocating slides, each provided with two or more seam-closing rollers, arranged one in advance of the other, relatively to the sides of the table, essentially as described.

3. The combination of the oscillating spur-wheel C, the many-sided table B, the guides I, adjustable in or out relatively to the sides of said table, the slides H, carried by said guides, the racks G, attached to the slides H, and one or more closing-rollers, J, carried by each of said slides, substantially as specified.

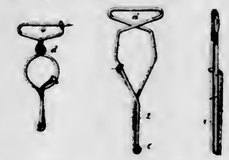
4. The combination, with the table B and the guides I, carrying the slides H, with their attached seam-closing rollers, of the treadle K and mechanism connecting said treadle with said guides, for adjusting the latter in or out relatively to the sides of the table, and for regulating the roller-pressure on the seam, essentially as described.

198,107. VENTILATORS. George Hayes, New York, N. Y. Filed Mar. 31, 1877.



A louver having in combination a perforated or reticulated portion, over which a series of gutters is distributed on the inner side, and a series of ledges on the outer side, as herein described.

198,108. CLASPS. Edgar K. Haynes, Boston, Mass. Filed Oct. 31, 1877.



1. A fastening device composed of two jaws, one recessed or made double, and the other made as a yielding jaw to enter the recess in the double jaw, the two jaws being pivoted together at their lower ends, and having their faces crossed near their pivotal points, to receive between their faces a fabric passed from the eye or enlarged open portion of the fastening, and to hold such fabric without cutting it, substantially as described.

2. A fastening composed of pivoted jaws, adapted to cross the edge or face of one beyond the edge or face of the other, and of a loop, *d*, to permit the jaws to be closed by pulling on such loop, substantially as described.

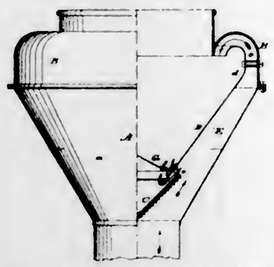
3. The combination, with a fastening device composed of a recessed and a yielding jaw pivoted together, and having their faces crossed, as described, above their pivotal points, and below an eye-bearing into such jaws, of an attaching device to hold the fastening device in place, substantially as described.

198,109. ORNAMENTAL CHAIN-LINKS. Louis Heckmann, Wrentham, Mass., assignor of two-thirds his right to Wm. H. Wade and Edward P. Davis, same place. Filed Sept. 6, 1877.



The chain-link *a*, constructed substantially as herein described, and having its side made in the shape of an oblique-angled parallelogram or rhomboid, so as to be capable of producing the two styles of chains shown in Figs. 1 and 2, as above set forth.

198,110. LOCOMOTIVE SPARK-ARRESTERS. J. Hewitt, St. Louis, Mo. Filed Oct. 8, 1877.

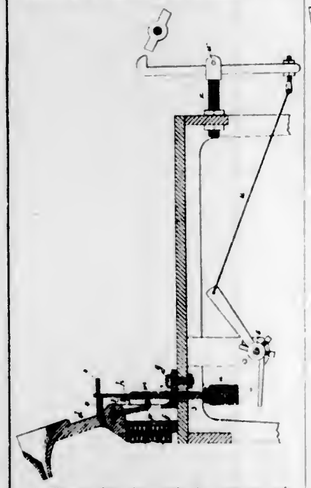


1. The combination of the stack A, deflector B, cone C, and cone D, the latter being extended upward, as described, to form the flue E and extension *e*, substantially as set forth.

2. The combination of the stack A, deflector B, cones C, D, and G, and flues *e* E *e*, substantially as described.

198,111. STOP-MOTIONS FOR DRAWING-FRAMES. H. S. Houghton, Smithville, Mass. Filed Aug. 21, 1877.

Brief.—A defect in the sliver or its supply moving the trumpet causes a suspended weight to drop upon the catcher and operate the mechanism for stopping the machine.



1. The combination, with the trumpet and its arm *d*, of a weight, *s*, arranged to be disconnected and dropped by the movement of the trumpet-arm, so as to stop the frame, substantially as described.

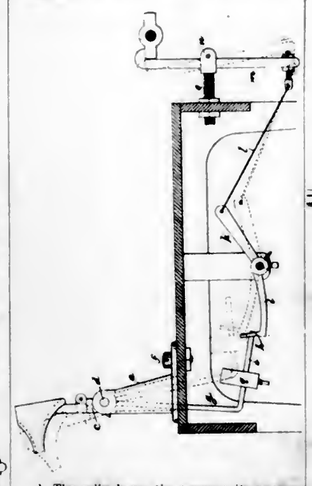
2. In a drawing-frame, a single catch, *r*, and stop-wheel *b*, a shaft, *s*, and a series of catchers, *r*, one for each trumpet, whereby a weight disconnected and dropped by the action of either of the trumpet-arms of the series of trumpets will stop the frame.

3. The trumpet-arm *d* and its projection *o*, in combination with a rod, *m*, and weight, said rod being provided with a projection, *l*, and supported as described, whereby, when the sliver breaks, the projection *o* will be moved to release the weight and let it drop, substantially as and for the purpose described.

4. The trumpet-arm *d*, provided with projections *o p*, in combination with a weight, *s*, and with mechanism to support it until released by the movement of the trumpet, to operate as and for the purpose described.

198,112. STOP-MOTIONS FOR DRAWING-FRAMES. H. S. Houghton, Smithville, Mass. Filed Aug. 21, 1877.

Brief.—When a sliver breaks or is imperfect the trumpet, by means of its weighted arm, is drawn from its normal to a vertical position, in which position the catch is thrown into the range of the "stop-wheel," and the machine stopped in the usual way. The upper portion of the trumpet-arm is jointed, so that the trumpet can be turned far enough away from the rollers to permit of easy threading, &c.

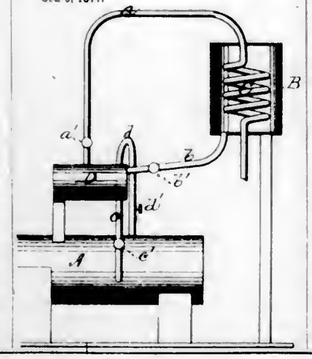


1. The roller-beam, the trumpet, its arm *d*, pivoted at *d*, to turn only in an arc of a vertical circle intersecting the axes of the rollers substantially at right angles, and, extended below the roller-beam, the adjustable weight *q*, carried by the arm, to turn the trumpet, as described, and a catch, in combination with connecting mechanism between the catch and arm *e*, to operate the catch to stop the drawing-frame, substantially as described.

2. The trumpet and its pivoted arm *e*, provided with a joint, *r*, to permit the trumpet to be turned back, substantially as and for the purpose described.

3. A trumpet and its pivoted carrying-arm *e*, extended below the top plate, in combination with arms *i k* and mechanism, substantially as described, for stopping the frame when the sliver is imperfect, substantially as described.

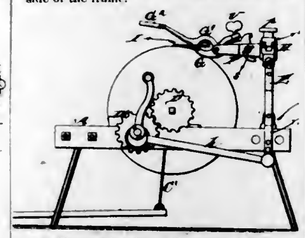
198,113. HEATER AND FEEDER FOR STEAM-BOILERS. James B. Hyde, Whitesborough, Tex. Filed Oct. 8, 1877.



The combination, with the boiler A, the feeding-drum D, and the valved pipes *c d*, leading, respectively, from the water and steam spaces of the boiler into said drum, of the tank B, having steam-coil C, the valved pipe *e*, leading from said coil into said drum, and the valved pipe *b*, connecting the drum and tank, substantially as specified.

198,114. SICKLE-GRINDERS. William S. Ingraham, Waukegan, Ill. Filed Sept. 28, 1877.

Brief.—To prevent the holder reciprocating it is disconnected from the reciprocating arm and attached to a forked arm pivoted to the side of the frame.



1. The rocking frame E, provided with adjusting-holes at its upper end, in combination with the curved pivoted bar H, perforated at its ends, and provided with a tubular bearing slotted across its top, and roughened, serrated cap *n*, set-screw *p*, and the fork F, having bearing *m*, substantially as described, and for the purpose set forth.

2. The curved, pivoted, and vertically-adjustable bar H, slotted at its top and roughened, in combination with the serrated cap *n*, set-screw *p*, pivoted forks F and G, and set-screw *z*, substantially as described, and for the purpose set forth.

3. The curved, pivoted, and vertically-adjustable bar H, constructed as set forth, in combination with the serrated cap *n*, set-screws *p z r*, and pivoted forks F G G', substantially as described, and for the purpose set forth.

198,115. CAR-AXLE-BOX BRASSES. W. F. Jenkins, Jr., Richmond, Va., assignor of one-half his right to E. L. Van Lew, same place. Filed Sept. 27, 1877.



1. The journal-box brass provided with a supplemental lining, having a longitudinal movement within the same, in connection with the axle, substantially as herein set forth.

2. The combination of the part A, provided with the projecting ribs or flanges *a a*, having oil-passages *x x*, and the sliding part B, in connection with a car-axle, for the purposes herein set forth.

198,116. CHECK-ROWERS. John Johnson, Pana, Ill. Filed Aug. 9, 1877.

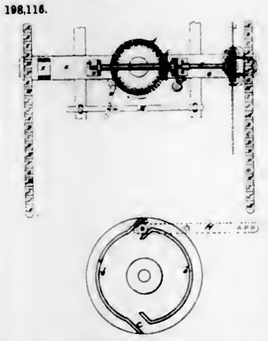
Brief.—The shaft carrying the pulley, around which the rope is passed, is adjustable from side to side of the frame. In one of the standards is mounted an eccentric-bearing for throwing the gear-wheel mounted on the horizontal shaft in and out of gear with the horizontal bevel-wheel. Motion is imparted to the seed-slide through the medium of a pivoted bar having a friction roller that moves in an interrupted flange on the under side of the horizontal bevel-wheel.

1. In a check-row corn-planter, the combination of the bevel-gear wheel, arranged horizontally, and provided on its under side with the interrupted pendent flange *b*, having bent ends forming ways *c*, the seed-slide, and its vibrating lever H, whose free end works in contact with the flange on its inner and outer side alternately, all as shown and described.

2. In a check-row corn-planter, in combination with wheel A for operating the seed-slide, the shaft B, carrying gear C, and the eccentric bearing, having arm F, as shown and described, for the purpose specified.

3. In a check-row corn-planter, the combination, with the shaft B, of the detachable shaft-section D, the bearing, and the socket K, all as shown and described.

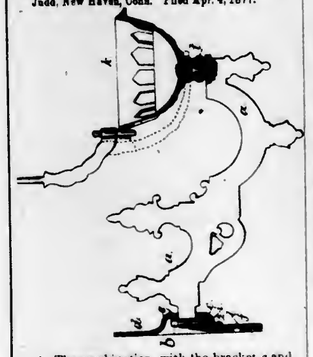
198,116.



198,117. PLUG-TOBACCO. John L. Jones, Greensborough, N. C. Filed Sept. 11, 1877.

As a new article of manufacture, plugs of tobacco inclosed and pressed in wrappers of paper, linen, or other fibrous or textile fabric, colored in imitation of tobacco-leaf, whereby different grades of tobacco are distinguished by the color or appearance of the wrappers.

198,118. LAMP-BRACKETS. Albert D. Judd and E. M. Judd, New Haven, Conn. Filed Apr. 4, 1877.



1. The combination, with the bracket *a* and its pivots *b* and *c*, of the wall-plate *d*, and retaining-plate *f*, substantially as set forth.

2. The combination, with the bracket *a*, having a hole at its outer end, the metallic font-cup *k* and its central pivot-pin entering such hole, and the reflector-holder, supported as specified, so that the lamp and reflector can be entirely revolved upon said central pivot-pin, as set forth.

198,119. BRICK MACHINES AND MOLDS. Richard A. Kearns, William D. Lewis, and Wilson M. Jenkins, Philadelphia, Pa. Filed Nov. 9, 1877.

Brief.—The beater-shaft is connected to a grooved hub at the bottom of the mud-cylinder by a tongued collar, so that the mud or water cannot pass between or through the joints. The mold has expansible sides to facilitate the removal of the brick therefrom. The mold-supporting rack is made vertically adjustable, and when the molds have been filled they are thrust forward by means of a sliding frame operated by tappets secured to the lower end of the beater-shaft.

1. The shaft B, hub D, and stem G, constructed and combined substantially as and for the purpose set forth.

2. The hub D and collar K, connected by tongue and groove, and combined with the bed-plate, substantially as and for the purpose set forth.

3. The cylinder A, in combination with the carriage J and the winged tappet H, substantially as and for the purpose set forth.

4. The cylinder, in combination with the rack L, made vertically adjustable by means of the front chains or cords *d*, connected to a shaft controlled by a ratchet and pawl, and the rear screw-bolts *e*, substantially as and for the purpose set forth.

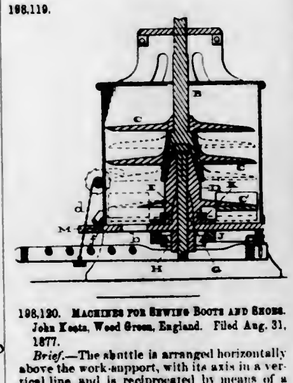
5. The bed-plate with the throat *f*, in combination with the plane M, fitted angularly within said throat, and overhanging the rack or support of the mold, whereby the surplus mud or clay passes through the throat, over the plane, and outside and above the bed-plate, substantially as and for the purpose set forth.

6. The mold, having expansible side pieces *g* hinged at their lower ends to the bottom piece *j*, in combination with the operating levers fitted to the end pieces A, substantially as and for the purpose set forth.

7. The levers P, in combination with the expansible side pieces *g* of the mold, substantially as and for the purpose set forth.

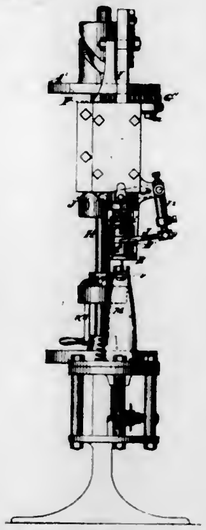
8. The movable knock-off plates or feet S, in combination with the ends or sides of the mold, substantially as and for the purpose set forth.

198,119.



198,120. MACHINES FOR SEWING BOOTS AND SHOES. John Keats, Wood Green, England. Filed Aug. 31, 1877.

Brief.—The shuttle is arranged horizontally above the work-support, with its axis in a vertical line, and is reciprocated by means of a rotating spindle provided with pins which engage in recesses in its upper face. The work-supporting post, the sides of which, near the top, are cut away, thereby leaving openings which cause the head to form a narrow bridge, contains a whirl for supplying thread to the needle, arranged above such post, and operating in conjunction with said shuttle and a loop-opener.



1. The combination of the reciprocating rotary shuttle, and a forked shuttle-holder with

in which the said shuttle works, provided with a bearing, *e*, outside of the fork, and a corresponding bearing-surface, *e'*, provided inside of the shuttle-nose, substantially as and for the purpose herein described.

2. The combination, with the reciprocating rotary shuttle, of the rotary spindle E, carrying-block E^2, pinion *i*, cam E^1, pinion F, toothed sector G', lever G, and cam A', substantially as and for the purpose herein set forth.

3. The combination of a reciprocating rotary shuttle and a hooked needle, both arranged above the support on the upper surface of which the material to be sewed is placed, and mechanism for supplying thread to the said needle arranged below the said support, substantially as herein described.

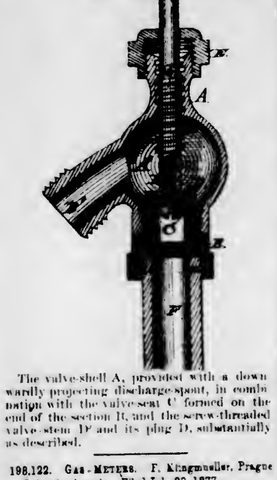
4. The combination of a reciprocating rotary shuttle and a hooked needle, both arranged above the support on the upper side of which the material to be sewed is supported, mechanism for supplying thread to the said needle below said support, and a loop-opener for opening, spreading, and holding said loop, substantially as herein described.

5. The combination of a hooked needle, mechanism for delivering thread to the same, and a reciprocating rotary shuttle, the axis of rotation of which is parallel or approximately so with the path of the needle and with the axis of the whirl, substantially as herein described.

6. The combination, with a rotary whirl for laying the thread into the hook of the needle, of a work-supporting device containing said whirl, and having its upper part or head raised above the whirl, tapered on two opposite sides, and leaving openings *r r* therein, whereby the said head is made to present a narrow open bridge, substantially as and for the purpose herein specified.

198,121. GARDEN-VALVES. Vincent Kingwell, San Francisco, Cal. Filed Nov. 26, 1877.

Brief.—The discharge-spout is so located with reference to the valve that nearly all the water is drained from the shell, preventing serious injury from freezing. It is also inclined at such an angle as to prevent any abrupt bend in the hose.



The valve-shell A, provided with a downwardly projecting discharge-spout, in combination with the valve-seat C formed on the end of the section B, and the screw-threaded valve-stem D' and its plug D, substantially as described.

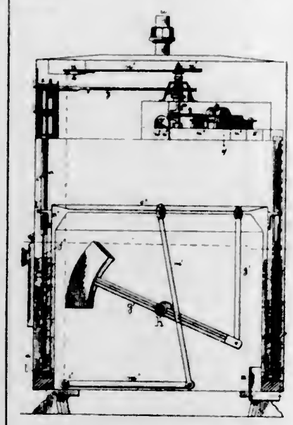
198,122. GAS-METERS. F. Klingmueller, Prague Bohemia, Austria. Filed July 23, 1877.

1. The bells *c c'* and chambers *b b'*, in combination with the filling-boxes *d d'*, with partial partitions *e e'* and passages *f f'*, substantially as and for the purpose set forth.

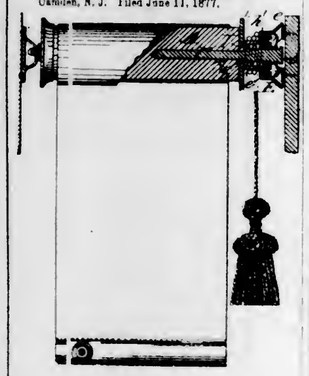
2. The bells *c c'*, in combination with the valve-crank-shaft *p* and intermediate mechanism, consisting of the jointed rods *n n'*, shafts *l l'*, shafts *k k'*, and knee-joints *n n'*, and with the adjustably-connected crank-pin *o*, substantially as and for the purpose set forth.

3. The bells *c c'*, weighted levers *g g'*, jointed rods *m m'*, ways *l l'*, and rods *i i'*, in combination with the shafts *l l'*, shafts *k k'*, knee-joints *n n'*, crank-shaft *p*, counter-shaft *y*, valves *r r'*, escape-pipes *u' u''*, and pipes *u r*, substantially as and for the purpose set forth.

198,122.



198,123. CURTAIN-FIXTURES. J. Christopher Lake, Camden, N. J. Filed June 11, 1877.



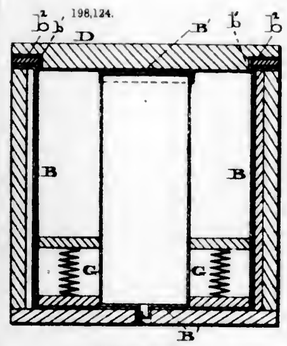
The combination, with the stop bracket D, the recessed pulley E, and the brake or frictional device contained therein, of the ratchet-wheel G', contained between the disks *k k'*, and having the laterally projecting studs *f g* at right angles with the plane of its face, substantially as and for the purposes specified.

198,124. REFRIGERATING TRANSPORTATION-CASES. R. B. Lamb, Camden, N. J. Filed Oct. 13, 1877.

1. The combination, with the refrigerator-case A, and a central ice-chest, E, of the series of spring-platforms G, arranged around the chest so as to constitute a continuous spring bottom between the same and the lining B, the said independent platforms thus constituting a continuous bottom, being adapted to serve as protective supports for delicate fruits during transportation, as herein shown and described.

2. In combination with case A, provided with a paper lining, B, secured at *b* by strips F, the cover D, with paper lining extending vertically upward at *b'*, and horizontally outward at *b''* upon the outer downward edges of the said cover, which forms a close joint with the parts F and *b*, all as herein shown and specified

198,124.



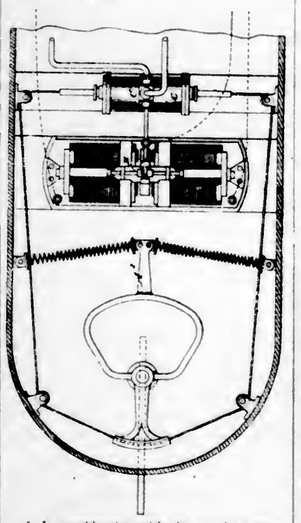
198,125. STOP-WORKS FOR SWING GAS-BRACKETS. Arthur Langerfeld, New York, N. Y. Filed July 21, 1877.



The stop-work for swing-brackets, consisting of the bolt A B, the recesses H H, the projections C C, the recess F, and projections D D, all substantially as shown and described.

198,126. ELECTRO-MAGNETIC STEERING APPARATUS FOR SUBMARINE TORPEDO-BOATS. John L. Lay, Buffalo, N. Y. Filed Mar. 25, 1872.

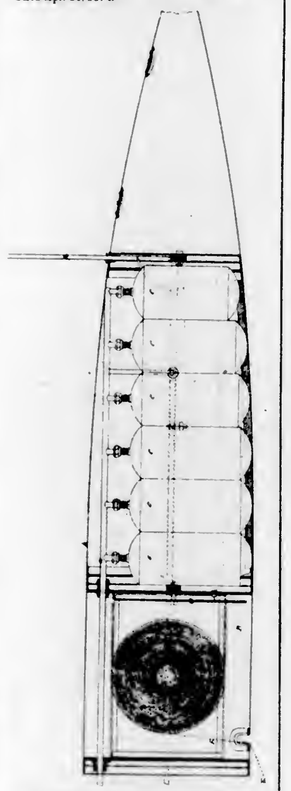
Brief.—The steering devices are worked through the agency of compressed air or gas operating upon proper apparatus, the valves of which are controlled by electro-magnetism. Electricity is supplied from a source outside the boat by insulated wires paid off from a reel upon the boat.



1. In combination with the steering apparatus of a vessel, an insulated conductor extending to a point outside of such vessel, and electro-magnetic apparatus for shifting said steering apparatus, substantially as set forth.

2. In combination with an apparatus for generating, conducting, and applying electric currents to the operation of electro-magnets on a boat from a point outside thereof, a valve operated by such magnets, a cylinder and piston and steering apparatus, operated substantially in the manner set forth.

198,127. ELECTRO-MAGNETIC STEERING APPARATUS FOR SUBMARINE BOATS. John L. Lay, Buffalo, N. Y. Filed Apr. 20, 1874.



1. An automatic torpedo-boat constructed with a coil-chamber, in combination with a coil of insulated telegraphic cable extending from said compartment to a point outside of the boat, and adapted to being payed out with the forward movement of the boat through an opening under the surface of the water, substantially as set forth.

2. In combination with a submerged reel, and telegraphic cable carried thereon, and magnetic apparatus to be connected through said cable, an insulated termination of such cable revolving with the reel, and an insulated connection for the internal system of wires held in contact therewith, for the transmission of electric currents, substantially in the manner set forth.

3. In combination with the reel C, the pipe *g*, insulated plug *i*, point *y*, and wire *c*, substantially as set forth.

4. In combination with the parts last aforesaid, the spring *z*, for maintaining the contact of the plug and point, and at the same time allowing the free lateral motion of the reel and shaft.

5. In combination with a submerged boat, and means for steering the same from a point outside of the boat, guides for indicating the position and direction of such boat.

6. In combination with a propelling-engine, constructed to operate by the expansion of a substance which, while a gas in its normal state, becomes a liquid under compression, a series of vessels for carrying the same, substantially such as set forth.

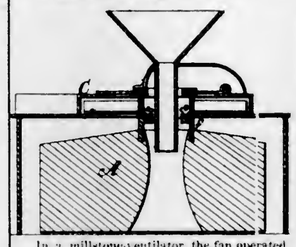
7. In combination with such engine and vessels, an induction-pipe for conveying the gas from the vessels to the engine, led outside of the boat, and exposed to the warmer water, substantially as and for the purposes set forth.

8. In combination with the electro-magnets M' M'', the armature and springs for holding it in its intermediate position, the sliding arm, crank, and valve-rod, and rotary or oscillating valve, for regulating the admission of the gas or vapor used in moving the piston which actuates the rudder.

9. In combination with the rudder and tiller, and electro-magnetic apparatus for operating the same from a point outside of the boat, springs for bringing the rudder to "steady" when the magnets are inactive.

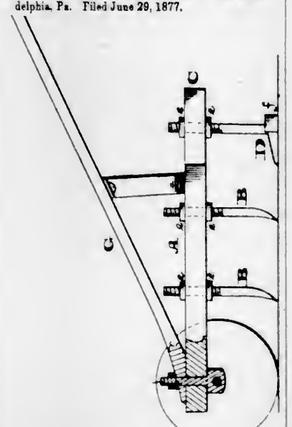
10. In combination with a submarine boat and its steering apparatus, an insulated wire for conveying an electric current from a point outside of said boat, an electro-magnetic apparatus for operating a piston to set the rudder at "port" or "starboard," and independent mechanism for bringing it back from either of said positions to "steady."

198,128. VENTILATING MILLSTONES. H. N. Loss, Kokomo, Ind. Filed Aug. 11, 1877.



In a millstone-ventilator, the fan operated directly from the runner by means of a ring or band, *f*, fastened in the eye of the stone, as described.

198,129. WEED-CUTTERS. Jonathan A. Lees, Philadelphia, Pa. Filed June 29, 1877.



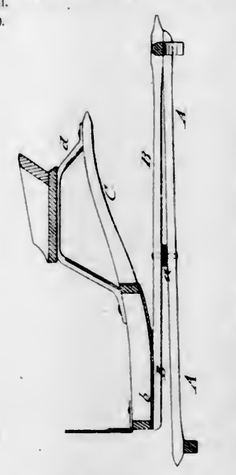
1. The blade D, having a cutting-edge curved on an arc of a circle, and extending horizontally in a right line from side to side, so that every portion of said edge shall lie in the same plane, and having its upper face extending rearwardly in an upward uniformly-curved direction, in combination with the upturned sides *f f*, and the shank *a*, terminating in a shoe, *b*, to which the blade is removably connected, substantially as described.

2. The beam A, with teeth B, and provided with the rear extension C, leaving spaces *g* at the sides of the latter, in combination with the blade D, connected to the extension C, and having turned-up sides *f*, and, with the handles G, secured to the front end of the beam A, substantially as described.

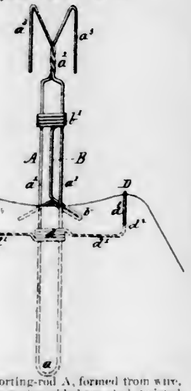
198,130. SIDE-SPRING WAGONS. Hervey S. Marvin, Nuoda Station, N. Y., assignor to himself and Frank E. Wakeman, same place. Filed Oct. 13, 1877.

The springs B, supported near the middle by cushions *a* upon the side bars A, fastened at one end to rear axle, and connected in front with spring seat-bars C, as shown and described.

198,130.



198,131. LAMP-SHADES. Merrick D. Marcy, Worcester, Mass., assignor of one-half his right to Frank P. Bullard, same place. Filed Nov. 26, 1877.



1. The supporting-rod A, formed from wire, and having the spring side bars a^1 a^1, twisted connection a^2, and hooked ends a^3, for the purposes set forth.

2. In combination with the supporting rod A, having spring side bars a^1, the brace-bar B, having its end coiled around said side bars a^1, forming an adjustable connection, *b'*, substantially as and for the purpose set forth.

3. In combination with the supporting rod A, having spring side bars a^1 a^1, the adjustable shade-clamp D, having connecting-eye *d*, arms d^1, and clasping ends d^2 d^2, substantially as and for the purpose set forth.

4. In combination, substantially as described, the supporting-rod A, having hooked ends a^3 and elastic sides a^1, the brace-bar B, having eye b^1 and bearing foot *b*, the sliding clamp D, with eye *d* and clasps d^2 d^2, and the shade-piece C, for the purposes set forth.

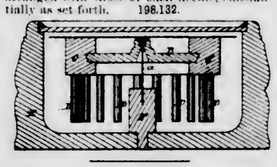
198,132. MARINERS' COMPASSES. Jeremiah A. Marden, Boston, Mass. Filed Nov. 20, 1877.

1. The combination of the magnetic needle and a circular range or series of magnets, constructed and having their poles arranged with those of such needle, substantially as set forth.

2. The combination of the float, the magnetic needle, and the circular range or series of magnets, constructed and having their poles arranged with those of such needle, substantially as set forth.

3. The combination of the compass card, the magnetic needle, the float, and the series of magnets, constructed and having their poles arranged with those of such needle, substantially as set forth.

198,132.

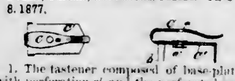


198,133. FIRE-KINDLERS. Alexander Matchett, Allegheny, Pa. Filed Oct. 12, 1877.



The fire-kindler herein described, consisting of a bundle made of paper or paper-board, or both, coated with resin or other inflammable mixture, and with or without an exterior non-adhesive material, substantially as described.

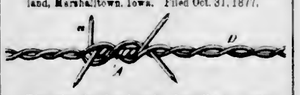
198,134. SHOE-LACE FASTENINGS. Thomas A. McDonald, Durham, Nova Scotia, Canada. Filed Nov. 8, 1877.



1. The fastener composed of base-plate C', with perforation *a'*, and the perforated spring-finger, made continuously of the same piece of metal with the base-plate, and bent around over the same, with an inward curve near its extremity, substantially as described, and for the purpose specified

2. The combination, with a single lacing-cord, B, and the hooks or buttons B^1, of the fastener consisting of plate C', with perforation *a'*, and the perforated spring finger C, bent around from the same piece of metal and having an inward curve near its extremity, for the purpose described.

198,135. BARBED-WIRE FENCES. Lewis M. McFarland, Marshalltown, Iowa. Filed Oct. 31, 1877.



The wire fencing herein described, consisting of barb A, constructed as set forth, and combined with cable D, substantially as and for the purposes described.

198,136. FORCE-PUMPS. William H. McGrew, Peru, Ind. Filed Oct. 18, 1877.

Brief.—Two open-topped submerged pumps in communication at their base with a single valve-chamber, and thence with a discharge pipe, the piston valves being held upward to their seats by springs, which are overcome in rising by the influx of water from above to fill the vacuum beneath.

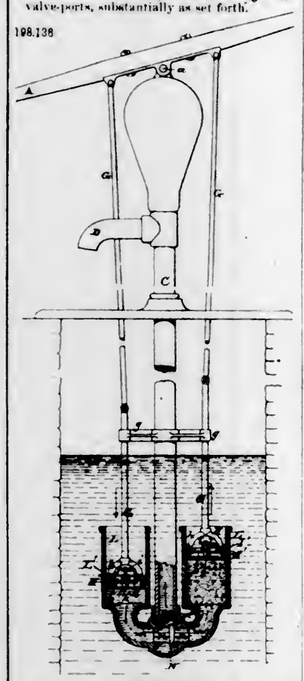
1. The combination of open-topped cylinders L, valves I, valve-chamber with end ports *m*, and slide-valves N, substantially as set forth.

2. The valve I in piston H, made flat to fit the flat bottom of piston H, and provided with guide-stem *i* and spring J, substantially as set forth.

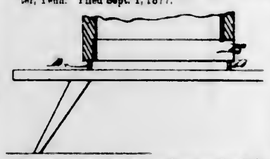
3. The combination, with the valve-chamber M, provided with valve-ports, of the valve with

central disk N and end guides n, working in the valve-ports, substantially as set forth.

198,138

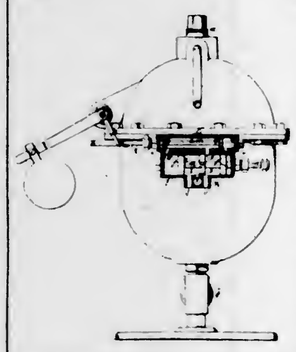


198,137. BEE-HIVES. George W. McMillon, Manchester, Tenn. Filed Sept. 1, 1877.



A bee-hive having supporting-standards D, for raising the hive proper a short distance above the bench, and a glass lining inserted on the inside of the lower ends of the hive, substantially as and for the purposes set forth.

198,138.

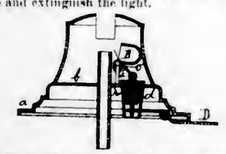


198,138. RETURN-STEAM TRAPS. Thomas E. McNeill, New York, N. Y. Filed Mar. 9, 1877.

The combination of the cylinder F, its passages s, s', and t, valve g, and pistons f' f'', and the cylinder E and its valves e e', with the passages w, w', x, and y between the two cylinders, arranged and operating substantially as set forth.

198,139. LAMP-EXTINGUISHERS. Edward Mercier, Springfield, assignor of one-half his right to Isaia Pare, or Isaac Perry, Holyoke, Mass. Filed Apr. 23, 1877.

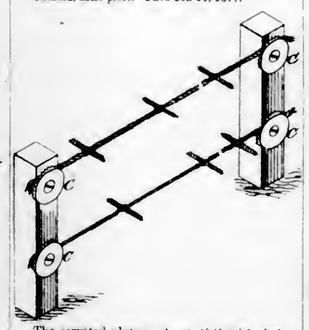
Brief.—In case the lamp should upset, the weight r will throw the cap B over the wick-tube and extinguish the light.



1. The combination, with a kerosene-lamp burner, of the lever D, the weight r, and its wire connections, yoke i, and cap B, substantially as set forth, and for the purpose specified.

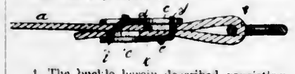
2. An extinguisher-cap, having a lifting and falling and swinging motion by the side of and over the top of the wick-tube, in combination with a kerosene-lamp burner and yoke i, weight r, and lever D, substantially as and for the purposes set forth.

198,140. WIRE FENCES. William A. Middleton, Harrisburg, Pa., assignor of one-half his right to O. H. Jackson, same place. Filed Oct. 11, 1877.



The serrated plates or burrs C C, with their bolts or screws, and the posts and barb wires, combined and clamped as is herein fully set forth.

198,141. BUCKLES. Columbus F. Moore, Waveland, Ind. Filed Aug. 25, 1877.



1. The buckle herein described, consisting of two members, d f, provided with tongues i and j, projecting in opposite directions, and one or both of them penetrating both parts of the strap, so as to lock them together, as described.

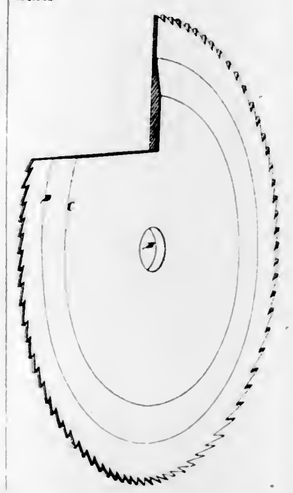
2. The combination of the frame d, provided with a tongue, i, to penetrate both straps, and the frame f, constructed with a longitudinal loop, to receive and support the end of the tongue i, as explained.

198,142 SHINGLE-SAWS. Joseph Morrean, Alpena, Mich. Filed Oct. 6, 1877.

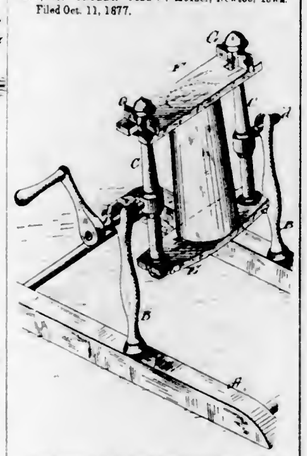
Brief.—For stiffening the saw, and preventing it from "wabbling or running" in frozen or rough or twisted timber, it is formed of a single plate having a uniform thickness from the eye to a circle drawn from the center of the eye with a radius of about twelve inches, then tapering from said circle to a circle concentric therewith about three inches in width, and of uniform thickness from said circle to the edge of the teeth.

The improved circular saw herein described, for sawing shingles, formed of a single piece, of uniform thickness from the eye to the circle C, then tapering gradually from C to D, and of uniform thickness from D to the edge of the teeth, substantially as shown and set forth.

198,142



198,143. CHURNS. John W. Mosher, Newton, Iowa. Filed Oct. 11, 1877.



The frame A A and its standards B B, in combination with the revolving frame which holds the churn, and composed of the posts C C, boards E and F, and the wedge-keys G G, the several parts being constructed as and for the purpose set forth.

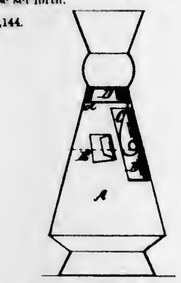
198,144. DEVICES FOR DECORATING VASES. WM. T. Murphy, Brooklyn, N. Y. Filed June 29, 1877.

Brief.—To the interior of the vase is secured an annular band, to which is attached a spring, which bears against the back of a picture which is placed between it and the transparent portion of the glass vase.

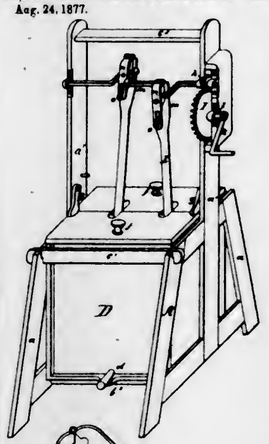
1. The combination, with the vase A, of the annular band D and metallic spring t, substantially as and for the purpose described.

2. The combination of the metallic strips E E with the band D, spring C, picture-card B, and vase A, substantially as and for the purpose set forth.

198,144.



198,145. CHURNS. Sebastian Kuis, Sublette, Ill. Filed Aug. 24, 1877.

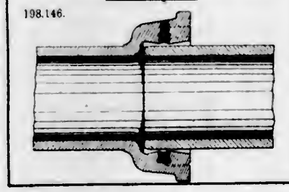


1. In a churn, the frame A, composed of the side frames a, cross bars b c, and removable bar c', adapted to receive the rectangular churn-box D, constructed and arranged substantially as and for the purposes set forth.

2. The combination of the stub-end w, hinged cap x, and turn-buckle o, for securing a churn-plunger to its crank-shaft, substantially as described and shown.

3. The combination, with the frame A and churn-box D, of the removable bar c' and the turn-cams g, for holding the churn-box in the frame, substantially as described and shown.

198,146.



198,146. METHODS OF FORMING JOINTS IN GAS AND WATER MAINS. William Painter, Baltimore, Md. Filed Oct. 5, 1877.

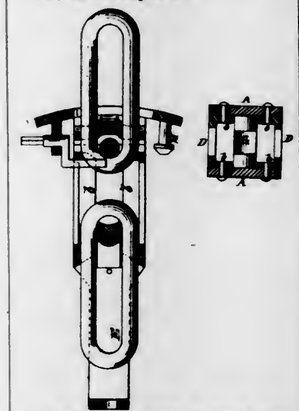
1. The method herein described of sealing the joints of gas and water mains, the same consisting in interposing a gasket between the pipe-sections, and forcibly seating the same by means of hydrostatic pressure external to or independent of that within the mains, substantially as described.

2. A pipe-joint having a gasket adapted to be seated by external hydrostatic pressure, substantially as described.

3. In a pipe-joint, a bell having an annular gasket, and an enlarged interior diameter on one or both sides of the gasket, to permit of deflection of the pipes, substantially as described.

4. A pipe-joint consisting of a male and a female section, having an interposed gasket seated by means of external fluid-pressure, substantially as described.

198,147. CAR-COUPLINGS. William V. Perry, Beaver Dam, Wis. Filed Aug. 16, 1877.

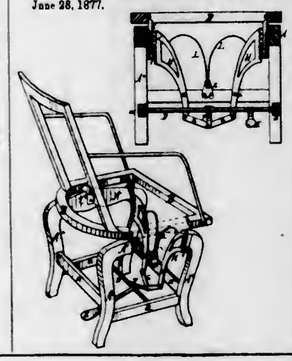


1. The movable column G, having rearwardly-projecting flanges at top and bottom, in combination with the safety-link E, disconnected therefrom and surrounding the same, and the draw-head, with channels at top and bottom, for the purposes set forth.

2. The fulcrum M, projecting from the back of the buffer, for the purposes herein set forth.

3. The combination of the top and bottom pieces A A of the draw-bar, the side pieces D D, provided with top and bottom interior projecting flanges b b, and connected by bolts to the parts A A, the movable pin G, provided with rearwardly-extending flanges G' G', and the safety-link E, all constructed substantially as and for the purposes herein set forth.

198,148. DENTISTS' CHAIRS. Franz Peters, Chicago, Ill., assignor to Theo. A. Kochs, same place. Filed June 28, 1877.



In combination with a chair, A B, the shaft D, having pedal E and arm F, the links G, toothed levers H, springs L, and pendent toothed brackets I, all arranged substantially in the manner described, and for the purpose specified.

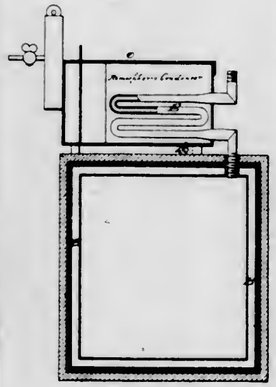
198,149. STUDS AND BUTTONS. George Pitts, Providence, R. L., assignor of two-thirds his right to John L. Mason and George L. Mason, same place. Filed Oct. 13, 1877.



The combination, with the back and the front of a button or stud, of a solid stem, provided with a head and neck, a tubular post, and a tubular spring, which is centrally reduced in diameter, longitudinally secured within the post, and fitted to receive and engage with the head and neck of the stem, substantially as described.

198,150. PLASTIC JACKET AND CONDENSER FOR CARBURETERS. A. W. Porter, New York, N. Y. Filed Dec. 1, 1877.

Brief.—A coil-condenser placed in a case communicating with the external air outside of the building in which the carbureter is placed causes the condensation of an excess of hydrocarbon vapor. An equable temperature is maintained in the water of the water-jacket by a coating of asphaltum, and upon this a coating of a non-conducting plastic material, as gypsum or kaolin and hair, applied to the outside of the water-jacket.



1. In combination with a carbureter, a surrounding case or jacket having its outer surface covered with a non-corrosive coating, and supplemented with a plastic over-jacket, substantially as and for the purpose set forth.

2. In combination with a carbureter, an atmospheric condenser having a cold-air pipe to conduct the air from the outside of the building to the condensing-case, and a draft-flue, I, having a burner to accelerate the influx of cold air so introduced, substantially as and for the purpose set forth.

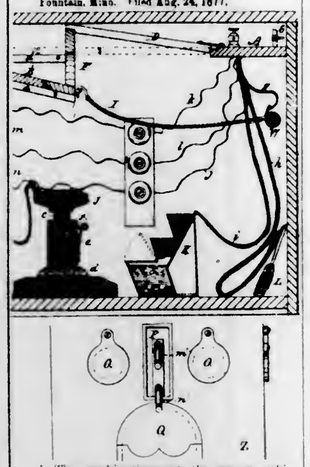
198,151. CAR-ROOFS. Benj. F. Powers and George E. Needham, Cleveland, Ohio. Filed Sept. 1, 1877.



The flanged sheets B, having longitudinal corrugations F, and covered by cap-pieces C

over the strips A, all fastened and secured by a single through bolt, D, all constructed and arranged substantially as described.

198,152. ELECTRO-VAPOR BATHS. Calvin S. Powers, Fountain, Minn. Filed Aug. 24, 1877.



1. The combination with the case or cabinet Z, having permanent shelf A, of the removable head-support B, hammock I, vertical board F, having door ti, and the cover C and D, made removable, substantially as and for the purpose described.

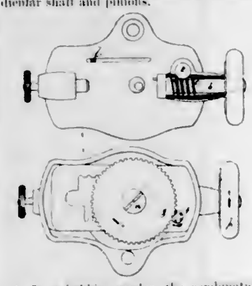
2. The foot-rest K, made in the form of steps, with conducting surfaces, and having the lower step formed into a receptacle for fluids, for the purpose described.

3. The receiving electrodes *n* and *n*, arranged in a' sliding and flanged bearing, P, and combined with the slotted case Z, for the purpose described.

4. The case Z, having door R, with section Q, formed to fit the lower extremities, and having also openings O O for the arms, provided with pivoted covers, for the purpose described.

198,153. BOBBIN-WINDERS. John B. Price, Thompsonville, Conn., assignor to Weed Sewing Machine Company. Filed Sept. 8, 1877.

Brief.—A rack-bar having a thread-guide, and provided with two rows of teeth, is horizontally reciprocated by engagement with a worm-shaft through the medium of a perpendicular shaft and pinions.

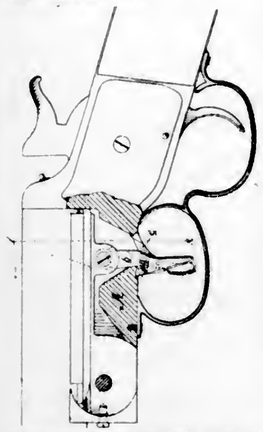


1. In a bobbin winder, the combination, with the horizontally reciprocating rack, provided with two rows of teeth, *i j*, and thread-guide, of a series of segmentally-arranged teeth placed between the rows of teeth of the rack-bar, and adapted to engage first one and then the other row of teeth, to reciprocate horizontally the rack and thread-guide alternately in opposite directions, substantially as and for the purpose described.

2. The worm-shaft *b*, the connecting-shaft *e*, provided with worm-gear *d* and pinion *f*, and the pinion *g*, provided with teeth *h*, in combination with the rack-bar, having a double row of teeth and a thread-guide, substantially as and for the purpose described.

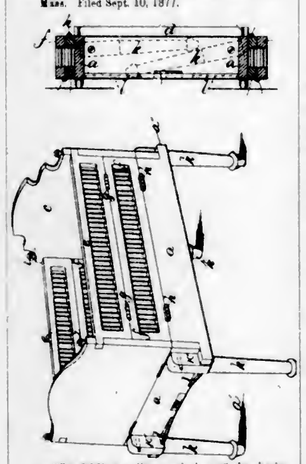
3. In a bobbin winder, the combination, with the shaft *b* and its worm, of the vertical connecting-shaft, provided with a worm-gear and pinion, to operate a thread-guide, substantially as described.

198,154. BREECH-LOADING FIRE-ARMS. Frank Ralph, New York, N. Y., assignor to Thos. G. Conway, same place. Filed Nov. 23, 1877.



The combination, with the lock or catch of the pivoted barrel or barrels, of the dog *e*.

198,155. FOLDING CRIBS. William G. Reed, Boston, Mass. Filed Sept. 10, 1877.



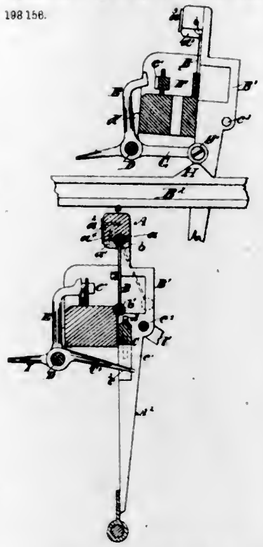
1. The folding crib, consisting of the body, provided with the legs *k*, pivoted to the outer faces of the head and foot rails, and folding inwardly within the length and height thereof, the double-hinged side boards, folding within the height of the side rails, and the head and foot boards, folding inwardly within the length of the body.

2. The combination of the end rails *a*, legs *k*, pivoted to the outer faces and folding within the height thereof, projections *a'* on the ends of the side rails, and pivoted bolts *l*, substantially as described.

198,156. LOOMS. William Riding, Norristown, Pa. Filed Sept. 8, 1877.

Brief.—The improvements include a shuttle-guard, a shuttle-relief, and loose reed mechanism. The guard is automatically pressed down upon the warps by a backwardly-extended arm, which is operated by a lever and rotary cam. The guard is depressed just before the shuttle is picked, and elevated as soon as the shuttle has boxed. The swell fingers and arms of the reed-locking mechanism are mounted on the protection-rod. The reed is positively locked on the back stroke of the lay by the mechanism which operates the shuttle-relief, while on the forward stroke the locking devices are controlled by the swell fingers.

198,156.



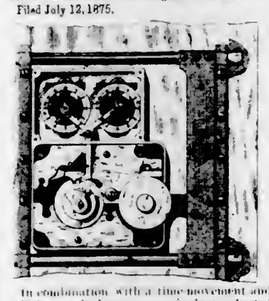
1. The combination of the lay-cap A^1, having groove *a*, the removable reed B, and retaining-slide *a'*, substantially as described.

2. In combination with the pivoted or swinging reed B, the bar C, sustained upon arms c^1 C^1, rock-shaft or rod D, arms E G, swells e^1, and cam H, the several parts being constructed and arranged substantially as described, whereby the reed is locked and the swell fingers relieved upon the back stroke of the lay, and the locking device is, upon the beat up, placed under the control of the box swell, as and for the purpose specified.

3. The bar W, located above and parallel with the race, and adapted to be moved down to rest upon the yarns, as and for the purpose described, in combination with the shaft W^1, curved arms w w, lever w^1, and a cam for actuating said bar, as set forth.

4. In combination with the bar W, the shaft W^1, having arms w, w^1, and w^2, spring or weight X, lever Z, and shaft L, having cam or eccentric Y, the several parts being constructed and operating substantially as shown and described.

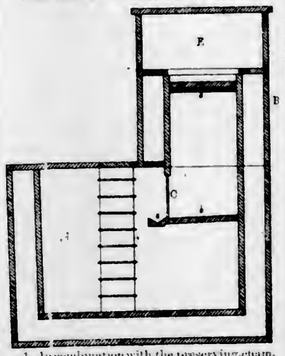
198,157. TIME-LOCKS. Jas. Sargent, Rochester, N. Y. Filed July 12, 1875.



In combination with a time-movement and a lock, a yoke-lever or equivalent, adapted

to be connected with the dog, fence, or angle-bar of said lock, to hold it from falling into the slots or notches of the combination-wheels, except when released by the time-movement, substantially as described.

198,158. COMBINED REFRIGERATOR AND COUNTER. Fredk. Roloson, Baltimore, Md. Filed May 28, 1877.

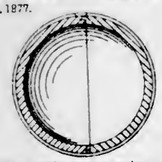


1. In combination with the preserving chamber A, the counter B, the said counter having its floor below the upper part of the chamber A, and provided with lateral openings, forming the means of communication between the said counter and chamber, substantially as herein set forth.

2. In combination with the chamber A and counter B, as described, the ice-box E, having its bottom located below the upper surface of the counter and over the floor thereof, leading to the trough and waste-pipe, substantially as and for the purposes specified.

3. The combination of the counter B, ice-box E, doors *c* and *b*, perforated side or grating C, trough *c*, and waste-pipe *d*, substantially as described, whereby the counter may be used without the refrigerating chamber, while the drip is conveyed from the apparatus, and dryness insured throughout.

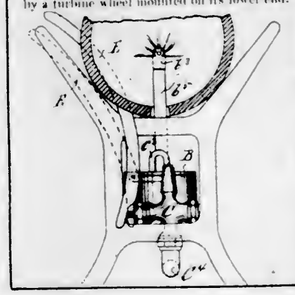
198,159. BOTTLES FOR PROMOTING VEGETATION. Winfield S. Schermerhorn, Castleton, N. Y. Filed Nov. 14, 1877.



A partible bottle for promoting the growth of plants, constructed substantially in the manner herein shown and described.

198,160. BARREL-WASHERS. Phillip Seibel, Jr., St. Louis, Mo. Filed June 27, 1877.

Brief.—The weight of the barrel pressing against a lever opens the valve. A vertical hollow shaft that extends into the barrel and is surrounded by a tubular casing distributes the water through a rose against the interior sides of the barrel, said shaft being revolved by a turbine wheel mounted on its lower end.

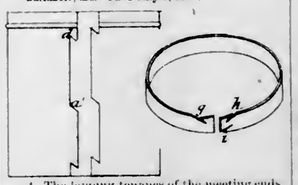


1. The combination of the cylinder B, turbine wheel *b*, its discharge-shaft b^1, having orifices b^2 below, and nozzle b^3 at top, and the inlet-pipe C^3, all said parts being constructed and arranged substantially as set forth.

2. In combination with a cylinder, B, containing a turbine wheel, *b*, having hollow shaft b^1, the tube b^4, arranged substantially as shown, and by means whereof said hollow shaft b^1 is protected, in the manner and for the purpose set forth.

3. The cylinder B, the turbine *b*, its hollow shaft b^1, having nozzle b^3, the pipe C^3, the casing C^1, formed with the passages d c^2 d^1, the valve-stem *c*, valve c^1, spring c^3, lever E, and inlet-pipe C^2, all said parts being combined and constructed to operate in the manner and for the purpose set forth.

198,161. CANS AND BOXES. Francis M. Simpson, Baltimore, Md. Filed July 5, 1877.



1. The tapping tongues of the meeting ends of the box, constructed with shoulders all standing in the same oblique direction, whereby to form locks, as herein set forth.

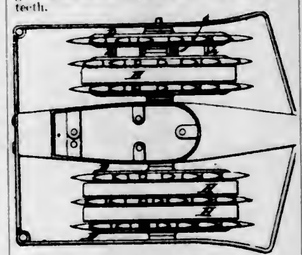
2. A box-cover rim having oblique cuts *g h*, adapted to interlock to form the joint, as set forth.

198,162. CARRIAGE-AXLE BOXES. William A. Sitton, Cleborne, Tex. Filed Nov. 6, 1877.

The spindle having the shoulder *a* and a screw-hole tapped in its outer end, the screw B, having an annular recess around its threaded part, the detachable rings *d d* and *e e*, and the sleeve D, provided with a flange on its inner end and a slot in its outer end, to receive the stud fixed in the spindle-shoulder, whereby it is prevented from revolving with the hub, all combined, as shown and described.

198,163. REVOLVING PLOWS. H. Skillings, Hutchinson, Minn. Filed Oct. 13, 1877.

Brief.—Between the independently-rotating wheels, having beveled rims, are placed loose bands, which, as the machine is moved forward by bearing upon the surface of the ground, are thrown upward, so as to clear the teeth.

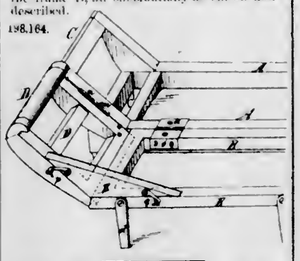


The independently-rotating wheels D, having narrow and beveled rims, in combination with loose bands H, arranged between the wheels, substantially as and for the purpose set forth.

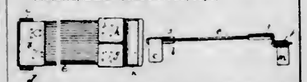
198,164. SOFA-BEDSTEADS. Caspar V. Stumpf, New York, N. Y. Filed Sept. 20, 1877.

As a new article of manufacture, a bed-lounge consisting of the hinged frames A B, the former having the fixed head-rest C, and the latter having in its head-end the longitudinal groove *p*, and the vertically-sliding hinged head-rest D, having in its upper edge the longitudinal groove *r*, and its lower edge beveled, for operation in connection with the upper edge of the fixed head-rest C and the groove in the end of the frame B, all substantially as shown and described.

198,164.



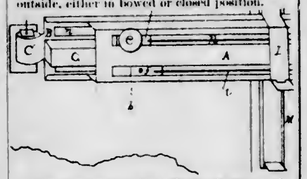
198,165. SHOE-FASTENINGS. Charles F. Sylvester, Brockton, Mass. Filed Nov. 23, 1875.



As an improved article of manufacture, a shoe-fastening composed of an elastic strap, a holding-piece having an ear, *h*, and prongs *e d* to enter the shoe, and slotted end-piece having ears *g h*, and the hook-piece *j*, having a hook, *p*, and prongs *m n*, to enter the shoe, the ears being folded upon the ends of, and made to securely hold the ends of, the strap by means of burrs or indentations, all substantially as described.

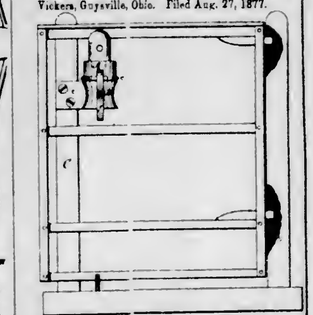
198,166. SHUTTER-BOWERS. Theodore Thorn, St. Clair, Pa., assignor of one-half his right to Matthew S. Stocker, same place. Filed Feb. 21, 1877.

Brief.—A complex arrangement of slotted sliding bars, pivoted connecting bars, plates, sliding nuts, guides, pins, fasteners, and bolt, serves to fasten shutters or double doors, so that they cannot be tampered with from the outside, either in bowed or closed position.



The combination, in a shutter-fastener, of the slotted sliding bars A and B, the hinges C C, the metal plates *f f*, and the sliding nuts K K, working in slots in the bars A B, the fasteners *e e*, the guides G G, the pivoted connecting bars or arms *i i*, the pins *d d*, and the bolt L M, substantially as herein before described, for the purpose set forth.

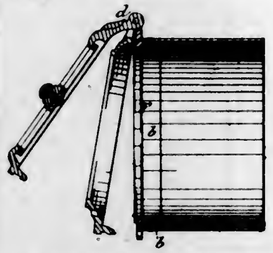
198,167. GATE-HINGES. Stephen Townsend and John Vickers, Guysville, Ohio. Filed Aug. 27, 1877.



The socket having the upwardly-projecting claws and central hole for the pintle, the pivot-block, embracing the pulley and having the

pintle, and interrupted base-rib or flange, combined as shown and described, to form a gate-hinge, adapted to operate as specified.

198,168. STOVE-PIPE THIMBLES. Samuel D. Vose and James D. Pierce, Milwaukee, Wis. Filed Sept. 13, 1877.



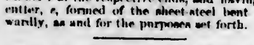
1. A stove-pipe thimble having one or more permanently hinged reducing rings arranged between the cover carrying register and the thimble.

2. The combination, with a stove-pipe thimble, of one or more hinged reducing-rings and a hinged ventilator, all of which hinged parts swing together or separately, substantially as described.

3. The swinging reducing-ring, or the swinging cover of a stove-pipe thimble, provided with catches or pins for retaining the pipe, substantially as described.

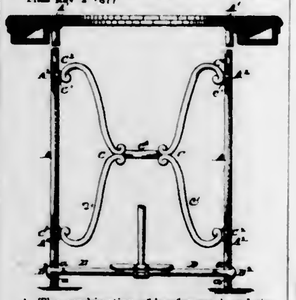
4. The reducing ring or rings and the ventilator, provided with the lugs *c d*, and hung at the top to the thimble-lugs *b'* by a pin, *b²*, forming a hinge common to the swinging parts, as herein set forth.

198,169. PENCIL-SHARPENER. Harwood Wakeman, New York, N. Y. Filed Aug. 16, 1877.



The split tube *a*, made of sheet-steel, and adapted to receive the pencil *b* and erasing-rubber *c* at the respective ends, and having a cutter, *e*, formed of the sheet-steel bent inwardly, as and for the purposes set forth.

198,170. SEWING-MACHINE TABLES. Simon W. Wardwell, Jr., St. Louis, Mo., assignor of one-half his right to George W. Shaw and Hugh Menown, same place. Filed May 2 1877



1. The combination of leg-frames A and tie-rods D D', having hooked ends D² engaging said frames, substantially as set forth.

2. The combination of leg-frames with recesses A³, brace-frame C, with tenons C², and tie-rods D D', with hooks D², all substantially as and for the purpose set forth.

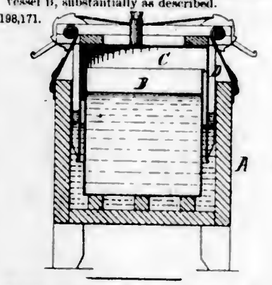
3. The tie-rods D, having their hooked ends spherical in form, to engage recesses *a'* in the lugs *a* of the leg-frame A, substantially as and for the purpose set forth.

198,171. MODE OF RAISING CREAM. Jas. S. Watrous, Ridgefield, Ill. Filed Oct. 24, 1877.

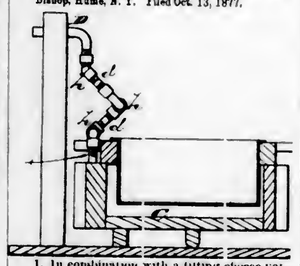
1. As an improved mode of liberating cream from milk, the application to milk contained in a close vessel of pressure artificially applied through the medium of atmospheric air, substantially as described.

2. The combination, with the water-tank A and the milk-containing vessel B, of the inverted tank or cover C, and mechanism for forcing said inverted tank or cover, when filled with air, down into the tank A around the milk-vessel B, substantially as described.

198,171.



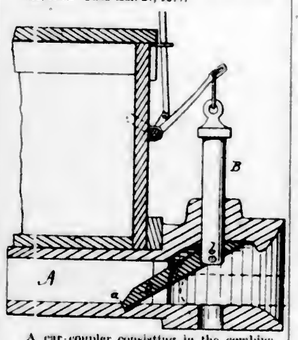
198,172. CHEESE-VATS. Nathaniel M. Wells, Jr., Fillmore, assignor of one-half his right to Jason S. Bishop, Hume, N. Y. Filed Oct. 13, 1877.



1. In combination with a tilting cheese-vat, having the pipe *b* and the steam-supply pipe D, the movable joint-connection, composed of a series of tubes, *d*, and elbows *k*, arranged in angular form, substantially as shown and described, and for the purposes set forth.

2. The combination, with a lifting or rocking cheese vat, of jointed connecting-pipes, arranged between the supply-pipes and the pipe under the vat, as and for the purpose herein set forth.

198,173. CAR-COUPLINGS. John S. Worts, Burlington, Iowa. Filed Mar. 27, 1877.

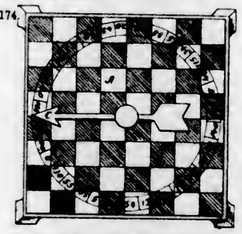


A car-coupler consisting in the combination, with the draw-head A, provided with a notch, *a*, of a perforated tumbling catch D and coupling-pin B, provided with a pin or lug, *b*, whereby the pin, when raised, serves to reset the catch, substantially as described.

198,174. GAME-BOARDS. Emil Worch, Washington, D. C. Filed Nov. 16, 1877.

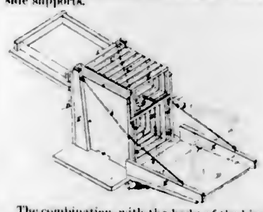
A combination game-board, composed of the board A, with the squares of a checker-board and a circular row of figures upon its upper surface, and provided with a removable arrow or pointer, C, having its sleeve or spindle adapted to rotate within a seat or bearing, so that the pointer, when turned, shall revolve over the playing-surface of the board with reference to the numerals thereon, all substantially as described and shown, and for the purposes set forth

198,174.



198,175. BEE-HIVES. Ivea M. Wright, Litchfield, Ill. Filed Sept. 27, 1877.

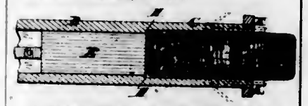
Brief.—The side of the hive has cleats to close the corners, and is hinged at the bottom, so as to be opened, and when open is held by side supports.



The combination, with the body of the hive, of the hinged side D, having cleats E, and the rods *b*, arranged substantially as shown, for the purposes set forth.

REISSUES.

7,981. HAY AND COTTON PRESSES. Peter K. Dederick, Albany, N. Y. Patent No. 132,566, dated Oct. 29, 1872. Filed July 27, 1877.



1. The press-box B and bale-chamber B C, in combination with the receiving-box or hopper A, having an adjustable bottom, substantially for the purpose set forth.

2. The combination of the roller D with the press-box B and traverser E, for the purpose set forth.

3. The slots I, in combination with the bale-chamber C, provided with shoulders, substantially for the purpose set forth.

4. The above-described method of successively ejecting finished bales from the press by means of additional charges of material pressed against it.

5. The horizontal press-box B C, constructed with a feed-orifice at the top, as at A, and provided with horizontal side-tying slots I, substantially for the purpose set forth.

6. A press for baling hay, cotton, and other fibrous material that is bound into bales, so constructed, combined, and operated that the hay is fed in or pressed at one end of the chamber and forced out at the other end by a common traverser and simultaneous operation, as set forth.

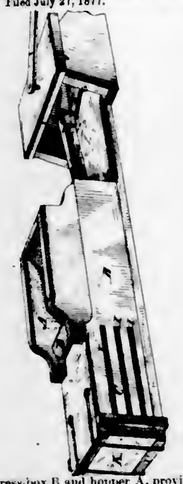
7. The traverser E, constructed with a contracting or yielding front to wedge together when the hay overlaps it, substantially for the purpose set forth.

8. The bands used in binding the bales as a partition or separation between the completed and forming bale, as set forth.

9. The retaining-shoulder H, in combination with the bale-chamber C and traverser E, for the purpose set forth.

10. In a horizontal press, in which the hay and other loose material is pressed in sections into bales, the slots I, in combination with the press-case B C and traverser E, for the purpose set forth.

7,982. HAY AND COTTON PRESSES. Peter K. Dederick, Albany, N. Y. Patent No. 132,566, dated Oct. 29, 1872. Filed July 27, 1877.



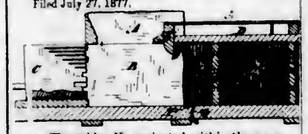
1. The press-box B and hopper A, provided with a movable bottom, in combination with the pitman and crank or toggle L F, substantially for the purpose set forth.

2. The combination of the sweep or horse-lever with the crank F and pitman L, for operating the traverser of a baling-press.

3. The crank F, pitman L, and traverser E, in combination with the baling-chamber B C and tying-slots I.

4. The combination of the crank F, pitman L, and traverser E with the baling-case B C and end door K, as set forth.

7,983. BALING-PRESSES. Peter K. Dederick, Albany, N. Y. Patent No. 132,639, dated Oct. 29, 1872. Filed July 27, 1877.



1. The folder K, projected within the press-box B, for the purpose set forth.

2. The guard X, in combination with the slots E and bale-chamber D, for the purpose set forth.

3. In a horizontal baling-press in which the bales are compressed and ejected through the end, the bale-chamber D, constructed with tapering or adjustable sides, to regulate the resistance offered to the passage of the bale, for the purpose of compressing and hardening it, substantially as described.

4. The traverser C, provided with guards *d*, for the purpose set forth.

5. The press-head formed of the previously completed bale, substantially for the purpose set forth.

6. The follower O, constructed with grooves on both sides for the ties, in combination with the bale-chamber D, provided with slots E, substantially for the purpose set forth.

7. The beveled or rounded corners of the bale-chamber or press-box, for the purpose set forth.

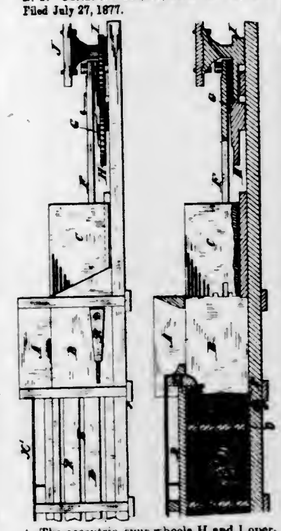
8. In a horizontal baling-press in which the hay is pressed in sections, as set forth, movable shoulders or retainers projected within the chamber in the rear of the pressed material, for the purpose set forth.

9. The receptacle or chamber D, provided with the tying-slots E, and hinged spring or spring-seated retainers, for the purposes specified.

10. The reciprocating traverser C, in combination with the horizontal receptacle and chamber B D, provided with hinged spring or spring-seated retainers, for the purpose set forth.

11. The follower O, as the partition or separation between the finished and forming bale, as set forth.

7,984. BALING-PRESSES. Peter K. Dederick, Albany, N. Y. Patent No. 132,639, dated Oct. 29, 1872. Filed July 27, 1877.



1. The eccentric spur-wheels H and I operated by the sweep J, in combination with the toggle or crank L and pitman F, substantially for the purpose set forth.

2. The spur-wheels H and I, in combination with the toggle or crank C and pitman F and traverser C, substantially for the purpose set forth.

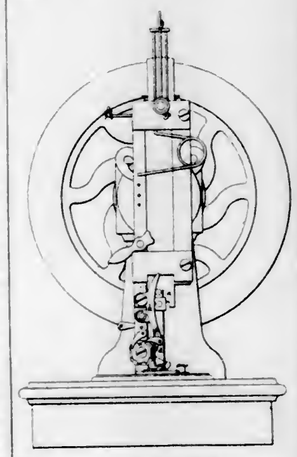
3. The follower S, staff T, friction-strap V', and wheel U, combined and arranged substantially as described, for the purpose specified.

4. The follower S, staff T, friction-strap V', and wheel U, in combination with the door V and bale-chamber D, for the purpose set forth.

5. The crank eccentric or cam G Z, connected to the reciprocating traverser C, and in combination with the press-case B D, provided with movable retainers, for the purpose set forth.

6. The toggle G F, connected to the traverser C, and combined with the gearing, and

7,985.



7,985. SEWING-MACHINES. Charles F. Bosworth, Milford, Conn., assignor, by mesne assignments, to the Straw Sewing Machine Company, same place. Patent No. 38,807, dated June 9, 1863; Reissue No. 6,467, dated June 1, 1875. Filed Dec. 4, 1877.

1. The combination, substantially as before set forth, of an eye-pointed needle, a roller or its equivalent, over which the braid to be sewed is bent, a feed apparatus or mechanism, a gage for the upper braid, and a guide for the lower braid.

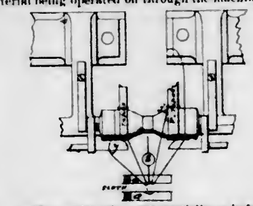
2. The combination, substantially as before set forth, of an eye-pointed needle, a roller or its equivalent, over which the braid to be sewed is bent, a feed apparatus, two gages for the upper braid, (one at each of its edges,) and a guide for the lower braid.

3. The combination, substantially as before set forth, of an eye-pointed needle, a roller or its equivalent, around which braid can be bent, and a needle-guide, the three being arranged and acting in combination substantially as specified.

4. The combination, substantially as before set forth, of a vibrating eye-pointed needle, substantially as specified, with a roller around which braid can be bent or turned, and feed apparatus, the mode of operation of the combination being substantially such as set forth.

7,986. SEWING-MACHINES. Chauncey O. Crosby, New Haven, assignor, by mesne assignments, to the Straw Sewing Machine Company, Milford, Conn. Patent No. 21,745, dated Oct. 12, 1858; Reissue No. 4,306, dated Mar. 21, 1871; extended seven years from Oct. 12, 1872. Filed Dec. 4, 1877.

Brief.—Designed to imitate hand-sewing. The material being sewed is pressed up between two spring-jaws at every stitch by a tongue working from below, forming a bend or bite in the same, through which a common needle is forced by a carrier and a thimble-bar. The slack of the needle-thread is drawn through the cloth at each stitch by means of a series of bands and pulleys, while an ordinary roughened feed-wheel acts in connection with a smooth roller bearing thereon to feed the material being operated on through the machine.



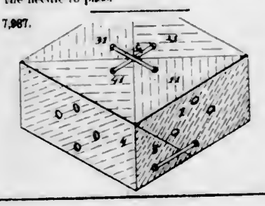
1. The combination, substantially as before set forth, of the cloth-holder, composed of two jaws and a tongue-piece, fitted to force the cloth between said jaws, with means for carrying and impelling the needle, whereby the cloth is bent anew over the tongue at each stitch, and the needle is forced into such bent portion of the cloth.

2. The combination, substantially as before set forth, of the needle-bar and thimble-bar with a common needle, the said parts being arranged to operate substantially as herein described.

3. The combination, substantially as before set forth, of the feeding apparatus with the needle-bar, for carrying the needle, and with the cloth-holder, consisting of two jaws, and a tongue-piece fitted to force the cloth between said jaws.

4. The combination, substantially as before set forth, of the feeding apparatus with the bar for carrying the needle, and with the cloth-holder, consisting of two jaws and a tongue-piece fitted to force the cloth between said jaws, and provided with a notch to allow the needle to pass.

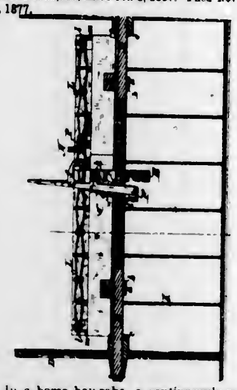
7,987.



7,987. FRUIT-BOXES. James Shepard, New Britain, and Benjamin B. Lewis, Bristol, Conn., assignors, by mesne assignments, to James Shepard. Patent No. 54,614, dated May 8, 1866. Filed Oct. 25, 1877.

In the art of constructing boxes for fruit and other articles from blanks of a single thickness, bending the blank obliquely with the grain of thin wood or veneer, substantially as and for the purpose herein specified.

7,988. HORSE HAY-RAKES. Jos. H. Shireman, York, Pa., assignor to James E. Wisner, Friendship, N. Y. Patent No. 60,713, dated Oct. 8, 1867. Filed Nov. 22, 1877.



1. In a horse hay-rake, a continuously-revolving axle or shaft, B, with ratchets and pawls, or their equivalents, applied to both wheels, substantially as and for the purposes described.

2. In a horse hay-rake, the ratchets and pawls placed upon the inner sides of both driving and transporting wheels, substantially as described.

3. In a horse hay-rake, the combination of a driver's seat, G, a pressure contrivance for holding the teeth down to their work, a continuously-revolving axle which is furnished with a lifting device, and is rotated by power applied from both wheels, and a device connected to the rake-head, which, at the will of the operator, can be thrown into gear with the lifting device of the axle, for the purpose of discharging the gathered hay from the rake-teeth.

4. In a horse hay-rake, a lifting-wheel continuously rotating by power applied from both wheels when the rake is advancing, substantially as described.

5. In a horse hay-rake, the combination of an independent rake-head with a shaft and lifting-wheel continuously rotating by power applied from both wheels when the rake is advancing, substantially as described.

6. In a horse hay-rake, the combination of an independent rake-head, a shaft, and lifting-wheel continuously rotating by power applied from both wheels when the rake is advancing, and a device connected to the rake-head, which, at the will of the operator, can be thrown into gear with the lifting device, for the purpose of discharging the gathered hay from the rake-teeth.

7. In a horse hay-rake, the combination of an independent rake-head, a shaft, and lifting device continuously rotating by power applied from both wheels when the rake is advancing, and a pressure contrivance for holding the teeth down to their work, substantially as described.

8. In a horse hay-rake, the combination of an independent rake-head, a shaft, and lifting device continuously rotating by power applied from both wheels when the rake is advancing, a pressure contrivance for holding the teeth down to their work, and a device for connecting the rake-teeth to the lifting device, at the will of the operator, for the purpose of discharging the gathered hay by the power of the team, substantially as described.

7,989. MILLS FOR GRINDING CANE. Isaac A. Hedges, St. Louis, Mo., assignor, by mesne assignments, to the Blymyer Manufacturing Company. Patent No. 23,302, dated Feb. 1, 1859; extended seven years. Filed Dec. 11, 1877.

1. The ledges L on the bottom plate of a vertical cane-mill, substantially as and for the purpose described.

2. The ledges V on the top plate of a vertical cane-mill, substantially as and for the purpose described.

3. The combination of the ledges L and the recesses in the lower ends of the rolls of a vertical cane-mill, substantially as and for the purposes described.

4. The annular recesses in the upper ends of the vertical rolls of the mill, to receive and collect the oil from the bearings and prevent the same from spreading, substantially as described.

5. The combination of the ledges V and the recesses in the upper ends of the rolls, substantially as and for the purpose described.

6. In combination with the vertical rollers of a cane-mill, the lower housing, so constructed as to collect the juice and discharge it through a spout or opening, substantially as described.

7. The regulator and adjuster, substantially as and for the purposes described.

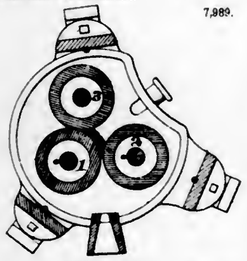
8. Tubes or openings communicating through the roller with the bearings below, and enabling them to be lubricated without removing the roller, substantially as described.

9. In combination with the oil tubes or openings, the recesses in the tops of the rollers, so arranged as to collect the waste oil from the upper bearings and convey the same into said tubes or openings, substantially as described.

10. The corrugated shells, in combination with the rollers, for the purpose of readily converting the mill into a corrugated mill, constructed and adapted substantially as set forth.

11. The combination, in a cane-mill, of a feed-roller, crushing-roller, and delivery-roller, arranged vertically and in triangular form, substantially as described.

7,989.

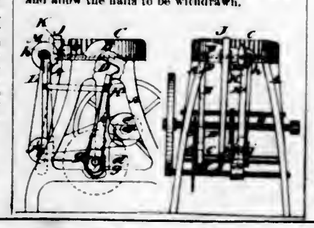


7,990. COMPOSITIONS FOR DRESSING COTTON YARNS. William H. Perkins, Fall River, Mass. Patent No. 195,532, dated Sept. 25, 1877. Filed Nov. 27, 1877.

The cotton-dressing herein described, composed of unslaked lime, sal-soda, and soap, dissolved in water, substantially in the manner described.

7,991. MACHINES FOR STAMPING, PRESSING, AND POINTING HORSESHOE-NAILS. Frederick Sandham, Ottawa, Ontario, Canada, assignor to Chas. W. Woodford. Patent No. 199,844, dated Dec. 6, 1870. Filed Nov. 3, 1877.

Brief.—The nail blanks are carried and presented to the action of the stamping, pressing, and pointing devices by a horizontal disk provided with vertical notches for the reception of the nails, which are prevented from falling out by a stationary ring surrounding the disk, but with portions cut away to admit the tools and allow the nails to be withdrawn.



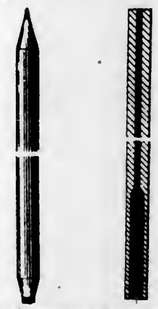
1. The trade-mark stamping die J, and the body-compressing die K, in combination with the rotating dial C and surrounding bed B, substantially as described.

2. The combination of the configurating-die J, body-compressing die K, rotating dial C, surrounding bed B, and the cutter M, substantially as described.

3. The combination of the dial or head C, situated to revolve in a horizontal position, and provided with vertical, pockets or grooves for suspending nails vertically as described, with the bed B, arranged for forming a ring about the periphery of the head C, with the exception of the openings formed therein for the passage of tools to act upon the nails and for the escape of the nails from the machine, substantially as and for the purpose set forth.

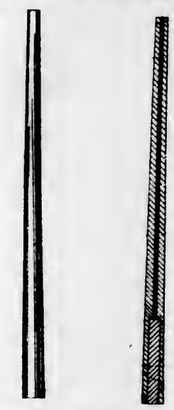
4. The combination of dial or head C, constructed as described, bed B, and die K, substantially as and for the purposes set forth.

7,992. PENCILS. Joseph Reckendorfer, New York, N. Y., assignee, by mesne assignments, of H. L. Lipman. Patent No. 19,783, dated Mar. 30, 1858. Filed Nov. 21, 1877.



A pencil consisting of a continuous wooden sheath, formed with an interior groove, enlarged for a portion of its length at one end of the sheath, containing in the enlarged portion of the groove a stick of erasive rubber, and in the narrower portion of the groove a lead core, as set forth.

7,993. PENCILS. Joseph Reckendorfer, New York, N. Y. Patent No. 36,854, dated Nov. 4, 1862; Reissue No. 3,863, dated Mar. 1, 1870. Filed Nov. 22, 1877.



A pencil consisting of a continuous wooden sheath enlarged at one end beyond the size of the ordinary lead-pencil, and thence tapering toward the other end, said tapering sheath being formed with an interior groove enlarged for a portion of its length, at the enlarged end of the sheath, containing in the enlarged part of the groove a stick of erasive rubber, and in the narrow part of the groove a lead core, as set forth.

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DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—EASTERN DISTRICT OF MISSOURI.

In re JOHN J. SQUIRE.

[*In Equity.—Before* TREAT, *J.—Decided October* 22, 1877.]

The suit in equity authorized under section 4915 R. S. is an original and not an appellate proceeding. It is conducted according to equity rules, and a party contesting his right to a patent thereunder need not be confined to matters existing of record in the Patent Office or in the supreme court of the District of Columbia.

A motion to appoint a special examiner, under the rules of the court, for the purpose of taking additional testimony, was accordingly granted.

The statement in *ex parte* Greeley, 6 Fisher, 575, that the suit under the section "is virtually an appeal," construed to mean that the party seeks to obtain a different result from that which had before been allowed, and in such sense alone does he pursue a virtual appeal.

The case of *Atkinson* vs. *Boardman*, (MS.,) NELSON, *J.*, (Law's Digest, 666,) considered and approved.

STATEMENT OF THE CASE.

[Squire, a citizen of Missouri, and one McDonough, a citizen of Wisconsin, were interfering applicants. The decision of the Commissioner was adverse to Squire, who at once brought his bill under section 4915 Rev. Stat., serving the proper notice on McDonough at his home in Wisconsin, who appeared and answered. Counsel differing as to the power of Squire to introduce new testimony, in order to test the matter a motion was made by Squire for the appointment of a special examiner, under the amended 67th Rule, which motion was opposed by McDonough.]

[*S. S. Boyd*, for the motion.
West & Bond, contra.]

OPINION.

TREAT, *J.*:

It appears that Squire and McDonough made separate application for a patent substantially for the same device. The Examiner of Interferences decided in favor of Squire. Upon appeal, the Board of Examiners-in-Chief, sustained by the Acting Commissioner, reverted the Examiner of Interferences. Thereupon Squire instituted this suit, under section 4915 of the United States Revised Statutes, for a decree in his favor for a patent for his invention, as specified in his claim, or for such part thereof as he may be found entitled to. The petitioner now moves for an examiner to take testimony, to which motion McDonough, who has received due notice, being the "adverse party," appears and objects, on the ground that the proceedings in this suit are substantially an appeal from the Patent Office, to be determined solely by the matters of record in that Office, with no new or independent testimony admissible. It is, therefore, for this court to decide what, under the United States patent laws, is the appropriate mode of proceeding in such a case, and what testimony can be received. Section 4886 prescribes for what, and under what facts and circumstances, a patent may be procured. Section 4893 states what preliminary steps are to be had for the purpose. Section 4904 provides the course to be pursued when, in the opinion of the Commissioner, an interference may exist. The Primary Examiner must first pass upon the case; then, if appeal is had, the Board of Examiners-in-Chief must decide. Section 4909 gives the right of appeal in cases like that now before the court to the Board of Examiners-in-Chief, and section 4910 from said Board to the Commissioner in person. There is a marked distinction running all through the patent laws between cases where interferences are supposed to exist and where applications for patents are made, no interferences appearing. Thus, section 4911 reads: "If such party, (applicant,) *except a party to an interference*, is dissatisfied with the decision of the Commissioner, he may appeal to the supreme court of the District of Columbia, sitting in banc." Section 4915 must be construed distributively, viz: When application is refused by the Commissioner, (as in case of interferences,) or by said supreme court, (as in other cases,) "the applicant may have remedy by bill in equity, and the court having cognizance thereof, on notice to adverse parties, *and* other due proceedings had, may adjudge," &c.

Such a case having been presented by a "bill in equity," and notice given as prescribed, the "due proceedings" to follow must be such as pertain to equity causes. Reference to section 4918 supports this view for it provides for relief by a "suit in equity,' notice and "due proceedings had *according to the course of*

equity." The system permits appeals to run the indicated course to the supreme court of the District of Columbia in all cases except those of interferences. In the latter, if the Commissioner decides against either of the applicants, he may have his remedy by "bill in equity," with "due proceedings had," as in the other cases he may proceed by such a bill after said court, on appeal, has passed upon the controversy. So, when interfering patents have been granted, remedy by "suit in equity," under section 4918, is allowed, "on notice to adverse parties and other due proceedings had according to the course of equity."

It would seem, therefore, that the course of proceeding in either case is clear—viz., "according to the course of equity." Even in the absence of these explicit terms it would be apparent that a suit in equity would have to be governed in its proceedings by equity rules. A manuscript decision by Justice Nelson, in the case of *Atkinson* vs. *Boardman*, has been produced, wherein section 16 of the act of 1836, (5 U. S. St., 123,) and section 10 of the act of 1839, (5 U. S. St., 354,) were under consideration. So far as the point now before this court is concerned, those sections and the opinion of Justice Nelson are very pertinent and applicable, for sections 4915 and 4918 contain substantially the same language, and are in reference to the same subject—indeed, a revision mainly of those sections of the prior acts.

Justice Nelson held:

> The question before the Commissioner and Chief Justice contested was a question of fact—namely, which of the parties was the first and original inventor. The same question is now before us, resting upon the proofs which were before the Commissioner, and *also additional testimony taken since the filing of the bill.* * * * The provisions of the acts of Congress, already referred to, allowing the party failing in his application to file a bill, do not restrict the hearing, in this Court, to the testimony used before the Commissioner. Either party, therefore, is at liberty to introduce additional evidence, or, rather, to speak more accurately, the hearing is altogether independent of that before the Commissioner, and takes place on such testimony as the parties may see fit to produce, agreeably to the rules and practice of a court of equity. The evidence before the Commissioner is not evidence here, except by consent of parties. It is taken, generally, without much regard to formality, and is *ex parte*, and, even if permitted to be used here, not entitled to the credit of proof taken in the usual way.

In *ex parte* Greeley, 6 Fisher, 575, a decree for a patent was sought after an appeal had to the supreme court of the District of Columbia. The bill was filed under section 52 of the act of July 8, 1870, being the same as section 4915 of the Revised Statutes, and the United States circuit court, in stating the case and referring to the foregoing section 52, incidentally remarked that "it is virtually an appeal from the decree of the supreme court of the District of Columbia, rejecting the application for a patent." So far as ascertainable from the reported case, only the records of the Patent Office, the proceedings in the supreme court of the District of Columbia, and the affidavit of the complainant in support of his bill, were before said circuit court.

Section 43 of the act of July 8, 1870, now section 4905 of the Revised Statutes, authorizes the Commissioner of Patents to "establish rules for the taking of affidavits and depositions required in cases pending in the Patent Office; and such affidavits and depositions may be taken before any officer authorized by law to take depositions to be used in the courts of the United States, or of the State where the officer resides." The sections following provide the modes of enforcing the attendance of witnesses.

Hence, all the proceedings had before the Patent Office should be received, together with such other testimony as may be taken in the progress of this suit. When the United States circuit court for the district of Massachusetts spoke of the case before it as "virtually an appeal," it did not determine that no new testimony was allowable, nor that the cause was to be governed solely by rules pertaining to an appeal.

In stating that the case was "virtually an appeal," no more was meant than that the object of the bill was to secure a different result from that which the Patent Office and the supreme court of the District of Columbia had allowed. In that sense alone was there a virtual appeal.

The case before Justice Nelson was, in the then condition of the statutes, for an allowance of a patent which had been refused, the sections of the then existing statute being what, under subsequent legislation, have become sections 4915 and 4918 of the Revised Statutes. This is a case, however, as was that before Justice Nelson, for a patent which had been refused. The refusal here was on the ground of interference. Irrespective of the ground of refusal, and irrespective of the fact that an appeal may or may not lie to the supreme court of the District of Columbia, and, also, irrespective of the fact that interfering patents may have been issued, the complaining party may have his remedy in equity under section 4915 or 4918, as the case may be, and the proceedings will be of the same character. The Court will receive all the proceedings had before the Patent Office, and when an appeal lies to the supreme court of the District of Columbia, all the proceedings had before that court, *together with all new and additional testimony* taken in the equity proceedings. If this be not so, then no force is given to the legislative will which permits suits in equity after decision by the Patent Office and the said appellate court. A United States circuit court proceeds not as an appellate tribunal, but as a court of original jurisdiction.

The motion is granted.

U. S. CIRCUIT COURT—NORTHERN DISTRICT OF NEW YORK.

ELIZA G. HALSEY *vs.* ALFRED S. GARLICK, FREDERICK COLEMAN, AND NOAH R. OSGOOD.

[*In Equity.—Decided August 22, 1877.*]

Reissue Letters Patent No. 6,660, granted Edgar Huson, September 28, 1875, for improvement in wagon-gearing, examined and sustained.

OPINION.

WHEELER, *J.*:

This cause has been submitted on bill, answer, replication, proofs, and briefs of counsel. The only point insisted on in behalf of the defendants is, that the patent is void, because the patentee was not the original inventor of the improvement in wagon-gearing for which he obtained the patent, and because it was in actual use at the time he claimed to have invented it. Upon consideration of the evidence it is not found that he was not the original inventor, nor that it was in actual use at that time. It is therefore considered that the patent of the oratrix is valid, and that the defendants have infringed it. Wherefore it is ordered that a decree be entered for the oratrix to restrain the defendants from further infringement, and for an account of the profits received by the defendants, and of the damages sustained by the oratrix by reason of the infringement, and appointing the Hon. Charles Mason special master, to take the account, and, on the coming in of his report, for the payment of the sum reported by the defendants to the oratrix, with costs.

DECRETAL ORDER.—*August* 23, 1877.

This cause having heretofore been submitted on bill, answer, replication, proofs, and briefs, by counsel for the respective parties, on the pleadings and proofs, and the court having considered the same, and being of the opinion that Edgar Huson was the first and original inventor of Huson's improved platform-wagon gear, as described and claimed in the patent set forth in the complainant's bill of complaint, adjudges and decrees that the defendants have infringed the said patent in making and vending the said improved platform-wagon gear, as charged in the bill of complaint, and that the said complainant is entitled to have a perpetual injunction to restrain said defendants, their agents, servants, and all claiming or holding under or through them, from making, vending, or using, or in any manner disposing of, wagons embracing the invention or improvements described in said letters patent—namely, "Huson's Improved Platform-Wagon Gearing." And it is further adjudged and decreed that the cause be referred to the Hon. Charles Mason, esq., the clerk of this Court, as special master to ascertain and report the number of wagons made, also the number sold by the defendants embracing within their construction the platform in the patent described, since the 28th day of September, A. D. 1875, and the damages complainant has sustained, or use and profits the defendants have derived, by reason of such infringement since the time last aforesaid, and, upon the coming in and confirmation of the said report, that said complainant have a decree and execution for the amount found due to her, the said complainant, and also for the costs in this suit to be taxed.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date December 18, 1877.]

10,352.—Font of Printing-Types.—ANDREW LITTLE, New York, N. Y. Application filed September 8, 1877. Term of patent 7 years.

10,353.—Parlor Oven-Stove.—JAMES A. LAWSON, Troy, N. Y., assignor to FULLER WARREN & CO., same place. Application filed October 10, 1877. Term of patent 7 years.

10,354.—Jewelry.—JAMES W. MILLER and ISAAC M. MILLER, Newark, N. J. Application filed November 12, 1877. Term of patent 14 years.

10,355.—Carpets.—DAVID MCNAIR, Boston, Mass., assignor to ROXBURY CARPET COMPANY, same place. Application filed December 4, 1877. Term of patent 3½ years.

10,356.—Carpets.—THOMAS J. STEARNS, Boston, Mass., assignor to ROXBURY CARPET COMPANY, same place. Application filed December 4, 1877. Term of patent 3½ years.

10,357.—Burial-Casket Handle.—WILLIAM M. SMITH, Meriden, Conn., assignor to MERIDEN BRITANNIA COMPANY, same place. Application filed November 30, 1877. Term of patent 7 years.

10,358 to 10,360, inclusive.—Base-Burning Stoves.—NICHOLAS S. VEDDER, Troy, and TOBIAS S. HEISTER, Lansingburg, N. Y., assignors to said VEDDER. Applications filed November 16, 1877. Term of patents 3½ years.

10,361.—Wall-Pockets.—MICHAEL G. SESSON, Brooklyn, N. Y. Application filed October 31, 1877. Term of patent 3½ years.

10,362.—Burial-Caskets.—WILLIAM MAX REID, Amsterdam, N. Y. Application filed December 10, 1877. Term of patent 3½ years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date December 18, 1877.]

5,428.—Starch, Glucose, Grape-Sugar, and Grape-Sirup.—AMERICAN GRAPE SUGAR COMPANY, Buffalo, N. Y. Application filed October 1, 1877.

"The representation of the barrels, grape-vines, and fruit, grouped as shown in the accompanying drawing, used in connection with the words 'American Grape Sugar Co.'"

5,429.—Friction-Matches.—BARBER MATCH COMPANY, Akron, Ohio. Application filed November 30, 1877.

"The words 'DRAWING ROOM,' used in connection with the word 'Matches,' and the female figure aforesaid."

5,430.—Refined Petroleum.—W. H. CROSSMAN & BRO., New York, N. Y. Application filed November 30, 1877.

"The arbitrarily-selected word-symbol 'EMPRESS.'"

5,431.—Smoking-Tobacco.—LUCIUS GREEN, Durham, N. C. Application filed November 21, 1877.

"The symbol 'Indian Girl.'"

5,432.—Burning-Fluid.—GORRELL & PARKISON, Ossian, Ind. Application filed November 14, 1877.

"The cut, figure, or representation of the German student-lamp."

5,433.—Cotton Yarn.—SYLVESTER M. HAMILTON, St. Louis, Mo. Application filed November 30, 1877.

"The words 'Western Star Mills' and the figure of a star."

5,434.—Whisky.—ANSON P. HOTALING, San Francisco, Cal. Application filed September 5, 1877.

"The figure of a man standing with one foot upon the figure of a dragon, and brandishing a sword, the illustration representing St. George and the dragon, and the words 'Death to Imitators' arranged above these figures."

5,435.—Smoking-Tobacco.—WILLIAM S KIMBALL & CO., Rochester, N. Y. Application filed October 20, 1877.

"A representation of a target."

5,436.—Medical Compound.—KENNEDY & CO., Pittsburg Pa. Application filed November 15, 1877.

"The word-symbol 'CARBOLINE.'"

5,437.—Medical Preparations.—EMERY LIVERMORE, Louis, Mo. Application filed October 22, 1877.

"The symbol of a pine cone."

5,438.—Starch.—C. B. MARSH & CO., New York, N. Y. Application filed October 31, 1877.

"The figure or symbol representing the back of a man's head neck, and shoulders, represented as having on a hat and a high standing collar."

5,439.—Medical Compounds.—NOVELTY CHEMICAL COMPANY, New York, N. Y. Application filed October 12, 1877.

"The caduceus or wand of Mercury and the shield."

5,440.—Cigars.—S. I. POSSNER & BROTHER, New York, N. Y. Application filed November 30, 1877.

"The monogram composed of the said letters and character 'S. I. P. & Bro.' and the symbolic words 'The Wonder.'"

5,441.—Yeast.—STANDARD YEAST COMPANY, Cincinnati, Ohio. Application filed November 12, 1877.

"The word-symbol 'STANDARD.'"

5,442.—Cigars, Cigarettes, and Smoking-Tobacco.—STRAITON & STORM, New York, N. Y. Application filed December 1, 1877.

"The word-symbol 'AMERICAN GIRLS.'"

5,443.—Toilet-Soaps.—JOHN W. THOMAS, New Orleans, La. Application filed July 20, 1877.
"The word 'Hair' repeated as an exclamation."

5,444.—Soap.—DAY & FRICK, Philadelphia, Pa. Application filed October 9, 1877.
"The word-symbol 'BLEACHING.'"

5,445.—Mineral Water.—ACTIENGESELLSCHAFT APOLLINARISBRUNNEN, Neuenahr, Prussia, Germany. Application filed October 12, 1877.
"The word-symbol 'APOLLINARIS.'"

5,446.—Product of Petroleum-Oil.—BINGHAMTON OIL REFINING COMPANY, Binghamton, N. Y. Application filed December 3, 1877.
"The word-symbol 'PETROLINA.'"

5,447.—Soap.—CORNELIUS EARLE, Allentown, Pa. Application filed November 26, 1877.
"The fanciful title 'GOLDEN PALM.'"

5,448.—Agricultural Implements and Machines.—THE COLLINS COMPANY, Collinsville, Conn. Application filed November 14, 1877.
"The word-symbol 'BONANZA.'"

5,449.—Agricultural Implements and Machines.—THE COLLINS COMPANY, Collinsville, Conn. Application filed November 14, 1877.
"The word-symbol 'BIG BONANZA.'"

5,450.—Cigars.—ISAAC TEICHMAN, New York, N. Y. Application filed November 1, 1877.
"The word-symbol 'OLD TIMES ROCKS.'"

5,451.—Zephyr Worsted, Worsted and Woolen Yarns, and Worsted Embroideries.—BERNHARD ULMANN & CO., New York, N. Y. Application filed December 8, 1877.
"The representation of a bear standing upright, and surrounded by a border bearing resemblance to a shield, which is surmounted by battlemented towers."

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date December 18, 1877.]

1,307.—Title: **"White Ash Cigar."**—EDWARD BROSS, Baltimore, Md. Application filed November 17, 1877.

1,308.—Title: **"Boland's Aromatic Bitter Wine of Iron."**—JAMES BOLAND, Chicago, Ill. Application filed November 26, 1877.

1,309.—Title: **"Dr. Flynt's Sciatic Remedy."**—D. D. FLYNT, Dexter, Me. Application filed December 6, 1877.

1,310.—Title: **"Dr. E. Fenton's Great Catarrh Annihilator."**—ENOS FENTON, Kalamazoo, Mich. Application filed December 7, 1877.

1,311.—Title: **"Hegeman & Co.'s Celebrated Elixir of Calisaya Bark."**—HEGEMAN & CO., New York, N. Y. Application filed December 5, 1877.

1,312.—Title: **"Craig's Kidney Cure."**—WILLIAM D. HARRIS, New York, N. Y. Application filed December 11, 1877.

1,313.—Title: **"Natural Hair Restorer, Carboline."**—KENNEDY & CO., Pittsburg, Pa. Application filed November 1, 1877.

1,314.—Title: **"Keith's Cough Compound."**—B. KEITH & CO., New York, N. Y. Application filed December 4, 1877.

1,315.—Title: **"Keith's Dyspepsia Elixir."**—B. KEITH & CO., New York, N. Y. Application filed December 4, 1877.

1,316.—Title: **"Dr. Koons' Sanguifying Usquibaugh."**—JONATHAN KOONS, Northern, Ill. Application filed December 1, 1877.

1,317.—Title: **"Lenzi's Helvetian Salve."**—MARTIN LENZI, Salt Lake City, Utah. Application filed November 9, 1877.

1,318.—Title: **"Otaki Root Beer from Matthews Apparatus."**—JOHN MATTHEWS, New York, N. Y. Application filed November 21, 1877.

1,319.—Title: **"Otaki Root Beer."**—JOHN MATTHEWS, New York, N. Y. Application filed November 21, 1877.

1,320.—Title: **"Carbolic Mouth Wash."**—MEADE & BAKER, Richmond, Va. Application filed December 6, 1877.

1,321.—Title: **"Tartarian Koomis, Made from Pure Milk Undiluted by Whey."**—GEORGE I. MCKELWAY, Philadelphia, Pa. Application filed December 11, 1877.

1,322.—Title: **"Oakdale Mills."**—OSCAR C. WHEELER, New York, N. Y. Application filed December 5, 1877.

1,323.—Title: **"Elgin Polish."**—HENRY G. WEATHERILL, Elgin, Ill. Application filed November 21, 1877.

As 12 o'clock on Friday is the latest hour that a final fee can be received in order to get a patent into the "issue" of the following Tuesday, applicants are earnestly requested to make the final payment before Friday, if possible, so that the proper entries may be made on the books of the Office before closing the "issue."

All patents issued during the week are signed, sealed, and dated on Tuesday.

SALE OF SPECIFICATIONS AND DRAWINGS.

Photolithographic copies of the drawings of all patents issued since November 26, 1867, have been produced, and will be sold to the public at 25 cents per patent, or, where twenty or more copies are ordered at one time, at 10 cents per patent.

Coupon-books, to the amount of $2 or more, can be purchased from the Chief Clerk of the Patent Office; the coupons, for 10 cents each, may be filled out at any time, and, on presentation, will entitle the holder to a photolithographic copy of *any* drawing which has been reproduced.

The specifications of all patents issued since July 1, 1871, are in print, and will be furnished with the drawing without extra charge. The specifications of patents issued from November 20, 1866, to July 1, 1871, are in print, and where such is the case the Office will furnish them with the drawings, but the Office will not undertake to reprint copies of patents which have been exhausted.

In addition to the above, the Office has reproduced, and offers for sale at the price mentioned above, all drawings in the following classes, embracing patents granted from 1790 to date. The classes are those of the Examiners:

1. Aeration and Bottling.
2. Apparel.
4. Baths and Closets.
5. Beds.
6. Bee-hives.
7. Beer and Wine.
8. Bleaching and Dyeing.
9. Boats.
10. Bolts, Nuts, and Rivets.
11. Bookbinding.
13. Brakes and Gins.
14. Bridges.
15. Brushes and Brooms.
17. Butchering.
18. Caoutchouc.
19. Carding.
20. Carpentry.
21. Carriages and Wagons.
23. Chemical Miscellaneous.
26. Cloth.
28. Cordage.
29. Crinoline and Corsets.
31. Dairy.
33. Drafting.
34. Driers and Kilns.
36. Electricity.
37. Excavators.
38. Felting and Hats.
40. Files.
42. Fire-arms.
44. Fuel.
45. Furniture.
47. Garden and Orchard.
48. Gas.
52. Gunpowder.
53. Hardware manufacture.
55. Harrows.
56. Harvesters.
58. Horology.
59. Horseshoes.
61. Hydraulic Engineering.
62. Ice.
65. Kitchen Utensils.
66. Knitting and Netting.
67. Lamps and Gas-fitting.
68. Laundry.
71. Manures.
72. Masonry.
73. Measuring Instruments.
75. Metallurgy.
76. Metal Working, bending and straightening.
77. Metal Working, boring and drilling.
78. Metal Working, forging, swaging, and riveting.
79. Metal Working, punching cutting, and shearing.
80. Metal Working, rolling.
81. Metal Working Tools.
82. Metal Working, turning planing, and milling.
83. Mills.
85. Nails.
86. Needles and Pins.
87. Oils, Fats, and Glue.
88. Optics.
89. Ordnance.
90. Ore.
91. Paint.
92. Paper-making.
93. Paper manufactures.
94. Paving.
96. Plating.
97. Plows.
98. Pneumatics.
99. Preserving Food.
101. Printing.
102. Projectiles.
103. Pumps.
104. Railways, The Way.
105. Railways, (Cars and Interior Fittings.)
106. Railway Cars, (Exterior Mountings and Fittings.)
107. Railway Track and Car Irons and Fittings, manufacture of.
108. Roofing.
111. Seeders and Planters.
112. Sewing-machines.
114. Ships (1) construction.
115. Ships (2) propulsion.
116. Signals.
117. Silk.
118. Spinning.
119. Stabling.
120. Stationery.
124. Stills.
126. Stoves and Furnaces.
127. Sugar.
130. Thrashing.
131. Tobacco.
132. Toilet.
134. Tubing and Wire.
135. Umbrellas and Fans.
137. Water Distribution.
138. Water-wheels.
139. Weaving.
141. Wood-screws.

And the subdivisions of—

Bench-planes. Buttons and Machines.
Bale-ties. Combs, &c.

About forty other classes are in progress, and it is hoped that all the drawings remaining, some thirty thousand in number, may be completed during the fiscal year.

The total number of patents of which drawings are complete and offered for sale as above will approximate one hundred and fifty thousand.

When a patent has been allowed, and the application has not been forfeited by delay of six months, if the final fee of twenty dollars is paid before 12 o'clock on Friday, the patent will issue and bear date the following Tuesday.

The GAZETTE is made to bear the same date as the patents to which the claims, briefs, and drawings relate, although it is not actually mailed to subscribers until about two weeks later than its date.

The Government fee on making application for a patent is fifteen dollars. The final fee is twenty dollars. Usually there are no other Government fees unless the application is appealed.

Where specifications are printed, copies of same attached to drawings will be furnished without extra cost.

The "Rules of Practice" are furnished gratis on personal or written application to the Commissioner of Patents.

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Murphy, D. H., Boot and shoe	198,249
Musgrave, J., Vapor burner	198,411
Nelson, J. R., assignee	198,262
Nuttman, J. E., assignee, (reissue)	7,996
Nuttman, J. E., assignee, (reissue)	7,997
O'Hanlon, J., Coal tipple for loading boats	198,383
Olds, F. A. and C. W., Saw mill guide	198,208
Outerbridge, A. E., Jr., Manufacture of metallic leaf	198,269
Paine, C. E., & Son, assignees	198,422
Palmer, H. L., Non conducting platform or mat	198,412
Patterson, R. N., Compositor's stand	198,310
Peacock, W., assignee	198,335
Peterson, R., assignee	198,311
Petingale, J. L., Tube for holding cosmetics	198,210
Phelps, I. M., Roasting ores	198,413
Phenix, H., assignee	198,190
Pickering, O., Level	198,311
Plympton, N., Tea pot, &c	198,312
Pointon, P., Roofing tile	198,414
Poole, S., Meat holder, (reissue)	7,995
Poole, S., Fork for pickles, &c	198,313
Post, E. E., and E. W. Furbush, Steam cooking	198,212
Post, J. W., Metal turning lathe	198,211
Prescott, W. P., and G. R. Evans, Shaft furnace for smelting tailings and condensing mercury	198,283
Prescott, W. P., and G. R. Evans, Fire brick compound	198,284
Pruitt, S. C., and J. M. Ludlow, Cultivator	198,204
Ramsey, J., Jr., Car coupling	198,415
Randall, R. H. and G. H., Sash fastener	198,250
Remington, G. H., and J. P. Manton, Power capstan, (reissue)	8,001
Renshaw, D., and G. B. N. Tower, Steam generator	198,213
Reynolds, W. L., assignee	198,196
Rhodes, C. W., assignee	198,276
Richardson, L., assignee	198,305
Richardson, L., assignee	198,306
Rightor, W. R., Rotary steam engine	198,214
Rock, A. D., Nut lock	198,251
Root, F. H., Parlor stove	198,215
Ross, H., Sr., Machine for upsetting bars and tires	198,216
Ruger, J. G., Box iron	198,314
Safety Carburetor Company, assignee	198,353
Sa'adee, C. W., Playing card	198,217
Sanborn, A. A., and C. Burroughs, Monkey wrench, (reissue)	8,005
Sanford, G., Mechanical movement	198,416
Sawyer, C. E., Paper bag	198,218
Schell, C. F., Jr., Cake cutter	198,219
Schinneller, J., and L. Fitzpatrick, Machine for forming chain links	198,417
Schneider, M., assignee	198,219
Schnessler, C., and J. Watters, Wagon curtain fastener	198,252
Seaver, A., Stay for seams of boots and shoes	198,220
Selleg, D. N., Folding chair	198,418
Senft, F., and U. Lorch, Horseshoe	198,419
Seybold, F. J., Stopper fastener	198,221
Sharpless, C. W., Producing a water or oil proof colored outer surface upon paper, &c	198,222
Shaw, G. and T., Machine for polishing vegetable fiber, &c	198,315
Shedd, J. M., assignee	198,335
Shuck, A. J., and B. F. Wildman, Hay and cotton press	198,224
Shuck, J. M., Bee hive	198,223
Sickels, W., assignee	198,260
Simmerman, J. S., and A. Brandriff, Thermostatic device for controlling dampers, heat and fire alarms, &c	198,185
Simmons, I., Faucet or cock	198,253
Simpson, M. H., Grasshopper catcher	198,420
Skidmore, D. L., assignee	198,177
Skinner, M. T., Combined cotton cultivator and planter	198,254
Skinner, R., and B. Bonnet, Concrete pavement, (reissue)	7,996
Skinner, R., and B. Bonnet, Concrete pavement, (reissue)	7,997
Smith, C. A., and R. H. Driver, Railway rail chair	198,360
Smith, E. J., Chair	198,421
Smith, H. B., Fruit drier	198,422
Smith, J. G., Cooking apparatus	198,316
Smith, J. W., Shaving mug	198,225
Smith, S. P., Spring bed bottom	198,423
Snow, J., assignee	198,245
Somes, F., assignee	198,286
Spofford, C., Paper collar machine	198,424
Squire, F. B., and C. G. Little, Lamp	198,425
Stafford, N., Scroll sawing machine	198,426
Stanton, D., Engine	198,427
Stead, J. C., Feed water heater	198,428
Steen, E. T., Pipe coupling and joint	198,317
Steigert, L., Machine for chopping meat, (reissue)	8,002
Stevenson, H. N., and H. C. Swan, Car coupling	198,318
Stewart, J., Turbine wheel	198,429
Stiueman, W. H. R., Lamp	198,430
Stoddard, E. F., Spring hoe for grain drills	198,319
Stoddard, E. F., Spring hoe for grain drills	198,320
Stuart, D., Cooking stove	198,431
Stulz, S., Ore separator	198,432
Sulzbacher, M., and C. E. Yvelin, Water closet	198,433
Susemihl, F. C. L. G., and J. Miller, Car door	198,408
Swan, H. C., and H. N. Stevenson, Car coupling	198,318
Sylvester, W. B., Passenger recorder	198,434
Thedens, F. F., Portable fly trap	198,255
Thoman, Z., Cider mill	198,226
Thompson, G. H., and G. P. Muldoon, Wooden vehicle spring	198,321
Thomson, H. W., Combined horse collar and hames	198,227
Tilden, E. B., assignee	198,206
Timby, T. R., Salt cellar and napkin holder	198,435
Tolten, C. A. L., Double postal card	198,322
Tower, G. B. N., and D. Renshaw, Steam generator	198,213
Towers, J. V. R., and C. R. Barr, Cuspadore for cars and other vehicles	198,273
Townsend, D., Peat compressing machine	198,256
Tripp, J., Revolving hook sewing machine	198,257
Tryon, G., Tire adjuster	198,258
Turck, F. B., and E. Köhler, Station indicator	198,395
Underwood, C. M., Button fastening	198,323
Urban, H., Arbor for safe locks	198,324
Wallace, W., Electric light	198,436
Walton, J. E., Thill coupling	198,325
Wands, J. C., Car roof, (reissue)	7,998
Wands, J. C., Car roof, (reissue)	7,999
Waters, M., Car replacer	198,326
Watson, W. C., Book clamp	198,437
Watson, W. J., assignee	198,408
Watters, J., and C. Schuessler, Wagon curtain fastener	198,252
Wesson, D. B., and J. H. Bullard, Revolving fire arm	198,228
Wharton Railroad Switch Company, assignee	198,390
Wharton, W., Jr., Railroad switch	198,229
Wheeler, O. T., and C. C. Breeden, Rotary cultivator	198,339
Whelan, F., Braiding machine	198,230
White, T. R., Gas apparatus	198,438
Whitin, C. E., assignee and trustee, (reissue)	7,996
Whitin, C. E. assignee and trustee, (reissue)	7,997
Whitman, W. G., Fruit jar cover	198,439
Wilcox, E. D. and A. S., Flock cutting machine	198,440
Wildman, B. F., and A. J. Shuck, Hay and cotton press	198,221
Williams, J., Car ventilator	198,441
Winn, I., Machine for removing bark from wood	198,327
Winship, G. L., Sight for fire arms	198,231
Withington, C. B., Wire band cutting implement	198,442
Woeber, A., Carriage spring	198,259
Wood, C. D., assignee	198,220
Woodward, F., Clothes clamp for bedsteads	198,443
Wythe, W. W., Reciprocating pencil carrier for speed recorders	198,232
Wythe, W. W., Pneumatic railroad speed indicator	198,233
Young, J. E., Edge trimmer for boots and shoes	198,241
Yvelin, C. E., and M. Sulzbacher, Water closet	198,433

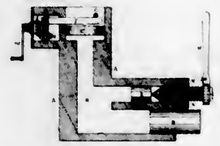
TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED DECEMBER 18, 1877.

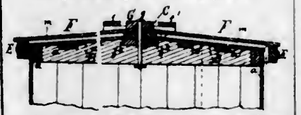
198,176. PRESSURE-JACKS, (HYDRAULIC.) Solomon A. Alexander, York, Pa. Filed Nov. 1, 1877.

Brief.—A rotary motion of the crank acting upon the large ram presses the third against the other rams and produces the desired rapid motion. The final pressure is given by moving the ratcheted lever.



A pressure jack consisting of frame A, having chamber B, rams C, D, and E, lever F, screw shaft H, with bevel wheel I, crank and shaft J, with bevel-wheel K, screw L, with ratchet lever M, and adjustable plate N N, substantially as shown and described.

198,177. CAR-ROOFS. Hiram Aldridge, St. Louis, Mo., assignor to D. L. Skidmore, same place, and Frank O. Aldridge, Batesburg, S. C. Filed Aug. 3, 1877.



1. A car or other vehicle having an inner roof, B, formed of laterally adjoined or matched pieces running from the eaves to the ridge-piece, and fastened directly to its body, and an outer roof, F, formed of laterally adjoined or matched pieces running from the eaves to the ridge-piece, and fastened to the ridge C of the roof B, and to a frame, E, fastened around the upper part of the car body, substantially as and for the purpose set forth.

2. The combination of a weather roof and a lower leakage collecting and guiding roof, and an uninterrupted ventilating air-chamber, *w*, between the said roofs, extending from the ridge to the eaves and discharging its leakage-water at the eaves, and having communication with the atmosphere at the eaves, substantially as set forth.

3. The combination of the roofs B and F and the ridge-pieces C D, ridge-board G, and bolts *g*, whereby the roofs are kept separated, and upper ends of the said roofs are fastened and held in position, substantially as described.

4. In a car or other vehicle, the combination of the roof-pieces *f* and *b*' and the ridge-piece C, having under steps or grooves *b*', substantially as set forth.

198,178. TOBACCO-PAILS. Albert Alford, Chicago, Ill. Filed Sept. 1, 1877.

Brief.—The bolt that holds the cover in place has pivoted to it a ring, by which it is operated, and when not in use is thrown down below the surface of the cover into a recess.



The combination of the box or body of the package, having therein the mortise *c*, the lid E, having therein the depression *c*', the spring-bolt F, and the ring *e*, substantially as and for the purposes specified.

198,179. SASH-BALANCES. James O. Anderson, Allegheny, Pa. Filed May 1, 1877.

Brief.—Two flat, coiled tapered springs are arranged within a suitable shell or frame-work, the inner one being tapered from the inner end toward the outer end, and the outer spring, made slightly concavo convex, is reversed in the opposite direction from the outside inwardly, a chambered pulley being journaled within the frame-work carrying the inner spring, and adapted, by slight convexity of its periphery, for the outer concavo-convex tapered spring which is attached to it, and likewise to the sash, the construction enhancing power, and being more specially intended for heavy plate-glass windows, and the like. There is also a slight novelty in the use of clamping rivets and tenons to attach the two-part frame together.

198,179.



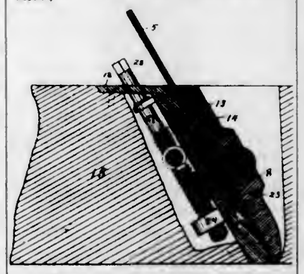
1. In a sash-balance, the tapered springs D and H, acting in conjunction with each other, substantially as described and shown, for the purpose set forth.

2. In a sash balance, the combination of the tapered spring D, cylindrical chambered pulley E, two-part frame-work A B, and a sash, attached by a suitable connecting device to the periphery of the cylindrical pulley, substantially as described and shown, for the purposes set forth.

3. The two-part frame A B, secured together by the clamping-rivets *c c* and tenon *b*', in combination with the cylindrical chambered pulley E, and tapered springs D and H, substantially as described and shown, for the purposes set forth.

198,180. BENCH-PLANES. Heinrich Baecker, Remscheid, Germany. Filed Oct. 8, 1877.

Brief.—The plane-bit is made entirely of steel, of equal length throughout its entire length, slotted a portion of its length, and clamped between upper and lower slotted break-irons. The bit is longitudinally adjustable by means of a screw having a slotted head to receive a corresponding key, by which it is operated, and carrying a threaded hub having a pin which passes through the break-irons and cutting bit. The bit is secured in position by a clamping screw passing through it and the break-irons, and operated by a rim meshing into a geared head formed in said screw.



1. The combination of the plane-iron or bit 5, upper and under break-irons 8 9, and clamping-screw 10, substantially as described.

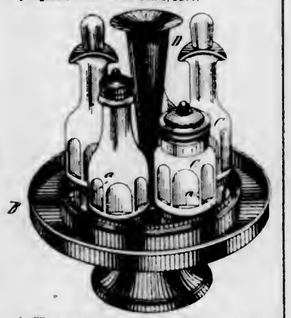
2. The combination of the plane-iron or bit 5, upper break-iron 8, having hole 14, under break-iron 9, having projecting pin 13, and clamping-screw 10, substantially as described.

3. The combination of the plane-iron or bit 5, break-irons 8 9, clamping screw 10, worm 4, and geared head 6, substantially as described.

4. The combination of the break-irons 8 9, having slots 21 22, with the plane-iron or bit 5, having a slot, 2, pin 23, and adjusting-screw 27, substantially as described.

5. An improved plane, consisting of a bit having an equal thickness throughout its length, and a slot, 2, break-irons 8 9, clamping-screw 10, and an adjusting mechanism, as screw 27 and pin 23, substantially as described.

198,181. ATTACHMENTS FOR CASTERS. L. B. Barker, Springfield, Mass. Filed Oct. 3, 1877.



1. The combination of the bottle ring *a* with the annular trough B, substantially as and for the purpose herein described.

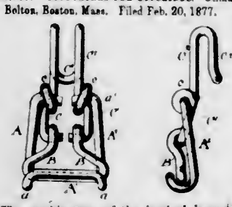
2. The combination of the vase D with the base A and bottle-ring *a*, substantially as and for the purpose herein set forth.

198,182. WELL-BORING MACHINERY. Joseph Bennerscheidt, Anaheim, Cal. Filed Oct. 22, 1877.



The vertical sinking pipe or well-tube C, open at both ends, and connected by a flexible hose, F, to a hydraulic forcing apparatus, arranged to discharge the soil by means of the overflow, substantially as described.

198,183. SUPPORTERS FOR STOCKINGS. Gilman B. Bolton, Boston, Mass. Filed Feb. 20, 1877.



The combination of the hooked base-piece A A' with the toggle B and toggle-lever and hook C C' C'', all operating together substantially as described.

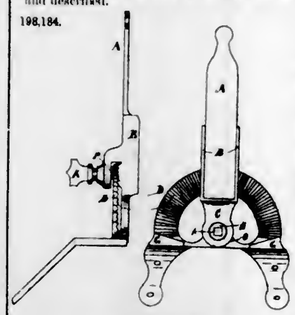
198,184. CARRIAGE-TOP IRONS. Charles J. Brackebush, Indianapolis, Ind. Filed Nov. 19, 1877.

1. The centrally-pivoted bow-iron A B C, provided with a hooked lug, L, to receive a

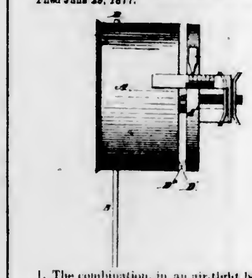
binding-screw, K, and having its face that is opposite that on the inside of the lug L serrated, as at *f'*, all in the manner substantially as shown and described.

2. The centrally-pivoted bow-iron A B C, provided with lug L, binding-screw K, and serrated face *f'*, in combination with the segmental arch D, provided with serrated face *f*, lugs G G, and central support H for the bow-iron, in the manner substantially as shown and described.

198,184.



198,185. THERMOSTATIC DEVICES FOR CONTROLLING DAMPERS, HEAT AND FIRE ALARMS, &c. Alfred Brandriff and Jacob S. Simmerman, Millville, N. J. Filed June 29, 1877.

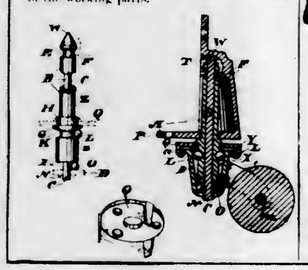


1. The combination, in an air-tight box, of the bead C with one or more beads, D^1 D^2.

2. The combination of the lever B with an air-tight box having its bead C and one or more beads, D^1 D^2, all substantially as shown and described.

198,186. FURNITURE-CASTERS. Caleb Brinton, Chicago, Ill. Filed Mar. 26, 1877.

Brief.—In the main a novel combination of old devices, the pintle having a rest exterior over a wrought-iron pin, and certain peculiar grooves or channels, the face-plate chambered for and concealing the pintle, the horn constructed with a flange or shoulder, and a tapering chamber, and there being an attaching-plate with lips or downward projections bent over for attaching the whole together. There are also two sets of small anti-friction balls within the horn, one series resting in a groove of the pintle, and the other arranged for the shoulder of the pintle to rest upon, the construction tending largely to decrease friction of the working parts.



1. The pintle B, constructed with the wrought interior pin C, cast exterior Z, shoulder I, groove K, shoulder G, shoulder H, neck or recess E, head W, and rivet-head N, all substantially as shown and described, for the purpose set forth.

2. The plate A, constructed with the vertical part S, the horizontal part P, the cavity T, and the shoulder F, all substantially as shown and described, for the purpose set forth.

3. The combination of the plate A, having a vertical face part covering the pintle, with the pintle B, substantially as shown and described, for the purpose set forth.

4. The horn D, constructed with the flange or shoulder Y, tapering chamber X, and hole *d'*, in the manner substantially as shown and described, for the purpose set forth.

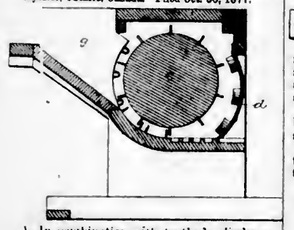
5. The horn D, in combination with the pintle B, substantially in the manner shown and described, for the purpose set forth.

6. The balls L, resting in a groove of the pintle, and the balls O, on which the shoulder of the pintle rests, in combination with the horn D and pintle B, in the manner substantially as shown and described, for the purpose set forth.

7. The plate A, in combination with the pintle B, horn D, and balls O and L, in the manner substantially as shown and described, for the purpose set forth.

8. The plate Q, having lips or downward projections *a*, in combination with the pintle B and horn D, in the manner substantially as shown and described, for the purpose set forth.

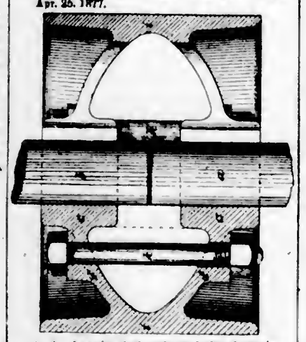
198,187. THRASHING-MACHINES. Jonathan Brown, Aylmer, Ontario, Canada. Filed Oct. 30, 1877.



1. In combination with toothed cylinder *c*, the removable block *g*, having the toothed concave side concentric with the cylinder and the inclined side *h*, substantially as shown.

2. In combination with the revolving toothed cylinder *c*, removable toothed block *g*, having inclined side *h*, the concave back *d*, provided with the slide *e*, substantially as set forth.

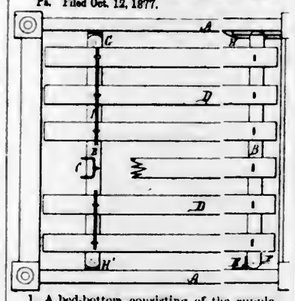
198,188. CLAMPING-HUBS. G. H. Clemens, Springfield, Mass., assignor of one-half his right to George F. Clemens and H. N. Clemens, same place. Filed Apr. 25, 1877.



1. A clamping-hub adapted for fastening shaft couplings, pulleys, &c., to shafts and axles by means of internal shaft-griping hub-sections, separated by transverse and longitudinal cuts or partings, and connected independently to radially-inclined web-sections or arms, which are joined to or formed within an exterior hub rim or periphery, and which are provided with screw-bolts or their described equivalents, adapted to force or spring the inclined web-sections or arms to a less angle of inclination to their shaft's axes, so as to force and compress together the internal hub-sections and reduce their bore, and thus to clamp and gripe them on their shafts or axles, substantially as set forth.

2. In a clamping-hub for fastening shaft-couplings, pulleys, &c., to shafts or axles, in which are employed internal shaft-griping hub-sections, the described mode of clamping said hub-sections upon their shafts or axles, by means of radially-inclined web-sections or arms connecting the hub-sections to an exterior hub rim or periphery, and operating substantially as set forth.

198,189. BED-BOTTOMS. Albert D. Cooke, Easton, Pa. Filed Oct. 12, 1877.



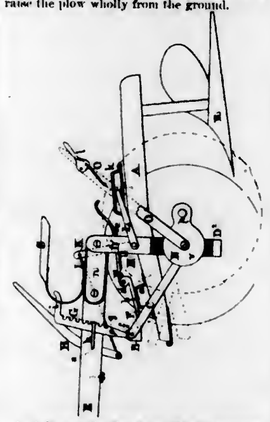
1. A bed-bottom consisting of the supplementary cross-bars B B, distinct from the head and foot boards, hinged to the side rails A A, and provided with suitable slats D D, substantially as described.

2. The combination of the side rail A, cross-bar B, springs C, slats D, pivoted joints E, and supports H, substantially as set forth.

3. The combination, with the cross-bar B, of the hinge E, cleat F, and support H, substantially as described.

198,190. GANG-PLOWS. Marshall S. Curtiss, Bradford, Ill., assignor of two-thirds his right to James B. Doyle and Hannon Phenix, same place. Filed July 3, 1877.

Brief.—The plow-frame constitutes one piece with the axle-tree, which is open in the center, leaving a vertical opening for the plow-beam. A pivoted lever with a keeper is so arranged as to move the forward end of the beam to take more or less land, and another lever connecting with a bail is brought into action to raise the plow wholly from the ground.



1. A beam-adjusting lever as a connection between the plow-beam and its draft-bar B or transverse hitching-bar, said lever pivoted at its forward end to said draft-bar, and behind said bar again pivoted to the plow-beam, and having a detent at the rear, for the purpose of

the lateral adjustment of the head of said beam in taking more or less width of land in plowing, substantially as and for the purposes described.

2. The combination of the lever F with the plow-beam A and a transverse draft-bar, adapted to swing the front end of the plow-beam laterally, substantially as and for the purposes described.

3. The combination of the lever F, to move the plow-beam horizontally, with the detent-bar M and the draft-bar or leader B, substantially as and for the purposes described.

4. The combination of the lever F, bar B, detent-bar G, and staple *h* or detent of beam E, substantially as and for the purposes described.

5. The draft-bar or beam-supporter B, pivoted to the pivotal braces C and to the forward end of lever F, substantially as and for the purposes described.

6. The combination, with the beam A, provided with lever F, and connected to bar B, operated by the notched detent-bar G, of the lifter I, with its slides *k*, arm K, connecting rod L, and lever H, attached to the tongue, substantially as described.

198,191. HORSE-COLLAR ATTACHMENTS. Lucius Deming, St. Louis, Mo., assignor of one-half his right to Cotton H. Allen, same place. Filed Nov. 6, 1877.

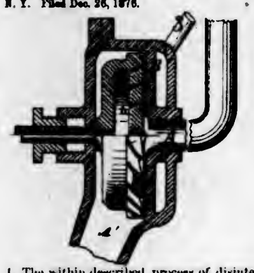


1. As an improved manufacture, the flexible crimped attachment B for horse-collars.

2. The combination of the collar A and the flexible crimped attachment B, substantially as described.

3. The combination of the collar A and the flexible crimped attachment B, provided with re-enforces C C', substantially as described.

198,192. PROCESSES AND APPARATUS FOR DISINTEGRATING CEREALS, Rudolph d'Hourcade, New York, N. Y. Filed Dec. 26, 1876.



1. The within-described process of disintegrating grain and cereals, consisting in subjecting the material to the action of heat and water or steam in a close vessel, preferably under pressure, until the same is reduced to a pulpy or pasty consistency, and thereupon, before the mass is injured by the steam, removing it from the tank and further disintegrating it until freed of coherent lumps by passing it between two grinding or rubbing surfaces, substantially as set forth.

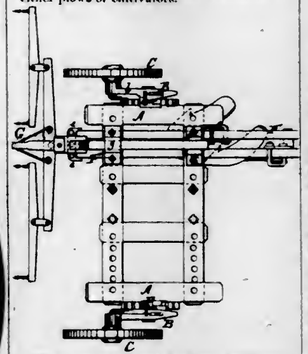
2. The mantle B, provided with a channel having an orifice or orifices for the passage of gas, steam, or liquid, and having projections on its face, in combination with a conformably-shaped and similarly-constructed disk, cone, or cylinder, C, and with admission and outlet pipes A A', substantially as set forth.

3. The mantle B, provided with a channel having an orifice or orifices for the passage of gas, steam, or liquid, and having projections on its face, in combination with a conformably-shaped disk, cone, or cylinder, C, having projections or brushes on its face, and with spouts A A', substantially as set forth.

4. The mantle B, provided with a channel having an orifice or orifices for the passage of gas, steam, or liquid, in combination with a conformably-shaped disk, cone, or cylinder, C, having brushes on its face, and with spouts A A', substantially as set forth.

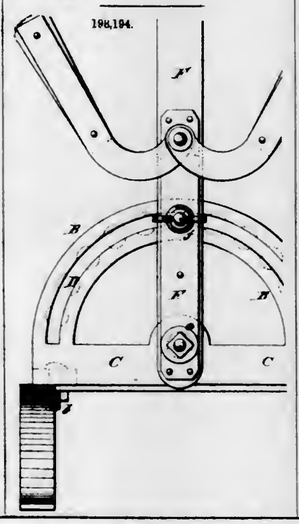
198,193. GANG-PLOW AND CULTIVATOR. Charles Domschke, Austin, Tex. Filed Oct. 18, 1877.

Brief.—The frame is mounted upon independently-adjustable axles. The front and rear beams are perforated to allow the adjustment of the tongue and for the attachment of either plows or cultivators.



The combined gang-plow and cultivator-frame A, having a perforated front cross-bar and perforated rear cross-bar, the elbow-levers B B, carrying the adjustable wheels C C, laterally-moving tongue G, and laterally-movable brackets *g g*, all adapted to receive plowshares or cultivators that are attached to the under side of the frame A, substantially as specified.

198,194.

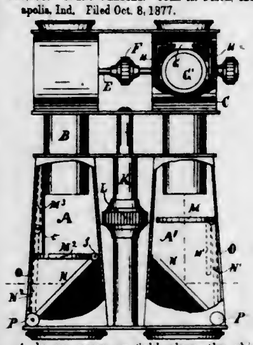


198,194. CARRIAGE-TOPS. John V. Emmit, Sterling, Ill. Filed Oct. 10, 1877.

Brief.—The slotted half-wheel D has depressions for the head of the bolt *f*, and a boss, E, upon which the standard revolves.

The half-wheel B, having the depressions and slot D, brace C, and boss E, in combination with standard F, hold-screw *e*, and binding-screw *f*, all substantially as described.

198,195. OPERA-GLASSES. John A. Finch, Indianapolis, Ind. Filed Oct. 8, 1877.



1. In an opera or field glass, the object-glasses M M^2 and mirrors N, provided with hinges, by means of which said object-glasses and mirrors may be adjusted in the barrel A, substantially as and for the purpose set forth.

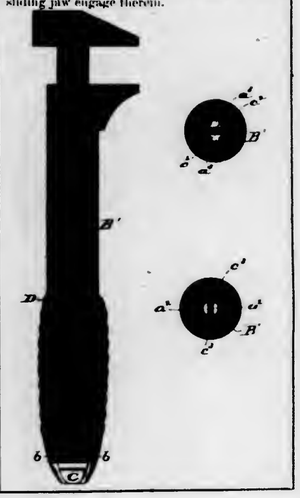
2. The combination of the revolving eye-glass G G', of varying powers, with the adjustable second object-glass M M^2, adjustable mirrors, and openings O, substantially as described.

3. In an opera or field glass, the object glass M and mirror N, provided with hinges, the object-glass and mirror moving independently of each other, and adapted to fold against the barrel A' when not in use, substantially as described.

4. The barrel of an opera-glass, provided with the slot *o*, handle P^2, affixed to the rod S, sliding in said slot, and operating the mirror N and object glass M^2 in the barrel A, substantially as and for the purposes specified.

198,196. MONKEY-WRENCHES. William H. Glover, St. Louis, Mo., assignor of one-half his right to Wm. L. Reynolds and Frederick Best, same place. Filed Nov. 19, 1877.

Brief.—The stem of the nut may be enlarged and perforated, and the shank of the sliding jaw engage therein.

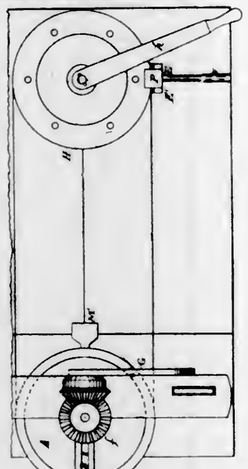


1. The herein-described wrench, consisting of the jaws A and B, handle B', shank *a*, having the grooved and threaded perforation *a'*, and the nut C, having the flattened and threaded stem *c*, substantially as described.

2. The combination, in a wrench, of the shank *a*, having the grooved and threaded perforation *a'*, and the flattened and threaded stem *c*, substantially as described.

3. The combination of the handle B', pins *b b*, nut C', stem *c*, having the groove *c'*, the smooth sides *c² c²*, and the threads *c³ c³*, and the shank *a*, having the grooved and threaded perforation *a'*, substantially as described.

198,197. **RAILWAY-SWITCHES.** Justin J. Golden, Toronto, Ontario, Canada. Filed Aug. 24, 1877.

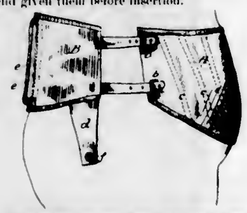


1. The wheel A, in combination with lever B, hinged in radial groove *s*, with counter-weight C and ring *o* encircling the axle F, the outer end of lever operating in notches in semi-circular bar *e*, substantially as and for the purposes set forth.

2. The eccentric E, pivoted in spring *d*, in combination with the bracket E' and flange F, for securing the wheel H and preventing the switch being tampered with, as set forth.

198,198. **ABDOMINAL SUPPORTERS.** R. W. Gray and T. S. Foster, Laconia, N. H. Filed June 16, 1877.

Brief.—The back pad is made up of alternate raised cushions and bent whalebones, which afford intermediate air-passages. The back and front whalebones have a permanent bend given them before insertion.



1. The combination, in an abdominal bandage consisting of sections A B, covering the waist and abdomen, of bones at the back having a permanent inward curve, and bones at the front converging and having a permanent inward curve at the lower ends, whereby the bandage is prevented from rising, as set forth.

2. The supporter provided with parallel bones, curved inward to fit the back, and separated by projecting ribs *c*, as specified.

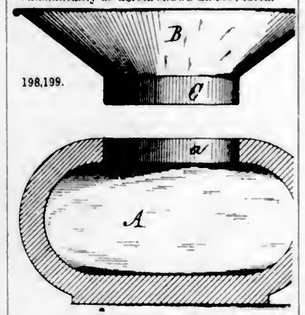
198,199. **CUSPADORES.** Eugene A. Heath, New York, N. Y. Filed Oct. 26, 1877.

1. A cuspadore the body or base of which is formed from wood, paper, paper-pulp, glass, clay, earthenware of a vitreous nature, or from other similar materials, and provided with a detachable receiving-mouth formed from sheet metal, substantially as herein shown and set forth.

2. In a cuspadore, the combination of a body or bowl made from wood or other light material, such body being formed in one piece, or of a number of sections united, and a receiving-mouth, flaring or funnel-shaped, and constructed from light metal, substantially as and for the purposes as herein shown and set forth.

3. In a cuspadore, the combination of the body or base A, made oval or bowl-shaped, provided with opening *a* in its apex, such body being constructed from wood or other light material, in contradistinction to metal, and the detachable receiving-mouth B, formed from sheet metal, and provided at its base with the neck C, the two united by a suitable device, substantially as herein shown and set forth.

198,199.



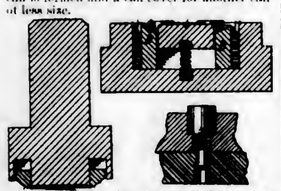
198,200. **PAPER-FASTENERS.** James G. Johnston, Washington, D. C., assignor of one-half his right to Wm. Sickels, Hamilton, Mich. Filed Oct. 29, 1877.



A paper-fastener composed of two plates, A A, each having a pointed lip or projection, B, with a longitudinal slot, *b*, to be locked or clinched together, substantially in the manner herein set forth.

198,201. **DIES FOR CUTTING AND FORMING METAL CAN TOPS AND COVERS.** Isaac F. Kearns and Goodman Jensen, Chicago, Ill. Filed June 12, 1877.

Brief.—Outer cutting-edges of the dies cut out a can-top. An annular surface inside the cutting-edges flanges the can-top. A yielding annular shaper in the upper die, against a rigid annular shaper in the lower die, shapes the perimeter of the can-top as desired. A central cutting and forming surface, having an air-hole perforator or upper die, counters with inner cutting-edges of the shaper, and, with a yielding central former, cuts out, flanges, and perforates a can-cover. Thus a top for one can is formed and a can-cover for another can of less size.



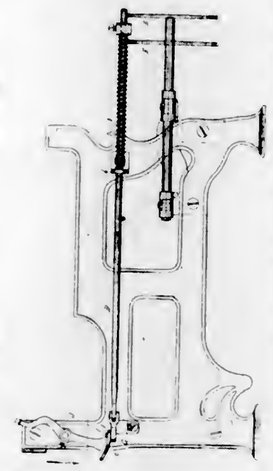
1. The combination, in one instrument, of two cutting and forming dies, consisting of fixed cutting-edges, a fixed forming-surface, and a yielding forming-surface in the lower die, and fixed cutting-edges, a fixed forming-surface, and a yielding forming-surface in the upper die, substantially as specified.

2. The upper die, provided with a yielding former within the cutting-edges of the can-top cutting-die, and a fixed punch for the cap within the yielding former, substantially as specified.

3. The lower die, provided with a stationary former within the cutting-edges of the can-top die, a yielding former for the cap within the cutting-edges of the cap-die, and spring blow-offs on the can-top former, substantially as specified.

198,202. **BELT-SHIPPING MECHANISMS FOR LOOMS.** L. J. Knowles, Worcester, Mass. Filed Nov. 3, 1877.

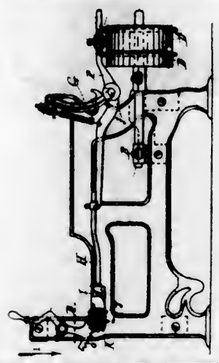
Brief.—The shipper handle has a notched and slotted foot, in which works a stud projecting from the bell-crank link, whereby a single movement of the handle operates the rod and shifts the belt.



The combination of shipper-rod D and handle J, provided with notched and slotted foot I, and connecting-lever G, substantially as and for the purpose set forth.

198,203. **BELT-SHIPPING MECHANISMS FOR LOOMS.** L. J. Knowles, Worcester, Mass. Filed Oct. 10, 1877.

Brief.—The shipper-rod is provided with a pin, which works in the curved slot of a geared hub or tube. The gear of the hub is connected by an intermediate gear-shaft with the geared sector on the shipper-handle. The curved slot has notches or shoulders, which act as detents.

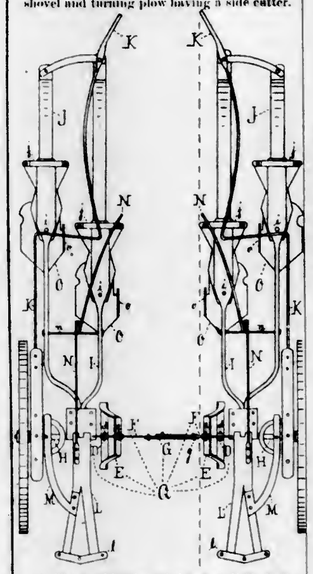


1. The combination, with the shipper-rods H and F, of pins *e* and slotted geared hub I, substantially as and for the purposes set forth.

2. The combination, with rack shipper-handle L and secondary shipper-rod H, of pin *w*, gear J, slotted hub I, and gears K and *p*, substantially as and for the purposes set forth.

198,204. **CULTIVATORS.** John M. Ludlow and S. C. Pruitt, Hall, Ind. Filed Sept 17, 1877.

Brief.—A sectional arch arranged to increase or lessen the width and height, and retain the shaft and wheels in a vertical position. The handles of each pair of plows are rigid with the plow-standards, and the latter are pivoted to beams or bars rigid upon the shafts, so that the plow-points may be turned in or out. Jointed levers pivoted to the handles, and extending forward to the wheel-shafts, change the course of the wheels to correspond with the turning of the plows. A shovel and turning plow having a side cutter.



1. The combination of the parts D D, E E, F F, and G, forming the arch to a cultivator, and constructed and operated substantially as specified.

2. The combination of the shaft H, the device C, constructed of two parts, as shown, and having two slots, in which the bolts *c c* are operated, the bolts *c c*, and the spindle B, constructed and operated substantially as herein shown and described, and for the purpose specified.

3. The combination of beam I, pivot *i*, handle J, and the plow-standard, forming a variable joint, substantially as specified.

4. The combination of handles J, jointed lever K, and shaft H, substantially as herein shown and described, and for the purpose specified.

5. The shovel plow O, constructed as shown, having a mold-board and a cutter, said cutter being separated from said mold-board for the greater part of its length, and arranged substantially as specified.

6. The combination of the forward end of the lever K with the device C, the shaft H, and draft-bars L M, substantially as herein shown and described, and for the purpose herein specified.

198,206. **WASHING-MACHINES.** Thos. E. McDonald, New Brunswick, N. J. Filed May 25, 1877.

Brief.—By means of slotted side and movable end frames and holding clamps, the washing machine may be secured in tubs of different diameters, and the device may be compactly folded together, and clamped in that position for convenient storage when not in use.

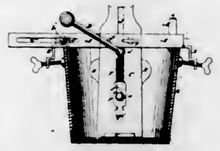
1. The sides A, provided with slots *a'''*, rigid cross-tie A', and sliding cross-tie A'', each tie having holding-clamp B, whereby the machine may be clamped to tubs varying in diameter, substantially as described.

2. The limited vibrating frame E, having rollers *e*, projecting arms *e'*, and pins *e''*, in combination with uprights C, provided with slots *c'''*, substantially as and for the purpose described.

3. The limited vibrating frame E, having rollers *e* and spring-hangers F, in combination with the fluted roller D, substantially as and for the purposes described.

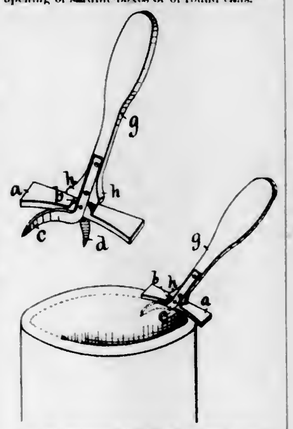
4. The sides A, pivoted at G to uprights C, in combination with the clamp B on sliding cross-tie A'' and cross-tie *c'*, whereby the machine may be folded, and clamped when so folded, substantially as described.

198,205.



198,206. **CAN-OPENERS.** John McWilliams, Prairie City, Iowa, assignor of one-half his right to E. B. Tilden, same place. Filed Sept. 8, 1877.

Brief.—A traveling fulcrum having one straight and one curved side is combined with a straight cutter and a curved cutter, the whole attached to a suitable handle in such manner that by simply reversing the tool in the hand either a straight or a curved incision is cut, at pleasure, adapting it equally to the opening of sardine-boxes or of round cans.



As an improved article of manufacture, a can-opener composed of the pivoted fulcrum *a b*, the curved cutter *c*, the straight cutter *d*, and the handle *g h*, substantially as and for the purposes shown and described.

198,207. **MANUFACTURE OF CABINET JEWELRY.** W. A. L. Miller, San Francisco, Cal. Filed Oct. 26, 1877.



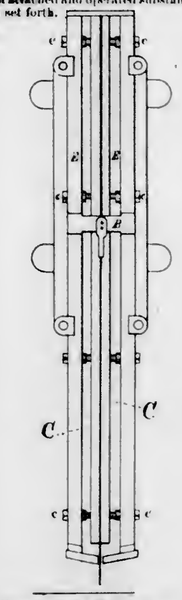
The improvement in the manufacture of cabinet jewelry, consisting in the application of putty or other cement to the back of the compartments after the particles of ore or other substance have been placed in position, substantially as specified.

198,208. **SAW-MILL GUIDES.** F. A. Olds and C. W. Olds, Martinsville, Ind. Filed June 16, 1877.

1. The adjustable saw-guide, composed of the slides C C and the adjusting-bolts *c c c c*, in combination with the frame E E, arranged substantially as herein shown and described, and for the purposes specified.

2. The cross-head B, made of two separate parts, and attached and operated substantially as herein set forth.

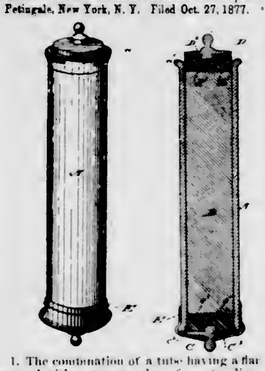
198,208.



198,209. **MANUFACTURE OF METALLIC LEAF.** Alex. E. Outerbridge, Jr., Philadelphia, Pa. Filed Oct. 3, 1877.

The process of obtaining metallic leaf by electro-deposition of a film of metal upon a suitable vehicle, and the subsequent removal of such vehicle by heat, solvents, or other similar means which do not injure the film, substantially as set forth.

198,210. **TUBES FOR HOLDING COSMETICS.** Joseph L. Petingale, New York, N. Y. Filed Oct. 27, 1877.



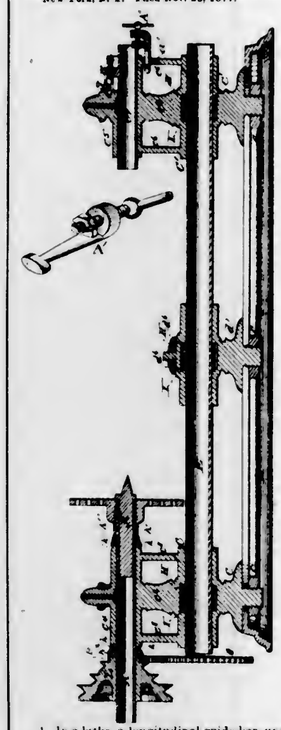
1. The combination of a tube having a flaring end with a stopper-plug of greater diameter than the body of the tube, and a piston-plug of less diameter than said tube, substantially as and for the purposes set forth.

2. A tube for holding cosmetics or other plastic substances, having both ends flared, substantially as and for the purposes set forth.

3. The combination of tube A, having flared ends *a a'*, with piston-plug D and stopper-plug C, substantially as and for the purposes set forth.

4. A stopper-cap of metal, having a knob and two pointed flexible fastening pins or blades permanently attached thereto, whereby it may be attached by simple pressure to an ordinary unperforated cork stopper, substantially as set forth.

198,211. METAL-TURNING LATHES. John W. Post, New York, N. Y. Filed Nov. 28, 1877.



1. In a lathe, a longitudinal guide-bar, upon which the puppets and the rest, each provided with means for independent attachment to the bed, are adapted to be shifted, whereby the centers of the lathe are kept truly in line, irrespective of the bed, substantially as specified.

2. The combination, with a lathe and its puppet and rest, of a longitudinal guide-bar, adapted to be withdrawn from the head-block or front puppet, but passing through the tail-block or rear puppet and rest, to retain them truly in line, and provide for a greater swing of the lathe, substantially as specified.

3. The head and tail blocks or puppets of a lathe, constructed substantially as described, with a central or main standard, and two parallel horizontal extensions connected by two vertical end standards, and provided with a base-plate resting on the bed, and means for attachment thereto, whereby the requisite lightness and solidity is obtained, substantially as set forth.

4. The rest D, constructed substantially as described, with the shank or stock d^3, extension d, annular recess H, split collar I, binding-screw F, threaded extension for the attachment of the tool-post, dowels, and recesses d^6, and the tool-post, in combination with the lathe-bed and guide-bar, substantially as and for the purpose specified.

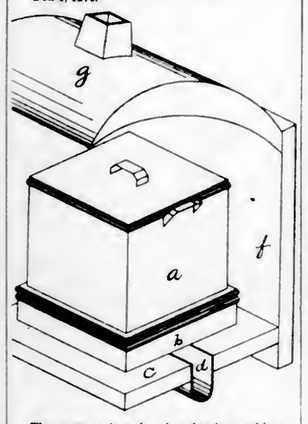
5. The combination, with the rest D, adapted to slide upon the guide-bar E, and provided with the dovetail d^7, the head-block or puppet carrying the revolving spindle K, gears P O, and counter-shaft N, of the removable screw and nut, substantially as and for the purpose specified.

6. In a lathe, provided with adjustable puppets and rest, fitted to a single central guide-bar, and capable of independent attachment to the bed, the combination of the hollow mandrels and hollow centers, substantially in the manner described.

7. In combination with the hollow longitudinally moving mandrel, the removable screw-clamp A^7, adapted to be secured to the tail-block or rear puppet of a lathe, for advancing the work to the front center, substantially as specified.

8. The removable hollow centers, constructed as shown and described, in combination with the hollow mandrel of the tail-block or rear puppet of a lathe, whereby the same is adapted to long work of various diameters, substantially as specified.

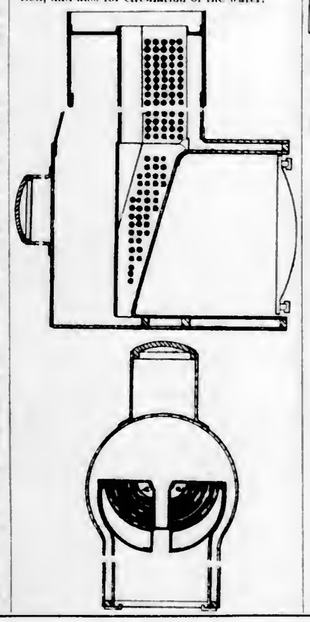
198,212. STEAM-COOKING. Edward E. Post, Lewiston, Me., and Everett W. Farbush, Freedom, N. H. Filed Dec. 1, 1876.



The parts *a*, *b*, *c*, *d*, *e*, *f*, and *g*, in combination, all of which can be disconnected, substantially as shown and described.

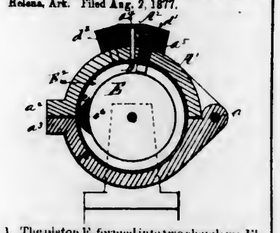
198,213. STEAM-GENERATORS. David Renshaw, Cohasset, and George B. N. Tower, Cambridge, Mass. Filed May 3, 1877.

Brief.—Bent tubes are located in the smoke-flues of the boiler their entire length, running from the sides to the crown thereof, whereby provision is made for expansion and contraction, and also for circulation of the water.



In combination with a steam-boiler having flues passing horizontally through it from end to end, said flues being surrounded by a water-body, the bent water-tubes *a a* extending from the side to the crown of the flue, as and for the purpose specified.

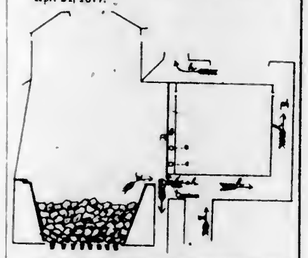
198,214. ROTARY STEAM-ENGINES. W. R. Righter, Helena, Ark. Filed Aug. 2, 1877.



1. The piston E, formed into two chambers, E^1 and E^2, and provided with pressure-heads and spring-packing e^1 and e^2, in combination with sliding valves D, having ports *d*, spring d^1, and exhaust a^4, and steam-apertures a^2, and the hinged and bolted cylinder A A^1, substantially as described.

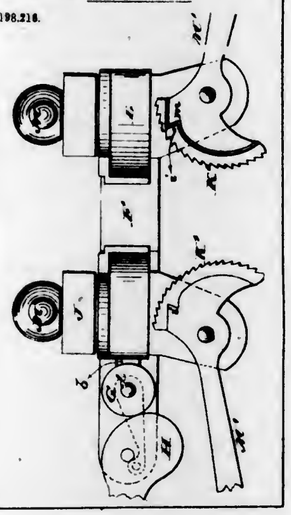
2. The outer cylinder of a rotary steam-engine, divided into the sections A A^1, hinged together at *a*, and bolted together at a^1 a^2 a^3, substantially as and for the purpose set forth.

198,215. PARLOR-STOVES. Francis H. Root, Buffalo, N. Y., assignor to Jewett & Root, same place. Filed Apr. 24, 1877.



An oven placed between the upper and lower rings, and in combination therewith of the illuminating-section of a parlor-stove, as described and set forth.

198,216.



198,218. MACHINES FOR UPSETTING BARS AND TIRES. Hugh Ross, Sr., Plattsburg, assignor to Henry Butler, Mooers, N. Y. Filed Aug. 25, 1877.

1. The combination of the base A, sliding head B', spring E, pin *a*, with arm *b*, pin *d*, rollers G G, link I, and handle H, all constructed substantially as and for the purposes set forth.

2. In a fire-upsetting machine, the combination, with the die K, of the cam-shaped die K', having flange A and notch *i*, and the pivoted lever M', having tooth *m*, substantially as described.

198,217. PLAYING-CARDS. Cyrus W. Saladee, Washington, D. C. Filed May 2, 1876.



1. In playing cards, an enlarged representation of the spot, pip, or other suit-symbol, located in the center, combined with a numbered spot, or spot and number, in one or more of the corners, indicating both the class or suit and the value of the card.

2. In playing cards, an enlarged representation of the spot, pip, or other suit-symbol, located in the center, inclosing within its outline a complete representation of a miniature card, in combination with a numbered spot, or spot and number, or device in the corner indicating the class and value of the card.

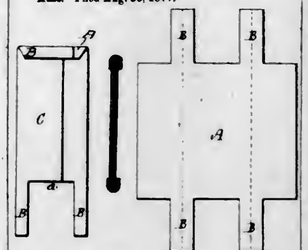
3. In playing cards, an enlarged representation of the spot, pip, or other suit-symbol, located in the center, inclosing within its outline a numeral or figure indicating its value, in combination with a numbered spot, or spot and number, or a device in the corner showing the class and value of the card.

4. The combination, in playing-cards, of an enlarged numeral, centrally located, with a device in one or all the corners, consisting of two representative spots and a numeral, arranged as shown, to indicate the class and value of the card in different positions.

5. The combination, in a playing-card having the enlarged representation of the suit-spot centrally located, of a crown or other emblem of rank imprinted within said spot, and a reduced crown or analogous emblem, suit-spot, and initial letter, located in one or more corners of the card to indicate its class and value, substantially as described.

6. In playing-cards, a continuous border around the edge of the face, consisting of alternate representative spots and numerals, representing the class and value of the card.

198,218. PAPER BAGS. Charles E. Sawyer, Boston, Mass. Filed Aug. 30, 1877.

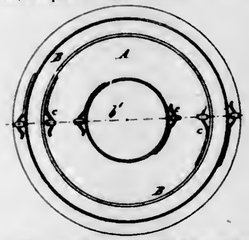


1. A bag composed of a single folded piece of material, protected at one or both of its ends by a continuous flap that extends from the side and overlaps the end, as set forth.

2. A bag composed of a single piece of material, having a double flap extending partly or wholly across the end and overlapping both sides, substantially as and for purposes stated.

3. In the manufacture of paper bags, a sheet of material cut into the preparatory form hereinbefore described—that is, as composed of the sheet A, with the flaps B B extending from it at one or both ends, substantially as and for purposes stated.

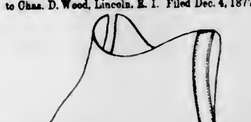
198,219. CAKE-CUTTERS. Chas. F. Schell, Jr., Buffalo, N. Y., assignor of one-half his right to Mary Schneider, same place. Filed Nov. 10, 1877.



1. The combination, with the frame or handle A, provided with central opening *b'*, of two or more concentric cutters, B, secured to the lower side of the frame, so as to be readily attached and detached, substantially as and for the purpose set forth.

2. The frame or handle A, provided with grooves *b*, in combination with the cutters B and spring-loops *c*, substantially as and for the purpose hereinbefore set forth.

198,220. STAYS FOR SEAMS OF BOOTS AND SHOES. A. Seaver, Milford, Mass., assignor of one-half his right to Chas. D. Wood, Lincoln, R. I. Filed Dec. 4, 1877.



1. As an article of manufacture, a stay for the seams of boots and shoes, composed of rubber having a backing of cloth, substantially as described.

2. A boot or shoe having a seam-covering stay, composed of rubber, attached thereto by stitching, substantially as described.

198,221. STOPPER-FASTENERS. Fredk. J. Seybold, Chicago, Ill. Filed Sept. 10, 1877.

1. In a bottle-stopper fastener, the plate A, having lug H, pivot-hole I, lever G, and link F, in combination with neck-wire D, having hook E, substantially as shown and described, and for the purpose set forth.

2. In a bottle-stopper fastener, the plate A, having the lug B, the lug H, pivot I, lever G, and link F, in combination with the neck-wire D, having hook E, tying-wire T, and upward projection C, forming a hinge with lug B, substantially as shown and described, and for the purpose set forth.

198,221.

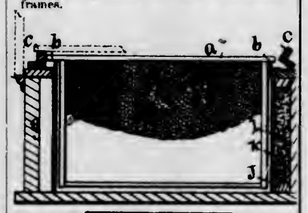


198,222. PRODUCING A WATER OR OIL PROOF COLORED OUTER SURFACE UPON PAPER, &c. Chas. W. Sharpless, Philadelphia, Pa. Filed Mar. 21, 1877.

The process of producing a water or oil proof colored outer surface (by an outer layer of color) upon paper or card board by first mixing with the coloring matter which is to form such surface a solution of copperas or iron, and then applying this compound to the surface of the paper or card board, substantially as described.

198,223. BEE-HIVES. John M. Shuck, Des Moines, Iowa. Filed June 12, 1877.

Brief.—The division-board is made of perforated wood having a paper lining. A strip on the wall on each side rests against the ends of the comb-frames, to prevent the bees from passing around the ends of the comb-frames.



1. In a bee-hive, the movable strips *c*, in combination with the frame-supports *b*, a series of movable comb-frames, *a*, and the top of the wall, substantially as and for the purposes shown and described.

2. In the construction of a porous bee-hive wall, the combination of the flexible sheet *k* and the perforated veneering *l*, substantially as and for the purposes shown and described.

3. The division-board for bee-hives, illustrated by Fig. 3, and composed of the parts J *k l*, substantially as shown and described, for the purposes specified.

4. The brood-chamber cover for bee-hives, illustrated by Fig. 4, and composed of the parts J *k l*, substantially as and for the purposes shown and described.

198,224. HAY AND COTTON PRESSES. Andrew J. Shuck, Jennings County, and Benjamin F. Wildman, Ripley County, Ind. Filed Oct. 26, 1877.

Brief.—As the beater descends its projecting ends strike against the inner ends of the latches, releasing the door, which is opened by means of a weight.

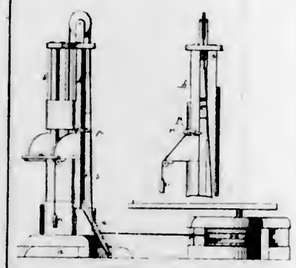
1. The combination of the slotted standards *b*, beater *c*, hand-levers *q*, ratchet-teeth *i*, rings or plates *s*, and rods *t*, substantially as described.

2. In a hay or cotton press a beater, *c*, provided with projecting ears *g*, having plates or rings *s*, and pivoted dogs *k*, whereby the beater is prevented from ascending by the pressure of the hay, substantially as shown.

3. A hinged door, *n*, provided with a weight, *o*, in combination with the beater, slotted

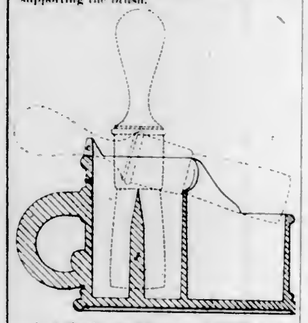
standards, and latches *p*, whereby the door is opened, when the beater rises upward and releases the latches, substantially as specified.

198,224



198,225. SHAVING-MUGS. John W. Smith, Boston, assignor to himself and James Smith, Cambridge, Mass. Filed Nov. 12, 1877.

Brief.—A mug constructed with means for supporting the brush.



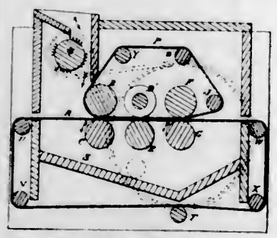
1. A shaving mug having the partition between its water and soap receptacles curved or notched at top, substantially as and for the purpose as specified.

2. A shaving mug having extended upward from its upper edge two projections, *c c*, arranged with the handle, and in other respects as set forth, such being for the purpose of supporting a brush handle when laid between them.

3. A shaving mug having the partition between its water and soap receptacles notched or concave on its upper edge, as set forth, in combination with two projections, *c c*, extended from the upper edge of the mug, and arranged with the handle and the notched partition, as specified.

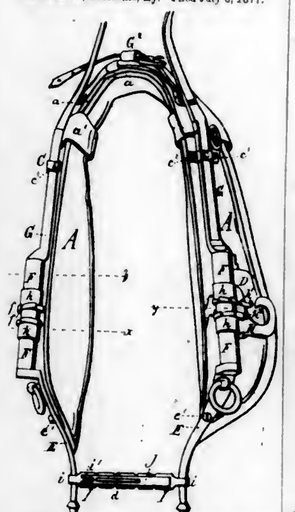
4. A shaving mug provided with a post or standard, *f*, projecting up from the bottom of the hot-water reservoir of such mug, and being for the purpose as explained.

198,226. CIDER-MILLS. Zacharias Thomas, Glenville, Pa., assignor of two-thirds his right to Leonard Kopp and Ephraim Dube. Filed Apr. 3, 1877.



In a cider mill, the combination and arrangement, substantially as shown and described, of the toothed cylinder or roller O, belt P, embracing the rollers B F Y Z J, and guiding-roller D D', and belt R, embracing the rollers U V W X, and pressed by the tightening-roller T, as set forth.

198,227. COMBINED HORSE-COLLAR AND HAMES. H. Wa Thomson, Louisville, Ky. Filed July 6, 1877.



1. The collar-halves A, having upper extensions *a* and loops *a'*, in combination with the hame-bars and adjusting contrivances thereof, whereby the collar is rendered capable of adjustment (either larger or smaller) upon the horse's neck, by simply adjusting the hames, substantially as set forth.

2. The combination of an adjustable horse-collar, and hames which are capable of being lengthened and shortened, and which, by the said lengthening and shortening, cause the attachments of the traces to be proportionately adjusted in height, substantially as set forth.

3. The hames attached to rigid perforated plates B, which are constructed and confined within the collar-halves, substantially in the manner and for the purpose described.

4. The combination of the longitudinally-adjustable hames G, having an upper adjustable coupling-strap, G^1, and a lower adjustable coupling, I J, and an adjustable collar, A A, substantially as set forth.

5. The hames E G, having screw ends E' G^1, with reversed threads, and a coupling and adjusting swivel, F, substantially as set forth.

6. The combination, in a horse-collar, A, of the inner plate B and the outer plate D, having raised bearings d^2, substantially as and for the purpose set forth.

7. The combination of the plate D, having raised bearings d^2 and the swivel F, substantially as set forth.

8. The combination of the swivel F and the trace-hook H, substantially as set forth.

9. The combination of the swivel F, having reversed ratchets *f f'*, and the swinging plate H, having reversed pawls h^1 h^2, substantially as set forth.

10. The combination of the hames E, fixed to the collar, swivel F, having fixed guides d^2 and the movable hames G, having guides C fixed to the collar, substantially as set forth.

11. The combination of the bars I, having holes *i'*, and the locking-rod J, having a head, *j*, and a hook, *J'*, and hooked lever K, substantially as set forth.

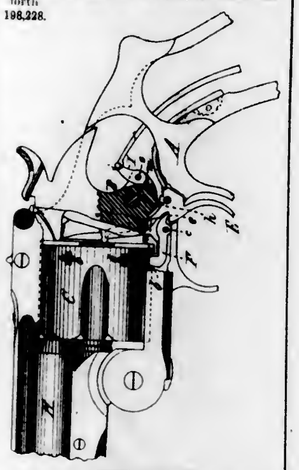
198,228. REVOLVING FIRE-ARMS. Daniel B. Wesson and Jas. H. Bullard, Springfield, Mass.; said Bullard assignor to said Wesson. Filed Aug. 3, 1877.

Brief.—The stirrup serves as a lever, which causes the hammer to rebound by the force of the mainspring.

1. In a revolving fire-arm, the trigger E, provided with the cam *h*, in combination with the tumbler B and the cylinder-stop F, whereby the latter is prevented from being disengaged from the cylinder, and the latter unlocked while the point of the trigger is in the safety or half-cock notch, substantially as described.

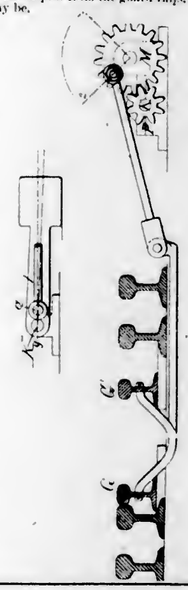
2. The stirrup I, suspended, at its upper end, in the loop of the mainspring, and pivoted to the rear side of the tumbler, and having a bearing against the said tumbler in the direction of the line of its movement, substantially as and for the purpose herein set forth

198,228.



198,229. RAILROAD-SWITCHES. William Wharton, Jr., Philadelphia, Pa. Filed Oct. 16, 1877.

Brief.—The two movable guard-rails are secured to the same rod, which is connected with a crank upon the large wheel, which meshes with the pinion upon the weighted operating-shaft, whereby a quarter-revolution of said crank will cause the operating-shaft to rotate a half-revolution. The momentum of the weight assists to perfect the throw of the rails, and locks them against any side thrust exerted upon them. The crank on the large wheel is always in position to receive either thrust or pull from the guard-rails, as the case may be.

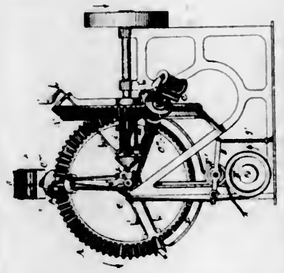


1. The combination of the two movable guard-rails G and G', connected to the pin *r* of the wheel M, with the operating-shaft K, connected to the switch and carrying a pinion, P, geared to the wheel, all substantially as described.

2. The combination of the shaft K with the weighted lever connected to the switch, and admitting of being moved to the extent described, so as to lock the said switch in its two positions, with a pinion, P, and wheel M, the latter being connected to the device to be operated by a passing locomotive or car, all substantially as described.

198,230. BRAIDING-MACHINES. Frank Whelan, San Francisco, Cal. Filed July 6, 1876.

Brief.—The spool-frames are carried in recesses among the teeth of each of two beveled gear-wheels working at right angles to each other. At each recess are devices for clutching and unclutching the spool-frames, so arranged that when a spool-frame enters a recess it will unclutch the spool-frame in the adjoining recess, so as to allow it to pass over to a corresponding recess in the other wheel, releasing the spool-frame in the next recess in this wheel, to allow it to pass over to the first-mentioned wheel, where the same operation is repeated.

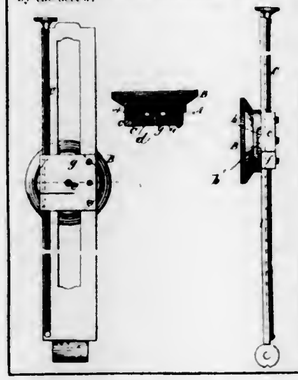


1. The wheels A A', with their shafts arranged at right angles to each other, in combination with the spool-frames C C' C'', clutching and unclutching arms *k k'*, and guides L L', as hereinbefore described.

2. The spool-frames C C' C'', having a hollow spindle with conical flange *p* and circular groove *r* and tension-bar *s*, in combination with arms *k k'*, sliding cross-head *x*, and the toothed wheels A A' of a braiding or platting machine, as and for the purposes as specified.

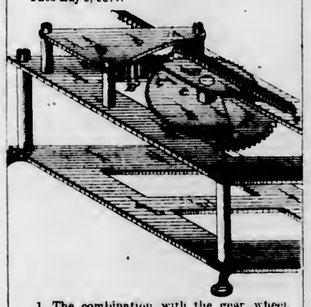
198,231. SIGHTS FOR FIRE-ARMS. Gustavus L. Winship, Boston, Mass. Filed Mar. 23, 1877.

Brief.—By turning the eye-piece a cam upon its back engages and lifts the half-nut out of engagement with the screw-rod, when the eye-piece may be moved either up or down independently of the screw. By turning the eye-piece back the half-nut engages with the rod, and the sight may then be accurately adjusted by the screw.



In a rear sight for rifles, the slide *a*, with spring *g*, half-nut *e*, and projection *b'*, operating in combination with the cam-surface *b* on the eye-piece B, and the embedded screw C, substantially as and for the purpose specified.

198,232. RECIPROCATING PENCIL-CARRIERS FOR SPEED-RECORDERS. William W. Wythe, Erie, Pa. Filed May 5, 1877.



1. The combination, with the gear wheel, actuated by suitable clock-work and the segmental gears fixed upon its axial shaft, of the two independent gears, respectively engaging with the said segments in alternate succession, substantially as described.

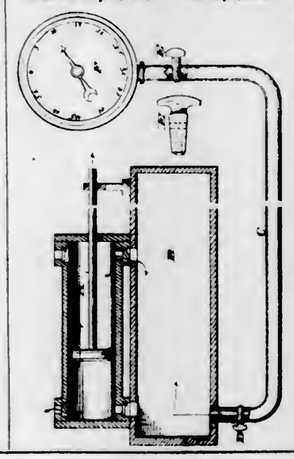
2. In a speed-recorder, the main gear, adapted to be actuated by suitable clock-work, and carrying, in a common axial movement, the two segmental gears, in combination with intermediate gearing, respectively engaged by said segments, and the single gear adapted to reciprocate the rack-bar, substantially as described.

3. In a speed-recorder, the combination, with the gear adapted to reciprocate the pencil bar, formed with a single rack side, of the gear fixed to its axial shaft, and the independent gear meshing with its teeth, substantially as described.

4. In a speed-recorder, the combination, with the pencil rack-bar, single gear reciprocating the same, and the two gears independently actuating said single gear, of the segmental gears, the latter adapted to move in common with the main gear, actuated by clock-work, substantially as described.

5. The combination, with the main gear, actuated by suitable clock-work, and the segmental gears moving in common therewith, of the two gears respectively engaging in alternate succession with said segments, the rack-bar, and the intermediate single gear, substantially as described.

198,233. PNEUMATIC RAILROAD SPEED-INDICATORS. William W. Wythe, Erie, Pa. Filed May 5, 1877.



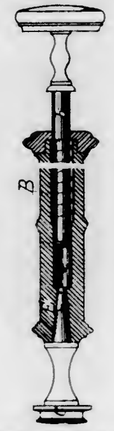
1. A speed-indicator operated by compressed air, and consisting of an air-compressing pump and air pressure gage, the two suitably connected, and in combination with a locomotive, car, or other vehicle, or shaft, substantially as described.

2. In combination with a vehicle or shaft, an air-compressing pump, and a gage or indicator connected therewith, suitable devices for neutralizing the pulsations, located between said pump and gage or indicator, and a vent for the escape of the air under pressure, substantially as and for the purposes described.

3. In combination with a locomotive, car, or other vehicle, or shaft, the pump A, chamber B, tube C, gage-cock D, relief-cock E, and gage or indicator F, substantially as and for the purposes described.

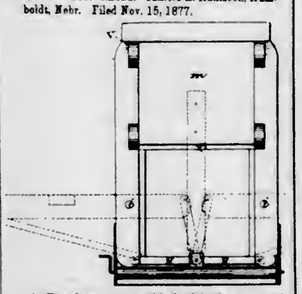
198,234. EDGE-TRIMMERS FOR BOOTS AND SHOES. James E. Young, Lyan, Mass. Filed July 7, 1877.

Brief.—One tool can be readily removed and another substituted while the machine is in operation.



In combination, the arbor B, tool C, and plunger *b*, under the arrangement and operating substantially as and for purposes stated.

198,235. WAGON-RACKS. Charles E. Adamson, Humboldt, Nebr. Filed Nov. 15, 1877.



1. The frame *a*, provided with the grooved posts *b*, in combination with the racks having the studs or projections *i*, substantially as shown.

2. The combination of the metallic straps, the racks having the projections *i*, the grooved posts, and the braces for supporting the racks when extended, substantially as described.

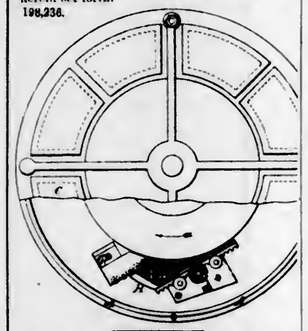
3. The end board *m*, provided with the hooks *r* and downward projection *x*, so as to catch over the top edges of the end boards of the wagon and over the tops of the racks, substantially as set forth.

198,236. GRINDING WOOD FOR PAPER-PULP. John H. Burghardt, Stockbridge, Mass., assignor of two-thirds of his right to Charles H. Longley, Hartford, Conn. Filed Nov. 21, 1877.

1. The combination of a sliding carriage, H, for containing blocks of wood to be ground, with a grindstone turning against the line of direction in which the carriage advances, substantially as and for the purpose herein described.

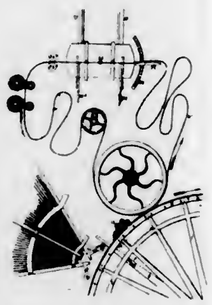
2. A movable carriage for containing blocks of wood, set firmly in any desired position, in combination with an advancing mechanism and a revolving grindstone, substantially as herein set forth.

198,236.



198,237. PROCESSES AND APPARATUS FOR PRODUCING PRINTING-SURFACES. George P. Drummond, Ottawa, Ontario, Canada. Filed Dec. 27, 1876.

Brief.—The subject reading matter designed for reproduction is first printed or otherwise placed, by means of type writing, setting, or attaching mechanism, upon an elastic band; then justified by straining and composed in lines; then photographed through a series of exposures onto the same negative plate, and finally transferred, by known photo-mechanical means, to stone, metal, or other surface suitable to print from.



1. The improvement in the art of producing surfaces for printing reading or other matter from, which consists in first impressing, printing, or otherwise placing, by means of a type writing, printing, or attaching mechanism, the subject-matter on an elastic band or surface, then photographing, and afterward transferring the same by any photo-mechanical process to metal, stone, or other surfaces for printing, substantially as described.

2. The improvement in the art of producing surfaces for printing reading-matter from, in reference to the justification thereof, which consists in straining an elastic band or surface having the subject-matter thereon, so as to elongate the said subject-matter within certain limits of lengths of lines, according to conventional practices among printers; and, secondly, to contract or elongate the said subject-matter by turning the elastic band or surface upon which it is placed to any desired angle in the same plane with the camera, then photographing, and afterward transferring the same by any photo-mechanical process to metal, stone, or other surfaces for printing, substantially as described.

3. The improvement in the art of producing surfaces for printing reading-matter from, which consists in contorting, angling, stretching, or straining, in the same or different planes with the camera, an elastic band or surface having the subject-matter thereon, so as to impart varieties of shapes and designs to the lettering, which is then photographed, and afterward, by any photo-mechanical process, transferred to metal, stone, or other surfaces for printing, substantially as described.

4. The improvement in the art of producing surfaces for printing reading-matter from, which consists in placing over or alongside the elastic band carrying the subject-matter any screens, letter ornamentation, or designs, whether black, white, or transparent, or by intervening between the lines of the subject-matter as they are photographed any ornamentations, pictures, or designs, which combinations are then photographed, and afterward, by any photo-mechanical process, transferred to metal, stone, or other surfaces for printing, substantially as described.

5. The improvement in the art of producing surfaces for printing reading-matter from, which consists in obtaining various sizes of lettering, intermingled or otherwise, on the same negative plate, by increasing or decreasing the distances between the sensitized plate in the camera and the subject-matter placed on an elastic band or surface in a uniform size, which photographed negative is afterward transferred to metal, stone, or other surfaces for printing, substantially as described.

6. The improvement in the art of producing surfaces for printing reading-matter from, consisting of the combination of a band or surface of any elastic material, having thereon the subject-matter, with a mechanism for adjusting and shaping it, movable as a whole upon a central and vertical axis, and, in that part through which the continuing line of subject-matter is horizontally passed, upon a horizontal axis, by means of which movements the subject-matter may be readily presented at a variety of angles to the sensitized surface in the camera, in the manner substantially as described, and for the purposes specified.

7. The improvement in the art of producing surfaces for printing reading matter from, consisting in the employment of an adjusting machine or mechanism operating an elastic band or surface having the subject-matter thereon, in combination with a photographic camera, substantially as described, and for the purpose of reproduction of such subject-matter by any photo-mechanical means.

8. The method of obtaining surfaces for printing reading matter from, by means of an elastic band or surface having the subject-matter thereon, in combination with a photographic camera having a guiding way or track and an adjusting and shaping mechanism attached thereto, substantially as described, and for the purposes specified.

9. The employment, in the art of producing printing-surfaces, of a photographic camera, in combination with an inscribed or recorded set-scale, or detailed list of the various sizes of type, upon its own guideway or focusing-track, and a corresponding and proportionately inscribed or recorded scale or detailed list of the various sizes of type upon the guiding way or track, connecting with the shaping and adjusting mechanism, for the purpose of readily increasing or diminishing and focusing, and thereby obtaining variable sizes of printing from the object reading-matter placed on an elastic band or surface in an elementary or standard size by a type printing, writing, or attaching machine or mechanism, whether the object reading-matter be treated fancifully or be plain, all as set forth and described.

10. The employment, in the art of producing printing-surfaces, of an elastic band or surface having the subject-matter thereon, and subsequently passed through an adjusting and shaping mechanism, substantially as described, in combination with a photographic camera, and a secondary guide way or track, for raising the front or back of the camera, so as to keep the base-line of the subject matter on the elastic band, the focused lens, and the base-line of the opening exposure-slide on the sensitized plate all in one direct and straight line, whatever position the camera may occupy on the main track, or whether the lettering be focused large or small upon the sensitized plate, substantially as described.

11. The employment, in the art of producing surfaces for printing reading-matter from, of an elastic band or surface having the subject-matter thereon, and subsequently passed through an adjusting and shaping mechanism, in combination with a photographic camera, substantially as described, and an exposure-slide in the plate-shield of the camera, giving, at whatever position the camera may occupy in relation to the subject-matter to be reproduced, a width of opening exposure suitable to the height of the lettering as focused upon the sensitized plate, substantially as described.

12. The employment, in the art of producing surfaces for printing reading-matter from, of an elastic band or surface having the subject-matter thereon, and subsequently passed through an adjusting and shaping mechanism, in combination with a photographic camera, substantially as described, and a sensitized-plate frame within the sensitized-plate shield of the camera, movable at each exposure equally and uniformly with, and to a similar width of line as, the opening exposure-slide, but remaining stationary at each shutting of the opening exposure-slide, substantially as described.

13. The elastic band or surface *w*, having the subject-matter thereon, combined with the feeding-rollers 26ª 26ᵇ, and the shaping and adjusting mechanism 52, substantially as described, and for the purposes specified.

14. The elastic band or surface *w*, having the subject-matter thereon, combined with the knee-joints or holding-cams 54ª 54ᵇ, substantially as described, and for the purposes specified.

15. The elastic band or surface *w*, having the subject-matter thereon, combined with the lever 22 and its scale 23, also with the levers 21ª and 21ᵇ, and their scales 24ª 24ᵇ, substantially as described, and for the purposes specified.

16. The combination of the shaping and adjusting mechanism 52 and the way or track 37 with a recorded register of type sizes thereon, and with the camera 33, having a recorded register of type sizes thereon, substantially as described, and for the purposes set forth.

17. The combination of the varying-lever 27, the opening exposure-slide 35, and the iron frame 32, connecting both, substantially as described, and for the purposes specified.

18. The combination of the opening exposure-slide 35, operating the knee-joints or friction-cams 31ª 31ᵇ on the friction-bars 34ª 34ᵇ, with the frame 53, to which the latter are attached, and its contained sensitized plate 30, substantially as described, and for the purposes specified.

19. The combination of the elastic band *w*, the camera 33, the opening exposure 50, and the movable sensitized plate 30, all as substantially described, and for the purposes specified.

20. The combination of pointers 38 and 48 on the camera with their respective scales or registers of type sizes, substantially as described, for the purposes of obtaining various sizes of lettering and the correct focus thereof.

21. The elastic band *w*, having the subject-matter thereon, the pointer shields 5 5, and the recorded scale 60, substantially as described, and for the purposes of justification and making various lengths of lines.

22. The combination of the holding-box 61, the adjustable ornamental screens, fancy lettering, and other slides 62, and the elastic band *w*, having the subject-matter thereon, substantially as described, and for the purposes specified.

23. The combination of the secondary track 42, the elastic band *w*, having the subject-matter thereon, and the lens 39, with the base of the opening exposure, substantially as described, and for the purposes specified.

24. The combination of the tracks 42 and 37 with the camera 33, substantially as described, and for the purposes specified.

25. In an apparatus for printing, photographing, and transferring reading or other matter from, for the production of surfaces to print from, combined and arranged to operate as described, a composing, printing, and transferring machine having fingering-keys operating type of soft or hard metal or letter representations of the various letters of the alphabet, punctuation-points, figures, and all other signs necessary for the production of reading-matter of any kind, substantially as described, by means of which reading matter can be rapidly composed, and transferred or printed directly or indirectly upon a band or surface of any elastic material—if directly, by the aid of an inking-roller upon the surface of the elementary type; if indirectly, by the intervention of the impression on lead, wood, or other material, in relief or intaglio—which received impression may be transferred to the elastic band or surface by the ordinary process of inking rollers and pressure.

26. The combination of the keys *c c*, the type-rods *a a a*, the arms 29, and the connecting-rods 56 and 57, substantially as described, and for the purposes specified.

27. The combination of the keys *c c* and their attached arms *z z* with the buffer-rod 10 and the buffer 11, by their connecting-rod 58, substantially as described, and for the purposes specified.

28. The combination of the rapidly-revolving crank 12, the connecting-rod 59, and the buffer 11, substantially as described, and for the purpose specified.

29. The rapidly-reciprocating buffer 11, operating upon and in combination with the nipper cross-heads *f f*² and their closing-arms 14ª 14ᵇ, substantially as described, and for the purpose specified.

30. The combination and connection of the type-rods *a a a*, the type-heads *b b b*, the pliable spring-joints *d d d*, and the guiding-clamps *g*¹ *g*², substantially as described, and for the purposes specified.

31. The combination of the type-heads *b b b* and their connected type-rods *a a a*, converging upon a central point, *e*, but, by spring-joints *d d*, making their impression at a distance beyond that point, for the purposes substantially set forth and specified.

32. The nipper cross-heads *f f*², the stationary center guiding-clamp *g*¹, and the movable center guiding-clamp *g*², all combined with and operating upon the type-heads *b b b*, when driven forward to position *b*², substantially as described, and for the purposes specified.

33. With one or more type-heads driven between guiding-clamps *g*¹ and *g*², the combination of the guiding-clamp *g*², the radial arm *o*, and its attached friction knee-joint *p*, held to position by the spring 18, substantially as described, and for the purposes specified.

34. The combination of the type-heads *b b*, having the type thereon in relief or intaglio, with the inserted lead or soft-metal rim or band *h*, attached to the wheel *i*, substantially as described, and for the purposes specified.

35. The combination of the lead or soft-metal rim *h*, the flipped groove *y*, in which it is inserted, substantially as set forth and described, and for the purposes specified.

36. The combination of the impressed lead or soft-metal rim *h*, the cutters and smoothers *r r*, and the inking rollers *s s*, substantially as described, and for the purposes specified.

37. The elastic band *w*, with the subject-matter printed thereon, in combination with cleaning-brushes *x x*, substantially as described, and for the purposes specified.

38. The combination of the type-wheel *i*, the bearing-rollers 75ª 75ᵇ, and two, three, or more sets of type on the type-heads *b b b*, substantially as described, and for the purposes specified.

39. The combination of the lead or soft-metal rim *h*, impressed with the subject-matter, the cup of melted metal 2, and the remolding-groove 3, substantially as described, and for the purposes specified.

40. The combination of the soft-metal rim *h*, the cup of melted metal 2, and the casing or tire segments *n n*, substantially as described, and for the purposes specified.

41. The combination of a capital-letter bar, 8, and its frame 6, with the guiding clamps *g*¹ *g*² and the nipper cross-head clamps *f f*², substantially as described, and for the purpose of securing a steady forward stroke.

42. The combination of the capital-letter bar 8 with the transferring-wheel *i* and the inserted soft-metal rim *h*, substantially as described, and for the purpose specified.

43. The combination of the capital-letter bar 8 with the converging type-heads *b b b* and the inserted soft-metal rim *h*, substantially as described, and for the purpose specified.

198,238. MACHINES FOR OBTAINING PRINTING-SURFACES FOR READING-MATTER. George P. Drummond, Ottawa, Ontario, Canada. Filed Dec. 27, 1876.

1. The combination of the fingering-keys *a a a* with the clip-lever *r* by the connecting-wire *o* and with the shears *d* and pad 13, whereby the letters are cut from the ribbons and attached to the gummed elastic band, substantially as described, and for the purposes specified.

2. The combination of a fingering-key, *a'*, the connecting-wire *o*, the clip-lever *r*, and the paper-clip *t*, substantially as described, and for the object set forth.

3. The combination of the paper-clip *t*, its pointer 21, and the fixed spring *c*, substantially as described, and for the purposes set forth and specified.

4. The combination of the converging channels *b b b*, the shears *d*, the pad 13, and the elastic band *w*, substantially as described, and for the purposes set forth.

5. The combination of the fingering-keys *a a a* with the spring *p*, the cut-off cross-bar *b*, the connecting-wire *p*, the cut-off lever 17, and the shears *d*, substantially as described, and for the purposes specified.

6. The combination of the shears *d* with the sticking-pad 13 and the elastic band, coated with an adhesive substance, substantially as described, and for the purposes specified.

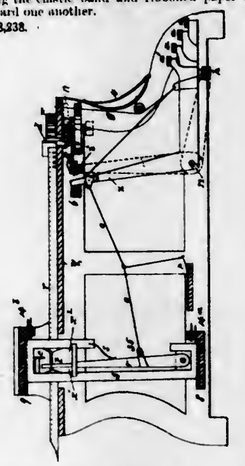
7. The cross-feed bar *i*, having set-screws therein, the connecting-rod *k*, and the friction-cam or knee-joint *s*, combined with the feed-wheel *e*, the band-pulley *j*, carrying the elastic band *w*, substantially as described, and for the purposes specified.

8. The fingering-keys *a a a* and the attached levers *z z z*, combined with the cross-feed bar *i*, graduated for various feeds, substantially as described, and the friction-cams or knee-joints *s* and *s*², operating on a smooth surface, so as to communicate the various feeds, for the purpose specified, to the elastic band *w*.

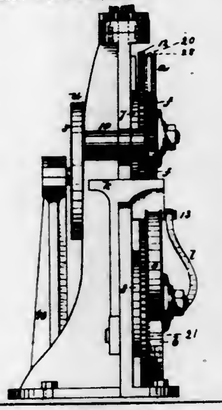
9. The combination of the clip-frames 5 5 with the set of guides 23 and the ranges of set-screws 14ª and 14ᵇ, substantially as described, and for the purposes specified.

10. The combination of the guiding-wheel 18, the elastic band *w*, and the band-wheel *j* with the guides *d*² and 12, substantially as described, and for the purpose specified, of guiding the elastic band and ribboned paper toward one another.

198,238.



198,239. ROTARY PRINTING AND PERFORATING MACHINES. George P. Drummond, Ottawa, Ontario, Canada. Filed Dec. 27, 1876.

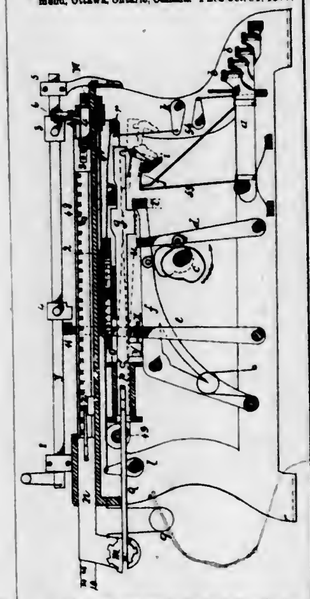


1. Fixed or movable type 28 28, in repeated succession of the same denomination, in combination around the circumference of the wheel *a*, each with an attendant equidistant and similarly-contiguous punch, 20 20, for the purpose of simultaneously printing and punching coils of ribboned paper, in the manner substantially as described, and for the accomplishment of the end specified.

2. The combination of a discharging-reel, *c*, and the ribboned paper *c* with the printing-wheel *a*, its type 28, and its punches 20, operating in and upon the wheel *b*, for the purpose of producing the result substantially as described and specified.

3. The combination of the type 28 and punches 20, in the printing-wheel, with the pressure-wheel *b*, having holes therein, for the several combined purposes of automatically and concurrently feeding, printing, and punching ribboned paper, in the manner described, and for the use specified.

198,240. MACHINES FOR OBTAINING PRINTING-SURFACES FOR READING-MATTER. George P. Drummond, Ottawa, Ontario, Canada. Filed Oct. 31, 1877.



1. The improvement in the art of producing printing-surfaces, which consists in first detaching the characters of the subject-matter from previously-prepared strips of paper, then attaching them to an elastic band, by means of which the lines are justified, and finally transferring the subject-matter to a page or column basis.

2. The art of producing surfaces for printing reading-matter from, which consists in first detaching the letters of the subject-matter from paper or other suitable material, having the letters matriced and printed therein or embossed thereon, and then attaching them to an elastic band or surface, from which they are removed and formed into a solid matrix or relief-mold, from which a stereotype or electrotype is obtained.

3. The paper-strip carriers, the fingering-keys, and the scissors, in combination with the intermediate mechanism, substantially as described, whereby the strips of paper are fed forward and the separate letters detached upon the depression of the keys.

4. The combination of the fingering-keys *b b b* by the knee attachment 59 and the banner *j* with the sustaining-catch *h* and the drop-levers *g*, substantially as described, and for the purposes specified.

5. The combination of the drop-lever *g*, parallel slide *p*, the draw-spring *q*, and the channel guide *u* with the paper channels or carriers 48, substantially as described, and for the purposes specified.

6. The combination of the paper channel or carrier 48 and the channel guide *u*, provided with the spring-pawl *x*, substantially as described, and for the purposes specified.

7. The combination of the drop-lever *g* and the channel guide and carrier mechanism by the connecting draw-spring *q* and draw-slide *p* with the revolving eccentric *c*, the vibrating arm *d*, and the cross-bar *u*, for the purpose of feeding in the paper, substantially as described.

8. The combination of the channel or carrier 48, the channel-guide *u*, provided with the pawl *x*, with the short channel 80, provided with the pawl 3, substantially as described, and for the purposes specified.

9. The combination of the revolving eccentric *c*, the vibrating arm *u*, and cross-bar *t* with the drop-lever *g*, the shear-lever *s r*, and the double shears 7 and 6, substantially as described, and for the purposes specified.

10. The combination of the drop-lever *g*, the feed-arms *e*, and the cross-bar *x* (containing the adjusting set-screws *a*) with the feed-wheel 43, by the lever 50, and the feeding and check friction-pawls 40 and 45, substantially as described, and for the purposes specified.

11. The combination of the cross-bar *x*, having set-screws therein, with the drop-lever lugs *r* and the channel guide mechanism carrying the ribboned paper, substantially as described, and for the purposes specified.

12. The combination of the feed-arm *e* and cross-bars *x* and 11 with the slide-bar *y* and the secondary shears 6, substantially as described, and for the purposes specified.

13. The combination of the channel or carrier 48, the stationary short channel 80, having the spring-pawl 3, main shears 7, secondary shears 6, and elastic band *w*, substantially as described, and for the purposes specified.

14. The combination of the elastic band *w*, having the subject-matter attached thereto, the swinging adjusting-platform 19 and 20, the drop-press 18, and the matrix-basis 15, substantially as described, and for the purposes specified.

15. The combination of the press 18, provided with a slot for the tissue-paper 30, with the bed 13, carrying the matrices formed into a molding-surface, substantially as described, and for the purpose specified.

16. The combination of the reels 21 or 22, having ribboned paper thereon, with the elastic band having the matriced or embossed subject-matter thereon, substantially as described, and for the purposes specified.

17. The combination of the oven 23 and the table 13, carrying the matrix-basis 15, coated with a pasty composition, with the elastic band, carrying the matriced subject-matter, for the purpose of aiding in removing the latter from the band and consolidating it on the matrix-basis, substantially as described.

18. In the composing-machine, the combination of the lever *c*, having the cross-bar *x*, provided with adjusting set-screws and the bolt 42, and lever 50, having the slot 54, with the mechanism carrying the ribboned paper for the purpose of increasing the feed proportionately throughout, and substantially as described.

198,241. MACHINES FOR EMBOSSING AND PERFORATING PAPER. George P. Drummond, Ottawa, Ontario, Canada. Filed Nov. 28, 1877.

1. The art of obtaining surfaces for printing reading-matter from, by first detaching the letters of the subject-matter from paper or other suitable material having the letters embossed thereon, and then by attaching them to an elastic band or surface, from which they are removed and formed into a solid relief-mold, from which a matrix impression is obtained, and from this a stereotype or electrotype taken.

2. The matriced die *o*, having characters in repeated succession, and the reciprocating die *e*, in combination with the independent punch-die *l*, whereby the strip of paper is simultaneously embossed or matriced and punched, in the manner described, and for the purposes set forth.

3. The method of making solid embossed letters on ribboned paper, to be used for the purposes specified, which consists in introducing above the paper and the matrix dies chips or cuttings of paper, and, by pressing these chips into it, forcing the paper into the die, thus producing the relief-type thereon, substantially as described.

4. The upper stamp *e*, carrying the cutter *r* and the matrix-die *o*, having the attendant cutter 29, operating in combination upon the paper twines *s s s* and the ribboned paper *c*, substantially as described, and for the purposes specified.

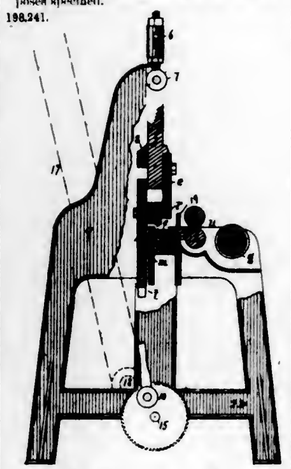
5. The ribboned paper, embossed as described, having the reversed depressions filled with compressed paper chips.

6. The ribboned paper, embossed as described, having the reversed depressions filled with compressed paper chips, and provided with the perforations corresponding in position with the embossed characters.

7. The combination of the dies and cutters with the feed-rolls and damping-brush, whereby the sized twine is fed, cut, and inserted into the ribboned paper, substantially as described, and for the purposes specified.

8. The movable table 26, and a clamp, 27, having a creasing-rib, 28, attached thereto, substantially as described, and for the purposes specified.

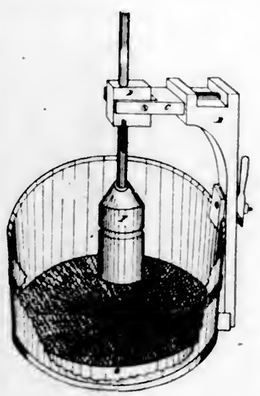
198,241.





198,242. WARMING-MACHINES. Israel Hogeland, Indianapolis, Ind., assignor of one-half his right to John R. Maret, same place. Filed June 28, 1877.

Brief.—The flexible false bottom of canvas is attached circumferentially to a hoop fitting within the tub, leaving a water-space beneath the said false bottom, so that at every downward stroke of the maul some of the water is forced upward through the canvas and the clothing resting thereon.

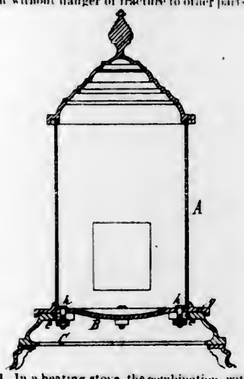


1. The flexible false bottom C, adapted to be supported at the circumference, and tightly stretched above the bottom of the tub, leaving an intervening water-space, and operating in conjunction with the maul F, substantially as set forth.

2. The combination of the flexible bottom, supported rigidly at the edges above the bottom of the tub, the bracket B, oscillating piece C, carrying the swinging block D, and maul F, provided with a handle sliding in the block D, as set forth.

198,243. STOVES. Josiah Jewett, Buffalo, N. Y., assignor to Jewett & Root, same place. Filed Nov. 1, 1877.

Brief.—The tight bottom is secured to the base in the manner described to allow expansion without danger of fracture to other parts.

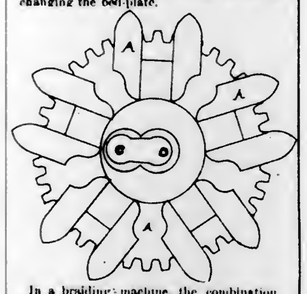


1. In a heating-stove, the combination, with the tight bottom B, adapted to receive the fuel, of the base C, made separate from the bottom, and secured thereto in the manner described, so as to enable the bottom to expand and contract, being at the same time securely connected to the base, substantially as set forth.

2. The combination, with the base C, provided with lugs *e*, having radial slots *f*, of the bottom B, made separate from the base, and secured thereto by bolts *h*, in the manner and for the purpose set forth.

198,244. RETURN-GEARS FOR BRAIDING-MACHINES. James Kelcher, Jr., Lawrence, Mass. Filed Mar. 28, 1877.

Brief.—The gear has a large central bearing, into which fits a bushing, that is cut away at its center and to one side, so as to accommodate different diameters of gears, or for moving up the return-gears when it is desired to make narrow braid without cutting or changing the bed-plate.

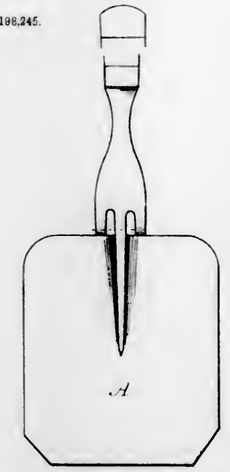


In a braiding-machine, the combination, with the gear A, of the stud or bushing B, having slot C D, formed as described, and for the purpose set forth.

198,245. CAKE-TURNERS. John Kelly, Rochester, assignor to John Snow, Ogden, N. Y. Filed Nov. 30, 1877.

The plate A, constructed with the corrugations *a a a*, to receive the tines of an ordinary table-fork, as herein shown and described, and for the purpose specified.

198,245.



198,246. ANIMAL-TRAPS. Scott McBride, St. Catharine, Mo. Filed Nov. 15, 1877.

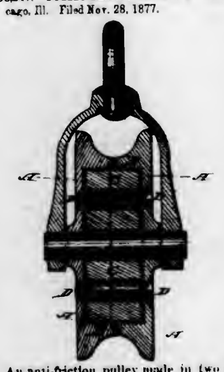
Brief.—The weight of the animal upon the door *a* closes the entrance-doors, the points of which, coming in contact with the animal's sides, prevent its escape by piercing its body. The animal, to free itself, passes outward into the cage.



1. The combination of the sharp-pointed wire gates *c*, provided with the cranks *d*, the cage having slots *e* and springs *g*, whereby the gates are made self-closing, substantially as shown.

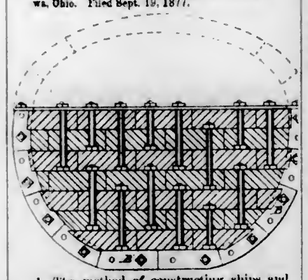
2. A trap-door, *a*, in combination with the bent pivoted rods *r*, and the rods *o*, that project from the gate-posts, whereby the tilting of the trap-door causes the gates to close against the sides of the animal, substantially as set forth.

198,247. PULLEY-BLOCKS. Edward Y. Moore, Chicago, Ill. Filed Nov. 28, 1877.



An anti-friction pulley made in two parts, A A, each having a circular recess, B, and interior rollers C C, mounted upon bolts or rivets D D therein, all substantially as and for the purposes herein set forth.

198,248. SELF-BUILDING. Andrew Muhleisen, Ottawa, Ohio. Filed Sept. 19, 1877.



1. The method of constructing ships and other vessels by bolting together segments of plank of tapering or wedge shape, and arranged transversely of the hull, so as to give an arch character to the structure, substantially as shown and described.

2. In combination with the hull of a vessel constructed of segments A, bolted together as described, the lining H, arranged to cross the joints of the former at about right angles thereto, substantially as specified.

3. The metallic plate or gunwale C, in combination with the segments A and bolts B and D, all arranged as shown and described, for the purpose specified.

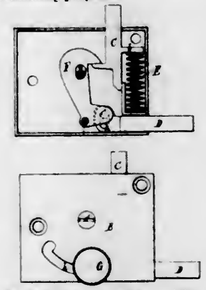
198,249. BOOTS AND SHOES. Daniel H. Murphy, Lynn, Mass. Filed Nov. 16, 1877.



As an improved article of manufacture, a high-cut shoe formed from the blank *d*, having a curved slit extended downward from the top to the point *b*, located substantially as described with reference to the ankle, and of a filling-piece stitched into the slit to fill out the leg of the two quarters, substantially as described.

198,250. SASH-FASTENERS. Robert H. Randall and Geo. H. Randall, Natick, Mass. Filed Oct. 10, 1877.

Brief.—A suitable molded case carries separate bolts at right angles to each other, connected by a slotted lever, and provided with an operative spring and an actuating-knob, the construction adapting it for use on the top of the upper sash, and throwing a two-way bolt, for securing the window at desired height for ventilating purposes.

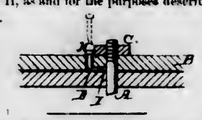


The sash-fastener, substantially as described, consisting of the two separate bolts C D, the single operative spring E, the stud or knob G, the slotted lever F, and the slotted and notched plate H, all constructed, arranged in the case, and applied essentially as set forth.

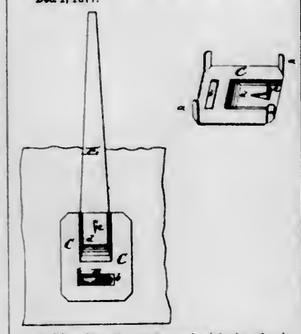
198,251. NUT-LOCKS. Alex. D. Rock, Eureka, Nev. Filed Mar. 17, 1877.

The combination of the screw-bolts A, which pass through the rails, the fish-plates B, the nuts C, the holes D cut through the fish-plate at the sides of the nuts, the groove I on the side of the opening in the fish-bar, and the spikes H, as and for the purposes described.

198,251.



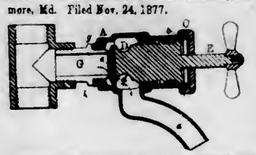
198,252. WAGON-CURTAIN FASTENERS. John Watters and Charles Schroeder, New York, N. Y. Filed Dec. 1, 1877.



1. The plate C, constructed with the slot *b*, raised portion *d*, and tooth *e*, substantially as and for the purpose herein shown and described.

2. The combination of the plate C, having the hole *b* and raised portion *d*, with the knob or eyebolt B, and with the strap E, which is inserted and secured in the cavity formed by the raised portion *d*, substantially as herein shown and described.

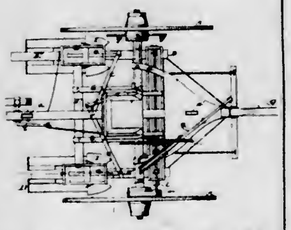
198,253. FAUCETS OR COCKS. Isaac Simmons, Baltimore, Md. Filed Nov. 24, 1877.



1. The shell A, and its cap C, combined with the screw-valve D, having a portion of its body externally threaded, and the pipe G, forming the valve-seat, substantially as herein set forth.

2. The shell A, combined with the screw-valve D, having a portion of its body externally threaded, and the pipe G, forming the valve-seat, substantially as herein described.

198,254. COMBINED COTTON CULTIVATOR AND PLANTER. Miles T. Skinner, White Rock, Tex. Filed May 9, 1877.

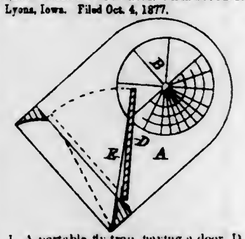


1. In combination with the vehicle A H C, the frame D, composed of the rigid central bar E, having standards *a a'*, adjustable side bars E' E', and transverse bars F, the lever Q,

upright bar R, connecting-bar *k*, the lever O, rack-bar P, rod *h*, crank lever *i*, and caster-wheel *j*, all constructed and arranged to operate substantially as herein set forth.

2. In combination with the vehicle A B C, frame D, shovels I I, and openers L L, the seed-boxes G G, seed-slides *e e*, levers *c c*, connecting-bar *f*, lever *m*, pins *g*, and spring N, substantially as shown and described.

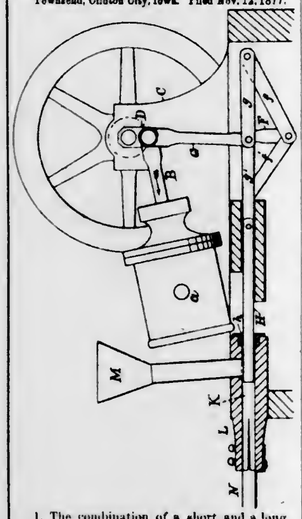
198,255. PORTABLE FLY-TRAPS. Ferdnd. F. Thedens, Lyons, Iowa. Filed Oct. 4, 1877.



1. A portable fly-trap, having a door, D, at the bottom, held by a light spring, E, by which the door, being opened upon a sudden movement of the trap, is closed automatically, substantially as and for the purposes described.

2. In a portable fly-trap, the combination of the door D and the frame A, covered with gauze, and provided with entrances B and handle C, substantially as and for the purposes described.

198,256. PEAT-COMPRESSING MACHINES. David Townsend, Clinton City, Iowa. Filed Nov. 12, 1877.



1. The combination of a short and a long pitman, operated by the same crank, and connected to toggle-levers, substantially as and for the purpose described.

2. The dies L, provided with vacuum-chambers K and packing *k*, in combination with the hopper M and plungers H, substantially as set forth.

3. The dies L, adjustable by means of set-screws, substantially as and for the purpose specified.

4. The dies L, provided with water compartments P, substantially as set forth.

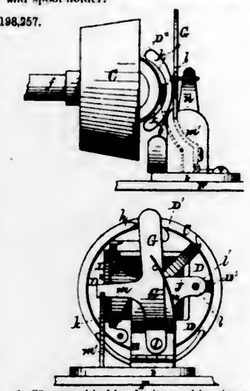
5. The combination of long pitman F and short pitman G, crank H, the toggle-levers *f f'* and *g g'*, plungers H, and dies L, as and for the purposes described.

6. The conductors N, attached to the ends of the dies, substantially as and for the purposes described.

198,257. REVOLVING-HOOK SEWING-MACHINES. Jas. Tripp, Coldwater, Mich. Filed June 13, 1877.

Brief.—Details of construction of the hook and spool-holder.

198,257.



1. The spool-holder D, in combination with the case C and hinged or pivoted upright E, having a retaining lever or pawl, G, substantially as and for the purpose set forth.

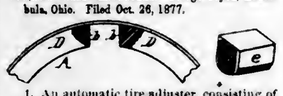
2. The spring-lever G, having a projection or arm, *n*, and slotted upright *m'*, in combination with the retaining lever or upright E, having the arms *k k* and flexible or yielding bearing *l P*, substantially as and for the purpose set forth.

3. The retaining upright E, having the flexible or yielding bearing *l P* and arms *k k*, in combination with the spool-holder D and case or support C, substantially as and for the purpose set forth.

4. The spring-lever G, slotted plate or catch *m'*, retaining-upright E, having arms *k k*, spool-holder D, and case or support C, in combination, substantially as and for the purpose set forth.

5. The spool-holder D, in combination with the spring *d'*, headed stud or projection *d*², and pressure-regulating screw *d*³, substantially as and for the purpose set forth.

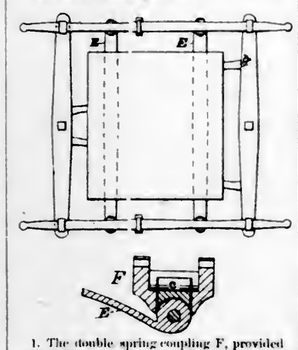
198,258. TIRE-ADJUSTERS. George Tryon, Ashtabula, Ohio. Filed Oct. 26, 1877.



1. An automatic tire-adjuster, consisting of an elastic packing, *a*, placed between the fellies D, and mounted on a pin, *d*, substantially as set forth.

2. The packing *a*, mounted on pin *d*, and placed between the fellies D, provided with sockets *b*, in combination with the sleeve *e*, substantially as expressed.

198,259. CARRIAGE-SPRINGS. Amos Woeber, Davenport, Iowa. Filed Aug. 24, 1877.



1. The double spring-coupling F, provided with an elastic cushion, *c*, inclosed in a cavity in the coupling, and constructed and adjusted to form elastic bearings for the ends of both of the springs, connected by the coupling, substantially as described and shown.

2. The double-spring coupling F, provided with an elastic cushion, *c*, inclosed in a cavity in the coupling, as described, in combination with the axle springs D and cross-springs E, substantially as and for the purposes set forth.

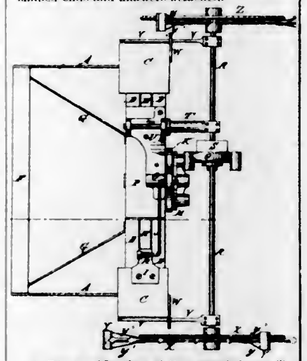
198,260. COMPOSITIONS FOR CONCRETE PAVEMENTS. Nathan B. Abbott, Brooklyn, N. Y., assignor of one-half his right to John P. Oranford, same place. Filed Oct. 12, 1877.

Brief.—Thirty-five to forty-five gallons liquid asphaltum and twelve to sixteen gallons "petroleum wax-tailings" are mixed together at a temperature of about 400°, and then mixed with sand, gravel, and broken stone which have been dried and heated to about 300°.

In composition pavements, the combination, with the hard mineral matters and asphalt, of petroleum wax-tailings, substantially as and for the purposes set forth.

198,261. SELF DROPPER AND MARKER FOR CORN-PLANTERS. Michael Ackerman, Steamboat Rock, Iowa. Filed Sept. 10, 1877.

Brief.—A cogged cam on the axle engages with a cogged wheel journaled centrally on the frame. The cogged wheel has on its opposite side a triangular cam, that works in the lower end of a lever having inclines against which the cam strikes for vibrating the lever and seed-slide through the medium of connecting-rods. Projecting beyond the periphery of the wheel are spokes having wedge-shaped ends and markers attached.



1. The combination of the swiveled arm T and its swiveled block or plate U, and the pivoted arms V and their keepers W, with the axle R and the frame-work of the machine, to allow the ends of said axle to move up and down as its wheels pass over uneven ground, substantially as herein shown and described.

2. The combination of the three-armed cog-wheel Q provided with the triangular wheel S, the cog-wheel N provided with the triangular wheel M, the lever K provided with the inclines *k'* upon the opposite sides of the opening in its widened middle part, the spindle O, the connecting-rod J, and the lever H, with the axle R and the seed-dropping slide E, to enable said dropping-slide to be operated by the revolution of the said axle, substantially as herein shown and described.

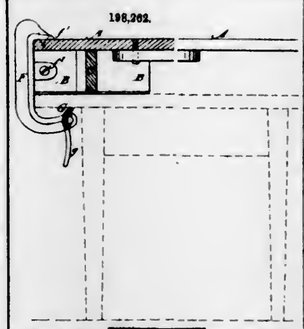
3. The drive-wheel X, formed of the hub, the two rings, and the long and short spokes, alternating with each other, and sharpened at their outer ends, in combination with the axle R, for driving the dropping mechanism, substantially as herein shown and described.

4. The combination of the skeleton-wheel Z, formed of the hub, the ring, and the long and short spokes, with the axle R, for carrying a set of markers on the end of the said axle, substantially as herein shown and described.

198,262. IRONING-TABLES. Andrew Aitken, Wells' River, Vt., assignor to himself and James R. Nelson, same place. Filed Oct. 24, 1877.

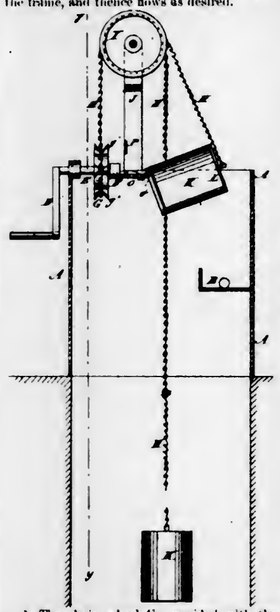
The combination, with ironing-board A, slotted strips B, and cross-strip C, of the loops F *f' f²* and cam-bar G, pivoted between the lower ends of said loops, as shown and described.

198,262.



198,263. WINDLASS WATER-ELEVATORS. Thurston B. Barber, Baltic, Conn. Filed Oct. 25, 1877.

Brief.—A chain with a bucket at each end doubles upon a sprocket-wheel fixed upon the primary shaft, said wheel standing at right angles to two pulleys upon one shaft above, over which the chain passes. The ascending buckets are tipped by pins beneath the pulleys, and the water emptied into a trough within the frame, and thence flows as desired.



1. The chain-wheel G, provided with the sharp-edged forked projections *g'*, in combination with the chain H of a water-elevator, substantially as herein shown and described.

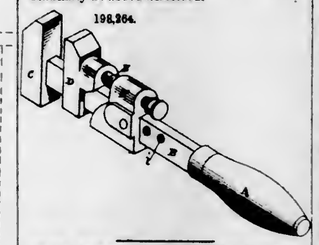
2. The hinged board O, provided with the steps *o'*, in combination with the cross-bars F P attached to the curb A, and the frame J for tilting the buckets K, substantially as herein shown and described.

3. The combination of the crank and shaft D E, the chain-wheel G *g'*, the chain H, the two elevated pulleys I, the center-hung buckets K L, and the hinged tilting-board O *o'* with each other and with the curb A and the frame-work J F P, substantially as herein shown and described.

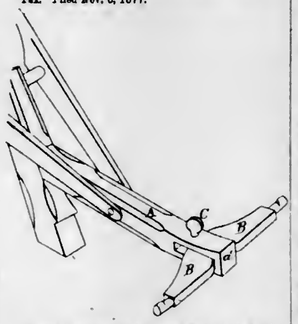
198,264. SCREW-WRENCHES. Elisha T. Barlow, San Francisco, Cal. Filed Nov. 10, 1877.

A screw-wrench consisting of a fixed jaw, C, shank H, provided with a series of transverse holes, *i*, and handle A, in combination with a movable jaw, D, connected by a screw, E, with a movable nut, F, having a pin, O, and which can be adjusted and fixed at any desired point in the length of the shank, substantially as above described.

198,264.



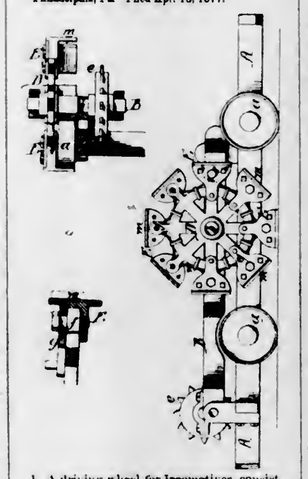
198,265. SINGLE-TREES. Thomas G. Bass, Pittsburg, Tex. Filed Nov. 6, 1877.



1. The single-tree B, made wide and flat in its middle part, and secured in the mortised or slotted forward end of the beam A by the pin C, substantially as herein shown and described.

2. The V-shaped block *a'*, formed in or attached to the mortised or slotted forward end of the beam A, in combination with the single-tree B, having a wider V-shaped notch formed in its forward edge, and with the pin C, substantially as herein shown and described.

198,266. TRACTION-LOCOMOTIVES. John Bailey, Philadelphia, Pa. Filed Apr. 18, 1877.



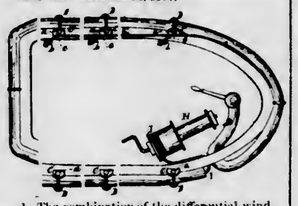
1. A driving-wheel for locomotives, consisting of a central hub and rigid radial arms, to the ends of which are rigidly pivoted blocks E, as set forth.

2. The combination of the truck A of the vehicle with a wheel of the character described, said wheel being carried by a box or frame capable of moving vertically independently of the truck, as described.

3. The combination of the arms of the wheel, having enlarged circular heads *f*, with the blocks E, having corresponding recesses adapted to the heads, and with the pivot-pins *i*.

4. The combination of the truck A and its wheels *a* with a wheel, D, having blocks E, with flanges *m*, which support the wheels *a* of the truck, as set forth.

198,267. LIFE-BOATS. Cornelia E. Beaumont, Cleveland, Ohio. Filed Oct. 18, 1877.

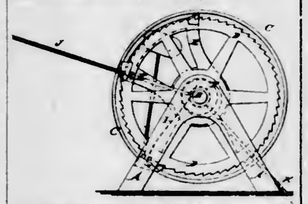


1. The combination of the differential windlass H I with the cord E and flexible tube D, whereby the tube may be coiled on the windlass, or uncoiled and drawn around the boat, substantially as and for the purpose described.

2. The cords *c* and cord E, in combination with the loops D, standard *a*, and tubular buoy B, in the manner substantially as described, and for the purpose set forth.

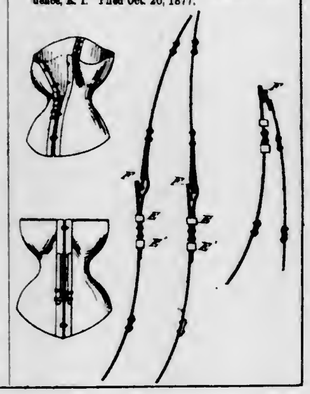
198,268. WINDING-ALARMS FOR CLOCKS. Lars P. Bergstrom, Rock Island, Ill. Filed Oct. 27, 1877.

Brief.—An alarm is operated by the descending clock-weight to indicate when the time for winding has arrived, and repeated at intervals until the clock is stopped.



The combination of the bracket A, the shaft B, the gong C, the ratchet-wheel D, the pawl or pawls E, the spiral spring F, the hammer and spring G H I, the lever J, and the stop K with each other, to adapt the device to be operated by a descending clock-weight, substantially as herein shown and described.

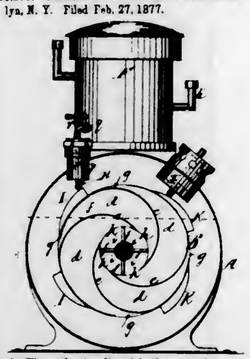
198,269. CORSET-CLASPS. John H. Bongartz, Providence, R. I. Filed Oct. 20, 1877.



1. A hinged corset-clasp, provided with the removable springs H H, substantially as and for the purposes set forth.

2. The corset-clasp B B', having the hinges F F and clasps E E', in combination with the indented removable springs H H, substantially as and for the purposes set forth.

198,270. CARBURETERS. William F. Bossert, Brooklyn, N. Y. Filed Feb. 27, 1877.

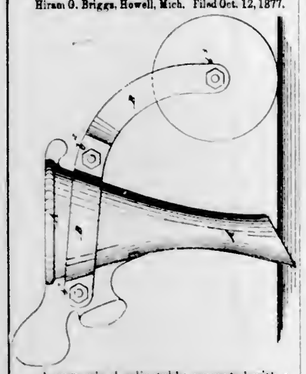


1. The cylinder B, with the annular spaces *d d* formed between the curved walls *e e* and the divisions *f f*, with inlets *g g* and outlets *h h* leading into the central openings *i i* formed between the curved arms *j j*, extending from the axle *k* outward to the walls of the central opening, and the chamber C, with conduit D and pipes *m m*, in combination with the vessel A, provided with valves H and J and cams I and K, substantially as and for the purpose set forth.

2. The valve H, in combination with the cams I I placed on the cylinder B, and the reservoir G, with pipes *p* and *q*, and the vessel A, substantially as and for the purpose set forth.

3. The valve J, in combination with the cams I K, placed on the cylinder B, and the vessel A, substantially as and for the purpose set forth.

198,271. GRAIN-DRILLS. Philander W. Briggs and Hiram O. Briggs, Howell, Mich. Filed Oct. 12, 1877.



A gage-wheel, adjustably connected with a drill-tooth by the bars B B, bolts *b' b' b'*, and the forward lug *a'* on the hollow tooth, as shown and described.

198,272. FOOT-POWER MACHINES. Geo. W. Brown, Providence, R. I. Filed Aug. 30, 1876.

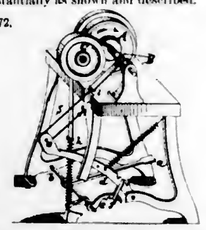
1. The movable pulley *c*, applied to the treadle mechanism in such a manner that the strap which communicates motion to the reciprocating sleeve B is caused to unwind a greater number of turns, thus increasing the speed, as shown and described.

2. The catch *m*, provided with the friction-spring *n*, arranged to operate in combination with the reciprocating sleeve, strap, and treadle, for the purpose set forth.

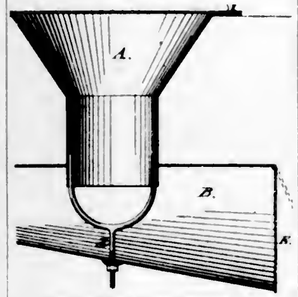
3. The balance-wheel A, constructed in two separate parts, so that one part may be detached, for the purpose specified.

4. In combination with the reciprocating sleeve B, the arrangement of the compound levers *c d*, provided with notches or scores, for the purpose of adjusting the power and speed, substantially as shown and described.

198,272.



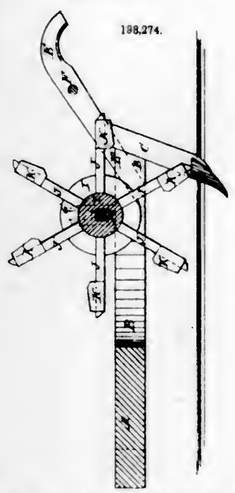
198,273. CUSPADORES FOR CARS AND OTHER VEHICLES. Chas. R. Burr and John V. R. Towers, Washington, D. C. Filed Dec. 8, 1877.



1. The cuspadore herein described, consisting of an upper funnel-shaped section, A, and a lower loosely revolving section, B, substantially as shown and described.

2. The combination of the conical or funnel shaped section A, with the flanged rim *a* and semi-conical shaped section B, the connecting semicircular rod *d*, and gate E, arranged and operating substantially as set forth and described.

198,274.



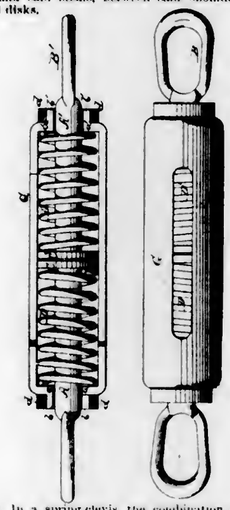
198,274. COTTON-CHOPPERS. S. N. Camp, Forksville, La. Filed Oct. 16, 1877.

Brief.—Two turn-plows, each throwing the soil inward, are placed in the rear of a revolving wheel provided with cups, which are designed to cover the plants that are to be left standing, and protect them from the soil thrown by the plows, while the other plants will be covered by said soil.

The combination of the slotted uprights G, the axle H, the flanged hub I, the spokes or arms J, and the cups K with the frame A B E F and the standards and plows C D, substantially as herein shown and described.

198,275. SPRING PLOW-CLEVISES. John F. Chase, Deep River, Conn. Filed Oct. 13, 1877.

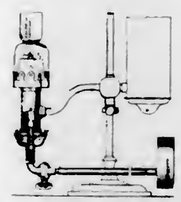
Brief.—Two stems having loops formed on their outer and disks on their inner ends are placed within a casing composed of two semi-cylindrical parts, the ends of which are contracted to form interior shoulders, and springs of different degrees of strength are placed around said stems, between said shoulders and disks.



1. In a spring clevis, the combination of the two stems A A' with eyes or loops B B' and disks C C', and the springs D D', of different thickness and strength, all constructed and arranged within an exterior casing, substantially as and for the purposes herein set forth.

2. In a spring clevis, the exterior casing made of two semi-tubular or semi-cylindrical parts, G G, having contracted ends to form interior shoulders *a a*, and provided with outwardly-projecting flanges *b b*, the two parts being connected together by means of collars *d d*, placed around said flanges, substantially as herein set forth.

198,276. ILLUMINATING APPARATUS. Henry A. Olum, New York, N. Y., assignor to Charles W. Rhodes, and said Rhodes assignor of one-half his right to Cornelius Godfrey, all of same place. Filed Sept. 7, 1876.



1. The combination, as before set forth, of a reservoir containing oxygen or superoxygenated air, a gas-tip having its mouth located within the mixing-chamber, above the air-in-

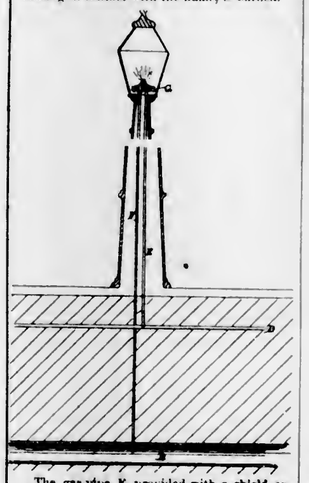
lets and below the point of combustion, and a lamp-burner.

2. The combination, as before set forth, of a reservoir containing oxygen or oxygenated air, a gas-tip having its mouth located within the mixing-chamber, above the air-inlets and below the point of combustion, a lamp-burner, and a tinted or colored chimney.

3. The process herein indicated of increasing the power of the ordinary hydrocarbon-oil flame—viz., by mingling a jet of oxygen or superoxygenated air with the ordinary air-currents at a point below that of combustion, and conducting the mingled gases to the flame in the manner described.

198,277. MEANS FOR REMOVING AND DESTROYING SEWER-GASES. Samuel J. Corbett, Los Angeles, Cal. Filed Aug. 30, 1877.

Brief.—The heat of the burning illuminating-gas induces a current of sewer-gas, which, coming in contact with the flame, is burned.



The gas-pipe E, provided with a shield or bonnet, G, in combination with the pipe F, the lower end of which connects with the interior of the sewer B, while its upper end terminates inside of the shield, substantially as and for the purpose described.

198,278. KNIFE-CLEANERS. John T. Cronin, Boston, Mass. Filed Nov. 27, 1877.

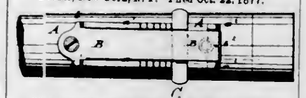
Brief.—Scouring-plates of rubber, cork, or soft wood, backed with paper-board and then with wood. The side joints are covered with felt. They rest on springs and are removable from case. Tips box to throw powder onto backing of top scouring-plate.



1. The rubbers *g k*, one or both of which are made to yield to accommodate blades of different thicknesses, the upper rubber being perforated to allow of the passage of the gritty substance, in combination with an inclosing box or casing, A, provided with an opening, *a*, for the entrance of the blade, and with a cover, T, for holding down the upper rubber *k*, substantially as and for the purpose described.

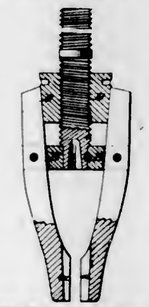
2. The auxiliary pivoted rubber G, held in its working position by a removable rod or pin, K, in combination with the inclosing box or casing A, substantially as and for the purpose set forth.

198,279. REAR SIGHTS FOR FIRE-ARMS. Alonzo T. Decker, New York, N. Y. Filed Oct. 22, 1877.



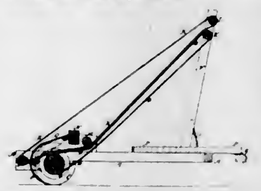
The combination, with slide C and bed A, having stepped side flanges, of the plate B, made elastic, fastened at one end, and provided with sight at the other end, as shown and described.

198,280. BIT-CLAMPS FOR BORING-MACHINES. F. Deecadorf, Cornwall-on-Hudson, N. Y. Filed Nov. 3, 1877.



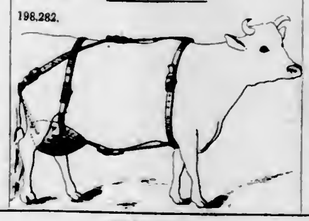
A bit-clamp for power-machines, consisting of a threaded center piece, with bottom T-piece, fulcrumed jaws, and a vertically-adjustable conical screw-nut bearing on the upper ends of jaws, for setting them to the bit-shank, substantially in the manner set forth.

198,281. HAY RAKE AND LOADER. Alvin T. Dora, Charlton, Iowa. Filed Sept. 1, 1877.



The combination of the bands K and the rollers J L M with the endless apron D, the rollers B E, the rake N O, the wheels C, the band and pulleys H G I, and the frame-work A F F, substantially as herein shown and described.

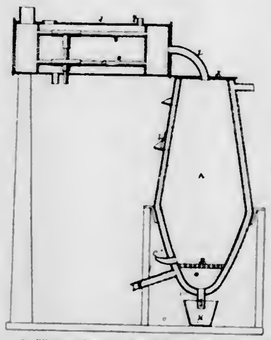
198,282.



198,282. COW'S-BAG PROTECTORS. Marshall E. Dowlin, North Adams, Mass. Filed Nov. 21, 1877.

The cover or pouch A, made of leather or other suitable material, and provided with straps, to adapt it for use for covering and protecting a cow's bag, substantially as herein shown and described.

198,283. SHAFT-FURNACES FOR SMELTING TAILINGS AND CONDENSING MERCURY. G. E. Evans and W. P. Prescott, Carson City, Nev. Filed May 16, 1877.



1. The upright or shaft furnace A, having the fire-grate B near its bottom, and provided with a vertical draw-off pipe, *g*, extending from the ash-pit at its lower end, so as to conduct the metal from the ash-pit into a pot or crucible, H, substantially as above described.

2. The upright or shaft furnace A, in combination with the tight cover K, horizontal condenser J, consisting of three compartments mounted opposite the upper end of the furnace, and connecting pipe L, said furnace being provided with the side opening I in its side near the top, substantially as and for the purpose described.

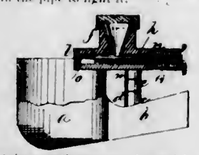
3. The condensing-cylinder J, mounted opposite the upper end of the furnace, and divided into three compartments, the two end compartments serving as dust-chambers, connected by flues O O, which pass through the middle compartments, in combination with the vertical pipes *p*, furnace A, and connecting-pipe L, substantially as and for the purpose described.

198,284. FIRE-BRICK COMPOUNDS. G. E. Evans and W. P. Prescott, Carson City, Nev. Filed May 16, 1877.

A new article of manufacture, fire-bricks composed of asbestus-fiber, ashes, common salt, and fire-clay, substantially as above specified.

198,285. TOBACCO-PIPES. Wm. H. Fisher and H. U. Kistner, Sellr's Grove, Pa. Filed Apr. 14, 1877.

Brief.—A reservoir over the pipe is filled with igniting-balls, that are exploded by a piston worked by the finger, and fall onto the tobacco in the pipe to light it.



The tube *n*, with reservoir *f*, guard *l*, [illegible] piston *k*, spring *i*, and lug, in combination with bowl *a*, stem *b*, with lug *d*, and [illegible] *c*, substantially as and for the purpose set forth.

198,286. FAUCETS. Geo. [illegible], assignor to himself and [illegible], Oct. 19, 1877.

1. The sleeve provided [illegible] in combination with the [illegible] holding stud, substantially [illegible].

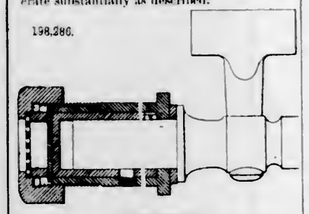
2. The bushing, the [illegible] described, and provided [illegible] bination with the plate *l*, provided [illegible] *m*, the holes *m'* being placed [illegible]

to each other, as described, so that they may be made to occupy positions in the same or different lines, to permit the passage of, or stop the flow of, liquid through the same, substantially as set forth.

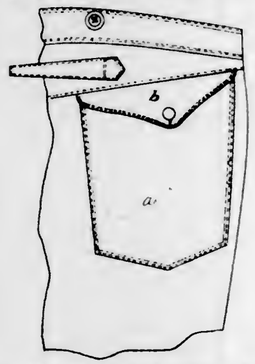
3. In combination, the bushing, the hole-plate *f*, the rotating sleeve, and the strainer and its holding nut, substantially as described.

4. The combination, with the sleeve provided with a notch at its forward end and with a hole, *f*, at its inner end, of the bushing, the hole plate, and the tap part, provided with a pin or projection, *x*, to turn the sleeve, to operate substantially as described.

198,286.



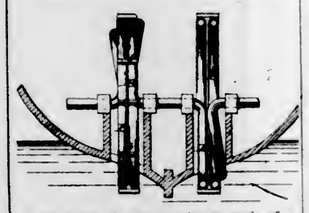
198,287. OVERALLS. Henry S. Flood, San Francisco, Cal. Filed Nov. 15, 1875.



1. As a new article of manufacture, overalls or other articles of outside wear of ordinary woven material, provided with a lining, and having external pockets, the outer sides *a* of which are water proof, as set forth, whereby the articles within the pockets are protected from wet or moisture coming in contact with the outside of the garment.

2. An outside garment of woven material, having external pockets, with water-proof outer sides *a* and flaps *b* of like material, substantially as set forth.

198,288. COILED-TUBE ROTARY CONDENSERS. Paul S. Forbes, New York, N. Y. Filed Nov. 23, 1877.

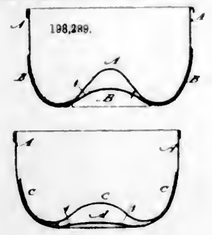


An improved rotary condenser, made of a tube coiled into wheel form, and having its ends projecting at the centers of its opposite sides, to adapt it to be placed and revolved in a well in a vessel, for condensing the exhaust steam of the engine, substantially as herein shown and described.

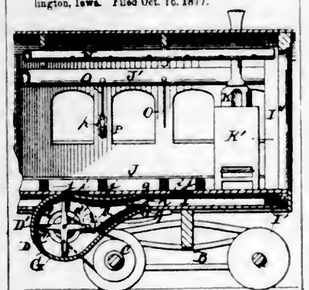
198,289. BASKETS. Abraham Fox, Stittville, N. Y. Filed Oct. 24, 1877.

A basket formed by the splints A, continuous from edge to edge of basket, crossing one another at the center, and provided with shorter strengthening splints B C, the latter placed alternately on the inside and outside, and held upon the main splints A by horizontal splints D, as shown and described.

198,289.



198,290. CAR-VENTILATORS. Thomas Frame, Burlington, Iowa. Filed Oct. 16, 1877.



1. The fan-blower D, operating in combination with the induction-tube or air-passage F, and eduction air-passages I I' I'', and with the air-passage J, having registers *j*, substantially as and for the purpose specified.

2. The fan-blower D, operating in combination with the induction-tube or air-passage E and eduction air-passages I I' I'', and with the pipe J', having pendent tubes O and cylinders P, having valves operating substantially as and for the purpose specified.

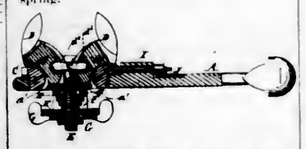
3. The fan-blower, air-passages, and tube J, having valves L and M, operating, in combination with a stove, K, to heat the air before passing into the car, substantially as and for the purpose specified.

4. In combination with the fan-wheel and air-passages E and I, the casing G, having the two channels *g g* and hinged valve *k*, substantially as and for the purpose specified.

5. The pendent tubes O, provided with perforated cylinder P, and arranged to operate with air-passages and the body of a car, substantially as and for the purpose specified.

198,291. COMBINED WRENCH AND VISE. Homer T. Gates, Hartford, Ohio. Filed Oct. 23, 1877.

Brief.—The necks of the jaws turn on rounded shoulders in the ratchet-wheel. Turning on the thumb-screw on the bolt draws the jaws together, and unscrewing the thumb-screw releases them, and they are thrown apart by the head of the bolt being pressed upward by the spiral spring which surrounds the bolt. By a half-turn of the pawl the ratchet wheel rotates in reverse direction. The pawl is held in contact with the ratchet by means of a spring.

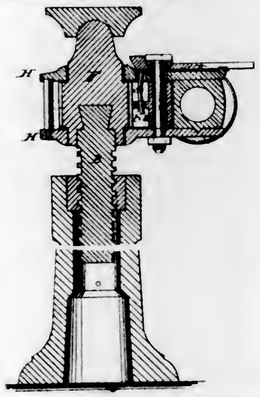


1. The vise-jaws D, fitted to turn, with their necks *d'*, upon suitable bearings or surfaces *c'* of the ratchet wheel C, and connected to work together by the head *e* of the bolt E, operated by the nut G, or its equivalent, substantially as and for the purpose described.

2. The spring H, surrounding the bolt E, and interposed between the bridge F and the ends of the circular necks *d'* of the jaws D, as and for the purpose specified.

198,292. JACK-SCREWS. William Guthrie, Galva, Ill. Filed Oct. 12, 1877.

Brief.—The sides of the swinging frame are secured by bolts, and inclose the ratchet-head and receptacle-piece for the handle.



The swinging frame H, when combined with the lever and head of a screw-press, for the purpose specified.

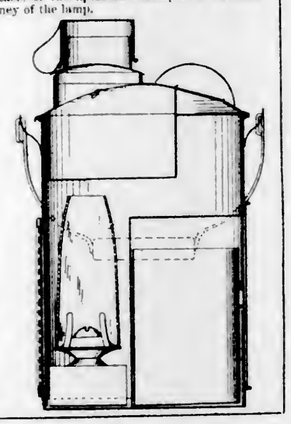
198,293. MANUFACTURE OF SODA FROM ITS SULPHATE. Frederick Gutzkow, San Francisco, Cal. Filed Aug. 29, 1877.

Brief.—From a solution of bisulphite of lime sulphate of lime is precipitated by sulphate of soda. From the bisulphite of soda solution thus obtained half the sulphurous acid is distilled, and caustic soda is obtained in solution by treating the sulphite of soda with lime.

The process of making caustic soda or the carbonate of soda from sulphate of soda and lime by means of sulphurous acid, substantially in the manner described.

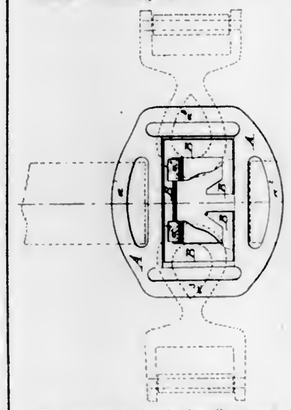
198,294. DINNER-PAIL AND LANTERN. Jos. Haight, Port Chester, N. Y. Filed Nov. 27, 1877.

Brief.—Upon one side of the cover is secured a receptacle for coffee, &c., and directly opposite this receptacle is an aperture for direct escape of smoke from the lamp. The cover may be turned so as to bring either the receptacle or the aperture directly over the chimney of the lamp.



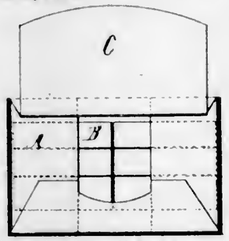
The movable cover, having an aperture for the escape of the smoke and heat of the lamp, and having attached to it a coffee-receptacle, in combination with a pail containing an illuminating and heating lamp, substantially as herein shown and described.

198,295. TRACE-HOLDERS. William K. Haldeman, Albia, Iowa. Filed May 26, 1877.



The trace-holder herein described, consisting of the frame A, having lugs *a'*, and loops for the reception of the back crupper and breeching straps, and the double hook or holder B, hinged and adapted to fold down, all constructed and relatively arranged as and for the purpose specified.

198,296. ENVELOPES. Levi Harsh, Golden City, Colo. Filed May 16, 1877.



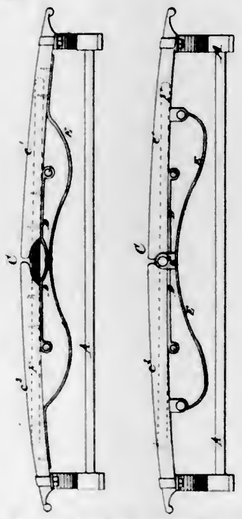
The envelope A, provided with an opening, B, extending nearly across the back thereof, and with the closing-flap C, the upper portion of which is sealed across the back, the whole being constructed of one piece of material, as and for the purpose set forth.

198,297. SCISSORS AND SHEARS. Levi Harsh, Golden City, Colo. Filed May 19, 1877.



The wheel or roller C, when placed in the groove *d*, and revolving on the axle or journal *c* in the outer end, near to the point of the lower blade A of a pair of scissors, substantially as and for the purpose set forth.

198,298. WAGON-SPRINGS. William H. Haylock and Alonzo Benedict, Jonesville, N. Y., assignors to themselves and John Higgins, same place. Filed Oct. 23, 1877.



The combination, with side bars C, divided in the middle, of the flexible plate D and spring E, connected at each end to the side-bar sections, and at the middle to each other, as shown and described.

198,299. OVERALLS. Geo. C. Herring, Washington, D. C. Filed Nov. 17, 1877.



Overalls having the leg formed independently of the body, and connected to it by a seam, A' or *c*, substantially as and for the purpose described.

198,300. LAMPS. Charles F. A. Hinrichs, Brooklyn, N. Y. Filed June 25, 1877.

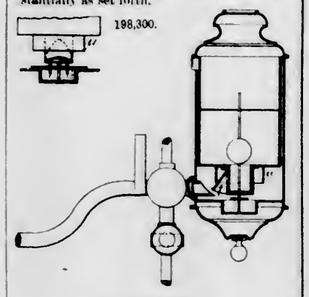
1. The combination, with the inverted lamp-fountain, of the cut-off and the self-closing valve, substantially as set forth.

2. The combination, with the tubular cut-off on the lamp-fountain, of the pouring-spout *t*, substantially as set forth.

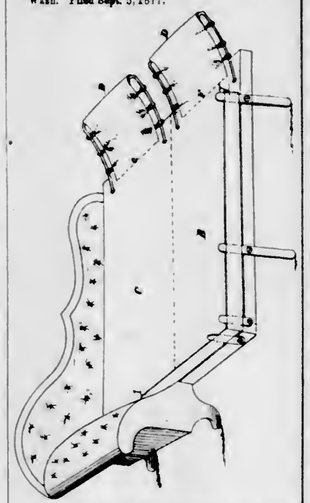
3. In combination with the inverted fountain and self-closing valve, the tubular cut-off, turning projections *o*, and locking device *r*, substantially as specified.

4. The combination, with the inverted fountain, of the overflow-vessel *u*, around the opening into the fountain, for the purposes and substantially as set forth.

198,300.

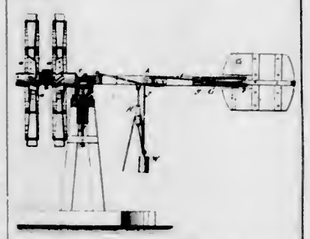


198,301. BED-LOUNGES. Frederick Jensen, Seattle, Wash. Filed Sept. 5, 1877.



The frames D D, fitted to slide in and out in sockets I, in the bottoms B C, and covered, as shown, so as to form adjustable pillows or head pieces, substantially as herein described.

198,302.



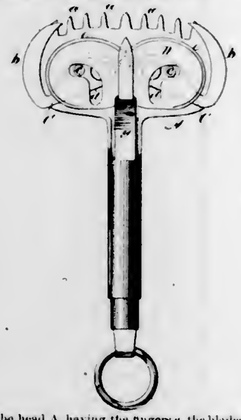
198,303. WINDMILLS. John J. Kimball, Naperville, Ill. Filed May 12, 1877.

Brief.—The rudder-blade is pivoted to the shaft and constructed with a semicircular portion, arranged horizontally, to the extremities of which ropes or chains are attached and crossed in opposite directions around a pulley.

Ropes are carried over pulleys, thence to a weight, and over a pulley in a block which is suspended from the shaft. By this means the weight acts automatically as a regulator for the mill, and causes the wheels to edge more or less to the wind, as may be desired.

The pivoted rudder-blade G, having secured to it a segment, G', in combination with ropes *f f*, pulleys *g h*, weight W, and suspended pulley block H, substantially as described.

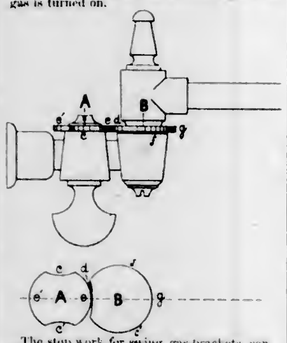
198,303. SHEARING-MACHINES. Nathan L. King, Catskill, N. Y. Filed June 11, 1877.



The head A, having the fingers *a*, the blades *b*, and their arms C, having studs *c*, and the movable head D, having cam-slots *d* and cutting-edges *e*, in combination, substantially as herein shown and described.

198,304. STOPS FOR SWING GAS-BRACKETS. Ewald Langerfeld, New York, N. Y. Filed Sept. 4, 1877.

Brief.—The disks A and B are so recessed that the arm which carries the burner is held out from the wall or other support when the gas is turned on.



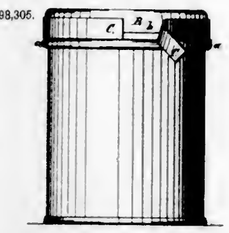
The stop work for swing gas brackets, consisting of the whole or requisite part of the disk A, with the two recesses *c* and *c'* cut into it, and the whole or requisite part of the disk B, with the recess *d* cut into it, all substantially as shown and described.

198,305. SHEET-METAL CANS. Edwin A. Leland, New York, assignor to Leonard Richardson, Brooklyn, N. Y. Filed Nov. 3, 1877.

Brief.—Ripping-tool inserted downward between flange of cover and ripping-strip to start the latter.

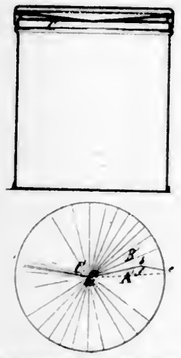
In a sheet-metal can of the class indicated, the sealing-strip C, having its inner surface soldered direct to the lower edge of the flange *b* of the cover B, and its upper edge unsoldered or free from the said flange, to permit the insertion of the point of a knife or other instrument, substantially as and for the purpose herein set forth.

198,305.



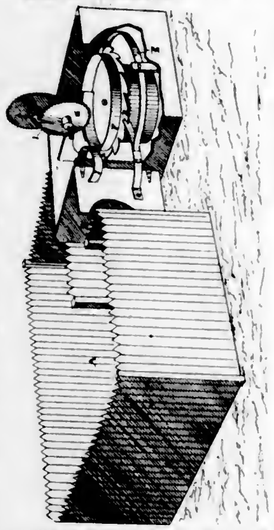
198,306. SHEET-METAL CANS. Edwin A. Leland, New York, assignor to Leonard Richardson, Brooklyn, N. Y. Filed Nov. 3, 1877.

Brief.—Through the unsoldered part of the outside seam of the disk inserts a ripping-tool. The slip-cover may be soldered to the body.



In a sheet-metal can, the concavo-convex cap C, constructed with the radial and partly soldered joint, substantially as and for the purpose herein set forth.

198,307. LIVE-STOCK REGISTERS. Patrick Lyttleton, Austin, Nev. Filed Oct. 4, 1877.

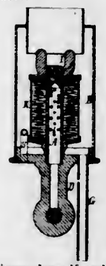


1. A stock counter consisting of a gate, B, ratchet D, and registering gear train G H, with the pawl C, spring-detent E, and the circular rim F, all combined and operated substantially as herein described.

2. The ratchet D, with its pawl C, spring-detent E, and circular overlapping rim F, in combination with the registering-gears G H and pointer I, all constructed substantially as herein described.

3. The gate B, with its spring J, stop K, and pawl C, in combination with the ratchet D, spring-detent E, circular rim F, and registering-gear train G H, all constructed, combined, and operated substantially as herein described.

198,308. APPARATUS FOR MOISTENING THE AIR OF AN APARTMENT. Chester R. Merrill, Boston, Mass., assignor to himself and Benj. S. Oalef, same place. Filed Nov. 27, 1877.



1. The foraminous drum K and the packing or mass of asbestus with the case B, provided with the induct D.

2. The foraminous drum K, in combination with the disseminator A and the case B, provided with the induct D.

3. The foraminous drum K and mass, M, of asbestus, combined and arranged with the case B and the foraminous disseminator A, substantially as set forth.

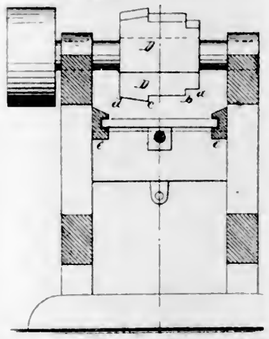
4. The screw *a* and nut I, in combination with the foraminous disseminator and drum, arranged as set forth.

5. The screw *a* and nut I, in combination with the mass, M, of asbestus, and the foraminous disseminator and drum, all being arranged as represented.

6. The siphon S, combined with the case B, the disseminator and its enveloping-jacket, and arranged in such case as set forth.

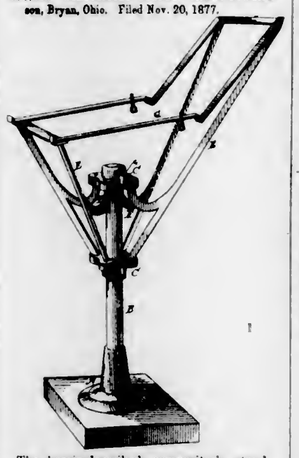
198,309. MACHINES FOR CUTTING WOODEN COGS. Warren L. Morris, Victory, Ga., assignor of one-half his right to J. W. Morris and G. W. Morris, same place. Filed July 23, 1877.

Brief.—The blank is secured to the bed-plate and fed under the cutter-head by turning the feeding-screw. (Passed by Board of Examiners-in-Chief.)



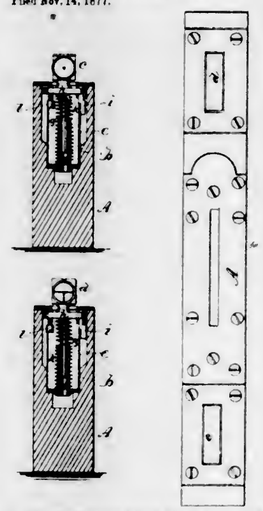
In a machine for making wooden cogs for cog-wheels, the cutter-head, formed of the rotary shaft and its attached knives D, each having three cutting-edges formed in different planes—first, the edge *a b*, for cutting the working end of a cog; second, the edge *b c*, for cutting the tenon that fits in the mortise of the cog-wheel; third, the edge *c d*, for cutting the inner end or shank of a cog for receiving a key for securing the cog in the wheel-rim, all as shown and described.

198,310. COMPOSITORS' STANDS. Robert N. Patterson, Bryan, Ohio. Filed Nov. 20, 1877.



The herein described compositor's stand, consisting of the base A, post or standard B, and frame G, collars C C, and braces E F, the several parts constructed and relatively arranged substantially as specified.

198,311. LEVELS. Oliver Pickering, Needham, Mass. Filed Nov. 14, 1877.



1. The combination of the spring supported sights *c d* with the level A, as herein shown and described.

2. The sights *c* or *d*, mounted on a rod, *g*, guided by the tube *f* and the spring *k*, in combination, as herein shown and described.

3. The combination of the weighted pawl *i* with the sight *c* or *d*, as and for the purpose specified.

4. The combination of the adjusting-screw *l* with the movable sights, as herein shown and described.

198,312. TEA-POTS, &c. Nathaniel Plympton, Boston, Mass. Filed June 9, 1877.

1. An open earthenware or porcelain vessel or tea-pot, A, provided with the notches *e* and *f*, arranged in its mouth-rim *a*, substantially as set forth.

2. The pot-cover B, provided with the handle C, arranged with it, as set forth, and notched or having a neck, as described, to enter and co-operate with the notch *e* arranged in the mouth-rim *a* of the body of the pot.

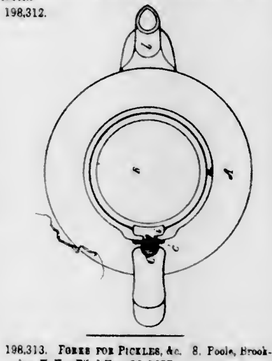
3. The open tea-pot or vessel A, provided with the notch *e* in its rim *a*, in combination with the cover B, furnished with the necked or notched handle C, arranged with such cover, as specified.

4. The open tea-pot or vessel A, provided with the notch *e* and recess *c*, in combination with the cover B, furnished with the necked or notched handle C arranged with it, as set forth.

5. The open vessel or tea-pot A, provided with the notches *e* and *f*, arranged in its rim *a*, substantially as shown, in combination with the cover B, furnished with the necked or notched handle C arranged with it, essentially as represented.

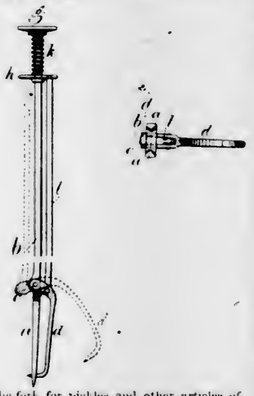
6. The open vessel or tea-pot A, provided with the recess *c* and the notches *e* and *f*, arranged in its mouth-rim *a*, as shown, in combination with the cover B, furnished with the necked or notched handle C, constructed and arranged with such cover, essentially as set forth.

198,312.



198,313. FORKS FOR PICKLES, &c. S. Poole, Brooklyn, N. Y. Filed Nov. 22, 1877.

Brief.—A pickle-fork is provided with a swinging claw operated by a sliding button-head on handle at the end of the rod, there being an interposed coil-spring to make the action automatic.



The fork for pickles and other articles of food, made of the prongs *a* at the end of the rod *b*, and the swinging claw *d*, operated by the rod *l*, the beads *g* and *k*, and spring *k*, substantially as set forth.

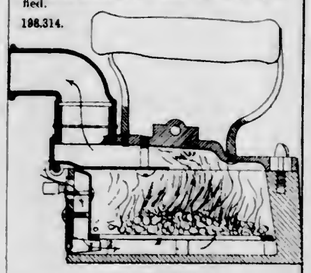
198,314. BOX-IRONS. Jean G. Boger, Paris, France. Filed Aug. 4, 1877. Patented in France, Oct. 8, 1874.

Brief.—Chimney adjustable, so as to direct escaping products of combustion in any direction. An air-space between the heel-plate and fuel-space, provided with dampers for regulating supply of air.

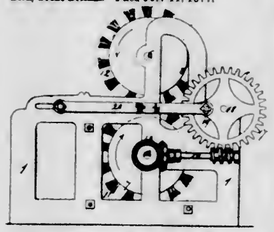
1. The combination, with the box-iron, having the heel-plate D, provided with air-openings and regulating-valve, as described, of the partition C, arranged substantially as shown and described, for the purpose specified.

2. The combination, with a box-iron, as described, of the horizontally-adjustable chimney, substantially as and for the purpose specified.

198,314.



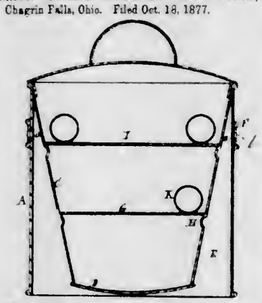
198,315. MACHINES FOR POLISHING VEGETABLE FIBER, &c. George Shaw and Thos. Shaw, Dukesfield, Great Britain. Filed July 11, 1877.



1. The combination, with a set of revolving brushes, of a clamp, 37, arranged to hold the fiber, as described, and having a to-and-fro motion between the brushes, for the purpose set forth.

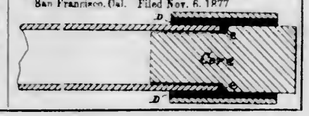
2. The combination of the revolving brushes 7 8, the clamp 37, the bar 23, having hooks 40, the connecting-rods 29 and 25, and the shaft 19, connected with and deriving motion from one of the brushes through a worm and wheel, substantially as described, and for the purpose specified.

198,316. COOKING APPARATUS. James G. Smith, Chagrin Falls, Ohio. Filed Oct. 18, 1877.



The combination of the body A, tapering receptacle C, arranged as described, so as to form an annular space, E, around said receptacle, perforated plates G and I, cover H, and perforated sliding band F, the perforations therein corresponding to the holes *a*, substantially as and for the purpose herein set forth.

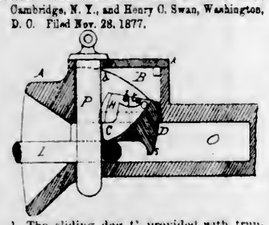
198,317. PIPE COUPLING AND JOINT. E. T. Steen, San Francisco, Cal. Filed Nov. 6, 1877.



1. A pipe or tube coupling consisting of the coupling-tube B and lead lining D, with its lead shoulder *e* applied to the end of the pipe to be coupled, substantially as above specified.

2. The method of constructing pipe-couplings, consisting in inserting a core, C, in the end of the pipe to be coupled, then placing a ring or band around the pipe and core, and then filling the annular space between them with lead, substantially as and for the purpose described.

198,318. CAR-COUPLINGS. Holland N. Stevenson, Cambridge, N. Y., and Henry C. Swan, Washington, D. C. Filed Nov. 28, 1877.



1. The sliding dog C, provided with trunnions *u u*, working in seats *t t* in chamber H, of the oscillating and yielding abutment-block D, substantially as described.

2. The sliding and oscillating abutment block D, having its front and rear faces convex, and its rear lower or under side provided with lip *z*, as and for the purposes described.

3. The sliding and oscillating abutment-block D, provided with chamber H and flanges *m m*, in combination with the sliding dog C, substantially as and for the purposes described.

4. The sliding and oscillating abutment block D, provided with chamber H and stop pin *i*, in combination with the sliding dog C, substantially as described.

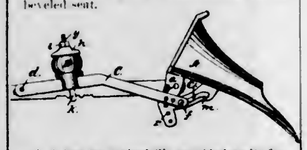
5. The abutment-block D, provided with the convex front and rear sides, and supporting-flanges *m m*, in combination with the rests *f f* in chamber B, of draw-head A, as described.

6. In an automatic car-coupling device, the combination of the draw-heads A, containing chambers B and O, the sliding and oscillating block D, provided with chamber H, and sliding gravitating dog C, the link L, and pin P, all constructed and operating substantially as described.

7. The combination of the abutting block D with the spring *d*, as and for the purposes described.

198,319. SPRING-HOES FOR GRAIN-DRILLS. E. F. Stoddard, Dayton, Ohio. Filed Oct. 29, 1877.

Brief.—Rear ends of compression-arms actuated by segmental slots with detaining-shoulders, formed in brackets projecting from front side of hoe. Spring movable to or from hoe to regulate its rigidity. Saddle-piece having beveled seat.



1. A hoe for grain-drills provided on its forward face with brackets *a*, having segmental slots *c*, with detaining-shoulders *w*, in combination with a drag-bar and a compression-arm, substantially as and for the purpose specified.

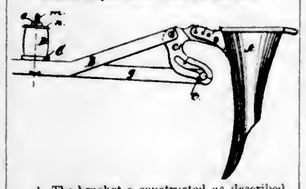
2. A drag-bar pivoted to a grain-drill hoe, and having its under side notched or serrated, in combination with the stirrup *k* of the rod *g* and the compression devices of a spring-hoe, whereby the spring can be shifted at will and held from slipping, substantially as shown.

3. In a spring-hoe for grain-drills or other seeding implements, the spring composed of the saddle D, rubber cylinder E, compression-disk *h*, and rod *g*, with its stirrup *k*, whereby the spring can be shifted to or from the fulcrum *d*, to regulate the rigidity of the hoe.

4. The saddle-piece D, with a beveled seat, as shown, whereby the spring can rock upon the arms C, and always adjust itself to the position of the compression-arms, substantially as shown.

5. In combination with the drag bar and hoe, pivoted together, as described, the compression-arms C, pivoted at their forward ends to the drag-bar, and actuated at their rear ends by the circumferential slots *c* in the brackets *a*, substantially as and for the purpose specified.

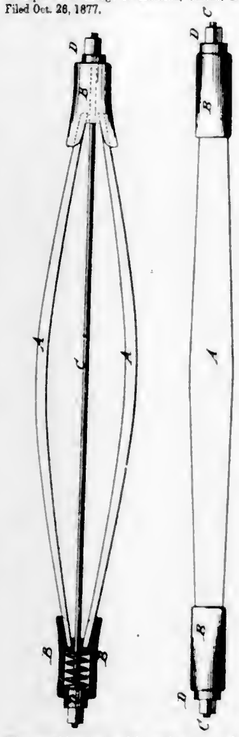
198,320. SPRING-HOES FOR GRAIN-DRILLS. E. F. Stoddard, Dayton, Ohio. Filed Oct. 29, 1877.



1. The bracket *c*, constructed as described, in combination with the hoe A, drag-bar *g*, and compression-arms B, whereby the pitch of the hoe may be varied at will without changing the relative positions of the other parts.

2. The combination and arrangement, with the drag-bar *g* and compression-arms B, of the rubber spring D, staple-rod *l*, bolt *m*, disk *n*, nut *o*, and saddle-piece C, with its pairs of arms *k*, the whole arranged in the manner and for the purpose specified.

198,321. WOODEN VEHICLE-SPRINGS. George H. Thompson and George P. Muldoon, Omaha, Nebr. Filed Oct. 26, 1877.

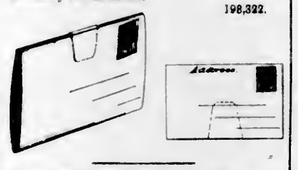


The combination, with springs A, of the castings B, having in their outer ends sockets with spiral springs, the end-threaded rod C, and the adjusting-nuts D, all arranged as shown and described.

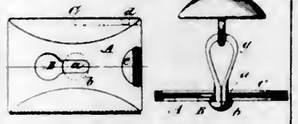
198,322. DOUBLE POSTAL CARDS. O. A. L. Totten, U. S. Army. Filed Dec. 3, 1877.

A reversible business-message tablet, postal card, or letter-sheet, having a tongue at one end, and having three folds on the lines A A' and B B', with a slot in the crease A B', substantially as described.

198,322.



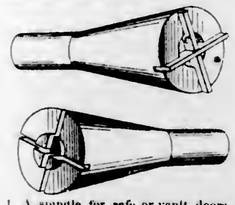
198,323. BUTTON-FASTENINGS. C. M. Underwood, New York, N. Y. Filed Sept. 22, 1877.



1. The fastener consisting of the plate A, having the aperture B and slot *a*, and the plate C, having the central aperture *b*, and having its edges folded over the plate A, substantially as herein described.

2. The plate C, provided with the top *d* and notch *f*, one or both, substantially as and for the purpose stated.

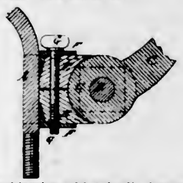
198,324. ARBORS FOR SAFE-LOCKS. Herman Urban, Cincinnati, Ohio, assignor to Macosale & Urban, same place. Filed Sept. 28, 1877.



1. A spindle for safe or vault doors, constructed with transverse drill-proof coupling bars or webs at a point within the body of the door, substantially as and for the purpose specified.

2. A spindle for safe or vault doors, consisting of two sections or lengths, made tapering within the body of the door, where their larger ends are united by transverse drill-proof coupling bars, substantially as and for the purpose specified.

198,325. THILL-COUPLINGS. Jeremiah E. Walton, Wilton, Conn. Filed Oct. 26, 1877.



The combination, with axle-clip, having lugs D and a thill-iron, C, secured in place by a bolt, D, of a two-part rubber-block, E, plates F, and screw G, substantially as and for the purpose specified.

198,326. OAR-REPLACERS. Michael Waters, New York, N. Y. Filed July 23, 1877.

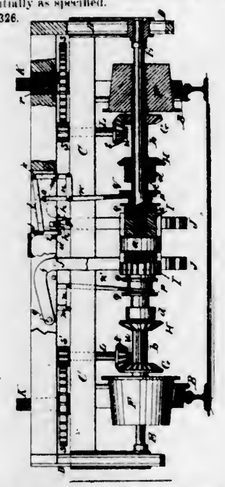
1. The shaft E having the central fixed collar *a*, the sleeve *b*, the internally-threaded pinions I, wheels F, screws K, and wheels G H *t s s'*, in combination, substantially as shown and described.

2. The strap J, pivoted at *g*, and provided with internal teeth, in combination with the pinions I, substantially as shown.

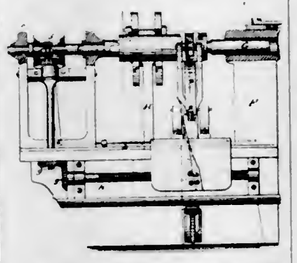
3. The combination of the internally-threaded sleeve *d*, threaded hub *e*, and the wheel H, substantially as shown and described.

4. The combination of the flanges *q*, levers *s' m l*, rod *o*, link *n*, bolt *q'*, and straps J, substantially as specified.

198,326.



198,327. MACHINES FOR REMOVING BARK FROM WOOD. Ira Winn, Falmouth, Me. Filed Sept. 22, 1877.



1. The tool *p*, pivoted holder *n*, and pivoted post *i*, in combination, substantially as herein shown and described.

2. The combination of the spring catch *m* with the pivoted post *i*, having the arm *l*, substantially as shown and described.

3. The levers *o'*, having notches *f'*, the weighted lever *t'*, and the connecting mechanism, in combination, substantially as herein shown and described.

4. The lever *v*, carrying the pawl *w*, disengaging-lever *o'*, and pinion *t*, the spindle G, having the rack *s*, and the tail-block F, in combination, substantially as shown and described.

5. The combination of the lever *q'* and rod *r'*, having collars *x'*, with the carriage E and sleeve *f*, substantially as and for the purpose herein shown and described.

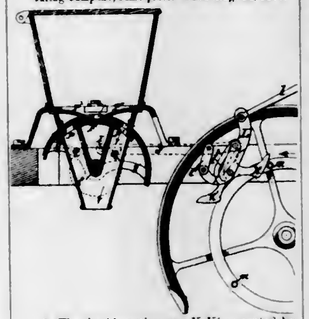
198,328. HORSE HAY-RAKES. W. Adriance, Poughkeepsie, N. Y. Filed Oct. 13, 1877.



1. The combination, with a rake-head, of parallel bars attached at one side of the same, a series of loose slides arranged to move transversely in the said bars, which guide them at their upper and lower ends, and rake-teeth swinging in the rake-head and passing through apertures in the transverse slides between the parallel bars, substantially as and for the purpose described.

2. The combination of a rake-tooth, bent at its inner end to form a loop, with a rake-head having a vertical recess adapted to receive said loop, substantially as and for the purpose described.

198,329. CORN-PLANTERS. Joseph W. Allison, Dayton, Ohio, assignor to the Farmers' Friend Manufacturing Company, same place. Filed Aug. 14, 1877.

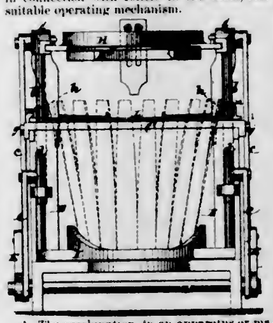


1. The double-action cam K K', operated by pins *m*, and connected to the seeding mechanism by rod J, substantially as and for the purpose specified.

2. The cam K K', provided with a curved slot, *l'*, in combination with the linked lever L *l'* and rods J *l*, as and for the purpose specified.

198,330. MACHINES FOR SETTING UP BARRELS. O. O. Appleby, Yonkers, N. Y. Filed Oct. 31, 1877.

Brief.—The stave-blanks for a wooden barrel are automatically set up ready for cutting the croze and chine, and for putting the permanent hoops on, by means of two vertically-adjustable temporary hoop-holders, the upper one of which carries a pair of jaws controlled and operated by a slotted slide, an intermediate sectional hinged table provided with a circular opening, a shirring-band for drawing the staves together, and operated by inclined-plane attachments upon the upper hoop-holder, in connection with rollers in the table, and suitable operating mechanism.



1. The combination, in an apparatus or machine for setting up barrels, of upper and lower temporary hoop-holders, arranged to move one toward the other when putting said hoops on the staves, an intermediate table for the lateral support of the upper portions of the staves, and a shirring band or rope for drawing the staves together to receive the temporary hoops over them, substantially as specified.

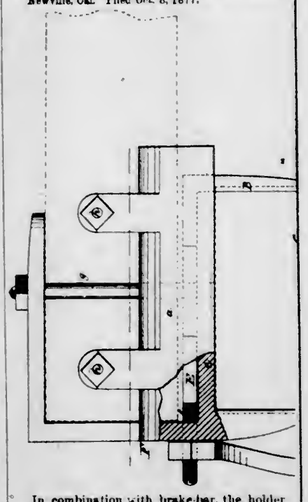
2. The rising and falling upper temporary hoop-holder, provided with jaws for successively holding and releasing the hoop, in combination with a slotted slide attached to said holder, for controlling the jaws and operating, during the descent of the holder, to open the jaws, essentially as described.

3. The combination, with the rising and falling frame G, of the upper temporary hoop-holder H, constructed to admit of being slid backward and forward within said frame, substantially as specified.

4. The combination, with the shirring rope or band, of levers, to which said band is attached at its opposite ends, a rising and falling frame, carrying the upper temporary hoop-holder, and inclined-plane attachments, carried by said frame and operating said levers, whereby the shirring rope or band is automatically contracted or closed on and around the staves, essentially as described.

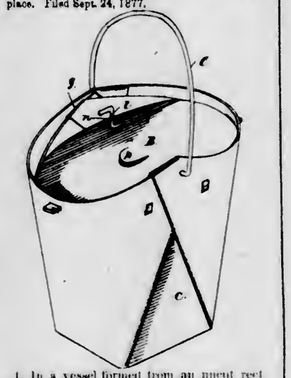
5. The table C C', constructed with a circular opening through it, and having a forward hinged or rising and falling section, in combination with upper and lower temporary hoop-holders, substantially as and for the purpose or purposes herein set forth.

198,331. BRAKE-SHOE HOLDERS. Benj. E. Atwood, Newville, Cal. Filed Oct. 8, 1877.



In combination with brake-bar, the holder F, having side plates *a a* and the bolts *g* and *h* A, the movable jaw B, and slotted adjustable plate E, formed in one piece, as shown and described.

198,332. PAPER VESSELS. Peter M. Aulabaugh, Dayton, Ohio, assignor to Aulabaugh, Crume & Co., same place. Filed Sept. 24, 1877.



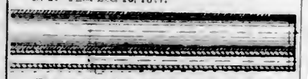
1. In a vessel formed from an uncut rectangular piece of Manilla or other paper, the integral ledges *j* below the rim, on which to rest a lid or cover formed by folding and overlapping the blank, in the manner specified.

2. In combination with a folded paper vessel having integral ledges *j*, the lid B, resting thereon, and held from displacement by the tongues *i* and the bent ends of the bail C, as and for the purpose specified.

3. In combination with a paper vessel and its cover, a wire bail, C, having its ends bent

into zigzag cranks *l*, for holding the cover from displacement upon the ledges *j*, as set forth.

198,333. GUN-BARRELS. William H. Baker, Syracuse, N. Y. Filed Dec. 10, 1877.



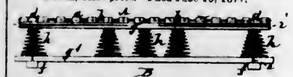
The combination, with a shot-gun barrel, of a rifle-barrel placed above or below the same, the bore of the under barrel being curved for a portion of its length, and straight and parallel with the bore of the upper barrel for the remainder of its length, substantially as specified.

198,334. PROCESSES FOR PURIFYING RANCID BUTTER. R. W. Barnard, Fayette, Iowa. Filed Oct. 12, 1877.

Brief.—Places the butter in a brine of water, saleratus, salt, and sugar, and adds then a solution of tartaric acid in water. The butter is stirred in the mixture and afterward worked in brine.

The method of reclaiming sour, "tubby," or rancid butter, which consists in treating the same with a solution of brine containing an alkaline carbonate mixed with a solution of tartaric acid, or its equivalent, for the purpose described.

198,335. BED-BOTTOMS. Francis O. Bartlett, New York, N. Y., assignor to John M. Shedd and William Peacock, same place. Filed June 13, 1877.

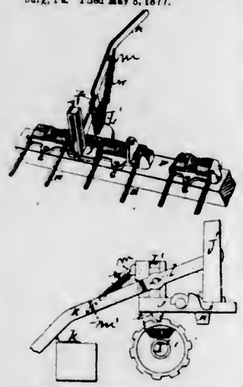


1. The combination, with the flexible bed-bottom composed of slats strung together by cords or straps, of stands or trestles provided with cleats or projections on their upper surfaces, arranged to enter between the slats of the bed-bottom, to keep the latter extended, essentially as described.

2. The upper slats *g* of the elastic stands or trestles B B, constructed with spring-cuts *i i*, extending from either end toward their center, in combination with the lower slats or base-pieces *g'* and the interposed springs *k*, essentially as described.

3. The stands or trestles B B, constructed with cleats or projections *d d* on their surfaces, and with pivoted cross-feet *f f*, for use in connection with a slatted bed-bottom, substantially as herein set forth.

198,336. HORSE HAY-RAKES. Saml. D. Bates, Lewisburg, Pa. Filed May 8, 1877.



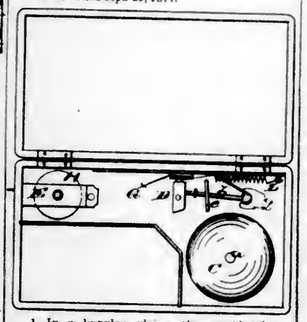
1. The tooth-holders D, consisting of a base-plate, with two channels for teeth running the whole distance between the teeth.

2. The combined tooth holders *d*, constructed so as to hold four teeth, the dumping lever or device, and catch, combined in one piece.

3. The combination, with the ratchet-wheel I and dog L, of the lever K, standard L', vibrating rod *n*, spring M, and slotted standard M', substantially as set forth.

4. The combination, with the lever K, dog L, standards L' J', rod *m*, and spring M, of the spring foot-treadle *p*, substantially as set forth.

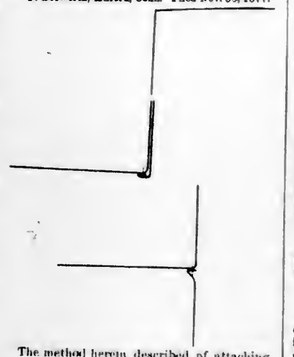
198,337. BURGLAR-ALARMS. Marlin S. Bolt, Elmira, N. Y. Filed Sept. 29, 1877.



1. In a burglar-alarm, the combination, with the bell or gong C, of the spring-hammer D, provided with the hook *h*, and the lever G, provided with the lug or projection *i*, substantially as and for the purposes set forth.

2. The combination of the bell C, hammer D, lever G, with spring L, and the cord or wire *n*, provided with the ring *s*, wound upon a friction-spool, H, suspended by links I, and connected to the lever G, all substantially as and for the purposes herein set forth.

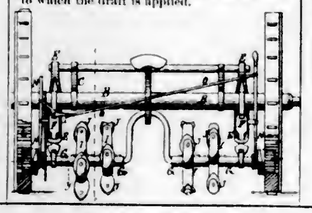
198,338. METHODS OF PUTTING IN HAT-SWEATS. O. F. Bosworth, Milford, Conn. Filed Nov. 30, 1877.



The method herein described of attaching sweats, consisting in doubling the lower edge of the sweat and turning the doubled edge outward, to form an extension onto the brim, and securing it by a line of stitches through the upper part of the said doubled portion and the brim, substantially as described.

198,339. ROTARY CULTIVATORS. O. O. Breeden and Owen T. Wheeler, Bedford, Ky. Filed Nov. 6, 1877.

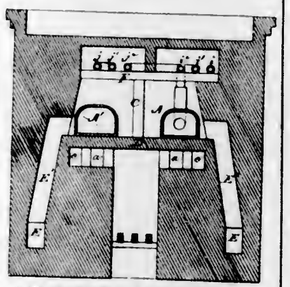
Brief.—The revolving teeth are secured on a sleeve which turns on the bent axle. The hanging bearings swing loosely on the main axle, and in the slotted side arms sustained from the forward part of the swinging frame, to which the draft is applied.



The combination of the sleeves G, the bent shaft H, and the plow-wheels I J with the swinging bars F, the loops E, the axle B, the bars or frame C D, and the driving-gearing K L A, substantially as herein shown and described.

198,340. APPARATUS FOR GENERATING ILLUMINATING-GAS. Chas. G. Brewer, Penn Yan, N. Y. Filed Oct. 26, 1876.

Brief.—Oil is vaporized in a coil of pipe, subjected to a heat increasing in temperature from the induction to the eduction end, and the oil vapors are fixed in a separate retort. At the same time coal or wood is distilled, and the gas generated is fixed and passed into the eduction-pipe with the oil gas, where the two gases are mixed together. Air flues in the walls of the furnace conduct air to the retort-chamber, for regulating the temperature of the retorts.



1. The combination of vaporizing oil-retorts *i i' i²*, fixing-retort A, connections G *h*, wood or coal retort A', and the combining and fixing retorts *j j' j²*, substantially as specified.

2. In combination with the retorts A A', the furnace having damper-flues F E', provided with doors *e' e²*, substantially as specified.

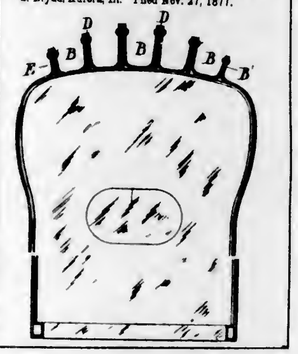
198,341. SMOKING-TUBES. William Brisbane, Philadelphia, Pa. Filed May 5, 1877.

Brief.—The device, when provided with the internal tube, is adapted for smoking tobacco, and when this tube is removed a cigarette or cigar can be smoked in the device, the mouth-piece receiving its end, and the ashes thus prevented from falling on the clothes of the smoker.



A pipette or cigarette-holder consisting of the mouth-piece A, shell or shield B, and internal removable tube D, adapted for use substantially as specified.

198,342. CROWN-SHEETS FOR FIRE-BOXES. Henry S. Bryan, Aurora, Ill. Filed Nov. 27, 1877.



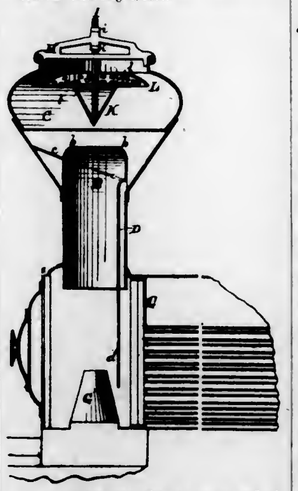
1. A crown-sheet for fire-boxes composed of independent sections, substantially U-shaped in cross section, arranged side by side and riveted together in pairs, substantially as described.

2. The independent sections B, substantially U-shaped in cross-section, in combination with the intervening strips D, arranged between the flanges of adjoining sections, and riveted thereto, and arranged to form the crown-sheet of the boiler, substantially as and for the purpose set forth.

3. The crown-sheet composed of sections shaped as described, and having their flanges of different heights, whereby the ribs or projections of the finished crown-sheet are of greatest height along the central portion thereof, and decrease in height each way therefrom, substantially as and for the purpose set forth.

4. The U-shaped sections B, in combination with the connecting-strips E, shaped as described, whereby the sides of the fire-box are joined to the sections forming the crown-sheet, substantially as described.

198,343. SPARK-ARRESTERS. Henry S. Bryan, Aurora, Ill. Filed Aug. 3, 1877.



1. In combination with the upper end of the pipe B, the solid deflecting-cone K, having the perforated annular and concave plate L attached thereto, said plate being arranged above said cone, with a space between their contiguous faces, substantially as and for the purpose shown.

2. In combination with the duct D, the shield *d*, extending downward from the front side, at the lower end of the same, between the flue-sheet G and exhaust-pipe G', substantially as and for the purpose set forth.

198,344. METHODS OF BORING WOOD CYLINDERS. O. Buckley, Meriden, Conn. Filed Nov. 30, 1877.

Brief.—A longitudinal groove is cut in the roll or cylinder to a point beyond the center equal to half the width of the groove. The groove is then filled down to a point toward the center, but so as to leave a longitudinal hole, forming the axis of the hole to be bored.

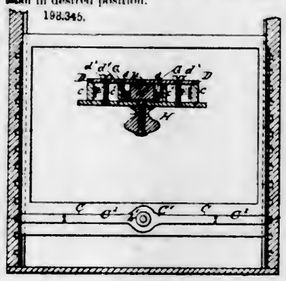


The method herein described for the preparation of wood cylinders for boring, consisting in first grooving the cylinder, then filling so as to leave a hole to form the axis or guide for the boring instrument, substantially as described.

198,345. GATE-FASTENERS. Brooks Bush, Fulton County, Ga. Filed Nov. 1, 1877.

Brief.—A complex arrangement of bolts, plates, springs, and toggle-levers, as pointed out in the claims, serves, by turning the knob or key either to the right or left, to lock the gate in desired position.

198,345.





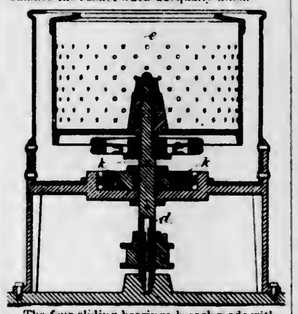
1. The plate C and the removable plates *c'*, provided with pins or studs *c²*, in combination with the springs E, toggle-levers F, bolts G, and the bridge D, all constructed and operating substantially as described, for the purpose specified.

2. The supporting-plate C, having lugs or plates *c²*, and the removable plates *c'*, in combination with the springs E, toggle-levers F, bolts G, bridge D, and the fastening-screws *c³*, all constructed and operating substantially as described, for the purpose specified.

3. The combination of the plate C, constructed as described, the springs E, toggle-levers F, and bolts G, having slots G' and shoulders *g*', and the bridge D, with the key H, all constructed, arranged, and operating substantially as described, for the purpose specified.

198,346. CENTRIFUGAL MACHINES. William Cairns, Jersey City, N. J. Filed Oct. 25, 1877.

Brief.—The ends of the bearings or sliding boxes are made flat and placed in cross or X shaped slides, so that the bushing will be subjected to friction while sliding across between the flat ends of the opposite bearings. Loose wheels, like horizontal fly-wheels, are placed around the shaft and supported by a flange, to balance the basket when unequally filled.



The four sliding bearings *k*, each made with a flat or nearly flat end, in combination with the cross-slides receiving such bearings, the springs, the bushing and shaft d, and basket *e*, substantially as set forth.

198,347. OVENS OR TUNNELS FOR DRYING BRICK, &c. J. K. Caldwell, Philadelphia, Pa. Filed Nov. 1, 1877.

1. A drying tunnel or oven for brick, having a smoke pipe or pipes terminating therein, and arranged to discharge the products of combustion into the drying-chamber near its mouth or entrance, substantially as shown and described.

2. A tunnel or oven for drying bricks or other articles, having smoke-pipes arranged to carry their contents a certain distance, and then discharge said contents to permit their admission to the drying-chamber, so that the articles being dried will first come in contact with the products of combustion from the furnace, and then be subjected to radiated heat, substantially as set forth.

3. The method herein described of drying bricks and other articles by direct contact with the products of combustion first, and by radiated heat afterward, substantially as set forth.

4. The smoke-pipes C and C', of unequal length, arranged within the tunnel or oven A, to radiate heat and discharge their contents therein, substantially as shown and described.

5. The combination, with the tunnel A, having its rear end enlarged, as set forth, of the smoke-pipes C C', arranged to discharge their contents into said tunnel, as shown.



198,348. CORSETS. Harlet M. Chapman, Philadelphia, Pa. Filed June 13, 1877.



1. The curved hip-gore C, extending from the side bones D to the center bone D', said gore having its upper edge segmental, its rear or side edge flush and on line with the side seam, and its lower and forward angle meeting the puff-stay D² at lower extremity of latter, as shown and described.

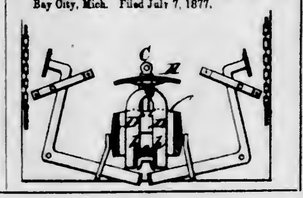
2. The crossed adjustable and elastic supporting-straps B B, diminishing in width from rear to front, connected to the top edge of corset-back by elastic straps *a*, and to the top edge of front by buttons and button-hole adjustable fastening, as described.

3. In combination with a corset puff or puffs, the bones or braces D' D², extending through the centers of the puffs, and made thinner or more yielding at than below the latter.

4. The removable cross-bone L inside the puff, for the adjustment of the size of the bust, substantially as described.

5. The patterns E E² for the puffs, as shown.

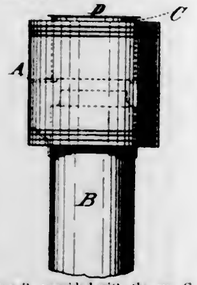
198,349. CAR-COUPLINGS. Jacob Chapman, West Bay City, Mich. Filed July 7, 1877.



1. In a car coupling, the gravitating brackets D D, formed with the shoulders A, in combination with a stop, *e*, in the bottom of the drawhead, for the purposes herein set forth.

2. The combination of the cap H, curved bar G, brackets D D, and coupling-pin C with the drawhead A, all substantially as and for the purposes herein set forth.

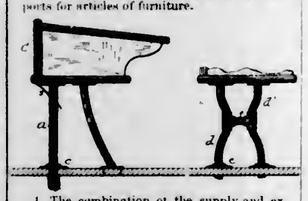
198,350. CHIMNEY-CAPS. Geo. Chase, Buffalo, N. Y. Filed Feb. 15, 1877.



The pipe B, provided with the rim G, of smaller diameter, cylinder C, closed at both ends, D E, and supported with braces F, so as to leave the space H, in combination with the outside rim A, substantially as and for the purposes specified.

198,351. HEATERS FOR DESKS AND SEATS. Marcellus W. Chase, Buffalo, N. Y. Filed June 12, 1877.

Brief.—Pipes for conveying steam, hot air, or hot water are arranged to form the supports for articles of furniture.



1. The combination of the supply and exhaust pipes of a heater and a series of hollow pipes or standards, communicating with the heating pipes, and adapted to support or form the standards of articles of furniture, substantially as set forth.

2. The arrangement, within a room to be heated, of vertical hollow standards, communicating with the heating pipes, and constructed to constitute the standards of desks, seats, &c., as specified.

3. The deflectors *x*, combined with the desks and heating supports, as set forth.

4. The standards *e*, threaded and provided with nuts *c*, for the purpose specified.

5. The combination, with the pipes *d d*, T couplings, and cross pipes *f*, forming a hollow radiating standard, and constructed to support a desk or other article of furniture, as described.

198,352. SCHOOL-FURNITURE. Marcellus W. Chase, Buffalo, N. Y. Filed June 12, 1877.

1. The back or seat B, consisting of the strip or strips *f* and the rods *h*, extending transversely through openings in the said strip or strips, as set forth.

2. A chair back or seat in which a strip or strips, *f*, of wood or other material, and transverse concealed rods *h* are arranged and combined, as set forth.

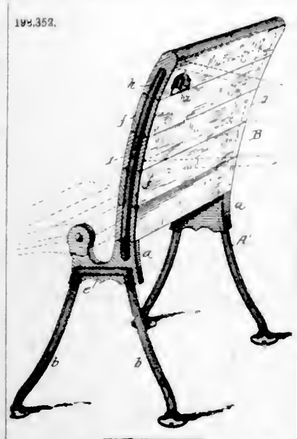
3. A desk or seat provided with a metallic bar, the lower portion of which constitutes a part of one of the standards, while the upper portion extends transversely through and strengthens, stiffens, and supports the wooden portion, substantially as set forth.

4. The combination of the rods *b* and the metal block *a*, having sockets to receive the threaded ends of the rods, as set forth.

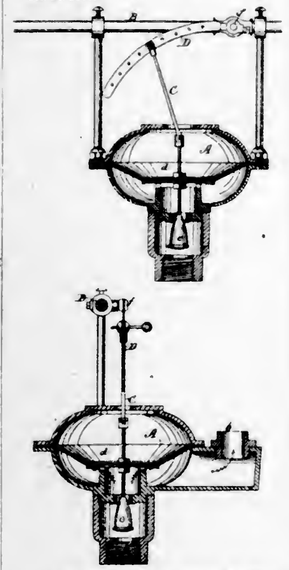
5. The combination of the rods *b* and the block *a*, having a channel, *c*, for the purpose specified.

6. The legs provided with feet *t*, connected to the legs, but adjustable, as set forth.

198,352.



198,353. AUTOMATIC FEED-REGULATORS FOR CARBURETERS. Byron E. Chollar, Chicago, Ill., assignor to Safety Carburator Company, same place. Filed Oct. 24, 1877.



1. An automatic feed regulator for carburetors, consisting of an independent automatic gas governor, having its valve connected directly to and combined with the valve or cock of the hydrocarbon-pipe for a constant unison of action, whereby the respective flows of the gas and hydrocarbon are made always to maintain a constant and uniform relation to each other independently of the carbureting apparatus, substantially as described.

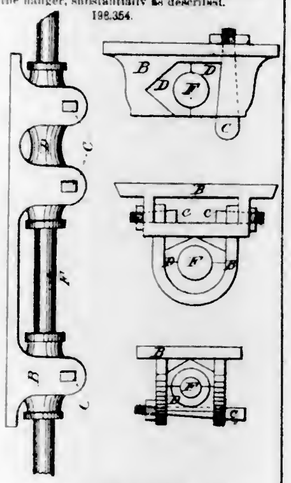
2. The combination, with the automatic governor-valve, of the connecting rod *b'*, the curved adjusting-lever D, and the attached hydrocarbon-supply valve *f*, substantially as and for the purpose described.

3. The gas-governor valve, made in parabolidal form, connected to and combined with the hydrocarbon valve, having a rectangular perforation, substantially as and for the purpose described.

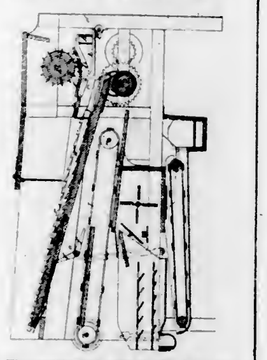
198,354. SHAFT-HANGERS. Orville Cooley, Brockport, N. Y. Filed Nov. 26, 1873.

The combination, with the hanger B, of the split adjustable blocks D D within the hanger, and embracing the rod F, and the movable wedge-shaped key or keys C, provided with screw threads and nuts thereon bearing against the hanger, substantially as described.

198,354.



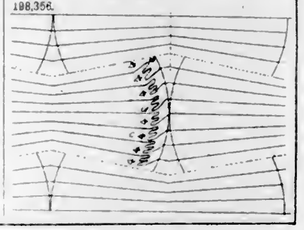
198,356. THRASHING-MACHINES. William Crouser, Woodbury, Pa., assignor of one-half his right to D. F. Keagy, same place. Filed July 28, 1877.



1. The combination, with the fixed and movable sections of a concave, of the concave levers D, pivoted to the sides of the frame, the springs *b*, the levers *b'*, fulcrumed at *c* and supporting said springs, the shaft *d*, and cams *c'*, substantially as specified.

2. In a thrashing machine, the combination, with the perforated shakers *d'*, hinged at their front ends, of the rock shaft *e*, having spaced alternating arms *f*, the cranks *f'*, and the vibrating levers F, rocking said shaft, substantially as specified.

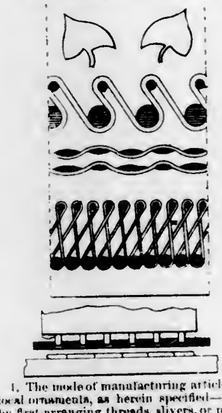
198,356.



198,356. MANUFACTURE OF ORNAMENTED FELT SKIRTS. P. A. Dailey, Brooklyn, N. Y. Filed Nov. 6, 1877.

The process of making ornamental felt skirts, consisting in arranging the threads and pattern pieces on a bat relatively, as set forth, incorporating the whole by felting, thus forming a felt cloth, with patterns arranged for economical division, and then cutting the gore-pieces apart and uniting them, as specified.

198,357. MANUFACTURE OF ARTICLES OF FELT. P. A. Dailey, Brooklyn, N. Y. Filed Nov. 6, 1877.

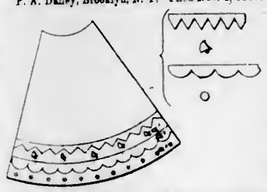


1. The mode of manufacturing articles with local ornaments, as herein specified—that is, by first arranging threads, slivers, or pieces in form and relative position to constitute a pattern, applying the same, when so arranged, to a bat, and then felting the whole into one homogeneous piece.

2. The mode herein described of arranging and applying the pattern threads—that is, by making said threads on pattern-pins, and then discharging them therefrom upon the face of the bat, as set forth.

3. A felt article having local ornaments consisting of threads arranged to form the desired ornamental figure or figures, and fixed by incorporation with the body, as set forth.

198,358. MANUFACTURE OF ORNAMENTAL FABRICS. P. A. Dailey, Brooklyn, N. Y. Filed Nov. 6, 1877.



1. In the manufacture of fabrics by incorporating pieces or collections of fiber with a body, A, first cutting, molding, or otherwise forming the said pieces in different shapes, and then applying to and incorporating the same with the body, as and for the purpose set forth.

2. The mode of forming and applying the patterns by collecting the fiber in the openings of a stencil plate, and then discharging the same upon the face of a bat in proper relative position, as set forth.

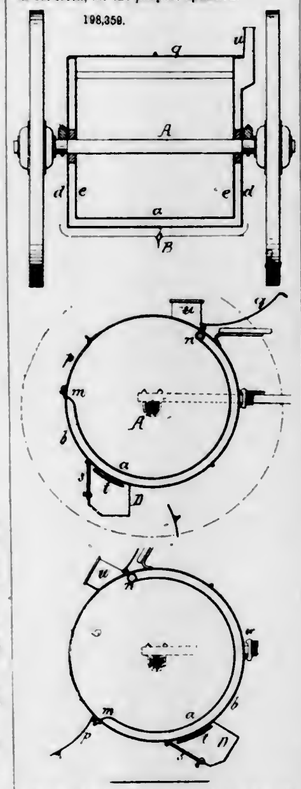
198,359. CARTS FOR HEATING AND CONVEYING PLASTIC COMPOSITION. Augustus Dietz, Philadelphia, Pa. Filed Oct. 10, 1877.

1. The combination of the axle A and the loose wheels on the same with the vessel B, secured to the axle, and consisting of two casings, with intervening space, and with a fire-box, D, communicating with the said space, all substantially as set forth.

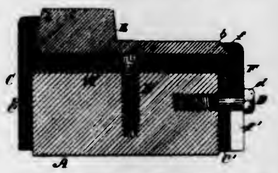
2. The combination of the outer perforated casing *b* of the vessel B with the fire-box D and deflecting-plate *t*.

3. The combination of the vessel B, which admits of being turned to and locked in the two positions described, with the doors *p* and *q*, the former hinged at its upper edge, and the latter at its lower edge, to the said vessel, as set forth, for the purpose specified.

198,359.



198,360. RAILWAY-RAIL CHAIRS. R. H. Dryer and C. A. Smith, Philadelphia, Pa. Filed Nov. 1, 1877.



1. The chair C, composed of base *c*, depending sides c^1 c^2, and rising beveled flange c^3 on one side only, in combination with a detachable locking or clamping plate, substantially as shown and described.

2. The plate F, having shoulder or flange *f* and slots f^1 f^2, and adapted for application to a rail chair and rail, substantially as shown and described.

3. The combination of chair C, having base *c* and sides c^1 c^2, the latter having flange or shoulder c^3, with bolts D D and plate F, having flange *f* and slots f^1 f^2, substantially as shown and described.

4. The combination of sleeper A, chair C, bolts D, and plate F with a railway-rail, B, having beveled or equivalently-formed edges, substantially as shown and set forth.

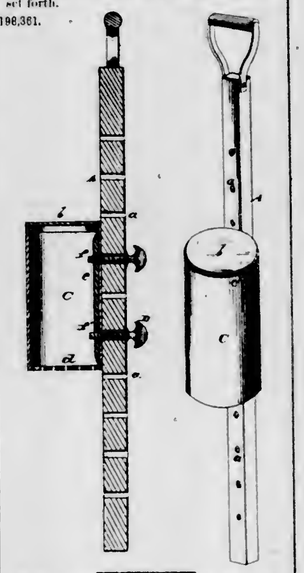
198,361. DISTASTERS FOR INSECT-DESTROYING POWDERS. Almon M. Elsworth, Lowell, Mich. Filed June 15, 1877.

1. An apparatus for destroying potato bugs and the like, consisting, essentially, in the combination, with a standard, A, of a reservoir provided with a perforated bottom, said reservoir being adjustably secured to the standard, substantially as set forth.

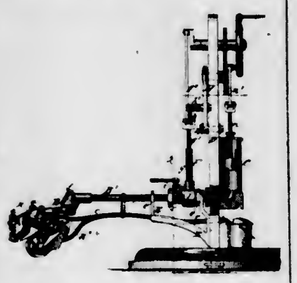
2. The combination, with the standard A, provided with any desired number of openings through the same, of a reservoir constructed with a perforated bottom, and set-nuts extending through the standard and engaging with the side of the reservoir, substantially as set forth.

3. The combination of vessel t', having a perforated bottom, with a standard, A, adapted to be used in an upright position, and its lower end placed on the ground, substantially as set forth.

198,361.



198,362. MILKERS. Albert A. Durand, New York, N. Y. Filed May 31, 1877.



1. The combination, with the water-cylinder C, plunger *b*, one or more milking-pumps, A A', and a hydraulic pipe or passage connecting said cylinder with said pumps, of an independent oscillating device for oscillating said pump or pumps, substantially as and for the purpose set forth.

2. The combination, with the oscillator F, pivoted post D, one or more milking-pumps, A A', and pipes B B', of the bracket E, having the bearings *e* for supporting the pipe B' and relieving said oscillator from strain, substantially as and for the purpose set forth.

3. The combination, with an independent oscillator and the pipe B, of a clamping device, for clamping the said pipe B to the said oscillator and rendering them adjustable relatively

with each other, substantially as and for the purpose described.

4. The combination of the milking pump or pumps, the T-connection K, pipe B, water-tight joint *f*, pipe B′, and the water-cylinder C, communicating through its bottom with the pipe B′, all arranged to form a rising passage for air from said pump or pumps to said cylinder to prevent accumulation of air in said passage, substantially as and for the purpose specified.

5. The combination, with the cylinder C, its plunger, and the pipes B B′, of the independently adjustable milking pumps A A′, substantially as and for the purpose described.

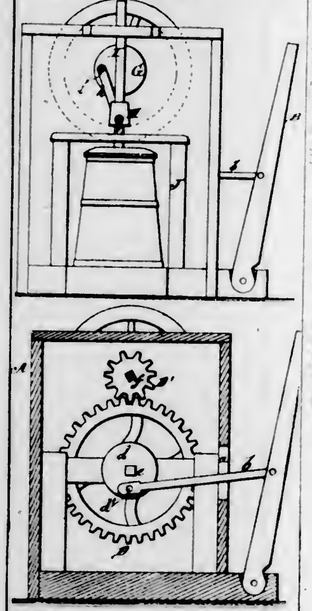
6. The combination, with the milking-pumps A A′, the T-connection K, and the pipes B B′, of the movable, water-tight joint *k*′, arranged between said T-connection and the pipe B′, to render said T-connection and its attached pumps adjustable around the longitudinal axis of the pipe B, substantially as and for the purpose set forth.

7. The diaphragm milking-pumps, provided in their upper parts with the temporary air-vents and filling-gages *m*, substantially as and for the purposes specified.

8. The combination, with one or more milking-pumps, A A′, the pipes B and B′, and the independent oscillator F, of the lever H and the bar A, pivoted to the said oscillator and also to said lever, substantially as and for the purpose set forth.

9. The combination, with one or more milking-pumps, A A′, pipes B B′, independent oscillator F, fixed cylinder C, lever H, and bar A, of the pivoted turning-post D, supporting the said parts and devices, and the mechanism for operating said parts and devices, also attached to and supported by said post, substantially as and for the purpose described.

198,363. CHURNS. Michael K. Duty, Centerville, W. Va., assignor of one-half his right to A. S. Loveall, same place. Filed Nov. 10, 1877.

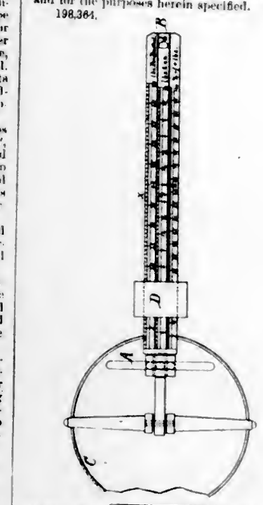


The combination of the box A, vibrating lever B, pitman *b*, crank disk *d*, shafts *e f*, gears D D′, fly-wheel E, crank disk G, pitman *h*, and coupling H with guide-pin *i*, all constructed substantially as and for the purposes set forth.

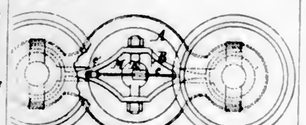
198,364. DEVICES FOR WEIGHING SAMPLES OF GRAIN. Franklin Fairbanks, St. Johnsbury, Vt. Filed Sept. 28, 1877.

The combination of the suspensory means A, receiver C, and poise D with the beam B, having the three series of graduations *x y z*, adapted to serve together, and determine, not only the weight per bushel, but also the actual weight and the percentage of waste, as and for the purposes herein specified.

198,364.



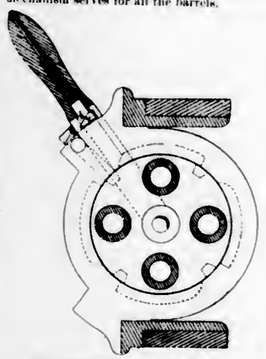
198,365. ADJUSTING DEVICES FOR WEIGHING-SCALES. Franklin Fairbanks, St. Johnsbury, Vt. Filed Sept. 28, 1877.



The screw-rod *e*, bent as shown, in combination with the fastening-screw *e*′, balance-ball E, and with the beam B of an equal-beam scale, adapted to serve as and for the purposes herein specified.

198,366. BARREL-SHIFTING MECHANISMS FOR MACHINE-GUNS. De Witt C. Farrington, Lowell, Mass. Filed May 31, 1877.

Brief.—One barrel is fired until too hot for further use, when the series is revolved far enough to bring another into play by means of the lever and catch working upon the barrel-supporting disk. One train of breech mechanism serves for all the barrels.



1. The combination of the ratchet-disk supporting the rear of the barrels and the shifting lever with its pawl.

2. In combination with the shifting-lever, the spring-detent, operating in combination with the barrel-supports, for locking the barrels against accidental rotation.

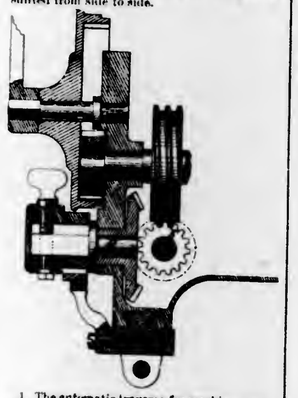
3. In combination with the barrel-supports, pins or lugs projecting rearwardly therefrom, for locking down the barrels against vertical displacement, substantially as set forth.

4. In combination with a group of barrels in a machine-gun, external supports in the form of rings, for permitting the barrels to be readily shifted, the parts being constructed substantially as described.

5. In combination with a group of barrels in a machine-gun, a muzzle-supporting disk working in a ring mounted on trunnions, for permitting the barrels to be readily tilted, as occasion requires.

198,367. TRAVERSE MECHANISMS FOR MACHINE-GUNS. De Witt C. Farrington, Lowell, Mass. Filed May 31, 1877.

Brief.—A collar fitting in a yoke is moved by a set-screw, so as to be more or less eccentric to the driving shaft, and by its pressure against the yoke the breech of the gun is shifted from side to side.

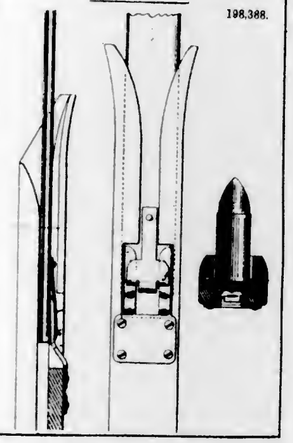


1. The automatic traverse for machine-guns, consisting of an adjustable eccentric operated from the main shaft, and in combination with suitable abutments, substantially as described.

2. The combination, in a machine-gun, of the main shaft with its worm-wheel and gear, the intermediate gears, and the eccentric, with its adjusting-screw, operating against abutments, the parts being constructed and arranged to operate substantially as described.

3. In combination with the adjustable eccentric and suitable abutments, the swiveled traverse-block, which supports the breech of the gun.

198,368.



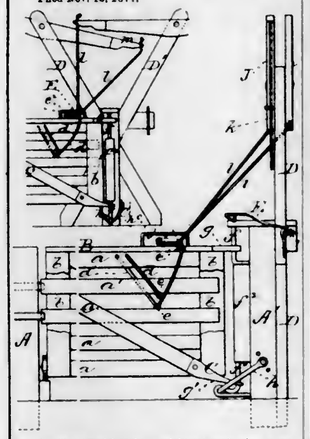
198,368. CARTRIDGE-FEEDERS FOR MACHINE-GUNS. De Witt C. Farrington, Lowell, Mass. Filed May 31, 1877.

Brief.—The cartridges are carried in a tube or slide, which retains them by the flange, and a bent spring at the end of the tube prevents their escape. When the slide is dropped into the hopper of the gun a catch in the hopper throws back the spring, and allows the column of cartridges to slide down toward the barrels.

1. The grooved cartridge-holder, provided with springs, attached to its rear side, for holding the cartridges in place, substantially as and for the purpose set forth.

2. The grooved hopper or feed-tube, provided with arms, or equivalent devices, projecting inwardly at its rear side, for releasing the cartridges from the cartridge holder or case.

198,369. GATES. John U. Fiester, Winchester, Ohio. Filed Nov. 10, 1877.

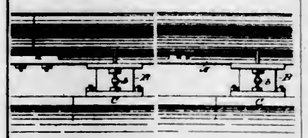


1. The combination, with the swinging gate B, having loose longitudinal rails *a*′, and the post A, having catches *c*′, of the vibrating hangers *d d*′, the connecting-rods *l*, and the vibrating levers J J′, substantially as specified.

2. The combination, with a swinging gate, B, having latch-rails *a*′, the post A, having catches *c*′, and the vibrating hangers *d d*′, having horizontal arms *e*′, of the staple-catch *j* between said arms, the cross-piece *k*, having latches E, the levers J J′, and the connecting-rods *l*, substantially as specified.

3. In combination with the rising gate and its shoe C, the pintles *f* and *f*′, and the U-shaped guard *h*, secured to the gate-post A′, and to the lower pintle *f*′, whereby the gate is elevated when opened, so as to engage and be held by the spring-catch E, substantially as specified.

198,370. RAILROAD-TRACKS. Josiah Foster, Honesdale, Pa. Filed Oct. 2, 1877.



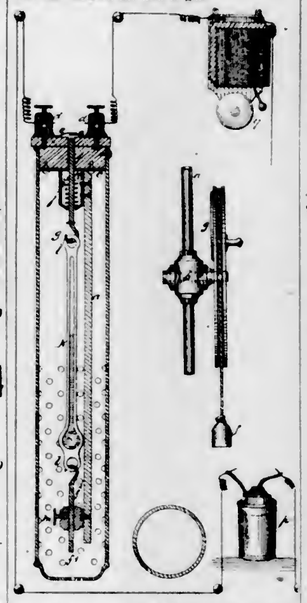
1. The combination, with a T or other rail, of a spring-plate rail, A, placed longitudinally under the same, and having bearing-points formed thereon upon one or both sides, substantially as described and shown.

2. The combination, with a T or other rail, of a spring-plate rail having bearing-points formed thereon upon one or both sides, placed longitudinally under the same, and supporting-pillars, upon which the spring-rail rests, substantially as and for the purposes set forth.

3. In a foundation for railroads, the combination of the masonry work C and the hollow metal supports B, substantially as described.

198,371. ELECTRO-MAGNETIC FIRE-ALARM AND GAS-INTERCEPTER. Alexandre A. Frécot, Paris, France. Filed Apr. 25, 1876.

Brief.—A glass bulb containing mercury bursts on an excessive increase of temperature, and allows springs to come into contact and close an electric circuit. One electro-magnet increment sounds an alarm, and another releases mechanism connected with a cock placed in the gas-pipe leading to the burning premises, and thus cuts off the flow of gas.



1. The metallic bar *a*, thermometer *k*, the hooked rod *f*, having stop or shoulder *h*, the spring *i*, the hooked rod *f*′, set-screw *m*, the contact-springs *e e*, binding-nuts *d d*, and suitable conductors, an electric battery, and an alarm-bell, all combined, constructed, and operating substantially as described, for the purpose specified.

2. The combination of the bar *a*, thermometer *k*, rods *f f*′, spring *i*, set-screw *m*, springs *e e*, and nuts *d d* with the inclosing casing, provided with a series of perforations or apertures, the open end of which is closed by means of a perforated non-conducting stopper, upon which are mounted the binding-screws and contact-springs, the perforated metallic plate *c*, the socket *j*, suitable conductors, an electric battery, and alarm-bell, all constructed and operating substantially as described, for the purpose specified.

3. A combined fire-alarm and gas-check, consisting of the bar *a*, thermometer *k*, rods *f f*′, spring *i*, set-screw *m*, contact-springs *e e*, nuts *d d*, and an inclosing-casing, as described, suitable conductors, and an electric battery and alarm-bell, the electro-magnet K, keeper *j*, lever *v*, trigger *h*, a grooved pulley and weight and cord, and the stop-cock of a gas-induction pipe, all combined, constructed, and operating substantially as and for the purposes specified.

198,372. CULTIVATOR AND SEEDING-MACHINE. O. O. Gardiner, Springfield, Ohio, assignor to P. P. Mast & Co., same place. Filed Sept. 6, 1877.

Brief.—Construction of the friction-block, and also of the shovel-block, made to reverse with the double-pointed teeth.

1. The friction-block A, provided with the side flanges and the stud *b*, in combination with the bolt G and the standard, perforated to fit upon the stud and bolt, as shown.

2. The pivot-block A, having the side flanges, in combination with the standard sustained therein, in the manner shown, without the assistance of the flanges.

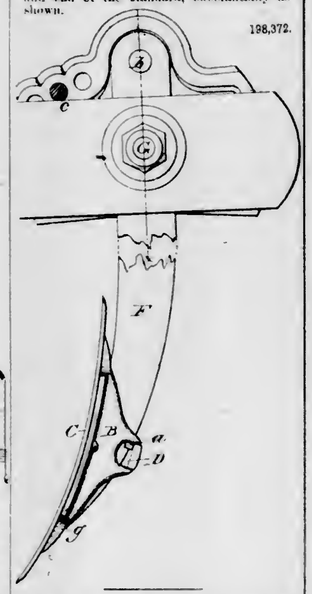
3. The shovel-block B, cast in one piece with the shoulders *g*, and the key-seat D, substantially as shown.

4. In combination with the notched standard F, the reversible shovel-block B, having the shoulders *g* and the key *a* inserted, as shown.

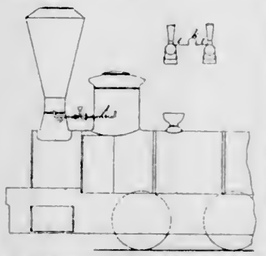
5. In combination with a notched standard, F, a hollow reversible shovel-block adapted to fit upon the end of the standard, and a transverse tapering key, *a*, passed through the block and seated in the notch of the standard, substantially as shown.

6. In combination with a notched standard, a hollow shovel-block adapted to fit thereon, and provided with a shoulder to abut against the end thereof, and a tapering transverse key bearing in the block and standard, and serving to hold the block firmly against the front and end of the standard, substantially as shown.

198,372.



198,373. DEVICES FOR TRANSMITTING STEAM FROM BOILERS. Otto Gebauer, Prague, Austria. Filed July 30, 1877.

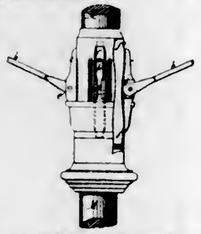


1. The combination of two or more steam-generators with suitable devices adapted to transmit steam from one generator simultaneously into the steam space or dome, and the fire or stack of one or more other generators, to heat the water therein and create a draft, as described, and for the purpose specified.

2. The combination, with two or more boilers having their steam spaces or domes and their fires or stacks connected as described, and provided with a three-branch coupling having a suitable valve or stop-cock, of a removable connecting or branch pipe, to connect the steam space or dome of one boiler with the steam space or dome and the fire

or stack of another boiler in which steam is to be gotten up, all arranged and operating substantially as described, for the purposes set forth.

198,374. UMBRELLAS. Alfred Gilson, Paris, France. Filed Nov. 22, 1877.



In an umbrella-runner, the combination of the socket *a*, support *c*, attached thereto so as to form an elastic back, and the stretchers *b*, constructed with cam-shaped ends, and hung in said socket, substantially as described, so that the elastic back will operate upon said cam-shaped end of the runners, to retain said stretchers in the closed position.

198,375. CLASPS FOR BRAID-PACKAGES. Darius Goff and Darius L. Goff, Pawtucket, R. I. Filed Jan. 18, 1877.

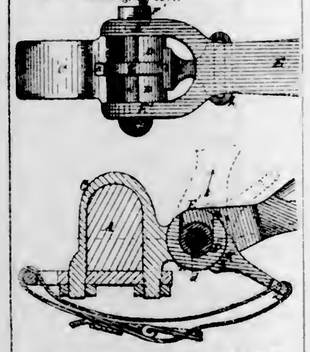
Brief.—A metallic clasp is pivotally secured at or near the center of the coil, and extends on each side and across the periphery thereof.



1. The combination, with a coiled length of braid, of a metallic clasp which is pivotally secured at or near the center of the coil, and extends in contact with the braid on each side and across the periphery of the coil, substantially as described, and for the purposes specified.

2. The combination, with a central core, of a metallic clasp, arranged to engage with the sides and periphery of a coil of narrow fabric, and pivoted to the central core, substantially as described.

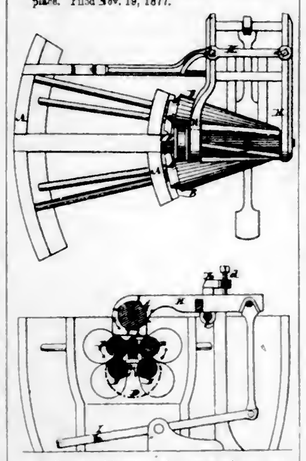
198,376. THILL-COUPLINGS. John C. Goold, Albany, N. Y. Filed Aug. 16, 1877.



1. The combination, with the shaft-iron E, provided with the ears E' E² and clip C, with slotted bracket D, made in one piece therewith, of the tumbler-latch G, provided with a loop, *h*, the sleeve *e*, and feathered bolt F, substantially as described, and for the purposes set forth.

2. The combination, with the shaft-iron E, constructed as set forth, and clip C, having the slotted bracket D, of the tumbler-latch G, having loop *h*, and binding-strap *s*, substantially as described, and for the purpose set forth.

198,377. MACHINES FOR SHEARING AND NAPPING HATS, &c. William E. Gowdy, Newburg, N. Y., assignor of one-half his right to Jarvis C. Brush, same place. Filed Nov. 19, 1877.



1. The combination of a series of converging conical draw-rolls, an interposed rest or bar, having an upper sharpened or narrow edge, and a rotating shear or teaseling-cylinder, substantially as and for the purpose specified.

2. The combination of a rocking frame, carrying the rotating shear or teaseling cylinder, a treadle or lever for holding the latter to their work, a series of conical draw-rolls for conducting and holding taut the material under operation, and a rest or bar over which said material is passed while under exposure to the shear or teaseling-cylinder, essentially as described.

3. The combination of one or more adjustable stops, *d*, with the rocking frame H, the rotary shear G or napping-cylinder E, the rest or bar C, and the rolls B, substantially as specified.

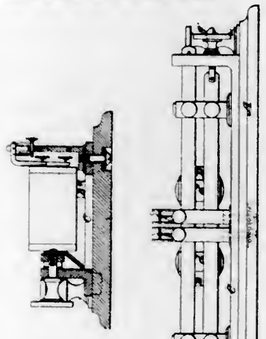
198,378. MORSE TELEPHONIC SYSTEM OF TELEGRAPHY. Elisha Gray, Chicago, Ill. Filed May 19, 1877.

1. The improvement in the art of multiple telegraphy under the Morse telephonic system, which improvement consists in keeping an even electric force upon the line, whether the battery or any portion of it is in vibration or at rest, by compensating the variations in the electric force caused by throwing the telephonic system on or off the line.

2. The combination, substantially as hereinbefore set forth, in an electric circuit, of a Morse transmitting and telephonic transmitting apparatus, a main battery, and a compensating adjustment, whereby the disturbance of equilibrium caused by the throwing of the telephonic apparatus into and out of line is instantaneously and automatically compensated.

3. The combination, substantially as hereinbefore set forth, in a telegraphic circuit, of a main battery, a compensating-battery, a resistance-coil, a telephonic transmitter or continuity-preserving key, and a shunt-circuit, whereby the equilibrium of the electric force is preserved.

198,379. RECEIVERS FOR ELECTRO-HARMONIC TELEGRAPHS. Elisha Gray, Chicago, Ill., assignor, by mesne assignments, to the Harmonic Telegraph Company, New York city. Filed Apr. 12, 1876.



The combination, substantially as hereinbefore set forth, in an electric circuit, of an electro-magnet through which notes of different pitch are transmitted with two or more vibrating receiving springs, tuned correspondingly with the notes so transmitted, whereby each analyzer selects its own tone from the magnet without interfering with the others.

198,380. REIN-HOLDERS. Edward B. Guild, Topeka, Kans. Filed Nov. 17, 1877.



The plate A, constructed as described, with the curved portion B, the hook D, and the arm C, with its shoulders, combined with the dash-board of a vehicle, for the purpose set forth.

198,381. PROCESSES OF EMBOSSING MOUNTED VENEERS. C. Heinrich Hagemann, New York, N. Y. Filed Apr. 23, 1877.

1. The process of producing ornamental wood articles, consisting in cementing to the end-grain face of a strip of wood an oiled veneer, and then operating on the veneered face by dies, to produce an embossed pattern formed wholly by the veneer, which is continuous and unbroken, as set forth.

2. As a new manufacture, an ornamental wood article, consisting of a combined strip of wood and veneer, cemented together throughout their contiguous faces, and having the continuous veneer face embossed with figures in relief, as described.

198,381.



198,382. MANUFACTURE OF PARCHMENT-PAPER. T. Hanna and T. S. Hanna, Pittsburg, Pa. Filed Oct. 20, 1877.

Brief.—The dextrine, or its equivalent, retards the action of the sulphuric acid upon the material, so that sheets can be laminated or the pulp treated in quantities for molding at the time when its cohesive property is greatest.

1. The herein-described process of treating vegetable fiber, consisting in subjecting it to a bath of dilute sulphuric acid, whose corroding effects are retarded by means substantially as described, and then washing out the surplus acid.

2. The herein-described process of treating vegetable fiber, consisting in subjecting it to a bath composed of dilute sulphuric acid and dextrine or its designated equivalent, and then washing out the surplus acid.

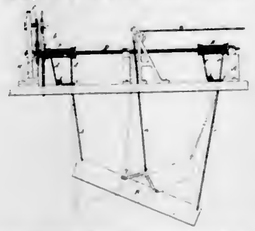
3. The herein-described process of treating vegetable fiber, consisting in subjecting it, first, to a bath composed of dilute sulphuric acid, an organic substance, and a metal; secondly, to a bath composed of water and a salt between whose base and the sulphuric acid, or between whose acid and the metal employed, there exists a superior chemical affinity; and, thirdly, to a bath of water, substantially as set forth.

4. The herein-described method of retarding the action of sulphuric acid upon vegetable fiber and other material by mixing with it dextrine or its designated equivalent, as set forth.

5. In the above process, the method of neutralizing the acid by adding to it zinc or other metal, and afterward causing a reaction with a solution of a salt, whereby double decomposition is set up and two soluble salts formed, as described.

6. Specifically, as an improvement in the art of making parchment-paper, the treatment of the paper by dilute sulphuric acid and dextrine or its designated equivalent, as set forth.

198,383. COAL-TIPPLES FOR LOADING BOATS. Jos. O'Hanlon, Elkhorn, assignor of one-half his right to Henry B. Hays, Pittsburg, Pa. Filed Aug. 16, 1877.



1. The combination of the open-ended basket B, shaft D, drums E F, both located on said shaft, wheel G, and ropes or chains *c d*, fixed to the ends of basket B, and winding on the two drums in contrary directions, respectively, substantially as described.

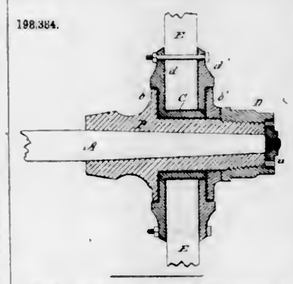
2. The combination of shaft D, drums E F, and ropes or chains *c d* with the open-ended basket B, centrally supporting ropes *a*, and suitable counter-balances, arranged and operating substantially as shown.

3. The combination, with shaft D, drums E F, both located on the same shaft D, basket B, and chains or ropes *c d*, of the ratchet wheel H, lever K, and pawl or pawls *f g*, substantially as set forth.

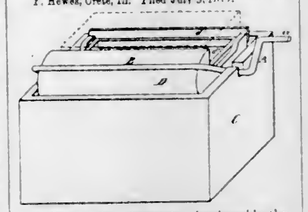
198,384. VEHICLE-WHEELS. O. W. Helden, Florence, Ala. Filed Oct. 23, 1877.

The non-rotating hub B, having flange *b*, in combination with the plain tapering angular axle A, the nut *a*, the flanged box C, spoke-collar *d'*, collar *b'*, and nut D, substantially as and for the purpose described.

198,384.



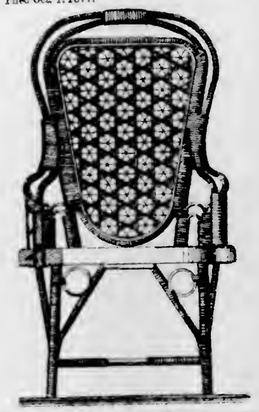
198,385. MACHINES FOR SANDING BRICK-MOLDS. E. F. Howes, Crete, Ill. Filed July 5, 1877.



1. In a machine for sanding brick-molds, the combination, with the revolving barrel D, of the crank-shaft A and the parallel bar B, secured to said shaft, whereby the brick-molds are held in position and the barrel revolved by the said bar, substantially as described and shown.

2. In a machine for sanding brick-molds, the combination, with the frame C, of the barrel D, shaped as shown, and having a single opening in its top, the shoulders *d d²* in said opening, the crank-shaft A, and bar B, all constructed and arranged to operate substantially as set forth.

198,386. CHAIRS. Henry Heywood, Gardner, Mass., assignor to Heywood Brothers & Co., same place. Filed Oct. 1, 1877.

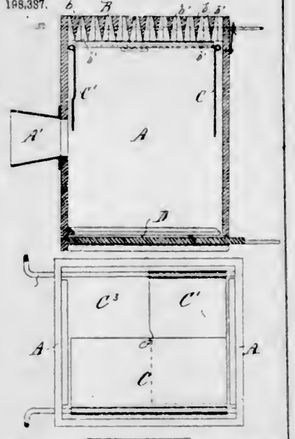


As a new article of manufacture, a rattan chair with the arms thereof inserted into thin metallic sleeves, said sleeves passing into holes bored into and through the seat-frame, and projecting above the surface of the seat-frame, whereby the arms of the chair are strengthened at their points of juncture with the seat-frame, that portion of the metallic sleeve which so projects being strengthened and covered by a wrapping of cane strands, substantially as described.

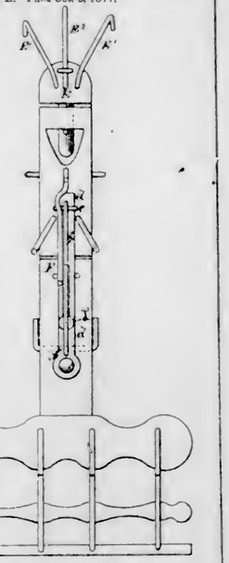
198,387. FORGES. Hans H. Hoff, St. Louis, Mo., assignor to himself and Daniel J. Donovan, same place. Filed June 6, 1877.

The combination of the dampers C C', arranged with relation to each other, the tuyere-box A, tuyere-pipe A', the grate B, consisting of bars *b*, having open spaces *b'*, and V-edge bottoms, all said parts operating substantially as set forth.

198,387.



198,388. LATH-HOLDERS. Benjamin W. Hoyt, Manchester, N. H. Filed Oct. 6, 1877.



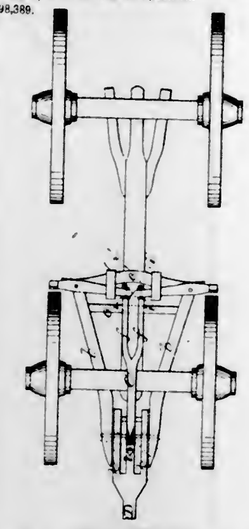
1. A lath-holder consisting of an upright standard with swiveled top piece, suspension hooks at the top and middle part, and a cross-piece with curved and braced arms at the bottom part, all substantially as shown and described.

2. A lath-holder consisting of hinged and folding sections, locked rigidly by slide-bolt and catch spring, the upper section having a swiveled top piece, suspension arms or hooks at the upper and lower ends, while the lower section has a lath-holding basket made of a cross-piece with curved and braced wire arms, substantially as and for the purpose set forth.

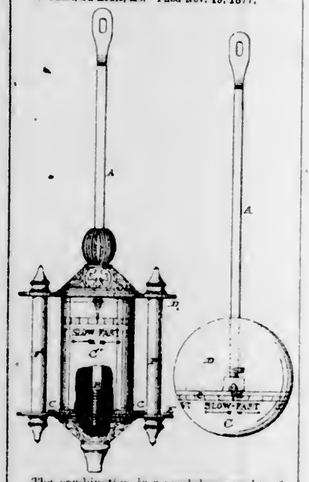
198,389. AUTOMATIC WAGON-BRAKES. Howard Hunt, Twin Grove, Wis. Filed Sept. 29, 1877.

In a wagon-brake, the combination, with the front bounds and brake-levers pivoted thereto, and a sliding and pivoted tongue, of the forked rod C, connected to said brake-levers in rear, and pivoted in front to said tongue, substantially as specified.

198,389.



198,390. PENDULUM-REGULATORS FOR CLOCKS. H. C. Jaset, St. Louis, Mo. Filed Nov. 19, 1877.



The combination, in a pendulum weight, of the nut C, screwing on the rod, and part D, sliding on the rod A, and provided, respectively, with scale and pointer, substantially as set forth.

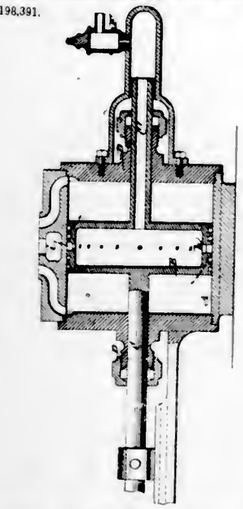
198,391. LUBRICATING-PISTONS. Henry A. Jamieson, Brooklyn, N. Y. Filed May 26, 1877.

1. The combination of the stationary lubricating-fluid reservoir E, attached to the cylinder of the engine or pump, and connected, by pipe, with the steam-space of a steam-boiler, the hollow peripherically perforated piston B and its attached hollow rod or tube C, substantially as and for the purpose specified.

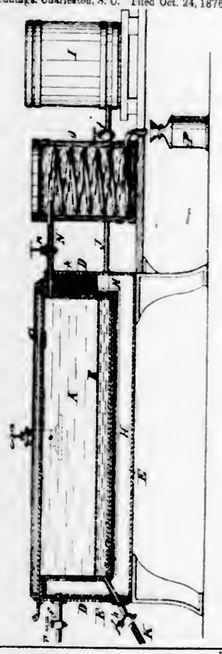
2. The hollow and peripherically perforated lubricating piston, constructed with a series of grooves or spaces arranged outside of the primary distributing-groove, for the purpose of catching or spreading and economizing the escaping lubricating-fluid, essentially as described.

3. The combination, with a horizontally-arranged cylinder, A, of the hollow and peripherically-perforated piston B, constructed with one or more perforations, A, in its bottom of a greater area than the perforations in the upper portion of the piston, and a supply-tube or hollow rod for conveying fluid, under pressure, to the piston, whereby the piston is relieved of weight, essentially as described.

198,391.



198,392. MANUFACTURE OF WAXED THREAD. D. U. Jennings, Charleston, S. C. Filed Oct. 24, 1876.

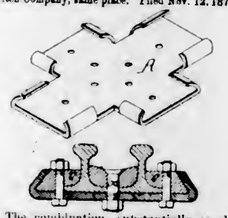


1. The process herein described of applying wax or other preserving agent to sewing-thread or other fibrous matter, consisting in dissolving the wax or other matter in a liquid vehicle, saturating the fiber with the solution, squeezing out the surplus by pressure applied to the mass, and then driving off the remainder of the solvent by evaporation.

2. The apparatus described, consisting of the close treating-tank A, having perforated false bottom B, the reservoir I, communicating with the treating-tank through a pipe, J, the air-pump L, for producing pressure to express the surplus solution, the steam-jacket E for applying heat to vaporize the remainder of the solvent, and the condenser O for recovering the same for future use.

3. The improved manufacture of waxed sewing-thread, having the wax applied to the interior of its body, as herein specified.

198,393. RAILWAY-CROSSINGS. Edward H. Johnston, Philadelphia, Pa., assignor to the Wharton Railroad Switch Company, same place. Filed Nov. 12, 1877.



1. The combination, substantially as described, of the cruciform foundation-plate A and its flanges with the rails of a crossing secured to the said plate.

2. The combination of the cruciform foundation-plate A and its flanges with the rails of a crossing, and with wedges and distance-pieces secured to the plate, all substantially as described.

198,394. HEATING-STOVES. J. Albert Jones, Marcellus, Mich. Filed Nov. 8, 1877.

1. In a heating-stove, the annular heating-chamber B, provided with the perforations *a a* and the damper *f*, leading into the flue *c*, substantially as described, and for the purposes set forth.

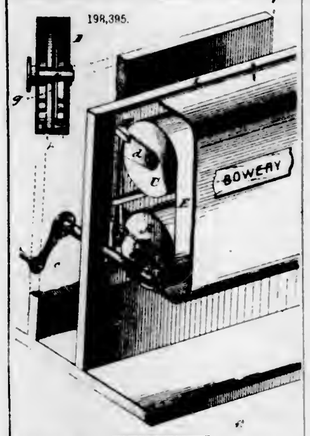
2. The stove A, provided with the cold-air tubes D D', located within the combustion-chamber G, in combination with the annular hot-air chamber B, the perforations *a a*, and the damper *f*, substantially as described, and for the purposes set forth.

198,395. STATION-INDICATORS. Ernst Kohler and Fenton B. Turck, Milwaukee, Wis.; said Turck assignor to said Kohler. Filed Mar. 6, 1877.

1. In a station-indicator, the roller A, having worm-wheel *a*, and operated by the worm-screw B, in combination with the roller C, having placed therein two springs, *k i*, and the tape or ribbon E, the whole arranged to operate as and for the purpose set forth.

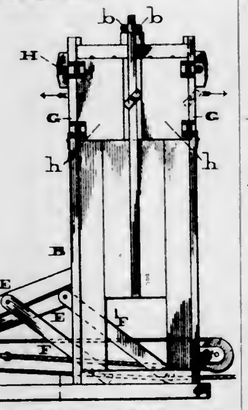
2. The roller C, having springs *k i*, tape or ribbon E, and roller A, with its operating mechanism, in combination with the hammer F, operated by the pin *k* upon the shaft *b*, substantially as and for the purpose specified.

198,395.



198,396. HAY-PRESSES. Isaac E. Kulp, Hatfield, Pa. Filed Nov. 6, 1877.

Brief.—The division-plate carried by the follower admits hay on either side through suitably-arranged doors.

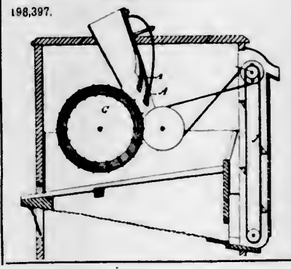


1. The follower C, levers E and levers F, in combination with the straps *d d*, each of which is pivoted to one of the levers E, and both have a common axis on the roller *d'*, substantially as and for the purpose set forth.

2. The box A, in combination with the follower C, having a partition-board, D, connected to and moving with it, substantially as and for the purpose set forth.

3. The follower C, with partition-board D, in combination with the right-angularly-arranged rollers *b m*, substantially as and for the purpose set forth.

198,397.

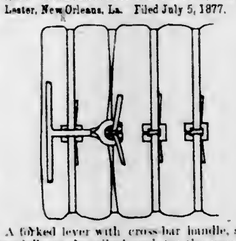


198,397. CORN-SHELLERS. Abraham E. Lake, Miami County, Ind. Filed Feb. 3, 1877.

1. The combination, with the sheller-wheel and picker-wheel, of the tension-plates made in two sections, A A, independently supported on springs, substantially as and for the purposes set forth.

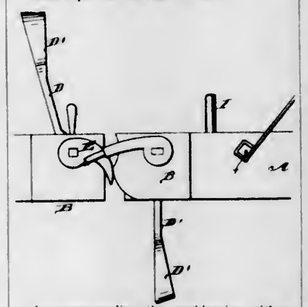
2. The sheller-wheel G, having the convex form around the center, and with teeth gradually diminishing in length as they approach the center of the wheel, as and for the purpose described.

198,398. INSTRUMENTS FOR OPENING BALE-TIES. C. Lester, New Orleans, La. Filed July 5, 1877.



A forked lever with cross-bar handle, substantially as described, and for the uses set forth.

198,399. CAR-COUPLINGS. George W. Livick, Mill Brook Depot, Va. Filed Nov. 17, 1877.



In a car-coupling, the combination, with a bumper, B, of the shaft C with cam E, coupling-bar D with loop D', pin I, and the striking-point H, all constructed substantially as and for the purposes set forth.

198,400. SCARFS. Charles Loeb, New York, N. Y. Filed Oct. 30, 1877.

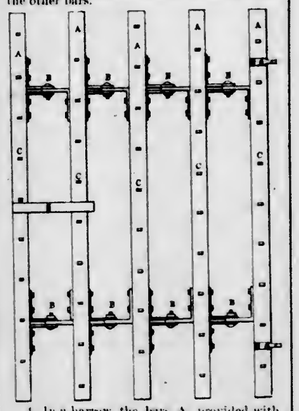


1. The combination, in a neck-tie, of the neck-band, the head-piece or imitation knot attached thereto, and the doubled detached center-piece, having its doubled portion projecting upward through said head-piece, substantially as described.

2. The combination, in a neck-tie, of the center-piece or imitation knot, the attached neck-band, detached longitudinally-slipping doubled center-piece, and the stiff supporting-piece, over which the said center-piece passes, substantially as set forth.

198,401. HARROWS. John E. Marshall, Cooper Township, Kalamazoo County, Mich. Filed Aug. 10, 1877.

Brief.—The harrow-bars are connected by a T-shaped hinged coupling, by which the angle of the teeth is changed. A spring on the rear bar serves to bear it down to a level with the other bars.

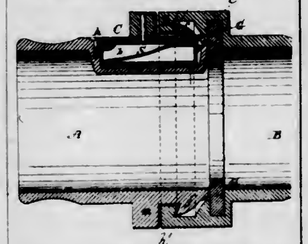


1. In a harrow, the bars A, provided with teeth, in combination with the adjustable hinge B, constructed with the T-shaped perforated plates, substantially as described, and for the purpose specified.

2. In a harrow, the spring S, attached as described, in combination with the hinge B and tooth-bars A, substantially as described, and for the purpose specified.

3. The curved teeth C, the bars A, united by the adjustable hinge B, and the spring S, rigidly attached to rearmost bar A, all constructed and combined substantially as described, and for the purpose set forth.

198,402. HOSE-COUPLINGS. William W. Marsden, Baltimore, Md., assignor of one-half his right to Jno. H. Marsden, same place. Filed Oct. 20, 1877.



1. The combination, with the male and female sleeve of a hose coupling, of the fixed catch and a spring-catch on opposite sides of the coupling, substantially as specified.

2. The combination, with the female sleeve B, having the flange *b'*, of the male sleeve A, having the fixed stud *j*, and the yielding and reactive catch C, substantially as specified.

3. The combination, with the sleeve A, having the oblong recess *b*, of the vibrating catch C in said recess, and the spring between the said catch and the bottom of the recess, substantially as specified.

4. The combination, with the male and female sleeves A B and a vibrating catch recessed in the former, of the spring S, having a flexible water-proof envelope, substantially as specified.

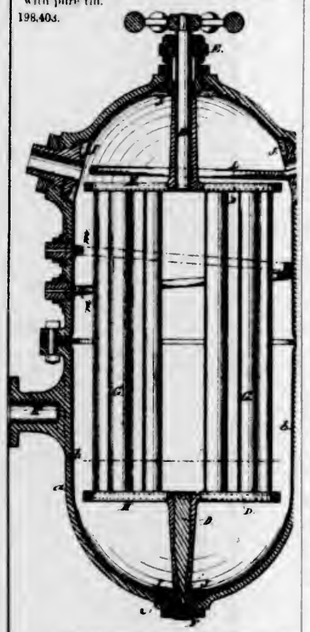
5. The combination, with the sleeve B, having the edge-flange *b'*, with inclined or undercut rear edge *i'*, of the sleeve A, having the resilient catch C, with head *f*, provided with an inclined or undercut rear edge, *i*, substantially as specified.

198,403. APPARATUS FOR CARBONATING BEVERAGES. J. Matthews, New York, N. Y. Filed Nov. 30, 1877.

Brief.—The agitator has tin ends cast

around the strengthening-rods. The heaters are made of sheet-copper cased with sheet-tin sweated to the copper. They are then corrugated and sweated into the serpentine openings with pure tin.

198,403.



1. In apparatus for carbonating liquids, the external case *a*, provided with recesses to secure the flange connections *c* and solder J, as and for the purpose set forth.

2. The agitator composed of the strengthening-rods and ribs D, with head H and bearers G, substantially as set forth.

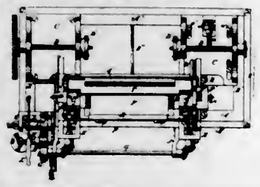
3. The agitator-beater G, of corrugated form, as shown, inserted in a corresponding groove in the agitator-head H, and supported by bearings resting in support F, and stuffing-box E, as set forth.

4. The discharge-bung *d*, provided with the vent-tube l, so as to prevent a collapse in drawing off the contents of the vessel.

5. The combination, as a whole, of the case *a*, with lining *b*, stuffing-box E, agitator-supporter F, and recesses to contain flanges *c* and solder J, all substantially as set forth.

198,404. MACHINES FOR CUTTING VENEERS. John D. McEachren, Galt, Ontario, Canada. Filed Nov. 17, 1877.

Brief.—Veneers of any desired thickness, with perfectly smooth surfaces, and entirely free from "checks" and "shatters" of any kind, can be cut in a continuous sheet from a log revolving between two centers (one of which is laterally adjustable for tapering logs) by means of a vibrating concave knife mounted on a carrier adjustable upon inclined ways, and advanced upon a line parallel to the log at a rate equivalent to the thickness of the desired veneer, in connection with an adjustable pressure-roller mounted in a swinging frame, and suitable operating mechanism.



1. In a veneer-cutting machine, the combination of the reciprocating knife, having a shear or drawing cut, with the pressure-roller, for gaging the thickness and preventing its checking, and impacting a smooth surface to the veneer, substantially as described.

2. In a veneer-cutting machine, the combination of a reciprocating knife, a pressure-roller, spindles D, chucks D', with their driving gear, for producing rotation of the log to be cut, substantially as specified.

3. In a veneer-cutting machine, the reciprocating knife-bar, supported as described, in combination with the sliding eccentric, for producing such reciprocation, substantially as set forth.

4. In a veneer-cutting machine, the reciprocating knife-carrier, in combination with the wheels *i*, supports *o*, and suspension-rods *s*, for supporting it during its reciprocations, substantially as and for the purpose specified.

5. In a veneer-cutting machine, the combination of a sliding knife-carrying frame with the swinging pressure roller or bar and a reciprocating knife, as set forth.

6. In a veneer-cutting machine, the vertically swinging and horizontally-adjustable pressure-bar or roller, in combination with a knife-carrying frame, as set forth.

7. In a veneer-cutting machine, the toggle I, provided with pin *y*, and having the upper and lower parts *g* and *g'*, in combination with the friction-pulleys H, G', and d, operating-lever K, connecting-bar K', and sliding clutch L, all these parts being for the purpose of operating the feeding-screws by which the knife is carried to the log.

8. The slide U and hook-lever U', in combination with the pin *y* upon the toggle I, substantially as and for the purpose set forth.

9. In a veneer-cutting machine, the combination of the system of friction-wheels and feeding-screws with their driving-gear of the sliding clutch L and its operating-lever L', as described.

10. In a veneer-cutting machine, the head-block C, made horizontally adjustable, in combination with the reciprocating knife and knife-bar, for the purpose of cutting tapering logs, as set forth.

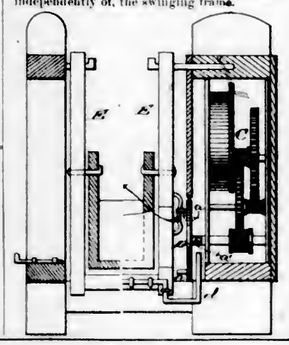
11. In a veneer-cutting machine, the reciprocating knife-bar, in combination with the supporting-wheels i, axles *m*, and vertically adjustable axle-bearings *m'*, as specified.

12. The combination, in a veneer-cutting machine, of the reciprocating knife-bar, perpendicular supports O, and suspension-rods *n*, substantially as and for the purpose set forth.

13. In a rotary veneer-cutting machine, the vibrating concave knife, with its concave face toward the revolving log, its beveled edge forming a right angle to the radius of the log, in combination with the inclined ways, for gradually lowering the knife as it advances toward the center of the log, substantially as and for the purposes described.

198,405. SWINGING CRADLES OR CRIBS. James McNeal, Flat Rock, Ill. Filed Sept. 22, 1877.

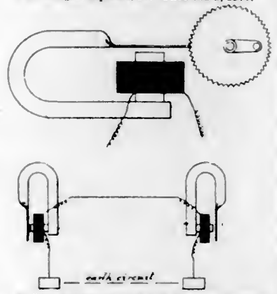
Brief.—The drive-wheel is provided with four pins projecting alternately from the outer and inner side of the wheel at equal distance apart. The pins on the outer side engage a staple on one side of the swinging frame, and the pins on the inner side of the wheel engage a rod attached to the opposite side of the frame, thus obtaining four movements of the swinging frame to one revolution of the drive-wheel. The cradle is pivoted to, and swings independently of, the swinging frame.



1. The combination of a swinging frame operated by a clock-work, and a cradle hung in and swinging independently of said frame, substantially as set forth.

2. The combination of the swinging frame E, containing the swinging cradle G, and provided with the staple *b* and bent rod *d*, and the driving-wheel D, operated by a clock-work, and provided with the pins or projections *a a* and *a' a'*, arranged alternately on opposite sides, substantially as and for the purposes set forth.

198,406. TELEPHONES OR SPEAKING-TELEGRAPHS. J. J. McTighe, Alpsville, Pa. Filed Oct. 2, 1877.



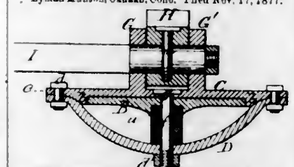
1. The combination, in an electrical circuit, of two or more telephonic or speaking-telegraphic instruments, consisting each of an electrical coil or helix and a magnet, having a pole of reduced thickness, or of a diaphragm form, and integral with the body of the magnet, whereby it is rendered responsive to sound-waves, or to the equivalent influence of intermittent magneto-electric currents, said coil or helix being within the magnetic field of said pole, by which intermittent currents of magneto-electricity may be produced solely by the inducing power of said pole upon the coil or helix within its influence.

2. As a new article of manufacture, a permanent or electro magnet having one or both poles reduced to the form of a vibrating diaphragm or plate, and integral with the body of the magnet, substantially as and for the purpose described.

3. An inducing-magnet for telephonic or speaking-telegraphic purposes, having one or both poles reduced to the form of a vibrating diaphragm integral with the body of the magnet, in combination with an electrical coil or helix, substantially as described.

4. An inducing-magnet for telephonic or speaking-telegraphic purposes, having one or both poles reduced to the form of a vibrating diaphragm, and integral with the body of the magnet, in combination with a coil or helix, in relation to which said pole or poles are adjustable.

198,407. FIFTH-WHEELS FOR VEHICLES. Ira W. Mead, Falls Village, assignor of one-half his right to Lyman Munson, Canaan, Conn. Filed Nov. 17, 1877.



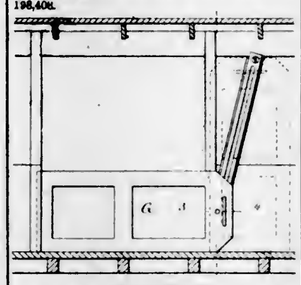
The combination, with the plate B and flanged top plate C of a fifth wheel, of the pillow-blocks G G', formed on the upper part of plate C, the vibrating cradle-block H, the reach I, nut *n*, and bolt *m*, the whole constructed and arranged substantially as herein described.

198,408. CAR-DOORS. James Miller and Francis C. L. G. Sussmihl, Detroit, Mich., assignors of one-third their right to William J. Watson, Chicago, Ill. Filed Nov. 26, 1877.

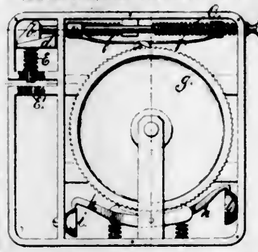
1. The combination, in a grain-car, of a pivoted door, G, adapted to the lower portion of the doorway inside the car, with an inclined guide for the pivot.

2. The combination of the door G and its stud *n* with the inclined guide I, secured to the side of the car, on the inside of the same, as set forth.

198,408.



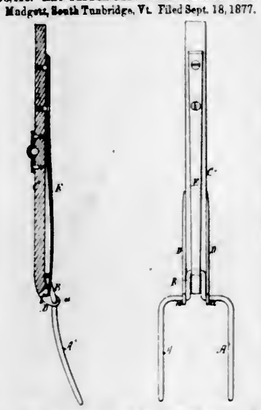
198,409. CONDUCTORS' PUNCHES. Richard H. Morgan, Fall River, Mass. Filed Mar. 22, 1877.



1. The combination, with the punch E, of the wedge-shaped blocks *b* and *d*, operated by the knobs *a a* or handles *a' a'*, substantially as and for the purpose set forth.

2. The combination, with the punch operating mechanism, as shown and described, of the pawl *f*, ratchet-wheel *g*, operating directly upon the spring-pressed hammer *h*, and alarm *i*, arranged and operating in connection with the dial and hand, substantially as and for the purpose described.

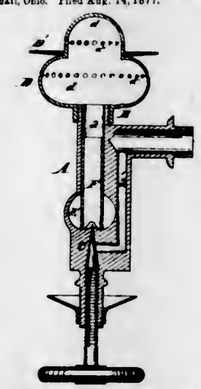
198,410. HAY-TEDDER-TEETH ATTACHMENTS. John Madgot, South Tunbridge, Vt. Filed Sept. 18, 1877.



1. The combination of the hooked spring E with the teeth carrying arm or lever C and the two tedder-teeth A A', pivoted thereto, and provided with the connecting bell-crank B, all being substantially as specified.

2. The combination of the curved metallic finger pieces D D, the wooden carrying-arm C, the hooked spring E, and the two hay-tedder teeth A A', and their connecting bell-crank B, all being arranged substantially as set forth.

198,411. VAPOR-BURNERS. James Musgrave, Cincinnati, Ohio. Filed Aug. 14, 1877.



1. The burner D, having two chambers, *d d'*, of unequal diameters, each having a ring of jets, the lower chamber having a configuration giving a flat top for the upper jets to play over, and the upper chamber having a cylindrical portion with the jets in, surmounted by a semi-spherical dome, to give direction to the current, substantially as and for the purpose specified.

2. In combination with the burner D, having two chambers of unequal size, and each a ring of jets, the interposed detachable flange or washer D', substantially as and for the purpose specified.

3. The burner-case A, having opposing passages *a a'* within one shell or casting, in combination with a burner having a heating-jet, B, for the descending pipe *a'*, substantially as and for the purpose specified.

4. In combination with the burner-case A *a*, having side opening E, the adjustable fish mouthed tube F, connected and operating substantially as and for the purpose specified.

198,412. NON-CONDUCTING PLATFORMS OR MATS. H. L. Palmer, Brooklyn, N. Y. Filed Sept. 8, 1876.



1. A non-conducting platform or mat consisting, first, of a top sheet of metal; second, of a layer of cement; and, third, of a pliable lining of paper, felt, or like material, arranged in the order named.

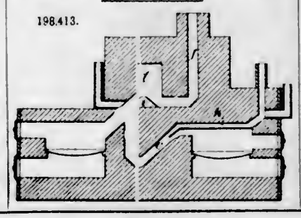
2. A non-conducting platform or mat composed of a sheet-metal top and an easily-flexible lining, of paper or other like suitable material, E, cemented directly to the back of the metal sheet.

3. A non-conducting platform or mat composed of a top sheet of metal, provided with one or more concentric corrugations, in combination with a pliable lining, E, adherent directly to the back of the top sheet, as and for the purposes specified.

4. A non-conducting platform or mat composed of a sheet-metal top, provided with a folded edge, D, in combination with a pliable lining cemented to the back of the metal sheet, as shown and described.

5. A non-conducting platform or mat consisting of a sheet of zinc, provided with concentric corrugations, located at suitable distances from the center, and also with a folded edge, the metal sheet having a pliable lining cemented to its under surface, as set forth.

198,413.



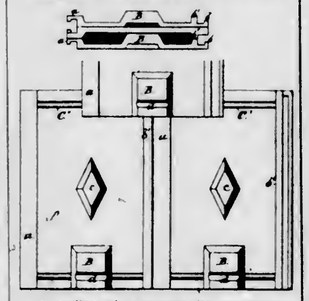
198,413. ROASTING ORES. Ira M. Phelps, Philadelphia, Pa., assignor of a part of his right to Theodore L. Chase and H. J. Fillman, same place, and D. K. Allen, Boston, Mass. Filed Nov. 2, 1877.

1. The combination, in an apparatus for desulphurizing ores, of a flue or passage having retarding-chambers *t* and deflecting bridge-bars *e*, with a fire-place and a blast-pipe for causing a jet of air to blow the powdered ore with the flame from the fire-place through said flue or passage, all substantially as specified.

2. The combination of the main flue or passage *a*, the flue *c*, fire-place *g*, passage A, feed-pipe *f*, and air-pipe *s*, as specified.

3. The combination of the removable bridge-bars *e* with the side wall of the furnace, having openings provided with doors *w*, as set forth.

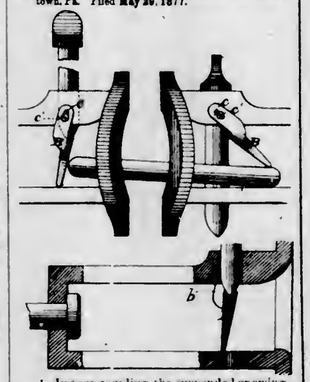
198,414. ROOFING-TILES. Philip Pointon, Baltimore, Md., assignor of one-half his right to Edwin Bennett, same place. Filed Nov. 24, 1877.



1. A tile having upon one side an overhanging lip, *a*, and upon the other parallel ribs *b b'*, and provided, also, with a hollow or recessed cap, B, raised to twice the height of the ribs and lips, substantially as and for the purpose described.

2. A tile having lip *a*, ribs *b b'*, ridge C', groove C, and hollow cap B, raised to twice the height of ribs *b b'*, and provided with a groove adapted to fit ridge C' when arranged in piles, substantially as described.

198,415. CAR-COUPLINGS. Jos. Ramsey, Jr., Antestown, Pa. Filed May 29, 1877.



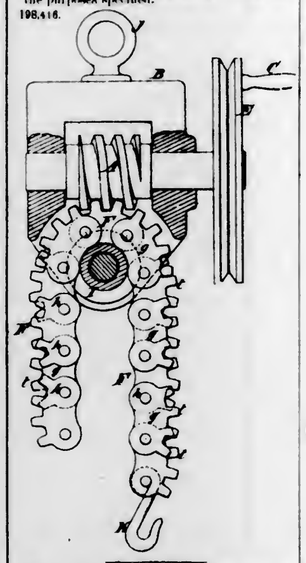
1. In a car-coupling, the suspended or swinging plate or apron B, having its upper end provided, at a point below and about equidistant between its suspending-arms, with a concavity or recess, *d*, to receive and hold the coupling-pin in position when elevated, substantially as and for the purpose set forth.

2. In a car-coupling, the pivoted plate or apron B, provided with arms *b b*, having a limited vertical movement, substantially as and for the purpose set forth.

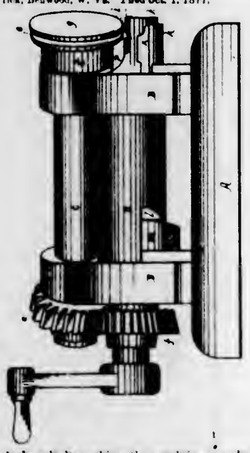
198,416. MECHANICAL MOVEMENTS. Gelston Sanford, Brooklyn, N. Y. Filed Nov. 15, 1877.

The new mechanical movement consisting in the combination of the endless screw A and the flexible rack F, substantially as and for the purposes specified.

198,416.



198,417. MACHINES FOR FORMING CHAIN-LINKS. Jacob Schiendler, Pittsburg, Pa., and Luke Fitzpatrick, Brunwood, W. Va. Filed Oct. 1, 1877.



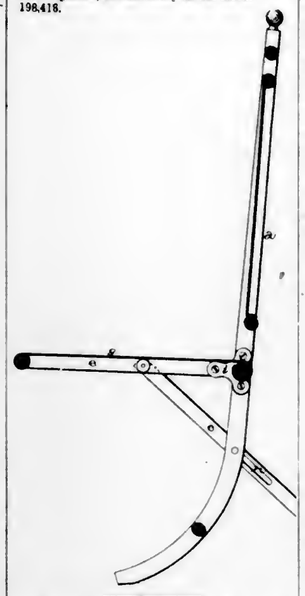
1. In a link machine, the revolving mandrel *h*, with a griping finger or fingers, and roller *g*, provided with cutters *i j*, and having the axes of said mandrel and roller arranged at an acute angle to each other, whereby the iron from which the link is formed is spirally wound around the said mandrel, and a link separated therefrom at each revolution of said mandrel and roller, as and for the purposes set forth.

2. In a link machine, the combination of the fingers *k*, provided with a projection, *l*, cam *m*, plate *n'*, and spiral spring *n*, with the mandrel *h* and roller *g*, operating with relation to each other substantially as herein described, and for the purpose set forth.

198,418. FOLDING CHAIRS. David H. Selleg, Newburg, N. Y. Filed Aug. 29, 1877.

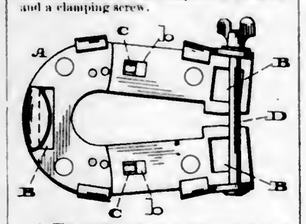
In a slack seat folding chair, the combination of the legs *a c*, provided with grooves and projections, the seat frame *e*, pivoted upon the top of the legs *c*, and connected to the legs *a* by the plates *i*, with the slack seat *f*, which has one end fastened to the frame *e* and the other to the round *a*, whereby the slack seat is kept from sagging and drawing the legs together, substantially as set forth.

198,419.



198,419. HORSESHOES. Fred. Senft and Ulrich Lorch, Philadelphia, Pa. Filed Nov. 6, 1877.

Brief.—The shoe is to be clamped to the wearing shoe attached to the hoof, and is provided with holes for the reception of the calks and a clamping screw.



1. The overshoe having openings B, and formed in sections which are longitudinally and laterally adjustable, substantially as and for the purpose set forth.

2. The overshoe A, formed in sections, and having slots B, in combination with the axial bolts C, having heads fitted in slots *b* of the sectional sides of the shoe, and with the clamping-bolt D, substantially as and for the purpose set forth.

198,420. GRASSHOPPER-CATCHERS. M. H. Simpson, Boston, Mass. Filed Sept. 26, 1877.



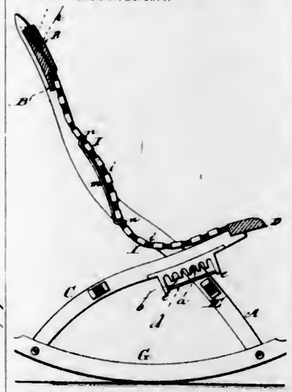
1. In a grasshopper-catcher, the combination of a solid rigid platform, *b*, drawn along the surface of the ground, and forming a support on which to crush insects, and the flexible hood or cover, unobstructed from above, and connected to the top of the platform, to collect and confine the insects on said platform, and allow such insects to be crushed, as set forth.

2. The combination of the flexible hood or cover *c*, the rigid platform *b*, the inclined standards *j*, rigidly attached to said platform, the bar *k*, secured to the front edge of the cover and movable upon said standards, and the ropes *c c'*, whereby the apparatus is moved and the bar *k* elevated automatically, as set forth.

3. In combination with the hood or cover *c*, the bar *k*, and standards *j*, the spring *l*, to facilitate the downward movement of the bar upon the standards, as set forth.

4. In combination with the flexible hood or cover *c* and rigid platform *b*, the hinged bar *o*, attached to and detachable from the platform, whereby an opening at the rear end of the receptacle is provided for the removal of the insects, as set forth.

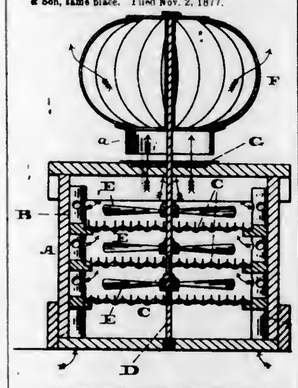
198,421. CHAIRS. Eldridge J. Smith, Washington, D. C. Filed Nov. 24, 1877.



1. In a chair having a flexible back formed of wires and slats, as described, the curved and hooked rods as *m*, attached to the wires, substantially as and for the purpose specified.

2. In a chair having a flexible back, the head piece B, formed with the flange B' at its lower edge, and mortises in the top for fastening suspending wires from cross pieces *p*, sunk in said mortises, substantially as herein set forth.

198,422. FRUIT-DRIERS. Hiram B. Smith, Philadelphia, Pa., assignor of one-half his right to O. E. Paine & Son, same place. Filed Nov. 2, 1877.

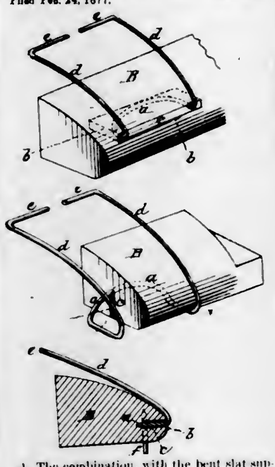


1. In combination with the holding-trays C within the drying-chamber A, the herein-described series of vanes E, alternating with the holding-trays, and revolved by the action of the upward current of heated air upon an exterior fan-wheel upon the shaft D, on which the said vanes are also mounted, substantially as and for the purposes herein specified.

2. In combination with the drying-chamber A, provided with a shaft and vanes adapted to rotate and agitate the hot air between the holding-trays, the spherical fan-wheel F, constructed with an open cylindrical base, and mounted upon shaft D outside of the drying-chamber, and over the upper hot-air passage therein, substantially as shown and set forth.

3. The drying-chamber A, with trays C, and the shaft D, with ventilating-wheel F and fan-blades or vanes E, in combination with the top doors or valves G, substantially as and for the purpose set forth.

198,423. SPRING BED-BOTTOMS. Solomon P. Smith, Troy, N. Y., assignor to Harvey J. King, same place. Filed Feb. 24, 1877.



1. The combination, with the bent slat supporting springs, of the cross-bars provided with gains or recesses to receive the cross-braces of the springs, substantially as described.

2. A bed-spring formed complete with the bent arms *d d*, the under cross-brace *a*, and the slat-supporting pins *c c*, in combination with the supporting-bars B, having the gain or recess *b*, to receive the cross-brace, and the plug-filling or plug-strip *c*, for securing said cross brace, as described.

198,424. PAPER-COLLAR MACHINES. Chas. Spofford, New York, N. Y., assignor to himself and James H. Hoffman, same place. Filed June 6, 1876.

1. A cutting-die, constructed substantially as described, to shape the top edge of one complete collar and one-half of the top edges of two adjoining collars, the ends of which are opposite to the middle of the first collar, and also to separate two contiguous collars, as set forth.

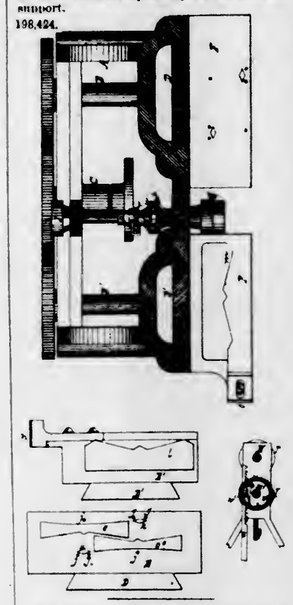
2. In combination with a cutting-die arranged to shape the top edge of one complete collar and one-half of the top edges of two adjoining collars, the ends of which are opposite to the middle of the first collar, button-hole punches so arranged as to cut four end button-holes and two center button-holes in different collars, substantially as set forth.

3. In combination with a cutting-die arranged to shape the top edge of one complete collar and one-half of the top edge of two adjoining collars, the ends of which are opposite to the middle of the first collar, creasing and stitch-embossing dies, constructed and operating substantially as shown and described.

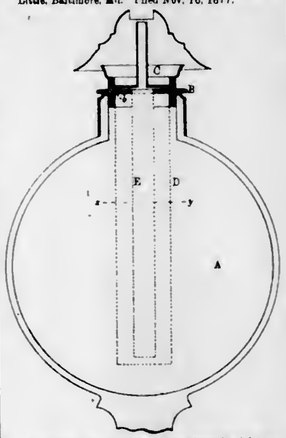
4. In combination with a cutting-die arranged to shape the top edge of one complete collar and one-half of the top edge of two adjoining collars, the ends of which are opposite to the middle of the first collar, a cutter, *s*, constructed and operating substantially as set forth.

5. The combination, substantially as set forth, in a machine for making paper collars from a strip of paper by the interlocking method, as described, of a male cutting-die, a bed-plate or support to uphold one series of undivided collars, and an adjoining female die, against which the male die acts to form the longer contiguous edges of the collars of both series, and to sever and drop through the female die, one by one, the collars from that series which is not upheld by the bed-plate or support.

198,424.



198,425. LAMPS. Feargus B. Squire and Charles G. Little, Baltimore, Md. Filed Nov. 16, 1877.



The screw-connection B, combined with the outer cylindrical perforated casing D and the flattened perforated wick-tube E, substantially as described, whereby is produced a safety attachment applicable to lamps in ordinary use.

198,426. SCROLL-SAWING MACHINES. Nelson Stafford, Pamrapo, N. J. Filed Nov. 15, 1877.

Brief.—The saw is clamped by a reciprocating holder, and moved up and down in guide-grooves above and below the table, and held firmly above and below the material, and the tension of a spring dispensed with. The holder has an end movement for drawing the free end of the saw out of the wood, so that the wood can be removed and the saw inserted into another of the holes bored in the same.

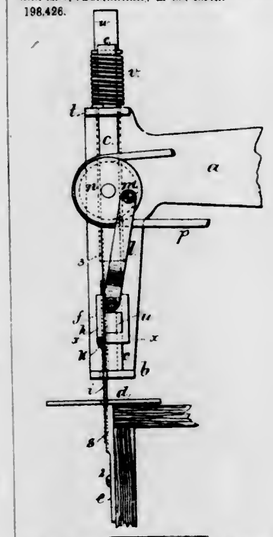
1. The reciprocating saw-clamp *f*, slide-bar *c*, and foot *b*, in combination with the bed *d* and the guide-slot for the saw beneath the bed, substantially as set forth.

2. The saw-clamp *f*, made with the spring clamping-bar *h* and screw *k*, in combination with the bar *c*, grooved for the back of the saw, substantially as set forth.

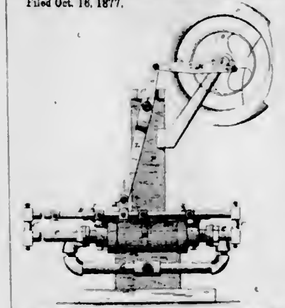
3. In combination with the saw-clamp *f* and pitman *l*, the bar *c*, upon which the saw-clamp slides, the guides at top and bottom for the bar *c*, and the holding-bar *w*, substantially as set forth.

4. The adjustable bed, in combination with the stationary foot, reciprocating saw-clamp, and saw, substantially as set forth.

198,426.

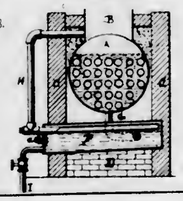


198,427. ENGINES. David Stanton, Waymart, Pa. Filed Oct. 16, 1877.



In an engine, a lever, L, pivoted to a stationary object nearer one end than the other, the long end of the lever being connected to the piston-rod of the engine, and the short end, by a pitman, to the crank-shaft, substantially as and for the purposes herein set forth.

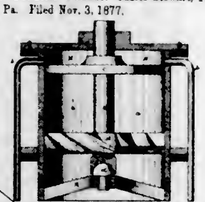
198,428.



198,426. FEED-WATER HEATERS. James O. Stead, Green Point, N. Y. Filed Nov. 19, 1877.

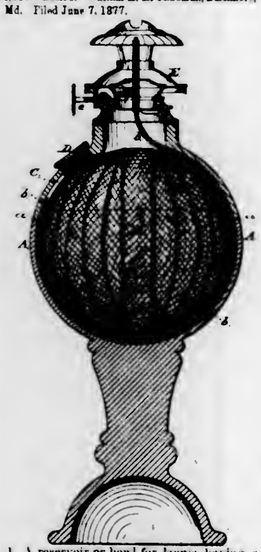
The drum F, connected to the bottom of the boiler by pipe G, and connected to the steam-space of the boiler by perforated pipe H, partly located within said drum, constructed and operating in combination with a steam-cooler, substantially as set forth.

198,429. TURBINE WHEELS. James Stewart, Pittsburg, Pa. Filed Nov. 3, 1877.



The combination of the wheel-shaft *a*, having the disk C attached thereto, chamber E, and pipes *b*, the said pipes serving to convey the water from the chamber, substantially as shown.

198,430. LAMPS. William H. H. Stideman, Baltimore, Md. Filed June 7, 1877.



1. A reservoir or bowl for lamps, having a circumferential groove or recess, C, arranged in it, substantially as shown, and for the purpose specified.

2. In combination with a bisected lamp, the recess or groove C and the hole D, arranged as shown, and for the purpose herein specified.

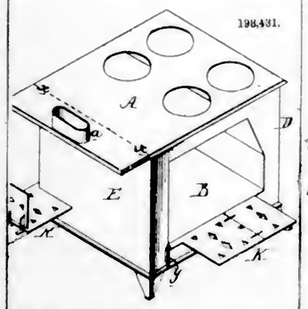
3. The lamp herein described, consisting of the bisected reservoir A, having the recess or groove C, the hole D, the ball wick B, the burning-wick *b*, and the burner E, all arranged as shown and specified.

198,431. COOKING-STOVES. David Stuart, Philadelphia, Pa., assignor to himself and Richard Peterson, same place. Filed Aug. 11, 1877.

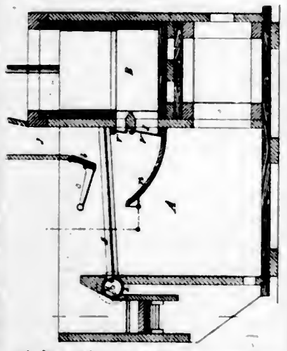
Brief.—A shelf so hinged to the side of the stove, on a level with the bottom of the oven, that it may be turned back of the stove and out of the way.

The combination of the oven of a cooking stove with a shelf, K, having its upper surface level with the bottom of the oven, and hinged to the corner of the stove, in the manner described, so that it can be turned to the rear or front of the oven, as specified.

198,431.



198,432. ORE-SEPARATORS. Sebastian Stutz, Pittsburg, Pa. Filed Oct. 17, 1877.

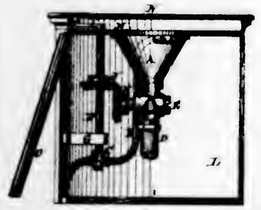


1. In a coal or ore separator, the valve-seat H and the hollow valve A, having ports *i i*, and so arranged that one port is open while the other is closed, all in combination with the sieve S, as described, and for the purpose set forth.

2. In a coal and ore separator, two or more valves, V V', to prevent the back suction of the water, in combination with the plunger-box B, as described and set forth.

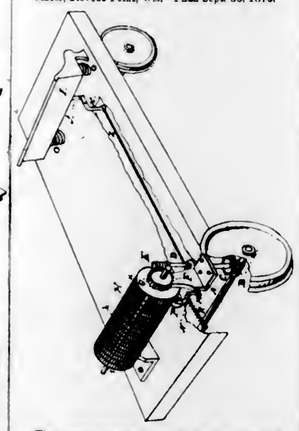
3. In a coal and ore separator, the hinged gate-board *b*, with its regulating arms *c c*, in combination with the chute J, as described, and for the purpose set forth.

198,433. WATER-CLOSETS. Mirum Sulzbacher and Cordelia E. Yvelin, New York, N. Y. Filed July 6, 1877.



The combination, in a water closet, of a hopper, having a water-inlet near its top edge, a water supply pipe connecting with said inlet, a waste-pipe connected to the open bottom end of the hopper, a faucet in the waste-pipe, a faucet in the supply-pipe, a vertical spindle rising from the plug of the supply faucet up through the seat of the closet, and having a handle secured to its upper end, and two bevel-wheels, one of which is mounted on said vertical shaft, while the other is mounted on the plug of the faucet in the waste-pipe, the whole being constructed and operating substantially as shown and described.

198,434. PASSENGER-RECORDERS. Warren B. Sylvester, Stevens Point, Wis. Filed Sept. 30, 1876.



The combination of axle A, having worm E, shaft D, having pinion C and worm E, and cylinder G, having pinion F and register H, with spring seat I, rods J and L, crank levers K and M, spring R, and tally wheel P, substantially as set forth.

198,435. SALT-CELLAR AND NAPKIN-HOLDER. Theo. R. Tuthy, Tarrytown, N. Y. Filed Sept. 27, 1877.

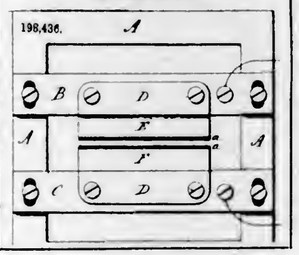
Brief.—The covered cavity in the base of the article is for holding salt, while the top or cup portion may hold a napkin, bouquet, or spoons.



1. A holder for salt or other condiments, constructed with a covered bowl or chamber, having one or more lateral orifices, substantially as herein illustrated and described.

2. A table vase consisting of a holder for salt or other condiments and a supplemental holder for a bouquet, napkins, spoons, or other articles, the former constituting the base of the vase, substantially as herein set forth.

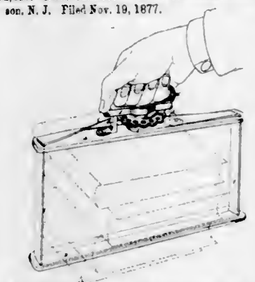
198,436.



198,436. ELECTRIC LIGHTS. Wm. Wallace, Ansonia, Conn. Filed Nov. 14, 1877.

The herein-described electric lamp, consisting of a pair of carbons, each presenting an extended edge parallel to each other, combined with means for holding said carbons, and connection with the respective poles, substantially as described.

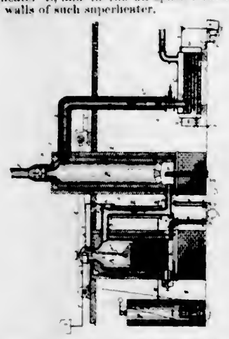
198,437. BOOK-CLAMPS. William C. Watson, Paterson, N. J. Filed Nov. 19, 1877.



The combination, with the clamping bars A and B and handle E, attached to the upper bar A, of the independent windlass D, one or more cords or straps, C, connecting said windlass with the lower clamping-bar B, the hand-wheel G, the ratchet-wheel H, and the sliding yoke or pawl I, controlled by a spring, to engage with the ratchet, and arranged to admit of its disengagement therefrom by pressure of the thumb or finger of the hand by which the clamp is carried, substantially as specified.

198,438. GAS APPARATUS. Thomas R. White, Baltimore, Md. Filed Oct. 6, 1877.

Brief.—Carbonaceous fuel in the generator is made incandescent by a blast of hot air from the air-space in the walls of the superheater. Gas is generated from superheated steam and oil admitted upon the top of the incandescent fuel. Steam is superheated in a jacket surrounding the eduction gas-pipe from the generator. Air is heated in a jacket surrounding the eduction gas-pipe from the superheater B, and in the air-space formed in the walls of such superheater.



1. The pipe or casing E surrounding the gas-pipe leading from gas-generator to superheater, in combination with the steam induction pipe *e'* and eduction-pipe *h*, whereby the heat of the gas-pipe is utilized to superheat the steam previous to its admission to the gas-generator.

2. The combination of the superheated-steam pipe *h'*, inclosing and surrounding the oil induction pipe *f''*, and the couplings 4 and 2, connecting with their respective supply-pipes and the cover *b*, whereby steam and oil may be injected from adjacent orifices directly onto the incandescent coals, and these injecting-pipes may be removed while the blast is on.

3. The combination of the iron casing of the gas superheater B and outer jacket of brick, forming the annular intervening air-space Z'', outlet air-pipe *n*, jacket or casing K'', surrounding the hot gas-pipe leading from gas superheater to the wash box, and pipe K' from the blower, whereby the heat of the hot gas-pipe and iron casing of gas superheater are utilized to heat the air-blast which is forced by the blower, as and for the purpose specified.

4. In combination with the wash-box C, horizontal pipes *c*, both ends of which open into the outer casing or cold-water bath *m*, water-supply cocks V and V', overflow pipe *z*, and draw-off cock *x'*, as shown and described, and for the purpose specified.

198,439. FRUIT-JAR COVERS. William G. Whitman, Chicago, Ill. Filed Sept. 3, 1877.

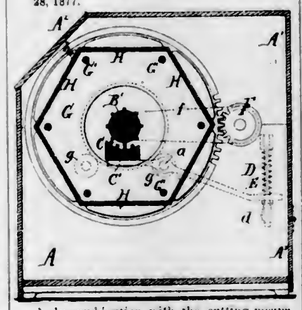


1. The combination of the inclined wire *b* with cap *f* and a suitable fastening device, substantially as and for the purpose set forth.

2. The jar or bottle A, having an inclined groove or flange in its collar, in combination with the wire *b*, cap *f*, wire *g*, and locking-lever *i*, substantially as described.

3. The combination of the wire *g*, having the loop or bend *n*, with the lever *i*, fulcrumed on said loop, and provided with notch *k*, for engaging with *b*, substantially as specified.

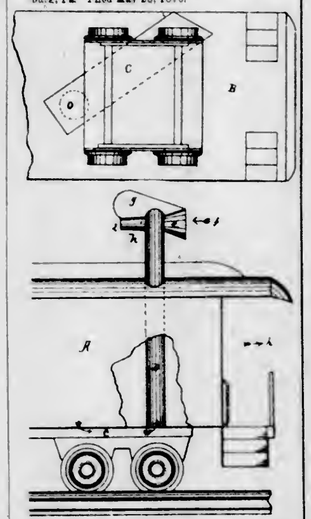
198,440. FLOCK-CUTTING MACHINES. E. D. Wilcox and Augustus S. Wilcox, Millville, Mass. Filed Sept. 28, 1877.



1. In combination with the cutting means B' C' and their connections, and a revolving bolt surrounding the same, the exterior case A, with means for allowing access to the interior, as herein specified.

2. In connection with a revolving bolt arranged to surround the cutter, and to perform the double functions of presenting the material to the cutting mechanism and sifting out the fine material by a continuous operation, the removable panels H, supported in the grooved end pieces of the bolt, and adapted to allow the ready exchange of the sifting surfaces, as herein specified.

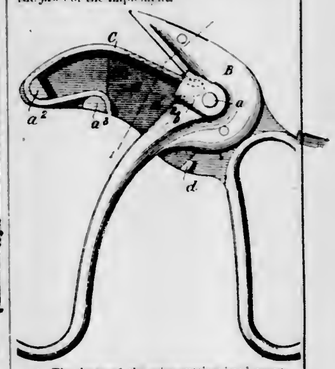
198,441. CAR-VENTILATORS. Jos. Williams, Sharpsburg, Pa. Filed May 25, 1876.



The air passage *c*, arranged below the bottom of the car, and communicating with the interior thereof through the central register *o*, in combination with the flue D, located substantially as described.

198,442. WIRE-BAND-CUTTING IMPLEMENTS. Chas. B. Withington, Janesville, Wis., assignor to C. H. and L. J. McCormick, Chicago, Ill. Filed Oct. 29, 1877.

Brief.—The main jaw of a peculiarly shaped pair of pivoted shears is curved, extended outward, and provided with a strong spreading and clamping spring, rigidly secured at its forward end, bent to conform with the shape of the jaw, and resting its free end in a suitable recess, in such manner as to exert its tension against the opposite or cutting jaw, and normally hold the two apart, but, when the jaws are brought together, serving both to clamp and sever the wire, retaining one end thereof until released. There is also a shoulder or gage plate arranged to gage the entrance or inward movement of the wire between the jaws of the implement.



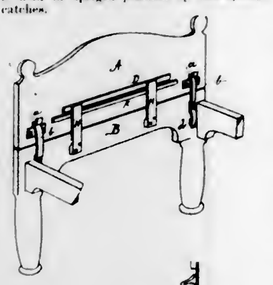
1. The jaws of the wire-cutting implement, constructed as described, one of which is curved, extended, and provided with a spreading and clamping spring, of similar shape, and the other jaw, which is acted upon by the spring, terminating in a pointed end for the better insertion beneath the wire, substantially as set forth.

2. The improved wire-cutting implement, constructed substantially as hereinbefore set

forth, consisting of the jaws, their handles, the steel cutting blades, the clamping and spreading spring, and a gage for the wire.

198,443 CLOTHES-CLAMPS FOR BEDSTEADS. Ferdad. Woodward, Sacramento, Cal. Filed Mar. 17, 1877.

Brief.—The foot-board is hinged to the foot-rail to swing outward, and, when raised, clamps the bed clothes against a cross-rail elevated on two uprights attached to the foot-rail, and is held in upright position by two spring catches.



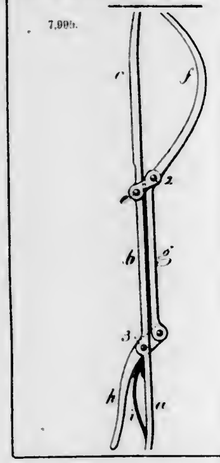
The combination of the foot-board A, provided with slots *a a*, the foot-rail B, to which the foot-board is hinged, the catch-springs *b*, pivoted to the rail B, the cross-bar D, uprights H, and cross-bar K, all as and for the purposes described.

REISSUES.

7,994. PROCESSES OF TREATING MINERAL WOOL. A. P. Ehers, Hoboken, N. J. Patent No. 194,422, dated Aug. 21, 1877. Filed Sept. 17, 1877.

The process of preparing mineral wool, which consists in mixing the mineral wool with bituminous, gummy, or resinous substances while said substances are in a vaporized condition, substantially as described.

7,995.



7,996. MEAT-HOLDERS. Samuel Poole, Brooklyn, N. Y. Patent No. 191,387, dated May 29, 1877. Filed July 18, 1877.

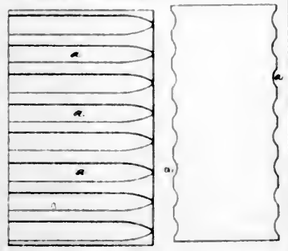
1. A holder for meat and other articles of food, consisting of two open frames, *e f*, hinged together at *e*, and provided with the handle *a*, bar *b*, actuating-lever *k*, and connecting-rod *g*, substantially as and for the purposes set forth.

2. In combination with the pointed penetrating-prongs *e f*, hinged together in the manner described, the longitudinally-acting rod *g*, handles *a k*, and spring *i*, substantially as set forth.

3. In combination with the pointed prongs *e*, the swinging pointed prongs *f*, bent toward the prongs *e*, and united by the hinge *c*, substantially as set forth.

4. The combination, with the penetrating-prongs *e* and swinging curved prongs *f*, of the uniting-hinge *c*, bars *b* and *g*, and handle, substantially as set forth.

7,996. CONCRETE PAVEMENTS. Robert Skinner and Bonnet Bonnet, San Francisco, Cal., assignors, by mesne assignments, to James E. Nuttman and Chas. E. Whitin, trustees. Patent No. 105,502, dated July 19, 1870. Filed Nov. 26, 1877.



A nobled concrete paving-block provided with vertical recesses at the sides, substantially as described.

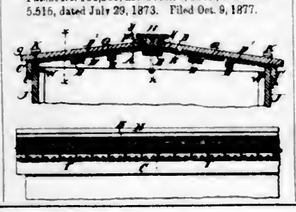
7,997. CONCRETE PAVEMENTS. Robert Skinner and Bonnet Bonnet, San Francisco, Cal., assignors, by mesne assignments, to James E. Nuttman and Chas. E. Whitin, trustee. Patent No. 105,502, dated July 19, 1870. Filed Nov. 26, 1877.

Brief.—The asphaltum is heated, so that it will crumble when the heated and pulverized calcareous rock is added. The whole is then pressed into blocks.

1. Paving concrete containing asphalt, mineral tar, and granulated calcareous rock, previously heated, and mixed with the asphalt while the rock is hot, substantially as described.

2. Compressed concrete paving-blocks containing asphalt, mineral tar, and granulated calcareous rock, mixed after the rock has been well heated and while hot, substantially as described.

7,998. CAR-ROOFS. John C. Wands, Nashville, Tenn. Patent No. 136,569, dated Mar. 4, 1873; Reissue No. 5,516, dated July 29, 1873. Filed Oct. 9, 1877.



1. The car-roof herein described, having the frame consisting of the parts A H C W, the bands E and K, the sheets D D', and the grooved roof-boards G G, substantially as described.

2. The combination of the purlin F, roof-boards G G, and frieze-boards C C, constructed and arranged in a car-roof, substantially as described.

3. The combination, in a car-roof, of a layer of flat metallic sheets and an upper layer of boards, grooved on their under side, the boards resting directly upon the sheets, substantially as described.

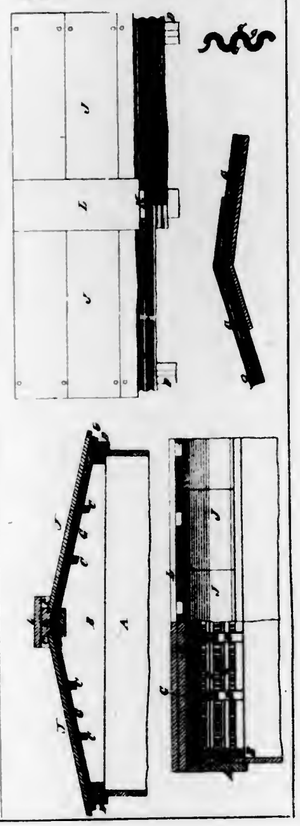
4. The combination, in a car-roof, of a layer of metallic sheets bearing directly upon the car-roof frame, and an upper layer of boards bearing directly upon the sheets, substantially as described.

5. A car-roof composed of a lower layer of metallic sheets and an upper layer of boards, the sheets resting upon the car-roof frame beneath, and the boards being confined at their lower ends to the car-roof frame, and bearing immediately upon the sheets, serving or nailing to hold the latter down upon the car frame, substantially as described.

6. In a car-roof, the combination of the longitudinal strips K K, the boards G G, the sheets D' D', and the car-frame, substantially as described.

7. The combination, in a car-roof, of the central purlin B, a metallic sheet, D, the boards G G, and the upper ridge-piece F, the parts B and F being drawn together by suitable bolts, for the purpose of clamping and fastening the intermediate sheet and boards, substantially as described.

7,999. CAR-ROOFS. John C. Wands, Nashville, Tenn. Patent No. 153,868, dated Aug. 4, 1874. Filed Oct. 23, 1877.



1. In combination with the sheathing-boards of a car-roof, the corrugated metallic lining, united by lapping and bending over the ridge-beam, so that the ridges of one lapped sheet shall fit into the grooves of the opposite sheet, and serve to brace and strengthen the roof, substantially as specified.

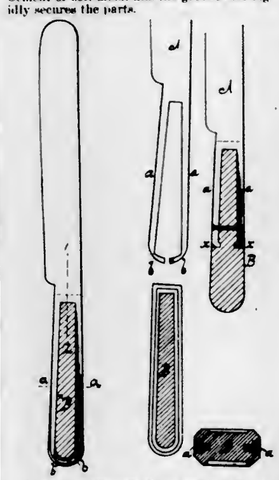
2. A car-roof composed of a layer of boards and a lower layer of corrugated metallic sheets, the two layers, being in contact, affording mutual support, and forming intermediate channels for the water to pass off, and the corrugated metal resting upon the top of the wall of the car, forming spaces between the car-wall and the metal, through which the air can enter and leave the car, substantially as described.

3. A car-roof consisting of a layer of boards and a lower layer of corrugated metallic sheets, the latter being in contact with the boards above and resting upon the frame of the car, substantially as shown.

4. In combination with an upper layer of sheathing-boards, the metallic lining, consisting of sheets or plates that extend from either side respectively, of the roof, over onto the other side, lapping one upon the other across the ridge, substantially as described.

8,000. ATTACHING KNIVES AND FORKS TO HANDLES. Glover S. Hastings, Plainville, Conn. Patent No. 181,676, dated Aug. 29, 1876. Filed Aug. 8, 1877.

Brief.—The tang is bifurcated, and rests in a groove at the sides and end of the handle. Cement or soft metal fills the groove and rigidly secures the parts.



1. The combination of the handle, having a groove extending along its opposite edges and ends, with a blade having prongs *a a*, adapted to the groove, and curved and notched at their outer ends, so as to be interlocked and embrace the handle, all substantially as set forth.

2. The combination of the prongs *a a* with a handle having a T-shaped groove deeper than the prongs are wide, and wider near the edges of the handle than the prongs are thick, as and for the purpose specified.

3. In combination, three elements—to wit, the blade with bifurcated end, the grooved handle, and the cement, metal, or alloy embracing the end and sides of the handle.

8,001. POWER-CAPSTANS. Jos. P. Manton and G. H. Remington Providence, R. I., assignors to the American Ship Windlass Company. Patent No. 155,877, dated Oct. 13, 1874. Filed Sept. 17, 1877.

1. The combination, with the shaft of a capstan or windlass, provided with a worm-gear loosely applied, and adapted to be locked to said shaft, of a worm connected with and driven by one or more steam-engines, substantially as set forth.

2. The combination, with the shaft of a capstan or windlass, provided with a worm-gear, of a worm directly secured to the crank-shaft of one or more engines, and means for connecting or disconnecting the driving mechanism and the capstan or windlass-shaft, substantially as set forth.

3. The combination, with the shaft of a windlass or capstan, having a driving-head rigidly secured thereto, of a worm-gear adapted to be locked to said driving-head, and a worm attached to the crank-shaft of one or more engines, substantially as set forth.

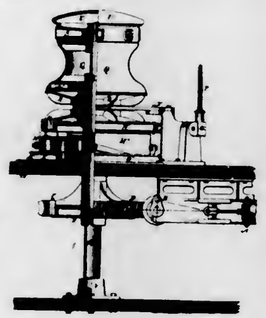
4. The combination, with the shaft of a windlass or capstan, provided with one or more barrels and wild-cats, and means for connecting and disconnecting said parts to the shaft independently of each other, of a worm-gear attached to the shaft, a worm secured to a crank-shaft which is driven by one or more engines, and means for throwing the engines out of connection with the windlass-shaft, substantially as set forth.

5. A capstan, consisting of a central shaft driven by engine-power, having a driving-gear and capstan-head secured to said shaft, and a barrel and wild-cat revolving freely around said central shaft when both together, or each separately can be locked so as to revolve with the shaft, substantially as and for the purpose herein described.

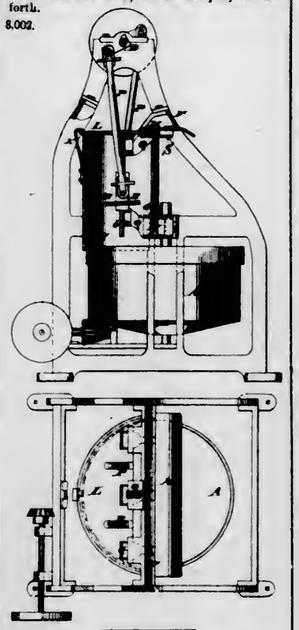
6. In a power-capstan, the toothed rim H' and sleeve Z, made in one piece or secured together and to the disk plate Y, and provided with locking-sockets by which the barrel and wild-cat, either or both, may be locked to and turn with the sleeve Z and the driving-shaft, as and for the purpose set forth.

7. In combination with a capstan or windlass, the friction-strap N, when both ends of the strap are connected to levers, so that either or both may be operated as described.

8,001.



8,002. MACHINES FOR MAKING HORSESHOE-NAILS. John A. Haggett, Clapham, England. Patent No. 181,784, dated Sept. 5, 1876. Filed Sept. 13, 1877.



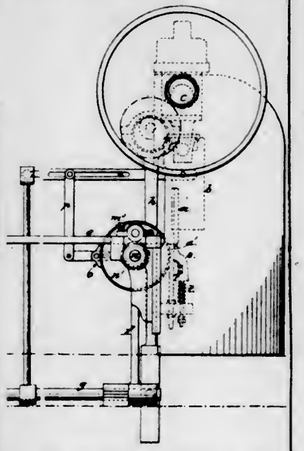
1. The combination, substantially as specified, of the rotating block, the solid stationary guard or fender behind it, the reciprocating cutters, and the cutter-guides, both the lower and the upper ends of which are rigidly connected with the frame in front of the said guard or fender.

2. The combination, substantially as specified, of the rotating block, the solid stationary guard or fender behind it, the reciprocating cutters, and the cutter-guides, the lower ends of which are rigidly connected with the frame in front of the said guard or fender.

3. The combination, substantially as specified, of the solid stationary guard or fender E, the guards or fenders L M, and the chopping-block A, in relation to which, and to cutters and framing, the said several guards or fenders are arranged substantially as herein shown and described, and for the purpose set forth.

8,002.

8,003. MACHINES FOR MAKING HORSESHOE-NAILS. John A. Haggett, Clapham, England. Patent No. 181,784, dated Sept. 5, 1876. Filed Sept. 13, 1877.



1. The combination, substantially as hereinbefore set forth, of the shears, the nail-plate holder, having a sidewise to and-fro motion only imparted to it, each successive motion being in a direction the reverse of the preceding, the axis having its bearings on the

main frame, and rotated step by step, the feeding-rollers carried with the holder, and the groove-and-feather connection between one of said rollers and the intermittently-rotated axis, whereby the roller, while free to move with the holder along said axis, is positively rotated therewith to feed the plate to the shears.

2. The combination of the rocking shaft *g*, the nail-plate holder supported and moved sidewise thereby, fixed stops for limiting the traverse of the holder, the pitman A, the arm connecting the pitman and the rocking shaft, and the spring-bearing connection between the pitman and connecting-rod, these members being constructed and operating substantially as set forth, for the purpose specified.

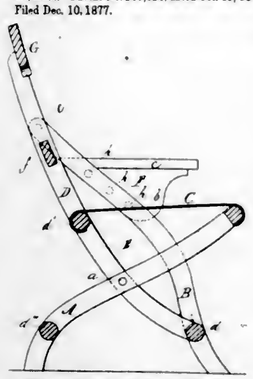
3. The combination, substantially as hereinbefore set forth, of the swinging lever *q*, the disk, its pawl and lever operated by the swinging lever, the disk-axis, the pinions operated thereby, the nail-plate holder, and the feeding-rollers.

4. The combination of the eccentric driven by gearing from the main shaft, the pitman-rod operated by the eccentric, the rocking shaft connected with the pitman and supporting the nail-plate holder, the swinging lever connected with the rocking shaft, and the intermittently-moving disk, operated through its connection with the swinging lever, and imparting motion to the rollers for feeding the nail-plate, these members being constructed and operating substantially as hereinbefore set forth.

5. The combination of shears *a a'*, laterally-reciprocating nail-plate holder, intermittently-acting feed-rolls, presser-plate, and spring, substantially as set forth.

6. Nail-cutting shears constructed substantially as described, with reference to cutting alternately with the nail or nails a waste piece along nearly or quite the entire width of the bar or plate, and thereby forming one edge of the point, and also one edge of a shank, narrower than the head.

8,004. FOLDING CHAIRS. George McAleer, Worcester, Mass. Patent No. 189,016, dated Oct. 19, 1876. Filed Dec. 10, 1877.



1. The combination of the rear-leg frame A and seat C with the rigid side frames E, substantially as described.

2. The combination, with the seat C and rigid side frames E, of the arm-supporting brackets F, substantially as and for the purposes set forth.

8,005. MONKEY-WRENCHES. Albert A. Sanborn and Chas. Burroughs, Newark, N. J. Patent No. 195,173, dated Sept. 11, 1877. Filed Nov. 21, 1877.

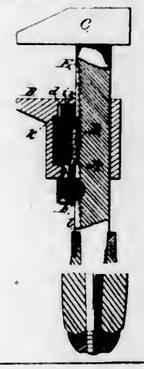
Brief.—The locking and the unlocking may be effected by means of a rack on the wrench-bar, and a tongue-and-grooved cylinder substituted for mutilated male screw.

1. The combination, with the movable jaw of a monkey-wrench, and a mutilated male screw carried by said jaw for locking the same to the bar of the wrench, of a friction-spring for holding said screw from turning, except as turned by the operator, substantially as and for the purpose specified.

2. In a wrench, a movable jaw provided with a mutilated male thread, the extremities of which are beveled off and arranged so as to engage a mutilated female screw placed in or upon the wrench-bar, and having the ends of its threads tapered or beveled, substantially as specified.

3. As a means of locking the movable jaw of a wrench at any desired point, the combination of the mutilated screws D and E, having the ends of their threads beveled off, substantially as specified.

8,006.



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COMMISSIONER'S DECISIONS.

P. J. HARDY.—*Motion.*

[*In the matter of the application of P. J. Hardy for Letters Patent for* "IMPROVEMENT IN THE APPLICATION OF MARBLE OR OTHER STONE TO BUILDINGS," *filed July* 21, 1875, *allowed July* 27, 1875, *and forfeited for non-payment of the final fee.—Decided August* 27, 1877.]

Under section 4897 Revised Statutes, an applicant who fails to renew his case within two years after its allowance is effectually debarred from doing so, nor can he make the invention the subject of a new application.

The cases under this section distinguished from the abandoned applications covered by section 4894, and which may be revived or new applications filed in their stead under certain conditions. The former have been passed upon and allowed; the latter have never had final action.

DOOLITTLE, *Acting Commissioner:*

Applicant seeks to renew a forfeited application more than two years after the date of allowance of the original application. This case falls under the requirements of section 4897 Revised Statutes, which requires that where an applicant fails to make payment of his final fee within six months from the date upon which the application was passed and allowed, and notice thereof was sent to the applicant, or his agent, he shall have the right to make an application for a patent within two years after the allowance of the original application.

The exact language of the law on this point is: "But such second application must be made within two years after the allowance of the original application." The language of the law is imperative, and leaves no discretion with the Commissioner. This section appears to relate to an entirely different class of applications than is provided for by section 4894. The latter section requires that the applications shall be completed and prepared for examination within two years after the filing of the application, or, in default or failure of applicant to prosecute the same, the application is to be regarded as abandoned, unless it be shown to the satisfaction of the Commissioner that such delay was unavoidable.

The former-mentioned section relates to applications after they have been completed, allowed, and passed to issue. The origin of this section dates back as far as 1863.

In the act approved March 3, 1863, it was held that if the final fee for a patent allowed was not paid within six months thereafter, the patent should be withheld, "and the invention therein described should become public property as against the applicant therefor."

It would appear that this law was enacted upon the representation of the Commissioner in his Annual Report for 1861, dated February 13, 1862, that the Office was suffering disadvantageously by the postponement of the payment of a great many final fees.

This act was amended by the act of June 25, 1864, which extended the privilege of renewing the patent within six months to any person having an interest in the invention, whether as an inventor or assignee.

The act of 1863 was again specially amended by the act of March, 1865, which for the first time extended the privilege of renewing the application to two years after the date of the allowance of the original application, and the language of the section of that act relating to this matter was incorporated without change into the act of 1870. But in the act of 1870 that provision of the act of 1863 in force until 1870, enacting that the invention, as against the applicant, should become public property, was omitted.

It here may be stated that the requirement compelling applicants to prosecute their applications within two years, or else to show to the satisfaction of the Commissioner that such delay was unavoidable, was enacted March 2, 1861, two years prior to the act of 1863, and was in force contemporaneously therewith until 1870.

There is an injustice apparently resulting from this discrimination which the law makes between the applications which have not been prosecuted within two years after an action by the Office and applications which have been prosecuted with diligence and passed to issue. In the former case applicant may keep his

case alive for a number of years; or, after the application has become abandoned by operation of law, he may renew it by showing that his delay was unavoidable; or he may discard the old application altogether and file a new one in its place, whereas the applicant or owner of the forfeited application—an application which has passed the ordeal of examination and been deemed worthy of a patent—is debarred from renewing the same at all, or from showing unavoidable delay, after the expiration of two years subsequent to the allowance of the original application.

But this apparent unjust discrimination has existed in the law for fourteen years. If it had been the design of the legislature to have put them all on the same footing, it certainly would not have passed a special act making the distinction.

But it is a maxim of interpretation that it is not to be presumed that the legislature intended any part of a statute to be without meaning. To regard these forfeited applications on the same footing as incomplete and abandoned applications, and allow a new application to be filed, or the delay explained by affidavits, however equitable the construction, would remove the distinction between the two classes of cases, and leave the imperative language of section 4897 without any meaning whatever.

The general rule of construction is, that all parts of an act *in pari materia* are to be constructed together and so expounded as to support and give effect, if possible, to the whole; but where the language of a statute relates to different subjects, and is clear and unmistakable, no occasion can arise justifying the resort to any but the obvious meaning of the language employed. The rule to be followed, then, in this case is that prescribed by Dwarris on Statutes, Potter's edition, page 196: "If the words of the statute are plain they must be strictly followed; but if they are ambiguous the whole context must be looked to for their explanation. The correct rule is to construe acts of Parliament according to their grammatical and natural sense, unless the context shows clearly that a different sense was intended."

Unjust discriminations or abuses, if any arise, must be corrected by the legislature itself, where the language of the law is plain. The plain language of the statute fixes a clear limitation to the time when a forfeited application can be renewed.

The request of applicant must therefore be denied.

A. D. ELBERS.—*Interlocutory Appeal.*

[*Appeal from the decision of the Principal Examiner in the matter of the application of A. D. Elbers for the reissue of Letters Patent No. 194,422, filed September 17, 1877, for* "PROCESS OF TREATING MINERAL WOOL."—*Decided November 24, 1877.*

To size sheets of mineral wool after the wool fibers have been protectively coated according to the invention is not a distinct process in the sense of necessitating a division of the application.

The sizing is resorted to as a simple expedient to fit the wool for certain of its uses. There is no departure from the essential invention in suggesting it.

A description that sets forth the general theory of a process-invention, but fails to disclose some one method of carrying it into effect, is insufficient. So, likewise, is a claim that is not tangible or well defined.

[*A. v. Briesen*, for applicant.]

DOOLITTLE, *Acting Commissioner:*

The essential subject-matter of the invention, as set forth in the original patent, lies in the treatment of mineral wool with bituminous, resinous, or gumming substances, in such manner that the fibers of the wool will be coated with these substances, or with the carbonized residue derivable therefrom, which will render the wool water-proof, and prevent the decomposing and disintegrating action of atmospheric gases, particularly carbonic-acid gas.

It is this idea of coating the fiber which runs through the whole specification, entirely irrespective of the fact as to whether the fiber is to be used in a loose or compact state, whether it is to be sized or remain unsized.

The Examiner objects to so much of the case as refers to the sizing of the sheets, holding it to be an entirely independent process. I cannot agree with him as to this view. The sizing of the fiber is simply resorted to for the purpose of adapting it to some of its uses in the arts, just as in another part applicant proposes to leave it loose and uncompressed when it is to be used as a filtering medium.

Thus, if an inventor had devised a new process of paper making, the Office would hardly require him to confine his specification to the method of making unsized paper, when it is apparent that for some purposes a sized paper would be desirable, and that it could be prepared without the slightest departure from the underlying principles of the invention, and by the ordinary exercise of the well-known principles of the art.

The sizing of the fiber in the present instance seems to stand on the same level with the sizing of the paper in the example, and is liable to as little objection. So far, however, as the amended specification and the claim presented by applicant, the question of the Examiner is unhesitatingly affirmed.

The law requires that the specification shall be full, clear, and exact, and that the claim shall be specific and well defined. A specification abounding in generalities, with not a single hint as to the preferable way of carrying the invention into effect, but simply stating the purposes to be attained and the general manner of their accomplishment, will not suffice. The original specification is much clearer, and should be substantially adhered to. From the claim it is uncertain whether the mineral wool or the bituminous substances are to be "in a vaporized condition."

So far, too, as the act of "exposing mineral wool" is concerned, there seems to be little on which to base a claim. The novelty lies in the improved result accomplished arising from the particular manner of treatment, and the claim should be for the well-defined order of procedure, whereby this result is attained.

The Office and the public alike have a right to require a clear and specific summary of invention—a requirement which the present clause of claim utterly fails to meet. The applicant must furnish a description that will tell *how* the invention is practiced, as distinguished from its general theory, and must accompany it with a clear and tangible form of claim.

The position of the Examiner in regard to this matter is therefore sustained.

HORATIO N. COOK.—*Appeal.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the application of Horatio N. Cook for Letters Patent for* "IMPROVEMENT IN BELT-LACING."—*Decided December 18, 1877.*]

It requires no invention to wind belt-lacing on a spool, in the manner and for the purpose common to threads, yarns, &c.

SPEAR, *Commissioner:*

It may be admitted that the reference is not especially pertinent to this case, since it does not show, either precisely or with any reasonable nearness, the alleged invention as specified in the claim. The claim is, "as an improved article of commerce, belt-lacing A, wound upon spools S, substantially as above specified." The spool is an ordinary spool, and the belt-lacing has no novelty in itself. It is wound upon the spool in the ordinary manner of winding such an article, and, indeed, in the only manner in which it could conveniently be wound.

The Examiners-in-Chief, very properly disregarding the reference, took into consideration the well-known and admitted state of the art relating to the "spooling of all kinds of threads, yarns," &c. I agree with them that this is substantially the same thing, and although it does not appear that what may be called this particular kind of tape was ever before wound upon a spool, the manner of winding is the same, the spool is the same, and, for aught that I can see, the effect is precisely the same. All the interior layers are protected, and no part is exposed to the air, excepting the exterior layer, which is equally true of a spool of cotton or silk.

I agree, therefore, with the Examiners in-Chief, that there is no substantial novelty or invention in the case, and accordingly affirm their decision.

ANDREW S. HALLIDIE AND WM. H. PAINE.—*Appeal.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the interference between the application of Andrew S. Hallidie, filed February 28, 1876, and the patent of William H. Paine, for* "IMPROVEMENT IN PROPELLING CARS, &c."—*Decided September 14, 1877.*]

An interference contestant, the first to conceive of the invention and to make a model of the device, failed to reduce it to practice or to file his application for patent until after the grant of a patent to his adversary. There being nothing to excuse the lack of diligence, priority was decided against him.

It does not follow that because an applicant has proceeded so far in developing an invention as to be entitled to a patent, *ex parte*, he should also receive it as against a contesting patentee who was subsequent in conceiving of the invention. Adequate reduction to practice at the time the adverse patentee made the invention is essential to establish lack of novelty, and to overthrow the patent in court. Proof of this fact failing, a new grant was refused.

SPEAR, *Commissioner:*

Of the two parties in this controversy, Paine appears by the record to be the prior applicant, having filed his application on the 1st day of December, 1875, and received a patent on the 8th day of February, 1876. The application of his opponent, Hallidie, was filed on the 28th day of February, 1876.

The Board of Examiners in-Chief affirm the decision of the Examiner awarding priority to Paine. They find that Paine was not the first to conceive of the invention, but that Hallidie never reduced it to practice, and had abandoned the idea for one deemed by him more practicable and valuable. The utmost that Hallidie was found by them to have done consisted in making a model of the invention, which was lost or destroyed.

Question was raised by counsel for Paine whether this early model of Hallidie's involved the invention in controversy, and there appears to be some doubt in respect to the matter, but I do not regard it material to the case. Assuming that the model of 1872 illustrated the invention in controversy, and admitting that the invention was not reduced to practice prior to the date of the patent of Paine, counsel for Hallidie urges, first, that the applicant and patentee should have the same standing before the Office in respect to the proofs; second, that the inventor should have put his invention into practice in order to be entitled to a patent; and, third, that the first inventor, if he has proceeded so far as to entitle him to a patent in an *ex parte* case, is also entitled to a patent as against a patentee who had subsequently conceived of the invention. The first and third propositions are contrary to what is now the well-established practice of the Office laid down distinctly by Commissioner Fisher in *Richardson* vs. *Denza*, C. D., 1870, p. 356. The same doctrine is reiterated in many subsequent decisions, and is based upon the decisions of the courts, which concur in the doctrine that he who would prove that a patented invention is wanting in novelty must show that the invention upon which he relies has been reduced to practice prior to the invention of the patentee.

I do not find in any of the arguments urged by counsel for Hallidie any good reason for changing this well-settled practice. The discussion, on the contrary, confirmed me in the opinion as to the justice and propriety of it. The authorities cited were clearly shown not to go to the extent asserted. I need not, therefore, enter into any discussion of the question whether or not the model of Hallidie made in 1872 included the invention in controversy. It is not denied that he did not reduce this invention to practice prior to the patent granted to Paine. It is useless to discuss any question relating to the validity of Paine's patent, so that I need not inquire whether or not Paine has reduced the invention to practice. The only other question which could arise would be as to the diligence of Hallidie. His long delay is not satisfactorily accounted for. On the other hand it appears from his own statement that he did not recognize the value of the invention, and preferred another device, and there is some evidence tending to show that his activity in the matter, after so long a delay, arose from competition with another party, and that he was spurred to new effort by the appearance of another inventor claiming to have made this invention.

I see no good reason, therefore, to disturb the finding of the Board of Examiners-in-Chief, and accordingly affirm their decision.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date December 25, 1877.]

10,363 to 10,367, inclusive.—**Carpets.**—JOHN CAMPBELL, London, England, assignor to ALEXANDER SMITH & SONS CARPET COMPANY, Yonkers, N. Y. Applications filed November 21, 1877. Term of patents 3½ years.

10,368 to 10,379, inclusive.—**Carpets.**—JOHN FISHER, New York, N. Y., assignor to LOWELL MANUFACTURING COMPANY, Lowell, Mass. Applications filed November 19, 1877. Term of patents 3½ years.

10,380.—Skates.—EVERETT H. BARNEY, Springfield, Mass. Application filed November 3, 1877. Term of patent 14 years.

10,381.—Patterns for Windmills.—GEORGE NEALLY, New York, N. Y. Application filed December 11, 1877. Term of patent 3½ years.

10,382.—Hat-Block.—JOHN SEALY, Newark, N. J. Application filed December 13, 1877. Term of patent 3½ years.

10,383.—Anticles of Jewelry.—JAMES W. MILLER and ISAAC M. MILLER, Newark, N. J. Application filed December 3, 1877. Term of patent 7 years.

10,384.—Boots and Shoes.—JOSEPH PIENOVI, Newark, N. J. Application filed November 8, 1877. Term of patent 14 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date December 25, 1877.]

5,452.—Cigars.—MEYER H. BENJAMIN, New York, N. Y. Application filed November 26, 1877.

"The word-symbol 'BRIDE,' the monogram 'M. H. B.,' and the grouping of the figures."

5,453.—Dentifrice.—THEODORE EGERSDORF, Leavenworth, Kans. Application filed November 30, 1877.

"The fancifully-selected words 'Cara Mia.'"

5,454.—Dentifrice.—JOSEPH R. FINNEY, Allegheny county, Pa. Application filed December 5, 1877.

"The figure of Cupid holding a tooth-brush and box."

5,455.—Salve.—ABRAHAM LAUBE, New York, N. Y. Application filed December 3, 1877.

"The word-symbol 'EGYPTIAN" and the monogram 'A. L.'"

5,456.—Soaps.—JOHN A. MEYER, Brooklyn, N. Y. Application filed December 4, 1877.

"The word-symbol 'PIONEER.'"

5,457.—Shoe-Tips.—JOHN MUNDELL & CO., Philadelphia, Pa. Application filed December 10, 1877.

"The word-symbol 'SOLAR.'"

5,458.—Medical Compounds.—DANIEL STOWELL and CHARLES S. CLERKE, Boston, Mass. Application filed November 23, 1877.

"The words 'GOLDEN CROWN' and the representation of a crown."

5,459.—Medical Compound.—JOHN STERLING, Kansas City, Mo. Application filed December 5, 1877.

"The words and figures 'Sterling's Royal Remedy,' the symbol of a cross with rays issuing from the angles, and the word-symbol 'Salus' printed thereon."

5,460.—Chest-Protectors.—W. H. SCHIEFFELIN & CO., New York, N. Y. Application filed December 5, 1877.

"The word-symbol 'PNEUMATUS.'"

5,461.—Cigars, Cigarettes, and Smoking and Chewing Tobacco.—EDWARD A. SMITH, Brooklyn, N. Y. Application filed December 7, 1877.

"The term or designation 'IRON CROWN.'"

5,462.—Cigars, Cigarettes, and Smoking and Chewing Tobacco.—EDWARD A. SMITH, Brooklyn, N. Y. Application filed December 7, 1877.

"The word-symbol 'YANKEE GIRL.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date December 25, 1877.]

1,324.—Title: **"Carter's Raven Black Ink."**—CARTER, DINSMORE & CO., Boston, Mass. Application filed November 8, 1877.

1,325.—Title: **"Powder."**—BYRON B. EATON, Indianopolis, Ind. Application filed December 15, 1877.

1,326.—Title: **"Marshall's California Sugar Pine Balsam."**—MARY W. MARSHALL, Fond du Lac, Wis. Application filed December 14, 1877.

1,327.—Title: **"The Best Sole Leather Tip Made."**—JOHN MUNDELL & CO., Philadelphia, Pa. Application filed December 10, 1877.

1,328.—Title: **Print, "Playing-Card Back."**—PAPER FABRIQUE COMPANY, Cincinnati, Ohio. Application filed December 11, 1877.

SALE OF SPECIFICATIONS AND DRAWINGS.

Photolithographic copies of the drawings of all patents issued since November 26, 1867, have been produced, and will be sold to the public at 25 cents per patent, or, where twenty or more copies are ordered at one time, at 10 cents per patent.

Coupon-books, to the amount of $2 or more, can be purchased from the Chief Clerk of the Patent Office; the coupons, for 10 cents each, may be filled out at any time, and, on presentation, will entitle the holder to a photolithographic copy of *any* drawing which has been reproduced.

The specifications of all patents issued since July 1, 1871, are in print, and will be furnished with the drawing without extra charge. The specifications of patents issued from November 20, 1866, to July 1, 1871, are in print, and where such is the case the Office will furnish them with the drawings, but the Office will not undertake to reprint copies of patents which have been exhausted.

In addition to the above, the Office has reproduced, and offers for sale at the price mentioned above, all drawings in the following classes, embracing patents granted from 1790 to date. The classes are those of the Examiners:

1. Aeration and Bottling.
2. Apparel.
4. Baths and Closets.
5. Beds.
6. Bee-hives.
7. Beer and Wine.
8. Bleaching and Dyeing.
9. Boats.
10. Bolts, Nuts, and Rivets.
11. Bookbinding.
13. Brakes and Gins.
14. Bridges.
15. Brushes and Brooms.
17. Butchering.
18. Caoutchouc.
19. Carding.
20. Carpentry.
21. Carriages and Wagons.
23. Chemical Miscellaneous.
26. Cloth.
28. Cordage.
29. Crinoline and Corsets.
31. Dairy.
33. Drafting.
34. Driers and Kilns.
36. Electricity.
37. Excavators.
38. Felting and Hats.
40. Files.
42. Fire-arms.
44. Fuel.
45. Furniture.
47. Garden and Orchard.
48. Gas.
52. Gunpowder.
53. Hardware manufacture.
55. Harrows
56. Harvesters.
58. Horology.
59. Horseshoes.
61. Hydraulic Engineering.
62. Ice.
65. Kitchen Utensils.
66. Knitting and Netting.
67. Lamps and Gas-fitting.
68. Laundry.
71. Manures.
72. Masonry.
73. Measuring Instruments.
75. Metallurgy.
76. Metal Working, bending and straightening.
77. Metal Working, boring and drilling.
78. Metal Working, forging, swaging, and riveting.
79. Metal Working, punching cutting, and shearing.
80. Metal Working, rolling.
81. Metal Working Tools.
82. Metal Working, turning, planing, and milling.
83. Mills.
85. Nails.
86. Needles and Pins.
87. Oils, Fats, and Glue.
88. Optics.
89. Ordnance.
90. Ore.
91. Paint.
92. Paper-making.
93. Paper manufactures.
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97. Plows.
98. Pneumatics.
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102. Projectiles.
103. Pumps.
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105. Railways, (Cars and Interior Fittings.)
106. Railway Cars, (Exterior Mountings and Fittings.)
107. Railway Track and Car Irons and Fittings, manufacture of.
108. Roofing.
111. Seeders and Planters.
112. Sewing-machines.
114. Ships (1) construction.
115. Ships (2) propulsion.
116. Signals.
117. Silk.
118. Spinning.
119. Stabling.
120. Stationery.
124. Stills.
126. Stoves and Furnaces.
127. Sugar.
130. Thrashing.
131. Tobacco.
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Kirchmann, H. C., and H. C. E. Eggers, Furnace for steam boilers	198,587
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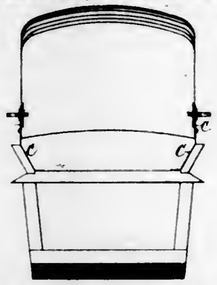
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Smith, A. S., Tree protector	198,701
Smith, C. H., Lightning rod	198,471
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Smith, W. D., Device for hanging pictures	198,703
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Volkman, F. W., Stench trap	198,501
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Wetherill, R., Lamp burner	198,719
Whaley, G. L., and J. R. Hassler, Fire escape	198,720
Wheeler, J. H., assignee	198,618
White, H. J., Table salt bottle	198,554
Widmayer, W. F., Rotary printing machine	198,479
Widmayer, W. F., Rotary printing machine	198,502
Wight, C. H., assignee and trustee	198,684
Wilber, I. L., Mechanism for operating the harflesses of fancy looms	198,555
Wilson, G., Case for transporting bottles and bottled liquids, (reissue)	8,011
Wilson, G. W., Motor	198,480
Wilson Sewing Machine Company, assignee	198,667
Wirth, C., and C. Tolle, Harrow	198,710
Woodbury, D. A., Keying wheels to shafts	198,481
Woodley, J., Shank burnisher for boots and shoes	198,722
Woods, J. T., Fracture apparatus	198,723
Woodward, T. F., Fruit jar	198,528
Woolley, E. J., Time lock	198,721
Wright, W. F., assignee	198,590
Yale Lock Manufacturing Company, assignee	198,718
Yerby, G. W., Label for cigars	198,724
Young, J., Electric burglar alarm	198,529
Young, W., and H. Aitken, Manufacturing illuminating gas	198,725
Yourtree, S. L., assignee	198,666

TITLES, DRAWINGS, AND CLAIMS

OF

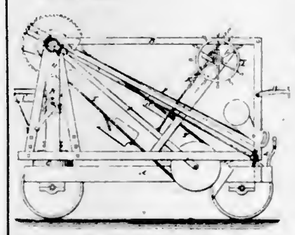
PATENTS GRANTED DECEMBER 25, 1877.

198,444. VEHICLE-SHADES. J. H. Andrus and T. L. Hammond, Waverly, Iowa. Filed Sept. 18, 1877.



The metallic supporting-arms C, having curved slots *a*, and adapted to be rigidly secured to a wagon-seat bottom, and rest in contact with the inner surfaces of the sides of the seat, in combination with the bows of a shade, which are pivoted to the supporting-arms on studs located below and equidistant from the ends of the curved slots, and set-screws extending through said curved slots, and secured to the bows of the shade, substantially as described.

198,445. EXCAVATORS. John A. Ball, Oakland, Cal. Filed June 4, 1877.

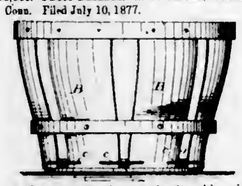


1. The combination of the shifting gear Q, shaft or rod P, weighted shifting bar O, rod *a*, pinions S, segment-rack R, and the reversing-stops *s s*, substantially as and for the purpose described.

2. The combination of the lever *g* and crank-axle *h* with the roll I and chain T, as and for the purpose specified.

3. In an excavator, the combination of the carriage A, ladder-frame B, pivoted upon the center *c*, and provided with the ladder J, constructed and arranged substantially as shown and specified.

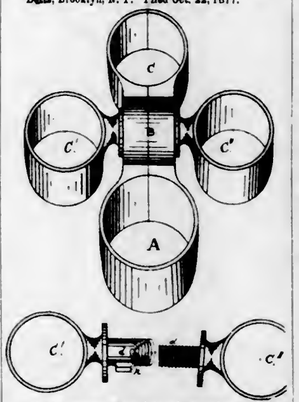
198,446. FRUIT-BASKETS. L. W. Beecher, Westville, Conn. Filed July 10, 1877.



1. The combination, with the side pieces and bottom pieces, of the staples or equivalent devices, as described, applied to the former in such manner as to span the joint and penetrate the wood at a distance from the edges, substantially as described.

2. In combination with the grooved bottom piece A and the scored and bent side pieces B, the staples *c c*, as described, for the purpose set forth.

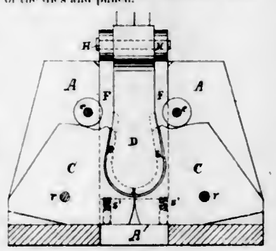
198,447. FAIR-LEADERS FOR SHIPS' RIGGING. John Betts, Brooklyn, N. Y. Filed Oct. 22, 1877.

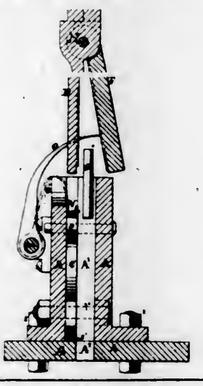


As an improved article of manufacture, the herein described fair-leader, consisting of the split shank or body B, having a central opening, and forming the eyes A and C, said shank being also provided with an adjustable eye, C', the shank *d'* of which screws into the hollow sleeve *d* of the opposite eye C through the central opening of the split shank, substantially as described.

198,448. MACHINES FOR MAKING HORSESHOES. J. D. Billings, New York, N. Y. Filed Sept. 26, 1877.

Brief.—May be used for bending bars into other shapes by changing the form of the face of the dies and punch.

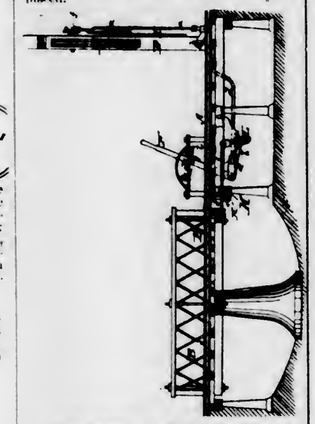




A machine for bending angle-iron or steel bars into curvilinear shapes for horseshoes, S S S, and analogous uses, consisting of a vertical punch, D, oscillating cam-jaws C C, operating on spring-bearings S' S', in combination with the springs or arms *o o*, hinged plate F F, hopper or fine A', and anti-friction rollers *c c*, with or without the spring *o'*, all constructed, arranged, and operating in the manner and for the purpose substantially as above set forth.

198,449. RAILWAY-SIGNALS AND DRAW-BRIDGE-OPERATING DEVICES. William Bochaber, Yonkers, N. Y. Filed Nov. 15, 1877.

Brief.—The levers are secured by means of a locking-hook, which prevents the draw from being unlocked until the danger-signal is displaced.



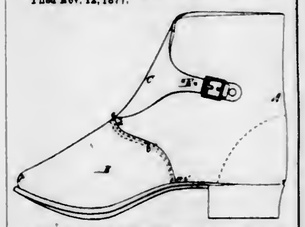
1. The combination of the signal-lever F and locking-hook *l* with the bolt or switch-lever J and locking-hook *n*, all arranged to interlock, substantially as herein shown and described.

2. The combination of the lever F and signal E with the lever J, rock-shaft L, and bridge bolt or bolts *i*, substantially as herein shown and described.

3. The combination of the signal-lever F and locking-device *n* with the bolt-lever J, bolt *i*, plate M, and bridge B, substantially as herein shown and described.

4. The plate M, provided with trigger *s* and with pin *w*, and combined with the pins *r* and *t* on the bridge B, substantially as herein shown and described.

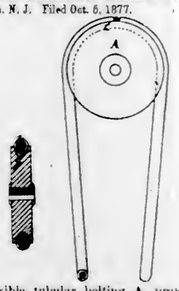
198,450. SHOES. Alstin G. Colby, Dover, N. H., assignor to himself and Elvin C. Kinnear, same place. Filed Nov. 12, 1877.



As a new or improved manufacture, a shoe-upper, A B, and its inner and outer instep-covering flaps C D, and a buckling-tongue, E, formed or combined in one piece of material, substantially in manner as shown and described.

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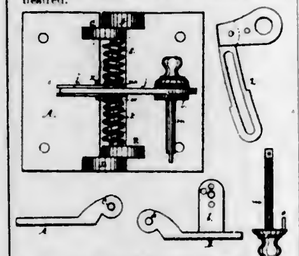
198,451. TUBULAR BELTING. William M. Deutsch, Elizabeth, N. J. Filed Oct. 6, 1877.



The flexible tubular belting A, provided with the screw-coupling C, all arranged and adapted for use as shown and described.

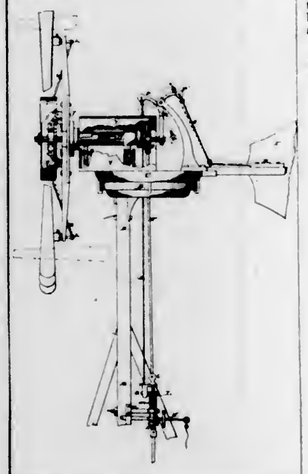
198,452. SPRING-HINGE FOR SHUTTERS, &c. Terrence Duffy, Pittsburg, Pa. Filed Nov. 23, 1877.

Brief.—The claim points out the details of construction. A spring automatically closes the hinge, while a small pin or detent attached to the larger pin engages a series of holes in a projecting arm, there being also a pivoted slotted arm with shoulders, all adapted to hold the shutter or door open at any angle or point desired.



The plate or leaf B, provided with arm *l*, in combination with the plate or leaf A, pintle *g*, springs *s* and *t*, ratchet-wheel *h*, projecting arm *i*, pivoted and slotted arm *j*, and pin *n o*, all arranged and operating with relation to each other, substantially as herein described, and for the purpose set forth.

198,453.



198,453. WINDMILLS. William H. Evans, Boston, Ind. Filed Sept. 14, 1877.

1. The turn-table C, with its projecting flange and oil-boxes for lubricating the anti-friction rollers upon which the main shaft D revolves, in combination with the bed-plate, substantially as and for the purpose set forth.

2. The tubular shaft D, in combination with the rod G within the shaft, with the cam-wheel E, and its cap *e* for oil, attached as described, and for the purpose set forth.

3. The sliding rod G, with the cylindrical cap or cover I, in combination with the spur-wheel K, the angular levers *f*, the link bars *i*, the straight levers *h*, and the tilt-bars *k*, substantially as and for the purpose set forth.

4. The forked lever H, with the spring R, and the connecting-rods S and M, in combination with the sliding rod G, substantially as described, and for the purpose set forth.

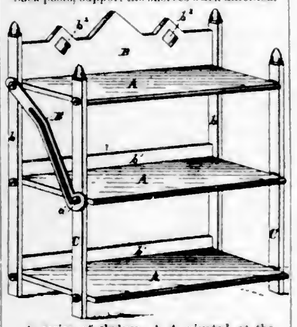
5. The tubular cylinder L, with its projecting arm *o* and lever-bar N, in combination with the plunger-rod *m*, the guide-box *r*, and the swivel-joint X, as described, and for the purpose set forth.

6. The tubular cylinder L, with its projecting arm *o* and connecting-rod M, in combination with the forked lever H, substantially as and for the purpose set forth.

7. The cylindrical cap or cover I, in combination with the wind-wheel, as described, and for the purpose set forth.

198,454. PORTABLE FOLDING SHELVES. Alonzo C. French, Cincinnati, Ohio. Filed May 14, 1877.

Brief.—The shelves are connected to the front and back supporting strips or posts by pivots, whereby they can be folded; and slotted brace-piece or chains, connecting the front and back posts, support the shelves when unfolded.



A series of shelves, A A, pivoted at the rear to the back B *b b'*, and connected in front to the posts C C, combined with the slotted braces E E, or their equivalent, in the manner and for the purpose set forth.

198,455. VEHICLE RUNNING-GEARS. Alex. Graham, Wheatland, N. Y. Filed Nov. 17, 1877.



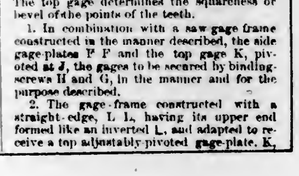
1. The side bars A, provided with springs G, H, and H', connecting with the front and rear parts of the buggy-gear, substantially as set forth.

2. The side bar provided with upper and lower springs at each end, to connect with the front and rear parts of the buggy-gear, the upper spring at each end being coupled to one of the cross-springs of the buggy, as and for the purposes set forth.

3. In the fifth wheel of a buggy, the part *o*, provided with projection *i*, in combination with the part *o'* and braces *k* and *l*, substantially as set forth.

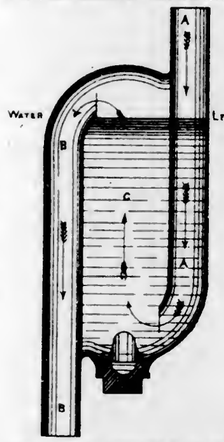
198,456. COMBINED OVERFLOW-VALVE AND GAS-TRAP FOR STATIONARY WASH-BASINS. Abraham K. Grim and Joel B. Low, San Francisco, Cal. Filed Sept. 19, 1877.

Brief.—An excess of water in the bowl causes the counter-weight to be lifted. Thus the stopper acts as an overflow.



The combination of the valve H, counter weight I, and its stem K with the valve-box or hollow plug A, constructed and operated substantially as described.

198,457. STENCH-TRAPS. Abraham K. Grim and Joel B. Low, San Francisco, Cal. Filed Sept. 3, 1877.



The stench-trap consisting of the pipes A and B, overlapping each other, their ends being cut and bent over to join against the opposite pipe, while the sides D and E, joined to the said pipes longitudinally, form the chamber C, the whole as herein described, and for the purpose set forth.

198,458. SAW-GAGES. Francis T. Grogan, Indianapolis, Ind. Filed Sept. 17, 1877.

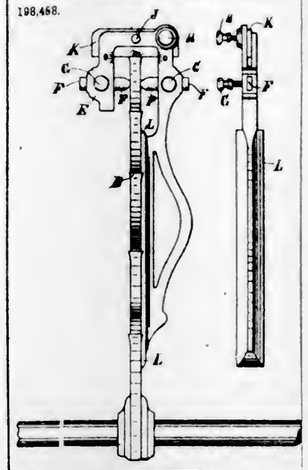
Brief.—The side gages determine the uniform thickness of the saw, the relative thickness of the teeth and the saw, the width of the swaged points of the teeth, and consequently the amount of metal to be dressed from either side of the tooth, and also detect any spring or bend of the teeth out of line with the body of the saw caused by swaging. The top gage determines the squareness or bevel of the points of the teeth.

1. In combination with a saw-gage frame constructed in the manner described, the side gage-plates F F and the top gage K, pivoted at *J*, the gages to be secured by binding-screws H and G, in the manner and for the purpose described.

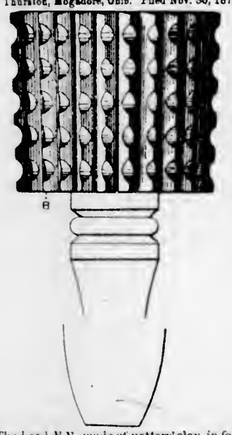
2. The gage-frame constructed with a straight-edge, L L, having its upper end formed like an inverted L, and adapted to receive a top adjustably pivoted gage-plate, E,

and side gage-plates F F, or their equivalent, (screws,) in the manner set forth and described.

198,458.



198,459. BEEFSTEAK-POUNDERS. Eugene Hill and V. I. Thurston, Mogadore, Ohio. Filed Nov. 30, 1877.



The head B B, made of potters' clay, in form and substance substantially as set forth and described in the specification, to which a handle of wood may be attached.

198,460. PANTALOONS-PROTECTORS. F. G. Hoffmann, Springfield, Ill. Filed Nov. 10, 1877.

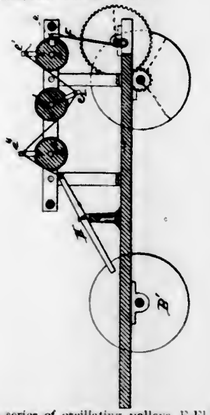


1. A pantaloons-protector formed with a curved or bent body, adapted to partially cover and to guard the wearing edge of a pantaloons, the opposite longitudinal portions of said curved body being provided with barbs or pins, substantially as set forth.

2. A pantaloons-protector whose body portion is formed with the described horizontal projection and the lower flange, the upper and lower edges of said protector being provided with barbs formed in single piece therewith, substantially as described.

3. The flange formed on the lower body of the protector, and adapted to partially cover the wearing edge of the pantaloons, said flange having its longitudinal vertical edge provided with barbs or pins, which latter are adapted to pass upward through the said wearing edge of the pantaloons and engage the same, substantially as set forth.

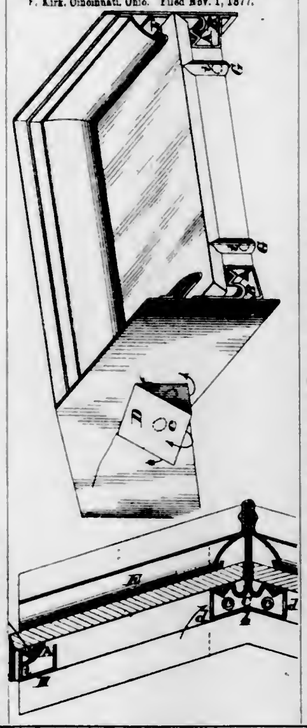
198,461. MOTORS. Pierre F. Joute and C. F. Bernard, Cincinnati, Ohio. Filed Nov. 9, 1877.



1. A series of oscillating pulleys, E E' E², connected together, as described, to transmit motion from lever H to pitman F, as set forth.

2. The arranging of the studs *e'* *e²* in such relative position as to give an increase of power, as specified.

198,462. SELF-VENTILATING SKYLIGHTS. Patrick F. Kirk, Cincinnati, Ohio. Filed Nov. 1, 1877.



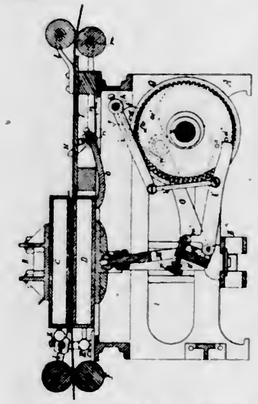
1. The double gutters A B, arranged side by side, the putty-gutter nearest the center of the glass, where no moisture can reach it, substantially as described.

2. The ventilating-duct C, connecting with the interior of the room by the openings *d d d d*, and so arranged that its upper wall forms the double gutters A B, and connecting with similar ducts extending round under the sides of the glass, substantially as and for the purposes described.

3. The caps G G, so arranged that they serve the double purpose of sustaining the glass and protecting the openings *i i*, substantially as described.

198,463. CLOTH-FINISHING MACHINES. William H. Leach and Arnold S. Allen, Uxbridge, Mass. Filed July 10, 1877.

Brief.—The bed is movable vertically beneath a stationary platen, one or both being chambered to receive steam or other suitable means of heating the same. After a portion of the cloth has been heated and pressed sufficiently, the bed drops down and mechanism is put in motion to remove the finished portion and draw another length of the cloth forward between the platen and the bed, it having been previously steamed by suitable mechanism. Should the cloth become improperly wrinkled or folded a stop-motion acts upon the draft-rollers.



1. The combination of cloth steaming or dampening mechanism, a press having flat or plane pressing-surfaces, and provided with means of heating its platen and bed, or either, and mechanism for automatically advancing the cloth relatively to such press and dampening mechanism, all being to operate essentially as specified.

2. The combination of the stop-motion, substantially as described, with the press and its mechanism, as specified, for automatically advancing the cloth relatively to such press, all being to operate essentially as set forth.

3. The combination of the stop-motion, substantially as described, with the press, the mechanism for dampening the cloth, and the mechanism, as specified, for advancing it relatively to the press and the dampening mechanism, all being to operate essentially as set forth.

4. The combination of the eccentric T, the gear S, with its sets of pins *g' g²*, the internal gear Q, the duplex cam P, with its pins, the arms O, *l'*, and *g'*, arranged, constructed, and applied substantially in manner and to operate as specified.

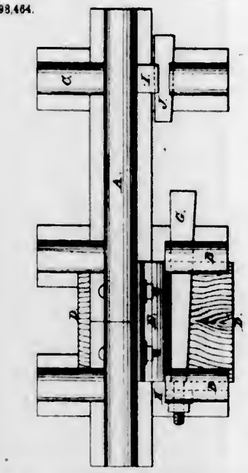
198,464. RAILWAY CROSS-TIES. Ebenezer E. Lewis, Geneva, N. Y. Filed Oct. 8, 1877.

1. Railroad cross-ties made of imperfect or worn railroad-rails, they having rail-seats for the rails A, and seats for the side plate E and key G made in them, as and for the purpose set forth.

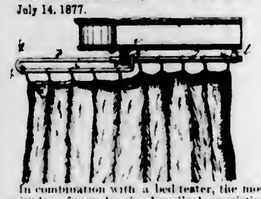
2. The wooden piece D, side plate E, and key G, with its washer H, all constructed and applied substantially as and for the purpose specified.

3. The combination of the brace I and key J with the rail A and tie C, as herein shown and described.

198,464.

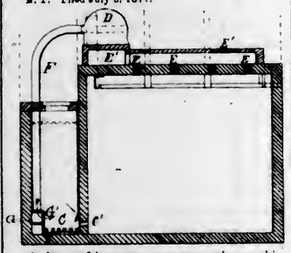


198,465. FRAMES FOR MOSQUITO-NETS. Edwin D. Mudge and Mathias Mader, New Orleans, La. Filed July 14, 1877.



In combination with a bed-tester, the mosquito-bar frame herein described, consisting of the tubes *d*, attached to the bed-frame or tester, provided with the sliding rods F and cross-bar *h*, the latter being attached to the rods F by means of eyes *i*, substantially as described.

198,466. REFRIGERATORS. Edwin R. Olin, New York, N. Y. Filed July 6, 1877.



1. In a refrigerating structure, the combination of a fan-blower, or other suitable air-forcing device for creating a continuous forced circulation of air within the structure, a conduit, E', for conducting the air from the preserving chamber to an ice-box located outside of said chamber, said conduit being arranged upon the top of the preserving chamber, and communicating therewith by means of apertures E E E, a branched pipe, F, for directing the air to the ice-box, and a horizontal perforated conduit extending across said box, when said conduit is arranged in the lower portion of the ice chamber, and the apertures therein are in or nearly in a line with and opposite to those through which the air passes from the ice box, whereby the currents of air are directed across and through the ice, substantially as and for the purpose specified.

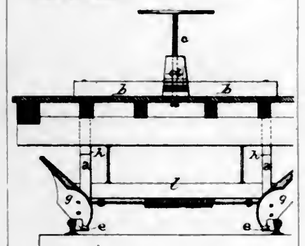
2. The combination of the blower D, the branched pipe F, and the perforated conduit G, substantially as shown and described.

3. The combination of the block or door I, the horizontally-moving slide or door J, and the vertically-moving slotted door R, substantially as and for the purpose set forth.

198,467. BIRCH-BEER. James J. Rogers, Binghamton, N. Y. Filed Oct. 31, 1877.

The improved material herein described for producing beer, called "birch beer," and consisting of water, sugar, oil of birch, alcohol, home-made yeast, and burnt sugar, in the proportions substantially as specified.

198,468. SNOW-PLOWS. George Royal, Truckee, Cal. Filed Oct. 20, 1877.

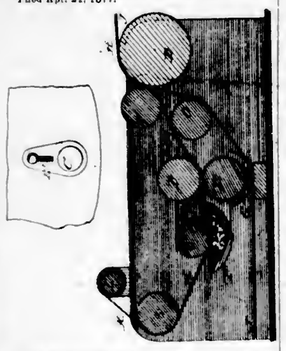


1. The vertical standards *a*, hinged near their upper ends, and connected together by means of a suitable spring, substantially as described.

2. In combination with the standards *a*, connected together by a suitable spring, the cross-bar *l*, provided with projections upon its ends to limit the lateral play of the standards, substantially as set forth.

3. The combination of the standards *a*, pivoted at their upper ends, and joined together by a suitable spring, cross-bar *b*, and a device for raising and lowering the standards, substantially as shown and described.

198,469. MACHINES FOR LINING PAPER-BOARDS. J. F. Seiberling and Monroe Seiberling, Akron, Ohio. Filed Apr. 21, 1877.



1. In a machine for lining pasteboard, the above described arrangement and combination of the adjustable depressing roller C and paste-box F, or their described equivalents, in combination with the paste-spreading rollers D E and the drying roller B, substantially as set forth.

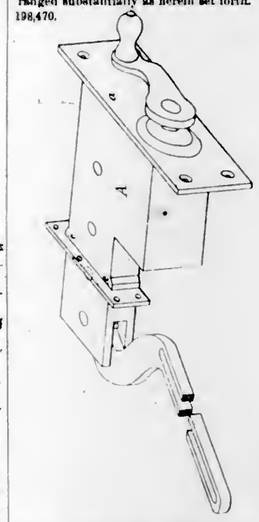
2. The adjustable depressing roller C and paste-box F, in combination with the paste-spreading rollers D E placed over the box F, as shown in Fig. 2, substantially in the manner and for the purposes set forth.

198,470. SHUTTER-WORKERS. Henry Smidt, New York, N. Y., assignor of five-eighths of his right to W. V. Smith, same place. Filed June 14, 1877.

Brief.—A peculiarly-shaped box provided with an inside plate, and a removable sliding plate fitting in grooves of the box, is adapted to carry an endless screw and train of gears—the mechanism of an ordinary shutter-worker.

The box A, having a front plate, *a*, and grooves *c c*, in combination with the plate *b*, and suitable mechanism for operating the shutter inclosed therein, the whole being arranged substantially as herein set forth.

198,470.



198,471. LIGHTNING-RODS. Charles H. Smith, Chicago, Ill. Filed Sept. 1, 1877.

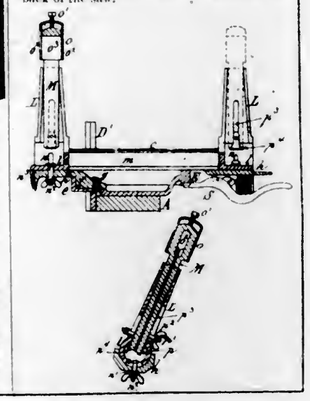


1. The double tube or binder, consisting of a single strip having its edges formed into tubes, and a narrow flat web between the same, adapted to receive the rod, substantially as specified.

2. In a lightning rod, the combination, with single rods and tubes, of the double tubes or binders, *b*, whereof the barrels alternate with the single tubes or rods on the surface, and the web extends through the interior of the rod between the same, substantially as specified.

198,472. MITERING-MACHINES. L. C. Strong, Friendship, and O. S. Garretson, Buffalo, N. Y. Filed May 1, 1877.

Brief.—The slotted standards are connected by a cross-bar at bottom. One of the saw guides has a slotted sleeve to embrace the back of the saw.



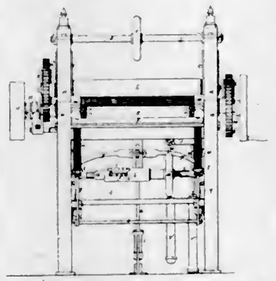
1. The combination, with the bed C, pivoted as described, and provided with two semicircular bearings, *h h'*, having their axles arranged in the surface center-line of the pivoted bed, of the slotted saw-guides L L, provided with slotted journals *l l*, turning in the bearings *h h'* of the pivoted bed, substantially as and for the purpose hereinbefore set forth.

2. The combination, with the pivoted bed C, composed of two parallel parts, *c c*, forming a central slot, of the journaled saw-guides L L, cast with a connecting-bar, *m*, arranged between the two parts *c c* of the bed, substantially as and for the purpose hereinbefore set forth.

3. The combination, with the sleeve L and inner adjustable saw-guide M, provided with elongated opening o^3, of the sleeve *e*, made vertically adjustable on the upper end of the guide M, and provided with openings o^2, coinciding with the opening o^3, substantially as and for the purpose hereinbefore set forth.

4. The combination, with the sleeve L, provided with vertical slot p^3, of the inner guide M and stop or support *p*, arranged within the sleeve L, and held adjustably within the slot p^3 by a set-screw, p^1 p^2, as and for the purpose set forth.

198,473. LEATHER-ROLLING MACHINES. Aaron F. Stowe, Worcester, Mass. Filed Sept. 16, 1877.



1. In a machine for operating on leather or rolling it, as described, a presser-bar, F, (having mechanism for operating it, substantially as explained,) the bed B, and the condensing-rollers D E, combined and arranged substantially in manner and to operate as set forth.

2. The combination of the presser-bar F (having mechanism for operating it, substantially as explained) with the condensing-rollers D E, and with the bed B, provided with the channel or groove *p*, arranged beneath such presser-bar, all being substantially as described.

3. The presser-bar F, (having mechanism for operating it, substantially as explained,) the bed B, the roller C, and the condensing-rollers D E, combined and arranged substantially as set forth.

4. The combination of the presser-bar F, (having mechanism for operating it, as explained,) the roller C, the condensing-rollers D E, and the bed B, provided with the groove *p*, arranged beneath the presser-bar F, as specified.

5. The combination of the two pedals *r' r''*, connecting rods *s' s''*, lever *t'*, and slide-rod *s'*, with the clutch-fork r^2, clutch H, driving-shaft w^1, and pulley *q'* of the mechanism for actuating or revolving the condensing rollers.

6. In combination with the condensing rollers D E, the two sets of toggles G and their intermediate adjusting mechanism, substantially as described, consisting of the arms *x x*, the hand-wheel *a'*, the sleeve *b'*, and the spring *d'*, arranged, constructed, and applied substantially as set forth.

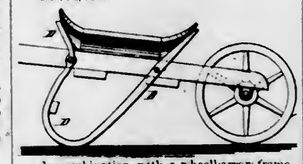
7. The combination of the mechanism for operating the toggles, consisting of the arms *x x*, the hand-wheel *a'*, the sleeve *b'*, and the spring *d'*, such being provided or not with the pointer and scale, as set forth.

8. In combination with the toggles and their intermediate adjusting mechanism, mechanism for effecting back movements of the toggles, as and for the purpose specified, such mechanism consisting of the cams *f' f''*, shafts e^2 e^3, arms g' g'', connecting rod *h'*, and the pedal *i'*, all arranged and applied essentially as explained.

198,474. PROCESSES FOR THE MANUFACTURE OF SIRUPS. Benj. S. Toothill, Hobart, Ind., assignor to himself, Wm. Guthrie, and John B. Guthrie. Filed Oct. 3, 1877.

The process of manufacturing sirup, consisting, essentially, in mashing ground or comminuted corn or other cereal, together with a small proportion of barley-malt, in hot water, then adding cold water, and allowing the mash to stand and settle, and, finally, reducing the resultant liquor by evaporation to a sirup, substantially as described.

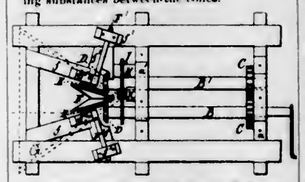
198,475. WHEELBARROWS. Andrew J. Upham, Sterling, Ill., assignor of two-thirds his right to John H. Lawrence and Chauncy G. Bette, same place. Filed Nov. 24, 1877.



In combination with a wheelbarrow-frame, the legs D D, formed in a continuous bow, and having extensions to support the hopper in front and rear, substantially as and for the purpose described.

198,476. CIDER-MILLS. Jas. Wood, Muscatine, Iowa. Filed June 21, 1877.

Brief.—The two parallel shafts having at their inner ends two conical wheels, and at the other ends two spur-wheels. The former gear into geared rims on the backs of the inclined crushing-cones. The said shafts are encircled near their inner ends by a movable ring, to take up the strain caused by the crushing substances between the cones.



1. The combination of the cones F F, beveled or conical toothed rims E E, the parallel shafts B B', bevel or conical wheels D D, and spur-wheels C C, substantially in the manner and for the purpose described.

2. The combination, with the crushing devices, of a ring, I, shafts B B', and reversing-roller H, substantially as and for the purpose set forth.

3. The combination, with the crushing devices, of the roller H, ring I, and guide-rollers J, substantially as set forth.

198,477. PROCESSES FOR TANNING LEATHER. Isaac Wells, Wilmington, N. C., assignor to himself, James F. Post, same place, and David D. Barber, Sumter County, S. C. Filed Aug. 27, 1877.

The described process of tanning leather, the same consisting in subjecting the stock first to a compound solution of May-weed, gambier, extract of bark, bark, American sumach, Sicily sumach, salt, and alum in one-half its strength; secondly, to the said compound solution in its full strength; and, finally, to a mixture of the said compound with the described extract of May-weed, all substantially as and for the purpose herein set forth.

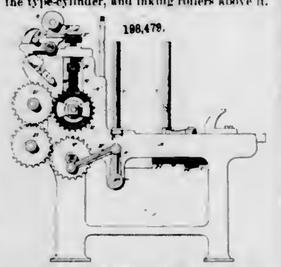
198,478. EXTRACTS FOR TANNING LEATHER. Isaac Wells, Wilmington, N. C., assignor to himself, James F. Post, same place, and David D. Barber, Sumter County, S. C. Filed Aug. 27, 1877.

The herein-described process of preparing an extract for tanning leather, the same consisting in cutting, grinding, and pressing May-weed, then steaming and pressing the residual mass, and, after subjecting the same to an air-exhaust process, treating it with diluted sulphuric acid, subjecting the resulting liquid to open-air exposure, and finally uniting the several liquids into one quantity, all substantially as set forth.

198,479. ROTARY PRINTING-MACHINES. William F. Widmayer, New York, N. Y. Filed July 21, 1877.

Brief.—On the shaft of the cylinder, to the face of which the curved type-plates are secured by screw-rings, is feathered an index clutch-bar, serrated on its inner side to fit radial serrations on the adjacent side of the gear-wheel, loose on the shaft, and having index-figures on its edge, by which means the printing-surface of the cylinder is adjusted with relation to the size, &c., of the wooden blanks fed from the bottom of an adjustable hopper by a spring-pressed slide reciprocated by a crank. The impression-cylinder is below the type-cylinder, and inking-rollers above it.

198,479.



1. In a printing-machine, the combination of the type-cylinder with an indicating device, substantially as described, by which to set the type-cylinder so that the varying sizes of type-plates may meet the blanks as required, substantially in the manner shown and described.

2. The combination, with a type-cylinder, of the index-wheel E, having each cog or the rim numbered, with the indicator I', arranged on the shaft *d*, all arranged substantially in the manner shown, and for the purpose set forth.

3. The index-wheel E, having a toothed side, in combination with the indicator I', having a corresponding toothed side, and the nut *e*, for the purpose of effecting, by means of the feather on the type-cylinder shaft, a solid and immovable connection between type-cylinder shaft and cog-wheel E, substantially as set forth.

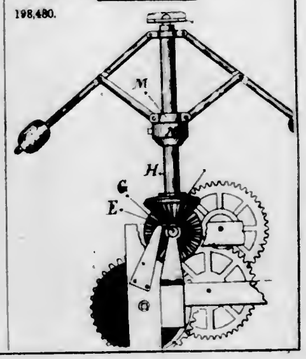
4. In a printing-machine, an adjustable feed mechanism, having the stops *b* and C'' adjustably arranged on the rod H, and the spring *c'*, in combination with a hopper for holding the blanks, and an adjustable gate for passing one blank at a time to the printing-rollers, substantially as described.

5. The combination of the frame A A', shaft B', cog-wheel C', cog-wheels D and D', secured to the frame, as shown, the index-wheel E, indicator I, and type-cylinder J, all arranged, constructed, and operating substantially in the manner and for the purpose set forth.

6. In a printing-machine, a type-cylinder provided with a right and left screw-thread, and inwardly-chamfered clamps K, for holding the type-plate, substantially as described.

7. In a printing-machine, the combination of the shaft B', cog C', pitman E', crank F, shaft F', crank I', pitman *m*, lever M', having an arm, N', and slot *f''*, pawl O, shaft S, arm N'', roller 2, and ratchet-wheel O', all arranged, constructed, and operating substantially in the manner and for the purpose set forth.

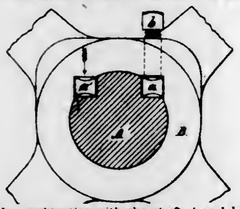
198,480.



198,480. MOTORS. George W. Wilson, Chicago, Ill. Filed Apr. 13, 1877.

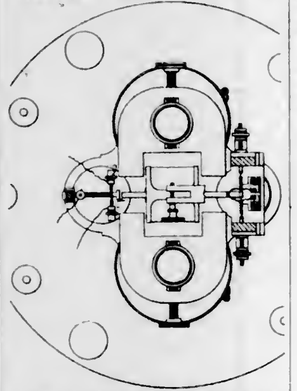
In a spring-motor for sewing-machines, the combination, with the spring B secured to a drum, gearing C, shaft E, and balance-wheel F, of the governor-shaft H, bevel-pinions G and I, and driving-belt D, substantially as and for the purpose set forth.

198,481. KEYING WHEELS TO SHAFTS. Daniel A. Woodbury, Rochester, N. Y. Filed Nov. 15, 1877.



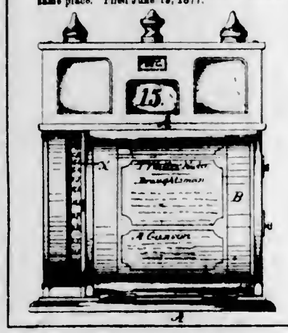
In combination with the shaft A and hub H, the cornering key s and tangential set-screws b, the key being inserted in a groove or seat formed partly in the shaft and partly in the hub, whereby a large area of key-bearing is obtained to resist strains in either direction, substantially as described.

198,482. ELECTRIC-TELEGRAPH RELAYS. George Allan and Jas. W. Brown, London, England. Filed Sept. 20, 1877.



The combination, with a vibrating armature, of an independent contact maker and breaker acted upon inductively by the said armature, so as to move in unison therewith to make and break the current, substantially as specified.

198,483. INDICATORS FOR TIME, RAILWAYS, AND OTHER PURPOSES. Thomas E. Barrow, Mansfield, Ohio, assignor of one-half his right to Jacob Ettinger, same place. Filed June 19, 1877.



1. The front roller D, provided on its axle with pinion L, in combination with the cog-wheels M P, segmental gearing S, and lever T, substantially as set forth.

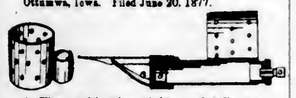
2. The rear roller D, furnished on its axle with the reel Y, in combination with the reels Z d e, bands m n, spool g, rope k, and spring i, substantially as set forth.

3. The combination of the rear roller D, provided with reels Y Z d e, bands m n, spool g, rope k, and spring i, in combination with the front roller D, furnished with cog-wheels M P, segmental gearing S, lever T, and with band H, substantially as set forth.

4. The combination, with the rollers D, of the band H, lever T, gear-wheels L P M, gearing S, and index X, substantially as set forth.

5. The casing A, provided with the hinged transparent face B, and indexical rack X, in combination with the hollow rollers D, and band H, substantially as specified.

198,484. FOUNTAIN-PENS. Wellington S. Briggs, Ottumwa, Iowa. Filed June 20, 1877.



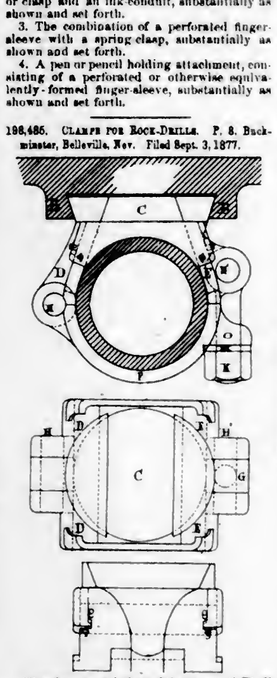
1. The combination of the pen-holding stick or fountain, the pen-holding ferrule or clasp, and the finger-sleeve, substantially as shown and set forth.

2. The combination of the finger-sleeve with the ink-supplying cylinder or reservoir and the rotating cap, carrying both a pen ferrule or clasp and an ink-conduit, substantially as shown and set forth.

3. The combination of a perforated finger-sleeve with a spring-clasp, substantially as shown and set forth.

4. A pen or pencil holding attachment, consisting of a perforated or otherwise equivalently-formed finger-sleeve, substantially as shown and set forth.

198,485. CLAMPS FOR ROCK-DRILLS. P. S. Buckminster, Belleville, Nev. Filed Sept. 3, 1877.

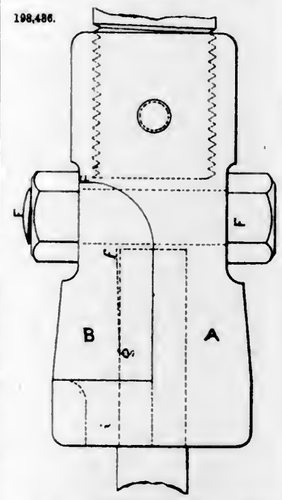


The clamp consisting of the pieces C, D, E, and F, and the adjusting bolt G and pins H H', combined together and operating in the manner and for the purpose herein described.

198,486. CHUCKS FOR ROCK-DRILLING MACHINES. P. S. Buckminster, Belleville, Nev. Filed Sept. 3, 1877.

The drill-chuck composed of the socket-piece A, having the half-ring i, under which the clamping-wedge B is inserted to find a fulcrum rest, the bolt F drawing the parts together to clamp the drill-bar inserted between them, as and for the purpose described.

198,486.



198,487. FURNACE-GRATES. Thomas R. Butman, Milan, Ohio. Filed Nov. 6, 1877.

Brief.—The bar presents an upward knife-edge, and is crossed by oblique fingered bars. Said fingers interlock between the fingers of the adjacent bars, and when rocked disintegrate the fuel resting upon their surface. Air is supplied through upwardly-projecting tuyeres, and through the interstices of the grate-bars. The bars are oscillated by means of pendent arms connected together by a rod.

1. The grate-bar provided with the oblique cutting-edges and the knife-edge on the cross-bar, in the manner above set forth.

2. The grate-bar provided with fingers adapted to interlock with the fingers of the adjacent bar, as described, said fingers being provided with oblique cutting-edges, in the manner and for the purpose set forth.

3. In a grate-bar, the combination, with fingers provided with oblique cutting-edges, and with webs tapering downward, of the knife-shaped corrugated cross-bar extending below the web, in the manner shown and described.

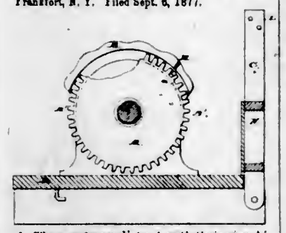
4. The combination, substantially as described, of the fingered bars, their tapering pendent arms, and the connecting-rod, secured by pins or keys thereto, constructed to operate the fingered bars simultaneously, whereby the fuel on the grate is disintegrated, in the manner and for the purpose set forth.

5. The combination of the bar, fingered as described, and provided with the pendent arm.

with the connecting-rod, and the side-journaled bearing-bar, as shown, and for the purposes set forth.

6. The combination of the finger-bar, the cross-bar, and the upper projecting conduit or tuyere, arranged to supply air to the fuel, in the manner and for the purpose herein described.

198,488. PLAITING-MACHINES. Chauncey S. Caple, Frankfort, N. Y. Filed Sept. 6, 1877.

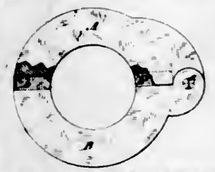


1. The revolving disks A with their pins A', said disks being secured to the shaft F and rotated by the hand-wheel E, all substantially as described.

2. The standards B, with their grooves I', guides H, and recess s, substantially as shown and described.

3. The folding frame, with its standards C, receptacle N, guide-rods L, and pivots I, all being constructed and arranged for operating substantially as herein described and shown.

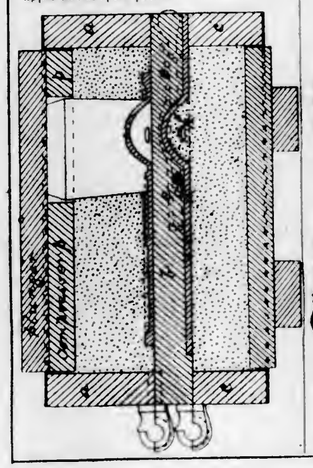
198,489. PACKED CASING-HEADS FOR OIL-WELLS. James Conlan, Kandall Creek, Pa. Filed Aug. 21, 1877.



The hinged segmental flanged ring A B, constructed and operating as and for the purpose specified.

198,490. MOLDERS' FLASKS AND THEIR ACCESSORIES. Horace L. Eames, Bridgeport, Conn. Filed Aug. 16, 1877.

Brief.—Pattern-plate may be hinged either to cope or drag, and the latter each to the other. Under cutters mounted in pattern-plate. Compresser-plate rides down around upper end of sprue-pattern.

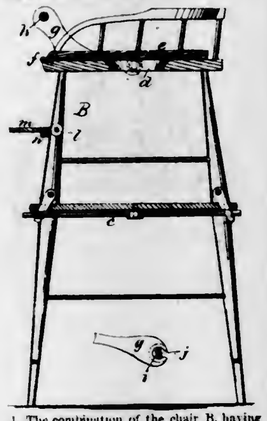


1. A match-plate provided with both a ball-leaf of a hinge and a socket-leaf of a hinge, which may be used in connection with a cope and drag, which are provided the one with a ball leaf and the other with a socket-leaf of a hinge, substantially as described.

2. In combination with a match-plate, and located in a cavity therein, a lever and a point or pattern for an ear, the combination being substantially as set forth, whereby an ear may be molded, substantially as described.

3. A sprue-pattern shaped substantially as described, in combination with a compressing-board having an orifice in it, as specified.

198,491. NURSERY-CHAIRS. Andrew P. Freshman, Marissa, Ill. Filed Mar. 19, 1877.



1. The combination of the chair B, having the notched blocks e, and the stool A, having the pivoted bar r, substantially as shown and described.

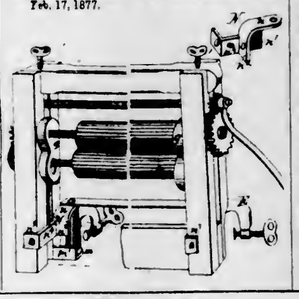
2. The slotted arms g, having lugs k, connected by a bar, k, and having holes i, combined with a chair-bottom having flattened studs j, as and for the purpose specified.

198,492. ICE-CREEPERS. James J. Lewis, New York, N. Y. Filed Nov. 27, 1877.



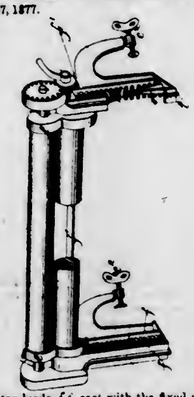
The ice creeper herein described, having prongs a, wings b, tread A, and the opening c, in combination with the loose-fitted strap d, passing through the openings c, constructed and arranged substantially as and for the purpose set forth.

198,493. WRINGERS. M. N. Lovell, Erie, Pa. Filed Feb. 17, 1877.



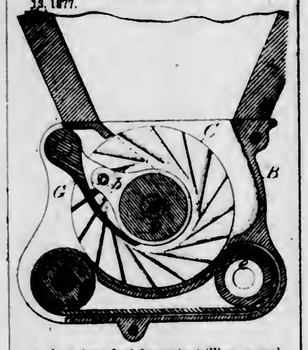
The metallic plate N, adapted to be applied to the inner face and outer edges of the wooden wringer-standards, for the purpose of binding their parts firmly together, in combination with the swiveled clamp-legs E, having their bearings in said plate, substantially as described.

198,494. WRINGERS. M. N. Lovell, Erie, Pa. Filed Feb. 17, 1877.



The standards *f f*, cast with the Axel sockets or bearings of the upper roll, the oblong opening for the springs, and movable bearings of the lower roll, and the lugs for attaching the clamps and cross-bar, substantially as described.

198,495. FORCE-FEEDS FOR GRAIN-DRILLS AND SEEDERS. Andw. J. Martin, Springfield, Ohio. Filed Nov. 12, 1877.



1. In a force feed for grain-drilling or seeding machines, a gate or tongue to regulate the discharge, connected with and operated by a device, substantially as described, at the center of the feed wheel, substantially as shown and described.

2. The combination, in a force-feed, of a feeding-wheel, a gate or tongue to govern the rate of discharge, and an arm or equivalent device for controlling said gate, having its axis of motion concentric with the axis of the feed wheel.

3. The combination of a case or cup, B, a feed wheel, C, a regulating gate or tongue, G, and a central hub, D, connected with and arranged to operate the gate or tongue.

4. The combination of the divided and peripherally driven feed-wheel C, the pivoted gate G, and the central hub D, in the manner shown and described.

5. In a grain-drilling or seeding machine, the combination of a force feed or feeds, each having a feed regulating gate or tongue, and a central arm or equivalent device, substantially such as described, for operating the same, with a rod or shaft, E, to operate said central device, and an arm or indicator, F, on the end of said shaft, substantially as described and shown.

6. In a force-feed, the combination of a wheel, feeding at its periphery, and an endless belt or apron acting in conjunction therewith, to feed the grain.

7. The combination, substantially as shown, of a feed cup or case, a peripherally-grooved feed wheel, and an endless flexible belt or apron, arranged below and in close proximity to the wheel, substantially as shown.

8. In a feeding device for a grain-drill or seeder, an endless apron or belt, adapted and arranged to carry a continuous stream of grain, having its rear end higher than its middle, as shown, to prevent the grain from flowing outward, except as it is carried by the motion of the apron.

9. In combination with the feed-wheel C, the belt or apron, arranged to serve the two purposes of operating the wheel and assisting the delivery of the grain.

10. In a force feed for grain-drills, &c., the combination of a feed wheel with an endless belt, to assist the same in delivering the grain evenly and uniformly, substantially as shown and described.

198,496. VULCANIZED-RUBBER FABRICS FOR BELTING. John Murphy, Brooklyn, assignor to the Gutta Percha and Rubber Manufacturing Company, New York, N. Y. Filed Dec. 7, 1877.



The extra strip of sheet rubber inserted between the outer and the adjoining inner ply or inner plies of the belt, and right under the butt-joints of the outer ply, for the purpose of increasing the adhesion between the edges of the outer ply and the surface of the adjoining inner ply or inner plies, as set forth.

198,497. MANDRELS USED IN THE MANUFACTURE OF RUBBER HOSE. John Murphy, Brooklyn, assignor to the Gutta Percha and Rubber Manufacturing Company, New York, N. Y. Filed Dec. 7, 1877.



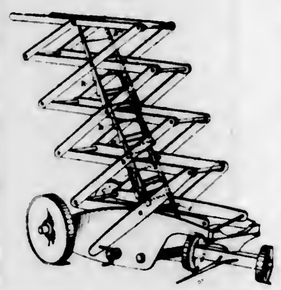
A mandrel for the manufacture of rubber hose, which consists, in its main or central portion, of ordinary iron pipe, and its ends either wholly of brass, copper, or other material not liable to corrode, or only coated with such material, substantially as specified.

198,498. TOE-WEIGHTS FOR HORSES. Philo G. Olds, Elyria, Ohio. Filed July 29, 1877.



The toe-weight A, provided with shank d and recesses a a', arranged at an obtuse angle to each other, and forming the point e for engagement with the attaching strap to prevent slipping, substantially as shown and described.

198,499.

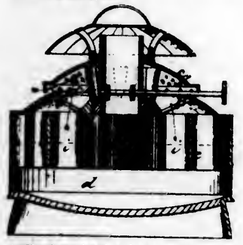


198,499. FIRE-ESCAPES. William H. Pack, Philadelphia, Pa. Filed May 14, 1877.

1. In a fire-escape, the combination, with lazy-tongs pivoted to the carriage at their lowermost central axis, and connected at their other central axes by cross bars or rods c, the series of pendulous ladders, severally hung centrally of the lazy-tongs upon such central axial rods, as and for the purposes set forth.

2. In combination with the lazy-tongs, the series of hooked pendulous ladders, severally hung from the central rods, which form the axes of the tongs, and adapted and arranged to be automatically engaged with or disengaged from such axial rods by the mere act of raising or lowering the tongs, substantially as shown and described.

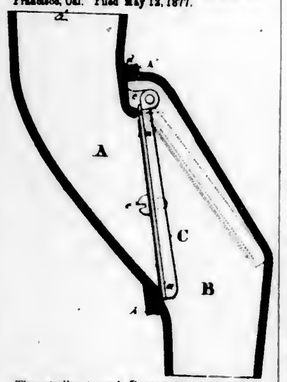
198,500. LAMPS. David Seawright, New Brighton, Pa. Filed Oct. 9, 1877.



1. The lamp having the gas-escape arranged with relation to the burner, as specified, so as to deliver the gas thereto, and provided with diaphragms, which divide the body or reservoir into a series of small cells, substantially as and for the purpose described.

2. The open-top lamp having the vertical diaphragms e i and wick-chamber d, substantially as and for the purpose set forth.

198,501. STENCH-TRAPS. Fredrick W. Volkman, San Francisco, Cal. Filed May 12, 1877.



The shells A and B, attached to one another by the screws f f', the shell A being provided with a funnel-shaped neck or inlet a', valve c, hung nearly vertical, and the flange A h, and the shell B provided with a contracted outlet and flange, h' h', the said flanges having a washer interposed.

198,502. ROTARY PRINTING-MACHINES. William F. Widmayer, New York, N. Y. Filed Mar. 22, 1877.

Brief.—Longitudinal grooves receive battens securing elastic plates to the surface of the type cylinder, which may be increased in length by rings on the shaft. Bearing rings on the ends of the cylinder have interior feeding-flanges. A hopper for blanks is formed of vertical rods fixed in horizontal arms adjustable in slots in the feed-table, in another slot in which reciprocates an adjustable feeding-plate.

1. In an apparatus for printing labels upon blanks from which boxes, &c., are to be constructed, the rods K and horizontal arms L, the latter pivotally and adjustably retained in slots M of the table J, substantially in the manner and for the purpose set forth.

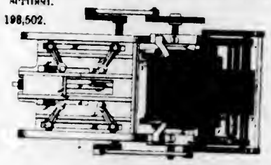
2. The type-cylinder of a label-printing press, combined with increasing-rings, adapted to aid in holding the type, substantially as described.

3. The type-cylinder provided with longitudinal grooves and battens and increasing-rings, substantially as described.

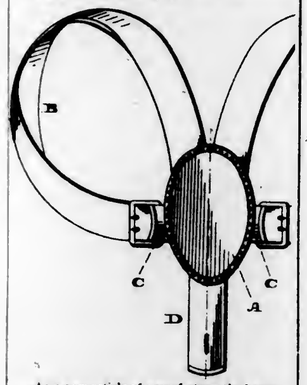
4. A type-cylinder provided with outer rings W, constructed with flanges W', substantially as described.

5. In an apparatus for printing labels upon box, barrel, or other packing-case material, the combination of the rods K and arms L, adjustably arranged on the table J, adjustable feeding mechanism, stops N, and an adjustable type-cylinder, substantially as described.

198,502.



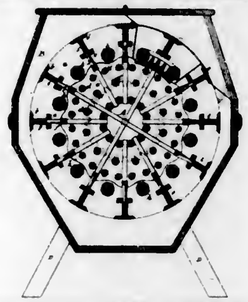
198,503. SHOULDER-BRACES. Moritz Altmann, Camden, N. J. Filed Nov. 9, 1877.



As a new article of manufacture, the herein described lady's brace, composed of the pad A, elastic shoulder-straps B, elastic connecting-straps C, with buckles, and the lower elastic suspended strap D, all substantially as herein shown and described, and for the purposes set forth.

198,504. WASHING-MACHINES. Joseph O. Beaperland, Fall River, Mass. Filed Sept. 7, 1877.

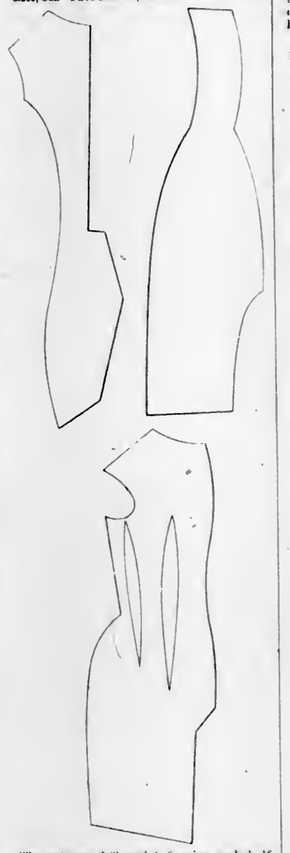
Brief.—The strips and keys on the inside of the cylinder form water-buckets, which carry the suds up and discharge it upon the clothing, which is cleansed by contact with the rows of bristly tufts and interposed prismatic rollers during the rapid rotation of the cylinder.



1. In a washing-machine, the cylinder A, having the spaced brushes e f, and the pristmatic rollers h, arranged between the same, substantially as specified.

2. The washing-machine cylinder, having the buckets l, the spaced end tufts d, the longitudinal stripes c, having spaced tufts f, and the polygonal rollers h, combined and operating substantially as set forth.

198,505. UNDER-SUITS. Clara L. Bradley, San Francisco, Cal. Filed Nov. 10, 1877.



The patterns 2, 3, and 4, forming each half of the garment, cut the whole length of the garment, and of the configuration shown, sewed together, and adapted to fit the form, substantially as herein shown and described.

198,506.



198,506. PORTABLE HOISTING APPARATUS OR WAGON-DERRICKS. William W. Carlile, Iona City, Cal. Filed June 26, 1877.

1. The drums F and the driving-shaft G, with their intermediate friction-pulleys, in combination with the wagon A B and mast C, the whole forming a portable derrick and feeding apparatus, substantially as herein described.

2. The wagon A B, with its mast C, drums F, and driving-shaft G, in combination with the operating-levers K and brake-levers M, constructed and operating substantially as herein described.

198,507. PHONETIC AND DIACRITICAL NOTATION. N. E. Dawson, Burlington, Iowa. Filed Nov. 26, 1877.

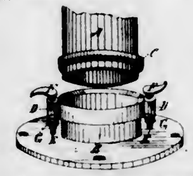
Fig. 1. kay	Fig. 2. — gay	Fig. 3 | tee
Fig. 6. / jay.	Fig. 7. \ pee	Fig. 8. \ bee
Fig. 11.) ess	Fig. 12.) zee	Fig. 13. (ith
Fig. 16. (eee	Fig. 17. ⌣ ing	Fig. 18. ⌣ en
Fig. 21. (ef	Fig. 22.) ar	Fig. 23. (yay
Fig. 26. O a	Fig. 27. Θ a	Fig. 28. O e
Fig. 31. O a	Fig. 32. O e	Fig. 33. O e
Fig. 36. ⌣ er	Fig. 37. \ at	Fig. 38. ⌣ i

Fig. 4. | dee	Fig. 5. / chay
Fig. 9.) ish	Fig. 10.) zhee
Fig. 14. (thee	Fig. 15. \ ef
Fig. 19 - em	Fig. 20. ⌢ hay
Fig. 24.) way	Fig. 25.) ar
Fig. 29. O e	Fig. 30. O i
Fig. 34. O u	Fig. 35. O er
Fig. 39. ⌣ oi	Fig. 40.) ow

1. As an improvement in phonetic and diacritical notation, the symbols or characters substantially hereinbefore described, and shown in Figs. 1 to 40, inclusive, of the drawing.

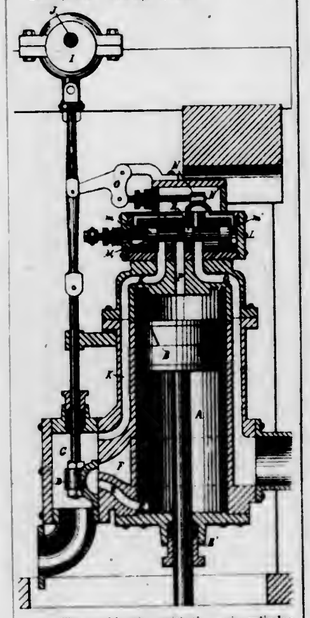
2. The method of representing the twelve simple vowel-sounds of the English language by means of the symbols or characters substantially as hereinbefore described, and represented by Figs. 25 to 36, inclusive, of the drawing.

198,508. CYLINDRICAL COUPLINGS FOR SHAFTING, &c. Thos. Dowling, Gloucester, Mass. Filed Sept. 14, 1877.



The improvement in cylindrical couplings herein described, consisting of the parts A B, provided with collars or projections C D, in combination with the eccentric-headed bolts E F and nuts G, constructed and adapted to operate substantially as set forth.

198,509. STEAM-STAMPS. John B. Ellenbecker, Lake Linden, Mich. Filed Apr. 4, 1877.



1. The combination, with the main cylinder A, of the upper valve M, and its primary valve N, and the eccentric I, which works independently of the steam mechanism which raises the stamp, and operates substantially as described.

2. The combination of the upper valve M or its shifting valve N, and the eccentric I, and the main piston B, substantially as described.

3. The combination of the steam-cylinder A, the upper valve M, and the lower valve D, the two valves being operated, as described, by means independent of the main piston, each valve being separately timed, substantially as described.

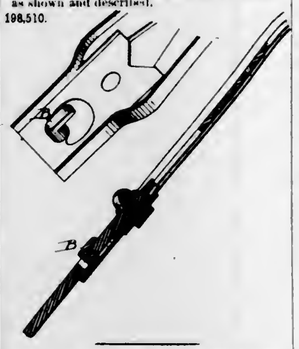
198,510. HARNESS-SADDLES. Algernon Gilliam, Pittsburg, Pa. Filed Oct. 10, 1877.

1. A saddle-tree provided with a rigid hook-shaped stud at its lower end, to receive and hold the end of the skirt, as shown and described.

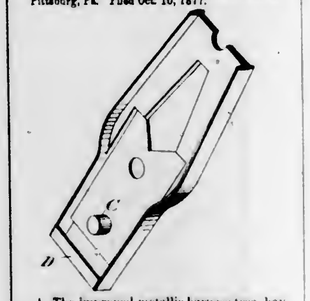
2. A saddle-tree having its end provided with a rigid stud, having a lateral nose or lip at its top, whereby it is adapted to receive and hold down the skirt below the lower rivet or fastening, as shown.

3. The saddle-tree having at or near its lower end the stud B, with the downwardly-extending nose and the top shoulder *a*, substantially as shown and described.

198,510.



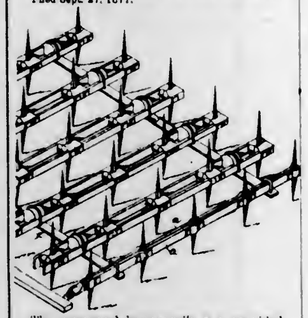
198,511. HARNESS-SADDLES. Algernon Gilliam, Pittsburg, Pa. Filed Oct. 10, 1877.



1. The improved metallic harness tree, having each end provided with the stud C and loop D, located as shown and described.

2. The metallic saddle-tree, having the recessed ends, the outside end studs C, and the end loops D, in combination with the outside skirts passing under the loops and engaging with the studs, as shown.

198,512. HARROWS. Frank A. Hill, San Leandro, Cal. Filed Sept. 27, 1877.



The compound harrow rails *a a*, provided with the intervening rounded and recessed blocks *p*, in combination with the connecting-plate N and clips or straps V, substantially as and for the purpose described.

198,513. BANK-CHECKS. Thomas G. Hillhouse, New York, N. Y. Filed July 6, 1877

198,513.

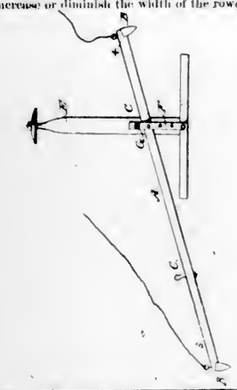


1. A bank-note, bill of exchange, check, or other monetary instrument, provided with a combination of lines or spaces and numerals extending entirely across the same, substantially as described and shown, to afford provision for punching or marking, so as to accurately indicate, irrespectively of any writing, the amount for which such instrument is drawn, as specified, substantially as described.

2. A bank-note, bill of exchange, check, or other monetary instrument, provided with a combination of lines or spaces indicating units, tens, hundreds, a series of numerals, 0 1 2 3 4 5 6 7 8 9, entirely crossing the same, and a secondary independent series of numerals, 1 2 3 4 5 6 7 8 9, also crossing the said lines or spaces in a similar manner, and delineated so that writing may be discerned across them, substantially as described, whereby a twofold safeguard or protection is afforded and secured by the writing of the signature on the line or on the space formed thereby, and from the figure indicating the highest division, as set forth.

198,514. MARKERS FOR CORN-PLANTERS. Charles M. Hoghton, Delavan, Ill. Filed May 20, 1876.

Brief.—The arm carrying the marking-shoes is vertically and laterally adjustable to increase or diminish the width of the rows.



The marker for corn-planters, consisting of the standard E and upright F, forming a slot to receive the sliding marker-rod A, provided with inclined runners B B and hooked pins C C, to suspend and adjust said rod from the vertically-adjustable pin G, substantially as shown and set forth.

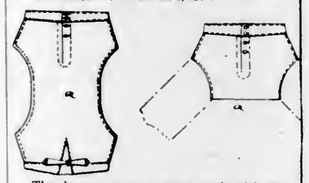
198,515. HOSE-NOZZLES. John H. Johnson, Chicago, Ill. Filed June 11, 1877.

Brief.—The three-way plug can be turned so as to throw either a solid stream or a spray.



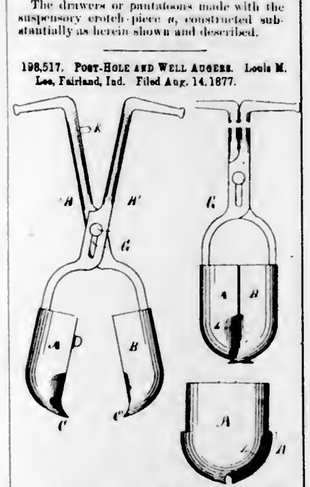
In a hose-nozzle, the barrel B, provided with recesses *a b* and passages *c d*, in combination with the three-way plug C, all constructed and operating substantially as and for the purposes specified.

198,516. SUSPENSORY-DRAWERS. Moritz Krickl, New York, N. Y. Filed Dec. 6, 1877.



The drawers or pantaloons made with the suspensory crotch-piece *a*, constructed substantially as herein shown and described.

198,517. POST-HOLE AND WELL AUGERS. Louis M. Lee, Fairland, Ind. Filed Aug. 14, 1877.



1. A post-hole or well auger constructed with two semicircular sides, A and B, which are provided with auger-points C C' below, and handles H H' above, pivoted at F in slot G, in the manner and for the purposes hereinbefore set forth.

2. In a post-hole or well auger, the combination of the pivoted sliding handles H H', catch K, and semicircular side auger-cases A and B, constructed and arranged to operate in the manner and for the purposes substantially as set forth and described.

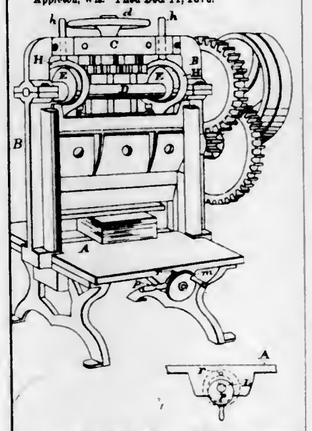
198,518. ASH-SIFTERS. John W. Littlefield, Boston, Mass. Filed Dec. 8, 1877.

A sifter for ashes or other material, having open wire sides and bottom, the vertical (or nearly vertical) side wires converging and meeting at the top or rim *e*, the said sifter being galvanized as a whole after having been put together, all substantially as and for the purposes set forth.

198,518.



198,519. PAPER-CUTTING MACHINES. J. G. Morgan, Appleton, Wis. Filed Dec. 11, 1876.

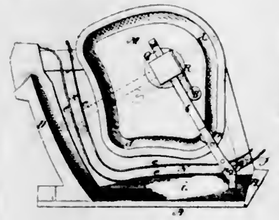


1. The uprights B, provided with grooves for grinding the knife-plate, and bearings for the cam-shaft, combined with a cap, C, having bearings or supports for the projections *h* of the yokes H, and for the central vertical shaft and screw *e* of the binder mechanism, substantially as specified.

2. The binder I, having side bearings in the frames B, and operated from a central shaft and gear by means of the vertical screws *e* and gears *g*, combined with the bed-plate A, having the adjustable gage J and guide K, substantially as described.

3. The sliding gage upon the cutting table operated by the screw L, in combination with the eccentric *p* and stud *r*, for securing the screw in position and preventing any movement of the gage during the act of cutting, as and for the purpose described.

198,520. HARVESTER-RAKES. Joel Pagin, Washington Prairie, Iowa. Filed Nov. 26, 1877.

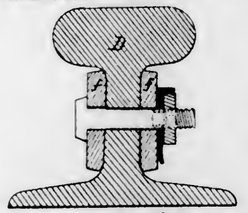


1. In a self-grain-rake, the vertical cam M, provided with the groove *d*, in combination with the overhung rake *t* and guideway N, all being arranged substantially as shown and described.

2. The vertical handle *b*, placed in slot *a* of the shaft I, and provided with the wheel *m*, which travels in the groove *d*, in combination with the bar *p*, overhung rake *t*, spring *x*, arm *u*, wheel *f*, and guideway N, substantially as specified.

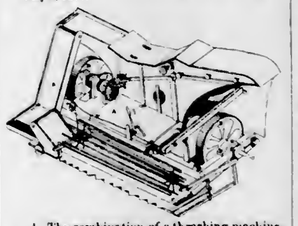
3. The platform A, incline D, handle *b*, and overhung rake *t*, provided with spring *x*, and wheels *f m*, in combination with the guideway N and cam M, furnished with the groove *d*, substantially as set forth.

198,521. NUT-LOCKS. Edwin Reese, Baltimore, Md. Filed Dec. 7, 1877.



The combination, in a nut-lock, of an ordinary nut, a bolt compressed laterally, and a flexible washer, radially corrugated and perforated and slotted, as shown, and for the purpose described.

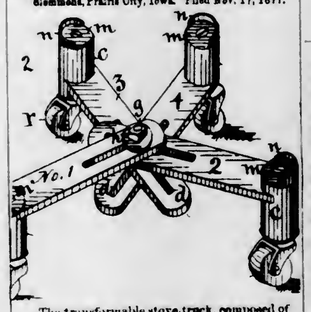
198,522. HARVESTER AND THRASHER. William B. Rice, Modesto, and J. C. Hoult, Stockton, Cal. Filed July 9, 1877.



1. The combination of a thrashing machine, F, with a header-frame, A, when the thrashing-machine stands across the header-frame parallel with the header-sickle, in combination with the drapers and carriers C T R, for conducting the grain in a continuous automatic stream from the sickle to the thrashing-machine, substantially as described.

2. The drum *p*, with its lever *q*, located on the platform in front of the thrasher, in combination with the oppositely wound ropes *m m*, the opposite ends of which are attached to the hinged frame L, substantially as and for the purpose described.

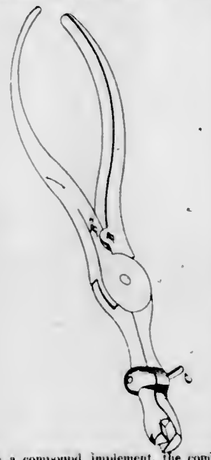
198,523. TRANSFORMABLE STOVE-TRUCKS. Benj. Slemmons, Prairie City, Iowa. Filed Nov. 17, 1877.



The transformable stove-truck, composed of the beams Nos. 1 2 3 4, having slots *d*, elbows *a b*, and irregular T ends *c c*, and each beam carrying a stove-foot rest, *m n*, and a caster,

r, and connected at their inner and slotted ends by a central bolt, *g*, relatively to which central bolt each beam can be independently adjusted, substantially as and for the purposes shown and described.

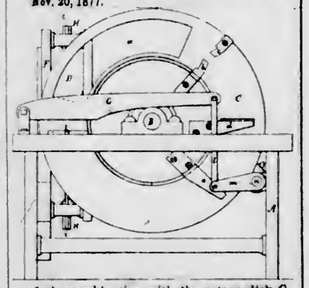
198,524. COMPOUND IMPLEMENTS. W. H. Sprague, Cleveland, Ohio. Filed Nov. 17, 1877.



1. In a compound implement, the combination, with one arm of the forceps formed with the round-topped projection B, of the second arm provided with the counterpart concavity B', the two adapted to clamp a pen for purpose of insertion or removal from its holder, substantially as set forth.

2. The compound implement herein specified, having the devices for placing and removing pens, for perforating paper, and for fixing temporary paper fasteners or binders, substantially as shown.

198,525. MACHINES FOR MAKING BOOT AND SHOE SHANKS. Jeremiah M. Watson, Sharon, Mass. Filed Nov. 20, 1877.



1. In combination with the rotary disk C and its severing cutter *e*, the cutters *b e*, for producing the end or transverse chamfer of the shank.

2. In combination with the rotary disk C and its slitting and severing cutters *d e*, the cutters *b e*, for producing the end chamfers or bevels of the shank, as described.

3. In combination with the rotary disk C and its severing cutter *e*, the cutters *f g*, for producing the side chamfers or bevels of the shank, such cutters *f g* being arranged, and provided with mechanism for operating them, substantially as described.

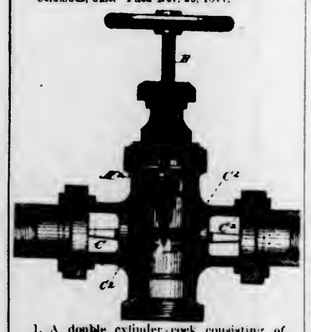
4. In combination with the rotary disk C and its severing cutter *e*, the cutters *b e f g*, for producing the end and side bevels or chamfers of the shank, such cutters *f g* being arranged, and provided with mechanism for operating them, substantially as set forth.

5. In combination with the rotary disk C and its slitting and severing cutters *d e*, the cutters *b e f g*, for producing the end and side bevels of the shank, such cutters *f g* being ar

ranged, and provided with mechanism for operating them, substantially as explained.

6. In combination with the rotary disk and its cutter or mechanism, for slitting and severing the block, or for slitting, chamfering, and severing it, mechanism for supporting and holding the block, consisting of the bed k, the lever G, rod l, arm m, shaft n, arm O, cam-pin p, and spring q, all operating as set forth.

198,526. CYLINDER-COCK. George M. Weisman, Columbus, Ohio. Filed Nov. 26, 1877.



1. A double cylinder-cock consisting of valves C C' and stems D, and a loose wedge or its equivalent, A, whereby the distance between the two valves may be varied at will, thereby causing them both to rest upon their seats, or so separate them that but one valve can rest upon its seat at a time, substantially as and for the purpose described.

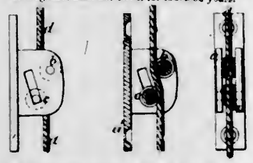
2. A double cylinder-cock consisting of valves C C' with inward projections D, in combination with a loose wedge or its equivalent, A, and mechanism for driving the wedge up or down between the said projections D, substantially as and for the purposes described.

3. The combination, with the valves C C', provided with projections D, of the wedge or its equivalent, A, and actuating shaft B, the said wedge or its equivalent A being attached loosely to the shaft B at A', substantially as described.

4. In a cylinder cock, the combination, with the two valves, of an intermediate adjustable separating device, said separating device being capable of adjustment to increase or decrease the distance between the valves, and having a free lateral movement in the direction of the motion of the valves, substantially as and for the purposes described.

5. A cylinder cock provided with two valves, each provided with a stem, an adjusting-wedge, or its equivalent, and an actuating-spindle, whereby the escape of water from the two ends of the cylinder may be regulated to a greater or less extent at will, substantially as and for the purposes set forth.

198,527. PULLEY-BLOCKS. Edwin Robert Wethered, Woolwich, England. Filed Sept. 18, 1877. Patented in England, Dec. 24, 1874, for fourteen years.



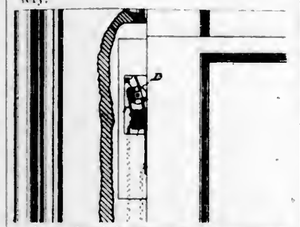
The combination, substantially as hereinbefore set forth, in a pulley-block, of cheek-plates, a fixed sheave, and a laterally moving sheave working in slots in the cheek plates, whereby the cord or rope is nipped between the sheaves as it passes in one direction, and is left free to move in the opposite direction, as specified.

198,528. FRUIT-JARS. Theodore F. Woodward, Winslow, N. J., assignor to Hay & Co., same place. Filed Nov. 16, 1877.

The cover B, having a rim, d, with inclines e e sunk in its inner surface at opposite sides, and a beveled or inclined edge running from the outer to the inner surface of the rim, with annular bead f f', in combination with the jar A, having inclines b b projecting from the outer surface of the neck a, and with the gasket C, seated on the shoulder c of the neck, substantially as and for the purpose set forth.

198,529. ELECTRIC BURGLAR-ALARM. John Young, Chicago, Ill. Filed June 1, 1877.

Brief.—The electric circuit is closed by rotating the conducting-segment of the roller into contact with both electrodes of the battery.

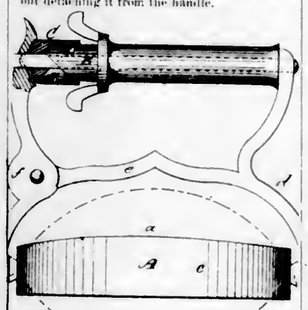


1. An electric burglar-alarm, the said alarm embodying the combination, substantially as described, of a roller placed in the circuit, and arranged for rotation by the sash, an insulator arranged for intermittent interposition in the circuit during the rotation of the roller, and a stop placed for limiting the rotation of the roller, for the purpose set forth.

2. In an electric burglar-alarm, the roller D, arranged in the circuit, and having a periphery consisting partly of an insulating substance, a', and partly of a conducting-surface, in combination with a stop for limiting the rotation of the roller, substantially as and for the purposes specified.

198,530. SAD-IRONS. Oliver Avery, Jr., Groton, N. Y. Filed July 23, 1877.

Brief.—The locking device in the handle enables the pivoted arm to be moved, whereby the iron can be turned to present a new smoothing surface, and secured in said position without detaching it from the handle.

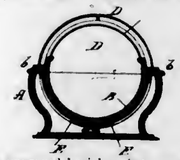


1. A locking device for removable handles for irons, consisting of the thimble or sleeve C, formed with inclines j and stops k, in combination with nut B, having inclines i, substantially as and for the purpose set forth.

2. The combination of the reversible iron A, provided with conical recesses at its ends, the arms d, e, and f, pivoted together, and provided with conical projections to fit said recesses, and a device, substantially as described, to lock and release the arm f, as and for the purpose set forth.

198,531. BURIAL-CASES. Franz Baur and Andreas Grom, Allegheny, Pa. Filed July 18, 1877.

Brief.—The glass-paneled circular inner case is covered by quadrantal revolving covers working in guides upon the head and foot boards, which extend upward for that purpose.



The improved burial-casket, consisting of the outer casing A, the circular inner case B, having its upper half of glass or glass-paneled, head and foot D D', having the described circular grooves in their inner faces, connecting flange b, and the two quadrantal revolving covers E E, said covers revolving around the same common axis, guided by the grooved head and foot, and having their parting line at the top, all combined, constructed, and arranged substantially as described.

198,532. MEASURING DEVICES FOR SEED-BAG FILLERS. William Blake, Liverpool, England, assignor to Victor E. Munger, New York, N. Y. Filed Nov. 30, 1877.



1. The combination of the hopper E with the drum C, having channel a, and adjustable follower D, and with the spout F, to operate substantially as herein shown and described.

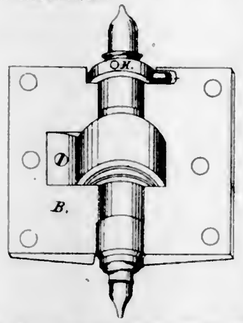
2. The hollow yoke h, carrying the annular wiper i, and combined with the drum C, having channel a, substantially as herein shown and described.

3. The combination of the hopper E, drum C, follower D, and shaft B with the handle d, stop e, and cushion g, substantially as herein shown and described.

4. The combination of the drum C, having channel a, with the grooved follower D and set-screw b, substantially as and for the purpose herein shown and described.

5. The discharge-spout F, combined with the soaking-pad j, for moistening the gum on an envelope, substantially as herein shown and described.

198,533. SPRING-HINGES. John Brewer, Brooklyn, N. Y., assignor to Joshua G. Reynolds, Elizabeth, N. J. Filed Nov. 2, 1877.



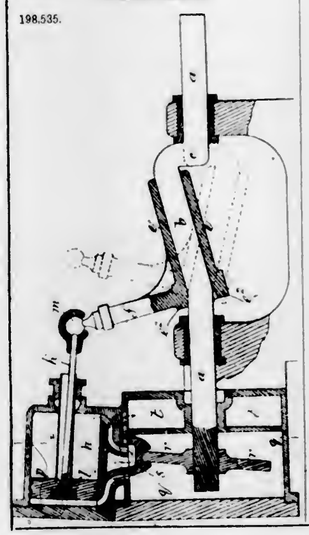
The pintle passing entirely through the knuckles of both leaves of the hinge, and furnished with the adjusting-collar H, which forms a part thereof, and with the lengthened slot D, to combination with the central ribbon coil-spring, one end entering the slot D in the pintle, and the other end fastened to the leaf B, the arrangement being such that the withdrawing of the pintle liberates the leaves and spring, all arranged substantially as and for the purpose set forth.

198,534. MARTINGALE-RINGS. William Courtenay, New York, N. Y. Filed May 18, 1877.



The method herein described of manufacturing martingale rings of vulcanized fiber, which consists in winding it in its pulpy state upon a mandrel until a large tube is formed, then drying it thereupon, passing it endwise through rolls under heavy pressure, and then dividing, turning, and polishing.

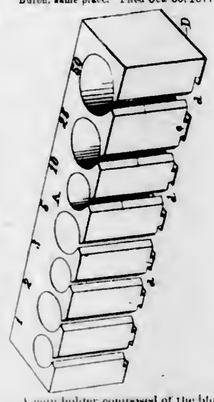
198,535.



198,535. RECIPROCATING ENGINES. James Davies, Wednesbury, England. Filed Oct. 4, 1877. Patented in England, Aug. 18, 1876, for fourteen years.

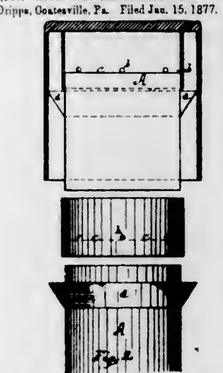
A steam-engine in which a crank-shaft, fashioned to describe a cone on the rotation thereof, is combined with three equidistant double-acting inclined steam-cylinders, arranged symmetrically about said shaft, and surrounding part of said shaft, a sleeve with projecting arms, the ends of which are connected with the steam-pistons in said cylinders, together with inclined disk, to operate successively the slide-valves of said cylinder, all substantially as herein shown and described.

198,536. COIN-HOLDERS. Henry E. Dewey, South Haven, Mich., assignor of one-half his right to H. A. Burch, same place. Filed Oct. 30, 1877.



A coin-holder composed of the block A, provided with holes for the reception of coin of different denominations, each hole having a slot its entire length, said block being further provided with a sheet-metal base, D, and the dovetail recesses d'.

198,537. APPARATUS FOR COOLING MILK. William Dripps, Coatesville, Pa. Filed Jan. 15, 1877.

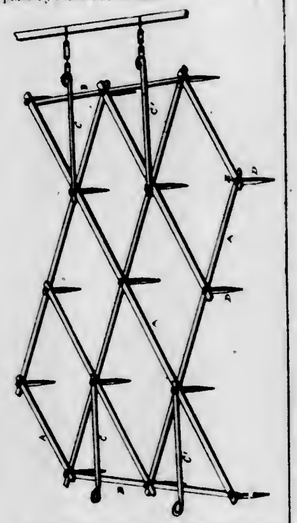


1. An apparatus for the cooling of milk and setting of cream, consisting of a case or shell, preferably of non-heat-conducting material, containing within its walls a milk can or cans and a refrigerating cell or cells, either superposing or circumposing, or both, the top or tops of the said can or cans, whereby access of air to the milk is excluded and air-currents practically prevented within the apparatus, convection currents within the milk being established, and the rising of the cream assisted by direct cell refrigeration at or near the top surface of the milk only, all substantially as specified.

2. In an apparatus for the cooling of milk, consisting of a case or shell containing within its walls a milk can or cans, an air-tight joint or joints between the lower extremity or extremities of said can or cans, and an opening or openings in the said case, whereby circulation of air between the exterior and interior of the apparatus is prevented, and the establishment of convection currents within the milk assisted, substantially as and for the purpose specified.

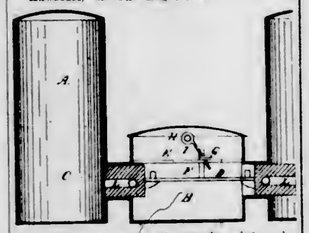
198,538. HARROWS. Charles Du Perow, Stratford, Ontario, Canada. Filed Mar. 27, 1876.

Brief.—The bars are made of iron, and cross each other at angles of about SIXTY degrees. The head-bars and draw-bars are placed at both ends of the frame. The teeth have elliptical shanks that fit elliptical holes in the bars at their points of intersection, and are held in place by screw-nut on each.



In a harrow, the frame composed of the bars A, crossing each other at an angle of about sixty degrees, in combination with the head-bars B B' and two sets of draw-bars, C C', and the teeth D, having elliptical shank and corresponding socket, as specified.

198,539. PISTON WATER-METERS. Gustav Fajeu, Milwaukee, Wis. Filed Aug. 13, 1877.



1. A valve-plunger C C, extending into cylinders A A, and connected together by rod D, which passes across another cylinder, B, and slotted bar E and standard F, all in combination, substantially as specified.

2. Water and air compressing cylinders A A, operating plunger valves C C, and water-pipe K, all in combination, substantially as described.

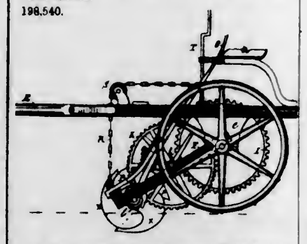
3. The arrangement of cylinders A A and B, connected together by valve seats, in which are valves C C, said valves connected together by rod D and standard F, lever G, and arm I, operating shaft H, substantially as described.

198,540. REVOLVING CULTIVATORS. John Graner, New Orleans, La. Filed Aug. 20, 1877.

Brief.—Spirally curved blades arranged in groups of three upon a cross-shaft, and re-

volved by gearing engaging with the bearing-wheels. They have a propeller motion, and may be reversed to throw the earth in either direction. The shaft is mounted on the front end of a frame hinged to the axle and extending forward. Raised by a crank upon the main frame with chain and pulley. The tongue may be placed at the other end of the frame for a stalk-cutter. Bring the cutters to the rear of the frame and reverse their stroke. A sliding clutch and loose pinion, with lever and spring.

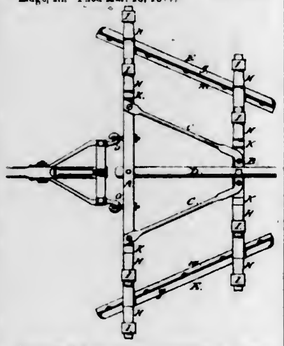
198,540.



1. The frame D, having tongue E, arranged to be attached to either end of the machine, and the axle B, having bearing-wheels A and gear-wheel I, in combination with the hinged frame F, shafts G *m*, gear-wheels *k k'*, chain K, and crank shaft F, substantially as described.

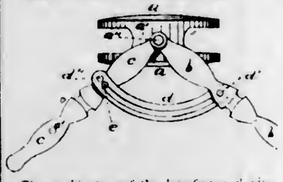
2. The blades *x*, of the shape described, attached to the shaft *m* in propeller form, and arranged to revolve in the direction of the line of draft, and made reversible to allow their points or opposite ends to enter the ground first, substantially as described.

198,541. ROAD-SCRAPERS. Samuel J. Hayes, Grand Ridge, Ill. Filed Mar. 13, 1877.



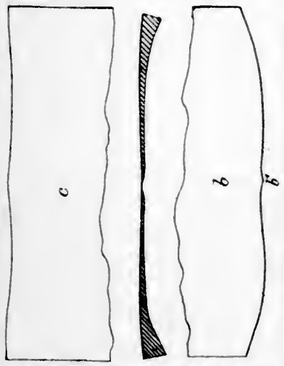
In a road scraper, the combination of the scrapers E E, having bent blades *w w*, crossbars *f f*, and braces *l l*, with the cross-beams A B, braces C C, loops I I, wedges H H, and plates K K, all constructed and arranged substantially as shown and specified.

198,542. STANDS FOR MAGNIFYING-GLASSES. Laban Heath, Boston, Mass. Filed Nov. 30, 1877.



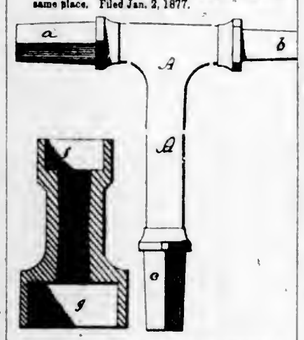
The combination of the lens-frame *a'*, pivoted at each side by means of the pins *a''* to the legs *b b*, the legs *b c*, connected by rods *b' c'*, and provided with pins *d'* and *e*, and the slotted curved arms *d*, all constructed and arranged substantially as and for the purpose herein set forth.

198,543. SHEARS FOR CUTTING HORSESHOE-NAILS. John A. Huggett, Clapham, England. Filed Aug. 13, 1877.



The shear-cutters *b c*, having a form or contour of cutting-edge, substantially as described, whereby the nails are delivered with the set or curvature which they require for use.

198,544. WRENCHES. George Kottlowell, Beloit, Wis., assignor to the Parker & Stone Reaper Company, same place. Filed Jan. 2, 1877.



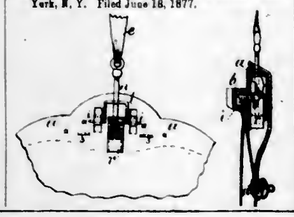
1. Reversible wrench-socket attachments B C D, constructed and operating substantially as and for the purpose herein specified.

2. The combination of a wrench-handle, A, having socket-tenons *a b c*, with removable socket attachments B C D, having socket-mortises *d d*, to fit upon the tenons of the handle, substantially as and for the purpose herein specified.

3. A T-shaped wrench-head, A, having tenons *a b*, arranged at angles of forty-five degrees to each other in the circle of their axis, substantially as and for the purpose herein specified.

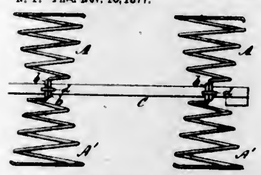
4. The reversible socket attachments A B C, having slightly-tapered mortises in both ends, to receive similarly-formed tenons on the wrench-handle, substantially as and for the purpose herein specified.

198,545. POCKET-PROTECTORS. Joseph Koehler, New York, N. Y. Filed June 18, 1877.



The combination, with the frames *a b* and guard-pocket, of the swinging hooked latches *f*, yoke *h*, spring, and cord or ribbon *e*, substantially as set forth.

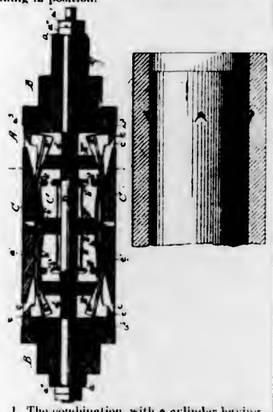
198,546. BED-BOTTOMS. Auguste Lombart, Buffalo, N. Y. Filed Nov. 10, 1877.



In a reversible spring-mattress, the combination, with the springs A A', formed with loops *b b*, of the central slats C and staples *d*, all arranged substantially as and for the purpose set forth.

196,547. MACHINES FOR LINING TUBING. Herman Meyer, Toledo, Ohio. Filed Nov. 20, 1877.

Brief.—The lining is put in the pipe in cylindrical form. The mandrel is put in the lining, and is expanded by the shaft D, nuts, and inclines, so as to force the lining snug against the pipe, when the punches *e* force a portion of the lining into the pipe, thus securing the lining in position.



1. The combination, with a cylinder having expansible and contracting sections, having the holes *c*, of the spring bursel, having punches *e*, substantially as and for the purpose set forth.

2. The combination of the cylinder A with its sections C, having wedges or cams *c'* and holes *c*, the spring-bars *c'*, provided with the punches *e*, and the shaft having screw-threads *d d'* and conical rings E E', substantially as and for the purpose set forth.

3. The combination of the rings E E', having the recesses *g* and the bars *c'*, provided with the wedges *c'*, substantially as and for the purpose set forth.

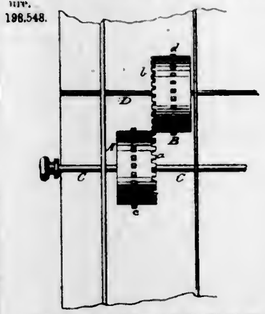
4. The combination of the shaft provided with the ring F, and the sections C, provided with the springs *b*, secured together, substantially as and for the purpose described.

5. The combination of the cylinder A, consisting of the heads B and expansible and contracting sections C, having holes *c*, wedges or cams *c'*, springs *b*, and spring bars and punches *c' e*, and the shaft D, having screw-threads *d d'*, conical screw-rings E E, and ring F, all combined and arranged to operate substantially as and for the purpose set forth.

198,548. SASH-BALANCES. William Wilcox, Strathroy, Ontario, Canada. Filed Apr. 11, 1877.

Brief.—A pair of circular boxes inclosing strong coil springs have a row of cog teeth on their outer surfaces, and also another series of cog-teeth on the rim of each, being also provided with separate horizontal axles, one of which is stationary and the other has lateral movement, carrying with it one of the cogged wheels, the construction enabling the boxes or wheels to be readily attached to or detached from each other, causing the upper and lower sashes to act separately or together at pleasure.

198,548.

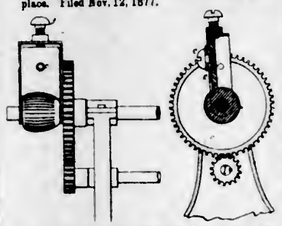


The two cogged wheels or circular boxes A B, inclosing coil springs A' B', having separate horizontal axles or journals C D, one of these axles being stationary, and the other having a horizontal movement, carrying with it the wheel or circular box, by means of which the two wheels A B can be attached or detached, causing the upper and lower window-sash to act simultaneously, substantially as shown and described, for the purpose set forth.

198,549. NOTCH-RINGS FOR UMBRELLAS. Alonzo Milligan, Brooklyn, N. Y. Filed Oct. 24, 1877.

The notch-ring for umbrellas or parasols, made of one piece of sheet-metal tubing, having two annular flanges adjacent to each other, and each flange made of a double thickness of the sheet metal of the tube, spread outwardly and folded double, substantially as set forth.

198,550. MACHINES FOR SHAPING BOOT AND SHOE COUNTERS. George F. Moore, Kennebunk, Me., assignor to Monsam Manufacturing Company, same place. Filed Nov. 12, 1877.



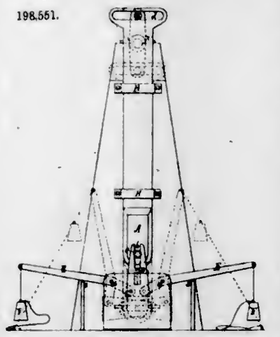
In a machine for shaping boot and shoe counters, the combination of the ovated former, the single blade, and mechanism for revolving either about the axis of the former, substantially as set forth.

198,551. MACHINERY FOR FORMING COUNTERS FOR BOOTS AND SHOES. George F. Moore, Kennebunk, Me., and Rufus H. Hurlbut, Sudbury, Mass., assignors to Monsam Manufacturing Company, Kennebunk, Me. Filed Nov. 27, 1877.

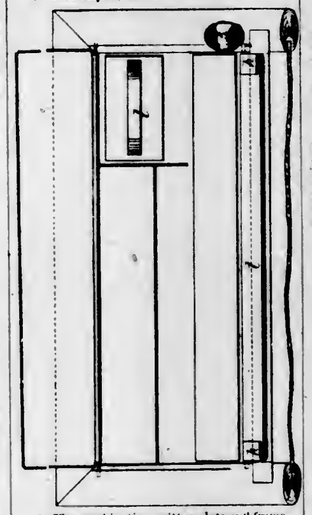
1. The combination of the levers E E and the slotted arms D D with the wipers B C and the reciprocating counter-former A, all being arranged and to operate substantially as set forth.

2. In combination with the counter-former A, the two wipers B C, arranged therewith and supported by weighted levers E E, having separate fulcra *a a*, and stops S S, disposed relatively to them and the said frame substantially as set forth.

198,551.



198,552. SLATES. Charles C. Shepherd, Passaic, N. J. Filed July 20, 1877.

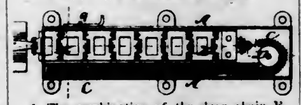


1. The combination, with a slate and frame, of a sheet-metal box introduced between one edge of the slate and the frame, such metal box being recessed to receive the edge of the slate, substantially as set forth.

2. The combination, with the slate, frame, and box, of a copy-holder hinged to the frame and folding into the box, substantially as set forth.

198,553. DOOR-CHECKS. William Von Aoer, Flatbush, assignor of one-half his right to William H. Mott, Brooklyn, N. Y. Filed Aug. 8, 1877.

Brief.—An inclosing case carries a suitable chain, which is actuated by a flexible spring passing over a pulley near one end in such manner that the chain will be drawn into the case when the door is shut, but allow the partial opening thereof, a hook or catch on the free end of the chain engaging with a suitable slotted guide on the door-frame. There is also a catch to engage behind the chain, and prevent the spring from slamming the door.



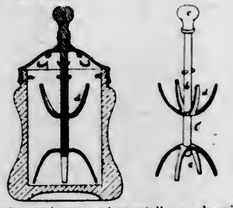
1. The combination of the door-chain E with the spring C and inclosing case A, all arranged so that the spring will draw the chain into the case, substantially as herein shown and described.

2. The combination of the door-chain E with the spring C, pulley D, and case A, substantially as herein shown and described.

3. The combination of the catch G with the door-chain E, spring C, and case A, substantially as herein specified.

198,554. TABLE SALT BOTTLES. Hiram J. White, Boston, Mass., assignor to D. K. Aldon, same place. Filed Dec. 11, 1877.

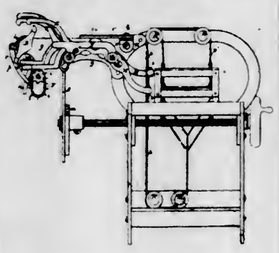
Brief.—By drawing the agitator up and down and revolving it, salt may be prevented from caking in the bottle as well as in the perforated cover.



The agitator, substantially as described, movable in manner and by means as set forth, in combination and arranged with the bottle and its perforated cap or cover, as specified.

198,556. MECHANISMS FOR OPERATING THE HARNESSES OF FANCY-LOOMS. Isaac L. Wilber, Taunton, Mass. Filed Sept. 19, 1877.

Brief.—Instead of levers, slide-bars supported by studs and provided with curved slots are used to shift the harnesses. These curved slots have notches at their ends for locking them in position. Each slide-bar has a hooked fork jointed to it, which is operated by a vibrator. The invention consists in special combinations of these elements.

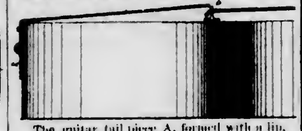


1. The combination of the harness operative slide-bar H, having the two pivotal slots *c' a* arranged in it, substantially in manner as shown, with the two supporting and stationary pins or studs *f s*, the hooked fork E, and a vibrator, D', all being essentially as set forth.

2. The combination of the vibrator D', having mechanism for imparting to it a reciprocating rotary motion, with a series of hooked forks, E, and their double-slotted slide-bars H, their two supporting-studs *f s*, the harnesses I, and a pattern-chain, F, all being substantially as specified.

3. The combination of the series of harness double-slotted operative slide-bars H, their two supporting-studs *f s*, the hooked forks E, the vibrator D', and pattern-chain F, having mechanism for operating them, substantially as set forth.

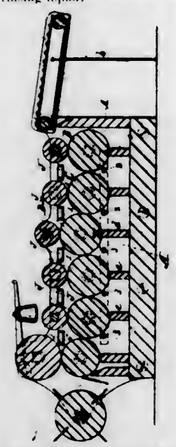
198,558. TAIL-PIECES FOR GUITARS. Jacob Abraham, Silver City, N. Mex. Filed Oct. 19, 1877.



The guitar tail piece A, formed with a lip, *a*, and a T-shaped foot, *b*, having perforations for the strings, substantially in the manner described.

198,557. WOOL-WASHING MACHINES. John Bachelder, Napa, Cal. Filed June 4, 1877.

Brief.—The scouring or cleansing liquor enters through pipes near the bottom of the machine, rises through the wool, and flows through a side opening into an egress pipe or trough, whence it is conveyed from the machine. The bed of the machine is divided—one division containing the scouring and the other the rinsing liquor.

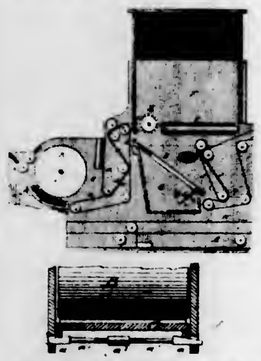


1. The improved mode or process herein described of scouring and cleansing wool, consisting of a continuous operation of alternately saturating the wool with scouring liquor and water, expelling the same by mechanism operating substantially as described, while the scouring liquor and water are fed in from below and carried off from the top just in front of each set of rolls, as and for the purposes set forth.

2. The combination, with the elevated division set of squeezing rolls D, arranged in a box, A, having a division-piece, *d*, of one or more sets of squeezing rolls on each side, substantially as and for the purposes set forth.

3. The combination, with the box A and squeezing-rolls, of perforated conductors J and inlet-pipes 2 and 3, substantially as and for the purposes set forth.

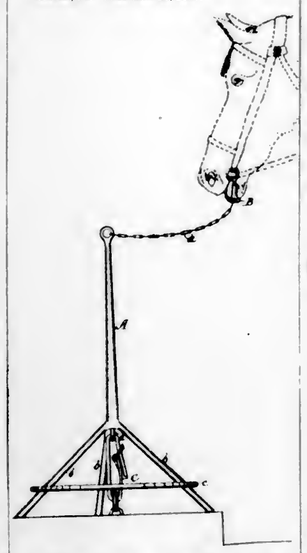
198,558. MACHINES FOR SEPARATING FUR FROM PELTS AND HIDES. Samuel M. Ball, Fanwood, N. J. Filed May 26, 1877.



1. Wedges *a a*, provided with adjusting devices, in combination with the concave U and chopping-cylinder B, arranged as and for the purposes specified.

2. The combination, with chopper B C, of the aprons *d d'*, picker E, sieve *k*, endless apron *j j*, picker E', and sieve *k'*, all arranged substantially as shown and described.

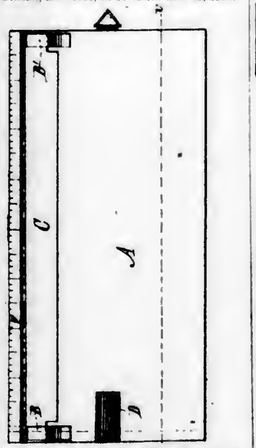
198,559. HITCHING DEVICES. Charles H. Bear, Manchester, Pa. Filed Nov. 20, 1877.



1. The standard A, having the supporting-feet *b*, the circular metal band *c*, and the strap C, fastened at the junction of the feet, and adapted to be attached to a ring or other suitable device, substantially as and for the purpose described.

2. The combination of the snap-hook B, the chain *a*, and the standard A, having feet *b*, ring *c*, and strap C, substantially as and for the purpose described.

198,560. COMBINED BLOTTING-PAD AND RULER. W. H. Bennett, New York, N. Y. Filed Nov. 15, 1877.



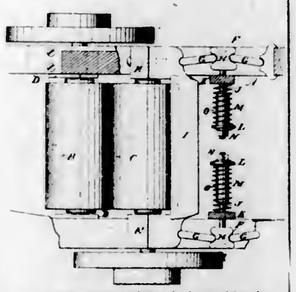
1. The flat body A, both ends of which on the lower face are provided with lips *a a'* and stops *d*, all arranged and applied as and for the purposes substantially as herein shown and set forth.

2. The combination of the body A, having lips *a a'* and stops *d* on its lower face, and the sheet of blotting-paper F, provided at each end with openings *h*, arranged and applied as and for the purposes as herein shown and set forth.

3. The combination of the body A, provided on its upper face with clamping-arms B and B', or their equivalent, and the detachable rule C, which may or may not be provided with a scale on its upper face, the two arranged and operating as and for the purposes substantially as herein shown and set forth.

4. The combination, in a blotting-pad, of the body A, having lips *a* and *a'*, provided with stops *d*, sheet of blotting-paper F carried thereby, the upper face of such body A carrying clamping-arms B and B' and handle H, and the rule C, all combined, applied, and operating as and for the purposes as herein shown and set forth.

198,561. ORE-CRUSHERS. Theodore A. Blake, New Haven, Conn., assignor to the Blake Crusher Company, same place. Filed Nov. 8, 1877.

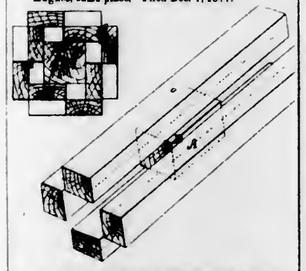


1. A spring-actuated toggle, in combination with the boxes of the movable crushing-roll, substantially as herein shown and described.

2. The boxes E E, connected by a bar, I, said bar being concaved to partly surround the roll C, as and for the purpose specified.

3. The toggle-arms G, head H, rod J, spring M, movable box E, and frame A, having the bar K, in combination, as herein shown and described.

198,562. FIRE-KINDLERS. Wm. J. Bode, Columbus, Ohio, assignor of one-half his right to Washington L. Hughes, same place. Filed Dec. 7, 1877.



As a new article of manufacture, a fire-kindler composed of sticks of pine or other highly combustible wood arranged around and secured at their centers to a central block, substantially as and for the purpose specified.

198,563. CULTIVATORS. Robert T. Bowne, Fallston, Md. Filed Nov. 20, 1877.

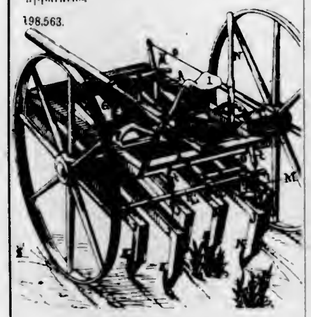
Brief.—A cross-bar is rigidly secured to one set of drag-bars, and slides in keepers upon the other set. By a lever, connecting-rods, and bell-crank, the two sets of drag-bars are moved to or from each other. A central pivot-bolt secures the axle to the frame. By a foot-lever and geared wheels upon each the axle and wheels are turned from side to side.

1. In a straddle-row cultivator, two gangs or groups of drag-bars, each provided with a cultivator-tooth, coupled together by a link rigidly secured to one group and movably attached to the other, and operated by a hand-lever, so that the driver may at will cause said groups to recede from or approach each other, as set forth.

2. The gangs or groups of drag-bars, each provided with a cultivator-tooth, connected together by a link rigidly attached to one group and movably attached to the other, combined with the slotted bell-crank M, connecting-rod O, and hand-lever N, whereby the driver can shift the relative positions of said groups at will.

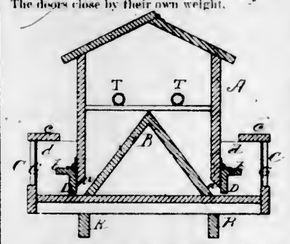
3. The main frame, provided with a seat and separate gangs of cultivator drag-bars and their teeth, and a main axle, C, pivoted to said frame, combined with the toothed segment F and pinion G, geared thereto, and a double foot-lever, H, attached at its center to the pinion-spindle, so that the driver, while sitting upon his seat, can rest his feet upon said lever, and thereby control and guide the apparatus.

198,563.



198,564. HOG-FEEDERS. Samuel Bryan, Twin Grove, Wis. Filed Oct. 20, 1877.

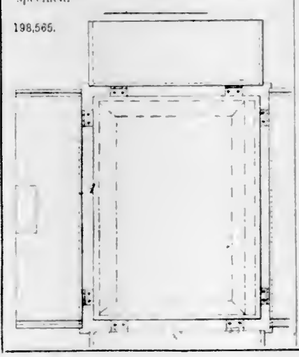
Brief.—The doors that lead to the troughs are operated by the nose of the hog striking against the ledge thereon, whereby feed is caused to flow into the troughs when empty. The doors close by their own weight.



1. The combination, with the bin A, having the dividing-ridge B and the troughs C, of the gravitating doors D, having the noseledge *b*, substantially as specified.

2. In combination with the bin A and its angular dividing-ridge B, the perforated distributing-pipes T, located over each inclined side of said dividing-ridge, and communicating with a reservoir, P, at the end of the bin, whereby the feed is supplied to the bin and properly distributed therein, substantially as specified.

198,565.

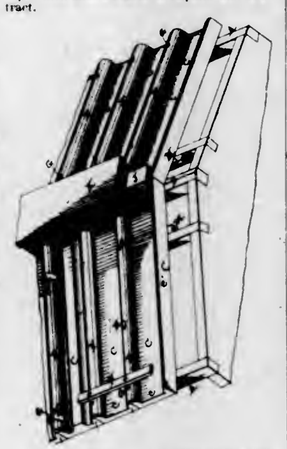


198,566. BOXES FOR BOOKS. Edward K. Burke, New York, N. Y. Filed Nov. 3, 1877.

A wooden box with ends and sides hinged to bottom, tongued and grooved to fit each other, and held together by a cover hinged to top of one side, and locked to the other, as shown and described.

198,566. CAR-ROOFS. Thos. H. Burridge and Lovick P. Barnes, St. Louis, Mo. Filed Feb. 17, 1877.

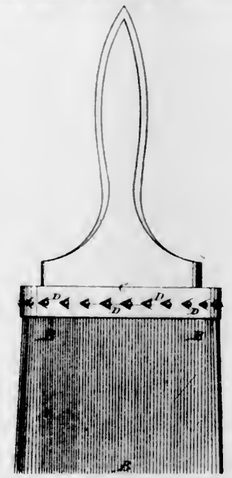
Brief.—Fastening device to secure joint-cap, which allows boards to expand and contract.



1. The fastening H, in combination with the cleat-strip F and boards C, substantially as and for the purpose set forth.

2. The chamfered boards C, in combination with the joint-strips F, bolts G, and fastening H, substantially as and for the purpose set forth.

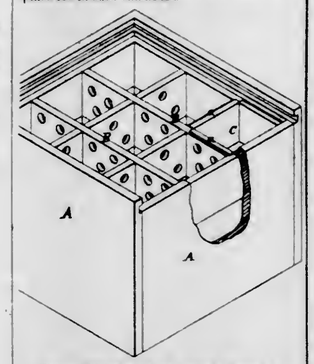
198,567. BRUSHES. William B. Bartnett and George W. Cook, New York, N. Y.; said Cook assignor to said Bartnett. Filed Nov. 26, 1877.



Brushes in which the metal band that confines the butts of the bristles is slitted, in such a way that the parts or sections that receive the nails may be drawn by said nails beneath the level of the said band to crimp the bristles and prevent the said nails from being drawn by a strain upon the said band, substantially as herein shown and described.

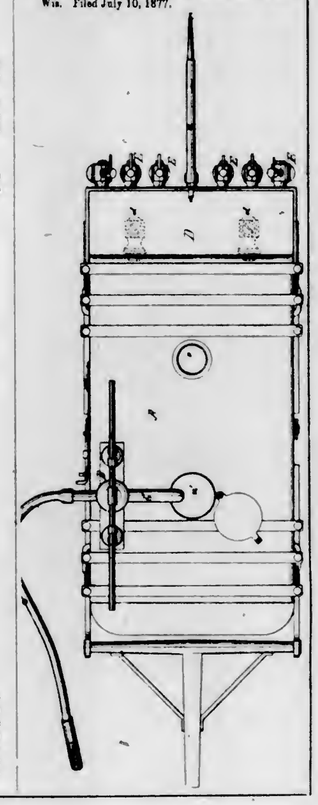
198,568. REFRIGERATING BUTTER-CARRIERS. Silas D. Byram, Liberty, Ind. Filed June 8, 1877.

Brief.—The butter-cups are made of zinc, wood, or other material. The bent-up sides are not united at the corners. May remove the butter-cups from the central chambers, and place ice in said chambers.



The combination of an exterior case, A, a series of perforated trays or racks, B, and removable butter-cups C therein, substantially as and for the purposes herein set forth.

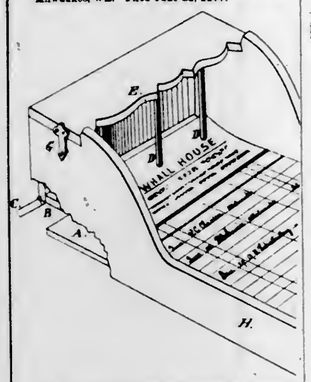
198,569. APPARATUS FOR COVERING THE SURFACE OF ROADS WITH ICE. Francis Byron, Grand Rapids, Wis. Filed July 10, 1877.



1. In combination, the main tank A, mounted on runners *a*, the pump B, having supply hose or pipe *b* and discharge-pipe *b'*, emptying into the opening *a'*, and the furnace C, with its smoke-stack *c*, all arranged to operate as and for the purpose specified.

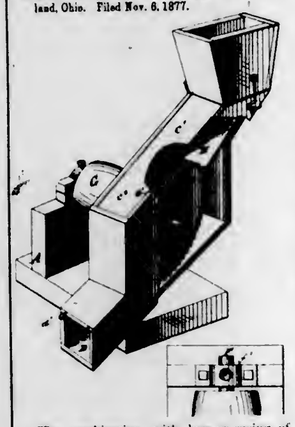
2. In combination with a heating-tank, A, as described, the reservoir D and its supply-cocks *d*, together with sprinklers E and hose *e*, all arranged to operate as and for the purpose specified.

198,570. TEMPORARY BINDERS. Paul C. Clausen, Milwaukee, Wis. Filed June 28, 1877.



As a new article of manufacture, a register and file consisting of a case for holding blanks, provided with pins D, sides H, a receptacle, A, for the reserve blanks, door C, cover E, spring-catch and pin G, all combined and arranged substantially as and for the purpose specified.

198,571. OATMEAL-CUTTERS. Herbert Z. Coles, Cortland, Ohio. Filed Nov. 6, 1877.

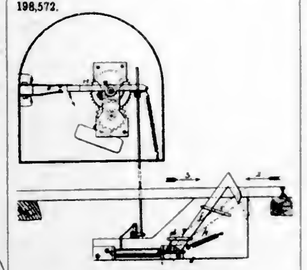


The combination, with box or casing, of cylinder consisting of untoothed disks *c'* and larger toothed disks *c*, and the inclined plate H, having projections *h'* and notches *h*, as shown and described, for the purpose specified.

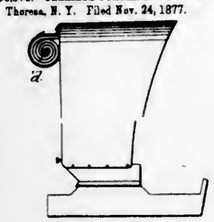
198,572. CIRCUIT-CLOSERS FOR RAILWAY-SIGNALS. Joseph I. Conklin, Jr., New York, assignor to himself and Charles A. Dresser, Brooklyn, N. Y. Filed May 23, 1877.

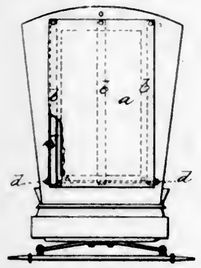
In a railway signal apparatus, the combination, with the circuit-breaking mechanism, of a lever, *f*, guide-slides *c d*, and spring *h*, arranged, substantially as specified, so that the lever *f* receives an end movement by the wheels passing in one direction, and swings and yields to the wheels as they pass in the opposite direction, substantially as set forth.

198,572.



198,573. CARRIAGE-CURTAINS. David W. Copeland, Theresa, N. Y. Filed Nov. 24, 1877.





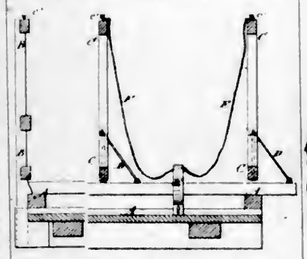
1. The combination, with the curtain *a*, of the coiled spring or springs S, substantially as specified.

2. The combination, with the flexible curtain *a*, of the coil-spring S, sheathed therein, substantially as specified.

3. The combination, with the curtain *a* and the coil-springs S, of the end tension-rod *d*, as specified.

198,574. HAY AND GRAIN UNLOADERS. R. Cowden, New Richmond, Pa. Filed Dec. 4, 1877.

Brief.—The hay-rack is subdivided by hinged frames, within each of which are placed slings for the reception of the load, so that each may be elevated separately without disturbing the others by the hoisting apparatus.

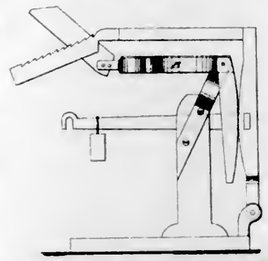


1. The combination of the hinged frames C and their hooks D with the rack A B, to divide the load into sections, substantially as herein shown and described.

2. The combination of the bars E and ropes F with the rack A B and the hinged frames C, substantially as herein shown and described.

3. The combination of the block H, provided with the loop *h'*, the pulleys *h''*, the hook and eye J K, and the ropes L M, with the hoisting-rope I and the ropes and bars F E, substantially as herein shown and described.

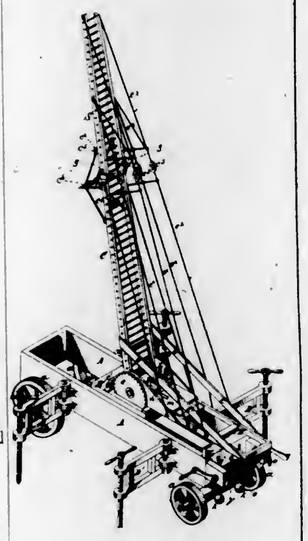
198,575. WEIGHING-SCALES. Chester L. Crowell, Rockdale, N. Y. Filed Nov. 16, 1877.



A weighing-scale consisting of a fulcrumed pan-support, with front indicator and rocking rear lever, in, combination with a rocking lever having a top arm with a graduated end piece passing sidewise of indicator, and having also a pan-balancing side arm and slide-weight, substantially as set forth.

198,576. FIRE-ESCAPE LADDERS. Antonio d'Amore, New York, N. Y. Filed July 11, 1877.

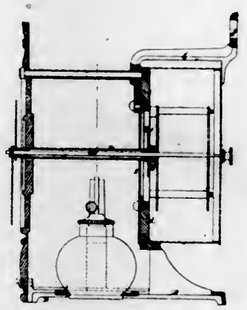
Brief.—The ladder is pivoted to a platform-carriage, which rests upon ways in the truck-frame, whereby the ladder is permitted to travel to the center of the truck, which is accomplished by the strain of the hoisting-rope in the act of raising the ladder after it has been elevated sufficiently to throw its center of gravity over or slightly beyond the axis upon which it turns vertically. The ladder-sections are braced by ropes secured to lower section, and having hooks to engage eyes on upper section, said ropes being stretched or braced by a swinging brace-frame pivoted to lower section.



1. In combination with a sectional ladder fire escape provided with the stay-rods c^2 c^2 c^2 and couplings c^3 c^3, the stay-ropes c^4 c^4 and bruce c^5, when arranged and operating substantially in the manner and for the purpose herein described.

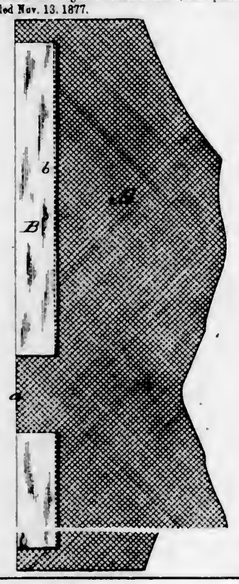
2. In a portable fire-escape, substantially such as described, the special combination of the platform-carriage B, the extension-ladder C S, hoisting rope *c*, the ropes *j j*, and the windlass F, mounted on the truck A, when arranged so as to automatically regulate and control the position of the platform-carriage B during the operations of raising or lowering the ladder, substantially in the manner and for the purposes herein described and set forth.

198,577. ILLUMINATED-DIAL CLOCKS. H. J. Davies and Walter D. Davies, Brooklyn, N. Y. Filed Nov. 1, 1877.



The base, D, having an upward train-supporting extension, provided with a central opening for the passage of the minute and hour hand arbor and sleeve, and the lamp or gas burner supporting forward projection, having a vertical translucent dial secured to or near the front edge thereof, substantially as described.

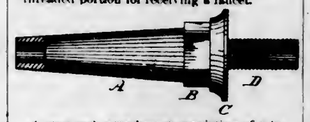
198,578. BLANKS FOR HORSE-COLLARS. Lucius Deming and John W. Deming, St. Louis, Mo., assignors of one-third their right to Cotton H. Allen, same place. Filed Nov. 13, 1877.



A horse-collar blank consisting of the canvas portion A and strips B B', of leather or other suitable material, secured to the portion A, substantially as and for the purpose set forth.

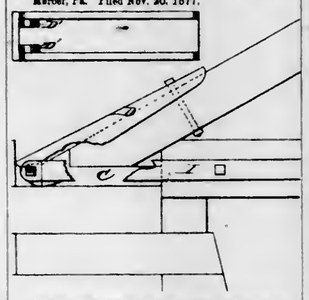
198,579. STOP-COCK ATTACHMENTS. Samuel M. Denniston and Charles Simmons, Prescott, Ariz. Filed Nov. 23, 1877.

Brief.—The object of the invention is to provide a means whereby an internally-threaded stop-cock may be adapted to use in connection with barrels, and consists of a tapering tube having at its larger end a hexagonal portion for receiving a wrench, also a flange and a threaded portion for receiving a faucet.



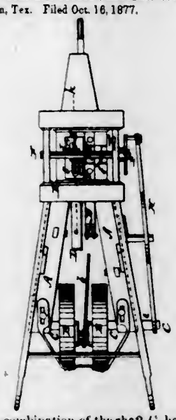
A stop-cock attachment consisting of a tapered tube, A, having a hexagonal portion, B, a flange, C, and a nipple, D, as herein shown and described.

198,580. THOROUGH-BRACE BRIDGES. John P. Derr, Mercer, Pa. Filed Nov. 20, 1877.



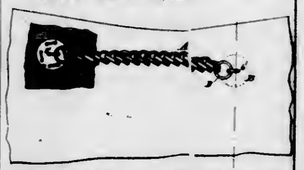
In thorough-brace bridges, the combination, with the chord A and brace B, of the brace-shoe constructed of the L shaped part C, with projection C', and the cap D, with ears D', the two parts being hinged together, as described, and the bars or straps I, all constructed substantially as and for the purposes herein set forth.

198,581. CORN AND COTTON PLANTERS. C. Domschke, Austin, Tex. Filed Oct. 16, 1877.



The combination of the shaft C, having two separate cranks, *a e*, with the rod *b*, perforated slide D, rod H, pronged rotary shaft G, pronged rotary shaft F, and agitating devices *f* and I, and with the hopper E, having a discharge-opening beneath the slide D, and another separate discharge-opening, *k*, beneath the distributer I, substantially as specified.

198,582. COAT-HANGERS. Thomas Donohoe, New York, N. Y. Filed Nov. 19, 1877.



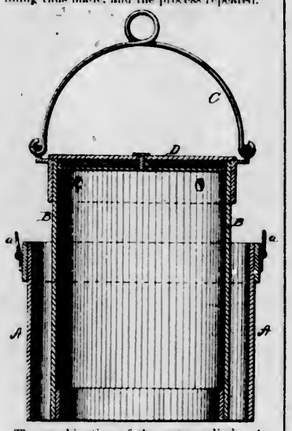
1. The chain A, of suitably short links, in combination with a coat or other wearing apparel, substantially as and for the purpose set forth.

2. The coat-hanger having the split ring D, in combination with the eye-plate B and chain A, for the purpose substantially as specified.

3. The eye-plate B and split ring D, in combination with the chain A and a coat or other apparel, substantially as and for the purpose set forth.

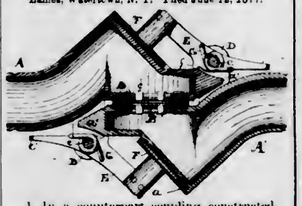
198,583. DEVICES FOR LINING WELLS. Wm. Dunton and John L. Simkins, Hopkins, Mich. Filed Aug. 30, 1877.

Brief.—The cement for lining the well is filled in the space between the cylinders, and after backing up the outer one with earth the two are then raised nearly to the top of the lining thus made, and the process repeated.



The combination of the outer cylinder A, having handles *a a*, and the inner cylinder B, provided with the bail C and cover D, for making lining for wells, substantially in the manner herein set forth.

198,584. COUPLINGS FOR VACUUM-BRAKES. F. W. Eames, Watertown, N. Y. Filed June 12, 1877.



1. In a counterpart coupling constructed, substantially as described, with lateral end openings, the gaskets B, seated in said openings, and secured in position by means of the ring C, having rings *c*, substantially as and for the purpose specified.

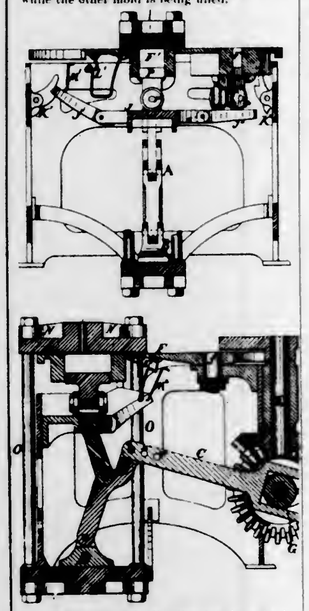
2. The combination of the parts A A', each having the beveled projecting nose *a'* and the flat bearing surface *a''*, with the levers E, having disks F and teats *f*, and with springs G, substantially as and for the purpose specified.

3. In combination with a coupling having lateral end opening, as described, the gasket

B, valve F, lever E, and spring G, substantially as and for the purpose specified.

198,585. BRICK-MACHINES. Charles W. Eastwood, Philadelphia, Pa. Filed Apr. 17, 1877.

Brief.—An oscillating mold-table is provided with two mold-cavities, which are alternately supplied with clay by attendants on opposite sides, the clay in one mold being pressed while the other mold is being filled.



1. The mold-table F, vibrating in a horizontal plane on the center *f*, as and for the purposes set forth.

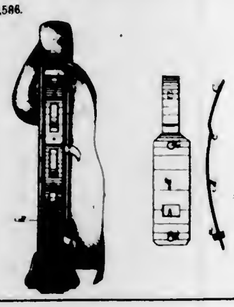
2. The combination, with the vibrating mold table F, of the toggle A, operated by cams G¹ G² and pitman C, so as to impart the pressing movement to the plunger at each movement of the mold-table, as explained.

3. The combination of the pressure-plates B N, the tie-rods O O, one or more plungers, P, the toggle A, constructed with a projecting knee, A², and the pitman C, connected at one end to a crank or cam movement, and at the other end adjustably to the projecting end A¹ of the toggle, as and for the purposes set forth.

4. The tramways J¹ J², operating as described, to lift the plungers, and dropping automatically to permit their descent after the brick is discharged.

5. The press-frame constructed, as described, with plates B N and tie-rods O O O O, in combination with the mold-table F, supported independently on rollers H H, as and for the purpose set forth.

198,586.



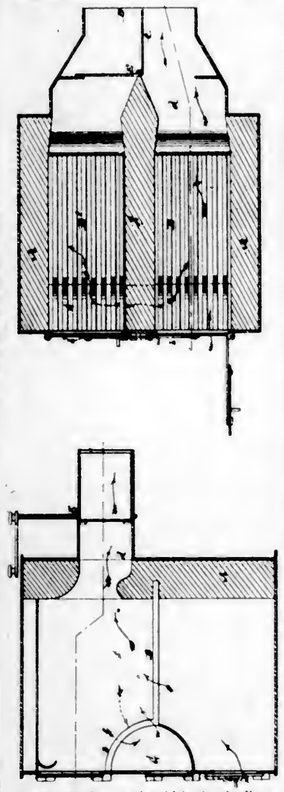
198,586. TRUSSES. Emil Edel, Hanover, Prussia, Germany. Filed July 14, 1876.

Brief.—The spring truss-band is made up of small pieces interlocked by pins and small slats.

The combination of a series of plates, A, having studs *a*, holes *c*, projecting tongues C, and slits D, with a pad, B, and suitable flexible attaching-strap, as and for the purpose set forth.

198,587. FURNACES FOR STEAM-BOILERS. Heinrich C. E. Eggers and Heinrich C. Kirchmann, Hamburg, Germany. Filed Sept. 14, 1877.

Brief.—An upwardly-projecting grated or ducted passage is provided between the twin furnaces, by which said passage is kept clear from coal or other fuel while the fire is being replenished.



In a twin furnace, in which the duplicate fire-places are in communication with each other at their front, and controlled by valves in their rear, to put either fire-place alternately in direct communication with the chimney, the combination, with the twin fire-places or grate-sections D D', of the front duct G, arranged to extend throughout the width, or thereabout, of both fire-places, and the upper portion of which is formed of an arched or raised continuation or extension of the grate-bars of said fire-places, substantially as and for the purposes specified.

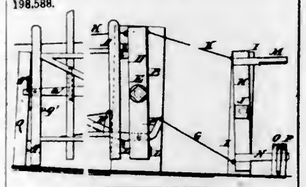
198,588. GATES. Sanford W. Erwin, Fayette County, Ind. Filed Dec. 1, 1877.

1. The combination of the pivoted bar D, the cross-bar F, the wires G K, the pivoted bars H, and the levers M with the gate A and the posts B I, substantially as herein shown and described.

2. The combination of the pivoted bar D, the cross-bar F, the wires G K, the pivoted bars H, the rigid levers N, the bent levers O, and their fulcrum-posts P with the gate A and the posts B I, substantially as herein shown and described.

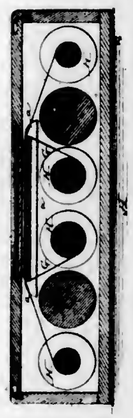
3. The latch *a'*, pivoted to the gate A, and having its inner end the heavier, to adapt it to catch upon the lower side of its catch, and be unlatched by the tilting of the rear end of the gate, substantially as herein shown and described.

198,588.



198,589. TOY PORTRAIT-GALLERIES. D. C. Fabronius, Philadelphia, Pa. Filed Nov. 8, 1877.



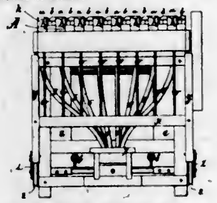


1. An apron, or its equivalent, provided with a series of portraits, faces, or heads, printed or otherwise affixed to said apron, and cut longitudinally in two or more strips, and the ends of the different strips attached to separate and independent shafts or rollers, all inclosed in a suitable box, substantially as herein set forth.

2. The combination of the box A, with lid B, having opening with glass plate C, the table D, longitudinally-divided apron G G, said strip being attached at each end, separately and independently, to rollers H, and knobs I, all constructed substantially as and for the purposes herein set forth.

198,590. NAIL-SETTING MACHINES FOR BOOTS AND SHOES. Loring Farnsworth, Nashua, N. H., assignor of one-half his right to Wilbur F. Wright, same place. Filed Dec. 3, 1877.

Brief.—The nail-receiving bed consists of a series of alternately-reciprocating bars arranged longitudinally, provided on their faces with inclined grooves terminating in discharge-tubes, which connect with flexible conductors, for delivering the assorted nails singly to the nail block or blank.



1. In a nail-setting machine for boots and shoes, a nail receiver, A, consisting of the longitudinally reciprocating bars or carriers *a a a b b b*, upon which the nails are continually circulated until delivered into the throats *l l*, substantially as and for the purpose set forth and described.

2. A nail-setting machine for boots and shoes, consisting of longitudinally-reciprocating nail carriers *a b*, in pairs, one of which is provided with descending and ascending planes *w w*, and the other one provided with a converging groove, *p*, single-nail groove *q*, heading or turning hole *t*, and feed-channel *u*, from which the nails are delivered into the pool *i* on the carrier *a*, substantially as and for the purpose set forth.

3. In a nail-setting machine, a longitudinally-reciprocating nail-carrier, *b*, provided with the converging groove *p*, in combination with the diverging waste-groove *r* and waste-vent *s s*, substantially as and for the purpose set forth.

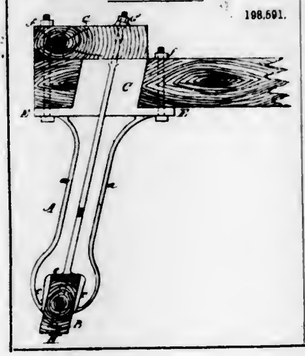
4. The herein-described heading or turning mechanism, consisting of a longitudinally-reciprocating bar, *b*, with its nail-groove *q*, turning-hole *t*, and escape-incline *r*, as and for the purpose set forth.

5. In a nail-setting machine for boots and shoes, the combination, with a nail-pool, *i*, of the vertically and laterally movable jack or lifter *k*, substantially as and for the purpose set forth.

6. In a nail-setting machine, the combination, with the throats *l l* and a perforated guide-block, 7, of the flexible spiral wire conductors 5 5 5, substantially as and for the purpose described.

7. In a nail-setting machine for boots and shoes, the combination, with the longitudinally-reciprocating bars *a a a b b b*, of the spring-bars *c c* and the corrugated rotary roller *d*, substantially as and for the purpose set forth.

198,591.

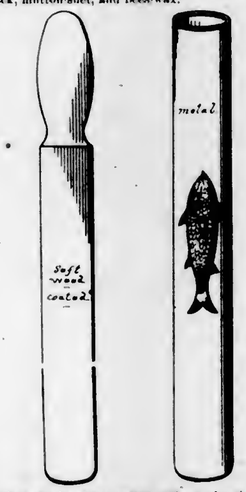


198,591. METALLIC SLEIGH-KNEES. Peter Pilman, Barton Township, Wentworth County, Ontario, Canada. Filed Mar. 23, 1877.

The sleigh knee A, formed with vertical projections C C, forming the walls of a top-bar socket, and braced laterally on their outsides by extensions of the ribs *b b*, and with downward projections *c c*, forming the walls of a runner-socket, and braced laterally on their outsides by extensions of ribs *a a*, substantially as set forth.

198,592. RAZOR-STROPS. Joseph S. Fisher, Philadelphia, Pa. Filed Oct. 15, 1877.

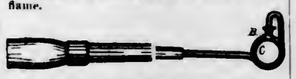
Brief.—The base of strop of soft wood—*e. g.* poplar—oiled, and one side covered with paste of crocus, vermilion powder, mutton-suet, and bees-wax, and the other with plumbago, lamp-black, mutton-suet, and bees-wax.



The wooden base coated with an abrasive composition, containing a fatty or oily substance, and covered with a metallic sheath, as and for the purposes hereinbefore set forth.

198,593. BLOW-PIPES. Thomas Fletcher, Warrington, England, assignor to Geo. B. Snow, T. G. Lewis, and John E. Kobis, Buffalo, N. Y. Filed Oct. 15, 1877.

Brief.—The coil is placed directly over the nozzle receiving the waste heat from the flame. The heated air increases the intensity of the flame.



The coil C or equivalent air-chamber, situated directly over the nozzle B, and receiving the waste heat from the flame E, substantially as and for the purpose described.

198,594. WAX-THREAD SEWING-MACHINES. H. Folsom, Stoughton, Mass. Filed Nov. 15, 1877.

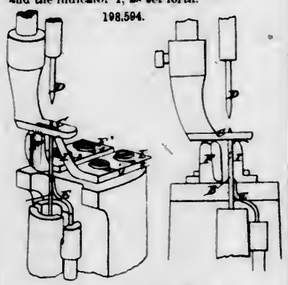
Brief.—The usual throat-plate surrounding the needle is dispensed with, and the post is arranged wholly on the inner side of the needle. On a plate or adjustable plates mounted upon the top of the post are arranged the channel-opener, placed immediately in front of the needle, and a rounded support or fulcrum for the work placed either at the rear or at the inner side of the needle. One side of the presser-foot is beveled off to allow the work to be sharply inclined.

1. In combination with the reciprocating needle, and with the post arranged to support a bearing wholly at one side or back of the needle, the indicator I, inclined upwardly and outwardly from the post, terminating in a point, *i*, lying in close proximity to the needle, in line with the horizontal path thereof, and the support F, arranged to constitute a bearing and fulcrum for the work at the rear or side of the needle, as set forth.

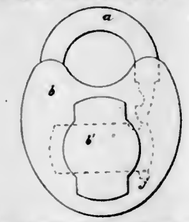
2. The support F and indicator I, in combination with means, substantially as described, for adjusting said support and indicator laterally, substantially as and for the purpose set forth.

3. The attachment for the post of a wax-thread needle-feed sewing-machine, consisting of the plate provided with the support F and the indicator I, as set forth.

198,594.

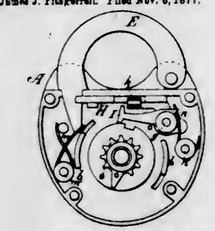


198,595. COMBINATION-PADLOCKS. Thomas Fox, Bay City, Mich., assignor of one-half his right to James J. Fitzgerrell. Filed Sept. 28, 1876.



The back plate *b*, provided with the lug or projection *j*, in combination with the cross-bar *d''* and hasp *a*, all arranged so that when the hasp is locked its end will bear against the side of the cross-bar *d''*, to prevent the same from being removed, as shown and described.

198,596. PERMUTATION-PADLOCKS. Thomas Fox, New Britain, Conn., assignor of one-half his right to James J. Fitzgerrell. Filed Nov. 6, 1877.



1. The toothed change-wheel *o* herein described, provided with finger *i*, in combination with rotating tumblers provided with pins.

2. The removable plate C, provided with hooks *b*, in combination with the centrally-perforated and slotted case A and hasp E, all the parts being arranged so that in locking the hasp it shall bear directly upon the hook *b*, thereby preventing the rotation of the plate, substantially as and for the purpose specified.

198,597. CORSETS. Lavinia H. Foy, New Haven, Conn. Filed Nov. 20, 1877.

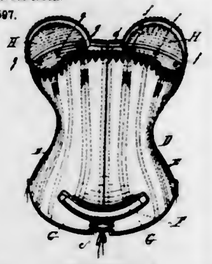
1. The combination, with the sides of the corset extended down over the hips, of the back-straps or extensions G G, substantially as and for the purposes set forth.

2. The combination, with the back of a corset, of a short bustle or rim, F, and independent quilting straps or extensions G G below the bustle and waist-line of the corset, as described.

3. As an improved article of manufacture, a corset provided with extra bosom-forms H

11, rim or bustle F, back lacing or extension pieces G G, substantially as and for the purposes set forth.

198,597.



198,598. METAL FENCE-POSTS. Benj. T. Frederick, Marshalltown, Iowa, assignor to North Western Iron Fence Company, same place. Filed Dec. 12, 1877.



In combination with a metal fence-post, having a flange provided with openings or slots for the fence wire or cable, an independent covering plate, adapted to be secured upon the said flange to close said openings or seats, substantially as and for the purposes set forth.

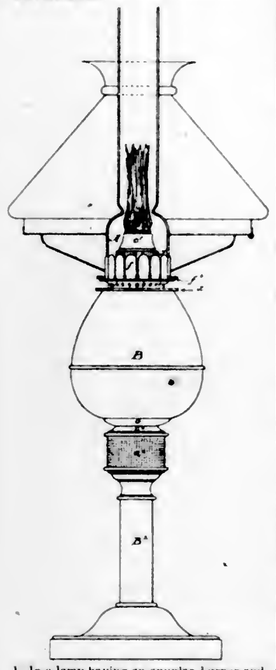
198,599. TENTS. James C. French, Del Norte, Colo. Filed Dec. 13, 1877.



1. A tent having its cover supported by a single inclined pole, provided with a guy rope or ropes to hold it in position, substantially as set forth.

2. A tent-cover re-enforced at the top, in combination with an inclined pole and guy rope or ropes, all constructed and operating substantially as set forth.

198,600. LAMPS. Joseph Fanck, Tompkinsville, N. Y. Filed Feb. 8, 1877.



1. In a lamp having an annular burner and an annular oil-reservoir, as herein described, the combination of a central air-tube, *a*, a wick-holder, *h*, sliding thereon, and a capillary wick-feeder, *f*³, permanently or securely attached to said holder, substantially as herein shown, for the purpose of accommodating and saturating a short tubular wick, in the manner set forth.

2. The wick-holder *h*, composed of a ring of thin elastic metal, having inwardly-bent fingers with sharp, outwardly-bent extremities, in combination with the central air-tube of an annular burner, for the purpose specified.

3. The combination, substantially as herein described, of a central air-tube, *a*, a wick-holder, *h*, sliding thereon, and provided with an external lug, *i*, and a concentric elevator-tube, *e*, having an internal spiral groove, *g*, to receive said lug, for the purpose specified.

4. The slotted tube *t* and the milled disk *d*, attached to the movable part of the burner A, in combination with the central air-tube *a* and concentric elevator-tube *e*, supported by the bowl or oil-reservoir B, and the wick holder *h*, sliding upon said central tube, substantially as shown and described, for the purpose set forth.

5. The bowl or reservoir B, having a filling-aperture, *o*, in the top thereof, in combination with the movable part of the burner A, having a disk, *d*, to cover said aperture, and a tube, *t*, to extinguish the flame when the disk is elevated to expose the filling-aperture.

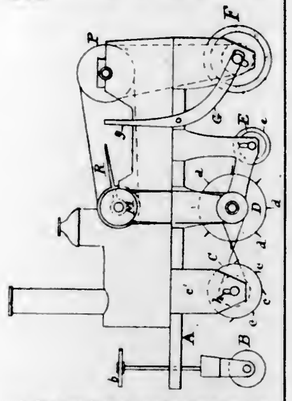
6. The depression *x*, formed in the top of the bowl or reservoir, to accommodate the filling orifice, and to confine overflow and escape of oil, and covered by the disk *d* of the movable part of the burner, as described.

7. In combination with the depression *x* in the top of the bowl or reservoir, the annular space *s*, extending downward from the notched upper end of the tube *t* in the movable part of the burner, for conducting overflow to the filling-orifice, and accommodating the upper end of the fixed tube *e*, as specified.

8. The finely-perforated deflector *y* within the air-chamber a^2 of the movable part of the burner, for equalizing the supply of air to the exterior of the flame, in the manner set forth.

198,601. STEAM-PLOWS. Sertus P. Goddard, Worcester, Mass. Filed Dec. 17, 1877.

Brief.—The main driving-roller has longitudinal blades, which cut and hold the machine firmly on the ground. A smaller roller in front revolving in an opposite direction, and with curved cutters, gravitates in its hangers and cuts off rough projections. Another gravitating roller has circular or disk cutters, and, lastly, a roller with teeth between disk-cutters.



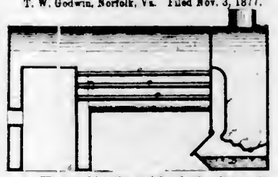
1. In a machine of the class described, the roller F, provided with teeth f^1 and circumferential knives *f*, substantially as shown, and for the purpose set forth.

2. In a machine of the class described, the roller D, provided with a series of knives, *d*, placed upon its circumference, and running parallel to its axis, in combination with the roller F, provided with teeth f^1 and circumferential knives *f*, substantially as shown, and for the purpose specified.

3. In a machine of the class described, the leveling-roller C, provided with curved knives *c*, in combination, the roller D, provided with its knives *d*, and the roller E, having circular knives, substantially as shown, and for the purpose set forth.

4. The combination of the roller C, having leveling-knives, the main driver D, having knives *d*, the roller E, having its circular knives, and the roller F, provided with circular knives or guards *f* and the rake-teeth f^1, substantially as shown, and for the purpose set forth.

198,602. SPARK-ARRESTERS FOR STEAM-BOILERS. T. W. Godwin, Norfolk, Va. Filed Nov. 3, 1877.



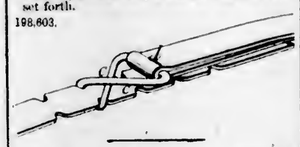
1. The combination, with a boiler, its smoke-box, and the boiler-flues, of the water-reservoir at the bottom of the smoke-box and an angular plate, forming a vertical and horizontal flue in said smoke-box, substantially as specified.

2. In combination with the flues *c* and the water-receptacle D, the plate *f* and its corrugations f^1 f^1, whereby the sparks escaping from the furnace are deflected into the water and arrested, substantially as specified.

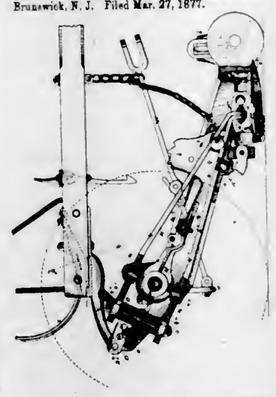
198,603. BALE-TIES. J. M. Goldsmith, Boston, Mass. Filed Dec. 1, 1877.

A bale-tie fastener constructed of a single piece of spring-wire, bent to form a loop, and two hooked arms, in combination with a bale-band, one end of which is notched on its edges and the other end fastened to the tie-fastener, substantially as and for the purposes set forth.

198,603.



198,604. MOWERS. William F. Goodwin, Stelton, assignor of one-half his right to E. F. Roberts, New Brunswick, N. J. Filed Mar. 27, 1877.



1. The combination, with the bifurcated lever N N′ and trunnions *m m*, of the bushings n^2 n^2, substantially as set forth.

2. In a harvester, the combination, with the lever N N′ and main frame, of a friction-roller to support the front vibrating end of the lever upon the main frame, substantially as set forth.

3. In a harvester, the combination of the flange M, provided with the arm M′, the track b^3, and a friction-roller to support the flange against rotary thrust, substantially as set forth.

4. The pivot-pins provided with the lug *s*′, in combination with the slot b^4, having the shoulder b^5 at the lower end, substantially as set forth.

5. The combination of the main axle, the main frame adjustable longitudinally thereon, and carrying the fixed lever-pivot, with the vibrating lever, substantially as set forth.

6. In a harvester, the tubular part B′ B″ of the frame, provided with the chamber b^{**}, in combination with the globular ring b^{***}, rollers b^{****}, and bolts or set-screws, securing the two parts of the chamber together upon the globular ring, substantially as set forth.

7. In a harvester, the main axle A′, having a collar rigidly attached thereto between the driving-wheels, in combination with the main frame, provided with abutments or shoulders upon opposite sides of said collar, whereby the desired longitudinal position of the main frame relative to the axle may be maintained, substantially as set forth.

8. The main frame provided with a chamber, Z Z′, having abutments z^1 z^1, in combination with the axle A′, collar *z*, followers z^2 z^2, keys z^3 z^3, and set-screws z^4 z^4, substantially as set forth.

9. In a harvester, the tubular part B′ B″ of the frame, provided with the chamber b^{**}, adapted to receive the cage of anti-friction rollers and to contain oil, in combination with the ring b^{***} and rollers b^{****}, substantially as set forth.

10. The part L of the nut-section, provided with the expanded flaring part to collect and return the oil, substantially as set forth.

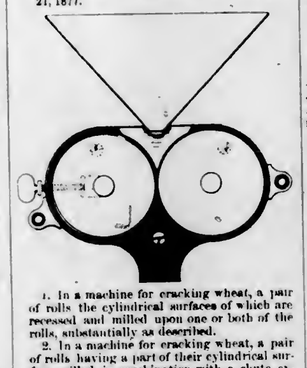
11. The combination with the main axle, of the sleeve L^3, provided with the ribs B B, and the part D′ of the nut-section, whereby said sleeve is made to support the one end of the axle upon a driving wheel, to support the back-ing devices, and to support and drive the nut-section, substantially as set forth.

12. The yoke E, made in one piece, in the form of a hook, to extend in rear of the axle and rest upon the sleeve C, in combination with the forked yoke E′, for actuating the segment D′, and adapted to be removed from the sleeve C without taking off the driving-wheel, substantially as set forth.

13. The draft frame provided with the central rib x^2 and the lips or ribs x^3 x^4, one upon each side of rib x^2, and of less height, in combination with the seat-spring *x* and spring x^1, arranged in recesses formed by ribs x^3 x^3, to permit a rocking lateral motion of the seat, substantially as set forth.

14. The combination of a locking-latch with the arm U^1 and bracket B^3, substantially as set forth.

198,605. WHEAT-CRACKING MACHINES. Malcolm Grant and John J. Henry, Baltimore, Md. Filed Nov. 21, 1877.



1. In a machine for cracking wheat, a pair of rolls the cylindrical surfaces of which are recessed and milled upon one or both of the rolls, substantially as described.

2. In a machine for cracking wheat, a pair of rolls having a part of their cylindrical surface milled, in combination with a chute extended inwardly, in order to cover only the unmilled portion of the rolls, as and for the purpose described.

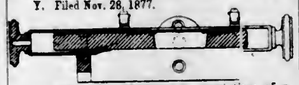
198,606. PAVEMENTS. Samuel E. Gross, Chicago, Ill., assignor to Emily Gross, same place. Filed Apr. 10, 1877.

Brief.—Plain natural stone slabs are laid on a properly-prepared foundation, on which the blocks forming the wearing surface are placed.



The combination of the natural plain stone slabs or flag-stones with the blocks B, the whole constructed substantially as described, and for the purpose set forth.

198,607. STAGES FOR MICROSCOPES. Ernst Gundlach, Rochester, assignor of one-half his right to John J. Bausch, same place, and Henry Lomb, Brooklyn, N. Y. Filed Nov. 28, 1877.



A stage for microscopes consisting of a strong glass plate immovably fastened to the stand, in combination with a sliding plate acting as an object-slide carrier, the whole constructed and operated in the manner and for the purpose above described.

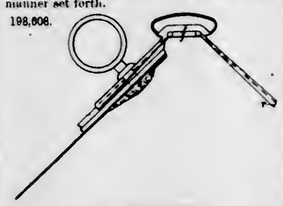
198,608. HARNESS-SADDLES. J. M. Gwinnell, Newark, N. J. Filed Nov. 12, 1877.

1. The improved tree, constructed, as shown and described, with raised seat or depressed sides, undercut shoulder *e*′, crupper-loop, and open back, all cast in one piece, in the manner specified.

2. The combination, with a saddle-tree cast in one piece with raised seat, and having an undercut shoulder, of the jockey fitted flush against the seat, and furnished at each side with a strip of leather, the space between them forming a groove for the reception of the back band, and embracing the sides of the tree, in the manner set forth.

3. The combination of the stiffener, constructed as described, with the saddle-tree, flap, back-band, and terret, all arranged in the manner set forth.

198,608.



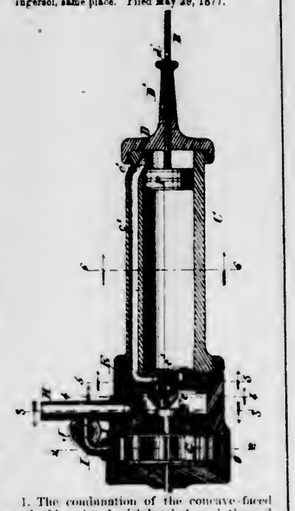
198,609. GIG-SADDLES. J. M. Gwinnell, Newark, N. J., assignor of one-half his right to Jacob Huber, same place. Filed Nov. 23, 1877.



1. In a harness saddle, the leather loop provided with a metallic fastening, adapting the back-band to be removed at will, all substantially as shown and set forth.

2. A leather loop provided with a T-shaped fastening, or its equivalent, as shown, adapted to be removably connected to the saddle-plate, all substantially as shown and described.

198,610. COAL-MINING MACHINES. J. W. Harrison, Adrian, Mich., assignor of one-half his right to J. E. Ingersol, same place. Filed May 29, 1877.



1. The combination of the concave-faced or double-pointed pick-head A and the rod B, having a longitudinal reciprocating motion, and guided by a tongue or groove, so as to retain the pick-points in a vertical plane.

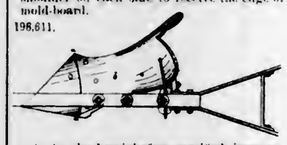
2. The combination of the drill or pick A-*a a*′, the piston-rod B, the cylinder C, and the cylinder-head D, constructed with a projecting nose, D′, provided with means for guiding the drill-rod, in the manner explained.

3. In combination with a reciprocating drill or pick, A, and a piston, P, for operating the same, and a valve-motor, the pipe H, having direct communication with said piston, and a branch pipe, I, connecting the pipe H with the motor, as and for the purpose set forth.

198,611. SWIVEL-PLOWS. Julius Hartmann, Louisville, Ky. Filed Oct. 27, 1877.

Brief.—Mold-board concave at front end and convex at the rear, and forms a continuous edge with the share. An independent block to receive the mold-board, share, and pivoted land-side, the latter with beveled sides, being thinnest at the bottom. Standard has a shoulder on each side to receive the edge of mold-board.

198,611.

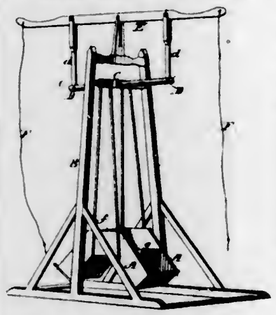


1. As the hereinbefore-specified improvement in swivel-plows, the combination, with the beam and standard, of the swiveled mold-board and point, extending laterally to form a center-draft, and otherwise constructed and arranged as shown and described—that is to say, the wearing surface formed of said mold-board and point having a gradually-increasing convexity and width back of the center *b*, and a gradually-increasing concavity and width forward of the center to the angular projections *a a*, the concavity extending thence to the nose of the point, all as set forth, for the purpose specified.

2. As an improvement in swivel-plows, the combination of the reversible mold-board and point with the standard having the inclined shoulders or projections, substantially as and for the purpose specified.

3. As an improvement in swiveled or reversible plows, the bottom or land-side bar, beveled or made oblique on opposite sides, as shown and described.

198,612. SWINGS. Christian Hartman and Frederick A. Freese, San Francisco, Cal. Filed July 5, 1877.



In a swing, the combination, with the supporting frame and the rock-shaft, of the arms D D, the lever E, the links *d d*, and the ropes F F, by means of which a positive motion is given to a swing in each direction of its oscillation, substantially as described.

198,613. DEVICES FOR SUPPLYING AIR TO FURNACES. H. F. Hayden, Washington, D. C. Filed Dec. 3, 1877.

1. The air-duct and distributer F, arranged within the fire-pot, and having its supply-end extended below the grate-surface, and its upper end perforated, as described.

2. The combination, with the fire-box of a furnace, of the air-distributer F, perforated at its upper end to admit air to the fire-pot, and forming a perforated extension of the inclined dead-plate or clinte, over which the coal is fed to the fire, as described.

3. The distributer F, connected by pendent arms or pipes F^1 with a duct, F, receiving air from a point below the grate-surface, as described.

4. The communicating air-distributers E and F, arranged substantially as described, in combination with independent supply-ducts, substantially as and for the purpose set forth.

5. The combination, in a furnace, of the air-distributing chamber F and the side-distributing pipes or chambers *a'*, having separate supply-pipes or ducts, substantially as described.

6. The combination, in the fire-box of a furnace, of the air-distributers E, F, and *a'*, arranged and operating substantially as described.

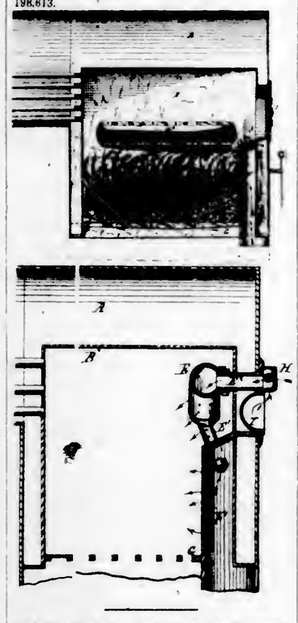
7. In a boiler-furnace, the duct E^3 for supplying air to the distributer E, provided with the hinged shield or hood H, for preventing the admission of obstructing matter while permitting the admission of air, as described.

8. In a furnace, the door I, provided with the open hemispherical portion projected within the fire-pot, and forming the enlarged air-heating surface, in combination with the air-duct E^3, as described.

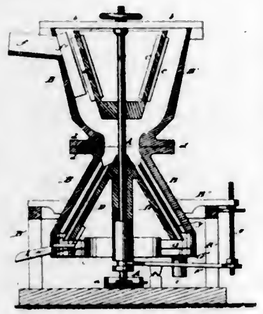
9. The open hemispherical portion of the door, elongated as described, and adapted to move in and out on ways in the door-frame when the latter is closed and opened, substantially as described.

10. The combination, with the door having the sliding hemispherical central portion I^1, of the chain *i* and hasp *j*, arranged and operating substantially as described.

198,613.



198,614. MACHINES FOR CUTTING AND GRINDING LOGWOOD. Clark P. Hayes, Brooklyn, N. Y. Filed Nov. 8, 1877.



1. The upper cone-jacket B, having guide-channel *f* and check-piece *f'*, and the upper cone C, having the chippers *c*, in combination with lower cones B D, provided with inside and opposite grinding-plates, as and for the purpose described.

2. The combination, with the lower grinding-cones B D, of a ring-shaped screen and bottom casing, with suction-pipe and exit-spout, as and for the purpose set forth.

3. The combination, with lower grinding-jacket cone B, of a rotary grinding-cone, D, provided with radial scoops at lower edge, to act in connection with exit-spout, as specified.

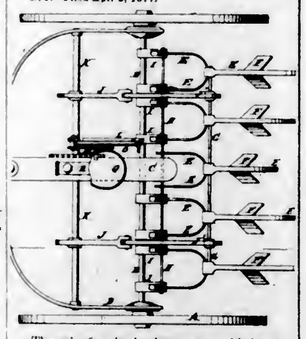
198,615. CARPET FABRICS. Alfred Heald, Philadelphia, Pa. Filed Apr. 7, 1877.

Brief.—Consists of ingrain ply of thin warps and thick wefts, and damask ply of thick and thin wefts and face warps, the two plies being interlocked by the thin damask weft and thin ingrain warp.



A carpet in which are combined an ingrain fabric and a damask fabric, consisting of face-warps and thick and thin wefts, in such manner that the ingrain shall appear upon one face when the damask-ply appears on the other, all substantially as specified.

198,616. CULTIVATORS. James Higgins, Westfield, N. J. Filed Apr. 2, 1877.



The axle of a wheel cultivator, provided with rigid arms I, to which are pivoted the forked drag-bars E, the pivot-rod H, stay-rod G, and pivoted link J', in combination with the rock-shaft K, having rigid arms J, lever L, and pawl and ratchet *w n*, substantially as described.

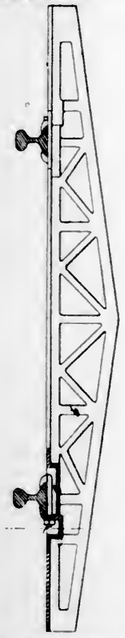
198,617. SKIRT AND HOSE SUSPENDERS. Laura Z. Hitchcock, Kansas City, Mo. Filed Dec. 1, 1877.



The clothing supporter consisting of shoulder bands C C, back and chest bands F F, side bands I I K K, hose pendants M M, having suitable slides, the arrangement of the side bands I I K K and hose pendants *m m* being

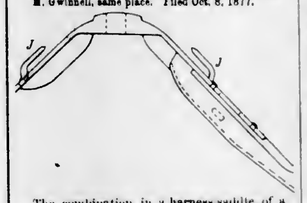
as specified, waist-band A, provided with buttons and loops, and hose-clasps O, the said clasp consisting of the eye or loop *o* and the toggles *o' o' o'' o''*, pivoted at upper and lower ends, substantially as and for the purposes described.

198,616. RAILWAY CROSS-TIES. David Horrie, Keokuk, Iowa, assignor to himself and Jas. H. Wheeler same place. Filed Nov. 20, 1877.



A metallic tie having broad top part, with grooves passing across under the base of the rails, and fixed cross-flanges, in combination with the rails and fastening-bolts having spiked heads, connecting the cross-flanges and the bases of the rails, substantially in the manner set forth.

198,619. HARNESS-SADDLE TREES. Jacob Huber, Newark, N. J., assignor of one-half his right to John M. Gwinnell, same place. Filed Oct. 8, 1877.

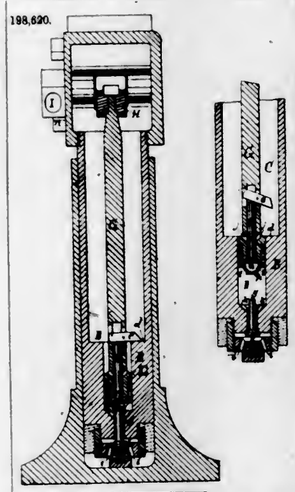


The combination, in a harness-saddle, of a flap lying on top of the tree, and a hook, J, arranged above the terret, and holding the upper end of the flap in contact with the face of the tree, as and for the purpose specified.

198,620. HYDRAULIC JACKS AND PRESSES. Fredk. G. Hunter, Moncton, New Brunswick, Canada, assignor of one-half his right to J. M. Reid, same place. Filed Nov. 6, 1877.

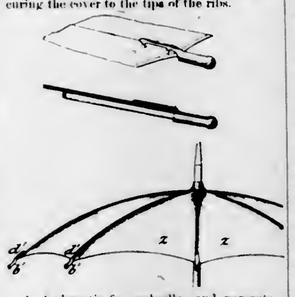
The combination, in a hydraulic jack or press, of a lever pivoted to the pump-plunger or its shaft, and a stop, so arranged that by the downward movement of the plunger beyond a certain point the said lever is made to open the valve of said plunger, substantially as described.

198,620.



198,621. CLASP-TIPS FOR UMBRELLA-COVERS. John C. Harcombe, New York, N. Y., assignor of one-half his right to Daniel C. Dawes, same place. Filed Dec. 10, 1877.

Brief.—The clasp-tips afford means for securing the cover to the tips of the ribs.



1. A clasp-tip for umbrellas and parasols, having a tubular end to receive and hold the rib, and an open part provided with pin-points, to receive and clasp the seam of the gore, substantially as herein set forth.

2. A clasp-tip for umbrellas, having a tubular end and an open part provided with clasping pins, said pin-point open part having an offset or bulge from the tubular part, and formed with a recess or hollow to receive and hold the seam of the gore, and to form a smooth set to the cover.

3. A clasp-tip for umbrellas, secured to the seam of the gores by the pin-point clasps, and to the rib end by the closed tube forming the neck and the hollow knob, substantially as herein set forth.

4. As a new article of manufacture, a clasp-tip for umbrellas, made in one piece, of thin sheet-metal, and having a tubular portion open to receive the rib, and a recessed or hollow offset part, with pin-points properly set to receive and clasp the seam of the gore, substantially as specified.

198,622. LEATHER-CRIMPING MACHINES. Samuel W. Jamison, Newark, N. J., assignor to S. W. Jamison Boot and Shoe Crimping Machine Company. Filed July 5, 1877.

1. In machinery for crimping leather and other material for boots and shoes and other articles, the combination, with a crimping tree or plate, of jaws for crimping or smoothing the material, arranged in pairs, and mounted in trucks movable upon stationary and rigid ways, and mechanism for imparting lateral movement to said jaws toward each other, substantially as herein shown and described.

2. The combination, with the movable truck, of a jaw-carrying box, movable within said truck, substantially as herein shown and described.

3. The combination, with the movable truck and jaw-carrying box, of a right and left hand screw, forming the fulcrum of a lever, to be operated from without the truck, substantially as shown and set forth.

4. The combination, with the jaw-carrying box, operated to move within and transversely to the path of the truck by means of a right and left hand screw, of an automatically-operated lever to rotate said screw, substantially as herein shown and set forth.
and left hand screw, of an automatically-operated lever to rotate said screw, substantially as herein shown and set forth.

5. The combination, with the movable truck on the stationary frame and the jaw, operated by a lever, as described, of an adjustable stop fast to a fixed portion of the frame, and actuating the lever within said movable truck to turn the screw at the proper intervals of time, substantially in the manner and for the purposes set forth.

6. The combination, with the jaw hung upon a box operated by right and left hand screw and lever, of the automatically-shifted weight upon the lever, for operation substantially as and for the purposes set forth.

7. The jaws supported and hung substantially as herein shown and described, whereby each jaw of any pair of jaws may adjust itself independently of the other with respect to the crimping-tree, as herein set forth.

8. In a machine for crimping boots and shoes, the jaws hung to the trucks by means of links, substantially as herein and shown described.

9. The smoothing-jaws arranged in opposite pairs, both being attached to their respective trucks by hinge-joints, substantially as shown and set forth, so as to admit of each being tilted upon its lower end, as described.

10. The smoothing-jaws arranged in opposite pairs, the one being hinged at its lower end to the truck, while the lower end of the other is hinged to a box movable within the truck, both jaws having toggle-joint connections at their upper ends with their respective trucks, substantially as shown and set forth.

11. The combination, with the smoothing jaws, hung at their upper ends to their respective trucks by means of toggle-joints, of levers to operate said toggle-joints for the spreading the jaws apart, substantially as and for the purposes set forth.

12. The combination, with one of a pair of smoothing-jaws, of the mechanism, substantially as described, whereby the hinge by which its lower end is secured to the truck is made automatically to move toward and away from the crimping-tree, as and for the purposes set forth.

13. The combination, with the belt-shifting device, of the system of levers, bell-cranks, and connecting-rods herein shown and described, operated by cam fast to one of the trucks, to shift the belts automatically, and to reverse the machine at the completion of either stroke, substantially as and for the purposes set forth.

14. In a crimping machine, and in combination with the belt-shifting device and the means herein described for automatically operating the same, the hand lever and latch, with the angular cam and treadle to operate the same by hand or foot, at the pleasure of the operator, substantially as shown and set forth.

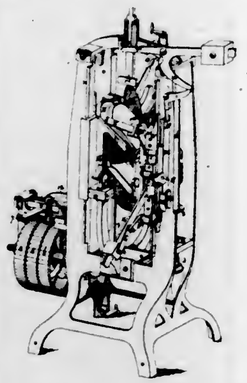
15. In boot and shoe leather crimping machinery, and in combination with the crimping-tree and crimping-jaws, and whether the latter are or not used in connection with smoothing-jaws, the wrinkle-preventer, the same consisting of a plate the lower edge of which conforms with the upper or crimping edge of the tree, the same being arranged for operation substantially as herein shown and described.

16. The combination, with the wrinkle-preventer, of automatic means, substantially as herein shown and described, for lifting it off and dropping it upon the tree at the proper time, as herein described.

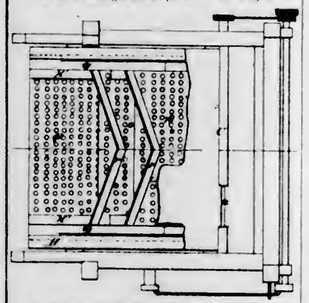
17. The crimping-jaws shaped substantially as herein shown and described, so that their action upon the leather on the tree shall be continued on the heel or corner portion of the same after they shall have ceased to act upon the other portions of the leather.

18. The crimping-tree-supports, made, substantially as shown and described, with lateral slides and with grooves to hold the plate therein, and pins or other fastening devices, so as to allow of its ready removal and replacement.

198,622.



198,623. GRAIN-WINNOWERS. John W. Johnson, Towanda, Pa., assignor to himself, C. M. Manville, and E. C. Buffington, same place. Filed Oct. 8, 1877.



1. A hinged wind-board, *g*, supported at its swinging end by a cloth or apron, *i*, detachably connected with the shoe, for allowing the board to be dropped perpendicularly in front of the sieves for shutting off the blast in cleaning clover and other small seeds.

2. The sieve I, provided with the partial bottom *e*, adapted to join the grain-chute board F, and to form, in connection therewith, the chute-board or bottom to the sieve I, the partial bottom *e* being provided with the two discharge-outlets *n*, arranged and operating as described.

3. The screen provided with flanges or ribs H' a short distance from and parallel with its ways, adapted to form gutters in connection with the sides of the shoe when the screen is in place, substantially as and for the purpose described.

4. The perforated zinc screens, arranged in steps overlapping each other, and provided with the V shaped deflecting flanges, inclining outward and forward, as described, in combination with side flanges H', adapted to form gutters on the sides of the screen-frame between the screens and the sides of the shoe, as described.

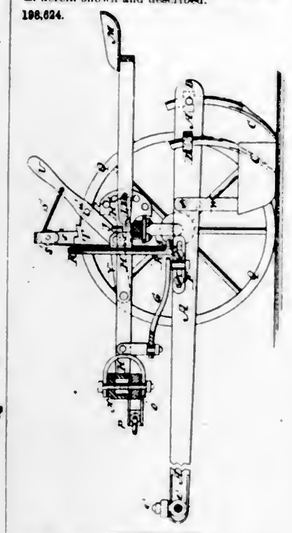
5. The agitating roller C, made in the square or polygonal form shown and described, whereby it is adapted to agitate the grain, and thus to feed it without endangering its being crushed.

198,624. CULTIVATORS. John S. Johnston and C. A. Johnson, Rockford, Ill. Filed Oct. 22, 1877.

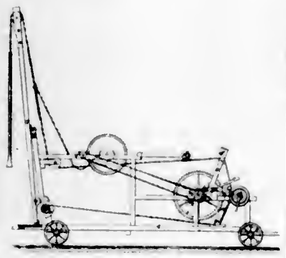
Brief.—The plow-beams extend forward to receive the neck-yoke, while the draft is attached to the main frame. The seat and frame are balanced upon the axle, and have a swiveled connection with the plow-beams, so that the latter may be swayed from side to side, and raised by the weight of the driver being thrown back upon his seat.

The combination of the adjustable eye or socket plates F, the connecting-bars G, the bars H, and the bar or block N, with the plow-beams A and the axle I, whereby the plow-beams are allowed to oscillate laterally and are raised by the driver's weight, substantially as herein shown and described.

198,624.



198,625. ROCK-DRILLING MACHINES. F. Keenan, Brownville, N. Y. Filed Oct. 24, 1877.



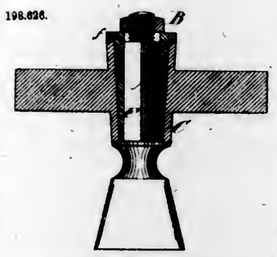
1. A rock drilling machine constructed with a supporting platform on wheels, a swinging and removable mast to support the drill-cord, a bell-crank lever, in combination with a cam-wheel, whereby the drill is advanced or retracted, an elastic bumper to receive and limit the forward throw of the bell-crank lever, a windlass whereon is placed the operating cord of the drill, and a second windlass, whereon is placed a feed-cord, and whereby the feeding of the drill may be regulated, substantially as described.

2. In a rock-drilling machine, a bell-crank lever, in combination with an elastic bumper, substantially as and for the purpose described.

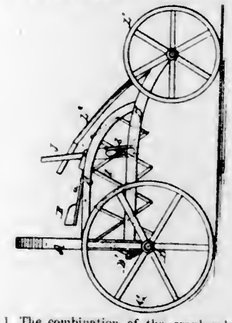
198,626. COMPENSATING-JOURNALS. G. D. Kempton, Philadelphia, Pa. Filed Apr. 26, 1877.

The conical bush F, having an angular bore or central aperture and a shoulder, *f*, on its longer end, in combination with the conical box or hub C, angular shouldered and threaded shaft A, and nut B, the several parts being constructed and arranged substantially as and for the purpose specified.

198,626.



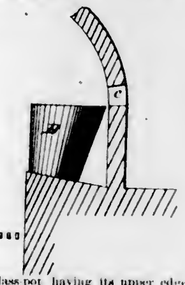
198,627. VELOCIPEDES. O. C. Kerr, Carthage, assignor to J. N. Haworth, Alba, Mo. Filed June 23, 1877.



1. The combination of the crank-axle D, lazy-tongs I, and lever J, all arranged in a velocipede, as and for the purposes herein set forth.

2. A velocipede consisting of the frame A B C, with seat E, rear crank-axle D, with wheels G, lazy-tongs I, lever J, front axle L, wheels L^1, and lever L^2, all constructed substantially as and for the purposes herein set forth.

198,628. GLASS-POTS. Georg Kim, Pittsburg, Pa. Filed Nov. 23, 1877.



1. A glass-pot having its upper edge inclined obliquely to its axis, and its longest side unbroken below the edge, substantially as and for the purposes described.

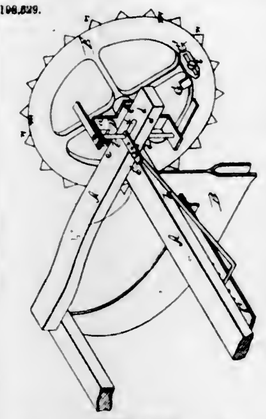
2. A glass-pot having its upper edge inclined to its axis, and the short side at right angles to the upper edge, substantially as shown and described.

198,629. CORN-PLANTER ATTACHMENTS. Walter W. S. Kime, Victor, Iowa. Filed Nov. 20, 1877.

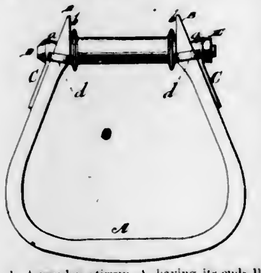
1. The adjustable casting D, carrying the wheel spindle, and also the shaft *b*, in combination with the perforated arm b^1, adjustable connecting-rod A, and slide C, substantially as and for the purposes herein set forth.

2. The combination of the adjustable casting D, shaft *b*, connected to the slide C, the cranks b^2 b^3, and the adjustable arm G, attached to the wheel E, as and for the purposes set forth.

198,629.



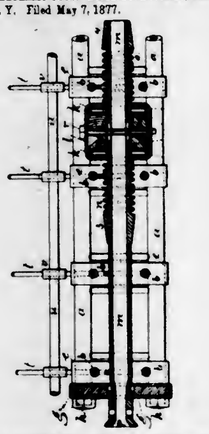
198,630. STIRRUPS. Henry H. Knight, Sandusky, Ohio. Filed Dec. 1, 1877.



1. A wooden stirrup, A, having its ends B B inclined and beveled on their inner sides to form parallel walls *b b*, as set forth.

2. In combination with the inclined ends B B of a wooden stirrup, the bolt-plates C C, constructed as described, and having their heads *a a* beveled, substantially as and for the purposes set forth.

198,631. METALLIC CASES. Bernard J. La Mothe, New York, N. Y. Filed May 7, 1877.

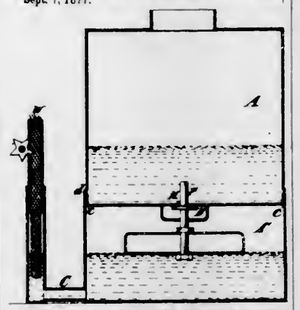


1. The combination, with the longitudinal and transverse tubes or rods, of the straps *e* and blocking-pieces *i*, substantially as set forth.

2. The intersection coupling-clips *e*, each made of a flattened band, with tubular openings through at opposite sides for the tubes or rods *t*, and with a transverse perforation for the tube or rod *s*, in combination with said longitudinal and transverse rods or tubes of the metallic car-frame, substantially as set forth.

3. The tubular draft-bar *s*, made with the coupling-head *a* at one end, and passing transversely through the transom-beam, in combination with the springs *n o* and collars 3 4 at each side of the beam, substantially as set forth.

198,632. LAMPS. John D. Lane, Brooklyn, N. Y. Filed Sept. 7, 1877.

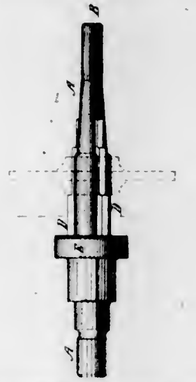


1. The combination, with the oil-supply chamber A', of the detachable oil-reservoir A, fitted to and forming a cover for the chamber A', substantially as and for the purpose specified.

2. The combination, with the reservoir A and supply-chamber A', the former being a detachable cover for and communicating directly with the latter by the hole H, of a float valve, attached to the bottom of the chamber A and extending down into the chamber A', for regulating the flow of oil through said hole, substantially as and for the purpose described.

198,633. EXPANDING MANDRELS. Charles W. Le Count, Norwalk, Conn. Filed Nov. 15, 1877.

Brief.—Sliding bars are fitted in inclined dovetailed slots, and are made to move longitudinally together by an equalizing collar. Said bars are tightened or loosened, after the work is placed thereon, by slight blows on the rear and forward ends of the arbor, respectively.

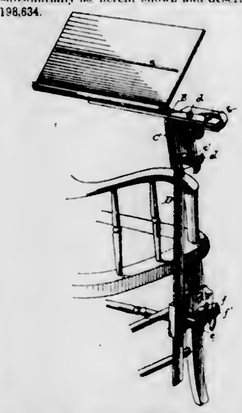


The combination, with an arbor, A, having formed therein inclined bottomed grooves B, of sliding supports D, fitted to said grooves, and an equalizing sliding collar, E, engaging with said sliding supports, and sliding with said supports longitudinally over said arbor, substantially as and for the purpose specified.

198,634. BOOK-RESTS. William W. Liles, Roanoke, Ala., and La Fayette W. Liles, Jackson, Miss. Filed Nov. 20, 1877.

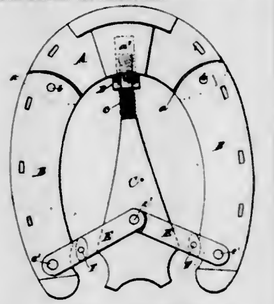
The combination, with the book rest, of the right angled bar B, right angled bar C, having slots and set-screws *c c' d d'*, standard D, and bar E, provided with the sleeve E, slots *f*, and set-screws *e f'*, the several parts constructed and relatively arranged to operate substantially as herein shown and described.

198,634.



198,635. HORSESHOES. Albert L. Lincoln, Bethel, Vt. Filed Nov. 20, 1877.

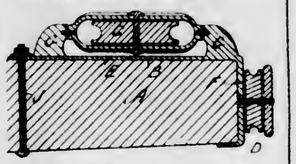
Brief.—The shoe is sectional, and provided with an adjustable frog-pad having toggle-braces pivoted thereto to allow the contraction and expansion of the hoof. The spurs attached to the toggle-braces rest against the inner sides of the horse's feet.



1. The frog-pad C, provided with threads *c* and nut D, and the braces E, in combination with the socketed toe-piece A and side pieces B, with their pivotal connections, substantially as and for the purpose set forth.

2. The toggle-braces E, having spurs F, in combination with sectional shoe A B B and the adjustable frog-pad C, as and for the purpose set forth.

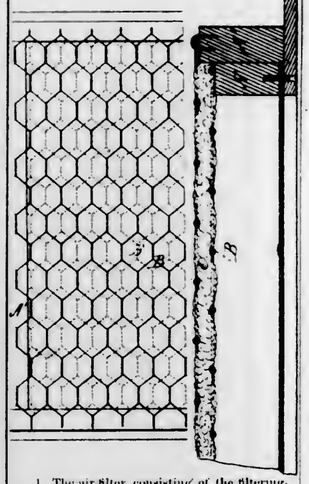
198,636. PULLEY ATTACHMENTS FOR GAFFS. Herbert Loud, Boston, Mass. Filed Nov. 26, 1877.



1. The bobber E, provided with a side pulley, C, and constructed in one piece, to fit the side and cap the end of a gaff, substantially as and for the purpose described.

2. The combination, with a bobber, B, constructed in one piece, to fit the side and cap the end of a gaff, of a side pulley, C, for the gaff-topsail, and a pulley or eye, D, on the cap for the down-haul rope, substantially as and for the purpose described.

198,637. **ATMOSPHERIC FILTERS.** Richard G. Ludlow, St. Louis, Mo. Filed Nov. 17, 1877.



1. The air filter consisting of the filtering-layer of cotton fiber between the supporting and confining sheets of net-work, substantially as specified.

2. The combination, with the sheets of net-work B B and an interposed layer of cotton wool, of a sheet of net-work, of a fine mesh, exterior to the sheets B B, substantially as specified.

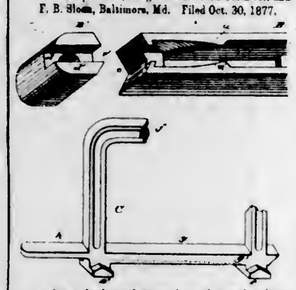
198,638. **TESSELLATED OR MOSAIC PAVEMENTS.** M. F. Lyons, New York, N. Y. Filed Oct. 29, 1877.



1. The within-described method of laying pavement, by forming sections with borders of brick, and filling in said sections with cement or plastic material, dampened and tamped, so that the particles of the cement will adhere closely with each other, but not with the brick, substantially as described, and for the purpose set forth.

2. The tessellated pavement herein described, consisting of sections with borders of brick filled in with cement or plastic material, the particles of the latter adhering with each other, but not with the brick, substantially as described, and for the purposes set forth.

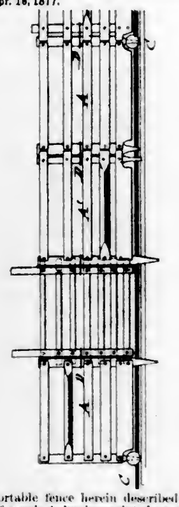
198,639. **BEDSTEAD-FASTENINGS.** George Loppert, Williamsport, Pa., assignor to Richard Cromwell and F. B. Sloan, Baltimore, Md. Filed Oct. 30, 1877.



1. In a bedstead fastening, the socket iron B, having outwardly beveled ends and carrying the inclined sockets, and the plug iron B', provided with a grooved top, in combination with the hook-iron, having a projecting end adapted to cover the joint between the socket and plug irons, substantially as and for the purposes set forth.

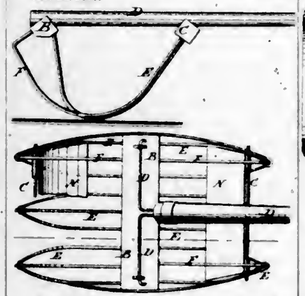
2. The combination of the socket-iron B, having parallel sides, outwardly-beveled end b', incline c, and inclined socket-ways a a', with the plug-iron B', provided with outwardly-beveled end c', incline c', and groove d in its top, and the hook-iron, having lugs e e' and projecting end A, all constructed and arranged substantially as described and shown.

198,640. **FENCES.** David E. Lupold, Driftwood, Pa. Filed Apr. 16, 1877.



The portable fence herein described, consisting of panels A, having pointed posts, and posts with base-sills C, and rails extending only to the center of the posts, in combination with alternating panels A', having end posts and rails extending beyond the latter, as and for the purpose set forth.

198,641. **CRANBERRY-GATHERERS.** L. L. Lombert and Daniel Lombert, Marston's Mills, Mass. Filed May 28, 1877.



1. The rake for drawing the berries from the vines, formed of the handle D, the cross bars H C, the bars or rods E, and the braces F, substantially as herein shown and described.

2. The combination of the side plates M and the hinged plates N with the rake D H C E F, substantially as herein shown and described.

198,642. **MACHINES FOR GLOSSING LABELS, SHOW-CARDS, &c.** William C. Macbray, Cincinnati, Ohio, assignor of two-thirds his right to Archibald Macbrair and Archibald Macbrair, Jr., same place. Filed Nov. 10, 1877.

1. The combination, in a machine for glossing labels, show-cards, chromos, and other like articles, of the two horizontal rollers journaled in the upright standards, and revolving in contact with each other, and the adjustable pan containing the glossing compound, in which the lower roller dips, the whole constructed to operate substantially as specified.

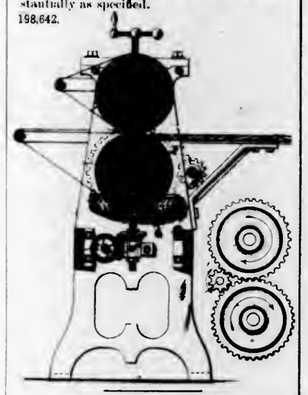
2. The combination, with the rollers and the adjustable pan, of one or more gas pipes and burners located below the pan, whereby its contents may be heated to adapt the machine to be employed for sizing, substantially as specified.

3. In combination with the lower roller and the pan for containing the glossing compound, the bands or supports, the screws upon which they are mounted, and the mitered gearing and shaft for operating the same, substantially as specified.

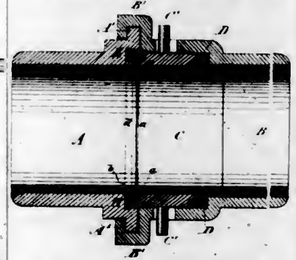
4. In combination with the fixed cog-wheel of the upper roller and the adjustable cog-wheel of the lower roller, the detachable pinion, adapted to gear with said cog-wheels, for the purpose of rotating the rollers in opposite directions in order to dress their surfaces, substantially as specified.

5. In combination with the upper roller of the machine, the detachable casing of wire cloth or gauze, whereby said roller may be adapted to serve as an embossing-roller, substantially as specified.

198,642.



198,643. **HOSE-COUPLINGS.** Marcus M. Manville and O. A. Bissett, Whitehall, N. Y. Filed Aug. 3, 1877.



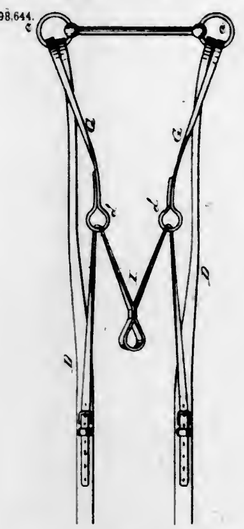
1. A hose-coupling composed of a male portion sliding on transverse face guides or ways of the female portion, and being connected by an interior sliding and cushioned collar, substantially as and for the purposes specified.

2. The combination of the female portion H, having face guides or ways B', and sliding and cushioned interior collar C, having end shoulder a and tapering edge b, with the transversely-sliding male portion A, having annular groove and packing E, substantially as specified.

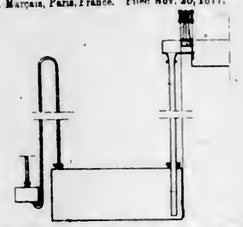
198,644. **CHECK-REINS FOR HARNESS.** Arnold P. Mason, Olean, N. Y., assignor of one-half his right to Hyram Dean, same place. Filed Oct. 6, 1877.

The check-reins G G, provided with the loops d d for the reception of the strap I, having a loop passing around the check-hook H, and adjustably attached, by means of a buckle, to the reins D, substantially as described, and for the purpose set forth.

198,644.

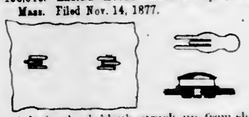


198,645. **APPARATUS FOR RAISING WATER, &c.** J. J. Marçais, Paris, France. Filed Nov. 20, 1877.



The combination, in an apparatus for raising liquids, of an accumulator of power and an ascending column, utilizing the power accumulated, the same consisting of receivers, basins, reservoirs, pipes, and valves, arranged substantially as herein shown and described, whereby the use of air pumps or independent air-condensers is dispensed with, substantially as herein set forth.

198,646. **LACING-HOOKS.** Edward Mayne, Boston, Mass. Filed Nov. 14, 1877.



A lacing hook blank struck up from sheet metal, one end of which constitutes the hook portion, the opposite end having two outer fastening prongs of nearly equal length, and an intermediate shorter prong, all substantially as and for the purpose set forth.

198,647. **TELLURIANS.** Gideon McBride, Dover Hill, Ind., assignor to himself, William F. Faas, and Frank Perdue Minerva, Ohio. Filed Oct. 16, 1877.

1. In a tellurian, the combination of the elliptic plane C, having hoop or flange D and fixed elliptic cog-wheel H, with the revolving center-post E, having guide-arms F, and with sliding frame G, friction-wheel F, and cog-wheels I and J, the shaft of cog-wheel J carrying the earth E', the whole being arranged to impart elliptical motion to the earth, substantially as shown and described.

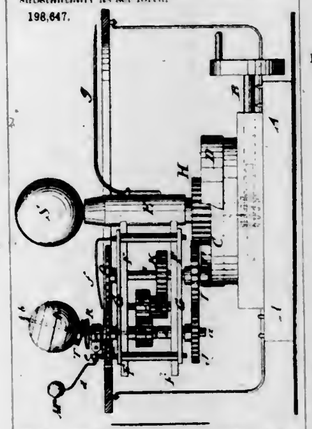
2. In a tellurian, the combination of elliptic plane C, having hoop or flange D, fixed elliptic cog-wheel H, intermeshing cog-wheel I, friction-wheel F, and cog-wheel J, having polar-wire extension, that maintains its polarity in all parts of its orbit around the sun S, substantially as set forth.

3. The combination of the elliptic plane C, having hoop or flange D, fixed elliptic cog-wheel H, intermeshing cog-wheel I, friction-wheel F, gear-wheels K L M N, convex wheel R, and bottom rim T of earth E', to impart a diurnal motion from west to east, substantially as specified.

4. The combination of the elliptic plane C, having hoop or flange, fixed elliptic cog-wheel H, intermeshing cog-wheel I, cog-wheel O at upper end of shaft of wheel I, upper cog-wheel P, having inclined face-dial, friction-wheel r, and moon-supporting wire d turning loosely on sleeve of wheel R, to govern orbit of moon M', substantially as set forth.

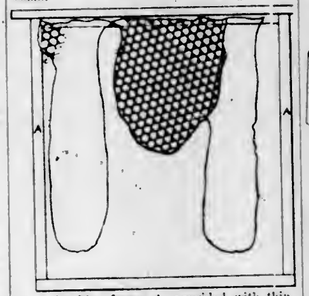
5. The combination of a fixed index, f, extending radially from the sun and diametrically across upper cog-wheel O, with the intermeshing cog-wheel P, having inclined and subdivided face-dial indicating the nodes of the moon, to illustrate lunar and solar eclipses, substantially as set forth.

198,647.



198,648. **FOUNDATIONS FOR HONEY-COMBS.** A. E. McConnell, New Orleans, La. Filed Oct. 25, 1877.

Brief.—The frame has a thin, flat sheet of wax fastened to it centrally, upon which, or between sections of which, the bees build the comb.



A bee-hive frame, A, provided with thin strips or sheets of wax, for the purpose specified.

198,649. **FIRE-ESCAPES.** George W. McKee, Brooklyn, N. Y. Filed Sept. 14, 1877.

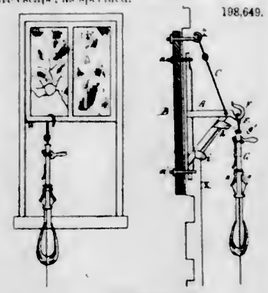
Brief.—A tube sliding upon a rope is controlled in its speed by lever brakes, of which one operates conjointly with a cam brake through the intervention of links uniting them.

1. A tube, G, of a fire-escape, provided with eccentric lever H, brake K, attached and operated conjointly with links L L, also one or more brakes, M, for braking and locking the device on the rope, as specified.

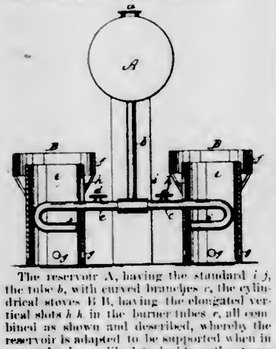
2. The combination, with the tube G, of the lugs S S, rollers e e, chains or cords T T, seat U with strap j, and bag Y, as specified.

3. The combination of the hooked bracket A, hook Z, tube G, with brakes H K M P P, belt O, seat U, chains T T, pulleys e e, cord N, pulleys k p, bag Y, all constructed in form a fire escape, as specified.

198,649.



198,650. **GAS-STOVES.** Zeletes McKinley and Virgil True, Laclede, Mo. Filed Aug. 13, 1877.



The reservoir A, having the standard i j, the tube b, with curved branches c, the cylindrical stoves B B, having the elongated vertical slots h h in the burner-tubes e, all combined as shown and described, whereby the reservoir is adapted to be supported when in use, and to be readily detached from the stoves proper when required, as hereinbefore set forth.

198,651. **ADVERTISING-BRICKS.** George McMullen, Columbia, Pa. Filed Nov. 17, 1877.



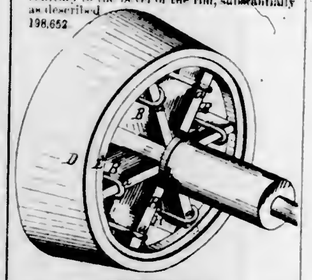
The within-described article of manufacture, viz., a transparent advertising brick for use in pavements, consisting of the shell A, of the size and shape of ordinary bricks, having the face-protecting ribs or beads a, and an advertisement, b, placed within said shell, and made water or moisture proof, and secured by a filling of cement or like substance, substantially as shown and specified.

198,652. **SAND-PUMP REELS.** Michael E. McManus, Titusville, Pa. Filed Dec. 3, 1877.

1. In a sand-pump reel, the rim D, having beading E and backing F, in combination with the spokes B, grooved cleats H, and staples a, substantially as expressed.

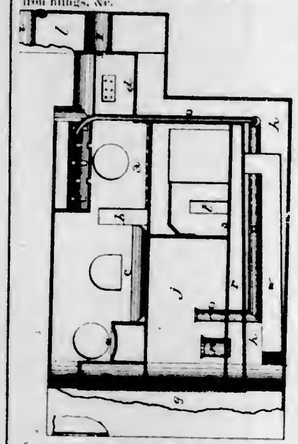
2. In a sand pump reel, the combination of the spokes B, rim D, and cleats H, the ends of the spokes being beveled in a direction contrary to the bevel of the rim, substantially as described.

198,652



198,653. HEATING AND PUDDLING GAS-FURNACES. Wm. L. McNair, Allegheny, Pa. Filed Nov. 3, 1877.

Brief.—Stack and fire-box are at the same end. The fuel is first phased on a shelf between them, where it is coked by the waste-products of combustion, and is then pushed forward upon the grate. Products of combustion pass over the hearth to the back of the furnace, then down and forward to the stack. Air enters the large chamber beneath the hearth, and is thence distributed, while heated by the products of combustion, through pipes and openings to the fire above and below the grate. Air also enters through pipe *w*. The chambers in stack are, the upper for drying fuel, and the lower for decomposing steam by iron filings, &c.



1. The combination of the air chamber *j*, located under the reducing chamber, with the flue *s* and chamber *r* for supplying heated air to the grate, and the flue *o* for supplying air to the combustion chamber, substantially as described.

2. The combination of the chamber *j*, located under the reducing chamber, the chamber *r*, placed between the chamber *j* and flue *h*, the flue *s*, hole *s*, and wall *t*, substantially as specified.

3. In combination with the perforated top V, placed above the fire-box *a*, the hot-air chamber *j*, and flue *o*, substantially as set forth.

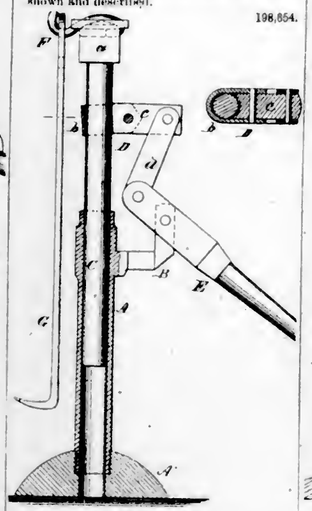
4. In combination with a heating or puddling furnace, the hearth *d*2 placed on a line with the waste-products of combustion, and upon which the fuel is first thrown, so as to be heated from underneath by the said products as they escape up the stack, substantially as shown and described.

198,654. LIFTING-JACKS. Lorenzo Meeker, Oswego, N. Y. Filed Nov. 20, 1877.

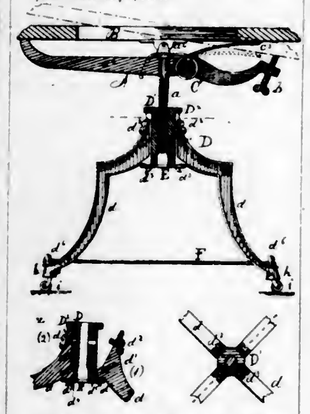
1. The combination, with the tubular stand and and the sliding bar C, of the hand-lever E, the connecting-links *d*, and the clutch D, consisting of a strap partially encompassing the bar C, and a lever or dog, *e*, pivoted to both the connecting-links and the strap, so as to bite the bar C from its movement upon said pivots, substantially as described.

2. The combination of the hook F and hooked rod G with the vertically-sliding bar C of the lifting-jack, substantially as herein shown and described.

198,654.



198,655. TILTING CHAIRS. De Witt C. Meeker, Columbus, Ohio, assignor of one-half his right to Michl. Halm, Charles C. Bellows, and C. P. L. Butler, same place. Filed July 6, 1877.

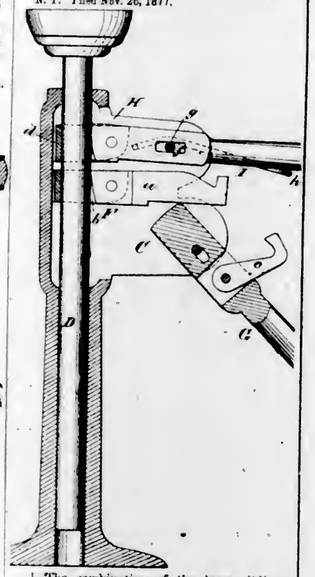


1. In combination with the spider and seat of a tilting chair, the spring C, bent at its center, so as to form the loop or stirrup *c*, which is caught over the top of the arm a^2, and has its ends or arms c^2 bent under and around the side arms a^1 a^1 and extended backward, so as to support the rear side of the seat, substantially as shown and described.

2. In a tilting or revolving chair provided with a metallic pedestal composed of a series of legs secured to a single central block in which the screw of the seat turns, the leg *d*, constructed with a head, d^1, having projections d^2, and adapted to fit snugly the central block D', in which is formed the recess d^3, and having the projection d^4 on the foot *k*, for holding the brace F, substantially as set forth.

3. The combination, with a spider, A, constructed with arms a^1 a^1 a^2 a^2, and hinged to a seat, B, as described, of the adjustable screw *b*, substantially as shown and described.

198,656. LIFTING-JACKS. Lorenzo Meeker, Oswego, N. Y. Filed Nov. 26, 1877.



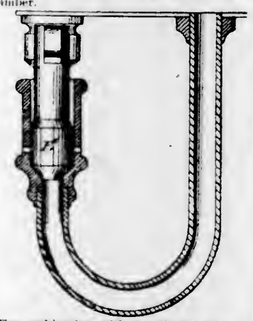
1. The combination of the loose sliding clutch F, the lever G, having hook *c*, the sustaining-clutch H, the handled lever I, and the spring *h*, substantially as and for the purpose described.

2. The combination of the hook *c*, lever G, and clutch F, substantially as and for the purpose specified.

3. The clutch H, having the handled lever I, the spring *h*, and the bar D, in combination, substantially as herein shown and described.

198,657. REGULATED VALVES FOR CARBURETERS. Henry W. Merritt, Somerville, assignor of one-half his right to William R. Stearns and William H. Ireland, Boston, Mass. Filed Dec. 8, 1877.

Brief.—Oil is admitted to the carbureter in the form of spray from the perforated valve-chamber.

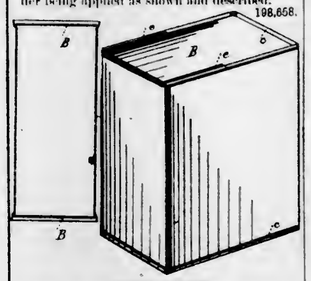


The combination, with the oil-tank and vaporizing-chamber of a carbureter, of a pipe extending downward from the bottom of said tank, and having its end curved upward, and terminating in a perforated valve-chamber, which opens upward beneath the bottom of said tank, for emitting the liquid in spray, a valve-plug fitting said valve-chamber, a lever and suitably-connected float, whereby the valve is opened and closed with the variations of the level of the liquid in the vaporizing chamber, substantially as described.

198,658. METAL CANS. Jos. W. Miller and Bernard Coll, Baltimore, Md. Filed Oct. 31, 1877.

The improved can herein described, having on the ends the outwardly-projecting flange *c*, stopping short of the corners, forming on the inner sides seats, upon which the heads B rest, the corners of the can being unflanged, the solder being applied as shown and described.

198,658.



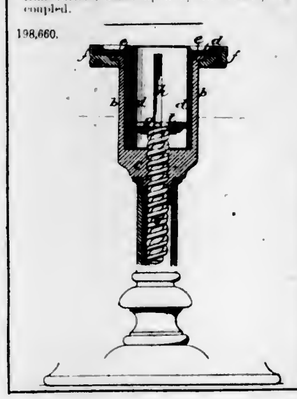
198,659. BOUNDABOUTS. Frank Millward, Cincinnati, Ohio. Filed Nov. 7, 1877.



1. The combination of a rotary frame or wheel for supporting a rider or riders, a stud or strain-resistant eccentric to the axis of the frame, and one or more strain-transmitters, loosely connected to said stud or strain-resistant, and adapted to receive the muscular force of the rider or riders to rotate the frame, substantially as specified.

2. A wheel or frame for carrying riders, in combination with a supporting stand or base, having a vertical shaft, on which the wheel is journaled, and a laterally-extending arm carrying a stud or strain-resistant, to which one or more straining rods, ropes, or other strain-transmitters, acted upon by the riders, are coupled.

198,660.

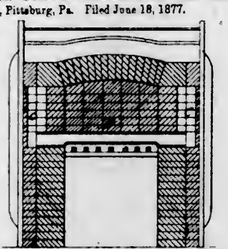


198,660. CANDLESTICKS. François R. Minard and A. P. Minard, Paris, France. Filed Aug. 6, 1877.

Brief.—The plate upon which the lower end of the candle rests is raised and lowered by turning the crown.

The double and square threaded screw *c*, guides *k*, screw *c*, and plate or piston *t*, in combination with the movable socket *d*, shoulder *e*, tenons *g*, and crown *f*, as and for the purposes precisely as herein described.

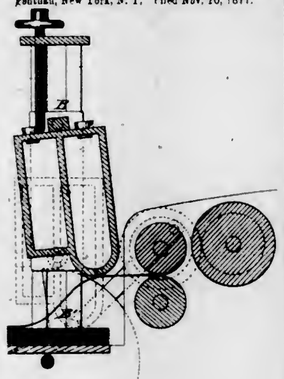
198,661. REVERBERATING FURNACES. John Morrison, Pittsburg, Pa. Filed June 18, 1877.



1. In a reverberating furnace, the hollow metallic lintel, supported at its respective ends by the front and back wall, and sustaining the fire-end wall, substantially as described, whereby the said lintel serves the purpose of an arch.

2. The combination of the hollow lintel D, having air inlet or inlets and the hollow chills E F, with chamber J and ascending flues thereto, said lintel being arranged in the fire-end wall C, and the chills E F in the front and back walls of the fire-chamber, and exposed to the direct action of the fire, whereby the air is more intensely heated and the formation of clinkers prevented, substantially as and for the purpose described.

198,662. PAPER-FEEDING MACHINES. Lazarus Morgenthau, New York, N. Y. Filed Nov. 10, 1877.

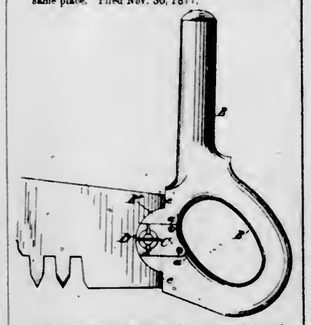


1. A feeding apparatus for power printing and other machines, consisting of a vertically-reciprocating and oscillating hollow casing or receptacle containing an adhesive substance, and having a narrow longitudinal slot at the lowermost point, for the purpose of projecting a small quantity of adhesive substance at each downstroke, taking up the sheet and conducting it to the feed rolls or cylinder, substantially as and for the purpose set forth.

2. In a feeding apparatus for power printing and other machines, the combination of a vertically-reciprocating and pivoted receptacle, containing a suitable adhesive substance, with an adjustable top stop-screw arranged back of the pivots, to impart oscillating motion to the receptacle at the end of the upward stroke, substantially as described.

3. In a paper-feeding apparatus, a hollow receptacle containing an adhesive substance, and having a rounded-off and longitudinally slotted bottom part, in combination with a hot-water or steam jacket terminating above the rounded-off bottom, substantially as specified.

198,663. CROSSCUT-SAW HANDLES. Benj. F. Moss and John D. Abbott, Reading, Mich., assignors of one-third their right to Andrew M. R. Fitzsimmons, same place. Filed Nov. 30, 1877.



1. A crosscut saw handle, made of wood, consisting of the parts B B' B'', slotted for the admission of the saw, and provided with the plates C and C', in combination with the saw and screw key D, as and for the purpose set forth.

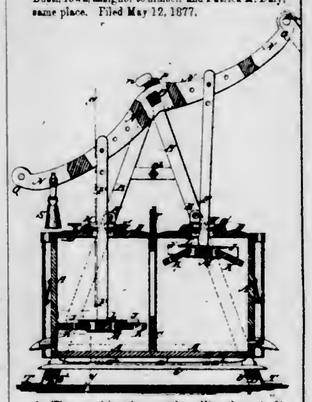
2. A saw handle provided with semicircular slotted projection B'', formed on the handle, plates C and C', and key D, in combination with the adjusting-screws *c*, against which the end of the saw bears, substantially as and for the purpose specified.

3. The plate C', provided with the hollow hub or bearing, in combination with the tapered screw-key D and plate C, as and for the purpose shown and described.

198,664. LUBRICATING COMPOUNDS. G. O. Munger, Rochester, N. Y. Filed Sept. 15, 1877.

The compound consisting of petroleum oil, plumbago, Japan wax, tallow, and soda, as herein described, and for the purpose specified.

198,665. RECIPROCATING CHURNS. Thos. J. Murphy, Bustl, Iowa, assignor to himself and Patrick M. Daly, same place. Filed May 12, 1877.

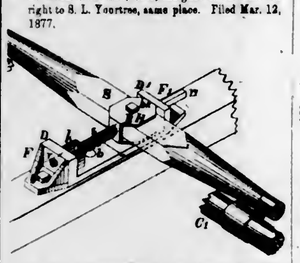


1. The combination, with rolling box A D, divided by a slotted partition, C, of the dashers I J K L M, arranged as and for the purpose specified.

2. The combination, with churn body, frame B, and pistons attached to rods F, of the lever N, coupling R, and weight S, as and for the purpose specified.

3. The combination of the side frames B, provided with the platform b^2 and the cross-bars b^2 b^3, the rock-shaft O, and the slotted lever N with each other, and with the churn-body A and the dasher-shafts F, substantially as herein shown and described.

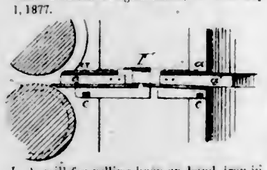
198,666. DRAFT ATTACHMENTS FOR VEHICLES. M. D. Nelon, Cincinnati, Ohio, assignor of one-half his right to S. L. Voortree, same place. Filed Mar. 12, 1877.



1. The arrangement of the holder B, rods c c', supports D D', and spring s, substantially as and for the purposes set forth.

2. The combination of holder B, provided with rods c c', spring s, supports D, provided with arch k and bottom b, and support D', provided with bottom b', all substantially as and for the purposes set forth.

198,667. MACHINES FOR ROLLING HAND OR HOOP IRON. Frederick Navegold, Bristol, Pa. Filed May 1, 1877.

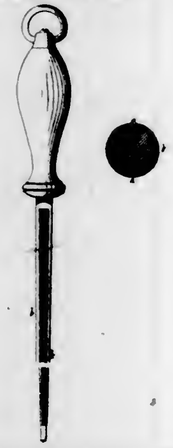


1. A mill for rolling hoop or band iron in which vertical grooved edging rolls alternate with horizontal tongued and grooved flattening rolls, all substantially as specified.

2. The combination of the two sets of rolls with an intervening box or guide, F, having guiding strips a a' at each end, as set forth.

3. The combination of the two pairs of rolls with an intervening box or guide, F, made in sections, adapted to and arranged to slide longitudinally on each other, as specified.

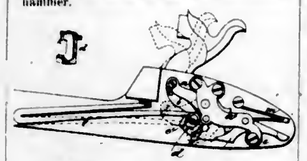
198,668. BUTCHERS' STEELS. William T. Nicholson, Providence, R. I., assignor to the Nicholson File Company, same place. Filed Dec. 6, 1877.



A butcher's steel provided with two oppositely-located cutting or abrasive surfaces and two oppositely-located smooth, polishing, or finishing surfaces, substantially as described.

198,669. GUN-LOCKS. John A. Nichols and Joseph W. Livingston, Syracuse, N. Y. Filed Dec. 11, 1877.

Brief.—Intended for locks with rebounding hammer.

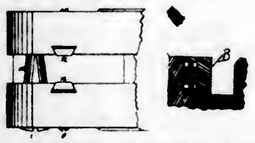


1. The [illegible]ed swivel, connecting the main-spring with the tumbler, so as to give an unobstructed blow to the hammer, substantially as and for the purpose specified.

2. The pivoted hook or dog d, constructed and attached substantially as herein described, and for the purposes specified.

198,670. HINGE-JOINTS FOR BREECH-LOADING GUNS. John A. Nichols and Joseph W. Livingston, Syracuse, N. Y. Filed Dec. 11, 1877.

Brief.—The parts are made adjustable in all directions to compensate for wear.



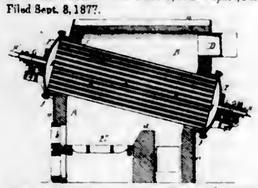
1. The projections f f' on the frame, in connection with and inclosing the cylindrical parts of the hinge-pin, as above described.

2. The stop-screw x, in combination with the taper hinge-pin, for securing the hinge-pin, as described.

3. The adjustable wear plate or plates a on each side of the joint of a breech-loading fire-arm, substantially as and for the purposes set forth.

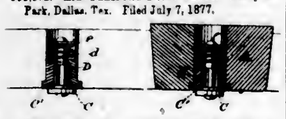
4. The saddle or wear-plate B, constructed and combined with the lug, and adjusted as herein specified.

198,671. APPARATUS FOR RECOVERING ALKALI FROM WASTE SOLUTIONS. Martin Nixon, Philadelphia, Pa. Filed Sept. 8, 1877.



The within-described heating and evaporating apparatus, consisting of a furnace and a heater adapted to be rotated within the furnace, the said heater, through which the solution is caused to pass, being composed of a system of tubes, c, hollow end plates, and trunnions, all substantially as described.

198,672. AIR-PRESSURE FLUID-VENTS. Hardy B Park, Dallas, Tex. Filed July 7, 1877.



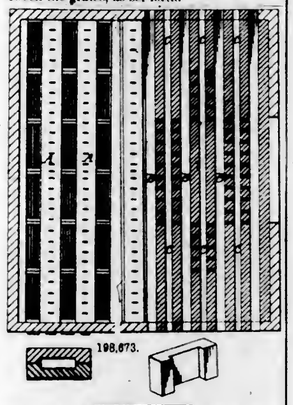
The cylinder D, combined with the valve C on the closely-fitting slotted stem f, the replacing spring d, and packing c', as and for the purposes herein described.

198,673. BRICK-KILNS. Charles F. Peck, Georgetown, D. C. Filed Dec. 1, 1877.

1. In a brick-kiln in which the grate and arch supporting piers are provided with air-flues, as described, the arrangement of apertures for the discharge of the air under the grate from alternatingly-opposite sides, substantially as herein shown and set forth.

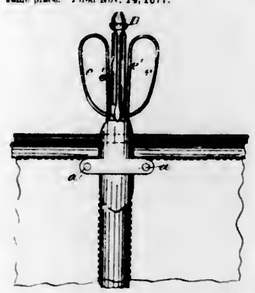
2. In brick-kilns of otherwise ordinary and suitable construction, grate and arch supporting piers provided with flues for the admission of and apertures for the discharge of air over and between the grates, substantially as herein set forth.

3. In grate and arch supporting piers of brick-kilns, the combination of flues and apertures, substantially as shown and described, for the admission of air into said flues and the discharge of the same under, over, and between the grates, as set forth.



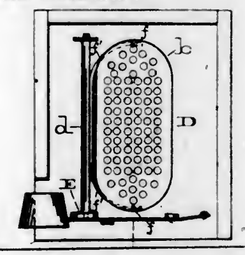
198,673.

198,674. REIN-HOLDERS. Levi Peets, Canton, Ohio, assignor of one-half his right to Salem R. Taylor, same place. Filed Nov. 14, 1877.



In a rein-holder, the combination of the vertical standard D and a wire bent to form a spring part, e, and a clamp part, e', whereby the strap is clamped against the standard D, substantially as set forth.

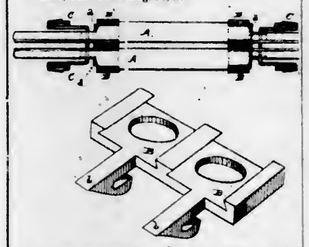
198,675. DISINFECTING APPARATUS AND SAFETY-SEATS FOR WATER-CLOSETS. John H. Peterson, Philadelphia, Pa., assignor to William S. Irwin, same place. Filed May 18, 1877.



1. The disinfecting-receptacle D, in combination with the spindle G, arm F, and link E, and with the seat C, substantially as and for the purpose set forth.

2. The receptacle D, in combination with the arms f', fixed to the axial rod d, and having the receptacle pivoted to them, substantially as and for the purpose set forth.

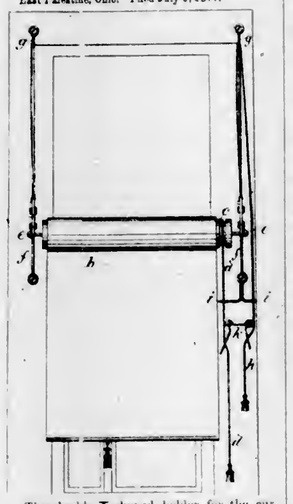
198,676. BED-BOTTOMS. Thomas J. Pettit, San Francisco, Cal. Filed Aug. 31, 1877.



1. The combination, with the slats A, of the holding-plates B, to which the slats are secured, and the lugs b, cast upon the said plates, and adapted to receive stirrup-springs, substantially as described and shown.

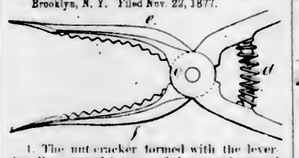
2. In combination with the slats A A, arranged together in pairs, as described, the metal plates B B, with their hooks or lugs b b, and dovetails a a, constructed and applied together substantially as herein described, for the purposes set forth.

198,677. CURTAIN-FIXTURES. William W. Pickford, East Palestine, Ohio. Filed July 9, 1877.



The double T-shaped holder for the curtain-cords, formed of a single piece of wire, having an eye to receive an attaching-screw, and terminal eyes i i, to receive the cords.

198,678. NUT CRACKER AND PICK. Samuel Poole, Brooklyn, N. Y. Filed Nov. 22, 1877.

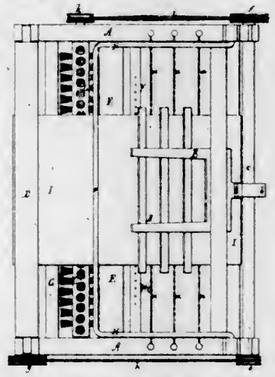


1. The nut-cracker formed with the lever-handles, curved jaws e and f, a row of pointed teeth inside each jaw, substantially as set forth.

2. The combination, with the nut-cracker, of a nut-pick, formed at the end of one of the jaws, substantially as and for the purpose set forth.

3. In a nut-cracker, a pair of toothed jaws, the ends of which are reduced in thickness to form forceps, substantially as set forth.

198,679. CARPET BEATING AND CLEANING MACHINES. Junius P. Prentiss, Fall River, Mass. Filed Nov. 6, 1877.



1. The combination of the beating mechanism and the steaming-tube.

2. The combination of the beating mechanism, steaming-tube, and the draft-rollers.

3. The combination of the beating mechanism, steaming-tube, and the heating-cylinder or drier.

4. The combination of the beating mechanism, steaming-tube, the drier, and draft-rollers.

5. The combination of the beating mechanism, the steaming-tube, and the brush.

6. The combination of the beating mechanism, the steaming-tube, the brush, and the draft-rollers.

7. The combination of the beating mechanism, the steaming-tube, the drier, and the brush.

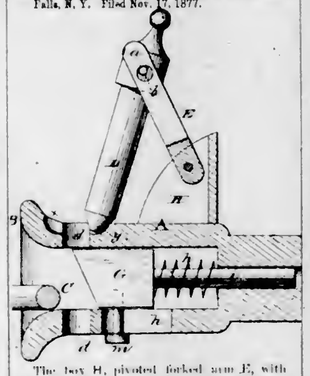
8. The combination of the beating mechanism, steaming-tube, drier, brush, and the draft-rollers.

9. The combination of the beating mechanism, steaming-tube, drier, and presser.

10. The combination of the beating mechanism, steaming-tube, drier, draft-rollers, and the presser.

11. The combination of the beating mechanism, steaming-tube, drier, brush, draft-rollers, and the presser, all being arranged and applied substantially and to operate as and for the purpose set forth.

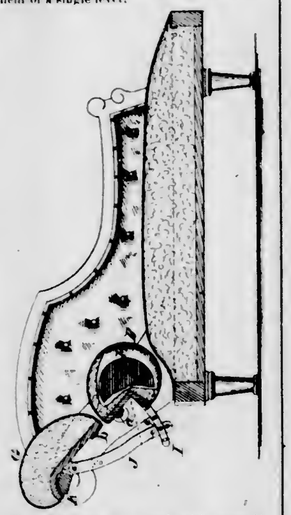
198,680. CAM-COUPLINGS. George W. Putnam, Glens Falls, N. Y. Filed Nov. 17, 1877.



The box H, pivoted forked arm E, with slots b in its jaws, and the pin D, with trunnions a a, in combination with the draw-head A, having pin-hole d, with steps x y formed in front and rear at the top of said pin-hole, substantially as and for the purposes herein set forth.

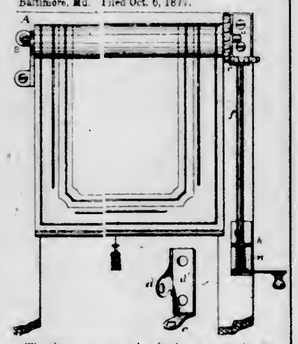
198,681. HEAD-SECTIONS FOR COUCHES. Clara Raabe, Clifton, N. Y. Filed Aug. 24, 1877.

Brief.—Two pivoted pillows connected by levers, so that both are adjusted by the movement of a single lever.



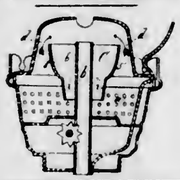
The combination, in a couch, of the parts H G, having pivot-bars a b, the arm I, and bar J, substantially as herein shown and described.

198,682. CURTAIN-FIXTURES. Hermann T. Raeke, Baltimore, Md. Filed Oct. 6, 1877.



The improvement in shade or curtain fixtures, consisting of the double bracket-bearings d and e, having the part d' attached to the frame, which bearings support, respectively, the curtain-roller A and the vertical shaft f, the former having attached the wheel h, and the latter the wheel i, gearing at right angles, the crank K, and a spiral spring, surrounding the shaft between the bearing h and the crank-arm, as shown and described.

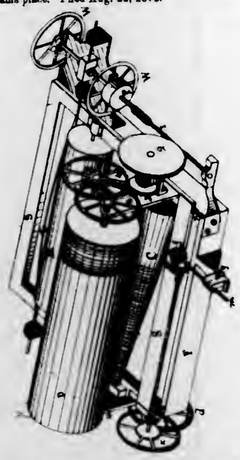
198,683.



198,683. LAMP-BURNERS. Charles C. Richmond, Boston, Mass. Filed July 19, 1877.

The adjustable sleeve C, of the form of an inverted bell, and having an outer passage or space, *d*, between it and the cone B, and an inner passage or space, *i*, between it and the wick-tube *b*, on each side thereof, substantially as and for the purpose set forth.

198,684. MACHINERY FOR CUTTING CONTINUOUS SHEETS OF RUBBER. Theron A. Richards, Brooklyn, N. Y., assignor to Charles H. Wight, trustee, same place. Filed Aug. 23, 1876.



1. The combination of a vibrating knife, adapted to move across the face of a cylinder of rubber revolving with variable speed, with a suitable shaft or support for such cylinder, all substantially as and for the purpose set forth.

2. The combination of a vibrating knife, adapted to move across the face of a cylinder of material advanced to the knife at a variable speed, with a suitable shaft or support for the material, all substantially as and for the purpose set forth.

3. A vibrating knife adapted to move across the surface of a cylinder of rubber revolving with variable speed, and advanced to the knife at a variable speed, in combination with a suitable shaft or support for the cylinder, all substantially as and for the purpose set forth.

4. The vibrating knife K and the tapering barrel C and its wire V, in combination, the former being moved across the surface of a revolving cylinder of rubber for the purpose of cutting the same into a continuous sheet, and the latter operating the cylinder of rubber in its revolution by means of the wire or band U and suitable series of intermediate rotating devices, substantially as shown.

5. The vibrating knife K, the tapering barrel C and its wire or band V, and the feed-screw w, in combination, the knife being moved across the surface of a revolving cylinder of material for the purpose of cutting the same into a continuous sheet, the tapering barrel operating the cylinder in its revolution, and also the feed-screw in feeding the cylinder to the knife, each through a series of rotating devices, substantially as shown.

6. The vibrating knife K and the tapering barrel C, in combination, the knife being operated by a driving-shaft, which also, through suitable gearing, operates the tapering barrel and its connections, in the manner and for the several purposes set forth.

7. The tapering barrel C, in combination with the drum D, and connected by an operating band or wire, the drum D being connected to and operating the rotating and feeding devices, as shown and described, for the purpose of feeding a cylinder of material to a suitable cutting knife, so that by the action of the knife the material shall be cut into a continuous sheet.

8. The sliding frame S, supporting and carrying the feed-rod fo with regulated speed the revolving cylinder of material R, the tapering barrel C, the drum D, and the connecting devices which revolve the cylinder and feed the frame to and fro, in the manner and for the purposes set forth.

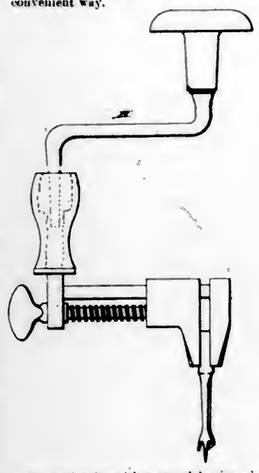
9. The sliding frame S, carrying the revolving cylinder R, the tapering barrel C, the drum D, and their connecting devices, in combination with the fixed frame F, supporting the knife K and the driving-shaft, substantially as shown and described.

10. As an improved article of manufacture, a continuous sheet of rubber cut from a cylinder of solid rubber, and having the ribs formed by the action of the cutting-knife disposed across the sheet from side to side, and also of an equal distance apart throughout the sheet.

11. As an improved article of manufacture, a continuous sheet of rubber of equal thickness throughout, cut from a cylinder of solid rubber by cuts forming transverse ribs of equal distances apart throughout the sheet.

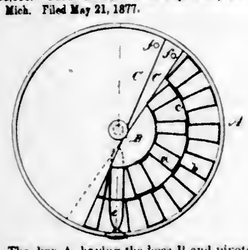
198,685. WRENCHES. Sylvanus E. Robinson, Newark, N. J. Filed Nov. 10, 1877.

Brief.—The brace-arm may be attached to the wrench in the way shown, or in any other convenient way.



In combination with a wrench having a handle extending at right angles with the bar of the wrench, a brace-arm attachment, H, arranged for attachment to and detachment from the wrench, substantially for the purposes herein set forth.

198,686. TYPE-CASES. Julius Ropes, Ishpeming, Mich. Filed May 21, 1877.



The box A, having the boss B and pivoted covers C, and divided into cells or compartments by corrugated strips *a b*, substantially as and for the purpose shown and described.

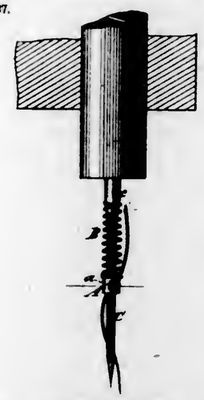
198,687. DARNING ATTACHMENTS FOR SEWING-MACHINES. Reuben M. Rose, Brooklyn, N. Y., assignor to the Wilson Sewing Machine Company, Chicago, Ill. Filed Oct. 16, 1877.

Brief.—This attachment consists of a collar provided with an eye, through which passes the thread, said collar being secured to a spiral spring, the free end of which clamps itself upon the enlarged end of the needle, thereby dispensing with the use of a presser-foot.

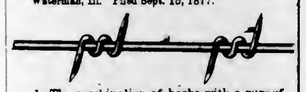
1. The collar A, having an eye, *a*, and provided with a spiral spring, B, both spring and collar being adapted to fit upon a sewing-machine needle, substantially as and for the purpose set forth.

2. The combination, with a sewing-machine needle, of the collar A, having an eye, *a*, and the attached coiled spring B, having its upper end constructed to grasp the enlarged portion *c* of the needle, for permitting of the easy removal of the attachment, substantially as described

198,687.



198,688. BARBED FENCE-WIRES. Henry M. Rose, Waterman, Ill. Filed Sept. 15, 1877.



1. The combination of barbs with a wire of a polygonal form, for the purposes set forth.

2. In combination with a fence-wire, the barbs B, wound spirally thereon, each turn or coil of the spiral being separated from the one which precedes or succeeds it, substantially as and for the purposes set forth.

198,689. TAG-FASTENERS. Edward A. G. Boulstone, Boston, Mass. Filed Oct. 23, 1877.



The combination of the wire fastener formed with two rearwardly-projecting prongs, connected by a cross-bar, with a label or tag folded around said cross-bar, substantially as set forth.

198,690. CHAIN-MACHINES. Lewis M. Rumsey, St. Louis, Mo., assignor of one-half his right to Moses Rumsey, same place. Filed Nov. 22, 1877.

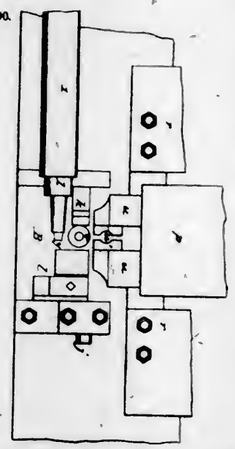
Brief.—For chains for pumps. The wire having been bent around the mandrel to form one eye of the link, the other end of the wire, brought by the first bending between the arms of the forked lever, is bent thereby to form the other eye. The feed-rolls are provided with relief-bearing, to prevent injury in case of crowding of metal from irregularity, and the arms of the forked lever are provided with friction rolls.

1. In a chain machine, the frictional driving device having the pulley or other suitable mechanism E, friction-surface *f* and G, spring H, and nut K, in combination with the pin *r*, the jaws *s s*, and the forked arm I, provided with rollers *y'* and *z'*, for the purpose set forth.

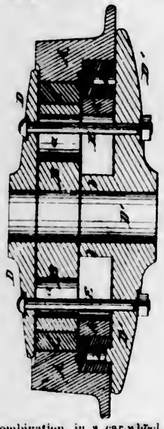
2. The combination of the pin *r*, the jaws *s s*, and the forked arm I, provided with the rollers *y'* and *z'*, for the purpose set forth.

3. The combination of the pin X, spring X', the socket Z, and the nut Z' with the feed-rollers, for the purpose set forth.

198,690.



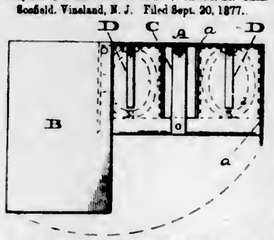
198,691. CAR-WHEELS. Henry Scheibel, Jr., George M. Sealey, and John Schneider, Bridgeport, Conn. Filed July 30, 1877.



1. The combination, in a car-wheel, of the tire A, disk D, web B, provided with openings *e*, and disk D', the latter having pins *d* and hub *b*, as and for the purpose specified.

2. The combination of the tire-section, having cushioned socket-holes, with the inner face-disk, set by pins into the sockets of the tire, and extended outwardly to the flange, substantially as and for the purpose specified.

198,692. HOLDERS FOR MATCHES, STAMPS, &c. Chas. Scofield, Vineland, N. J. Filed Sept. 20, 1877.



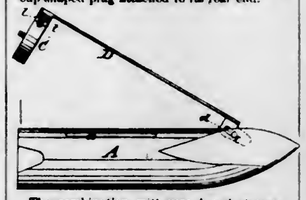
1. The match-box A, provided with a spring, C', secured therein transversely to the length of the box, and adapted to exert a spring pressure upon the matches within the receptacle, substantially in the manner and for the purposes herein shown and set forth.

2. In a combined match-box and stamp-holder, the herein-described arrangement of springs D D within subdivisions of a compartment upon one side of the box, and the centrally-located spring C, adapted to extend transversely across the match-compartment upon the other side of the case, all substantially as herein shown and described, and for the purposes set forth.

3. The match-box A, with projecting rim *a* and covering or shell B, combined and operating substantially as and for the purpose set forth.

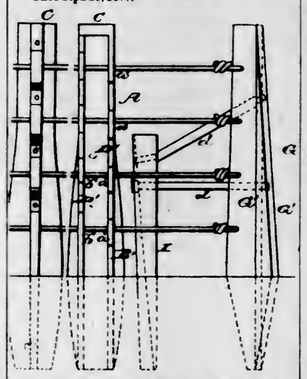
198,693. SEWING-MACHINE SHUTTLES. Carl A. Schumacher, Walla Walla, Wash. Filed May 28, 1877.

Brief.—A spring-plate provided with an oblong slot at its hinged end is attached to the forward end of the shuttle by means of a pivot-pin, and, when closed upon said shuttle, serves as a tension for the thread, at the same time furnishing a bearing for the bobbin through a cup-shaped plug attached to its rear end.



The combination, with case A and stopper C, of the spring *a*, having projection *i*, the bolt *j*, and the hinged slide-spring D, as and for the purpose specified.

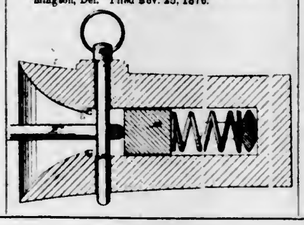
198,694. FENCE-POSTS. Abraham Shaffer, Ucio, Iowa. Filed Sept. 29, 1877.



1. A cast-iron fence-post, consisting of the bar A, rear flanges B B, side flanges B' B', and solid head C, and provided on the front with devices for holding the fence-wires, as set forth.

2. The L-shaped corner post G, with flange G', in combination with the braces *d* and posts I, as and for the purposes herein set forth.

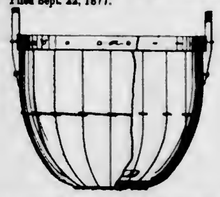
198,695. CAR-COUPLINGS. David W. Shockley, Wilmington, Del. Filed Nov. 25, 1876.



1. In a car-coupler, an adjuster moving in a slot, substantially as described.

2. In a car-coupler, the slotted draw-bar, in combination with the bolt or adjuster A, provided on one end with a T-shaped head, and on the other end with a nut, H, and adapted to regulate the tension of the spring, substantially as specified.

198,696. BASKETS. Jacob W. Sickler, Tompkinsville, Pa. Filed Sept. 22, 1877.

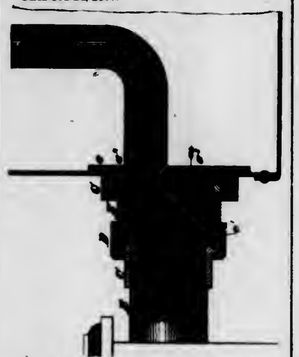


1. A wooden basket made of curved and tapering sections that are connected by hoops at the upper ends, one or more circumferential wire bindings or hoops at the body, and an interior disk, and a wire seat at the bottom, substantially in the manner described, and for the purpose specified.

2. The combination of the interior bottom disk, having tapering edge and central solid part, with the tapering sections fastened flush with the bottom of the solid portion, substantially as specified.

3. The basket having a bottom seat or rim formed of wire twisted around nails of the sections, substantially as described.

198,697. HOT-WATER-TANK COUPLINGS FOR RANGES AND STOVES. Nathaniel M. Simonds, St. Louis, Mo. Filed Oct. 24, 1877.



1. The neck E, constructed with heater-pipe passage *e'* and tank-pipe passage *e''*, in combination with the heater-pipe I and tank-pipe J, substantially as set forth.

2. In combination with the neck E, constructed as set forth, and the pipes I and J, the pipe B, inclosing the pipe I, substantially as and for the purpose set forth.

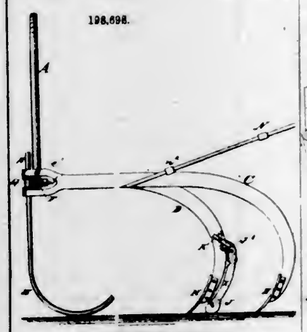
198,698. CULTIVATORS. Reuben H. Bliffer, Holden, Mo. Filed May 12, 1877.

Brief.—The coupling combination. Arched yoke with arms bent forward and limited rocking motion. The beams doubled around the supports and bolted to hold them at any height. Construction of the shoe for transporting all the plows.

1. The combination of arch A, having horizontal ends B B, bent forward and provided with pins *f'*, the slotted clips F, tubular washers G, adjustable runners E, and the double beams C D, having clamp-bolts *c'*, substantially as shown and described.

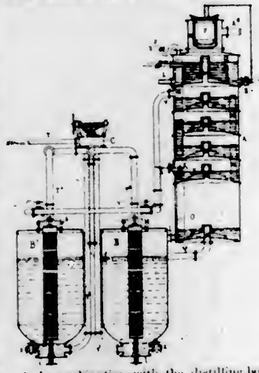
2. The combination of the bar I, having a shoe formed upon its lower end and a notch in its forward edge, the connecting bar or link J, the connecting-bar J', having a hook formed upon each end, the hook-pin L, and the locking-button K, with the inner plow-beams D, substantially as herein shown and described.

198,698.



198,699. AMMONIA-SODA MANUFACTURE. Ernest Solvay, Brussels, Belgium. Filed June 2, 1876.

Brief.—A distilling-column of the usual form is connected with a series of boilers, in which the ammoniacal liquor may be heated in contact with lime. By a central distributer any one or more of the boilers may be separated from the series for cleaning, filling, &c. By a suitable arrangement in the head of the column the liquid to be distilled may be used to condense the vapors from the boilers.



1. In combination with the distilling boilers, the hookers for the reception of the quick lime, and for the introduction of said quick-lime into the boilers, substantially as set forth.

2. In combination with pipes N, projecting upward from the partitions separating the chambers of a distilling-column, the perforated dished plates X, having central sockets to receive said pipes, substantially as described.

3. The combination, with a distilling column having a series of vertically arranged distilling-chambers, of the top chamber Q, containing the refrigerating coil S0 connected with the source of supply of the liquid to be distilled, substantially as and for the purpose set forth.

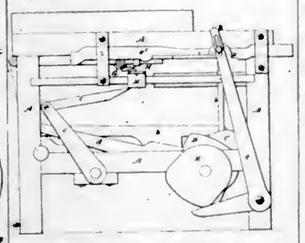
4. The combination, with the distilling column A, of the pipe V, distributer C, and a series of boilers, each of which is connected with said distributer by an induction and eduction pipe, and arranged to be supplied with steam successively from said distributer, substantially as set forth.

5. In combination with the distilling column A, a series of boilers connected therewith by the branching pipe *l*, for conducting liquid from said column to the boilers, and a steam distributer connected with each of said boilers, and by means of which either of the same may be isolated from the others, substantially as set forth.

198,700. LABELING-MACHINES. Harris B. Smith, Bridgeport, Conn. Filed Oct. 19, 1877.

Brief.—Adjusting devices lift the paste-roller while the nippers pass under and draw the label from the knife and return, leaving the label under the roller, which descends and applies paste first at one end of the label, and then, being elevated by said adjusting devices, returns and applies paste to the other end. Devices rotate the article being labeled more rapidly than it would revolve by mere contact with and moving upon the bed of the machine.

198,700.

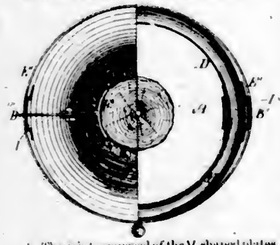


1. The combination of the friction-clutch I, pinion N, and rack O with the car J of a label-attaching machine, whereby a rapid rotary motion is imparted to the article being labeled, substantially as shown and described.

2. The combination of the bars *f f*, paste-roller supports F F, and paste-roller G with the car J, substantially as shown and described.

3. The combination of the car J, paste-roller G, supports F F, bars *f f*, and nippers H with means, substantially as described, to operate them, as and for the purpose shown and specified.

198,701. TREE-PROTECTORS. Albert S. Smith, Boston, Mass., assignor of one-half his right to Leander D. Junkins, same place. Filed Nov. 30, 1877.

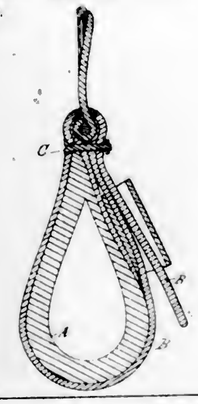


1. The joint composed of the V shaped plates I I, entering corresponding external pockets on the contiguous ends of the troughs H, whereby a continuous annular trough is provided, substantially as and for purposes stated.

2. The adjustable bearing or steadying plate F F, in combination with the sectional hoods H H, substantially as and for purposes stated.

3. A tree-protector composed of the sectional hoods H H, united in any suitable manner, and containing the troughs H, and the adjustable bearing or steadying plates F F, substantially as and for purposes stated.

198,702.

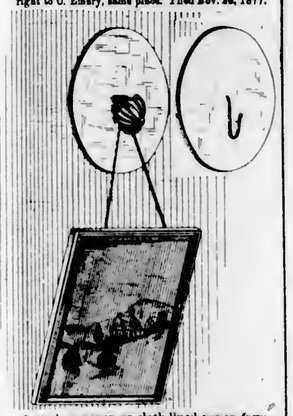


198,702. TRILL-TUGS. John T. Smith, Aurora, Ill., assignor of one-half his right to William O. Morris, same place. Filed Nov. 23, 1877.

1. In combination with the frame A, made of rubber, wood, or equivalent material, the strap B, provided with a buckle secured to one of its ends, and the strap passing around the frame, and removably secured thereto by its engagement with the tongue of the buckle, as shown and described.

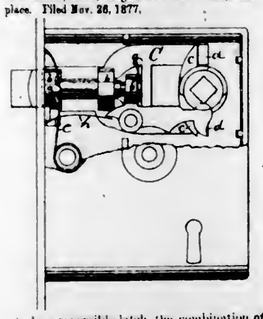
2. The combination of the frame A, strap B, buckle *b*, bolt or rivet C, and nut *d*, substantially as and for the purpose described.

198,703. DEVICES FOR HANGING PICTURES. Walton D. Smith, Prophetstown, Ill., assignor of one-half his right to O. Emery, same place. Filed Nov. 26, 1877.



A card, or paper, or cloth-lined paper, forming a tag, ornamental or otherwise, with mucilage, or other equivalent material, upon one face, and a hook depending from the other, as and for the purpose set forth.

198,704. REVERSIBLE LATCHES. William E. Sparks, New Britain, Conn., assignor to P. & F. Corbin, same place. Filed Nov. 26, 1877.



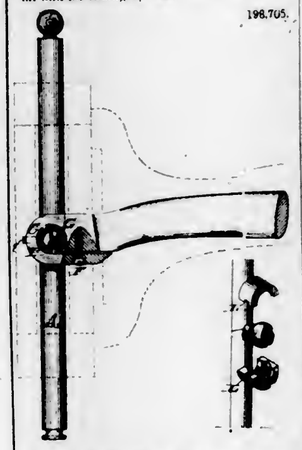
1. In a reversible latch, the combination of slotted hub, provided with right arms, the yoke having studs to engage the arms of the hub, the latch-bolt arranged to move longitudinally within said yoke, and the angle-lever pivoted to the yoke, and having one arm engaging a shoulder on the latch-bolt and the other arm resting within the slotted hub, substantially as described, and for the purpose specified.

2. In a reversible latch, the yoke C', having two bearings, *b b*, for the round shaft of the latch-bolt, and a shouldered tenon, *a*, at its outer end, adapted to engage the bolt-head mortise in the face-plate, substantially as described, and for the purpose specified.

198,706. MEANS FOR CONNECTING THE NEEDLE-OPERATING LEVERS TO THE NEEDLE-BARS OF SEWING-MACHINES. Nesbitt D. Stoops, Philadelphia, Pa. Filed Oct. 24, 1877.

Brief.—The ball on the pin attached to the needle-bar fits in a divided collar held in a transverse hole bored in the end of the oscillating lever, by means of which motion is imparted to the needle-bar. The body of the metal is split from the outside portion to the socket, and provided with a set-screw for tightening the metal around the divided collar and for taking up wear.

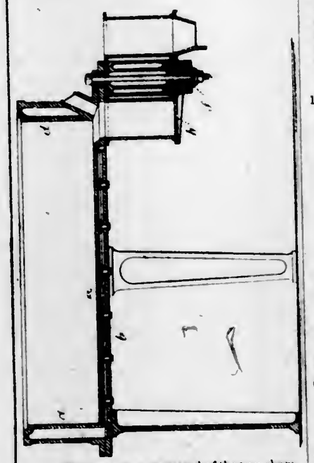
198,705.



1. In combination with the needle-bar and its actuating-lever, and the ball attached to said bar, the divided collar, provided with a socket for the reception of the ball, and secured in a transverse bore in the end of the lever, the metal at the rear end of said bore being split or partially divided, and provided with a set-screw, whereby said collar may be adjusted around the ball, substantially as and for the purposes described.

2. In combination with the lever, provided with a transverse bore, and the needle-bar and ball thereof, the divided collar embracing the said ball, and provided with recesses for the reception of a set-screw passing through the lever, substantially as and for the purpose described.

198,706. MEASURING APPARATUS FOR SEED-HEATERS. Edwin S. Taylor, Brooklyn, N. Y. Filed Nov. 22, 1877.



1. The measurer composed of the two chambers *a b* and top plate *a*, in combination with the kettle *a h d*, in which the meal is heated, and the plate *k*, with a hopper for the bag, substantially as set forth.

2. The hollow column *f*, bolted to the rim of the kettle and sustaining the stationary plate A, in combination with the measurer, that is sustained by and is revolved around such column, substantially as set forth.

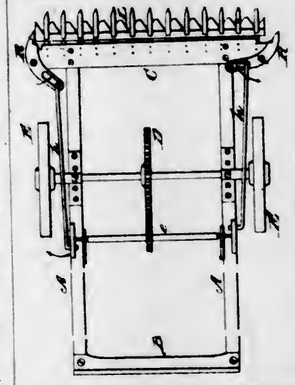
198,707. CASTING WHEELS. Thomas Taylor, Canton, Ill., assignor to Page Manufacturing Company, same place. Filed June 30, 1877.



1. The process of forming wheels having cast-metal hubs and wrought-metal spokes and rims, which consists in casting the hub upon the spokes while their outer ends are seated in the heated rim, substantially as described, and for the purposes set forth.

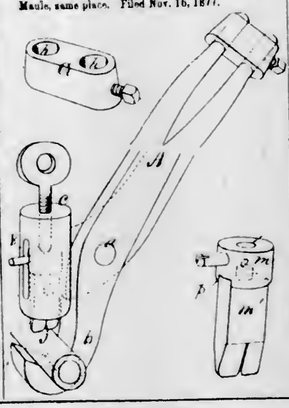
2. The combination of the base D, having an annular flange, *d*, for retaining the rim in place, with the core F, mold G, and rope H, substantially as described, and for the purpose specified.

198,708. LAWN-MOWERS. Enoch P. Terrell, Bellefontaine, Ohio. Filed Aug. 18, 1877.



The improved lawn mower, consisting of frame A B C, mounted on drive wheels E E, counter shaft *c*, driven by pinion on the axle, and having reversed cranks at each end, pitmen *h h*, levers R, pivoted on finger-bar C and slotted at the heel, and cutter-bar L, impelled alternately by either lever independently of the other, substantially as described.

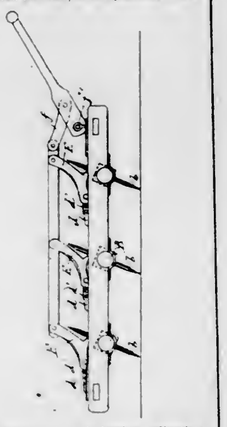
198,709. PIPE-WRENCH WITH COTTER. William E. Thornton, Philadelphia, Pa., assignor to Passonat & Maule, same place. Filed Nov. 16, 1877.



In a pipe cutting and holding tool, in combination with the lever A, having the recurvate hook *b*, with angular recess *c* in its inner face, the lever A', having a cylindrical socket, H, provided with the longitudinal slot, the chisel H, with divided edge *j*, and the head-piece *m*, provided with a guide-pin, *g*, substantially as specified.

198,710. HARROWS. Chas. Tolle and Christian Wirth, Godfrey, Ill. Filed Oct. 5, 1877.

Brief.—Journaled tooth-bars are mounted in a rectangular frame, and are provided in the middle with catches to receive a pawl from a lock-bar. These pawls are adjustable, so as to lock the teeth backwardly inclined, vertical, or inclined forward, at the pleasure of the operator.

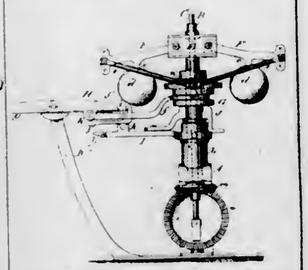


1. The fulcrum-bar *d*, having adjusting-holes *d'*, the trip-lever E, having stops *e*, in combination with the bearing-edges *c c* of the couplings C and D, to operate as and for the purpose set forth.

2. The combination of the lever-arms and rod-connections with trip-levers E, fulcrum-bars *d*, having adjusting-holes *d'*, couplings C and D, with the frame and turn-bars of a harrow, all constructed to operate in the manner and for the purpose set forth.

198,711. GOVERNORS FOR STEAM-ENGINES. Elson Towne, Clare, Ill. Filed June 4, 1877.

Brief.—The sleeve is sustained upon a support until the engine attains its regular speed, after which the support is turned on its pivot, so that should the sleeve drop it will, through intermediate mechanism, close the valve of the engine, or shift the power of other machinery so as to stop it.



The support *d*, pivoted to arm I, and partly surrounding the shaft B, as and for the purpose specified.

198,712. COVERINGS FOR MONUMENTAL TOMBSTONES. Ellen F. Towers, Boston, Mass. Filed Dec. 8, 1877.

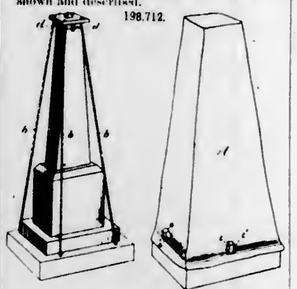
1 For monuments and tombstones, a covering, A, made of india-rubber cloth or an equivalent water-proof fabric, which is provided with holes *c c* near its lower edge, through which

pins *e e* are thrust to fasten the same to the ground, for the purpose shown and described.

2. The combination of the cap pieces, having pegs or screws *d d d d* underneath, or an equivalent frame-work, with the covering A, provided with holes *e' e'* near its lower edge, through which pins *e e* are thrust into the ground, all for the purpose shown and described.

3. The combination of the cap *a*, or an equivalent frame-work, having cords *b b b b*, substantially as shown, with the covering A, which has near its lower edge holes in the same, and fastenings to the ground, for the purpose shown and described.

198,712.



198,713. PADLOCKS. Jas. J. Turner, Richmond, Ind., assignor of one-half his right to John F. Miller, same place. Filed Oct. 13, 1877.

Brief.—The key cannot be withdrawn unless the padlock is locked, and the key retaining tumbler is dogged by a pawl in the path of the free end of the shackle.

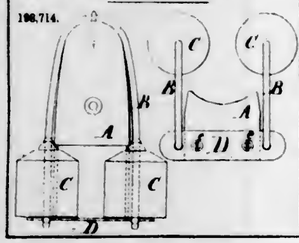


1. In a padlock, the combination, substantially as specified, of a tumbler, which, in opening the lock, catches and confines the key, and a means which automatically dogs said tumbler in the position for retaining the key until the shackle is again locked.

2. In a padlock, the combination, substantially as specified, of the key confining tumbler and the shackle, provided with a heel for dogging the said tumbler on and during the release of said shackle.

3. In a padlock, the combination, substantially as specified, of the key confining tumbler, provided with a dogging bar, *e*, the bolt having a projection, *e'*, and the shackle constructed with a dogging heel, B'.

198,714.

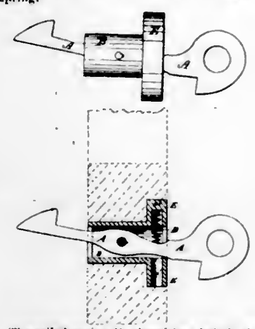


198,714. BROOM-SUPPORTS. George Uibel, New York, N. Y. Filed Mar. 14, 1877.

The improvement in broom-holders described, consisting of the tie D, connecting the springs B, in combination with such springs, and with the body A and rollers C, as herein specified.

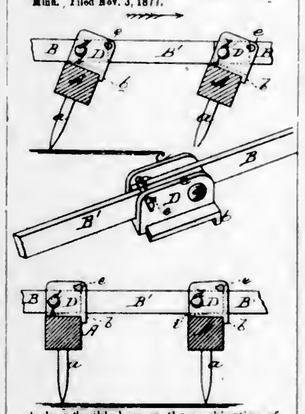
198,715. SHUTTER-FASTENERS. Daniel Ward, New York, N. Y. Filed June 25, 1877.

Brief.—A coil-spring dropped in a round hole passing nearly through the flange of an ordinary shutter or blind fastener presses against and actuates the double catch subsequently placed within the shell or case—an simple and inexpensive method of applying the spring.



The coiled spring D, placed in a hole in the flange or arm E, formed upon the end of the cylinder B, to rest against the edge of the latch A, that passes through said cylinder, substantially as herein shown and described.

198,716. HARROWS. William T. Wertman, Winona, Minn. Filed Nov. 3, 1877.



1. In a flexible harrow, the combination of the U-shaped plates D, having incline *i* at one end, with the lapping bars B B', pivoted to the inclined end of said plates, and the rake-heads A, substantially as set forth.

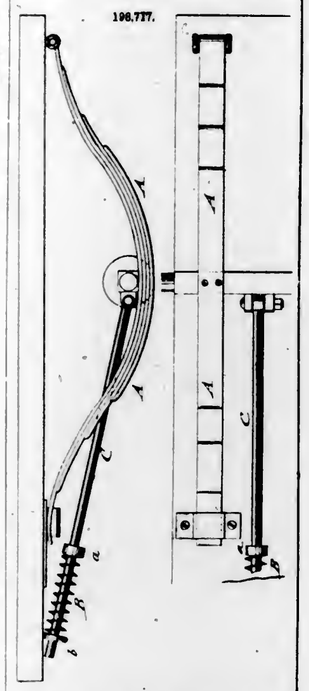
2. The combination of the U-shaped plates D, having oblong slots *e* at one end, and the key G, having projections *j j* at opposite ends, with the lapping bars B B' and rake-heads A, substantially as specified.

3. The joint plate for flexible harrows, of the form of the letter U, and having the incline *i* at one end, the lip *k* at the other, and the oblong key slots *e*, substantially as specified.

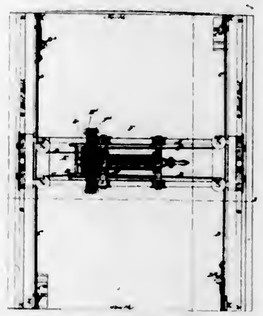
198,717. VEHICLE-SPRINGS. Eugene T. Westerfield, New York, N. Y. Filed Sept. 1, 1877.

The rod C, pivoted to axle, sliding through body ring *b*, having shoulder *s*, and provided with spiral spring B, as shown and described, in combination with the mainspring A, for the purpose specified.

198,717.



198,718. TRAVELING CRANES. Thomas A. Weston, Stamford, Conn., assignor to the Yale Lock Manufacturing Company, same place. Filed Nov. 12, 1877.



1. The fixed cables C D and their driving-sheaves, in combination with a moving bridge or frame and its railway, substantially as set forth.

2. The combination of the fixed cables C D, the driving sheaves, the moving truck or carriage, and the moving bridge or frame and its railway, substantially as set forth.

3. The fixed cables C D, in combination with an automatic straining device, consisting of a spring and a retaining device, preventing recoil or release of the cables, substantially as set forth.

4. The fixed cables C D, in combination with an automatic straining device, consisting of a weight and a retaining device, preventing the yielding of the cable to the strain thereon, substantially as set forth.

5. The combination of the cables C D, their driving sheaves, and a device for adjusting the frictional resistance of the said drivers to independent motion, substantially as set forth.

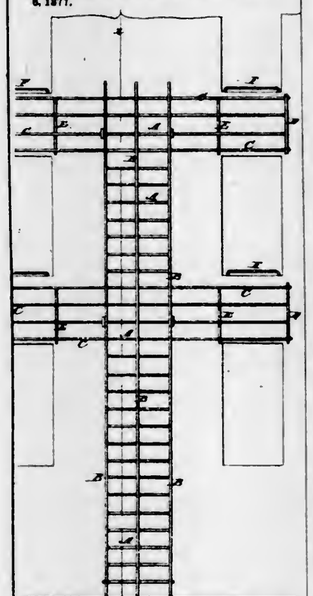
198,719. LAMP-BURNERS. Robert Wetherill, Philadelphia, Pa. Filed Nov. 13, 1877.



1. The combination, with a burner-stem, B, having an opening, C, for the escape of gas, of a valve or cover adapted to open automatically from the pressure of confined gas, and consisting of an elastic band, D, applied to said stem without fastening, as shown and described.

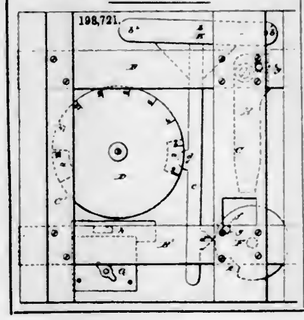
2. The elastic band or clamp D, having a rib or tongue, *d*, and forming a tight-fitting automatic gas-valve, attachable to a lamp without permanent fastening, as shown and set forth.

198,720. FIRE-ESCAPES. George L. Whaley, Bachelor, and John R. Hassler, Shamrock, Mo. Filed Oct. 6, 1877.



more side extensions, C D E, and the rounds F on the window-sills, substantially as and for the purpose specified.

198,721.



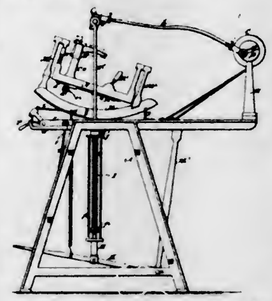
198,721. TIRE-LOCKS. Edward J. Woolley, Pamrapo, N. J. Filed Nov. 13, 1877.

1. In a burglar-proof safe-lock, the combination of a fluid time-lock, the weighted pivoted lever E, and the spindle of a safe-door, constructed and arranged to operate substantially as described.

2. In a burglar-proof safe-lock, the combination of a fluid time-lock, the weighted pivoted lever E, and a combination-lock arranged to lock the bolt mechanism, substantially as described.

3. In a burglar-proof safe-lock, the combination of the pendent latch H, pivoted to the safe-door, and a suitable stop or detent upon the bolt-work, substantially as and for the purposes described.

198,722. SHANK-BURNISHERS FOR BOOTS AND SHOES. Jas. Woodley, Quebec, Province of Quebec, Canada. Filed Nov. 10, 1877.



1. In combination with a reciprocating and rocking burnishing-tool, a last supported in a rocking frame M, substantially as herein set forth.

2. The combination of a rocking frame, a swinging frame suspended in the rocking frame, and a last supported on the swinging frame, substantially as and for the purposes herein set forth.

3. The combination of a reciprocating and rocking burnishing-tool, a last supported in a swinging frame, and a rocking frame in which the swinging frame is suspended, substantially as and for the purposes herein set forth.

4. The combination of the driving-shaft *a*, grooved disk D, adjustable stud *d*, sleeve *f*, with boss *e*, the journaled burnishing-tool G, with boss *e'*, adjustable connecting-rod A, and the rods E, all constructed substantially as and for the purposes set forth.

5. The combination, with the rods E, carrying the journaled burnishing-tool G, and connected by a cross-bar, E', of the rod I, socket H, treadle K, rods *p p*, collars J *t*, and spring *s*, all substantially as and for the purposes herein set forth.

6. The combination of the movable frame L, pivoted bar M', arms *r r*, guides *w w*, and pivoted rods *x x*, as and for the purposes specified.

7. The combination of the movable frame L, guides *y y*, rocking frame M, lever P, and rods *z*, all substantially as herein set forth.

8. The combination of the frame N, post O', last O, heel-piece O', with stem *a'*, inclined part *b'*, and the sliding wedge R, all substantially as and for the purposes herein set forth.

198,723. FRACTURE APPARATUS. Joseph T. Woods, Toledo, Ohio. Filed June 8, 1877.

Brief.—The limb is extended upon canvas secured at its sides to metal frames which are adjustable in all directions. An irrigating apparatus is adjustably clamped to the frame.

1. The frame-work consisting of the rods, uprights, and clamps, constructed substantially as described, so that the frame-work is adjustable laterally, perpendicularly, and horizontally, to adapt it to variable lengths of limb, and also reversible to the right and left, as desired.

2. The curved hooks, in combination with the rods of the frame-work, for the purpose of holding the hammock in place.

3. The compound clamp, consisting of a horizontal clamp, C, for the rods, and a perpendicular clamp, C', for the uprights, in combination with the rods A and B and uprights D of a fracture apparatus, substantially as and for the purposes herein set forth.

4. The combination of the clamp with bar and ears, supporting the screw-rod, the set-burr, and the coiled-wire spring, for the purposes set forth.

5. The combination of the cross-bar, slotted at both ends, the angular rod, foot-piece, and adjusting-clamps, for the purposes set forth.

6. The movable body-pad, with its adjustable joint, in combination with the clamp N and side rod of a fracture apparatus, as set forth.

7. The double attaching-clamp, with its rivet-hinge, catch, set-screw, and notches, in combination with the two parts of a divided side rod of a fracture apparatus, as set forth.

8. The adjustable irrigator, consisting of the upright, with clamp and adjustable hoop, in combination with a fracture apparatus, as set forth.

198,723.



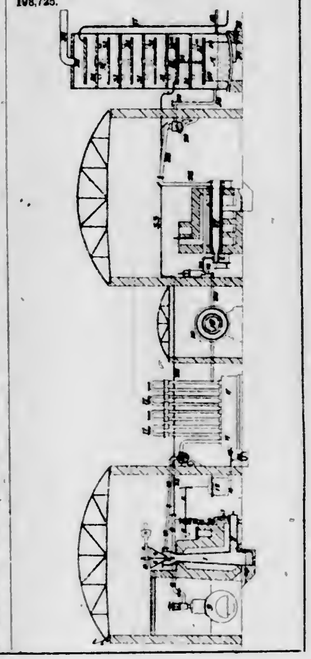
198,724. LABELS FOR CIGARS. Geo. W. Yerby, New York, N. Y., assignor to Theo. E. Allen, same place. Filed Dec. 6, 1877.



1. The combination of a metallic band, having a portion of its surface roughened, with a paper tag or label secured thereto, substantially as set forth.

2. The paper tag or label, having a slit cut through one end, and the other end provided with an adhesive substance, whereby it may be secured to the metallic band, substantially as specified.

198,725.

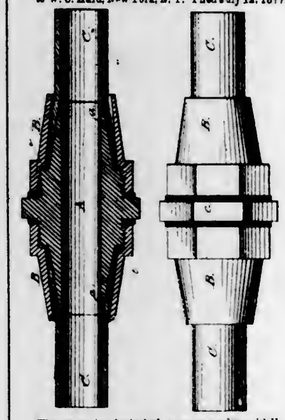


198,726. PROCESSES FOR MANUFACTURING ILLUMINATING-GAS. Henry Aitken, Falkirk, and William Young, Clippens, North Britain. Filed Sept. 2, 1876.

1. The process of manufacturing illuminating-gas by carbureting water-gases, in diffusing them in regulated quantities through independently-controlled or separate retorts, wherein hydrocarbon vapors are being evolved from bituminous substances, thus preventing the deposition of carbon in the retorts, or, if already deposited, utilizing it, substantially as described.

2. In the manufacture of illuminating-gas, the process herein described of diffusing or suspending in and through hydrogen, carbonic-oxide, or other gas or gases having a low illuminating power, the volatile hydrocarbons produced, and ordinarily left in the tars when coal, shale, hydrocarbon oils, resin, or other similar bituminous substances are destructively distilled for the production of illuminating-gas—that is to say, bringing the said hydrogen, carbonic-oxide, or other poor gases into contact with the tars while in a heated state and spread over large surfaces, or by mingling the said gases with bituminous gases, either in the bituminous retort as they are produced or afterward, and subjecting the mingled gases to fractional condensation or cooling, the condensed tars being kept in a heated state, substantially as hereinbefore shown and described.

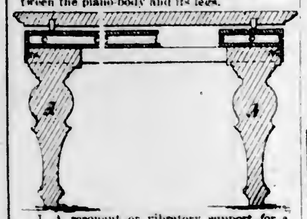
198,726. COUPLINGS FOR PIPES AND TUBES. Wm. H. Butler, Brooklyn, assignor of one-half his right to W. C. Hurd, New York, N. Y. Filed July 12, 1877.



The core A, threaded at or near its middle, and having a smooth tapering ends *a*, in combination with threaded and tapering nuts B, and the thimble *b* interposed between the two, substantially as and for the purpose set forth.

198,727. PIANO-SUPPORTS. James Fairman, New York, N. Y. Filed June 8, 1877.

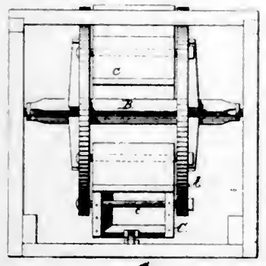
Brief.—Interposes a sounding-chamber between the piano-body and its legs.

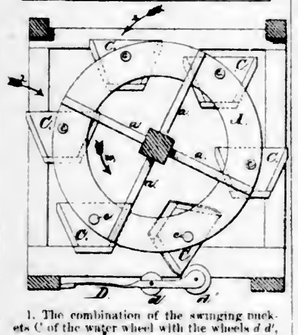


1. A resonant or vibratory support for a piano body, consisting of a resonant chamber or a series of resonant chambers mounted upon the piano-legs, the legs being connected with each other independently of the body of the piano, substantially as set forth.

2. As a support for a piano-body, a resonant or vibratory chamber or chambers mounted upon the upper ends of the legs, and points or small supporting-surfaces interposed between the piano-body and the resonant or insulating chamber or chambers, substantially as set forth.

198,728. WATER-WHEELS. Ira Gothard, Bainbridge, Ky. Filed May 19, 1877.





1. The combination of the swinging buckets C of the water wheel with the wheels *d d'*, arranged in the path of said buckets, substantially as described.

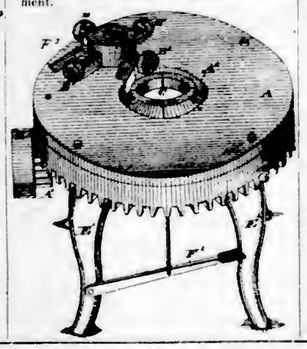
2. The combination of the swinging buckets C of a water-wheel with the spring-arm D.

3. The combination of the swinging buckets C of a water-wheel with the spring-arm D, provided with friction-wheels *d d'*, substantially as described.

4. The swinging buckets C of a water wheel, provided with protecting-plates *c'*, in combination with a tilting device, arranged to strike said plates as the wheel revolves, substantially as set forth.

198,729. MACHINES FOR JOINTING SECTIONS OF PIPE. Mark W. House, Cleveland, Ohio, assignor to Hogan Elbow Company, same place. Filed Oct. 29, 1877.

Brief.—Places pipe-sections vertically in central clamp, operated by a handled camring. Sets shanks of the coaxing and the finishing dies successively against abutment of table, and revolves table and its attached tool-holder around the stationary clamp and pipe-sections. By treadle temporarily withdraws downward the abutment to rotate the shanks of dies successively in front of abutment.



1. The revolving table A, carrying the rotating tool-holder B, substantially as and for the purpose specified.

2. The revolving table A and rotating tool-holder B, in combination with the clamp C, substantially as and for the purposes shown.

3. The revolving table A and abutment D, in combination with the arm or holder of a jointing-tool, substantially as and for the purpose shown.

4. The yielding abutment D, substantially as and for the purpose shown.

5. The yielding abutment D, in combination with the sliding bar F, substantially as and for the purposes specified.

6. In a machine for joining pipe-sections, the combination, with the yielding abutment, of mechanism for operating it, substantially as described.

7. The combination, with the central stationary clamp, of the table surrounding it, and provided with gear-teeth upon its periphery or lower surface, whereby it may be revolved by a suitable pinion, substantially as described.

8. The combination, with the central clamp and the surrounding table, of the revolving tool-holder and suitable dies or tools for making a pipe-joint, substantially as described.

9. The combination, with the revolving table A and tool-holder B, of the yielding abutment D and sliding bar F, substantially as and for the purpose shown.

10. In a machine for jointing sections of pipe, the combination, with the revolving table and the sectional clamp, of the tool-holder, adapted to carry one or more sets of dies or tools, substantially as described.

11. The combination, with the revolving table, of the central clamp, composed of concentric sections, substantially as described.

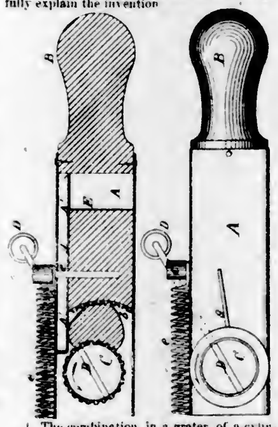
12. The combination, with the revolving table and the central clamp, made in two or more sections, of the eccentric-ring and suitable mechanism for operating the same, substantially as described.

13. The combination, with the revolving table and the central sectional clamp, of the eccentric-ring and the actuating-handle, substantially as described.

14. The combination, with the revolving table and tool holder, of the yielding abutment and mechanism, as described, for operating the same, substantially as described.

198,730. NUTMEG-GRATERS. J. E. Hughes, Saugus, Mass. Filed Oct. 16, 1877.

Brief.—A tongue projecting from the casing enters an irregular groove in the projected end of the cylinder, which latter has thus imparted to it an endwise reciprocating motion. Otherwise than this the claims and drawing fully explain the invention

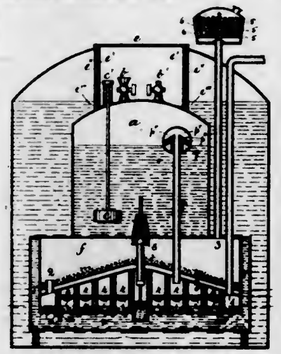


1. The combination, in a grater, of a cylinder having a grating surface upon the central portion of its periphery, and mounted and adapted to revolve in bearings outside of said grating surface, and a device for imparting to said cylinder a reciprocating motion, substantially as and for the purposes described.

2. In combination with a revolving grating-cylinder, the holder-tube A, arranged with its center line at one side of or eccentrically to the plane of the axis of the cylinder, substantially as and for the purposes described.

198,731. CARBURETERS. Henry W. Merritt, Somerville, assignor of one-half his right to W. B. Stearns and W. H. Ireland, Boston, Mass. Filed Dec. 8, 1877.

Brief.—The carbureter and oil-reservoir are enveloped in a water-jacket, and the carbureter and gas-chamber are immediately surrounded by a jacket containing glycerine. Oil is supplied to the carbureter automatically by a float-valve. A float surrounding the equalizing-pipe *p* prevents an overflow of oil from the reservoir to the carbureter. The carbureted air or gas is passed through a purifier containing oyster-shells and pebbles for condensing an excess of oil vapor.

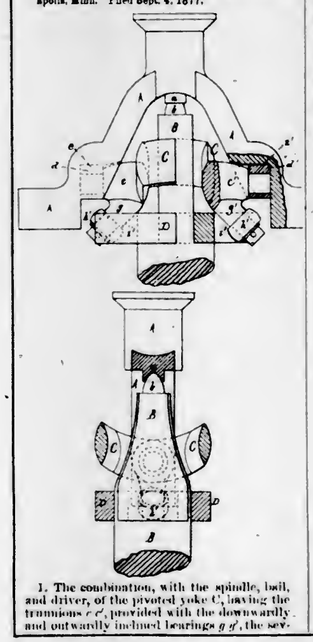


1. In a carbureter, the herein-described diaphragm *g*, with its perforations *h h h*, corrugated plate *l*, wool covering *m*, and perforated pans *i i i*, containing wool *k k*, or its equivalent, as and for the purpose set forth.

2. In a carbureter, the equalizing-tube *p*, with its perforated hollow hood *p' p'' p'''* and hollow float-valve, as and for the purpose set forth.

3. In a carbureter, the glycerine-chamber *r*, surrounding the gas-generator *f'* and gas-chamber *f*, as and for the purpose set forth.

198,732. MILLSTONE-BAILS. Alva H. Kirk, Minneapolis, Minn. Filed Sept. 4, 1877.

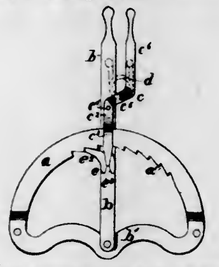


1. The combination, with the spindle, bail, and driver, of the pivoted yoke C, having the trunnions *c c'*, provided with the downwardly and outwardly inclined bearings *g g'*, the several parts constructed and relatively arranged to operate substantially in the manner specified.

2. The combination, with the spindle, bail, and driver, of the pivoted yoke C, having the trunnions *c c'*, provided with the downwardly and outwardly inclined bearings *g g'*, having the friction-rollers *k k'*, the several parts constructed and relatively arranged to operate substantially in the manner specified.

REISSUES.

8,006. WAGON-BRAKE LEVERS. John W. Anderson, South Bend, Ind. Patent No. 187,579, dated Feb. 20, 1877. Filed Aug. 26, 1877.



1. The actuating-lever *b*, in combination with the pawl-lever *c*, constructed as described, with a portion, *c'*, parallel to the lever *b*, a forward, side, and upward bend, *c²*, above its pivot, and a side and downward bend, *c³*, below said pivot, substantially as and for the purpose set forth.

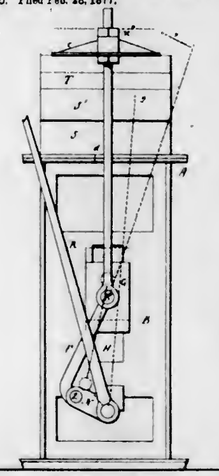
2. The lever *c*, bent in the manner described, in combination with the brake-lever *b* and the pawl *e*, pivoted to the latter, and connected to the lever *c* in such a manner that the vibration of said lever will turn the pawl on its pivot, substantially as and for the purpose set forth.

3. The brake-lever *b*, in combination with the segment *a* and the lever *c*, bent in the form described, and provided with the pin *c'*, substantially as and for the purpose described.

4. The brake-lever *b*, in combination with the lever *c*, provided with the pin *c'*, the pawl *e*, having a slot, *e'*, and the segment-rack *a*, substantially as and for the purpose set forth.

5. The brake-lever *b*, in combination with the lever *c*, provided with a parallel bearing, *c⁴*, above the segment-rack *a*, and the forward, sidewise, and upward bend *c²*, the pawl *e*, having a slot, *e'*, and the segment-rack *a*, substantially as and for the purposes set forth.

8,007. MOLDING-MACHINES. Thorvald F. Hammer, Branford, Conn. Patent No. 161,784, dated Apr. 6, 1875. Filed Feb. 28, 1877.



1. In a molding-machine, the upper platen, rigidly attached at each end to a vertical rod hinged below the flask, substantially as specified.

2. In a molding-machine, the upper platen, rigidly attached at each end to a vertical rod hinged below the flask, and made adjustable as to height, substantially as described.

3. In a molding-machine, the upper platen, attached at each end to a vertical rod hinged below the flask, and made adjustable as to height, substantially as described.

4. In a molding-machine, the upper platen, hung below and so as to be turned away from over the flask, combined with a stop to arrest the platen when turned to its proper relative position over the flask, substantially as described.

5. The combination of the stationary bed A, the platen C, hung by rods D to the shaft E, the spring F for turning said shaft, the rock-shaft I, connected to the shaft E, and the lever R, substantially as described.

6. In combination with the molding flask, the hoop *e*, fitting the inside of the flask, and so as to be forced down into the flask with the sand, substantially as set forth.

7. A sprue-plug consisting of the sleeve *u*, follower *w*, and spring *v*, combined with means to prevent the separation of the follower from the sleeve, constructed, as described, so as to be arranged in the flask before pressure is applied to the sand, and without connection with the platen, substantially as described.

8,008. LATCHES FOR DOORS. Francis D. Robinson, Boston, Mass., assignor to Albert M. Robinson, same place. Patent No. 161,706, dated Apr. 6, 1875. Filed Aug. 22, 1876.



1. The combination, with a latch-bolt, of a pivoted operating-lever, the outer end of which, in forcing back the bolt, moves in the arc of a circle more rapidly than the bolt in receding, and which is provided with a striking-face projecting at an abrupt angle from the face-plate, substantially as described.

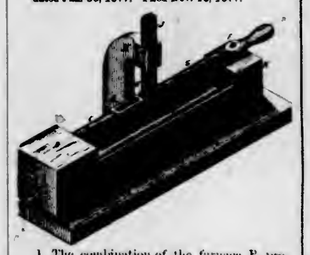
2. The combination, by means of a pin-and-slot connection, of the sliding spring latch-bolt and operating-lever, pivoted as described, whereby the said lever is made to vibrate backward when the latch-bolt is retracted by the turning of the knob-spindle, substantially as specified.

3. The combination, with a latch-bolt, of an operating lever having a striking-face which is parallel with the holding-face of the latch-bolt, substantially as described.

4. The operating-lever, in combination with a latch-bolt having an angular edge against which the operating-lever abuts, substantially as described.

5. The combination, with a latch-bolt which is limited to a longitudinal movement, of a bell crank lever which is operatively connected with the bolt and case by a single pivot, substantially as described.

8,009. MACHINES FOR WELDING METAL TUBES. S. P. M. Tasker, Philadelphia, Pa. Patent No. 186,768, dated Jan. 30, 1877. Filed Nov. 16, 1877.



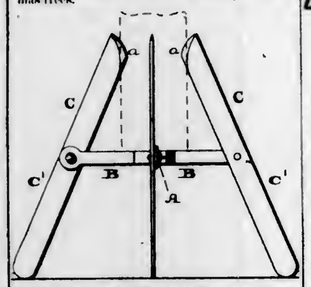
1. The combination of the furnace B, provided with a laterally projecting heat-conducting pipe, C, adapted to enter the tube, and having a discharge-opening, *d*, through any part of its circumference or through its end, to heat the interior of the tube, with a shaft, G, carrying an anvil, E, and likewise adapted to enter the tube, substantially as described.

2. The combination, with a furnace, B, provided, as described, with a laterally-extending heat-conducting pipe, C, of a laterally-projecting pivoted bar, G, carrying an anvil, E, and of a welding mechanism, K J, all substantially as described.

3. The combination, with a furnace, B, provided with a heat-conducting pipe, C, an anvil, G E, and a welding mechanism, K J, all organized and arranged as set forth, of a concave bed, I, of any desired height and radius, arranged in relation thereto, substantially as and for the purpose set forth.

8,010. **SUPPORTS FOR UPRIGHT STANDARDS.** James Warner, Philadelphia, Pa. Patent No. 175,844, dated Apr. 11, 1876. Filed Nov. 19, 1877.

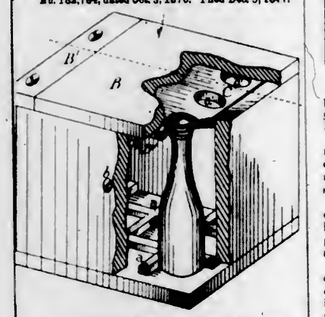
Brief.—Specially adapted to support Christmas trees.



1. A holder for Christmas-trees, &c., consisting of a central support, in combination with arms pivoted thereto, which project into the space above the support, and automatically gripe the tree when fitted to the holder, substantially as and for the purpose set forth.

2. A holder for Christmas-trees, &c., consisting of a central support, in combination with arms pivoted thereto, which project into the space above the support, automatically gripe the tree when fitted to the holder, and extend below to form legs, which separate or spread, substantially as and for the purpose set forth.

8,011. **CASES FOR TRANSPORTING BOTTLES AND BOTTLED LIQUIDS.** Geo. Wilson, Toledo, Ohio. Patent No. 182,784, dated Oct. 3, 1876. Filed Dec. 5, 1877.

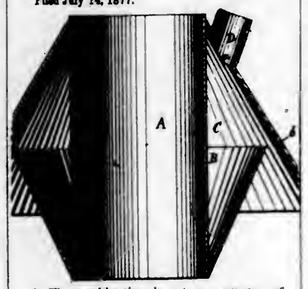


1. In shipping-cases of special construction, that are designed to be repeatedly used, the elongated part *c'* of the board affixed to the under side of cover, and the strip B', permanently attached to the case, whereby the cover is secured at the back edge, as shown and described, and for the purpose specified.

2. The cover-fastener consisting of an eye or staple, *c*, pendent from the cover on the inner side of case, and hook D', mounted on a spindle, D, having a slotted head, *d*, countersunk on the outer side of case, substantially as described.

3. In a box or case having sockets or receptacles in the bottom, for the bottoms of the bottles, the perforated follower C, when adapted to be dropped upon the necks of bottles contained in the case, to secure them in position by nailing or otherwise holding it down, substantially as described.

8,012. **TREE-PROTECTORS.** David P. Mathews, Winthrop, Mass., assignor, by mesne assignments, to E. C. Bates. Patent No. 57,937, dated Sept. 11, 1866. Filed July 14, 1877.



1. The combination, in a tree-protector, of the cylinder A and the inverted hollow conical frustum B, made of sheet metal, and united at its smaller end to the cylinder A by means of solder, substantially as and for the purposes described.

2. The combination, in a tree-protector, of the cylinder A and the two hollow conical frusta B and C, all made of sheet metal, and arranged and applied with respect to each, and secured together by solder, substantially as and for the purposes described.

3. The combination, in a tree-protector, of the cylinder A, two hollow conical frusta, B and C, and the tube D, all made of sheet metal, and arranged and applied relatively to each other substantially as and for the purposes described.

8,013. **FARE-REGISTERS.** William H. Hornum, New York, N. Y., assignor, by mesne assignments, to the Hornum Patent Register Manufacturing Company. Patent No. 166,832, dated July 20, 1875; Reissue No. 6,948, dated Feb. 22, 1876; Reissue No. 7,556, dated Mar. 13, 1877. Filed Nov. 30, 1877.



1. The combination of a switch, E, with a prime mover, D, and with two or more levers, *g g' g''*, and corresponding registering devices, B B' B'', substantially as shown and described.

2. The combination of a switch, E, prime mover D, the registering devices B B' B'', (one or more,) and a bell and hammer or other alarm, substantially as and for the purpose set forth.

3. The combination, in a passenger register, of the switch E, the prime mover D, the registering devices B B' B'', (one or more,) and a general registering device, J K, substantially as and for the purpose described.

4. The combination, in a passenger register, of the set of indicator-wheels B, adjustable for each day or trip, the inaccessible general register-I K, and the prime mover, for operating the two sets of registers simultaneously but independently through connections, substantially as herein shown and described.

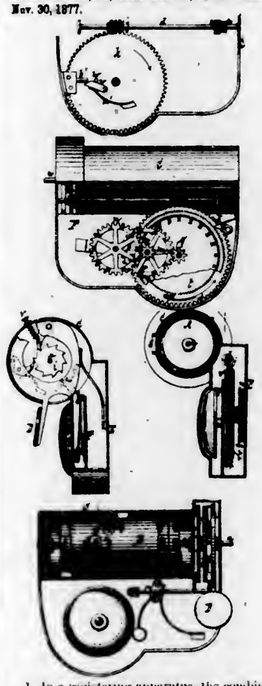
5. The combination, in a passenger register, of a general registering device and a single trip-registering device, with a shaft secured in a head which fits the end of the case inclosing the single trip-registering device, so that by removing said head the single trip-registering device can be withdrawn and another substituted for it without disturbing the general register, substantially as set forth.

6. The combination, in a passenger register or indicator, of a general register, a single-trip register, adapted to be set back to zero at will, actuating mechanism common to all, and a pawl and ratchet, to prevent the forward movement of the single-trip register independently of the actuating mechanism, substantially as and for the purpose described.

7. The combination, with the single-trip register, and with a mechanism which prevents its forward movement independently of the actuating mechanism, of a zero-guard, substantially as and for the purpose set forth.

8. The combination, in a passenger-register, of a general register, a single-trip register, adapted to be set back to zero at will, actuating mechanism common to both, a mechanism to prevent the forward movement of the single-trip register independently of the actuating mechanism, and a zero-guard, substantially as described.

8,014. **FARE-REGISTERS.** William H. Hornum, New York, N. Y., assignor, by mesne assignments, to the Hornum Patent Register Manufacturing Company. Patent No. 171,133, dated Dec. 14, 1875. Filed Nov. 30, 1877.



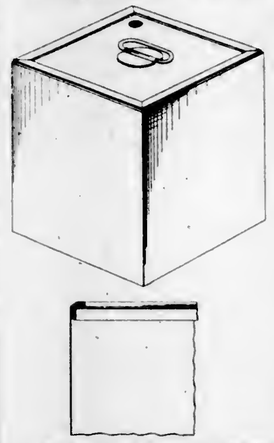
1. In a registering apparatus, the combination of two cylinders, one working inside the other, and geared together to move at different velocities in a case, C, having a slot, *s*, the inner cylinder A being divided off in a series of spaces containing figures from 0 to 9, arranged on a spiral line alongside of apertures *g*, all constructed and operating substantially as shown and described.

2. The combination, in a registering apparatus, of two cylinders, A B, one working inside the other, with the supplemental or general mechanism composed of a worm, *j*, and wheels *k m n*, substantially as set forth.

3. The combination, in a fare-register, of a general register, a single-trip register, a ratchet-wheel and pawl, which transmit motion to the general register every time when the single trip register is moved forward, but not when the same is moved back, and a yielding zero-stop, whereby both registering mechanisms can be moved forward without obstruction, but when the single-trip register is moved backward its motion is arrested at zero, while during said backward motion the general register remains stationary, substantially as set forth.

4. The combination, in a fare-register, of a general register, a single-trip register, actuating mechanism common to both, and a yielding zero-stop, the single-trip register being adapted to be moved back independent of the actuating mechanism and of the general register, substantially as and for the purpose shown and described.

8,015. **METALLIC CANS OR VESSELS.** Charles P. Maxfield, Fairhaven, assignor to Edward T. Covell, New Bedford, Mass. Patent No. 196,758, dated Nov. 6, 1877. Filed Dec. 17, 1877.



1. The formation of a can-seam by forming on the head or end an inwardly-folded or interior double flange, with an extension projecting above the outer surface of said head or end, which projection, being bent outwardly over the edge of the can, is bent down inwardly upon the head at right angles to the sides of the body of the can, as herein shown and described.

2. The union of the body of a can with the heads or ends thereof by means of a seam, consisting of the combination with an internal flange formed at right angles to the body of the can, of a twofold double lap-joint on the head, the one lying internally against the side or body, the other externally against the respective heads of the can, the latter holding confined the flange on the body, substantially as shown and set forth.

3. The angular interior and exterior double flange formed on the heads or ends of a metallic can or vessel, forming a union with the can-body, in the manner and for the purposes herein specified.

8,016. **AUGERS-AUGERS.** Charles D. Pierce, Philadelphia, Pa. Patent No. 141,664, dated Aug. 12, 1873. Filed Dec. 8, 1876.

1. The auger-pods A A, inclining crosswise and in opposite directions to each other, in combination with the arms B B, substantially as and for the purposes shown and described.

2. The auger-pods A A, each having its vertical edges turned inward, to present a partially elliptical or oblong form in its cross-section, substantially as shown and described, to aid in ventilating the bore and to pack and retain the dirt, as set forth.

3. The auger-cutter A, term mating in an inclined cutter, C, which extends its outside and upper corner *f* outwardly beyond every other portion of the complete auger, as and for the purposes set forth.

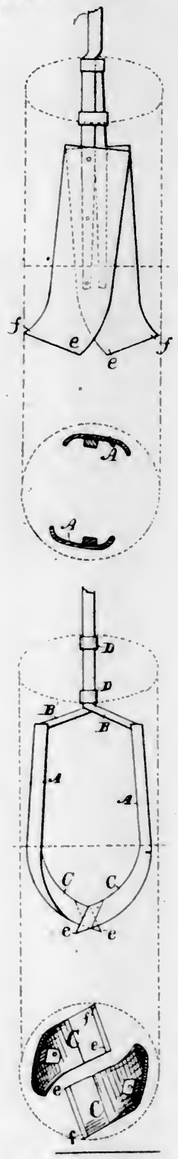
4. The independent half-augers A C, having no connection at their lower ends, and their inclined cutters passing the central line of the bore in opposite directions with the inners corners *e* in advance of their outer corners *f*, as and for the purposes set forth.

5. The independent half-augers A C, having their outer corners *f* higher than their inner corners *e*, as and for the purposes set forth.

6. The cutters C C, each having an upward inclination from its inner corner *e* to its outer corner *f*, and also an upward inclination from the cutting front, edge *e f* rearward, thereby forming spiral twists relative to the vertical center of the complete auger and its bore, substantially as and for the purposes shown and described.

7. The two independent cutters C C, standing crosswise and in twisted positions relative to each other, and each cutter extended beyond the central line of the bore, in combination with the arms B B and a central rotating shaft, to bring the cutting-edges *e f* into twisted positions relative to each other, substantially as and for the purposes shown and described.

8,016.



8,017. **CAR-WHEELS.** John K. Sax and George W. Kear, Pittston, Pa. Patent No. 88,743, dated Apr. 6, 1869; Reissue No. 3,954, dated May 3, 1870. Filed Nov. 22, 1877.

1. A wheel in which the body is of cast-iron and the tread of cast-steel, embedded in and welded to the cast-iron body, as set forth.

2. A wheel having a cast-iron body welded to a rolled or hammered cast-steel band, tire, re-enforce, or tread, substantially in the manner and for the purpose set forth.

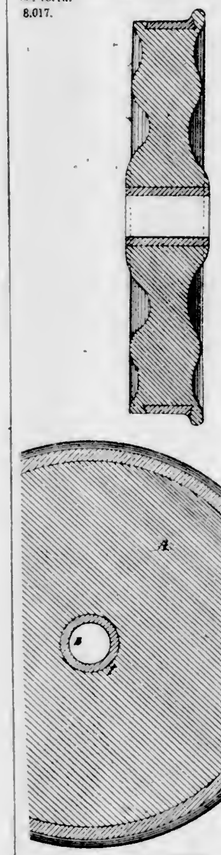
3. A wheel having a body and part of the periphery of cast-iron, and the wearing portion or tread of cast-steel, fused to the iron, as set forth.

4. A wheel having part of the periphery of cast-iron, and the wearing part or tread of cast-steel, fused to a cast-iron body, and extending to and forming the wearing portion of the flange, as specified.

5. A wheel having the body and part of the periphery of cast-iron, and the wearing portion or tread of cast-steel, a part of which is overlapped by the cast-iron portion, the steel and iron being fused or welded together, substantially as and for the purpose set forth.

6. A car-wheel having a cast-metal body and hub, and a sleeve of softer metal inserted in the axle-opening and welded to the body, as set forth.

8,017.



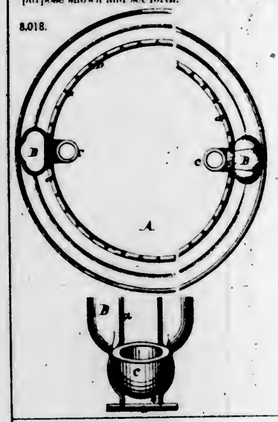
8,018. **FOUNTAIN-CUPS FOR ANIMAL-CAGES.** Otto Lindemann, Edgewater, N. Y. Patent No. 196,684, dated Oct. 30, 1877. Filed Dec. 12, 1877.

1. A fountain-cup for bird-cage, the body of said cup being closed at the top and provided at its bottom with a discharge-opening, *g*, and with a curved spout, *c*, which communicates with said discharge-opening, and the mouth of which is on a level, or nearly so, with the upper edge of the discharge opening, all made together as an integral, and provided with means whereby it can be connected with the body of the cage, substantially as shown and described.

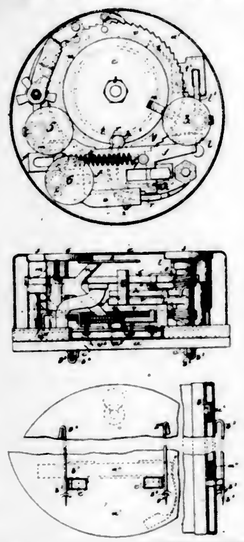
2. A fountain cup for bird cage, the body of said cup being closed at the top and provided at its bottom with a discharge-opening, *g*, which leads into a spout, *e*, the bottom line of the cup and of the inner portion of the spout forming an incline, *h h'*, all being made in one piece, and provided with means for connecting it with the body of the cage, substantially as and for the purpose set forth.

3. The combination, with a bird-cage, of the removable fountain-cup B, having the spout *e* arranged to pass between two adjacent wires of the cage, and the lug *d*, adapted to engage with said wires, substantially as and for the purpose shown and set forth.

8,018.



8,019. FARE-REGISTERS. William Daniels, New York, N. Y., assignor to Hamilton E. Towle. Patent No. 150,539, dated May 5, 1874. Filed Aug. 23, 1876.



1. The combination of push-buttons having inclined arms actuating the registering mechanism, and operating the slide controlling the hammers, to denote different sounds upon the bell, with the hammers, a bell, and a slide, substantially as set forth.

2. A push-button provided with the inclined arms, which move therewith, in combination with the main hammer, bell, and registering mechanism, substantially as described, for the purpose specified.

3. The push-button made with a tube sliding on a hollow stud, and provided with a spring and two inclined arms, one to actuate the hammer, and the other to move the computing wheels or mechanism, as set forth.

4. The spring 10 upon the push-button 3, to pass upon the bell when said push-button is moved, for the purposes specified.

5. A movable back connected to the plate *a* of the instrument, and secured in place by a lock, and serving to cover the opening through which the computing disks are examined, as set forth.

6. The pins b^2 and hooks b^3, for attaching the back a' to the garment, in combination with the projections c' on the plate *a*, and the mechanism for locking the back a' to the plate *a*, substantially as set forth.

7. The combination, in a single case, of two or more counting-registers, an alarm-bell, and a single intermediate striking mechanism, consisting of a slide-bar, operated by either of the several push-knobs, substantially as hereinbefore set forth.

8. In an alarm-register, the bell and striking mechanism, in combination with suitable means for modifying the sound of the bell, substantially as described.

9. In fare-registering machines, a tubular push-knob, in combination with the inclosed spring, substantially as set forth.

10. The combination of two or more push-knobs, actuating the registering mechanism, corresponding to two or more different rates of fare, with an actuating-slide, driving a bell-hammer by means of an intermediate pin or tooth, and a spring to return the slide to its normal position, substantially as set forth.

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